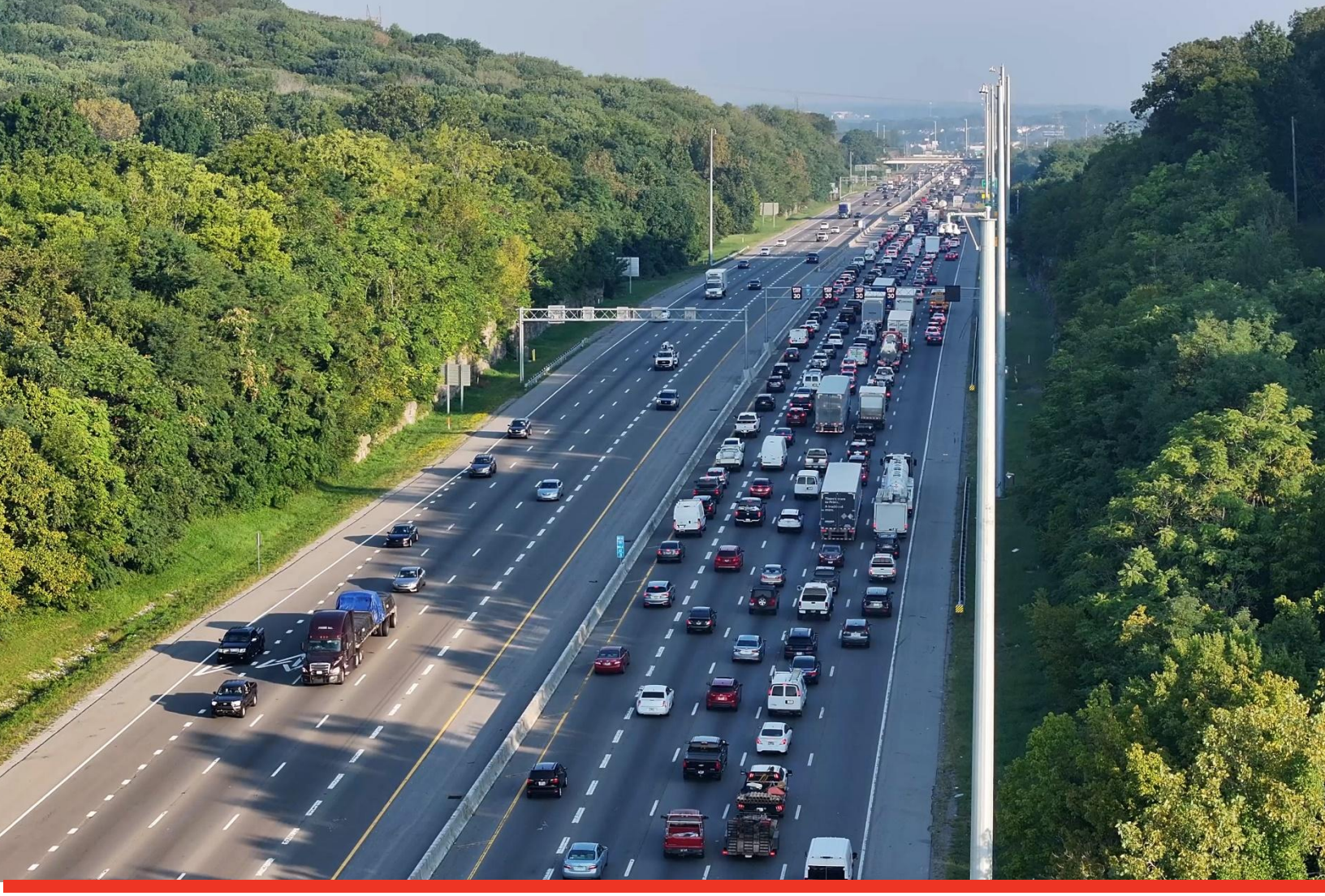


EXISTING CONDITIONS REPORT

November 2025

TN TDOT Department of Transportation | Build With Us | CHOICE LANES I-24 Southeast

INTENTIONALLY LEFT BLANK

ISSUE AND REVISION RECORD

Revision	DATE	Preparer(s)	PMC Reviewer(s)[1]	PMC Approver[2]	Description/ NOTES
			TDOT REVIEWER(S)	TDOT APPROVER	
A	10/30/25	Levi Kaczka, Holly Aslinger	Erin McGehee	Joy Riley	Updated per EA revisions.

INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

FIGURES

TABLES

APPENDICES

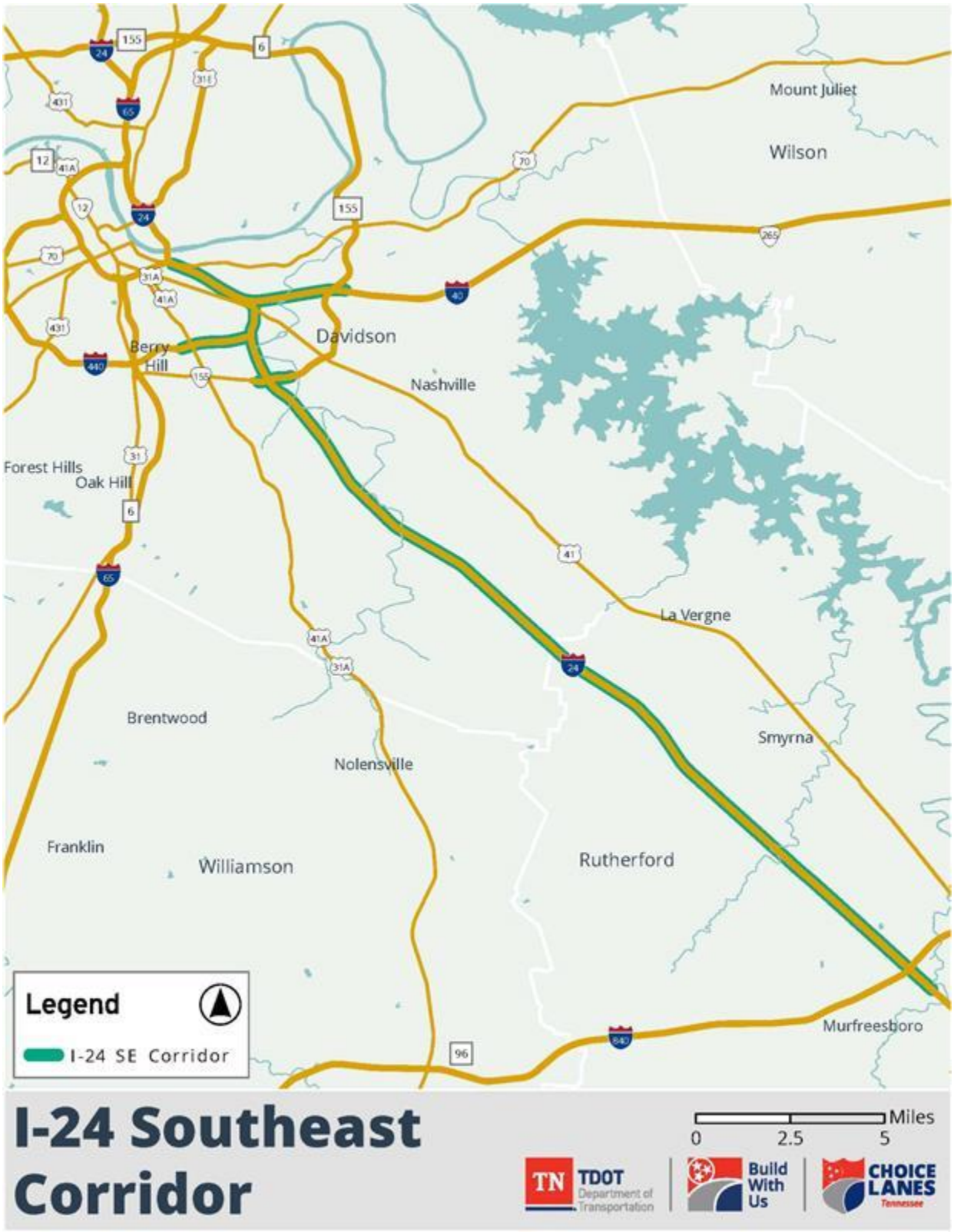
INTENTIONALLY LEFT BLANK

1 PROJECT OVERVIEW

The Tennessee Department of Transportation (TDOT), in coordination with the Federal Highway Administration (FHWA), is proposing to make improvements to I-24 between I-40 and I-840 in Davidson and Rutherford counties, Tennessee. The I-24 Southeast Choice Lanes project (proposed Project) would include widening the existing interstate to accommodate the addition of priced managed lanes (Choice Lanes) and interchange improvements.

The proposed Project is located along approximately 26 miles of I-24 between I-40 near downtown Nashville (Davidson County) and I-840 near Murfreesboro (Rutherford County), as depicted in **Figure 1-1**. The proposed Project would provide I-24 mainline improvements as well as improvements at the system-to-system interchanges at I-40 and I-440.

Figure 1-1: I-24 Southeast Choice Lanes Project Location Map



2 INTRODUCTION

2.1 Objective of the Report

The objective of this report is to present background information on the existing environmental, social, economic, demographic, traffic and engineering conditions within the study area for the proposed Project. The report also includes findings from various transportation planning studies relevant to the proposed Project.

2.2 Study Area and Methodology

2.2.1 Study Area and Methodology for Environmental Conditions

This analysis identified known environmental resources in the vicinity of the I-24 Southeast corridor through an environmental desktop-level review of publicly available resources, as well as data available from the Tennessee Division of Archaeology. The resource review used the Environmental Technical Study Area (ETSA) developed for the proposed Project. The ETSA is a study area used by TDOT that incorporates a broad area to account for community resources, natural resources and other potential environmental constraints on all TDOT projects. This ETSA serves as the boundary for field surveys and is focused on areas of potential direct impacts arising from land acquisition, construction and implementation of proposed interstate improvements. Following TDOT's general ETSA guidance, the ETSA for the proposed Project extends at least 300 linear feet beyond the Project limits. For side roads, interchanges and ramps, the study area extends at least 150 linear feet beyond tie-in points or ramps. Throughout the corridor, the ETSA generally extends 100 linear feet beyond the existing ROW.

For certain environmental resources, reviewers applied a buffer of 500 or 1,000 feet to the ETSA to capture nearby resources that could potentially experience direct or other reasonably foreseeable effects from the proposed improvements along the corridor. The ETSA and buffers are depicted in **Figure 2-1**.

For demographic analyses such as population and employment, reviewers used a 1,000-foot buffer to select U.S. Census block groups. These block groups formed the geographic basis for demographic analyses. While reviewers analyzed all block groups within or intersecting a 1,000-foot buffer of the ETSA, they also selected additional block groups that lie outside of the buffer but were determined to be sufficiently close to the ETSA.

A review of aerial imagery in Google Maps yielded general site information, which reviewers used as an initial indicator of the level of development, locations of aquatic features and community characteristics, among other information. Reviewers gathered and used resource-specific datasets to analyze and understand resources from the natural,

built and human environment in and near the ETSA. The list of datasets consulted and the analysis method for each resource appear in **Table 2-1** below.

The Project Team is supplementing the data in this Existing Conditions Report with fieldwork and further analysis to complete the environmental review for the proposed Project.

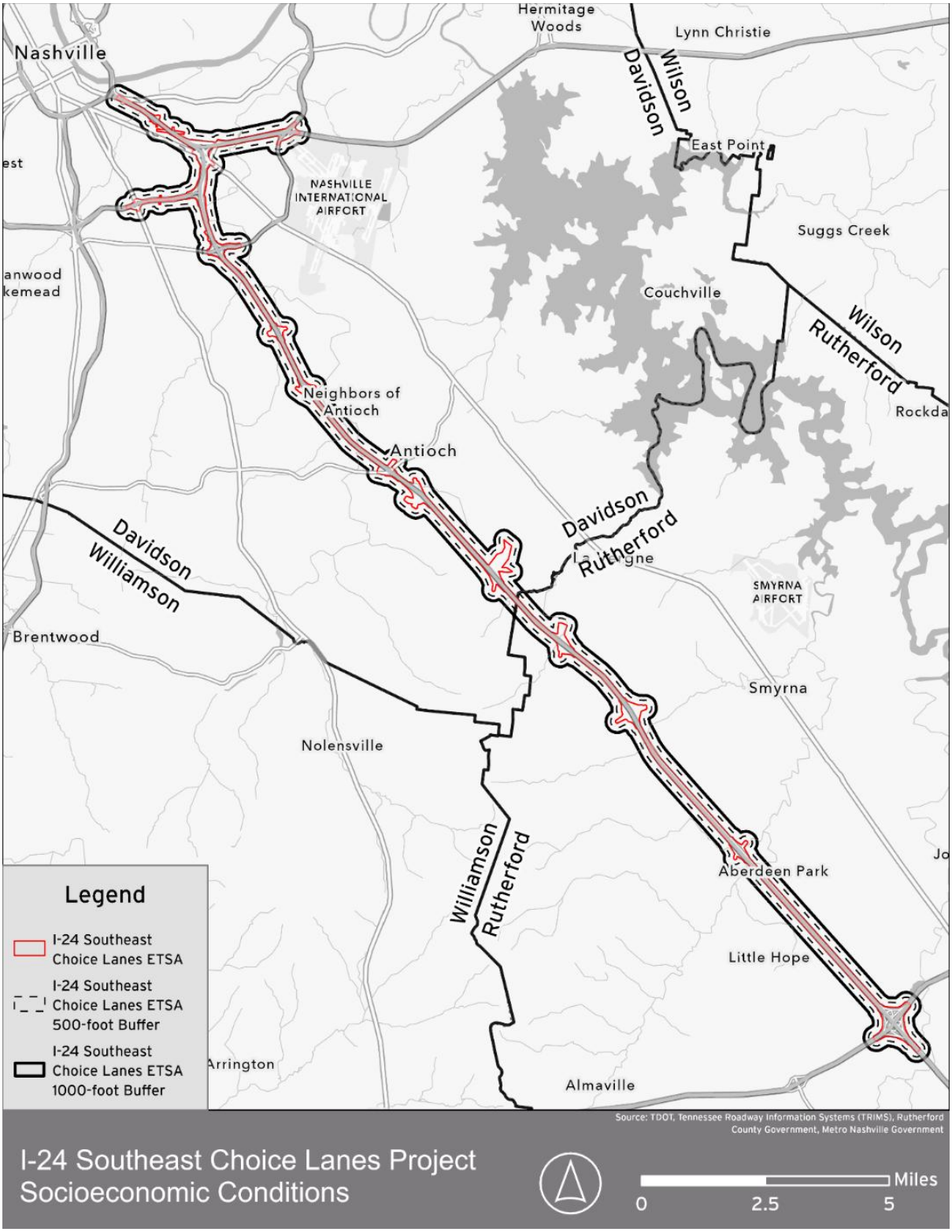
Table 2-1: Existing Environmental Conditions Data Sources

RESOURCE	DATA SOURCE
General Site Information	Aerial Imagery (Google Maps and Google Street View)
Population	Decennial Census of Population and Housing, U.S. Census Bureau Tennessee State Data Center, University of Tennessee Boyd Center for Business and Economics Greater Nashville Regional Council
Employment	Tennessee Department of Labor and Workforce Development Greater Nashville Regional Council Quarterly Census of Employment and Wages, U.S. Bureau of Labor Statistics 2022 Nashville Region's Vital Signs Report, Nashville Area Chamber of Commerce and Greater Nashville Regional Council 2020 Middle Tennessee Workforce Study, Nashville Area Chamber of Commerce and Northern Middle Tennessee Local Workforce Development Board 2022 Economic Impact of Travel on Tennessee, Tennessee Department of Tourist Development
Age	American Community Survey 1-Year Estimates (2024)
Education	American Community Survey 1-Year Estimates (2024)
Literacy	Program for International Assessment of Adult Competencies, National Center for Education Statistics

RESOURCE	DATA SOURCE
Disability	American Community Survey 1-Year Estimates (2024)
Vehicle Ownership	American Community Survey 1-Year Estimates (2024)
Internet Access	American Community Survey 1-Year Estimates (2024)
Median Household Income	American Community Survey 1-Year Estimates (2024)
Archaeological Resources	Tennessee Division of Archaeology
Historic and Architectural Resources	The Tennessee Historical Commission Viewer Davidson County Parcel Viewer Rutherford County GIS Historic Structures Viewer
Cemeteries	Tennessee Division of Archaeology Tennessee Historic Cemetery Register and Statewide Cemetery Map
Community Facilities	Data Axle Business Data Aerial Imagery (Google Maps and Google Street View)
Land Use	Metropolitan Government of Nashville and Davidson County Rutherford County Government
Parks and Recreational Resources	Nashville Parks Finder, Nashville Metro Parks Aerial Imagery (Google Maps and Google Street View) The Land and Water Conservation Fund Mapper

RESOURCE	DATA SOURCE
Ecology	National Land Cover Database, United States Geological Survey National Wetlands Inventory, U.S. Fish and Wildlife Service National Hydrography Dataset, United States Geological Survey Information for Planning and Consultation, U.S. Fish and Wildlife Service Rare Species Dataviewer, Tennessee Department of Environment and Conservation Exceptional TN Waters Dataviewer, Tennessee Department of Environment and Conservation
Floodways and Floodplain	National Flood Hazard Layer, Federal Emergency Management Agency
Water Wells	Water Well Dataviewer, Tennessee Department of Environment and Conservation
Hazardous Materials	Division of Remediation Sites Viewer, Tennessee Department of Environment and Conservation Facility Registry Service Database, U.S. Environmental Protection Agency Underground Storage Tank Site Finder Layer 2021 (Updated 2024), U.S. Environmental Protection Agency

Figure 2-1: I-24 Southeast Choice Lanes Project Study Area with 500 ft. and 1,000 ft. Buffers



2.2.2 Study Area and Methodology for Traffic and Engineerng Conditions

The study area used to analyze traffic and engineering conditions generally aligns with the study area used to analyze environmental conditions. However, the methodologies used in the traffic and engineering conditions section differ from the methodologies used in the environmental conditions section. Refer to Section 4 and Section 5 of this report for more detailed information and findings.

INTENTIONALLY LEFT BLANK

3 ENVIRONMENTAL CONDITIONS

3.1 Population and Employment

This analysis sourced population trends for Davidson and Rutherford counties, as well as the state of Tennessee, from the U.S. Census Bureau's 2000, 2010 and 2020 Decennial Census. County-level population growth projections to 2040 are from the University of Tennessee's Tennessee State Data Center at the Boyd Center and rely on 2000-2020 population data from the U.S. Census Bureau Decennial Census.

Employment information is from the Nashville Area Chamber of Commerce (NACC) and Greater Nashville Regional Council (GNRC) 2022 report, Nashville Region's Vital Signs, generated from the U.S. Bureau of Labor Statistics (BLS) Local Area Unemployment and BLS Quarterly Census of Employment and Wages. The 2020 Middle Tennessee Workforce Study, as well as the Tennessee Department of Tourist Development's 2022 Economic Impact of Travel on Tennessee reports, provided supplemental details on industry and revenue across the state.

Traffic Analysis Zone (TAZ)-level population and employment projections are from the GNRC, which uses the data for travel modeling purposes. TAZs are geographic areas commonly used in transportation planning comprising 3,000 persons or less. TAZs help planners assess population and demographic information on smaller geographic scales similar in size to U.S. Census Bureau block groups. GNRC projections used data from the U.S. Census Bureau's American Community Survey (ACS), U.S. Bureau of Economic Analysis and Woods & Poole, a third-party forecast provider.[1]

3.1.1 Population

Table 3-1 shows the population in 2020 and the projected population in 2045 for Davidson and Rutherford counties. In 2020, Davidson County had a population of nearly 716,000, which accounted for 68 percent of the combined population for both counties. Rutherford County had a population of about 341,500, representing 32 percent of the total. By 2045, Davidson County's population is projected to increase to approximately 832,000 (60 percent of the total) and Rutherford County's population to approximately 546,000 (40 percent of the total). Overall, projections expect the combined two-county population to grow from 1.1 million in 2020 to just under 1.4 million in 2045, with much of this growth anticipated to occur in Rutherford County.

[1] GNRC, GNRC Urban Sim Land Use Forecasting Model, (n.d.), Accessed February 2024.

Table 3-1: Population in Study Area County (2020 and 2045)

GEOGRAPHY	POPULATION (2020)	POPULATION (2045)	PROJECTED GROWTH RATE	SHARE OF TOTAL TWO-COUNTY POPULATION (2020)	SHARE OF TOTAL TWO-COUNTY POPULATION (2045)
Davidson	715,884	832,218	16%	68%	60%
Rutherford	341,486	546,129	60%	32%	40%
Total	1,057,370	1,378,347	30%	100%	100%

Source: U.S. Decennial Census; Tennessee State Data Center, University of Tennessee Boyd Center for Business and Economic Research, Accessed February 2024.

The GNRC's Urban Sim Land Use Forecasting Model[2] provided further population data. This model utilizes a large number of data points to model future traffic and population projections. The projection model used base year data from 2017 and simulated population until 2045. According to the GNRC: "In the case of [GNRC] 2045 Regional Transportation Plan [RTP] … it was determined that 2017 should be the base year … and the population forecast would need to be extended … out to 2045. The year 2045 was chosen to cover the minimum required 20-year horizon beyond the adoption date of the new RTP in 2021." **Table 3-2** provides the population in the ETSA for 2017 and the projected population for 2045. While most TAZs are within or intersect a 1,000-foot buffer around the ETSA, this review analyzed some TAZs that fall outside of the 1,000-foot buffer but are sufficiently close to the ETSA for employment and population analysis. In 2017, the latest year for which TAZ-level population data is available, the population was just over 79,000. By 2045, the forecasting model shows the population to be close to 103,000, a 29.17 percent increase. **Figure 3-1** provides an overview of the population located within TAZs throughout the study area.

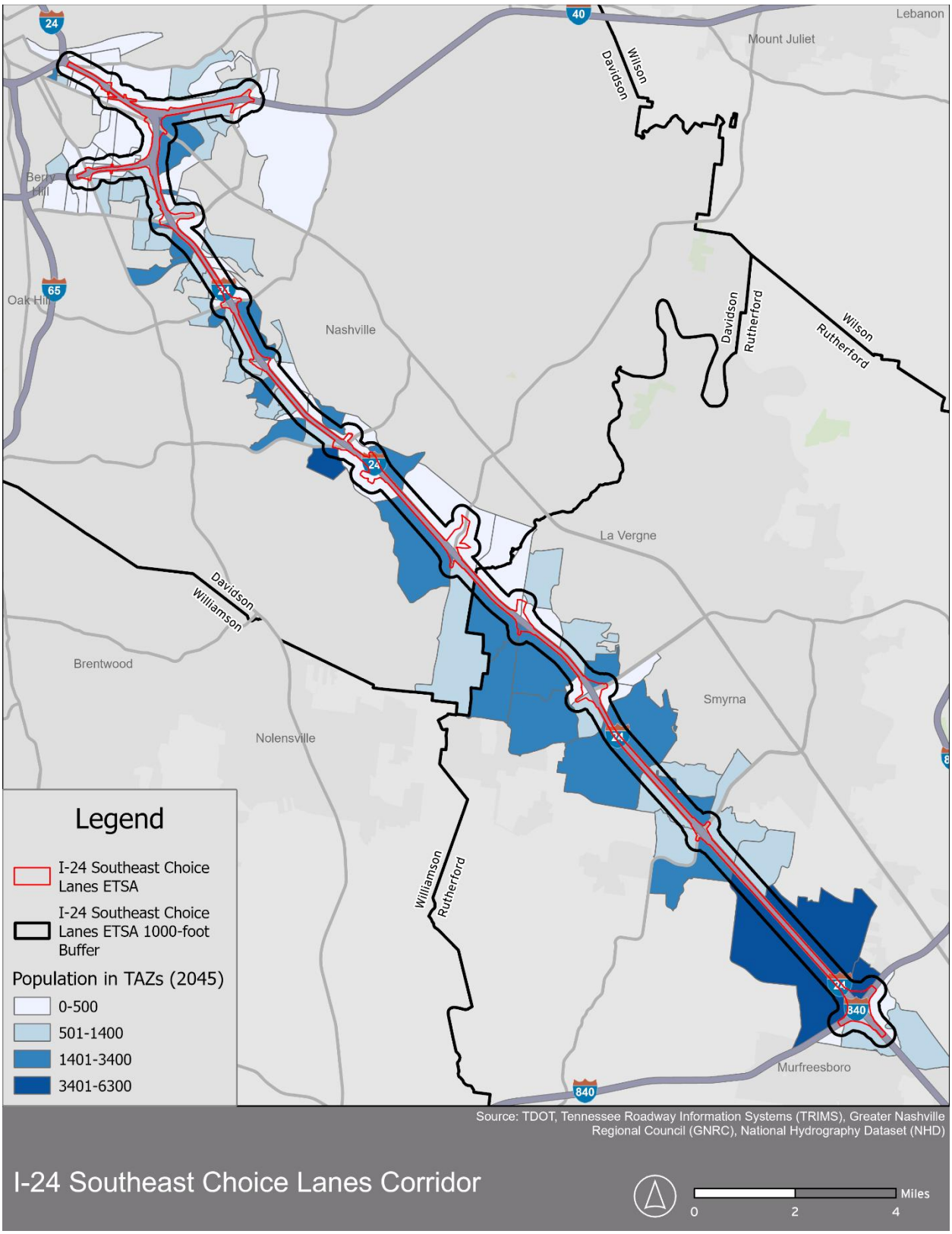
Table 3-2: Population in TAZ within 1,000 feet of the ETSA (2017 and 2045)

	2017	2045	% CHANGE
Population	79,766	103,034	29.17%

Source: GNRC Urban Sim Land Use Forecasting Model, (n.d.), Accessed February 2024.

[2] GNRC, GNRC Urban Sim Land Use Forecasting Model, (n.d.), Accessed February 2024.

Figure 3-1: Population within Each Study Area TAZ (2045)



Source: GNRC Urban Sim Land Use Forecasting Model, (n.d.), Accessed February 2024.

3.1.2 Employment

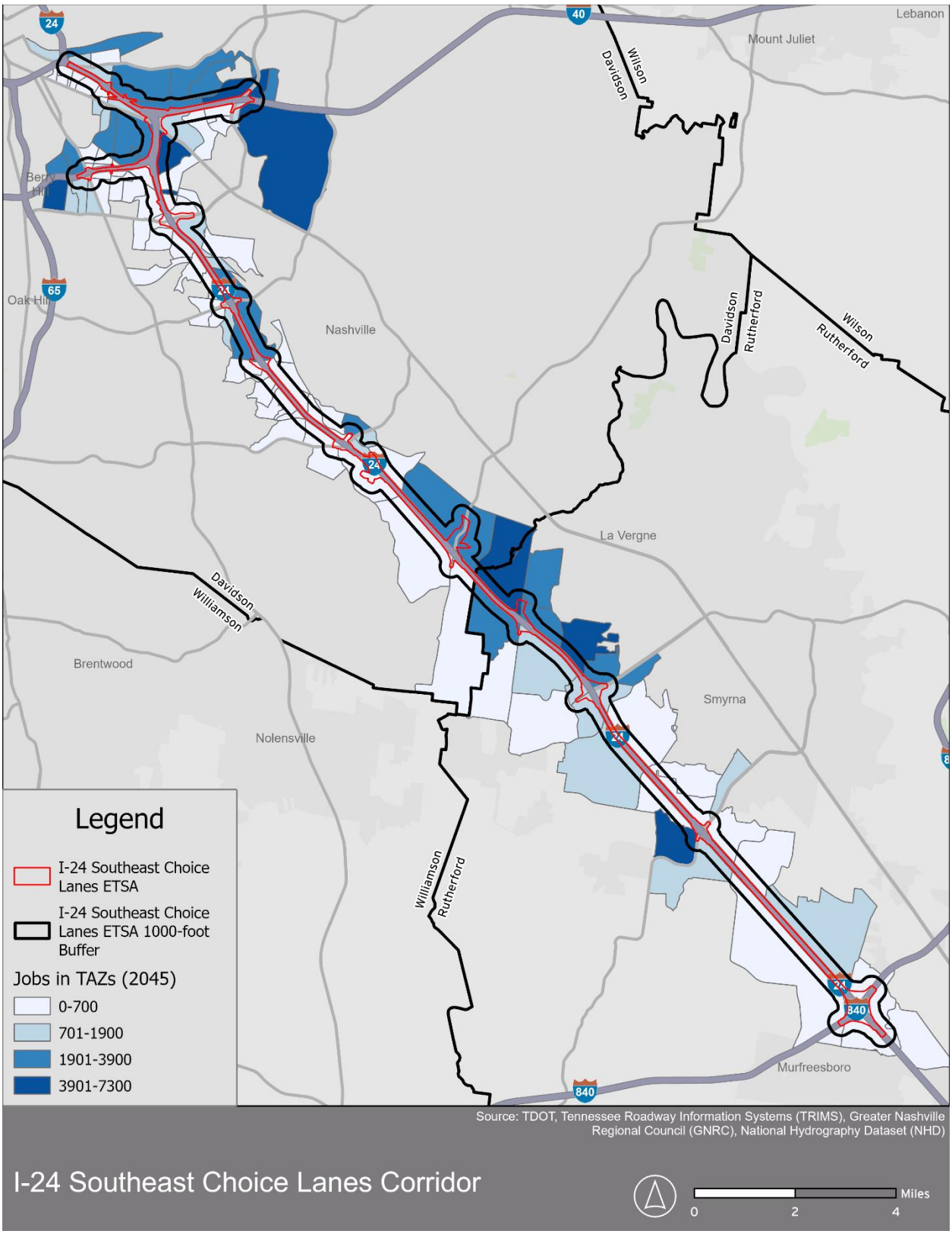
Table 3-3 shows employment in 2017 and projected employment in 2045 for Davidson and Rutherford counties. In 2017, Davidson County had 638,277 jobs located within the county, accounting for 79 percent of the jobs within the Davidson/Rutherford County area. Rutherford County reported 171,478 jobs within the county, accounting for 21 percent of the jobs within the Davidson/Rutherford County area. By 2045, projection modeling shows Davidson County's job market increasing to approximately 863,700 (76 percent of the total) while showing Rutherford's employment numbers rising to 272,141 (24 percent of the total). Overall, the model shows the combined, two-county employment count growing from about 810,000 in 2017 to over 1.1 million in 2045. **Figure 3-2** provides an overview of employment located within TAZs throughout the study area.

Table 3-3: Employment in Study Area by County (2017 and 2045)

GEOGRAPHY	EMPLOYMENT (2017)	EMPLOYMENT (2045)	SHARE OF TOTAL EMPLOYMENT (2017)	SHARE OF TOTAL EMPLOYMENT (2045)
Davidson	79,271	109,945	76.37%	71.67%
Rutherford	24,532	43,443	23.63%	28.33%
Total	103,803	153,388	100%	100%

Source: GNRC Urban Sim Land Use Forecasting Model, (n.d.), Accessed August 2025.

Figure 3-2: Employment within Each Study Area TAZ (2045)



Source: GNRC Urban Sim Land Use Forecasting Model, (n.d.), Accessed February 2024.

Table 3-4 provides total employment and employment by industry sector in the study area for 2017 and projections for 2045. These numbers display the number of jobs located within a TAZ rather than the number of employed individuals who reside within the TAZ. Employment calculations within the ETSA used TAZ-level data from GNRC. In 2017, the latest year for which TAZ-level employment data is available, employment was close to 327,090. By 2045, the projection model forecasts total employment to be approximately 467,035, a 43 percent increase. Employment within the ETSA is concentrated in the Office and Industrial sectors. By 2045, the projection model forecasts 144,922 office jobs in the ETSA, a 36 percent increase from 2017. The forecast expects industrial jobs to decrease by 2 percent during that timeframe, from 57,777 in 2017 to 56,611 in 2045.

Table 3-4: Employment by Industry Sector in ETSA (2017 and 2045)

INDUSTRY SECTOR	2017	2045	% CHANGE
Agriculture	9,592	13,007	35.6%
Management	13,411	13,708	2.21%
Transportation	20,242	20,124	-0.58%
Retired	15,377	25,823	67.93%
Office	45,181	80,726	78.67%
Total	103,803	153,388	47.77%

Source: GNRC Urban Sim Land Use Forecasting Model, (n.d.), Accessed October 2025.

3.2 Socioeconomic Demographics

The evaluation of regional demographics and population characteristics used data from the U.S. Census Bureau 2024 ACS 1-Year Estimates. Demographics and population characteristics include age, education, literacy, disability, children's health and safety, vehicle ownership, internet access and median household income (**Table 3-5**). Employment and commuting trends, tourism, building permits and housing data (rented vs. owned, subsidized housing and cost burden) were additional population characteristics evaluated. The Project Team also reviewed data, information and analysis included in the Nashville Region's Vital Signs Report to supplement census data. The summary of literacy data is from the National Center for Education Statistics and Program for International Assessment of Adult Competencies, which assesses essential skills and competencies. Regional demographics and population characteristics are discussed in detail in the Socioeconomic Conditions Technical Memorandum.

Table 3-5: Regional Demographic and Population Characteristics for Tennessee, Davidson County and Rutherford County

SOCIAL CHARACTERISTIC		TENNESSEE	DAVIDSON COUNTY	RUTHERFORD COUNTY
Age[3]	Under Age 18 (%)	21.8	20.5	24.4
	Age 65 and Above (%)[4]	17.6	13.3	11.9
Education[5]	High School Degree, GEC, or Alternative Credential (%)	90.6	92.2	92.9
	Bachelor's Degree or Higher*	32.4	51.2	36.6
Literacy[6]	At or Below Level 1 (%)	22	22	17
	At Level 2 (%)	38	32	35
	At or Above Level 3 (%)	40	47	48

[3] U.S. Census Bureau. "Population Under 18 Years by Age." ACS 1-Year Estimates Detailed Tables, Table B09001, 2024, Accessed October 2025.
[4] U.S. Census Bureau. "Age and Sex." ACS 1-Year Estimates Subject Tables, Table S0101, 2024, Accessed October 2025.
[5] U.S. Census Bureau. "Educational Attainment for the Population 25 Years and Over." ACS 1-Year Estimates Detailed Tables, Table B15003, 2024, Accessed October 2025.
[6] A full description of the PIAAC literacy levels is available on the National Center for Education Statistics website (https://nces.ed.gov/surveys/piaac/measure.asp). October 2025.

SOCIAL CHARACTERISTIC		TENNESSEE	DAVIDSON COUNTY	RUTHERFORD COUNTY
Disability[7]	Non-institutionalized Population with a Disability (%)	14.8	10.4	13.5
Children's Health and Safety[8]	Current asthma condition among children aged 0-17 (%)	8.6	N/A	N/A
Vehicle Ownership[9]	Households with No Vehicles Available (%)	5.4	7.1	3.6
Internet Access[10]	Households with Internet Access (%)	95.9	97.9	97.3
Median Household Income[11]	Median Household Income (in 2024 Dollars)	71,997	80,700	90,240

[7] U.S. Census Bureau. "Selected Social Characteristics in the United States." ACS 1-Year Estimates Data Profiles, Table DP02, 2024, Accessed October 2025.
[8] Child and Adolescent Health Measurement Initiative. 2022-2023 National Survey of Children's Health (NSCH) data query, Accessed October 2025.
[9] U.S. Census Bureau. "Selected Housing Characteristics." ACS 1-Year Estimates Data Profiles, Table DP04, 2024, Accessed October 2025
[10] U.S. Census Bureau. "Selected Social Characteristics in the United States." ACS 1-Year Estimates Data Profiles, Table DP02, 2024, Accessed October 2025.

[11] U.S. Census Bureau. "Median Household Income in the Past 12 Months (in 2024 Inflation-Adjusted Dollars)." ACS 1-Year Estimates Detailed Tables, Table B19013, 2024, Accessed October 2025.

INTENTIONALLY LEFT BLANK

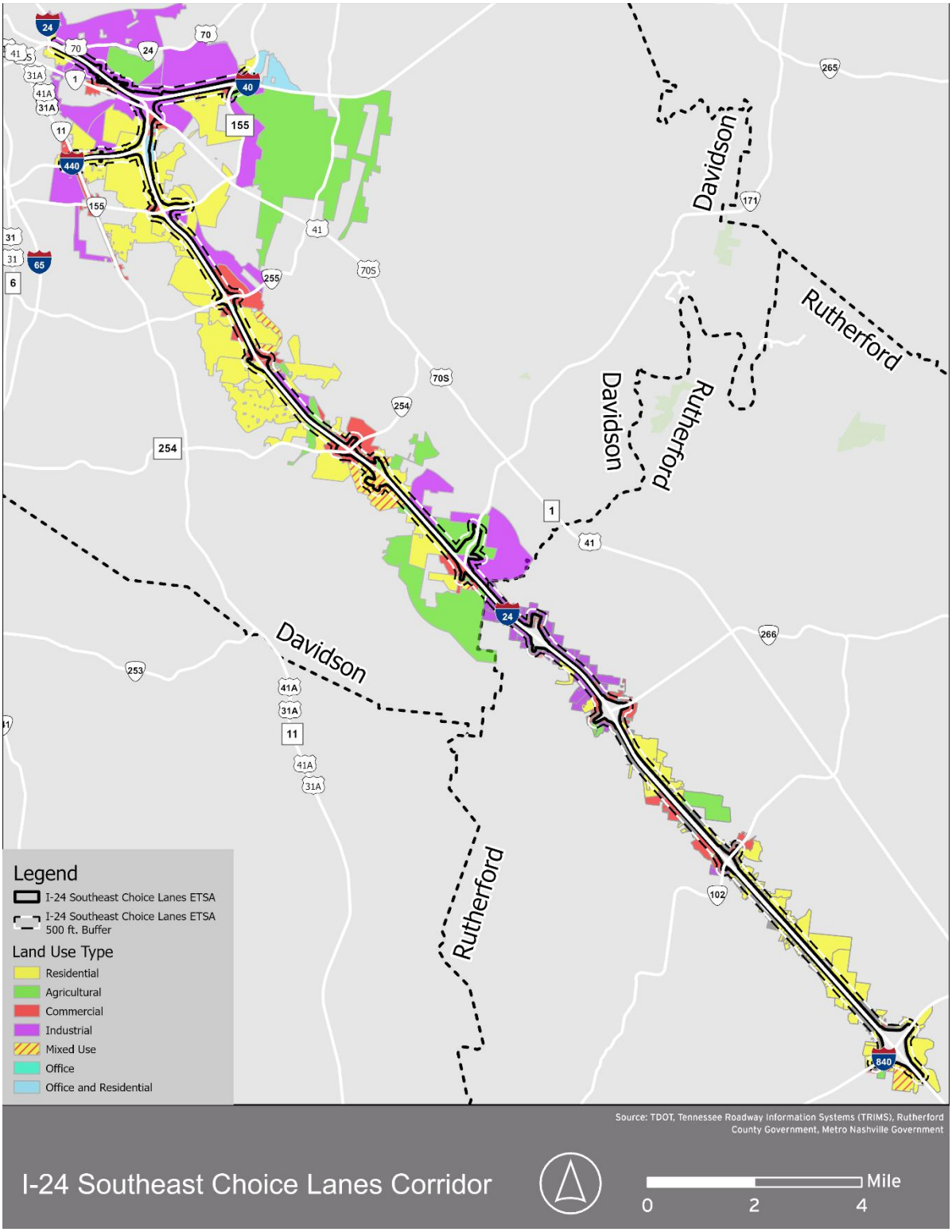
3.3 Land Use

The Project Team accessed and analyzed land use data in Davidson County using zoning data from the Metropolitan Government of Nashville and Davidson County. To ascertain land use type, reviewers used zoning codes based on current zoning areas. Reviewers accessed land use data in Rutherford County through the Rutherford County Geographic Information System (GIS) data server. Computer-Aided Mass Appraisal (CAMA) provided land use data for each parcel near the study area. Calculations also included the percentage of each land use type for land within 500 feet of the ETSA. These calculations excluded land outside of a 500-foot buffer. For the calculations in Davidson County, reviewers assigned interstate and ROW area to the same land use as the closest parcel/zoning district. For the calculations in Rutherford County, reviewers did not include interstate and ROW area in calculations. **Table 3-6** provides a breakdown of land use categories within the study area. **Figure 3-3** provides an overview of the identified current land uses within the study area.

