

### Pennsylvania Transportation Performance Management Performance-based Planning and Programming Procedures

The Moving Ahead for Progress in the 21st Century Act (MAP-21) and the Fixing America's Surface Transportation (FAST) Act include performance management requirements. Performance-based planning will ensure that the Pennsylvania Department of Transportation (PennDOT) and Pennsylvania's Metropolitan Planning Organizations (MPO) collectively invest Federal transportation funds efficiently towards achieving national goals. In Pennsylvania, the Rural Planning Organizations (RPO) follow the same requirements as MPOs.

Transportation Performance Management (TPM) is a strategic approach that uses data to make investment and policy decisions to achieve national performance goals. Title 23 Part 490 of the Code of Federal Regulations ([23 CFR 490](#)) outlines the national performance goals for the Federal-aid program. It establishes the seven goal areas: safety, infrastructure condition, congestion reduction, system reliability, freight, environmental sustainability and reduced project delivery delay.

The regulations require the United States Department of Transportation (DOT)/Federal Highway Administration (FHWA) to establish final rules on performance measures. The final rules address the seven areas in the legislation, identifying the following as performance 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
- traffic congestion
- on-road mobile source emissions
- freight movement on the Interstate system

#### Performance Based Planning and Programming

Pennsylvania has long utilized a comprehensive planning and programming process, with a focus on collaboration between PennDOT, FHWA, and Planning Partners (MPOs/RPOs) at the county and regional levels. This approach will be applied to begin implementation of TPM and Performance Based Planning and Programming (PBPP).

PBPP requirements are outlined in Title 23 Part 450 of the Code of Federal Regulations ([23 CFR 450](#)). Subparts B & C requires the State Department of Transportation, MPO and operators of public transportation to jointly agree-upon written provisions for how they will cooperatively develop, and share information related to five key elements of PBPP:

- transportation performance data
- the selection of performance targets
- the reporting of performance targets

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- the reporting of performance to be used in tracking critical outcomes for the region of the MPO
- the collection of data for the State asset management plan for the National Highway System (NHS)

PennDOT in cooperation with MPOs/RPOs developed this document to serve as Pennsylvania's jointly-written provisions for PBPP roles and responsibilities per 23 CFR 450.314(h) for:

- PM1 measures – the safety performance measures
- PM2 measures – the NHS pavements, bridges carrying the NHS, and pavements on the Interstate measures
- PM3 measures – the performance of the NHS, freight movement on the Interstate, and the Congestion Mitigation and Air Quality Improvement (CMAQ) Program

PennDOT Executives, Center for Program Development and Management (CPDM), and Bureau of Maintenance and Operations (BOMO), Bureau of Project Delivery (BPD, Engineering Districts and MPOs/RPOs will coordinate to ensure the Statewide Long Range Transportation Plan (LRTP), Statewide Transportation Improvement Program (STIP), regional Transportation Improvement Programs (TIP) and regional LRTPs are developed and amended to meet the PBPP requirements of the planning rule and the performance measure rules.

This coordination will occur when setting targets to ensure consistency to the maximum extent possible. Each MPO/RPO will need to establish targets by either adoption of the State's performance targets and support the State's efforts in achieving those targets or establish their own quantifiable performance targets.

PennDOT CPDM in coordination with BOMO will include a description of the individual performance measures and targets for those measures in Statewide LRTPs moving forward. Each MPO/RPO will also include individual performance measures and targets for those measures in their regional LRTPs moving forward. In addition to including the performance measures and targets in the Statewide and Regional LRTPs, PennDOT CPDM, BOMO, Engineering Districts and each MPO/RPOs are also required to include a system performance report. That report provides an evaluation of system performance with respect to the performance targets. PennDOT CPDM and BOMO in coordination with Engineering Districts will include progress achieved by MPOs/RPOs in meeting the MPO performance targets in comparison with system performance recorded in previous reports [23 CFR 450.216(f)(2); 23 CFR 450.324(f)(4)]. For MPOs/RPOs that voluntarily elect to develop multiple scenarios when developing the regional LRTP, the MPO/RPO must conduct an analysis as part of the systems performance report on how the preferred scenario has improved the conditions and performance of the transportation system and how changes in local policies and investments have impacted the costs necessary to achieve the identified performance targets [23 CFR 450.324(f)(4)(ii)].

