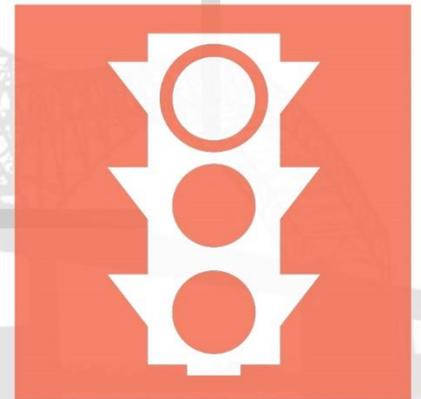


FY 2017-2020

TRANSPORTATION IMPROVEMENT PROGRAM (TIP)

ADDENDUM 1: PERFORMANCE MEASURES



Updated 11.15.2018

MEMPHIS URBAN AREA METROPOLITAN PLANNING ORGANIZATION (MPO)

(Programa de Mejora de Transporte para MPO de Memphis)



Memphis MPO
METROPOLITAN PLANNING ORGANIZATION

Strengthening Regional Transportation

TIP 
FY 2017-20

1) 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.

2) 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

3) 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 3.1** identifies the dates by which MPOs are required to submit their performance target:

Table 3.1- 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. The TIP criteria were developed to reflect federal, state, and regional priorities. In an effort to link investment decisions to regional goals and priorities, the TIP project evaluation process applies more weight to criteria that support regional goals and priorities. This allows for the prioritization of investment decisions that help achieve regional goals and priorities. **Table 3.2** demonstrates the Memphis MPO's effort to link federal, State, and regional goals and objectives to investment priorities and performance targets:

