

2045 Long Range Plan

PERFORMANCE BASED PLANNING

A key feature of the FAST-Act of December, 2015 is the establishment of a performance and outcome based planning program for State DOTs and MPOs, originally introduced through the Moving Ahead for Progress in the 21st Century (MAP-21) Act. The objective of a performance based program is for states and MPOs to invest resources in projects that collectively will make progress toward the achievement of nationally set goals. 23 CFR 490 outlines the national performance goals for the federal-aid highway program required to be established in six (6) areas: safety, infrastructure condition, congestion reduction, system reliability, freight movement, and environmental sustainability.

Within one year of the U.S. Department of Transportation final rules on performance measures, states are required to set performance targets in support of these measures. Within 180 days of the state setting targets, MPOs are then required to choose to support the statewide targets, or optionally set their own targets. To ensure consistency, each MPO must, to the maximum extent practicable, coordinate with the relevant State and public transportation providers when setting performance targets. Any new TIP document or amendment must comply with performance reporting requirements beginning on May 27, 2018.

PERFORMANCE MEASURES

The regulations required the U.S. Department of Transportation/Federal Highway Administration to establish final rules on performance measures to address the seven areas in the legislation, resulting in the following areas being identified as measures for the system:

- Pavement condition on the Interstate system and on the remainder of the National Highway System (NHS)
- Performance (system reliability) of the Interstate system and the remainder of the NHS
- Bridge condition on the NHS
- Fatalities and serious injuries, both number and rate per vehicle mile traveled, on all public roads, as well as bicycle and pedestrian fatalities and serious injuries
- Traffic congestion
- On-road mobile source emissions
- Freight movement on the Interstate system

In addition, the Federal Transit Administration (FTA) was charged with developing a rule establishing a strategic and systematic process of operating, maintaining, and improving public capital assets effectively through their life cycle. The Transit Asset Management Final Rule 49 CFR part 625 became effective October 1, 2016 and established four performance measures. The performance management requirements outlined in 49 CFR 625 Part D are a minimum standard for transit operators and involve measuring and monitoring the following:

- Rolling stock - vehicles used for providing public transportation, revenue and non-revenue
- Equipment - articles on non-expendable, tangible property with a useful life of at least one year
- Facilities - building or structure used in providing public transportation
- Infrastructure - means the underlying framework or structures that support a public transportation system

A Transit Asset Management (TAM) Plan was required to be in place for transit operators by October 1, 2018, two years after the effective date of the regulations.

The time-line for implementation of the national performance measures is determined upon when the final rule was published for each measure, which then established an effective date for that measure.

Chart of Performance Measures and Target Adoption Status

Table 7.1 is a summary of the performance measure areas and the current or anticipated implementation status.

Table 7.1- Performance Measure Areas of emphasis

| Performance Measure | Performance Targets |
|--|---|
| Safety Performance | <ul style="list-style-type: none"> • Number of Fatalities • Rate of Fatalities • Number of serious injuries • Number of non-motorized fatalities and non-motorized serious injuries |
| Pavement and Bridge Condition | <ul style="list-style-type: none"> • Percent NHS Bridges in good and poor condition • Percent Interstate pavement in good and poor condition • Percent Non-Interstate NHS pavement in good and poor condition • Rate of serious injuries |
| System Performance and Freight Reliability | <ul style="list-style-type: none"> • Percent of person-miles traveled on the Interstate that are reliable. • Percent of person-miles traveled on the non-interstate NHS that are reliable. • Truck travel-time reliability. |
| Congestion Mitigation and Air Quality | <ul style="list-style-type: none"> • Peak hour excessive delay per capita • Percent of non-single occupancy vehicle travel • Total emissions reduction |
| Public Transportation | <ul style="list-style-type: none"> • Transit Asset Management (TAM) Plans (rolling stock, equipment, facilities, infrastructure) • State of Good Repair measures are identified by individual transit providers as part of TAM Plan • Public Transportation Agency Safety Plan (Fatalities, Injuries, Safety events, System reliability) |

PERFORMANCE TARGETS

State Targets

Within one year of the U.S. DOT final rule on performance measures, states are required to set performance targets in support of those measures. States may set different performance targets for urbanized and rural areas. 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; and
- Coordinate with public transportation providers when setting performance targets in an urbanized area not represented by an MPO [§1202; 23 USC 135(d)(2)(B)]

The Statewide Transportation Improvement Program (STIP), state asset management plans under the National Highway Performance Program (NHPP), and state performance plans under the Congestion Mitigation and Air Quality Improvement Program are required to include performance targets. Additionally, state and MPO targets should be included in statewide transportation plans.

