

ITEM 8 – Information

September 21, 2022

PBPP: Draft 2022-2025 Regional Targets for Highway Systems Performance and Highway Assets

Background:

The board will be briefed on requirements under the federal performance-based planning and programming (PBPP) rulemaking for MPOs to set three targets for highway systems performance and six targets for highway asset condition (bridge and pavement) performance measures, for the period 2022-2025. A draft set of targets developed by staff in coordination with the state DOTs will be presented. In October, the board will be asked to adopt the 2022-2025 highway systems performance and highway assets (bridge and pavement) targets for the region.



MEMORANDUM

TO: Transportation Planning Board
FROM: Eric Randall, TPB Transportation Engineer
SUBJECT: Performance-Based Planning and Programming (PBPP) Highway Asset and Highway Travel Reliability - DRAFT Targets for 2022-2025
DATE: September 15, 2022

This memorandum provides an update on implementation of the federal performance-based planning and programming (PBPP) target-setting requirements for performance measures of the Highway Asset area and the Highway Systems Performance: Travel Reliability area. State DOTs are required to establish two-year and four-year targets for performance measures in these areas as applicable. MPOs then have up to 180 days following to set their own four-year targets or adopt the state DOTs’ targets.

New targets are required to be set for the 2022 through 2025 performance period. Reports on performance vs. the 2018-2021 targets and on the new 2022-2025 targets are due to FHWA by October 1, 2022 from the State DOTs.

The following draft targets have been developed by TPB staff in close coordination with the District, Maryland, and Virginia DOTs.

REGIONAL HIGHWAY ASSET TARGETS – DRAFT 2022-2025

Using methodologies generally consistent with those used in 2018, TPB staff have developed a draft set of highway asset targets for the 2022-2025 four-year period, below.

Pavement Condition

Performance Measure for the NCR	4-year Target 2022 - 2025
(1) Percentage of pavements on the Interstate System in Good condition	44.8%
(2) Percentage of pavements on the Interstate System in Poor condition	1.6%
(3) Percentage of pavements on the NHS (excl. Interstate) in Good condition	26.3%
(4) Percentage of pavements on the NHS (excl. Interstate) in Poor condition	7.3%

Bridge Condition

Performance Measure for the NCR	4-year Target 2022 - 2025
(5) Percentage of NHS Bridges Classified as in Good Condition	25.7%
(6) Percentage of NHS Bridges Classified as in Poor Condition	4.2%

HIGHWAY SYSTEMS PERFORMANCE TRAVEL TIME RELIABILITY TARGETS – **DRAFT 2022-2025**

Using methodology consistent with that in 2018, TPB staff have developed a draft set of highway asset targets for the 2022-2025 four-year period, below.

Performance Measure for the NCR	4-year Target 2022 - 2025
Travel Time Reliability (TTR) – Interstate	61.1%
Travel Time Reliability (TTR) – Non-Interstate NH	78.6%
Truck Travel Time Reliability (TTTR) Index	2.56

NEXT STEPS

Comments on the above draft targets are requested by September 26. The TPB will be briefed on these draft targets on September 21. Following comment and any additional information received, the final draft targets will be developed for TPB approval on October 19.

Following the approval of the 2022-2025 Highway Asset and Highway System Performance targets, TPB staff intended to prepare a revised Visualize 2045 LRTP System Performance Report with information on performance vs the 2018-2021 targets and with the approved 2022-2025 targets ahead of the federal certification review anticipated in early 2023.

PERFORMANCE BASED PLANNING & PROGRAMMING

Draft 2022-2025 Targets:

- Highway Assets (Pavement & Bridge Condition)
- Highway System Performance: Travel Time Reliability

Eric Randall, TPB Transportation Engineer

Transportation Planning Board
September 21, 2022



Contents of Presentation

- Action Items for TPB 2022-2025 Target Adoption
- Highway Asset Target Development
 - Methodology
 - Performance and Forecasts
 - Four-year Targets
- Highway System Performance: Travel Time Reliability Target Development
 - Methodology
 - Performance and Forecasts
 - Four-year Targets
- Next Steps



Performance Based Planning and Programming

- Federal surface transportation regulations require the implementation of performance based planning and programming (PBPP) by State DOTs, MPOs, and transit agencies

“transition to a performance-driven, outcome-based program that provides for a greater level of transparency and accountability, improved project decision-making, and more efficient investment of federal transportation funds.”

- State DOTs, MPOs, and providers of public transportation must link investment priorities to the achievement of performance targets in the TIP and the long-range transportation plan



4-Year Target reporting and setting in 2022

- Next round of 4-year targets for the two areas of Highway Assets and Highway Systems Performance for the period 2022-2025 must be set by State DOTs by **October 1, 2022**
 - State DOTs must submit information on actual performance vs. targets for years 2018 through 2021 to the FHWA by October 1, 2022 in a *Full Period Performance Progress Report*
 - State DOTs must develop and formally adopt new targets for years 2022 through 2025, and submit these targets to the FHWA by October 1, 2022 in a *Baseline Period Performance Progress Report*
- Some 2021 data for performance still pending
- Federal evaluation of performance vs. targets is based on latest information available
- MPOs have up to 180 days afterwards to set targets
 - No consequences for MPOs



Action Items – Accomplished / In-Progress

- Coordination on the PBPP requirements with the three DOTs: DDOT, MDOT, VDOT
 - Validation of recent actual performance data
 - Discussed methodology for forecasting future performance and setting targets
- Developed draft MPO regional targets for Highway Asset (Pavement and Bridge Condition) measures and for Highway Systems Performance: Travel Time Reliability measures
 - Adoption of 2022-2025 targets
 - Report on performance vs 2018-2021 targets to DOTs
 - Plan to update Visualize 2045 LRTP System Performance Report (~Dec 2022) ahead of FHWA/FTA certification review of MPO (early 2023)