Table 3.2 – 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	TIP Project Evaluation Criteria		Federal Performance Measures	Performance Targets for Federal Performance Measures	
					Criteria	Points			
Infrastructure Condition	Emphasize the preservation of the existing transportation system	Goal 1. Maintain existing transportation assets and infrastructure	Objective 1.1 Maintain existing assets as a priority, before system expansion is considered Objective 1.2 Prioritize strategies to better manage travel demand on existing infrastructure before adding new infrastructure Objective 1.3 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	Project Improves or Maintains an Existing Roadway or Transit Operation	6	Percentage (%) of pavements of the Interstate System in Good Condition	60.0 % (TN)	55.0% (MS)
					Project Upgrades Route (Design Improvements, Complete Streets, Etc.)	3	Percentage (%) of pavements of the Interstate System in Poor Condition	1.0% (TN)	5.0% (MS)
					Project Integrates ITS Service Packages included in the MPO's Regional ITS Architecture	2	Percentage (%) of pavements of the Non- Interstate NHS in Good Condition	42.0% (TN)	25.0% (MS)
					Existing Average Daily Traffic (ADT)	5	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)							
Safety	Increase the safety of the transportation system for motorized and non-motorized users	Goal 2. Increase the safety and security of the transportation system for all users	Objective 2.1 Support projects that address an existing, identified safety or security need Objective 2.2 Support projects, programs and policies that advance safe and secure travel over the plan horizon Objective 2.3 Initiate crash data management system to improve data collection, safety analysis, and performance reporting	Reduction in Number and Rate of Fatal and Serious Crashes	Accident Rate	8	Number of Fatalities	1022.0 (TN)	697.3 (MS)
					Project Incorporates Traffic Calming and Design Improvements (Maximum Combined Points)	4	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)	
	Project Incorporates Security Improvements (surveillance cameras, lighting, emergency access, etc.)				4	Number of Non-motorized Fatalities and Serious Injuries	546.8 (TN)	131.4 (MS)	
	Increase the security of the transportation system for motorized and non-motorized users								
Environmental Sustainability	Improve resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation	Goal 3. Minimize adverse impacts of transportation investment on the (social, natural, historic) environment and improve public health.	Objective 3.1 Provide multimodal, active transportation options that reduce vehicle miles travelled and air pollution and improve public health Objective 3.2 Preserve and protect natural resources Objective 3.3 Support integrated and expanded greenway/multiuse plans	VMT/Capita Air Pollutant Emissions Land Preserved	Environmental Justice Impacts (Maximum Combined Points)	3	Total Emissions Reduction (VOC) kg/day	30.698 (TN 2-Yr)	>0 (MS 2-Yr)
					Environmental Impacts	3		61.396 (TN 4-Yr)	>0 (MS 4-Yr)
					Negative Environmental Justice and/or Environmental Impacts	-6	Total Emissions Reduction (CO) kg/day	75.000 (TN 2-Yr)	N/A
					Project Provides Linkages Between Different Land Uses	3		150.000 (TN 4-Yr)	N/A
					Adopted Plans	2	Total Emissions Reduction (NOx) kg/day	62.840 (TN 2-Yr)	>0 (MS 2-Yr)
					Project Serves a Strategic Area Targeted for Development	1		125.680 (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	TIP Project Evaluation Criteria		Federal Performance Measures	Performance Targets for Federal Performance Measures	
					Criteria	Points			
	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	Goal 4. Advance corridor and community redevelopment opportunities to improve economic development and quality of life	Objective 4.1 Encourage context sensitive solutions derived from integrated transportation/land use planning efforts Objective 4.2 Support complete streets implementation (on regional livability corridors) Objective 4.3 Encourage access management planning and design to maintain minimum level of service (on regional mobility corridors) Objective 4.4 Identify and mitigate freight/residential community conflict	Number of projects identified through integrated planning effort (transportation/land use/economic development)					
Economic Vitality/ Freight Movement	Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency Increase the accessibility and mobility of people and for freight	Goal 5. Ensure the region is well positioned to remain a leader in global logistics and freight movement Goal 6. Improve multimodal access to community and employment resources	Objective 5.1 Reduce truck delay on critical freight corridors and within key freight hubs Objective 5.2 Reduce intermodal conflict and delay Objective 5.3 Advance an Airport/Aerotropolis Traffic Management Authority (TMA) Objective 6.1 Improve bicycle and pedestrian access to educational, health, and recreational opportunities Objective 6.2 Expand transit service to unserved regional employment markets Objective 6.3 Focus complete streets upgrades in underserved regional markets with latent demand Objective 6.4 Expand rural human services transportation services into areas not currently served Objective 6.5 Improve system access for all system users Objective 6.6 Advance Travel Demand Management (TDM) strategies so support last mile connections for key employment origins and destination	Annual Truck Hours Delay (Interstate System) Bicycle and Pedestrian Mileage (New Infrastructure, Total System) Population, Employment Served by Transit Mode Split	Economic Vitality	6	Truck Travel Time Reliability Index (TTTR)	1.33 (TN 4-Yr)	1.50 (MS 4-Yr)
					Freight Movement	6			
					Network Continuity	2			
Congestion Reduction	Promote efficient system management and operation	Goal 7. Reduce travel delay for people and goods	Objective 7.1 Address critical highway bottlenecks as a priority Objective 7.2 Focus capacity investment on corridor connections to regional employment centers	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)	
					Bicycle Related Improvements (Maximum Combined Points)	4	Percentage (%) of Non-Single Occupancy Vehicle (SOV) Travel	16.5% (2-Yr)	
					Pedestrian Related Improvements (Maximum Combined Points)	4		16.5% (4-Yr)	

MAP-21 National Goal	FAST Act National Planning Emphasis Area	Livability 2040 Goal	Livability 2040 Objectives	Livability 2040 System-Level Performance Measures	TIP Project Evaluation Criteria		Federal Performance Measures	Performance Targets for Federal Performance Measures	
					Criteria	Points			
			Objective 7.3 Improve system operations through technology applications		Transit Related Improvements	4			
					Regional Bicycle and Pedestrian Plan	2			
System Reliability					System Reliability		Percent (%) of the Person-Miles Traveled on the Interstate that are reliable	83.0% (TN 4-Yr)	90.0% (MS 4-Yr)
					Existing Volume to Capacity Ratio (V/C)	4			
					Travel Time Delay Reduction	10	Percent (%) of the Person Miles Traveled on the Non-Interstate NHS that are reliable	87.5% (TN-4-Yr)	85.0% (MS 4-Yr)
					Utilizes CMP Strategies	X2			

