Development of Local PM3 System Performance Targets for the TPO Region under the FHWA Transportation Performance Management – 2026 – 2029 3rd Performance Period Target Setting Process

April 2026

Background and Overview

This memo describes the part of the overall FHWA Transportation Performance Management (TPM) program that deals with performance measures to assess System Performance, Freight Movement and the CMAQ Program (both congestion and emissions reduction). Collectively these are referred to as the "PM3" measures in the overall framework that also includes the PM1 (Safety) and PM2 (Bridge & Pavement Conditions) performance measures. The PM3 measures support and improve accountability/transparency which ultimately attempts to lead towards improved decision-making for the funding programs under the National Highway Performance Program (NHPP), the National Highway Freight Program (NHFP) and the Congestion Mitigation and Air Quality (CMAQ) Improvement Program.

The FHWA Performance Management Final Rule establishes six (6) total performance measures covering a 4-year Performance Period to include:

1. **Subpart E: National Highway System – Interstate Travel Time Reliability**
2. **Subpart E: National Highway System – Non-Interstate NHS Travel Time Reliability**
3. **Subpart F: Freight Movement on the Interstate System – Truck Travel Time Reliability**
4. **Subpart G: CMAQ Program Traffic Congestion – Peak Hour Excessive Delay**
5. **Subpart G: CMAQ Program Traffic Congestion – Non-Single Occupancy Vehicle Travel**
6. **Subpart H: CMAQ Program Emissions Reduction – On-Road Mobile Source Emissions**

The federal rules also establish the process for State Departments of Transportation (DOTs) and Metropolitan Planning Organizations (MPOs) to establish and report their safety targets, and the process that FHWA will use to assess whether State DOTs have met or made significant progress toward meeting their safety targets.

This represents the 3rd Performance Period and covers the four-year period from 2026 – 2029. For each of the first two performance periods (2018 – 2021 and 2022 – 2025), the TPO Executive Board adopted a resolution to "support" the State's targets, except for Subpart G measures which are required to be specific to the census-designated Knoxville Urban Area. The TPO staff has compiled information and data to support the consideration of local targets for all PM3 measures for the 2026 – 2029 Performance Period as summarized in this memo. Various options along with a TPO Staff Recommendation are presented for each of the Performance Measures for TPO Technical Committee review and final adoption by the TPO Executive Board.

2026 – 2029 PM3 System Performance Target and Baseline Period Overview

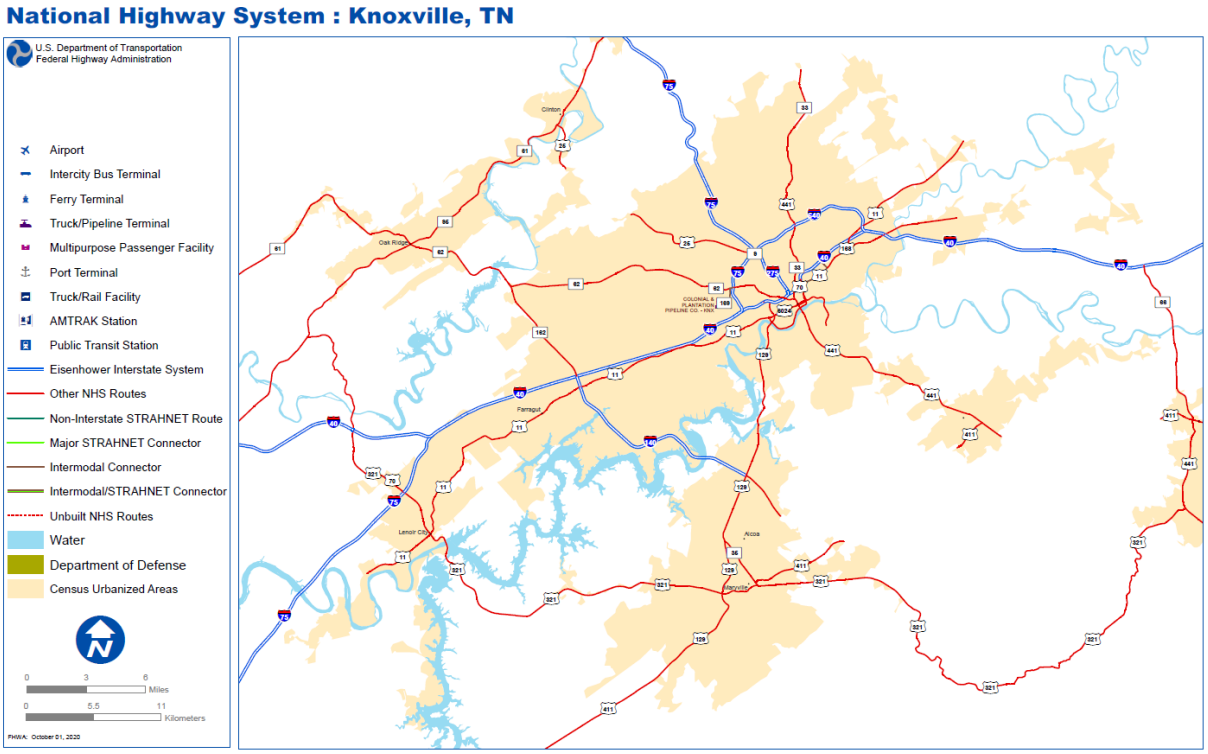
The PM3 targets are based on a four-year Performance Period as noted previously. If MPOs decide to set local targets then most measures require only a 4-year target value for the final year in the period, which will be 2029. The measures in Subpart G require both a 2 and 4-year target value, i.e. for year 2027 and 2029. These targets are compared against a baseline value from year 2025. The values also represent calendar-year data except for the Subpart H CMAQ measures which are based on the federal fiscal year, which runs from October 1st to September 30th.

