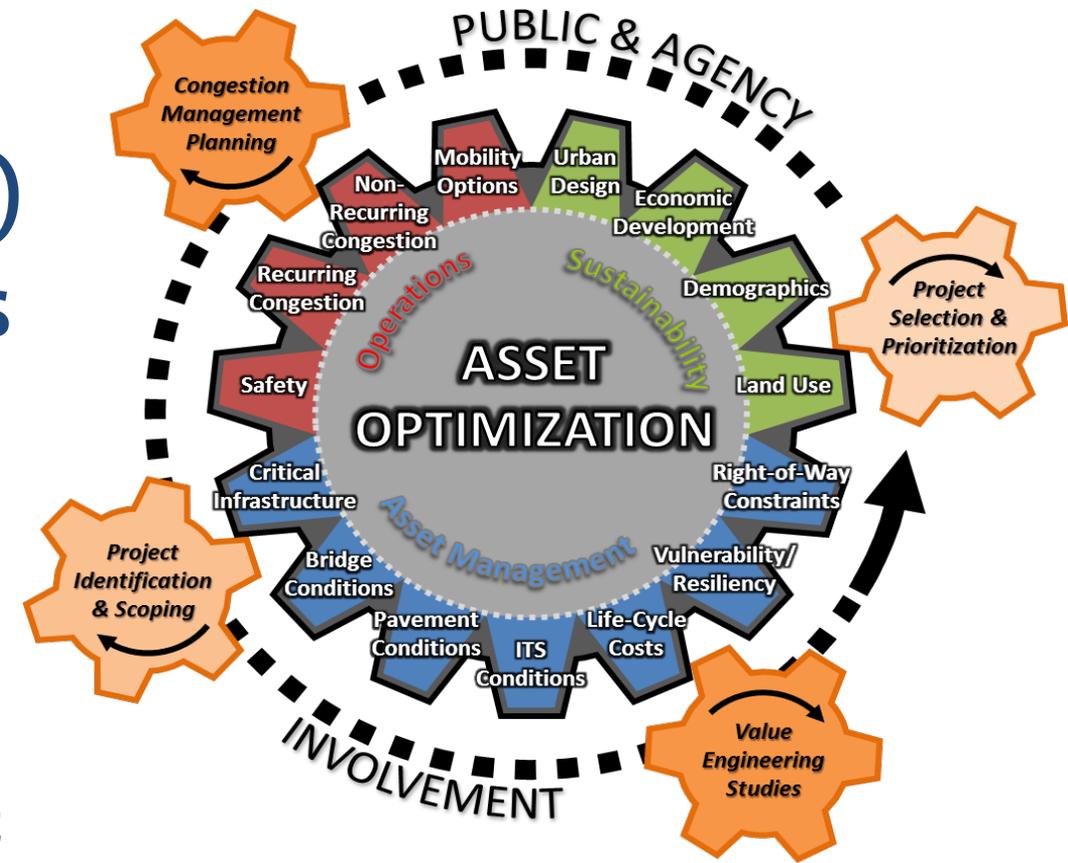


# Federal Highway Administration: Pavement/Bridge Condition (PM2) Target Reaffirmation or Revisions

Presented by:

Jeffrey C. Neal – Senior Program Manager  
Streamlined Project Delivery & Data Management



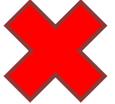
November 9, 2020

North Central Texas Council of Governments (NCTCOG)  
November 2020 – Virtual Public Meeting

# NCTCOG Performance Measurement Activities

## FAST Act – Performance Measures and Target Setting

2

Complete	Rulemaking	Number of Measures	DOT/Provider Target Setting Deadline	MPO Target Setting Deadline	Reporting Period	Reporting Schedule
	Safety (PM1)	5	8/31/2020	2/27/2021	Annually	Annually
	Pavement/Bridge Condition (PM2)	6	10/01/2020	3/30/2021	Four-Year Performance Periods (starting 2018-2022)	Biennially (beginning, middle, & end of performance periods)
	System Performance (PM3)	7	10/01/2020	10/01/2020	Four-Year Performance Periods (starting 2018-2022)	Biennially (beginning, middle, & end of performance periods)
	Public Transportation Safety Plan (PTASP)	7	12/31/2020	6/29/2021	Annually	Annually
	Transit Asset Management (TAM)	4	1/01/2021	6/30/2021	Annually	Annually

# NCTCOG Performance Measurement Activities (cont.)

## PM2 (Pavement/Bridge Condition) Performance Period Schedule

3



2018

First Performance Period began

November 8, 2018:  
RTC affirms TxDOT  
statewide PM2 targets for  
2020 and 2022



2020

Mid-Performance Period  
Report due October 1, 2020

If TxDOT adjusts PM2  
statewide targets (2022),  
MPOs have 180 days to  
either reaffirm support for  
adjusted targets, or set  
new regional targets



