

6 TRANSPORTATION PERFORMANCE MANAGEMENT

FHWA defines Transportation Performance Management (TPM) as a strategic approach that uses system information to make investment and policy decisions to achieve national performance goals.

The Moving Ahead for Progress in the 21st Century Act (MAP-21), signed into law in 2012, included several provisions that collectively are transforming the Federal surface transportation program to be focused on the achievement of performance outcomes.

The performance outcomes provisions, administered by different agencies within the U.S. Department of Transportation (USDOT), were implemented by rulemakings, including several under FHWA's purview. The provisions are organized by six performance management elements.

The Fixing America's Surface Transportation (FAST) Act, signed in 2015, built on the MAP-21 changes and provided long-term funding certainty for surface transportation infrastructure planning and investment.

TPM outcomes are grouped into six elements to more effectively communicate the efforts under way to implement the statutory requirements. They are National Goals, Measures, Targets, Plans, Reports, and Accountability and Transparency.

National goals: Congressionally established goals or program purpose to focus the Federal-aid highway program into specific areas of performance.

Measures: FHWA-established measures to assess performance/condition in carrying out performance-based Federal-aid highway programs.

Targets: Established by Federal-aid highway funding recipients for the measures to document future performance expectations.

Plans: Development of strategic and/or tactical plans by Federal funding recipients to identify strategies and investments that address performance needs.

Reports: Development of reports by Federal funding recipients that document progress toward target achievement, including the effectiveness of Federal-aid highway investments.

Accountability and Transparency: FHWA-developed requirements for Federal funding recipients to use to achieve or make significant progress toward targets.

MEASURES AND TARGETS

FHWA established a total of seventeen (17) performance measures that are included in one of three (3) regulations. These regulations are PM1 Safety, PM2 Infrastructure, and PM3 System Performance.

The Federal Transit Administration established four (4) performance measures included in the Transit Asset Management (TAM) regulation.

PM1 SAFETY

The Safety regulation supports the Highway Safety Improvement Program (HSIP) and requires State Departments of Transportation (DOTs) and Metropolitan Planning Organizations (MPOs) to set HSIP targets for five (5) safety performance measures. The five (5) safety measures are;

Number of fatalities

Fatality Rate

Number of serious injuries

Serious injury Rate

Number of non-motorized fatalities and serious injuries

There are two ways for the High Point MPO to establish targets for these safety measures by either:

- 1) Adopt the NCDOT target set in the HSIP
- or
- 2) Adopt our own targets for the MPO.

For the High Point MPO, the TAC decided to adopt the targets set by NCDOT. These targets are set annually so the High Point MPO adopts a new set of safety targets on a yearly basis.

PM2 INFRASTRUCTURE

The Infrastructure performance measure regulation includes six (6) pavement and bridge condition measures. The (6) six pavement/bridge condition measures are;

- Percent of pavements on the Interstate system in good condition
- Percent of pavements on the Interstate system in poor condition
- Percent of pavements on the non-Interstate system in good condition
- Percent of pavements on the non-Interstate system in poor condition
- Percent of National Highway System (NHS) bridges in good condition
- Percent of NHS bridges in poor condition

As mentioned above the High Point MPO had the option of adopting the targets set by NCDOT or adopting our own targets. The High Point MPO TAC decided to adopt the targets set by NCDOT. There is a requirement to adopt 2-year and 4-year targets. The current targets set by NCDOT were approved by the TAC on June 26, 2018. These targets will be set by NCDOT every two years and will be presented to the High Point MPO TAC in 2020 and again in 2022.

SYSTEM PERFORMANCE

The System Performance regulation includes measures to assess travel time reliability, freight movement, traffic congestion, and vehicle emissions. There are six (6) measures used to assess System Performance and they include;

- Percent of person miles on the Interstate system that are reliable
- Percent of person miles on the non-Interstate NHS system that are reliable
- Percent of Interstate mileage providing for reliable truck travel times
- Annual hours of peak-hour excessive delay per capita
- Percent of non-single occupant vehicle travel
- Total emissions reduction

Again, the High Point MPO had the option of adopting the targets for these measures set by NCDOT or adopting our own targets. The High Point MPO TAC again adopted the targets set by NCDOT. There is a requirement to adopt 2- year and 4-year targets. The target for this performance measure was adopted on June 26, 2018. These targets will be set by NCDOT every two years and will be presented to the High Point MPO TAC in 2020 and again in 2022.