Entities are determined to have met or made significant progress toward meeting their performance targets when:

- The actual condition/performance level is better than the baseline, or
- The actual condition/performance level is equal to or better than the established target

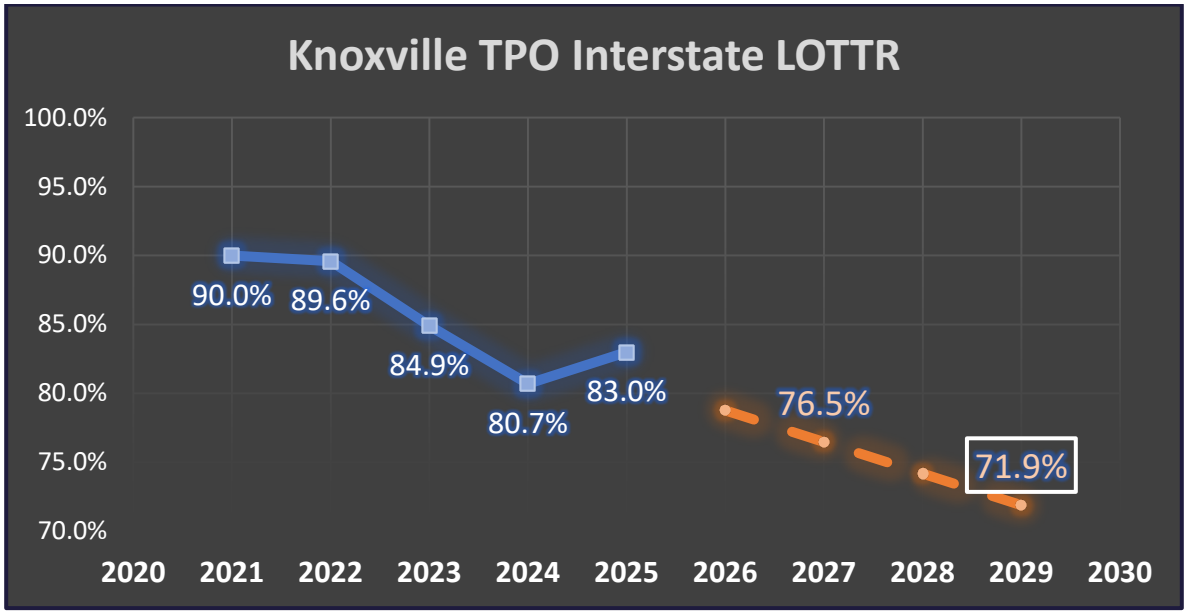
Note, the TPO's local targets will not be directly evaluated by FHWA with no consequences for missing targets.

The geography used to represent local targets is the affected roadway network, primarily the segments designated as part of the National Highway System (NHS) within the TPO Planning Area for all Subparts except Subpart G, which is specific to the Census-Designated Knoxville Urban Area and Subpart H, which is specific to the areas designated Non-Attainment or Maintenance for an Air Quality Standard. Below is a map of the NHS roadway network in the Knoxville Region as reference:



Measure 1 – Subpart E: Interstate Level of Travel Time Reliability (LOTTR) 4-Year Target for Year 2029

This Performance Measure deals with travel time reliability and is measured as the Percent of Person-miles Traveled on the Interstate that are Reliable, with reliable travel defined as the 80th Percentile Travel Time to 50th Percentile Travel Time ratio of less than 1.5 for each of four different time periods of the day. The chart below displays the historical trend and straight-line projection for the years from 2021 through 2029.