PennDOT and the MPOs/RPOs will include a description on progress towards each of the performance measures and targets as plans are updated. The progress explanation should

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include the information that is available at the time of the plan adoption, such as information that has been reported as part of the reports required under 23 CFR 490.107. With subsequent adoptions of LRTPs, PennDOT and MPOs/RPOs must continue to include a system performance report. These reports must describe the progress of the MPO/RPOs in meeting the performance targets in comparison with system performance recorded in previous years.

## Safety Performance Measures

The FHWA final rules for the *National Performance Management Measures: Highway Safety Improvement Program (Safety PM)* and *Highway Safety Improvement Program (HSIP)* were published in the Federal Register ([81 FR 13881](#) and [81 FR 13722](#)) on March 15, 2016, and became effective on April 14, 2016.

These final rules were the first in a series of three related rulemakings that together establish a set of performance measures for State DOTs and MPOs to use as required by MAP-21 and the FAST Act.

The HSIP Final Rule updates the HSIP regulation under [23 CFR Part 924](#) to be consistent with MAP-21 and the FAST Act while clarifying existing program requirements. The Safety PM Final Rule adds Part 490 to Title 23 of the Code of Federal Regulations (CFR) to implement the performance management requirements in 23 U.S.C. 150.

The Safety PM Final Rule, also referred to as PM1 Final Rule, establishes safety performance measure requirements for carrying out the HSIP and to assessing fatalities and serious injuries on all public roads.

The Safety PM Final Rule establishes five performance measures used in determining five-year rolling averages to include:

- Number of Fatalities
- Rate of Fatalities per 100 million Vehicle Miles Traveled (VMT)
- Number of Serious Injuries
- Rate of Serious Injuries per 100 million VMT
- Number of Non-Motorized Fatalities and Non-Motorized Serious Injuries

### Target Setting:

Pennsylvania's Strategic Highway Safety Plan (SHSP) serves as a blueprint to reduce fatalities and serious injuries on Pennsylvania roadways and targets priority Safety Focus Areas (SFAs) that have the most influence on improving highway safety throughout the state. The SHSP contains Pennsylvania's statewide goals for fatalities and serious injuries. The SHSP has been developed and will be updated in conjunction with stakeholders including federal, state, local and private sector agencies including Pennsylvania's MPOs/RPOs.

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Pennsylvania established a Safety Planning workgroup with representation from PennDOT CPDM, BOMO, Engineering Districts, the MPOs/RPOs and FHWA. The group includes technical safety and planning professionals that meet regularly to discuss relative topics such as the SHSP and performance measures. PennDOT and the MPOs/RPOs will continue to utilize this workgroup to coordinate the State's safety target setting. Information discussed as part of this workgroup will be shared at Statewide Planning Partner Meetings and conference calls.

PennDOT CPDM in coordination with BOMO will be responsible for scheduling and conducting Safety Planning Workgroup calls. PennDOT CPDM will be responsible for scheduling and conducting Planning Partner meetings and conference calls, where coordination on target setting will occur.

MPOs/RPOs will be responsible for ensuring there is adequate MPO/RPO representation on the Safety Planning Workgroup. All MPOs/RPOs will ensure they participate in Planning Partner meetings and conference calls to provide input into performance measure and target coordination.

PennDOT BOMO will submit the state safety targets as part of the annual Pennsylvania Highway Safety Plan submitted to NHTSA. The state targets for the number of fatalities, number of serious injury and rate of fatalities need to be identical to those submitted to FHWA. PennDOT will include state safety targets for all five of the safety performance measures as part of the annual Pennsylvania Highway Safety Improvement Program (HSIP) report submitted to FHWA.

PennDOT CPDM will share the annual submissions and/or another type of notification of the state targets with the MPOs/RPOs in a timely manner.

