

Steering Committee Meeting

October 8th, 2019

Congestion Management Process



2020 Update

Introductions & Project Background

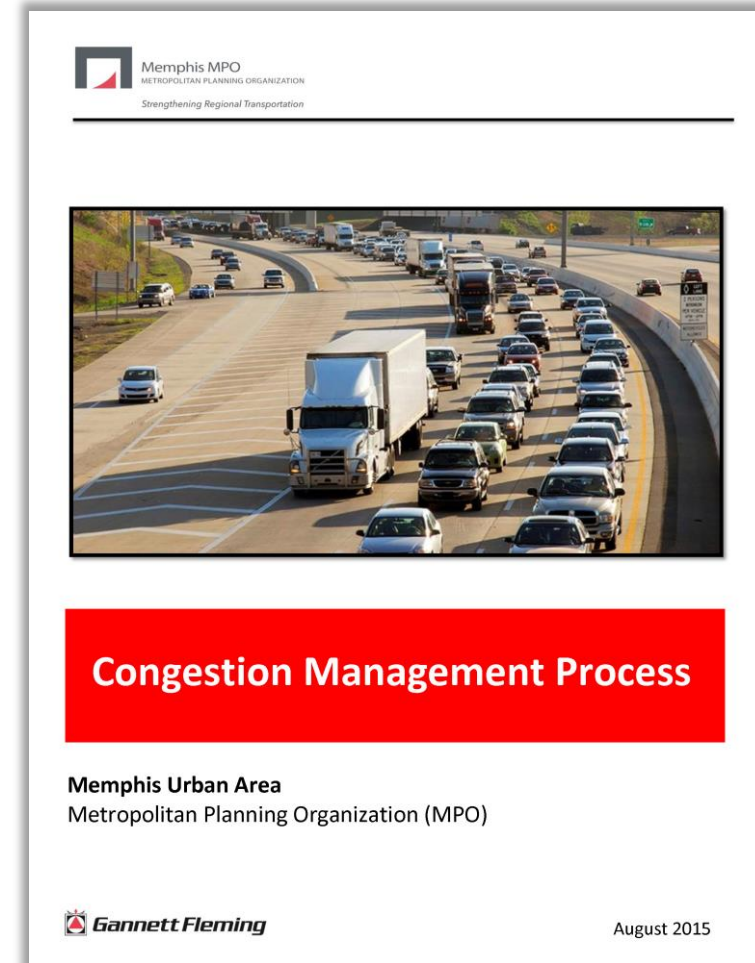


Project Background

- A Congestion Management Process (CMP) is a systematic and regionally-accepted approach for managing congestion that:
 - Provides accurate, up-to-date information on the transportation system performance
 - Assesses alternative strategies for congestion management that meet State and local needs
- MPO's designated as Transportation Management Areas (TMAs) must have a CMP
- The CMP must be developed and implemented as an integrated part of the metropolitan planning process

Project Background

- The Memphis MPO has periodically updated the CMP plan since 1996, with the last update occurring in 2015
- Basis for updating the CMP:
 - Federal guidance
 - Data availability
 - Emerging trends & technologies



Memphis MPO
METROPOLITAN PLANNING ORGANIZATION
Strengthening Regional Transportation

Congestion Management Process

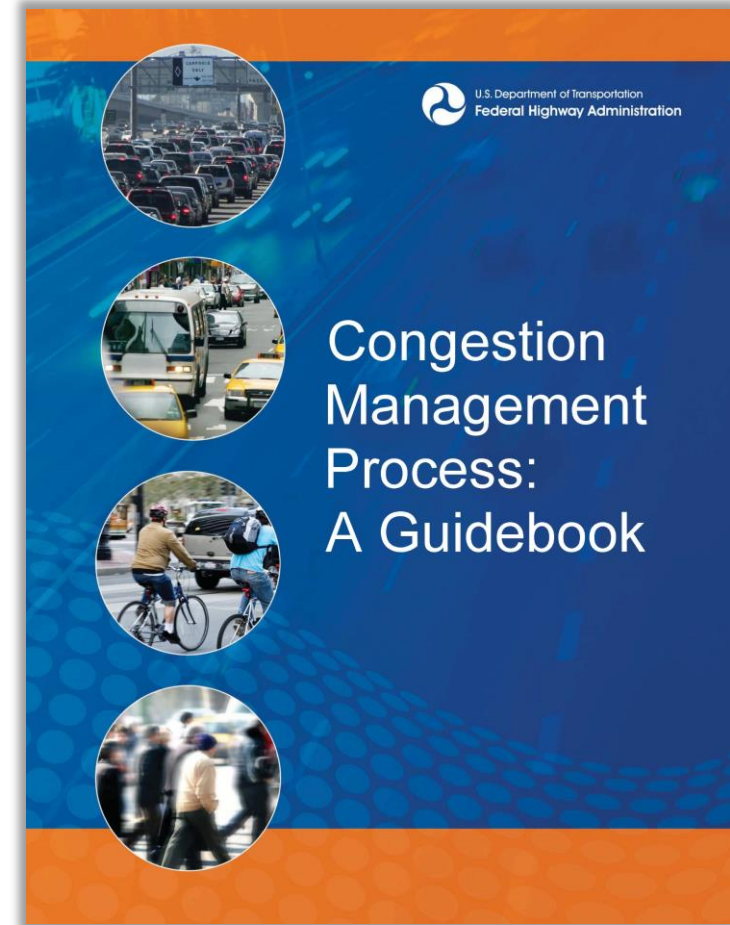
Memphis Urban Area
Metropolitan Planning Organization (MPO)

