



# TRANSPORTATION WHITE PAPER

a regional gap analysis

November 2023

## **WHY THIS WHITE PAPER?**

This white paper is part of a five-part technical analysis on the following topics that affect the entire region of West Tennessee.

- 1) Transportation
- 2) Utilities
- 3) Economic Development
- 4) Land Use Regulations
- 5) Housing

These topics were studied to understand the regional needs and the context in which those needs exist from a physical, policy, resource, and/or regulatory standpoint. They are intended to:

- provide a consistent understanding of the current condition of each topic;
- identify specific challenges related to responsibly managing community growth; and
- inform the next steps for the West Tennessee Planning team and/or inform a discussion about a regional or state effort that could be considered to advance growth opportunities and resources.

Although these analyses are publicly available, they have not been made specific to individual community needs. Rather, they include general recommendations at the local and state level to take into consideration during subsequent planning and policy efforts to encourage a replicable approach to each topic by the consultant team as well as local, regional and state-level partners.

## **ACKNOWLEDGMENTS**

The Tennessee Department of Transportation (TDOT), Memphis Metropolitan Planning Organization (MPO), and Jackson Area MPO were instrumental in providing data to support the analyses presented in this white paper. Previous plans and studies by each of these organizations are referenced herein.

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# EXECUTIVE SUMMARY

The purpose of this memorandum is to provide a high-level, regional assessment of existing and future transportation deficiencies and needs. This analysis will establish an overall framework to better understand the transportation opportunities and challenges in West Tennessee and begin to identify potential planning solutions and strategies at the state or regional level, as well as inform the identification of needs and deficiencies at the local level. The analysis evaluates deficiencies and needs in the region across a broad spectrum of transportation issues, modes, and services, including:

- Highway capacity and travel demand;
- Safety;
- Operations and maintenance;
- Transit;
- Walking and bicycling;
- Transportation demand management;
- Freight and intermodal movement;
- Airports; and
- Traditionally-underserved populations.

The memorandum will first provide a broad overview of transportation administration in the State of Tennessee. The subsequent sections will provide a high-level discussion of existing conditions and future needs in each of the subject categories, with contextual analysis provided as needed. Each section concludes with planning considerations at both the local and state / regional level that will guide subsequent transportation planning efforts associated with West Tennessee Planning.

Taken together with the other topical gap analyses conducted for the project – covering land use, economic development, housing, and utility infrastructure – the analysis will also inform discussions of policy and program recommendations for state and regional partner agencies, to be conducted in concert with locally-focused planning initiatives.

## WEST TN PLANNING OVERVIEW

On September 27, 2021, Governor Bill Lee announced that the Ford Motor Company selected the 3,600 acre Megasite in Haywood County for a vehicle and battery manufacturing campus. This Ford Motor Company campus, known as BlueOval City, is expected to spur additional industrial, commercial, and residential development throughout West Tennessee. As a result, many of the rural communities in the region face unprecedented growth and development. In response to this, the Tennessee Department of Economic and Community Development (TNECD) is overseeing a five-year West Tennessee Planning effort to assist these communities as they prepare for the anticipated growth catalyzed by BlueOval City. The West TN Planning team is working with state, regional, and local agencies to help understand the regional impact on all aspects of community development.

# INTRODUCTION

The safe and efficient movement of people and goods throughout West Tennessee is critical to the quality of life of residents, economic development in the region's communities, and national and global freight movement and trade. The region's transportation system has taken on even greater importance in the wake of the BlueOval City announcement, which – along with subsequent residential, commercial, and industrial growth – will result in substantive changes to transportation demand, commuting patterns, and freight flows.

In the context of this forthcoming change in the region, a high-level, regional assessment of existing and future deficiencies and needs has been completed. This analysis will establish an overall framework to better understand the transportation opportunities and challenges in West Tennessee and begin to identify potential planning solutions and strategies at the state or regional level, as well as inform the identification of needs and deficiencies at the local level. The analysis evaluates deficiencies and needs in the region across a broad spectrum of transportation issues, modes, and services, including:

- Highway capacity and travel demand;
- Safety;
- Operations and maintenance;
- Transit;
- Walking and bicycling;
- Transportation demand management;
- Freight and intermodal movement;
- Airports; and
- Traditionally-underserved populations.

Importantly, this analysis should not be considered an exhaustive examination of all the transportation-related issues and opportunities that may arise in the region going forward. This analysis will be used to coordinate efforts between TNECD, the Tennessee Department of Transportation (TDOT), area regional transportation planning agencies, and local jurisdictions. Additional plans, studies, and initiatives will be needed going forward to fully analyze and address the issues and opportunities facing transportation in West Tennessee.

The planning recommendations included at the conclusion of each topical section should be consistently referred to by members of the West Tennessee Planning team – as well as any other interested public- or private-sector agencies – going forward during the scoping and execution of local and regional planning initiatives. In doing so, project can avoid missed opportunities with respect to interagency coordination, interdependent transportation facilities and strategies, and improved transportation and land use coordination. When potential opportunities “fall through the cracks” in preliminary planning, the consequences often permeate through subsequent implementation efforts.

# TRANSPORTATION ADMINISTRATION IN TENNESSEE

TDOT assumes primary responsibility for any federal-aid highways – including interstate highways – and designated state routes in Tennessee. Beyond surface transportation, TDOT is a multimodal agency with responsibilities in aviation, public transit, waterways, railroads, cycling, and walking. The agency's involvement ranges from airport improvements to funding transit buses to planning for river ports.

Coordination, cooperation, and consultation between TDOT, Metropolitan Planning Organizations (MPOs), Transportation Planning Organizations (TPOs), Rural Planning Organizations (RPOs), state and federal partners, interested parties, and the general public is necessary to provide for consistent and effective planning, design, construction, maintenance, operation, and improvement of the transportation system.

TDOT oversees the planning, design, permitting, construction, and financing of transportation projects in Tennessee under both state and local programs.

Projects that fall under state programs are those that are planned and initiated either solely by TDOT, or in coordination and cooperation with a Metropolitan Planning Organization (MPO). MPOs are federally mandated planning organizations that serve all urbanized areas with populations greater than 50,000 persons. For urbanized areas, federal funds flow through these organizations, subject to all federal metropolitan planning policies and regulations. West Tennessee is home to two of the state's 11 MPOs: the Memphis MPO and the Jackson Area MPO, which serve Shelby and Madison Counties, respectively. The Memphis MPO also serves portions of Fayette County and DeSoto and Marshall Counties in Mississippi.

Projects receiving any federal funds *must* be programmed through either TDOT's or an MPO's Long Range Transportation Plan (LRTP) and Transportation Improvement Program (S/TIP), which together act as a process of identifying transportation needs, prioritizing the projects identified to address those needs, and ensuring there are adequate funds to underwrite the project in the future.

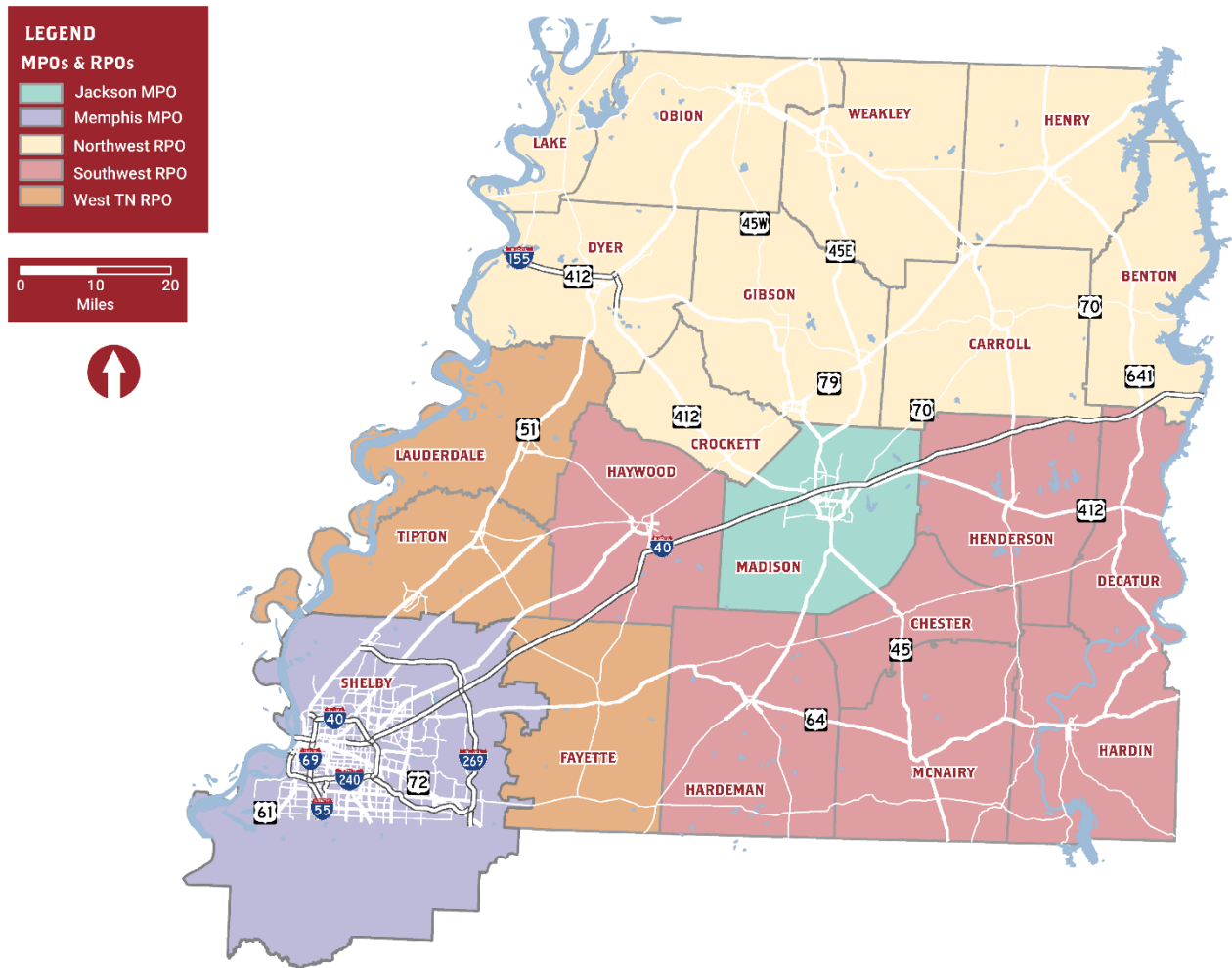
To enhance coordination with the rural areas of the state, TDOT partnered with regional development organizations to form Rural Planning Organizations (RPOs). Each RPO must adopt organizational bylaws, establish an executive board and technical committee, and provide input to TDOT on transportation investments based on land use and strategic planning efforts.

The Rural Planning Organization Section within TDOT's Regional Planning Office is responsible for the coordination of the long-range transportation planning process in the State's RPOs. The purpose of the RPOs is to engage local officials in multimodal transportation planning through a structured process with a goal of ensuring quality, competence, and fairness in the transportation decision making process. RPOs review long-term transportation needs as well as short-term funding priorities and make recommendations to TDOT. These needs, funding priorities, and recommendations are included in TDOT's statewide long-range transportation plan to ensure both urban and rural perspectives are reflected in the state's overall transportation strategy.

West Tennessee is home to three of the state's 12 RPOs: West Tennessee RPO, Southwest RPO, and Northwest RPO. Collectively, these agencies serve the counties and communities not otherwise served by the region's MPOs.

A map of the MPOs and RPOs in the region and their respective planning areas is shown in **Figure 1**. (The Memphis MPO planning area extends into portions of northern Mississippi.)

FIGURE 1: WEST TENNESSEE MPOS AND RPOS



Finally, local governments may manage projects with funding available through TDOT. The Local Programs Development Office (LPDO) of TDOT administers those federal and state funding programs that are available to local governments to ensure all the regulations and procedures are in place and that there is no misuse of funds. Examples of funding programs for which TDOT provides oversight include the Multimodal Access Grant and the Community Transportation Planning Grant which assists non-MPO communities in addressing transportation-related needs through comprehensive planning<sup>1</sup>.

<sup>1</sup> Both of these programs are discussed in greater detail in TDOT's *Mobility Policy Paper* that was prepared as part of the agency's most recent Long Range Transportation Policy Plan update. [https://www.tn.gov/content/dam/tn/tdot/documents/Mobility\\_022316.pdf](https://www.tn.gov/content/dam/tn/tdot/documents/Mobility_022316.pdf)

# RELATIONSHIP OF LAND USE AND DEVELOPMENT TO TRANSPORTATION

Transportation planning and administration cannot be done in a vacuum. Transportation and land use are inherently interconnected and interdependent. Decisions regarding one discipline will inevitably influence the policy and investment decisions of the other. Although the focus of this memorandum is transportation, specifically transportation planning, underlying growth and development patterns will largely determine how transportation improvements can and should adapt over time to address deficiencies and meet new needs. It is expected that land use and transportation planning will need to be closely coordinated as the region experiences residential, commercial, and industrial growth catalyzed by BlueOval City and associated developments.

As discussed in the West Tennessee Planning *Land Use White Paper*, many jurisdictions in West Tennessee lack a basic framework for effective land use planning and regulation:

- Thirty-seven percent of jurisdictions lack an active planning commission or planning staff.
- Eight percent of counties and 33 percent of cities and towns lack an active zoning ordinance.
- Forty-two percent of jurisdictions lack subdivision regulations.

West Tennessee consists of large tracts of agricultural land and open space. In order to accommodate the expected population growth in the region, it is expected that some portion of this land will be converted to a developed use.

These facts underscore the need to carefully coordinate land use planning and growth management strategies with multimodal transportation projects, programs, and policies. Local leaders, informed by the citizens they represent, should consider the type of community they want to have as growth begins to occur, as well as *how best to move people and goods* through the community that meets that vision.

To this end, it is critical that mobility and connectivity needs be addressed in concert with land use and growth preferences. The TDOT Office of Community Transportation (OCT) and the region's development districts are excellent resources for facilitating effective planning coordination. Furthermore, this analysis includes numerous recommendations for local communities to improve ongoing coordination and communication with regional and state agencies.

## PREVIOUS AND CURRENT PLANS AND STUDIES

West Tennessee Planning recognizes the transportation and land use connection and includes a review of both transportation and land use plans as part of the systems inventory and data collection process. While local land use planning is outside of the purview of TDOT, decisions made at the state, regional, and local levels impact and influence one another. Analysis and proposed improvements that arise as part of West Tennessee Planning will be evaluated in light of related state, regional, and local planning activities.

While the collection of state, regional, and local plans is ongoing and will likely continue throughout the life of the project, a full accounting of the plans collected to date can be found on the project website at <https://westtnplanning.tn.gov/pages/planning-documents>.

## PLANNED AND PROGRAMMED PROJECTS

In addition to recommendations identified in the planning documents reviewed, the TDOT State Transportation Improvement Program (STIP) and Transportation Improvements Programs (TIPs) for the Memphis and Jackson Area MPOs were reviewed to identify major capital improvements already identified within the region. (Maintenance and spot improvement projects are not included.) These projects are those that are considered active and are in various stages of the project development process – from preliminary engineering to construction.

Currently programmed projects in West Tennessee are shown in **Figure 2** and listed in the appendix. The list does not include funding groupings from each document. All programmed projects the region can be reviewed in greater detail – including the current project phase and estimated completion date – within using TDOT’s Interactive Tennessee Road Improvement Program (iTRIP) tool<sup>2</sup>.

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<sup>2</sup> <https://www.arcgis.com/apps/dashboards/e14888bce2954050a10df5e949a1bc1d>

**Legend**

- Legislative
- Safety
- Local Programs
- Resurfacing

0 10 20 Miles

Map of Shelby County, Tennessee, showing legislative, safety, local program, and resurfacing projects. The map includes county names, major highways, and a legend.

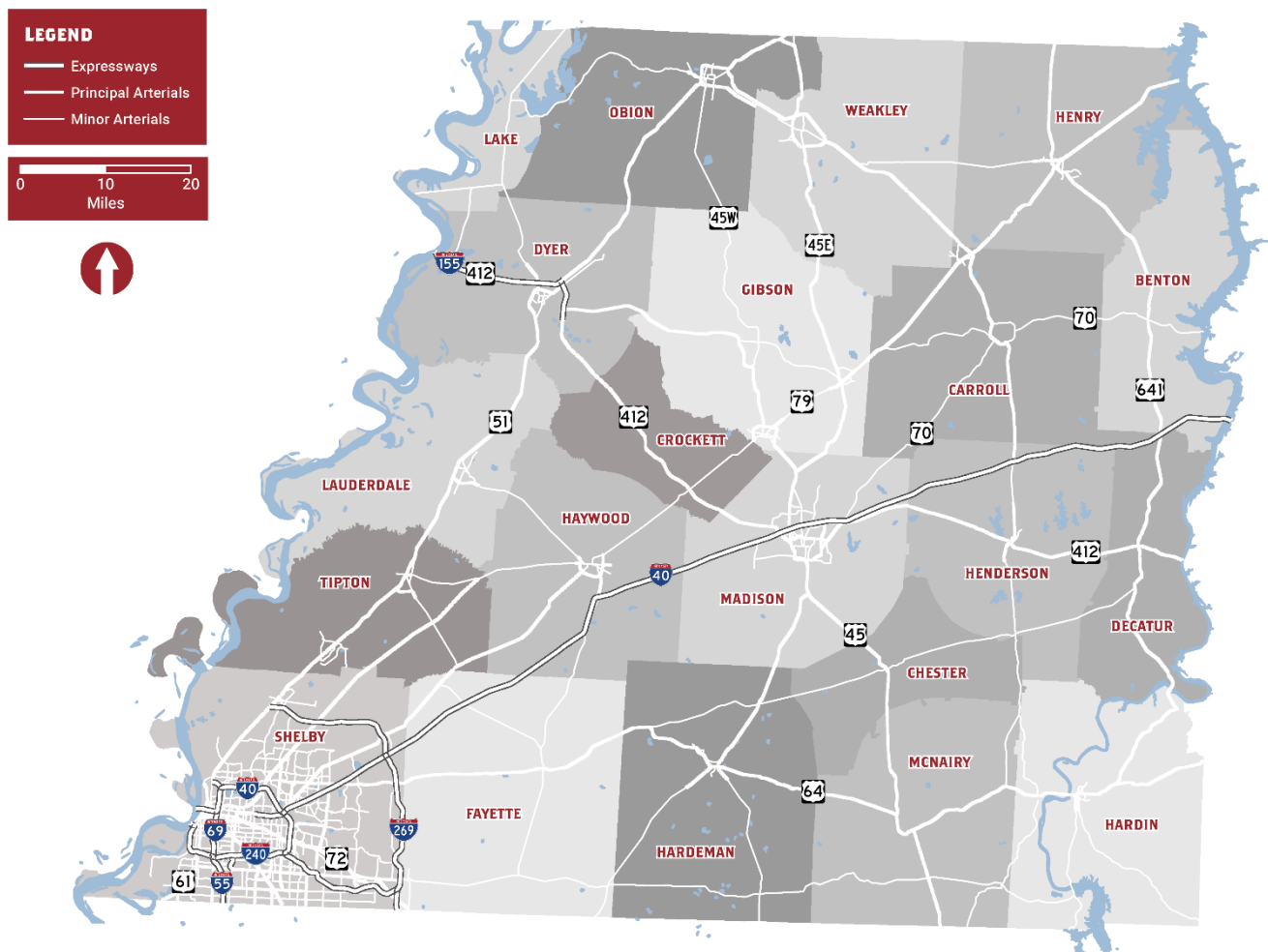


# HIGHWAY CAPACITY AND TRAVEL DEMAND

## REGIONAL ROADWAY NETWORK

Existing population and employment centers in the region are generally well-connected by major transportation corridors, including interstates, freeways, and high-mobility arterials (**Figure 3**). A series of collector roadways provide both mobility and land access to more rural portions of the region. Areas not served by functionally classified roadways are served by local roadways under the jurisdiction of the appropriate county agency.

FIGURE 3: EXISTING INTERSTATES, ARTERIALS, AND COLLECTORS



The region is home to approximately 240 centerline miles of interstates and freeways, as well as approximately 1,770 centerline miles of arterial roadways. West Tennessee accounts for approximately 20 percent of the state's



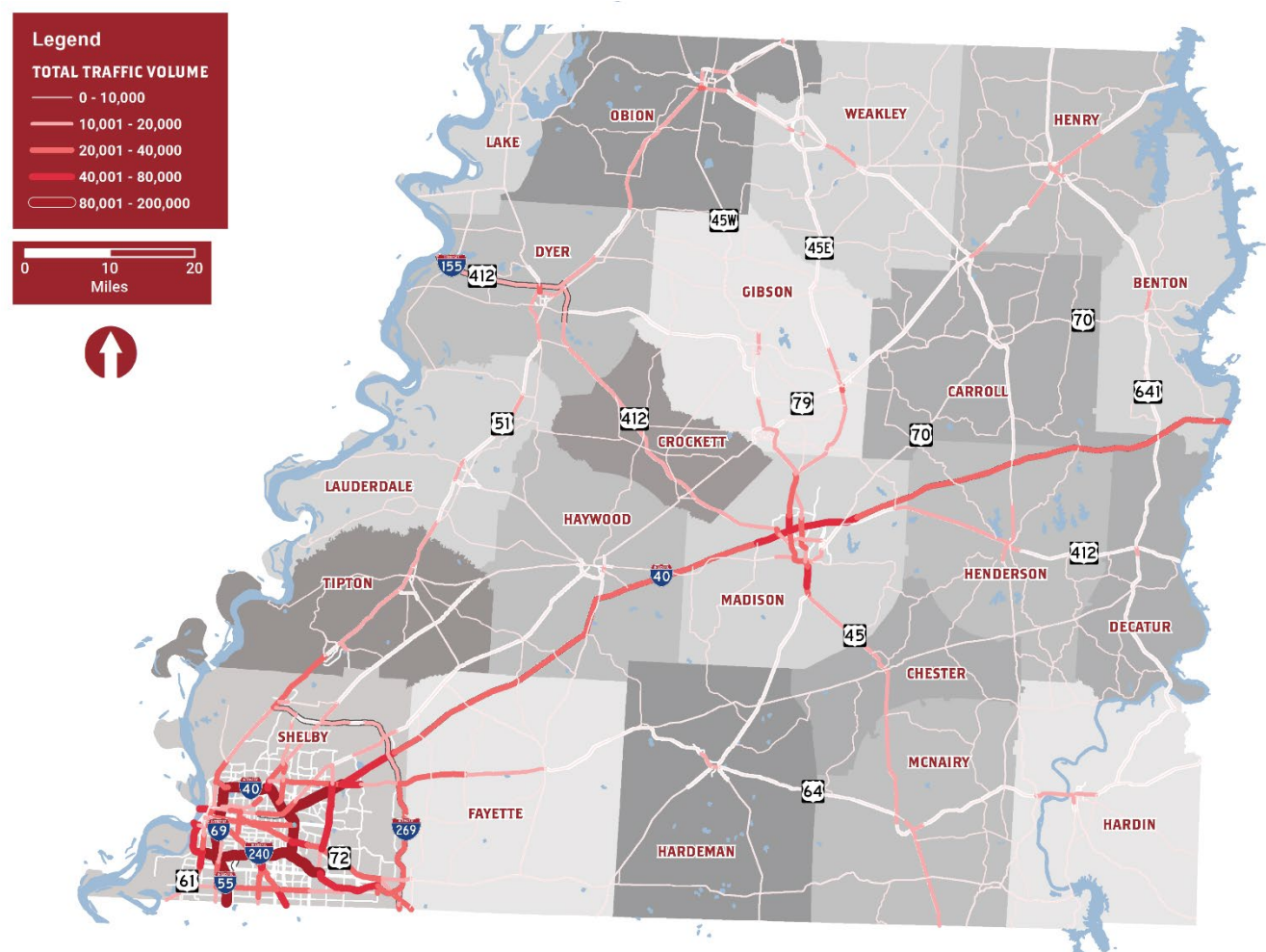
total centerline miles for the listed facilities, which serves a regional population that represents approximately 22 percent of the state's total population.

