

CHAPTER 10

PERFORMANCE MEASURES





A PRODUCT OF THE
Western Piedmont
Council of Governments

**Greater Hickory Metropolitan
Planning Organization**

1880 2nd Ave NW | Hickory, NC 28601
828.322.9191 | www.wpcog.org

INTRODUCTION

U.S. federal code creates a performance-based planning framework that applies to state Departments of Transportation (DOT) and Metropolitan Planning Organizations (MPO). The purpose of this performance-based planning framework is to directly link performance outcomes to investment decisions. This federal framework also creates a planning process that is designed to ensure collaboration among state DOT's, MPO's, and transit agencies, and also outlines the requirements of each entity. This federal framework requires that MPO's provide a system performance report in their Metropolitan Transportation Plan (MTP). The purpose of this chapter is to outline the performance reporting framework and requirements for the Greater Hickory Metropolitan Planning Organization (GHMPO) the processes behind establishing performance targets and provide an update on progress towards performance targets and performance goals.

PERFORMANCE REPORTING

Federal regulation continues to ensure that State DOT's and MPO's invest in projects that collectively make progress toward the National Goals established by Congress. Under current federal regulation, 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, assessed through established "performance measures", are qualitative and quantifiable goals that work to keep the MPO 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, and five (5) rulemaking requirements established by federal transportation legislation.

National Goals	National Rulemakings
Safety	Safety
Infrastructure Condition	Infrastructure Condition
Congestion Reduction	System Performance
System Reliability	Transit Asset Management
Freight Movement and Economic Vitality	Transit Safety
Environmental Sustainability	
Reduce Project Delivery Delays	

Performance measures have been established for Safety, Infrastructure Conditions, System Performance, and Transit Asset Management. Table 2-1 lists measures for the Safety rule and the respective targets established. Table 2-2 lists the measures for Infrastructure Conditions and the respective targets. Table 2-3 lists system performance measures and targets. Table 2-4 lists the performance measures for Transit Asset Management and respective targets. Table 2-5 includes transit safety targets and results.

Highway Performance Rules

SAFETY

The Safety rule serves as a tool to reduce fatalities and life-threatening vehicle accidents on public roads. The Federal Highway Administration (FHWA) has defined five safety measures and corresponding performance targets are adopted annually. The State's annual Highway Safety Improvement Program bases targets on five-year rolling averages. The GHMPO must set highway safety performance targets annually by either endorsing the state's established targets or adopting its own. The GHMPO chooses to adopt state safety targets, as the NCDOT maintains date essential to performance reporting upon safety targets. Table 2-1 lists the safety actuals and the safety targets established by NCDOT for 2022 and adopted by GHMPO.

Performance Measure	NCDOT 2016-2020 Average	NCDOT 2022 Target	% Reduction
Number of fatalities	1428.8	1254.9	12.17%
Fatality rate (per 100 million vehicle miles traveled)	1.226	1.057	13.78%
Number of serious injuries	4410.2	3537.6	19.79%
Serious injury rate (per 100 million vehicle miles traveled)	3.782	2.962	21.68%
Number of non-motorized fatalities and non-motorized serious injuries	592.2	486	17.93%

INFRASTRUCTURE CONDITION

The infrastructure condition rule serves as a tool to manage performance of National Highway System (NHS) pavement and bridges. The state and GHMPO are required to set 2-year and 4-year targets. The initial target setting occurred in 2018, and were adopted by the GHMPO. The GHMPO will adopt 2023 and 2025 targets when they are released, within the 180-day period following the NCDOT target setting. As with safety rule targets, the NCDOT maintains the majority of pavement and bridge data for the infrastructure condition targets. Table 2-1 lists the 4-year targets established in 2018 and actuals as of 2022 for each measure. Targets for each measure are established conservatively, accounting for uncontrollable variables like increasing project costs due to inflation. The NCDOT completes a performance assessment every two years in a report submitted for FHWA review. If statewide targets are not met or progress is not made, the NCDOT must document actions it will take to achieve the targets set. The GHMPO does not face repercussions if significant progress is not made towards meeting its targets.