TRANSIT ASSET MANAGEMENT (TAM)

The TAM regulation established by FTA includes four (4) performance measures that are minimum standards for transit operators and include;

Rolling Stock:	The percentage of revenue vehicles (by type) that exceed the useful life benchmark (ULB).
Equipment:	The percentage of non-revenue service vehicles (by type) that exceed the ULB.
Facilities:	The percentage of facilities (by group) that are rated less than 3.0 on the Transit Economic Requirements Model (TERM) Scale.
Infrastructure:	The percentage of track segments (by mode) that have performance restrictions. Track segments are measured to the nearest 0.01 miles.

Metropolitan Planning Organization's (MPOs) are required to develop and report transit performance targets. These targets may be based on Group Plans or transit system plans within the MPO area or the targets may be developed independently. Although consistency is preferred between the performance targets, the MPO plans are not required to be consistent with the Group Plans and/or transit system plans.

Due to the varying characteristics between urban, county, and regional transit agencies, HPMPO has decided to support NCDOT's Group TAM Plan Targets, Piedmont Authority for Regional Transportation's targets, and High Point Transit System's targets.

These targets were adopted by the High Point MPO TAC on September 25, 2018.

The performance measures assess the condition in which a capital asset is able to operate at a full level of performance. A capital asset is in a state of good repair when that asset:

1. is able to perform its designed function;
2. does not pose a known unacceptable safety risk; and
3. its lifecycle investments must have been met or recovered

Metropolitan Planning Organization's (MPOs) are required to develop and report transit performance targets. These targets may be based on Group Plans or transit system plans within the MPO area or the targets may be developed independently. Although consistency is preferred between the performance targets, the MPO plans are not required to be consistent with the Group Plans and/or transit system plans.

Due to the varying characteristics between urban, county, and regional transit agencies, HPMPO has decided to support NCDOT's Group TAM Plan Targets, Piedmont Authority for Regional Transportation's targets, and High Point Transit System's targets.

NCDOT Group TAM Plan Performance Targets

All current §5311 sub-recipient agencies of NCDOT and §5307 recipients with one hundred (100) or fewer vehicles in revenue service during peak regular service across all non-rail fixed route modes or in any one non-fixed route mode, within North Carolina are Tier II Providers [49 CFR § 625.45] and are invited to participate in the NCDOT Group TAM Plan. Participation in this Group TAM Plan is optional. Per federal requirements, transit systems receiving §5311 and/or §5307 funds must either participate in a group plan or develop their own plan.

Transit systems are invited to offer input into the State Group TAM Plan. However, individualized performance targets for transit systems in the group plan will not be considered. If specific performance targets are required by a transit system, the transit system must either develop its own plan or participate in another group plan.

Within the High Point Metropolitan Planning Organization, Davidson County Transportation System, Guilford County Transportation and Mobility Services, and Randolph County's Regional Coordinated Area Transportation System are sponsored under the State's Group TAM Plan.

Performance Targets

A performance target of 20% is set for all asset categories, meaning that 80% of the assets in each category meet or exceed the state of good repair performance measure. Twenty-percent was selected to account for delays in acquiring the local match, the grant cycle, procurement process, and asset delivery.

Asset Category - Performance Measure	Asset Class	Useful Life Benchmark (Years)	2019 Target
ROLLING STOCK			
Age - % of revenue vehicles within a particular asset class that have met or exceeded their Useful Life Benchmark (ULB)	AO - Automobile	8	20%
	BU - Bus	14	20%
	CU - Cutaway Bus	10	20%
	MB - Mini-bus	10	20%
	MV - Mini-van	8	20%
	SV - Sport Utility Vehicle	8	20%
	VN - Van	8	20%
	Other	8	20%
EQUIPMENT			
Age - % of vehicles that have met or exceeded their Useful Life Benchmark (ULB)	Non Revenue/Service Automobile	8	20%
	Steel Wheel Vehicles	8	20%
	Trucks and other Rubber Tire Vehicles	8	20%
	Maintenance Equipment	Agency Determined	20%
	Computer Software	Agency Determined	20%
	Custom 1	Agency Determined	20%
FACILITIES			
Condition - % of facilities with a condition rating below 3.0 on the FTA Transit Economic Requirements Model (TERM) Scale	Administration	N/A	20%
	Maintenance	N/A	20%
	Parking Structures	N/A	20%
	Passenger Facilities	N/A	20%
	Shelter	N/A	20%
	Storage	N/A	20%
	Custom 1	N/A	20%