Given the residential and employment growth projected for the region – and the associated increase in travel demand – some areas of the network may experience limitations in mobility and accessibility, particularly as new commuter and freight traffic patterns emerge in the coming years. Interstate 40 provides high-speed east-west connectivity through the south-central portion of West Tennessee. Mobility corridors in the northern portion of the region are more dispersed and lack direct linear connections. With respect to BlueOval City, the site is well-served by I-40 and State Route (SR) 1 / US-70 with improved southerly access to be achieved with the construction of the SR-194 extension. However, commuter and freight access from the north and west remain limited, as evidenced by the lack of major arterial connections.

## TRAFFIC VOLUMES

An examination of traffic volumes at the regional level yields predictable patterns of overall travel demand. As shown in **Figure 4**, Average Annual Daily Traffic (AADT) is highest in Shelby County, with much of the interstate system within the City of Memphis carrying over 80,000 vehicles per day (vpd). A smaller cluster of traffic intensity is located in Madison County, specifically within the City of Jackson.

FIGURE 4: TRAFFIC VOLUME BY ANNUAL AVERAGE DAILY TRAFFIC (AADT)



The region's primary highways generally carry between 10,000 and 20,000 vehicles daily, with volumes of up to 20,000 closer to regional centers, such as Dyersburg and Union City.

In terms of truck traffic, including both single- and multi-unit trucks, volumes are highest along the region's interstate system, with trucks accounting for more than 10 percent of daily traffic, with truck traffic on some segments of I-40 exceeding 33 percent. Truck traffic is discussed in greater detail in the Freight and Intermodal Facilities section of this document.

# COMMUTER PATTERNS

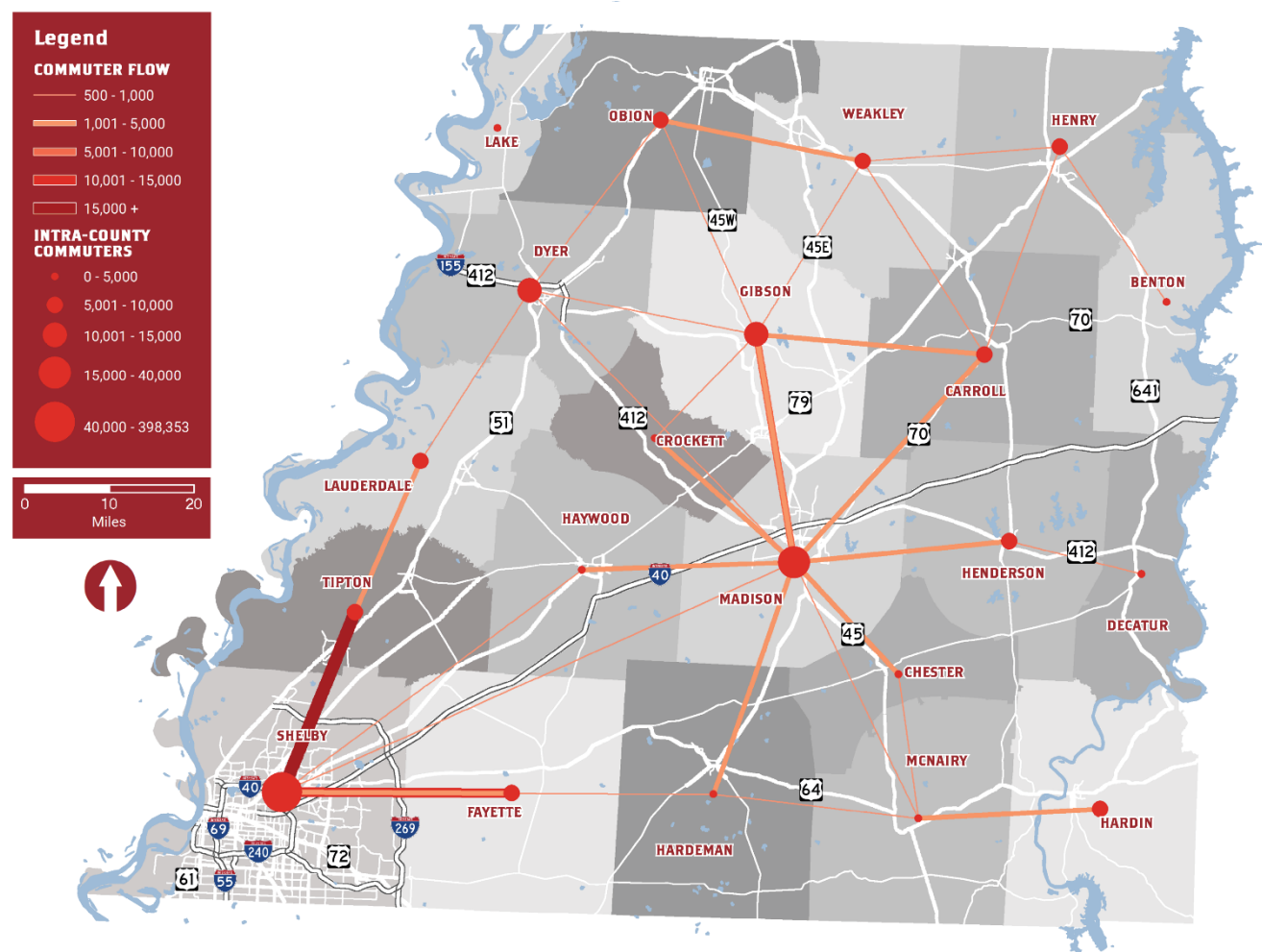
The U.S. Census Bureau compiles county-to-county commuter flows through the American Community Survey (ACS), which tracks patterns of work-related trips. Notably, the data source does not include other trip purposes such as shopping or recreation, providing insight on home-to-work commuter patterns across the nation.

Across West Tennessee, Shelby County and Madison County act as the primary receiving counties in the region (**Figure 5**). Fayette and Tipton County have the highest share of commuters leaving the county with 64.2 percent and 58.4 percent commuting to Shelby County, respectively. Madison County receives its largest share of commuters from Chester (36.4 percent), Gibson (34.1 percent), and Crockett (30.3 percent) County, respectively. Additionally, 19.4 percent of Haywood County commuters commute to Madison County. Haywood County receives its greatest share of commuters from Crockett County at 6 percent.

These patterns underscore the existing orientation of commuter traffic to the region's two largest employment centers in Madison and Shelby Counties, as well as the disruptive potential of BlueOval City and any associated industrial agglomerations on this existing pattern.

Based on population and employment projections, it is likely that significant changes in regional commuting patterns will result from BlueOval City and the additional employment opportunities induced by the new facility. The commuter flow data indicates that a total of 5,605 commuter trips terminate within Haywood County. This figure includes trips that also originate within Haywood County. According to employment estimates provided by the Ford Motor Company, Ford and SK operations at BlueOval City are expected to result in approximately 5,770 jobs by 2026. This exceeds the total number of trip attractions currently located within the county and does not include secondary and tertiary commercial and industrial development.

FIGURE 5: COUNTY-TO-COUNTY COMMUTER FLOWS (2016 – 2020)



# PLANNING RECOMMENDATIONS

## PLANNING RECOMMENDATIONS AT THE LOCAL LEVEL:

1. Closely coordinate local and regional transportation improvements with land use planning and growth management policies.
2. Consult with TDOT Region IV, the TDOT Office of Community Transportation (OCT), and area RPOs on all local transportation planning efforts.
3. Engage with new employers in the region to better understand the transportation needs and preferences of their operations and employees.

## PLANNING RECOMMENDATIONS AT THE STATE LEVEL:

1. Update the state's existing traffic forecasting tools to account for expected travel demand growth associated with regional growth trends.
2. Determine the impacts of travel demand growth on the region's roadways, particularly those where projected volumes will exceed the roadways' existing capacity.
3. Consider spillover effects of increased primary route traffic on parallel arterial routes, both in the course of normal operations as well as in response to incidents.
4. Coordinate closely with state and regional agencies to inventory newly-announced developments that may have significant impacts on travel demand.
5. Identify opportunities for mode shift in response to increases in travel demand.

# SAFETY

Increasing traffic volumes, vehicle miles traveled, and travel times create the conditions for more traffic incidents. Crashes can, of course, have devastating impacts on individuals and families, and more routinely generate long travel delays, particularly in areas where travel options are limited.

Historical crash data for the regional roadway network was obtained from the *Enhanced Tennessee Roadway Information Management System* (E-TRIMS) and the *Tennessee Integrated Traffic Analysis Network* (TITAN). It includes information such as location, date, time of day, severity (including the total number of involved vehicles, injuries, and fatalities), crash events, and weather conditions. Crashes for the three-year period between 2020 and 2022 were analyzed.

## CRASH DATA AND TRENDS

According to TDOT crash data, there were a total of 249,991 crashes in the region between 2018 and 2022. Of these, 247,186 were vehicle crashes and 2,715 were bicycle and pedestrian crashes. Identifying crash severity trends and locations where crashes are concentrated can reveal potential areas for safety interventions. The analysis in this section is not exhaustive but is a regional overview of total crashes.

Overall, the number of reported crashes in the region (**Table 1**) increased between 2018 and 2019 before a brief decline in 2020 due to the COVID-19 pandemic, followed by an increase in 2021. While there were fewer crashes in 2020, the number of fatal crashes increased, and the number of serious injury crashes remained similar to the previous year. Regionwide crashes show that fatal crashes encompassed less than one percent of all crashes while serious injury crashes were approximately two percent of all crashes. A majority of crashes (77 percent) were property-damage only (PDO) and did not result in injury.

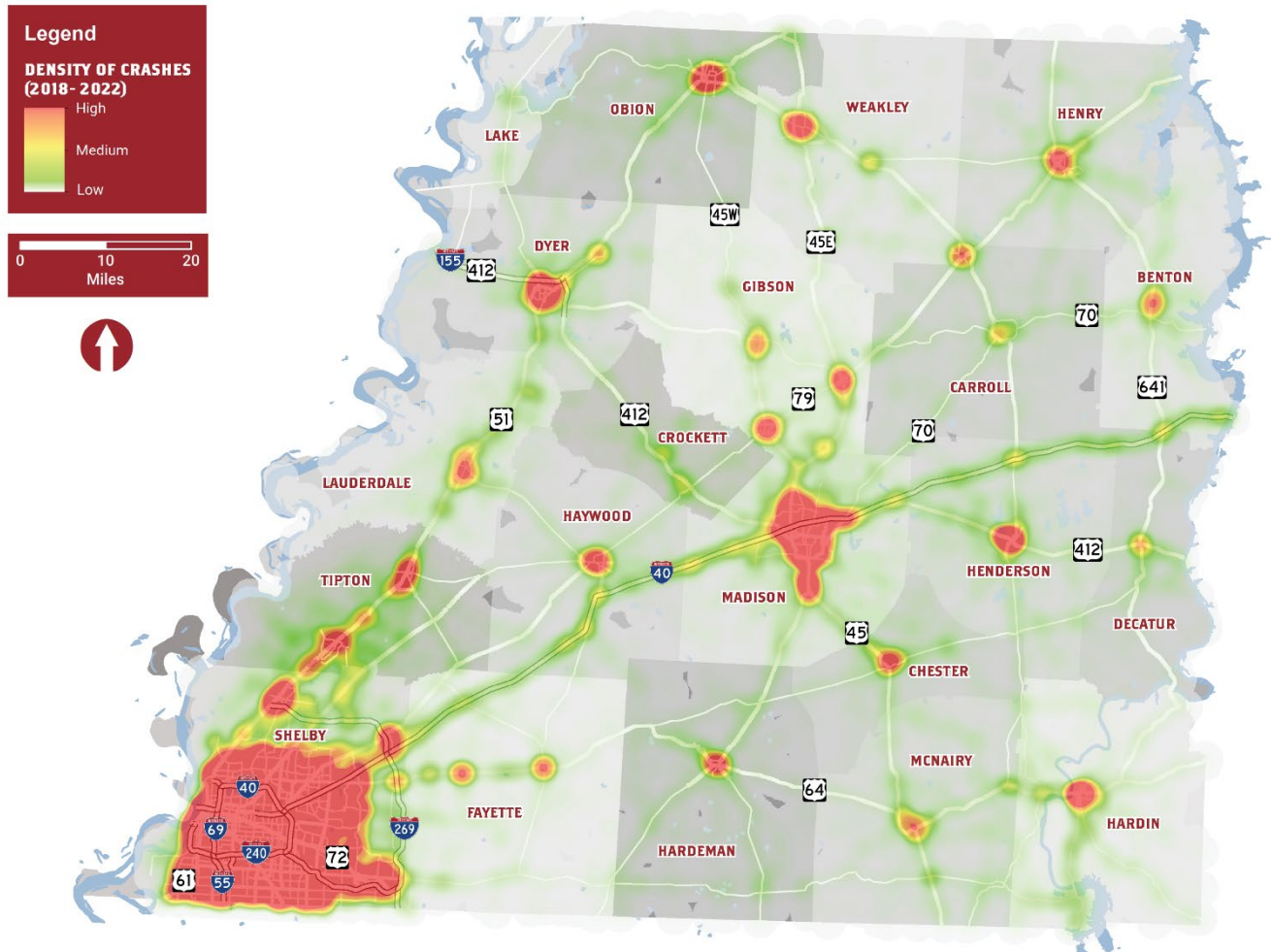
TABLE 1: REGIONWIDE CRASH TRENDS BY YEAR AND SEVERITY

Year	Fatal Crashes	# of Fatalities	Serious Injury Crashes	# of Injuries in Serious Injury Crashes	Minor Injury Crashes	# of Injuries in Minor Injury Crashes	Complaint of Injury Crashes	PDO Crashes	Total Crashes
2018	276	303	951	1,143	7,746	11,017	1,578	38,305	48,856
2019	275	303	1,004	1,172	8,324	11,921	2,375	42,026	54,004
2020	377	417	1,022	1,205	5,185	7,494	4,740	36,172	47,496
2021	374	404	1,154	1,340	2,811	4,076	7,524	39,094	50,957
2022	384	419	1,060	1,231	2,467	3,553	7,031	37,646	48,588
Total	0.7%		2.1%		10.6%		9.3%	77.3%	249,901



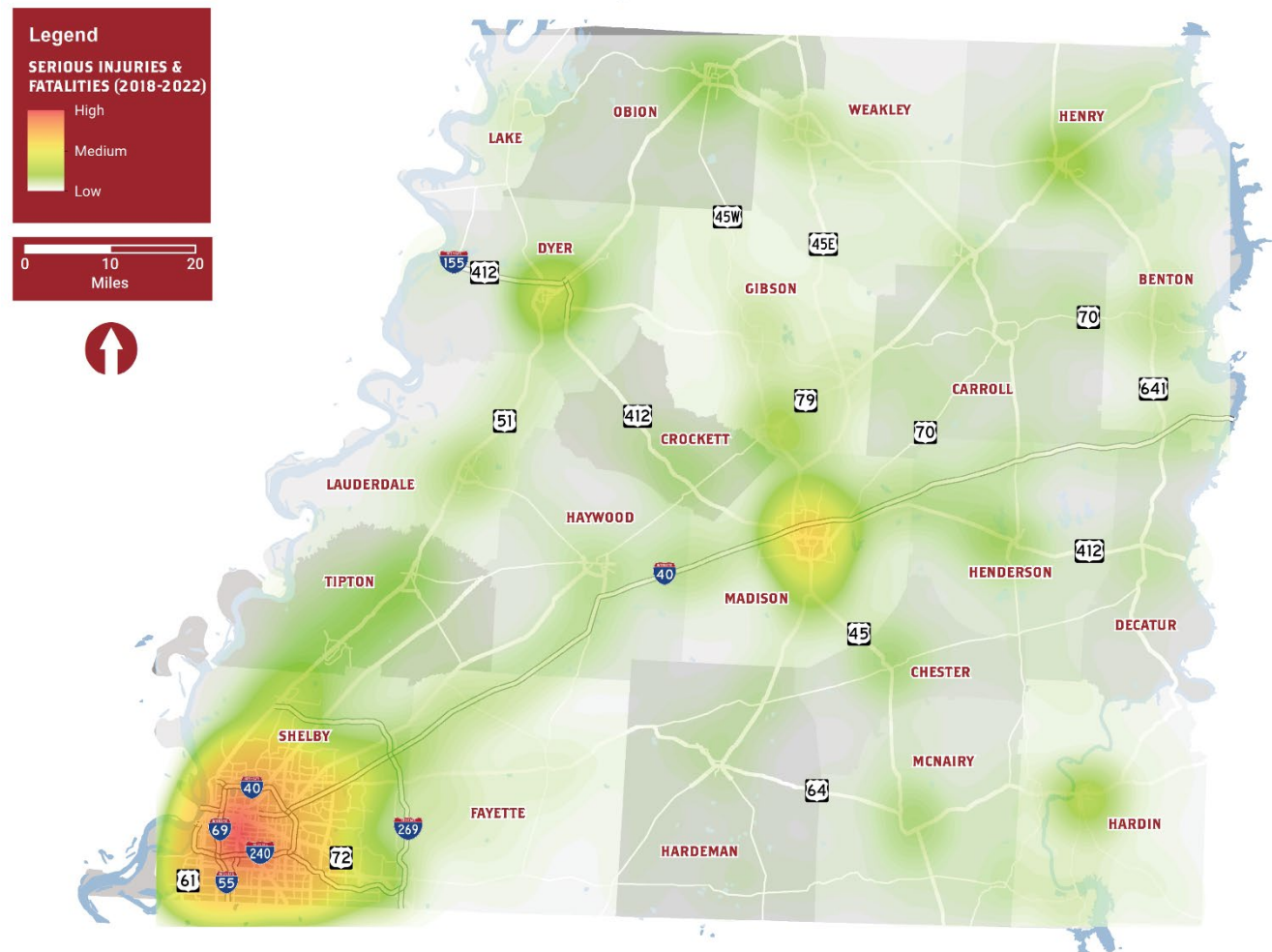
As seen in the crash density map (**Figure 6**), roadway crashes throughout West Tennessee were more frequent in areas and corridors with higher-intensity land uses and higher traffic volumes. These areas include the two major metropolitan areas and population centers throughout more rural portions of the region. Outside of Madison and Shelby Counties, concentrations of crashes were present along US-51 in Tipton County, US-64 in Fayette County, and population centers including Dyersburg, Union City, Martin, and Savannah.

FIGURE 6: WEST TENNESSEE OVERALL CRASH DENSITY (2018 - 2022)



An additional crash density analysis was conducted focusing only on fatality and serious injury crashes. The general distribution is similar to that of the overall crash density analysis, with the primary hotspots occurring in Madison and Shelby Counties and smaller areas of density in the region's other population centers. Notably, Dyersburg shows a higher crash density than other regional population centers. This may be due, in part, to the overall population and population density in the community. Another potential factor is the city's status as the only other community – other than Memphis – with a Mississippi River crossing, resulting in higher amounts of regional through traffic.

FIGURE 7: WEST TENNESSEE SEVERE CRASH DENSITY (2018 - 2022)



# CRITICAL CRASH RATES

Given the centrality of the of the region’s system of interstates and arterials in the movement of people and goods, a crash hot spot analysis was conducted to identify locations where additional investigation may be warranted, particularly as travel demand increases in the coming years.

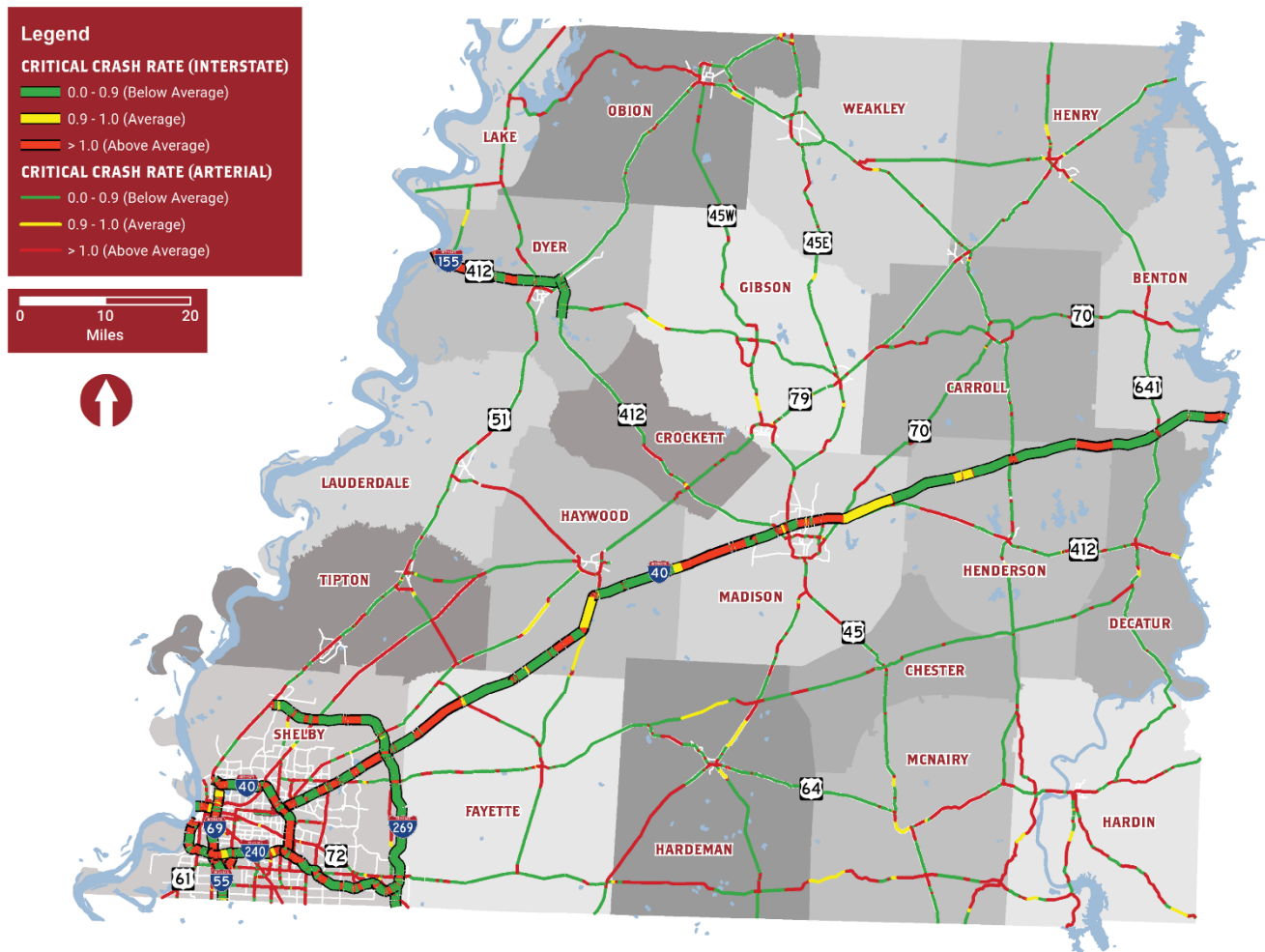
To identify crash hot spots along the region’s interstate and arterial networks, a comparison of actual crash rate to critical crash rate was used to help isolate roadway segments with significantly high crash rates not attributable to random variation. The actual crash rate is defined as the number of crashes per million vehicle-miles (MVM) of travel. The critical crash rate is a threshold value calculated for a given roadway segment (also calculated in MVM) that determines whether the actual crash rate of that segment significantly deviates from the average crash rate for facilities with similar characteristics. Segments of the system where the actual-to-critical crash rate ratio



was greater than 1.0 have been identified as high crash areas where safety improvements may be particularly beneficial.

As shown in **Figure 8**, numerous segments of the region's interstate system have critical crash ratios in excess of 1.0. Most of these segments are concentrated in Madison and Shelby Counties, both of which are characterized by urban development and higher capacity roadway facilities. These locations are characterized by a higher number of rear end crashes, suggesting crashes closely associated with both recurring and nonrecurring congestion. Both the Memphis and Jackson Area MPOs conduct more in-depth crash analysis in their respective long range transportation plans (LRTPs).

FIGURE 8: CRITICAL CRASH RATE - INTERSTATE AND ARTERIALS



When examining the rural interstate system, three locations show up as having relatively large segments that have a high critical crash rate:

- I-40 between SR-196 (Exit 28) and SR-59 (Exit 35);
- I-40 between SR-179 (Exit 47) and east of Tennessee Highway Patrol Scales; and
- I-155 between Mississippi River and SR-78 (Exit 13).

