

# 2040



## Regional Transportation Plan

### Addendum 1: Performance Measures



Updated 11.15.2018



Memphis MPO  
METROPOLITAN PLANNING ORGANIZATION

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# 1.0 Introduction

Performance measurement provides various transportation agencies with a better ability to identify and mitigate issues with their respective transportation networks. The introduction of The Moving Ahead for Progress in the 21st Century Act (MAP-21) and Fixing America's Surface Transportation (FAST) Act requires various transportation agencies, including MPOs, to take a performance-based approach to planning and programming activities. The Memphis Urban Area Metropolitan Planning Organization (MPO) is currently coordinating with regional, State, and Federal partners to maintain compliance with Federal laws and regulations related to performance management. The integration of performance management regulations outlined in MAP-21 and the FAST Act into the MPO's plans and processes is an evolving effort, as various State, regional, and local transportation agencies are still in the process of establishing targets and finalizing target setting processes for certain performance measures. This addendum will be updated administratively as and when additional performance targets are set.

*Note: This section was prepared using the most recent transportation act, the FAST Act, and was developed with the intent of including performance metrics mandated by the most recent legislation. The FAST Act did not change national performance goals related to safety, infrastructure condition, congestion reduction, system reliability, freight movement and economic viability, environmental sustainability, and reduced project delivery delays, which were established as part of MAP-21. For information regarding the performance measures included in the development of this plan, please refer to chapter 3 of the plan.*

## 1.1 Federal Requirements

MAP-21 was developed with the intent of creating a streamlined, performance-based, multimodal program in an effort to address challenges facing the U.S. transportation system. In relation to performance management, MAP-21 aims to increase the accountability and transparency of Federal highway programs by improving transportation investment decision-making through performance-based planning and programming.

As a result of MAP-21, 7 national goals were established to address safety, current infrastructure, traffic congestion, efficiency, environment, transportation delays, and project delivery delays;

1. **Safety** - To achieve a significant reduction in traffic fatalities and serious injuries on all public roads.
2. **Infrastructure Condition** - To maintain the highway infrastructure asset system in a state of good repair.
3. **Congestion Reduction** - To achieve a significant reduction in congestion on the National Highway System (NHS).
4. **System Reliability** - To improve the efficiency of the surface transportation system.
5. **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.
6. **Environmental Sustainability** - To enhance the performance of the transportation system while protecting and enhancing the natural environment.
7. **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.

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. The FAST Act made few adjustments to the performance management provisions established by MAP-21.

As required under current the most recent transportation act, the Memphis MPO will be required to establish performance targets, and track progress towards target achievement, for the following performance measures:

### 1. Safety

1. Total number of traffic related fatalities on all public roads
2. Rate of traffic related fatalities on all public roads per 100 million VMT
3. Total number of traffic related serious injuries on all public roads
4. Rate of traffic related serious injuries on all public roads per 100 million VMT
5. Total number of non-motorized fatalities and serious injuries on all public roads

### 2. Pavement Condition

1. Percentage of pavements on the Interstate System in Good condition
2. Percentage of pavements on the Interstate System in Poor condition
3. Percentage of the non-interstate National Highway System in Good condition
4. Percentage of the non-interstate National Highway System in Poor condition

### 3. Bridge Condition

1. Percentage of National Highway System bridges classified as in Good condition
2. Percentage of National Highway System bridges classified as in Poor condition

### 4. NHS Travel Time Reliability

1. Percent of the Person-Miles Traveled on the Interstate that are reliable
2. Percent of the Person Miles Traveled on the Non-Interstate National Highway System that are reliable

### 5. Freight Reliability

1. Percentage of Interstate System mileage providing reliable truck travel time.

### 6. Traffic Congestion

1. Annual hours of peak hour excessive delay per capita
2. Percentage of non-single occupancy vehicle travel

### 7. Total Emissions Reduction

1. Total emissions reductions by applicable pollutants under the CMAQ program

### 8. Public Transportation (Transit Asset Management)

1. The percentage of revenue vehicles (by type) that exceed the useful life benchmark (ULB).
2. The percentage of non-revenue service vehicles (by type) that exceed the ULB
3. The percentage of facilities (by group) that are rated less than 3.0 on the Transit Economic Requirements Model (TERM) Scale
4. The percentage of track segments (by mode) that have performance restrictions

