CMPDD

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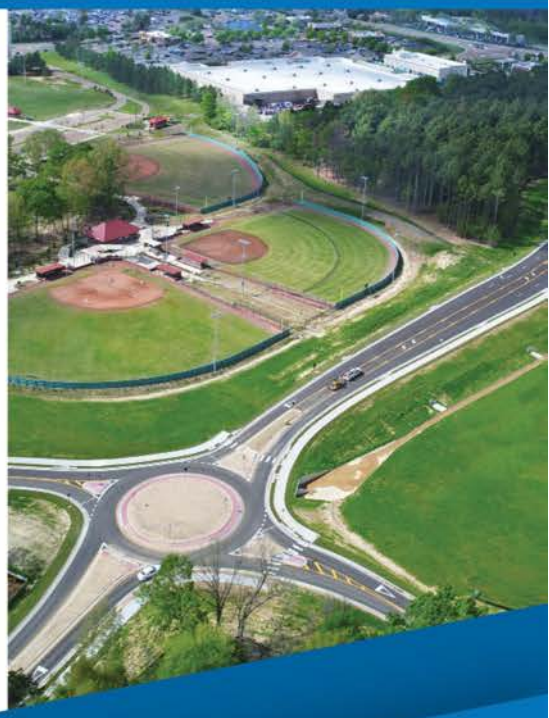
2050 Metropolitan Transportation Plan



Technical Report #6

Congestion Management Process

November 2025

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Central Mississippi Planning and Development District

2050 Metropolitan Transportation Plan

This Plan was prepared as a cooperative effort of the U.S. Department of Transportation (USDOT), Federal Highway Administration (FHWA), Federal Transit Administration (FTA), Mississippi Department of Transportation (MDOT), and local governments in partial fulfillment of requirements in Title 23 USC 134 and 135, amended by the IIJA, Sections 11201 and 11525, October 1, 2021. The contents of this document do not necessarily reflect the official views or policies of the USDOT.

Table of Contents

List of Tables

List of Figures

1.0 Introduction

1.1 Foreword/Background

A Congestion Management Process (CMP) is an analytical process that measures the operational effectiveness of major transportation facilities located within a Transportation Management Area, an urban area with a population greater than 200,000 people. A CMP proposes strategies required to address congested areas identified within a Transportation Management Area.

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) required each Transportation Management Area to develop a Congestion Management System (CMS). Subsequent legislation has continued this requirement, and the CMS became the CMP with the 2005 SAFETEA-LU legislation and has been included as part of the 2021 Infrastructure Investment and Jobs Act (IIJA).

The CMP is intended to be an on-going process, fully integrated into the metropolitan transportation planning process[1]. The most recent CMP effort for the Jackson Metropolitan Area was conducted in 2020 in support of the CMPDD 2045 Metropolitan Transportation Plan (MTP) to:

- Analyze the Jackson region's transportation system.
- Determine which areas experience the greatest mobility and maneuverability issues associated with traffic congestion.
- Identify a wide range of congestion reduction strategies and projects that, if implemented, can aid in improving free flow traffic conditions.

The updated CMP is being conducted in support of the CMPDD 2050 MTP.

1.2 Defining Congestion

Congestion is defined as the delay compared to normal free-flow traffic conditions on major transportation systems that impedes traffic mobility and maneuverability.

[1] https://www.fhwa.dot.gov/planning/congestion_management_process/cmp_guidebook/cmpguidebk.pdf

Traffic Congestion has several negative side effects, including:

Increased transportation costs

Increased fuel consumption

Lost productivity at work

Increased air pollution, negatively impacting health and environment

A CMP is an effective tool that assists in the management of new and existing transportation facilities. It does so by using travel demand reduction and supply management strategies that promote traffic mobility and accessibility in the region.

1.3 Federal Guidance/Federal Legislation

Federal legislation that guides CMP development is detailed below.

Section 450.322 (a) of Subpart C (Metropolitan Transportation Planning and Programming), 23 CFR (Final Rule)

- The transportation planning process in a Transportation Management Area (TMA) shall address congestion management through a process that provides for safe and effective integrated management and operation of the multimodal transportation system, based on a cooperatively developed and implemented metropolitan-wide strategy, of new and existing transportation facilities eligible for funding under title 23 U.S.C. and title 49 U.S.C. Chapter 53 through the use of travel demand reduction (Including Intercity bus operators, employer-based commuting programs such as a carpool program, vanpool program, transit benefit program, parking cash-out program, shuttle program, or telework program), job access projects and operational management strategies.

1.4 Causes and Types of Congestion

Within urban areas across the United States, people are migrating from the core areas to the "outer rings" and suburbs. This out-migration trend has placed a strain on the existing infrastructure and affects other public facilities including transit, rental cars, bicycle lanes, and taxis.

The Jackson region is the largest metropolitan area in Mississippi. Situated in Central Mississippi, it encompasses portions of Hinds, Madison, and Rankin Counties and is situated along the I-20 and I-55 corridors.

- The I-20 corridor connects west to Vicksburg, Mississippi, Shreveport, Louisiana, and Dallas, Texas; and east to Meridian, Mississippi, Birmingham, Alabama, and Atlanta, Georgia.
- The I-55 corridor connects south to New Orleans, Louisiana; and north to Memphis, Tennessee, St. Louis, Missouri, and Chicago, Illinois.

The planning area's location along these corridors results in additional through traffic as travelers move between metropolitan areas. These additional trips lead to increased traffic not only on I-20 and I-55, but also on US 80, MS 18, MS 25, MS 463, and in Downtown Jackson.

Congestion can generally be classified as either recurring or non-recurring, as summarized below. The sources of congestion, based on a Federal Highway Administration (FHWA) summary, are shown in **Figure 1.1**.

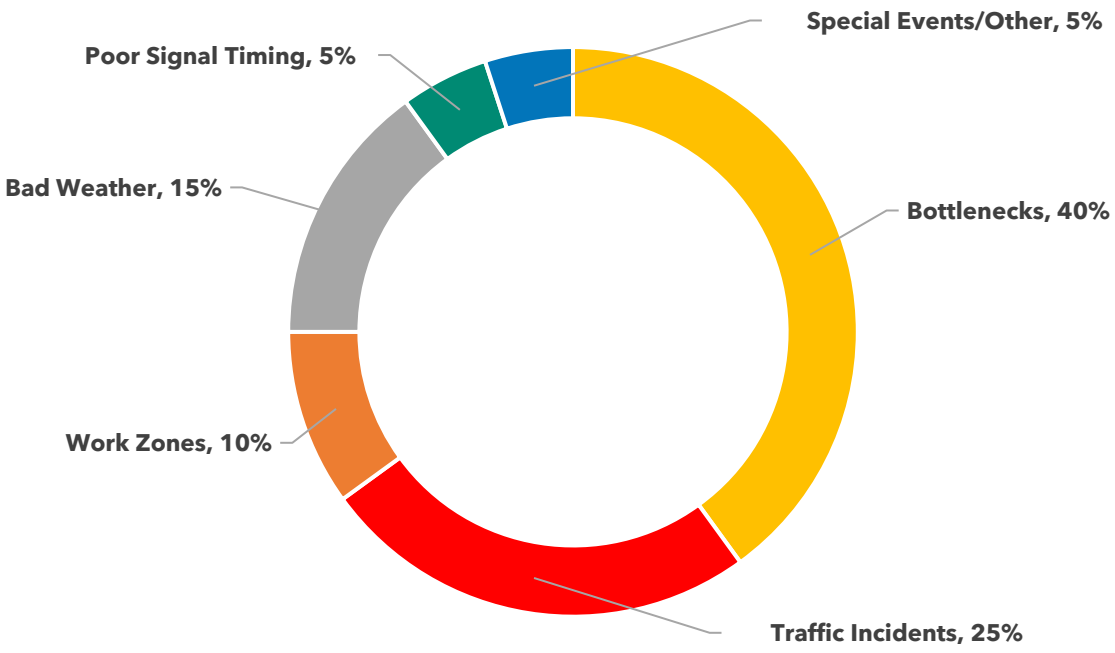
Recurring Congestion

- Recurring congestion is regularly occurring traffic congestion that happens at the same time every day during peak hours. This congestion occurs due to traffic demand exceeding roadway capacity.

Non-Recurring Congestion

- Non-recurring congestion occurs due to accidents, adverse weather, special events, work zones, and other factors that do not follow a predictable pattern. As such, non-recurring congestion is caused by non-standard or random events.

Figure 1.1: The Sources of Congestion – National Summary



Source: Figure ES.2 *The Sources of Congestion National Summary*
https://ops.fhwa.dot.gov/congestion_report/executive_summary.htm

As noted in FHWA's CMP Guidebook, there are four major dimensions of congestion, which can be influenced by several spatial and temporal factors. These factors are:

- Intensity
- Duration
- Extent
- Variability

Intensity

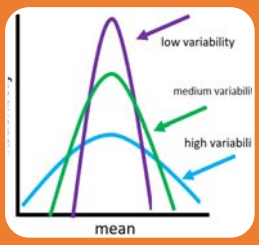
- The relative severity of congestion that affects travel. Intensity has traditionally been measured through indicators such as V/C ratios or LOS measures that consistently relate the different levels of congestion experienced on roadways.

Duration

- The amount of time the congested conditions persist before returning to an uncongested state.

Extent

- The number of system users or components (e.g. vehicles, pedestrians, transit routes, lane miles) affected by congestion. For example, the proportion of system network components (roads, bus lines, etc.) that exceed a defined performance measure target.



Variability

- The changes in congestion that occur on different days or at different times of day. When congestion is highly variable due to non-recurring conditions, such as a roadway with a high number of traffic accidents causing delays, this has an impact on the reliability of the system.

1.5 Previous Congestion Management Strategies

Across the nation, there is a push to reduce Single Occupancy Vehicle (SOV) travel to reduce congestion. These efforts were guided by proposed alternative travel methods and travel demand strategies, such as carpooling/vanpooling and transit park-and-ride facilities. However, motorists preferred the convenience that SOVs provide, and the strategies proved ineffective. According to the Census Bureau, the

percentage of workers in Jackson that drove to work alone increased from 84 percent in 2010 to 85 percent in 2019[2,3].

The most recent CMP was adopted in 2020 in support of the CMPDD 2045 MTP. The 2045 CMP, located within CMPDD's 2045 MTP, considered a corridor to be congested if the segment's Index Rating was eight or greater out of a maximum possible score of sixteen.

The region's 2045 CMP identified **91** recurring congested segments covering **65** miles of the CMP network.

The 2045 CMP also identified strategies to alleviate congestion on the identified corridors. These strategies were grouped into the following categories:

- Travel Demand Management
- Supply Management
- Land Use Management

The strategies for each category, and their objectives, from the 2045 CMP are shown in **Appendix A**.

1.6 Multimodal Mobility

The traditional understanding of congestion has been focused largely, if not solely, on automobiles. Typically, the standard solution for congestion reduction has been increasing roadway capacity (i.e. "building our way out of congestion"). However, this solution usually induces increased automobile travel, which may worsen the level of congestion that existed before the capacity expansion. By understanding congestion from a multimodal perspective, all modes can be considered potential sources and remedies for congestion. Several studies have indicated that transit[4], walking, and bicycling[5,6] can be tools to relieve automobile congestion.

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[2] https://data.census.gov/table/ACSDT5Y2010.B08101?q=B08101&g=310XX00US27140

[3] https://data.census.gov/table/ACSDT5Y2019.B08101?q=B08101&g=310XX00US27140

[4] Nakamura, K., Hayashi, Y. (2013). Strategies and instruments for low-carbon urban transport: An international review on trends and effects. Transport Policy. 29, pp. 264–274

[5] Litman, T. (2014). Congestion Evaluation Best Practices. In: International Transportation Economic Development Conference. Sheraton Dallas Hotel, Dallas, USA. Apr. 09-11, 2014. pp. 1–20.

[6] Litman, T. (2018). Smart Congestion Relief - Comprehensive Evaluation of Traffic Congestion Costs and Congestion Reduction Strategies. Victoria Transport Policy Institute, Victoria, Canada

Congestion also affects economic productivity. Growing freight demand increases congestion on the highway system as trucks and automobiles compete for space on the highway system while commuter trains and freight trains compete for space on the railroad network. This congestion affects both businesses and consumers as businesses require more operators and equipment to deliver goods while consumers wait longer for inventory deliveries[7].

The freight, transit, and bicycle and pedestrian networks are summarized in **Section 2.5 Analyze Congestion Problems and Needs.**

1.7 The CMP Framework

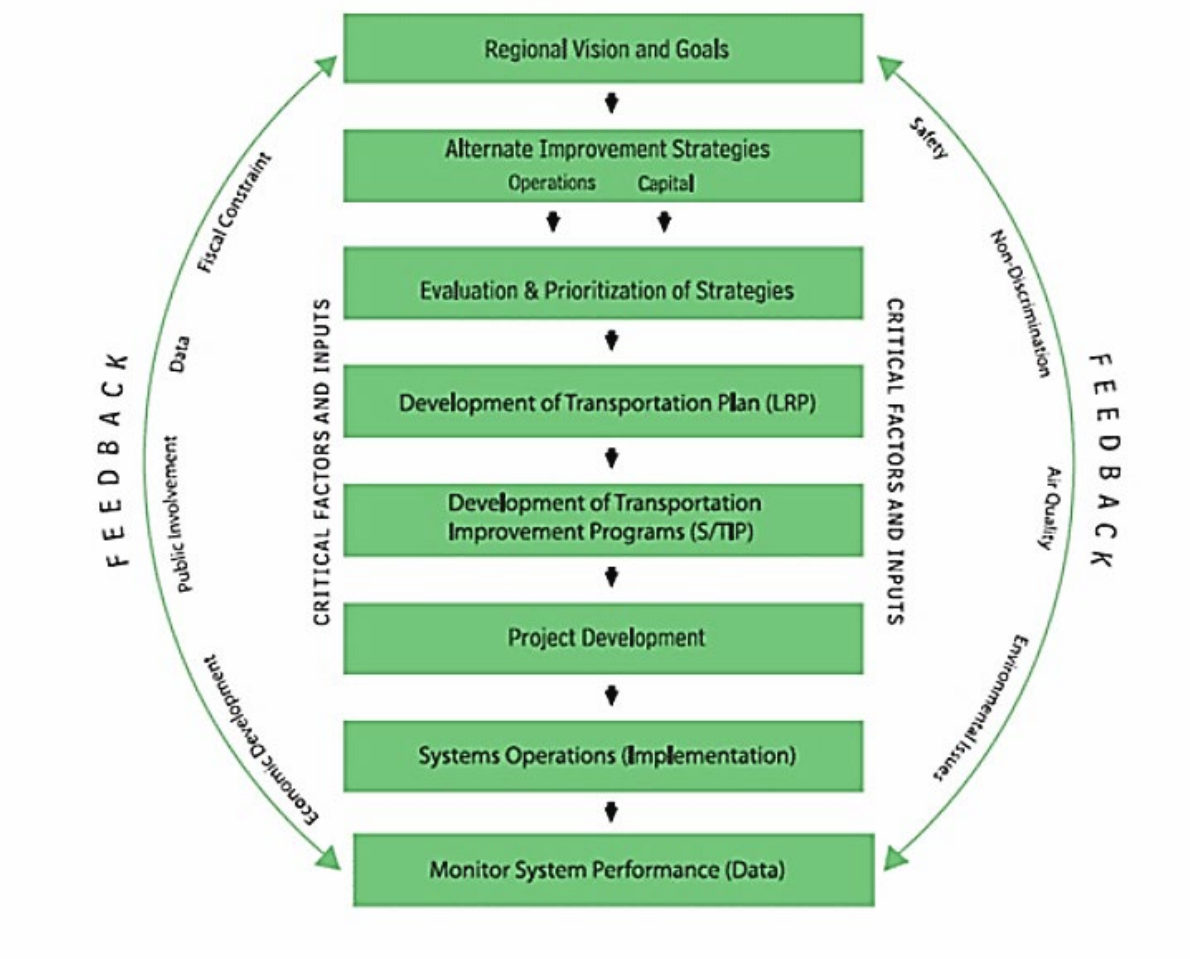
Figure 1.2 illustrates where the CMP fits within the broader planning perspective. The CMP is integrated into the development of the goals and objectives of CMPDD's MTP and is used in the identification and evaluation of alternative strategies and final development of the MTP and Transportation Improvement Program.

The CMP can be utilized by regional stakeholders to:

- Develop numerous solutions for congestion mitigation and select the optimum alternative that addresses each issue.
- Create data driven analysis mechanisms that utilizes historical and real-time congestion data to continuously monitor and analyze congestion problems and needs.
- Identify other successful plans and incorporate strategies from other metropolitan areas nationwide.

[7] https://ops.fhwa.dot.gov/freight/freight_analysis/freight_story/congestion.htm

Figure 1.2: CMP and the Overall Planning Process

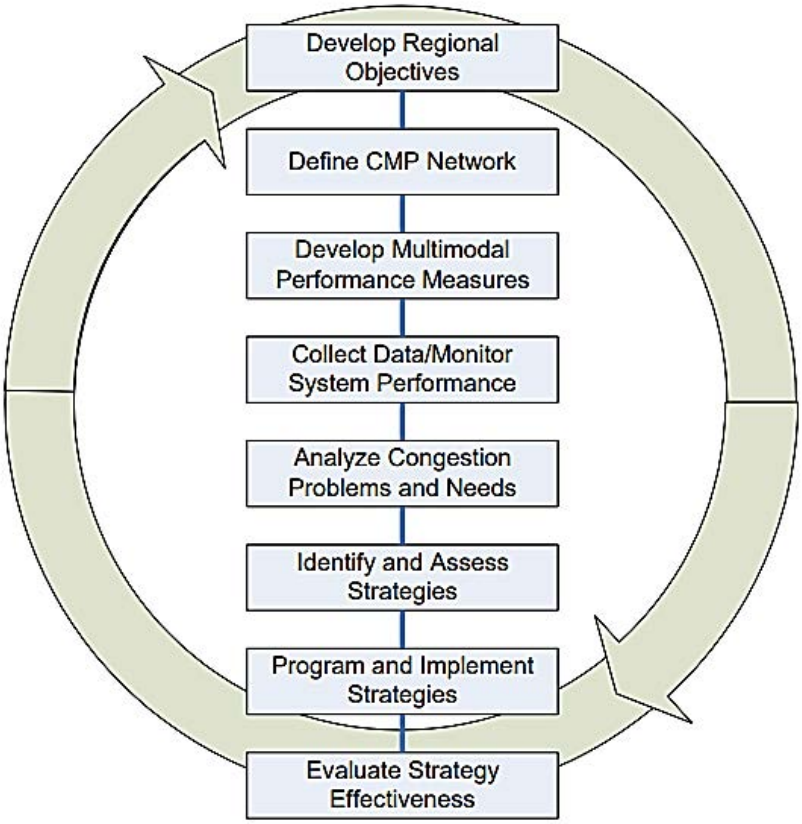


Source: FHWA Congestion Management Process: A Guidebook

2.0 The Eight-Step CMP Process

The FHWA's CMP Guidebook includes the eight-step CMP Process Model that serves as a guide for the actions to be taken in developing a CMP. While these actions are presented in a linear form, as illustrated in **Figure 2.1**, it is important to recognize that within the cycles of transportation planning, some of these actions may be revisited, or occur on an on-going basis.

Figure 2.1: CMP Process Flow Chart



Source: FHWA's CMP Guidebook

Consequently, the Process Model is not intended to serve as a step-by-step approach but is intended to convey the general flow of the approach, building on regional objectives to implementation of strategies, and evaluation of their effectiveness.

2.1 Step 1: Develop Congestion Management Objectives

The objectives were developed in coordination with the vision statement and regional goals found in the MTP. The relationship of the CMP objectives to the MTP goals is shown in **Table 2.1**.

Table 2.1: CMP Objectives and Applicable MTP Goals

CMP Objective	Applicable MTP Goal
Improve mobility and access across the region for pedestrians and bicyclists	Improve and expand transportation choices
Make public transportation a viable choice mode of transportation	Improve and expand transportation choices
Reduce motor vehicle crash fatalities and serious injuries	Improve safety and security
Reduce pedestrian and bicycle fatalities and serious injuries	Improve safety and security
Improve mobility by reducing traffic congestion and delay	Provide a reliable and high performing transportation system
Improve the mobility of freight by truck, rail, and other modes	Support the economic vitality of the region

Segments that experience significant congestion can have a negative impact on the system performance, as well as the safety performance, of the region's roadway network. Actions that improve these segments can potentially improve regional performance to satisfy the established MPO targets.

2.2 Step 2: Define CMP Network

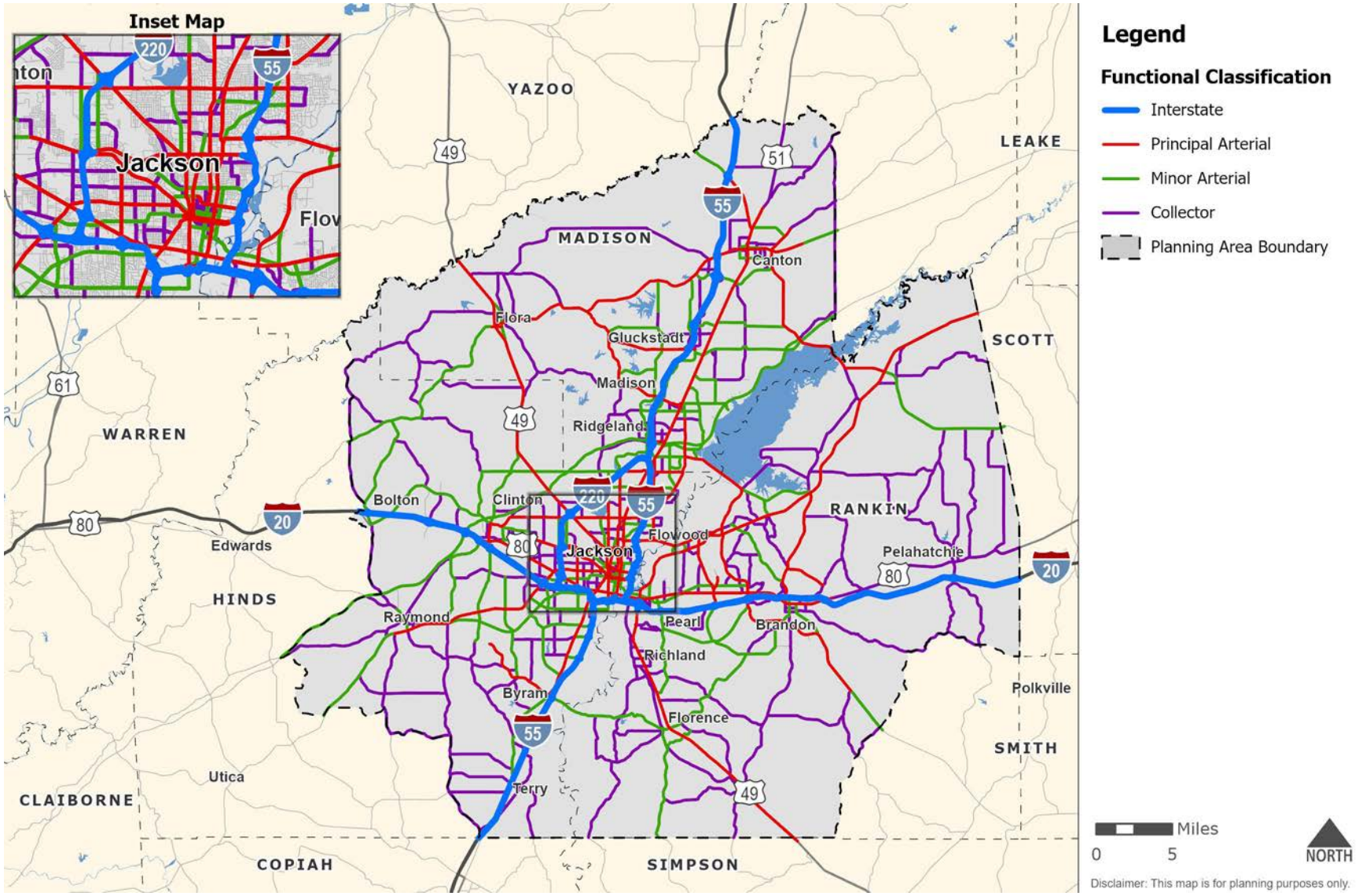
The planning area's overall roadway network consists of:

- Interstates
- Principal Arterials
- Minor Arterials
- Collectors
- Local Roads

Each facility type provides separate and distinct traffic service functions, as described in Section 3.2 of *Technical Report #2: State of Current Systems*. Their designs vary in accordance with the characteristics of traffic to be served by the facility. The boundaries of the planning area, and its CMP network, are shown in **Figure 2.2**. **Figure 2.3** includes the Freight and Bicycle/Pedestrian networks within the region.

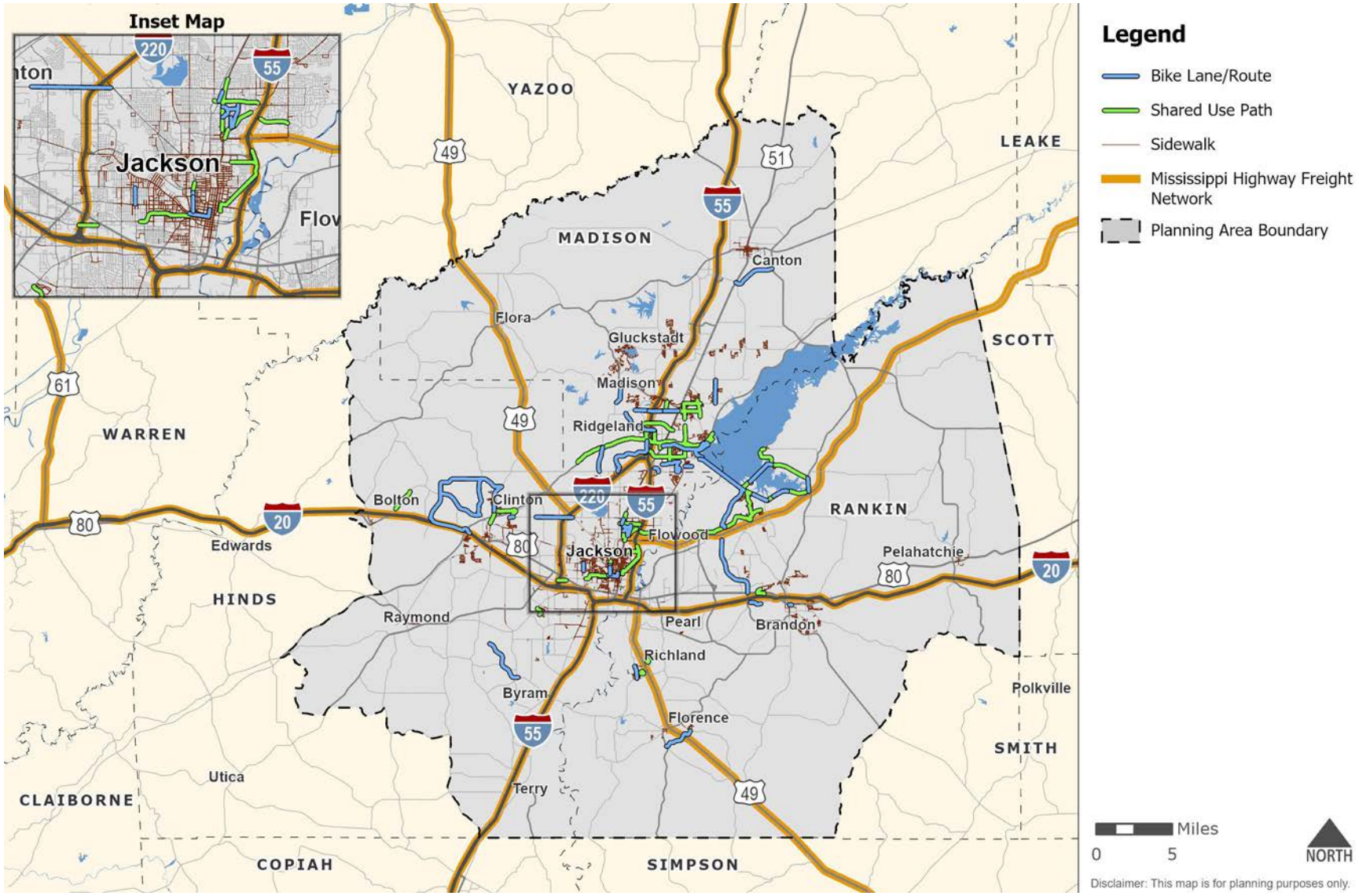
The CMP network includes all roadways within the travel demand model network that are functionally classified as a Collector or above.

Figure 2.2: Planning Area and CMP Network



Source: Mississippi Department of Transportation (MDOT)

Figure 2.3: Planning Area and Bike/Ped and Freight Networks



Source: MDOT, CMPDD

2.3 Step 3: Develop Multimodal Performance Measures

The emphasis on performance-based planning introduced in MAP-21 and continued in the FAST Act and IIJA leads to planning processes becoming grounded in quantifiable performance measures. The measures selected for the CMP address the established objectives.

Performance measures are essential instruments that help to properly quantify and monitor the regional transportation system and traffic congestion.

The FHWA recommends that effective performance measures should incorporate the following characteristics:

- Include quantifiable data that are simple to present and interpret and have professional credibility
- Describe existing conditions and can be used to identify problems and to predict changes
- Can be calculated easily and with existing field data, uses techniques available for estimating the measure, and achieves consistent results
- Applicable to multiple modes and is meaningful at varying scales and settings

Federal Guidelines for Measuring Congestion

The federal guidelines for measuring congestion are discussed in federal legislation, shown below.

Section 450.322 (d)(3) of Subpart C (Congestion Management Process in Transportation Management Areas), 23 CFR (Final Rule)

- Establishment of a coordinated program for data collection and system performance monitoring to define the extent and duration of congestion, to contribute in determining the causes of congestion, and evaluate the efficiency and effectiveness of implemented actions. To the extent possible, this data collection program should be coordinated with existing data sources (including archived operational/ITS data) and coordinated with operations managers in the metropolitan area.

Performance Measures by Objective

The CMP objectives and the corresponding performance measures, along with the data sources used in support of the performance measures, are summarized in **Table 2.2**.

Table 2.2: CMP Performance Measures

Objectives	Performance Measures	Data Source
Improve mobility and access across the region for pedestrians and bicyclists	Bicycle and pedestrian inventory (mileage)	CMPDD
Make public transportation a more attractive mode of transportation	Transit ridership (number of riders), transit coverage	JTRAN
Reduce motor vehicle crash fatalities and serious injuries	Total crashes in a five-year period, fatal and serious injury crashes in a five-year period	MDOT
Reduce pedestrian and bicycle fatalities and serious injuries	Bicycle/pedestrian crashes in a five-year period, bicycle/pedestrian fatal and serious injury crashes in a five-year period	MDOT
Improve mobility by reducing traffic congestion and delay	Volume-to-Capacity Ratio, Total Congestion Score (Travel Time Index and Level of Service), total vehicle hours of delay, Level of Travel Time Reliability	Travel Demand Model, NPMRDS
Improve the mobility of freight by truck, rail, and other modes	Truck vehicle hours of delay, Truck Travel Time Reliability Index	Travel Demand Model, NPMRDS

Improve mobility and access across the region for pedestrians and bicyclists

Although bicycling and walking currently account for a relatively small portion of commuting patterns in Mississippi, a seamless bicycle and pedestrian network would provide the region with a viable alternative to motor vehicle transportation and reduce the level of congestion by removing vehicles from the roadway network. Additionally, this network would produce benefits for the health of the region's residents and workers while improving regional air quality.

The region's bicycle and pedestrian network includes shared use/bike paths, bicycle lanes, bikeable shoulders, bicycle routes, and sidewalks. The current bicycle and pedestrian network mileage will be compared with the network mileage as of the CMPDD 2045 MTP to track the mileage changes between 2018 and 2022.

Make public transportation a more attractive mode of transportation

Transit can provide people with mobility and access to employment, shopping, medical care, and other destinations and opportunities. For some, transit is a lifeline service due to economic and/or physical limitations. For others, transit serves as an alternative to driving in addition to being a cheaper method of travel. Using transit removes automobiles from the roadway network and reduces overall network congestion, which can also improve the reliability of transit. Projects that promote the use of transit help reduce congestion and eliminate the need for costly capacity improvements while reducing induced demand.

The current annual number of transit riders will be compared with the number of annual transit riders as of the CMPDD 2045 MTP to track ridership changes.

Reduce motor vehicle crash fatalities and serious injuries

Crash data obtained from MDOT will be used to identify the five-year crash trends for all crashes and for fatal and serious injury crashes. Additionally, the crash data will be used to identify non-recurring congestion, since incidents along a roadway may result in excessive delays. The current average five-year number of crashes (2019 – 2023), will be compared with the average five-year number of crashes as of the CMPDD 2045 MTP (2014 – 2018).

Reduce bicycle and pedestrian fatalities and serious injuries

The bicycle and pedestrian crashes were pulled from the MDOT obtained crash data to identify the five-year crash trends for bicycle/pedestrian crashes and for fatal and serious injury bicycle/pedestrian crashes. The current average five-year number of bicycle/pedestrian crashes (2019 – 2023) will be compared with the average five-year number of bicycle/pedestrian crashes as of the CMPDD 2045 MTP (2014 – 2018).

Improve mobility by reducing traffic congestion and delay

Volume-to-Capacity (V/C) Ratio

The V/C ratio is defined as the demand flow rate over the available capacity for a traffic facility. For this CMP effort, the Travel Demand Model volumes and capacities for each network link were used to develop V/C ratios, which compares the existing 24-hour traffic volumes to the daily capacity the roadways were designed to handle. The time of day (Morning, Midday, Afternoon, and Night) capacity factors developed

in the Travel Demand Model are discussed in *Technical Report #1: Model Development Report*. Additionally, model volumes and capacities can be found in each model scenario's network files.

Segments with a V/C ratio greater than or equal to 1.00 are considered over capacity. The results of the V/C ratio study for each peak travel time (AM, MD, PM, or NT) are shown in **Appendix B**.

Many corridors in the region have received capacity improvements between 2018, the base year of the CMPDD 2045 MTP, and 2022, the base year of the CMPDD 2050 MTP. **Table 2.3** displays the corridors in the CMP network that have received capacity improvements between 2018 and 2022.

Table 2.3: Roadways with Improved Capacity between 2018 and 2022

Roadway	Limits	Previous Facility Type (2018)	New Facility Type (2022)
E. Metro Pkwy	Airlane to Old Brandon Rd	N/A	4-lane Divided
Hoy Rd	Old Canton Rd to W. Bradford Lane	2-lane Undivided	2-lane Divided and 4-lane Divided
US 49	Florence to Scale Area	4-lane Divided	6-Lane Divided
I-20	Norrell Road Southbound On-Ramp	N/A	1-lane Ramp
Continental Pkwy	Continental Dr to Norrell Road	2-lane Undivided	4-lane Undivided
W County Line Rd	McLaurin Rd to US 51	N/A	4-lane Divided
Spillway Rd	Northshore Pkwy to Hugh Ward Blvd	2-lane Divided	4-lane Divided
I-55	County Line Rd On-Ramp to Natchez Trace Pkwy	2 lanes Northbound	3 lanes Northbound
Grants Ferry Pkwy	MS 471 to Trickham Bridge Rd	N/A	2-lane Undivided

Total Congestion Score – Travel Time Index

The Travel Time Index (TTI) measures the amount of time delay that occurs when travelling a roadway segment. It is calculated by dividing the highest peak travel time (morning, midday, or afternoon) by the free-flow travel time (the travel time under

optimal conditions with minimum interference from other traffic) and represents the increased travel time drivers experienced when travelling.

The Travel Time Index (TTI) was measured by:

- Calculating the average travel time for three (3) different time periods
  - Morning "AM" Peak Period (6:00 AM - 9:00 AM)
  - Midday "MD" Peak Period (9:00 AM – 3:00 PM)
  - Afternoon "PM" Peak Period (3:00 PM - 6:00 PM)
- The nighttime "NT" travel times (6:00 PM and 6:00 AM) were not calculated due to the lower traffic volumes.
- Calculating the free-flow travel time of a segment using its free-flow speed
- Dividing the highest of the three peak travel times (AM, MD, or PM) by the free-flow travel time.

The equation used to calculate the TTI is shown below:

$$TTI = \frac{Highest\ Peak\ Period\ Travel\ Time}{Freeflow\ Travel\ Time}$$

Where:

- TTI – Travel Time Index
- Highest Peak Period Travel Time – the highest of the three peak period travel times (AM, MD, or PM)
- Free-flow Travel Time – the travel time at free-flow speed

TTI Example

- The highest peak period travel time on A Street between B Avenue and C Avenue is three (3) minutes.
- The free-flow travel time on that same segment is one (1) minute.
- Divide three (3) minutes, the highest peak period travel time, by one (1) minute, the free-flow travel time.
- This results in a TTI of 3.0, which implies that it takes three (3) times longer to travel this segment during the peak period.

The results from the TTI study for each peak travel time (AM, MD, or PM) are shown in **Appendix C**.

Total Congestion Score – Level of Service

The Level of Service (LOS) is a qualitative process used to analyze and assess a transportation facility's ability to efficiently service its daily traffic demand. There are six levels of service that can be assigned to a roadway segment: ranging from LOS A to LOS F. Where a LOS of A represents ideal free-flow traffic conditions, a LOS of F represents forced or breakdown flow.

The assigned value for each LOS is based on:

- Speed
- Travel Time
- Freedom to maneuver
- Traffic interruptions

The Level of Service definitions are shown in **Table 2.4**.

Table 2.4: LOS Definitions

LOS	Definitions	Illustration
A	**Free flow conditions** – minimal or no restriction on speed or maneuverability	
B	**Reasonably free flow** – stable flow though operating speed begins to be restricted by other traffic	
C	**Stable flow** – drivers become more restricted in their freedom to select speed, change lanes, or pass	
D	**Approaching unstable flow** – tolerable average operating speeds are maintained but are subject to considerable sudden variation	
E	**Unstable flow** – speeds and flow rates fluctuate and there is little independence on speed selection or ability to maneuver	
F	**Forced or breakdown flow** – speeds and flow rates are below those attained in LOS E and may, for short periods, drop to zero	

Illustration Source: Highway Capacity Manual

The facility types used in calculating the LOS are:

- Freeways
- Multi-lane Highways
- Two-lane Highways
- Streets

These facility types are further described below

Freeways

- Separated highways with full access control and at least two or more lanes in each direction; traffic flow does not stop under normal traffic conditions, only during excessive congestion or serious incidents
- LOS is based on **Density (passenger cars per mile per lane).**
- **Examples: I-20, I-55, I-220**

Multi-lane Highways

- Highways with at least two or more lanes in each direction; may or may not be median separated; do not have full access control - traffic can enter, exit, and cross the highway directly; can serve modes other than motorized traffic
- LOS is based on **Density (passenger cars per mile per lane).**
- **Examples: US 49, MS 18 West, MS 25**

Two-lane Highways

- Highways with one lane in each direction; passing occurs in the opposing lane of traffic and is limited by the availabilty of gaps in the opposing traffic stream and sufficient sight distance
- LOS is based on **percent free-flow speed.**
- **Examples: US 80 East, MS 22**

Streets

- Facilities where traffic signals, stop or yield signs, or roundabouts interrupt traffic flow; can serve multiple modes of transportation, such as motorized vehicles, pedestrians, bicycles, and transit
- LOS is based on **percent free-flow speed and v/c ratio.**
- **Examples: State St, Medgar Evers Blvd, County Line Rd**

Image Source: Google Earth; Facility Types Source: Highway Capacity Manual
Example Images: Freeways – I-20 at Springridge Road Interchange; Multi-lane Highways – US 49 at Pinehaven Drive; Two-lane Highways – US 80 between Brandon and Pelahatchie; Streets – State Street at Meadowbrook Road.

The LOS criteria for each facility type, and the LOS study results, are displayed in **Appendix D**. The facility types and LOS criteria for each facility type are based on the *Highway Capacity Manual*.

Any facility that has a V/C ratio greater than 1.00 automatically has a LOS of F, regardless of any other criteria (e.g. density, speed) for that facility.

The LOS for each segment is then used to calculate an "LOS Index". This "LOS Index" was developed using the following process. An example LOS index calculation is shown in **Table 2.5**.

- Establishing two records for each segment, one for each direction.
- Adding the numeric LOS score of all three time periods (AM, MD, and PM) assigned to each record. (LOS A Score – 1; LOS B Score – 2; LOS C Score – 3; LOS D Score – 4; LOS E Score – 5; LOS F Score – 6)
- Calculating the average of the LOS scores to obtain the LOS Index rating.

Table 2.5: LOS Index Ranking Example

Roadway		AM	MD	PM	Total	Average
Main Street Eastbound	**LOS**	C	D	B	-	-
	Score	3	4	2	9	3.00
Main Street Westbound	**LOS**	A	C	C	-	-
	Score	1	3	3	7	2.33

LOS Example Overview

- The LOS on Main Street Eastbound is "C" in the morning peak (LOS score of 3), "D" in the midday peak (LOS score of 4), and "B" in the afternoon peak (LOS score of 2). Therefore, the total LOS score of the three peaks for Main Street Eastbound is *3+4+2=9*, and the LOS Index rating is 9/3=**3.00**.

- The LOS on Main Street Westbound is "A" in the morning peak (LOS score of 1), "C" in the midday peak (LOS score of 3), and "C" in the afternoon peak (LOS score of 3). Therefore, the total LOS score of the three peaks for Main Street Westbound is *1+3+3=7* and the LOS Index rating is 7/3=**2.33**.

Total Vehicle Hours of Delay

The total annual Vehicle Hours of Delay (VHD) are calculated by subtracting the estimated vehicle hours traveled if all travel demand were at free-flow speed from the estimated vehicle hours traveled at the observed travel speed. The existing (2022) and future (2050) daily VHD can be obtained from the Travel Demand Model to forecast the projected change in VHD between 2022 and 2050. The results of the VHD study are shown in **Appendix E**. The current total VHD will be compared with the total VHD as of the CMPDD 2045 MTP as a comparison of congestion in the planning area.

Level of Travel Time Reliability

The Level of Travel Time Reliability (LOTTR) assesses the consistency, or dependability, of travel times from day to day or across different times of the day on the interstate and non-interstate National Highway System networks. The FHWA defines LOTTR as the percent of person-miles on the interstate and NHS that are reliable. LOTTR is calculated as the ratio of the longer travel times (80th percentile) to a "normal" travel time (50th percentile), using the National Performance Management Research Data Set (NPMRDS) or equivalent data. The current percent of person-miles that are reliable on the interstate and non-interstate NHS systems in the planning areas will be compared to this metric as of the CMPDD 2045 MTP.

Improve the mobility of freight by truck, rail, and other modes

Truck VHD

Similar to total VHD, the current truck VHD will be compared with the truck VHD as of the CMPDD 2045 MTP as a comparison of freight congestion in the planning area.

Truck Travel Time Reliability

The Truck Travel Time Reliability (TTTR) is the percent of truck-miles on the Interstate System that are reliable. TTTR is calculated as the ratio of the longer travel times (95th percentile) to a "normal" travel time (50th percentile), using NPMRDS or equivalent data.

2.4 Step 4: Collect Data and Monitor System Performance

This section describes the data sources used to conduct the congestion analysis within the planning area. The data sources tied to each performance measure were summarized in **Table 2.2**.

NPMRDS

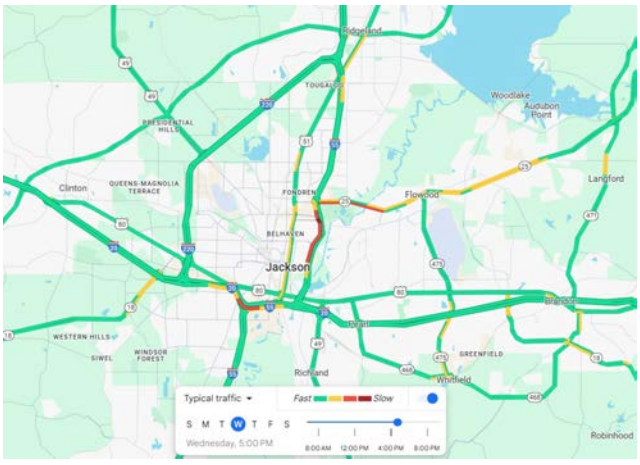
The National Performance Management Research Data Set (NPMRDS) is a vehicle probe-based data set used by the FHWA to support Transportation Performance Measures reporting requirements, Freight Performance Measures, and Urban Congestion Report programs. The data uses GPS information obtained from mobile phones, vehicles, and portable navigation devices to provide monthly passenger and freight vehicle average travel time in 5-minute intervals along the reported National Highway System.

NPMRDS can create dashboards that display the segment's LOTTR and TTTR. Additionally, NPMRDS can create maps showing the segment's speed, TTI, and Buffer Index.

Travel Demand Model

CMPDD's Travel Demand Model predicts trip-making behavior such as the number of trips, their origins and destinations, and most probable trip routes. The model used for this CMP has an existing (base) year of 2022 and a horizon year of 2050. The model contains data on existing conditions, socioeconomic forecasts, and anticipated growth in external trips to replicate current travel demand and develop forecast travel demand on the region's roadway network. It can also be used to conduct a congestion analysis for future conditions.

Google Traffic



Example of the Google Typical Traffic Platform for a typical Wednesday afternoon peak
Source: Google Maps

A feature in Google Maps, Google Traffic displays traffic data using colored overlays on top of roads to represent the observed speed of traffic. It uses crowdsourcing from Google users to obtain the GPS locations of cellphone users and generates live traffic maps along roadway segments. This data, shown on a scale from fast (representing minimal or no congestion) to slow (representing heavy congestion), is displayed on a map. The data displays traffic conditions along a particular section of roads at specific times on specific days. Google Traffic was used to corroborate the congested segment results

obtained from the NPMRDS data, which uses data from third-party vendors INRIX, TomTom, and HERE.

Crash Data

Crash data obtained from MDOT was used to identify five-year crash trends and non-recurring congestion, since incidents along a roadway may result in excessive delays. The region's safety analysis, which covers all crashes that occurred between 2019 and 2023, can be found in Section 3.7 of *Technical Report #2: State of Current Systems*.

The crash records include:

- Time
- Location (intersection or roadway segment)
- Severity
- Crash Type
- Location conditions (e.g. pavement condition, weather)

Bicycle/Pedestrian Network

CMPDD provides an inventory of existing bicycle and pedestrian facilities on their website[8]. The website allows users to locate the region's existing bicycle (bike routes lanes and shared use paths) and pedestrian facilities (sidewalks) on major roads.

JTRAN

Within the City of Jackson, JTRAN is the primary public transit provider. It provides a scheduled, fixed-route bus service and paratransit service for those with disabilities preventing them from using the fixed-route service. The annual number of transit riders is provided by JTRAN.

2.5 Step 5: Analyze Congestion Problems and Needs

Once data is collected, the raw data must be translated into useful measures of performance. This section presents the results of the CMP analysis and identifies locations with congestion problems. Also, the multimodal mobility characteristics for the planning area are documented in this section.

Multimodal Mobility

Freight

The region is a major generator of freight, as well as a distribution and processing center for many goods. It is home to many freight facilities, including major highways,

[8] https://gis.cmpdd.org/arcgis/apps/webappviewer/index.html?id=961a91b060c74ed493ffb4ccf45a5c91

Class I railroads, and airports. The following is a summary of the region's freight network.

Trucking

- MDOT Tier 1 Highways: I-20, I-55, I-220, US 49 South
- MDOT Tier 2 Highways: US 49 North, MS 25

Railroads

- Class I Railroads: Kansas City Southern, Canadian National
- Shortline Railroads: Grenada Railway

Airports

- Jackson-Evers International Airport
- Hawkins Field
- Bruce Campbell Field
- John Bell Williams Airport

According to the *2022 Mississippi Statewide Freight Plan*[9], six of the top ten Tier 1 Freight Network Bottlenecks and two of the top ten Tier 2 Freight Network Bottlenecks within the state are located in the planning area. These are located on:

- portions of I-55 between I-20 and I-220,
- portions of US 49 between Flowood and I-20, and
- portions of MS 25 between I-55 and MS 471.

