



# CHAPTER 4

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## PERFORMANCE MEASURES & TARGETS

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### OVERVIEW OF PERFORMANCE-BASED PLANNING AND PROGRAMMING

Federal transportation legislation, beginning with the Moving Ahead for Progress in the 21st Century (MAP-21) Act, and continuing with the Fixing America's Surface Transportation (FAST) Act and the Infrastructure Investment and Jobs Act (IIJA), has directed state Departments of Transportation (DOTs) and Metropolitan Planning Organizations (MPOs) to develop their long-range regional transportation plans (RTPs) and four-year Transportation Improvement Programs (TIPs) through a "performance-driven, outcome-based approach to planning," or an approach known as performance-based planning and programming (PBPP).

#### **THIS CHAPTER INCLUDES:**

- Federal Requirements for Performance-Based Planning and Programming
- Federally Required Roadway Performance Measures
- Federally Required Transit Performance Measures

The intent of PBPP is to tie performance outcomes to investment decisions. The process is designed to ensure there is collaboration among State DOTs, MPOs, and transit agencies and different requirements are outlined for each respective entity. When implemented effectively, performance management can improve project delivery, inform investment decisions, and provide greater transparency and accountability. The core of this approach is the use of performance measures and performance targets to evaluate how well our transportation system is functioning.

RPCGB, on behalf of the Birmingham MPO, conducts performance-based planning by carrying out the following activities:

- Sets goals for the transportation system in the Regional Transportation Plan (see **Chapter 2**)
- Selects performance measures and sets targets for performance outcomes
- Gathers data and information to monitor and analyze trends
- Uses performance measures and data to make spending decisions
- Monitors, analyzes, and reports decision outputs and performance outcomes

By enhancing the performance-management elements of its planning and programming activities, the RPCGB can 1) better understand how specific spending decisions affect the performance of transportation system as a whole, 2) make better decisions, including difficult tradeoffs, by focusing on data and specific performance outcomes 3), increase accountability and transparency in RPCGB planning processes, and 4) better integrate MPO planning and programming activities.

This chapter outlines a glossary of PBPP terms and describes the federally required process associated with highway and transit performance goals, rulemakings, measures, and targets.

## FEDERAL REQUIREMENTS FOR PERFORMANCE-BASED PLANNING AND PROGRAMMING

### NATIONAL GOALS

Federal transportation legislation, beginning with the MAP-21 Act, and continuing with the FAST Act and the Infrastructure Investment and Jobs Act (IIJA), has directed MPOs to develop RTPs and TIPs “through a performance-driven, outcome-based approach to planning.” It laid the foundation for this process by outlining seven national goals for the transportation network. These goals are listed in **Table 4.1**.

### PERFORMANCE MEASURES AND TARGETS

Investments are made through the RTP and TIP to maintain, expand, and operate the region’s transportation system. With limited funding and a long list of needs, investment priorities must have their intended impact. Understanding and measuring these impacts over time is accomplished through the establishment of performance measures.

In order to measure progress toward achieving the national goals, the legislation required all state departments of transportation, MPOs, and public transportation operators to set targets in key performance areas that must be reached within a designated timespan. Progress toward reaching these targets is monitored using performance measures, which are quantifiable metrics that describe how well some element of the system is performing. These performance measures are the cornerstone of PBPP, enabling agencies to make objective, informed decisions about how to invest transportation funding based on common sets of data. Both performance targets and performance measures are described in this chapter.

