

Appendix A: Traffic and Safety Analysis

State Route 19

Environmental Assessment

From East of Eastland Avenue to East of SR-87

Lauderdale and Haywood Counties, Tennessee

PIN 102251.00



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To: [Eden, Braxton](#)
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Subject: RE: PIN 102251.00 Revised SR-19 Traffic and Safety Analysis
Date: Wednesday, September 24, 2025 1:39:58 PM
Attachments: [image002.png](#)
[image003.png](#)

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Thanks for the updated report. No further comments from us.



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Subject: [EXTERNAL] Fw: PIN 102251.00 Revised SR-19 Traffic and Safety Analysis

Greg,

On behalf of the TDOT NEPA Unit, please see the attached revised Traffic and Safety Analysis Report for SR-19 (PIN 102251.00).

If you have any questions or comments, please let us know. If not, we ask that you please provide an approval/concurrence email.

Thank you!

Braxton Eden
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Traffic and Safety Analysis Report

State Route 19

From East of Eastland Avenue to East of State
Route 87

PIN 102251.00

Tennessee Department of Transportation

Lauderdale and Haywood Counties, Tennessee

September 4, 2025



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Executive Summary

The Tennessee Department of Transportation (TDOT), in coordination with the Federal Highway Administration (FHWA), is proposing to improve State Route (SR) 19 from Eastland Avenue to east of SR 87, a length of approximately 14.92 miles, as discussed in Chapter 1 and illustrated in **Figure 1**.

The purpose of this technical memorandum is to discuss the findings of the traffic operational and safety analysis conducted on the proposed improvements. This analysis evaluates 2029 base year conditions for the Build and No-Build scenarios, as well as future analysis of 2049 design year conditions for the Build and No-Build scenarios. The safety assessment involved analysis of historic crash data.

The major findings of this report are summarized below in **Table ES-1**.

The major findings of this report are that the proposed improvements will have small measurable impacts on the operation of vehicular traffic but will help to improve the overall safety of the corridor.

Table ES-1: Summary of Report Findings for Each Assessed Area of Impact

Table excerpted from Chapter 7 of this report.

Impact Category	Findings
Traffic Operations <i>(discussed in Chapter 4)</i>	When comparing No-Build to Build conditions, there is no significant difference in overall Level of Service (LOS) for vehicular traffic between the No-Build Alternative and the Build Alternative along the studied roadway segments.
Traffic Safety <i>(discussed in Chapter 5)</i>	While overall crash rates on the existing roadway are not elevated above state-wide levels, the proportion of crashes resulting in serious injury or fatalities in the study segments was higher than state-wide severe crash levels during the study timeframe. The proposed project incorporates roadway improvements that correspond to Crash Modification Factors (CMF's) that indicate a likely reduction in overall crashes along the corridor and a potential reduction in the severity of crashes in Segment A due to the widening of the shoulders.
Cyclist Operations <i>(discussed in Chapter 6)</i>	The overall cyclist Bicycle Level of Service (BLOS) improves from an F in the No-Build scenario to a C in the Build scenario in the design year (2049) due to the improvements proposed as part of this project.

1 Introduction

TDOT, in coordination with FHWA, is proposing to improve SR-19 from east of Eastland Avenue in Lauderdale County to east of SR-87 in Haywood County, a length of approximately 14.92 miles as illustrated below in **Figure 1**.

The purpose of this technical memorandum is to discuss the findings of the traffic operational and safety analysis conducted on the proposed improvements. The potential areas of impact studied are:

1. **Traffic Operations** (*Chapter 4*)
2. **Traffic Safety** (*Chapter 5*)
3. **Cyclist Operations** (*Chapter 6*)

1.1 Purpose and Need

The needs for the proposed project include:

- Elevated percentage of severe crashes along the roadway.
- Geometric deficiencies (limited shoulders, sight distance, etc.).

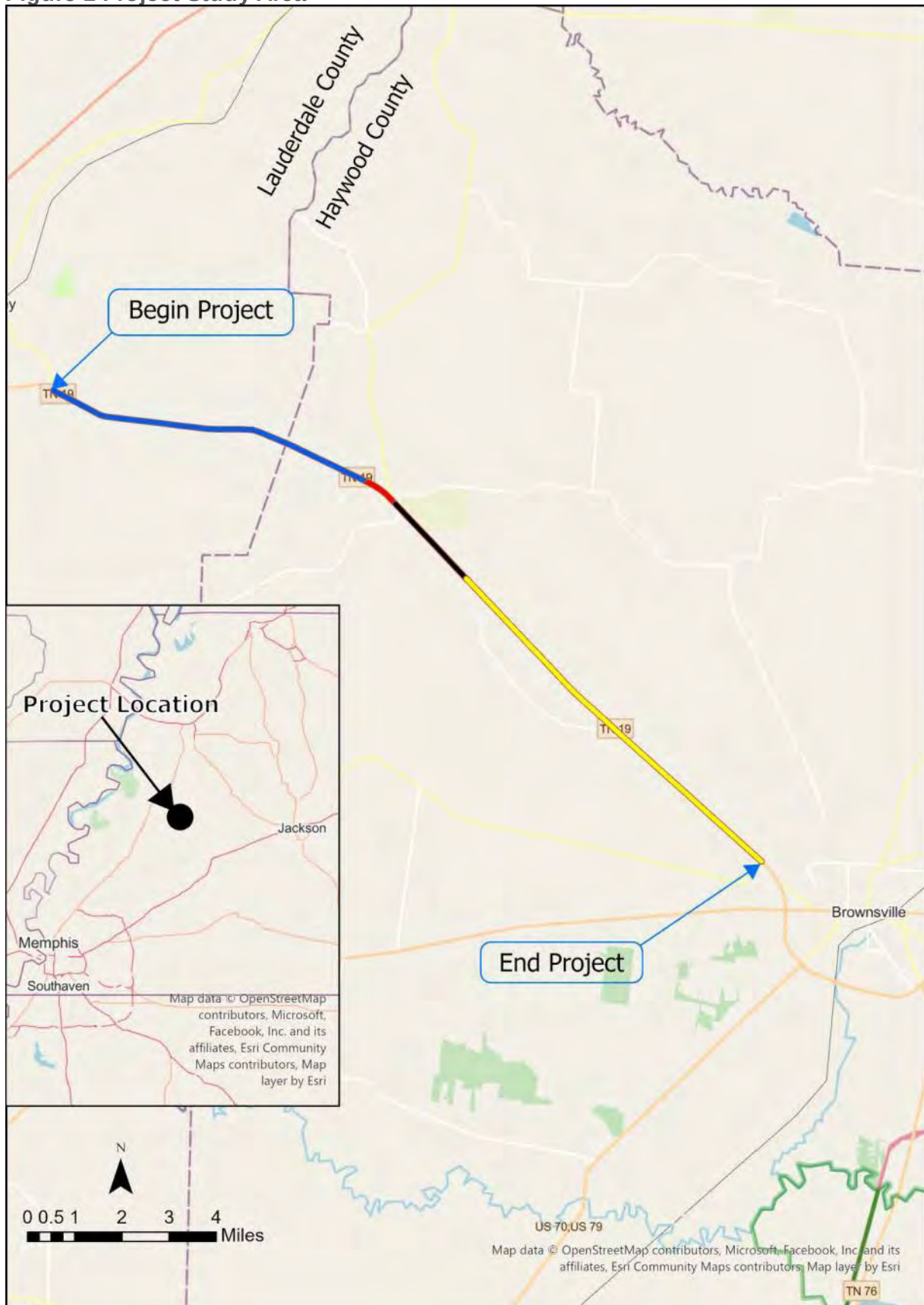
Based on the project needs, the purpose of the proposed project is to:

- Reduce severity of crashes.
- Improve the roadway to meet current design standards.

1.2 Project Description

The current typical section for this portion of SR-19 is mainly a rural highway with a single 11-foot lane in each direction, a 2-foot outside shoulder width, and a posted speed limit of 55 miles per hour (mph) except through the community of Nutbush where the speed limit is 45 mph. SR-19 in the project area is also a proposed bicycle route in the Tennessee State Bicycle Route System.

Figure 1 Project Study Area



2 Study Segments

For the traffic operational and safety analysis, the proposed project has been separated into four study segments. These study segments were selected to group similar improvements and are independent of the TDOT PIN numbers and their extents. Segment “A” consists of widening the travel lanes to twelve feet and widening the shoulders to ten feet with eight feet paved, Segment “B” consists of milling and resurfacing within the existing cross section, Segment “C” consists of widening the travel lanes to twelve feet and widening the shoulders to ten feet with eight feet paved, and Segment “D” includes mill, resurfacing, and improvements to slope in high crash areas. All segments include improvements to intersection geometry. **Figure 2** illustrates the proposed project location along with the four study segments. **Table 1** and **Table 2** list the project limits, study segments, and study intersections, along with the proposed improvements for each.

3 Evaluation Scenarios

This memorandum summarizes the methodology and findings of the operational analysis for the study area for the following analysis scenarios:

- 2029 No-Build
- 2029 Build
- 2049 No-Build
- 2049 Build

The purpose of this assessment is to compare the relative impacts of the Build Alternative with the No-Build alternative. The evaluation covers both the base year (2029) and design year (2049) future years across the three impact categories outlined in Chapter 1.

Figure 2 Project Study Segments



Table 1 Proposed Roadway Improvements in the Build Alternative

Segment	Start		End		Length (mile)	No-Build	Build
	Side Street	Log Mile	Side Street	Log Mile			
A	Eastland Avenue	*21.98	Gill Brackin Road	1.55	*5.71	• 11-foot travel lane in each direction. • 2-foot-wide shoulder in each direction.	• 12-foot travel lanes in each direction. • 8-foot paved right shoulder in each direction. • Intersection improvements.
B	Gill Bracken Road	1.55	Nunn Road	2.17	0.62		• Resurface existing roadway. • Intersection improvements.
C	Nunn Road	2.17	Jim Binford Lane	3.95	1.78		• 12-foot travel lanes in each direction. • 8-foot paved right shoulder in each direction. • Intersection improvement.
D	Jim Binford Lane	3.95	SR-87	10.76	6.81		• Resurface existing roadway. • Intersection improvements. • Improvements to slopes in high crash areas.

* Log Mile 21.98 to 26.14 in Lauderdale County. Log Mile 0 to 1.55 in Haywood County.

Table 2: Proposed Intersections Designated for Safety Improvements in the Build Alternative

ID	Segment	Intersecting Road	No-Build		Build	
			Lane Configuration	Control Type	Proposed improvements	Control Type
1	A	Willie Paris Road	- Three-way intersection. - Single lane on all approaches. - Willie Paris Road meets intersection at 45° angle.	TWSC	Re-aligning the Willie Paris Road approach to meet at a 90° angle.	TWSC
2	A	Ross Road / Gause Lane	- Single lane on all approaches - Side street approaches meet the intersection at a 45° angle.	TWSC	Re-aligning the side street approaches to meet the intersection at a 90° angle.	TWSC
3	A	Tall Oaks Cove	Three-way intersection.	TWSC	Improving slope and sight distance at intersection	TWSC
4	A	Sanford Road / Conner Whitfield Road	Single lane on all approaches.	TWSC	Improving slope and sight distance at intersection.	TWSC
5	A	Watson Road / Carney Road	- Single lane on all approaches. - Side streets do not meet the intersection at a 90° angle.	TWSC	Re-aligning the side streets to meet the intersection at a 90° angle.	TWSC
6	A	Springhill Road	- Three-way intersection. - Single lane on all approaches. - Side streets do not meet the intersection at a 90° angle.	TWSC	Re-aligning the side streets to meet the intersection at a 90° angle.	TWSC
7	B	Forked Deer Road / SR-180	- Single lane on all approaches. - Side street approaches are currently offset approximately 240 feet. - Side street approaches meet the intersection at a 45° angle.	TWSC	Re-aligning the side street approach to meet at the same point at 90° angles	TWSC
8	B	Nunn Road	- Single lane on all approaches. - Side street approaches are currently offset approximately 240 feet. - Side street approaches meet the intersection at a 45° angle.	TWSC	Re-aligning the side street approach to meet at the same point at 90° angles	TWSC
9	C	Jim Binford Lane	- Three-way intersection. - Single lane on all approaches. - Side street approach meets the intersection at a 45° angle.	TWSC	Re-aligning the side street approach to meet the intersection at a 90° angle.	TWSC
10	D	Small Road	- Three-way intersection. - Single lane on all approaches. - Small Road approach meets intersection at 45° angle.	TWSC	Re-aligning the Small Road approach to meet at a 90° angle	TWSC
11	D	Briarcreek Road / Woodlawn Road	- NB approach has a through lane and a channelized right turn lane. - Single lane on all other approaches. - Side street approaches meet the intersection at a 45° angle.	TWSC	- Re-aligning the side street approaches to meet the intersection at a 90° angle. - Removing the channelized right turn lane on the NB approach.	TWSC
12	D	Old SR-19	- Three-way intersection. - Single lane on all approaches. - Old SR-19 approach meets intersection at 45° angle.	TWSC	Re-aligning the Old SR-19 approach to meet the intersection at a 90° angle.	TWSC

NB: Northbound. SB: Southbound. EB: Eastbound. WB: Westbound. TWSC: Two-Way Stop-Controlled.

4 Operational Analysis

A traffic operational analysis was conducted to evaluate how the study segments performed in serving the projected future traffic volumes anticipated in the No-Build and Build analysis scenarios. The following subsections present the methodology and results for both an intersection capacity analysis and an assessment of travel speed along the corridor.

Inputs feeding into this operational analysis came from various sources as summarized in **Table 3**. The traffic volume data is included in **Attachment A**.

Table 3 Operational Analysis Inputs

Input	No-Build Source	Build Source
Roadway Geometry (e.g., number of lanes, lane width, shoulder width, horizontal curve data)	Google Earth / Project Line and Grade Plans	
Traffic Volumes	TDOT Strategic Transportation Investments Division	

4.1 Segment Operational Assessment

The study segments in the study area were also evaluated to determine the peak hour operating conditions for the No-Build and Build scenarios. The analyses were conducted in accordance with the procedures outlined in the *Highway Capacity Manual, 7th Edition* (HCM 7), published by the Transportation Research Board. HCM 7 provides various methods of operational analysis for roadway segments depending on context and cross-section. Based on the context, location, and geometry of the SR-19 study corridor, the HCM 7 methodology dictates the segments to be analyzed using the Two-Lane Highways module.

HCM 7 Chapter 15, Two-Lane Highways, presents methodologies for analyzing two-lane highway operations under uninterrupted-flow conditions that exist when “there are no traffic control devices that interrupt traffic” and generally a segment that is “more than 2.0 miles away from the nearest signalized intersection fits into this category.” No signals exist currently or are proposed as part of this project along the subject portion of SR-19; therefore, the segments have been analyzed with the methodologies of Chapter 15, Two-Lane Highways. No-Build and Build analyses were performed using the Highway Capacity Software 2025, version 8.4 (HCS 2025).

All four study segments were analyzed as a Class I highway for the purposes of this study.

Per HCM 7, the Level of Service (LOS) for the two-lane highway for motorized vehicle mode is determined using the following service measure:

- **Follower Density** described as “the number of vehicles in a follower state per mile per lane.”

A vehicle can be defined as following when the gaps between the rear and front ends of the leading and following vehicle, respectively, are shorter than or equal to 3 seconds and the speed of the following vehicle is not more than 12 mph slower than that of the preceding vehicle. Follower Density (FD) replaced Average Travel Speed (ATS) and Percent Time Spent Following (PTSF) as the service measure determining LOS in the 2022 methodology. **Table 4** provides HCM 7 LOS thresholds for the motorized vehicle mode on two-lane highways.

LOS designations ranging from LOS A through D are considered acceptable for two-lane highway operations. LOS A describes primarily free-flow operation, while LOS F is characterized by flow at extremely low speed. At LOS A, vehicles are completely unimpeded in their ability to maneuver within the traffic stream, while LOS F indicates that the roadway volumes exceed the capacity.

Table 4 HCM 7 LOS Thresholds

LOS	Follower Density (followers/mi/ln)	
	Posted Speed Limit ≥ 50 mph	Posted Speed Limit < 50 mph
A	≤ 2.0	≤ 2.5
B	> 2.0 – 4.0	> 2.5 – 5.0
C	> 4.0 – 8.0	> 5.0 – 10.0
D	> 8.0 – 12.0	> 10.0 – 15.0
E	> 12.0	> 15.0
F	Demand exceeds capacity	

The impact of the proposed roadway improvements on the ATS was analyzed along four different segments for the Build and No-Build scenarios. These segments, illustrated in **Figure 2**, were selected to differentiate the types of improvements made on the portions of the project.

4.2 Segment Operational Assessment Results

Table 5 summarizes the base year (2029) and design year (2049) LOS and operational roadway performance for the SR-19 study segments within the study area for the design hourly volume for the No-Build and Build scenarios. The detailed analysis reports from HCS 2025 are included in **Attachment B**.

The roadway is expected to operate at acceptable levels in all scenarios. The increase in both shoulder and lane width proposed in Segment A and C results in slight increases in operational efficiency along that segment in both the base year and the design year.

The land uses along the corridor are primarily agricultural in nature. A potential benefit that was not quantified as part of this analysis is that the additional shoulder width will give space for low-speed farm equipment to move out of the travel lanes and allow vehicles to pass. These events would be sporadic and seasonally dependent and therefore were not considered as part of the analysis of the peak hour performance of the corridor.

No capacity improvements were proposed in segment B or D. The improvements proposed were focused on improving safety and are discussed in Chapter 5 of this report. However, these segments were analyzed as well to ensure that operations remained acceptable in future years.

Table 5 Travel Speed, Follower Density, and LOS Comparison between Build and No-Build Scenarios

				2029 No-Build			2029 Build			2049 No-Build			2049 Build		
Segment	Start	End	Posted Speed (mph)	ATS (mph)	FD	LOS	ATS (mph)	FD	LOS	ATS (mph)	FD	LOS	ATS (mph)	FD	LOS
A	Eastland Avenue	Gill Brackin Road	55	53.8	2.0	B	58.5	1.8	A	53.7	2.5	B	58.3	2.2	B
B	Gill Brackin Road	Nunn Road	45	40.5	2.1	A	40.5	2.1	A	40.4	2.5	B	40.4	2.5	B
C	Nunn Road	Jim Binford Lane	45	42.4	2.4	A	47.0	2.1	A	42.2	2.9	B	46.9	2.6	B
D	Jim Binford Lane	SR-87	45	45.1	2.4	A	45.1	2.4	A	44.9	3.0	B	44.9	3.0	B
		Overall	-	47.8	2.3	A	50.2	2.1	A	47.7	2.8	B	50.1	2.6	B

FD: Following Density; ATS: Average Travel Speed

5 Traffic Safety Analysis

Historical crash data for the study area was obtained from the TDOT AASHTOWare Safety database a three-year study period covering June 19, 2022, to June 19, 2025. The database includes information on the location, date, severity, and other factors for each reported crash. In this section, this data was used to generate summary statistics and crash rates, which are in turn used to assess current roadway safety conditions. Crash Data is included in Attachment C.

5.1 Crash Analysis Methodology

The crash analysis includes the development of summary statistics based on crash severity, calculation of crash rates, and comparison of these actual crash rates with calculated critical crash rates.

The crash rate evaluation has been divided into two separate analyses, one covering the study segments within the study area and the other for key intersections along those segments that are designated for improvement.

Crashes are random and relatively infrequent occurrences, therefore comparing the actual crash rate of a roadway segment, spot, or intersection to statewide average crash rates alone does not imply statistical significance. Instead, the Critical Crash Rate is used to determine whether the Actual Crash Rate is significantly higher than average.

The Critical Crash Rate is a threshold value, calculated for a given roadway segment, spot, or intersection, that determines whether the Actual Crash Rate of that segment, spot, or intersection significantly deviates from the average statewide crash rate for facilities with similar characteristics.

Crash analysis considers the Critical Crash Rate, which is a rate that is derived by formula and applies a recognized statistical method to analyze crash data. This method compares the Actual Crash Rate at a site with the Critical Crash Rate unique to each site. An Actual Crash Rate that is greater than the Critical Crash Rate indicates a possibility that there is some unfavorable characteristic of local conditions contributing to crash occurrences. Exceedance of the Critical Crash Rate is expressed when the ratio of the Actual Crash Rate to the Critical Crash Rate (A/C) is greater than 1.0.

5.2 Crash Analysis Results

The crash rate analysis was conducted using the TDOT Crash Rate Calculator tool in Microsoft Excel. Completed crash rate worksheets are included in **Attachment D**. Results are summarized in the following sections.

5.2.1 Segment Crash Rates

The segment crash rate calculations take into consideration the number of crashes along that segment, excluding those crashes occurring within the influence area of an intersection noted in the following section, as well as the average annual daily traffic (AADT) volume, roadway length, and the number of years of crash data. Error! Not a valid bookmark self-reference. presents the calculated segment crash rates, as well as summary statistics regarding the severity breakdown of the 89 segment crashes that occurred across the four segments from June 19, 2022, to June 19, 2025.

As can be seen in **Table 6**, none of the segments have an A/C ratio greater than 1.0 since none of the segment crash rates exceed the critical crash rate during the three-year study period. Since the ratio is less than 1.0, there is no indication that there are unfavorable characteristics of the roadways that contribute to the overall crash rate.

Table 6 Segment Crash Rate Results (Crash Year: 2022 to 2025)

ID	Route Name	Begin Road	End Road	Number of Crashes						Actual Crash Rate (A)	Critical Crash Rate (C)	A/C Ratio
				K	A	B	C	O	Total			
A	SR-19	Eastland Avenue	Gill Brackin Road	2	2	9	5	31	49	2.917	4.883	0.60
B	SR-19	Gill Brackin Road	Nunn Road	1	0	0	0	2	3	1.867	7.620	0.24
C	SR-19	Nunn Road	Jim Binford Lane	1	1	0	0	4	6	1.063	5.739	0.19
D	SR-19	Jim Binford Lane	SR-87	1	1	3	2	24	31	1.435	4.746	0.30
Notes: - "ID" indicates the study segments as shown in Table 1 and Figure 2. - Crash Severity Designations: K = Fatal, A = Suspected Serious Injury, B = Suspected Minor Injury, C = Possible Injury, O = Property Damage Only - 2023 AADT values were used in the analysis - Detailed crash rate calculations are included in Attachment D												

5.2.2 Segment Crash Severity Analysis

Data relevant to the severity of the crashes was also analyzed and is tabulated in **Table 7**. The crash severity categories are property damage only, minor injury, possible injury, serious injury, and fatal. Each crash is assigned a category based on the most severe consequence of the crash; however, the crash may involve multiple equally severe or less severe events. For example, a fatal crash may contain one or more fatalities and one or more serious injuries. This analysis is based on the number of crash events and not the individualized data.

The crash severity designations that are identified above are consistent with the Model Minimum Uniform Crash Criteria 6th Edition (MMUCC). This document provides a standardized method for crash reporting. The severity designations are based on what is evident at the scene of the crash with the exception of Fatal Injury, which can be updated up to 30 days after the crash occurred. More information and guidance on delineations between injury types can be found in the MMUCC.

The percentage of crashes that fall into each severity designation was compared to the statewide number over that same period. **Table 7** shows that the percentage of fatal crashes are higher along all of the study segments than the state-wide percentages. The percentage of suspected serious injury crashes are also higher than that of the state-wide average on segments A, C, and D.

Table 7 Segment Crash Severity (Crash Year: 2022 to 2025)

Crash Severity Designation	Segment A		Segment B		Segment C		Segment D		TN State Routes	
	Number of Crashes	Percent of Crashes	Number of Crashes	Percent of Crashes	Number of Crashes	Percent of Crashes	Number of Crashes	Percent of Crashes	Number of Crashes	Percent of Crashes
Fatal	2	4.08%	1	33.33%	1	16.67%	1	3.23%	1,840	0.76%
Suspected Serious Injury	2	4.08%	0	0.00%	1	16.67%	1	3.23%	7,071	2.86%
Suspected Minor Injury	9	18.37%	0	0.00%	0	0.00%	3	9.68%	25,539	10.34%
Possible Injury	5	10.20%	0	0.00%	0	0.00%	2	6.45%	25,869	10.48%
Property Damage Only	31	63.27%	2	66.67%	4	66.67%	24	77.42%	181,745	73.61%
Total	49	100%	3	100%	6	100%	31	100%	246,911	100%

5.2.3 Intersection Crash Rates

Crash rate calculations at intersections take into consideration the number of crashes occurring within the influence area of an intersection, approximately a 0.05-mile buffer that includes those crashes occurring along side streets, as well as the AADT volume and the number of years of crash data. **Table 8** presents the calculated intersection crash rates, as well as summary statistics regarding the severity breakdown of the nine intersection crashes that occurred across the twelve existing intersections that are designated for improvement from 2022 to 2025

Both the total number of crashes as well as the actual crash rates and calculated critical rates at all the intersections studied are relatively low, primarily due to the low volumes present at these intersections. No actual rates were found to exceed the calculated critical rates at any of the intersections, so there is no indication by these rates that there are unfavorable characteristics of the intersections that are contributing to the crashes. seven of the nine crashes reported were property damage only crashes, while the other two crashes resulted in a suspected minor injury.

Table 8 Intersection Crash Rate Results (Crash Year: 2022 to 2025)

ID	Intersection	Number of Crashes						Actual Crash Rate (A)	Critical Crash Rate (C)	A/C Ratio
		K	A	B	C	O	Total			
1	SR-19 and Willie Paris Road	0	0	0	0	0	0	0.000	2.159	0.00
2	SR-19 and Ross Road/Gause Lane	0	0	1	0	0	1	0.372	2.159	0.17
3	SR-19 and Tall Oaks Cove	0	0	0	0	1	1	0.372	2.159	0.17
4	SR-19 and Sanford Road/Conner Whitfield Road	0	0	0	0	3	3	1.116	2.159	0.52
5	SR-19 and Watson Road/Carney Road	0	0	1	0	0	1	0.372	2.159	0.17
6	SR-19 and Springhill Road	0	0	0	0	0	0	0.000	2.159	0.00
7	SR-19 and SR-180/Forked Deer Road	0	0	0	0	1	1	0.382	2.182	0.18
8	SR-19 and Nunn Road	0	0	0	0	0	0	0.000	2.182	0.00
9	SR-19 and Jim Binford Lane	0	0	0	0	1	1	0.372	2.159	0.17
10	SR-19 and Small Road	0	0	0	0	0	0	0.000	2.226	0.00
11	SR-19 and Briarcreek Road/Woodlawn Road	0	0	0	0	0	0	0.000	2.169	0.00
12	SR-19 and Old SR-19	0	0	0	0	1	1	0.374	2.164	0.17
Notes: - Crashes along both the major road and intersecting side street were considered in this analysis Crash Severity Designations: K = Fatal, A = Suspected Serious Injury, B = Suspected Minor Injury, C = Possible Injury, O = Property Damage Only - 2023 AADT values were used in the analysis - Detailed crash rate calculations are included in Attachment D										

5.2.4 Summary of Crash Analysis Findings and Proposed Safety Improvements

The major finding of this analysis is that while overall crash rates along the corridor are below the statewide average, a larger portion of those crashes result in fatalities or serious injuries.

FHWA, through the *Highway Safety Manual* (HSM), has developed a methodology for accessing the benefits of future geometric and operational improvements on traffic safety through the application of Crash Modification Factors (CMF). CMF represents a factor that helps to indicate the amount by which the proposed modification will affect the crashes throughout the applicable area. CMF values can vary between three ranges:

- CMF > 1.0 represents an anticipated increase in crashes.
- CMF = 1.0 represents no anticipated change in crashes.
- CMF < 1.0 represents an anticipated decrease in crashes.

These CMFs are developed through research efforts to study specific treatments independently typically through a before and after observational study. FHWA has developed and maintains an online clearinghouse of studies and applicable CMFs via the CMF Clearinghouse (cmfclearinghouse.org). As safety research continues to develop and improve, the Clearinghouse helps to provide continuous, timely updates in a manner that is more feasible than providing continuous updates to the HSM, where the initial sets of CMFs are documented and referenced. Submitted research is reviewed, scored,

categorized, and published on the Clearinghouse for reference. The scoring criteria used by FHWA is a star rating from 1 to 5 and is described by the Clearinghouse in **Table 9**.

Table 9 FHWA CMF Clearinghouse Scoring Criteria Modifications

Relative Rating	Excellent	Fair	Poor
Study Design	Statistically rigorous study design with reference group or randomized experiment and control	Cross sectional study or other coefficient based analysis	Simple before / after study
Sample Size	Large sample, multiple years, diversity of sites	Moderate sample size, limited years, and limited diversity of sites	Limited homogeneous sample
Standard Error	Small compared to CRF	Relatively large SE, but confidence interval does not include zero	Large SE and confidence interval includes zero
Potential Bias	Controls for all sources of known potential bias <i>*See below for a list of potential biases</i>	Controls for some sources of potential bias	No consideration of potential bias
Data Source	Diversity in States representing different geographies	Limited to one State, but diversity in geography within State (e.g., CA)	Limited to one jurisdiction in one State

To provide a more quantitative translation from these categories to the star rating, a point-based system was developed. Points are assigned to each CMF characteristic based on the level of rigor (excellent = 2 points, fair = 1 point, or poor = 0 points). While the points decrease from excellent to poor, not all characteristics receive equal weight. For example, the study design is more important than the data source. Therefore, the final quality rating is based on a weighted score. Study design and sample size categories receive twice the weight of the other characteristics (see equation below).

Score = (2 * study design) + (2 * sample size) + standard error + potential bias + data source

The star rating is assigned based on the score and the ranges in the table below. It should be noted that information may be missing from a study report for specific characteristics such as sample size. In these cases, the rating is based on available information and the CMF will likely receive a lower rating due to the lack of information.

Score	Star Rating
14 (max possible)	5 Stars
11 – 13	4 Stars
7 – 10	3 Stars
3 – 6	2 Stars
1 – 2	1 Star
0	0 Stars

Table 10 shows the applicable CMF values for the Build Alternative. As shown in **Table 10** there are applicable CMFs from the HSM and the CMF Clearinghouse which address the proposed geometric improvements of widening the lanes and shoulders in Segments A and C, the slope improvements proposed as part of Segment D, and the intersection re-alignments. All of the CMFs shown have a value less than 1.0, indicating a reduction in crashes. The CMF for widening shoulders, 7756, applies specifically to crashes resulting in possible injury or more severe. The value of this is CMF is 0.680, indicating a potential reduction in these crashes of approximately 30 percent compared to existing conditions.