These segments are characterized by rural development, with four travel lanes separated by a depressed median, and rolling terrain, suggesting that design deficiencies are likely not the primary causal factor. Causal factors behind these trends, and the effect that increased travel demand may have on safety conditions, will be examined further in subsequent planning efforts.

When examining the region's system of arterials, six locations show up as having relatively large segments that have a high critical crash rate:

- SR-19 between Ripley and Brownsville (Haywood and Lauderdale Counties),
- SR-22 between Samburg and Union City (Obion County);
- SR-18 between Grand Junction and Bolivar (Hardeman County);
- SR-57 east of Grand Junction (Hardeman County);
- US-64 between Selmer and Adamsville (McNairy County); and
- The majority of the arterial network in Hardin County.

The causal factors of these arterial hot spots warrant more in-depth analysis. Moreover, some current federal grant programs, such as Safe Streets and Roads for All (SS4A), provide funding support for safety action plans and strategies in eligible communities.

## BICYCLE AND PEDESTRIAN CRASHES

Bicycle and pedestrian crashes were included in the analysis. There were a total of 2,715 bicycle and pedestrian crashes in the region between 2020 and 2022. Notably, approximately 90 percent of these crashes occurred in either Madison or Shelby County, the region's two primary urban centers. Other notable crash clusters are located along US-51 in Tipton County, Dyersburg, and Paris.

**Figure 9** shows bicycle crashes in the region. During the analysis period, 501 bicycle crashes were recorded. Consistent with general bicycle user trends, most crashes were concentrated in areas with higher development densities, particularly in Madison and Shelby Counties. Most other crashes were concentrated in regional population centers.

Pedestrian crashes (**Figure 10**) follow a similar trend, with greater distribution in more rural portions of the region. During the analysis period, 2,214 crashes were recorded. As walking is often a transportation mode of last resort for transportation-burdened residents, pedestrian activity persists in rural areas even in the absence of safe and accessible pedestrian facilities.

Hotspots for both bicycle and pedestrian crashes warrant closer examination at the county or local level. Both state and federal grant programs are available for projects, programs, and policies that make walking and bicycling safer and more accessible or that encourage a general culture of active transportation within a community.

FIGURE 9: BICYCLE CRASHES (2018 - 2022)

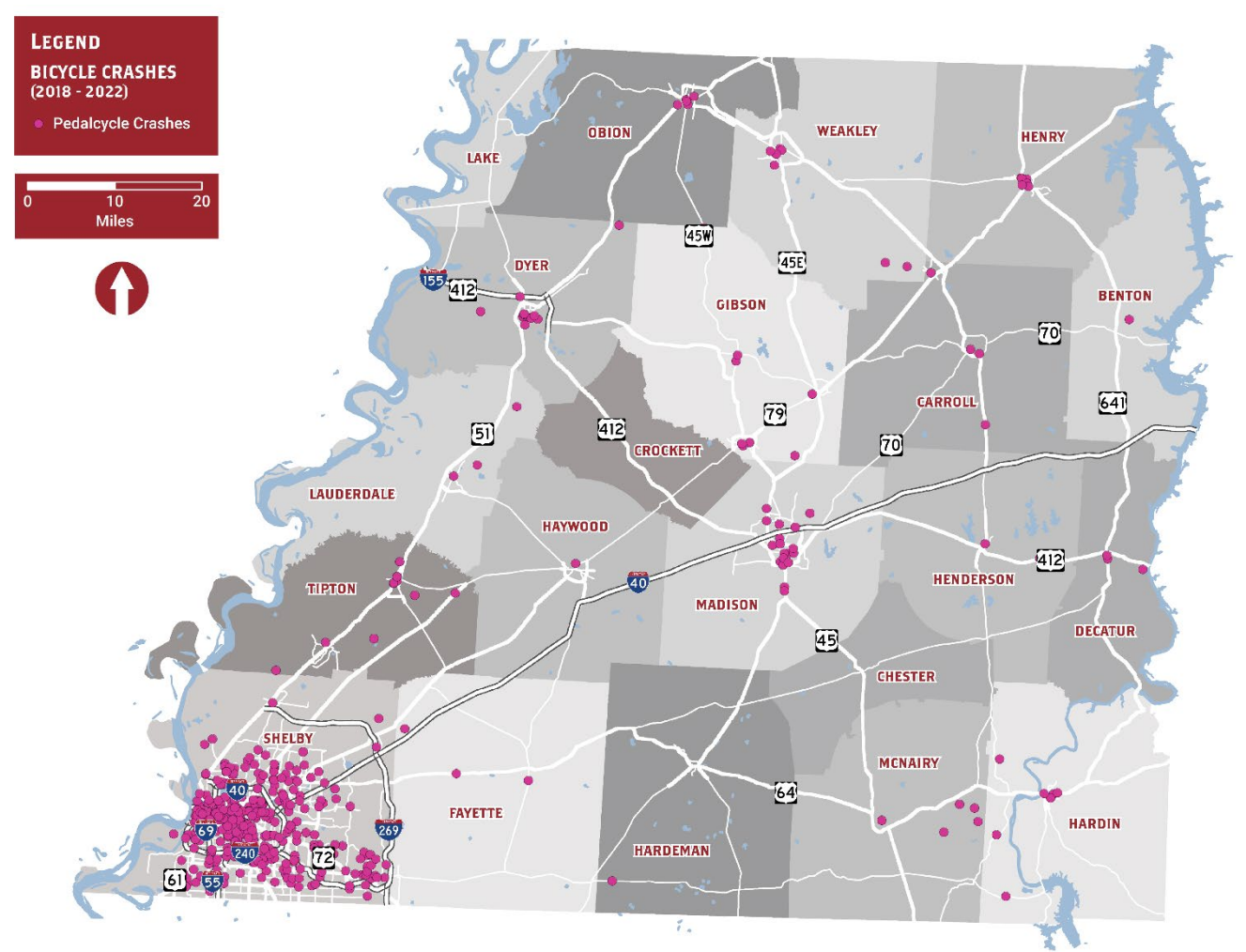
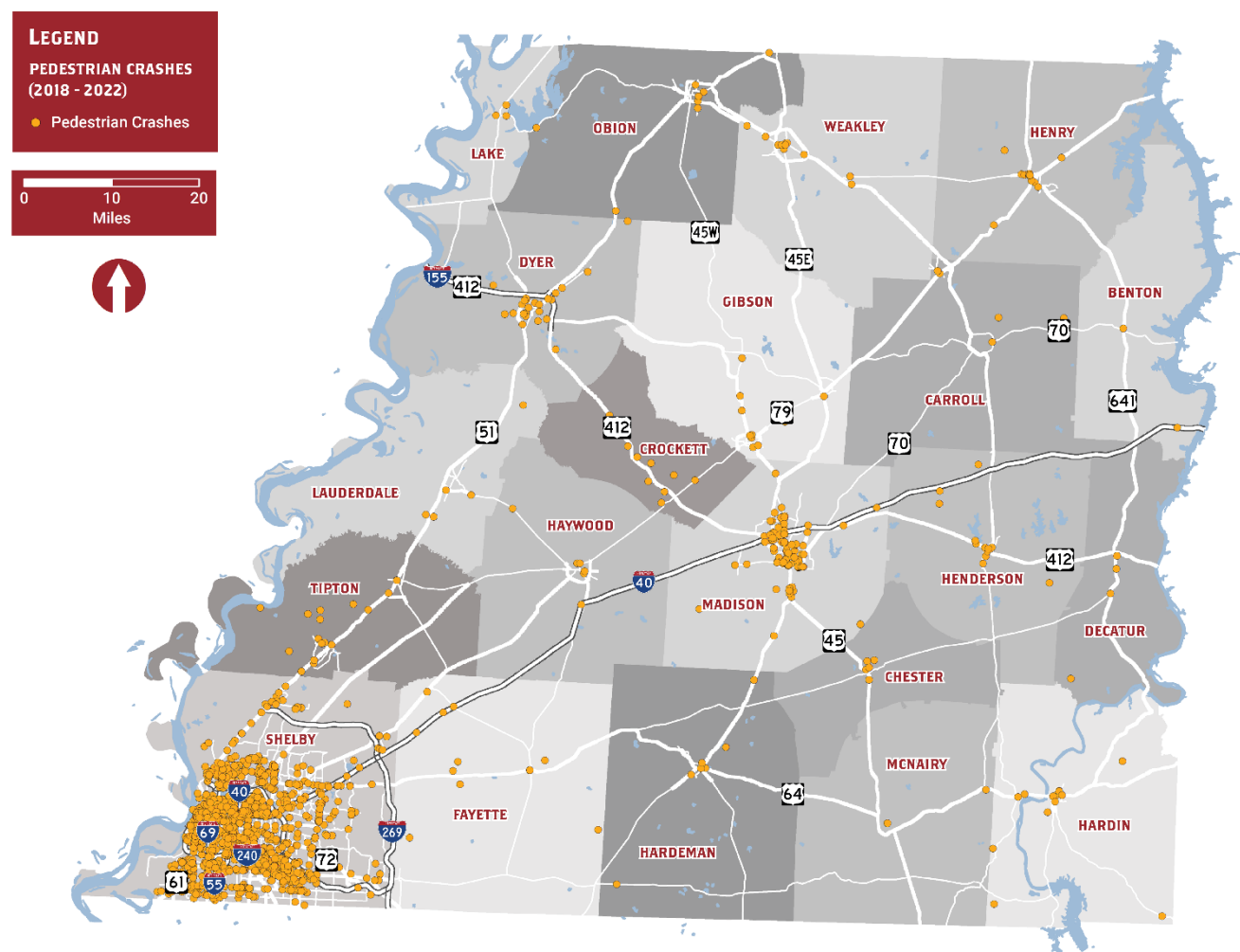


FIGURE 10: PEDESTRIAN CRASHES (2018 - 2022)



# PLANNING RECOMMENDATIONS

## PLANNING RECOMMENDATIONS AT THE LOCAL LEVEL:

1. Prioritize multimodal user safety in all local transportation-related planning efforts – including automobile users, bicyclists / pedestrians, and transit users.
2. Work with TDOT Region IV to identify local rural routes where additional safety interventions are needed – particularly those that may experience significant changes in freight or commuter traffic patterns.
3. Explore federal grant opportunities (e.g., Safe Streets and Roads for All) that provide funding for both planning and implementation of safety-related projects and strategies.
4. Ensure residential streets remain safe for walking and bicycling with lower traffic volumes and vehicle speeds.
5. Consider community-wide access management plans or policies.

## PLANNING RECOMMENDATIONS AT THE STATE LEVEL:

1. Prioritize multimodal user safety in all regional transportation-related planning efforts – including automobile users, bicyclists / pedestrians, and transit users.
2. Identify areas with higher critical crash rates that also have projected increases in traffic as priority areas for interventions.
3. Review existing incident management plans along I-40 to determine impact of BOC operations on crash exposure and capacity of alternative routes.
4. Continue to leverage Transportation Planning Grants (TPGs) and Multimodal Access Grants (MMAGs) to encourage local transportation planning efforts to address corridor and community level safety deficiencies.
5. Educate communities on the benefits of corridor management and continue to promote the use of corridor management agreements in applicable contexts.

# OPERATIONS AND MAINTENANCE

## STATE OF GOOD REPAIR

### TRANSPORTATION ASSET MANAGEMENT PLAN

TDOT currently maintains a Transportation Asset Management Plan (TAMP) that includes a risk-based plan for pavement and bridges on the NHS and all state routes. The TAMP uses historical asset conditions to identify trends and project future needs of the system and to budget for the current year through the next ten years. While infrastructure condition, maintenance needs, and programmed funding are not broken down by individual interstates, analysis and needs from the TAMP can be used to understand required investments for Tennessee's roadway system as a whole over the next decade. TDOT has also established bridge and pavement condition performance measures in compliance with federal target setting requirements.

Some discussion of the two primary assets addressed in the TAMP – pavement and bridge assets – are discussed in greater detail below.

It is important to note that asset management data maintained by the state varies in its level of detail and network coverage. Some data points are available for all regional roadways, including local roads, while others are limited to the state-aid highway network. As such, data availability should be considered up front prior to any planning initiative that includes local roadways not under state jurisdiction.

### PAVEMENT CONDITION

Current pavement conditions were analyzed, based on 2022 data obtained from TDOT's Pavement Management System. Pavement quality is rated as "good," "fair," or "poor" based on the Pavement Quality Index (PQI), which incorporates metrics that measure the smoothness of pavements – a proxy for ride quality – and distress data that define the deterioration of pavements such as cracking, rutting, or other pavement distresses.

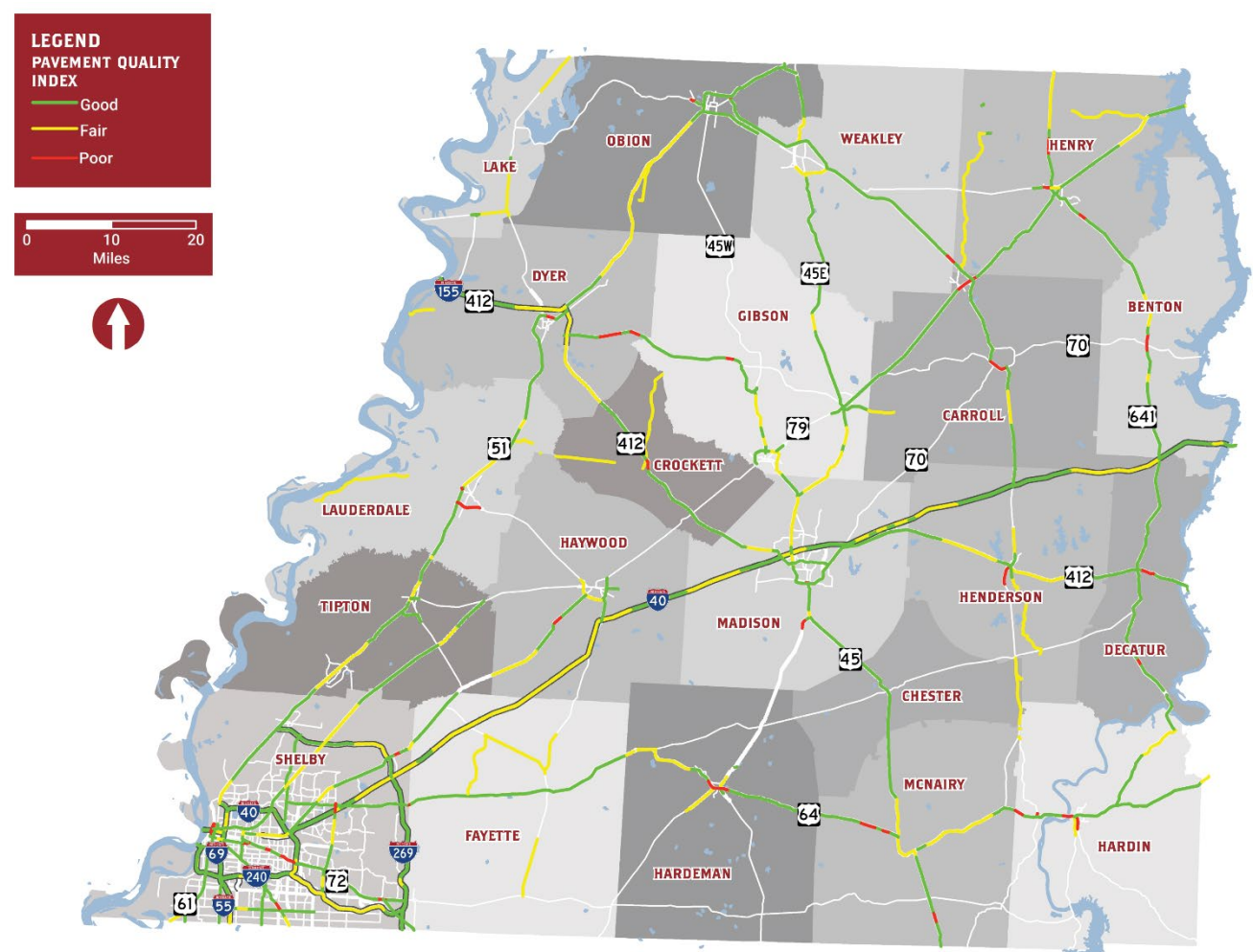
**Figure 11** shows the PQI for roadways in the region for which data is available. Overall, pavement quality in the region is good to fair. The interstate system in the region has an average PQI rating of "good," while the region's state routes, on average, are rated "fair."

As new freight and commuter traffic patterns develop in the region, particularly on roadways that have traditionally carried relatively lower levels of traffic, the effect of this increase should be considered in future operations and maintenance strategies.



Additionally, both state and local roadways accommodating ongoing construction traffic related to BlueOval City should be evaluated to determine if significant pavement deterioration has occurred as a result of incompatible traffic patterns.

FIGURE 11: PAVEMENT QUALITY INDEX (PQI)



## BRIDGE CONDITIONS

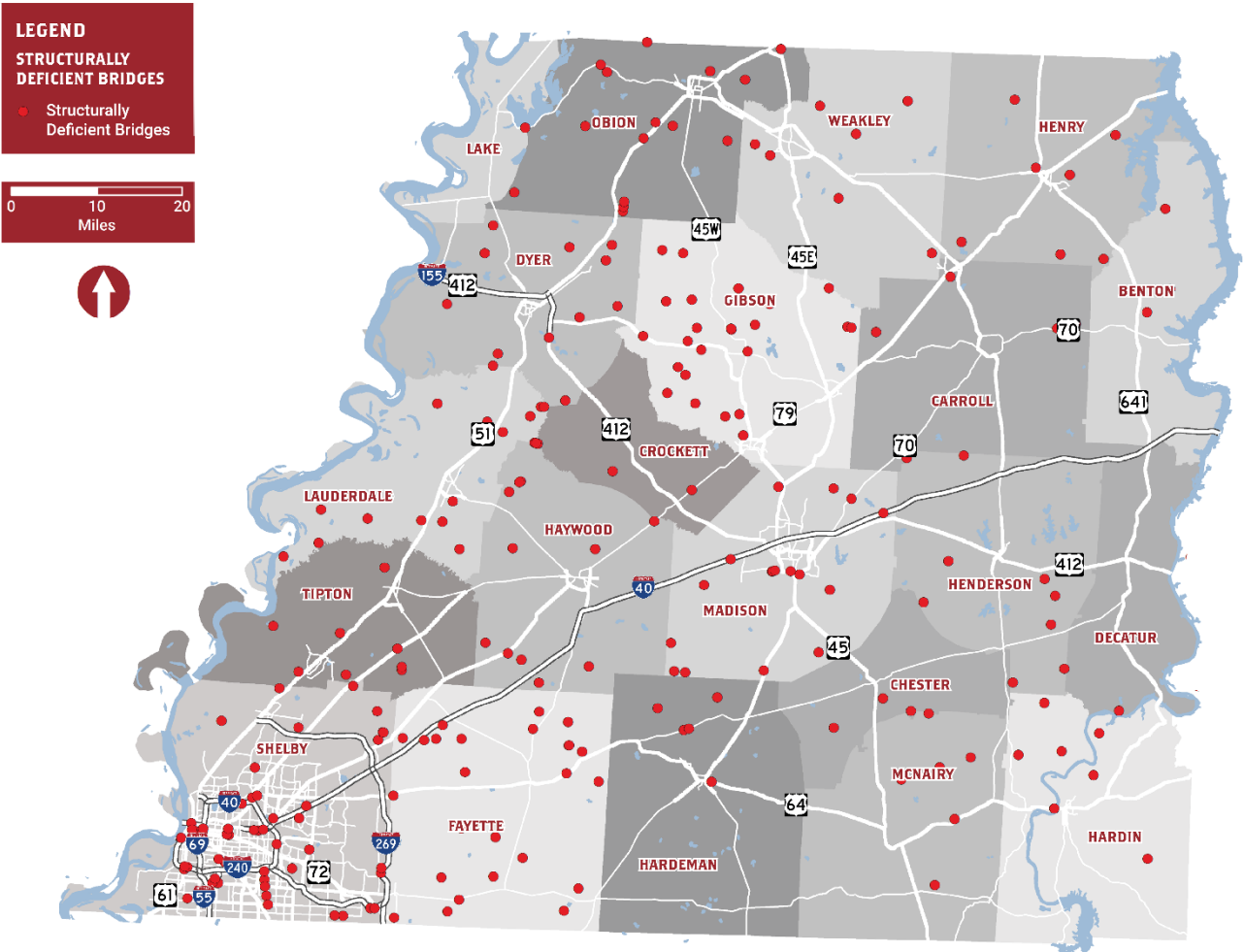
Data was collected from TDOT’s E-TRIMS database to analyze the conditions of the 6,392 existing bridges in West Tennessee to identify bridges currently classified as *structurally deficient* as well as those eligible for federal funding based on their sufficiency rating.

TDOT conducts bridge inspections on all publicly owned bridges in the state every two years, except for federally owned bridges. Bridge scores are developed based on these inspections. The department follows the National Bridge Inspection (NBI) reporting process and uses NBI ratings for deck, superstructure, and substructure, while culverts are assessed using a culvert score.

A highway bridge is classified as *structurally deficient* if one or more major structural components of the bridge are rated in "poor" condition (0 to 4 on the NBI rating scale). A bridge can also be classified as structurally deficient if its load carrying capacity is significantly below current design standards or if it crosses a waterway that frequently overtops the bridge during floods.

*It is important to note that the classification does not necessarily connote a bridge that is unsafe*, but rather the bridge meets certain criteria as defined in the Pavement and Bridge Condition Performance Measure established by the Federal Highway Administration (FHWA). As shown in **Figure 12**, there are currently 246 bridges classified as structurally deficient in West Tennessee. Of these, 50 are located on the primary transportation network, defined as roadways classified as collector or higher.

FIGURE 12: STRUCTURALLY DEFICIENT BRIDGES



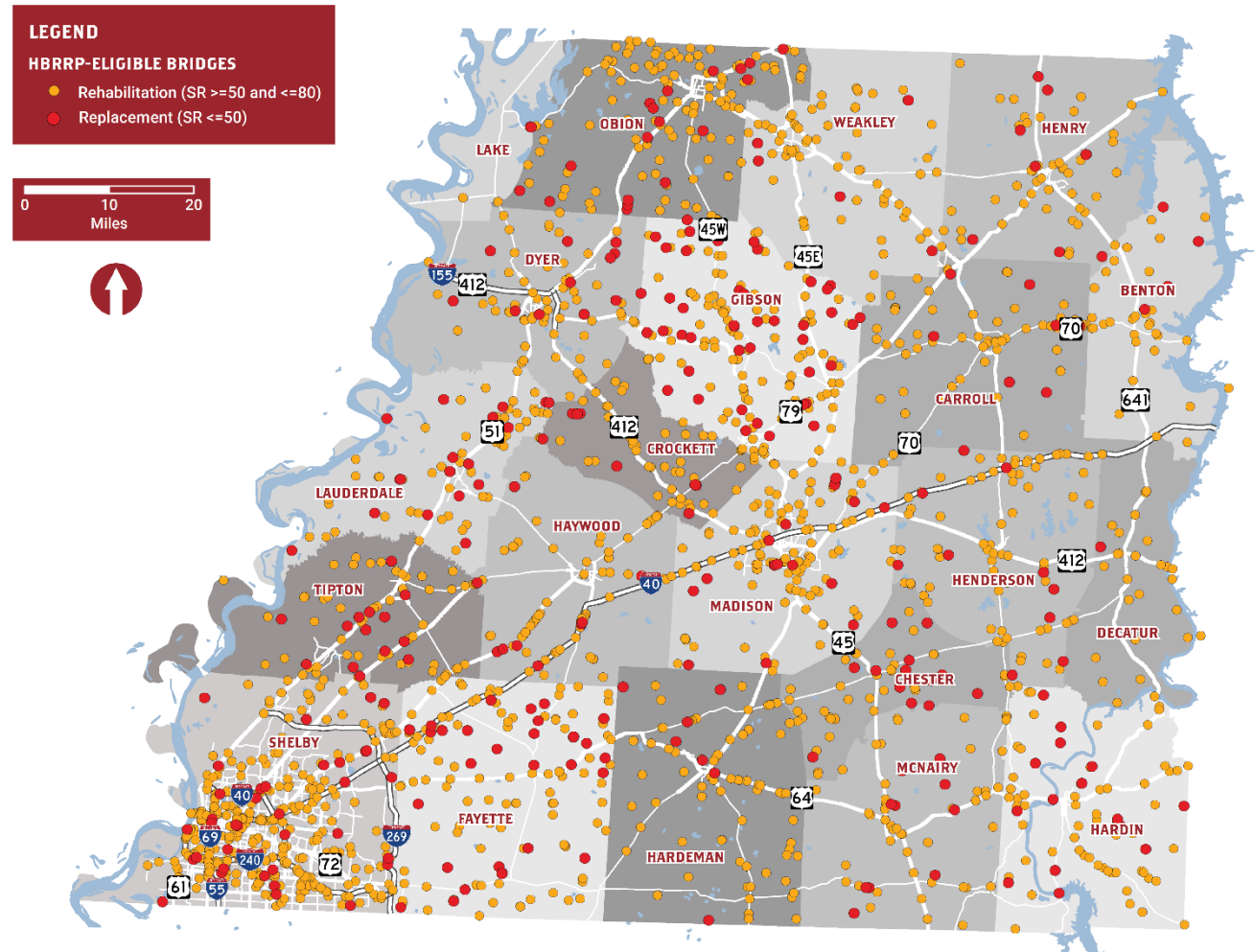
Bridges classified as structurally deficient may be eligible for federal rehabilitation or replacement funding through the Highway Bridge Replacement and Rehabilitation Program (HBRRP), based on their corresponding sufficiency rating. The sufficiency rating of a highway bridge is a weighted, calculated rating indicating the sufficiency or capability of a highway bridge. Factors included in the sufficiency rating include the structural



evaluation of the highway bridge (55 percent of the total score), the highway bridge’s serviceability and functional obsolescence (30 percent of the total score), and the highway bridge’s importance to the public (15 percent of the total score). A sufficiency rating of 100 indicates that the highway bridge is entirely sufficient, while a sufficiency rating of 0 indicates that a highway bridge is entirely insufficient or entirely deficient. Highway bridges with sufficiency ratings of 80 or less are eligible for federal rehabilitation funding, while highway bridges with sufficiency ratings of 50 or less are eligible for federal replacement funding.