Highway Asset: Pavement & Bridge Condition Performance Measures

Interstate Pavement	CY 2018 – 2021 Four Year Target	Actual Performance	
(1) Percentage of pavements on the Interstate System in Good condition	52.7%	49.4% (2020)	X
(2) Percentage of pavements on the Interstate System in Poor condition	1.7%	0.2% (2020)	✓
NHS (Non-Interstate) Pavement			
(3) Percentage of pavements on the NHS (excl. Interstate) in Good condition	31.1%	25.4% (2020)	X
(4) Percentage of pavements on the NHS (excl. Interstate) in Poor condition	7.0%	4.0% (2020)	✓
Bridges			
(5) Percentage of NHS Bridges Classified as in Good Condition	29.4%	39.4% (2021)	✓
(6) Percentage of NHS Bridges Classified as in Poor Condition	3.9%	1.7% (2021)	✓

Targets set by the TPB on July 18, 2018

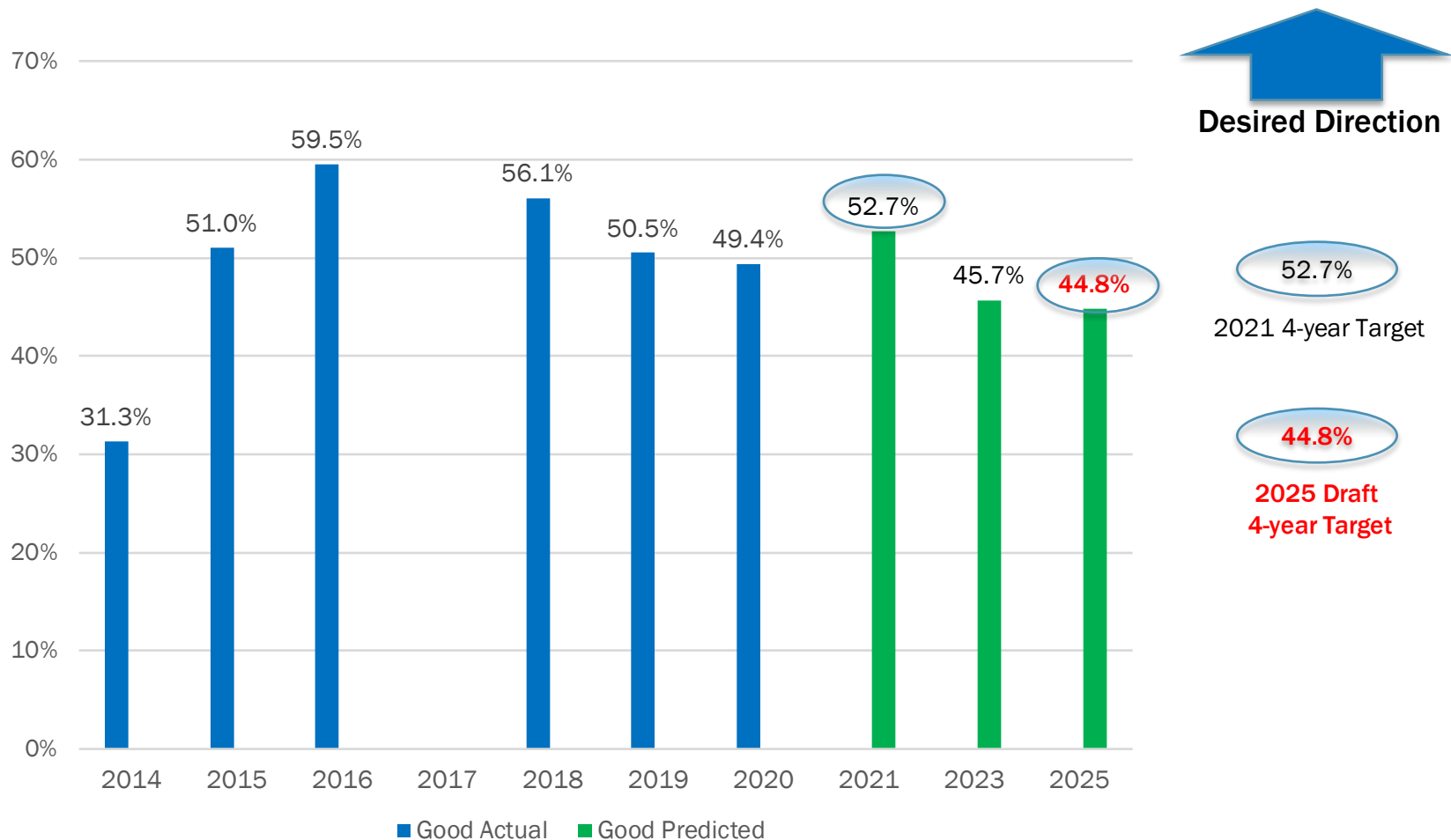


