

**FEDERAL PERFORMANCE MEASURES:
PM₂ CONDITION TARGETS FOR
NATIONAL HIGHWAY SYSTEM (NHS)
PAVEMENT & BRIDGE ASSETS**



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NCTCOG PUBLIC MEETING – ARLINGTON, TX
INFORMATION ITEM – June 12, 2023

NCTCOG Federal Performance Target-Setting Activities

Context – Regional Strategy

■ **Implement required Federal measures**

- Fixing America's Surface Transportation (FAST) Act / Bipartisan Infrastructure Law (BIL)
- National Performance – State of Good Repair
 - Ensure safety of traveling public
 - Ensure effective long-term operation of transportation infrastructure using asset management
- National Performance – National Highway System (NHS) Good / Poor Condition Tracking

■ **Support TxDOT targets as much as possible**

- State Performance

■ **Set goals to guide regional planning documents & project outcomes**

- Regional Performance – “Tell Our Story”
- Include in Metropolitan Transportation Plan (MTP)
- Include in Transportation Improvement Program (TIP)

NCTCOG Federal Performance Target-Setting Activities *(cont.)*

Recent/Upcoming Committee Actions – PM2 (Pavement/Bridge) Targets

Rulemaking	Number of Measures	RTC Target-Setting Action		Reporting	
		Recent/Upcoming	Next <i>(Anticipated)</i>	Period	Schedule
Transit Safety (PTASP)	7	May 2021 ✓	Early 2025	Annually	Annually
Transit Asset Management (TAM)	4	September 2022 ✓	Late 2026	Annually	Annually
PM3 – System Performance, Freight, & CMAQ	7	September 2022 ✓	Late 2024	Four-Year Performance Periods <i>(Second Period: 2023-26)</i>	Biennially <i>(beginning, middle, & end of performance periods)</i>
PM1 – Roadway Safety	5	February 2023 ✓	Early 2024 <i>(Information/Update)</i>	Annually	Annually
PM2 – Pavement/Bridge Condition	6	July 2023	Late 2024	Four-Year Performance Periods <i>(Second Period: 2023-26)</i>	Biennially <i>(beginning, middle, & end of performance periods)</i>

2022

First PM2 performance period (2018-21) ends

Second PM2 performance period (2022-25) begins

RTC adopts PM2 targets for 2024 & 2026

2024

Mid-performance period report due October 1, 2024

RTC adjusts or reaffirms 2026 PM2 targets

2026

Second PM2 performance period (2022-25) ends

Third PM2 performance period (2026-29) begins

RTC adopts new PM2 targets for 2028 & 2030

NHS PM2 Pavement Analysis

New Pavement Data Considerations (Non-Interstate NHS Facilities)

- Pavement roughness often judged as critical link between user satisfaction (comfort/safety) and performance
 - ▣ For decades, International Roughness Index (IRI) has been a standardized & practical metric via data sensed without traffic disruption
 - ▣ Roughness & *structural distress* (*cracking, rutting, & faulting*) interdependencies do exist, but sensing limitations prevent consensus on exact analytical relationship
- **Roughness (IRI) alone results in overestimation of poor condition pavements**
- **Non-Interstate NHS Pavements:**
 - ▣ **First PM2 Performance Period: IRI Only**
 - ▣ **Second PM2 Performance Period: IRI + Structural Distress**
- Revised methodology results in positive condition differences for non-Interstate pavements
- Integration of metrics will enable more holistic lifecycle assessments of pavement assets

NHS PM2 Pavement Analysis *(cont.)*

Statewide Data/Targets – Good Condition (DRAFT)

NATIONAL HIGHWAY SYSTEM (NHS) ROADWAY CATEGORIES	DESIRED IMPROVEMENT TREND	First Performance Period (2018-22)			Second Performance Period (2022-26)		
		2018 Baseline	2020 Observed	2022 Target ¹ <i>(Updated 2020)</i>	2022 Baseline <i>(Last Observed)</i>	2024 Target ² <i>(Forecast)</i>	2026 Target ² <i>(Forecast)</i>
<i>State of Texas</i>							
Good Pavement Condition							
Interstate NHS	↗	66.8%	66.6%	66.5%	64.5%	63.9%	63.6%
Non-Interstate NHS	↗	54.4%	55.2%	54.1%	51.7%	45.5%	46.0%

