

Chapter 6

Performance Measures

Transportation legislation developed by Congress provides a vision and direction for all transportation agencies. In July 2012, President Obama signed MAP-21 that established transportation systems move toward a performance- and outcome-based program. The objective of the performance and outcome-based program is for the investment of resources in projects that collectively make progress toward the achievement of nationally set goals. The emphasis continues in the FAST Act. As part of the bill, national performance goals were created for roads, highways, and public transportation.

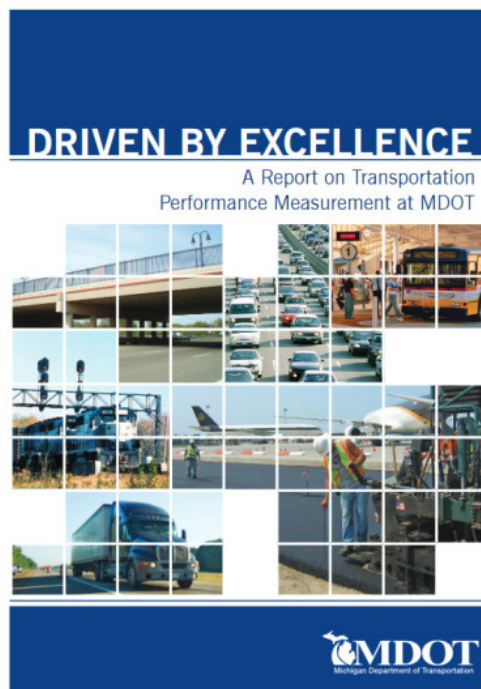
Program Overview

Roads & Highways National Performance Goals

The performance measures were created around monitoring the federal aid highway program. They are designed to be national goals to help monitor the success of the transportation system and help drive investment. Below is a brief summary of the seven national goals included in MAP-21.

1. **Safety** - To achieve a significant reduction in traffic fatalities and serious injuries on all public roads
2. **Infrastructure Condition** - To maintain the highway infrastructure asset system in a state of good repair
3. **Congestion Reduction** - To achieve a significant reduction in congestion on the National Highway System
4. **System Reliability** - To improve the efficiency of the surface transportation system
5. **Freight Movement** - To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development
6. **Environmental Sustainability** - To enhance the performance of the transportation system while protecting and enhancing the natural environment
7. **Reduced project delivery delay** - To reduce project costs, promote jobs and the economy,

Figure 6-1
A Report on
Transportation Performance
Measures at MDOT



and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies/work practices.

Public Transportation National Performance Goals

MAP-21 also mandated the Federal Transit Administration (FTA) to develop a rule establishing a strategic and systematic process of operating, maintaining, and improving public capital assets effectively through their entire life cycle. The Transit Asset Management Final Rule became effective October 1, 2016 and established four performance measures. The performance management requirements are a minimum standard for transit operators. Providers with more data and sophisticated analysis expertise are allowed to add performance measures. Below are the asset categories that are the focus of the transit asset management performance measures:

1. Rolling Stock - means a revenue vehicle used in providing public transportation, including vehicles used for carrying passengers on fare-free services.
2. Equipment - means an article of nonexpendable, tangible property has a useful life of at least one year.
3. Facilities - means a building or structure that is used in providing public transportation
4. Infrastructure - means the underlying framework or structures that support a public transportation system.

**Figure 6-2
JATA Bus**



In addition to transit asset management goals and performance measures, FTA is also expected to identify performance measures for safety and safety planning that transit agencies must address.

National Goals Implementation Schedule

The timeline for implementation of the national performance measures is determined when a final rule establishing the date for the rule is effective. The table outlines the effective date of the final rule and when States and MPOs must take action.