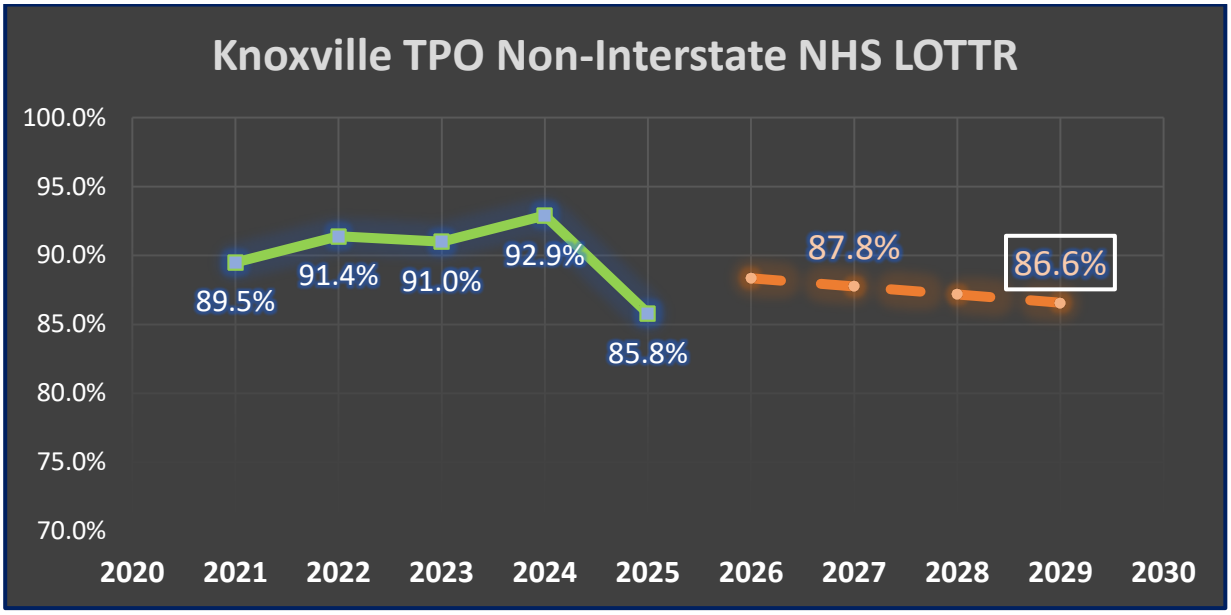
The Local Target options presented for TPO Technical Committee consideration are as follows:

1. Aspirational Target – 90.0% (This reflects the best performance since 2021)
2. Maintain Baseline – 83.0% (This is the year 2025 value that serves as the Baseline)
3. Trend – 71.9% (This would be considered as a Conservative target as it is much worse than baseline but reflects the recent trendline)
4. Building off Baseline – 82.0% (Reflects the desire to maintain baseline conditions but acknowledges declining trend) – **Staff Recommendation**

The TPO Staff Recommendation is #4 (82.0%) and primarily results from reviewing the segment data along with recent trends which show a likely continued declining travel time reliability over the next four years due to increasing population and VMT with few specific improvement projects that will be completed in that timeframe to reverse the trend. The 82.0% value also represents the midpoint of the range calculated for scenarios where the segments close to the reliable/unreliable cross the threshold of 1.5.

Measure 2 – Subpart E: Non-Interstate NHS Roadway Level of Travel Time Reliability (LOTTR) 4-Year Target for Year 2029

This Performance Measure deals with travel time reliability and is measured as the Percent of Person-miles Traveled on the Non-Interstate NHS routes (surface arterial streets) that are Reliable, with reliable travel defined as the 80th Percentile Travel Time to 50th Percentile Travel Time ratio of less than 1.5 for each of four different time periods of the day. The chart below displays the historical trend and straight-line projection for the years from 2021 through 2029.



