

2. Performance Measures

On December 4 2015, Fixing America’s Surface Transportation (FAST) Act was signed into law. The FAST Act continues MAP-21’s overall performance approach, and ensures that State DOT’s and MPO’s invest in projects that collectively make progress toward the National Goals that were established by Congress. Currently, under the FAST Act, State DOT’s and MPO’s are required to establish performance targets and report on the progress made toward achieving each of these performance targets. Performance targets, also known as “performance measures”, are qualitative and quantifiable goals that work to keep the MTP on track. When evaluated, these measures show the effectiveness of programs and identify areas that may need more attention. The performance management framework is based upon seven (7) national goals established by federal transportation legislation, which include:

- Safety
- Infrastructure Condition
- Condition Reduction
- System Reliability
- Freight Movement and Economic Vitality
- Environmental Sustainability
- Reduced Project Delivery Delays

Federal performance measures for transit, the highway system, and safety have been established as part of the federal performance management initiative. The transit system performance measures are listed in Table 2-1. The highway system performance measures are listed in Table 2-2 and apply to all MPOs and State DOTs. The highway performance measures align with the seven national goals listed previously. Safety performance measures are in Table 2-3. The GHMPO has established performance management targets for highway safety and for transit tier 2 providers that choose to participate in NCDOT’s Group Transit Asset Management (TAM) Plan and will establish federally mandated performance management targets for infrastructure condition, congestion, system reliability, emissions, and freight movement. The GHMPO anticipates meeting their identified targets with the mix of projects included in the MTP.

Table 2-1: Federal Transit System Performance Measures

TRANSIT CATEGORY	PERFORMANCE MEASURE
Transit Asset Management (TAM) and National Transit Database (NTD) Reporting	Equipment - Percent of equipment valued > \$50,000 (support, non-revenue service vehicles) that have met their Useful Life Benchmark (ULB)
	Rolling Stock - Percent of revenue vehicles surpassing their ULB by Asset Class
	Facilities - Percent of facilities with condition rating below 3.0 on FTA Transit Economic Requirements Model (TERM) Scale
	Infrastructure – Percent of guideway directional route miles with performance restrictions by class

Source: <https://www.transit.dot.gov/TAM>

Transit system performance measures apply to transit agencies and State DOTs and need to be established and monitored by MPOs. It is anticipated that additional transit performance measures could become effective at a future date.

Table 2-2: Highway System Performance Measures

NATIONAL GOAL AREA	RULEMAKING CATEGORY	PERFORMANCE MEASURE
Safety	Safety	Number of Fatalities
		Rate of Fatalities
		Number of Serious Injuries
		Rate of Serious Injuries
		Number of Non-Motorized Fatalities and Non-Motorized Serious Injuries
Infrastructure Condition	Infrastructure	Percentage of Pavements in Good Condition (Interstate)
		Percentage of Pavements in Poor Condition (Interstate)
		Percentage of Pavements in Good Condition (Non-Interstate NHS)
		Percentage of Pavements in Poor Condition (Non-Interstate NHS)
		Percentage of Bridges in Good Condition (NHS)
		Percentage of Bridges in Poor Condition (NHS)
System Reliability	System Performance	Percent of Reliable Person-Miles Traveled (Interstate)
		Percent of Reliable Person-Miles Traveled (Non-Interstate NHS)
Freight Movement & Economic Vitality	System Performance	Truck Travel Time Reliability (TTTR) for the Interstate System
Environmental Sustainability	System Performance	Total Emissions Reduction
Congestion Reduction	System Performance	Annual Hours of Peak Hour Excessive Delay (PHED) Per Capita on the National Highway System (NHS)
		Percent of Non-Single Occupancy Vehicle (SOV) Travel

Source: <https://www.fhwa.dot.gov/tpm/about/regulations.cfm>

Table 2-3: Safety Performance Measures

CATEGORY	MEASURE	NCDOT TARGET
Safety	Number of Fatalities	1,207.3 (5.10% reduction)
	Rate of Fatalities per Million VMT	1.114 (4.75% reduction)
	Number of Serious Injuries	2161.2 (5.10% reduction)
	Rate of Serious Injuries per Million VMT	1.988 (4.75% reduction)
	Number of Non-Motorized Fatalities and Non-Motorized Serious Injuries	393.5 (5.30% reduction)

In addition to highway safety, 23 CFR 490.105 requires state DOT's to establish performance targets for Interstate and non-Interstate National Highway System (NHS) pavement condition, NHS bridge condition, Travel Time reliability, and Freight reliability. These targets are listed below in Table 2-4.