The inverse of the CMF is the Crash Reduction Factor (CRF), which represents the percentage of crashes to be reduced due to the modification of the traffic control or design. The CRF is calculated using the following formula.

$$\text{CRF} = 1.0 - \text{CMF}$$

Table 10 Applicable Build Condition CMFs

Segment	CMF ID	Description	CMF	CRF	Rating	Crash Type	Crash Severity	Area
A, C	7756	Widen shoulder	0.680	0.320	4	All	K, A, B, C	Rural
	3	Increase lane width from 11 feet to 12 feet	0.950	0.050	3	All	All	Rural
D	4615	Flatten side slope from 1V:3H to 1V:6H	0.890	0.110	*N/A	All	All	Rural
Intersection Improvements	5189	Change Intersection Skew Angle	0.784	0.216	*N/A	All	All	Rural
Notes: * This CMF cannot be rated in the Clearinghouse because it appears in the 1st Edition of the HSM without an adjusted standard error. The Clearinghouse uses the adjusted standard error to provide a surrogate star quality rating for all CMFs that were imported from the HSM, so without this value, a star rating is not possible. In the HSM, there is a notation for these CMFs that “the standard error of the CMF is unknown”. This is generally because the CMF was developed either through an expert panel or was obtained from an older study for which the standard error was unknown. CMF for Intersection Improvements based on adjustment of skew angle from 45° to 0°. CMF ID's are taken from the CMF clearinghouse. Crash Severity Designations: K = Fatal, A = Suspected Serious Injury, B = Suspected Minor Injury, C = Possible Injury, O = Property Damage Only								

6 Cyclist Operations and Safety Analysis

SR-19 is a proposed bicycle route in the Tennessee State Bicycle Route System. Improvements proposed as part of this project, including the expansion of shoulders in Segments A and C and the resurfacing proposed along Segments B and D, have effects on the operations and safety of cyclists along the corridor. These effects are discussed below.

6.1.1 Segment Cyclist Operational Assessment

HCM 7 Chapter 15 was used to determine the LOS for vehicular traffic along each segment and also presents methodologies for analyzing the operations of cyclists along

those segments. Analyses for the No-Build and Build Alternatives were performed as part of the analysis discussed in Chapter 3 of this document.

Per HCM 7 LOS for a two-lane highway for cyclists is determined by the following factors:

- Directional demand flow rate in the outside lane (veh/h)
- Effective speed factor
- Percentage of heavy vehicles
- FHWA's 5-point pavement surface condition rating
- Average effective width of the outside through lane

With these factors, the BLOS (Bicycle Level of Service) score can be calculated using Equation 15-47 in the HCM 7. The value from that equation can then be used to determine the BLOS score value from the values shown in **Table 11**.

Table 11 HCM 7 Cyclist BLOS Thresholds

BLOS	BLOS Score
A	≤ 1.5
B	> 1.5 – 2.5
C	> 2.5 – 3.5
D	> 3.5 – 4.5
E	> 4.5 – 5.5
F	> 5.5

The impact of the proposed improvements and projected volume growth on the BLOS was analyzed along the four segments analyzed for the motorized vehicle mode. These segments are illustrated in **Figure 2**.

6.1.2 Segment Cyclist Operational Assessment Results

Table 12 summarizes the base year (2029) and design year (2049) LOS and BLOS score value for the segments within the study area for the design hourly volume for the No-Build and Build Scenarios. The detailed analysis reports from HCS 2025 are included in **Appendix B**.

Overall, for cyclists, the roadway is expected to operate at acceptable levels in the Build Scenario and operate at a LOS F in the No-Build Scenario. Segments A and C show the most improvement, operating at a LOS B in both the 2029 base year and 2049 design year for the Build Scenario, largely due to the expansion of the shoulders. In the Build Scenario, small improvements can be seen in Segments B and D as a result of the improved pavement conditions.

Table 12 Cyclist Results

Segment	Start	End	2029 No-Build		2029 Build		2049 No-Build		2049 Build	
			BLOS Score	LOS	BLOS Score	LOS	BLOS Score	LOS	BLOS Score	LOS
A	Eastland Avenue	Gill Brackin Road	6.41	F	1.85	B	6.31	F	1.91	B
B	Gill Brackin Road	Nunn Road	6.45	F	4.97	E	6.51	F	5.03	E
C	Nunn Road	Jim Binford Lane	6.24	F	1.68	B	6.31	F	1.75	B
D	Jim Binford Lane	SR-87	6.24	F	4.76	E	6.31	F	4.83	E
Overall			6.34	F	3.32	C	6.36	F	3.38	C

7 Summary of Findings

This section presents a high-level summary of the findings for each of the four areas of impact identified in Chapter 1, as shown in **Table 13**.

Table 13 Summary of Report Findings for Each Assessed Area of Impact

Impact Category	Findings
Traffic Operations (discussed in Chapter 4)	When comparing No-Build to Build conditions, there is no significant difference in overall Level of Service (LOS) between the No-Build Alternative and the Build Alternative along the studied roadway segments.
Traffic Safety (discussed in Chapter 5)	While overall crash rates on the existing roadway are not elevated above state-wide levels, the proportion of crashes resulting in serious injury or fatalities in the study segments was higher than state-wide severe crash levels during the study timeframe. The proposed project incorporates roadway improvements that correspond to Crash Modification Factors (CMF's) that indicate a likely reduction in overall crashes along the corridor and a potential reduction in the severity of crashes in Segment A due to the widening of the shoulders.
Cyclist Operations (discussed in Chapter 6)	The overall cyclist Bicycle Level of Service (BLOS) improves from an F in the No-Build scenario to a C in the Build scenario due to the improvements proposed as part of this project.

Attachment A. Traffic Volume Data

**TENNESSEE DEPARTMENT OF TRANSPORTATION
STRATEGIC TRANSPORTATION INVESTMENTS DIVISION**

PROJECT NO.: STP-19(54) : 49005-1228-14 ROUTE: S.R. 19
COUNTY: LAUDERDALE CITY: _____
PROJECT PIN NUMBER: 102251.01
PROJECT DESCRIPTION: FROM EASTLAND AVE. TO THE HAYWOOD COUNTY LINE.

[1] S.R. 19 AVERAGE TRAFFIC DATA

DIVISION REQUESTING:

MAINTENANCE ☐ PAVEMENT DESIGN ☐
S.T.I.D. ☒ STRUCTURES ☐
PROG. DEVELOPMENT & ADM. ☐ SURVEY & ROADWAY DESIGN ☐
PUBLIC TRANS. & AERO. ☐ TRAFFIC SIGNAL DESIGN ☐
OTHER ☐
YEAR PROJECT PROGRAMMED FOR CONSTRUCTION: 2029
PROJECTED LETTING DATE: 2029

TRAFFIC ASSIGNMENT:

[1]

BASE YEAR		DESIGN YEAR					DESIGN ROADWAY % TRUCKS		DESIGN AVERAGE DAILY LOADS	
AADT	YEAR	AADT	DHV	%	YEAR	DIR.DIST.	DHV	AADT	FLEX	RIGID
3,350	2029	3,820	420	11	2049	65-35	4	6	144	217

REQUESTED BY: NAME DAVID DUNCAN DATE 3/8/24
DIVISION S.T.I.D.
ADDRESS 1000 J, K, POLK BUILDING
NASHVILLE TN 37243

REVIEWED BY: RANDY BOGUSKIE Randy Boguskie DATE 3/11/2024
TRANSPORTATION MANAGER 1
SUITE 1000, JAMES K. POLK BUILDING

APPROVED BY: TONY ARMSTRONG Tony Armstrong DATE 3/11/2024
TRANSPORTATION MANAGER 2
SUITE 1000, JAMES K. POLK BUILDING

COMMENTS:

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

THIS TRAFFIC UPDATES THE PREVIOUS PROJECT PREPARED FOR DESIGN DATED 9/1/2021 AND IS BASED ON 2023 CYCLE COUNTS. THE DESIGN YEAR TRAFFIC IS BASED ON GROWTH RATE FROM THE TN-TIMES LINEAR REGRESSION TOOL. 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 ADTs OF 1000 OR LESS AND PERCENTAGE OF TRUCKS OF 7% OR LESS.

SEE ATTACHMENTS FOR TURNING MOVEMENTS AND/OR OTHER DETAILS.

(REV. 6/9/21)

**TENNESSEE DEPARTMENT OF TRANSPORTATION
STRATEGIC TRANSPORTATION INVESTMENTS DIVISION**

PROJECT NO.: STP-19(54) : 49005-1228-14 ROUTE NO.: S.R. 19
 COUNTY: LAUDERDALE CITY:
 PROJECT DESCRIPTION: FROM EASTLAND AVE. TO THE HAYWOOD COUNTY LINE

FAP Rural

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)		2,417	0.001	2	0.001	2
Pick-up, Panel, Van (3)		950	0.005	5	0.004	4
Sing. Unit	Buses (4)	2	0.300	1	0.300	1
	2-axle, 6-tire (5)	21	0.240	5	0.310	7
	3-axle or more (6-7)	56	1.700	95	2.300	129
	4-axle (8)	21	1.110	23	1.500	32
Comb.	5-axle or more (9-13)	118	1.320	156	2.200	260
	Totals (2039 AADT)	3,585		287		433

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: 2

% Trucks in Design Lane: 100%

ADL in Design Lane:

FLEX:	0.5	X	1.00	X	287.1	=	144
RIGID:	0.5	X	1.00	X	433.2	=	217

ADL Calculations By: RANDY BOGUSKIE Date: 3/11/2024
 Reviewed By: Tony Armstrong Date: 3/11/2024
 [REV. 7/1/14]



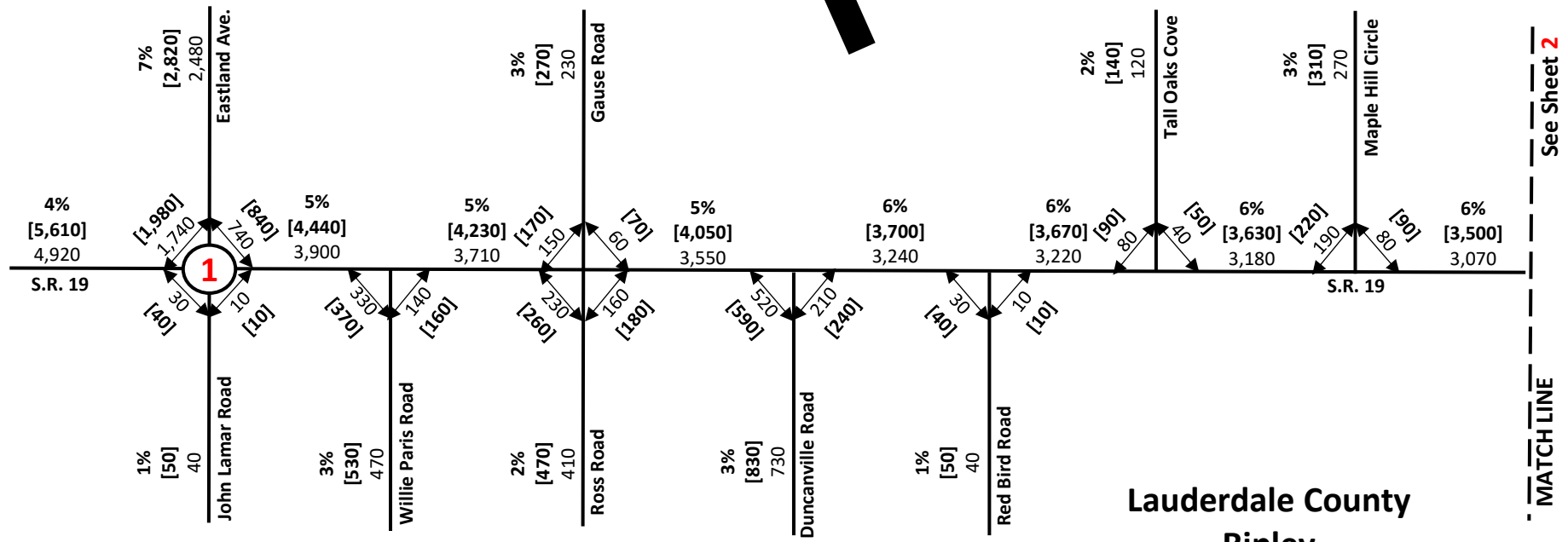
Lauderdale County

S.R. 19

From Eastman Ave. to Haywood County Line

AADT

Sheet 1 of 2



Lauderdale County
Ripley
S.R. 19

Legend:

2029 AADT - 000

2049 AADT - [000]

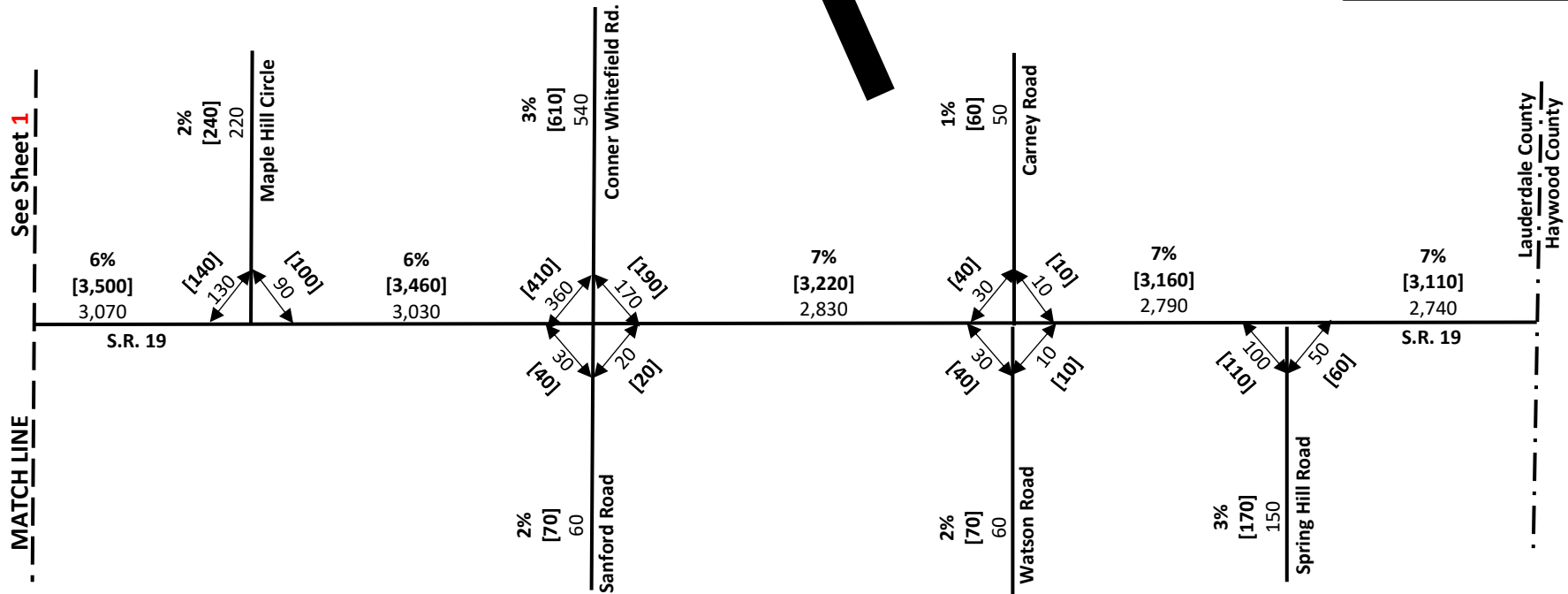
AADT Truck % - 0%

Date: March 11, 2024

TA

AADT

Sheet 2 of 2



Lauderdale County

Ripley

S.R. 19

Legend:

2029 AADT - 000

2049 AADT - [000]

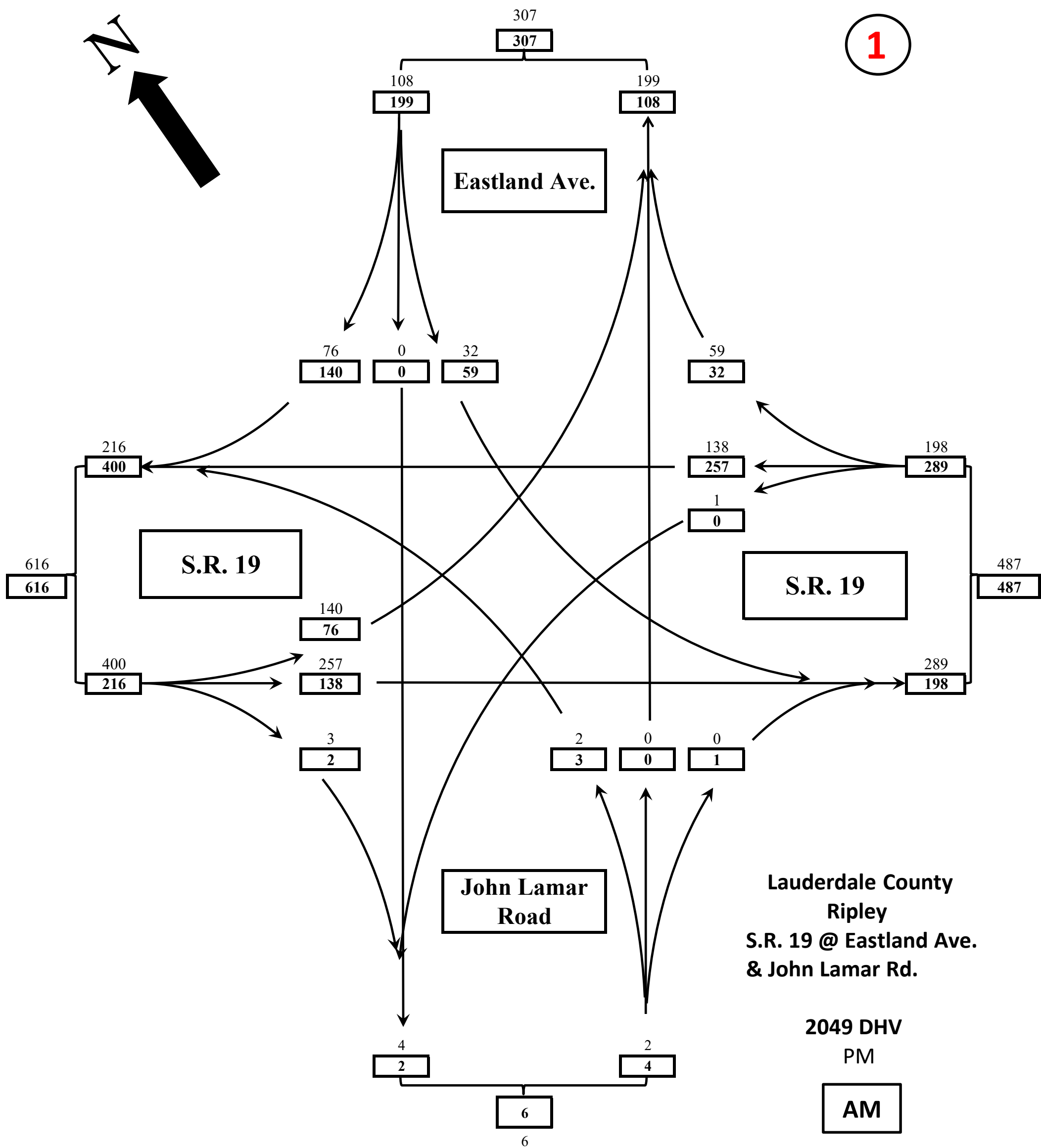
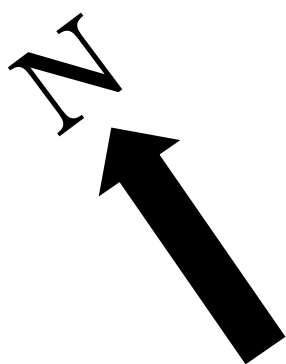
AADT Truck % - 0%

Date: March 11, 2024

TA

2049 DHV

1



Lauderdale County
Ripley
S.R. 19 @ Eastland Ave.
& John Lamar Rd.

2049 DHV
PM

AM

Date: March 11, 2024
TA

**TENNESSEE DEPARTMENT OF TRANSPORTATION
STRATEGIC TRANSPORTATION INVESTMENTS DIVISION**

PROJECT NO.: STP-19(55) : 38004-1219-14 ROUTE: S.R. 19
COUNTY: HAYWOOD CITY: NUTBUSH
PROJECT PIN NUMBER: 102251.02
PROJECT DESCRIPTION: FROM THE LAUDERDALE COUNTY LINE TO EAST OF JIM BINFORD
LANE
[1] S.R. 19 AVERAGE TRAFFIC DATA

DIVISION REQUESTING:

MAINTENANCE ☐ PAVEMENT DESIGN ☐
S.T.I.D. ☒ STRUCTURES ☐
PROG. DEVELOPMENT & ADM. ☐ SURVEY & ROADWAY DESIGN ☐
PUBLIC TRANS. & AERO. ☐ TRAFFIC SIGNAL DESIGN ☐
OTHER ☐
YEAR PROJECT PROGRAMMED FOR CONSTRUCTION: 2029
PROJECTED LETTING DATE: 2029

TRAFFIC ASSIGNMENT:

[1]

BASE YEAR		DESIGN YEAR					DESIGN ROADWAY % TRUCKS		DESIGN AVERAGE DAILY LOADS	
AADT	YEAR	AADT	DHV	%	YEAR	DIR.DIST.	DHV	AADT	FLEX	RIGID
2,860	2029	3,230	355	11	2049	65-35	5	7	139	211

REQUESTED BY: NAME DAVID DUNCAN DATE 3/8/24
DIVISION S.T.I.D.
ADDRESS 1000 J, K, POLK BUILDING
NASHVILLE TN 37243

REVIEWED BY: RANDY BOGUSKIE Randy Boguskie DATE 3/11/2024
TRANSPORTATION MANAGER 1
SUITE 1000, JAMES K. POLK BUILDING

APPROVED BY: TONY ARMSTRONG Tony Armstrong DATE 3/11/2024
TRANSPORTATION MANAGER 2
SUITE 1000, JAMES K. POLK BUILDING

COMMENTS:

FURNISH THE 2029-2040 TRAFFIC DATA AND ADL's FOR A TWO LANE ROADWAY.

THIS TRAFFIC UPDATES THE PREVIOUS PROJECT PREPARED FOR DESIGN DATED 9/1/2021 AND IS BASED ON 2023 CYCLE COUNTS. THE DESIGN YEAR TRAFFIC IS BASED ON GROWTH RATE FROM THE TN-TIMES LINEAR REGRESSION TOOL. 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 ADTs OF 1000 OR LESS AND PERCENTAGE OF TRUCKS OF 7% OR LESS.

SEE ATTACHMENTS FOR TURNING MOVEMENTS AND/OR OTHER DETAILS.

(REV. 6/9/21)

**TENNESSEE DEPARTMENT OF TRANSPORTATION
STRATEGIC TRANSPORTATION INVESTMENTS DIVISION**

PROJECT NO.: STP-19(55) : 38004-1219-14 ROUTE NO.: S.R. 19
 COUNTY: HAYWOOD CITY: NUTBUSH
 PROJECT DESCRIPTION: FROM THE LAUDERDALE COUNTY LINE TO EAST OF JIM BINFORD
 LANE

FAP Rural

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)		2,025	0.001	2	0.001	2
Pick-up, Panel, Van (3)		807	0.005	4	0.004	3
Sing. Unit	Buses (4)	2	0.300	1	0.300	1
	2-axle, 6-tire (5)	21	0.240	5	0.310	7
	3-axle or more (6-7)	55	1.700	94	2.300	127
	4-axle (8)	21	1.110	23	1.500	32
Comb.	5-axle or more (9-13)	114	1.320	150	2.200	251
	Totals (2039 AADT)	3,045		279		421

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%

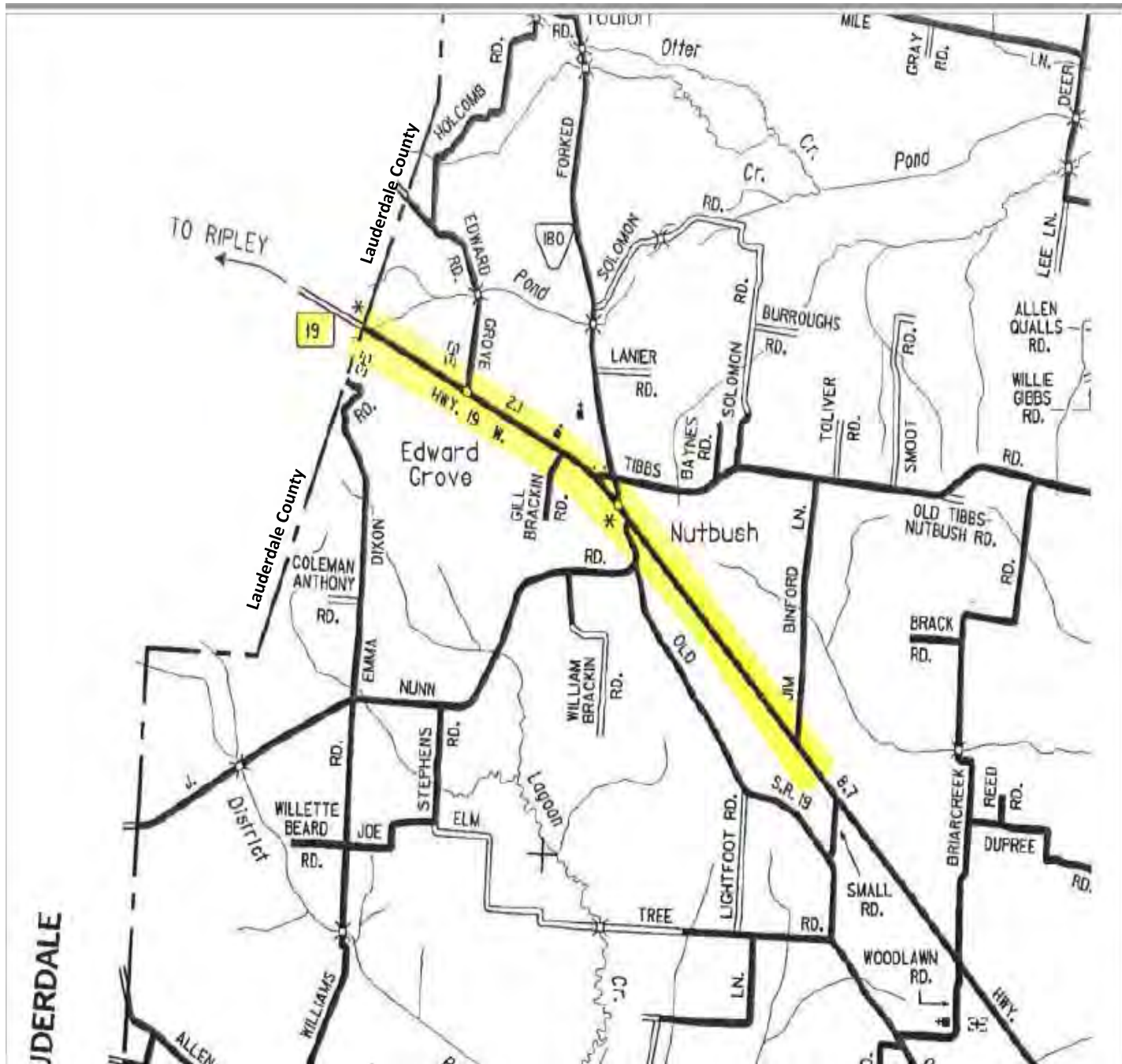
No. of Lanes: 2

% Trucks in Design Lane: 100%

ADL in Design Lane:

FLEX:	0.5	X	1.00	X	279.0	=	139
RIGID:	0.5	X	1.00	X	421.2	=	211

ADL Calculations By: Ashlie Bevan Date: 3/11/2024
 Reviewed By: Randy Boguskie Date: 3/11/2024
 [REV. 7/1/14]



Haywood County

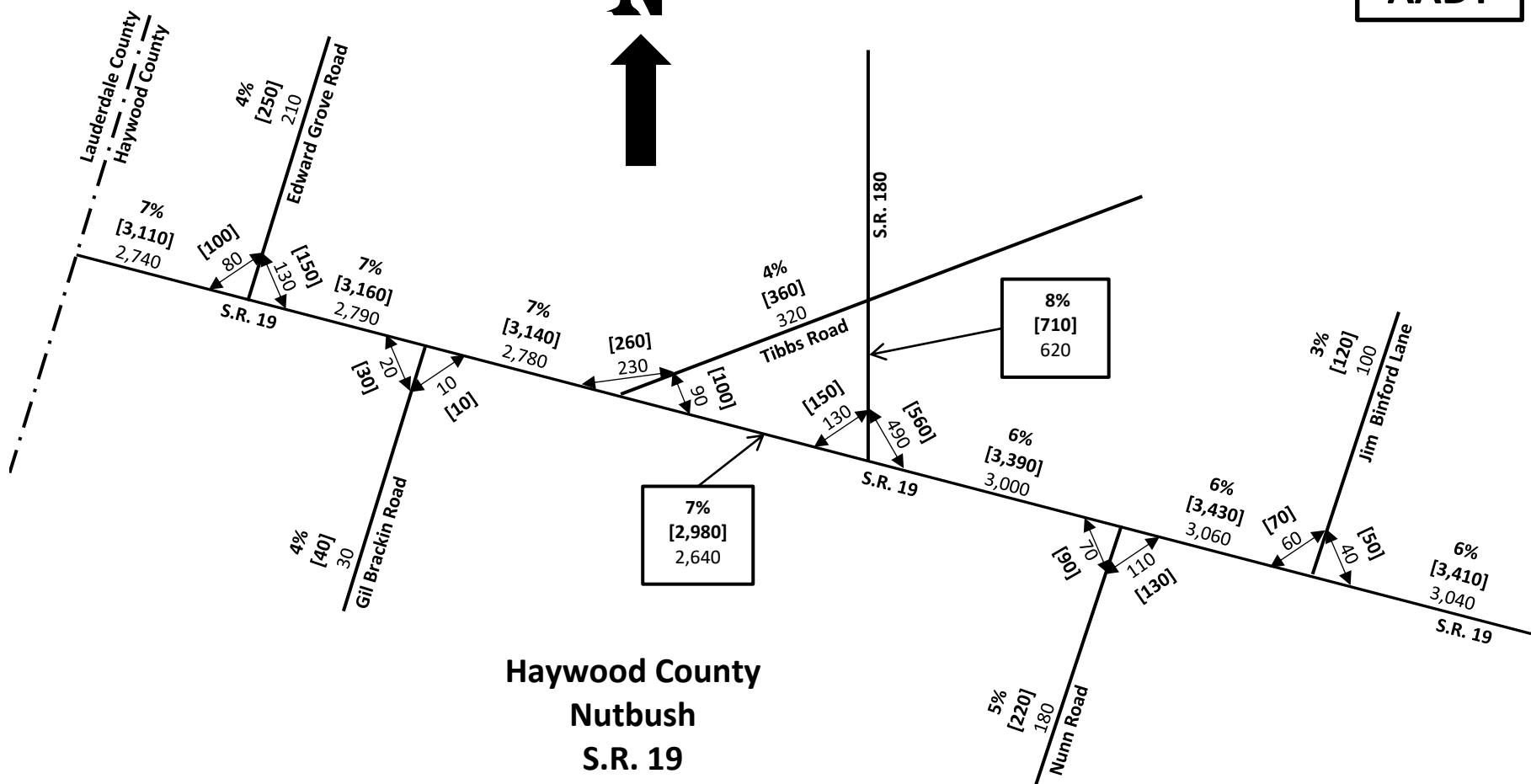
Nutbush

S.R. 19

**From Lauderdale County Line to
East of Jim Binford Lane**



AADT



**Haywood County
Nutbush
S.R. 19**

Legend:
2029 AADT - 000
2049 AADT - [000]
AADT Truck % - **0%**
Date: March 11, 2024
TA

**TENNESSEE DEPARTMENT OF TRANSPORTATION
STRATEGIC TRANSPORTATION INVESTMENTS DIVISION**

PROJECT NO.: _____ ROUTE: S.R. 19
COUNTY: HAYWOOD CITY: BROWNSVILLE
PROJECT PIN NUMBER: 102251.03
PROJECT DESCRIPTION: FROM EAST OF JIM BINFORD LANE TO EAST OF S.R. 87.