2022-2025 Highway Asset Target Methodology

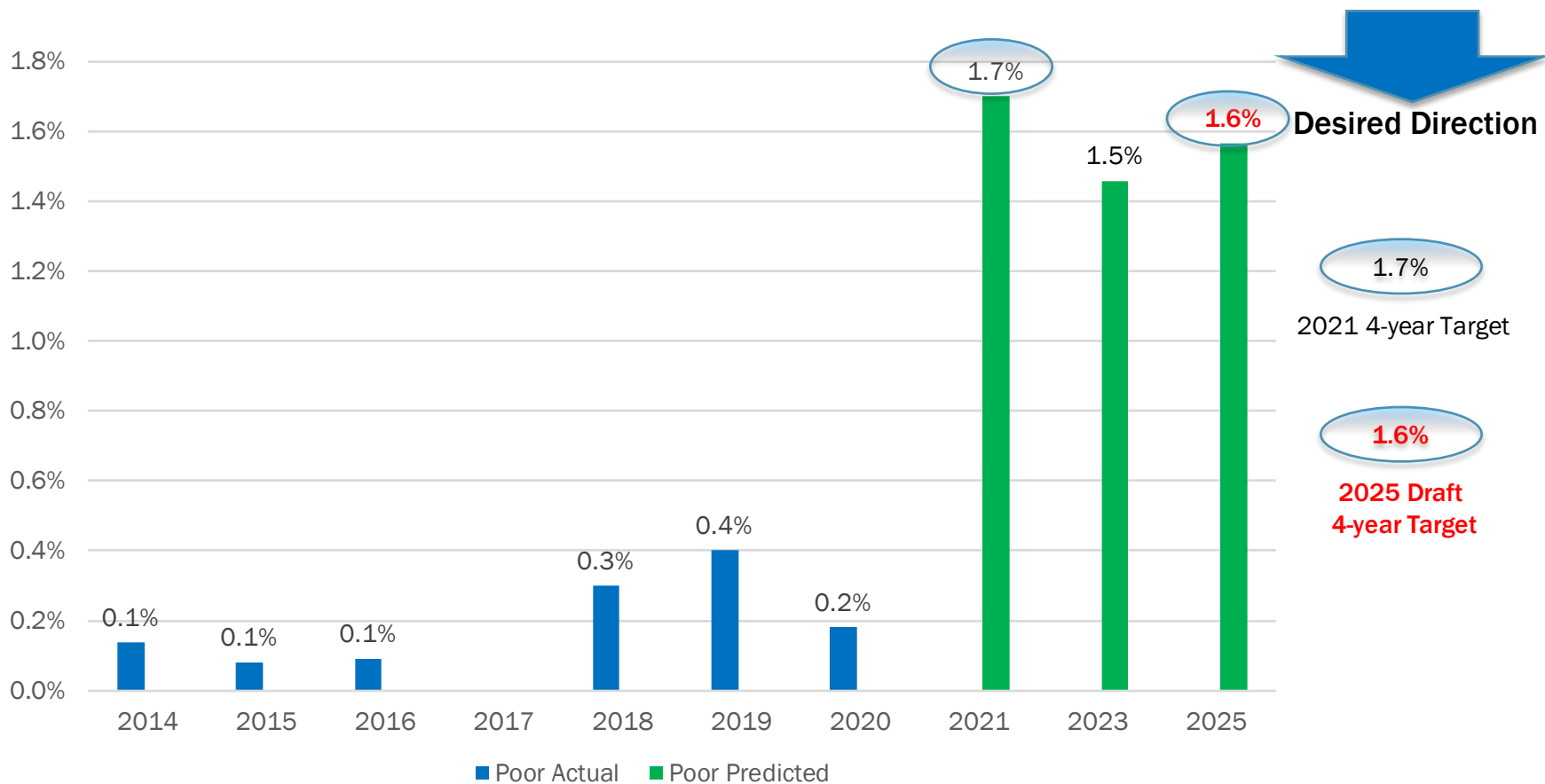
- TPB staff used same general methodology as used in 2018
 - Apply DOT forecasts (targets) to respective sub-region
 - Apply DDOT forecasts in entirety
 - Apply MDOT forecast for the four MD counties in the TPB planning area
 - Apply VDOT statewide forecast to conditions in TPB area
- ❖ In general, DOTs planning for slowly degrading asset condition
 - ❖ Decreased focus on Interstate “good” condition
 - ❖ Increased focus on other NHS and on other state-maintained roads
 - ❖ Constrained budgets vs increasing costs
 - ❖ IIJA federal funds have increased but there is uncertainty with discretionary grant awards



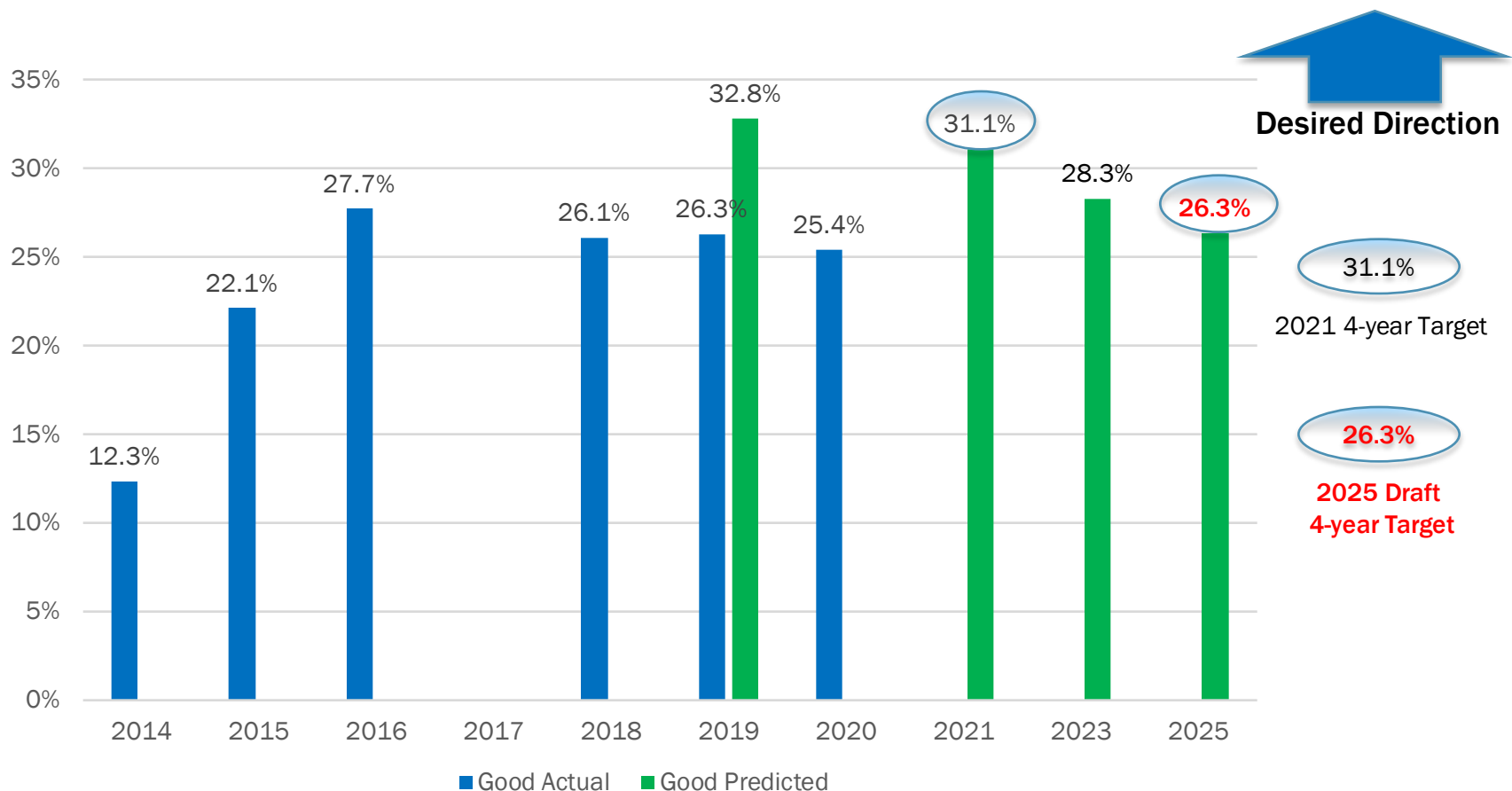
Interstate Pavement: Performance vs. Targets (Good Condition)