All Pennsylvania MPOs/RPOs will establish targets for each performance measure and communicate adoption to PennDOT CPDM within 180 days of PennDOT establishing targets either by agreeing to plan and program projects in support of PennDOT targets, or by committing to their own quantifiable targets. If an MPO/RPO chooses to establish their own performance targets, they would need to coordinate with PennDOT CPDM and BOMO on the selection of the targets and provide methodology, including VMT used to develop their targets to ensure consistency, to the maximum extent practicable.

## **Data Collection and Analysis:**

Data for the fatality-related measures are taken from the Fatality Analysis Reporting System (FARS) and data for the serious injury-related measures are taken from the State crash database. The VMT are derived from the Highway Performance Monitoring System (HPMS).

PennDOT BOMO will review the State's crash and fatality data and evaluate it for overall trends. PennDOT BOMO will compare these trends to what can be observed at the national level.

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PennDOT BOMO will assess the state and national trends to determine how they relate to the SHSP Goals and the National Toward Zero Death initiative.

PennDOT BOMO will provide CPDM statewide data to share with the MPOs/RPOs to assist them in deciding whether they are going to support the State's targets or adopt their own.

MPOs/RPOs should utilize their specific data from the Pennsylvania Crash Information Tool to further assist in their decision-making process as to whether they are going to support the State's targets or adopt their own.

## **Progress Towards Target Achievement and Reporting:**

PennDOT and the MPOs/RPOs will include safety performance measures and targets in the STIP, regional TIPs, and LRTPs.

PennDOT and the MPOs/RPOs will ensure the STIP, regional TIPs, and LRTPs are developed and managed to support progress toward target achievement.

PennDOT BOMO will include information on safety targets and progress towards meeting targets as part of annual Safety submissions to NHTSA and FHWA. FHWA will utilize data from a base line period for assessing significant progress. Four of the five measures will need to be met or significantly improve. FHWA will determine if Pennsylvania has met or made significant progress toward meeting its safety targets. When FHWA reports their findings to PennDOT, CPDM will share the findings with MPOs/RPOs.

When collaborating to set annual targets, PennDOT BOMO, CPDM and Engineering Districts will coordinate to provide feedback on statewide and MPO/RPO specific progress towards target achievement as it becomes available.

In accordance with 23 CFR 450.216(f), PennDOT CPDM in coordination with BOMO will include a description of the individual safety performance measures and targets for those measures for the Statewide LRTP moving forward. In addition to including safety performance measures and targets in the Statewide LRTP, PennDOT CPDM in coordination with BOMO will include a system performance report. That report must include an evaluation of system performance with respect to the performance targets. PennDOT CPDM in coordination with BOMO will include a description of progress achieved by the MPOs/RPOs in meeting the MPO/RPO performance targets in comparison with system performance recorded in previous reports [23 CFR 450.216(f)(2)]. The progress description will include the information that has been reported as part of the reports required under 23 CFR 490.107. With subsequent adoptions of Statewide LRTPs, PennDOT CPDM in coordination with BOMO will continue to include a system performance report describing the progress of meeting the performance targets in comparison with system performance recorded in previous years.

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In accordance with 23 CFR 450.324(f)(3-4), MPOs/RPOs will include a description of the individual safety performance measures and targets for those measures for regional LRTPs moving forward. In addition to including performance measures and targets in the regional LRTPs, MPOs/RPOs will include a system performance report. That report must include an evaluation of system performance with respect to the performance targets. MPOs/RPOs will describe progress achieved in meeting the performance targets in comparison with system performance recorded in previous reports [23 CFR 450.324(f)(4)(i)]. The progress description will include the information that has been reported as part of the reports required under 23 CFR 490.107. With subsequent adoptions of regional LRTPs, MPOs/RPOs will continue to include a system performance report describing the progress of meeting the performance targets in comparison with system performance recorded in previous years.

In accordance with 23 CFR 450.218(q), PennDOT CPDM in coordination with BOMO will include a narrative description in the STIP on how the program of projects contributes to the achievement of the safety performance targets. The narratives should document PBPP objectives, investment strategies, performance measures and targets from the strategic highway safety plan (SHSP), highway safety improvement program (HSIP), and other performance-based plans are being implemented through the program of projects in the STIP.