[1] S.R. 19 AVERAGE TRAFFIC DATA

DIVISION REQUESTING:

MAINTENANCE ☐ PAVEMENT DESIGN ☐
S.T.I.D. ☒ STRUCTURES ☐
PROG. DEVELOPMENT & ADM. ☐ SURVEY & ROADWAY DESIGN ☐
PUBLIC TRANS. & AERO. ☐ TRAFFIC SIGNAL DESIGN ☐
OTHER ☐
YEAR PROJECT PROGRAMMED FOR CONSTRUCTION: 2029
PROJECTED LETTING DATE: 2029

TRAFFIC ASSIGNMENT:

[1]

BASE YEAR		DESIGN YEAR					DESIGN ROADWAY % TRUCKS		DESIGN AVERAGE DAILY LOADS	
AADT	YEAR	AADT	DHV	%	YEAR	DIR.DIST.	DHV	AADT	FLEX	RIGID
3,220	2029	3,690	406	11	2049	65-35	4	6	137	207

REQUESTED BY: NAME DAVID DUNCAN DATE 3/8/24
DIVISION S.T.I.D.
ADDRESS 1000 J, K, POLK BUILDING
NASHVILLE TN 37243

REVIEWED BY: RANDY BOGUSKIE _____ DATE _____
TRANSPORTATION MANAGER 1
SUITE 1000, JAMES K. POLK BUILDING

APPROVED BY: TONY ARMSTRONG _____ DATE _____
TRANSPORTATION MANAGER 2
SUITE 1000, JAMES K. POLK BUILDING

COMMENTS:

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

THIS TRAFFIC UPDATES THE PREVIOUS PROJECT PREPARED FOR DESIGN DATED 8/29/2017 AND IS BASED ON 2023 CYCLE COUNTS. THE DESIGN YEAR TRAFFIC IS BASED ON GROWTH RATE FROM THE TN-TIMES LINEAR REGRESSION TOOL. 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 ADTs OF 1000 OR LESS AND PERCENTAGE OF TRUCKS OF 7% OR LESS.

SEE ATTACHMENTS FOR TURNING MOVEMENTS AND/OR OTHER DETAILS.

(REV. 6/9/21)

**TENNESSEE DEPARTMENT OF TRANSPORTATION
STRATEGIC TRANSPORTATION INVESTMENTS DIVISION**

PROJECT NO.: _____ ROUTE NO.: S.R. 19
COUNTY: HAYWOOD CITY: BROWNSVILLE
PROJECT DESCRIPTION: FROM EAST OF JIM BINFORD LANE TO EAST OF S.R. 87

FAP Rural

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)		2,331	0.001	2	0.001	2
Pick-up, Panel, Van (3)		916	0.005	5	0.004	4
Sing. Unit	Buses (4)	2	0.300	1	0.300	1
	2-axle, 6-tire (5)	20	0.240	5	0.310	6
	3-axle or more (6-7)	53	1.700	90	2.300	122
	4-axle (8)	20	1.110	22	1.500	30
Comb.	5-axle or more (9-13)	113	1.320	149	2.200	249
	Totals (2039 AADT)	3,455		274		413

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: 2

% Trucks in Design Lane: 100%

ADL in Design Lane:

FLEX:	0.5	X	1.00	X	273.8	=	137
RIGID:	0.5	X	1.00	X	413.3	=	207

ADL Calculations By: TONY ATMSTRONG Date: 3/11/2024
Reviewed By: _____ Date: _____
[REV. 7/1/14] _____



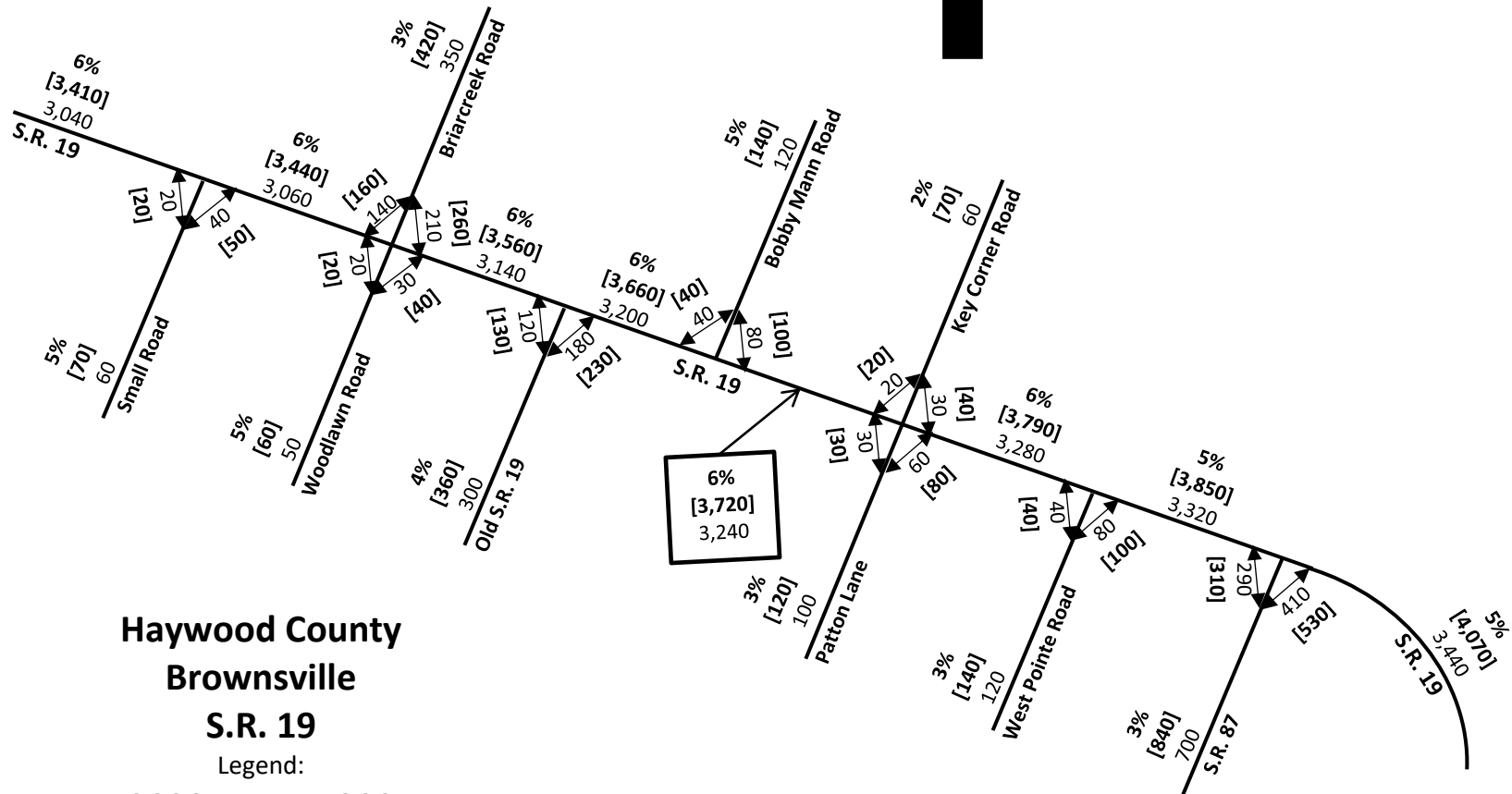
Haywood County

Brownsville

S.R. 19

From East of Jim Binford Lane to East of S.R. 87

AADT



Haywood County Brownsville

S.R. 19

Legend:

2029 AADT - 000

2049 AADT - [000]

AADT Truck % - 0%

Date: March 11, 2024

TA

Attachment B. HCS 2025 Detailed Analysis Reports

Project Information	
---------------------	--

Analyst	HDR Engineering, INC.	Date	1/13/2025
Agency		Analysis Year	2029
Jurisdiction	Lauderdale/Haywood Counties	Time Analyzed	
Facility Name		Units	U.S. Customary
Project Description	Build		

Facility Segment Data									
-----------------------	--	--	--	--	--	--	--	--	--

No.	Name	Type	Length ft	Lane Width ft	Shoulder Width ft	Speed Limit mi/h	Access Point Density pts/mi
1	Segment A	Passing Constrained	30149	12	8	55	14.7
2	Segment B	Passing Constrained	3274	11	2	45	24.2
3	Segment C	Passing Constrained	9764	12	8	45	16.3
4	Segment D	Passing Constrained	35957	11	2	45	5.1

Segment 1: Passing Constrained	
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
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88	88
89	89
90	90
91	91
92	92
93	93
94	94
95	95
96	96
97	97
98	98
99	99
100	100

Demand veh/h	Opp. Demand veh/h	PHF	%HV	Capacity veh/h	D/C	Speed mi/h	% Followers	Follower Density followers/mi/ln	LOS
255	-	0.94	4.00	1700	0.15	58.5	41.6	1.8	A

Segment 2: Passing Constrained

Demand veh/h	Opp. Demand veh/h	PHF	%HV	Capacity veh/h	D/C	Speed mi/h	% Followers	Follower Density followers/mi/ln	LOS
218	-	0.94	5.00	1700	0.13	40.5	38.6	2.1	A

Segment 3: Passing Constrained

Demand veh/h	Opp. Demand veh/h	PHF	%HV	Capacity veh/h	D/C	Speed mi/h	% Followers	Follower Density followers/mi/ln	LOS
246	-	0.94	4.00	1700	0.14	47.0	40.0	2.1	A

Segment 4: Passing Constrained

Demand veh/h	Opp. Demand veh/h	PHF	%HV	Capacity veh/h	D/C	Speed mi/h	% Followers	Follower Density followers/mi/ln	LOS
246	-	0.94	4.00	1700	0.14	45.1	44.6	2.4	A

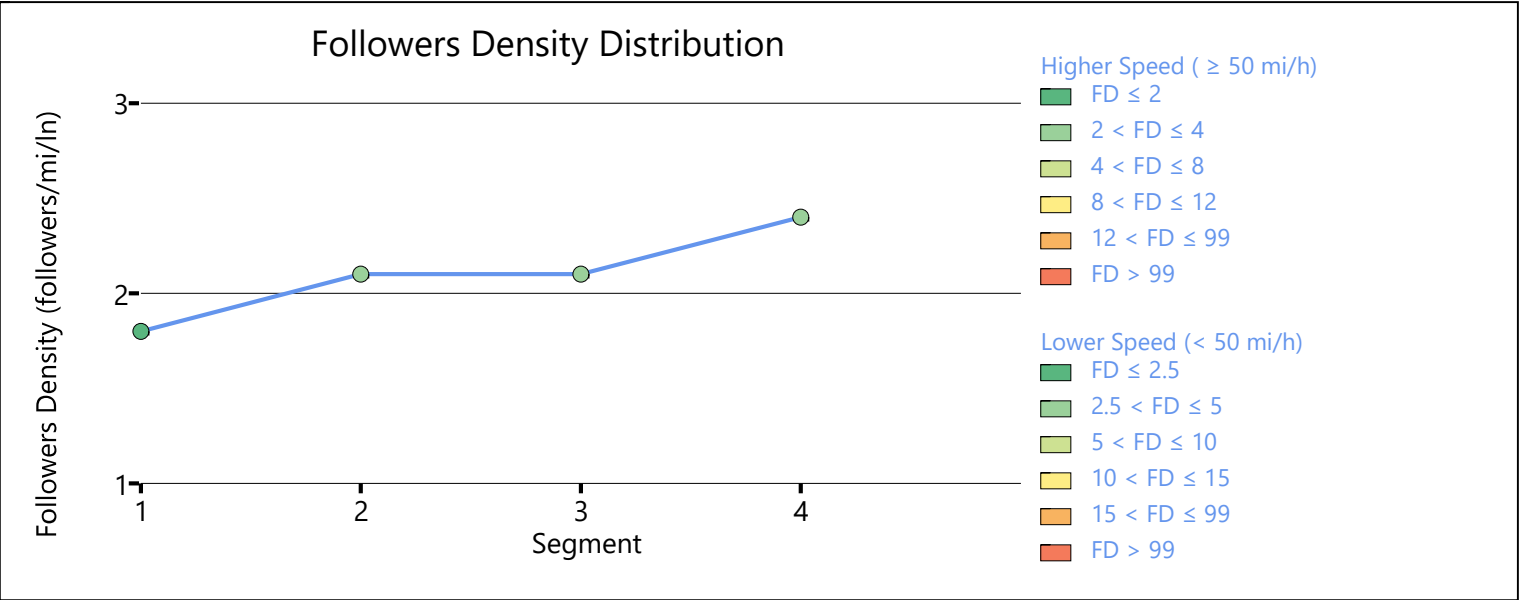
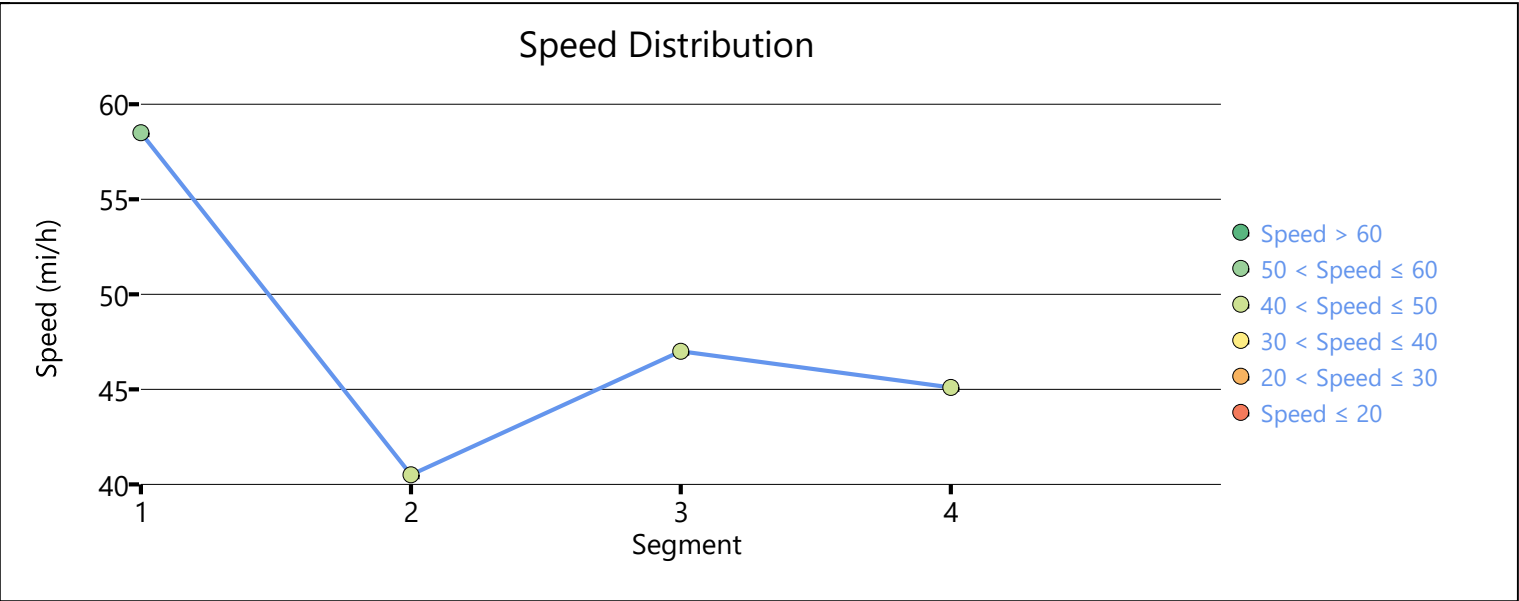
[illegible]

VMT veh-mi/AP	VHD veh-h/AP	Follower Density followers/mi/ln	Travel Time min	LOS
874	0.53	2.1	18.10	A

Messages

WARNING 1	Bicycle methodology developed for speeds between 25-50 mi/h on segment 1. Use caution when applying methodology at higher speeds.
WARNING 2	Shoulder width is larger than 6 ft for segment 1. Use caution as it is outside of the range of the original research.
WARNING 3	Segment Length Over/Under recommended lengths on segment 1. Segment analyzed at recommended length. Split/Combine segment(s) to resolve this warning.
WARNING 4	Bicycle methodology developed for heavy vehicle percentage up to 2% on segment 1. Use caution

	when applying methodology at higher percentages.
WARNING 5	Bicycle methodology developed for heavy vehicle percentage up to 2% on segment 2. Use caution when applying methodology at higher percentages.
WARNING 6	Volumes differ more than 10% between segments 1 and 2. Verify volumes, and consider using alternative tools for this analysis.
WARNING 7	Shoulder width is larger than 6 ft for segment 3. Use caution as it is outside of the range of the original research.
WARNING 8	Bicycle methodology developed for heavy vehicle percentage up to 2% on segment 3. Use caution when applying methodology at higher percentages.
WARNING 9	Volumes differ more than 10% between segments 2 and 3. Verify volumes, and consider using alternative tools for this analysis.
WARNING 10	Segment Length Over/Under recommended lengths on segment 4. Segment analyzed at recommended length. Split/Combine segment(s) to resolve this warning.
WARNING 11	Bicycle methodology developed for heavy vehicle percentage up to 2% on segment 4. Use caution when applying methodology at higher percentages.
Comments	



HCS Two-Lane Highway Report

Project Information

Analyst	HDR Engineering, INC.	Date	1/13/2025
Agency		Analysis Year	2029
Jurisdiction	Lauderdale/Haywood Counties	Time Analyzed	
Project Description	Build	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	30149
Lane Width, ft	12	Shoulder Width, ft	8
Speed Limit, mi/h	55	Access Point Density, pts/mi	14.7

Demand and Capacity

Directional Demand Flow Rate, veh/h	255	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	60.3
Speed Slope Coefficient (m)	3.90331	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.36415	PF Power Coefficient (p)	0.68231
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	1.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	20626	-	-	58.5
2	Horizontal Curve	480	3000	0.0	58.5
3	Tangent	1178	-	-	58.5
4	Horizontal Curve	903	4500	0.0	58.5
5	Tangent	6961	-	-	58.5

Vehicle Results

Average Speed, mi/h	58.5	Percent Followers, %	41.6
Segment Travel Time, minutes	5.86	Adj. Follower Density, followers/mi/ln	1.8
Vehicle LOS	A		

Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	5
Flow Rate Outside Lane, veh/h	255	Bicycle Effective Width, ft	28
Bicycle LOS Score	1.85	Bicycle Effective Speed Factor	4.79
Bicycle LOS	B		

HCS Two-Lane Highway Report

Project Information

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Agency		Analysis Year	2029
Jurisdiction	Lauderdale/Haywood Counties	Time Analyzed	
Project Description	Build	Units	U.S. Customary

Segment 2

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	3274
Lane Width, ft	11	Shoulder Width, ft	2
Speed Limit, mi/h	45	Access Point Density, pts/mi	24.2

Demand and Capacity

Directional Demand Flow Rate, veh/h	218	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.13

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	41.7
Speed Slope Coefficient (m)	2.79755	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.42380	PF Power Coefficient (p)	0.70272
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	2.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	700	-	-	40.5
2	Horizontal Curve	2196	6100	0.0	40.5
3	Tangent	378	-	-	40.5

Vehicle Results

Average Speed, mi/h	40.5	Percent Followers, %	38.6
Segment Travel Time, minutes	0.92	Adj. Follower Density, followers/mi/ln	2.1
Vehicle LOS	A		

Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	5
Flow Rate Outside Lane, veh/h	218	Bicycle Effective Width, ft	13
Bicycle LOS Score	4.97	Bicycle Effective Speed Factor	4.42
Bicycle LOS	E		

HCS Two-Lane Highway Report

Project Information

Analyst	HDR Engineering, INC.	Date	1/13/2025
Agency		Analysis Year	2029
Jurisdiction	Lauderdale/Haywood Counties	Time Analyzed	
Project Description	Build	Units	U.S. Customary

Segment 3

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	9764
Lane Width, ft	12	Shoulder Width, ft	8
Speed Limit, mi/h	45	Access Point Density, pts/mi	16.3

Demand and Capacity

Directional Demand Flow Rate, veh/h	246	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	48.5
Speed Slope Coefficient (m)	3.22559	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.37695	PF Power Coefficient (p)	0.70652
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	2.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	250	-	-	47.0
2	Horizontal Curve	516	8440	2.0	47.0
3	Tangent	150	-	-	47.0
4	Horizontal Curve	516	8440	2.0	47.0
5	Tangent	2298	-	-	47.0
6	Horizontal Curve	516	8440	2.0	47.0
7	Tangent	816	-	-	47.0
8	Horizontal Curve	516	8440	2.0	47.0
9	Tangent	1136	-	-	47.0
10	Horizontal Curve	516	8440	2.0	47.0
11	Tangent	150	-	-	47.0
12	Horizontal Curve	516	8440	2.0	47.0
13	Tangent	1868	-	-	47.0

Vehicle Results

Average Speed, mi/h	47.0	Percent Followers, %	40.0
Segment Travel Time, minutes	2.36	Adj. Follower Density, followers/mi/ln	2.1
Vehicle LOS	A		

Bicycle Results			
Percent Occupied Parking	0	Pavement Condition Rating	5
Flow Rate Outside Lane, veh/h	246	Bicycle Effective Width, ft	28
Bicycle LOS Score	1.68	Bicycle Effective Speed Factor	4.42
Bicycle LOS	B		

HCS Two-Lane Highway Report

Project Information

Analyst	HDR Engineering, INC.	Date	1/13/2025
Agency		Analysis Year	2029
Jurisdiction	Lauderdale/Haywood Counties	Time Analyzed	
Project Description	Build	Units	U.S. Customary

Segment 4

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	35957
Lane Width, ft	11	Shoulder Width, ft	2
Speed Limit, mi/h	45	Access Point Density, pts/mi	5.1

Demand and Capacity

Directional Demand Flow Rate, veh/h	246	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	46.5
Speed Slope Coefficient (m)	3.15535	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.45778	PF Power Coefficient (p)	0.64449
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	2.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Horizontal Curve	422	8440	2.0	45.1
2	Tangent	11522	-	-	45.1
3	Horizontal Curve	785	11459	0.0	45.1
4	Tangent	2418	-	-	45.1
5	Horizontal Curve	251	11500	0.0	45.1
6	Tangent	6312	-	-	45.1
7	Horizontal Curve	251	11500	0.0	45.1
8	Tangent	1556	-	-	45.1
9	Horizontal Curve	563	11500	0.0	45.1
10	Tangent	795	-	-	45.1
11	Horizontal Curve	516	8440	2.0	45.1
12	Tangent	1766	-	-	45.1
13	Horizontal Curve	516	8440	2.0	45.1
14	Tangent	138	-	-	45.1
15	Horizontal Curve	519	8440	2.0	45.1
16	Tangent	5982	-	-	45.1
17	Horizontal Curve	442	8440	2.0	45.1

18	Tangent	150	-	-	45.1
19	Horizontal Curve	1053	8440	2.0	45.1

Vehicle Results

Average Speed, mi/h	45.1	Percent Followers, %	44.6
Segment Travel Time, minutes	9.06	Adj. Follower Density, followers/mi/ln	2.4
Vehicle LOS	A		

Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	5
Flow Rate Outside Lane, veh/h	246	Bicycle Effective Width, ft	13
Bicycle LOS Score	4.76	Bicycle Effective Speed Factor	4.42
Bicycle LOS	E		

Project Information	
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Analyst	HDR Engineering, INC.	Date	1/13/2025
Agency		Analysis Year	2029
Jurisdiction	Lauderdale/Haywood Counties	Time Analyzed	
Facility Name		Units	U.S. Customary
Project Description	No Build		

Facility Segment Data									
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No.	Name	Type	Length ft	Lane Width ft	Shoulder Width ft	Speed Limit mi/h	Access Point Density pts/mi
1	Segment A	Passing Constrained	30149	11	2	55	14.7
2	Segment B	Passing Constrained	3274	11	2	45	24.2
3	Segment C	Passing Constrained	9764	11	2	45	16.3
4	Segment D	Passing Constrained	35957	11	2	45	5.1

Segment 1: Passing Constrained	
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94	94
95	95
96	96
97	97
98	98
99	99
100	100

Demand veh/h	Opp. Demand veh/h	PHF	%HV	Capacity veh/h	D/C	Speed mi/h	% Followers	Follower Density followers/mi/ln	LOS
255	-	0.94	4.00	1700	0.15	53.8	43.0	2.0	B

Segment 2: Passing Constrained

Demand veh/h	Opp. Demand veh/h	PHF	%HV	Capacity veh/h	D/C	Speed mi/h	% Followers	Follower Density followers/mi/ln	LOS
218	-	0.94	5.00	1700	0.13	40.5	38.6	2.1	A

Segment 3: Passing Constrained

Demand veh/h	Opp. Demand veh/h	PHF	%HV	Capacity veh/h	D/C	Speed mi/h	% Followers	Follower Density followers/mi/ln	LOS
246	-	0.94	4.00	1700	0.14	42.4	41.1	2.4	A

Segment 4: Passing Constrained

Demand veh/h	Opp. Demand veh/h	PHF	%HV	Capacity veh/h	D/C	Speed mi/h	% Followers	Follower Density followers/mi/ln	LOS
246	-	0.94	4.00	1700	0.14	45.1	44.6	2.4	A