Gannett Fleming

August 2015

FHWA Guidance & Peer Agency Experiences

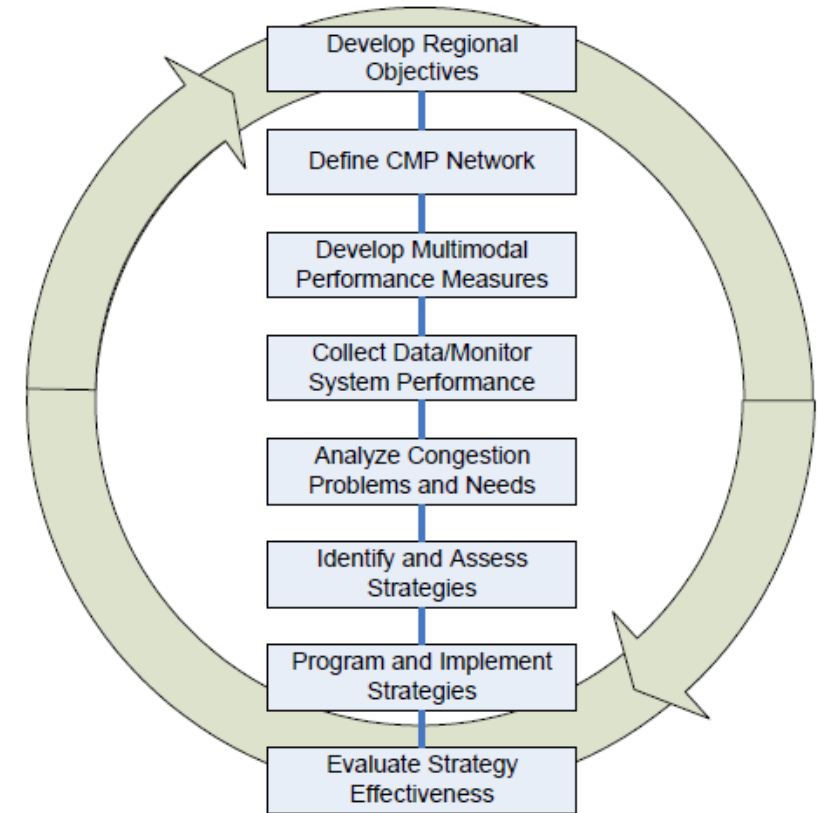
- Best practices & peer agency review
 - FHWA CMP guidebook (2011)
 - 12 peer agency CMP's
- Input from federal, state, local partners
 - Survey distributed via MPO newsletter
 - FAC & PLAC survey's
 - Multiple discussions with federal & state partners



FHWA Guidance & Peer Agency Experiences

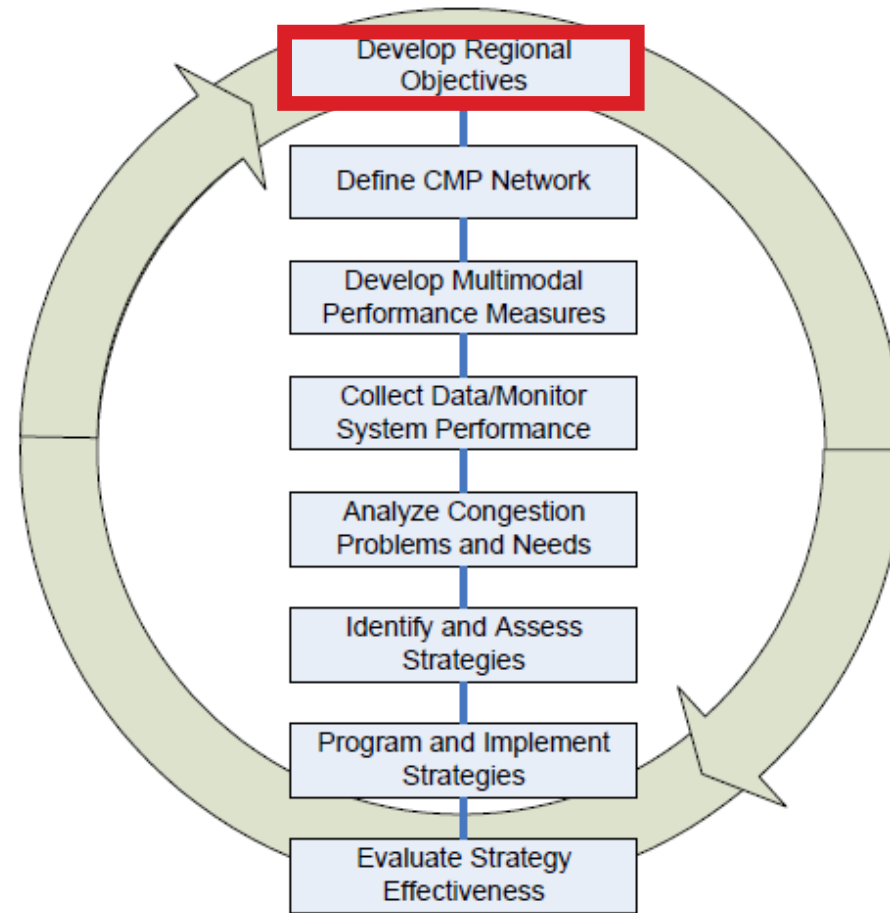
• Key Findings:

- Each MPO CMP is unique
- 8 step CMP process model
 - What aspects or steps of our CMP can we improve?
- Leveraging data to identify effective congestion management strategies
- Regional/systemwide level vs. corridor/segment/intersection level of measurement, analysis, & evaluation



Source: FHWA. Congestion Management Process: A Guidebook. 2011

Regional Goals & Objectives

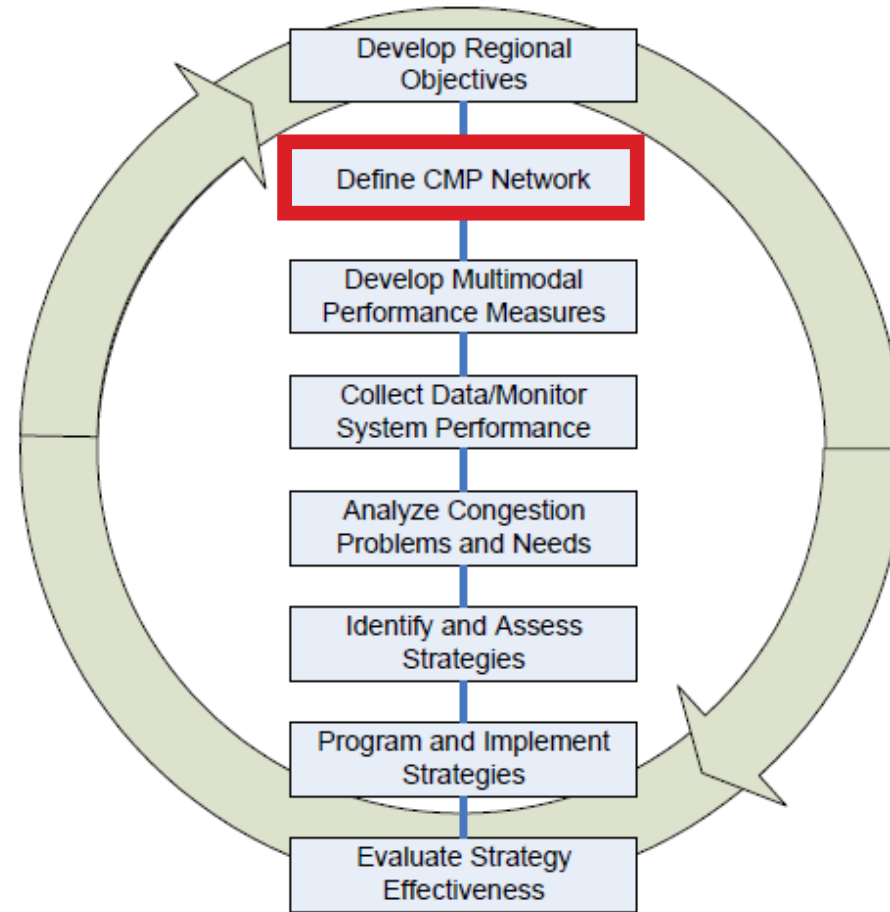


Regional Goals & Objectives

- Connection to RTP goals & objectives related to safety & congestion management
- Emphasis on ensuring that CMP goals & objectives are realistic & measurable

Draft Regional CMP Goals & Objectives		
RTP Planning Themes	CMP Goals	CMP Objectives
Safety & Security	1. Improve the safety of the regional transportation system	1.1 Reduce the number of fatal and serious injury crashes on public roadways within the region 1.2 Reduce the number of non-motorized fatal and serious injury crashes on public roadways within the region
	2. Reduce truck delay on critical freight corridors	2.1 Improve the level of truck travel time reliability on the CMP network
Economic Vitality	3. Improve the travel time reliability of the regional transportation system	3.1 Improve the level of travel time reliability on the CMP network 3.2 Reduce the congestion impacts stemming from non-recurring incidents or events
	System Preservation/ Connections & Choices	4. Reduce congestion & delay on critical regional thoroughfares
5. Improve connections between high concentrations of low-income populations and major employment areas		5.1 Advance TDM strategies to support last mile connections in low-income and major employment areas