1. Original statewide target from First Performance Period based on historic 4-year Highway Performance Monitoring System (HPMS) moving average, including transition from visual pavement surveys to semi-automated data collection; assumes International Roughness Index (IRI) ratings only for non-Interstate NHS; assumes IRI, cracking, rutting, & faulting metrics for Interstate NHS.
2. New statewide targets for Second Performance Period based on historic 4-year HPMS moving average, but correlated with 2022 Transportation Asset Management Plan (TAMP) 10-year lifecycle analysis projections; assumes IRI, cracking, rutting, & faulting metrics for all NHS facility pavements.

NHS PM2 Pavement Analysis *(cont.)*

Regional Data/Trends – Good Condition (DRAFT)

NATIONAL HIGHWAY SYSTEM (NHS) ROADWAY CATEGORIES	DESIRED IMPROVEMENT TREND	First Performance Period (2018-22)			Second Performance Period (2022-26)		
		2018 Baseline	2020 Observed	2022 Trend ¹ <i>(Updated 2020)</i>	2022 Baseline <i>(Last Observed)</i>	2024 Trend ² <i>(Forecast)</i>	2026 Trend ² <i>(Forecast)</i>
North Central Texas (NCTCOG) Region							
Good Pavement Condition							
Interstate NHS	➡	50.1%	34.9%	19.8%	56.2%	54.5%	56.1%
Non-Interstate NHS: <i>On-System Freeway (TxDOT)</i>	➡	43.2%	48.8%	54.4%	47.8%	50.2%	56.0%
Non-Interstate NHS: <i>On-System Arterial (TxDOT)</i>	➡	36.1%	43.3%	50.9%	32.0%	31.7%	31.8%
Non-Interstate NHS: <i>Off-System Arterial (Local)</i>	➡	1.2%	1.1%	1.0%	1.0%	1.2%	1.4%
Non-Interstate NHS: <i>Off-System Toll Road (NTTA) ³</i>	➡	93.4%	91.4%	90.9%	89.0%	89.2%	87.1%

1. Original trend from First Performance Period based on historic 4-year Highway Performance Monitoring System (HPMS) moving average for NCTCOG NHS pavement segments only; assumes International Roughness Index (IRI) ratings only for non-Interstate NHS; assumes IRI, cracking, rutting, & faulting metrics for Interstate NHS.
2. New regional trends for Second Performance Period based on historic 4-year HPMS moving average; assumes IRI, cracking, rutting, & faulting metrics for all NHS facility pavements.
3. Indicated figure/trend estimates based on NTTA's Condition Rating System (CRS) which addresses surface condition, IRI, rutting, faulting, & pavement type. NTTA CRS & TxDOT HPMS data reconciliation remains under evaluation and will not impact target action.

NHS PM2 Pavement Analysis *(cont.)*

Statewide Data/Targets – Poor Condition (DRAFT)

NATIONAL HIGHWAY SYSTEM (NHS) ROADWAY CATEGORIES	DESIRED IMPROVEMENT TREND	First Performance Period (2018-22)			Second Performance Period (2022-26)		
		2018 Baseline	2020 Observed	2022 Target ¹ <i>(Updated 2020)</i>	2022 Baseline <i>(Last Observed)</i>	2024 Target ² <i>(Forecast)</i>	2026 Target ² <i>(Forecast)</i>
<i>State of Texas</i>							
Poor Pavement Condition							
Interstate NHS	↘	0.3%	0.2%	0.2%	0.1%	0.2%	0.2%
Non-Interstate NHS	↘	13.8%	14.2%	14.2%	1.3%	1.5%	1.5%

1. Original statewide target from First Performance Period based on historic 4-year Highway Performance Monitoring System (HPMS) moving average, including transition from visual pavement surveys to semi-automated data collection; assumes International Roughness Index (IRI) ratings only for non-Interstate NHS; assumes IRI, cracking, rutting, & faulting metrics for Interstate NHS.
2. New statewide targets for Second Performance Period based on historic 4-year HPMS moving average, but correlated with 2022 Transportation Asset Management Plan (TAMP) 10-year lifecycle analysis projections; assumes IRI, cracking, rutting, & faulting metrics for all NHS facility pavements.