Table 3-6: Existing Land Use Category Definitions

LAND USE CATEGORY	CATEGORY DEFINITION
Agriculture	Agriculture
Commercial	Commercial spaces, hotel/motel
Industrial	Industrial/business
Mixed Use	Mixed Use
Office	Offices
Residential	Multi-Family, Single-Family, Apartments
Other	Airport, Parking, ROW, Railroad ROW, Vacant

Figure 3-3: Current Land Use by Type



Land use areas are existing parcels or zoning districts that have space that intersects a 500-foot buffer around the ETSA. Larger parcels or districts may be clipped and incompletely displayed.

Table 3-7 provides a breakdown of existing land use in the Davidson County portion of the study area. Over half of the study area within Davidson County is used for either Residential or Industrial purposes, which comprise around 2.7 and 0.9 square miles, respectively. **Table 3-8** provides a similar breakdown for the Rutherford County portion of the study area. Like Davidson County, over half the study area within Rutherford County is used for either Residential or Industrial purposes, which comprise 1.6 and 0.6 square miles, respectively. The land use calculations for Rutherford County include only area within a 500-foot buffer of the ETSA and do not include land outside of the buffer. See table notes for further details on the methodology.

Table 3-7: Davidson County Existing Land Use within Study Area

LAND USE CATEGORY	SQUARE MILES	SHARE OF STUDY AREA
Agriculture	0.5	7.7%
Commercial	1.1	16.4%
Industrial	0.9	13.5%
Mixed Land Use	1.2	18.1%
Office	0.01	0.2%
Residential	2.7	40.1%
Other	0.3	4.0%
Total	**6.71**	**100%**

Source: Metro Nashville Government ArcGIS REST Server Zoning Layer, (n.d.), Accessed October 2025.

Table 3-8: Rutherford County Existing Land Use within Study Area

LAND USE CATEGORY	SQUARE MILES	SHARE OF STUDY AREA
Agriculture	0.05	1.72%
Commercial	0.5	17.24%
Industrial	0.6	20.7%
Mixed Land Use	0.1	3.45%
Office	0.00	0.0%
Residential	1.6	55.17%
Other	0.05	1.72%
Total	**2.9**	**100%**

Source: Rutherford County ArcGIS REST Server CAMA Parcels Layer, (n.d.) Accessed October 2025.

Note: Interstate and ROW area was not included in these calculations.

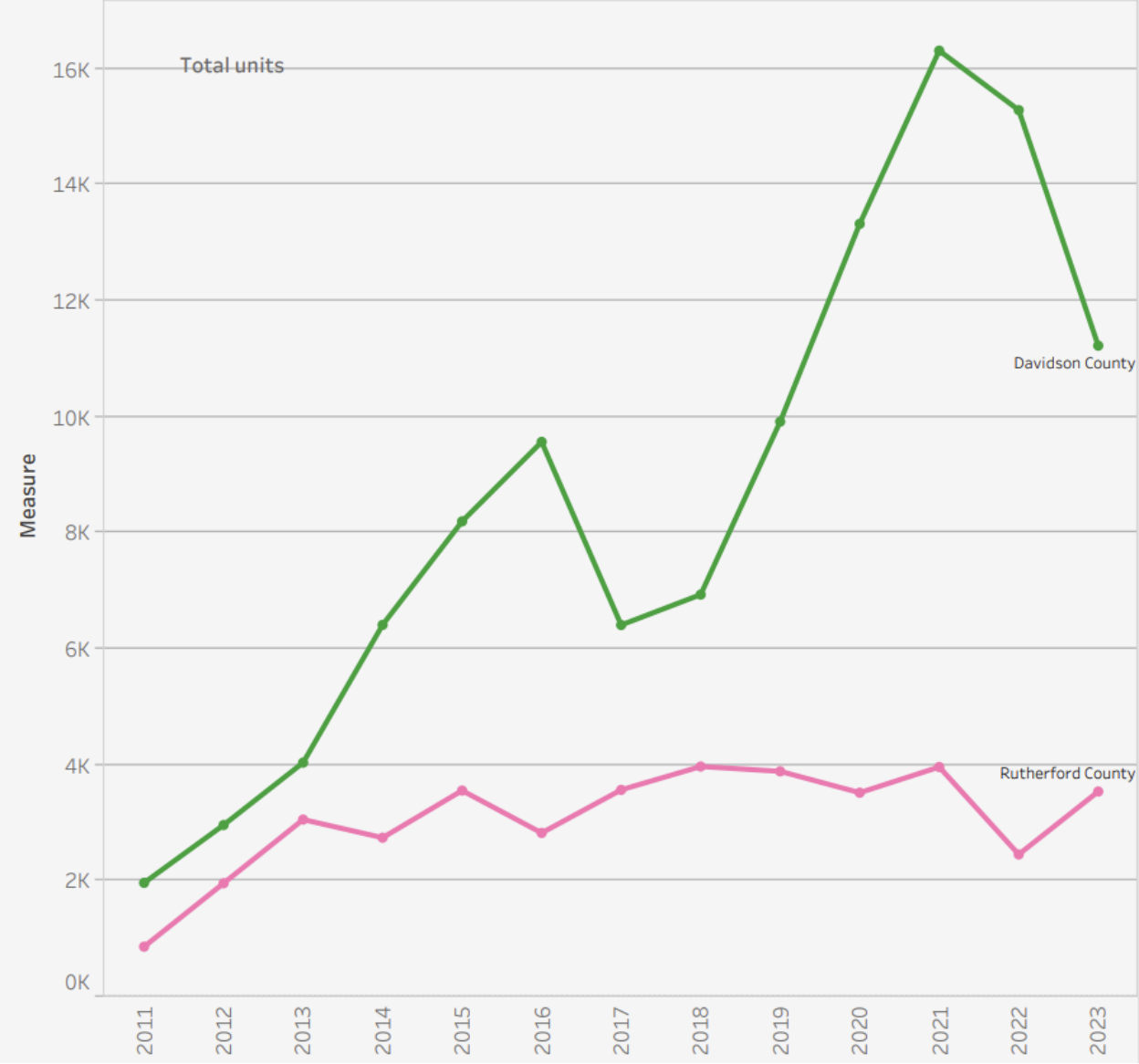
Building Permits

Population growth and residence type are reflected in the number of building permits authorized in Davidson and Rutherford Counties.[12] In 2011, there were 1,966 total housing unit permits authorized in Davidson County. This number has since grown rapidly, with 9,566 new permits in 2016 and 11,225 permits in 2023. The rate of growth in the number of building permits authorized in Rutherford County has been slower, with 866 total housing unit permits authorized in 2011, 2,826 permits authorized in 2016, and 3,540 permits authorized in 2023.

In Davidson County, the percentage of building permits authorized for multifamily units has increased from 43.4 percent in 2011 (854 permits) to 71.9 percent in 2023 (8,068 permits). In Rutherford County, while the percent of building permits authorized for multifamily units has also increased, from 1 percent in 2011 (8 permits) to 18 percent in 2023 (631 permits), single-family units constitute most of the permits authorized (2,909 permits, 82 percent) in 2023. See **Figure 3-4** below for new building permits and authorizations in Davidson and Rutherford Counties.

[12] U.S. Census Bureau Building Permits Survey: New Privately Owned Housing Unit Authorizations, 2025, Accessed February October 2025.

Figure 3-4: New Building Permits and Authorizations in Davidson and Rutherford Counties (2011–2023)



Source: March 2025 U.S. Census Bureau Building Permits Survey, Accessed October 2025.

3.4 Public Facilities

3.4.1 Schools

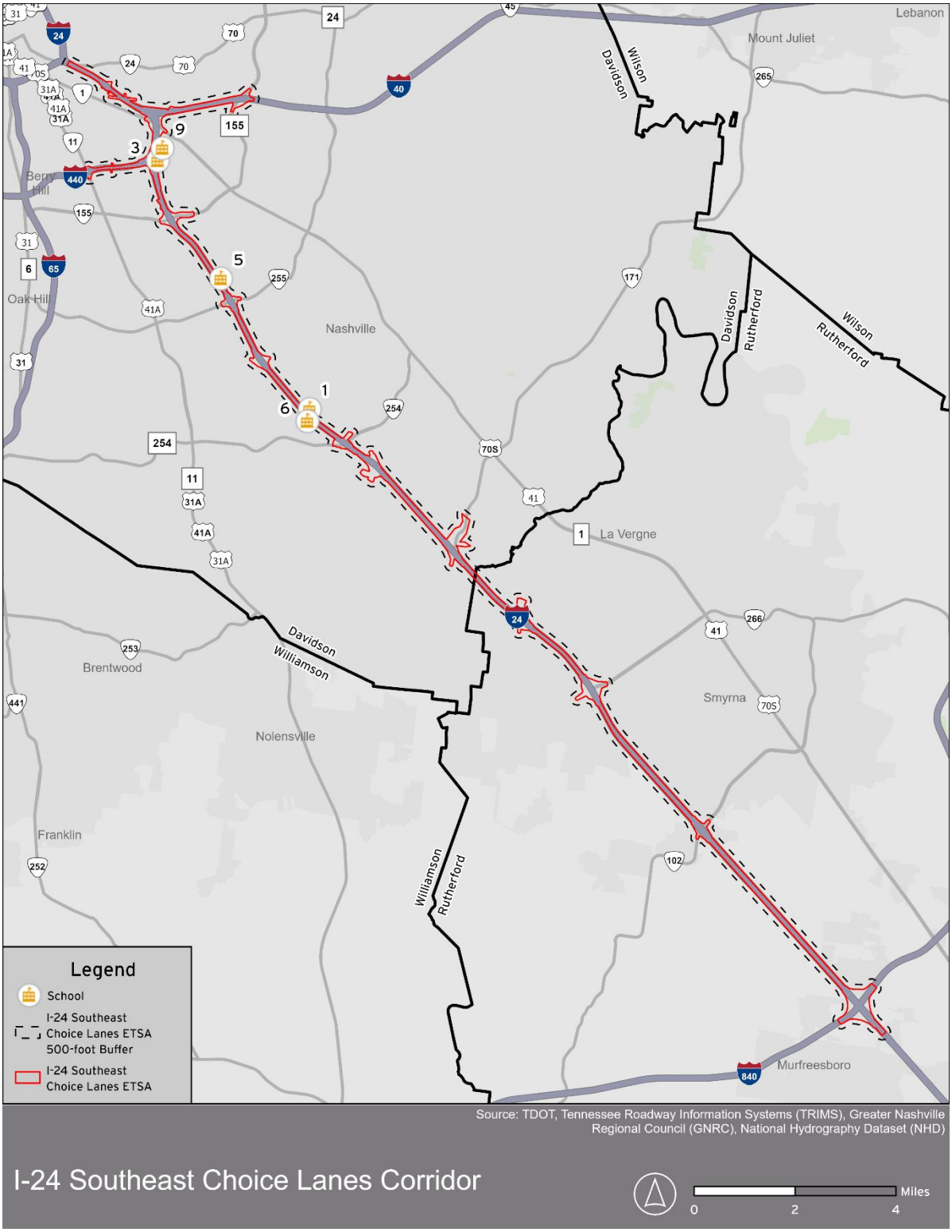
This section, Public Facilities, refers to the land within the ETSA and a 500-foot buffer placed around the ETSA as the "study area" unless stated otherwise. As shown on **Table 3-9**, there are nine K-12 schools located within the study area. An additional five schools are located along the I-24 Southeast corridor in southeast Davidson County. No K-12 schools were found within the Rutherford County portion of the study area. **Figure 3-5** identifies the locations of the schools within the study area.

Table 3-9: Schools in the Study Area

MAP ID	NAME
1	Antioch Middle School
3	High Road School of Nashville
5	LEAD Southeast
6	Lighthouse Christian School
9	Rocketship United Academy

Source: Google Maps. Accessed August 2025.

Figure 3-5: Schools Within the Study Area



Source: Google Maps. Accessed October 2025.

3.4.2 Places of Worship

Table 3-10 below lists places of worship found within the study area. Fifteen places of worship are within the study area. As shown on **Figure 3-6**, places of worship are mostly located along the I-24 Southeast corridor in Nashville and southeast Davidson County. Unity Free Will Baptist Church was the only place of worship found within the Rutherford County portion of the study area.

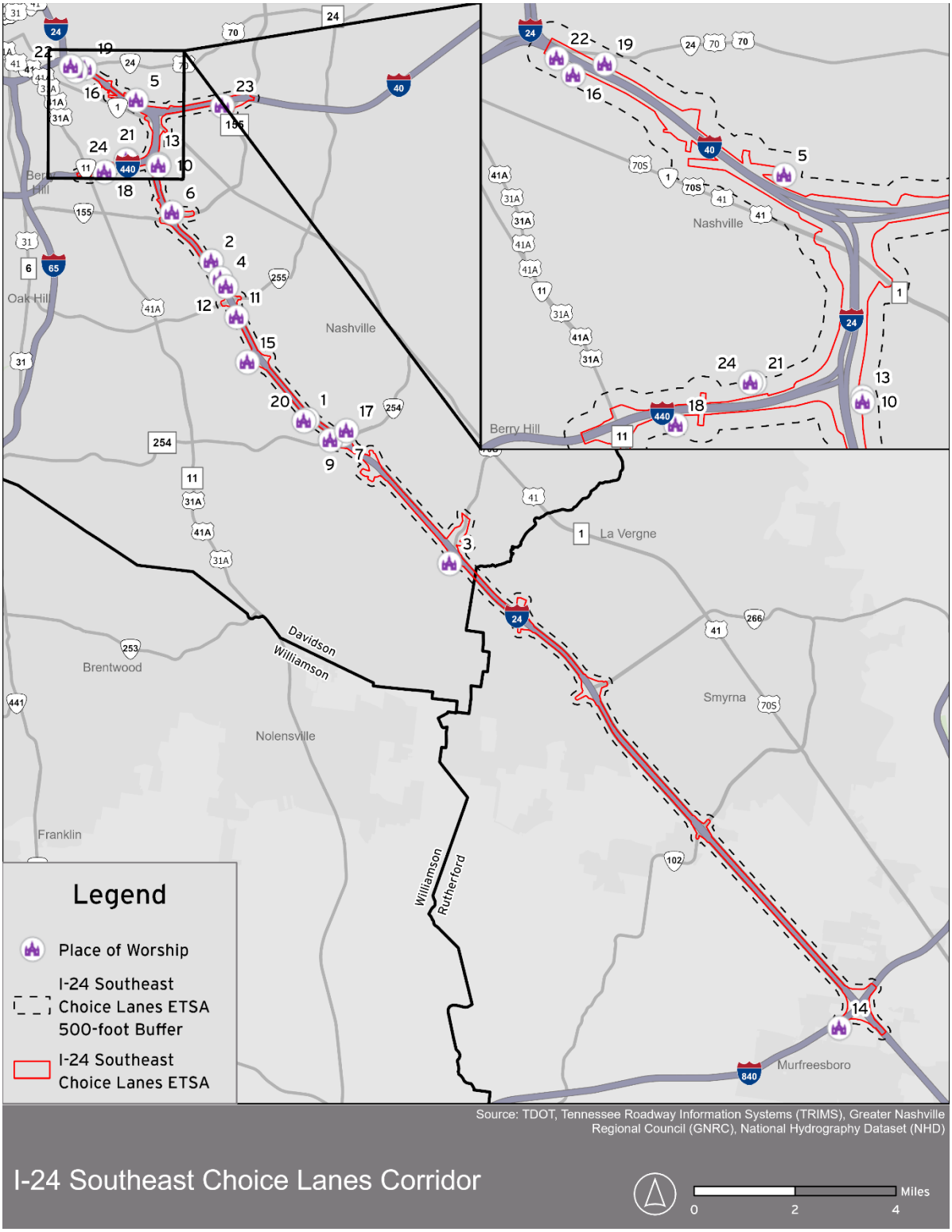
Table 3-10: Places of Worship in the Study Area

MAP ID	NAME
1	Adiss Kidan Church
2	Antioch Community Church of God
3	Church of Christ of Gilroy
4	Community Fellowship Church
5	Ebenezer AME
6	Glencliff United Methodist Church
7	Ministerios Ebenezer Nashville
8	New City Church – Nashville
9	New Journey Non-Denominational
10	Primera Iglesia Bautista
11	Restoration Life Church
12	Royal City Chapel International
13	Tajweed Centre/Masjid
14	Unity Free Will Baptist Church
15	Victory Chapel
16	Zomi Pentecostal Church
17	Edmondson Chapel Church
18	Faith Missionary Baptist Church
19	Green Street Community Church
20	Lighthouse Baptist Church
21	Lyle Lane Baptist Church
22	St. Luke's Primitive Baptist Church

MAP ID	NAME
23	St. Mary Coptic Orthodox Church of Nashville
24	Nashville Chinese Baptist Church

Source: Google Maps, Accessed March 2024.

Figure 3-6: Places of Worship Within the Study Area



Source: Google Maps. Accessed March 2024.

3.4.3 Airports/Heliports

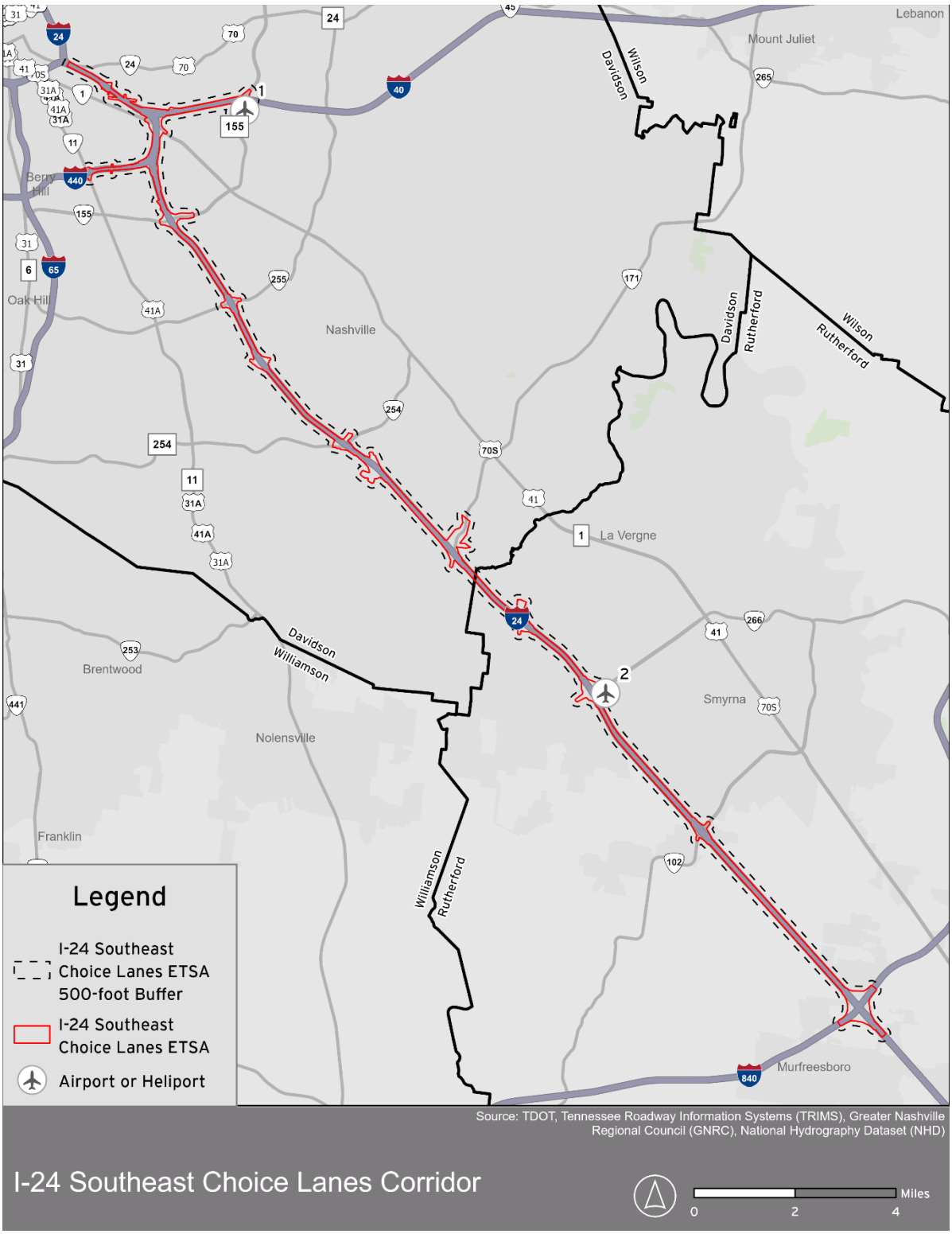
There is one airport and one heliport located within the study area, both of which appear in the table below and are identified on **Table 3-11** and **Figure 3-7**. Nashville International Airport borders and runs adjacent to I-40 for approximately 2 miles. TriStar StoneCrest Medical Center Heliport is located in Rutherford County near the SR 266 (Sam Ridley Parkway) interchange on I-24. In Davidson County, there are several more heliports located within 2 miles of the ETSA. These include Centennial Medical Center Hospital, St. Thomas Midtown Hospital, Vanderbilt University Medical Center and the Tennessee Army and Air National Guard.

Table 3-11: Airport and Heliport in the Study Area

MAP ID	AIRPORT NAME
1	Nashville International Airport
MAP ID	**HELIPORT NAME**
2	TriStar StoneCrest Medical Center Heliport

Source: Google Maps. Accessed March 2024.

Figure 3-7: Airport and Heliport Within the Study Area



Source: Google Maps, Accessed March 2024.

3.4.4 Cemeteries

As shown on **Table 3-12** and identified on **Figure 3-8,** there are 17 known cemeteries located within the ETSA and adjacent 500-foot buffer. Of the 17 cemeteries, 12 are located within the ETSA. A review of these cemeteries identified the following cemeteries as within or partially within the ETSA:

- Mount Ararat Cemetery/Greenwood Cemetery West
- Baker-Goodrich Cemetery
- Carper Cemetery
- Foster-Owens Cemetery
- Roach Cemetery
- Gambell Cemetery
- Hill-Roulhac Cemetery
- Hartman Cemetery
- Blue Hole African-American Cemetery
- Morton-Holloway Cemetery
- Gambill/Gamble Cemetery
- Mill Creek Baptist Church Graveyard/Whitsett Cemetery

An additional five cemeteries are located within 500 feet of the ETSA: Austin, Mount Olivet, Guthrie-Gooch, Calvary and Baker.

Cemeteries located outside of the ETSA and buffer are unlikely to experience direct or other reasonably foreseeable impacts from development along the studied corridors.

Survey-verified cemeteries located within the 500-foot buffer include Austin, Baker, Calvary, Guthrie-Gooch and Mount Olivet. As the proposed Project develops, further fieldwork would be completed to assess cemeteries within the study area.

Table 3-12: Known Cemeteries in the Study Area

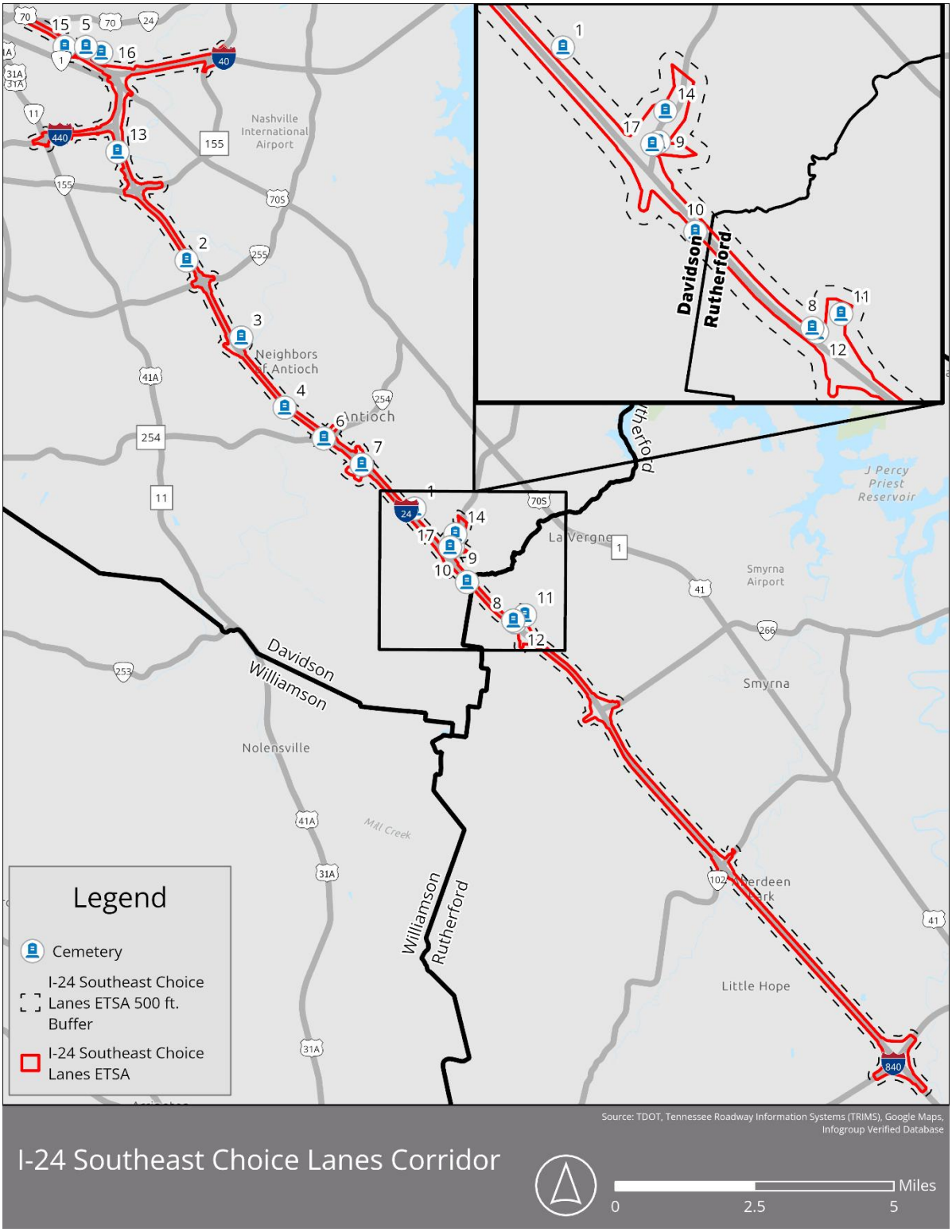
MAP ID	NAME
1	Austin Cemetery
2	Baker-Goodrich (Paragon Mills) Cemetery *
3	Baker Cemetery
4	Blue Hole African-American Cemetery*
5	Calvary Cemetery
6	Carper Cemetery*
7	Foster-Owens Cemetery*

MAP ID	NAME
8	Gambell Cemetery*
9	Gambill/Gamble Cemetery*
10	Guthrie-Gooch Cemetery
11	Hartman Cemetery*
12	Hill-Roulhac Cemetery*
13	Mill Creek Baptist Church/Whitsett Cemetery*
14	Morton-Holloway Cemetery*
15	Mount Ararat/Greenwood Cemetery West*
16	Mount Olivet Cemetery
17	Roach Cemetery*

** Cemetery is located within the ETSA*

Source: Google Maps; Tennessee State Historic Preservation Office, Accessed October 2025.

Figure 3-8: Cemeteries in Study Area



Source: Google Maps, Accessed October 2025.

3.4.5 Fire, Hospital and Medical Facilities

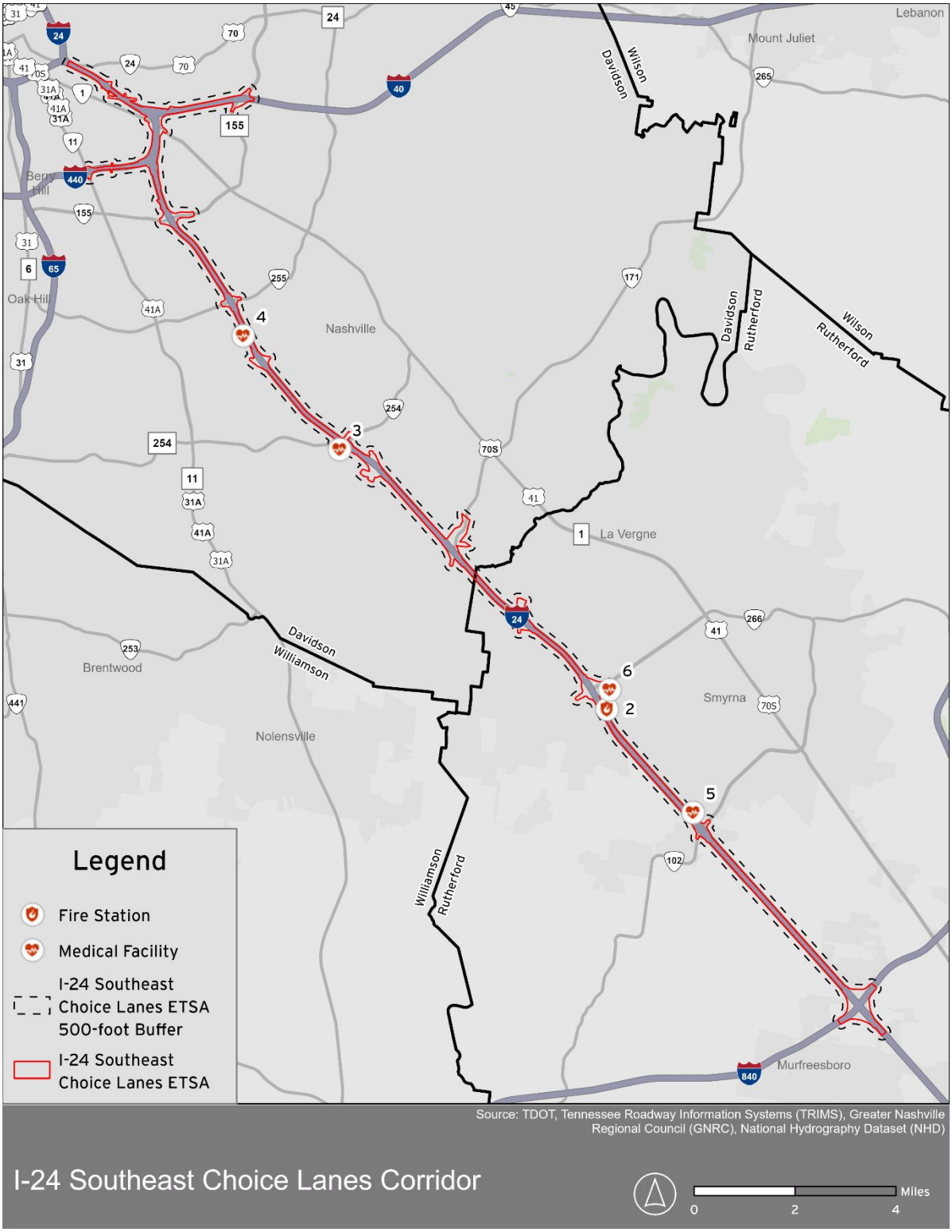
The table below lists fire stations, hospitals and medical facilities found within 500 feet of the ETSA. This review found no law enforcement facilities within the study area. Medical facilities found within the study area include a mix of inpatient and outpatient facilities. They include CareNow Urgent Care – Antioch and DaVita Woodbine Dialysis in Davidson County and Thompson Family Healthcare and TriStar StoneCrest Medical Center in Rutherford County. **Figure 3-9** identifies the location of facilities listed in **Table 3-13.**

Table 3-13: Fire, Hospital and Medical Facilities in the Study Area

MAP ID	NAME
2	Smyrna Fire Station 5
MAP ID	NAME
3	CareNow Urgent Care – Antioch
4	DaVita Woodbine Dialysis
6	Thompson Family Healthcare
7	TriStar StoneCrest Medical Center

Source: Google Maps, Accessed October 2025.

Figure 3-9: Fire, Hospital and Medical Facilities Within the Study Area



Source: Google Maps, Accessed October 2025.

3.5 Parks and Recreational Resources

Nashville released its Master Park Plan in 2016 and established an agenda for park development and investments across the city into 2027. The plan identified the investment in city park systems as an essential part of Nashville's continued growth.[13] Importantly, the park plan for the city of Nashville aims to create shared outdoor community spaces for Nashvillians of all demographics to use and enjoy. Growth and maintenance of green space and outdoor recreational space are essential as the city expands, especially as "aspects of Nashville's park system are seeing intensified use pressure on existing parks due to the popularity of park land, facilities, and programs."[14]

As shown on **Table 3-14** and identified on **Figure 3-10**, five parks lie partially within the ETSA boundary, while Providence Park is located within 500 feet of the ETSA. The parks that lie within the ETSA include:

- Mill Creek Greenway/Blue Hole Park Antioch Park
- Mill Ridge Park
- Antioch Park
- Whitsett Park/Mill Creek Greenway
- Mill Creek Greenway near Antioch Park

Mill Ridge Park is Nashville's newest public park, located in southeastern Davidson County. The park is still under development but may be more than 600 acres in size once completed. The new park will serve the southeast Davidson County community with park facilities. Phase 1 construction finished in August 2023 and opened 15 of the expected 600 acres to the public. The portion of the park that is currently open to the public is not located within the study area. The park is currently in Phase 2 of project development. Roadway improvement and additional development along the I-24 corridor could lead to potential impacts on this recreational resource. The planned expansion of Mill Ridge Park would border existing TDOT ROW along the I-24 corridor in Antioch.[15] As a planned recreational facility, this park and the property set aside and owned by the city of Nashville would likely qualify as a Section 4(f) Resource.

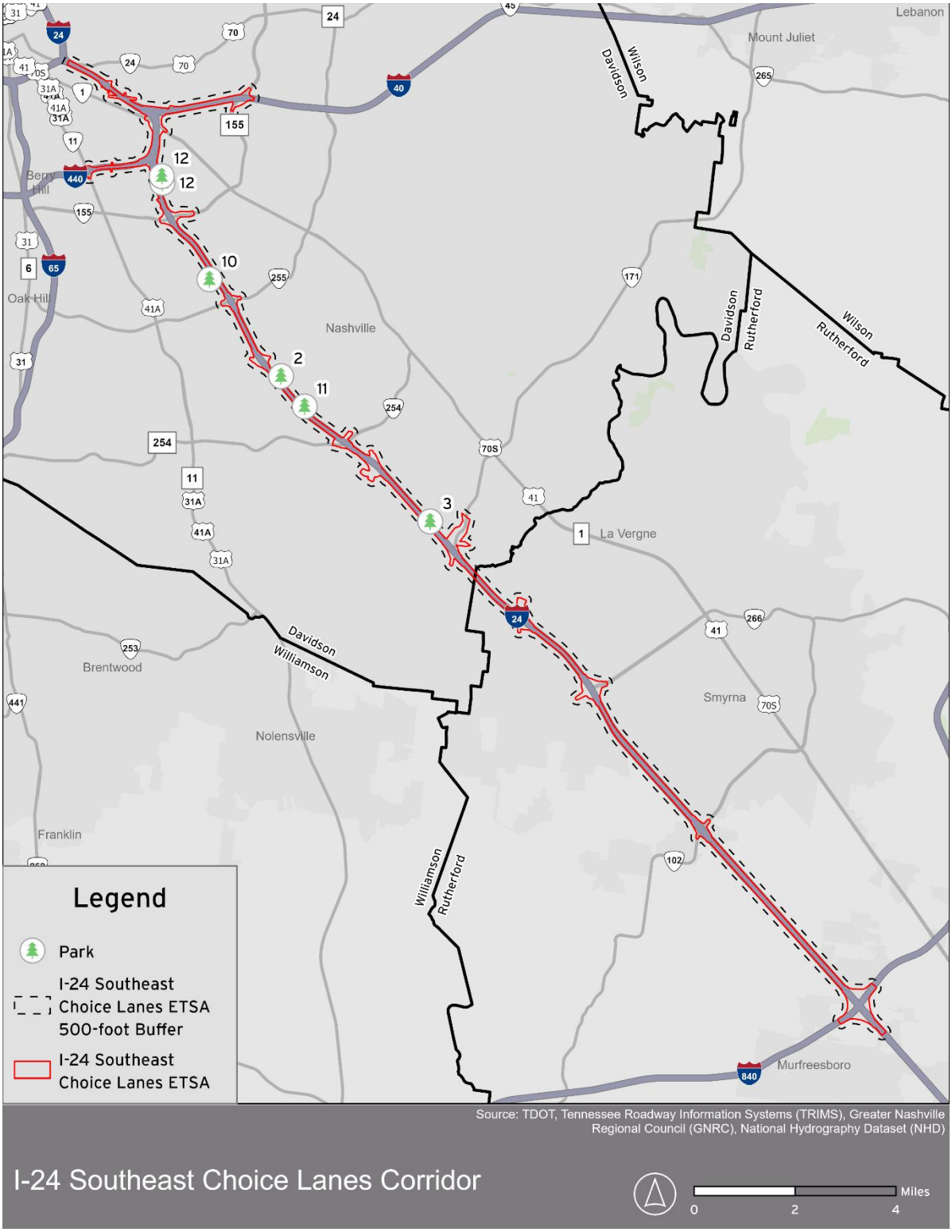
[13] Metro Parks Nashville, Plan to Play, The Nashville Parks and Greenways Master Plan – Executive Summary 2017, Accessed March 2024.
[14] Metro Parks Nashville, Plan to Play, The Nashville Parks and Greenways Master Plan – Executive Summary 2017, Accessed March 2024.
[15] Metro Parks Nashville, Mill Ridge Park Plan, 2017, Accessed March 2024.