Performance Measure	NCDOT 2018 4-year Target	NCDOT 2020/2021 Reported Actual
Percent of pavement on the interstate in good condition	37.00%	76.1%
Percent of pavement on the interstate in poor condition	2.20%	0.2%
Percent of pavement on the non-interstate NHS in good condition	21.00%	38.6%
Percent of pavement on the non-interstate NHS in poor condition	4.70%	0.8%
Percent of NHS bridges in good condition	30.00%	43.8% (2021)
Percent of NHS bridges in poor condition	9.00%	2.9% (2021)

SYSTEM PERFORMANCE

The System Performance rule includes six measures relevant to the GHMPO to monitor and assess the performance of the interstate and non-interstate National Highway System, freight movement on the interstate system, traffic congestion, and emissions. As with the infrastructure conditions rule, the NCDOT established 2-year and 4-year targets initially in 2018. The GHMPO adopted these targets, as the NCDOT monitors these targets as they do infrastructure conditions and highway safety targets. The process for setting 2023 and 2025 targets has already begun. Table 2-3 lists the targets and progress reporting for these targets. It should be noted that GHMPO is aware of current rulemaking proposals that would implement a Greenhouse Gas emissions measure within the System Performance Rulemaking. This rule would require GHMPO to adopt two Greenhouse gas targets. Target one would be for the GHMPO area. Target two would be a joint target with the Charlotte Regional Transportation Planning Organization (CRTPO), as this rulemaking requires MPO's that share borders within an Urbanized Area (UZA) to establish joint targets. While the GHMPO is awaiting a final ruling, staff have prepared a metric calculation formula in order to quantifiably measure tailpipe emissions. Once the required data becomes accessible, the MPO will coordinate with CRTPO to establish a joint Greenhouse Gas target.

Performance Measure	NCDOT 2018 2-year target	NCDOT 2018 4-year target	NCDOT 2020/2021 Reported Actual
Percent of person-miles traveled on the interstate that are reliable	80.00%	75.00%	96.6%
Percent of person-miles traveled on non-interstate NHS that are reliable	N/A	70.00%	95.7%
Truck Travel Time Reliability Index (TTTR)	1.65%	1.70%	1.27%

TRANSIT ASSET MANAGEMENT

The Transit Asset Management (TAM) rule was established by the FTA to define the term “state of good repair” and to establish minimum requirements for all recipients and sub-recipients of federal transit funds that own, operate, or manage public transportation capital assets. Under FTA regulation, there are two categories of public transportation providers – Tier I and Tier II. The GHMPO’s lone public transit system, WRPTA, is a tier II agency. Tier II agencies are defined as those operating a fleet of fewer than 100 vehicles and not operating fixed rail. Tier II agencies are permitted to participate in the NCDOT’s group TAM plan, which includes one set of performance targets. The GHMPO is not required to maintain a TAM plan but is responsible for coordinating with transit providers to establish performance targets. Table 2-4 lists the Transit Asset Management targets adopted by the GHMPO in 2018. The GHMPO is currently coordinating with WRPTA to establish new TAM targets. The WRPTA and GHMPO are not required to adopt targets consistent with one another.

Table 2-4. Transit Asset Management Measures and Targets

Performance Measure	Target Adopted in 2018 by the GHMPO
Percent of revenue vehicles within a particular asset class that have met or exceeded their Useful Life Benchmark	20%
Percent of non-revenue vehicles within a particular asset class that have met or exceeded their Useful life Benchmark	20%
Percent of facilities with a condition rating below 3.0 on the FTA Transit Economic Requirements Model (TERM) Scale	20%

TRANSIT SAFETY

Public transportation safety is a key component of performance-based planning for public transit. The FTA established the Transit Safety rule to encourage proactive and effective approaches to improving safety in public transit. For this rule, like TAM rule, public transportation agencies are classified into two tiers, Large and Small. Small providers are given the option to A) write their own safety plan or B) allow the NCDOT to carry out these requirements on their behalf. Greenway Public Transit, the sole public transportation provider in the GHMPO area, adopted their own Public Transportation Agency Safety Plan Compliant Safety Plan and Targets.