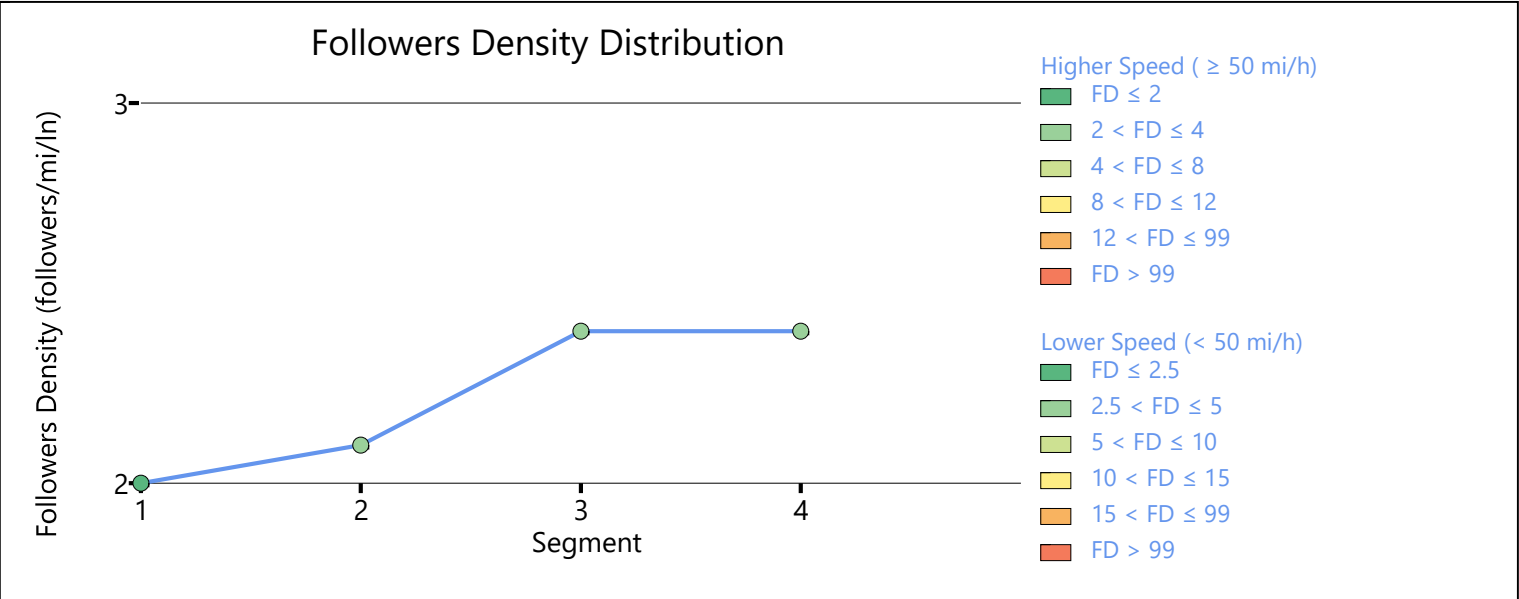
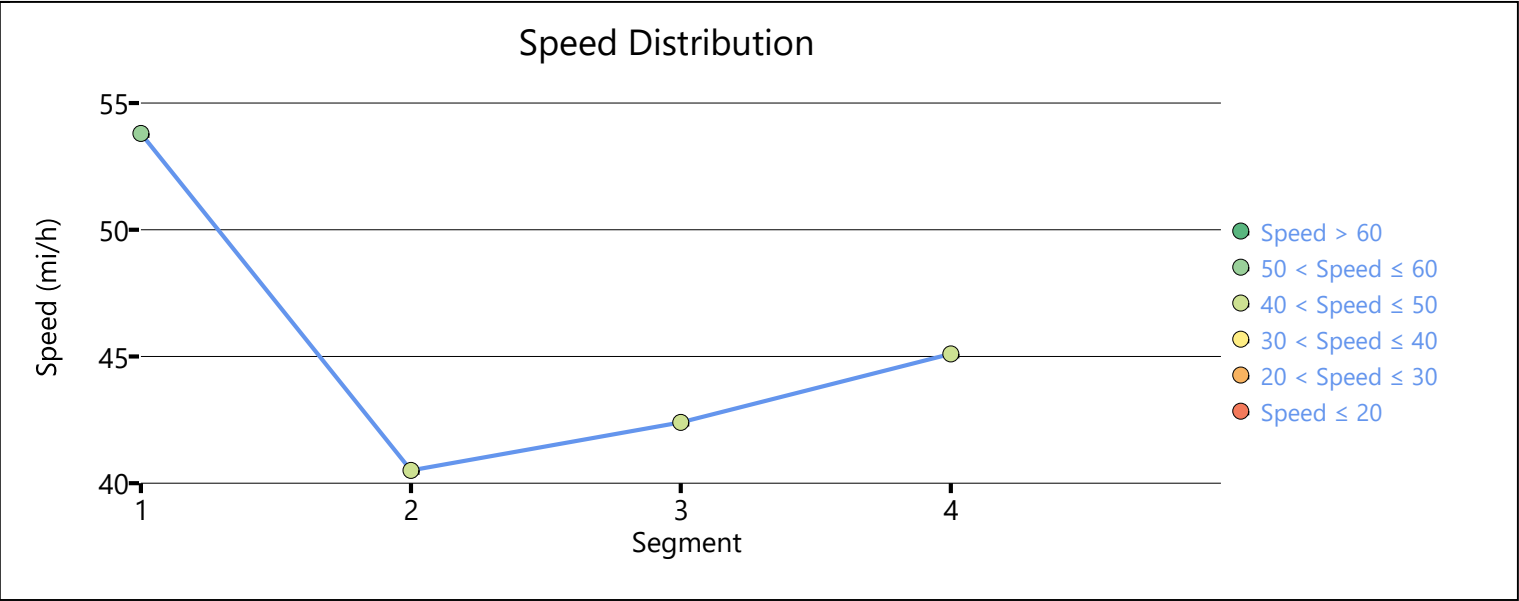
Facility Results	
1	2
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87	88
89	90
91	92
93	94
95	96
97	98
99	100

VMT veh-mi/AP	VHD veh-h/AP	Follower Density followers/mi/ln	Travel Time min	LOS
874	0.56	2.3	18.90	A

Messages

WARNING 1	Bicycle methodology developed for speeds between 25-50 mi/h on segment 1. Use caution when applying methodology at higher speeds.
WARNING 2	Segment Length Over/Under recommended lengths on segment 1. Segment analyzed at recommended length. Split/Combine segment(s) to resolve this warning.
WARNING 3	Bicycle methodology developed for heavy vehicle percentage up to 2% on segment 1. Use caution when applying methodology at higher percentages.
WARNING 4	Bicycle methodology developed for heavy vehicle percentage up to 2% on segment 2. Use caution

	when applying methodology at higher percentages.
WARNING 5	Volumes differ more than 10% between segments 1 and 2. Verify volumes, and consider using alternative tools for this analysis.
WARNING 6	Bicycle methodology developed for heavy vehicle percentage up to 2% on segment 3. Use caution when applying methodology at higher percentages.
WARNING 7	Volumes differ more than 10% between segments 2 and 3. Verify volumes, and consider using alternative tools for this analysis.
WARNING 8	Segment Length Over/Under recommended lengths on segment 4. Segment analyzed at recommended length. Split/Combine segment(s) to resolve this warning.
WARNING 9	Bicycle methodology developed for heavy vehicle percentage up to 2% on segment 4. Use caution when applying methodology at higher percentages.
Comments	



HCS Two-Lane Highway Report

Project Information

Analyst	HDR Engineering, INC.	Date	1/13/2025
Agency		Analysis Year	2029
Jurisdiction	Lauderdale/Haywood Counties	Time Analyzed	
Project Description	No Build	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	30149
Lane Width, ft	11	Shoulder Width, ft	2
Speed Limit, mi/h	55	Access Point Density, pts/mi	14.7

Demand and Capacity

Directional Demand Flow Rate, veh/h	255	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	55.5
Speed Slope Coefficient (m)	3.64315	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.40420	PF Power Coefficient (p)	0.67043
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	2.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	20626	-	-	53.8
2	Horizontal Curve	480	3000	0.0	53.8
3	Tangent	1178	-	-	53.8
4	Horizontal Curve	903	4500	0.0	53.8
5	Tangent	6961	-	-	53.8

Vehicle Results

Average Speed, mi/h	53.8	Percent Followers, %	43.0
Segment Travel Time, minutes	6.37	Adj. Follower Density, followers/mi/ln	2.0
Vehicle LOS	B		

Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	2
Flow Rate Outside Lane, veh/h	255	Bicycle Effective Width, ft	13
Bicycle LOS Score	6.41	Bicycle Effective Speed Factor	4.79
Bicycle LOS	F		

HCS Two-Lane Highway Report

Project Information

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Agency		Analysis Year	2029
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Project Description	No Build	Units	U.S. Customary

Segment 2

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	3274
Lane Width, ft	11	Shoulder Width, ft	2
Speed Limit, mi/h	45	Access Point Density, pts/mi	24.2

Demand and Capacity

Directional Demand Flow Rate, veh/h	218	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.13

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	41.7
Speed Slope Coefficient (m)	2.79755	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.42380	PF Power Coefficient (p)	0.70272
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	2.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	700	-	-	40.5
2	Horizontal Curve	2196	6100	0.0	40.5
3	Tangent	378	-	-	40.5

Vehicle Results

Average Speed, mi/h	40.5	Percent Followers, %	38.6
Segment Travel Time, minutes	0.92	Adj. Follower Density, followers/mi/ln	2.1
Vehicle LOS	A		

Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	2
Flow Rate Outside Lane, veh/h	218	Bicycle Effective Width, ft	13
Bicycle LOS Score	6.45	Bicycle Effective Speed Factor	4.42
Bicycle LOS	F		

HCS Two-Lane Highway Report

Project Information

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Agency		Analysis Year	2029
Jurisdiction	Lauderdale/Haywood Counties	Time Analyzed	
Project Description	No Build	Units	U.S. Customary

Segment 3

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	9764
Lane Width, ft	11	Shoulder Width, ft	2
Speed Limit, mi/h	45	Access Point Density, pts/mi	16.3

Demand and Capacity

Directional Demand Flow Rate, veh/h	246	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	43.7
Speed Slope Coefficient (m)	2.96543	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.39387	PF Power Coefficient (p)	0.69025
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	2.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	250	-	-	42.4
2	Horizontal Curve	516	8440	2.0	42.4
3	Tangent	150	-	-	42.4
4	Horizontal Curve	516	8440	2.0	42.4
5	Tangent	2298	-	-	42.4
6	Horizontal Curve	516	8440	2.0	42.4
7	Tangent	816	-	-	42.4
8	Horizontal Curve	516	8440	2.0	42.4
9	Tangent	1136	-	-	42.4
10	Horizontal Curve	516	8440	2.0	42.4
11	Tangent	150	-	-	42.4
12	Horizontal Curve	516	8440	2.0	42.4
13	Tangent	1868	-	-	42.4

Vehicle Results

Average Speed, mi/h	42.4	Percent Followers, %	41.1
Segment Travel Time, minutes	2.62	Adj. Follower Density, followers/mi/ln	2.4
Vehicle LOS	A		

Bicycle Results			
Percent Occupied Parking	0	Pavement Condition Rating	2
Flow Rate Outside Lane, veh/h	246	Bicycle Effective Width, ft	13
Bicycle LOS Score	6.24	Bicycle Effective Speed Factor	4.42
Bicycle LOS	F		

HCS Two-Lane Highway Report

Project Information

Analyst	HDR Engineering, INC.	Date	1/13/2025
Agency		Analysis Year	2029
Jurisdiction	Lauderdale/Haywood Counties	Time Analyzed	
Project Description	No Build	Units	U.S. Customary

Segment 4

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	35957
Lane Width, ft	11	Shoulder Width, ft	2
Speed Limit, mi/h	45	Access Point Density, pts/mi	5.1

Demand and Capacity

Directional Demand Flow Rate, veh/h	246	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	46.5
Speed Slope Coefficient (m)	3.15535	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.45778	PF Power Coefficient (p)	0.64449
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	2.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Horizontal Curve	422	8440	2.0	45.1
2	Tangent	11522	-	-	45.1
3	Horizontal Curve	785	11459	0.0	45.1
4	Tangent	2418	-	-	45.1
5	Horizontal Curve	251	11500	0.0	45.1
6	Tangent	6312	-	-	45.1
7	Horizontal Curve	251	11500	0.0	45.1
8	Tangent	1556	-	-	45.1
9	Horizontal Curve	563	11500	0.0	45.1
10	Tangent	795	-	-	45.1
11	Horizontal Curve	516	8440	2.0	45.1
12	Tangent	1766	-	-	45.1
13	Horizontal Curve	516	8440	2.0	45.1
14	Tangent	138	-	-	45.1
15	Horizontal Curve	519	8440	2.0	45.1
16	Tangent	5982	-	-	45.1
17	Horizontal Curve	442	8440	2.0	45.1

18	Tangent	150	-	-	45.1
19	Horizontal Curve	1053	8440	2.0	45.1

Vehicle Results

Average Speed, mi/h	45.1	Percent Followers, %	44.6
Segment Travel Time, minutes	9.06	Adj. Follower Density, followers/mi/ln	2.4
Vehicle LOS	A		

Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	2
Flow Rate Outside Lane, veh/h	246	Bicycle Effective Width, ft	13
Bicycle LOS Score	6.24	Bicycle Effective Speed Factor	4.42
Bicycle LOS	F		

Project Information	
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Analyst	HDR Engineering, INC.	Date	1/13/2025
Agency		Analysis Year	2049
Jurisdiction	Lauderdale/Haywood Counties	Time Analyzed	
Facility Name		Units	U.S. Customary
Project Description	Build		

Facility Segment Data									
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No.	Name	Type	Length ft	Lane Width ft	Shoulder Width ft	Speed Limit mi/h	Access Point Density pts/mi
1	Segment A	Passing Constrained	30149	12	8	55	14.7
2	Segment B	Passing Constrained	3274	11	2	45	24.2
3	Segment C	Passing Constrained	9764	12	8	45	16.3
4	Segment D	Passing Constrained	35957	11	2	45	5.1

Segment 1: Passing Constrained	
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96	96
97	97
98	98
99	99
100	100

Demand veh/h	Opp. Demand veh/h	PHF	%HV	Capacity veh/h	D/C	Speed mi/h	% Followers	Follower Density followers/mi/ln	LOS
290	-	0.94	4.00	1700	0.17	58.3	44.4	2.2	B

Segment 2: Passing Constrained

Demand veh/h	Opp. Demand veh/h	PHF	%HV	Capacity veh/h	D/C	Speed mi/h	% Followers	Follower Density followers/mi/ln	LOS
246	-	0.94	5.00	1700	0.14	40.4	41.2	2.5	B

Segment 3: Passing Constrained

Demand veh/h	Opp. Demand veh/h	PHF	%HV	Capacity veh/h	D/C	Speed mi/h	% Followers	Follower Density followers/mi/ln	LOS
281	-	0.94	4.00	1700	0.17	46.9	43.0	2.6	B

Segment 4: Passing Constrained

Demand veh/h	Opp. Demand veh/h	PHF	%HV	Capacity veh/h	D/C	Speed mi/h	% Followers	Follower Density followers/mi/ln	LOS
281	-	0.94	4.00	1700	0.17	44.9	47.4	3.0	B

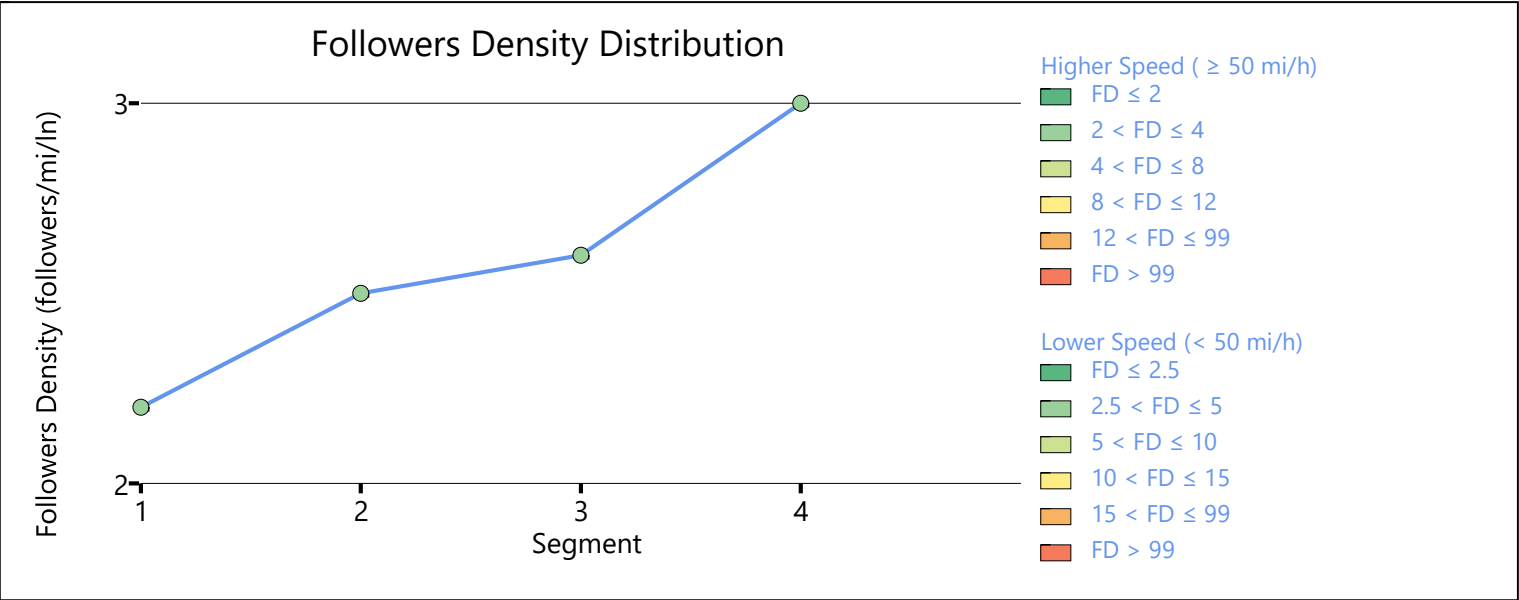
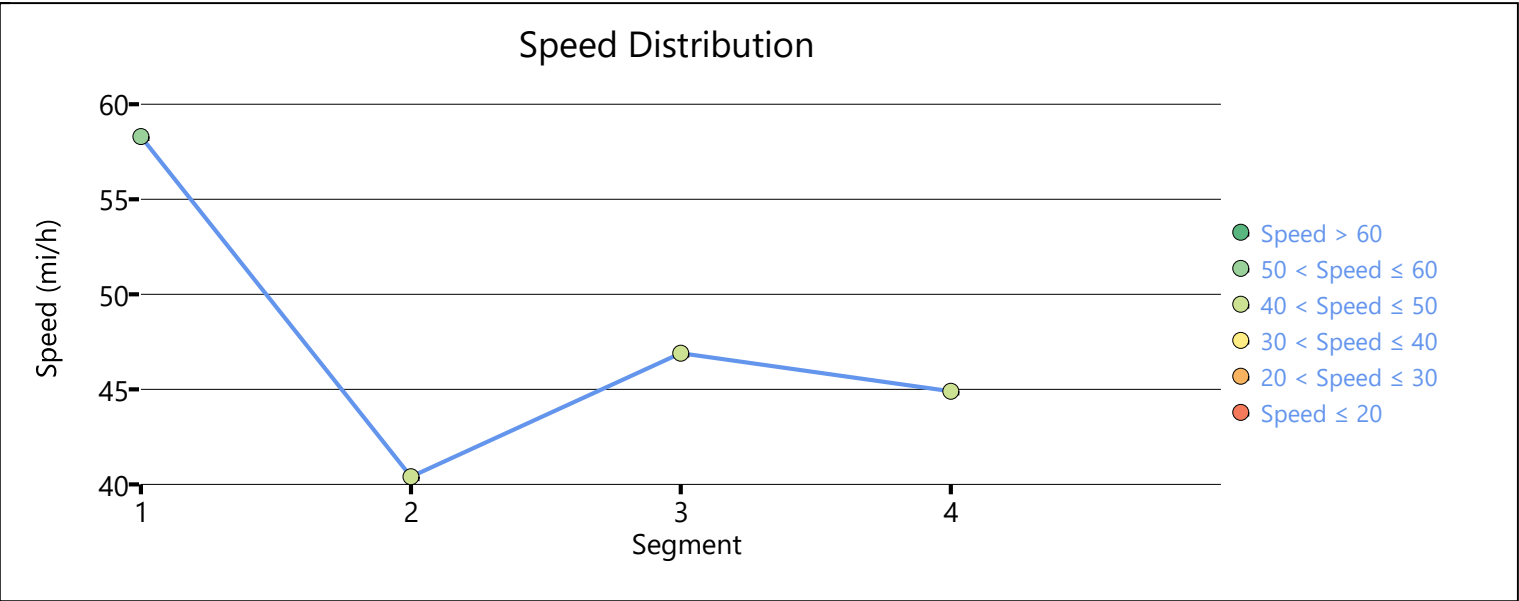
[illegible]

VMT veh-mi/AP	VHD veh-h/AP	Follower Density followers/mi/ln	Travel Time min	LOS
997	0.66	2.6	18.20	B

Messages

WARNING 1	Bicycle methodology developed for speeds between 25-50 mi/h on segment 1. Use caution when applying methodology at higher speeds.
WARNING 2	Shoulder width is larger than 6 ft for segment 1. Use caution as it is outside of the range of the original research.
WARNING 3	Segment Length Over/Under recommended lengths on segment 1. Segment analyzed at recommended length. Split/Combine segment(s) to resolve this warning.
WARNING 4	Bicycle methodology developed for heavy vehicle percentage up to 2% on segment 1. Use caution

	when applying methodology at higher percentages.
WARNING 5	Bicycle methodology developed for heavy vehicle percentage up to 2% on segment 2. Use caution when applying methodology at higher percentages.
WARNING 6	Volumes differ more than 10% between segments 1 and 2. Verify volumes, and consider using alternative tools for this analysis.
WARNING 7	Shoulder width is larger than 6 ft for segment 3. Use caution as it is outside of the range of the original research.
WARNING 8	Bicycle methodology developed for heavy vehicle percentage up to 2% on segment 3. Use caution when applying methodology at higher percentages.
WARNING 9	Volumes differ more than 10% between segments 2 and 3. Verify volumes, and consider using alternative tools for this analysis.
WARNING 10	Segment Length Over/Under recommended lengths on segment 4. Segment analyzed at recommended length. Split/Combine segment(s) to resolve this warning.
WARNING 11	Bicycle methodology developed for heavy vehicle percentage up to 2% on segment 4. Use caution when applying methodology at higher percentages.
Comments	



HCS Two-Lane Highway Report

Project Information

Analyst	HDR Engineering, INC.	Date	1/13/2025
Agency		Analysis Year	2049
Jurisdiction	Lauderdale/Haywood Counties	Time Analyzed	
Project Description	Build	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	30149
Lane Width, ft	12	Shoulder Width, ft	8
Speed Limit, mi/h	55	Access Point Density, pts/mi	14.7

Demand and Capacity

Directional Demand Flow Rate, veh/h	290	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.17

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	60.3
Speed Slope Coefficient (m)	3.90331	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.36415	PF Power Coefficient (p)	0.68231
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	2.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	20626	-	-	58.3
2	Horizontal Curve	480	3000	0.0	58.3
3	Tangent	1178	-	-	58.3
4	Horizontal Curve	903	4500	0.0	58.3
5	Tangent	6961	-	-	58.3

Vehicle Results

Average Speed, mi/h	58.3	Percent Followers, %	44.4
Segment Travel Time, minutes	5.87	Adj. Follower Density, followers/mi/ln	2.2
Vehicle LOS	B		

Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	5
Flow Rate Outside Lane, veh/h	290	Bicycle Effective Width, ft	28
Bicycle LOS Score	1.91	Bicycle Effective Speed Factor	4.79
Bicycle LOS	B		

HCS Two-Lane Highway Report

Project Information

Analyst	HDR Engineering, INC.	Date	1/13/2025
Agency		Analysis Year	2049
Jurisdiction	Lauderdale/Haywood Counties	Time Analyzed	
Project Description	Build	Units	U.S. Customary

Segment 2

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	3274
Lane Width, ft	11	Shoulder Width, ft	2
Speed Limit, mi/h	45	Access Point Density, pts/mi	24.2

Demand and Capacity

Directional Demand Flow Rate, veh/h	246	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	41.7
Speed Slope Coefficient (m)	2.79755	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.42380	PF Power Coefficient (p)	0.70272
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	2.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	700	-	-	40.4
2	Horizontal Curve	2196	6100	0.0	40.4
3	Tangent	378	-	-	40.4

Vehicle Results

Average Speed, mi/h	40.4	Percent Followers, %	41.2
Segment Travel Time, minutes	0.92	Adj. Follower Density, followers/mi/ln	2.5
Vehicle LOS	B		

Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	5
Flow Rate Outside Lane, veh/h	246	Bicycle Effective Width, ft	13
Bicycle LOS Score	5.03	Bicycle Effective Speed Factor	4.42
Bicycle LOS	E		

HCS Two-Lane Highway Report

Project Information

Analyst	HDR Engineering, INC.	Date	1/13/2025
Agency		Analysis Year	2049
Jurisdiction	Lauderdale/Haywood Counties	Time Analyzed	
Project Description	Build	Units	U.S. Customary

Segment 3

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	9764
Lane Width, ft	12	Shoulder Width, ft	8
Speed Limit, mi/h	45	Access Point Density, pts/mi	16.3

Demand and Capacity

Directional Demand Flow Rate, veh/h	281	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.17

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	48.5
Speed Slope Coefficient (m)	3.22559	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.37695	PF Power Coefficient (p)	0.70652
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	2.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	250	-	-	46.9
2	Horizontal Curve	516	8440	2.0	46.9
3	Tangent	150	-	-	46.9
4	Horizontal Curve	516	8440	2.0	46.9
5	Tangent	2298	-	-	46.9
6	Horizontal Curve	516	8440	2.0	46.9
7	Tangent	816	-	-	46.9
8	Horizontal Curve	516	8440	2.0	46.9
9	Tangent	1136	-	-	46.9
10	Horizontal Curve	516	8440	2.0	46.9
11	Tangent	150	-	-	46.9
12	Horizontal Curve	516	8440	2.0	46.9
13	Tangent	1868	-	-	46.9

Vehicle Results

Average Speed, mi/h	46.9	Percent Followers, %	43.0
Segment Travel Time, minutes	2.37	Adj. Follower Density, followers/mi/ln	2.6
Vehicle LOS	B		

Bicycle Results			
Percent Occupied Parking	0	Pavement Condition Rating	5
Flow Rate Outside Lane, veh/h	281	Bicycle Effective Width, ft	28
Bicycle LOS Score	1.75	Bicycle Effective Speed Factor	4.42
Bicycle LOS	B		

HCS Two-Lane Highway Report

Project Information

Analyst	HDR Engineering, INC.	Date	1/13/2025
Agency		Analysis Year	2049
Jurisdiction	Lauderdale/Haywood Counties	Time Analyzed	
Project Description	Build	Units	U.S. Customary

Segment 4

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	35957
Lane Width, ft	11	Shoulder Width, ft	2
Speed Limit, mi/h	45	Access Point Density, pts/mi	5.1

Demand and Capacity

Directional Demand Flow Rate, veh/h	281	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.17

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	46.5
Speed Slope Coefficient (m)	3.15535	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.45778	PF Power Coefficient (p)	0.64449
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	3.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Horizontal Curve	422	8440	2.0	44.9
2	Tangent	11522	-	-	44.9
3	Horizontal Curve	785	11459	0.0	44.9
4	Tangent	2418	-	-	44.9
5	Horizontal Curve	251	11500	0.0	44.9
6	Tangent	6312	-	-	44.9
7	Horizontal Curve	251	11500	0.0	44.9
8	Tangent	1556	-	-	44.9
9	Horizontal Curve	563	11500	0.0	44.9
10	Tangent	795	-	-	44.9
11	Horizontal Curve	516	8440	2.0	44.9
12	Tangent	1766	-	-	44.9
13	Horizontal Curve	516	8440	2.0	44.9
14	Tangent	138	-	-	44.9
15	Horizontal Curve	519	8440	2.0	44.9
16	Tangent	5982	-	-	44.9
17	Horizontal Curve	442	8440	2.0	44.9

18	Tangent	150	-	-	44.9
19	Horizontal Curve	1053	8440	2.0	44.9

Vehicle Results

Average Speed, mi/h	44.9	Percent Followers, %	47.4
Segment Travel Time, minutes	9.09	Adj. Follower Density, followers/mi/ln	3.0
Vehicle LOS	B		

Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	5
Flow Rate Outside Lane, veh/h	281	Bicycle Effective Width, ft	13
Bicycle LOS Score	4.83	Bicycle Effective Speed Factor	4.42
Bicycle LOS	E		

HCS Two-Lane Highway Facility Report

Project Information	
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Analyst	HDR Engineering, INC.	Date	1/13/2025
Agency		Analysis Year	2049
Jurisdiction	Lauderdale/Haywood Counties	Time Analyzed	
Facility Name		Units	U.S. Customary
Project Description	No Build		

Facility Segment Data									
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No.	Name	Type	Length ft	Lane Width ft	Shoulder Width ft	Speed Limit mi/h	Access Point Density pts/mi
1	Segment A	Passing Constrained	30149	11	2	55	14.7
2	Segment B	Passing Constrained	3274	11	2	45	24.2
3	Segment C	Passing Constrained	9764	11	2	45	16.3
4	Segment D	Passing Constrained	35957	11	2	45	5.1

Segment 1: Passing Constrained	
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Demand veh/h	Opp. Demand veh/h	PHF	%HV	Capacity veh/h	D/C	Speed mi/h	% Followers	Follower Density followers/mi/ln	LOS
290	-	0.94	4.00	1700	0.17	53.7	45.8	2.5	B

Segment 2: Passing Constrained

Demand veh/h	Opp. Demand veh/h	PHF	%HV	Capacity veh/h	D/C	Speed mi/h	% Followers	Follower Density followers/mi/ln	LOS
246	-	0.94	5.00	1700	0.14	40.4	41.2	2.5	B

Segment 3: Passing Constrained

Demand veh/h	Opp. Demand veh/h	PHF	%HV	Capacity veh/h	D/C	Speed mi/h	% Followers	Follower Density followers/mi/ln	LOS
281	-	0.94	4.00	1700	0.17	42.2	44.0	2.9	B

Segment 4: Passing Constrained

Demand veh/h	Opp. Demand veh/h	PHF	%HV	Capacity veh/h	D/C	Speed mi/h	% Followers	Follower Density followers/mi/ln	LOS
281	-	0.94	4.00	1700	0.17	44.9	47.4	3.0	B