Table 3-14: Parks and Recreational Facilities in the Study Area

MAP ID	NAME
2	Mill Creek Greenway/Blue Hole Park
3	Mill Ridge Park
10	Providence Park
11	Antioch Park
12	Whitsett Park/Mill Creek Greenway
11	Mill Creek Greenway near Antioch Park

Source: Google Maps; Nashville Parks Finder. Accessed October 2025.

Figure 3-10: Parks and Recreational Facilities Within the Study Area



Source: Nashville Parks Finder, (n.d.), Accessed October 2025.

3.6 Natural Resources

3.6.1 Vegetation and Wildlife Habitats

This section, Natural Resources, refers to the land within the ETSA and a 500-foot buffer placed around the ETSA as the "study area" unless stated otherwise. Most of the study area is urban, developed area. A majority of land within the study area is classified as low to high-intensity developed area according to the 2021 National Land Cover Database.[16] Approximately 15.5 percent of land within the study area is classified as some sort of vegetative cover (e.g., deciduous forest, hay/pasture, mixed forest, evergreen forest, cultivated crops, herbaceous, barren land, shrub/scrub, woody wetlands, or emergent herbaceous wetlands). The largest type of vegetative cover by land area is deciduous forest, which covers approximately 5 percent of land within the study area. Mixed forest and evergreen forest comprise 2.3 percent and 1.6 percent of the land within the study area, respectively. Forested areas provide a large proportion of wildlife habitat in the study area. Other areas where wildlife may often be found include streams and wetlands, shrubland and pastures, residential lots, and in some cases, bridges/underpasses may host nesting sites for migratory birds and bat habitats.

3.6.2 Threatened and Endangered Species

Federally listed threatened and endangered species are subject to protection under the Endangered Species Act (ESA) of 1973 (16USC 1531 et seq.). The ESA provides protection of animal and plant species that have been determined to be in population decline and are in jeopardy of becoming extinct. Below is a table listing rare, threatened and endangered species that may appear within the study area.

[16] USGS, USGS NLCD Database, (n.d.), Accessed February 2024.

Table 3-15: Federally and State Listed Threatened and Endangered Species Potentially Occurring Within the Study Area

COMMON NAME	SCIENTIFIC NAME	STATUS		CRITICAL HABITAT WITHIN STUDY AREA
		FEDERAL	STATE	
Insects				
Monarch Butterfly	Danaus plexippus	Candidate	-	None
Birds				
Whooping Crane	Grus americana	Experimental Population	-	None
Bachman's Sparrow	Peucaea aestivalis	-	Endangered	None
Mammals				
Gray Bat	Myotis grisescens	Endangered	Endangered	None
Tricolored Bat	Perimyotis subflavus	Proposed Endangered	Endangered	None
Northern Long-Eared Bat	Myotis septentrionalis	Endangered	Endangered	None
Little Brown Myotis (Bat)	Myotis lucifugus	-	Threatened	None
Amphibians				
Hellbender	Cryptobranchus alleganiensis	-	Endangered	None

COMMON NAME	SCIENTIFIC NAME	STATUS		CRITICAL HABITAT WITHIN STUDY AREA
		FEDERAL	STATE	
Streamside Salamander	Ambystoma barbourin	Under Review	Endangered	None
Tennessee Cave Salamander	Gyrinophilus palleucus	-	Threatened	None
Reptiles				
Alligator Snapping Turtle	Macrochelys temminckii	Proposed Threatened	Threatened	None
Mollusks				
Cumberlandian Combshell	Epioblasma brevidens	Endangered	Endangered	None
Littlewing Pearlymussel	Pegias fabula	Endangered	Endangered	None
Orangefoot Pimpleback (pearlymussel)	Plethobasus cooperianus	Endangered	Endangered	None
Pink Mucket (pearlymussel)	Lampsilis abrupta	Endangered	Endangered	None
Ring Pink (mussel)	Obovaria retusa	Endangered	Endangered	None
Spectaclecase (mussel)	Cumberlandia monodonta	Endangered	Endangered	None
Rabbitsfoot	Theliderma cylindrica cylindrica	Listed Threatened	Threatened	None

COMMON NAME	SCIENTIFIC NAME	STATUS		CRITICAL HABITAT WITHIN STUDY AREA
		FEDERAL	STATE	
Crustaceans				
Nashville Crayfish	Orconectes shoupi	Endangered	Endangered	None
Brawleys Fork Crayfish	Cambarus williami	-	Threatened	None
Fish				
Lake Sturgeon	Acipenser fulvescens	Under Review	Endangered	None
Blue Sucker	Cycleptus elongatus	-	Threatened	None
Striated Darter	Etheostoma striatulum	-	Threatened	None
Redlips Darter	Etheostoma maydeni	-	Threatened	None
Non-Vascular Plants				
Sharp's Lejeunea	Lejeunea sharpie	-	Endangered	None
Ornate Cololejeunea	Cololejeunea ornata	-	Threatened	None
Flowering Plants				
Braun's Rock-cress	Arabis perstellata	Endangered	Endangered	None

COMMON NAME	SCIENTIFIC NAME	STATUS		CRITICAL HABITAT WITHIN STUDY AREA
		FEDERAL	STATE	
Guthrie's (Pyne's) Ground-plum	Astragalus bibullatus	Endangered	Endangered	None
Leafy Prairie-clover	Dalea foliosa	Endangered	Endangered	None
Price's Potato-bean	Apios priceana	Threatened	Endangered	None
Short's Bladderpod	Physaria globose	Endangered	Endangered	None
Sand Grape	Vitis rupestris	-	Endangered	None
Eastern Yampah	Perideridia americana	-	Endangered	None
Harbison's Hawthorn	Crataegus harbisonii	-	Endangered	None
White Water-buttercup	Ranunculus aquatilis var. diffuses	-	Endangered	None
American Water-pennywort	Hydrocotyle americana	-	Endangered	None
Carolina Anemone	Anemone caroliniana	-	Endangered	None
Western Wallflower	Erysimum capitatum	-	Endangered	None
Purple Prairie-clover	Dalea pupurea	-	Endangered	None
Shaggy False Gromwell	Lithospermum parviflorum	-	Endangered	None

COMMON NAME	SCIENTIFIC NAME	STATUS		CRITICAL HABITAT WITHIN STUDY AREA
		FEDERAL	STATE	
Willow Aster	Symphyotrichum praealtum	-	Endangered	None
Pope's Sand-parsley	Ammoselinum popei	-	Threatened	None
Yellow Sunnybell	Schoenolirion croceum	-	Threatened	None
Yellow Honeysuckle	Lonicera flava	-	Threatened	None
Butternut	Juglans cinerea	-	Threatened	None
Svenson's Wild-rye	Elymus svensonii	-	Threatened	None
Tennessee Coneflower	Echinacea tennesseensis	Delisted Taxon	Threatened	None
Pale Umbrella-wort	Mirabilis albida	Delisted Taxon	Threatened	None
Prairie Parsley	Polytaenia nuttallii	-	Threatened	None
White Prairie-clover	Dalea candida	-	Threatened	None
Glade Cleft Phlox	Phlox bifida ssp. Stellaria	-	Threatened	None
Gattinger's Goldenrod	Solidago gattingeri	-	Endangered	None
Sessile Water Speedwell	Veronica catenta	-	Endangered	None

COMMON NAME	SCIENTIFIC NAME	STATUS		CRITICAL HABITAT WITHIN STUDY AREA
		FEDERAL	STATE	
Running Glade Clover	Trifolium calcaricum	-	Endangered	None
Downy Gentian	Gentiana puberulenta	-	Endangered	None
Earleaved False-foxglove	Agalinis auriculata	-	Endangered	None
Wolf Spike-rush	Eleocharis wolfii	-	Endangered	None
Sweetscent Ladies'-tresses	Spiranthes odorata	-	Endangered	None
Horse-tail Spike-rush	Eleocharis equisetoides	-	Endangered	None
Smooth False Gromwell	Lithospermum subsetosum	-	Endangered	None
Pale-purple Coneflower	Echinacea pallida	-	Endangered	None
Blackfoot Quillwort	Isoetes melanopoda	-	Endangered	None
Rough Rattlesnake-root	Prenanthes aspera	-	Endangered	None
Stones River Bladderpod	Paysonia stonensis	-	Endangered	None
Prairie Goldenrod	Oligoneuron album	-	Endangered	None
Fen Indian-plantain	Arnoglossum plantagineum	-	Threatened	None

COMMON NAME	SCIENTIFIC NAME	STATUS		CRITICAL HABITAT WITHIN STUDY AREA
		FEDERAL	STATE	
Boykin's Milkwort	Polygala boykinii	-	Threatened	None
Alabama Snow-wreath	Neviusia alabamensis	-	Threatened	None
Southern Prairie-dock	Silphium pinnatifidum	-	Threatened	None
Slender Blazing-star	Liatris cylindracea	-	Threatened	None
Western Hairy Rockcress	Arabis hirsute	-	Threatened	None
Missouri Primrose	Oenothera macrocarpa	-	Threatened	None
Wavy-leaf Purple Coneflower	Echinacea simulate	-	Threatened	None
Northern Dropseed	Sporobolus heterolepis	-	Threatened	None
Hairy Fimbristylis	Fimbristylis puberula	-	Threatened	None
Narrow-leaf Ramps	Allium burdickii	-	Threatened	None

Source: U.S. Fish and Wildlife Service's (USFWS) Information for Planning and Consultation (IPaC) Database; Tennessee Department of Environment and Conservation Rare Species Dataviewer, (n.d.), Accessed February 2024.

INTENTIONALLY LEFT BLANK

3.6.3 Surface Waters

Surface waters within the study area include Browns Creek, Collins Creek, East Branch Hurricane Creek, East Fork Browns Creek, Mill Creek, Olive Branch, Overall Creek, Rock Spring Branch, Sevenmile Creek, Sorghum Branch, Stewart Creek, West Branch Hurricane Creek, Whittemore Branch and several unnamed tributaries. The study area is located within the Lower Cumberland-Sycamore (05130202) 8-digit hydrologic unit. **Table 3-16** below summarizes the stream classifications and Exceptional TN Waters[17] status of the streams within the study area. **Figure 3-11** shows the named streams which intersect the study area.

Table 3-16: Waterbody Classification and Exceptional TN Waters Status Within the Study Area

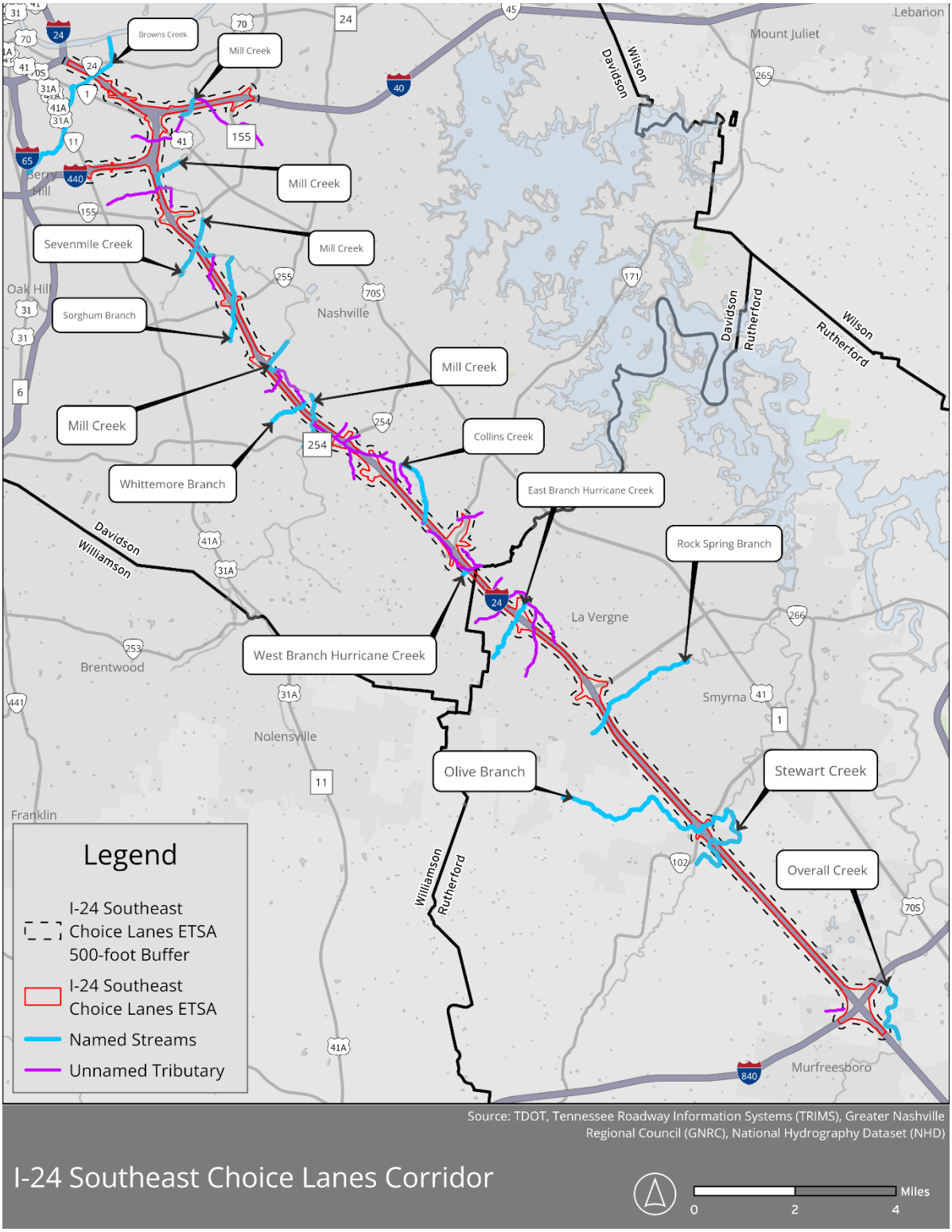
WATER BODY	STREAM/RIVER CLASSIFICATION	EXCEPTIONAL TN WATERS (REASON)
Browns Creek	Perennial	No
Collins Creek	Perennial, intermittent and artificial path	Yes (Presence of Nashville Crayfish)
East Branch Hurricane Creek	Perennial	No
Ewing Creek	Intermittent	Yes (Presence of Streamside Salamander)
Mill Creek	Perennial, artificial path	Yes (Presence of Streamside Salamander and Nashville Crayfish)
Olive Branch	Perennial	No
Overall Creek	Artificial path	Yes (Presence of Streamside Salamander)
Rock Spring Branch	Perennial	No
Sevenmile Creek	Artificial path	Yes (Presence of Nashville Crayfish)
Sorghum Branch	Perennial, artificial path	Yes (Presence of Nashville Crayfish)
Stewart Creek	Perennial, artificial path	No

[17] TDEC, TDEC Exceptional TN Waters Dataviewer, (n.d.), Accessed February 2024.

WATER BODY	STREAM/RIVER CLASSIFICATION	EXCEPTIONAL TN WATERS (REASON)
West Branch Hurricane Creek	Perennial	No
Whittemore Branch	Perennial	Yes (Presence of Nashville Crayfish)

Source: National Hydrography Dataset; TN Exceptional Waters Dataviewer, (n.d.), Accessed February 2024.

Figure 3-11. Streams and Rivers Within the Study Area



Source: National Hydrography Dataset; TN Exceptional Waters Dataviewer, (n.d.), Accessed February 2024.

3.6.4 Waters of the United States, including Wetlands

The purpose of this preliminary review is to identify potential waters of the U.S., including wetlands, within the study area. Reviewers conducted this investigation at the desktop level using GIS software with the USFWS National Wetlands Inventory (NWI) database.[18] Based on a search distance within the study area, the NWI GIS database identified 54 riverine wetlands located within the various stream/river channels, 16 freshwater emergent wetlands and 28 freshwater forested/shrub wetlands. The NWI data also identified one lake and 57 freshwater ponds within the study area. Field studies and delineations are underway to verify and identify U.S. Army Corps of Engineers (USACE) jurisdictional waters within the study area.

3.6.5 Floodways and Floodplains

Executive Order 11988 on Floodplain Management directs federal agencies "to avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative." The Federal Emergency Management Agency (FEMA) defines floodplains as "any land area susceptible to being inundated by floodwaters from any source." Several rivers and streams of various sizes intersect the study area and present flood risks. As such, a preliminary review of the floodplains and floodways in the study area used the FEMA National Flood Hazard Layer (NFHL)[19] within the study area.

REGULATORY FLOODWAY

FEMA defines the regulatory floodway as "the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height."

STUDY AREA REGULATORY FLOODWAYS AND FLOODPLAINS

The FEMA NFHL was used to identify floodways and floodplains within the study area. The following list includes these floodways and floodplains with their associated streams/rivers:

- Browns Creek: Floodway, 100-year floodplain
- Collins Creek: Floodway, 100-year floodplain
- East Branch Hurricane Creek: Floodway, 100-year floodplain
- Mill Creek: Floodway, 100-year floodplain
- Olive Branch: Floodway, 100-year floodplain

[18] USFWS, National Wetlands Inventory, (n.d.), Accessed February 2024.
[19] FEMA, National Flood Hazard Layer (NFHL), (n.d.), Accessed February 2024.

- Overall Creek: Floodway, 100-year floodplain
- Rock Spring Branch: Floodway, 100-year floodplain
- Sevenmile Creek: Floodway, 100-year floodplain
- Sorghum Branch: Floodway, 100-year floodplain
- Stewart Creek: Floodway, 100-year floodplain
- West Branch Hurricane Creek: Floodway, 100-year floodplain
- Whittemore Branch: Floodway, 100-year floodplain

According to FEMA data, each named stream/river within the study area is at least partially a floodway and has some amount of 100-year floodplain (Zone AE; The base floodplain where base flood elevations are provided).

3.6.6 Water and Monitoring Wells

This review used the Tennessee Department of Environment and Conservation (TDEC) Water Wells Map Viewer20 to search for private water wells within 500 feet of the ETSA. The search found 29 wells in the study area, shown below in **Table 3-17** and **Figure 3-12**.

Table 3-17: Listed Water Wells Within the Study Area

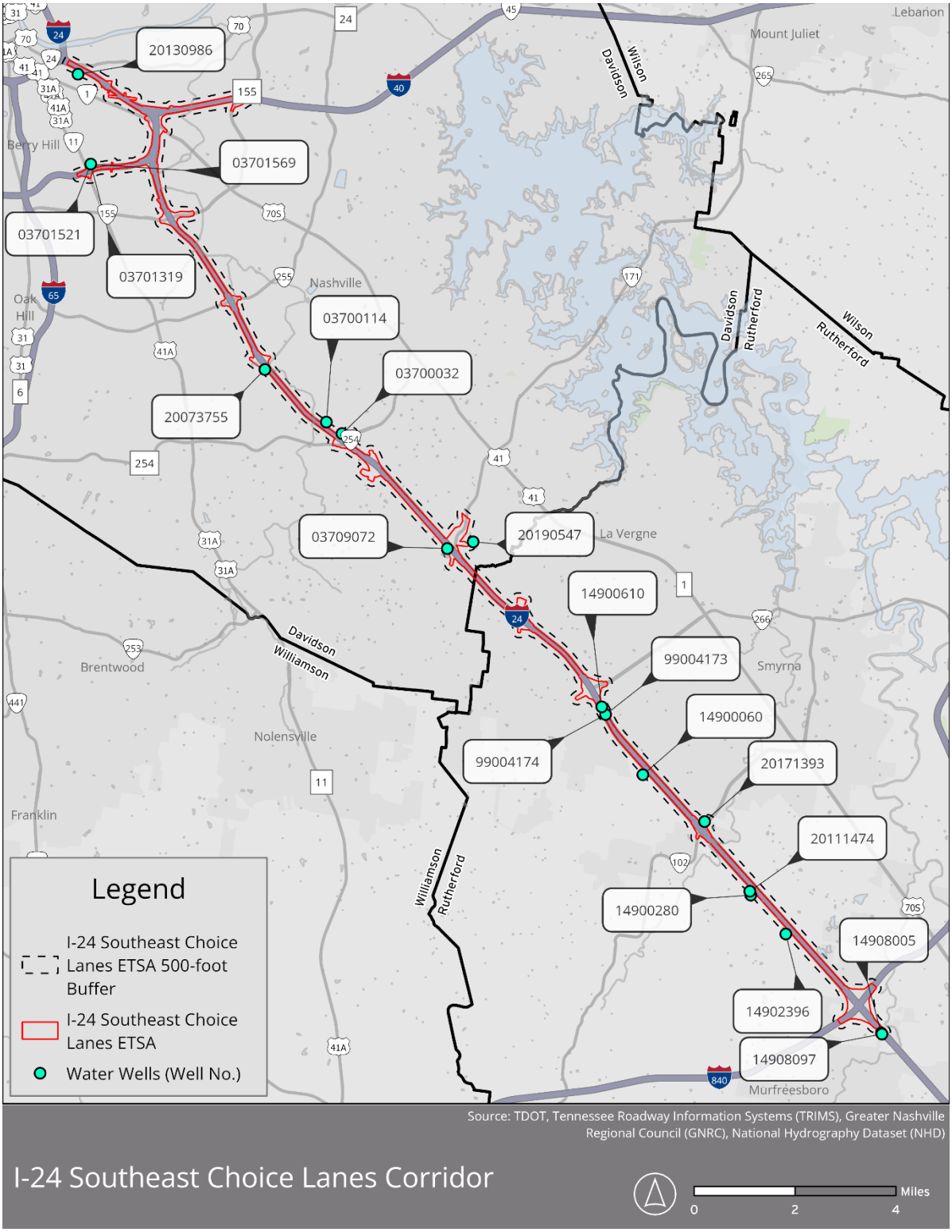
WELL NUMBER	INSTALL DATE	USE	CLOSED
99004173	7/28/1999	Irrigation	No
99004174	7/28/1999	Irrigation	No
03700032	8/19/1963	Residential	No
03700114	5/5/1964	Residential	No
03701521	7/14/1987	Other	No
03701569	10/14/1988	Commercial	Yes
03709072	8/22/1962	Other	No
03701319	11/17/1982	Commercial	No
14900060	1/27/1964	Residential	No
14900610	4/23/1968	Residential	No
14902396	3/14/1980	N/A	No
20073755	9/28/2007	N/A	No
20111474	6/1/2011	Heat Pump	No

[20] TDEC, Water Wells Dataviewer, (n.d.), Accessed October 2025.

WELL NUMBER	INSTALL DATE	USE	CLOSED
20130986	5/15/2013	Heat Pump	No
20171393	6/1/2017	Irrigation	No
20190547	3/28/2019	Residential	No
14908097	Unknown	Unknown	Unknown
14908005	Unknown	Unknown	Unknown
14900280	6/30/1965	N/A	No

Source: TDEC Water Wells Dataviewer, (n.d.), Accessed October 2025.

Figure 3-12: Listed Water Well Locations Within the Study Area



Source: TDEC Water Wells Dataviewer, (n.d.), Accessed October 2025.

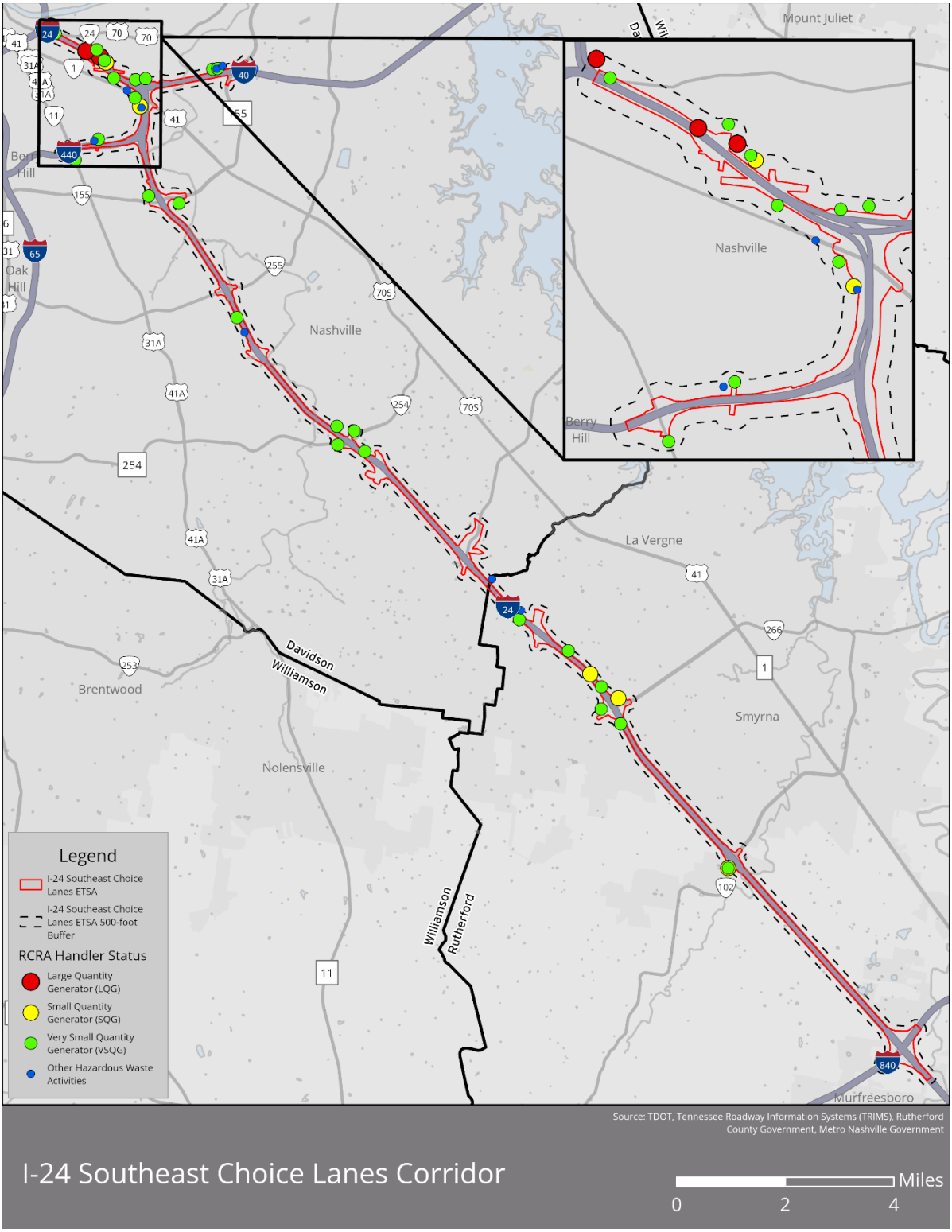
3.7 Hazardous Materials

TDEC is responsible for most hazardous waste and remediation activities in the state of Tennessee. The Resource Conservation and Recovery Act (RCRA) of 1976 gives the EPA the authority to regulate the disposal of hazardous waste. Based on RCRA handler status from the EPA Facilities Registry Service Data Resources,[21] three Large Quantity Generators, five Small Quantity Generators, 24 Very Small Quantity Generators and nine sites with other hazardous waste activities are located within the study area. **Figure 3-13** displays RCRA hazardous waste handlers by status within the study area.

Additionally, the TDEC Division of Remediation[22] manages remediation activities and sites within the state of Tennessee. Based on data from TDEC, within the study area there are 14 open remediation sites, 50 closed remediation sites and two sites with withdrawn remediation programs. **Figure 3-14** displays TDEC remediation sites within the study area.

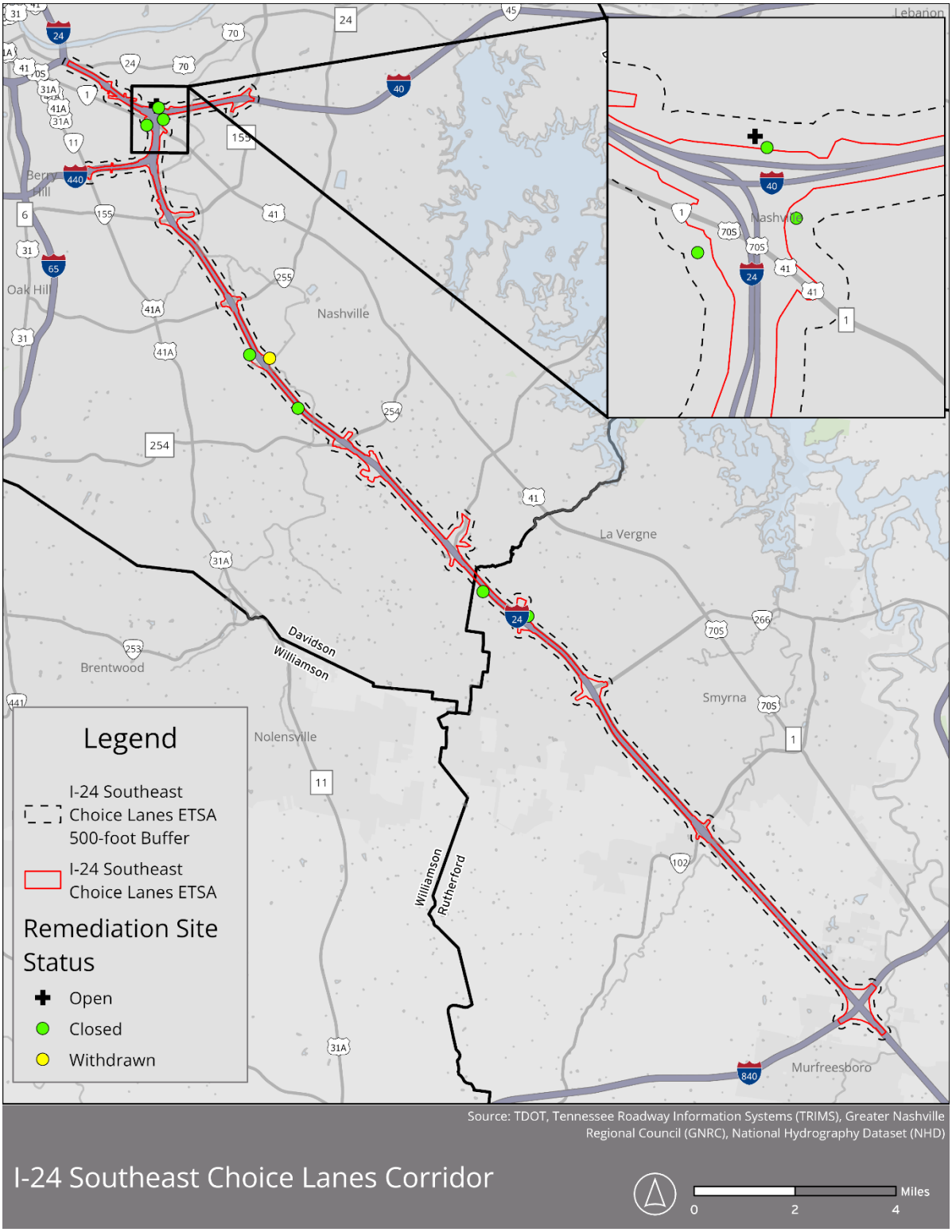
[21] U.S. EPA, FRS Data Resources, (n.d.), Accessed October 2025.
[22] TDEC, DoR Sites Viewer, (n.d.), Accessed October 2025.

Figure 3-13: RCRA Hazardous Waste Handlers by Status Within the Study Area



Source: U.S. EPA, FRS Data Resources, (n.d.), Accessed October 2025.

Figure 3-14: TDEC Hazardous Materials Remediation Sites Within the Study Area

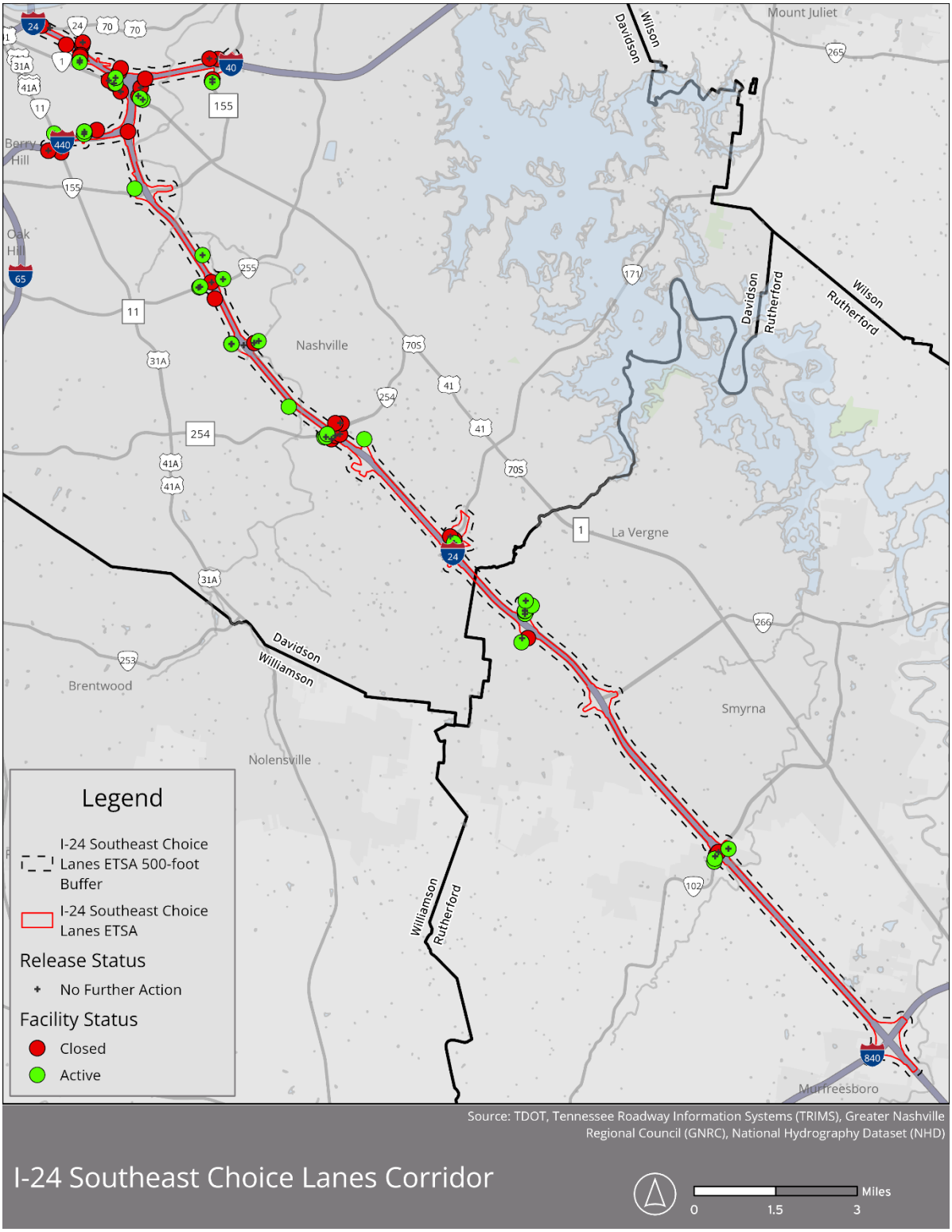


Source: TDEC, DoR Sites Viewer, (n.d.), Accessed October 2025.

The Project Team conducted a desktop review of the EPA's UST Finder map[23] to find underground storage tank (UST) facilities and release incidents within 500 feet of the ETSA. This review identified 78 UST facilities within the study area, 36 of which are active facilities and 42 of which are closed. The review found 84 UST releases were reported; all of which are closed, requiring no further action. **Figure 3-15** displays EPA-listed UST sites and releases within the study area.

[23] U.S. EPA, UST Finder, (n.d.), Accessed October 2025.

Figure 3-15: UST Facilities and Releases Within the Study Area



Source: U.S. EPA, UST Finder, (n.d.), Accessed October 2025.

3.8 Oil and Gas Wells

According to the TDEC Oil and Gas Well Database,[24] there are three oil or gas wells within the study area. These wells have American Petroleum Institute (API) numbers 037-00022, 037-00062 and 037-00064. There are no associated permits with any of the wells, and they are all suspected out-of-use or removed wells based on a desktop review of available oil/gas well data.

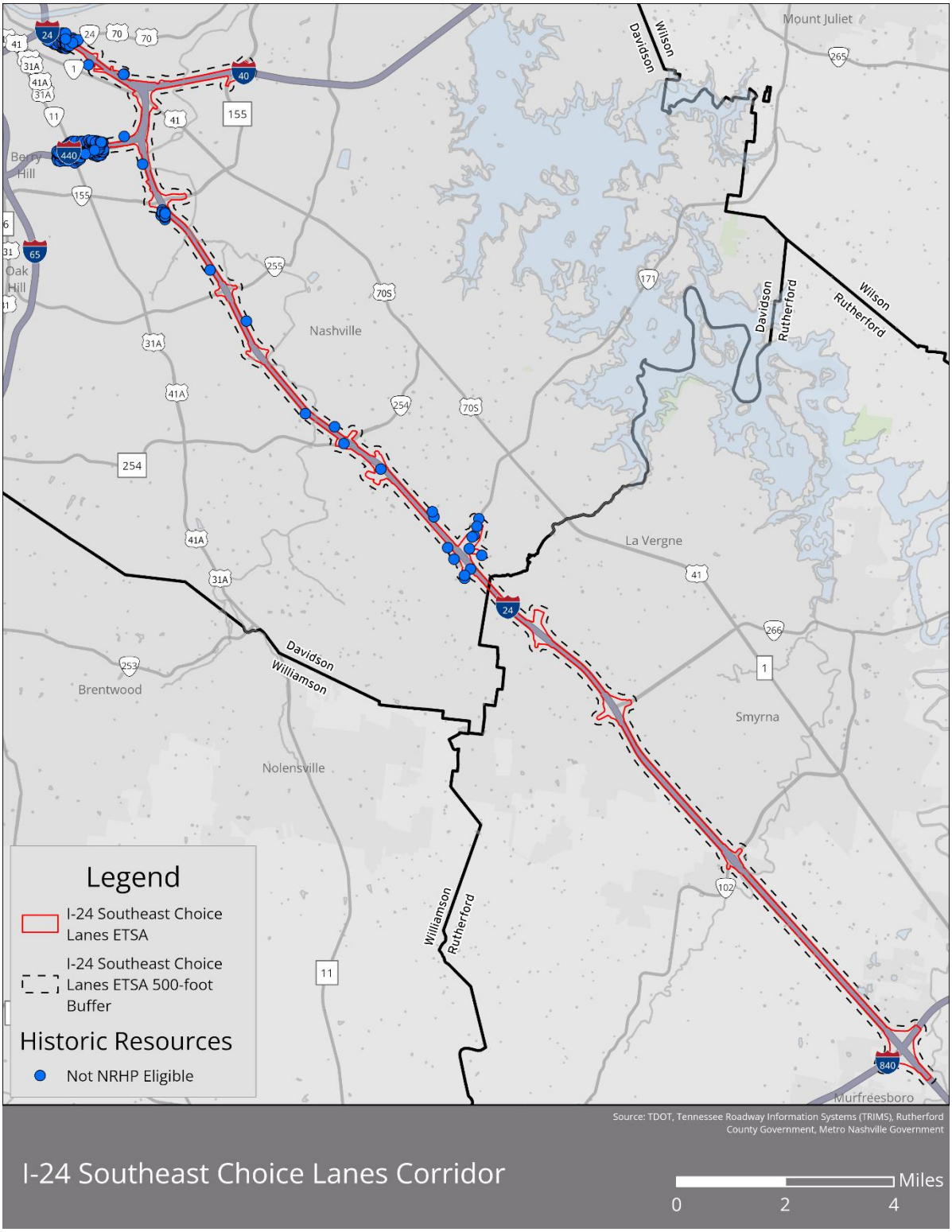
3.9 Historic Resources

This section – Historic Resources, refers to the land within the ETSA and a 500-foot buffer placed around the ETSA as the "study area." There are 362 previously surveyed structures aged 50 years and older within the study area contained in the Tennessee Historical Commission database. **Figure 3-16** provides a general overview of the locations of previously surveyed properties. Previous surveys have determined two of the sites within the study area to be eligible for listing or listed in the National Park Service's (NPS) National Register of Historic Places (NRHP): Mount Olivet Cemetery and Mill Creek Baptist Church Graveyard/Whitsett Cemetery. **Figure 3-17** displays the location of this known NRHP-listed property. This screening of existing historic and architectural resources does not include sites that others have identified for future resource surveys due to age. With the exception of the NRHP-eligible site of Mill Creek Baptist Graveyard/Whitsett Cemetery, all previously surveyed cemeteries are considered separately, with all cemeteries located within 500 feet of the ETSA in **Section 3.4** – Public Facilities.