2022

First Performance Period  
ends

Second Performance  
Period begins

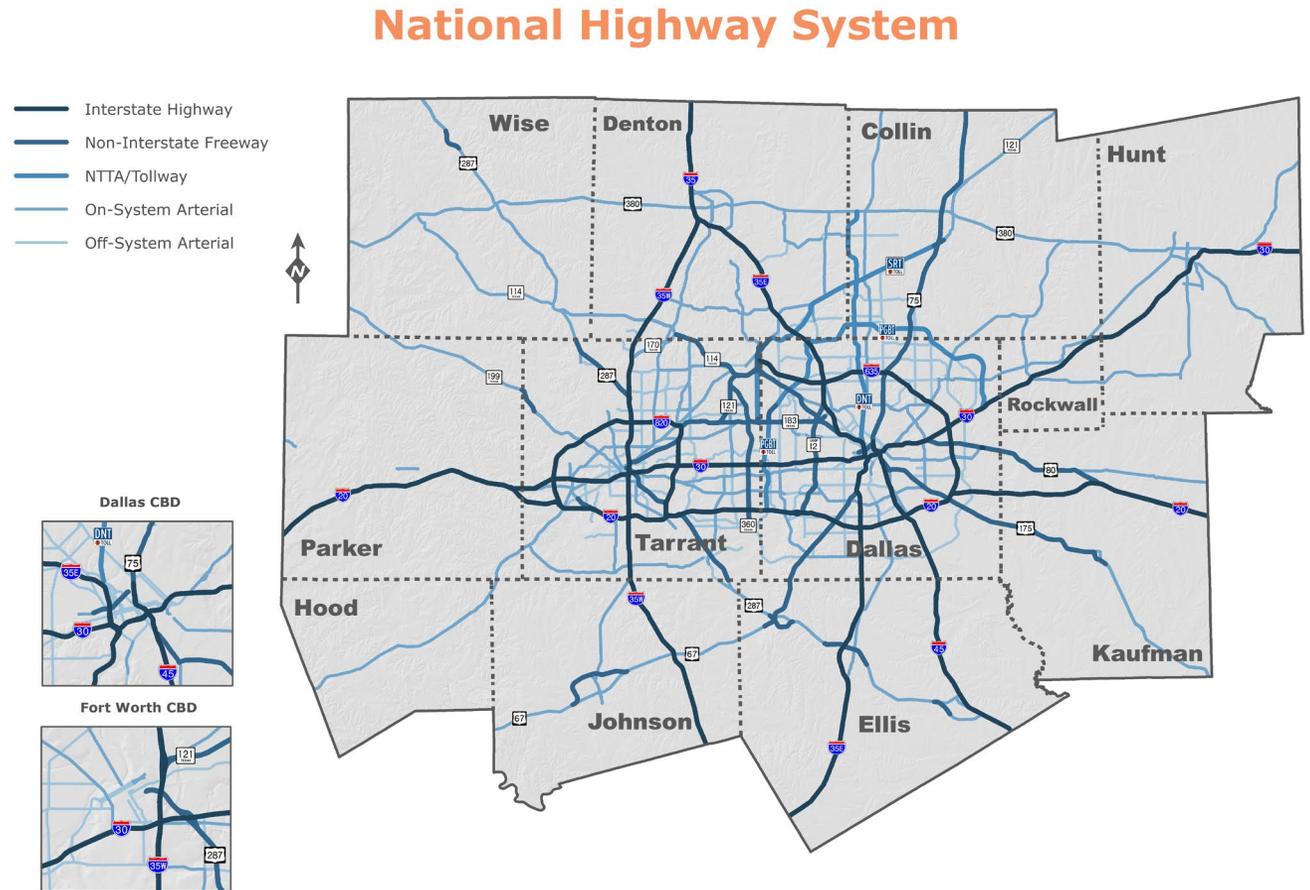
MPOs adopt new targets  
(statewide or regional) for  
2024 and 2026

# National Highway System (NHS) – NCTCOG Region

## Breakdown of NHS Roadway Classifications for PM<sub>2</sub> Analysis

4

- In accordance with 23 CFR Part 490, pavement/bridge conditions are reported for National Highway System (NHS) facilities
- State DOTs are required to establish PM<sub>2</sub> targets representing the full NHS extent, *regardless of ownership*
- Total NHS (NCTCOG) = 12,448 lane-miles
  - ▣ Interstate Highways = 3,215 lane-miles (25.8%)
  - ▣ Non-Interstate Freeways = 1,667 lane-miles (13.4%)
  - ▣ On-System Arterials = 3,769 lane-miles (30.3%)
  - ▣ Off-System Toll Roads (NTTA) = 838 lane-miles (6.7%)
  - ▣ Off-System Arterials = 2,959 lane-miles (23.8%)
- NHS comprises 14.1% of region's total roadway lane-miles (2018), but accommodate 63.2% of total vehicle-miles of travel (VMT)
- 30 local entities own NHS off-system arterials