In accordance with 23 CFR 450.326(d), MPOs/RPOs will include a narrative description in the TIP on how the program of projects contributes to the achievement of the safety performance targets. The narratives should document PBPP objectives, investment strategies, performance measures and targets from the strategic highway safety plan (SHSP), highway safety improvement program (HSIP), and other performance-based plans are being implemented through the program of projects in the TIP.

## **Pavement/Bridge Performance Measures**

The FHWA final rule for the National Performance Management Measures; Assessing Pavement Condition for the National Highway Performance Program and Bridge was published in the Federal Register ([82 FR 5886](#)) on January 18, 2017 and became effective on February 17, 2017.

This final rule was the second in a series of three related rulemakings that together establishes a set of performance measures for State DOTs and MPOs to use as required by MAP-21 and the FAST Act.

The final rule established performance measures for all State DOTs to use to carry out the National Highway Performance Program (NHPP) and to assess the condition of pavements on the Interstate System, pavements on the NHS (excluding the Interstate System), bridges carrying the NHS which include on and off ramps connected to the NHS. The NHPP is a core Federal-aid highway program that provides support for the condition and performance of the NHS and the construction of new facilities on the NHS. The NHPP also ensures that investments of Federal-aid funds in highway construction are directed to support progress toward the achievement of

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performance targets as established in a State's Transportation Asset Management Plan (TAMP) for the NHS. This final rule establishes regulations for the new performance aspects of the NHPP that address measures, targets, and reporting.

The pavement and bridge performance measures, collectively referred to as the PM2 measures include:

- % of Interstate pavements in Good condition
- % of Interstate pavements in Poor condition
- % of non-Interstate NHS pavements in Good condition
- % of non-Interstate NHS pavements in Poor condition
- % of NHS bridges by deck area classified in Good condition
- % of NHS bridges by deck area classified in Poor condition

## Target setting:

Pennsylvania established a TAMP Steering Committee with representation from PennDOT's Executive staff, Engineering Districts, Asset Management Division, Center for Program Development and Management, Bureau of Planning and Research, Highway Safety and Traffic Operations Division, FHWA, the Pennsylvania Turnpike Commission (PTC) and MPOs/RPOs. The workgroups purpose is to manage and coordinate the development, submission, and implementation of the TAMP, and the pavement and bridge condition performance measures.

PennDOT CPDM, BOMO, Engineering Districts and the MPOs/RPOs will continue to utilize the committee to coordinate the State's pavement and bridge target setting. Information discussed as part of the committee will be shared at Statewide Planning Partner Meetings and conference calls.

To satisfy 23 CFR 490.105(e)(2), PennDOT will coordinate with MPOs/RPOs on the development of the measures and selection of targets to ensure consistency, to the maximum extent practicable. PennDOT BOMO in coordination with CPDM will be responsible for scheduling and conducting TAMP Steering committee meetings. PennDOT CPDM will be responsible for scheduling and conducting Planning Partner meetings and conference calls, where coordination on target setting will occur.

MPOs/RPOs will be responsible for providing representation on the committee. All MPOs/RPOs will ensure they participate in Planning Partner meetings and conference calls to provide input into performance measure and target coordination.

PennDOT is required to set State 2-year and 4-year targets biennially. PennDOT will have the option to adjust the four-year targets in the Mid Performance Period Progress Report.

PennDOT will report the targets as part of FHWA required Performance Reporting.

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PennDOT CPDM will share the reporting submissions and/or another type of notification of the state targets with the MPOs/RPOs in a timely manner.

All Pennsylvania MPOs/RPOs will establish targets for each performance measure and communicate adoption to PennDOT CPDM, within 180 days of PennDOT establishing (or amending) targets either by agreeing to plan and program projects in support of PennDOT targets, or by committing to their own quantifiable targets. If an MPO/RPO chooses to establish their own performance targets, they would need to coordinate with PennDOT CPDM and BOMO on the selection of the targets and provide methodology used to develop their targets in accordance with 23 U.S.C. 134(h)(2)(B)(i)(II) to ensure consistency, to the maximum extent practicable.