CMP Network

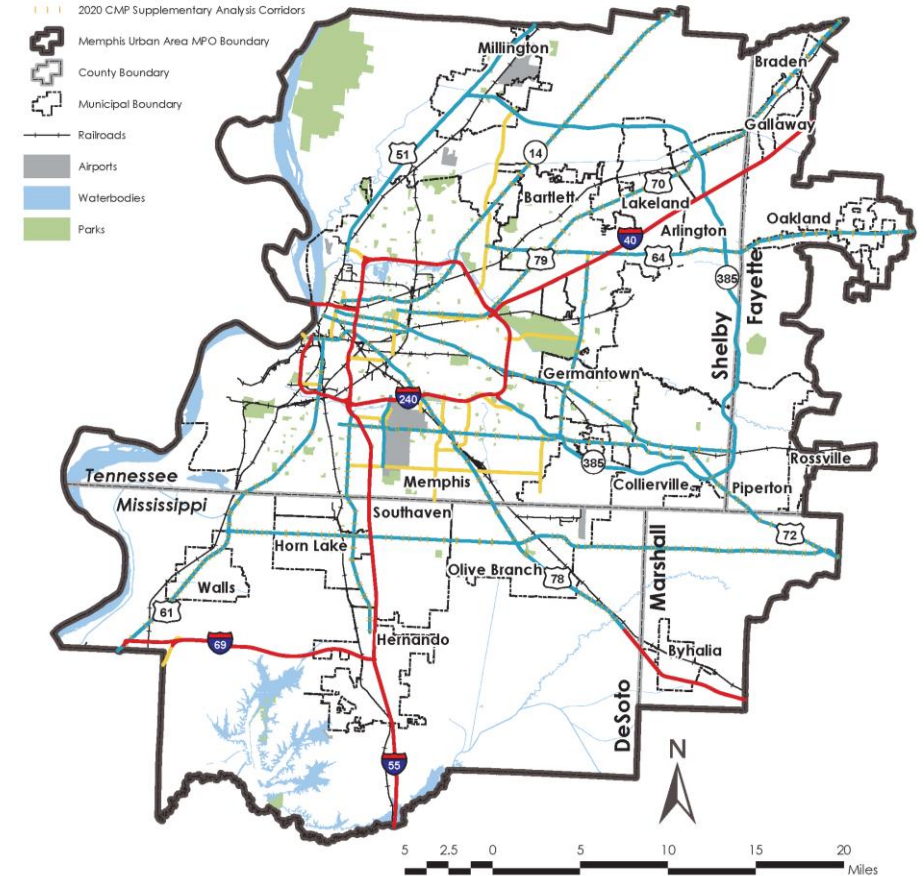


CMP Network

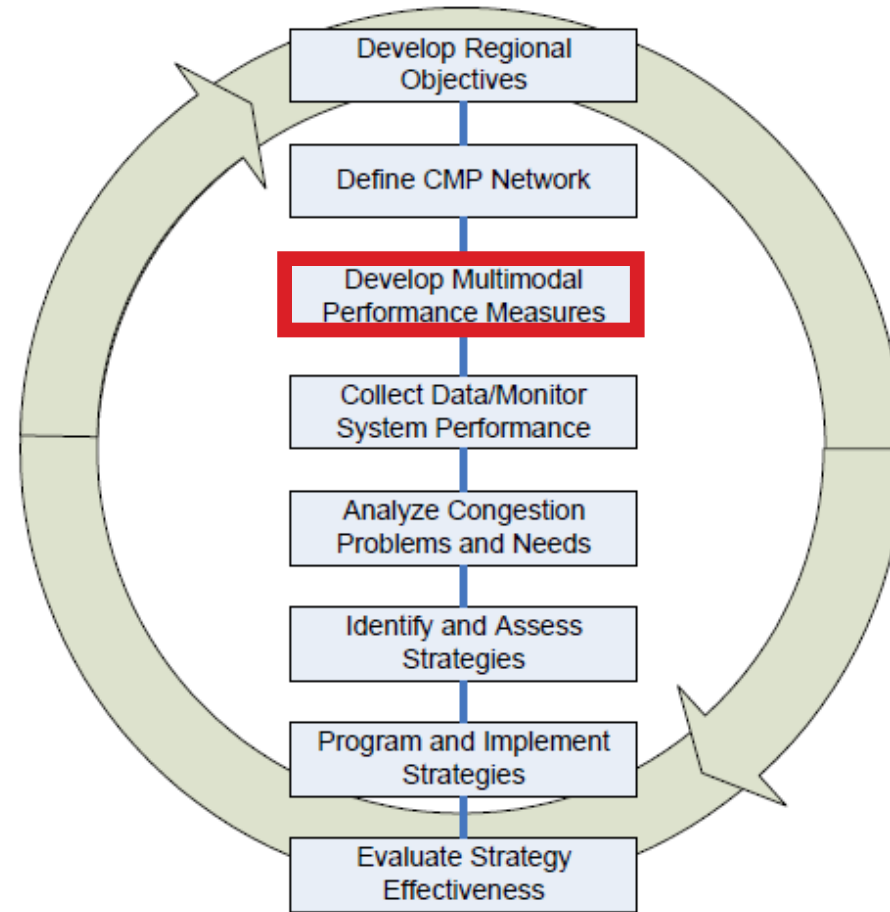
- Fewer corridors, more detailed analysis
- Tiered approach:
 - Interstate & Non Interstate NHS Priority Corridors
 - Supplementary Analysis Corridors
 - Regional Analysis Corridors
- Basis for Network Selection:
 - RTP Livability & Mobility Corridors
 - High Crash Corridors/Locations
 - Functional Classification System
 - Travel Demand Model Network & Transit Network
 - Public Input
 - Data Availability
- MPO Staff will conduct an annual review to determine if the network should be updated, and any changes will be documented in the annual report

Map Elements

- 2020 CMP Priority Corridors on the Interstate Network
- 2020 CMP Priority Corridors on the Non-Interstate NHS Network
- 2020 Regional Analysis Corridors
- 2020 CMP Supplementary Analysis Corridors



Data & Performance Measurement



Data & Performance Measurement

- New data & federally required performance measures
 - Safety
 - System Reliability
 - Freight Movement
 - Congestion Reduction
- Regional vs. corridor level performance measures