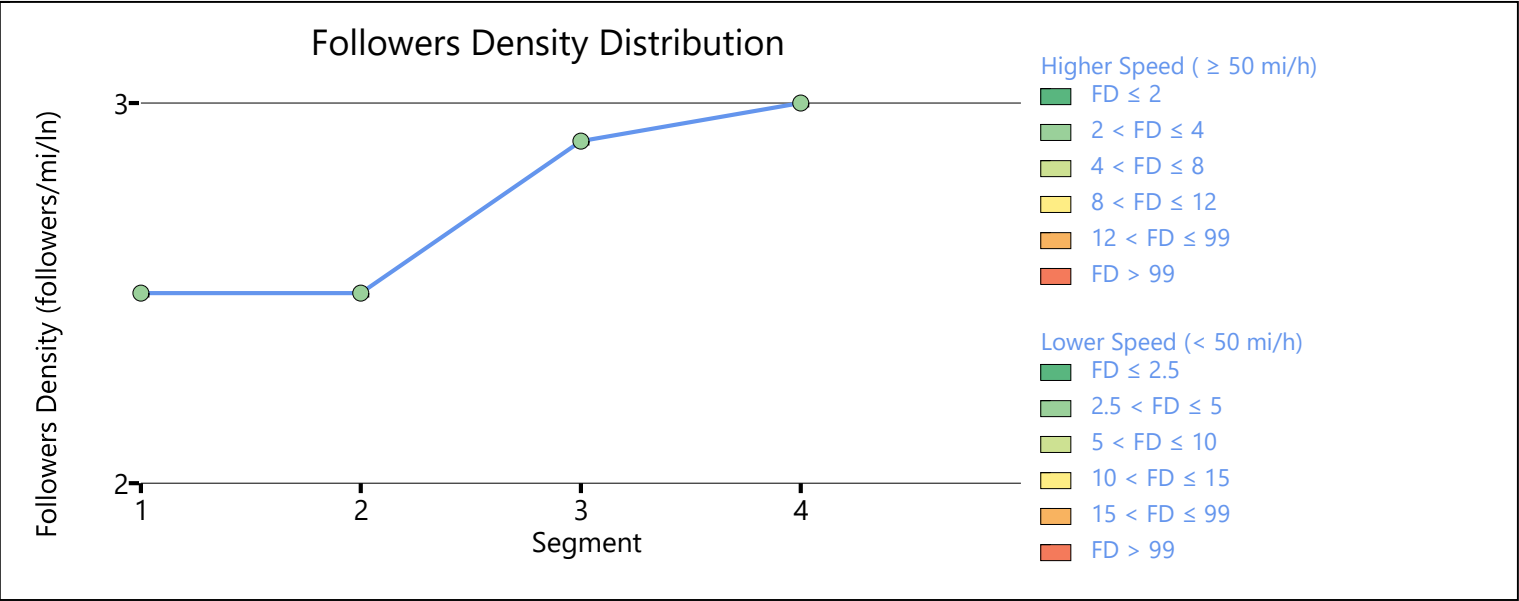
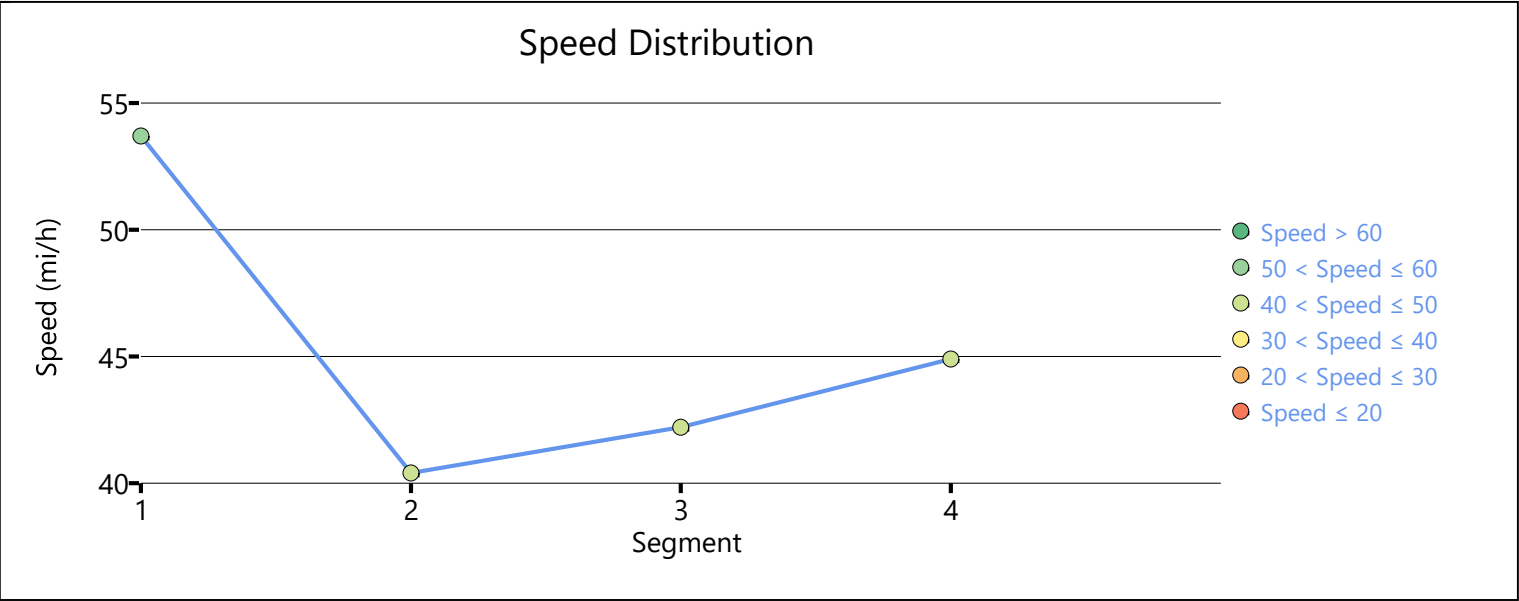
Facility Results	
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91	92
93	94
95	96
97	98
99	100

VMT veh-mi/AP	VHD veh-h/AP	Follower Density followers/mi/ln	Travel Time min	LOS
997	0.69	2.8	19.00	B

Messages

WARNING 1	Bicycle methodology developed for speeds between 25-50 mi/h on segment 1. Use caution when applying methodology at higher speeds.
WARNING 2	Segment Length Over/Under recommended lengths on segment 1. Segment analyzed at recommended length. Split/Combine segment(s) to resolve this warning.
WARNING 3	Bicycle methodology developed for heavy vehicle percentage up to 2% on segment 1. Use caution when applying methodology at higher percentages.
WARNING 4	Bicycle methodology developed for heavy vehicle percentage up to 2% on segment 2. Use caution

	when applying methodology at higher percentages.
WARNING 5	Volumes differ more than 10% between segments 1 and 2. Verify volumes, and consider using alternative tools for this analysis.
WARNING 6	Bicycle methodology developed for heavy vehicle percentage up to 2% on segment 3. Use caution when applying methodology at higher percentages.
WARNING 7	Volumes differ more than 10% between segments 2 and 3. Verify volumes, and consider using alternative tools for this analysis.
WARNING 8	Segment Length Over/Under recommended lengths on segment 4. Segment analyzed at recommended length. Split/Combine segment(s) to resolve this warning.
WARNING 9	Bicycle methodology developed for heavy vehicle percentage up to 2% on segment 4. Use caution when applying methodology at higher percentages.
Comments	



HCS Two-Lane Highway Report

Project Information

Analyst	HDR Engineering, INC.	Date	1/13/2025
Agency		Analysis Year	2049
Jurisdiction	Lauderdale/Haywood Counties	Time Analyzed	
Project Description	No Build	Units	U.S. Customary

Segment 4

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	35957
Lane Width, ft	11	Shoulder Width, ft	2
Speed Limit, mi/h	45	Access Point Density, pts/mi	5.1

Demand and Capacity

Directional Demand Flow Rate, veh/h	281	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.17

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	46.5
Speed Slope Coefficient (m)	3.15535	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.45778	PF Power Coefficient (p)	0.64449
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	3.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Horizontal Curve	422	8440	2.0	44.9
2	Tangent	11522	-	-	44.9
3	Horizontal Curve	785	11459	0.0	44.9
4	Tangent	2418	-	-	44.9
5	Horizontal Curve	251	11500	0.0	44.9
6	Tangent	6312	-	-	44.9
7	Horizontal Curve	251	11500	0.0	44.9
8	Tangent	1556	-	-	44.9
9	Horizontal Curve	563	11500	0.0	44.9
10	Tangent	795	-	-	44.9
11	Horizontal Curve	516	8440	2.0	44.9
12	Tangent	1766	-	-	44.9
13	Horizontal Curve	516	8440	2.0	44.9
14	Tangent	138	-	-	44.9
15	Horizontal Curve	519	8440	2.0	44.9
16	Tangent	5982	-	-	44.9
17	Horizontal Curve	442	8440	2.0	44.9

18	Tangent	150	-	-	44.9
19	Horizontal Curve	1053	8440	2.0	44.9

Vehicle Results

Average Speed, mi/h	44.9	Percent Followers, %	47.4
Segment Travel Time, minutes	9.09	Adj. Follower Density, followers/mi/ln	3.0
Vehicle LOS	B		

Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	2
Flow Rate Outside Lane, veh/h	281	Bicycle Effective Width, ft	13
Bicycle LOS Score	6.31	Bicycle Effective Speed Factor	4.42
Bicycle LOS	F		

HCS Two-Lane Highway Report

Project Information

Analyst	HDR Engineering, INC.	Date	1/13/2025
Agency		Analysis Year	2049
Jurisdiction	Lauderdale/Haywood Counties	Time Analyzed	
Project Description	No Build	Units	U.S. Customary

Segment 2

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	3274
Lane Width, ft	11	Shoulder Width, ft	2
Speed Limit, mi/h	45	Access Point Density, pts/mi	24.2

Demand and Capacity

Directional Demand Flow Rate, veh/h	246	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	5.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	41.7
Speed Slope Coefficient (m)	2.79755	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.42380	PF Power Coefficient (p)	0.70272
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	2.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	700	-	-	40.4
2	Horizontal Curve	2196	6100	0.0	40.4
3	Tangent	378	-	-	40.4

Vehicle Results

Average Speed, mi/h	40.4	Percent Followers, %	41.2
Segment Travel Time, minutes	0.92	Adj. Follower Density, followers/mi/ln	2.5
Vehicle LOS	B		

Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	2
Flow Rate Outside Lane, veh/h	246	Bicycle Effective Width, ft	13
Bicycle LOS Score	6.51	Bicycle Effective Speed Factor	4.42
Bicycle LOS	F		

HCS Two-Lane Highway Report

Project Information

Analyst	HDR Engineering, INC.	Date	1/13/2025
Agency		Analysis Year	2049
Jurisdiction	Lauderdale/Haywood Counties	Time Analyzed	
Project Description	No Build	Units	U.S. Customary

Segment 3

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	9764
Lane Width, ft	11	Shoulder Width, ft	2
Speed Limit, mi/h	45	Access Point Density, pts/mi	16.3

Demand and Capacity

Directional Demand Flow Rate, veh/h	281	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.17

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	43.7
Speed Slope Coefficient (m)	2.96543	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.39387	PF Power Coefficient (p)	0.69025
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	2.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	250	-	-	42.2
2	Horizontal Curve	516	8440	2.0	42.2
3	Tangent	150	-	-	42.2
4	Horizontal Curve	516	8440	2.0	42.2
5	Tangent	2298	-	-	42.2
6	Horizontal Curve	516	8440	2.0	42.2
7	Tangent	816	-	-	42.2
8	Horizontal Curve	516	8440	2.0	42.2
9	Tangent	1136	-	-	42.2
10	Horizontal Curve	516	8440	2.0	42.2
11	Tangent	150	-	-	42.2
12	Horizontal Curve	516	8440	2.0	42.2
13	Tangent	1868	-	-	42.2

Vehicle Results

Average Speed, mi/h	42.2	Percent Followers, %	44.0
Segment Travel Time, minutes	2.63	Adj. Follower Density, followers/mi/ln	2.9
Vehicle LOS	B		

Bicycle Results			
Percent Occupied Parking	0	Pavement Condition Rating	2
Flow Rate Outside Lane, veh/h	281	Bicycle Effective Width, ft	13
Bicycle LOS Score	6.31	Bicycle Effective Speed Factor	4.42
Bicycle LOS	F		

HCS Two-Lane Highway Report

Project Information

Analyst	HDR Engineering, INC.	Date	1/13/2025
Agency		Analysis Year	2049
Jurisdiction	Lauderdale/Haywood Counties	Time Analyzed	
Project Description	No Build	Units	U.S. Customary

Segment 4

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	35957
Lane Width, ft	11	Shoulder Width, ft	2
Speed Limit, mi/h	45	Access Point Density, pts/mi	5.1

Demand and Capacity

Directional Demand Flow Rate, veh/h	281	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.94	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.17

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	46.5
Speed Slope Coefficient (m)	3.15535	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.45778	PF Power Coefficient (p)	0.64449
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	3.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Horizontal Curve	422	8440	2.0	44.9
2	Tangent	11522	-	-	44.9
3	Horizontal Curve	785	11459	0.0	44.9
4	Tangent	2418	-	-	44.9
5	Horizontal Curve	251	11500	0.0	44.9
6	Tangent	6312	-	-	44.9
7	Horizontal Curve	251	11500	0.0	44.9
8	Tangent	1556	-	-	44.9
9	Horizontal Curve	563	11500	0.0	44.9
10	Tangent	795	-	-	44.9
11	Horizontal Curve	516	8440	2.0	44.9
12	Tangent	1766	-	-	44.9
13	Horizontal Curve	516	8440	2.0	44.9
14	Tangent	138	-	-	44.9
15	Horizontal Curve	519	8440	2.0	44.9
16	Tangent	5982	-	-	44.9
17	Horizontal Curve	442	8440	2.0	44.9

18	Tangent	150	-	-	44.9
19	Horizontal Curve	1053	8440	2.0	44.9

Vehicle Results

Average Speed, mi/h	44.9	Percent Followers, %	47.4
Segment Travel Time, minutes	9.09	Adj. Follower Density, followers/mi/ln	3.0
Vehicle LOS	B		

Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	2
Flow Rate Outside Lane, veh/h	281	Bicycle Effective Width, ft	13
Bicycle LOS Score	6.31	Bicycle Effective Speed Factor	4.42
Bicycle LOS	F		

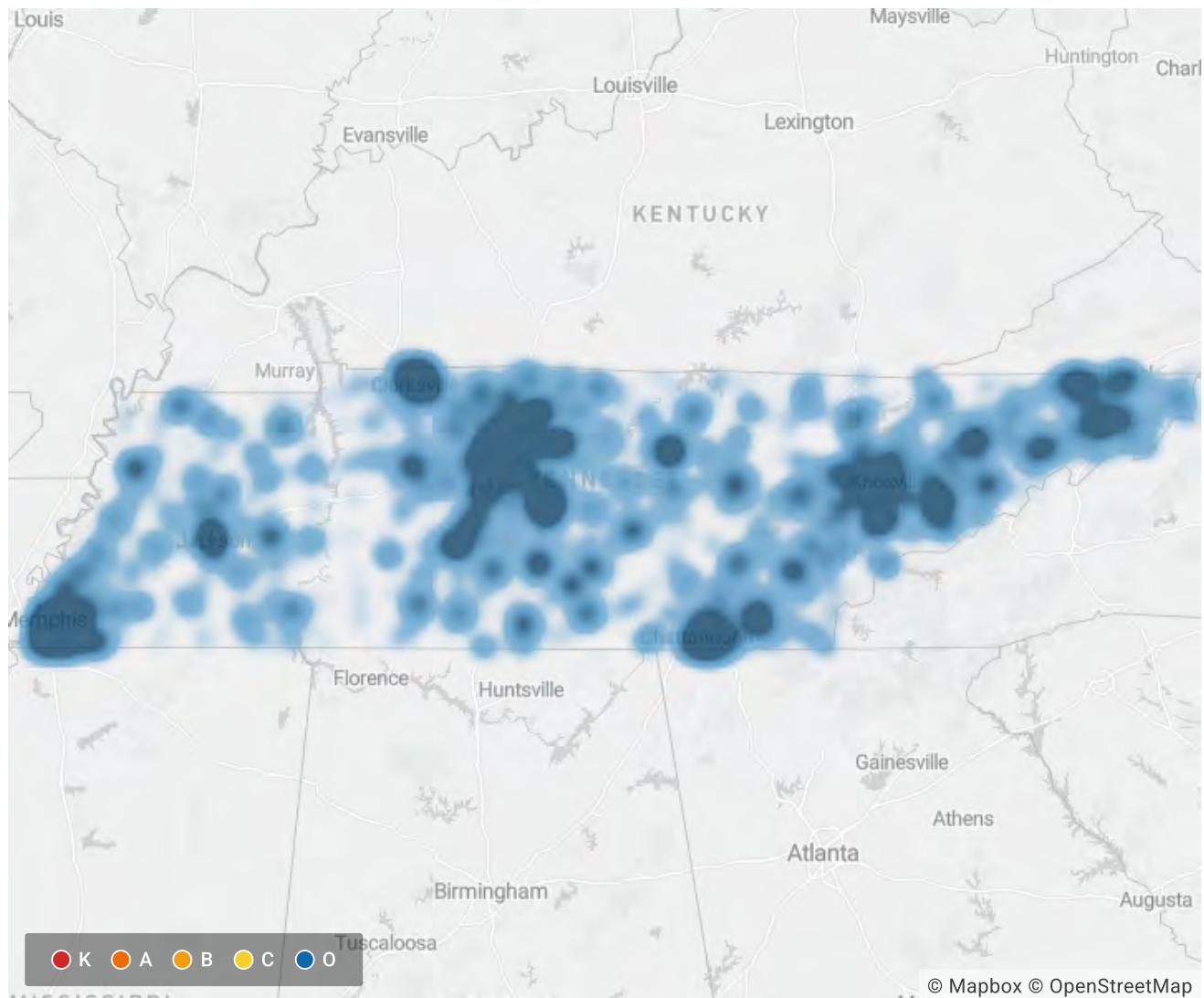
Attachment C. Crash Data

3-Year State Route

Data extents: June 19, 2022 to June 19, 2025



Route Type	=	State Route
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Total Crashes	241,401	Fatal Crashes	1,829
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Summary		Crash
Total Crashes	241,401	100.00%
Truck/Bus Involved	13,822	5.73%
Distracted Driver Involved	10,340	4.28%

Alcohol Involved	6,752	2.80%
Motorcycle Involved	4,238	1.76%
Pedestrian Involved	1,933	0.80%

Type of Crash	Crash	
(O) Property-Damage Only	181,315	75.11%
(C) Possible Injury	25,764	10.67%
(B) Suspected Minor Injury	25,453	10.54%
(A) Suspected Serious Injury	7,040	2.92%
(K) Fatal Injury	1,829	0.76%

Date of Crash (Year)	Crash	
2025	33,682	13.95%
2024	78,451	32.50%
2023	82,337	34.11%
2022	46,931	19.44%
+ 8 more	0	0%

Manner of First Collision	Crash	
Angle	74,350	30.80%
Rear-End	68,521	28.38%
No Collision W/ Vehicle	48,855	20.24%
Sideswipe, Same Dir	20,048	8.30%
Head-On	5,395	2.23%
Sideswipe, Opp Dir	4,719	1.95%
Other	3,429	1.42%
Unknown	1,888	0.78%
+ 2 more	829	0.34%

First Harmful Event	Crash	
Vehicle in Transport	175,348	72.64%
Deer (Animal)	12,226	5.06%
Ditch	6,569	2.72%
Utility Pole	3,140	1.30%
Earth Embankment	2,646	1.10%
Standing Tree	2,160	0.89%
Overturn	2,138	0.89%
Guardrail Face	1,941	0.80%
+ 59 more	21,869	9.08%

Crash Location		Crash
Along Roadway	150,941	62.53%
At an Intersection	85,934	35.60%
Ramp	4,526	1.87%
+ 4 more	0	0%

Light Conditions		Crash
Daylight	156,446	64.81%
Dark-Lighted	34,301	14.21%
Dark-Not Lighted	23,596	9.77%
Dawn	5,301	2.20%
Dusk	4,871	2.02%
Unknown	1,269	0.53%
Dark-Unknown Lighting	962	0.40%
Other	240	0.10%

Weather Conditions		Crash
Clear	176,062	72.93%
Cloudy	24,953	10.34%
Rain	20,210	8.37%
Snow	1,282	0.53%
Fog	1,094	0.45%
Unknown	1,089	0.45%
Other	197	0.08%
Blowing Snow	189	0.08%
+ 4 more	326	0.14%

CRASH SUMMARY REPORT

SR 19 and Ross Road/Gause Lane

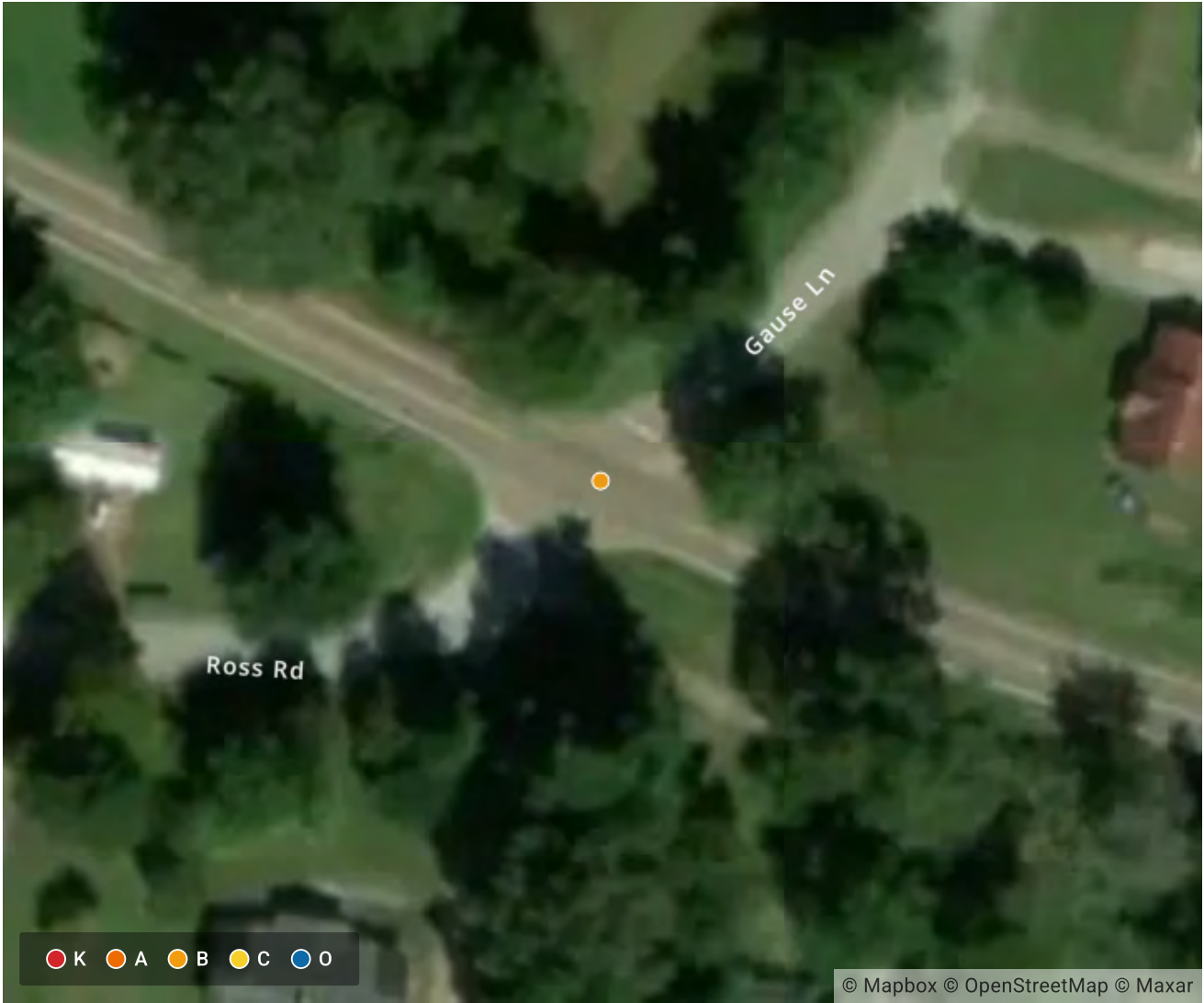
Created on June 25, 2025
Created by Jonathan Smith
Data extents: June 19, 2022 to June 19, 2025



Applied Filters

ID Number = 49SR019001MP: 22.92 - 22.94

ID Number = 490A302001MP: 1.47 - 1.49



Total Crashes	1	Fatal Crashes	0
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Summary		Crash	
Total Crashes	1	100.00%	
+ 5 more	0	0%	

Type of Crash	Crash	
(B) Suspected Minor Injury	1	100.00%
+ 4 more	0	0%
Date of Crash (Year)	Crash	
2023	1	100.00%
+ 11 more	0	0%
Manner of First Collision	Crash	
Angle	1	100.00%
+ 9 more	0	0%
First Harmful Event	Crash	
Vehicle in Transport	1	100.00%
+ 66 more	0	0%
Crash Location	Crash	
Along Roadway	1	100.00%
+ 6 more	0	0%
Light Conditions	Crash	
Daylight	1	100.00%
+ 7 more	0	0%
Weather Conditions	Crash	
Cloudy	1	100.00%
+ 11 more	0	0%

CRASH SUMMARY REPORT

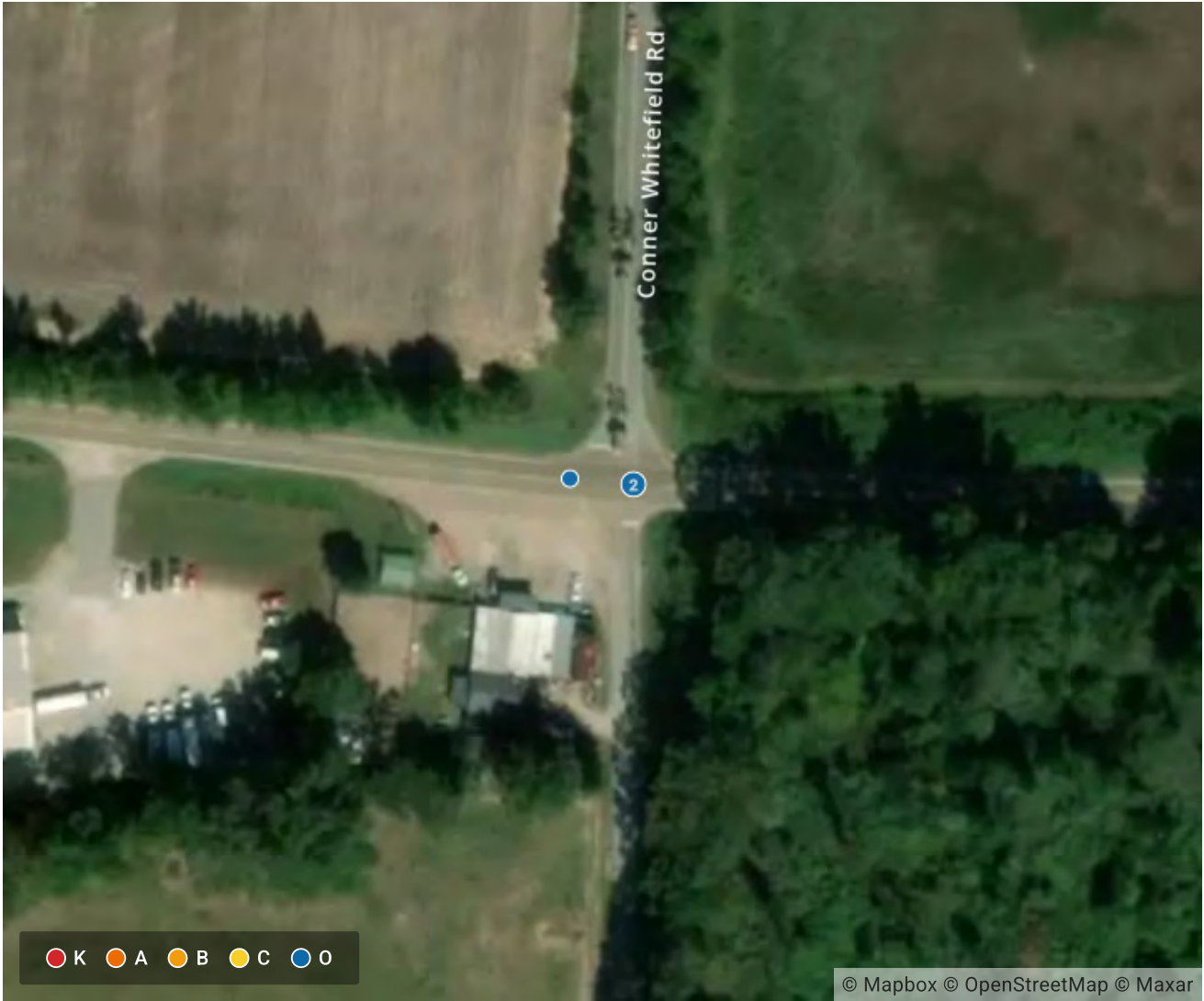
SR 19 and Samford Road/Corner Whitfield Road

Created on June 25, 2025
Created by Jonathan Smith
Data extents: June 19, 2022 to June 19, 2025



Applied Filters

ID Number	=	49SR019001	MP: 24.74 - 24.76	ID Number	=	4901489001	MP: 0 - 0.02
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Total Crashes	3	Fatal Crashes	0
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Summary		Crash	
Total Crashes	3	100.00%	
+ 5 more	0	0%	

Type of Crash	Crash	
(O) Property-Damage Only	3	100.00%
+ 4 more	0	0%
Date of Crash (Year)	Crash	
2023	2	66.67%
2022	1	33.33%
+ 10 more	0	0%
Manner of First Collision	Crash	
No Collision W/ Vehicle	1	33.33%
Sideswipe, Opp Dir	1	33.33%
Sideswipe, Same Dir	1	33.33%
+ 7 more	0	0%
First Harmful Event	Crash	
Vehicle in Transport	2	66.67%
Deer (Animal)	1	33.33%
+ 65 more	0	0%
Crash Location	Crash	
Along Roadway	2	66.67%
At an Intersection	1	33.33%
+ 5 more	0	0%
Light Conditions	Crash	
Daylight	2	66.67%
Dark-Unknown Lighting	1	33.33%
+ 6 more	0	0%
Weather Conditions	Crash	
Clear	3	100.00%
+ 11 more	0	0%