Regional Transit Agencies Performance Targets

Piedmont Authority for Regional Transportation Performance Targets

Asset Category - Performance Measure	Asset Class	Useful Life Benchmark (Years)	2019 Target
ROLLING STOCK			
Age - % of revenue vehicles within a particular asset class that have met or exceeded their Useful Life Benchmark (ULB)	BU - Bus	12	4%
	CU - Cutaway Bus	8	25%
	MV - Mini-van	5	0%
	VN - Van	5	0%
EQUIPMENT			
Age - % of vehicles that have met or exceeded their Useful Life Benchmark (ULB)	Non Revenue/Service Automobile	5	50%
	In-Floor Bus Lift	10	0%
	Bus Wash	10	0%
FACILITIES			
Condition - % of facilities with a condition rating below 3.0 on the FTA Transit Economic Requirements Model (TERM) Scale	Park and Ride Facilities	N/A	0%
	Passenger Facilities	N/A	0%
	Administrative Building	N/A	0%
	Maintenance Facility	N/A	0%

*Updated targets will be reported within the Piedmont Authority for Regional Transportation Transit Asset Management Plan in October 2018.

Urban Transit Agencies Performance Targets

High Point Transit System's Performance Targets

Asset Category - Performance Measure	Asset Class	Useful Life Benchmark (Years)	2019 Target
ROLLING STOCK			
Age - % of revenue vehicles within a particular asset class that have met or exceeded their Useful Life Benchmark (ULB)	BU - Bus	14	0%
	CU - Cutaway Bus	7	0%
	VN - Van	10	10%
EQUIPMENT			
Age - % of vehicles that have met or exceeded their Useful Life Benchmark (ULB)	Non Revenue/Service Automobile	10	0%
FACILITIES			
Condition - % of facilities with a condition rating below 3.0 on the FTA Transit Economic Requirements Model (TERM) Scale	Passenger Facilities	N/A	0%
	Administrative Building	N/A	25%
	Maintenance Facility	N/A	25%

*Updated targets will be reported within the High Point Transit System's Transit Asset Management Plan in October 2018.

High Point Urban Area MPO Metropolitan Transportation Plan System Performance Report

Background

Pursuant to the Moving Ahead for Progress in the 21st Century Act (MAP-21) Act enacted in 2012 and the Fixing America's Surface Transportation Act (FAST Act) enacted in 2015, state Departments of Transportation (DOT), Metropolitan Planning Organizations (MPO), and public transportation providers must apply a transportation performance management approach in carrying out their federally-required transportation planning and programming activities. The process requires the establishment and use of a coordinated performance-based approach to transportation decision-making to support national goals for the federal-aid highway and public transportation programs.

On May 27, 2016, the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) issued the Statewide and Nonmetropolitan Transportation Planning; Metropolitan Transportation Planning Final Rule (The Planning Rule).¹ This regulation implements the transportation planning and transportation performance management provisions of MAP-21 and the FAST Act.

In accordance with 23 CFR 450.324(f)(3)-(4)(i)(ii) of the Planning Rule, and the North Carolina Performance Management Agreement between the North Carolina Department of Transportation (NCDOT), the High Point Urban Area MPO, and public transportation providers, NCDOT and each North Carolina MPO must include a description of the applicable performance measures and targets and a System Performance Report for the performance measures in their respective statewide and metropolitan transportation plans. The System Performance Report presents the condition and performance of the transportation system with respect to required performance measures and approved performance targets, and reports on progress achieved in meeting the targets in comparison with previous reports and the baseline. The Planning Rule specifies the following timeframes for when a state or MPO must include the System Performance Report:

- Highway Safety/PM1 - In any statewide or metropolitan transportation plan amended or adopted on or after May 27, 2018;
- Pavement and Bridge Condition/PM2 - In any statewide or metropolitan transportation plan amended or adopted on or after May 20, 2019;
- System Performance, Freight, and Congestion Mitigation and Air Quality/PM3 - In any statewide or metropolitan transportation plan amended or adopted on or after May 20, 2019;
- Transit Assets - In any statewide or metropolitan transportation plan amended or adopted on or after October 1, 2018;
- Transit Safety Measures - In any statewide or metropolitan transportation plan amended or adopted on or after July 20, 2021.

The High Point Urban Area MPO 2045 Metropolitan Transportation Plan (MTP) was adopted on August 25, 2020. Per the Planning Rule and the North Carolina Performance Management Agreement, the System Performance Report for the High Point Urban Area MPO 2045 MTP is included, herein, for the required performance Measures.

The High Point Urban Area MPO recognizes the importance of linking goals, objectives, and investment priorities to stated performance objectives, and that establishing this link is critical to the achievement of national transportation goals and statewide and regional performance targets. As such, the 2045 MTP planning process directly reflects the goals, objectives, performance measures, and targets as they are available and described in other State and public transportation plans and processes; specifically, the North Carolina Strategic Highway Safety Plan, (SHSP), the HSIP, the Transportation Asset Management Plan (TAMP), the North Carolina Multimodal Statewide Freight Plan, the NCDOT Group Transit Asset Management Plan, and the current 2040 North Carolina Statewide Long Range Transportation Plan (SLRTP).