## **Data Collection and Analysis:**

PennDOT BOMO will collect and perform the analysis of the data for the pavement and bridge performance measures.

### Pavement

Determining pavement condition requires rigorous data collection. In the past, all PennDOT data was collected for each roadway segment, which is approximately one-half-mile in length. Federal rulemaking 23 U.S.C. 119 now requires that all distress component information be collected for one-tenth-mile increments. PennDOT and its partners have adjusted their pavement data collection to meet FHWA standards. Data collection at the tenth-mile increment level began in 2017 for cracking, rutting, and faulting and will be used for this submission of the TAMP.

Pavement performance measures required for FHWA reporting include the following four distress components:

- International Roughness Index (IRI) – Quantifies how rough the pavement is by measuring the longitudinal profile of a traveled wheel track and generating a standardized roughness value in inches per mile
- Cracking – Measures the percentage of pavement surface that is cracked
- Rutting – Measures the depth of ruts (surface depression) in bituminous pavement in inches
- Faulting – Quantifies the difference in elevation across transverse concrete pavement joints in inches

These distress measurements translate to good, fair, or poor condition scores. The table below summarizes the pavement condition metrics for IRI, cracking percent, rutting, and faulting.

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Rating (one-tenth-mile)	Good	Fair	Poor
IRI (inches/mile)	<95	95–170	>170
Cracking Percentage (%)	<5	CRCP: 5–10 Jointed: 5–15 Asphalt: 5–20	CRCP: >10 Jointed: >15 Asphalt: >20
Rutting (inches)	<0.20	0.20–0.40	>0.40
Faulting (inches)	<0.10	0.10–0.15	>0.15

IRI and cracking apply to both bituminous and concrete pavements, while rutting is exclusively for bituminous pavement and faulting is exclusively for concrete pavement. Each one-tenth-mile pavement section is considered in good condition if all three of its distress components are rated as good, and in poor condition if two or more of its three distress components are rated as poor.

23 CFR part 490.315(a), Subpart C, requires that no more than 5 percent of a state’s NHS Interstate lane-miles be in poor pavement condition. If the threshold is not met, restrictions are placed on PennDOT’s federal funding—specifically, NHPP and Surface Transportation Program (STP) funds. FHWA has not established a minimum condition for NHS non-Interstate roadways but requires the State DOT to establish performance targets.

23 CFR 490.313(b)(4)(i) requires that the total mainline lane-miles of missing, invalid, or unresolved sections for the Interstate System and non-Interstate NHS shall be limited to no more than five percent of the total lane miles. A section is missing if any one of the data requirements specified in 23 CFR 490.309 and 23 CFR 490.311(c) are not met or if that reported section does not provide sufficient data to determine its overall condition.

PennDOT BOMO and Engineering Districts will utilize its pavement asset management tools and processes, which continue to be systematically expanded to analyze Pennsylvania’s pavements.

PennDOT’s pavement condition targets will be consistent with its asset management objectives of maintaining the system at the desired state of good repair, managing to lowest life cycle costs (LLCC), and achieving national and state transportation goals.

### Bridge

The FHWA final rulemaking also established performance measures for all mainline Interstate Highway System and non-Interstate NHS bridges regardless of ownership or maintenance responsibility, including bridges on ramps connecting to the NHS and NHS bridges that span a state border. FHWA’s performance measures aim to assess bridge condition by deriving the percentage of NHS bridges rated in good and poor condition by deck area on the NHS.

Separate bridge structure condition ratings are collected for deck, superstructure, and substructure components during regular inspections using the National Bridge Inventory (NBI) Standards. For culvert structures, only one condition rating is collected (the culvert rating). A

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rating of 9 to 0 on the FHWA condition scale is assigned to each component. Based on its score, a component is given a good, fair, or poor condition score rating.

The table below summarizes the FHWA scoring system for bridge condition metrics for deck, superstructure, substructure, and culvert components.

Rating	Good	Fair	Poor
Deck	≥7	5 or 6	≤4
Superstructure	≥7	5 or 6	≤4
Substructure	≥7	5 or 6	≤4
Culvert	≥7	5 or 6	≤4

A structure’s overall condition rating is determined by the lowest rating of its deck, superstructure, substructure, and/or culvert. If any of the components of a structure qualify as poor, the structure is rated as poor.