Table 6-1 National Goals & Implementation Schedule

Final Rule	Effective Date	States Targets Dates	MPOs Targets Dates	MTP and TIP Inclusion
Safety Performance Measures	April 14, 2016	August 31, 2017	Up to 180 days after the states set targets, but not later than Feb. 27, 2018	Updates or amendments on or after May 28, 2018
Pavement/Bridge Performance Measures	May 20, 2017	May 20, 2018	No later than 180 days after the State(s) sets target November 16, 2018	Updates or amendments on or after May 20, 2019
Reliability & Freight Performance Measures	May 20, 2017	May 20, 2018	November 16, 2018	Updates or amendments on or after May 20, 2019
Statewide non-metropolitan and metropolitan planning	May 27, 2016	There are no measures associated with the planning rule.		
Asset Management Plan	October 2, 2017	By April 30, 2018 State DOTs submit initial plans describing asset management plan processes. By June 30, 2019 State DOTs submit fully compliant asset management plan.		
Transit Asset Management Plan	October 1, 2016	January 1, 2017	Optional reporting year for 2017 and mandatory for 2018. State will set targets for rural transit providers and urban providers will set own targets.	
Transit Safety Plan	Currently no regulation has been adopted to enact this rule.			

Target Overview

Within one year of the USDOT final rule on performance measures, states are required to set performance targets in support of those measures. To ensure consistency, each state must to the maximum extent practicable:

- Coordinate with an MPO when setting performance targets for the area represented by that MPO
- Coordinate with public transportation providers when setting performance targets in an urbanized area not represented by an MPO

Target Coordination with MDOT

Performance target coordination between MPOs and MDOT began in January 2017. As Michigan MPOs, MDOT, and FHWA staff met monthly as part of the Michigan Transportation Planning Association (MTPA), it was convenient to follow scheduled MTPA meetings with a Target Coordination Meeting led by MDOT. The Target Coordination Meetings give MDOT and FHWA the opportunity to provide updates on performance measures and target setting to the MPOs. The meetings also give the MPOs an opportunity to ask questions and provide feedback on the methods used to set performance targets. MTPA members have been meeting with various MDOT agencies in the development of language and timelines to implement the targets. This MDOT Transportation Performance Measures Metro Planning Team has met monthly to ensure the timely delivery of these targets for MPOs to incorporate into their local planning documents. MPOs have also been coordinating with MDOT to develop a process for reporting MPO performance targets and the recommended action to be taken by MPO Policy Committees on setting performance targets.

Performance Reporting Requirements

MDOT is required to report to FHWA on the establishment of state performance targets and the progress made in attaining the state targets on a biennial basis. The reports are due October 1 of each even numbered year.

Federal regulations require the use of four-year performance periods over which progress toward attaining targets is tracked and reported. The first performance period runs from January through December 2022 for all performance measures. The exception to the four-year performance period is for the safety performance measures, which are required to be established and reported by MDOT to FHWA through the Highway Safety Improvement Program Annual Report by August 31 of each year.

MPOs are not required to provide annual reports other than MPO decisions on targets. MPOs are required to report MPO performance targets to MDOT in accordance with the documented procedures for MPO reporting targets. This will result in MPOs reporting MPO safety targets annually to MDOT, and other performance targets as they are established.

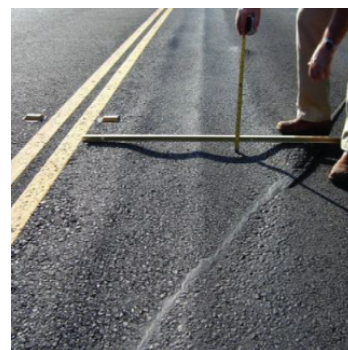
Road & Highway Future Targets

There are additional performance measures that do not have published targets as of the adoption of this plan. The dates of inclusion can be found below. As the targets are set and published by MDOT, the MPOs will take action either through adoption of the state targets or development of MPO specific targets. The following are the performance measures that do not currently have set targets to date.