# PM2 Pavement Analysis – Statewide vs. Regional Data

## Breakdown of Good Condition Targets

5

NHS ROADWAY CATEGORIES	DESIRED IMPROVEMENT TREND	2018 BASELINE	2020 CONDITION (NEW)	2022 TARGET (ORIGINAL)	2022 TARGET (UPDATED)
<i>State of Texas</i> <sup>1</sup>					
<b>Good Pavement Condition</b>					
Interstate National Highway System (NHS)	↗	66.8%	66.6%	66.4%	66.5%
Non-Interstate National Highway System (NHS)	↗	54.4%	55.2%	52.3%	54.1%
<i>North Central Texas (NCTCOG) Region</i> <sup>1,2</sup>					
<b>Good Pavement Condition</b>					
Interstate NHS (TxDOT)	↗	50.1% <sup>2</sup>	34.9%	52.7% <sup>2</sup>	19.8%
Non-Interstate NHS: On-System Freeways (TxDOT)	↗	26.9% <sup>2</sup>	48.8%	36.2% <sup>2</sup>	54.4%
Non-Interstate NHS: On-System Arterials (TxDOT)	↗		43.3%		50.9%
Non-Interstate NHS: Off-System Toll Roads (NTTA) <sup>3</sup>	↗		47.6% <sup>3</sup>		52.3% <sup>3</sup>
Non-Interstate NHS: Off-System Arterials (Local)	↗		1.1%		1.0%

1. Highway Performance Monitoring System (HPMS) data; new regional target estimates based on 3-year (2017-19) HPMS moving average (assumes IRI ratings only for non-Interstate NHS; assumes IRI, cracking, rutting, & faulting metrics for Interstate NHS).

2. TxDOT Pavement Management Information System (PMIS) data where indicated; estimation/reporting of original NCTCOG regional target based on 5-year (2013-17) moving average for all non-Interstate NHS roadways combined (good condition only).

3. Indicated figures/target estimates based on TxDOT HPMS/PMIS data, not on NTTA's Condition Rating System (CRS) which addresses surface condition, IRI, rutting, faulting, & pavement type. In 2018 & 2020, CRS good condition ratings were 93.4% & 91.4%, respectively.

# PM2 Pavement Analysis – Statewide vs. Regional Data (cont.)

## Breakdown of Poor Condition Targets

6

NHS ROADWAY CATEGORIES	DESIRED IMPROVEMENT TREND	2018 BASELINE	2020 CONDITION (NEW)	2022 TARGET (ORIGINAL)	2022 TARGET (UPDATED)
<i>State of Texas</i> <sup>1</sup>					
<b>Poor Pavement Condition</b>					
Interstate National Highway System (NHS)	↘	0.3%	0.2%	0.3%	0.2%
Non-Interstate National Highway System (NHS)	↘	13.8%	14.2%	14.3%	14.2%
<i>North Central Texas (NCTCOG) Region</i> <sup>1,2</sup>					
<b>Poor Pavement Condition</b>					
Interstate NHS (TxDOT)	↘	5.8% <sup>2</sup>	0.7%	8.0% <sup>2</sup>	1.3%
Non-Interstate NHS: On-System Freeways (TxDOT)	↘	6.8% <sup>2</sup>	6.8%	8.9% <sup>2</sup>	7.2%
Non-Interstate NHS: On-System Arterials (TxDOT)	↘	18.5% <sup>2</sup>	20.4%	18.4% <sup>2</sup>	22.1%
Non-Interstate NHS: Off-System Toll Roads (NTTA) <sup>3</sup>	↘	8.4% <sup>3</sup>	3.2% <sup>3</sup>	9.3% <sup>3</sup>	2.8% <sup>3</sup>
Non-Interstate NHS: Off-System Arterials (Local)	↘	73.7% <sup>2</sup>	74.3%	69.8% <sup>2</sup>	74.1%

1. Highway Performance Monitoring System (HPMS) data; new regional target estimates based on 3-year (2017-19) HPMS moving average (assumes IRI ratings only for non-Interstate NHS; assumes IRI, cracking, rutting, & faulting metrics for Interstate NHS).

2. TxDOT Pavement Management Information System (PMIS) data where indicated; estimation/reporting of original regional targets in 2018 based on 5-year (2013-17) moving average (poor condition only).

3. Indicated figures/target estimates based on TxDOT HPMS/PMIS data, not on NTTA's Condition Rating System (CRS) which addresses surface condition, IRI, rutting, faulting, & pavement type. In both 2018 & 2020, CRS poor condition rating was 0.0%.

