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DCHC

METROPOLITAN PLANNING ORGANIZATION

PLANNING TOMORROW'S TRANSPORTATION

Transportation Performance Measures

Pavement & Bridge Condition, and System Performance

David Miller I Technical Committee I April 26, 2023

Background

- TPMS are required by federal legislation -- Moving Ahead for Progress in the 21st Century Act (MAP-21) and the Fixing America's Surface Transportation (FAST) Act
- January 2019 -- MPO originally adopted Safety measures and targets along with TPMs for transit assets, bridge and pavement condition, and system performance, and later, for transit safety
- There are no known consequences for MPO if targets are not achieved

Two options for consideration:

1. MPO establishes own measures
   - MPO must manage data to calculate measure
2. Support NCDOT measures by agreeing to plan and program projects so that they contribute towards the accomplishment of the State DOT targets
   - DCHC MPO has supported and adopted the NCDOT targets in the past

FHWA Performance Measures

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PM1 – Highway Safety

Adopted January 11, 2023

1. Number of fatalities
2. Fatality rate
3. Number of serious injuries
4. Serious injury rate
5. Number of non-motorized fatalities and serious injuries

PM2 – Pavement and Bridge Condition

6. Interstate pavement in Good condition
7. Interstate pavement in Poor condition
8. Non-Interstate NHS pavement in Good condition
9. Non-Interstate NHS pavement in Poor condition
10. NHS bridges in Good condition
11. NHS bridges in Poor condition

PM3 – System Performance/ Reliability

12. Travel time reliability on the Interstate
13. Travel time reliability on the non-Interstate NHS
14. Truck travel time reliability on the Interstate System

FHWA Performance Measures: DCHC MPO TPM Adoption Dates

TPM	Adoption Cycle	Most Recent Adoption	Next Required Adoption
Transit Asset Management	4 years	September 2022	Coordinate with MTP Update
Highway Safety (PM1)	1 year	January 2023*	February 2024
Bridge and Pavement Condition (PM2)	4 years	November 2018	June 2023*
System Performance/ Reliability (PM3)	4 years	November 2018	June 2023*

* MPO adoption is due 180 days after NCDOT adoption

PM2: Pavement Condition

NCDOT Targets for Pavement Condition – Good or Poor	2-Year Target (2023)	4-Year Target (2025)
% Interstate Pavement Condition (Good)	60.0%	62.0%
% Interstate Pavement Condition (Poor)	1.8%	1.5%
% Non-Interstate NHS Pavement Condition (Good)	30.0%	31.0%
% Non-Interstate NHS Pavement Condition (Poor)	3.5%	3.0%

NCDOT DEFINITIONS FOR MEASURES

***Interstate and Non-Interstate NHS Pavement Condition (Good)*:** Total interstate or non-Interstate NHS lane miles in good condition based on IRI (measure of pavement smoothness), cracking percent, and rutting or faulting. All condition metrics must exhibit good to classify pavement as good.

***Interstate and Non-Interstate NHS Pavement Condition (Poor)*:** Total interstate or non-Interstate NHS lane miles in poor condition based on IRI (measure of pavement smoothness), cracking percent, and rutting or faulting. If one condition metric exhibits poor, the segment is classified as poor pavement.

PM2: Pavement Condition - DCHC MPO Performance Compared to NCDOT Targets

NCDOT Targets for Pavement – Good or Poor	DCHC MPO (2022)*	2-Year Target (2023)	4-Year Target (2025)	Meets Target
% Interstate Pavement Condition (Good)	**73.1%**	60.0%	62.0%	✓
% Interstate Pavement Condition (Poor)	**0.1%**	1.8%	1.5%	✓
% Non-Interstate NHS Pavement Condition (Good)	**23.4%**	30.0%	31.0%	X
% Non-Interstate NHS Pavement Condition (Poor)	**9.4%**	3.5%	3.0%	X