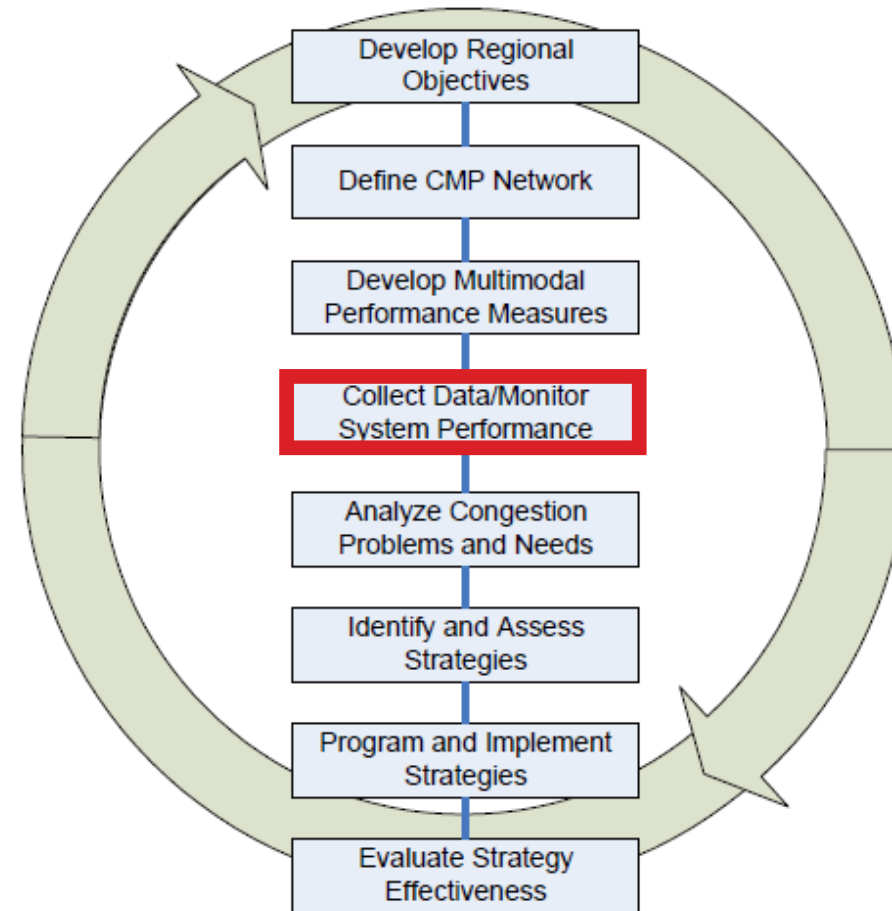
Regional Performance Measure Examples

Performance Measure	Analysis Area	2015	2016	2017	2018	Trend
% of person-miles traveled on the Interstate that are reliable	National Highway System	89.8%	89.9%	96.4%	91.5%	
% of person-miles traveled on the non-Interstate National Highway System that are reliable		64.9%	90.6%	92.5%	91.5%	
Annual hours of peak hour excessive delay per capita	National Highway System (within the Memphis TN-MS-AR Urbanized Area)	7.0	10.0	7.1	8.3	

Corridor Performance Measure Examples

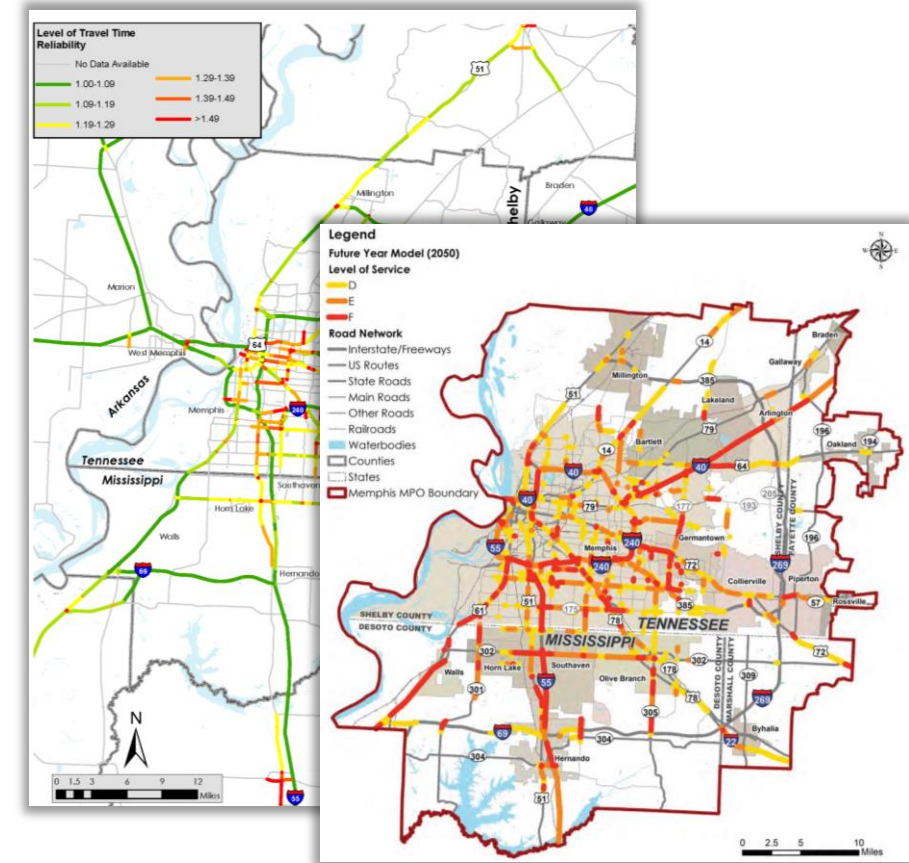
Corridor	Termini	Direction	Annual Average LOTTR			Annual Average TTR			Annual PHED per Mile*			AADT		
			2017	2018	Change	2017	2018	Change	2017	2018	Change	2017	2018	% Change
I-40	Western MPO Boundary to I-40/I-69/I-240 Interchange	Northbound	1.07	1.11	0.04	1.25	1.36	0.11	7,978.0	11,982.5	4,004.5	117,740	*Pending	*Pending
		Southbound	1.04	1.04	-0.01	1.31	1.27	-0.04	10,113.7	4,557.3	-5,556.4			
I-40	I-240/Sam Cooper Boulevard Interchange to Eastern MPO Boundary	Eastbound	1.29	1.55	0.27	1.85	2.04	0.19	11,994.6	15,378.9	3,384.3	49,526	*Pending	*Pending
		Westbound	1.04	1.04	0.00	1.10	1.14	0.03	1,531.9	294.3	-1,237.6			
I-69	U.S. 61 to I-55 Interchange	Eastbound	1.08	1.31	0.22	1.21	1.22	0.00	N/A	N/A	N/A	9,720	10,120	4.1%
		Westbound	1.08	1.08	-0.01	1.18	1.19	0.01	N/A	N/A	N/A			
I-22	Red Banks River Road to southeastern MPO Boundary	Eastbound	1.02	1.03	0.01	1.06	1.07	0.00	N/A	N/A	N/A	25,667	26,667	3.9%
		Westbound	1.02	1.02	0.00	1.06	1.07	0.01	N/A	N/A	N/A			

