2025 Tennessee Statewide Freight Bottleneck Study

Transportation Performance Measures Reporting for MAP-21 Compliance

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Overview

The purpose of this 2025 Tennessee Statewide Freight Bottleneck Study (SFBS) is to identify freight bottlenecks along the Interstate Highway System in Tennessee and develop a ranked list of the most severe locations. This process is required every four years per the Moving Ahead for Progress in the 21st Century Act (MAP-21), a federal law that identifies specific requirements for monitoring and reporting transportation performance measures.

The Tennessee Department of Transportation (TDOT) last prepared a SFBS covering 2021 conditions, the *Tennessee Interstate Freight Bottleneck Analysis* dated November 4, 2022. This current assessment is based on system performance in 2024, the most recent full year for which data is available.

For the purposes of this study, a “freight bottleneck” is considered a location where there are issues with one or both of the following measures:

- **Recurring Congestion**, as measured by vehicle-hours of delay per mile, which quantifies the magnitude of truck delay along that segment
- **Segment Reliability**, measured by a ratio known as the “truck travel time reliability” (TTTR) index, which expresses how much longer travel times are during worst-case, usually non-recurring, congestion events

Segments were ranked based on their performance in terms of both of these factors, combined through a hybrid standardized score.

The analysis process, documented in the Analysis Methodology section, identified 25 distinct bottleneck locations across the state. These locations, listed in **Table 1** below and mapped in **Figures 1A and 1B**, were chosen by first identifying the worst-performing individual segments in the state and then identifying clusters of segments that together function as a single bottleneck.

A full discussion of these segments, contributing factors, and improvement efforts planned or programmed that may address the identified bottleneck locations is included in the Results section.