The economic consequences of congestion delay to freight are significant to the region. The anticipated percent increases in commodity flow, auto VHD, and truck VHD between 2022 and 2050 are shown below. It is anticipated that the truck VHD percent increase will be more than triple that of the commodity flow percent increase, while the auto VHD percent increase will be more than double that of the commodity flow percent increase.

9 https://mdot.ms.gov/documents/Planning/Transportation%20Asset%20Management%20/MS%20Freight%20Plan/MS%20Statewide%20Freight%20Plan%202022-Amendment%20%2005.pdf

67percent increase in Commodity Flow between 2022 and 2050

161 percent increase in Auto VHD and congestion costs between 2022 and 2050

221 percent increase in Truck VHD and congestion costs between 2022 and 2050

More information on the current freight conditions can be found in Chapter 4 of *Technical Report #2: State of Current Systems*, while freight needs can be found in Chapter 5 of *Technical Report #4: Needs Assessment*.

Transit

Currently, JTRAN has 11 fixed-route bus routes. From 2021 through 2023, JTRAN had an average ridership of approximately 402,000 passengers per year.

Additionally, JTRAN completed the *Connect JXN: Transit Plan* to improve the public transit system in 2022. The full plan, including strategies identified within the plan, can be accessed on the JTRAN website[10].

While there are other regional transit providers in the region, they focus on specialty transportation options for the elderly, disabled, and persons living in rural areas. These agencies include the Hinds County Human Resource Agency Transportation Services, Senior Transportation Services provided by the City of Jackson, and the CMPDD Area Agency on Aging Transportation Services.

More information on the current transit conditions can be found in Chapter 6 of *Technical Report #2: State of Current Systems*, while transit needs can be found in Chapter 7 of *Technical Report #4: Needs Assessment*.

[10] https://ridejtran.com/plans

Bicycle and Pedestrian

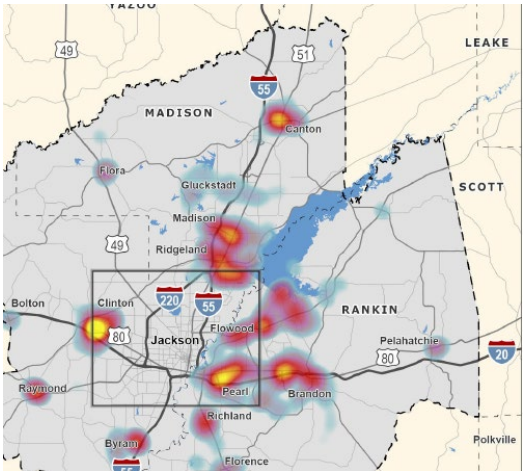
The existing bicycle and pedestrian facilities network within the region consists of over 800 miles of shared use/bike paths, bicycle lanes, bikeable shoulders, bicycle routes, and sidewalks. These facilities are primarily located along or connected to roadways which are functionally classified as either Principal Arterials, Minor Arterials or Collectors.

Bicycle and pedestrian facilities are grouped into the following classifications:

- Shared Use Path
- Bike Lane
- Bikeable Shoulder
- Bike Route
- Sidewalk

Additionally, a latent demand scoring was conducted to determine locations within the planning area where bicycle and pedestrian facilities are most likely to be used or wanted. In addition to the center of the City of Jackson, the greatest needs can be found in or near:

- Brandon
- Madison
- Flowood
- Ridgeland
- Pearl
- Canton
- Richland
- Clinton

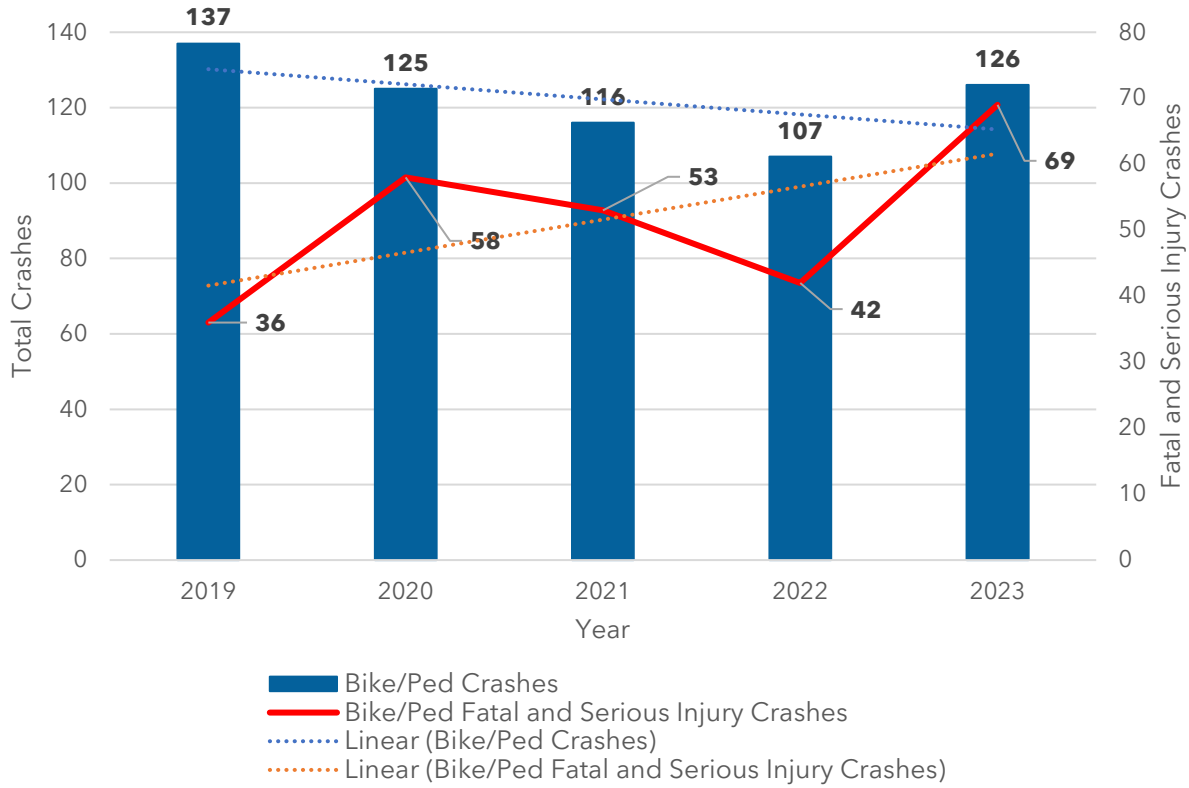


Source: Technical Report #2: State of Current Systems

The year-to-year bicycle and pedestrian crash trends over the last five (5) years are shown in **Figure 2.4**. Based on the most recent five-year crash data, there is a trend of decrease year-to-year in the total number of bicycle and pedestrian crashes. However, the number of fatal and serious injury bicycle and pedestrian crashes have an increasing trend year-to-year.

More information on the current bicycle and pedestrian conditions can be found in Chapter 5 of *Technical Report #2: State of Current Systems*, while bicycle and pedestrian needs can be found in Chapter 6 of *Technical Report #4: Needs Assessment*.

Figure 2.4: Bicycle/Pedestrian Year-to-Year Crash Trends



Source: MDOT
NOTE: Serious injury crashes were redefined in 2019. See Section 3.7 of *Technical Report #2 – State of Current Systems*.

Recurring Congestion

Prioritization of Recurring Congested Segments

Once all performance metric data was gathered the information was used to develop congestion scores for each link in the 2022 CMP network. **Table 2.6** lists the numeric values assigned to each study factor based on the results of the scoring described in **Section 2.3: Develop Multimodal Performance Measures**.

For the purposes of the recurring congestion analysis, safety scores were not analyzed since they are random events that create nonrecurring congestion.

Table 2.6: LOS and TTI Scoring

LOS Scoring		TTI Scoring	
LOS Value	**Score**	**TTI Value**	**Score**
≥ 5.00	4	**≥ 4.00**	4
4.00 – 4.99	3	**3.00 – 3.99**	3
3.00 – 3.99	2	**2.00 – 2.99**	2
2.33 – 2.99	1	**1.50 – 1.99**	1
< 2.33	0	**< 1.50**	0

The scores from the two metrics were added together for each roadway link direction to provide a final CMP Index Rating. The maximum possible CMP Index Rating score a two-way roadway link can receive is sixteen, and the maximum possible CMP Index Rating score a one-way roadway link can receive is eight. The CMP Index Rating score for one-way roadway links was doubled to adjust for the differences in maximum possible CMP Index Rating scores.

Roadway segments with a CMP Index Rating of eight or greater are considered to be congested. **Figure 2.5** displays the existing recurring congested segments of the 2022 Jackson CMP network, based on their CMP Index Rating scores. These segments are also shown in **Table 2.7**, which also includes the segment's CMP Index Rating and TTI and LOS scores, as well as the segment freight network, transit network, and bicycle and pedestrian information.

This CMP identifies **159** recurring congested segments covering nearly **92** miles of the CMP network.

The number of recurring congested segments and mileage (along with percentages of total segments and mileage), that are on the freight network, transit network, or have bicycle and pedestrian facilities are summarized to the right. Note that portions of the recurring congested segments may or may not be on one of the networks or have bicycle and pedestrian facilities.

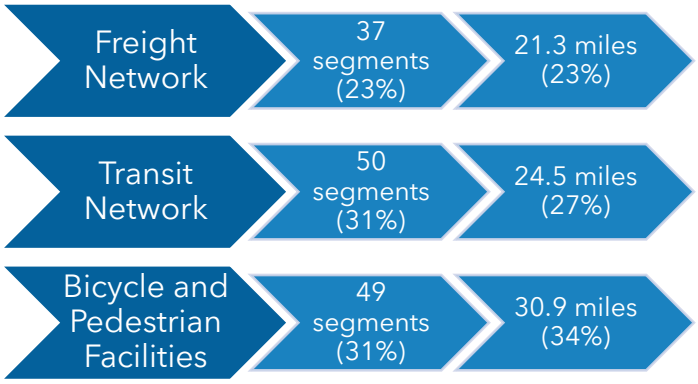
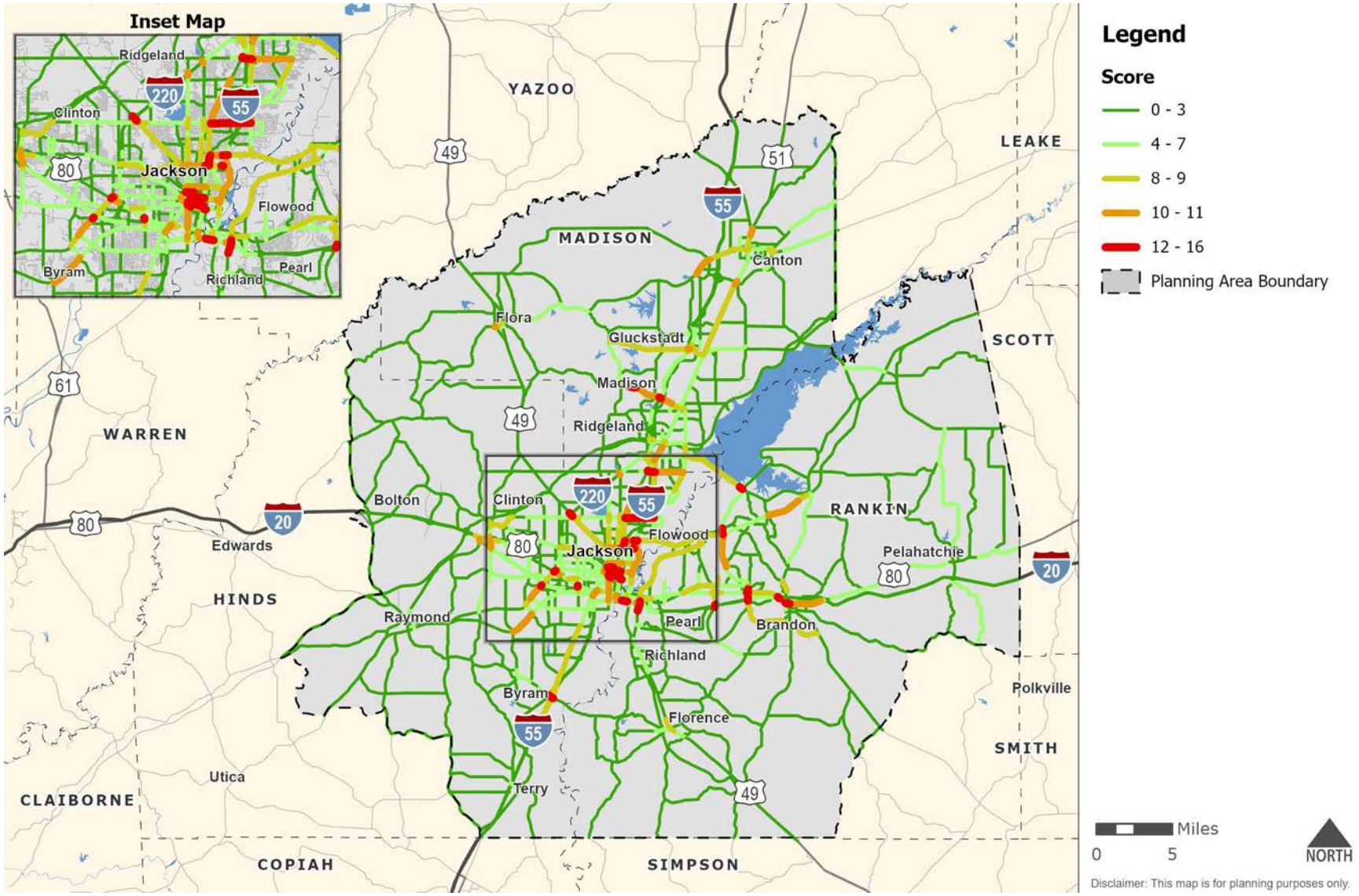


Figure 2.5: Recurring Congested Segments in 2022



Source: NPMRDS, Travel Demand Model

Table 2.7: CMP Index Rating for Recurring Congestion Segments (2022)

Rank	County	Roadway	Segment	Length (miles)	Directional TTI	Directional TTI	Directional LOS	Directional LOS	CMP Index Rating	Freight Network[1]	Transit Network[2]	Bike/Ped Facilities[3]
1	Hinds	Mill Street	Pearl Street to Amite Street	0.13	4	4	4	4	16	-	JTRAN	BL, SW
2	Hinds	Northside Drive	I-55 Southbound Frontage Road to I-55 Northbound Frontage Road	0.07	4	4	4	4	16	-	JTRAN	SW
3	Hinds and Madison	County Line Road	I-55 Northbound Frontage Road to Ridgewood Road	0.21	4	3	4	4	15	-	JTRAN	-
4	Rankin	US 80	Stribling Lane to MS 18/Crossgates Boulevard	0.08	4	3	4	4	15	-	-	-
5	Madison	MS 463	At I-55	0.14	4	3	4	4	15	-	-	SW
6	Rankin	US 80	MS 471 to College Street	0.28	4	3	4	4	15	-	-	-
7	Hinds	State Street	Stadium Drive/University Drive to Old Canton Road	0.24	3	4	4	4	15	CUFC	JTRAN	SW
8	Rankin	US 80	Oak Street to I-20 Eastbound Off-Ramp	0.15	4	3	4	4	15	-	-	-
9	Hinds	Monument Street	Bailey Avenue to High Street	0.33	3	3	4	4	14	-	-	SW
10	Hinds	High Street	Monument Street to State Street	0.62	3	3	4	4	14	-	-	SW
11	Hinds	Mill Street	Church Street to Monument Street	0.07	3	3	4	4	14	-	JTRAN	BL, SW
12	Hinds	Mill Street	Amite Street to Church Street	0.38	4	3	4	3	14	-	JTRAN	BL, SW
13	Rankin	Old Fannin Road	MS 25 to Flowood Drive	0.41	3	3	4	4	14	-	-	-
14	Hinds	Bobby Rush Blvd Northbound	At I-20 Westbound Off-Ramp	0.07	3	-	4	-	14	-	JTRAN	-
15	Hinds	Woodrow Wilson Avenue	0.17 miles west of State Street to State Street	0.17	3	3	3	4	13	-	JTRAN	SW
16	Hinds	State Street	Woodrow Wilson Avenue to Stadium Drive/University Drive	0.14	3	3	3	4	13	CUFC	JTRAN	SW
17	Hinds	Robinson Road	US 80 to Dixon Road	0.11	3	2	4	4	13	-	JTRAN	-
18	Hinds	Mill Street	Pascagoula Street to Pearl Street	0.08	4	2	4	3	13	-	JTRAN	SW
19	Rankin	MS 475	I-20 Eastbound Off-Ramp to I-20 Westbound Off-Ramp	0.17	4	2	4	3	13	CUFC	-	-
20	Rankin	Crossgates Boulevard	US 80 to Merit Health Rankin Driveway	0.25	2	4	3	4	13	-	-	-
21	Hinds and Madison	County Line Road	I-55 Southbound Frontage Road to I-55 Northbound Frontage Road	0.15	3	3	4	3	13	-	JTRAN	-
22	Hinds	High Street	At State Street	0.04	3	2	4	4	13	-	-	SW
23	Hinds	Northside Drive	State Street to I-55 Southbound Frontage Road	1.26	2	3	3	4	12	-	JTRAN	SW
24	Hinds	Northside Drive	I-55 Northbound Frontage Road to Ridgewood Road	0.53	3	2	4	3	12	-	JTRAN	SW
25	Hinds	Canton Mart Road	I-55 Northbound Frontage Road to Old Canton Road	0.19	2	3	3	4	12	-	JTRAN	-
26	Hinds	Old Canton Road	Canton Mart Road to Ridgewood Road	0.12	2	3	3	4	12	-	-	-
27	Madison	US 51	At County Line Road	0.06	2	3	3	4	12	-	-	-
28	Hinds	Capitol Street	Gallatin Street to State Street	0.74	2	3	3	4	12	-	-	SR, SW
29	Hinds	Pascagoula Street	Commerce Street to Jefferson Street	0.09	2	-	4	-	12	-	JTRAN	SW
30	Hinds	Gallatin Street	Capitol Street to Amite Street	0.15	2	2	4	4	12	-	JTRAN	SW
31	Hinds	Amite Street	Gallatin Street to Mill Street	0.11	3	-	3	-	12	-	JTRAN	SW
32	Hinds	Medgar Evers Boulevard Southbound	I-220 Southbound Off-Ramp to I-220 Northbound Off-Ramp	0.28	3	-	3	-	12	-	-	-
33	Madison	MS 463	Madison Middle School to Fairfield Drive	0.36	2	3	3	4	12	-	-	-

Rank	County	Roadway	Segment	Length (miles)	Directional TTI	Directional TTI	Directional LOS	Directional LOS	CMP Index Rating	Freight Network[1]	Transit Network[2]	Bike/Ped Facilities[3]
34	Hinds	Siwell Road	Terry Road to I-55 Northbound Off-Ramp	0.35	2	3	3	4	12	-	-	-
35	Hinds	Woodrow Wilson Avenue Westbound	I-55 to VA Center Drive	0.09	2	-	4	-	12	-	-	-
36	Hinds	Old Canton Road	State Street to Lakeland Drive	0.12	3	2	3	4	12	CUFC	-	SW
37	Rankin	I-20 Westbound	US 49 Northbound On-Ramp to I-55 Southbound On-Ramp	0.38	2	-	4	-	12	Tier 1	-	-
38	Hinds	Lakeland Drive	Old Canton Road to I-55 Northbound Frontage Road	0.24	2	-	4	-	12	CUFC	JTRAN	SW
39	Rankin	US 49 Northbound	I-20 Eastbound On-Ramp to I-20 Westbound Off-Ramp	0.64	3	-	3	-	12	Tier 1	-	-
40	Rankin	MS 18	I-20 Eastbound Off-Ramp to I-20 Westbound Off-Ramp	0.22	3	3	3	3	12	CUFC	-	-
41	Rankin	Spillway Road	Lakeshore Drive to Old Fannin Road/North Shore Parkway	0.22	2	4	2	4	12	-	-	SW
42	Hinds	MS 18 Eastbound	Greenway Drive to I-20 Eastbound On-Ramp	0.07	3	-	3	-	12	CUFC	JTRAN	-
43	Rankin	East Metro Parkway	El Dorado Road to MS 25	2.22	2	3	3	3	11	-	-	BL, SW
44	Hinds	Bobby Rush Boulevard Northbound	I-20 Westbound Ramps to US 80	0.03	2	3	2	4	11	-	JTRAN	-
45	Madison	MS 463	North Livingston Road to Madison Middle School	0.49	2	3	3	3	11	-	-	-
46	Madison	MS 463	Fairfield Drive to I-55 Southbound Off-Ramp	1.73	3	2	3	3	11	-	-	SW
47	Madison	MS 22	Nissan Parkway to Virlilia Road/Watford Parkway Drive	1.31	2	1	4	4	11	-	-	-
48	Madison	US 51	North Old Canton Road to MS 16 (Canton Parkway)/Nissan Pkwy	0.22	3	2	3	3	11	-	-	-
49	Madison	Gluckstadt Road	I-55 Southbound Off-Ramp to I-55 Northbound Off-Ramp	0.14	2	3	3	3	11	CUFC	-	-
50	Hinds and Madison	County Line Road	Ridgewood Road to Old Canton Road	1.89	2	3	3	3	11	-	JTRAN	SW
51	Madison	County Line Road	Junction Driveway to I-55 Southbound Frontage Road	0.08	2	3	3	3	11	-	JTRAN	-
52	Madison	US 51	Ridgewood Road to Lake Harbour Drive	0.24	3	2	3	3	11	-	-	-
53	Hinds	Old Canton Road	At Ridgewood Road	0.13	2	2	4	3	11	-	-	-
54	Hinds	Watkins Road	I-220 Northbound Off-Ramp to I-220 Southbound Off-Ramp	0.14	2	2	3	4	11	CUFC	-	-
55	Hinds	Hanging Moss Road	I-220 Northbound Off-Ramp to I-220 Southbound Off-Ramp	0.13	2	2	3	4	11	-	-	-
56	Rankin	MS 18	I-20 Westbound Off-Ramp to US 80	0.31	3	2	3	3	11	-	-	-
57	Rankin	US 80	College Street to 0.24 miles west of I-20 Eastbound Off-Ramp	2.06	3	2	3	3	11	-	-	SW
58	Madison	MS 22	Petrified Forest Road to US 49	0.07	2	3	3	3	11	-	-	-
59	Rankin	MS 25	Grants Ferry Road/Castlewoods Boulevard to Marshall Road	2.24	3	2	3	2	10	Tier 2	-	-
60	Madison	US 51	Northgate Drive to MS 16	0.43	2	2	3	3	10	-	-	-
61	Hinds	Raymond Road	Siwell Road to Maddox Road	1.73	2	3	2	3	10	-	-	-

Rank	County	Roadway	Segment	Length (miles)	Directional TTI	Directional TTI	Directional LOS	Directional LOS	CMP Index Rating	Freight Network[1]	Transit Network[2]	Bike/Ped Facilities[3]
62	Hinds	MS 18	McDowell Road to Greenway Drive	1.04	2	3	2	3	10	CUFC	JTRAN	-
63	Hinds	US 80	MS 18/Robinson Road to I-220 Southbound Off-Ramp	0.47	2	2	3	3	10	-	JTRAN	-
64	Hinds	Robinson Road	Dixon Road to Loflin Drive	0.13	2	2	3	3	10	-	JTRAN	-
65	Hinds	US 80 (Clinton Raymond Road)	I-20 Eastbound Off-Ramp to I-20 Westbound Off-Ramp	0.13	2	2	3	3	10	-	-	-
66	Hinds	Clinton Parkway	Fairmont Street to College Street	0.15	2	2	3	3	10	-	-	-
67	Hinds	Springridge Road	I-20 Westbound Off-Ramp to US 80	0.38	2	2	3	3	10	-	-	-
68	Hinds	State Street	Northside Drive to Beasley Road	2.29	2	2	3	3	10	-	JTRAN	BL, SW
69	Hinds	Ridgewood Road	Northside Drive to Old Canton Road	0.75	2	2	3	3	10	-	-	SW
70	Madison	MS 463	I-55 Northbound Off-Ramp to Main Street	0.77	2	2	3	3	10	-	-	SW
71	Madison	US 51	Lake Harbour Drive to Calhoun Street	0.73	2	2	3	3	10	-	-	-
72	Hinds	Medgar Evers Boulevard Southbound	I-220 Northbound Off-Ramp to Northside Drive	0.10	2	-	3	-	10	-	-	-
73	Hinds	Lakeland Drive	Old Canton Road to I-55 Southbound Frontage Road	0.57	2	2	3	3	10	Tier 2	JTRAN	SW
74	Hinds	Lakeland Drive Eastbound	I-55 Southbound Frontage Road to I-55 Northbound Frontage Road	0.25	2	-	3	-	10	Tier 2	JTRAN	-
75	Hinds	Woodrow Wilson Avenue	Medgar Evers Boulevard/Livingston Road to 0.17 miles west of State Street	1.08	2	2	3	3	10	CUFC	JTRAN	SW
76	Hinds	I-55 Southbound	Woodrow Wilson Avenue Off-Ramp to Pearl Street Off-Ramp	2.12	2	-	3	-	10	Tier 1	-	-
77	Hinds	High Street	Greymont Street to I-55 Southbound Off-Ramp	0.13	2	2	3	3	10	-	-	-
78	Hinds	Fortification Street	Bailey Avenue to State Street	0.95	2	2	3	3	10	-	-	SW
79	Hinds	Capitol Street	Amite Street/Robinson Road to Gallatin Street	0.44	2	-	3	-	10	-	JTRAN	SW
80	Hinds	Gallatin Street	US 80 to Pascagoula Street	1.00	2	2	3	3	10	CUFC	-	SW
81	Hinds	Pascagoula Street	Congress Street to Commerce Street	0.19	2	-	3	-	10	-	JTRAN	SW
82	Hinds and Rankin	I-20 Westbound	I-55 Southbound On-Ramp to State Street Off-Ramp	0.35	1	-	4	-	10	Tier 1	-	-
83	Hinds	State Street Northbound	I-20 Westbound Off-Ramp to US 80 Eastbound Ramps	0.11	2	-	3	-	10	-	-	-
84	Hinds	Gallatin Street	I-20 Westbound Off-Ramp to State Street On-Ramp	0.09	2	2	3	3	10	CUFC	-	-
85	Rankin	US 80	Mark Drive/College Street to MS 471	0.39	2	2	4	2	10	-	-	-
86	Rankin	US 49 Northbound	I-20 Westbound Off-Ramp to US 80	0.15	2	-	3	-	10	Tier 1	-	-
87	Rankin	I-20 Westbound	0.33 miles east of I-55 Northbound Off-Ramp to I-55 Northbound Off-Ramp	0.33	1	-	4	-	10	Tier 1	-	-
88	Hinds	University Blvd	I-20 Westbound to US 80	0.43	2	2	3	3	10	-	JTRAN	-
89	Madison	County Line Road	State Street to Junction Driveway	0.05	2	2	3	3	10	-	JTRAN	-
90	Rankin	MS 18	Rosemont Drive to Louis Wilson Drive	1.51	1	2	3	3	9	-	-	-
91	Rankin	MS 18	MS 468 to College Street/Star Road	0.39	3	2	2	2	9	-	-	-
92	Rankin	MS 18	Greenfield Road to Marquette Road	0.51	2	2	2	3	9	-	CUFC	-
93	Rankin	US 80	MS 18 to Oak Street	2.04	2	2	2	3	9	-	-	-
94	Rankin	US 80	I-20 Eastbound Off-Ramp to Mark Drive	0.10	2	2	3	2	9	-	-	-

Rank	County	Roadway	Segment	Length (miles)	Directional TTI	Directional TTI	Directional LOS	Directional LOS	CMP Index Rating	Freight Network[1]	Transit Network[2]	Bike/Ped Facilities[3]
95	Rankin	Crossgates Boulevard	Merit Health Rankin Driveway to Old Brandon Road	0.23	2	2	3	2	9	-	-	BL, SW
96	Hinds	MS 25	Museum Boulevard to Ridgewood Road	0.95	3	1	3	2	9	Tier 2	JTRAN	SW
97	Madison	Main Street	MS 463 to Old Canton Road	0.97	2	2	2	3	9	-	-	-
98	Madison	Gluckstadt Road	Industrial Drive to Parkway East	0.18	2	2	3	2	9	-	-	-
99	Madison	MS 22	I-55 Southbound Off-Ramp to I-55 Northbound Off-Ramp	0.15	2	1	4	2	9	-	-	-
100	Madison	Old Canton Road	Lake Harbour Drive to Natchez Trace Parkway	0.72	2	2	2	3	9	-	-	-
101	Hinds	Ridgewood Road	Adkins Boulevard to East County Line Road	1.05	2	2	3	2	9	-	JTRAN	-
102	Madison	Old Agency Road	I-55 Southbound Frontage Road to I-55 Northbound Frontage Road	0.24	2	2	2	3	9	-	-	-
103	Hinds	Bailey Avenue	Woodrow Wilson Avenue to Mayes Street	1.24	2	2	2	3	9	-	JTRAN	SW
104	Hinds	State Street	Old Canton Road to Mayes Street	0.90	2	2	2	3	9	-	JTRAN	SW
105	Hinds	Woodrow Wilson Avenue	State Street to VA Center Drive	0.58	2	2	2	3	9	-	JTRAN	-
106	Hinds	Northside Drive	Northbrook Drive/Hanging Moss Road to State Street	0.33	2	2	3	2	9	-	-	-
107	Hinds	Northside Drive	Pinehaven Drive to Old Vicksburg Road	0.75	2	2	2	3	9	-	-	-
108	Hinds	Springridge Road	I-20 Eastbound Off-Ramp to I-20 Westbound Off-Ramp	0.19	2	2	3	3	9	-	-	-
109	Hinds	US 80	Springridge Road/Clinton Parkway to Mt Salus Drive	0.58	2	2	3	2	9	-	-	-
110	Hinds	High Street	State Street to Greymont Street	0.59	2	2	2	2	9	-	-	SW
111	Hinds	Fortification Street	State Street to I-55 Southbound On-Ramp	0.80	2	2	2	3	9	-	JTRAN	-
112	Rankin	Flowood Drive	At US 80	0.02	2	2	2	3	9	CUFC	-	-
113	Hinds	I-55 Southbound	Lakeland Drive Eastbound On-Ramp to Woodrow Wilson Avenue Off-Ramp	0.14	2	-	2	-	8	Tier 1	-	-
114	Hinds	I-55 Northbound	Pearl Street Off-Ramp to Pearl Street On-Ramp	0.31	1	-	3	-	8	Tier 1	-	-
115	Hinds	I-55 Southbound	Pearl Street Off-Ramp to Pearl Street On-Ramp	0.51	1	-	3	-	8	Tier 1	-	-
116	Rankin	I-55 Southbound	Ramp to I-20 Eastbound/US 49 Southbound	0.63	1	-	3	-	8	Tier 1	-	-
117	Rankin	I-55 Northbound	Ramp from I-20 Westbound/US 49 Northbound	0.34	1	-	3	-	8	Tier 1	-	-
118	Madison	I-55 Southbound	Gluckstadt Road Off-Ramp to Gluckstadt Road On-Ramp	0.55	2	-	2	-	8	Tier 1	-	-
119	Madison	I-55 Southbound Frontage Road	County Line Road Off-Ramp to County Line Road	0.17	2	-	2	-	8	-	-	-
120	Rankin	MS 25	Marshall Road to MS 471	0.65	2	3	1	2	8	Tier 2	-	-
121	Madison	MS 22	Virilia Road/Watford Parkway Drive to I-55 Southbound Off-Ramp	0.49	2	1	3	2	8	-	-	-
122	Madison	US 51	Fulton Street to Peace Street	0.08	1	2	2	3	8	-	-	SW
123	Madison	US 51	Center Street to Northgate Drive	0.86	2	2	2	2	8	-	-	SW
124	Madison	Gluckstadt Road	MS 463 to I-55 Southbound Off-Ramp	5.26	2	2	2	2	8	-	-	-
125	Madison	Gluckstadt Road	I-55 Northbound Off-Ramp to Industrial Drive	0.18	2	1	3	2	8	-	-	-
126	Madison	Parkway East	Gluckstadt Road to Weisenberger Road	0.17	3	1	2	2	8	-	-	-
127	Madison	Weisenberger Road	Parkway East to US 51	0.59	3	1	2	2	8	-	-	-
128	Madison	US 51	Rice Road to Jackson Street	0.31	2	1	3	2	8	-	-	-

Rank	County	Roadway	Segment	Length (miles)	Directional TTI	Directional TTI	Directional LOS	Directional LOS	CMP Index Rating	Freight Network[1]	Transit Network[2]	Bike/Ped Facilities[3]
129	Madison	Lake Harbour Drive	Harbour Pointe Crossing to Harbor Drive	0.44	2	2	2	2	8	-	-	-
130	Hinds	Old Canton Road	Colonial Circle to East County Line Road	1.37	2	1	3	2	8	-	-	SW
131	Madison	Ridgewood Road	East County Line Road to US 51	0.81	1	2	2	3	8	-	-	-
132	Hinds	State Street	Mayes Street to Northside Drive	0.75	2	2	2	2	8	-	JTRAN	BL, SW
133	Hinds and Rankin	MS 25	Ridgewood Road to 0.14 miles west of MS 475	2.93	2	2	2	2	8	Tier 2	-	-
134	Rankin	MS 25	0.05 miles east of MS 475 to East Metro Parkway	1.65	2	2	2	2	8	Tier 2	-	-
135	Hinds	Medgar Evers Boulevard	Northside Drive to Woodrow Wilson Avenue	2.93	1	2	2	3	8	-	JTRAN	-
136	Hinds	Woodrow Wilson Avenue	Airport Drive to Powers Avenue	0.43	2	1	3	2	8	-	-	-
137	Hinds	Woodrow Wilson Avenue	Meadow Street to Medgar Evers Boulevard	0.25	2	1	3	2	8	-	-	-
138	Hinds	Parkside Drive	Capitol Street to Woodrow Wilson Avenue	0.32	2	2	2	2	8	-	-	-
139	Hinds	Capitol Street Eastbound	I-220 Northbound to Boling Street	0.12	2	-	2	-	8	-	JTRAN	-
140	Hinds	Capitol Street Westbound	Boling Street to Country Club Drive/I-220 Southbound	0.47	2	-	2	-	8	-	JTRAN	-
141	Hinds	Clinton Parkway	East College Street to East Main Street	0.10	2	2	2	2	8	-	-	SW
142	Hinds	Clinton Parkway	Cynthia Street to Northside Drive	0.18	2	2	2	2	8	-	-	SW
143	Hinds	Bailey Avenue	Idlewild Street to Vardaman Street	0.13	2	2	2	2	8	-	JTRAN	-
144	Hinds	John R Lynch Street	US 80 to Bobby Rush Boulevard	0.64	2	2	2	2	8	-	-	-
145	Hinds	Gallatin Street	I-20 Eastbound/I-55 Northbound On-Ramp to I-20 Westbound/I-55 Southbound Off-Ramp	0.19	1	2	2	3	8	CUFC	-	-
146	Hinds	Gallatin Street	West Street to US 80	0.38	2	2	2	2	8	-	-	-
147	Hinds	Terry Road	Forest Hill Road to McCluer Road/Savanna Street	2.71	2	1	3	2	8	-	-	-
148	Hinds	MS 18 Westbound	I-20 Eastbound Off-Ramp to Greenway Drive	0.09	2	-	2	-	8	CUFC	JTRAN	-
149	Hinds	Bailey Avenue	Monument Street to Cohea Street	0.11	2	1	3	2	8	-	JTRAN	-
150	Hinds	Woodrow Wilson Avenue	VA Center Drive to I-55	0.16	2	-	2	-	8	-	-	-
151	Hinds	Pascagoula Street Eastbound	University Boulevard to Congress Street	0.64	2	-	2	-	8	-	JTRAN	SW
152	Hinds	Amite Street Westbound	Mill Street to President Street	0.55	2	-	2	-	8	-	JTRAN	SW
153	Hinds	Pearl Street Westbound	Congress Street to State Street	0.15	2	-	2	-	8	-	-	SW
154	Hinds	State Street	Pascagoula Street to Amite Street	0.22	1	2	2	3	8	-	JTRAN	SW
155	Rankin	US 80	Flowood Drive to Childre Road	0.65	1	2	2	3	8	-	-	-
156	Rankin	US 80	I-20 Westbound Off-Ramp to US 80	0.79	2	2	2	2	8	CUFC	-	-
157	Rankin	MS 18	I-20 Eastbound Off-Ramp to Greenfield Road	0.39	2	2	2	2	8	CUFC	-	-
158	Rankin	MS 18	Marquette Road to MS 468	2.49	2	2	2	2	8	-	-	-
159	Hinds	Bobby Rush Boulevard Southbound	US 80 to I-20 Westbound On-Ramp	0.07	2	-	2	-	8	-	JTRAN	-

NOTE 1: Freight Network Descriptions
- Tier 1: MDOT Tier I Freight Network
- Tier 2: MDOT Tier II Freight Network
- CUFC: Critical Urban Freight Corridor

NOTE 2: Transit Network Descriptions
- JTRAN: Jackson Transit System

NOTE 3: Bike/Ped Facility Descriptions
- BL: Bike Lane
- SR: Shared Roadway
- SW: Sidewalk

Public and Stakeholder Meeting and MPO Identification

All feedback from the public and stakeholders' meetings are considered in the CMP and the locations identified by the public are listed in **Table 2.8** and shown in **Figure 2.6**.

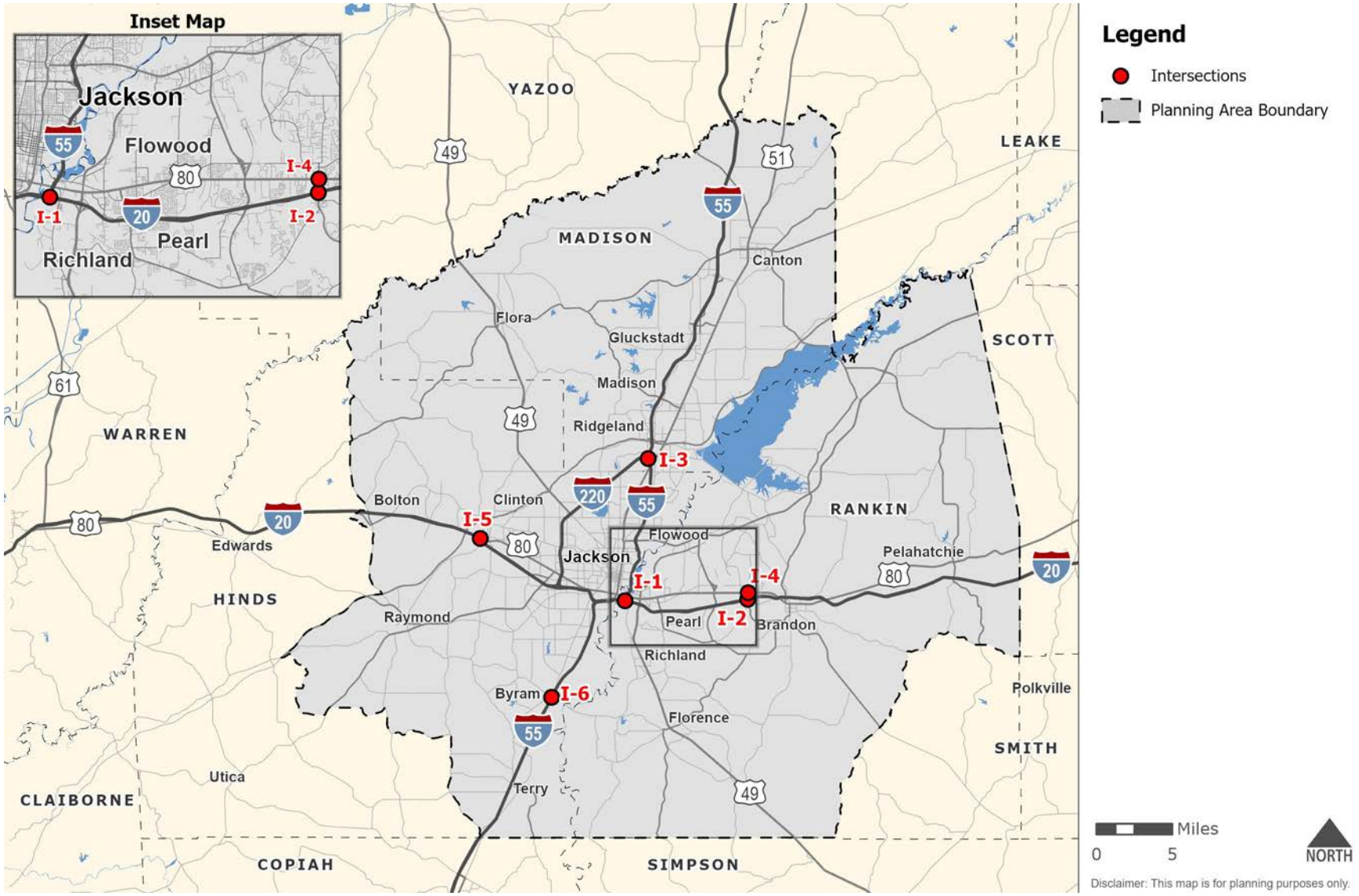
Table 2.8: Congested Locations Identified by Public Meeting Input

ID	Roadway	Location
I-1	I-20	@ I-55
I-2	I-20	@ MS 18 (Brandon)
I-3	I-55	@ I-220
I-4	MS 18	@ Crossgates Boulevard
I-5	US 80	@ College Street
I-6	I-55	@ Siwell Road

Summary

Due to the limited scope of this study, location-specific recommendations for the identified top recurring segments have not been developed. Nonetheless, detailed corridor studies should be done for the identified top recurring segments to identify and validate the causes of recurring congestion as well as improvements to address these deficiencies.

Figure 2.6: Congested Locations Identified by Public Meeting Input



Source: Neel-Schaffer, Inc.

Non-Recurring Congestion

Non-recurring congestion represents a greater influence on total congestion. As the physical capacity of roadways are consumed by the growth in traffic, they also become more vulnerable to disruptions caused by traffic-influencing events. These include traffic incidents, bad weather, and work zones. Additionally, these events can occur at any time and location, even those that don't usually experience congestion, thereby spreading congestion to more roadways and more times of the day.

The methodology[11] used to determine which roadway segments experience nonrecurring congestion was to:

- Group speed data into one-hour periods for a year and calculate the annual average speed and the annual standard deviation by hour for each segment.
- Group speed data into one-hour periods by hour and day and calculate the average speeds by hour.
- Tabulate the average speeds calculated in the previous steps, side by side, for all the speeds collected over the year 2023, for a specific time period (hour and day).
- Calculate the Standard Normal Deviate (SND) for each time period (hour and day) using the following equation.

$$SND_{i,j} = \frac{Speed_{i,j} - Annual\ Average\ Speed_i}{Annual\ Standard\ Deviation_i}$$

  Where
  - SND – Standard Normal Deviate
  - i – Hour
  - j - Day

Negative SND values that are greater than a selected threshold would indicate congestion beyond average levels. This indicates a high likelihood of non-recurring congestion. For this CMP effort, a threshold value of -1.5 was selected based on the research's sensitivity analysis. SND values which deviated by more than -1.5 (i.e., lower than -1.5) are indicative of non-recurring congestion speeds. Additionally, the delays for the time period (hour and day) where the SND deviated by more than -1.5 were calculated using the following equation.

[11] Andrew J. Sullivan, Virginia P. Sisiopiku, Bharat R. Kallem, "Measuring Non-Recurring Congestion in Small to Medium Sized Urban Areas" Prepared by the University Transportation Center for Alabama.

$$Time\ Delay = \frac{Segment\ Length}{Segment\ Speed_i} - \frac{Segment\ Length}{Segment\ Annual\ Average\ Speed_i}$$

Where

- Segment length is in miles
- Segment speeds are in MPH
- Time delay is in hours
- i – hour

With the methodology established, the following process was used to locate segments that experienced excessive non-recurring congestion in 2023:

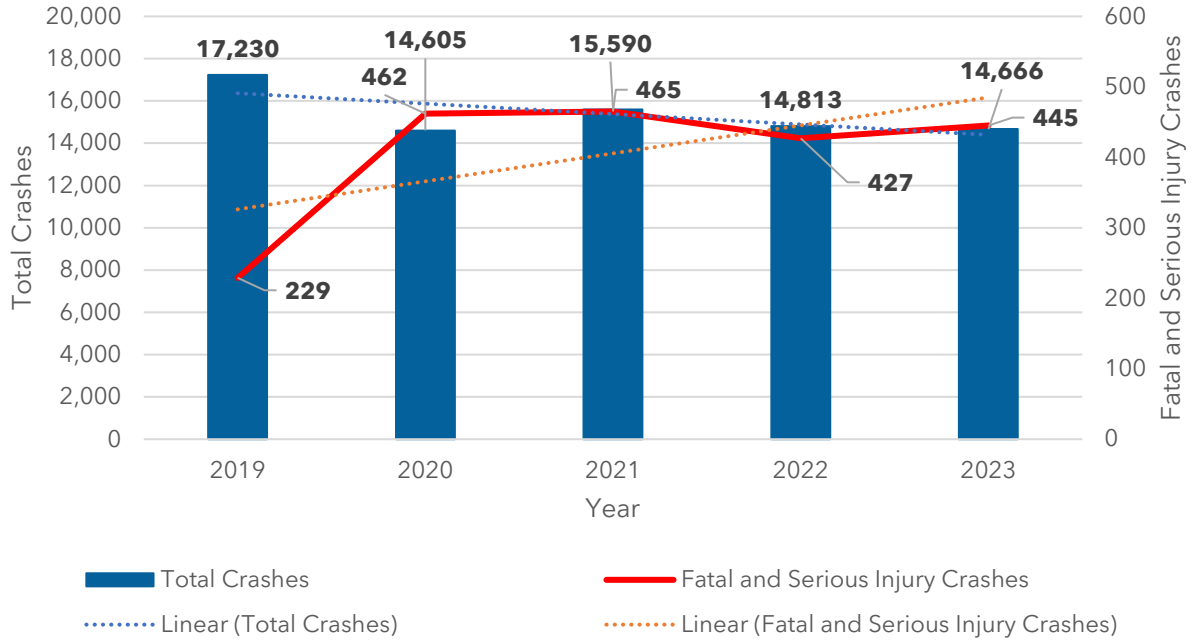
- Calculate the SND and the time delay (in hours) for each segment
  - Any segments that had a calculated maximum delay of at least half an hour (30 minutes) in 2023 were considered to experience excessive non-recurring congestion.
- Calculate the five-year crash trends using the 2019 – 2023 MDOT crash data for both total and fatal/serious injury crash frequencies.
  - The average yearly crash frequency was used to prioritize the segments experiencing excessive non-recurring congestion.

Crashes, especially those that result in a fatality or serious injury or involve hazardous materials, can result in significant congestion and dramatically reduce the available capacity and reliability of the entire transportation system. Additionally, congestion can result in additional crashes.

The MDOT crash data was used to identify trends in total crash frequency and those that resulted in a fatality or serious injury. The high crash frequency and high crash rate locations within the planning area are shown in Section 3.7 of *Technical Report #2: State of Current Systems*. The region's safety needs, as well as ways to reduce the number of crashes, are summarized in Section 4.3 of *Technical Report #4: Needs Assessment*.

The year-to-year crash trends over the last five (5) years are shown in **Figure 2.7**. Based on the most recent five-year crash data, there is a trend of a decrease year-to-year in the number of total crashes. However, the number of fatal and serious injury crashes have an increasing trend year-to-year.

Figure 2.7: Total Crashes Year-to-Year Trends



Source: MDOT
NOTE: Serious injury crashes were redefined in 2019. See Section 3.7 of Technical Report #2 – State of Current Systems.

Figure 2.8 displays the segments that experienced excessive non-recurring congestion in the year 2023. The non-recurring congestion crash trends for each segment are shown in **Table 2.9**.