MPO Targets

Within 180 days of the state and/or providers of public transportation setting performance targets, it is required that MPOs set performance targets in relation to the performance measures (where applicable). To ensure consistency, each MPO must, to the maximum extent practicable, coordinate with the relevant state and public transportation providers when setting performance targets. MPO Metropolitan Transportation Plans (MTPs) and TIPs are required to include State and MPO targets.

PERFORMANCE-BASED PLANNING IN THE MUSKEGON/NORTHERN OTTAWA, MICHIGAN URBANIZED AREA

The Muskegon/Northern Ottawa MPO (WestPlan) has a number of systems in place to address the performance measures and targets. WestPlan maintains a traffic count program which has been integrated into a traffic count database system. Currently WestPlan collects traffic counts for approximately 400 count locations within the MPO planning area. In addition the MPO utilizes bike/pedestrian counters to collect non-motorized traffic data. This system is projected to facilitate improved data for the travel demand model which forecasts future traffic congestion.

The MDOT sponsored collection of pavement condition data on federal-aid eligible roadways, through the statewide Asset Management program, provides WestPlan with data (both current and historic) to address the status of pavement conditions in the WestPlan area. MDOT also collects and updates data through the Highway Performance Monitoring System (HPMS). WestPlan has access to detailed traffic crash data for its area through its subscription to the Traffic Crash Analysis Tool (TCAT) program of the Transportation Improvement Association (TIA) of Michigan and through the Crash Facts program of the Michigan State Police/Office of Highway Traffic Safety. WestPlan also conducts local road ratings for cities and villages in the MPO and in the region as well. The same PASER rating standards are used and reports are generated for the agencies to use in their Asset Management Plans.

Most of the performance targets are directed at the National Highway System, which is primarily under the jurisdiction of MDOT in the WestPlan area. Therefore, WestPlan will coordinate with MDOT (as set forth in the federal regulations) in the development of targets for roadways in the WestPlan area subject to the

NHS-based performance targets and will choose to “support the state targets” as its official response for these categories. Any roadways designated as NHS which are under local jurisdiction are to be assessed in conjunction with the responsible local road agency, but separate targets are not expected to be established.

In the process of developing future Metropolitan Transportation Plans and Transportation Improvement Programs as targets are established, WestPlan will assess the impact of any proposed projects on the performance measure areas (and targets), as noted at the beginning of this chapter. This will be done using the best available data at the time of assessment. Projects providing a high level of benefit in meeting identified performance targets will be considered for priority in programming.

MPO TARGET SETTING

Safety

On September 6, 2019, the Michigan Department of Transportation (MDOT) reported to Michigan’s metropolitan planning organizations (MPOs) that it had set safety targets for calendar year 2020. On December 18, 2019, the WestPlan Policy Committee voted to exercise its option to “support the state targets” for the 5 categories of safety information. Safety targets are required to be developed by the state and responded to by the MPOs each year.

Table 7.2 provides the Michigan State Safety Targets for Calendar Year 2020.

Table 7-2- Michigan State Safety Targets - Calendar Year 2020

| Safety Performance Measure | Baseline Condition (2018) | Calendar Year 2020 State Safety Target |
|---|----------------------------------|---|
| Fatalities | 987.4 | 999.4 |
| Fatality Rate | .99 | .97 |
| Serious Injuries | 5,415.6 | 5,520.4 |
| Serious Injury Rate | 5.41 | 5.34 |
| Non-motorized Fatalities & Serious Injuries | 742.4 | 735.8 |

WestPlan has limited access to federal safety funds provided to the state. As a small MPO, WestPlan local agencies apply annually for consideration of funding for safety projects from statewide pool of safety funds. Project selection at the state level is heavily weighted toward projects impacting fatality and serious injury crash locations. WestPlan supports the local agencies when they decide to apply for safety funding and will add any selected projects to the current TIP as soon as a positive funding determination has been made by MDOT.

