American Legion Bridge over the Potomac River VDOT/Flickr

TRAVEL TIME RELIABILITY: INTERSTATES, NHS NON-INTERSTATES, AND TRUCK TRAVEL TIME

TPB Performance Measures and Targets

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September 16, 2026

TPB's Targets for Travel Reliability

Draft targets for reliable travel:

- By all vehicles on Interstate (IS) roadways
- By all vehicles on non-IS National Highway System roadways
- By trucks on IS roadways

Reliable travel

- Definition
- Measured

Purpose and Use

Travel Time Reliability – IS and Non-IS NHS Roadways: Defined

If time taken to travel over a segment of the roadway for 80 percent of the vehicular trips is less than 1.5 times the travel time for half of all trips on the same segment – travel is said to be reliable.

Travel Time Reliability – IS and Non-IS NHS Roadways: Measured

Measured:

- Every segment of the roadway
- All vehicles traveling on the roadway segments
- Total number of people in all of the vehicles
- All days of the week
- Most times of the day (except overnight hours)

Expressed:

- Proportion of person-miles traveled on the roadway segment deemed reliable relative to total person-miles traveled.

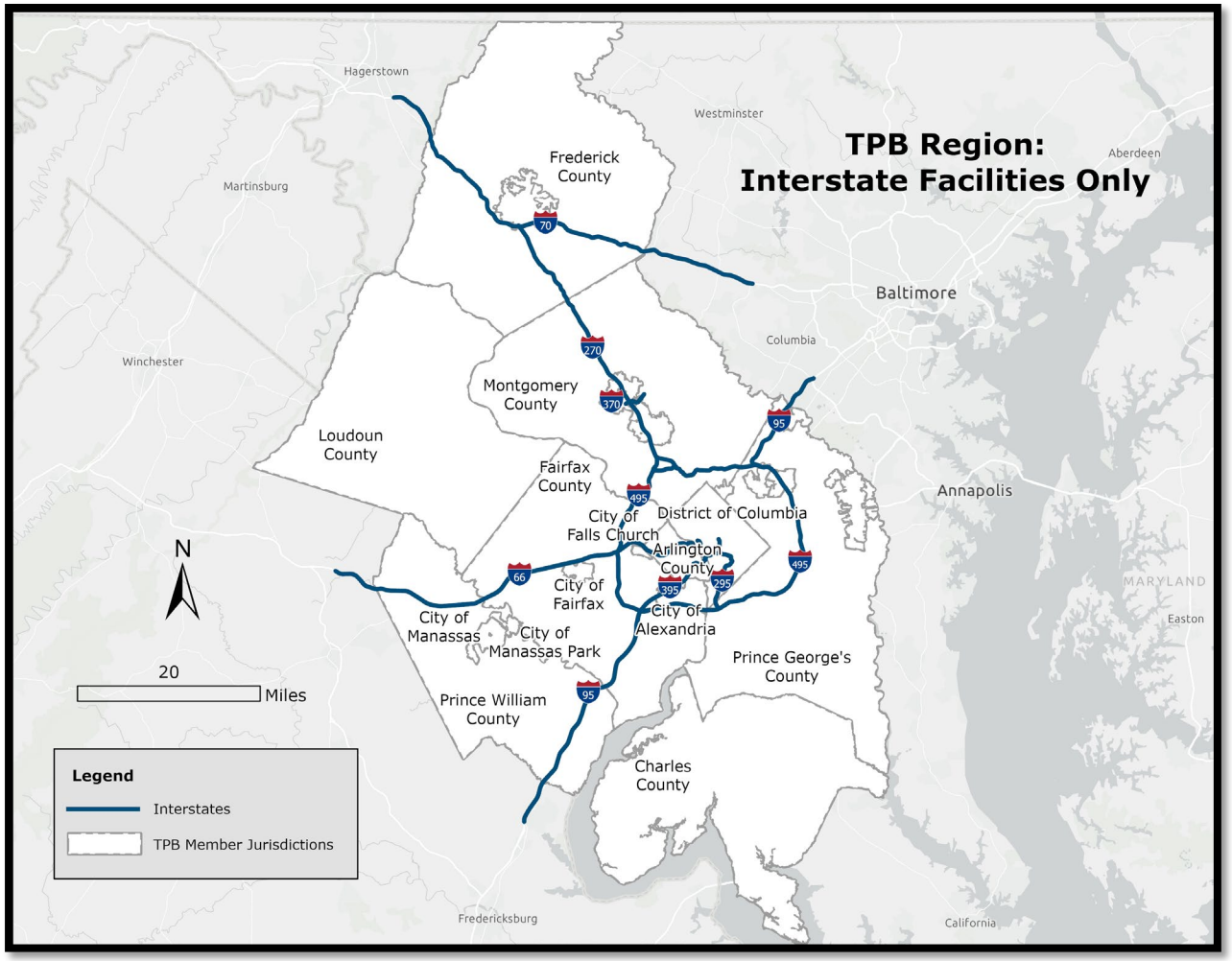
Travel Time Reliability Targets: Interstate Roadways