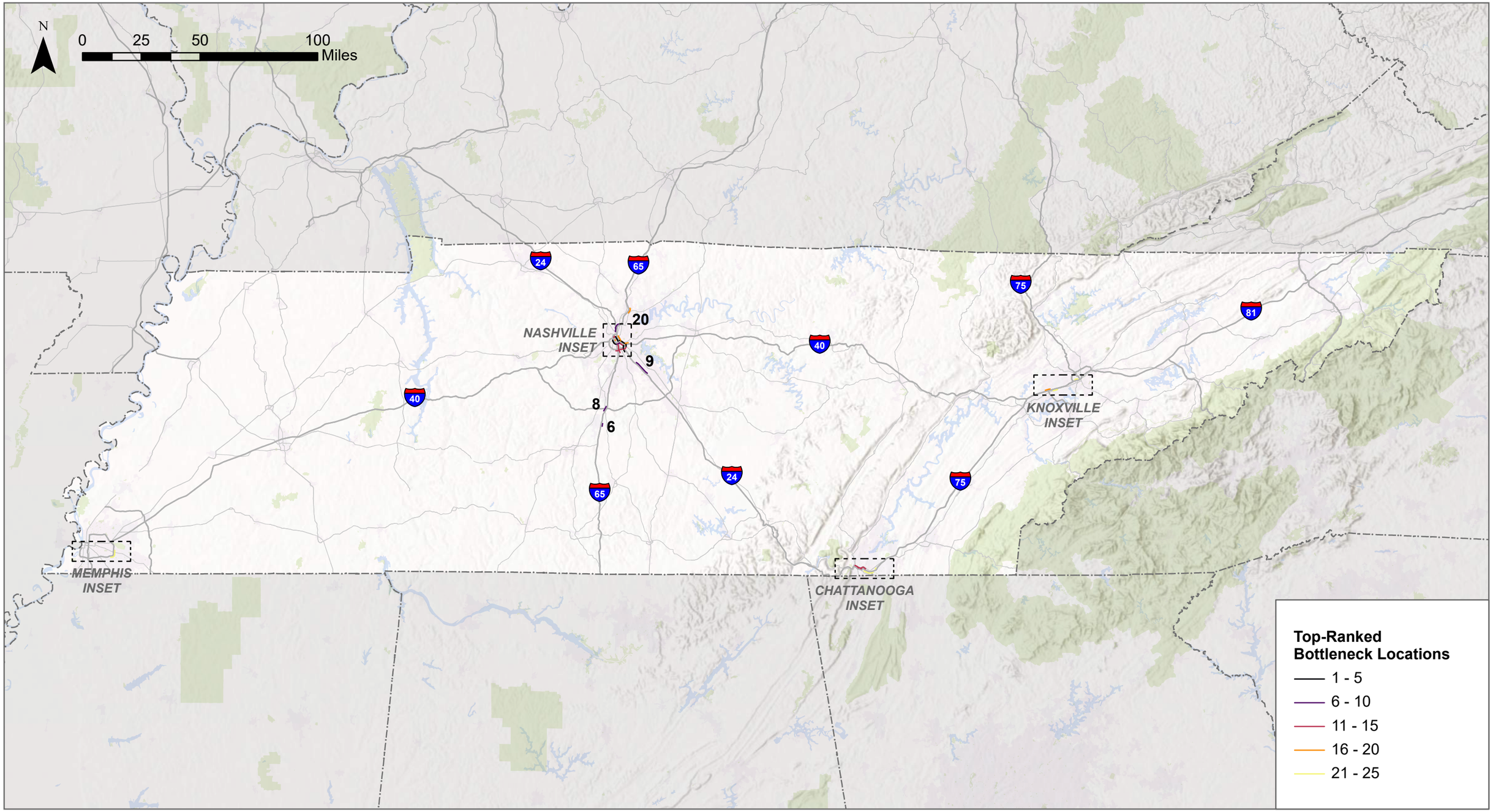
Table 1. Top Truck Bottleneck Locations

Location Details					Length	Traffic Volume		Performance Metrics		
Rank	Route	Extent (Mile Marker)	County	Segment Location		One-Way AADT	One-Way AADTT	Truck Delay (VHD/mi per day)	Truck Reliability (Highest TTTR)	Bottleneck Score (normal-ized)
1.	I-24 EB	46.5 to 48.4	Davidson	From Spring St (Exit 85) to I-24/I-65 Interchange (western)	1.93 mi	72,105	22,353	141.45	8.59	98.6
2.	I-24/I-40 WB	212.8 to 211.0	Davidson	From I-24/I-40 Interchange (eastern) to I-24/I-40 Interchange (western)	1.88 mi	97,773	30,310	340.93	4.53	98.5
3.	I-24 EB	51.4 to 53.8	Davidson	From I-40 Split to Briley Pkwy (SR 155, Exit 54)	2.49 mi	81,638	25,236	290.48	5.51	98.1
4.	I-40/I-65 EB/SB	208.5 to 209.8	Davidson	From Charlotte Ave (US 70, Exit 209) to I-40/I-65 Interchange (southern)	1.35 mi	70,729	21,219	78.28	8.80	89.1
5.	I-24 WB	52.2 to 51.4	Davidson	From I-440 Merge to I-40 Merge	0.83 mi	74,414	23,069	186.57	5.70	81.1
6.	I-65 NB	52.5 to 53.5	Maury/Will.	Interchange with Saturn Pkwy (SR 396, Exit 53)	1.00 mi	30,013	9,303	21.42	9.04	80.9
7.	I-24/I-65 EB/SB	89.7 to 87.1	Davidson	From I-24/I-65 Interchange (northern) to Trinity Ln (US 431, Exit 87)	3.09 mi	83,236	23,982	148.64	6.16	78.3
8.	I-65 SB	59.7 to 57.8	Williamson	Interchange with I-840 (Exit 59)	1.90 mi	49,374	15,306	121.33	6.23	74.0
9.	I-24 WB	64.6 to 59.3	Ruth./David.	From Waldron Rd (Exit 64) to Bell Rd (SR 254, Exit 59)	5.33 mi	77,630	23,288	108.39	6.41	73.3
10.	I-40 EB	209.8 to 211.0	Davidson	From I-24/I-65 Interchange (southern) to I-24/I-40 Interchange (western)	1.17 mi	70,348	21,314	131.36	5.71	71.2
11.	I-440 EB	4.5 to 7.8	Davidson	From I-65 Interchange (Exit 5) to I-24 Merge	3.35 mi	61,874	19,181	76.58	6.50	68.3
12.	I-24 WB	183.1 to 178.8	Hamilton	From Germantown Rd to Broad St	4.27 mi	61,662	19,116	19.84	7.53	67.3
13.	I-65 NB	78.8 to 82.2	Davidson	From Armory Dr (Exit 79) to I-40/I-65 Interchange (southern)	3.36 mi	85,707	26,569	68.72	6.25	64.7
14.	I-65 NB	84.5 to 85.6	Davidson	From I-40/I-65 Interchange (northern) to Rosa Parks Blvd (US 41A, Exit 85)	1.13 mi	57,882	17,944	129.73	4.91	63.8
15.	I-24/I-40 EB	211.0 to 212.8	Davidson	From I-24/I-40 Interchange (western) to I-24/I-40 Interchange (eastern)	1.90 mi	97,773	30,310	178.12	3.71	61.9
16.	I-40 WB	214.4 to 212.8	Davidson	From Briley Pkwy (SR 155, Exit 215) to I-24 Merge	1.53 mi	76,137	23,235	168.78	3.70	60.1
17.	I-40/I-65 WB/NB	208.9 to 208.5	Davidson	From Church St to Charlotte Ave (US 70, Exit 209)	0.39 mi	55,302	17,143	27.23	6.53	59.7
18.	I-40/I-75 WB/SB	376.7 to 375.0	Knox	Interchange with I-140/Pellissippi Pkwy (Exit 376)	1.72 mi	98,351	30,489	35.73	6.29	59.1
19.	I-24 WB	48.4 to 46.5	Davidson	From I-24/I-40 Interchange (western) to Spring St (Exit 85)	1.95 mi	72,105	22,353	122.02	4.53	59.1
20.	I-65 NB	95.2 to 96.7	Davidson	From SR 386 Split to Long Hollow Pike (SR 174, Exit 97)	1.45 mi	52,185	16,017	99.03	4.80	57.3
21.	I-24 EB	183.1 to 186.0	Hamilton	From Germantown Rd to I-75 Merge	2.92 mi	61,437	19,046	75.67	5.06	55.4
22.	I-240 EB	17.5 to 14.8	Shelby	Interchanges with SR 385 and Poplar Ave (US 72)	2.72 mi	87,673	26,993	60.44	5.20	53.9
23.	I-75 SB	3.2 to 3.7	Hamilton	Interchange with Brainerd Rd (SR 320, Exit 3)	0.51 mi	59,995	17,997	140.51	3.27	51.2
24.	I-40 WB	387.0 to 386.0	Knox	Interchange with Alcoa Hwy (SR 115, Exit 386)	1.02 mi	72,249	21,674	36.23	5.03	48.0
25.	I-40/I-75 EB/NB	377.6 to 379.1	Knox	Interchanges with Cedar Bluff Rd, Bridgewater Rd	1.53 mi	103,636	32,127	134.92	2.79	45.9

Top 25 Truck Bottleneck Locations, 2024

2025 Tennessee Statewide Freight Bottleneck Study | Figure 1A: Top Bottleneck Locations, Statewide

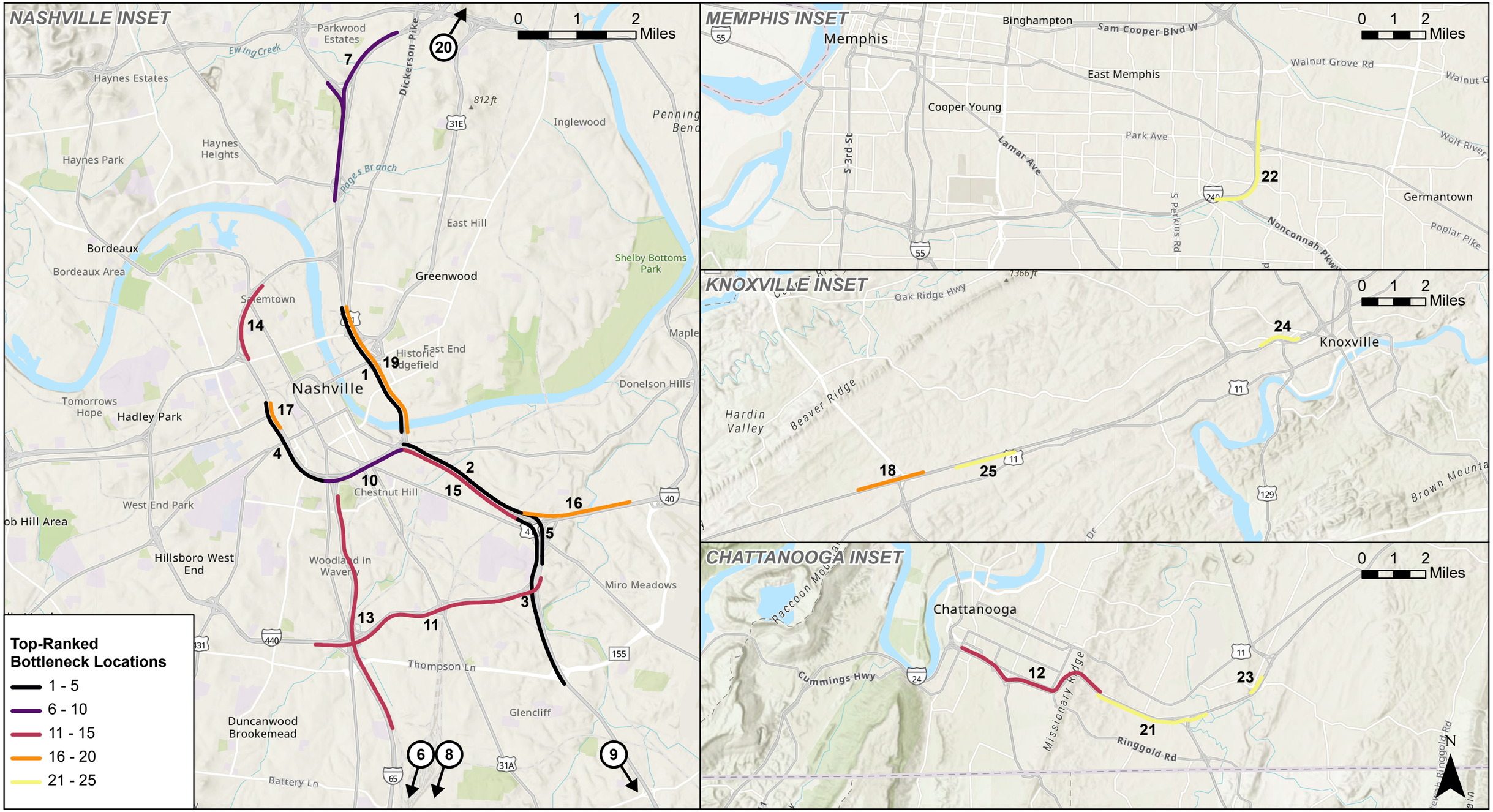
TN TDOT Department of Transportation



Top 25 Truck Bottleneck Locations, 2024

2025 Tennessee Statewide Freight Bottleneck Study | Figure 1B: Top Bottleneck Locations, Inset Maps

TN TDOT Department of Transportation



Analysis Methodology

The analysis approach used in this assessment is based on methodology outlined in the *Truck Freight Bottleneck Reporting Guidebook* (FHWA, 2018), with specific performance metrics and screening thresholds selected by the TDOT project team. The general methodology and assumptions are as follows.

