

# Appendix I: Air Quality and Noise Technical Reports

## **State Route (SR) 170**

From SR-62 Interchange to SR-9 (US-25W)  
Anderson County, Tennessee

Tennessee Department of Transportation

TDOT PIN 124121.00

August 2025

TDOT Environmental Division  
James K. Polk Building, Suite 900  
505 Deaderick Street  
Nashville, Tennessee 37243  
(615) 741-3655

# Environmental Studies

## Air and Noise

# Environmental Studies Request

## Project Information

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**Route:** SR-170  
**Termini:** From SR-62 (Oak Ridge Highway) to SR-9 (US-25W, Clinton Highway)  
**County:** Anderson  
**PIN:** 124121.00

## Request

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**Request Type:** Initial Environmental Study  
**Project Plans:** Line and Grade  
**Date of Plans:** 3/5/25; 2/9/2  
**Location:** Link

## Certification

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**Requestor:** Ray Magsanoc  
**Title:** Senior Environmental Planner

**Signature:** Ray  
Magsanoc

Digitally signed by Ray  
Magsanoc  
Date: 2025.04.30  
13:02:45 -04'00'

## Technical Section

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**Section:** Air and Noise

## Study Results

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### AIR QUALITY

#### Transportation Conformity

The project is located in the Knoxville Particulate Matter 2.5 (PM<sub>2.5</sub>) and ozone maintenance area. This project is included in the Knoxville Regional Transportation Improvement Plan (TIP) and as project 23-2017-037b and Long Range Transportation Plan (LRTP) # 09-101a (PIN 124121.01) and 23-2017-037a and LRTP# 09-101b (PIN 124121.02)

The project is described in the TIP sheets as increasing two lanes to four lanes with a median and; or a center turn lane. Additionally, the changes also include a bicycle lane, pedestrian facilities, and a new bridge over the Clinch River. The project descriptions and termini are consistent with the proposed project. Therefore, the project conforms to the SIP.

#### PM<sub>2.5</sub> Hot-Spot Analysis

TDOT completed a PM<sub>2.5</sub> Hot-Spot Determination for the project that concluded that the project was “not a project of air quality concern.” TDOT submitted this determination to the Knoxville Area Interagency Consultation (IAC) group on May 22, 2025. The IAC members concurred with TDOT’s determination on the following dates: EPA on June 4, 2025; TDEC on May 23, 2025; and Knox County on May 27, 2025. The PM<sub>2.5</sub> Hot-Spot Determination and IAC concurrence responses are provided in Appendix C of the attached Air Quality Technical Reports.

#### Mobile Source Air Toxics (MSATs)

FHWA’s Updated Interim Guidance provides examples of “Projects with Low Potential MSAT Effects.” These projects include minor widening projects and new interchanges, such as those that replace a signalized intersection on a surface street, or where design year traffic projections are less than 140,000 to 150,000 average annual daily traffic (AADT).

The highest projected design year 2049 AADT on SR-170 is 25,100 vehicles per day (PIN 124121.01) and 25,390 vehicles per day (PIN 124121.02). These predicted volumes are substantially lower than the FHWA criterion. Therefore, the project meets the criteria for a “Project with Low Potential MSAT Effects.”

#### Construction Air Quality

Construction activities will generate intermittent and temporary construction-related pollutant emissions and dust. TDOT’s construction specifications will apply to this project. Construction procedures should be governed by the Standard Specifications for Road and Bridge Construction as issued by TDOT and as amended by the most recent applicable supplements. All construction equipment shall be maintained, repaired, and adjusted to keep it in full satisfactory condition.

Additionally, there are no air quality monitoring stations close to the project. The closest station is a ozone monitoring

system off of Freels Bend Road approximately 2.05 miles southwest of the project.

## NOISE

The SR-170 (Edgemoor Road) widening project is a Type I project in accordance with the Federal Highway Administration (FHWA) noise regulation, Procedures for Abatement of Highway Traffic and Construction Noise, 23 CFR 772 because the project is adding through traffic lanes. The project requires a noise study to identify noise impacts and to evaluate noise abatement for those impacts. The noise study was conducted in accordance with the Tennessee Department of Transportation's Policy on Highway Traffic Noise Abatement (TDOT's noise policy) and Section 5.3.4 (Noise) and the Tennessee Environmental Procedures Manual.

### Noise Impacts

The study determined that the project will create traffic noise impacts. A total of 35 receptors are predicted to be impacted. The impacted uses include residential land uses (Activity Category B) as well as recreational land uses at a picnic area at the boat ramp at 173 Edgemoor Road, a picnic area at Solway Park, the entrance to Melton Lake Greenway at Haw Ridge Park, the Centennial Golf Course and a playground at Claxton Elementary School (Activity Category C). All these recreational areas are owned by the City of Oak Ridge.

### Noise Abatement Analysis

Noise abatement was evaluated to mitigate the predicted noise impacts in accordance with TDOT's noise policy. For noise barriers to be included in a project, they must be determined to be both feasible and reasonable in accordance with TDOT's noise policy.

### Statement of Likelihood

Noise abatement is not proposed for this project. However, changes made during the final design process for the project could affect conclusions regarding noise impacts and abatement. Therefore, final noise abatement decisions will be made during the final design process.

### Construction Activities

Construction activities may generate intermittent and temporary noise above existing noise levels. The noise levels resulting from construction activities will depend on the types of equipment utilized, the duration of the activities, and the distances between construction activities and nearby land uses. However, the noise increases will be temporary and will not constitute a noise impact as defined by TDOT's noise policy.

### Information for Local Officials

Some tracts of undeveloped land exist in the project area. TDOT encourages the local governments with jurisdiction over these lands, as well as potential developers, to practice noise compatibility planning to avoid future noise impacts. The "Information for Local Officials" section of this report provides additional information on noise levels for undeveloped lands, noise compatibility planning.

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## Commitments

Did the study of this project result in any environmental commitments?

No

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## Additional Information

Is there any additional information or material included with this study?

Yes

Type: Air Quality Technical Report

Type: Noise Technical Report

Location: Email Attachment


### Certification

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Responder: Chasity L. Stinson

Signature: Chasity  
Stinson

Title: Senior Technical Specialist, TDOT Environmental Division

 Digitally signed by  
Chasity Stinson  
Date: 2025.06.16  
16:19:24 -05'00'

# **Air Technical Reports**

# **Air Quality Technical Report**

**State Route 170 near the interchange  
with State Route 62 to near Melton  
Lake Drive**

**Anderson County, Tennessee**

**PIN Number: 124121.01**

Submitted to:



Prepared by:

Stantec Consulting Services, Inc.



June 2025

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## Executive Summary

The air quality evaluation was conducted per TDOT's *Tennessee Environmental Procedures Manual* (TDOT, 2011).

The purposes of this analysis is to address the transportation conformity requirements for the project, the potential Mobile Source Air Toxics (MSATs) effects, and construction air quality.

The evaluation concluded that the PM<sub>2.5</sub> Hot-Spot analysis illustrates compliance with the National Ambient Air Quality Standards (NAAQS). Additionally, travel speeds for the Build Alternative are expected to be higher than for the No-Build Alternative which will reduce emissions by increasing speeds; TDOT's PM<sub>2.5</sub> hot spot determination is that this is not a project of air quality concern, as determined in accordance with 40 CFR §93.123(b)(1), and that this project is in conformity with the SIP.

### 1.0 Introduction

This report summarizes the first portion of results of an analysis of the potential air quality effects of the proposed State Route (SR) 170 from SR 62 (Oak Ridge Highway) and SR 9 and is located in the City of Oak Ridge, Tennessee. Due to the overall corridor length, improvements to SR 170 have been divided into two smaller projects: From near the interchange with SR 62 to near Melton Lake Drive and from near Melton Lake Drive to SR 9 (US 25W). The first portion will start at the SR 62 (Oak Ridge Highway) and span to near Melton Lake Drive, a distance of approximately 2.55 miles. The extension will provide four 12-foot lanes (2 lanes in each direction) with either a raised median or a center turn lane. Several intersections along the corridor will also see improvements, including realignment, reconfiguration, and the addition of turning lanes. Current plans include providing a sidewalk and shared use path for non-motorized users. The planned improvements are designed to improve safety, mobility, and overall efficiency of the corridor.

This report provides the details of the first section of the project, PIN 124121.01 which spans from near the interchange with SR 62 to near Melton Lake Drive. The project area is shown in Figure 1.

## 2.0 Air Quality Evaluation

The air quality evaluation was conducted per TDOT's *Tennessee Environmental Procedures Manual* (TDOT 2011).

The purposes of this analysis are to address the transportation conformity requirements for the project, PM<sub>2.5</sub> analysis, the potential Mobile Source Air Toxics (MSAT) effects and construction air quality.

### 2.1 National Ambient Air Quality Standards (NAAQS)

The United States Environmental Protection Agency (EPA) has established allowable concentrations and exposure limits called the National Ambient Air Quality Standards (NAAQS) for various "criteria" pollutants. These pollutants include carbon monoxide (CO), nitrogen oxides (NO<sub>x</sub>), ozone (O<sub>3</sub>), particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>), sulfur oxides (SO<sub>x</sub>), and lead (Pb).

Per the Clean Air Act Amendments of 1990 (CAA 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. The project is in the Knoxville, TN maintenance area. The project is considered marginal attainment for ozone and moderate attainment for PM<sub>2.5</sub>.

### 2.2 Transportation Conformity

Transportation conformity is a process required of Metropolitan Planning Organizations (MPOs) under the CAA of 1990. CAA requires that transportation plans, programs, and projects in nonattainment or maintenance areas that are funded or approved by the 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).

The project is located in the Knoxville, TN maintenance area. This project is included in the 2020-2023 Knoxville Regional Transportation Improvement Plan (TIP) as project 23-2017-037b and LRTP# 09-101a. The project is described in the 2023-2026 Knoxville Regional Transportation Improvement Plan (TIP) as increasing two lanes to four lanes with a median and; or a center turn lane. Additionally, the changes also include a bicycle lane and

pedestrian facilities. The project description and termini are consistent with the proposed project. Therefore, the project conforms to the SIP. A copy of the TIP project sheet is provided in Appendix B.

### 2.2.1 PM<sub>2.5</sub> Hot-Spot Analysis

TDOT completed a PM<sub>2.5</sub> Hot-Spot Determination for the project that concluded that the project was “not a project of air quality concern.” TDOT submitted this determination to the Knoxville Area Interagency Consultation (IAC) group on May 22, 2025. The IAC members concurred with TDOT’s determination on the following dates: EPA on June 4, 2025; TDEC on May 23, 2025; and Knox County on May 27, 2025. The PM<sub>2.5</sub> Hot-Spot Determination, IAC concurrence responses, and PM<sub>2.5</sub> clearance record are provided in Appendix C.

The PM<sub>2.5</sub> Hot-Spot Analysis implemented the EPA MOVES model, Version 5.0.0 to establish appropriate emission rates based on peak hourly volumes allocated to all links from the interchange with SR 62 to near Melton Lake Drive. The analysis included both AM and PM volumes. All hours assumed to be equivalent to the maximum AM (12AM-12PM) or PM (12PM-12AM) hour to ensure a level of conservatism. Eleven links were included that cover the full length of the project area. The month of April was applied as representative. Note that other months were evaluated that illustrated negligible differences in emission factors. SR 170 was modeled as an unrestricted rural road at an average speed of 55 miles per hour. The link source type distribution was applied consistent with TDOT provided data for the design year 2049. Where appropriate Anderson County default input values were applied. This includes meteorological data, fuel and age distribution.

All MOVES outputs were determined in grams per hour and converted to grams per second (g/sec) for AERMOD purposes. The latest version of AERMOD, Version 24142, was implemented. The Tennessee Department of Environmental and Conservatism (TDEC) provided representative meteorological data from the Oak Ridge airport (surface) and upper air from Nashville. TDEC also provided background concentrations from station site ID 47-105-0109, Loudon. All sources were set as RLINE. To expedite runtime, three years of meteorological data was applied. This is also consistent with the EPA PM<sub>2.5</sub> Hot-Spot guidance. Similar to the guidance, release height was set to 1.3 meters and a line width of 2 meters.

Both AM and PM emission rates were established with the higher of the two applied to the appropriate link. For example, PM<sub>2.5</sub> was set to 1.066E-04 g/sec for link #1, which was the PM rate. To ensure the AM hours were not overestimated even more so, HROFDY (hour of day) factors were applied. The AM emission rate was 4.436E-05 g/sec, which is approximately 42% of the maximum PM. Thus, the AM HROFDY factor was set to 0.42. All links and hours were

allocated accordingly based on the comparison between the AM/PM g/sec rates. Lastly, all receptors were set at 25-m spacing out to 250 meters from SR 170 and 50-m spacing out another 250 meters. As shown in Table 1 both the 24-hr and annual standards are met.

## 2.3 Mobile Source Air Toxics

On February 3, 2006, the FHWA released *“Interim Guidance on Air Toxic Analysis in NEPA Documents.”* This guidance was superseded on September 30, 2009, December 6, 2012, October 16, 2016, and most recently on January 23, 2023, by FHWA’s *“Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents.”* (FHWA 2023). The purpose of FHWA’s guidance is to advise on when and how to analyze Mobile Source Air Toxics (MSAT) in the NEPA process for highways. This guidance is interim, because MSAT science is still evolving. As science progresses, FHWA will continue to revise and update the guidance.

The qualitative analysis presented below provides a basis for identifying and comparing the potential differences among MSAT emissions, if any, from the various alternatives. The assessment is derived in part from a study conducted by the FHWA entitled *“A Methodology for Evaluating Mobile Source Air Toxic Emissions Among Transportation Project Alternatives”* (Claggett, 2006). Appendix D provides additional information regarding MSAT.

FHWA’s Interim Guidance groups projects into the following categories:

- Exempt Projects and Projects with no Meaningful Potential MSAT Effects;
- Projects with Low Potential MSAT Effects; and
- Projects with Higher Potential MSAT Effects.

FHWA’s Updated Interim Guidance provides examples of “Projects with Low Potential MSAT Effects.” These projects include minor widening projects and new interchanges, such as those that replace a signalized intersection on a surface street, or where design year traffic projections are less than 140,000 to 150,000 average annual daily traffic (AADT).

The Build Alternative includes providing four 12-foot lanes (2 lanes in each direction) with either a raised median or a center turn lane. Several intersections along the corridor will also see improvements, including realignment, reconfiguration, and addition of turning lanes. Current plans include providing a sidewalk and shared use path for non-motorized users. The planned improvements are designed to improve safety, mobility, and overall efficiency of the corridor. The highest projected design year 2049 AADT on SR 170 for near the interchange with SR 62 to near Melton Lake Drive is 25,100 vehicles per day and substantially lower than the FHWA criterion. Therefore, the project meets the criteria for a “Project with Low Potential MSAT Effects.”

For both the Build and No-Build Alternatives, the amount of MSAT emitted would be proportional to the vehicle miles traveled, or VMT, assuming that other variables such as fleet mix are the same for each alternative. As shown, the projected VMT for the No-Build Alternative is 70,280 miles and the projected VMT for the Build Alternative is 70,280. Therefore, it is expected that the project will cause no change in overall MSAT emissions.

The project may also reduce emissions by increasing speeds; according to EPA's MOVES model, emissions of all the priority MSAT decrease as speed increases. Travel speeds for the Build Alternative are expected to be higher than for the No-Build Alternative.

In sum, reduced MSAT emissions are expected in the immediate project area under the Build Alternative in the 2049 design year, relative to the No-Build Alternative. The reductions are due to major arterial changes to SR 170 allowing traffic to move more freely and at greater speeds; thus, increasing the efficiency of the roadway while decreasing MSAT. Additionally, EPA's vehicle and fuel regulations coupled with fleet turnover, will cause substantial reductions over time that, in almost all cases, will cause regional MSAT levels to be significantly lower than today.

Substantial construction related MSAT emissions are not anticipated for this project as construction is not planned to occur over an extended building period. However, construction activity may generate temporary increases in MSAT emissions in the project area.

## 2.4 Construction Air Quality

Construction activities will generate intermittent and temporary construction-related pollutant emissions and dust.

TDOT's construction specifications will apply to this project. Construction procedures should be governed by the *Standard Specifications for Road and Bridge Construction* as issued by TDOT and as amended by the most recent applicable supplements. All construction equipment shall be maintained, repaired, and adjusted to keep it in full satisfactory condition.

Additionally, there are no air quality monitoring stations close to the project. The closest station is a ozone monitoring system off of Freels Bend Road approximately 2.05 miles southwest of the project.

### 3.0 Conclusions

The purposes of this report is to address the transportation conformity requirements for the project, the potential Mobile Source Air Toxics (MSATs) effects, and construction air quality. The PM2.5 Hot-Spot analysis illustrates compliance with the NAAQS. Additionally, travel speeds for the Build Alternative are expected to be higher than for the No-Build Alternative which will reduce emissions by increasing speeds; according to EPA's MOVES model, emissions of all the priority MSAT decrease as speed increases. TDOT's PM2.5 hot spot determination is that this project is not a project of air quality concern, as determined in accordance with 40 CFR §93.123(b)(1), and that this project is in conformity with the SIP. Therefore, the Clean Air Act and 40 CFR §93.116 requirements are met.

## 4.0 References

Claggett, M., et. al., *"A Methodology for Evaluating Mobile Source Air Toxic Emissions Among Transportation Project Alternatives,"* Federal Highway Administration Resource Center, May 4, 2006.

Council on Environmental Quality (CEQ), *Update to the Regulations Implementing the National Environmental Policy Act*, May 1, 2024.

Federal Highway Administration (FHWA), *Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents*, January 18, 2023.

Federal Highway Administration (FHWA), *Vulnerability Assessment and Adaptation Framework, Third Edition, FHWA-HEP-18-020*, December 2017.

International Energy Agency (IEA), *CO<sub>2</sub> Emissions in 2023*, March 2024.

International Energy Agency (IEA), *World Energy Outlook 2021*.

National Highway Traffic Safety Administration (NHTSA), *Corporate Average Fuel Economy Standards for Model Years 2024-2026 Passenger Cars and Light Trucks*, April 2022.

National Highway Traffic Safety Administration (NHTSA), *The Safer Affordable Fuel-Efficient (SAFE) Vehicle Rules for Model Years 2021-2026 Passenger Cars and Light Trucks*, June 29, 2020.  
Tennessee Department of Transportation (TDOT), *Air Quality Procedures Manual*, February 2023.

Tennessee Department of Transportation (TDOT), *Tennessee Environmental Procedures Manual*, June 2011.

Tennessee Department of Transportation (TDOT), *Standard Specifications for Road and Bridge Construction*, January 1, 2021.

United States Energy Information Agency (EIA), *International Energy Outlook 2023*, October 2023.

United States Environmental Protection Agency (EPA), *Clarification to the 2006 Joint EPA/FHWA Transportation Conformity Guidance for Qualitative Hot-spot Analysis in PM<sub>2.5</sub> and PM<sub>10</sub> Nonattainment and Maintenance Areas*, 2009.

United States Environmental Protection Agency (EPA), *Official Release of the MOVES3 Motor Vehicle Emissions Model for SIPs and Transportation Conformity*, January 7, 2021.

United States Environmental Protection Agency (EPA), *Official Release of the MOVES5 Motor Vehicle Emissions Model for SIPs and Transportation Conformity*, December 11, 2024.

United States Environmental Protection Agency (EPA), *Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in PM<sub>2.5</sub> and PM<sub>10</sub> Nonattainment and Maintenance Areas*, October 2021.

United States Environmental Protection Agency (EPA), *Transportation Regulations*, April 2012.

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## TABLES

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Table 1: Design Year 2049 PM<sub>2.5</sub> Impact Concentrations from S.R. 62 to west of Melton Lake

Pollutant	Averaging Period	Background Concentration (µg/m <sup>3</sup> ) <sup>1</sup>	Modeled Impact (µg/m <sup>3</sup> ) <sup>2</sup>	Total Concentration (µg/m <sup>3</sup> )	NAAQS (µg/m <sup>3</sup> )	% of Standard
PM <sub>2.5</sub>	24-hr <sup>3</sup>	17	3.95	20.95	35	59.9%
	Annual <sup>3</sup>	6.5	2.23	8.73	9	97.0%

Table 2: Design Year VMT Projection on Affected Roadway Network

Design Year MSATs Information						
Alternative	Average Speed (mph)	VMT			MOVES 5.0.0 Results	
		Daily (Miles)	Annual (Miles)	Annual (Million Vehicle Miles of Travel (MMT))	Design Year CO <sub>2</sub> Emissions (kg)	Design Year CO <sub>2</sub> Emissions (MMT)
No-Build	55	70,280	25,652,200	25.65	2,747,931	0.0027
Build/Selected	55	70,280	25,652,200	25.65	2,747,931	0.0027
Changes ---->	0	0	0	0.00	0	0.0000

<sup>1</sup> The background is from TDEC for the Loudon Station

<sup>2</sup> The modeled results implemented 2019-2021 met data from Oak Ridge Airport.

<sup>3</sup> The annual standard is the average mean and the 24-hr standard is the 98<sup>th</sup> percentile.

## FIGURES



**Figure 1: First part of the project, spanning from near the interchange with SR 62 to near Melton Lake Drive**



## **APPENDICES**



**Appendix A**  
**Traffic Projections**

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**TENNESSEE DEPARTMENT OF TRANSPORTATION  
PLANNING DIVISION**

PROJECT NO.: STP-170(13) : 01024-0221-14 ROUTE: S.R. 170  
 COUNTY: ANDERSON CITY: \_\_\_\_\_  
 PROJECT PIN NUMBER: 124121.01  
 PROJECT DESCRIPTION: FROM S.R. 62 TO WEST OF MELTON LAKE DRIVE.

[1] S.R. 170 AVERAGE TRAFFIC DATA

**DIVISION REQUESTING:**

MAINTENANCE <input type="checkbox"/>	PAVEMENT DESIGN <input type="checkbox"/>
ENGINEERING CONCEPTS <input type="checkbox"/>	STRUCTURES <input type="checkbox"/>
PROG. DEVELOPMENT & ADM. <input type="checkbox"/>	SURVEY & ROADWAY DESIGN <input type="checkbox"/>
PUBLIC TRANS. & AERO. <input type="checkbox"/>	TRAFFIC SIGNAL DESIGN <input type="checkbox"/>
	OTHER PROJECT MANAGE. <input checked="" type="checkbox"/>

YEAR PROJECT PROGRAMMED FOR CONSTRUCTION: 2029  
 PROJECTED LETTING DATE: 2029

**TRAFFIC ASSIGNMENT:**

BASE YEAR		DESIGN YEAR					DESIGN ROADWAY % TRUCKS		DESIGN AVERAGE DAILY LOADS	
AADT	YEAR	AADT	DHV	%	YEAR	DIR.DIST.	DHV	AADT	FLEX	RIGID
19,320	2029	25,100	2,639	10	2049	55-45	3	5	358	522

REQUESTED BY: NAME JOHN SHERK DATE 10/1/24  
 DIVISION REGION I PROJECT MANAGEMENT  
 ADDRESS 7345 REGION LANE  
KNOXVILLE TN 37914

REVIEWED BY: RANDY BOGUSKIE Randy Boguskie DATE 12/13/2024  
 TRANSPORTATION MANAGER 1  
 SUITE 1000, JAMES K. POLK BUILDING

APPROVED BY: TONY ARMSTRONG Tony Armstrong DATE 12/13/2024  
 TRANSPORTATION MANAGER 2  
 SUITE 1000, JAMES K. POLK BUILDING

**COMMENTS:**

FURNISH THE 2029-2049 TRAFFIC DATA AND ADL's FOR PAVEMENT DESIGN FOR A FIVE LANE ROADWAY.

THIS TRAFFIC IS BASED ON 2023 CYCLE COUNTS, [5] 8-HOUR TURNING MOVEMENT COUNTS [OCT. 2024] AND [4] SPECIAL 24-HOUR CLASSIFICATION COUNTS. [OCT. 2024] THE DESIGN YEAR TRAFFIC IS BASED ON THE AVERAGE OF GROWTH RATES FROM THE KNOXVILLE TPO COMPUTER ASSIGNMENT MODEL. AADT's, DHV's AND ADL's ARE INCLUDED.

Cc: GREG GREEN PE, ROBERT CAMPBELL & ASSOC.

**DHV'S ARE NOT REQUIRED FOR SIDE ROADS LESS THAN 1000 AADT.**

**NOTE:** FOR BRIDGE REPLACEMENT PROJECTS, ADLs ARE NOT REQUIRED FOR ADT's OF 1000 OR LESS AND PERCENTAGE OF TRUCKS OF 7% OR LESS.

SEE ATTACHMENTS FOR TURNING MOVEMENTS AND/OR OTHER DETAILS.

(REV. 6/12/24)

**TENNESSEE DEPARTMENT OF TRANSPORTATION  
PLANNING DIVISION**

PROJECT NO.: STP-170(13) : 01024-0221-14 ROUTE NO.: S.R. 170  
 COUNTY: ANDERSON CITY: \_\_\_\_\_  
 PROJECT DESCRIPTION: FROM S.R. 62 TO WEST OF MELTON LAKE ROAD.

**FAP Urban**

Pavement Structural Design

Calculation of Equivalent Daily 18 Kip Single Axle Loads

Type Vehicle	ADT (No. Counted)	Flexible		Rigid	
		18-kip Factor	ADL	18-kip Factor	ADL
Pass. cars and motorcycles (1-2)	14,405	0.001	14	0.001	14
Pick-up, Panel, Van (3)	6,694	0.004	27	0.004	27
Sing. Unit	Buses (4)	15	5	0.300	5
	2-axle, 6-tire (5)	313	81	0.260	81
	3-axle or more (6-7)	215	215	1.500	323
Comb.	4-axle (8)	125	80	0.800	100
	5-axle or more (9-13)	443	532	1.900	842
<b>Totals (2039 AADT)</b>	<b>22,210</b>		<b>954</b>		<b>1,391</b>

Suggested Percentages of Trucks in Design Lane

5,000 or less ADT	95%
5,000 - 10,000 ADT	90%
10,000 - 15,000 ADT	85%
15,000 - 20,000 ADT	80%
20,000 - 30,000 ADT	75%
30,000 - 40,000 ADT	70%
40,000 Plus	60%

No. of Lanes: 5

% Trucks in Design Lane: 75%

ADL in Design Lane:

FLEX:	0.5	X	0.75	X	953.7	=	358
RIGID:	0.5	X	0.75	X	1391.3	=	522

ADL Calculations By: TONY ARMSTRONG  
 Reviewed By: Randy Boguski  
 [REV. 6/12/24]

Date: 11/1/2024  
 Date: 12/13/2024

**Appendix B**

**2023-2026 Knoxville Regional Transportation  
Improvement Plan (TIP) Project Sheet**



**STIP Project Report**  
8/24/2023

<b>STIP ID</b>	<b>PIN #</b>	<b>Length in Miles</b>	<b>Lead Agency</b>
	124121.01	2.55	TDOT

<b>State</b>	<b>County</b>
TN	Anderson

<b>State Route</b>	<b>Total Project Cost</b>	<b>TIP ID</b>
SR-170	\$98,203,200	

<b>Project Name</b>
Edgemoor Road (SR-170)

<b>Termini</b>
From near SR-62 to near Melton Lake Drive (IA)(TMA)

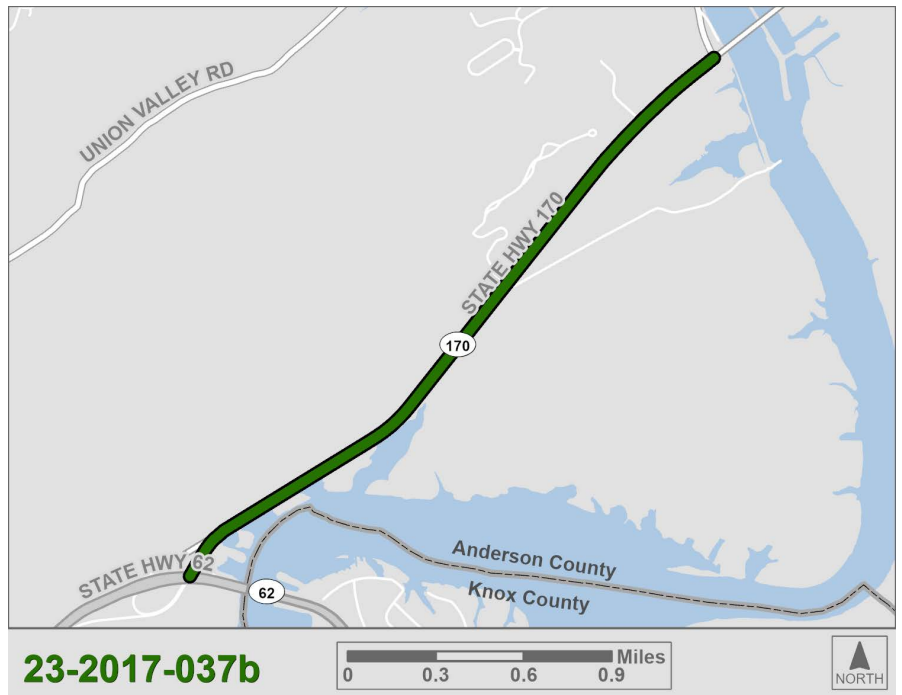
<b>Project Description</b>
Widening SR-170 from 2 lanes to 4 lanes with median and/or center turn lane. Improvements also include bicycle and pedestrian facilities. (Split into two segments for PE,ROW, and Construction on PINs 124121.01 and.02)

<b>Long Range Plan #</b>	<b>Conformity Status</b>
09-101a	Non-Exempt

FY	Phase	Funding	Programmed Funds	Fed Funds	State Fund	Local Funds
2024	PE-D	STBG	\$1,285,200	\$1,028,160	\$257,040	\$0
2025	ROW	STBG	\$4,203,250	\$3,362,600	\$840,650	\$0
<b>Total</b>			<b>\$5,488,450</b>	<b>\$4,390,760</b>	<b>\$1,097,690</b>	<b>\$0</b>

*Comments:*

*Amendment 110: Amend the TIP to add this non-exempt project for design and ROW. PE-D is programmed in FY 2024 at a cost of \$1,285,200 STBG (\$1,028,160 federal/\$257,040 state). ROW is programmed in FY 2025 at a cost of \$4,203,250 STBG (\$3,362,600 federal/\$840,650 state). This amendment adds \$5,488,450 (\$4,390,760 federal/\$1,097,690 state) to the TIP. The total project cost is \$98,203,200.*



**Appendix C**  
**PM<sub>2.5</sub> Hot-Spot Analysis**

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**STATE OF TENNESSEE DEPARTMENT  
OF TRANSPORTATION  
ENVIRONMENTAL DIVISION  
SUITE 900 - JAMES K. POLK BUILDING  
505 DEADERICK STREET  
NASHVILLE, TENNESSEE 37243-0334**

**PM<sub>2.5</sub> Hot-Spot Determination**

**Project Name: SR-170 From SR-62 to near Melton Lake Drive**  
**PIN: 124121.01**  
**Project Number: 01024-0221-14**  
**County: Anderson**  
**Date: 05/01/2025**

**Statement of Purpose and Legal Requirements**

Section 176(c) of the Clean Air Act, as amended, requires that transportation agencies, such as the Tennessee Department of Transportation (TDOT), demonstrate that all proposed transportation projects that are located in nonattainment or maintenance areas, and require federal approval or federal money, are consistent with the air quality goals found in the State Implementation Plan (SIP) and the corresponding Transportation Improvement Program (TIP) and other conforming plans.

The process to ensure this consistency is called Transportation Conformity. Conformity to the SIP means that transportation activities will not cause new violations of the National Ambient Air Quality Standards (NAAQS), will not worsen existing violations, and will not delay attainment of the NAAQS.

Project-level conformity is required by Title 40 Code of Federal Regulations (CFR) Part 93, more commonly known as the Transportation Conformity Rule. When evaluating project-level conformity for particulate matter that is 2.5 microns in diameter or smaller, the process is called a PM<sub>2.5</sub> Hot Spot Determination.

The Transportation Conformity Rule instructs the U.S. Department of Transportation (DOT) to ensure that all proposed transportation projects are in conformity before releasing federal funds for the project. To accomplish this, the FHWA and/or FTA require that all proposed transportation projects in a PM<sub>2.5</sub> nonattainment or maintenance area be classified as: 1) Exempt, 2) Not a Project of Air Quality Concern, or 3) Project of Air Quality Concern.

In §93.126 and §93.128, the Transportation Conformity Rule establishes a list of transportation projects that are categorically exempt from conformity determination. For nonexempt projects, TDOT must determine if the project has the potential to adversely impact air quality and FHWA and/or FTA must make the same determination once the interagency consultation (IAC) process is complete.

This proposed transportation project is located in Anderson County, which is currently classified as a maintenance area for the PM<sub>2.5</sub> NAAQS by the U.S. Environmental Protection Agency. TDOT is presenting the following conformity determination for IAC review to demonstrate this project is **NOT A PROJECT OF AIR QUALITY CONCERN** and that it does conform to the SIP.

### **Project Description**

The proposed SR-170 widening project is located in the City of Oak Ridge, Tennessee. The project will start from near SR-62 and span to near Melton Lake Drive, a distance of approximately 2.55 miles. The widening will provide four 12-foot lanes (2 lanes in each direction) with either a raised median or a center turn lane. Current plans include providing sidewalk and shared use path for non-motorized users. The planned improvements are designed to improve safety, mobility, and overall efficiency of the corridor.

The purpose and need of the project is to provide economic growth potential for the City of Oak Ridge and the Claxton Community by improving a major arterial to attract residential, commercial, industrial, and retail development opportunities, increase capacity on the existing SR-170 corridor to meet future traffic demands, provide an improved level of service (LOS) for motorists and truck traffic, and alleviate traffic congestion. Due to the overall corridor length, improvements to SR-170 have been divided into two smaller projects; from near the interchange with SR-62 to near Melton Lake Drive (PIN 124121.01) and from near Melton Lake Drive to SR-9 (PIN 124121.02). Attachment A shows the project.

## PM<sub>2.5</sub> Hot Spot Determination Questions and Answers

### 1. Is this project in a conforming Plan/TIP?

Yes. This project is included in the Knoxville Regional FY 2020-2023 Transportation Planning Organization Transportation Improvement Program (TIP) as project 23-2017-037b. The project termini and description are consistent with what is proposed, Attachment B includes the TIP project sheet.

### 2. Is the project on a new or expanded highway or expressway that serves a significant volume of diesel truck traffic, such as a facility with greater than 125,000 annual averages daily traffic (AADT) and 8% or more of such AADT is diesel truck traffic?

The Traffic Analysis developed the morning (AM) and afternoon (PM) peak hour traffic volumes for the traffic projections for year 2049 shown in Table 1. As shown, the road is projected to carry nearly 3,017 vehicles in the AM peak and 3,465 vehicles in the PM peak. The AADT was estimated by applying a peak hour factor (k factor) of 13.8% resulting in a design year 2049 AADT of 25,100. The AADT diesel truck traffic is estimated to be 3.0%. Attachment C includes the design year and no-build traffic projections.

**Table 1: Design Year 2049 Traffic Projections**

<i>Peak Hour</i>		<i>AADT (vpd)</i>
<i>AM</i>	<i>PM</i>	
3,017	3,465	25,100

### 3. Does the project construct new exit ramps or other highway facility improvements that connect a highway or expressway to a major freight, bus, or intermodal terminal?

No. The purpose of the project is to provide economic growth and to reduce congestion.

**4. Does the project expand an existing highway or other facility that already has a congested intersection (Operates at LOS D, E, or F) and will this project result in a significant increase in the number of diesel trucks?**

The project will widen an existing highway and will not appreciably increase the number of diesel trucks on the adjacent roadway network. The project will start from near SR-62 (Oak Ridge Highway) and span to near Melton Lake drive, approximately 2.55 miles. The extension will provide 4 12-foot lanes (2 lanes in each direction) with either a raised median or a center turn lane, along with replacing the bridge over the Clinch River. Several intersections along the corridor will also see improvements, including realignment, reconfiguration, and addition of turning lanes.

The traffic study for the project included Level of Service (LOS) analyses at these five intersections for year 2049 with and without the project. Table 2 summarizes the results. As shown, the project will decrease the delay at all intersections and improve operations at several of the intersections improving the LOS category during both the morning and afternoon peak hours.

**Table 2: Years 2029 and 2049 Capacity Analysis Summary**

<b>Year 2029 Capacity Analysis Summary - SR-170 from SR-62 to near Melton Lake Drive</b>					
<b>Intersection</b>	<b>Movement/Approach</b>	<b>AM Peak</b>	<b>AM Peak</b>	<b>PM Peak</b>	<b>PM Peak</b>
		<b>(LOS/Delay (sec))</b>	<b>(LOS/Delay (sec))</b>	<b>(LOS/Delay (sec))</b>	<b>(LOS/Delay (sec))</b>
		<b>No-Build</b>	<b>Build</b>	<b>No-Build</b>	<b>Build</b>
SR-170 at	EB	-	A 6.7	-	B 12.6
Waterview	WB	-	B 10.5	-	B 15.1
Drive and	NB	B 11.6	A 0.0	F 133.8	A 0.2
Solway Park	SB	E 36.4	A 4.5	E 35.7	A 4.1
Entrance	Overall	-	A 9.0	-	B 13.2
<b>Year 2049 Capacity Analysis Summary - SR-170 from SR-62 to near Melton Lake Drive</b>					
<b>Intersection</b>	<b>Movement/Approach</b>	<b>AM Peak</b>	<b>AM Peak</b>	<b>PM Peak</b>	<b>PM Peak</b>
		<b>(LOS/Delay (sec))</b>	<b>(LOS/Delay (sec))</b>	<b>(LOS/Delay (sec))</b>	<b>(LOS/Delay (sec))</b>
		<b>No-Build</b>	<b>Build</b>	<b>No-Build</b>	<b>Build</b>
SR-170 at	EB	-	A 8.1	-	B 16.0
Waterview	WB	-	B 15.4	-	B 17.7
Drive and	NB	B 13.2	A 0.0	F 878.1	A 0.3
Solway Park	SB	F 138.6	C 20.8	F 158.2	A 6.2
Entrance	Overall	-	B 13.9	-	B 16.2

**5. Does the highway project involve a significant increase in the number of diesel transit buses and/or diesel trucks?**

No.

**6. Will this project cause or worsen an existing violation?**

No. The purpose of the project is to provide connectivity within the surrounding retail district and reduce congestion on SR-170 and associated intersections. The project will redistribute traffic in the project area but is not projected to result in a significant change in the number of total vehicles. Additionally, it is not expected to affect the number of diesel vehicles on the roadway network. The project will improve traffic flow throughout the area and reduce idling along the corridor. Therefore, the project would not cause or worsen any existing violation.

**Conclusion**

The PM<sub>2.5</sub> Hot-Spot analysis evaluated both annual and 24-hr national ambient air quality standards (NAAQS). Two Environmental Protection Agency models were utilized to determine potential impacts. These include MOVES, Version 5.0, to establish vehicle emission rates and AERMOD, Version 24142, to estimate impacts surrounding the project area. The AERMOD rules along with representative background concentrations provided by the Tennessee Department of Environment and Conservation were compared directly to the NAAQS. As illustrated in Table 3, both averaging periods are below the applicable standards.

**Table 3: Design Year 2049 PM<sub>2.5</sub> Impact Concentrations from near SR-62 to near Melton Lake Drive.**

Pollutant	Average Period	Background Concentrations (µg/m <sup>3</sup> ) <sup>1</sup>	Modeled Impact (µg/m <sup>3</sup> ) <sup>3</sup>	Total Concentration (µg/m <sup>3</sup> )	NAAQS (µg/m <sup>3</sup> )	% of Standard
PM <sub>2.5</sub>	24-hr <sup>2</sup>	17	3.95	20.95	35	59.90%
	Annual <sup>2</sup>	6.5	2.23	8.73	9	97.00%

1. Background is from TDEC for the Loudon Station.

2. The annual standard is the average mean and the 24-hr standard is the 98th percentile.

3. The modeled results implemented 2019-2021 met data from Oak Ridge Airport.

For the reasons provided above, TDOT's PM<sub>2.5</sub> hot spot determination is that this project is **NOT A PROJECT OF AIR QUALITY CONCERN**, as determined in accordance with 40 CFR §93.123(b)(1), and that this project is in conformity with the SIP. Therefore, the Clean Air Act and 40 CFR §93.116 requirements are met with a quantitative analysis once the IAC provides concurrence.

**ATTACHMENT A**



**Anderson County**

**S.R. 170 [PIN 124121.01]**

**From S.R. 62 to West of Melton Lake Drive**

**ATTACHMENT B**

**STIP Project Report**  
8/24/2023

**AMENDED  
NEW  
PAGE**

<b>STIP ID</b>	<b>PIN #</b>	<b>Length in Miles</b>	<b>Lead Agency</b>
	124121.01	2.55	TDOT

<b>State</b>	<b>County</b>
TN	Anderson

<b>State Route</b>	<b>Total Project Cost</b>	<b>TIP ID</b>
SR-170	\$98,203,200	

**Project Name**  
Edgemoor Road (SR-170)

**Termini**  
From near SR-62 to near Melton Lake Drive (IA)(TMA)

**Project Description**  
Widening SR-170 from 2 lanes to 4 lanes with median and/or center turn lane. Improvements also include bicycle and pedestrian facilities. (Split into two segments for PE,ROW, and Construction on PINs 124121.01 and.02)

<b>Long Range Plan #</b>	<b>Conformity Status</b>
09-101a	Non-Exempt

FY	Phase	Funding	Programmed Funds	Fed Funds	State Fund	Local Funds
2024	PE-D	STBG	\$1,285,200	\$1,028,160	\$257,040	\$0
2025	ROW	STBG	\$4,203,250	\$3,362,600	\$840,650	\$0
<b>Total</b>			<b>\$5,488,450</b>	<b>\$4,390,760</b>	<b>\$1,097,690</b>	<b>\$0</b>

*Comments:*

*Amendment 110: Amend the TIP to add this non-exempt project for design and ROW. PE-D is programmed in FY 2024 at a cost of \$1,285,200 STBG (\$1,028,160 federal/\$257,040 state). ROW is programmed in FY 2025 at a cost of \$4,203,250 STBG (\$3,362,600 federal/\$840,650 state). This amendment adds \$5,488,450 (\$4,390,760 federal/\$1,097,690 state) to the TIP. The total project cost is \$98,203,200.*





eSTIP Fiscal Constraints Report for STIP Period 2023  
Knoxville MPO

ORIGINAL

Fund Code	Fiscal Year	Budget Total	Programmed Funds	Federal Funding	State Funding	Local Funding	Federal Carryover	Remaining Balance
STBG	2023	\$33,332,343	\$33,332,343	\$26,665,874	\$5,327,256	\$1,339,213	\$0	\$0
STBG	2024	\$15,469,245	\$15,469,245	\$12,375,396	\$3,093,849	\$0	\$0	\$0
STBG	2025	\$27,434,990	\$27,434,990	\$17,988,580	\$9,446,410	\$0	\$0	\$0
STBG	2026	\$1,267,035	\$1,267,035	\$1,013,628	\$253,407	\$0	\$0	\$0



eSTIP Fiscal Constraints Report for STIP Period 2023  
Knoxville MPO

AMENDED

Fund Code	Fiscal Year	Budget Total	Programmed Funds	Federal Funding	State Funding	Local Funding	Federal Carryover	Remaining Balance
STBG	2023	\$33,332,343	\$33,332,343	\$26,665,874	\$5,327,256	\$1,339,213	\$0	\$0
STBG	2024	\$16,754,445	\$16,754,445	\$13,403,556	\$3,350,889	\$0	\$0	\$0
STBG	2025	\$31,638,240	\$31,638,240	\$21,351,180	\$10,287,060	\$0	\$0	\$0
STBG	2026	\$1,267,035	\$1,267,035	\$1,013,628	\$253,407	\$0	\$0	\$0

Note: Fiscal constraint report draft update 3/1/24 and reflects:

FY 2024 STBG: +\$1,285,200 (Federal: +\$1,028,160 State: +\$257,040)

FY 2025 STBG: +\$4,203,250 (Federal: +\$3,362,600 State: +\$840,650)



**TRANSPORTATION IMPROVEMENT PROGRAM  
Transportation Conformity Summary Report**

**Project Amendments:**

On July April 24, 2024, the Knoxville Regional TPO Executive Board voted to approve the following amendment to the Knoxville Regional FY 2020 – 2023 Transportation Improvement Program (TIP).

TIP #	L RTP #	Project Name	Conformity Status
23-2017-037(a)	09-101b	Edgemoor Road (SR-170)	Non-Exempt
23-2017-037(b)	09-101a	Edgemoor Road (SR-170)	Non-Exempt

**Air Quality Conformity Status:**

This amendment was subject to a conformity finding. An air quality conformity demonstration report was used to demonstrate conformity for the project.

**Metropolitan Transportation Planning Process Certification:**

The Knoxville TPO Planning Process certification is included and certifies that every four years the transportation planning process addresses the major issues in the metropolitan planning area and is conducted in accordance with all applicable requirements.

**Resolution:**

The adopting resolution for these projects and air quality conformity determination is included.

**Public Participation:**

Public participation processes were in accordance with the Knoxville TPO’s federally approved Public Participation Plan. Two public hearings were held on April 9, 2024 at the TPO Technical Committee Meeting, followed by April 24, 2024 at the TPO Executive Board meeting. No public comments were received.

**Interagency Consultation:**

The Knoxville Air Quality Interagency Consultation (IAC) group was consulted on a 24-day IAC review from March 1, 2024 until March 24, 2024 regarding review of the draft conformity determination report.



U.S. Department  
of Transportation  
**Federal Highway  
Administration**

**Tennessee Division**

June 5, 2024

404 BNA Drive, Suite 508  
Nashville, Tennessee 37217  
Phone (615) 781-5770

Mr. Matt Meservy  
Director, Long Range Planning Division  
Tennessee Department of Transportation  
James K. Polk Building, Suite 900  
Nashville, TN 37243

In Reply Refer To:  
HPD-TN

Subject: Air Quality Conformity Determination for Knoxville, TN

Dear Mr. Meservy:

The Federal Highway Administration (FHWA) Tennessee Division and Federal Transit Administration (FTA) Region IV Office, in coordination with the Environmental Protection Agency (EPA) Region IV Office, have reviewed the Air Quality Conformity Determination adopted by the Knoxville Regional Transportation Planning Organization (KRTPO) Executive Board on April 24, 2024.

The Air Quality Conformity Determination covers the Knoxville, TN maintenance area for the 2008 8-hour ozone and the 2006 Daily PM<sub>2.5</sub> National Ambient Air Quality Standards (NAAQS) and addresses the planned transportation improvements from the amended Fiscal Year (FY) 2023–2026 Transportation Improvement Program (TIP).

Based on our review, we find the documents conform to the ozone and PM<sub>2.5</sub> NAAQS for Knoxville, Tennessee.

If you have any questions regarding this determination, please contact me at (615) 781-5777.

Sincerely,

ZACHARY TYLER  
COLEMAN

Digitally signed by ZACHARY  
TYLER COLEMAN  
Date: 2024.06.05 09:44:51  
-05'00'

Zachary Coleman  
Transportation Planning Specialist

cc: Mayor Terry Frank, Executive Board Chair, Knoxville Regional TPO  
Mr. Sean Santalla, Acting Deputy Division Administrator, FHWA TN Division  
Mr. Andres Ramirez, Community Planner, FTA Region IV  
Ms. Dianna Myers, Environmental Scientist, EPA Region IV  
Ms. Simone Jarvis, Life Scientist, EPA Region IV  
Mr. Stacy Morrison, OCT Planning Manager, TDOT

Mr. Troy Ebbert, OCT Region 1 Planning Supervisor, TDOT  
Mr. Doug Burton, Coordinator, Knoxville Regional TPO  
Mr. Craig Luebke, Senior Transportation Planner, Knoxville Regional TPO  
Mr. Mike Conger, Senior Transportation Engineer, Knoxville Regional TPO  
Mr. Marc Corrigan, Environmental Consultant, TDEC

**A RESOLUTION BY THE EXECUTIVE BOARD  
OF THE KNOXVILLE REGIONAL  
TRANSPORTATION PLANNING ORGANIZATION (TPO)  
AMENDING THE FY 2023-2026 TRANSPORTATION IMPROVEMENT PROGRAM**

WHEREAS, the FY 2023-2026 Knoxville Regional Transportation Improvement Program was adopted on October 26, 2022; and

WHEREAS, in accordance with requirements of the U.S. Department of Transportation, the elements of the transportation planning process are to receive final approval from the Executive Board of the local Metropolitan Planning Organization; and

WHEREAS, the Transportation Improvement Program must be updated as needed; and

WHEREAS, the proposed project amendments were reviewed with the Knoxville-Area Air Quality Interagency Consultation Group with respect to air quality conformity requirements and are either exempt from, or were demonstrated to conform with the federal transportation air quality conformity regulations from the Clean Air Act; and

WHEREAS, a short conformity determination report was prepared for the air quality non-exempt project amendments which concluded that air quality conformity was demonstrated by relying on a previous regional emissions analysis; and

WHEREAS, the Knoxville Regional Transportation Planning Organization Technical Committee recommends approval of the Resolution, and

NOW, THEREFORE, BE IT RESOLVED BY THE KNOXVILLE REGIONAL TRANSPORTATION PLANNING ORGANIZATION EXECUTIVE BOARD;

That the FY 2023-2026 Transportation Improvement Program be amended to include the following changes and that the Tennessee Department of Transportation include these amendments into the State Transportation Improvement Program:

**Attachment #3A: Draft Amendment 23-2017-037a (Edgemoor Road [SR-170]) - From near Melton Lake Drive to SR-9 (US-25W, Clinton Highway)** - Amend project to increase ROW funding and increase the total project cost. Additional federal ROW funds are programmed in FY 2025 at a cost of \$17,417,585 STBG (\$13,934,068 federal /\$3,483,517 state). Additional state funded ROW is also programmed in FY 2025 at a cost of \$4,919,265. The project termini field is updated to reflect the project's status as a Transportation Modernization Act project. This amendment adds \$22,366,850 (\$13,934,068 federal/\$8,432,782 state) to this project and the TIP. The total project cost is increased to \$251,992,328.

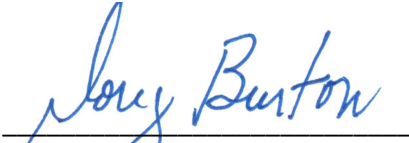
**Attachment #3B: Draft Amendment 23-2017-037b (Edgemoor Road [SR-170]) - From near SR-62 to near Melton Lake Drive** - Amend the TIP to add this non-exempt project for design and ROW. PE-D is programmed in FY 2024 at a cost of \$1,285,200 STBG (\$1,028,160 federal/\$257,040 state). ROW is programmed in FY 2025 at a cost of \$4,203,250 STBG (\$3,362,600 federal/\$840,650 state). This amendment adds \$5,488,450 (\$4,390,760 federal/\$1,097,690 state) to the TIP. The total project cost is \$98,203,200.

April 24, 2024

Date

A handwritten signature in blue ink, appearing to read "Terry Frank", written over a horizontal line.

Mayor Terry Frank  
Anderson County  
TPO Executive Board Chair

A handwritten signature in blue ink, appearing to read "Doug Burton", written over a horizontal line.

Doug Burton  
Coordinator  
Knoxville Regional TPO

## METROPOLITAN TRANSPORTATION PLANNING PROCESS CERTIFICATION

In accordance with 23 CFR 450.336, the Knoxville Regional Transportation Planning Organization and the Tennessee Department of Transportation hereby certify that the metropolitan transportation planning process is addressing major issues facing the Knoxville, TN urbanized area, and is being carried out in accordance with the following requirements:

- I. 23 U.S.C. 134 and 135, 49 U.S.C. 5303 and 5304 (Highways and Transit).
- II. Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000 d-1) and 49 CFR part 21.
- III. 49 U.S.C. 5332, prohibiting discrimination on the basis of race, color, creed, national origin, sex, or age in employment or business opportunity.
- IV. 49 CFR part 26 regarding the involvement of disadvantaged business enterprises in USDOT-funded projects.
- V. 23 CFR part 230, regarding the implementation of an equal employment opportunity program on Federal and Federal-aid highway construction contracts.
- VI. Provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq) and 49 CFR parts 27, 37, and 38.
- VII. In nonattainment and maintenance areas, sections 174 and 176 (c) and (d) of the Clean Air Act, as amended, 42 U.S.C. 7504, 7506 (c) and (d), and 40 CFR part 93.
- VIII. The Older Americans Act, as amended (42 U.S.C. 6101), prohibiting discrimination on the basis of age in programs or activities receiving Federal financial assistance.
- IX. Section 324 of Title 23 U.S.C. regarding the prohibition of discrimination based on gender.
- X. Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. 794) and 49 CFR part 27 regarding discrimination against individuals with disabilities.

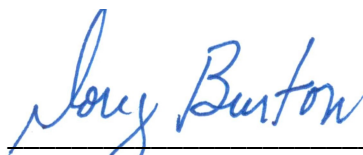
April 24, 2024

Date



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Mayor Terry Frank  
Anderson County  
Knoxville Regional TPO Executive Board Chair



---

Doug Burton  
Coordinator  
Knoxville Regional TPO

**ATTACHMENT C**

**TENNESSEE DEPARTMENT OF TRANSPORTATION  
PLANNING DIVISION**

PROJECT NO.: STP-170(13) : 01024-0221-14 ROUTE: S.R. 170  
 COUNTY: ANDERSON CITY: \_\_\_\_\_  
 PROJECT PIN NUMBER: 124121.01  
 PROJECT DESCRIPTION: FROM S.R. 62 TO WEST OF MELTON LAKE DRIVE.

[1] S.R. 170 AVERAGE TRAFFIC DATA

**DIVISION REQUESTING:**

MAINTENANCE <input type="checkbox"/>	PAVEMENT DESIGN <input type="checkbox"/>
ENGINEERING CONCEPTS <input type="checkbox"/>	STRUCTURES <input type="checkbox"/>
PROG. DEVELOPMENT & ADM. <input type="checkbox"/>	SURVEY & ROADWAY DESIGN <input type="checkbox"/>
PUBLIC TRANS. & AERO. <input type="checkbox"/>	TRAFFIC SIGNAL DESIGN <input type="checkbox"/>
	OTHER PROJECT MANAGE. <input checked="" type="checkbox"/>

YEAR PROJECT PROGRAMMED FOR CONSTRUCTION: 2029  
 PROJECTED LETTING DATE: 2029

**TRAFFIC ASSIGNMENT:**

BASE YEAR		DESIGN YEAR					DESIGN ROADWAY % TRUCKS		DESIGN AVERAGE DAILY LOADS	
AADT	YEAR	AADT	DHV	%	YEAR	DIR.DIST.	DHV	AADT	FLEX	RIGID
19,320	2029	25,100	2,639	10	2049	55-45	3	5	358	522

REQUESTED BY: NAME JOHN SHERK DATE 10/1/24  
 DIVISION REGION I PROJECT MANAGEMENT  
 ADDRESS 7345 REGION LANE  
KNOXVILLE TN 37914

REVIEWED BY: RANDY BOGUSKIE Randy Boguskie DATE 12/13/2024  
 TRANSPORTATION MANAGER 1  
 SUITE 1000, JAMES K. POLK BUILDING

APPROVED BY: TONY ARMSTRONG Tony Armstrong DATE 12/13/2024  
 TRANSPORTATION MANAGER 2  
 SUITE 1000, JAMES K. POLK BUILDING

**COMMENTS:**

FURNISH THE 2029-2049 TRAFFIC DATA AND ADL's FOR PAVEMENT DESIGN FOR A FIVE LANE ROADWAY.

THIS TRAFFIC IS BASED ON 2023 CYCLE COUNTS, [5] 8-HOUR TURNING MOVEMENT COUNTS [OCT. 2024] AND [4] SPECIAL 24-HOUR CLASSIFICATION COUNTS. [OCT. 2024] THE DESIGN YEAR TRAFFIC IS BASED ON THE AVERAGE OF GROWTH RATES FROM THE KNOXVILLE TPO COMPUTER ASSIGNMENT MODEL. AADT's, DHV's AND ADL's ARE INCLUDED.

Cc: GREG GREEN PE, ROBERT CAMPBELL & ASSOC.

**DHV'S ARE NOT REQUIRED FOR SIDE ROADS LESS THAN 1000 AADT.**

**NOTE:** FOR BRIDGE REPLACEMENT PROJECTS, ADLs ARE NOT REQUIRED FOR ADT's OF 1000 OR LESS AND PERCENTAGE OF TRUCKS OF 7% OR LESS.

SEE ATTACHMENTS FOR TURNING MOVEMENTS AND/OR OTHER DETAILS.

(REV. 6/12/24)

**TENNESSEE DEPARTMENT OF TRANSPORTATION  
PLANNING DIVISION**

PROJECT NO.: STP-170(13) : 01024-0221-14 ROUTE NO.: S.R. 170  
 COUNTY: ANDERSON CITY:  
 PROJECT DESCRIPTION: FROM S.R. 62 TO WEST OF MELTON LAKE ROAD.

**FAP Urban**

Pavement Structural Design

Calculation of Equivalent Daily 18 Kip Single Axle Loads

Type Vehicle	ADT (No. Counted)	Flexible		Rigid	
		18-kip Factor	ADL	18-kip Factor	ADL
Pass. cars and motorcycles (1-2)	14,405	0.001	14	0.001	14
Pick-up, Panel, Van (3)	6,694	0.004	27	0.004	27
Sing. Unit	Buses (4)	0.300	5	0.300	5
	2-axle, 6-tire (5)	0.260	81	0.260	81
	3-axle or more (6-7)	1.000	215	1.500	323
Comb.	4-axle (8)	0.640	80	0.800	100
	5-axle or more (9-13)	1.200	532	1.900	842
<b>Totals (2039 AADT)</b>	22,210		954		1,391

Suggested Percentages of Trucks in Design Lane

5,000 or less ADT	95%
5,000 - 10,000 ADT	90%
10,000 - 15,000 ADT	85%
15,000 - 20,000 ADT	80%
20,000 - 30,000 ADT	75%
30,000 - 40,000 ADT	70%
40,000 Plus	60%

No. of Lanes: 5

% Trucks in Design Lane: 75%

ADL in Design Lane:

FLEX:	0.5	X	0.75	X	953.7	=	358
RIGID:	0.5	X	0.75	X	1391.3	=	522

ADL Calculations By: TONY ARMSTRONG

Date: 11/1/2024

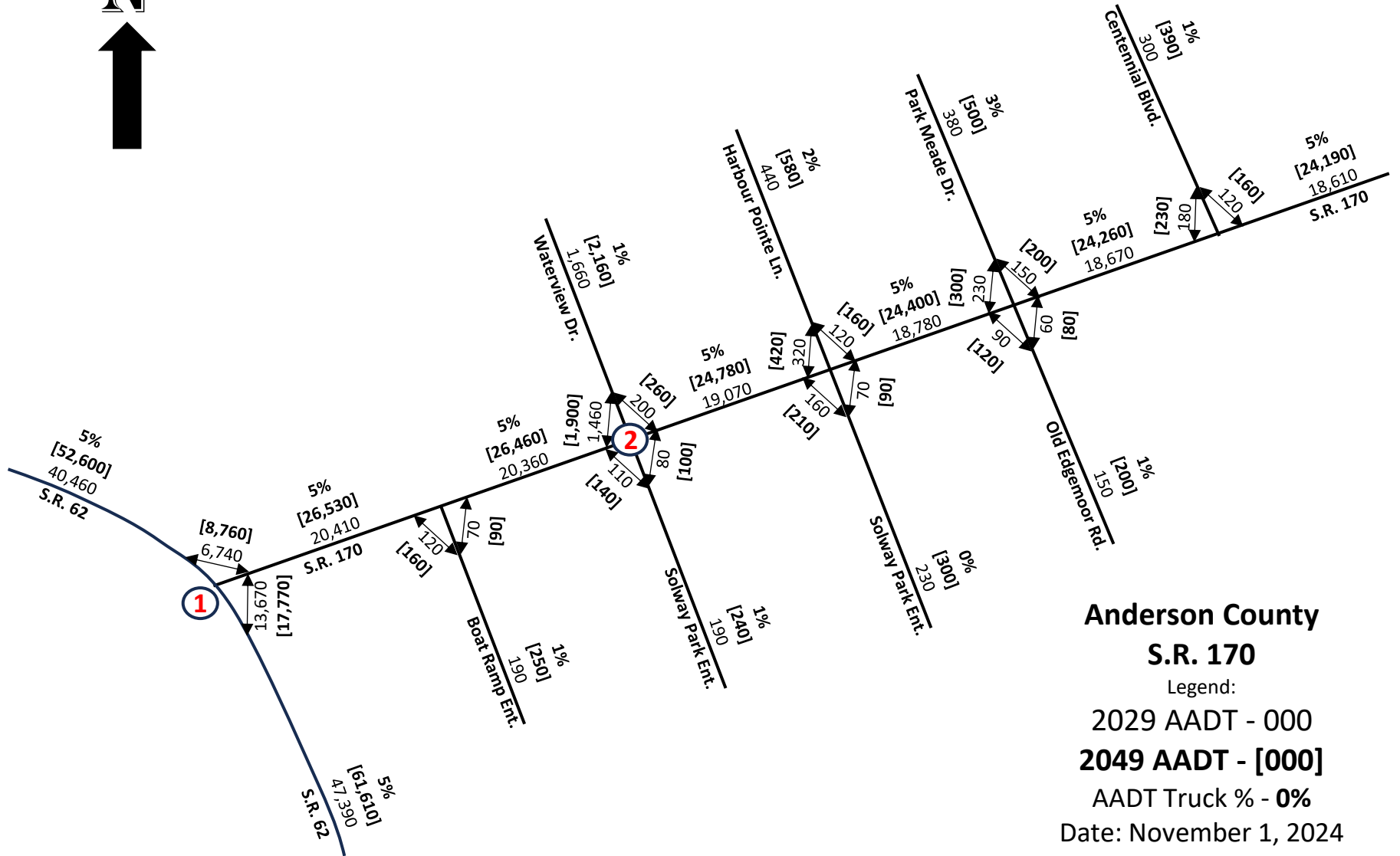
Reviewed By: Randy Boguskie

Date: 12/13/2024

[REV. 6/12/24]



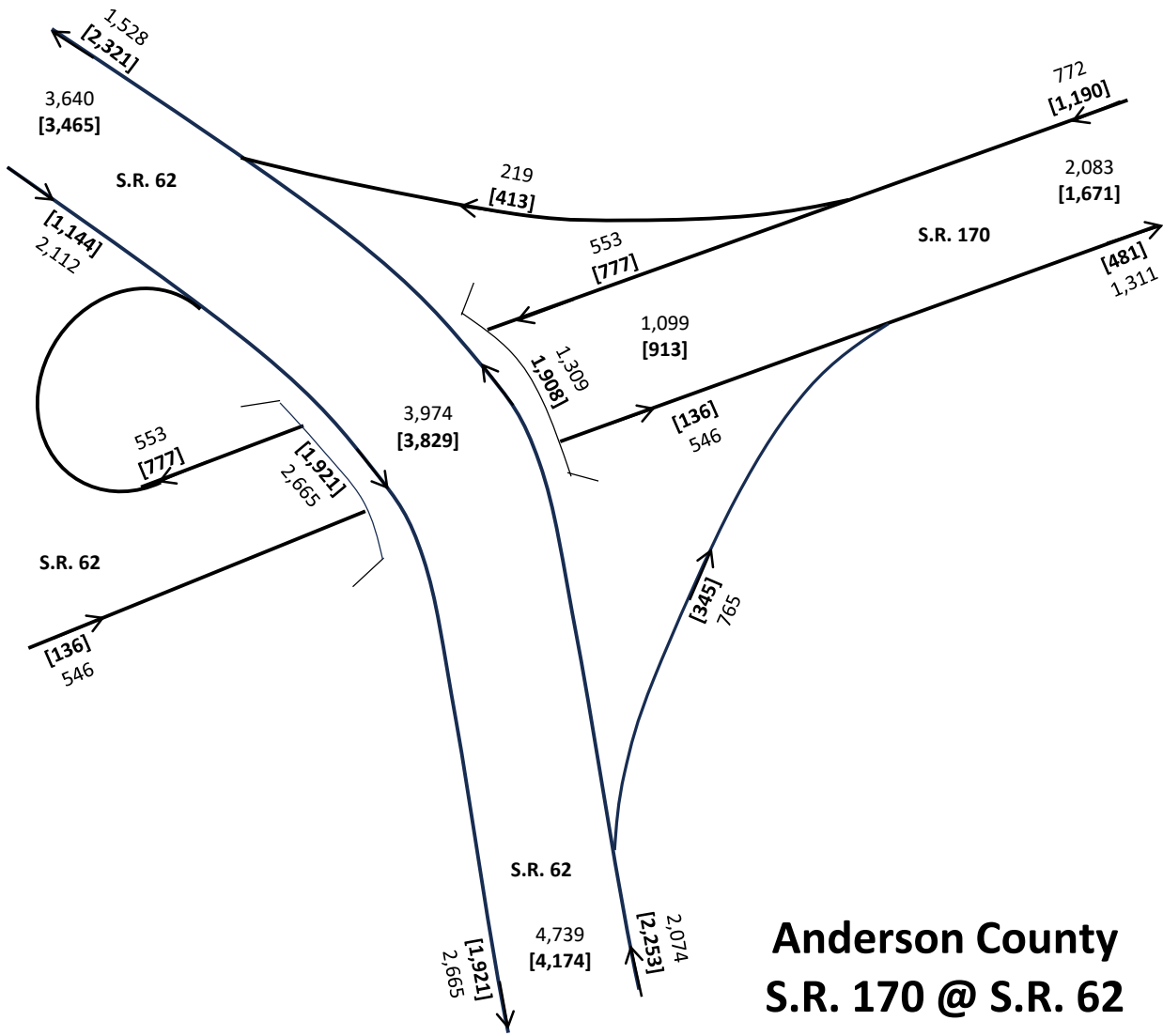
**AADT**



TA

2029 DHV

1



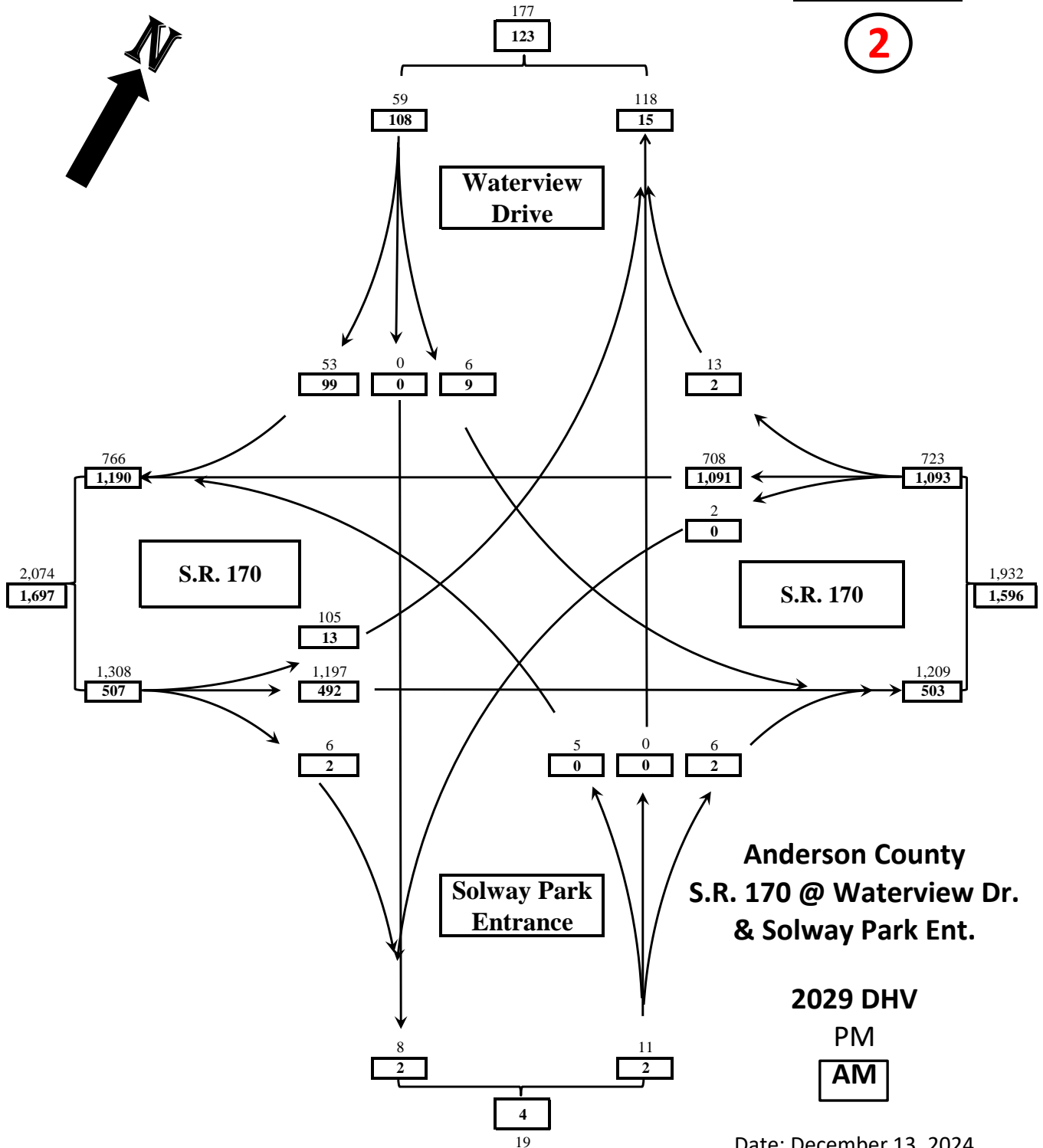
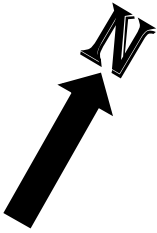
### Anderson County S.R. 170 @ S.R. 62

2029 DHV  
PM  
[AM]

Date: December 13, 2024  
TA

2029 DHV

2



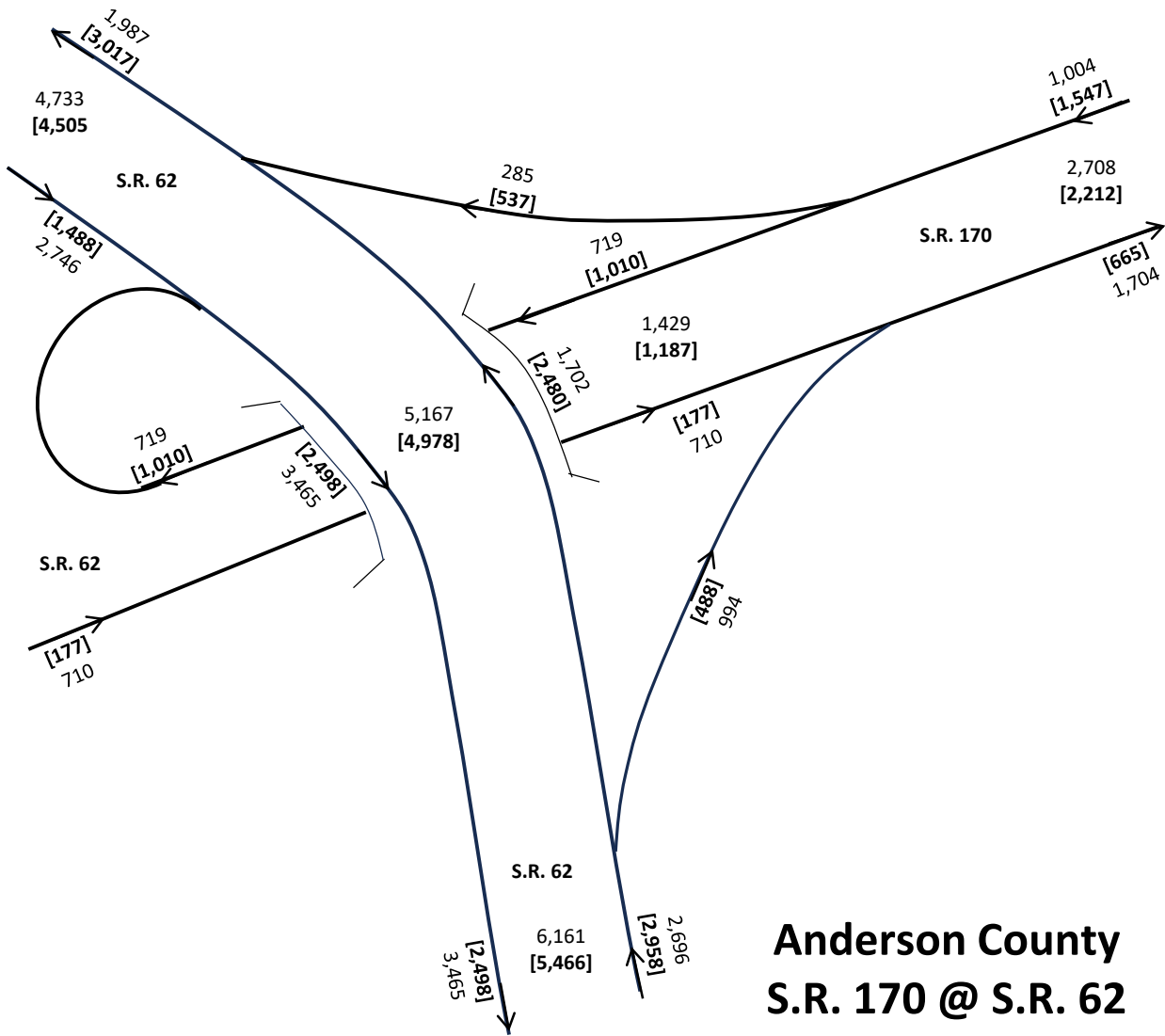
Anderson County  
S.R. 170 @ Waterview Dr.  
& Solway Park Ent.

2029 DHV  
PM  
AM

Date: December 13, 2024  
TA

2049 DHV

1



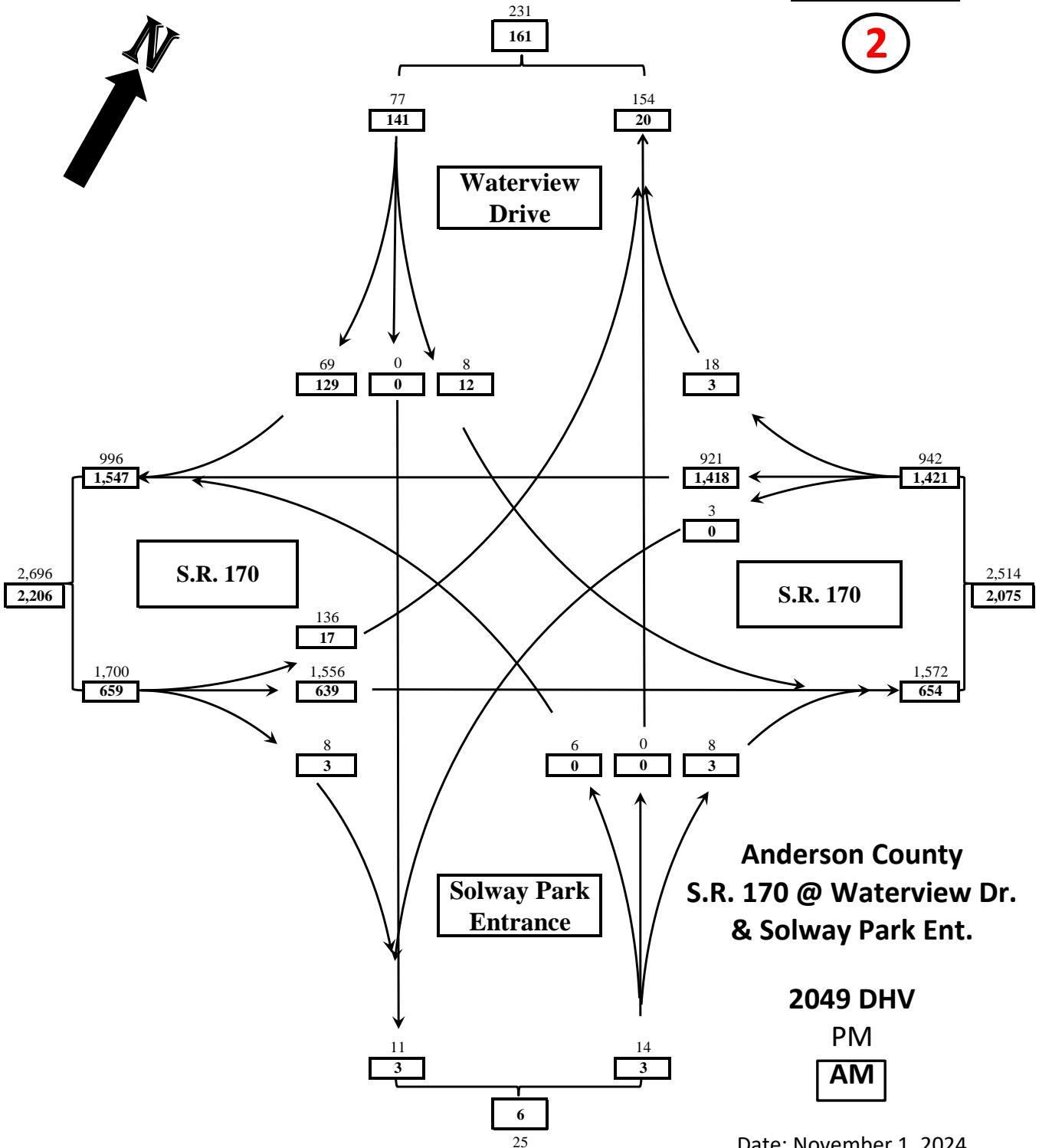
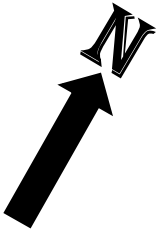
### Anderson County S.R. 170 @ S.R. 62

2049 DHV  
PM  
[AM]

Date: November 1, 2024  
TA

2049 DHV

2



Anderson County  
S.R. 170 @ Waterview Dr.  
& Solway Park Ent.

2049 DHV  
PM  
AM

Date: November 1, 2024  
TA

<b>Table 1</b>					
<b>Year 2029 Capacity Analysis Summary - SR-170 from SR-62 to near Melton Lake Drive</b>					
<b>Intersection</b>	<b>Movement / Approach</b>	<b>AM Peak (LOS / Delay (sec))</b>	<b>AM Peak (LOS / Delay (sec))</b>	<b>PM Peak (LOS / Delay (sec))</b>	<b>PM Peak (LOS / Delay (sec))</b>
		<b>No Build</b>	<b>Build</b>	<b>No Build</b>	<b>Build</b>
SR 170 (Edgemoor Road) at Waterview Drive and Solway Park Entrance	EB	-	A 6.7	-	B 12.6
	WB	-	B 10.5	-	B 15.1
	NB	B 11.6	A 0.0	F 133.8	A 0.2
	SB	E 36.4	A 4.5	E 35.7	A 4.1
	Overall	-	A 9.0	-	B 13.2

<b>Table 2</b>					
<b>Year 2049 Capacity Analysis Summary - SR-170 from SR-62 to near Melton Lake Drive</b>					
<b>Intersection</b>	<b>Movement / Approach</b>	<b>AM Peak (LOS / Delay (sec))</b>	<b>AM Peak (LOS / Delay (sec))</b>	<b>PM Peak (LOS / Delay (sec))</b>	<b>PM Peak (LOS / Delay (sec))</b>
		<b>No Build</b>	<b>Build</b>	<b>No Build</b>	<b>Build</b>
SR 170 (Edgemoor Road) at Waterview Drive and Solway Park Entrance	EB	-	A 8.1	-	B 16.0
	WB	-	B 15.4	-	B 17.7
	NB	B 13.2	A 0.0	F 878.1	A 0.3
	SB	F 138.6	C 20.8	F 158.2	A 6.2
	Overall	-	B 13.9	-	B 16.2

<b>Project:</b>	SR-170				
<b>PIN:</b>	124121.01				
<b>Project Number:</b>	01024-0221-14				
<b>County:</b>	Anderson				
<b>Date:</b>	04/22/25				
<b>No Build Traffic Projections</b>					
<b>Road</b>	<b>Year 2014 AADT</b>	<b>Existing AADT (Year 2024)</b>	<b>Historical Growth Rate</b>	<b>Year 2049 AADT</b>	<b>Percent Trucks</b>
SR-170	14,750	17,394	1.66%	26,267	3.00%

## Chasity L. Stinson

---

**From:** Marlena Gore  
**Sent:** Thursday, May 8, 2025 10:23 AM  
**To:** Chasity L. Stinson; Kyle Kirschenmann; Ryan Cleveland  
**Cc:** John Sherk; Bryan Bartnik  
**Subject:** Traffic Analysis - PIN: 124121.01 & .02 | Anderson County | SR 170  
**Attachments:** SR 170 LOS and Delay Reports\_Melton Lake to SR 9\_PM2.5 Hotspot Analysis.pdf; SR 170 LOS and Delay Summary Table\_Melton Lake to SR 9\_PM2.5 Hotspot Analysis.pdf; 124121.01 SR 170 LOS and Delay Reports (No LTs).pdf; 124121.01 SR 170 LOS and Delay Reports.pdf; 124121.01 SR 170 LOS and Delay Summary Table.pdf; 124121.01 SR 170 LOS and Delay Reports (No LTs).pdf

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

All,

Good morning.

Attached are the traffic analysis reports that have been reviewed and verified for both sections of the SR 170 project.

Please note - The issue with the No Build scenarios is with left-turning traffic from the side street. The model calculates as though that traffic will turn left and has no other option. In reality, we know that if someone was waiting several minutes to turn left, either they would get impatient and make a mistake or decide to turn right and either find a new path to their destination or make a u-turn at a side street. As a result, a scenario was analyzed where the side street left turns are converted into right turns for the No Build condition. This is included in file 124121.01 SR 170 LOS and Delay Reports (No LTs). This increased some of the delay, but greatly reduced the larger delays shown in the PM scenarios. These results are shown in Tables 3 and 4.

Let us know if you have any questions, comments, or concerns on the data provided.

Thank you,



*Marléna Gore, CPM*

Project Manager  
TDOT/Region One Project Management  
7345 Region Ln.  
Knoxville, TN 37914

## Chasity L. Stinson

---

**From:** Jarvis, Simone <Jarvis.Simone@epa.gov>  
**Sent:** Wednesday, June 4, 2025 9:57 AM  
**To:** Chasity L. Stinson; Amy Brooks - Knox Planning ; Febres, Andres; Chris McPhilamy; Craig Luebke; Myers, Dianna; Elizabeth Orr; Jane Spann; Jim Renfro; Ortiz Borrero, Josue; Justin Mayer; Walther, Katherine; Sheckler, Kelly A.; Knox County Air Quality; Benjamin, Lynorae; Marc Corrigan; Mike Conger; Mohammad Molla; Rebecca Larocque; Rich DesGroseiliers; Monteith, Richard; Gerster, Sarah; Teresa Cantrell; Troy J. Ebbert  
**Subject:** [EXTERNAL] RE: Project-Level Transportation Conformity, Knoxville PM2.5 Non-Exempt Project Lists, 05/22/2025

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

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Hi Chasity,

EPA concurs that these two widening projects are not projects of air quality concern.

Thank you,  
Simone Jarvis

US EPA Region 4 | Air & Radiation Division  
Air Regulatory Management Section  
Phone: 404-562-8393  
E-mail: [jarvis.simone@epa.gov](mailto:jarvis.simone@epa.gov)

---

**From:** Chasity L. Stinson <Chasity.L.Stinson@tn.gov>  
**Sent:** Thursday, May 22, 2025 10:29 AM  
**To:** Amy Brooks - Knox Planning <amy.brooks@knoxplanning.org>; Febres, Andres <febres-martinez.andres@epa.gov>; Chris McPhilamy <Chris.McPhilamy@tn.gov>; Craig Luebke <craig.luebke@knoxplanning.org>; Myers, Dianna <Myers.Dianna@epa.gov>; Elizabeth Orr <Elizabeth.Orr@dot.gov>; Jane Spann <Spann.Jane@epamail.epa.gov>; Jim Renfro <jim\_renfro@nps.gov>; Ortiz Borrero, Josue <OrtizBorrero.Josue@epa.gov>; Justin Mayer <justin.mayer@knoxcounty.org>; Walther, Katherine <Walther.Katherine@epa.gov>; Sheckler, Kelly A. <Sheckler.Kelly@epa.gov>; Knox County Air Quality <AirQuality@knoxcounty.org>; Benjamin, Lynorae <benjamin.lynorae@epa.gov>; marc.corrigan@tn.gov; Mike Conger <mike.conger@knoxtpo.org>; Mohammad Molla <Mohammad.Molla@tn.gov>; Rebecca Larocque <Rebecca.Larocque@knoxcounty.org>; Rich DesGroseiliers <richd@mymorristown.com>; Monteith, Richard <Monteith.Richard@epa.gov>; Gerster, Sarah <Gerster.Sarah@epa.gov>; Jarvis, Simone <Jarvis.Simone@epa.gov>; Teresa Cantrell <teresa\_cantrell@nps.gov>; Troy J. Ebbert <Troy.J.Ebbert@tn.gov>  
**Subject:** Project-Level Transportation Conformity, Knoxville PM2.5 Non-Exempt Project Lists, 05/22/2025

**Caution:** This email originated from outside EPA, please exercise additional caution when deciding whether to open attachments or click on provided links.

Hello Knoxville Area IAC,

TDOT recommends that the following non-exempt projects be classified as NOT A PROJECT OF AIR QUALITY CONCERN. Please see the attached nonexempt project list and PM2.5 Hot-Spot Analyses.

County	PIN	Description
Anderson	124121.01	Widening
Anderson	124121.02	Widening

Additional details are provided in the attached spreadsheet. TDOT requests your concurrence with our recommendation.

Please respond no later than close of business (4:30 central time) on **JUNE 5th**. If TDOT does not receive a response to the contrary, then TDOT will assume that you concur.

Thank you,



**Chasity Stinson** | TDOT Senior Technical Specialist  
Tennessee Department of Transportation (TDOT) | Environmental Division  
Technical Studies Office, Hazardous Materials/Air and Noise Section  
James K. Polk Building, 9th Floor  
505 Deadrick St, Suite 900, Nashville, TN 37243  
Phone: 615-532-9948  
Email: [chasity.l.stinson@tn.gov](mailto:chasity.l.stinson@tn.gov)

## Chasity L. Stinson

---

**From:** Marc Corrigan  
**Sent:** Friday, May 23, 2025 11:21 AM  
**To:** Chasity L. Stinson; Amy Brooks - Knox Planning ; Andres Febres; Chris McPhilamy; Craig Luebke; Dianna Myers; Elizabeth Orr; Jane Spann; Jim Renfro; Josue Ortiz; Justin Mayer; Katherine Walther; Kelly Sheckler; Knox County Air Quality; Lynorae Benjamin; Mike Conger; Mohammad Molla; Rebecca Larocque; Rich DesGroseillers; Richard Monteith; Sarah Larocca; Simone Jarvis; Teresa Cantrell; Troy J. Ebbert  
**Cc:** Michelle Oakes  
**Subject:** RE: Project-Level Transportation Conformity, Knoxville PM2.5 Non-Exempt Project Lists, 05/22/2025  
**Attachments:** Knoxville Area PM2.5 Nonexempt Project List 05-22-2025.xlsx; 124121.01, TDOT PM2.5 Hotspot Analysis May 2025.pdf; 124121.02, TDOT PM2.5 Hotspot Analysis May 2025.pdf

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Hello Chasity,

TDEC APC agrees that these two projects are not projects of air quality concern.

Marc

---

**From:** Chasity L. Stinson <Chasity.L.Stinson@tn.gov>  
**Sent:** Thursday, May 22, 2025 9:29 AM  
**To:** Amy Brooks - Knox Planning <amy.brooks@knoxplanning.org>; Andres Febres <febres-martinez.andres@epa.gov>; Chris McPhilamy <Chris.McPhilamy@tn.gov>; Craig Luebke <craig.luebke@knoxplanning.org>; Dianna Myers <Myers.Dianna@epa.gov>; Elizabeth Orr <Elizabeth.Orr@dot.gov>; Jane Spann <Spann.Jane@epamail.epa.gov>; Jim Renfro <jim\_renfro@nps.gov>; Josue Ortiz <OrtizBorrero.Josue@epa.gov>; Justin Mayer <Justin.Mayer@knoxcounty.org>; Katherine Walther <Walther.Katherine@epa.gov>; Kelly Sheckler <Sheckler.Kelly@epa.gov>; Knox County Air Quality <AirQuality@knoxcounty.org>; Lynorae Benjamin <benjamin.lynorae@epamail.epa.gov>; Marc Corrigan <Marc.Corrigan@tn.gov>; Mike Conger <mike.conger@knoxtpo.org>; Mohammad Molla <Mohammad.Molla@tn.gov>; Rebecca Larocque <rebecca.larocque@knoxcounty.org>; Rich DesGroseillers <richd@mymorristown.com>; Richard Monteith <Monteith.Richard@epa.gov>; Sarah Larocca <Larocca.Sarah@epa.gov>; Simone Jarvis <Jarvis.Simone@epa.gov>; Teresa Cantrell <teresa\_cantrell@nps.gov>; Troy J. Ebbert <Troy.J.Ebbert@tn.gov>  
**Subject:** Project-Level Transportation Conformity, Knoxville PM2.5 Non-Exempt Project Lists, 05/22/2025

Hello Knoxville Area IAC,

TDOT recommends that the following non-exempt projects be classified as NOT A PROJECT OF AIR QUALITY CONCERN. Please see the attached nonexempt project list and PM2.5 Hot-Spot Analyses.

County	PIN	Description
Anderson	124121.01	Widening

Anderson	124121.02	Widening
----------	-----------	----------

Additional details are provided in the attached spreadsheet. TDOT requests your concurrence with our recommendation.

Please respond no later than close of business (4:30 central time) on **JUNE 5th**. If TDOT does not receive a response to the contrary, then TDOT will assume that you concur.

Thank you,



**Chasity Stinson** | TDOT Senior Technical Specialist  
Tennessee Department of Transportation (TDOT) | Environmental Division  
Technical Studies Office, Hazardous Materials/Air and Noise Section  
James K. Polk Building, 9th Floor  
505 Deadrick St, Suite 900, Nashville, TN 37243  
Phone: 615-532-9948  
Email: [chasity.l.stinson@tn.gov](mailto:chasity.l.stinson@tn.gov)

## Chasity L. Stinson

---

**From:** Justin Mayer <Justin.Mayer@knoxcounty.org>  
**Sent:** Tuesday, May 27, 2025 8:11 AM  
**To:** Chasity L. Stinson  
**Subject:** RE: [External]Project-Level Transportation Conformity, Knoxville PM2.5 Non-Exempt Project Lists, 05/22/2025

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

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Chasity,

Knox County AQM concurs with TDOT that the listed projects are not a project of air quality concern.

### Justin Mayer

*Division Director of Air Quality Management*

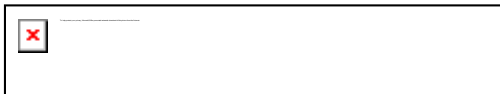
Health Department

Office: 865-215-5913 | Cell: 865-755-3695

140 Dameron Avenue

Knoxville, TN 37917

[Justin.Mayer@knoxcounty.org](mailto:Justin.Mayer@knoxcounty.org)



---

**From:** Chasity L. Stinson <Chasity.L.Stinson@tn.gov>  
**Sent:** Thursday, May 22, 2025 10:29 AM  
**To:** Amy Brooks - Knox Planning <amy.brooks@knoxplanning.org>; Andres Febres <febres-martinez.andres@epa.gov>; Chris McPhilamy <Chris.McPhilamy@tn.gov>; Craig Luebke <craig.luebke@knoxplanning.org>; Dianna Myers <Myers.Dianna@epa.gov>; Elizabeth Orr <Elizabeth.Orr@dot.gov>; Jane Spann <Spann.Jane@epamail.epa.gov>; Jim Renfro <jim\_renfro@nps.gov>; Josue Ortiz <OrtizBorrero.Josue@epa.gov>; Justin Mayer <Justin.Mayer@knoxcounty.org>; Katherine Walther <Walther.Katherine@epa.gov>; Kelly Sheckler <Sheckler.Kelly@epa.gov>; AirQuality <Airquality@knoxcounty.org>; Lynorae Benjamin <benjamin.lynorae@epamail.epa.gov>; Marc Corrigan <Marc.Corrigan@tn.gov>; Mike Conger <mike.conger@knoxtpo.org>; Mohammad Molla <Mohammad.Molla@tn.gov>; Rebecca Larocque <Rebecca.Larocque@knoxcounty.org>; Rich DesGroseillers <richd@mymorristown.com>; Richard Monteith <Monteith.Richard@epa.gov>; Sarah Larocca <Larocca.Sarah@epa.gov>; Simone Jarvis <Jarvis.Simone@epa.gov>; Teresa Cantrell <teresa\_cantrell@nps.gov>; Troy J. Ebbert <Troy.J.Ebbert@tn.gov>  
**Subject:** [External]Project-Level Transportation Conformity, Knoxville PM2.5 Non-Exempt Project Lists, 05/22/2025

Hello Knoxville Area IAC,

TDOT recommends that the following non-exempt projects be classified as NOT A PROJECT OF AIR QUALITY CONCERN. Please see the attached nonexempt project list and PM2.5 Hot-Spot Analyses.

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Anderson	124121.02	Widening

Additional details are provided in the attached spreadsheet. TDOT requests your concurrence with our recommendation.

Please respond no later than close of business (4:30 central time) on **JUNE 5th**. If TDOT does not receive a response to the contrary, then TDOT will assume that you concur.

Thank you,



**Chasity Stinson** | TDOT Senior Technical Specialist  
Tennessee Department of Transportation (TDOT) | Environmental Division  
Technical Studies Office, Hazardous Materials/Air and Noise Section  
James K. Polk Building, 9th Floor  
505 Deadrick St, Suite 900, Nashville, TN 37243  
Phone: 615-532-9948  
Email: [chasity.l.stinson@tn.gov](mailto:chasity.l.stinson@tn.gov)

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**Appendix D**  
**MSATs Background Information**

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## **MOBILE SOURCE AIR TOXICS (MSAT)**

### *Background*

Controlling air toxic emissions became a national priority with the passage of the Clean Air Act Amendments (CAA) of 1990, whereby Congress mandated that the U.S. Environmental Protection Agency (EPA) regulate 188 air toxics, also known as hazardous air pollutants. The EPA assessed this expansive list in its rule on the Control of Hazardous Air Pollutants from Mobile Sources (Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007), and identified a group of 93 compounds emitted from mobile sources that are part of EPA's Integrated Risk Information System (IRIS). In addition, EPA identified nine compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers or contributors and non-cancer hazard contributors from the 2011 National Air Toxics Assessment (NATA). These are *1,3-butadiene, acetaldehyde, acrolein, benzene, diesel particulate matter (diesel PM), ethylbenzene, formaldehyde, naphthalene, and polycyclic organic matter*. While FHWA considers these the priority mobile source air toxics, the list is subject to change and may be adjusted in consideration of future EPA rules.

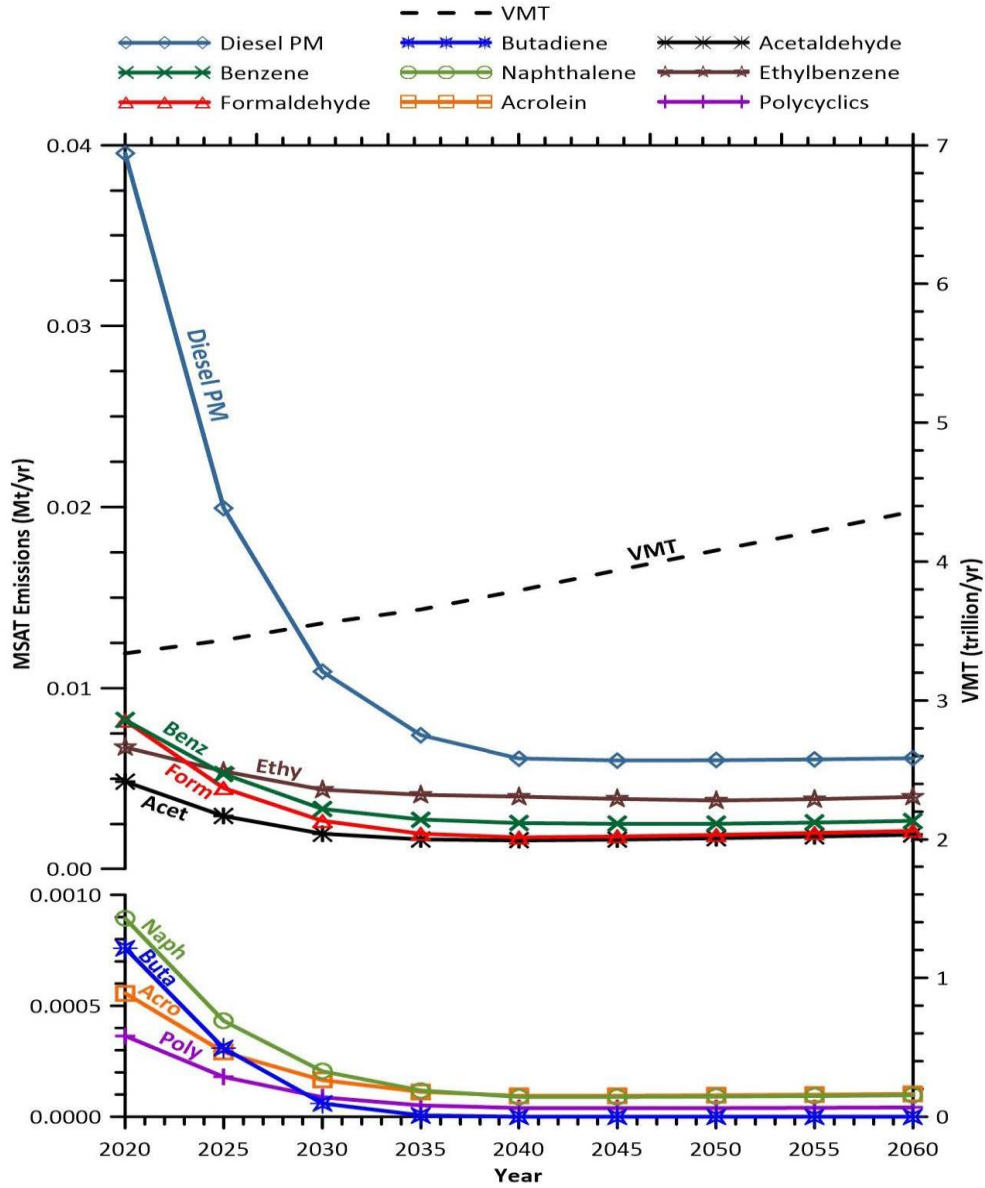
### *Motor Vehicle Emissions Simulator (MOVES)*

According to EPA, MOVES3 is a major revision to MOVES2014 and improves upon it in many respects. MOVES3 includes new data, new emissions standards, and new functional improvements and features. It incorporates substantial new data for emissions, fleet, and activity developed since the release of MOVES2014. These new emissions data are for light- and heavy duty vehicles, exhaust and evaporative emissions, and fuel effects. MOVES3 also adds updated vehicle sales, population, age distribution, and vehicle miles travelled (VMT) data. In the November 2020 EPA issued MOVES3 Mobile Source Emissions Model Questions and Answers. EPA states that for on-road emissions, MOVES3 updated heavy-duty (HD) diesel and compressed natural gas (CNG) emission running rates and updated HD gasoline emission rates. They updated light-duty (LD) emission rates for hydrocarbon (HC), carbon monoxide (CO) and nitrogen oxide (NOx) and updated light-duty (LD) particulate matter rates, incorporating new data on Gasoline Direct Injection (GDI) vehicles.

Using EPA's MOVES3 model, as shown below and in Figure 1 of the FHWA Interim Guidance, FHWA estimates that even if VMT increases by 31 percent from 2020 to 2060 as forecast, a combined reduction of 76 percent in the total annual emissions for the priority MSAT is projected for the same time period.

---

**FHWA PROJECTED NATIONAL MSAT EMISSION TRENDS 2020 – 2060  
FOR VEHICLES OPERATING ON ROADWAYS**



Note: Trends for specific locations may be different, depending on locally derived information representing vehicle-miles travelled, vehicle speeds, vehicle mix, fuels, emission control programs, meteorology, and other factors.  
 Source: EPA MOVES3 model runs conducted by FHWA, March 2021.

Diesel PM is the dominant component of MSAT emissions, making up 36 to 56 percent of all priority MSAT pollutants by mass, depending on calendar year. Users of MOVES3 will notice some differences in emissions compared with MOVES2014. MOVES3 is based on updated data on some emissions and pollutant processes compared to MOVES2014, and also reflects the latest Federal emissions standards in place at the time of its release. In addition, MOVES3 emissions forecasts are based on slightly higher VMT projections than MOVES2014, consistent with nationwide VMT trends.

### *MSAT Research*

Air toxics analysis is a continuing area of research. While much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. In particular, the tools and techniques for assessing project-specific health outcomes as a result of lifetime MSAT exposure remain limited. These limitations impede the ability to evaluate how potential public health risks posed by MSAT exposure should be factored into project-level decision-making within the context of NEPA.

Nonetheless, air toxics concerns continue to arise on highway projects during the NEPA process. Even as the science emerges, the public and other agencies expect FHWA to address MSAT impacts in its environmental documents. The FHWA, EPA, the Health Effects Institute, and others have funded and conducted research studies to try to more clearly define potential risks from MSAT emissions associated with highway projects. The FHWA will continue to monitor the developing research in this field.

### *NEPA Context*

The NEPA requires, to the fullest extent possible, that the policies, regulations, and laws of the Federal Government be interpreted and administered per its environmental protection goals, and that Federal agencies use an interdisciplinary approach in planning and decision-making for any action that adversely impacts the environment (42 U.S.C. 4332). In addition to evaluating the potential environmental effects, FHWA must also take into account the need for safe and efficient transportation in reaching a decision that is in the best overall public interest (23 U.S.C. 109(h)). The FHWA policies and procedures for implementing NEPA are contained in regulation at 23 CFR Part 771.

### *Incomplete or Unavailable Information for Project-Specific MSAT Health Impacts Analysis*

In FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in mobile source air toxic (MSAT) emissions

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associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

The Environmental Protection Agency (EPA) is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the Clean Air Act and its amendments and have specific statutory obligations for hazardous air pollutants and MSAT. The EPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. They maintain the Integrated Risk Information System (IRIS), which is “a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects” (EPA, <https://www.epa.gov/iris/>). Each report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). Several HEI studies are summarized in Appendix D of FHWA's Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents. Among the adverse health effects linked to MSAT compounds at high exposures are: cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations (HEI Special Report 16, <https://www.healtheffects.org/publication/mobile-source-air-toxics-critical-review-literature-exposure-and-health-effects>) or in the future as vehicle emissions substantially decrease.

The methodologies for forecasting health impacts include emissions modeling; dispersion modeling; exposure modeling; and then a final determination of health impacts – each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70 year) assessments, particularly because unsupported assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame since such information is unavailable.