Interstate Roadways

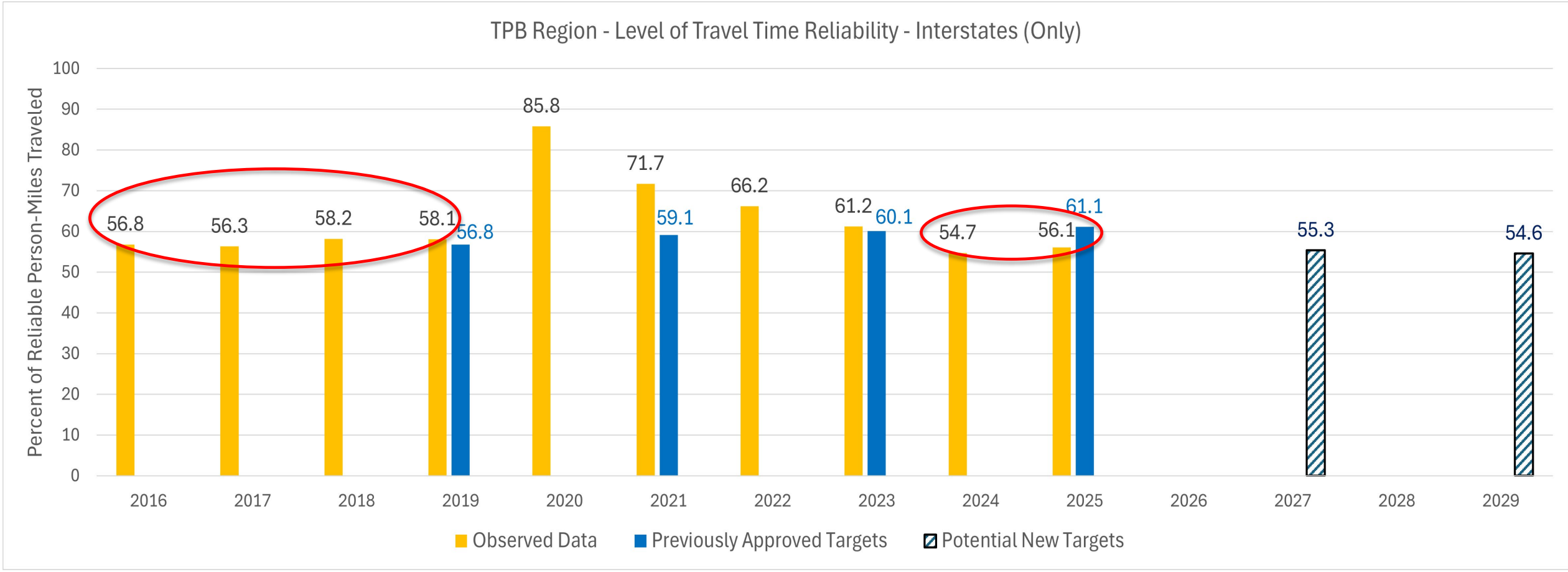
Desired Trend

	2023	2025
Past Targets	60.1%	61.1%
Observed Data	61.2%	56.1%

	2027	2029
Proposed Targets	55.3%	54.6%



Travel Time Reliability on Interstates: Explanation



2023 Target Met; 2025 Target Not Met

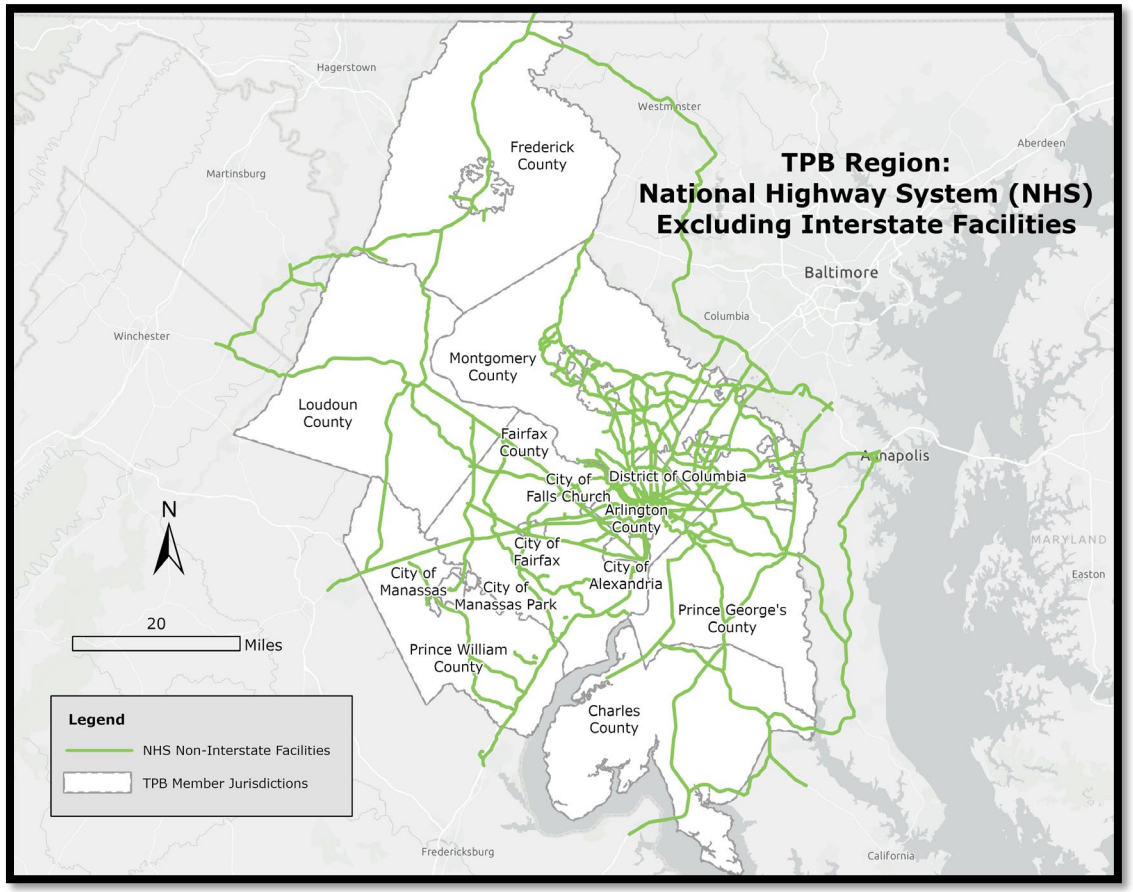
Travel Time Reliability Targets: Non-IS NHS Roadways