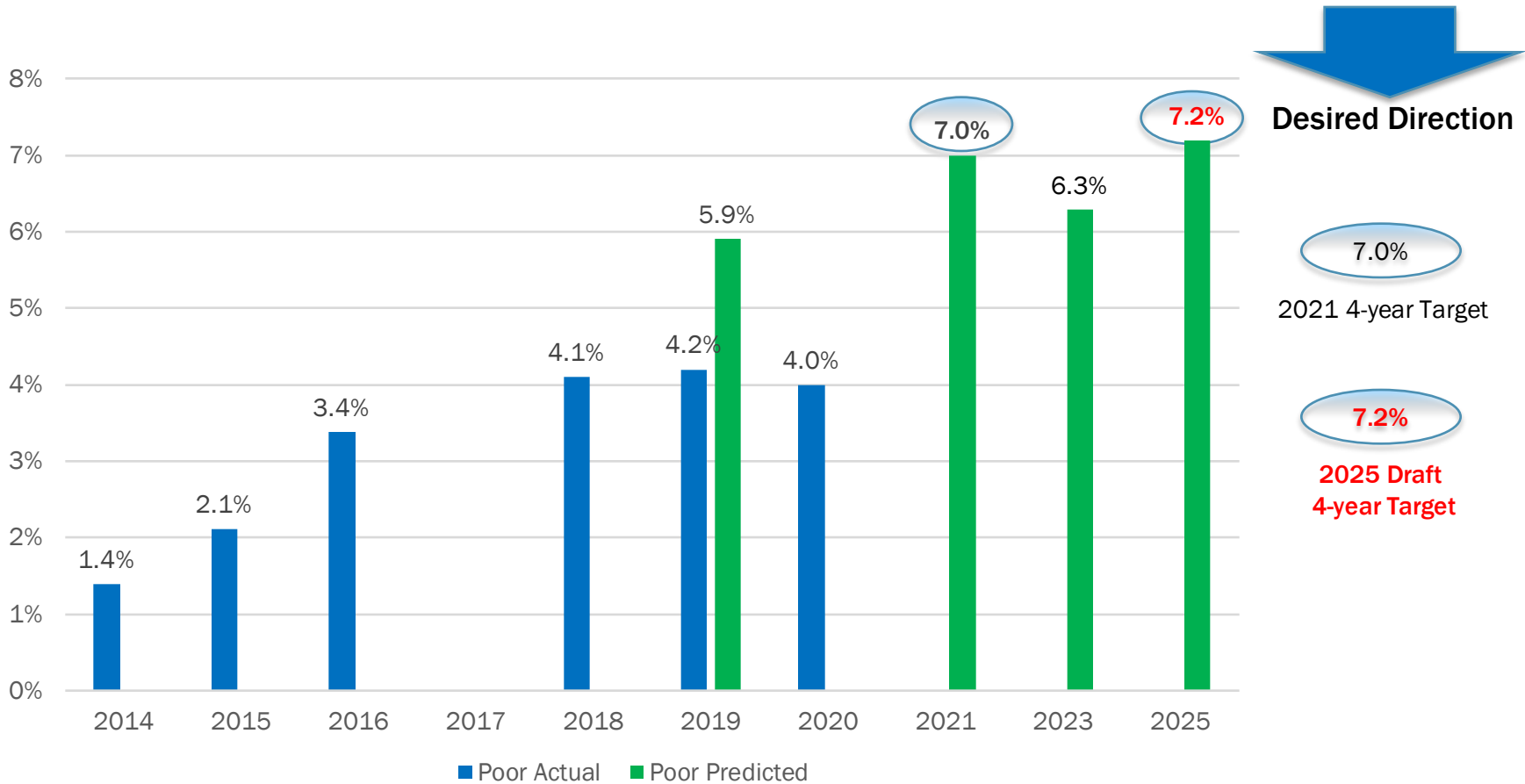
Interstate Pavement: Performance vs. Targets (Poor Condition)