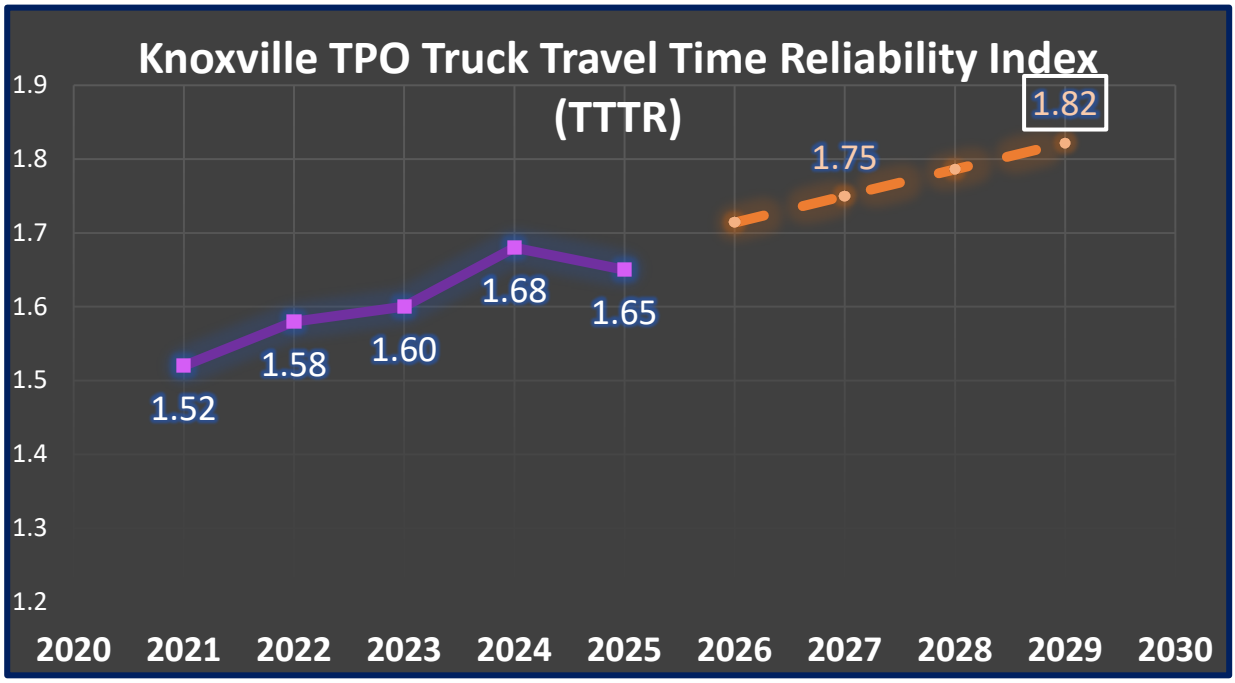
The Local Target options presented for TPO Technical Committee consideration are as follows:

1. Aspirational Target – 92.9% (This reflects the best performance since 2021)
2. Maintain Baseline – 85.8% (This is the year 2025 value that serves as the Baseline)
3. Trend – 86.6% (This reflects the trend since 2021) **Staff Recommendation**

The TPO Staff Recommendation is #3 (86.6%) which reflects the trend and is slightly better than the Baseline Year so it reflects a somewhat optimistic, but also a potentially realistic value for the Region to meet. The segment data was reviewed for this measure but was inconclusive as to whether significant improvement could be achieved with 71% of segments exceeding the 1.5 travel time ratio threshold for more than one time period and it only takes one period to be exceeded to be considered “unreliable”.

Measure 3 – Subpart F: Freight Reliability - Truck Travel Time Reliability (TTTR) 4-Year Target for Year 2029

This Performance Measure deals with freight travel time reliability and specifically that of truck travel on the Interstate System only. It is measured as ratio of the 95th Percentile Travel Time to 50th Percentile Travel Time ratio for each of five different time periods including weekend travel. The maximum value is selected and used in a length-weighted average across the entire area to derive the final TTTR index value. The chart below displays the historical trend and straight-line projection for the years from 2021 through 2029.