Non-IS NHS Roadways

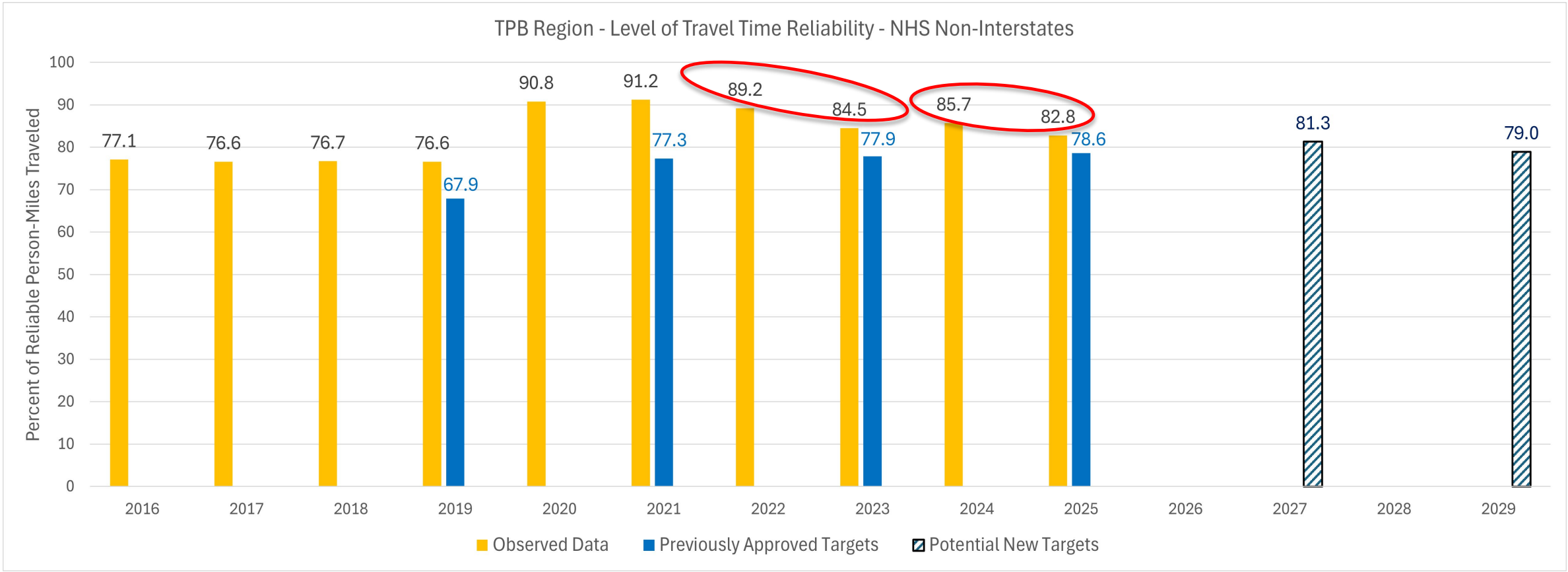
Desired Trend

	2023	2025
Past Targets	77.9%	78.6%
Observed Data	84.5%	82.8%

	2027	2029
Proposed Targets	81.3%	79.0%



Travel Time Reliability on Non-IS NHS: Explanation Roadways



2023 Target Met; 2025 Target Met

Truck Travel Time Reliability on Interstates - Defined

If **time taken** to travel over a segment of the interstate roadway, during the worst travel conditions, for 95 percent of the trucks is **close to** the travel time for half of trucks on the same segment under the same conditions – travel is said to be reliable.