23 CFR 490.411(a) requires that no more than 10 percent of a state’s total NHS bridges by deck area are in poor condition.

PennDOT BOMO and Engineering Districts will utilize its bridge asset management tools and processes, which continue to be systematically expanded to analyze Pennsylvania’s bridges.

PennDOT’s bridge condition targets will be consistent with its asset management objectives of maintaining the system at the desired state of good repair, managing to LLCC, and achieving national and state transportation goals.

### Reporting on progress towards target achievement:

PennDOT and the MPOs/RPOs will include pavement and bridge performance measures and targets in the STIP, regional TIPs, and LRTPs.

PennDOT and the MPOs/RPOs will ensure the STIP, regional TIPs, and LRTPs are developed and managed to support progress toward target achievement.

When collaborating to set annual targets, PennDOT BOMO, CPDM and Engineering Districts will coordinate to provide feedback on statewide and MPO/RPO specific progress towards target achievement as it becomes available.

PennDOT will need to report baseline, mid period performance and full period performance as identified to FHWA. FHWA will determine if Pennsylvania has met or made significant progress toward meeting its pavement and bridge targets. When FHWA reports their findings to PennDOT, CPDM will share the findings with MPOs/RPOs.

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In accordance with 23 CFR 450.216(f), PennDOT CPDM in coordination with BOMO will include a description of the individual pavement and bridge performance measures and targets for those measures for the Statewide LRTP moving forward. In addition to including pavement and bridge performance measures and targets in the Statewide LRTP, PennDOT CPDM in coordination with BOMO will include a system performance report. That report must include an evaluation of system performance with respect to the performance targets. PennDOT CPDM in coordination with BOMO will include a description of progress achieved by the MPOs/RPOs in meeting the MPO/RPO performance targets in comparison with system performance recorded in previous reports [23 CFR 450.216(f)(2)]. The progress description will include the information that has been reported as part of the reports required under 23 CFR 490.107. With subsequent adoptions of Statewide LRTPs, PennDOT CPDM in coordination with BOMO will continue to include a system performance report describing the progress of meeting the performance targets in comparison with system performance recorded in previous years.

In accordance with 23 CFR 450.324(f)(3-4), MPOs/RPOs will include a description of the individual pavement and bridge performance measures and targets for those measures for regional LRTPs moving forward. In addition to including performance measures and targets in the regional LRTPs, MPOs/RPOs will include a system performance report. That report must include an evaluation of system performance with respect to the performance targets. MPOs/RPOs will describe progress achieved in meeting the performance targets in comparison with system performance recorded in previous reports [23 CFR 450.324(f)(4)(i)]. The progress description will include the information that has been reported as part of the reports required under 23 CFR 490.107. With subsequent adoptions of regional LRTPs, MPOs/RPOs will continue to include a system performance report describing the progress of meeting the performance targets in comparison with system performance recorded in previous years.

In accordance with 23 CFR 450.218(q), PennDOT CPDM in coordination with BOMO will include a narrative description in the STIP on how the program of projects contributes to the achievement of the pavement and bridge performance targets. The narratives should document PBPP objectives, investment strategies, performance measures and targets from the asset management plans and other performance-based plans are being implemented through the program of projects in the STIP.

In accordance with 23 CFR 450.326(d), MPOs/RPOs will include a narrative description in the TIP on how the program of projects contributes to the achievement of the pavement and bridge performance targets. The narratives should document PBPP objectives, investment strategies, performance measures and targets from the asset management plans and other performance-based plans are being implemented through the program of projects in the TIP.

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## System Performance Measures

The FHWA final rule for the *National Performance Management Measures; Assessing Performance of the National Highway System, Freight Movement on the Interstate System, and Congestion Mitigation and Air Quality Improvement Program* was published in the Federal Register ([82 FR 5970](#)) on January 18, 2017, and became effective on May 20, 2017.