Limitations

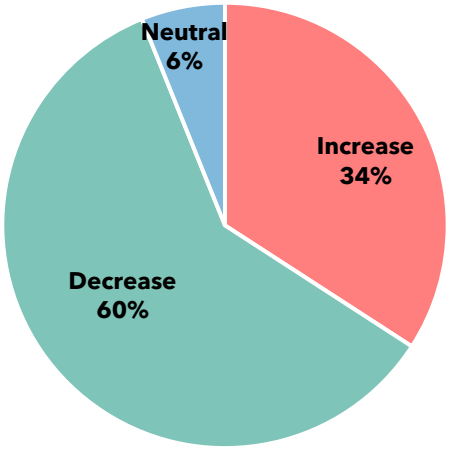
To develop a reliable methodology that identifies non-recurring congestion, a consistent and reliable travel time database is necessary. Speed data and travel times for each time interval (5-minute, 10-minute, 15-minute, or 1-hour) throughout an entire year is essential. However, the RITIS database contains several time intervals where speed and travel time data is unavailable or missing, making it difficult to perform an accurate and reliable nonrecurring congestion analysis.

Additionally, the RITIS database travel time data is not available for each individual travel lane for multi-lane highways. However, with minor incidents, there is a chance that the impacts from the incident would negatively impact only the travel lane experiencing the incident and not the other travel lanes. This indicates that the incident would not be reflected in the RITIS database even though an incident had occurred.

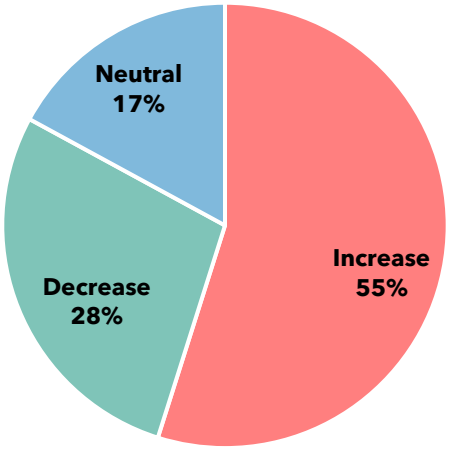
Segment Prioritization

The segments displayed in **Figure 2.8** were ranked based on the five-year average crash frequency. **Table 2.9** shows the following:

- Frequency of non-recurring congestion incidents
- The maximum delay for a non-recurring congestion incident
- The 5-year trends for total crash frequency and fatal and serious injury crash frequency for each segment. These trends can be either increase, decrease, or neutral (neither increase or decrease). As shown below, 34 percent of the segments have an increase in the 5-year total crash trend. However, 55 percent of the segments have an increase in the 5-year fatal/serious injury crash trends.

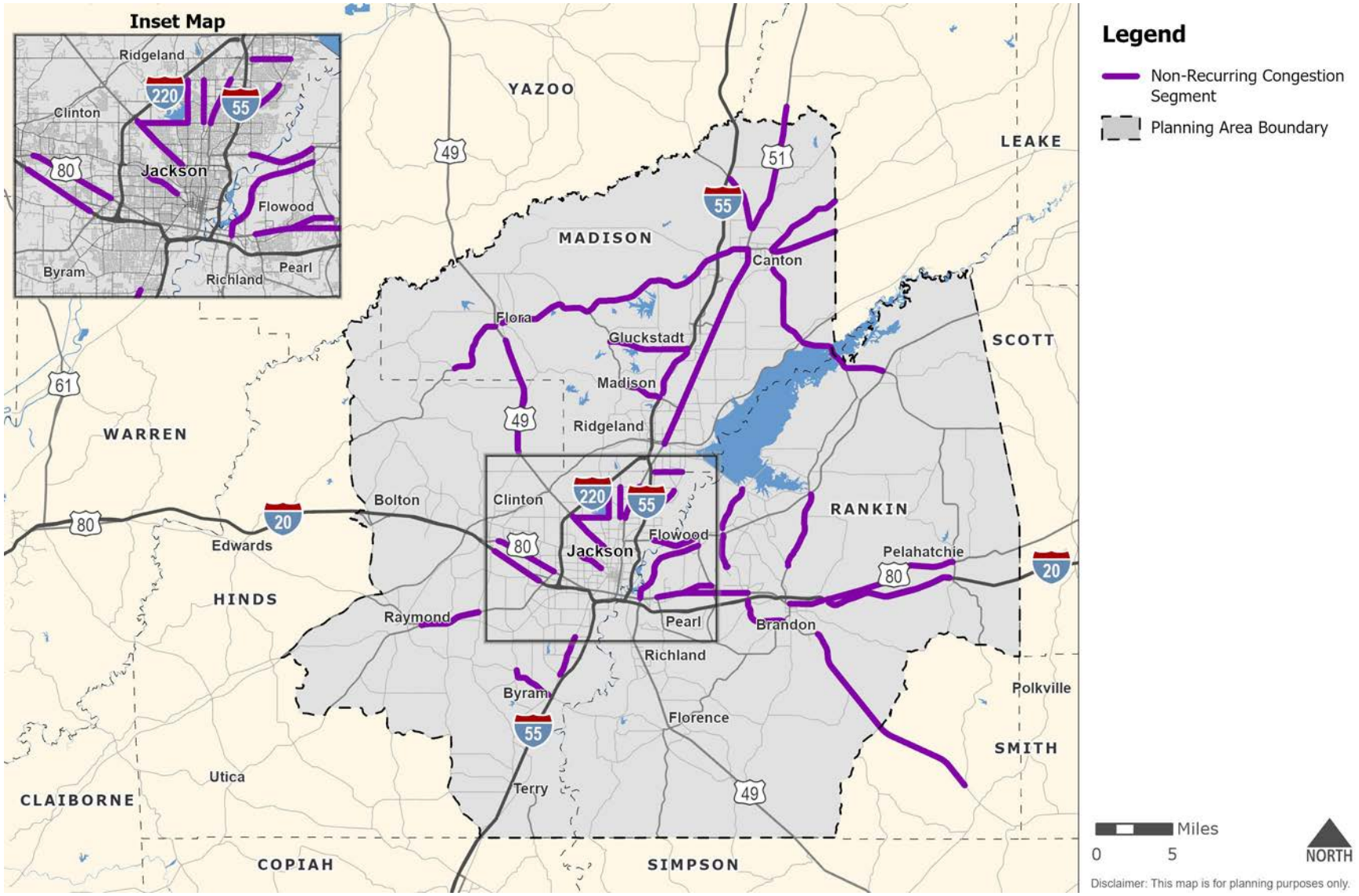


5-Year Total Crash Trend Non-Recurring Segment Distribution



5-Year Fatal/Serious Injury Crash Trend Non-Recurring Segment Distribution

Figure 2.8: Non-Recurring Congestion Segments



Source: NPMRDS

Table 2.9: Non-Recurring Congestion Segments

Roadway[1]	Segment	Length (miles)	2023 Non-Recurring Incidents	2023 Maximum Delay (Hours)	5-Year Annual Average Crash Frequency	5-Year Annual Average Fatal/Serious Injury Crash Frequency	5-Year Total Crash Trend	5-Year Fatal/Serious Injury Crash Trend
MS 22 Eastbound	MS 463 to Nissan Parkway	8.13	184	2.56	22.2	0.6	Increase	Increase
US 80 Eastbound	I-20 Eastbound Off-Ramp to MS 43	8.94	227	2.04	20.6	1.2	Increase	Increase
US 51 Southbound	Way Road to MS 16	8.46	218	1.96	14.0	1.0	Decrease	Decrease
MS 22 Eastbound	First Street to MS 463	6.24	335	1.94	20.6	0.4	Decrease	Increase
MS 22 Westbound	MS 463 to First Street	6.24	312	1.94	20.6	0.4	Decrease	Increase
MS 468 (Flowood Drive) Westbound	MS 475 to US 80	5.77	283	1.78	132.8	1.8	Decrease	Neutral
MS 43 Northbound	Yandell Road to MS 16 (Canton Parkway)	5.37	227	1.69	16.8	0.6	Increase	Decrease
MS 43 Southbound	MS 16 (Canton Parkway) to Yandell Road	5.37	255	1.68	16.8	0.6	Increase	Decrease
US 80 Westbound	MS 43 to I-20 Eastbound Off-Ramp	8.87	218	1.59	20.6	1.2	Increase	Increase
MS 18 Westbound	Cato Road to Louis Wilson Drive	14.43	282	1.47	33.0	0.8	Neutral	Decrease
US 51 Northbound	MS 16 to Way Road	8.46	239	1.26	14.0	1.0	Decrease	Decrease
MS 43 Northbound	MS 16 to Sharon Road	5.43	232	1.24	20.0	0.4	Decrease	Increase
MS 18 Eastbound	East Main Street to Springridge Road	3.92	197	1.24	39.4	2.6	Increase	Increase
MS 471 Northbound	Grants Ferry Road to MS 25 Northbound Off-Ramp	5.14	197	1.18	43.0	1.0	Increase	Increase
US 51 Northbound	Weisenberger Road/Yandell Road to MS 16 (Canton Parkway)/Nissan Parkway	5.20	215	1.18	47.6	1.8	Decrease	Increase
MS 16 Eastbound	I-55 Northbound Off-Ramp to US 51	3.68	169	1.15	8.4	0.0	Increase	Neutral
MS 22 Eastbound	Spring Creek Road to US 49	4.59	235	1.06	5.4	0.2	Decrease	Decrease
MS 22 Westbound	US 49 to Spring Creek Road	4.59	272	1.06	5.4	0.2	Decrease	Decrease
MS 43 Southbound	Sharon Road to MS 16	5.43	260	1.06	20.0	0.4	Decrease	Increase
MS 18 Westbound[RC]	MS 468 (Whitfield Road) to I-20 Eastbound Off-Ramp	3.32	228	1.02	104.4	2.6	Decrease	Increase
MS 16 Westbound	Sharon Road to MS 43	4.41	315	1.01	20.0	1.2	Decrease	Increase
Old Fannin Road Northbound	Flowood Drive to Spillway Road	3.01	186	0.93	118.2	1.2	Decrease	Increase
US 51 Southbound	MS 16 (Canton Parkway)/Nissan Parkway to Weisenberger Road/Yandell Road	5.20	242	0.92	47.6	1.8	Decrease	Increase
MS 471 Southbound	MS 25 Northbound Off-Ramp to Grants Ferry Road	5.14	196	0.92	43.0	1.0	Increase	Increase
MS 18 Westbound	Springridge Road to East Main Street	3.93	184	0.91	39.4	2.6	Increase	Increase
Medgar Evers Boulevard Eastbound	I-220 Northbound to Woodrow Wilson Avenue	2.96	162	0.88	70.8	2.2	Decrease	Increase
Siwell Road Eastbound	Hinds Parkway to Terry Road	2.92	163	0.88	102.4	1.6	Decrease	Increase
US 51 Southbound	Weisenberger Road/Yandell Road to MS 463 (Madison Parkway)/Hoy Road	3.85	150	0.87	109.2	1.4	Decrease	Decrease
US 51 Northbound	MS 463 (Madison Parkway)/Hoy Road to Weisenberger Road/Yandell Road	3.85	190	0.85	109.2	1.4	Decrease	Decrease

Roadway[1]	Segment	Length (miles)	2023 Non-Recurring Incidents	2023 Maximum Delay (Hours)	5-Year Annual Average Crash Frequency	5-Year Annual Average Fatal/Serious Injury Crash Frequency	5-Year Total Crash Trend	5-Year Fatal/Serious Injury Crash Trend
Terry Road Southbound	Savanna Street/McCluer Road to Forest Hill Road	2.71	346	0.83	20.2	0.8	Decrease	Increase
MS 43 Eastbound	Natchez Trace Parkway to MS 471	3.55	245	0.82	9.6	0.6	Increase	Increase
MS 43 Westbound	MS 471 to Natchez Trace Parkway	3.55	222	0.82	9.6	0.6	Increase	Increase
MS 468 (Flowood Drive) Eastbound	US 80 to MS 475	5.76	236	0.82	132.8	1.8	Decrease	Neutral
US 80 Westbound	MS 475 to MS 468 (North Pearson Road)	3.75	144	0.82	121.0	3.8	Decrease	Increase
MS 463 Westbound[RC]	I-55 Southbound Off-Ramp to North Livingston Road	2.61	111	0.80	147.8	0.4	Decrease	Neutral
MS 43 Eastbound	MS 471 to MS 25 Southbound Off-Ramp	2.52	255	0.79	9.2	0.0	Increase	Neutral
US 49 Northbound	Kennebrew Road to First Street	3.36	277	0.79	10.0	0.4	Increase	Increase
MS 18 Eastbound	Louis Wilson Drive to Cato Road	14.43	273	0.78	33.0	0.8	Neutral	Decrease
Gluckstadt Road Westbound	I-55 Southbound Off-Ramp to MS 463	5.20	120	0.74	46.0	0.4	Decrease	Decrease
US 51 (Liberty Street) Northbound[RC]	MS 16 (Canton Parkway)/Nissan Parkway to MS 16 (Peace Street)/MS 22	2.38	146	0.73	39.8	1.6	Increase	Increase
US 80 Eastbound	Mt Salus Road to Wiggins Road	2.35	123	0.72	76.6	2.4	Decrease	Decrease
I-55 Southbound	Gluckstadt Road On-Ramp to MS 463 Off-Ramp	3.31	196	0.71	27.8	0.6	Decrease	Decrease
Terry Road Northbound	Forest Hill Road to Savanna Street/McCluer Road	2.71	266	0.70	20.2	0.8	Decrease	Increase
MS 25 (Lakeland Drive) Westbound	MS 475 to Ridgewood Road	3.06	134	0.69	222.0	1.0	Decrease	Decrease
North State Street Southbound	Beasley Road to Northside Drive	2.30	159	0.69	66.6	2.6	Decrease	Neutral
North State Street Northbound	Northside Drive to Beasley Road	2.30	162	0.68	66.6	2.6	Decrease	Neutral
Old Fannin Road Southbound	Spillway Road to Flowood Drive	3.01	173	0.67	118.2	1.2	Decrease	Increase
US 80 Eastbound[RC]	South College Street (Brandon) to I-20 Eastbound Off-Ramp (Brandon)	2.21	96	0.67	64.6	0.6	Decrease	Increase
West Northside Drive Westbound	Bailey Avenue/Watkins Drive to Medgar Evers Boulevard	2.24	179	0.67	84.4	4.0	Decrease	Increase
US 80 Eastbound	MS 475 to MS 18 (Crossgates Boulevard)	2.19	124	0.67	159.2	3.8	Decrease	Decrease
Medgar Evers Boulevard Westbound	Woodrow Wilson Avenue to I-220 Northbound	2.97	133	0.67	70.8	2.2	Decrease	Increase
West Northside Drive Eastbound	Medgar Evers Boulevard to Bailey Avenue/Watkins Drive	2.24	150	0.66	84.4	4.0	Decrease	Increase
US 80 Westbound[RC]	I-20 Eastbound Off-Ramp (Brandon) to South College Street (Brandon)	2.24	126	0.66	64.6	0.6	Decrease	Increase
MS 16 Westbound	US 51 to I-55 Northbound Off-Ramp	3.68	172	0.66	8.4	0.0	Increase	Neutral
I-20 Eastbound	US 80 On-Ramp to MS 43 Off-Ramp	8.44	128	0.65	19.6	0.6	Neutral	Decrease
I-20 Westbound	MS 43 On-Ramp to US 80 Off-Ramp	8.41	153	0.65	21.4	2.0	Increase	Increase
MS 16 Eastbound	MS 43 to Sharon Road	4.41	312	0.65	20.0	1.2	Decrease	Increase
Old Brandon Road Eastbound	US 80 to MS 475	2.01	274	0.61	20.8	1.0	Increase	Decrease
Hanging Moss Road Southbound	West Beasley Road to Northside Drive	2.01	198	0.61	46.8	2.8	Decrease	Decrease
MS 22 Westbound	US 51 (Liberty Street) to I-55	2.00	165	0.60	65.6	1.2	Increase	Increase

Roadway[1]	Segment	Length (miles)	2023 Non-Recurring Incidents	2023 Maximum Delay (Hours)	5-Year Annual Average Crash Frequency	5-Year Annual Average Fatal/Serious Injury Crash Frequency	5-Year Total Crash Trend	5-Year Fatal/Serious Injury Crash Trend
Old Brandon Road Westbound	MS 475 to US 80	1.99	258	0.60	20.8	1.0	Increase	Decrease
MS 22 Eastbound	I-55 to US 51 (Liberty Street)	2.00	206	0.60	65.6	1.2	Increase	Increase
MS 22 Westbound	Nissan Parkway to MS 463	8.13	190	0.59	22.2	0.6	Increase	Increase
MS 43 Westbound	MS 25 Southbound Off-Ramp to MS 471	2.52	220	0.58	9.2	0.0	Increase	Neutral
I-20 Eastbound	Springridge Road On-Ramp to MS 18 Westbound Off-Ramp	3.54	199	0.57	26.2	1.8	Decrease	Decrease
US 51 Northbound	Jackson Street to MS 463 (Madison Parkway)/Hoy Road	2.59	126	0.57	121.2	0.8	Decrease	Increase
Watkins Drive Southbound	Beasley Road to Hickory Ridge Drive	1.93	218	0.57	44.4	1.2	Decrease	Decrease
US 80 Eastbound	Wiggins Road to MS 18/Robinson Road	1.83	190	0.56	51.8	3.4	Decrease	Increase
US 49 Northbound	Pinehaven Drive to Kennebrew Road	4.30	277	0.55	21.4	0.4	Increase	Neutral
West Capitol Street Eastbound	Ellis Avenue/Parkside Place to West Monument Street	1.82	107	0.54	18.0	0.4	Neutral	Increase
MS 22 Westbound[RC]	I-55 to Nissan Parkway	1.77	189	0.54	17.0	0.8	Increase	Increase
MS 22 Eastbound[RC]	Nissan Parkway to I-55	1.77	241	0.54	17.0	0.8	Increase	Increase
MS 25 (Lakeland Drive) Eastbound	Ridgewood Road to MS 475	3.01	155	0.54	222.0	1.0	Decrease	Decrease
West Capitol Street Westbound	West Monument Street to Ellis Avenue/Parkside Place	1.82	144	0.53	18.0	0.4	Neutral	Increase
Hanging Moss Road Northbound	Northside Drive to West Beasley Road	2.01	185	0.53	46.8	2.8	Decrease	Decrease
East County Line Road Westbound[RC]	Old Canton Road to Ridgewood Road	1.81	115	0.53	164.0	1.4	Decrease	Increase
Old Canton Road Westbound	Colonial Circle to Ridgewood Road	1.74	143	0.53	60.6	1.2	Decrease	Increase
US 51 (Liberty Street) Southbound[RC]	MS 16 (Peace Street)/MS 22 to MS 16 (Canton Parkway)/Nissan Parkway	2.38	183	0.52	39.8	1.6	Increase	Increase
East Metro Parkway Southbound[RC]	MS 25 (Lakeland Drive) to Eldorado Road	2.31	185	0.52	73.4	0.6	Decrease	Neutral
US 49 Southbound	Kennebrew Road to Pinehaven Drive	4.25	248	0.52	21.4	0.4	Increase	Neutral
MS 463 Eastbound[RC]	North Livingston Road to I-55 Southbound Off-Ramp	2.61	92	0.52	147.8	0.4	Decrease	Neutral
East Metro Parkway Northbound[RC]	Eldorado Road to MS 25 (Lakeland Drive)	2.28	153	0.51	73.4	0.6	Decrease	Neutral

Source: NPMRDS
Note 1: Location experienced recurring congestion identified by **RC**

Summary

Based on the Non-Recurring Congestion Analysis, the following conclusions were drawn:

- There were 82 segments that experienced excessive non-recurring congestion, with delays of at least half an hour; the maximum delay was more than two and a half hours.
- Twelve (12) segments that experienced excessive non-recurring congestion also experienced excessive recurring congestion.
- Non-recurring congestion predominantly occurs on:
  - I-20
  - US 80
  - MS 22
  - MS 43
  - US 49
  - MS 18
  - MS 25

Reliability

According to the FHWA, travel time reliability reflects the variability of travel time[12]. This lack of consistency in travel time occurs due to several factors which are essentially the sources of congestion identified in **Figure 1.1** happening separately or interacting. The contribution of these factors to the regional congestion transforms trip durations into unreliable travel times on a day-to-day basis which impedes appropriate travel planning and increases inconvenience for transportation system users.

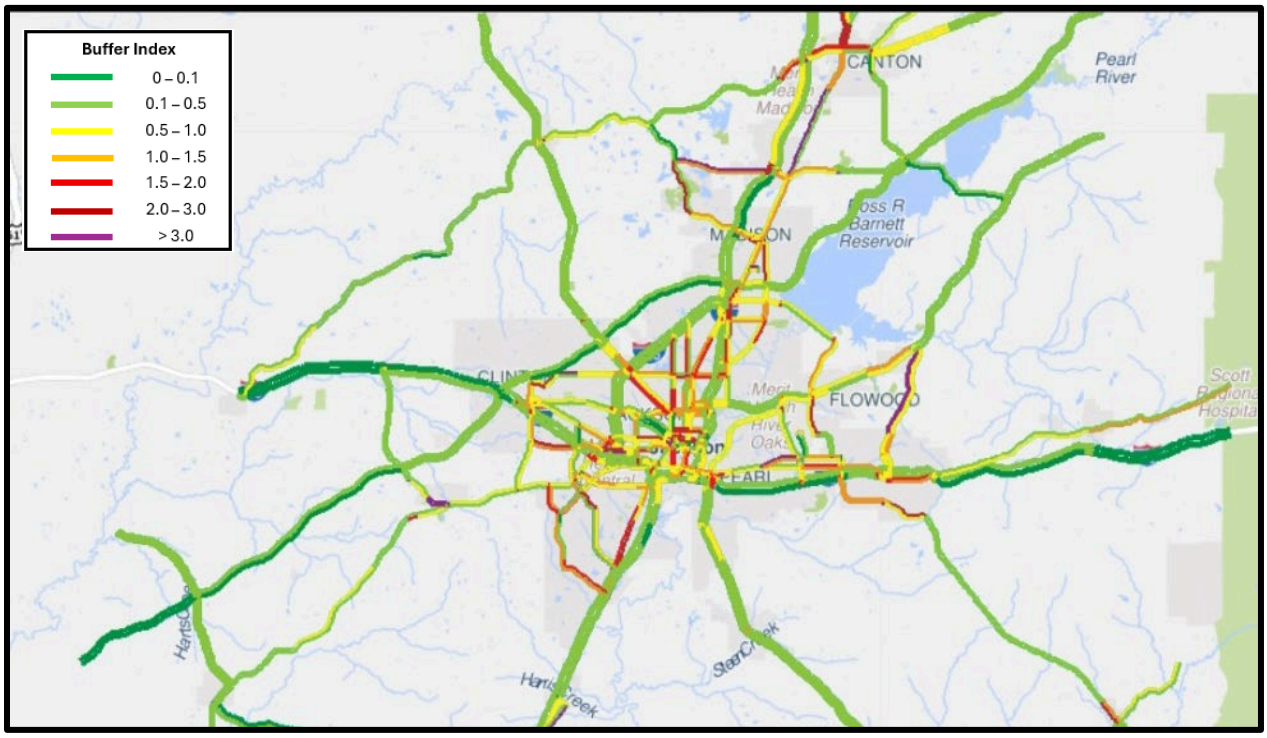
Buffer Time Index

Arriving to work 'on time' requires adding a factor of safety or a buffer to a commuter's travel time while planning for their daily commute. This buffer is commonly used to quantify travel time reliability in terms of *Buffer Index*, which is the size of the buffer as a percentage of the average travel time (95th percentile minus the average, divided by the average). **Figure 2.9**, **Figure 2.10**, and **Figure 2.11** show the average Buffer Index values during the AM, MD, and PM peaks for 2023, respectively. The corridors where commuters could anticipate unpredictable variability in trip durations during at least one peak (AM, MD, and/or PM) are listed in **Appendix F**.

[12] https://ops.fhwa.dot.gov/plan4ops/reliability.htm

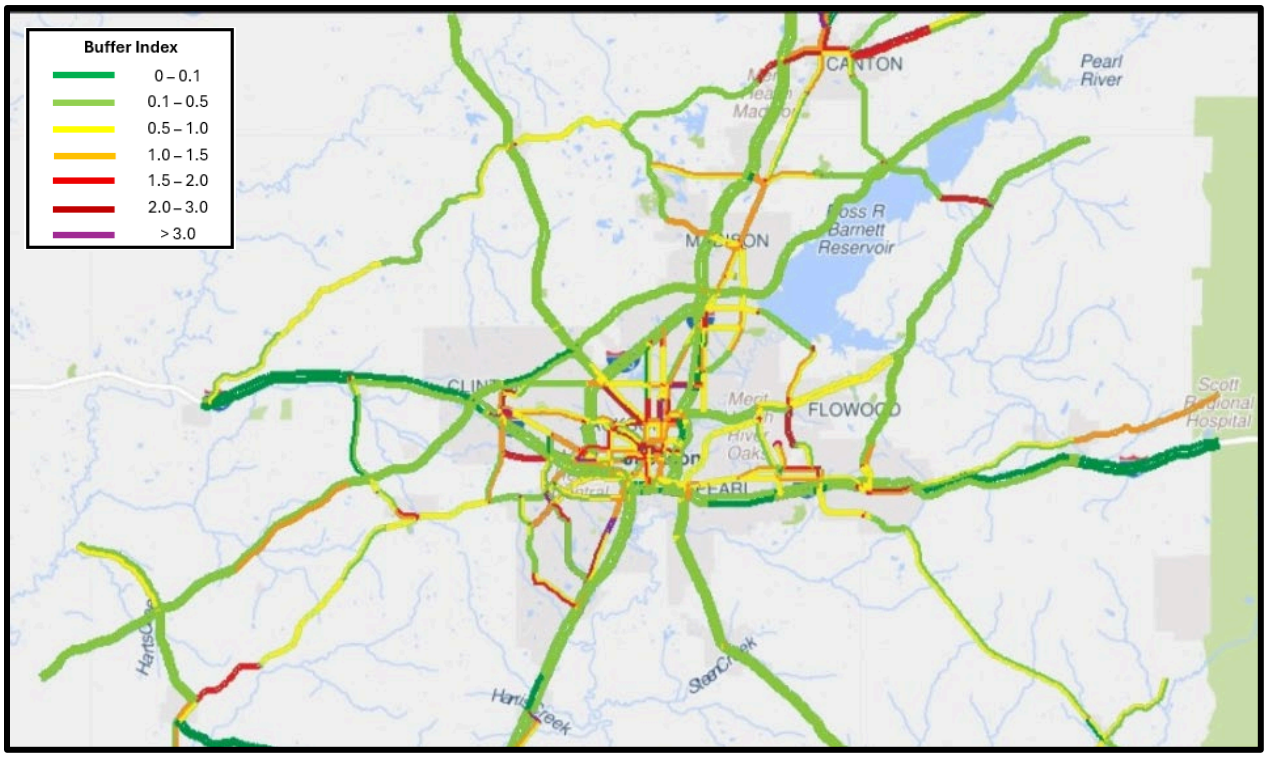
The Buffer Time Index expresses the amount of extra "buffer or cushion" time needed to reach a destination on-time 95 percent of the time (late one working day per month). It is the ratio of the buffer or cushion time to the average travel time under regular traffic conditions. A buffer index of 1.0 indicates that for a 30-minute trip during regular traffic conditions, an extra 100 percent (or 30-minutes) buffer time is needed to reach the destination on time 95 percent of the time regardless of uncertainties.

Figure 2.9: Average Buffer Index Values – AM Peak - 2023



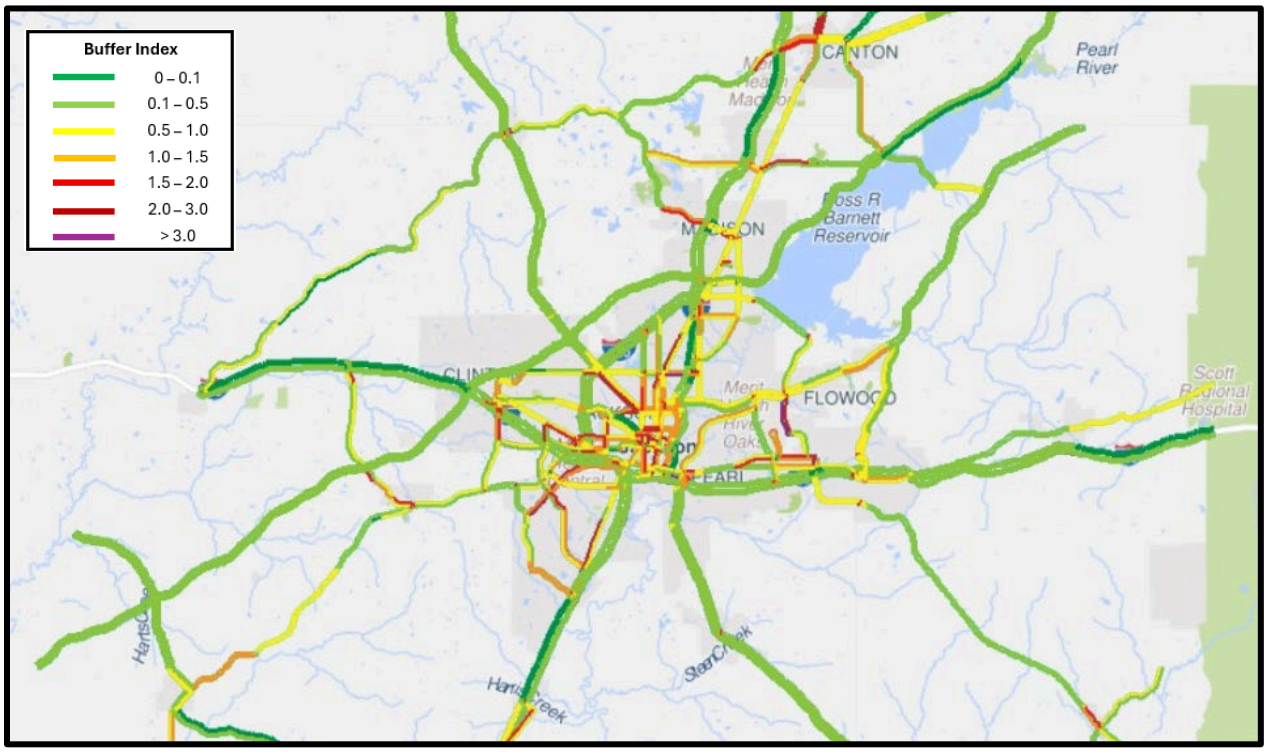
Source: NPMRDS

Figure 2.10: Average Buffer Index Values – MD Peak - 2023



Source: NPMRDS

Figure 2.11: Average Buffer Index Values – PM Peak - 2023



Source: NPMRDS

Level of Travel Time Reliability (LOTTR)

In addition to determining the congested locations using the CMP Index, the roadway's LOTTR was used to determine any additional bottlenecks that were not identified in the Recurring Congestion analysis shown in **Figure 2.5** and **Table 2.7**. **Figure 2.12** and **Figure 2.13** show monthly distributions as well as the yearly average for LOTTR during 2023. Within the region, the Interstate NHS LOTTR meets the target, for all 12 months of having a LOTTR less than 1.50. However, the Non-Interstate NHS LOTTR does not meet the target, for ten months, of having a LOTTR less than 1.50.

Figure 2.14 displays the change in Interstate and Non-Interstate NHS percent reliability (percent of person-miles traveled) between 2017 and 2023. As shown in **Figure 2.14**, the Interstate percent reliable has been steady at nearly 100 percent reliable since 2017. Meanwhile, the Non-Interstate NHS percent reliable steadily increased from 2017 through 2022, with the exception of a decrease noted in 2019 and between 2022 and 2023.

Figure 2.15 displays the 2023 LOTTR of the monitored segments on the NHS routes within the planning area. The high LOTTR segments (greater than 1.50) that were not identified in the 2022 CMP analysis are listed in **Table 2.10**. More information on LOTTR can be found in Section 3.4 of *Technical Report #2: State of Current Systems*.

Figure 2.12: Monthly Distribution of LOTTR – Interstate System – 2023

Figure 2.13: Monthly Distribution of LOTTR – Non-Interstate NHS – 2023

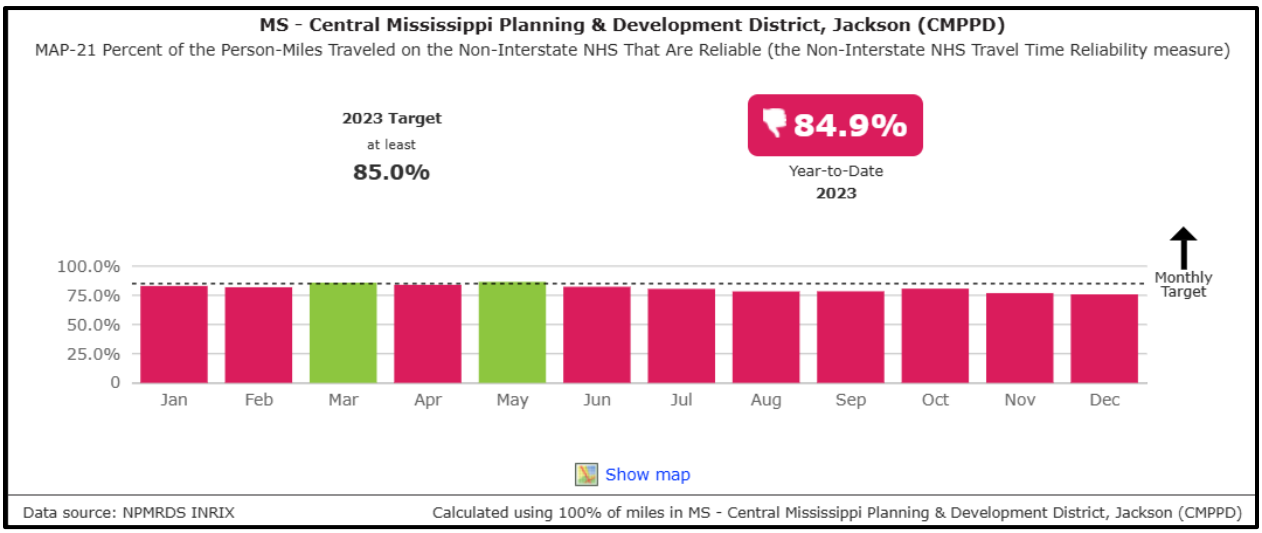
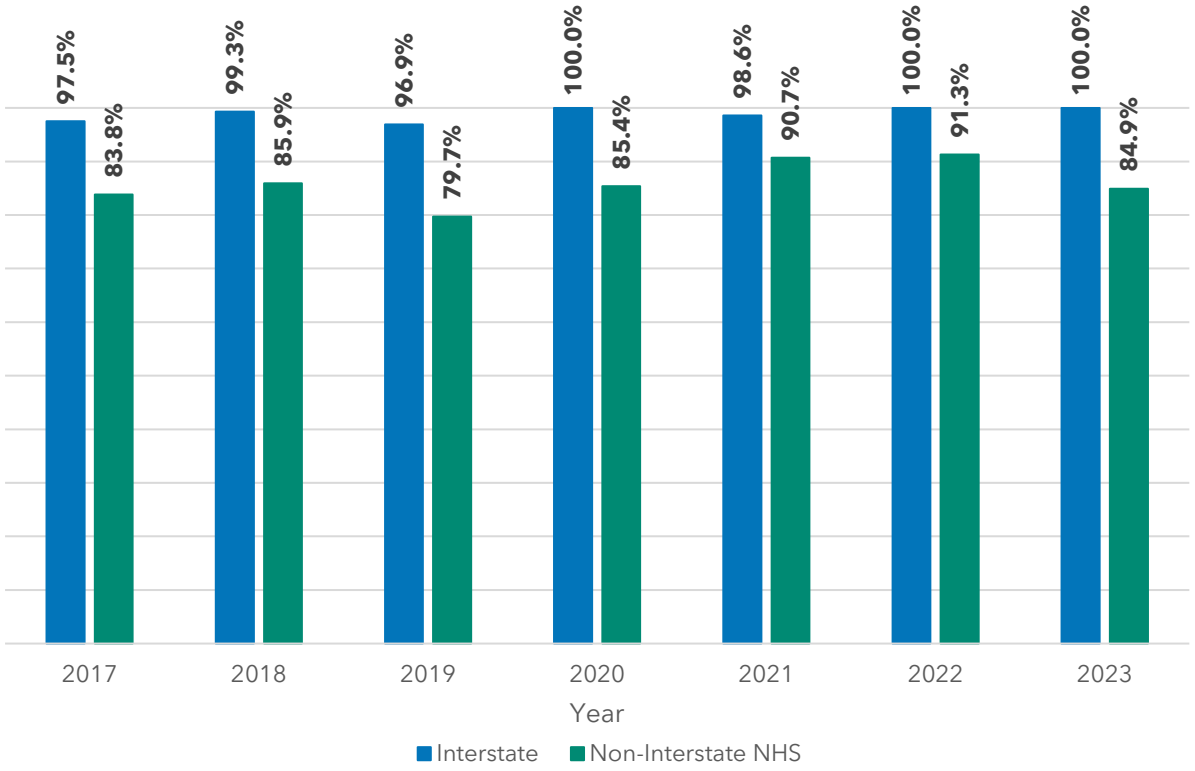


Figure 2.14: Historical LOTTR – 2017 to 2023



Source: NPMRDS

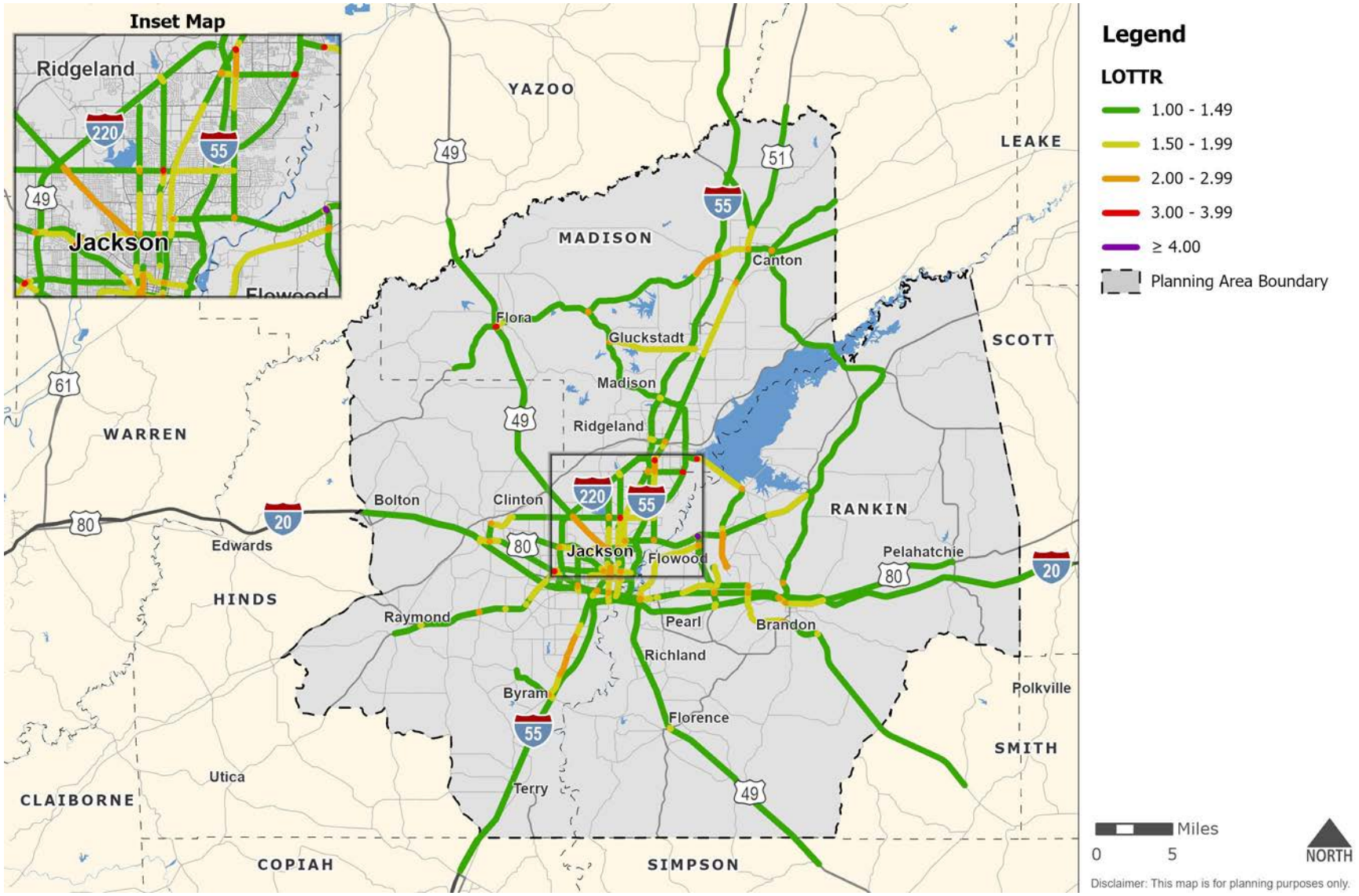
Table 2.10: High LOTTR Roadways Not Identified in CMP Rating Analysis

County	Route	Segment/Intersection
Hinds	Bailey Avenue/Watkins Drive	At Northside Drive
	Bobby Rush Blvd	At I-20
	MS 18 West	At Maddox Road
	MS 18 West	At I-20
	MS 18 West	John R. Lynch Street to US 80
	North West Street	Woodrow Wilson Avenue to Mayes Street
	Northbrook Drive/Hanging Moss Road	At Northside Drive
	Northside Drive	At Medgar Evers Boulevard
	Terry Road	Siwell Road to Forest Hill Road
	Terry Road	McCluer Road/Savanna Street to Cooper Road/Daniel Lake Boulevard
	US 80	At Terry Road/University Boulevard
	West Capitol Street	Boling Street to Bobby Rush Boulevard/Parkside Place
	Woodrow Wilson Avenue	Fortification Street to Airport Drive
	Woodrow Wilson Avenue	Powers Avenue to Holmes Avenue
Madison	Jackson Street	At US 51
	MS 16	At MS 43
	MS 22	US 49 to First Street
	US 51	Yandell Road to North Old Canton Road
Madison and Rankin	Spillway Road	Harbor Drive to Lakeshore Drive
Rankin	El Dorado Road	At East Metro Parkway
	Flowood Drive	US 80 to MS 475
	International Drive	At Jackson Medgar Evers International Airport
	MS 471	At Old Highway 471/Terrapin Creek Road
	MS 475	At Flowood Drive
	Old Brandon Road	US 80 to MS 475
	US 49	At MS 469

County	Route	Segment/Intersection
	US 80	Childre Drive to Old Brandon Road
	US 80	At MS 475
	US 80	At I-20 (East Brandon)

SOURCE: NPMRDS

Figure 2.15: 2023 LOTTR on the NHS Routes



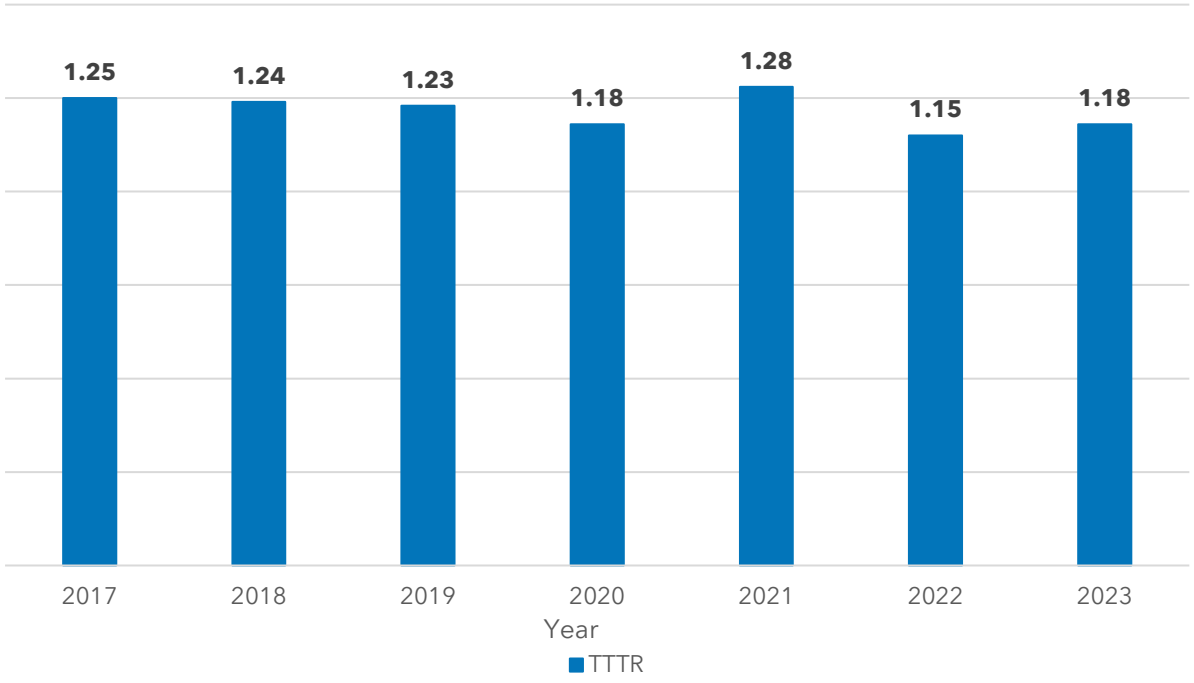
Source: NPMRDS

Truck Travel Time Reliability (TTTR)

Figure 2.16 shows the monthly distribution and yearly average for TTTR during 2023. As shown in **Figure 2.16**, the TTTR meets the target of less than 1.40 for all 12 months. **Figure 2.17** displays the change in TTTR between 2017 and 2023. As shown in **Figure 2.17**, the TTTR has been steady at around 1.20 between 2017 and 2023.

Figure 2.16: Monthly Distribution of TTTR – 2023

Figure 2.17: Historical TTTR – 2017 to 2023



Source: NPMRDS

2.6 Step 6: Identify and Assess Strategies

Federal Guidelines for Congestion Reduction Strategies

The federal legislation sections regarding congestion reduction strategies are listed below.

Section 450.322 (d)(4) of Subpart C (Metropolitan Transportation Planning and Programming), 23 CFR (Final Rule)

- Identification and evaluation of the anticipated performance and expected benefits of appropriate congestion management strategies that will contribute to the more effective use and improved safety of existing and future transportation systems based on the established performance measures. The following categories of strategies, or combination of strategies, are some examples of what should be appropriately considered for each area:
    - Demand management strategies, including growth management and congestion pricing
    - Traffic operational improvements
    - Public transportation improvements
    - ITS technologies as related to the regional ITS Architecture
    - Where necessary, additional system capacity

Section 450.322 (d)(5) of Subpart C (Metropolitan Transportation Planning and Programming) 23 CFR (Final Rule)

- A CMP shall include identification of an implementation schedule, implementation responsibilities, and possible funding sources for each strategy (or combination of strategies) proposed for implementation.

Identifying Congestion Reduction Strategies Using CMP Toolbox

There are constant changes in the way our society and economy operate. With increased commercial, residential, and industrial development, there is also increased transportation demand on existing transportation facilities. To address this increase in demand and ensuing congestion, appropriate strategies must be formulated to prevent deterioration in free flow traffic conditions. These strategies can include upgrading existing transportation facilities, creating additional facilities, and exploring the use of alternative travel methods.

The FHWA has identified four management strategies that provide a variety of measures that can be implemented to reduce traffic congestion. Those strategies are Demand Management Strategies, Traffic Operational Strategies, Public Transportation Strategies, and Road Capacity Strategies[13].

Many of the traffic operational strategies and public transportation strategies are supported by the use of ITS. The CMPDD has developed the *Central Mississippi ITS Architecture Plan* to provide a long-range plan for the deployment, integration, and operation of ITS within the CMPDD planning area.