- The 2040 SLRTP provides a 30-year transportation blueprint for the state. The Plan summarizes the state's highest priorities for ensuring safety and preserving the existing transportation systems and focusing on services and facilities with statewide significance. Investment strategies identified in the 2040 SLRTP are intended to meet the mobility needs, ensuring safety and promote economic growth for the state, and reflect optimal performance impacts across each investment program given anticipated transportation revenues.
- The North Carolina SHSP is intended to articulate the way forward to achieve Vision Zero, where even one fatality is too many on North Carolina roads. The SHSP's vision, mission, and goals guide the development and implementation of strategies and actions to achieve Vision Zero for the MPOs and other safety partners in addressing safety and defines a framework for implementation activities to be carried out across North Carolina.
- The HSIP annual report provide for a continuous and systematic process that identifies and reviews traffic safety issues across the state to identify locations with potential for improvement. The goal of the HSIP process is to reduce the number of crashes, injuries and fatalities by eliminating certain predominant types of crashes through the implementation of engineering solutions.
- MAP-21 requires States to develop a TAMP for all NHS pavements and bridges within the state. North Carolina's TAMP includes investment strategies leading to a program of projects that would make progress toward achievement of a State's pavement and bridge condition targets.

¹ 23 CFR 450.314

- The North Carolina Multimodal Statewide Freight Plan defines the conditions and performance of the state freight system and identifies the policies and investments that will enhance highway freight mobility well into the future. The Plan identifies freight needs and the criteria used to determine investments in freight, and prioritizes freight investments across modes.

The sections that follow provide detail regarding the performance measures and associated targets, as well as, information/discussion by High Point Urban Area MPO regarding how projects programmed in their TIP are helping the NCDOT achieve their targets.

Highway Safety/PM1

Effective April 14, 2016, the FHWA established five highway safety performance measures² to carry out the Highway Safety Improvement Program (HSIP). The HSIP is a federal-aid funding program intended to achieve a significant reduction in traffic fatalities and serious injuries on all public roads. These performance measures are:

1. Number of fatalities;
2. Rate of fatalities per 100 million vehicle miles traveled;
3. Number of serious injuries;
4. Rate of serious injuries per 100 million vehicle miles traveled; and
5. Number of combined non-motorized fatalities and non-motorized serious injuries.

Safety performance targets are established annually by the State DOTs for each safety performance measure and reported to FHWA in the HSIP Annual Report. MPOs then establish annual targets for each measure by either agreeing to program projects that will support the statewide targets, or setting quantifiable targets for the metropolitan planning area.

Current statewide safety targets address calendar year 2020 and are based on a five-year rolling average of historical data and anticipated trends. North Carolina statewide safety performance targets for 2020 are included in Table 1, along with statewide safety performance for the two most recent reporting periods (2013-2017 and 2014-2018).³ The High Point Urban Area MPO adopted/approved the North Carolina statewide safety performance targets on January 28, 2020.

Table 1. Highway Safety/PM1, System Conditions and Performance

Performance Measures	Statewide Five-Year Rolling Average 2013-2017	Statewide Five-Year Rolling Average 2014-2018	Statewide (Five-Year Rolling Average 2015-2019) NC Calendar Year 2020 Targets
Number of Fatalities	1,359.0	1,396.4	1,227.8
Rate of Fatalities per 100 Million Vehicle Miles Traveled	1.214	1.211	1.084
Number of Serious Injuries	2,860.8	3,362.6	2,812.8
Rate of Serious Injuries per 100 Million Vehicle Miles Traveled	2.524	2.886	2.462
Number of Combined Non-Motorized Fatalities and Non-Motorized Serious Injuries	431.4	494.6	426.6

As shown in Table 1, the five-year rolling average of four of the five measures, with the exception of fatality rate, increased from 2013-2017 to 2014-2018. The 2020 targets are based on a goal of reducing fatalities and serious injuries by a certain percentage by December 31, 2020.

In early 2020, FHWA completed an assessment of target achievement for NCDOT's 2018 safety targets, based on the 5-year averages for 2014-2018 for each measure. Per FHWA's PM1 rule, a state has met or made

² 23 CFR Part 490, Subpart B

³ https://safety.fhwa.dot.gov/hsip/spm/state_safety_targets/

significant progress toward its safety targets when at least four of the targets have been met or the actual outcome is better than the baseline performance. Based on FHWA's review, North Carolina did not make significant progress toward achieving its safety targets. As a result, NCDOT must ensure that all HSIP safety funds are obligated, and must develop an HSIP Implementation Plan that describes actions the State will take to meet or make significant progress toward achieving its targets.