Source Data

The primary data source for this assessment was the National Performance Management Research Data Set (NPMRDS), a resource containing speed and travel time data for freeway and arterial roadways across the National Highway System, which includes interstates. The Federal Highway Administration (FHWA) provides free NPMRDS access to state DOTs and other agencies in part to assist those agencies with fulfilling MAP-21 requirements, such as preparing a SFBS.

Specific to this effort, the NPMRDS provides 50th and 95th percentile travel times as well as calculated TTTR values for AM, mid-day, PM, overnight, and weekend time periods. The NPMRDS also provides a "reference speed" for each segment, representing the free-flow travel speed during uncongested conditions, and average annual daily traffic (AADT) and average annual daily truck traffic (AADTT) count data.

NPMRDS data was obtained for all 1,782 segments that comprise the Interstate Highway System in Tennessee covering calendar year 2024 conditions, the most recent full year for which data was available at the time the bottleneck rankings were finalized. Specifically, this data came from the NPMRDS PM3 Report, based on the Third Performance Management Rule (PM3) of FHWA's Transportation Performance Management program.

This data was joined with segment inventory information from TDOT's Enhanced Tennessee Roadway Information Management System (E-TRIMS) regarding segment length, number of lanes, and geometric characteristics such as grade and curvature which will factor into the subsequent indicator analysis portion of the assessment.

Performance Metrics

Several performance metrics were considered for this assessment, with the project team eventually selecting two distinct metrics that could indicate the existence of a bottleneck. Discussion of the two selected metrics is provided below.

Recurring Congestion: Vehicle-Hours of Delay per Mile

The first metric included is a measure of truck delay, which quantifies the amount of added travel time experienced by the trucking population, on average, compared to free-flowing conditions. This value represents the magnitude of delay for a given segment and inherently favors more heavily traveled segments in and around the state's urban areas, which is justified since it captures impacts that affect the largest amount of users.

The specific delay measure used here, expressed in terms of vehicle-hours of delay (VHD) for a segment, is the average delay per truck multiplied by the volume of truck traffic using that

segment over a given time period, summed across the AM, mid-day, PM, overnight, and weekend periods that comprise the NPMRDS dataset for a typical day:

$$\text{VHD, typical day} = \sum_{\substack{\text{all periods,}\\ \text{weighted by}\\ \text{duration}}} \left[\begin{pmatrix}\text{average delay}\\ \text{per truck}\end{pmatrix} \times \begin{pmatrix}\text{truck volume}\\ \text{of segment}\end{pmatrix}\right]$$

where: $\text{average delay per truck} = \left(\text{truck travel time}_{50^{\text{th}}\ \text{percentile}}\right) - \left(\text{truck travel time}_{\text{free-flow}}\right)$

and: $\text{truck travel time}_{\text{free-flow}} = \frac{\text{segment length}}{\text{NPMRDS reference speed}}$, with appropriate unit conversions

For this assessment, the VHD value is then normalized by the segment length in order to put segments of all lengths on equal footing; otherwise, longer segments would be favored in the analysis:

$$\text{VHD/mi, typical day} = \frac{\text{VHD}}{\text{segment length}}$$

Vehicle-hours of delay per mile (VHD/mi) per day results for truck traffic were calculated for all 1,782 NPMRDS segments comprising Tennessee's interstate system. **Figures 2A and 2B** in the Technical Attachments map the calculated VHD/mi per day for all segments statewide.

Segment Reliability: Truck Travel Time Reliability Index

While the overall magnitude of delay experienced by an average truck is important in identifying freight bottlenecks, it is also critical to consider the impact of more extreme congestion events. This assessment used a ratio called the Truck Travel Time Reliability (TTTR) Index to quantify the reliability – or more accurately, the unreliability – of each segment.

The TTTR for a given period is the ratio of the 95th percentile travel time for truck traffic to the median travel time:

$$\text{TTTR}_{\text{period}} = \frac{\text{truck travel time}_{95^{\text{th}}\ \text{percentile}}}{\text{truck travel time}_{50^{\text{th}}\ \text{percentile}}}$$

The NPMRDS provides TTTR values for AM, mid-day, PM, overnight, and weekend time periods. The maximum TTTR of these five periods is reported as the TTTR for a given segment, representing the least reliable condition for that segment over the course of the year.

For this assessment, the maximum TTTR value for a given segment occurred almost exclusively during one of the weekday periods. In practical terms, the 95th percentile travel time for a weekday peak period would occur on the twelfth worst weekday of the year, meaning the TTTR is the ratio showing how much longer truck travel would take during an extreme congestion event compared to an average day. In this way, TTTR is able to capture impacts from less frequent and potentially non-recurring events that could occur in either urban or rural contexts, such as construction activities, severe weather, crash/incident response, and more.

TTTR results were also calculated for all NPMRDS segments along Tennessee's interstate system. **Figures 3A and 3B** in the Technical Attachments map the calculated TTTR, reflecting the worst-case time period in the NPMRDS data, for all segments statewide.

Screening & Grouping

The next step was to identify the worst-performing segments and identify clusters of segments that together function as individual bottlenecks. To accomplish this, the VHD/mi and TTTR metrics were combined into a single hybrid score by calculating the standardized (z-score) value of each factor and summing those values with equal weight.

All segments were ranked using their hybrid standardized score and the top 150 ranked segments were plotted on a map. This number was selected both to result in approximately 25 grouped segments, a common threshold when identifying top freight bottlenecks for peer states, and also based on an inspection of the ranked data which found that score values flattened out significantly beyond the top 150.

Clusters were then identified from the plotted map by joining adjacent segments from the top 150 list. Where appropriate, additional segments from outside of but near the top 150 list were incorporated in order to merge closely spaced clusters.

The screening process resulted in a total of 25 bottleneck locations, which included 142 segments in total and 135 of the top 150 worst-performing segments. Looking at the individual performance metrics, the top 25 bottlenecks include 46 of the 50 worst-performing segments in VHD/mi and 44 of the top 50 segments in TTTR.

Prioritization of Bottleneck Locations

Next, all 25 bottleneck locations were analyzed to determine an overall ranking. This process began with the same calculations of VHD/mi, expanded to include all segments making up each location, and TTTR, which was simply the highest TTTR of the component segments. These values were again standardized and combined into a hybrid standardized score.

The resulting hybrid score was then normalized on a scale of 0 to 100 to determine a single "Bottleneck Score", the results of which are shown in **Table 1** in the Overview section. Rankings for the bottleneck locations based on this Bottleneck Score are also shown in **Table 1**, along with the component VHD/mi and TTTR values of each bottleneck location.

Potential Causal Factors

The final step in the bottleneck assessment was to perform an analysis of potentially correlated factors to identify roadway elements or field conditions that may contribute to the presence of a given bottleneck.

Indicator Analysis

The first set of factors to be considered are referred to as "indicators" in the FHWA literature. This section presents several potential indicators and the screening thresholds for each. Bottleneck locations where these factors may apply are listed in the Indicator Factors section of **Table 2**.

- *Volume-to-Capacity Ratio*
  Traffic congestion is a substantial source of vehicle delay and poor reliability. With all 25 identified bottlenecks located in generally urbanized areas, it is likely that congestion is a contributing factor to most, if not all, segments to some degree.