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It is particularly difficult to reliably forecast 70-year lifetime MSAT concentrations and exposure near roadways to determine the portion of time that people are exposed at a specific location and to establish the extent attributable to a proposed action, especially given that some of the information needed is unavailable. There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI (Special Report 16, <https://www.healtheffects.org/publication/mobile-source-air-toxics-Critical-review-literature-exposure-and-health-effects>). As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The EPA states that concerning diesel engine exhaust, “[t]he absence of adequate data to develop a sufficiently confident dose-response relationship from the epidemiologic studies has prevented the estimation of inhalation carcinogenic risk (<https://www.epa.gov/iris>).”

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the Clean Air Act to determine whether more stringent controls are required to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires EPA to determine an “acceptable” level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld EPA’s approach to addressing risk in its two-step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than deemed acceptable ([https://www.cadc.uscourts.gov/internet/opinions.nsf/284E23FFE079CD59852578000050C9DA/\\$file/07-1053-1120274.pdf](https://www.cadc.uscourts.gov/internet/opinions.nsf/284E23FFE079CD59852578000050C9DA/$file/07-1053-1120274.pdf)).

Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision-makers, who would need to weigh this information against project benefits, such as reducing traffic congestion, accident rates, and

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fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

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# **Air Quality Technical Report**

## **State Route 170 near Melton Lake Drive to State Route 9 (US 25W)**

### **Anderson County, Tennessee**

**PIN Number: 124121.02**

Submitted to:



Prepared by:

Stantec Consulting Services, Inc.



June 2025

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## Executive Summary

The air quality evaluation was conducted per TDOT's *Tennessee Environmental Procedures Manual* (TDOT, 2011).

The purpose of this analysis is to address the transportation conformity requirements for the project, the potential Mobile Source Air Toxics (MSATs) effects, and construction air quality.

The evaluation concluded that the PM<sub>2.5</sub> Hot-Spot analysis illustrates compliance with the National Ambient Air Quality Standards (NAAQS). Additionally, travel speeds for the Build Alternative are expected to be higher than for the No-Build Alternative which will reduce emissions by increasing speeds; TDOT's PM<sub>2.5</sub> hot spot determination is that this is not a project of air quality concern, as determined in accordance with 40 CFR §93.123(b)(1), and that this project is in conformity with the SIP.

### 1.0 Introduction

This report summarizes the second portion of results of an analysis of the potential air quality effects of the proposed SR 170 from State Route SR 62 (Oak Ridge Highway) and SR 9 and is located in the City of Oak Ridge, Tennessee. Due to the overall corridor length, improvements to SR 170 have been divided into two smaller projects: From near the interchange with SR 62 to near Melton Lake Drive and from near Melton Lake Drive to SR 9 (US 25W). The second project will start near Melton Lake Drive and span to SR 9 (US 25W), a distance of approximately 3.63 miles. The extension will provide four 12-foot lanes (2 lanes in each direction) with either a raised median or a center turn lane, along with replacing the bridge over the Clinch River. Several intersections along the corridor will also see improvements, including realignment, reconfiguration, and addition of turning lanes. Current plans include providing a sidewalk and shared use path for non-motorized users. The planned improvements are designed to improve safety, mobility, and overall efficiency of the corridor.

This report provides the details of the second section of the project, PIN 124121.02 which spans from near Melton Lake Drive to SR 9 (US 25W, Clinton Highway). The project area is shown in Figure 1.

## 2.0 Air Quality Evaluation

The air quality evaluation was conducted per TDOT's *Tennessee Environmental Procedures Manual* (TDOT 2011).

The purposes of this analysis are to address the transportation conformity requirements for the project, PM<sub>2.5</sub> analysis, the potential Mobile Source Air Toxics (MSAT) effects and construction air quality.

### 2.1 National Ambient Air Quality Standards (NAAQS)

The United States Environmental Protection Agency (EPA) has established allowable concentrations and exposure limits called the National Ambient Air Quality Standards (NAAQS) for various "criteria" pollutants. These pollutants include carbon monoxide (CO), nitrogen oxides (NO<sub>x</sub>), ozone (O<sub>3</sub>), particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>), sulfur oxides (SO<sub>x</sub>), and lead (Pb).

Per the Clean Air Act Amendments of 1990 (CAA 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. The project is in the Knoxville, TN maintenance area. The project is considered marginal attainment for ozone and moderate attainment for PM<sub>2.5</sub>.

### 2.2 Transportation Conformity

Transportation conformity is a process required of Metropolitan Planning Organizations (MPOs) under the CAA of 1990. CAA requires that transportation plans, programs, and projects in nonattainment or maintenance areas that are funded or approved by the 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).

The project is located in the Knoxville, TN maintenance area. This project is included in the 2020-2023 Knoxville Regional Transportation Improvement Plan (TIP) as project 23-2017-037a and LRTP# 09-101b. The project is described in the 2023-2026 Knoxville Regional Transportation Improvement Plan (TIP) as increasing two lanes to four lanes with a median and; or a center turn lane. Additionally, the changes also include a bicycle lane, pedestrian facilities, and a new bridge over the Clinch River. The project description and

termini are consistent with the proposed project. Therefore, the project conforms to the SIP. A copy of the TIP project sheet is provided in Appendix B.

### 2.2.1 PM<sub>2.5</sub> Hot-Spot Analysis

TDOT completed a PM<sub>2.5</sub> Hot-Spot Determination for the project that concluded that the project was “not a project of air quality concern.” TDOT submitted this determination to the Knoxville Area Interagency Consultation (IAC) group on May 22, 2025. The IAC members concurred with TDOT’s determination on the following dates: EPA on June 4, 2025; TDEC on May 23, 2025; and Knox County on May 27, 2025. The PM<sub>2.5</sub> Hot-Spot Determination, IAC concurrence responses, and PM<sub>2.5</sub> clearance record are provided in Appendix C.

The PM<sub>2.5</sub> Hot-Spot Analysis implemented the EPA MOVES model, Version 5.0.0 to establish appropriate emission rates based on peak hourly volumes allocated to all links from near Melton Lake Drive to SR 9. The analysis included both AM and PM volumes. All hours assumed to be equivalent to the maximum AM (12AM-12PM) or PM (12PM-12AM) hour to ensure a level of conservatism. Eleven links were included that cover the full length of the project area. The month of April was applied as representative. Note that other months were evaluated that illustrated negligible differences in emission factors. SR 170 was modeled as an unrestricted rural road at an average speed of 50 miles per hour. The link source type distribution was applied consistent with TDOT provided data for the design year 2049. Where appropriate Anderson County default input values were applied. This includes meteorological data, fuel and age distribution.

All MOVES outputs were determined in grams per hour and converted to grams per second (g/sec) for AERMOD purposes. The latest version of AERMOD, Version 24142, was implemented. The Tennessee Department of Environmental and Conservatism (TDEC) provided representative meteorological data from the Oak Ridge airport (surface) and upper air from Nashville. TDEC also provided background concentrations from station site ID 47-105-0109, Loudon. All sources were set as RLINE. To expedite runtime, three years of meteorological data was applied. This is also consistent with the EPA PM<sub>2.5</sub> Hot-Spot guidance. Similar to the guidance, release height was set to 1.3 meters and a line width of 2 meters.

Both AM and PM emission rates were established with the higher of the two applied to the appropriate link. For example, PM<sub>2.5</sub> was set to 2.236E-04 g/sec for link #1, which was the PM rate. To ensure the AM hours were not overestimated even more so, HROFDY (hour of day) factors were applied. The AM emission rate was 1.043E-04 g/sec, which is approximately 37% of the maximum PM. Thus, the AM HROFDY factor was set to 0.37. All links and hours were

allocated accordingly based on the comparison between the AM/PM g/sec rates. Lastly, all receptors were set at 25-m spacing out to 250 meters from SR 170 and 50-m spacing out another 250 meters. As shown in Table 1 both the 24-hr and annual standards are met.

## 2.3 Mobile Source Air Toxics

On February 3, 2006, the FHWA released *“Interim Guidance on Air Toxic Analysis in NEPA Documents.”* This guidance was superseded on September 30, 2009, December 6, 2012, October 16, 2016, and most recently on January 23, 2023, by FHWA’s *“Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents.”* (FHWA 2023). The purpose of FHWA’s guidance is to advise on when and how to analyze Mobile Source Air Toxics (MSAT) in the NEPA process for highways. This guidance is interim, because MSAT science is still evolving. As science progresses, FHWA will continue to revise and update the guidance.

The qualitative analysis presented below provides a basis for identifying and comparing the potential differences among MSAT emissions, if any, from the various alternatives. The assessment is derived in part from a study conducted by the FHWA entitled *“A Methodology for Evaluating Mobile Source Air Toxic Emissions Among Transportation Project Alternatives”* (Claggett, 2006). Appendix D provides additional information regarding MSAT.

FHWA’s Interim Guidance groups projects into the following categories:

- Exempt Projects and Projects with no Meaningful Potential MSAT Effects;
- Projects with Low Potential MSAT Effects; and
- Projects with Higher Potential MSAT Effects.

FHWA’s Updated Interim Guidance provides examples of “Projects with Low Potential MSAT Effects.” These projects include minor widening projects and new interchanges, such as those that replace a signalized intersection on a surface street, or where design year traffic projections are less than 140,000 to 150,000 average annual daily traffic (AADT).

The Build Alternative includes providing four 12-foot lanes (2 lanes in each direction) with either a raised median or a center turn lane, along with replacing the bridge over the Clinch River. Several intersections along the corridor will also see improvements, including realignment, reconfiguration, and addition of turning lanes. Current plans include providing a sidewalk and shared use path for non-motorized users. The planned improvements are designed to improve safety, mobility, and overall efficiency of the corridor. The highest projected design year 2049 AADT on SR 170 from near Melton Lake Drive to SR 9 (US 25W) is 25,390 vehicles per day and substantially lower than the FHWA criterion. Therefore, the project meets the criteria for a “Project with Low Potential MSAT Effects.”

For both the Build and No-Build Alternatives, the amount of MSAT emitted would be proportional to the vehicle miles traveled, or VMT, assuming that other variables such as fleet mix are the same for each alternative. As shown, the projected VMT for the No-Build Alternative is 91,404 miles and the projected VMT for the Build Alternative is 91,404. Therefore, it is expected that the project will cause no change in overall MSAT emissions.

The project may also reduce emissions by increasing speeds; according to EPA's MOVES model, emissions of all the priority MSAT decrease as speed increases. Travel speeds for the Build Alternative are expected to be higher than for the No-Build Alternative.

In sum, reduced MSAT emissions are expected in the immediate project area under the Build Alternative in the 2049 design year, relative to the No-Build Alternative. The reductions are due to major arterial changes to SR 170 allowing traffic to move more freely and at greater speeds; thus, increasing the efficiency of the roadway while decreasing MSAT. Additionally, EPA's vehicle and fuel regulations coupled with fleet turnover, will cause substantial reductions over time that, in almost all cases, will cause regional MSAT levels to be significantly lower than today.

Substantial construction related MSAT emissions are not anticipated for this project as construction is not planned to occur over an extended building period. However, construction activity may generate temporary increases in MSAT emissions in the project area.

## 2.4 Construction Air Quality

Construction activities will generate intermittent and temporary construction-related pollutant emissions and dust.

TDOT's construction specifications will apply to this project. Construction procedures should be governed by the *Standard Specifications for Road and Bridge Construction* as issued by TDOT and as amended by the most recent applicable supplements. All construction equipment shall be maintained, repaired, and adjusted to keep it in full satisfactory condition.

Additionally, there are no air quality monitoring stations close to the project. The closest station is a ozone monitoring system off of Freels Bend Road approximately 2.05 miles southwest of the project.

### 3.0 Conclusions

The purposes of this report is to address the transportation conformity requirements for the project, the potential Mobile Source Air Toxics (MSATs) effects, and construction air quality. The PM<sub>2.5</sub> Hot-Spot analysis illustrates compliance with the NAAQS. Additionally, travel speeds for the Build Alternative are expected to be higher than for the No-Build Alternative which will reduce emissions by increasing speeds; according to EPA's MOVES model, emissions of all the priority MSAT decrease as speed increases. TDOT's PM<sub>2.5</sub> hot spot determination is that this project is not a project of air quality concern, as determined in accordance with 40 CFR §93.123(b)(1), and that this project is in conformity with the SIP. Therefore, the Clean Air Act and 40 CFR §93.116 requirements are met.

## 4.0 References

Claggett, M., et. al., "*A Methodology for Evaluating Mobile Source Air Toxic Emissions Among Transportation Project Alternatives*," Federal Highway Administration Resource Center, May 4, 2006.

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International Energy Agency (IEA), *CO<sub>2</sub> Emissions in 2023*, March 2024.

International Energy Agency (IEA), *World Energy Outlook 2021*.

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United States Energy Information Agency (EIA), *International Energy Outlook 2023*, October 2023.

United States Environmental Protection Agency (EPA), *Clarification to the 2006 Joint EPA/FHWA Transportation Conformity Guidance for Qualitative Hot-spot Analysis in PM<sub>2.5</sub> and PM<sub>10</sub> Nonattainment and Maintenance Areas*, 2009.

United States Environmental Protection Agency (EPA), *Official Release of the MOVES3 Motor Vehicle Emissions Model for SIPs and Transportation Conformity*, January 7, 2021.

United States Environmental Protection Agency (EPA), *Official Release of the MOVES5 Motor Vehicle Emissions Model for SIPs and Transportation Conformity*, December 11, 2024.

United States Environmental Protection Agency (EPA), *Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in PM<sub>2.5</sub> and PM<sub>10</sub> Nonattainment and Maintenance Areas*, October 2021.

United States Environmental Protection Agency (EPA), *Transportation Regulations*, April 2012.

## TABLES

Table 1: Design Year 2049 PM<sub>2.5</sub> Impact Concentrations from West of Melton Lake Drive to S.R. 9

Pollutant	Averaging Period	Background Concentration (µg/m <sup>3</sup> ) <sup>1</sup>	Modeled Impact (µg/m <sup>3</sup> ) <sup>2</sup>	Total Concentration (µg/m <sup>3</sup> )	NAAQS (µg/m <sup>3</sup> )	% of Standard
PM <sub>2.5</sub>	24-hr <sup>3</sup>	17	2.68	19.68	35	56.2%
	Annual <sup>3</sup>	6.5	1.89	8.39	9	93.2%

Table 2: Design Year VMT Projection on Affected Roadway Network

Design Year MSATs Information						
Alternative	Average Speed (mph)	VMT			MOVES 5.0.0 Results	
		Daily (Miles)	Annual (Miles)	Annual (Million Vehicle Miles of Travel (MMT))	Design Year CO <sub>2</sub> Emissions (kg)	Design Year CO <sub>2</sub> Emissions (MMT)
No-Build	50	91,404	33,362,460	33.36	4,225,503	0.0042
Build/Selected	50	91,404	33,362,460	33.36	4,225,503	0.0042
Changes --->	0	0	0	0.00	0	0.0000

<sup>1</sup> The background is from TDEC for the Loudon Station.

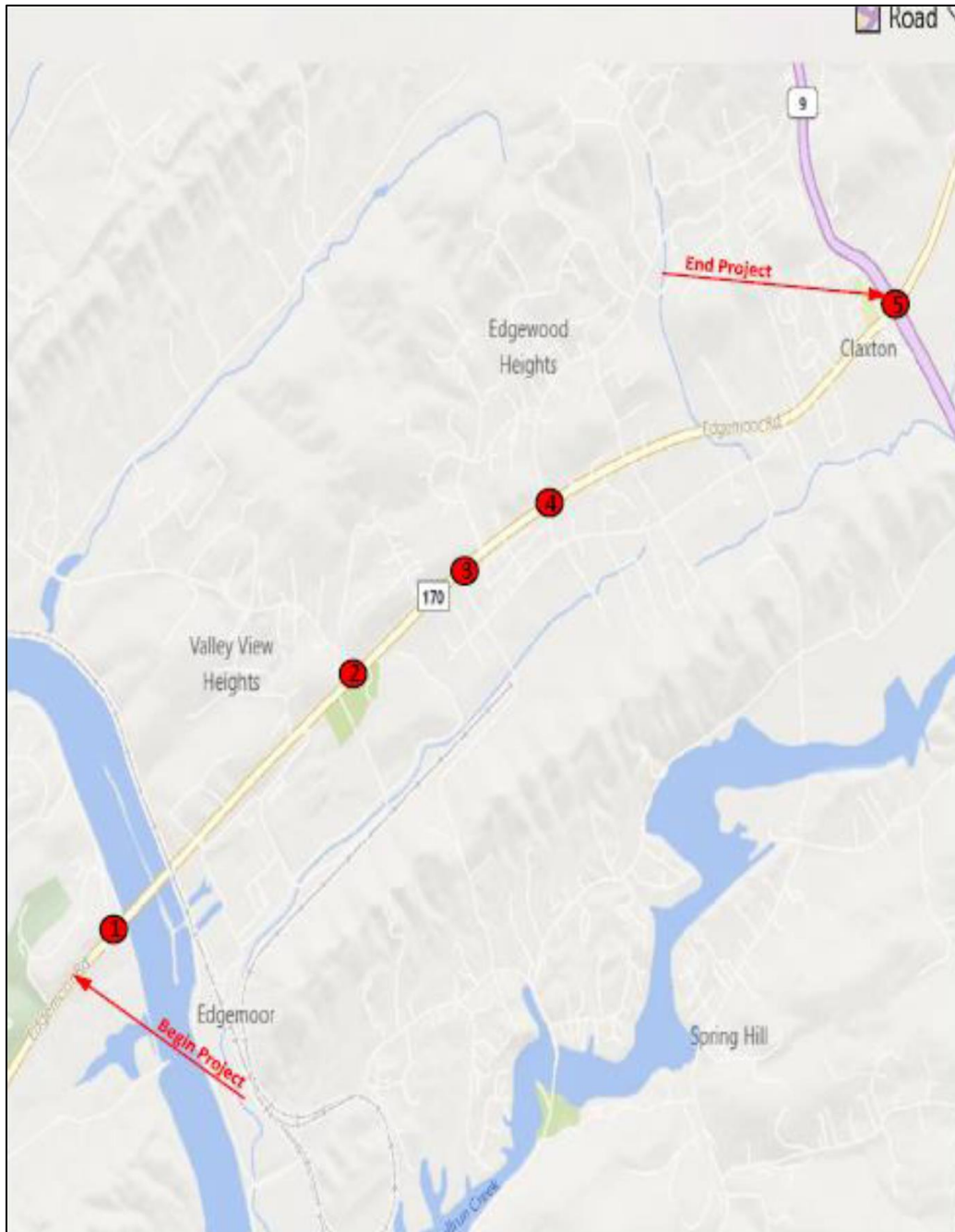
<sup>2</sup> The modeled results implemented 2019-2021 met data from Oak Ridge Airport.

<sup>3</sup> The annual standard is the average mean and the 24-hr standard is the 98<sup>th</sup> percentile.

## FIGURES



Figure 1: Second part of the project, spanning from near Melton Lake Drive to SR 9 (US 25W)



## **APPENDICES**

**Appendix A**  
**Traffic Projections**

**TENNESSEE DEPARTMENT OF TRANSPORTATION  
PLANNING DIVISION**

PROJECT NO.: STP-170(16) : 01024-0224-14 ROUTE: S.R. 170  
 COUNTY: ANDERSON CITY: CLAXTON  
 PROJECT PIN NUMBER: 124121.01  
 PROJECT DESCRIPTION: FROM WEST OF MELTON LAKE DRIVE TO S.R. 9.

[1] S.R. 170 AVERAGE TRAFFIC DATA

**DIVISION REQUESTING:**

MAINTENANCE	<input type="checkbox"/>	PAVEMENT DESIGN	<input type="checkbox"/>
ENGINEERING CONCEPTS	<input type="checkbox"/>	STRUCTURES	<input type="checkbox"/>
PROG. DEVELOPMENT & ADM.	<input type="checkbox"/>	SURVEY & ROADWAY DESIGN	<input type="checkbox"/>
PUBLIC TRANS. & AERO.	<input type="checkbox"/>	TRAFFIC SIGNAL DESIGN	<input type="checkbox"/>
		OTHER PROJECT MANAGE.	<input checked="" type="checkbox"/>

YEAR PROJECT PROGRAMMED FOR CONSTRUCTION: 2029  
 PROJECTED LETTING DATE: 2029

**TRAFFIC ASSIGNMENT:**

BASE YEAR		DESIGN YEAR					DESIGN ROADWAY % TRUCKS	DESIGN AVERAGE DAILY LOADS		
AADT	YEAR	AADT	DHV	%	YEAR	DIR.DIST.	DHV	AADT	FLEX	RIGID
19,530	2029	25,390	2,616	10	2049	55-45	3	5	361	527

REQUESTED BY: NAME JOHN SHERK DATE 10/1/24  
 DIVISION REGION I PROJECT MANAGEMENT  
 ADDRESS 7345 REGION LANE  
KNOXVILLE TN 37914

REVIEWED BY: RANDY BOGUSKIE Randy Boguskie DATE 12/13/2024  
 TRANSPORTATION MANAGER 1  
 SUITE 1000, JAMES K. POLK BUILDING

APPROVED BY: TONY ARMSTRONG Tony Armstrong DATE 12/13/2024  
 TRANSPORTATION MANAGER 2  
 SUITE 1000, JAMES K. POLK BUILDING

**COMMENTS:**

FURNISH THE 2029-2049 TRAFFIC DATA AND ADL's FOR PAVEMENT DESIGN FOR A FIVE LANE ROADWAY.

THIS TRAFFIC IS BASED ON 2023 CYCLE COUNTS, [13] 8-HOUR TURNING MOVEMENT COUNTS [OCT. 2024].

THE DESIGN YEAR TRAFFIC IS BASED ON THE AVERAGE OF GROWTH RATES FROM THE KNOXVILLE TPO COMPUTER ASSIGNMENT MODEL. AADT's, DHV's AND ADL's ARE INCLUDED.

**DHV'S ARE NOT REQUIRED FOR SIDE ROADS LESS THAN 1000 AADT.**

**NOTE:** FOR BRIDGE REPLACEMENT PROJECTS, ADLs ARE NOT REQUIRED FOR ADT's OF 1000 OR LESS AND PERCENTAGE OF TRUCKS OF 7% OR LESS.

SEE ATTACHMENTS FOR TURNING MOVEMENTS AND/OR OTHER DETAILS.

(REV. 6/12/24)

**TENNESSEE DEPARTMENT OF TRANSPORTATION  
PLANNING DIVISION**

PROJECT NO.: STP-170(16) : 01024-0224-14 ROUTE NO.: S.R. 170  
 COUNTY: ANDERSON CITY: CLAXTON  
 PROJECT DESCRIPTION: FROM WEST OF MELTON LAKE ROAD TO S.R. 9.

**FAP Urban**

Pavement Structural Design

Calculation of Equivalent Daily 18 Kip Single Axle Loads

Type Vehicle		ADT (No. Counted)	Flexible		Rigid	
			18-kip Factor	ADL	18-kip Factor	ADL
Pass. cars and motorcycles (1-2)		14,568	0.001	15	0.001	15
Pick-up, Panel, Van (3)		6,769	0.004	27	0.004	27
Sing. Unit	Buses (4)	15	0.300	5	0.300	5
	2-axle, 6-tire (5)	317	0.260	82	0.260	82
	3-axle or more (6-7)	217	1.000	217	1.500	326
Comb.	4-axle (8)	126	0.640	81	0.800	101
	5-axle or more (9-13)	448	1.200	538	1.900	851
<b>Totals (2039 AADT)</b>		<b>22,460</b>		<b>964</b>		<b>1,406</b>

Suggested Percentages of Trucks in Design Lane

5,000 or less ADT	95%
5,000 - 10,000 ADT	90%
10,000 - 15,000 ADT	85%
15,000 - 20,000 ADT	80%
20,000 - 30,000 ADT	75%
30,000 - 40,000 ADT	70%
40,000 Plus	60%

No. of Lanes: 5

% Trucks in Design Lane: 75%

ADL in Design Lane:

FLEX:	0.5	X	0.75	X	963.8	=	361
RIGID:	0.5	X	0.75	X	1406.1	=	527

ADL Calculations By: TONY ARMSTRONG

Date: 11/5/2024

Reviewed By: Randy Boguskie

Date: 12/13/2024

[REV. 6/12/24]

**Appendix B**

**2023-2026 Knoxville Regional Transportation  
Improvement Plan (TIP) Project Sheet**

# TIP Project Report

2/27/2024

<b>TIP ID</b>	<b>PIN #</b>	<b>Length in Miles</b>	<b>Lead Agency</b>
KNX 23-2017-037a	124121.02	3.63	TDOT

<b>State</b>	<b>County</b>
TN	Anderson

<b>State Route</b>	<b>Total Project Cost</b>
SR-170	\$251,992,328

**Project Name**  
Edgemoor Road (SR-170)

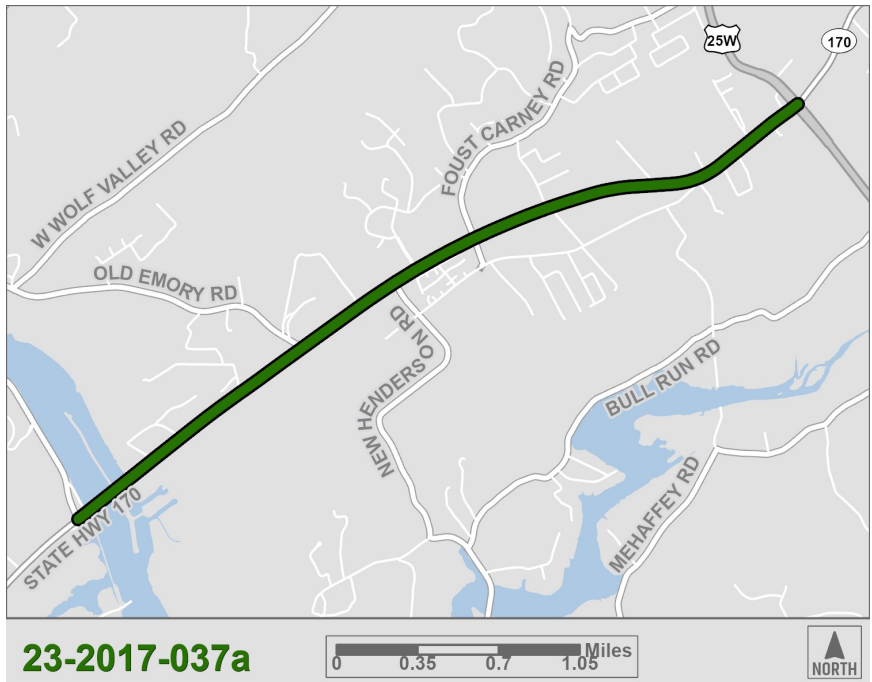
**Termini**  
From near Melton Lake Drive to SR-9 (US-25W, Clinton Highway) (IA)(TMA)

**Project Description**  
Widening 2 lanes to 4 lanes with median and; or center turn lane. Also includes bicycle; pedestrian facilities and a new bridge over the Clinch River. (Split into two segments for PE,ROW, and Construction on PINs 124121.01 and.02)

<b>Long Range Plan #</b>	<b>Conformity Status</b>
09-101b	Non-Exempt

FY	Phase	Funding	Programmed Funds	Fed Funds	State Fund	Local Funds
2023	PE-D	STBG	\$3,000,000	\$2,400,000	\$600,000	\$0
2024	ROW	STBG	\$6,600,000	\$5,280,000	\$1,320,000	\$0
2025	ROW	STBG	\$17,417,585	\$13,934,068	\$3,483,517	\$0
2025	ROW	STATE			\$4,919,265	\$0
<b>Total</b>			<b>\$27,017,585</b>	<b>\$21,614,068</b>	<b>\$10,322,782</b>	<b>\$0</b>

Amendment 109: Amend project to increase ROW funding and increase the total project cost. Additional federal ROW funds are programmed in FY 2025 at a cost of \$17,417,585 STBG (\$13,934,068 federal /\$3,483,517 state). Additional state funded ROW is also programmed in FY 2025 at a cost of \$4,919,265. The project termini is updated to reflect the project's status as a Transportation Modernization Act project. This amendment adds \$22,366,850 (\$13,934,068 federal/\$8,432,782 state) to this project and the TIP. The total project cost is increased to \$251,992,328.



**Appendix C**  
**PM<sub>2.5</sub> Hot-Spot Analysis**



**STATE OF TENNESSEE DEPARTMENT  
OF TRANSPORTATION  
ENVIRONMENTAL DIVISION  
SUITE 900 - JAMES K. POLK BUILDING  
505 DEADERICK STREET  
NASHVILLE, TENNESSEE 37243-0334**

**PM<sub>2.5</sub> Hot-Spot Determination**

**Project Name: SR-170 From near Melton Lake Drive to SR-9**  
**PIN: 124121.02**  
**Project Number: 01024-0224-14**  
**County: Anderson**  
**Date: 05/01/2025**

**Statement of Purpose and Legal Requirements**

Section 176(c) of the Clean Air Act, as amended, requires that transportation agencies, such as the Tennessee Department of Transportation (TDOT), demonstrate that all proposed transportation projects that are located in nonattainment or maintenance areas, and require federal approval or federal money, are consistent with the air quality goals found in the State Implementation Plan (SIP) and the corresponding Transportation Improvement Program (TIP) and other conforming plans.

The process to ensure this consistency is called Transportation Conformity. Conformity to the SIP means that transportation activities will not cause new violations of the National Ambient Air Quality Standards (NAAQS), will not worsen existing violations, and will not delay attainment of the NAAQS.

Project-level conformity is required by Title 40 Code of Federal Regulations (CFR) Part 93, more commonly known as the Transportation Conformity Rule. When evaluating project-level conformity for particulate matter that is 2.5 microns in diameter or smaller, the process is called a PM<sub>2.5</sub> Hot Spot Determination.

The Transportation Conformity Rule instructs the U.S. Department of Transportation (DOT) to ensure that all proposed transportation projects are in conformity before releasing federal funds for the project. To accomplish this, the FHWA and/or FTA require that all proposed transportation projects in a PM<sub>2.5</sub> nonattainment or maintenance area be classified as: 1) Exempt, 2) Not a Project of Air Quality Concern, or 3) Project of Air Quality Concern.

In §93.126 and §93.128, the Transportation Conformity Rule establishes a list of transportation projects that are categorically exempt from conformity determination. For nonexempt projects, TDOT must determine if the project has the potential to adversely impact air quality and FHWA and/or FTA must make the same determination once the interagency consultation (IAC) process is complete.

This proposed transportation project is located in Anderson County, which is currently classified as a maintenance area for the PM<sub>2.5</sub> NAAQS by the U.S. Environmental Protection Agency. TDOT is presenting the following conformity determination for IAC review to demonstrate this project is **NOT A PROJECT OF AIR QUALITY CONCERN** and that it does conform to the SIP.

### **Project Description**

The proposed SR-170 widening project is located in the City of Oak Ridge, Tennessee. The project will start from near Melton Lake Drive and span to SR-9, a distance of approximately 3.63 miles. The widening will provide four 12-foot lanes (2 lanes in each direction) with either a raised median or a center turn lane and replacing the bridge over the Clinch River. Current plans include providing sidewalk and shared use path for non-motorized users. The planned improvements are designed to improve safety, mobility, and overall efficiency of the corridor.

The purpose and need of the project is to provide economic growth potential for the City of Oak Ridge and the Claxton Community by improving a major arterial to attract residential, commercial, industrial, and retail development opportunities, increase capacity on the existing SR-170 corridor to meet future traffic demands, provide an improved level of service (LOS) for motorists and truck traffic, and alleviate traffic congestion. Due to the overall corridor length, improvements to SR-170 have been divided into two smaller projects; from near the interchange with SR-62 to near Melton Lake Drive (PIN 124121.01) and from near Melton Lake Drive to SR-9 (PIN 124121.02). Attachment A shows the project.

## PM<sub>2.5</sub> Hot Spot Determination Questions and Answers

### 1. Is this project in a conforming Plan/TIP?

Yes. This project is included in the Knoxville Regional FY 2020-2023 Transportation Planning Organization Transportation Improvement Program (TIP) as project 23-2017-037a. The project termini and description are consistent with what is proposed, Attachment B includes the TIP project sheet.

### 2. Is the project on a new or expanded highway or expressway that serves a significant volume of diesel truck traffic, such as a facility with greater than 125,000 annual averages daily traffic (AADT) and 8% or more of such AADT is diesel truck traffic?

The Traffic Analysis developed the morning (AM) and afternoon (PM) peak hour traffic volumes for the traffic projections for year 2049 shown in Table 1. As shown, the road is projected to carry nearly 1,394 vehicles in the AM peak and 1,823 vehicles in the PM peak. The AADT was estimated by applying a peak hour factor (k factor) of 7.2% resulting in a design year 2049 AADT of 25,390. The AADT diesel truck traffic is estimated to be 3.0%. Attachment C includes the design year and no-build traffic projections.

**Table 1: Design Year 2049 Traffic Projections**

<i>Peak Hour</i>		<i>AADT (vpd)</i>
<i>AM</i>	<i>PM</i>	
1,394	1,823	25,390

### 3. Does the project construct new exit ramps or other highway facility improvements that connect a highway or expressway to a major freight, bus, or intermodal terminal?

No. The purpose of the project is to provide economic growth and to reduce congestion.

**4. Does the project expand an existing highway or other facility that already has a congested intersection (Operates at LOS D, E, or F) and will this project result in a significant increase in the number of diesel trucks?**

The project will widen an existing highway and will not appreciably increase the number of diesel trucks on the adjacent roadway network. The project will start from near Melton Lake Drive and span to SR-9, approximately 3.63 miles. The extension will provide four 12-foot lanes (2 lanes in each direction) with either a raised median or a center turn lane, along with replacing the bridge over the Clinch River. Several intersections along the corridor will also see improvements, including realignment, reconfiguration, and addition of turning lanes.

The traffic study for the project included Level of Service (LOS) analyses at these five intersections for year 2049 with and without the project. Table 2 summarizes the results. As shown, the project will decrease the delay at all intersections and improve operations at several of the intersections improving the LOS category during both the morning and afternoon peak hours.

**Table 2: Years 2029 and 2049 Capacity Analysis Summary**

<b>Year 2029 Capacity Analysis Summary - SR-170 from near Melton Lake Drive to SR-9</b>					
<b>Intersection</b>	<b>Movement/ Approach</b>	<b>AM Peak</b>	<b>AM Peak</b>	<b>PM Peak</b>	<b>PM Peak</b>
		<b>(LOS/Delay (sec)) No-Build</b>	<b>(LOS/Delay (sec)) Build</b>	<b>(LOS/Delay (sec)) No-Build</b>	<b>(LOS/Delay (sec)) Build</b>
SR-170 at Melton Lake Drive	EB	B 12.4	B 12.8	F 91.7	C 21.3
	WB	E 70.6	B 17.1	F 80.9	B 11.6
	NB	F 111.3	C 26.1	F 158.2	C 32.5
	SB	D 46.7	C 25.1	E 79.1	C 22.5
	Overall	E 56.9	B 19.4	F 89.6	B 19.4
SR-170 at Old Emory Road	EB	-	A 5.3	-	A 6.0
	WB	-	A 8.9	-	B 10.2
	SB	C 16.3	B 10.7	B 14.2	B 12.1
	Overall	-	A 7.9	-	A 7.6
SR-170 at New Henderson Road	EB	-	A 5.6	-	B 11.6
	WB	-	A 4.0	-	A 5.3
	NB	D 31.0	B 13.2	F 297.4	B 14.5
	Overall	-	A 4.9	-	A 9.4
SR-170 at Dogwood Road	EB	-	A 3.6	-	A 7.4
	WB	-	A 4.2	-	A 5.3
	NB	D 25.6	B 10.8	F 131.3	B 13.6
	SB	E 45.3	B 13.0	F 355.5	B 16.9
	Overall	-	A 4.3	-	A 6.8
	EB	D 47.0	C 20.8	C 31.6	C 23.5

SR-170 at SR-9	WB	E 65.3	E 65.3	D 48.5	D 47.6
	NB	D 40.5	D 40.5	D 43.7	D 42.9
	SB	B 16.4	B 16.4	C 24.5	C 22.9
	Overall	D 37.8	C 31.1	C 34.6	C 30.9

**Year 2049 Capacity Analysis Summary - SR-170 from near Melton Lake Drive to SR-9**

Intersection	Movement/ Approach	AM Peak (LOS/Delay (sec))	AM Peak (LOS/Delay (sec))	PM Peak (LOS/Delay (sec))	PM Peak (LOS/Delay (sec))
		No-Build	Build	No-Build	Build
SR-170 at Melton Lake Drive	EB	B 17.4	B 19.0	F 213.9	C 27.7
	WB	F 166.9	D 42.3	F 197.1	B 16.4
	NB	F 199.4	F 83.3	F 241.5	E 62.4
	SB	F 126.3	D 44.9	F 172.6	C 32.7
	Overall	F 132.6	D 42.2	F 199.0	C 28.1
SR-170 at Old Emory Road	EB	-	A 5.5	-	A 7.5
	WB	-	B 10.1	-	B 11.5
	SB	D 29.9	B 11.7	D 25.7	B 13.2
	Overall	-	A 8.6	-	A 9.0
SR-170 at New Henderson Road	EB	-	A 6.7	-	B 17.0
	WB	-	A 5.8	-	A 5.3
	NB	F 89.8	B 14.5	F 1849.2	B 17.5
	Overall	-	A 6.4	-	B 12.6
SR-170 at Dogwood Road	EB	-	A 5.5	-	B 10.4
	WB	-	A 7.6	-	A 4.8
	NB	F 54.8	B 11.9	F 1267.9	B 17.1
	SB	F 146.7	B 14.8	F 3228.6	C 22.6
	Overall	-	A 7.0	-	A 8.5
SR-170 at SR-9	EB	D 42.9	C 29.9	D 39.8	C 31.1
	WB	E 67.5	D 53.2	E 71.8	E 71.3
	NB	D 45.9	D 44.6	E 63.7	D 50.9
	SB	C 23.5	C 23.2	D 39.8	D 36.1
	Overall	D 40.9	D 35.1	D 49.2	D 41.1

**5. Does the highway project involve a significant increase in the number of diesel transit buses and/or diesel trucks?**

No.

**6. Will this project cause or worsen an existing violation?**

No. The purpose of the project is to provide connectivity within the surrounding retail district and reduce congestion on SR-170 and associated intersections. The project will redistribute traffic in the project area but is not projected to result in a significant change in the number of total vehicles. Additionally, it is not expected to affect the number of diesel vehicles on the roadway network. The project will improve traffic flow throughout the area and reduce idling along the corridor. Therefore, the project would not cause or worsen any existing violation.

**Conclusion**

The PM<sub>2.5</sub> Hot-Spot analysis evaluated both annual and 24-hr national ambient air quality standards (NAAQS). Two Environmental Protection Agency models were utilized to determine potential impacts. These include MOVES, Version 5.0, to establish vehicle emission rates and AERMOD, Version 24142, to estimate impacts surrounding the project area. The AERMOD rules along with representative background concentrations provided by the Tennessee Department of Environment and Conservation were compared directly to the NAAQS. As illustrated in Table 3, both averaging periods are below the applicable standards.

**Table 3: Design Year 2049 PM<sub>2.5</sub> Impact Concentrations from near SR-62 to near Melton Lake Drive.**

<b>Pollutant</b>	<b>Average Period</b>	<b>Background Concentrations (µg/m<sup>3</sup>)<sup>1</sup></b>	<b>Modeled Impact (µg/m<sup>3</sup>)<sup>3</sup></b>	<b>Total Concentration (µg/m<sup>3</sup>)</b>	<b>NAAQS (µg/m<sup>3</sup>)</b>	<b>% of Standard</b>
PM <sub>2.5</sub>	24-hr <sup>2</sup>	17	3.95	20.95	35	59.90%
	Annual <sup>2</sup>	6.5	2.23	8.73	9	97.00%

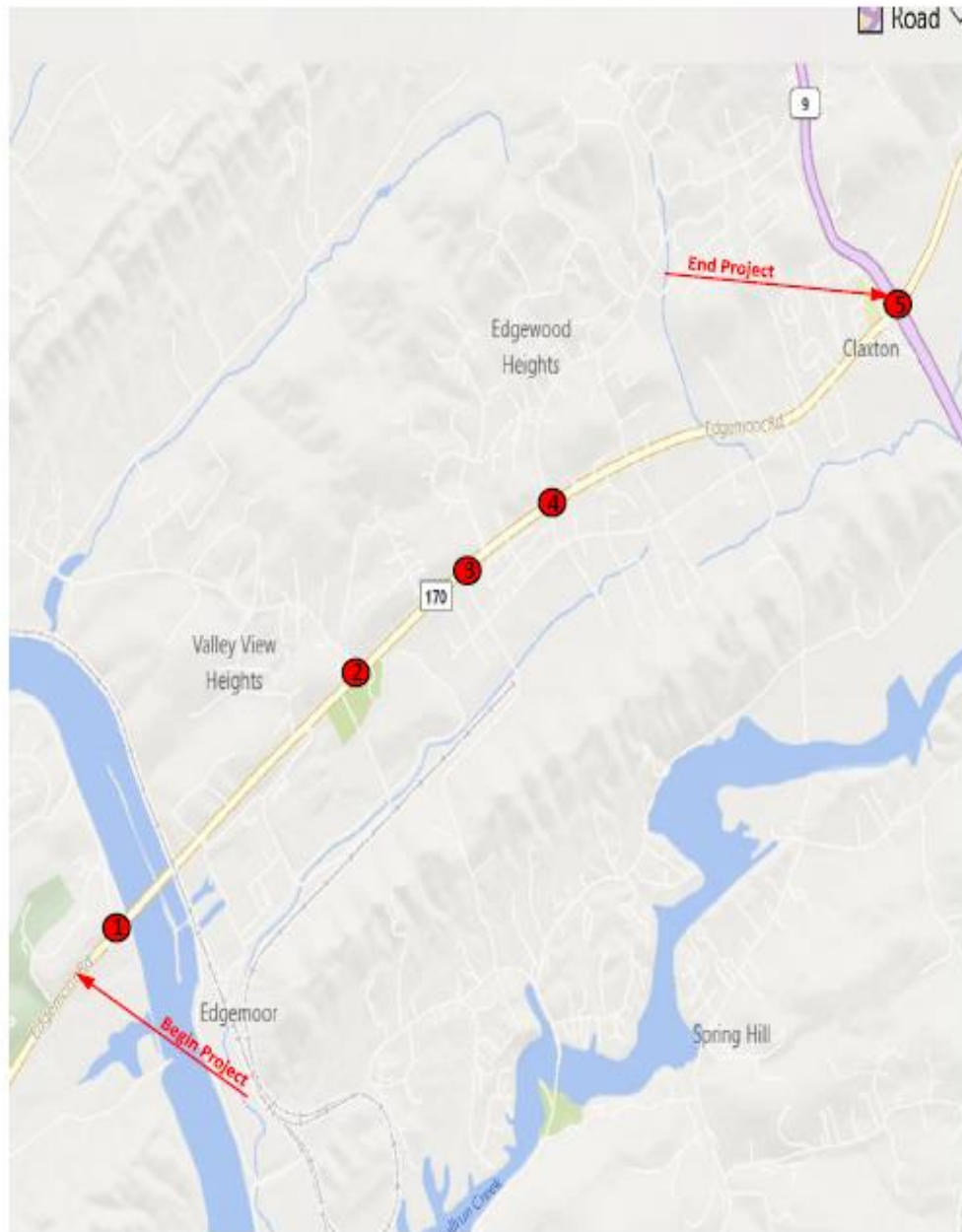
1. Background is from TDEC for the Loudon Station.

2. The annual standard is the average mean and the 24-hr standard is the 98th percentile.

3. The modeled results implemented 2019-2021 met data from Oak Ridge Airport.

For the reasons provided above, TDOT's PM<sub>2.5</sub> hot spot determination is that this project is **NOT A PROJECT OF AIR QUALITY CONCERN**, as determined in accordance with 40 CFR §93.123(b)(1), and that this project is in conformity with the SIP. Therefore, the Clean Air Act and 40 CFR §93.116 requirements are met with a quantitative analysis once the IAC provides concurrence.

**ATTACHMENT A**



**Anderson County**

**Claxton**

**S.R. 170**

**From West of Melton Lake Road to S.R. 9**

**ATTACHMENT B**

**TIP Project Report**  
2/27/2024

ORIGINAL

<b>TIP ID</b>	<b>PIN #</b>	<b>Length in Miles</b>	<b>Lead Agency</b>
KNX 23-2017-037a	124121.02	3.63	TDOT

<b>State</b>	<b>County</b>
TN	Anderson

<b>State Route</b>	<b>Total Project Cost</b>
SR-170	\$55,100,000

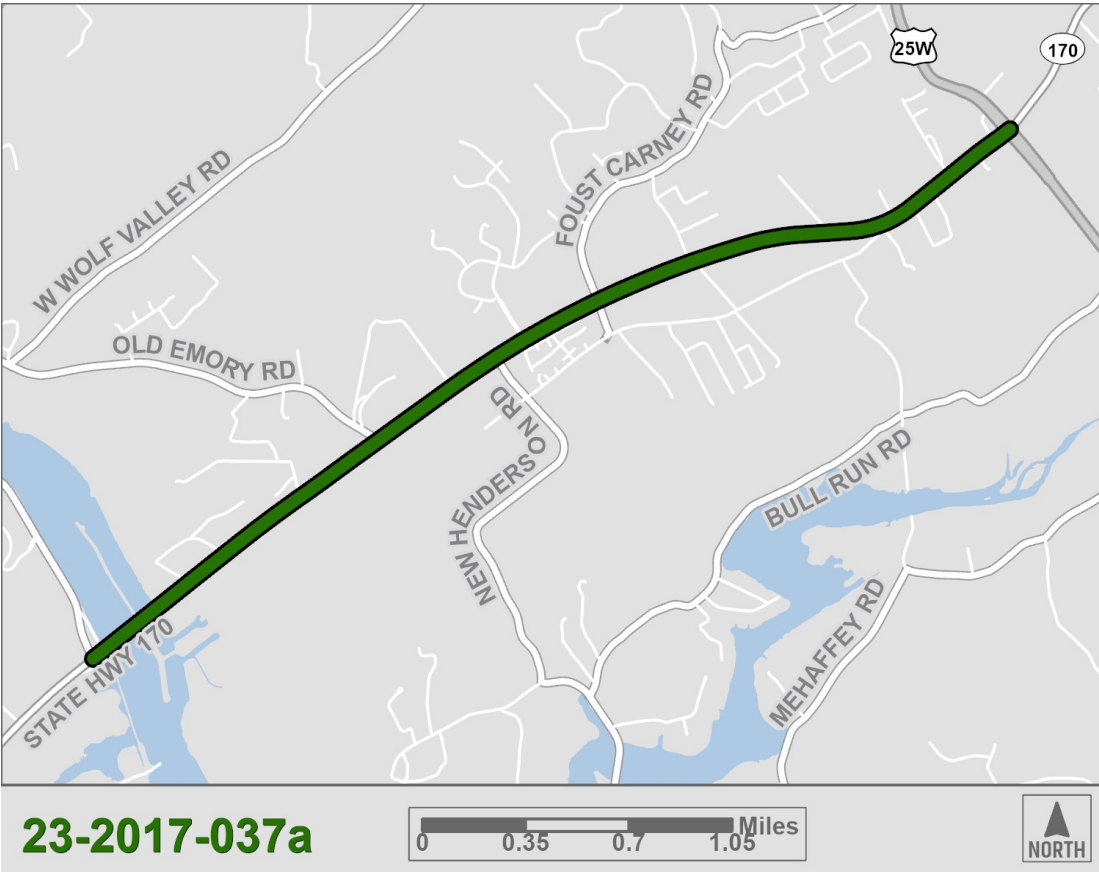
**Project Name**  
Edgemoor Road (SR-170)

**Termini**  
From near Melton Lake Drive to SR-9 (US-25W, Clinton Highway) (IA)

**Project Description**  
Widening 2 lanes to 4 lanes with median and/or center turn lane. Also includes bicycle; pedestrian facilities and a new bridge over the Clinch River. (Split into two segments for PE,ROW, and Construction on PINs 124121.01 and.02)

<b>Long Range Plan #</b>	<b>Conformity Status</b>
09-101b	Non-Exempt

FY	Phase	Funding	Programmed Funds	Fed Funds	State Fund	Local Funds
2023	PE-D	STBG	\$3,000,000	\$2,400,000	\$600,000	\$0
2024	ROW	STBG	\$6,600,000	\$5,280,000	\$1,320,000	\$0
<b>Total</b>			<b>\$9,600,000</b>	<b>\$7,680,000</b>	<b>\$1,920,000</b>	<b>\$0</b>



**TIP Project Report**  
2/27/2024

**AMENDED**

<b>TIP ID</b>	<b>PIN #</b>	<b>Length in Miles</b>	<b>Lead Agency</b>
KNX 23-2017-037a	124121.02	3.63	TDOT

<b>State</b>	<b>County</b>
TN	Anderson

<b>State Route</b>	<b>Total Project Cost</b>
SR-170	\$251,992,328

**Project Name**  
Edgemoor Road (SR-170)

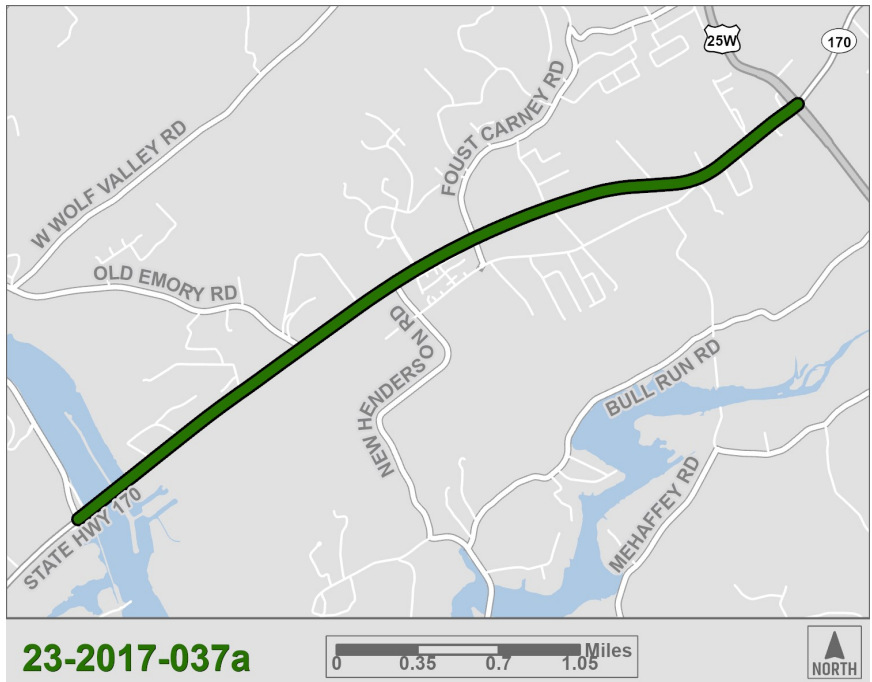
**Termini**  
From near Melton Lake Drive to SR-9 (US-25W, Clinton Highway) (IA)(TMA)

**Project Description**  
Widening 2 lanes to 4 lanes with median and/or center turn lane. Also includes bicycle; pedestrian facilities and a new bridge over the Clinch River. (Split into two segments for PE,ROW, and Construction on PINs 124121.01 and.02)

<b>Long Range Plan #</b>	<b>Conformity Status</b>
09-101b	Non-Exempt

FY	Phase	Funding	Programmed Funds	Fed Funds	State Fund	Local Funds
2023	PE-D	STBG	\$3,000,000	\$2,400,000	\$600,000	\$0
2024	ROW	STBG	\$6,600,000	\$5,280,000	\$1,320,000	\$0
2025	ROW	STBG	\$17,417,585	\$13,934,068	\$3,483,517	\$0
2025	ROW	STATE			\$4,919,265	\$0
<b>Total</b>			<b>\$27,017,585</b>	<b>\$21,614,068</b>	<b>\$10,322,782</b>	\$0

Amendment 109: Amend project to increase ROW funding and increase the total project cost. Additional federal ROW funds are programmed in FY 2025 at a cost of \$17,417,585 STBG (\$13,934,068 federal /\$3,483,517 state). Additional state funded ROW is also programmed in FY 2025 at a cost of \$4,919,265. The project termini is updated to reflect the project's status as a Transportation Modernization Act project. This amendment adds \$22,366,850 (\$13,934,068 federal/\$8,432,782 state) to this project and the TIP. The total project cost is increased to \$251,992,328.





eSTIP Fiscal Constraints Report for STIP Period 2023  
Knoxville MPO

ORIGINAL

Fund Code	Fiscal Year	Budget Total	Programmed Funds	Federal Funding	State Funding	Local Funding	Federal Carryover	Remaining Balance
STBG	2023	\$33,332,343	\$33,332,343	\$26,665,874	\$5,327,256	\$1,339,213	\$0	\$0
STBG	2024	\$15,469,245	\$15,469,245	\$12,375,396	\$3,093,849	\$0	\$0	\$0
STBG	2025	\$5,068,140	\$5,068,140	\$4,054,512	\$1,013,628	\$0	\$0	\$0
STBG	2026	\$1,267,035	\$1,267,035	\$1,013,628	\$253,407	\$0	\$0	\$0



eSTIP Fiscal Constraints Report for STIP Period 2023  
Knoxville MPO

AMENDED

Fund Code	Fiscal Year	Budget Total	Programmed Funds	Federal Funding	State Funding	Local Funding	Federal Carryover	Remaining Balance
STBG	2023	\$33,332,343	\$33,332,343	\$26,665,874	\$5,327,256	\$1,339,213	\$0	\$0
STBG	2024	\$15,469,245	\$15,469,245	\$12,375,396	\$3,093,849	\$0	\$0	\$0
STBG	2025	\$27,434,990	\$27,434,990	\$17,988,580	\$9,446,410	\$0	\$0	\$0
STBG	2026	\$1,267,035	\$1,267,035	\$1,013,628	\$253,407	\$0	\$0	\$0
STA	2025	\$4,919,265	\$4,919,265	\$0	\$4,919,265	\$0	\$0	\$0

Note: Fiscal constraint report draft update 3/1/24 and reflects:

FY 2025 STBG: +\$17,417,585 (Federal: +\$13,934,068 State: +\$3,483,517)

FY 2025 STA: +\$4,919,265 (State: +\$4,919,265)



**TRANSPORTATION IMPROVEMENT PROGRAM  
Transportation Conformity Summary Report**

**Project Amendments:**

On July April 24, 2024, the Knoxville Regional TPO Executive Board voted to approve the following amendment to the Knoxville Regional FY 2020 – 2023 Transportation Improvement Program (TIP).

TIP #	L RTP #	Project Name	Conformity Status
23-2017-037(a)	09-101b	Edgemoor Road (SR-170)	Non-Exempt
23-2017-037(b)	09-101a	Edgemoor Road (SR-170)	Non-Exempt

**Air Quality Conformity Status:**

This amendment was subject to a conformity finding. An air quality conformity demonstration report was used to demonstrate conformity for the project.

**Metropolitan Transportation Planning Process Certification:**

The Knoxville TPO Planning Process certification is included and certifies that every four years the transportation planning process addresses the major issues in the metropolitan planning area and is conducted in accordance with all applicable requirements.

**Resolution:**

The adopting resolution for these projects and air quality conformity determination is included.

**Public Participation:**

Public participation processes were in accordance with the Knoxville TPO’s federally approved Public Participation Plan. Two public hearings were held on April 9, 2024 at the TPO Technical Committee Meeting, followed by April 24, 2024 at the TPO Executive Board meeting. No public comments were received.

**Interagency Consultation:**

The Knoxville Air Quality Interagency Consultation (IAC) group was consulted on a 24-day IAC review from March 1, 2024 until March 24, 2024 regarding review of the draft conformity determination report.



U.S. Department  
of Transportation  
**Federal Highway  
Administration**

**Tennessee Division**

June 5, 2024

404 BNA Drive, Suite 508  
Nashville, Tennessee 37217  
Phone (615) 781-5770

Mr. Matt Meservy  
Director, Long Range Planning Division  
Tennessee Department of Transportation  
James K. Polk Building, Suite 900  
Nashville, TN 37243

In Reply Refer To:  
HPD-TN

Subject: Air Quality Conformity Determination for Knoxville, TN

Dear Mr. Meservy:

The Federal Highway Administration (FHWA) Tennessee Division and Federal Transit Administration (FTA) Region IV Office, in coordination with the Environmental Protection Agency (EPA) Region IV Office, have reviewed the Air Quality Conformity Determination adopted by the Knoxville Regional Transportation Planning Organization (KRTPO) Executive Board on April 24, 2024.

The Air Quality Conformity Determination covers the Knoxville, TN maintenance area for the 2008 8-hour ozone and the 2006 Daily PM<sub>2.5</sub> National Ambient Air Quality Standards (NAAQS) and addresses the planned transportation improvements from the amended Fiscal Year (FY) 2023–2026 Transportation Improvement Program (TIP).

Based on our review, we find the documents conform to the ozone and PM<sub>2.5</sub> NAAQS for Knoxville, Tennessee.

If you have any questions regarding this determination, please contact me at (615) 781-5777.

Sincerely,

ZACHARY TYLER  
COLEMAN

Digitally signed by ZACHARY  
TYLER COLEMAN  
Date: 2024.06.05 09:44:51  
-05'00'

Zachary Coleman  
Transportation Planning Specialist

cc: Mayor Terry Frank, Executive Board Chair, Knoxville Regional TPO  
Mr. Sean Santalla, Acting Deputy Division Administrator, FHWA TN Division  
Mr. Andres Ramirez, Community Planner, FTA Region IV  
Ms. Dianna Myers, Environmental Scientist, EPA Region IV  
Ms. Simone Jarvis, Life Scientist, EPA Region IV  
Mr. Stacy Morrison, OCT Planning Manager, TDOT

Mr. Troy Ebbert, OCT Region 1 Planning Supervisor, TDOT  
Mr. Doug Burton, Coordinator, Knoxville Regional TPO  
Mr. Craig Luebke, Senior Transportation Planner, Knoxville Regional TPO  
Mr. Mike Conger, Senior Transportation Engineer, Knoxville Regional TPO  
Mr. Marc Corrigan, Environmental Consultant, TDEC

**A RESOLUTION BY THE EXECUTIVE BOARD  
OF THE KNOXVILLE REGIONAL  
TRANSPORTATION PLANNING ORGANIZATION (TPO)  
AMENDING THE FY 2023-2026 TRANSPORTATION IMPROVEMENT PROGRAM**

WHEREAS, the FY 2023-2026 Knoxville Regional Transportation Improvement Program was adopted on October 26, 2022; and

WHEREAS, in accordance with requirements of the U.S. Department of Transportation, the elements of the transportation planning process are to receive final approval from the Executive Board of the local Metropolitan Planning Organization; and

WHEREAS, the Transportation Improvement Program must be updated as needed; and

WHEREAS, the proposed project amendments were reviewed with the Knoxville-Area Air Quality Interagency Consultation Group with respect to air quality conformity requirements and are either exempt from, or were demonstrated to conform with the federal transportation air quality conformity regulations from the Clean Air Act; and

WHEREAS, a short conformity determination report was prepared for the air quality non-exempt project amendments which concluded that air quality conformity was demonstrated by relying on a previous regional emissions analysis; and

WHEREAS, the Knoxville Regional Transportation Planning Organization Technical Committee recommends approval of the Resolution, and

NOW, THEREFORE, BE IT RESOLVED BY THE KNOXVILLE REGIONAL TRANSPORTATION PLANNING ORGANIZATION EXECUTIVE BOARD;

That the FY 2023-2026 Transportation Improvement Program be amended to include the following changes and that the Tennessee Department of Transportation include these amendments into the State Transportation Improvement Program:

**Attachment #3A: Draft Amendment 23-2017-037a (Edgemoor Road [SR-170]) - From near Melton Lake Drive to SR-9 (US-25W, Clinton Highway)** - Amend project to increase ROW funding and increase the total project cost. Additional federal ROW funds are programmed in FY 2025 at a cost of \$17,417,585 STBG (\$13,934,068 federal /\$3,483,517 state). Additional state funded ROW is also programmed in FY 2025 at a cost of \$4,919,265. The project termini field is updated to reflect the project's status as a Transportation Modernization Act project. This amendment adds \$22,366,850 (\$13,934,068 federal/\$8,432,782 state) to this project and the TIP. The total project cost is increased to \$251,992,328.

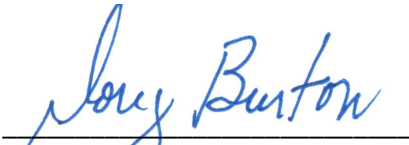
**Attachment #3B: Draft Amendment 23-2017-037b (Edgemoor Road [SR-170]) - From near SR-62 to near Melton Lake Drive** - Amend the TIP to add this non-exempt project for design and ROW. PE-D is programmed in FY 2024 at a cost of \$1,285,200 STBG (\$1,028,160 federal/\$257,040 state). ROW is programmed in FY 2025 at a cost of \$4,203,250 STBG (\$3,362,600 federal/\$840,650 state). This amendment adds \$5,488,450 (\$4,390,760 federal/\$1,097,690 state) to the TIP. The total project cost is \$98,203,200.

April 24, 2024

Date

A handwritten signature in blue ink, appearing to read "Terry Frank", written over a horizontal line.

Mayor Terry Frank  
Anderson County  
TPO Executive Board Chair

A handwritten signature in blue ink, appearing to read "Doug Burton", written over a horizontal line.

Doug Burton  
Coordinator  
Knoxville Regional TPO

## METROPOLITAN TRANSPORTATION PLANNING PROCESS CERTIFICATION

In accordance with 23 CFR 450.336, the Knoxville Regional Transportation Planning Organization and the Tennessee Department of Transportation hereby certify that the metropolitan transportation planning process is addressing major issues facing the Knoxville, TN urbanized area, and is being carried out in accordance with the following requirements:

- I. 23 U.S.C. 134 and 135, 49 U.S.C. 5303 and 5304 (Highways and Transit).
- II. Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000 d-1) and 49 CFR part 21.
- III. 49 U.S.C. 5332, prohibiting discrimination on the basis of race, color, creed, national origin, sex, or age in employment or business opportunity.
- IV. 49 CFR part 26 regarding the involvement of disadvantaged business enterprises in USDOT-funded projects.
- V. 23 CFR part 230, regarding the implementation of an equal employment opportunity program on Federal and Federal-aid highway construction contracts.
- VI. Provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq) and 49 CFR parts 27, 37, and 38.
- VII. In nonattainment and maintenance areas, sections 174 and 176 (c) and (d) of the Clean Air Act, as amended, 42 U.S.C. 7504, 7506 (c) and (d), and 40 CFR part 93.
- VIII. The Older Americans Act, as amended (42 U.S.C. 6101), prohibiting discrimination on the basis of age in programs or activities receiving Federal financial assistance.
- IX. Section 324 of Title 23 U.S.C. regarding the prohibition of discrimination based on gender.
- X. Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. 794) and 49 CFR part 27 regarding discrimination against individuals with disabilities.

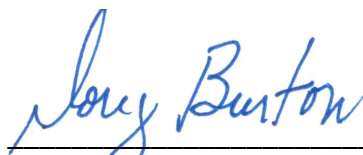
April 24, 2024

Date



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Mayor Terry Frank  
Anderson County  
Knoxville Regional TPO Executive Board Chair



---

Doug Burton  
Coordinator  
Knoxville Regional TPO

**ATTACHMENT C**

**TENNESSEE DEPARTMENT OF TRANSPORTATION  
PLANNING DIVISION**

PROJECT NO.: STP-170(16) : 01024-0224-14 ROUTE: S.R. 170  
 COUNTY: ANDERSON CITY: CLAXTON  
 PROJECT PIN NUMBER: 124121.02  
 PROJECT DESCRIPTION: FROM WEST OF MELTON LAKE DRIVE TO S.R. 9.

[1] S.R. 170 AVERAGE TRAFFIC DATA

**DIVISION REQUESTING:**

MAINTENANCE	<input type="checkbox"/>	PAVEMENT DESIGN	<input type="checkbox"/>
ENGINEERING CONCEPTS	<input type="checkbox"/>	STRUCTURES	<input type="checkbox"/>
PROG. DEVELOPMENT & ADM.	<input type="checkbox"/>	SURVEY & ROADWAY DESIGN	<input type="checkbox"/>
PUBLIC TRANS. & AERO.	<input type="checkbox"/>	TRAFFIC SIGNAL DESIGN	<input type="checkbox"/>
		OTHER PROJECT MANAGE.	<input checked="" type="checkbox"/>

YEAR PROJECT PROGRAMMED FOR CONSTRUCTION: 2029  
 PROJECTED LETTING DATE: 2029

**TRAFFIC ASSIGNMENT:**

BASE YEAR		DESIGN YEAR					DESIGN ROADWAY % TRUCKS	DESIGN AVERAGE DAILY LOADS		
AADT	YEAR	AADT	DHV	%	YEAR	DIR.DIST.	DHV	AADT	FLEX	RIGID
19,530	2029	25,390	2,616	10	2049	55-45	3	5	361	527

REQUESTED BY: NAME JOHN SHERK DATE 10/1/24  
 DIVISION REGION I PROJECT MANAGEMENT  
 ADDRESS 7345 REGION LANE  
KNOXVILLE TN 37914

REVIEWED BY: RANDY BOGUSKIE Randy Boguskie DATE 12/13/2024  
 TRANSPORTATION MANAGER 1  
 SUITE 1000, JAMES K. POLK BUILDING

APPROVED BY: TONY ARMSTRONG Tony Armstrong DATE 12/13/2024  
 TRANSPORTATION MANAGER 2  
 SUITE 1000, JAMES K. POLK BUILDING

**COMMENTS:**

FURNISH THE 2029-2049 TRAFFIC DATA AND ADL's FOR PAVEMENT DESIGN FOR A FIVE LANE ROADWAY.

THIS TRAFFIC IS BASED ON 2023 CYCLE COUNTS, [13] 8-HOUR TURNING MOVEMENT COUNTS [OCT. 2024].

THE DESIGN YEAR TRAFFIC IS BASED ON THE AVERAGE OF GROWTH RATES FROM THE KNOXVILLE TPO COMPUTER ASSIGNMENT MODEL. AADT's, DHV's AND ADL's ARE INCLUDED.

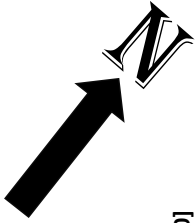
**DHV'S ARE NOT REQUIRED FOR SIDE ROADS LESS THAN 1000 AADT.**

**NOTE:** FOR BRIDGE REPLACEMENT PROJECTS, ADLs ARE NOT REQUIRED FOR ADT's OF 1000 OR LESS AND PERCENTAGE OF TRUCKS OF 7% OR LESS.

SEE ATTACHMENTS FOR TURNING MOVEMENTS AND/OR OTHER DETAILS.

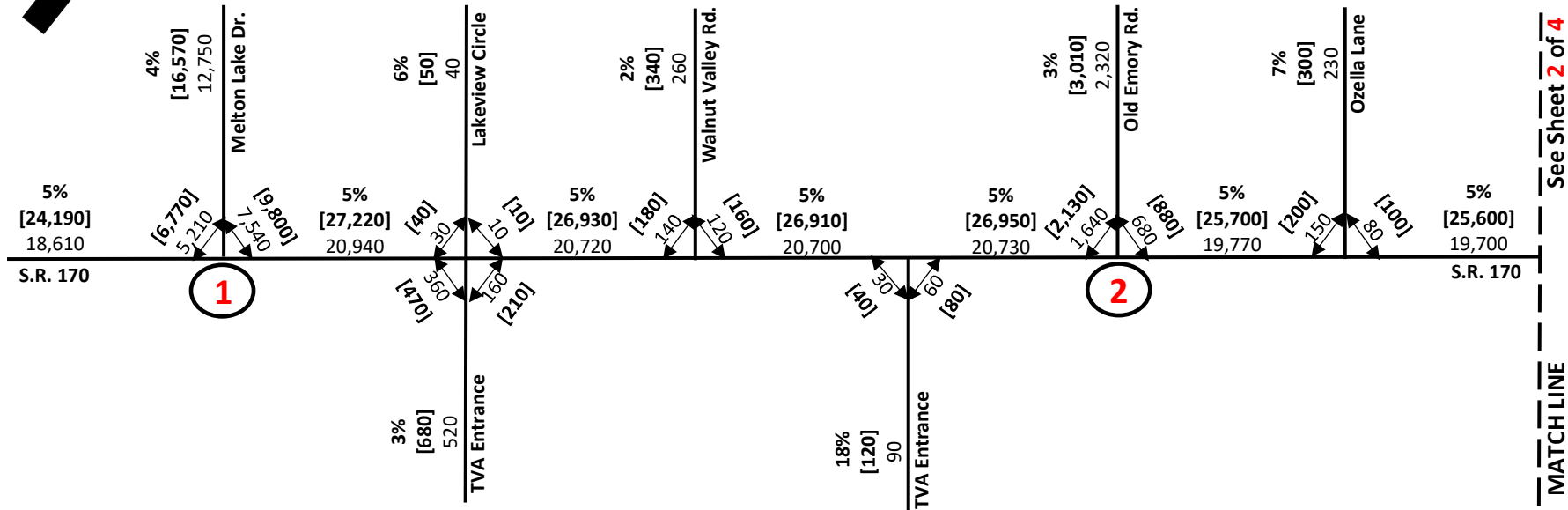
(REV. 6/12/24)





**AADT**

**Sheet 1 of 4**



See Sheet 2 of 4

MATCH LINE

### Anderson County S.R. 170

Legend:

2029 AADT - 000

2049 AADT - [000]

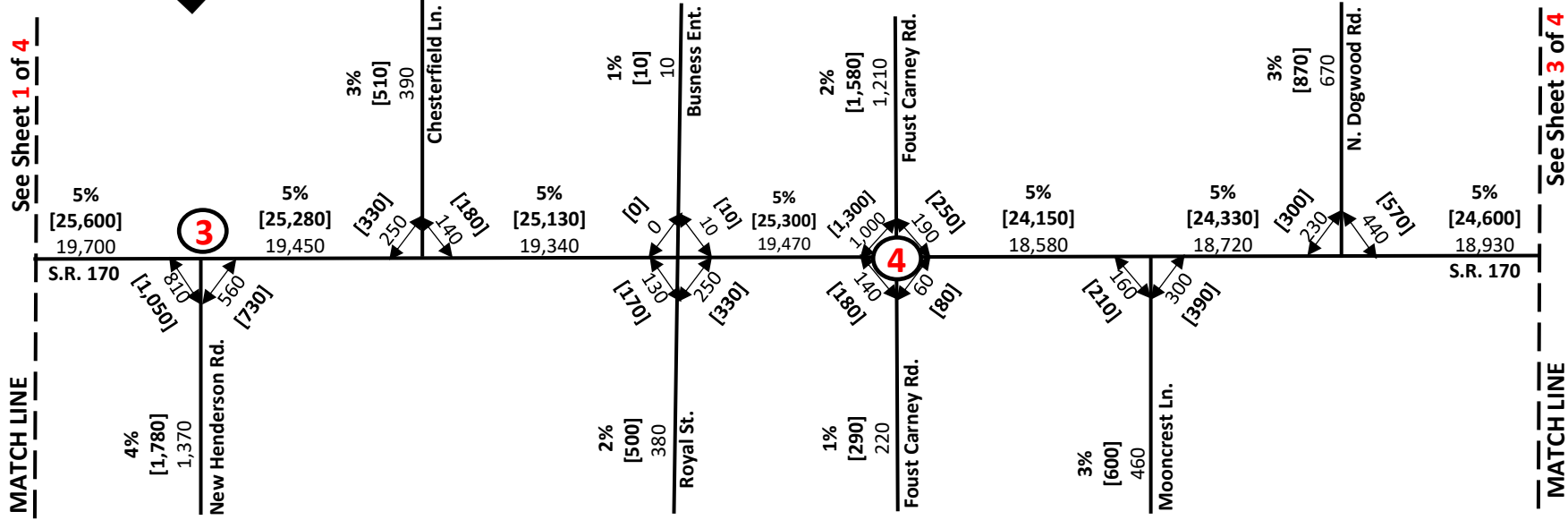
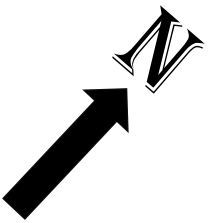
AADT Truck % - 0%

Date: November 4, 2024

TA

**AADT**

**Sheet 2 of 4**



## Anderson County S.R. 170

Legend:

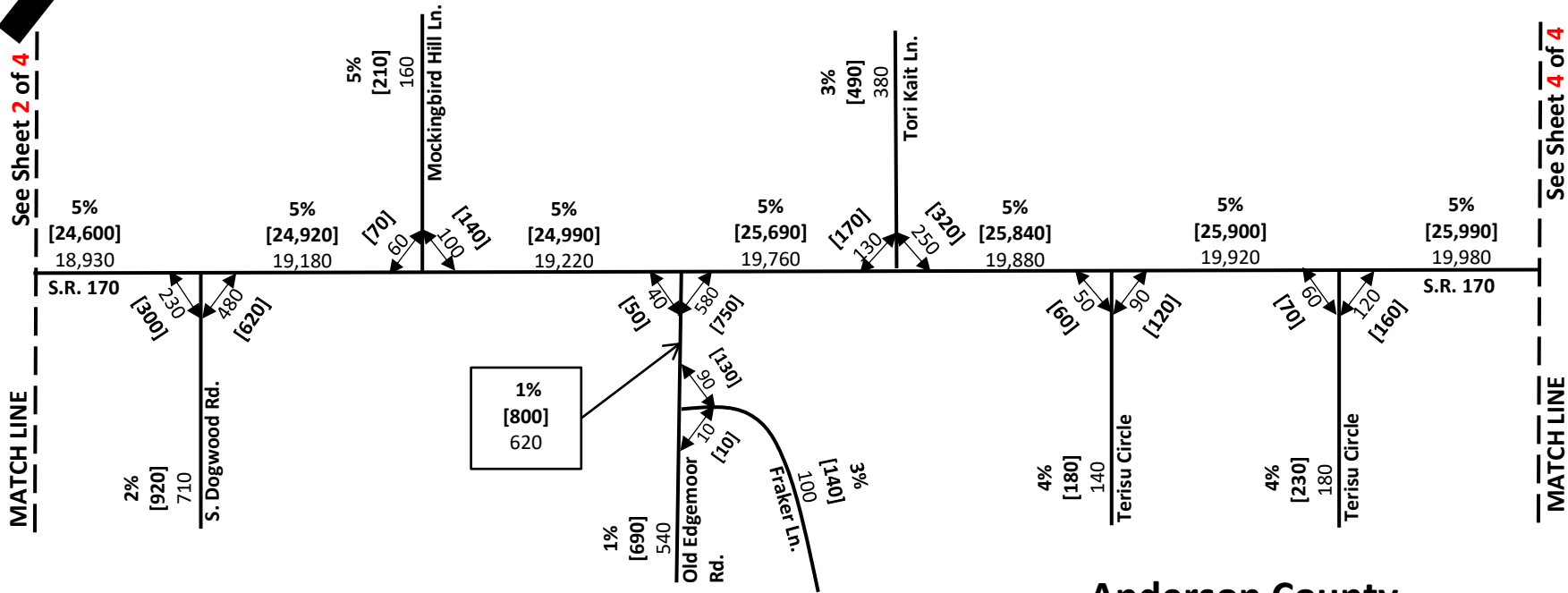
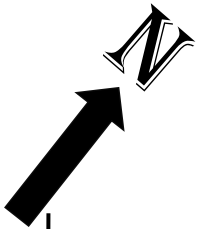
2029 AADT - 000

2049 AADT - [000]

AADT Truck % - 0%

Date: November 4, 2024

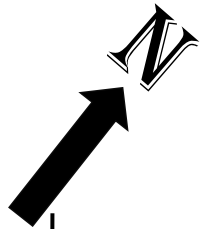
TA



**Anderson County**  
**S.R. 170**  
 Legend:  
 2029 AADT - 000  
 2049 AADT - [000]  
 AADT Truck % - 0%  
 Date: November 5, 2024  
 TA

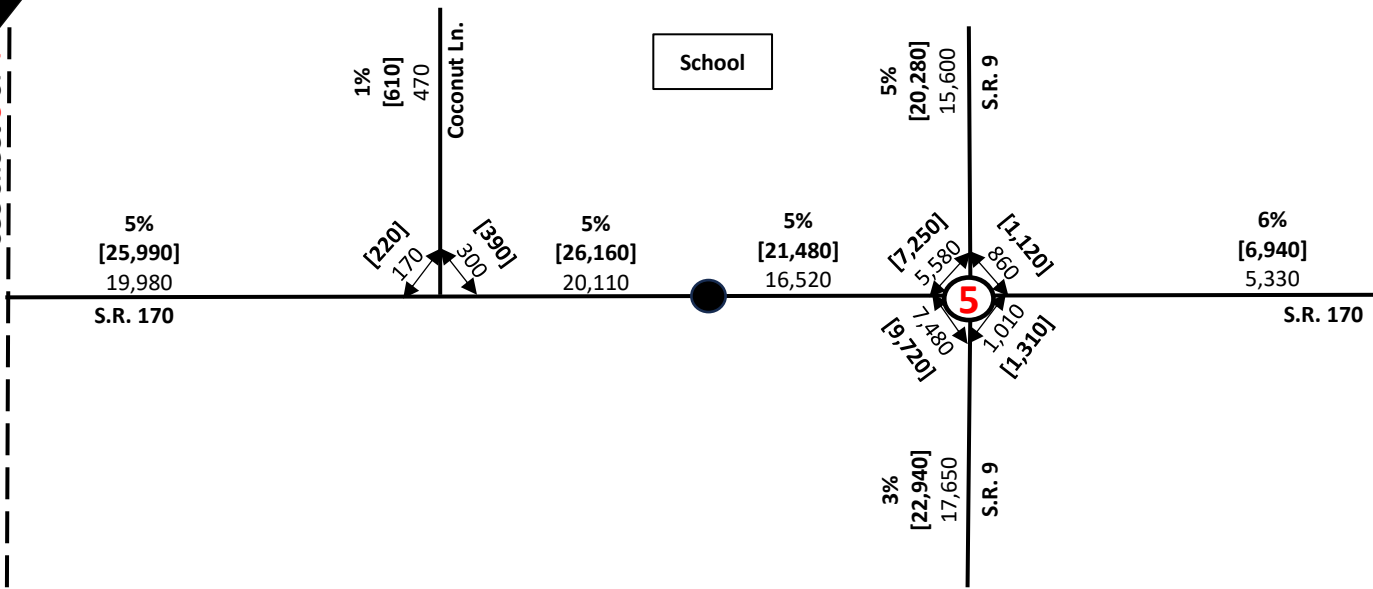
AADT

Sheet 4 of 4



See Sheet 3 of 4

MATCH LINE

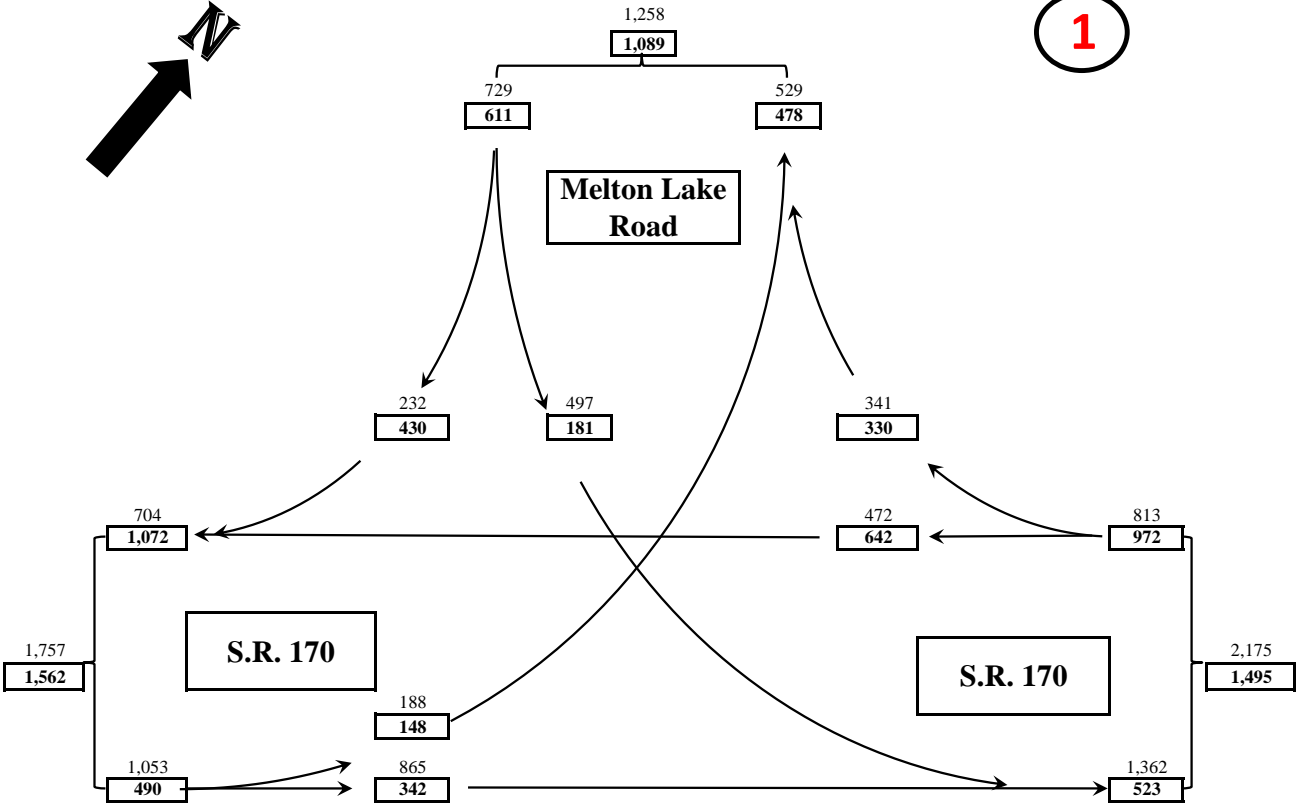
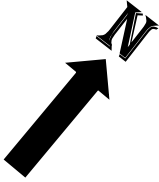


### Anderson County S.R. 170

Legend:  
2029 AADT - 000  
2049 AADT - [000]  
AADT Truck % - 0%  
Date: November 5, 2024  
TA

2029 DHV

1



Anderson County  
S.R. 170 @ Melton Lake Road

2029 DHV

PM

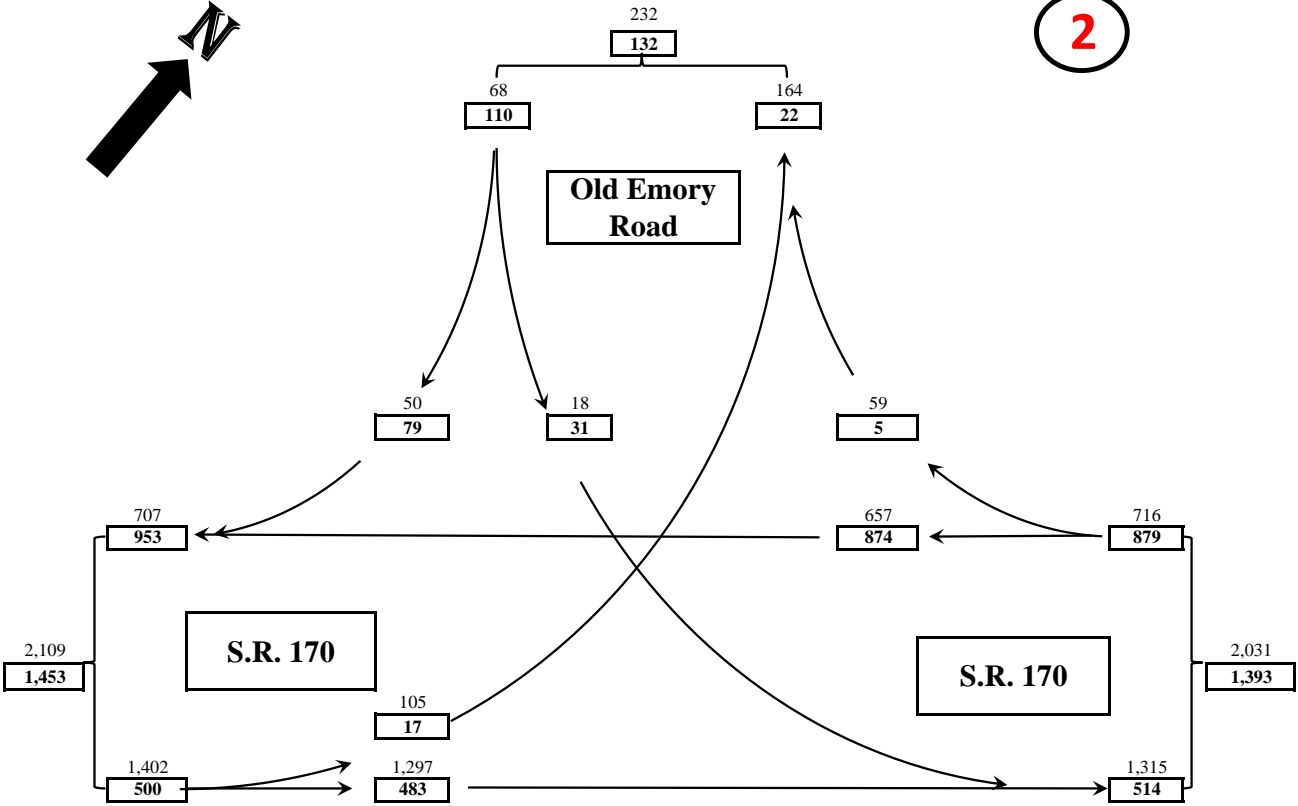
AM

Date: December 13, 2024

TA

2029 DHV

2



Anderson County  
S.R. 170 @ Old Emory Road

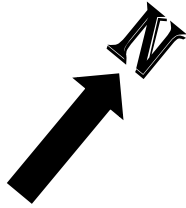
2029 DHV

PM

AM

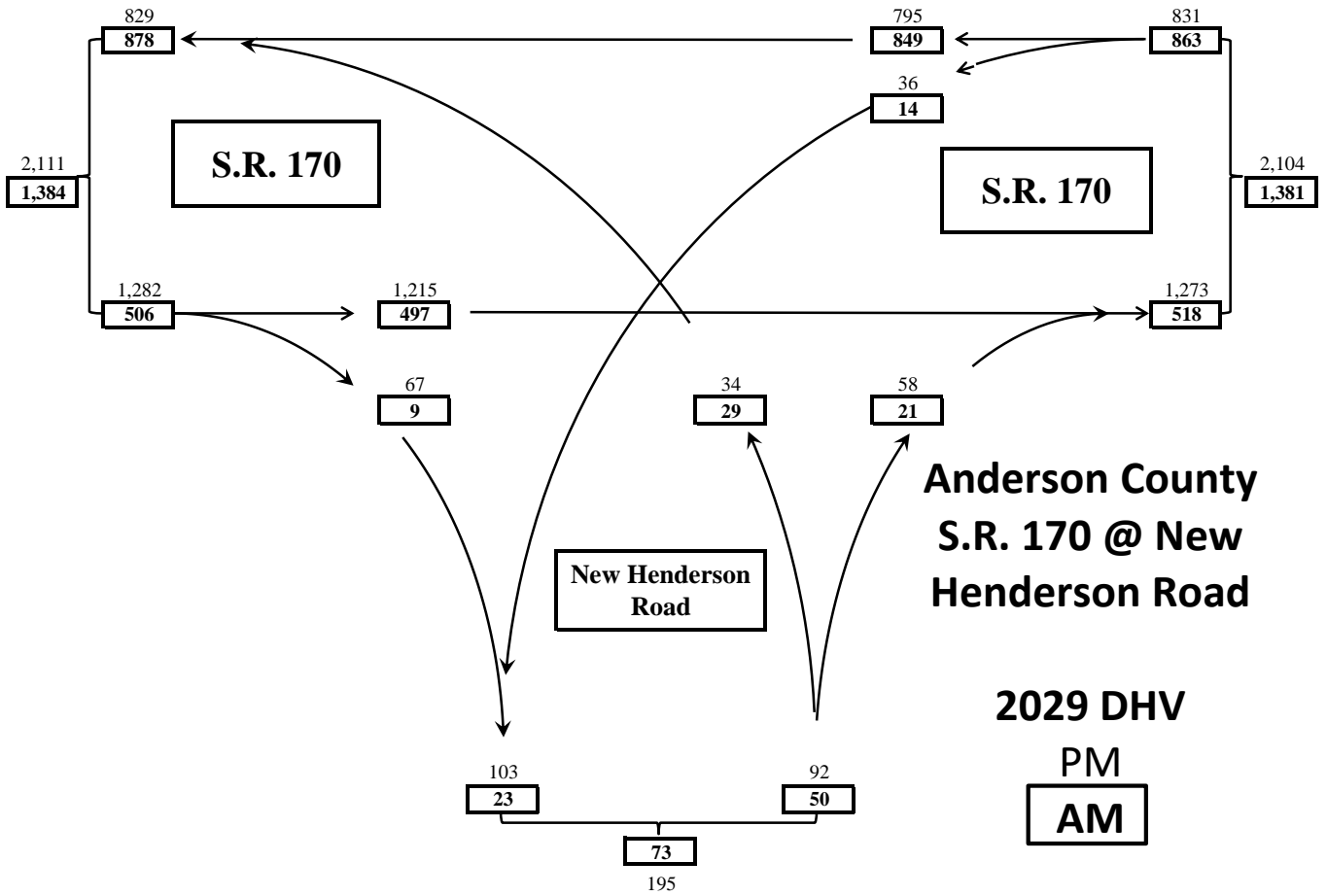
Date: December 13, 2024

TA



2029 DHV

3



Anderson County  
S.R. 170 @ New  
Henderson Road

2029 DHV

PM

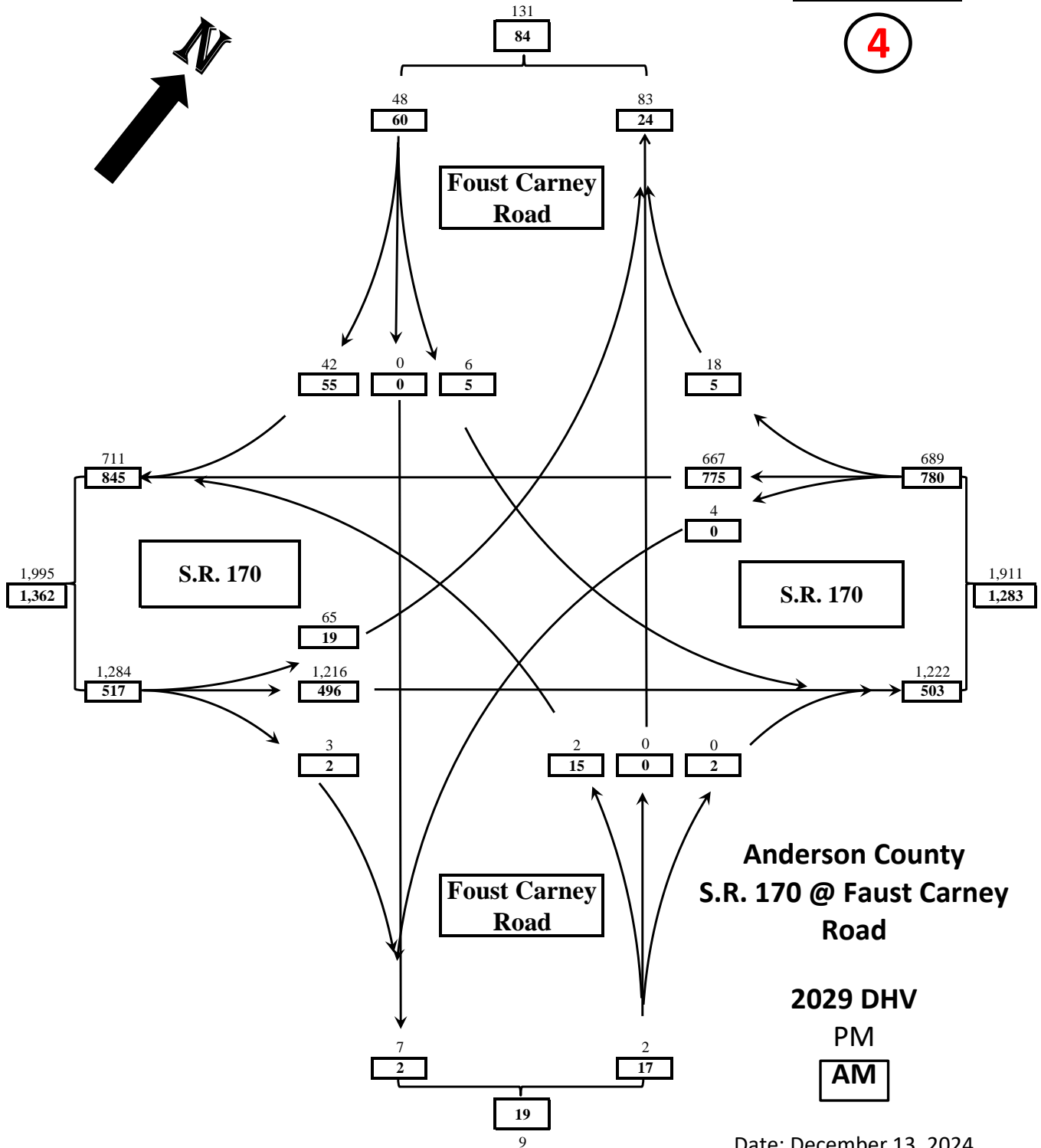
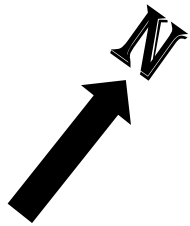
AM

Date: December 13, 2024

TA

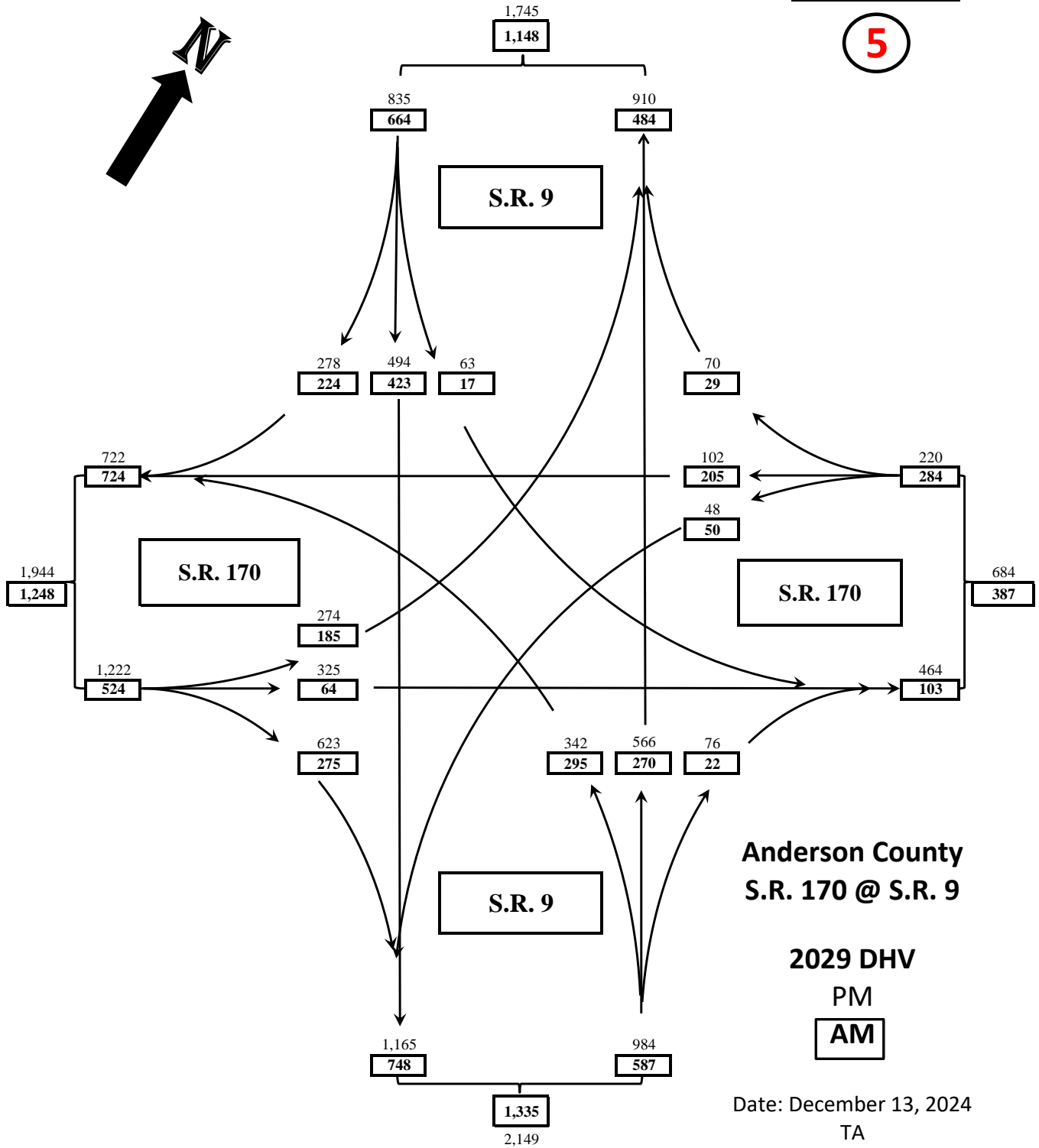
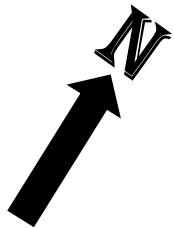
2029 DHV

4



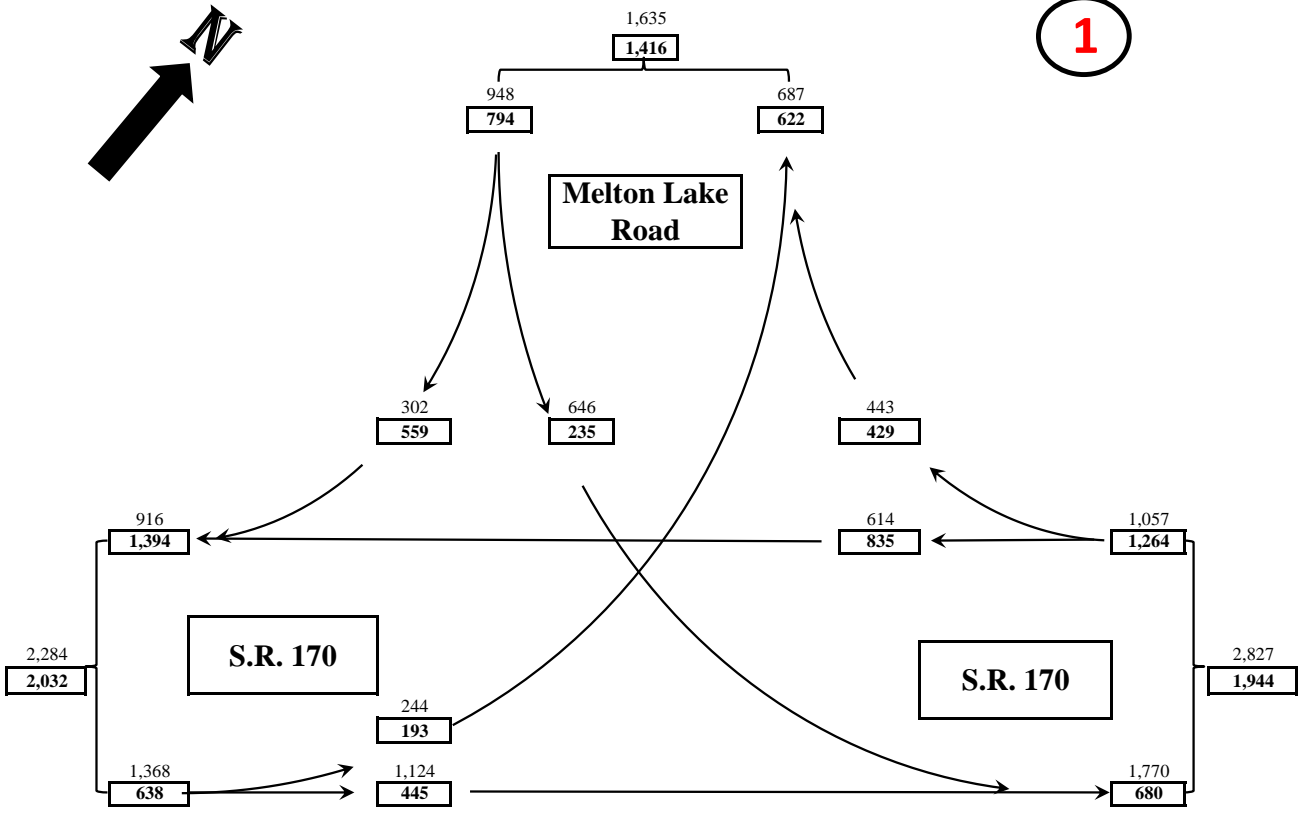
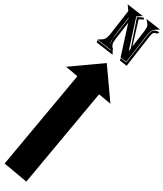
2029 DHV

5



2049 DHV

1



Anderson County  
S.R. 170 @ Melton Lake Road

2049 DHV

PM

AM

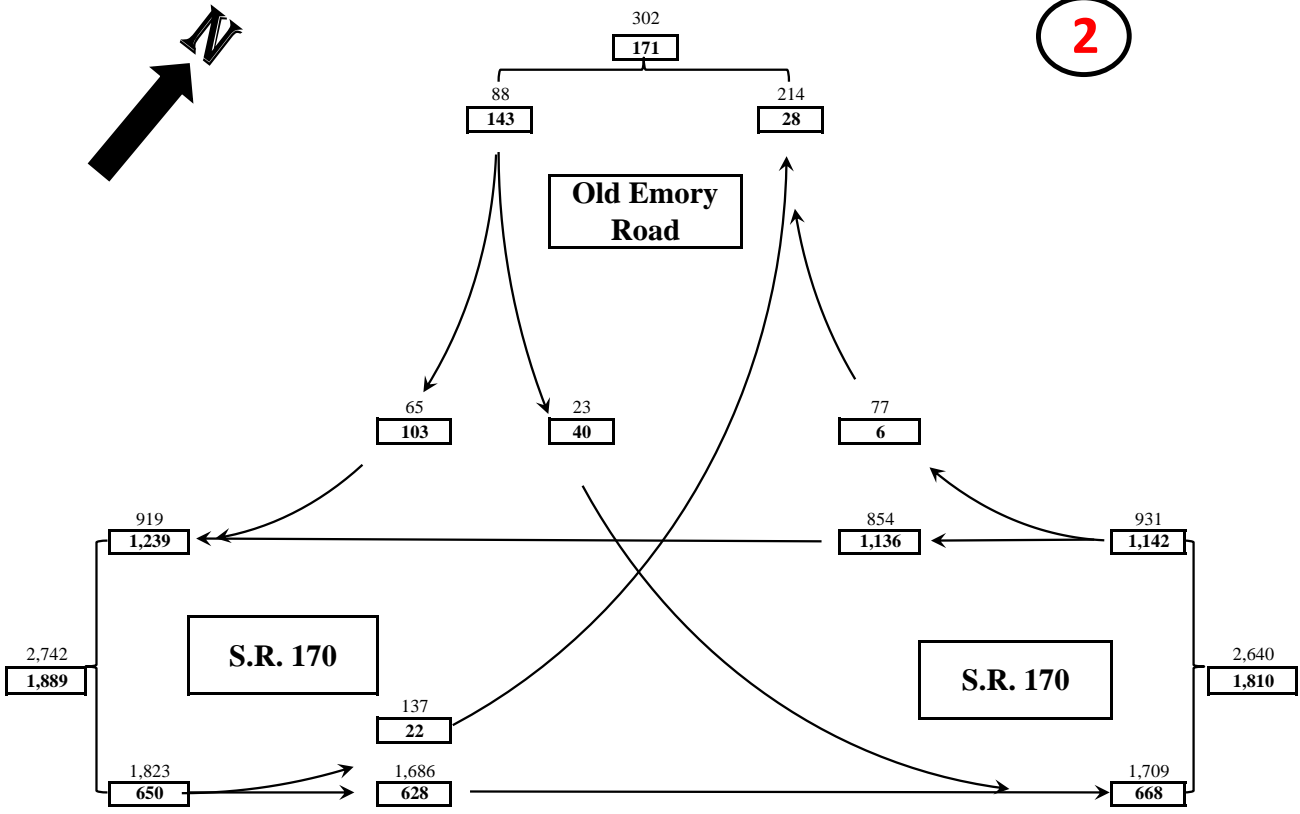
Date: November 4, 2024

TA



2049 DHV

2



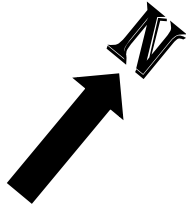
Anderson County  
S.R. 170 @ Old Emory Road