NHS PM2 Pavement Analysis *(cont.)*

Regional Data/Trends – Poor Condition (DRAFT)

NATIONAL HIGHWAY SYSTEM (NHS) ROADWAY CATEGORIES	DESIRED IMPROVEMENT TREND	First Performance Period (2018-22)			Second Performance Period (2022-26)		
		2018 Baseline	2020 Observed	2022 Trend ¹ <i>(Updated 2020)</i>	2022 Baseline <i>(Last Observed)</i>	2024 Trend ² <i>(Forecast)</i>	2026 Trend ² <i>(Forecast)</i>
North Central Texas (NCTCOG) Region							
Poor Pavement Condition							
Interstate NHS	↘	0.2%	0.7%	1.3%	0.1%	0.3%	0.2%
Non-Interstate NHS: <i>On-System Freeway (TxDOT)</i>	↘	6.4%	6.8%	7.2%	0.3%	0.3%	0.4%
Non-Interstate NHS: <i>On-System Arterial (TxDOT)</i>	↘	18.5%	20.4%	22.1%	0.5%	0.7%	0.8%
Non-Interstate NHS: <i>Off-System Arterial (Local)</i>	↘	73.7%	74.3%	74.1%	7.6%	9.4%	11.8%
Non-Interstate NHS: <i>Off-System Toll Road (NTTA) ³</i>	↘	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

1. Original trend from First Performance Period based on historic 4-year Highway Performance Monitoring System (HPMS) moving average for NCTCOG NHS pavement segments only; assumes International Roughness Index (IRI) ratings only for non-Interstate NHS; assumes IRI, cracking, rutting, & faulting metrics for Interstate NHS.
2. New regional trends for Second Performance Period based on historic 4-year HPMS moving average; assumes IRI, cracking, rutting, & faulting metrics for all NHS facility pavements.
3. Indicated figure/trend estimates based on NTTA's Condition Rating System (CRS) which addresses surface condition, IRI, rutting, faulting, & pavement type. NTTA CRS & TxDOT HPMS data reconciliation remains under evaluation and will not impact target action.

NHS PM2 Bridge Analysis

Statewide Data/Targets – Good/Poor Condition (DRAFT)

NATIONAL HIGHWAY SYSTEM (NHS) ROADWAY CATEGORIES	DESIRED IMPROVEMENT TREND	First Performance Period (2018-22)			Second Performance Period (2022-26)		
		2018 Baseline	2020 Observed	2022 Target ² <i>(Updated 2020)</i>	2022 Baseline <i>(Last Observed)</i>	2024 Target ² <i>(Forecast)</i>	2026 Target ² <i>(Forecast)</i>
<i>State of Texas</i>							
Good Bridge Condition							
All NHS Facilities ¹	↗	50.7%	50.7%	50.4%	49.2%	48.5%	47.6%
Poor Bridge Condition							
All NHS Facilities ¹	↘	0.9%	1.3%	1.5%	1.1%	1.5%	1.5%

1. All percentages based on total deck area.

2. Statewide targets for First/Second Performance Periods based on 10-year moving average.

NHS PM2 Bridge Analysis *(cont.)*

Regional Data/Trends – Good/Poor Condition (DRAFT)