Of the 6,392 highway bridges within the region, 297 have a sufficiency rating less than 50 and are thus eligible for federal replacement funding. Approximately one-quarter (26 percent) of the bridges in the region have a sufficiency rating between 50 and 80 and thus are eligible for rehabilitation funding. Bridges eligible for federal replacement and rehabilitation funding are shown in **Figure 13**.

FIGURE 13: HBRRP-ELIGIBLE BRIDGES



Some bridges may be located on routes that are expected to experience significantly higher traffic volumes. For bridges eligible for federal replacement or rehabilitation funding, special consideration should be given to those expected to experience significant increases in freight and/or commuter traffic in the coming years.

It is important to note that TDOT, in cooperation with local governments, has worked to steadily improve the condition of the state's highway bridges over the last 20 to 30 years, with a particular emphasis on structurally deficient bridges. In fact, the percentage of structurally deficient bridges in Tennessee has been reduced from two percent in 1992 to less than five percent in 2018.

## INTELLIGENT TRANSPORTATION SYSTEMS

Intelligent Transportation Systems (ITS) improve transportation safety and mobility and enhance productivity through advanced management and communication technologies. ITS capabilities can both address spot problem areas in corridors as well as support integrated management of a roadway system.

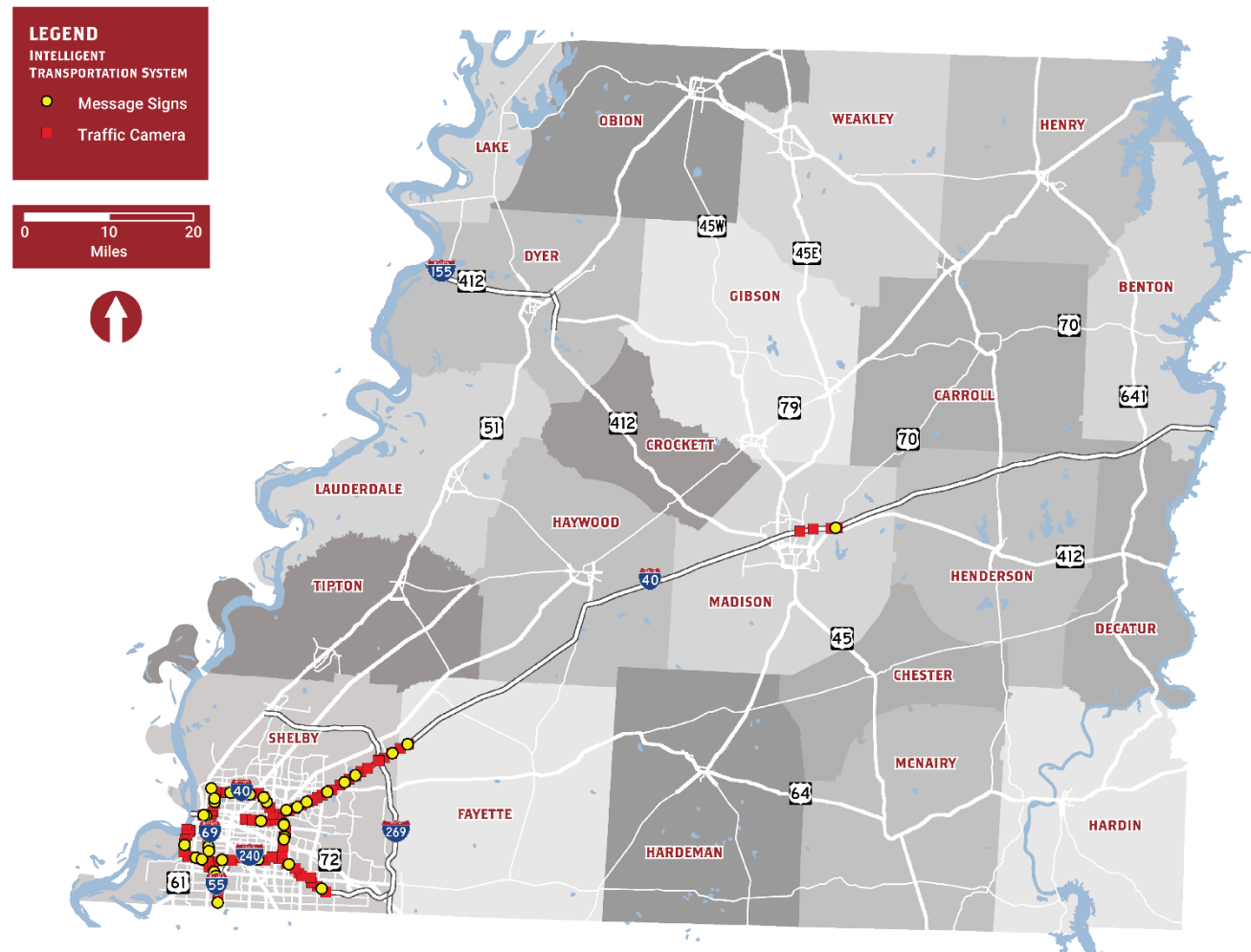
### ITS DEVICE INVENTORY

TDOT has deployed numerous ITS devices in the region as part of the Smartway system, including Dynamic Message Signs (DMS), Closed Circuit Television (CCTV) cameras, Radar Detection Systems (RDS), and fiber optic and wireless communications. These devices are instrumental in facilitating the needs of the system and the motoring public, as well as for future opportunities for increasing the efficient use of the existing capacity.

These devices support TDOT's SmartWay program which is coordinated out of the Memphis Traffic Management Center, which provides 24 hour per day monitoring of transportation system conditions.

Based on an inventory of ITS resources maintained in E-TRIMS, equipment in the region is currently limited to limited access facilities in Madison and Shelby Counties, with the Memphis-area system extending along I-40 into Gallaway. As shown in **Figure 14**, approximately 141 ITS cameras are active along Memphis area roadways, with an additional three along I-40 in Madison County. Approximately 43 DMS are located along Memphis area roadways, with a single DMS located on I-40 east of Jackson.

FIGURE 14: ITS DEVICE INVENTORY



TDOT currently has an active project to extend the SmartWay system approximately 143 miles to Hickman County in Middle Tennessee. The project includes the installation of fiber optic communications and the deployment of ITS devices, includes CCTV cameras, DMS, road weather sensors, and connected vehicle roadside units. Construction has begun on the installation of fiber optic cable; additional improvements will follow in the coming years.

# INCIDENT MANAGEMENT

Incident management describes a planned and coordinated multi-disciplinary process to detect, respond to, and clear traffic incidents so that traffic flow may be restored as safely and quickly as possible. Effective incident management reduces the duration and impacts of traffic incidents and improves the safety of motorists and emergency responders.

According to the *I-40 / I-81 Corridor Study*, in past analyses of congestion, TDOT identified that 60 percent of all freeway congestion is nonrecurring, and that 20 percent of all freeway crashes are secondary. As part of TDOT's

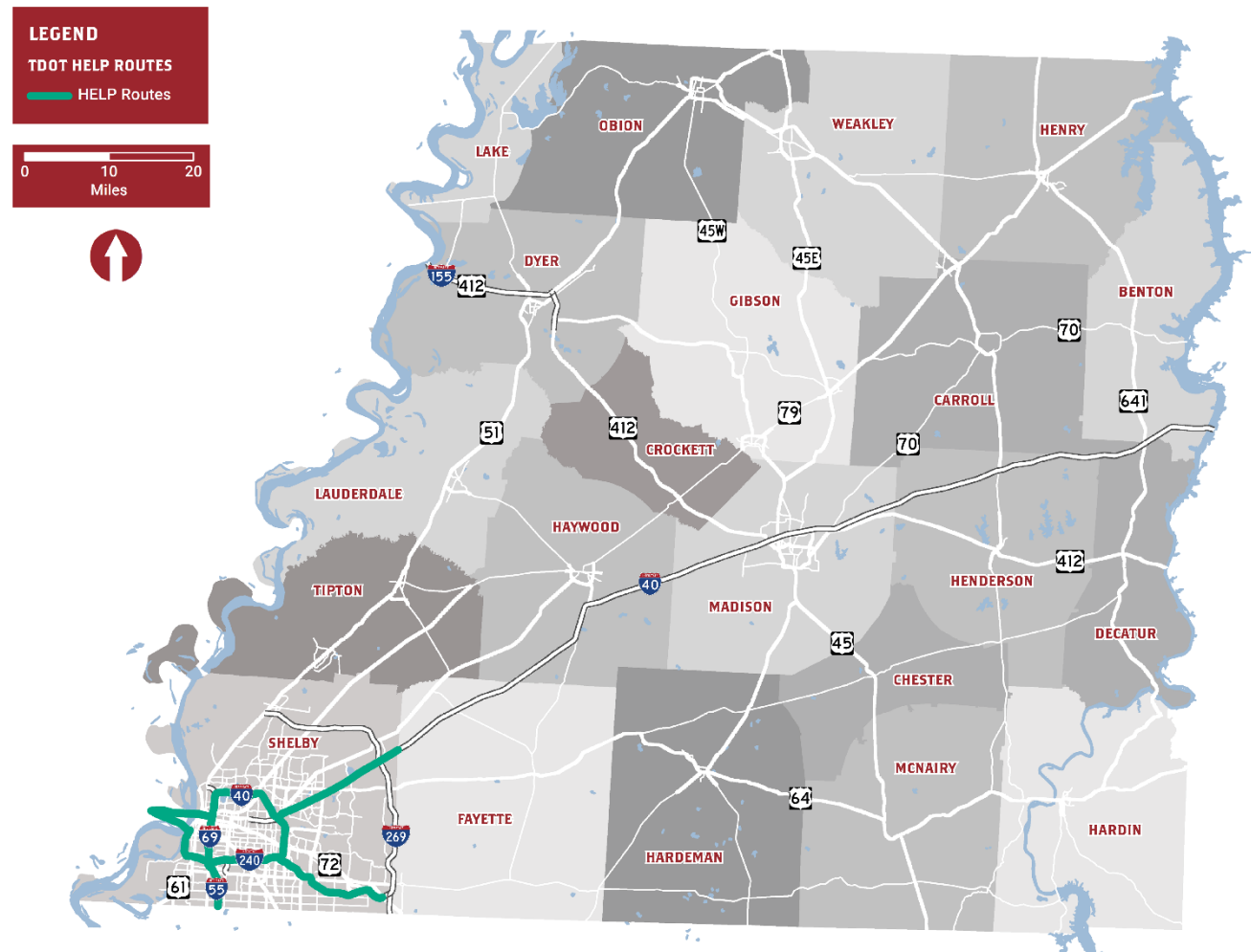
efforts to mitigate the effects of non-recurring congestion, the department operates the HELP program, consisting of trucks that patrol the most heavily traveled sections of highways to provide motorist assistance and improve incident response and clearance times. The HELP program is one of the most visible results of TDOT's commitment to highway incident management and quick clearance time of incidents. As shown in **Figure 15**, TDOT has the following HELP routes in West Tennessee:

- I-40, east of Memphis, Mississippi River to Exit 25; and
- I-40 / I-55 Mississippi River Crossings.

TDOT has also developed an Interstate Incident Management Plan for West Tennessee. This plan provides provide staff with action plans and pre-established detours based on the location of an incident on the region's interstate system. The plan identifies facilities that can be used to reroute traffic from the mainline between every exit on the interstate in both directions and help improve incident management, reduce secondary crashes caused by nonrecurring congestion, and keep first responders safe.

For example, in the event of an incident on I-40 between Exit 35 (SR-59) and Exit 52 (Koko Road) that results in a roadway closure – such as a fatality incident – traffic would be rerouted to SR-1 (US-70) by way of SR-59 and would rejoin I-40 by way of SR-76 at Exit 56.

FIGURE 15: TDOT HELP COVERAGE

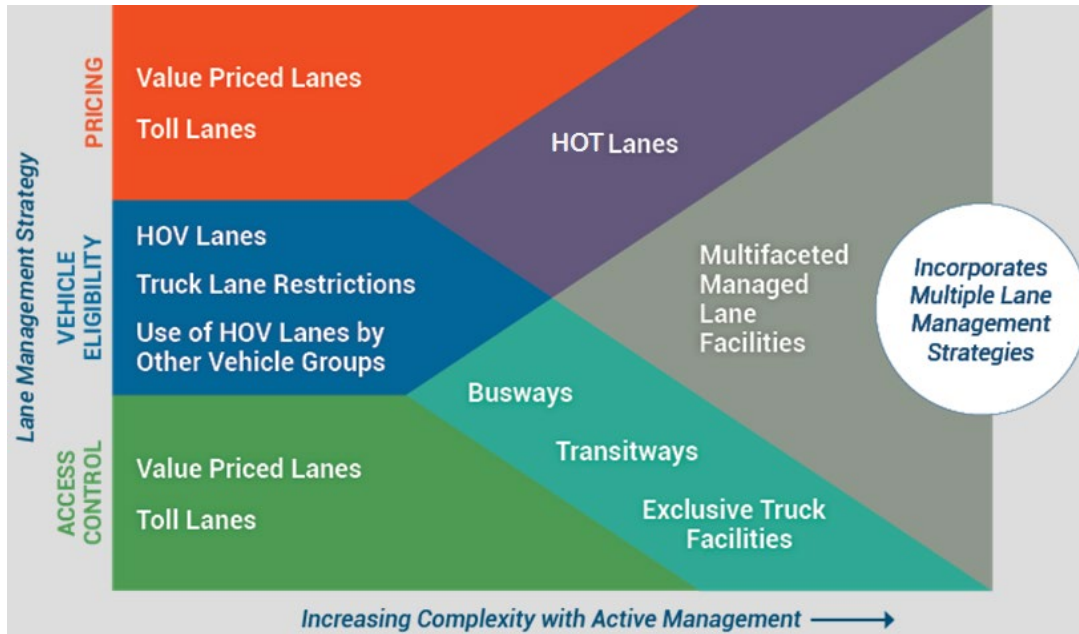


# MANAGED LANES

Managed lanes are defined as highway facilities, or a set of lanes where operational strategies are proactively implemented and managed in response to changing conditions.

As shown in **Figure 16**, there are numerous types of managed lane applications that operate across the United States and worldwide. The only type currently in operation in West Tennessee is high occupancy vehicle, or HOV, lanes, which designate one lane for exclusive use by high occupancy vehicles – i.e., those in which there is at least one occupant other than the driver. HOV lanes, when properly managed, incentivize ridesharing, thereby moving more people in fewer vehicles, reducing demand for new highways.

FIGURE 16: LANE MANAGEMENT STRATEGIES



Source: FHWA – Center for Innovative Finance Support

The region is home to two HOV facilities, both located in Memphis, which include approximately 23 miles of HOV lanes, or approximately half of all HOV lane miles in Tennessee. These are located along I-55 south of I-240 and I-40 east of the I-40 / I-240 split.

The effectiveness of the existing HOV lanes has been mixed. As discussed in the *I-40 / I-81 Multimodal Corridor Study*, research performed for TDOT in 2018 found that fewer than 25 percent of the vehicles in the HOV lanes during peak traffic periods were actually legal users. In Memphis, the violation rate was 87 percent in the morning and 86 percent in the afternoon for the I-40 HOV lane that operates from just east of the US-64 (Bartlett) interchange to Sycamore View Road.

Other managed lane applications are being considered in Tennessee. “Choice lanes” are priced managed lanes that use pricing to proactively manage demand and provide travel-time reliability. Choice Lanes allow motorists to maintain consistent travel speeds even when the adjacent general purpose lanes are congested. Choice Lanes are new lanes and typically operate at around 50 mph during rush hours when traditional lanes are barely moving or even at a standstill during peak periods.

These facilities are currently under consideration primarily for urban areas and specific facility recommendations and locations have not been provided to date.

# PLANNING RECOMMENDATIONS

## PLANNING RECOMMENDATIONS AT THE LOCAL LEVEL:

1. Consider potential transportation capacity or operational needs when conducting bridge repairs and maintenance to determine if additional deck width is needed to accommodate future roadway capacity improvements.
2. Coordinate local pavement resurfacing against roadways expecting an increase in freight and/or commuter traffic.

## PLANNING RECOMMENDATIONS AT THE STATE LEVEL:

1. Consider potential transportation capacity or operational needs when conducting bridge repairs and maintenance to determine if additional deck width is needed to accommodate future roadway capacity improvements.
2. Review existing incident management plans along I-40 to determine impact of BOC operations on crash proclivity and capacity of alternative routes.
3. Consider the effects of increased freight and commuter traffic on pavement condition on area roadways.
4. Emphasize HBRPP-eligible bridges that are expected to experience increases in freight and/or commuter traffic.
5. Continue to develop ITS infrastructure along I-40 and coordinate future roadway improvements with additional ITS investments.
6. Explore options for expanding the HELP truck network beyond the current footprint to assist with additional incident management along I-40.
7. Incorporate considerations for managed lane strategies into future interstate corridor or capacity studies.



# TRANSIT

West Tennessee is served by a variety of local transit, rural demand response transit, and ridesharing services. However, these systems generally do not complement each other. Providing alternatives to single occupancy vehicle travel by allowing individuals to travel continuously and seamlessly across modes is essential as travel demand increases alongside projected residential, commercial, and industrial growth in the region.

## EXISTING TRANSIT SERVICE

### MEMPHIS AREA TRANSIT AUTHORITY (MATA)

The Memphis Area Transit Authority (MATA) currently provides three different modes of transit services: fixed route, demand response, and trolley. Ridership has been trending downward in recent years, due in part to funding reductions and ridership impacts associated with the COVID-19 pandemic.

The City of Memphis and Innovate Memphis, in partnership with MATA, recently completed *Memphis 3.0*, a two-year effort to update the City's comprehensive plan. The plan outlined a long-term transit vision along with recommendations, estimated costs and financing options, to transform the Memphis area transit system, and to maximize the region's economic, environmental, social, health, and personal mobility benefits. Notably, no transit services extending beyond Shelby County are currently planned or proposed by MATA to date.

### JACKSON AREA TRANSIT AUTHORITY (JTA)

The Jackson Transit Authority (JTA) manages and operates 11 fixed route buses within the Jackson city limits and a reservation-based demand-response service for people with limited mobility, called "The Lift." Fixed routes primarily serve downtown Jackson and adjacent residential areas.

Ridership on JTA fixed route buses has varied over the years, peaking in 2012 with over 650,000 annual passenger trips. Ridership has steadily declined since then, with sharper declines from 2015 to 2016 and again from 2019 to 2020, when it fell to 325,662 trips, likely due in part to the COVID-19 pandemic.

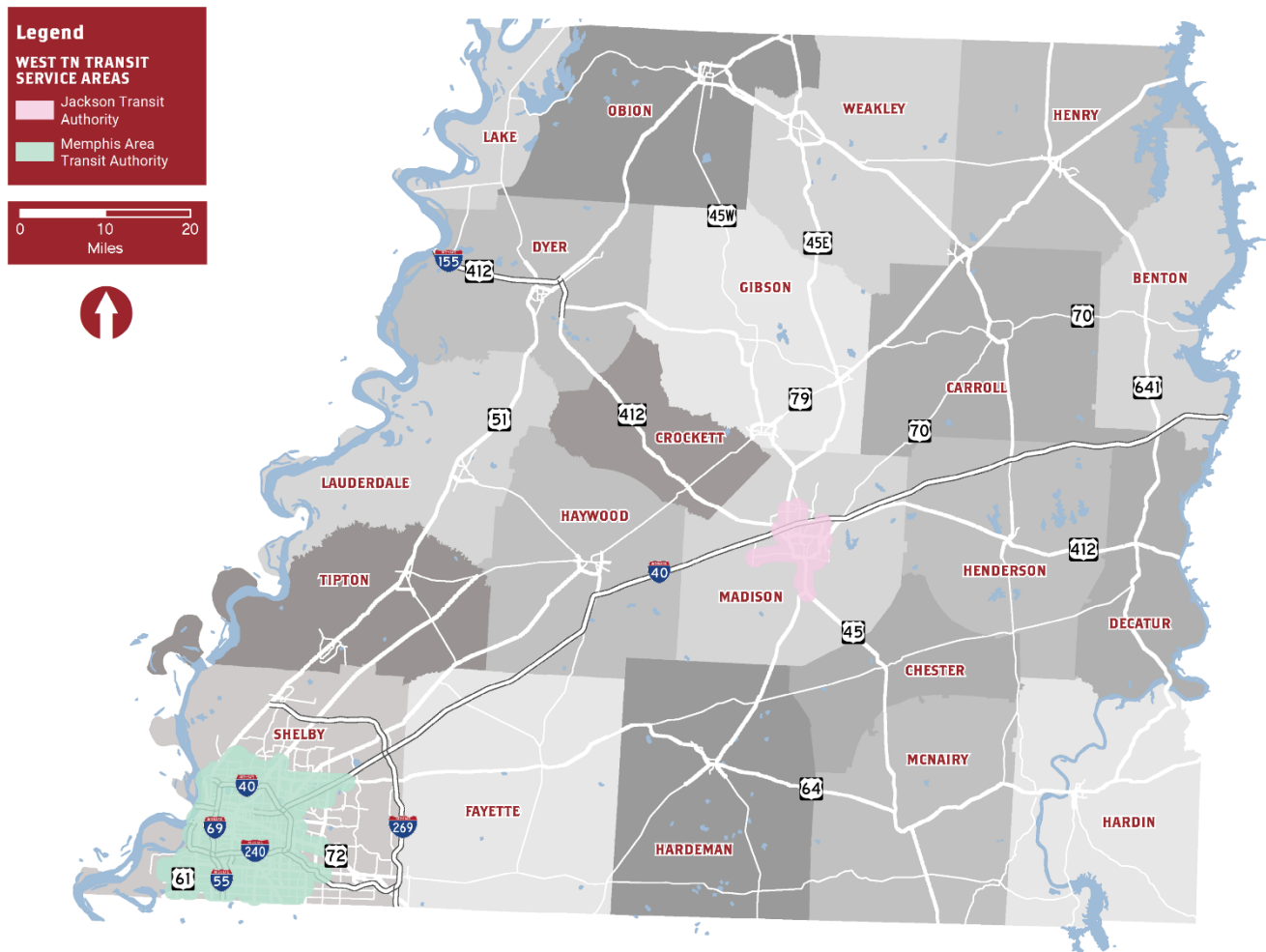
Total passenger trips on "The Lift" reached just over 40,000 at the peak in 2009 and has varied from year to year since then. From 2015 to 2016 ridership increased slightly, then declined again in 2017, holding relatively steady through 2019. Ridership in 2019 represented about 92 percent of peak-year ridership.