2049 DHV

PM

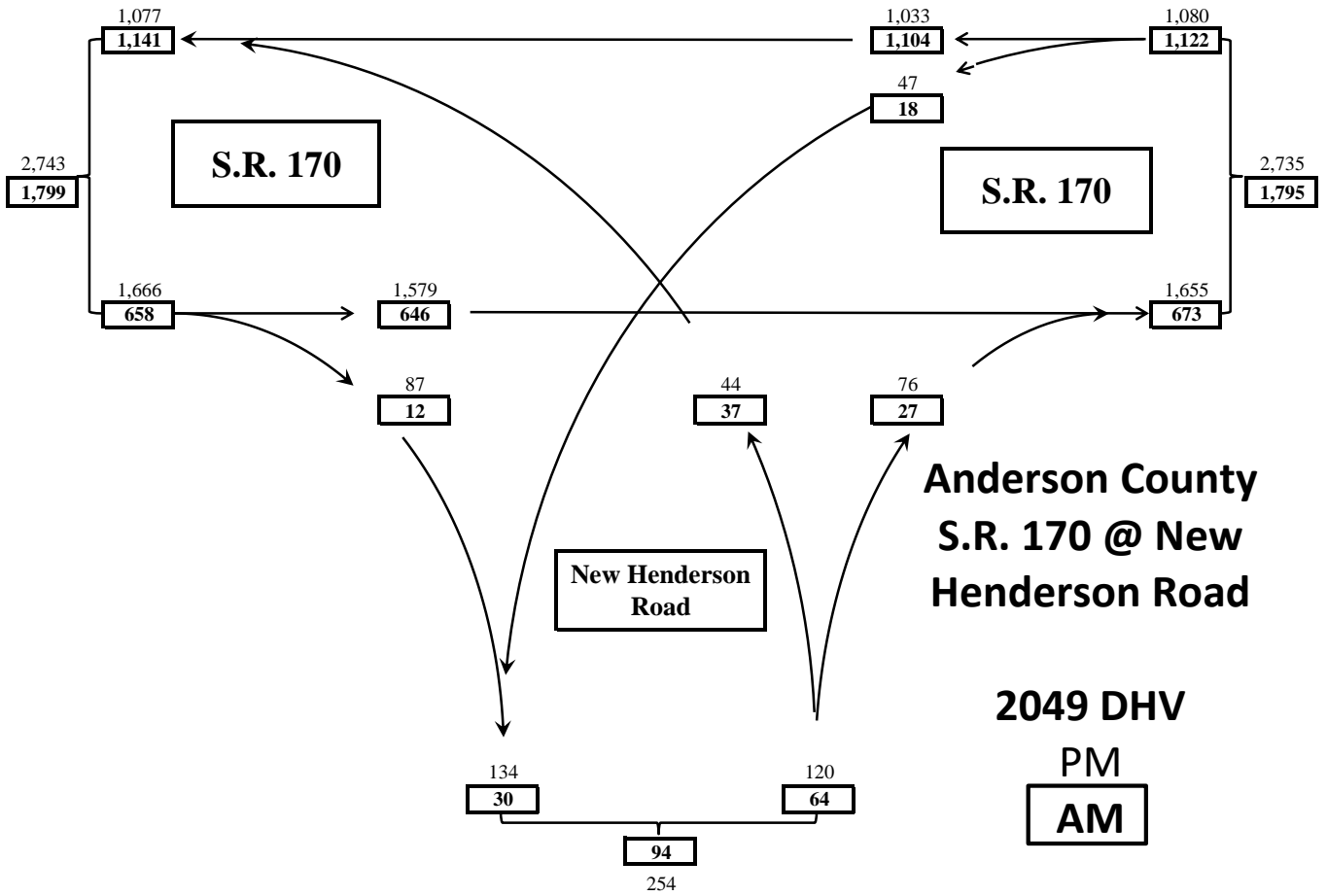
AM

Date: November 4, 2024  
TA



2049 DHV

3



**Anderson County  
S.R. 170 @ New  
Henderson Road**

**2049 DHV**

**PM**

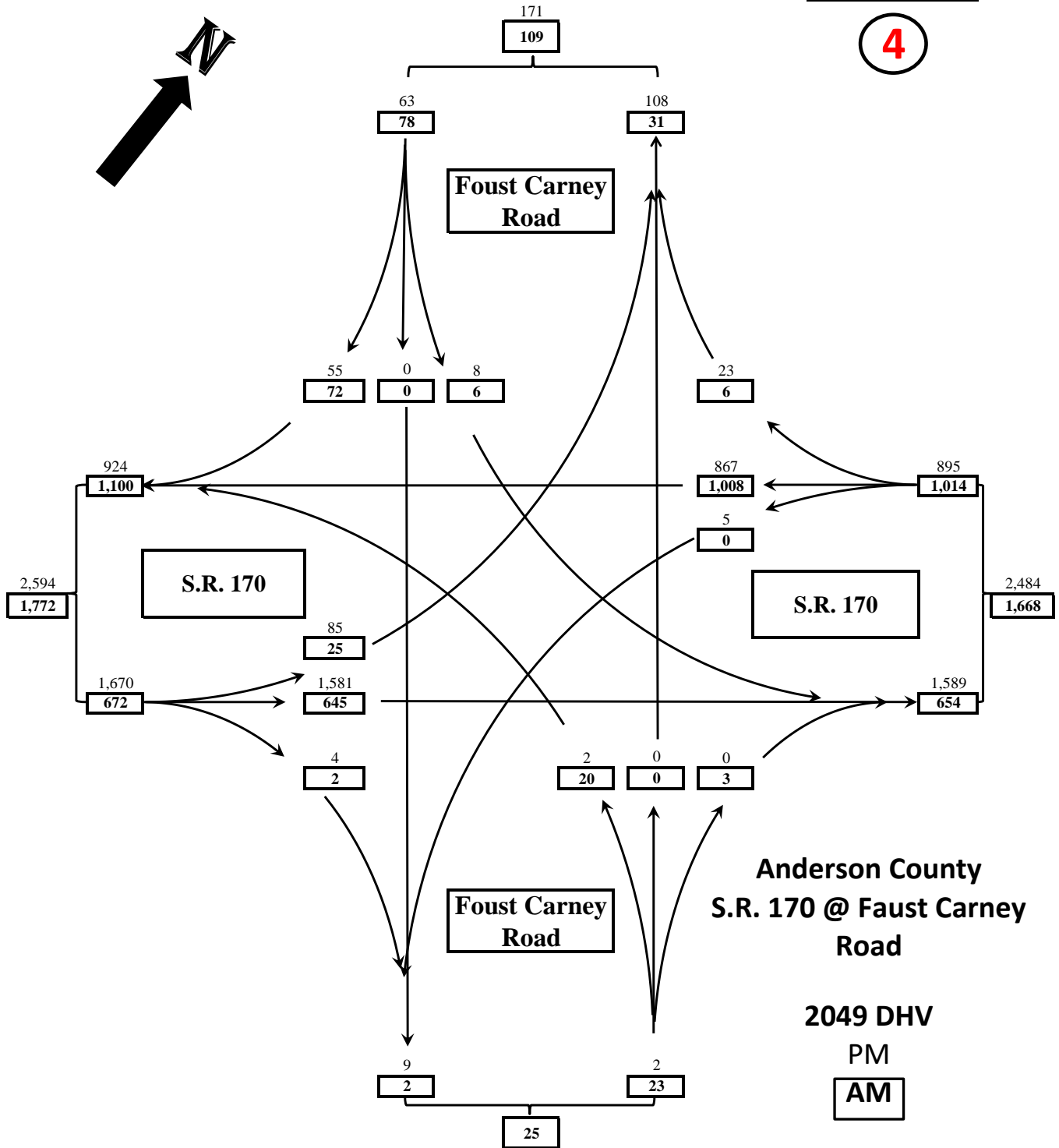
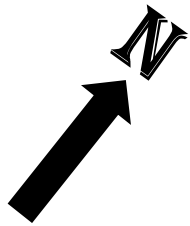
**AM**

Date: November 5, 2024

TA

2049 DHV

4



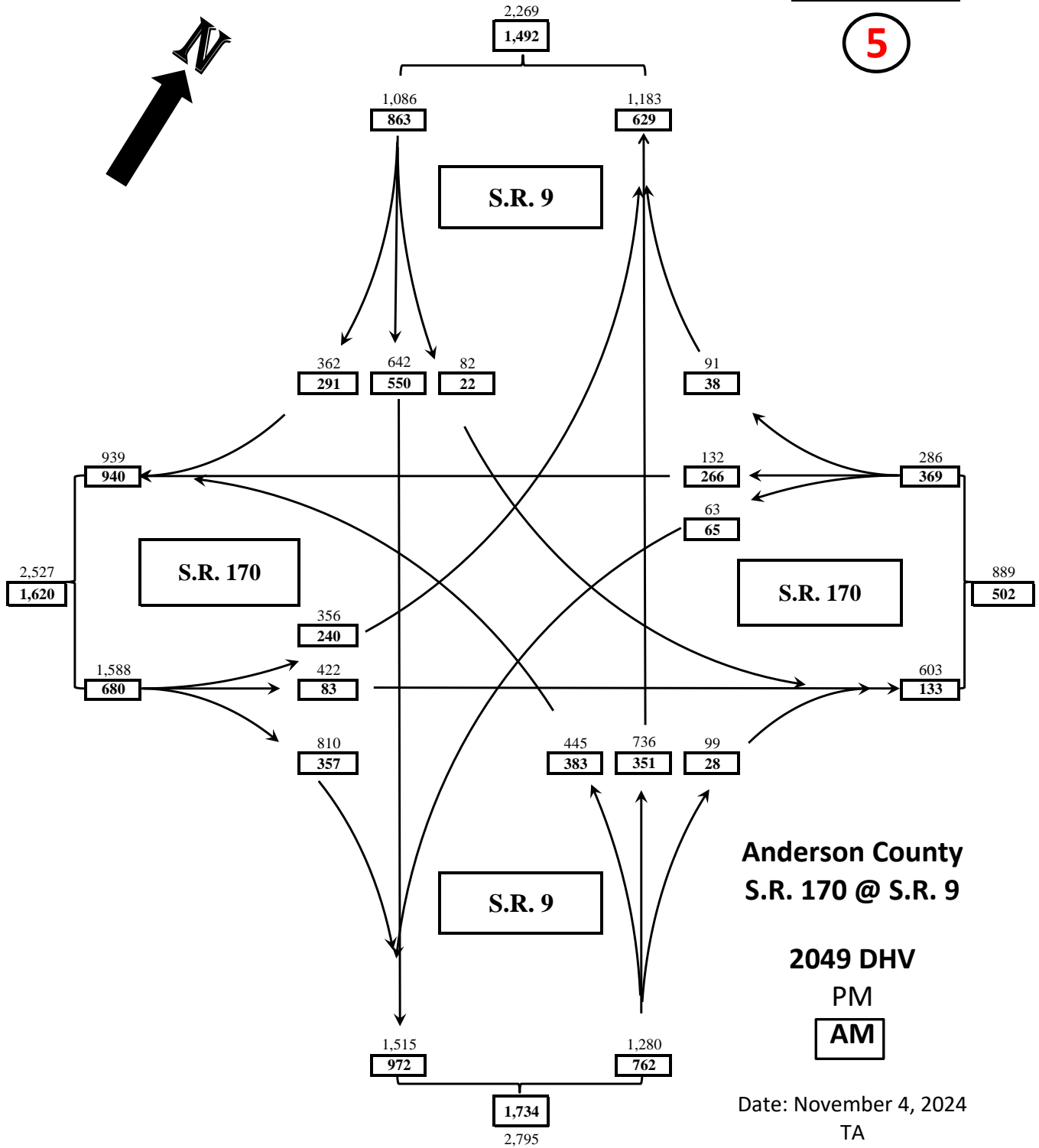
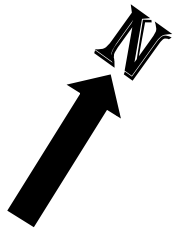
Anderson County  
S.R. 170 @ Faust Carney  
Road

2049 DHV  
PM  
AM

Date: November 4, 2024  
TA

2049 DHV

5



**TABLE 1**  
**YEAR 2029 CAPACITY ANALYSIS SUMMARY – SR 170 FROM MELTON LAKE TO SR 9**

INTERSECTION	MOVEMENT / APPROACH	AM PEAK (LOS / DELAY (SEC.))		PM PEAK (LOS / DELAY (SEC.))	
		NO BUILD	BUILD	NO BUILD	BUILD
SR 170 Edgemoor Road at Melton Lake Drive	EB	B 12.4	B 12.8	F 91.7	C 21.3
	WB	E 70.6	B 17.1	F 80.9	B 11.6
	NB	F 111.3	C 26.1	F 158.2	C 32.5
	SB	D 46.7	C 25.1	E 79.1	C 22.5
	Overall	E 56.9	B 19.4	F 89.6	B 19.4
SR 170 Edgemoor Road at Old Emory Road	EB	-	A 5.3	-	A 6.0
	WB	-	A 8.9	-	B 10.2
	SB	C 16.3	B 10.7	B 14.2	B 12.1
	Overall	-	A 7.9	-	A 7.6
SR 170 Edgemoor Road at New Henderson Road	EB	-	A 5.6	-	B 11.6
	WB	-	A 4.0	-	A 5.3
	NB	D 31.0	B 13.2	F 297.4	B 14.5
	Overall	-	A 4.9	-	A 9.4
SR 170 Edgemoor Road at Dogwood Road	EB	-	A 3.6	-	A 7.4
	WB	-	A 4.2	-	A 5.3
	NB	D 25.6	B 10.8	F 131.3	B 13.6
	SB	E 45.3	B 13.0	F 355.5	B 16.9
	Overall	-	A 4.3	-	A 6.8
SR 170 Edgemoor Road at SR 9 Clinton Highway	EB	D 47.0	C 20.8	C 31.6	C 23.5
	WB	E 65.3	E 65.3	D 48.5	D 47.6
	NB	D 40.5	D 40.5	D 43.7	D 42.9
	SB	B 16.4	B 16.4	C 24.5	C 22.9
	Overall	D 37.8	C 31.1	C 34.6	C 30.9

**TABLE 2**  
**YEAR 2049 CAPACITY ANALYSIS SUMMARY – SR 170 FROM MELTON LAKE TO SR 9**

INTERSECTION	MOVEMENT / APPROACH	AM PEAK (LOS / DELAY (SEC.))		PM PEAK (LOS / DELAY (SEC.))	
		NO BUILD	BUILD	NO BUILD	BUILD
SR 170 Edgemoor Road at Melton Lake Drive	EB	B 17.4	B 19.0	F 213.9	C 27.7
	WB	F 166.9	D 42.3	F 197.1	B 16.4
	NB	F 199.4	F 83.3	F 241.5	E 62.4
	SB	F 126.3	D 44.9	F 172.6	C 32.7
	Overall	F 132.6	D 42.2	F 199.0	C 28.1
SR 170 Edgemoor Road at Old Emory Road	EB	-	A 5.5	-	A 7.5
	WB	-	B 10.1	-	B 11.5
	SB	D 29.9	B 11.7	D 25.7	B 13.2
	Overall	-	A 8.6	-	A 9.0
SR 170 Edgemoor Road at New Henderson Road	EB	-	A 6.7	-	B 17.0
	WB	-	A 5.8	-	A 5.3
	NB	F 89.8	B 14.5	F 1849.2	B 17.5
	Overall	-	A 6.4	-	B 12.6
SR 170 Edgemoor Road at Dogwood Road	EB	-	A 5.5	-	B 10.4
	WB	-	A 7.6	-	A 4.8
	NB	F 54.8	B 11.9	F 1267.9	B 17.1
	SB	F 146.7	B 14.8	F 3228.6	C 22.6
	Overall	-	A 7.0	-	A 8.5
SR 170 Edgemoor Road at SR 9 Clinton Highway	EB	D 42.9	C 29.9	D 39.8	C 31.1
	WB	E 67.5	D 53.2	E 71.8	E 71.3
	NB	D 45.9	D 44.6	E 63.7	D 50.9
	SB	C 23.5	C 23.2	D 39.8	D 36.1
	Overall	D 40.9	D 35.1	D 49.2	D 41.1

<b>Project:</b>	SR-170
<b>PIN:</b>	124121.02
<b>Project Number:</b>	01024-0224-14
<b>County:</b>	Anderson
<b>Date:</b>	04/23/25

**No Build Traffic Projections**

Road	Year 2014 AADT	Existing AADT (Year 2024)	Historical Growth Rate	Year 2049 AADT	Percent Trucks
SR-170	14,923	16,294	0.88%	20,298	3.00%

## Chasity L. Stinson

---

**From:** Marlena Gore  
**Sent:** Thursday, May 8, 2025 10:23 AM  
**To:** Chasity L. Stinson; Kyle Kirschenmann; Ryan Cleveland  
**Cc:** John Sherk; Bryan Bartnik  
**Subject:** Traffic Analysis - PIN: 124121.01 & .02 | Anderson County | SR 170  
**Attachments:** SR 170 LOS and Delay Reports\_Melton Lake to SR 9\_PM2.5 Hotspot Analysis.pdf; SR 170 LOS and Delay Summary Table\_Melton Lake to SR 9\_PM2.5 Hotspot Analysis.pdf; 124121.01 SR 170 LOS and Delay Reports (No LTs).pdf; 124121.01 SR 170 LOS and Delay Reports.pdf; 124121.01 SR 170 LOS and Delay Summary Table.pdf; 124121.01 SR 170 LOS and Delay Reports (No LTs).pdf

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

All,

Good morning.

Attached are the traffic analysis reports that have been reviewed and verified for both sections of the SR 170 project.

Please note - The issue with the No Build scenarios is with left-turning traffic from the side street. The model calculates as though that traffic will turn left and has no other option. In reality, we know that if someone was waiting several minutes to turn left, either they would get impatient and make a mistake or decide to turn right and either find a new path to their destination or make a u-turn at a side street. As a result, a scenario was analyzed where the side street left turns are converted into right turns for the No Build condition. This is included in file 124121.01 SR 170 LOS and Delay Reports (No LTs). This increased some of the delay, but greatly reduced the larger delays shown in the PM scenarios. These results are shown in Tables 3 and 4.

Let us know if you have any questions, comments, or concerns on the data provided.

Thank you,



*Marléna Gore, CPM*

Project Manager  
TDOT/Region One Project Management  
7345 Region Ln.  
Knoxville, TN 37914

## Chasity L. Stinson

---

**From:** Jarvis, Simone <Jarvis.Simone@epa.gov>  
**Sent:** Wednesday, June 4, 2025 9:57 AM  
**To:** Chasity L. Stinson; Amy Brooks - Knox Planning ; Febres, Andres; Chris McPhilamy; Craig Luebke; Myers, Dianna; Elizabeth Orr; Jane Spann; Jim Renfro; Ortiz Borrero, Josue; Justin Mayer; Walther, Katherine; Sheckler, Kelly A.; Knox County Air Quality; Benjamin, Lynorae; Marc Corrigan; Mike Conger; Mohammad Molla; Rebecca Larocque; Rich DesGroseiliers; Monteith, Richard; Gerster, Sarah; Teresa Cantrell; Troy J. Ebbert  
**Subject:** [EXTERNAL] RE: Project-Level Transportation Conformity, Knoxville PM2.5 Non-Exempt Project Lists, 05/22/2025

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

### This Message Is From an External Sender

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Hi Chasity,

EPA concurs that these two widening projects are not projects of air quality concern.

Thank you,  
Simone Jarvis

US EPA Region 4 | Air & Radiation Division  
Air Regulatory Management Section  
Phone: 404-562-8393  
E-mail: [jarvis.simone@epa.gov](mailto:jarvis.simone@epa.gov)

---

**From:** Chasity L. Stinson <Chasity.L.Stinson@tn.gov>  
**Sent:** Thursday, May 22, 2025 10:29 AM  
**To:** Amy Brooks - Knox Planning <amy.brooks@knoxplanning.org>; Febres, Andres <febres-martinez.andres@epa.gov>; Chris McPhilamy <Chris.McPhilamy@tn.gov>; Craig Luebke <craig.luebke@knoxplanning.org>; Myers, Dianna <Myers.Dianna@epa.gov>; Elizabeth Orr <Elizabeth.Orr@dot.gov>; Jane Spann <Spann.Jane@epamail.epa.gov>; Jim Renfro <jim\_renfro@nps.gov>; Ortiz Borrero, Josue <OrtizBorrero.Josue@epa.gov>; Justin Mayer <justin.mayer@knoxcounty.org>; Walther, Katherine <Walther.Katherine@epa.gov>; Sheckler, Kelly A. <Sheckler.Kelly@epa.gov>; Knox County Air Quality <AirQuality@knoxcounty.org>; Benjamin, Lynorae <benjamin.lynorae@epa.gov>; marc.corrigan@tn.gov; Mike Conger <mike.conger@knoxtpo.org>; Mohammad Molla <Mohammad.Molla@tn.gov>; Rebecca Larocque <Rebecca.Larocque@knoxcounty.org>; Rich DesGroseiliers <richd@mymorristown.com>; Monteith, Richard <Monteith.Richard@epa.gov>; Gerster, Sarah <Gerster.Sarah@epa.gov>; Jarvis, Simone <Jarvis.Simone@epa.gov>; Teresa Cantrell <teresa\_cantrell@nps.gov>; Troy J. Ebbert <Troy.J.Ebbert@tn.gov>  
**Subject:** Project-Level Transportation Conformity, Knoxville PM2.5 Non-Exempt Project Lists, 05/22/2025

**Caution:** This email originated from outside EPA, please exercise additional caution when deciding whether to open attachments or click on provided links.

Hello Knoxville Area IAC,

TDOT recommends that the following non-exempt projects be classified as NOT A PROJECT OF AIR QUALITY CONCERN. Please see the attached nonexempt project list and PM2.5 Hot-Spot Analyses.

County	PIN	Description
Anderson	124121.01	Widening
Anderson	124121.02	Widening

Additional details are provided in the attached spreadsheet. TDOT requests your concurrence with our recommendation.

Please respond no later than close of business (4:30 central time) on **JUNE 5th**. If TDOT does not receive a response to the contrary, then TDOT will assume that you concur.

Thank you,



**Chasity Stinson** | TDOT Senior Technical Specialist  
Tennessee Department of Transportation (TDOT) | Environmental Division  
Technical Studies Office, Hazardous Materials/Air and Noise Section  
James K. Polk Building, 9th Floor  
505 Deadrick St, Suite 900, Nashville, TN 37243  
Phone: 615-532-9948  
Email: [chasity.l.stinson@tn.gov](mailto:chasity.l.stinson@tn.gov)

## Chasity L. Stinson

---

**From:** Marc Corrigan  
**Sent:** Friday, May 23, 2025 11:21 AM  
**To:** Chasity L. Stinson; Amy Brooks - Knox Planning ; Andres Febres; Chris McPhilamy; Craig Luebke; Dianna Myers; Elizabeth Orr; Jane Spann; Jim Renfro; Josue Ortiz; Justin Mayer; Katherine Walther; Kelly Sheckler; Knox County Air Quality; Lynorae Benjamin; Mike Conger; Mohammad Molla; Rebecca Larocque; Rich DesGroseillers; Richard Monteith; Sarah Larocca; Simone Jarvis; Teresa Cantrell; Troy J. Ebbert  
**Cc:** Michelle Oakes  
**Subject:** RE: Project-Level Transportation Conformity, Knoxville PM2.5 Non-Exempt Project Lists, 05/22/2025  
**Attachments:** Knoxville Area PM2.5 Nonexempt Project List 05-22-2025.xlsx; 124121.01, TDOT PM2.5 Hotspot Analysis May 2025.pdf; 124121.02, TDOT PM2.5 Hotspot Analysis May 2025.pdf

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Hello Chasity,

TDEC APC agrees that these two projects are not projects of air quality concern.

Marc

---

**From:** Chasity L. Stinson <Chasity.L.Stinson@tn.gov>  
**Sent:** Thursday, May 22, 2025 9:29 AM  
**To:** Amy Brooks - Knox Planning <amy.brooks@knoxplanning.org>; Andres Febres <febres-martinez.andres@epa.gov>; Chris McPhilamy <Chris.McPhilamy@tn.gov>; Craig Luebke <craig.luebke@knoxplanning.org>; Dianna Myers <Myers.Dianna@epa.gov>; Elizabeth Orr <Elizabeth.Orr@dot.gov>; Jane Spann <Spann.Jane@epamail.epa.gov>; Jim Renfro <jim\_renfro@nps.gov>; Josue Ortiz <OrtizBorrero.Josue@epa.gov>; Justin Mayer <Justin.Mayer@knoxcounty.org>; Katherine Walther <Walther.Katherine@epa.gov>; Kelly Sheckler <Sheckler.Kelly@epa.gov>; Knox County Air Quality <AirQuality@knoxcounty.org>; Lynorae Benjamin <benjamin.lynorae@epamail.epa.gov>; Marc Corrigan <Marc.Corrigan@tn.gov>; Mike Conger <mike.conger@knoxtpo.org>; Mohammad Molla <Mohammad.Molla@tn.gov>; Rebecca Larocque <rebecca.larocque@knoxcounty.org>; Rich DesGroseillers <richd@mymorristown.com>; Richard Monteith <Monteith.Richard@epa.gov>; Sarah Larocca <Larocca.Sarah@epa.gov>; Simone Jarvis <Jarvis.Simone@epa.gov>; Teresa Cantrell <teresa\_cantrell@nps.gov>; Troy J. Ebbert <Troy.J.Ebbert@tn.gov>  
**Subject:** Project-Level Transportation Conformity, Knoxville PM2.5 Non-Exempt Project Lists, 05/22/2025

Hello Knoxville Area IAC,

TDOT recommends that the following non-exempt projects be classified as NOT A PROJECT OF AIR QUALITY CONCERN. Please see the attached nonexempt project list and PM2.5 Hot-Spot Analyses.

County	PIN	Description
Anderson	124121.01	Widening

Anderson	124121.02	Widening
----------	-----------	----------

Additional details are provided in the attached spreadsheet. TDOT requests your concurrence with our recommendation.

Please respond no later than close of business (4:30 central time) on **JUNE 5th**. If TDOT does not receive a response to the contrary, then TDOT will assume that you concur.

Thank you,



**Chasity Stinson** | TDOT Senior Technical Specialist  
Tennessee Department of Transportation (TDOT) | Environmental Division  
Technical Studies Office, Hazardous Materials/Air and Noise Section  
James K. Polk Building, 9th Floor  
505 Deadrick St, Suite 900, Nashville, TN 37243  
Phone: 615-532-9948  
Email: [chasity.l.stinson@tn.gov](mailto:chasity.l.stinson@tn.gov)

## Chasity L. Stinson

---

**From:** Justin Mayer <Justin.Mayer@knoxcounty.org>  
**Sent:** Tuesday, May 27, 2025 8:11 AM  
**To:** Chasity L. Stinson  
**Subject:** RE: [External]Project-Level Transportation Conformity, Knoxville PM2.5 Non-Exempt Project Lists, 05/22/2025

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

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Chasity,

Knox County AQM concurs with TDOT that the listed projects are not a project of air quality concern.

### Justin Mayer

*Division Director of Air Quality Management*

Health Department

Office: 865-215-5913 | Cell: 865-755-3695

140 Dameron Avenue

Knoxville, TN 37917

[Justin.Mayer@knoxcounty.org](mailto:Justin.Mayer@knoxcounty.org)



---

**From:** Chasity L. Stinson <Chasity.L.Stinson@tn.gov>  
**Sent:** Thursday, May 22, 2025 10:29 AM  
**To:** Amy Brooks - Knox Planning <amy.brooks@knoxplanning.org>; Andres Febres <febres-martinez.andres@epa.gov>; Chris McPhilamy <Chris.McPhilamy@tn.gov>; Craig Luebke <craig.luebke@knoxplanning.org>; Dianna Myers <Myers.Dianna@epa.gov>; Elizabeth Orr <Elizabeth.Orr@dot.gov>; Jane Spann <Spann.Jane@epamail.epa.gov>; Jim Renfro <jim\_renfro@nps.gov>; Josue Ortiz <OrtizBorrero.Josue@epa.gov>; Justin Mayer <Justin.Mayer@knoxcounty.org>; Katherine Walther <Walther.Katherine@epa.gov>; Kelly Sheckler <Sheckler.Kelly@epa.gov>; AirQuality <Airquality@knoxcounty.org>; Lynorae Benjamin <benjamin.lynorae@epamail.epa.gov>; Marc Corrigan <Marc.Corrigan@tn.gov>; Mike Conger <mike.conger@knoxtpo.org>; Mohammad Molla <Mohammad.Molla@tn.gov>; Rebecca Larocque <Rebecca.Larocque@knoxcounty.org>; Rich DesGroseillers <richd@mymorristown.com>; Richard Monteith <Monteith.Richard@epa.gov>; Sarah Larocca <Larocca.Sarah@epa.gov>; Simone Jarvis <Jarvis.Simone@epa.gov>; Teresa Cantrell <teresa\_cantrell@nps.gov>; Troy J. Ebbert <Troy.J.Ebbert@tn.gov>  
**Subject:** [External]Project-Level Transportation Conformity, Knoxville PM2.5 Non-Exempt Project Lists, 05/22/2025

Hello Knoxville Area IAC,

TDOT recommends that the following non-exempt projects be classified as NOT A PROJECT OF AIR QUALITY CONCERN. Please see the attached nonexempt project list and PM2.5 Hot-Spot Analyses.

County	PIN	Description
Anderson	124121.01	Widening
Anderson	124121.02	Widening

Additional details are provided in the attached spreadsheet. TDOT requests your concurrence with our recommendation.

Please respond no later than close of business (4:30 central time) on **JUNE 5th**. If TDOT does not receive a response to the contrary, then TDOT will assume that you concur.

Thank you,



**Chasity Stinson** | TDOT Senior Technical Specialist  
Tennessee Department of Transportation (TDOT) | Environmental Division  
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**>>>CAUTION<<<**

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**Appendix D**  
**MSATs Background Information**

## **MOBILE SOURCE AIR TOXICS (MSAT)**

### *Background*

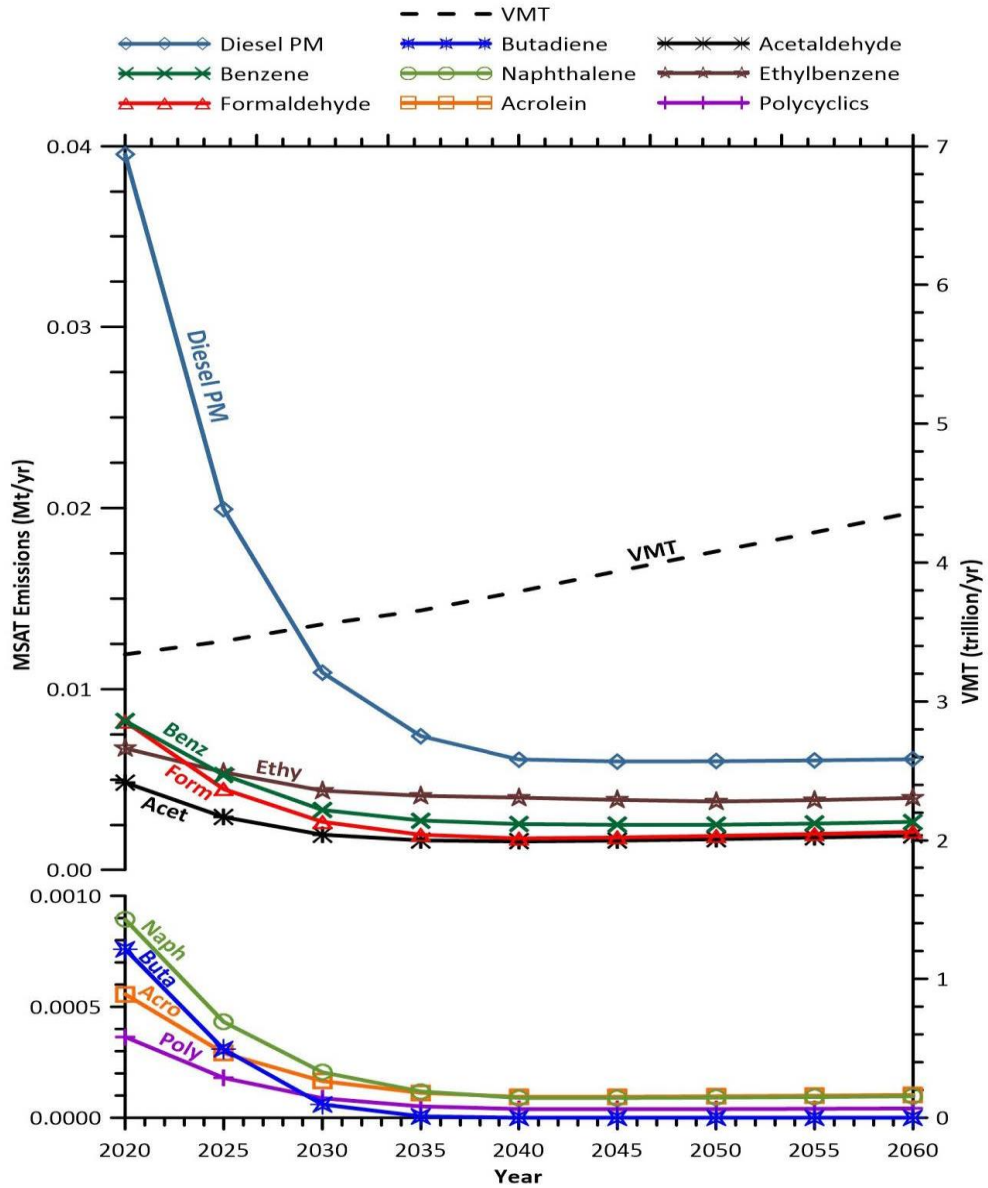
Controlling air toxic emissions became a national priority with the passage of the Clean Air Act Amendments (CAAA) of 1990, whereby Congress mandated that the U.S. Environmental Protection Agency (EPA) regulate 188 air toxics, also known as hazardous air pollutants. The EPA assessed this expansive list in its rule on the Control of Hazardous Air Pollutants from Mobile Sources (Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007), and identified a group of 93 compounds emitted from mobile sources that are part of EPA's Integrated Risk Information System (IRIS). In addition, EPA identified nine compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers or contributors and non-cancer hazard contributors from the 2011 National Air Toxics Assessment (NATA). These are *1,3-butadiene, acetaldehyde, acrolein, benzene, diesel particulate matter (diesel PM), ethylbenzene, formaldehyde, naphthalene, and polycyclic organic matter*. While FHWA considers these the priority mobile source air toxics, the list is subject to change and may be adjusted in consideration of future EPA rules.

### *Motor Vehicle Emissions Simulator (MOVES)*

According to EPA, MOVES3 is a major revision to MOVES2014 and improves upon it in many respects. MOVES3 includes new data, new emissions standards, and new functional improvements and features. It incorporates substantial new data for emissions, fleet, and activity developed since the release of MOVES2014. These new emissions data are for light- and heavy-duty vehicles, exhaust and evaporative emissions, and fuel effects. MOVES3 also adds updated vehicle sales, population, age distribution, and vehicle miles travelled (VMT) data. In the November 2020 EPA issued MOVES3 Mobile Source Emissions Model Questions and Answers. EPA states that for on-road emissions, MOVES3 updated heavy-duty (HD) diesel and compressed natural gas (CNG) emission running rates and updated HD gasoline emission rates. They updated light-duty (LD) emission rates for hydrocarbon (HC), carbon monoxide (CO) and nitrogen oxide (NO<sub>x</sub>) and updated light-duty (LD) particulate matter rates, incorporating new data on Gasoline Direct Injection (GDI) vehicles.

Using EPA's MOVES3 model, as shown below and in Figure 1 of the FHWA Interim Guidance, FHWA estimates that even if VMT increases by 31 percent from 2020 to 2060 as forecast, a combined reduction of 76 percent in the total annual emissions for the priority MSAT is projected for the same time period.

**FHWA PROJECTED NATIONAL MSAT EMISSION TRENDS 2020 – 2060  
FOR VEHICLES OPERATING ON ROADWAYS**



Note: Trends for specific locations may be different, depending on locally derived information representing vehicle-miles travelled, vehicle speeds, vehicle mix, fuels, emission control programs, meteorology, and other factors.  
 Source: EPA MOVES3 model runs conducted by FHWA, March 2021.

Diesel PM is the dominant component of MSAT emissions, making up 36 to 56 percent of all priority MSAT pollutants by mass, depending on calendar year. Users of MOVES3 will notice some differences in emissions compared with MOVES2014. MOVES3 is based on updated data on some emissions and pollutant processes compared to MOVES2014, and also reflects the latest Federal emissions standards in place at the time of its release. In addition, MOVES3 emissions forecasts are based on slightly higher VMT projections than MOVES2014, consistent with nationwide VMT trends.

### *MSAT Research*

Air toxics analysis is a continuing area of research. While much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. In particular, the tools and techniques for assessing project-specific health outcomes as a result of lifetime MSAT exposure remain limited. These limitations impede the ability to evaluate how potential public health risks posed by MSAT exposure should be factored into project-level decision-making within the context of NEPA.

Nonetheless, air toxics concerns continue to arise on highway projects during the NEPA process. Even as the science emerges, the public and other agencies expect FHWA to address MSAT impacts in its environmental documents. The FHWA, EPA, the Health Effects Institute, and others have funded and conducted research studies to try to more clearly define potential risks from MSAT emissions associated with highway projects. The FHWA will continue to monitor the developing research in this field.

### *NEPA Context*

The NEPA requires, to the fullest extent possible, that the policies, regulations, and laws of the Federal Government be interpreted and administered per its environmental protection goals, and that Federal agencies use an interdisciplinary approach in planning and decision-making for any action that adversely impacts the environment (42 U.S.C. 4332). In addition to evaluating the potential environmental effects, FHWA must also take into account the need for safe and efficient transportation in reaching a decision that is in the best overall public interest (23 U.S.C. 109(h)). The FHWA policies and procedures for implementing NEPA are contained in regulation at 23 CFR Part 771.

### *Incomplete or Unavailable Information for Project-Specific MSAT Health Impacts Analysis*

In FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in mobile source air toxic (MSAT) emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process

through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

The Environmental Protection Agency (EPA) is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the Clean Air Act and its amendments and have specific statutory obligations for hazardous air pollutants and MSAT. The EPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. They maintain the Integrated Risk Information System (IRIS), which is “a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects” (EPA, <https://www.epa.gov/iris/>). Each report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). Several HEI studies are summarized in Appendix D of FHWA’s Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents. Among the adverse health effects linked to MSAT compounds at high exposures are: cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations (HEI Special Report 16, <https://www.healtheffects.org/publication/mobile-source-air-toxics-critical-review-literature-exposure-and-health-effects>) or in the future as vehicle emissions substantially decrease.

The methodologies for forecasting health impacts include emissions modeling; dispersion modeling; exposure modeling; and then a final determination of health impacts – each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70 year) assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame since such information is unavailable.

It is particularly difficult to reliably forecast 70-year lifetime MSAT concentrations and exposure near roadways to determine the portion of time that people are exposed at a specific location and to establish the extent attributable to a proposed action, especially given that some of the information needed is unavailable.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI (Special Report 16, [https://www.healtheffects.org/publication/mobile-source-air-toxics-Critical review-literature-exposure-and-health-effects](https://www.healtheffects.org/publication/mobile-source-air-toxics-Critical%20review-literature-exposure-and-health-effects)). As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The EPA states that concerning diesel engine exhaust, “[t]he absence of adequate data to develop a sufficiently confident dose-response relationship from the epidemiologic studies has prevented the estimation of inhalation carcinogenic risk (<https://www.epa.gov/iris>).”

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the Clean Air Act to determine whether more stringent controls are required to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires EPA to determine an “acceptable” level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld EPA’s approach to addressing risk in its two-step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than deemed acceptable ([https://www.cadc.uscourts.gov/internet/opinions.nsf/284E23FFE079CD59852578000050C9DA/\\$file/07-1053-1120274.pdf](https://www.cadc.uscourts.gov/internet/opinions.nsf/284E23FFE079CD59852578000050C9DA/$file/07-1053-1120274.pdf)).

Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision-makers, who would need to weigh this information against project benefits, such as reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

# **Noise Technical Reports**

# **Noise Technical Report**

**for**

## **SR 170 Widening**

### **from SR-62 (Oak Ridge Highway) to**

### **near Melton Lake Drive (IA)(TMA)**

## **Anderson County, Tennessee**

**PIN Number: 124121.01**

**State Project Number: PE-D: 01024-0221-14**

Submitted to:



Prepared by:

Stantec Consulting Services, Inc.



April 2025

Project Plans  
Line and Grade Plans  
October 3, 2024

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## Executive Summary

The SR 170 (Edgemoor Road) Widening project, from SR-62 (Oak Ridge Highway) to near Melton Lake Drive (IA)(TMA) is a Type I project in accordance with the Federal Highway Administration (FHWA) noise regulation, *Procedures for Abatement of Highway Traffic and Construction Noise, 23 CFR 772* because the project is adding through traffic lanes. The project requires a noise study to identify noise impacts and to evaluate noise abatement for those impacts. The noise study was conducted in accordance with the Tennessee Department of Transportation's *Policy on Highway Traffic Noise Abatement* (TDOT's noise policy) and Section 5.3.4 (Noise) and the *Tennessee Environmental Procedures Manual*.

The study determined that the project will create traffic noise impacts. A total of 6 receptors are predicted to be impacted. The impacted land uses include Activity Category C recreational land uses at a picnic area at the boat ramp at 173 Edgemoor Road, a picnic area at Solway Park, the entrance to Melton Lake Greenway at Haw Ridge Park and at the Centennial Golf Course. All these recreational areas are owned by the City of Oak Ridge.

Noise abatement was evaluated to mitigate the predicted noise impacts in accordance with TDOT's noise policy.

Noise abatement is not proposed for this project. However, changes made during the final design process for the project could affect conclusions regarding noise impacts and abatement. Therefore, final noise abatement decisions will be made during the final design process.

Construction activities may generate intermittent and temporary noise above existing noise levels. The noise levels resulting from construction activities will depend on the types of equipment utilized, the duration of the activities, and the distances between construction activities and nearby land uses. However, the noise increases will be temporary and will not constitute a noise impact as defined by TDOT's noise policy.

Some tracts of undeveloped land exist in the project area. TDOT encourages the local governments with jurisdiction over these lands, as well as potential developers, to practice noise compatibility planning to avoid future noise impacts. The "Information for Local Officials" section of this report provides additional information on noise levels for undeveloped lands and noise compatibility planning.

## 1.0 Introduction

TDOT is proposing to improve State Route 170 (Edgemoor Road). This portion of the project will start from the State Route SR 62 (Oak Ridge Highway) and span to near Melton Lake Drive, approximately 2.2 miles. The improvements will provide 4-12-foot lanes (2 lanes in each direction) with either a raised median or a center turn lane, along with replacing the bridge over the Clinch River. Several intersections along the corridor will also see improvements, including realignment, reconfiguration, and addition of turning lanes. Current plans include providing a sidewalk and shared use path for non-motorized users. The planned improvements are designed to improve safety, mobility, and overall efficiency of the corridor. The design year for the project is 2049.

The project area is comprised of single-family homes (Activity Category B), a boat ramp and picnic area, two parks, Solway Park with a boat ramp and Haw Ridge Park with bike trails and a greenway, and the Centennial Golf Course (Activity Category C). Non-noise-sensitive land uses are scattered throughout the project area (Activity Category F). There are many substantial power transmission lines within the project study area, which originate at the TVA electrical substation on SR 170 (Edgemoor Road).

The project is Type I in accordance with the Federal Highway Administration (FHWA) noise regulation, Procedures for Abatement of Highway Traffic and Construction Noise, 23 CFR 772 (FHWA, 2010), because the project is adding through traffic lanes, therefore a noise study is required. This report documents the results of the noise analysis. Figure 1 shows the project location and limits. Project plans and the proposed typical cross-sections are shown in Appendix A.

## 2.0 Noise Evaluation

This study has been prepared in accordance with the FHWA noise regulation, the Tennessee Department of Transportation's (TDOT) *Policy on Highway Traffic Noise Abatement* (TDOT, 2011) (TDOT's noise policy), and Section 5.3.4 (Noise) of the *Tennessee Environmental Procedures Manual* (TDOT, 2011) and includes the following tasks:

- *Identification of noise-sensitive land uses:* Identification of existing land uses in the project area that are sensitive to highway traffic noise
- *Determination of existing noise levels:* Prediction of existing noise levels at sensitive land uses to characterize the existing noise environment in the project area
- *Determination of future noise levels:* Prediction of future, design year, worst-hour noise levels for the No-Build and Build Alternatives

- *Determination of traffic noise impacts:* Determination of noise impacts based on the increase in existing noise levels and design year noise levels
- *Noise abatement evaluation:* Evaluation of noise abatement for areas determined to be impacted by the project
- *Discussion of construction noise*
- *Information for local officials*

Each of these analysis steps is discussed below following a discussion of TDOT's criteria for determining noise impacts.

## 2.1 Criteria for Determining Impacts

### 2.1.1 Traffic Noise Terminology

Traffic noise levels are expressed in terms of the hourly, A-weighted equivalent sound level in decibels (dBA). A sound level represents the level of the rapid air pressure fluctuations caused by sources (such as traffic) that are heard as noise. A decibel is a unit that relates the sound pressure of a noise to the faintest sound the young human ear can hear.

The A-weighting refers to the amplification or attenuation of the different frequencies of the sound (subjectively, the pitch) to correspond to the way the human ear "hears" these frequencies. Generally, when the sound level exceeds the mid-60 dBA range, outdoor conversation in normal tones at a distance of three feet becomes difficult. Common indoor and outdoor sound levels are shown on Figure 2.

A 9-10 dB increase in sound level is typically judged by the listener to be twice as loud as the original sound while a 9-10 dB reduction is judged to be half as loud. Doubling the number of sources (i.e. vehicles) will increase the hourly equivalent sound level by approximately 3 dB, which is usually the smallest change in hourly equivalent A-weighted traffic noise levels that people can detect without specifically listening for the change.

Because most environmental noise fluctuates from moment to moment, it is standard practice to condense data into a single level called the equivalent sound level ( $L_{eq}$ ). The  $L_{eq}$  is a steady sound level that would contain the same amount of sound energy as the actual time-varying sound evaluated over the same time-period. The  $L_{eq}$  averages the louder and quieter moments, but gives much more weight to the louder moments in the averaging. For traffic noise assessment purposes,  $L_{eq}$  is typically evaluated over the worst one-hour period and is defined as  $L_{eq}(1h)$ .

The term *insertion loss* is generally used to describe the reduction in  $L_{eq}$  (1h) at a location after a noise barrier is constructed. For example, if the  $L_{eq}$  (1h) at a residence before a barrier is constructed is 75 dBA and the  $L_{eq}$  (1h) after a barrier constructed is 65 dBA, then the insertion loss would be 10 dB.

### 2.1.2 Noise Abatement Criteria

Noise impact is determined by comparing future project noise levels to a set of Noise Abatement Criteria (NAC) for a land use category, and to existing noise levels. The FHWA noise regulation and TDOT's noise policy state that traffic noise impacts require consideration of abatement when worst-hour noise levels approach or exceed the NAC listed in Table 1. TDOT's noise policy defines "approach" as one decibel below the NAC, or 66 dBA for Category B and C land uses. The FHWA noise regulation and TDOT's noise policy also define impacts to occur if there is a substantial increase in existing noise levels. TDOT's criteria to define a substantial noise increase is shown in Table 2.

## 2.2 Noise Analysis Areas

Review of available electronic mapping and field reconnaissance revealed four areas that might be impacted by the project. These areas are called noise analysis areas (NAAs) and are listed in Table 3 and shown on Figures 3-1 through 3-4. The four NAAs are described below:

- NAA 1 – South of SR 170 (Edgemoor Road) and east of SR 62 as shown on Figures 3-1 and 3.2.
- NAA 2 – South of SR 170 (Edgemoor Road), east of Solway Park and Melton Hill Lake and west of Old Edgemoor Road as shown on Figures 3-2 and 3-3.
- NAA 3 – North of SR 170 (Edgemoor Road), east of Harbour Pointe Lane and west of Park Meade Drive as shown on Figures 3-2 and 3-3.
- NAA 4 – North of SR 170 (Edgemoor Road), east of Park Meade Drive and west of Centennial Boulevard as shown on Figures 3-3 and 3-4.

The NAC for Activity Category B will apply to residential land uses. Noise impacts will be identified, and noise abatement will be considered if design year noise levels are 66 dBA or higher or if the project causes a substantial increase in existing noise levels.

The NAC for Activity Category C will apply to the boat ramp and picnic tables at 173 Edgemoor Road (NAA 1), the picnic area and boat ramp at Solway Park (NAA 1), the Centennial Golf Course (NAA 3 and NAA 4), and the Melton Lake greenway and bike trails at Haw Ridge Park (NAA 2). Noise impacts will be identified and noise abatement will be

considered if design year noise levels are 66 dBA or higher or if the project causes a substantial increase in existing noise levels.

No Category D land uses have been identified within the project limits.

No Category E land uses have been identified within the project limits.

A Category F land use has been identified within the project limits, the TVA Power station. This land use is not noise-sensitive and therefore has not been included in the noise study.

Category G undeveloped lands have been identified within the project limits. Undeveloped lands are not noise-sensitive, do not have a NAC (Table 1), and have not been included in the noise study. However, noise impacts could occur in the future if noise-sensitive land uses are constructed near the proposed SR 170 Widening project. A discussion of future noise levels and the need for noise-compatible land use planning is provided in Section 2.8.

## 2.3 Existing Noise Levels

### 2.3.1 Noise Measurements

Noise measurements were conducted at five noise-sensitive land uses in the project area on March 11th, 2025 between 10:25 am and 1:10 pm. A listing of measurement locations and noise level data is provided in Table 4. The existing measurements ranged from 49.5 to 63.6 dB. Measurement locations are shown on Figures 3-1 through 3-4. Noise measurement data sheets and site photographs are provided in Appendix B.

Short-term 20 minute noise measurements at all locations were conducted at one-minute intervals. Background noise (i.e. dog barking, sirens, etc.) during these measurements was noted, and the corresponding one-minute measurement intervals were eliminated. Noise levels vary throughout the day depending on the proximity of noise-sensitive land uses to local roads and to other noise sources. Noise levels can also vary with environmental changes, including shifts in wind speed and direction and changes in the vertical temperature profile. As a result, the short-term measurement data provides only a snapshot of the existing noise environment at each measurement location.

### 2.3.2 Model Validation

The noise analysis used Method 3 in the TEPM, which requires a separate analysis to validate the TNM models developed for the project. Validation involves conducting noise measurements at locations near the existing roadway while counting vehicles and documenting travel speeds on the road. The traffic volumes and speeds during the measurement period are input into a TNM model that represents existing conditions. The predicted noise levels from TNM are then compared to the measured noise levels. Per FHWA, if the levels are within 3 dB, the model is considered valid and can be used to predict noise levels. If the model is not within 3 dB, then the model is not considered valid until additional measurements are conducted or until the reason for the discrepancy is identified or the model is corrected.

Model validation noise measurements were conducted at five community locations on March 11<sup>th</sup>, 2025. Traffic volumes by vehicle type were counted during each measurement period, and speed data was collected for each vehicle type using a radar speed gone and driving the corridor. The validation locations and noise measurement and traffic data are in Appendix B. TNM predicted the noise level for each validation site based on the input traffic and speed data for the associated measurement period.

The pavement type for SR 170 (Edgemoor Road) widening is a Dense-Graded Asphalt Concrete (DGAC) pavement type, so “average” pavement type was modeled in TNM. The validation results are summarized in Table 5. As shown, the differences between the predicted and measured levels at the measurement locations range from -1.3 to 1.9 dB. All measurement locations validated.

## 2.4 Future Noise Levels

Tennessee Department of Transportation Planning Division developed traffic projections for the project for the design year 2049. Projected traffic volumes for the “design hour” represents the theoretical worst traffic condition. Design hour traffic projections were used for the noise analysis since they represent the highest number of vehicles expected to travel on SR 170 (Edgemoor Road) in a given hour and would, therefore, represent the worst noise hour. Design year traffic projections are included in Appendix C.

### 2.4.1 No-Build Alternative

Noise levels for the No-Build Alternative can be reasonably estimated by evaluating existing and future traffic volumes on SR 170 (Edgemoor Road). Doubling traffic on a roadway

results in a 3 dB increase in the noise level at a given location assuming all other conditions remain the same. Design year 2049 traffic volumes on SR 170 (Edgemoor Road) are predicted to be approximately 31% higher than existing volumes. This increase in traffic would increase noise levels at nearby residences by approximately 1.17 dB, as calculated below, and rounded to 1 dB. As a result, existing noise levels were increased by 1 dB to arrive at design year 2049 noise levels for the No-Build Alternative at the measurement locations shown on Figures 3-1 through 3-4. The No-Build Alternative results are shown in Table E.1 in Appendix E.

$$\text{Increase in sound level} = 10 \log (1+3.1/10) = 1.17 \text{ dB}$$

where: N = Percent increase in traffic between existing and design year

#### 2.4.2 Build Alternative

Noise modeling of the project area was completed using the FHWA Traffic Noise Model (TNM 2.5) computer program and in accordance with *TDOT Guidelines for Noise Modeling Using FHWA's Traffic Noise Model* (TDOT, 2011). The TNM calculated design hour noise levels in year 2049 for the noise-sensitive land uses in the project area.

Design year traffic projections provided by Tennessee Department of Transportation Planning Division were used for the noise analysis. These projections indicated design hour volumes for SR 170 (Edgemoor Road) range between 2,019 to 2,212 for AM and 2,463 to 2,708 for PM. The percentage of total trucks on SR 170 (Edgemoor Road) is 5%, as shown in Appendix C. The proposed design speed of 55 mph on SR 170 (Edgemoor Road) was modeled. The volumes and speeds of all roads modeled within the project study area are shown in Appendix C.

The predicted design year noise levels for the modeled receivers in each noise analysis area are summarized in Table 6 and discussed in the following section. The TNM quality control checklist and plan views showing all modeled TNM objects and the location of the modeled roadways and receivers are included in Appendix D. Predicted noise levels at each modeled receiver are included in Appendix E.

## 2.5 Noise Impacts

A noise-sensitive land use is impacted if the predicted worst hour noise level approaches or exceeds the NAC or the project substantially increases existing noise levels. Design year noise levels for the Build Alternative are predicted to be 2 - 7 dB greater than existing noise levels. These increases are not substantial in accordance with TDOT's noise policy.

Therefore, none of the land uses are predicted to be impacted by a substantial increase in noise level.

Although design year noise levels at most land uses are predicted to be less than the NAC, six Activity Category C receptors are predicted to be impacted by the project with design year noise levels of 66 dBA or greater (Table 6).

## 2.6 Noise Abatement Evaluation

Abatement is evaluated when impacts are predicted to occur. Noise barriers were evaluated to reduce noise levels for impacted land uses in each noise analysis area. For noise barriers to be included in a project, they must be determined to be both feasible and reasonable in accordance with TDOT's noise policy as discussed below.

### 2.6.1 Noise Barrier Feasibility

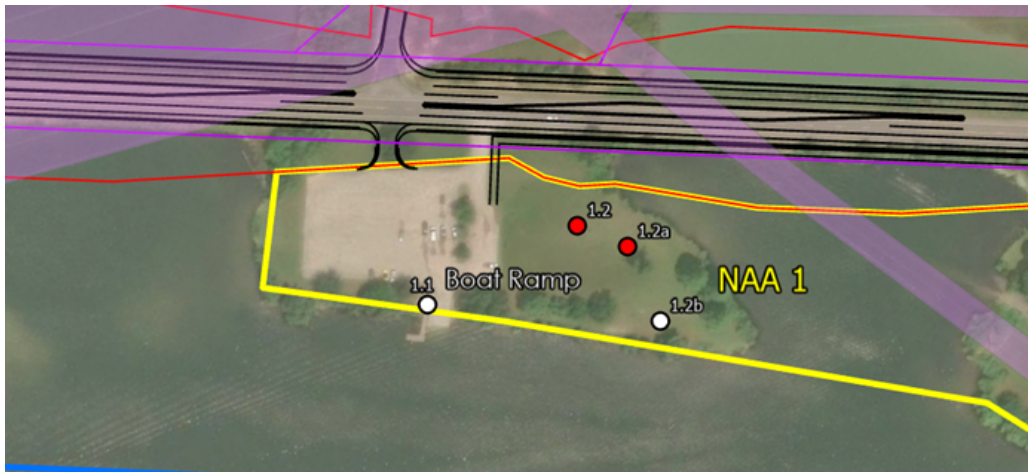
Feasibility means that the construction of a barrier would not be anticipated to pose any major design, construction, maintenance, or safety problems, and the noise barriers will provide a noise reduction (insertion loss) of 5 dB in design year highway traffic noise levels for the majority of the impacted first-row receptors.

Each NAA was evaluated for the feasibility of a noise barrier to provide a reduction in noise levels to impacted receptors. The feasibility of a noise barrier for each NAA with impacts is described below:

- NAA 1 – Boat ramp and picnic tables at 173 Edgemoor Road – This park is owned by the City of Oak Ridge and is part of the Haw Ridge Park. Three receptors were placed on this park, one at the boat ramp and two at the closest picnic tables to the proposed roadway as shown below and on Figure 3-2. Equivalent receptors (ERs) were calculated for this park based on the number of parking spaces (32). The park is assumed to be used for 8 hours a day and is open 365 days a year, seven days per week. Using the formula for calculating equivalent receptors found in the TEPM, the ER value for this park is 4.22. Divided across the three receptors, each receptor has a value of 1.41, rounded to one for each receptor. The two picnic tables (receptors 1.2 and 1.2a) are impacted by design year 2049 traffic.

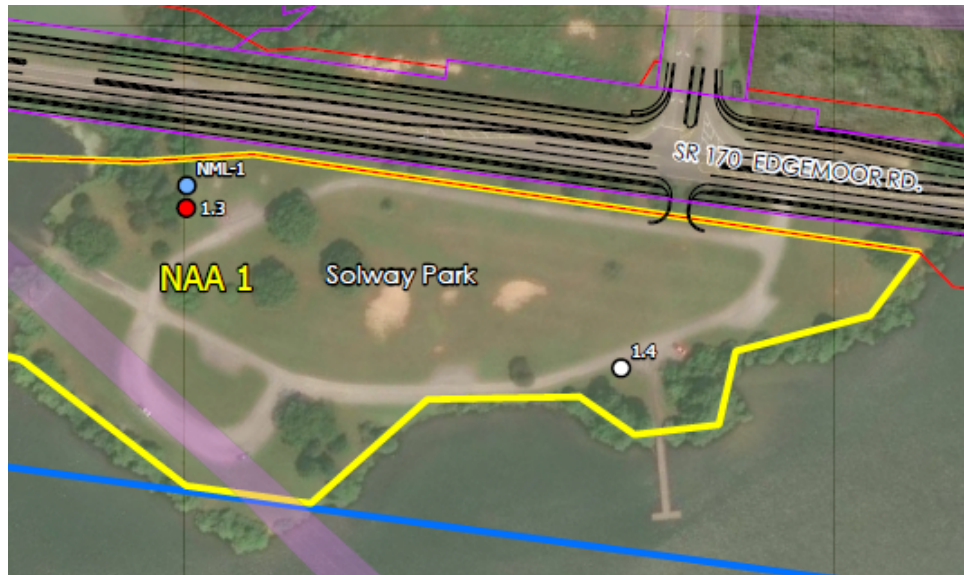
A noise barrier to provide benefit to the impacted receptors would not be feasible for this area, due to the short distance from the entrance drive of the park to the bridge over Melton Hill Lake. However, changes made during the final design

process for the project could affect this conclusion. Therefore, a final noise abatement decision for this area will be made during the final design process.



- NAA 1 – Boat ramp and picnic tables at Solway Park - Solway Park is owned by the City of Oak Ridge and is part of the Haw Ridge Park. Two receptors were placed on this park, one at the boat ramp and one at the closest picnic table to the proposed roadway as shown below and on Figure 3-2. Equivalent receptors (ERs) were calculated for this park based on the number of parking spaces (21). The park is assumed to be used for 8 hours a day and is open 365 days a year, seven days per week. Using the formula for calculating equivalent receptors found in the TEPM, the ER value for this park is 2.77. Divided across the two receptors, each receptor has a value of 1.39, rounded to one for each receptor. The picnic table (receptor 1.3) is impacted by design year 2049 traffic.

A noise barrier to provide benefit to the impacted receptor would not be feasible for this area, due to being an isolated impacted receptor. However, changes made during the final design process for the project could affect this conclusion. Therefore, a final noise abatement decision for this area will be made during the final design process.



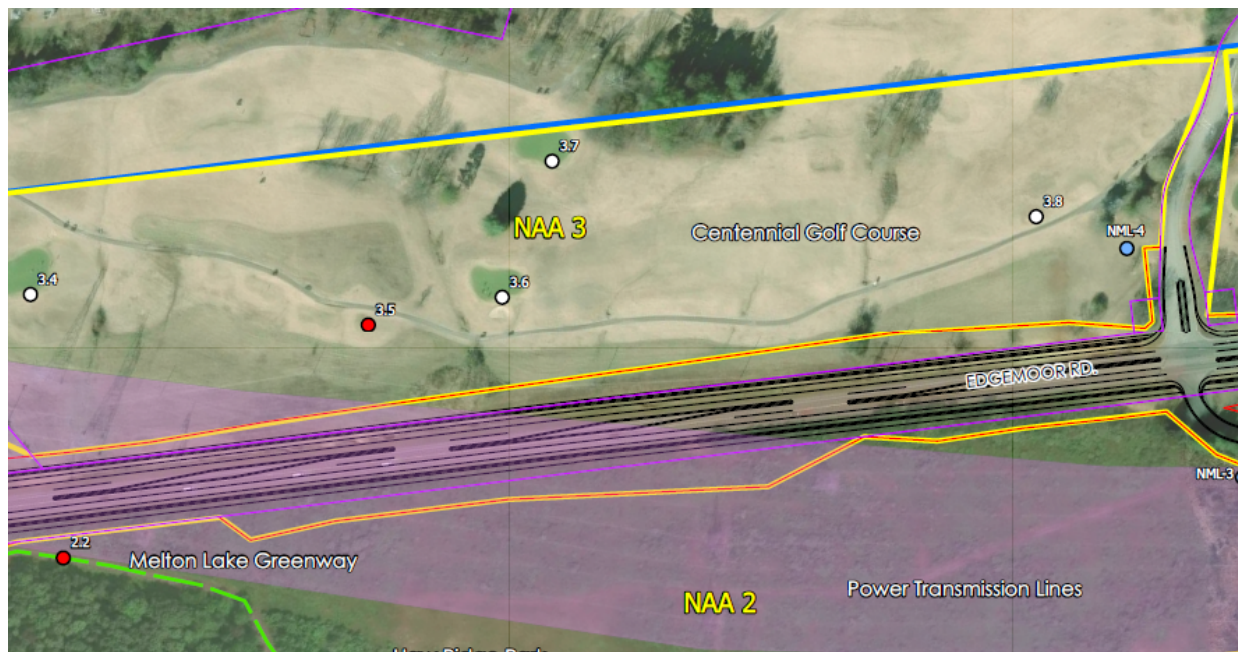
- NAA 2 – Melton Hill Lake Greenway at Haw Ridge Park Bicycle Trailhead – Haw Ridge Park is owned by the City of Oak Ridge. The 780-acre park is situated on a scenic peninsula along the Clinch River. Greenways for Haw Ridge, and Melton Lake, a Mountain Bike pump track and trails, and room for biking, hiking, and running. The Melton Lake Greenway starts from the parking area. Within NAA 2 three receptors were placed on the greenway, one at the beginning of the greenway (receptor 2.1), one at the midpoint of the trail (2.2) within the 500 foot noise study area and one as it leaves the study area (2.3) as shown below and on Figures 3-2 and 3-3. The bike trails quickly depart from the noise study area so the greenway was modeled. Equivalent receptors (ERs) were calculated for this park based on the number of parking spaces (26). The park is assumed to be used for 8 hours a day and is open 365 days a year, seven days per week. Using the formula for calculating equivalent receptors found in the TEPM, the ER value for this park is 3.43. Divided across the three receptors, each receptor has a value of 1.14, rounded to one for each receptor. Receptors 2.1 and 2.3 are impacted by design year 2049 traffic.

A noise barrier to provide benefit to the impacted receptor would not be feasible for this area, due to the close proximity of major power transmission lines which limits the length of any potential barrier. However, changes made during the final design process for the project could affect this conclusion. Therefore, a final noise abatement decision for this area will be made during the final design process.



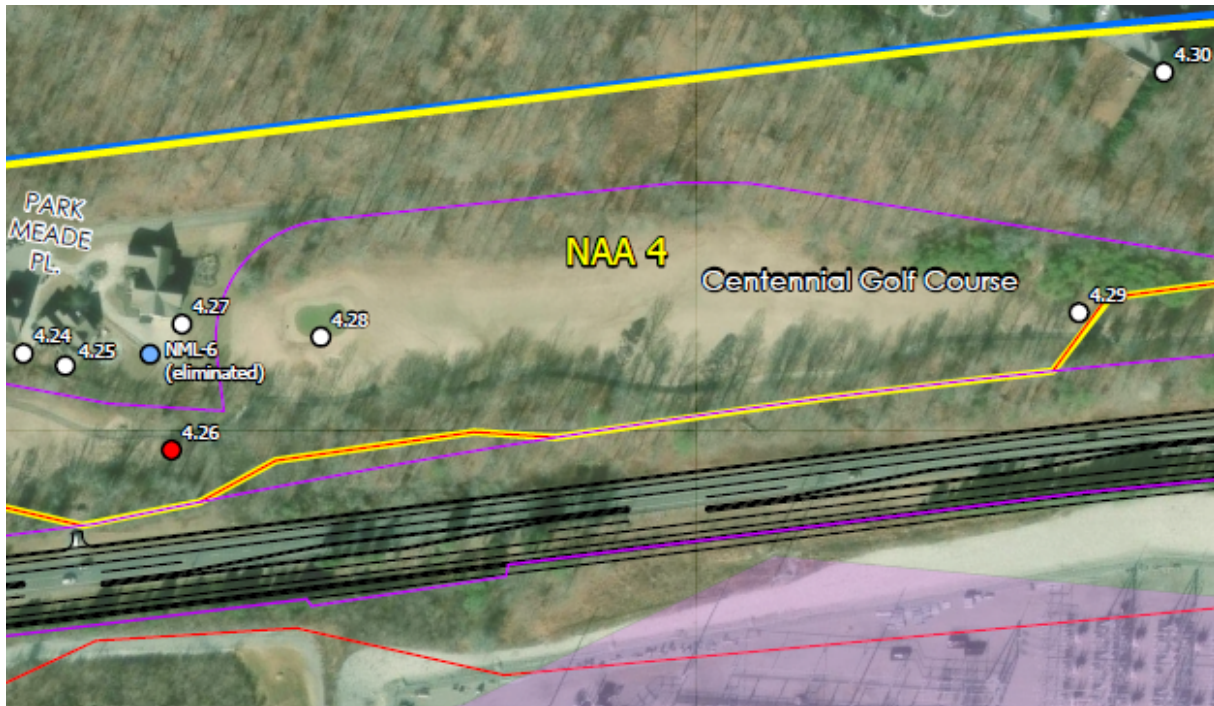
- NAA 3 – Centennial Golf Course west of Park Meade Drive – The Centennial Golf Course is owned by the City of Oak Ridge. Established in 1996, Tennessee Centennial Golf Course is a more than 6,500-yard golf course featuring natural forestry, fairways, bent grass and hills. Within NAA 3, five receptors were placed on the golf course at the tee box areas as shown below and on Figures 3-2 and 3-3. Equivalent receptors (ERs) were calculated for the golf course based on information from the course manager. The golf course is assumed to be used for each golfer an average of 3 hours a day and is open 365 days a year, seven days per week. Using the formula for calculating equivalent receptors found in the TEPM, the ER value for the golf course is 1.90. Divided across the five receptors, each receptor has a value of 0.40, rounded to one for each receptor. Receptor 3.5 is impacted by design year 2049 traffic.

A noise barrier to provide benefit to the impacted receptor would not be feasible for this area, due to the close proximity of major power transmission lines which limits the length of any potential barrier and the impacted receptor (3.5) is isolated. However, changes made during the final design process for the project could affect this conclusion. Therefore, a final noise abatement decision for this area will be made during the final design process.



- NAA 4 – Centennial Golf Course east of Park Meade Drive – The Centennial Golf Course is owned by the City of Oak Ridge. Established in 1996, Tennessee Centennial Golf Course is a more than 6,500-yard golf course featuring natural forestry, fairways, bent grass and hills. Within NAA 4, four receptors were placed on the golf course at the tee box areas as shown below and on Figures 3-3 and 3-4. Equivalent receptors (ERs) were calculated for the golf course based on information from the course manager. The golf course is assumed to be used for each golfer an average of 3 hours a day and is open 365 days a year, seven days per week. Using the formula for calculating equivalent receptors found in the TEPM, the ER value for the golf course is 1.52. Divided across the four receptors, each receptor has a value of 0.50, rounded to one for each receptor. Receptor 4.26 is impacted by design year 2049 traffic.

A noise barrier to provide benefit to the impacted receptor would not be feasible for this area, due to the impacted receptor 4.26 being isolated. However, changes made during the final design process for the project could affect this conclusion. Therefore, a final noise abatement decision for this area will be made during the final design process.



Because noise barriers to benefit the impacted receptors in the project study area, reasonableness of a barrier was not evaluated. If during the final design process a barrier is found to be feasible, reasonableness will be evaluated at that time.

### 2.6.2 Statement of Likelihood

Noise abatement is not proposed for this project. However, changes made during the final design process for the project could affect conclusions regarding noise impacts and abatement. Therefore, final noise abatement decisions will be made during the final design process.

## 2.7 Construction Noise

Construction activities will generate intermittent and temporary noise above existing ambient noise levels. The noise levels resulting from construction activities will depend on the types of equipment utilized, the duration of the activities, and the distances between construction activities and nearby land uses. However, the noise increases will be

temporary and will not constitute a noise impact as defined by the FHWA noise regulation and TDOT's noise policy.

## 2.8 Information for Local Officials

Undeveloped tracts of land are adjacent to SR 170 (Edgemoor Road). TDOT encourages the local governments with jurisdiction over these lands, as well as potential developers of these lands, to practice noise compatibility planning to avoid future noise impacts. The following language is included in TDOT's noise policy:

*"Highway traffic noise should be reduced through a program of shared responsibility. Local governments should use their power to regulate land development in such a way that noise-sensitive land uses are either prohibited from being located adjacent to a highway or that the developments are planned, designed and constructed in such a way that noise impacts are minimized."*

FHWA developed two guidance documents on noise compatible land use planning: *The Audible Landscape: A Manual for Highway Noise and Land Use* (FHWA, 1974) and *Entering the Quiet Zone: Noise Compatibility Land Use Planning* (FHWA, 2002).

Design year noise levels for areas along SR 170 (Edgemoor Road) where vacant and possibly developable lands exist are listed in Table 7. Noise predictions were made at distances of 20 feet from the edge of the nearest travel lane for the design year 2049. Noise levels within approximately 120 feet of the centerline of the near lane of SR 170 (Edgemoor Road) will approach or exceed the NAC of 66 dBA. Noise-sensitive land uses should generally not be constructed in these areas unless noise mitigation measures are provided.

The values in Table 7 do not represent predicted levels at every location at a particular distance from the roadway. Noise levels will vary with changes in terrain and will be affected by the shielding of objects such as buildings. This information is being included to make local officials and planners aware of anticipated highway noise levels so that future development will be compatible with these levels.

Finally, TDOT has constructed Type II or "retrofit" noise barriers along existing highways. To be eligible for a Type II noise barrier, an area must meet the following criteria:

- The neighborhood must be located along a limited-access roadway.
- The neighborhood must be primarily residential.

- The majority (more than 50%) of residences in the neighborhood near the highway pre-dated the initial highway construction.
- A noise barrier for the neighborhood must not have been previously determined to be not reasonable or not feasible as part of a new highway construction or through-lane widening study (Type I project).
- Existing noise levels measured in the neighborhood must be above 66 dBA.
- A barrier must be feasible to construct and will provide substantial noise reduction.
- A barrier must be reasonable (barrier area per benefited residence) in accordance with TDOT's noise policy. A residence is considered "benefited" if the noise barrier will reduce the traffic noise by at least 5 dB.

## 2.9 Meteorological Effects on Noise Levels

Noise levels from highways or other sources are louder or quieter during certain times of the day or year. Changes in weather conditions are often the cause of these higher or lower noise levels. The effects on a community depend on the distance to highways and the frequency and duration of certain weather conditions.

Louder noise levels will be more common in areas where the wind typically blows from a highway toward a community (downwind) than in locations where the wind blows from the community toward the highway (upwind). Downwind conditions cause sound waves to bend back toward the earth and increase sound levels.

When the air above the ground is warmer than the air near the ground, a *temperature inversion* occurs that causes sound waves to bend back toward the earth and increase noise levels. Temperature inversions often occur at night when the weather is clear and winds are calm.

Changes in weather conditions also affect how well a noise barrier performs. Temperature inversions and downwind conditions can increase noise levels in neighborhoods protected by a noise barrier, while temperature lapses and upwind conditions can further reduce noise levels in neighborhoods protected by a noise barrier.

## 3.0 Conclusions

Traffic noise and temporary construction noise can be a consequence of transportation projects, especially in areas near high-volume and high-speed existing steady-state traffic noise sources. This Noise Technical Report utilized computer models created with the

FHWA TNM v2.5, validated to field-collected traffic noise measurement data, to predict future noise levels and define impacted receptors along the proposed SR 170 (Edgemoor Road) Widening project.

For Design Year 2049 traffic volumes, the Build condition is predicted to create six traffic noise impacts.

Consideration for noise abatement measures was given to all impacted receptors. Noise abatement is not proposed for this project. However, changes made during the final design process for the project could affect this conclusion. Therefore, final noise abatement decisions for this project will be made during the final design process.

Construction activities will generate intermittent and temporary noise above existing ambient noise levels. The noise levels resulting from construction activities will depend on the types of equipment utilized, the duration of the activities, and the distances between construction activities and nearby land uses. However, the noise increases will be temporary and will not constitute a noise impact as defined by the FHWA noise regulation and TDOT's noise policy.

Although the project corridor is mostly developed, undeveloped tracts of land are adjacent to SR 170 between NAA 4 and Centennial Bluff Boulevard. TDOT encourages the local governments with jurisdiction over these lands, as well as potential developers of these lands, to practice noise compatibility planning to avoid future noise impacts.

## 4.0 References

Federal Highway Administration, November 1974, *The Audible Landscape: A Manual for Highway Noise and Land Use*.

Federal Highway Administration, May 2002, *Entering the Quiet Zone: Noise Compatibility Land Use Planning*.

Federal Highway Administration, July 2010, *Procedures for Abatement of Highway Traffic and Construction Noise*, 23 CFR 772.

Tennessee Department of Transportation, April 2010, *TDOT Guidelines for Noise Modeling Using FHWA's Traffic Noise Model*.

Tennessee Department of Transportation, July 13, 2011, *Policy on Highway Traffic Noise Abatement*.

Tennessee Department of Transportation, 2011, *Tennessee Environmental Procedures Manual*.

## **TABLES**

**Table 1**  
**FHWA Noise Abatement Criteria**

<b>Activity Category</b>	<b>L<sub>Aeq</sub>(1h) dBA</b>	<b>Evaluation Location</b>	<b>Activity Description</b>
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B <sup>(1)</sup>	67	Exterior	Residential.
C <sup>(1)</sup>	67	Exterior	Active sport areas, amphitheatres, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structure, radio stations, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structure, radio studios, recording studios, schools, and television studios.
E <sup>(1)</sup>	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D, or F.
F	---	---	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	---	---	Undeveloped lands that are not permitted.

(1) Includes undeveloped lands permitted for this activity category.

**Table 2**  
**Substantial Noise Level Increase**

<b>Existing Noise Level (dBA) <sup>(1)</sup></b>	<b>Predicted Design Year Noise Level Increase (dB) <sup>(2)</sup></b>
42 or less	15 or more
43	14 or more
44	13 or more
45	12 or more
46	11 or more
47 or more	10 or more

(1) Worst-hour noise level from the combination of natural and mechanical sources and human activity.

(2) Predicted design year noise level minus existing noise level.

**Table 3**  
**Noise Analysis Areas**

<b>Noise Analysis Area</b>	<b>Description</b>	<b>Activity Category</b>	<b>NAC (dBA)</b>
NAA 1	South of SR 170 (Edgemoor Road) and east of SR 62 as shown on Figures 3-1 and 3.2	C	67
NAA 2	South of SR 170 (Edgemoor Road), east of Solway Park and Melton Hill Lake and west of Old Edgemoor Road as shown on Figures 3-2 and 3-3	C	67
NAA 3	North of SR 170 (Edgemoor Road), east of Harbour Pointe Lane and west of Park Meade Drive as shown on Figures 3-2 and 3-3.	C	67
NAA 4	North of SR 170 (Edgemoor Road), east of Park Meade Drive and west of Centennial Boulevard as shown on Figures 3-3 and 3-4	C	67

**Table 4**  
**Existing Noise Levels at Measurement Locations**

<b>Location</b>	<b>Noise Analysis Area</b>	<b>Distance to SR 170 (feet)<sup>(1)</sup></b>	<b>Date</b>	<b>Period</b>	<b>L<sub>eq</sub>(1h) (dBA)</b>
NML-1	NAA 1	90	March 11, 2025	10:25 am - 10:40 am	63.6
NML-2	NAA 3	400	March 11, 2025	10:58 am - 11:18 am	49.5
NML-3	NAA 2	200	March 11, 2025	12:18 pm -12:48 pm	58.2
NML-4	NAA 3	170	March 11, 2025	11:30 am – 11:50 am	61.4
NML-5	NAA 4	340	March 11, 2025	12:50 pm – 1:10 pm	54.7

(1) From proposed edge-of-pavement.

**Table 5**  
**TNM Validation Results**

<b>Location</b>	<b>NAA</b>	<b>Time Start</b>	<b>Time End</b>	<b>Measured L<sub>eq</sub>, dBA</b>	<b>Predicted L<sub>eq</sub>, dBA</b>	<b>Predicted - Measured Difference, dB</b>
NML-1	NAA 1	10:25 am	10:40 am	63.6	65.5	<b>1.9</b>
NML-2	NAA 3	10:58 am	11:18 am	49.5	50.4	<b>0.9</b>
NML-3	NAA 2	12:18 pm	12:48 pm	58.2	59.1	0.9
NML-4	NAA 3	11:30 am	11:50 am	61.4	60.1	<b>-1.3</b>
NML-5	NAA 4	12:50 pm	1:10 pm	54.7	55.1	<b>0.4</b>

**Table 6**  
**Impact Determination Analysis**  
**Design Year 2049, Build Alternative**

Noise Analysis Area	Design Year Noise Levels (dBA)	Impacted?	Number of Impacts
NAA 1	60 - 68	Yes	3
NAA 2	55 - 72	Yes	2
NAA 3	59 - 65	No	0
NAA 4	57 - 69	Yes	1
<b>Total</b>			<b>6</b>

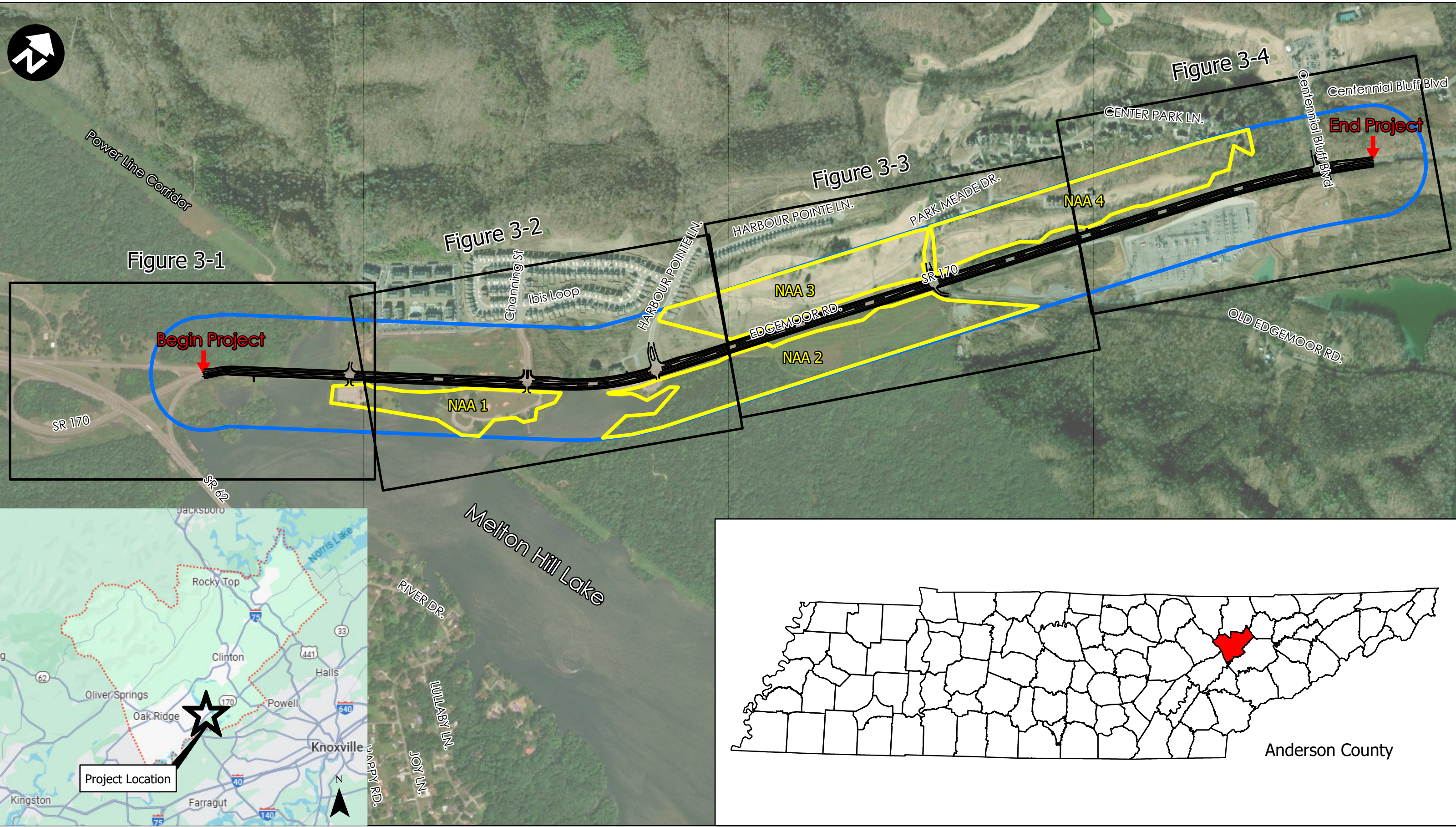
**Table 7**  
**Design Year 2049 Noise Levels for Undeveloped Lands**

Location	Distance from SR 170 (Edgemoor Road) <sup>(1)</sup>	L <sub>eq</sub> (1h) (dBA) <sup>(2)</sup>
Between NAA 4 and Centennial Bluff Blvd	180 feet	66
	72 feet	71

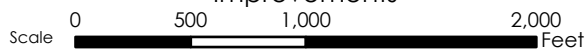
(1) Perpendicular distance to the center of near lane.

(2) At-grade situation.

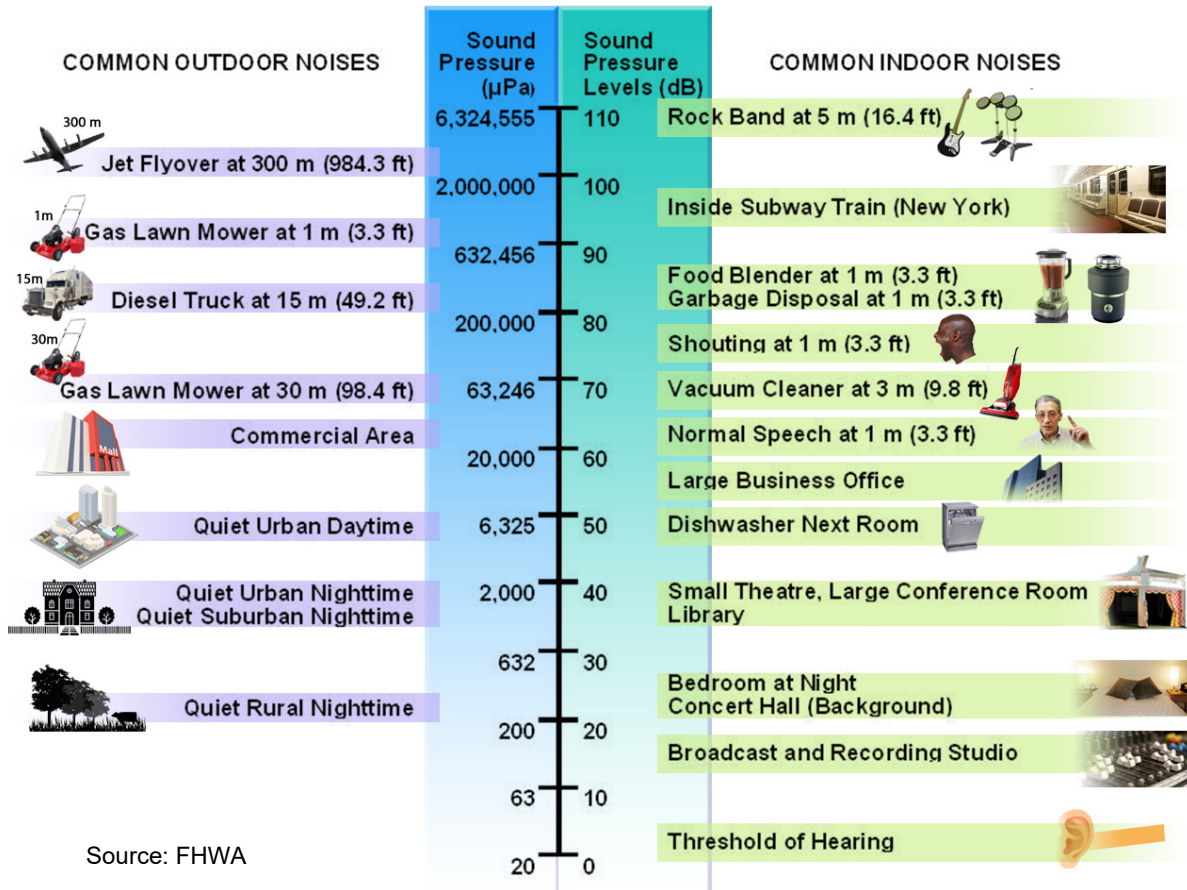
## FIGURES



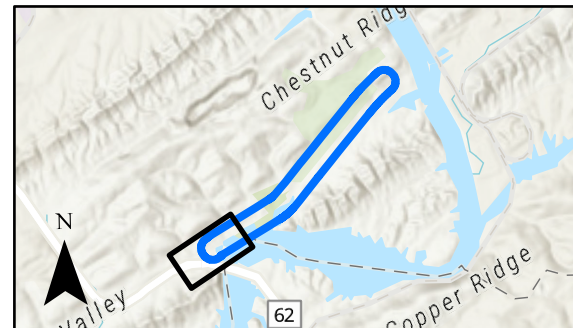
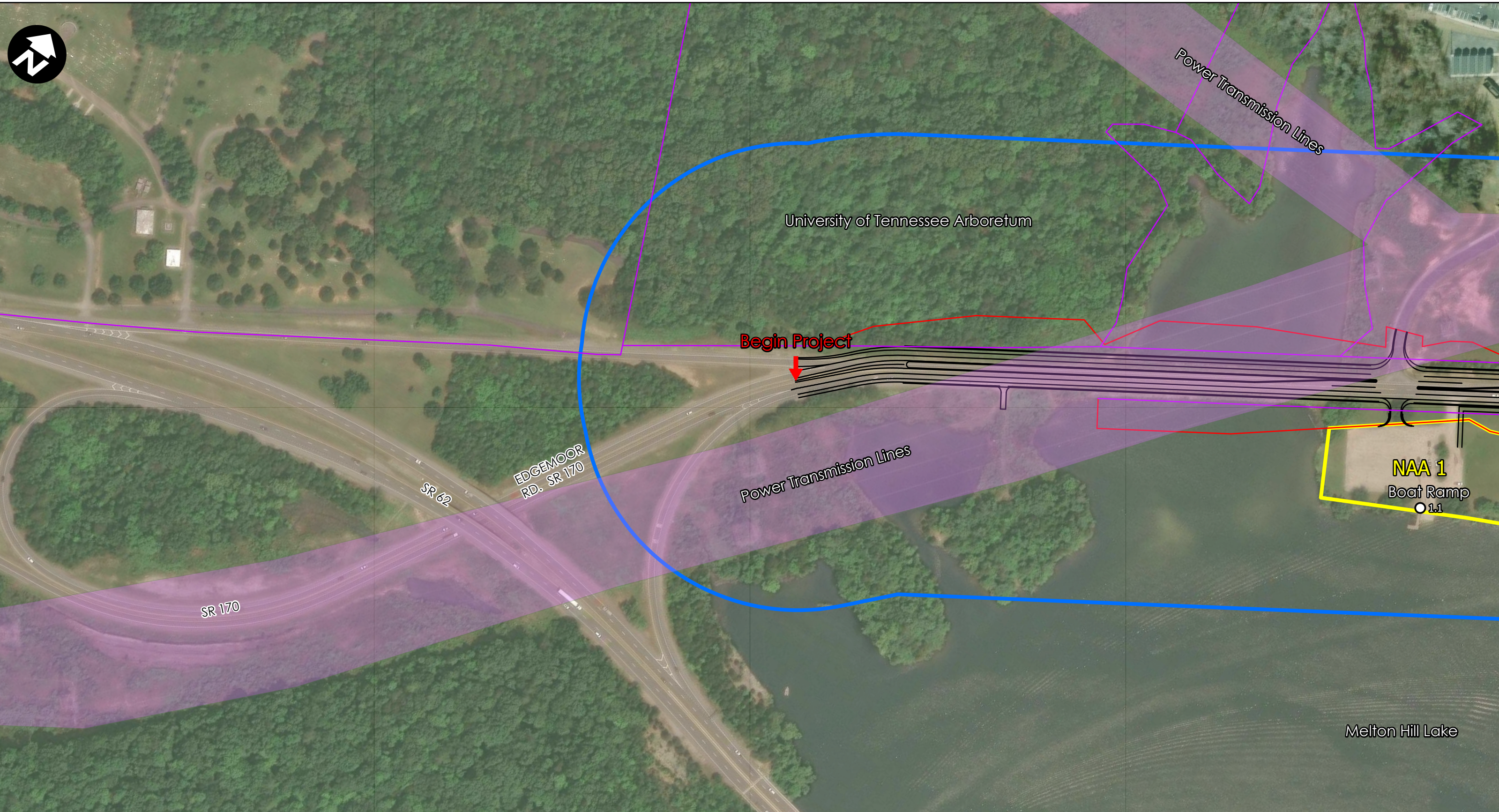
- Begin and End Project
- Noise Analysis Areas
- Noise Study Area
- Proposed Design Improvements



**Figure 2**  
**Common Sound Levels**



Source: FHWA

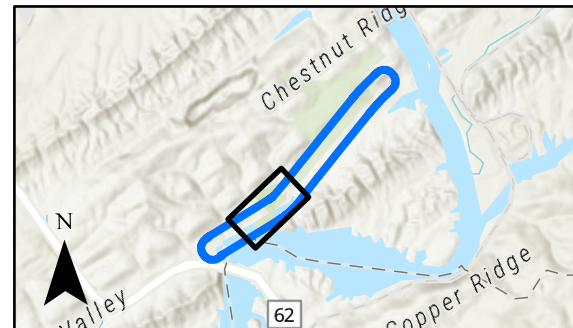


- ↓ Begin and End Project
- Noise Measurement Location
- Non-Impacted Receptor
- Impacted Receptor
- Right-of-Way Acquisition
- Proposed Design Improvements
- Proposed Right-of-Way
- Existing Right-of-Way and Property Lines
- Greenway
- Noise Analysis Areas
- Noise Study Area
- Major Power Lines





Developed April 2025

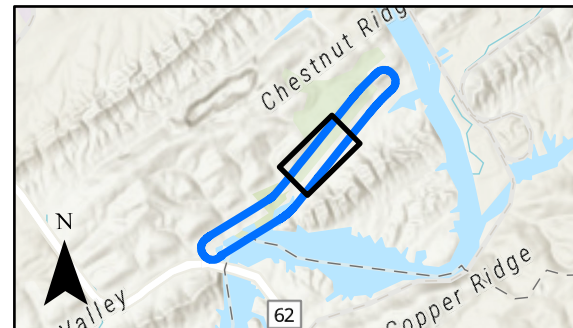
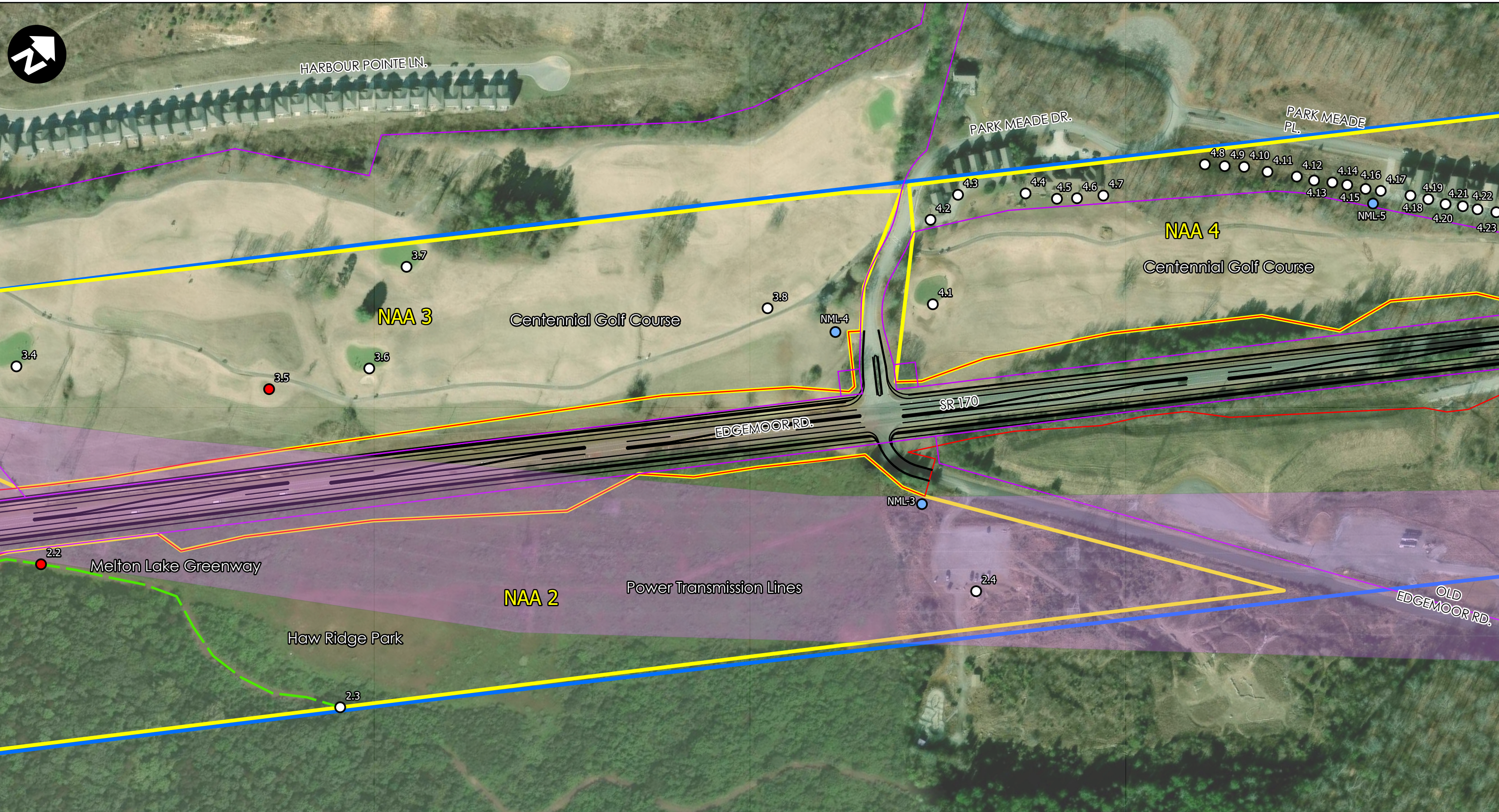


- ↓ Begin and End Project
- Noise Measurement Location
- Non-Impacted Receptor
- Impacted Receptor
- ⊗ Right-of-Way Acquisition
- Proposed Design Improvements
- Proposed Right-of-Way
- Existing Right-of-Way and Property Lines
- Greenway
- Noise Analysis Areas
- Noise Study Area
- Major Power Lines



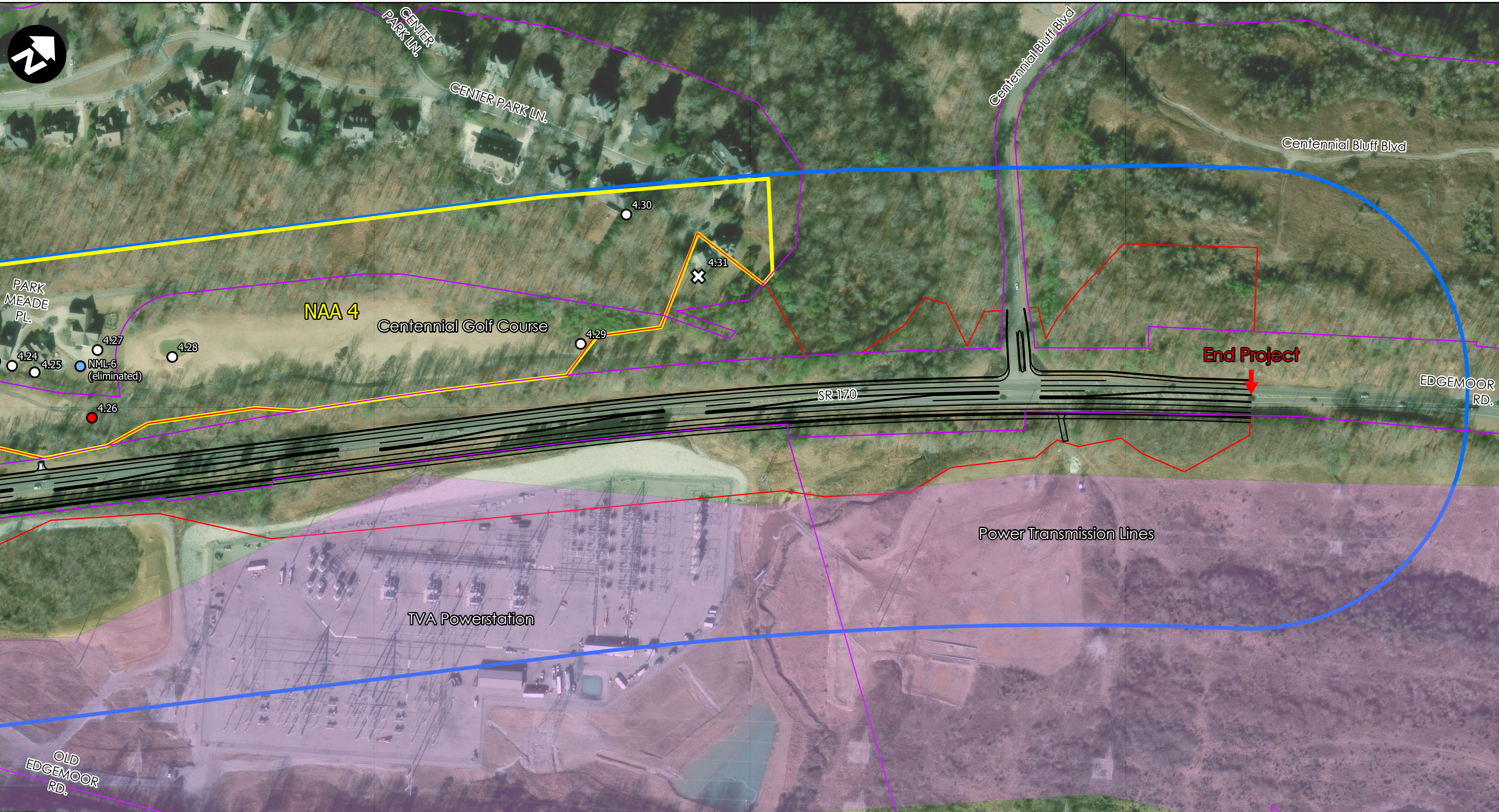
Traffic Noise Analysis  
 SR 170 Widening  
 PIN: 124121.01  
 Anderson County, TN

Detailed Study Area Map  
 Figure 3-2



- ↓ Begin and End Project
- Noise Measurement Location
- Non-Impacted Receptor
- Impacted Receptor
- Right-of-Way Acquisition
- Proposed Design Improvements
- Proposed Right-of-Way
- Existing Right-of-Way and Property Lines
- Greenway
- Noise Analysis Areas
- Noise Study Area
- Major Power Lines





PARK MEADE PL.  
4.24 4.25 4.27 4.28  
NML-6 (eliminated)  
4.26

**NAA 4**

Centennial Golf Course

TVA Powerstation

Power Transmission Lines

SR-170

Centennial Bluff Blvd

Centennial Bluff Blvd

EDGEMOOR RD.

**End Project**

OLD EDGEMOOR RD.