Truck Travel Time Reliability on Interstate Roadways: Measured

Measured:

- Every segment of the interstate
- Trucks traveling on the roadway segments
- All days of the week
- All hours of the day

Expressed:

- As a ratio of travel time experienced by 95% of truck traffic to that experienced by half the truck traffic, per mile of the interstate roadway.

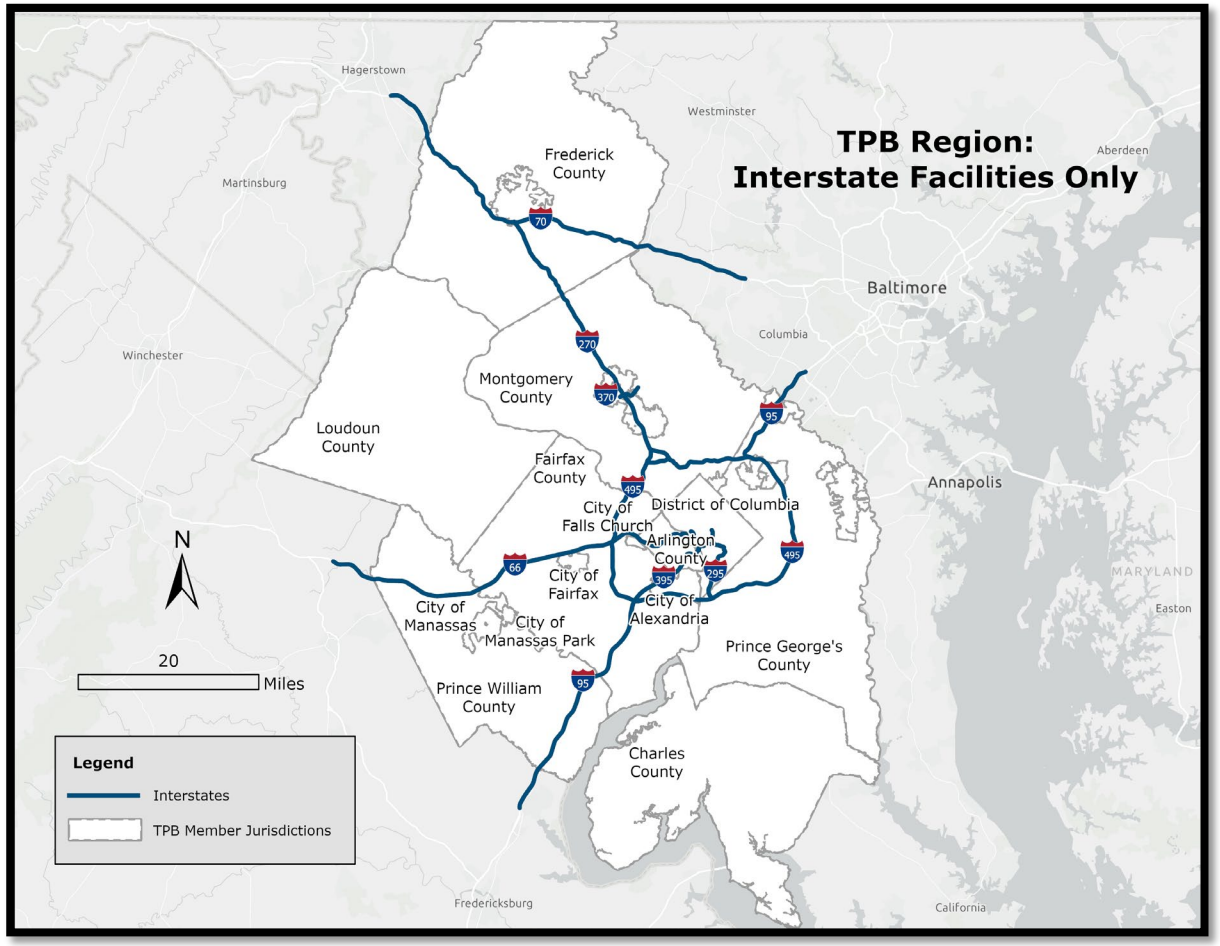
Truck Travel Time Reliability Targets: Interstate Roadways