Demand management strategies are summarized in **Table 2.11**, traffic operations strategies are summarized in **Table 2.12**, public transportation strategies are summarized in **Table 2.13**, and road capacity strategies are summarized in **Table 2.14**.

Ad campaigns and education strategies can be incorporated into each of the management strategies to provide stakeholders and the public information on how the strategy can reduce congestion. Some examples of education strategies could include:

- Marketing the use of Transit as an alternative mode of transportation
- Encouraging healthier lifestyles through improved bicycle and pedestrian facilities
- Use of Traveler Information Systems by providing alternate routes
- Providing information on a proposed corridor or intersection improvement

Table 2.15 presents potential strategies that can be employed to alleviate or reduce congestion on segments identified in **Tables 2.7, 2.9, and 2.10** and **Figures 2.5, 2.6, 2.8, and 2.15**. Priorities gathered from public input are also reflected in the table.

[13] https://www.fhwa.dot.gov/planning/congestion_management_process/cmp_guidebook/cmpguidebk.pdf

Demand Management Strategies

- Demand Management, or Travel Demand Management, non-automotive travel modes, and land use management can provide travelers with more options and reduce the number of vehicles of trips during congested periods. These include strategies that substitute communication for travel or encourage regional cooperation to change development patterns and/or reduce sprawl.

Traffic Operational Strategies

- These strategies focus on getting more out of the existing infrastructure. Rather than building new infrastructure, many transportation agencies have embraced strategies that deal with operation of the existing network of roads. Many of these operations-based strategies are supported by the use of enhanced technologies or Intelligent Transportation Systems (ITS).

Public Transportation Strategies

- Improving transit operations, improving access to transit, and expanding transit service can help reduce the number of vehicles on the road by making transit more attractive or accessible. These strategies may be closely linked to Demand Management and Traffic Operations Strategies. As with traffic operations, transit operations are often enhanced by ITS.

Road Capacity Strategies

- This category of strategies addresses adding more base capacity to the road network, including additional lanes and building new highways, as well as redesigning specific bottlenecks (such as interchanges and intersections) to increase their capacity. Given the expense and possible adverse environmental impacts of new single-occupant vehicle capacity, management and operations strategies should be given due consideration before additional capacity is considered.

Table 2.11: Demand Management Strategies

Strategy Group	Strategy	Description
Promoting Alternatives	Programs that encourage transit use	These programs give travelers that have the option of driving reasons to choose transit. Some programs can use: • Improving transit service (more service, faster service, and more comfortable service) • Improved stops and stations • Reduced fares and more convenient fare structures and payment systems • Marketing
	Pedestrian and bicycle improvements, and other strategies that promote nonmotorized travel	Pedestrian and bicycle improvements ensure that a network of infrastructure is in place to make bicycling or walking viable modes of travel. Some examples of infrastructure improvement to pedestrian and bicycle facilities include: • Bicycle lanes • Bicycle parking and storage facilities • Curb extensions • Intersection treatments • Paved shoulders and/or sidewalks • Shared-lane markings ("sharrows") • Signage and signalization • Trails and shared-use paths
Managing and Pricing Assets	Congestion pricing strategies	Congestion pricing works by shifting some rush hour highway travel to other transportation modes or to off-peak periods. Some strategies include: • High Occupancy Toll (HOT) and Express Toll Lanes • Roadway facility-based pricing • Zone-based pricing • Parking pricing
	Parking management	Parking management refers to strategies that result in a more efficient use of parking resources.
	Pricing fees for parking spaces	Efficient pricing fees for parking spaces can provide numerous benefits including increase turnover and therefore improved user convenience, parking facility cost savings, reduced traffic congestion, and increased revenues.
	Pricing fees for use of travel lanes	Pricing fees for use of travel lanes, or congestion pricing, works by shifting some rush hours traffic to other transportation modes or to off-peak periods.
	Increasing intercity freight rail or port capacity	Increasing freight rail or port capacity can reduce the number of trucks by shifting the freight from being carried by trucks to being carried by rail or water, thus reducing congestion.
Work Patterns	Flexible work hours programs	The organization has varying starting and ending working hours for employees, which can include: • Staggered hours are where employees arrive and depart work at different times in shifts, which may be staggered anywhere from 15 minutes to two (2) hours. • Flextime is where employees work specified hours each week but are given flexibility on where they arrive to work, take lunch, and leave work. • Compressed work weeks are where employees work more hours daily but work fewer days per week or pay period. (e.g. four ten-hour days instead of five eight-hour days)

Strategy Group	Strategy	Description
	Telecommuting programs	Work is performed wherever the employee chooses. This is a system where employees do not commute or travel to a central place of work.
Land Uses	Land use controls or zoning	Land use controls consist of government ordinances, codes, and permit requirements that restrict the private use of land and natural resources, to conform to public policies. These controls can provide a blueprint for sustainable growth and manage traffic.
	Growth management restrictions	Growth management restrictions often stem from concerns about the compatibility of new growth with surrounding uses and/or the need to minimize the costs associated with supplying public services, such as roads and streets, to support new development.
	Development policies that support transit-oriented designs	The utilization of effective and predictable transit encourages surrounding development which, in turn, supports transit. The basic principle is that convenient access to transit can be a key attraction that fosters mixed-use development, and the increased density in station areas not only support transit but also may accomplish other goals, including reducing congestion and urban sprawl, increasing pedestrian activity and economic development potential, and realizing environmental benefits.
	Incentives for high-density development	Incentives such as tax abatements and streamlined permitting processes can be used to stimulate the development of housing types which can reduce congestion.

Table 2.12: Traffic Operations Strategies

Strategy Group	Strategy	Description
Highway/Freeway Operations	Metering traffic onto freeways	Ramp meters are signals installed on freeway on-ramps to control the frequency at which vehicles enter the flow of traffic on the freeway. These signals reduce overall freeway congestion by managing the amount of traffic entering the freeway and by breaking up platoons that make it difficult to merge onto the freeway.
	Reversible commuter lanes	Reversible commuter lanes add peak-direction capacity to a two-way road and decrease congestion by borrowing available lane capacity from the other (off-peak) direction. This strategy can also be used for situations of non-recurring congestion, such as special events, construction, or evacuations.
	Access management	Access management strategies for highways include: • Left-turn restrictions • Intersection/signal spacing • Frontage roads • Turn lanes • Roadway modifications (geometry, medians, sight distance)
	Movable median barriers	These barriers can be transferred between lanes to increase capacity in the peak direction. These barriers can also be used in work zones to prevent opposing traffic flow collisions.
	Automated toll collection improvements	Improving automated toll collections can improve traffic flow, decrease emissions, and are less expensive to build and operate than traditional toll collection methods.
	Conversion of HOV lanes to High Occupancy Toll (HOT) lanes	In many cases, HOV lanes may be underutilized and do not meet expectations about congestion relief benefits. Converting HOV lanes to HOT lanes is an innovative concept that can better utilize HOV lanes.
	Bus-only shoulder lanes	These shoulders can permit buses to bypass congestion.
Arterial and Local Roads Operations	Optimizing traffic signal timings	Optimizing traffic signal timing reduces idling and the acceleration of vehicles, as well as reducing stops and delay, leading to less fuel being burned and less emissions.
	Restricting turns at key intersections	Turning movement restrictions are a type of access management strategy used to improve the safety of intersections and driveways. Restricted and prohibited turn movements reduce the number of turning conflict points at intersections, which are generally known to reduce crash risk.
	Geometric improvements	Geometric improvements can include adding raised medians near intersections, adding bicycle lanes, and improved skew angles. Adding turn lanes are another intersection improvement. However, right-of-way restrictions need to be considered.
	Converting streets to one-way operations	One-way streets manage traffic patterns and reduce vehicle conflicts. These conversions work best in downtown or very congested areas, and they can offer improved signal timing.
	Transit Signal Priority (TSP)	TSP adjusts the timing of a traffic signal's red and green cycles to reduce the amount of time a transit vehicle spends waiting at a red light.
	Access management	Access management strategies for arterial and local roads include: • Driveway consolidation and spacing/design • Left-turn restrictions • Elimination of on-street parking • Intersection/signal spacing • Turn lanes • Roadway modifications (geometry, medians, sight distance)

Strategy Group	Strategy	Description
Arterial and Local Roads Operations	Traffic calming	Traffic calming refers to a full range of methods to slow cars through commercial and residential neighborhoods. This can benefit pedestrians and bicyclists since cars are driving at speeds that are safer and more compatible to walking and bicycling.
	Road Diets	Road Diets remove travel lanes from a roadway and utilize space for other uses and travel modes. The most common Road Diet reconfiguration is converting a four-lane undivided roadway to a three-lane roadway with a Two-Way Left-Turn Lane (TWLTL).
Other Operations Strategies	Incident management	Traffic incident management (TIM) consists of a planned and coordinated multi-disciplinary process to detect, respond to, and clear traffic incidents and restore traffic flow as safely and quickly as possible.
	Traveler information systems	These systems update drivers on current roadway conditions, including delays, incidents, weather-related messages, travel times, emergency alerts, and alternate routes. These systems allow drivers to make more effective travel decisions.
	Improved management of work zones	Managing traffic during construction is necessary to minimize traffic delays, maintain motorist and worker safety, complete roadwork in a timely manner, and maintain access for businesses and residents.
	Identifying weather and road surface problems	Weather can impact traffic flow due to reduced visibility and or wet roadway surface conditions.
	Special events management	Special events such as sporting events, concerts, fairs, and conventions cause high levels of congestion due to an overload of the street and highway networks adjacent to the venue. However, agencies and organizers can easily coordinate a mitigation plan and deploy the proper resources to minimize the effects on normal traffic operation.
	Freight management	Congestion can be caused by restrictions on freight movement, such as the lack of space for trucks in urban areas.

Table 2.13: Public Transportation Strategies

Strategy Group	Strategy	Description
Operations Strategies	Realigned transit service schedules and stop locations	Realigning transit service schedules and stop locations eliminate non-productive route segments, reduce route mileage and/or increase speed, or ensure that major activity centers are served.
	Providing real-time information	Real-time transit information systems provide transit riders with up-to-the-minute information on bus arrivals via the internet, phone, and display boards at key bus stops. The information is based on real-time bus locations using GPS rather than a set schedule of arrival and departure times. Access to real-time travel information reduces actual and perceived wait times and increase the reliability of transit, which can encourage a mode shift.
	Providing travel conditions	Travel conditions information can allow users to make proper mode and route choices.
	Monitoring security	Enhancing the security, and safety, of transit customers, personnel, equipment, and facilities can alert officials of possible delays or closures as well as warn officials of possible intentional acts of crime or violence.
	Enhanced transit amenities and safety	Enhanced transit amenities and safety can make transit more attractive while bringing immense benefits to accessibility and performance.
	Universal farecards	Users can access multiple modes of travel, such as trains, buses, and taxis, with one card.
	Transit Signal Priority (TSP)	TSP tools modify signal timing or phasing when transit vehicles are present either conditionally for late runs or unconditionally for all arriving transit.
	Bus Rapid Transit (BRT)	BRT is a term used for a set of transit service improvements that include: • Grade-separated right-of-way • High-quality vehicles • Frequent service • Convenient user information • Efficient pre-paid fare collection • Efficient operations
Capacity Strategies	Reserved travel lanes	Reserved lanes help buses pass congested traffic. These lanes can include curbside lanes, median lanes, or contraflow lanes.
	More frequent transit or expanded hours of service	Expanded transit can reduce motor vehicles miles driven and traffic congestion.
	Expanded transit network	Expanding the transit network can increase the mode's attractiveness.
Accessibility Strategies	Bicycle and pedestrian facilities improvements	Improved bicycle and pedestrian facilities can reduce traffic congestion and pollution by providing alternate means of vehicular travel, as well as recreational opportunities which encourage healthy lifestyles.
	Provisions for bicycles	Transit vehicles with bikeracks mounted on buses allow a bicycle to be used at both ends of the journey, and helps cyclists who experience a mechanical failure, unexpected bad weather, or sudden illness. It also allows cyclists to pass major barriers where cycling is prohibited or particularly difficult.

Table 2.14: Road Capacity Strategies

Strategy Group	Strategy	Description
All	Construct new HOV or HOT lanes	High Occupancy Vehicle (HOV) lanes are lanes that have occupancy restrictions on usage to encourage ridesharing. High Occupancy Toll (HOT) lanes are available to HOV users without a toll. SOV users can use these lanes for a toll, which adjusts based on demand.
	Removing bottlenecks	Some strategies that can remove or fix bottlenecks include: • Use a short section of traffic bearing shoulder as a peak-hour lane • Restriping • Modifying weaving areas • Ramp metering or closing entrance ramps • Improving traffic signal timing • Access management • Providing traffic diversion information (ITS).
	Intersection improvements	Intersection improvements can include adding raised medians near intersections, adding bicycle lanes, improved skew angles, reconfiguring signal timings, and adding advanced warning devices. Adding turn lanes are another intersection improvement. However, right-of-way restrictions need to be considered.
	Center turn lanes	These lanes, also known as Two-Way Left Turn Lanes (TWLTL), remove left-turning vehicles from the through lanes and store those vehicles in the median area until an acceptable gap in opposing traffic is available.
	Overpasses or underpasses at congested locations	Intersections handling a high volume of traffic and pedestrians (and possibly railroads) limit the capacity of the approaching roads. Grade separating these conflict points using overpasses and underpasses allows traffic to flow freely. This in turn makes conditions safer for vehicles, pedestrians, and trains.
	Closing gaps in the street network	Closing gaps in the street network by constructing new roads can mitigate congestion on existing roads. These new roads can also incorporate complete streets.
	Adding travel lanes	Increasing the number of lanes is not always possible due to physical and fiscal constraints. However, it remains an important approach to addressing congestion.

Table 2.15: Proposed Strategies for Alleviating Congestion

Roadway	Segment	County	Congestion Type[1]	Proposed Congestion Alleviation Strategy	Responsible Agency	Implementation Schedule (Construct by or before)
Amite Street	Gallatin Street to President Street	Hinds	Recurring	Signal optimization	Jackson	2030
Bailey Avenue	Idlewild Street to Mayes Street	Hinds	Recurring	Signal optimization, road diet/complete streets	Jackson	2030
Bailey Avenue	Monument Street to Cohea Street	Hinds	Recurring	Road diet, improve/construct sidewalks	Jackson	2030
Bobby Rush Blvd	I-20 Westbound to US 80	Hinds	Recurring	Signal optimization, improve or construct new turn lanes	Jackson	2030
Canton Mart Road and Old Canton Road	I-55 East Frontage Road to Ridgewood Road	Hinds	Recurring	Signal optimization, improve/extend sidewalks	Jackson	2030
Capitol Street	I-220 to Bobby Rush Boulevard/Parkside Place	Hinds	LOTTR	Signal optimization (Road diet completed in 2023)	Jackson	2030
Capitol Street	Bobby Rush Boulevard/Parkside Place to Monument Street/Rose Street	Hinds	Non-Recurring	Safety improvements, road diet	Jackson	2030
Capitol Street	Amite Street/Robinson Road to State Street	Hinds	Recurring	Convert to two-way between Amite Street/Robinson Road and Gallatin Street; Modify on-street parking in Downtown area	Jackson	2030
Clinton Parkway	Oakhill Circle to Northside Drive	Hinds	Recurring	Signal optimization, add/extend turn lanes at intersections	Clinton	2030
County Line Road	US 51 to Ridgewood Road	Hinds and Madison	Recurring	Signal optimization, access management, improve/construct sidewalks	Jackson, Ridgeland	2030
County Line Road	Ridgewood Road to Old Canton Road	Hinds and Madison	Recurring and Non-Recurring	Signal optimization, access management, safety improvements, improve/construct sidewalks	Jackson, Ridgeland	2030
East Metro Parkway	El Dorado Road to MS 25	Rankin	Recurring and Non-Recurring	Signal optimization, access management, safety improvements, construct sidewalks	Flowood	2030
Fortification Street	Bailey Avenue to I-55	Hinds	Recurring	Signal optimization, road diet/complete streets, improve/extend sidewalks	Jackson	2030
Gallatin Street	I-20 Westbound Off-Ramp to US 80	Hinds	Recurring	Signal optimization	Jackson	2030
Gallatin Street	US 80 to Amite Street	Hinds	Recurring	Signal optimization, road diet/complete streets, access management, improve/extend sidewalks	Jackson	2030
I-20	US 80 (East Brandon) to MS 43	Rankin	Non-Recurring	Safety improvements	MDOT	2030
I-20 Eastbound	Springridge Road On-Ramp to MS 18 Off-Ramp	Hinds	Non-Recurring	Safety improvements (Cable barrier installed in 2024)	MDOT	2030
I-20 Westbound	I-20 Westbound Ramp to I-55 Northbound (Exit 46)	Rankin	Recurring and Public Outreach	Improve ITS, promote use of alternate routes (Road work ongoing as of 2025 on I-55 Pearl River Bridge)	MDOT	2030
I-20 Westbound	US 49 Off-Ramp to State Street Off-Ramp	Rankin and Hinds	Recurring and Public Outreach	Improve ITS, promote use of alternate routes, extend acceleration lanes (US 80 Pearl River Bridge closed as of 2025 for construction)	MDOT	2030

Roadway	Segment	County	Congestion Type[1]	Proposed Congestion Alleviation Strategy	Responsible Agency	Implementation Schedule (Construct by or before)
I-55	At I-220	Madison	Public Outreach	Improve ITS, promote use of alternate routes, extend acceleration lane northbound between County Line Road and I-220, improve signage on I-55 Southbound	MDOT	2030
I-55 Northbound	Pearl Street Off-Ramp to Pearl Street On-Ramp	Hinds	Recurring	Improve ITS, promote use of alternate routes	MDOT	2040
I-55 Southbound	Ramp to I-20 Eastbound/US 49 Southbound	Rankin	Recurring and Public Outreach	Improve ITS, promote use of alternate routes	MDOT	2030
I-55 Southbound	Lakeland Drive Eastbound On-Ramp to Pearl Street On-Ramp	Hinds	Recurring	Improve ITS, promote use of alternate routes	MDOT	2040
I-55 Southbound	Gluckstadt Road On-Ramp to MS 463 Off-Ramp	Madison	Non-Recurring	Safety improvements (Road work ongoing as of 2025 at future Reunion Parkway interchange)	MDOT	2030
I-55 Southbound	Gluckstadt Road Off-Ramp to Gluckstadt Road On-Ramp	Madison	Recurring	Extend acceleration lane	MDOT	2030
I-55 Southbound Frontage Road	County Line Road Off-Ramp to County Line Road	Madison	Recurring	Signal optimization	MDOT	2030
Jackson Street	At US 51	Madison	LOTTR	Signal optimization	Ridgeland	2030
John R Lynch Street	US 80 to Bobby Rush Boulevard	Hinds	Recurring	Access management, add sidewalks	Jackson	2030
Lake Harbour Drive	Harbour Pointe Crossing to Harbor Drive	Madison	Recurring	Signal optimization, access management	Ridgeland	2030
Lakeland Drive	Old Canton Road to I-55 Northbound Off-Ramp	Hinds	Recurring	Signal optimization, access management	Jackson	2030
Main Street	MS 463 to Old Canton Road	Madison	Recurring	Signal optimization	Madison	2030
Medgar Evers Boulevard	Northside Drive to Woodrow Wilson Avenue	Hinds	Recurring and Non-Recurring	Safety improvements, access management, improve/add pedestrian, bicycle, and transit facilities	Jackson	2030
Medgar Evers Boulevard Southbound	I-220 Southbound Off-Ramp to I-220 Northbound Off-Ramp	Hinds	Recurring	Signal optimization	Jackson	2030
Mill Street	Pascagoula Street to Monument Street	Hinds	Recurring	Signal optimization (Road closed for bridge replacement in 2023)	Jackson	2030
Monument Street and High Street	Bailey Avenue to I-55	Hinds	Recurring	Signal optimization, road diet/complete streets, improve/extend sidewalks, access management, add signage on I-55 Southbound Off-Ramp directing traffic to southbound Greymont Street	Jackson	2030
MS 16	I-55 Northbound Off-Ramp to US 51	Madison	Non-Recurring	Safety improvements	MDOT	2030
MS 16	MS 43 to Sharon Road	Madison	Non-Recurring and LOTTR	Safety improvements, signal optimization and turn lane improvements at MS 43	MDOT	2030
MS 18	East Main Street to Springridge Road	Hinds	Non-Recurring	Safety improvements	MDOT	2030
MS 18	At Maddox Road	Hinds	LOTTR	Signal optimization, extend turn lanes on Maddox Road	MDOT	2030
MS 18	McDowell Road to I-20	Hinds	Recurring and LOTTR	Signal optimization, access management	MDOT	2030

Roadway	Segment	County	Congestion Type[1]	Proposed Congestion Alleviation Strategy	Responsible Agency	Implementation Schedule (Construct by or before)
MS 18	John R. Lynch Street to US 80	Hinds	LOTTR	Signal optimization, access management	MDOT	2030
MS 18	I-20 Eastbound Off-Ramp to MS 468	Rankin	Recurring and Non-Recurring	Safety improvements, signal optimization, add/extend turn lanes at intersections	MDOT	2040
MS 18	MS 468 to College Street/Star Road	Rankin	Recurring	Signal optimization, extend turn lanes at intersections	MDOT	2040
MS 18	Rosemont Drive to Louis Wilson Drive	Rankin	Recurring	Signal optimization, add/extend turn lanes at intersections	MDOT	2040
MS 18	Louis Wilson Drive to Rock Hill Road	Rankin	Non-Recurring	Safety improvements	MDOT	2040
MS 18 and Crossgates Boulevard	I-20 Eastbound Off-Ramp to Old Brandon Road	Rankin	Recurring and Public Outreach	Signal optimization, access management, Interchange improvements at I-20 (Road work on Crossgates Boulevard completed in 2023)	MDOT, Brandon	2030
MS 22	Spring Creek Road to Petrified Forest Road	Madison	Non-Recurring	Safety improvements	MDOT	2030
MS 22	Petrified Forest Road to US 49	Madison	Non-Recurring	Safety improvements, signal optimization, add turn lanes on MS 22	MDOT	2030
MS 22	US 49 to First Street (Flora)	Madison	LOTTR	Signal optimization, add turn lanes on MS 22	MDOT	2030
MS 22	First Street (Flora) to Nissan Parkway	Madison	Non-Recurring	Safety improvements	MDOT	2030
MS 22	Nissan Parkway to Virlilia Road	Madison	Recurring and Non-Recurring	Safety improvements, construct signal at Virlilia Road (if warranted)	MDOT	2030
MS 22	Virlilia Road to US 51	Madison	Recurring, Non-Recurring, and LOTTR	Safety improvements, signal optimization, access management	MDOT	2030
MS 25	I-55 to East Metro Parkway	Hinds and Rankin	Recurring and Non-Recurring	Safety improvements, signal optimization, access management	MDOT	2030
MS 25	Grants Ferry Road/Castlewoods Boulevard to MS 471	Rankin	Recurring	Signal optimization, access management	MDOT	2030
MS 43	MS 16 to Sharon Road	Madison	Non-Recurring and LOTTR	Safety improvements, signal optimization and turn lane improvements at MS 16	MDOT	2030
MS 43	MS 25 to MS 16 (Canton Parkway)	Rankin and Madison	Non-Recurring	Safety improvements	MDOT	2030
MS 463	Livingston Road to I-55	Madison	Recurring and Non-Recurring	Safety improvements, signal optimization, add/extend turn lanes at intersections, access management	MDOT	2030
MS 463	I-55 to Main Street	Madison	Recurring	Signal optimization, access management	MDOT	2030
MS 468 (Flowood Road)	US 80 to MS 475	Rankin	Non-Recurring and LOTTR	Safety improvements, signal optimization, access management	MDOT	2030
MS 471	At Old Highway 471/Terrapin Creek Road	Rankin	LOTTR	Signal optimization	MDOT	2030
MS 471	Grants Ferry Road to MS 25	Rankin	Non-Recurring	Safety improvements	MDOT	2030
MS 475	I-20 Eastbound Off-Ramp to US 80	Rankin	Recurring	Signal optimization, interchange improvements	MDOT	2030
MS 475	At Flowood Drive	Rankin	LOTTR	Signal optimization, extend short turn lanes	MDOT	2030

Roadway	Segment	County	Congestion Type[1]	Proposed Congestion Alleviation Strategy	Responsible Agency	Implementation Schedule (Construct by or before)
North West Street	Woodrow Wilson Avenue to Mayes Street	Hinds	LOTTR	Signal optimization, road diet/complete streets, improve/extend sidewalks	Jackson	2030
Northbrook Drive and Hanging Moss Road	Meadowbrook Road to Beasley Road	Hinds	Non-Recurring and LOTTR	Safety improvements, signal optimization, road diet/complete streets, improve/extend sidewalks	Jackson	2030
Northside Drive	Clinton Parkway to Cynthia Road	Hinds	Recurring	Signal optimization, add/extend turn lanes at intersections	Jackson	2030
Northside Drive	Medgar Evers Boulevard to Bailey Avenue/Watkins Drive	Hinds	Non-Recurring	Safety improvements	Jackson	2030
Northside Drive	Hanging Moss Road to Ridgewood Road	Hinds	Recurring	Signal optimization, road diet/complete streets, improve/extend sidewalks	Jackson	2030
Old Agency Road	I-55 Southbound Off-Ramp to I-55 Northbound Off-Ramp	Madison	Recurring	Signal optimization	Ridgeland	2030
Old Brandon Road	US 80 to MS 475	Rankin	Non-Recurring and LOTTR	Safety improvements	Pearl	2030
Old Canton Road	State Street to Lakeland Drive	Hinds	Recurring	Signal optimization	Jackson	2030
Old Canton Road	Ridgewood Road to Colonial Circle	Hinds	Non-Recurring	Safety improvements	Jackson	2030
Old Canton Road	Lake Harbour Drive to Natchez Trace Parkway	Madison	Recurring	Signal optimization, access management	Ridgeland	2030
Old Canton Road	Colonial Circle to County Line Road	Hinds	Recurring	Signal optimization, access management, improve/construct sidewalks	Jackson	2030
Old Fannin Road	MS 25 to Flowood Drive	Rankin	Recurring	Signal optimization, access management, add sidewalks	Flowood	2030
Old Fannin Road	Flowood Drive to Spillway Road	Rankin	Non-Recurring	Safety improvements	Flowood, Rankin County	2030
Parkside Place	Capitol Street to Woodrow Wilson Avenue	Hinds	Recurring	Road diet, improve/construct sidewalks	Jackson	2030
Pascagoula Street	University Boulevard to Jefferson Street	Hinds	Recurring	Signal optimization	Jackson	2030
Pearl Street	Congress Street to State Street	Hinds	Recurring	Signal optimization	Jackson	2030
Raymond Road	Siwell Road to Maddox Road	Hinds	Recurring	Signal optimization, add/extend turn lanes at intersections	Jackson	2030
Ridgewood Road	Northside Drive to Old Canton Road	Hinds	Recurring	Signal optimization, road diet/complete streets, improve/extend sidewalks	Jackson	2030
Ridgewood Road	Adkins Boulevard to US 51	Hinds and Madison	Recurring	Signal optimization, access management, add sidewalks	Jackson, Ridgeland	2030
Robinson Road	US 80 to Loflin Drive	Hinds	Recurring	Signal optimization, add sidewalks	Jackson	2030
Siwell Road	Big Creek Road to Terry Road	Hinds	Non-Recurring	Safety improvements	Byram	2030
Siwell Road	Terry Road to I-55 Northbound Off-Ramp	Hinds	Recurring and Public Outreach	Signal optimization, access management, interchange improvements at I-55	Byram	2030

Roadway	Segment	County	Congestion Type[1]	Proposed Congestion Alleviation Strategy	Responsible Agency	Implementation Schedule (Construct by or before)
Spillway Road	Harbor Drive to Lakeshore Drive	Madison and Rankin	LOTTR	Signal optimization	Ridgeland, Madison County, Rankin County, PRVWSD	2030
Spillway Road	Lakeshore Drive to Old Fannin Road/North Shore Parkway	Rankin	Recurring	Signal optimization, access management	Rankin County	2030
Springridge Road and Clinton Parkway	I-20 to East College Street	Hinds	Recurring	Signal optimization, access management	Clinton	2030
State Street	I-20 Westbound Off-Ramp to US 80 Eastbound Ramps	Hinds	Recurring	Signal optimization, extend northbound acceleration lane	Jackson	2030
State Street	Woodrow Wilson Avenue to Northside Drive	Hinds	Recurring	Signal optimization	Jackson	2030
State Street	Northside Drive to Beasley Road	Hinds	Recurring and Non-Recurring	Safety improvements, signal optimization	Jackson	2030
State Street	Pascagoula Street to Amite Street	Hinds	Recurring	Signal optimization	Jackson	2030
Terry Road	Forest Hill Road to McCluer Road/Savanna Street	Hinds	Recurring and Non-Recurring	Safety improvements, add turn lanes at intersections	Jackson	2030
Terry Road	McCluer Road/Savanna Street to Cooper Road	Hinds	LOTTR	Signal optimization	Jackson	2030
Terry Road	I-20 to US 80	Hinds	Recurring	Signal optimization, access management, extend turn lanes	Jackson	2030
US 49	At MS 469	Rankin	LOTTR	Signal optimization	MDOT	2050
US 49	Pinehaven Road to First Street (Flora)	Madison	Non-Recurring	Safety improvements	MDOT	2030
US 49 Northbound	I-20 On-Ramps to US 80	Rankin	Recurring	Signal optimization, extend northbound acceleration lane	MDOT	2030
US 51	At County Line Road	Madison	Recurring	Signal optimization, add/extend turn lanes	MDOT	2030
US 51	Ridgewood Road to Jackson Street	Madison	Recurring	Signal optimization, access management, add sidewalks	MDOT	2030
US 51	Jackson Street to Weisenberger Road/Yandell Road	Madison	Non-Recurring	Safety improvements	MDOT	2040 (Tisdale Road to Weisenberger Road/Yandell Road)
US 51	Yandell Road to North Old Canton Road	Madison	Non-Recurring and LOTTR	Safety improvements, signal optimization, add/extend turn lanes at intersection	MDOT	2040
US 51	North Old Canton Road to MS 16 (Canton Parkway)/Nissan Parkway	Madison	Recurring and Non-Recurring	Safety improvements, signal optimization, add/extend turn lanes at intersection	MDOT	2040
US 51	MS 16 (Canton Parkway)/Nissan Parkway to MS 22 (Peace Street)	Madison	Non-Recurring	Safety improvements	MDOT	2040
US 51	MS 22 (Peace Street) to Northgate Drive	Madison	Recurring	Signal optimization, add/extend turn lanes at intersections	MDOT	2030
US 51	Northgate Drive to MS 16	Madison	Recurring	Signal optimization, add/extend turn lanes at intersections	MDOT	2030
US 51	MS 16 to Way Road	Madison	Non-Recurring	Safety improvements	MDOT	2030
US 80	I-20 to Mt. Salus Road	Hinds	Recurring	Signal optimization, access management	MDOT	2030
US 80	Mt. Salus Drive to MS 18	Hinds	Non-Recurring	Safety improvements	MDOT	2030
US 80	MS 18 to I-220	Hinds	Recurring	Signal optimization, access management	MDOT	2030

Roadway	Segment	County	Congestion Type[1]	Proposed Congestion Alleviation Strategy	Responsible Agency	Implementation Schedule (Construct by or before)
US 80	Flowood Drive to Old Brandon Road	Rankin	Recurring and LOTTR	Signal optimization, access management	MDOT	2030
US 80	MS 468 (Pearson Road) to Stribling Road	Rankin	Non-Recurring	Safety improvements	MDOT	2030
US 80	Stribling Road to MS 18	Rankin	Recurring and Non-Recurring	Signal optimization	MDOT	2030
US 80	At MS 475	Rankin	LOTTR	Signal optimization, extend turn lanes	MDOT	2030
US 80	MS 18 to MS 471	Rankin	Recurring	Signal optimization, access management, interchange improvements at I-20	MDOT	2050
US 80	MS 471 to I-20 Eastbound Off-Ramp	Rankin	Recurring and Non-Recurring	Safety improvements, signal optimization, improve/extend sidewalks	MDOT	2030
US 80	At I-20 (East Brandon)	Rankin	LOTTR	Interchange improvements	MDOT	2030
US 80	I-20 Westbound Off-Ramp to MS 43	Rankin	Non-Recurring	Safety improvements	MDOT	2030
US 80 (Clinton Raymond Road)	I-20 Eastbound Off-Ramp to I-20 Westbound Off-Ramp	Hinds	Recurring and Public Outreach	Signal optimization, interchange improvements	MDOT	2030
Watkins Drive	Northside Drive to Beasley Road	Hinds	Non-Recurring and LOTTR	Safety improvements, improve/extend sidewalks	Jackson	2030
Watkins Drive	I-220 Northbound Off-Ramp to I-220 Southbound Off-Ramp	Hinds	Recurring	Signal optimization, interchange improvements	Jackson	2030
Woodrow Wilson Avenue	Fortification Street to Medgar Evers Boulevard/Livingston Road	Hinds	Recurring and LOTTR	Signal optimization, access management	Jackson	2030
Woodrow Wilson Avenue	Medgar Evers Boulevard/Livingston Road to I-55	Hinds	Recurring	Signal optimization, access management, improve/construct sidewalks	Jackson	2030

NOTE 1: Congestion Types

- Recurring: Locations identified in the Recurring Congestion Analysis (**Table 2.7**)
- Non-Recurring: Locations identified in the Non-Recurring Congestion Analysis (**Table 2.9**)
- LOTTR: Locations identified in the LOTTR analysis that were not identified in the Recurring Congestion Analysis (**Table 2.10**)
- Public Outreach: Locations identified by Public Outreach (**Table 2.8**)

2.7 Step 7: Program and Implement Strategies

The strategy toolbox identified in the previous section is expected to be subject to a rigorous evaluation process by different stakeholders. The process will include additional and more detailed analysis of short-listed projects pertaining to potential operational, safety, and cost elements associated with the implementation phase. A number of these projects might include transportation policy modifications or demand restraints which might require additional collaboration and outreach from elected officials. The implementation process might also require allocation of additional resources.

Programming and Implementation

Projects that are programmed for implementation are included in the Transportation Improvement Program (TIP)[14], a multi-year listing of transportation projects that have received a commitment of funding from a combination of federal, state, and/or local sources within the Metropolitan Planning Area. The TIP includes projects of various capital and operating needs, maintenance of the public transit services, and construction of bicycle and pedestrian improvements.

The current TIP for the Jackson MPO is the 2025 – 2028 Jackson MPO Transportation Improvement Program.

The majority of funding sources for projects in the TIP come from federal funds allocated to Mississippi through transportation legislation that is administered through the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA).

The current funding programs used by the MPO, MDOT, and Local Public Agencies to implement projects within the 2025-2028 TIP include:

- Bridge Repair
- Earmark
- Federal Lands Access Program
- Federal Lands Transportation Program
- Highway Infrastructure Program

[14] https://cmpdd.org/images/transportation/tip/2025-2028_TIP.pdf

- Highway Safety Improvement Program
- Interstate Maintenance
- National Highway System
- National Highway Performance Program
- Section 5307 Urbanized Area Formula Program
- Section 5339 Bus and Bus Facilities Program
- Local Funds
- Section 5339 c Discretionary Low or No Emission Program
- State Funds
- Safe Routes to School
- Surface Transportation Block Grant – MPO
- Surface Transportation Block Grant – State
- Transportation Alternatives – MPO
- Transportation Alternatives – State
- Carbon Reduction Program

CMP Implementation Partners

CMPDD will work with the agencies listed below to implement many of its congestion mitigation strategies:

- Hinds, Madison, and Rankin Counties
- Cities of:
  - Bolton
  - Brandon
  - Byram
  - Canton
  - Clinton
  - Florence
  - Flora
  - Flowood
  - Gluckstadt
  - Jackson
  - Madison
  - Pearl
  - Pelahatchie
  - Raymond
  - Richland
  - Ridgeland
  - Terry
- MDOT
- FHWA
- FTA

The CMPDD programed projects in the 2025 – 2028 TIP can be found in **Sections 11.0 Jackson MPO – LPA Sponsored Projects**, **12.0 The Jackson MPO – Transit Sponsored Projects**, **13.0 MDOT Sponsored Projects,** and **14.0 Eastern Federal Lands Highway Division Sponsored Projects** of the *2025 – 2028 Jackson MPO Transportation Improvement Program*[14].

2.8 Step 8: Evaluate Strategy Effectiveness

Federal Guidelines for Maintaining the Congestion Management Process

The federal legislation sections regarding the maintenance of the CMP are listed on the following page.

Section 450.322 (d)(3) of Subpart C (Metropolitan Transportation Planning and Programming), 23 CFR (Final Rule)

- A CMP shall include the establishment of a coordinated program for data collection and system performance monitoring to define the extent and duration of congestion, to contribute in determining the causes of congestion, and evaluate the efficiency and effectiveness of implemented actions. To the extent possible, this data collection program should be coordinated with existing data sources (including archived operational/ITS data) and coordinated with operations managers in the metropolitan area.

Section 450.322 (d)(6) of Subpart C (Metropolitan Transportation Planning and Programming), 23 CFR

- The CMP shall include the implementation of a process for periodic assessment of the effectiveness of implemented strategies, in terms of the area's established performance measures. The results of this evaluation shall be provided to decision makers and the public to provide guidance on selection of effective strategies for future implementation.

System Performance and Maintenance

The overall goal of the CMP is to reduce traffic congestion within the planning area and improve free-flow traffic conditions through the implementation of proposed congestion reduction strategies and projects. Two comparative analyses were performed to measure the effectiveness the proposed strategies within the 2045 MTP CMP had on reducing traffic congestion in the region.

The first comparative analysis compares the planning area performance measures between the 2045 MTP CMP and the 2050 MTP CMP. The summary of this comparison is shown in **Table 2.16**. The changes in the performance measures are summarized below:

- The improved performance measures include:
  - Average Annual Crashes in Five-Year Period
  - Average Annual Bicycle/Pedestrian Crashes in Five-Year Period
  - Total Vehicle Hours of Delay (VHD)
  - Interstate Percent of Person-Miles Traveled that are Reliable
  - Truck Vehicle Hours of Delay (VHD)

  - Truck Travel Time Relilability (TTTR)
  - Bicycle and Pedestrian Inventory (mileage)
- The worsened performance measures include:
  - Transit Ridership
  - Average Annual Fatal Crashes in Five-Year Period
  - Average Annual Serious Injury Crashes in Five-Year Period
  - Average Annual Bicycle/Pedestrian Fatal Crashes in Five-Year Period
  - Average Annual Bicycle/Pedestrian Serious Injury Crashes in Five-Year Period
  - Non-Interstate Percent of Person-Miles Traveled that are Reliable

Table 2.16: CMPDD 2045 MTP CMP and CMPDD 2050 MTP CMP Planning Area Comparative Analysis

Performance Measure[1]	2045 MTP CMP	2050 MTP CMP	Change
Bicycle and Pedestrian Inventory (mileage)[A]	306	805	↗
Transit Ridership[A]	516,318	402,462	↘
Average Annual Crashes in Five-Year Period[B]	16,555.2	15,380.8	↘
Average Annual Fatal Crashes in Five-Year Period[B]	62.0	76.2	↗
Average Annual Serious Injury Crashes in Five-Year Period[B,C]	45.8	329.4	↗
Average Annual Bicycle/Pedestrian Crashes in Five-Year Period[B]	140.6	122.2	↘
Average Annual Bicycle/Pedestrian Fatal Crashes in Five-Year Period[B]	11.4	19.2	↗
Average Annual Bicycle/Pedestrian Serious Injury Crashes in Five-Year Period[B,C]	8.6	32.4	↗
Total VHD[B]	36,554	17,911	↘
Interstate Percent of Person-Miles Traveled that are Reliable [A]	99.3%	100.0%	↗
Non-Interstate Percent of Person-Miles Traveled that are Reliable [A]	86.2%	84.9%	↘
Truck VHD[B]	2,688	917	↘
TTTR[B]	1.24	1.18	↘

NOTE 1A: ↗ indicates an improvement, ↘ indicates worsening changes, - indicates no changes
NOTE 1B: ↘ indicates an improvement, ↗ indicates worsening changes, - indicates no changes
NOTE 1C: There was a redefinition of Serious Injury crashes in 2019.

The second comparative analysis shows the proposed improvement for the 2045 MTP CMP congested roadways, if that roadway is congested in the 2050 MTP CMP, if there is an ongoing project, and the 2050 MTP project implementation schedule. The results of the comparative analysis between the 2045 MTP CMP and the 2050 MTP CMP are shown in **Table 2.17**.

As shown in **Table 2.17**, there are four (4) segments that were in the 2045 MTP CMP where improvements were implemented and are removed in the 2050 MTP CMP due to improved conditions. Those segments (along with improvements) are:

- I-55 Northbound from East Northside Drive to I-220 (Third northbound lane constructed on I-55 at the I-220 interchange)
- US 49 from Old Highway 49 to Cleary Road (Widened from four (4) lanes to six (6) lanes)
- US 49 Northbound at I-220 (Vehicle detection upgraded at I-220 Southbound Off-Ramp signal)
- I-55 Northbound from Gluckstadt Road to MS 22 (Cable median barrier installed on I-55)

Future Actions

To meet 23 CFR Section 450.322 (d)(3), the CMPDD will need to regularly collect data to monitor the effectiveness of the congestion management strategies implemented throughout the region. This will be done as part of the CMP update process, as well as the additional analysis conducted as part of the MTP. These efforts will include evaluation of the performance of the regional transportation system as part of the MTP, but also additional analysis of the corridors included in the existing CMP network and the CMP network as updated by the MTP. Additionally, the MPO can evaluate the anticipated congestion impacts of candidate projects using the MPO's Travel Demand Model.

To understand the impact of the CMP strategies, the MPO can begin collecting data on projects included in the TIP to determine the before and after impacts of these projects and if they are assisting with CMP efforts and how projects may need to be changed to align with the CMP strategies. The MPO will review the results of these before and after analyses to assist in the identification of effective and ineffective strategies and revise the CMP as needed. Additionally, the CMP will be available on the MPO's website, available for public commenting during the MTP update process, and be part of the input sought from the general public during the public outreach process.