This final rule was the third in a series of three related rulemakings that together establish a set of performance measures for State DOTs and MPOs to use as required by MAP-21 and the FAST Act. The measures in this third final rule will be used by State DOTs and MPOs to assess the performance of the Interstate and non-Interstate NHS for the purpose of carrying out the NHPP; to assess freight movement on the Interstate System; and to assess traffic congestion and on-road mobile source emissions for the purpose of carrying out the Congestion Mitigation and Air Quality Improvement (CMAQ) Program. These system performance measures are collectively referred to as the PM3 measures.

The PM3 performance measures include:

- Percent of Person-miles Traveled on the Interstate System that are Reliable
- Percent of Person-miles Traveled on the Non-Interstate NHS that are Reliable
- Interstate System Truck Travel Time Reliability Index
- Annual Hours of Peak-Hour Excessive Delay (PHED) per Capita
- Percent of Non-Single Occupant Vehicle (SOV) Travel
- On-Road Mobile Source Emissions Reduction for CMAQ-funded Projects

### Target setting:

In Pennsylvania, PennDOT CPDM in coordination with BOMO will take the lead and coordinate with MPO/RPO representatives as well as other necessary stakeholders, such as other State DOTs in urbanized areas, to utilize existing workgroups or organize a group to collaborate on the system performance measures and targets. This group will evaluate baseline performance measures tools, trends, and methodologies. Information discussed as part of these group(s) will be shared at Statewide Planning Partner Meetings and conference calls.

To satisfy 23 CFR 490.105(e)(2), PennDOT CPDM and BOMO will coordinate with MPOs/RPOs on the development of the measures and selection of targets to ensure consistency, to the maximum extent practicable. PennDOT CPDM in coordination with BOMO will be responsible for scheduling and conducting group meetings. PennDOT CPDM will be responsible for scheduling and conducting Planning Partner meetings and conference calls, where coordination on target setting will occur.

MPOs/RPOs will be responsible for providing representation on the group(s). All MPOs/RPOs will ensure they participate in Planning Partner meetings and conference calls to provide input into performance measure and target coordination.

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PennDOT is required to set State 2-year and 4-year targets biennially. PennDOT will have the option to adjust the four-year targets in the Mid Performance Period Progress Report. PennDOT CPDM in coordination with BOMO will coordinate any adjustments to the targets with the MPOs/RPOs.

The targets for the traffic congestion measures [23 CFR 490.707(a) and (b)] reported by PennDOT and MPOs for an urbanized area must be identical [23 CFR 490.105(f)(5)]. If a multistate MPO is required to establish targets for the traffic congestion measures, all applicable MPOs and State DOTs must establish only one 2-year target and one 4-year target for the entire urbanized area for each traffic congestion measure. The MPOs and State DOTs will collectively develop and implement a mutually agreed upon coordination process so that both MPOs and State DOTs meet their respective target establishment and reporting deadlines.

PennDOT will report the targets as part of FHWA required Performance Reporting.

PennDOT CPDM will share the reporting submissions and/or another type of notification of the state targets with the MPOs/RPOs in a timely manner.

All Pennsylvania MPOs/RPOs will establish targets for each performance measure and communicate adoption to PennDOT CPDM, within 180 days of PennDOT establishing (or amending) targets either by agreeing to plan and program projects in support of PennDOT targets, or by committing to their own quantifiable targets. If an MPO/RPO chooses to establish their own performance targets, they would need to coordinate with PennDOT CPDM and BOMO (as appropriate) on the selection of the targets and provide methodology used to develop their targets in accordance with 23 U.S.C. 134(h)(2)(B)(i)(II) to ensure consistency, to the maximum extent practicable.

## **Data Collection and Analysis:**

PennDOT CPDM and BOMO have worked to identify and evaluate the data and tools used to produce the baseline performance measures. The University of Maryland CATT Lab RITIS software platform is used to generate all the measures derived from the NPMRDS travel time data source. Data from the American Community Survey (ACS) and FHWA's CMAQ annual reporting system are used for the non-SOV travel and mobile source emissions measures, respectively. Future revisions and modifications to these tools may impact the reported performance measures and established targets.