Interstate Roadways

Desired Trend ↓

	2023	2025
Past Targets	2.58 👍	2.56 👍
Observed Data	2.23	2. 44

	2027	2029
Proposed Targets	**2.50**	**2.56**



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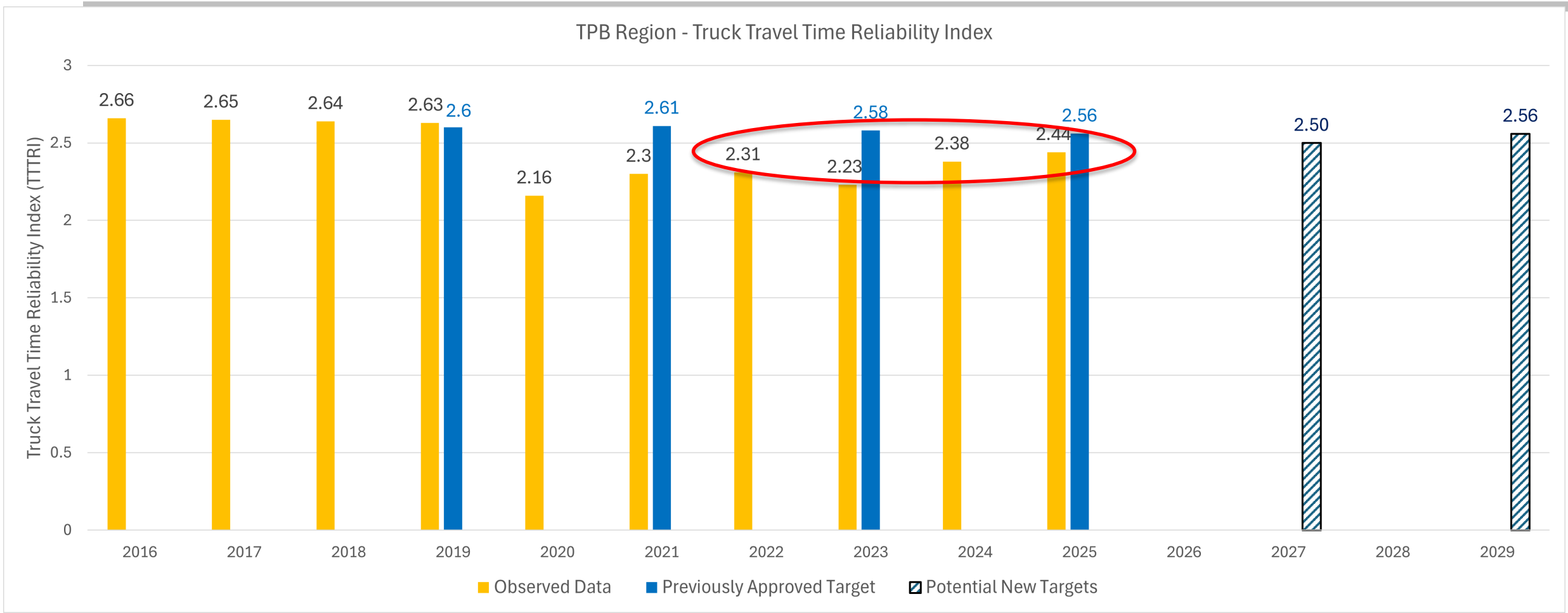
Truck Travel Time Reliability Index



2023 Target Met; 2025 Target Met

Proposed Travel Reliability Targets and Use

Performance Measure	CY 2027	CY 2029
Travel Time Reliability - IS	55.3%	54.6%
Travel Time Reliability – non-IS NHS	81.3%	79.0%
Truck Travel Time Reliability Index	2.50	2.56

Targets to inform prioritizing transportation decisions that help optimize:

- Travel demand on the roadways
- Roadway design
- Roadway operations
- Incident response times
- Land use the roadways serve