CRASH SUMMARY REPORT

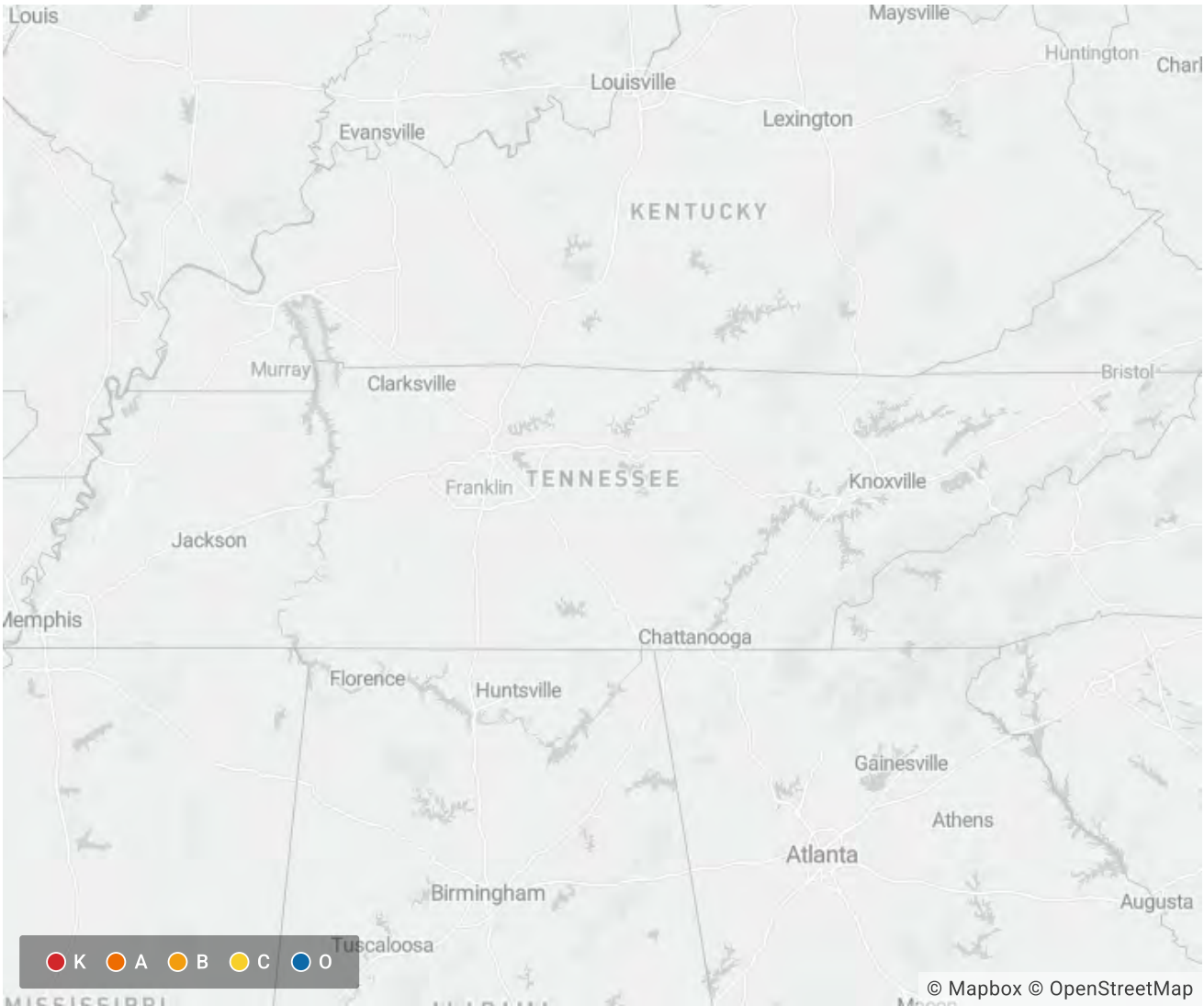
SR 19 and Spring Hill Road

Created on June 25, 2025
Created by Jonathan Smith
Data extents: June 19, 2022 to June 19, 2025



Applied Filters

ID Number	=	49SR019001	MP: 25.86 - 25.88
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Total Crashes	0	Fatal Crashes	0
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Summary	Crash
+ 6 more	0

Type of Crash	Crash
---------------	-------

+ 5 more	0
----------	---

Date of Crash (Year)	Crash
----------------------	-------

+ 12 more	0
-----------	---

Manner of First Collision	Crash
---------------------------	-------

+ 10 more	0
-----------	---

First Harmful Event	Crash
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+ 67 more	0
-----------	---

Crash Location	Crash
----------------	-------

+ 7 more	0
----------	---

Light Conditions	Crash
------------------	-------

+ 8 more	0
----------	---

Weather Conditions	Crash
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+ 12 more	0
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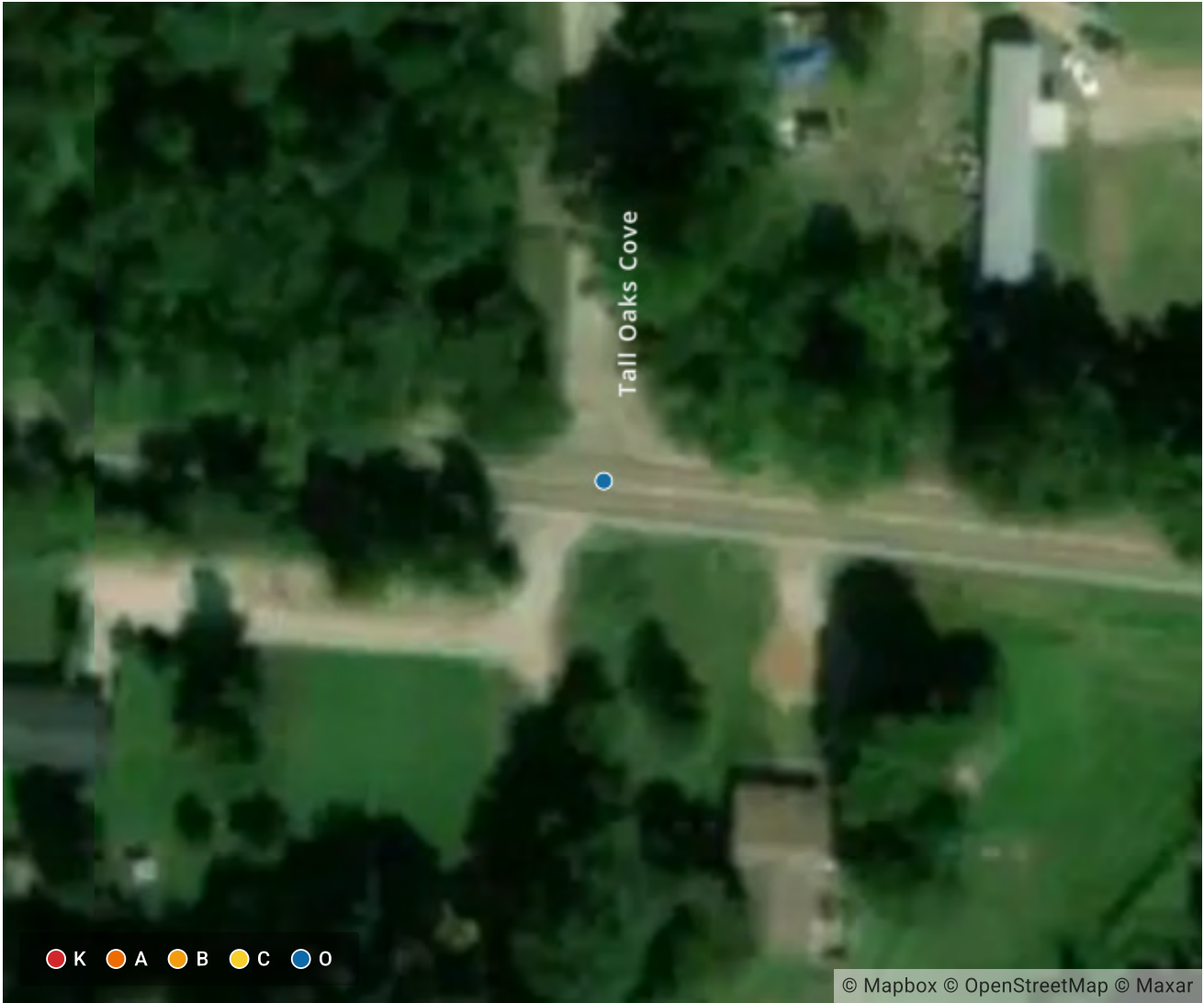
SR 19 and Tall Oaks Road

Created on June 25, 2025
Created by Jonathan Smith
Data extents: June 19, 2022 to June 19, 2025



Applied Filters

ID Number	=	49SR019001	MP: 24.38 - 24.4
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Total Crashes	1	Fatal Crashes	0
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Summary		Crash	
Total Crashes	1	100.00%	
+ 5 more	0	0%	

Type of Crash	Crash	
(O) Property-Damage Only	1	100.00%
+ 4 more	0	0%
Date of Crash (Year)	Crash	
2022	1	100.00%
+ 11 more	0	0%
Manner of First Collision	Crash	
Sideswipe, Same Dir	1	100.00%
+ 9 more	0	0%
First Harmful Event	Crash	
Vehicle in Transport	1	100.00%
+ 66 more	0	0%
Crash Location	Crash	
At an Intersection	1	100.00%
+ 6 more	0	0%
Light Conditions	Crash	
Daylight	1	100.00%
+ 7 more	0	0%
Weather Conditions	Crash	
Clear	1	100.00%
+ 11 more	0	0%

CRASH SUMMARY REPORT

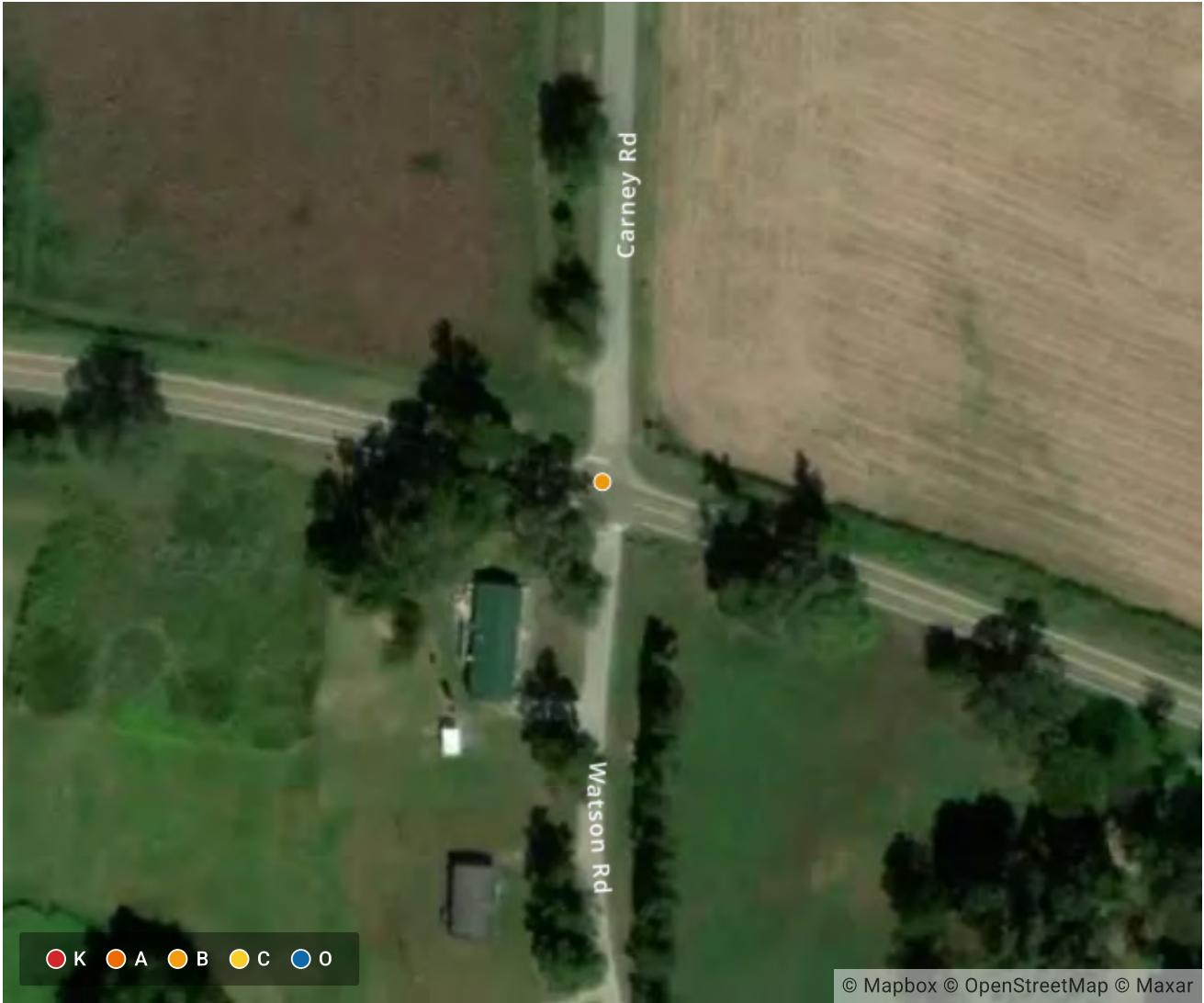
SR 19 and Watson Road/Carney Road

Created on June 25, 2025
Created by Jonathan Smith
Data extents: June 19, 2022 to June 19, 2025



Applied Filters

ID Number	=	49SR019001	MP: 25.61 - 25.63	ID Number	=	490A288001	MP: 0.84 - 0.86
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Total Crashes	1	Fatal Crashes	0
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Summary		Crash	
Total Crashes	1	100.00%	
+ 5 more	0	0%	

Type of Crash	Crash	
(B) Suspected Minor Injury	1	100.00%
+ 4 more	0	0%
Date of Crash (Year)	Crash	
2024	1	100.00%
+ 11 more	0	0%
Manner of First Collision	Crash	
Angle	1	100.00%
+ 9 more	0	0%
First Harmful Event	Crash	
Vehicle in Transport	1	100.00%
+ 66 more	0	0%
Crash Location	Crash	
At an Intersection	1	100.00%
+ 6 more	0	0%
Light Conditions	Crash	
Daylight	1	100.00%
+ 7 more	0	0%
Weather Conditions	Crash	
Clear	1	100.00%
+ 11 more	0	0%

CRASH SUMMARY REPORT

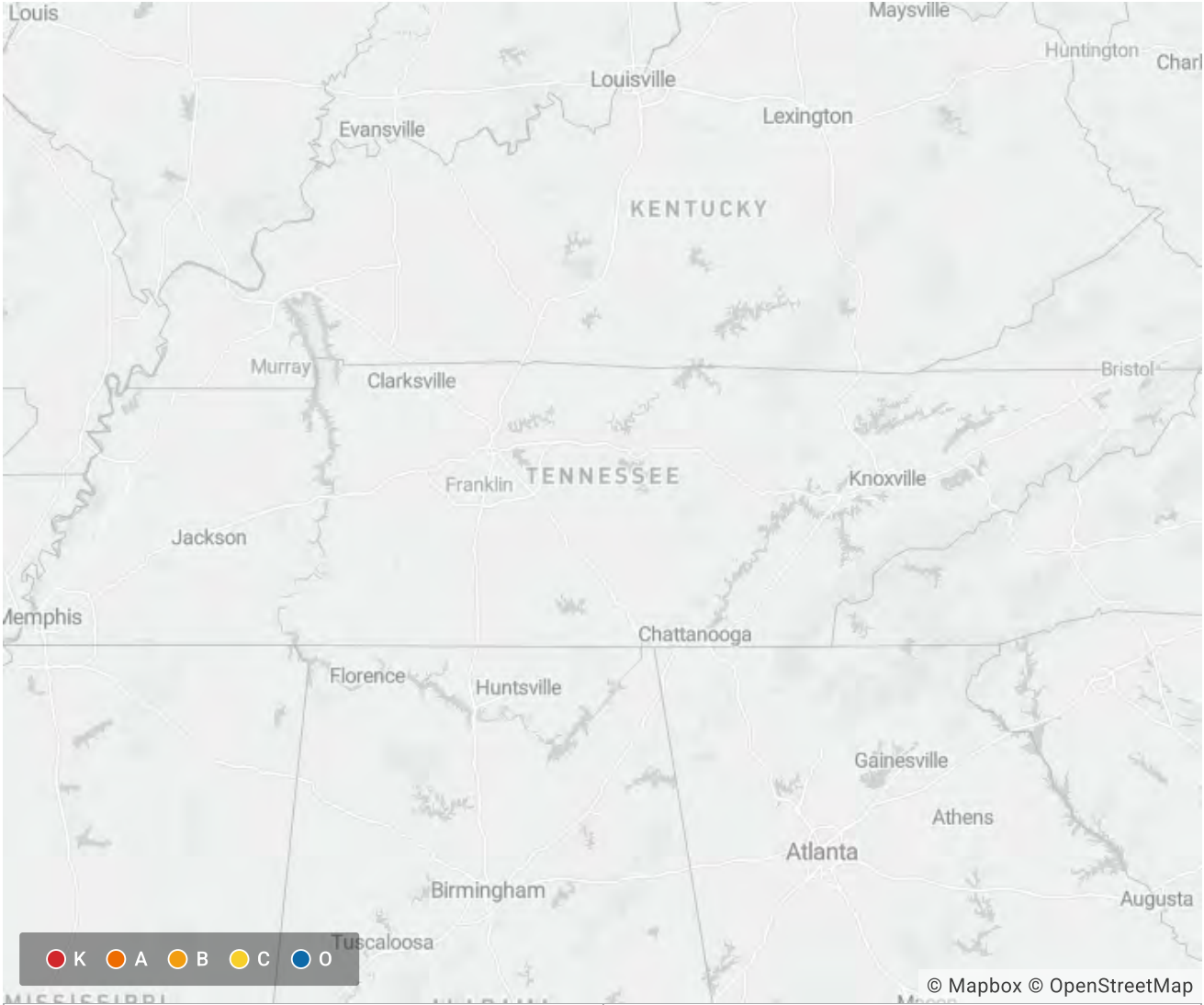
SR 19 and Willie Paris Road

Created on June 25, 2025
Created by Jonathan Smith
Data extents: June 19, 2022 to June 19, 2025



Applied Filters

ID Number	=	49SR019001	MP: 22.26 - 22.28	ID Number	=	490A520001	MP: 5.34 - 5.36
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Total Crashes	0	Fatal Crashes	0
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Summary	Crash
+ 6 more	0

Type of Crash	Crash
---------------	-------

+ 5 more	0
Date of Crash (Year)	Crash
+ 12 more	0
Manner of First Collision	Crash
+ 10 more	0
First Harmful Event	Crash
+ 67 more	0
Crash Location	Crash
+ 7 more	0
Light Conditions	Crash
+ 8 more	0
Weather Conditions	Crash
+ 12 more	0

CRASH SUMMARY REPORT

SR-19 and Briarcreek Road/Woodlawn Road

Created on June 25, 2025

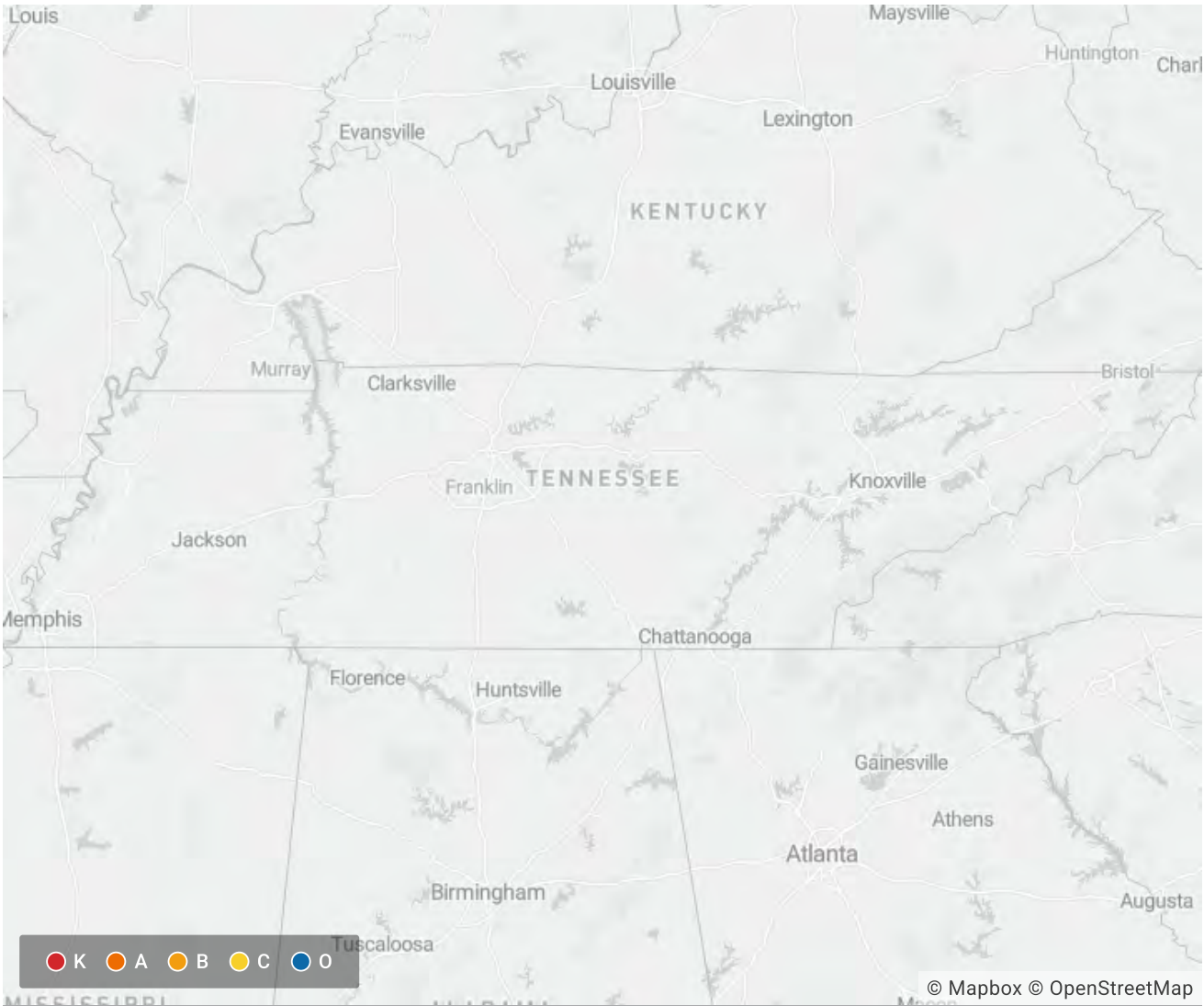
Created by Jonathan Smith

Data extents: June 19, 2022 to June 19, 2025



Applied Filters

ID Number	=	380A011001	MP: 0.8 - 0.82	ID Number	=	380A011001	MP: 0.82 - 0.84
ID Number	=	38SR019001	MP: 5.62 - 5.64	ID Number	=	38SR019001	MP: 5.64 - 5.66



Total Crashes	0	Fatal Crashes	0
---------------	---	---------------	---

Summary	Crash
+ 6 more	0

Type of Crash	Crash
+ 5 more	0

Date of Crash (Year)	Crash
+ 12 more	0

Manner of First Collision	Crash
+ 10 more	0

First Harmful Event	Crash
+ 67 more	0

Crash Location	Crash
+ 7 more	0

Light Conditions	Crash
+ 8 more	0

Weather Conditions	Crash
+ 12 more	0

CRASH SUMMARY REPORT

SR-19 and Nunn Road

Created on July 28, 2025

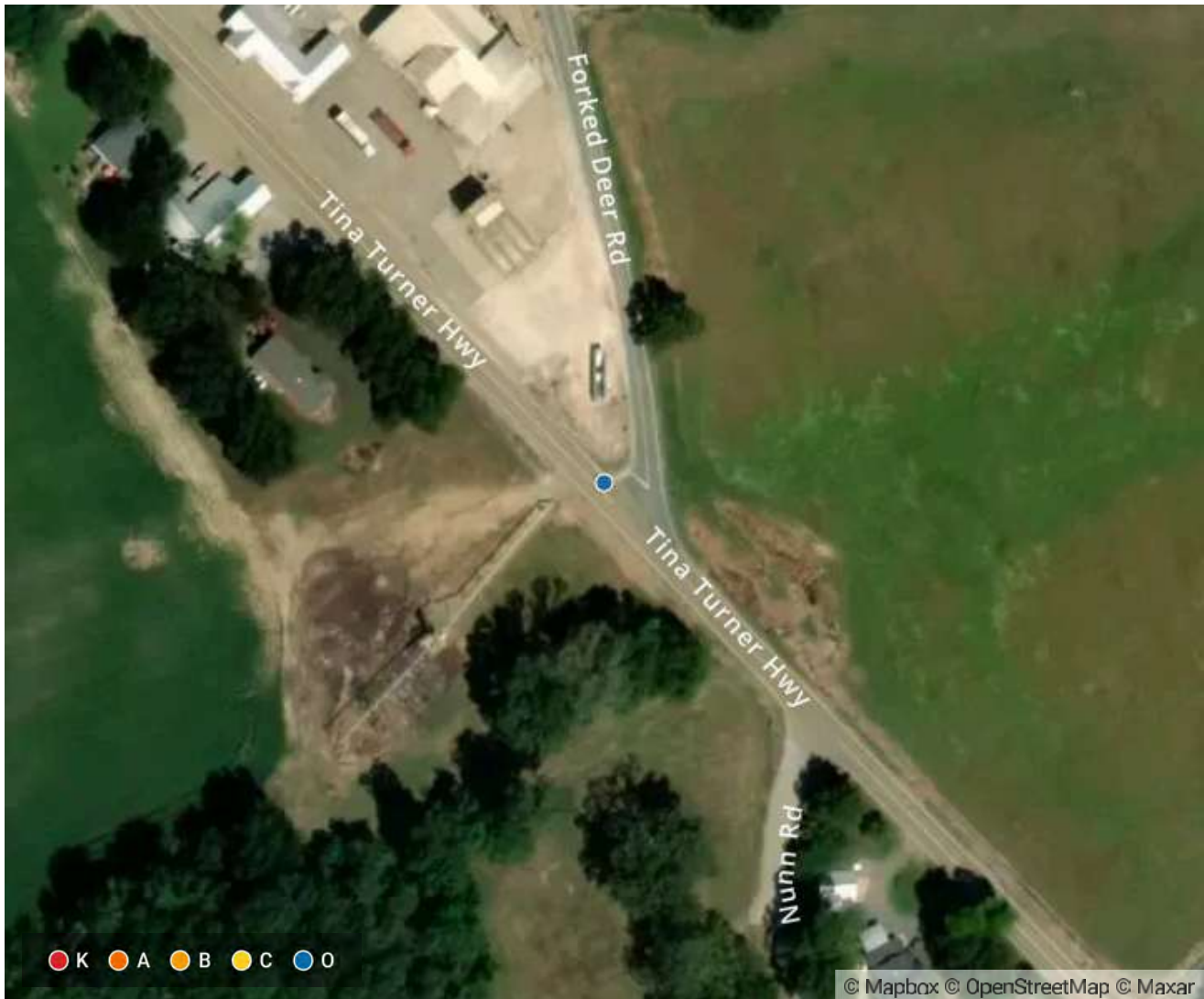
Created by Jonathan Smith

Data extents: June 19, 2022 to June 19, 2025



Applied Filters

ID Number	=	3801482001	MP: 4.32 - 4.33	ID Number	=	38SR019001	MP: 2.1 - 2.17
ID Number	=	38SR019001	MP: 2.17 - 2.19				



Total Crashes	1	Fatal Crashes	0
---------------	---	---------------	---

Summary		Crash
Total Crashes	1	100.00%
Truck/Bus Involved	1	100.00%

+ 4 more	0	0%
Type of Crash	Crash	
(0) Property-Damage Only	1	100.00%
+ 4 more	0	0%
Date of Crash (Year)	Crash	
2024	1	100.00%
+ 11 more	0	0%
Manner of First Collision	Crash	
Angle	1	100.00%
+ 9 more	0	0%
First Harmful Event	Crash	
Vehicle in Transport	1	100.00%
+ 66 more	0	0%
Crash Location	Crash	
At an Intersection	1	100.00%
+ 6 more	0	0%
Light Conditions	Crash	
Daylight	1	100.00%
+ 7 more	0	0%
Weather Conditions	Crash	
Cloudy	1	100.00%
+ 11 more	0	0%

CRASH SUMMARY REPORT

SR-19 and Jim Binford Lane

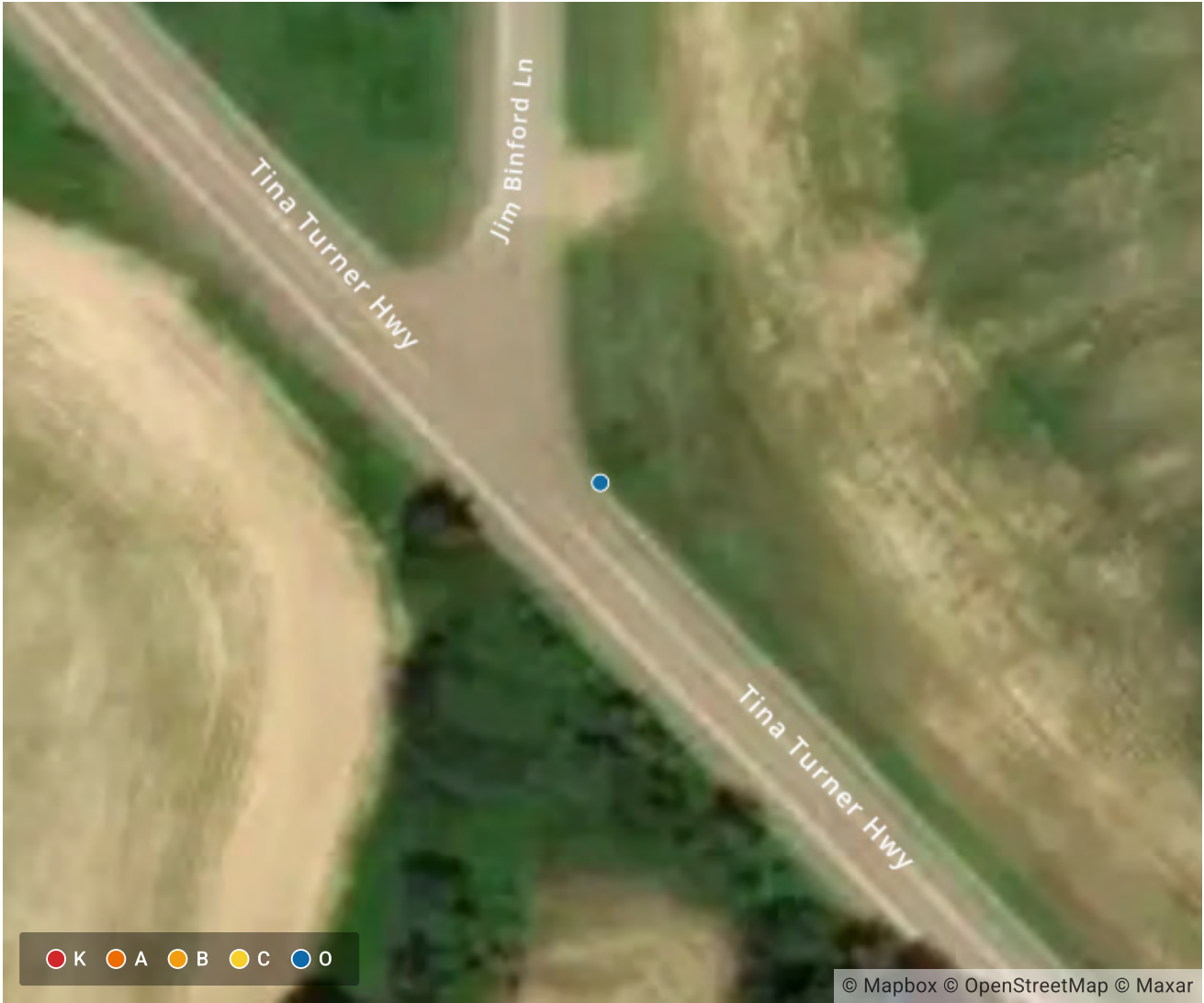
Created on June 25, 2025
Created by Jonathan Smith
Data extents: June 19, 2022 to June 19, 2025