**Note: The table does not include grouping project criteria. Grouping projects are evaluated based on criteria tailored to each grouping. (i.e. resurfacing projects, signalization projects, bicycle and pedestrian projects, etc.).*

**Note: For information on transit performance measures, see Section 3.4*

3.1) Safety Performance Targets

On November 16, 2017, the Memphis MPO Transportation Policy Board approved a resolution that the Memphis MPO will support each individual States' safety targets, which are shown in the **Table 3.3** below:

Table 3.3 – State Safety Targets (Round 1)

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 States' safety targets in Round 2, which are shown in the **Table 3.4** below:

Table 3.4 – State Safety Targets (Round 2)

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

Table 3.5 includes examples of Safety projects included as part of the FY 2017-2020 TIP:

Table 3.5 – Safety Project Examples

Project Name	TIP #	FY	Description
Road Projects			
Elvis Presley Boulevard	ENH-2010-01	2017-2019	Construct a six lane heavily landscaped roadway adjacent to Graceland, which includes median, wide outside lanes for bikes and a bus stop turn-out lane. The entire project will have improved pedestrian/bike/bus stop and landscaping.
Union Avenue Complete Street	STBG-M-2017-04	2017-2018	Reduce Union Avenue from 6 lanes to 5 lanes and include; bicycle lanes, permitted/protected left turns at signalized intersections, transit and pedestrian improvements, and access management.
Signalization Grouping Projects			
Quince and Perkins	STP-M-2009-06	2017-2020	This grouping is used to fund upgrades, replace and improve traffic signals and signal systems throughout the Memphis MPO area.
Trinity and Walnut Bend			
Bethel Road and Business Center Drive	MS-LSTP-2014-05	2017	

Bicycle and Pedestrian Grouping Projects			
Chelsea Ave Greenline	STP-M-2009-04	2017-2020	This grouping is used to fund greenways, sidewalks, and bicycle and pedestrian facilities throughout the Memphis MPO area.
Jefferson Ave Cycle Track			
South Memphis Greenline			
Transportation Alternatives			
Westmont Street Sidewalk Improvements	TAP-2014-01	2017	This grouping is used to fund the Transportation Alternatives (TA) Program, which provides funding for programs and projects defined as transportation alternatives, including on- and off-road pedestrian and bicycle facilities, infrastructure projects for improving non-driver access to public transportation and enhanced mobility, community improvement activities, and environmental mitigation; recreational trail program projects; and projects for the planning, design or construction of boulevards and other roadways largely in the right-of-way of former Interstate System routes or other divided highways under the FAST Act throughout the Memphis MPO area.
Macon Rd. Sidewalk Improvements			
Hernando Square Pedestrian Improvements	MS-TAP-2014-01	2017	

3.2) Infrastructure Condition Performance Targets

3.2.1) Pavement Condition Performance Targets

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

Table 3.6 – State 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%

3.2.2) Bridge Condition Performance Targets

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

Table 3.7 – State 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%

Tables 3.8 and 3.9 includes examples of Pavement and Bridge projects included as part of the FY 2017-2020 TIP:

Table 3.8 – Pavement Condition Project Examples

Project Name	TIP #	FY	Description
Resurfacing Grouping Projects			
Winchester Mill Overlay Wolf River Blvd (Stillwind to Brackenshire Lane) Yale Road (Kirby Whitten to Brother)	STP-M-2009-03	2017-2020	This grouping will be used to fund road resurfacing and other preventative maintenance throughout the Tennessee portion of the Memphis MPO Planning Area.
Horn Lake Road			
	MS-LSTP-2014-04	2017-20	This grouping will be used to fund road resurfacing and other preventative maintenance throughout the Mississippi portion of the Memphis MPO Planning Area.