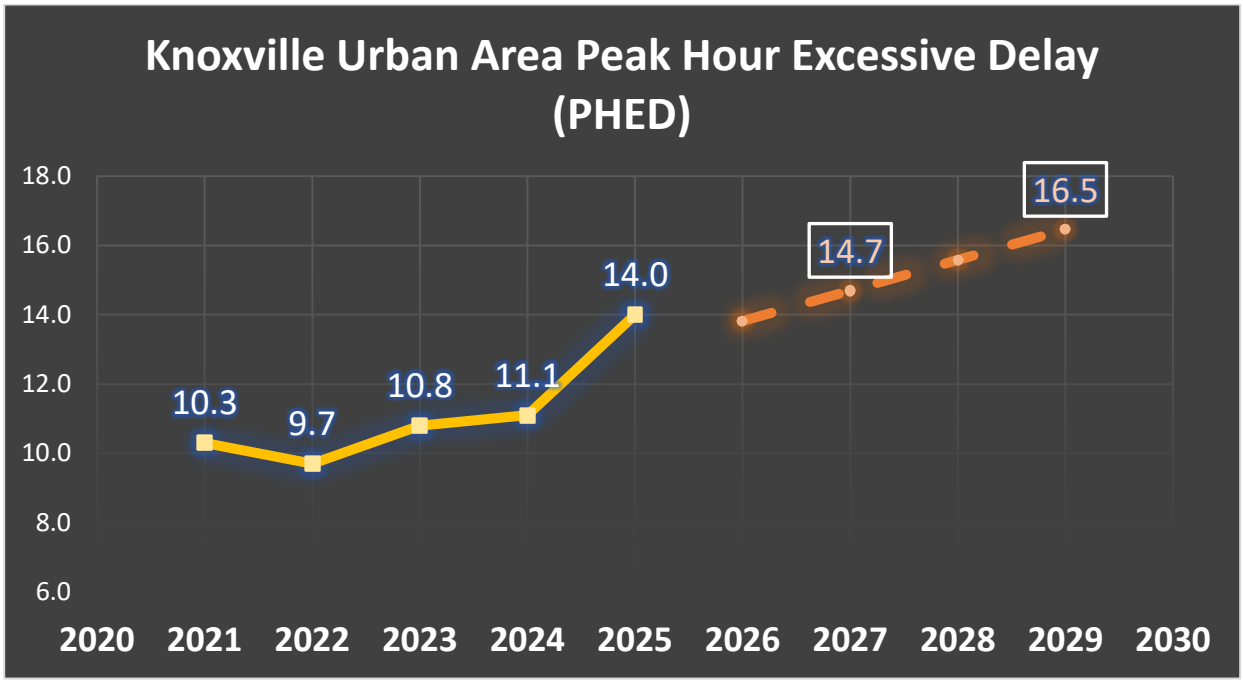
The Local Target options presented for TPO Technical Committee consideration are as follows:

1. Aspirational Target – 1.52 (This reflects the best performance since 2021)
2. Maintain Baseline – 1.65 (This is the year 2025 value that serves as the Baseline) **Staff Recommendation**
3. Trend – 1.82 (This reflects the trend since 2021 projected forward to 2029)

The TPO Staff Recommendation is #2 (1.65) which reflects the Baseline Year value and was slightly below the year 2024 value. The trendline for this measure is clearly heading in an increasing direction reflecting less reliability for truck travel and it is likely going to be challenging to reverse this trend in the short term prior to projects that may arise from the ongoing I-40/75 PEL study. One positive step that may help in the short term is the implementation of "weigh-in-motion" technology at the weigh stations in west Knox County.

Measure 4 – Subpart G: (CMAQ Congestion) Knoxville Urban Area Peak Hour Excessive Delay (PHED) 2 and 4-Year Targets for Years 2027 and 2029

This Performance Measure deals with congestion levels measured as hours of "excessive delay" experienced by motorists during the AM and PM peak periods on the NHS network within the 2020 Census Knoxville Urban Area. Excessive delay is defined as travel at or below 60% of the speed limit or 20 mph, whichever is higher. The chart below displays the historical trend and straight-line projection for the years from 2021 through 2029.