As the project progresses, the Project Team will prepare and coordinate historic surveys and reports with the TN-SHPO in accordance with Section 106 of the National Historic Preservation Act.

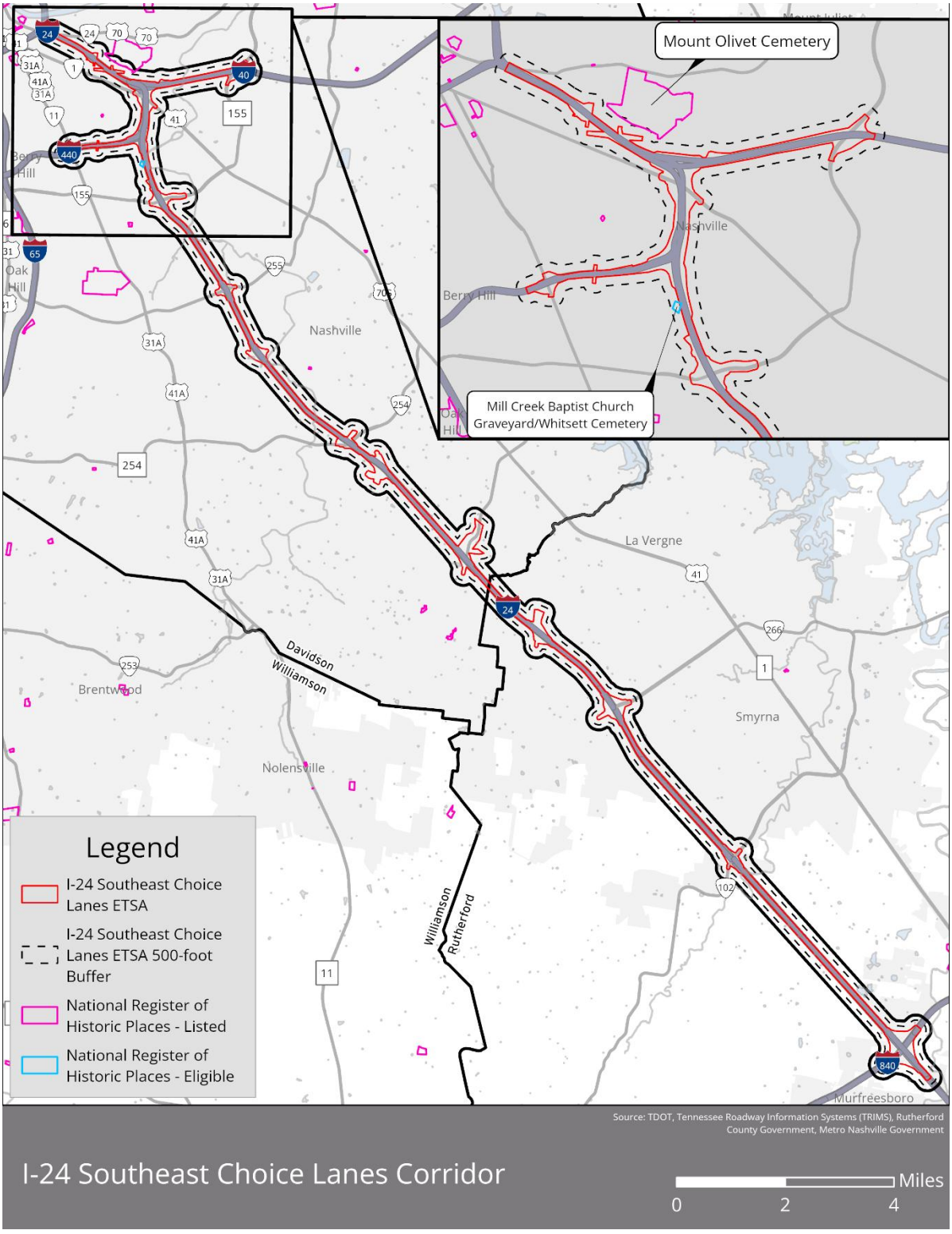
[24] TDEC, Oil and Gas Well Database, (n.d.), Accessed October 2025.

Figure 3-16: Previously Surveyed Resources 50 Years or Older within Study Area



Source: NPS, NRHP, (n.d.), Accessed October 2025.

Figure 3-17: National Register of Historic Places Eligible or Listed Resources Within Study Area



Source: NPS, NRHP, (n.d.), Accessed October 2025.

3.10 Archaeological Resources

A review of known archaeological resources within the ETSA used data available to professional archaeologists registered with the Tennessee Division of Archaeology. Qualified archaeologists analyzed and reviewed previously identified sites and surveys.

As the proposed Project progresses, project teams will prepare and coordinate archaeological surveys and reports with the TN-SHPO in accordance with Section 106 of the National Historic Preservation Act. One such survey has received SHPO concurrence that one archaeological site in the I-24 Southeast corridor is NRHP-eligible. The location of this site is indicated in the survey documentation, which should be consulted to ensure its protection during construction on the I-24 Southeast Choice Lanes.

Further surveys may also result in the identification of NRHP-eligible sites.

3.11 Air Quality

The EPA has established the National Ambient Air Quality Standards (NAAQS), which are allowable concentrations and exposure limits for various "criteria" pollutants. These pollutants include carbon monoxide (CO), nitrogen oxides (NOx), ozone (O3), particulate matter (PM10 and PM2.5), sulfur oxides (SOx) and lead (Pb). Per the Clean Air Act Amendments of 1990 (CAAA of 1990), EPA identified areas that did not meet the NAAQS for the criteria pollutants and designated them as "nonattainment" areas. Once a nonattainment area meets the NAAQS, it is redesignated as a "maintenance" area. Davidson and Rutherford Counties are not in maintenance or non-attainment for any transportation-related criteria pollutants.

Transportation conformity is a process required of MPOs under the CAAA of 1990. The CAAA requires that transportation plans, programs and projects in nonattainment or maintenance areas that are funded or approved by FHWA conform to the State Implementation Plan (SIP), which represents the state's plan to either achieve or maintain the NAAQS for a particular pollutant. Projects conform to the SIP if they are included in a fiscally constrained and conforming Long Range Transportation Plan (LRTP) or Transportation Improvement Program (TIP). Conformity does not apply to the proposed Project because Davidson and Rutherford Counties are not in nonattainment or maintenance.

In addition to the criteria air pollutants for which there are NAAQS, the EPA also regulates air toxics. Most air toxics originate from human-made sources, including on-road mobile sources, non-road mobile sources (e.g., airplanes), area sources (e.g., dry cleaners) and stationary sources (e.g., factories or refineries). Mobile Source Air Toxics (MSATs) are a subset of the 188 air toxics defined by the Clean Air Act. The MSATs are compounds emitted from highway vehicles and non-road equipment. The EPA identified a subset of

this list that FHWA labels as the six priority MSATs. While these MSATs are considered the priority transportation toxics, the EPA stresses that this list is subject to change and may be adjusted in future rules.

3.12 Noise

The 1970 Federal-Aid Highway Act required FHWA to develop highway traffic noise standards for new Federal-Aid highway projects. FHWA regulations require TDOT to:

1. Identify traffic noise impacts and examine potential mitigation measures.
2. Incorporate reasonable and feasible noise mitigation measures into its highway projects.
3. Coordinate with local officials to provide helpful information on compatible land use planning and control during the planning and design of a highway project.

The "TDOT Guidance on Highway Traffic Noise Abatement," October 28, 2025, describes TDOT's implementation of the requirements of FHWA's noise standard at 23 Code of Federal Regulations (CFR) Part 772. While there are sensitive noise receptors within the study area, such as parks and recreation areas, daycares, schools, cemeteries, residences, motels, hotels, restaurants and places of worship, more refined information on noise impacts will become available as the Project Team completes field studies.

INTENTIONALLY LEFT BLANK

4 TRAFFIC CONDITIONS

A traffic analysis report was completed in October 2025 to evaluate existing operational conditions within the study area and to assess the operational benefits of the proposed Project. While the report discussed both existing and future traffic conditions based on the No-Build Alternative and various build alternatives, this Existing Conditions Report only includes the relevant existing conditions results and does not discuss impacts from alternatives.

4.1 Traffic Volumes and Forecasting Methodology

Vissim, Version 2024 (SP 10) and HCS (Streets), Version 2024 were used for the analysis of traffic operational conditions and roadway segments included in the study area. Further information on these programs is listed below:

- Vissim, Version 2024, was selected to analyze the uninterrupted traffic flow, such as freeway basic, weaving, merge, diverge and ramp segments. The Vissim analysis area includes both the intersections and freeway segments.
- HCS (Streets), Version 2024, was selected to analyze the interrupted traffic flow, such as intersections (signalized and unsignalized) along arterials.

4.1.1 Vissim Parameters

Vissim was utilized to conduct a detailed traffic operational analysis for the study area. The simulation model developed for this project replicated traffic operations across key network components, including ramp-freeway junctions and adjacent arterial segments near freeway interchanges. The model was calibrated using field-measured travel time data to verify it accurately reflected existing conditions. Model development followed the guidelines outlined in the FHWA's Traffic Analysis Toolbox Volume III (2019): Guidelines for Applying Traffic Microsimulation Modeling Software. These standards reinforced consistency and reliability throughout the modeling process.

4.1.2 HCS Streets Model Parameters

Intersections along the study corridor were evaluated under both existing and future conditions using methodologies outlined in the Transportation Research Board's (TRB) Highway Capacity Manual, 6th Edition (HCM 6). The analysis was conducted using HCS Streets, incorporating the following assumptions and data sources:

ANALYSIS PERIODS

Weekday Morning Peak Hour: 7:00 AM – 8:00 AM Weekday Evening Peak Hour: 4:00 PM – 5:00 PM

INTERSECTION GEOMETRY AND LANE ASSIGNMENTS

Geometry and lane configurations were maintained in accordance with proposed design plans and verified using Google Earth imagery. Field observations and satellite imagery were used to confirm existing intersection layouts and operational characteristics.

APPROACH SPEED LIMITS

Approach speeds were coded based on posted speed limits obtained from Google Street View and the Regional Integrated Transportation Information System (RITIS).

SIGNAL TIMING DATA

Signal timing parameters, including cycle lengths and phase splits, were sourced from TDOT's field timing databases or provided by local operating agencies. Where timing data was unavailable, cycle lengths were estimated using data from adjacent intersections. Signal phasing was determined by reviewing signal head configurations via Google Street View.

TRAFFIC VOLUMES Input volumes for HCS Streets were derived from design hourly volumes as specified in the approved traffic forecast.

PEAK HOUR FACTOR Peak hour factors were calculated by an approach using the approved forecasted volumes.

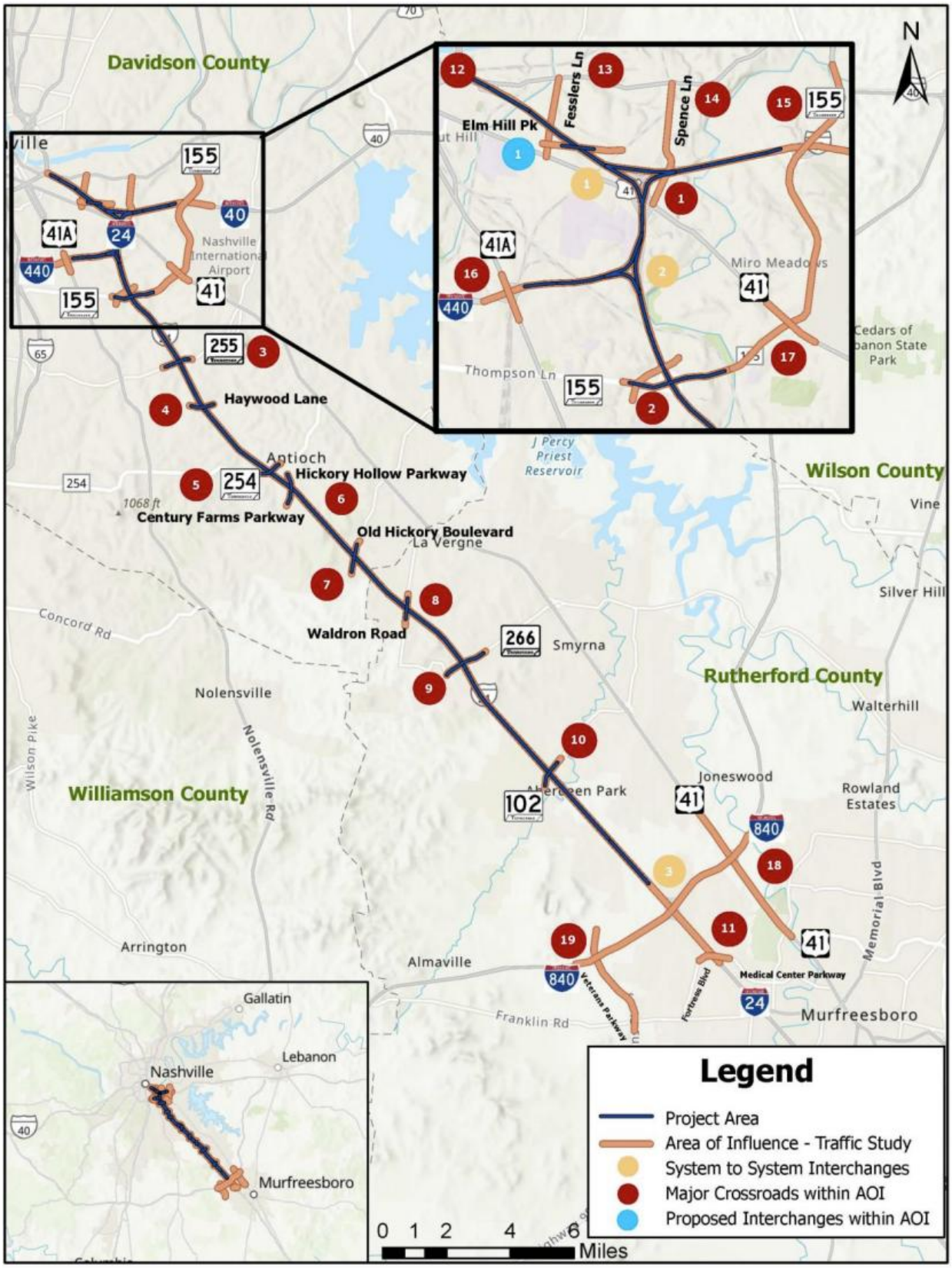
4.1.3 Area of Influence

As defined in 23 CFR 624.5, an area of influence (AOI) is the geographic extent to which a proposed change in access will affect traffic operations and safety. According to FHWA guidance contained in the Interstate System Access Informational Guide—Section 3.3.3, "The Interstate System Access Change Request should include an area of influence (AOI) based on safety and operations concerns. At least the first adjacent interchange on either side of the proposed change in access is required to be considered. The AOI along the local roadway network should extend at least to the first adjacent signal in either direction or to the first major intersection."

The AOI for the proposed project, graphically depicted in **Figure 4-1:** Area of Influencewas determined in accordance with the guidance set forth in the FHWA publication, which included the following:

- At least one interchange beyond each terminus of the I-24 Southeast Choice Lanes project limits
- At least one signalized intersection adjacent to each ramp termini and up to 0.5 miles at a minimum
- Additional interchanges and crossroad intersections along I-40, I-840, I-440 and SR-155 (Briley Parkway) following the same guidance.

Figure 4-1: Area of Influence



4.2 Existing Conditions

4.2.1 Existing Roadway Conditions

The proposed Project corridor runs through the Davidson and Rutherford counties of Tennessee, with most of the project study area classified as urban. Most of the I-24 Southeast corridor features four lanes in each direction, with a variable speed limit between 35 and 70 mph. As I-24 approaches Nashville, it incorporates major system-to-system interchanges, including those at I-24 with I-40 and I-440. **Figure 4-2** and **Figure 4-3** illustrate the existing geometry, including signalized and unsignalized intersections considered for operational analysis within the AOI.

Figure 4-2: Existing Geometry from I-24/I-40 to East of Bell Road

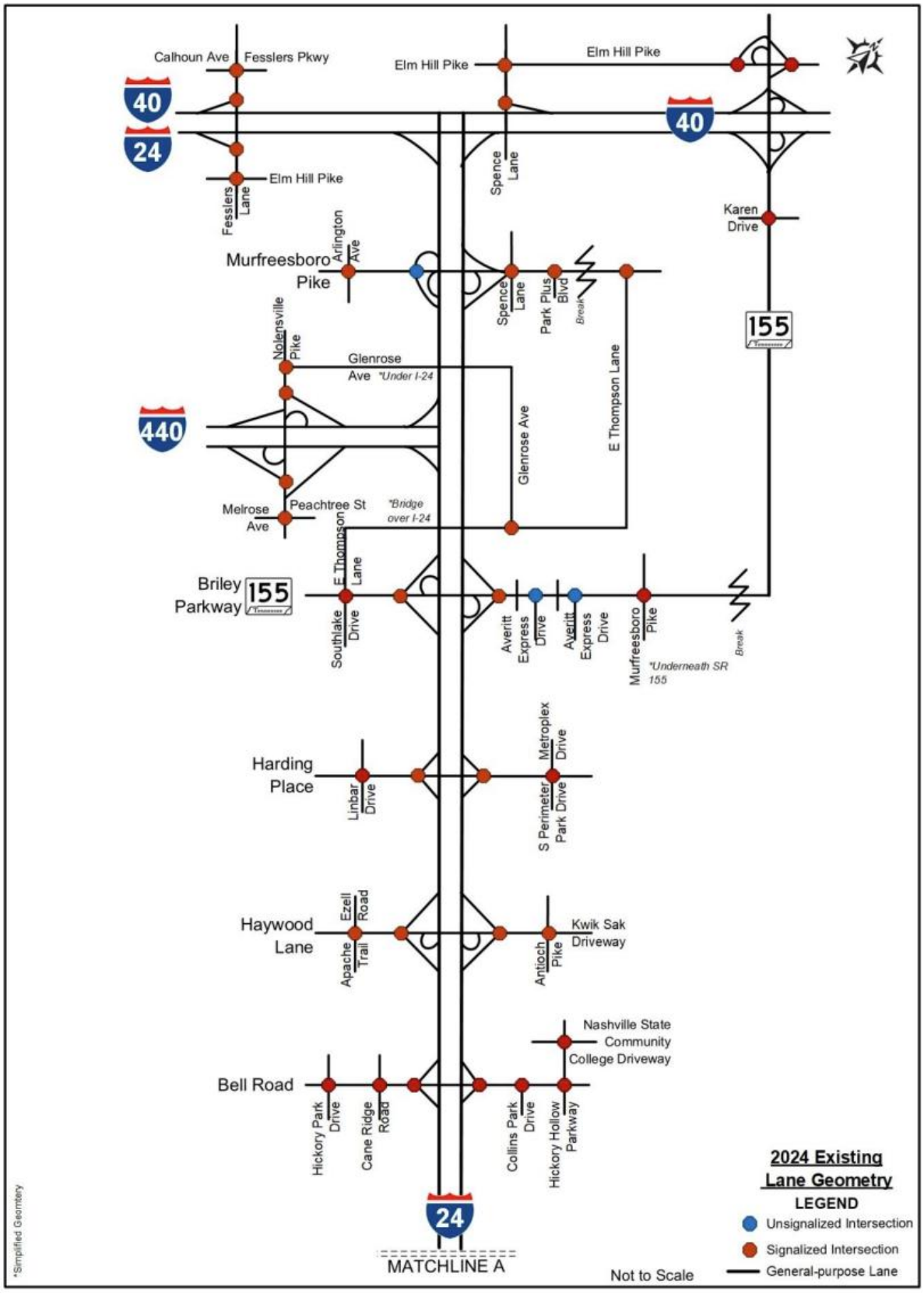
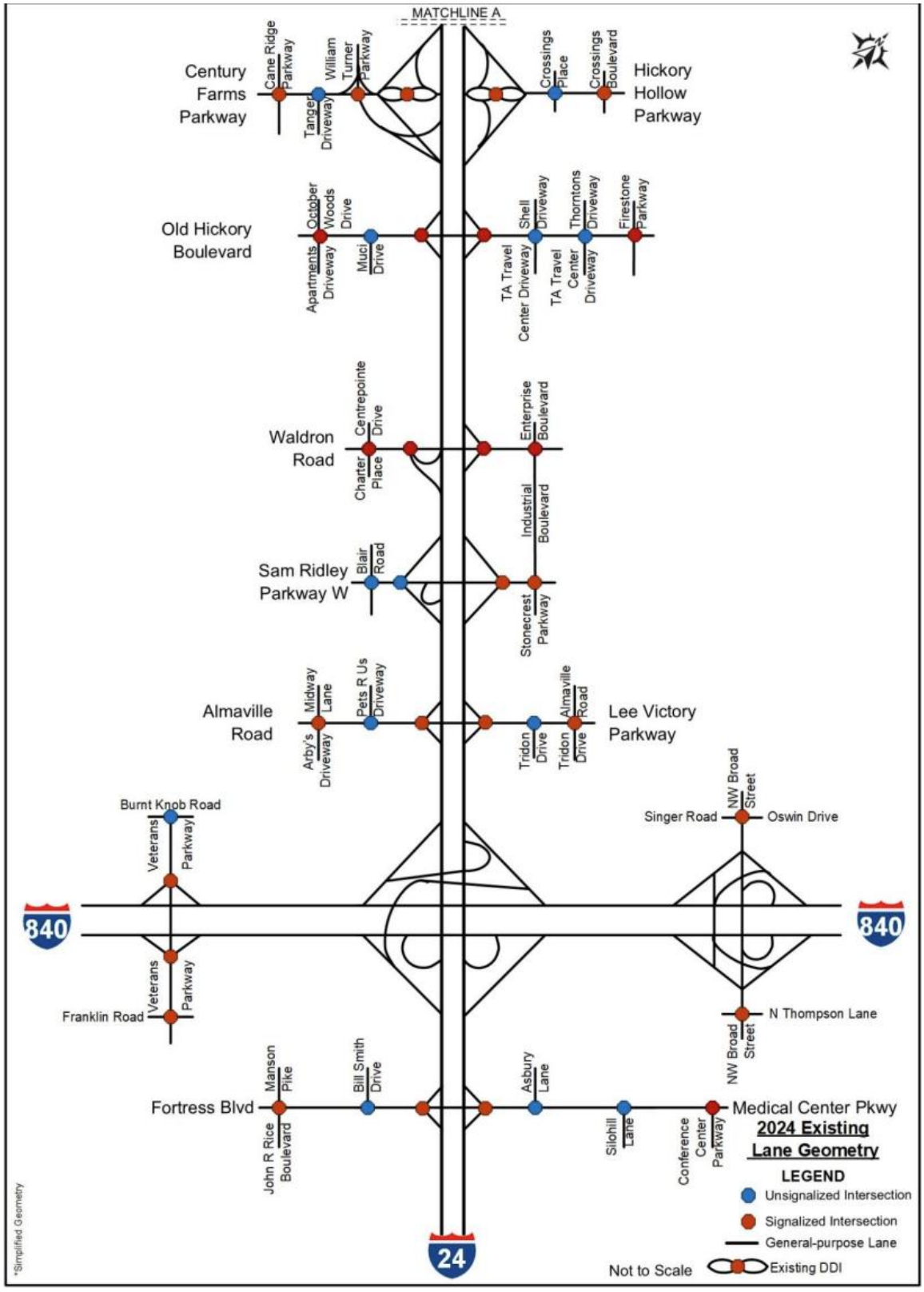


Figure 4-3: Existing Geometry from West of Hickory Hollow Parkway to Fortress Boulevard



4.2.2 Existing Traffic Conditions

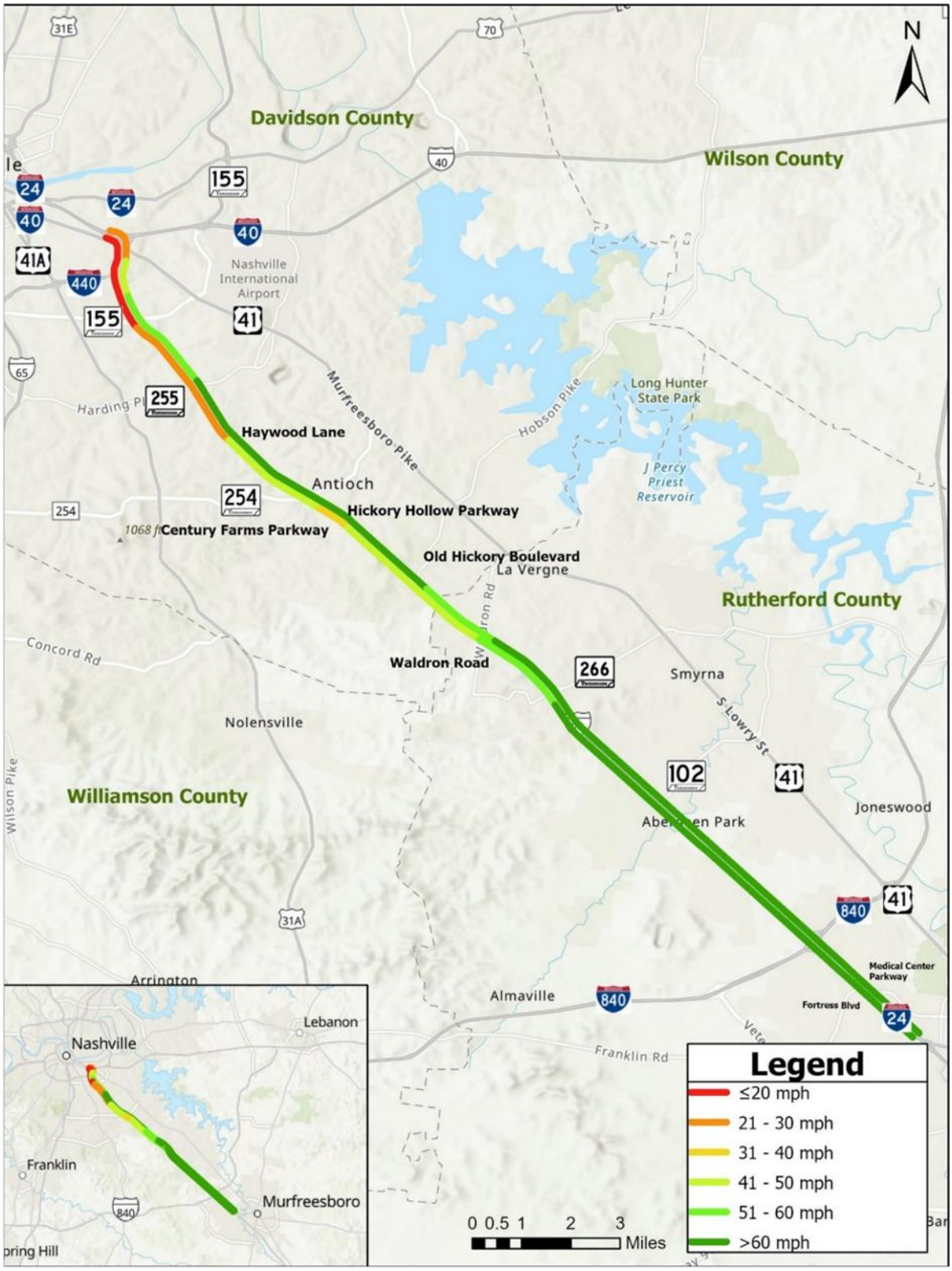
Historical travel speed data for the I-24 Southeast corridor were obtained from HERE Technologies and INRIX, covering both AM and PM peak periods. The data, collected in 15-minute intervals on typical midweek days (Tuesdays through Thursdays) in January 2024, provide a representative snapshot of weekday traffic conditions and offer insights into recurring congestion and travel time improvements. **Figure 4-4** and **Figure 4-5** illustrate spatial and temporal congestion patterns during peak hours.

During the AM peak hour (7:00–8:00 AM), I-24 westbound experiences significant congestion, particularly between SR 266 (Sam Ridley Parkway) and SR 155 (Briley Parkway). This is primarily due to high inbound commuter volumes heading toward downtown Nashville, compounded by elevated on-ramp demand and frequent lane-changing activity in weaving segments. Bottlenecks are common near major interchanges such as I-440 and I-40, where merging and diverging traffic disrupts mainline flow.

In contrast, the PM peak hour (4:00–5:00 PM) sees heavier congestion eastbound as outbound traffic leaves the urban core. The most severe delays occur between I-40 and SR 155 (Briley Parkway), driven by weaving movements and constrained downstream capacity. Meanwhile, westbound traffic generally improves during this period due to reduced volumes from I-840 to I-440. However, congestion still occurs near I-440 and I-40, influenced by residual delays from downtown.

Figure 4-4: Existing Congestion on I-24: AM Peak Hour

Figure 4-5: Existing Congestion on I-24: PM Peak Hour



4.2.3 Existing Freeway Operations

Understanding existing freeway operations is essential for conducting traffic analysis. It provides a baseline of current performance, helps engineers evaluate how the corridor functions under present-day demand, infrastructure and driver behavior. This includes assessing travel time measures, congestion patterns and identifying operational bottlenecks such as weaving zones, high-volume ramps and system interchanges.

Accurate simulation models depend on real-world data. In this Traffic Analysis Report, RITIS speed data was used to calibrate and validate the microsimulation model, ensuring that it reflects actual traffic conditions. This calibration process enhances the reliability of future forecasts and scenario testing.

Analyzing existing operations also supports informed decision-making. It allows for the evaluation of proposed alternatives, capacity enhancements, and policy interventions based on data-driven evidence. Moreover, documenting current issues helps communicate the need for improvements to stakeholders and the public, especially when supported by visual tools like heat maps and simulation outputs.

To effectively capture the complexity of freeway behavior, Vissim was selected as the modeling tool. Unlike static models, Vissim simulates dynamic vehicle interactions, including queue propagation, lane-changing behavior and spillback effects. Its ability to model inter-segment dependencies and nuanced traffic patterns makes it ideal for identifying congestion hotspots and evaluating corridor-wide performance.

QUANTITATIVE CHECKS

A corridor-level microsimulation was conducted using Vissim 2024 to evaluate freeway performance across I-24, I-40, I-440 and I-840. The model was calibrated using RITIS speed data and validated with field observations to ensure accuracy. Key performance metrics extracted included:

- **Corridor Travel Time**: Derived from segment-level speed profiles, aligned with HCM thresholds.
- **Bottleneck Throughput**: Measured at critical locations in the model that highly reflect the overall model operations.

QUALITATIVE CHECKS

Vissim modeling captures complex traffic behaviors, such as Lane-Changing Behavior, especially in weaving segments and inter-segment interactions, revealing how congestion in one area affects adjacent segments. To support qualitative validation, speed heat maps were generated using RITIS data and Vissim simulated data. The heatmaps were generated using VHelper, a utility program developed by TranAnswers. Following the model runs, model files, which included vehicle travel time data, were imported into VHelper. Using the built-in shortest path utility tool, paths consisting of a sequence of link IDs were passed

into VHelper's heatmap generation tool to create individual corridor-scale heatmaps for I-24, I-40 and I-440 in each direction.

To support qualitative validation, speed heat maps were generated using RITIS data and Vissim simulated data. The heatmaps were generated using VHelper, a utility program developed by TranAnswers. Following the model runs, model files, which included vehicle travel time data, were imported into VHelper. Using the built-in shortest path utility tool, paths consisting of a sequence of link IDs were passed into VHelper's heatmap generation tool to create individual corridor-scale heatmaps for I-24, I-40 and I-440 in each direction.

Heatmaps generated by VHelper were saved into separate image files and combined using image-editing software. Heatmaps were grouped based on year, time of day, corridor and direction. For example, the existing I-24 WB AM diagrams consisted of a RITIS general purpose heatmap vs. Vissim output heatmap. This allowed for a direct comparison between performance under field conditions and simulated conditions.

These maps illustrate speed variations across time and location, highlighting heat maps for both AM and PM peak periods (**Appendix A**) helped visualize bottlenecks and congestion duration, reinforcing simulation outputs.

FINDINGS

Noteworthy locations of congestion observed in the Vissim model are described below.

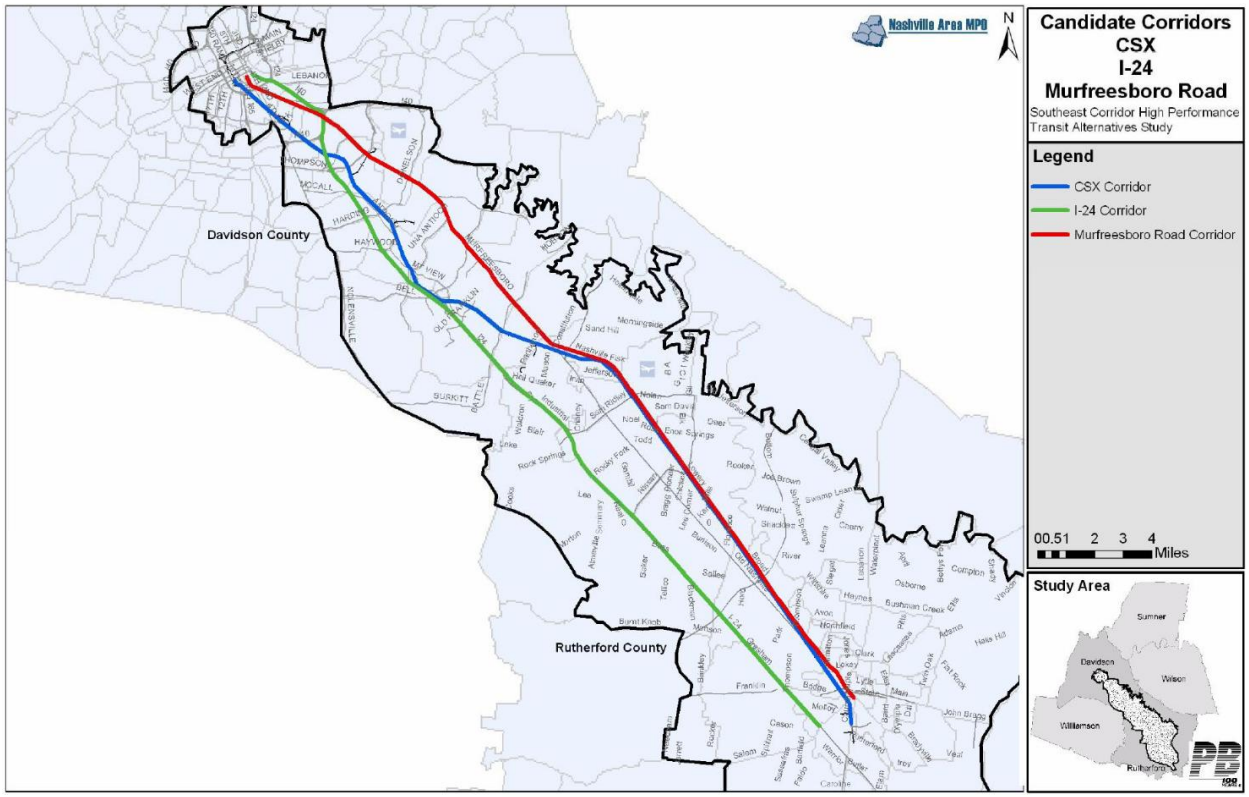
- **I-24 AM (WB)**: Significant congestion was observed between SR 155 (Briley Parkway) and Waldron Road, primarily due to high entrance ramp volumes and aggressive weaving behavior. Vissim captured queue spillback from SR 255 (Harding Place) affecting upstream segments.
- **I-24 PM (EB)**: Congestion was prominent at system interchanges with I-40 and I-440, extending toward Waldron Road. Vissim simulations showed bottlenecks forming at the Inner Loop and I-440 interchange, with queues propagating upstream.
- **I-40 AM (WB)**: Heavy congestion was observed approaching downtown Nashville, starting around 7 AM and persisting throughout the day. Vissim revealed that slow-moving traffic on the Inner Loop caused significant backups on I-40 westbound.
- **I-40 PM (EB)**: Congestion persisted from 6 AM to 8 PM, driven by high demand entering the Inner Loop. Vissim showed sustained queuing and reduced speeds throughout the day. EB direction congestion was influenced by spillback from I-24 EB and Inner Loop interactions.