Table 3.9 – Bridge Condition Project Examples

Project Name	TIP #	FY	Description
Bridge Projects			
Stateline Road Bridge	MS-LSTP-2015-03	2017-2018	Replacement of existing structurally deficient bridge by replacing the timber supports with a new concrete box culvert.
I-240	TN-NHPP-2014-01	2017	Replace existing overhead bridges at Norfolk Southern R/R and SR-57 (Poplar Avenue., EB &WB). Replace or repair overhead bridge at Park Avenue.
Bridge Grouping Projects			
Brooks Road Days Creek Raleigh Millington Bridge (Big Creek)	STP-M-2014-12	2017-2020	This grouping will be used to fund bridge replacement, rehabilitation, preservation, systematic repairs, & seismic retrofit projects throughout the Tennessee portion of the Memphis MPO Planning Area.

3.3) System Performance Performance Targets

3.3.1) Travel Time Reliability Performance Targets

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 3.10 – State Travel Time Reliability Targets

Travel Time Reliability Performance 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%

3.3.2) Freight Reliability Performance Targets

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 3.11 – State Freight Reliability Targets

Freight Movement Performance 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

3.3.3) Traffic Congestion Reduction Performance Targets

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. The traffic congestion measures only apply in certain urbanized areas that meet applicable criteria.

Table 3.12 – Memphis, TN-MS-AR Urbanized Area Targets

Traffic Congestion Reduction Performance Measures	Memphis, TN-MS-AR Urbanized Area		
	Baseline (2017)	2-Year Target (2019)	4-Year Target (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

3.3.4) Total Emissions Reduction Performance Targets

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 3.13 – State Total Emissions Reduction Targets

Total Emissions Reduction Performance Measures	Tennessee (TDOT)			Mississippi (MDOT)		
	Baseline (FY 2014-17)	2-Year Target (FY 2018-19)	4-Year Target (FY 2018-21)	Baseline (FY 2014-17)	2-Year Target (FY 2018-19)	4-Year Target (FY 2018-21)
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

Tables 3.14 – 3.17 include examples of system performance projects included in the FY 2017-2020 TIP:

Table 3.14 – Travel Time Reliability Project Examples

Project Name	TIP #	FY	Description
Road Projects			
Germantown Road at Wolf River Blvd Intersection	STP-M-2014-07	2017-2019	Reconstruct intersection of Wolf River Boulevard and Germantown Road, with widening and reconstruction of traffic signals on Germantown Road from Brierbrook Road to Wolf Trail Cove.
Hacks Cross Rd Improvements	STBG-M-2017-07	2017-2018	Widen from 2 to 7 lanes
Signalization Grouping			
Mallory and Perkins Macon and Mullins Station	STP-M-2009-06	2017-2020	This grouping is used to fund Upgrades, Replace, Improve Traffic Signals and Signal Systems throughout the Memphis MPO area.

Table 3.15 – Freight Reliability Project Examples

Project Name	TIP #	FY	Description
Road Projects			
SR-4 (US-78/Lamar Avenue)	Multiple	2018-2019	Widen from 4 lanes to 6 lanes (divided) 3 Projects: (TN-NHPP-2014-02)/(TN-NHPP-2018-01)/(TN-NHPP-2019-01)
Shelby Drive	STBG-M-2017-08	2017	Paul Lowry Road to Sewanee Road will be a new 4 lane road (divided) and Sewanee Road to Weaver Road will be widened from 2 to 4 lanes with grade separation at railroad crossing. Project will improve access for the Port of Memphis.
Resurfacing Grouping			
Harbor Ave Democrat (Tchulahoma to Lamar)	STP-M-2009-03	2017-2020	This grouping is used to fund road resurfacing and other preventative maintenance throughout the Memphis MPO Planning Area.
Bridge Grouping			
Plough and Winchester	STP-M-2014-12	2017-2020	This grouping is used to fund bridge replacement, rehabilitation, preservation, systematic repairs & Seismic retrofit projects throughout the Tennessee portion of the Memphis MPO Planning Area.