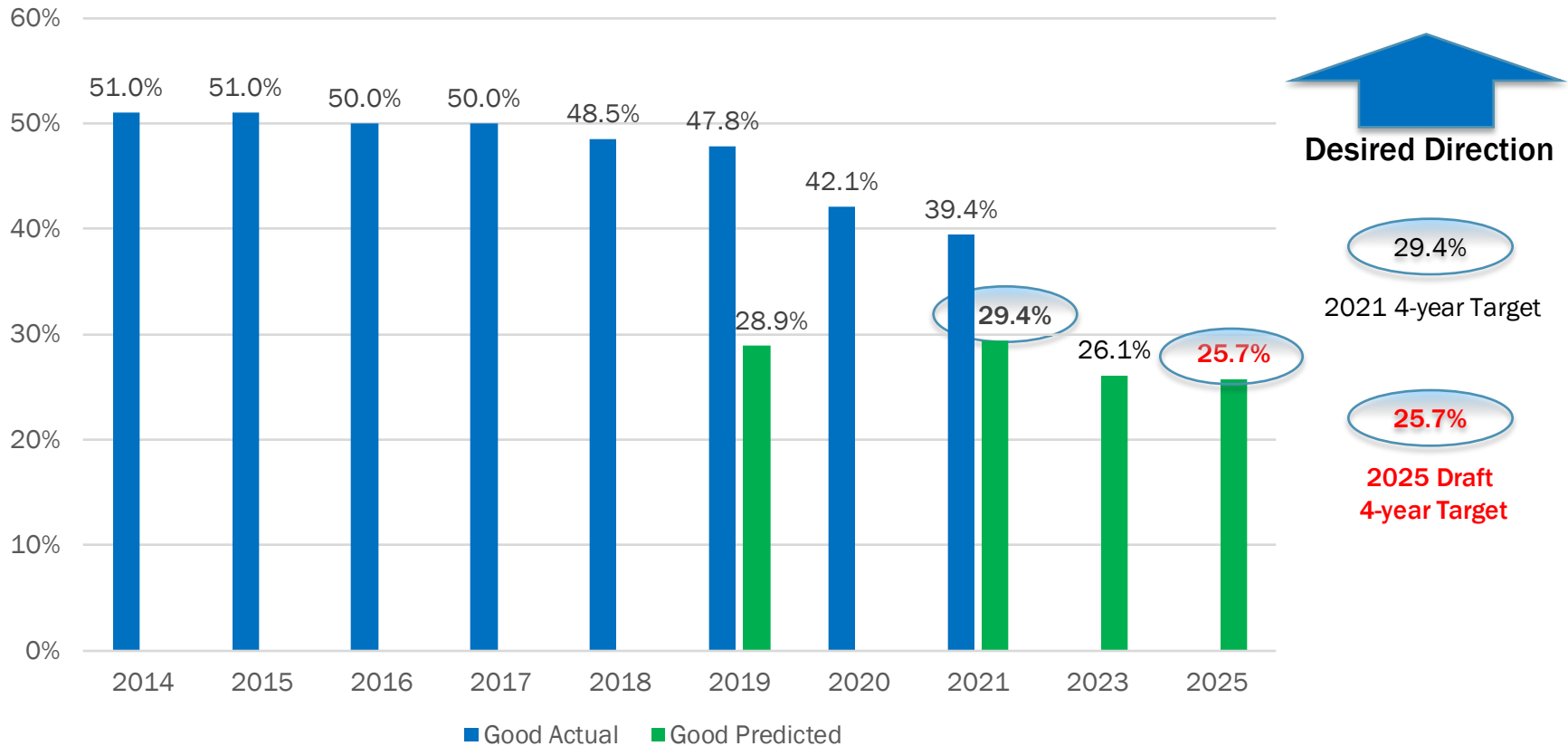
NHS (Non-Interstate) Pavement: Performance vs. Targets (Good)



NHS (Non-Interstate) Pavement: Performance vs. Targets (Poor)



Bridges: Performance vs. Target (Good)



Bridges: Performance vs. Target (Poor)