## 1.2 MPO Performance Measure Targets

The Memphis MPO is currently coordinating with regional, State, and federal partners to establish performance measure targets for the MPO Planning Area. Apart from performance measures related to traffic congestion, MPOs have the option to adopt their own performance target(s) or support the State target(s). For performance measures related to traffic congestion, States and MPOs must collectively establish 2-year and 4-year targets. **Table 1.1** identifies the dates by which MPOs are required to submit their performance target:

Table 1.1- Implementation Schedule

Performance Measure (By Category)	MPO Due Date	Status
Safety	February 27th, 2018	Complete
Pavement Condition	November 16th, 2018	Complete
Bridge Condition	November 16th, 2018	Complete
Travel Time Reliability	November 16th, 2018	Complete
Freight Reliability	November 16th, 2018	Complete
Traffic Congestion	May 20th, 2018	Complete
Total Emissions Reduction	November 16th, 2018	Complete
Transit Asset Management	October 1, 2018	Complete

The Memphis MPO recognizes the importance of linking agency goals, objectives, and investment priorities to the agency's performance targets, and that establishing this link is critical to the achievement of the agency's performance targets. **Table 1.2** demonstrates the Memphis MPO's effort to link federal, state, and regional goals and objectives to investment priorities and performance targets:

Table 1.2- RTP Goals, Objectives, and Performance Measures

MAP-21 National Goal	FAST Act National Planning Emphasis Area	Livability 2040 Goal	Livability 2040 Objectives	Livability 2040 System-Level Performance Measures	Federal Performance Measures	Performance Targets for Federal Performance Measures	
<b>Infrastructure Condition</b>	Emphasize the preservation of the existing transportation system	<b>Goal 1.</b> Maintain existing transportation assets and infrastructure	<b>Objective 1.1</b> Maintain existing assets as a priority, before system expansion is considered <b>Objective 1.2</b> Prioritize strategies to better manage travel demand on existing infrastructure before adding new infrastructure <b>Objective 1.3</b> Promote construction/maintenance techniques, materials and practices that minimize maintenance needs over the plan horizon	Pavement: Percent Lane Miles in Good/Fair Condition, National Highway System, NHS  Bridge: Percent Deck Area Non-Structurally Deficient	Percentage (%) of pavements of the Interstate System in Good Condition	60.0 % (TN)	55.0% (MS)
					Percentage (%) of pavements of the Interstate System in Poor Condition	1.0% (TN)	5.0% (MS)
					Percentage (%) of pavements of the Non- Interstate NHS in Good Condition	42.0% (TN)	25.0% (MS)
					Percentage (%) of pavements of the Non- Interstate NHS in Poor Condition	4.0% (TN)	10.0% (MS)
					Percentage (%) of NHS bridges classified as in Good Condition	36.0% (TN)	60.0% (MS)
					Percentage (%) of NHS bridges classified as in Poor Condition	6.0% (TN)	5.0% (MS)
					<b>Safety</b>	Increase the safety of the transportation system for motorized and non-motorized users	<b>Goal 2.</b> Increase the safety and security of the transportation system for all users
Rate of Fatalities per 100 Million Vehicle Miles Traveled (VMT)	1.291 (TN)	1.706 (MS)					
Number of Serious Injuries	7374.6 (TN)	555.5 (MS)					
Rate of Serious Injuries per 100 Million VMT	9.324 (TN)	1.356 (MS)					
Increase the security of the transportation system for motorized and non-motorized users	Number of Non-motorized Fatalities and Serious Injuries	546.8 (TN)	131.4 (MS)				
<b>Environmental Sustainability</b>	Improve resiliency and reliability of the transportation system and	<b>Goal 3.</b> Minimize adverse impacts of transportation	<b>Objective 3.1</b> Provide multimodal, active transportation options that reduce vehicle miles travelled and air pollution and improve public health	VMT/Capita Air Pollutant Emissions Land Preserved	Total Emissions Reduction (VOC) kg/day	30.698 (TN 2-Yr)	>0 (MS 2-Yr)
						61.396 (TN 4-Yr)	>0 (MS 4-Yr)