# Considerations for Pavement Target Decision-Making

## Current Regional Transportation Council (RTC) Action

7

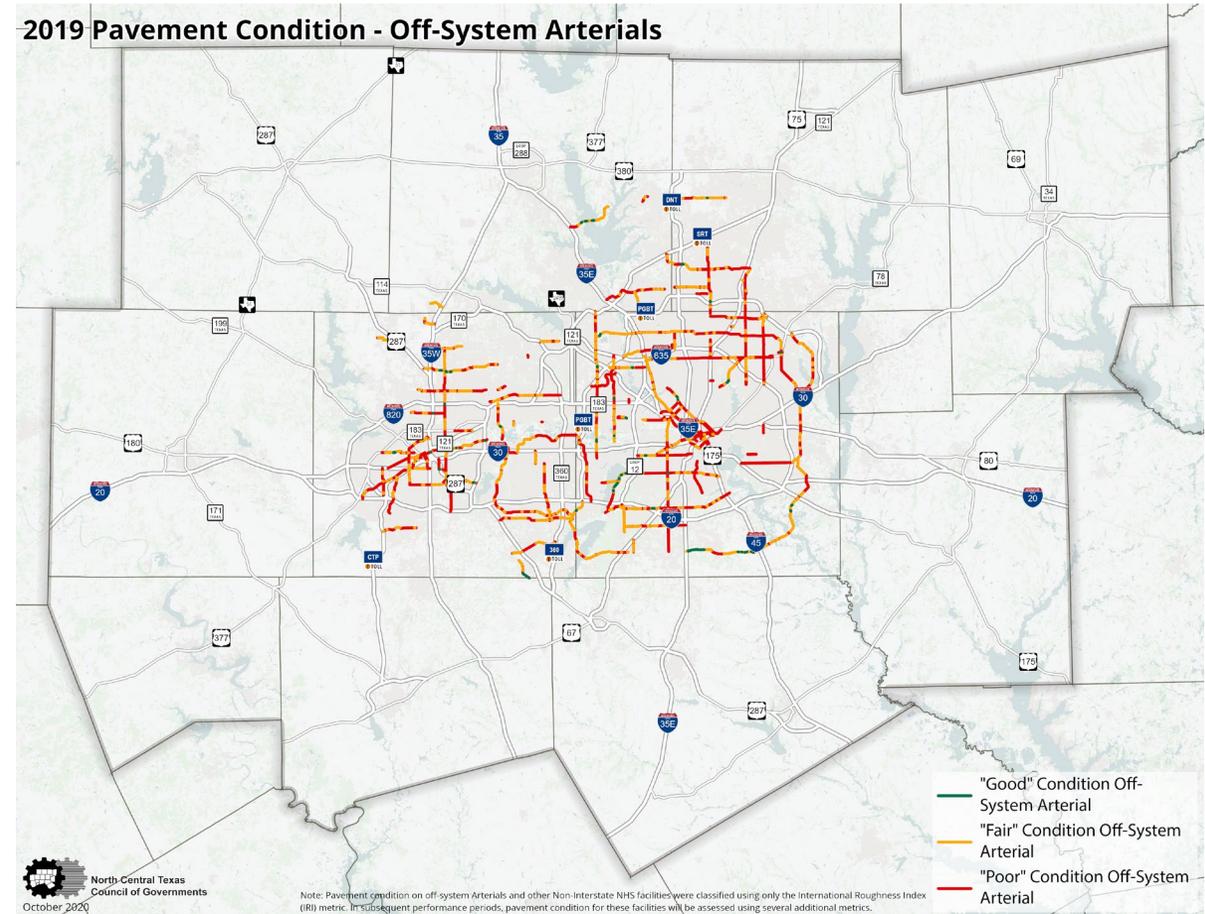
Good

- NCTCOG **supported** TxDOT statewide 2022 “Good Condition” NHS pavement targets
- Analysis of TxDOT data for NCTCOG region indicated general compatibility across all NHS roadway categories

Poor

- NCTCOG **supported** TxDOT statewide 2022 “Poor Condition” NHS pavement targets
- Collaboration to plan/program projects contributing toward accomplishment of pavement goals also included the following action:
  - ▣ NCTCOG will work with local governments to expedite improvements for **NHS Off-System Arterials** in “Poor Condition”

