



MEMORANDUM

To: Transportation Committee

From: CMAP Staff

Date: February 19, 2021

Re: 2021 NHS pavement condition performance targets

The Transportation Performance Management (TPM) statutes and regulations are designed to use information about the transportation system to make strategic investment and policy decisions that will enable states and regions to achieve national performance goals for highway and transit safety, asset condition, system performance, freight, and Congestion Management and Air Quality (CMAQ). Under the Assessing Pavement Condition for the National Highway Performance Program (NHPP) and Bridge Condition for the NHPP Final Rule (PM2), state departments of transportation (DOTs) and metropolitan planning organizations (MPOs) are required to establish quantitative bridge and pavement performance targets for the full extent of the Interstate and non-Interstate National Highway System (NHS) and use a set of performance measures to track progress toward achieving the targets.¹ MPOs have the choice to affirm the state's targets or to set their own quantitative 4-year targets.

CMAP adopted targets for pavement and bridge condition as a part of the ON TO 2050 plan. Despite being between plan cycles, CMAP staff is recommending adoption of new regional PM2 pavement performance targets because IDOT recently updated its statewide targets with new, more comprehensive, data. The method and performance measures for bridge targets have not changed, therefore CMAP staff recommends no change to the bridge condition targets adopted in 2018. Bridge targets will be reviewed and updated along with all federal performance measures for the ON TO 2050 update in 2022.

This memo includes background on the PM2 rule, reviews IDOT's 2021 statewide NHS pavement condition performance targets, and provides justification for the CMAP staff

¹ The bridge condition and pavement condition performance measure (PM2) requirements are set out in the Federal Highway Administration's [National Performance Management Measures: Assessing Pavement Condition for the National Highway Performance Program and Bridge Condition for the National Highway Performance Program](#) final rule.

recommendation that the CMAP Board and MPO Policy Committee support IDOT’s 2021 Interstate and non-Interstate NHS pavement condition performance targets.

Background on PM2 Rule

The PM2 Rule requires state DOTs and MPOs to establish a set of pavement condition performance targets for the full extent of the Interstate and non-Interstate NHS regardless of ownership. The pavement condition performance targets include: percent of Interstate pavement in good condition, percent of Interstate pavement in poor condition, percent of non-Interstate NHS pavement in good condition, percent of non-Interstate NHS pavement in poor condition.

Pavement condition is calculated using a combination of three pavement distresses for asphalt and jointed concrete pavement (JCP) and two pavement distresses for reinforced concrete pavement (CRCP). The International Roughness Index (IRI), cracking percent, rutting and faulting are the pavement distresses used to determine if a pavement is in good, fair, or poor condition. Data on cracking percent was not available in 2018 when these targets were first set. Table 1 shows the different pavement distress types and the condition threshold metrics.

Table 1: Pavement distress and condition metrics

Pavement Distress	Good	Fair	Poor
IRI (inches/mile)	<95	95-170	>170
Rutting ¹ (inches)	<0.20	0.20-0.40	>0.40
Faulting ² (inches)	<0.10	0.10-0.15	>0.15
Cracking (%)	<5	5-20 (asphalt) 5-15 (JCP) 5-10 (CRCP)	>20 (asphalt) >15 (JCP) >10 (CRCP)

- 1 - Only applicable to asphalt pavements
- 2 - Only applicable to jointed concrete pavement

In order for a JCP or asphalt pavement to be in good condition, all three pavement distress metrics must be in good condition and for CRCP both pavement distress metrics must be in good condition. If two or more pavement distress metrics are in poor condition, the pavement is in poor condition. For all other pavement distress metric combinations, the pavement is in fair condition. Pavements that are in good condition suggests no major investment is needed and pavements in poor condition suggests major reconstruction is needed. Pavement condition provides a partial understanding of the condition of the roadway, as the current metrics only measure surface distress and not the condition of the base of the roadway.

As with all other performance measures, MPOs have 180 days after the implementer, in the case of PM2 the State DOT, sets its target to decide if the MPO is going to support the State DOT statewide target or set its own target. The MPO can support any or all of the state’s pavement condition performance targets or develop its own pavement targets for any or all individual measures. The MPO is also required to integrate the pavement condition targets into its planning process by including it in the metropolitan transportation plan (MTP), in CMAP’s case, ON TO 2050. In addition, the MPO must show how investments in the transportation improvement program (TIP) help achieve the PM2 targets. CMAP has begun monitoring progress through its annual obligations reports.