Table 2-5. Safety Performance Actuals – Calendar Year 2021

Mode of Transit Service	Fatalities	Fatalities (per 100k VRM)	Injuries	Injuries (Per 100k VRM)	Safety Events	Safety Events (Per 100k VRM)	System Reliability
Fixed Route Buses	0	0	1	.29	1	.29	5,643
Demand Response	0	0	1	.23	2	.46	9,798

Table 2-6. Safety Performance Targets – Calendar Year 2022

Mode of Transit Service	Fatalities	Fatalities (per 100k VRM)	Injuries	Injuries (Per 100k VRM)	Safety Events	Safety Events (Per 100k VRM)	System Reliability
Fixed Route Buses	0	0	4	1	4	1	4,220
Demand Response	0	0	4	1	4	1	10,077

GHMPO PERFORMANCE GOALS

As stated above, federally mandated rules associated with performance management have been released, which include requirements for MPOs, State DOTs, and transit agencies to establish performance targets and goals. The GHMPO plans to adopt all performance targets and measures proposed by the NCDOT. In the 2045 MTP update, the following were identified as GHMPO areas with the highest level of need. These improvement goal areas were determined based on TAC/TCC input and input from the Performance Measures Committee. The most recent/relevant progress for each goal is reported below.

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

It is recommended that these performance goal areas be maintained in the 2055 MTP, as part of the Goals and Objectives Chapter of the 2055 MTP update. Moving these goals from the Performance Measures Chapter to the Goals and Objectives chapter serves as a means for drawing distinction between adopted Performance Targets and adopted Performance Goals, as the two have very different reporting requirements and implications. While performance targets require quantitative progress reporting, it is recommended that progress for performance goals be given qualitatively.

Recommendations and Next Steps for GHMP

Public Transit		
Performance Measure	Metric	Progress
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	Greenway public transit currently operates in Caldwell, Alexander, Burke, and Catawba Counties. Recent progress includes micro-transit expansion in Burke County, and the Catawba re-route. Greenway public transit currently operates in Caldwell, Alexander, Burke, and Catawba Counties. Recent progress includes micro-transit expansion in Burke County, and the Catawba re-route.
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	American Disabilities Act plans in both The City of Conover and the Town of Sawmills have resulted in a plan for further progression towards ADA compliant stops in the GHMPO.
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	The 2021 Local Coordinated Plan identified high need areas within the context of public transit.
Increased Greenway Transit ridership	Vehicle Miles Traveled (VMT); Unlinked Passenger Trips (UPT)	Decrease in ridership based on NTD data from 2018-2020.
Encourage mixed-use communities centered around public transportation	Create a list of possible locations and criteria for transit-oriented developments	Local Coordinated Public Transit Plan Updated in 2021 which identified possible transit expansion areas conducive to development.
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)	Decrease in both PMT and UPT from 2018 to 2020 according to National Transit Data.

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	Progress
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	Identification of Volkswagen Settlement opportunity resulting in additional vehicle(s) at no extra cost to Greenway.

Bicycle and Pedestrian

Performance Measure	Metric	Progress
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	Walk audits conducted in Long View and Morganton to identify gaps in existing networks. Meetings with all 4 counties and municipalities to identify Bicycle and Pedestrian goals.
Increase bicycle and pedestrian facilities to high Title VI and Environmental Justice concentration areas	Complete assessment of bicycle and pedestrian needs Title VI and Environmental Justice areas in the region, and assessments of LAPP applications.	Completion of a Title VI plan update for the GHMPO, including suggestions to focus on Title VI areas.
Encourage local governments to form a regional bicycle and pedestrian task force	Creation of bicycle and pedestrian task force	In 2019, the GHMPO formed the Mobility Advisory Committee (MAC).
Encourage bicycling mode share	American Community Survey data on bicycling to work	Reflective of a nationwide trend, total bicycling rates across the county declined from 2010-2020.
Encourage new bicycle and pedestrian project applications and evaluate the success rate	Number of applications submitted through LAPP, SPOT, and CMAQ; notify local governments of additional identified funding sources	Continued administration of LAPP, SPOT, and CMAQ funding. The GHMPO also continues to research and notify governments of potential funding sources.
Identify locations needing sidewalk safety improvements	Applications for new ADA accessible sidewalk projects	The GHMPO continues to provide ADA services to GHMPO area governments to improve ADA accessibility. Recent walk audits conducted in Conover, Sawmills.
Support low collision exposure projects	Using annual daily traffic rates, sidewalk projects will score higher in areas with higher traffic counts	The GHMPO continues to use collision exposure as a scoring metric considered in the prioritization of projects.

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	Progress
Support highway, bicycle and pedestrian projects that improve economic mobility and quality of life in Title VI and Environmental Justice areas.	Increase the number of SPOT points earned for projects that benefit Title VI and Environmental Justice concentration areas; identified Title VI and Environmental Justice concentration areas	As a local project scoring authority, GHMPO does assign SPOT points in local quantifiable scoring for projects that impact Title VI and Environmental Justice areas. Local prioritization scoring is allowed to award up to 5 points specifically for Title VI and EJ for Highway, Transit, and bicycle and pedestrian projects.