2019 Pavement Condition - Off-System Arterials



# PM2 Bridge Analysis – Statewide vs. Regional Data

## Breakdown of Good/Poor Condition Targets

8

NHS ROADWAY CATEGORIES	DESIRED IMPROVEMENT TREND	2018 BASELINE	2020 CONDITION (NEW)	2022 TARGET (ORIGINAL)	2022 TARGET (UPDATED)
<i>State of Texas</i>					
<b>Good Bridge Condition</b>					
All NHS Facilities <sup>1</sup>	↗	50.7%	50.7%	50.4%	50.4%
<b>Poor Bridge Condition</b>					
All NHS Facilities <sup>1</sup>	↘	0.9%	1.3%	0.8%	1.5%
<i>North Central Texas (NCTCOG) Region</i>					
<b>Good Bridge Condition</b>					
All NHS Facilities <sup>1</sup>	↗	55.3%	56.0%	58.4% <sup>2</sup>	57.9% <sup>3</sup>
<b>Poor Bridge Condition</b>					
All NHS Facilities <sup>1</sup>	↘	1.9%	2.3%	1.5% <sup>2</sup>	2.0% <sup>3</sup>

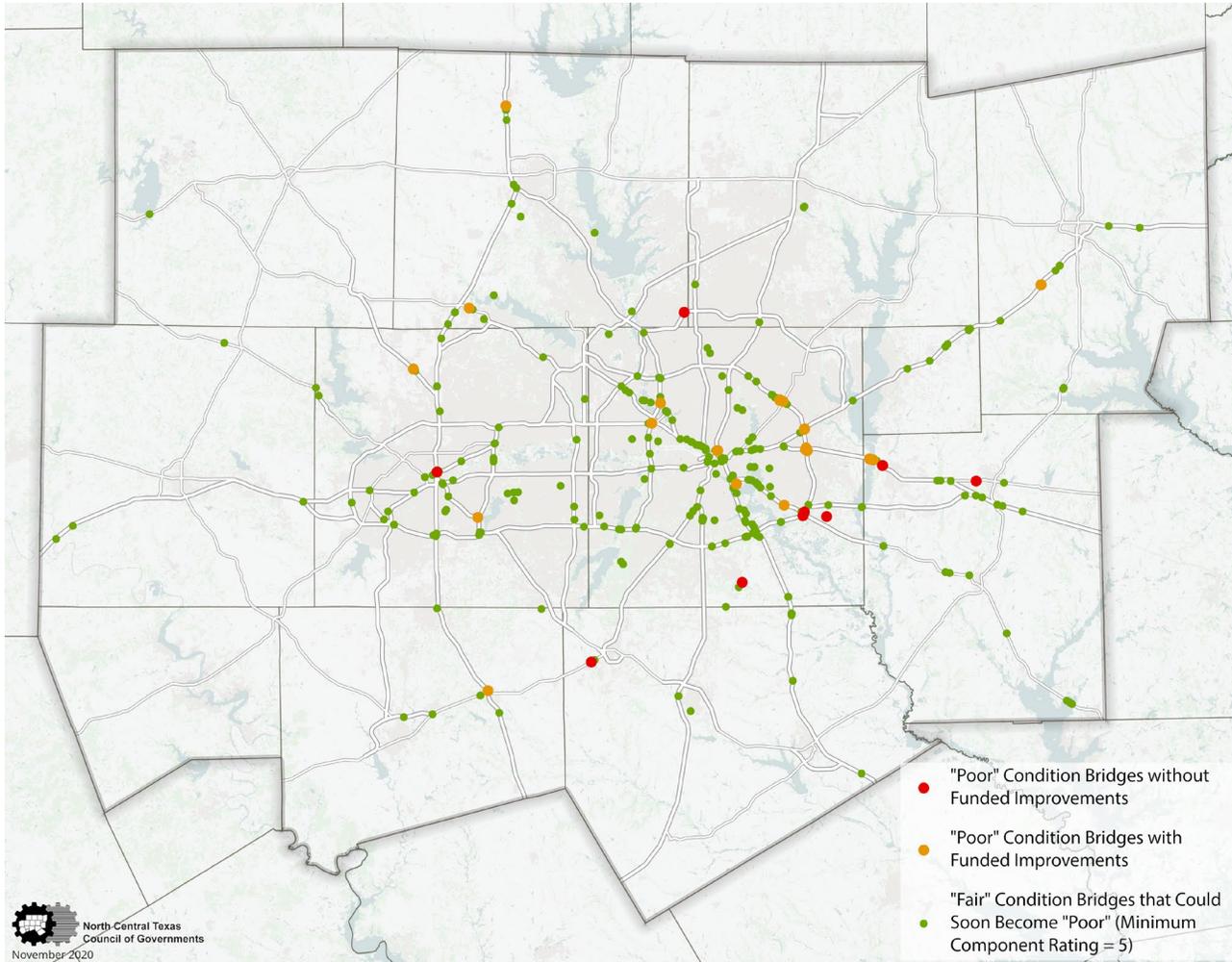
1. All percentages based on total deck area.