MAP-21 National Goal	FAST Act National Planning Emphasis Area	Livability 2040 Goal	Livability 2040 Objectives	Livability 2040 System-Level Performance Measures	Federal Performance Measures	Performance Targets for Federal Performance Measures	
	reduce or mitigate stormwater impacts of surface transportation	investment on the (social, natural, historic) environment and improve public health.	<p><b>Objective 3.2</b> Preserve and protect natural resources</p> <p><b>Objective 3.3</b> Support integrated and expanded greenway/multiuse plans</p>		<p>Total Emissions Reduction (CO) kg/day</p> <p>Total Emissions Reduction (NOx) kg/day</p>	<p>75.000 (TN 2-Yr)</p> <p>150.000 (TN 4-Yr)</p> <p>62.840 (TN 2-Yr)</p> <p>125.680 (TN 4-Yr)</p>	<p>N/A</p> <p>N/A</p> <p>&gt;0 (MS 2-Yr)</p> <p>&gt;0 (MS 4-Yr)</p>
	Protect and enhance the environment, promote energy, conservation, improve quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns	<p><b>Goal 4.</b> Advance corridor and community redevelopment opportunities to improve economic development and quality of life</p>	<p><b>Objective 4.1</b> Encourage context sensitive transportation/land use planning efforts</p> <p><b>Objective 4.2</b> Support complete streets implementation (on regional livability corridors)</p> <p><b>Objective 4.3</b> Encourage access management planning and design to maintain minimum level of service (on regional mobility corridors)</p> <p><b>Objective 4.4</b> Identify and mitigate freight/residential community conflict</p>	Number of projects identified through integrated planning effort (transportation/land use/economic development)			
<b>Economic Vitality/ Freight Movement</b>	Support the economic vitality of the metropolitan area, especially by enabling global	<p><b>Goal 5.</b> Ensure the region is well positioned to remain a leader in global logistics and freight movement</p>	<p><b>Objective 5.1</b> Reduce truck delay on critical freight corridors and within key freight hubs</p> <p><b>Objective 5.2</b> Reduce intermodal conflict and delay</p> <p><b>Objective 5.3</b> Advance an Airport/Aerotropolis Traffic Management Authority (TMA)</p>	<p>Annual Truck Hours Delay (Interstate System)</p> <p>Bicycle and Pedestrian Mileage (New</p>	Truck Travel Time Reliability Index (TTTR)	<p>1.33 (TN 4-Yr)</p>	<p>1.50 (MS 4-Yr)</p>

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MAP-21 National Goal	FAST Act National Planning Emphasis Area	Livability 2040 Goal	Livability 2040 Objectives	Livability 2040 System-Level Performance Measures	Federal Performance Measures	Performance Targets for Federal Performance Measures
	competitiveness, productivity, and efficiency Increase the accessibility and mobility of people and for freight	<b>Goal 6.</b> Improve multimodal access to community and employment resources	<b>Objective 6.1</b> Improve bicycle and pedestrian access to educational, health, and recreational opportunities <b>Objective 6.2</b> Expand transit service to unserved regional employment markets <b>Objective 6.3</b> Focus complete streets upgrades in underserved regional markets with latent demand <b>Objective 6.4</b> Expand rural human services transportation services into areas not currently served <b>Objective 6.5</b> Improve system access for all system users <b>Objective 6.6</b> Advance Travel Demand Management (TDM) strategies so support last mile connections for key employment origins and destination	Infrastructure, Total System)  Population, Employment Served by Transit  Mode Split		
<b>Congestion Reduction</b>	Promote efficient system management and operation	<b>Goal 7.</b> Reduce travel delay for people and goods	<b>Objective 7.1</b> Address critical highway bottlenecks as a priority <b>Objective 7.2</b> Focus capacity investment on corridor connections to regional employment centers <b>Objective 7.3</b> Improve system operations through technology applications	Annual Congestion Costs, Trucks/Auto  Annual Vehicle Hours Delay National Highway System (NHS)	(Congestion Reduction)	
					Annual Hours of Peak Hour Excessive Delay Per Capita	18.8 (4-Yr)
<b>System Reliability</b>					Percentage (%) of Non-Single Occupancy Vehicle (SOV) Travel	16.5% (2-Yr) 16.5% (4-Yr)
					(System Reliability)	
					Percent (%) of the Person-Miles Traveled on the Interstate that are reliable	83.0% (TN 4-Yr)      90.0% (MS 4-Yr)
					Percent (%) of the Person Miles Traveled on the Non-Interstate NHS that are reliable	87.5% (TN-4-Yr)      85.0% (MS 4-Yr)