- Begin and End Project
- Noise Measurement Location
- Non-Impacted Receptor
- Impacted Receptor
- Right-of-Way Acquisition
- Proposed Design Improvements
- Proposed Right-of-Way
- Existing Right-of-Way and Property Lines
- Greenway
- Noise Analysis Areas
- Noise Study Area
- Major Power Lines



## **APPENDICES**

**Appendix A**  
**Cover Sheet of Project Plans and Typical Cross-Sections**

**Index Of Sheets**  
LINE AND GRADE INDEX OF SHEETS

TITLE SHEET.....	1
TYPICAL SECTIONS.....	2B, 2B1, 2B2
RIGHT-OF-WAY ACQUISITION TABLE and PROPERTY MAPS.....	3A - 3D
PRESENT LAYOUTS.....	4 - 14
RIGHT-OF-WAY DETAILS.....	4A - 14A
PROPOSED LAYOUTS.....	4B - 14B
PROPOSED PROFILES.....	4C - 14C
SIDE ROADS PROFILES.....	15-16
DRAINAGE MAPS.....	17 - 19
ROADWAY CROSS SECTIONS.....	20 - 103
SIDE ROAD CROSS SECTIONS.....	104 - 120

**STATE OF TENNESSEE**  
**DEPARTMENT OF TRANSPORTATION**  
**BUREAU OF ENGINEERING**

**ANDERSON COUNTY**

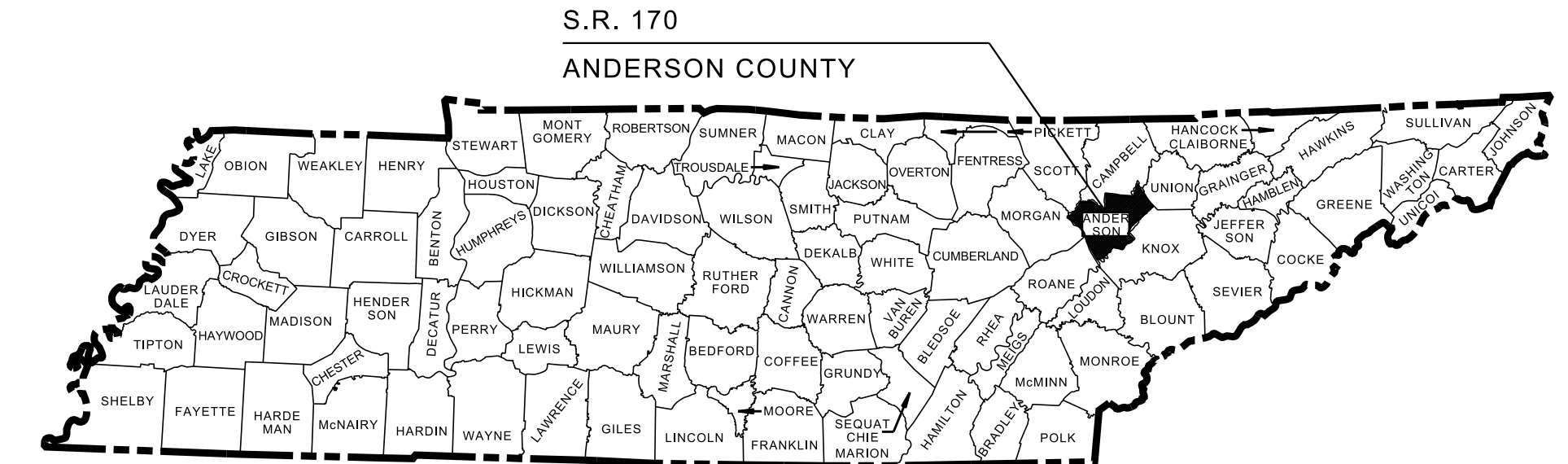
S.R. 170  
FROM S.R. 62 (OAK RIDGE HIGHWAY)  
TO NEAR MELTON LAKE DRIVE

**LINE AND GRADE**  
**GRADE, DRAIN, BASE, PAVE, AND PAVEMENT MARKING**

STATE HIGHWAY NO. 170 F.A.H.S. NO. N.A.

DOES THIS PROJECT QUALIFY FOR UTILITY CHAPTER 86	YES	NO
WORK ZONE SIGNIFICANCE DETERMINATION		
SIGNIFICANT	YES	NO

TENN.	YEAR	SHEET NO.
	2024	1
FED. AID PROJ. NO.	STP-170(13)	
STATE PROJ. NO.	01024-2221-14	



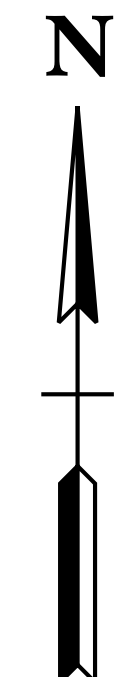
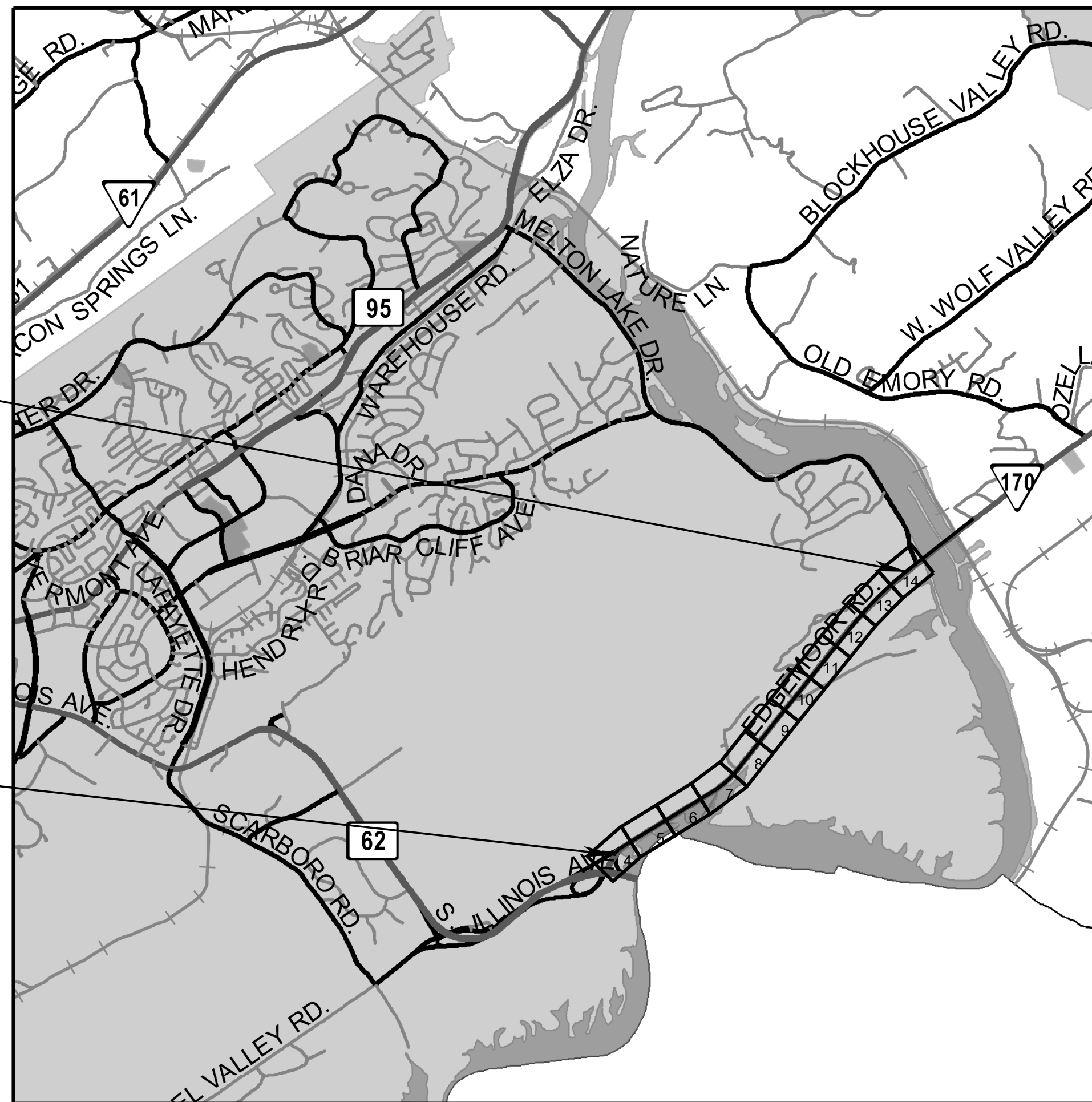
NO EXCLUSIONS

**LINE AND GRADE PLANS**

SEALED BY

01024-2221-14  
END PROJ. NO. STP-170 (13) PRELIM.  
STA. 215+00.00  
N 617390.4298  
E 2510003.9539

01024-2221-14  
BEGIN PROJ. NO. STP-170 (13) PRELIM.  
STA. 101+00.00  
N 609528.2200  
E 2501928.2703



SCALE: 1"= 5280'

ROADWAY LENGTH 2.159 MILES

**SPECIAL NOTES**

PROPOSALS MAY BE REJECTED BY THE COMMISSIONER IF ANY OF THE UNIT PRICES CONTAINED THEREIN ARE OBVIOUSLY UNBALANCED, EITHER EXCESSIVE OR BELOW THE REASONABLE COST ANALYSIS VALUE.

THIS PROJECT TO BE CONSTRUCTED UNDER THE STANDARD SPECIFICATIONS OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION DATED JANUARY 1, 2021 AND ADDITIONAL SPECIFICATIONS AND SPECIAL PROVISIONS CONTAINED IN THE PLANS AND IN THE PROPOSAL CONTRACT.

TDOT ROAD SP. SV. 2 : STACY WEAVER, P.E.  
DESIGNED BY : ROBERT G. CAMPBELL AND ASSOC., L.P.  
DESIGNER : GREGORY GREEN, P.E. CHECKED BY : JASON SIVERLING, P.E.  
P.E. NO. 01024-0221-14 (DESIGN)  
PIN NO. 124121.01

SURVEY 10-29-22	TRAFFIC DATA
REV. 1-23-23	ADT (20 )
REV. 2-14-24	DHV (20 )
	D
	T (ADT) %
	T (DHV) %
	V 45 MPH

COORDINATES ARE NAD83(1983) ADJUSTED BY THE FACTOR OF 1.00008 AND TIED TO THE TSPM. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 USING GEOID 12B

APPROVED: Will Reid  
WILL REID, CHIEF ENGINEER

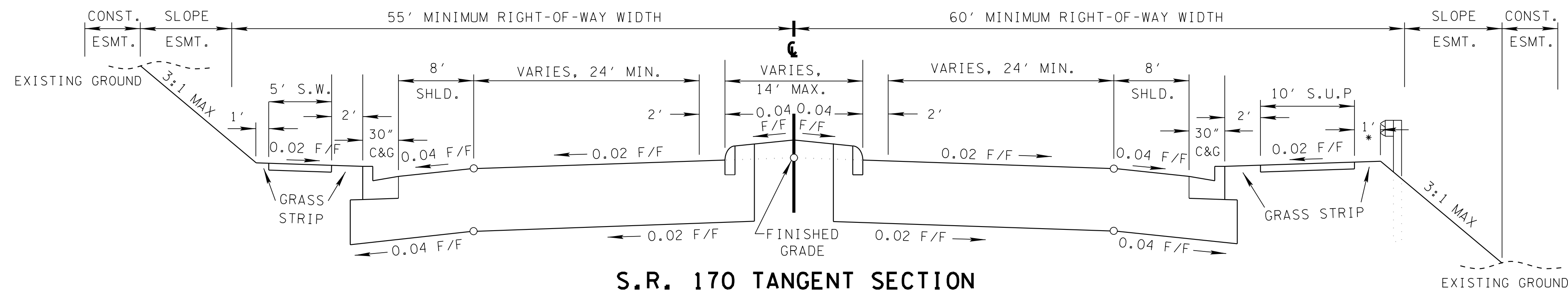
DATE: \_\_\_\_\_

APPROVED: Howard H. Eley  
HOWARD H. ELEY, COMMISSIONER

U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION

APPROVED: \_\_\_\_\_  
DIVISION ADMINISTRATOR DATE

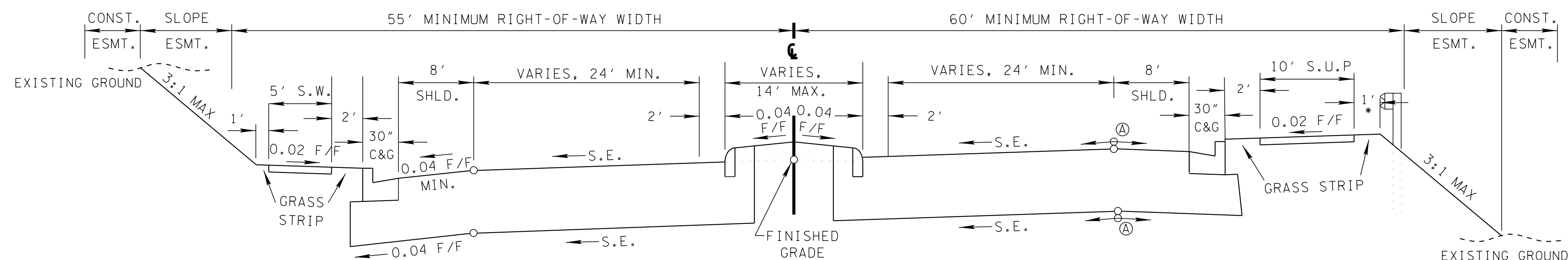
TYPE	YEAR	PROJECT NO.	SHEET NO.
L & G	2024	STP-170(13)	2B



**S.R. 170 TANGENT SECTION**

(BASED ON STD. DWG. RD-TS-6)

\* BERM WIDTH VARIES IN SOME LOCATIONS TO MEET CLEAR ZONE CRITERIA AND AVOID GUARDRAIL

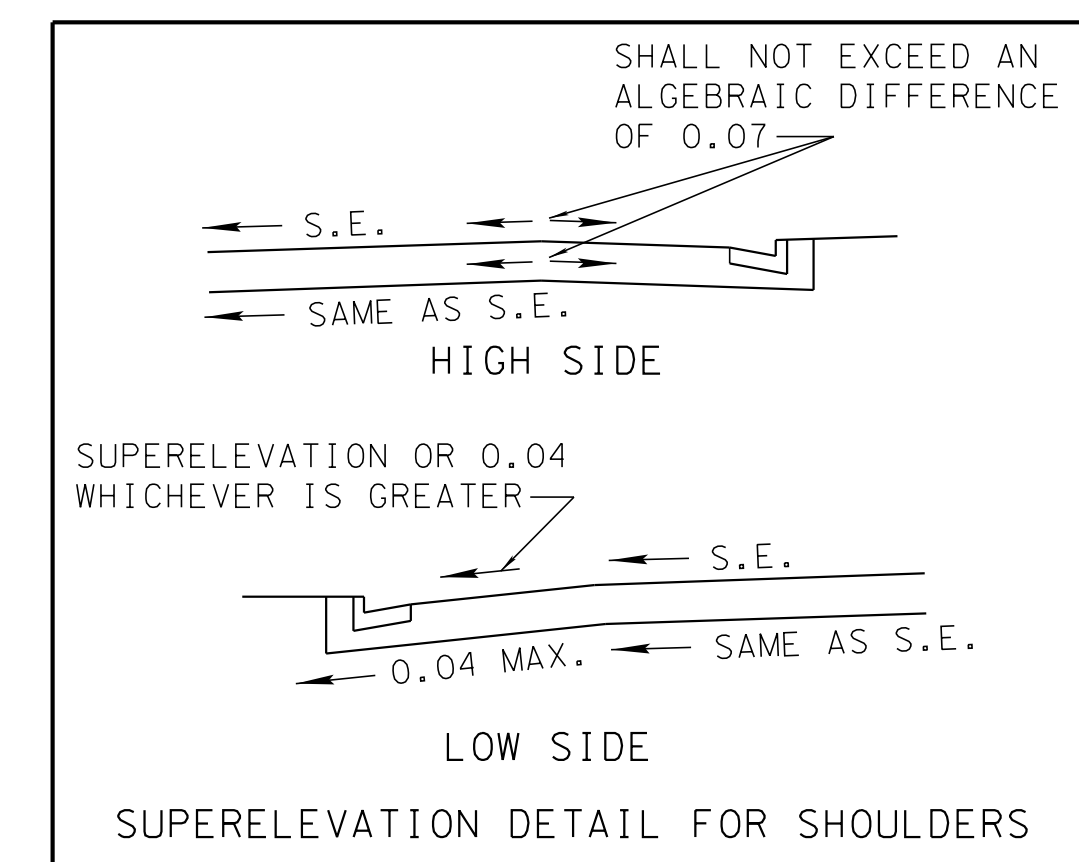


**S.R. 170 SUPERELEVATION SECTION**

(BASED ON STD. DWG. RD-TS-6)

\* BERM WIDTH VARIES IN SOME LOCATIONS TO MEET CLEAR ZONE CRITERIA AND AVOID GUARDRAIL

Ⓐ THE SLOPE OF THE SHOULDER AND THE ROADWAY PAVEMENT SHALL NOT EXCEED AN ALGEBRAIC DIFFERENCE OF 7%



Ⓐ THE SLOPES OF THE SHOULDER AND ROADWAY PAVEMENT SHALL NOT EXCEED AN ALGEBRAIC DIFFERENCE OF 0.07.

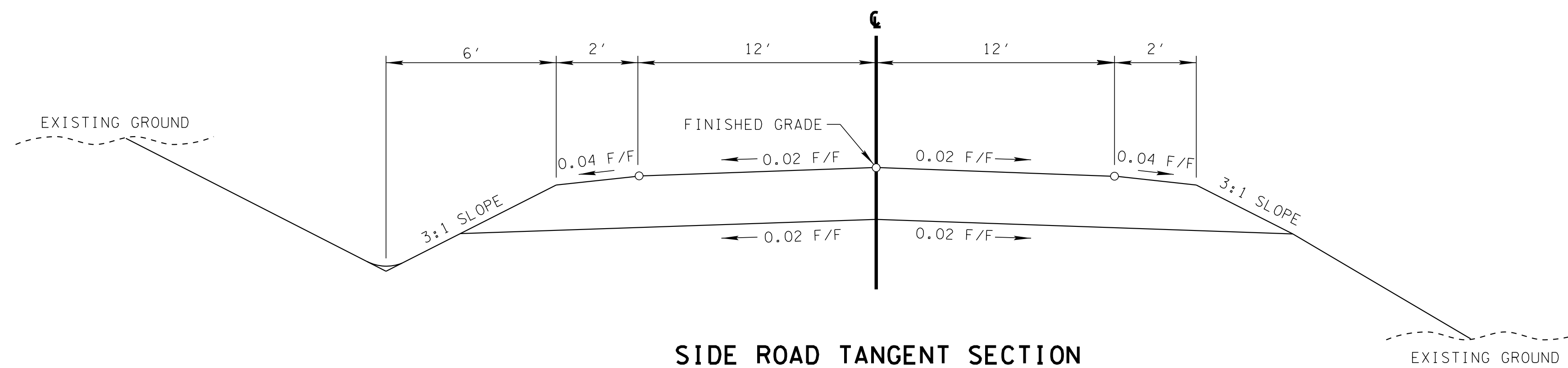
**LINE AND GRADE PLANS**

SEALED BY

STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION

TYPICAL  
SECTIONS

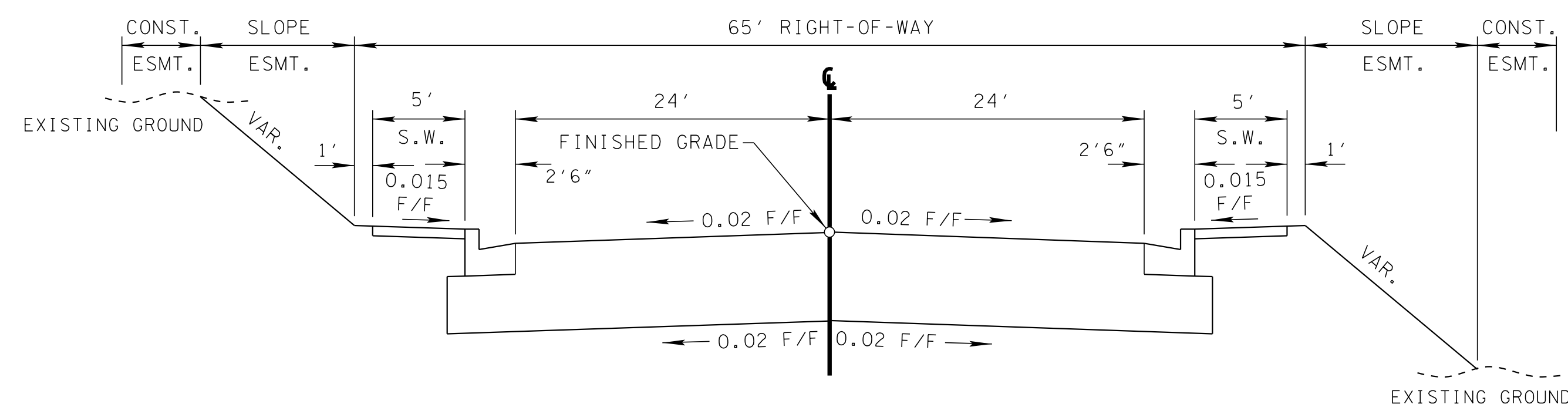
TYPE	YEAR	PROJECT NO.	SHEET NO.
L & G	2024	STP-170 (13)	2B1



**SIDE ROAD TANGENT SECTION**

(BASED ON STD. DWG. RD01-TS-1)

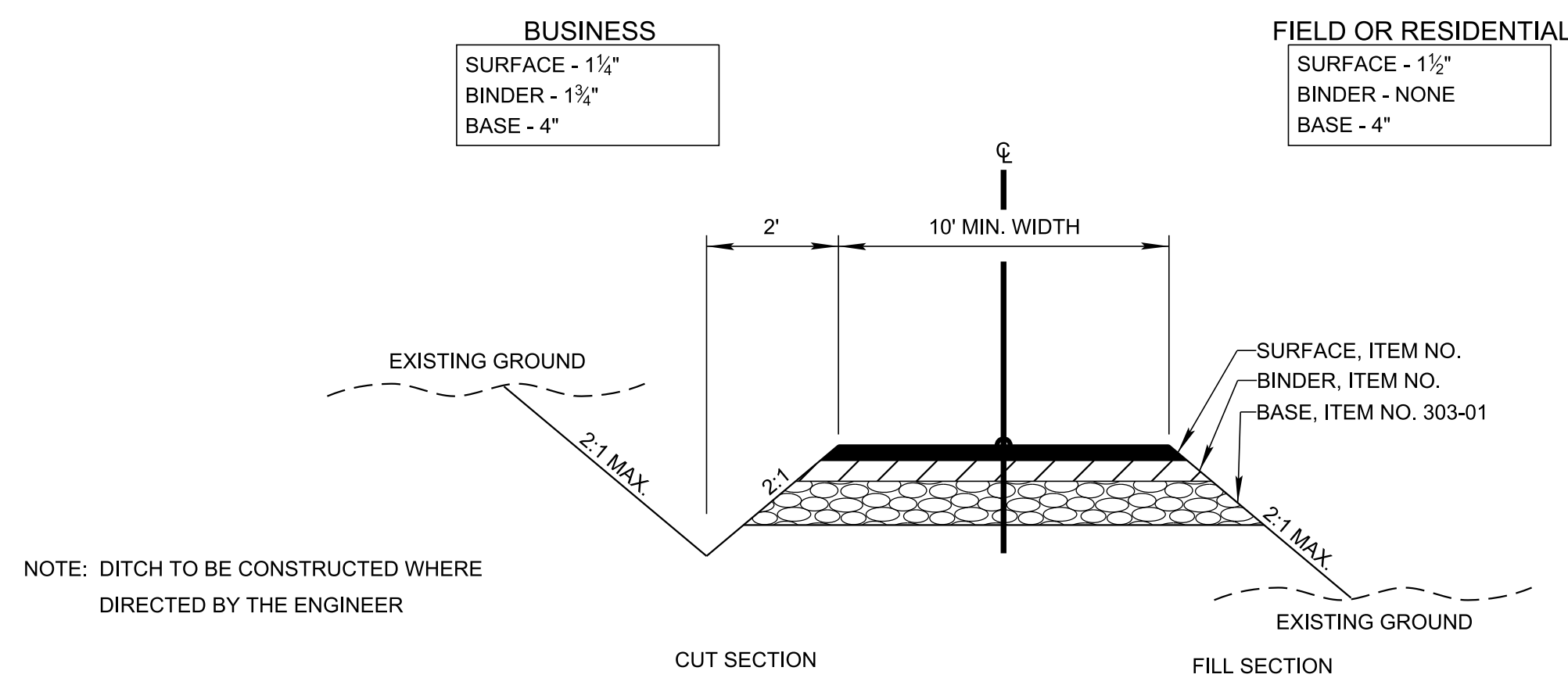
OLD EDMOOR ROAD



**TANGENT SECTION**

(BASED ON STD. DWG. RD01-TS-6A)

WATER VIEW DRIVE (WEST)



NOTE: DITCH TO BE CONSTRUCTED WHERE DIRECTED BY THE ENGINEER

CUT SECTION

FILL SECTION

**TYPICAL SECTION**  
PRIVATE DRIVE TO BUSINESS,  
FIELD, OR RESIDENTIAL PROPERTY

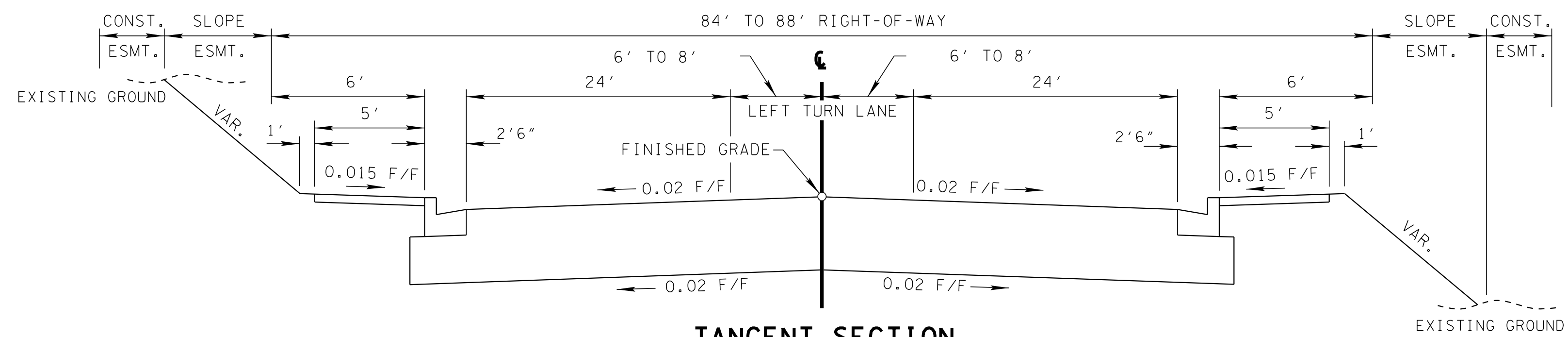
**LINE AND  
GRADE  
PLANS**

SEALED BY

STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION

TYPICAL  
SECTIONS

TYPE	YEAR	PROJECT NO.	SHEET NO.
L & G	2024	STP-170 (13)	2B2



**TANGENT SECTION**  
 (BASED ON STD. DWG. RD01-TS-6A)  
 WATERVIEW DRIVE (EAST)  
 HARBOUR POINT LANE  
 PARK MEADE LANE  
 CENTENNIAL BOULAVARD

**LINE AND  
 GRADE  
 PLANS**

SEALED BY

STATE OF TENNESSEE  
 DEPARTMENT OF TRANSPORTATION

TYPICAL  
 SECTIONS

**Appendix B**  
**Noise Measurement Data Sheets and Photographs**

---

To:	Kyle Kirschenmann, P.G. Environmental Manager Air and Noise Section	From:	Mary Martin Stantec Consulting Services Inc. mary.martin@stantec.com 919-395-6147
File:	171002817	Date:	March 27, 2025

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**Reference:** Traffic Noise Model Validation  
PE-N: 01024-0221-14 PIN: 124121.01  
SR 170 Widening  
From SR-62 (Oak Ridge Highway) to near Melton Lake Drive (IA)(TMA)  
Anderson County, Tennessee

Stantec Consulting Services Inc. prepared the following Noise Model Validation Memorandum to meet requirements of TDOT's Section 5.3.4, Noise, in the *Tennessee Environmental Procedures Manual* (TDOT, June 2011) and the TDOT *Policy on Highway Traffic Noise Abatement* (effective July 13, 2011). This memorandum includes a description of the short-term sites, as well as a summary of the methodology and results of the ambient noise data collection and traffic noise model validation efforts using Version 2.5 of the Federal Highway Administration (FHWA) Traffic Noise Model® (TNM) for the SR 170 Widening Noise Technical Report.

### Project Description

TDOT is proposing to improve SR 170. This portion of the project will start from the State Route SR 62 (Oak Ridge Highway) and span to near Melton Lake Drive, a distance of approximately 2.2 miles. The improvements will provide 4-12-foot lanes (2 lanes in each direction) with either a raised median or a center turn lane, along with replacing the bridge over the Clinch River. Several intersections along the corridor will also see improvements, including realignment, reconfiguration, and addition of turning lanes. Current plans include providing a sidewalk and shared use path for non-motorized users. The planned improvements are designed to improve safety, mobility, and overall efficiency of the corridor. The design year for the project is 2049. Figure 1 shows the project location and limits.

The project area is comprised of single-family homes (Activity Category B), a boat ramp and picnic area, two parks, Solway Park with a boat ramp and Haw Ridge Park with bike trails and a greenway, and the Centennial Golf Course (Activity Category C). Non-noise-sensitive land uses are scattered throughout the project area (Activity Category F).

### Existing Noise Measurements

The project's Noise Analysis Work Plan was approved by TDOT on March 6, 2025. The work plan proposed six short-term noise measurement locations of 20-minute duration for TNM model validation.

Ambient noise measurements were performed on March 11th, 2025. The noise measurement locations (NMLs) are shown on the figures and the field data sheets. Some locations were shifted from locations shown on the work plan due to the hilly terrain and finding locations where the roadway could be easily seen to count and classify vehicles. Due to the shifting of measurement locations, NML-6 was dropped as we had enough coverage for that NAA. Short-term measurements were taken at five noise measurement locations (NML) for a 20-minute duration and were used for validation. The sound level metrics data for these measurements was collected in increments of one minute (i.e. a 20-minute short-term noise measurement session was comprised of 20 data points, etc.).

**Reference:** TNM Validation PE-N: 01024-0221-14 PIN: 124121.01 - SR 170 Widening

Simultaneous traffic data was manually counted, recorded and classified, during each short-term noise measurement session, at areas near existing traffic noise sources. The counts were classified to account for auto, medium truck, heavy truck, bus and motorcycle vehicle mix counts. Traffic speeds were obtained by driving the project corridor and recording average speed and travel time, and supplemented with the utilization of a radar gun.

During the ambient noise measurements, weather conditions were collected using a Kestrel 3000 handheld weather station for wind speeds and supplemented with data from the Weather Underground app with location services turned on (<https://www.wunderground.com/>). Refer to **Table 1** for a summary of the weather data during the noise measurements.

The noise levels obtained during the noise measurement process are shown below in **Table 2**, ranging from approximately 50 dB(A) Leq to 64 dB(A) Leq.

**Validation Models**

In accordance with the TDOT’s Section 5.3.4, Noise, in the *Tennessee Environmental Procedures Manual* (TDOT, June 2011), computer models using the FHWA TNM 2.5® were created to predict traffic noise in the project study area, and these models have been validated to local conditions through comparison between measured and predicted noise levels. For each measurement location where the predicted noise level is within ±3 dB(A) of the measured noise level, that measurement site is considered validated. Refer to **Table 2** for a summary of the TNM validation results.

**Table 1: Ambient Noise Measurement Weather Summary**

Measurement Site	Date (Time)	Temp (°F)	Cloud Cover	Wind Direction	Wind Speed (mph)	Precipitation (in)	Relative Humidity (%)
NML-1	3/11/25 (10:25 am - 10:40 am)	55	Sunny/ Clear	SW	1	0	38
NML-2	3/11/25 (10:58 am - 11:18 am)	56	Sunny/ Clear	SW	1	0	38
NML-3	3/11/25 (12:18 pm -12:48 pm)	65	Sunny/ Clear	SW	3	0	26
NML-4	3/11/25 (11:30 am – 11:50 am)	60	Sunny/ Clear	SW	2	0	32
NML-5	3/11/25 (12:50 pm – 1:10 pm)	67	Sunny/ Clear	SSW	6	0	23
NML-6 <sup>1</sup>	--	--	--	--	--	--	--

Source: Kestral 3000 handheld weather station and wunderground.com

1. NML-6 was dropped due to shifting of measurement locations for visibility to SR 170. There was enough coverage of NAA 3 and would be difficult to access the private property.

Reference: TNM Validation PE-N: 01024-0221-14 PIN: 124121.01 - SR 170 Widening

**Table 2: TNM Validation Table**

Measurement Site <sup>2</sup>	Measured $L_{eq}$ , dB(A) <sup>1</sup>	TNM-Predicted $L_{eq(h)}$ , dB(A) <sup>1</sup>	Validation Change (Predicted-Measured), dB(A) <sup>1</sup>
NML-1	63.6	65.5	1.9
NML-2	49.5	50.4	0.9
NML-3	58.2	59.1	0.9
NML-4	61.4	60.1	-1.3
NML-5	54.7	55.1	0.4
NML-6 <sup>3</sup>	--	--	--
<b>Measurement Site Validated</b>		<b>Measurement Site Not Validated</b>	

1. Hourly equivalent noise levels,  $L_{eq(h)}$ , are expressed to the nearest one-tenth decibels to ensure that TNM-predicted noise levels validate to within  $\pm 3.0$  dB(A) of measured noise levels without the benefits of rounding.
2. Please see figures for measurement locations.
3. NML-6 was dropped due to shifting of measurement locations for visibility to SR 170. There was enough coverage of NAA 3 and would be difficult to access the private property.

March 27, 2025

Kyle Kirschenmann, P.G.

Page 4 of 6

Reference: TNM Validation PE-N: 01024-0221-14 PIN: 124121.01 - SR 170 Widening

### Measurement Location Photos



NML-1 (Solway Park)



NML-2 (Harbor Point Lane)

March 27, 2025

Kyle Kirschenmann, P.G.

Page 5 of 6

**Reference:** TNM Validation PE-N: 01024-0221-14 PIN: 124121.01 - SR 170 Widening



NML-3 (Dirt Lab – Bike Trails)



NML-4 (Centennial Golf Course)

March 27, 2025

Kyle Kirschenmann, P.G.

Page 6 of 6

**Reference:** TNM Validation PE-N: 01024-0221-14 PIN: 124121.01 - SR 170 Widening



NML-5 (Park Meade Place)

# NOISE MEASUREMENT FIELD DATA SHEET

## GENERAL INFORMATION

PROJECT NAME	SR 170 Widening From SR-62 (Oak Ridge Highway) to near Melton Lake Drive (IA)(TMA) Anderson County, Tennessee	OBSERVER(S)	MMM, FRC
PIN #	124121.01	DATE	03/11/2025
SITE ID	NML- 1	DURATION	20 min
		LAND USE(S)	PARK

## TRAFFIC DATA TO TVA → ← TO SR 62

ROAD NAME	SR 170								
ROAD DIRECTION	→	←							
AUTOS	120	173							
MEDIUM TRUCKS	4	4							
HEAVY TRUCKS	4	10							
BUSES	0	0							
MOTORCYCLES	0	0							
OBS. SPEED (MPH)	55	55							

## WEATHER DATA

TEMPERATURE (°F)	55°
CLOUD COVER	SUNNY
WIND SPEED (MPH)	1
WIND DIRECTION	SW
WET PAVEMENT (Y/N)	N
REL. HUMIDITY (%)	38%

## NOISE SOURCE DATA

MAJOR	SR 170
BACKGROUND	

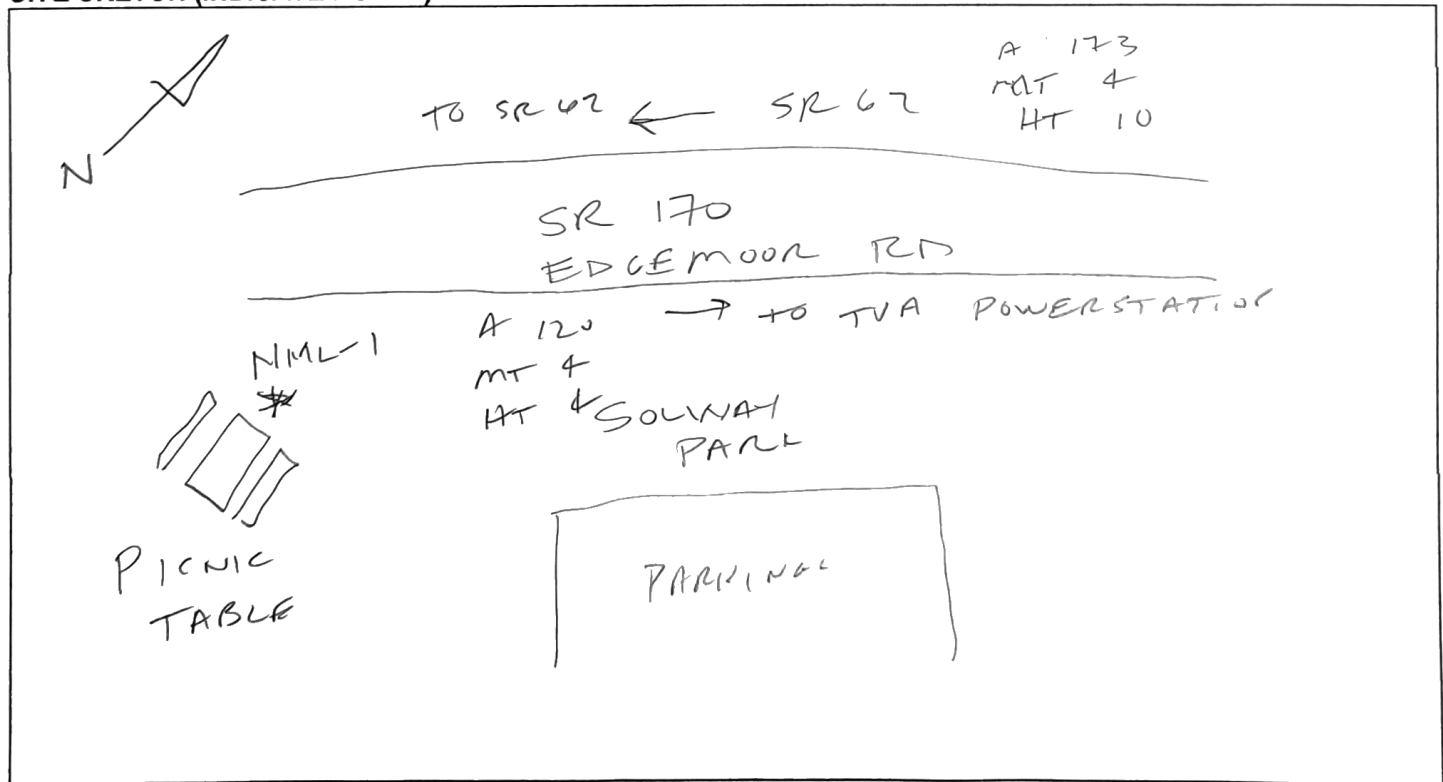
## SLM DATA

NML- 1	
CALIBRATION LEVEL	114.0dB(A)
FILE NAME	Auto_0005

## VALIDATION

FIELD MEASUREMENT	TNM PREDICTION	Δ	VALIDATES?
NML-1	63.6	1.9	✓

## SITE SKETCH (INDICATE NORTH)



# NOISE MEASUREMENT FIELD DATA SHEET

## GENERAL INFORMATION

PROJECT NAME	SR 170 Widening From SR-62 (Oak Ridge Highway) to near Melton Lake Drive (IA)(TMA) Anderson County, Tennessee	OBSERVER(S)	MMM, FRC
PIN #	124121.01	DATE	03/11/25
SITE ID	NML-2	DURATION	20 min
		LAND USE(S)	RESIDENTIAL

## TRAFFIC DATA TO SR62 TO TUA

ROAD NAME	SR 170								
ROAD DIRECTION	→	←							
AUTOS	149	151							
MEDIUM TRUCKS	1	1							
HEAVY TRUCKS	5	1							
BUSES	0	0							
MOTORCYCLES	0	0							
OBS. SPEED (MPH)	55	55							

## WEATHER DATA

TEMPERATURE (°F)	56°
CLOUD COVER	SUNNY
WIND SPEED (MPH)	1
WIND DIRECTION	SW
WET PAVEMENT (Y/N)	N
REL. HUMIDITY (%)	38%

## NOISE SOURCE DATA

MAJOR	SR 170
BACKGROUND	

## SLM DATA

SLM DATA	NML-2
CALIBRATION LEVEL	117 dB(A)
FILE NAME	Auto_0006

## VALIDATION

VALIDATION	FIELD MEASUREMENT	TNM PREDICTION	Δ	VALIDATES?
NML-2	49.5	50.4	0.9	✓

## SITE SKETCH (INDICATE NORTH)





# NOISE MEASUREMENT FIELD DATA SHEET

## GENERAL INFORMATION

PROJECT NAME	SR 170 Widening From SR-62 (Oak Ridge Highway) to near Melton Lake Drive (IA)(TMA) Anderson County, Tennessee	OBSERVER(S)	MMM, FRC
PIN #	124121.01	DATE	03/11/25
SITE ID	NML- 3	DURATION	20 min
		TIME PERIOD	12:18
		LAND USE(S)	RECREATION

## TRAFFIC DATA TO TUA TO SR 62

ROAD NAME	SR 170							
ROAD DIRECTION	→	←						
AUTOS	146	151						
MEDIUM TRUCKS	2	2						
HEAVY TRUCKS	12	8						
BUSES	0	0						
MOTORCYCLES	0	2						
OBS. SPEED (MPH)	55	55						

## WEATHER DATA

TEMPERATURE (°F)	65°
CLOUD COVER	SUNNY
WIND SPEED (MPH)	3
WIND DIRECTION	SW
WET PAVEMENT (Y/N)	N
REL. HUMIDITY (%)	26%

## NOISE SOURCE DATA

MAJOR	SR 170
BACKGROUND	

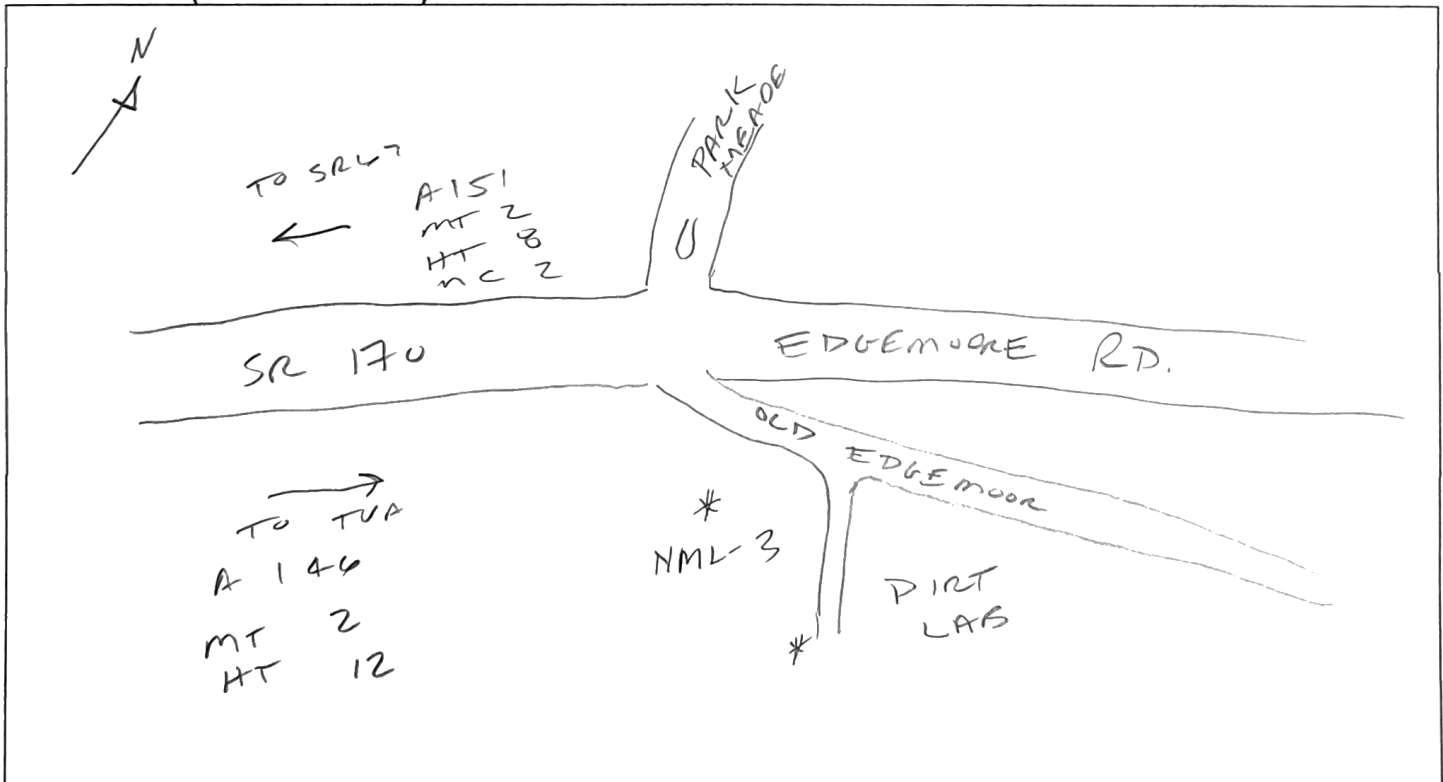
## SLM DATA

	NML- 3
CALIBRATION LEVEL	114 dB(A)
FILE NAME	Auto_0008

## VALIDATION

	FIELD MEASUREMENT	TNM PREDICTION	Δ	VALIDATES?
NML-3	58.2	59.1	0.9	✓

## SITE SKETCH (INDICATE NORTH)





# NOISE MEASUREMENT FIELD DATA SHEET

## GENERAL INFORMATION

PROJECT NAME	SR 170 Widening From SR-62 (Oak Ridge Highway) to near Melton Lake Drive (IA)(TMA) Anderson County, Tennessee	OBSERVER(S)	MMM, FRC
PIN #	124121.01	DATE	03/11/25
SITE ID	NML- 4	DURATION	20 min
		LAND USE(S)	RECREATION

## TRAFFIC DATA

TO SR62 TO TVA

ROAD NAME	SR 170		PARK MEADE					
ROAD DIRECTION	→	←	↓	↑				
AUTOS	141	124	5	3				
MEDIUM TRUCKS	2	6	0	0				
HEAVY TRUCKS	3	5	0	0				
BUSES	1	0	1	0				
MOTORCYCLES	0	0	0	1				
OBS. SPEED (MPH)	55	55	25	25				

## WEATHER DATA

TEMPERATURE (°F)	60°
CLOUD COVER	SUNNY
WIND SPEED (MPH)	2
WIND DIRECTION	SW
WET PAVEMENT (Y/N)	N
REL. HUMIDITY (%)	32% 20

## NOISE SOURCE DATA

MAJOR	SR 170
BACKGROUND	

## SLM DATA

	NML- 4
CALIBRATION LEVEL	114 dB(A)
FILE NAME	Auto_0007

## VALIDATION

	FIELD MEASUREMENT	TNM PREDICTION	Δ	VALIDATES?
NML-4	61.4	60.1	-1.3	✓

## SITE SKETCH (INDICATE NORTH)





# NOISE MEASUREMENT FIELD DATA SHEET

## GENERAL INFORMATION

PROJECT NAME	SR 170 Widening From SR-62 (Oak Ridge Highway) to near Melton Lake Drive (IA)(TMA) Anderson County, Tennessee			OBSERVER(S)	MMM, FRC
PIN #	124121.01	DATE	03/11/25	TIME PERIOD	12:50
SITE ID	NML- 5	DURATION	20 min	LAND USE(S)	RESIDENTIAL

## TRAFFIC DATA TO SR62 TO TVA

ROAD NAME	SR 170								
ROAD DIRECTION	→	←							
AUTOS	160	150							
MEDIUM TRUCKS	3	1							
HEAVY TRUCKS	0	3							
BUSES	0	0							
MOTORCYCLES	1	1							
OBS. SPEED (MPH)	55	55							

## WEATHER DATA

TEMPERATURE (°F)	67°
CLOUD COVER	SUNNY
WIND SPEED (MPH)	6
WIND DIRECTION	SSW
WET PAVEMENT (Y/N)	N
REL. HUMIDITY (%)	23%

## NOISE SOURCE DATA

MAJOR	SR 170
BACKGROUND	BIRDS

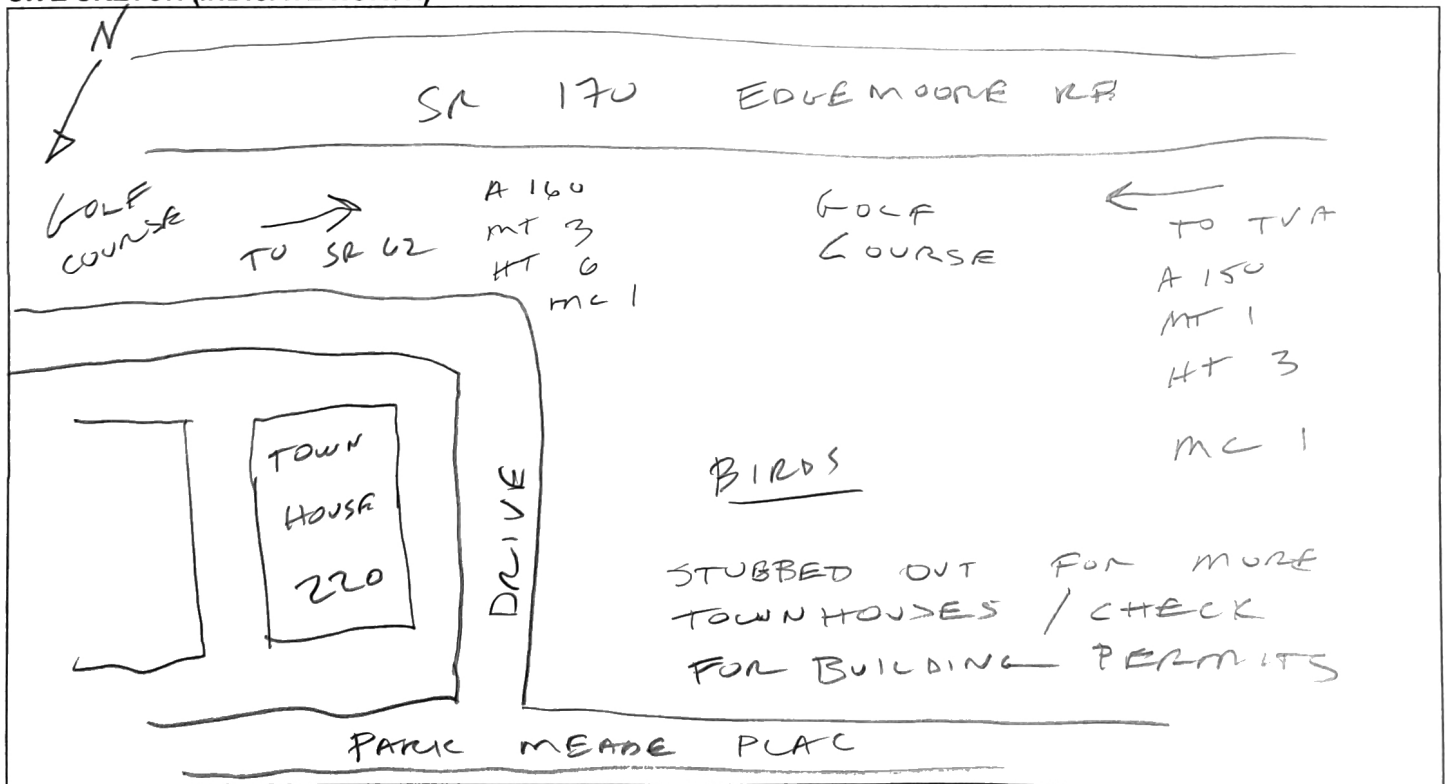
## SLM DATA

NML- 5	
CALIBRATION LEVEL	114 dB(A)
FILE NAME	Auto_0009

## VALIDATION

FIELD MEASUREMENT	TNM PREDICTION	Δ	VALIDATES?	
NML-5	54.7	55.1	0.4	✓

## SITE SKETCH (INDICATE NORTH)



## Calibration Certificate No.52481

Instrument: **Sound Level Meter**  
Model: **NL52**  
Manufacturer: **Rion**  
Serial number: **00253710**  
Tested with: **Microphone UC-59 s/n 25723**  
**Preamplifier NH25 s/n 43740**  
Type (class): **1**  
Customer: **Scantek, Inc.**  
Tel/Fax: **410-290-7726 / 410-290-9167**

Date Calibrated: **2/27/2025** Cal Due: **2/27/2026**  
Status: 

Received	Sent
X	X

  
In tolerance: 

X	X
---	---

  
Out of tolerance: 

--	--

  
See comments:  
Contains non-accredited tests:    Yes  No  
Calibration service:    Basic  Standard  
Address: **6430 Dobbin Road, Suite C,  
Columbia, MD 21045**

Tested in accordance with the following procedures and standards:  
Calibration of Sound Level Meters, Scantek Inc., Rev. 6/26/2015  
SLM & Dosimeters – Acoustical Tests, Scantek Inc., Rev. 7/6/2011

Instrumentation used for calibration: Nor-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence	Cal. Due
				Cal. Lab / Accreditation	
483B-Norsonic	SME Cal Unit	31052	Nov 14, 2024	Scantek, Inc./ NVLAP	Nov 14, 2025
DS-360-SRS	Function Generator	88077	Jan 7, 2025	ACR Env./ A2LA	Jan 7, 2026
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	May 1, 2024	ACR Env. / A2LA	May 1, 2025
PTU300-Vaisala	Environmental Monitor	P5011262	Sept 27, 2024	ACR Env./ A2LA	Sept 27, 2025
PC Program 1019 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
1251-Norsonic	Calibrator	30878	Oct 7, 2024	Scantek, Inc./ NVLAP	Oct 7, 2025

Instrumentation and test results are traceable to SI (International System of Units) through standards maintained by NIST (USA) and NPL (UK).

**Environmental conditions:**

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
22.7	99.01	42.1

Calibrated by:	Heitor Presser	Authorized signatory:	Ed Okorn
Signature	<i>Heitor Presser</i>	Signature	<i>Ed Okorn</i>
Date	2/27/2025	Date	2-28-2025

Calibration Certificates or Test Reports shall not be reproduced, except in full, without written approval of the laboratory.  
This Calibration Certificate or Test Reports shall not be used to claim product certification, approval or endorsement by NVLAP, NIST, or any agency of the federal government.

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**Results summary:** Device complies with following clauses of mentioned specifications:

CLAUSES <sup>1</sup> FROM IEC/ANSI STANDARDS REFERENCED IN PROCEDURES:	RESULT <sup>2,3</sup>	EXPANDED UNCERTAINTY (coverage factor 2) [dB]
INDICATION AT THE CALIBRATION CHECK FREQUENCY - IEC61672-3 ED.2 CLAUSE 10	Passed	0.15
SELF-GENERATED NOISE - IEC 61672-3 ED.2 CLAUSE 11	*Passed	0.30
FREQUENCY WEIGHTINGS: A NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	0.20
FREQUENCY WEIGHTINGS: C NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	0.20
FREQUENCY WEIGHTINGS: Z NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	0.20
FREQUENCY AND TIME WEIGHTINGS AT 1 KHZ IEC 61672-3 ED.2.0 CLAUSE 14	Passed	0.20
LEVEL LINEARITY ON THE REFERENCE LEVEL RANGE - IEC 61672-3 ED.2 CLAUSE 16	Passed	0.25
TONEBURST RESPONSE - IEC 61672-3 ED.2.0 CLAUSE 18	Passed	0.30
PEAK C SOUND LEVEL - IEC 61672-3 ED.2.0 CLAUSE 19	Passed	0.35
OVERLOAD INDICATION - IEC 61672-3 ED.2.0 CLAUSE 20	Passed	0.25
HIGH LEVEL STABILITY TEST - IEC 61672-3 ED.2.0 CLAUSE 21	Passed	0.1
LONG TERM STABILITY TEST - IEC 61672-3 ED.2.0 CLAUSE 15	Passed	0.1
COMBINED ELECTRICAL AND ACOUSTICAL TEST - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	See test report

- 1 The results of this calibration apply only to the instrument type with serial number identified in this report.
- 2 Parameters are certified at actual environmental conditions.
- 3 The tests marked with (\*) are not covered by the current NVLAP accreditation.

**Comments:** The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3, for the environmental conditions under which the tests were performed. As public evidence was available, from an independent testing organization responsible for approving the results of pattern evaluation tests performed in accordance with IEC 61672-2, to demonstrate that the model of sound level meter fully conforms to the requirements in the IEC 61672-2, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1.

**Note:** The instrument was tested for the parameters listed in the table above, using the test methods described in the listed standards. All tests were performed around the reference conditions. The test results were compared with the manufacturer's or with the standard's specifications, whichever are larger. The measurement results are reported as Pass / Fail simple acceptance; measured values are in the tolerance interval.

**Tests made with the following attachments to the instrument:**

Microphone: Rion UC-59 s/n 25723 for acoustical test
Preamplifier: Rion NH25 s/n 43740 for all tests
Other: line adaptor ADP005 (18pF) for electrical tests
Accompanying acoustical calibrator: none
Windscreen: Rion WS-10

**Measured Data:** in Test Report # 52481 of 7 +1 pages.

**Place of Calibration: Scantek, Inc.**  
 6430 Dobbin Road, Suite C  
 Columbia, MD 21045 USA

Ph/Fax: 410-290-7726/ -9167  
[callab@scantekinc.com](mailto:callab@scantekinc.com)

Calibration Certificates or Test Reports shall not be reproduced, except in full, without written approval of the laboratory. This Calibration Certificate or Test Reports shall not be used to claim product certification, approval or endorsement by NVLAP, NIST, or any agency of the federal government.

Document stored Y:\Calibration Lab\SLM 2025\RIONL52\_00253710\_M1.doc

# Calibration Certificate No.52482

**Instrument:** Microphone  
**Model:** UC-59  
**Manufacturer:** Rion  
**Serial number:** 25723  
**Composed of:**

**Date Calibrated:** 2/25/2025 **Cal Due:** 02/25/2026  
**Status:**

	Received	Sent
<b>In tolerance:</b>	X	X
<b>Out of tolerance:</b>		
<b>See comments:</b>		

**Contains non-accredited tests:**  Yes  No

**Customer:** Scantek, Inc.  
**Tel/Fax:** 410-290-7726/410-290-9167

**Address:** 6430 Dobbin Road, Suite C,  
Columbia, MD 21045

**Tested in accordance with the following procedures and standards:**

Calibration of Measurement Microphones, Scantek, Inc., Rev. 2/25/2015

**Instrumentation used for calibration:** N-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence	Cal. Due
				Cal. Lab / Accreditation	
483B-Norsonic	SME Cal Unit	31052	Nov 14, 2024	Scantek, Inc./ NVLAP	Nov 14, 2025
DS-360-SRS	Function Generator	88077	Jan 7, 2025	ACR Env./ A2LA	Jan 7, 2026
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	May 1, 2024	ACR Env. / A2LA	May 1, 2025
PTU300-Vaisala	EnvironmentalMonitor	P5011262	Sept 27, 2024	ACR Env./ A2LA	Sept 27, 2025
PC Program 1017 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
1253-Norsonic	Calibrator	28326	Oct 7, 2024	Scantek, Inc./ NVLAP	Oct 7, 2025
1203-Norsonic	Preamplifier	14059	March 7, 2024	Scantek, Inc./ NVLAP	March 7, 2025
4180-Brüel&Kjær	Microphone	2246115	Dec 11, 2023	DPLA / DANAK	Dec 11, 2025

**Instrumentation and test results are traceable to SI - BIPM through standards maintained by NPL (UK) and NIST (USA)**

<b>Calibrated by:</b>	Heitor Presser	<b>Authorized signatory:</b>	Ed Okorn
Signature	<i>Heitor Presser</i>	Signature	<i>Ed Okorn</i>
Date	02/25/2025	Date	2-20-2025

Calibration Certificates or Test Reports shall not be reproduced, except in full, without written approval of the laboratory. This Calibration Certificate or Test Reports shall not be used to claim product certification, approval or endorsement by NVLAP, NIST, or any agency of the federal government.

**Results summary:** Device was tested and complies with following clauses of mentioned specifications:

CLAUSES / METHODS <sup>1</sup> FROM PROCEDURES		MET <sup>2,3</sup>	NOT MET	NOT TESTED	MEASUREMENT EXPANDED UNCERTAINTY (coverage factor 2)
Open circuit sensitivity (insert voltage method, 250 Hz)		X			See below
Frequency response	Actuator response	X			63 – 200Hz: 0.3 dB 200 – 8000 Hz: 0.2 dB 8 – 10 kHz: 0.5 dB 10 – 20 kHz: 0.7 dB 20 – 50 kHz: 0.9 dB 50 – 100 kHz: 1.2 dB
	FF/Diffuse field responses	X			63 – 200Hz: 0.3 dB 200 – 4000 Hz: 0.2 dB 4 – 10 kHz: 0.6 dB 10 – 20 kHz: 0.9 dB 20 – 50 kHz: 2.2 dB 50 – 100 kHz: 4.4 dB
	Scantek, Inc. acoustical method			X	31.5 – 125 Hz: 0.16 dB 250, 1000 Hz: 0.12 dB 2 – 8 kHz: 0.8 dB 12.5 – 16 kHz: 2.4 dB

<sup>1</sup> The results of this calibration apply only to the instrument type with serial number identified in this report.

<sup>2</sup> Parameters are certified at actual environmental conditions.

<sup>3</sup> The tests marked with (\*) are not covered by the current NVLAP accreditation.

*Note:* The free field/diffuse field characteristics were calculated based on the measured actuator response and adjustment coefficients as provided by the manufacturer. The measurement results are reported as Pass / Fail simple acceptance; measured values are in the tolerance interval.

**Comments:** The instrument was tested and met all specifications found in the referenced procedures.

**Environmental conditions:**

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
22.9 ± 1.0	99.34 ± 0.020	40.2 ± 2.0

**Main measured parameters:**

Tone frequency (Hz)	Measured <sup>4</sup> /Acceptable Open circuit sensitivity (dB re 1V/Pa)	Sensitivity (mV/Pa)
250	-26.69 ± 0.12/ 27.0 ± 2.0	46.30

<sup>4</sup> The reported expanded uncertainty is calculated with a coverage factor k=2.00

**Tests made with following attachments to instrument and auxiliary devices:**

Protection grid mounted for sensitivity measurements
Actuator type: G.R.A.S. RA0014

**Measured Data:** Found on Microphone Test Report # 52482 of one page.

**Place of Calibration: Scantek, Inc.**

6430 Dobbin Road, Suite C  
Columbia, MD 21045 USA

Ph/Fax: 410-290-7726/ -9167  
[callab@scantekinc.com](mailto:callab@scantekinc.com)

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Document stored as: Y:\Calibration Lab\Mic 2025\Rion59\_25723\_M1.doc

**Appendix C**  
**Design Year Traffic Data**

SR 170 Noise Study AM Traffic Calculations	LOS C Capacity - 2029 NO BUILD	LOS C Capacity - 2049 BUILD	% Duals	% TTST	2029 No Build		2049 Build		2029 No Build PEAK DIRECTION			2029 No Build NON-PEAK DIRECTION			2049 Build PEAK DIRECTION			2049 Build NON-PEAK DIRECTION			Peak Direction	Speed Limit (mph)
					Peak Direction	Non-Peak Direction	Peak Direction	Non-Peak Direction	Autos	Duals	TTST	Autos	Duals	TTST	Autos	Duals	TTST	Autos	Duals	TTST		
					Hourly Volume	Hourly Volume	Hourly Volume	Hourly Volume														
<b>SR 170 Mainline</b>																						
SR 170 between SR 62 and Boat Ramp Ent.	710	1740	2.0%	3.0%	1190	481	1547	665	675	14	21	457	10	14	1470	31	46	632	13	20	Westbound	55
SR 170 between Boat Ramp Ent. And Waterview Dr	710	1740	2.0%	3.0%	1190	507	1547	659	675	14	21	482	10	15	1470	31	46	626	13	20	Westbound	55
SR 170 between Waterview Dr and Harbour Pointe Ln	746	1827	2.0%	3.0%	1093	503	1421	654	709	15	22	478	10	15	1350	28	43	621	13	20	Westbound	55
SR 170 between Harbour Pointe Ln and Park Meade Dr	728	1784	2.0%	3.0%	1090	468	1417	621	692	15	22	445	9	14	1346	28	43	590	12	19	Westbound	55
SR 170 between Park Meade Dr and Centennial Blvd	728	1784	2.0%	3.0%	1084	465	1408	617	692	15	22	442	9	14	1338	28	42	586	12	19	Westbound	55
SR 170 east of Centennial Blvd	746	1827	2.0%	3.0%	1080	464	1404	615	709	15	22	441	9	14	1334	28	42	584	12	18	Westbound	55
<b>MAJOR -Y- LINES</b>																						
Waterview Dr	347	347	0.4%	0.6%	108	15	141	20	107	0	1	15	0	0	140	1	1	20	0	0	Southbound	20
Harbour Pointe Ln.	347	347	0.8%	1.2%	23	15	40	26	23	0	0	15	0	0	39	0	0	25	0	0	Southbound	20
Park Meade Dr.	330	330	1.2%	1.8%	20	13	34	22	19	0	0	13	0	0	33	0	1	21	0	0	Southbound	25
Old Edgemoor Rd.	330	330	0.4%	0.6%	8	5	14	9	8	0	0	5	0	0	14	0	0	9	0	0	Northbound	25
Centennial Blvd.	330	330	0.4%	0.6%	16	10	27	17	16	0	0	10	0	0	27	0	0	17	0	0	Southbound	25

SR 170 Noise Study PM Traffic Calculations	LOS C Capacity - 2029 NO BUILD	LOS C Capacity - 2049 BUILD	% Duals	% TTST	2029 No Build		2049 Build		2029 No Build PEAK DIRECTION			2029 No Build NON-PEAK DIRECTION			2049 Build PEAK DIRECTION			2049 Build NON-PEAK DIRECTION			Peak Direction	Speed Limit (mph)
					Peak Direction Hourly Volume	Non-Peak Direction Hourly Volume	Peak Direction Hourly Volume	Non-Peak Direction Hourly Volume	Autos	Duals	TTST	Autos	Duals	TTST	Autos	Duals	TTST	Autos	Duals	TTST		
<b>SR 170 Mainline</b>																						
SR 170 between SR 62 and Boat Ramp Ent.	710	1740	2.0%	3.0%	1311	772	1704	1004	675	14	21	675	14	21	1619	34	51	954	20	30	Eastbound	55
SR 170 between Boat Ramp Ent. And Waterview Dr	710	1740	2.0%	3.0%	1308	766	1700	996	675	14	21	675	14	21	1615	34	51	946	20	30	Eastbound	55
SR 170 between Waterview Dr and Harbour Pointe Ln	746	1827	2.0%	3.0%	1209	723	1572	942	709	15	22	687	14	22	1493	31	47	895	19	28	Eastbound	55
SR 170 between Harbour Pointe Ln and Park Meade Dr	728	1784	2.0%	3.0%	1201	710	1561	923	692	15	22	675	14	21	1483	31	47	877	18	28	Eastbound	55
SR 170 between Park Meade Dr and Centennial Blvd	728	1784	2.0%	3.0%	1194	705	1552	918	692	15	22	670	14	21	1474	31	47	872	18	28	Eastbound	55
SR 170 east of Centennial Blvd	746	1827	2.0%	3.0%	1190	703	1548	915	709	15	22	668	14	21	1471	31	46	869	18	27	Eastbound	55
<b>MAJOR -Y- LINES</b>																						
Waterview Dr	347	347	0.4%	0.6%	118	59	154	77	117	0	1	58	0	0	152	1	1	76	0	0	Northbound	20
Harbour Pointe Ln.	347	347	0.8%	1.2%	24	18	32	24	24	0	0	18	0	0	31	0	0	24	0	0	Northbound	20
Park Meade Dr.	330	330	1.2%	1.8%	21	16	27	20	20	0	0	16	0	0	26	0	0	19	0	0	Northbound	25
Old Edgemoor Rd.	330	330	0.4%	0.6%	8	6	11	8	8	0	0	6	0	0	11	0	0	8	0	0	Southbound	25
Centennial Blvd.	330	330	0.4%	0.6%	16	12	21	16	16	0	0	12	0	0	21	0	0	16	0	0	Northbound	25

**TENNESSEE DEPARTMENT OF TRANSPORTATION  
PLANNING DIVISION**

PROJECT NO.: STP-170(13) : 01024-0221-14 ROUTE: S.R. 170  
 COUNTY: ANDERSON CITY: \_\_\_\_\_  
 PROJECT PIN NUMBER: 124121.01  
 PROJECT DESCRIPTION: FROM S.R. 62 TO WEST OF MELTON LAKE DRIVE.

[1] S.R. 170 AVERAGE TRAFFIC DATA

**DIVISION REQUESTING:**

MAINTENANCE	<input type="checkbox"/>	PAVEMENT DESIGN	<input type="checkbox"/>
ENGINEERING CONCEPTS	<input type="checkbox"/>	STRUCTURES	<input type="checkbox"/>
PROG. DEVELOPMENT & ADM.	<input type="checkbox"/>	SURVEY & ROADWAY DESIGN	<input type="checkbox"/>
PUBLIC TRANS. & AERO.	<input type="checkbox"/>	TRAFFIC SIGNAL DESIGN	<input type="checkbox"/>
		OTHER PROJECT MANAGE.	<input checked="" type="checkbox"/>

YEAR PROJECT PROGRAMMED FOR CONSTRUCTION: 2029  
 PROJECTED LETTING DATE: 2029

**TRAFFIC ASSIGNMENT:**

BASE YEAR		DESIGN YEAR					DESIGN ROADWAY % TRUCKS		DESIGN AVERAGE DAILY LOADS	
AADT	YEAR	AADT	DHV	%	YEAR	DIR.DIST.	DHV	AADT	FLEX	RIGID
19,320	2029	25,100	2,639	10	2049	55-45	3	5	358	522

REQUESTED BY: NAME JOHN SHERK DATE 10/1/24  
 DIVISION REGION I PROJECT MANAGEMENT  
 ADDRESS 7345 REGION LANE  
KNOXVILLE TN 37914

REVIEWED BY: RANDY BOGUSKIE Randy Boguskie DATE 12/13/2024  
 TRANSPORTATION MANAGER 1  
 SUITE 1000, JAMES K. POLK BUILDING

APPROVED BY: TONY ARMSTRONG Tony Armstrong DATE 12/13/2024  
 TRANSPORTATION MANAGER 2  
 SUITE 1000, JAMES K. POLK BUILDING

**COMMENTS:**

FURNISH THE 2029-2049 TRAFFIC DATA AND ADL's FOR PAVEMENT DESIGN FOR A FIVE LANE ROADWAY.

THIS TRAFFIC IS BASED ON 2023 CYCLE COUNTS, [5] 8-HOUR TURNING MOVEMENT COUNTS [OCT. 2024] AND [4] SPECIAL 24-HOUR CLASSIFICATION COUNTS. [OCT. 2024] THE DESIGN YEAR TRAFFIC IS BASED ON THE AVERAGE OF GROWTH RATES FROM THE KNOXVILLE TPO COMPUTER ASSIGNMENT MODEL. AADT's, DHV's AND ADL's ARE INCLUDED.

Cc: GREG GREEN PE, ROBERT CAMPBELL & ASSOC.

**DHV'S ARE NOT REQUIRED FOR SIDE ROADS LESS THAN 1000 AADT.**

**NOTE:** FOR BRIDGE REPLACEMENT PROJECTS, ADLs ARE NOT REQUIRED FOR ADT's OF 1000 OR LESS AND PERCENTAGE OF TRUCKS OF 7% OR LESS.

SEE ATTACHMENTS FOR TURNING MOVEMENTS AND/OR OTHER DETAILS.

(REV. 6/12/24)





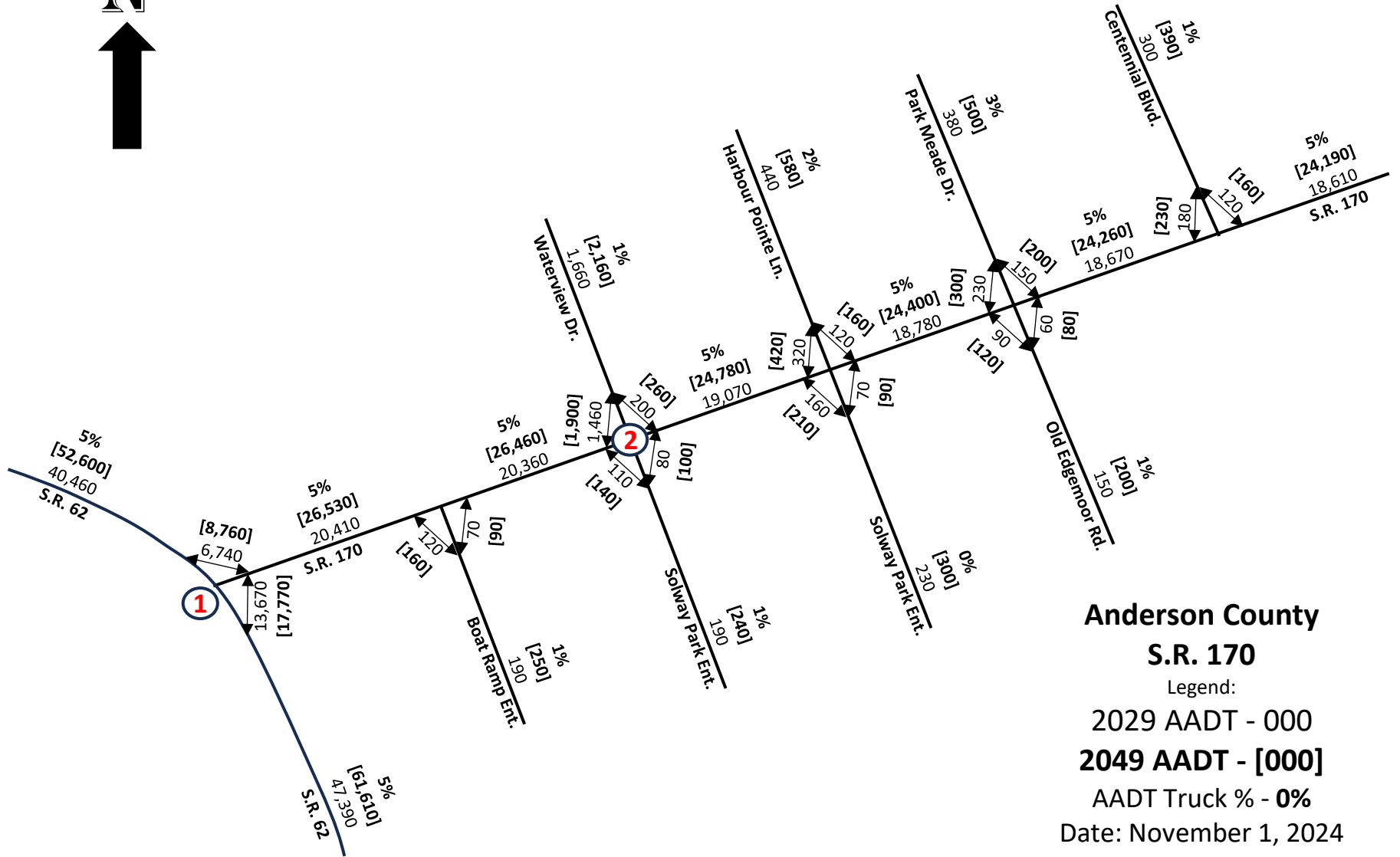
**Anderson County**

**S.R. 170 [PIN 124121.01]**

**From S.R. 62 to West of Melton Lake Drive**

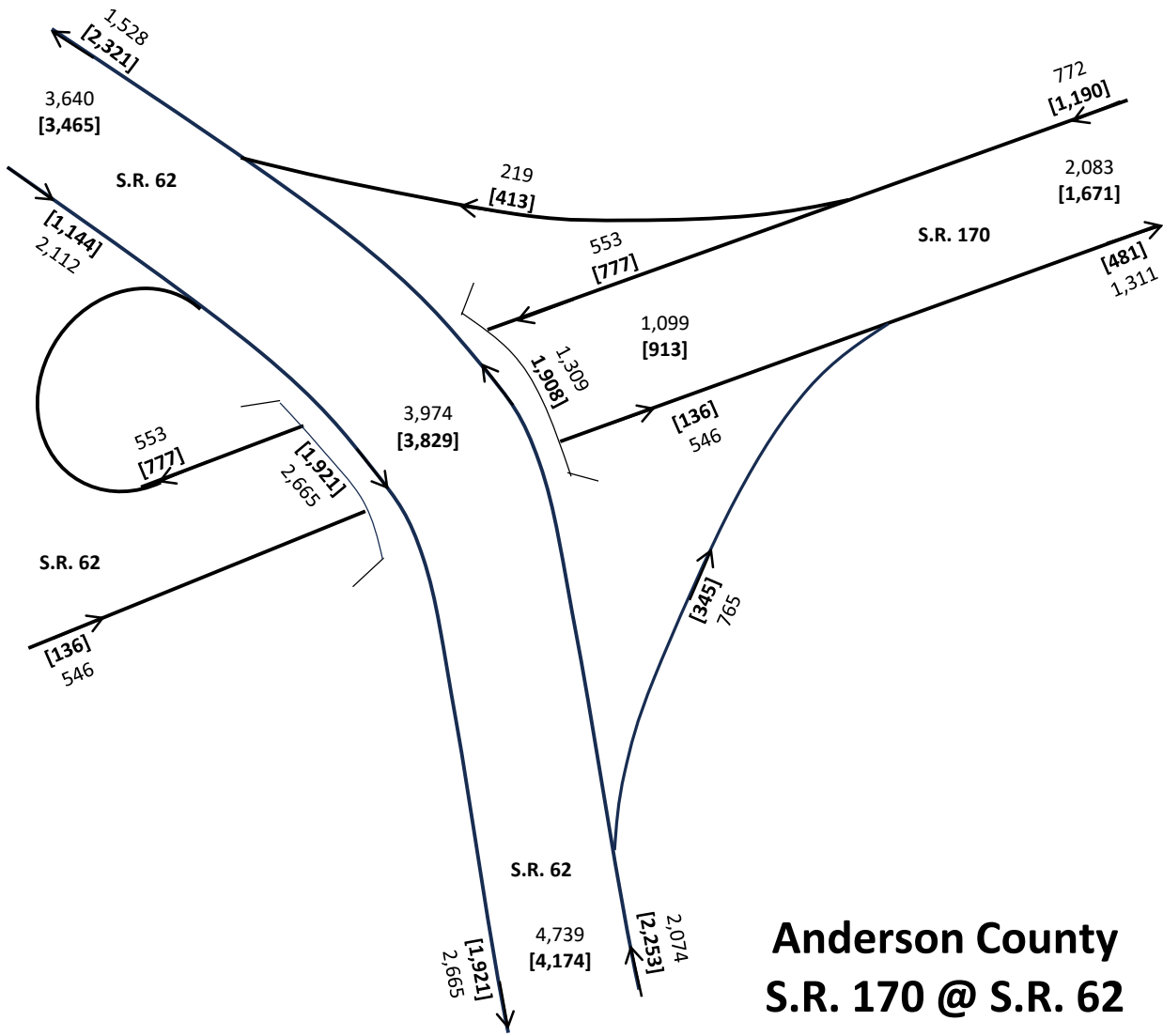


**AADT**



2029 DHV

1



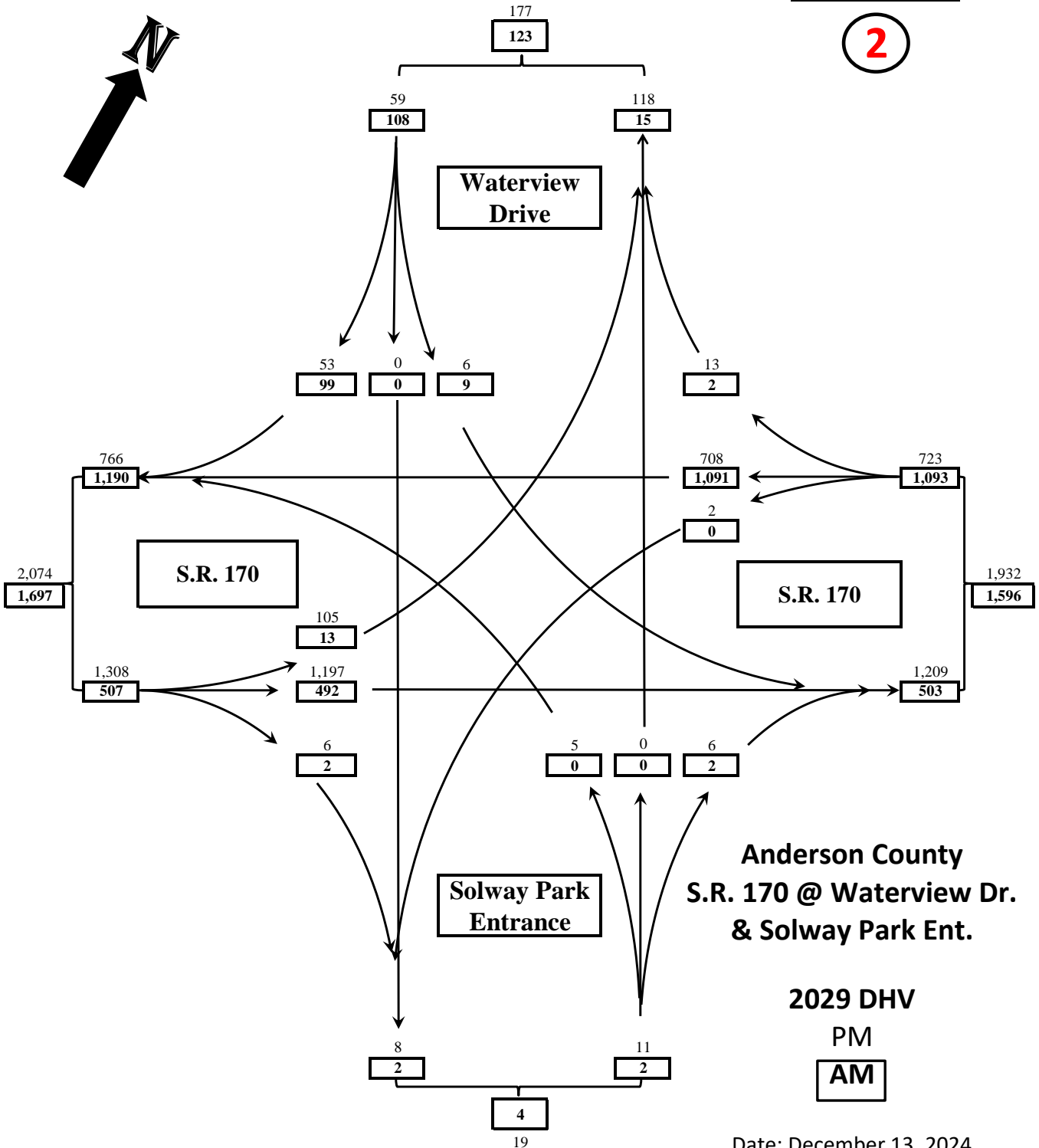
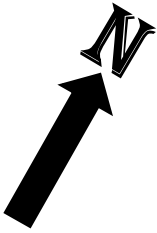
### Anderson County S.R. 170 @ S.R. 62

2029 DHV  
PM  
[AM]

Date: December 13, 2024  
TA

2029 DHV

2



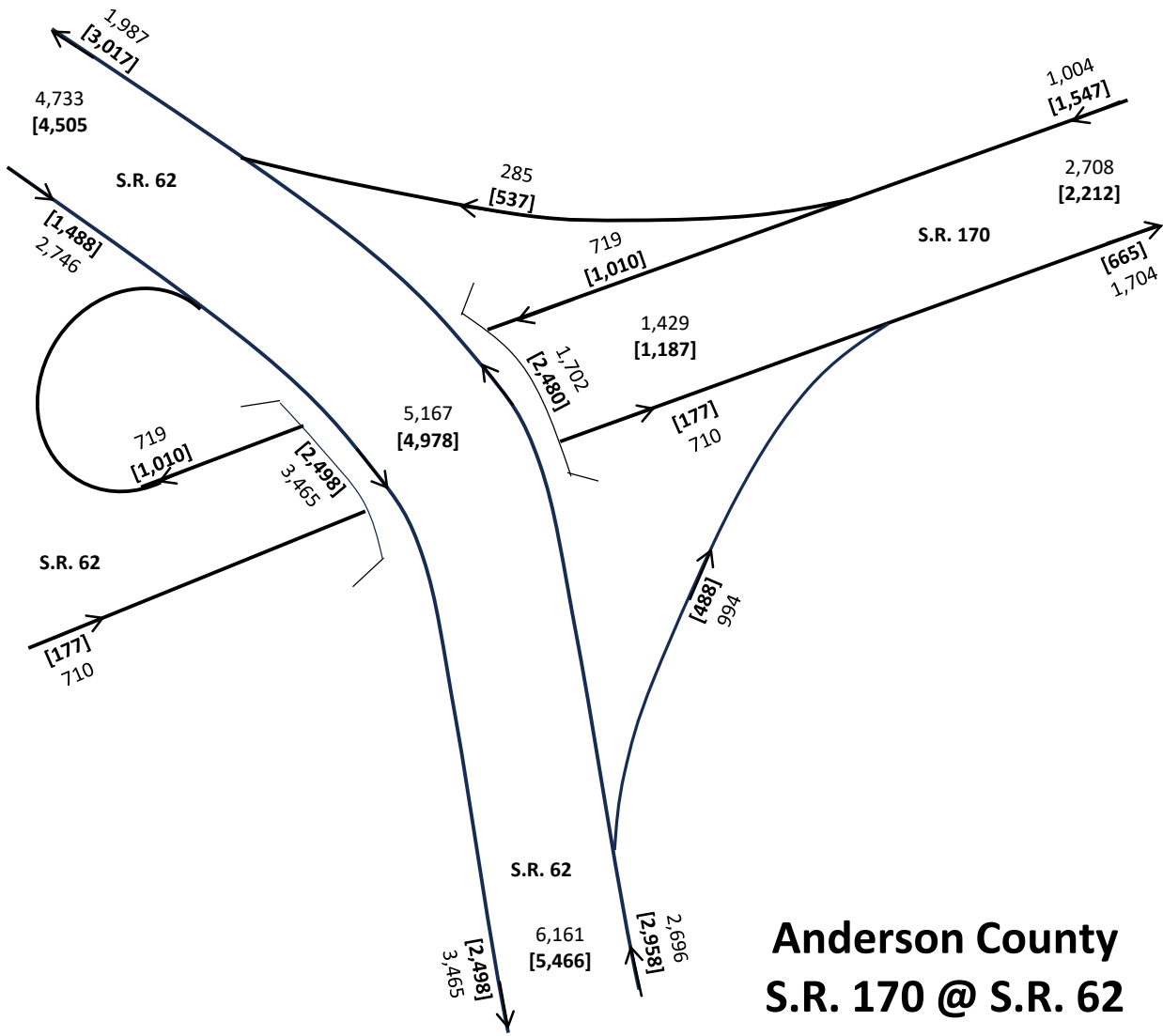
Anderson County  
S.R. 170 @ Waterview Dr.  
& Solway Park Ent.

2029 DHV  
PM  
AM

Date: December 13, 2024  
TA

2049 DHV

1



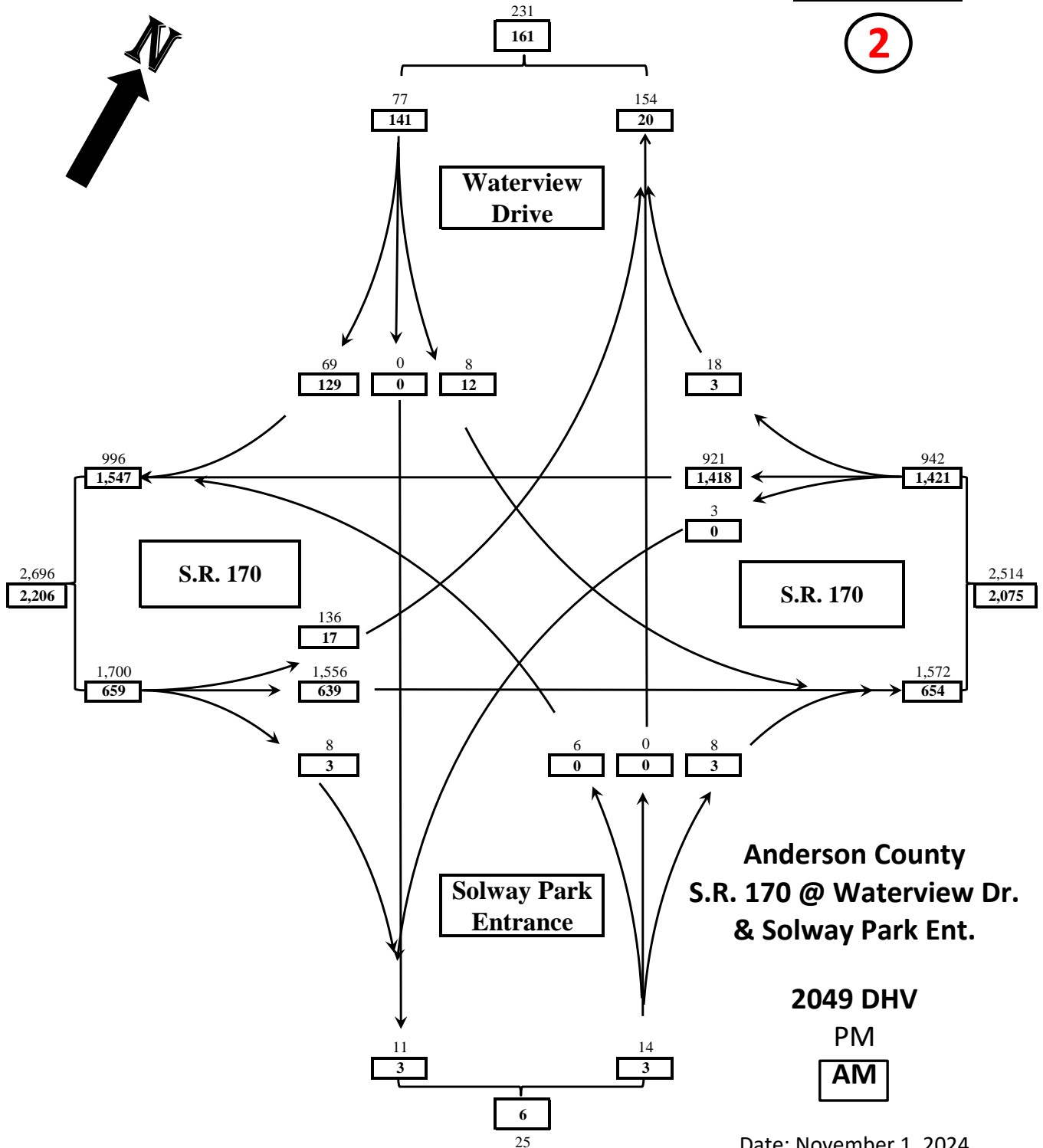
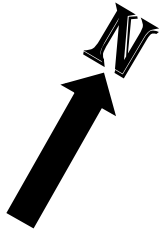
### Anderson County S.R. 170 @ S.R. 62

2049 DHV  
PM  
[AM]

Date: November 1, 2024  
TA

2049 DHV

2



Anderson County  
S.R. 170 @ Waterview Dr.  
& Solway Park Ent.

2049 DHV  
PM  
AM

Date: November 1, 2024  
TA

**Appendix D**  
**TNM Checklist and Plan Views**

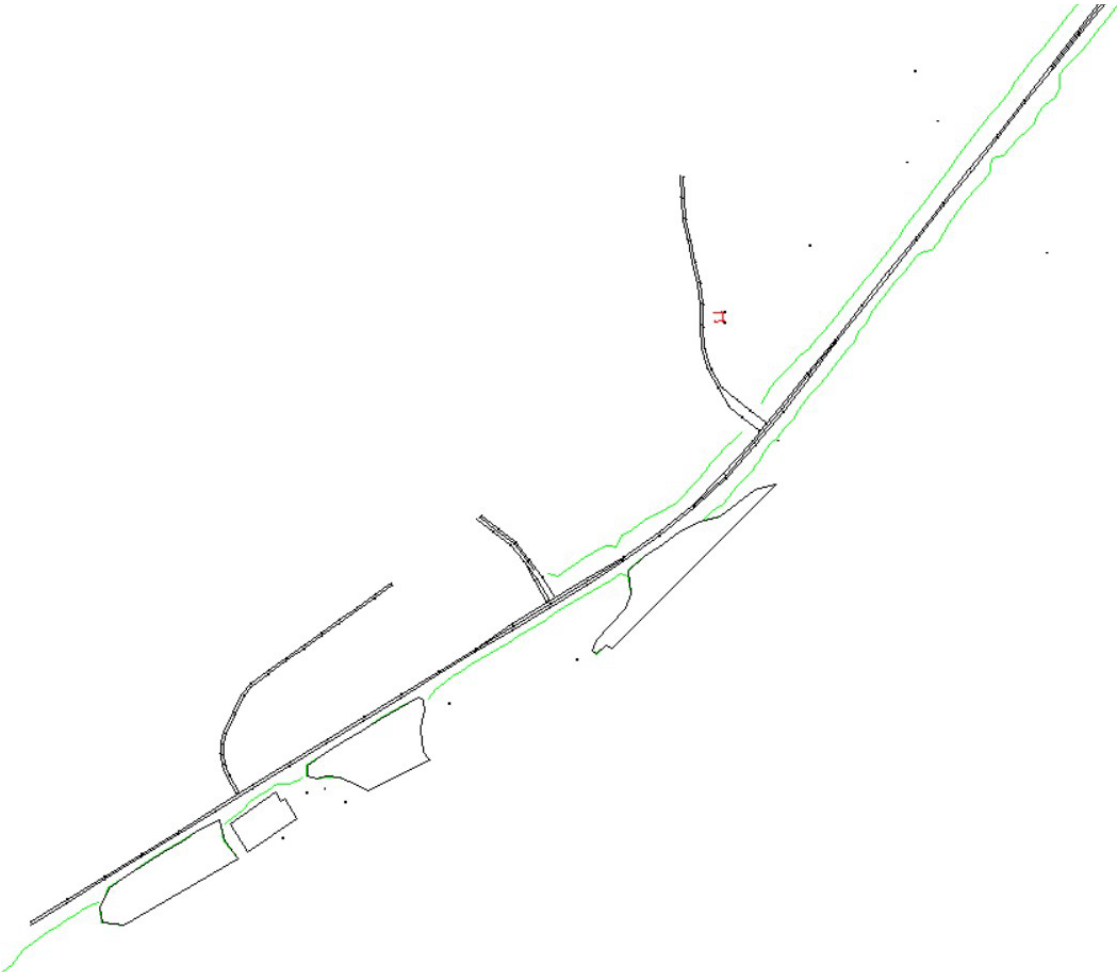
*All modeling must be done in accordance with TDOT's Noise Procedures and TNM Modeling Guidelines*

<b>Project</b>	<b>SR170 Widening</b>
<b>County</b>	<b>Anderson County</b>
<b>PIN</b>	<b>124121.01</b>
<b>Project Number</b>	<b>PE-D: 01024-0221-14</b>
<b>Project Plans Description and Date</b>	<b>Line and Grade Plans, October 2024</b>
<b>Traffic Data Source and Date</b>	<b>Tennessee Department of Transportation Planning Division</b>
<b>TNM Modeler</b>	<b>Franklin 'Rex' Cooper</b>
<b>Date Checklist Completed</b>	4/4/2025
<b>TNM Reviewer</b>	<b>Mary Martin</b>
<b>Date Checklist Completed</b>	4/4/2025

<b>TNM Run</b>	<b>All Models</b>		<b>Modeling Year</b>
			<b>2029/2049</b>
<b>Input</b>	<b>Task</b>	<b>Complete?</b>	<b>Notes</b>
Setup	Run Information	<input checked="" type="checkbox"/>	
	General	<input checked="" type="checkbox"/>	
Roadways	Roadway names assigned	<input checked="" type="checkbox"/>	
	Traffic and Speeds on all Roadways	<input checked="" type="checkbox"/>	
	Widths of All Roadways per Guidance	<input checked="" type="checkbox"/>	
	Points tied to stationing if available	<input checked="" type="checkbox"/>	
	Elevations appear to be correct	<input checked="" type="checkbox"/>	
	Traffic Flow Control Devices Modeled <ul style="list-style-type: none"> <li>• Traffic Signals</li> <li>• Stop Signs</li> <li>• On-Ramps</li> </ul>	<input checked="" type="checkbox"/>	
Roadways modeled on structure as appropriate	<input checked="" type="checkbox"/>		

TNM Run	All Models	Modeling Year	2029/2049
Input	Task	Complete?	Notes
Receivers	Receivers named by address or stationing	<input checked="" type="checkbox"/>	<b>Addresses can be found in Appendix E.</b>
	Number of dwelling units set for each receiver (if applicable)	<input checked="" type="checkbox"/>	
	Receivers in order of adjacent traffic flow	<input checked="" type="checkbox"/>	
	Elevations appear to be correct	<input checked="" type="checkbox"/>	
	Elevations at second-story locations at appropriate heights (if applicable)	<input checked="" type="checkbox"/>	
	Enough receivers modeled (for impacts and benefits)	<input checked="" type="checkbox"/>	
	NAC set per State's Policy for each receiver/ land use	<input checked="" type="checkbox"/>	
	Noise Reduction set per State's Policy	<input checked="" type="checkbox"/>	
	Substantial Increase set per State's Policy	<input checked="" type="checkbox"/>	
Barriers	Significant buildings modeled	<input checked="" type="checkbox"/>	
	Parapets, etc. modeled	<input checked="" type="checkbox"/>	
	Perturbable barriers modeled as applicable	<input checked="" type="checkbox"/>	
	Barrier names assigned	<input checked="" type="checkbox"/>	
	Barrier points named by stationing or length	<input checked="" type="checkbox"/>	
	Barrier heights assigned	<input checked="" type="checkbox"/>	
	Elevations appear to be correct	<input checked="" type="checkbox"/>	
	Increment and #up/down assigned	<input checked="" type="checkbox"/>	
	Barriers modeled on structure as appropriate and shielded lists are correct	<input checked="" type="checkbox"/>	
Building Rows	Building rows modeled per FHWA Guidance	<input checked="" type="checkbox"/>	<b>N/A</b>
	Elevations appear to be correct	<input checked="" type="checkbox"/>	<b>N/A</b>
	Height and percentage assigned	<input checked="" type="checkbox"/>	<b>N/A</b>

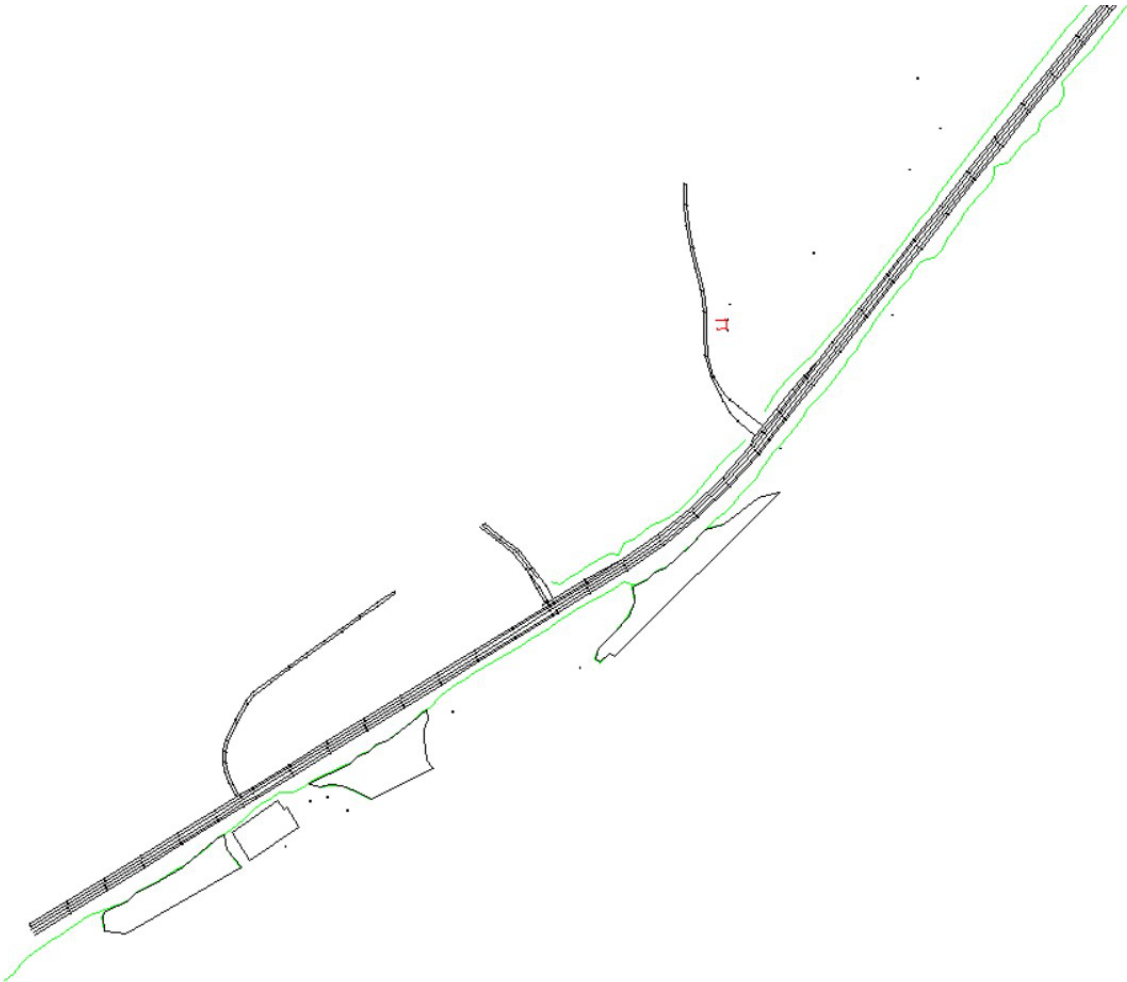
TNM Run	All Models		Modeling Year	2029/2049
Input	Task	Complete?	Notes	
Terrain Lines	Significant terrain features modeled	<input checked="" type="checkbox"/>		
	Terrain line names assigned	<input checked="" type="checkbox"/>		
	Elevations appear to be correct	<input checked="" type="checkbox"/>		
Ground Zones	Ground Zones modeled per FHWA Guidance	<input checked="" type="checkbox"/>		
	Ground zone names assigned	<input checked="" type="checkbox"/>		
	Ground zone types assigned	<input checked="" type="checkbox"/>		
Tree Zones	Tree zones modeled per FHWA Guidance	<input checked="" type="checkbox"/>	N/A	
	Tree zone names assigned	<input checked="" type="checkbox"/>	N/A	
	Elevations appear to be correct	<input checked="" type="checkbox"/>	N/A	
Perspective Views	Perspective views checked for accuracy	<input checked="" type="checkbox"/>		
Skew Views	Numerous skew views cut and checked for accuracy	<input checked="" type="checkbox"/>		
Input Check	Input Check completed and errors fixed/documented	<input checked="" type="checkbox"/>		



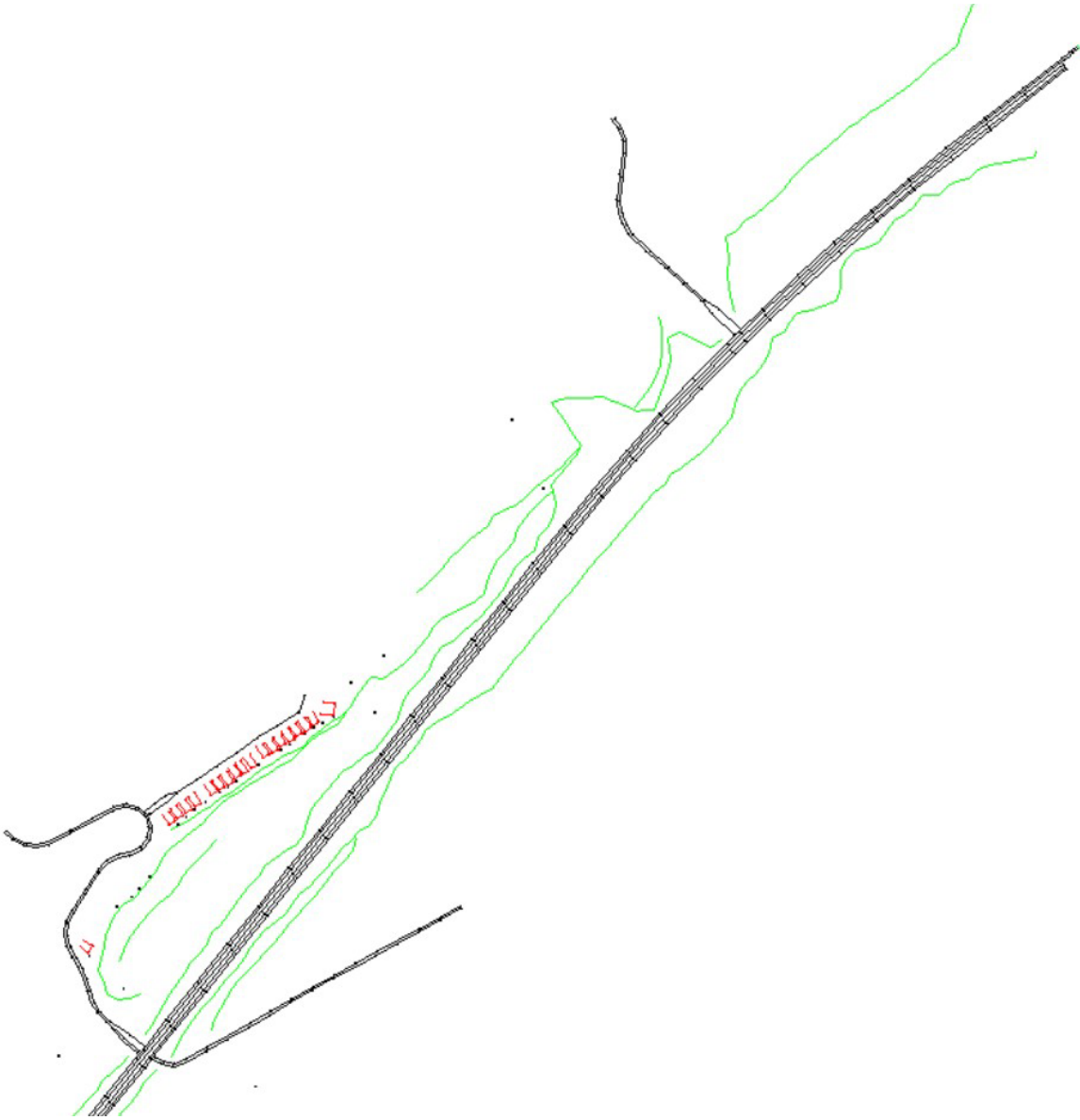
Existing Model 1



Existing Model (2)



Build Model 1



Build Model 2

**Appendix E**  
**Design Year Noise Levels and Impacts**

**Table E.1**  
**Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - Build Alternative**

Receptors					Predicted Noise Levels,			
					Leq(h) (dB(A))			
Rec. No.	Address	NAC	Land Use	ERs	Existing	No Build	Build	Build - Existing
1.1	173 EDGEMOOR RD	C	Park	1	60	61	64	4
1.2	173 EDGEMOOR RD	C	Park	1	65	66	68	3
1.2a	173 EDGEMOOR RD	C	Park	1	64	65	67	3
1.2b	173 EDGEMOOR RD	C	Park	1	60	61	64	4
1.3	SOLWAY PARK	C	Park	1	65	66	68	3
1.4	SOLWAY PARK	C	Park	1	57	58	60	3
2.1	HAW RIDGE PARK	C	Greenway	1	70	71	72	2
2.2	HAW RIDGE PARK	C	Greenway	1	69	70	71	2
2.3	HAW RIDGE PARK	C	Greenway	1	51	52	55	4
2.4	HAW RIDGE PARK	C	Park	1	55	56	59	4
3.1	CENTENNIAL VILLAGE DR 188	B	Residential	1	54	55	61	7
3.2	CENTENNIAL VILLAGE DR 190	B	Residential	1	53	54	60	7
3.3	CENTENNIAL VILLAGE DR 192	B	Residential	1	52	53	59	7
3.4	101 CENTENNIAL BLVD	C	Golf Course	1	56	57	63	7
3.5	101 CENTENNIAL BLVD	C	Golf Course	1	60	61	65	5
3.6	101 CENTENNIAL BLVD	C	Golf Course	1	59	60	65	6
3.7	101 CENTENNIAL BLVD	C	Golf Course	1	53	54	60	7
3.8	101 CENTENNIAL BLVD	C	Golf Course	1	60	61	64	4
4.1	101 CENTENNIAL BLVD	C	Golf Course	1	59	60	63	4
4.2	PARK MEADE DR 96	B	Residential	1	55	56	60	5
4.3	PARK MEADE DR 98	B	Residential	1	52	53	57	5
4.4	PARK MEADE DR 108-114	B	Residential	1	52	53	57	5
4.5	PARK MEADE DR 108-114	B	Residential	1	52	53	58	6
4.6	PARK MEADE DR 108-114	B	Residential	1	53	54	59	6
4.7	PARK MEADE DR 108-114	B	Residential	1	54	55	60	6
4.8	200 PARK MEADE PLACE	B	Residential	1	56	57	60	4
4.9	202 PARK MEADE PLACE	B	Residential	1	55	56	60	5
4.10	204 PARK MEADE PLACE	B	Residential	1	55	56	60	5
4.11	206 PARK MEADE PLACE	B	Residential	1	55	56	60	5
4.12	208 PARK MEADE PLACE	B	Residential	1	55	56	60	5
4.13	210 PARK MEADE PLACE	B	Residential	1	55	56	60	5
4.14	212 PARK MEADE PLACE	B	Residential	1	55	56	60	5
4.15	214 PARK MEADE PLACE	B	Residential	1	56	57	61	5
4.16	216 PARK MEADE PLACE	B	Residential	1	56	57	61	5
4.17	218 PARK MEADE PLACE	B	Residential	1	57	58	62	5
4.18	220 PARK MEADE PLACE	B	Residential	1	57	58	62	5
4.19	222 PARK MEADE PLACE	B	Residential	1	56	57	62	6

Receptors					Predicted Noise Levels,			
					Leq(h) (dB(A))			
Rec. No.	Address	NAC	Land Use	ERs	Existing	No Build	Build	Build - Existing
4.20	224 PARK MEADE PLACE	B	Residential	1	57	58	62	5
4.21	226 PARK MEADE PLACE	B	Residential	1	58	59	63	5
4.22	228 PARK MEADE PLACE	B	Residential	1	58	59	63	5
4.23	230 PARK MEADE PLACE	B	Residential	1	59	60	63	4
4.24	232 PARK MEADE PLACE	B	Residential	1	60	61	64	4
4.25	234 PARK MEADE PLACE	B	Residential	1	61	62	65	4
4.26	101 CENTENNIAL BLVD	C	Golf Course	1	66	67	69	3
4.27	236 PARK MEADE PLACE	B	Residential	1	58	59	63	5
4.28	101 CENTENNIAL BLVD	C	Golf Course	1	61	62	65	4
4.29	101 CENTENNIAL BLVD	C	Golf Course	1	59	60	64	5
4.30	CENTER PARK LN 142	B	Residential	1	57	58	62	5
4.31	CENTER PARK LN 146	B	Residential	1	61	62	ROW	N/A
<b>Predicted "No-Build" Alternative Design Year 2046 Traffic Noise Impacts:</b>							<b>6<sup>1</sup></b>	
<b>Noise Level Impact</b>					<b>Right-of-Way Acquisition</b>			
1. Predicted traffic noise level impact due to approaching or exceeding NAC.								