Currently there are no major expansion plans for JTA fixed route services.

The MATA and JTA service areas are shown in **Figure 17**.



FIGURE 17: WEST TENNESSEE TRANSIT SERVICE AREAS (FIXED ROUTE)



## RURAL TRANSIT SERVICES

Rural transit in the study area is provided by the Northwest Tennessee Human Resources Agency (NWTTHRA), the Southwest Human Resources Agency (SWHRA), and Delta Human Resources Agency (DHRA), primarily as demand response systems. Generally, the counties of Benton, Carroll, Crockett, Dyer, Gibson, Henry, Lake, Obion, and Weakley are serviced by NWTTHRA; the counties of Chester, Decatur, Hardeman, Hardin, Haywood, Henderson, Madison, and McNairy are serviced by SWHRA; and the counties of Fayette, Tipton, Lauderdale, and the northeast portion of Shelby County are serviced by DHRA.

As demand response systems, riders must make reservations to use these services. Demand response transit services are available to anyone regardless of age or income on a first-call, first-served basis. NWTTHRA, SWHRA, and DHRA transit services operate Monday through Friday from 6:00 AM to 6:00 PM. Limited services are provided on Saturdays by the NWTTHRA. There is currently no demand response service on weekdays after 6:00 PM or weekends (other than the limited service by NWTTHRA).

Private rideshare companies, such as Uber and Lyft, may provide a partnership opportunity for transit providers in lower demand areas. While the development of these types of partnerships is still in the early stages, they provide the potential to start service more quickly, provide service at lower costs, and better tie expenditures to utilization levels.

While future population and employment densities in the rural areas of West Tennessee will not support conventional fixed route transit services, population and employment growth surrounding the BlueOval City will generate needs for additional services. Increased services may come in the form of expanded service hours or service areas. The markets served by demand response providers, however, present significant operating challenges due to the longer travel distances required and specialized trips for the elderly and people with disabilities.

## **BLUE OVAL CITY TRANSIT PLANNING STUDY**

TDOT is currently conducting a study to assess the feasibility of various transit options from the following counties to and from the Haywood County facility: Shelby, Fayette, Hardeman, Chester, Madison, Haywood, Tipton, Lauderdale, Dyer, Crockett, Gibson, and Madison. The study is considering a wide range of transit modes, including passenger rail, commuter express buses, transit buses, community buses, and vanpools. The alternatives were comprised of a package of multiple transit modes, selected based on the estimated demand in the specific area.

The final study and recommendations are anticipated in late 2023.

# PLANNING RECOMMENDATIONS

## PLANNING RECOMMENDATIONS AT THE LOCAL LEVEL:

1. Consider how existing fixed route services in Madison and Shelby Counties could expand to accommodate new regional travel patterns.
2. Incorporate transit feasibility discussions into local transportation efforts – including demand response and flex route service models.
3. Coordinate with area development districts to explore additional transit expansion, including fixed route shuttles at key activity centers and transit-ridesharing partnerships.
4. Consider transit operational needs – such as park-and-ride lots – in local comprehensive or land use planning initiatives.

## PLANNING RECOMMENDATIONS AT THE STATE LEVEL:

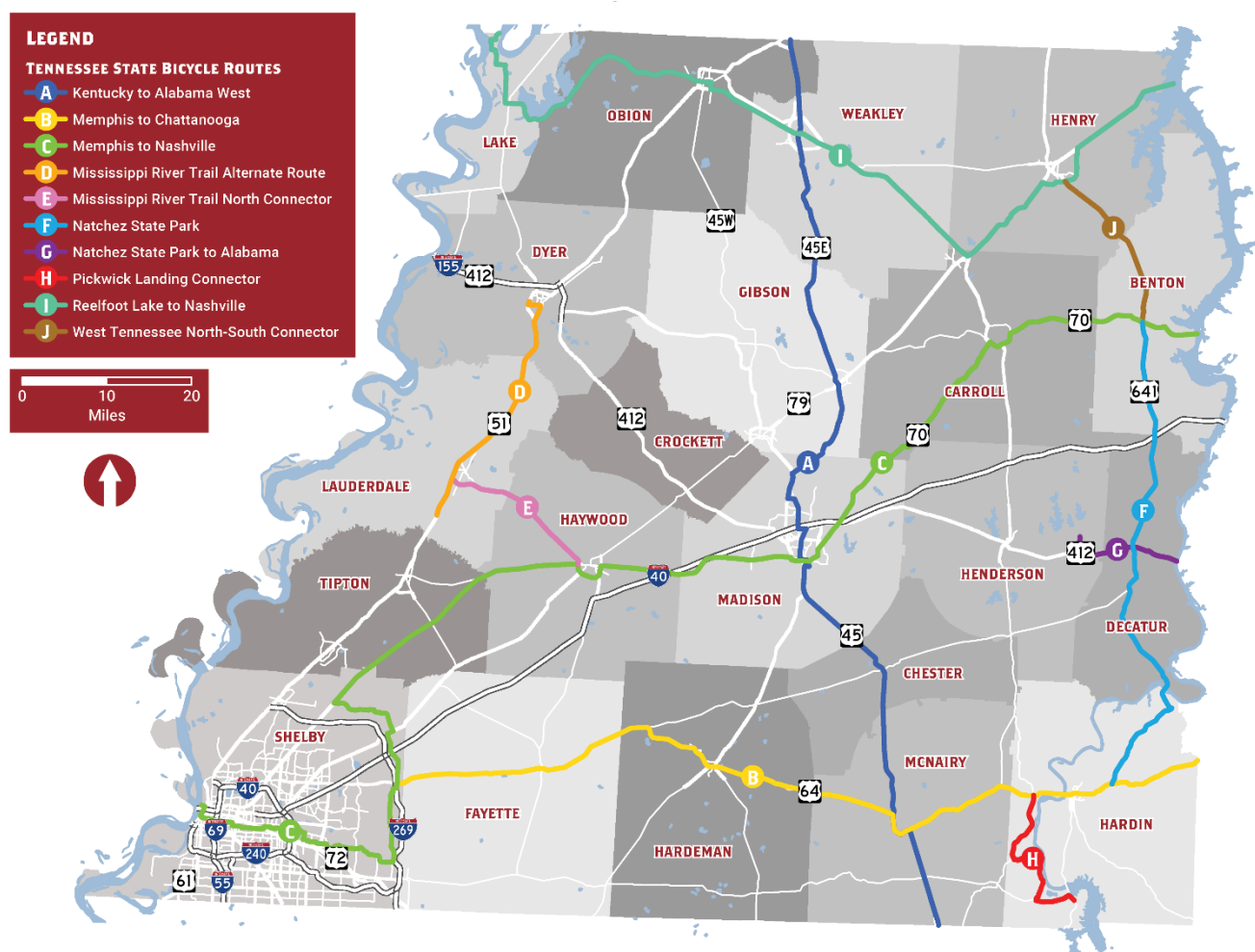
1. Finalize Blue Oval City Transit Planning Study and work with local, state, regional, and non-profit partners to pursue the implementation of study recommendations.
2. Incorporate considerations for transit service – including managed lane strategies – into future interstate corridor or capacity studies.
3. Facilitate regional coordination for expansion of existing fixed route services in Madison and Shelby Counties.

# WALKING AND BICYCLING

## BICYCLE AND PEDESTRIAN FACILITIES

Walking and bicycling networks that are safe, accessible, and comfortable can support viable active transportation options while also providing health, recreation, and tourism benefits for the communities they serve. Overall, bicycle and pedestrian networks in West Tennessee are largely confined to larger towns and urban centers, particularly those in Madison and Shelby Counties. This pattern is consistent with the region's predominantly rural nature. As shown in **Figure 18**, some state routes have been designated as State Bicycle Routes, a designation which allows cycling as a permitted use along the roadway.

FIGURE 18: TDOT STATE BICYCLE ROUTES



A full inventory of the region's sidewalk network is more challenging. Sidewalk networks are scattered throughout the region, particularly in its cities and towns, and vary in terms of connectivity, accessibility, and maintenance.

Moreover, sidewalk infrastructure tends to be more locally focused and, concurrently, is often addressed at the local level.

## BICYCLE LEVEL OF SERVICE

In 2016, as a follow up to Tennessee’s Statewide Bicycle Plan Update, TDOT prepared a State Bicycle Route System Update, which included a bicycle suitability analysis of the state’s roadways. Bicycle suitability was evaluated for a total of 12,600 miles of state and federal highways statewide using the Bicycle Level of Service (BLOS) methodology, which included approximately 3,270 centerline miles in West Tennessee.

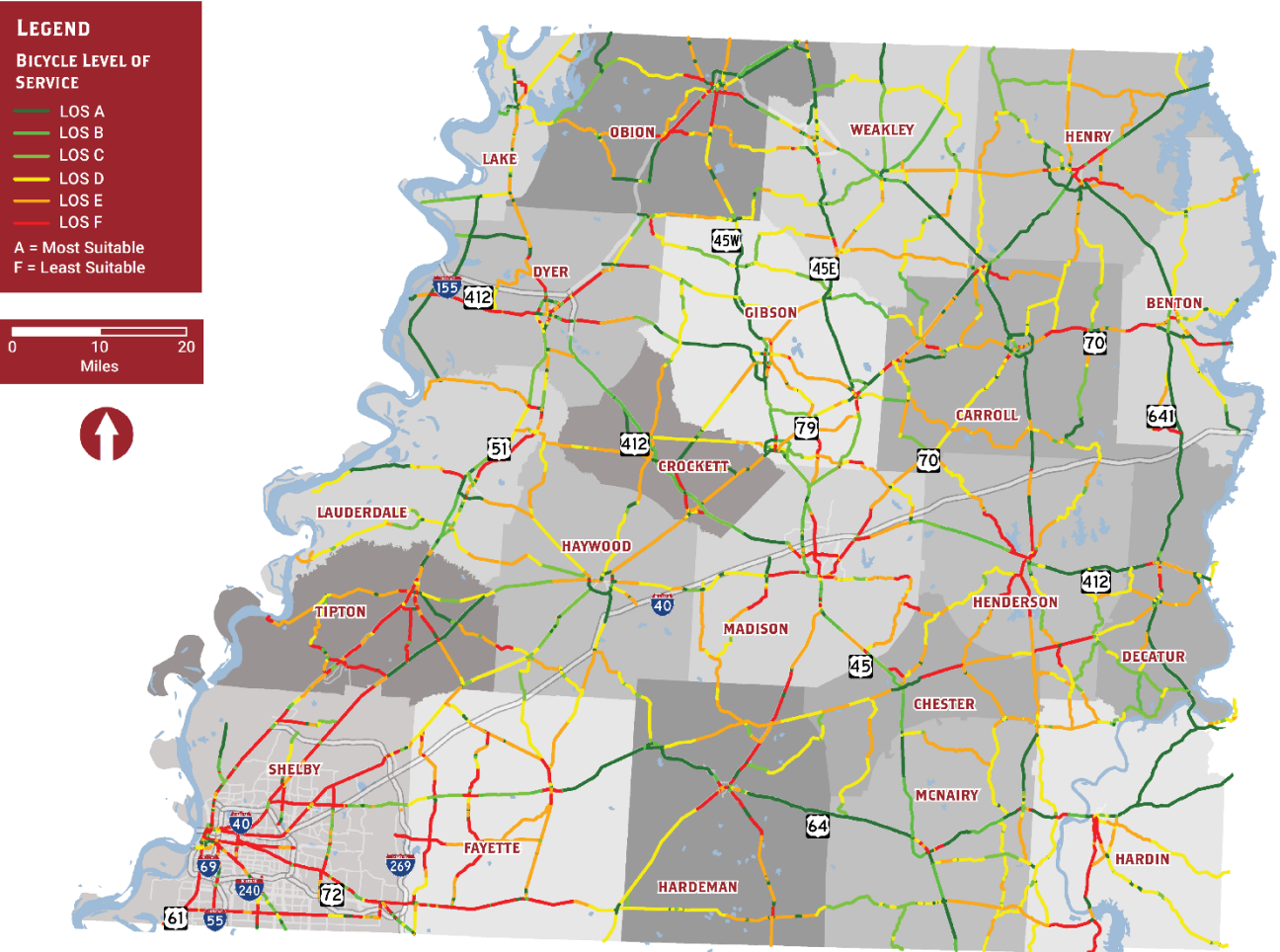
The inputs for calculating the BLOS index are flow rate, effective width of road segment, and the effective speed factor. The result is an overall traveler score for a road segment. The score is also dependent upon the percentage of heavy vehicles and FHWA’s 5-point pavement surface rating for each road segment. The score resulting from the BLOS equation is converted into a LOS A – F letter grade score, with A being the best, and F being the worst. Roads with a LOS A – D are considered suitable for bicycle travel; roads with a LOS E or F are not suitable for bicycle travel.

As shown in **Table 3** and **Figure 19**, 1,932 miles, or 59 percent of roadways in the region, have an LOS of A through D, making them generally suitable for bicycle travel, mostly accommodated along the roadway shoulder. This, however, leaves approximately 40 percent of roadways that are not suitable for any type of bicycle travel. Furthermore, the BLOS methodology does not take into account Level of Traffic Stress (LTS), which better captures which roadways provide bicycle accommodations that are suitable *for all ages and abilities*.

TABLE 2: BICYCLE LEVEL OF SERVICE SCORES

BLOS Score	Mileage	Percentage
BLOS A	595	18.3%
BLOS B	194	5.9%
BLOS C	360	11.0%
BLOS D	782	24.0%
BLOS E	824	25.2%
BLOS F	507	15.5%

FIGURE 19: BICYCLE LEVEL OF SERVICE (BLOS)



# ACTIVE TRANSPORTATION PLANNING

Active transportation planning has been increasing in the region in recent years, thanks in part to TDOT's Transportation Planning Grant (TPG) program, which offers communities professional planning services with a maximum 20 percent local match. All TPG planning activities include multimodal transportation elements, with many primarily focusing on bicycle and pedestrian mobility.

## PLANNING RECOMMENDATIONS

### PLANNING RECOMMENDATIONS AT THE LOCAL LEVEL:

1. Incorporate active transportation analyses and recommendations in all future local transportation planning efforts.
2. Coordinate land use and transportation planning activities to identify opportunities for 20-minute walking and bicycling districts, particularly in urban centers and other areas with higher relative development densities.
3. Develop or update local design standards that meet or exceed TDOT's Multimodal Design Standards, using the American Association of State Highway Officials (AASHTO) and North American City Transportation Officials (NACTO) guidelines as a basis.
4. Examine non-infrastructure programs and policies to promote a local culture of active transportation as networks are developed or expanded.

### PLANNING RECOMMENDATIONS AT THE STATE LEVEL:

1. Continue implementation efforts associated with the 2021 *Statewide Active Transportation Plan*.
2. Update the state's BLOS scoring to account for increased freight and commuter traffic in West Tennessee.
3. Coordinate new transit service – such as that being explored in the *Blue Oval City Transit Planning Study* – with new or improved active transportation infrastructure.
4. Develop more detailed policies, guidelines, and standards to include pedestrians, bicyclists, and other low-speed users across all project types and land use contexts (urban, suburban, rural).



# TRANSPORTATION DEMAND MANAGEMENT

Transportation Demand Management (TDM) is a general term for strategies that increase overall system efficiency by encouraging a shift from single-occupancy vehicles (SOVs) to non-SOV modes, or shifting automobile trips to non-peak (i.e., non-rush hour) hours. TDM strategies are designed to reduce auto trips and total vehicle miles traveled (VMT) by increasing the use of alternative travel options through incentives and disseminating information. Examples of TDM strategies include carpooling and vanpooling programs, commuter buses, park and ride lots, and expanded public transit during peak hours.

## EXISTING TDM STRATEGIES

According to TDOT, existing TDM strategies are primarily available in Shelby County under a variety of programs and initiatives, including:

- **Commute Options Memphis** – an initiative that aims to reduce the number of single-occupancy vehicle commute trips in Memphis while increasing the usage of transit, carpooling, bicycling, and walking to work. The initiative leverages a Congestion Mitigation and Air Quality (CMAQ) grant to create partnerships with local employers and learning institutions to promote transportation choices that improve economic and community health.
- **Memphis Area Ride Share Program** – a Shelby County initiative that aims to improve air quality and reduce congestion by reducing single occupant vehicles from the road. Ride share options includes carpooling, van pooling, public transportation, cycling, and walking. In addition to providing resources for carpooling, the program has partnered with Commute with Enterprise to provide the Memphis Area with a vanpool network for commuters commuting to work.
- **Emergency Ride Home Program** – an initiative through the Shelby County Health Department that provides free taxi rides for carpoolers, cyclists, and transit users when an emergency or unforeseen circumstance causes the commuter to miss his or her ride home.
- **Groove: Memphis Medical District on the Move** – a tool that allows users to set an origin and destination for a regular or one-time trip and get matched with users with similar plans. The tool provides a range of travel options for the trip and the impacts associated with each.
- **University of Memphis Rideshare Database Program** – a database of individuals who work in the Memphis Urbanized Area Metropolitan Planning Organization Area and have expressed a desire to commute to work via carpool, vanpool, transit or bicycle. The database provides a resource for those interested in carpooling but unsure of how to connect with other interested parties.

Additionally, Shelby County is home to four of Tennessee's eight High Occupancy Vehicle (HOV) lanes, which are designed to incentivize ridesharing by providing dedicated roadway capacity during peak hours. Recent studies in the state have found that the existing HOV lanes have high violation rates and low rates of enforcement.

# FUTURE TDM OPPORTUNITIES

With the anticipated growth in the region, the deployment of additional TDM programs and strategies that support real-time information and individual choice could provide a greater number of travel options throughout the day for a wider variety of people. Traditional TDM programs are typically organized around commuting and include:

- Travel options (e.g., transit, ridesharing, walking, and bicycling);
- Financial and time incentives (e.g., transit benefits, parking policies, flexible work hours, employer incentives, telecommuting, and land use planning);
- Information and education programs (e.g., trip planning, ride matching, maps, and websites); and
- Public-private partnerships.

Given the number of new employers that may locate in the area, employer-sponsored programs are also effective tools in promoting TDM initiatives. **Table 4** includes common employer sponsored TDM programs, and their likely vehicle trip reduction impact.

TABLE 3: TRANSPORTATION DEMAND MANAGEMENT

Strategy	Details	Employee Vehicle Trip Reduction Impact
Services and Monetary Incentives	Example: transit vouchers and guaranteed ride home	24.5%
Parking Charges	Previously free parking	20 – 30%
Cash Out	Cash benefit offered in lieu of accepted free parking	17%
Monetary Incentives Alone	Subsidies for carpool, vanpool, or transit	8 – 18%
Services Alone	Ridematching shuttles, guaranteed ride home	8.5%
Information Alone	Information on available alternatives	1.4%

Source: Smart Growth America

# PLANNING RECOMMENDATIONS

## PLANNING RECOMMENDATIONS AT THE LOCAL LEVEL:

1. Include an assessment of potential TDM strategies in future local transportation planning efforts.
2. Contact TDOT's Air Quality Office to discuss potential partnership and funding opportunities for TDM strategies.
3. Establish strategic partnerships with vanpool operators for interested commuters; this could be accomplished locally or through the region's development districts.
4. Consider potential locations for park and ride lots for transit users as regional transit options – such as those discussed in the *Blue Oval City Regional Transit Study* – are deployed.

## PLANNING RECOMMENDATIONS AT THE STATE LEVEL:

1. Establish a statewide vision for TDM in Tennessee and play a lead role in regional TDM program development and messaging.
2. Increase employer outreach and engagement for TDM programs, particularly among new employers in rapidly-growing area, such as West Tennessee.
3. Continue to explore new technologies and innovative solutions (e.g., Hytch Rewards; RideAmigos).

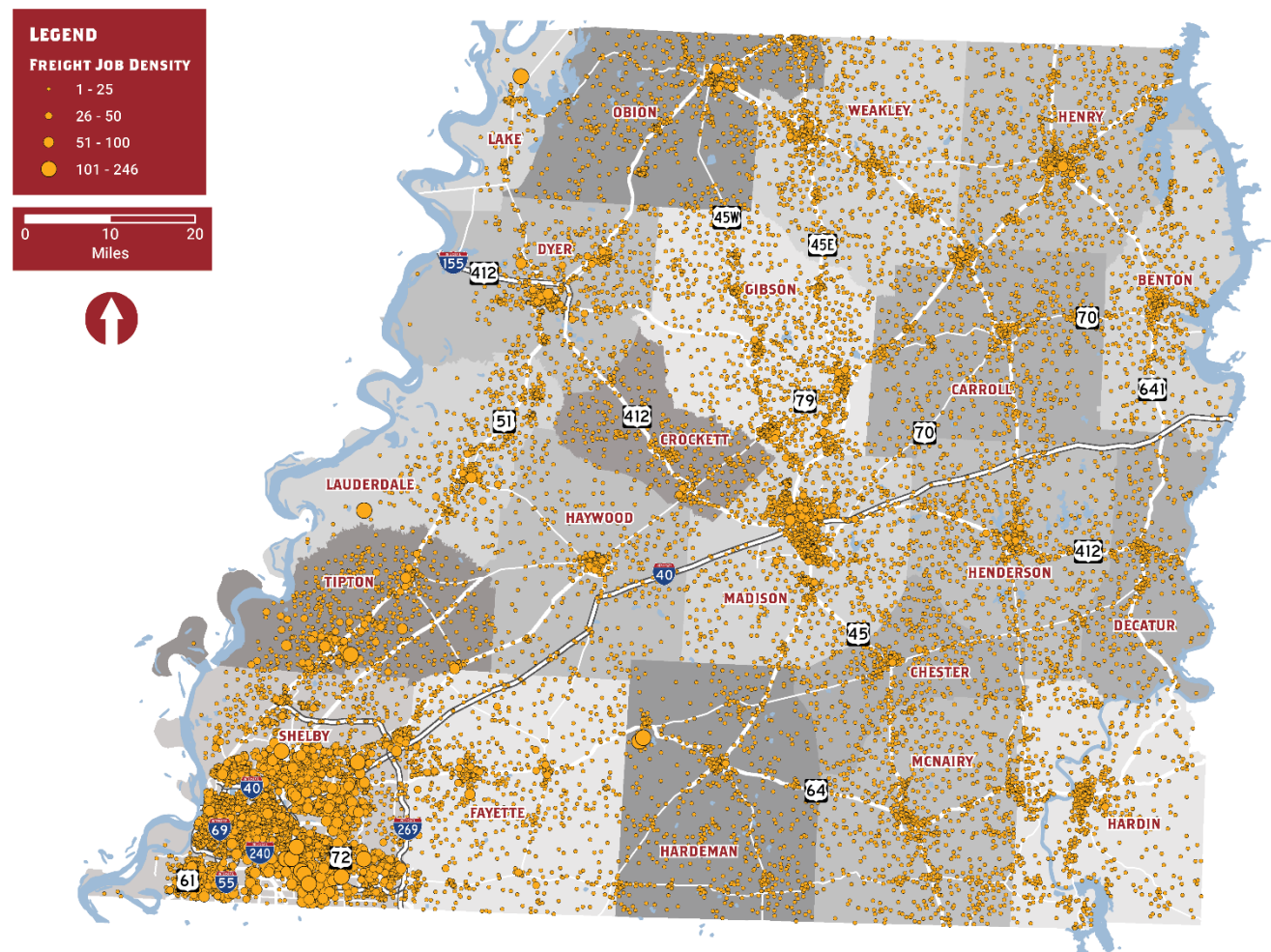
# FREIGHT AND INTERMODAL FACILITIES

The Mid-South region is one of the country's most important logistics hubs. The region's strategic location near the center of the continental United States is supported by multiple, intersecting interstate highways, navigable waterways, airports with significant freight hubs, and numerous Class I railroads. The *Mid-South Freight Flows & Industry Analysis* notes that a truck leaving Memphis can reach 35 percent of the U.S. population overnight and 68 percent in just two days. Business Facilities magazine ranked Memphis as being the top ranked logistics hub in the U.S. and globally, in their 17<sup>th</sup> Annual Rankings Report, for its ability to "move anything anywhere in the world efficiently."