  For this indicator assessment, the volume-to-capacity ratio was calculated for critical segments within the 25 bottleneck locations to provide a rough metric of congestion. Segment traffic volumes were compared to a calculated carrying capacity for the roadway, based on the number of lanes and percentage of trucks present along the segment using the NCHRP 825 method for capacity. Bottleneck locations with an estimated peak hour volume-to-capacity ratio of greater than 0.97 are noted under the Capacity indicator in **Table 2**.

- *Crashes and Incident Response*
  In addition to the harm they cause to involved individuals and society as a whole, motor vehicle crashes and associated incident response activities have a transient but tangible impact on the performance of the roadway system.

  Statewide crash data along all of Tennessee's interstates for the entirety of 2024 was collected from TDOT's E-TRIMS system and plotted to create a heat map of overall crash prevalence. Bottleneck locations were overlaid on the heat map, and locations that overlapped with areas of higher crash incidence were identified empirically and noted under the Crashes indicator in **Table 2**.

- *Steep Grades*
  Trucks are generally heavier and less maneuverable than passenger cars, which limits their performance on steep grades. E-TRIMS data was used to identify segments with an average grade that exceeded ±2.5%. Most bottlenecks were found to have at least one segment that exceeded this threshold, so a second, more rigorous indicator was established at ±4.0%. Bottleneck locations with even one segment satisfying each condition are noted under the Grade 2.5%+ and Grade 4.0%+ indicators in **Table 2**.

- *Roadway Curvature*
  Sharp curves can also contribute to the formation of a bottleneck if they lead to braking events or general driver unease. E-TRIMS data was used to identify segments with a degree of curvature greater than 3.0, excluding those segments within system interchanges where curvature is expected. Bottleneck locations exceeding this level are noted under the Curvature indicator in **Table 2**.

- *Severe Weather*
  The final category included in this indicator analysis is the prevalence of severe weather events.

  Roadway closure data was not appropriate for this indicator analysis since the urban freeway segments, which dominate the bottlenecks list, are generally cleared quickly and see few weather-related closures. This determination also could not be made solely based on historical weather records, which would have led to entire regions being categorized similarly since weather conditions are generally consistent across a given metropolitan area.

  Rather, this assessment sought out proxy data to pinpoint detrimental impacts from weather along specific corridors, namely weather-related crashes. E-TRIMS crash data was used to create a heat map of crashes where snow, ice, fog, strong winds, and other severe weather conditions were cited as a contributing factor. Rain events were excluded from this analysis since the distribution pattern of rain events correlates strongly with the Crashes indicator already included in the analysis. As with the Crashes indicator, the resulting heat map of non-rain weather events was overlaid with the 25 bottleneck locations, and resulting points of overlap were noted under the Severe Weather indicator in **Table 2**.

Other Related Factors

Two additional factors were also included beyond those that are typically considered to be indicators in order to fulfill the requirements of Title 23 of the Code of Federal Regulations (CFR 23), Part 490.109(f)(2)(iii), namely temporary incidents and weight- or height-restricted structures. Bottleneck locations where these factors apply are listed in the Other Related Factors section of **Table 2**.

- *Construction or Other Transient Incidents*
  Temporary issues such as construction or maintenance activities have the potential to exacerbate bottleneck conditions. Only one major construction project in 2024 was identified in the vicinity of a bottleneck location, namely the ongoing I-24/I-75 interchange improvement Phase 2 effort in Hamilton County along Bottleneck 21, as noted in **Table 2**.

  Significant interstate roadway closures did occur in late 2024 as a result of Hurricane Helene, particularly along I-40 and I-26 in eastern Tennessee. However, the impacts of those closures are not reflected in the NPMRDS delay or reliability data for either

interstate as those corridors were fully closed and as such no trucks were present to experience delays, and therefore no segments in these areas appear on the worst-performing bottlenecks list. I-81 served as a primary detour route in Tennessee for both closures but did not experience significant enough delay or travel time impacts for any I-81 segments to appear as a bottleneck.

- *Weight/Height Restrictions*
  Truck travel can also be impacted by geometric and weight restrictions, which require oversize and overweight vehicles to bypass certain constraining segments. Bottleneck locations were cross referenced against information posted on the TDOT Oversize & Overweight Permit Office website.[1]The bottleneck locations that include truck restrictions are noted in the Weight/Height Restrictions column of **Table 2**.

[1] https://www.tn.gov/tdot/traffic-operations-division/oversize---overweight-permits/bridge-information.html

Table 2. Indicator and Related Factors at Identified Bottlenecks

Location Details					Indicator Factors						Other Related Factors	
Rank	Route	Extent (mile marker)	County	Segment Location	Capacity	Crashes	Grade 2.5%+	Grade 4.0%+	Curvature	Severe Weather	Construction or Other Incident	Weight/Height Restrictions
1.	I-24 EB	46.5 to 48.4	Davidson	From Spring St (Exit 85) to I-24/I-65 Interchange (western)	X	X						X
2.	I-24/I-40 WB	212.8 to 211.0	Davidson	From I-24/I-40 Interchange (eastern) to I-24/I-40 Interchange (western)	X	X	X					X
3.	I-24 EB	51.4 to 53.8	Davidson	From I-40 Split to Briley Pkwy (SR 155, Exit 54)	X	X	X	X	X			
4.	I-40/I-65 EB/SB	208.5 to 209.8	Davidson	From Charlotte Ave (US 70, Exit 209) to I-40/I-65 Interchange (southern)	X	X	X					X
5.	I-24 WB	52.2 to 51.4	Davidson	From I-440 Merge to I-40 Merge	X	X			X			
6.	I-65 NB	52.5 to 53.5	Maury/Will.	Interchange with Saturn Pkwy (SR 396, Exit 53)			X					
7.	I-24/I-65 EB/SB	89.7 to 87.1	Davidson	From I-24/I-65 Interchange (northern) to Trinity Ln (US 431, Exit 87)		X	X	X				
8.	I-65 SB	59.7 to 57.8	Williamson	Interchange with I-840 (Exit 59)			X					
9.	I-24 WB	64.6 to 59.3	Ruth./David.	From Waldron Rd (Exit 64) to Bell Rd (SR 254, Exit 59)	X	X	X			X		
10.	I-40 EB	209.8 to 211.0	Davidson	From I-24/I-65 Interchange (southern) to I-24/I-40 Interchange (western)	X	X	X					
11.	I-440 EB	4.5 to 7.8	Davidson	From I-65 Interchange (Exit 5) to I-24 Merge	X	X	X	X				X
12.	I-24 WB	183.1 to 178.8	Hamilton	From Germantown Rd to Broad St	X		X		X			
13.	I-65 NB	78.8 to 82.2	Davidson	From Armory Dr (Exit 79) to I-40/I-65 Interchange (southern)	X							X
14.	I-65 NB	84.5 to 85.6	Davidson	From I-40/I-65 Interchange (northern) to Rosa Parks Blvd (US 41A, Exit 85)	X		X					
15.	I-24/I-40 EB	211.0 to 212.8	Davidson	From I-24/I-40 Interchange (western) to I-24/I-40 Interchange (eastern)	X	X	X					
16.	I-40 WB	214.4 to 212.8	Davidson	From Briley Pkwy (SR 155, Exit 215) to I-24 Merge	X	X	X			X		
17.	I-40/I-65 WB/NB	208.9 to 208.5	Davidson	From Church St to Charlotte Ave (US 70, Exit 209)			X					
18.	I-40/I-75 WB/SB	376.7 to 375.0	Knox	Interchange with I-140/Pellissippi Pkwy (Exit 376)	X		X					
19.	I-24 WB	48.4 to 46.5	Davidson	From I-24/I-40 Interchange (western) to Spring St (Exit 85)	X							
20.	I-65 NB	95.2 to 96.7	Davidson	From SR 386 Split to Long Hollow Pike (SR 174, Exit 97)			X					
21.	I-24 EB	183.1 to 186.0	Hamilton	From Germantown Rd to I-75 Merge	X	X	X			X	X	
22.	I-240 EB	17.5 to 14.8	Shelby	Interchanges with SR 385 and Poplar Ave (US 72)	X							
23.	I-75 SB	3.2 to 3.7	Hamilton	Interchange with Brainerd Rd (SR 320, Exit 3)								
24.	I-40 WB	387.0 to 386.0	Knox	Interchange with Alcoa Hwy (SR 115, Exit 386)	X							
25.	I-40/I-75 EB/NB	377.6 to 379.1	Knox	Interchanges with Cedar Bluff Rd, Bridgewater Rd	X							