Table 2-4: NHS Pavement Condition, NHS Bridge Condition, Travel Time Reliability, and Freight Reliability Performance Measures

Performance Measure	2 Year Target	4 Year Target
	1/1/2018 -12/31/2019	1/1/2018 – 12/31/2021
Interstate Pavement Condition (Good)		37.00%
Interstate Pavement Condition (Poor)		2.20%
Non-Interstate NHS Pavement Condition (Good)	27.00%	21.00%
Non-Interstate NHS Pavement Condition (Poor)	4.20%	4.70%
NHS Bridge Condition (Good)	33.00%	30.00%
NHS Bridge Condition (Poor)	8.00%	9.00%
Interstate Level of Travel Time Reliability	80.00%	75.00%
Non-Interstate NHS Level of Travel Time Reliability		70.00%
Interstate Truck Travel Time Reliability	1.65	1.7

GHMPO Performance Goals

As stated above, federally mandated rules associated with performance management have also been released, which include requirements for MPOs, State DOTs, and transit agencies to establish performance targets and goals. While the GHMPO plan to adopt all performance measures and targets released by FHWA, FTA, and NCDOT, the following were identified as being GHMPO's greatest need areas:

- Public Transit
- Bicycle and Pedestrian
- Environmental Justice and Title VI
- Environmental Stewardship
- Public Outreach
- Economic Development
- Highways

The target need areas were determined based on TAC/TCC input and input from the Performance Measures Committee. Collaboration with representatives from each county within GHMPO planning area, NCDOT, and GHMPO established the following measures for each category.

Recommendations and Next Steps for GHMPO

Public Transit:

Performance Measure	Metric
Expand public transit into all four counties	Number of submitted grant applications and additional identified funding sources; additional public transportation service routes in the region
Infrastructure improvements for new ADA accessible sidewalk projects to make pedestrian facilities more viable for transit stops	Number of applications for ADA sidewalk projects; increase in ADA compliant stops
Encourage greater public transit access to Census Tracts with high Title VI and Environmental Justice concentration areas	Identify high needs areas and assess transit routes accordingly
Increased Greenway Transit ridership	Vehicle Miles Traveled (VMT); Unlinked Passenger Trips (UPT)
Encourage mixed-use communities centered around public transportation	Create a list of possible locations and criteria for transit-oriented developments
Promote using public transit in the region	Attend festivals and other events in the region targeting potential ridership; increase in passenger miles traveled (PMT) and unlinked passenger trips (UPT)

A transit system is in a state of good repair when the following criteria is met:

- Possesses and maintains a comprehensive list of its capital assets and rolling stock
- Possesses an asset management plan which is integrated into the management processes and practices of the agency

State of Good Repair measures set by Greenway Transportation:

Performance Measure	Metric
50% of assets are within their articulated useful life and remaining assets are performing at their designed for function.	Number of submitted grant applications and additional identified funding sources; additional public transportation service routes in the region

Bicycle and Pedestrian:

Performance Measure	Metric
Increase sidewalk/greenway connectivity	Identify gaps in existing networks; identify potential new greenway segments; encourage project applications to a variety of funding sources; number and location of successful project applications
Increase bicycle and pedestrian facilities to high Title VI and Environmental Justice concentration areas	Complete assessment of bicycle and pedestrian need in Title VI and Environmental Justice areas in the region; LAPP applications
Encourage local governments to form a regional bicycle and pedestrian task force	Creation of bicycle and pedestrian task force
Encourage bicycling mode share	American Community Survey data on bicycling to work
Encourage new bicycle and pedestrian project applications and evaluate success rate	Number of applications submitted through LAPP, SPOT and CMAQ; notify local governments of additional identified funding sources
Identify locations needing sidewalk safety improvements	Applications for new ADA accessible sidewalk projects
Support low collision exposure projects	Using annual daily traffic rates, sidewalk projects will score higher in areas with higher traffic counts

Project-specific bicycle and pedestrian improvements can be found in the Western Piedmont Bicycle Plan, as well as the Bicycle and Pedestrian chapter found in Chapter 7 of this plan.

Environmental Justice and Title VI:

Performance Measure	Metric
Support highway and bicycle and pedestrian projects that improve economic mobility and quality of life in Title VI and Environmental Justice areas	SPOT points earned for projects that benefit Title VI and Environmental Justice concentration areas; identified Title VI and Environmental Justice concentration areas

More measures relating to Environmental Justice and Title VI can be found in the Public Transit, Bicycle and Pedestrian, and Public Outreach categories.

Environmental Stewardship:

Performance Measure	Metric
Educate municipalities about sensitive environmental issues surrounding road projects	Number of educational talks and lectures

Public Outreach:

Performance Measure	Metric
Improve public outreach in Title VI and EJ communities	Number of public meetings held in high Title VI and EJ concentration areas; availability of public outreach documents in Spanish and other languages
Improve public outreach methods	Number of Facebook and Twitter posts/website metrics - website views
Increase public outreach in areas accessible to bike routes, sidewalks, and public transit	Number of public meetings held in locations accessible by bicycle, pedestrian, and/or public transit

Economic Development:

Performance Measure	Metric
Promote transportation projects that provide a link to major nodes (central business districts, shopping centers, parks, hospitals, or major employers)	List of updated viable transportation projects and identification of linkage projects; provide points in SPOT for projects that promote regional economic development
Assist municipalities who want to improve downtown streetscapes and sidewalks	Number of plans developed by local governments, amount of grant funds applied for streetscape and sidewalk improvements
Use public transit assets to encourage economic development	Encourage Transit Oriented Developments in plans

Highways:

Performance Measure	Metric
Identify/analyze congested areas and times in the region	NCDOT's PDAS/RITIS data/Travel Demand Model
Ensure good fiscal management	Additional points given in SPOT for projects with low cost and high impact
Identify gaps in the highway network on routes to prime locations	List of updated viable transportation projects; identify list of prime locations (schools, parks, major employers, hospitals, etc.)
Develop transportation projects that rank well in NCDOT's project prioritization system	List of updated viable transportation projects using prioritization methods approved by the Transportation Advisory Committee (TAC) and NCDOT
Encourage transportation projects that upgrade mobility	Projects submitted; estimated travel time savings through the travel demand model

CMAQ

As the GHMPO is in maintenance of a national ambient air quality standard, it is not required to set performance measures for Congestion Mitigation and Air Quality Improvement (CMAQ). The GHMPO participated in coordinated meetings with the Charlotte Urbanized Area MPOs, NCDOT, SCDOT and RFATS regarding CMAQ regulation, setting performance targets, data needs, collection efforts, and roles and responsibilities for setting a CMAQ performance target for the Charlotte Urbanized area. Since the GHMPO is on the periphery of the Charlotte Urbanized Area, the MPO is not required to set CMAQ performance targets.

Related Performance-Based Plans

There are several other plans maintained by transportation agencies that contribute to performance management. It is important that the goals and objectives of those plans are incorporated into the GHMPO's overall performance-based planning efforts. The following plans contain applicable performance management components:

- **NCDOT Strategic Highway Safety Plan (SHSP)** - The NCDOT SHSP was first developed in 2002 as a document that is intended to be updated repeatedly. The last plan update was in 2014, as a result of the MAP-21 transportation legislation. Below, are the vision, mission, and goals:
Vision – Through our partnerships, we foster safety awareness and provide safe access throughout North Carolina for all users and modes of travel such that everyone arrives safely at their destination.
Mission – Establish a collaborative, strategic approach to the identification and implementation of safety improvement programs and policies to achieve the statewide goals to reduce fatalities and serious injuries related to crashes on North Carolina's transportation system.
Goal – Cut the fatalities and serious injuries in North Carolina in half based on the 2013 figures, reducing the total annual fatalities by 630 fatalities and the total injuries by 1,055 serious injuries before 2030. (1)
- **Transportation Asset Management Plan (for the National Highway System)** - The development of an asset management plan that accounts for the National Highway System is one of the federal requirements associated with performance-based planning (2). NCDOT has developed a three-phased plan consisting of the following:

Phase I – Initial draft of highway assets (including pavement lanes and shoulders, bridges, and tunnels, among others).

Phase II – Consideration of other highway assets (including rest areas, weigh stations, and pump houses, among others).

Phase III – Coverage of other NCDOT transportation modes (including ferries, airports, rail, and ports).

NCDOT's procedure for developing each of the three phases is outlined in the AASHTO Transportation Asset Management Guide: A Focus on Implementation (3).

- **Transit Asset Management (TAM) Plan** - Tier I transit providers are required to develop a TAM Plan that includes an implementation strategy, key activities, and list of resources, along with an outline of how the provider will monitor, update, and evaluate its TAM plan.
- **Public Transportation Agency Safety Plan** - A safety plan is required by agencies that provide public transportation services. Each provider must develop and implement an Agency Safety Plan based on the principles of Safety Management Systems (SMS).
- **Congestion Management Process** - A congestion management process (CMP) is a systematic and regionally-accepted approach for managing congestion that provides accurate, up-to-date information on transportation system performance and assesses alternative strategies for congestion management that meet State and local needs. A CMP is required in metropolitan areas with population exceeding 200,000, known as Transportation Management Areas (TMAs) (4).

Additional Targets and Performance Measures

Additional targets and performance measures will be considered and adopted by the Greater Hickory MPO in accordance with NCDOT and USDOT requirements. This amendment serves to increase awareness of the Greater Hickory MPO's plan to continue to monitor and adopt system performance measures and transition to a performance-based planning and programming approach, as required by MAP-21 and the FAST Act.

Sources:

1. [https://connect.ncdot.gov/groups/echs/Documents/2014/VHB-NC%20SHSP%20Presentation%20\(10-10-14\).pdf](https://connect.ncdot.gov/groups/echs/Documents/2014/VHB-NC%20SHSP%20Presentation%20(10-10-14).pdf)
2. Source: Code of Federal Regulations: Title 23, Part 515.
3. <https://www.fhwa.dot.gov/asset/hif10023.cfm>
4. https://ops.fhwa.dot.gov/plan4ops/focus_areas/cmp.htm