Pavement, Bridge, and Reliability Performance

On May 21, 2018, the Michigan Department of Transportation (MDOT) reported to Michigan’s metropolitan planning organizations (MPOs) that it had set Bridge, Pavement, and Reliability targets for calendar year 2019 through 2022. On September 19, 2018, the WestPlan Policy Committee voted to exercise its option to “support the state targets” for the Bridge, Pavement and Reliability Performance Measures. Table 7.4 shows the supported targets for FY2019-2022:

Table 7.4- State targets for Bridge, Pavement & Reliability

State Targets for First Performance Period

| Performance Area | Measure | Baseline Condition (Calendar Year 2017) | 2-Year Targets | 4-Year Targets |
|---|---|--|-----------------------|-----------------------|
| Bridge | Percent National Highway System (NHS) Deck Area in Good Condition | 32.7% | 27.2% | 26.2% |
| | Percent NHS Deck Area in Poor Condition | 9.8% | 7.2% | 7.0% |
| Pavement | Percent of Interstate Pavement in Good Condition | 56.8% | N/A | 47.8% |
| | Percent of Interstate Pavement in Poor Condition | 5.2% | N/A | 10.0% |
| | Percent of Non-Interstate NHS Percent in Good Condition | 49.7% | 46.7% | 43.7% |
| | Percent of Non-Interstate NHS Percent in Poor Condition | 18.6% | 21.6% | 24.6% |
| Reliability | Level of Travel Time Reliability of the Interstate | 85.1% | 75.0% | 75.0% |
| | Level of Travel Time Reliability of the Non-Interstate NHS | 85.8% | N/A | 70.0% |
| | Freight Reliability Measure on the Interstate | 1.38 | 1.75 | 1.75 |
| Congestion Mitigation/ Air Quality (CMAQ)* | Annual Hours of Peak Hours Excessive Delay per Capita | 18 hours, 30 minutes | N/A | 22 hours |
| | Percent of Non-Single Occupancy Vehicle Travel | 16.0% | 14.4% | 14.4% |
| | Mobile Source Emission Reduction for Carbon Monoxide | 87,665.109 | 32,968.780 | 65,937.560 |
| | Mobile Source Emission Reduction for Particulate Matter | 653.357 | 417.410 | 834.820 |

**Performance measures apply only to portions of the Southeast Michigan Council of Governments planning area. Also, baseline data for emission reductions shows the total reduction from CMAQ funded projects over the 2014-2017 time period.*

Pavement

Federal regulations require that states measure, monitor, and set goals for pavement performance based upon a composite index of metrics. The four pavement condition metrics are: International Roughness Index (IRI), Cracking Percent, and Rutting or Faulting as reported by each state to the Highway Performance Monitoring System (HPMS) database. IRI and Cracking Percent are metrics for all road types. Rutting is only applicable to asphalt pavements and faulting is only measured for jointed concrete pavements. The rule applies to the entire National Highway System (NHS), which includes Interstate and Non-interstate NHS. MDOT is responsible for approximately 5,931 through-lane miles of interstate in Michigan, as of 2016.

The Non-Interstate portion of the system includes MDOT trunkline routes (M-routes) (about 11,959 miles in 2016) and local government owned non-trunkline roads (about 4,239 miles in 2016). Local agencies are responsible for 19% of the NHS route mileage in Michigan.

MDOT has established 2-year and 4-year targets for a 4-year performance period for pavement condition on the National Highway System (NHS) in response to the federal regulations. The 4-year performance period includes January 1, 2018 to December 31, 2022. There are a total of three progress reports due within the 4-year performance period: a Baseline Performance Report was published on October 1, 2018; a Mid-Performance Period Progress Report due October 1, 2020; and a Full Performance Period Progress Report due October 1, 2022. FHWA will determine if significant progress has been made from report to report. Based on the metrics described above and the rating of roads along a metric value range, there are four measures that will be used to assess pavement condition: % of Interstate road pavement in “Good” condition; % of Interstate road pavement in “Poor” condition; % of Non- interstate NHS pavement in “Good” condition; and % of Non-interstate NHS pavement in “Poor” condition.