Put simply, freight and logistics are critical to the economic success of the region and are poised to assume an even more critical role in the area economy following the BlueOval City announcement. As shown in **Figure 20**, freight-related jobs – as defined by the U.S. Census Longitudinal Employer-Household Dynamics (LEHD) data – are present in all 21 counties with well-defined clusters in urban areas and existing manufacturing concentrations. Freight movement – among all modes – is expected to increase significantly in the coming years. Recognizing the centrality of freight to the region's and state's transportation systems, TDOT and area MPOs have conducted several multi-modal freight planning studies in recent years involving truck, rail, air, and water freight activities.

Truck is the major mode for freight movement in Tennessee and truck volumes are likely to increase as industrial development matures both on-site at BlueOval City and off-site at peripheral supplier facilities. If realized, these increases will affect the entirety of the region's interstate highway system – all of which is included in the National Highway Freight Network (NHFN) – as well as many of the supporting and connecting routes throughout West Tennessee.

FIGURE 20: FREIGHT-RELATED JOBS IN WEST TENNESSEE



# FREIGHT INSTITUTIONS IN TENNESSEE

Several administrations within the United States Department of Transportation (USDOT) and other federal agencies are involved in the planning, funding, operations, and safety oversight of freight activities. In addition to these federal organizations that influence freight in West Tennessee from a national perspective, the *Tennessee Statewide Multimodal Freight Plan* identifies other key agencies with purview over freight issues in the region.

## TENNESSEE DEPARTMENT OF TRANSPORTATION (TDOT)

TDOT is involved in all aspects of multi-modal freight within the state, including highways, railways, waterways, and air transport. These functions fall into different Bureaus within TDOT, all of which are ultimately led by the Commissioner. The Aeronautics Division reports directly to the Commissioner's Office; highways are under the Engineering Bureau; and freight rail and waterways are under the Multimodal Division.

The roles and responsibilities of TDOT for roadway, rail, water, and air infrastructure are outlined below:

- Roadway – All projects on the State Route System and National Highway System, such as pavement and operations projects;
- Rail – Safety projects at railroad crossing and projects for shortline railroad improvements, such as that the office provides assistance for track and bridge rehabilitation;
- Water – Port and marine projects; and
- Air – Distributes Federal Aviation Administration (FAA) funds for airport projects including runway and hangar improvements.

## PORT AUTHORITIES AND TERMINALS

Two public ports operate in along the Mississippi River in West Tennessee – the Memphis Port Authority and the Port Cates Landing. Port Commissions in Tennessee are established through legislative action, governed by a board of commissioners, and funded through their operating revenues. Below is a list of the Port Commissions in West Tennessee.

- Northwest Tennessee Regional Port Authority (NTRPA), Port of Cates Landing at Tiptonville
  - The NTRPA is a regional public authority, for the counties of Lake, Dyer, and Obion. It was established as a result of the Port of Cates Landing development.
  - NTRPA has received state and federal grant funds to conduct capital improvements for the Port of Cates Landing.
- Memphis and Shelby County Port Commission
  - The Port Commission is a joint authority between the City of Memphis and Shelby County. Residents of the City of Memphis and Shelby County are nominated by the mayor to compose the five-member port commission.
  - The Commission is responsible for promotional and economic development of the Port of Memphis, including leasing and selling land on Presidents Island and the Frank C. Pidgeon Industrial Park.

## AIRPORTS

There are 20 public-use airports in West Tennessee. This system includes two commercial service airports: Memphis International Airport and McKellar Sipes Airport in Madison County.

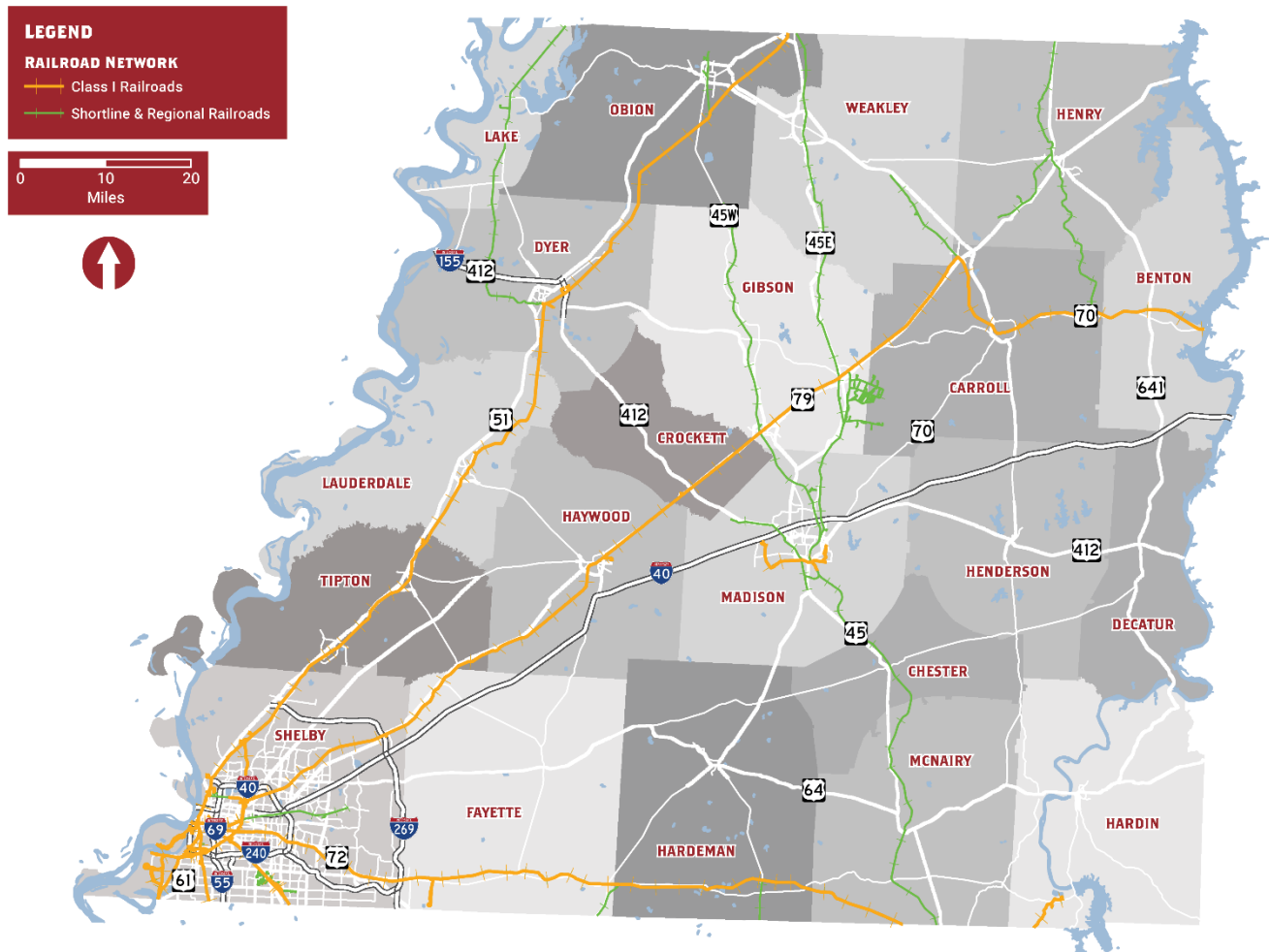
In Tennessee, most airports are overseen by an airport authority or airport commission with all but a limited number operated with an administrative board. Often authority or committee members are volunteer positions.

A more extensive discussion of the region's airports is included in the next section. An inventory of the region's airports is shown in **Figure 24**.

## RAILROADS

The rail system in West Tennessee is used primarily for freight services as seen in **Figure 21**. There are six Class I railroads that operate within the region, including CSX Transportation (CSX), Norfolk Southern (NS), Burlington-Northern Santa Fe (BNSF), CN/IC (Canadian National/Illinois Central), Kansas City Southern Railway (KCS), and Union Pacific (UP). Together they operate over 740 track miles, which is approximately 61.6 percent of the region's network. Additionally, the region has approximately 461 track miles of shortline railroad.

FIGURE 21: REGIONAL RAIL SYSTEM



## FREIGHT TRANSFER FACILITIES

Freight transfer facilities are vital to moving cargo from one mode of transportation to another. The ability to move goods and commodities between modes is key to getting products to their ultimate destination. Intermodal facilities are most frequently found around urban areas. Intermodal rail is the most common freight transfer facility in Tennessee, with several locations mostly clustered within the Memphis metropolitan area.



At the Port of Memphis, all modes of transportation are supported by intermodal facilities. Other intermodal facilities present in Memphis primarily support FedEx. In 2003, CN and CSXT entered an agreement with the Port of Memphis and invested \$25 million to create the Memphis Super Terminal, a state-of-the-art railroad-truck intermodal facility.

## FREIGHT ISSUES

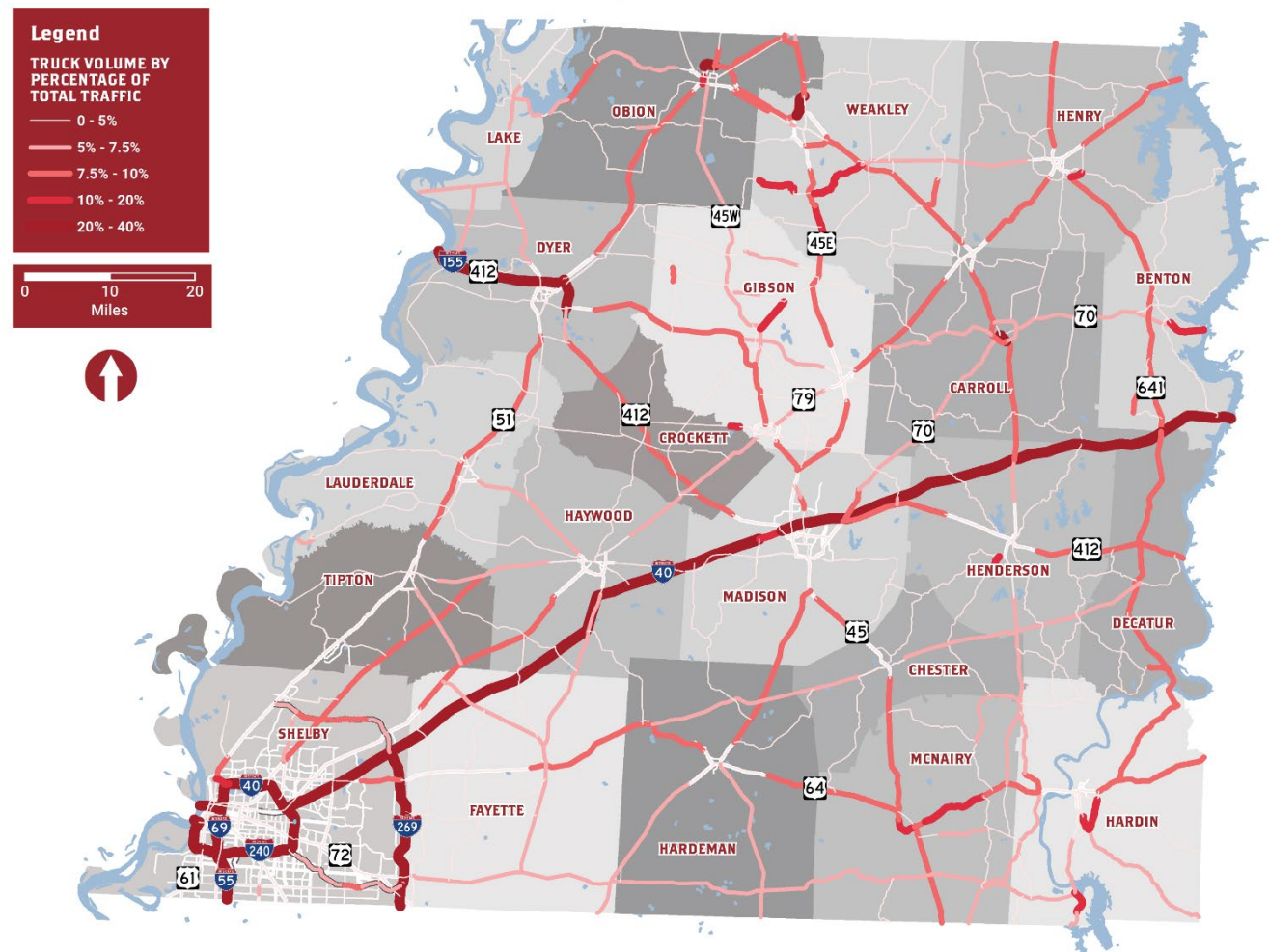
The *Tennessee Statewide Multimodal Freight Plan* and *Mid-South Freight Flows & Industry Analysis* identify key issues facing freight and logistics in West Tennessee. Issues particularly prevalent to the transportation network in West Tennessee are discussed in greater detail below.

### FREIGHT TRAFFIC VOLUME

Excessive freight traffic on regional roadways can increase traffic delays for deliveries, commuters, and emergency vehicles. **Figure 22** shows the road segments with highest truck traffic percentages in the region. Segments with the highest share of trucks as a percentage of total traffic include I-40, I-269, I-155, and US-64. The road segment with the highest percentage of truck traffic is SR-43 north of Martin (between SR-22 and US-45E) at 42 percent.

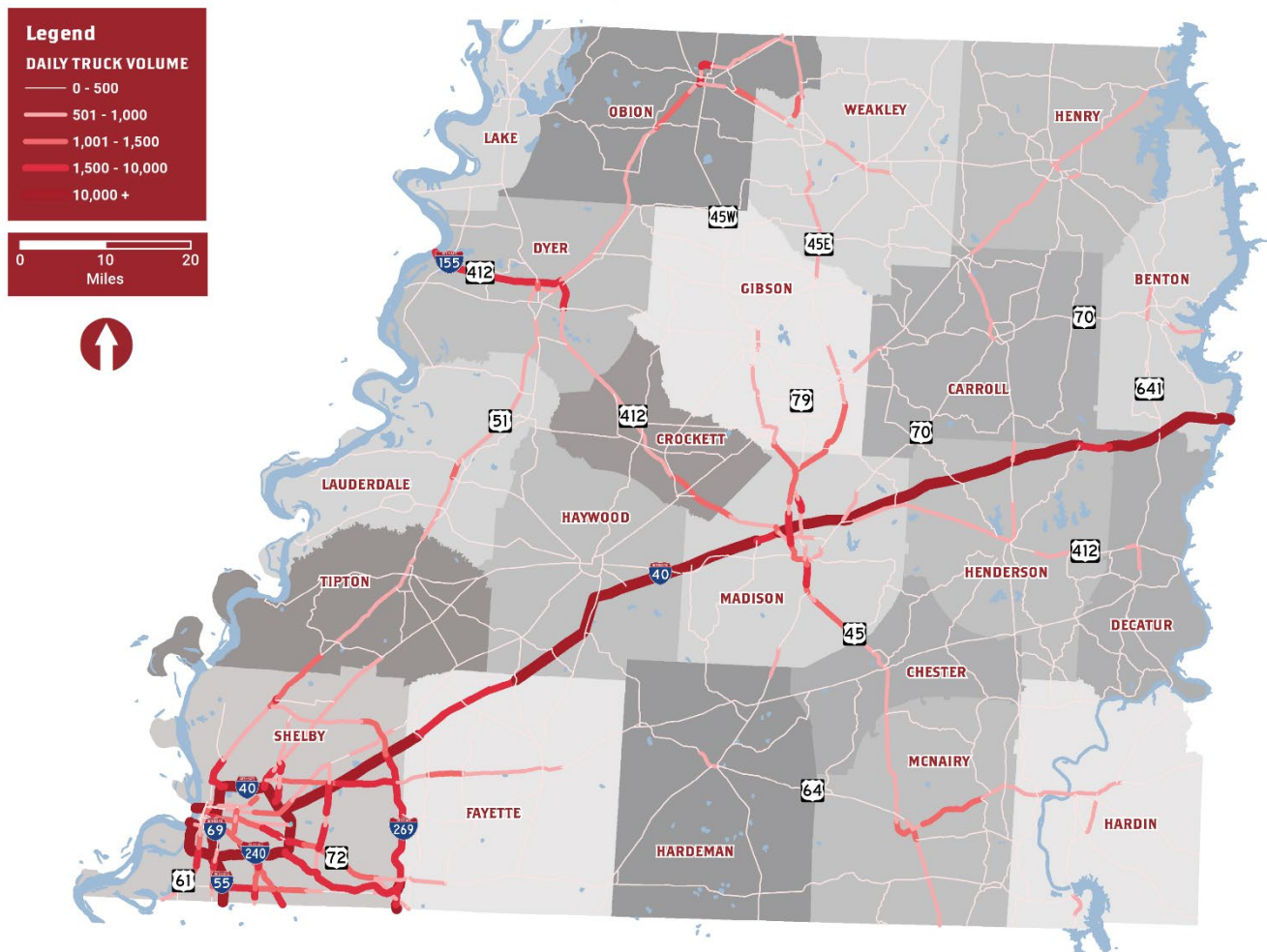
Truck volumes along I-40 represent no less than 20 percent of traffic throughout the corridor, with trucks exceeding a third of total traffic along some segments. With I-40 consisting of two lanes in the region outside of Madison and Shelby Counties, high truck volumes can result in slower travel speeds, particularly during passing movements. Many drivers anecdotally perceive segments of I-40 as only having one through lane for automobiles when truck volumes are high within the right travel lane. The increase of freight travel demand along I-40 in the coming years may further exacerbate problems – both real and perceived – along the corridor.

FIGURE 22: TRUCK TRAFFIC BY PERCENTAGE OF TOTAL TRAFFIC



Similarly, Average Annual Daily Traffic (AADT) for freight trucks is greatest along these same corridors, with additional high AADT segments in the Memphis and Jackson regions. **Figure 23** shows that nine of the top 10 road segments for AADT are on I-269 in Shelby County. Other significant high truck volume areas include segments of I-40 through the Northeast section of Shelby County and segments of I-40 through Madison, Benton, and Haywood County.

FIGURE 23: DAILY TRUCK VOLUMES



## FREIGHT BOTTLENECKS

The *Tennessee Statewide Multimodal Freight Plan* identified 32 highway bottlenecks for potential improvements across the state, based on a combination of speed, volume, and roadway Level of Service data. Each segment identified as a possible bottleneck met one of the following conditions: (1) the segment had a LOS of F and a truck volume greater than 5,000 trucks per day or (2) the segment had an average daily truck speed of less than 45 mph. As shown in **Table 5**, eight of the locations are in West Tennessee, all of them in Shelby County. Increased freight travel demand has the potential to further aggravate the bottleneck conditions at these locations. As forecasting tools are refined to account for increased freight traffic associated with BlueOval City and peripheral suppliers, new potential bottlenecks could be identified.

TABLE 4: FREIGHT BOTTLENECKS

County	Facility	From	To
Shelby	I-55	N of W McLemore Ave	AR State Line
	I-40	N Main Street	Chelsea Ave
	N 3 <sup>rd</sup> Street	Overton Ave	AW Willis Ave
	I-240	Elvis Presley Blvd	Getwell Rd
	I-40	Jackson Ave	Covington Pk
	I-240	W of Mt Moriah Rd	I-40
	I-40	I-240	Sycamore View Rd
	SR-385 (Bill Morris Pkwy)	I-240	Riverdale Rd

## MAINTENANCE AND DETERIORATION OF RAIL LINES AND BRIDGES

In addition to age-related maintenance issues associated with the Mississippi River bridges, infrastructure in West Tennessee will experience increased maintenance and deterioration issues as federal, state, and local funding tightens.

Although the road and bridge maintenance programs in Tennessee are currently funded so that adequate maintenance occurs, it is expected that as the future funding landscape changes, there will be a strain on the sources used for the regular maintenance of roads and bridges.

Class I rail lines in Tennessee have been upgraded to accommodate 286,000 lb. cars. This improves the efficiency of the Class I system because they can move a heavier load per rail car. Due to restricted funding, short line railroads in the state have been unable to match this effort, creating a missing link between Class I rail lines and the industries they serve.

## TRUCK PARKING

The trucking industry relies on drivers to travel long distances in short periods of time, a scenario that results in the frequent use of rest stops rather than overnight stays at hotels. In July 2013, legislation was passed to implement the Federal Motor Carrier Safety Administration (FMCSA)'s regulations on driver breaks. The new law requires drivers to include at least two nighttime periods (from 1 AM to 5 AM) in the restart break – a requirement resulting in drivers seeking parking more frequently.

As a result, several challenges related to truck parking have arisen in recent years, and would likely be exacerbated by increased truck traffic in the region, including:

- Shortage of overnight truck parking;
- Frequent undesignated parking caused by staging needs; and
- Lack of information about parking availability.

# PLANNING RECOMMENDATIONS

Recent state and regional freight plans have produced numerous project, program, and policy recommendations to improve freight movement in West Tennessee. While not an exhaustive list of planning-level recommendations, key considerations are identified below.

## PLANNING RECOMMENDATIONS AT THE LOCAL LEVEL:

1. Consider the effect of increased truck traffic on area roadways, including local roads, in local transportation planning efforts.
2. Incorporate freight-intensive land uses, intermodal facilities, and port facilities into local comprehensive or land use plan updates.
3. Coordinate with neighboring jurisdictions, relevant stakeholders, and regional agencies on regional truck parking challenges.
4. Protect rail freight corridors from incompatible land use encroachments.
5. Incorporate local freight facilities into local planning initiatives.

## PLANNING RECOMMENDATIONS AT THE STATE LEVEL:

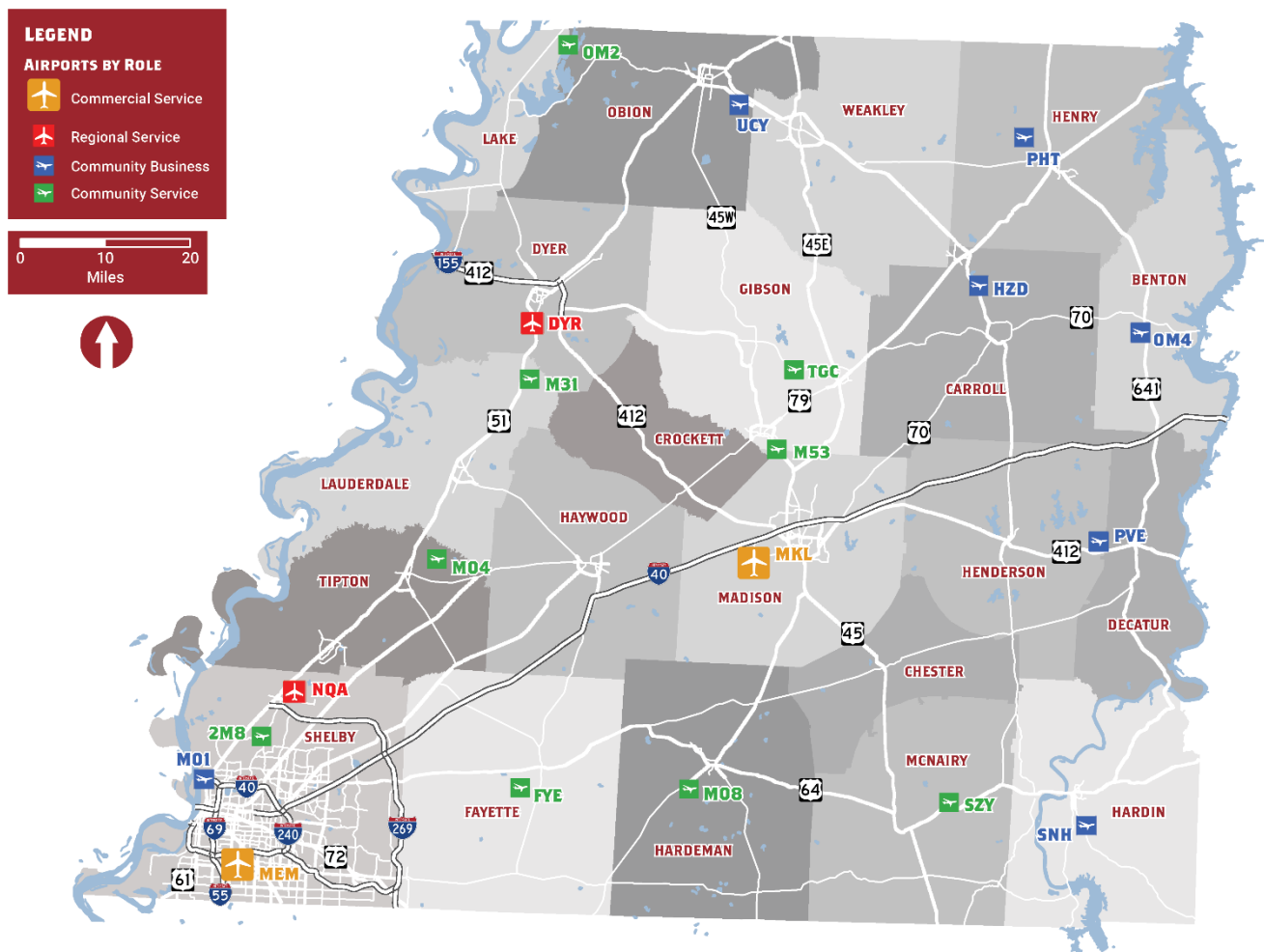
1. Prioritize and invest in projects that improve freight safety.
2. Continue to identify opportunities to expand the use of ITS and other innovative technologies that support freight flows.
3. Prioritize pavement preservation on freight routes.
4. Work with both public and private sector partners to increase truck parking capacity in the region.
5. Continue to implement capital projects from the *Tennessee Statewide Multimodal Freight Plan*.