1. Interstate & National Highway System Pavements

Current coordination efforts include evaluation of the pavement condition on the

Figure 6-3
Pavement Rutting



interstate and non-interstate National Highway System (NHS). The evaluation of the pavement will be evaluated by four metrics:

- International Roughness Index (IRI)
- Cracking Percent
- Rutting
- Faulting

The rule designates that MDOT is required to establish two and four year targets for pavement condition on the NHS. There are two sets of targets, one for the Interstate System, and the other for the Non-Interstate NHS. The first performance period takes place from January 1, 2018 to December 31, 2022, with MDOT targets due on May 20, 2018. MDOT is required to submit biennial progress reports to FHWA. There are four performance measures for assessing pavement condition based on composite analysis of the metrics. MDOT has provided the following information on performance measure baselines and targets:

Table 6-2 Pavement Condition Performance Measures

Pavement Condition Metric	Statewide Baseline	State Target
% of Interstate pavement of Good Condition	46%	To be determined
% of Interstate pavement in Poor Condition	9%	To be determined
% of Non-Interstate NHS pavement in Good Condition	49%	To be determined
% of Non-Interstate NHS pavement in Poor Condition	19%	To be determined

2. NHS Bridges

Current coordination efforts include evaluation of the condition of the substructure, superstructure, deck, and culverts for bridges on the NHS system. The evaluation of the bridges will use the National Bridge Inspection Standards (NBIS). Each substructure, superstructure, deck, and culvert are rated on a 0-9 scale and recorded in the National Bridge Inventory (NBI) database. The NBI Condition ratings are broken up into three categories below:

- Good Condition: Rating of 7-9
- Fair Condition: Rating of 5-6
- Poor Condition: Rating of 0-4
 - Serious or Critical Condition: Rating of 2-3
 - Imminent Failure/Failed Condition: Rating of 0-1

**Figure 6-4
Cooper Street Bridge on I-94**



The rule designates that MDOT is required to establish two and four year targets for bridge condition on the NHS. MDOT targets were due on May 20, 2018. MDOT is required to submit three performance reports to FHWA within the four year performance period. There are two performance measures for assessing bridge condition:

- % of NHS bridges in Good Condition
- % of NHS bridges in Poor Condition

The minimum penalty threshold requires that no more than 10% of NHS bridges measured by deck area be classified as structurally deficient.

Table 6-3 NHS Bridge Condition Performance Measures

NHS Bridge Condition	Statewide Baseline			State Target		
	Good	Fair	Poor	Good	Fair	Poor
% by deck area	33%	57%	10%	TDB	TDB	TDB
% by count	31%	63%	6%	TDB	TDB	TDB

As of the adoption of this plan, MDOT was still working on the development of this target.

3. Interstate & NHS Reliability

In 2015, MDOT formed the Statewide Congestion Management Group (SCMG) to coordinate efforts between the Department and MPO's that address federal system performance measures. Since that time, this group has produced a congestion analysis white paper, reviewed and commented on draft performance measures, provided comment on a RFP for vehicle probe data, and discussed best practices and issues with measuring congestion.

By May 2018, MDOT will submit statewide targets for the federal system performance measures. MPO's will have six months to either support the statewide targets or develop their own. MDOT is working with the MPO's to discuss the process and methods for setting the targets, and the RITIS and INRIX platforms that can help agencies set their own targets if they desire. The performance measures for assessing interstate and NHS reliability is as follows. MDOT has provided the following information on performance measure baselines and targets:

Table 6-4 Interstate & NHS Reliability Performance Measures

Reliability Metrics	Statewide Baseline	State Target
% of person-miles traveled on interstate that are reliable	84%	75%
% of person-miles traveled on non-interstate NHS that are reliable	80%	70%

As of the adoption of this plan, MDOT was still working on the development of this target.