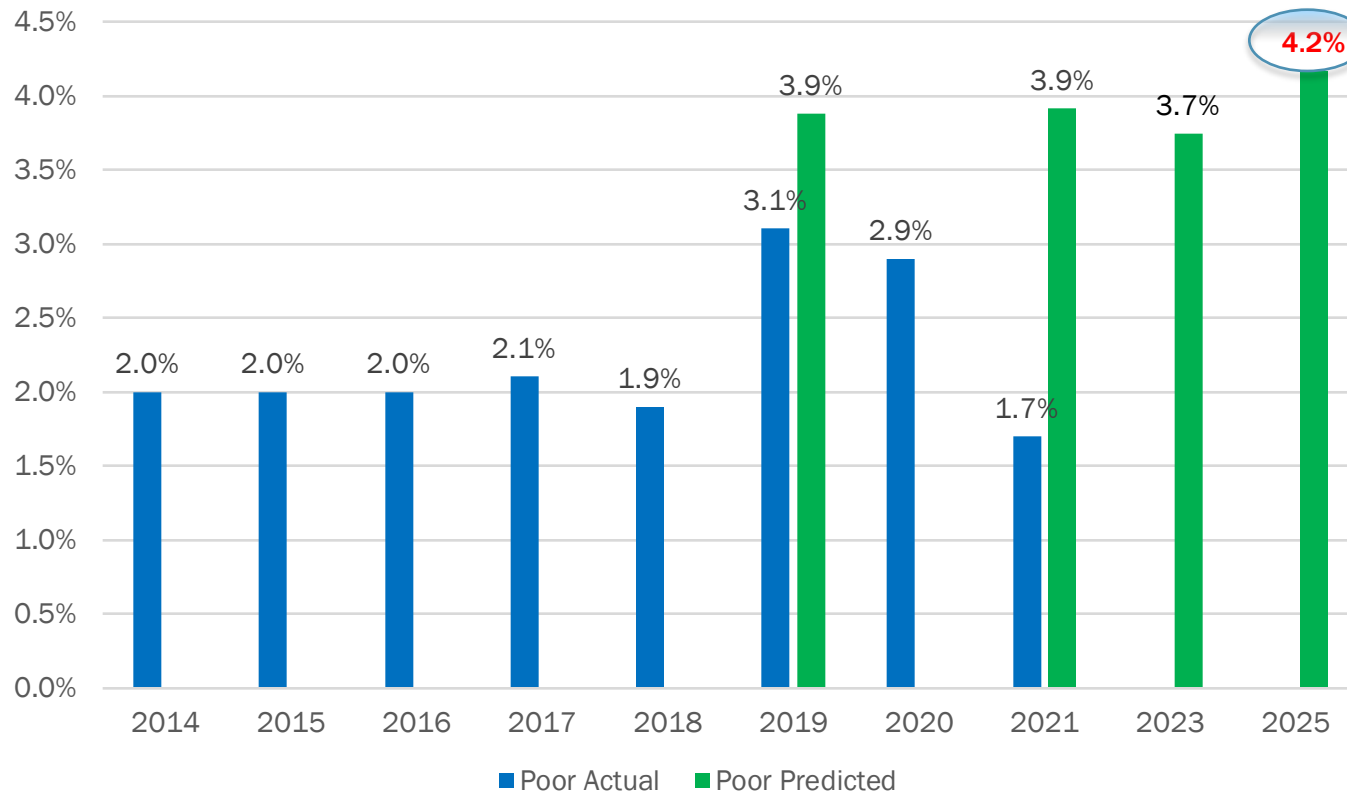
Desired Direction

3.9%

2021 4-year Target

4.2%

2025 Draft
4-year Target



Highway Asset **DRAFT** 2022-2025 Targets for the NCR

Interstate Pavement	2022 – 2025 Four Year Target
(1) Percentage of pavements on the Interstate System in Good condition	44.8%
(2) Percentage of pavements on the Interstate System in Poor condition	1.6%
NHS (Non-Interstate) Pavement	
(3) Percentage of pavements on the NHS (excl. Interstate) in Good condition	26.3%
(4) Percentage of pavements on the NHS (excl. Interstate) in Poor condition	7.3%
Bridges	
(5) Percentage of NHS Bridges Classified as in Good Condition	25.7%
(6) Percentage of NHS Bridges Classified as in Poor Condition	4.2%



Highway System Performance: Travel Time Reliability Targets



Highway System Performance: Travel Time Reliability Performance Measures

- Three performance measures:

	CY 2018 - 2021 Four Year Target	2021 Actual Performance	
Travel Time Reliability (TTR) – Interstate Percent of person-miles traveled on the Interstate System that are reliable	58.5%	71.7%	✓
Travel Time Reliability (TTR) – Non-Interstate NHS Percent of person-miles traveled on the non-Interstate NHS that are reliable	72.7%	91.2%	✓
Truck Travel Time Reliability (TTTR) Index Ratio of the Interstate System Mileage providing for Reliable Truck Travel Times	2.12	2.30	✗