**Table 4.1: National Goals**

National Goal	Description
Safety	To achieve a significant reduction in traffic fatalities and serious injuries on all public roads.
Infrastructure Condition	To maintain the highway infrastructure asset system in a state of good repair.
Congestion Reduction	To achieve a significant reduction in congestion on the National Highway System (NHS).
System Reliability	To improve the efficiency of the surface transportation system.
Freight Movement and Economic Vitality	To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development.
Environmental Sustainability	To enhance the performance of the transportation system while protecting and enhancing the natural environment.
Reduced Project Delivery Delays	To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices

Source: FHWA

Image Credit: Hoover Sun



# FEDERALLY-REQUIRED ROADWAY PERFORMANCE MEASURES

## ROADWAY PERFORMANCE RULEMAKING AND MEASURES

To achieve the national goals, the Federal Highway Administration (FHWA) has required states and MPOs to monitor their transportation systems using specific performance measures. These measures will be used to identify progress in achieving the performance targets described above. The measures were released in three groups. PM1, the first group, addresses measures related to safety. PM2 addresses measures related to infrastructure conditions, specifically related to pavement and bridge conditions. The final group, PM3, addresses system performance measures, including system reliability, freight movement and environmental sustainability. **Table 4.2** lists these measures and relates them to the national goals.

### SAFETY PERFORMANCE MEASURES (PM1)

The safety rule is intended to reduce fatalities and serious crashes on all public roads. As shown in **Table 4.2**, five safety measures have been defined at the federal level and performance targets are adopted annually, by calendar year, for each measure. The safety targets are based on five-year rolling averages and are documented in the State's annual Highway Safety Improvement Program (HSIP). MPOs must set highway safety performance targets annually, within 180 days after the state establishes its targets, or no later than February of the following year. The MPO can either endorse the state targets or adopt its own.

The FHWA makes an annual assessment to determine if the Alabama Department of Transportation (ALDOT) has met or made significant progress towards achieving its targets. Significant progress means four of the five targets are performing better than the established baseline. If ALDOT does not meet or make significant progress towards achieving its targets, there are funding implications and an HSIP Implementation Plan must be submitted to the FHWA. The federal regulations do not impose repercussions if the Birmingham MPO does not meet or make significant progress towards achieving its targets.

### INFRASTRUCTURE CONDITION PERFORMANCE MEASURES (PM2)

The intent of the infrastructure condition rule is to monitor and manage performance of interstate and non-interstate National Highway System (NHS) pavement and bridges. As shown in **Table 4.2**, six measures have been established to evaluate pavement and bridge condition. For infrastructure condition measures, the state and MPO are required to set 2-year and 4-year targets. Monitoring and reporting are required every two years, at which time targets can be evaluated and updated.

ALDOT assesses progress toward meeting the infrastructure condition targets every two years in a system performance report, which the FHWA reviews. If targets are not met, or significant progress is not made, ALDOT is required to document the actions it will take to achieve their targets in the performance report. The Birmingham MPO does not face repercussions if significant progress is not made toward meeting its targets.

### SYSTEM PERFORMANCE MEASURES (PM3)

As shown in **Table 4.2**, the system performance rule includes seven measures to assess the performance of the interstate and non-interstate National Highway System (NHS), freight movement on the interstate system, traffic congestion, and on-road mobile source emissions. As with infrastructure condition, ALDOT and the Birmingham MPO are required to set 2-year and 4-year targets for system performance measures. Monitoring and reporting are required every two years, at which time targets can be evaluated and updated.

ALDOT monitors the system performance targets in a similar manner as the infrastructure condition targets and documents progress every two years in a system performance report that is reviewed by the FHWA. If targets are not met, or significant progress is not made, ALDOT is required to utilize the performance report to document actions it will take to achieve the targets. The Birmingham MPO does not face repercussions if significant progress is not made toward meeting its targets.

**Table 4.2: Federally-Required Roadway Performance Measures**

Final Rule	National Goal	Performance Measure
PM1	Safety	Number of fatalities
		Fatality rate (per 100 million vehicle miles traveled)
		Number of serious injuries
		Serious injury rate (per 100 million vehicle miles traveled)
		Number of non-motorized fatalities and non-motorized serious injuries
Final Rule	National Goal	Performance Measure
PM2	Infrastructure Condition (Bridge and Pavement)	Percentage of pavements on the interstate system in good condition
		Percentage of pavements on the interstate system in poor condition
		Percentage of pavements on the non-interstate National Highway System (NHS) in good condition
		Percentage of pavements on the non-interstate NHS in poor condition
		Percentage of NHS bridges classified as in good condition
		Percentage of NHS bridges classified as in poor condition
Final Rule	National Goal	Performance Measure
PM3	System Reliability	Percent of person-miles traveled on the interstate system that are reliable
		Percent of person-miles traveled on the non-interstate National Highway System (NHS) that are reliable
	Freight Movement & Economic Vitality	Truck Travel Time Reliability Index (TTTR)
	Environmental Sustainability	PM2.5 emissions reductions from Congestion Mitigation and Air Quality (CMAQ) program
		NOx missions reductions from CMAQ program
		Annual hours of Peak Hour Excessive Delay (PHED) per capita on the NHS
		Percent of non-single occupancy vehicle (SOV) travel

