

Plan Performance

Performance Measures

Performance measurement is a dynamic approach that utilizes system-wide information to make investments to achieve goals set for transportation in the planning area. MAP-21 and the FAST Act emphasize performance-driven and outcome-based planning. These federal regulations require the development and maintenance of performance measures and targets through a Memoranda of Understanding (MOU). The agreement between MPOs, DOT, and transit agencies on the performance measures were required to be in place by May 2018. The MOUs were established as an agreement between these agencies to collaboratively develop, share, and report information related to performance measures and targets.

MAP -21/FAST Act National Performance Goals



Reduce traffic fatalities and serious injuries



Maintain highways in a state of good repair



Reduce traffic congestion



Improve the efficiency of the transportation system



Improve the national freight network



Protect and enhance the environment



Reduce project delivery delays

The RIC System Performance Report aids in assessing the efficiency of the existing transportation system and provides guidance to implement performance-based planning into current and future transportation investments while supporting FHWA’s TPM and Performance-Based Planning and Programming (PBPP) framework to the maximum extent practicable. The System Performance Report is updated annually or on an as-need basis during the interim years of the MTP update cycle.

The following measures are organized into the categories below:

- Safety Performance Management (PM1)
- Pavement and Bridge Condition Performance (PM2)
- System Performance and Freight Movement (PM3)
- Transit Asset Management and Public Transportation Agency Safety Plan (PTASP)

Safety Performance Management (PM1)

One of the goals of the FAST Act is to reduce the number of traffic fatalities and serious injuries on all public roadways, including non-State-owned public roads and those on tribal lands. As a continuation of the Highway Safety Improvement Program, the FAST Act requires a data-driven approach to improving highway safety with an emphasis on performance-based planning. The Federal Highway Administration (FHWA) published the HSIP Final Rule and Safety Performance Management Measures Final Rule in April 2016. State DOTs were required to report first round targets to FHWA in August 2017. RIC elected to support WVDOT safety performance targets, which were adopted at the RIC Policy Board in December 2017. State DOTs and MPOs are expected to establish and report safety performance measure targets annually to FHWA.

Table 10-1 outlines the safety performance targets adopted by RIC.

Table 10-1: Safety Performance Targets

PERFORMANCE MEASURE	GOAL	2018	2019	2020
Number of Fatalities	50% reduction by 2030 (from 2009)	281.4	274.2	267.3
Number of Serious Injuries	66% reduction by 2030 (from 2013)	1,235.8	1,188.3	1,119.9
Fatality rate per Hundred Million Vehicle Miles Traveled (HMVMT)	50% reduction by 2030 (from 2009)	1.437	1.45	1.486
Injury rate per Hundred Million Vehicle Miles Traveled (HMVMT)	66% reduction by 2030 (from 2013)	6.302	5.877	5.376
Number of Non-Motorized Fatalities and Serious Injuries	66% reduction by 2030 (from 2013)	89.4	84.5	83.6

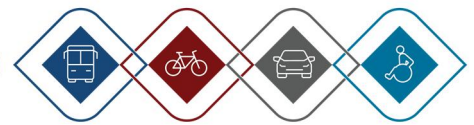


Table 10-2: 2021 Performance Assessment for Safety PM – Number of Fatalities

PERFORMANCE ASSESSMENT	TY 2017	TY 2018	TY 2019	TY 2020	TY 2021
Total Number for Target Year (TY*)**	31.2	33.2	33.6		
Target to Reach Goal	29.3	30.3	32.1	32.3	31.1
Was Target Met	Not Met	Not Met	Not Met		
Met or Made Significant Progress	Yes	No	No		

*TY refers to target year

**Depicts 5-year rolling average

Table 10-3: 2021 Performance Assessment for Safety PM – Number of Serious Injury

PERFORMANCE ASSESSMENT	TY 2017	TY 2018	TY 2019	TY 2020	TY 2021
Total Number for Target Year**	142.6	134.2	116.8		
Target to Reach Goal	147.8	136.8	128.6	112.3	107.8
Was Target Met	Met	Met	Met		
Met or Made Significant Progress	Yes	Yes	Yes		

**Depicts 5-year rolling average

Table 10-4: 2021 Performance Assessment for Safety PM – Fatality Rate per 100 Mill/Miles (HMVMT)

PERFORMANCE ASSESSMENT	TY 2017	TY 2018	TY 2019	TY 2020	TY 2021
Average Fatality Rate**	1.081	1.146	1.179		
Average Target Fatality Rate	0.971	1.128	1.224	1.220	1.249
Was Target Met	Not Met	Not Met	Met		
Met or Made Significant Progress	No	No	Yes		

**Depicts 5-year rolling average

Table 10-5: 2021 Performance Assessment for Safety PM – Injury Rate per 100 Mill/Miles (HMVMT)

PERFORMANCE ASSESSMENT	TY 2017	TY 2018	TY 2019	TY 2020	TY 2021
Average Serious Injury Rate**	4.925	4.623	4.075		
Average Target Serious Injury Rate**	4.889	4.624	4.185	3.611	3.376
Was Target Met	Not Met	Met	Met		
Met or Made Significant Progress	Yes	Yes	Yes		