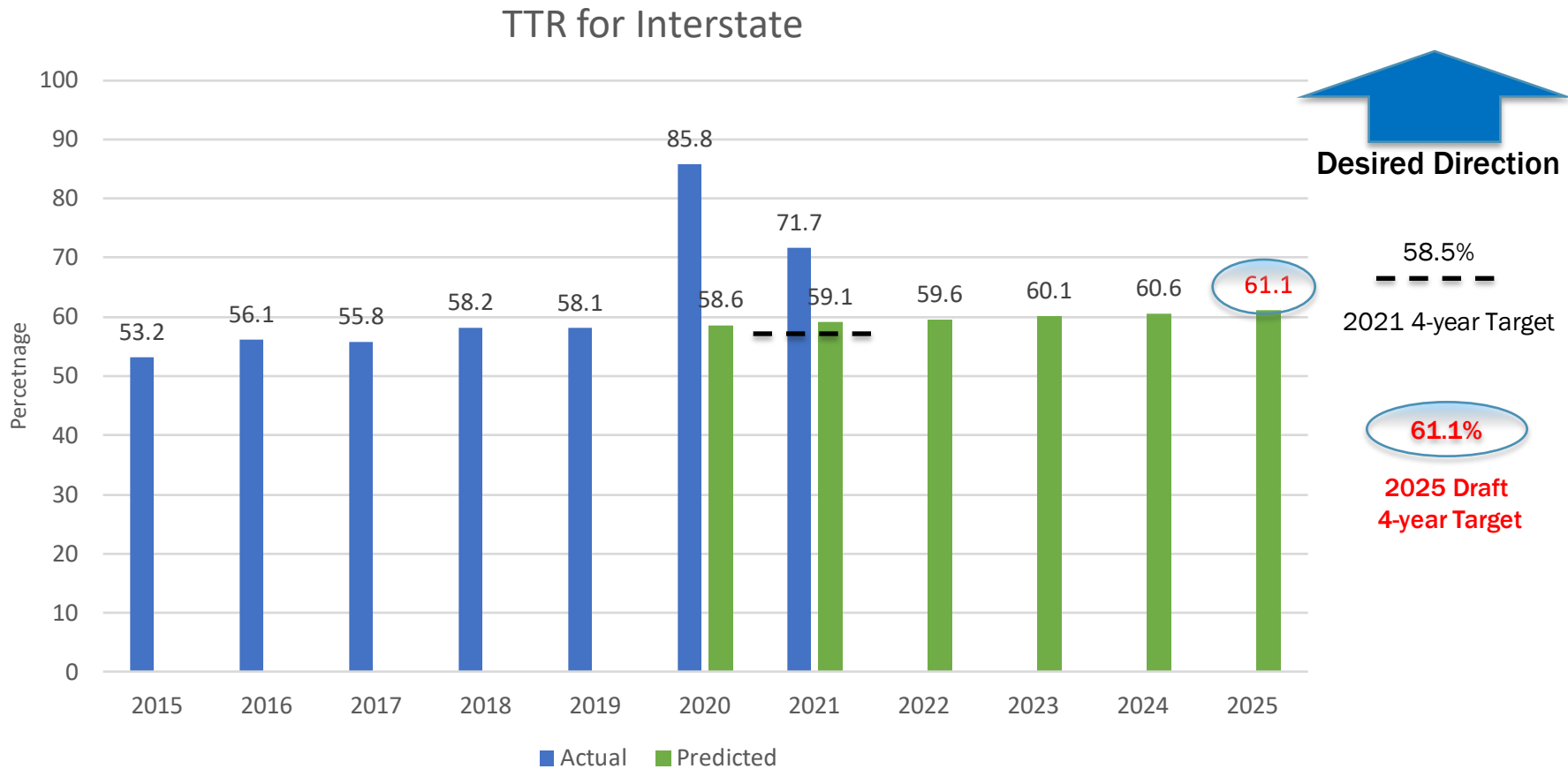


Highway System Performance: Travel Reliability 2022-2025 Target Methodology

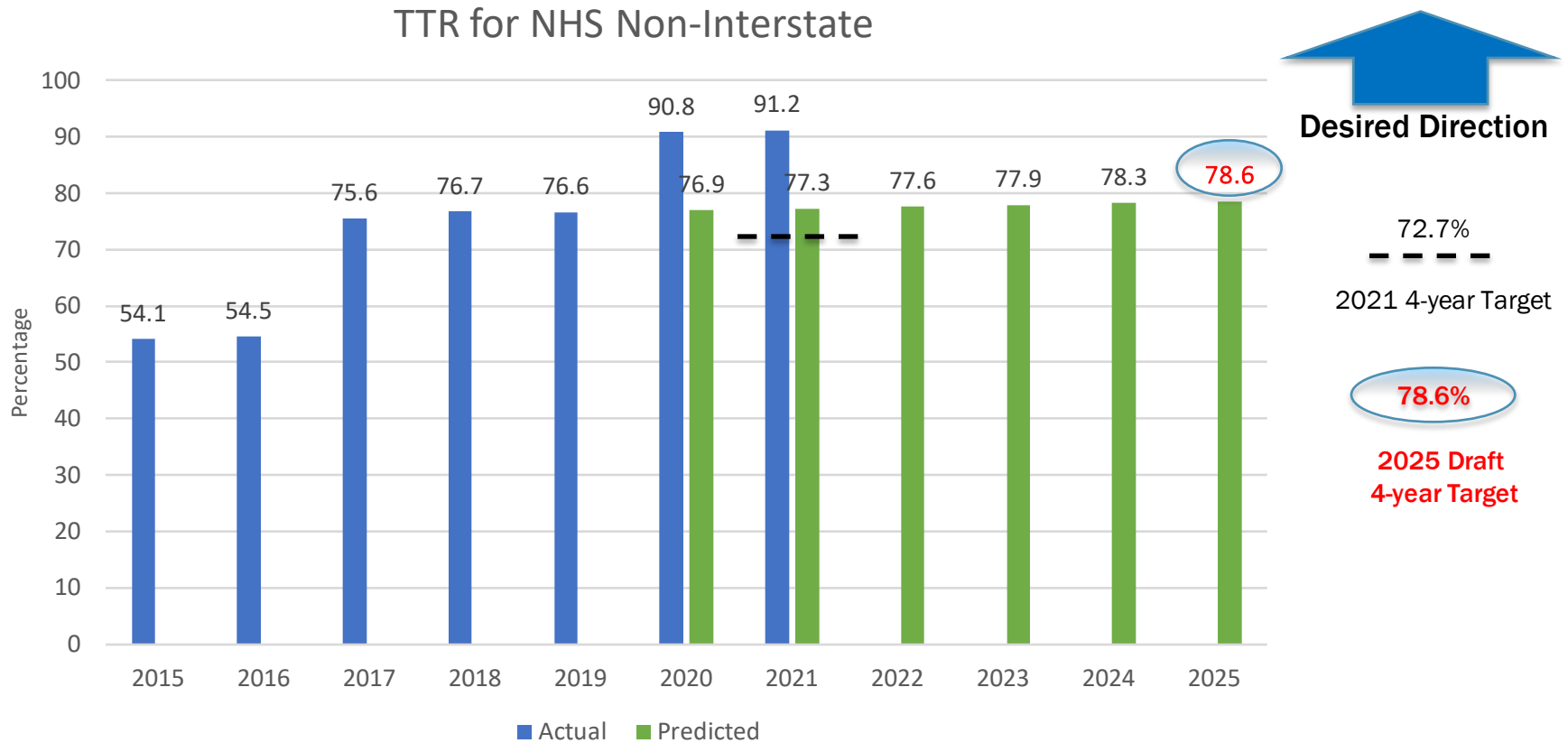
- Use same general methodology as used in 2018
 - Average of observed trends and short-term predictions of TPB travel demand model
 - Observed trends captured recent influences
 - Model captures the impacts of increased population and travel demand vs. road and transit changes
 - Understandable and defensible methodology
 - Exclude data from pandemic years (2020, 2021)
 - Use trend data leading up through 2019 and extrapolate from 2019
- ❖ Both trends and model project small reductions in congestion
>> slight improvements in travel reliability