NATIONAL HIGHWAY SYSTEM (NHS) ROADWAY CATEGORIES	DESIRED IMPROVEMENT TREND	First Performance Period (2018-22)			Second Performance Period (2022-26)		
		2018 Baseline	2020 Observed	2022 Trend ² <i>(Updated 2020)</i>	2022 Baseline <i>(Last Observed)</i>	2024 Trend ³ <i>(Forecast)</i>	2026 Trend ³ <i>(Forecast)</i>
<i>North Central Texas (NCTCOG) Region</i>							
Good Bridge Condition							
All NHS Facilities ¹	↗	55.3%	56.0%	57.9%	49.9%	50.4%	50.2%
Poor Bridge Condition							
All NHS Facilities ¹	↘	1.9%	2.3%	2.0%	2.1%	2.1%	2.2%

1. All percentages based on total deck area for regional NHS bridges only.

2. Estimation/reporting of regional trend for First Performance Period based on 6-year moving average; condition data reported in 2-year increments.

3. Estimation/reporting of new regional trend for Second Performance Period based on 10-year moving average; condition data reported in 2-year increments.

NHS PM2 Bridge Analysis *(cont.)*

Extent/Status of Regional Poor Condition NHS Bridges

- In considering FY 22 Bridge Investment Program (BIP) candidates, staff coordinated with local governments and TxDOT's Bridge Division/local Districts to analyze poor condition NHS bridges
- INFRA Grant (2019) – North Central Texas Strategic NHS Bridge Program:
 - ▣ Original Submittal – \$229 million (\$113 million INFRA requested) for 12 projects across both East & West subregions
 - ▣ Awarded Project – \$45.5 million (\$8.8 million INFRA awarded) for seven projects (3 – East; 4 – West)
 - ▣ Implementation – \$28.5 million for four projects (1 – East; 3 – West)
 - All implementation projects now under construction or completed
 - All projects from original submittal have treatments underway or funded/scheduled, except for one (still on poor condition list*)
- Poor Condition NHS Bridges (2022) – Breakdown by TxDOT District:
 - ▣ Dallas: 37 bridges (36 – “On-System”; 1 – “Off-System”)
 - ▣ Fort Worth: 12 bridges (9 – “On-System”; 3 – “Off-System”)
- Of the 49 regional NHS bridges in poor condition, treatments for all but three structures are funded/scheduled for construction, under construction, or completed:
 - ▣ TxDOT (City of Dallas): Loop 12 NB bridge (to IH 35E NB) over IH 35E SB*
 - ▣ TxDOT (City of Fort Worth): SH 121 WB/Belknap Street bridge over IH 35W SB
 - ▣ TxDOT (City of Fort Worth): SH 199 (Jacksboro Highway) bridge over West Fork Trinity River

PM2 Target Decision-Making

Proposed RTC Action – Affirm Support for New Statewide Targets (DRAFT)

Good

- **Affirm NCTCOG support** for new TxDOT statewide “Good Condition” NHS pavement and bridge targets for 2024 and 2026

Poor

- **Affirm NCTCOG support** for new TxDOT statewide “Poor Condition” NHS pavement and bridge targets for 2024 and 2026
- **Collaborate to plan/program projects** contributing toward accomplishment of pavement/bridge goals via the following actions:
 - ▣ NCTCOG will continue to work with local governments on annual monitoring and expediting improvements for identified NHS Off-System Arterials in “Poor Condition”
 - ▣ NCTCOG will continue to work with TxDOT/local governments on annual monitoring and expediting improvements for identified NHS Bridges in “Poor Condition”

PM2 Target Decision-Making *(cont.)*

Schedule

February 10, 2023	TxDOT Submits PM2 Targets to Federal Highway Administration (FHWA) <i>(180-day MPO review begins)</i>
May 26, 2023	STTC Fast Fact
June 8, 2023	RTC Information
June 12, 2023	NCTCOG Transportation Public Meeting <i>(comment period ends July 11, 2023)</i>
June 23, 2023	STTC Action
July 13, 2023	RTC Action
August 9, 2023	Deadline for MPOs to Report Whether They Will <u>Either</u>: <ul style="list-style-type: none"><i>(i). Agree to plan/program projects contributing to affirmed TxDOT PM2 targets; or,</i><i>(ii). Commit to new quantifiable PM2 targets for the Metropolitan Planning Area (MPA)</i>

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