Applied Filters

ID Number = 38SR019001MP: 3.94 - 3.96

ID Number = 380A330001MP: 0 - 0.02



Total Crashes	1	Fatal Crashes	0
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Summary		Crash	
Total Crashes	1	100.00%	
+ 5 more	0	0%	

Type of Crash	Crash	
(O) Property-Damage Only	1	100.00%
+ 4 more	0	0%
Date of Crash (Year)	Crash	
2023	1	100.00%
+ 11 more	0	0%
Manner of First Collision	Crash	
Rear-End	1	100.00%
+ 9 more	0	0%
First Harmful Event	Crash	
Vehicle in Transport	1	100.00%
+ 66 more	0	0%
Crash Location	Crash	
Along Roadway	1	100.00%
+ 6 more	0	0%
Light Conditions	Crash	
Daylight	1	100.00%
+ 7 more	0	0%
Weather Conditions	Crash	
+ 12 more	0	0%

CRASH SUMMARY REPORT

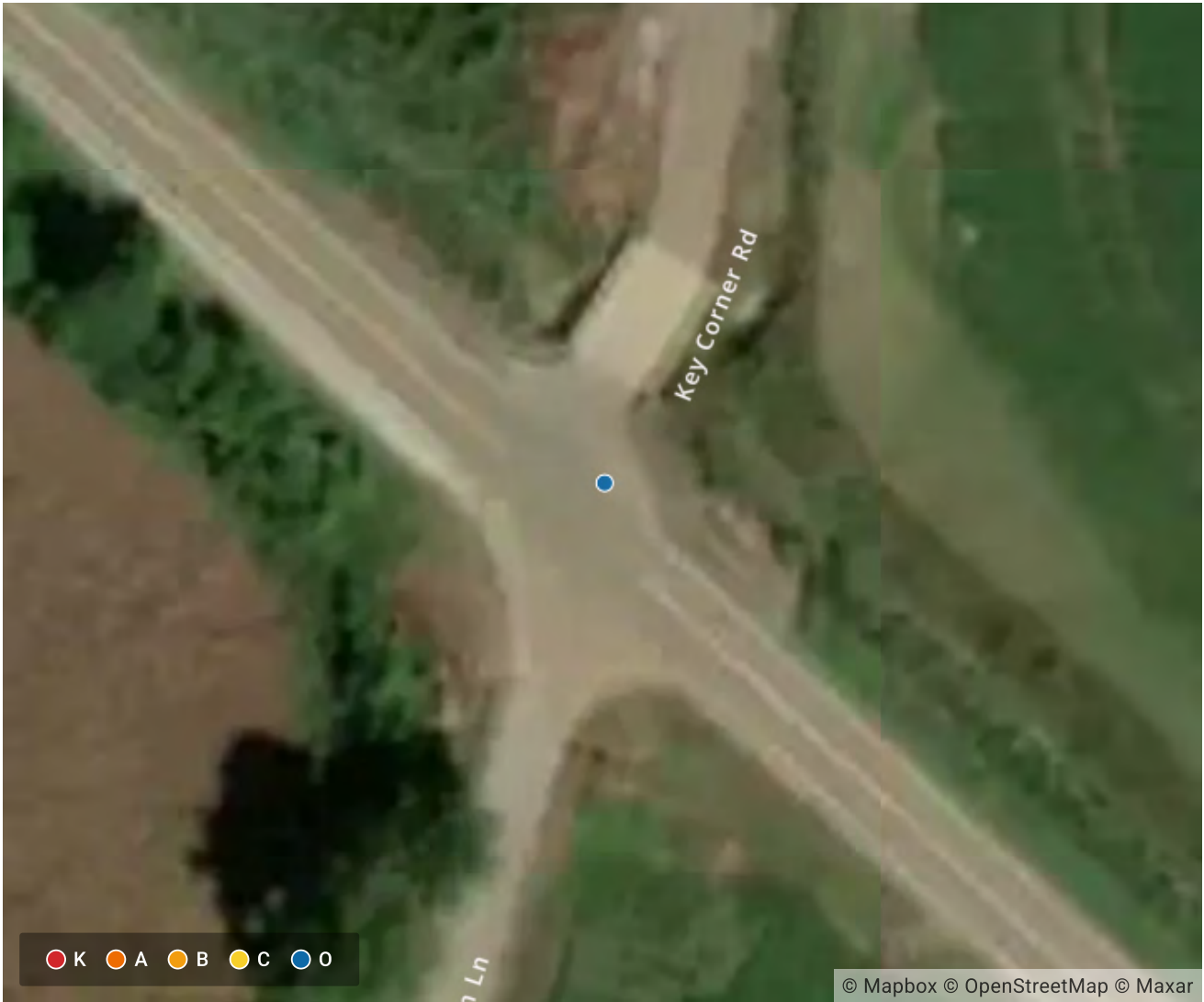
SR-19 and Key Corner Road/Patton Road

Created on June 25, 2025
Created by Jonathan Smith
Data extents: June 19, 2022 to June 19, 2025



Applied Filters

ID Number	=	38SR019001	MP: 8.73 - 8.75	ID Number	=	38SR019001	MP: 8.75 - 8.77
ID Number	=	380A314001	MP: 0 - 0.02	ID Number	=	380A002001	MP: 0 - 0.02



Total Crashes	1	Fatal Crashes	0
---------------	---	---------------	---

Summary		Crash	
Total Crashes	1	100.00%	
+ 5 more	0	0%	

Type of Crash	Crash	
(O) Property-Damage Only	1	100.00%
+ 4 more	0	0%
Date of Crash (Year)	Crash	
2022	1	100.00%
+ 11 more	0	0%
Manner of First Collision	Crash	
No Collision W/ Vehicle	1	100.00%
+ 9 more	0	0%
First Harmful Event	Crash	
Deer (Animal)	1	100.00%
+ 66 more	0	0%
Crash Location	Crash	
Along Roadway	1	100.00%
+ 6 more	0	0%
Light Conditions	Crash	
Dark-Not Lighted	1	100.00%
+ 7 more	0	0%
Weather Conditions	Crash	
Rain	1	100.00%
+ 11 more	0	0%

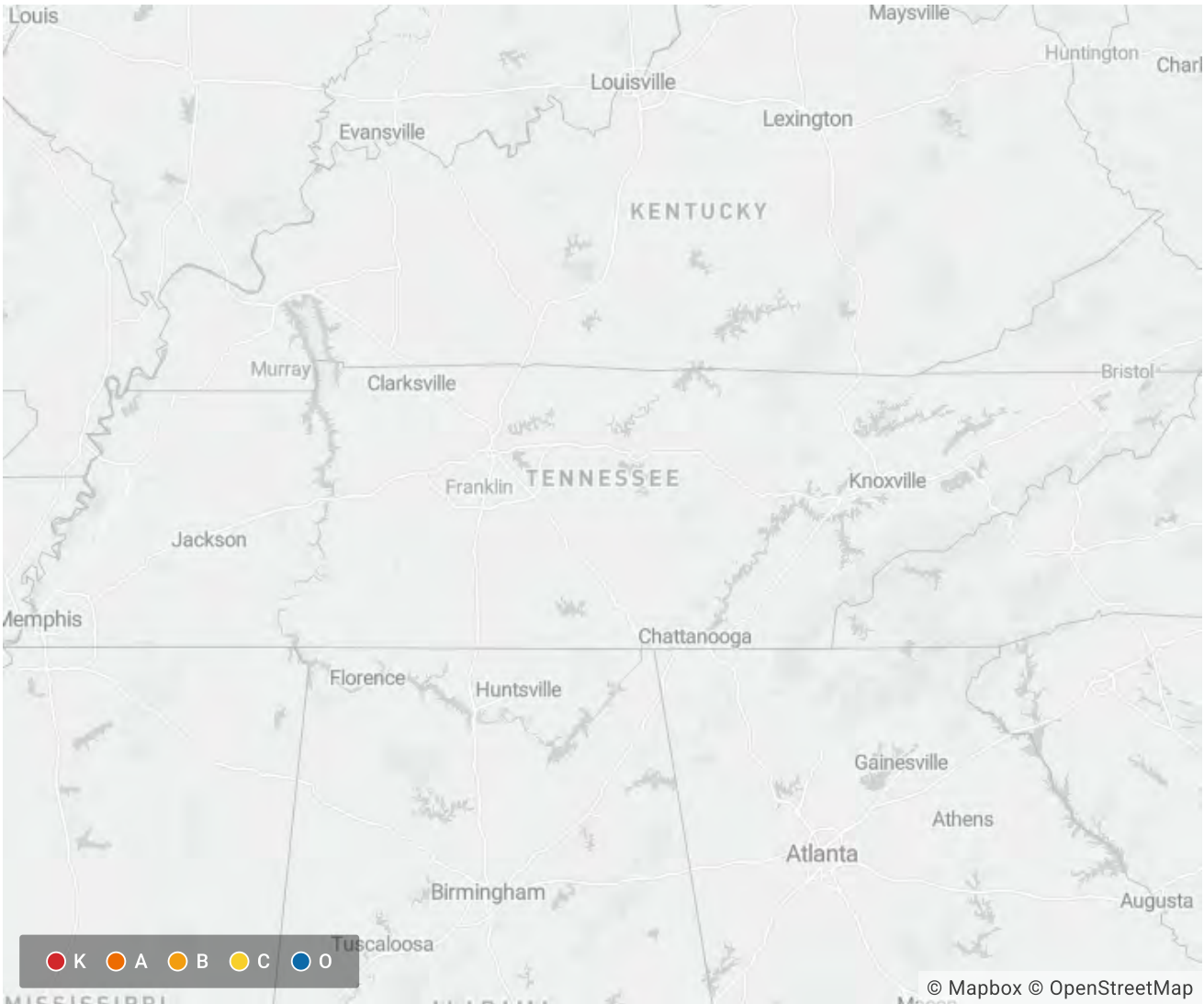
SR-19 and Nunn Road

Created on June 25, 2025
Created by Jonathan Smith
Data extents: June 19, 2022 to June 19, 2025



Applied Filters

ID Number	=	3801482001	MP: 4.31 - 4.33	ID Number	=	38SR019001	MP: 2.15 - 2.17
ID Number	=	38SR019001	MP: 2.17 - 2.19				



Total Crashes	0	Fatal Crashes	0
---------------	---	---------------	---

Summary	Crash
+ 6 more	0

Type of Crash	Crash
+ 5 more	0

Date of Crash (Year)	Crash
+ 12 more	0

Manner of First Collision	Crash
+ 10 more	0

First Harmful Event	Crash
+ 67 more	0

Crash Location	Crash
+ 7 more	0

Light Conditions	Crash
+ 8 more	0

Weather Conditions	Crash
+ 12 more	0

CRASH SUMMARY REPORT

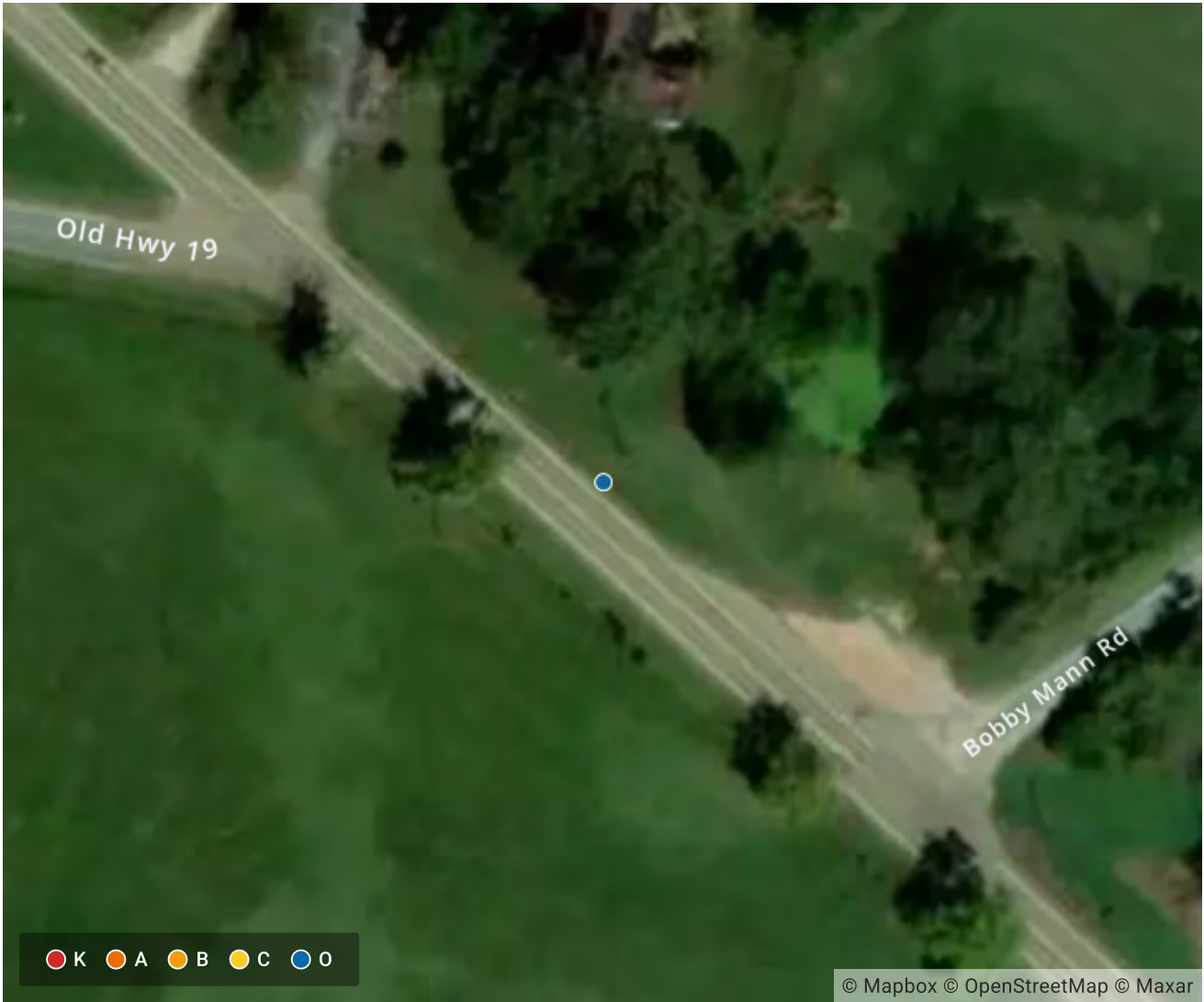
SR-19 and Old SR-19

Created on June 25, 2025
Created by Jonathan Smith
Data extents: June 19, 2022 to June 19, 2025



Applied Filters

ID Number	=	38SR019001	MP: 7.66 - 7.68	ID Number	=	38SR019001	MP: 7.68 - 7.7
ID Number	=	380A007001	MP: 0 - 0.02				



Total Crashes	1	Fatal Crashes	0
---------------	---	---------------	---

Summary		Crash	
Total Crashes	1	100.00%	
+ 5 more	0	0%	

Type of Crash	Crash	
(O) Property-Damage Only	1	100.00%
+ 4 more	0	0%
Date of Crash (Year)	Crash	
2024	1	100.00%
+ 11 more	0	0%
Manner of First Collision	Crash	
No Collision W/ Vehicle	1	100.00%
+ 9 more	0	0%
First Harmful Event	Crash	
Deer (Animal)	1	100.00%
+ 66 more	0	0%
Crash Location	Crash	
Along Roadway	1	100.00%
+ 6 more	0	0%
Light Conditions	Crash	
Daylight	1	100.00%
+ 7 more	0	0%
Weather Conditions	Crash	
Rain	1	100.00%
+ 11 more	0	0%

SR-19 and Small Road

Created on June 25, 2025

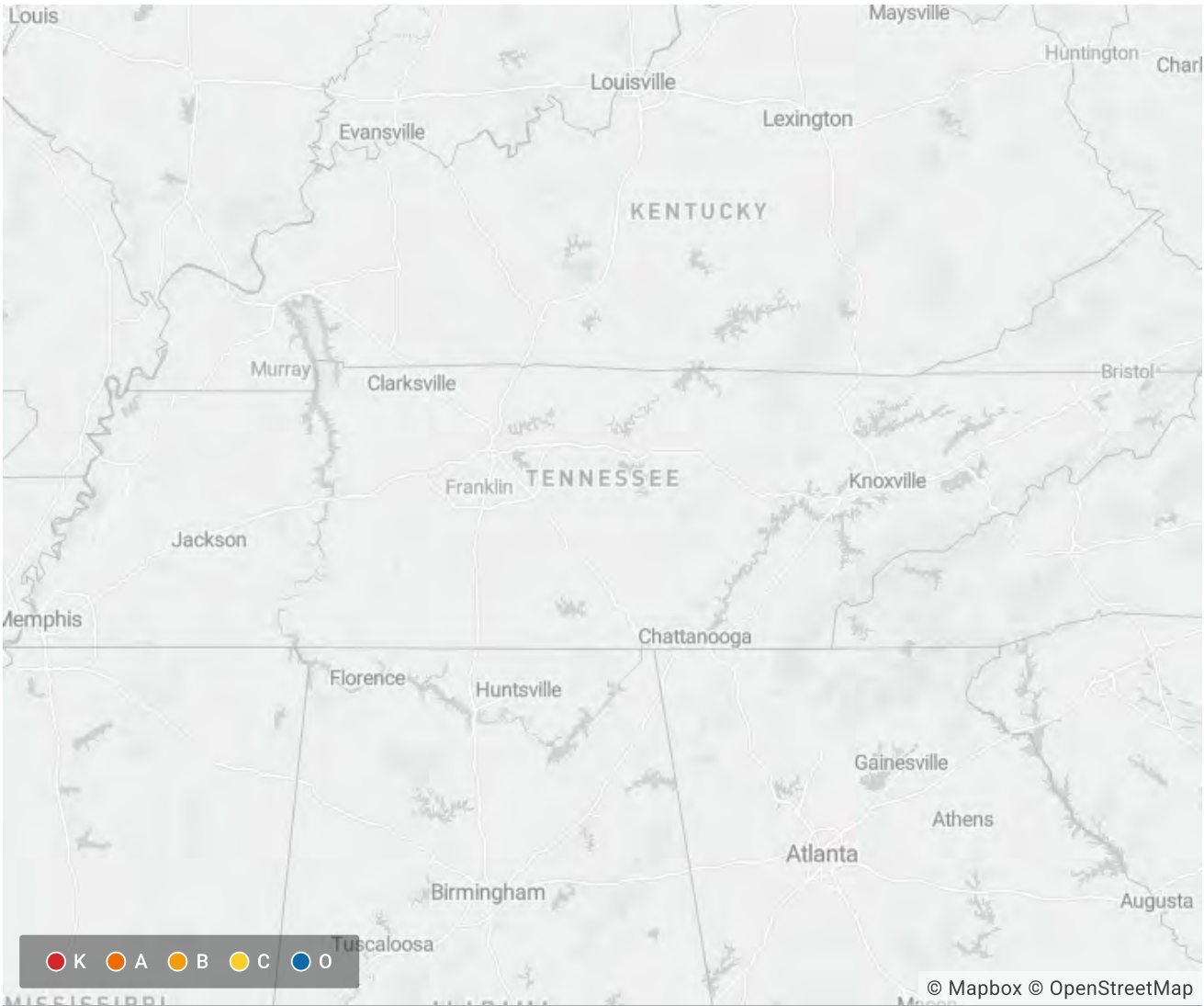
Created by Jonathan Smith

Data extents: June 19, 2022 to June 19, 2025



Applied Filters

ID Number	=	38SR019001	MP: 4.31 - 4.33	ID Number	=	38SR019001	MP: 4.33 - 4.35
ID Number	=	380A013001	MP: 0.37 - 0.39				



Total Crashes	0	Fatal Crashes	0
---------------	---	---------------	---

Summary	Crash
+ 6 more	0

Type of Crash	Crash
+ 5 more	0

Date of Crash (Year)	Crash
+ 12 more	0

Manner of First Collision	Crash
+ 10 more	0

First Harmful Event	Crash
+ 67 more	0

Crash Location	Crash
+ 7 more	0

Light Conditions	Crash
+ 8 more	0

Weather Conditions	Crash
+ 12 more	0

SR-19 Segment A

Created on July 28, 2025

Created by Jonathan Smith

Data extents: June 19, 2022 to June 19, 2025



Applied Filters

Route

=

SR019

Log Mile

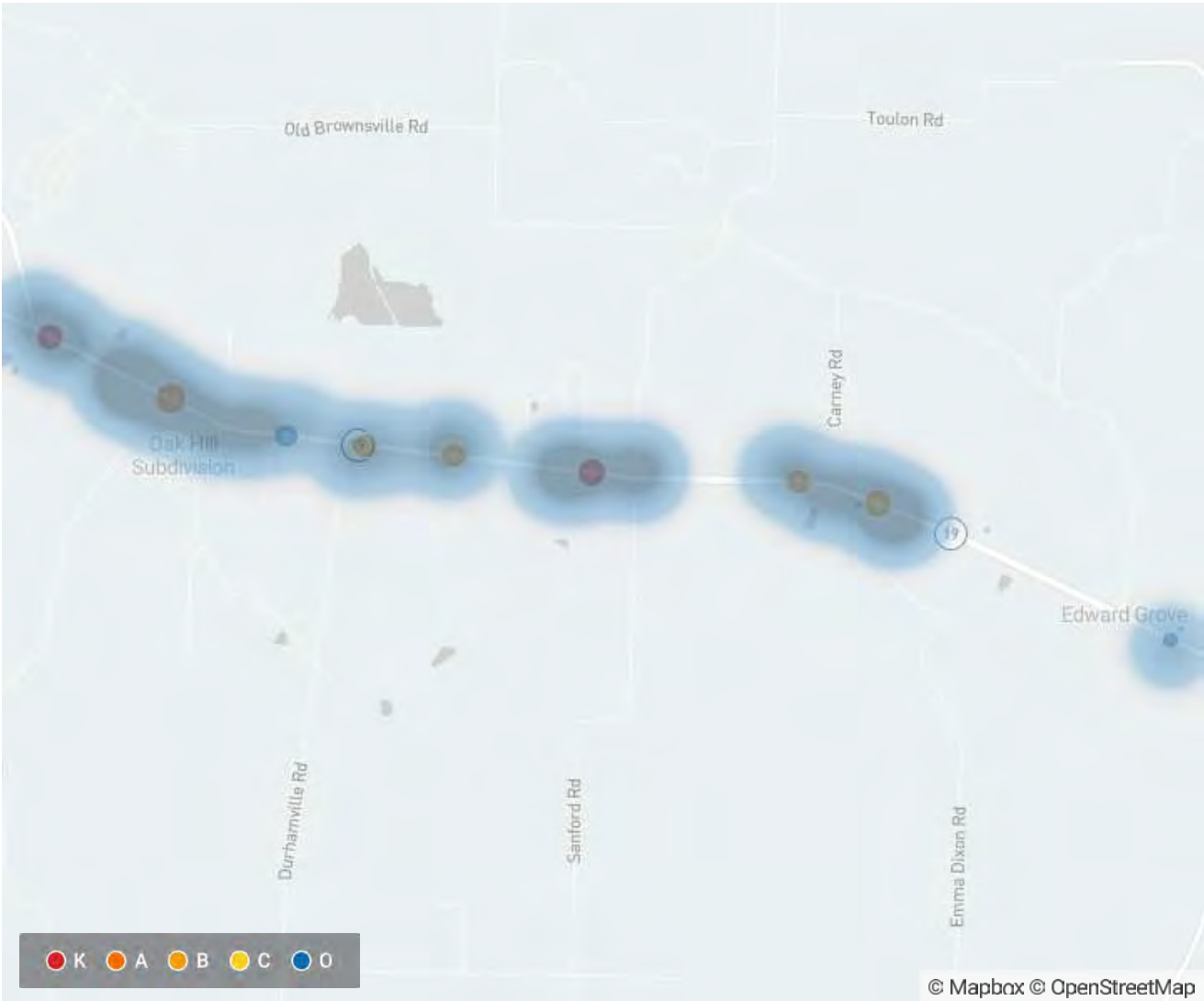
≥

21.98

Log Mile

≤

1.55



Total Crashes	49	Fatal Crashes	2
---------------	----	---------------	---

Summary		Crash	
Total Crashes	49		100.00%
Truck/Bus Involved	4		8.16%
Motorcycle Involved	2		4.08%

Alcohol Involved	1	2.04%
+ 2 more	0	0%

Type of Crash	Crash	
(O) Property-Damage Only	31	63.27%
(B) Suspected Minor Injury	9	18.37%
(C) Possible Injury	5	10.20%
(A) Suspected Serious Injury	2	4.08%
(K) Fatal Injury	2	4.08%

Date of Crash (Year)	Crash	
2025	3	6.12%
2024	18	36.73%
2023	23	46.94%
2022	5	10.20%
+ 8 more	0	0%

Manner of First Collision	Crash	
No Collision W/ Vehicle	25	51.02%
Rear-End	5	10.20%
Sideswipe, Same Dir	4	8.16%
Angle	3	6.12%
Head-On	3	6.12%
Other	3	6.12%
Sideswipe, Opp Dir	3	6.12%
+ 3 more	0	0%

First Harmful Event	Crash	
Vehicle in Transport	21	42.86%
Deer (Animal)	8	16.33%
Ditch	4	8.16%
Other Animal	3	6.12%
Earth Embankment	2	4.08%
Culvert	1	2.04%
Guardrail Face	1	2.04%
Highway Traffic Sign Post	1	2.04%
+ 59 more	5	10.20%

Crash Location	Crash	
----------------	-------	--

Along Roadway	41	83.67%
At an Intersection	8	16.33%
+ 5 more	0	0%

Light Conditions	Crash	
Daylight	20	40.82%
Dark-Not Lighted	18	36.73%
Dark-Lighted	4	8.16%
Dark-Unknown Lighting	2	4.08%
Dawn	1	2.04%
Unknown	1	2.04%
+ 2 more	0	0%

Weather Conditions	Crash	
Clear	37	75.51%
Cloudy	4	8.16%
Rain	4	8.16%
Snow	1	2.04%
+ 8 more	0	0%

SR-19 Segment B

Created on July 28, 2025

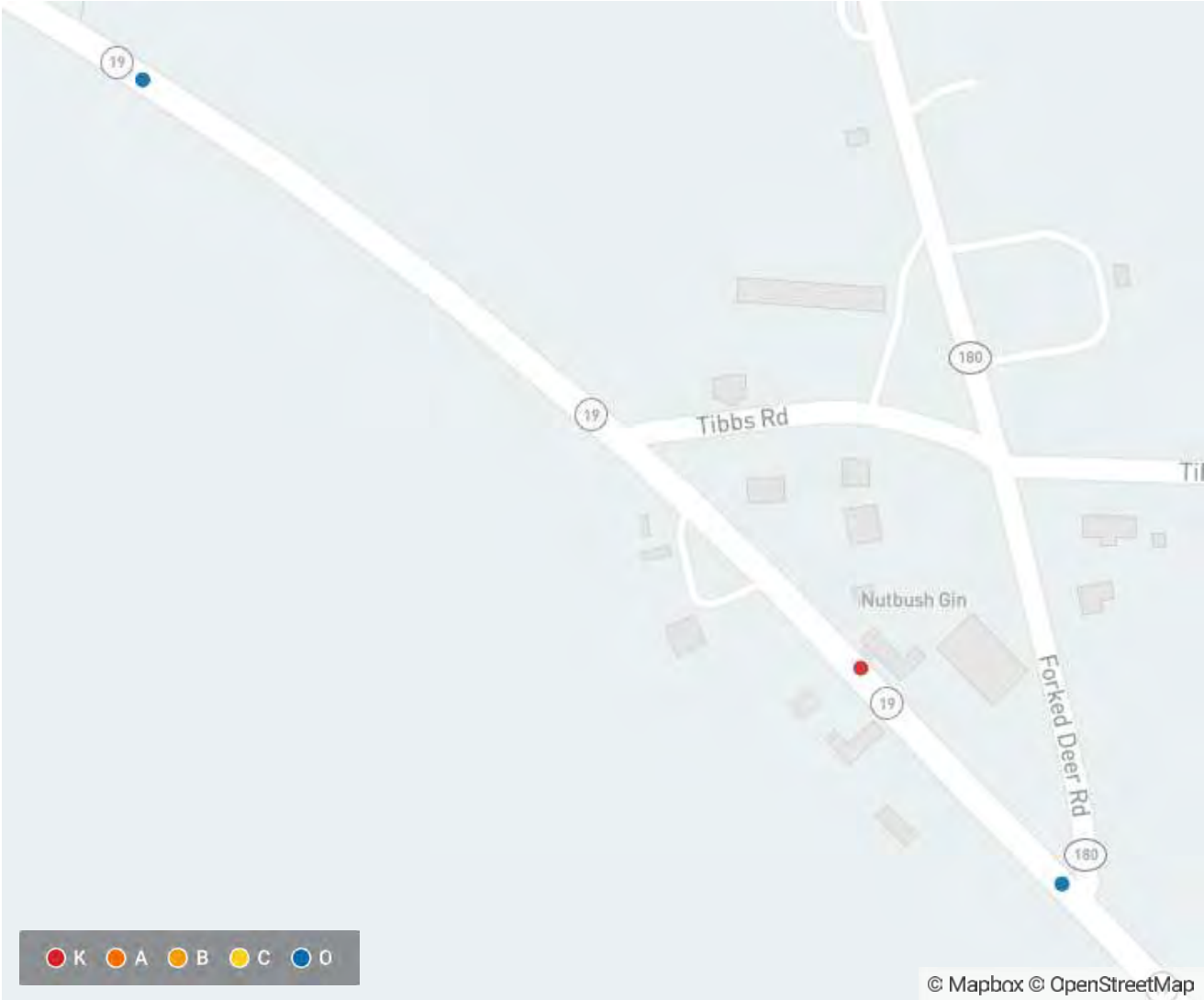
Created by Jonathan Smith

Data extents: June 19, 2022 to June 19, 2025



Applied Filters

ID Number	=	38SR019001	MP: 1.55 - 2.17
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Total Crashes	3	Fatal Crashes	1
---------------	---	---------------	---