Table 2.17: CMPDD 2045 MTP CMP and CMPDD 2050 MTP CMP Corridor Comparative Analysis

Road	Segment	CMPDD 2045 MTP CMP Proposed Improvement	Segment in CMPDD 2050 MTP CMP	CMPDD 2050 MTP CMP Congestion Type[1]	Previous Implementation Schedule (CMPDD 2045 MTP CMP)	Status since CMPDD 2045 MTP CMP	Current Implementation Schedule (CMPDD 2050 MTP CMP)
MS 18 E	I-20 to MS 468	Widen to six (6) lanes from I-20 to Greenfield Rd; widen to four (4) lanes from Greenfield Rd to MS 468; and traffic operational improvements (signal retiming and/or access management)	Yes	RC - Greenfield Rd to Marquette Rd NRC - Entire Segment LOTTR - I-20 to Greenfield Rd	2035	Vehicle detection upgraded at intersections.	2040
Cunningham St/Green Gable Rd	I-55 Southbound Off-Ramp to I-55 Northbound Off-Ramp	Traffic operational improvements (interchange modification)	No	N/A	2025	N/A	N/A
E County Line Rd	I-55 to Ridgewood Ct Dr	Traffic operational improvements (signal retiming and/or access management)	Yes	RC - Entire Segment NRC - Ridgewood Rd to Ridgewood Ct Dr	2025	N/A	2030
Flowood Dr	Liberty Rd to Old Fannin Rd	Traffic operational improvements (signal retiming)	No	N/A	2025	N/A	N/A
Flowood Dr	I-20 to US 80	Traffic operational improvements (signal retiming)	Yes	RC - Entire Segment	2025	N/A	2030
I-55	E Fortification St to E Woodrow Wilson Ave	Improved ITS; promote use of alternate routes	Partial	RC - Southbound Segment	2025	N/A	2040
I-55 (Northbound)	Off-Ramp to Old Agency Rd to On-Ramp from Old Agency Rd	Improved ITS; promote use of alternate routes	No	N/A	2025	N/A	N/A
I-55 (Northbound)	E Northside Dr to I-220	Improved ITS; promote use of alternate routes	No	N/A	2025	N/A	N/A
I-55 (Southbound)	On-Ramp from Westbound Gluckstadt Rd to On-Ramp from Eastbound Gluckstadt Rd	Improved ITS; promote use of alternate routes	Yes	RC - Entire Segment	2025	N/A	2030
I-55 (Southbound)	Off-Ramp to Lakeland Dr to On-Ramp from Westbound Lakeland Dr	Improved ITS; promote use of alternate routes	No	N/A	2025	N/A	2040
I-55 (Southbound)	Off-Ramp to High St to Off-Ramp to E Pascagoula St	Improved ITS; promote use of alternate routes	Yes	RC - Entire Segment	2025	N/A	2040
I-55 (Southbound)	On-Ramp from High St to On-Ramp from E Pascagoula St	Improved ITS; promote use of alternate routes	Yes	RC - Entire Segment	2025	N/A	2040
I-55 (Southbound)	State St to McDowell Rd	Improved ITS; promote use of alternate routes	No	N/A	2025	N/A	N/A
I-55 Northbound Frontage Rd	Off-Ramp to E County Line Rd to On-Ramp from E County Line Rd	Traffic operational improvements (signal retiming)	Yes	RC - Entire Segment	2025	N/A	2030
Medgar Evers Blvd	I-220 to W Woodrow Wilson Ave	Traffic operational improvements (signal retiming and/or access management)	Yes	NRC - Entire Segment LOTTR - Entire Segment	2025	N/A	2030
MS 18 E	US 80 to I-20	Widen to six (6) lanes; and traffic operational improvements (signal retiming and/or access management)	Yes	RC - Entire Segment	2035	Vehicle detection upgraded at intersections.	2040
MS 18 E	Rosemont Dr to Louis Wilson Dr	Widen to four (4) lanes; and traffic operational improvements (signal retiming and/or access management)	Yes	RC - Entire Segment	2045	Signal installed and left turn lane constructed at Louis Wilson Dr.	2040
MS 18 W	Lynch St to US 80	Traffic operational improvements (signal retiming and/or access management)	Yes	LOTTR - Entire Segment	2025	N/A	2030
MS 18 W	McDowell Rd to I-20	Traffic operational improvements (signal retiming and/or access management)	Yes	RC - Entire Segment	2025	Vehicle detection upgraded at intersections. New signal equipment installed at McDowell Rd.	2030

Road	Segment	CMPDD 2045 MTP CMP Proposed Improvement	Segment in CMPDD 2050 MTP CMP	CMPDD 2050 MTP CMP Congestion Type[1]	Previous Implementation Schedule (CMPDD 2045 MTP CMP)	Status since CMPDD 2045 MTP CMP	Current Implementation Schedule (CMPDD 2050 MTP CMP)
MS 22	W Fulton St to King Ranch Rd	Traffic operational improvements (access management and/or intersection modifications)	Yes	NRC - Entire Segment LOTTR - Entire Segment	2025	Signal installed at King Ranch Rd.	2030
MS 25	I-55 to 0.14 miles west of MS 475	Traffic operational improvements (signal retiming and/or access management)	Yes	RC – Entire Segment NRC - Ridgewood Rd to MS 475 LOTTR - At Ridgewood Rd; At MS 475	2025	Vehicle detection upgraded at intersections.	2030
MS 25	MS 475 to E Metro Pkwy	Traffic operational improvements (signal retiming and/or access management)	Yes	RC	2025	N/A	2030
MS 463	N Livingston Rd to Main St	Widen to four (4) lanes; and traffic operational improvements (signal retiming and/or access management)	Yes	RC - Entire Segment NRC - Livingston Rd to I-55	2035	Vehicle detection upgraded at intersections.	N/A
MS 468	Lake Cir to Greenfield Rd	Widen to four (4) lanes; and traffic operational improvements (intersection modifications)	No	N/A	2045	N/A	N/A
MS 475	US 80 to I-20	Widen to six (6) lanes; and traffic operational improvements (signal retiming)	Yes	RC - At I-20 NRC - Country Place Dr to US 80	2045	Vehicle detection upgraded at intersections.	N/A
Natchez Trace Pkwy	Rice Rd to Old Canton Rd	Traffic operational improvements (intersection modifications)	No	N/A	2025	N/A	N/A
Northshore Pkwy	0.44 miles east of Parkway Rd to Fannin Landing Cir	Promote use of alternate routes	No	N/A	2025	N/A	N/A
Old Canton Rd	W Tidewater Rd to McClellan Dr	Traffic operational improvements (signal retiming)	No	N/A	2025	N/A	N/A
Old Canton Rd	Calumet Dr to St Augustine Dr	Traffic operational improvements (signal retiming; school access improvements)	No	N/A	2025	N/A	N/A
Old Canton Rd	Canton Mart Rd to Ridgewood Rd	Traffic operational improvements (signal retiming)	Yes	RC – Entire Segment	2025	N/A	2030
Old US 49	0.70 miles south of US 80 to 0.35 miles south of US 80	Traffic operational improvements (access management)	No	N/A	2025	N/A	N/A
Spillway Rd	0.22 miles west of Northshore Pkwy to Northshore Pkwy	Traffic operational improvements (signal retiming and/or access management)	Yes	RC - Entire Segment	2025	New signal equipment installed at Northshore Pkwy.	2030
State St	W County Line Rd to I-55 South Frontage Rd	Traffic operational improvements (signal retiming)	Partial	RC - At County Line Rd Only	2025	County Line Rd extended west of State St.	2030
State St	I-20 to Beasley Rd	Traffic operational improvements (signal retiming; access management; and/or road diet)	Partial	RC - At US 80; Woodrow Wilson Ave to Beasley Rd NRC - Northside Dr to Beasley Rd	2025	State St. reduced from three (3) lanes to two (2) lanes and sidewalks/bike path constructed between Hartfield St and Choctaw Rd; reduced from four (4) lanes to three (3) lanes and sidewalk constructed between Northside Dr and Sheppard Rd.	2030
US 49	Old US 49 to Cleary Rd	Widen to six (6) lanes; and traffic operational improvements (signal retiming and/or access management)	No	N/A	2022	Project completed in 2022	N/A

Road	Segment	CMPDD 2045 MTP CMP Proposed Improvement	Segment in CMPDD 2050 MTP CMP	CMPDD 2050 MTP CMP Congestion Type[1]	Previous Implementation Schedule (CMPDD 2045 MTP CMP)	Status since CMPDD 2045 MTP CMP	Current Implementation Schedule (CMPDD 2050 MTP CMP)
US 49 (Northbound)	On-Ramp to I-220 Southbound to Off-Ramp from I-220 Southbound	Traffic operational improvements (signal retiming)	No	N/A	2025	Vehicle detection upgraded at I-220 Southbound off-ramp signal.	N/A
US 51	Lake Harbour Dr to MS 463	Traffic operational improvements (signal retiming and/or access management)	Yes	RC - Lake Harbour Dr to Rice Rd NRC - Natchez Trace Pkwy to MS 463 LOTTR - At Rice Rd	2025	Lake Harbour Dr extended west of US 51. Colony Park Blvd extended from Sunnybrook Rd to US 51. Vehicle detection upgraded at intersections.	2030
US 80	I-20 (Clinton – Exit 35) to Wiggins Rd	Traffic operational improvements (signal retiming and/or access management)	Yes	NRC - Mt Salus Dr to Wiggins Rd LOTTR - I-20 to Mt Salus Dr	2025	N/A	2030
US 80	MS 18 W to Ellis Ave	Traffic operational improvements (signal retiming and/or access management)	Partial	RC - MS 18 W to I-220	2025	N/A	2030
US 80	Flowood Dr to Childre Rd	Widen to six (6) lanes; and traffic operational improvements (signal retiming)	Yes	LOTTR - Entire Segment	2045	New signal equipment installed at Flowood Dr.	2030
US 80	MS 475 to I-20 (West Brandon)	Traffic operational improvements (signal retiming and/or access management)	Partial	RC – MS 18 E to I-20 (West Brandon) NRC - MS 475 to MS 18 E LOTTR - At MS 475	2025	New signal equipment installed and/or vehicle detection upgraded at intersections. Left turn lanes extended at Woodgate Dr, Eastgate Dr, and Municipal Dr.	2030
US 80	MS 471 to College St	Traffic operational improvements (signal retiming and/or access management)	Yes	RC - Entire Segment NRC - Entire Segment	2025	Vehicle detection upgraded at College St.	2050
US 80	Trickham Bridge Rd to 0.18 miles west of I-20	Construct Center Turn Lane (CTL)	Yes	RC - Entire Segment NRC - Entire Segment	2035	New signal installed and turn lanes constructed at Trickham Bridge Rd/Pleasant St.	2030
US 80	Terry Rd to S Gallatin St	Traffic operational improvements (signal retiming)	Partial	LOTTR - At Terry Rd	2025	N/A	2030
W Woodrow Wilson Ave	Medgar Evers Blvd to I-55	Traffic operational improvements (signal retiming and/or access management)	Yes	RC	2025	Signal installed at Peachtree St. Vehicle detection upgraded at VA/MHP Driveway.	N/A
I-55 (Northbound)	Gluckstadt Rd to MS 22	Safety improvements	No	N/A	2025	Cable barrier installed.	N/A
MS 16	MS 43 to Sharon Rd	Safety improvements	Yes	NRC - Entire Segment	2025	Roadway resurfaced.	2030
MS 18 E	Louis Wilson Dr to Rock Hill Rd	Widen to four (4) lanes between Louis Wilson Dr and Mohr Rd; safety improvements	Yes	NRC - Entire Segment	2045	N/A	2040 (Louis Wilson Dr to Sanctuary Dr)
MS 22	MS 463 to Nissan Pkwy	Safety improvements	Yes	NRC - Entire Segment	2025	Roadway resurfaced. Westbound left turn lane striped at MS 463. New signal installed at Nissan Pkwy.	2030
MS 22	1st St (Flora) to MS 463	Safety improvements	Yes	NRC - Entire Segment	2025	N/A	2030

Road	Segment	CMPDD 2045 MTP CMP Proposed Improvement	Segment in CMPDD 2050 MTP CMP	CMPDD 2050 MTP CMP Congestion Type[1]	Previous Implementation Schedule (CMPDD 2045 MTP CMP)	Status since CMPDD 2045 MTP CMP	Current Implementation Schedule (CMPDD 2050 MTP CMP)
MS 25	MS 43 to Lone Pine Church Rd	Safety improvements	No	N/A	2025	N/A	N/A
MS 43	Natchez Trace Pkwy to Canton Pkwy	Safety improvements	Yes	NRC - Entire Segment	2025	N/A	2030
MS 43	MS 471 to Natchez Trace Pkwy	Safety improvements	Yes	NRC - Entire Segment	2025	N/A	2030
US 51	MS 16 W to Way Rd	Safety improvements	Yes	NRC - Entire Segment	2025	N/A	2030
US 51	MS 463 to Weisenberger Rd	Widen to five (5) lanes between Tisdale Rd and Weisenberger Rd; safety improvements	Yes	NRC - Entire Segment	2045	New signal installed and turn lanes constructed at Reunion Pkwy/Green Oak Ln.	2040 (Tisdale Road to Weisenberg Rd)
US 51	Weisenberger Rd to Canton Pkwy	Safety improvements	Yes	NRC - Entire Segment	2025	N/A	2040
US 80	MS 43 to Scott County Line	Safety improvements	No	N/A	2025	N/A	N/A
US 80	I-20 (East Brandon) to MS 43	Safety improvements	Yes	NRC - Entire Segment	2025	N/A	2030

NOTE 1: Congestion Types

- RC: Recurring Congestion
- NRC: Non-recurring Congestion
- LOTTR: Level of Travel Time Reliability locations not flagged by the recurring congestion analysis

3.0 Cost of Congested Travel

Since traffic congestion imposes substantial direct and indirect costs on transportation system users, including excess travel time, additional fuel consumption and emissions, decreased travel time reliability as well as delayed freight operations, the need of accurate quantification of congestion costs is important. Most approaches to estimate congestion costs on the national or regional levels focused mainly on direct costs pertaining to excess travel time and fuel consumption by the system user. The problem with these approaches is that they do not take into consideration additional costs accumulated due to the increased unreliability or decreased mobility, for example. Although the travel time cost represents the major cost category, the system is expected to endure while making a trip from one origin to another destination, there are a few other types that need to be considered including:

Unreliability Cost: The cost assumed by drivers in having to make necessary adjustments to account for the unpredictability of the total trip duration due to congestion. Travelers cope to some extent by leaving early for a destination or using alternative modes in anticipation of delays, which sometimes result in additional inconveniences.

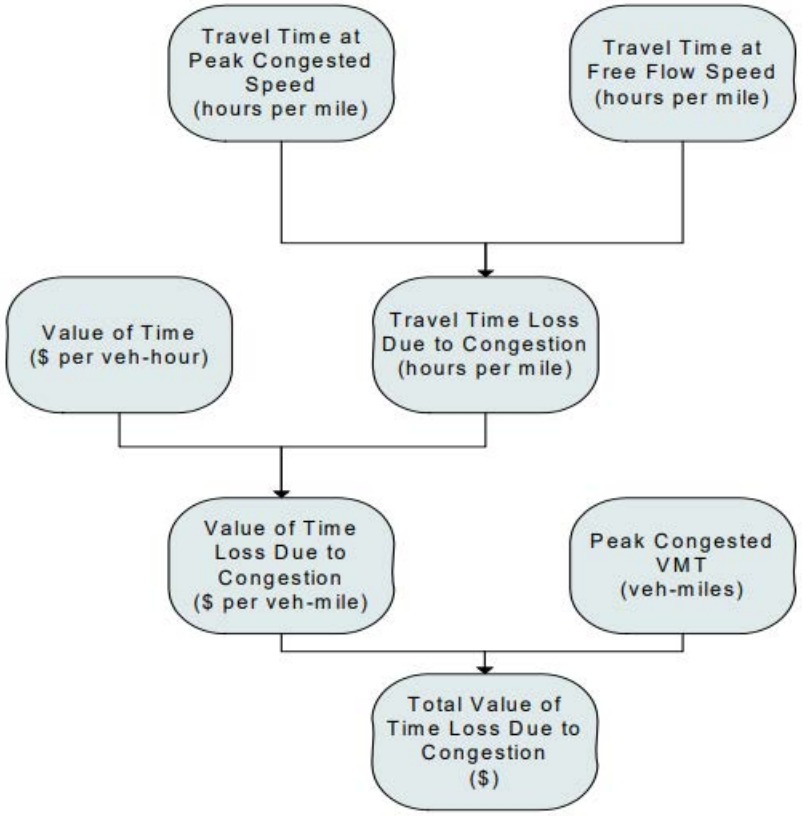
Vehicle Operating Cost: Traffic congestion leads to higher vehicle operating costs due to additional fuel consumption as well as extra wear-and-tear to the vehicle.

Mobility Cost: The mobility cost captures the productivity lost due to postponed or cancelled trips and is estimated as the consumer surplus derived from additional trips that would occur if congestion was alleviated or eliminated.

Emission Cost: The negative impacts of pollution depend not only on the quantity of emissions produced, but on the types of pollutants emitted, which has a direct contribution to the cost of travelling due to the operational and environmental tolls.

Appropriate estimation of excess travel time cost is extremely significant since it represents the largest fraction of the total cost of congestion. As mentioned before, travel time delay represents the value of the total amount of time that road users anticipate losing during congestion as compared to free flow travel. **Figure 3.1** illustrates the methodology of calculating excess travel time due to congestion.

Figure 3.1: Structure and Logic Diagram for Travel Time Cost



Source: USDOT Assessing the Full Costs of Congestion on Surface Transportation Systems and Reducing Them through Pricing https://www.transportation.gov/sites/dot.gov/files/docs/Costs%20of%20Surface%20Transportation%20Congestion.pdf

Accordingly, the travel time per mile in the peak congested period is:

$$Peak\ Congested\ Travel\ Time = \frac{Peak\ Congested\ Period\ Daily\ VHT}{Peak\ Congested\ Period\ Daily\ VMT}$$

Where:

- Peak Congested Vehicle Hours Traveled (VHT) is the difference between the VHT in the entire peak period (8 hours) and the VHT in the uncongested portion of that period.

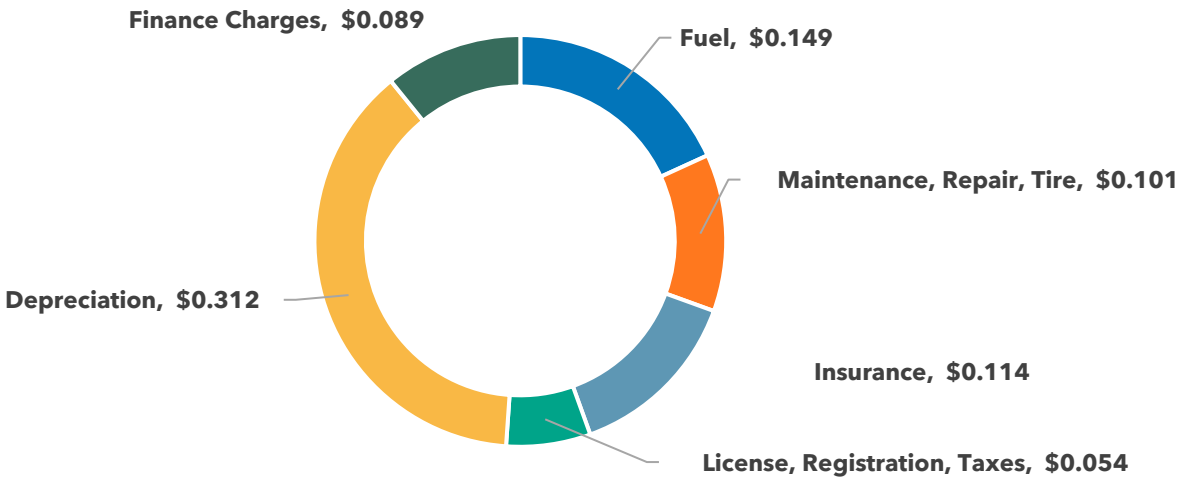
The value of excess travel time is the average differential cost of the extra travel time resulting from congestion according to the Texas A&M Transportation Institute Urban Mobility Report[15] criteria which has two key components: time and fuels utilized during congestion periods. Both components are estimated separately from each other. The datum for estimating the value of delay time is the median Bureau of Labor

[15] https://static.tti.tamu.edu/tti.tamu.edu/documents/mobility-report-2023-appx-c.pdf

Statistics (BLS) wage estimates for all occupations. Using a vehicle occupancy rate of 1.5 persons per vehicle and the median hourly wage for 2022 is $23.12 per person and the estimated value of delay time is $34.68 per personal vehicle.

The American Automobile Association (AAA) report included values for vehicle operating costs that was used as a basis to calculate the marginal cost per mile of travel for passenger vehicles, which are shown in **Figure 3.2**. The individual costs associated with the different classes of vehicles were weighed to produce an acceptable approximation for the operating vehicle.

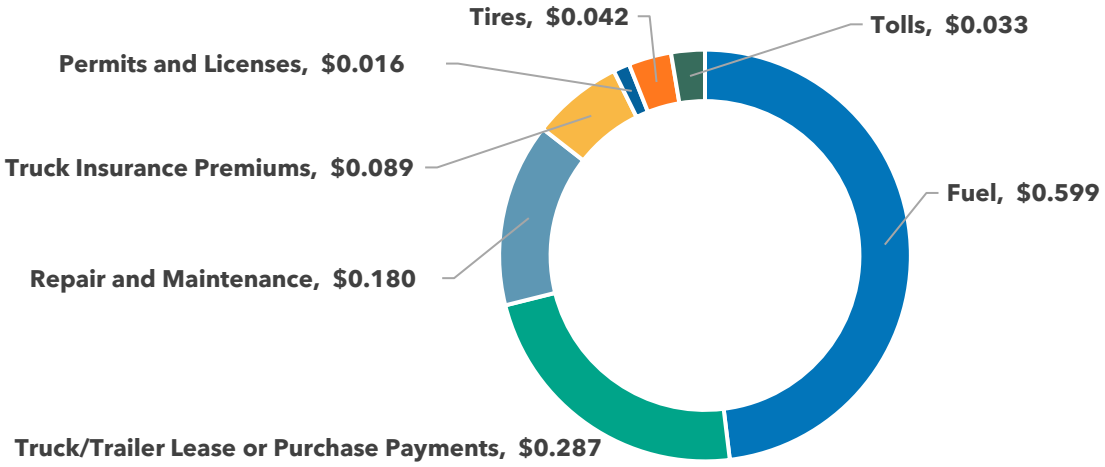
Figure 3.2: 2024 Passenger Vehicle Operating Costs per Mile



Source: American Automobile Association (AAA)

Figure 3.3 illustrates a breakdown of operational trucking costs according to the American Transportation Research Institute (ATRI) annual survey. Values are calculated on a per-mile and per-hour basis, which indicates an estimated average operating cost for commercial trucks of $1.246 per mile for 2024.

Figure 3.3: 2024 Estimates of Truck Operational Costs per Mile



Source: American Transportation Research Institute (ATRI)

The *Texas A&M Transportation Institute Urban Mobility Report* illustrates congestion data within urban areas. This data includes annual excess fuel consumption, annual hours of delay, and annual congestion cost. The annual excess fuel consumption within the Jackson Metropolitan Area is shown in **Figure 3.4**. The annual hours of delay within the Jackson Metropolitan Area are shown in **Figure 3.5**. The Annual Congestion Cost within the Jackson Metropolitan Area is shown in **Figure 3.6**. As shown in these figures, there have been steady increases in excess fuel consumption, delays, and congestion costs since 2014, with the exception of decreases between 2019 and 2020 due to the COVID-19 pandemic.

The Urban Area Report performance measure summary for Jackson can be found in **Appendix G**. It should be noted that the borders of the Jackson Urbanized Area in the Urban Area Report do not match the planning area boundaries.

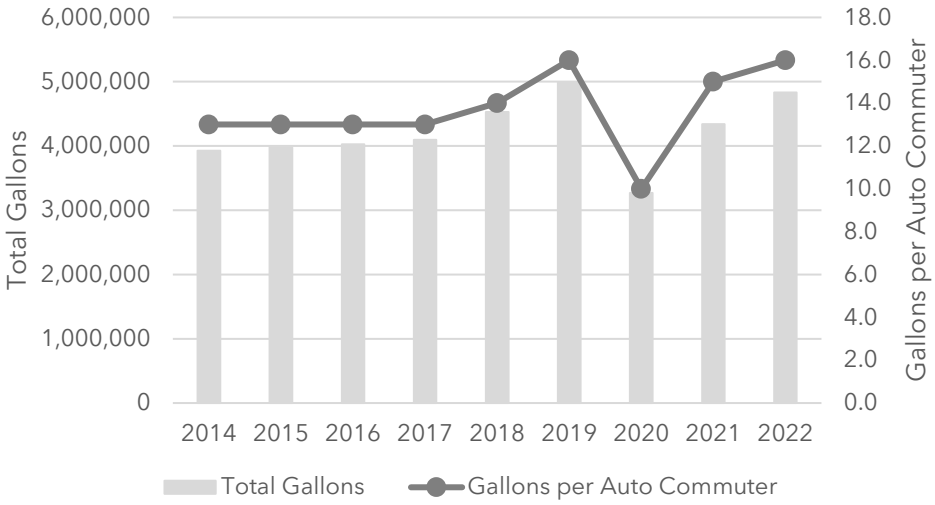
Due to data access limitations, the focus of this CMP would be to estimate the travel time cost due to excessive delay and vehicle operating cost.

Figure 3.4: Annual Excess Fuel Consumption within the Jackson Metropolitan Area

NATIONAL RANK

96

Excess Fuel Consumed Rank



NATIONAL RANK

92

Excess Fuel Consumed per Auto Commuter Rank

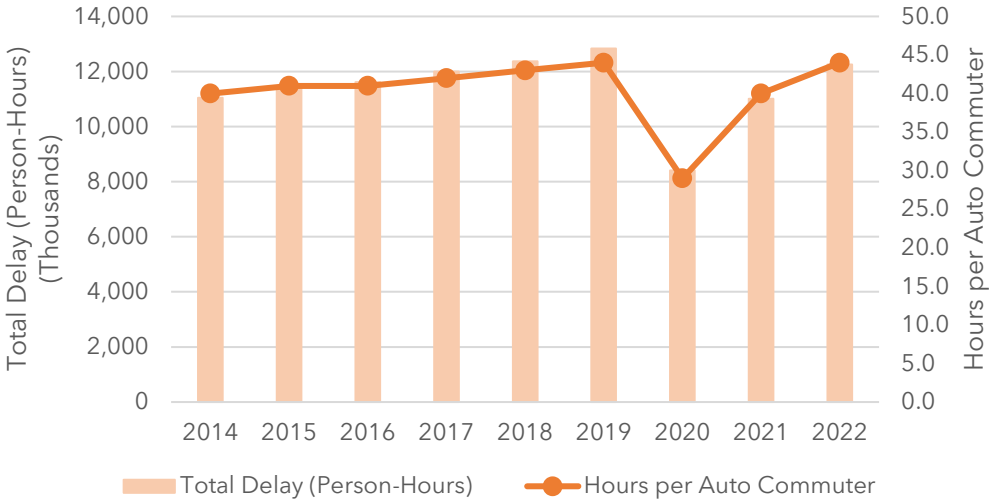
Source: Texas A&M Transportation Institute

Figure 3.5: Annual Hours of Delay within the Jackson Metropolitan Area

NATIONAL RANK

89

Delay Rank



NATIONAL RANK

62

Delay per Auto Commuter Rank

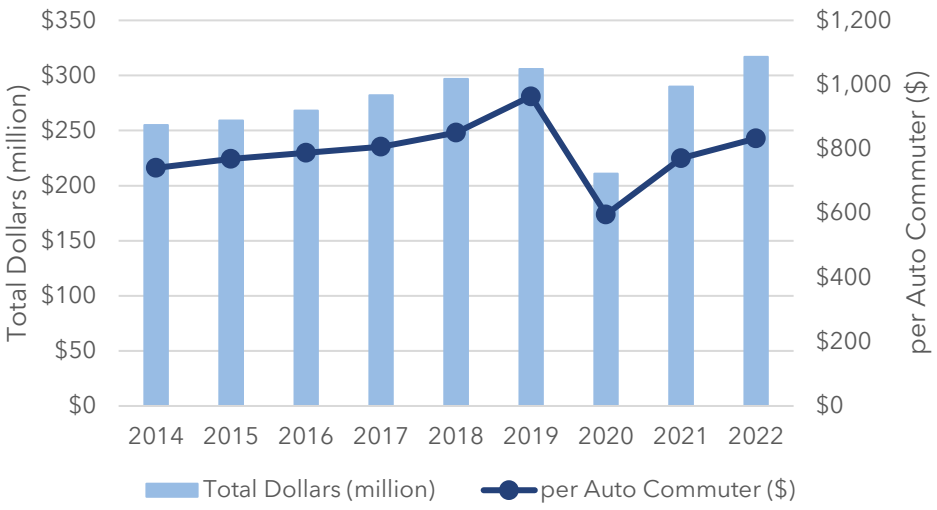
Source: Texas A&M Transportation Institute

Figure 3.6: Annual Congestion Cost within the Jackson Metropolitan Area

NATIONAL RANK

93

Cost Rank



NATIONAL RANK

100

Cost per Auto Commuter Rank

Source: Texas A&M Transportation Institute

4.0 Future Congestion

Using the results from the Travel Demand Model, with only the "Existing plus Committed" (E+C) Projects implemented, in the region, the Vehicle Miles Traveled will increase by **36 percent** from 2022 to 2050, and the Vehicle Hours Traveled will increase by **44 percent** from 2022 to 2050. However, during this same time period, the Vehicle Hours of Delay will increase by **164 percent**. This large increase in Vehicle Hours of Delay is expected to result in increased congestion on the roadway network. Chapter 4 of *Technical Report #4: Needs Assessment* further summarizes the congestion relief needs.

Using the same methodology for recurring congestion that was discussed in ***2.5 Step 5: Analyze Congestion Problems and Needs***, scores were developed for each link in the 2050 CMP network.

A non-recurring congestion analysis for the future was not conducted since the occurrence of random events such as crashes, road construction, or special events in the future cannot be determined. However, segments that currently experience non-recurring congestion due to crashes may experience longer delays in the future if no improvements are made. ***2.5 Step 5: Analyze Congestion Problems and Needs – Non-Recurring Congestion*** identifies the segments that experienced significant non-recurring congestion.

4.1 Existing plus Committed (E+C) Scenario

This scenario includes only the projects that are committed for construction. A list of E+C projects can be found in *Technical Report #1: Transportation Modeling and Forecasting*.

A project is considered committed if:

- Construction was either completed or begun since 2022
- A contract for construction has been awarded
- Have completed the National Environmental Policy Act (NEPA) phase
- Have funding for right-of-way and/or construction programmed in the MPO's Transportation Improvement Program

Table 4.1 presents the E+C projects. **Table 4.2** shows the segments that are expected to experience recurring congested in 2050, with only the E+C projects implemented. **Figure 4.1** displays the expected recurring congested segments of the

2050 CMP network, ranked based on the results of the recurring congestion analysis process.

The comparison in the number and mileage of recurring congested segments between the Base and E+C scenarios from a multimodal perspective is summarized below.

It is anticipated that the number of segments and mileage experiencing recurring congestion **will nearly double** between 2022 and 2050.

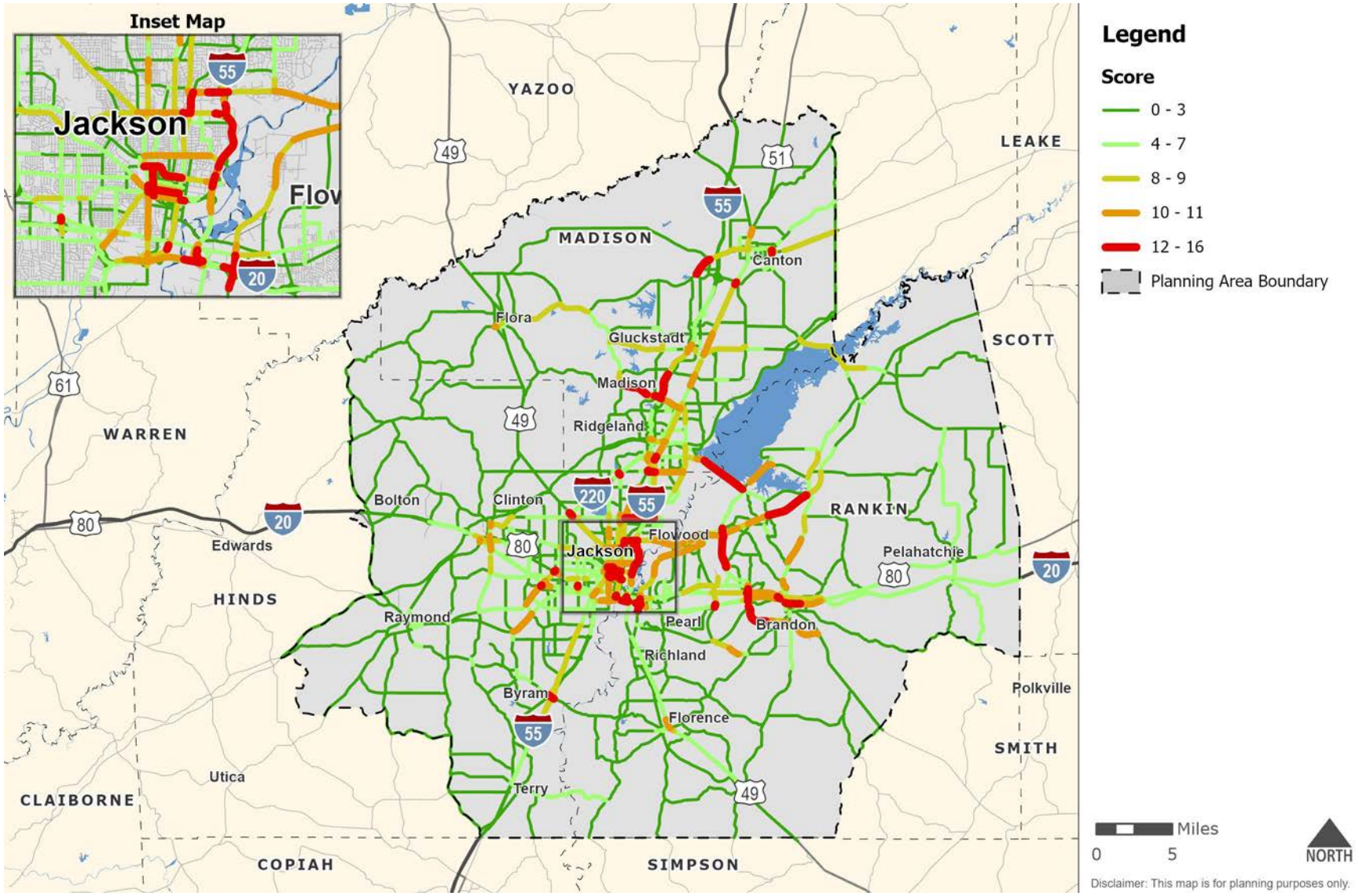
- The number of segments on Freight networks is anticipated to increase from 37 in the Base scenario to 73 in the E+C scenario (97 percent increase), while the mileage is anticipated to increase from 21.3 miles to 42.6 miles (100 percent increase).
- The number of segments on Transit networks is anticipated to increase from 50 in the Base scenario to 59 in the E+C scenario (18 percent increase), while the mileage is anticipated to increase from 24.5 miles to 27.1 miles (11 percent increase).
- The number of segments with bicycle and pedestrian facilities is anticipated to increase from 49 in the Base scenario to 67 in the E+C scenario (37 percent increase), while the mileage is anticipated to increase from 30.9 miles to 42.0 miles (36 percent increase).

Table 4.1: CMPDD E+C Projects

Roadway	Location	Improvement	Opening Stage Year
Reunion Pkwy	Parkway East to Hwy 51	New construction roadway	2030
Bozeman Rd	MS 463 to Gluckstadt Rd	Widening from 2 lanes to 4 lanes	2030
Catlett Rd	Stribling Rd to Red Fox Rd	Addition of CTL	2030
Reunion Pkwy	Bozeman Rd to Parkway East	New construction roadway	2030
Pearl Richland Intermodal Connector	E Harper St to S Pearson Rd	Widening to 4-lanes and new 4-lane roadway	2030
Gunter Rd Ext	Florence-Byram Rd to US 49	New 2-lane roadway	2030
Gluckstadt Rd	Catlett Rd to Calhoun Station Pkwy	Widen to 4 lanes	2030
I-55	0.26 miles north of W County Line Rd to 0.36 miles south of Natchez Trace Pkwy	Add 1 lane northbound	2030
West Rankin Pkwy	US 80 to Flowood Dr	New 4-lane roadway	2030
Hoy Rd	Old Canton Rd to Mockingbird Ln	Widen to 4 lanes with center turn lane	2030
East Northside Dr	0.1 miles west of Clinton Pkwy to 0.14 miles east of Clinton Pkwy	Widen to 4 lanes	2030
I-55	SR 463 to Gluckstadt Rd	Add 2 lanes	2030
MS 25	Grants Ferry to MS 471 South	Add 2 lanes	2030
Highland Commerce Dr Connector	Highland Colony Pkwy to Lake Harbour Dr Ext	Widening/New Construction w/ multi-use trail	2030
Gluckstadt Rd	I-55 to Planters Row	Widening with geometric intersection improvements	2030
Madison Ave	CN Railroad to US 51	Widening	2030
Green Oak Ln	@ US 51	Widen to 4-Lanes	2030

Source: MDOT, CMPDD TDM, NSI

Figure 4.1: Recurring Congested Segments in 2050



Source: NPMRDS, Travel Demand Model

Table 4.2: Future Recurring Congested Segments (2050)

Rank	County	Road Name	Segment	Length (miles)	Directional TTI	Directional TTI	Directional LOS	Directional LOS	2050 CMP Index Rating	2022 CMP Index Rating	Change in CMP Index (2022 to 2050)	Freight Network[1]	Transit Network[2]	Bike/Ped Facilities[3]
1	Hinds	Mill Street	Capitol Street to Amite Street	0.13	4	4	4	4	16	16	0	-	JTRAN	BL, SW
2	Hinds	Northside Drive	I-55 Southbound Frontage Road to I-55 Northbound Frontage Road	0.07	4	4	4	4	16	16	0	-	JTRAN	SW
3	Madison	MS 463	At I-55 Southbound Off-Ramp	0.07	4	4	4	4	16	15	1	-	-	SW
4	Madison	MS 463	At I-55 Northbound Off-Ramp	0.07	3	4	4	4	15	15	0	-	-	SW
5	Hinds	State Street	Stadium Drive/University Drive to Old Canton Road	0.24	3	4	4	4	15	15	0	CUFC	JTRAN	SW
6	Rankin	US 80	MS 471 to College Street	0.28	4	3	4	4	15	15	0	-	-	-
7	Rankin	US 80	Oak Street to I-20 Eastbound Off-Ramp	0.15	4	3	4	4	15	15	0	-	-	-
8	Hinds and Madison	County Line Road	I-55 Northbound Frontage Road to Ridgewood Road	0.21	4	3	4	4	15	15	0	-	JTRAN	-
9	Rankin	US 80	Stribling Lane to MS 18/Crossgates Boulevard	0.08	4	3	4	4	15	15	0	-	-	-
10	Hinds	Monument Street and High Street	Bailey Avenue to President Street	0.95	3	3	4	4	14	14	0	-	-	SW
11	Hinds	Mill Street	Amite Street to Monument Street	0.45	3	3	4	4	14	14	0	-	JTRAN	BL, SW
12	Hinds	Gallatin Street	Pearl Street to Capitol Street	0.07	3	3	4	4	14	12	2	-	JTRAN	SW
13	Hinds	MS 25 Westbound	I-55 Northbound Frontage Road to I-55 Southbound On-Ramp	0.16	3	-	4	-	14	12	2	CUFC	JTRAN	-
14	Hinds	Lakeland Drive	University Drive to I-55 Southbound Frontage Road	0.23	3	3	4	4	14	10	4	CUFC	JTRAN	SW
15	Rankin	MS 475	I-20 Eastbound Off-Ramp to I-20 Westbound Off-Ramp	0.17	4	3	4	3	14	13	1	CUFC	-	-
16	Rankin	Spillway Road	Lakeshore Drive to Old Fannin Road/North Shore Parkway	0.22	2	4	4	4	14	12	2	-	-	SW
17	Rankin	Old Fannin Road	MS 25 to Flowood Drive	0.41	3	3	4	4	14	14	0	-	-	-
18	Hinds and Madison	County Line Road	I-55 Southbound Frontage Road to I-55 Northbound Frontage Road	0.15	3	3	4	4	14	13	1	-	JTRAN	-
19	Hinds	State Street	Woodrow Wilson Avenue to Stadium Drive/University Drive	0.14	3	3	4	4	14	13	1	CUFC	JTRAN	SW
20	Rankin	MS 25	Marshall Road to MS 471	0.65	2	4	4	4	14	8	6	Tier 2	-	-
21	Hinds	Medgar Evers Boulevard Southbound	I-220 Southbound Off-Ramp to I-220 Northbound Off-Ramp	0.28	3	-	4	-	14	12	2	-	-	-
22	Hinds	Woodrow Wilson Avenue Westbound	I-55 to VA Center Drive	0.09	3	-	4	-	14	12	2	-	-	-
23	Hinds	Bobby Rush Boulevard	At US 80	0.07	3	-	4	-	14	14	0	-	JTRAN	-
24	Rankin	MS 25	Grants Ferry Road/Castlewoods Boulevard to Vine Drive	0.37	2	4	4	4	14	10	4	Tier 2	-	-
25	Hinds	MS 18 Eastbound	Greenway Drive to I-20 Eastbound On-Ramp	0.07	3	-	4	-	14	12	2	CUFC	JTRAN	-
26	Rankin	MS 18	Greenfield Road to Marquette Road	0.51	3	2	4	4	13	9	4	CUFC	-	-

Rank	County	Road Name	Segment	Length (miles)	Directional TTI	Directional TTI	Directional LOS	Directional LOS	2050 CMP Index Rating	2022 CMP Index Rating	Change in CMP Index (2022 to 2050)	Freight Network[1]	Transit Network[2]	Bike/Ped Facilities[3]
27	Rankin	MS 18	I-20 Eastbound Off-Ramp to I-20 Westbound Off-Ramp	0.22	3	3	4	3	13	12	1	CUFC	-	-
28	Rankin	Crossgates Boulevard	US 80 to Merit Health Rankin Driveway	0.25	2	4	3	4	13	13	0	-	-	-
29	Rankin	MS 25	Vine Drive to 0.67 miles west of Marshall Road	1.20	4	2	4	3	13	10	3	Tier 2	-	-
30	Madison	MS 463	North Livingston Road to Park Place Boulevard	1.71	3	2	4	4	13	11	2	-	-	-
31	Hinds	Old Canton Road	State Street to Lakeland Drive	0.12	3	2	4	4	13	12	1	CUFC	-	SW
32	Rankin	East Metro Parkway	El Dorado Road to MS 25	2.22	3	3	3	4	13	11	2	-	-	BL, SW
33	Hinds	Mill Street	Pascagoula Street to Pearl Street	0.08	4	2	4	3	13	13	0	-	JTRAN	SW
34	Rankin	US 80	Timber Street to Louis Wilson Drive	0.22	4	2	4	3	13	11	2	-	-	SW
35	Hinds	Siwell Road	I-55 Southbound Off-Ramp to I-55 Northbound Off-Ramp	0.16	3	3	3	4	13	12	1	-	-	-
36	Hinds	Woodrow Wilson Avenue	0.17 miles west of State Street to State Street	0.17	3	3	3	4	13	13	0	CUFC	JTRAN	SW
37	Hinds	High Street	President Street to State Street	0.04	3	2	4	4	13	13	0	-	-	SW
38	Hinds	Robinson Road	US 80 to Dixon Road	0.11	3	2	4	4	13	13	0	-	JTRAN	-
39	Madison	MS 22	Nissan Parkway to Virlilia Road/Watford Parkway Drive	1.31	2	2	4	4	12	11	1	-	-	-
40	Madison	I-55 Southbound	Reunion Parkway On-Ramp to MS 463 Off-Ramp	1.31	2	-	4	-	12	4	8	Tier 1	-	-
41	Madison	US 51	Ridgewood Road to Lake Harbour Drive	0.24	3	2	4	3	12	11	1	-	-	-
42	Madison	MS 463	Bozeman Road/Highland Colony Parkway to Woodgreen Drive	0.16	3	2	4	3	12	11	1	-	-	SW
43	Hinds and Madison	County Line Road	Junction Driveway to I-55 Southbound Frontage Road	0.08	2	3	3	4	12	11	1	-	JTRAN	-
44	Madison	US 51	At County Line Road	0.06	2	3	3	4	12	12	0	-	-	-
45	Hinds	Northside Drive	State Street to I-55 Southbound Frontage Road	1.26	2	3	3	4	12	12	0	-	JTRAN	SW
46	Hinds	Northside Drive	I-55 Northbound Frontage Road to Ridgewood Road	0.53	3	2	4	3	12	12	0	-	JTRAN	SW
47	Rankin	MS 25	0.67 miles west of Marshall Road to Marshall Road	0.67	2	4	3	3	12	10	2	Tier 2	-	-
48	Hinds	Hanging Moss Road	I-220 Northbound Off-Ramp to I-220 Southbound Off-Ramp	0.13	2	3	3	4	12	11	1	-	-	-
49	Hinds	Watkins Drive	I-220 Northbound Off-Ramp to I-220 Southbound Off-Ramp	0.14	2	2	4	4	12	11	1	CUFC	-	-
50	Madison	US 51	North Old Canton Road to MS 16 (Canton Parkway)/Nissan Parkway	0.13	3	2	4	3	12	11	1	-	-	-
51	Hinds	I-55 Southbound	Woodrow Wilson Avenue Off-Ramp to Fortification Street On-Ramp	1.64	2	-	4	-	12	10	2	Tier 1	-	-

Rank	County	Road Name	Segment	Length (miles)	Directional TTI	Directional TTI	Directional LOS	Directional LOS	2050 CMP Index Rating	2022 CMP Index Rating	Change in CMP Index (2022 to 2050)	Freight Network[1]	Transit Network[2]	Bike/Ped Facilities[3]
52	Hinds	I-55 Southbound	High Street Off-Ramp to Pearl Street Off-Ramp	0.27	2	-	4	-	12	10	2	Tier 1	-	-
53	Hinds	Old Canton Road/Canton Mart Road	I-55 Northbound Frontage Road to 0.13 miles west of Ridgewood Road	0.31	2	3	3	4	12	12	0	-	-	-
54	Rankin	I-20 Westbound	US 49 Northbound On-Ramp to I-55 Southbound On-Ramp	0.38	2	-	4	-	12	12	0	Tier 1	-	-
55	Rankin	I-55 Northbound	Ramp from I-20 Westbound/US 49 Northbound	0.34	2	-	4	-	12	8	4	Tier 1	-	-
56	Rankin	I-20 Westbound	0.33 miles west of I-55 Northbound Off-Ramp to I-55 Northbound Off-Ramp	0.33	2	-	4	-	12	10	2	Tier 1	-	-
57	Rankin	I-20 Eastbound	Flowood Drive Southbound On-Ramp to Flowood Drive (Exit 47B) Northbound Off-Ramp	0.09	2	-	4	-	12	6	6	Tier 1	-	-
58	Rankin	US 49 Northbound	I-20 On-Ramp to US 80	0.79	3	-	3	-	12	12	1	Tier 1	-	-
59	Rankin	MS 18	I-20 Westbound Off-Ramp to US 80	0.31	3	2	4	3	12	11	1	-	-	-
60	Rankin	MS 18	Marquette Road to 0.47 miles west of Dell Boulevard	1.29	2	3	4	3	12	8	4	-	-	-
61	Rankin	US 80	College Street to Timber Street	0.23	3	3	3	3	12	11	1	-	-	SW
62	Rankin	US 80	Louis Wilson Drive to Trickham Bridge Road/Pleasant Street	0.25	2	4	2	4	12	11	1	-	-	SW
63	Hinds	Siwell Road	Terry Road to I-55 Southbound Off-Ramp	0.19	2	3	3	4	12	12	0	-	-	-
64	Hinds	Capitol Street	Gallatin Street to State Street	0.74	2	3	3	4	12	12	0	-	-	SR, SW
65	Hinds	Gallatin Street	Capitol Street to Amite Street	0.08	3	2	4	3	12	12	0	-	JTRAN	SW
66	Hinds	Amite Street	Gallatin Street to Mill Street	0.11	3	-	3	-	12	12	0	-	JTRAN	SW
67	Hinds	State Street Northbound	I-20 Westbound On-Ramp to US 80 Eastbound	0.11	2	-	4	-	12	10	2	-	-	-
68	Hinds	Lakeland Drive Westbound	At I-55 Southbound Frontage Road	0.08	2	-	4	-	12	12	0	CUFC	JTRAN	-
69	Madison	Gluckstadt Road	I-55 Southbound Off-Ramp to I-55 Northbound Off-Ramp	0.14	2	3	3	3	11	11	0	CUFC	-	-
70	Hinds and Madison	County Line Road	Ridgewood Road to Old Canton Road	1.89	2	3	3	3	11	11	0	-	JTRAN	SW
71	Madison	MS 463	Park Place Boulevard to Bozeman Road/Highland Colony Parkway	0.56	2	3	3	3	11	11	0	-	-	-
72	Madison	MS 463	Woodgreen Drive to I-55 Southbound	0.15	3	2	3	3	11	11	0	-	-	SW
73	Rankin	MS 25	MS 475 to East Metro Parkway	1.65	3	2	3	3	11	8	3	Tier 2	-	-
74	Madison	MS 22	Petrified Forest Road to US 49	0.07	2	3	3	3	11	11	0	-	-	-
75	Madison	US 51	At Nissan Parkway/Canton Parkway	0.09	3	2	3	3	11	11	0	-	-	-

Rank	County	Road Name	Segment	Length (miles)	Directional TTI	Directional TTI	Directional LOS	Directional LOS	2050 CMP Index Rating	2022 CMP Index Rating	Change in CMP Index (2022 to 2050)	Freight Network[1]	Transit Network[2]	Bike/Ped Facilities[3]
76	Hinds	Lakeland Drive	Old Canton Road to University Drive	0.34	3	2	3	3	11	10	1	CUFC	-	SW
77	Hinds	MS 18	McDowell Road to Chadwick Drive	0.79	2	3	2	4	11	10	1	CUFC	-	-
78	Hinds	Old Canton Road	0.13 miles west of Ridgewood Road to Ridgewood Road	0.13	2	2	4	3	11	11	0	-	-	-
79	Hinds	Raymond Road	Forest Hill Road to Maddox Road	0.13	3	2	3	3	11	10	1	-	-	-
80	Rankin	US 80	Trickham Bridge Road/Pleasant Street to 0.24 miles west of I-20 Eastbound Off-Ramp	1.36	3	2	3	3	11	11	0	-	-	-
81	Rankin	MS 18	MS 468 to College Street/Star Road	0.39	3	2	3	3	11	9	2	-	-	-
82	Rankin	MS 18	Rosemont Drive to Brandon High School	0.42	1	2	4	4	11	9	2	-	-	-
83	Rankin	US 49	At US 80	0.02	2	2	3	4	11	9	2	-	-	-
84	Hinds	Bobby Rush Boulevard Northbound	I-20 Westbound to US 80	0.03	2	3	2	4	11	11	0	-	JTRAN	-
85	Hinds	Terry Road	Raymond Road to 0.1 miles south of US 80	0.17	2	2	3	4	11	10	1	-	JTRAN	-
86	Madison	US 51	Northgate Drive to MS 16	0.43	2	2	3	3	10	10	0	-	-	-
87	Madison	I-55 Southbound	Gluckstadt Road Off-Ramp to Gluckstadt Road On-Ramp	0.55	2	-	3	-	10	8	2	Tier 1	-	-
88	Madison	MS 463	Robinson Springs Road to North Livingston Road	0.21	1	3	3	3	10	6	4	-	-	-
89	Madison	I-55 Northbound	MS 463 On-Ramp to Reunion Parkway Off-Ramp	1.33	1	-	4	-	10	4	6	Tier 1	-	-
90	Madison	US 51	Tisdale Road to Reunion Parkway/Green Oak Lane	0.76	2	2	3	3	10	7	3	-	-	-
91	Madison	MS 463	I-55 Northbound Off-Ramp to Main Street	0.77	2	2	3	3	10	10	0	-	-	SW
92	Madison	Old Agency Road	At I-55 Southbound Off-Ramp	0.06	2	2	3	3	10	9	1	-	-	-
93	Madison	Old Agency Road	I-55 Southbound Off-Ramp to I-55 Northbound Off-Ramp	0.09	2	2	3	3	10	9	1	-	-	-
94	Madison	US 51	Lake Harbour Drive to Calhoun Street	0.73	2	2	3	3	10	10	0	-	-	-
95	Madison	Main Street	MS 463 to US 51	0.69	2	2	3	3	10	9	1	-	-	-
96	Madison	I-55 Southbound Frontage Road	County Line Road Off-Ramp to County Line Road	0.17	2	-	3	-	10	8	2	-	-	-
97	Madison	County Line Road	State Street to Junction Driveway	0.05	2	2	3	3	10	10	0	-	JTRAN	-
98	Rankin	North Shore Parkway	Parkway Road to Fannin Landing Circle	1.94	2	2	3	3	10	0	10	-	-	SR
99	Hinds	State Street	Northside Street to Beasley Road	2.29	2	2	3	3	10	10	0	-	JTRAN	SW
100	Hinds	Northside Drive	Hanging Moss Road/Northbrook Drive to Oaklawn Drive	0.22	2	2	3	3	10	9	1	-	-	-