*** DCHC MPO data created by:** NCDOT Operations Program Management Unit; March 2023

*** Data Sources:** 2022 Network Master, 2023 1st Quarter Road Characteristics, 2023 1st Quarter MPO RPO Boundaries (NCDOT GIS Unit), Bridge Management System (Structures Management Unit)

PM2: Bridge Condition

NCDOT Targets for Bridge Condition – Good or Poor	2-Year Target (2023)	4-Year Target (2025)
% NHS Bridges Condition (Good)	38.0%	36.0%
% NHS Bridges Condition (Poor)	5.0%	5.0%

NCDOT DEFINITIONS FOR MEASURES

***NHS Bridge Condition (Good)*:** Total deck area of NHS bridges and culverts where all components (deck, superstructure, substructure for bridges) are assigned a condition rating of "Good" or better based on annual inspections, compared total NHS bridge deck area.

***NHS Bridge Condition (Poor)*:** Total deck area of NHS bridges and culverts where one component (deck, superstructure, substructure for bridges) is assigned a condition rating of "Poor" based on annual inspections, compared total NHS bridge deck area.

PM2: Bridge Condition - DCHC MPO Performance Compared to NCDOT Targets

NCDOT Targets for Bridge Condition – Good or Poor	DCHC MPO (2022)*	2-Year Target (2023)	4-Year Target (2025)	Meets Target
% NHS Bridges Condition (Good)	**25.9%**	38.0%	36.0%	X
% NHS Bridges Condition (Poor)	**3.4%**	5.0%	5.0%	✓

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*** Data Sources:** 2022 Network Master, 2023 1st Quarter Road Characteristics, 2023 1st Quarter MPO RPO Boundaries (NCDOT GIS Unit), Bridge Management System (Structures Management Unit)

PM3: System Performance

NCDOT Targets for System Performance	2-Year Target (2023)	4-Year Target (2025)
% Interstate miles Level of Travel Time Reliability	75.0%	75.0%
% Non-Interstate NHS miles Level of Travel Time Reliability	70.0%	70.0%
% Interstate miles Truck Travel Time Reliability	1.70%	1.70%

NCDOT DEFINITIONS FOR MEASURES

***Interstate and Non-Interstate NHS Level of Travel Time Reliability (LOTTR)*:** Reliability measures (based on 80th percentile travel time v. 50th percentile travel time, sourced from in-vehicle GPS and mobile sources) is combined with person miles traveled to estimate the percent of person miles traveled that are reliable.

***Interstate Truck Travel Time Reliability (TTTR)*:** Reliability measure (based on the worst 95th percentile truck travel time v. 50th percentile truck travel time, sourced from in-vehicle GPS and fleet date) is averaged across the length of all Interstate segments.

PM3: System Performance - DCHC MPO Performance Compared to NCDOT Targets

NCDOT Targets for System Performance	DCHC MPO (2022)*	2-Year Target (2023)	4-Year Target (2025)	Meets Target
% Interstate miles Level of Travel Time Reliability	**99.5%**	75.0%	75.0%	✓
% Non-Interstate NHS miles Level of Travel Time Reliability	**95.2%**	70.0%	70.0%	✓
% Interstate miles Truck Travel Time Reliability	-	1.70%	1.70%	-

*** DCHC MPO data created by:** DCHC MPO as part of the Congestion Management Process.

NCDOT Rationale for 2023 and 2025 Targets

Current Target Setting Cycle
Considerations for 2023 and 2025 Targets

Population and VMT will continue to grow	Project cost increases/inflation	STIP and TIP projects unlikely to significantly change trends
New opportunities from IIJA (CRP, NEVI, etc.)	Targets maintain conservative and balanced stance given unknowns	Opportunity to assess performance at the midpoint and adjust 4-year targets

Recommendation

- Recommend that the DCHC MPO Board support NCDOT's Pavement and Bridge, and System Performance targets by resolution:

  › Resolution: DCHC MPO agrees to plan and program projects so that they contribute toward the accomplishments of the NCDOT performance targets