4. Freight Movement on the Interstate

Freight movement will be assessed by a Truck Travel Time Reliability (TTTR) Index by analyzing freight travel over several time periods. The measure comes from the recognition that the industry's use of the transportation system during all times of day. MDOT and the Jackson MPO will have the choice of using FHWA's National Performance Management Research Data Set or an equivalent data set. MDOT has provided the following information on performance measure baselines and targets:

Table 6-5 Freight Movement Performance Measures

Freight Movement Metric	Statewide Baseline	State Target
Truck Travel Time Reliability Index - Interstate	1.36	1.75

MDOT must establish 2- and 4- year targets by May 20, 2018. The targets will be reported in the State's baseline performance period report due by October 1, 2018. MDOT will have the option to adjust the 4-year target in their mid performance period progress report, due October 1, 2020. As of the adoption of this plan, MDOT was still working on the development of this target.

Infrastructure Alignment

The transition to performance-based planning is underway at the Jackson MPO and will continue as the federally-required performance measures continue to be identified, understood, and move toward maturity. At the time of the plan's adoption, there remain several performance measures that have yet to be finalized by MDOT. The only performance measures that MPOs have been required to address are the transit asset management measures and the five highway-related safety measures. MPOs will be working through the remaining performance measures throughout the rest of this year.

MDOT is working with the Jackson MPO to better understand the expectations of the federally-required measures. For planning agencies to maximize the benefits of performance-based planning, good data is needed on the current and desired transportation system. The data is important to set strategic directions, analyze how funds are invested and programmed, and evaluate program outcomes. For many performance measures there is not a lot of good information to base decisions on. The lack of data makes it difficult to determine how projects or a program of projects will impact future performance.

As planning agencies around the country gain experience in working with the federally-required measures, tools will likely be developed to help agencies understand the impact that investments will have on outcomes. This will allow for the consideration of the tradeoffs in pursuing or focusing on one measure over another to produce results that are important to the stakeholders in the Jackson MPO.

A list of the FY 2017 – 2020 TIP projects and the performance areas that they align with is found in the appendix. Information in the project description, primary work type and other narrative associated with the project in the TIP were used to determine if a

project aligns with the performance areas. The Region 2 Planning Commission staff assessed the local (City of Jackson and Jackson County) projects, MDOT assessed MDOT projects, and the JATA assessed the transit agency projects. The performance areas for which targets have been considered by the Jackson MPO appear in the uncolored columns – safety, transit safety, and transit asset management. The performance areas that have not yet been considered – pavement, bridge, and reliability – are in gray.

A major project initiative currently underway by MDOT is the I-94 modernization project. This long-term project will significantly impact the Jackson MPO performance-based planning measures. The currently programmed work found in the FY 2017 – 2020 TIP includes: reconstructing 1.4 miles of freeway between Lansing Avenue and Elm Road, resurfacing 3.5 miles of freeway between Lansing Avenue and M-60, redesigning and rebuilding of the I-94/Cooper St interchange, including the addition of new roundabouts and reconstructing the Cooper St bridge and ramps, and replacing the bridge over the Grand River.

The I-94 project work will positively impact several of the national targets, including Safety, Pavement/Bridge, and System Performance Measures. The planned work along the nine-mile corridor will include the addition of a “merge-weave” lane, widened median and shoulders, reconstructed interchange ramps and bridges adhering to modernized standards. These planned improvements will serve to increase the safety of the corridor for both passenger vehicles as well as freight traffic. These improvements will positively contribute towards improving the Safety Performance Targets. The nearly five miles of newly reconstructed or resurfaced pavement will contribute to both the Jackson MPO and Statewide Interstate and National Highway System Pavement Targets. The programmed replacement of the Cooper Street and Grand River bridge, as well as planned future bridge replacements will also contribute NHS Bridges Target. Lastly, the planned “merge-weave” lane, widened median and shoulders, reconstructed interchange ramps and bridges should also positively impact the Interstate and NHS reliability and Freight movement on the Interstate Targets.

Figure 6-5
I-94/Cooper Street Interchange Improvements