2. Estimation/reporting of original regional targets in 2018 based on 6-year (2012-18) linear trend analysis; condition data reported in 2-year increments.

3. Estimation/reporting of new regional targets based on 8-year (2012-20) linear trend analysis; condition data reported in 2-year increments.

# PM2 Bridge Analysis – Statewide vs. Regional Data (cont.)

## Extent of Regional “Poor”/”Near-Poor” Condition NHS Bridges



### NCTCOG Region – Bridge Performance Status

BRIDGE PERFORMANCE	2018	2020
“Poor Condition” NHS Bridges	14	34
Funded – 2018 (UTP –or– TIP/STIP) <sup>1</sup>	12	
Repeat Listings		12
Funded – 2020 (UTP –or– TIP/STIP) <sup>1</sup>		25
Not Addressed (< 10 Years)	2	9

<sup>1</sup> UTP = Unified Transportation Program (TxDOT); TIP/STIP = (Statewide) Transportation Improvement Program

### NCTCOG Region – “Poor Condition” Bridges Not Addressed (2020)

FACILITY CARRIED	FEATURE(S) CROSSED	COUNTY	NHS CATEGORY
IH 20 EB Connector D	IH 20/US 175 Interchange	Dallas	Interstate
IH 20 WB Connector C	IH 20/US 175 Interchange	Dallas	Interstate
Belt Line Rd	Goff Branch	Dallas	Off-System Arterial
Belt Line Rd	Keller Branch	Dallas	Off-System Arterial
US 67 EB	Ward Branch	Ellis	Non-IH Freeway
US 80 EB	Buffalo Creek Relief	Kaufman	Non-IH Freeway
US 80 WB	Buffalo Creek Relief	Kaufman	Non-IH Freeway
US 80 EB	Bachelor Creek	Kaufman	Non-IH Freeway
SH 121 WB	IH 35W SB	Tarrant	Non-IH Freeway

# Considerations for Bridge Target Decision-Making

## Current Regional Transportation Council (RTC) Action

10

Good

- NCTCOG **supported** TxDOT statewide 2022 “Good Condition” NHS bridge targets
- Analysis of TxDOT data for NCTCOG region indicated general compatibility across all NHS roadway categories

Poor

- NCTCOG **supported** TxDOT statewide 2022 “Poor Condition” NHS bridge targets
- Collaboration to plan/program projects contributing toward accomplishment of bridge goals also included the following actions:
  - ▣ NCTCOG will work with TxDOT and local governments to expedite improvements for NHS Bridges in “Poor Condition”

**INFRA**

U.S. Dept. of Transportation – 7/22/19

North Texas Strategic National Highway System (NHS) Bridge Program (Bridges 2,5,6,9,10,11,12)  
North Central Texas Council of Governments  
Dallas-Fort-Worth, Texas

Proposed Award: \$8,775,000  
Portion of Proposed Award Subject to 23 U.S.C. 117(d)(2): \$0  
Estimated Future Eligible Project Costs: \$45,312,000  
Estimated Minimum Non-Federal Funding: \$10,854,567  
Urban-Rural Designation: Urban

Project Description

The North Central Council of Governments (NCTCOG) and Texas DOT will be awarded \$8.775 million for a series of 7 projects involving 7 bridges in various counties in the greater Dallas-Fort Worth area. The projects are a combination of bridge replacements, bridge reconstruction projects, and 1 complete bridge removal.

Project Benefits

The project benefits far outweigh the costs, and contributes to regional benefits with travel time savings and emission reductions, as well as addresses the program goals of environmental sustainability and congestion reduction. The project demonstrates a high level of innovation through the implementation of dynamic signalizing, signal prioritization, and other Intelligent Transportation Systems strategies to reduce congestion and back-up on several of the bridge locations. The performance application incorporates innovative project delivery methods through the use of NEPA assignment, A+B Bidding, and possible use of incentive clauses as part of the A+B bidding. The project will also use innovative financing methods through Regional Toll Revenue funds in addition to federal, state, and local funding sources. This project's non-Federal leverage was in the fifth quintile of small project applications, but the project is included in the sponsor's transportation asset management plan and is benefiting from multiple state and local sources of match funding.