The latest safety conditions will be updated annually on a rolling 5-year average basis, and will be reflected within each subsequent System Performance Report, to track performance over time in relation to baseline conditions and established targets.

The 2045 MTP will increase the safety of the transportation system for motorized and non-motorized users as required by the Planning Rule. The 2045 MTP has safety as one of our goals. Two objective for safety in the MPO are to annually report to the TAC comparing the crash rate in the MPO counties to that of North Carolina, and improve the accident analysis program for the MPO.

Pavement and Bridge Condition/PM2

Effective May 20, 2017, FHWA established performance measures to assess pavement condition⁴ and bridge condition⁵ for the National Highway Performance Program. This second FHWA performance measure rule (PM2) established six performance measures:

1. Percent of Interstate pavements in good condition;
2. Percent of Interstate pavements in poor condition;
3. Percent of non-Interstate National Highway System (NHS) pavements in good condition;
4. Percent of non-Interstate NHS pavements in poor condition;
5. Percent of NHS bridges by deck area classified as in good condition; and
6. Percent of NHS bridges by deck area classified as in poor condition.

Pavement Condition Measures

The pavement condition measures represent the percentage of lane-miles on the Interstate or non-Interstate NHS that are in good condition or poor condition. FHWA established five metrics to assess pavement condition: International Roughness Index (IRI), applicable to asphalt and concrete pavements; cracking percent, applicable to asphalt and concrete pavements; rutting, applicable only to asphalt pavements; faulting applicable only to certain types of concrete pavements; and Present Serviceability Rating (PSR), applicable only to roads with lower posted speeds and used in lieu of the other metrics at the option of the state. For each metric, a threshold is used to establish good, fair, or poor condition.

Pavement condition is assessed using the applicable metrics and thresholds. A pavement section is rated in good condition if two or three of the applicable metric ratings are good, and in poor condition if two or more applicable metric ratings are poor. If a state reports PSR for any pavement segments, those segments are rated according to a single PSR scale. For all pavement types, sections that are not good or poor are rated as fair.

The pavement condition measures are expressed as a percentage of all applicable roads in good or poor condition. Pavement in good condition suggests that no major investment is needed. Pavement in poor condition suggests major reconstruction investment is needed due to either ride quality or a structural deficiency.

Bridge Condition Measures

The bridge condition measures represent the percentage of bridges, by deck area, on the NHS that are in good condition or poor condition. The condition of each bridge is evaluated by assessing four bridge components: deck, superstructure, substructure, and culverts. FHWA created a metric rating threshold for each component to establish good, fair, or poor condition. Every bridge on the NHS is evaluated using these component ratings. If the lowest rating of the four metrics is greater than or equal to seven, the structure is classified as good. If the lowest rating is less than or equal to four, the structure is classified as poor. If the lowest rating is five or six, it is classified as fair.

To determine the percent of bridges in good or in poor condition, the sum of total deck area of good or poor NHS bridges is divided by the total deck area of bridges carrying the NHS. Deck area is computed using structure length and either deck width or approach roadway width. Good condition suggests that no major investment is needed. Bridges in poor condition are safe to drive on; however, they are nearing a point where substantial reconstruction or replacement is needed.

Pavement and Bridge Targets

Pavement and bridge condition performance is assessed and reported over a four-year performance period. The first performance period began on January 1, 2018, and runs through December 31, 2021. NCDOT reported

⁴ 23 CFR Part 490, Subpart C

⁵ 23 CFR Part 490, Subpart D

baseline PM2 performance and targets to FHWA on October 1, 2018, and will report updated performance information at the midpoint and end of the performance period. The second four-year performance period will cover January 1, 2022, to December 31, 2025, with additional performance periods following every four years.

The PM2 rule requires states and MPOs to establish two-year and/or four-year performance targets for each PM2 measure. Current two-year targets represent expected pavement and bridge condition at the end of calendar year 2019, while the current four-year targets represent expected condition at the end of calendar year 2021.

States establish targets as follows:

- Percent of Interstate pavements in good and poor condition – four-year targets;
- Percent of non-Interstate NHS pavements in good and poor condition – two-year and four-year targets; and
- Percent of NHS bridges by deck area in good and poor condition – two-year and four-year targets.

MPOs establish four-year targets for each measure by either agreeing to program projects that will support the statewide targets, or setting quantifiable targets for the metropolitan planning area..