Results

This section contains results from the bottleneck analysis and segment ranking, including an identification of improvement projects or studies planned at the identified bottlenecks. It also presents truck travel time reliability for the state as a whole via a Statewide TTTR.

Worst-Performing Bottleneck Locations

The top 25 bottleneck segments on Tennessee's interstates based on 2024 data that were identified as part of this assessment are listed in **Table 1** and mapped in **Figures 1A and 1B** in the Overview section. As detailed in the Analysis Methodology section, these identified bottlenecks contain the worst-performing interstate segments in the state in 2024 based on a combination of recurring congestion and segment reliability in terms of VHD/mi and TTTR, respectively. **Table 2**, presented in the Analysis Methodology section, includes a summary of potential causal factors identified through the indicator analysis and assessment of other related factors that could explain the presence of these bottlenecks.

It should be noted that identified contributing factors in some of these locations may have been fully or partially resolved since the end of 2024. As discussed in the "Construction or Other Transient Incidents" section, at least one location hosted an active construction zone in 2024, likely exacerbating existing issues while roadway improvements were underway. This prioritized list is a snapshot of the 25 worst-performing bottleneck locations over the course of 2024, and subsequent data should be considered in selecting locations to bring forward for investment and improvement.

Planned Improvements at Identified Bottlenecks

Federal reporting requirements in Title 23 of the Code of Federal Regulations, Part 490.109(f)(2)(iii) requires states that fail to meet statewide TTTR performance targets (as discussed in the Statewide Performance section) to identify methods to address each identified bottleneck location.

To this end, the TDOT stakeholder group reviewed the ranked list of worst-performing bottlenecks to identify planned or programmed strategies that would improve reliability and reduce delays for truck traffic on Tennessee's interstate highways, particularly within the identified bottleneck corridors. This list, presented in **Table 3**, consists of a mixture of planning studies, including several in-progress Planning and Environmental Linkages (PEL) studies, as well as capital projects like interchange improvements, corridor widening projects, and "Choice Lane" express facility projects.

Table 3. Improvement Efforts Planned or Programmed at Identified Bottlenecks

Location Details			Improvement Efforts Planned or Programmed	
Rank	Route	Segment Location	Type	Description
1.	**I-24 EB**	From Spring St (Exit 85) to I-24/I-65 Interchange (western)	PEL Study	**PEL Nashville Inner Loop Study** planned to identify future improvements
2.	**I-24/I-40 WB**	From I-24/I-40 Interchange (eastern) to I-24/I-40 Interchange (western)	Choice Lane (adj.)	**I-24 Choice Lanes** proposed adjacent to segment, may benefit from system interchange improvements
3.	**I-24 EB**	From I-40 Split to Briley Pkwy (SR 155, Exit 54)	Choice Lane	**I-24 (Region 3) Choice Lanes** corridor as proposed includes this segment
4.	**I-40/I-65 EB/SB**	From Charlotte Ave (US 70, Exit 209) to I-40/I-65 Interchange (southern)	PEL Study	**PEL Nashville Inner Loop Study** planned to identify future improvements
5.	**I-24 WB**	From I-440 Merge to I-40 Merge	Choice Lane	**I-24 (Region 3) Choice Lanes** corridor as proposed includes this segment
6.	**I-65 NB**	Interchange with Saturn Pkwy (SR 396, Exit 53)	PEL Study	**PEL I-65 (Region 3) Study** planned to identify future improvements
7.	**I-24/I-65 EB/SB**	From I-24/I-65 Interchange (northern) to Trinity Ln (US 431, Exit 87)	PEL Study	**PEL Nashville Inner Loop Study** planned to identify future improvements
8.	**I-65 SB**	Interchange with I-840 (Exit 59)	PEL Study	**PEL I-65 (Region 3) Study** planned to identify future improvements
9.	**I-24 WB**	From Waldron Rd (Exit 64) to Bell Rd (SR 254, Exit 59)	Choice Lane	**I-24 (Region 3) Choice Lanes** corridor as proposed includes this segment
10.	**I-40 EB**	From I-24/I-65 Interchange (southern) to I-24/I-40 Interchange (western)	PEL Study	**PEL Nashville Inner Loop Study** planned to identify future improvements
11.	**I-440 EB**	From I-65 Interchange (Exit 5) to I-24 Merge	Choice Lane (adj.)	**I-24 Choice Lanes** proposed adjacent to segment, may benefit from system interchange improvements
12.	**I-24 WB**	From Germantown Rd to Broad St	Interchange Proj.; PEL Study	**I-75/I-24 Interchange Phase 2 Project**, Segment 1 includes segment; **PEL I-24 (Region 2) Study** planned to identify future improvements
13.	**I-65 NB**	From Armory Dr (Exit 79) to I-40/I-65 Interchange (southern)	PEL Study	**PEL I-65 (Region 3) Study** planned to identify future improvements
14.	**I-65 NB**	From I-40/I-65 Interchange (northern) to Rosa Parks Blvd (US 41A, Exit 85)	PEL Study	**PEL Nashville Inner Loop Study** planned to identify future improvements
15.	**I-24/I-40 EB**	From I-24/I-40 Interchange (western) to I-24/I-40 Interchange (eastern)	Choice Lane (adj.)	**I-24 Choice Lanes** proposed adjacent to segment, may benefit from system interchange improvements
16.	**I-40 WB**	From Briley Pkwy (SR 155, Exit 215) to I-24 Merge	Choice Lane (adj.)	**I-24 Choice Lanes** proposed adjacent to segment, may benefit from system interchange improvements
17.	**I-40/I-65 WB/NB**	From Church St to Charlotte Ave (US 70, Exit 209)	PEL Study	**PEL Nashville Inner Loop Study** planned to identify future improvements
18.	**I-40/I-75 WB/SB**	Interchange with I-140/Pellissippi Pkwy (Exit 376)	PEL Study	**PEL I-40 (Region 1) Study** planned to identify future improvements
19.	**I-24 WB**	From I-24/I-40 Interchange (western) to Spring St (Exit 85)	PEL Study	**PEL Nashville Inner Loop Study** planned to identify future improvements
20.	**I-65 NB**	From SR 386 Split to Long Hollow Pike (SR 174, Exit 97)	Widening Project	**I-65 Widening Project Phase 3** includes segment
21.	**I-24 EB**	From Germantown Rd to I-75 Merge	Interchange Proj.; PEL Study	**I-75/I-24 Interchange Phase 2 Project**, Segments 1 and 2, include segment; **PEL I-24 (Region 2) Study** planned to identify future improvement
22.	**I-240 EB**	Interchanges with SR 385 and Poplar Ave (US 72)	Smart Freight Study	**I-40 Memphis/West TN Smart Freight Corridor** study area adj. to segment; project goal to enhance freight efficiency w. tech. and infrastructure upgrades
23.	**I-75 SB**	Interchange with Brainerd Rd (SR 320, Exit 3)	Interchange Proj.	**I-75/I-24 Interchange Phase 2 Project**, Segment 3, includes segment
24.	**I-40 WB**	Interchange with Alcoa Hwy (SR 115, Exit 386)	PEL Study	**PEL I-40 (Region 1) Study** planned to identify future improvements
25.	**I-40/I-75 EB/NB**	Interchanges with Cedar Bluff Rd, Bridgewater Rd	PEL Study	**PEL I-40 (Region 1) Study** planned to identify future improvements