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

Environmental Stewardship

Performance Measure	Metric	Progress
Educate municipalities about sensitive environmental issues surrounding road projects	Number of educational talks and lectures	The GHMPO continues to focus on improved environmental stewardship. The addition of an environmental outreach coordinator that serves the WPCOG Planning Department is notable progress toward educating the GHMPO on environmental issues.

Public Outreach		
Performance Measure	Metric	Progress
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	The GHMPO has worked towards improving public outreach in Title VI and EJ communities in two main ways. The first is the addition of an outreach coordinator made available to GHMPO. The second is the constant effort made by communications staff to overcome language barriers in public communications such as the impact report.
Improve public outreach methods	Number of Facebook and Twitter posts/website metrics – website views	To progress towards this goal, the GHMPO made 77 transportation related posts on the WPCOG Facebook and 16 on the WPCOG Twitter since the last MTP Update
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	The MPO continues to hold the majority of regular meetings in an area accessible by bicycle.

Economic Development		
Performance Measure	Metric	Progress
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	To continue to progress towards these goals, the SPOT (Strategic Prioritization) process awards points to projects regionally and divisionally based on their economic development impacts. This applies to all project types.
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	Development of both Comprehensive Plans and Bicycle and Pedestrian Plans for municipalities in the Greater Hickory Metropolitan Planning Area, resulting in an increase of potentially fundable projects.
Use public transit assets to encourage economic development	Encourage Transit Oriented Developments in plans	Transit expansion in the GHMPO planning area aids in the total interconnectivity of the region.

Highways		
Performance Measure	Metric	Progress
Identify/analyze congested areas and times in the region	NCDOT's PDAS/RITIS data/Travel Demand Model	The GHMPO has progressed towards identifying and analyzing congestion areas by both implementing a congestion management process in the 2045 MTP, and by implementing an updated process in the 2050 MTP. The GHMPO also recently update Traffic Analysis Zones for the travel demand model.
Ensure good fiscal management	Give additional points to SPOT projects with low cost and high impact	To ensure continued commitment to good fiscal management, the SPOT process awards points based on the benefit/cost of projects.
Identify gaps in the highway network on routes to prime locations	List of updated viable transportation projects; identify a list of prime locations (schools, parks, major employers, hospitals, etc.)	Progress towards connectivity is continuous as a result of the GHMPO's maintenance of transportation improvement planning.
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	Progress towards connectivity is continuous as a result of the GHMPO's maintenance of transportation improvement planning.
Encourage transportation projects that upgrade mobility	Projects submitted; estimated travel time savings through the travel demand model	Progress towards the next travel demand model focused on updating employment and housing data for the GHMPO by updating Traffic Analysis Zones.

Additional Plans

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 Charlotte Urbanized Area MPOs, NCDOT, SCDOT and Rock Hill – Fort Mill Area Transportation Study 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 Strategic Highway Safety Plan was last updated in 2019, as a result of the FAST Act. The 2019 NCDOT SHSP has five focus areas. These focus areas group together emphasis areas of similar crash types, road users, and other characteristics. By grouping experts from multiple disciplines pertaining to each emphasis area, the plan facilitates communication, with the goal of reducing fatalities and serious injuries on state roadways.
 - » Roadway Infrastructure- Emphasizes intersections and lane departure
 - » Human Behavior- Emphasizes alertness, occupation protection, substance impaired driving, and speed.
 - » All Users- Emphasizes younger drivers, older drivers, motorcyclists, pedestrians, bicyclists and personal mobility.
 - » Data and Evaluation- Emphasizes emerging issues and data
 - » Safety Culture- Emphasizes all emphasis areas.

ADDITIONAL TARGETS AND PERFORMANCE MEASURES

Additional targets and performance measures will be considered and adopted by the Greater Hickory MPO in accordance with NCDOT, FHWA, and USDOT requirements. This recommendation serves to increase awareness of the Greater Hickory MPO's plan to continue to monitor and adopt system performance measures as they are introduced and required.

SOURCES

<https://www.ecfr.gov/current/title-23/chapter-I/subchapter-E/part-450>

<https://www.fhwa.dot.gov/tpm/reporting/state/state.cfm?state=North%20Carolina>

<https://www.transit.dot.gov/PerformanceManagement>

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