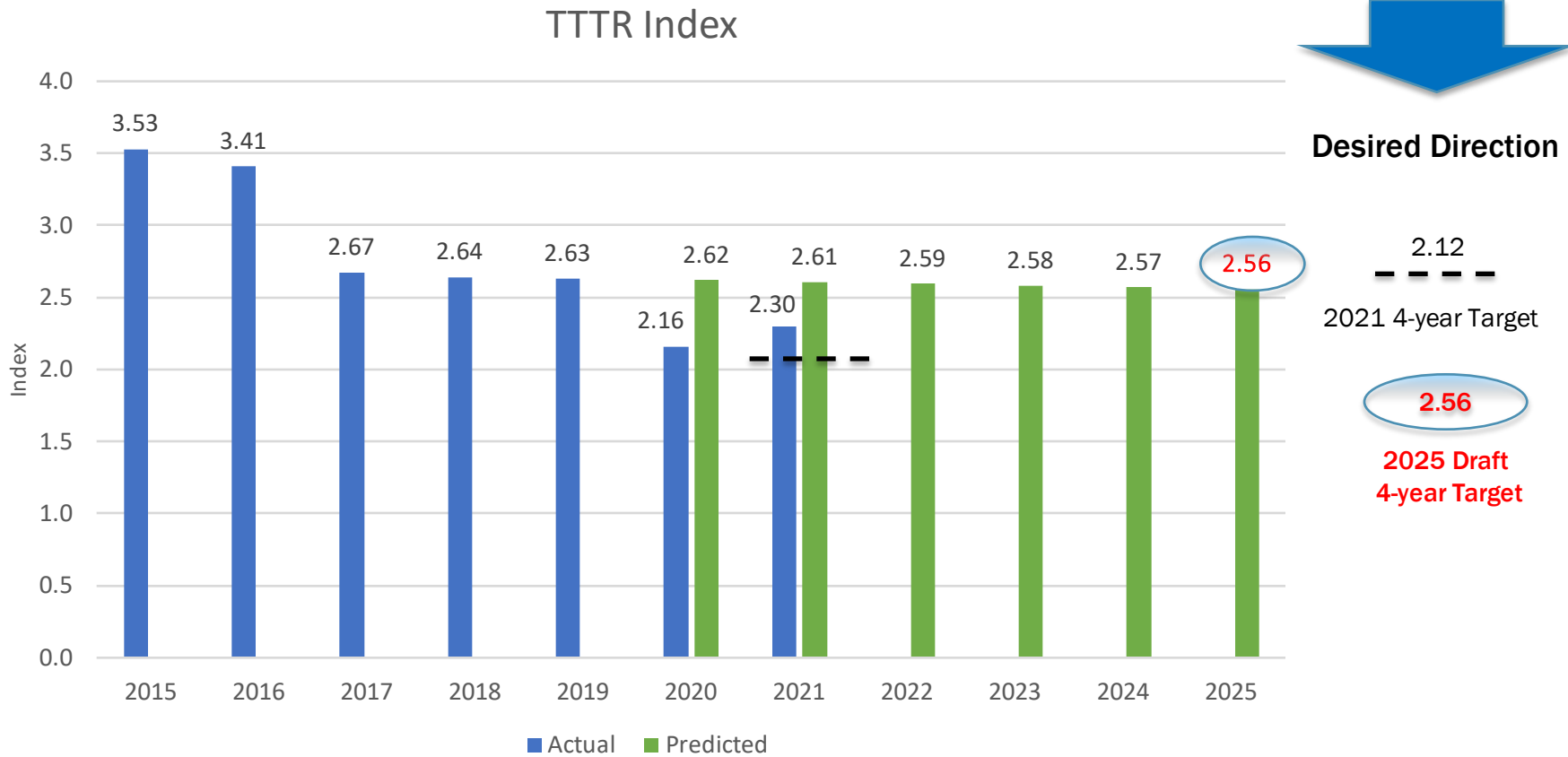
2022-2025 Draft TTR (Interstate) Graph and Target



2022-2025 Draft TTR (NHS Non-Interstate) Graph and Target



2022-2025 Draft TTTR Index Graph and Target



Highway System Performance: Travel Time Reliability

DRAFT 2022-2025 Targets for the NCR

Highway System Performance: Travel Time Reliability for the NCR	2022 – 2025 Four Year Target
Travel Time Reliability (TTR) – Interstate	61.1%
Travel Time Reliability (TTR) – Non-Interstate NHS	78.6%
Truck Travel Time Reliability (TTTR) Index	2.56



Next Steps

- Collect comments on the Draft 2022-2025 targets just presented
- Any final data and target updates from the state DOTs, as well as supplemental information, including state Transportation Asset Management Plans
- TPB approval of final targets - October 19
- Prepare revised Visualize 2045 LRTP System Performance Report with performance vs 2018-2021 targets and with the approved 2022-2025 targets ahead of federal certification review



Eric Randall

TPB Engineer

(202) 962-3254

erandall@mwkog.org

mwkog.org/tpb

Metropolitan Washington Council of Governments

777 North Capitol Street NE, Suite 300

Washington, DC 20002



National Capital Region
Transportation Planning Board

Highway Condition Performance Measures

Performance Measure	Data
(1) Percentage of pavements on the Interstate System in Good condition	<i>four metrics:</i> <ul style="list-style-type: none"> • IRI (International Roughness Index) • Cracking Percent • Rutting (<i>asphalt only</i>) • Faulting (<i>jointed concrete only</i>)
(2) Percentage of pavements on the Interstate System in Poor condition	
(3) Percentage of pavements on the NHS (excl. Interstate System) in Good condition	
(4) Percentage of pavements on the NHS (excl. Interstate System) in Poor condition	
(5) Percentage of NHS Bridges Classified as in Good Condition	<i>three types of pavements:</i> <ul style="list-style-type: none"> • Asphalt pavements • Continuously Reinforced Concrete Pavement (CRCP) • Jointed Concrete Pavements
(6) Percentage of NHS Bridges Classified as in Poor Condition	
	<i>four condition ratings:</i> <ul style="list-style-type: none"> • Deck • Superstructure • Substructure • Culverts



Pavement and Bridge Measures – Data

- Pavement: data is reported annually by State DOTs into the Highway Performance Monitoring System (HPMS)
- Bridge: data is reported annually by State DOTs into the National Bridge Inventory (NBI)
- TPB staff accessed this data to determine performance for the region for the pavement and bridge performance measures



- Map for the 2017 pavement and 2018 bridge conditions:
https://gis.mwcog.org/webmaps/tpb/pbpp/pavement_bridge/



Travel Time Reliability (TTR) & Truck Travel Time Reliability (TTTR) Data

- Data is collected through the National Performance Management Research Data Set (NPMRDS)
 - Procured and sponsored by the Federal Highway Administration (FHWA), this is the designated source for TTR/TTTR data
 - It is an archived speed and travel time data set (including associated location data) covering the National Highway System (NHS)
 - Data available at 5 minute intervals for Passenger vehicles, Trucks, and Trucks and Passenger vehicles combined
- Travel Time Reliability (TTR): the percent of person-miles for which the ratio of a longer travel time (80th percentile) to a “normal” travel time (50th percentile) is < 1.5 for the reporting segment
- Truck Travel Time Reliability (TTTR) Index: the ratio of a longer travel times (95th percentile) to a “normal” travel time (50th percentile)



TTR & TTRR Data Collection

- Data was collected using NPRDMS and MAP-21 widgets created by RITIS for the TPB metropolitan planning area
 - A set of Dashboard widgets developed to help set targets, understand baseline conditions, and assess progress toward achieving the goals associated with the measures
- Available currently:
 - Interstate Travel time reliability (TTR)
 - Non-interstate NHS TTR
 - Truck TTR Index
 - Annual Hours of Peak Hour Excessive Delay (PHED) Per Capita