# **Noise Technical Report**

**for**

## **SR 170 Widening**

### **from near Melton Lake Drive to SR-9**

### **(US-25W, Clinton Highway) (IA)(TMA)**

### **Anderson County, Tennessee**

**PIN Number: 124121.02**

**State Project Number: PE-D: 01024-0224-14**

Submitted to:



Prepared by:

Stantec Consulting Services, Inc.



April 2025

Project Plans  
Line and Grade Plans  
February 8, 2025

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## Executive Summary

The SR 170 (Edgemoor Road) Widening project, from near Melton Lake Drive to SR-9 (US-25W, Clinton Highway) (IA)(TMA) is a Type I project in accordance with the Federal Highway Administration (FHWA) noise regulation, *Procedures for Abatement of Highway Traffic and Construction Noise, 23 CFR 772* because the project is adding through traffic lanes. The project requires a noise study to identify noise impacts and to evaluate noise abatement for those impacts. The noise study was conducted in accordance with the Tennessee Department of Transportation's *Policy on Highway Traffic Noise Abatement* (TDOT's noise policy) and Section 5.3.4 (Noise) and the *Tennessee Environmental Procedures Manual*.

The study determined that the project will create traffic noise impacts. A total of 29 receptors are predicted to be impacted. The impacted land uses include residential land uses (Activity Category B) and a playground at Claxton Elementary School (Activity Category C).

Noise abatement was evaluated to mitigate the predicted noise impacts in accordance with TDOT's noise policy.

Noise abatement is not proposed for this project. However, changes made during the final design process for the project could affect conclusions regarding noise impacts and abatement. Therefore, final noise abatement decisions will be made during the final design process.

Construction activities may generate intermittent and temporary noise above existing noise levels. The noise levels resulting from construction activities will depend on the types of equipment utilized, the duration of the activities, and the distances between construction activities and nearby land uses. However, the noise increases will be temporary and will not constitute a noise impact as defined by TDOT's noise policy.

Some tracts of undeveloped land exist in the project area. TDOT encourages the local governments with jurisdiction over these lands, as well as potential developers, to practice noise compatibility planning to avoid future noise impacts. The "Information for Local Officials" section of this report provides additional information on noise levels for undeveloped lands and noise compatibility planning.

### 1.0 Introduction

TDOT is proposing to improve State Route 170 (Edgemoor Road). This portion of the project will start from near Melton Lake Drive to SR-9 (US-25W, Clinton Highway) (IA)(TMA)

approximately 3.9 miles. The improvements will provide 4-12-foot lanes (2 lanes in each direction) with either a raised median or a center turn lane, along with replacing the bridge over the Clinch River. Several intersections along the corridor will also see improvements, including realignment, reconfiguration, and addition of turning lanes. Current plans include providing a sidewalk and shared use path for non-motorized users. The planned improvements are designed to improve safety, mobility, and overall efficiency of the corridor. The design year for the project is 2049.

The project area is comprised of single-family homes, Centennial Bluffs Condominiums, Pine Meadows Mobile Home Park and Oakridge Mobile Home Park (Activity Category B), Melton Lake Greenway and Claxton Community Park (Activity Category C). Claxton Community Center, Claxton Elementary School and Early Learning Tree Daycare will be evaluated as Activity Category C for exterior uses and Activity Category D for interior levels. There is a Subway restaurant with outdoor seating (Activity Category E). Non-noise-sensitive land uses are scattered throughout the project area (Activity Category F).

The project is Type I in accordance with the Federal Highway Administration (FHWA) noise regulation, Procedures for Abatement of Highway Traffic and Construction Noise, 23 CFR 772 (FHWA, 2010), because the project is adding through traffic lanes, therefore a noise study is required. This report documents the results of the noise analysis. Figure 1 shows the project location and limits. Project plans and the proposed typical cross-sections are shown in Appendix A.

## 2.0 Noise Evaluation

This study has been prepared in accordance with the FHWA noise regulation, the Tennessee Department of Transportation's (TDOT) *Policy on Highway Traffic Noise Abatement* (TDOT, 2011) (TDOT's noise policy), and Section 5.3.4 (Noise) of the *Tennessee Environmental Procedures Manual* (TDOT, 2011) and includes the following tasks:

- *Identification of noise-sensitive land uses:* Identification of existing land uses in the project area that are sensitive to highway traffic noise
- *Determination of existing noise levels:* Prediction of existing noise levels at sensitive land uses to characterize the existing noise environment in the project area
- *Determination of future noise levels:* Prediction of future, design year, worst-hour noise levels for the No-Build and Build Alternatives
- *Determination of traffic noise impacts:* Determination of noise impacts based on the increase in existing noise levels and design year noise levels
- *Noise abatement evaluation:* Evaluation of noise abatement for areas determined to be impacted by the project

- *Discussion of construction noise*
- *Information for local officials*

Each of these analysis steps is discussed below following a discussion of TDOT's criteria for determining noise impacts.

## 2.1 Criteria for Determining Impacts

### 2.1.1 Traffic Noise Terminology

Traffic noise levels are expressed in terms of the hourly, A-weighted equivalent sound level in decibels (dBA). A sound level represents the level of the rapid air pressure fluctuations caused by sources (such as traffic) that are heard as noise. A decibel is a unit that relates the sound pressure of a noise to the faintest sound the young human ear can hear.

The A-weighting refers to the amplification or attenuation of the different frequencies of the sound (subjectively, the pitch) to correspond to the way the human ear "hears" these frequencies. Generally, when the sound level exceeds the mid-60 dBA range, outdoor conversation in normal tones at a distance of three feet becomes difficult. Common indoor and outdoor sound levels are shown on Figure 2.

A 9-10 dB increase in sound level is typically judged by the listener to be twice as loud as the original sound while a 9-10 dB reduction is judged to be half as loud. Doubling the number of sources (i.e. vehicles) will increase the hourly equivalent sound level by approximately 3 dB, which is usually the smallest change in hourly equivalent A-weighted traffic noise levels that people can detect without specifically listening for the change.

Because most environmental noise fluctuates from moment to moment, it is standard practice to condense data into a single level called the equivalent sound level ( $L_{eq}$ ). The  $L_{eq}$  is a steady sound level that would contain the same amount of sound energy as the actual time-varying sound evaluated over the same time-period. The  $L_{eq}$  averages the louder and quieter moments, but gives much more weight to the louder moments in the averaging. For traffic noise assessment purposes,  $L_{eq}$  is typically evaluated over the worst one-hour period and is defined as  $L_{eq}(1h)$ .

The term *insertion loss* is generally used to describe the reduction in  $L_{eq}(1h)$  at a location after a noise barrier is constructed. For example, if the  $L_{eq}(1h)$  at a residence before a barrier is constructed is 75 dBA and the  $L_{eq}(1h)$  after a barrier constructed is 65 dBA, then the insertion loss would be 10 dB.

### 2.1.2 Noise Abatement Criteria

Noise impact is determined by comparing future project noise levels to a set of Noise Abatement Criteria (NAC) for a land use category, and to existing noise levels. The FHWA noise regulation and TDOT's noise policy state that traffic noise impacts require consideration of abatement when worst-hour noise levels approach or exceed the NAC listed in Table 1. TDOT's noise policy defines "approach" as one decibel below the NAC, or 66 dBA for Category B and C land uses. The FHWA noise regulation and TDOT's noise policy also define impacts to occur if there is a substantial increase in existing noise levels. TDOT's criteria to define a substantial noise increase is shown in Table 2.

## 2.2 Noise Analysis Areas

Review of available electronic mapping and field reconnaissance revealed 18 areas that might be impacted by the project. These areas are called noise analysis areas (NAAs) and are listed in Table 3 and shown on Figures 3-1 through 3-7. The 18 NAAs are described below:

- NAA 1 –North of SR 170 (Edgemoor Road) and west of Melton Lake Drive as shown on Figure 3-1.
- NAA 2 – North and south of SR 170 (Edgemoor Road), along the west side of the Clinch River as shown on Figure 3-1.
- NAA 3 – North of SR 170 (Edgemoor Road) and east of the Clinch River as shown on Figure 3-2.
- NAA 4 – North of SR 170 (Edgemoor Road) and encircled by Lakeview Circle as shown on Figure 3-2.
- NAA 5 - North of SR 170 (Edgemoor Road), east of Lakeview Circle and west of Old Emory Road as shown on Figures 3-2 and 3-3.
- NAA 6 - South of SR 170 (Edgemoor Road) and east of the retired TVA Bull Run Fossil Plant as shown on Figure 3-3.
- NAA 7 - North of SR 170 (Edgemoor Road), east of Old Emory Road and west of Ozella Lane as shown on Figure 3-3.
- NAA 8 - North of SR 170 (Edgemoor Road), east of Ozella Lane and west of Chesterfield Road as shown on Figures 3-3 and 3-4.
- NAA 9 - South of SR 170 (Edgemoor Road), just west of New Henderson Road and east of Foust Carney Road as shown on Figure 3-4.
- NAA 10 - North of SR 170 (Edgemoor Road), just west of Foust Carney Road and west of North Dogwood Road as shown on Figures 3-4 and 3-5.
- NAA 11 - South of SR 170 (Edgemoor Road), east of Foust Carney Road and just east of South Dogwood Road as shown on Figure 3-5.
- NAA 12 - North of SR 170 (Edgemoor Road), just west of North Dogwood Road to just east of North Dogwood Road as shown on Figure 3-5.

- NAA 13 - North of SR 170 (Edgemoor Road) and adjacent to Mockingbird Hill Lane as shown on Figures 3-5 and 3-6.
- NAA 14 - South of SR 170 (Edgemoor Road), west of Old Edgemoor Road and west of US Highway 25 West as shown on Figures 3-5, 3-6 and 3-7.
- NAA 15 - North of SR 170 (Edgemoor Road), just west of Tori Kait Lane just east of Coconut Lane as shown on Figure 3-6.
- NAA 16 - North of SR 170 (Edgemoor Road), east of Coconut Lane and west of US Highway 25 West as shown on Figures 3-6 and 3-7.
- NAA 17 - North of Racoon Valley Road and east of US Highway 25 West as shown on Figure 3-7.
- NAA 18 - South of Racoon Valley Road and east of US Highway 25 West as shown on Figure 3-7.

The NAC for Activity Category B will apply to residential land uses. Noise impacts will be identified, and noise abatement will be considered if design year noise levels are 66 dB or higher or if the project causes a substantial increase in existing noise levels.

The NAC for Activity Category C will apply to the Melton Lake Greenway (NAA 2), Claxton Community Park (NAA 6) and the outdoor activity areas of Claxton Elementary School (NAA 16). Noise impacts will be identified and noise abatement will be considered if design year noise levels are 66 dB or higher or if the project causes a substantial increase in existing noise levels.

The NAC for Activity Category D will apply to the interior sound levels at Claxton Community Center (NAA 6), Claxton Elementary School (NAA 16) and the Early Learning Tree Daycare (NAA 18). Noise impacts will be identified and noise abatement will be considered if interior design year noise levels are 51 dB or higher or if the project causes a substantial increase in existing noise levels.

The NAC for Activity Category E will apply to the outdoor dining area of the Subway Restaurant (NAA 11). Noise impacts will be identified and noise abatement will be considered if interior design year noise levels are 71 dB or higher or if the project causes a substantial increase in existing noise levels.

Category F land uses are scattered within the project limits, including but not limited to, Orion Auto Sales, Dollar General, Gunter Automotive and Coker Realty Company. This land use is not noise-sensitive and therefore has not been included in the noise study.

Category G undeveloped lands have been identified within the project limits. Undeveloped lands are not noise-sensitive, do not have a NAC (Table 1), and have not been included in the noise study. However, noise impacts could occur in the future if noise-sensitive land

uses are constructed near the proposed SR 170 Widening project. A discussion of future noise levels and the need for noise-compatible land use planning is provided in Section 2.8.

## 2.3 Existing Noise Levels

### 2.3.1 Noise Measurements

Noise measurements were conducted at eight noise-sensitive land uses in the project area on March 10th and March 11th, 2025 between 2:52 pm and 6:25 pm on the 10th and 2:22 pm and 4:43 pm on the 11th. A listing of measurement locations and noise level data is provided in Table 4. The existing measurements ranged from 52.5 to 68.4 dB. Measurement locations are shown on Figures 3-1 through 3-7. Noise measurement data sheets and site photographs are provided in Appendix B.

Short-term 20 minute noise measurements at all locations were conducted at one-minute intervals. Background noise (i.e. dog barking, sirens, etc.) during these measurements was noted, and the corresponding one-minute measurement intervals were eliminated. Noise levels vary throughout the day depending on the proximity of noise-sensitive land uses to local roads and to other noise sources. Noise levels can also vary with environmental changes, including shifts in wind speed and direction and changes in the vertical temperature profile. As a result, the short-term measurement data provides only a snapshot of the existing noise environment at each measurement location.

### 2.3.2 Model Validation

The noise analysis used Method 3 in the TEPM, which requires a separate analysis to validate the TNM models developed for the project. Validation involves conducting noise measurements at locations near the existing roadway while counting vehicles and documenting travel speeds on the road. The traffic volumes and speeds during the measurement period are input into a TNM model that represents existing conditions. The predicted noise levels from TNM are then compared to the measured noise levels. Per FHWA, if the levels are within 3 dB, the model is considered valid and can be used to predict noise levels. If the model is not within 3 dB, then the model is not considered valid until additional measurements are conducted or until the reason for the discrepancy is identified or the model is corrected.

Model validation noise measurements were conducted at eight community locations on March 10th and March 11th, 2025. Traffic volumes by vehicle type were counted during each measurement period, and speed data was collected for each vehicle type using a radar speed gone and driving the corridor. The validation locations and noise

measurement and traffic data are in Appendix B. TNM predicted the noise level for each validation site based on the input traffic and speed data for the associated measurement period.

The pavement type for SR 170 (Edgemoor Road) widening is a Dense-Graded Asphalt Concrete (DGAC) pavement type, so “average” pavement type was modeled in TNM. The validation results are summarized in Table 5. As shown, the differences between the predicted and measured levels at the measurement locations range from 0.0 to 2.3 dB. All measurement locations validated.

## 2.4 Future Noise Levels

Tennessee Department of Transportation Planning Division developed traffic projections for the project for the design year 2049. Projected traffic volumes for the “design hour” represents the theoretical worst traffic condition. Design hour traffic projections were used for the noise analysis since they represent the highest number of vehicles expected to travel on SR 170 (Edgemoor Road) in a given hour and would, therefore, represent the worst noise hour. Design year traffic projections are included in Appendix C.

### 2.4.1 No-Build Alternative

Noise levels for the No-Build Alternative can be reasonably estimated by evaluating existing and future traffic volumes on SR 170 (Edgemoor Road). Doubling traffic on a roadway results in a 3 dB increase in the noise level at a given location assuming all other conditions remain the same. Design year 2049 traffic volumes on SR 170 (Edgemoor Road) are predicted to be approximately 29% higher than existing volumes. This increase in traffic would increase noise levels at nearby residences by approximately 1.11 dB, as calculated below, and rounded to 1 dB. As a result, existing noise levels were increased by 1 dB to arrive at design year 2049 noise levels for the No-Build Alternative at the measurement locations shown on Figures 3-1 through 3-7. The No-Build Alternative results are shown in Table E.1 in Appendix E.

$$\text{Increase in sound level} = 10 \log (1+2.9/10) = 1.11 \text{ dB}$$

where: N = Percent increase in traffic between existing and design year

### 2.4.2 Build Alternative

Noise modeling of the project area was completed using the FHWA Traffic Noise Model (TNM 2.5) computer program and in accordance with *TDOT Guidelines for Noise Modeling Using FHWA's Traffic Noise Model* (TDOT, 2011). The TNM calculated design hour noise levels in year 2049 for the noise-sensitive land uses in the project area.

Design year traffic projections provided by Tennessee Department of Transportation Planning Division were used for the noise analysis. These projections indicated design hour volumes for SR 170 (Edgemoor Road) range between 1,668 to 2,032 for AM and 2,284 to 2,742 for PM. The percentage of total trucks on SR 170 (Edgemoor Road) is 5%, as shown in Appendix C. The proposed design speed of 50 mph on SR 170 (Edgemoor Road) was modeled. The volumes and speeds of all roads modeled within the project study area are shown in Appendix C.

The predicted design year noise levels for the modeled receivers in each noise analysis area are summarized in Table 6 and discussed in the following section. The TNM quality control checklist and plan views showing all modeled TNM objects and the location of the modeled roadways and receivers are included in Appendix D. Predicted noise levels at each modeled receiver are included in Appendix E.

## 2.5 Noise Impacts

A noise-sensitive land use is impacted if the predicted worst hour noise level approaches or exceeds the NAC or the project substantially increases existing noise levels. Design year noise levels for the Build Alternative are predicted to be 1 - 7 dB greater than existing noise levels. These increases are not substantial in accordance with TDOT's noise policy. Therefore, none of the land uses are predicted to be impacted by a substantial increase in noise level.

Although design year noise levels at most land uses are predicted to be less than the NAC, six Activity Category C receptors are predicted to be impacted by the project with design year noise levels of 66 dBA or greater (Table 6).

## 2.6 Noise Abatement Evaluation

Abatement is evaluated when impacts are predicted to occur. Noise barriers were evaluated to reduce noise levels for impacted land uses in each noise analysis area. For noise barriers to be included in a project, they must be determined to be both feasible and reasonable in accordance with TDOT's noise policy as discussed below.

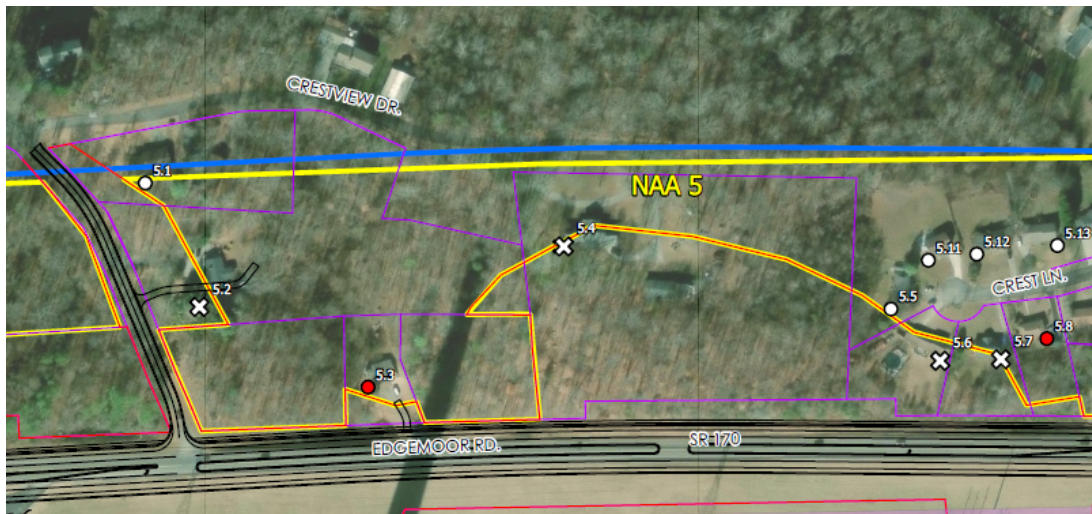
### 2.6.1 Noise Barrier Feasibility

Feasibility means that the construction of a barrier would not be anticipated to pose any major design, construction, maintenance, or safety problems, and the noise barriers will provide a noise reduction (insertion loss) of 5 dB in design year highway traffic noise levels for the majority of the impacted first-row receptors.

Each NAA was evaluated for the feasibility of a noise barrier to provide a reduction in noise levels to impacted receptors. The feasibility of a noise barrier for each NAA with impacts is described below:

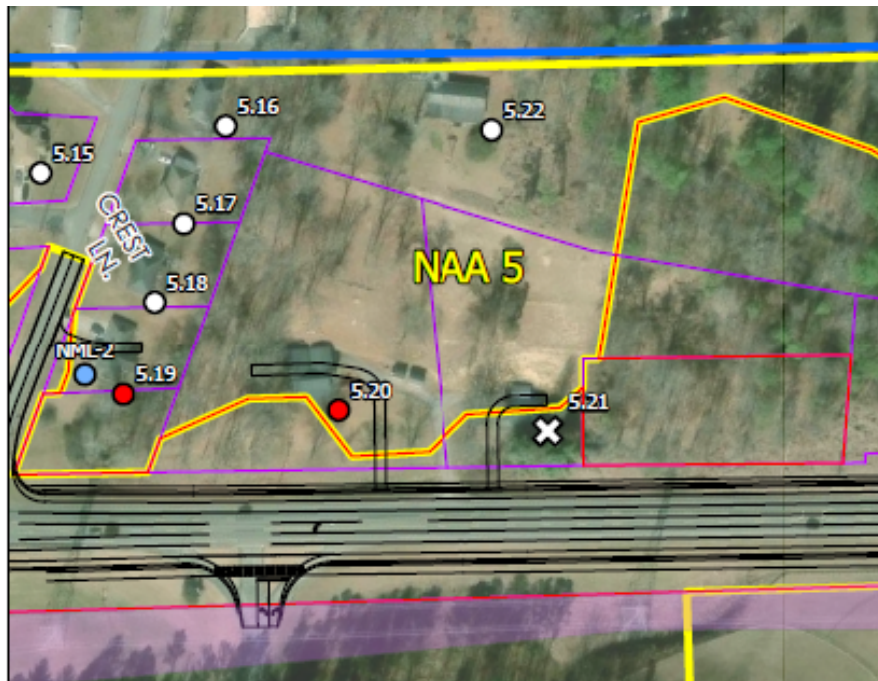
- NAA 5 Residential receptors at 1256 Edgemoor Road and 115 Crest Lane – Two residential receptors, 5.3 and 5.8, are impacted by design year 2049 traffic, as shown below and on Figure 3-2.

A noise barrier to provide benefit to the impacted receptors would not be feasible for this area, because the two impacted receptors are isolated (over 1,000 feet from each other). However, changes made during the final design process for the project could affect this conclusion. Therefore, a final noise abatement decision for this area will be made during the final design process.



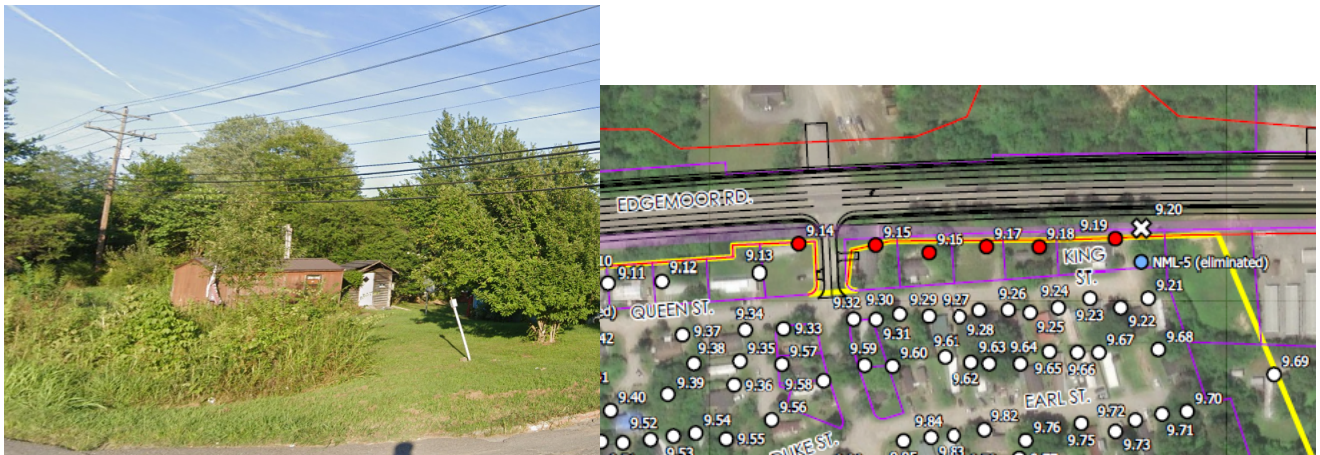
- NAA 5 – Residential receptors at 110 Walnut Valley Road and 1154 Edgemoor Road – Two residential receptors, 5.19 and 5.20, are impacted by design year 2049 traffic, as shown below and on Figure 3-3.

A noise barrier to provide benefit to the impacted receptors would not be feasible for this area, because there is not enough distance to provide a barrier long enough to provide a reduction in noise levels due to needing sight distance at SR 170 and Crest Lane and the drive access on SR 170. However, changes made during the final design process for the project could affect this conclusion. Therefore, a final noise abatement decision for this area will be made during the final design process.



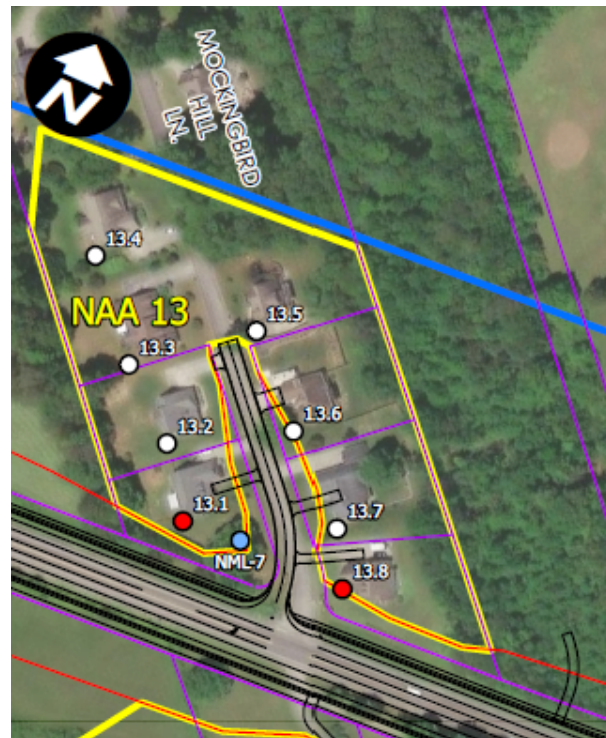
- NAA 9 – Pine Meadows Mobile Home Park – Six residential receptors, 9.14, 9.15, 9.16, 9.17, 9.18 and 9.19 are impacted in NAA 9 by design year 2049 traffic, as shown below and on Figure 3-3 and 3-3. Receptor 9.14, to the west of the Royal Street entrance to the mobile home park, is considered an isolated impact as any abatement would not be able to cross this road. Also, there is a substantial power transmission line between the roadway and the mobile home park.

A noise barrier to provide benefit to the impacted receptors would not be feasible for this area, due to the close proximity of the major power transmission lines. Also, with the proposed 10 foot shared use path, there will not be enough room to provide a noise barrier in this location. However, changes made during the final design process for the project could affect this conclusion. Therefore, a final noise abatement decision for this area will be made during the final design process.



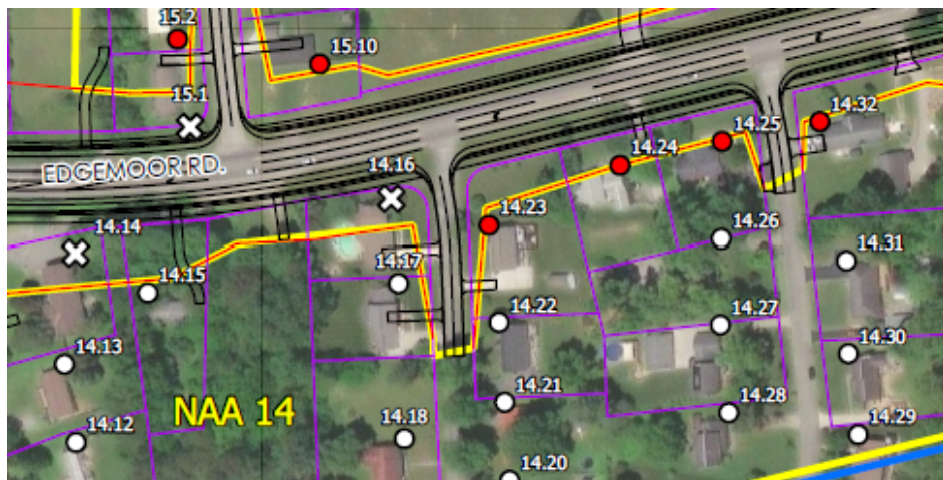
- NAA 13 – Mockingbird Hill Lane – Two residential receptors, 13.1 and 13.8 are impacted in NAA 13 by design year 2049 traffic, as shown below and on Figure 3-6. Receptors 13.1 and 13.8 are considered isolated receptors because they are on opposite sides of Mockingbird Hill Lane. Also, there is a substantial power transmission line between the roadway and the impacted receptors.

A noise barrier to provide benefit to the impacted receptors would not be feasible for this area, due to the impacted receptors (13.1 and 13.8) being isolated and the close proximity of major power transmission lines. However, changes made during the final design process for the project could affect this conclusion. Therefore, a final noise abatement decision for this area will be made during the final design process.



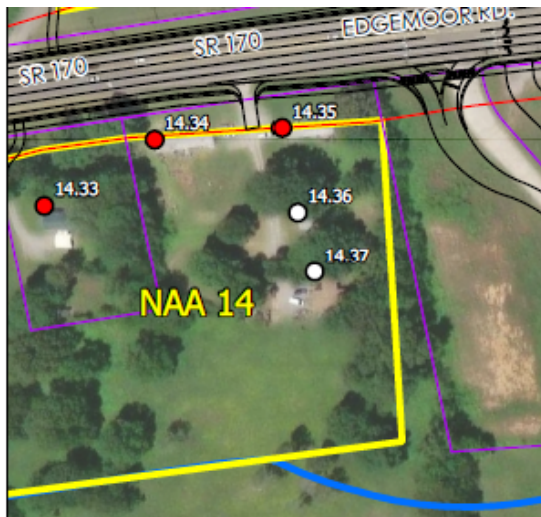
- NAA 14 – Terisu Circle – Glendale Park Subdivision – Four residential receptors, 14.23, 14.24, 14.25 and 14.32 are impacted in NAA 14 by design year 2049 traffic as shown below and on Figure 3-6.

A noise barrier to provide benefit to the impacted receptors would not be feasible for this area, due to lack of distance for a noise barrier for receptors 14.23, 14.24 and 14.25 with the driveway cut at 14.24. Receptor 14.32 is considered isolated and there is also a driveway cut east of the receptor. Also, there is a substantial power transmission line between the roadway and the impacted receptors. However, changes made during the final design process for the project could affect this conclusion. Therefore, a final noise abatement decision for this area will be made during the final design process.



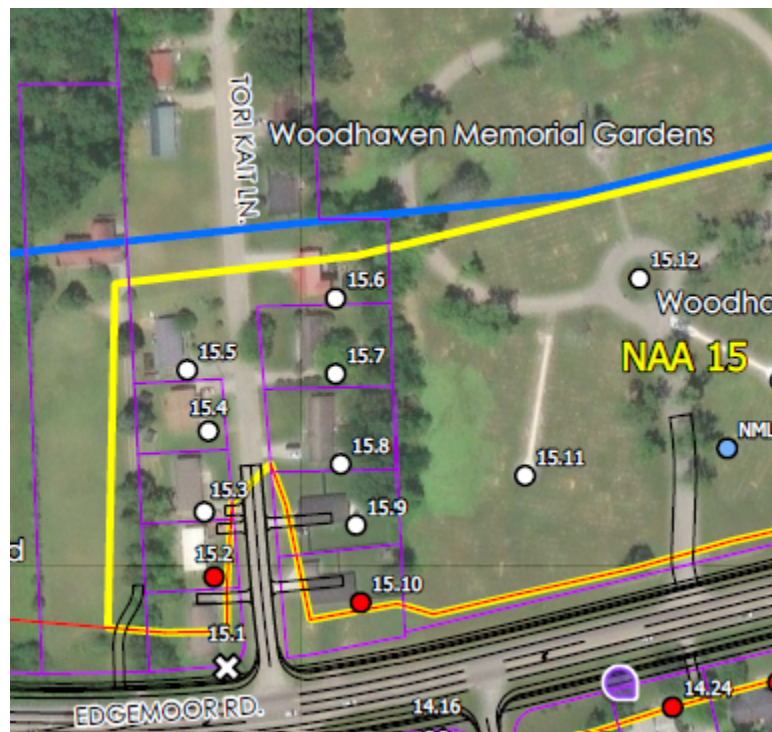
- NAA 14 - 135 Edgewood Road, 103 and 104 Dahl Lane - Three residential receptors, 14.33, 14.34 and 14.35 are impacted in NAA 14 by design year 2049 traffic as shown below and on Figure 3-7.

A noise barrier to provide benefit to the impacted receptors would not be feasible for this area, due to lack of distance for a noise barrier for receptors 14.33, 14.34 and 14.35 with the driveway cut between receptors 14.34 and 14.35. Receptor 14.35 is considered isolated because of the driveway cut west of the receptor. Also, there is a substantial power transmission line between the roadway and the impacted receptors. However, changes made during the final design process for the project could affect this conclusion. Therefore, a final noise abatement decision for this area will be made during the final design process.



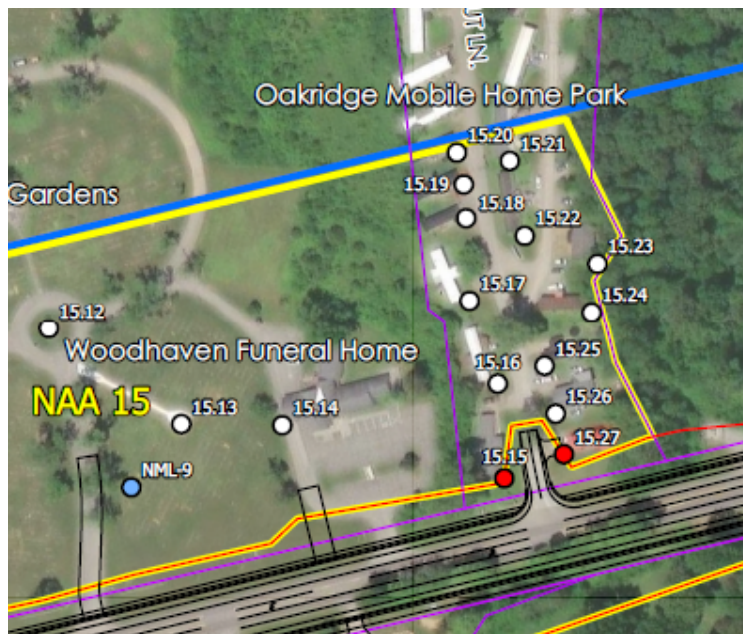
- NAA 15 - Tori Kait Lane - Edgemoor Meadows Subdivision - Two residential receptors, 15.2 and 15.10 are impacted in NAA 15 by design year 2049 traffic as shown below and on Figure 3-6. Receptors 15.2 and 15.10 are considered isolated receptors because they are on opposite sides of Tori Kait Lane.

A noise barrier to provide benefit to the impacted receptors would not be feasible for this area, due to the impacted receptors (15.2 and 15.10) being isolated. However, changes made during the final design process for the project could affect this conclusion. Therefore, a final noise abatement decision for this area will be made during the final design process.



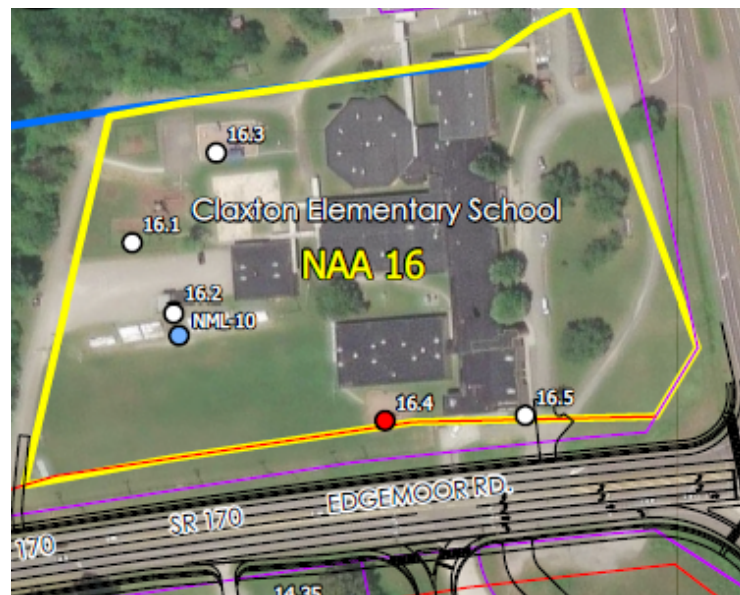
- NAA 15 - Coconut Lane - Oakridge Mobile Home Park - Two residential receptors, 15.15 and 15.37 are impacted in NAA 15 by design year 2049 traffic as shown below and on Figure 3-6. Receptors 15.15 and 15.27 are considered isolated receptors because they are on opposite sides of Coconut Lane.

A noise barrier to provide benefit to the impacted receptors would not be feasible for this area, due to the impacted receptors (15.15 and 15.27) being isolated and a noise barrier cannot cross the roadway. However, changes made during the final design process for the project could affect this conclusion. Therefore, a final noise abatement decision for this area will be made during the final design process.



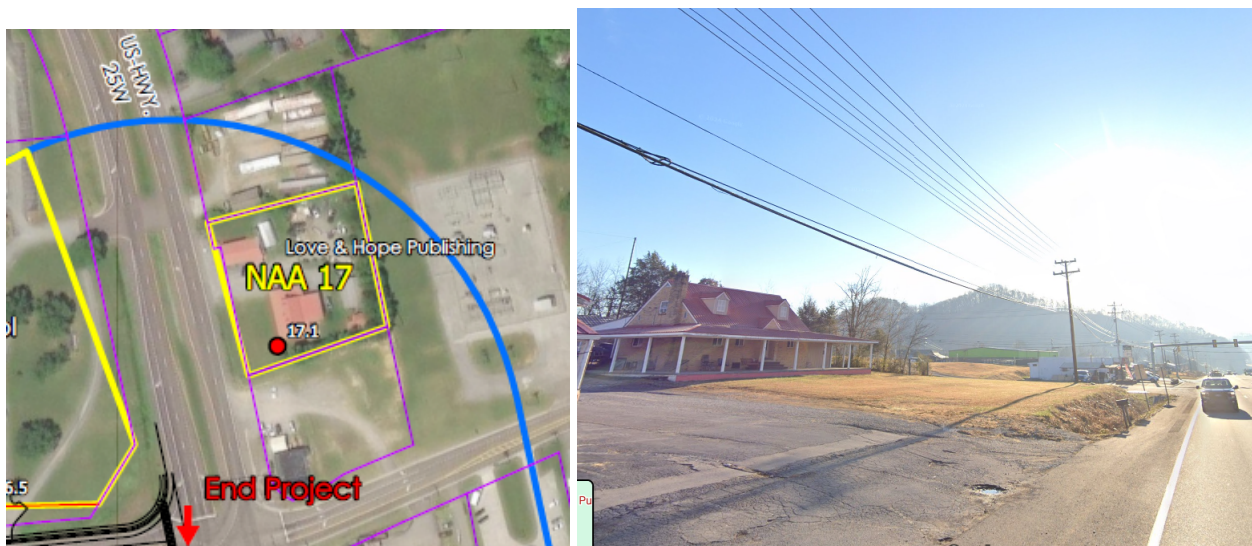
- NAA 16 – Claxton Elementary School – One receptor, 16.4, is impacted in NAA 16 by design year 2049 traffic as shown below and on Figure 3-7. Receptor 16.4 is a playground and is the closest to SR 170 of the outdoor recreation areas at Claxton Elementary School. The elementary school is impacted by traffic noise on both SR 170 (Edgemoor Road) and SR 9 (US 25 W).

A noise barrier to provide benefit to the impacted receptor would not be feasible for the playground area because traffic noise from SR 9 (US 25 W) would still impact the area. A barrier would need to wrap around the property to provide benefit to receptor 16.4, which would not be feasible due to the entrances to the school from both SR 170 and SR 9. However, changes made during the final design process for the project could affect this conclusion. Therefore, a final noise abatement decision for this area will be made during the final design process.



- NAA 17 – 2215 Clinton Highway (SR 9 – US 25 W) – One receptor, 17.1, is impacted in NAA 17 by design year 2049 traffic as shown below and on Figure 3-7. Receptor 17.1 is an isolated receptor that appears to be a single family residence but is zoned as commercial. Receptor 17.1 is impacted by traffic noise on both SR 170 (Edgemoor Road) and SR 9 (US 25 W).

A noise barrier to provide benefit to the impacted receptor would not be feasible for receptor 17.1 because of the many driveway cuts along US 25 W. Also, there is a substantial power transmission line between the roadway and the impacted receptor. However, changes made during the final design process for the project could affect this conclusion. Therefore, a final noise abatement decision for this area will be made during the final design process.



Because noise barriers to benefit the impacted receptors in the project study area are not feasible, reasonableness of a barrier for any NAA was not evaluated. If during the final design process a barrier is found to be feasible, reasonableness will be evaluated at that time.

### 2.6.2 *Statement of Likelihood*

Noise abatement is not proposed for this project. However, changes made during the final design process for the project could affect conclusions regarding noise impacts and abatement. Therefore, final noise abatement decisions will be made during the final design process.

## 2.7 Construction Noise

Construction activities will generate intermittent and temporary noise above existing ambient noise levels. The noise levels resulting from construction activities will depend on the types of equipment utilized, the duration of the activities, and the distances between construction activities and nearby land uses. However, the noise increases will be temporary and will not constitute a noise impact as defined by the FHWA noise regulation and TDOT's noise policy.

## 2.8 Information for Local Officials

Undeveloped tracts of land are adjacent to SR 170 (Edgemoor Road). TDOT encourages the local governments with jurisdiction over these lands, as well as potential developers of these lands, to practice noise compatibility planning to avoid future noise impacts. The following language is included in TDOT's noise policy:

*“Highway traffic noise should be reduced through a program of shared responsibility. Local governments should use their power to regulate land development in such a way that noise-sensitive land uses are either prohibited from being located adjacent to a highway or that the developments are planned, designed and constructed in such a way that noise impacts are minimized.”*

FHWA developed two guidance documents on noise compatible land use planning: *The Audible Landscape: A Manual for Highway Noise and Land Use* (FHWA, 1974) and *Entering the Quiet Zone: Noise Compatibility Land Use Planning* (FHWA, 2002).

Design year noise levels for areas along SR 170 (Edgemoor Road) where vacant and possibly developable lands exist are listed in Table 7. Noise predictions were made at distances of 20 feet from the edge of the nearest travel lane for the design year 2049. Noise levels within approximately 120 feet of the centerline of the near lane of SR 170 (Edgemoor Road) will approach or exceed the NAC of 66 dBA. Noise-sensitive land uses should generally not be constructed in these areas unless noise mitigation measures are provided.

The values in Table 7 do not represent predicted levels at every location at a particular distance from the roadway. Noise levels will vary with changes in terrain and will be affected by the shielding of objects such as buildings. This information is being included to make local officials and planners aware of anticipated highway noise levels so that future development will be compatible with these levels.

Finally, TDOT has constructed Type II or “retrofit” noise barriers along existing highways. To be eligible for a Type II noise barrier, an area must meet the following criteria:

- The neighborhood must be located along a limited-access roadway.
- The neighborhood must be primarily residential.
- The majority (more than 50%) of residences in the neighborhood near the highway pre-dated the initial highway construction.
- A noise barrier for the neighborhood must not have been previously determined to be not reasonable or not feasible as part of a new highway construction or through-lane widening study (Type I project).
- Existing noise levels measured in the neighborhood must be above 66 dBA.
- A barrier must be feasible to construct and will provide substantial noise reduction.
- A barrier must be reasonable (barrier area per benefited residence) in accordance with TDOT’s noise policy. A residence is considered “benefited” if the noise barrier will reduce the traffic noise by at least 5 dB.

## 2.9 Meteorological Effects on Noise Levels

Noise levels from highways or other sources are louder or quieter during certain times of the day or year. Changes in weather conditions are often the cause of these higher or lower noise levels. The effects on a community depend on the distance to highways and the frequency and duration of certain weather conditions.

Louder noise levels will be more common in areas where the wind typically blows from a highway toward a community (downwind) than in locations where the wind blows from the community toward the highway (upwind). Downwind conditions cause sound waves to bend back toward the earth and increase sound levels.

When the air above the ground is warmer than the air near the ground, a *temperature inversion* occurs that causes sound waves to bend back toward the earth and increase noise levels. Temperature inversions often occur at night when the weather is clear and winds are calm.

Changes in weather conditions also affect how well a noise barrier performs. Temperature inversions and downwind conditions can increase noise levels in neighborhoods protected by a noise barrier, while temperature lapses and upwind conditions can further reduce noise levels in neighborhoods protected by a noise barrier.

### 3.0 Conclusions

Traffic noise and temporary construction noise can be a consequence of transportation projects, especially in areas near high-volume and high-speed existing steady-state traffic noise sources. This Noise Technical Report utilized computer models created with the FHWA TNM v2.5, validated to field-collected traffic noise measurement data, to predict future noise levels and define impacted receptors along the proposed SR 170 (Edgemoor Road) Widening project.

For Design Year 2049 traffic volumes, the Build condition is predicted to create 29 traffic noise impacts.

Consideration for noise abatement measures was given to all impacted receptors. Noise abatement is not proposed for this project. However, changes made during the final design process for the project could affect this conclusion. Therefore, final noise abatement decisions for this project will be made during the final design process.

Construction activities will generate intermittent and temporary noise above existing ambient noise levels. The noise levels resulting from construction activities will depend on the types of equipment utilized, the duration of the activities, and the distances between construction activities and nearby land uses. However, the noise increases will be temporary and will not constitute a noise impact as defined by the FHWA noise regulation and TDOT's noise policy.

Although the project corridor is mostly developed, undeveloped tracts of land are adjacent to SR 170 between NAA 8 and Chesterfield Road, north of SR 170, between NAA 12 and NAA 13 north of SR 170 and between NAA 11 and NAA 14 south of SR 170. TDOT encourages the local governments with jurisdiction over these lands, as well as potential developers of these lands, to practice noise compatibility planning to avoid future noise impacts.

## 4.0 References

Federal Highway Administration, November 1974, *The Audible Landscape: A Manual for Highway Noise and Land Use*.

Federal Highway Administration, May 2002, *Entering the Quiet Zone: Noise Compatibility Land Use Planning*.

Federal Highway Administration, July 2010, *Procedures for Abatement of Highway Traffic and Construction Noise*, 23 CFR 772.

Tennessee Department of Transportation, April 2010, *TDOT Guidelines for Noise Modeling Using FHWA's Traffic Noise Model*.

Tennessee Department of Transportation, July 13, 2011, *Policy on Highway Traffic Noise Abatement*.

Tennessee Department of Transportation, 2011, *Tennessee Environmental Procedures Manual*.

## **TABLES**

**Table 1**  
**FHWA Noise Abatement Criteria**

<b>Activity Category</b>	<b>L<sub>Aeq</sub>(1h) dBA</b>	<b>Evaluation Location</b>	<b>Activity Description</b>
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B <sup>(1)</sup>	67	Exterior	Residential.
C <sup>(1)</sup>	67	Exterior	Active sport areas, amphitheatres, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structure, radio stations, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structure, radio studios, recording studios, schools, and television studios.
E <sup>(1)</sup>	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D, or F.
F	---	---	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	---	---	Undeveloped lands that are not permitted.

(1) Includes undeveloped lands permitted for this activity category.

**Table 2**  
**Substantial Noise Level Increase**

<b>Existing Noise Level (dBA) <sup>(1)</sup></b>	<b>Predicted Design Year Noise Level Increase (dB) <sup>(2)</sup></b>
42 or less	15 or more
43	14 or more
44	13 or more
45	12 or more
46	11 or more
47 or more	10 or more

(1) Worst-hour noise level from the combination of natural and mechanical sources and human activity.

(2) Predicted design year noise level minus existing noise level.

**Table 3**  
**Noise Analysis Areas**

<b>Noise Analysis Area</b>	<b>Description</b>	<b>Activity Category</b>	<b>NAC (dBA)</b>
NAA 1	North of SR 170 (Edgemoor Road) and west of Melton Lake Drive as shown on Figure 3-1.	B	67
NAA 2	North and south of SR 170 (Edgemoor Road), along the west side of the Clinch River as shown on Figure 3-1.	C	67
NAA 3	North of SR 170 (Edgemoor Road) and east of the Clinch River as shown on Figure 3-2.	B	67
NAA 4	North of SR 170 (Edgemoor Road) and encircled by Lakeview Circle as shown on Figure 3-2.	B	67
NAA 5	North of SR 170 (Edgemoor Road), east of Lakeview Circle and west of Old Emery Road as shown on Figures 3-2 and 3-3.	B	67
NAA 6	South of SR 170 (Edgemoor Road) and east of the retired TVA Bull Run Fossil Plant as shown on Figure 3-3.	C, D	67, 52

NAA 7	North of SR 170 (Edgemoor Road), east of Old Emory Road and west of Ozella Lane as shown on Figure 3-3.	B	67
NAA 8	North of SR 170 (Edgemoor Road), east of Ozella Lane and west of Chesterfield Road as shown on Figures 3-3 and 3-4.	B	67
NAA 9	South of SR 170 (Edgemoor Road), just west of New Henderson Road and east of Foust Carney Road as shown on Figure 3-4.	B	67
NAA 10	North of SR 170 (Edgemoor Road), just west of Foust Carney Road and west of North Dogwood Road as shown on Figures 3-4 and 3-5.	B	67
NAA 11	South of SR 170 (Edgemoor Road), east of Foust Carney Road and just east of South Dogwood Road as shown on Figure 3-5.	B, E	67, 72
NAA 12	North of SR 170 (Edgemoor Road), just west of North Dogwood Road to just east of North Dogwood Road as shown on Figure 3-5.	B	67
NAA 13	North of SR 170 (Edgemoor Road) and adjacent to Mockingbird Hill Lane as shown on Figures 3-5 and 3-6.	B	67
NAA 14	South of SR 170 (Edgemoor Road), west of Old Edgemoor Road and west of US Highway 25 West as shown on Figures 3-5, 3-6 and 3-7.	B	67
NAA 15	North of SR 170 (Edgemoor Road), just west of Tori Kait Lane just east of Coconut Lane as shown on Figure 3-6.	B, C, D	67, 67, 52
NAA 16	North of SR 170 (Edgemoor Road), east of Coconut Lane and west of US Highway 25 West as shown on Figures 3-6 and 3-7.	C, D	67, 52
NAA 17	North of Racoon Valley Road and east of US Highway 25 West as shown on Figure 3-7.	B	67
NAA 18	South of Racoon Valley Road and east of US Highway 25 West as shown on Figure 3-7.	C, D	67, 52

**Table 4**  
**Existing Noise Levels at Measurement Locations**

<b>Location</b>	<b>Noise Analysis Area</b>	<b>Distance to SR 170 (feet)<sup>(1)</sup></b>	<b>Date</b>	<b>Period</b>	<b>L<sub>eq</sub>(1h) (dBA)</b>
NML-1	NAA 1	860 feet To SR 170 180 feet to Melton Lake Road	March 11, 2025	2:59 pm – 3:19 pm	60.8
NML-2	NAA 5	135	March 11, 2025	2:22 pm - 3:02 pm	64.9
NML-3	NAA 6	250	March 11, 2025	3:33 pm -3:53 pm	56.9
NML-4 <sup>2</sup>	--	--	--	--	--
NML-5 <sup>2</sup>	--	--	--	--	--
NML-6	NAA 11	140	March 11, 2025	4:14 pm – 4:34 pm	55.7
NML-7	NAA 13	85	March 10, 2025	4:47 pm – 5:07 pm	64.7
NML-8	-- <sup>3</sup>	60	March 10, 2025	6:05 pm – 6:25 pm	68.4
NML-9	NAA 15	160	March 10, 2025	3:30 pm – 3:50 pm	58.0
NML-10	NAA 16	210	March 10, 2025	2:52 pm – 3:12 pm	52.5

(1) From proposed edge-of-pavement.

(2) Measurement locations 4 and 5 were dropped due to low visibility to traffic (below roadway grade) and unleashed dogs.

(3) NML-8 was moved to a small family cemetery (not within a NAA) due to difficulty in accessing properties in NAA 14.

**Table 5**  
**TNM Validation Results**

<b>Location<sup>1</sup></b>	<b>NAA</b>	<b>Time Start</b>	<b>Time End</b>	<b>Measured<sup>2</sup> Leq, dBA</b>	<b>Predicted<sup>2</sup> Leq, dBA</b>	<b>Predicted - Measured Difference, dB</b>
NML-1	NAA 1	2:59 pm	3:19 pm	60.8	58.8	<b>-2.0</b>
NML-2	NAA 5	2:22 pm	3:02 pm	64.9	63.1	<b>-1.8</b>
NML-3	NAA 6	3:33 pm	3:53 pm	56.9	57.7	<b>0.8</b>
NML-4 <sup>3</sup>	--	--	--	--	--	--
NML-5 <sup>3</sup>	--	--	--	--	--	--
NML-6	NAA 11	4:14 pm	4:34 pm	55.7	58.0	<b>2.3</b>
NML-7	NAA 13	4:47 pm	5:07 pm	64.7	65.8	<b>1.1</b>
NML-8	-- <sup>3</sup>	6:05 pm	6:25 pm	68.4	67.8	<b>-0.6</b>
NML-9	NAA 15	3:30 pm	3:50 pm	58.0	58.0	<b>0.0</b>
NML-10	NAA 16	2:52 pm	3:12 pm	52.5	54.5	<b>2.0</b>

(1) Please see figures for measurement locations.

(2) Hourly equivalent noise levels, Leq(h), are expressed to the nearest one-tenth decibels to ensure that TNM-predicted noise levels validate to within  $\pm 3.0$  dB(A) of measured noise levels without the benefits of rounding.

(3) Measurement locations 4 and 5 were dropped due to low visibility to traffic (below roadway grade) and unleashed dogs.

**Table 6**  
**Impact Determination Analysis**  
**Design Year 2049, Build Alternative**

<b>Noise Analysis Area</b>	<b>Design Year Noise Levels (dBA)</b>	<b>Impacted?</b>	<b>Number of Impacts</b>
NAA 1	41 - 64	No	0
NAA 2	56 - 65	No	0
NAA 3	59 - 63	No	0
NAA 4	54 - 57	No	0
NAA 5	55 - 69	Yes	4
NAA 6	54 - 65	No	0
NAA 7	58 - 63	No	0
NAA 8	61	No	0
NAA 9	50 - 70	Yes	6
NAA 10	57 - 59	No	0
NAA 11	51 - 70	Yes	4
NAA 12	60 - 65	No	0
NAA 13	58 - 70	Yes	2
NAA 14	51 - 71	Yes	7
NAA 15	54 - 71	Yes	4
NAA 16	55 - 69	Yes	1
NAA 17	68	Yes	1
NAA 18	59 - 61	No	0
<b>Total</b>			<b>29</b>

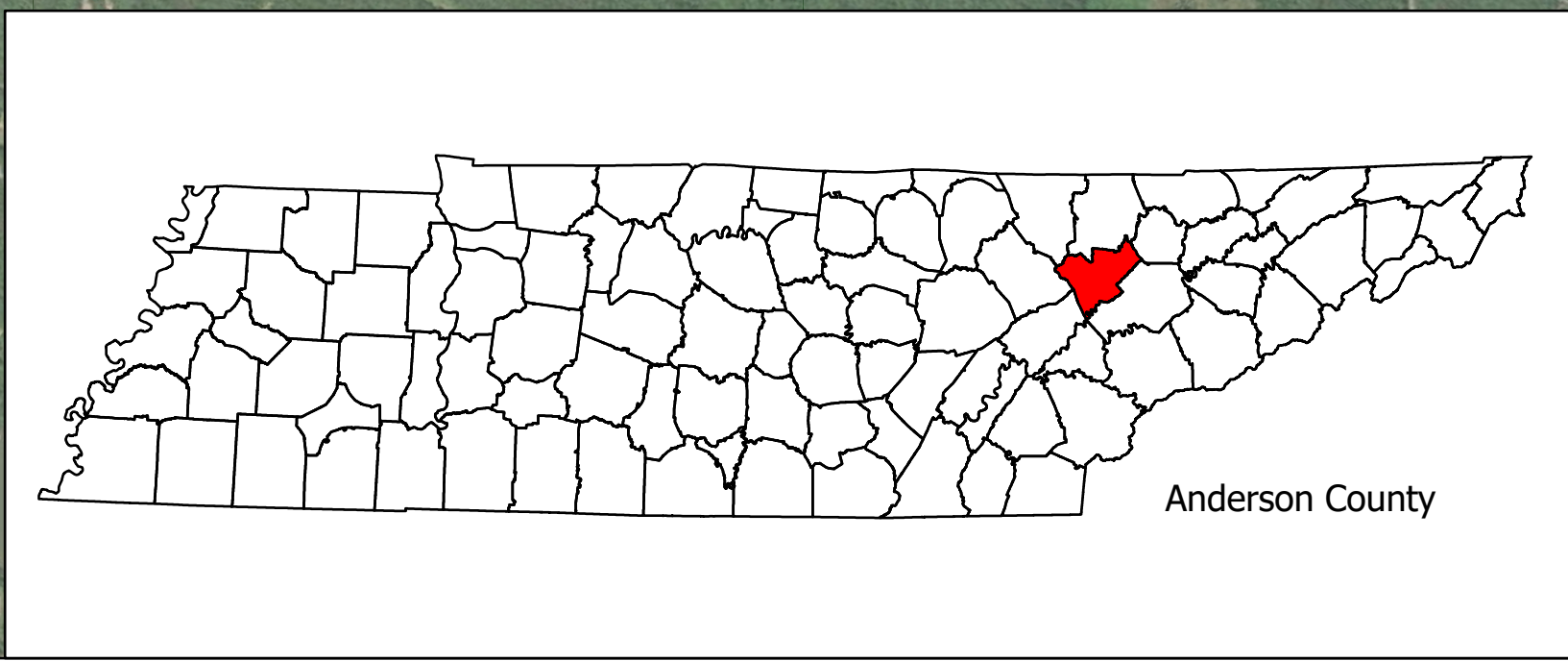
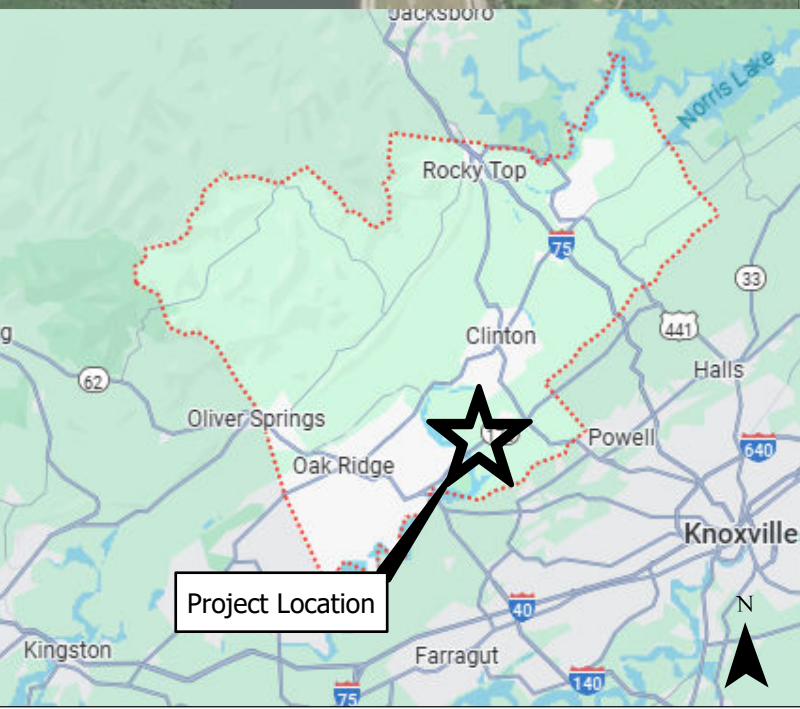
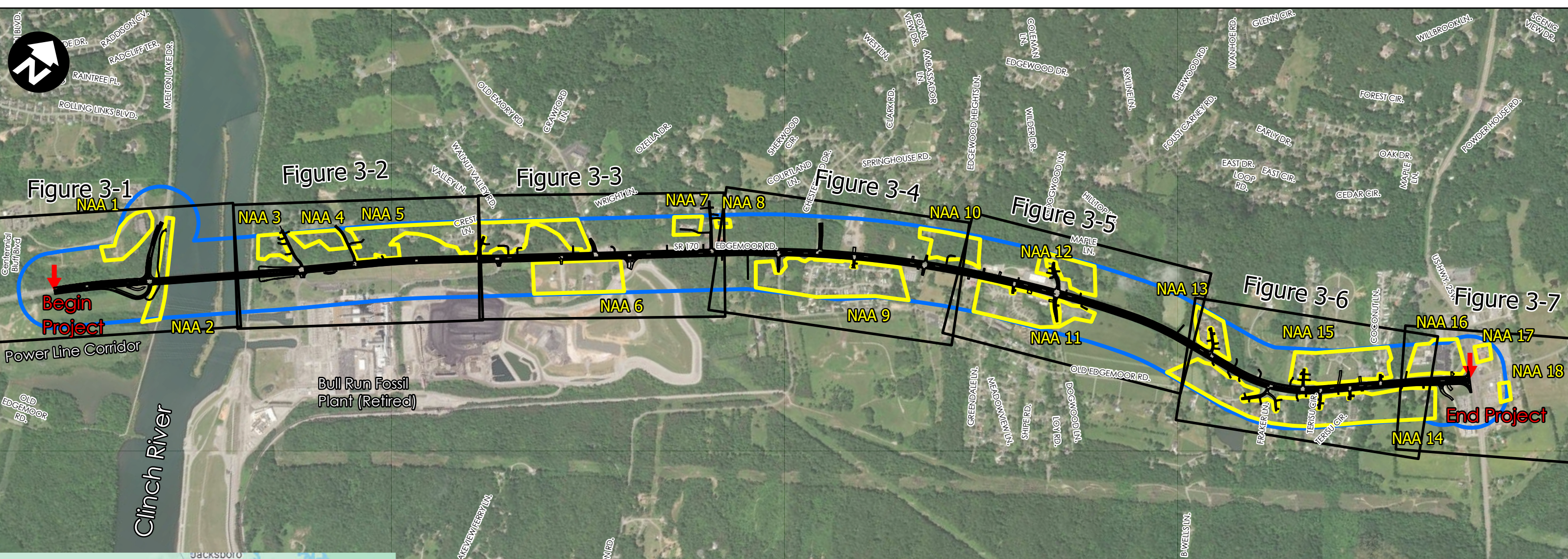
**Table 7  
Design Year 2049 Noise Levels for Undeveloped Lands**

<b>Location</b>	<b>Distance from SR 170 (Edgemoor Road) <sup>(1)</sup></b>	<b>L<sub>eq</sub> (1h) (dBA)<sup>(2)</sup></b>
Between NAA 4 and Chesterfield Road, north of SR 170	149 feet	66
	58 feet	71
Between NAA 12 and NAA 13, north of SR 170	158 feet	66
	59 feet	71
Between NAA 11 and NAA 14, south of SR 170	144 feet	66
	60 feet	71

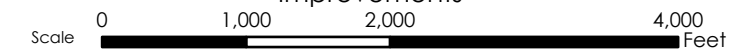
(1) Perpendicular distance to the center of nearest lane of travel.

(2) At-grade situation.

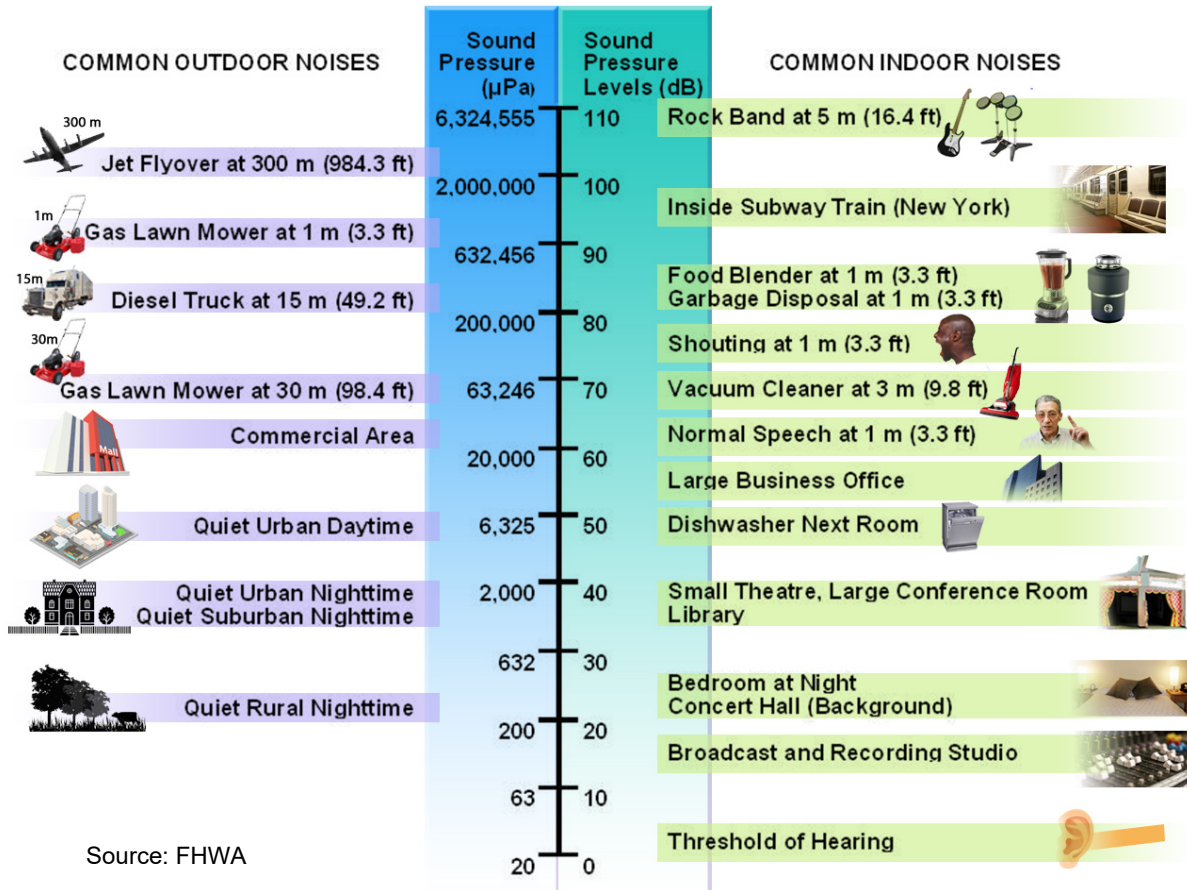
## FIGURES



- Begin and End Project
- Noise Analysis Areas
- Noise Study Area
- Proposed Design Improvements



**Figure 2**  
**Common Sound Levels**



Source: FHWA



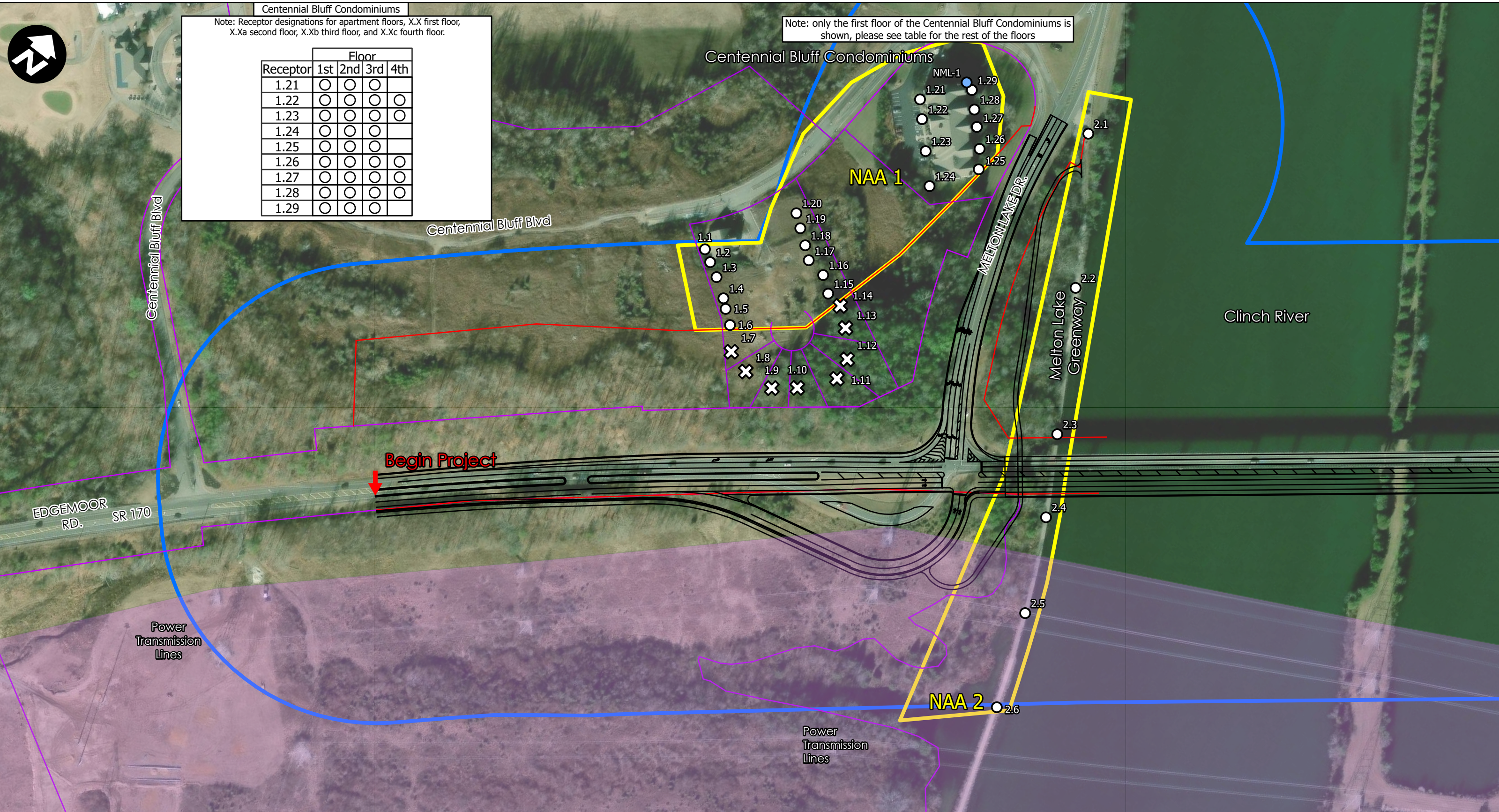
### Centennial Bluff Condominiums

Note: Receptor designations for apartment floors, X.X first floor, X.Xa second floor, X.Xb third floor, and X.Xc fourth floor.

Receptor	Floor			
	1st	2nd	3rd	4th
1.21	○	○	○	
1.22	○	○	○	○
1.23	○	○	○	○
1.24	○	○	○	
1.25	○	○	○	
1.26	○	○	○	○
1.27	○	○	○	○
1.28	○	○	○	○
1.29	○	○	○	

Note: only the first floor of the Centennial Bluff Condominiums is shown, please see table for the rest of the floors

### Centennial Bluff Condominiums



EDGEMOOR RD. SR 170

Centennial Bluff Blvd

Centennial Bluff Blvd

NAA 1

NAA 2

MELTON LAKE DR.

Melton Lake Greenway

Clinch River

Power Transmission Lines

Power Transmission Lines

Begin Project



Developed March 2025

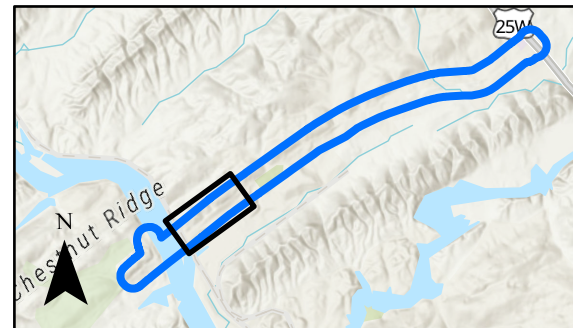
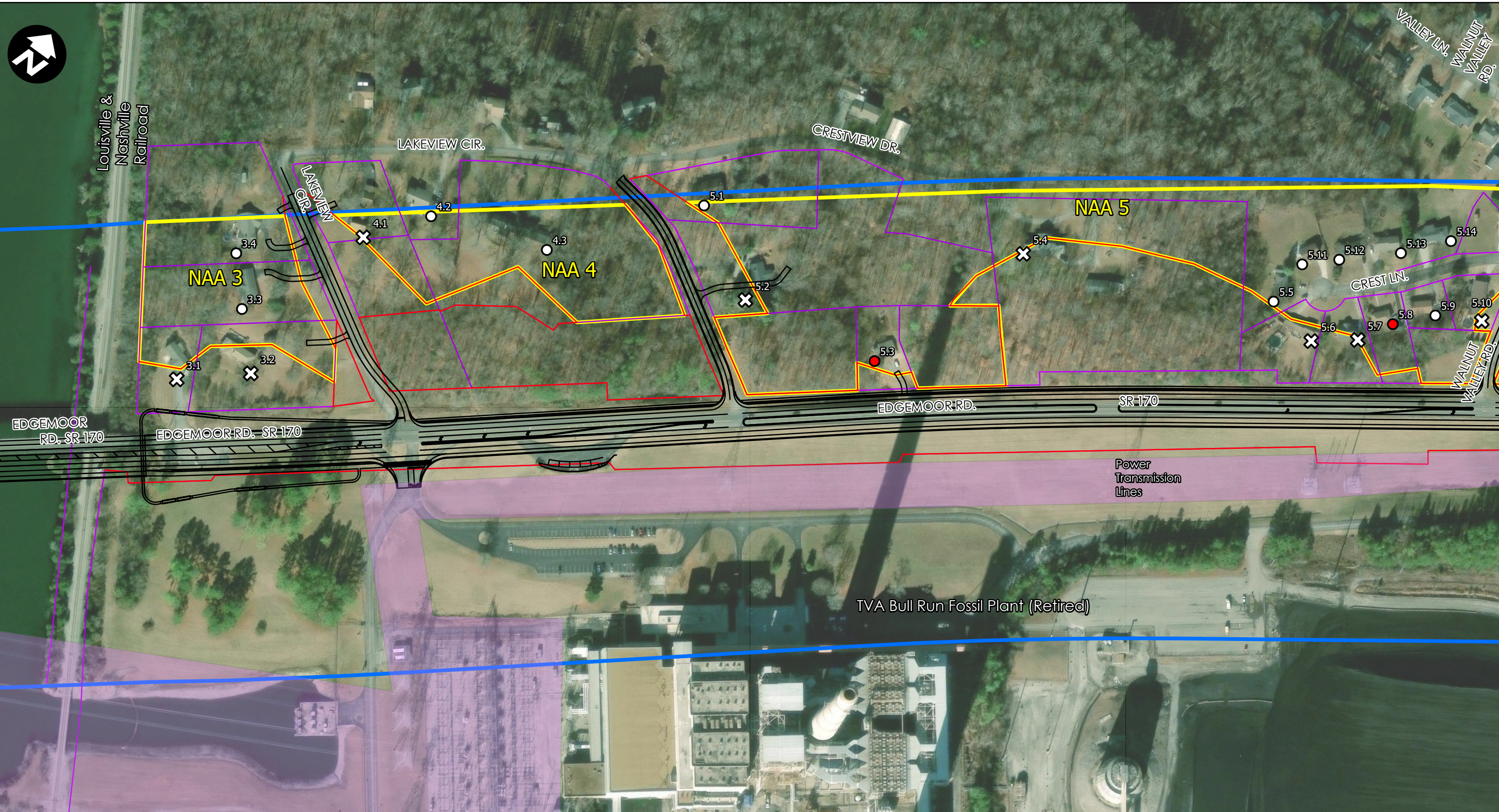


- Begin and End Project
- Noise Measurement Location
- Non-Impacted Receptor
- Impacted Receptor
- Non-Noise Sensitive Receptor
- Right-of-Way Acquisition
- Proposed Design Improvements
- Proposed Right-of-Way
- Existing Right-of-Way and Property Lines
- Noise Analysis Areas
- Noise Study Area
- Major Power Lines



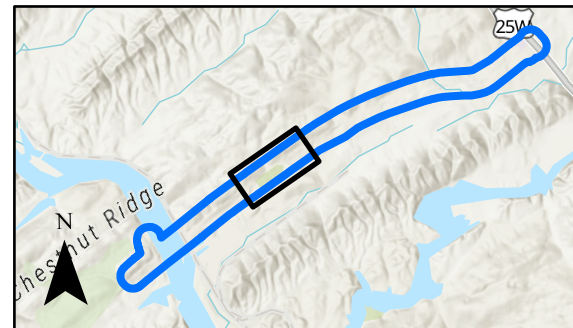
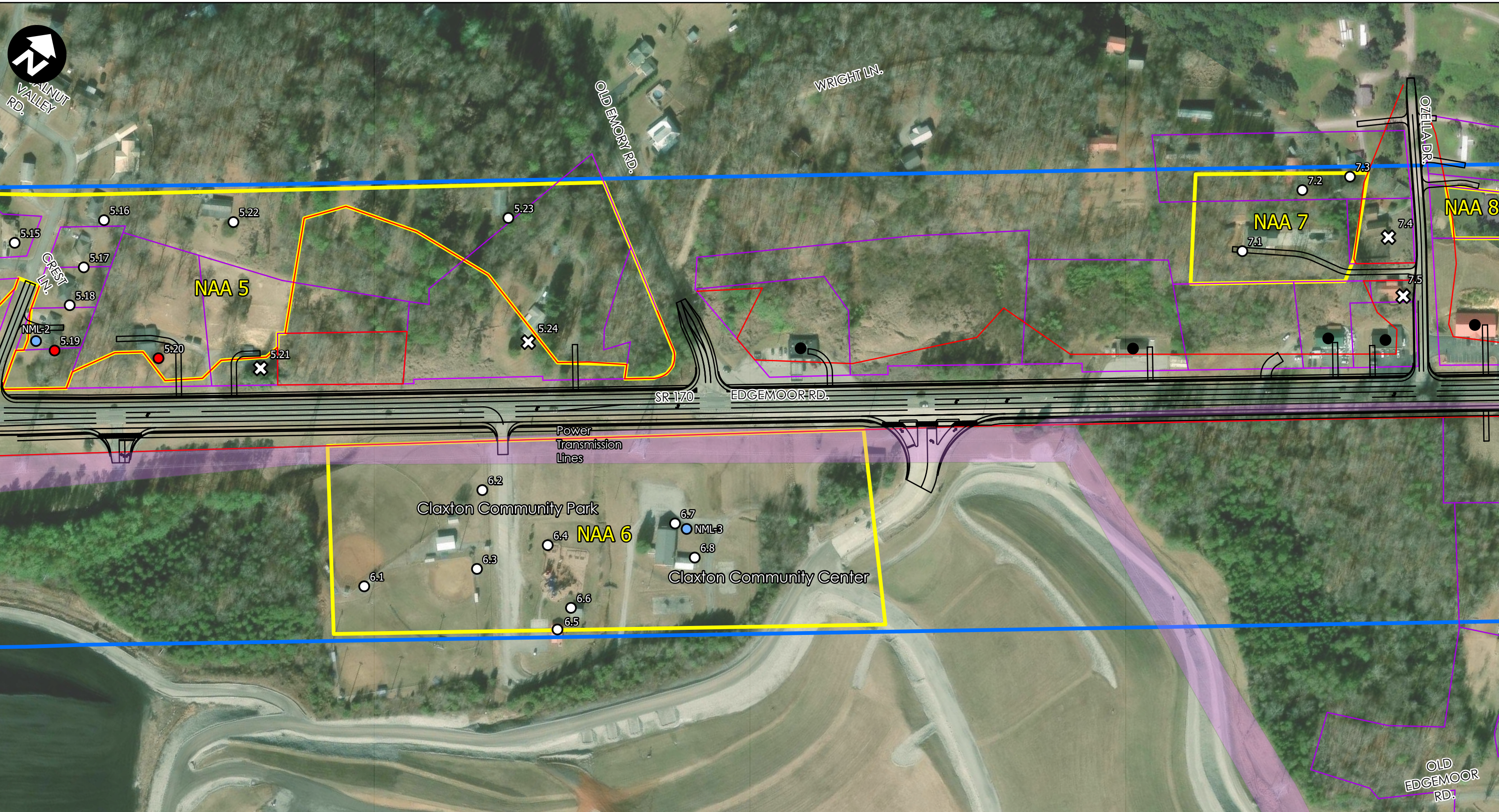
Traffic Noise Analysis  
 SR 170 Widening  
 PIN: 124121.02  
 Anderson County, TN

Detailed Study Area Map  
 Figure 3-1



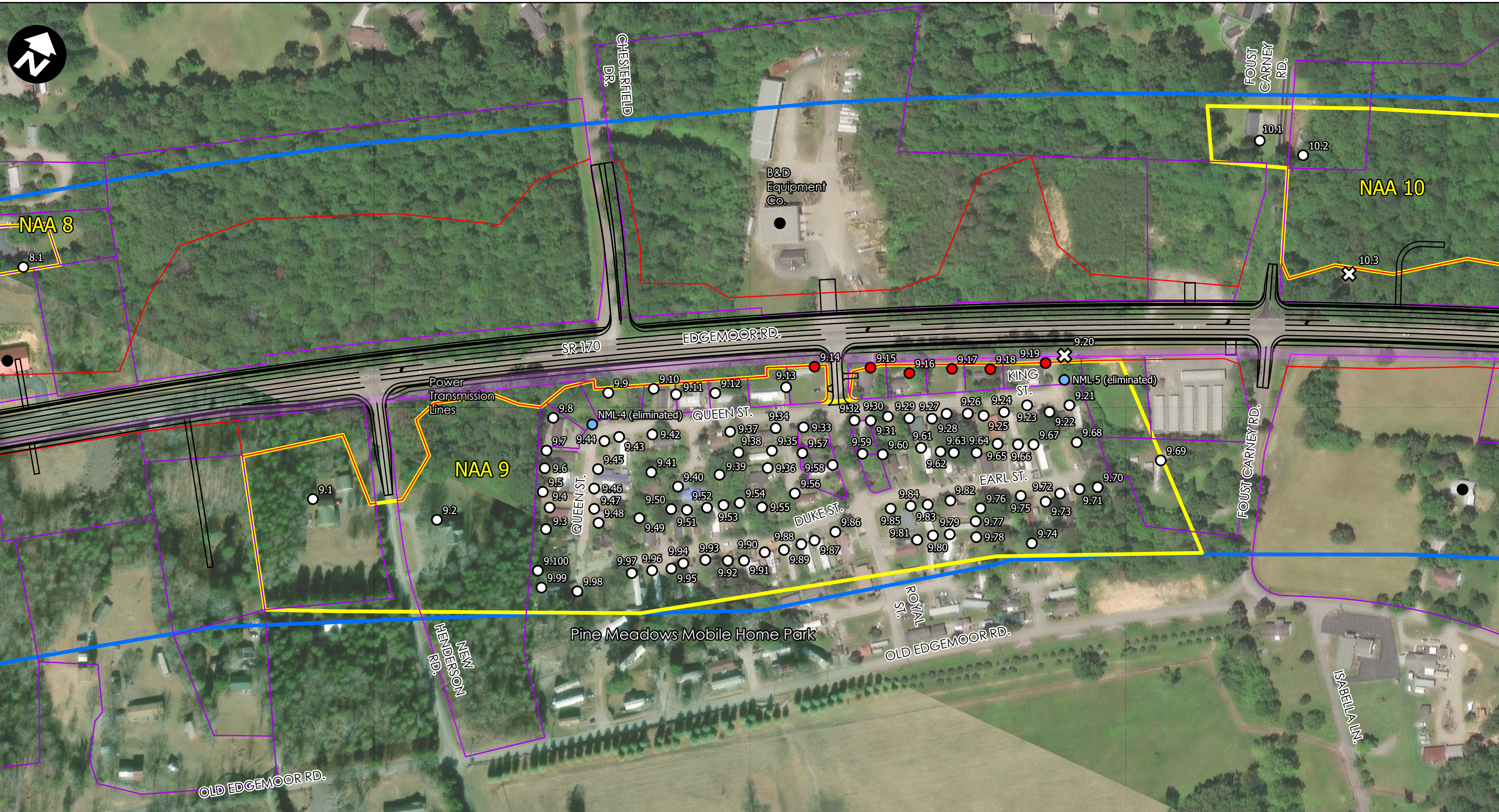
- Begin and End Project
- Non-Noise Sensitive Receptor
- Proposed Right-of-Way
- Noise Measurement Location
- Right-of-Way Acquisition
- Existing Right-of-Way and Property Lines
- Non-Impacted Receptor
- Proposed Design Improvements
- Noise Analysis Areas
- Noise Study Area
- Impacted Receptor
- Major Power Lines





- ↓ Begin and End Project
- Noise Measurement Location
- Non-Impacted Receptor
- Impacted Receptor
- Non-Noise Sensitive Receptor
- ✕ Right-of-Way Aquisition
- Proposed Design Improvements
- Proposed Right-of-Way
- Existing Right-of-Way and Property Lines
- Noise Analysis Areas
- Noise Study Area
- Major Power Lines



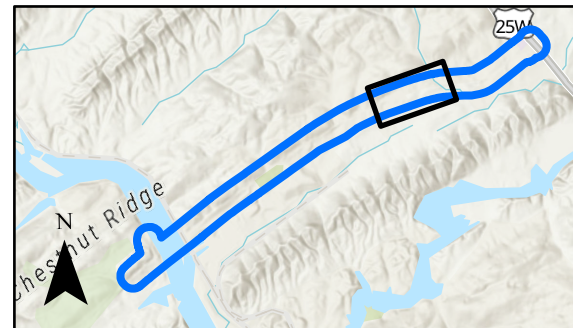
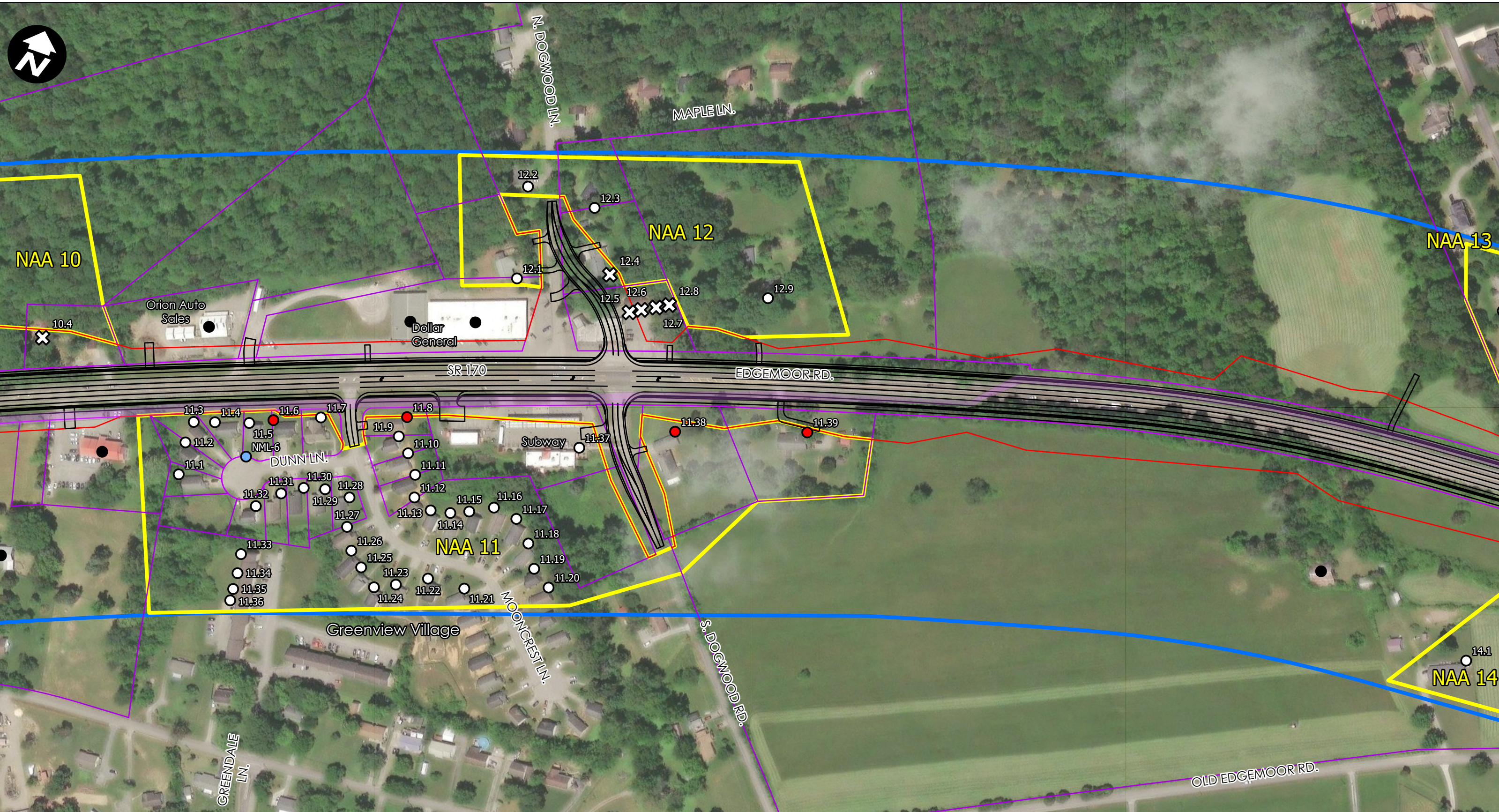


- ↓ Begin and End Project
- Noise Measurement Location
- Non-Impacted Receptor
- Impacted Receptor
- Non-Noise Sensitive Receptor
- ✕ Right-of-Way Acquisition
- Proposed Design Improvements
- Proposed Right-of-Way
- Existing Right-of-Way and Property Lines
- Noise Analysis Areas
- Noise Study Area
- Major Power Lines



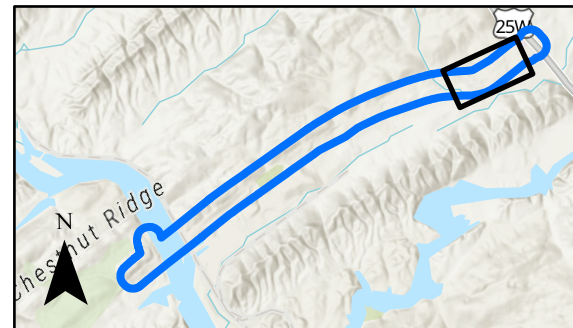
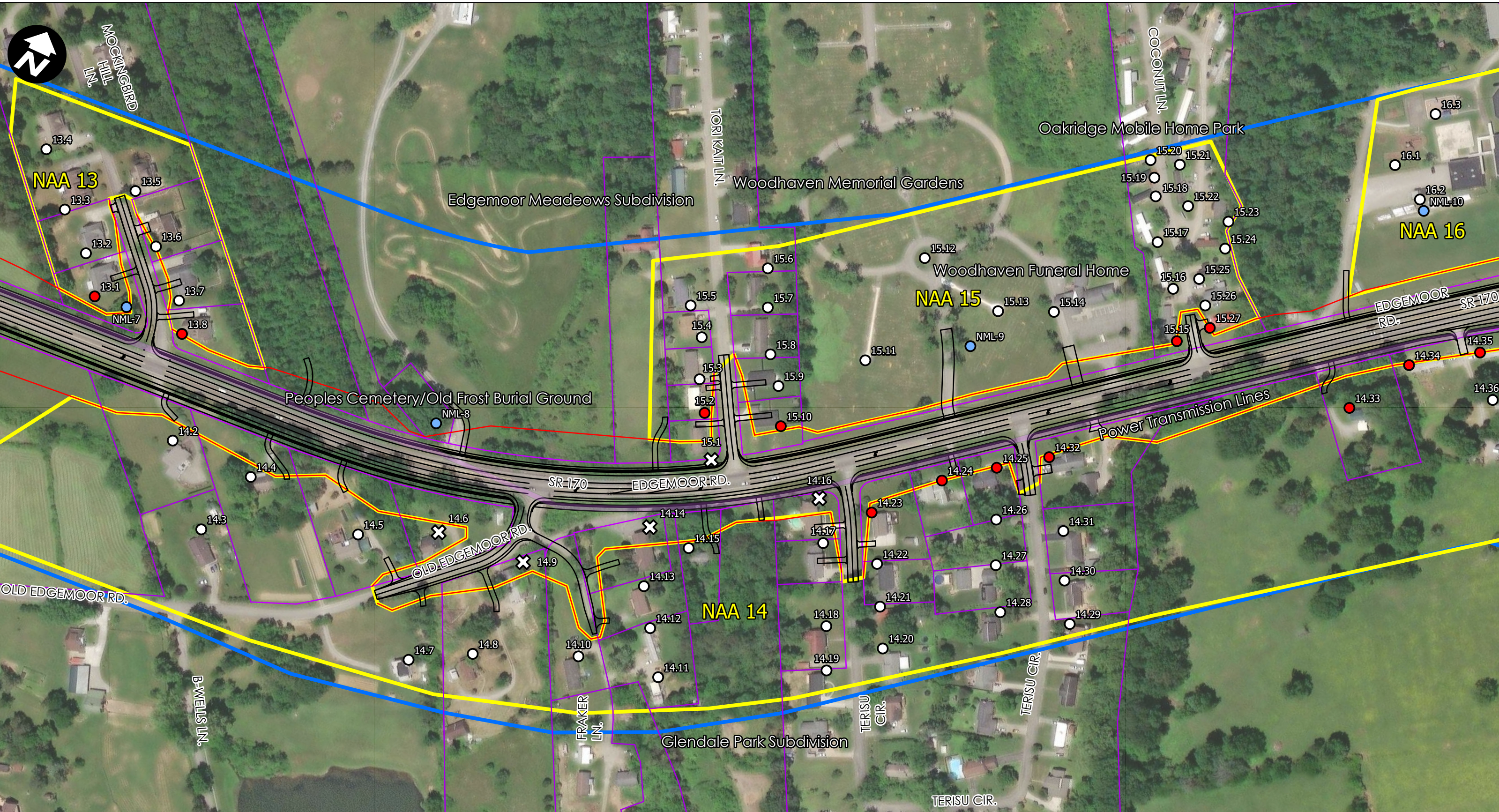
Traffic Noise Analysis  
 SR 170 Widening  
 PIN: 124121.02  
 Anderson County, TN

Detailed Study Area Map  
 Figure 3-4



- ↓ Begin and End Project
- Noise Measurement Location
- Non-Impacted Receptor
- Impacted Receptor
- Non-Noise Sensitive Receptor
- ✕ Right-of-Way Acquisition
- Proposed Design Improvements
- Proposed Right-of-Way
- Existing Right-of-Way and Property Lines
- Noise Analysis Areas
- Noise Study Area
- Major Power Lines



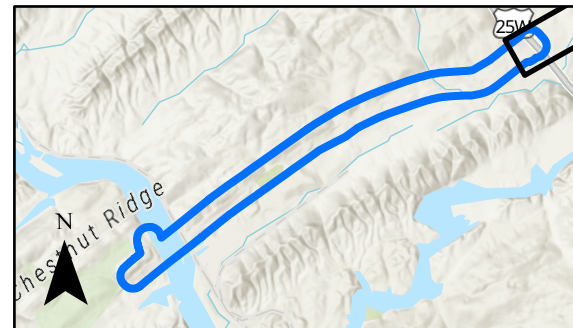
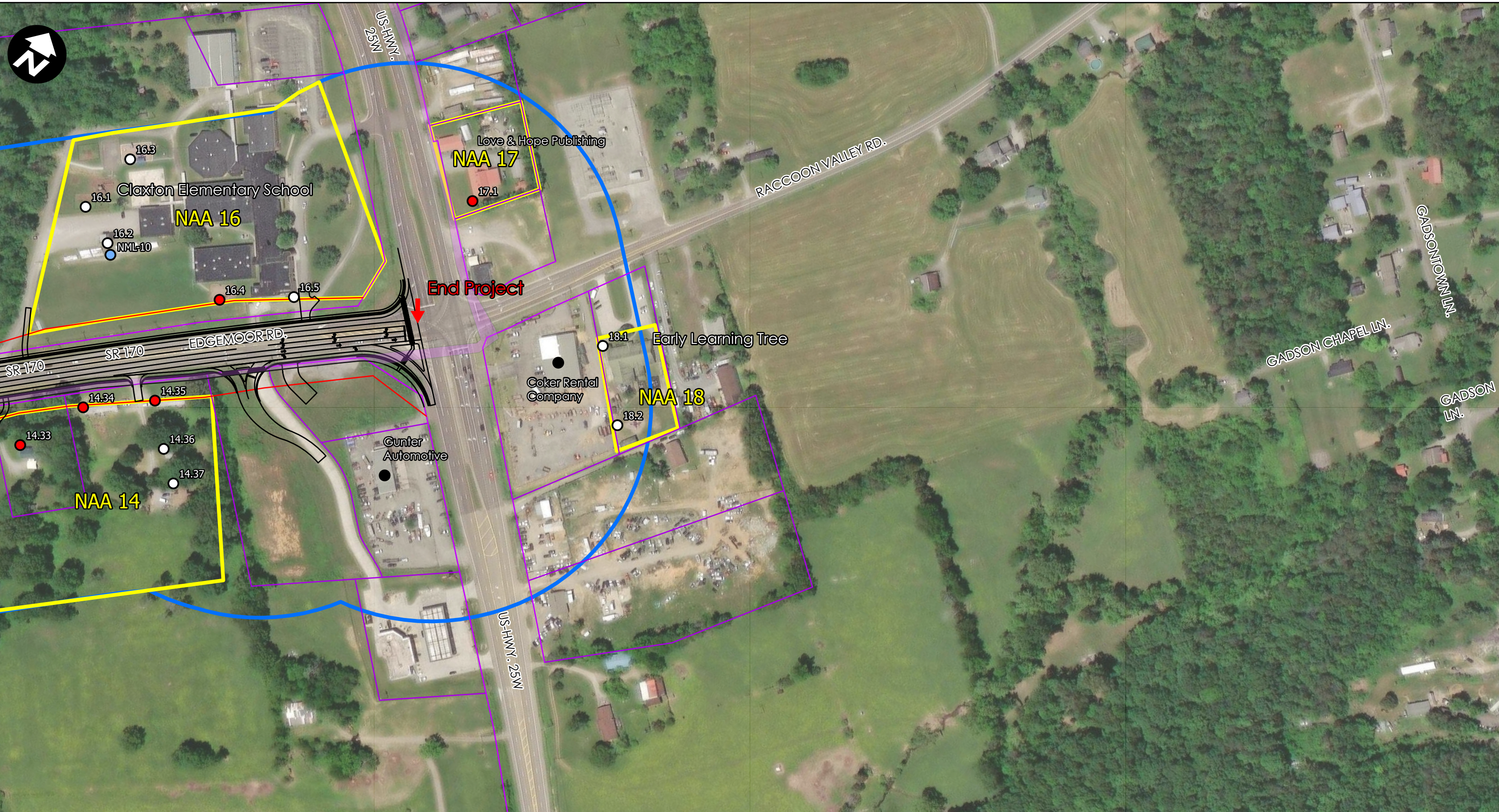


- ↓ Begin and End Project
- Noise Measurement Location
- Non-Impacted Receptor
- Impacted Receptor
- Non-Noise Sensitive Receptor
- X Right-of-Way Acquisition
- Proposed Design Improvements
- Proposed Right-of-Way
- Existing Right-of-Way and Property Lines
- Noise Analysis Areas
- Noise Study Area
- Major Power Lines



Traffic Noise Analysis  
 SR 170 Widening  
 PIN: 124121.02  
 Anderson County, TN

Detailed Study Area Map  
 Figure 3-6



- ↓ Begin and End Project
- Noise Measurement Location
- Non-Impacted Receptor
- Impacted Receptor
- Non-Noise Sensitive Receptor
- Right-of-Way Aquisition
- Proposed Design Improvements
- Proposed Right-of-Way
- Existing Right-of-Way and Property Lines
- Noise Analysis Areas
- Noise Study Area
- Major Power Lines



SR 170 Widening, PIN: 124121.02

From near Melton Lake Drive to SR-9 (US-25W, Clinton Highway) (IA)  
(TMA), Anderson County, TN

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April 2025

## **APPENDICES**

SR 170 Widening, PIN: 124121.02

From near Melton Lake Drive to SR-9 (US-25W, Clinton Highway) (IA)  
(TMA), Anderson County, TN

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April 2025

## **Appendix A**

### **Cover Sheet of Project Plans and Typical Cross-Sections**

# Index Of Sheets

SHEET NAME	SHEET NO.
TITLE SHEET .....	1
TYPICAL SECTIONS .....	2B, 2B1, 2B2, 2B3, 2B4
RIGHT-OF-WAY ACQUISITION TABLES .....	3A - 3E
PROPERTY MAP(S) .....	3F - 3R
PRESENT LAYOUT(S) .....	4 - 21
RIGHT-OF-WAY DETAILS .....	4A - 21A
PROPOSED LAYOUT(S) .....	4B - 21B
PROPOSED PROFILE(S) .....	4C - 20C
SIDE ROAD PROFILES .....	22 - 32
SHARED USE PATH PROFILE .....	33
PRIVATE DRIVE, BUSINESS, AND FIELD ENTRANCE PROFILES .....	34 - 52
DRAINAGE MAP(S) .....	53 - 62
ROADWAY CROSS SECTIONS .....	63 - 325
SIDE ROAD CROSS SECTIONS .....	326 - 446

NOTE: THE ALPHABETICAL LETTERS "I", "O" & "Q" ARE NOT USED IN THE NUMBERING OF SHEETS.