IDOT PM2 pavement performance targets

IDOT adjusted all four statewide 4-year pavement performance targets in its Mid Performance Period Progress report to FHWA that was submitted on October 1, 2020. IDOT adjusted the pavement targets because the original 4-year performance targets were set using an alternative method due to not having all pavement distress data available when setting targets. FHWA allowed State DOTs to set targets using alternative methods until they were able to collect the full pavement distress data. Table 2 shows the statewide baseline pavement condition along with the original and revised 4-year targets.

Table 2. IDOT revised statewide pavement performance targets through 2021

Performance Measure	Base line (2017) ¹	4-Year target (2018 -2021)	Revised 4-year target (2018-2021)
Percentage of Pavements of the Interstate System in Good Condition		65.0%	61.0%
Percentage of Pavements of the Interstate System in Poor Condition		4.9%	2.0%
Percentage of Pavements of the Non-Interstate NHS in Good Condition	37.6%	27.0%	21.0%
Percentage of Pavements of the Non-Interstate NHS in Poor Condition	19.4%	6.0%	9.0%

1 – Adopted in 2018, full distress data not available.

These targets are related to another TPM rule-making which requires State DOTs to develop a transportation asset management plan (TAMP) and develop a corresponding statewide pavement management system (PMS) for the entire NHS. IDOT is currently developing its PMS and plans to have it completed for the next PM2 performance period. The PMS will help IDOT to better manage its NHS pavements and allow IDOT to model the impact different funding scenarios have on pavement performance. This will allow IDOT to more strategically plan and program projects to achieve future pavement performance targets.

CMAQ PM2 pavement performance targets

The CMAQ MPO originally set its pavement condition targets as part of ON TO 2050 and used an alternative method for setting targets. Per FHWA guidance, IRI was the only pavement distress used to set the region's first 4-year Interstate and 4-year non-Interstate NHS pavement condition targets. CMAQ is taking this opportunity to update its 4-year targets based on the full pavement distress metrics being available and because IDOT adjusted its statewide pavement performance targets. Because of the ON TO 2050 timeline, CMAQ set its pavement targets before IDOT, therefore regional targets did not align with IDOT's statewide pavement performance targets. The CMAQ region base line pavement condition, current 4-year pavement targets, and proposed targets are in Table 3 below.

Table 3: Proposed CMAP region pavement performance targets through 2021

Performance Measure	Base line ¹ (2017)	ON TO 2050 4- Year Target ¹ (2018-2021)	Proposed 4- year target (2018-2021)
Percentage of Pavements of the Interstate System in Good Condition	57.1%	58.9%	61.0%
Percentage of Pavements of the Interstate System in Poor Condition	1.8%	0.0%	2.0%
Percentage of Pavements of the Non-Interstate NHS in Good Condition	15.5%	17.7%	21.0%
Percentage of Pavements of the Non-Interstate NHS in Poor Condition	31.0%	28.5%	9.0%

1 – Adopted in 2018, full distress data not available, based on IRI.

Approximately 18.6 percent of non-Interstate NHS lane miles in the CMAP region are under local jurisdiction. New data have revealed noticeable differences in the non-Interstate NHS pavement targets. The additional pavement distress metrics enable the region to set better informed pavement targets. As noted above, only one distress metric, IRI, was available to set the pavement targets in ON TO 2050.

IDOT’s adopted targets and the proposed regional targets reflect a shift to the practice of developing and implementing transportation asset management practices. These practices are more fiscally sustainable and extend the life cycle of the pavement. Over time, by prioritizing maintenance that extends the life of roadways the region will defer the need for more costly reconstructions farther into the future.

Recommendation for 2021 NHS pavement condition performance targets

Staff recommends that the CMAP Board and MPO Policy Committee support IDOT’s 2021 Interstate and non-Interstate NHS pavement condition targets. IDOT’s new TAMP identified investment strategies and policies that align with CMAP’s municipal pavement management project and the ON TO 2050 principle to prioritize investments. The IDOT TAMP calls for IDOT moving away from a “worst first” approach to a more strategic investment strategy that programs projects throughout the roadway pavement life cycle: initial construction, proactive maintenance & preservation, rehabilitation, and replacement. Counties are putting similar practices into place.

By supporting IDOT’s pavement targets, the MPO is agreeing to integrate the targets as goals in the metropolitan planning process and to plan and program projects that help meet the State’s targets. The targets selected for different measures should ultimately reflect funding allocation priorities among other factors.

Next steps

Following discussion and approval by the Transportation Committee, the recommended 2021 pavement condition performance targets will be brought to the CMAP Board and MPO Policy Committee in March for approval. If the targets are approved, staff will prepare a memo

informing IDOT that the CMAP MPO agrees to support the 2021 NHS pavement condition targets.

ACTION REQUESTED: Approval

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