Prior and Next Steps

- September (Prior)
  - 9/4 TPB Staff presented draft measures and targets to the Technical Committee
- October (Next)
  - 10/2 TPB Staff present final measures and targets to the Technical Committee
  - 10/21 TPB Staff present final measures and targets to the TPB

    => TPB approves new targets

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Appendix

Performance-Based Planning and Programming (PBPP) Further Details

- Federally required process for both MPOs and State DOTs to set targets for designated performance measures across congestion, reliability, safety, emissions, asset management, and infrastructure condition
- Performed every four years with the opportunity to re-evaluate targets every two years
- Significant regional stakeholder coordination including neighboring MPOs and State DOT partners
- Last performed in 2022

Overview of Performance Measures

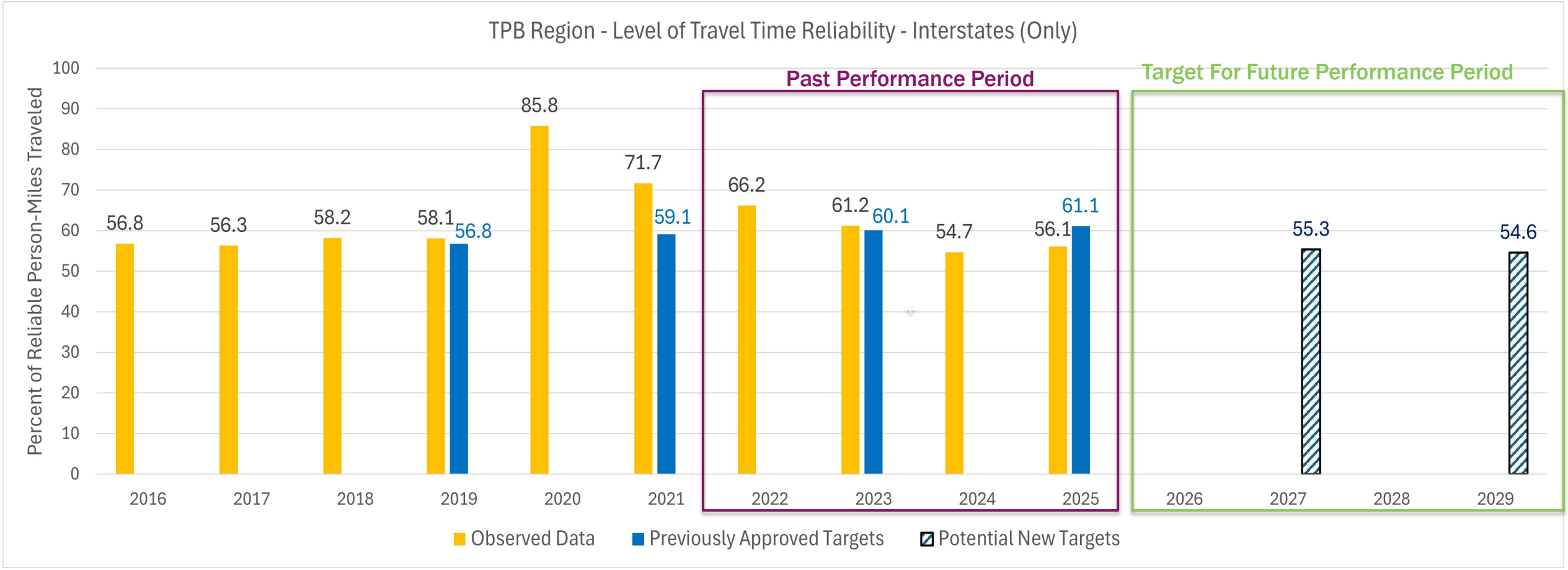
Performance Measure	Definition of Measure	Explanation of Measure
Travel Time Reliability – IS	The measure of how reliable conditions are on the region's interstates, only.	The percentage of person-miles traveled, that are deemed reliable, by both trucks and passenger vehicles on the TPB Region's interstate facilities' aggregated general purpose and express lanes, over four observed time periods.
Travel Time Reliability – non-IS NHS	The measure of how reliable conditions are for the region's National Highway System (NHS) roadways/facilities excluding the interstates.	The percentage of person-miles traveled, that are deemed reliable, by both trucks and passenger vehicles on the TPB Region's National Highway System (NHS) facilities, **excluding** its interstates, over four observed time periods.
Truck Travel Time Reliability Index	The measure of how reliable conditions are on the interstates for trucks, only.	A ratio that illustrates the reliability of truck travel times on only the TPB Region's interstate facilities, by trucks only, over five observed time periods.

The data source was consistent for all three metrics: the NPMRDS derived from INRIX data for TMC segments, accessed via RITIS.