NCDOT established current statewide two-year and four-year PM2 targets on May 16, 2018. The High Point Urban Area MPO adopted the statewide PM2 targets on June 26, 2018. Table 5 presents statewide baseline performance for each PM2 measure as well as the current two-year and four-year statewide targets established by NCDOT.

Table 5. Statewide Pavement and Bridge Condition/PM2 Performance and Targets

Performance Measures	Statewide Performance (Baseline)	2- year Target (2019)	4- year Target (2021)
Percent of Interstate pavements in good condition	63.6%	Not required	37.0%
Percent of Interstate pavements in poor condition	0.15%	Not required	2.2%
Percent of non-Interstate NHS pavements in good condition	36.1%	27.0%	21.0%
Percent of non-Interstate NHS pavements in poor condition	1.2%	4.2%	4.7%
Percent of NHS bridges (by deck area) in good condition	38.2%	33.0%	30.0%
Percent of NHS bridges (by deck area) in poor condition	6.6%	8.0%	9.0%

The High Point Urban Area MPO 2045 MTP addresses infrastructure preservation and identifies pavement and bridge infrastructure needs within the metropolitan planning area, and allocates funding for targeted infrastructure improvements. Preservation is a goal for the High Point MPO that is included in the 2045 MTP. Two objectives of the preservation goal are to support support NCDOT's efforts to maintain and improve pavement in the MPO area, and to work with NCDOT on bridge replacement projects.

The High Point Urban Area MPO recognizes the importance of linking goals, objectives, and investment priorities to stated performance objectives, and that establishing this link is critical to the achievement of national transportation goals and statewide and regional performance targets. As such, the 2045 MTP planning process directly reflects the goals, objectives, performance measures, and targets as they are available and described in other State and public transportation plans and processes; specifically, the Transportation Asset Management Plan (TAMP) and the current 2040 Statewide Long Range Transportation Plan.

- MAP-21 requires States to develop a TAMP for all NHS pavements and bridges within the state. North Carolina's TAMP includes investment strategies leading to a program of projects that would make progress toward achievement of a State's pavement and bridge condition targets.
- The 2040 SLRTP summarizes transportation deficiencies across the state and defines an investment portfolio across all modes, highway preservation, highway safety, and highway operations over the 30-year plan horizon. Investment priorities reflect optimal performance impacts across each investment program given anticipated transportation revenues.

System Performance, Freight, and Congestion Mitigation & Air Quality Improvement Program (PM3)

Effective May 20, 2017, FHWA established measures to assess performance of the National Highway System⁶, freight movement on the Interstate system⁷, and the Congestion Mitigation and Air Quality Improvement (CMAQ) Program⁸. This third FHWA performance measure rule (PM3) established six performance measures, described below.

National Highway System Performance:

1. Percent of person-miles on the Interstate system that are reliable;
2. Percent of person-miles on the non-Interstate NHS that are reliable;

Freight Movement on the Interstate:

3. Truck Travel Time Reliability Index (TTTR);

Congestion Mitigation and Air Quality Improvement (CMAQ) Program:

4. Annual hours of peak hour excessive delay per capita (PHED);
5. Percent of non-single occupant vehicle travel (Non-SOV); and
6. Cumulative two-year and four-year reduction of on-road mobile source emissions for CMAQ funded projects (CMAQ Emission Reduction).

The CMAQ performance measures apply to states and MPOs with projects financed with CMAQ funds whose boundary contains any part of a nonattainment or maintenance area for ozone, carbon monoxide or particulate matter.

The High Point Urban Area MPO MPO meets air quality standards, therefore, the CMAQ measures do not apply and are not reflected in the System Performance Report.

System Performance Measures

The two System Performance measures assess the reliability of travel times on the Interstate or non-Interstate NHS system. The performance metric used to calculate reliability is the Level of Travel Time Reliability (LOTTR). LOTTR is defined as the ratio of longer travel times (80th percentile) to a normal travel time (50th percentile) over all applicable roads during four time periods (AM peak, Mid-day, PM peak, and weekends) that cover the hours of 6 AM to 8 PM each day.

The LOTTR ratio is calculated for each segment of applicable roadway, essentially comparing the segment with itself. A segment is deemed to be reliable if its LOTTR is less than 1.5 during all four time periods. If one or more time periods has a LOTTR of 1.5 or above, that segment is unreliable.

The measures are expressed as the percent of person-miles traveled on the Interstate or non- Interstate NHS system that are reliable. Person-miles take into account the number of people traveling in buses, cars, and trucks over these roadway segments. To determine total person miles traveled, the vehicle miles traveled (VMT) on each segment is multiplied by average vehicle occupancy. To calculate the percent of person miles traveled that are reliable, the sum of the number of reliable person miles traveled is divided by the sum of total person miles traveled.