4.3 Previous Studies

4.3.1 2007 MPO Nashville Southeast Corridor High-Performance Transit Alternatives Study

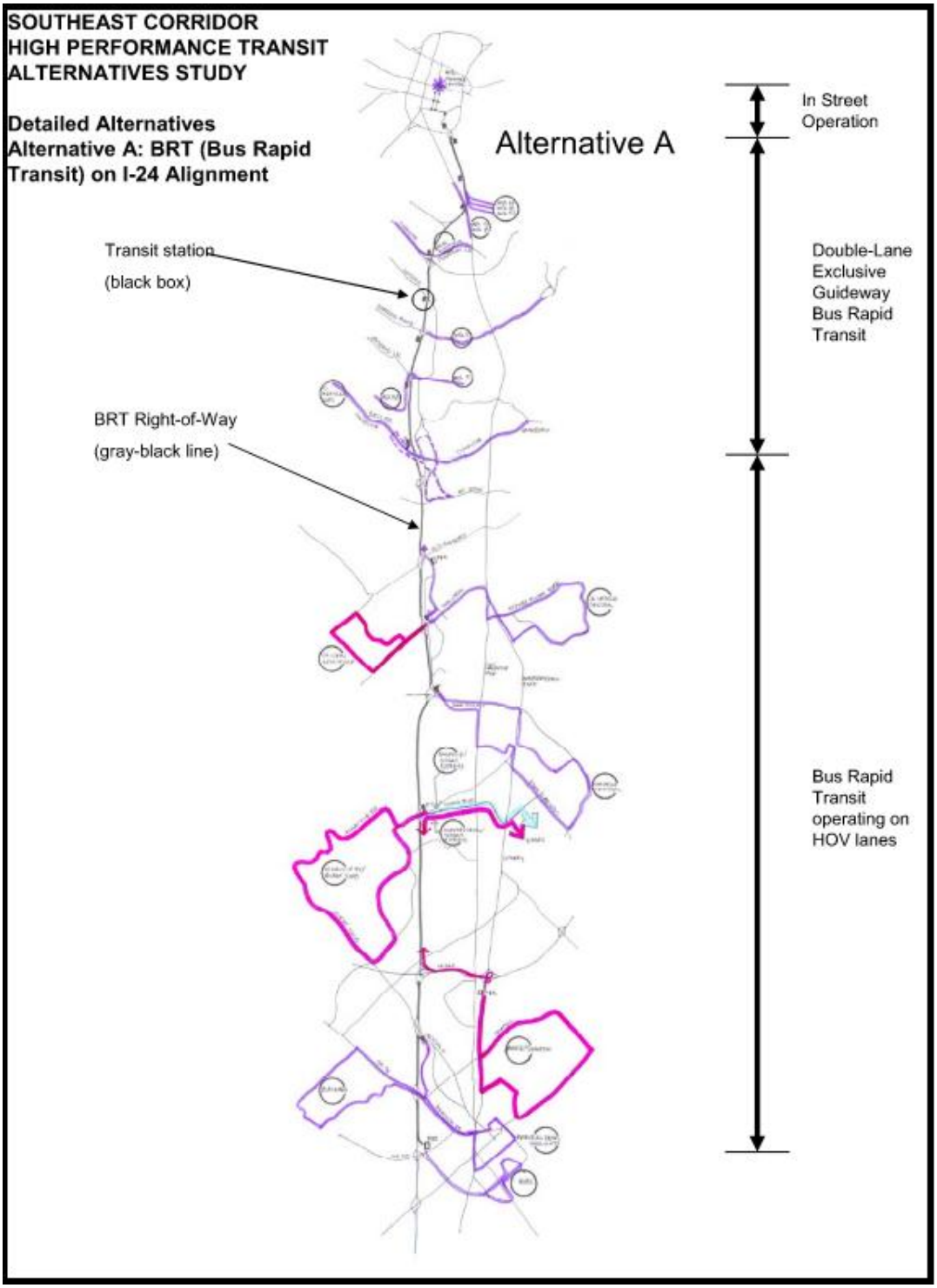
The 2007 Nashville Area MPO Nashville Southeast Corridor High-Performance Transit Alternatives Study evaluated the rapidly growing Nashville to Murfreesboro corridor and considered bus rapid transit, commuter rail and light rail alternatives. Alternative alignments utilized I-24, CSX railroad and Murfreesboro Road. The study recommended phased bus service enhancements to build the transit market in the corridor for future high-capacity transit service. These Southeast Corridor High-Performance Transit Alternatives are shown in **Figure 4-6** and **Figure 4-7.**

Figure 4-6: Southeast Corridor High-Performance Transit Alternatives



Source: Nashville MPO, Nashville Southeast Corridor High-Performance Transit Alternatives Study, 2007, Accessed March 2024.

Figure 4-7: 2007 MPO Nashville Southeast Corridor High-Performance Transit Alternatives Study - Alternative A



Source: Nashville MPO, Nashville Southeast Corridor High-Performance Transit Alternatives Study, 2007, Accessed March 2024.

4.3.2 Interstate 24 Multimodal Corridor Study (TDOT, 2015)

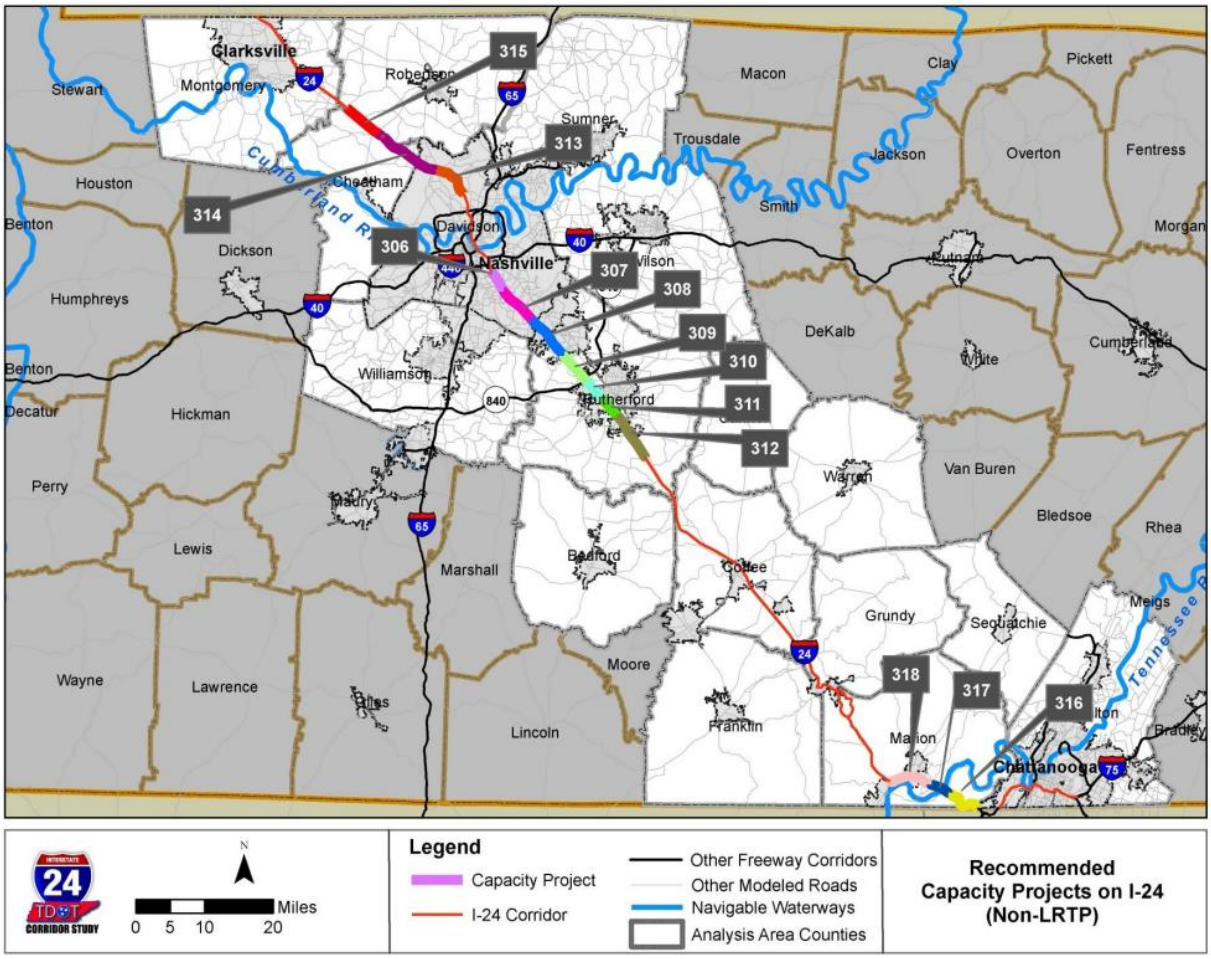
The I-24 Multimodal Corridor Study examined potential multimodal transportation improvements to address existing and emerging transportation system issues associated with this corridor through central Tennessee, connecting the Clarksville, Nashville and Chattanooga urban areas. The corridor extends from the Kentucky state line to where it meets I-75 in Hamilton County, approximately 185 miles. The study's Final Report gives prioritized planning-level recommendations for projects and strategies for I-24. The study used two technical tools: macroscopic and mesoscopic models. Study recommendations include:

- Adding general-purpose capacity
  - From Exit 54 to Exit 89 (Projects 307 through 312 as shown in **Figure 4-8**)
- New interchanges
  - Rocky Fork Road at Mile Point (MP) 68 (Project ID 172)
  - Old Franklin Road at MP 61(Project ID 286)
  - Murfreesboro Road between Exit 74 and Exit 89 (Project ID 118)
- High Occupancy Vehicle (HOV) ramps
  - North First Street (Project ID 176)
  - Shelby Avenue (Project ID 175)
- Ramp metering
  - Westbound between Exit 66 (Sam Ridley Parkway) and Exit 56 (Harding Place) (Project ID 319)
  - Westbound between Exit 81 (South Church Street) and Exit 76 (Medical Center Parkway) (Project ID 320)

This study also analyzed the feasibility of a monorail system along the I-24 corridor. The analyses determined that further design considerations were necessary.

Figure 4-8 illustrates the recommended capacity projects for the I-24 corridor identified by the 2015 Multimodal Corridor Study.

Figure 4-8: 2015 TDOT Interstate 24 Multimodal Corridor Study Recommended Capacity Projects



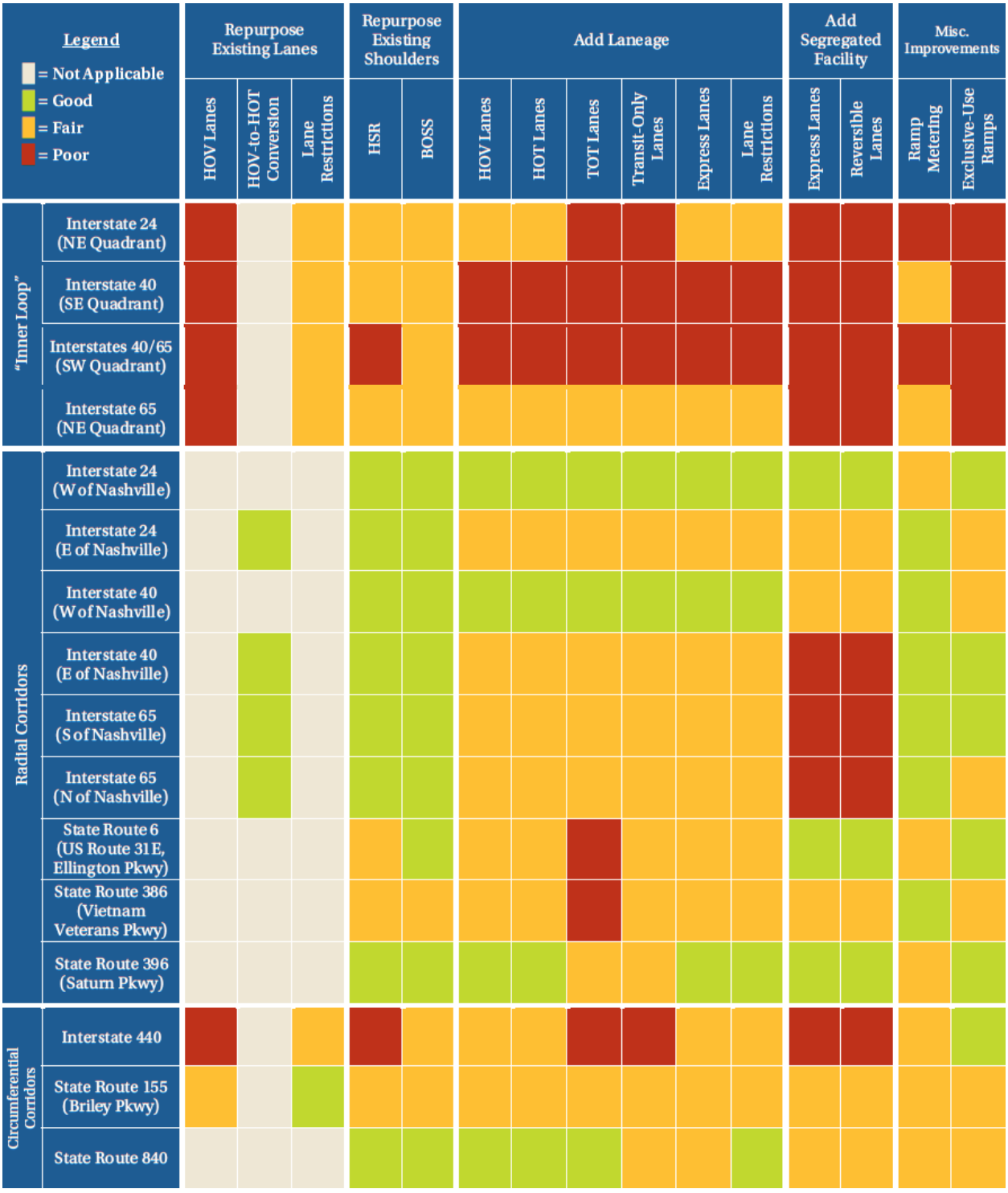
Source: TDOT, I-24 Multimodal Corridor Study, 2015, Accessed February 2024.

4.3.3 2015 Nashville MPO Managed Lanes Preliminary Feasibility Assessment

The purpose of the 2015 Nashville MPO Managed Lanes Preliminary Feasibility Assessment was to profile potential managed lanes concepts for the Nashville area and to determine which of those concepts might be viable in the region. The assessment report introduces the concepts of managed lanes, describes current managed lanes in the Nashville area and identifies facilities that could provide a good opportunity for a pilot program and potential strategies. The report also shows data from 2012 on existing HOV lanes in the Nashville region (i.e., violation rates and speeds).

Figure 4-9 below gives a qualitative assessment of potential solutions for the study corridors.

Figure 4-9. 2015 Nashville Managed Lanes Constructability Matrix



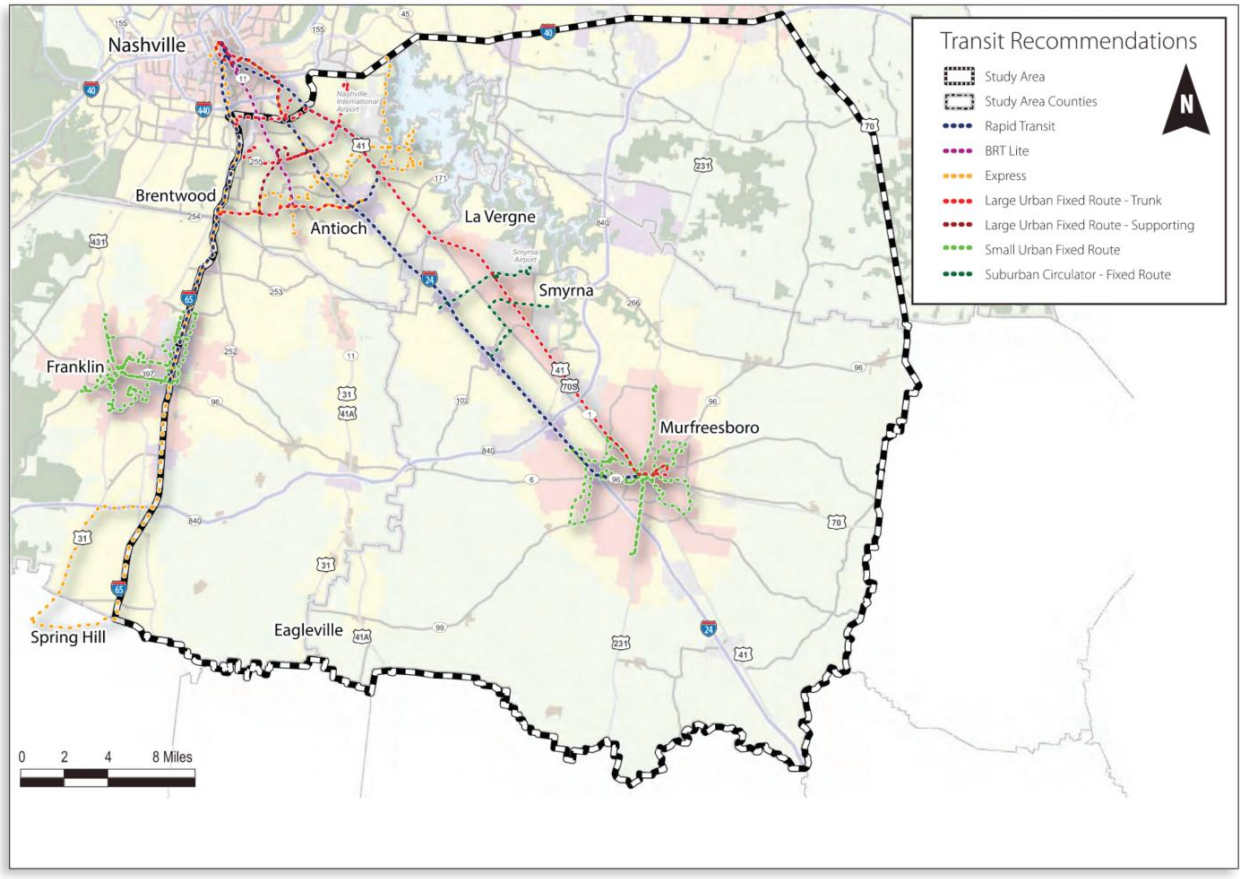
Source: Nashville MPO Managed Lanes Preliminary Feasibility Assessment, 2015, Accessed February 2024.

4.3.4 2016 MPO Southeast Area Transportation and Land Use Study

The Nashville Area MPO commissioned the Southeast Area Transportation and Land Use Study covering Davidson, Rutherford, Williamson and Wilson counties. The study evaluated existing conditions, recent trends and alternative growth scenarios. It then defined a preferred growth vision, multimodal transportation recommendations and growth management strategies. Subarea trend analysis indicated vehicle miles traveled (VMT) were forecast to increase by 88%, vehicle hours traveled were forecast to increase by approximately 200%, and vehicle delays were forecast to increase by over 1,000% by 2040. Alternative growth scenarios were a continuation of historical trends, urban infill, rural conservation and expanded urban footprint. Roadway capacity and mobility project recommendations included SR 255 (Harding Place) at I-24 interchange capacity improvement, Hickory Hollow Parkway at I-24 interchange capacity/access improvement and a new interchange at Rocky Fork Road at I-24. The report also included recommendations for rapid transit along the I-24 corridor.

Figure 4-10 shows the recommendation from the June 2016 final report.

Figure 4-10: 2016 MPO Southeast Area Transportation and Land Use Study Recommendations



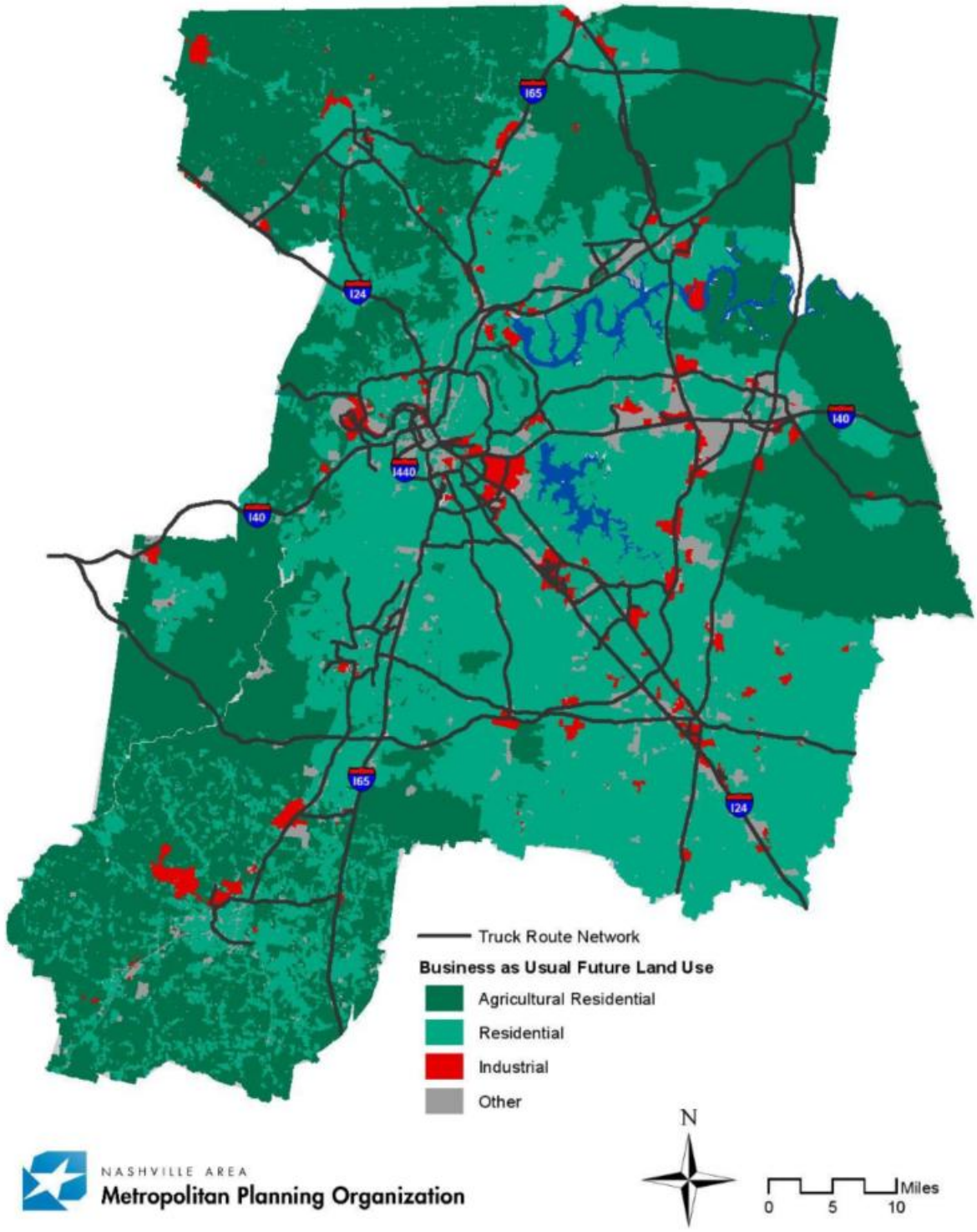
Source: Nashville MPO, Southeast Area Transportation and Land Use Study, 2016, Accessed August 2025.

4.3.5 2016 MPO Regional Freight and Goods Movement Study

The Regional Freight and Goods Movement Study assessed historic, existing and future freight conditions and performance, recommended freight-related land use planning and urban design policies and presented freight and goods movement strategies. Along the I-24 Southeast corridor, I-24 itself along with US 41 (Murfreesboro Pike) and US 41A (Nolensville Road) are on the plan-recommended regional truck route network. There are a variety of truck-prohibited routes on local streets in the corridor, in Murfreesboro in particular. Along with implementing the regional truck route network and improving rail operations, the plan recommended a strategy to coordinate economic development and land use decisions with planned investments.

Based on the MPO land use model, **Figure 4-11** illustrates the residential and industrial developments in the Nashville MPO region.

Figure 4-11: Land Uses Along Truck Routes



Source: Nashville Area MPO, Business as Usual Future Land Use, (n.d.), Accessed August 2025.

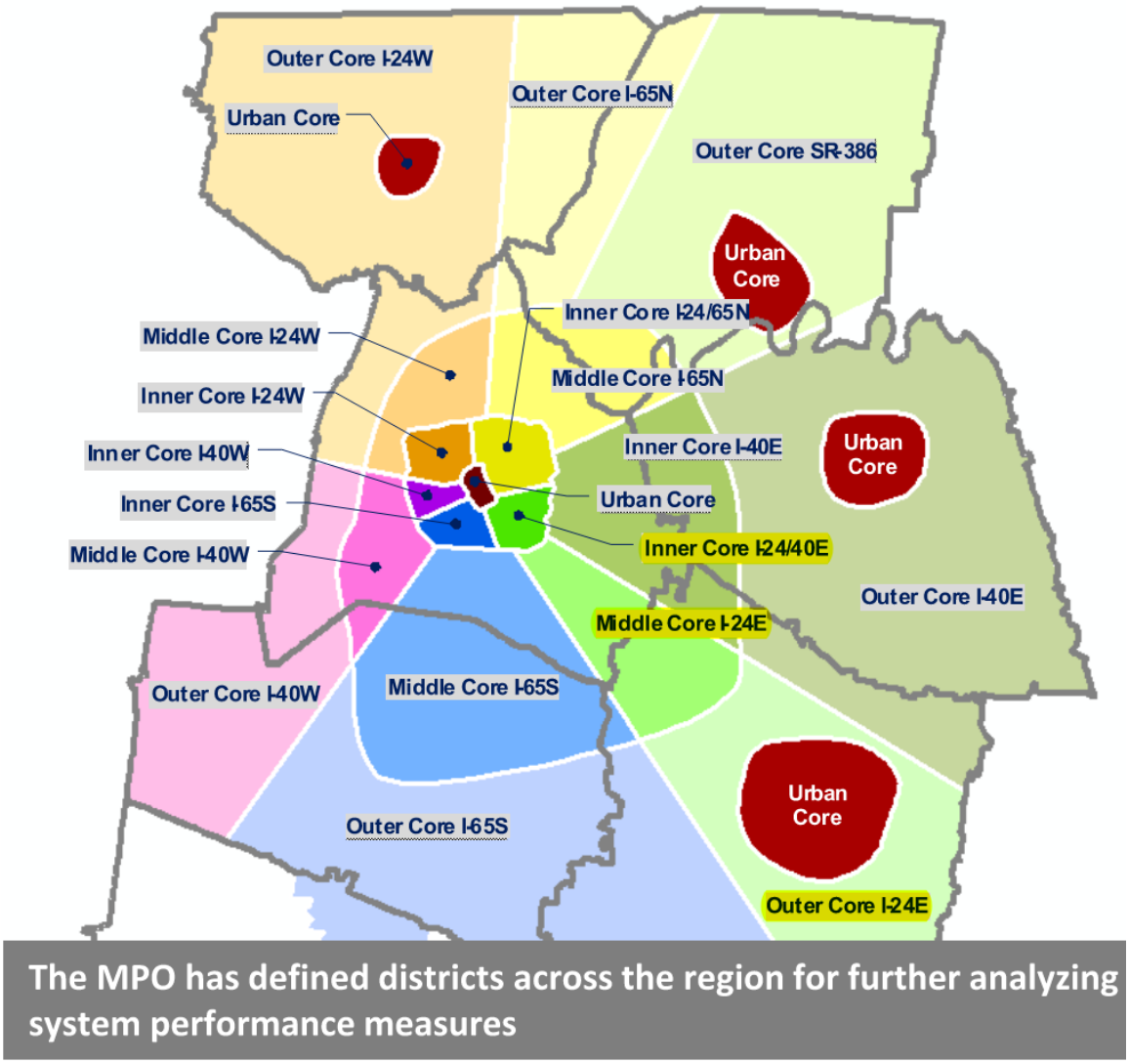
4.3.6 2019 MPO Congestion Management Process (CMP)

A 2019 summary[25] documented GNRC's congestion management process (CMP), an ongoing part of GNRC's planning activities to plan for transportation improvements. Key aspects of the CMP relative to the Downtown Nashville Interstate Corridors include a CMP network definition, districts for performance measurement and regional travel times. The network of roadways on which the CMP manages congestion includes not only local roads but also interstates. The CMP identified districts within which congestion is analyzed, which include Urban Core within the Inner Loop, Inner Core I-24/I-40E, Middle Core I-24E and Outer Core I-24E. An example CMP analysis notes an expectation that morning rush hour travel time along the I-24 Southeast corridor would increase from 57 minutes by 24 percent by 2040.

Figure 4-12 Illustrates the districts as identified by the CMP process.

[25] GNRC, Highlights of the Nashville Metropolitan Area CMP, 2019, Accessed February 2024.

Figure 4-12: Defined Districts for the Congestion Management Process



Source: GNRC, Highlights of the Nashville Metropolitan Area CMP, 2019, Accessed August 2025.

INTENTIONALLY LEFT BLANK

4.3.7 2020 Metro Nashville Transportation Plan

Recommendations from the 2020 Metro Nashville Transportation Plan appear in **Table 4-1**.

Table 4-1: 2020 Metro Nashville Transportation Plan Project Recommendations

PROJECT	SUMMARY	COST	CORRIDOR	I-24 RELEVANCE
Murfreesboro Pike BRT	This 12-mile proposed BRT line will run from Downtown/SoBro to Hickory Hollow commercial center in Antioch and will operate along Murfreesboro Pike and Bell Road. Buses running in majority dedicated lanes with iconic stations, off-board fare collection, platform-level boarding, high-capacity buses and fast and frequent operations. Project cost also includes significant roadway, safety, traffic management/ ITS, pedestrian crossing and sidewalk improvements.	$413 M	I-24 SE CL Corridor	Medium
Better Bus Service Expansion	WeGo is looking to build a fixed-route bus transit system that is more convenient, competitive and reliable. They are looking to establish an all-day, all-week network (increase service hours by 30%), which will reduce travel times and make transit easier to use. This will also include Neighborhood Transit Centers, a new SoBro Transit Hub and new bus stop shelters.	$180 M	I-24 North	Low
WeGo Star Commuter Rail Improvements	WeGo Star is Middle Tennessee's only fixed guideway transit service, running 32 miles between Lebanon and Downtown Nashville. It overperforms typical expectations in terms of passenger volumes. The biggest limitation of the Star is the limited number of trips it offers - only 3 daily trips in each peak direction.	$139.6 M	East	Low

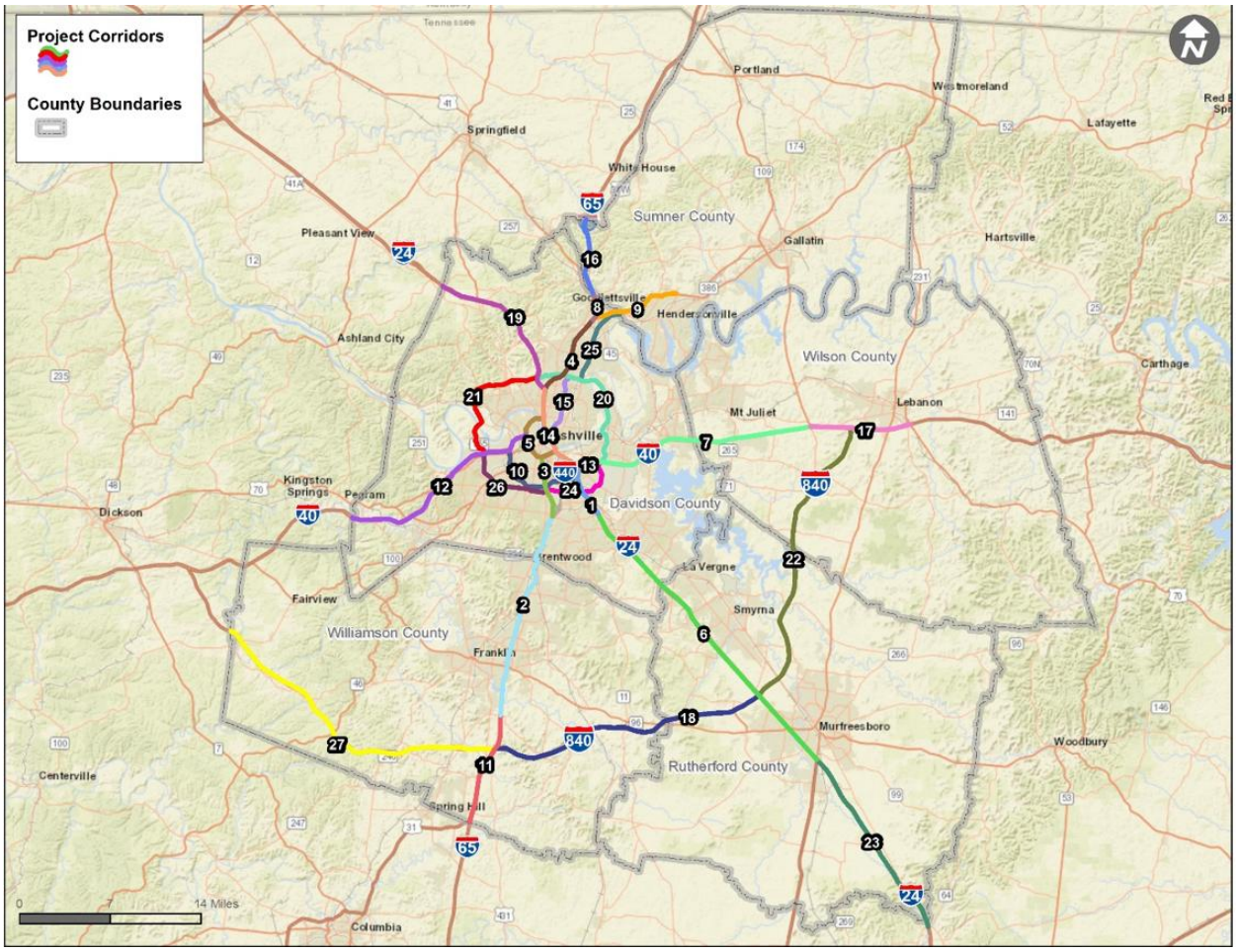
Source: Office of Mayor John Cooper, Metro Nashville Transportation Plan, 2020, Accessed August 2025.

4.3.8 2022 TDOT Congestion Action Plan

The purpose of the 2022 TDOT Congestion Action Plan was to provide regional managed lane and operational improvements for the metro-Nashville region. In developing this plan, TDOT evaluated a wide variety of strategies, including HOV lanes, High Occupancy Toll (HOT) lanes, Express Toll Lanes, Truck Restricted Lanes, Bus on Shoulder (BOS), Hard Shoulder Running (HSR) and Ramp Metering. The study area comprised five counties in the metro-Nashville region: Davidson, Rutherford, Sumner, Williamson and Wilson counties. The evaluation covered a total of 27 corridors and included all interstate corridors within the region in addition to Briley Parkway (SR 155), Ellington Parkway (US 31E) and Vietnam Veterans Boulevard (SR 386).

Recommendations from the Congestion Action Plan appear in **Figure 4-13**. The plan recommended HOT lanes for further evaluation along I-24 from I-40 south to US 231. The plan also recommended ramp meters along I-24 from Exit 64 to Exit 74.BOS and HSR were considerations for along I-24.

Figure 4-13: TDOT Nashville Congestion Action Plan



Source: TDOT, Nashville Congestion Action Plan, 2022, Accessed August 2025.

Note: Map identification numbers shown do not imply priority.

4.3.9 2021 MPO 2045 Regional Transportation Plan

The current officially adopted GNRC Regional Transportation Plan (RTP) is the Middle Tennessee Connected Regional Transportation Plan 2021-2045 RTP, adopted on February 17, 2021. The RTP project list[26] includes the I-24 Congestion Reduction (ID 2872) roadway traffic operations project in Davidson and Rutherford counties in the 2025 horizon and I-24 southeast corridor (P-004: Southeast Corridor (I-24) Modernization and Transit/Multimodal Upgrades) as a top regional priority capital improvement. Additionally, the RTP's Policy Guidance chapter lists implementing managed lanes as an operational strategy to mitigate congestion to keep the region moving. The 2045 RTP contains transit funds in the fiscally constrained plan, both in the short-range TIP and the long-range portion of the RTP. The

[26] GNRC, 2045 RTP- Appendix B, 2021, Accessed February 2024.

RTP also includes a Transit Vision and lists unfunded, illustrative transit projects. A funded transit project relevant to the I-24 corridor is the Southeast Transit Center. **Figure 4-14** shows the goals and objectives of the GNRC 2045 RTP.

Figure 4-14: 2045 RTP Goals and Objectives

Source: GNRC, 2045 RTP, 2021, Accessed August 2025.

4.3.10 2020 Nashville International Airport Master Plan Update

The BNA Airport Master Plan Update[27] includes an airport inventory, aviation demand forecasts, facility requirements, alternatives evaluation, environmental overview, implementation plan, financial plan and airport layout plan (ALP). The master plan identified a preferred development plan to meet forecast aviation demand through 2037. Finalized in December 2020, the plan was prepared before the COVID-19 pandemic. The decline and rebound of aviation activity following the pandemic might impact the timing of future facility needs outlined in the plan.

The airport master plan and ALP will be considered during the project development of the Choice Lanes. Two key aspects are forecasted passenger demand and geometric constraints at the I-40 at Briley Parkway interchange. The baseline scenario enplanement 20-year forecast from 2017 to 2037 had a 3.6 percent compound annual growth rate (CAGR), which will result in additional passenger and vehicle trips on I-40 and surrounding roadways. Existing Runway 13-31 abuts the I-40 and Briley Parkway interchange. The ALP details the runway approach surface, which limits the elevation of structures in the vicinity. The proximity of the runway to I-40 limits airport expansions in the vicinity. Other BNA airport expansions contemplated in the plan do not appear to impact potential Choice Lanes.

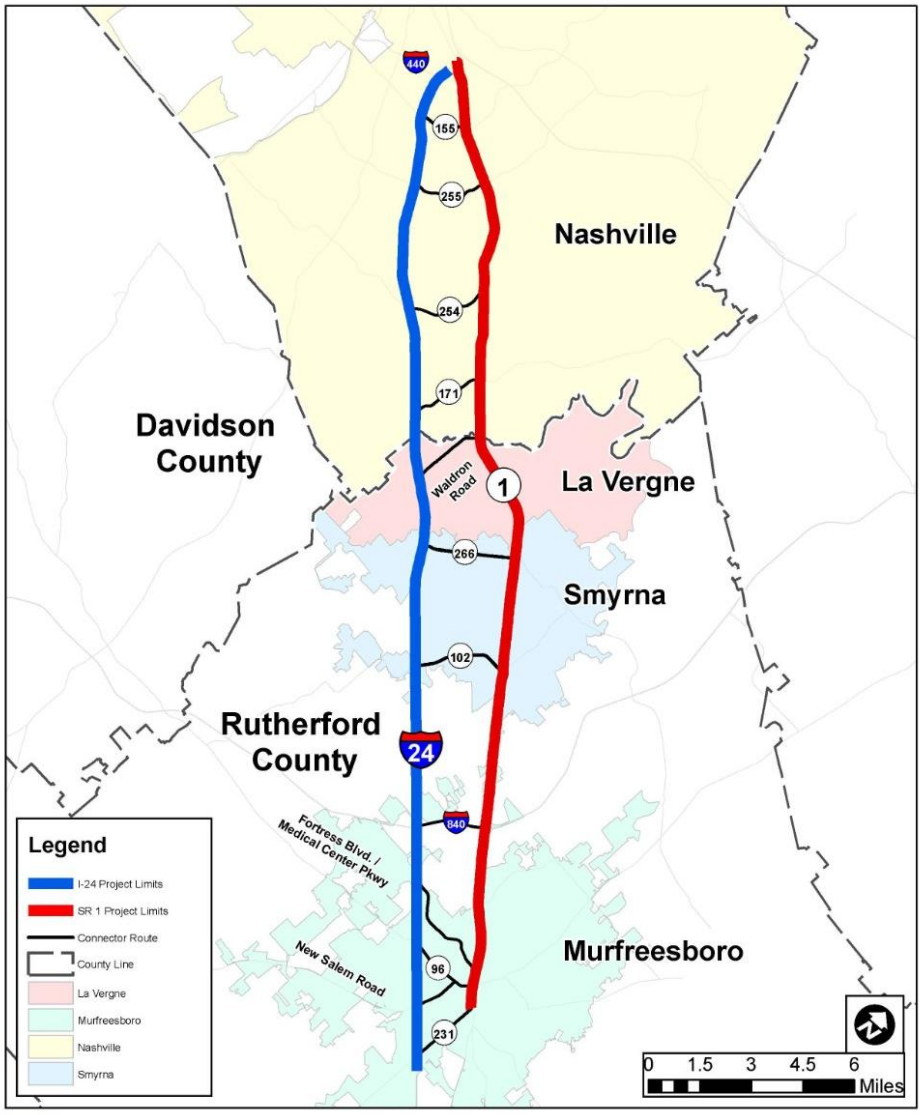
4.4 Corridor Initiatives

4.4.1 I-24 SMART Corridor

TDOT developed the I-24 SMART Corridor project as a comprehensive approach to managing the existing infrastructure and improving travel time reliability between Rutherford and Davidson counties. The integrated corridor management system included I24 and US 41 between Murfreesboro and Nashville. Construction began in 2018 and the integrated corridor management system became operational in June of 2023. The project is currently in Phase 2, with the project team managing the corridor and working to launch the arterial management system. Project details include ramp metering, upgraded fiber, closed-circuit television cameras and dynamic message signs. **Figure 4-15** shows the corridor.