# AIRPORTS

## WEST TENNESSEE AIRPORTS BY CLASSIFICATION

As shown in **Figure 24**, West Tennessee's aviation system is composed of 20 public-use airports that are owned by a political subdivision of the state or privately-owned. While all airports serve their communities, regions, and the needs of their users, they differ in the types of facilities and services available. It is beneficial to have airports of all sizes that serve a variety of functions as it ensures an efficient use of resources.

FIGURE 24: PUBLIC USE AIRPORTS



The TDOT Aeronautics Division has classified all airports in the system according to the different functions and purposes they serve within the system. Airports that serve similar functions are grouped together into classifications for further analysis and policy decisions. TDOT Aeronautics Division considered several criteria for classifying airports, including based jets, commercial service status, reliever status, and total instrument flight



rules (IFR) operations before determining the most appropriate criteria to be almost solely based on jet operations. The classifications include:

- **Commercial Service** – Primary and nonprimary commercial service airports as defined in the most current National Plan of Integrated Airport Systems (NPIAS) report;
- **Regional Service** – At least 350 jet operations annually, which represents an average of approximately one jet takeoff or landing per day during a calendar year;
- **Community Business** – At least 100 jet operations per year and/or a NPIAS airport with 100 or more based aircraft; and
- **Community Service** – All other airports with a paved runway.

## TENNESSEE AVIATION SYSTEM PLAN (TASP) – KEY FINDINGS AND RECOMMENDATIONS

The Tennessee Aviation System Plan (TASP), completed in 2021, established a systemwide inventory of needs and provided context and justification for the continued development of the state’s aviation system. Through a series of 14 tasks, the TASP explored the priorities of state aviation officials and stakeholders, established project goals, examined the existing and future performance of the system, defined future needs, and developed targeted project recommendations.

The TASP developed a series of recommended facility and service objectives for airports and their users. Established in close coordination with TDOT Aeronautics Division, these objectives outline the airside and landside facilities an airport should provide to fulfill its functions within the aviation system. Airport planning objectives were also provided. These recommendations help airports maintain safe and secure conditions for aircraft and their passengers, compliance with aviation regulations, and up-to-date master plans and/or airport layout plans (ALPs) that align with current conditions.

Each airport was evaluated against its classification’s facility and service objectives. This analysis serves as the basis for the identification of airport-specific project needs and costs.

While the TASP provided extensive maintenance and expansion recommendations for each airport, several findings are particularly relevant with respect to BlueOval City – which was announced following the publication of the report – and West Tennessee Planning.

The TASP established key facilities and services needed to accommodate “business aircraft,” which are larger and need longer roadways. To adequately accommodate these aircraft, the airport facilities need:

- 5,500-foot (or longer) runway;
- Jet A fuel availability;
- Instrument approach; and
- Ground transportation.



More than half of the airports in the region, 11 total, were identified as needing only one critical investment to adequately accommodate business aircraft – in this case a 5,500-foot (or longer) runway. These included:

- William L. Whitehurst Field (Bolivar);
- Benton County Airport (Camden);
- Covington Municipal Airport (Covington);
- Humbolt Municipal Airport (Humbolt);
- General Dewitt Spain Airport (Memphis);
- Charles W. Baker Airport (Millington);
- Henry County Airport (Paris);
- Savannah-Hardin County Airport (Savannah)
- Rober Sibley Airport (Selmer);
- Fayette County Airport (Somerville); and
- Gibson County Airport (Trenton).

The TASP also included airport planning objectives. These recommendations help airports maintain safe and secure conditions for aircraft and their passengers, compliance with aviation regulations, and up-to-date master plans and/or airport layout plans (ALPs) that align with current conditions. ALPs are key products of master plans and are comprised of a set of drawings that provides a graphic representation of the long-term development plan for an airport. A broader master plan may address other types of development goals.

Notably, ALP updates are required to include an Exhibit A, which consists of a property map of the airport that must include a plan view showing parcels of land, including fee-simple land interests, easement interests, and the airport property line, as well as a data table explaining these parcels. The Exhibit A property map must also include access points for through-the-fence operations.

As shown in **Table 6**, 14 airports in the region lacked either an approved master plan, an approved ALP, or an Exhibit A with the approved ALP.

TABLE 5: AIRPORT MASTER PLANS AND LAYOUT PLANS

Airport Name	Location	FAA ID	Approved Airport Master Plan	Approved ALP	ALP Includes Exhibit A
William L. Whitehurst Field	Bolivar	M08	No	Yes	No
Benton County Airport	Camden	0M4	No	Yes	Yes
Covington Municipal Airport	Covington	M04	No	Yes	Yes
Dyersburg Regional Airport	Dyersburg	DYR	No	Yes	Yes
Arnold Field	Halls	M31	No	No	No
Humboldt Municipal Airport	Humboldt	M53	No	Yes	No
Carroll County Airport	Huntington	HZD	No	Yes	Yes
General Dewitt Spain Airport	Memphis	M01	No	Yes	No
Charles W. Baker Airport	Millington	2M8	No	Yes	No
Millington-Memphis Airport	Millington	NQA	Yes	Yes	No
Henry County Airport	Paris	PHT	No	Yes	Yes
Savannah-Hardin County Airport	Savannah	SNH	No	Yes	Yes
Robert Sibley Airport	Selmer	SZY	No	Yes	Yes
Reelfoot Lake Airpark	Tiptonville	0M2	No	Yes	No

Finally, the TASP provided cost estimates for the airside facilities, landside facilities, and planning needs for each airport in the state system. Project types were categorized as either maintenance (update existing facilities and/or services) or expansion (construct or implement new facilities and/or services due to airport growth) projects.

**Table 7** shows the total cost of all TASP recommendations for each airport in the region. The total cost estimate for all airports is \$530,036,237.

TABLE 6: TASP COST ESTIMATES

Airport Details			Projects Cost Estimate		
Airport Name	Location	FAA ID	Maintenance	Expansion	Total
<b>Commercial Service Airports</b>					
<b>McKellar-Sipes Regional Airport</b>	Jackson	MKL	\$30,762,221	\$3,380,200	\$34,142,421
<b>Memphis International Airport</b>	Memphis	MEM	\$349,161,436	\$7,010,960	\$356,172,396
<b>General Aviation Airports</b>					
<b>William L. Whitehurst Field</b>	Bolivar	M08	\$5,619,262	\$72,660	\$561,922
<b>Benton County Airport</b>	Camden	OM4	\$4,429,096	\$65,860	\$4,494,956
<b>Covington Municipal Airport</b>	Covington	M04	\$3,248,610	\$126,660	\$3,375,270
<b>Dyersburg Regional Airport</b>	Dyersburg	DYR	\$7,350,540	\$2,779,603	\$10,130,143
<b>Arnold Field</b>	Halls	M31	\$13,178,538	\$2,929,139	\$16,107,677
<b>Humboldt Municipal Airport</b>	Humboldt	M53	\$6,507,367	\$7,013,860	\$13,521,227
<b>Carroll County Airport</b>	Huntington	HZD	\$5,796,637	\$2,819,060	\$8,615,697
<b>Beech River Regional Airport</b>	Lexington-Parsons	PVE	\$1,435,568	\$0	\$1,435,568
<b>General Dewitt Spain Airport</b>	Memphis	M01	\$7,354,560	\$8,500,000	\$15,854,560
<b>Charles W. Baker Airport</b>	Millington	2M8	\$8,196,514	\$33,460	\$8,229,974
<b>Millington-Memphis Airport</b>	Millington	NQA	\$17,252,630	\$5,972,500	\$23,225,130
<b>Henry County Airport</b>	Paris	PHT	\$4,100,937	\$1,217,790	\$5,318,727
<b>Savannah-Hardin County Airport</b>	Savannah	SNH	\$1,648,456	\$1,480,000	\$3,128,456
<b>Robert Sibley Airport</b>	Selmer	SZY	\$3,081,419	\$6,221,860	\$9,303,279
<b>Fayette County Airport</b>	Somerville	FYE	\$1,338,121	\$0	\$1,338,121
<b>Reelfoot Lake Airpark</b>	Tiptonville	OM2	\$4,425,321	\$1,444,973	\$5,870,294
<b>Gibson County Airport</b>	Trenton	TGC	\$3,640,340	\$900,010	\$4,540,350
<b>Everett-Stewart Regional Airport</b>	Union City	UCY	\$4,670,069	\$0	\$4,670,069

# PLANNING RECOMMENDATIONS

## PLANNING RECOMMENDATIONS AT THE LOCAL LEVEL:

1. Incorporate airport facilities into all land use, transportation, economic development, and other relevant planning efforts.
2. Work with state and regional partners to identify funding sources for critical capital improvements – particularly those needed to accommodate “business aircraft.”
3. Coordinate with airport authority or management team to develop or update ALPs or airport master plans with required FAA components.

## PLANNING RECOMMENDATIONS AT THE STATE LEVEL:

1. Continue to implement the policy recommendations from the *Tennessee Aviation System Plan (TASP)*.
2. Coordinate with partner state agencies to align funding programs and prioritization processes with state economic development goals.

# TRADITIONALLY-UNDERSERVED POPULATIONS

It is well established that transportation facilities, services, and conditions impact people and communities differently. Traditionally underserved populations, including communities that are predominately low-income and/or minority, benefit when transportation systems are balanced across modes and offer more transportation choices.

It is important to recognize that transportation enhancements, even those that are clearly beneficial to a wide range of stakeholders, can also have adverse impacts on communities which bear a disproportionate portion of the impact or that receive a disproportionately low amount of benefit. Considering this early in planning processes and taking the necessary steps to meaningfully engage *all* stakeholders will help ensure that future growth in the region occurs in an equitable manner.

To this end, West Tennessee Planning intends to proactively identify traditionally-underserved populations in the communities for which services are provided. Effectively reaching out to and engaging with these populations will be a key component of scope discussion and development. As necessary, strategic partners with credibility in the affected communities will be engaged and incorporated into the overall outreach and engagement strategy.

West Tennessee Planning reviewed the region against key factors of the Justice40 Initiative to A) better understand the distribution of vulnerable and traditionally-underserved populations within the region and B) to better align this understanding with federal grant and funding requirements.

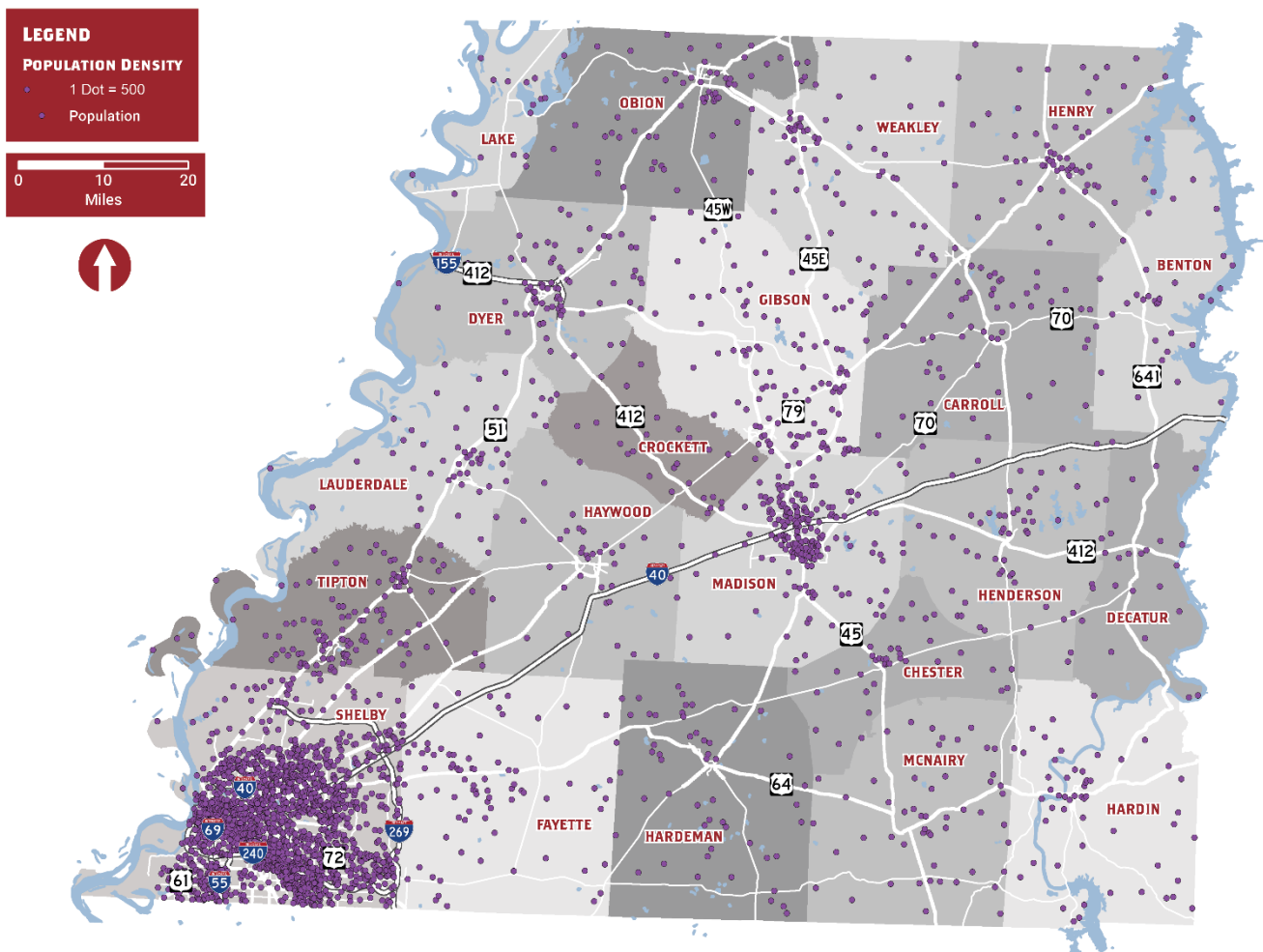
## POPULATION DENSITY

At a high level, population density in West Tennessee is concentrated in the region's two primary urban centers – Madison and Shelby Counties – as well as bedroom communities that support those urban centers and a few smaller activity centers, such as Dyersburg and Martin (**Figure 25**). Outside of these areas, population density is quite low – consistent with the traditionally rural, agricultural character of the region. Lower population densities tend to require less – or decentralized – infrastructure to support them and thus will likely require higher levels of growth management support and funding to support the population increases projected over the next ten years, particularly for rural areas in the southwest portion of the region.

### JUSTICE40 INITIATIVE

The Justice40 Initiative is a requirement of Executive Order 14008: *Tackling the Climate Crisis at Home and Abroad*. It represents a government effort to deliver at least 40 percent of the overall benefits of certain federal investments – including investments in clean energy and energy efficiency; clean transit; affordable and sustainable housing; training and workforce development; the remediation and reduction of legacy pollutants; and the development of critical clean water and wastewater infrastructure – to flow to disadvantaged communities.

FIGURE 25: POPULATION DENSITY

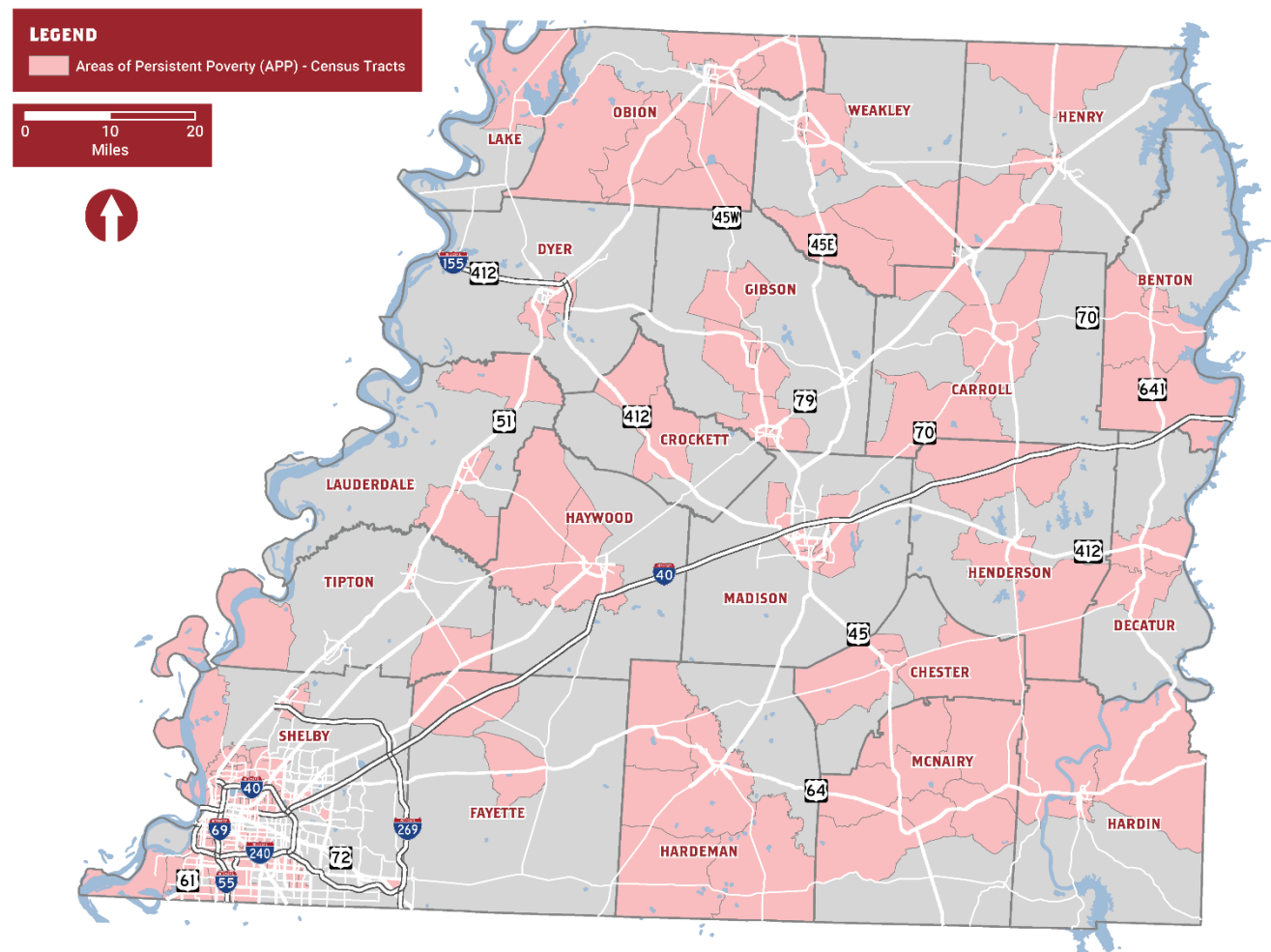


## AREAS OF PERSISTENT POVERTY AND HISTORICALLY-DISADVANTAGED COMMUNITIES

The Justice40 Initiative emphasizes the need to ensure equitable infrastructure investments to communities experiencing structural disadvantages, such as persistent poverty and a history of transportation, health, environmental, economic, resilience, and equity disadvantage. Identifying these communities early as part of the regional needs assessment establishes a framework for improved outreach, engagement, and – ultimately – outcomes for affected residents.

West Tennessee is home to numerous census tracts classified as Areas of Persistent Poverty (APPs). A Census Tract is classified as an APP if the tract has a poverty rate of at least 20 percent as measured by the 2014-2018 5-year data series available from the American Community Survey (ACS) of the Bureau of the Census. As shown in **Figure 26**, APPs are present in all 21 counties and are located in both urban and rural parts of the region.

FIGURE 26: AREAS OF PERSISTENT POVERTY



In addition to APPs, Justice40 also places emphasis on historically-disadvantaged communities (HDCs). The [Climate and Economic Justice Screening Tool \(CEJST\)](#) identifies approximately 27,251 census tracts as disadvantaged. Generally, a census tract that meets the threshold for: 1) environmental, climate, or other burdens, and 2) an associated socio-economic burden will be marked as disadvantaged. CEJST considers indicators in the following eight *categories* of burden:

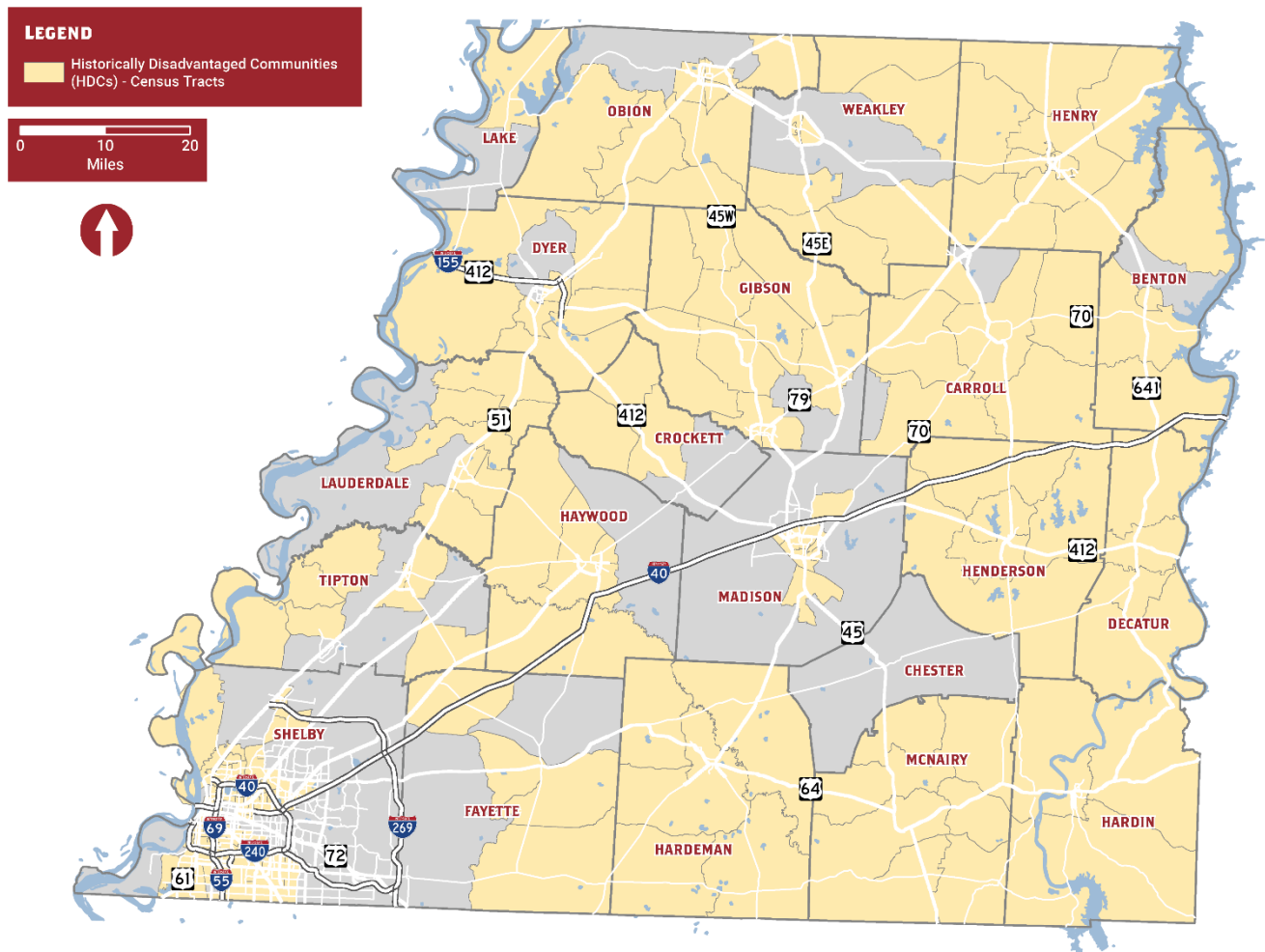
1. climate change,
2. energy,
3. health,
4. housing,
5. legacy pollution,
6. transportation,
7. water and wastewater, and
8. workforce development.