Freight Movement Performance Measure

The Freight Movement performance measure assesses reliability for trucks traveling on the Interstate. A TTTR ratio is generated by dividing the 95th percentile truck travel time by a normal travel time (50th percentile) for each segment of the Interstate system over five time periods throughout weekdays and weekends (AM peak, Mid-day, PM peak, weekend, and overnight) that cover all hours of the day. For each segment, the highest TTTR value among the five time periods is multiplied by the length of the segment. The sum of all length-weighted segments is then divided by the total length of Interstate to generate the TTTR Index.

PM3 Performance Targets

Performance for the PM3 measures is assessed and reported over a four-year performance period. For all PM3 measures except the CMAQ Emission Reduction measure, the first performance period began on January 1, 2018, and will end on December 31, 2021. For the CMAQ Emission Reduction measure, the first performance period began on October 1, 2017, and will end on September 30, 2021. North Carolina reported baseline PM3

⁶ 23 CFR Part 490, Subpart E

⁷ 23 CFR Part 490, Subpart F

⁸ 23 CFR Part 490, Subparts G and H

performance and targets to FHWA on October 1, 2018, and will report updated performance information at the midpoint (October 1, 2020) and end of the performance period. The second four-year performance period will cover January 1, 2022, to December 31, 2025 (October 1, 2021 to September 30, 2025 for the CMAQ Emission Reduction Measure), with additional performance periods following every four years.

The PM3 rule requires state DOTs and MPOs to establish two-year and/or four-year performance targets for each PM3 measure. For all targets except CMAQ Emission Reductions, the current two-year and four-year targets represent expected performance at the end of calendar years 2019 and 2021, respectively. For the current CMAQ Emission Reduction measure, the two-year and four-year targets represent cumulative VOC and NOx emission reductions from CMAQ-funded projects during the periods of October 1, 2017 to September 30, 2019 (for the two-year target) and October 1, 2017 to September 30, 2021 (for the four-year target).

States establish targets as follows:

- Percent of person-miles on the Interstate system that are reliable – two-year and four-year targets;
- Percent of person-miles on the non-Interstate NHS that are reliable – four-year targets;
- Truck Travel Time Reliability – two-year and four-year targets;

MPOs establish four-year targets for the System Performance, Freight Movement, and PHED measures. MPOs establish targets by either agreeing to program projects that will support the statewide targets, or setting quantifiable targets for the MPO's planning area that differ from the state targets.

NCDOT established statewide PM3 targets on May 16, 2018. The High Point Urban Area MPO adopted the statewide PM3 targets on June 26, 2020. Table 6 presents statewide baseline performance for each PM3 measure as well as the current two-year and four-year statewide targets established by NCDOT.

[If available, the MPO may choose to include PM3 performance data for the MPO planning area in Table 6, or in a similar table, and include a discussion about the PM3 baseline performance data for the region. The MPO could discuss how performance in the region compares to statewide performance, etc. This is optional.]

[Only CRTPO, GCLMPO, and CRMPO need to include PHED, Non-SOV, and CMAQ Emission Reductions in Table 6.]

Table 6. System Performance/Freight Movement/CMAQ (PM3) Performance and Targets

Performance Measures	Statewide Performance (Baseline)	2- year Target (2019)	4- year Target (2021)
Percent of person-miles on the Interstate system that are reliable	88.1%	80.0%	75.0%
Percent of person-miles on the non-Interstate NHS that are reliable	88.4%	Not Required	70.0%
Truck Travel Time Reliability Index	1.39	1.65	1.70

The High Point Urban Area MPO 2045 MTP addresses reliability, freight movement, congestion, and identifies needs for each of these issues within the metropolitan planning area and allocates funding for targeted improvements. The High Point MPO along with the other three MPOs in the Triad and PART are in the process of developing a tour-based freight model. This is discussed in more detail in the 2045 MTP.

The High Point Urban Area MPO recognizes the importance of linking goals, objectives, and investment priorities to stated performance objectives, and that establishing this link is critical to the achievement of national transportation goals and statewide and regional performance targets. As such, the 2045 MTP planning process directly reflects the goals, objectives, performance measures, and targets as they are available and described in other State and public transportation plans and processes; specifically, the North Carolina Multimodal Statewide Freight Plan and the current 2040 North Carolina Statewide Transportation Plan (SLRTP).

- The North Carolina Multimodal Statewide Freight Plan defines the conditions and performance of the state freight system and identifies the policies and investments that will enhance highway freight mobility well into the future. The Plan identifies freight needs and the criteria used to determine investments in freight, and prioritizes freight investments across modes.
- The SLRTP summarizes transportation deficiencies across the state and defines an investment portfolio across highway and transit capacity, highway preservation, highway safety, and highway operations over the 25-year plan horizon. Investment priorities reflect optimal performance impacts across each investment program given anticipated transportation revenues.