Rank	County	Road Name	Segment	Length (miles)	Directional TTI	Directional TTI	Directional LOS	Directional LOS	2050 CMP Index Rating	2022 CMP Index Rating	Change in CMP Index (2022 to 2050)	Freight Network[1]	Transit Network[2]	Bike/Ped Facilities[3]
101	Hinds	Ridgewood Road	Northside Drive to Old Canton Road	0.75	2	2	3	3	10	10	0	-	-	SW
102	Hinds	Woodrow Wilson Avenue	Medgar Evers to 0.17 miles west of State Street	1.08	2	2	3	3	10	10	0	-	JTRAN	SW
103	Hinds	Medgar Evers Boulevard Southbound	I-220 Northbound Off-Ramp to Northside Drive	0.10	2	-	3	-	10	10	0	-	-	-
104	Hinds	Bailey Avenue	Stonewall Street to Ridgeway Street	0.26	2	2	3	3	10	9	1	-	JTRAN	SW
105	Hinds	Bailey Avenue	Johnson Street to Mayes Street	0.12	2	2	3	3	10	9	1	-	JTRAN	SW
106	Hinds and Rankin	MS 25	Ridgewood Road to Mangum Drive	2.01	2	2	3	3	10	8	2	Tier 2	-	-
107	Rankin	MS 25	0.13 miles east of North Flowood Drive to 0.14 miles west of MS 475	0.41	2	2	3	3	10	8	2	Tier 2	-	-
108	Rankin	MS 25	0.35 miles east of East Metro Parkway to Luckney Road	0.68	2	2	3	3	10	6	4	Tier 2	-	-
109	Rankin	MS 25	Cooper Road to Hugh Ward Boulevard	0.71	2	2	3	3	10	7	3	Tier 2	-	-
110	Rankin	MS 25	Plaza Drive to Grants Ferry Road/Castlewoods Boulevard	0.37	2	2	3	3	10	7	3	Tier 2	-	-
111	Hinds	Clinton Parkway	Fairmont Street to East Main Street	0.25	2	2	3	3	10	9	1	-	-	SW
112	Hinds	Springridge Road	I-20 Eastbound Off-Ramp to Hampstead Boulevard	0.57	2	2	3	3	10	10	0	-	-	-
113	Hinds	US 80 (Clinton Raymond Road)	I-20 Eastbound Off-Ramp to I-20 Westbound Off-Ramp	0.13	2	2	3	3	10	10	0	-	-	-
114	Hinds	Raymond Road	Siwell Road to Forest Hill Road	1.60	2	3	2	3	10	10	0	-	-	-
115	Hinds	MS 18	Chadwick Drive to Greewnay Drive	0.25	2	3	2	3	10	10	0	CUFC	JTRAN	-
116	Hinds	I-20 Eastbound	MS 18 Eastbound On-Ramp to I-220 Off-Ramp	0.28	1	-	4	-	10	6	4	-	-	-
117	Hinds	Fortification Street	Bailey Avenue to Greymont Street	1.53	2	2	3	3	10	10	0	-	-	SW
118	Hinds	State Street	Old Canton Road to Fondren Place	0.17	2	2	3	3	10	9	1	-	JTRAN	SW
119	Hinds	Lakeland Drive Eastbound	I-55 Southbound Frontage Road to I-55 Northbound Frontage Road	0.25	2	-	3	-	10	10	0	CUFC	JTRAN	-
120	Hinds	I-55 Southbound	Lakeland Drive Eastbound On-Ramp to Woodrow Wilson Avenue Off-Ramp	0.14	2	-	3	-	10	8	2	Tier 1	-	-
121	Hinds	Robinson Road	Dixon Road to Loflin Drive	0.13	2	2	3	3	10	10	0	-	JTRAN	-
122	Hinds	US 80	MS 18/Robinson Road to I-220 Southbound Off-Ramp	0.47	2	2	3	3	10	10	0	-	JTRAN	-
123	Hinds	Capitol Street Eastbound	Amite Street/Robinson Road to Gallatin Street	0.44	2	-	3	-	10	10	0	-	JTRAN	SW
124	Hinds	Gallatin Street	US 80 to Pascagoula Street	1.00	2	2	3	3	10	10	0	CUFC	-	SW
125	Hinds	Pascagoula Street	Gallatin Street to Commerce Street	0.83	2	-	3	-	10	9	1	-	JTRAN	SW
126	Hinds	Clinton Parkway	0.18 miles south of Northside Drive to Northside Drive	0.18	2	2	3	3	10	8	2	-	-	SW

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127	Hinds	I-20 Westbound	I-55 Southbound On-Ramp to State Street On-Ramp	1.40	1	-	4	-	10	7	3	Tier 1	-	-
128	Hinds	Gallatin Street	I-20 Westbound Off-Ramp to State Street On-Ramp	0.09	2	2	3	3	10	10	0	CUFC	-	-
129	Hinds	I-55 Northbound	High Street Off-Ramp to High Street On-Ramp	0.20	1	-	4	-	10	6	4	Tier 1	-	-
130	Hinds	I-55 Northbound	Fortification Street Off-Ramp to Woodrow Wilson Avenue Off-Ramp	1.05	1	-	4	-	10	6	4	Tier 1	-	-
131	Hinds	I-55 Southbound	Fortification Street On-Ramp to High Street Off-Ramp	0.21	2	-	3	-	10	10	0	Tier 1	-	-
132	Hinds	I-55 Southbound	Pearl Street Off-Ramp to Pearl Street On-Ramp	0.51	2	-	3	-	10	8	2	Tier 1	-	-
133	Hinds	I-55 Northbound	Pearl Street Off-Ramp to Pearl Street On-Ramp	0.31	1	-	4	-	10	8	2	Tier 1	-	-
134	Hinds	High Street	Greymont Street to I-55 Southbound Off-Ramp	0.13	2	2	3	3	10	10	0	-	-	-
135	Rankin	I-55 Southbound	Ramp to I-20 Eastbound/US 49 Southbound	0.63	2	-	3	-	10	8	2	Tier 1	-	-
136	Rankin	I-20 Eastbound	I-55 Southbound On-Ramp to Flowood Drive Southbound On-Ramp	0.22	1	-	4	-	10	6	4	Tier 1	-	-
137	Rankin	I-20 Westbound	US 49 Southbound Off-Ramp to 0.33 miles east of I-55 Northbound Off-Ramp	0.39	2	-	3	-	10	6	4	Tier 1	-	-
138	Hinds	Terry Road Northbound	I-20 Westbound to Raymond Road	0.16	2	-	3	-	10	10	0	-	JTRAN	-
139	Rankin	Crossgates Boulevard	Merit Health Rankin Driveway to Old Brandon Road	0.23	2	2	3	3	10	9	1	-	-	BL, SW
140	Hinds	Terry Road	0.10 miles south of US 80 to US 80	0.10	2	2	3	3	10	10	0	-	JTRAN	-
141	Rankin	I-20 Eastbound	MS 18 On-Ramp to US 80 (West Brandon) Off-Ramp	1.52	1	-	4	-	10	4	6	Tier 1	-	-
142	Rankin	I-20 Westbound	US 80 (West Brandon) On-Ramp to MS 18 Off-Ramp	1.22	1	-	4	-	10	4	6	Tier 1	-	-
143	Rankin	US 80	MS 18 to Oak Street	2.04	2	2	3	3	10	9	1	-	-	-
144	Rankin	MS 471	Hillcrest Drive to Marsman Road	1.73	2	2	3	3	10	6	4	-	-	-
145	Rankin	US 80	Mark Drive/Old Highway 80 to MS 471	0.39	2	2	4	2	10	10	0	-	-	-
146	Rankin	MS 18	0.47 miles west of Dell Boulevard to Dell Boulevard	0.47	2	2	3	3	10	8	2	-	-	-
147	Rankin	MS 18	Brandon High School to Louis Wilson Drive	1.09	1	2	3	4	10	9	1	-	-	-
148	Rankin	MS 468	1.03 miles east of Greenfield Road to Woodridge Drive	0.66	2	2	3	3	10	6	4	-	-	-
149	Madison	MS 22	Livingston Vernon Road to MS 463	1.87	1	1	4	3	9	6	3	-	-	-

Rank	County	Road Name	Segment	Length (miles)	Directional TTI	Directional TTI	Directional LOS	Directional LOS	2050 CMP Index Rating	2022 CMP Index Rating	Change in CMP Index (2022 to 2050)	Freight Network[1]	Transit Network[2]	Bike/Ped Facilities[3]
150	Madison	MS 22	Virlilia Road/Watford Parkway Drive to I-55 Northbound Off-Ramp	0.64	2	2	3	2	9	8	1	-	-	-
151	Madison	US 51	Center Street to Northgate Drive	0.86	2	2	3	2	9	8	1	-	-	SW
152	Madison	Gluckstadt Road	Lake Village Drive to Catlett Road/Bozeman Road	2.27	2	2	2	3	9	8	1	-	-	-
153	Madison	Gluckstadt Road	Industrial Drive to Weisenberger Rd	0.18	2	2	3	2	9	9	0	-	-	-
154	Madison	Yandell Road	Westfalen Drive to Glenwild Trail	0.75	3	1	3	2	9	6	3	-	-	-
155	Madison	Main Street	US 51 to Old Canton Road	0.28	2	2	2	3	9	9	0	-	-	SW
156	Madison	Old Canton Road	St Augustine Drive to Madison Avenue	0.50	2	2	2	3	9	7	2	-	-	-
157	Madison	Jackson Street	Sunnybrook Road to US 51	0.73	2	2	3	2	9	7	2	-	-	SW
158	Madison	Old Agency Road	I-55 Southbound Frontage Road to I-55 Southbound On-Ramp	0.05	2	2	2	3	9	9	0	-	-	-
159	Madison	Old Agency Road	I-55 Northbound On-Ramp to I-55 Northbound Frontage Road	0.04	2	2	2	3	9	9	0	-	-	-
160	Madison	US 51	Rice Road to Jackson Street	0.31	2	2	3	2	9	8	1	-	-	-
161	Madison	Lake Harbour Drive	Old Canton Road to Harbor Drive	0.79	2	2	2	3	9	8	1	-	-	-
162	Hinds and Madison	Ridgewood Road	Adkins Road to US 51	1.86	2	2	2	3	9	9	0	-	-	-
163	Hinds	Northside Drive	Cynthia Road to Old Vicksburg Road	0.61	2	2	2	3	9	9	0	-	-	-
164	Hinds	US 80	Clinton Parkway/Springridge Road to Mt Salus Road	0.58	2	2	3	3	9	9	0	-	-	-
165	Hinds	MS 25	Museum Boulevard to Ridgewood Road	0.95	3	2	3	2	9	9	0	Tier 2	JTRAN	SW
166	Hinds	Woodrow Wilson Avenue	Airport Drive to Powers Avenue	0.43	2	1	4	2	9	8	1	-	-	-
167	Hinds	Woodrow Wilson Avenue	Holmes Avenue to Medgar Evers Boulevard	0.25	2	1	4	2	9	8	1	-	-	-
168	Hinds	Bailey Avenue	Woodrow Wilson Avenue to Stonewall Street	0.74	2	2	2	3	9	9	0	-	JTRAN	SW
169	Hinds	State Street	Fondren Place to Mayes Street	0.73	2	2	2	3	9	9	0	-	JTRAN	SW
170	Hinds	Medgar Evers Boulevard	At Northside Drive	0.06	1	2	2	4	9	8	1	-	JTRAN	-
171	Hinds	Bailey Avenue	Ridgeway Street to Johnson Street	0.12	2	2	2	3	9	9	0	-	JTRAN	SW
172	Hinds	Woodrow Wilson Avenue	State Street to VA Center Drive	0.58	2	2	2	3	9	9	0	-	JTRAN	-
173	Hinds	Fortification Street	Greymont Street to I-55 Southbound Off-Ramp	0.22	2	2	3	2	9	9	0	-	-	-
174	Hinds	High Street	State Street to Greymont Street	0.59	2	2	2	3	9	9	0	-	-	SW
175	Hinds	State Street	US 80 to Amite Street	1.16	2	2	3	2	9	7	2	-	-	SW
176	Rankin	MS 25	River Oaks Drive to 0.13 miles east of North Flowood Drive	0.51	2	2	2	3	9	8	1	Tier 2	-	-
177	Rankin	MS 25	0.14 miles west of MS 475 to 0.05 miles east of MS 475	0.19	3	1	3	2	9	8	1	Tier 2	-	-

Rank	County	Road Name	Segment	Length (miles)	Directional TTI	Directional TTI	Directional LOS	Directional LOS	2050 CMP Index Rating	2022 CMP Index Rating	Change in CMP Index (2022 to 2050)	Freight Network[1]	Transit Network[2]	Bike/Ped Facilities[3]
178	Hinds	Northside Drive	Oaklawn Drive to State Street	0.11	2	2	3	2	9	9	0	-	-	-
179	Rankin	MS 25	East Metro Parkway to 0.35 miles east of East Metro Parkway	0.35	2	2	2	3	9	6	3	Tier 2	-	-
180	Rankin	MS 25	Luckney Road to Cooper Road	0.79	2	2	3	2	9	7	2	Tier 2	-	-
181	Rankin	MS 25	Hugh Ward Boulevard to Plaza Drive	0.36	2	2	3	2	9	7	2	Tier 2	-	-
182	Rankin	Old Highway 471	North Shore Parkway to 0.35 miles north of Fannin Landing Circle	1.77	2	1	3	3	9	0	9	-	-	-
183	Rankin	MS 25	MS 471 to 0.91 miles north of MS 471	0.91	1	1	3	4	9	0	9	Tier 2	-	-
184	Rankin	MS 468	MS 475 to 1.03 miles east of Greenfield Road	1.28	2	1	3	3	9	6	4	-	-	-
185	Rankin	MS 468	Woodridge Drive to Live Oaks Boulevard	0.20	2	1	3	3	9	5	4	-	-	-
186	Rankin	MS 18	Dell Boulevard to MS 468	0.73	2	2	3	2	9	8	1	-	-	-
187	Hinds	Bailey Avenue	Monument Street to Cohea Street	0.11	2	2	3	2	9	8	1	-	JTRAN	-
188	Rankin	US 80	I-20 Eastbound Off-Ramp to Mark Drive	0.10	2	2	3	2	9	9	0	-	-	-
189	Madison	Old Canton Road	Allerton Road to Natchez Trace Parkway	1.02	2	2	3	2	9	8	1	-	-	-
190	Madison	Old Canton Road	Traceland Drive to St Augustine Drive	0.26	2	2	2	2	8	7	1	-	-	SW
191	Madison	MS 43	Yandell Road to Stewart Drive/Landry Drive	5.21	1	1	3	3	8	2	7	-	-	-
192	Madison	MS 22	Cane Creek Road to Livingston Vernon Road	0.77	1	1	3	3	8	6	2	-	-	-
193	Madison	MS 463	Reunion Parkway to Robinson Springs Road	0.64	1	3	2	2	8	5	3	-	-	-
194	Madison	MS 22	Cane Creek Road to Livingston Vernon Road	1.51	1	1	3	3	8	6	2	-	-	-
195	Madison	Catlett Road	Gluckstadt Road to Bremen Way	0.44	1	1	3	3	8	1	7	-	-	-
196	Rankin	Value Road	US 80 to 0.34 miles east of US 80	0.34	1	2	2	3	8	4	4	-	-	-
197	Rankin	I-20 Eastbound	MS 18 Off-Ramp to MS 18 On-Ramp	0.70	1	-	3	-	8	2	6	Tier 1	-	-
198	Rankin	I-20 Eastbound	US 80 (West Brandon) On-Ramp to US 80 (East Brandon) Off-Ramp	2.60	1	-	3	-	8	2	6	Tier 1	-	-
199	Hinds	MS 18	Maddox Road to McDowell Road	0.50	1	1	3	3	8	8	0	-	-	-
200	Hinds	I-20 Eastbound	I-55 Northbound On-Ramp to Gallatin Street On-Ramp	0.26	-	-	4	-	8	6	2	Tier 1	-	-
201	Hinds	I-20 Westbound	State Street On-Ramp to I-55 Southbound Off-Ramp	0.22	-	-	4	-	8	6	2	Tier 1	-	-
202	Hinds	State Street Westbound	I-20 Westbound On-Ramp to Gallatin Street On-Ramp	0.53	1	-	3	-	8	6	2	-	-	-

Rank	County	Road Name	Segment	Length (miles)	Directional TTI	Directional TTI	Directional LOS	Directional LOS	2050 CMP Index Rating	2022 CMP Index Rating	Change in CMP Index (2022 to 2050)	Freight Network[1]	Transit Network[2]	Bike/Ped Facilities[3]
203	Hinds	State Street Eastbound	At I-20 Westbound	0.18	1	-	3	-	8	6	2	-	-	-
204	Hinds	Woodrow Wilson Avenue Eastbound	VA Center Drive to I-55	0.16	2	-	2	-	8	8	0	-	-	-
205	Hinds	I-55 Southbound	Lakeland Drive Off-Ramp to MS 25 Westbound On-Ramp	0.42	1	-	3	-	8	6	2	Tier 1	-	-
206	Hinds	I-55 Northbound	Briarwood Drive Off-Ramp to Beasley Road/Adkins Boulevard Off-Ramp	0.38	1	-	3	-	8	4	4	Tier 1	-	-
207	Madison	I-55 Southbound	Gluckstadt Road On-Ramp to Reunion Parkway Off-Ramp	1.51	1	-	3	-	8	4	4	Tier 1	-	-
208	Madison	MS 16	Country Club Road to Sharon Road	3.61	1	1	3	3	8	6	2	-	-	-
209	Rankin	MS 25	0.91 miles north of MS 471 to Holly Bush Road	0.81	1	1	3	3	8	0	8	Tier 2	-	-
210	Rankin	MS 471	0.15 miles south of Vine Drive/Baker Lane	0.97	1	2	2	3	8	6	2	-	-	-
211	Hinds	I-55 Northbound	High Street On-Ramp to Fortification Street Off-Ramp	0.30	1	-	3	-	8	4	4	Tier 1	-	-
212	Hinds	I-55 Northbound	Pearl Street On-Ramp to High Street Off-Ramp	0.45	1	-	3	-	8	4	4	Tier 1	-	-
213	Madison	I-55 Southbound	I-220 On-Ramp to County Line Road Off-Ramp	0.41	1	-	3	-	8	4	4	Tier 1	-	-
214	Madison	MS 22	I-55 Northbound Off-Ramp to Sidney Runnels Drive	0.17	2	2	2	2	8	8	0	-	-	-
215	Madison	MS 22	Fulton Street to Walnut Street	0.80	2	2	2	2	8	8	0	-	-	-
216	Madison	US 51	Fulton Street to Peace Street	0.08	1	2	2	3	8	8	0	-	-	SW
217	Madison	Gluckstadt Road	MS 463 to Lake Village Drive	1.32	2	2	2	2	8	8	0	-	-	-
218	Madison	Gluckstadt Road	I-55 Northbound Off-Ramp to Industrial Drive	0.18	2	1	3	2	8	8	0	-	-	-
219	Madison	Weisenberger Road	Parkway East to Weisenberger Road	0.17	3	1	2	2	8	8	0	-	-	-
220	Madison	US 51	Weisenberger Road/Yandell Road to Church Road	1.52	1	2	2	3	8	8	0	-	-	-
221	Madison	Yandell Road	US 51 to Westfalen Drive	0.33	3	1	2	2	8	6	2	-	-	-
222	Madison	US 51	Reunion Parkway/Green Oak Lane to Wildwood Drive	0.98	2	2	2	2	8	7	1	-	-	-
223	Madison	Yandell Road	Glenwild Trail to Old Canton Road	1.85	3	1	2	2	8	6	2	-	-	-
224	Madison	US 51	Jackson Street to MS 463/Hoy Road	2.74	2	2	2	2	8	6	2	-	-	SW
225	Madison	Old Canton Road	Madison Avenue to Main Street	0.19	2	2	2	2	8	7	1	-	-	SW
226	Madison	Jackson Street	I-55 Northbound Off-Ramp to Sunnybrook Road	0.12	2	1	3	2	8	7	1	-	-	SW
227	Madison and Rankin	Spillway Road	Breakers Lane to Lakeshore Drive	2.91	3	1	2	2	8	8	0	-	-	SR

Rank	County	Road Name	Segment	Length (miles)	Directional TTI	Directional TTI	Directional LOS	Directional LOS	2050 CMP Index Rating	2022 CMP Index Rating	Change in CMP Index (2022 to 2050)	Freight Network[1]	Transit Network[2]	Bike/Ped Facilities[3]
228	Hinds and Madison	Old Canton Road	Colonial Circle to Allerton Boulevard	2.10	2	2	2	2	8	8	0	-	-	SW
229	Hinds	State Street	Mayes Street to Northside Drive	0.75	2	2	2	2	8	8	0	-	JTRAN	BL, SW
230	Hinds	Medgar Evers Boulevard	Northside Drive to Woodrow Wilson Avenue	2.87	1	2	2	3	8	8	0	-	JTRAN	-
231	Hinds	Parkside Place	Capitol Street to Woodrow Wilson Avenue	0.32	2	2	2	2	8	8	0	-	-	-
232	Hinds	Capitol Street Eastbound	I-220 Northbound Off-Ramp to Boling Street	0.12	2	-	2	-	8	8	0	-	JTRAN	-
233	Hinds	Capitol Street Westbound	Boling Street to Country Club Drive/I-220 Southbound Off-Ramp	0.47	2	-	2	-	8	8	0	-	JTRAN	-
234	Hinds	Springridge Road	McRaven Road to Casa Grande Drive/Wodochase Park Drive	0.99	2	2	2	2	8	6	2	-	-	-
235	Hinds	Springridge Road	Clinton Center Drive/Johnston Place	0.06	2	2	2	2	8	6	2	-	-	-
236	Hinds	Madison Street	I-20 Westbound Off-Ramp to US 80	0.08	1	2	2	3	8	8	0	-	-	-
237	Hinds	MS 18 Westbound	I-20 Westbound On-Ramp to Greenway Drive	0.46	2	-	2	-	8	8	0	CUFC	JTRAN	-
238	Hinds	John R Lynch Street	US 80 to Bobby Rush Boulevard	0.64	2	2	2	2	8	8	0	-	-	-
239	Hinds	John R Lynch Street	Hattiesburg Street to Wiggins Street	0.17	1	2	2	3	8	7	1	-	JTRAN	SW
240	Hinds	University Boulevard	US 80 to Pascagoula Street	1.06	2	2	2	2	8	7	1	-	JTRAN	SW
241	Hinds	Pascagoula Street Eastbound	University Boulevard to Gallatin Street	0.09	2	-	2	-	8	8	0	-	JTRAN	SW
242	Hinds	Gallatin Street	Pascagoula Street to Pearl Street	0.04	2	2	2	2	8	7	1	-	JTRAN	SW
243	Hinds	Amite Street Westbound	President Street to Mill Street	0.55	2	-	2	-	8	8	0	-	JTRAN	SW
244	Hinds	Pearl Street Westbound	State Street to Congress Street	0.15	2	-	2	-	8	8	0	-	-	SW
245	Hinds	State Street	Fortification Street to Woodrow Wilson Avenue	1.04	2	2	2	2	8	7	1	-	JTRAN	SW
246	Hinds	Bailey Avenue	Idlewild Street to Vardaman Street	0.13	2	2	2	2	8	8	0	-	JTRAN	-
247	Hinds	State Street	At US 80	0.08	1	2	2	3	8	7	1	-	-	-
248	Hinds	Gallatin Street	I-20 Eastbound/I-55 Northbound On-Ramp to I-20 Westbound/I-55 Southbound Off-Ramp	0.19	1	2	2	3	8	8	0	CUFC	-	-
249	Hinds	Gallatin Street	West Street to US 80	0.38	2	2	2	2	8	8	0	-	-	-
250	Hinds	Terry Road	Forest Hill Road to McCluer Road/Savanna Street	2.71	2	1	3	2	8	8	0	-	-	-
251	Hinds	Terry Road	Siwell Road to Byram Drive	0.42	1	2	2	3	8	8	0	-	-	-
252	Hinds	Bobby Rush Boulevard	US 80 to I-20 Westbound On-Ramp	0.07	2	-	2	-	8	8	0	-	JTRAN	-
253	Hinds	Terry Road Southbound	Raymond Road to I-20 Westbound On-Ramp	0.16	2	-	2	-	8	8	0	-	JTRAN	-
254	Rankin	US 80	Flowood Drive to Childre Road	0.65	1	2	2	3	8	8	0	-	-	-
255	Rankin	US 80	MS 475 to Stribling Lane	2.15	2	2	2	2	8	7	1	-	-	-

Rank	County	Road Name	Segment	Length (miles)	Directional TTI	Directional TTI	Directional LOS	Directional LOS	2050 CMP Index Rating	2022 CMP Index Rating	Change in CMP Index (2022 to 2050)	Freight Network[1]	Transit Network[2]	Bike/Ped Facilities[3]
256	Rankin	MS 475	I-20 Westbound Off-Ramp to US 80	0.79	2	2	2	2	8	8	0	CUFC	-	-
257	Rankin	MS 18	I-20 Eastbound Off-Ramp to Greenfield Road	0.39	2	2	2	2	8	8	0	CUFC	-	-

NOTE 1: Freight Network Descriptions
- Tier 1: MDOT Tier I Freight Network
- Tier 2: MDOT Tier II Freight Network
- CUFC: Critical Urban Freight Corridor

NOTE 2: Transit Network Descriptions
- JTRAN: Jackson Transit System

NOTE 3: Bike/Ped Facility Descriptions
- BL: Bike Lane
- SR: Shared Roadway
- SW: Sidewalk

5.0 Conclusions

High transportation demand in relatively populous metropolitan areas generates congestion which could vary in both intensity and extension depending on the relationship between supply and demand. The limited capacity of the existing road network within the Jackson region leads to substantial congestion repercussions along several travel corridors during different times of the day for both commuters and non-commuters. System users carry the burden of those repercussions through excess travel times, higher crash rates, travel unreliability, additional emissions, and personal frustration, as well as additional costs for goods and services.

Unfortunately, the relationship between transportation supply and demand involves a wide array of clear and underlying elements that need continuous monitoring and data collection. Although the availability of new technologies offers tools to tackle congestion problems and needs more aggressively, resulting congestion remedies need to be taken to the next level in terms of policy and implementation. Accordingly, success in tackling congestion problems requires cooperation between transportation agencies, law enforcement, public safety agencies, the private sector, and the public.

The eight-step CMP included robust data collection and analysis which illustrated:

- The recurring and non-recurring congestion analyses showed that excessive recurring and non-recurring congestion occurs on I-20, I-55, US 51, US 80, MS 25, MS 463, County Line Road, and within Downtown Jackson.
- CMPDD is focusing on congestion mitigation with the current MTP. However, partial implementation of the MTP would essentially allow congestion problems to intensify and expand which would jeopardize the quality of life within the Jackson metropolitan area, especially from a multimodal perspective.

Recommendations

- Continue to encourage utilizing alternative modes of transportation and/or car/vanpooling as a means of decreasing the single-occupant vehicle travel demand.
- Enhance real-time communication with multi-modal travelers to provide them with information to help them with the decision-making process to avoid congestion before or during their trips. CMPDD's *Central Mississippi ITS Architecture Plan* can support these efforts.

- Enhance the interaction with the public to continuously obtain feedback about congestion problems and needs as well as the implemented strategies and policies.
- Continue to obtain data related to regional congestion. Variability of data nature and sources both public and private sector are becoming increasingly accessible and provide leverage in verifying and enhancing the analysis and findings.
- Monitor and analyze freight trends, especially those relating to truck freight. Freight movement dynamics have a significantly different correlation with congestion than passenger travel trends.
- Encourage Traffic Incident Management (TIM). Continued TIM efforts will be beneficial for traffic incident monitoring and non- recurring congestion analysis.

Appendix A: CMPDD 2045 MTP CMP Strategies

Appendix A Introduction

The 2045 CMP proposed three (3) management strategies that provided a variety of measures that can be implemented to reduce traffic congestion. These strategies were travel demand management, supply management, and land use management.

Travel Demand Management

The use of Travel Demand Management alleviates congestion by employing methods that reduce the number of vehicles traveling major thoroughfares during peak traffic hours. These methods are summarized in **Table A.1**.

Table A.1: Travel Demand Management Strategies

Strategy	Description
Staggered work hours	The organization has varying starting and ending working hours for employees.
Alternative work locations	These facilities can be closer to the organization's customers and clients and/or employees' home. This is a system where employees do not commute or travel to a central place of work.
Telecommuting	Work is performed wherever the employee chooses. This is another system where employees do not commute or travel to a central place of work.
Carpooling/vanpooling	Carpooling and/or vanpooling prevents the need for others to have to drive to a location themselves by sharing trips.
Toll roads	This is a type of road where a fee is assessed for passage. High-occupancy toll lanes and express toll lanes have variable fees that are adjusted in response to demand.

Source: CMPDD 2045 Metropolitan Transportation Plan – Congestion Management Process

Supply Management

Supply management analyzes methods for reducing traffic congestion on major transportation facilities once it has been determined that the facilities have reached or exceeded their designed capacity. Supply management strategies that can be used as part of the CMP's efforts are shown in **Table A.2**.

Table A.2: Supply Management Strategies

Strategy	Description
ITS	ITS allows users to be better informed about transportation conditions and make more informed decisions. It encompasses a wide range of technologies such as cameras and variable message boards.
Transit park and ride facilities	Park and ride facilities are parking lots where people leave their vehicles and transfer to a bus system or carpool for the remainder of the trip.
Traffic signal synchronization	Traffic signal synchronization systems seek to minimize congestion and delays by timing traffic signals to allow vehicles to traverse the most intersections in the shortest possible amount of time.
Bicycle and pedestrian	Bicycling or walking can remove vehicle trips from roadways. This can be encouraged if bicycle and pedestrian facilities are adequate.
Increase highway capacity	Increasing highway capacity (e.g. adding lanes or new roads) is not always possible due to physical and fiscal constraints. However, it remains an important approach to addressing congestion.

Source: CMPDD 2045 Metropolitan Transportation Plan – Congestion Management Process

Land Use Management

The use of land use management reduces excessive traffic congestion by altering the way land is developed through the use of smart growth concepts. Smart growth analyzes future growth potential of an area and includes in its plan measures to abate/prevent excessive traffic demand on a thoroughfare. A summary of methods is shown in **Table A.3**.

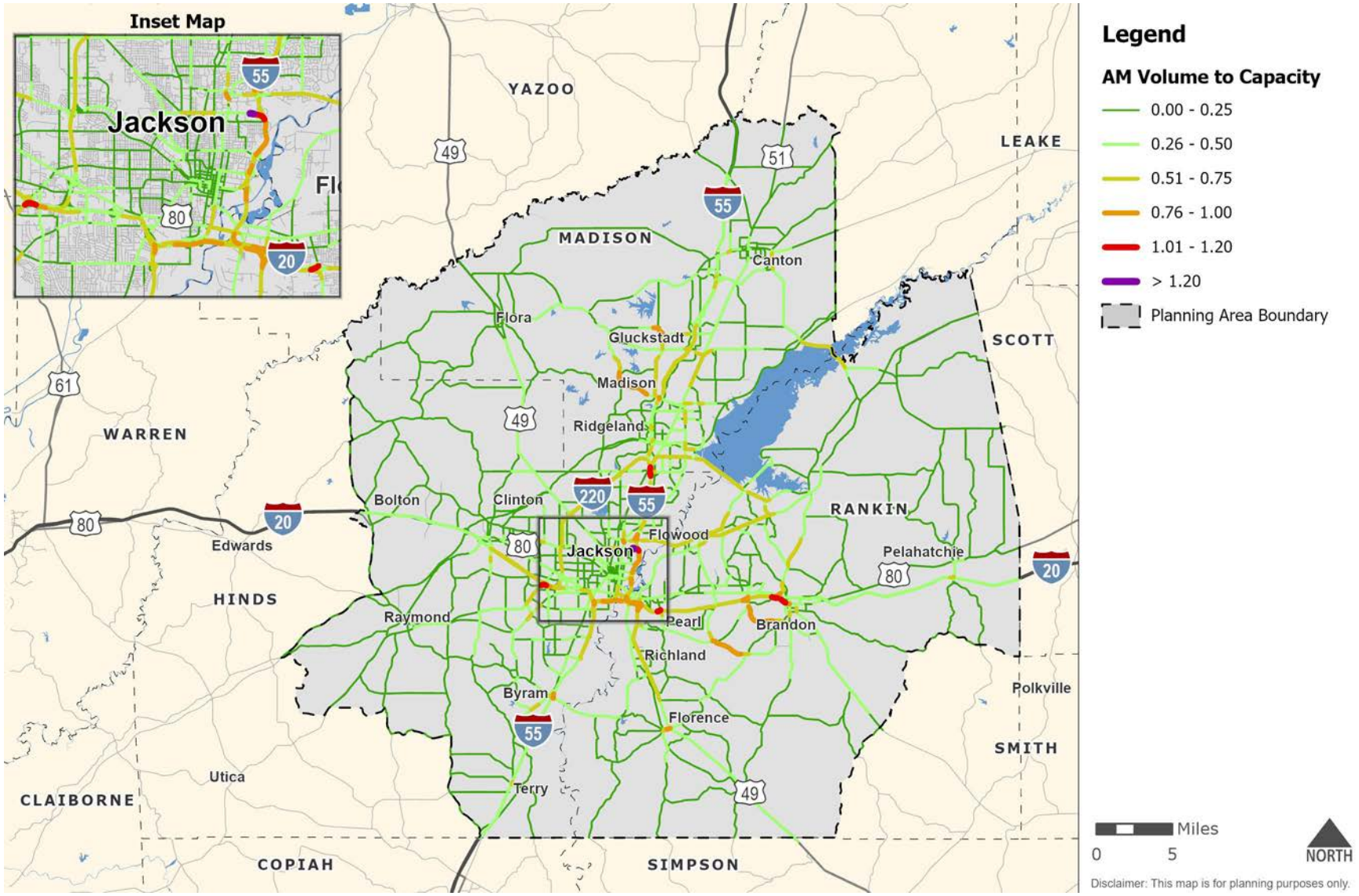
Table A.3: Land Use Management Strategies

Strategy	Description
Planning and zoning	Inadequate zoning, such as allowing larger developments, can overwhelm available transportation facilities.
Mixed use development	Mixed use developments have increased population density and encourage walking and bicycling and/or access to public transit. These developments also build up freight movement for goods and services.
Density development	High-density development increases the feasibility for transit, walking, and/or bicycling.
Transit	An improved transit system can increase its attractiveness and reduce the number of vehicle trips.

Source: CMPDD 2045 Metropolitan Transportation Plan – Congestion Management Process