**Depicts 5-year rolling average

Table 10-6: 2021 Performance Assessment for Safety PM – Non-Motorized Fatalities & Serious Injury)

PERFORMANCE ASSESSMENT	TY 2017	TY 2018	TY 2019	TY 2020	TY 2021
Average Serious Injury Rate**	17.8	19.4	20.0		
Average Target Serious Injury Rate**	17.4	16.9	18.3	18.8	17.6
Was Target Met	Not Met	Not Met	Not Met		
Met or Made Significant Progress	Yes	No	No		

**Depicts 5-year rolling average

Pavement and Bridge Condition Performance (PM2)

The National Highway Performance Program (NHPP) provides guidance on the condition and performance the National Highway System (NHS), for the construction of new facilities. The NHPP also ensures that investments of Federal-aid funds in the construction of highways directly support the progress towards the achievement of performance targets.

The Pavement and Bridge Condition Performance Measures Final Rule was published in January 2017. The rule took effect in May 2017. State DOTs were required to set targets by May 2018. MPOs had until November 2018 to report their targets to the State DOTs. While State DOTs are required to set both 2- and 4-year targets, MPOs are only required to set 4-year targets. To the maximum extent practicable, the MPO and State DOT must coordinate in the selection of performance targets.

Pavement Condition

Per FHWA guidance, there are four established national performance measures regarding the assessment of pavement condition and two established national performance measures regarding the assessment of bridge condition. All six performance measures for both pavement and bridge are calculated by percentages. State DOTs and MPOs are required to establish and report targets for the following performance measures regarding Interstate and Non-Interstate National Highway System (NHS) pavement conditions:

1. Percent of pavements on the Interstate NHS system in **Good** condition
2. Percent of pavements on the Interstate NHS system in **Poor** condition
3. Percent of pavements on the non-Interstate National Highway System (NHS) in **Good** condition
4. Percent of pavements on the non-Interstate National Highway System (NHS) in **Poor** condition

The FHWA metrics are based upon the percentage of tenth-mile Highway Performance Monitoring System (HPMS) section data that are in Good, Fair, or Poor condition. More detailed information about the Pavement Condition Measures can be found in the System Performance Report.

The four pavement condition performance measures are separated into two categories, one for applicable lane miles on the Interstate National Highway System (NHS), and the other for applicable lane miles on the non-Interstate NHS. The 2017 pavement condition assessment for the RIC MPO area consisted of 417.8 applicable lane miles of the Interstate NHS and 304.9 applicable miles of non-Interstate NHS. Table 10-7 shows the Pavement Condition Assessment for the RIC MPO.

Table 10-7: 2017 Pavement Condition Assessment

PERFORMANCE MEASURE	VALUE
Pavement on the Interstate NHS in Good Condition	62.4%
Pavement on the Interstate NHS in Poor Condition	0%
Pavement on the non-Interstate NHS in Good condition	28.1%
Pavement on the non-Interstate NHS in Poor condition	0.4%

Bridge Condition Performance Measures

West Virginia currently has 1,294 bridges comprising 24,504,470 square feet of deck area on the NHS. In total, WVDOH owns 1,195 (92%) of the NHS bridges and 22,590,843 square feet (92%) of the total NHS deck area. The WV Turnpike owns 97 (8%) of the NHS bridges and 1,823,323 square feet (8%) of the total NHS deck area.

There are two national performance measures for managing of bridge performance on the NHS. Both performance measures are based on the bridge deck area and are classified using the National Bridge Inventory (NBI) condition ratings. Targets must be established for all bridges that carry the NHS, including on- and off-ramps connected to the NHS within a State, and bridges carrying the NHS that cross a State border, regardless of ownership. RIC elected to adopt the WVDOT bridge condition targets. The two performance measures include:

1. Percent of NHS bridges by deck area classified in **Good** Condition
2. Percent of NHS bridges by deck area classified in **Poor** Condition

Table 10-8 shows the NHS Bridge Condition Performance.

Table 10-8: 2017 NHS Bridge Condition Assessment

PERFORMANCE MEASURE	VALUE
Percent of NHS bridge deck area classified as in Good condition	12.9%
Percent of NHS bridge deck area classified as Poor condition	4.9%

System Performance and Freight Movement (PM3)

In January 2017, FHWA published the System Performance/Freight/CMAQ Performance Measures Final Rule. The rule assessed the performance of the Interstate and non-Interstate National Highway System (NHS) for the purpose of carrying out the National Highway Performance Program (NHPP), assessing freight movement on the Interstate System, and assessing traffic congestion and carrying out the Congestion Mitigation and Air Quality Improvement (CMAQ) Program. State DOTs were required to set targets by May 2018. MPOs had until November 2018—with the exception of Traffic Congestion—to report their targets. A requirement of the CMAQ is to develop a CMAQ Performance Plan (CPP), which is to be updated biannually. The CPP outlines the baseline level for traffic congestion and emissions, provides a description of the progress made in achieving performance measure targets, and provides a description of projects funded through the CMAQ program.