Comparison of 2025 Rankings to 2022 SFBS Findings

This section presents a comparison between the new rankings discussed above, which are based on 2024 data, and the findings from Tennessee's most recent SFBS, the *2022 Tennessee Statewide Freight Bottleneck Study*, which is based on 2021 data and dated November 4, 2022 (the "2022 SFBS"). The 2022 SFBS identified a total of 26 bottleneck locations.

Table 4 presents a comparison of the 2025 and 2022 SFBS bottleneck rankings, including the change in ranking of bottlenecks from 2022 to 2025. As can be seen in **Table 4**, there was noticeable reshuffling in the 2025 SFBS compared to the 2022 SFBS, but the vast majority of bottleneck corridors – 20 out of the top 25 corridors in the 2025 SFBS – appear on both lists.

Table 4 also notes the six locations from the 2022 SFBS that do not appear on the 2025 SFBS list. At least four of these six locations that have dropped off the worst-performing bottlenecks list can likely be attributed to recently completed improvement projects performed within the bottleneck corridor. These factors are noted in *blue* in **Table 4**.

Table 4. Comparison of 2025 and 2022 SFBS Bottleneck Rankings

2025 SFBS Ranking (2024 data)				2022 SFBS Ranking (2021 data)	
Rank	**Route**	**County**	**Bottleneck Extent**	**Rank**	**Change**
1.	**I-24 EB**	Davidson	From Spring St (Exit 85) to I-24/I-65 Interchange (western)	4	▲ 3 spots
2.	**I-24/I-40 WB**	Davidson	From I-24/I-40 Interchange (eastern) to I-24/I-40 Interchange (western)	8	▲ 6 spots
3.	**I-24 EB**	Davidson	From I-40 Split to Briley Pkwy (SR 155, Exit 54)	9, 10	▲ 6 spots
4.	**I-40/I-65 EB/SB**	Davidson	From Charlotte Ave (US 70, Exit 209) to I-40/I-65 Interchange (southern)	7	▲ 3 spots
5.	**I-24 WB**	Davidson	From I-440 Merge to I-40 Merge	13	▲ 8 spots
6.	**I-65 NB**	Maury/Will.	Interchange with Saturn Pkwy (SR 396, Exit 53)	*Unranked*	*New in 2025*
7.	**I-24/I-65 EB/SB**	Davidson	From I-24/I-65 Interchange (northern) to Trinity Ln (US 431, Exit 87)	5	▼ 2 spots
8.	**I-65 SB**	Williamson	Interchange with I-840 (Exit 59)	14	▲ 6 spots
9.	**I-24 WB**	Ruth./David.	From Waldron Rd (Exit 64) to Bell Rd (SR 254, Exit 59)	*Unranked*	*New in 2025*
10.	**I-40 EB**	Davidson	From I-24/I-65 Interchange (southern) to I-24/I-40 Interchange (western)	7	▼ 3 spots
11.	**I-440 EB**	Davidson	From I-65 Interchange (Exit 5) to I-24 Merge	16	▲ 5 spots
12.	**I-24 WB**	Hamilton	From Germantown Rd to Broad St	6	▼ 6 spots
13.	**I-65 NB**	Davidson	From Armory Dr (Exit 79) to I-40/I-65 Interchange (southern)	15	▲ 2 spots
14.	**I-65 NB**	Davidson	From I-40/I-65 Interchange (northern) to Rosa Parks Blvd (US 41A, Exit 85)	11	▼ 3 spots
15.	**I-24/I-40 EB**	Davidson	From I-24/I-40 Interchange (western) to I-24/I-40 Interchange (eastern)	19	▲ 4 spots
16.	**I-40 WB**	Davidson	From Briley Pkwy (SR 155, Exit 215) to I-24 Merge	22	▲ 6 spots
17.	**I-40/I-65 WB/NB**	Davidson	From Church St to Charlotte Ave (US 70, Exit 209)	23	▲ 6 spots
18.	**I-40/I-75 WB/SB**	Knox	Interchange with I-140/Pellissippi Pkwy (Exit 376)	20	▲ 2 spots
19.	**I-24 WB**	Davidson	From I-24/I-40 Interchange (western) to Spring St (Exit 85)	3	▼ 16 spots
20.	**I-65 NB**	Davidson	From SR 386 Split to Long Hollow Pike (SR 174, Exit 97)	18	▼ 2 spots
21.	**I-24 EB**	Hamilton	From Germantown Rd to I-75 Merge	12	▼ 9 spots
22.	**I-240 EB**	Shelby	Interchanges with SR 385 and Poplar Ave (US 72)	*Unranked*	*New in 2025*
23.	**I-75 SB**	Hamilton	Interchange with Brainerd Rd (SR 320, Exit 3)	*Unranked*	*New in 2025*
24.	**I-40 WB**	Knox	Interchange with Alcoa Hwy (SR 115, Exit 386)	24	**Unchanged**
25.	**I-40/I-75 EB/NB**	Knox	Interchanges with Cedar Bluff Rd, Bridgewater Rd	*Unranked*	*New in 2025*
Bottlenecks from 2022 SFBS Not Ranked in 2025					
n/a.	**I-75 NB**	Hamilton	Georgia State Line to I-75/I-24 Interchange *(Factor: I-75/I-24 Interchange Project Phase 1 completed since 2021)*	1	*Not Ranked in 2025*
n/a.	**I-55 NB**	Shelby	S 3rd Street (Exit 7) to Arkansas State Line *(Factors: I-55 flyover ramp elements of I-55 & Crump Interchange Project had opened by 2024, replacing loop ramp movements; I-55 saw additional traffic in 2021 due to closure of parallel I-40 de Soto Bridge)*	2	*Not Ranked in 2025*
n/a.	**I-55 SB**	Shelby	Arkansas State Line to Crump Blvd/Riverside Dr (Exit 12) *(Factors: I-55 flyover ramp elements of I-55 & Crump Interchange Project had opened by 2024, replacing loop ramp movements; I-55 saw additional traffic in 2021 due to closure of parallel I-40 de Soto Bridge)*	17	*Not Ranked in 2025*
n/a.	**I-24 EB**	Hamilton	Georgia State Line to US 41/Cummings Hwy (Exit 174)	21	*Not Ranked in 2025*
n/a.	**I-40 WB**	Madison	Christmasville Rd (Exit 85) to Old Medina Rd/Campbell St (Exit 83) *(Factor: Jackson I-40 Widening Project completed since 2021)*	25	*Not Ranked in 2025*
n/a.	**I-40/I-65 WB/NB**	Davidson	I-40/I-65 Interchange (southern) to Division Street	26	*Not Ranked in 2025*

Statewide Performance

The *Truck Freight Bottleneck Reporting Guidebook* also includes methodology to determine the overall reliability of a system of roadways through the calculation of a Statewide TTTR. This calculation, included in **Table 5**, shows that across the 1,782 interstate segments in the NPMRDS database, the statewide TTTR for 2024 is 1.42.