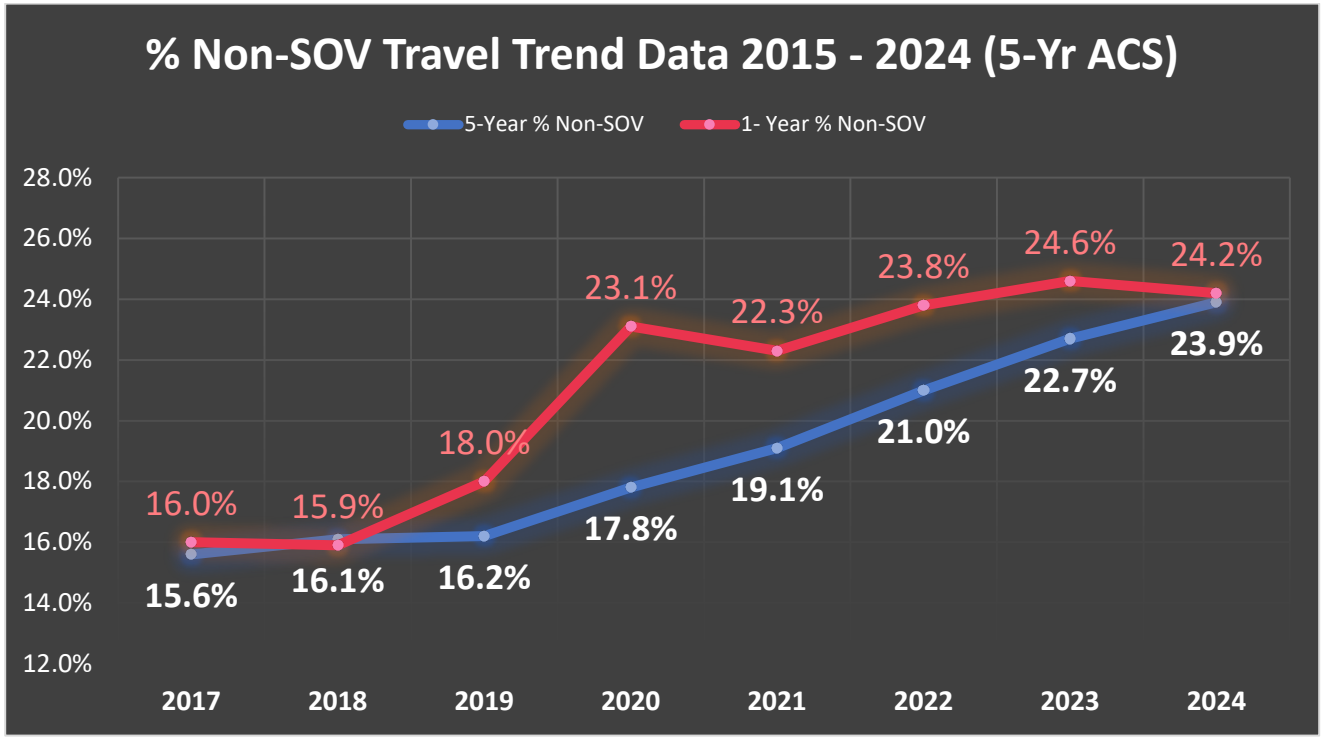
The Local Target options presented for TPO Technical Committee consideration are as follows:

1. Aspirational Target – 12.0 hours for 2027 & 2029 (This was the previous 2025 target)
2. Maintain Baseline – 14.0 hours for 2027 & 2029 (This is the year actual 2025 value)
3. Trend – 14.7 hours for 2027 and 16.5 hours for 2029 (This reflects the trend since 2021)
4. Building off Baseline w/Segment Analysis – 13.5 hours for 2027 & 2029
5. Building off Baseline w/TPO TDM – 14.5 hours for 2027 and 15.0 hours for 2029

The TPO Staff Recommendation is either #4 or #5 above and staff would like to hear the Technical Committee members' input on a preference. Option #4 attempt to quantify future improvements such as upcoming CMAQ-funded traffic signal upgrade projects on potential improvement in delay hours although this is a very rough estimate and would be likely optimistic. Option #5 uses results from the TPO travel demand model which projects roughly a 2% increase each year in delay based on regional growth and with implementation of major roadway projects.

Measure 5 – Subpart G: (CMAQ Congestion) Knoxville Urban Area Percent Non-Single Occupant Vehicle (SOV) Travel 2 and 4-Year Targets for Years 2027 and 2029

This Performance Measure deals with addressing traffic congestion through reduction of traffic demand and promotion of non single-occupant vehicle travel. The data source for this measure comes from the Census American Community Survey (ACS) and is specific to the work commute trips rather than all travel. The Knoxville area, like most of the rest of the nation, has seen a significant increase in the non-SOV travel due to increased telecommuting since the year 2020 and the Covid pandemic. The chart below displays the historical trend of both the 5-year ACS and the 1-year ACS.



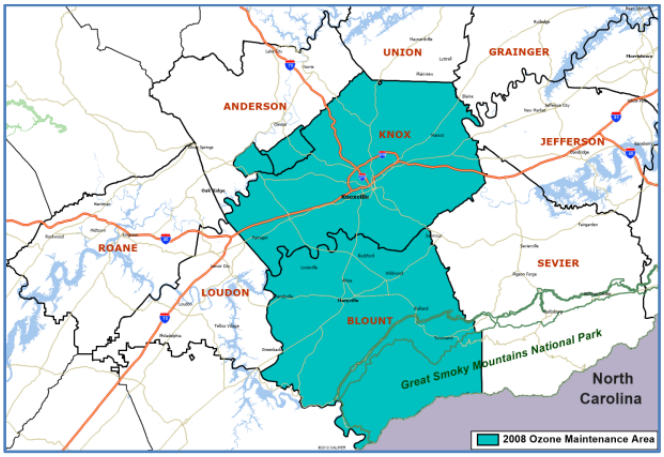
The Local Target options presented for TPO Technical Committee consideration are as follows:

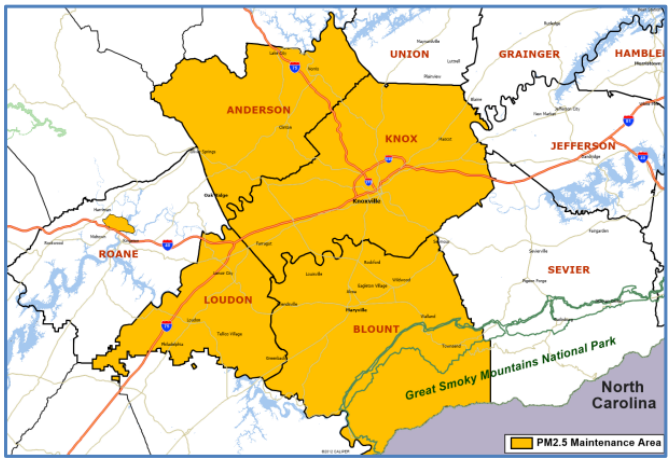
1. Trend Projection using Year 2024 1-Year ACS Value – 24.6% **Staff Recommendation**
2. Maintain Baseline – 23.9% (This is the year 2025 value, from the 2024 5-Year ACS, that serves as the Baseline)

The TPO Staff Recommendation is #1 (24.6%) which reflects the likelihood of continuing telecommuting in the Region and also the leveling-off of this phenomenon since the 5-Year ACS values moving forward will all contain post-pandemic years in the average. It is a calculated value that plugs the 1-Year ACS value of 24.2% into the "missing" future years to calculate a probable 5-Year ACS value for the year 2029 target period.

Measure 6 – Subpart H: (CMAQ Emissions) Knoxville Air Quality Maintenance Areas for Ozone and PM2.5 On-Road Mobile Source Emissions Reductions 4-Year Targets for Year 2029

This Performance Measure deals with tracking on-road mobile source emission reductions attributable to CMAQ-funded projects within the Knoxville Region for those counties designated as nonattainment or maintenance for one of the EPA air quality standards. The Knoxville Region is designated as Maintenance for both the 2008 Ozone Standard shown in the left map below and for Fine Particulate Matter 2.5 shown in the map on the right. Ozone pollution results from the on-road emissions sources of Volatile Organic Compounds (VOC) and Oxides of Nitrogen (NOx) while Fine Particulate Matter is known as PM2.5 and is directly emitted in vehicle exhaust (especially diesel) as well as brake and tire wear.





The Local Target options presented for TPO Technical Committee consideration are as follows:

1. Calculate Emissions Reductions from Projects already programmed in FY 26-29 TIP – TBD (TPO staff is currently in process of performing this calculation) **Staff Recommendation**
2. Maintain Baseline – The actual CMAQ project emission reductions for the previous baseline period of 2022-2025.

The TPO Staff Recommendation is #1 (TBD), which reflects the specific amount of emissions reduction that can be expected to result from the “new start” CMAQ projects programmed in the FY 2026-2029 TIP. The emissions reductions are credited at the time the project has its first federal funding authorization which normally occurs with the obligation of PE-NEPA funding. At this time there are only 3 new projects programmed with CMAQ funding in the next TIP although TPO staff is hopeful that additional dedicated PM2.5 funding will become available to program additional projects with.

Summary & Conclusion

The below table presents the Baseline and Target-year information for each of the PM3 Performance Measure Areas under 23 CFR Part 490 Subparts E – H. This includes draft values for the Targets based on the TPO Staff Recommended values, noting that there are currently two options provided for one of the performance measure areas under Subpart G. Based on polling results and additional discussion (if needed) from the TPO Technical Committee will determine the final Target Values for TPO Executive Board adoption.