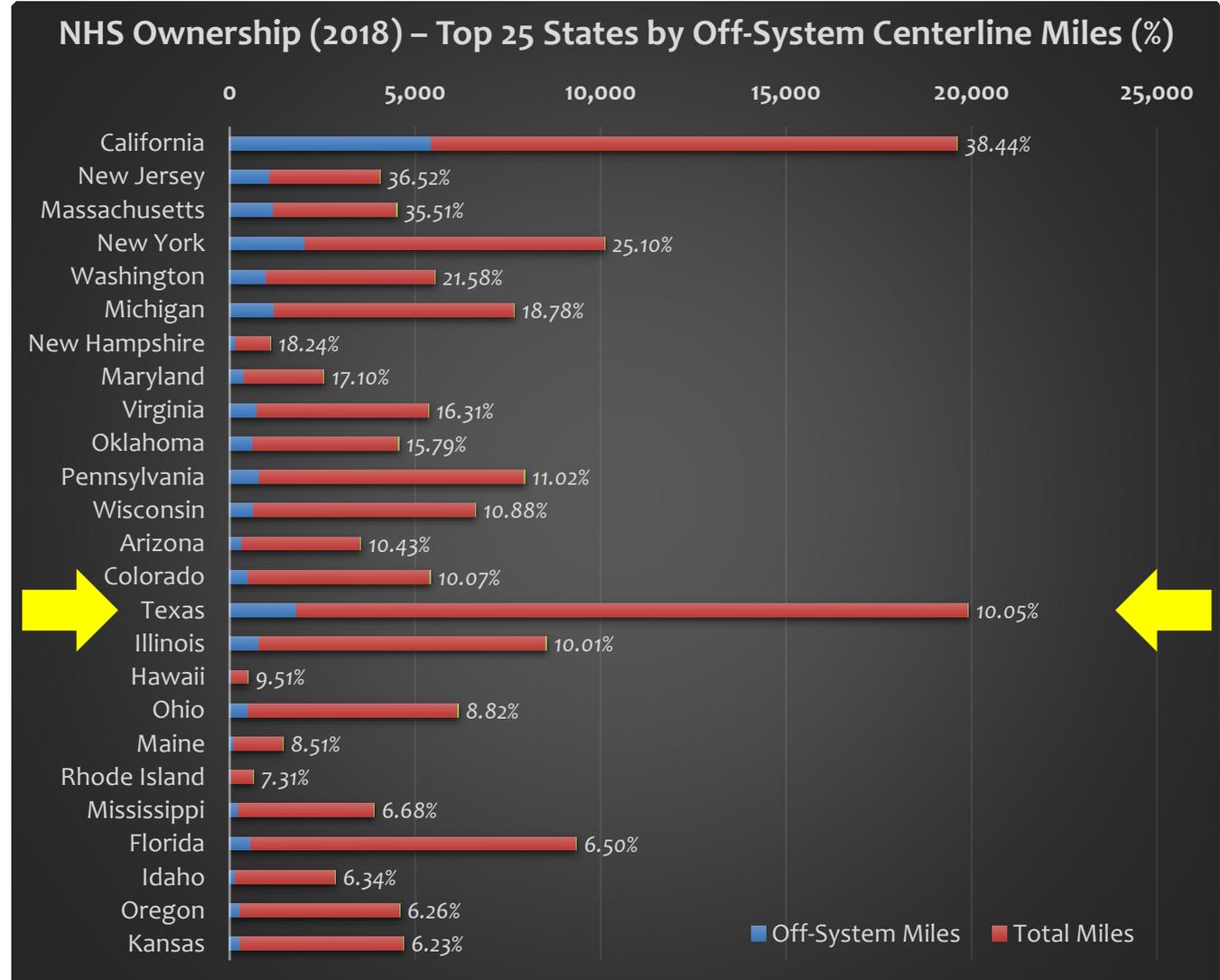


# Considerations for PM2 Target Decision-Making (cont.)

## Other Issues/Actions Learned Since 2018

11

- Influence of NHS off-system facilities:
  - ▣ NCTCOG region has 47.8% of the total extent of NHS off-system facilities in Texas
  - ▣ Nationwide, Texas ranks 3<sup>rd</sup> in off-system NHS mileage, but 15<sup>th</sup> in percentage of total NHS mileage (California ranks 1<sup>st</sup> by far in both categories)
- In 2018, all Texas MPOs agreed to support TxDOT's statewide PM2 targets, and it is unknown if any nationwide set their own targets due to the following:
  - ▣ First performance period (2018-22)
  - ▣ Changing non-Interstate NHS pavement metric
  - ▣ DOT/MPO/Local coordination and data sharing
  - ▣ Challenges to directly link planning, performance, and programming both within and across agencies
  - ▣ DOT/Local maintenance funds rarely flow to MPOs
  - ▣ Few dedicated revenue sources



# PM2 Target Reaffirmation or Revisions

## Schedule

12

<b>October 1, 2020</b>	TxDOT Submits Mid Performance Period (MPP) Progress Report to FHWA (adjustments to 5 out of 6 PM2 targets restarts 180-day MPO review)
<b>October 23, 2020</b>	STTC Information
<b>November 9, 2020</b>	Online Public Input Opportunity (comment period ends December 8, 2020)
<b>November 12, 2020</b>	RTC Information
<b>December 4, 2020</b>	STTC Action
<b>December 10, 2020</b>	RTC Action
<b>March 30, 2021</b>	Deadline for MPOs to Report to State DOTs Whether They Will <u>Either</u> : (i.) Agree to plan/program projects contributing to adjusted State targets; or, (ii.) Commit to new quantifiable targets for the Metropolitan Planning Area (MPA)