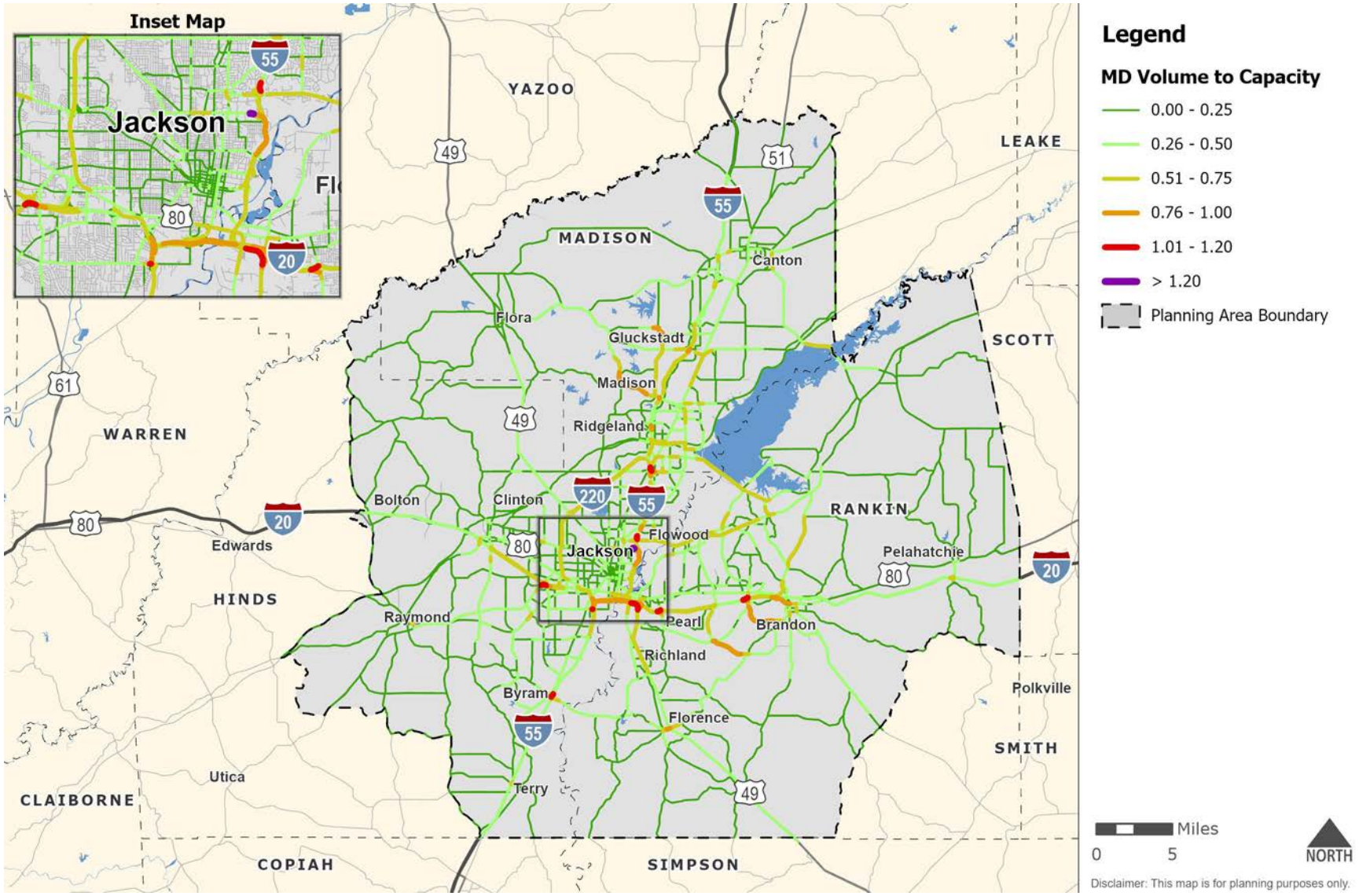
Appendix B: Volume to Capacity Study

Figure B.1: Volume to Capacity Ratio Study – 2022 AM Peak



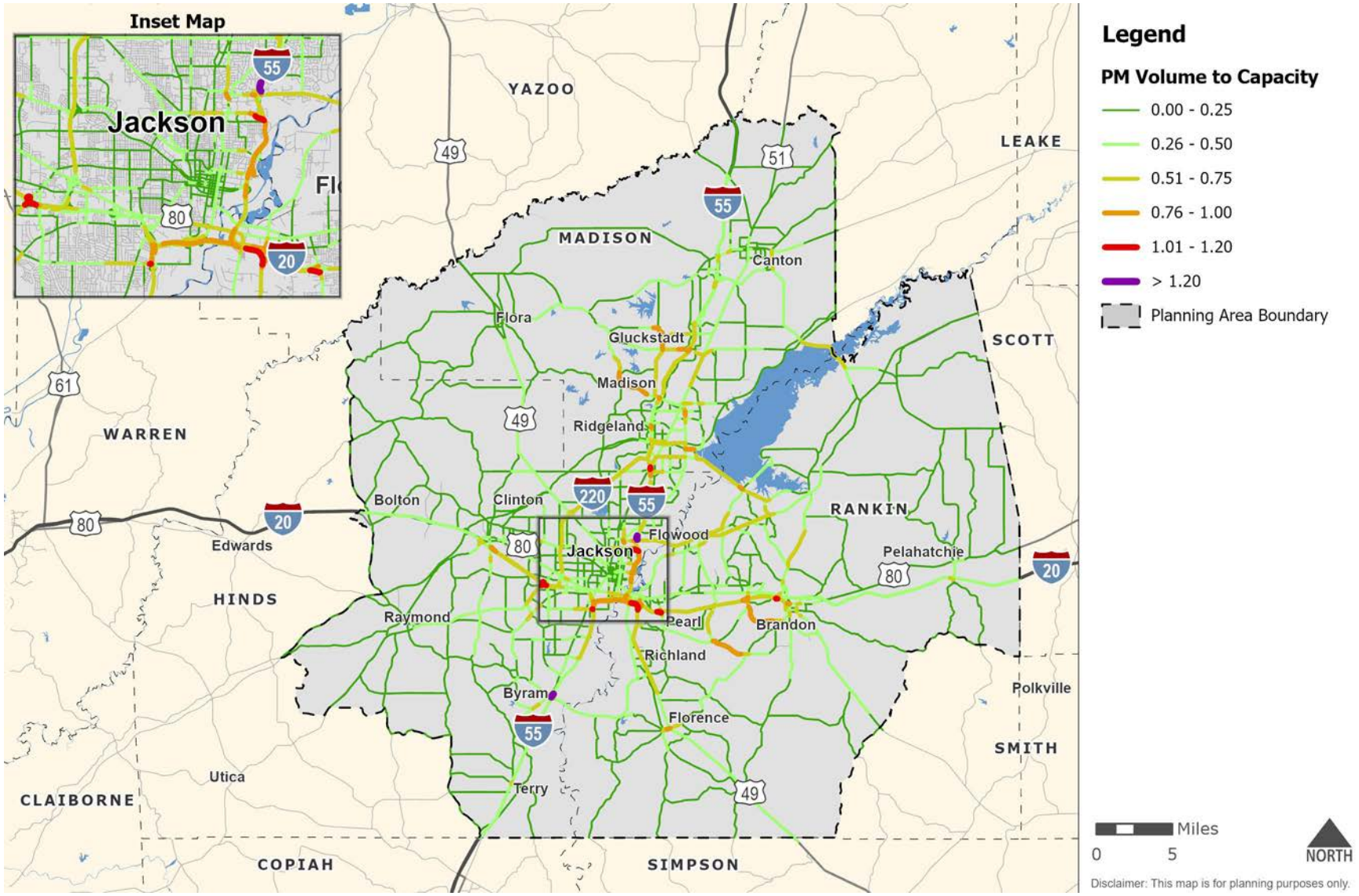
Source: Travel Demand Model

Figure B.2: Volume to Capacity Ratio Study – 2022 MD Peak



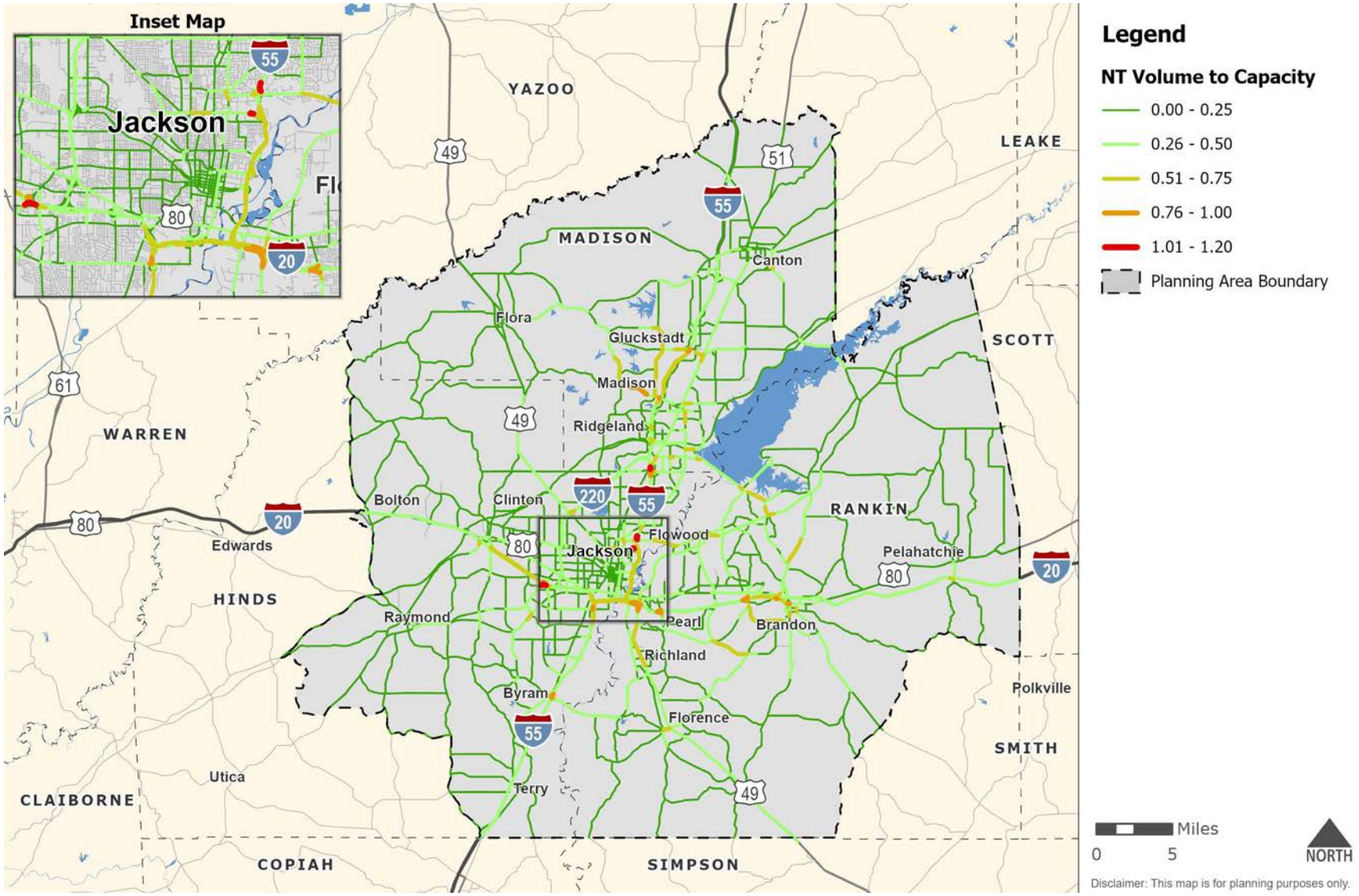
Source: Travel Demand Model

Figure B.3: Volume to Capacity Ratio Study – 2022 PM Peak



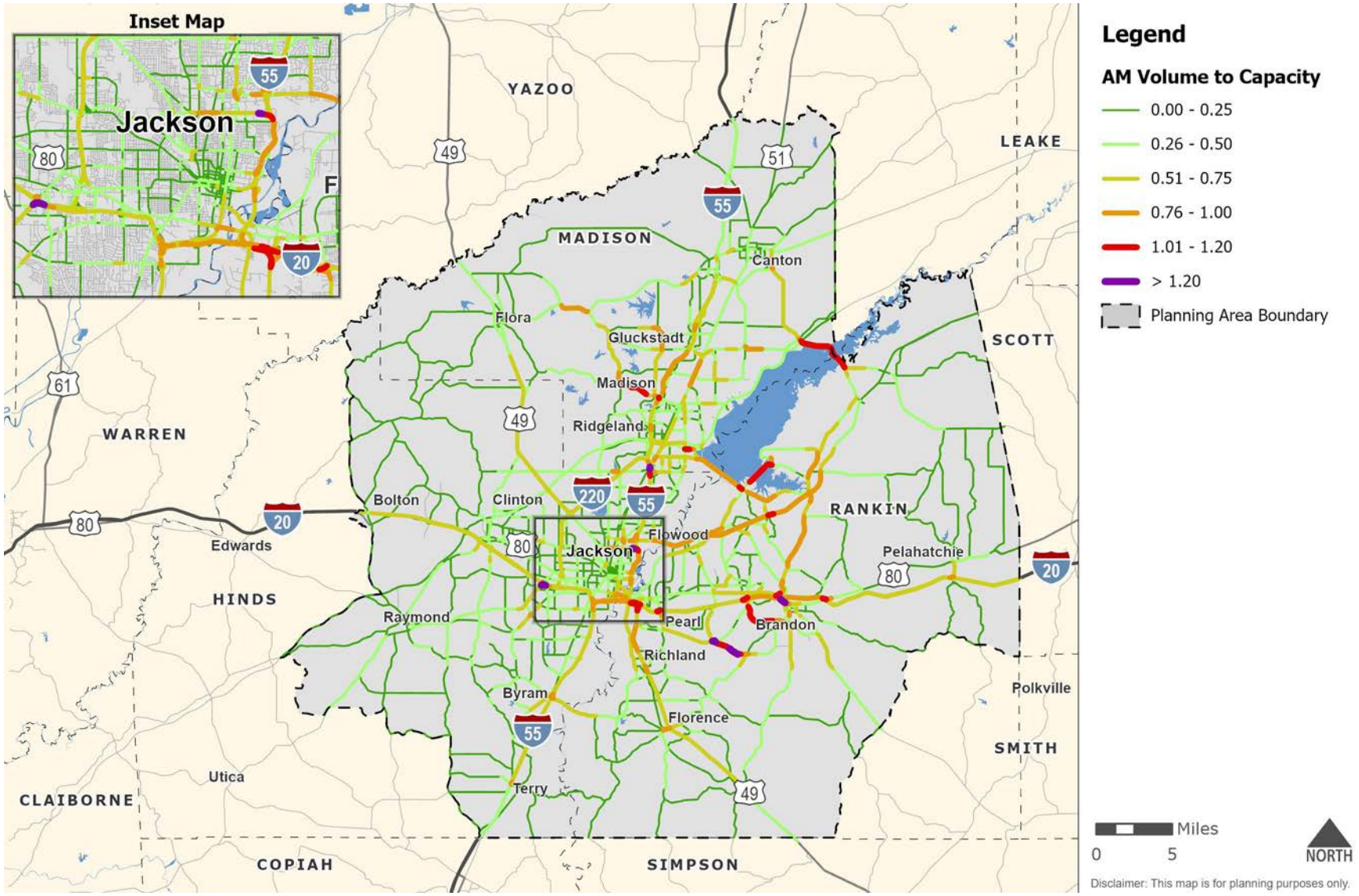
Source: Travel Demand Model

Figure B.4: Volume to Capacity Ratio Study – 2022 NT Peak



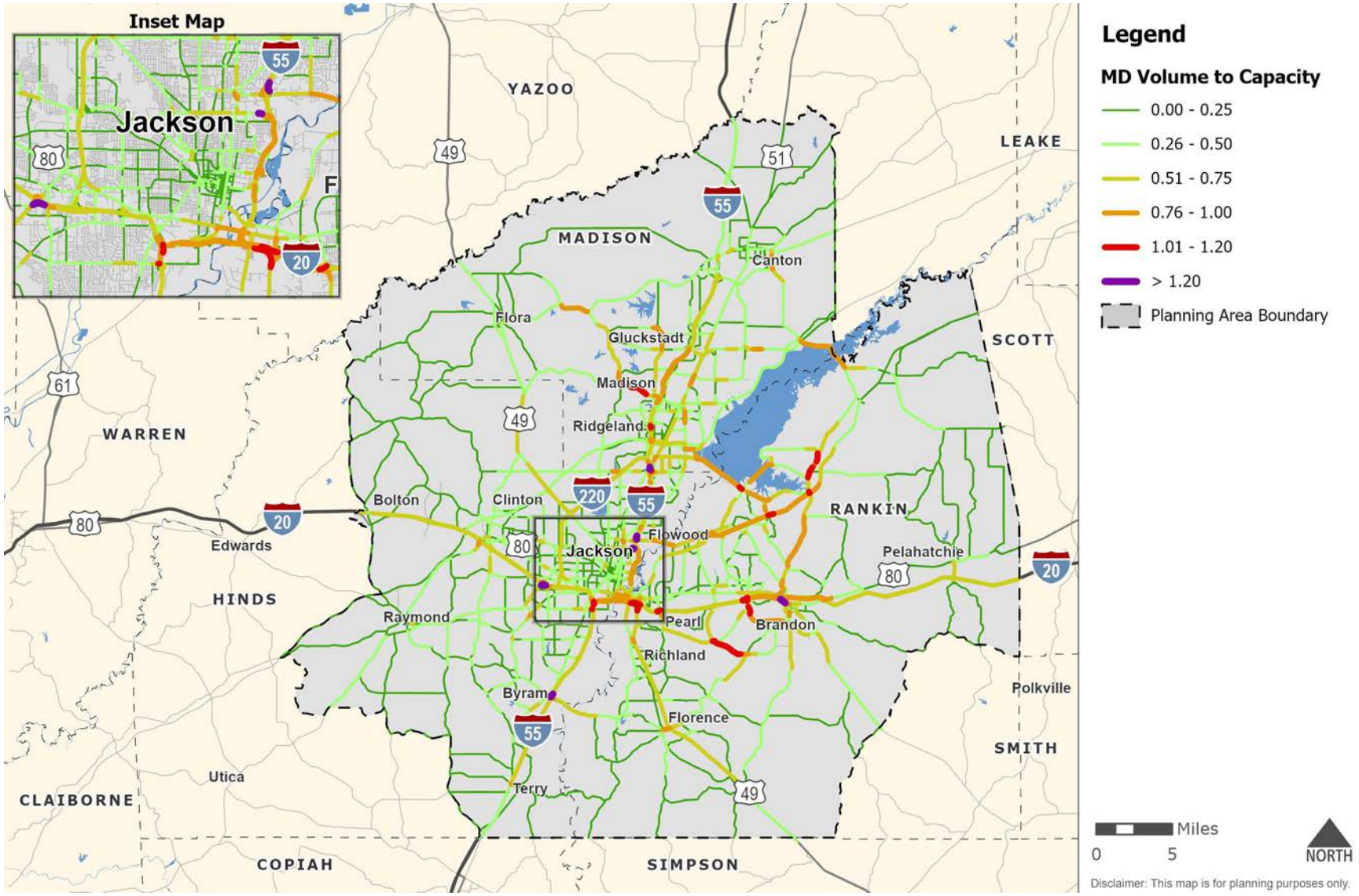
Source: Travel Demand Model

Figure B.5: Volume to Capacity Ratio Study – 2050 AM Peak



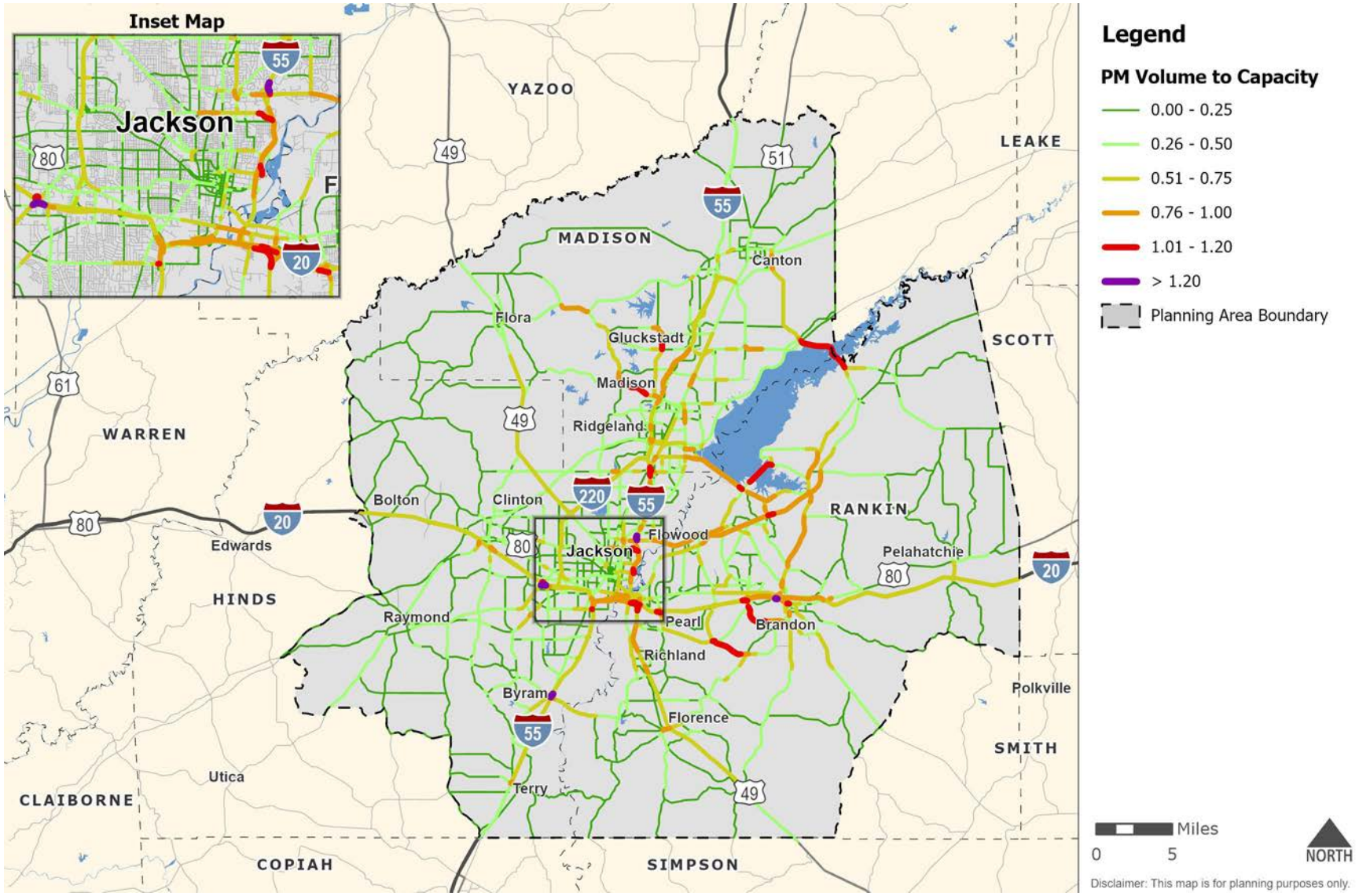
Source: Travel Demand Model

Figure B.6: Volume to Capacity Ratio Study – 2050 MD Peak



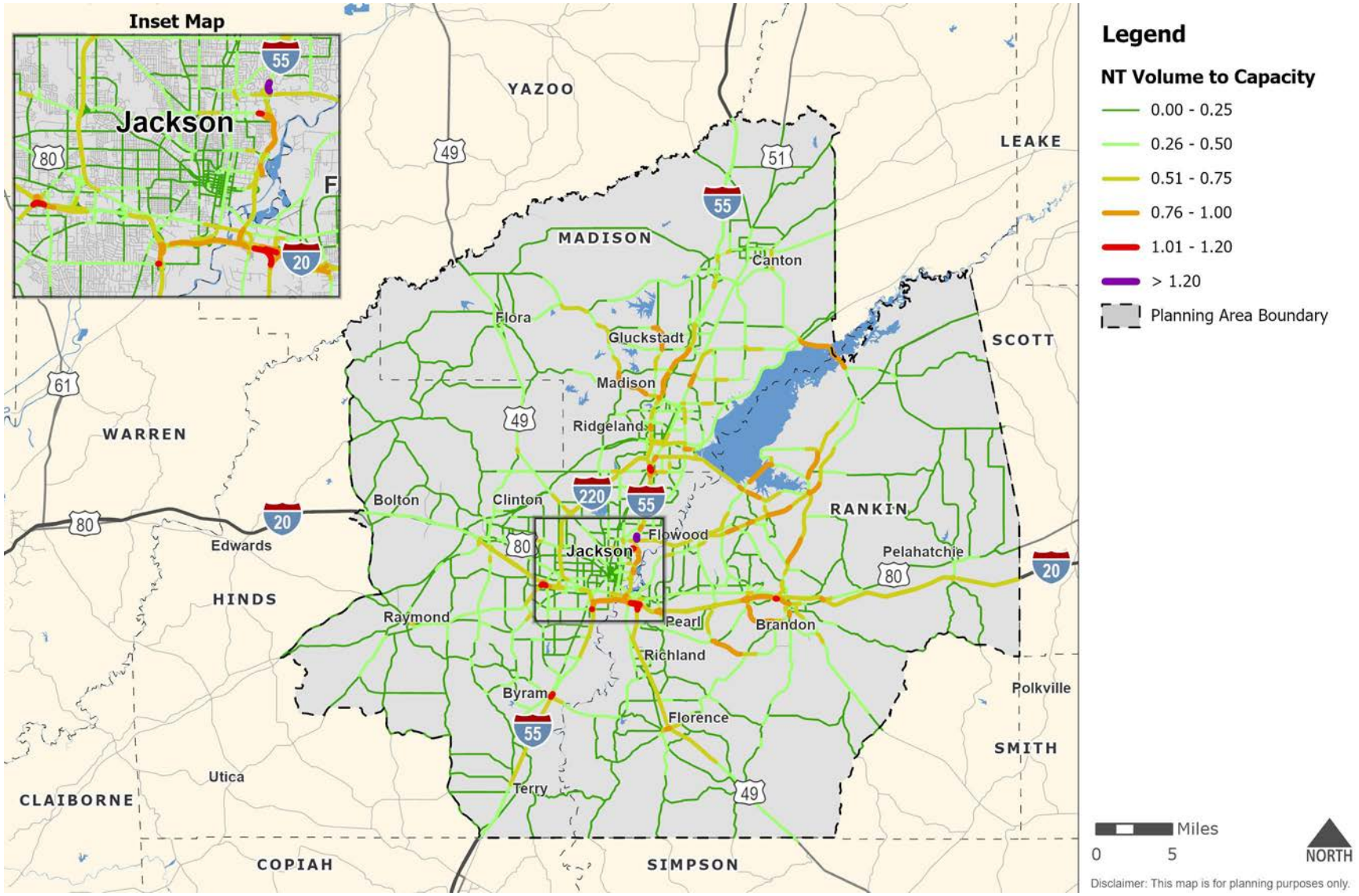
Source: Travel Demand Model

Figure B.7: Volume to Capacity Ratio Study – 2050 PM Peak



Source: Travel Demand Model

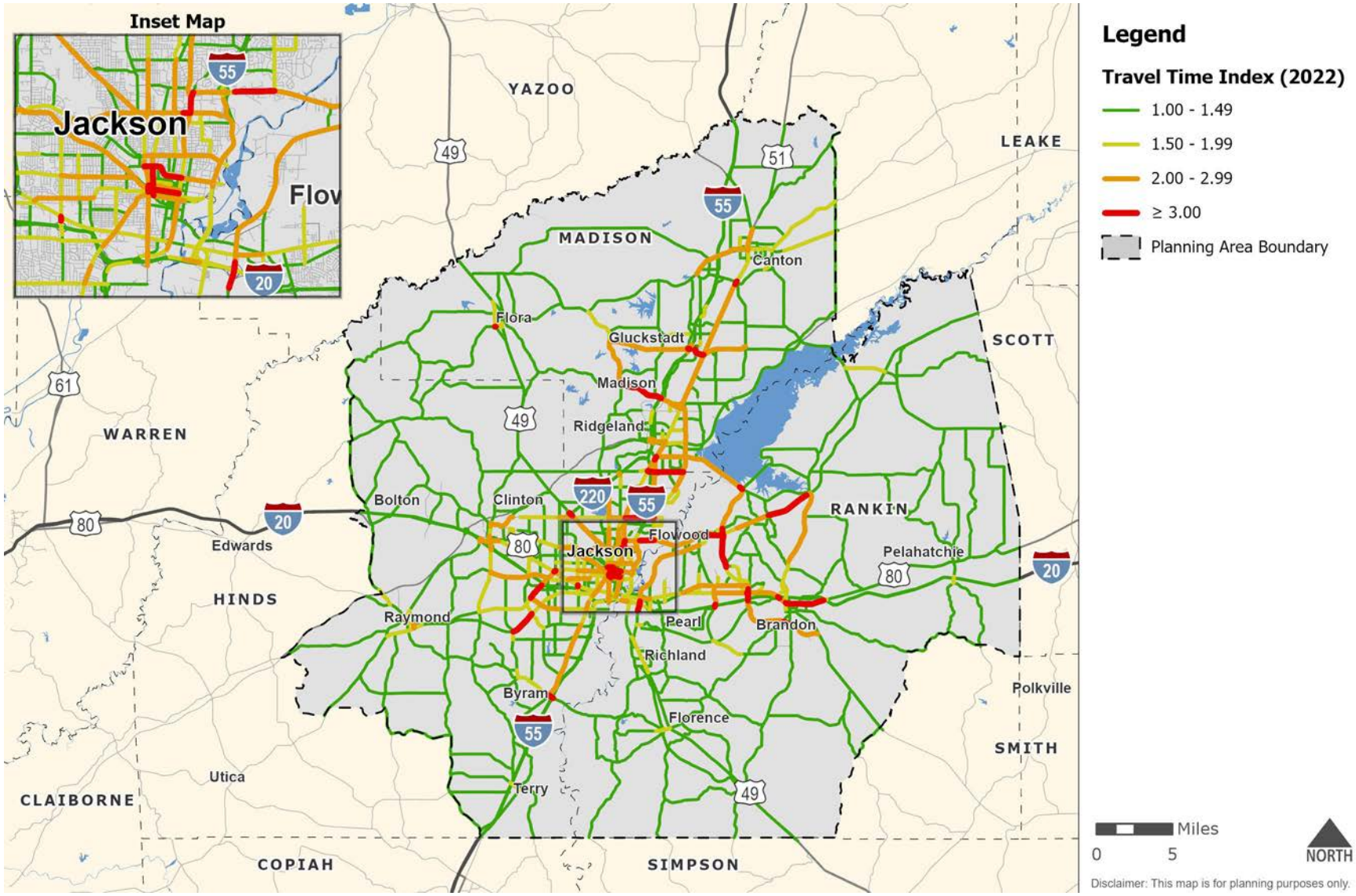
Figure B.8: Volume to Capacity Ratio Study – 2050 NT Peak



Source: Travel Demand Model

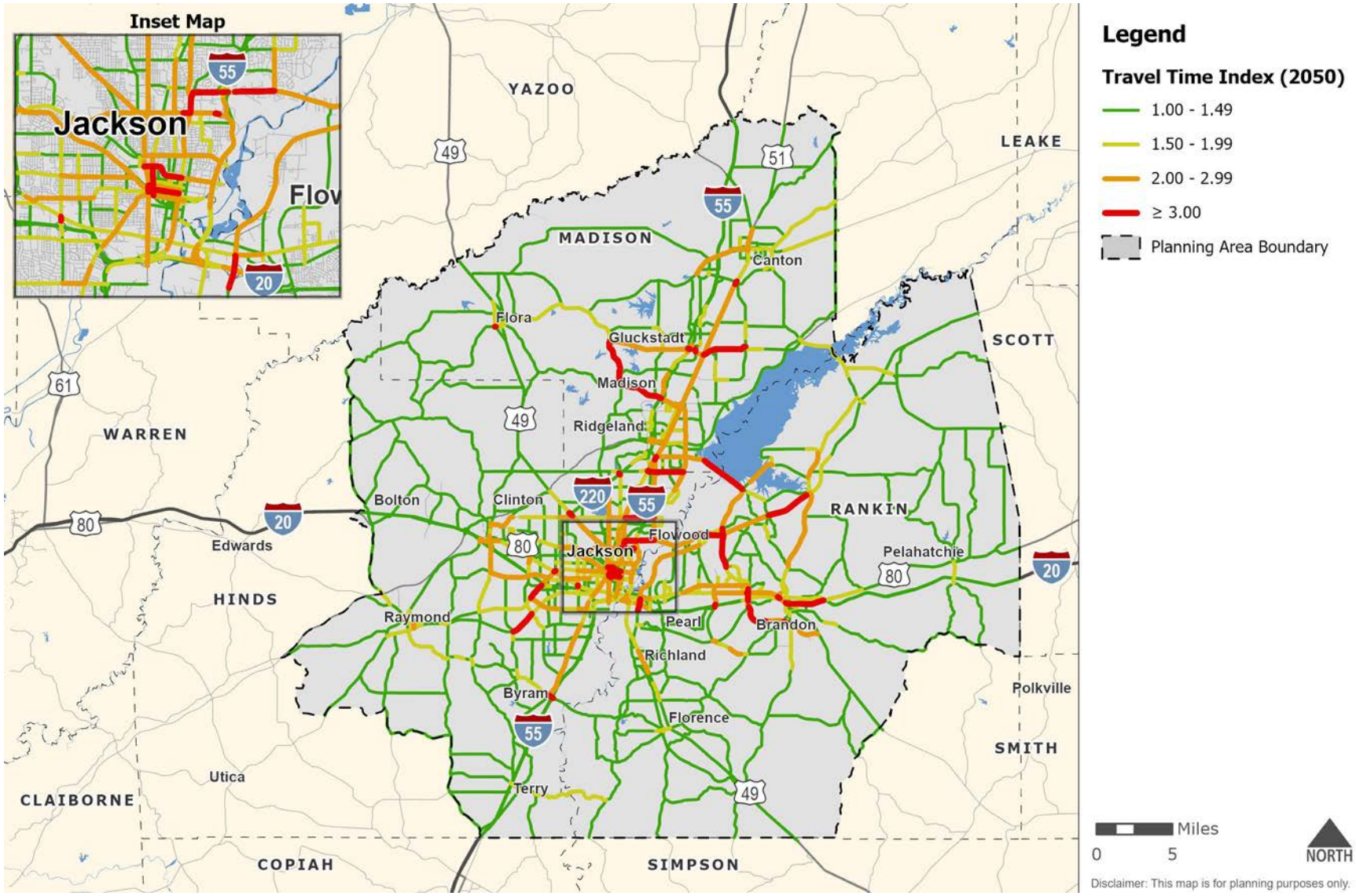
Appendix C: Travel Time Index Study

Figure C.1: Travel Time Index Study – 2022



Source: Travel Demand Model, NPMRDS

Figure C.2: Travel Time Index Study – 2050



Source: Travel Demand Model, NPMRDS

Appendix D: Level of Service Study

Freeways

The LOS criteria for freeway facilities, displayed in **Table D.1**, is based on the density of the freeway segment. The density is expressed in passenger cars per mile per lane and is calculated using the equation below. The freeway capacities at various free-flow speeds are displayed in **Table D.2**.

$$Density = \frac{V/C\ Ratio\ \times Capacity_f}{Peak\ Period\ Speed}$$

Where:

- Density is in Passenger Cars per Mile per Lane
- V/C Ratio is the segment Volume to Capacity ratio
- Capacity is in Passenger Cars per Hour per Lane
- Peak-Period Speed is in Miles per Hour (MPH)
- f – Free-flow speed

Table D.1: Freeway LOS Criteria

LOS	Density (Passenger Cars per Mile per Lane)	V/C Ratio
A	≤ 11	≤ 1.00
B	> 11 - 18	≤ 1.00
C	> 18 - 26	≤ 1.00
D	> 26 - 35	≤ 1.00
E	> 35 - 45	≤ 1.00
F	> 45	> 1.00

Source: Highway Capacity Manual

Table D.2: Freeway Capacities

Free-Flow Speed (MPH)	Capacity (Passenger Cars per Hour per Lane)
55	2,250
60	2,300
65	2,350
70	2,400

Source: Highway Capacity Manual

Multi-Lane Highways

The LOS criteria for uninterrupted flow multi-lane highways is based on the density of the multi-lane highway segment, expressed in passenger cars per mile per lane. The multi-lane highway density is calculated using the same formula as the freeway density. **Table D.3** displays the LOS criteria for multi-lane highways. The multi-lane highway capacities at various free-flow speeds are displayed in **Table D.4**.

Table D.3: Multi-Lane Highway LOS Criteria

LOS	Density (Passenger Cars per Mile per Lane)	V/C Ratio
A	≤ 11	≤ 1.00
B	> 11 - 18	≤ 1.00
C	> 18 - 26	≤ 1.00
D	> 26 - 35	≤ 1.00
E	> 35 - 45	≤ 1.00
F	> 45	> 1.00

Source: Highway Capacity Manual

Table D.4: Multi-Lane Highway Capacities

Free-Flow Speed (MPH)	Capacity (Passenger Cars per Hour per Lane)
45	1,900
50	2,000
55	2,100
60	2,200
65	2,300

Source: Highway Capacity Manual

Two-Lane Highways

The LOS criteria for two-lane highways, which are displayed in **Table D.5**, is based on percent free-flow speed.

Table D.5: Two-Lane Highways LOS Criteria

LOS	Percent Free-Flow Speed	V/C Ratio
A	> 91.7%	≤ 1.00
B	> 83.3% - 91.7%	≤ 1.00
C	> 75.0% - 83.3%	≤ 1.00
D	> 66.7% - 75.0%	≤ 1.00
E	≤ 66.7%	≤ 1.00
F	-	> 1.00

Source: Highway Capacity Manual

Streets

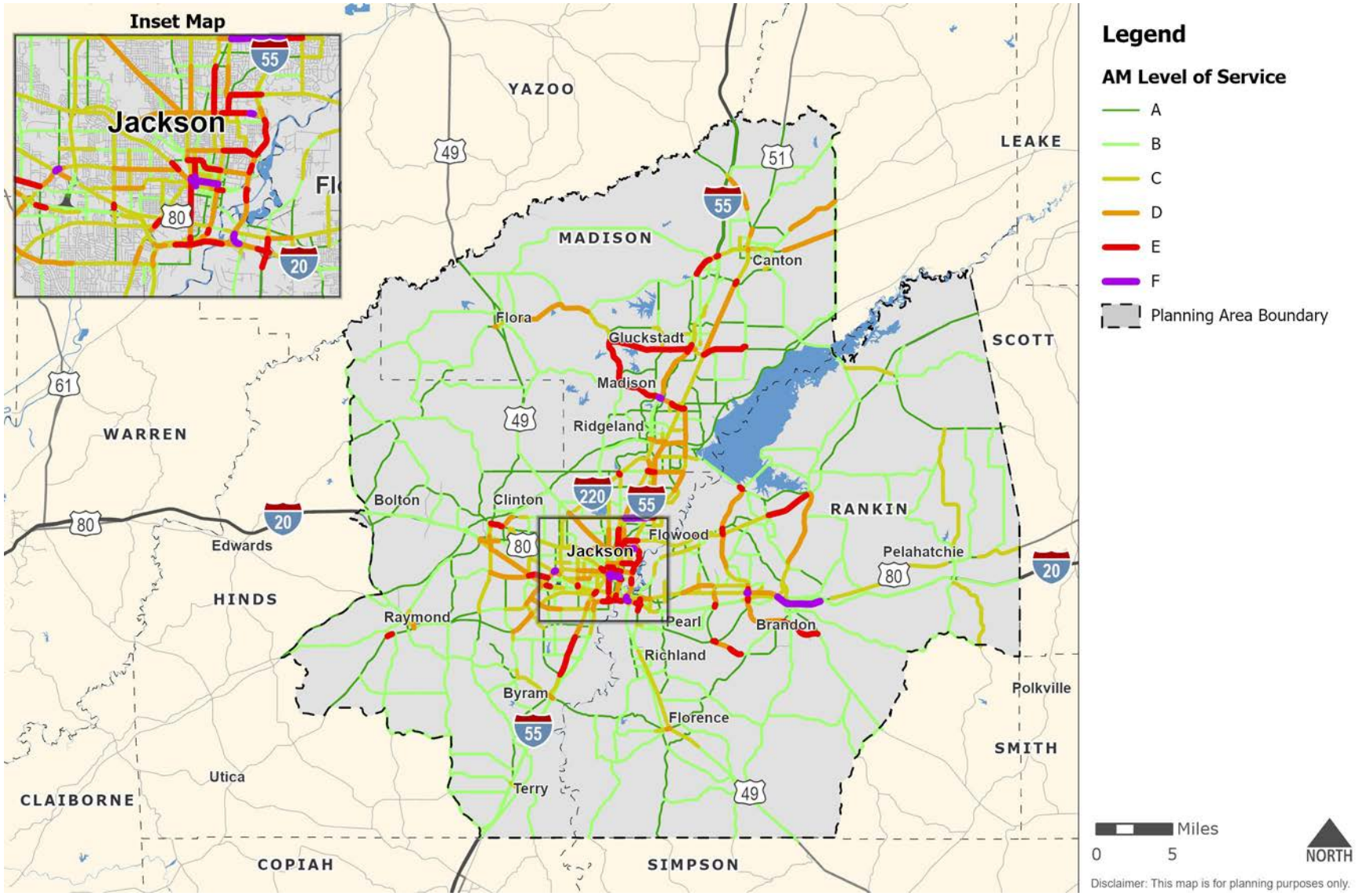
The LOS criteria for streets, which are displayed in **Table D.6**, is based on percent free-flow speed and v/c ratio.

Table D.6: Streets LOS Criteria

LOS	Percent Free-Flow Speed	V/C Ratio
A	> 80%	≤ 0.60
B	> 67% - 80%	> 0.60 - 0.70
C	> 50% - 67%	> 0.70 - 0.80
D	> 40% - 50%	> 0.80 - 0.90
E	> 30% - 40%	> 0.90 - 1.00
F	≤ 30%	> 1.00

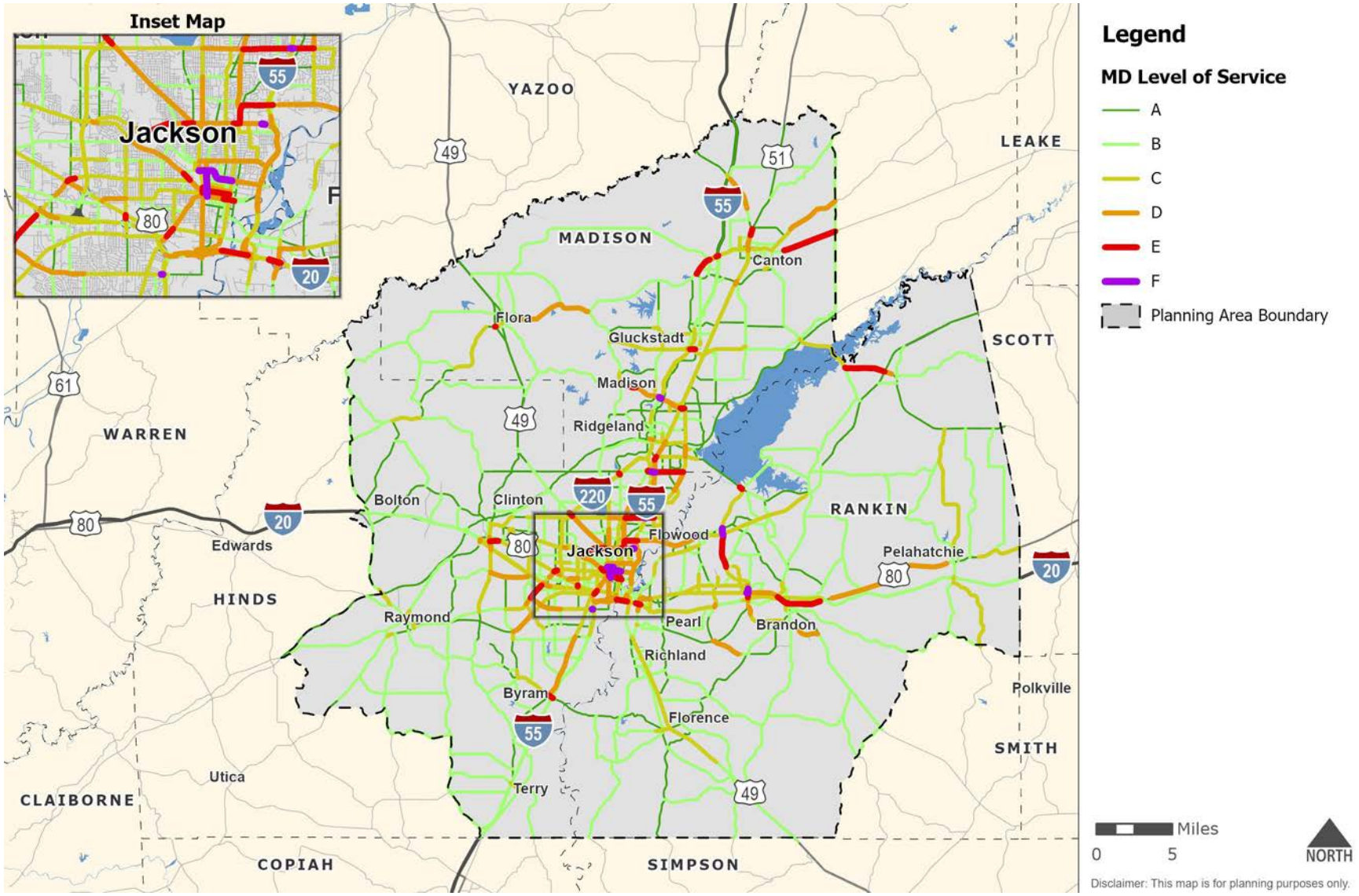
Source: Highway Capacity Manual

Figure D.1: Level of Service Study – 2022 AM Peak



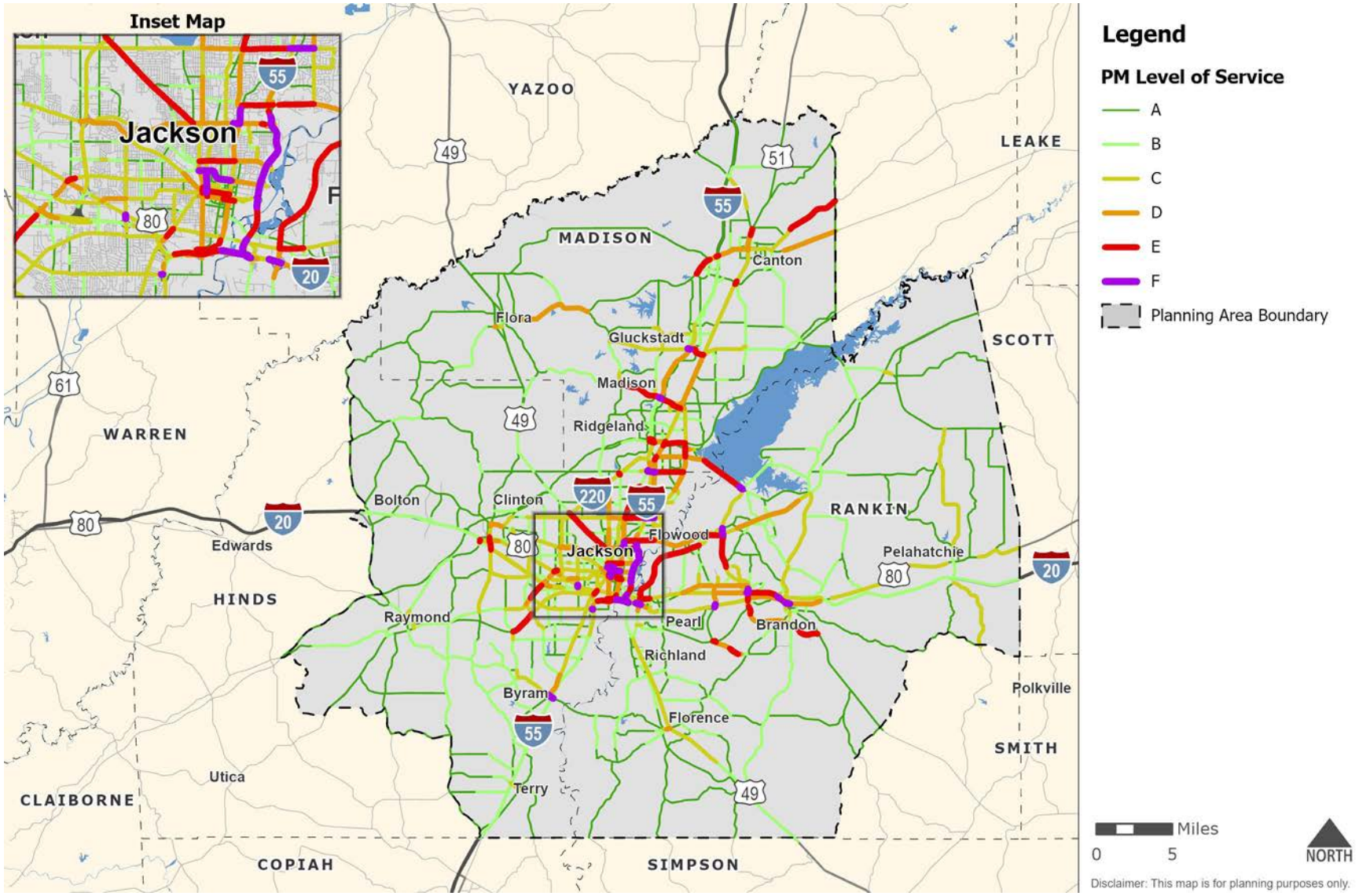
Source: Travel Demand Model, NPMRDS

Figure D.2: Level of Service Study – 2022 MD Peak



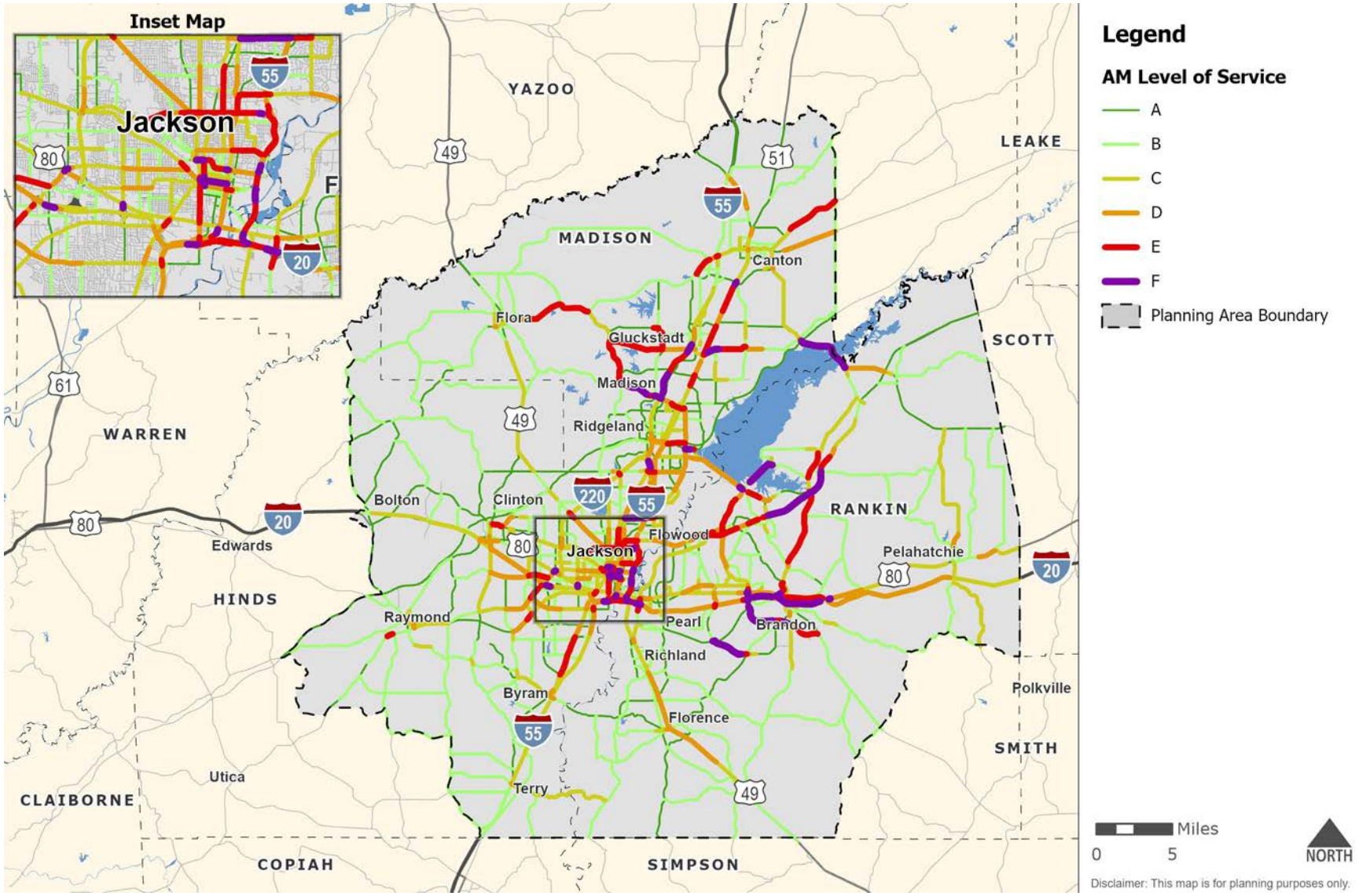
Source: Travel Demand Model, NPMRDS

Figure D.3: Level of Service Study – 2022 PM Peak



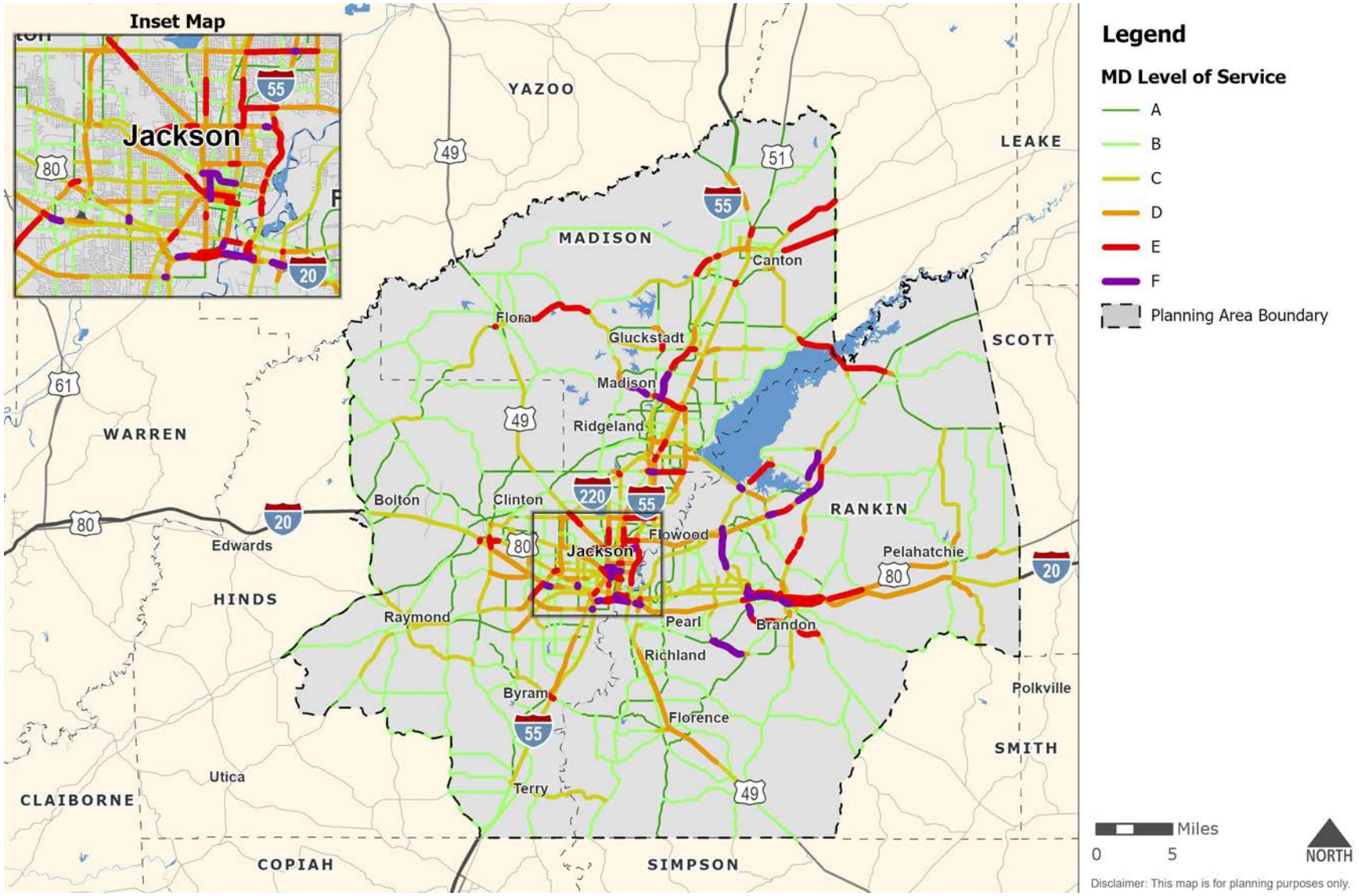
Source: Travel Demand Model, NPMRDS

Figure D.4: Level of Service Study – 2050 AM Peak



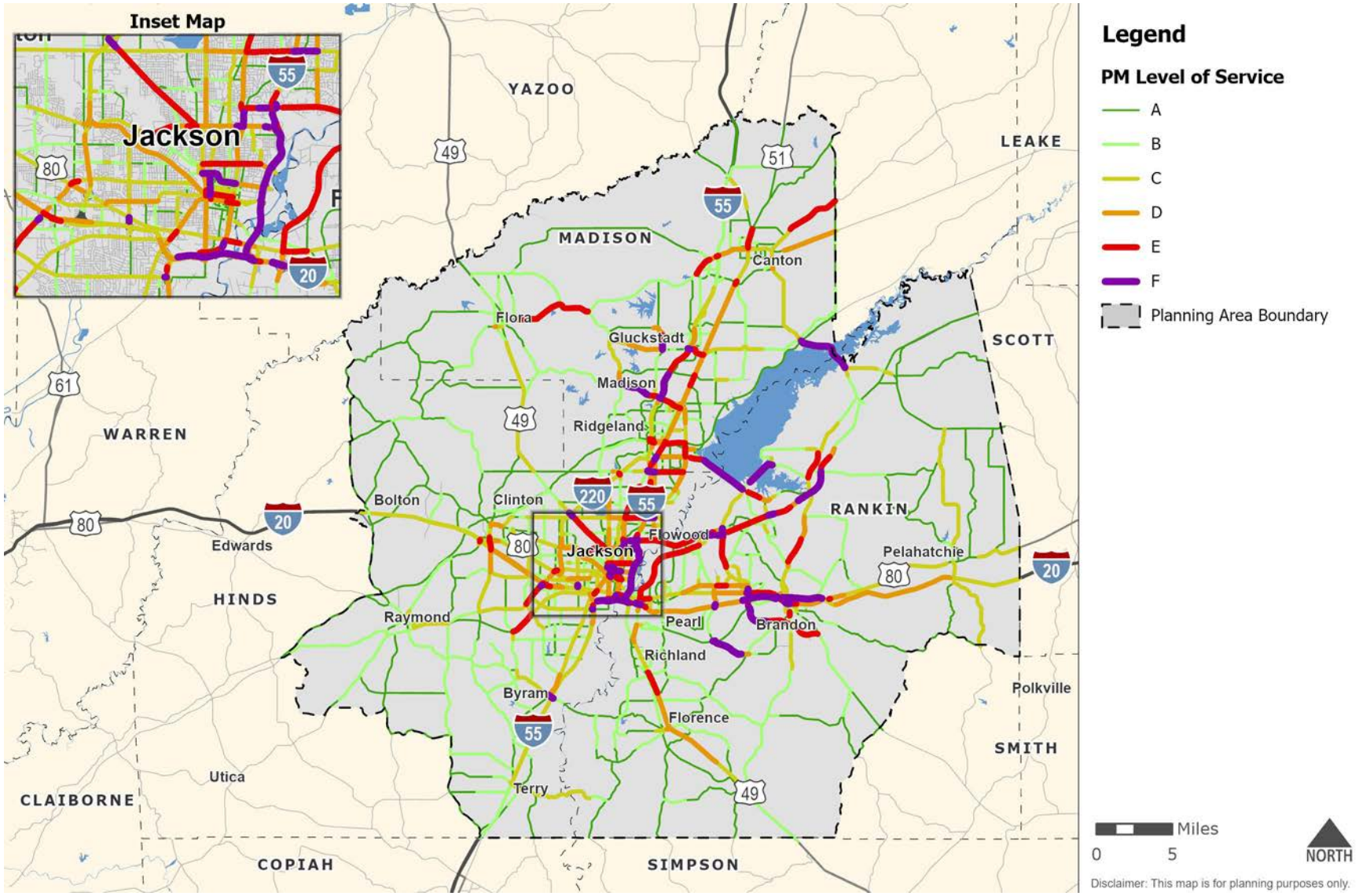
Source: Travel Demand Model, NPMRDS

Figure D.5: Level of Service Study – 2050 MD Peak



Source: Travel Demand Model, NPMRDS

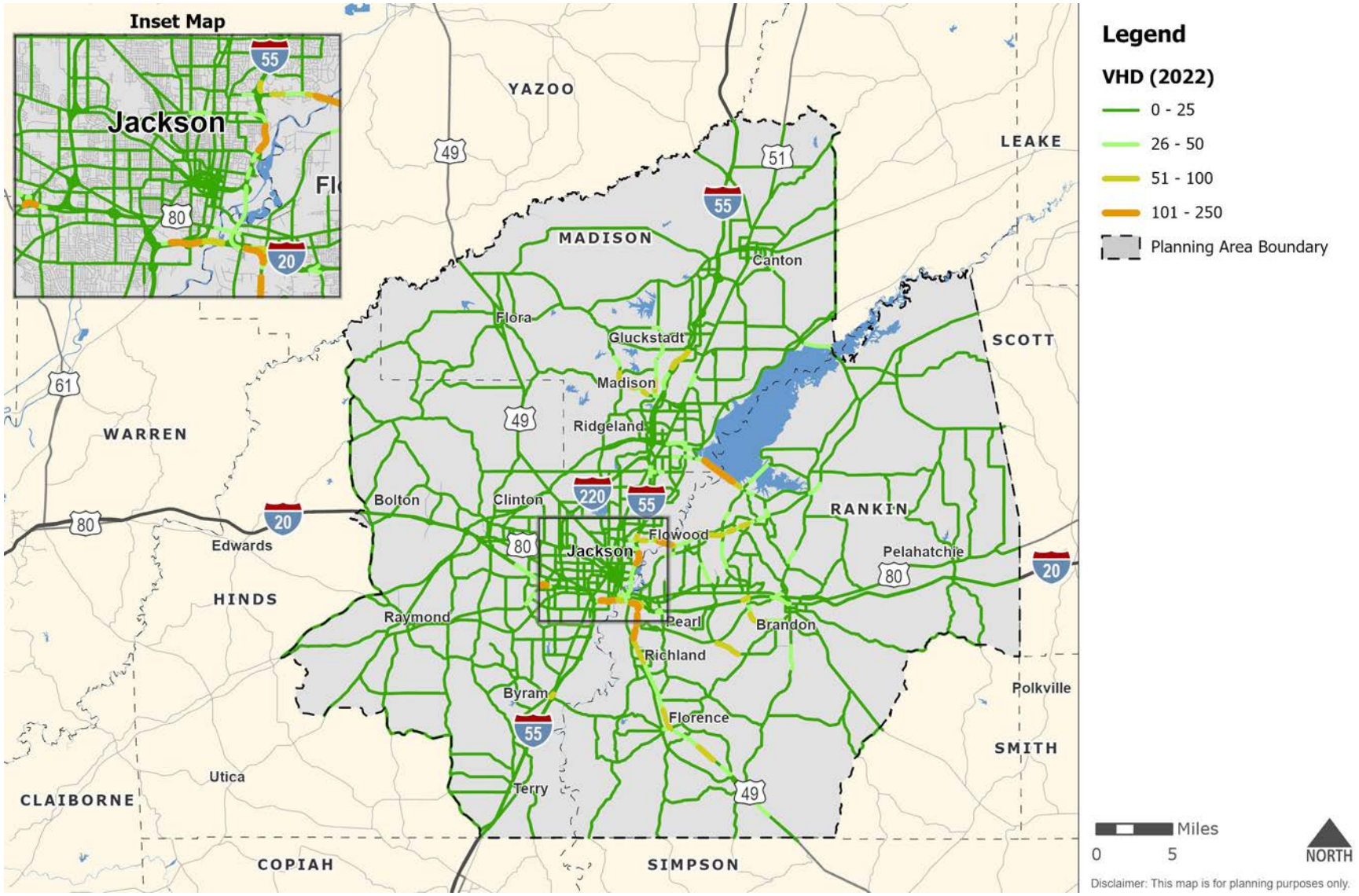
Figure D.6: Level of Service Study – 2050 PM Peak