Travel Time Reliability

There are five performance targets to evaluate travel time reliability. The last two targets (numbers 4 and 5) are not applicable to the first performance period (2018-2021). The current performance measures for PM3 are listed as follows:

1. Percent of person miles traveled on the Interstate system that are reliable, Level of Travel Time Reliability (LOTTR)
2. Percent of person miles traveled on the non-Interstate system that are reliable, Level of Travel Time Reliability (LOTTR)
3. Percent of Interstate mileage providing Truck Travel-Time Reliability (TTTR)
4. Annual hours of peak-hour excessive delay per capita – (Not applicable until 2022)
5. Percent of non-single occupant vehicle travel – (Not applicable until 2022)

Table 10-9: Travel Time Reliability

PERFORMANCE MEASURE	BASELINE (2017)	PERFORMANCE (2019)	TARGET (2019)	SIGNIFICANT PROGRESS?	TARGET (2021)
Percent of person miles traveled on the Interstate system that are reliable, Level of Travel Time Reliability (LOTTR)	99.8%	99.1%	98.0%	Yes	96.0%
Percent of person miles traveled on the non-Interstate system that are reliable, Level of Travel Time Reliability (LOTTR)	91.9%	93.7%	93.7%		87.0%
Percent of Interstate mileage providing Truck Travel-Time Reliability (TTTR)	1.21	1.28	12.5	No	1.30

Air Quality

The RIC MPO region (Kanawha and Putnam counties) is currently designated as part of the Charleston, WV maintenance area under both the 1997 8-hour ozone and 2006 24-hour PM2.5 NAAQS. The region is in attainment of the 2008 8-hour ozone, 2015 8-hour ozone, and 2012 annual PM2.5 NAAQS. Transportation conformity requires nonattainment and maintenance areas to demonstrate that all future transportation projects will not prevent an area from reaching its air quality attainment goals.

Table 10-10 shows the Conformity Analysis for VOC and NOx. Chapter 11 further details Air Quality in the Kanawha-Putnam region.

Table 10-10: Ozone Emission Conformity Analysis

POLLUTANT	2018 BUDGET	2018	2025	2035	2045
VOC	13.7	4.10	2.71	1.55	1.41
NOx	17.1	11.34	6.50	4.31	4.56
Conformity Result		Pass	Pass	Pass	Pass

The CMAQ Emission Reduction measure assesses performance of the CMAQ Program through measurement of total cumulative reductions of on-road mobile source PM2.5 and PM10 emissions resulting from CMAQ funded projects in applicable regions in West Virginia managed under the Clean Air Act national ambient air quality standards. Table 10-11 shows the Emissions Reduction performance measures for PM2.5.

Table 10-11: Emissions Reductions

POLLUTANT	BASELINE (2017)	PERFORMANCE (2019)	TARGET (2019)	SIGNIFICANT PROGRESS?	TARGET (2021)
PM 2.5 (kg/day)	0.092	0.122	0.092	Yes	0.092

Transit Asset Management and Public Transportation Agency Safety Plan (PTASP)

The Federal Transit Administration (FTA) published the Transit Asset Management (TAM) Final Rule in July 2016. Similar to FHWA's TPM target setting process, transit providers must coordinate with MPOs in the selection of TAM performance targets to the maximum extent feasible.

The Kanawha Valley Regional Transportation Agency (KVRTA) serves as the transit provider for the Charleston, West Virginia Metropolitan Area. Per the requirements of FTA and FHWA for transit agencies, KVRTA is required to report performance targets to the West Virginia Division of Public Transit and the National Transit Database (NTD) annually.

Performance measures for transit providers are divided into the four following categories:

- Rolling Stock
- Equipment
- Facilities
- Infrastructure (*Does not apply to KVRTA*)

Per federal requirements, operators of public transportation systems that are recipients of or subrecipients of Federal Transit Administration (FTA) 49 U.S.C. Section 5307 grant funds must maintain new safety plans under the Public Transportation Agency Safety Plan (PTASP) by December 2020. These safety plans must include performance targets that must be assessed annually and are to be coordinated with the applicable Metropolitan Planning Organization (MPO). The performance targets are based on the following safety performance criteria established under the National Public Transportation Safety Plan:

1. Fatalities – total number of reportable fatalities and rate per total vehicle revenue miles by mode
2. Injuries – total number of reportable injuries and rate per total vehicle revenue miles by mode
3. Safety events – total number of reportable events and rate per total vehicle revenue miles by mode
4. System reliability – mean distance between major mechanical failures by mode

Performance Measures Moving Forward

The intent of this chapter is to identify helpful tools to help guide transportation decision-making and monitor network performance in future years. The data described in this chapter is easily obtainable and is readily utilized by RIC staff to track performance and monitor regional trends. Notably, these performance measures adhere to federal requirements for MPOs to take a performance-based approach to planning and programming projects.