These indicators are then used to calculate a score which indicates the overall disadvantage of a community.

Similar to the geographic distribution of APPs, HDCs are present throughout the region. As shown in **Figure 27**, the entirety of six counties – Decatur, Hardin, Hardeman, Henderson, Henry, and McNairy – are considered historically-disadvantaged. The CEJST provides additional insight on the specific factors within each of the eight subject categories that contribute to each tract’s HDC status.

FIGURE 27: HISTORICALLY-DISADVANTAGED COMMUNITIES



Both APPs and HDCs receive special focus and consideration under an array of grant programs administered as part of the provisions of the Bipartisan Infrastructure Law (BIL).

## COMMUNITIES WITH TRANSPORTATION BARRIERS

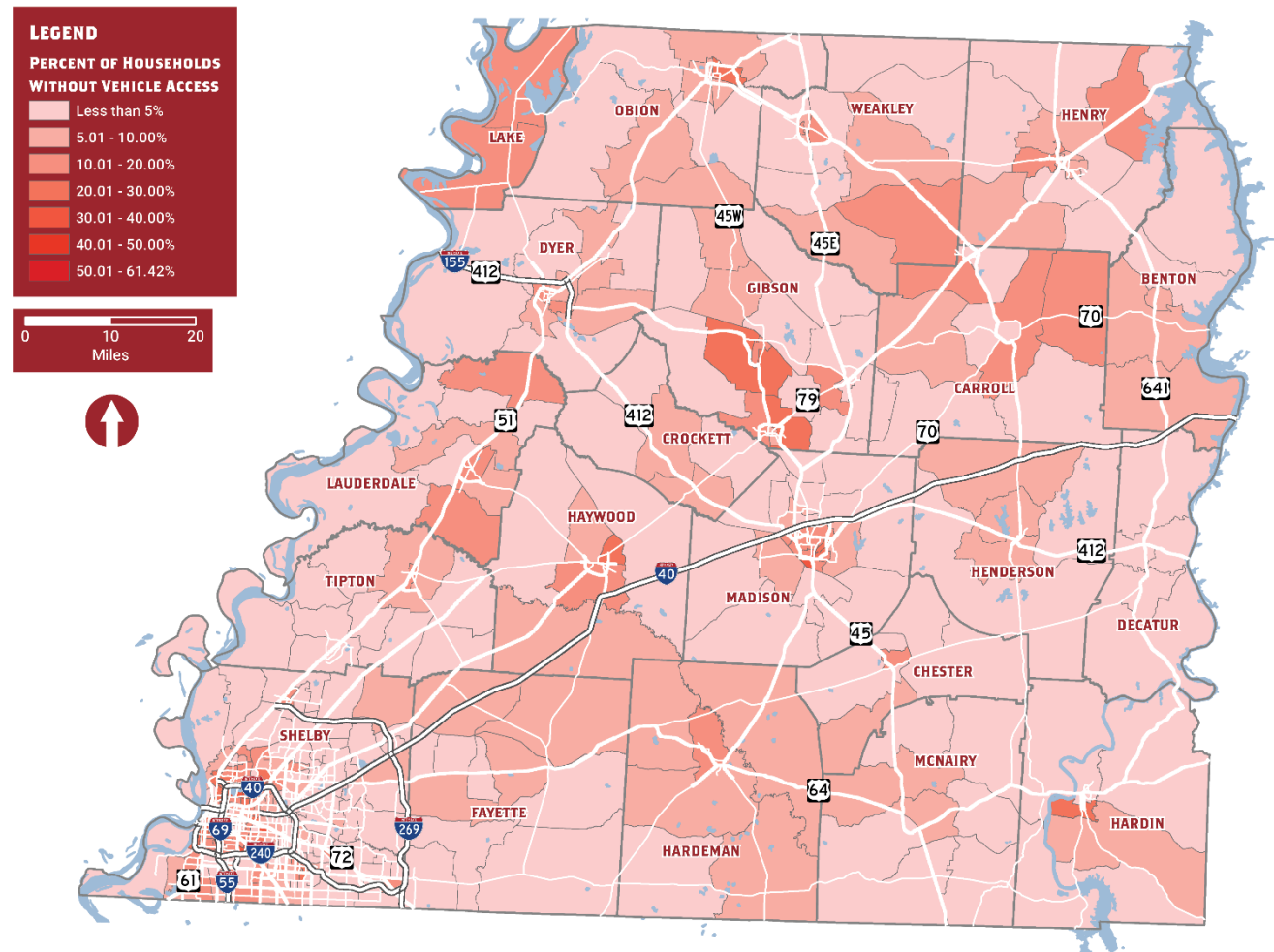
Some indicators can provide insights on populations or communities that deal with barriers related to transportation access or cost. Communities experiencing barriers and burdens to travel are those which are unable to regularly and reliably meet day-to-day needs as a result of access to transportation. While not all lower-

income and historically disadvantaged communities face transportation barriers and insecurity, many do, contributing to persistent poverty.

Census data was reviewed to examine the distribution and concentration of households in the region without access to a private automobile. Lack of vehicle access may limit the ability of household members to access basic services – including healthcare – as well as access to a variety of job opportunities. In urban areas, fixed route transit access can mitigate potential negative impacts of limited mobility by providing a reliable and accessible means of transportation. However, in rural portions of the region, transit access is much more limited and may require advanced arrangements and be limited to specific user groups or trip purposes. Furthermore, general development patterns in rural areas limits the ability of residents to access jobs and services through active transportation modes.

As shown in **Figure 28**, households without vehicle access are largely concentrated in more urbanized portions of the region, including the two major population centers as well as smaller regional centers. As demand for employees increases in the region in the coming years, residents without reliable vehicle access will have difficulty accessing the opportunities absent other transportation options.

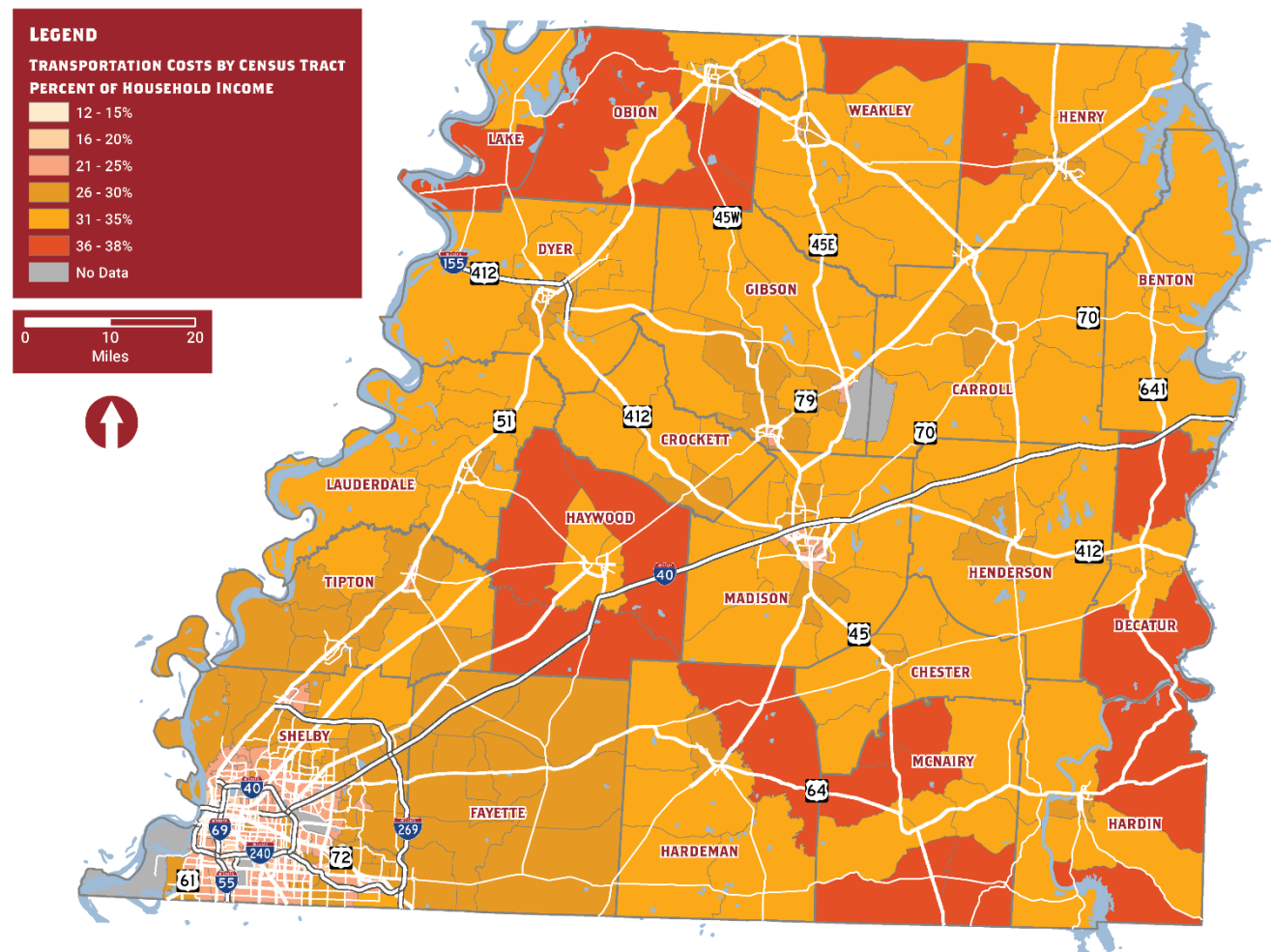
FIGURE 28: PERCENT OF HOUSEHOLDS WITHOUT VEHICLE ACCESS



According to the Bureau of Transportation Statistics (BTS), in 2022, transportation was the second largest household expenditure behind housing, accounting for 15 percent of average household spending. The cost burden of transportation fell hardest on households in the lowest fifth quintile by household spending. Furthermore, households in rural areas have a higher transportation cost burden than households in urban areas, largely due to greater daily vehicle and person miles traveled in rural areas than in urban areas, despite nearly identical daily vehicle and person trips.

In keeping with these national trends, transportation cost burden is most prevalent in some of the most rural portions of the region. As shown in **Figure 29**, large portions of Decatur, Hardin, Haywood, Lake, and Obion Counties have an average household transportation cost in excess of 35 percent of household income.

FIGURE 29: HOUSEHOLD TRANSPORTATION COST



Taken together, household vehicle access and transportation cost underscore the need for reliable and accessible transportation options, particularly in smaller cities and towns throughout the region.

# PLANNING RECOMMENDATIONS

## PLANNING RECOMMENDATIONS AT THE LOCAL LEVEL:

1. Include appropriate public and stakeholder outreach and engagement with all local planning activities – with special emphasis on populations that may be harder to reach than the general public.
2. Consider developing a local Public Participation Plan (PPP) to match locally effective engagement methods, strategies, and partners with affected communities.
3. Incorporate active transportation analyses and recommendations in all local transportation planning efforts.
4. Consider multimodal access to existing and emerging employment centers to ensure access for individuals who may not wish or be able to drive an automobile.
5. Identify project recommendations located in areas given special consideration under existing federal grant programs.

## PLANNING RECOMMENDATIONS AT THE STATE LEVEL:

1. Include appropriate public and stakeholder outreach and engagement with all regional planning activities – with special emphasis on populations that may be harder to reach than the general public.
2. Continue to coordinate with local officials and stakeholders to identify traditionally-underserved populations and the most effective outreach and engagement methods to reach them.

# CONCLUSION

West Tennessee is a predominantly rural, agricultural region that has historically lagged behind the State of Tennessee as a whole in population and employment growth. With BlueOval City set to begin operations in 2024 – as well as associated indirect and induced job growth – the region is poised to experience significant population and employment growth in the coming years. This growth is likely to disrupt existing regional mobility patterns, creating opportunities and challenges for all aspects of the region’s multimodal transportation system.

Some of the key issues and areas of concern going forward include:

- **Land use patterns:** It is assumed that some of the projected growth in the region will necessitate greenfield development of existing open space or agricultural land that may be poorly served by the existing roadway network. Internal mobility and accessibility, such as active transportation facilities, should be considered as new development occurs.
- **Lagging transportation infrastructure:** Formerly rural portions of the region will emerge as major regional employment centers. Significant increases on congestion – and associated safety and user cost issues – could be an impediment to future economic growth and quality of life if not addressed properly.
- **Lack of transportation options:** Under the status quo, a majority of residents and businesses outside of major urban centers lack access to transportation options, including regional and local transit, walking, and bicycling. As new activity centers emerge, so does the potential for regional and local transit possibilities and new places where walking and cycling are safe and convenient.
- **Increased freight demand:** The region already sustains high levels of heavy truck traffic, particularly on its interstate system. New industrial centers will create new freight patterns that may include roadways not currently under state jurisdiction, creating challenges for county road departments for improvement and maintenance costs.
- **Transportation equity:** As a predominantly rural portion of the state, West Tennessee is home to many traditionally-underserved communities. Transportation enhancements, even those that are clearly beneficial to a wide range of stakeholders, can also have adverse impacts on communities which bear a disproportionate portion of the impact or that receive a disproportionately low amount of benefit. Considering this early in planning processes and taking the necessary steps to meaningfully engage *all* stakeholders will help ensure that future growth in the region occurs in an equitable manner.

In addressing these challenges at multiple geographic scales going forward, this document provides concise, data-driven planning recommendations that should be considered by the West Tennessee Planning team as individual services are executed. By consistently cross-referencing planning efforts – even those not explicitly transportation-focused – against the best practices established here, opportunities for improved transportation planning and interagency coordination can be identified and capitalized upon.

# APPENDIX

## WEST TN PROJECT LIST

Project Name	Route and Project Limits	Improvement (Project Description)	Cost	Year	Funding Type	TIP # or STIP #	County
<b>Benton County SR-1 (US-70) Camden Bypass (IA)</b>	Camden Bypass to Tennessee River (IA)	Widen from 2 Lane to Five Lane Typical Section	\$93,720,500	2024	ACSTBG	23002001006	Benton
<b>Benton County I-40 Widening (IA)</b>	From approximately 3.0 miles East of SR-69 (US-641) to Near SR-191 (IA)~	Widen from 4 to 6 lanes	\$83,500,000	2026	NHPP	23031040009	Benton
<b>Benton - Decatur County I-40 Widening (IA)</b>	From approximately 1.0 mile West of SR-69 (US-641) in Decatur County to approximately 3.0 miles east of SR-69 (US-641) (IA)~	Widen from 4 to 6 lanes	\$83,500,000	2026	NHPP	23031040008	Benton, Decatur
<b>Ferry Service across the Tennessee River, SR-69A to SR-147 (IA)</b>	New Ferry Service across the Tennessee River, SR-69A to SR-147 (IA)	Recurring Operations	\$3,200,000	2023 - 2026	STA	23002147010	Benton, Houston
<b>SR-76</b>	From East of SR-77 to West of Cutlip Lane (IA)	Widen 2-In to 4-In with portions on new alignment	\$50,264,000	2024	NHPP	23092076102	Carroll
<b>Carroll County SR-76 (US-79) Widening (IA)</b>	From West of Cutlip Lane to West of Sydnor Rd/Winston Rd (IA)~	Widen 2-In to 4-In with portions on new alignment	\$16,256,000	2026	NHPP	23092076015	Carroll



Project Name	Route and Project Limits	Improvement (Project Description)	Cost	Year	Funding Type	TIP # or STIP #	County
<b>Chester County SR-5 (US-45) West Main Street Widening (IA)~</b>	(West Main Street), From SR-5 (US-45) to Church Avenue (IA)~	Widen	\$7,800,000	2026	STBG	23122365016	Chester
<b>Dyersburg Welcome Center Renovation (IA)</b>	Dyersburg Welcome Center Renovation (IA)	Rest Area Improvements	\$3,400,000	2023 - 2024	NHPP	23231155032	Dyer
<b>Dyer County SR-211 Widening (IA)~</b>	From near SR-20(US 412) in Dyersburg to near Church Grove Road in Newbern (IA)~	Widen to 3-ln, with intersection improvements at Old Jones Rd. (L.M. 6.48) and Church Grove Rd. (L.M. 6.62)	\$21,500,000	2026	STBG	23232211031	Dyer
<b>Project Blue Oval</b>	Free flow Interstate access to proposed site on new routes connecting I-40 to State Routes 1, 59 and 222 (Project Blue Oval)	4-Lane from SR-194 to SR-222, 2-Lane from SR-468 to SR-1, 4-Lane from I-40 to SR-468 new I-40 interchange (Exit 39), 2-Lane from I-40 to SR-59 (CMGC)	\$235,100,000	2023	STA	23242194100	Fayette, Haywood, Tipton
<b>Hardeman County SR-458 (US-64) Bolivar Bypass (IA)~ Section 1</b>	From SR-15 (US-64) West of Bolivar to 0.2 Mile East of SR-18 (EPD) (IA)~	Construct 2-lanes on a 4-lane right-of-way on new location	\$24,890,000	2026	NHPP	23002458040	Hardeman

Project Name	Route and Project Limits	Improvement (Project Description)	Cost	Year	Funding Type	TIP # or STIP #	County
<b>Hardeman County SR-458 (US-64) Bolivar Bypass (IA)~ Section 2</b>	[Bolivar Bypass & SR-15 (US-64)], From East of SR-18 to West of Old Middleton Road (IA)~	Construct 2 lanes on a 4-lane right-of-way on new location from near SR 18 to near SR 15 (US-64), then widen SR 15 (US-64) from 2 lanes to 5 lanes to near Middleton Road east of Bolivar.	\$29,676,000	2026	NHPP	23002458041	Hardeman
<b>Haywood SR-19 Widening (IA)~ Section 2</b>	From Near Lauderdale County Line To East of Binford Lane (IA)~	widen existing to a super 2-lane (12' TRAFFIC LANES WITH 10 FOOT SHOULDERS AND IMPROVE SIGHT DISTANCES)	\$8,700,000	2026	STBG	23002019045	Haywood
<b>Haywood County SR-19 Widening (IA)~ Section 3</b>	From East of Binford Lane To East of Bobby Mann Road (IA)~	widen existing to a super 2-lane (12' TRAFFIC LANES WITH 10 FOOT SHOULDERS AND IMPROVE SIGHT DISTANCES)	\$8,900,000	2026	STBG	23002019046	Haywood
<b>Haywood County SR-19 (IA)~ Section 4</b>	From East of Bobby Mann Road To East of SR-87 (IA)~	widen existing to a super 2-lane	\$8,900,000	2026	STBG	23002019044	Haywood
<b>Henry County SR-54 (US-641) Widening (IA) Section 2</b>	From Near Smith Road to Near Howard Road (North of Puryear) (IA)~	Construct 3-lanes including one segment of passing lanes on 5-lane ROW.	\$103,300,000	2026	NHPP	23402054048	Henry
<b>Henry County SR-54 Widening (IA) Section 5</b>	From Near Howard Road to the Kentucky State Line (IA)	Construct a 3-lane on 5-lane ROW on new alignment	\$31,700,000	2023 - 2024	NHPP	23402054047	Henry

Project Name	Route and Project Limits	Improvement (Project Description)	Cost	Year	Funding Type	TIP # or STIP #	County
<b>Lake - Obion County SR-21 Widening (IA)~</b>	From SR-78 to SR-22 (IA)~	Widen Existing 2-Lane to 2 12-Foot Travel Lanes, 8-Foot Shoulders Compatible with Pedestrian and Bicycle use, and Spot Improvement at Intersections	\$14,500,000	2026	STBG	23002021051	Lake, Obion
<b>Lauderdale County SR-19 Reconstruction (IA) Section 1</b>	From East of Eastland Avenue to Haywood County Line (***) (IA)	Reconstruct existing 2-In to a super 2-In (12 foot lanes with 10 foot shoulders and improve sight distances)	\$12,600,000	2024	STBG	23002019052	Lauderdale
<b>Obion County I-69 Construction (IA)</b>	From Rogers Road in Kentucky to SR-3 (US-45W & US-51) in Obion County (IA)	Construct New Interstate.	\$60,300,000	2024 - 2025	NHPP	23661069066	Obion
<b>Proposed Interstate 69</b>	From South of SR-21(Troy-Rives Road) to South of SR-3(US-51) (IA)	Proposed Interstate 69	\$90,300,000	2025	NHPP	23661069104	Obion

Project Name	Route and Project Limits	Improvement (Project Description)	Cost	Year	Funding Type	TIP # or STIP #	County
<b>West Tennessee SMARTWAY Expansion</b>	From the Shelby/Fayette County Line to near I-840 in Dickson County	Expand the SMARTWAY system by installing fiber optic communications and deploying its devices, including CCTV cameras, DMS, road weather sensors, and connected vehicle roadside units. The ITS devices include CCTV Cameras, DMSs, road weather sensors, and connected vehicle roadside units.	\$32,000,000	2024 - 2025	ACINFR A, ACNHPP	23241040033	Benton, Carroll, Decatur, Dickson, Fayette, Haywood, Henderson, Hickman, Humphrey, Madison
<b>I-40</b>	SR-177 (Germantown Road) to 1.0 mile East of Canada Road (IA)	Widen from 6 to 8 lanes	\$54,000,000	2025	NHPP	NHS-2006-10-A	Shelby
<b>SR-1 (Summer Avenue)</b>	Near I-40 to 0.1 mile north of sycamore view road (IA)	Widen existing 4 and 5 lane shoulder section to 7 lane urban section with new bridge over the wolf river	\$52,200,000	2023	NHPP	TN-NHPP-2020-01	Shelby
<b>SR-14</b>	(Austin Pea Hwy.) East of Kerrville-Rosemark Road to Tipton County Line (IA)	Widen from 2-lane to 4-lane divided typical section	\$69,100,000	2023	STBG-S	TN-STBG-2023-01	Shelby

Project Name	Route and Project Limits	Improvement (Project Description)	Cost	Year	Funding Type	TIP # or STIP #	County
<b>SR-385</b>	MM 7 to near I-269 (MM 15) (IA)	ITS expansion to include the installation of a power and communication network and ITS devices such as CCTV cameras, DMS, and RDS	\$5,000,000	2023	NHPP	TN-NHPP-2019-02	Shelby
<b>I-269</b>	I-40 Southward to the MS State Line and travel time sign on I-40 near MM 26.2 east of I-269 (IA)	ITS expansion including CCTVs, Radar Detection Systems, Environmental Sensor Systems, and DMS, west bound I-40 Travel Time Sign, and supporting ITS infrastructure	\$11,100,000	2023	NHPP	TN-STBG-2020-01	Shelby
<b>I-40 Interchange</b>	I-40 interchange at Christmasville road in the City of Jackson	Improvements to the I-40 interchange at Christmasville Road in the city of Jackson	\$28,400,000	2023 - 2025	HPP, STBG-U	I-40-Interchange	Madison
<b>ITS Expansion along I-40 in the Jackson Area (IA)</b>	I-40 in the Jackson Area (IA)	ITS Expansion	\$4,900,000	2023	NHPP	NHPP-3.03	Madison
<b>SR-18 (Bolivar Highway)</b>	From North of Jared Lane to North of Medon-Malesus Road (IA)	widen existing to a super 2-lane	\$47,100,000	2024	STBG	NHPP-3.05b	Hardeman , Madison



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