Travel Time Reliability - Interstates:

Desired Trend

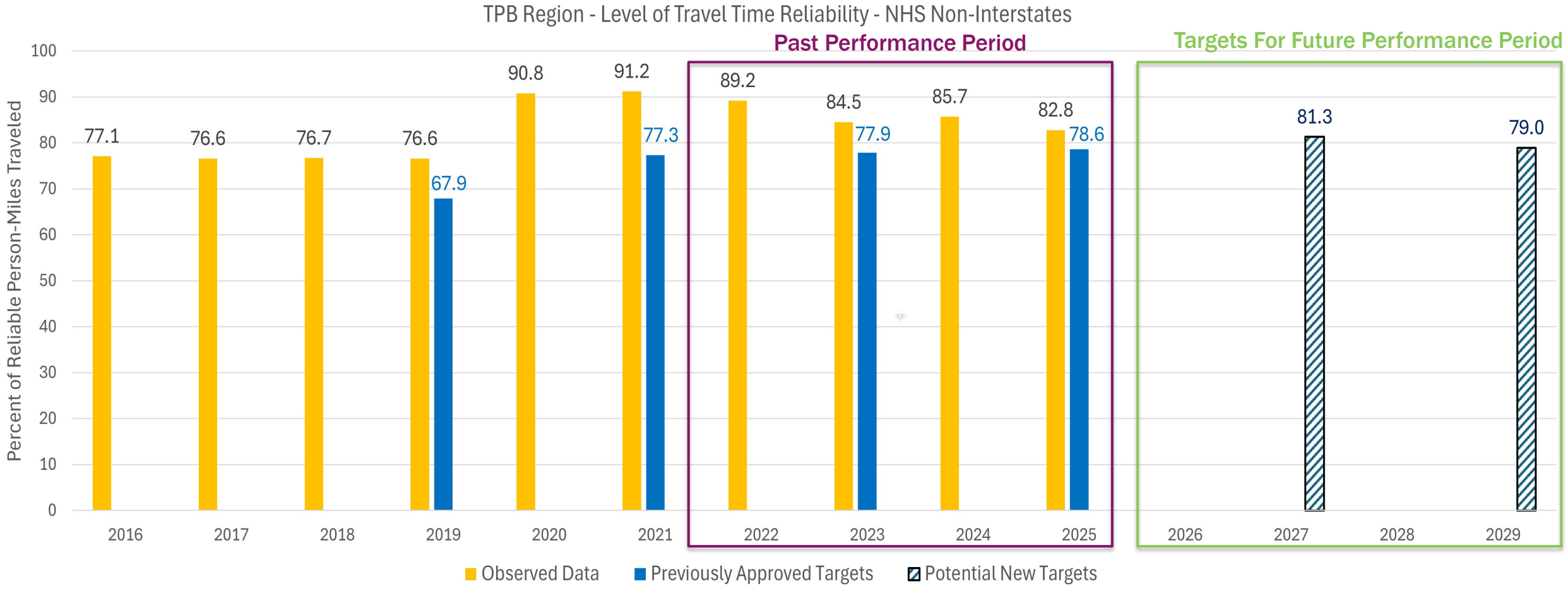
Expected Trend



2023 Target Met; 2025 Target Not Met

Travel Time Reliability - non-IS NHS

Desired Trend Expected Trend

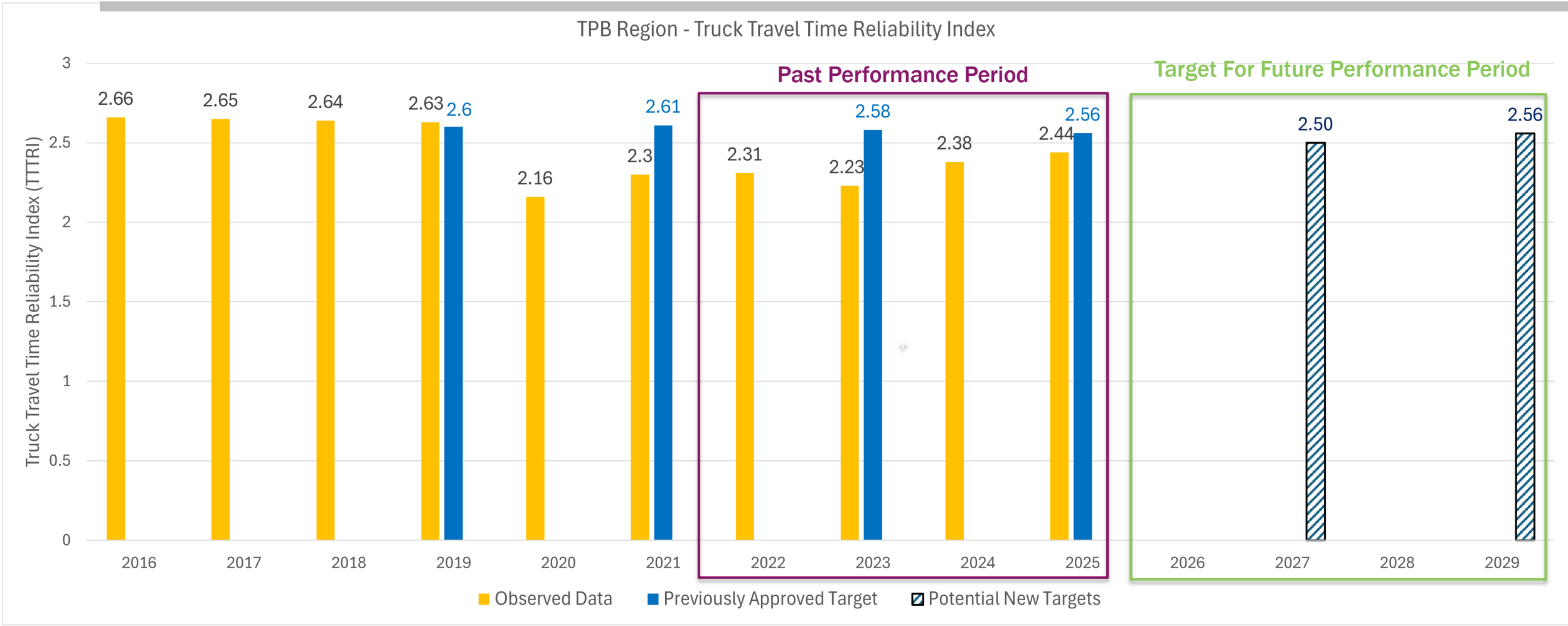


2023 Target Met; 2025 Target Met

Truck Travel Time Reliability Index

Desired Trend

Expected Trend



2023 Target Met; 2025 Target Met

Key Performance Takeaways

Performance Measure	2023 Target	2025 Target	DRAFT Two-Year Targets 2026–2027	DRAFT Four-Year Targets 2026–2029
Travel Time Reliability - IS	61.2% met 60.1% target	56.1% did not meet 61.1% target	55.3%	54.6%
Travel Time Reliability - non-IS NHS	84.5% met 77.9% target	82.8% met 78.6% target	81.3%	79.0%
Truck Travel Time Reliability Index	2.23 met 2.58 target	2.44 met 2.56 target	2.50	2.56

Travel Time Reliability - IS - Methodology

- **Linear regression of observed data trend**: Combination of CY2016-CY2019 + CY2024-CY2025
  - Utilizing pre-pandemic data, in addition to the 2024-2025 data, serves as a Covid adjustment factor
- **Linear regression of model data trend**: *Percent Congested VMT During the AM Peak Hour,* model years 2026-2030
- **Extrapolate the observed data trend**: Apply the observed-data regression slope (annual rate of change) incrementally, year-over-year, from the 2025 observed value (approximately -0.21%)
- **Extrapolate the model data trend:** Apply the model-data regression slope similarly to derive projected values for 2026-2029 (-0.55%)
- **Average the two independently derived trend lines:** for each year, 2026-2029