Due to potential tool enhancements, limited historic information, and the need for additional research to understand the variances and factors influencing each of the performance measures, PennDOT CPDM and BOMO will continue to identify and evaluate the data and tools necessary for the performance measures and establishing targets.

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PennDOT CPDM and BOMO will take the lead along with required MPOs to track and evaluate data and targets.

## **Progress Towards Target Achievement and Reporting:**

PennDOT and the MPOs/RPOs will include system performance measure and targets in the STIP, regional TIPs, and LRTPs.

PennDOT and the MPOs/RPOs will ensure the STIP, regional TIPs, and LRTPs are developed and managed to support progress toward target achievement.

PennDOT will need to report baseline, mid period performance and full period performance as identified to FHWA. FHWA will determine if Pennsylvania has met or made significant progress toward meeting its system performance targets. When FHWA reports their findings to PennDOT, CPDM will share the findings with MPOs/RPOs.

In accordance with 23 U.S.C. 149(l), each MPO serving a Transportation Management Area (TMA) with a population over 1 million representing nonattainment and maintenance areas must develop a CMAQ Performance Plan, updated biennially, to report baseline condition/performance, targets, projects that will contribute to the targets, and the progress toward achievement of targets for the CMAQ traffic congestion and on-road mobile source emissions measures. Likewise, 23 CFR 490.105(f)(5)(iii) requires these MPOs must establish both 2-year and 4-year targets for the metropolitan planning area. MPOs that must develop a CMAQ performance plan will ensure they are developed and submitted timely to PennDOT, so they can be included in required FHWA reporting completed by PennDOT.

In accordance with 23 CFR 450.216(f), PennDOT CPDM in coordination with BOMO will include a description of the individual system performance measures and targets for those measures for the Statewide LRTP moving forward. In addition to including system performance measures and targets in the Statewide LRTP, PennDOT CPDM in coordination with BOMO will include a system performance report. That report must include an evaluation of system performance with respect to the performance targets. PennDOT CPDM in coordination with BOMO will include a description of progress achieved by the MPOs/RPOs in meeting the MPO/RPO performance targets in comparison with system performance recorded in previous reports [23 CFR 450.216(f)(2)]. The progress description will include the information that has been reported as part of the reports required under 23 CFR 490.107. With subsequent adoptions of Statewide LRTPs, PennDOT CPDM in coordination with BOMO will continue to include a system performance report describing the progress of meeting the performance targets in comparison with system performance recorded in previous years.

In accordance with 23 CFR 450.324(f)(3-4), MPOs/RPOs will include a description of the individual system performance measures and targets for those measures for regional LRTPs moving forward. In addition to including performance measures and targets in the regional LRTPs,

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MPOs/RPOs will include a system performance report. That report must include an evaluation of system performance with respect to the performance targets. MPOs/RPOs will describe progress achieved in meeting the performance targets in comparison with system performance recorded in previous reports [23 CFR 450.324(f)(4)(i)]. The progress description will include the information that has been reported as part of the reports required under 23 CFR 490.107. With subsequent adoptions of regional LRTPs, MPOs/RPOs will continue to include a system performance report describing the progress of meeting the performance targets in comparison with system performance recorded in previous years.

In accordance with 23 CFR 450.218(q), PennDOT CPDM in coordination with BOMO will include a narrative description in the STIP on how the program of projects contributes to the achievement of the system performance targets. The narratives should document PBPP objectives, investment strategies, performance measures and targets from the freight plan, Congestion Mitigation and Air Quality (CMAQ) Performance Plan(s) [23 U.S.C. 149(l)], Congestion Management Process (CMP), and other performance-based plans are being implemented through the program of projects in the STIP.

In accordance with 23 CFR 450.326(d), MPOs/RPOs will include a narrative description in the TIP on how the program of projects contributes to the achievement of the system performance targets. The narratives should document PBPP objectives, investment strategies, performance measures and targets from the freight plan, Congestion Mitigation and Air Quality (CMAQ) Performance Plan(s) [23 U.S.C. 149(l)], Congestion Management Process (CMP), and other performance-based plans are being implemented through the program of projects in the TIP.