This value is below the stated statewide TTTR goal 1.37 for 2023-2025 per FHWA's "Transportation Performance Reporting: State Performance Dashboard" website and the Statewide TTTR target of 1.37 per the NPMRDS PM3 Report as of September 10, 2025.

Statewide TTTR data from past years and neighboring states is summarized in **Table 5**, which shows that Tennessee's 2024 statewide TTTR of 1.42 represents a deterioration compared to past years dating back to 2016, the earliest year available in the NPMRDS PM3 reporting tool. Compared to neighboring states, Tennessee's Statewide TTTR of 1.39 in 2022, the most recent year for which data is available in all neighboring states, ranks third worst on the list, below North Carolina but above the 1.45 TTTR found in Georgia and Virginia. This finding is consistent with those states' comparative urbanization levels, with Tennessee on par with the level of urbanization in North Carolina but less urbanized than Georgia or Virginia.

Table 5. Statewide Truck Travel Time Reliability Index

Aggregated Metric		Value
Sum of Length-Weighted TTTR, 2024 (1,782 segments)		3,294.86
Tennessee Interstate Miles in NPMRDS Dataset		2,319.97
Tennessee Statewide TTTR, 2024		**1.42**
Historical Tennessee Statewide TTTR Data[1]	*2023*	*1.37*
	2022	*1.39*
	2021	*1.32*
	2020	*1.25*
	2019	*1.35*
	2018	*1.37*
	2017	*1.35*
	2016	*1.37*
2022 Statewide TTTR Results for Neighboring States[1,2]	Mississippi	1.15
	Arkansas	1.15
	Alabama	1.19
	Missouri	1.23
	Kentucky	1.24
	North Carolina	1.33
	Tennessee	**1.39**
	Georgia	1.45
	Virginia	1.45

[Note 1] Source: FHWA "Transportation Performance Reporting: State Performance Dashboard", https://www.fhwa.dot.gov/tpm/reporting/state/

[Note 2] Peer state data is compared for 2022 as that is the latest data available via FHWA's State Highway Reliability Report website.

Technical Attachments

The following supplementary maps are provided as Technical Attachments to this report to show the statewide results for the two component performance metrics comprising the hybrid standardized score that was used in the overall screening and prioritization of bottleneck segments:

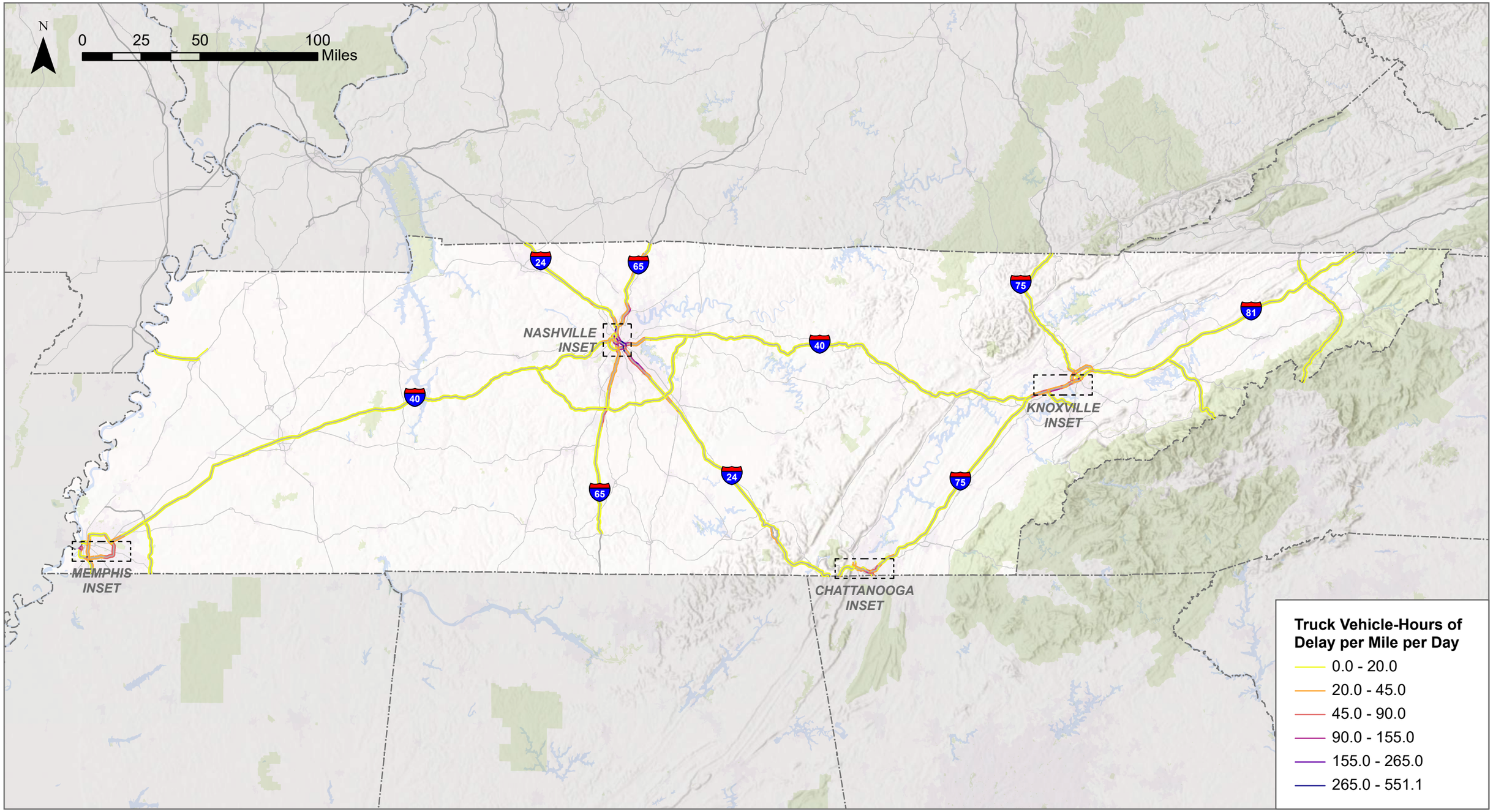
- Figure 2A. Truck Delay per Mile, Statewide
- Figure 2B. Truck Delay per Mile, Inset Maps
- Figure 3A. Truck Travel Time Reliability Index, Statewide
- Figure 3B. Truck Travel Time Reliability Index, Inset Maps

These maps both show similar trends in the data, with the worst-performing segments in both categories generally clustered in urban areas across the state and generally favorable conditions elsewhere, even in mountainous areas.