Source: FHWA



## ROADWAY PERFORMANCE TARGETS

As described in the section above, for each performance measure, States and MPOs are required to set targets that must be reached within a designated timespan. Federal legislation provided each MPO with the choice to either set its own performance targets or agree to support the statewide targets. To date, the Birmingham MPO has opted to support the Alabama state targets.

ALDOT develops the targets based on performance trends, which were then projected into the future. Each set of targets will be regularly updated to reflect changes in system conditions and performance.

Safety targets (PM1) have a one-year reporting period and must be updated annually. All other targets (PM2 and PM3) have two- and four-year reporting periods and must be updated every two years. Whenever the Alabama Department of Transportation (ALDOT) updates its targets, the Birmingham MPO will adopt a resolution to support these new targets. The most recently adopted performance measures are shown in **Table 3.3**, which the Birmingham MPO adopted by resolution in December 2022.

The Birmingham MPO also summarizes these Performance Measures and presents the signed resolutions in a report titled **Systems Performance Report** which can be found in **Appendix G**.

*Image Credit: Joe Songer  
for AL.com*



**Table 4.3: Roadway Performance Measures and Targets**

PM1 Performance Measures	Previous Targets (2019)	New Targets (2023)
Number of fatalities	932	1,000
Fatality rate (per 100 million vehicle miles traveled)	1.33	1.44
Number of serious injuries	8,469	6,500
Serious injury rate (per 100 million vehicle miles traveled)	12.08	9.82
Number of non-motorized fatalities and non-motorized serious injuries	394	400

PM2 Performance Measures	Previous Targets	New 2-Year (2024) and 4-Year (2026) Targets
Percentage of pavements on the interstate system in good condition	Greater than 50%	Greater than 50%
Percentage of pavements on the interstate system in poor condition	Less than 5%	Less than 5%
Percentage of pavements on the non-interstate National Highway System (NHS) in good condition	Greater than 40%	Greater than 25%
Percentage of pavements on the non-interstate NHS in poor condition	Less than 5%	Less than 5%
Percentage of NHS bridges by deck area classified as in good condition	Greater than 25%	Greater than 50%
Percentage of NHS bridges classified as in poor condition	Less than 3%	Less than 5%

PM3 Performance Measures	Previous Targets	New 2-Year (2024) and 4-Year (2026) Targets
Percent of person-miles traveled on the interstate system that are reliable	96.40%	92.00%
Percent of person-miles traveled on the non-interstate NHS that are reliable	93.60%	90.00%
Truck Travel Time Reliability Index (TTTR)	1.21	1.30
PM2.5 emissions reductions from CMAQ program (kg/day)	19.072	10.000
NOx emissions reductions from CMAQ program (kg/day)	165.2	140.0
Annual hours of Peak Hour Excessive Delay (PHED) per capita on the NHS	New target added in 2022	9.30 hours / per capita
Percent of non-single occupant vehicle (SOV) travel	New target added in 2022	16.50%

Source: ALDOT and the Birmingham MPO

Note: The Birmingham MPO endorsed the ALDOT targets as its own in December 2022.

## FEDERALLY-REQUIRED TRANSIT PERFORMANCE MEASURES

All recipients of public transit funds, including transit operators, states, or local authorities, must establish performance targets for safety and equipment condition, develop transit asset management and safety plans, and report on their progress toward reaching targets.