\*Note: For information on transit performance measures, see section 3.0



## 2.0 Safety Performance

On November 16, 2017, the Memphis MPO Transportation Policy Board approved a resolution that the Memphis MPO will support each individual state's first round safety targets, which are shown in the table below:

**Table 2.1- State Safety Targets (Round One)**

Safety Performance Measures	Tennessee (TDOT)		Mississippi (MDOT)	
	Baseline (2012-2016)	Target (2014-2018)	Baseline (2012-2016)	Target (2014-2018)
Number of Fatalities	995.6	1021.4	633.8	677.8
Fatality Rate	1.358	1.337	1.606	1.668
Number of Serious Injuries	7,319.4	7,630.8	567.6	574.4
Serious Injury Rate	9.976	9.982	1.439	1.425
Number of Non-Motorized Fatalities and Serious Injuries	434.6	493.2	111.8	119.8

On November 15, 2018, the Memphis MPO Transportation Policy Board approved a resolution that the Memphis MPO will support each individual state's safety targets in Round 2, which are shown in the table below:

**Table 2.2- State Safety Targets (Round Two)**

Safety Performance Measures	Tennessee (TDOT)		Mississippi (MDOT)	
	Baseline (2013-2017)	Target (2015-2019)	Baseline (2013-2017)	Target (2015-2019)
Number of Fatalities	1000.6	1022.0	655.4	697.3
Fatality Rate	1.329	1.291	1.640	1.706
Number of Serious Injuries	7227.6	7374.6	550.2	555.5
Serious Injury Rate	9.594	9.324	1.378	1.356
Number of Non-Motorized Fatalities and Serious Injuries	467.7	546.8	116.0	131.4

## 3.0 Infrastructure Condition

### 3.1 Pavement Condition

On November 15, 2018, the Memphis MPO Transportation Policy Board approved a resolution that the Memphis MPO will support each individual States' performance targets related to pavement condition, which are shown in the table below:

**Table 3.1- Pavement Condition Targets**

Pavement Condition Performance Measures	Tennessee (TDOT)		Mississippi (MDOT)	
	Baseline (2017)	4-Year Target (2021)	Baseline (2017)	4-Year Target (2021)
Percent of Pavement in Good Condition (Interstate)	75.6%	60.0%	75.0%	55.0%
Percent of Pavement in Poor Condition (Interstate)	0.14%	1.0%	0.99%	5.0%
Percent of Pavement in Good Condition (Non-Interstate NHS)	72.7%	42.0%	62.5%	25.0%
Percent of Pavement in Poor Condition (Non-Interstate NHS)	6.70%	4.0%	9.3%	10.0%

### 3.2 Bridge Condition

On November 15, 2018, the Memphis MPO Transportation Policy Board approved a resolution that the Memphis MPO will support each individual States' performance targets related to bridge condition, which are shown in the table below:

**Table 3.2- Bridge Condition Targets**

Bridge Condition Performance Measures	Tennessee (TDOT)		Mississippi (MDOT)	
	Baseline (2017)	4-Year Target (2021)	Baseline (2017)	4-Year Target (2021)
Percent of Bridges in Good Condition	39.5%	36.0%	61.7%	60.0%
Percent of Bridges in Poor Condition	4.9%	6.0%	2.1%	5.0%

## 4.0 System Performance

### 4.1 Travel Time Reliability

On November 15, 2018, the Memphis MPO Transportation Policy Board approved a resolution that the Memphis MPO will support each individual States' performance targets related to travel time reliability, which are shown in the table below:

**Table 4.1- Travel Time Reliability Targets**

Travel Time Reliability Measures	Tennessee (TDOT)		Mississippi (MDOT)	
	Baseline (FY 2017)	4-Year Target (FY 2021)	Baseline (FY 2017)	4-Year Target (FY 2021)
Percent of the Person Miles Traveled on the Interstate that are Reliable	87.7%	83.0%	99.3%	90.0%
Percent of the Person Miles Traveled on the Non-Interstate NHS that are Reliable	NOT APPLICABLE	87.5%	NOT APPLICABLE	85.0%

### 4.2 Freight Reliability

On November 15, 2018, the Memphis MPO Transportation Policy Board approved a resolution that the Memphis MPO will support each individual States' performance targets related to freight reliability, which are shown in the table below:

**Table 4.2- Freight Reliability Targets**

Travel Time Reliability Measures	Tennessee (TDOT)		Mississippi (MDOT)	
	Baseline (FY 2017)	4-Year Target (FY 2021)	Baseline (FY 2017)	4-Year Target (FY 2021)
Truck Travel Time Reliability Index (TTTR)	1.35	1.33	1.13	1.50

## 4.3 Traffic Congestion Reduction

On April 19, 2018, the Memphis MPO Transportation Policy Board approved a resolution that the Memphis MPO will support the Memphis, TN-MS-AR Urbanized Area's performance targets related to traffic congestion reduction, which are shown in the table below:

**Table 4.3- Traffic Congestion Reduction Targets**

Traffic Congestion Reduction Measures	Memphis, TN-MS-AR Urbanized Area		
	Baseline (FY 2017)	2-Year Target (FY 2019)	4-Year Target (FY 2021)
Percentage of Non-Single Occupancy Vehicle Travel	16.6%	16.5%	16.5%
Annual Hours of Peak-Hour Excessive Delay per Capita	NOT APPLICABLE	NOT APPLICABLE	18.8

## 4.4 Total Emissions Reduction

On November 15, 2018, the Memphis MPO Transportation Policy Board approved a resolution that the Memphis MPO will support each States' individual total emissions reduction performance targets, which are shown in the table below:

**Table 4.4- Total Emissions Reduction Targets**

Total Emissions Reduction Measures	Tennessee (TDOT)			Mississippi (MDOT)		
	Baseline (FY 2014-2017)	2-Year Target (FY 2018-2019)	4-Year Target (FY 2018-2021)	Baseline (FY 2014-2017)	2-Year Target (FY 2018-2019)	4-Year Target (FY 2018-2021)
Total Emissions Reductions (VOC) kg/day	230.025	30.698	61.396	28.000	> 0	> 0
Total Emissions Reductions (CO) kg/day	530.282	75.000	150.000	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE
Total Emissions Reductions (NOx) kg/day	363.399	62.840	125.680	85.000	> 0	> 0



# 5.0 Transit Asset Management

On August 23, 2018, the Memphis MPO Transportation Policy Board approved a resolution that the Memphis MPO will support MATA's transit asset management performance targets, which are shown in the table below:

**Table 5.1- Transit Asset Management Targets**

Transit Asset Management Performance Measures	Memphis Area Transit Authority (MATA)						
	Asset Type/Group	Asset Frequency			Baseline (2018)	Target (2019)	
		Total	Good Repair	Backlog			
<b>Rolling Stock - All Revenue Vehicles</b>	Streetcars	17	5	12	71%	50%	
	Regular Buses	142	104	38	27%	20%	
	MATA Plus Buses	68	47	21	31%	20%	
<b>Equipment - Non-Revenue Vehicles</b>	Trucks and Wreckers	29	3	26	90%	50%	
	Auto Service Cars	44	2	42	95%	50%	
<b>Facilities - All Buildings or Structures</b>	Improvements	101	61	40	40%	30%	
	Shop and Garage	28	3	25	89%	50%	
	Structure and Building	105	68	37	35%	30%	
	Misc. Equipment	161	31	130	81%	50%	
<b>Infrastructure</b>	Streetcar	Tracks	1	1	0	0%	0%
		Signals	1	0	1	100%	50%
		Systems	1	1	0	0%	0%

## 6.0 Conclusion

The Memphis MPO will continue to coordinate with each State, MATA, and other relevant stakeholders to integrate their performance measure goals, objectives, and plans into its planning process by linking investment priorities to the applicable performance measure targets to the maximum extent practicable. Furthermore, the Memphis MPO will continue to place an emphasis on maintaining and improving the transportation system by continually implementing the goals and objectives related to performance measures outlined in the plan, and directing investments in the Regional Transportation Plan (RTP) toward projects that have the potential to support each state's and transit agency's targets.

In conclusion, by agreeing to support the performance targets discussed in this addendum, the Memphis MPO agrees to:

- Coordinate with State, regional, and local partners and stakeholders to work towards achieving these performance targets
- Coordinate with State, regional, and local partners and include these performance measures and targets in the RTP
- Integrate regional goals, objectives, performance measures and targets into the MPO's metropolitan planning process, as well as applicable plans, studies, and programs
- Include a description in the TIP of the anticipated effect of the TIP toward achieving performance targets in the RTP, linking investment priorities in the TIP to those performance targets

This addendum fulfills the MPO's requirement to include federally required performance measures and the targets for those measures in the RTP.