Monitoring System Performance

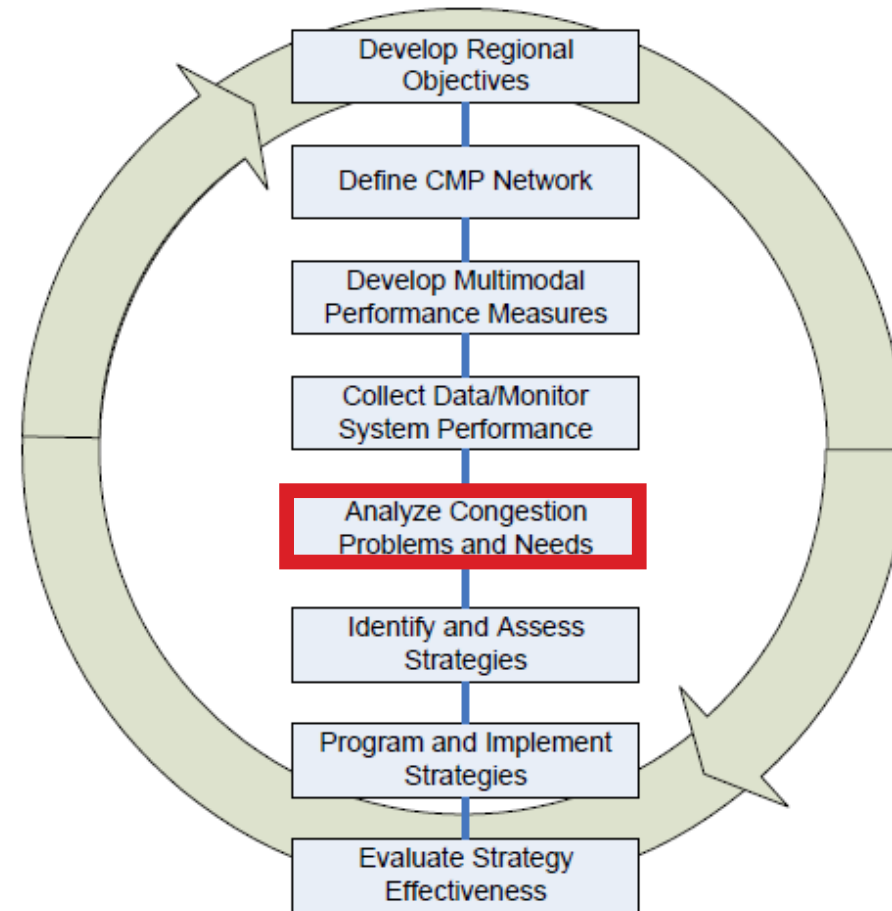


Monitoring System Performance

- Annual CMP report
 - System level tracking
 - Corridor level tracking
- RTP & Travel Demand Model Analysis
 - Will continue to update Travel Demand Model & conduct any related analysis in conjunction with the development of the RTP



Analyzing Congestion Needs & Problems



Analyzing Congestion Needs & Problems

- **Existing regional definition of congestion:**

“...the level at which transportation system performance is no longer acceptable due to excessive travel times and delays. The Memphis MPO defines congestion as roadways that operate with a Level of Service (LOS) E or F.”