# Contacts:

## NCTCOG – Transportation

### **Christie Gotti**

Senior Program Manager  
(817) 608-2338  
cgotti@nctcog.org

### **Chris Klaus**

Senior Program Manager  
(817) 695-9286  
cklaus@nctcog.org

### **Jody Loza**

Principal Transportation Planner  
(817) 704-5609  
jloza@nctcog.org

### **James McLane**

Senior Information Analyst  
(817) 704-5636  
jmclane@nctcog.org

### **Jenny Narvaez**

Program Manager  
(817) 608-2342  
jnarvaez@nctcog.org

### **Jeffrey C. Neal**

Senior Program Manager  
(817) 608-2345  
jneal@nctcog.org

### **Patricia Rohmer**

Project Engineer  
(817) 608-2307  
prohmer@nctcog.org

### **John Starnes**

Senior Information Analyst  
(817) 704-5607  
jstarnes@nctcog.org

## TxDOT

### **Bernie Carrasco**

Director – Bridge Management Section  
(512) 416-2255  
bernie.carrasco@txdot.gov

### **Jenny Li**

Director – Pavement Asset Management Section  
(512) 416-3288  
jenny.li@txdot.gov

### **Peggy Thurin**

Director – TP&P System Planning Section  
(512) 463-8588  
peggy.thurin@txdot.gov

November 9, 2020

North Central Texas Council of Governments (NCTCOG)  
November 2020 – Virtual Public Meeting

# Appendix: PM2 Analysis – Statewide vs. Regional Data

## Pavement Data Considerations

- HPMS vs. PMIS
  - ▣ Highway Performance Monitoring System (HPMS) is a national-level information system with data on the extent, condition, performance, use, and operation of the nation’s highways (*ride and distresses reported on one lane per roadway*)
  - ▣ Pavement Management Information System (PMIS) is TxDOT’s automated system for storing, retrieving, analyzing, and reporting pavement condition (*ride and distresses recorded on one lane per direction*)
  - ▣ Project-specific pavement management plans by each TxDOT district conducted via PMIS, not HPMS
  - ▣ Data segment length = 1/10 mile
- International Roughness Index (IRI) and full distresses (cracking, rutting, and faulting) used as performance measures for Interstate NHS
- IRI only used for non-Interstate NHS during first Performance Period (2018-22)

### PM2 Pavement Metric Thresholds

RATING	PM2 Pavement Metric Thresholds		
	GOOD	FAIR	POOR
IRI <i>(inches/mile)</i>	< 95	95 – 170	> 170
PSR* <i>(0.0 – 5.0 value)</i>	≥ 4.0	2.0 – 4.0	≤ 2.0
Cracking** <i>(%)</i>	< 5	CRCP: 5 – 10 JPCP/JRCP: 5 – 15 Asphalt: 5 – 20	> 10 > 15 > 20
Rutting <i>(inches)</i>	< 0.20	0.20 – 0.40	> 0.40
Faulting <i>(inches)</i>	< 0.10	0.10 – 0.15	> 0.15

\* Present Serviceability Rating (PSR) may be used only on routes with posted speed limit < 40 MPH

\*\* Continuously Reinforced Concrete Pavement (CRCP); Jointed Plain Concrete Pavement (JPCP); Jointed Reinforced Concrete Pavement (JRCP)

# Appendix: PM2 Analysis – Statewide vs. Regional Data (cont.)

## Bridge Data Considerations

15

- Bridges are defined as **structurally deficient** with any component condition rating  $\leq 4$
- Applicable bridges:
  - ▣ Bridges carrying NHS facilities
  - ▣ Bridges carrying entrance/exit ramps (including direct connectors) and cross-streets connecting to NHS facilities
- State DOTs must submit their most current National Bridge Inventory (NBI) data on NHS bridges no later than March 15<sup>th</sup> of each year
- PM2 bridge data distributed to MPOs every two years for determination of progress in achieving adopted performance targets and identifying potential adjustments (optional)

NBI RATING SCALE * (from 0 - 9)	PM2 Bridge Metric Thresholds									
	9	8	7	6	5	4	3	2	1	0
	GOOD			FAIR		POOR				
Bridge Deck	≥ 7			5 or 6		≤ 4				
Superstructure	≥ 7			5 or 6		≤ 4				
Substructure	≥ 7			5 or 6		≤ 4				
Culvert	≥ 7			5 or 6		≤ 4				

\* National Bridge Inventory (NBI)