### TRANSIT ASSET MANAGEMENT (TAM) PERFORMANCE MEASURES

The Transit Asset Management (TAM) rule was established by the FTA on July 26, 2016 to define the term “state of good repair” and to establish minimum requirements that apply to all recipients and subrecipients of federal transit funds that own, operate, or manage public transportation capital assets. TAM is a business model that uses the condition of assets to guide the optimal prioritization of funding at transit agencies in order to keep our transit networks in a state of good repair.

The FTA’s TAM rule requires applicable transit providers to carry out several activities to achieve and maintain a state of good repair for their assets:

- Develop and implement a TAM plan, and update this plan at least once every four years
- Conduct transit asset inventories and condition

assessments, and report inventory and condition information to the National Transit Database (NTD) annually

- Develop annual performance targets for TAM performance measures
- Report targets and prior year performance to the NTD annually

The TAM rule specifies four performance measures, which apply to four TAM asset categories: rolling stock (vehicles that provide passenger service), equipment (nonrevenue service vehicles), facilities, and infrastructure (rail fixed guideway systems). **Table 4.4** describes these measures.

Two definitions apply to these performance measures:

- Useful Life Benchmark (ULB)—The expected life cycle of a capital asset for a particular transit provider’s operating environment, or the acceptable period of use in service for a particular transit provider’s operating environment. For example, FTA’s default ULB for a bus is 14 years.
- FTA Transit Economic Requirements Model (TERM) Scale—A five category rating system used in FTA’s TERM to describe asset condition, with a rating of 5 reflecting the best conditions.

Image Credit: RPCGB





**Table 4.4:** Transit Asset Management (TAM) Performance Measures

Asset Category	Relevant Assets	Performance Measure
Rolling Stock	Vehicles that provide passenger service (buses, vans, sedans)	Percentage of revenue vehicles within a particular asset class that have met or exceeded their ULB
Equipment	Service support, maintenance and nonrevenue service vehicles	Percent of non-revenue vehicles within a particular asset class that have met or exceeded their Useful Life Benchmark (ULB)
Facilities	Passenger stations and stops, parking facilities, administration and maintenance facilities	Percent of facilities with a condition rating below 3.0 on the FTA Transit Economic Requirements Model (TERM) Scale
Infrastructure	Rail fixed guideway systems	Percentage of track segments with performance (speed) restrictions

Source: FTA

FTA will neither penalize transit agencies or MPOs for not achieving regional TAM targets nor reward these entities for attaining them. FTA will review how the MPO is incorporating performance-based planning and programming practices, including those related to TAM, into its planning process during quadrennial certification reviews.

### TRANSIT ASSET MANAGEMENT (TAM) TARGETS

Under the Transit Asset Management (TAM) rule, public transportation providers are divided into two categories - Tier I and Tier II - based on fleet size or if they operate fixed rail. Tier I public transportation providers operate a rail fixed guideway transportation system or have 101 or more vehicles in

revenue service during peak regular service, whereas Tier II small public transportation providers have 100 or fewer vehicles in revenue service during peak regular service and do not operate a rail fixed guideway transportation system. The Birmingham-Jefferson Transit Authority (BJCTA) is classified as a Tier II agency and developed a TAM plan.

The Birmingham MPO is not required to maintain a TAM plan, but is responsible for coordinating with the BJCTA to develop performance targets. The BJCTA has developed a set of TAM targets that account for recent asset inventory and condition data. In May 2022, the Birmingham MPO adopted a resolution to support the TAM targets set by the the BJCTA, which are listed in **Table 4.5**.