Source: Travel Demand Model, NPMRDS

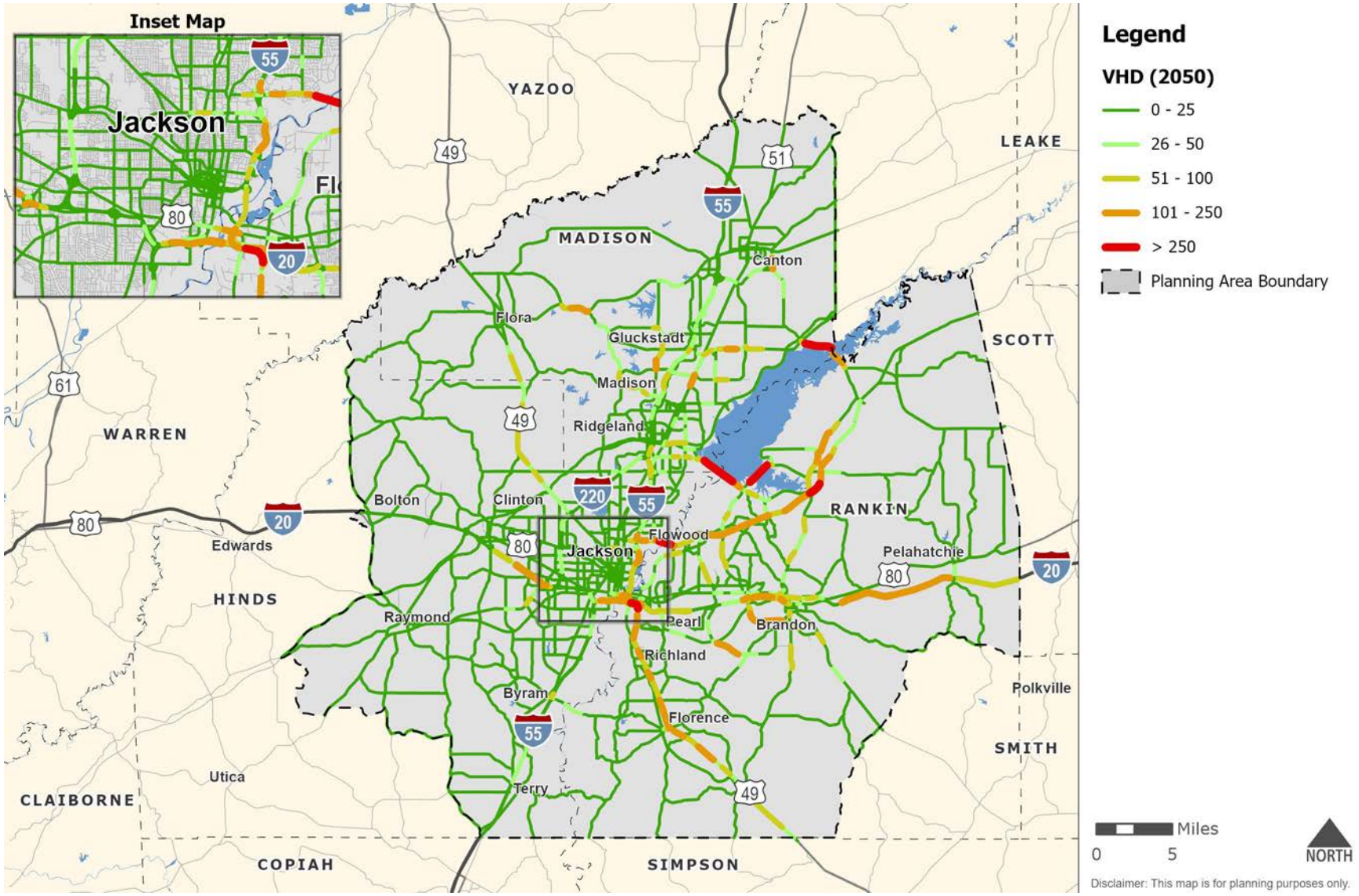
Appendix E: Vehicle Hours Delay Study

Figure E.1: Vehicle Hours of Delay Study – 2022



Source: Travel Demand Model

Figure E.2: Vehicle Hours of Delay Study – 2050



Source: Travel Demand Model

Appendix F: Buffer Index – Unpredictable Variability Corridors

Table F.1: Unpredictable Variability in Trip Duration (Buffer Index)

Corridor	Limits	AM	MD	PM
I-20 Eastbound	At MS 18 West	Yes	No	No
I-20 Westbound	US 49 to I-55 Southbound	No	No	Yes
	Off-Ramp to I-55 Northbound	Yes	No	No
I-55 Northbound	Off-Ramp to Natchez Trace Pkwy	No	No	Yes
I-55 Southbound	At Gluckstadt Rd	Yes	No	No
	MS 25 to I-20	No	No	Yes
US 49 Northbound	At I-20	Yes	Yes	No
	I-220 to Country Club Dr/Forest Ave Ext	Yes	No	No
US 51 Northbound	Ridgewood Rd to Lake Harbour Dr	Yes	No	No
	Rice Rd to MS 463	Yes	No	No
	MS 463 to Yandell Rd	Yes	Yes	No
	MS 16 East (Canton Pkwy)/Nissan Pkwy to MS 22 (Peace St)	Yes	Yes	No
	MS 22 (Peace St) to MS 16 West	Yes	Yes	Yes
US 51 Southbound	MS 16 West to MS 22 (Peace St)	Yes	Yes	Yes
	MS 22 (Peace St) to MS 16 East (Canton Pkwy)/Nissan Pkwy	Yes	No	Yes
	MS 16 East (Canton Pkwy)/Nissan Pkwy to Yandell Rd	Yes	No	No
	Yandell Rd to Rice Rd	No	Yes	No
	Rice Rd to Lake Harbour Dr	Yes	No	No
	Lake Harbour Dr to Ridgewood Rd	Yes	No	Yes
US 80 Eastbound	I-20 to Clinton Pkwy/Springridge Rd	Yes	Yes	Yes
	Clinton Pkwy/Springridge Rd to Mt Salus Rd	No	Yes	No
	Wiggins Rd to I-220	Yes	Yes	Yes
	I-220 to Bobby Rush Blvd	No	Yes	Yes
	Bobby Rush Blvd to Valley St	No	No	Yes
	Flowood Dr to Childre Rd	Yes	No	Yes
	MS 475 to MS 18 East	Yes	Yes	No
	MS 18 East to MS 471	Yes	No	No
	MS 471 to MS 468	Yes	Yes	Yes
	MS 468 to I-20	Yes	Yes	No
US 80 Westbound	I-20 (East Brandon) to I-20 (West Brandon)	Yes	Yes	Yes
	I-20 (West Brandon) to MS 18 East	Yes	No	No

Corridor	Limits	AM	MD	PM
US 80 Westbound	MS 18 East to MS 475	Yes	No	Yes
	Childre Rd to Flowood Dr	No	Yes	Yes
	Flowood Dr to State St	Yes	No	No
	Gallatin St to Terry Rd	No	No	Yes
	Valley St to Bobby Rush Blvd	No	Yes	No
	I-220 to MS 18 West	Yes	Yes	Yes
	MS 18 West to Wiggins Rd	No	Yes	No
	Mt Salus Rd to Clinton Pkwy/Springridge Rd	Yes	Yes	Yes
	Clinton Pkwy/Springridge Rd to I-20	No	No	Yes
MS 16 Eastbound	I-55 to US 51	Yes	Yes	No
	MS 43 to Sharon Rd	No	Yes	No
MS 16 Westbound	Sharon Rd to MS 43	No	Yes	No
	US 51 to I-55	No	Yes	No
MS 18 Eastbound	Old Port Gibson Rd to Dry Grove Rd	Yes	No	No
	McDowell Rd to John R Lynch St	No	Yes	Yes
	John R Lynch St to US 80	Yes	Yes	Yes
	At I-20 (Brandon)	Yes	Yes	No
	I-20 to MS 468	Yes	No	No
MS 18 Westbound	Louis Wilson Dr to I-20	Yes	No	No
	I-20 to US 80	Yes	Yes	No
	US 80 to John R Lynch St	Yes	No	Yes
	I-20 to McDowell Rd	No	Yes	No
MS 22 Eastbound	US 49 to First St	Yes	Yes	Yes
	Nissan Pkwy to I-55	Yes	Yes	Yes
	I-55 to US 51	No	Yes	Yes
MS 22 and Peace St Westbound	MS 43 to US 51	Yes	Yes	No
	US 51 to I-55	Yes	Yes	Yes
	I-55 to Nissan Pkwy	Yes	Yes	No
MS 22 Westbound	First St to US 49	No	No	Yes
MS 25 Eastbound	At I-55	Yes	Yes	Yes
	Grants Ferry Rd/Castlewoods Blvd to MS 471	No	No	Yes
MS 25 Westbound	MS 471 to Grants Ferry Rd/Castlewoods Blvd	Yes	No	No

Corridor	Limits	AM	MD	PM
MS 25 Westbound	At I-55	Yes	Yes	Yes
Lakeland Dr Westbound	I-55 to Old Canton Rd	Yes	Yes	No
MS 43 Northbound	Natchez Trace Pkwy to MS 16 (Canton Pkwy)	No	No	Yes
MS 463 Northbound	I-55 to N Livingston Rd	Yes	Yes	Yes
MS 463 Southbound	Gluckstadt Rd to N Livingston Rd	Yes	Yes	No
	N Livingston Rd to I-55	No	Yes	Yes
	I-55 to Main St	Yes	No	No
MS 471 Northbound	Old Hwy 471/Terrapin Creek Rd to Grants Ferry Rd	Yes	Yes	No
MS 471 Southbound	MS 25 to Grants Ferry Rd	Yes	No	No
MS 475 Northbound and Southbound	At I-20	Yes	No	Yes
Gluckstadt Rd Eastbound	MS 463 to I-55	Yes	No	No
Gluckstadt Rd Westbound	I-55 to MS 463	Yes	Yes	Yes
Weisenberger Rd Eastbound	Parkway East to US 51	Yes	Yes	Yes
Weisenberger Rd Westbound	US 51 to Parkway East	No	Yes	No
Yandell Rd Westbound	Cedar Grove Ln to US 51	Yes	Yes	Yes
Main St (Madison) Eastbound and Westbound	MS 463 to Old Canton Rd	Yes	Yes	Yes
Old Canton Rd Northbound	Canton Mart Rd to Ridgewood Rd	Yes	Yes	No
	Colonial Cir to County Line Rd	Yes	Yes	Yes
	County Line Rd to Lake Harbour Dr	Yes	No	No
Old Canton Rd Southbound	Main St to Natchez Trace Pkwy	Yes	No	No
	Lake Harbour Dr to County Line Rd	Yes	Yes	No
	Ridgewood Rd to Old Canton Rd	No	Yes	Yes
Canton Mart Rd Westbound	Old Canton Rd to I-55	Yes	Yes	Yes
County Line Rd Eastbound	State St to Ridgewood Rd	Yes	Yes	Yes
	Ridgewood Rd to Old Canton Rd	Yes	No	No
County Line Rd Westbound	Old Canton Rd to Ridgewood Rd	No	No	Yes
Ridgewood Rd Northbound	Adkins Blvd to US 51	Yes	Yes	Yes
Ridgewood Rd Southbound	US 51 to County Line Rd	Yes	Yes	Yes
	County Line Rd to Adkins Rd	No	No	Yes
	Adkins Blvd to Old Canton Rd	Yes	Yes	No

Corridor	Limits	AM	MD	PM
Ridgewood Rd Southbound	Old Canton Rd to Northside Dr	Yes	No	No
Northside Dr Eastbound	Clinton Pkwy to Old Vicksburg Rd	Yes	No	No
	Old Vicksburg Rd to Cynthia Rd	No	No	Yes
	Country Club Rd to Medgar Evers Blvd	No	Yes	Yes
	Watkins Dr/Bailey Ave to State St	Yes	Yes	No
	State St to Ridgewood Rd	Yes	Yes	Yes
Northside Dr Westbound	Ridgewood Rd to State St	Yes	Yes	Yes
	State St to Hanging Moss Rd/Northbrook Dr	Yes	No	No
	Watkins Dr/Bailey Ave to Country Club Dr	Yes	Yes	No
	Cynthia Rd to Old Vicksburg Rd	No	No	Yes
Medgar Evers Blvd Southbound	Northside Dr to Woodrow Wilson Dr	Yes	Yes	Yes
Watkins Dr Southbound	Beasley Rd to Northside Dr	Yes	No	No
Hanging Moss Dr Southbound	I-220 to Beasley Rd	Yes	Yes	No
	Beasley Rd to Northside Dr	Yes	No	Yes
Bailey Ave Northbound and Southbound	Woodrow Wilson Dr to Mayes St	Yes	Yes	Yes
	Mayes St to Northside Dr	No	No	Yes
Bailey Ave Southbound	Woodrow Wilson Dr to Fortification St	No	Yes	No
West St Northbound	Fortification St to Mayes St	No	Yes	No
	Mayes St to Northside Dr	No	No	Yes
West St Southbound	Northside Dr to Mayes St	No	No	Yes
	Mayes St to Woodrow Wilson Dr	Yes	Yes	Yes
Woodrow Wilson Dr Eastbound	Fortification St to Medgar Evers Blvd	Yes	Yes	Yes
	Medgar Evers Blvd to State St	Yes	No	No
	State St to I-55	Yes	Yes	No
Woodrow Wilson Dr Westbound	I-55 to Medgar Evers Blvd	Yes	Yes	Yes
	Medgar Evers Blvd to Fortification St	No	No	Yes
State St Northbound	Gallatin St to Pascagoula St	Yes	Yes	Yes
	High St to Fortification St	No	No	Yes
	Fortification St to Woodrow Wilson Dr	No	Yes	No
	Woodrow Wilson Dr to Mayes St	Yes	Yes	Yes
	Mayes St to Northside Dr	No	Yes	No
	Northside Dr to Beasley Rd	Yes	Yes	No

Corridor	Limits	AM	MD	PM
State St Southbound	Beasley Rd to Northside Dr	Yes	No	Yes
	Northside Dr to Mayes St	Yes	No	No
	Mayes St to Old Canton Rd	No	Yes	Yes
	Old Canton Rd to Woodrow Wilson Dr	Yes	No	Yes
	Woodrow Wislon Dr to Fortificaiton St	No	No	Yes
	Fortification St to High St	No	Yes	No
	Pearl St to US 80	Yes	Yes	Yes
Old Fannin Rd Southbound	Spillway Rd to Flowood Dr	Yes	Yes	No
	Flowood Dr to MS 25	Yes	Yes	Yes
E Metro Pkwy Northbound	Cooper Rd to MS 25	Yes	Yes	Yes
E Metro Pkwy Southbound	MS 25 to Cooper Rd	No	Yes	Yes
Crossgates Blvd Northbound	US 80 to Old Brandon Rd	No	Yes	Yes
Crossgates Blvd Southbound	Old Brandon Rd to US 80	No	Yes	Yes
Old Brandon Rd Eastbound	US 80 to MS 475	Yes	No	Yes
	MS 475 to E Metro Pkwy	No	Yes	Yes
Old Brandon Rd Westbound	E Metro Pkwy to MS 475	Yes	Yes	Yes
	MS 475 to US 80	Yes	Yes	No
Fortification St Eastbound and Westbound	Bailey Ave to State St	Yes	Yes	Yes
	State St to I-55	Yes	No	Yes
Monument St Eastbound and Westbound	Capitol St to Bailey Ave/Gallatin St	No	Yes	Yes
High St Eastbound and Westbound	Bailey Ave/Gallatin St to State St	Yes	Yes	Yes
High St Eastbound	State St to I-55	Yes	No	No
High St Westbound	I-55 to State St	Yes	Yes	Yes
Parkside Pl Northbound	Capitol St to Woodrow Wilson Ave	No	Yes	No
Parkside Pl Southbound	Woodrow Wilson Ave to Capitol St	No	Yes	No
Bobby Rush Blvd Northbound	At I-20	No	Yes	Yes
	John R Lynch St to Robinson Rd	No	Yes	Yes
Bobby Rush Blvd Southbound	Capitol St to Robinson Rd	Yes	Yes	Yes
	John R Lynch St to I-20	No	Yes	Yes
Capitol St Eastbound	I-220 to Ellis Ave	No	No	Yes

Corridor	Limits	AM	MD	PM
Capitol St Eastbound	Monument St to Robinson Rd	No	Yes	No
	Robinson Rd to Gallatin St	Yes	Yes	Yes
	Gallatin St to State St	No	Yes	Yes
Capitol St Westbound	Robinson Rd to Monument St	Yes	No	No
	Monument St to Bobby Rush Blvd	No	Yes	No
	Bobby Rush Blvd to I-220	Yes	Yes	No
Gallatin St Northbound	I-20 to State St	Yes	Yes	Yes
	State St to US 80	No	No	Yes
	US 80 to Pascagoula St	Yes	No	Yes
Gallatin St Southbound	Monument St to US 80	Yes	Yes	Yes
	US 80 to State St	No	Yes	Yes
	State St to I-20	Yes	Yes	Yes
Pearl St Westbound	I-55 to Fairgrounds St	No	No	Yes
	State St to Congress St	No	Yes	No
	Congress St to Gallatin St	Yes	Yes	Yes
Pascagoula St Eastbound	Terry Rd to Congress St	No	Yes	No
	Congress St to State St	No	Yes	Yes
John R Lynch St Eastbound	Wiggins Rd to MS 18	Yes	No	No
	MS 18 to US 80	Yes	Yes	Yes
	US 80 to Bobby Rush Blvd	No	No	Yes
	Bobby Rush Blvd to Gallatin St	Yes	Yes	No
John R Lynch St Westbound	US 80 to MS 18	Yes	Yes	Yes
Robinson Rd Eastbound	US 80 to Bobby Rush Blvd	No	Yes	Yes
	Bobby Rush Blvd to Capitol St	No	No	Yes
Robinson Rd Westbound	Capitol St to Bobby Rush Blvd	Yes	No	No
	Bobby Rush Blvd to US 80	Yes	Yes	Yes
McRaven Rd Eastbound and Westbound	Springridge Rd to Wiggins Rd	Yes	Yes	No
Springridge Rd Northbound	MS 18 to McRaven Rd	No	Yes	No
	McRaven Rd to I-20	Yes	Yes	Yes
Springridge Rd Southbound	I-20 to McRaven Rd	No	Yes	Yes
Clinton Pkwy Northbound	College St to Northside Dr	No	Yes	Yes
Clinton Pkwy Southbound	Northside Dr to College St	Yes	Yes	Yes

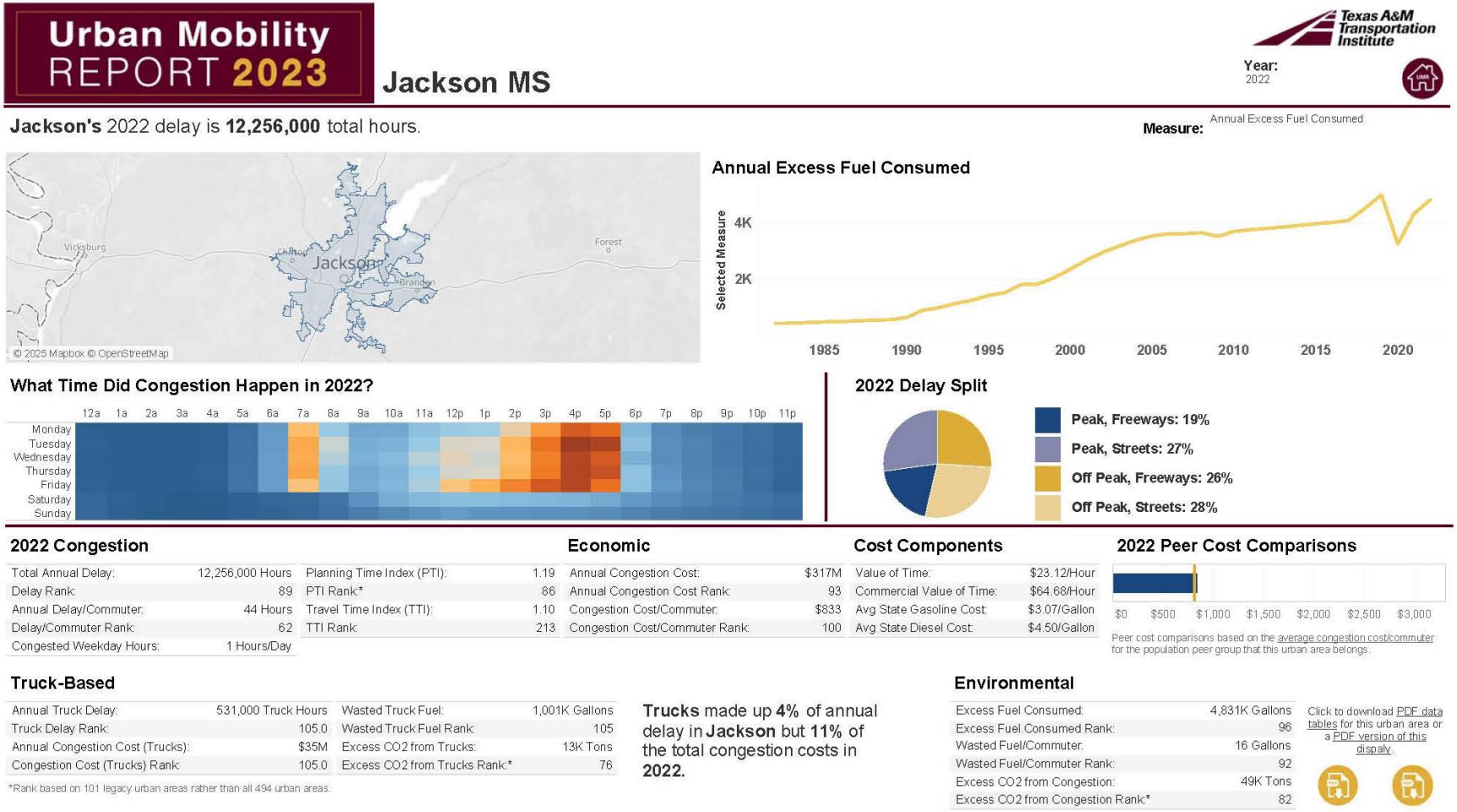
Corridor	Limits	AM	MD	PM
Clinton Pkwy Southbound	College St to I-20	Yes	No	No
College St and Clinton Blvd Eastbound	Clinton Pkwy to Dixon Rd	No	Yes	No
	Dixon Rd to I-220	No	Yes	Yes
E Main St (Raymond) Eastbound	Natchez Trace Pkwy to Port Gibson St	No	No	Yes
	Port Gibson St to MS 18	Yes	Yes	No
E Main St (Raymond) Eastbound	MS 18 to Port Gibson St	Yes	Yes	Yes
Siwell Rd Northbound and Southbound	Raymond Rd to MS 18	Yes	No	No
Siwell Rd Northbound	Terry Rd to Big Creek Rd	Yes	No	Yes
Siwell Rd Southbound	Big Creek Rd to Terry Rd	Yes	Yes	Yes
McDowell Rd Eastbound	Belvedere Dr to I-55	Yes	Yes	Yes
McDowell Rd Westbound	Oak Forest Dr to MS 18	Yes	No	No
Raymond Rd Eastbound	Siwell Rd to Maddox Rd	Yes	Yes	Yes
	Maddox Rd to Terry Rd	No	No	Yes
Raymond Rd Westbound	Terry Rd to Maddox Rd	No	No	Yes
	Maddox Rd to Siwell Rd	No	Yes	Yes
Forest Hill Rd Northbound	Terry Rd to Maddox Rd	No	No	Yes
	Cooper Rd to Raymond Rd	Yes	Yes	Yes
Terry Rd Northbound	Siwell Rd to Forest Hill Rd	Yes	Yes	Yes
	Forest Hill Rd to Savanna St	Yes	No	No
	Savanna St to Daniel Lake Blvd	No	Yes	No
	Daniel Lake Blvd to McDowell Rd	Yes	Yes	No
	McDowell Rd to I-20 Eastbound	No	Yes	No
	I-20 Westbound to Raymond Rd	Yes	No	Yes
Terry Rd Southbound	Gallatin St to US 80	No	No	Yes
	US 80 to Raymond Rd	Yes	No	No
	Raymond Rd to I-20 Eastbound	Yes	Yes	Yes
	I-20 Eastbound to Daniel Lake Blvd	No	Yes	No
	Daniel Lake Blvd to Savanna St	Yes	Yes	No
	Savanna St to Daniel Lane Blvd	Yes	Yes	Yes
Mill St Northbound	Amite St to High St	No	Yes	Yes
	High St to Fortification St	No	No	Yes

Corridor	Limits	AM	MD	PM
Mill St Southbound	Fortification St to High St	No	No	Yes
	High St to Amite St	No	No	Yes
Bolton Brownsville Rd Northbound	Madison St to I-20	No	No	Yes

Source: NPMRDS
All segments where the buffer index exceeds 1.0 during either AM, MD, or PM peak period.

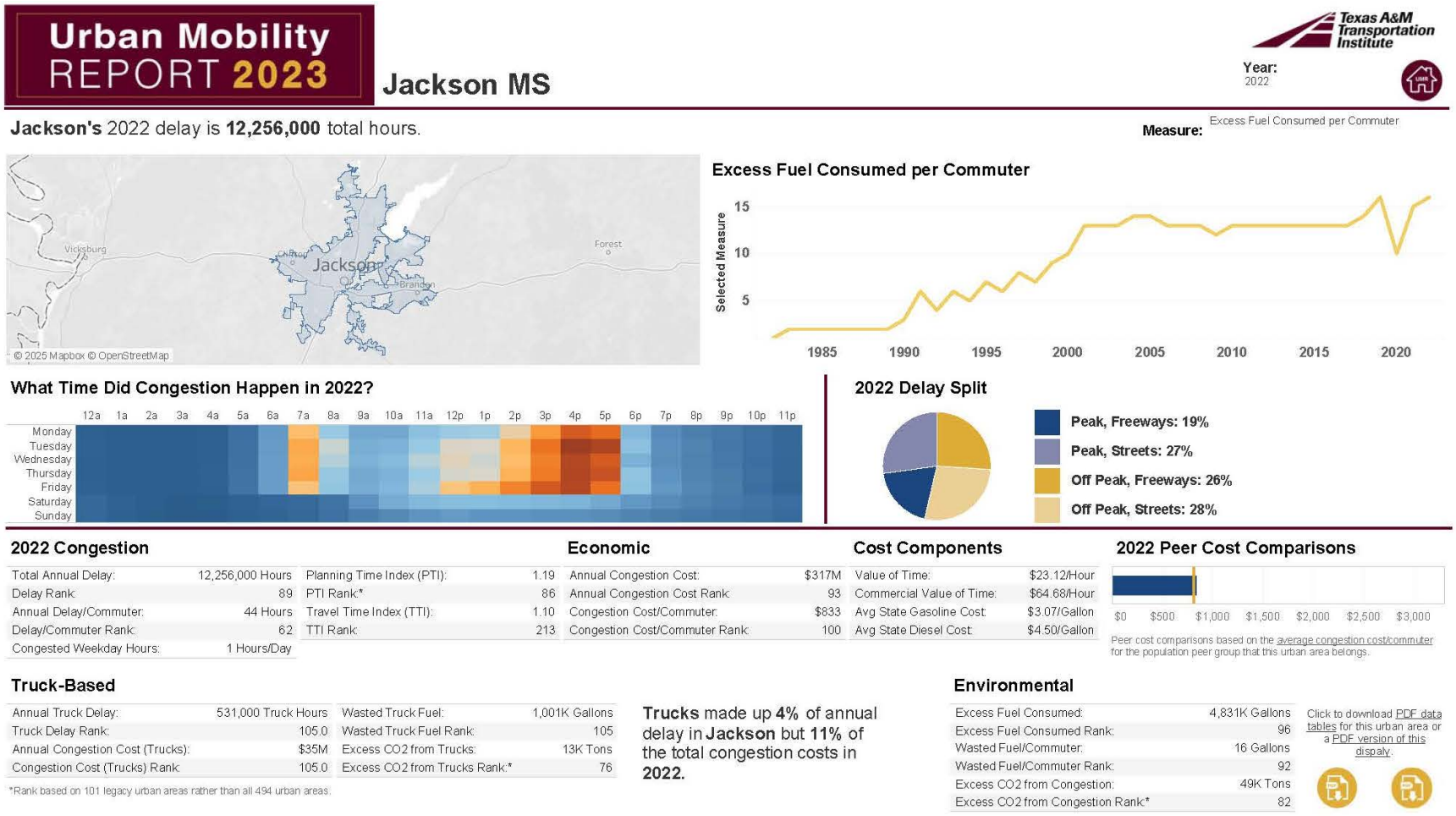
Appendix G: Texas A&M Transportation Institute Urban Mobility Report

Figure G.1: Annual Excess Fuel Consumed



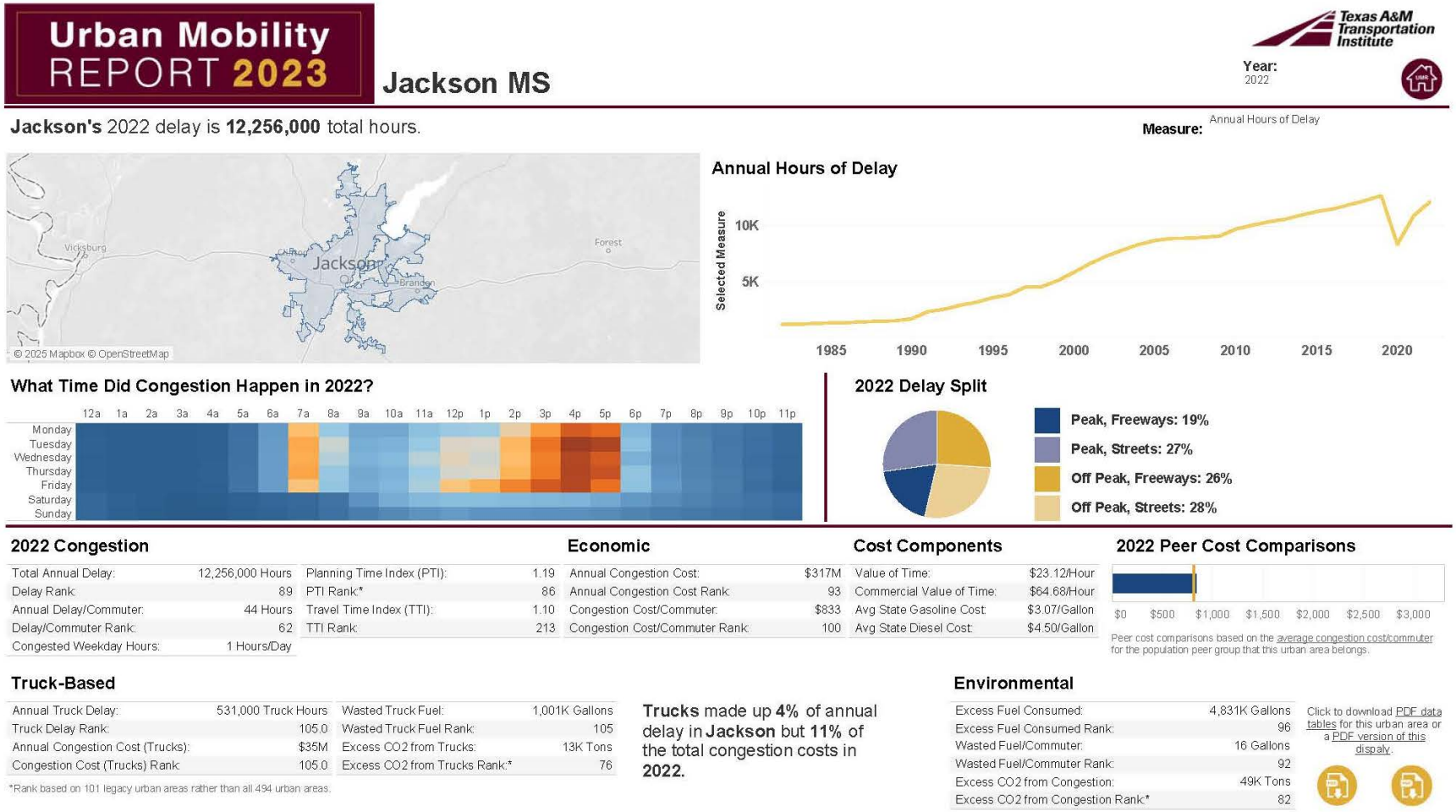
Source: Urban Mobility Report

Figure G.2: Excess Fuel Consumed per Commuter



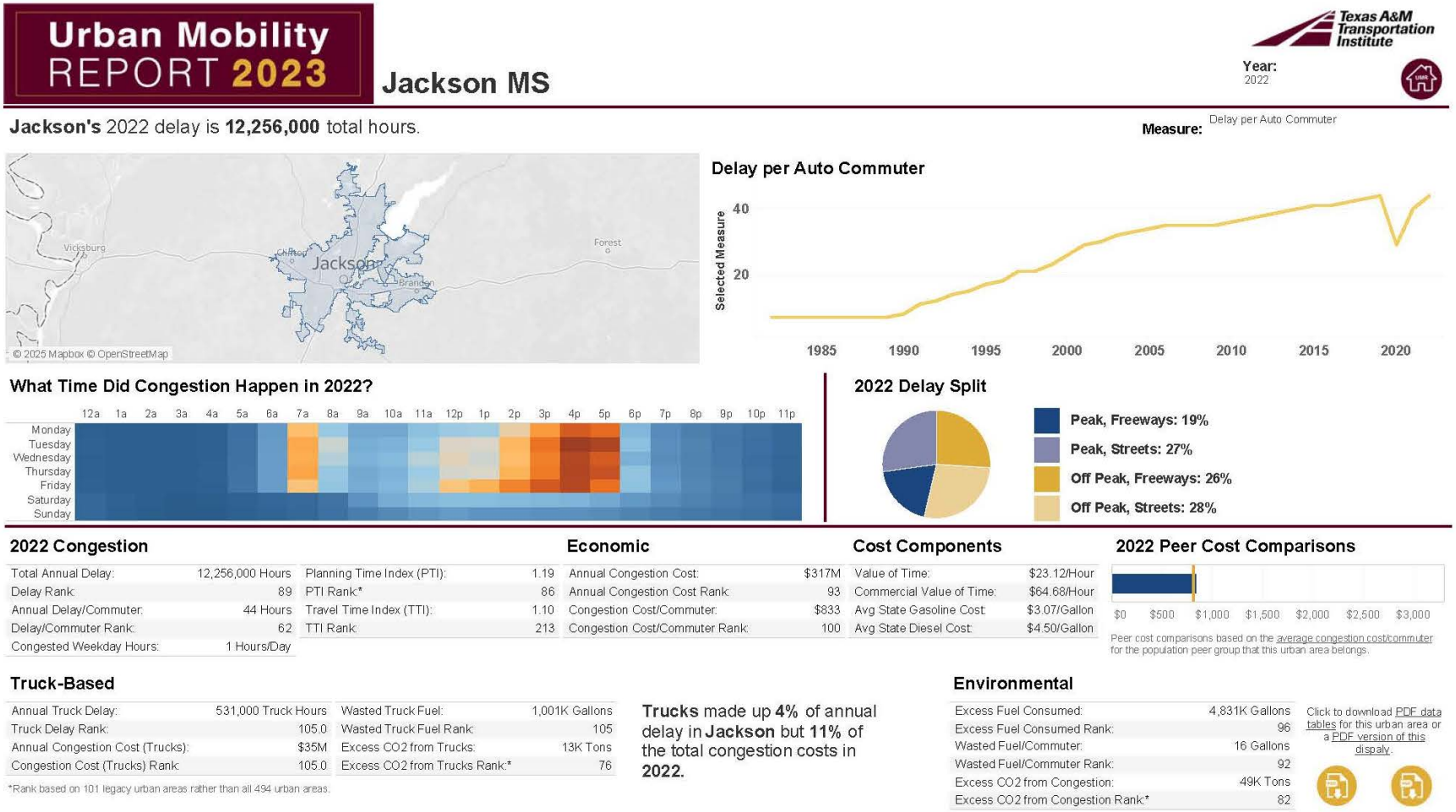
Source: Urban Mobility Report

Figure G.3: Annual Hours of Delay



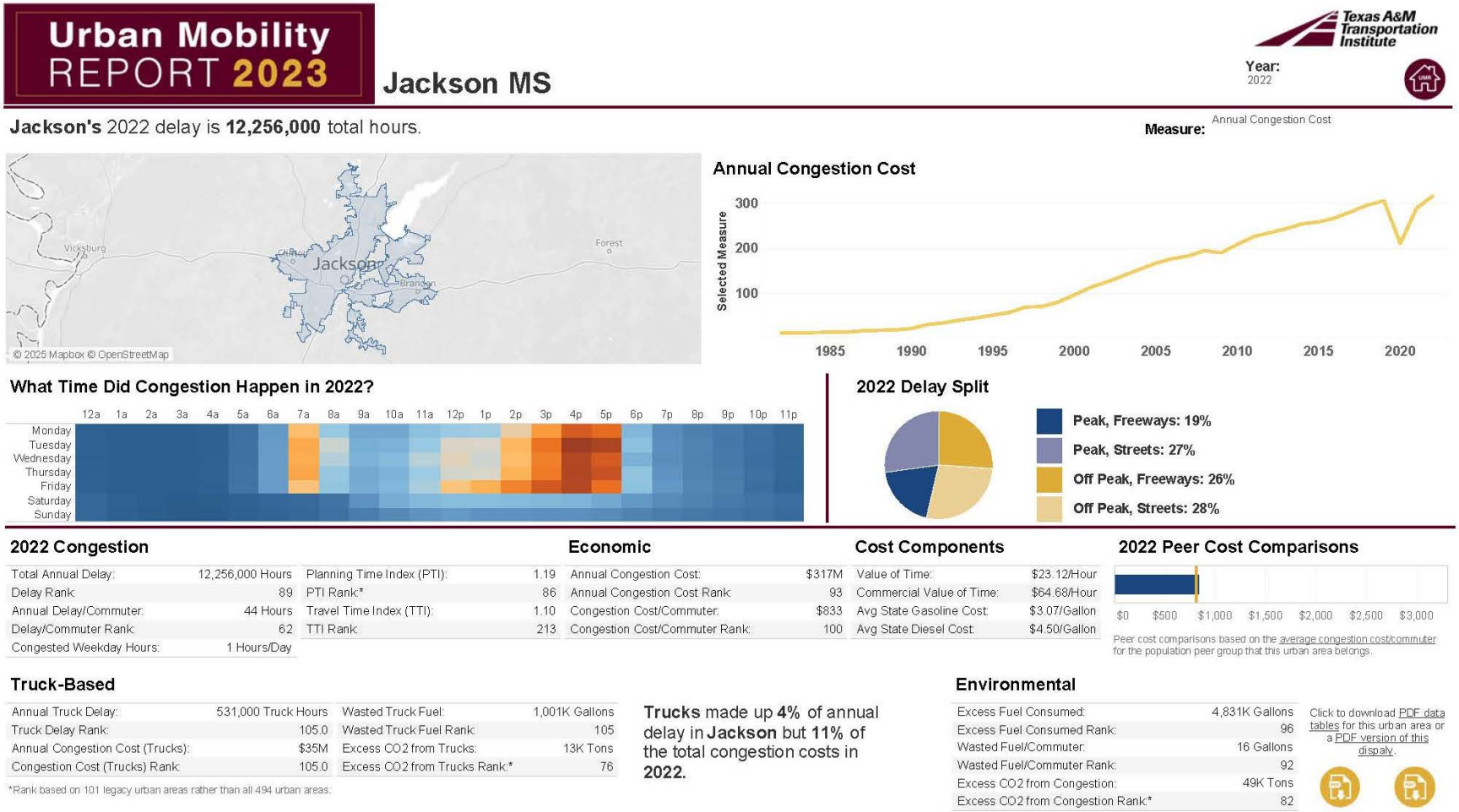
Source: Urban Mobility Report

Figure G.4: Delay per Auto Commuter



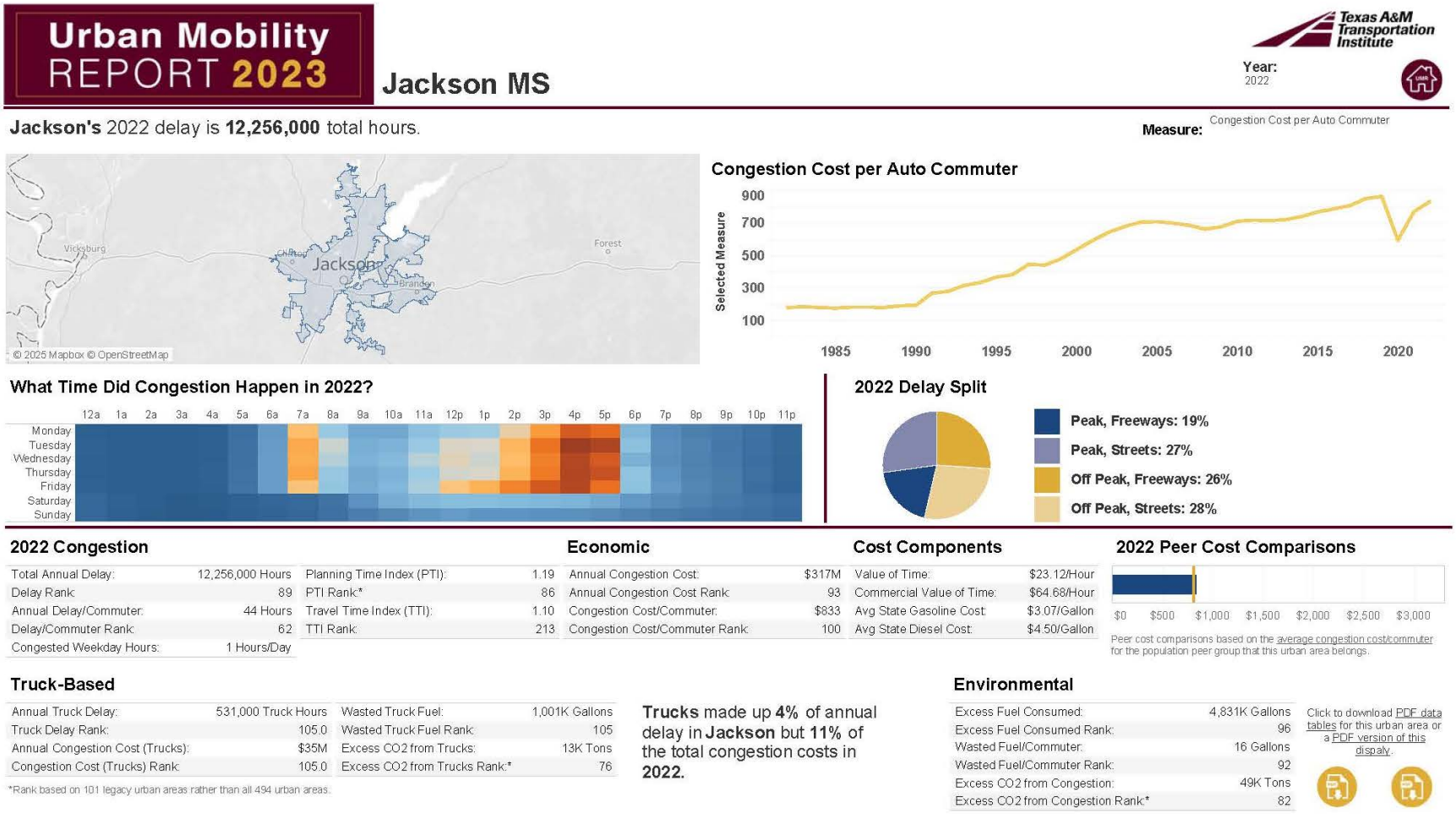
Source: Urban Mobility Report

Figure G.5: Annual Congestion Cost



Source: Urban Mobility Report

Figure G.6: Congestion Cost per Auto Commuter



Source: Urban Mobility Report