[27] Metropolitan Nashville Airport Authority, Nashville International Airport Mater Plan Update, 2020, Accessed August 2025.

Figure 4-15: TDOT I-24 SMART Corridor



TDOT, I-24 SMART Corridor, (n.d.), Accessed August 2025.

4.4.2 I-24 Motion

The I-24 Mobility Technology Interstate Observation Network (MOTION) covers a four-mile section of I-24 in the Nashville-Davidson County Metropolitan area and provides an environment for testing advanced traffic management and automated vehicle technologies. This project includes the use of nearly 300 high-definition cameras that collect images and convert them into a digital model. The model provides TDOT with a view of how vehicles behave with unparalleled detail using Artificial Intelligence trajectory algorithms developed by Vanderbilt University. Vehicle trajectory data provides insights into how traffic flow influences individual vehicle behavior.

Using the information gathered on this testbed, I-24 MOTION will provide insights to allow the industry to build better products and allow TDOT to better understand how to make the most out of these products for managing infrastructure assets. The first testbed user is the U.S. Department of Energy's sponsored research with the CIRCLES Consortium, which is studying the possibility of smoothing traffic by introducing vehicles equipped with advanced driver-assist systems.

INTENTIONALLY LEFT BLANK

5 ENGINEERING CONDITIONS

5.1 Corridor Overview

5.1.1 I-40 Segments (East of I-24)

I-40 MAINLINE FROM I-24 TO STATE ROUTE 155 (BRILEY PARKWAY)

The segment of I-40 between SR 155 (Briley Parkway) and I-24 is approximately 1 mile in length and has five travel lanes in each direction. The interstate is divided by a concrete median barrier for the entire length of the segment. I-40 crosses over Mill Creek, a FEMA-studied floodway, via bridges. Massman Drive, a local street, crosses over I-40 just east of the Mill Creek bridge.

I-40 AND STATE ROUTE 155 (BRILEY PARKWAY) INTERCHANGE

This I-40/SR 155 Interchange northwest of BNA is a partial cloverleaf, with loop ramps in the northeastern and southeastern quadrants, connecting northbound SR 155 (Briley Parkway) to westbound I-40, and eastbound I-40 to northbound SR 155 (Briley Parkway). SR 155 (Briley Parkway) is a highway that circles Nashville, providing connections around the city. SR 155 (Briley Parkway) has a posted speed of 55 mph north of I-40 and reduces to 45 mph heading south through the interchange.

Eastbound I-40 is five lanes west of the interchange, with one of the lanes dropping as an exit ramp to southbound SR 155 (Briley Parkway). I-40 continues east as four lanes, developing a deceleration lane for the loop ramp exit to northbound SR 155 (Briley Parkway). Eastbound I-40 then merges with the two-lane ramp from SR 155 (Briley Parkway) to form a six-lane interstate heading east.

Westbound I-40 is five lanes east of the interchange, with one of the lanes dropping as an exit ramp to southbound SR 155 (Briley Parkway). This single-lane ramp becomes a flyover, crossing the ramp from westbound I-40 to northbound SR 155 (Briley Parkway) as well as going over SR 155 (Briley Parkway) before merging with southbound SR 155 (Briley Parkway). Westbound I-40 develops a short deceleration lane for the exit to northbound SR 155 (Briley Parkway). The northbound SR 155 (Briley Parkway) loop ramp then joins westbound I-40 with an acceleration lane, with I-40 carrying four lanes. The southbound SR 155 (Briley Parkway) ramp connects with westbound I-40, adding a fifth lane to I-40 heading west.

SR 155 (Briley Parkway) is separated by a median barrier within the limits of the interchange and has lengthy retaining walls on either side north of I-40. Southbound SR 155 (Briley Parkway) enters the interchange with five lanes before splitting into three lanes

heading towards I-40 and three lanes continuing south. The three exit lanes then develop into two, two-lane ramps connecting to eastbound and westbound I-40. The eastbound ramp crosses over the westbound ramps and I-40 before then crossing underneath SR 155 (Briley Parkway). The ramp then merges with a single-lane ramp from northbound SR 155 (Briley Parkway) prior to connecting with eastbound I-40. The westbound ramp parallels I-40, crossing underneath the eastbound ramp before merging down to one lane. The ramp then connects with westbound I-40, adding a fifth lane. The three lanes continuing south on SR 155 (Briley Parkway) reduce to two just prior to it traveling under the westbound I-40 to southbound SR 155 (Briley Parkway) ramp. These two lanes then connect with the ramp, resulting in three southbound travel lanes. SR 155 (Briley Parkway) then crosses over the southbound SR 155 (Briley Parkway) to eastbound I-40 ramp and merges with the eastbound I-40 off-ramp.

Northbound SR 155 (Briley Parkway) approaches the interchange with three lanes, developing a single-lane ramp heading towards eastbound I-40. Three travel lanes continue north, crossing over the southbound SR 155 (Briley Parkway) to eastbound I-40 ramp, before adding a fourth lane from the eastbound I-40 loop ramp. The four northbound lanes cross over I-40 with a diverge loop ramp providing a connection to westbound I-40. A fifth lane is added when the ramp from westbound I-40 connects with SR 155 (Briley Parkway) north of the interchange.

I-40 MAINLINE FROM STATE ROUTE 155 (BRILEY PARKWAY) TO TERMINAL DRIVE (BNA)

This segment of I-40 is approximately 0.5 miles long and has 11 travel lanes, with five in the westbound direction and six in the eastbound direction. The interstate is separated by a concrete median barrier and the inside general purpose lane transitions into HOV lanes in each travel direction.

In this segment, I-40 crosses McGavock Pike via bridge.

I-40 AND TERMINAL DRIVE (BNA) INTERCHANGE

This is a limited-access interchange, only providing an exit ramp from eastbound I-40 and an entrance ramp to westbound I-40, to and from the airport. These are each single-lane ramps with the exit ramp being a drop lane and the entrance ramp a merge condition. The westbound I-40 entrance ramp is a flyover that crosses from the airport to the south over I-40. East of the exit ramp, I-40 is five lanes in the eastbound direction and five lanes in the westbound direction.

I-40 AND STATE ROUTE 255 (DONELSON PIKE) INTERCHANGE

The I-40 and SR 255 (Donelson Pike) interchange is currently under construction. **Figure 5-1** below shows the concept drawing for how the future interchange will flow. The interchange

will include a diverging diamond with the addition of two bridges over the interstate and several on and off ramps.

Figure 5-1: I-40 and Donelson Pike Concept Drawing

I-40 MAINLINE FROM STATE ROUTE 255 (DONELSON PIKE) TO ELM HILL PIKE

This segment of I-40 is approximately 0.66 miles long, with four lanes (three general-purpose and one HOV) in each direction. The interstate is separated by a concrete median barrier and is currently impacted by the construction activities associated with the I-40/SR 255 Interchange. Elm Hill Pike is a two-lane local road that crosses I-40 via bridge near the end of this segment.

5.1.2 I-24 Segments (From I-40 to State Route 255)

I-40 AND I-24 EASTERNMOST INTERCHANGE

This I-40/I-24 Interchange is east of Downtown Nashville and west of BNA. Immediately to the south, US 41 (Murfreesboro Pike) forms an interchange with I-24, which also provides access to I-40. A third, limited-access interchange is located directly to the east at Spence Lane. West of the I-40/I-24 interchange, I-40 has eight lanes, four in each travel direction, and east of the interchange it has 10 lanes, five in each direction.

The eastbound I-40 travel lanes split with two lanes continuing on I-40 eastbound and the other two heading towards eastbound I-24. Eastbound I-40 then connects with a three-lane ramp carrying traffic from westbound I-24 and US 41 (Murfreesboro Pike).

Westbound I-40 splits into with three lanes continuing on I-40 westbound into Downtown Nashville and the other three heading towards eastbound I-24. On the far east side of the interchange, westbound I-40 has a single diverge off-ramp to Spence Lane. This off-ramp provides access to US 41 (Murfreesboro Pike) via Spence Lane for westbound travelers.

US 41 (Murfreesboro Pike) intersects with I-24 in a partial cloverleaf interchange. This interchange has loop ramps in all but the northeast quadrant and provides connections to both I-24 and I-40. US 41 (Murfreesboro Pike) is a four-lane facility with a depressed grass median and travels under I-24 within the limits of the interchange. As noted previously, there is a signalized intersection with Spence Lane on the east side of the interchange that provides a singular connection for westbound I-40 traffic.

Figure 5-2: I-40 and I-24 Easternmost Interchange

I-24 AND I-440 INTERCHANGE

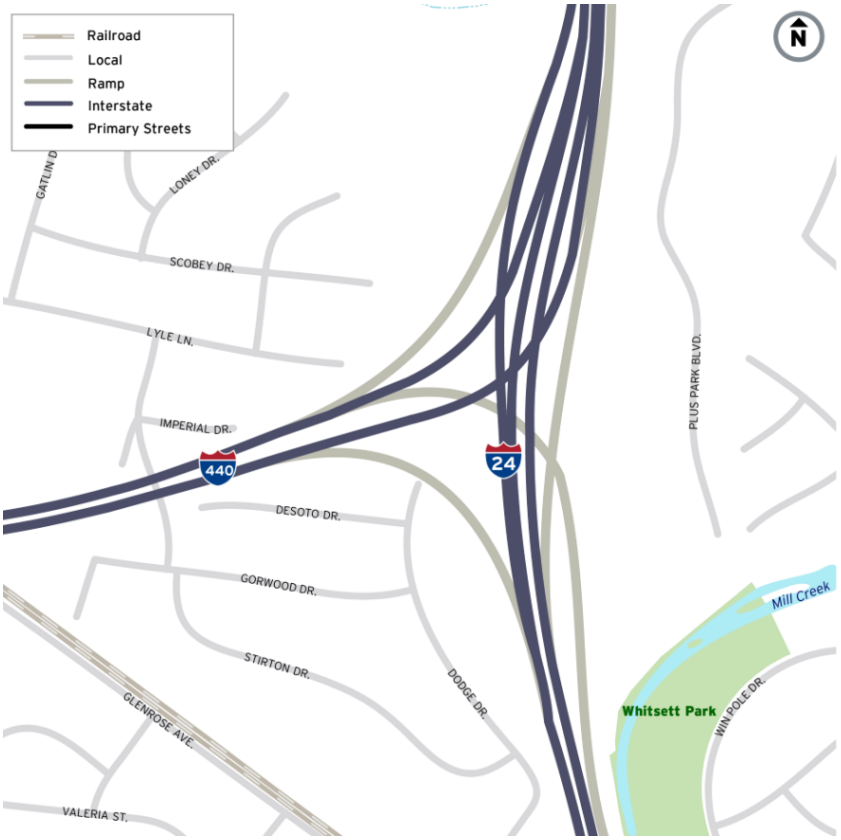
The I-24/I-440 Interchange, southeast of Downtown Nashville, closely ties into an interchange with US 41 (Murfreesboro Pike) located just to the north. The section between the interchanges consists of 12 lanes broken up by concrete median barriers to provide access between I-40, US 41 (Murfreesboro Pike) and I-24/I-440.

At the interchange, I-24 eastbound has three lanes, bound on the east side by a concrete median barrier, formed from two lanes from eastbound I-40/I-24 and one lane from eastbound US 41 (Murfreesboro Pike). These lanes then split into one lane westbound on I-440 and two lanes to continue eastbound on I-24. Also in the eastbound direction, there are two lanes, bounded by concrete median barriers on both sides, from westbound I-40 that split into one lane westbound on I-440 and one lane continuing eastbound on I-24. The ramp carrying the lanes from westbound I-40 to westbound I-440 increases in grade and crosses over the two-lane ramps from US 41 (Murfreesboro Pike) to eastbound I-24. Continuing eastbound, the ramps to I-24 eastbound connect and then merge with a two-lane ramp from eastbound I-440 to form five travel lanes.

Westbound I-24 approaches the interchange as five lanes, with two lanes dropping as an off-ramp to westbound I-440. This ramp crosses over most of the interchange other than the eastbound I-440 to westbound I-24 ramp, which it crosses underneath. Continuing westbound, I-24 is three lanes and develops a single-lane diverge off-ramp towards US 41 (Murfreesboro Pike), merging with a single-lane ramp from eastbound I-440 prior to intersecting with US 41 (Murfreesboro Pike) at a signalized intersection across from Spence Lane. The three remaining westbound travel lanes on I-24 then merge with the two lanes from eastbound I-440 before I-24 splits as it nears the US 41 (Murfreesboro Pike) and I-40 interchanges.

I-440 is a six-lane facility with three lanes in each direction west of the interchange and terminating at this interchange. The eastbound lanes split into two, two-lane ramps to provide access to I-24 eastbound and westbound, as well as connections to US 41 (Murfreesboro Pike) and I-40. Westbound I-440 begins with three ramps from this interchange: two lanes from westbound I-24, and one lane each from westbound I-40 and eastbound I-40/US 41 (Murfreesboro Pike); and reduces to three lanes as it crosses under South Lyle Lane.

Figure 5-3: I-440 and I-24 Interchange



I-24 MAINLINE FROM I-440 TO STATE ROUTE 155 (BRILEY PARKWAY)

This segment of I-24 is approximately 0.5 miles in length and has five lanes in each travel direction, separated by a concrete median barrier. I-24 crosses over Old Glenrose Avenue and two CSX railroad tracks via one bridge, then immediately to the east crosses over Glenrose Avenue via a second bridge.

Mill Creek, a FEMA-studied floodway, runs along the east side of I-24 for a portion of this segment.

I-24 AND STATE ROUTE 155 (BRILEY PARKWAY) INTERCHANGE

This I-24/SR 155 Interchange is a partial cloverleaf interchange southeast of Downtown Nashville, with loop ramps in the northwestern and southeastern quadrants. SR 155 (Briley Parkway) has a posted speed of 45 mph through the interchange. West of the interchange, SR 155 becomes Thompson Lane. There is an overpass at the north edge of the interchange that carries East Thompson Lane over I-24.

Eastbound I-24 approaches the interchange with four lanes, splitting into a two-lane off-ramp, one optional lane and three eastbound lanes. The off-ramp travels under East Thompson Lane and then splits to provide connections to SR 155 (Briley Parkway) in

westbound and eastbound directions. From the off-ramp, westbound SR 155 movement is free flow and eastbound SR 155 movement is signal-controlled. Eastbound I-24 then has the loop ramp from westbound SR 155 (Briley Parkway) merge into the travel lanes as it passes under SR 155 (Briley Parkway). The on-ramp from eastbound SR 155 (Briley Parkway) then adds one additional lane to I-24 as it continues east.

Westbound I-24 approaches the interchange four lanes, splitting into a two-lane off-ramp, developing to connect to SR 155 (Briley Parkway) one optional lane and three eastbound lanes continuing westbound on I-24. The loop ramp from eastbound SR 155 (Briley Parkway) then merges onto westbound I-24 as the interstate passes under SR 155 (Briley Parkway). The on-ramp from westbound SR 155 (Briley Parkway) then joins I-24, adding a fifth lane to I-24 as it continues west.

SR 155 (Briley Parkway) is a four-lane roadway with a depressed grass median approaching from the west. Two lanes are maintained eastbound with a diverge ramp to eastbound I-24 and then a deceleration lane for the loop ramp to westbound I-24. The westbound I-24 off-ramp adds one additional lane to eastbound SR 155 (Briley Parkway). This lane then drops at Averitt Express Drive. To reach westbound I-24, traffic moving west on SR 155 (Briley Parkway) exits prior to Averitt Express Drive. This ramp provides connections to and from Averitt Express Drive as well as to westbound I-24 and westbound SR 155 (Briley Parkway) from Averitt Express Drive. Westbound SR 155 (Briley Parkway) then approaches I-24 with three lanes, one of which becomes a drop lane at the loop ramp to eastbound I-24. The off-ramp from eastbound I-24 then merges with westbound SR 155 prior to a signalized intersection with East Thompson Lane.

Figure 5-4: I-24 and SR 155 (Briley Parkway) Interchange

I-24 MAINLINE FROM STATE ROUTE 155 (BRILEY PARKWAY) TO SR 255 (HARDING PLACE)

This segment of I-24 is approximately 1.75 miles in length and has four travel lanes in each direction, separated by a concrete median barrier, with additional lanes developing on either end as it approaches the interchanges. The segment has one identified emergency pull-over location in each direction. I-24 crosses Sevenmile Creek via dual span bridges before crossing under Antioch Pike and a CSX railroad bridge.

Mill Creek parallels I-24 in the same area.

I-24 AND STATE ROUTE 255 (HARDING PLACE) INTERCHANGE

The I-24/SR 255 Interchange is a typical diamond interchange southeast of Downtown Nashville. SR 255 (Harding Place) is a major arterial with a posted speed limit of 40 mph that provides connections to the Nashville International Airport (BNA) to the east and US 41A (Nolensville Pike), I-65 and US 31 (Franklin Pike) to the west. SR 255 (Harding Place) carries four travel lanes through the interchange with I-24. The interchange has signalized

ramp intersections and double left-turn lanes on each side providing access to the interstate and SR 255.

Eastbound I-24 approaches the interchange with five lanes, the right most lane drops at an exit ramp the inside lane is an optional exit. Continuing under SR 255 (Harding Place) I-24 has four lanes in both directions. At SR 255 (Harding Place), the left lane of eastbound I-24 becomes an HOV lane, reducing the general-purpose lanes to three. Continuing east past SR 255 (Harding Place), the eastbound on-ramp merges with I-24 to form four general-purpose lanes and one HOV lane.

Westbound I-24 approaches the interchange with five lanes, one being an HOV lane, before dropping one lane at the off-ramp to SR 255 (Harding Place). Continuing west after the off-ramp, the HOV lane becomes a general-purpose lane to make four travel lanes before crossing under SR 255 (Harding Place). The westbound on-ramp from SR 255 (Harding Place) then merges with I-24 to form five travel lanes heading west.

Figure 5-5: I-24 and SR 255 (Harding Place)

5.1.3 I-24 Segments (Southeast of State Route 255)

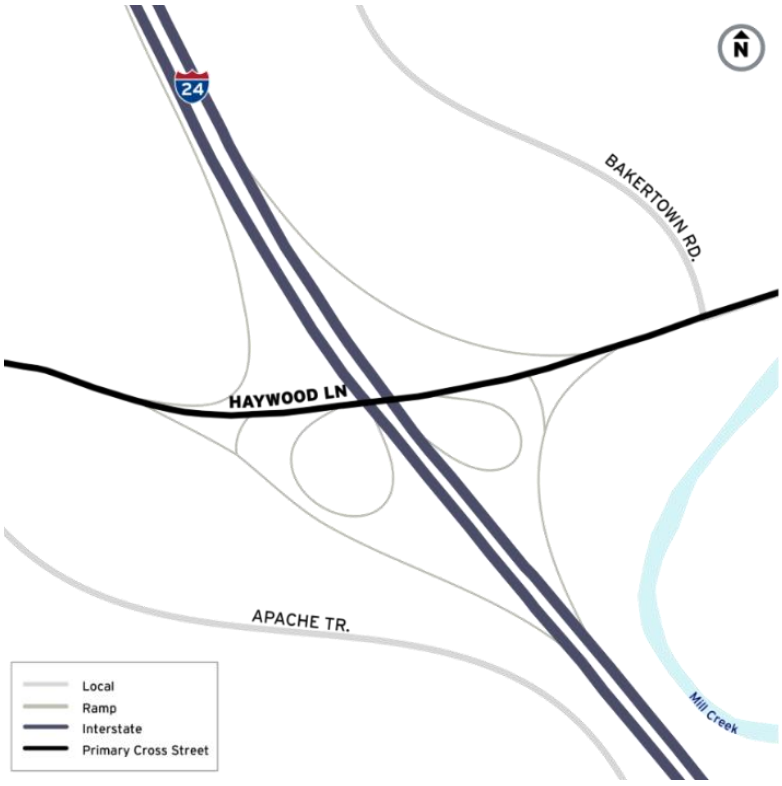
I-24 MAINLINE FROM SR 255 (HARDING PLACE) TO HAYWOOD LANE

The segment of I-24 north of Haywood Lane has a typical section including five travel lanes, four general purpose and one HOV lane in either direction, divided by a median barrier, a 10-foot shoulder on either side of the median barrier, and 12-foot shoulders on the outside.

I-24 AND HAYWOOD LANE INTERCHANGE

The I-24/Haywood Lane Interchange is a partial cloverleaf interchange. Haywood Lane is an urban major collector that runs west to east from US 41A (Nolensville Road) to Antioch Pike with a posted speed limit of 45 mph. From Antioch Pike to Keeley Drive, Haywood Lane is a four-lane roadway with a raised median at the interchange with I-24. I-24 crosses over Haywood Lane. Mill Creek runs along the southeast side of the interchange with part of the creek within ROW.

Figure 5-6: I-24 and Haywood Lane Interchange



I-24 MAINLINE FROM HAYWOOD LANE TO STATE ROUTE 254 (BELL ROAD)

The segment of I-24 from Haywood Lane to SR 254 (Bell Road) is approximately 2.4 miles in length. The existing typical section of this segment includes four through lanes in either

direction separated by a median barrier with a 10-foot shoulder on either side and 12-foot shoulders on the outside.

Along this segment, Whittemore Branch crosses under I-24 via culvert/box culvert and runs along Mill Creek Greenway before out falling into Mill Creek.

Along this segment, Blue Hole Road crosses over I-24. Blue Hole Road is a major collector that runs south to north from Pettus Road to Antioch Pike. Blue Hole Road has a cross section including one lane in each direction and shoulders and a sidewalk on the northbound side of the bridge.

Along this segment, I-24 crosses over Mill Creek vis bridge.

I-24 AND STATE ROUTE 254 (BELL ROAD) INTERCHANGE

The I-24/SR 254 Interchange is a diamond interchange. SR 254 (Bell Road) crosses under I-24, it is a principal arterial that runs west to east with a posted speed limit of 35 mph at the interchange. As Bell Road crosses under I-24 it has four through lanes, two in the eastbound direction, and two westbound, these through lanes are separated by gore markings that are roughly 12-feet wide. There is also a center turn lane that is used for westbound traffic to turn onto the interstate on the west side of the bridge. On the east side of the bridge the turn lane is used for eastbound turning traffic. Collins Creek crosses under SR 254 (Bell Road) along the south side of the interchange. Collins Creek is within ROW on the south side of the interchange.

Figure 5-7: I-24 and Bell Rd Interchange

I-24 MAINLINE FROM STATE ROUTE 254 (BELL ROAD) TO HICKORY HOLLOW PARKWAY

The segment of I-24 from SR 254 (Bell Road) to Hickory Hollow Parkway is approximately 0.7 miles in length. The existing cross-section of this segment includes four 12-foot general purpose lanes, and one auxiliary lane connecting the entrance/exit ramps in each direction. I-24 has 12-foot outside shoulders and is divided by a median barrier with 10-foot shoulders on either side of the barrier. Collins Creek runs along the south side of the segment and crosses under I-24 via culvert/box culvert and then runs along the north side of the interstate.

I-24 AND HICKORY HOLLOW PARKWAY INTERCHANGE

The I-24/Hickory Hollow Parkway Interchange is a diverging diamond interchange. Hickory Hollow Parkway is a minor arterial that runs south to north with a posted speed limit of 25 mph at this interchange. Where Hickory Hollow Parkway crosses over I-24, the bridge cross-section includes three lanes in each direction, divided by a barrier-protected sidewalk.

Just west of this interchange is William Turner Parkway, which dead ends into Hickory Hollow Pike and has an entrance and exit to and from eastbound I-24. The entrance ramp from William Turner Parkway merges with the entrance ramps from Hickory Hollow Pike.

The Foster-Owens Cemetery is situated between the entrance ramp from Hickory Hollow west to eastbound I-24 and the exit ramp from eastbound I-24 to William Turner Parkway.

I-24 MAINLINE FROM HICKORY HOLLOW PARKWAY TO STATE ROUTE 171 (OLD HICKORY BOULEVARD)

The segment of I-24 from Hickory Hollow Parkway to SR 171 (Old Hickory Boulevard) is approximately 2.4 miles in length. The existing cross-section for this segment includes four lanes in each direction with 12-foot outside shoulders divided by a median barrier with a 10-foot shoulder on either side of the barrier.

Old Franklin Road crosses over I-24 along this segment. Old Franklin Road is a major collector with a posted speed limit of 40 mph. Where it crosses I-24, Old Franklin Road has a cross-section that includes one lane in each direction and outside shoulders.

I-24 AND STATE ROUTE 171 (OLD HICKORY BOULEVARD) INTERCHANGE

The I-24/SR 171 Interchange is a diamond interchange. SR 171 (Old Hickory Boulevard) is a minor arterial with a posted speed limit of 40 mph. Where SR 171 (Old Hickory Boulevard) crosses over I-24, the bridge cross-section includes two lanes in each direction, a center turn lane and outside shoulders.

I-24 MAINLINE FROM STATE ROUTE 171 (OLD HICKORY BOULEVARD) TO WALDRON ROAD

The segment of I-24 from SR 171 (Old Hickory Boulevard) to Waldron Road is approximately 1.9 miles in length. The existing cross-section for this segment includes four lanes in each direction with 12-foot outside shoulders divided by a median barrier with 10-foot shoulders on either side of the barrier.

Along this segment, West Branch Hurricane Creek crosses under I-24 via culvert/box culvert.

I-24 AND WALDRON ROAD INTERCHANGE

The I-24/Waldron Road Interchange is a diamond interchange with a single cloverleaf for the eastbound I-24 off-ramp. Waldron Road is a major collector with a posted speed limit of 35 mph. Where Waldron Road crosses over I-24, the bridge cross-section includes six lanes and 2-foot shoulders. At this interchange, East Branch Hurricane Creek crosses under I-24 and the westbound I-24 on-ramp via culvert/box culvert.

I-24 MAINLINE FROM WALDRON ROAD TO STATE ROUTE 266 (SAM RIDLEY PARKWAY)

The segment of I-24 from Waldron Road to SR 266 (Sam Ridley Parkway) is approximately 2 miles in length. The existing cross-section for this segment includes four lanes in each direction with 12-foot outside shoulders divided by a median barrier with 10-foot shoulders on either side of the barrier.

I-24 AND STATE ROUTE 266 (SAM RIDLEY PARKWAY) INTERCHANGE

The I-24/SR 266 Interchange is a diamond interchange with a single loop ramp from eastbound I-24 to northbound SR 266 (Sam Ridley Parkway). SR 266 (Sam Ridley Parkway) is a minor arterial with a posted speed limit of 45 mph. Where Sam Ridley Parkway crosses over I-24 via dual span bridge. The existing cross-section for each bridge includes two through lanes with shoulders on either side.

Figure 5-8: I-24 and SR 266 (Sam Ridley Parkway) Interchange

I-24 MAINLINE FROM STATE ROUTE 266 (SAM RIDLEY PARKWAY) TO STATE ROUTE 102 (ALMAVILLE ROAD)

The segment of I-24 from SR 266 (Sam Ridley Parkway) to SR 102 (Almaville Road) is approximately 3.7 miles in length. From the I-24/SR 266 Interchange to just south of where Rock Springs Road crosses under I-24, the existing cross-section for this segment includes four lanes in each direction with 12-foot outside shoulders divided by a median barrier with 10-foot shoulders on either side of the barrier. From south of where Rock Springs Road crosses under I-24 to SR 102 (Almaville Road), the existing cross-section includes four lanes in each direction with 12-foot outside shoulders divided by a depressed median with 10-foot shoulders on either side.

Along this segment, Rock Springs Road crosses under I-24. Rock Springs road is a major arterial that runs west to east from Rocky Fork Road to Imperial Boulevard with a posted speed limit of 35 mph. Where Rocky Fork Road crosses under I-24, the existing cross-section includes a two-lane section with shoulder on the eastbound side and sidewalk on the westbound side of the road.

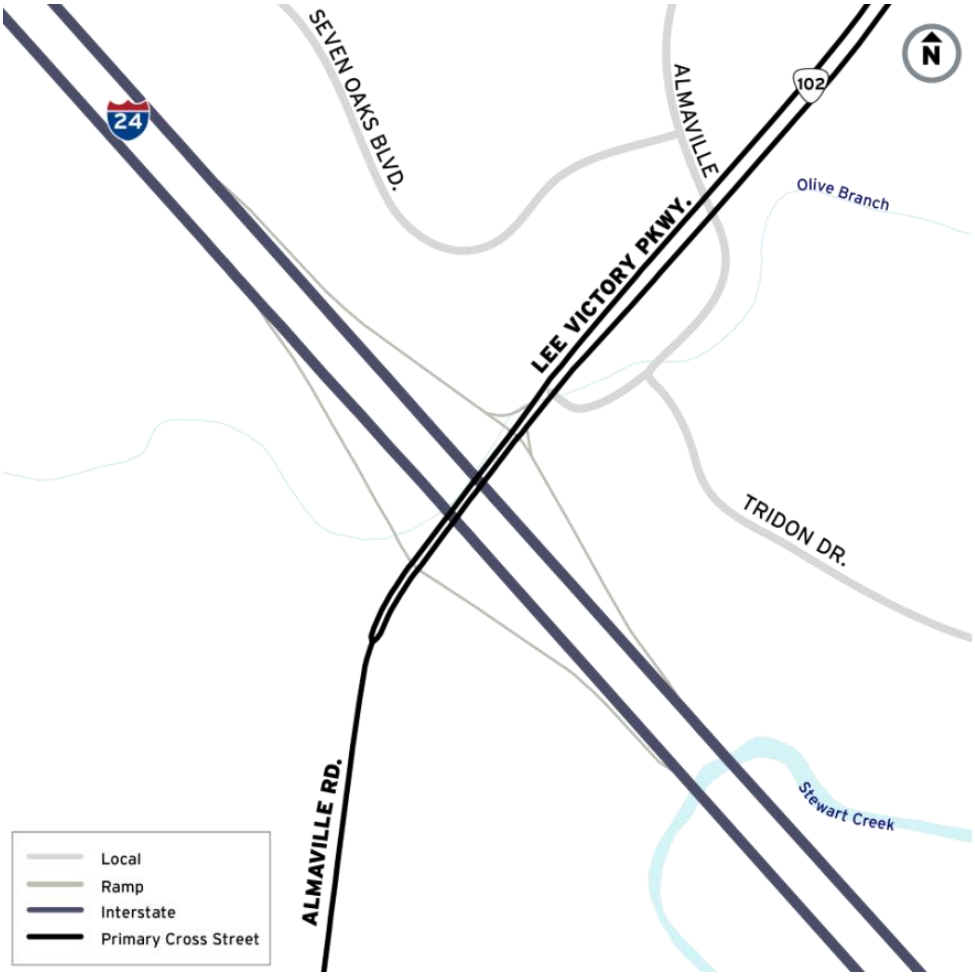
Rocky Fork Road is a major collector that runs south to north where it crosses over I-24 with a posted speed limit of 40 mph. Where Rocky Fork Road crosses over I-24, the existing cross-section of the road includes two lanes and outside shoulders.

I-24 AND STATE ROUTE 102 (ALMAVILLE ROAD) INTERCHANGE

The I-24/SR 102 Interchange is a diamond interchange. SR 102 (Almaville Road) is a minor arterial that runs south to north from SR 96 (Murfreesboro Road) to Country Village Drive with a posted speed limit of 40 mph. Where SR 102 (Almaville Road) crosses under I-24, the existing cross-section of the road includes five lanes with outside shoulders and a center turn lane. I-24 crosses over SR 102 (Almaville Road) via dual span bridge.

Olive Branch crosses under the I-24/SR 102 Interchange via two bridges.

Figure 5-9: I-24 and SR 102 (Almaville Rd) Interchange



I-24 MAINLINE FROM STATE ROUTE 102 (ALMAVILLE ROAD) TO I-840

The segment of I-24 from SR 102 (Almaville Road) to I-840 is approximately 4.68 miles in length. The existing cross-section for this segment includes four lanes in each direction with 12-foot outside shoulders divided by a depressed median roughly 45 feet wide, with 10-foot shoulders on either side of the median.

Just south of the I-24/SR 102 Interchange, Stewart Creek crosses I-24 via dual span bridge.

Along this segment, Baker Road crosses over I-24. Baker Road is a major collector that runs south to north from Blackman Road to Old Nashville Highway with a posted speed limit of 40 mph. Where Baker Road crosses over I-24, the existing bridge cross-section includes one lane in each direction with outside shoulders.

Along this segment, Florence Road crosses over I-24. Florence Road is a major collector that runs south to north from Manson Pike to US 41 (Northwest Broad Street) with a posted speed limit of 40 mph. Where Florence Road crosses over I-24, the existing bridge cross-section includes one lane in each direction with outside shoulders.

I-24 AND I-840 INTERCHANGE

The I-24/I-840 Interchange is a partial cloverleaf interchange. I-840 is an interstate that runs west to east from I-40 in Dickson County to I-40 west of Lebanon, Tennessee, with a posted speed limit of 45 mph at the interchange. I-840 crosses over I-24 via dual span bridges. The eastbound bridge has an existing cross-section including three lanes with inside and outside shoulders. The westbound bridge has two lanes with outside shoulders.

A pair of interchange ramps cross over I-24 north of the I-840 bridges. The northernmost bridge for exit 74-A from eastbound I-24 onto westbound I-840 is a one-lane bridge with outside shoulders. Just south of this is a bridge from westbound I-840 onto eastbound I-24 with a two-lane section with shoulders on the outside.

I-24 MAINLINE SOUTH OF I-24/I-840 INTERCHANGE

Along this segment, the existing interstate cross-section includes five lanes in each direction with outside shoulders separated by a depressed median with shoulders on either side. The cross-section transitions from a depressed median to a median barrier.

Along this segment, I-24 crosses over Overall Creek via bridge.

5.2 Methodology

This analysis of general engineering elements of the study area provides details about features and identifies those features that do not meet current engineering design standards. The review of existing conditions for this study area examined general engineering elements. The primary goal of this analysis is to provide planning-level details

about general engineering features and to identify areas of initial concern, such as those components of the I-24, I-440, and I-40 corridors that do not meet current design standards. Engineering elements reviewed as part of this existing conditions report include:

- Roadway geometrics
- Structures

The following sections document the analysis of each of these engineering features.

5.2.1 Roadway Geometrics

Roadway geometrics consist of roadway alignments and design features. A roadway is designed to promote safety and facilitate efficient travel through the corridor. Either through existing constraints, impracticality of implementation, or evolving standards, roadway systems may not always meet all current design criteria. A recent survey (January 2024) documented the physical features of the I-24, I-440, and I-40 corridors and compared them to current design standards. A summary of the general design characteristics and the identified deficiencies appears in the following subsections. See **Table 5-3** through **Table 5-6** for additional information.

5.2.2 Lane Widths

The width of a travel lane can influence many factors on a roadway, including travel speeds, driver comfort and safety. In general, 12-foot travel lanes are the standard for most roadways, including interstate facilities such as I-24, I-440, and I-40 (AASHTO, 2018). Typical lane widths for these corridors are 12 feet.

5.2.3 Shoulder Widths

Shoulders are a critical component to a roadway. They provide space on the sides of the road to accommodate necessary activities, such as emergency response or plowing snow. Throughout the entirety of the corridor, existing shoulder widths vary. Many existing shoulder widths along I-24, I-440, and I-40 as well as the shoulders belonging to their associated ramps, do not meet current standards. The review of existing conditions used TDOT Design Standards RD11-TS-5B and RD11-TS-4 to evaluate existing shoulder widths along the mainline and ramps respectively. Both standards are current with the last updates to the documents occurring in 2019. Additionally, this analysis consulted the American Association of State Highway and Transportation Officials (AASHTO) Greenbook Chapter 8, 2018 standards.

5.2.4 Horizontal Alignment

The horizontal alignment design criterion is linked to the design speed of the facility, the radius of horizontal alignment and the superelevation (roadway banking) of the roadway.

Within a given design speed, the greater the superelevation is on the curve, the tighter the curve radius that is permitted. Reviewers consulted Table 3-10 within the 2018 edition of the AASHTO Greenbook to determine minimum radii for stretches of the road with an 8% superelevation condition. Existing ramp horizontal curve radius deficiencies appear in **Table 5-4**.

5.2.5 Horizontal Stopping Sight Distance

Horizontal stopping sight distance is a calculation that determines the necessary distance to safely stop a vehicle in a sudden stop condition. The equation to determine the distance includes driver reaction time and the distance to stop a vehicle from a given design speed. Obstructions often infringe upon the sight distance lines, reducing driver safety. This analysis used tables 3-1 and 3-2 within the AASHTO Greenbook to determine stopping sight distance for level and graded roadways respectively. Based on the design speed of the mainline and respective ramps, **Table 5-8** shows horizontal stopping sight distance deficiencies that the analysis identified within the corridor.

5.2.6 Acceleration/Deceleration Distance

Acceleration distance provides space for vehicles to get up to speed and safely enter the highway. This distance can exist on the ramp proper or on the highway through the use of an auxiliary lane. The design speed of both the ramp and the mainline determine the acceleration length required and are adjusted according to the vertical grades associated with each. Similarly, deceleration provides sufficient space for vehicles leaving the highway to safely reduce speed away from the mainline traffic. The evaluation of acceleration and deceleration distance sufficiency consulted Tables 10-4 and 10-6, respectively, within the AASHTO Greenbook 2018 edition[28]. When adjustments to these distances were necessary due to the presence of grades exceeding 3 percent, evaluators referenced Table 10-5. **Table 5-6** and **Table 5-7** show the acceleration/deceleration deficiencies that the analysis identified within the corridor.