Bridge

The federal performance measures require that state DOT’s establish 2-year and 4-year targets for a 4-year performance period for the condition of infrastructure assets. State DOT’s established their first statewide targets on May 20th, 2018. As with the pavement condition reporting, state DOTs are required to submit three performance reports to FHWA within the 4- year performance period: a Baseline Performance Report published on October 1, 2018; a Mid- Performance Period Progress Report by October 1, 2020; and a Full Performance Period Progress Report by October 1, 2022. The two performance measures for assessing bridge condition are: % of National Highway System (NHS) bridges in “Good Condition”; and % of NHS bridges in “Poor Condition”.

The MPOs will establish targets by either supporting MDOT’s statewide target(s), or defining a target unique to the metropolitan area each time MDOT sets a target. As part of the Full Performance Period Progress Report, the MPOs will report their established targets, performance, progress, and achievement of the targets to MDOT in a manner that is agreed upon by both parties and documented in the Metropolitan Planning Agreement. MPOs are not required to report separately to FHWA.

WestPlan supports the maintaining of NHS and local bridges within its area. However, bridge funding is administered at the state level by MDOT. MDOT evaluates bridges on interstate and state trunkline routes for necessary projects and funding. A statewide Local Bridge Advisory Board allocates funds for the Michigan Local Bridge Program based on available funds and weighted ratios. In 2016, only 89 of 363 submitted local bridge projects could be funded due to budget constraints. As of June, 2017, approximately 2 million square feet of locally owned bridges in Michigan have deck area in poor,

serious, or critical condition. This translates to the local agencies in Michigan having 17% of NHS bridge deck area under their jurisdictions in poor condition. This exceeds the penalty threshold of no more than 10% of NHS bridges, measured by deck area, being classified as structurally deficient. MDOT's NHS bridge condition by deck area is only slightly under the 10% threshold, at 9% poor condition.

MDOT is projecting "condition improvement" for the NHS bridges in the state based on projects programmed through the MDOT and local bridge programs described above. Deterioration is estimated based on comparing network wide deterioration rates to the age and condition of each major component of each structure.

The targets are highly dependent on the deck area of bridges that fall to poor, and so the smaller the inventory considered the higher potential for a single bridge to skew results. The statewide targets are assumed to be less variable than for an individual MPO.

Congestion Mitigation and Air Quality

This measure applies to urbanized areas containing NHS mileage and having a population over 200,000 (Phase 1 population over 1 million). The WestPlan area does not qualify for inclusion in this measure.

National Highway System (NHS) Asset Management Plan

MDOT is required to develop an Asset Management Plan for the NHS that includes:

- Pavement and bridge inventory and conditions on the NHS
- Objectives and measures
- Performance gap identification
- Life-cycle cost and risk management analysis
- A financial plan
- Investment strategies

The USDOT has set minimum standards for states to use in developing and operating bridge management systems and pavement management systems.

A System Performance Report is required in the long range Metropolitan Transportation Plan (MTP). The System Performance Report is an Appendix to this MTP, and will periodically be updated to reflect the monitoring and update of the actual performance target metrics over time. This will document the progress and achievement of accomplishing the performance measures. A detailed list of projects that are anticipated to help meet the proposed targets for Bridge, Pavement, and Reliability performance measures can also be found in the appendix of this document.

Public Transportation

There are two transit providers in the WestPlan area; Muskegon Area Transportation System (MATS) and Harbor Transit Multi-Modal Transit System (HT). Both are direct recipients of funds from the Federal Transit Administration. As such, MATS and HT are identified as Tier II recipients under the current federal legislation and have developed state of good repair targets. The MATS and HT FY2019 state of good repair targets are shown in Table 7.6 below:

Table 7-6 Transit State of Good Repair Targets for 2019

| Asset Class | Current Condition MATS | Current Condition HT | 2019 Target MATS | 2019 Target HT |
|-------------------------------------|-------------------------------|-----------------------------|-------------------------|-----------------------|
| Revenue Vehicles: small bus and van | 1% | 5% | 1% | 5% |
| Revenue Vehicles: large bus | 20% | 21% | 20% | 21% |
| Service Vehicles | 1% | 5% | 1% | 5% |
| Facilities | 1% | 5% | 1% | 5% |

Transit Asset Management Plans (TAM)

MATS and HT have both submitted TAM plans and can be viewed in Appendix H of this document. In addition, the entire transit project list for FY2020-2023 can be viewed in Chapter (2) of this document.