- **Extract the averaged 2027 value and 2029 value:** to be used as the two- and four-year targets

Travel Time Reliability - non-IS NHS - Methodology

- **Linear regression of observed data trend**: CY2022-CY2025
- **Linear regression of model data trend**: *Percent Congested VMT During the AM Peak Hour,* model years 2026-2030
- **Extrapolate the observed data trend**: Apply the observed-data regression slope (annual rate of change) incrementally, year-over-year, from the 2025 observed value (-1.8%)
- **Extrapolate the model data trend:** Apply the model-data regression slope similarly to derive projected values for 2026-2029 (-0.55)
- **Average the two independently derived trend lines:** for each year, 2026-2029
- **Extract the averaged 2027 value and 2029 value:** to be used as the two- and four-year targets

Truck Travel Time Reliability Index - Methodology

- **Linear regression of observed data trend**: CY2022-CY2025
- **Linear regression of model data trend**: *Percent Congested VMT During the AM Peak Hour,* model years 2026-2030
- **Extrapolate the observed data trend**: Apply the observed-data regression slope (annual rate of change) incrementally, year-over-year, from the 2025 observed value (0.054)
- **Extrapolate the model data trend:** Apply the model-data regression slope similarly to derive projected values for 2026-2029 (0.0055)
- **Average the two independently derived trend lines:** for each year, 2026-2029
- **Extract the averaged 2027 value and 2029 value:** to be used as the two- and four-year targets