5.2.7 Ramp Spacing

Adequate spacing between ramps permits safe weaving operation between interchanges. Proper ramp spacing gives suitable distance for vehicles to accelerate along entrance ramps and weave into the through lanes, while permitting sufficient distance for vehicles leaving the highway to decelerate and weave onto exit ramps. As ramp spacing reduces, it places strain on operations through insufficient acceleration/deceleration distances and associated weaving. Evaluators referenced Figures 10-70 and 10-71 within the AASHTO

[28] AASHTO Greenbook 2018 edition

Greenbook 2018 edition[29] to determine both the type of ramp spacing and minimum length required between successive ramps. Ramp spacing deficiencies for the corridor appear in **Table 5-5**.

The Project Team obtained information for the engineering conditions analysis from the following sources:

- Aerial imagery
- TDOT E-Trims
- TDOT as-built survey data
- Open Roads Designer (ORD) with orthographic imagery
- TDOT Bridge Inspection reports
- TDOT 10-Year Project Plan
- TDOT's Pavement Management System
- Tennessee Statewide Travel Demand Model
- Federal Railroad Administration
- USGS National Hydrography Dataset Plus
- Metropolitan Government of Nashville & Davidson County

[29] AASHTO Greenbook 2018 edition

INTENTIONALLY LEFT BLANK

5.3 Current and Upcoming Projects

The future projects that appear in **Table 5-1** below are from TDOT's 10-year Project Plan. These projects consist of a series of bridge replacement projects and the proposed I-24 Southeast Choice Lanes project.

Figure 5-10 shows the location of the proposed improvements.

Figure 5-10: TDOT 10-Year Project Plans in the Existing Conditions Study Area

Source: TDOT, 10-Year Project Plan, Accessed October 2025.

Table 5-1: Current and Upcoming Projects

PROJECT	REGION	COUNTY	MAP LABEL	ESTIMATED COST	% TRADITIONAL STATE AND FEDERAL	% TMA	PE YEAR	ESTIMATED CONSTRUCTION YEAR
Region 3 TMA Bridge Program	Region 3	Various	R3-B2 R3-B4	$190M	0%	100%		2024- $10M 2025- $30M 2026- $50M 2027- $100M
Nashville Interstate 24 Corridor Priority Investment	Region 3	Davidson, Rutherford	SA-3	$250M	0%	100%	2027	

Source: TDOT, 10-Year Project Plan, Accessed October 2025.

5.4 Existing Pavement Conditions

The pavement condition data presented in **Table 5-2** below is from TDOT's Pavement Management System with 2022 data. TDOT uses the Pavement Management System to repair and improve the conditions based on Good Repair Targets. This comprehensive list offers insights into the state of pavement within the study area limits, using key metrics such as the International Roughness Index (IRI), Half Car IRI (HC IRI), Pavement Smoothness Index (PSI), Pavement Distress Index (PDI) and Pavement Quality Index (PQI). Surface type is identified as Bituminous Asphalt (Bit) and Concrete (Con). The asphalt can have a rating of Good, Fair or Poor.

Table 5-2: Existing Pavement Conditions

COUNTY	REGION	DISTRICT	ROUTE NUMBER	DIRECTION	BEGIN LOG MILE	END LOG MILE	LENGTH	LANE MILES	IRI	HCIRI	RUT DEPTH	PSI	PDI	PQI	AGE	NHS	RATING	SURFACE TYPE
Davidson	3	37	I-24	EB	8.7	12.4	3.8	7.5	50.9	43.0	0.1	3.8	4.5	4.3	13	1	Good	Bit
Davidson	3	37	I-24	WB	8.7	12.1	3.5	7.0	55.7	46.3	0.1	3.7	4.8	4.4	13	1	Good	Bit
Davidson	3	37	I-24	WB	12.2	12.8	0.6	1.3	186.8	170.0	0.1	1.8	3.7	3.0	27	1	Fair	Con
Davidson	3	37	I-24	EB	12.4	15.4	3.0	9.0	69.6	59.9	0.1	3.4	4.1	3.9	7	1	Fair	Bit
Davidson	3	37	I-24	WB	12.8	15.4	2.6	7.8	61.8	53.2	0.1	3.6	4.2	4.0	7	1	Good	Bit
Davidson	3	37	I-24	EB	15.4	21.1	5.7	22.8	61.3	52.5	0.1	3.6	3.7	3.7	10	1	Fair	Bit
Davidson	3	37	I-24	WB	15.4	21.1	5.7	22.8	80.0	68.6	0.2	3.2	3.4	3.4	10	1	Fair	Bit
Davidson	3	37	I-40	WB	16.1	21.4	5.3	16.0	69.6	62.6	0.1	3.4	3.8	3.7	4	1	Fair	Bit
Davidson	3	37	I-40	EB	16.1	21.4	5.3	16.0	66.9	60.9	0.1	3.5	3.8	3.7	4	1	Fair	Bit
Davidson	3	37	I-40	WB	21.4	24.5	3.1	15.5	45.2	42.8	0.0	3.9	4.8	4.5	1	1	Good	Bit
Davidson	3	37	I-40	EB	21.4	24.5	3.1	15.5	45.2	44.9	0.0	3.9	4.8	4.5	1	1	Good	Bit

COUNTY	REGION	DISTRICT	ROUTE NUMBER	DIRECTION	BEGIN LOG MILE	END LOG MILE	LENGTH	LANE MILES	IRI	HCIRI	RUT DEPTH	PSI	PDI	PQI	AGE	NHS	RATING	SURFACE TYPE
Davidson	3	37	I-40	WB	24.5	31.2	6.7	26.9	49.4	39.2	0.1	3.8	3.7	3.8	1	1	Fair	Bit
Davidson	3	37	I-40	EB	24.5	31.2	6.7	26.9	47.5	36.9	0.1	3.9	3.7	3.8	1	1	Fair	Bit
Davidson	3	37	I-440	WB	0.0	4.8	4.8	14.4	66.9	60.9	0.1	3.5	4.3	4.0	36	1	Fair	Bit
Davidson	3	37	I-440	EB	0.0	4.8	4.8	14.4	64.3	57.9	0.1	3.5	4.4	4.1	36	1	Good	Bit
Davidson	3	37	I-440	WB	4.8	7.7	2.9	8.6	76.1	70.5	0.1	3.3	4.4	4.1	36	1	Good	Bit
Davidson	3	37	I-440	EB	4.8	7.1	2.3	7.0	73.4	66.6	0.1	3.3	4.6	4.2	36	1	Good	Bit
Davidson	3	37	I-24	EB	21.1	27.6	6.5	26.1	54.8	48.4	0.1	3.7	3.5	3.6	13	1	Fair	Bit
Davidson	3	37	I-24	WB	21.1	27.8	6.7	26.8	66.4	58.6	0.1	3.5	3.3	3.4	13	1	Fair	Bit
Rutherford	3	39	I-24	EB	0.0	5.2	5.2	20.8	39.2	32.3	0.1	4.0	4.3	4.2	4	1	Good	Bit
Rutherford	3	39	I-24	WB	0.0	5.2	5.2	20.8	32.6	26.8	0.1	4.2	4.8	4.6	4	1	Good	Bit
Rutherford	3	39	I-24	EB	5.2	7.8	2.6	10.2	39.7	34.4	0.1	4.0	4.5	4.3	5	1	Good	Bit
Rutherford	3	39	I-24	WB	5.2	7.8	2.6	10.2	39.7	33.3	0.1	4.0	4.5	4.3	5	1	Good	Bit
Rutherford	3	39	I-24	EB	7.8	11.0	3.3	13.0	49.9	38.3	0.1	3.8	3.1	3.3	11	1	Fair	Bit
Rutherford	3	39	I-24	WB	7.8	11.0	3.3	13.0	57.2	46.7	0.2	3.7	3.1	3.3	11	1	Fair	Bit

Source: *TDOT, Pavement Management System, 2022, Accessed March 2024.*

Notes:

The table begins with the northernmost segment of the study area and progresses southward, concluding at the interchange of I-840 and I-24.

IRI: International Roughness Index

- Measurement of the number of vertical deviations over a section of road
- Measured in inches/mile.
- Perfect is 0

HC IRI: Half-Car IRI

- Half-Car IRI is used by TDOT's profilers for construction acceptance testing.

PSI: Pavement Smoothness Index

- Measure of the roughness of the road on a scale of 0-5 (Perfect is 5)
- Relates to IRI through PSI = 5*e^(-0.0055*IRI)

PDI: Pavement Distress Index

- Distress on a scale from 0-5 (Perfect is 5)

Evaluated on: Fatigue, Rutting, Longitudinal Cracks in the Wheel Path, Patching, Block Cracking, Raveling, Transverse Cracks, & Longitudinal Cracks (Non-Wheel Path)

- All the D.V.s are given a weight and subtracted from 5.

PQI: Pavement Quality Index

- Overall Index of the roadway on a scale from 0-5 (Perfect is 5)

PQI = PDI^0.7 * PSI^0.3

PDI encompasses the largest portion of this index because Pavement Distresses indicate current problems and future deterioration of the roadway surface.

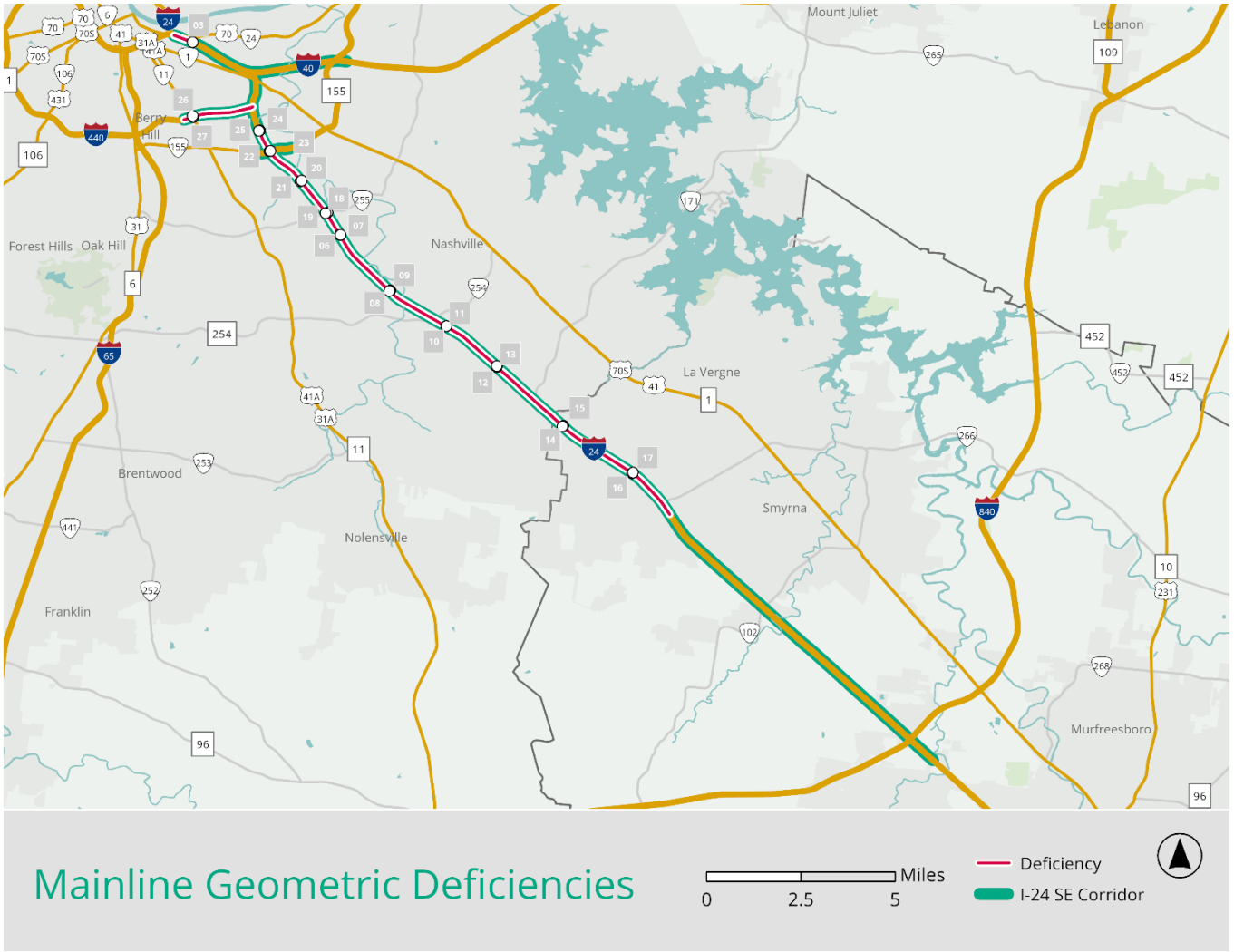
5.5 Geometric Deficiencies

5.5.1 Mainline Geometric Deficiencies

Figure 5-11 and **Table 5-3** depict the Mainline Geometric deficiencies, which appear highlighted in yellow. This includes horizontal radii, as well as lane and shoulder widths. The minimum curve radius for interstates with a speed limit of 55 and above according to TDOT is 1,810 feet without consideration of superelevation. The minimum lane width for mainline interstates is 12 feet, and the minimum paved shoulder is 10 feet (12 feet total) for three or more lanes according to TDOT's standards. The Project Team obtained information for the tables and figures below from the following sources:

- Aerial imagery
- TDOT E-Trims
- TDOT as-built survey data
- Open Roads Designer (ORD) with orthographic imagery
- TDOT Bridge Inspection reports
- TDOT 10-Year Project Plan
- TDOT's Pavement Management System

Figure 5-11: Mainline Geometric Deficiencies in the Existing Conditions Study Area



Source: TRIMS, (n.d.), Accessed August 2025.

Table 5-3: Mainline Geometric Deficiencies

MAP ID	SEGMENT	CURVE RADIUS (FEET)	TRAVEL DIRECTION	INSIDE PAVED SHOULDER WIDTH (FEET)	LANE WIDTHS (FEET)	OUTSIDE PAVED SHOULDER WIDTH (FEET)
03	I-40 Between Fesslers Lane and I-24 Interchange	8700	WB and EB	4	12	10
06	I-24 Between SR 255 (Harding Place) and Haywood Lane	5810	EB	11	12	9
07	I-24 Between SR 255 (Harding Place) and Haywood Lane	5810	WB	11	12	9
08	I-24 Between Haywood Lane and SR 254 (Bell Road)	5570	EB	11	11	8
09	I-24 Between Haywood Lane and SR 254 (Bell Road)	5570	WB	11	11	8
10	I-24 Between SR 254 (Bell Road) and Hickory Hollow Parkway	N/A	EB	10	12	10

MAP ID	SEGMENT	CURVE RADIUS (FEET)	TRAVEL DIRECTION	INSIDE PAVED SHOULDER WIDTH (FEET)	LANE WIDTHS (FEET)	OUTSIDE PAVED SHOULDER WIDTH (FEET)
11	I-24 Between SR 254 (Bell Road) and Hickory Hollow Parkway	N/A	WB	11	12	10
12	I-24 Between Hickory Hollow Parkway and SR 171 (Old Hickory Blvd)	5460	EB	4	12	10
13	I-24 Between Hickory Hollow Parkway and SR 171 (Old Hickory Blvd)	5460	WB	6	12	10
14	I-24 Between SR 171 (Old Hickory Blvd) and Waldron Road	11,860	EB	4	12	10
15	I-24 Between SR 171 (Old Hickory Blvd) and Waldron Road	11,860	WB	4	12	10

MAP ID	SEGMENT	CURVE RADIUS (FEET)	TRAVEL DIRECTION	INSIDE PAVED SHOULDER WIDTH (FEET)	LANE WIDTHS (FEET)	OUTSIDE PAVED SHOULDER WIDTH (FEET)
16	I-24 Between Waldron Road and SR 266 (Sam Ridley Parkway)	8650; 11,055	EB	6	12	10
17	I-24 Between Waldron Road and SR 266 (Sam Ridley Parkway)	8650; 11,055	WB	4	12	10
18	SR 255 (Harding Place) Intersection I-24 Mainline Shoulder and Lane Widths	10,500	WB	10	12	9
19	SR 255 (Harding Place) Intersection I-24 Mainline Shoulder and Lane Widths	10,500	EB	11	12	10
20	I-24 Between SR 255 and SR 155 Mainline Shoulder and Lane Widths	5,650	WB	10	12	8
21	I-24 Between SR 255 and SR 155 Mainline Shoulder and Lane Widths	5,650	EB	10	12	5

MAP ID	SEGMENT	CURVE RADIUS (FEET)	TRAVEL DIRECTION	INSIDE PAVED SHOULDER WIDTH (FEET)	LANE WIDTHS (FEET)	OUTSIDE PAVED SHOULDER WIDTH (FEET)
22	SR 155 (Briley Pkwy) Intersection I-24 Mainline Shoulder and Lane Widths	12,000	WB	10	12	11
23	SR 155 (Briley Pkwy) Intersection I-24 Mainline Shoulder and Lane Widths	12,000	EB	9	12	7
24	I-24 Between SR 155 (Briley Pkwy) and I-440 Mainline Shoulder and Lane Widths	16,500	WB	9	12	8
25	I-24 Between SR 155 (Briley Pkwy) and I-440 Mainline Shoulder and Lane Widths	16,500	EB	10	12	10
26	I-440 Mainline Shoulder and Lane Widths	3,500	WB	9	12	9
27	I-440 Mainline Shoulder and Lane Widths	3,500	EB	6	12	10

Source: TRIMS, (n.d.), Accessed March 2024.

5.5.2 Ramp Geometry Deficiencies

Table 5-4 lists identified deficient Ramp Geometry, highlighted in yellow. The analysis includes radii deficiencies as well as lane and shoulder width deficiencies. The minimum radius for ramps is variable based on the posted speed and the type of ramp. TDOT requires lane widths to be 16 feet for single-lane ramps and 12 feet for multi-lane ramps. TDOT requires the minimum shoulder to be 6 feet paved. For this report, urban was considered interstate with a median barrier, and rural was considered interstate with a depressed or raised grass median. The analysis used aerial imagery and ORD with orthographic imagery to measure the deficiencies.

Table 5-4: Ramp Geometry Deficiencies

RAMP DESCRIPTION	# OF LANES	CURVE RADIUS (FEET)	POSTED RAMP SPEED (MPH)	TDOT MIN CURVE RADIUS (FEET)	AASHTO MIN CURVE RADIUS (FEET)	PAVED INSIDE SHOULDER (FEET)	LANE WIDTH (FEET)	PAVED OUTSIDE SHOULDER WIDTH (FEET)
Entrance Ramp from US 31A (Nolensville Pike) SB to I-440 WB	1	150	Assume 35[1]	444	314	6	16	10
Entrance Ramp from Fairfield Avenue to I-40 EB	1	860	Assume 35[1]	587	314	2	16	6
Exit Ramp from I-24 EB to Haywood Lane EB (Loop)	1	120	25	134	76	4	16'	6
Entrance Ramp from Haywood Lane to I-24 EB	1	730	Assume 35[1]	758	314	5	14	6
Entrance Ramp from Haywood Lane WB to I-24 WB	1	1500	Assume 35[1]	758	314	5	13	6

RAMP DESCRIPTION	# OF LANES	CURVE RADIUS (FEET)	POSTED RAMP SPEED (MPH)	TDOT MIN CURVE RADIUS (FEET)	AASHTO MIN CURVE RADIUS (FEET)	PAVED INSIDE SHOULDER (FEET)	LANE WIDTH (FEET)	PAVED OUTSIDE SHOULDER WIDTH (FEET)
Entrance Ramp from Haywood Lane EB to I-24 WB (Loop)	1	120	Assume 35[1]	134	76	4	15	Curb
Exit Ramp from I-24 WB to Haywood Lane	1	700	Assume 35[1]	758	314	5	14	6
Exit Ramp from I-24 EB to SR 254 (Bell Road)	2	380	30	758	314	4	18	11
Entrance Ramp from SR 254 (Bell Road) to I-24 EB	1	580	Assume 35[1]	758	314	3	14	5
Entrance Ramp from SR 254 (Bell Road) to I-24 WB	1	470	Assume 35[1]	758	314	5	15	6
Exit Ramp from I-24 WB to SR 254 (Bell Road)	1	530	Assume 35[1]	758	314	4	16	6
Exit Ramp from I-24 EB to Hickory Hollow Pkwy	1	1450	35	758	314	4	16	6
Exit Ramp from I-24 EB to William Turner Parkway	1	450	30	758	314	4	16	8

RAMP DESCRIPTION	# OF LANES	CURVE RADIUS (FEET)	POSTED RAMP SPEED (MPH)	TDOT MIN CURVE RADIUS (FEET)	AASHTO MIN CURVE RADIUS (FEET)	PAVED INSIDE SHOULDER (FEET)	LANE WIDTH (FEET)	PAVED OUTSIDE SHOULDER WIDTH (FEET)
Entrance Ramp from Hickory Hollow Pkwy to I-24 EB	2	2240	Assume 35[1]	758	314	3	16	11
Exit Ramp from I-24 WB to Hickory Hollow Pkwy	1	490	Assume 35[1]	758	314	4	16	8
Exit Ramp from I-24 EB to SR 171 (Old Hickory Blvd)	2	1570	40	758	314	4	12	6
Entrance Ramp from SR 171 (Old Hickory Blvd) to I-24 WB	1	640	Assume 35[1]	758	314	6	16	6
Exit Ramp from I-24 WB to SR 171 (Old Hickory Blvd)	1	1420	40	758	314	2	16	6
Entrance Ramp from Waldron Road to I-24 EB	1	1030	Assume 35[1]	758	314	0	15	8
Entrance Ramp from Waldron Road to I-24 WB	1	1330	Assume 35[1]	758	314	6	16	6
Exit Ramp from I-24 WB to SR 266 (Sam Ridley Pkwy)	1	1110	45	758	314	2	16	9

RAMP DESCRIPTION	# OF LANES	CURVE RADIUS (FEET)	POSTED RAMP SPEED (MPH)	TDOT MIN CURVE RADIUS (FEET)	AASHTO MIN CURVE RADIUS (FEET)	PAVED INSIDE SHOULDER (FEET)	LANE WIDTH (FEET)	PAVED OUTSIDE SHOULDER WIDTH (FEET)
Exit Ramp from I-24 EB to SR 102 (Almaville Rd)	1	1230	40	758	314	3	19	10
Entrance Ramp from SR 102 (Almaville Rd) to I-24 WB	1	970	Assume 35[1]	758	314	3	16	10
Exit Ramp from I-24 WB to SR 102 (Almaville Rd)	1	1310	40	758	314	4	16	11
Exit Ramp from I-24 EB to I-840 WB	1	1350	45	758	314	4	16	6
Entrance Ramp from I-840 to I-24 WB	1	360	Assume 35[1]	758	314	5	16	6
Exit Ramp from I-840 EB to I-24 EB	1	1060	45	758	314	4	16	6
Entrance Ramp from SR 255 (Harding Pl) to I-24 EB	2	350	40	444	444	6	24	9
Exit Ramp from I-24 WB to SR 155 (Briley Pkwy)	2	410	30	214	214	6	24	8
Exit Ramp from I-24 EB to SR 155 (Briley Pkwy)	2	350	35	314	314	12	24	9

RAMP DESCRIPTION	# OF LANES	CURVE RADIUS (FEET)	POSTED RAMP SPEED (MPH)	TDOT MIN CURVE RADIUS (FEET)	AASHTO MIN CURVE RADIUS (FEET)	PAVED INSIDE SHOULDER (FEET)	LANE WIDTH (FEET)	PAVED OUTSIDE SHOULDER WIDTH (FEET)
Exit Ramp from I-24 EB to I-440 WB	1	1410	55	960	960	6	15	8
Exit Ramp from I-40 WB to I-440 WB	1	930	55	960	960	5	15	9
Entrance Ramp from I-440 EB to I-24 EB	2	750	45	587	587	7	24	7
Entrance Ramp from US 41 (Murfreesboro Pike) to I-24 EB	1	190	45	587	587	7	14	9
Entrance Ramp from US 41 (Murfreesboro Pike) to I-40 EB or WB	2	590	45	587	587	8	22	7
Entrance Ramp from I-40 EB to I-24 EB	2	1150	55	960	960	13	24	9
Entrance Ramp from I-40 WB to I-24 EB	3	850	55	960	960	12	36	12
Exit Ramp from I-40 EB to SR 155 (Briley Pkwy)	1	320	30	214	214	6	15	8

RAMP DESCRIPTION	# OF LANES	CURVE RADIUS (FEET)	POSTED RAMP SPEED (MPH)	TDOT MIN CURVE RADIUS (FEET)	AASHTO MIN CURVE RADIUS (FEET)	PAVED INSIDE SHOULDER (FEET)	LANE WIDTH (FEET)	PAVED OUTSIDE SHOULDER WIDTH (FEET)
Exit Loop Ramp from I-40 EB to SR 155 (Briley Pkwy)	1	190	20	74	74	6	15	8
Entrance Ramp from SR 155 (Briley Pkwy) North to I-40 EB	1	720	35	314	314	6	15	8
Entrance Ramp from SR 155 (Briley Pkwy) South to I-40 EB	2	350	35	314	314	6	22	16
Entrance Loop Ramp from SR 155 (Briley Pkwy) to I-40 WB	1	180	20	74	74	6	15	8
Entrance Ramp from SR 155 (Briley Pkwy) to I-40 WB	2	560	40	444	444	10	23	13
Exit Ramp from I-40 WB to SR 155 (Briley Pkwy) SB	1	350	30	214	214	10	15	22
Exit Ramp from I-40 WB to SR 155 (Briley Pkwy) NB	1	340	35	314	314	6	15	8

Source: ORD, Aerial Imagery, (n.d.), Accessed March 2024.

1. AASHTO has minimum design speed of 40 mph for entrance/exit ramps in rural areas and 35 to 25 mph in Urban areas. Sections of roadway with median barrier are considered urban, depressed or raised is considered rural.

5.5.3 Ramp Spacing Deficiencies

Table 5-5 lists the substandard ramp spacings within the study area limits. AASHTO has different required spacings based on the type of ramps being measured. The Project Team measured spacing from the painted tip to the painted tip of each gore. The Team used aerial imagery and ORD with orthographic imagery to measure the distances.

Table 5-5: Ramp Spacing Deficiencies

FROM RAMP	TO RAMP	RAMP SPACING (FEET)	AASHTO MIN SPACING (FEET)
I-24 SB to I-40 WB	I-40 WB to 2nd/4th Ave	750	2000
I-24 WB to SR 155 (Briley Pkwy)	SR 155 (Briley Pkwy) to I-24 WB	495	500
SR 155 (Briley Pkwy) to I-24 EB	SR 155 (Briley Pkwy) to I-24 EB	970	1000
I-24 WB to I-440 WB	I-24 EB to I-440 WB	590	1000
US 41 (Murfreesboro Pk) EB to I-40 EB	US 41 (Murfreesboro Pk) WB to I-40 EB	755	1000
SR 254 (Bell Road) to I-24 EB	I-24 EB to Hickory Hollow Pkwy	1065	1600

Source: ORD, Aerial Imagery, (n.d.), Accessed March 2024.

5.5.4 Acceleration and Deceleration Lanes

Table 5-6 lists the deficient Acceleration Lanes and **Table 5-7** lists the deficient Deceleration Lanes. These tables present the lane and ramp lengths vehicles have when entering and exiting the interstate to merge into traffic. The minimum length of the acceleration or deceleration lane varies based on the posted speed of the interstate, the ramp and side street. The Project Team measured these lengths using ORD with orthographic imagery.

Table 5-6: Deficient Acceleration Lanes

LOCATION	DIRECTION	RAMP DESCRIPTION	POSTED RAMP SPEED (MPH)	POSTED INTER-STATE SPEED (MPH)	EXISTING LENGTH (FEET)	AASHTO RECOMMENDED LENGTH (FEET)
I-40	EB	Fairfield Ave to I-40 EB	Assume 35 Not posted	55	300	1160
I-40	WB	Fesslers Lane to I-40 WB	Assume 35 Not posted	55	750	1160
I-24	WB	SR 155 (Briley Pkwy) to I-24 WB	25	55	358	780
I-24	EB	SR 155 (Briley Pkwy) to I-24 EB	35	55	440	550
I-40	WB	SR 155 (Briley Pkwy) to I-40 WB Loop	20	55	682	810
I-24	EB	Haywood Lane to I-24 EB	50	70	160	580
I-24	EB	Hickory Hollow Pkwy to I-24 EB	30	70	863	1350
I-24	WB	I-840 WB to I-24 WB	35	70	589	1230

Table 5-7: Deficient Deceleration Lanes

LOCATION	DIRECTION	RAMP DESCRIPTION	POSTED RAMP SPEED (MPH)	POSTED INTER-STATE SPEED (MPH)	EXISTING LENGTH (FEET)	AASHTO RECOMMENDED LENGTH (FEET)
I-40	WB	I-40 WB to US 70 via Decatur Street	35	55	320	400
I-24	WB	I-24 WB to Haywood Lane	45	70	191	390

Source: ORD, (n.d.), Accessed March 2024.

5.5.5 Horizontal Stopping Sight Distance

Table 5-8 lists the substandard sight distance based on horizontal curvature and obstructions that prevent drivers from seeing beyond the curve. The Project Team calculated the horizontal sight line offset using Equation 3-37 from the AASHTO Green Book and measured them using ORD with TDOT survey data and aerial imagery to identify deficient curves.

Table 5-8: Horizontal Stopping Sight Distance Deficiencies

Segment	Horizontal Stopping Sight Distance (Feet)	Obstruction
I-40 EB to I-40 EB Northmost Interchange	570	Trees/Raised Bedrock
I-40 WB to I-24 NB	425	Buildings

Segment	Horizontal Stopping Sight Distance (Feet)	Obstruction
I-40 EB to I-40 EB	360	Retaining Wall
US 31A (Nolensville Pk) NB to I-440 EB	200	Trees
US 31A (Nolensville Pk) SB to I-440 EB	570	Raised Earthwork
I-440 WB to US 31A (Nolensville Pk)	570	Raised Earthwork
I-40 WB to US 70 (Hermitage Ave) via Decatur Street	724	Buildings
Entrance Ramp from SR 266 (Harding Pl) to I-24 WB	444	Trees
Exit Ramp from I-24 EB to SR 266 (Harding Pl)	214	Trees
Entrance Ramp from SR 266 (Harding Pl) to I-24 EB	444	Trees
Entrance Ramp from SR 155 (Briley Pkwy) WB to I-24 WB	587	Trees
Exit Ramp from I-24 EB to SR 155 (Briley Pkwy) WB	314	Retaining Wall
Entrance Ramp from SR 155 (Briley Pkwy) EB to I-24 EB	444	Trees

Segment	Horizontal Stopping Sight Distance (Feet)	Obstruction
Exit Ramp I-24 WB to I-440 WB	587	Wall and Trees
Exit Ramp I-40 WB to I-440 WB	960	Trees
Exit Ramp I-24 WB to US 41 (Murfreesboro Pk)	587	Trees
Entrance Ramp I-440 EB to I-24 WB	587	Trees
Entrance Ramp from US 41 (Murfreesboro Pk) EB to I-24 EB	360	Rock Wall
Entrance Ramp from US 41 (Murfreesboro Pk) WB to I-24 EB or WB	360	Side Slope
Exit Ramp I-24 EB to US 41 (Murfreesboro Pk) EB	155	Rock Face
Entrance Ramp I-40 WB to I-24 EB	495	Concrete Barrier
Exit Ramp I-40 WB to SR 155 (Briley Pkwy) NB	250	Retaining Wall
Entrance Ramp US 41 (Murfreesboro Pk) EB to I-24 WB	155	Trees

Source: TDOT Survey Data, ORD, Aerial Imagery, (n.d.), Accessed August 2025.

5.6 Bridge Inventory

TDOT provided bridge inventory data for all bridges within the study area. Analysis of the bridge reports focused on:

- Substructure
- Superstructure
- Deck
- Horizontal and Vertical Underclearances
- Geometry (length, width, number of spans)

FHWA determines the overall bridge condition from the lowest numbered rating assigned to the superstructure, substructure and deck ranging from 1-9. Ratings:

- 1 to 4 is considered poor.
- 5 to 6 is considered fair.
- 7 to 9 is considered good.

Table 5-9 lists all the bridges and their criteria within the study area.

Table 5-9: Bridge Data

BRIDGE ID NUMBER	YEAR BUILT	FACILITY CARRIED	FEATURE INTERSECTED	SUPERSTRUCTURE TYPE	# OF SPANS	LENGTH (FEET)	WIDTH (CURB TO CURB) (FEET)	HORIZONTAL CLEARANCE HIGHWAY BENEATH BRIDGE RIGHT (FEET)	HORIZONTAL CLEARANCE HIGHWAY BENEATH BRIDGE LEFT (FEET)	VERTICAL CLEARANCE HIGHWAY BENEATH BRIDGE (FEET)	DECK RATING CODE	SUPER. RATING CODE	SUB. RATING CODE	CONDITION (1)
19I00240039	1958	I-24	Mill Creek	Concrete	1	167	120.4	N/A	N/A	N/A	5	7	4	Poor
19I00240067	1960	I-40	I-24	Steel	3	152.90	46.30	3.3	N/A	14.93	4	5	6	Poor
19I00240103	1961	I-24 WB Ramp	I-24 EB	Concrete	3	249	29.9	1.64	2.95	14.44	7	7	4	Poor
19I00400117	1963	I-40	Mill Creek	Concrete	5	254.20	168.00	N/A	N/A	N/A	6	7	4	Poor
19I04400039	1984	Nolensville Rd	I-440	Concrete	2	206	76	19.36	17.72	17.95	6	4	7	Poor
19I00240005	1960	I-24	SR 1 (Murfreesboro Rd)	Steel	4	262.80	100.10	6.9	6.6	15.68	6	7	7	Fair
19I00240006	1960	I-24	SR 1 (Murfreesboro Rd)	Steel	4	218.20	98.10	6.9	11.2	15.68	5	7	7	Fair
19I00240013	1960	I-24	New Glenrose Ave	Concrete	3	192.90	157.20	15.4	N/A	15.4	6	7	6	Fair
19I00240021	1958	I-24	Seven Mile Creek	Concrete	3	134.80	134.50	N/A	N/A	N/A	6	7	5	Fair
19I00240023	1958	Antioch Pike	I-24	Concrete	4	339.90	34.40	15.1	8.5	16.93	6	5	5	Fair
19I00240027	2003	SR 255 (Harding Place)	I-24	Concrete	4	272.00	111.90	37.1	8.9	16.27	5	7	7	Fair
19I00240031	1958	I-24	Sorghum Branch	Culvert	2	30.80	158.10	N/A	N/A	N/A	N/A	N/A	N/A	Fair
19I00240033	1958	I-24	Haywood Lane	Concrete	4	187	157.2	11.8	3	16.44	6	7	7	Fair
19I00240037	1958	Blue Hole Road	I-24	Concrete	4	259.8	34.4	12.1	6.6	17.03	6	7	7	Fair
19I00240041	1958	I-24	Bell Road	Concrete	3	118.4	131.6	3	N/A	16.6	6	7	7	Fair
19I00240047	2000	FAU 1008 (Old Hickory Blvd)	I-24	Steel Continuous	2	268	86	10.2	9.8	16.86	6	7	7	Fair
19I00240093	1982	I-440 Ramp	I-24	Steel	4	761.00	43.92	N/A	N/A	16.80	5	6	7	Fair
19I00240095	1985	I-440 Ramp	I-24 Interchange	Steel	3	512.10	44.00	29.9	12.5	17.36	6	6	7	Fair
19I00240097	1985	I-440 Ramp	I-24 Interchange	Steel	1	222.10	32.20	30.8	20.0	16.77	5	5	7	Fair
19I00240121	1960	I-24 EB	I-40 WB And Hermitage Ave	Concrete	5	346.1	42	10.7	7	14.17	6	7	7	Fair

BRIDGE ID NUMBER	YEAR BUILT	FACILITY CARRIED	FEATURE INTERSECTED	SUPERSTRUCTURE TYPE	# OF SPANS	LENGTH (FEET)	WIDTH (CURB TO CURB) (FEET)	HORIZONTAL CLEARANCE HIGHWAY BENEATH BRIDGE RIGHT (FEET)	HORIZONTAL CLEARANCE HIGHWAY BENEATH BRIDGE LEFT (FEET)	VERTICAL CLEARANCE HIGHWAY BENEATH BRIDGE (FEET)	DECK RATING CODE	SUPER. RATING CODE	SUB. RATING CODE	CONDITION (1)
19I00240305	1960	I-24 Ramp to I-40 EB	SR 1 to I-40	Steel	1	90.90	62.00	7.9	N/A	14.50	5	7	7	Fair
19I00400095	1960	I-40 EB	Fairfield Ave	Concrete	3	146	62.3	10	10	17.85	5	6	5	Fair
19I00400096	1960	I-40 WB	Fairfield Ave	Concrete	3	149.9	58.4	10	10	14.86	5	6	6	Fair
19I00400097	1960	I-40	Nashville & Eastern RR	Concrete	3	123	118.4	10.2	0	23.2	7	7	5	Fair
19I00400101	1960	Fesslers Lane	I-40	Concrete	4	212.9	66.3	3.61	4.59	16.01	7	7	6	Fair
19I00400111	1965	Arlington Ave	I-40 (RL)	Concrete	3	149.00	42.30	5.9	4.9	14.93	7	6	6	Fair
19I00400112	1965	Arlington Ave	I-40 (LL)	Concrete	3	148.00	42.30	7.2	6.2	15.52	5	5	7	Fair
19I00400119	1963	Massman Drive	I-40	Concrete	2	220.10	34.40	18.0	11.2	16.83	6	7	7	Fair
19I00400333	2008	Ramp D	I-40	Steel	3	509.80	44.00	6.9	6.6	17.03	6	7	7	Fair
19I04400043	1981	Winford Ave	I-440	Concrete	2	233	27.8	27.89	22.97	16.01	6	6	7	Fair
19I04400051	1985	Foster Ave	I-440	Concrete	2	204	43.9	29.86	22.64	16.6	6	7	7	Fair
19I04400053	1986	I-440 RL	Glenrose Ave And CSX	Concrete	4	354	41.9	14.11	N/A	26.35	6	7	7	Fair
19I04400054	1985	I-440 LL	Glenrose Ave And CSX	Concrete	4	357	49.8	14.11	N/A	21.03	6	7	7	Fair
19SR0110009	1929	CSX RR	I-440	Concrete	2	140.1	87.9	7.87	N/A	20.93	6	5	5	Fair
750A6030001	1968	Old Almaville Rd	Rock Springs Branch	Culvert	4	51	30.8	N/A	N/A	N/A	N/A	N/A	N/A	Fair
75I00240005	1969	I-24	Rock Springs Creek/Rock Springs Rd	Steel Continuous	2	195	144	19.4	7.5	14.9	6	7	7	Fair
75I00240007	1968	Rocky Ford Road	I-24	Steel Continuous	3	313	32.1	92	96.3	16	6	6	6	Fair
75I00240009	1969	I-24 EB	SR 102/Olive Branch	Steel Continuous	2	195	74.1	14.3	10	15.8	6	7	7	Fair
75I00240010	1969	I-24 WB	SR 102/Olive Branch	Steel Continuous	2	195	74.1	14.3	10	17.1	6	7	7	Fair
75I00240303	1969	Ent Ramp to I-24 WB	Olive Branch	Concrete	3	49	45.25	N/A	N/A	N/A	N/A	N/A	N/A	Fair
75I00240305	1969	Exit Ramp to SR 102	Olive Branch	Concrete	3	48	36.1	N/A	N/A	N/A	N/A	N/A	N/A	Fair