Table 3.16 – Traffic Congestion Reduction Project Examples

Project Name	TIP #	FY	Description
Road Projects			
Germantown Road at Wolf River Boulevard Intersection Improvements	STP-M-2014-07	2017-2019	Reconstruct intersection of Wolf River Boulevard and Germantown Road, with widening and reconstruction of traffic signals on Germantown Road from Brierbrook Road to Wolf Trail Cove.
Getwell Road	MS-LSTP-2014-01	2017-2020	Widen existing variable width road to a four-lane divided typical section with curbs and storm drains. A 10' wide multi-use Bike-Ped lane will be provided.
Bicycle and Pedestrian Grouping Projects			
Chelsea Ave Greenline	STP-M-2009-04	2017-2020	This grouping is used to fund Greenways, Sidewalks, Bicycle Facilities and Amenities, Streetscaping, etc. throughout the Memphis MPO area.
Johnson Creek Extension	MS-LSTBG-2017-02	2017-2020	
Transportation Alternatives			
Chriswood Street Pedestrian Safety	TAP-2014-01	2017	This grouping is used to fund the Transportation Alternatives (TA) Program, which provides funding for programs and projects defined as transportation alternatives, including on- and off-road pedestrian and bicycle facilities, infrastructure projects for improving non-driver access to public transportation and enhanced mobility, community improvement activities, and environmental mitigation; recreational trail program projects; and projects for the planning, design or construction of boulevards and other roadways largely in the right-of-way of former Interstate System routes or other divided highways under the FAST Act throughout the Memphis MPO area.
Hernando Square Pedestrian Improvements	MS-TAP-2014-01	2017	

Table 3.17 – Total Emissions Reduction Project Examples

Project Name	TIP #	FY	Description
Projects			
Traffic Signal Equipment Replacement	CMAQ-2014-04	2017	This project provides for improvements to the Walnut Grove Road corridor by upgrading obsolete signal equipment with new ITS technologies enabling interconnected operation of traffic signals within the project limits.
Commute Options Travel Demand Management Initiative	CMAQ-2015-03	2017-2019	Develop employer program to reduce drive-alone commuting and increase use of transit, bicycling, rideshare and walking among employees and students. Develop marketing and outreach tools, pilot strategies with six employers during grant period, and establish replicable program for ongoing use.
Shelby Farms Greenline: Cordova Station to Lenow	CMAQ-2015-06	2017-2018	Extend the Shelby Farms Greenline from the old Cordova Train Station to the TVA Substation on Lenow Road along an inactive CSX Railroad right-of-way. The proposed improvements will convert the railbed to an asphalt bicycle/pedestrian trail approximately 2.5 miles in length.
Diesel Emission Reduction Strategies Grouping	CMAQ-2014-01	2017	Projects to reduce diesel emissions.

3.4) Transit Asset Management Performance Targets

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 3.18 – MATA/MPO TAM Performance Measure Targets

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

The Memphis MPO will continue to coordinate with MATA and other applicable stakeholders to integrate MATA's Transit Asset Management goals and objectives into its planning process by linking investment priorities to the TAM targets to the maximum extent practicable. **Table 3.19** includes examples of Transit projects included as part of the FY 2017-2020 TIP:

Table 3.19 – TAM Project Examples

Project Name	TIP #	Fiscal Year(s)	Description
Fixed Route Vehicles	5307-2006-05/ 5339-2013-01	2017-2020	Provides funding for the purchase of up to 12 fixed route vehicles.
Bus Facility Improvements	5307-2006-03/ 5339-2013-02	2017-2020	Includes various routine improvements to bus-related facilities, such as construction and repairs to maintenance, operations, and passenger facilities.
Preventative Maintenance	5307-2006-07	2017-2020	Provides funds for materials and supplies, inspections and routine maintenance needed to maximize the efficiency and service life of MATA's Capital assets, including fixed route and demand-response fleet, rail fleets, service vehicles, infrastructure, and facilities.
Transfer Centers and Super Stops	5307-2006-09/ 5307-2017-02	2017-2020	MATA plans to implement a system of transfer centers in various locations throughout the service area. Transfer centers typically consist of a small off-street passenger waiting area and bus berthing area.
Rail Facility Improvements	5337-2014-01	2017-2020	Includes various routine improvements to rail related facilities including repairs to tracks, switches, crossties, etc.

4.0) 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 Transportation Improvement Program (TIP) 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 TIP.