Truck Delay: VHD per Mile (daily), 2024

2025 Tennessee Statewide Freight Bottleneck Study | Figure Figure 2A: Truck Delay per Mile, Statewide

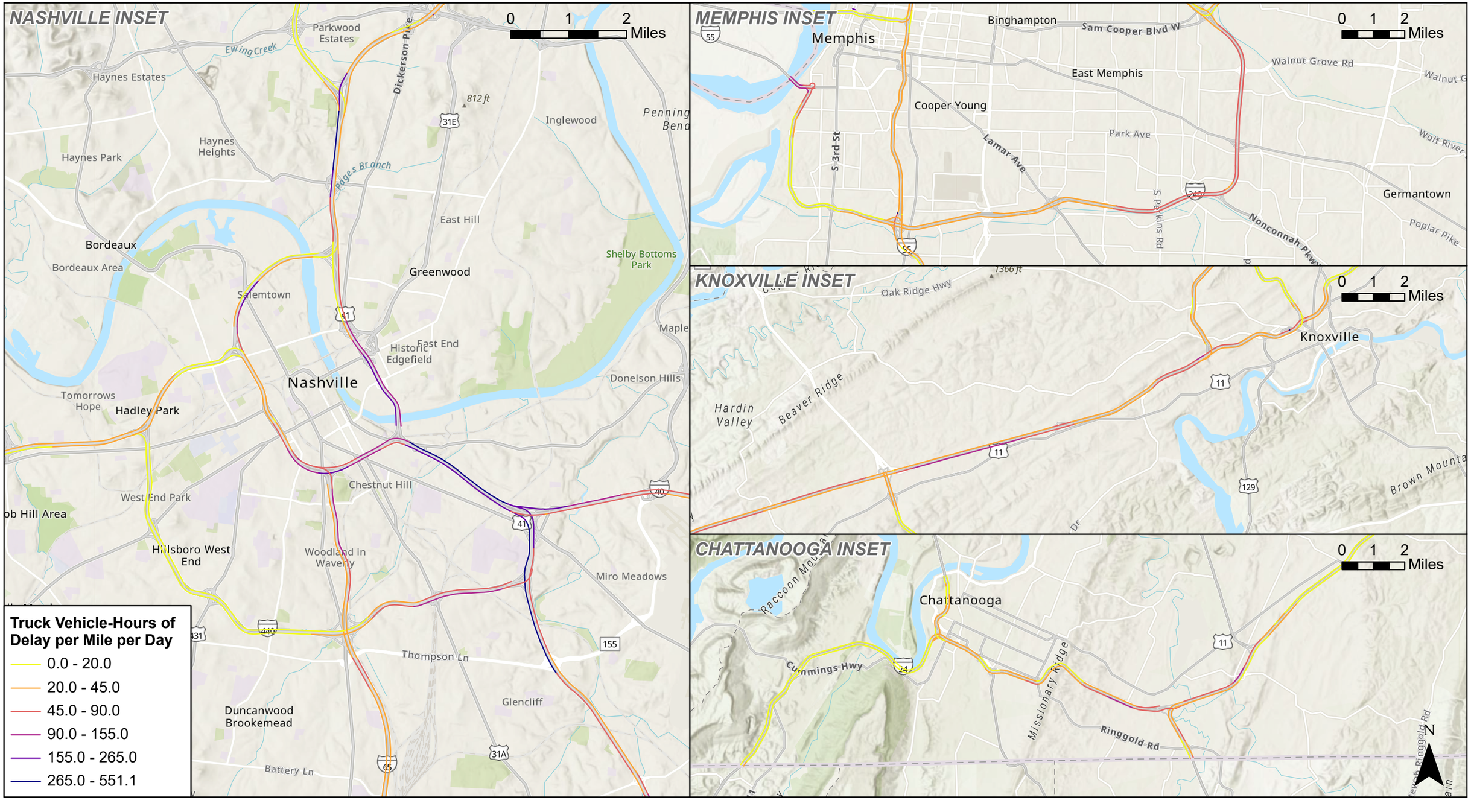
TN TDOT Department of Transportation



Truck Delay: VHD per Mile (daily), 2024

2025 Tennessee Statewide Freight Bottleneck Study | Figure Figure 2B: Truck Delay per Mile, Inset Maps

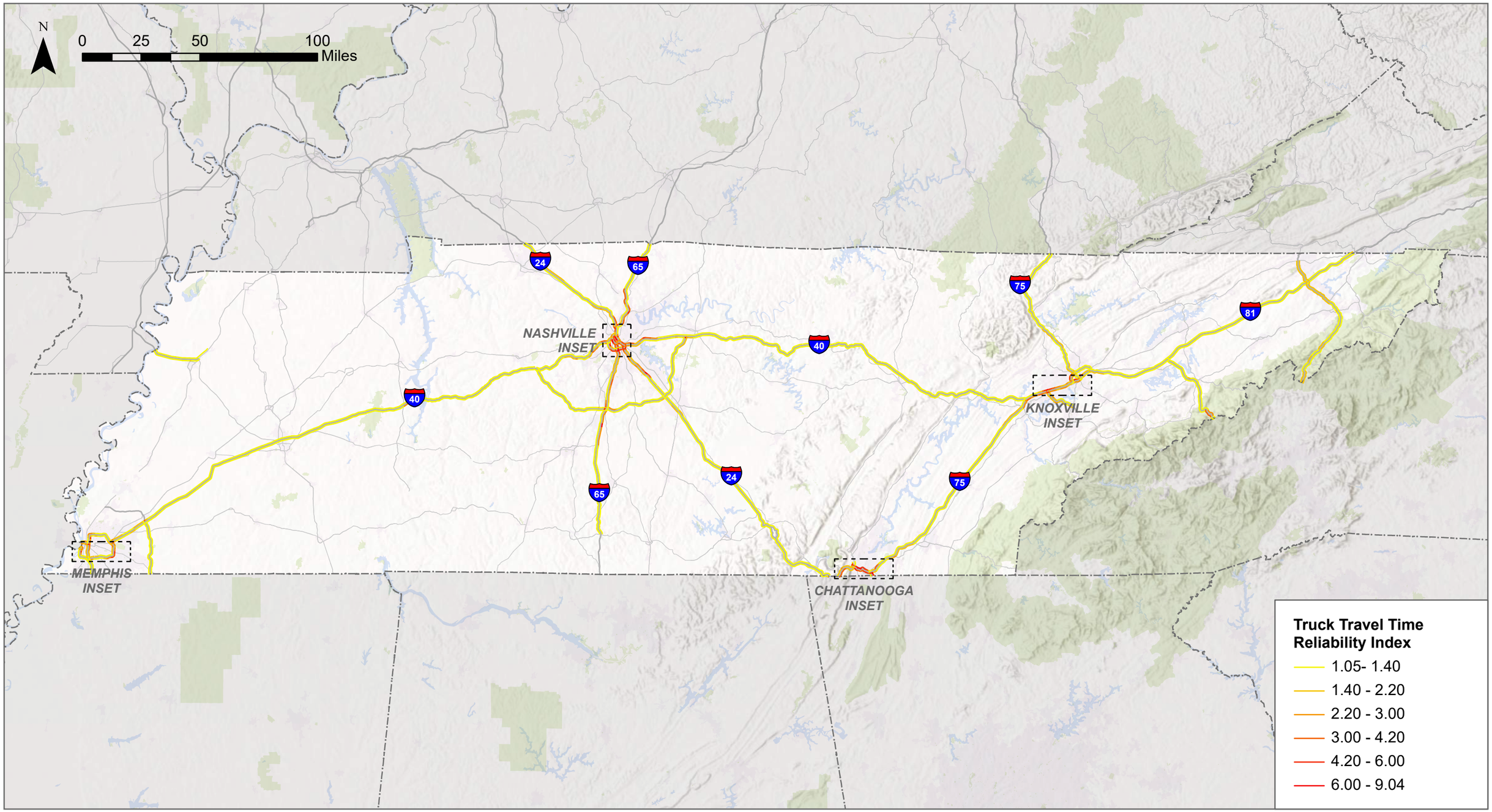
TN TDOT Department of Transportation



Truck Reliability: TTTR, 2024

2025 Tennessee Statewide Freight Bottleneck Study | Figure 3A: Truck Travel Time Reliability Index, Statewide

TN TDOT Department of Transportation



Truck Reliability: TTTR, 2024

2025 Tennessee Statewide Freight Bottleneck Study | Figure 3B: Truck Travel Time Reliability Index, Inset Maps

TDOT Department of Transportation