01024-0224-14  
**END PROJECT NO. STP-170(16) PRELIM**  
**STA. 418+16.03**  
 N 627453.0582 E 2527275.0700

**ADJACENT PROJECT**  
**PIN 124121.01**

01024-0224-14  
**BEGIN PROJECT NO. STP-170(16) PRELIM**  
**STA. 213+85.00**  
 N 617312.0539 E 2509919.7005

### SPECIAL NOTES

PROPOSALS MAY BE REJECTED BY THE COMMISSIONER IF ANY OF THE UNIT PRICES CONTAINED THEREIN ARE OBVIOUSLY UNBALANCED, EITHER EXCESSIVE OR BELOW THE REASONABLE COST ANALYSIS VALUE.

THIS PROJECT TO BE CONSTRUCTED UNDER THE STANDARD SPECIFICATIONS OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION DATED JANUARY 1, 2021 AND ADDITIONAL SPECIFICATIONS AND SPECIAL PROVISIONS CONTAINED IN THE PLANS AND IN THE PROPOSAL CONTRACT.

TDOT PROJECT MANAGER : JOHN SHERK

DESIGNED BY: VOLKERT, INC.

DESIGNER : NATHAN RUSSELL

CHECKED BY : MOLLY KING, P.E.

P.E. NO. 01024-0224-14 (NEPA)

PIN NO. 124121.02

# STATE OF TENNESSEE DEPARTMENT OF TRANSPORTATION BUREAU OF ENGINEERING

## ANDERSON COUNTY

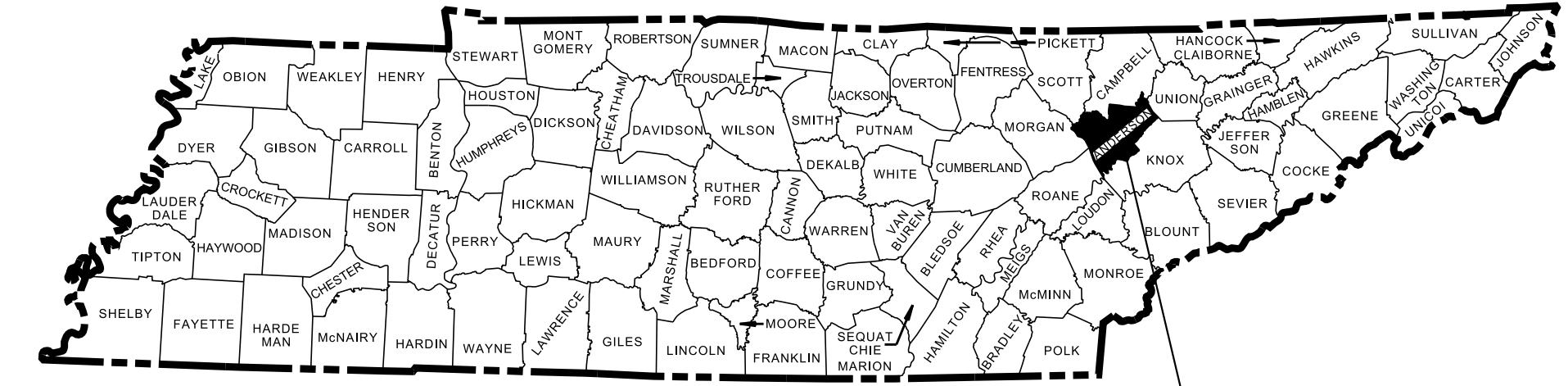
SR-170: FROM NEAR MELTON LAKE DRIVE  
 TO SR-9 (US-25W, CLINTON HIGHWAY)

**LINE AND GRADE**  
**GRADE, DRAIN, BASE, PAVE, GUARDRAIL, & BRIDGE**

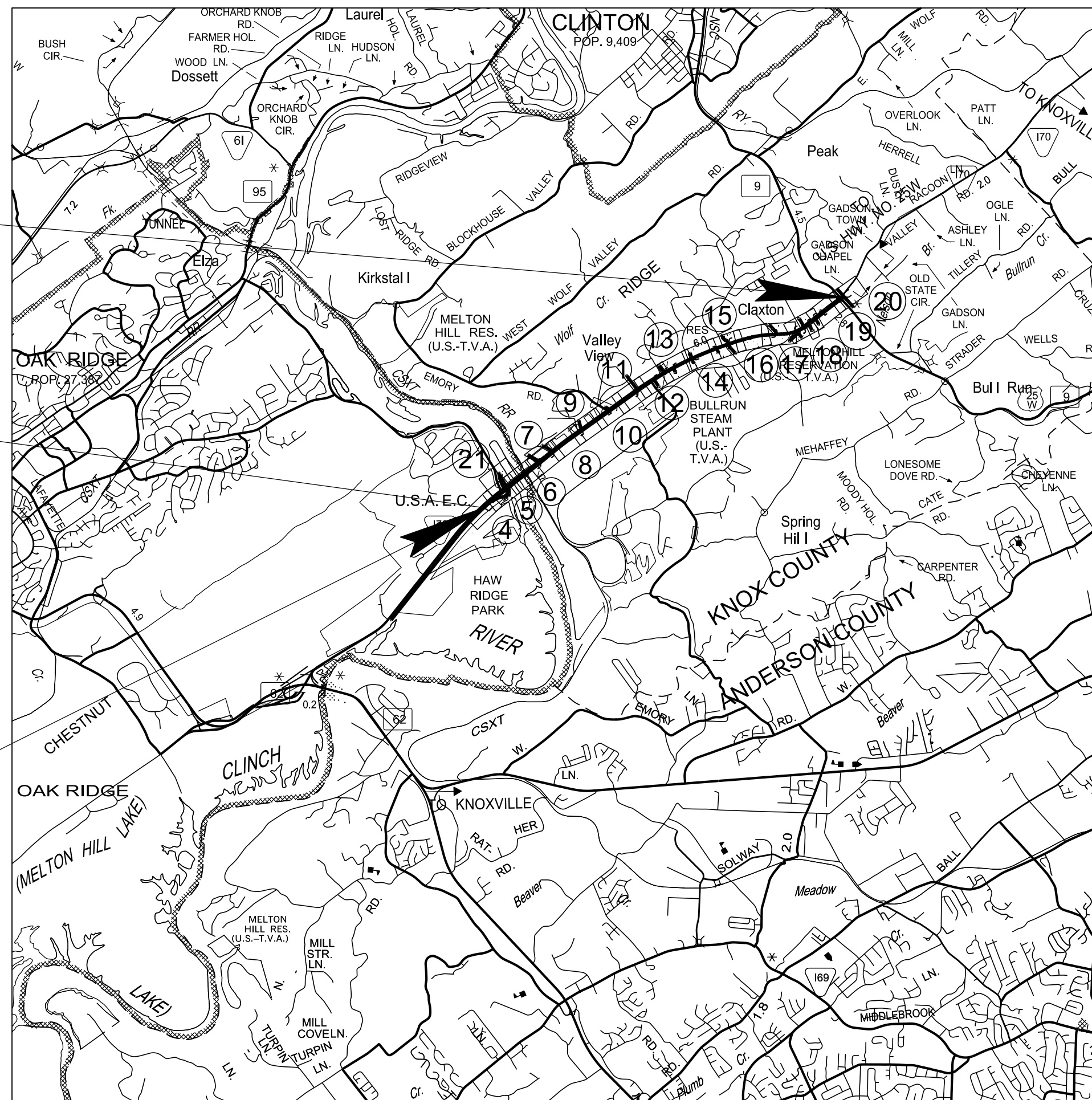
STATE HIGHWAY NO. 170 F.A.H.S. NO. N/A

DOES THIS PROJECT QUALIFY FOR UTILITY CHAPTER 86	YES X	NO
WORK ZONE SIGNIFICANCE DETERMINATION		
SIGNIFICANT	YES	NO X

TENN.	YEAR	SHEET NO.
	2025	1
FED. AID PROJ. NO.	STP-170(16)	
STATE PROJ. NO.	01024-0224-14	



PROJECT LOCATION  
 BRIDGE ID. # 01S24740001



SCALE: 1"= 5280'



**ROADWAY LENGTH 3.593 MILES**  
**BRIDGE LENGTH 0.277 MILES**



NO EXCLUSIONS

**LINE AND GRADE PLANS**

SEALED BY

APPROVED:   
 WILL REID, CHIEF ENGINEER

DATE:

APPROVED:   
 HOWARD H. ELEY, COMMISSIONER

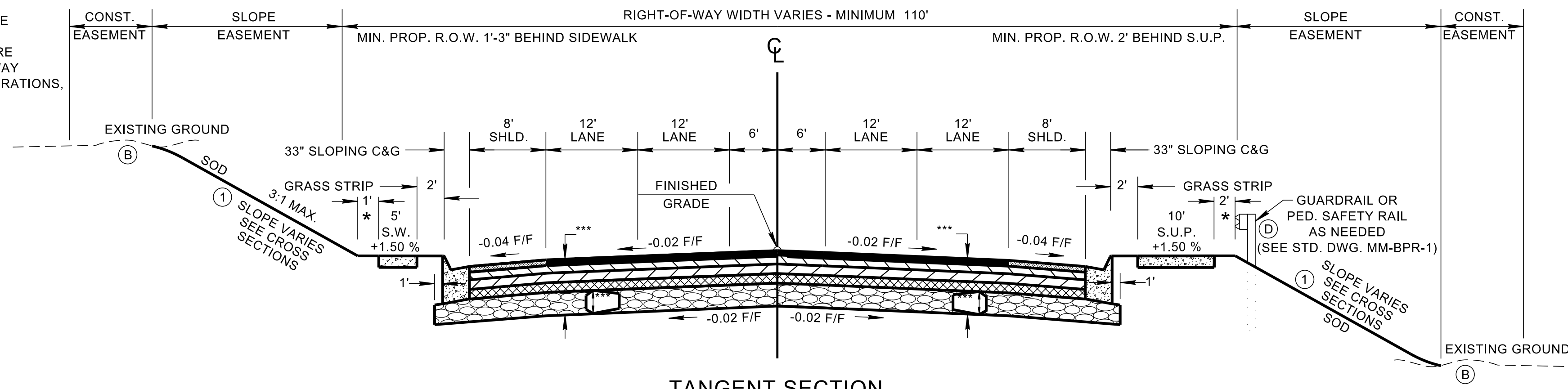
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UPDATE 01-08-25	ADT (2049)	25390
	DHV (2049)	2616
	D	55 - 45
	T (ADT)	5 %
	T (DHV)	3 %
	V	55 MPH

COORDINATES ARE NAD 83(1995), ARE DATUM ADJUSTED BY THE FACTOR OF 1.00008 AND TIED TO THE TGRN. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988 WITH GEOID 12B.

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION	
APPROVED:	DATE
DIVISION ADMINISTRATOR	DATE

TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	STP-170(16)	2B

① 3:1 MAXIMUM CUT SLOPES OR FLATTER DUE TO SOIL CONDITIONS UNLESS OTHERWISE SHOWN ON THE PLANS. 2:1 FILL SLOPES ARE APPLICABLE IN AREAS WHERE RIGHT-OF-WAY RESTRICTIONS, ENVIRONMENTAL CONSIDERATIONS, OR COST WARRANTS A STEEPER THAN 3:1 SLOPE.



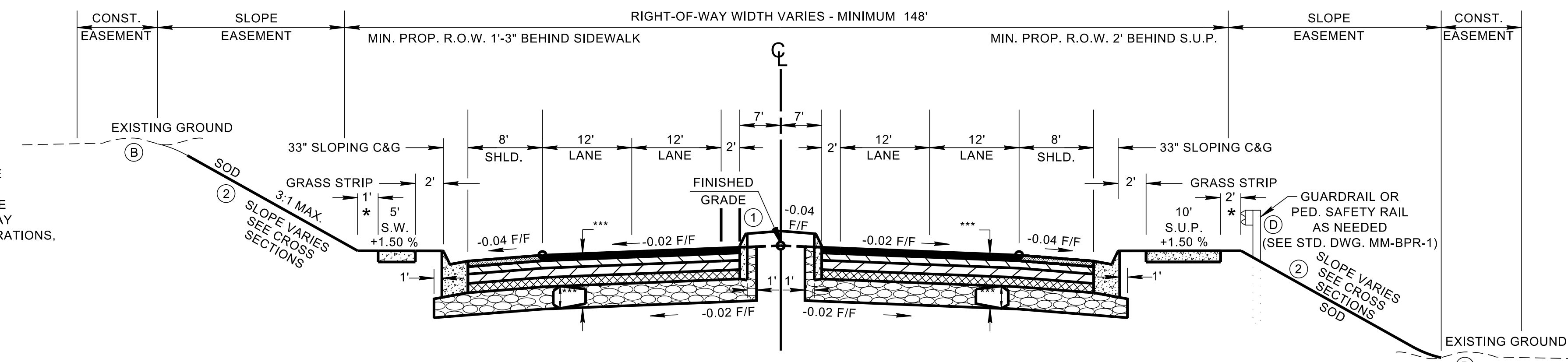
**TANGENT SECTION  
S.R. 170**

(BASED ON STD. DWG. RD11-TS-6)  
 FROM STA. 213+85.00 TO STA. 218+80.00  
 FROM STA. 224+15.00 TO STA. 228+45.00  
 FROM STA. 243+05.00 TO STA. 249+45.00  
 FROM STA. 273+80.00 TO STA. 366+26.15  
 FROM STA. 376+75.03 TO STA. 383+04.19  
 FROM STA. 398+05.83 TO STA. 418+16.03

\* BERM WIDTH VARIES IN SOME LOCATIONS TO MEET CLEAR ZONE CRITERIA AND AVOID GUARDRAIL.

- (A) THE SLOPE OF THE SHOULDER AND THE ROADWAY PAVEMENT SHALL NOT EXCEED AN ALGEBRAIC DIFFERENCE OF 7%.
- (B) SEE STANDARD DRAWINGS RD11-S-11 AND RD11-S-11B FOR FILL AND CUT SLOPE TABLES, ROUNDING ON TOP OF CUT SLOPES AND TOE OF FILL SLOPES, SPECIAL ROCK TREATMENT AND SUB GRADE ROUNDING IF APPLICABLE.
- (C) SEE STANDARD DRAWING RD11-S-11A FOR ROUNDING OF ROADSIDE DITCH SLOPES.
- (D) SEE STANDARD DRAWING S-PL-6 FOR TYPICAL GUARDRAIL PLACEMENT.

① MEDIAN CURBS WILL BE SLOPING CURBS. VERTICAL CURBS WILL NOT BE PERMITTED.  
 ② 3:1 MAXIMUM CUT SLOPES OR FLATTER DUE TO SOIL CONDITIONS UNLESS OTHERWISE SHOWN ON THE PLANS. 2:1 FILL SLOPES ARE APPLICABLE IN AREAS WHERE RIGHT-OF-WAY RESTRICTIONS, ENVIRONMENTAL CONSIDERATIONS, OR COST WARRANTS A STEEPER THAN 3:1 SLOPE.



**TANGENT SECTION  
S.R. 170**

(BASED ON STD. DWG. RD11-TS-6)  
 FROM STA. 218+80.00 TO STA. 224+15.00  
 FROM STA. 249+45.00 TO STA. 273+80.00

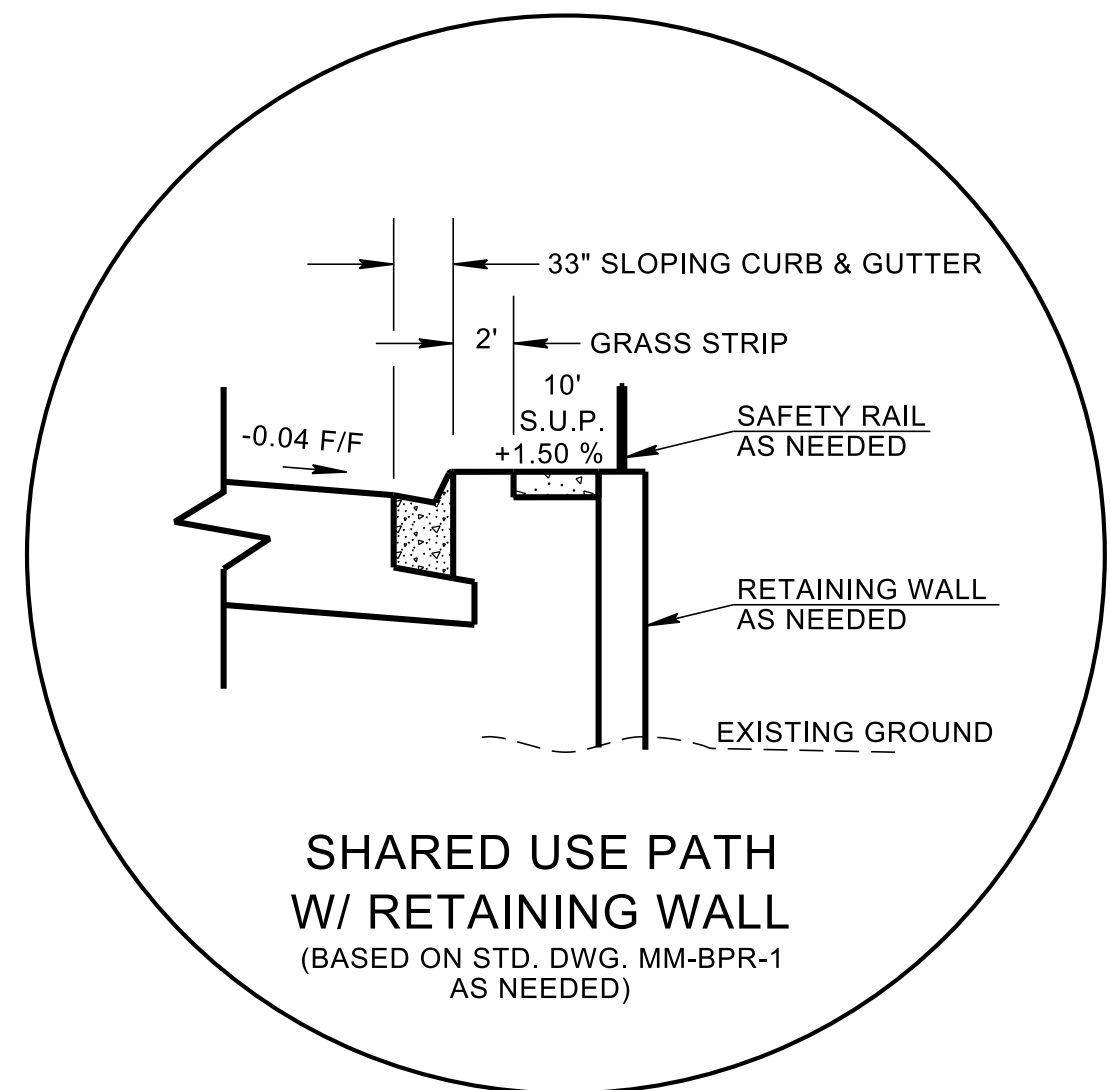
\* BERM WIDTH VARIES IN SOME LOCATIONS TO MEET CLEAR ZONE CRITERIA AND AVOID GUARDRAIL.

- (A) THE SLOPE OF THE SHOULDER AND THE ROADWAY PAVEMENT SHALL NOT EXCEED AN ALGEBRAIC DIFFERENCE OF 7%.
- (B) SEE STANDARD DRAWINGS RD11-S-11 AND RD11-S-11B FOR FILL AND CUT SLOPE TABLES, ROUNDING ON TOP OF CUT SLOPES AND TOE OF FILL SLOPES, SPECIAL ROCK TREATMENT AND SUB GRADE ROUNDING IF APPLICABLE.
- (C) SEE STANDARD DRAWING RD11-S-11A FOR ROUNDING OF ROADSIDE DITCH SLOPES.
- (D) SEE STANDARD DRAWING S-PL-6 FOR TYPICAL GUARDRAIL PLACEMENT. SEE STANDARD DRAWING MM-PBR-1 FOR TYPICAL PEDESTRIAN SAFETY RAIL PLACEMENT.

**LINE AND  
GRADE  
PLANS**

SEALED BY

S.R. 170						
STATION LIMITS		LT.	RT.	OFFSET (FT)		WIDTH (FT)
BEGIN TRANS.	END TRANS.			BEGIN	END	
214+40.00	221+00.00	X		33.00	45.00	12.00
216+40.00	218+60.00		X	33.00	45.00	12.00
224+15.00	225+80.00	X	X	45.00	42.00	3.00
243+05.00	244+70.00	X	X	30.00	33.00	3.00
274+65.00	376+30.00	X	X	33.00	30.00	3.00
313+30.00	315+10.00		X	30.00	42.00	12.00
410+60.00	412+80.00		X	30.00	42.00	12.00

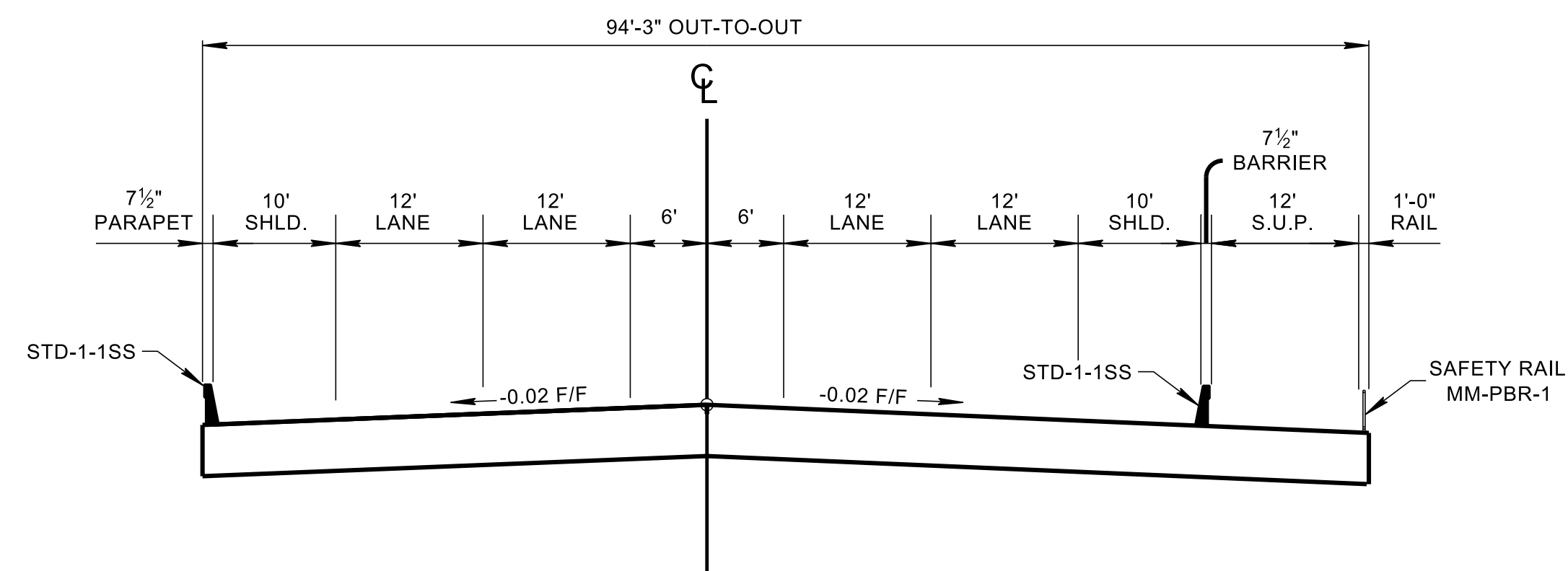


**SHARED USE PATH  
W/ RETAINING WALL**  
 (BASED ON STD. DWG. MM-PBR-1  
 AS NEEDED)

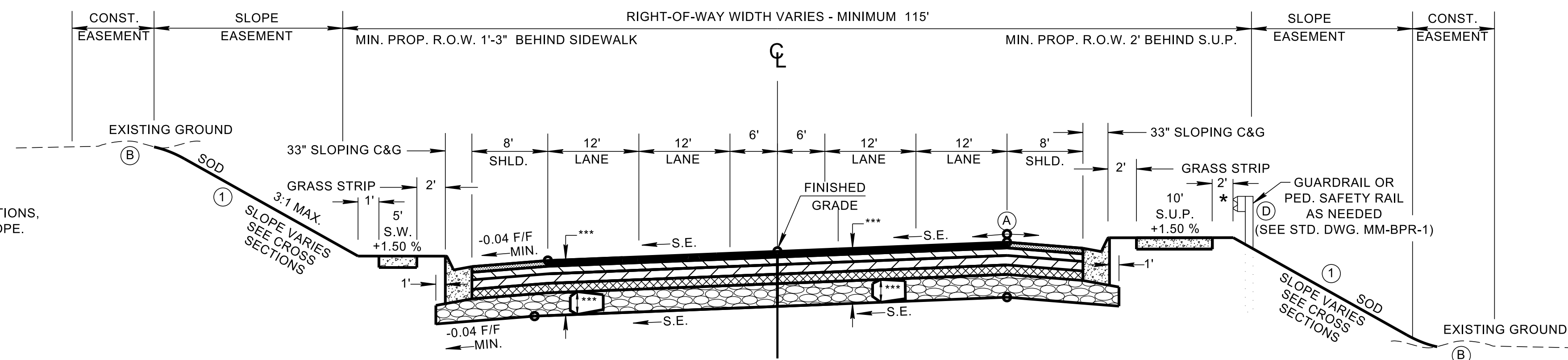
STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION

**TYPICAL  
SECTIONS**

TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	STP-170(16)	2B1



**BRIDGE TYPICAL SECTION**  
S.R. 170  
FROM STA. 228+45.00 TO STA. 243+05.00



**SUPERELEVATED SECTION**  
S.R. 170  
(BASED ON STD. DWG. RD11-TS-6)  
FROM STA. 366+26.15 TO STA. 376+75.03  
FROM STA. 383+04.19 TO STA. 398+05.83

\* BERM WIDTH VARIES IN SOME LOCATIONS TO MEET CLEAR ZONE CRITERIA AND AVOID GUARDRAIL.

① 3:1 MAXIMUM CUT SLOPES OR FLATTER DUE TO SOIL CONDITIONS UNLESS OTHERWISE SHOWN ON THE PLANS. 2:1 FILL SLOPES ARE APPLICABLE IN AREAS WHERE RIGHT-OF-WAY RESTRICTIONS, ENVIRONMENTAL CONSIDERATIONS, OR COST WARRANTS A STEEPER THAN 3:1 SLOPE.

- Ⓐ THE SLOPE OF THE SHOULDER AND THE ROADWAY PAVEMENT SHALL NOT EXCEED AN ALGEBRAIC DIFFERENCE OF 7%.
- Ⓑ SEE STANDARD DRAWINGS RD11-S-11 AND RD11-S-11B FOR FILL AND CUT SLOPE TABLES, ROUNDING ON TOP OF CUT SLOPES AND TOE OF FILL SLOPES, SPECIAL ROCK TREATMENT AND SUB GRADE ROUNDING IF APPLICABLE.
- Ⓒ SEE STANDARD DRAWING RD11-S-11A FOR ROUNDING OF ROADSIDE DITCH SLOPES.
- Ⓓ SEE STANDARD DRAWING S-PL-6 FOR TYPICAL GUARDRAIL PLACEMENT.

**LINE AND  
GRADE  
PLANS**

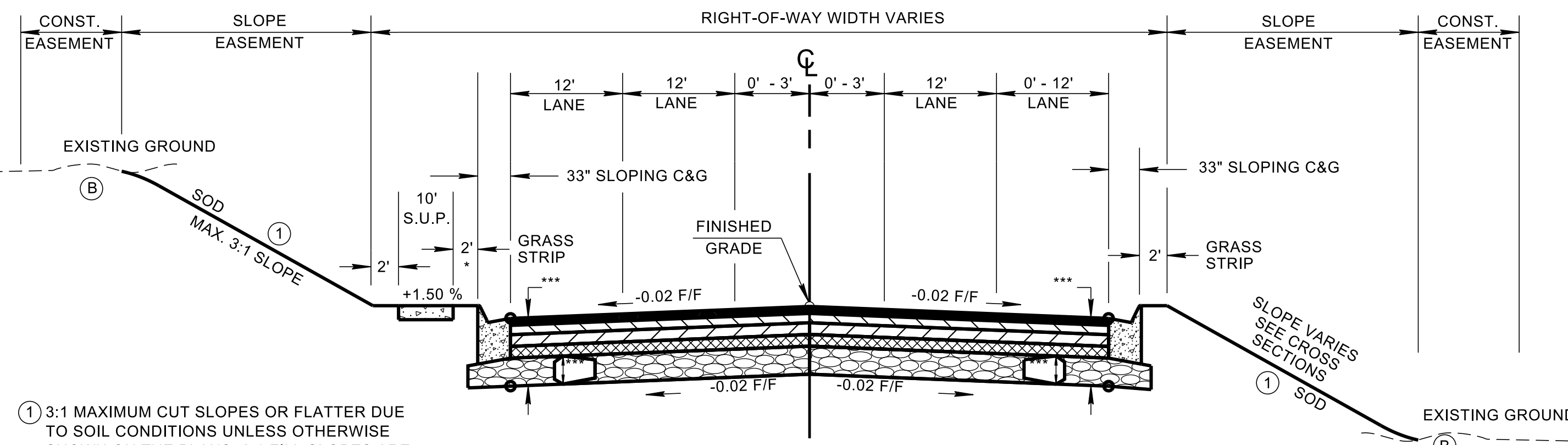
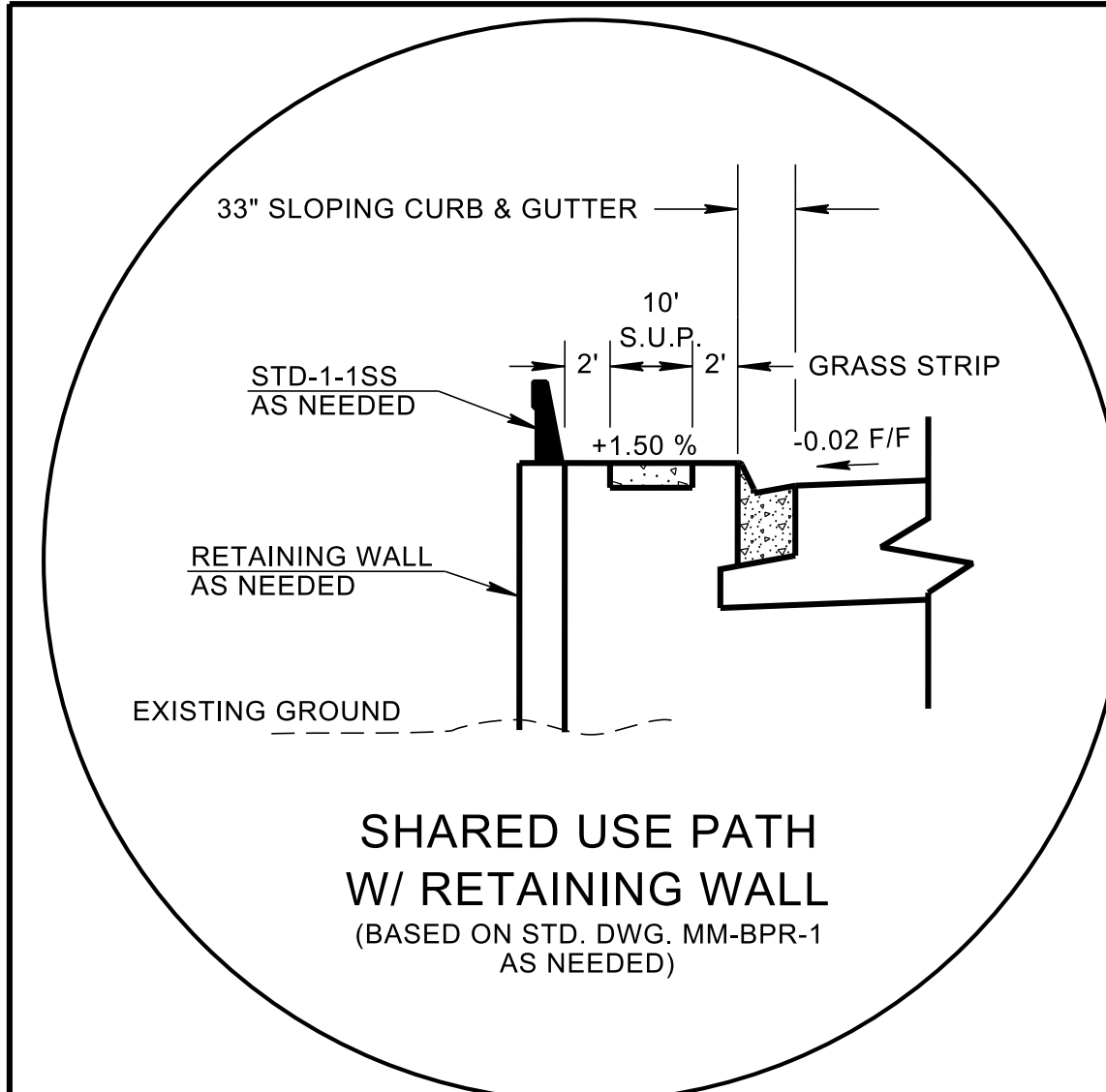
SEALED BY

STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION

TYPICAL  
SECTIONS

TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	STP-170(16)	2B2

MELTON LAKE DR.						
STATION LIMITS		LT.	RT.	OFFSET (FT)		WIDTH (FT)
BEGIN TRANS.	END TRANS.			BEGIN	END	
515+20.00	516+40.00		X	24.00	36.00	12.00
516+95.00	518+30.00		X	39.00	36.00	3.00
516+95.00	518+30.00	X		24.00	27.00	3.00



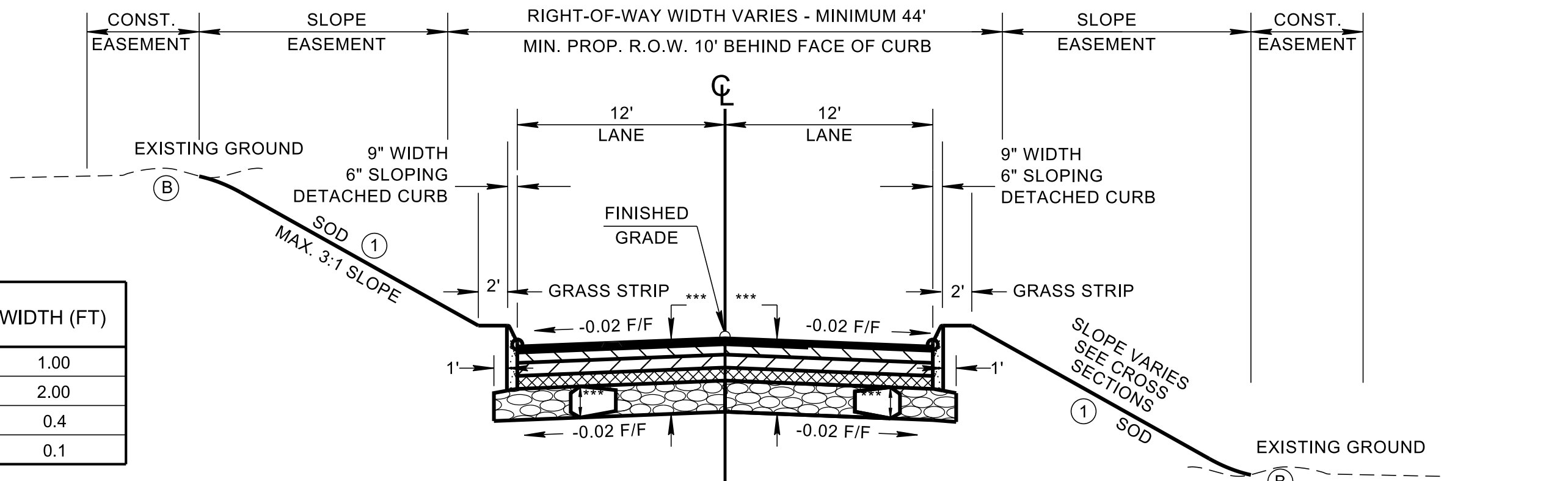
**TANGENT SECTION  
MELTON LAKE DR.**

(BASED ON STD. DWG. RD11-TS-6C)  
FROM STA. 511+32.00 TO STA. 519+64.14

\* WIDTH VARIES IN SOME LOCATIONS.

① 3:1 MAXIMUM CUT SLOPES OR FLATTER DUE TO SOIL CONDITIONS UNLESS OTHERWISE SHOWN ON THE PLANS. 2:1 FILL SLOPES ARE APPLICABLE IN AREAS WHERE RIGHT-OF-WAY RESTRICTIONS, ENVIRONMENTAL CONSIDERATIONS, OR COST WARRANTS A STEEPER THAN 3:1 SLOPE.

- Ⓐ THE SLOPE OF THE SHOULDER AND THE ROADWAY PAVEMENT SHALL NOT EXCEED AN ALGEBRAIC DIFFERENCE OF 7%.
- Ⓑ SEE STANDARD DRAWINGS RD11-S-11 AND RD11-S-11B FOR FILL AND CUT SLOPE TABLES, ROUNDING ON TOP OF CUT SLOPES AND TOE OF FILL SLOPES, SPECIAL ROCK TREATMENT AND SUB GRADE ROUNDING IF APPLICABLE.
- Ⓒ SEE STANDARD DRAWING RD11-S-11A FOR ROUNDING OF ROADSIDE DITCH SLOPES.
- Ⓓ SEE STANDARD DRAWING S-PL-6 FOR TYPICAL GUARDRAIL PLACEMENT.



**TANGENT SECTION  
SIDE ROADS**

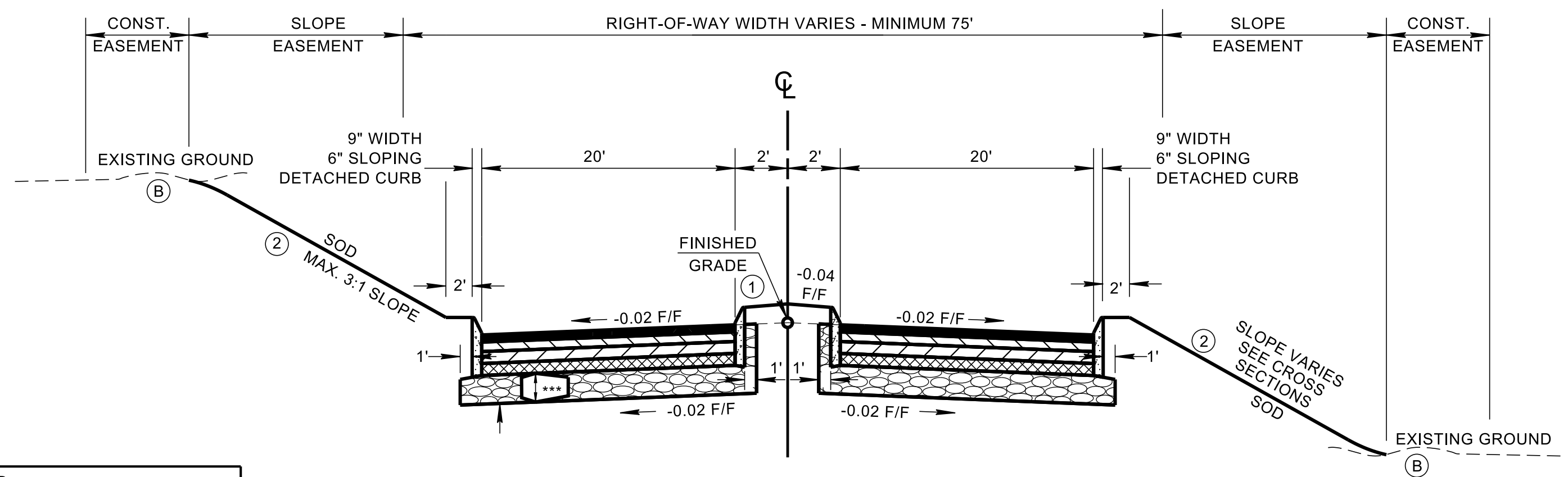
(BASED ON STD. DWG. RD11-TS-6C)

① 3:1 SLOPES OR FLATTER ARE DESIRABLE AND ARE THE MAXIMUM IN REGION IV. 2:1 SLOPES ARE APPLICABLE IN AREAS WHERE RIGHT-OF-WAY RESTRICTIONS, ENVIRONMENTAL CONSIDERATIONS, OR COST WARRANTS A STEEPER THAN 3:1 SLOPE.

LAKEVIEW CIRCLE (WEST)	FROM STA. 522+97.00 TO STA. 529+66.68
WALNUT VALLEY RD.	FROM STA. 546+75.00 TO STA. 549+67.00
ROYAL ST.	FROM STA. 600+30.00 TO STA. 601+07.00
MOONCREST LN.	FROM STA. 620+30.00 TO STA. 621+54.00
MOCKINGBIRD HILL LN.	FROM STA. 636+00.00 TO STA. 639+70.00
TORIKAIT LN.	FROM STA. 667+05.00 TO STA. 669+70.00
TERISU CIRCLE (WEST)	FROM STA. 680+30.00 TO STA. 682+79.00
TERISU CIRCLE (EAST)	FROM STA. 690+30.00 TO STA. 691+78.00

- Ⓐ THE SLOPE OF THE SHOULDER AND THE ROADWAY PAVEMENT SHALL NOT EXCEED AN ALGEBRAIC DIFFERENCE OF 7%.
- Ⓑ SEE STANDARD DRAWINGS RD11-S-11 AND RD11-S-11B FOR FILL AND CUT SLOPE TABLES, ROUNDING ON TOP OF CUT SLOPES AND TOE OF FILL SLOPES, SPECIAL ROCK TREATMENT AND SUB GRADE ROUNDING IF APPLICABLE.
- Ⓒ SEE STANDARD DRAWING RD11-S-11A FOR ROUNDING OF ROADSIDE DITCH SLOPES.
- Ⓓ SEE STANDARD DRAWING S-PL-6 FOR TYPICAL GUARDRAIL PLACEMENT.

ROAD NAME	STATION LIMITS		LT.	RT.	OFFSET (FT)		WIDTH (FT)
	BEGIN TRANS.	END TRANS.			BEGIN	END	
MOONCREST LN.	621+24.00	621+54.00		X	12.00	11.00	1.00
MOONCREST LN.	621+24.00	621+54.00	X		12.00	10.00	2.00
MOCKINGBIRD HILL LN.	636+00.00	636+50.00		X	12.4	12.00	0.4
MOCKINGBIRD HILL LN.	636+00.00	636+50.00	X		12.1	12.00	0.1



**TANGENT SECTION  
CHESTERFIELD ROAD**

(BASED ON STD. DWG. RD11-TS-6C)  
FROM STA. 585+74.00 TO STA. 589+70.00

- ① MEDIAN CURBS WILL BE SLOPING CURBS. VERTICAL CURBS WILL NOT BE PERMITTED.
- ② 3:1 MAXIMUM CUT SLOPES OR FLATTER DUE TO SOIL CONDITIONS UNLESS OTHERWISE SHOWN ON THE PLANS. 2:1 FILL SLOPES ARE APPLICABLE IN AREAS WHERE RIGHT-OF-WAY RESTRICTIONS, ENVIRONMENTAL CONSIDERATIONS, OR COST WARRANTS A STEEPER THAN 3:1 SLOPE.

CHESTERFIELD ROAD						
STATION LIMITS		LT.	RT.	OFFSET (FT)		WIDTH (FT)
BEGIN TRANS.	END TRANS.			BEGIN	END	
585+74.00	586+24.00		X	18.9	20.00	1.1
585+74.00	586+24.00	X		18.7	20.00	1.3

- Ⓐ THE SLOPE OF THE SHOULDER AND THE ROADWAY PAVEMENT SHALL NOT EXCEED AN ALGEBRAIC DIFFERENCE OF 7%.
- Ⓑ SEE STANDARD DRAWINGS RD11-S-11 AND RD11-S-11B FOR FILL AND CUT SLOPE TABLES, ROUNDING ON TOP OF CUT SLOPES AND TOE OF FILL SLOPES, SPECIAL ROCK TREATMENT AND SUB GRADE ROUNDING IF APPLICABLE.
- Ⓒ SEE STANDARD DRAWING RD11-S-11A FOR ROUNDING OF ROADSIDE DITCH SLOPES.
- Ⓓ SEE STANDARD DRAWING S-PL-6 FOR TYPICAL GUARDRAIL PLACEMENT.

**LINE AND  
GRADE  
PLANS**

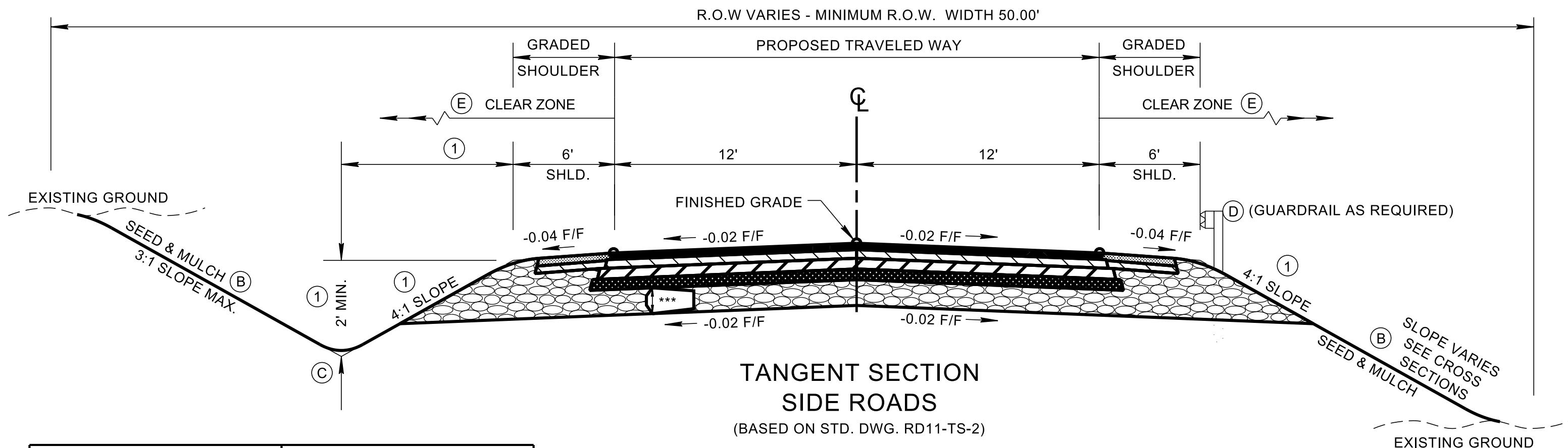
**SEALED BY**

**STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION**

**TYPICAL  
SECTIONS**

TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	STP-170(16)	2B3

① ADTS OVER 400 AND DESIGN SPEEDS OF 50 MILES PER HOUR AND GREATER SHALL REQUIRE 6:1 SLOPES. 6:1 Slope Require A 21' Ditch Width And A Depth of 3'-6". 4:1 Slope Require A 12' Ditch Width And A Depth of 3'-0". SEE CROSS SECTIONS

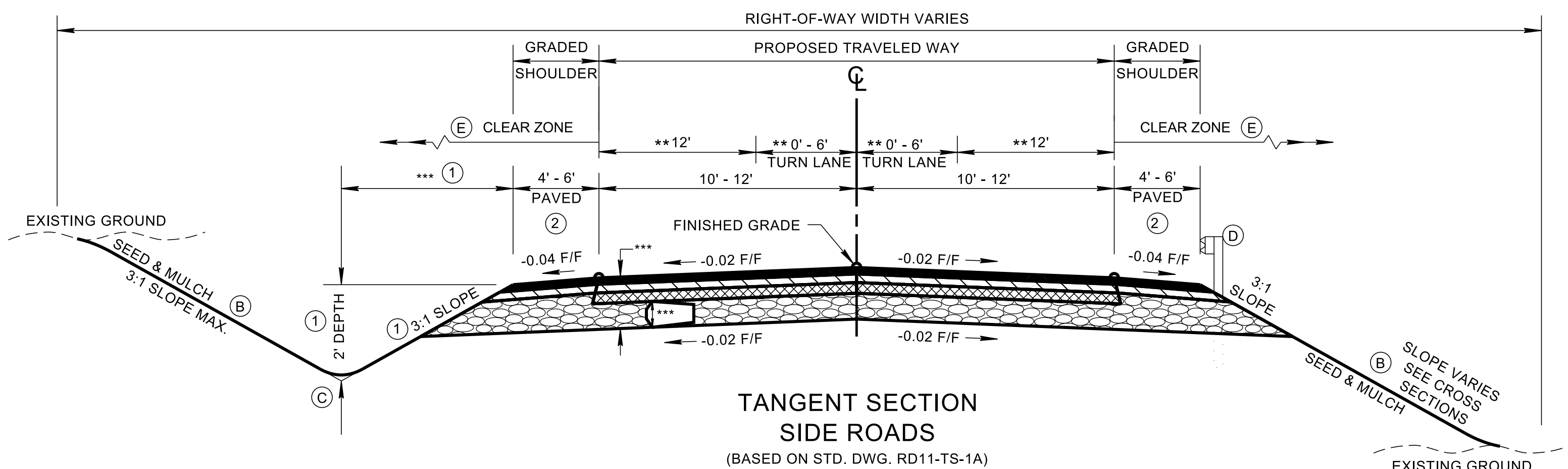


- (A) THE SLOPE OF THE SHOULDER AND THE ROADWAY PAVEMENT SHALL NOT EXCEED AN ALGEBRAIC DIFFERENCE OF 7%.
- (B) SEE STANDARD DRAWINGS RD11-S-11 AND RD11-S-11B FOR FILL AND CUT SLOPE TABLES, ROUNDING ON TOP OF CUT SLOPES AND TOE OF FILL SLOPES, SPECIAL ROCK TREATMENT AND SUB GRADE ROUNDING IF APPLICABLE.
- (C) SEE STANDARD DRAWING RD11-S-11A FOR ROUNDING OF ROADSIDE DITCH SLOPES.
- (D) SEE STANDARD DRAWING S-PL-6 FOR TYPICAL GUARDRAIL PLACEMENT.
- (E) SEE STANDARD DRAWING S-CZ-1 FOR CLEAR ZONE CRITERIA. SEE THE "ROADSIDE DESIGN GUIDE", AASHTO, 2011, FOR FURTHER INFORMATION REGARDING CLEAR ZONES.

ROAD NAME	STATION LIMITS		LT.	RT.	PAVEMENT			SHOULDER		
	BEGIN TRANS.	END TRANS.			OFFSET (FT) BEGIN	OFFSET (FT) END	WIDTH (FT)	OFFSET (FT) BEGIN	OFFSET (FT) END	WIDTH (FT)
OLD EMORY RD.	557+45.00	558+00.00	X	X	11.3	18.00	3.00	0.00	6.00	6.00
NEW HENDERSON RD.	581+84.50	582+84.50		X	12.00	9.5	12.00	6.00	0.00	6.00
NEW HENDERSON RD.	581+84.50	582+84.50	X		12.00	9.8	3.00	6.00	0.00	6.00

TANGENT SECTION SIDE ROADS  
(BASED ON STD. DWG. RD11-TS-2)  
OLD EMORY RD. FROM STA. 575+45.00 TO STA. 579+70.00  
NEW HENDERSON RD. FROM STA. 580+36.29 TO STA. 582+84.50

① ADTS OVER 1000 AND DESIGN SPEEDS OF 40 MILES PER HOUR AND GREATER SHALL REQUIRE 4:1 SLOPES. 3:1 Slope Require A 6' Ditch Width And A Min. Depth of 2'-0". 4:1 Slope Require A 8' Ditch Width And A Min. Depth of 2'-0".



- (A) THE SLOPE OF THE SHOULDER AND THE ROADWAY PAVEMENT SHALL NOT EXCEED AN ALGEBRAIC DIFFERENCE OF 7%.
- (B) SEE STANDARD DRAWINGS RD11-S-11 AND RD11-S-11B FOR FILL AND CUT SLOPE TABLES, ROUNDING ON TOP OF CUT SLOPES AND TOE OF FILL SLOPES, SPECIAL ROCK TREATMENT AND SUB GRADE ROUNDING IF APPLICABLE.
- (C) SEE STANDARD DRAWING RD11-S-11A FOR ROUNDING OF ROADSIDE DITCH SLOPES.
- (D) SEE STANDARD DRAWING S-PL-6 FOR TYPICAL GUARDRAIL PLACEMENT.
- (E) SEE STANDARD DRAWING S-CZ-1 FOR CLEAR ZONE CRITERIA. SEE THE "ROADSIDE DESIGN GUIDE", AASHTO, 2011, FOR FURTHER INFORMATION REGARDING CLEAR ZONES.

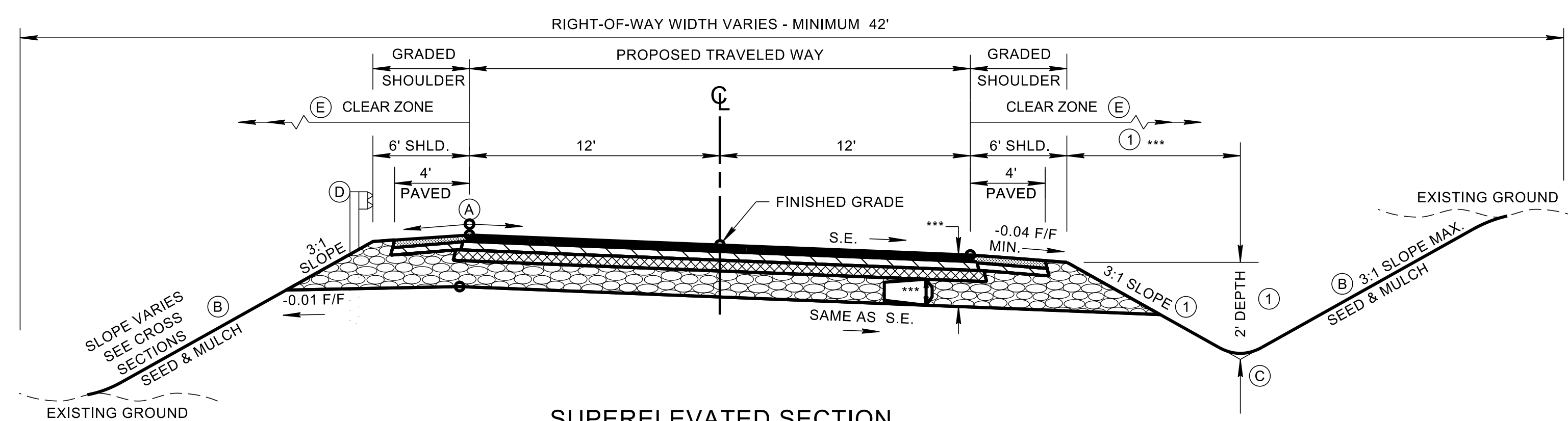
ROAD NAME	STATION LIMITS		LT.	RT.	PAVEMENT			SHOULDER		
	BEGIN TRANS.	END TRANS.			OFFSET (FT) BEGIN	OFFSET (FT) END	WIDTH (FT)	OFFSET (FT) BEGIN	OFFSET (FT) END	WIDTH (FT)
FOUST CARNEY RD.	608+65.00	609+15.00		X	9.9	11.00	1.1	0.00	4.00	4.00
FOUST CARNEY RD.	608+65.00	609+15.00	X		9.5	11.00	1.5	0.00	4.00	4.00
FOUST CARNEY RD.	611+00.00	611+52.00	X	X	12.00	12.7	0.7	4.00	0.00	4.00
NORTH DOGWOOD RD.	625+50.00	626+50.00	X	X	9.8	18.00	8.2	0.00	4.00	4.00
SOUTH DOGWOOD RD.	632+61.00	634+10.00	X	X	18.00	8.7	9.3	4.00	0.00	4.00
OLD EDGEMOOR LN.	653+80.00	654+80.00	X	X	12.00	10.9	1.1	6.00	0.00	6.00
COCONUT LN.	698+65.00	699+10.00	X	X				0.00	4.00	4.00

	TRAFFIC LANE WIDTH	SHLD. WIDTH	
FOUST CARNEY RD.	2 @ 11'	4'	FROM STA. 608+65.00 TO STA. 609+69.92
FOUST CARNEY RD.	2 @ 12'	4'	FROM STA. 610+30.07 TO STA. 611+52.00
** NORTH DOGWOOD RD.	3 @ 12'	4'	FROM STA. 625+50.00 TO STA. 629+70.00
** SOUTH DOGWOOD RD.	3 @ 12'	4'	FROM STA. 630+30.00 TO STA. 634+10.00
OLD EDGEMOOR LN.	2 @ 12'	6'	FROM STA. 652+78.12 TO STA. 654+80.00
COCONUT LN.	2 @ 12'	4'	FROM STA. 698+60.00 TO STA. 699+70.00

# LINE AND GRADE PLANS

SEALED BY

① ADTS OVER 1000 AND DESIGN SPEEDS OF 40 MILES PER HOUR AND GREATER SHALL REQUIRE 4:1 SLOPES. 3:1 Slope Require A 7.5' Ditch Width And A Min. Depth of 2'-6". 4:1 Slope Require A 10' Ditch Width And A Min. Depth of 2'-6".



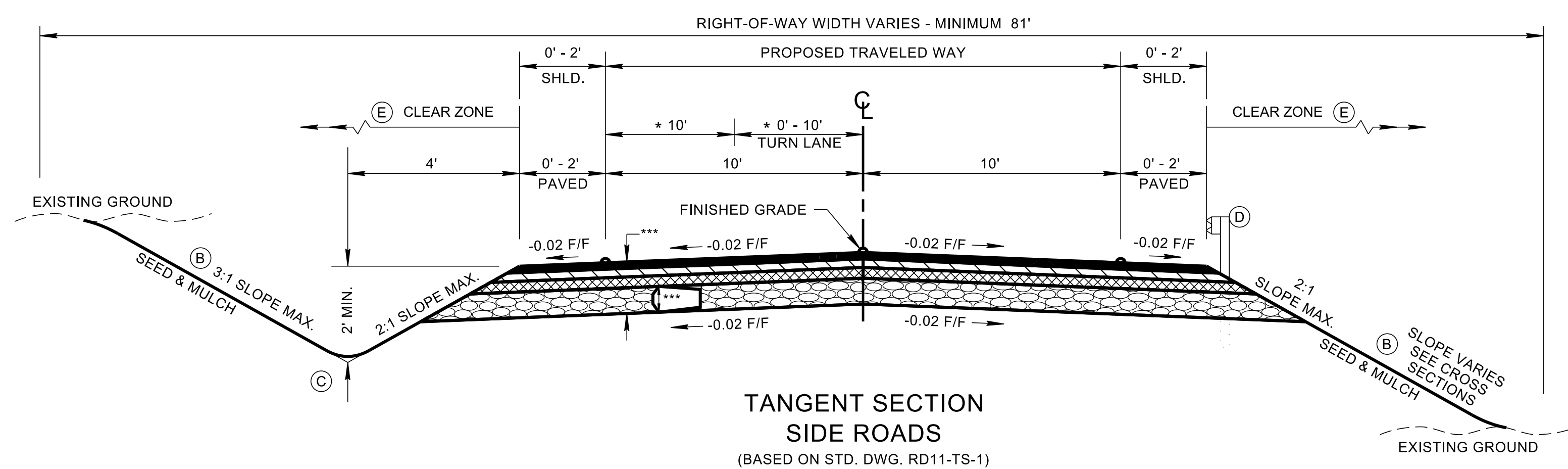
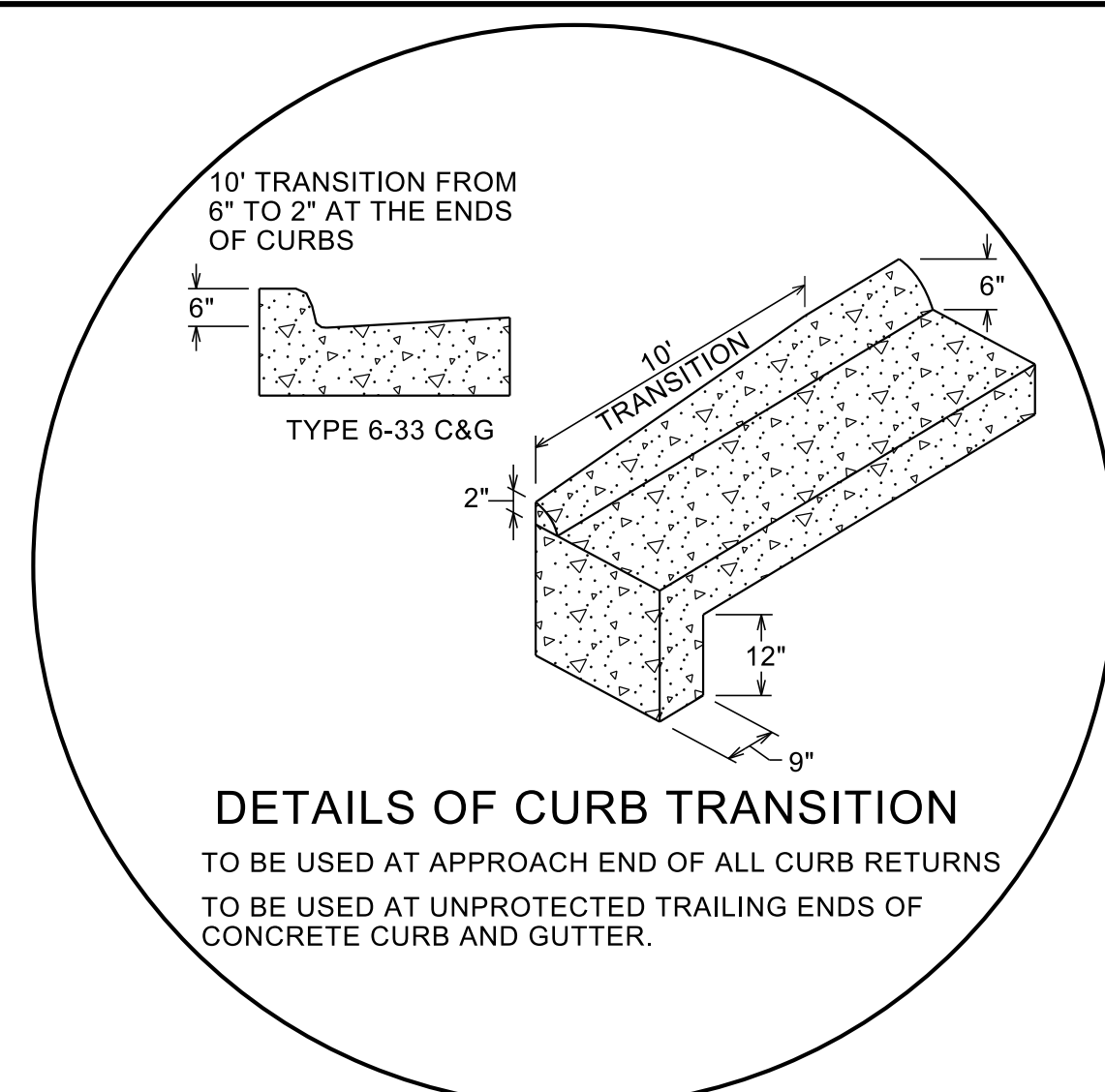
- (A) THE SLOPE OF THE SHOULDER AND THE ROADWAY PAVEMENT SHALL NOT EXCEED AN ALGEBRAIC DIFFERENCE OF 7%.
- (B) SEE STANDARD DRAWINGS RD11-S-11 AND RD11-S-11B FOR FILL AND CUT SLOPE TABLES, ROUNDING ON TOP OF CUT SLOPES AND TOE OF FILL SLOPES, SPECIAL ROCK TREATMENT AND SUB GRADE ROUNDING IF APPLICABLE.
- (C) SEE STANDARD DRAWING RD11-S-11A FOR ROUNDING OF ROADSIDE DITCH SLOPES.
- (D) SEE STANDARD DRAWING S-PL-6 FOR TYPICAL GUARDRAIL PLACEMENT.
- (E) SEE STANDARD DRAWING S-CZ-1 FOR CLEAR ZONE CRITERIA. SEE THE "ROADSIDE DESIGN GUIDE", AASHTO, 2011, FOR FURTHER INFORMATION REGARDING CLEAR ZONES.

SUPERELEVATED SECTION OLD EDGEMOOR LANE  
(BASED ON STD. DWG. RD11-TS-1A)  
FROM STA. 650+30.00 TO STA. 652+78.12

STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION

# TYPICAL SECTIONS

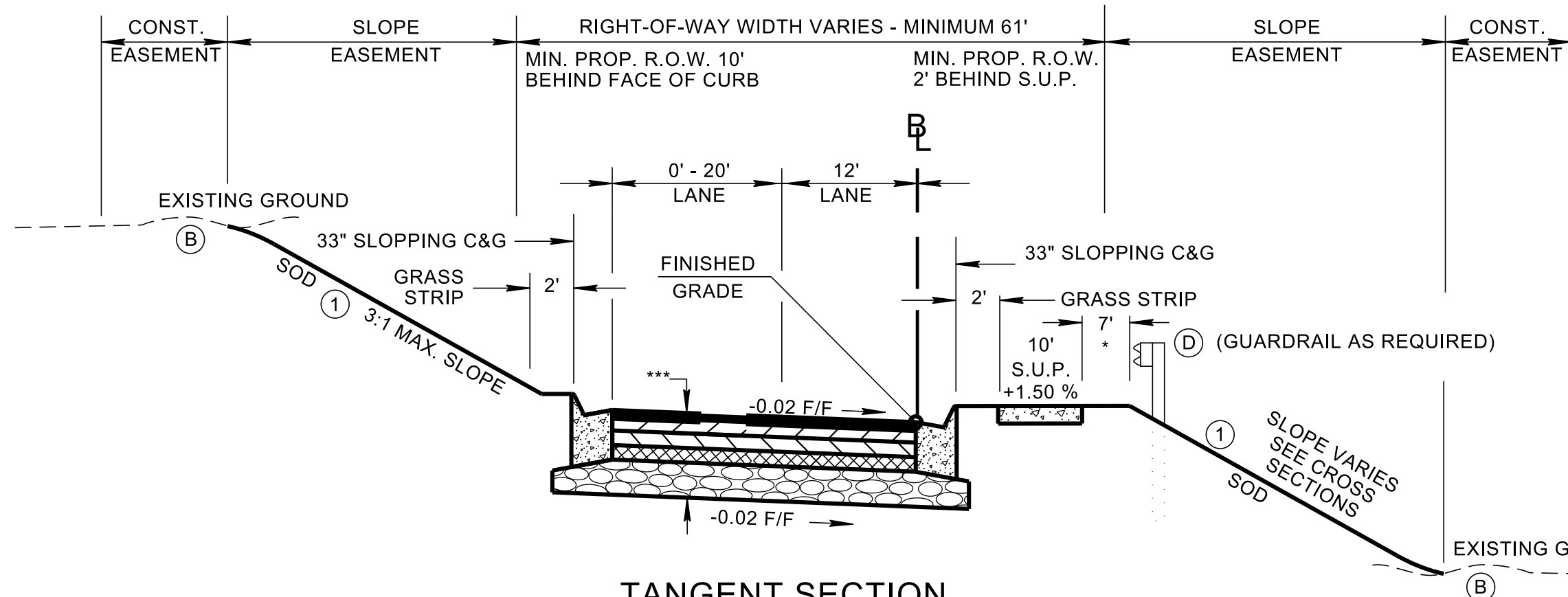
TYPE	YEAR	PROJECT NO.	SHEET NO.
L&G	2025	STP-170(16)	2B4



- (B) MAXIMUM 2(H):1(V) OR AS RECOMMENDED BY THE GEOTECHNICAL OFFICE. WHEN A 2(H):1(V) SLOPE IS USED, AND THE FILL HEIGHT EXCEEDS SIX FEET, GUARDRAIL SHOULD BE CONSIDERED. WHERE RIGHT-OF-WAY IS NOT AN ISSUE, STANDARD DRAWING RD11-S-11 (CASE II) SLOPES MAY BE USED.
- (C) SEE STANDARD DRAWING RD11-S-11A FOR ROUNDING OF ROADSIDE DITCH SLOPES.
- (D) SEE STANDARD DRAWING S-PL-6 FOR TYPICAL GUARDRAIL PLACEMENT.
- (E) SITE-SPECIFIC CONDITIONS AND ENGINEERING JUDGMENT OF THE DESIGNER SHOULD BE THE TWO PRIMARY DETERMINANTS OF THE APPROPRIATE CLEAR ZONE WIDTH FOR LOW-VOLUME LOCAL ROADS. AT LOCATIONS WHERE A CLEAR ZONE OF 6 FEET OR MORE IN WIDTH CAN BE PROVIDED AT LOW COST AND WITH MINIMUM SOCIAL/ENVIRONMENTAL IMPACT, SUCH CLEAR ZONE SHOULD BE CONSIDERED. WHERE PROVISION OF A CLEAR ZONE IS NOT PRACTICAL, NONE IS REQUIRED.

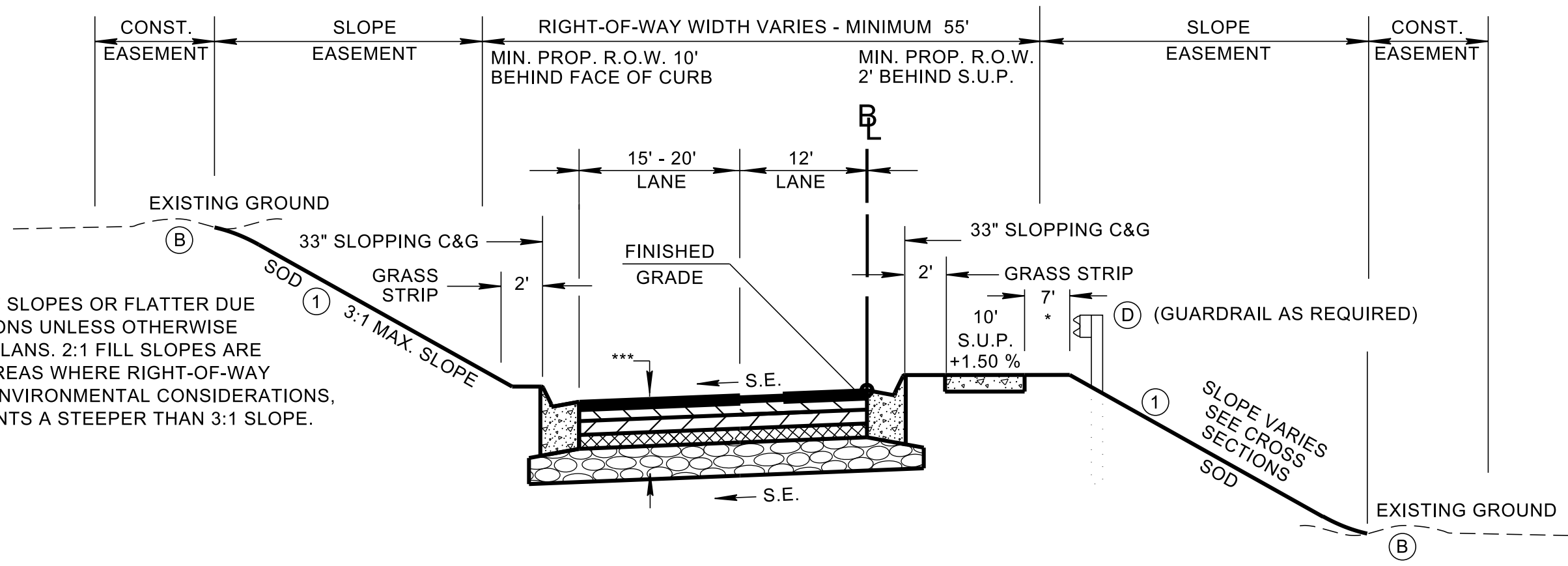
ROAD NAME	STATION LIMITS		LT.	RT.	PAVEMENT			SHOULDER			
	BEGIN TRANS.	END TRANS.			OFFSET (FT)		WIDTH (FT)	OFFSET (FT)		WIDTH (FT)	
					BEGIN	END		BEGIN	END		
OZELLA LN.	562+68.00	562+90.00	X	X	8.0	10.00	2.0				
OZELLA LN.	562+90.00	563+12.00	X	X				0.00	2.00	2.00	

	TRAFFIC LANE WIDTH	SHLD. WIDTH	
LAKEVIEW CIRCLE (EAST)	10'	2'	FROM STA. 533+64.00 TO STA. 539+67.00
* OZELLA LN.	3 @ 10'	2'	FROM STA. 563+53.00 TO STA. 569+70.00
FRAKER LN.	10'	0'	FROM STA. 660+12.00 TO STA. 663+27.00



**TANGENT SECTION JUG HANDLE**  
(BASED ON STD. DWG. RD11-TS-4 & RD11-TS-6A)  
FROM STA. 710+00.00 TO STA. 716+03.34

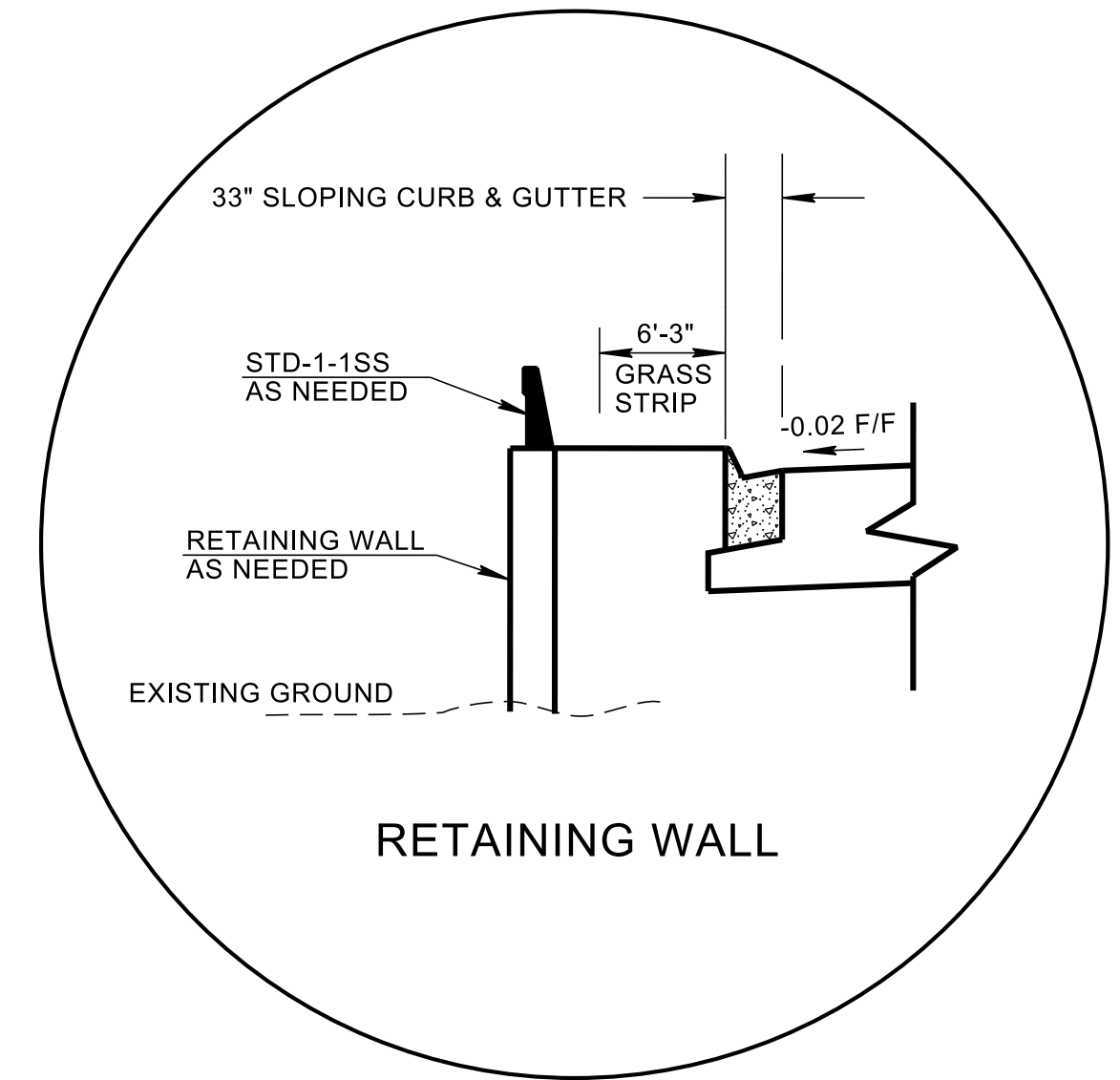
\* BERM WIDTH VARIES IN SOME LOCATIONS TO MEET CLEAR ZONE CRITERIA AND AVOID GUARDRAIL.



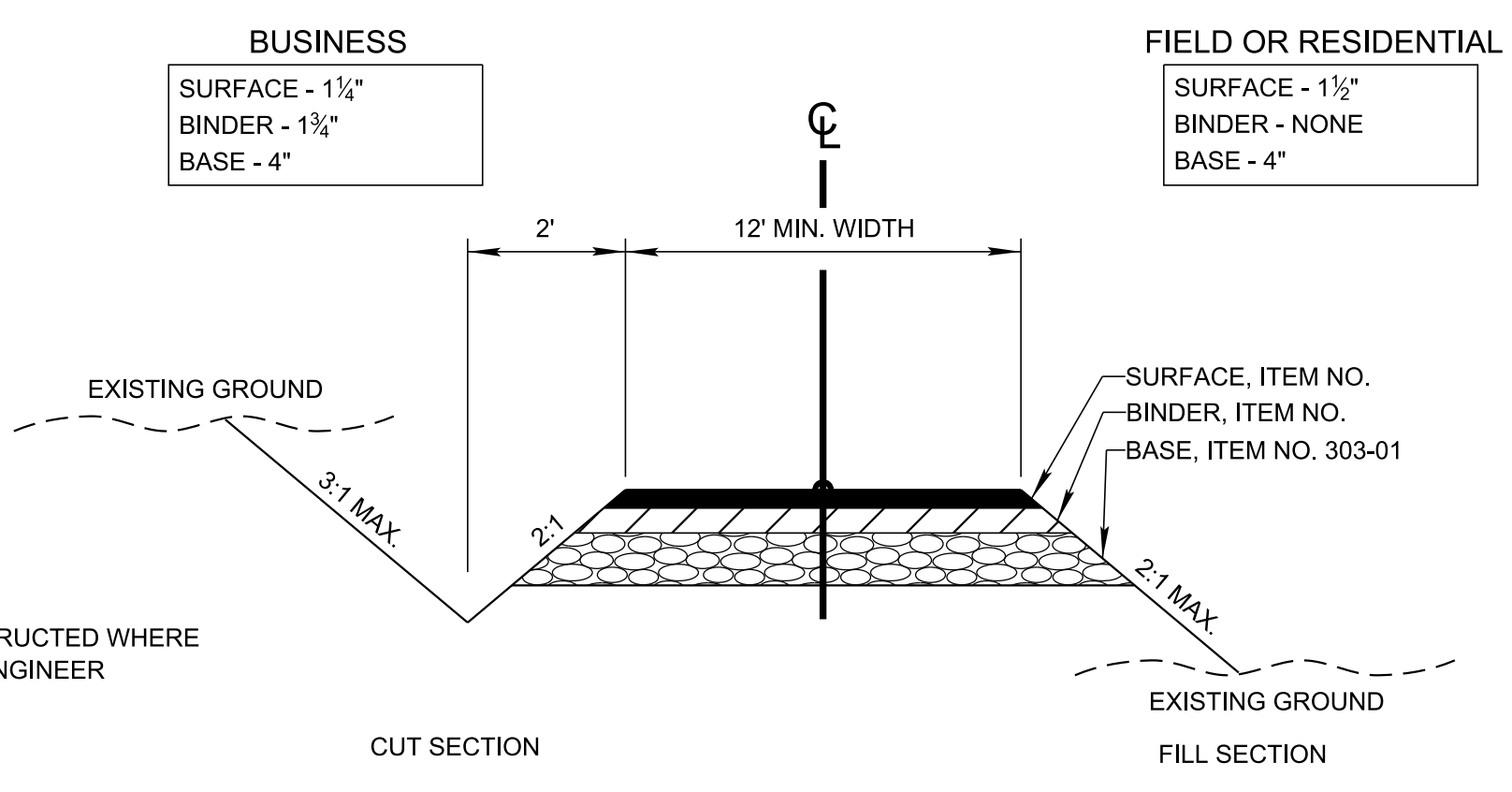
**SUPERELEVATED SECTION JUG HANDLE**  
(BASED ON STD. DWG. RD11-TS-4 & RD11-TS-6A)  
FROM STA. 716+03.34 TO STA. 720+49.93

\* BERM WIDTH VARIES IN SOME LOCATIONS TO MEET CLEAR ZONE CRITERIA AND AVOID GUARDRAIL.

- (A) THE SLOPE OF THE SHOULDER AND THE ROADWAY PAVEMENT SHALL NOT EXCEED AN ALGEBRAIC DIFFERENCE OF 7%.
- (B) SEE STANDARD DRAWINGS RD11-S-11 AND RD11-S-11B FOR FILL AND CUT SLOPE TABLES, ROUNDING ON TOP OF CUT SLOPES AND TOE OF FILL SLOPES, SPECIAL ROCK TREATMENT AND SUB GRADE ROUNDING IF APPLICABLE.
- (C) SEE STANDARD DRAWING RD11-S-11A FOR ROUNDING OF ROADSIDE DITCH SLOPES.
- (D) SEE STANDARD DRAWING S-PL-6 FOR TYPICAL GUARDRAIL PLACEMENT.

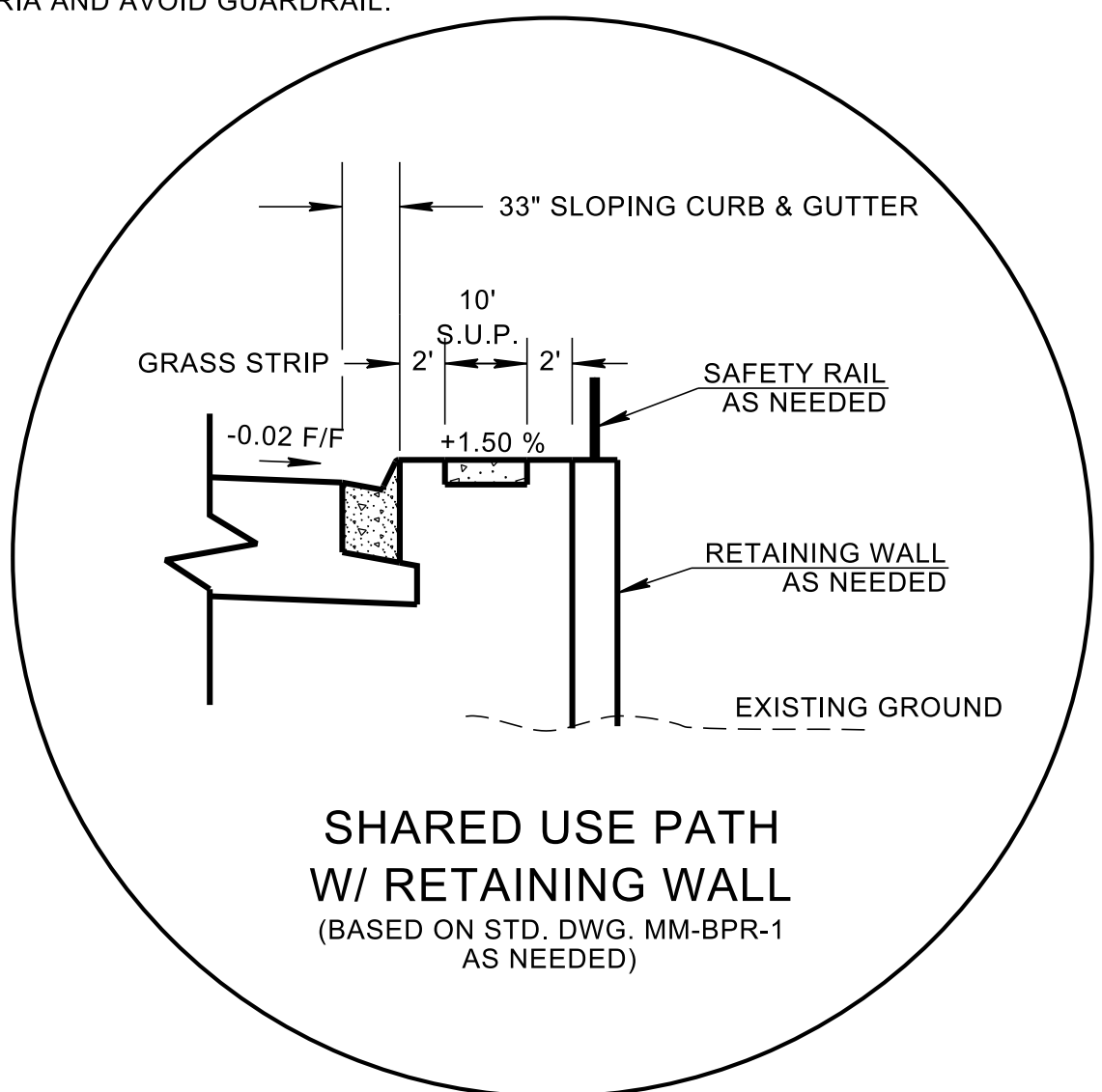


**RETAINING WALL**



**TYPICAL SECTION PRIVATE DRIVE TO BUSINESS, FIELD, OR RESIDENTIAL PROPERTY**

NOTE: DITCH TO BE CONSTRUCTED WHERE DIRECTED BY THE ENGINEER



**SHARED USE PATH W/ RETAINING WALL**  
(BASED ON STD. DWG. MM-BPR-1 AS NEEDED)

**LINE AND GRADE PLANS**

**SEALED BY**

**STATE OF TENNESSEE DEPARTMENT OF TRANSPORTATION**

**TYPICAL SECTIONS**

SR 170 Widening, PIN: 124121.02

From near Melton Lake Drive to SR-9 (US-25W, Clinton Highway) (IA)  
(TMA), Anderson County, TN

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April 2025

**Appendix B**  
**Noise Measurement Data Sheets and Photographs**

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To:	Kyle Kirschenmann, P.G. Environmental Manager Air and Noise Section	From:	Mary Martin Stantec Consulting Services Inc. mary.martin@stantec.com 919-395-6147
File:	171002817	Date:	March 27, 2025

---

**Reference:** Traffic Noise Model Validation  
PE-N: 01024-0224-14 PIN: 124121.02  
SR 170 Widening  
From near Melton Lake Drive to SR-9 (US-25W, Clinton Highway) (IA)(TMA)  
Anderson County, Tennessee

Stantec Consulting Services Inc. prepared the following Noise Model Validation Memorandum to meet requirements of TDOT's Section 5.3.4, Noise, in the *Tennessee Environmental Procedures Manual* (TDOT, June 2011) and the TDOT *Policy on Highway Traffic Noise Abatement* (effective July 13, 2011). This memorandum includes a description of the short-term sites, as well as a summary of the methodology and results of the ambient noise data collection and traffic noise model validation efforts using Version 2.5 of the Federal Highway Administration (FHWA) Traffic Noise Model® (TNM) for the SR 170 Widening Noise Technical Report.

### Project Description

TDOT is proposing to improve SR 170. This portion of the project will start from near Melton Lake Drive to SR 9, a distance of approximately 3.9 miles. The extension will provide 4-12-foot lanes (2 lanes in each direction) with either a raised median or a center turn lane, along with replacing the bridge over the Clinch River. Several intersections along the corridor will also see improvements, including realignment, reconfiguration, and addition of turning lanes. Current plans include providing a sidewalk and shared use path for non-motorized users. The planned improvements are designed to improve safety, mobility, and overall efficiency of the corridor. The design year for the project is 2049. Figure 1 shows the project location and limits.

The project area is comprised of single-family homes, Centennial Bluffs Condominiums, Pine Meadows Mobile Home Park and Oakridge Mobile Home Park (Activity Category B), Melton Lake Greenway and Claxton Community Park (Activity Category C). Claxton Community Center, Claxton Elementary School and Early Learning Tree Daycare will be evaluated as Activity Category C for exterior uses and Activity Category D for interior levels. There is a Subway restaurant with outdoor seating (Activity Category E). Non-noise-sensitive land uses are scattered throughout the project area (Activity Category F).

### Existing Noise Measurements

The project's Noise Analysis Work Plan was approved by TDOT on March 6, 2025. The work plan proposed nine short-term noise measurement locations of 20-minute duration for TNM model validation.

Ambient noise measurements were performed on March 10<sup>th</sup> and 11<sup>th</sup>, 2025. The noise measurement locations (NMLs) are shown on the figures and the field data sheets. Some locations were shifted from locations shown on the work plan due to the hilly terrain and finding locations where the roadway could be easily seen to count and classify vehicles. Two sites were dropped due to low visibility of the main roadway and multiple loose dogs. Short-term measurements were taken at eight noise measurement locations (NML) for a 20-minute duration and were used for validation. The sound level metrics data for these measurements was collected in

**Reference: TNM Validation PE-N: 01024-0224-14 PIN: 124121.02 - SR 170 Widening**

increments of one minute (i.e. a 20-minute short-term noise measurement session was comprised of 20 data points, etc.).

Simultaneous traffic data was manually counted, recorded and classified, during each short-term noise measurement session, at areas near existing traffic noise sources. The counts were classified to account for auto, medium truck, heavy truck, bus and motorcycle vehicle mix counts. Traffic speeds were obtained by driving the project corridor and recording average speed and travel time, and supplemented with the utilization of a radar gun.

During the ambient noise measurements, weather conditions were collected using a Kestrel 3000 handheld weather station for wind speeds and supplemented with data from the Weather Underground app with location services turned on (<https://www.wunderground.com/>). Refer to **Table 1** for a summary of the weather data during the noise measurements.

The noise levels obtained during the noise measurement process are shown below in **Table 2**, ranging from approximately 53 dB(A) Leq to 68 dB(A) Leq.

**Validation Models**

In accordance with the TDOT’s Section 5.3.4, Noise, in the *Tennessee Environmental Procedures Manual* (TDOT, June 2011), computer models using the FHWA TNM 2.5® were created to predict traffic noise in the project study area, and these models have been validated to local conditions through comparison between measured and predicted noise levels. For each measurement location where the predicted noise level is within ±3 dB(A) of the measured noise level, that measurement site is considered validated. Refer to **Table 2** for a summary of the TNM validation results.

**Table 1: Ambient Noise Measurement Weather Summary**

Measurement Site	Date (Time)	Temp (°F)	Cloud Cover	Wind Direction	Wind Speed (mph)	Precipitation (in)	Relative Humidity (%)
NML-1	3/11/25 (2:59 pm – 3:19 pm)	73	Sunny/ Clear	SW	6	0	20
NML-2	3/11/25 (2:22 pm - 3:02 pm)	72	Sunny/ Clear	SSW	5	0	21
NML-3	3/11/25 (3:33 pm -3:53 pm)	74	Sunny/ Clear	SW	7	0	19
NML-4 <sup>1</sup>	--	--	--	--	--	--	--
NML-5 <sup>1</sup>	--	--	--	--	--	--	--
NML-6	3/11/25 (4:14 pm – 4:34 pm)	74	Sunny/ Clear	SSW	7	0	18
NML-7	3/10/25 (4:47 pm – 5:07 pm)	65	Sunny/ Clear	N	4	0	15
NML-8	3/10/25 (6:05 pm – 6:25 pm)	65	Sunny/ Clear	N	3	0	15
NML-9	3/10/25 (3:30 pm – 3:50 pm)	64	Sunny/ Clear	N	5	0	17
NML-10	3/10/25 (2:52 pm – 3:12 pm)	64	Sunny/ Clear	ENE	5	0	17

1. Measurement locations 4 and 5 were dropped due to low visibility to traffic (below roadway grade) and unleashed dogs.

Reference: TNM Validation PE-N: 01024-0224-14 PIN: 124121.02 - SR 170 Widening

**Table 2: TNM Validation Table**

Measurement Site <sup>2</sup>	Measured $L_{eq}$ , dB(A) <sup>1</sup>	TNM-Predicted $L_{eq(h)}$ , dB(A) <sup>1</sup>	Validation Change (Predicted-Measured), dB(A) <sup>1</sup>
NML-1	60.8	58.8	-2.0
NML-2	64.9	63.1	-1.8
NML-3	56.9	57.7	0.8
NML-4 <sup>3</sup>	--	--	--
NML-5 <sup>3</sup>	--	--	--
NML-6	55.7	58.0	2.3
NML-7	64.7	65.8	1.1
NML-8	68.4	67.8	-0.6
NML-9	58.0	58.0	0.0
NML-10	52.5	54.5	2.0
<b>Measurement Site Validated</b>		<b>Measurement Site Not Validated</b>	

1. Hourly equivalent noise levels,  $L_{eq}(h)$ , are expressed to the nearest one-tenth decibels to ensure that TNM-predicted noise levels validate to within  $\pm 3.0$  dB(A) of measured noise levels without the benefits of rounding.
2. Please see figures for measurement locations.
3. Measurement locations 4 and 5 were dropped due to low visibility to traffic (below roadway grade) and unleashed dogs.

March 25, 2025

Kyle Kirschenmann, P.G.

Page 4 of 7

Reference: Traffic Noise Model Validation  
PE-N: 01024-0224-14 PIN: 124121.02  
SR 170 Widening  
From near Melton Lake Drive to SR-9 (US-25W, Clinton Highway) (IA)(TMA)  
Anderson County, Tennessee

### Measurement Location Photos



NML-1 (Centennial Bluff Condominiums)



NML-2 (Crest Lane – Valley View Heights Subdivision)

March 25, 2025

Kyle Kirschenmann, P.G.

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Reference: Traffic Noise Model Validation  
PE-N: 01024-0224-14 PIN: 124121.02  
SR 170 Widening  
From near Melton Lake Drive to SR-9 (US-25W, Clinton Highway) (IA)(TMA)  
Anderson County, Tennessee



NML-3 (Claxton Community Park)

NML-4 and NML-5 (Dropped due to low visibility to road and unleashed dogs)



NML-6 (Dunn Lane – Valley View Subdivision)

March 25, 2025

Kyle Kirschenmann, P.G.

Page 6 of 7

Reference: Traffic Noise Model Validation  
PE-N: 01024-0224-14 PIN: 124121.02  
SR 170 Widening  
From near Melton Lake Drive to SR-9 (US-25W, Clinton Highway) (IA)(TMA)  
Anderson County, Tennessee



NML-7 (Mockingbird Hill Lane – Mockingbird Hill Subdivision)



NML-8 (Old Frost Burial Ground)

March 25, 2025

Kyle Kirschenmann, P.G.