**Table 4.5: BJCTA Transit Asset Management Performance Measures and Targets (2022)**

Asset Category - Performance Measure	Asset Class	Total # in 2022	Average Age (Years)	Percent that Met or Exceeded Useful Life Benchmark (ULB)
<b>Rolling Stock - Revenue Vehicles</b>				<b>14%</b>
Percentage of revenue vehicles within a particular asset class that have met or exceeded their ULB	Bus (BU)	79	7	14%
	Cutaway Bus (CU)	35	6	0%
	Van (VN)	10	3	0%
	Minivan (MV)	7	7	100%
<b>Equipment</b>				<b>12%</b>
Percent of non-revenue vehicles within a particular asset class that have met or exceeded their Useful Life Benchmark (ULB)	Automobile (AO)	18	5	17%
	Trucks and other Rubber Tire Vehicles (ZZ)	6	4	0%
<b>Facilities</b>				<b>25%</b>
Percent of facilities with a condition rating below 3.0 on the FTA Transit Economic Requirements Model (TERM) Scale	Passenger Facility	2	4	0%
	Maintenance Facility	1	66	100%
	Passenger Parking	1	4	0%

Source: Birmingham-Jefferson Transit Authority (BJCTA) and the Birmingham MPO

Note: The infrastructure performance measure does not apply since the BJCTA does not operate fixed rail and is a Tier II public transportation provider. The Birmingham MPO voted to support the BJCTA targets in May 2022.

## TRANSIT SAFETY PERFORMANCE MEASURES AND TARGETS

In addition to asset management, public transportation safety is a key component of the performance-based planning process as it relates to transit. The FTA established the Public Transportation Agency Safety Plan (PTASP) rule to emphasize a more effective and proactive approach to managing safety risks in public transit systems. The rule applies to all operators of public transportation systems that are recipients and sub-recipients of FTA grant funds.

BJCTA is required to develop a compliant agency safety plan annually, which includes performance targets. In May 2022, the Birmingham MPO adopted a resolution to support the transit safety measures and targets developed by the BJCTA, which are listed in **Table 4.6**.

The FTA requires that public transit agencies self-certify their safety plans and targets annually. There is no penalty for the BJCTA or the Birmingham MPO if targets are not met.

**Table 4.6: BJCTA Transit Safety Performance Targets (2022)**

Performance Measures	Mode	Baseline	2022 Targets
Fatalities	Fixed Route	0	0
Rate of Fatalities*		0**	0**
Injuries		24.2	24.2
Rate of Injuries*		0**	0**
Safety Events		19	19
Rate of Safety Events*		0**	0**
Mean Distance between Major Mechanical Failure		0**	0**

Fatalities	Demand Response	0	0
Rate of Fatalities*		0**	0**
Injuries		4.8	4.8
Rate of Injuries*		0**	0**
Safety Events		4.8	4.8
Rate of Safety Events*		0**	0**
System Reliability		0**	0**

\*Rate = total number for the year / total revenue vehicle miles traveled

\*\* BJCTA is working to collect the rate of fatalities, injuries, events and a baseline number for Mean Distance between Major Mechanical Failures

Source: Birmingham-Jefferson Transit Authority (BJCTA) and the Birmingham MPO

Note: The Birmingham MPO voted to support the BJCTA targets in May 2022.

## OTHER PERFORMANCE-BASED PLANNING REQUIREMENTS

In addition to establishing performance targets, federal legislation also stipulates that MPOs must incorporate performance-based planning into other aspects of the metropolitan transportation planning processes. These requirements are described below:

### REPORTING

- The RTP must describe the performance measures and targets used to assess system performance. The present chapter has fulfilled this requirement.
- The TIP must link investment priorities to the targets outlined in the RTP and describe, to the maximum extent practicable, the anticipated effect of TIP projects toward reaching those targets.
- The MPO must report to ALDOT baseline roadway system condition, performance data, and progress toward achieving targets.

### FEDERAL ASSESSMENTS

- FHWA will determine whether ALDOT has met or made significant progress towards meeting its targets for the roadway system. Progress is considered significant if an actual outcome is either equal to or better than the established target, or better than the baseline condition.
- FHWA (and FTA) will not directly assess MPO progress towards meeting its targets. These agencies will instead review MPO performance as part of ongoing transportation planning process reviews, including the Federal Planning Finding associated with approval of the Statewide Transportation Improvement Program (STIP).





Figure 4.1: PBPP and MPO Activities

# PERFORMANCE-BASED PLANNING PROCESS

Birmingham MPO