- Developed to align with federal regulations (23 CFR 500.109)
- Identification of congested corridors or hot spots relies solely on travel demand model analysis

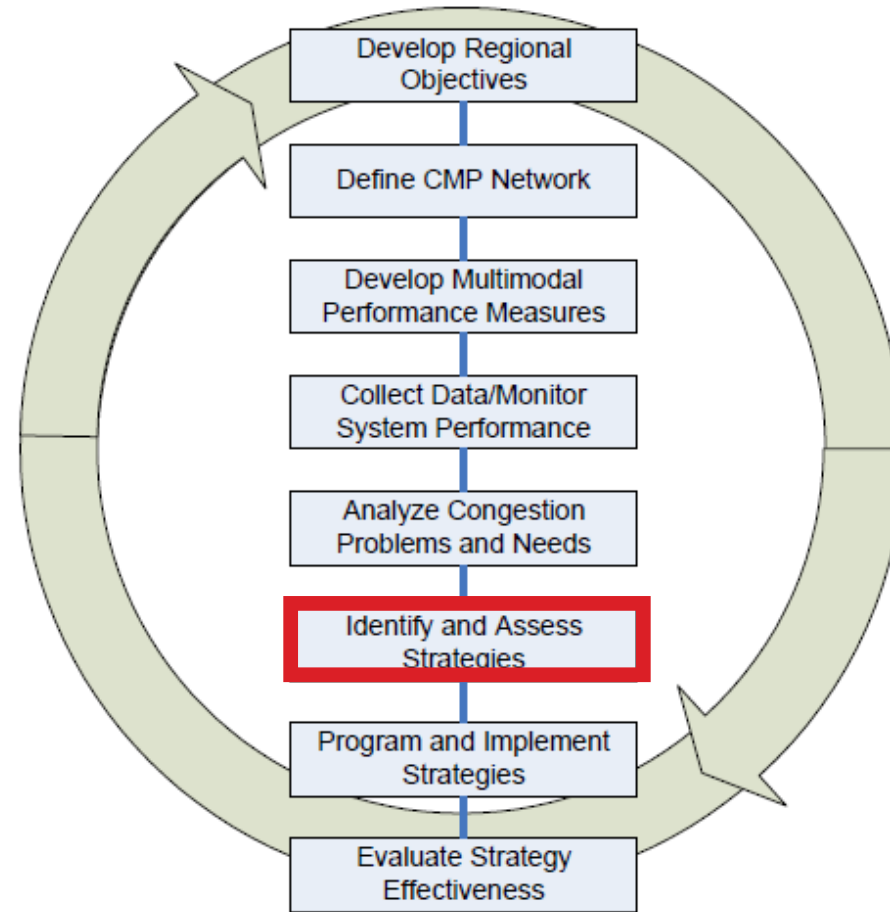
Analyzing Congestion Needs & Problems

- Proposed update to the definition:**

Consistent with the federal definition, the Memphis MPO defines congestion as the level at which transportation system performance is unacceptable due to excessive travel times and delays. Where data is available, the Memphis MPO will use the following congestion indicators/metrics to identify segments of the regional transportation system with unacceptable levels of performance:

Congestion Indicator/Metric	Analysis Tool	Unacceptable Level of Performance
Level of Travel Time Reliability (LOTR)	National Performance Management Research Data Set (NPMRDS)	Annual LOTTR ratio is greater than or equal to 1.50
Peak Hours of Excessive Delay (PHED) per mile	National Performance Management Research Data Set (NPMRDS)	Annual PHED per mile is 2 times greater than the annual regional average PHED per mile
Truck Travel Time Reliability Index (TTTR)	National Performance Management Research Data Set (NPMRDS)	Annual TTTR is ratio is greater than or equal to 1.50
Level of Service (LOS)	Memphis MPO Regional Travel Demand Model	LOS is E or F

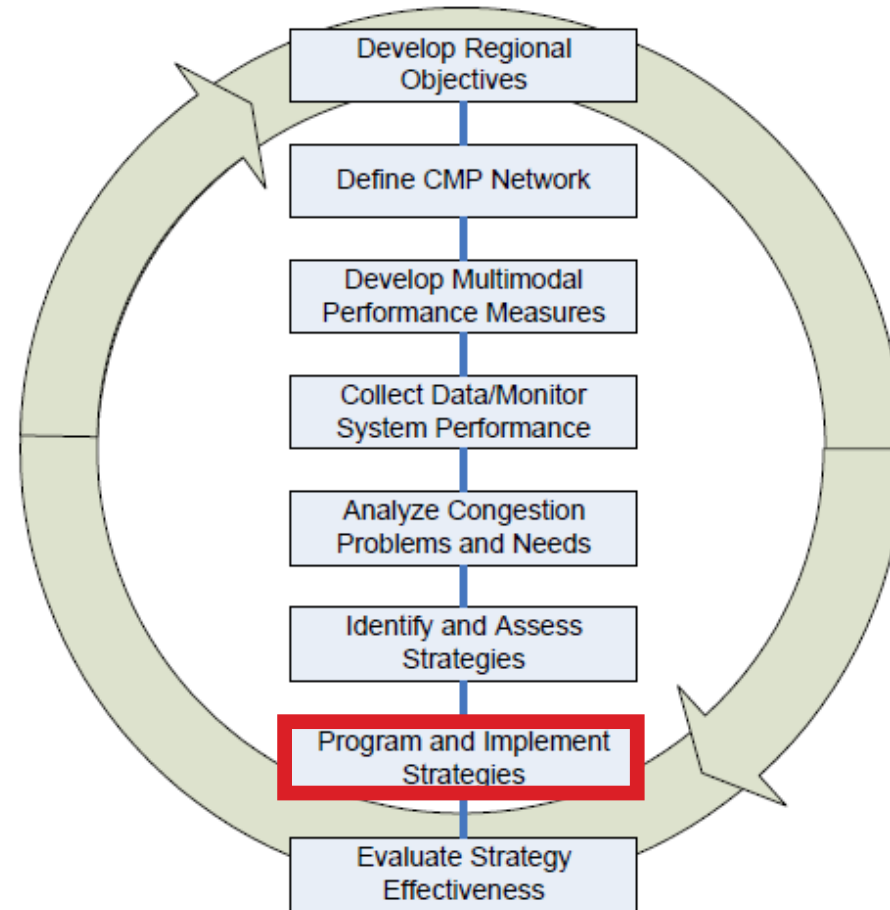
Identifying & Assessing Congestion Management Strategies