Page 7 of 7

Reference: Traffic Noise Model Validation  
PE-N: 01024-0224-14 PIN: 124121.02  
SR 170 Widening  
From near Melton Lake Drive to SR-9 (US-25W, Clinton Highway) (IA)(TMA)  
Anderson County, Tennessee



NML-9 (Woodhaven Memorial Gardens)



NML-10 (Claxton Elementary School)

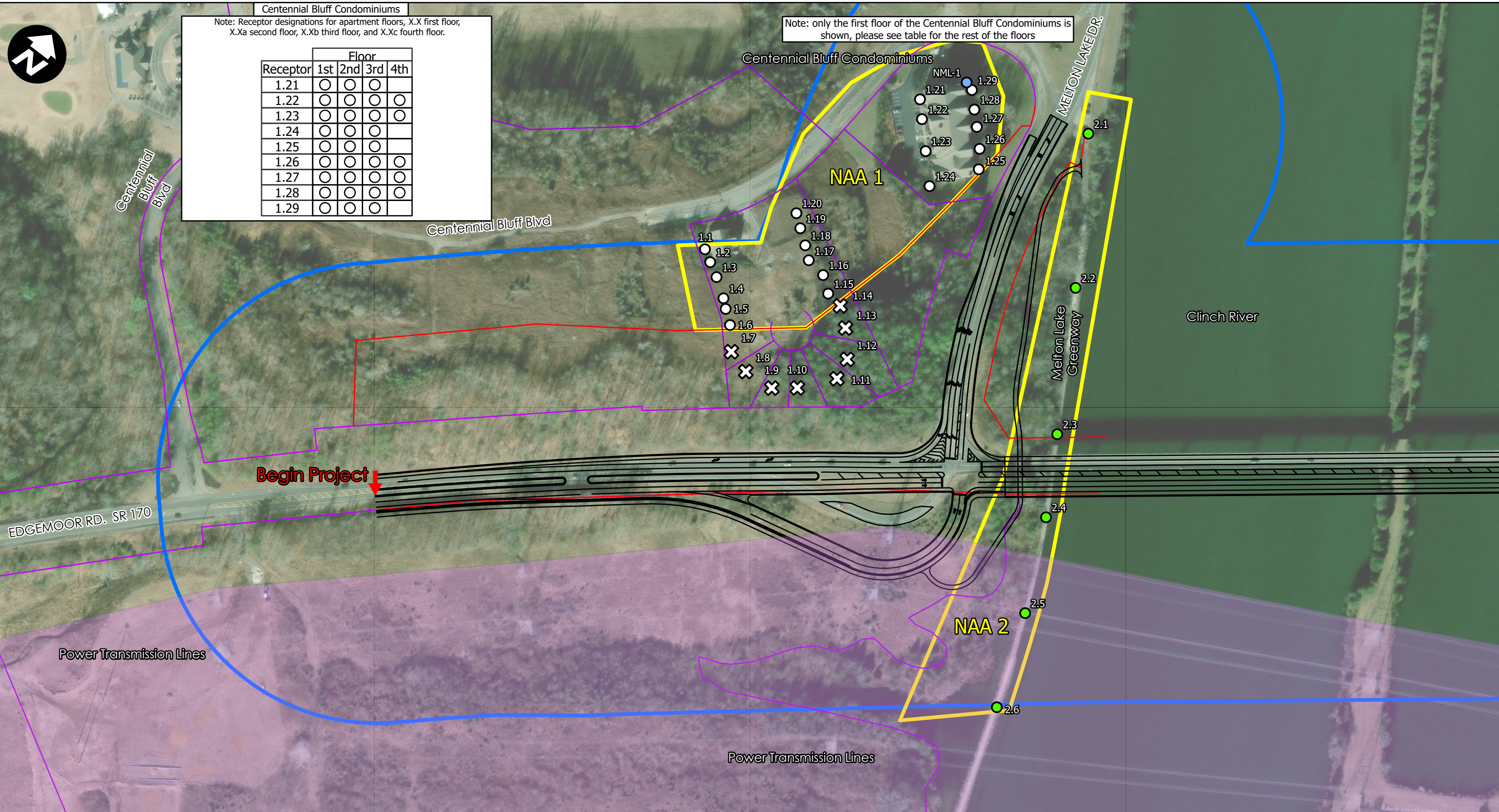


**Centennial Bluff Condominiums**

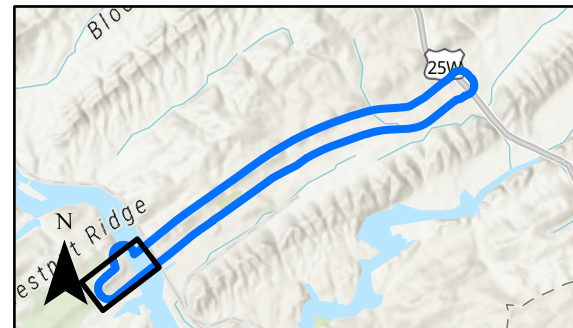
Note: Receptor designations for apartment floors, X.X first floor, X.Xa second floor, X.Xb third floor, and X.Xc fourth floor.

Receptor	Floor			
	1st	2nd	3rd	4th
1.21	○	○	○	
1.22	○	○	○	○
1.23	○	○	○	○
1.24	○	○	○	
1.25	○	○	○	
1.26	○	○	○	○
1.27	○	○	○	○
1.28	○	○	○	○
1.29	○	○	○	

Note: only the first floor of the Centennial Bluff Condominiums is shown, please see table for the rest of the floors



Developed March 2025

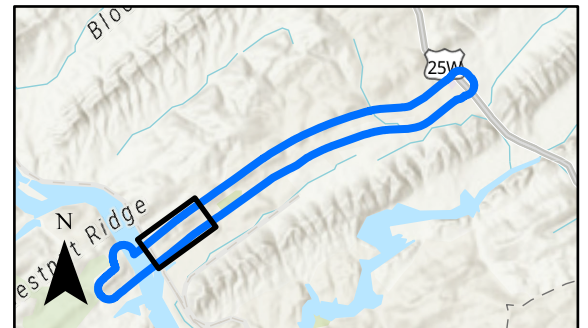
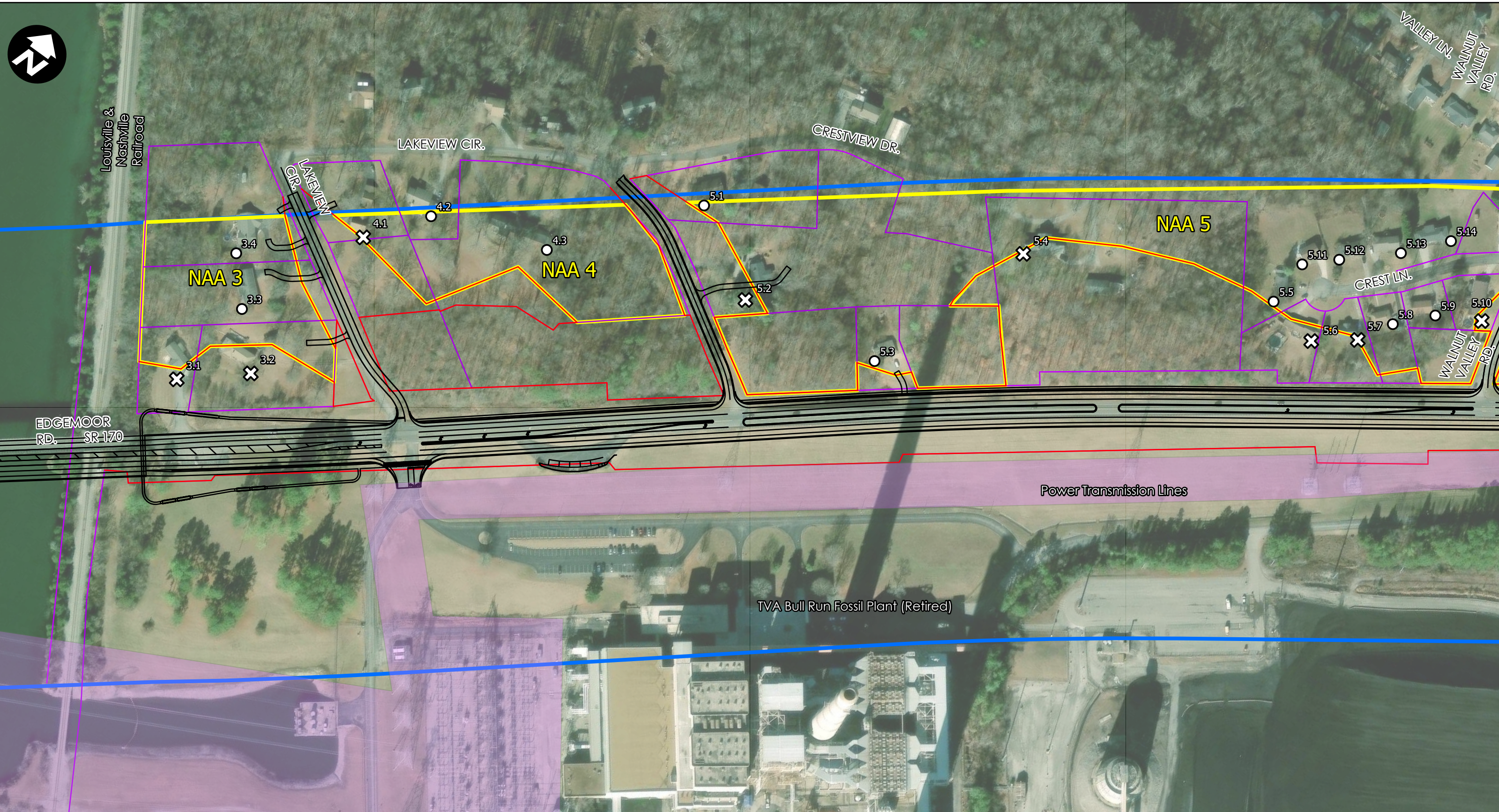


- Begin and End Project
- Noise Measurement Location
- Activity Category B Noise Receptor
- Activity Category C Noise Receptor
- Activity Category D Noise Receptor
- Activity Category E Noise Receptor
- Non-Noise Sensitive Receptor
- Right-of-Way Acquisition
- Proposed Design Improvements
- Proposed Right-of-Way
- Existing Right-of-Way and Property Lines
- Noise Analysis Areas
- Noise Study Area
- Major Power Lines



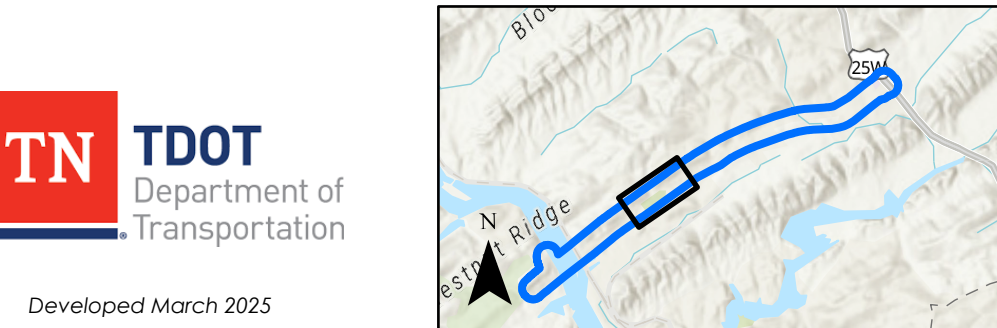
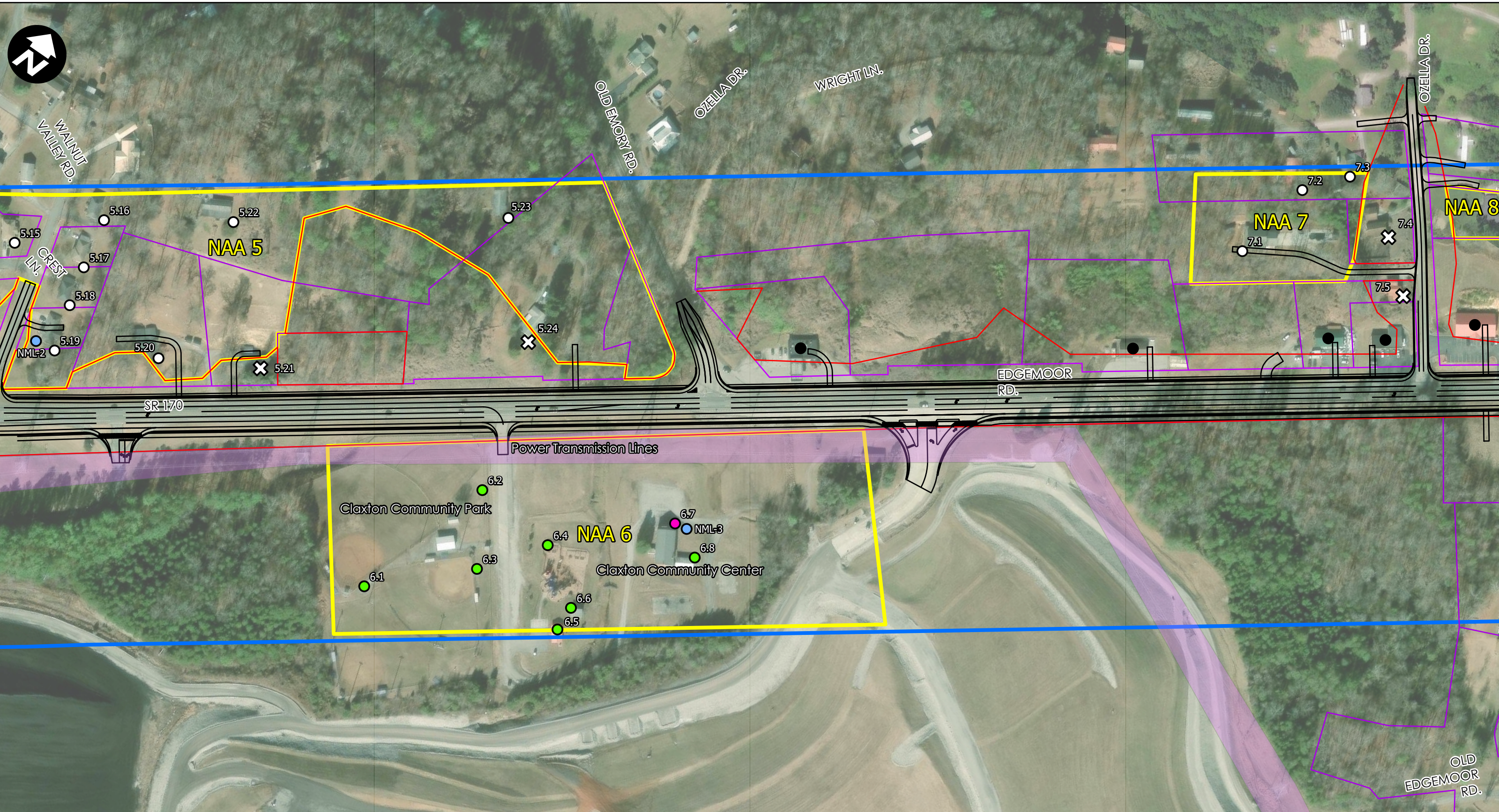
Traffic Noise Analysis  
SR 170 Widening  
PIN: 124121.02  
Anderson County, TN

Detailed Study Area Map  
Figure 2-1



- |  |  |  |
|--|--|--|
| <ul style="list-style-type: none"> <li><span style="color: red;">↓</span> Begin and End Project</li> <li><span style="color: blue;">●</span> Noise Measurement Location</li> <li><span style="border: 1px solid black; border-radius: 50%; width: 10px; height: 10px; display: inline-block;"></span> Activity Category B Noise Receptor</li> <li><span style="color: green;">●</span> Activity Category C Noise Receptor</li> </ul> | <ul style="list-style-type: none"> <li><span style="color: pink;">●</span> Activity Category D Noise Receptor</li> <li><span style="color: orange;">●</span> Activity Category E Noise Receptor</li> <li><span style="color: black;">●</span> Non-Noise Sensitive Receptor</li> <li><span style="color: black;">✕</span> Right-of-Way Acquisition</li> </ul> | <ul style="list-style-type: none"> <li><span style="border-bottom: 2px solid black; width: 20px; display: inline-block;"></span> Proposed Design Improvements</li> <li><span style="border-bottom: 2px solid red; width: 20px; display: inline-block;"></span> Proposed Right-of-Way</li> <li><span style="border-bottom: 2px solid purple; width: 20px; display: inline-block;"></span> Existing Right-of-Way and Property Lines</li> <li><span style="border-bottom: 2px solid yellow; width: 20px; display: inline-block;"></span> Noise Analysis Areas</li> <li><span style="border-bottom: 2px solid blue; width: 20px; display: inline-block;"></span> Noise Study Area</li> <li><span style="background-color: #e0e0ff; width: 20px; height: 10px; display: inline-block;"></span> Major Power Lines</li> </ul> |
|--|--|--|



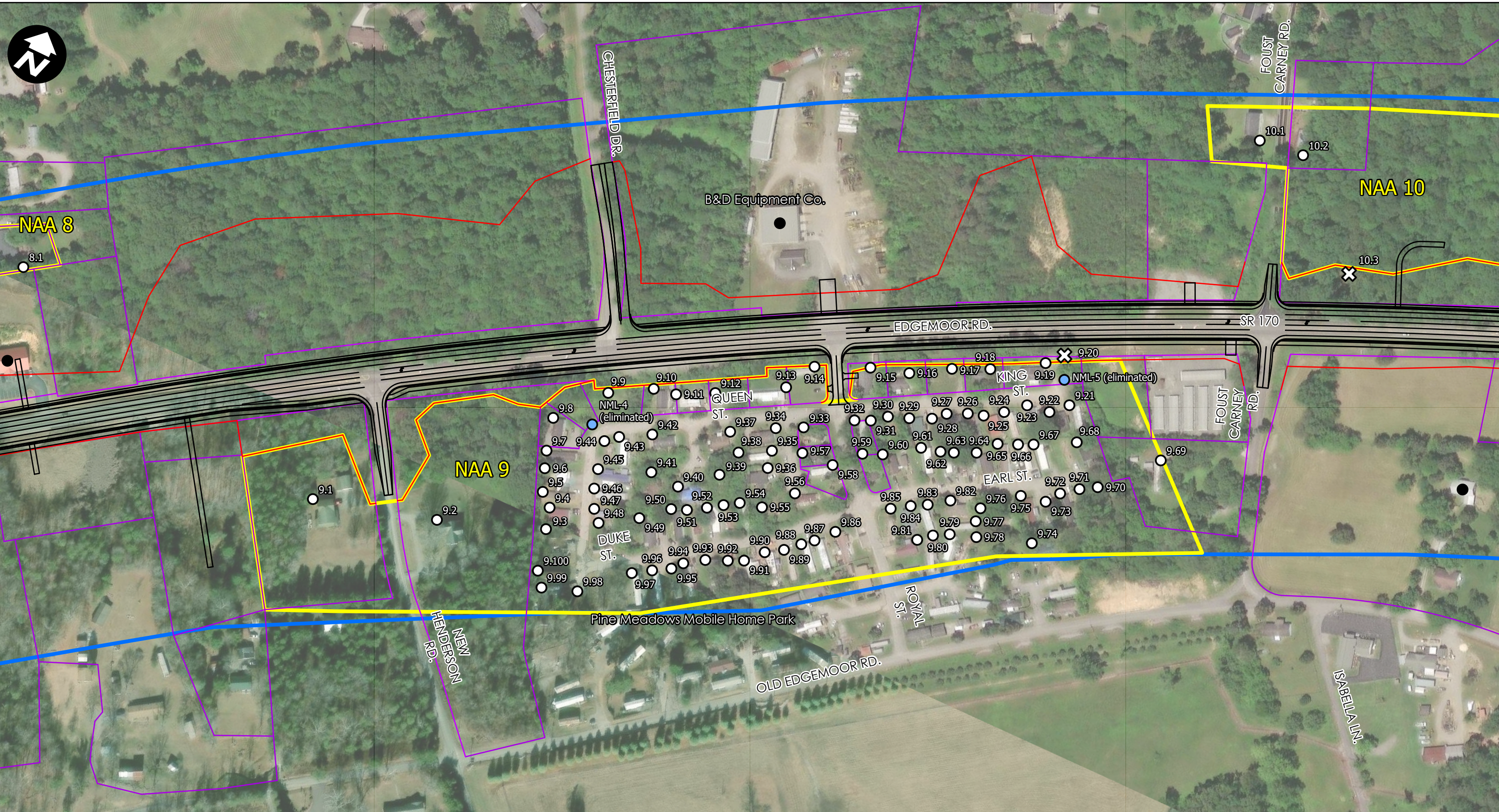


- ↓ Begin and End Project
- Noise Measurement Location
- Activity Category B Noise Receptor
- Activity Category C Noise Receptor
- Activity Category D Noise Receptor
- Activity Category E Noise Receptor
- Non-Noise Sensitive Receptor
- ⊗ Right-of-Way Acquisition
- Proposed Design Improvements
- Proposed Right-of-Way
- Existing Right-of-Way and Property Lines
- ▭ Noise Analysis Areas
- ▭ Noise Study Area
- ▭ Major Power Lines

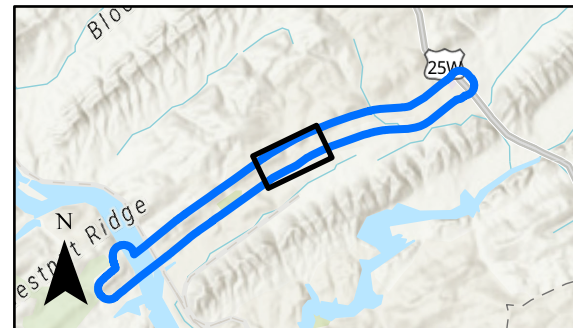


Traffic Noise Analysis  
 SR 170 Widening  
 PIN: 124121.02  
 Anderson County, TN

Detailed Study Area Map  
 Figure 2-3



Developed March 2025

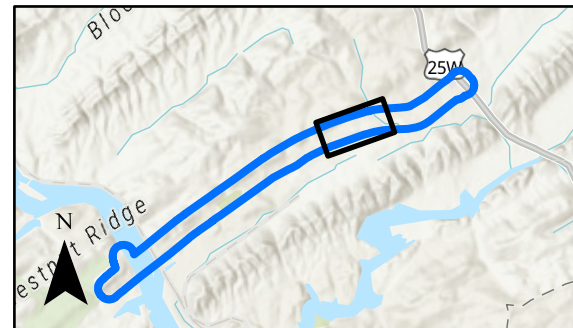
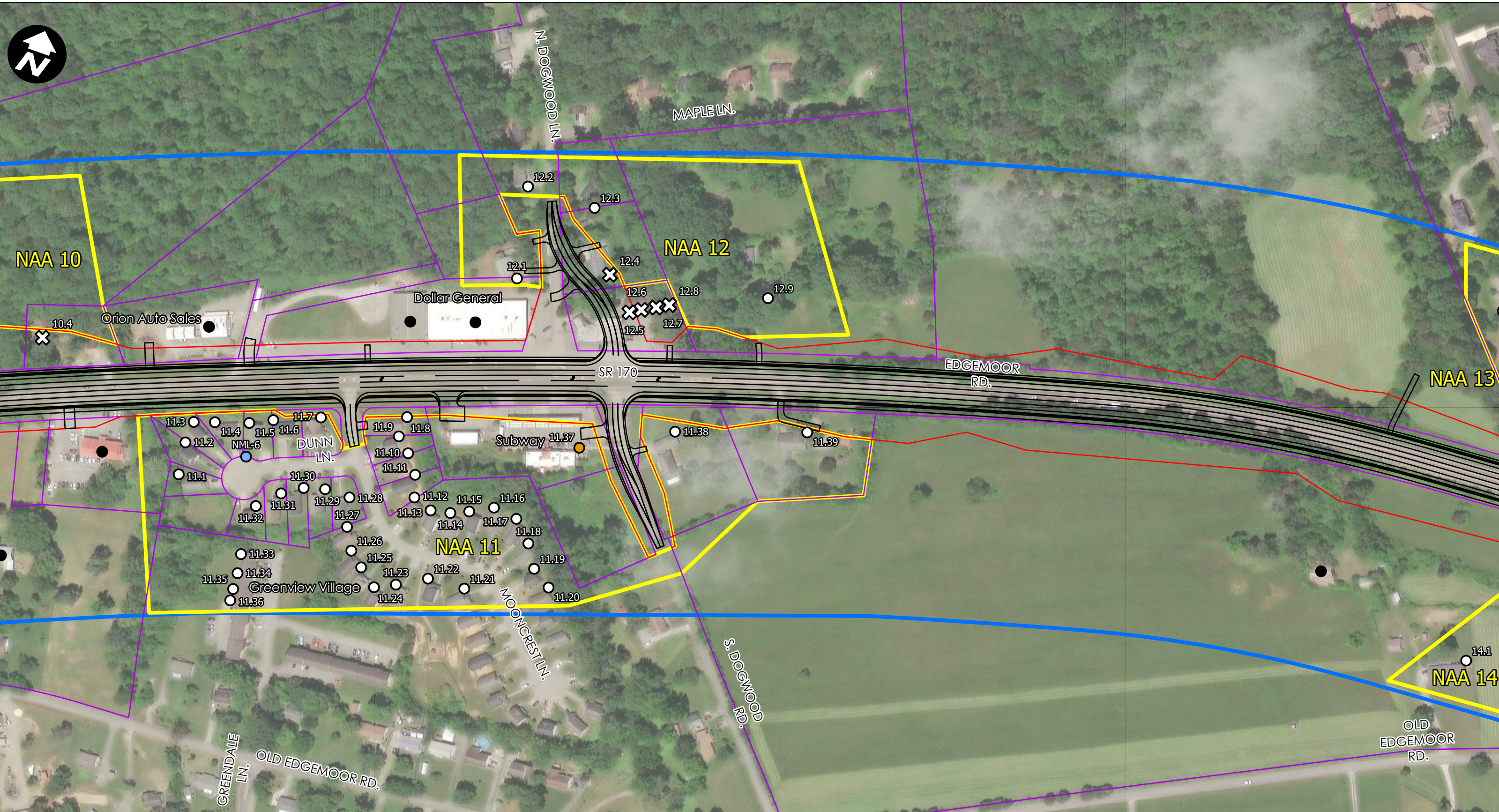


- ↓ Begin and End Project
- Noise Measurement Location
- Activity Category B Noise Receptor
- Activity Category C Noise Receptor
- Activity Category D Noise Receptor
- Activity Category E Noise Receptor
- Non-Noise Sensitive Receptor
- ✕ Right-of-Way Acquisition
- Proposed Design Improvements
- Proposed Right-of-Way
- Existing Right-of-Way and Property Lines
- Noise Analysis Areas
- Noise Study Area
- Major Power Lines



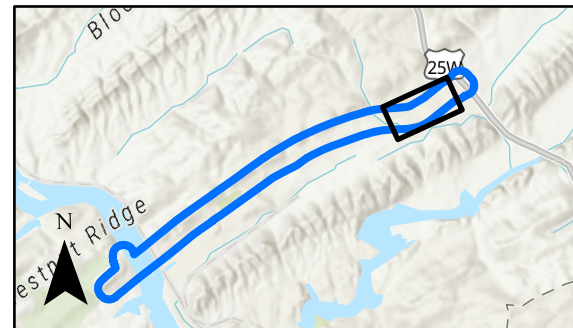
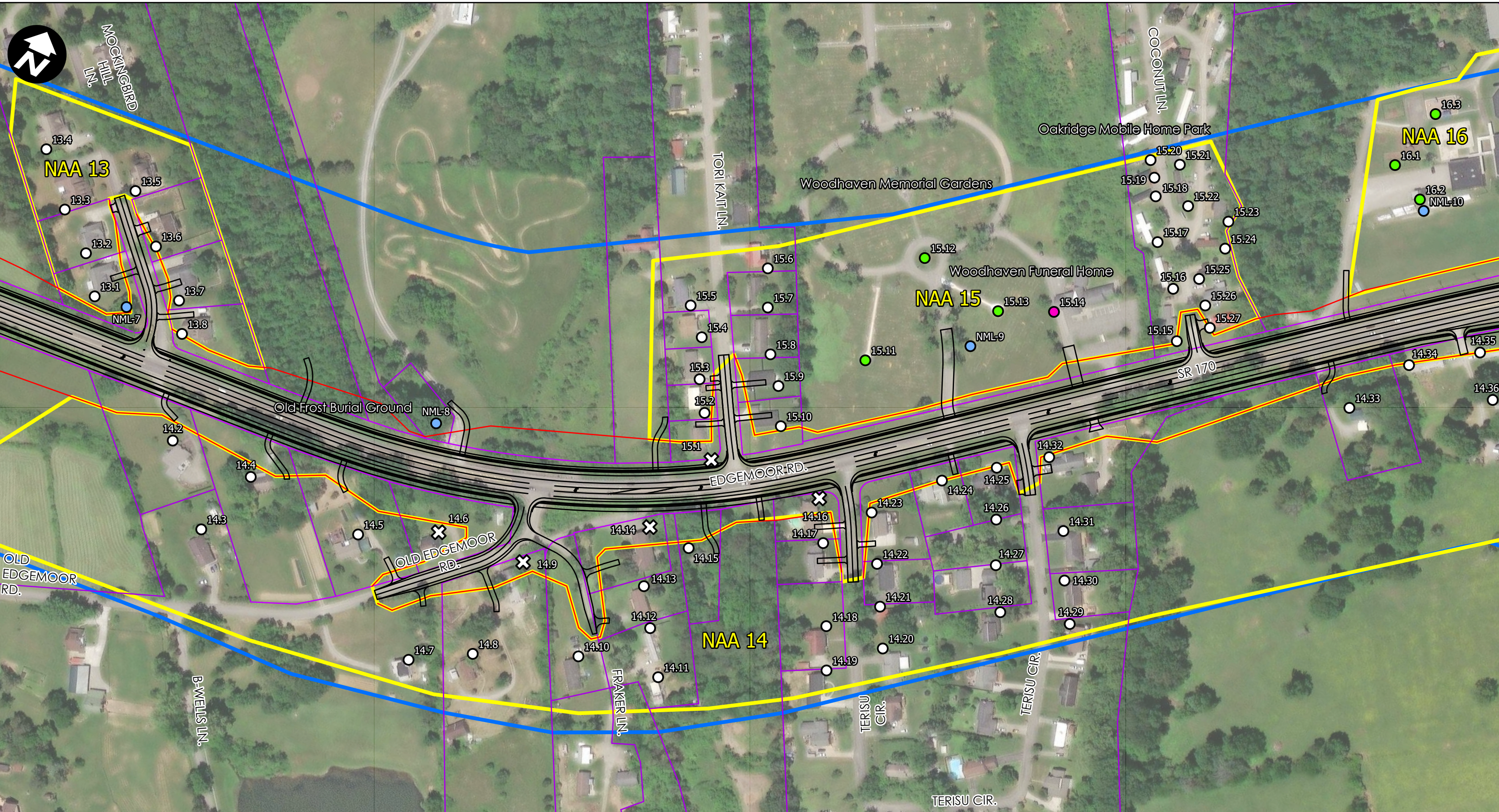
Traffic Noise Analysis  
 SR 170 Widening  
 PIN: 124121.02  
 Anderson County, TN

Detailed Study Area Map  
 Figure 2-4



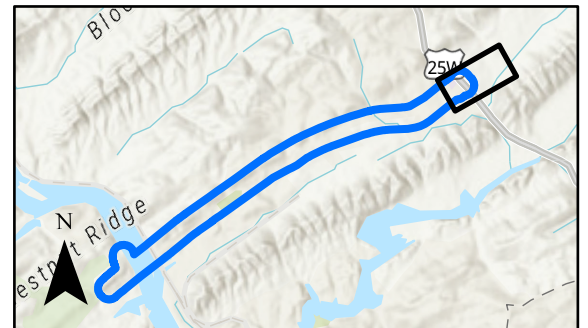
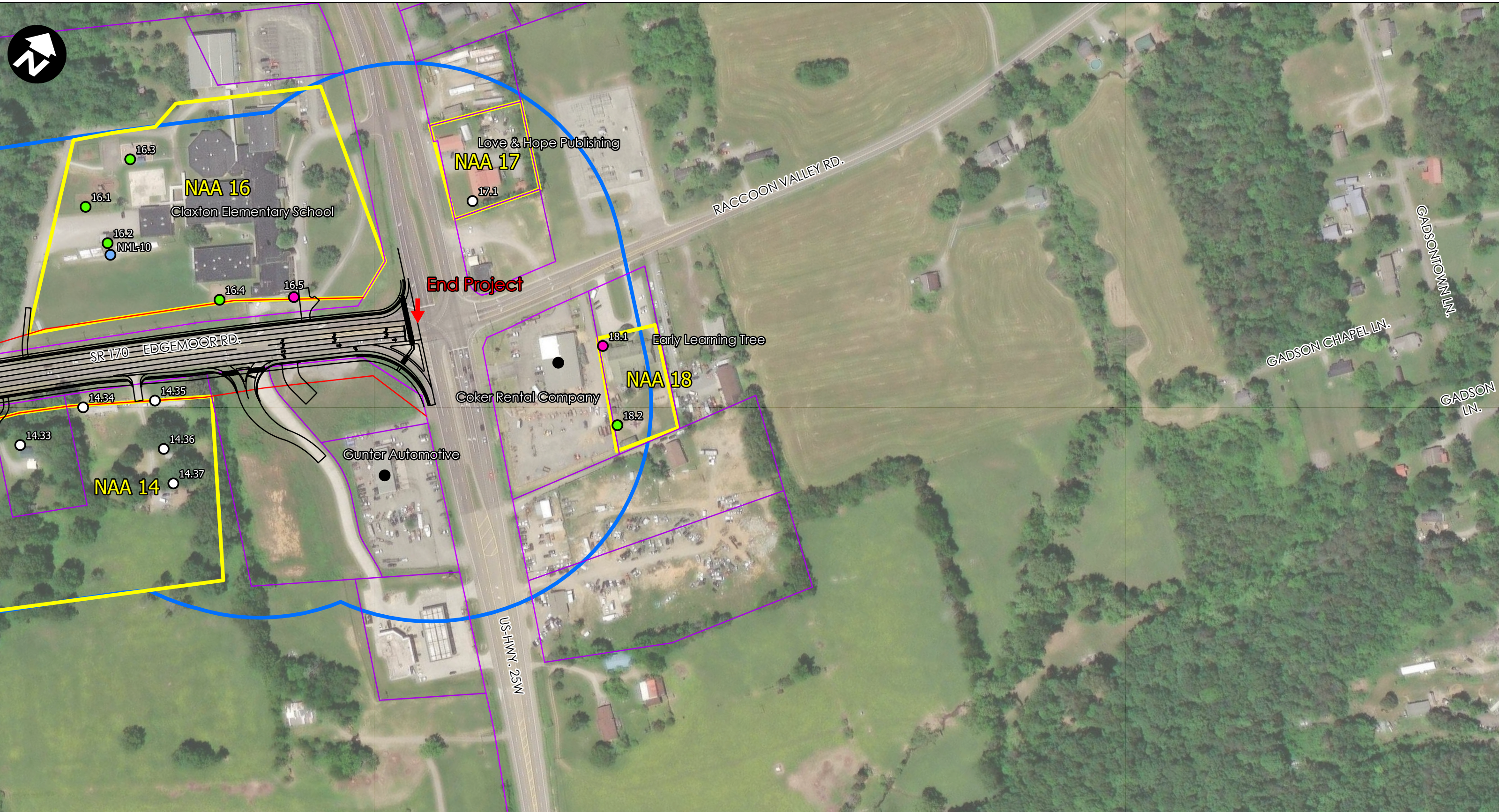
- ↓ Begin and End Project
- Noise Measurement Location
- Activity Category B Noise Receptor
- Activity Category C Noise Receptor
- Activity Category D Noise Receptor
- Activity Category E Noise Receptor
- Non-Noise Sensitive Receptor
- X Right-of-Way Acquisition
- Proposed Design Improvements
- Proposed Right-of-Way
- Existing Right-of-Way and Property Lines
- Noise Analysis Areas
- Noise Study Area
- Major Power Lines





- ↓ Begin and End Project
- Noise Measurement Location
- Activity Category B Noise Receptor
- Activity Category C Noise Receptor
- Activity Category D Noise Receptor
- Activity Category E Noise Receptor
- Non-Noise Sensitive Receptor
- Right-of-Way Acquisition
- Proposed Design Improvements
- Proposed Right-of-Way
- Existing Right-of-Way and Property Lines
- Noise Analysis Areas
- Noise Study Area
- Major Power Lines





- ↓ Begin and End Project
- Noise Measurement Location
- Activity Category B Noise Receptor
- Activity Category C Noise Receptor
- Activity Category D Noise Receptor
- Activity Category E Noise Receptor
- Non-Noise Sensitive Receptor
- Right-of-Way Acquisition
- Proposed Design Improvements
- Proposed Right-of-Way
- Existing Right-of-Way and Property Lines
- Noise Analysis Areas
- Noise Study Area
- Major Power Lines



# NOISE MEASUREMENT FIELD DATA SHEET

## GENERAL INFORMATION

PROJECT NAME	SR 170 Widening from near Melton Lake Drive to SR-9 (US-25W, Clinton Highway) (IA)(TMA) Anderson County, TN	OBSERVER(S)	MMM, FRC
PIN#	124121.02	DATE	03/11/25
SITE ID	NML-1	DURATION	20 min
		LAND USE(S)	RESIDENTIAL

## TRAFFIC DATA To SR 170 To SR 95

ROAD NAME	MELTON LAKE							
ROAD DIRECTION	→	←						
AUTOS	170	162						
MEDIUM TRUCKS	2	1						
HEAVY TRUCKS	0	1						
BUSES	0	0						
MOTORCYCLES	1	0						
OBS. SPEED (MPH)	50	50						

## WEATHER DATA

TEMPERATURE (°F)	73°
CLOUD COVER	SUNNY
WIND SPEED (MPH)	6
WIND DIRECTION	SW
WET PAVEMENT (Y/N)	N
REL HUMIDITY (%)	20%

## NOISE SOURCE DATA

MAJOR	SR 170
BACKGROUND	MELTON LAKE RD

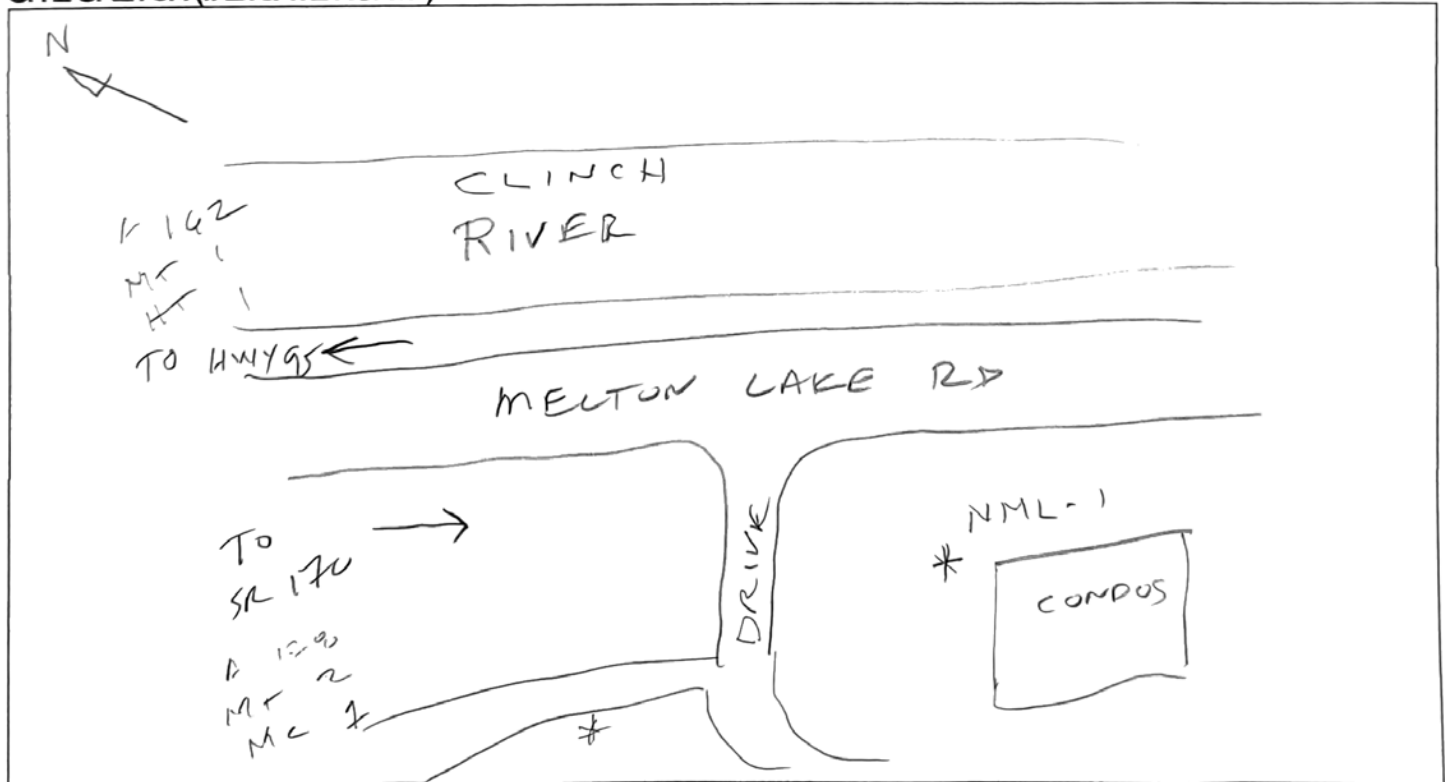
## SLM DATA

	NML-1
CALIBRATION LEVEL	114 dB(A)
FILE NAME	Auto_0011

## VALIDATION

	FIELD MEASUREMENT	TNM PREDICTION	Δ	VALIDATES?
NML-1	60.8	58.8	-2.0	✓

## SITE SKETCH (INDICATE NORTH)



# NOISE MEASUREMENT FIELD DATA SHEET

## GENERAL INFORMATION

PROJECT NAME	SR 170 Widening from near Melton Lake Drive to SR-9 (US-25W Clinton Highway) (IA)(TMA) Anderson County, TN	OBSERVER(S)	MMM FRC
PIN#	124121 02	DATE	03/11/25
SITE ID	NML-2	DURATION	20 min
		LAND USE(S)	RESIDENTIAL

## TRAFFIC DATA

ROAD NAME	SR 170		WALNUT VALLEY					
ROAD DIRECTION	→	←	↓	↑				
ALTOS	147	220	3	3				
MEDIUM TRUCKS	2	1						
HEAVY TRUCKS	3	7						
BUSES	0	0						
MOTORCYCLES	0	2						
OBS SPEED (MPH)	50	50	25	25				

## WEATHER DATA

TEMPERATURE (°F)	72°
CLOUD COVER	SUNNY
WIND SPEED (MPH)	5
WIND DIRECTION	SSW
WET PAVEMENT (Y/N)	N
REL HUMIDITY (%)	21%

## NOISE SOURCE DATA

MAJOR	SR 170
BACKGROUND	Walnut Valley Rd

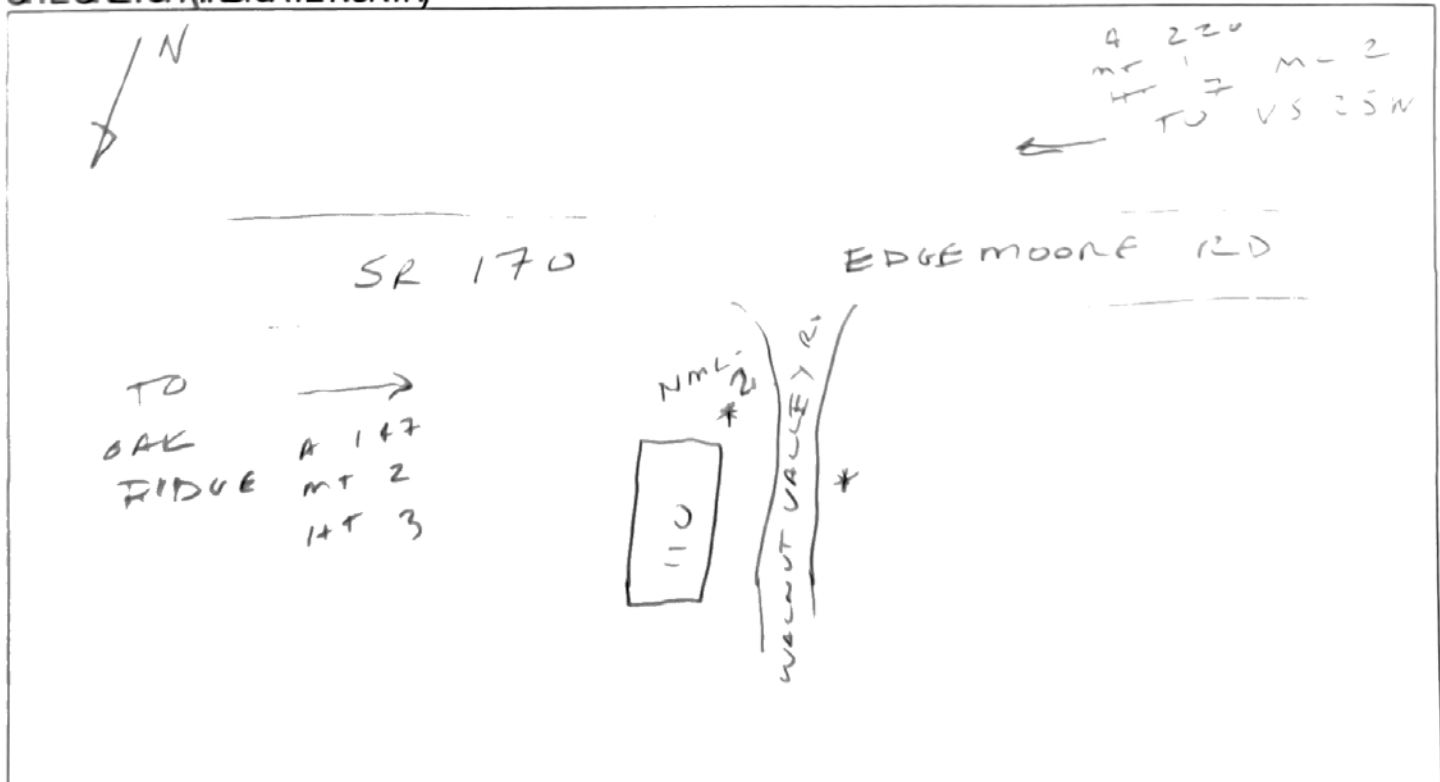
## SLM DATA

	NML-2
CALIBRATION LEVEL	114 dB(A)
FILE NAME	Auto_0010

## VALIDATION

VALIDATION	FIELD MEASUREMENT	TNM PREDICTION	Δ	VALIDATES?
NML-2	64.9	63.1	-1.8	✓

## SITE SKETCH (INDICATE NORTH)



# NOISE MEASUREMENT FIELD DATA SHEET

## GENERAL INFORMATION

PROJECT NAME	SR 170 Widening from near Melton Lake Drive to SR-9 (US-25W, Clinton Highway) (IA)(TMA) Anderson County, TN	OBSERVER(S)	MMM, FRC
PIN#	124121.02	DATE	03/11/25
SITE ID	NML-3	DURATION	20 min
		LAND USE(S)	RECREATION

## TRAFFIC DATA

TO VS25      TO OAK RIDGE

ROAD NAME	SR 170								
ROAD DIRECTION	→	←							
AUTOS	146	310							
MEDIUM TRUCKS	0	3							
HEAVY TRUCKS	4	3							
BUSES	0	0							
MOTORCYCLES	4	2							
OBS. SPEED (MPH)	50	50							

## WEATHER DATA

TEMPERATURE (°F)	74°
CLOUD COVER	SUNNY
WIND SPEED (MPH)	7
WIND DIRECTION	SW
WET PAVEMENT (Y/N)	N
REL HUMIDITY (%)	19%

## NOISE SOURCE DATA

MAJOR	SR 170
BACKGROUND	

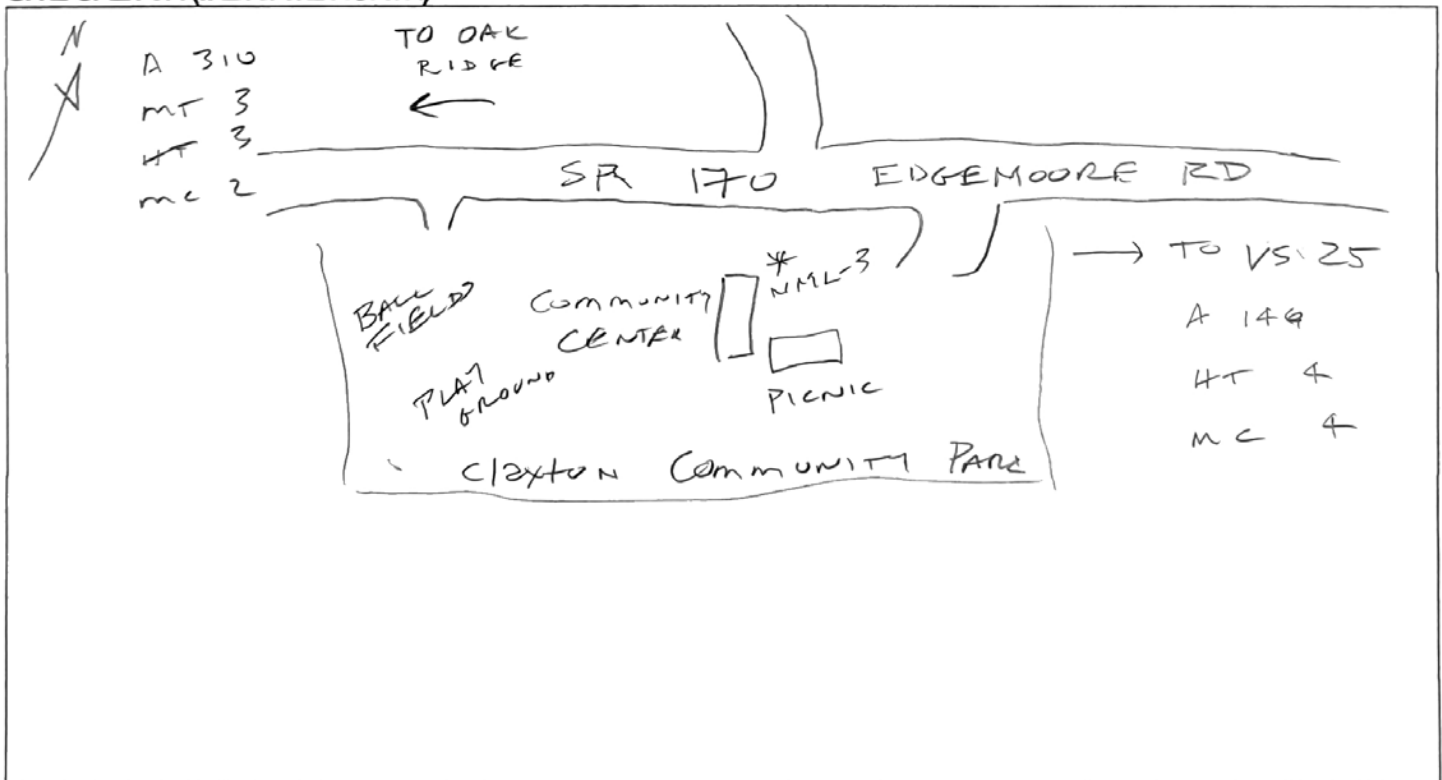
## SLM DATA

SLM DATA	NML-3
CALIBRATION LEVEL	114 dB(A)
FILE NAME	Auto_0012

## VALIDATION

FIELD MEASUREMENT	TNM PREDICTION	Δ	VALIDATES?
NML-3	56.9	0.8	✓

## SITE SKETCH (INDICATE NORTH)



# NOISE MEASUREMENT FIELD DATA SHEET

## GENERAL INFORMATION

PROJECT NAME	SR 170 Widening from near Melton Lake Drive to SR-9 (US-25W, Clinton Highway) (IA)(TMA) Anderson County, TN	OBSERVER(S)	MMM, FRC
PIN#	124121.02	DATE	03/11/25
SITE ID	NML-6	DURATION	20 min
		LAND USE(S)	RESIDENTIAL

## TRAFFIC DATA

ROAD NAME	SR 170						
ROAD DIRECTION	→	←					
AUTOS	344	165					
MEDIUM TRUCKS	2	2					
HEAVY TRUCKS	8	5					
BUSES	0	0					
MOTORCYCLES	2	1					
OBS. SPEED (MPH)	50	50					

## WEATHER DATA

TEMPERATURE (°F)	74°
CLOUD COVER	SUNNY
WIND SPEED (MPH)	7
WIND DIRECTION	SSW
WET PAVEMENT (Y/N)	N
REL HUMIDITY (%)	18%

## NOISE SOURCE DATA

MAJOR	SR 170
BACKGROUND	

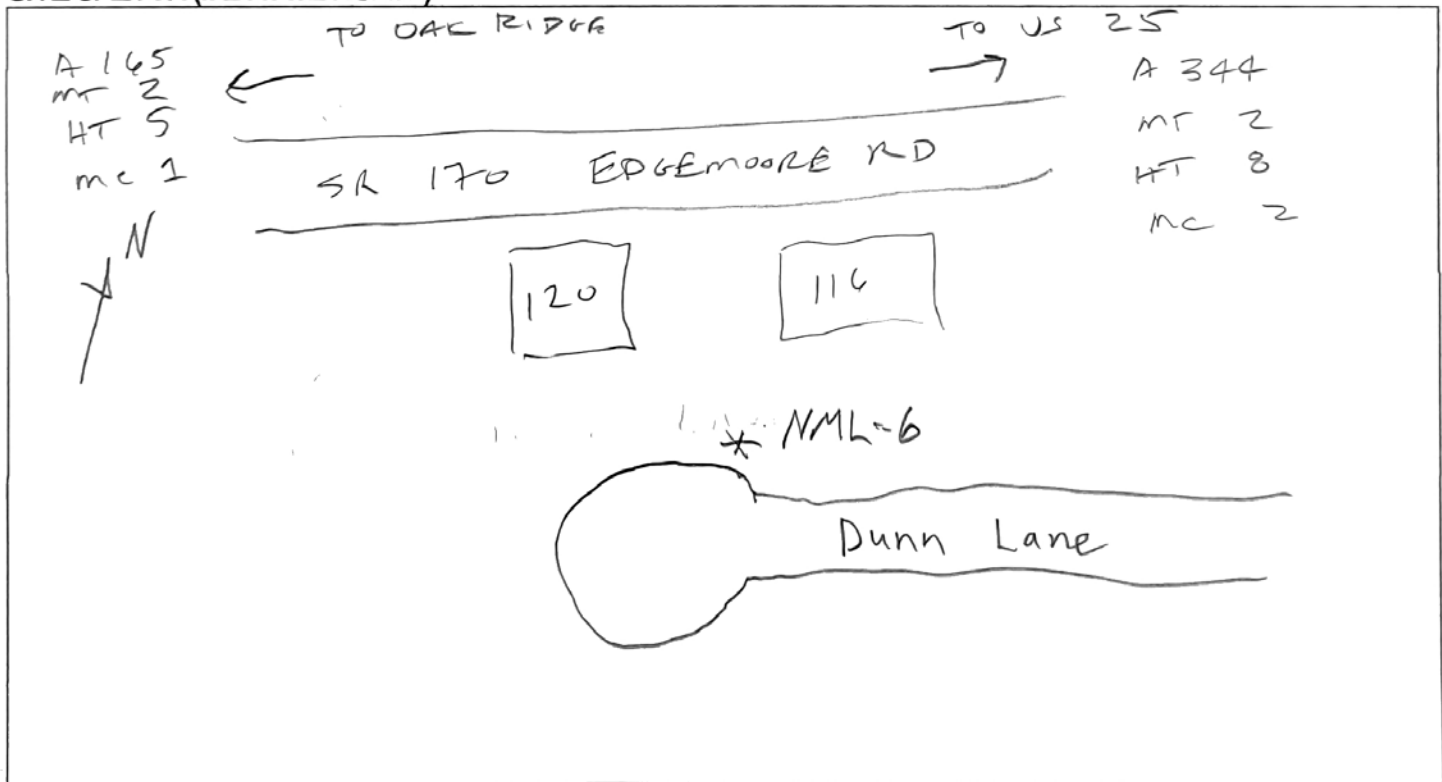
## SLM DATA

NML-6	
CALIBRATION LEVEL	114 dB(A)
FILE NAME	Auto_0013

## VALIDATION

FIELD MEASUREMENT	TNM PREDICTION	Δ	VALIDATES?	
NML-6	55.7	58.0	2.3	✓

## SITE SKETCH (INDICATE NORTH)





# NOISE MEASUREMENT FIELD DATA SHEET

## GENERAL INFORMATION

PROJECT NAME	SR 170 Widening from near Melton Lake Drive to SR-9 (US-25W, Clinton Highway) (IA)(TMA) Anderson County, TN	OBSERVER(S)	MMM, FRC
PIN#	124121.02	DATE	03/10/15
SITE ID	NML-7	DURATION	20 min
		TIME PERIOD	4:47
		LAND USE(S)	RESIDENTIAL

## TRAFFIC DATA

SR 170 TO 25W

ROAD NAME	ROAD DIRECTION	AUTOS	MEDIUM TRUCKS	HEAVY TRUCKS	BUSES	MOTORCYCLES	OBS. SPEED (MPH)
SR 170	→ ←	151 343	2 2	2 2	0 1	1 1	50 50

## WEATHER DATA

TEMPERATURE (°F)	65°
CLOUD COVER	Sunny
WIND SPEED (MPH)	4
WIND DIRECTION	N
WET PAVEMENT (Y/N)	N
REL HUMIDITY (%)	15%

## NOISE SOURCE DATA

MAJOR	SR 170
BACKGROUND	

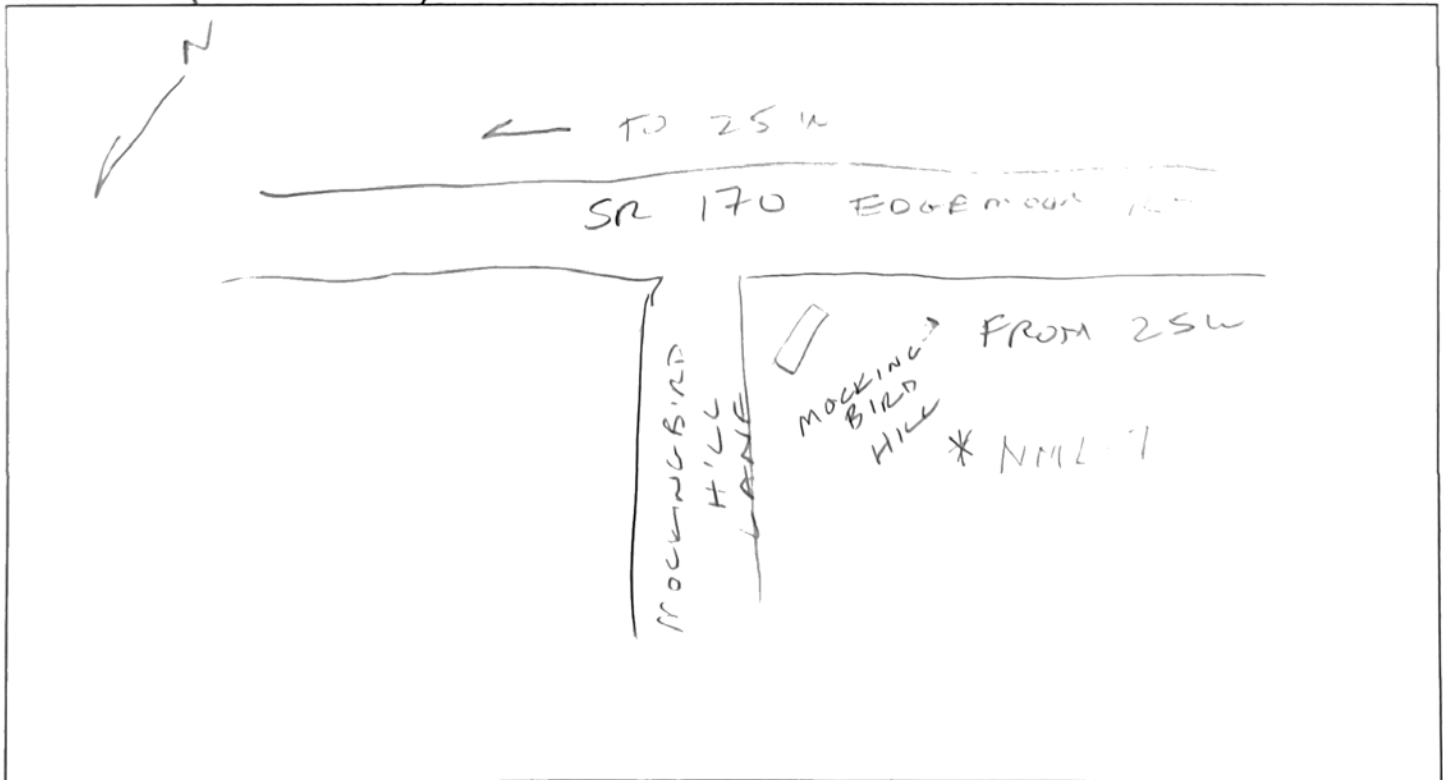
## SLM DATA

CALIBRATION LEVEL	NML-7
FILE NAME	114 dB(A)
	Auto_0004

## VALIDATION

FIELD MEASUREMENT	TNM PREDICTION	Δ	VALIDATES?	
NML-7	64.7	65.8	1.1	✓

## SITE SKETCH (INDICATE NORTH)



# NOISE MEASUREMENT FIELD DATA SHEET

## GENERAL INFORMATION

PROJECT NAME	SR 170 Widening from near Melton Lake Drive to SR-9 (US-25W, Clinton Highway) (IA)(TMA) Anderson County, TN	OBSERVER(S)	MMM, FRC
PIN#	124121.02	DATE	03/10/25
SITE ID	NML- 8	DURATION	20 min
		TIME PERIOD	4:05
		LAND USE(S)	CEMETERY

## TRAFFIC DATA

FROM 25W TO 25W

ROAD NAME	SR 170								
ROAD DIRECTION	→	←							
AUTOS	170	331							
MEDIUM TRUCKS	0	7							
HEAVY TRUCKS	3	3							
BUSES	0	0							
MOTORCYCLES	0	1							
OBS. SPEED (MPH)	50	50							

## WEATHER DATA

TEMPERATURE (°F)	65
CLOUD COVER	SUNNY
WIND SPEED (MPH)	3
WIND DIRECTION	N
WET PAVEMENT (Y/N)	N
REL. HUMIDITY (%)	15%

## NOISE SOURCE DATA

MAJOR BACKGROUND	SR 170
------------------	--------

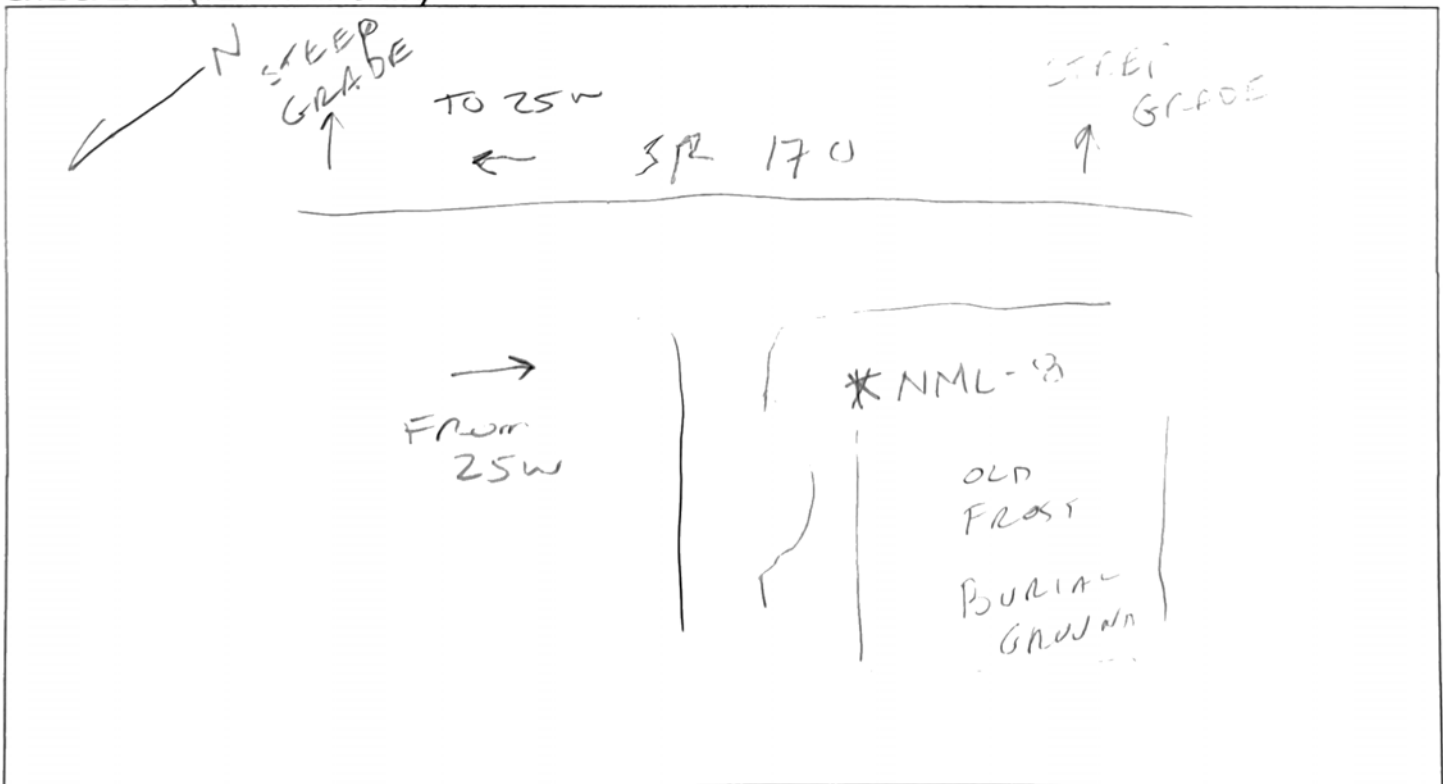
## SLM DATA

CALIBRATION LEVEL	114 dB(A)
FILE NAME	Auto_0003

## VALIDATION

VALIDATION	FIELD MEASUREMENT	TNM PREDICTION	Δ	VALIDATES?
NML-8	68.4	67.8	-0.6	✓

## SITE SKETCH (INDICATE NORTH)



# NOISE MEASUREMENT FIELD DATA SHEET

## GENERAL INFORMATION

PROJECT NAME	SR 170 Widening from near Melton Lake Drive to SR-9 (US-25W, Clinton Highway) (IA)(TMA) Anderson County, TN	OBSERVER(S)	MMM, FRC
PIN#	124121.02	DATE	3/10/25
SITE ID	NML-9	DURATION	20 min
		TIME PERIOD	3:30
		LAND USE(S)	CEMETERY

## TRAFFIC DATA

To 25W From 25W

ROAD NAME	SR 170							
ROAD DIRECTION	←	→						
AUTOS	269	146						
MEDIUM TRUCKS	6	3						
HEAVY TRUCKS	5	2						
BUSES	1	0						
MOTORCYCLES	2	1						
OBS. SPEED (MPH)	50	50						

## WEATHER DATA

TEMPERATURE (°F)	64°
CLOUD COVER	PARTLY
WIND SPEED (MPH)	5
WIND DIRECTION	N
WET PAVEMENT (Y/N)	N
REL HUMIDITY (%)	17%

## NOISE SOURCE DATA

MAJOR	SR 170
BACKGROUND	

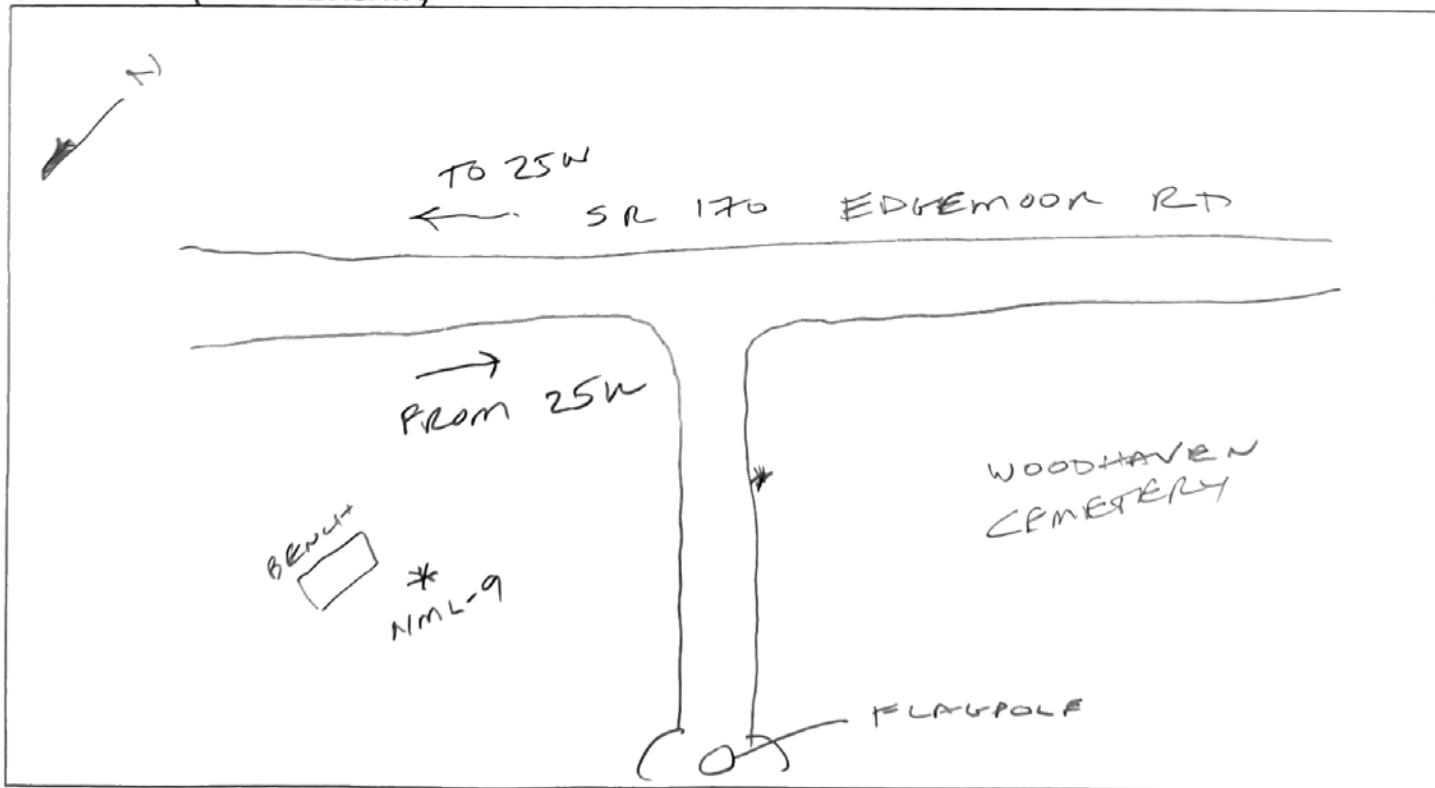
## SLM DATA

NML-9	
CALIBRATION LEVEL	114 dB(A)
FILE NAME	Auto_0002

## VALIDATION

FIELD MEASUREMENT	TNM PREDICTION	Δ	VALIDATES?
NML-9	58.0	0.0	✓

## SITE SKETCH (INDICATE NORTH)



# NOISE MEASUREMENT FIELD DATA SHEET

## GENERAL INFORMATION

PROJECT NAME	SR 170 Widening from near Melton Lake Drive to SR-9 (US-25W, Clinton Highway) (IA)(TMA) Anderson County, TN	OBSERVER(S)	MMM, FRC
PIN #	124121.02	DATE	3/10/25
SITE ID	NML-10	DURATION	20 min
		TIME PERIOD	2:52
		LAND USE(S)	School

## TRAFFIC DATA to 25W from 25W

ROAD NAME	SR 170								
ROAD DIRECTION	←	→							
AUTOS	178	139							
MEDIUM TRUCKS	4	3							
HEAVY TRUCKS	3	4							
BUSES	1	0							
MOTORCYCLES	1	1							
OBS. SPEED (MPH)	50	50							

## WEATHER DATA

TEMPERATURE (°F)	64°
CLOUD COVER	PARTLY
WIND SPEED (MPH)	5
WIND DIRECTION	ENE
WET PAVEMENT (Y/N)	N
REL HUMIDITY (%)	17%

## NOISE SOURCE DATA

MAJOR	SR 170	25W MOTORCYCLES
BACKGROUND		

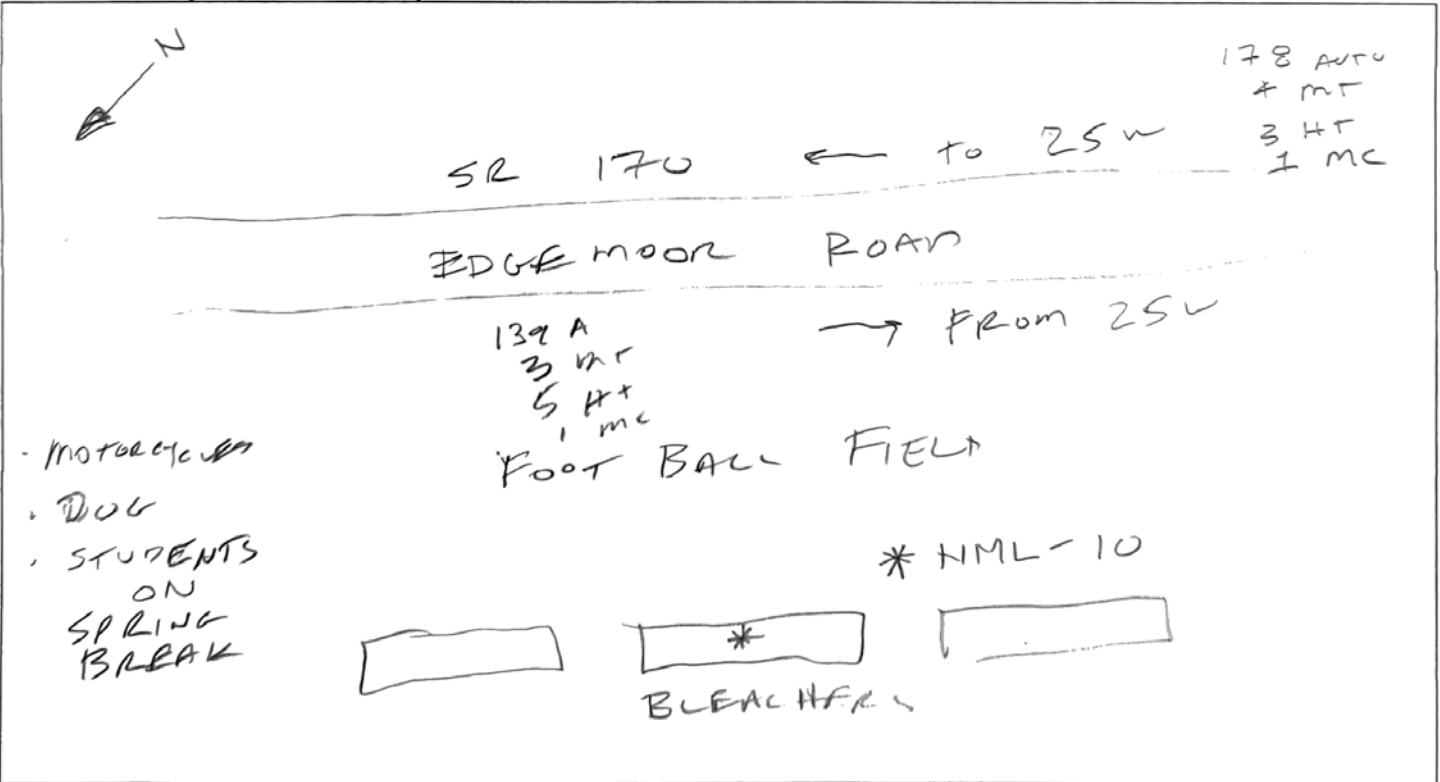
## SLM DATA

NML-10	
CALIBRATION LEVEL	114 dB(A)
FILE NAME	Auto_0001

## VALIDATION

FIELD MEASUREMENT	TNM PREDICTION	Δ	VALIDATES?	
NML-10	52.5	54.5	2.0	✓

## SITE SKETCH (INDICATE NORTH)



## Calibration Certificate No.52481

Instrument: **Sound Level Meter**  
Model: **NL52**  
Manufacturer: **Rion**  
Serial number: **00253710**  
Tested with: **Microphone UC-59 s/n 25723**  
**Preamplifier NH25 s/n 43740**  
Type (class): **1**  
Customer: **Scantek, Inc.**  
Tel/Fax: **410-290-7726 / 410-290-9167**

Date Calibrated: **2/27/2025** Cal Due: **2/27/2026**  
Status: 

	<b>Received</b>	<b>Sent</b>
In tolerance:	<b>X</b>	<b>X</b>
Out of tolerance:		

  
See comments:  
Contains non-accredited tests:  Yes  No  
Calibration service:  Basic  Standard  
Address: **6430 Dobbin Road, Suite C,  
Columbia, MD 21045**

Tested in accordance with the following procedures and standards:  
Calibration of Sound Level Meters, Scantek Inc., Rev. 6/26/2015  
SLM & Dosimeters – Acoustical Tests, Scantek Inc., Rev. 7/6/2011

Instrumentation used for calibration: Nor-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence	Cal. Due
				Cal. Lab / Accreditation	
483B-Norsonic	SME Cal Unit	31052	Nov 14, 2024	Scantek, Inc./ NVLAP	Nov 14, 2025
DS-360-SRS	Function Generator	88077	Jan 7, 2025	ACR Env./ A2LA	Jan 7, 2026
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	May 1, 2024	ACR Env. / A2LA	May 1, 2025
PTU300-Vaisala	Environmental Monitor	P5011262	Sept 27, 2024	ACR Env./ A2LA	Sept 27, 2025
PC Program 1019 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
1251-Norsonic	Calibrator	30878	Oct 7, 2024	Scantek, Inc./ NVLAP	Oct 7, 2025

Instrumentation and test results are traceable to SI (International System of Units) through standards maintained by NIST (USA) and NPL (UK).

**Environmental conditions:**

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
22.7	99.01	42.1

Calibrated by:	Heitor Presser	Authorized signatory:	Ed Okorn
Signature	<i>Heitor Presser</i>	Signature	<i>Ed Okorn</i>
Date	2/27/2025	Date	2-26-2025

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**Results summary:** Device complies with following clauses of mentioned specifications:

CLAUSES <sup>1</sup> FROM IEC/ANSI STANDARDS REFERENCED IN PROCEDURES:	RESULT <sup>2,3</sup>	EXPANDED UNCERTAINTY (coverage factor 2) [dB]
INDICATION AT THE CALIBRATION CHECK FREQUENCY - IEC61672-3 ED.2 CLAUSE 10	Passed	0.15
SELF-GENERATED NOISE - IEC 61672-3 ED.2 CLAUSE 11	*Passed	0.30
FREQUENCY WEIGHTINGS: A NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	0.20
FREQUENCY WEIGHTINGS: C NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	0.20
FREQUENCY WEIGHTINGS: Z NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	0.20
FREQUENCY AND TIME WEIGHTINGS AT 1 KHZ IEC 61672-3 ED.2.0 CLAUSE 14	Passed	0.20
LEVEL LINEARITY ON THE REFERENCE LEVEL RANGE - IEC 61672-3 ED.2 CLAUSE 16	Passed	0.25
TONEBURST RESPONSE - IEC 61672-3 ED.2.0 CLAUSE 18	Passed	0.30
PEAK C SOUND LEVEL - IEC 61672-3 ED.2.0 CLAUSE 19	Passed	0.35
OVERLOAD INDICATION - IEC 61672-3 ED.2.0 CLAUSE 20	Passed	0.25
HIGH LEVEL STABILITY TEST - IEC 61672-3 ED.2.0 CLAUSE 21	Passed	0.1
LONG TERM STABILITY TEST - IEC 61672-3 ED.2.0 CLAUSE 15	Passed	0.1
COMBINED ELECTRICAL AND ACOUSTICAL TEST - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	See test report

- 1 The results of this calibration apply only to the instrument type with serial number identified in this report.
- 2 Parameters are certified at actual environmental conditions.
- 3 The tests marked with (\*) are not covered by the current NVLAP accreditation.

**Comments:** The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3, for the environmental conditions under which the tests were performed. As public evidence was available, from an independent testing organization responsible for approving the results of pattern evaluation tests performed in accordance with IEC 61672-2, to demonstrate that the model of sound level meter fully conforms to the requirements in the IEC 61672-2, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1.

**Note:** The instrument was tested for the parameters listed in the table above, using the test methods described in the listed standards. All tests were performed around the reference conditions. The test results were compared with the manufacturer's or with the standard's specifications, whichever are larger. The measurement results are reported as Pass / Fail simple acceptance; measured values are in the tolerance interval.

**Tests made with the following attachments to the instrument:**

Microphone: Rion UC-59 s/n 25723 for acoustical test
Preamplifier: Rion NH25 s/n 43740 for all tests
Other: line adaptor ADP005 (18pF) for electrical tests
Accompanying acoustical calibrator: none
Windscreen: Rion WS-10

**Measured Data:** in Test Report # 52481 of 7 +1 pages.

**Place of Calibration:** Scantek, Inc.  
6430 Dobbin Road, Suite C  
Columbia, MD 21045 USA

Ph/Fax: 410-290-7726/ -9167  
[callab@scantekinc.com](mailto:callab@scantekinc.com)

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## Calibration Certificate No.52482

**Instrument:** Microphone  
**Model:** UC-59  
**Manufacturer:** Rion  
**Serial number:** 25723  
**Composed of:**

**Date Calibrated:** 2/25/2025 **Cal Due:** 02/25/2026  
**Status:**

	Received	Sent
<b>In tolerance:</b>	X	X
<b>Out of tolerance:</b>		
<b>See comments:</b>		

**Contains non-accredited tests:**  Yes  No

**Customer:** Scantek, Inc.  
**Tel/Fax:** 410-290-7726/410-290-9167

**Address:** 6430 Dobbin Road, Suite C,  
Columbia, MD 21045

**Tested in accordance with the following procedures and standards:**

Calibration of Measurement Microphones, Scantek, Inc., Rev. 2/25/2015

**Instrumentation used for calibration:** N-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence	Cal. Due
				Cal. Lab / Accreditation	
483B-Norsonic	SME Cal Unit	31052	Nov 14, 2024	Scantek, Inc./ NVLAP	Nov 14, 2025
DS-360-SRS	Function Generator	88077	Jan 7, 2025	ACR Env./ A2LA	Jan 7, 2026
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	May 1, 2024	ACR Env. / A2LA	May 1, 2025
PTU300-Vaisala	EnvironmentalMonitor	P5011262	Sept 27, 2024	ACR Env./ A2LA	Sept 27, 2025
PC Program 1017 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
1253-Norsonic	Calibrator	28326	Oct 7, 2024	Scantek, Inc./ NVLAP	Oct 7, 2025
1203-Norsonic	Preamplifier	14059	March 7, 2024	Scantek, Inc./ NVLAP	March 7, 2025
4180-Brüel&Kjær	Microphone	2246115	Dec 11, 2023	DPLA / DANAK	Dec 11, 2025

**Instrumentation and test results are traceable to SI - BIPM through standards maintained by NPL (UK) and NIST (USA)**

<b>Calibrated by:</b>	Heitor Presser	<b>Authorized signatory:</b>	Ed Okorn
Signature	<i>Heitor Presser</i>	Signature	<i>Ed Okorn</i>
Date	02/25/2025	Date	2-20-2025

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**Results summary:** Device was tested and complies with following clauses of mentioned specifications:

CLAUSES / METHODS <sup>1</sup> FROM PROCEDURES		MET <sup>2,3</sup>	NOT MET	NOT TESTED	MEASUREMENT EXPANDED UNCERTAINTY (coverage factor 2)
Open circuit sensitivity (insert voltage method, 250 Hz)		X			See below
Frequency response	Actuator response	X			63 – 200Hz: 0.3 dB 200 – 8000 Hz: 0.2 dB 8 – 10 kHz: 0.5 dB 10 – 20 kHz: 0.7 dB 20 – 50 kHz: 0.9 dB 50 – 100 kHz: 1.2 dB
	FF/Diffuse field responses	X			63 – 200Hz: 0.3 dB 200 – 4000 Hz: 0.2 dB 4 – 10 kHz: 0.6 dB 10 – 20 kHz: 0.9 dB 20 – 50 kHz: 2.2 dB 50 – 100 kHz: 4.4 dB
	Scantek, Inc. acoustical method			X	31.5 – 125 Hz: 0.16 dB 250, 1000 Hz: 0.12 dB 2 – 8 kHz: 0.8 dB 12.5 – 16 kHz: 2.4 dB

<sup>1</sup> The results of this calibration apply only to the instrument type with serial number identified in this report.

<sup>2</sup> Parameters are certified at actual environmental conditions.

<sup>3</sup> The tests marked with (\*) are not covered by the current NVLAP accreditation.

*Note:* The free field/diffuse field characteristics were calculated based on the measured actuator response and adjustment coefficients as provided by the manufacturer. The measurement results are reported as Pass / Fail simple acceptance; measured values are in the tolerance interval.

**Comments:** The instrument was tested and met all specifications found in the referenced procedures.

**Environmental conditions:**

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
22.9 ± 1.0	99.34 ± 0.020	40.2 ± 2.0

**Main measured parameters:**

Tone frequency (Hz)	Measured <sup>4</sup> /Acceptable Open circuit sensitivity (dB re 1V/Pa)	Sensitivity (mV/Pa)
250	-26.69 ± 0.12/ 27.0 ± 2.0	46.30

<sup>4</sup> The reported expanded uncertainty is calculated with a coverage factor k=2.00

**Tests made with following attachments to instrument and auxiliary devices:**

Protection grid mounted for sensitivity measurements
Actuator type: G.R.A.S. RA0014

**Measured Data:** Found on Microphone Test Report # 52482 of one page.

**Place of Calibration: Scantek, Inc.**

6430 Dobbin Road, Suite C  
Columbia, MD 21045 USA

Ph/Fax: 410-290-7726/ -9167  
[callab@scantekinc.com](mailto:callab@scantekinc.com)

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**Results summary:** Device complies with following clauses of mentioned specifications:

CLAUSES <sup>1</sup> FROM IEC/ANSI STANDARDS REFERENCED IN PROCEDURES:	RESULT <sup>2,3</sup>	EXPANDED UNCERTAINTY (coverage factor 2) [dB]
INDICATION AT THE CALIBRATION CHECK FREQUENCY - IEC61672-3 ED.2 CLAUSE 10	Passed	0.15
SELF-GENERATED NOISE - IEC 61672-3 ED.2 CLAUSE 11	*Passed	0.3
ACOUSTICAL TEST OF A FREQUENCY WEIGHTING - IEC 61672-3 ED.2.0 CLAUSE 12	Passed	0.3
FREQUENCY WEIGHTINGS: A NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	0.2
FREQUENCY WEIGHTINGS: C NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	0.2
FREQUENCY WEIGHTINGS: Z NETWORK - IEC 61672-3 ED.2.0 CLAUSE 13	Passed	0.2
FREQUENCY AND TIME WEIGHTINGS AT 1 KHZ IEC 61672-3 ED.2.0 CLAUSE 14	Passed	0.2
LEVEL LINEARITY ON THE REFERENCE LEVEL RANGE - IEC 61672-3 ED.2 CLAUSE 16	Passed	0.25
TONEBURST RESPONSE - IEC 61672-3 ED.2.0 CLAUSE 18	Passed	0.3
PEAK C SOUND LEVEL - IEC 61672-3 ED.2.0 CLAUSE 19	Passed	0.35
OVERLOAD INDICATION - IEC 61672-3 ED.2.0 CLAUSE 20	Passed	0.25
HIGH LEVEL STABILITY TEST - IEC 61672-3 ED.2.0 CLAUSE 21	Passed	0.1
LONG TERM STABILITY TEST - IEC 61672-3 ED.2.0 CLAUSE 15	Passed	0.1

1 The results of this calibration apply only to the instrument type with serial number identified in this report.

2 Parameters are certified at actual environmental conditions.

3 The tests marked with (\*) are not covered by the current NVLAP accreditation.

**Comments:** The sound level meter submitted for testing has successfully completed the class 2 periodic tests of IEC 61672-3, for the environmental conditions under which the tests were performed. However, No general statement or conclusion can be made about conformance of the sound level meter to the full requirements of IEC 61672-1 because evidence was not publicly available, from an independent testing organization responsible for pattern approvals, to demonstrate that the model of sound level meter fully conforms to the requirements of IEC 61672-1:2002, and because the periodic tests of IEC 61672-3 cover only a limited subset of the specifications in IEC 61672-1.

**Note:** The instrument was tested for the parameters listed in the table above, using the test methods described in the listed standards. All tests were performed around the reference conditions. The test results were compared with the manufacturer's or with the standard's specifications, whichever are larger. The measurement results are reported as Pass / Fail simple acceptance; measured values are in the tolerance interval.

**Tests made with the following attachments to the instrument:**

Microphone:	Rion UC52 s/n 139853 for acoustical test
Preamplifier:	Rion NH24 s/n 11523 for all tests
Other:	line adaptor ADP005 (18pF) for electrical tests
Accompanying acoustical calibrator:	none
Windscreen:	Rion WS-10

**Measured Data:** in Test Report # 52485 of 7 +1 pages.

**Place of Calibration: Scantek, Inc.**  
6430 Dobbin Road, Suite C  
Columbia, MD 21045 USA

Ph/Fax: 410-290-7726/ -9167  
callab@scantekinc.com

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**Scantek, Inc.**

CALIBRATION LABORATORY

ISO 17025: 2017, ANSI/NCCL Z540:1994 Part 1  
ACCREDITED by NVLAP (an ILAC MRA signatory)



# Calibration Certificate No.51423

**Instrument:** Acoustical Calibrator  
**Model:** NC-74  
**Manufacturer:** Rion  
**Serial number:** 35078717  
**Class (IEC 60942):** 1  
**Barometer type:**  
**Barometer s/n:**  
**Customer:** Scantek, Inc.  
**Tel/Fax:** 410-290-7726 / 410-290-9167

**Date Calibrated:** 5/30/2024 **Cal Due:** 5/30/2025  
**Status:**

	Received	Sent
<b>In tolerance:</b>	X	X
<b>Out of tolerance:</b>		
<b>See comments:</b>		

**Contains non-accredited tests:**  Yes  No

**Address:** 6430 Dobbin Road, Suite C,  
Columbia, MD 21045

**Tested in accordance with the following procedures and standards:**  
Calibration of Acoustical Calibrators, Scantek Inc., Rev. 10/1/2010

**Instrumentation used for calibration:** Nor-1504 Norsonic Test System:

Instrument - Manufacturer	Description	S/N	Cal. Date	Traceability evidence	Cal. Due
				Cal. Lab / Accreditation	
483B-Norsonic	SME Cal Unit	31052	Nov 10, 2023	Scantek, Inc./ NVLAP	Nov 10, 2024
DS-360-SRS	Function Generator	88077	Dec 21, 2022	ACR Env./ A2LA	Dec 21, 2024
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	May 1, 2024	ACR Env. / A2LA	May 1, 2025
PTU300-Vaisala	Environmental Monitor	P5011262	Sept 20, 2023	ACR Env./ A2LA	Sept 20, 2024
140-Norsonic	Real Time Analyzer	1406423	Nov 10, 2023	Scantek / NVLAP	Nov 10, 2024
PC Program 1018 Norsonic	Calibration software	v.6.1T	Validated Nov 2014	Scantek, Inc.	-
4134-Brüel&Kjær	Microphone	173368	Jan 3, 2024	Scantek, Inc. / NVLAP	Jan 3, 2025
1203-Norsonic	Preamplifier	14059	March 7, 2024	Scantek, Inc./ NVLAP	March 7, 2025

**Instrumentation and test results are traceable to SI (International System of Units) through standards maintained by NIST (USA) and NPL (UK)**

<b>Calibrated by:</b>	Bailey Partoza	<b>Authorized signatory:</b>	William Gallagher
Signature		Signature	
Date	5/30/24	Date	5/30/2024

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Document stored as: Y:\Calibration Lab\Cal 2024\RIONNC74-0.Sin\_35078717\_M1.doc Page 1 of 2

**Results summary:** Device was tested and complies with following clauses of mentioned specifications:

CLAUSES <sup>1</sup> FROM STANDARDS REFERENCED IN PROCEDURES:	MET <sup>2</sup>	NOT MET	COMMENTS
<b>Manufacturer specifications</b>			
Manufacturer specifications: Sound pressure level	X		
Manufacturer specifications: Frequency	X		
Manufacturer specifications: Total harmonic distortion	X		
<b>Current standards</b>			
ANSI S1.40:2006 B.3 / IEC 60942: 2003 B.2 - Preliminary inspection	X		
ANSI S1.40:2006 B.4.4 / IEC 60942: 2003 B.3.4 - Sound pressure level	X		
ANSI S1.40:2006 A.5.4 / IEC 60942: 2003 A.4.4 - Sound pressure level stability	-	-	
ANSI S1.40:2006 B.4.5 / IEC 60942: 2003 B.3.5 - Frequency	X		
ANSI S1.40:2006 B.4.6 / IEC 60942: 2003 B.3.6 - Total harmonic distortion	X		

<sup>1</sup> The results of this calibration apply only to the instrument type with serial number identified in this report.

<sup>2</sup> The tests marked with (\*) are not covered by the current NVLAP accreditation.

**Main measured parameters <sup>3</sup>:**

Measured <sup>4</sup> /Acceptable <sup>5</sup> Tone frequency (Hz):	Measured <sup>4</sup> /Acceptable <sup>5</sup> Total Harmonic Distortion (%):	Measured <sup>4</sup> /Acceptable Level <sup>5</sup> (dB):
1001.08 ± 1.0/1000.0 ± 10.0	1.06 ± 0.10/ < 3	94.16 ± 0.12/94.0 ± 0.4

<sup>3</sup> The stated level is valid at measurement conditions.

<sup>4</sup> The above expanded uncertainties for frequency and distortion are calculated with a coverage factor k=2; for level k=2.00

<sup>5</sup> Acceptable parameters values are from the current standards

**Environmental conditions:**

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)
23.4 ± 1.0	100.32 ± 0.000	45.5 ± 2.0

**Tests made with following attachments to instrument:**

Calibrator ½" Adaptor Type: NC-74-002
Other:

**Adjustments:** Unit was not adjusted.

**Comments:** The instrument was tested and met all specifications found in the referenced procedures.

*Note:* The instrument was tested for the parameters listed in the table above, using the test methods described in the listed standards. All tests were performed around the reference conditions. The test results were compared with the manufacturer's or with the standard's specifications, whichever are larger. The measurement results are reported as Pass / Fail simple acceptance; measured values are in the tolerance interval.

**Measured Data:** in Acoustical Calibrator Test Report # 51423 of one page.

**Place of Calibration:** Scantek, Inc.

6430 Dobbin Road, Suite C  
Columbia, MD 21045 USA

Ph/Fax: 410-290-7726/ -9167  
callab@scantekinc.com

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Document stored as: Y:\Calibration Lab\Cal 2024\RIONNC74-0.5in\_35078717\_M1.doc

Page 2 of 2

SR 170 Widening, PIN: 124121.02

From near Melton Lake Drive to SR-9 (US-25W, Clinton Highway) (IA)  
(TMA), Anderson County, TN

---

April 2025

**Appendix C**  
**Design Year Traffic Data**

SR 170 Noise Study AM Traffic Calculations	LOS C Capacity - 2029 NO BUILD	LOS C Capacity - 2049 BUILD	% Duals	% TTST	2029 No Build		2049 Build		2029 No Build PEAK DIRECTION			2029 No Build NON-PEAK DIRECTION			2049 Build PEAK DIRECTION			2049 Build NON-PEAK DIRECTION			Peak Direction	Speed Limit (mph)
					Peak Direction Hourly Volume	Non-Peak Direction Hourly Volume	Peak Direction Hourly Volume	Non-Peak Direction Hourly Volume	Autos	Duals	TTST	Autos	Duals	TTST	Autos	Duals	TTST	Autos	Duals	TTST		
<b>SR 170 Mainline</b>																						
SR 170 west of Melton Lake Dr	710	1740	2.5%	2.5%	1072	490	1394	638	675	18	18	466	12	12	1324	35	35	606	16	16	Westbound	55
SR 170 between Melton Lake Dr and TVA Entrance 1	728	1740	2.5%	2.5%	972	523	1264	680	692	18	18	497	13	13	1201	32	32	646	17	17	Westbound	50
SR 170 between TVA Entrance 1 and Walnut Valley Rd	710	1740	2.5%	2.5%	954	544	1241	706	675	18	18	517	14	14	1179	31	31	671	18	18	Westbound	50
SR 170 between Walnut Valley Rd and TVA Entrance 2	710	1740	2.5%	2.5%	954	543	1240	706	675	18	18	516	14	14	1178	31	31	671	18	18	Westbound	50
SR 170 between TVA Entrance 2 and Old Emory Rd	710	1740	2.5%	2.5%	953	500	1239	650	675	18	18	475	13	13	1177	31	31	618	16	16	Westbound	50
SR 170 between Old Emory Rd and Ozella Lane	710	1740	2.5%	2.5%	879	514	1142	668	675	18	18	488	13	13	1085	29	29	635	17	17	Westbound	50
SR 170 between Ozella Lane and New Henderson Rd	728	1784	2.5%	2.5%	878	506	1141	658	692	18	18	481	13	13	1084	29	29	625	16	16	Westbound	50
SR 170 between new Henderson Rd and Chesterfield Ln	710	1740	2.5%	2.5%	863	518	1122	673	675	18	18	492	13	13	1066	28	28	639	17	17	Westbound	50
SR 170 between Chesterfield Ln and Royal St	710	1740	2.5%	2.5%	891	507	1158	659	675	18	18	482	13	13	1100	29	29	626	16	16	Westbound	50
SR 170 between Royal St and Foust Carney Rd	710	1740	2.5%	2.5%	845	517	1100	672	675	18	18	491	13	13	1045	28	28	638	17	17	Westbound	50
SR 170 between Foust Carney Rd and Mooncrest Ln	710	1740	2.5%	2.5%	780	503	1014	654	675	18	18	478	13	13	963	25	25	621	16	16	Westbound	50
SR 170 between Mooncrest Ln and N Dogwood Rd	710	1740	2.5%	2.5%	862	491	1121	638	675	18	18	466	12	12	1065	28	28	606	16	16	Westbound	50
SR 170 between N Dogwood Rd and S Dogwood Rd	710	1740	2.5%	2.5%	872	497	1133	645	675	18	18	472	12	12	-	-	-	-	-	-	Westbound	50
SR 170 between S Dogwood Rd and Mockingbird Hill Ln	710	1740	2.5%	2.5%	884	503	1148	654	675	18	18	478	13	13	1091	29	29	621	16	16	Westbound	50
SR 170 between Mockingbird Hill Ln and Old Edgemoor Rd	710	1740	2.5%	2.5%	885	504	1151	655	675	18	18	479	13	13	1093	29	29	622	16	16	Westbound	50
SR 170 between Old Edgemoor Rd and Tori Kait Ln	710	1740	2.5%	2.5%	910	518	1183	674	675	18	18	492	13	13	1124	30	30	640	17	17	Westbound	50
SR 170 between Tori Kait Ln and Terisu Circle West	710	1740	2.5%	2.5%	916	521	1190	678	675	18	18	495	13	13	1131	30	30	644	17	17	Westbound	50
SR 170 between Terisu Circle West and Terisu Circle East	710	1740	2.5%	2.5%	918	523	1193	679	675	18	18	497	13	13	1133	30	30	645	17	17	Westbound	50
SR 170 between Terisu Circle East and Coconut Ln	710	1740	2.5%	2.5%	920	524	1197	682	675	18	18	498	13	13	1137	30	30	648	17	17	Westbound	50
SR 170 east of Coconut Ln	710	1740	2.5%	2.5%	926	528	1205	686	675	18	18	502	13	13	1145	30	30	652	17	17	Westbound	50
SR 170 east of SR 9	746	746	3.0%	3.0%	284	103	369	133	267	9	9	97	3	3	347	11	11	125	4	4	Westbound	50
<b>MAJOR -Y- LINES</b>																						
Melton Lake Dr	347	525	2.0%	2.0%	611	478	794	622	333	7	7	333	7	7	504	11	11	504	11	11	Southbound	40
Lakeview Circle	330	330	3.0%	3.0%	2	1	2	2	2	0	0	1	0	0	2	0	0	2	0	0	Southbound	20
Walnut Valley Rd	330	330	1.0%	1.0%	11	8	15	11	11	0	0	8	0	0	15	0	0	11	0	0	Southbound	25
TVA Entrance East	347	347	9.0%	9.0%	4	3	5	4	3	0	0	2	0	0	4	0	0	3	0	0	Southbound	20
Old Emory Rd	347	347	1.5%	1.5%	110	22	143	28	107	2	2	21	0	0	139	2	2	27	0	0	Southbound	40
Ozella Lane	330	347	3.5%	3.5%	10	7	13	10	9	0	0	7	0	0	12	0	0	9	0	0	Southbound	25
New Henderson Rd	330	330	2.0%	2.0%	50	23	64	30	48	1	1	22	0	0	61	1	1	29	1	1	Northbound	35
Chesterfield Ln	330	330	1.5%	1.5%	17	12	23	16	16	0	0	12	0	0	22	0	0	16	0	0	Southbound	25
Royal St	330	330	1.0%	1.0%	17	12	22	16	17	0	0	12	0	0	22	0	0	16	0	0	Northbound	5
Foust Carney Rd north of SR 170	330	330	1.0%	1.0%	60	24	78	31	59	1	1	24	0	0	76	1	1	30	0	0	Southbound	30
Foust Carney Rd south of SR 170	330	330	0.5%	0.5%	17	2	23	2	17	0	0	2	0	0	23	0	0	2	0	0	Northbound	25
Mooncrest Ln	330	330	1.5%	1.5%	20	15	27	19	19	0	0	15	0	0	26	0	0	18	0	0	Northbound	10
N Dogwood Rd	330	347	1.5%	1.5%	30	21	38	28	29	0	0	20	0	0	37	1	1	27	0	0	Southbound	20
S Dogwood Rd	330	347	1.0%	1.0%	31	22	41	29	30	0	0	22	0	0	40	0	0	28	0	0	Northbound	25
Mockingbird Hill Ln	330	330	2.5%	2.5%	7	5	9	7	7	0	0	5	0	0	9	0	0	7	0	0	Southbound	25
Old Edgemoor Rd between SR 170 and Fraker Ln	330	330	0.5%	0.5%	27	20	35	25	27	0	0	20	0	0	35	0	0	25	0	0	Northbound	30
Old Edgemoor Rd south of Fraker Ln	330	330	0.5%	0.5%	24	17	31	22	24	0	0	17	0	0	31	0	0	22	0	0	Northbound	30
Fraker Ln	330	330	1.5%	1.5%	4	3	6	4	4	0	0	3	0	0	6	0	0	4	0	0	Northbound	20
Tori Kait Ln	330	330	1.5%	1.5%	17	12	22	16	16	0	0	12	0	0	21	0	0	16	0	0	Southbound	25
Terisu Circle West	330	330	2.0%	2.0%	6	4	8	6	6	0	0	4	0	0	8	0	0	6	0	0	Northbound	25
Terisu Circle East	330	330	2.0%	2.0%	8	6	10	7	8	0	0	6	0	0	10	0	0	7	0	0	Northbound	25
Coconut Ln	330	330	0.5%	0.5%	21	15	27	19	21	0	0	15	0	0	27	0	0	19	0	0	Southbound	20
SR 9 north of SR 170	1827	1827	2.5%	2.5%	664	484	863	629	631	17	17	460	12	12	820	22	22	598	16	16	Southbound	50
SR 9 south of SR 170	1740	1740	1.5%	1.5%	748	587	972	762	726	11	11	569	9	9	943	15	15	739	11	11	Southbound	50

SR 170 Noise Study PM Traffic Calculations	LOS C Capacity - 2029 NO BUILD	LOS C Capacity - 2049 BUILD	% Duals	% TTST	2029 No Build		2049 Build		2029 No Build PEAK DIRECTION			2029 No Build NON-PEAK DIRECTION			2049 Build PEAK DIRECTION			2049 Build NON-PEAK DIRECTION			Peak Direction	Speed Limit (mph)
					Peak Direction Hourly Volume	Non-Peak Direction Hourly Volume	Peak Direction Hourly Volume	Non-Peak Direction Hourly Volume	Autos	Duals	TTST	Autos	Duals	TTST	Autos	Duals	TTST	Autos	Duals	TTST		
<b>SR 170 Mainline</b>																						
SR 170 west of Melton Lake Dr	710	1740	2.5%	2.5%	1053	704	1368	916	675	18	18	669	18	18	1300	34	34	870	23	23	Eastbound	55
SR 170 between Melton Lake Dr and TVA Entrance 1	728	1740	2.5%	2.5%	1362	813	1770	1057	692	18	18	692	18	18	1653	44	44	1004	26	26	Eastbound	50
SR 170 between TVA Entrance 1 and Walnut Valley Rd	710	1740	2.5%	2.5%	1374	803	1786	1043	675	18	18	675	18	18	1653	44	44	991	26	26	Eastbound	50
SR 170 between Walnut Valley Rd and TVA Entrance 2	710	1740	2.5%	2.5%	1373	802	1785	1043	675	18	18	675	18	18	1653	44	44	991	26	26	Eastbound	50
SR 170 between TVA Entrance 2 and Old Emory Rd	710	1740	2.5%	2.5%	1402	707	1823	919	675	18	18	672	18	18	1653	44	44	873	23	23	Eastbound	50
SR 170 between Old Emory Rd and Ozella Lane	710	1740	2.5%	2.5%	1315	716	1709	931	675	18	18	675	18	18	1624	43	43	884	23	23	Eastbound	50
SR 170 between Ozella Lane and New Henderson Rd	728	1784	2.5%	2.5%	1282	829	1666	1077	692	18	18	692	18	18	1583	42	42	1023	27	27	Eastbound	50
SR 170 between new Henderson Rd and Chesterfield Ln	710	1740	2.5%	2.5%	1273	831	1655	1080	675	18	18	675	18	18	1572	41	41	1026	27	27	Eastbound	50
SR 170 between Chesterfield Ln and Royal St	710	1740	2.5%	2.5%	1283	749	1667	974	675	18	18	675	18	18	1584	42	42	925	24	24	Eastbound	50
SR 170 between Royal St and Foust Carney Rd	710	1740	2.5%	2.5%	1284	711	1670	924	675	18	18	675	18	18	1587	42	42	878	23	23	Eastbound	50
SR 170 between Foust Carney Rd and Mooncrest Ln	710	1740	2.5%	2.5%	1222	689	1589	895	675	18	18	655	17	17	1510	40	40	850	22	22	Eastbound	50
SR 170 between Mooncrest Ln and N Dogwood Rd	710	1740	2.5%	2.5%	1242	725	1614	943	675	18	18	675	18	18	1533	40	40	896	24	24	Eastbound	50
SR 170 between N Dogwood Rd and S Dogwood Rd	710	1740	2.5%	2.5%	1256	734	1631	953	675	18	18	675	18	18	-	-	-	-	-	-	Eastbound	50
SR 170 between S Dogwood Rd and Mockingbird Hill Ln	710	1740	2.5%	2.5%	1272	743	1653	966	675	18	18	675	18	18	1570	41	41	918	24	24	Eastbound	50
SR 170 between Mockingbird Hill Ln and Old Edgemoor Rd	710	1740	2.5%	2.5%	1275	745	1657	968	675	18	18	675	18	18	1574	41	41	920	24	24	Eastbound	50
SR 170 between Old Edgemoor Rd and Tori Kait Ln	710	1740	2.5%	2.5%	1311	766	1704	995	675	18	18	675	18	18	1619	43	43	945	25	25	Eastbound	50
SR 170 between Tori Kait Ln and Terisu Circle West	710	1740	2.5%	2.5%	1319	770	1714	1001	675	18	18	675	18	18	1628	43	43	951	25	25	Eastbound	50
SR 170 between Terisu Circle West and Terisu Circle East	710	1740	2.5%	2.5%	1321	772	1718	1003	675	18	18	675	18	18	1632	43	43	953	25	25	Eastbound	50
SR 170 between Terisu Circle East and Coconut Ln	710	1740	2.5%	2.5%	1325	774	1724	1007	675	18	18	675	18	18	1638	43	43	957	25	25	Eastbound	50
SR 170 east of Coconut Ln	710	1740	2.5%	2.5%	1334	779	1735	1014	675	18	18	675	18	18	1648	43	43	963	25	25	Eastbound	50
SR 170 east of SR 9	746	746	3.0%	3.0%	464	220	603	286	436	14	14	207	7	7	567	18	18	269	9	9	Eastbound	50
<b>MAJOR -Y- LINES</b>																						
Melton Lake Dr	347	525	2.0%	2.0%	729	529	948	687	333	7	7	333	7	7	504	11	11	504	11	11	Southbound	40
Lakeview Circle	330	330	3.0%	3.0%	2	2	3	3	2	0	0	2	0	0	3	0	0	3	0	0	Northbound	20
Walnut Valley Rd	330	330	1.0%	1.0%	16	13	21	17	16	0	0	13	0	0	21	0	0	17	0	0	Northbound	25
TVA Entrance East	347	347	9.0%	9.0%	6	4	7	6	5	1	1	3	0	0	6	1	1	5	1	1	Northbound	20
Old Emory Rd	347	347	1.5%	1.5%	164	68	214	88	159	2	2	66	1	1	208	3	3	85	1	1	Northbound	40
Ozella Lane	330	347	3.5%	3.5%	14	11	19	15	13	0	0	10	0	0	18	1	1	14	1	1	Northbound	25
New Henderson Rd	330	330	2.0%	2.0%	103	92	134	120	99	2	2	88	2	2	129	3	3	115	2	2	Southbound	35
Chesterfield Ln	330	330	1.5%	1.5%	24	19	32	26	23	0	0	18	0	0	31	0	0	25	0	0	Northbound	25
Royal St	330	330	1.0%	1.0%	24	19	31	25	24	0	0	19	0	0	30	0	0	25	0	0	Southbound	5
Foust Carney Rd north of SR 170	330	330	1.0%	1.0%	83	48	108	63	81	1	1	47	0	0	106	1	1	62	1	1	Northbound	30
Foust Carney Rd south of SR 170	330	330	0.5%	0.5%	7	2	9	2	7	0	0	2	0	0	9	0	0	2	0	0	Southbound	25
Mooncrest Ln	330	330	1.5%	1.5%	28	23	37	30	27	0	0	22	0	0	36	1	1	29	0	0	Southbound	10
N Dogwood Rd	330	347	1.5%	1.5%	41	33	54	44	40	1	1	32	0	0	52	1	1	43	1	1	Northbound	20
S Dogwood Rd	330	347	1.0%	1.0%	44	35	57	46	43	0	0	34	0	0	56	1	1	45	0	0	Southbound	25
Mockingbird Hill Ln	330	330	2.5%	2.5%	10	8	13	11	10	0	0	8	0	0	12	0	0	10	0	0	Northbound	25
Old Edgemoor Rd between SR 170 and Fraker Ln	330	330	0.5%	0.5%	38	31	49	40	38	0	0	31	0	0	49	0	0	40	0	0	Southbound	30
Old Edgemoor Rd south of Fraker Ln	330	330	0.5%	0.5%	33	27	43	35	33	0	0	27	0	0	43	0	0	35	0	0	Southbound	30
Fraker Ln	330	330	1.5%	1.5%	6	5	9	7	6	0	0	5	0	0	9	0	0	7	0	0	Southbound	20
Tori Kait Ln	330	330	1.5%	1.5%	24	19	30	25	23	0	0	18	0	0	29	0	0	24	0	0	Northbound	25
Terisu Circle West	330	330	2.0%	2.0%	9	7	11	9	9	0	0	7	0	0	11	0	0	9	0	0	Southbound	25
Terisu Circle East	330	330	2.0%	2.0%	11	9	14	12	11	0	0	9	0	0	13	0	0	12	0	0	Southbound	25
Coconut Ln	330	330	0.5%	0.5%	29	23	38	31	29	0	0	23	0	0	38	0	0	31	0	0	Northbound	20
SR 9 north of SR 170	1827	1827	2.5%	2.5%	910	835	1183	1086	865	23	23	793	21	21	1124	30	30	1032	27	27	Northbound	50
SR 9 south of SR 170	1740	1740	1.5%	1.5%	1165	984	1515	1280	1130	17	17	954	15	15	1470	23	23	1242	19	19	Southbound	50

**TENNESSEE DEPARTMENT OF TRANSPORTATION  
PLANNING DIVISION**

PROJECT NO.: STP-170(16) : 01024-0224-14      ROUTE: S.R. 170  
 COUNTY: ANDERSON      CITY: CLAXTON  
 PROJECT PIN NUMBER: 124121.02  
 PROJECT DESCRIPTION: FROM WEST OF MELTON LAKE DRIVE TO S.R. 9.