Transit Asset Management Performance

On July 26, 2016, FTA published the final Transit Asset Management rule. This rule applies to all recipients and subrecipients of Federal transit funding that own, operate, or manage public transportation capital assets. The rule defines the term “state of good repair,” requires that public transportation providers develop and implement transit asset management (TAM) plans, and establishes state of good repair standards and performance measures for four asset categories: transit equipment, rolling stock, transit infrastructure, and facilities. The rule became effective on October 1, 2018.

Table 7 below identifies performance measures outlined in the final rule for transit asset management.

Table 7. FTA TAM Performance Measures

Asset Category	Performance Measure and Asset Class
1. Equipment	Percentage of non-revenue, support-service and maintenance vehicles that have met or exceeded their useful life benchmark
2. Rolling Stock	Percentage of revenue vehicles within a particular asset class that have either met or exceeded their useful life benchmark
3. Infrastructure	Percentage of track segments with performance restrictions
4. Facilities	Percentage of facilities within an asset class rated below condition 3 on the TERM scale

For equipment and rolling stock asset categories, useful life benchmark (ULB) is defined as the expected lifecycle of a capital asset, or the acceptable period of use in service, for a particular transit provider’s operating environment. ULB considers a provider’s unique operating environment such as geography and service frequency and is not the same as an asset’s useful life.

Public Transportation Provider Coordination with States and MPOs for TAM Targets

Following are key TAM considerations for NCDOT, MPOs, and transit providers:

- Public transportation providers are required to establish and report transit asset management targets annually for the following fiscal year.
- To the maximum extent practicable, transit providers, states, and MPOs must coordinate with each other in the selection of performance targets.
- Each provider or its sponsors must share its targets, TAM plan, and asset condition information with each MPO in which the provider’s projects and services are programmed in the MPO’s TIP.
- MPOs are required to establish initial transit asset management targets within 180 days of the date that public transportation providers establish initial targets. However, MPOs are not required to establish transit asset management targets annually each time the transit provider establishes targets. Instead, subsequent MPO targets must be established when the MPO updates the TIP or MTP.
- When establishing transit asset management targets, the MPO can either agree to program projects that will support the provider targets, or establish its own regional transit asset management targets for the MPO planning area.
- In cases where two or more providers operate in an MPO planning area and the providers establish different targets for the same measure and asset class, the MPO has the option of coordinating with the providers to establish a single asset class target for the MPO planning area, or establishing a set of targets for the MPO planning area that reflects the differing transit provider targets.
- MPOs and states must reference the transit asset targets in their long-range transportation plans, and describe the anticipated effect of their respective transportation improvement programs toward achieving their targets.

Tier I and Tier II Providers

The TAM rule defines two tiers of public transportation providers based on size parameters. Tier I providers are those that operate rail service or more than 100 vehicles in all fixed route modes, or more than 100 vehicles in one non-fixed route mode. Tier II providers are those that are a subrecipient of FTA 5311 funds, or an American Indian Tribe, or have 100 or less vehicles across all fixed route modes, or have 100 vehicles or less in one non-fixed route mode. A Tier I provider must establish its own TAM plan and transit asset targets, as well as report performance and other data to FTA. A Tier II provider has the option to establish its own TAM plan and targets, or to participate in a group plan with other Tier II providers whereby the TAM plan and annual targets are established by a plan sponsor, typically a state DOT, for the entire group. NCDOT adopted a Group TAM Plan on October 17, 2017.

The following Tier I and Tier II public transportation providers operate in the High Point Urban Area MPO planning area:

Within the High Point Metropolitan Planning Organization, Davidson County Transportation System, Guilford County Transportation and Mobility Services, and Randolph County's Regional Coordinated Area Transportation System are sponsored under the State's Group TAM Plan. PART has regional targets established by PART, and High Point Transit System established targets for urban transit systems which they will adhere to.

Transit Asset Targets in the High Point MPO Planning Area

On September 25, 2018, the High Point Urban Area MPO agreed to support the High Point Transit System, the Piedmont Authority for Regional Transportation (PART), and NCDOT transit asset management targets, thus agreeing to program projects that, once implemented, will make progress toward achieving the transit provider(s) targets.

The transit asset management targets are based on the condition of existing transit assets and planned investments in equipment, rolling stock, infrastructure, and facilities. The targets reflect the most recent data available on the number, age, and condition of transit assets, and expectations and capital investment plans for improving these assets.