BRIDGE ID NUMBER	YEAR BUILT	FACILITY CARRIED	FEATURE INTERSECTED	SUPERSTRUCTURE TYPE	# OF SPANS	LENGTH (FEET)	WIDTH (CURB TO CURB) (FEET)	HORIZONTAL CLEARANCE HIGHWAY BENEATH BRIDGE RIGHT (FEET)	HORIZONTAL CLEARANCE HIGHWAY BENEATH BRIDGE LEFT (FEET)	VERTICAL CLEARANCE HIGHWAY BENEATH BRIDGE (FEET)	DECK RATING CODE	SUPER. RATING CODE	SUB. RATING CODE	CONDITION (1)
19004430003	1968	Harding Road	Branch	Culvert	2	26.33	191.00	N/A	N/A	N/A	N/A	N/A	N/A	Good
19I00240003	2003	I-40 (WB Ramp)	I-24 (WB Ramp) & Ramp from SR-1 to I-40 WB	Concrete	3	243.10	54.50	16.1	N/A	16.1	7	7	7	Good
19I00240011	1960	I-24	Old Glenrose Ave & CSX RR	Concrete	4	253.90	157.20	14.4	N/A	14.4	7	7	7	Good
19I00240015	2002	Thompson Lane	I-24	Steel	4	229.30	82.00	8.9	8.2	16.5	7	7	7	Good
19I00240017	2002	SR 155 (Briley Pkwy)	I-24	Steel	2	300.90	106.00	17.4	5.9	17.26	7	7	7	Good
19I00240035	1958	I-24	Whittemore Branch	Culvert	2	32.2	128.9	N/A	N/A	N/A	N/A	N/A	N/A	Good
19I00240043	1958	I-24	Collins Creek	Concrete	2	30.8	117.1	N/A	N/A	N/A	N/A	N/A	N/A	Good
19I00240045	2000	Old Franklin Rd	I-24	Concrete	2	220.1	38.1	35.4	8.9	16.93	7	7	7	Good
19I00240049	1958	I-24	Hurricane Creek	Culvert	2	23	127	N/A	N/A	N/A	N/A	N/A	N/A	Good
19I00240085	1979	FAU 4169 (Hickory Hollow Pkwy)	Hickory Hollow Pkwy/I-24	Steel Continuous	2	239	133.6	20.3	27.6	17.09	7	7	7	Good
19I00240311	1958	I-24 (Bell Road RP)	Collins Creek	Culvert	3	54.1	54.1	N/A	N/A	N/A	N/A	N/A	N/A	Good
19I00240313	1958	I-24 (Bell Road RP)	Collins Creek	Culvert	3	46.9	24	N/A	N/A	N/A	N/A	N/A	N/A	Good
19I00400115	1959	Spence Lane	I-40	Steel	2	364.00	133.90	N/A	N/A	N/A	N/A	N/A	N/A	Good
19I00400121	2008	SR 155 (Briley Pkwy) & Ramp B	I-40	Steel	2	410.10	62.00	12.1	9.2	17.59	7	7	7	Good
19I00400309	2003	I-40 (WB) Ramp	I-40 (EB)	Concrete	1	130.20	51.83	3.28	2.95	16.44	7	7	7	Good
19I00400331	2008	Ramp B	Briley Parkway	Steel	5	908.10	109.6	19.36	19.36	15.58	7	8	8	Good
19I04400055	1985	Lyle Ave	I-440	Concrete	2	228.00	237.9	N/A	N/A	N/A	N/A	N/A	N/A	Good
19S61580007	1974	FAP 254	Collins Creek	Concrete	3	58.1	76.1	84.5	80	16.4	7	7	7	Good
19SR1550069	2003	SR 155 (Briley Pkwy)	Ramp D	Concrete	3	186.40	74.1	N/A	N/A	N/A	7	7	7	Good

BRIDGE ID NUMBER	YEAR BUILT	FACILITY CARRIED	FEATURE INTERSECTED	SUPERSTRUCTURE TYPE	# OF SPANS	LENGTH (FEET)	WIDTH (CURB TO CURB) (FEET)	HORIZONTAL CLEARANCE HIGHWAY BENEATH BRIDGE RIGHT (FEET)	HORIZONTAL CLEARANCE HIGHWAY BENEATH BRIDGE LEFT (FEET)	VERTICAL CLEARANCE HIGHWAY BENEATH BRIDGE (FEET)	DECK RATING CODE	SUPER. RATING CODE	SUB. RATING CODE	CONDITION (1)
75F00490003	1968	Waldron Road	E Branch Hurricane Creek	Culvert	3	45	32.1	95.5	97.4	16.8	7	7	7	Good
75I00240001	1969	I-24	E Branch Hurricane Creek	Culvert	4	53.9	41.9	10.5	1	18.25	7	7	7	Good
75I00240003	1968	Waldron Road	I-24	Steel Continuous	2	215	43.9	90.5	80	16.33	7	7	7	Good
75I00240011	1969	I-24 EB	Stewarts Creek	Concrete	3	146	43.9	90.5	80	16.33	7	7	7	Good
75I00240012	1969	I-24 WB	Stewarts Creek	Concrete	3	146	32.1	123.5	108	16.17	7	7	7	Good
75I00240013	1968	Baker Road	I-24	Concrete	3	400	43.9	117	89	18.7	7	7	7	Good
75I00240015	1997	Florence Road	I-24	Steel Continuous	2	392	51.8	116	106.2	15.9	7	7	7	Good
75I00240055	1976	Sam Ridley Pkwy RL	I-24	Steel Continuous	2	224	43.9	85.5	113.5	16.3	7	7	7	Good
75I00240056	1976	Sam Ridley Pkwy LL	I-24	Steel Continuous	2	224	40	N/A	N/A	N/A	N/A	N/A	N/A	Good
75I00240059	1996	I-24 Ramp C	I-24	Concrete	2	278	41.9	71.5	60	17.6	7	7	7	Good
75I00240061	1995	I-840 RP E	I-24	Concrete	2	280	43.9	50.5	65.3	16.1	7	7	7	Good
75I00240063	1995	I-840	I-24	Steel Continuous	2	318	Varies	11.0	24.0	15.67	N/A	N/A	N/A	N/A
75I00240064	1996	I-840	I-24	Steel Continuous	2	318	126	13.12	N/A	16.5	8	8	8	Very Good
75I00240301	1969	I-24 W On-Ramp	Branch	Concrete	3	39	147.6	4.92	4.92	14.83	8	8	8	Very Good
75SR8400017	1997	Florence Road	I-840	Steel Continuous	2	321	151.9	9.84	9.84	10.01	8	8	8	Very Good
75SR8400019	1995	I-840 Ramp E	I-840	Concrete	2	251	134.8	N/A	N/A	23.26	8	8	8	Very Good
19SR1550049	1992	Averitt Express Drive	Briley Parkway	Concrete	3	117.10	138.8	4.92	28.22	23	8	8	8	Very Good

5.7 Railroad Crossings

The information in **Table 5-10** below identifies railroads that cross or are near the study area. Railroad companies identified in the study area include CSX Transportation (CSX), Nashville & Eastern Line (NERR) and Nashville & Western Railroad (NWR).

Table 5-10: Railroad Crossings

ID #	Company	Milepost	Crossing Type	Roadway
643071X	CSX	11.45	Road Over	Hickory Hollow
349228T	CSX	10.98	RR Over	Bell Road
340974V	CSX	3.17	RR Over	I-24
349219U	CSX	5.56	Road Over	Briley Parkway
349217F	CSX	4.58	Road Over	I-24
350235A	CSX	186.75	RR Over	I-40 and I-24
350234T	CSX	186.53	At-Grade	Elm Hill Pike
348623Y	CSX	2.23	Road Over	I-24 / I-40
348638N	NERR	1.33	RR Over	Driftwood Street
937924V	CSX	189.69	Road Over	I-440
918611E	CSX	188.34	RR Over	Off Ramp I-440 to Nolensville Pike
918612L	CSX	188.39	RR Over	I-440
350242K	CSX	188.59	Road Over	Nolensville Pike
350243S	CSX	188.64	Road Over	Melrose Avenue
643074T	CSX	3.75	Road Over	I-440

Source: FRA, (n.d.), Accessed October 2025.

5.8 Major Utilities

The information in **Table 5-11** below shows the Major Utilities within the study area. Some utilities have an image associated with the crossing shown in **Figure 5-12** through **Figure 5-36**.

TDOT has recently added the SMART Corridor along I-24 extending 30 miles from US 231 to US 41 (Murfreesboro Pike). The corridor consists of a network of cameras and sensors providing information to a traffic control center. Extensive underground fiber optic and powerlines are known to be in the area.

Table 5-11: Major Utility Details

ID	TYPE OF UTILITY	LOCATION
	Fiber Optic	I-24 EB, Almaville Rd/Lee Victory Pkwy Interchange 64' buffer from Baker Rd for 6,873' in the northern direction
	Underground Electric	I-24 EB, Almaville Rd/Lee Victory Pkwy Interchange 64' buffer from Lee Victory for 2,311' in the northern direction
	Fiber Optic	I-24 WB, Almaville Rd/Lee Victory Pkwy Interchange 64' buffer from I-24 WB off ramp for 200' in the northern direction
	Underground Electric	I-24 WB, Almaville Rd/Lee Victory Pkwy Interchange 64' buffer from I-24 WB off ramp for 500' in the northern direction
	Underground Gas	I-24, Almaville Rd/Lee Victory Pkwy Interchange Crossing just before Lee Victory Pkwy
	Underground Gas	I-24, Almaville Rd/Lee Victory Pkwy Interchange, crossing just after Lee Victory Pkwy
	Underground Electric	I-24, Almaville Rd/Lee Victory Pkwy Interchange, crossing after Lee Victory Pkwy but before end of I-24 WB on ramp
	Fiber Optic	I-24 WB, Almaville Rd/Lee Victory Pkwy Interchange 64' buffer from I-24 WB on ramp for 600' in the northern direction
	Underground Electric	I-24 WB, Almaville Rd/Lee Victory Pkwy Interchange 64' buffer from I-24 WB on ramp for 1300' in the northern direction
	Underground Electric	I-24 WB, between Almaville Rd/Lee Victory Pkwy and Sam Ridley Pkwy Interchange 64' buffer near Almaville Apartments for 1100' in the northern direction

ID	TYPE OF UTILITY	LOCATION
	Underground Electric	I-24 WB, between Almaville Rd/Lee Victory Pkwy and Sam Ridley Pkwy Interchange 64' buffer near Almaville Apartments for 700' in northern direction
OHE1A/B	OH Electric	I-24 EB and WB, Almaville Rd/Lee Victory Pkwy Interchange, just before Lee Victory Pkwy 60-64' from EOT
	Gas Transmission Pipeline	I-24, Before Sam Ridley Pkwy Interchange, near Woodburn Dr
	Fiber Optic	I-24, Sam Ridley Pkwy Interchange, crossing just after I-24 WB off ramp
	Fiber Optic	I-24, Sam Ridley Pkwy Interchange, crossing just before Sam Ridley Pkwy
	Underground Electric	I-24 WB, Sam Ridley Pkwy Interchange 64' buffer from just after I-24 WB off ramp 3,400' in the northern direction
	Fiber Optic	I-24 WB, Sam Ridley Pkwy Interchange 64' buffer from before I-24 WB on ramp 2,100' in the northern direction
	Fiber Optic	I-24, Sam Ridley Pkwy Interchange, crossing midway between I-24 WB on ramp and New Sanford Rd
	Underground Electric	I-24, Sam Ridley Pkwy Interchange, crossing between I-24 WB on ramp and New Sanford Rd
OHE2	OH Electric Transmission	I-24 WB, between Sam Ridley Pkwy and Waldron Rd Interchange, near New Sanford Rd 50' from EOT
OHE3	OH Electric Transmission	I-24 WB, between Sam Ridley Pkwy and Waldron Rd Interchange 64' for 2,905'
	Hazardous Liquid Pipeline	I-24, between Waldron Rd and Old Hickory Blvd Interchange, near New Paul Rd
OHE4A/B	OH Electric	I-24 EB and WB, Old Hickory Blvd Interchange, just before Old Hickory Blvd 50-55' from EOT
OHE5	OH Electric Transmission	I-24 EB, Bell Rd Interchange, just before Bell Rd 50' from EOT
	Fiber Optic	I-24 WB, Bell Rd Interchange 64' buffer from just after Bell Rd for 3,200' in the northern direction

ID	TYPE OF UTILITY	LOCATION
	Underground Electric	I-24 WB, Bell Rd Interchange 64' buffer from just after Bell Rd for 2,900' in the northern direction, 2x cables
	Gas Transmission Pipeline	I-24, between Bell Rd and Hickory Hollow Pkwy Interchange
	Fiber Optic	I-24 EB, Haywood Ln Interchange 64' buffer from near Packard Dr for 100' in the northern direction
	Underground Electric	I-24 EB, Haywood Ln Interchange 64' buffer from near Packard Dr for 1900' in the northern direction
	Sanitary Sewer	I-24 EB, Haywood Ln Interchange Crossing just before I-24 WB off ramp
OHE6	OH Electric	I-24 WB, Haywood Ln Interchange, just before Haywood Ln 50' from EOT
	Fiber Optic	I-24 WB, Haywood Ln Interchange 64' buffer from just after I-24 WB off ramp 700' in the northern direction
	Underground Electric	I-24 WB, Haywood Ln Interchange 64' buffer from just after I-24 WB off ramp 2,100' in the northern direction
	Fiber Optic	I-24, between Haywood Ln and Harding Pl Interchange Crossing near Melmack Dr
	Sanitary Sewer	I-24, between Haywood Ln and Harding Pl Interchange Crossing near Melmack Dr
	Water	I-24, between Haywood Ln and Harding Pl Interchange Crossing near Melmack Dr
	Fiber Optic	I-24, between Haywood Ln and Harding Pl Interchange Crossing near Haywood Oaks Park
	Underground Electric	I-24, between Haywood Ln and Harding Pl Interchange Crossing near Haywood Oaks Park
	Underground Electric	I-24 EB, Harding Pl Interchange 64' buffer from end of I-24 EB on ramp for 800' in the northern direction

ID	TYPE OF UTILITY	LOCATION
	Sanitary Sewer	I-24, Harding Pl Interchange Crossing right after I-24 WB off ramp
	Sanitary Sewer	I-24 WB, Harding Pl Interchange 64' buffer from just after I-24 WB off ramp 250' in the northern direction
	Sanitary Sewer	I-24, Harding Pl Interchange Crossing right before Harding Pl
	Fiber Optic	I-24, Harding Pl Interchange Crossing right before Harding Pl
	Fiber Optic	I-24, Harding Pl Interchange Crossing right before Harding Pl
	Fiber Optic	I-24 WB, Harding Pl Interchange 64' buffer from Harding Pl 3,200' in the northern direction, 2x cables
	Underground Electric	I-24 WB, Harding Pl Interchange 64' buffer from Harding Pl 3,200' in the northern direction, 3x cables
	Water	I-24, Harding Pl Interchange Crossing near EcoShield Pest Solutions, 2x cable
	Fiber Optic	I-24, Harding Pl Interchange Crossing near Paragon Mills Rd
OHE7A/B	OH Electric	I-24 EB and WB between Harding Pl and Briley Pkwy Interchange near Antioch Pike 64' from EOT
	Underground Electric	I-24 EB, Briley Pkwy Interchange 64' buffer from Antioch Pike 4,100' in the northern direction, 2x cable
	Fiber Optic	I-24 EB, Briley Pkwy Interchange 64' buffer from just after I-24 EB on ramp 1,000' in the northern direction
	Water	I-24, Briley Pkwy Interchange Crossing right before I-24 WB off ramp
	Sanitary Sewer	I-24, Briley Pkwy Interchange Crossing at I-24 WB off ramp
	Fiber Optic	I-24, Briley Pkwy Interchange Crossing right after I-24 WB off ramp
	Underground Electric	I-24, Briley Pkwy Interchange Crossing right after I-24 WB off ramp

ID	TYPE OF UTILITY	LOCATION
	Underground Electric	I-24 WB, Briley Pkwy Interchange 64' buffer from right after I-24 WB off ramp 400' in the northern direction, 2x cables
	Fiber Optic	I-24 WB, Briley Pkwy Interchange 64' buffer from right after I-24 WB off ramp 1,300' in the northern direction
	Fiber Optic	I-24, Briley Pkwy Interchange Crossing just before Briley Pkwy
	Sanitary Sewer	I-24, Briley Pkwy Interchange Crossing just after I-24 WB on ramp
OHE8	OH Electric	I-40 WB, between Murfreesboro Pike and Briley Pkwy Interchanges near Spence Ln 64' from EOT
	Hazardous Liquid Pipeline	I-40, crosses before Briley Pkwy and continues along I-40 E until Terminal Drive
	Fiber Optic	I-40 WB, Terminal Drive Interchange 64' buffer from I-40 WB on ramp to Elm Hill Pike 8,500' in the eastern direction
	Fiber Optic	I-40 EB, Terminal Drive Interchange 64' buffer from I-40 EB off ramp to just after Elm Hill Pike 9,200' in the eastern direction
	Underground Electric	I-40 EB, Terminal Drive Interchange 64' buffer from I-40 EB off ramp 1000' in the eastern direction
	Underground Electric	I-40 EB, Terminal Drive Interchange 64' buffer from entrance to I-40 WB on ramp 4,900' in the eastern direction
	Underground Electric	I-40 EB, Donelson Pike Interchange 64' buffer midway between Donelson Pike and Elm Hill Pike
	Water	I-40, Donelson Pike Interchange Crosses at Donelson Pike
	Fiber Optic	I-40, Donelson Pike Interchange Crosses at Donelson Pike
	Gas	I-40, Donelson Pike Interchange Crosses at Donelson Pike
	Sanitary Sewer	I-40, Donelson Pike Interchange Crosses midway between Donelson Pike Intersection and Elm Hill Pike

ID	TYPE OF UTILITY	LOCATION
OHE9A/B	OH Electric	I-40 EB and WB, between Murfreesboro Pike and Hermitage Ave Interchanges, just after Arlington Ave
OHE10A/B	OH Electric Transmission	I-40 EB and WB, between Murfreesboro Pike and Hermitage Ave Interchanges, just before Elm Hill Pike, 55-64' from EOT
	Fiber Optic	I-440 EB, I-440 Interchange 64' buffer from entrance to I-24 EB on ramp 1,300' in the eastern direction
	Fiber Optic	I-440 WB, I-440 Interchange 64' buffer from entrance to I-24 EB of ramp 2,100' in the western direction
	Sanitary Sewer	I-440, I-440 Interchange Crossing between I-440 and Glenrose Ave
	Sanitary Sewer	I-440, between the I-440 and Nolensville Pike Interchanges Crosses between Glenrose Ave and Foster Ave
OHE11	OH Electric	I-440 WB, Nolensville Pike Interchanges, just before Nolensville Pike 64' from EOT
	Sanitary Sewer	I-440, Nolensville Pike Interchange Crosses before I-440 WB off ramp
	Gas	I-440, Nolensville Pike Interchange Crosses at Nolensville Pike
	Fiber Optic	I-440, Nolensville Pike Interchange Crosses at Nolensville Pike
	Water	I-440, Nolensville Pike Interchange Crosses just after Nolensville Pike
	Fiber Optic	I-440, Nolensville Pike Interchange Crosses at Winford Ave
OHE18	OH Electric	I-40 WB, between Murfreesboro Pike and Hermitage Ave Interchanges, just before Fesslers Lane 55' from EOT
OHE19	OH Electric	I-40 WB, between Murfreesboro Pike and Hermitage Ave Interchanges, just after Fesslers Lane 60' from EOT

ID	TYPE OF UTILITY	LOCATION
OHE20	OH Electric	I-40 WB, between Murfreesboro Pike and Hermitage Ave Interchanges, near Little Green St 40' from EOT
OHE21A/B	OH Electric Transmission	I-40 EB and WB, between the I-65 / I-40 and Hermitage Ave Interchanges, near 6th Ave S 50-55' from EOT
OHE22	OH Electric Transmission	I-40 EB, between the I-65 / I-40 and Hermitage Ave Interchanges, near 2nd Ave South 35' from EOT
OHE23	OH Electric	I-40 WB, between the I-65 / I-40 and Hermitage Ave Interchanges, near 4th Ave South 25' from EOT
OHE24A/B	OH Electric	I-40 EB and WB, Hermitage Ave Interchange, near Willow St 50-60' from EOT

Figure 5-12: OHE1A

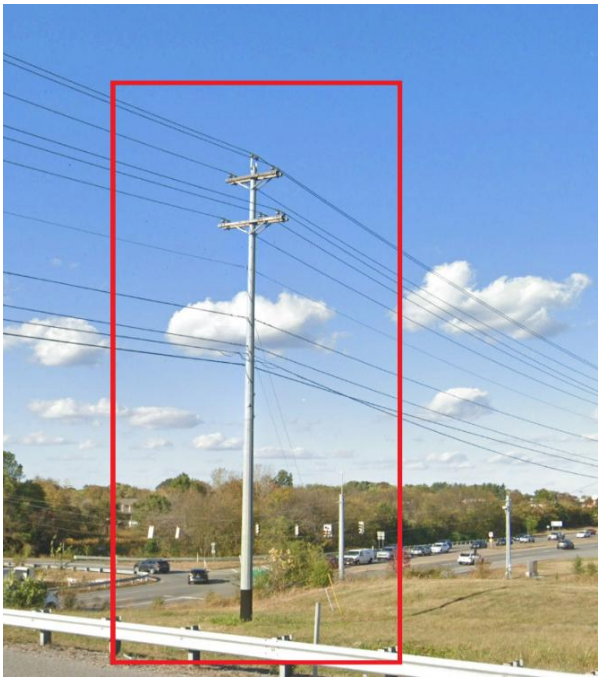


Figure 5-13: OHE1B

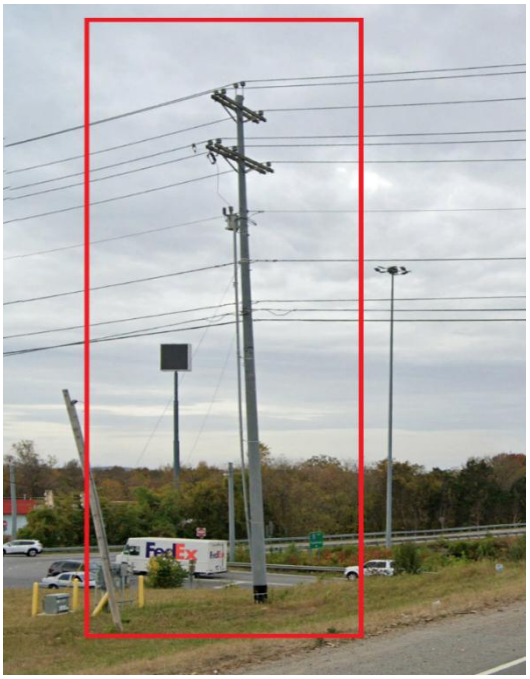


Figure 5-14: OHE2

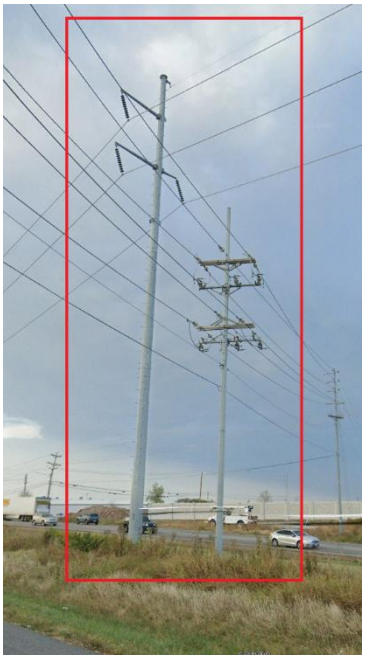


Figure 5-15: OHE3

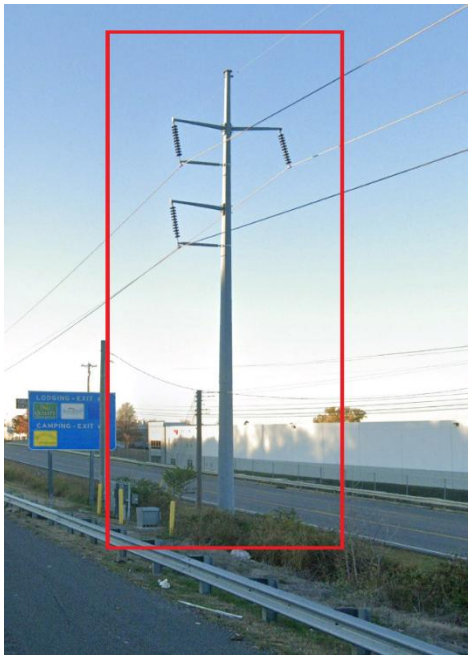


Figure 5-16: OHE4A

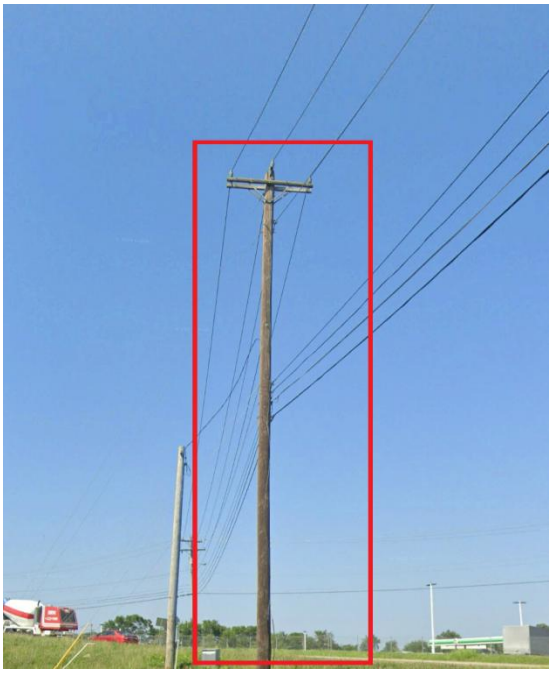


Figure 5-17: OHE4B

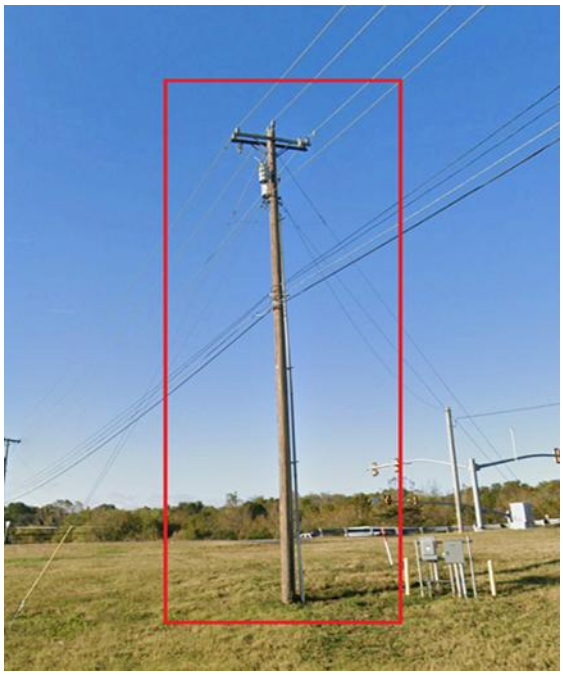


Figure 5-18: OHE5

Figure 5-19: OHE6

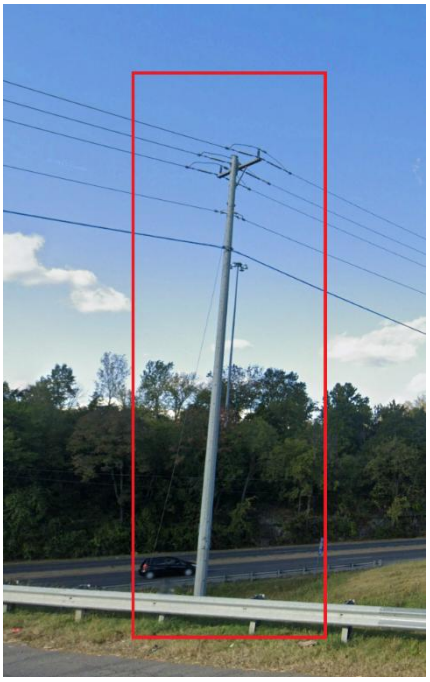


Figure 5-20: OHE7A

Figure 5-21: OHE7B

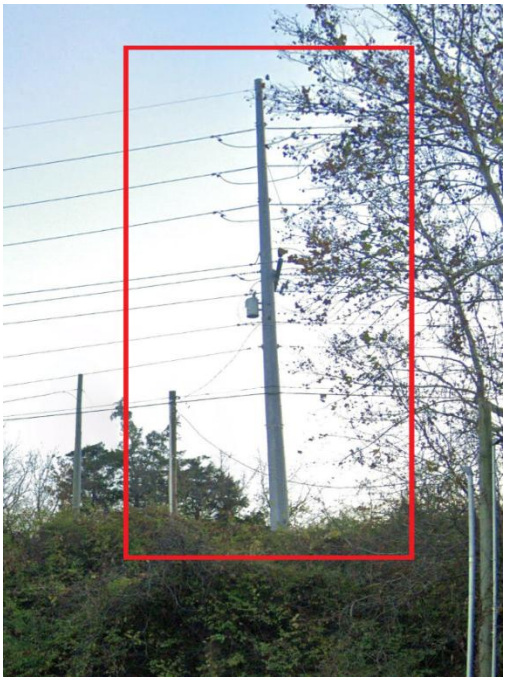


Figure 5-22: OHE8

Figure 5-23: OHE7B

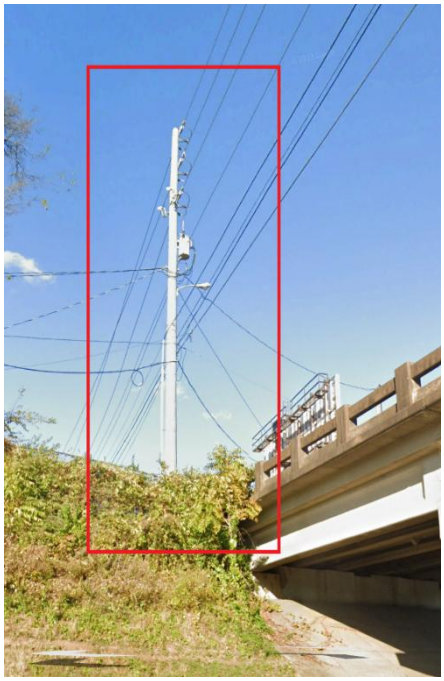


Figure 5-24: OHE9B

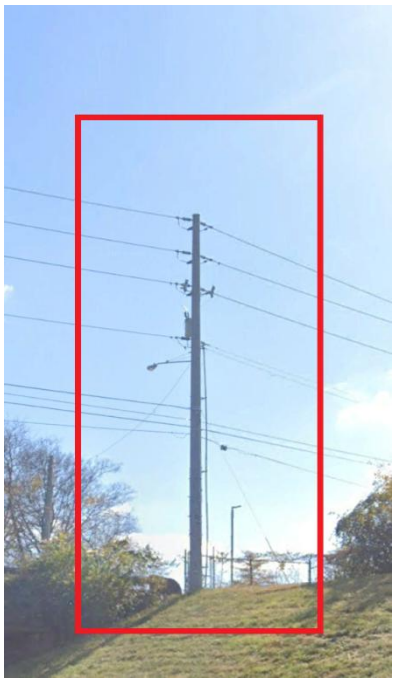


Figure 5-25: OHE10A

Figure 5-26: OHE10B

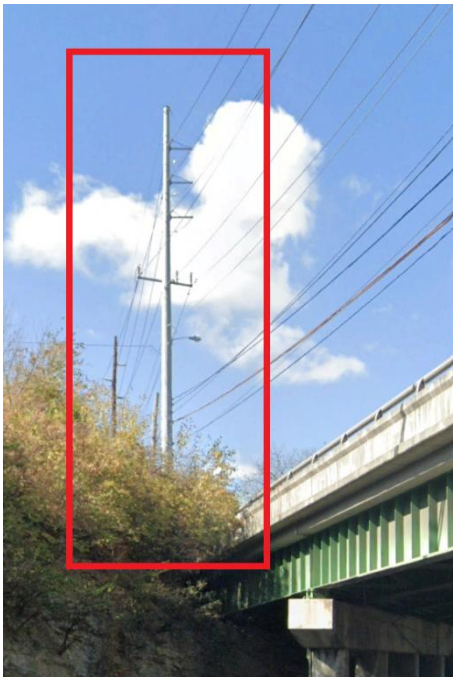


Figure 5-27: OHE11

Figure 5-28: OHE18

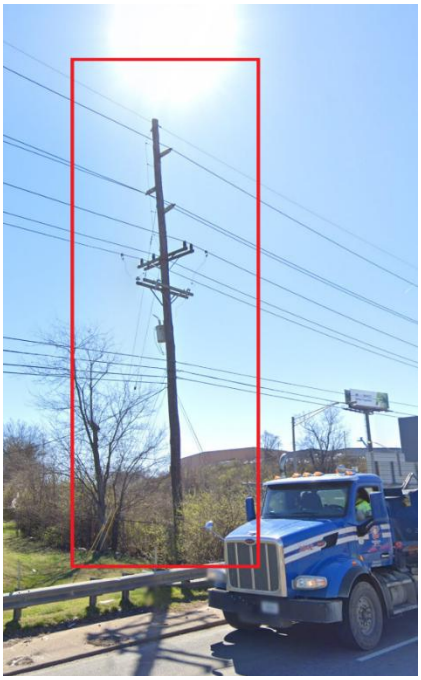


Figure 5-29: OHE19

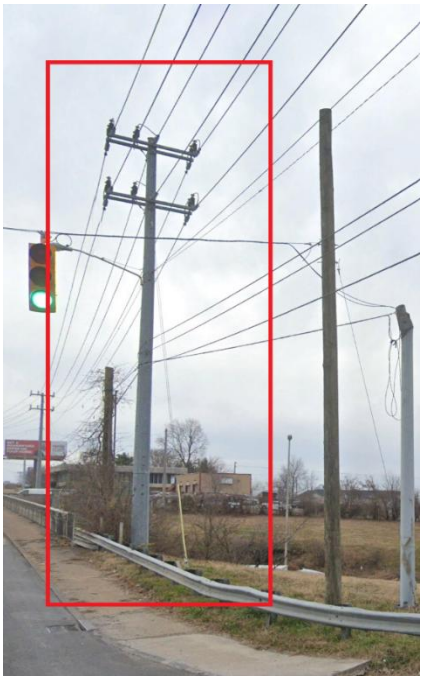


Figure 5-30: OHE20

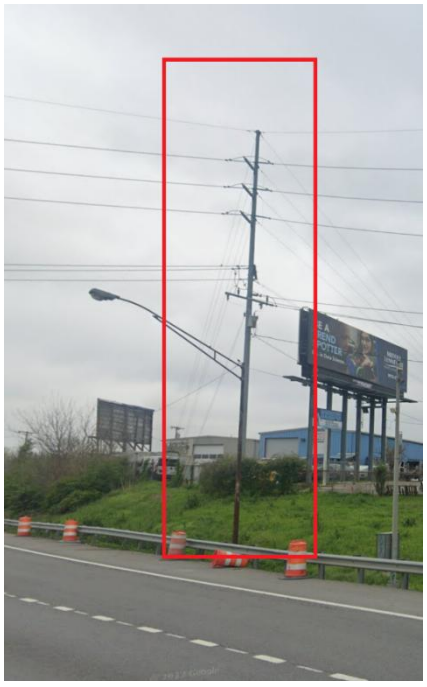


Figure 5-31: OHE21A

Figure 5-32: OHE21B

Figure 5-33: OHE22

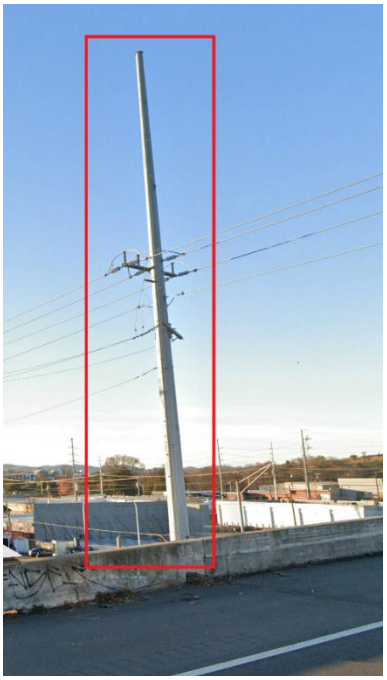
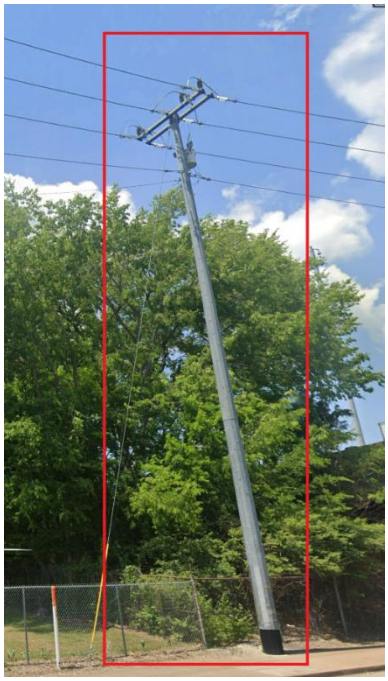


Figure 5-34: OHE23

Figure 5-35: OHE24A

Figure 5-36: OHE24B



APPENDIX A. EXISTING YEAR HEAT MAP RESULTS

INTENTIONALLY LEFT BLANK