[1] S.R. 170 AVERAGE TRAFFIC DATA

**DIVISION REQUESTING:**

MAINTENANCE	<input type="checkbox"/>	PAVEMENT DESIGN	<input type="checkbox"/>
ENGINEERING CONCEPTS	<input type="checkbox"/>	STRUCTURES	<input type="checkbox"/>
PROG. DEVELOPMENT & ADM.	<input type="checkbox"/>	SURVEY & ROADWAY DESIGN	<input type="checkbox"/>
PUBLIC TRANS. & AERO.	<input type="checkbox"/>	TRAFFIC SIGNAL DESIGN	<input type="checkbox"/>
		OTHER PROJECT MANAGE.	<input checked="" type="checkbox"/>

YEAR PROJECT PROGRAMMED FOR CONSTRUCTION: 2029  
 PROJECTED LETTING DATE: 2029

**TRAFFIC ASSIGNMENT:**

BASE YEAR		DESIGN YEAR					DESIGN ROADWAY % TRUCKS		DESIGN AVERAGE DAILY LOADS	
AADT	YEAR	AADT	DHV	%	YEAR	DIR.DIST.	DHV	AADT	FLEX	RIGID
19,530	2029	25,390	2,616	10	2049	55-45	3	5	361	527

REQUESTED BY: NAME JOHN SHERK      DATE 10/1/24  
 DIVISION REGION I PROJECT MANAGEMENT  
 ADDRESS 7345 REGION LANE  
KNOXVILLE TN 37914

REVIEWED BY: RANDY BOGUSKIE *Randy Boguskie*      DATE 12/13/2024  
 TRANSPORTATION MANAGER 1  
 SUITE 1000, JAMES K. POLK BUILDING

APPROVED BY: TONY ARMSTRONG *Tony Armstrong*      DATE 12/13/2024  
 TRANSPORTATION MANAGER 2  
 SUITE 1000, JAMES K. POLK BUILDING

**COMMENTS:**

FURNISH THE 2029-2049 TRAFFIC DATA AND ADL's FOR PAVEMENT DESIGN FOR A FIVE LANE ROADWAY.

THIS TRAFFIC IS BASED ON 2023 CYCLE COUNTS, [13] 8-HOUR TURNING MOVEMENT COUNTS [OCT. 2024].

THE DESIGN YEAR TRAFFIC IS BASED ON THE AVERAGE OF GROWTH RATES FROM THE KNOXVILLE TPO COMPUTER ASSIGNMENT MODEL. AADT's, DHV's AND ADL's ARE INCLUDED.

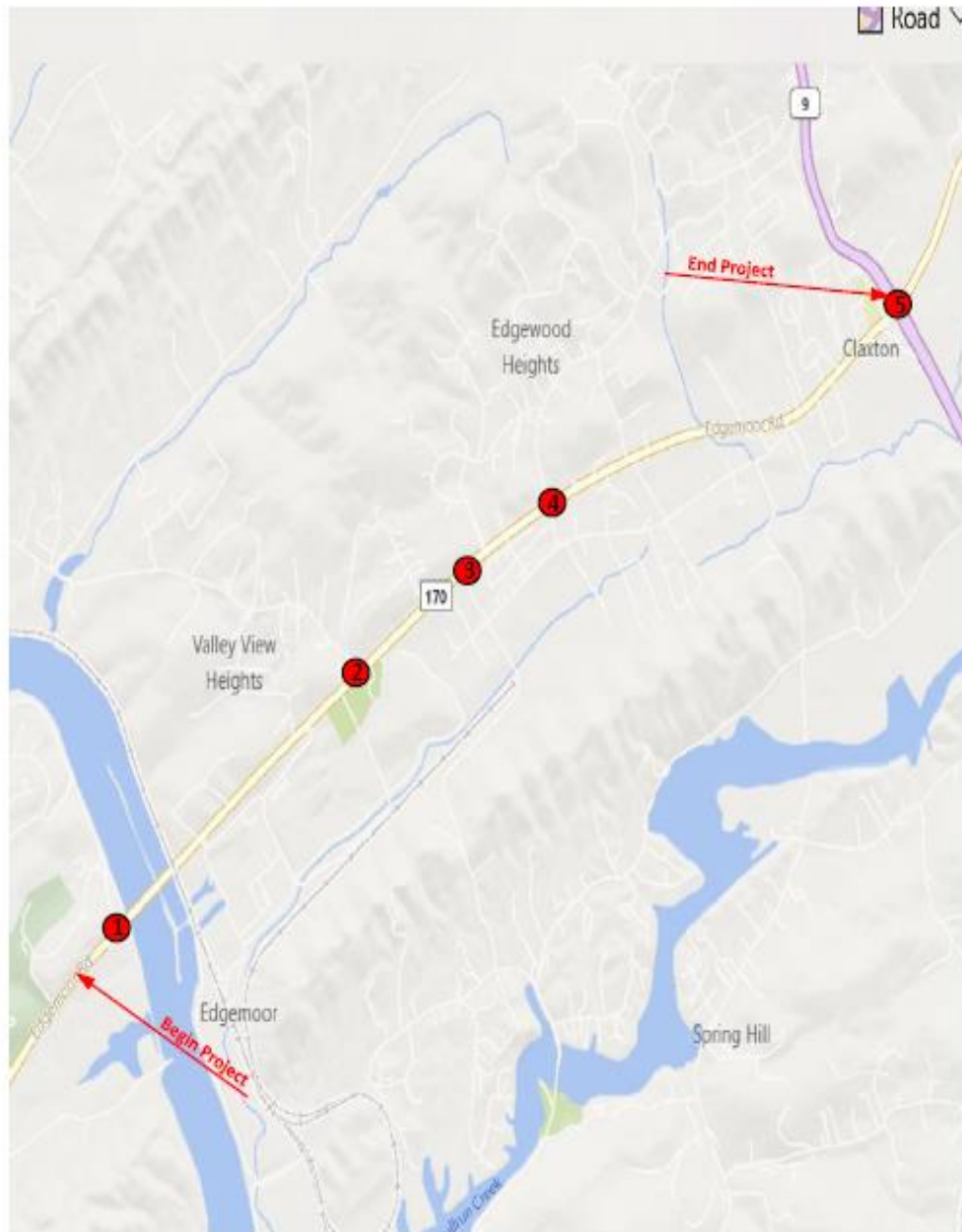
**DHV'S ARE NOT REQUIRED FOR SIDE ROADS LESS THAN 1000 AADT.**

**NOTE:** FOR BRIDGE REPLACEMENT PROJECTS, ADLs ARE NOT REQUIRED FOR ADT's OF 1000 OR LESS AND PERCENTAGE OF TRUCKS OF 7% OR LESS.

SEE ATTACHMENTS FOR TURNING MOVEMENTS AND/OR OTHER DETAILS.

(REV. 6/12/24)



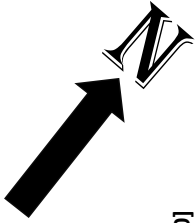


**Anderson County**

**Claxton**

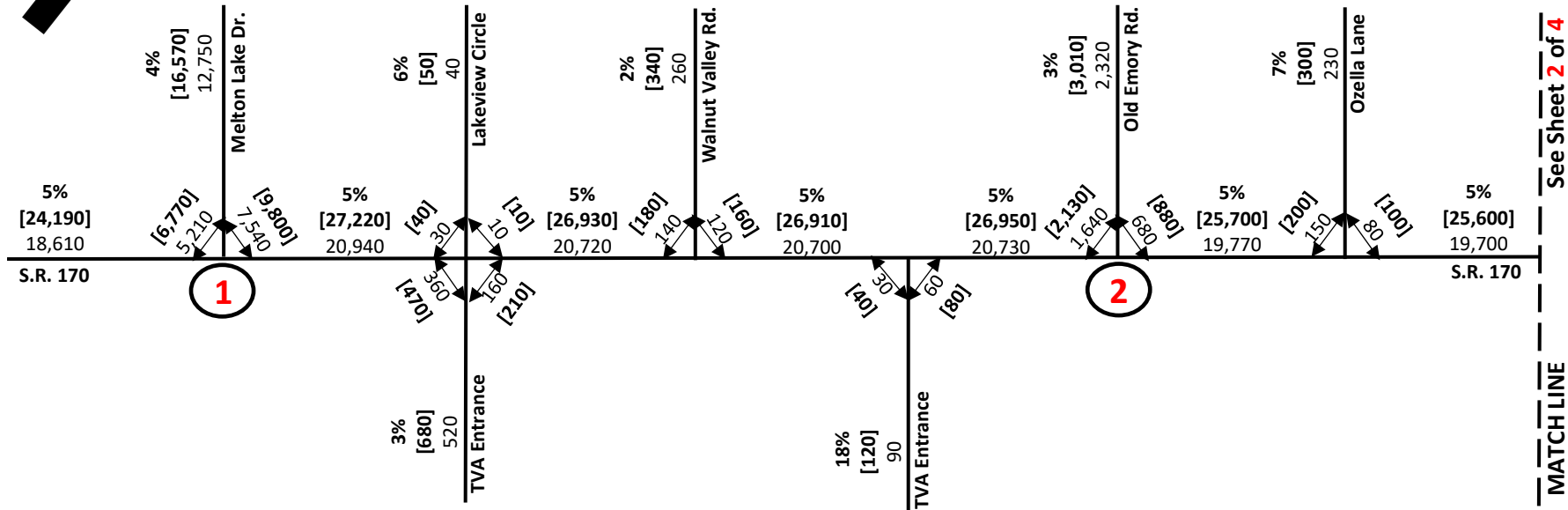
**S.R. 170**

**From West of Melton Lake Road to S.R. 9**



**AADT**

**Sheet 1 of 4**



### Anderson County S.R. 170

Legend:

2029 AADT - 000

2049 AADT - [000]

AADT Truck % - 0%

Date: November 4, 2024

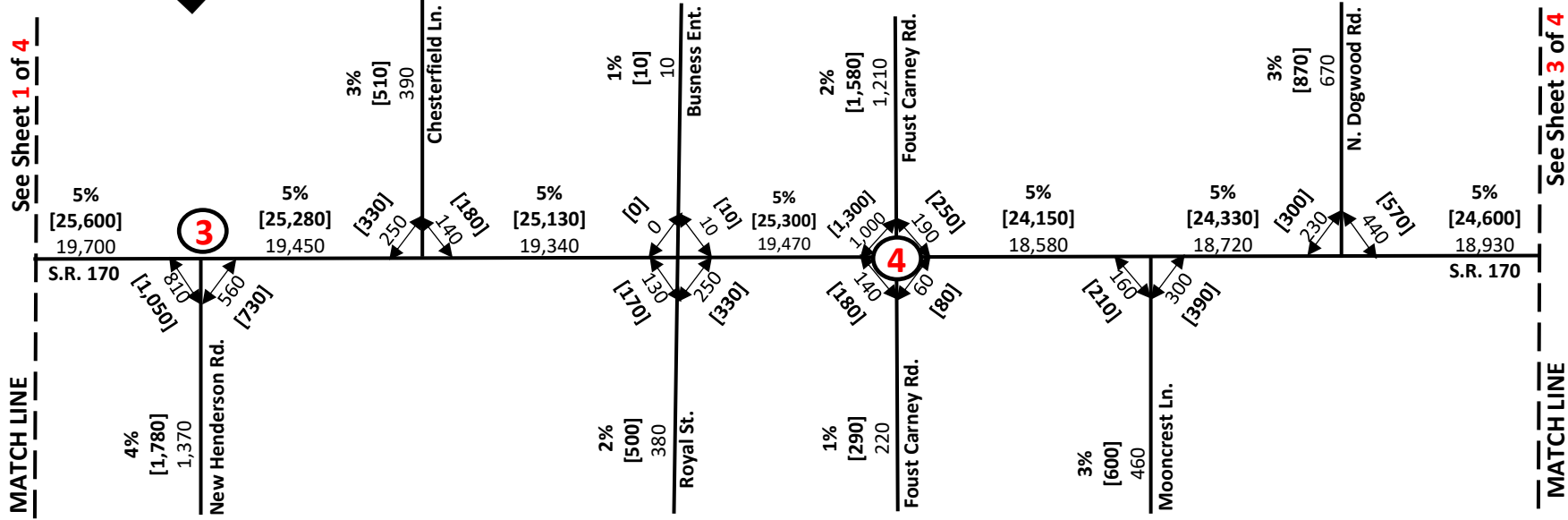
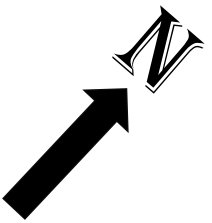
TA

See Sheet 2 of 4

MATCH LINE

**AADT**

**Sheet 2 of 4**



## Anderson County S.R. 170

Legend:

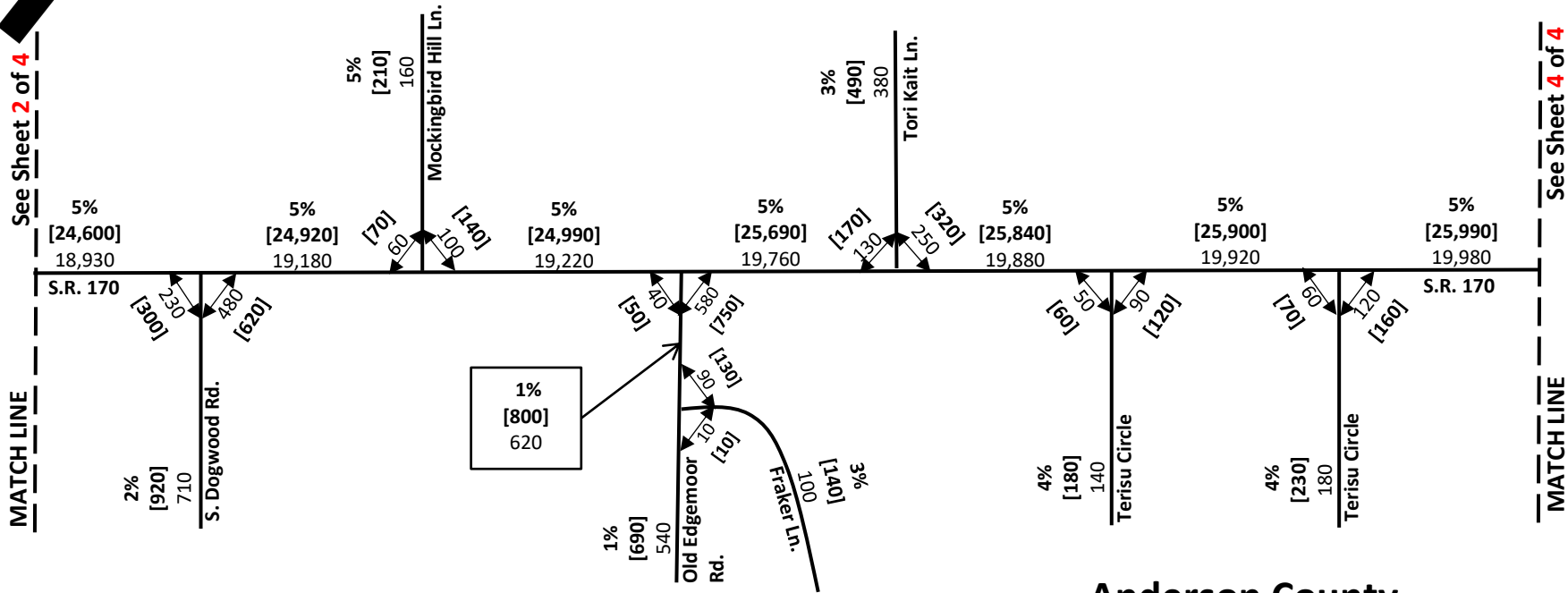
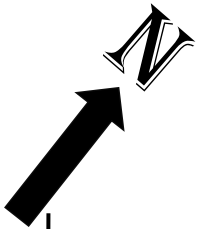
2029 AADT - 000

2049 AADT - [000]

AADT Truck % - 0%

Date: November 4, 2024

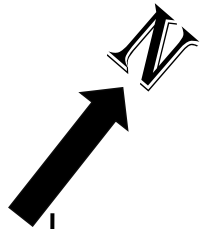
TA



**Anderson County**  
**S.R. 170**  
 Legend:  
 2029 AADT - 000  
 2049 AADT - [000]  
 AADT Truck % - 0%  
 Date: November 5, 2024  
 TA

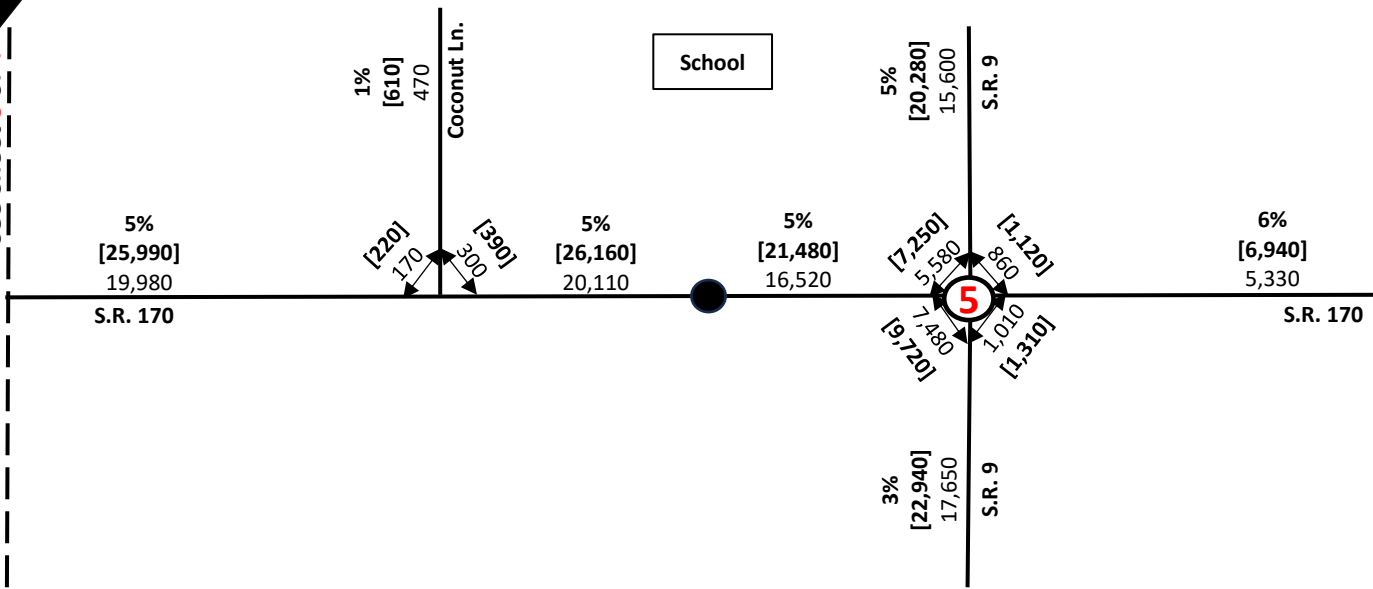
AADT

Sheet 4 of 4



See Sheet 3 of 4

MATCH LINE

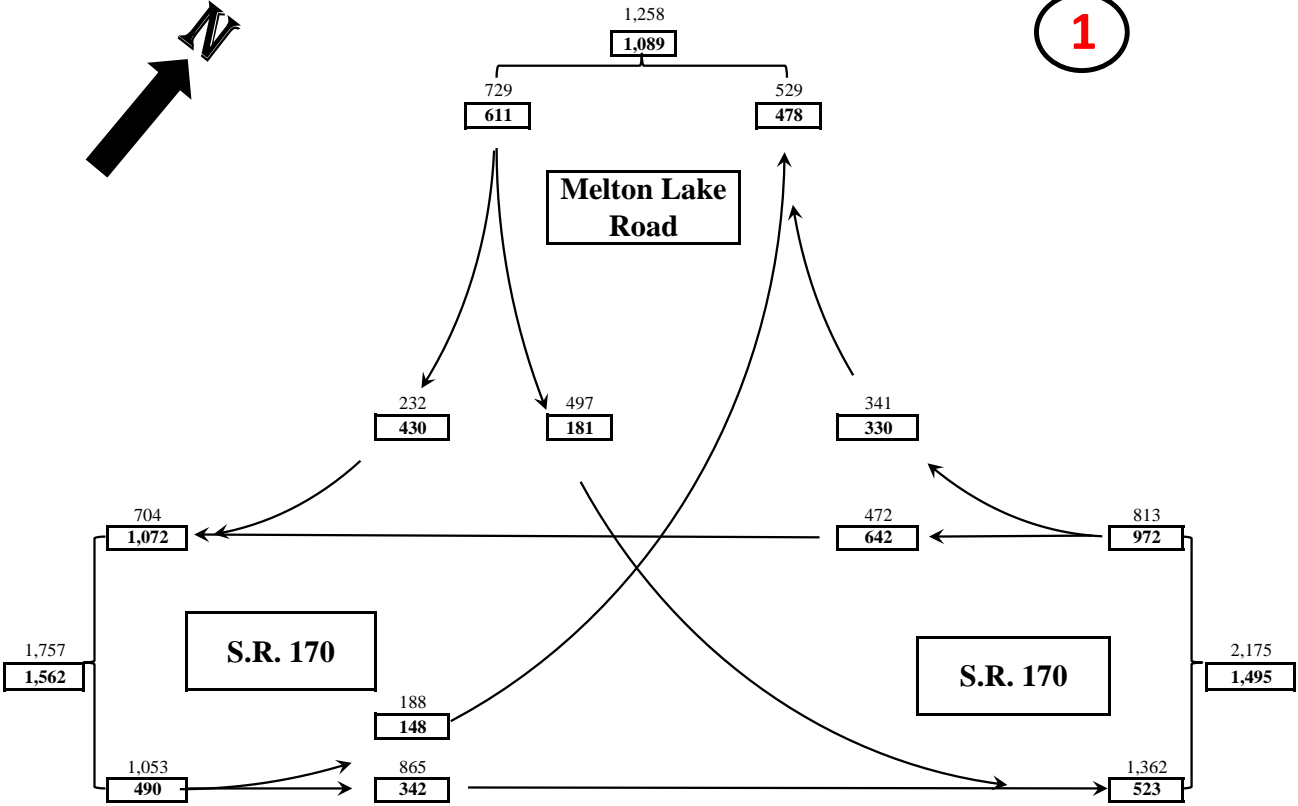


### Anderson County S.R. 170

Legend:  
2029 AADT - 000  
2049 AADT - [000]  
AADT Truck % - 0%  
Date: November 5, 2024  
TA

2029 DHV

1



Anderson County  
S.R. 170 @ Melton Lake Road

2029 DHV

PM

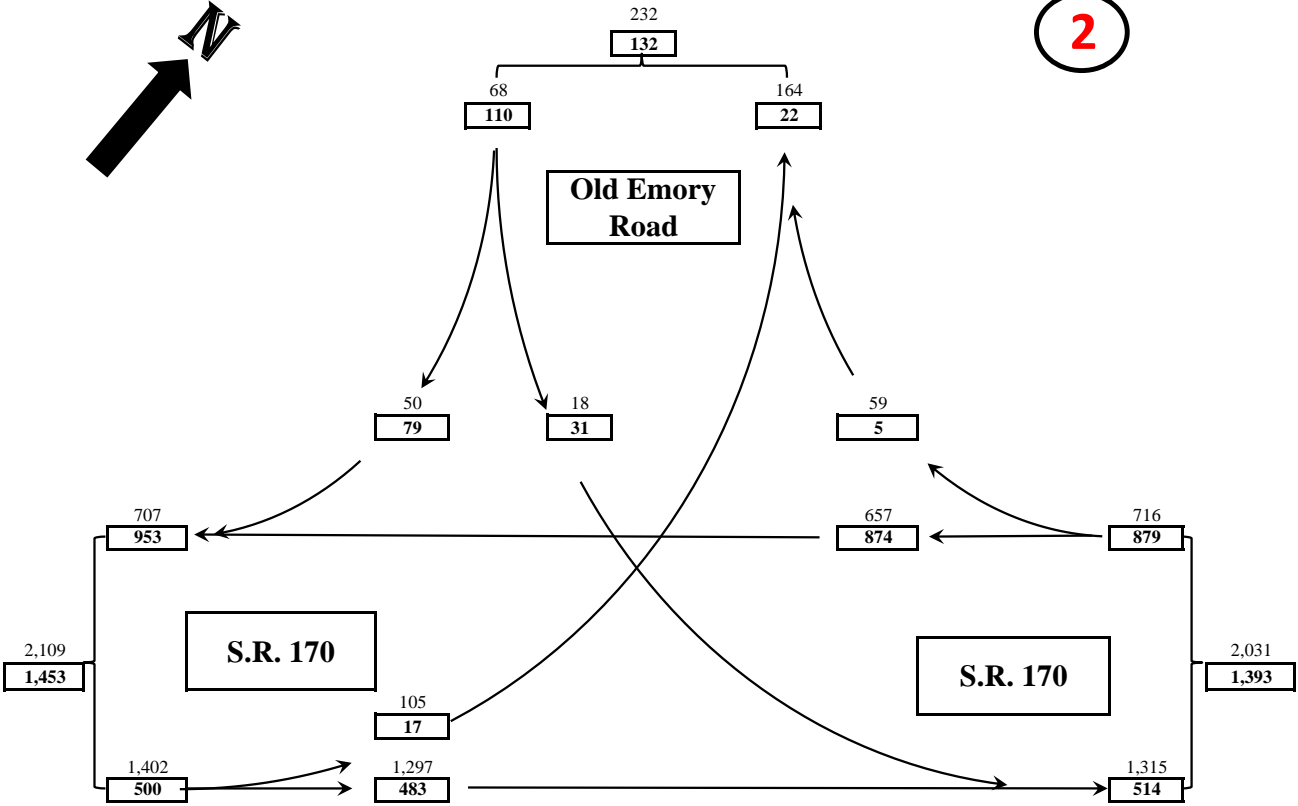
AM

Date: December 13, 2024

TA

2029 DHV

2



Anderson County  
S.R. 170 @ Old Emory Road

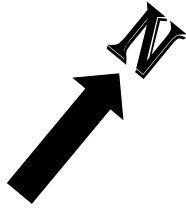
2029 DHV

PM

AM

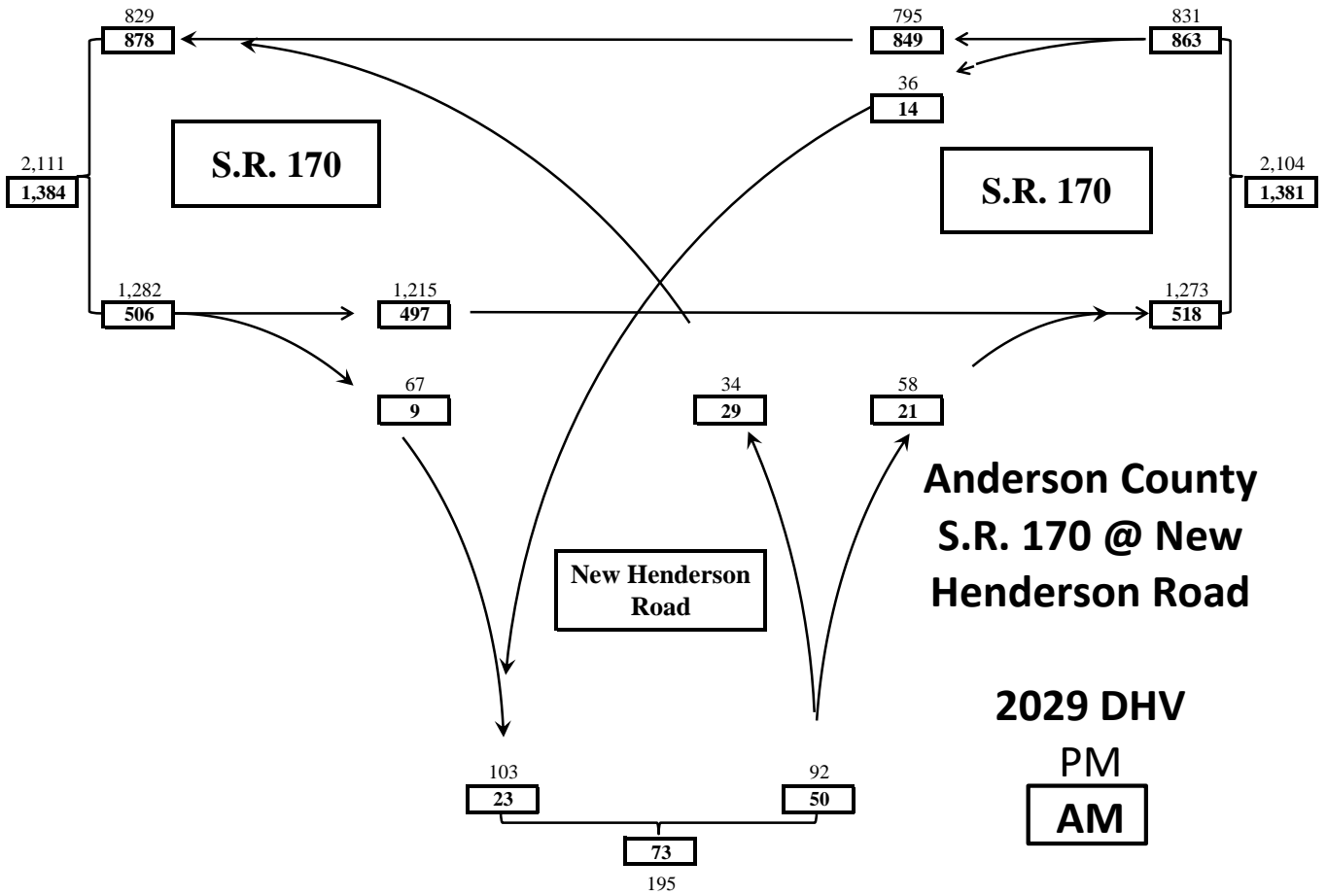
Date: December 13, 2024

TA



2029 DHV

3



Anderson County  
S.R. 170 @ New  
Henderson Road

2029 DHV

PM

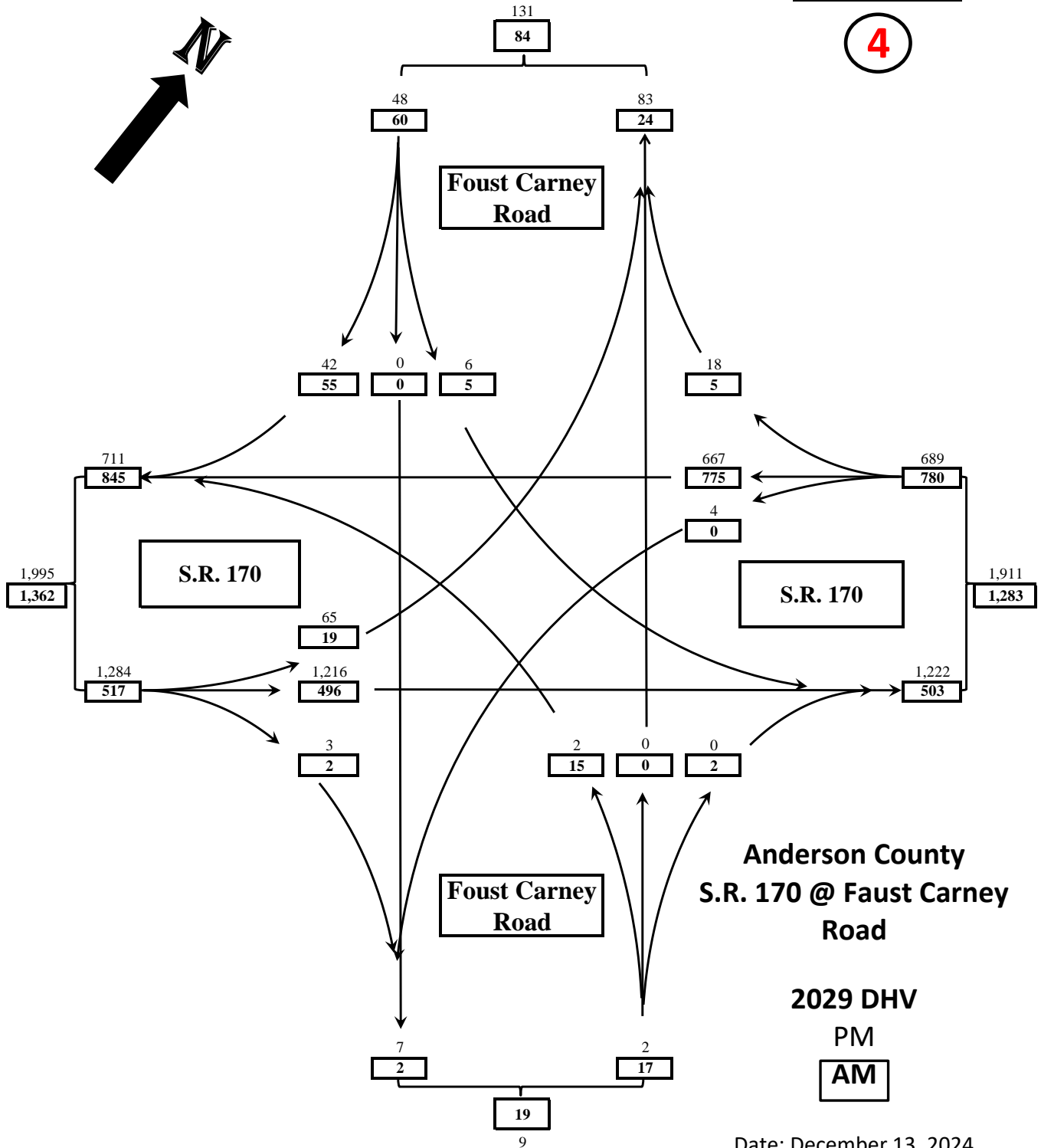
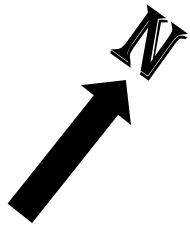
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Date: December 13, 2024

TA

2029 DHV

4



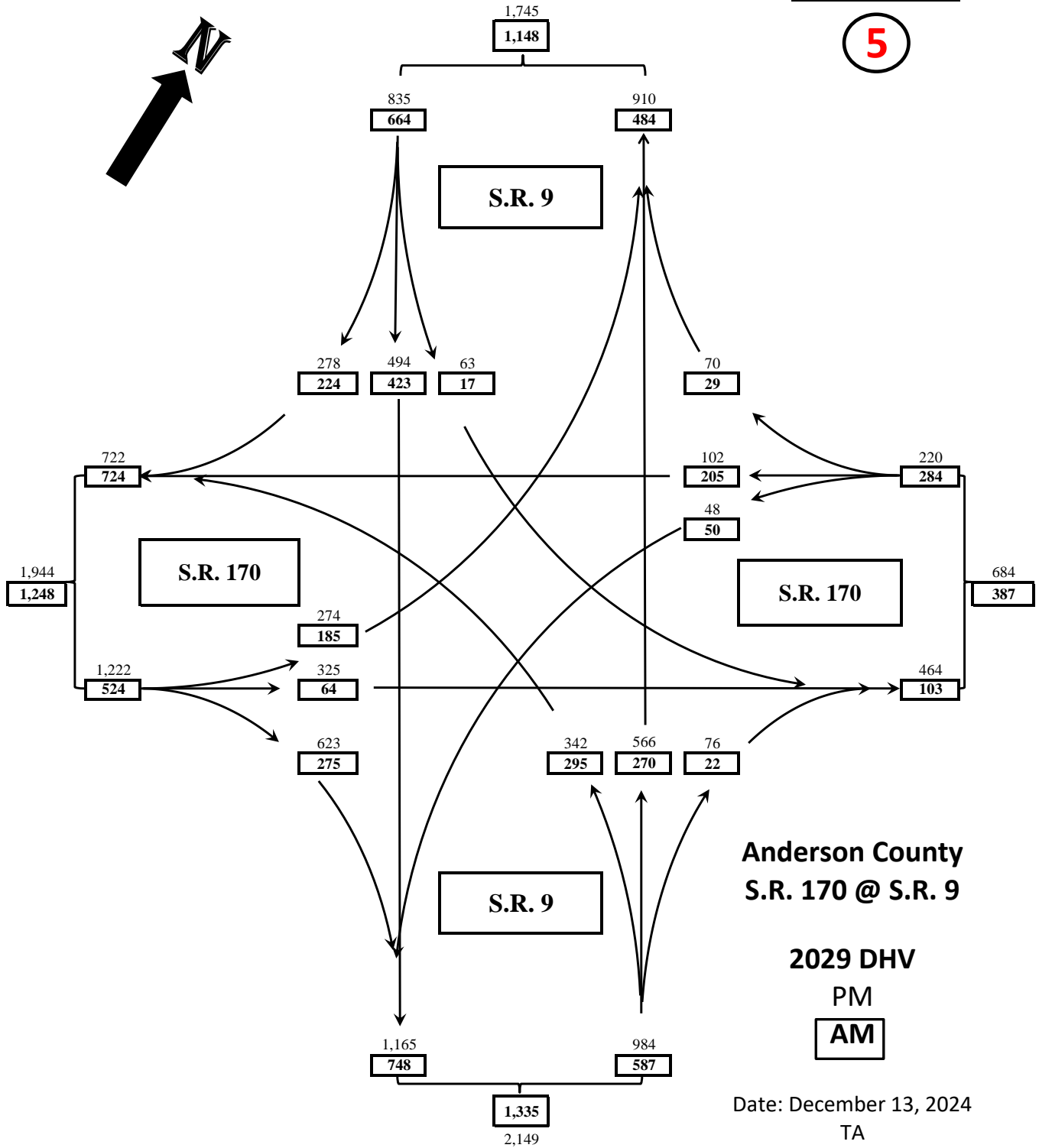
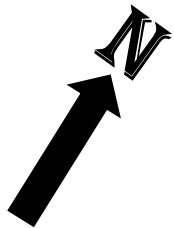
Anderson County  
S.R. 170 @ Faust Carney  
Road

2029 DHV  
PM  
AM

Date: December 13, 2024  
TA

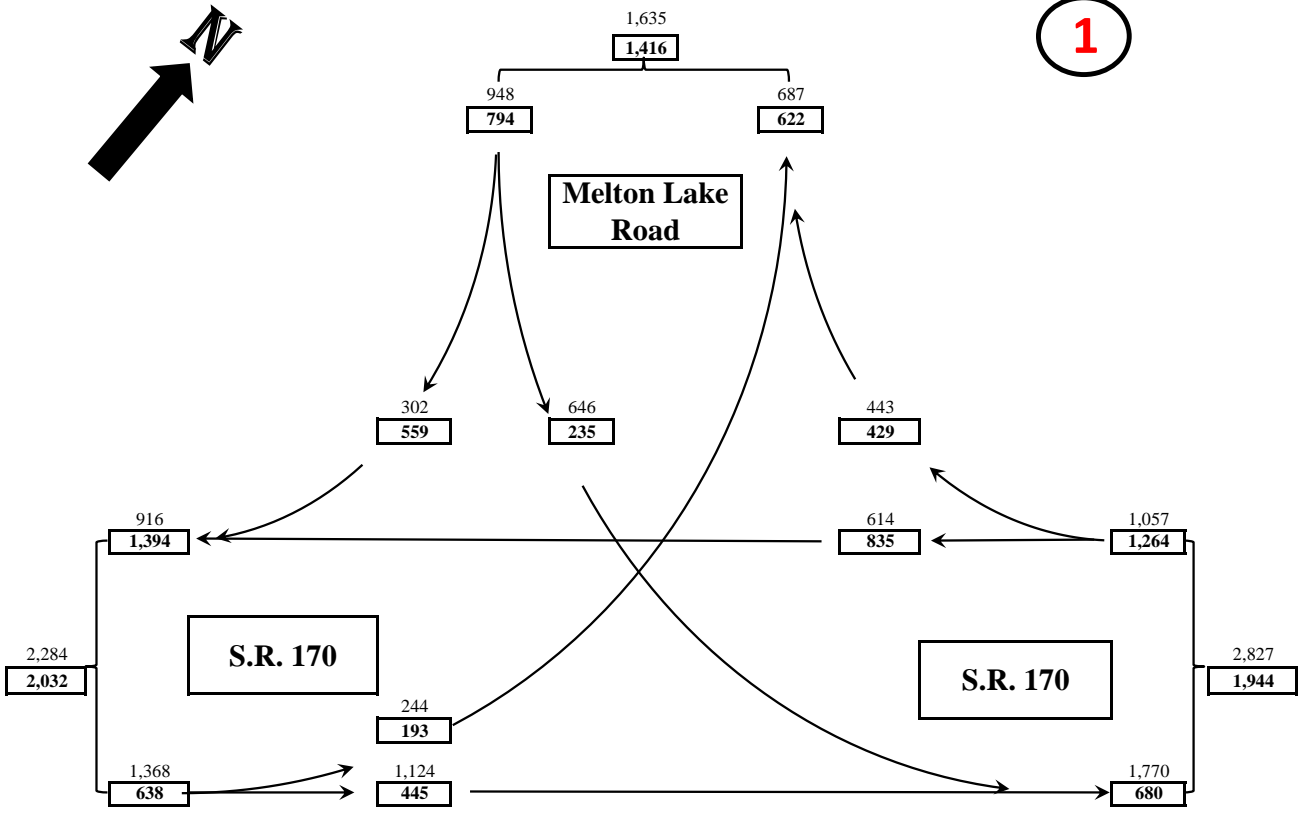
2029 DHV

5



2049 DHV

1



Anderson County  
S.R. 170 @ Melton Lake Road

2049 DHV

PM

AM

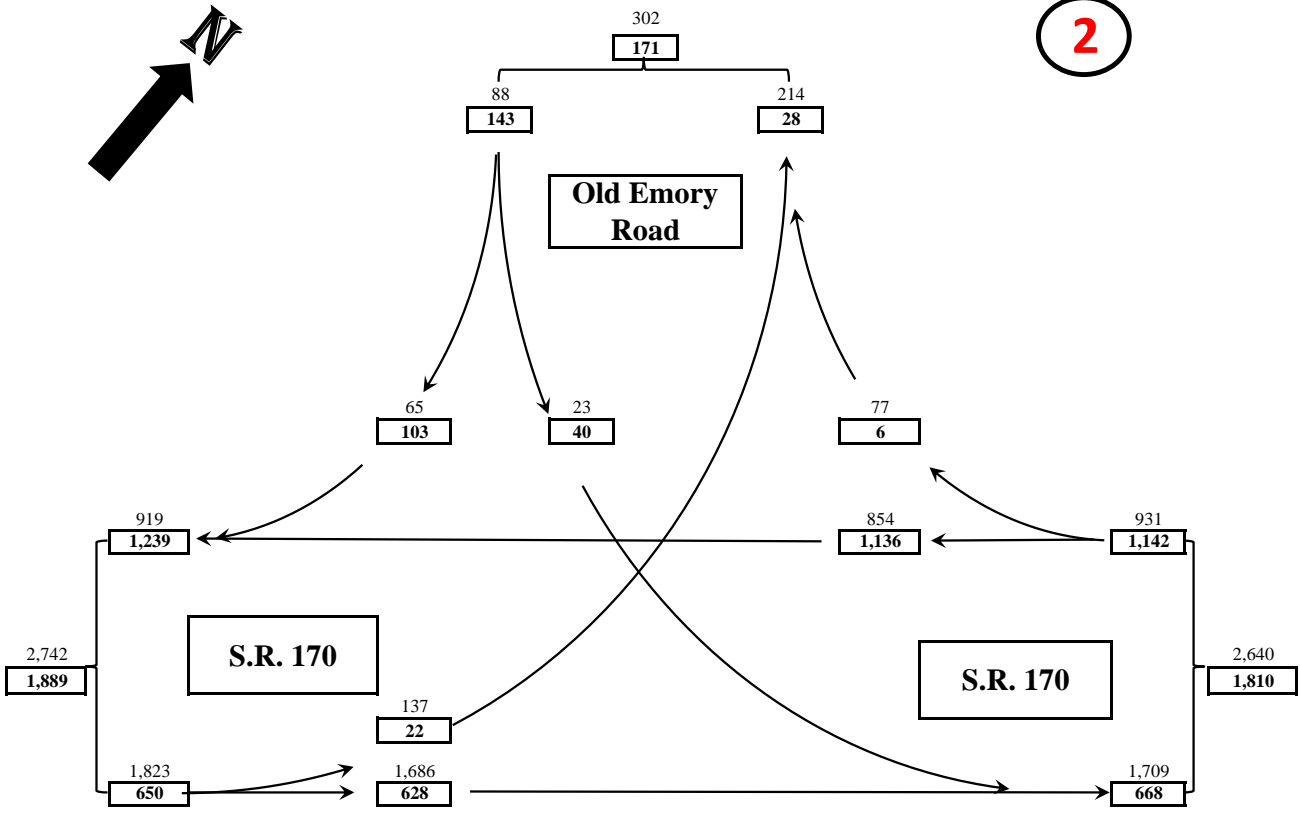
Date: November 4, 2024

TA



2049 DHV

2



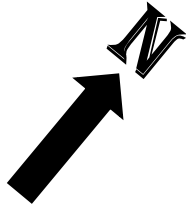
**Anderson County  
S.R. 170 @ Old Emory Road**

2049 DHV

PM

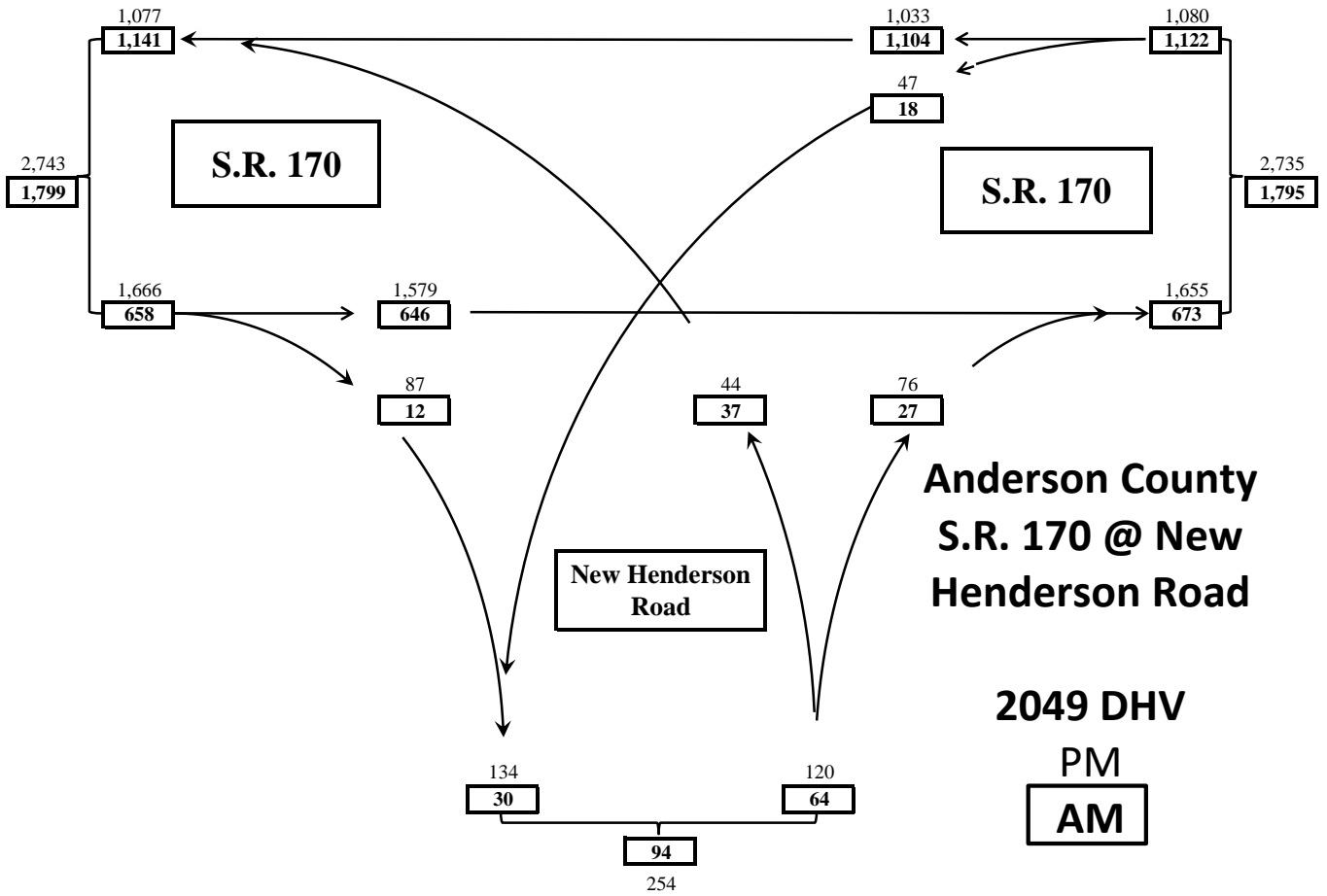
AM

Date: November 4, 2024  
TA



2049 DHV

3



**Anderson County  
S.R. 170 @ New  
Henderson Road**

**2049 DHV**

**PM**

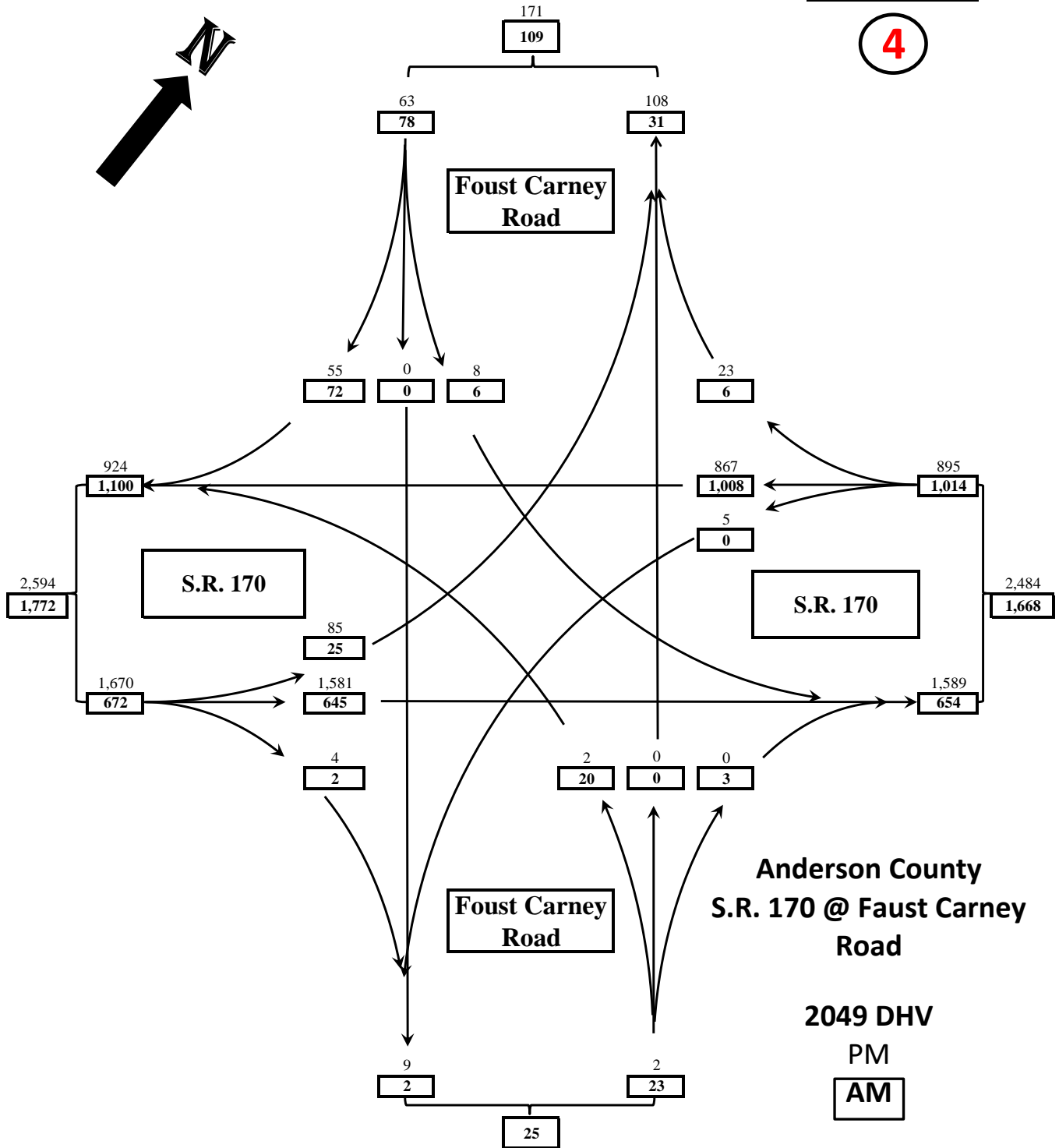
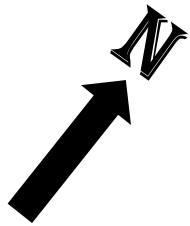
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Date: November 5, 2024

TA

2049 DHV

4



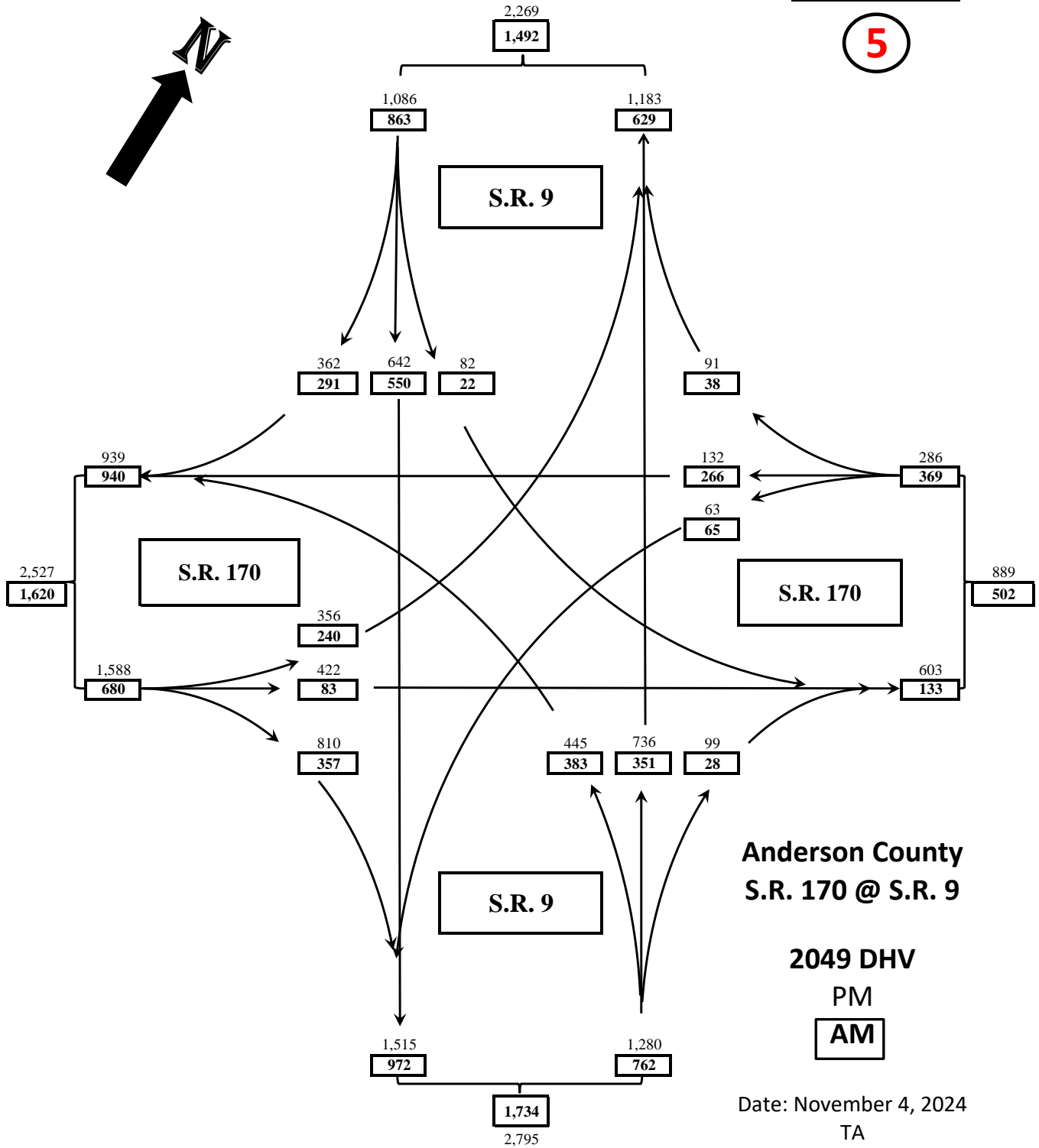
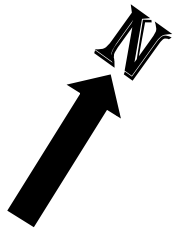
Anderson County  
S.R. 170 @ Faust Carney  
Road

2049 DHV  
PM  
AM

Date: November 4, 2024  
TA

2049 DHV

5



SR 170 Widening, PIN: 124121.02

From near Melton Lake Drive to SR-9 (US-25W, Clinton Highway) (IA)  
(TMA), Anderson County, TN

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April 2025

## **Appendix D**

### **TNM Checklist and Plan Views**

*All modeling must be done in accordance with TDOT's Noise Procedures and TNM Modeling Guidelines*

<b>Project</b>	<b>SR170 Widening</b>
<b>County</b>	<b>Anderson County</b>
<b>PIN</b>	<b>124121.02</b>
<b>Project Number</b>	<b>PE-D: 01024-0224-14</b>
<b>Project Plans Description and Date</b>	<b>Line and Grade Plans, October 2024</b>
<b>Traffic Data Source and Date</b>	<b>Tennessee Department of Transportation Planning Division</b>
<b>TNM Modeler</b>	<b>Franklin 'Rex' Cooper</b>
<b>Date Checklist Completed</b>	4/4/2025
<b>TNM Reviewer</b>	<b>Mary Martin</b>
<b>Date Checklist Completed</b>	4/4/2025

<b>TNM Run</b>	<b>All Models</b>		<b>Modeling Year</b>
			<b>2029/2049</b>
<b>Input</b>	<b>Task</b>	<b>Complete?</b>	<b>Notes</b>
Setup	Run Information	<input checked="" type="checkbox"/>	
	General	<input checked="" type="checkbox"/>	
Roadways	Roadway names assigned	<input checked="" type="checkbox"/>	
	Traffic and Speeds on all Roadways	<input checked="" type="checkbox"/>	
	Widths of All Roadways per Guidance	<input checked="" type="checkbox"/>	
	Points tied to stationing if available	<input checked="" type="checkbox"/>	
	Elevations appear to be correct	<input checked="" type="checkbox"/>	
	Traffic Flow Control Devices Modeled <ul style="list-style-type: none"> <li>• Traffic Signals</li> <li>• Stop Signs</li> <li>• On-Ramps</li> </ul>	<input checked="" type="checkbox"/>	
Roadways modeled on structure as appropriate	<input checked="" type="checkbox"/>		

TNM Run	All Models	Modeling Year	2029/2049
Input	Task	Complete?	Notes
Receivers	Receivers named by address or stationing	<input checked="" type="checkbox"/>	<b>Addresses can be found in Appendix E.</b>
	Number of dwelling units set for each receiver (if applicable)	<input checked="" type="checkbox"/>	
	Receivers in order of adjacent traffic flow	<input checked="" type="checkbox"/>	
	Elevations appear to be correct	<input checked="" type="checkbox"/>	
	Elevations at second-story locations at appropriate heights (if applicable)	<input checked="" type="checkbox"/>	
	Enough receivers modeled (for impacts and benefits)	<input checked="" type="checkbox"/>	
	NAC set per State's Policy for each receiver/ land use	<input checked="" type="checkbox"/>	
	Noise Reduction set per State's Policy	<input checked="" type="checkbox"/>	
	Substantial Increase set per State's Policy	<input checked="" type="checkbox"/>	
Barriers	Significant buildings modeled	<input checked="" type="checkbox"/>	
	Parapets, etc. modeled	<input checked="" type="checkbox"/>	
	Perturbable barriers modeled as applicable	<input checked="" type="checkbox"/>	
	Barrier names assigned	<input checked="" type="checkbox"/>	
	Barrier points named by stationing or length	<input checked="" type="checkbox"/>	
	Barrier heights assigned	<input checked="" type="checkbox"/>	
	Elevations appear to be correct	<input checked="" type="checkbox"/>	
	Increment and #up/down assigned	<input checked="" type="checkbox"/>	
	Barriers modeled on structure as appropriate and shielded lists are correct	<input checked="" type="checkbox"/>	
Building Rows	Building rows modeled per FHWA Guidance	<input type="checkbox"/>	<b>N/A</b>
	Elevations appear to be correct	<input type="checkbox"/>	<b>N/A</b>
	Height and percentage assigned	<input type="checkbox"/>	<b>N/A</b>

TNM Run	All Models		Modeling Year	2029/2049
Input	Task	Complete?	Notes	
Terrain Lines	Significant terrain features modeled	<input checked="" type="checkbox"/>		
	Terrain line names assigned	<input checked="" type="checkbox"/>		
	Elevations appear to be correct	<input checked="" type="checkbox"/>		
Ground Zones	Ground Zones modeled per FHWA Guidance	<input checked="" type="checkbox"/>		
	Ground zone names assigned	<input checked="" type="checkbox"/>		
	Ground zone types assigned	<input checked="" type="checkbox"/>		
Tree Zones	Tree zones modeled per FHWA Guidance	<input type="checkbox"/>	N/A	
	Tree zone names assigned	<input type="checkbox"/>	N/A	
	Elevations appear to be correct	<input type="checkbox"/>	N/A	
Perspective Views	Perspective views checked for accuracy	<input checked="" type="checkbox"/>		
Skew Views	Numerous skew views cut and checked for accuracy	<input checked="" type="checkbox"/>		
Input Check	Input Check completed and errors fixed/documented	<input checked="" type="checkbox"/>		

Existing Model 1



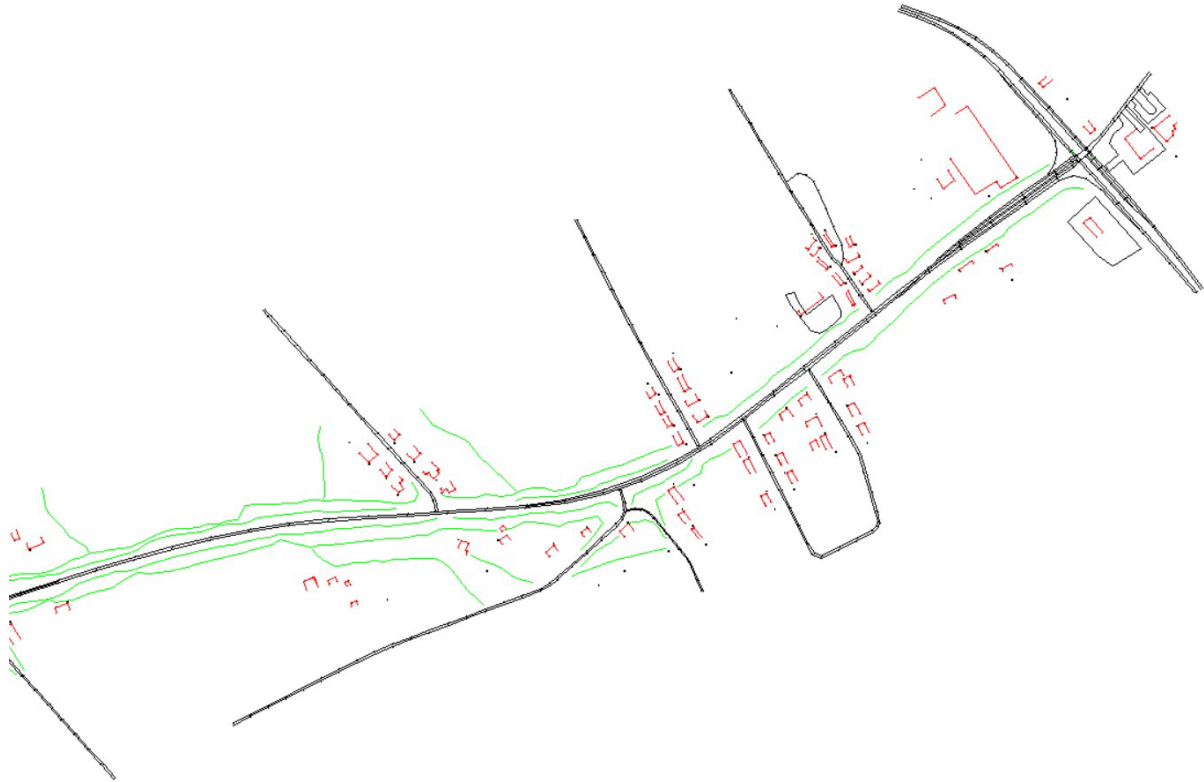
Existing Model 2



Existing Model 3



Existing Model 4



Build Model 1



Build Model 2



Build Model 3



Build Model 4



SR 170 Widening, PIN: 124121.02

From near Melton Lake Drive to SR-9 (US-25W, Clinton Highway) (IA)  
(TMA), Anderson County, TN

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April 2025

## **Appendix E**

### **Design Year Noise Levels and Impacts**

**Table E.1**  
**Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - Build Alternative**

Receptors					Predicted Noise Levels,			
					Leq(h) (dB(A))			
Rec. No.	Address	NAC	Land Use	ERs	Existing	No Build	Build	Build - Existing
1.1	100 WOODVIEW LN	B	Residential	1	41	42	45	4
1.2	102 WOODVIEW LN	B	Residential	1	39	40	45	6
1.3	104 WOODVIEW LANE	B	Residential	1	37	38	43	6
1.4	106 WOODVIEW LANE	B	Residential	1	39	40	48	9
1.5	108 WOODVIEW LANE	B	Residential	1	38	39	46	8
1.6	110 WOODVIEW LANE	B	Residential	1	41	42	51	10
1.7	112 WOODVIEW LANE	B	Residential	1	45	46	ROW	N/A
1.8	114 WOODVIEW LANE	B	Residential	1	55	56	ROW	N/A
1.9	116 WOODVIEW LANE	B	Residential	1	62	63	ROW	N/A
1.10	118 WOODVIEW LANE	B	Residential	1	61	62	ROW	N/A
1.11	119 WOODVIEW LANE	B	Residential	1	61	62	ROW	N/A
1.12	117 WOODVIEW LANE	B	Residential	1	59	60	ROW	N/A
1.13	115 WOODVIEW LANE	B	Residential	1	57	58	ROW	N/A
1.14	113 WOODVIEW LANE	B	Residential	1	56	57	ROW	N/A
1.15	111 WOODVIEW LANE	B	Residential	1	55	56	60	5
1.16	109 WOODVIEW LANE	B	Residential	1	55	56	59	4
1.17	107 WOODVIEW LANE	B	Residential	1	54	55	57	3
1.18	105 WOODVIEW LANE	B	Residential	1	53	54	57	4
1.19	103 WOODVIEW LANE	B	Residential	1	53	54	56	3
1.20	101 WOODVIEW LANE	B	Residential	1	53	54	56	3
1.21	CENTENNIAL BLUFF BLVD 311-349	B	Residential	1	38	39	41	3
1.21a	CENTENNIAL BLUFF BLVD 311-349	B	Residential	1	39	40	44	5
1.21b	CENTENNIAL BLUFF BLVD 311-349	B	Residential	1	43	44	50	7
1.22	CENTENNIAL BLUFF BLVD 311-349	B	Residential	1	38	39	41	3
1.22a	CENTENNIAL BLUFF BLVD 311-349	B	Residential	1	39	40	46	7
1.22b	CENTENNIAL BLUFF BLVD 311-349	B	Residential	1	42	43	51	9
1.22c	CENTENNIAL BLUFF BLVD 311-349	B	Residential	1	50	51	55	5
1.23	CENTENNIAL BLUFF BLVD 311-349	B	Residential	1	39	40	45	6
1.23a	CENTENNIAL BLUFF BLVD 311-349	B	Residential	1	42	43	50	8
1.23b	CENTENNIAL BLUFF BLVD 311-349	B	Residential	1	44	45	54	10
1.23c	CENTENNIAL BLUFF BLVD 311-	B	Residential	1	51	52	58	7

Receptors					Predicted Noise Levels,			
					Leq(h) (dB(A))			
Rec. No.	Address	NAC	Land Use	ERs	Existing	No Build	Build	Build - Existing
	349							
1.24	CENTENNIAL BLUFF BLVD 311-349	B	Residential	1	53	54	57	4
1.24a	CENTENNIAL BLUFF BLVD 311-349	B	Residential	1	57	58	61	4
1.24b	CENTENNIAL BLUFF BLVD 311-349	B	Residential	1	57	58	61	4
1.25	CENTENNIAL BLUFF BLVD 311-349	B	Residential	1	62	63	64	2
1.25a	CENTENNIAL BLUFF BLVD 311-349	B	Residential	1	62	63	64	2
1.25b	CENTENNIAL BLUFF BLVD 311-349	B	Residential	1	62	63	64	2
1.26	CENTENNIAL BLUFF BLVD 311-349	B	Residential	1	61	62	64	3
1.26a	CENTENNIAL BLUFF BLVD 311-349	B	Residential	1	62	63	64	2
1.26b	CENTENNIAL BLUFF BLVD 311-349	B	Residential	1	62	63	64	2
1.26c	CENTENNIAL BLUFF BLVD 311-349	B	Residential	1	62	63	64	2
1.27	CENTENNIAL BLUFF BLVD 311-349	B	Residential	1	60	61	63	3
1.27a	CENTENNIAL BLUFF BLVD 311-349	B	Residential	1	61	62	63	2
1.27b	CENTENNIAL BLUFF BLVD 311-349	B	Residential	1	60	61	63	3
1.27c	CENTENNIAL BLUFF BLVD 311-349	B	Residential	1	60	61	63	3
1.28	CENTENNIAL BLUFF BLVD 311-349	B	Residential	1	59	60	62	3
1.28a	CENTENNIAL BLUFF BLVD 311-349	B	Residential	1	60	61	62	2
1.28b	CENTENNIAL BLUFF BLVD 311-349	B	Residential	1	60	61	62	2
1.28c	CENTENNIAL BLUFF BLVD 311-349	B	Residential	1	60	61	62	2
1.29	CENTENNIAL BLUFF BLVD 311-349	B	Residential	1	59	60	61	2
1.28a	CENTENNIAL BLUFF BLVD 311-349	B	Residential	1	59	60	61	2
1.28b	CENTENNIAL BLUFF BLVD 311-349	B	Residential	1	59	60	61	2
2.1	MELTON LAKE GREENWAY	C	Greenway	1	63	64	65	2
2.2	MELTON LAKE GREENWAY	C	Greenway	1	56	57	58	2
2.3	MELTON LAKE GREENWAY	C	Greenway	1	59	60	57	-2

Receptors					Predicted Noise Levels,			
					Leq(h) (dB(A))			
Rec. No.	Address	NAC	Land Use	ERs	Existing	No Build	Build	Build - Existing
2.4	MELTON LAKE GREENWAY	C	Greenway	1	60	61	58	-2
2.5	MELTON LAKE GREENWAY	C	Greenway	1	57	58	58	1
2.6	MELTON LAKE GREENWAY	C	Greenway	1	54	55	56	2
3.1	1424 EDGEMOOR RD	B	Residential	1	63	64	ROW	N/A
3.2	1420 EDGEMOOR RD	B	Residential	1	62	63	ROW	N/A
3.3	117 LAKEVIEW CIR	B	Residential	1	58	59	63	5
3.4	123 LAKEVIEW CIR	B	Residential	1	55	56	59	4
4.1	122 LAKEVIEW CIR	B	Residential	1	53	54	ROW	N/A
4.2	140 LAKEVIEW CIR	B	Residential	1	53	54	59	6
4.3	146 LAKEVIEW CIR	B	Residential	1	56	57	60	4
5.1	110 CRESTVIEW LN	B	Residential	1	53	54	59	6
5.2	211 LAKEVIEW CIR	B	Residential	1	61	62	ROW	N/A
5.3	1256 EDGEMOOR RD	B	Residential	1	65	66	69	4
5.4	140 CRESTVIEW LN	B	Residential	1	56	57	ROW	N/A
5.5	124 CREST LN	B	Residential	1	55	56	64	9
5.6	123 CREST LN	B	Residential	1	63	64	ROW	N/A
5.7	117 CREST LN	B	Residential	1	64	65	ROW	N/A
5.8	115 CREST LN	B	Residential	1	63	64	67	4
5.9	109 CREST LN	B	Residential	1	62	63	65	3
5.10	103 CREST LN	B	Residential	1	62	63	ROW	N/A
5.11	120 CREST LN	B	Residential	1	52	53	59	7
5.12	116 CREST LN	B	Residential	1	52	53	57	5
5.13	114 CREST LN	B	Residential	1	53	54	57	4
5.14	110 CREST LN	B	Residential	1	50	51	56	6
5.15	203 WALNUT VALLEY RD	B	Residential	1	49	50	55	6
5.16	206 WALNUT VALLEY RD	B	Residential	1	53	54	58	5
5.17	204 WALNUT VALLEY RD	B	Residential	1	55	56	60	5
5.18	114 WALNUT VALLEY RD	B	Residential	1	59	60	63	4
5.19	110 WALNUT VALLEY RD	B	Residential	1	65	66	68	3
5.20	1154 EDGEMOOR RD	B	Residential	1	66	67	69	3
5.21	1144 EDGEMOOR RD	B	Residential	1	67	68	ROW	N/A
5.22	210 WALNUT VALLEY RD	B	Residential	1	57	58	61	4
5.23	305 OLD EMORY RD	B	Residential	1	56	57	59	3
5.24	1116 EDGEMOOR RD	B	Residential	1	64	65	ROW	N/A
6.1	837 OLD EDGEMOOR LN	C	Park	1	56	57	59	3
6.2	837 OLD EDGEMOOR LN	C	Park	1	62	63	65	3
6.3	837 OLD EDGEMOOR LN	C	Park	1	56	57	59	3
6.4	837 OLD EDGEMOOR LN	C	Park	1	55	56	57	2
6.5	837 OLD EDGEMOOR LN	C	Park	1	51	52	54	3
6.6	837 OLD EDGEMOOR LN	C	Park	1	51	52	54	3

Receptors					Predicted Noise Levels,			
					Leq(h) (dB(A))			
Rec. No.	Address	NAC	Land Use	ERs	Existing	No Build	Build	Build - Existing
6.7	837 OLD EDGEMOOR LN	D	Community Center	1	59/34 <sup>2</sup>	60/35 <sup>2</sup>	61/36 <sup>2</sup>	2
6.8	837 OLD EDGEMOOR LN	C	Park	1	54	55	56	2
7.1	111 OZELLA LN	B	Residential	1	59	60	63	4
7.2	139 OZELLA LN	B	Residential	1	55	56	60	5
7.3	125 OZELLA LN	B	Residential	1	51	52	58	7
7.4	115 OZELLA LN	B	Residential	1	58	59	ROW	N/A
7.5	602 EDGEMOOR RD	B	Residential	1	63	64	ROW	N/A
8.1	116 OZELLA LN	B	Residential	1	56	57	61	5
9.1	112 NEW HENDERSON RD	B	Residential	1	55	56	57	2
9.2	115 NEW HENDERSON RD	B	Residential	1	57	58	59	2
9.3	152 QUEEN ST	B	Residential	1	54	55	55	1
9.4	148 QUEEN ST LOT 108	B	Residential	1	51	52	53	2
9.5	144 QUEEN ST	B	Residential	1	56	57	58	2
9.6	140 QUEEN ST	B	Residential	1	55	56	57	2
9.7	136 QUEEN ST LOT 111	B	Residential	1	57	58	59	2
9.8	132 QUEEN ST LOT 112	B	Residential	1	57	58	58	1
9.9	124 QUEEN ST	B	Residential	1	58	59	59	1
9.10	120 QUEEN ST	B	Residential	1	59	60	59	0
9.11	116 QUEEN ST	B	Residential	1	60	61	60	0
9.12	112 QUEEN ST	B	Residential	1	61	62	62	1
9.13	108 QUEEN ST LOT 4	B	Residential	1	61	62	63	2
9.14	102 QUEEN ST LOT 5	B	Residential	1	65	66	66	1
9.15	105 ROYAL ST LOT 6	B	Residential	1	68	69	70	2
9.16	109 KING ST	B	Residential	1	66	67	69	3
9.17	119 KING ST	B	Residential	1	68	69	70	2
9.18	129 KING ST	B	Residential	1	68	69	69	1
9.19	135 KING ST 10	B	Residential	1	68	69	70	2
9.20	141 KING ST	B	Residential	1	70	71	ROW	N/A
9.21	144 KING ST 12	B	Residential	1	56	57	58	2
9.22	140 KING ST LOT 13	B	Residential	1	55	56	57	2
9.23	136 KING ST LOT 14	B	Residential	1	57	58	58	1
9.24	132 KING ST 15	B	Residential	1	57	58	59	2
9.25	128 KING CT	B	Residential	1	56	57	58	2
9.26	124 KING ST	B	Residential	1	56	57	58	2
9.27	120 KING ST 18	B	Residential	1	56	57	58	2
9.28	116 KING ST	B	Residential	1	55	56	57	2
9.29	112 KING ST LOT 20	B	Residential	1	55	56	57	2
9.30	108 KING ST	B	Residential	1	57	58	59	2
9.31	104 KING ST LOT 22	B	Residential	1	57	58	59	2
9.32	109 ROYAL ST	B	Residential	1	58	59	60	2

Receptors					Predicted Noise Levels,			
					Leq(h) (dB(A))			
Rec. No.	Address	NAC	Land Use	ERs	Existing	No Build	Build	Build - Existing
9.33	103 QUEEN ST	B	Residential	1	60	61	61	1
9.34	109 QUEEN ST	B	Residential	1	59	60	61	2
9.35	104 DUCHESS LN	B	Residential	1	55	56	57	2
9.36	108 DUCHESS LN	B	Residential	1	53	54	55	2
9.37	113 QUEEN ST LOT 123	B	Residential	1	58	59	60	2
9.38	105 PRINCESS LN 124	B	Residential	1	57	58	59	2
9.39	109 PRINCESS LN	B	Residential	1	56	57	58	2
9.40	112 PRINCESS LN	B	Residential	1	56	57	58	2
9.41	108 PRINCESS LN	B	Residential	1	57	58	59	2
9.42	119 QUEEN ST LOT 129	B	Residential	1	58	59	60	2
9.43	123 QUEEN ST	B	Residential	1	58	59	60	2
9.44	127 QUEEN ST LOT 131	B	Residential	1	58	59	60	2
9.45	139 QUEEN ST	B	Residential	1	56	57	57	1
9.46	143 QUEEN ST	B	Residential	1	55	56	57	2
9.47	102 WOODVIEW LN	B	Residential	1	54	55	56	2
9.48	148 DUKE ST	B	Residential	1	51	52	53	2
9.49	140 DUKE ST LOT 137	B	Residential	1	54	55	56	2
9.50	138 DUKE ST	B	Residential	1	54	55	56	2
9.51	132 DUKE ST LT139	B	Residential	1	52	53	54	2
9.52	128 DUKE ST LOT 140	B	Residential	1	52	53	54	2
9.53	124 DUKE ST	B	Residential	1	52	53	54	2
9.54	118 DUKE ST	B	Residential	1	54	55	56	2
9.55	112 DUCHESS LN	B	Residential	1	54	55	56	2
9.56	113 DUCHESS LN	B	Residential	1	55	56	56	1
9.57	204 ROYAL ST LOT 116	B	Residential	1	56	57	58	2
9.58	208 ROYAL ST LOT 117	B	Residential	1	52	53	54	2
9.59	205 ROYAL ST	B	Residential	1	54	55	56	2
9.60	105 EARL LN LOT 25	B	Residential	1	50	51	52	2
9.61	113 EARL LN LOT 27	B	Residential	1	48	49	50	2
9.62	117 EARL LN LOT 28	B	Residential	1	48	49	51	3
9.63	123 EARL LN	B	Residential	1	49	50	51	2
9.64	127 EARL LN	B	Residential	1	49	50	52	3
9.65	129 EARL LN LOT 31	B	Residential	1	50	51	52	2
9.66	133 EARL LN	B	Residential	1	49	50	51	2
9.67	137 EARL LN #37	B	Residential	1	51	52	53	2
9.68	145 EARL ST	B	Residential	1	53	54	55	2
9.69	1512 FOUST CARNEY RD	B	Residential	1	53	54	56	3
9.70	144 EARL LN	B	Residential	1	54	55	56	2
9.71	140 EARL LN	B	Residential	1	52	53	55	3
9.72	136 EARL LN	B	Residential	1	51	52	54	3
9.73	132 EARL LN	B	Residential	1	49	50	51	2

Receptors					Predicted Noise Levels,			
					Leq(h) (dB(A))			
Rec. No.	Address	NAC	Land Use	ERs	Existing	No Build	Build	Build - Existing
9.74	112 PRINCE LN	B	Residential	1	49	50	51	2
9.75	128 EARL LN	B	Residential	1	50	51	52	2
9.76	124 EARL LN	B	Residential	1	50	51	52	2
9.77	145 EARL LN	B	Residential	1	51	52	53	2
9.78	113 VISCOUNT LN	B	Residential	1	54	55	56	2
9.79	109 VISCOUNT LN LOT 51	B	Residential	1	49	50	52	3
9.80	105 VISCOUNT LN	B	Residential	1	51	52	53	2
9.81	203 ROYAL ST	B	Residential	1	51	52	53	2
9.82	112 EARL LN	B	Residential	1	49	50	51	2
9.83	108 EARL LN LOT 45	B	Residential	1	49	50	51	2
9.84	108 EARL LN LOT 45	B	Residential	1	49	50	51	2
9.85	303 ROYAL ST	B	Residential	1	49	50	51	2
9.86	304 ROYAL ST	B	Residential	1	50	51	52	2
9.87	109 DUKE ST	B	Residential	1	50	51	52	2
9.88	111 DUKE ST	B	Residential	1	51	52	53	2
9.89	113 DUKE ST	B	Residential	1	50	51	53	3
9.90	117 DUKE ST 94	B	Residential	1	50	51	52	2
9.91	121 DUKE ST	B	Residential	1	52	53	54	2
9.92	125 DUKE ST LOT 96	B	Residential	1	53	54	55	2
9.93	129 DUKE ST	B	Residential	1	52	53	54	2
9.94	133 DUKE ST	B	Residential	1	52	53	54	2
9.95	137 DUKE ST	B	Residential	1	52	53	54	2
9.96	141 DUKE ST	B	Residential	1	53	54	55	2
9.97	145 DUKE ST	B	Residential	1	53	54	55	2
9.98	168 QUEEN ST	B	Residential	1	53	54	55	2
9.99	164 QUEEN ST	B	Residential	1	53	54	55	2
9.100	160 QUEEN ST LOT 105	B	Residential	1	53	54	55	2
10.1	1432 FOUST CARNEY RD	B	Residential	1	54	55	57	3
10.2	1435 FOUST CARNEY RD	B	Residential	1	56	57	59	3
10.3	668 EDGEMOOR RD	B	Residential	1	65	66	ROW	N/A
10.4	646 EDGEMOOR RD	B	Residential	1	63	64	ROW	N/A
11.1	131 DUNN LN	B	Residential	1	55	56	57	2
11.2	128 DUNN LN	B	Residential	1	58	59	60	2
11.3	124 DUNN LN	B	Residential	1	62	63	63	1
11.4	120 DUNN LN	B	Residential	1	62	63	63	1
11.5	116 DUNN LN	B	Residential	1	63	64	65	2
11.6	110 DUNN LN	B	Residential	1	65	66	66	1
11.7	104 DUNN LN	B	Residential	1	62	63	64	2
11.8	101 MOONCREST LN	B	Residential	1	68	69	70	2
11.9	105 MOONCREST LN	B	Residential	1	59	60	62	3
11.10	203 MOONCREST LN	B	Residential	1	57	58	61	4

Receptors					Predicted Noise Levels,			
					Leq(h) (dB(A))			
Rec. No.	Address	NAC	Land Use	ERs	Existing	No Build	Build	Build - Existing
11.11	207 MOONCREST LN	B	Residential	1	55	56	58	3
11.12	215 MOONCREST LN	B	Residential	1	53	54	56	3
11.13	221 MOONCREST LN	B	Residential	1	53	54	56	3
11.14	229 MOONCREST LN	B	Residential	1	54	55	57	3
11.15	233 MOONCREST LN	B	Residential	1	54	55	57	3
11.16	235 MOONCREST LN	B	Residential	1	54	55	57	3
11.17	239 MOONCREST LN	B	Residential	1	52	53	56	4
11.18	243 MOONCREST LN	B	Residential	1	49	50	52	3
11.19	247 MOONCREST LN	B	Residential	1	48	49	51	3
11.20	251 MOONCREST LN	B	Residential	1	49	50	52	3
11.21	240 MOONCREST LN	B	Residential	1	49	50	54	5
11.22	234 MOONCREST LN	B	Residential	1	51	52	55	4
11.23	224 MOONCREST LN	B	Residential	1	51	52	54	3
11.24	220 MOONCREST LN	B	Residential	1	49	50	52	3
11.25	216 MOONCREST LN	B	Residential	1	49	50	52	3
11.26	212 MOONCREST LN	B	Residential	1	52	53	55	3
11.27	208 MOONCREST LN	B	Residential	1	50	51	54	4
11.28	101 DUNN LN	B	Residential	1	55	56	59	4
11.29	105 DUNN LN	B	Residential	1	55	56	58	3
11.30	111 DUNN LN	B	Residential	1	56	57	58	2
11.31	115 DUNN LN	B	Residential	1	56	57	58	2
11.32	121 DUNN LN	B	Residential	1	56	57	58	2
11.33	450 OLD EDGEMOOR LN APT 21	B	Residential	1	50	51	52	2
11.34	450 OLD EDGEMOOR LN	B	Residential	1	49	50	52	3
11.35	450 OLD EDGEMOOR LN	B	Residential	1	49	50	51	2
11.36	450 OLD EDGEMOOR LN	B	Residential	1	49	50	51	2
11.37	601 EDGEMOOR RD	E	Outdoor Seating	1	63	64	67	4
11.38	109 S DOGWOOD RD	B	Residential	1	65	66	68	3
11.39	519 EDGEMOOR RD	B	Residential	1	66	67	68	2
12.1	209 N DOGWOOD RD	B	Residential	1	56	57	60	4
12.2	219 N DOGWOOD RD	B	Residential	1	57	58	60	3
12.3	216 N DOGWOOD RD	B	Residential	1	55	56	60	5
12.4	210 N DOGWOOD RD	B	Residential	1	58	59	ROW	N/A
12.5	550 EDGEMOOR RD	B	Residential	1	61	62	ROW	N/A
12.6	548 EDGEMOOR RD	B	Residential	1	61	62	ROW	N/A
12.7	544 EDGEMOOR RD	B	Residential	1	60	61	ROW	N/A
12.8	540 EDGEMOOR RD	B	Residential	1	59	60	ROW	N/A
12.9	520 EDGEMOOR RD	B	Residential	1	60	61	65	5
13.1	105 MOCKING BIRD HILL LN	B	Residential	1	67	68	70	3
13.2	109 MOCKINGBIRD HILL LN	B	Residential	1	62	63	65	3

Receptors					Predicted Noise Levels,			
					Leq(h) (dB(A))			
Rec. No.	Address	NAC	Land Use	ERs	Existing	No Build	Build	Build - Existing
13.3	113 MOCKING BIRD HILL LN	B	Residential	1	60	61	63	3
13.4	117 MOCKING BIRD HILL LN	B	Residential	1	56	57	61	5
13.5	114 MOCKING BIRD HILL LN	B	Residential	1	53	54	58	5
13.6	110 MOCKING BIRD HILL LN	B	Residential	1	56	57	62	6
13.7	106 MOCKING BIRD HILL LN	B	Residential	1	61	62	65	4
13.8	102 MOCKING BIRD HILL LN	B	Residential	1	67	68	70	3
14.1	220 EDGEMOOR RD	B	Residential	1	56	57	58	2
14.2	435 EDGEMOOR RD	B	Residential	1	61	62	65	4
14.3	136 OLD EDGEMOOR LN	B	Residential	1	52	53	55	3
14.4	124 OLD EDGEMOOR LN	B	Residential	1	59	60	64	5
14.5	120 OLD EDGEMOOR LN	B	Residential	1	62	63	65	3
14.6	112 OLD EDGEMOOR LN	B	Residential	1	60	61	ROW	N/A
14.7	117 OLD EDGEMOOR LN	B	Residential	1	57	58	60	3
14.8	111 OLD EDGEMOOR LN	B	Residential	1	57	58	59	2
14.9	111 OLD EDGEMOOR LN	B	Residential	1	59	60	ROW	N/A
14.10	110 FRAKER LN	B	Residential	1	54	55	55	1
14.11	117 FRAKER LN	B	Residential	1	51	52	53	2
14.12	117 FRAKER LN	B	Residential	1	53	54	55	2
14.13	111 FRAKER LN	B	Residential	1	57	58	59	2
14.14	103 FRAKER LN	B	Residential	1	61	62	ROW	N/A
14.15	317 EDGEMOOR RD	B	Residential	1	60	61	61	1
14.16	183 TERISU CIR	B	Residential	1	69	70	ROW	N/A
14.17	173 TERISU CIR	B	Residential	1	60	61	65	5
14.18	165 TERISU CIR	B	Residential	1	53	54	56	3
14.19	161 TERISU CIR	B	Residential	1	51	52	53	2
14.20	162 TERISU CIR	B	Residential	1	49	50	52	3
14.21	166 TERISU CIR	B	Residential	1	50	51	54	4
14.22	170 TERISU CIR	B	Residential	1	54	55	59	5
14.23	180 TERISU CIR	B	Residential	1	64	65	68	4
14.24	209 EDGEMOOR RD	B	Residential	1	67	68	70	3
14.25	104 TERISU CIR	B	Residential	1	67	68	70	3
14.26	110 TERISU CIR	B	Residential	1	55	56	59	4
14.27	114 TERISU CIR	B	Residential	1	52	53	56	4
14.28	118 TERISU CIR	B	Residential	1	48	49	51	3
14.29	119 TERISU CIR	B	Residential	1	48	49	51	3
14.30	115 TERISU CIR	B	Residential	1	51	52	54	3
14.31	111 TERISU CIR	B	Residential	1	56	57	60	4
14.32	103 TERISU CIR	B	Residential	1	67	68	70	3
14.33	135 EDGEMOOR RD	B	Residential	1	63	64	67	4
14.34	104 DAL LN	B	Residential	1	67	68	71	4
14.35	104 DAL LN	B	Residential	1	67	68	70	3

Receptors					Predicted Noise Levels,			
					Leq(h) (dB(A))			
Rec. No.	Address	NAC	Land Use	ERs	Existing	No Build	Build	Build - Existing
14.36	104 DAL LN	B	Residential	1	60	61	63	3
14.37	104 DAL LN	B	Residential	1	59	60	61	2
15.1	101 TORI KAIT LN	B	Residential	1	71	72	<b>ROW</b>	N/A
15.2	105 TORI KAIT LN	B	Residential	1	61	62	<b>66</b>	5
15.3	109 TORI KAIT LN	B	Residential	1	56	57	61	5
15.4	113 TORI KAIT LN	B	Residential	1	53	54	58	5
15.5	117 TORI KAIT LN	B	Residential	1	52	53	56	4
15.6	122 TORI KAIT LN	B	Residential	1	50	51	55	5
15.7	118 TORI KAIT LN	B	Residential	1	53	54	58	5
15.8	114 TORI KAIT LN	B	Residential	1	55	56	59	4
15.9	110 TORI KAIT LN	B	Residential	1	58	59	63	5
15.10	106 TORI KAIT LN	B	Residential	1	66	67	<b>69</b>	3
15.11	160 EDGEMOOR RD	C	Cemetery	1	59	60	64	5
15.12	160 EDGEMOOR RD	C	Cemetery	1	53	54	59	6
15.13	160 EDGEMOOR RD	C	Cemetery	1	58	59	64	6
15.14	120 EDGEMOOR RD	D	Funeral Home	1	60/35 <sup>2</sup>	61/36 <sup>2</sup>	65/40 <sup>2</sup>	5
15.15	144 COCONUT LN LOT40	B	Residential	1	68	69	<b>71</b>	3
15.16	144 COCONUT LN LOT40	B	Residential	1	58	59	63	5
15.17	144 COCONUT LN LOT40	B	Residential	1	55	56	59	4
15.18	144 COCONUT LN LOT40	B	Residential	1	52	53	56	4
15.19	144 COCONUT LN LOT40	B	Residential	1	52	53	55	3
15.20	144 COCONUT LN LOT40	B	Residential	1	51	52	54	3
15.21	144 COCONUT LN LOT40	B	Residential	1	50	51	54	4
15.22	144 COCONUT LN LOT40	B	Residential	1	52	53	57	5
15.23	144 COCONUT LN LOT40	B	Residential	1	53	54	58	5
15.24	144 COCONUT LN LOT40	B	Residential	1	55	56	60	5
15.25	144 COCONUT LN LOT40	B	Residential	1	57	58	61	4
15.26	144 COCONUT LN LOT40	B	Residential	1	61	62	65	4
15.27	144 COCONUT LN LOT40	B	Residential	1	67	68	<b>70</b>	3
16.1	2218 CLINTON HWY	C	School Playground	1	53	54	58	5
16.2	2218 CLINTON HWY	C	School Ball Field	1	57	58	62	5
16.3	2218 CLINTON HWY	C	School Playground	1	52	53	55	3
16.4	2218 CLINTON HWY	C	School Playground	1	66	67	<b>69</b>	3
16.5	2218 CLINTON HWY	D	School	1	68/43 <sup>2</sup>	69/44 <sup>2</sup>	70/45 <sup>2</sup>	2
17.1	2215 CLINTON HWY	B	Residential	1	67	68	<b>68</b>	1
18.1	114 RACCOON VALLEY RD	D	Daycare	1	60/35 <sup>2</sup>	61/36 <sup>2</sup>	61/36 <sup>2</sup>	1
18.2	114 RACCOON VALLEY RD	C	Daycare	1	58	59	59	1

Receptors					Predicted Noise Levels,			
					Leq(h) (dB(A))			
Rec. No.	Address	NAC	Land Use	ERs	Existing	No Build	Build	Build - Existing
			Playground					
<b>Predicted "No-Build" Alternative Design Year 2046 Traffic Noise Impacts:</b>							<b>29<sup>1</sup></b>	
<b>Noise Level Impact</b>			<b>Right-of-Way Acquisition</b>					

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| <ol style="list-style-type: none"> <li>1. Predicted traffic noise level impact due to approaching or exceeding NAC.</li> <li>2. Exterior/Interior levels. FHWA Building Noise Reduction Factors. A 25 dB(A) reduction was used to be conservative</li> </ol> |
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