Performance Measures	Baseline	2-Year Target	4-Year Target
Subpart E: Percent of the Person-Miles Traveled on the Interstate That Are Reliable	83.0%	N/A	*82.0%*
Subpart E: Percent of the Person-Miles Traveled on the Non-Interstate NHS That Are Reliable	85.9%	N/A	*86.6%*
Subpart F: Truck Travel Time Reliability (TTTR) Index – Ratio of 95% travel time to 50% travel time	1.65	N/A	*1.65*
Subpart G: Annual Hours of Peak Hour Excessive Delay Per Capita: Knoxville, TN Urban Area	14.0	*13.5 or 14.5*	*13.5 or 15.0*
Subpart G: Percent of Non-Single Occupancy Vehicle Travel: Knoxville, TN Urban Area	23.9%	*24.6%*	*24.6%*
Subpart H: Total Emission Reductions in kg/day: Volatile Organic Compounds (VOC)	0.513	N/A	*TBD*
Subpart H: Total Emission Reductions in kg/day: Oxides of Nitrogen (NOx)	10.490	N/A	*TBD*
Subpart H: Total Emission Reductions in kg/day: Fine Particulate Matter (PM2.5)	0.166	N/A	*TBD*

A RESOLUTION BY THE EXECUTIVE BOARD OF THE KNOXVILLE REGIONAL TRANSPORTATION PLANNING ORGANIZATION ADOPTING THE 2026 – 2029 4-YEAR TARGETS FOR THE FHWA PM-3 (SYSTEM PERFORMANCE, FREIGHT AND CMAQ) PERFORMANCE MEASURE AREAS FOR THE KNOXVILLE URBANIZED / METROPOLITAN PLANNING AREA AS ESTABLISHED IN CONJUNCTION WITH THE TENNESSEE DEPARTMENT OF TRANSPORTATION

WHEREAS, the Knoxville Regional Transportation Planning Organization (TPO) is the designated Metropolitan Planning Organization (MPO) for the Knoxville urbanized area; and

WHEREAS, in 2012 Congress passed the Moving Ahead for Progress in the 21st Century (MAP-21) that mandated the establishment of a performance and outcome-based program for transportation decisions which was carried forward in the Infrastructure Investment and Jobs Act (IIJA); and

WHEREAS, national goals have been established for Safety, Infrastructure Condition, Congestion Reduction, System Reliability, Freight Movement and Economic Vitality and Environmental Sustainability for which specific Performance Measure areas have been designated; and

WHEREAS, the Systems Performance (PM3) regulations (23 CFR 490 Subparts E, F, G & H) require State DOTs and MPOs to set 4-year targets for four measures for assessing performance of the National Highway System, Freight Movement on the Interstate System, and both 2 & 4-Year Targets for the Congestion Mitigation and Air Quality Improvement Program; and

WHEREAS, the TPO must either support the State's targets or commit to a quantifiable target for its own metropolitan planning area via resolution within 180 days of TDOT adopting its targets; and

WHEREAS, the TPO staff coordinated with TDOT and TPO Technical Committee members in reviewing and establishing local TPO-specific targets for each PM3 measure for the 3rd 4-year Performance Period covering 2026 – 2029; and

WHEREAS, the Federal regulations allow State DOTs and MPOs to adjust the initial 4-year targets under PM-3 at the mid-point of the performance period as part of the Mid-Performance Period Progress Report (MPP) in 2027; and

NOW, THEREFORE, BE IT RESOLVED BY THE KNOXVILLE REGIONAL TRANSPORTATION PLANNING ORGANIZATION EXECUTIVE BOARD:

That the Knoxville Regional TPO hereby adopts all 2 & 4-Year Targets (as applicable) for the subject Performance Areas in PM-3 as shown in Attachment 1.

May 27, 2026
Date

_____
Mayor Glenn Jacobs
Knox County
TPO Executive Board Chair

_____
Doug Burton
Coordinator
Knoxville Regional TPO

ATTACHMENT 1: TPO Area 4-Year (2026-2029) Targets for PM-3 Measures

Performance Measures		Baseline (2025)	2-Year Target (2027)	4-Year Target (2029)
Subpart E: Percent of the Person-Miles Traveled on the Interstate That Are Reliable		83.0%	N/A	**82.0%**
Subpart E: Percent of the Person-Miles Traveled on the Non-Interstate NHS That Are Reliable		85.9%	N/A	**86.6%**
Subpart F: Truck Travel Time Reliability (TTTR) Index – Ratio of 95% travel time to 50% travel time		1.65	N/A	**1.65**
Subpart G: Annual Hours of Peak Hour Excessive Delay Per Capita: Knoxville, TN Urban Area		14.0	**13.5**	**13.5**
Subpart G: Percent of Non-Single Occupancy Vehicle Travel: Knoxville, TN Urban Area		23.9%	**24.6%**	**24.6%**
Subpart H: Total Emission Reductions in kg/day:	**Volatile Organic Compounds (VOC)**	0.513	N/A	**0.985**
	Oxides of Nitrogen (NOx)	10.490	N/A	**1.903**
	Fine Particulate Matter (PM2.5)	0.166	N/A	**0.221**