Identifying & Assessing Congestion Management Strategies

- Review of existing CMP strategies
 - Addition & removal of strategies
- Reorganization of strategies & strategy toolbox
 - Improved alignment with FHWA CMP guidance & peer agencies
 - Project/Corridor/Intersection Strategies
 - Intelligent Transportation & Operational Strategies
 - Demand Management Strategies
 - Transit Strategies
 - Road Capacity & Geometric Improvements
 - Policy/Program/Systemwide Strategies
 - Demand Management & Transit Strategies
 - Operational Strategies

Implementation of Strategies



Implementation of Strategies

CMP

- Regularly review, and update when necessary, the CMP strategies toolbox



RTP

- Prioritize projects that have the greatest potential to reduce congestion & assist in the achievement of CMP goals & objectives

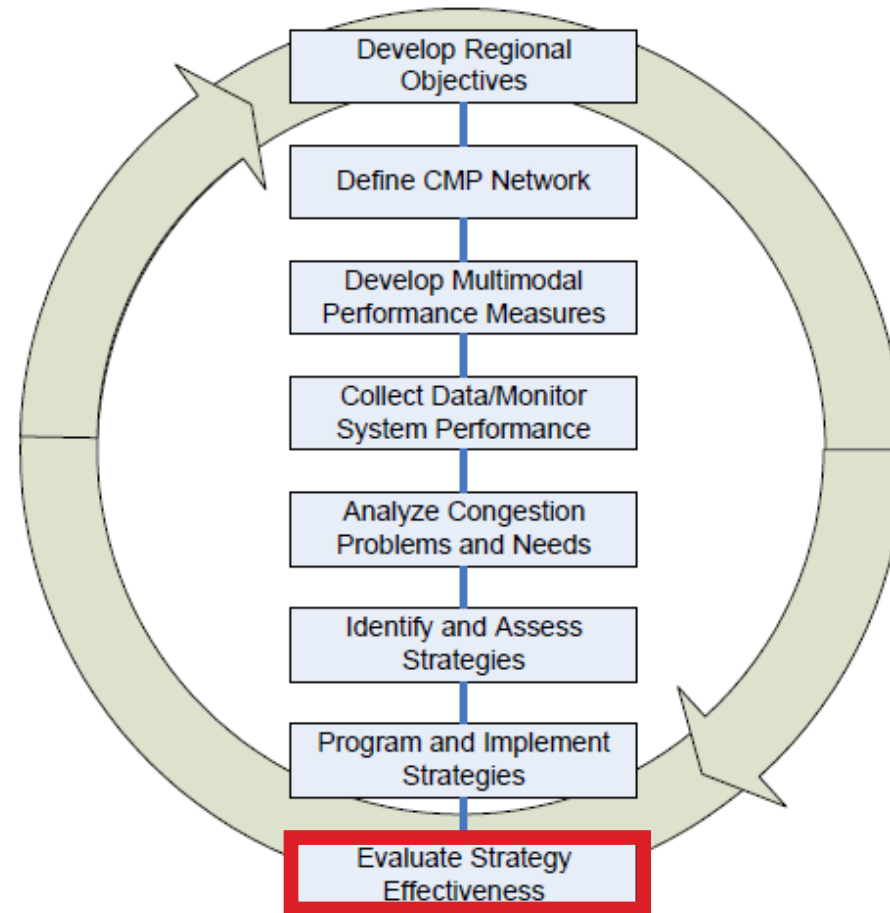


TIP

- Prioritize projects that incorporate strategies referenced in the CMP strategies toolbox



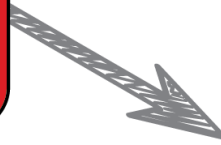
Evaluation of Strategy Effectiveness



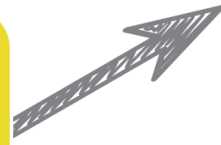
Evaluation of Strategy Effectiveness

- Document CMP strategies incorporated in the scope of projects selected for funding in the TIP

TIP



CMP



RTP

- Conduct Travel Demand Model analysis to assess base & future year congestion levels

- Identify projects included in the latest TIP cycle located on the CMP network to conduct before & after analyses
- Conduct before & after analysis to evaluate the effectiveness of strategies & guide the prioritization of CMP strategies for future plan updates
- If & where appropriate, use information gathered from the Travel Demand Model analysis to prioritize CMP strategies



Discussion & Feedback

- Overall congestion concerns & thoughts on existing CMP
 - What type of public feedback have you received regarding congestion issues?
- Regional goals & objectives
 - Do the draft goals & objectives accurately reflect regional needs related to congestion?
- Data & performance measures
 - Are there any additional datasets that might be beneficial to our CMP?
 - Are there any additional performance measures we could include to help track & identify sources of congestion in our region?
- CMP strategies
 - Are there any strategies not included in the draft toolbox that should be included?
 - Any that have been particularly ineffective or that should be removed?
- Additional items?

Next Steps

- Individual stakeholder meetings
 - October-December 2019
- Steering Committee Meeting
 - January-March 2020
- CMP adoption
 - Spring/Summer 2020