Summary		Crash	
Total Crashes	3	100.00%	
Truck/Bus Involved	2	66.67%	
Alcohol Involved	1	33.33%	

Pedestrian Involved	1	33.33%
+ 2 more	0	0%
Type of Crash	Crash	
(O) Property-Damage Only	2	66.67%
(K) Fatal Injury	1	33.33%
+ 3 more	0	0%
Date of Crash (Year)	Crash	
2024	1	33.33%
2023	1	33.33%
2022	1	33.33%
+ 9 more	0	0%
Manner of First Collision	Crash	
No Collision W/ Vehicle	2	66.67%
Angle	1	33.33%
+ 8 more	0	0%
First Harmful Event	Crash	
Pedestrian	1	33.33%
Utility Pole	1	33.33%
Vehicle in Transport	1	33.33%
+ 64 more	0	0%
Crash Location	Crash	
Along Roadway	2	66.67%
At an Intersection	1	33.33%
+ 5 more	0	0%
Light Conditions	Crash	
Dark-Not Lighted	1	33.33%
Dawn	1	33.33%
Daylight	1	33.33%
+ 5 more	0	0%
Weather Conditions	Crash	
Clear	2	66.67%
Cloudy	1	33.33%

CRASH SUMMARY REPORT

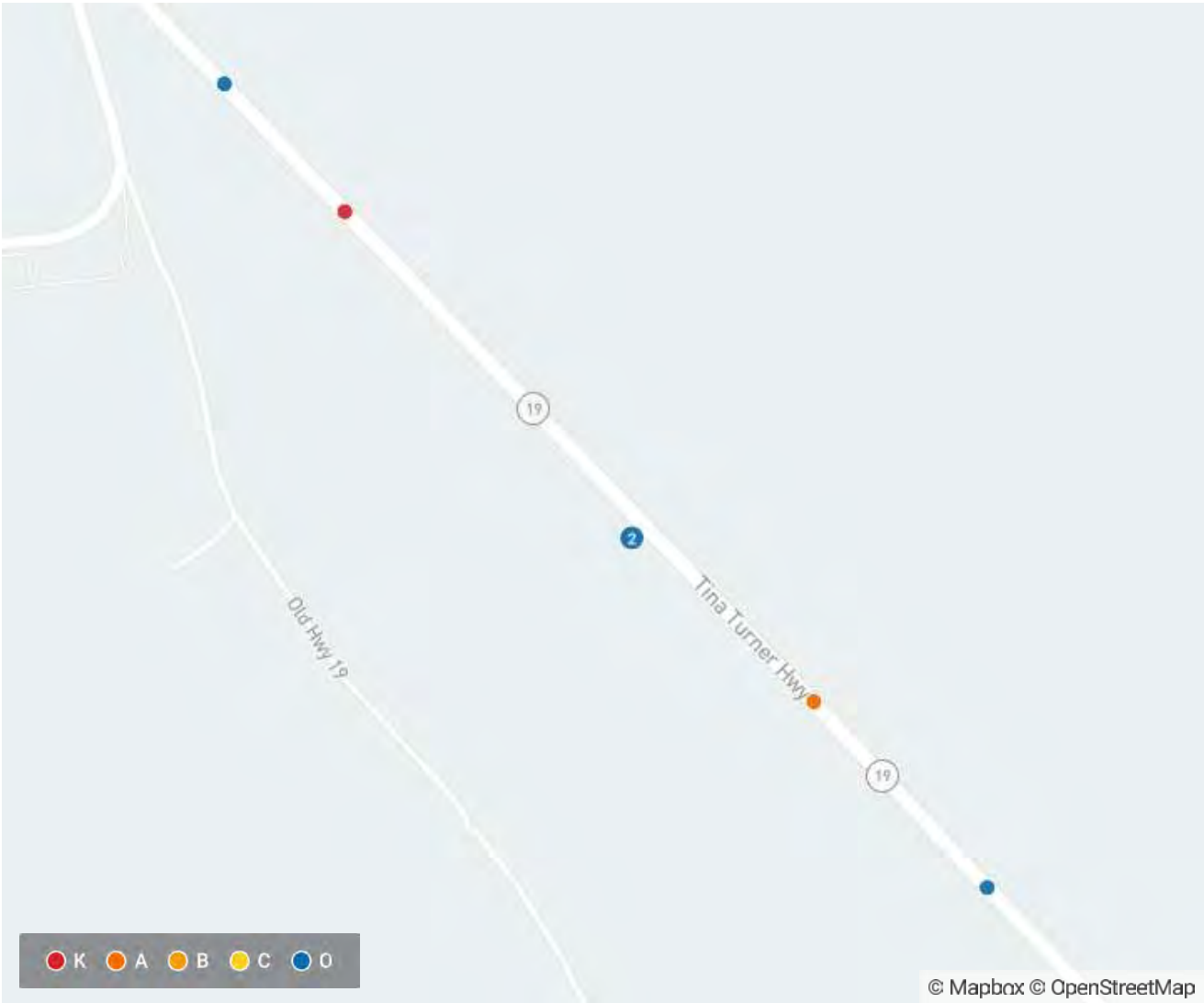
SR-19 Segment C

Created on July 28, 2025
Created by Jonathan Smith
Data extents: June 19, 2022 to June 19, 2025



Applied Filters

ID Number = 38SR019001 MP: 2.17 - 3.95



Total Crashes	6	Fatal Crashes	1
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Summary		Crash
Total Crashes	6	100.00%
Alcohol Involved	1	16.67%
Truck/Bus Involved	1	16.67%

+ 3 more	0	0%
----------	---	----

Type of Crash	Crash	
(O) Property-Damage Only	4	66.67%
(A) Suspected Serious Injury	1	16.67%
(K) Fatal Injury	1	16.67%
+ 2 more	0	0%

Date of Crash (Year)	Crash	
2025	1	16.67%
2024	2	33.33%
2023	1	16.67%
2022	2	33.33%
+ 8 more	0	0%

Manner of First Collision	Crash	
No Collision W/ Vehicle	5	83.33%
Head-On	1	16.67%
+ 8 more	0	0%

First Harmful Event	Crash	
Ditch	1	16.67%
Fire Hydrant	1	16.67%
Other Animal	1	16.67%
Other Object (not fixed)	1	16.67%
Standing Tree	1	16.67%
Vehicle in Transport	1	16.67%
+ 61 more	0	0%

Crash Location	Crash	
Along Roadway	6	100.00%
+ 6 more	0	0%

Light Conditions	Crash	
Daylight	3	50.00%
Dark-Not Lighted	2	33.33%
Dark-Lighted	1	16.67%
+ 5 more	0	0%

Weather Conditions		Crash	
Clear		6	100.00%
+ 11 more		0	0%

CRASH SUMMARY REPORT

SR 19 Segment D

Created on July 28, 2025

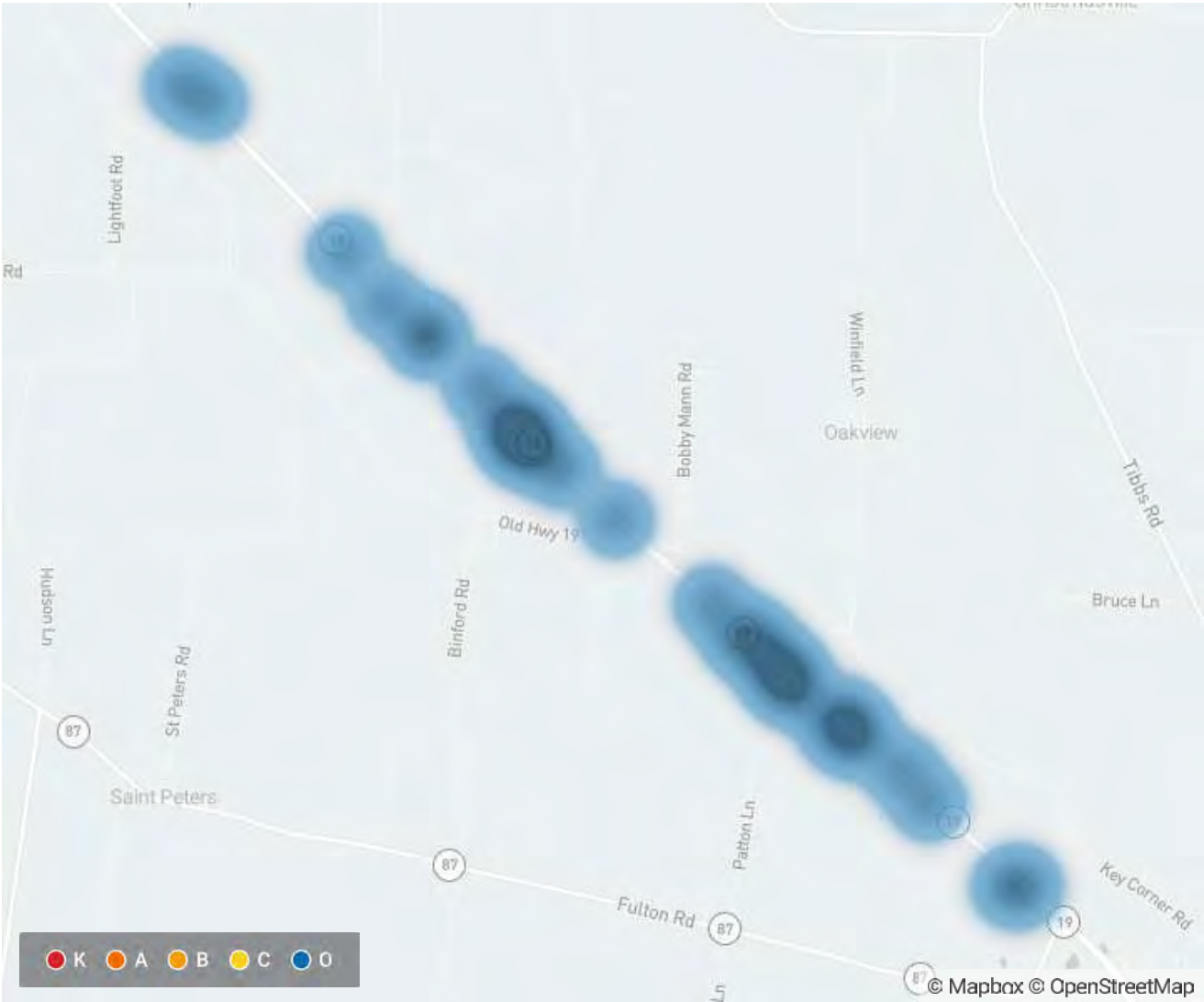
Created by Jonathan Smith

Data extents: June 19, 2022 to June 19, 2025



Applied Filters

ID Number	=	38SR019001	MP: 3.95 - 10.76
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Total Crashes	31	Fatal Crashes	1
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Summary		Crash
Total Crashes	31	100.00%
Alcohol Involved	3	9.68%
Truck/Bus Involved	3	9.68%

+ 3 more	0	0%
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Type of Crash	Crash	
(O) Property-Damage Only	24	77.42%
(B) Suspected Minor Injury	3	9.68%
(C) Possible Injury	2	6.45%
(A) Suspected Serious Injury	1	3.23%
(K) Fatal Injury	1	3.23%

Date of Crash (Year)	Crash	
2025	2	6.45%
2024	8	25.81%
2023	14	45.16%
2022	7	22.58%
+ 8 more	0	0%

Manner of First Collision	Crash	
No Collision W/ Vehicle	24	77.42%
Rear-End	4	12.90%
+ 8 more	0	0%

First Harmful Event	Crash	
Deer (Animal)	7	22.58%
Ditch	5	16.13%
Earth Embankment	4	12.90%
Vehicle in Transport	4	12.90%
Overturn	3	9.68%
Culvert	2	6.45%
Other Animal	1	3.23%
Standing Tree	1	3.23%
+ 59 more	1	3.23%

Crash Location	Crash	
Along Roadway	31	100.00%
+ 6 more	0	0%

Light Conditions	Crash	
Daylight	14	45.16%
Dark-Not Lighted	10	32.26%

Dark-Lighted	2	6.45%
Dusk	2	6.45%
+ 4 more	0	0%

Weather Conditions	Crash	
Clear	21	67.74%
Cloudy	3	9.68%
Rain	1	3.23%
Severe Cross-Winds	1	3.23%
+ 8 more	0	0%

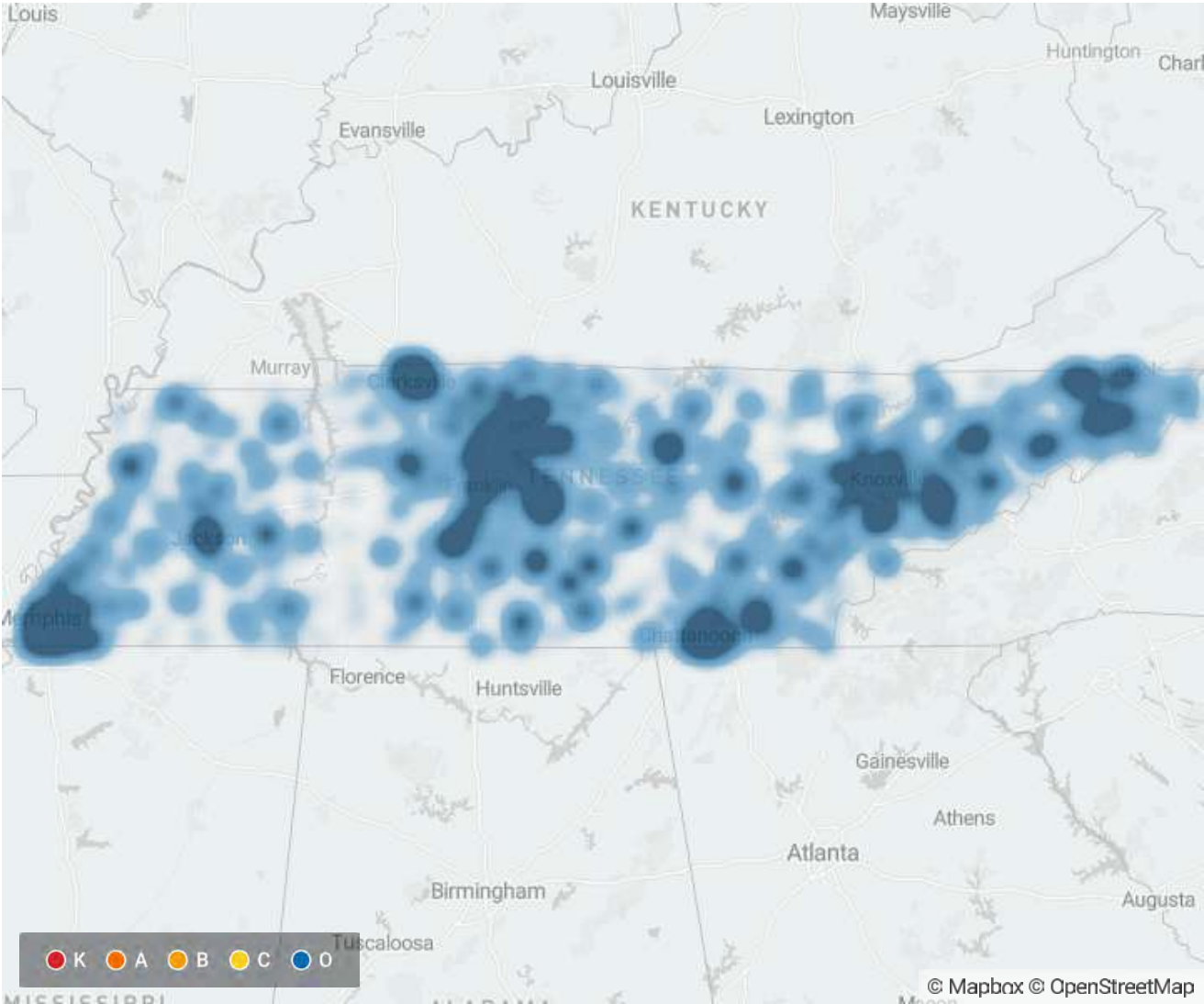
TN State Routes

Created on July 28, 2025
Created by Jonathan Smith
Data extents: June 15, 2022 to June 15, 2025



Applied Filters

Route Type = State Route



Total Crashes	242,064	Fatal Crashes	1,840
---------------	---------	---------------	-------

Summary		Crash
Total Crashes	242,064	100.00%
Truck/Bus Involved	13,844	5.72%
Distracted Driver Involved	10,422	4.31%

Alcohol Involved	6,777	2.80%
Motorcycle Involved	4,270	1.76%
Pedestrian Involved	1,938	0.80%

Type of Crash	Crash	
(O) Property-Damage Only	181,745	75.08%
(C) Possible Injury	25,869	10.69%
(B) Suspected Minor Injury	25,539	10.55%
(A) Suspected Serious Injury	7,071	2.92%
(K) Fatal Injury	1,840	0.76%

Date of Crash (Year)	Crash	
2025	33,375	13.79%
2024	78,453	32.41%
2023	82,337	34.01%
2022	47,899	19.79%
+ 8 more	0	0%

Manner of First Collision	Crash	
Angle	74,514	30.78%
Rear-End	68,727	28.39%
No Collision W/ Vehicle	49,006	20.25%
Sideswipe, Same Dir	20,101	8.30%
Head-On	5,416	2.24%
Sideswipe, Opp Dir	4,734	1.96%
Other	3,443	1.42%
Unknown	1,899	0.78%
+ 2 more	827	0.34%

First Harmful Event	Crash	
Vehicle in Transport	175,809	72.63%
Deer (Animal)	12,254	5.06%
Ditch	6,587	2.72%
Utility Pole	3,150	1.30%
Earth Embankment	2,651	1.10%
Standing Tree	2,169	0.90%
Overturn	2,149	0.89%
Guardrail Face	1,952	0.81%
+ 59 more	21,949	9.11%

Crash Location	Crash
Along Roadway	151,386 62.54%
At an Intersection	86,137 35.58%
Ramp	4,541 1.88%
+ 4 more	0 0%

Light Conditions	Crash
Daylight	156,920 64.83%
Dark-Lightec	34,359 14.19%
Dark-Not Lighted	23,666 9.78%
Dawn	5,307 2.19%
Dusk	4,888 2.02%
Unknown	1,272 0.53%
Dark-Unknown Lighting	966 0.40%
Other	241 0.10%

Weather Conditions	Crash
Clear	176,729 73.01%
Cloudy	24,928 10.30%
Rain	20,184 8.34%
Snow	1,282 0.53%
Fog	1,093 0.45%
Unknown	1,092 0.45%
Other	197 0.08%
Blowing Snow	189 0.08%
+ 4 more	326 0.14%

Attachment D. Crash Rate Calculations

COUNTY	=	Lauderdale/Haywood	Date:	7/28/2025		
Route	=	SR-19				
Location	=	From LM 21.98 in Lauderdale County to LM 1.55 in Haywood County				
Highway Type	=					
FUNCTIONAL CLASS	=					
DATA YEARS	=					
ADT YEARS USED	=	2023				
COMMENTS	=					
ANALYZED BY	=	HDR Engineering, INC				
SECTION = MORE THAN 0.10 MILE / SPOT = LESS THAN 0.10 MILE						
BLM	ELM	Length	Average AADT	VMT		
21.98	26.14	4.16	2,687	11,178		
0.00	1.55	1.55	2,687	4,165		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
		5.71	2,687	15,343		
INTERSECTION						
Log Mile	=		Leg	Traffic AADT		
			North	=		
			East	=		
			South	=		
			West	=		
			Entering AADT =	0		
			#VALUE!			
			#VALUE!			
		Total	Fatal	Incap. Injury	*Severe Crashes	Other Injury
No. of Crashes	=	49	2	2	4	14
No. of Years	=	3				
SW avg. rate	=	3.753	0.024	0.069	0.093	0.742
14-16 S/W Rates						
Exposure (E)	=	16.8003				
Crash Rate (A)	=	2.917	0.119	0.119	0.238	0.833
Critical Rate (C)	=	4.883				
Severity Index (SI)	=	0.5306				
Actual Rate/SW Average	=	0.78	4.96	1.73	2.56	1.12
Ratio of A/C	=	0.60				
* Severe Crashes are the sum of fatal and incapacitating injury crashes						
Revised 07/16/2018						
T.D.O.T. PROJECT PLANNING DIVISION (SAFETY PLANNING SECTION)						
Hdr Engineering, Inc						

COUNTY	=	Haywood	Date:	7/28/2025		
Route	=	SR-19				
Location	=	From LM 1.55 to LM 2.17				
Highway Type	=					
FUNCTIONAL CLASS	=					
DATA YEARS	=					
ADT YEARS USED	=	2023				
COMMENTS	=					
ANALYZED BY	=	HDR Engineering, INC				
SECTION = MORE THAN 0.10 MILE / SPOT = LESS THAN 0.10 MILE						
BLM	ELM	Length	Average AADT	VMT		
1.55	2.17	0.62	2,367	1,468		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
		0.62	2,367	1,468		
INTERSECTION		Leg Traffic AADT North = East = South = West = Entering AADT = 0 #VALUE!				
Log Mile =						
		#VALUE!				
		#VALUE!				
		Total	Fatal	Incap. Injury	*Severe Crashes	Other Injury
No. of Crashes	=	3	1	0	1	0
No. of Years	=	3				
SW avg. rate	=	3.753	0.024	0.069	0.093	0.742
14-16 S/W Rates						
Exposure (E)	=	1.6070				
Crash Rate (A)	=	1.867	0.622	0.000	0.622	0.000
Critical Rate (C)	=	7.620				
Severity Index (SI)	=	1.3333				
Actual Rate/SW Average	=	0.50	25.93	0.00	6.69	0.00
Ratio of A/C	=	0.24				
* Severe Crashes are the sum of fatal and incapacitating injury crashes						
Revised 07/16/2018						
T.D.O.T. PROJECT PLANNING DIVISION (SAFETY PLANNING SECTION)						
Hdr Engineering, Inc						

COUNTY	=	Haywood	Date:	7/28/2025		
Route	=	SR-19				
Location	=	From LM 2.17 to LM 3.95				
Highway Type	=					
FUNCTIONAL CLASS	=					
DATA YEARS	=					
ADT YEARS USED	=	2023				
COMMENTS	=					
ANALYZED BY	=	HDR Engineering, INC				
SECTION = MORE THAN 0.10 MILE / SPOT = LESS THAN 0.10 MILE						
BLM	ELM	Length	Average AADT	VMT		
2.17	3.95	1.78	2,897	5,157		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
		1.78	2,897	5,157		
INTERSECTION		Leg Traffic AADT North = East = South = West = Entering AADT = #VALUE!				
Log Mile =						
		#VALUE!				
		#VALUE!				
		Total	Fatal	Incap. Injury	*Severe Crashes	Other Injury
No. of Crashes	=	6	1	1	2	0
No. of Years	=	3				
SW avg. rate	=	3.753	0.024	0.069	0.093	0.742
14-16 S/W Rates						
Exposure (E)	=	5.6465				
Crash Rate (A)	=	1.063	0.177	0.177	0.354	0.000
Critical Rate (C)	=	5.739				
Severity Index (SI)	=	1.0000				
Actual Rate/SW Average	=	0.28	7.38	2.57	3.81	0.00
Ratio of A/C	=	0.19				
* Severe Crashes are the sum of fatal and incapacitating injury crashes						
Revised 07/16/2018						
T.D.O.T. PROJECT PLANNING DIVISION (SAFETY PLANNING SECTION)						
Hdr Engineering, Inc						

COUNTY	=	Haywood	Date:	7/28/2025		
Route	=	SR-19				
Location	=	From LM 3.95 to LM 10.76				
Highway Type	=					
FUNCTIONAL CLASS	=					
DATA YEARS	=					
ADT YEARS USED	=	2023				
COMMENTS	=					
ANALYZED BY	=	HDR Engineering, INC				
SECTION = MORE THAN 0.10 MILE / SPOT = LESS THAN 0.10 MILE						
BLM	ELM	Length	Average AADT	VMT		
3.95	10.76	6.81	2,897	19,729		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
		6.81	2,897	19,729		
INTERSECTION		Leg Traffic AADT North = East = South = West = Entering AADT = #VALUE!				
Log Mile =						
		#VALUE!				
		#VALUE!				
		Total	Fatal	Incap. Injury	*Severe Crashes	Other Injury
No. of Crashes	=	31	1	1	2	5
No. of Years	=	3				
SW avg. rate	=	3.753	0.024	0.069	0.093	0.742
14-16 S/W Rates						
Exposure (E)	=	21.6028				
Crash Rate (A)	=	1.435	0.046	0.046	0.093	0.231
Critical Rate (C)	=	4.746				
Severity Index (SI)	=	0.3548				
Actual Rate/SW Average	=	0.38	1.93	0.67	1.00	0.31
Ratio of A/C	=	0.30				
* Severe Crashes are the sum of fatal and incapacitating injury crashes						
Revised 07/16/2018						
T.D.O.T. PROJECT PLANNING DIVISION (SAFETY PLANNING SECTION)						
Hdr Engineering, Inc						

Date: 7/28/2025

ANALYZED BY = HDR Engineering, INC

[illegible]

0.00	0	0
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Log Mile =

North	=	44
East	=	2,411
South	=	74
West	=	2,382

Entering AADT =	2,456
-----------------	-------

#VALUE!

#VALUE!

#VALUE!

		Total	Fatal	Incap. Injury	*Severe Crashes	Other Injury
No. of Crashes	=	0	0	0	0	0
No. of Years	=	3				
SW avg. rate	=	0.747	0.002	0.010	0.012	0.160

Exposure (E)	=	2.6888				
Crash Rate (A)	=	0.000	0.000	0.000	0.000	0.000
Critical Rate (C)	=	2.159				
Severity Index (SI)	=					
Actual Rate/SW Average	=	0.00	0.00	0.00	0.00	0.00
Ratio of A/C	=	0.00				

* Severe Crashes are the sum of fatal and incapacitating injury crashes

Revised 07/16/2018

T.D.O.T. PROJECT PLANNING DIVISION (SAFETY PLANNING SECTION)

Hdr Engineering, Inc

COUNTY	=	Haywood	Date:	7/28/2025		
Route	=	SR-19				
Location	=	SR-19 and Ross Road/Gause Lane				
Highway Type	=					
FUNCTIONAL CLASS	=					
DATA YEARS	=					
ADT YEARS USED	=	2023				
COMMENTS	=					
ANALYZED BY	=	HDR Engineering, INC				
SECTION = MORE THAN 0.10 MILE / SPOT = LESS THAN 0.10 MILE						
BLM	ELM	Length	Average AADT	VMT		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
		0.00	0	0		
INTERSECTION Leg Traffic AADT Log Mile = North = 44 East = 2,411 South = 74 West = 2,382 Entering AADT = 2,456 #VALUE! #VALUE! #VALUE!						
		Total	Fatal	Incap. Injury	*Severe Crashes	Other Injury
No. of Crashes	=	1	0	0	0	1
No. of Years	=	3				
SW avg. rate	=	0.747	0.002	0.010	0.012	0.160
14-16 S/W Rates						
Exposure (E)	=	2.6888				
Crash Rate (A)	=	0.372	0.000	0.000	0.000	0.372
Critical Rate (C)	=	2.159				
Severity Index (SI)	=	1.0000				
Actual Rate/SW Average	=	0.50	0.00	0.00	0.00	2.32
Ratio of A/C	=	0.17				
* Severe Crashes are the sum of fatal and incapacitating injury crashes						
Revised 07/16/2018 T.D.O.T. PROJECT PLANNING DIVISION (SAFETY PLANNING SECTION) Hdr Engineering, Inc						

Date: 7/28/2025

ANALYZED BY = HDR Engineering, INC

[illegible]

0.00	0	0
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Log Mile =

North	=	44
East	=	2,411
South	=	74
West	=	2,382

Entering AADT =	2,456
-----------------	-------

#VALUE!

#VALUE!

#VALUE!

		Total	Fatal	Incap. Injury	*Severe Crashes	Other Injury
No. of Crashes	=	1	0	0	0	0
No. of Years	=	3				
SW avg. rate	=	0.747	0.002	0.010	0.012	0.160

Exposure (E)	=	2.6888				
Crash Rate (A)	=	0.372	0.000	0.000	0.000	0.000
Critical Rate (C)	=	2.159				
Severity Index (SI)	=	0.0000				
Actual Rate/SW Average	=	0.50	0.00	0.00	0.00	0.00
Ratio of A/C	=	0.17				

* Severe Crashes are the sum of fatal and incapacitating injury crashes

Revised 07/16/2018

Date: 7/28/2025

ANALYZED BY = HDR Engineering, INC

[illegible]

0.00	0	0
------	---	---

Log Mile =

North = 44

East = 2,411

South = 74

West = 2,382

Entering AADT =	2,456
-----------------	-------

#VALUE!

#VALUE!

#VALUE!

			Total	Fatal	Incap. Injury	*Severe Crashes	Other Injury
No. of Crashes	=		3	0	0	0	0
No. of Years	=		3				
SW avg. rate	=		0.747	0.002	0.010	0.012	0.160

Exposure (E)	=	2.6888				
Crash Rate (A)	=	1.116	0.000	0.000	0.000	0.000
Critical Rate (C)	=	2.159				
Severity Index (SI)	=	0.0000				
Actual Rate/SW Average	=	1.49	0.00	0.00	0.00	0.00
Ratio of A/C	=	0.52				

* Severe Crashes are the sum of fatal and incapacitating injury crashes

Revised 07/16/2018

T.D.O.T. PROJECT PLANNING DIVISION (SAFETY PLANNING SECTION)

Hdr Engineering, Inc

COUNTY	=	Haywood	Date:	7/28/2025		
Route	=	SR-19				
Location	=	SR-19 and Watson Road/Carney Road				
Highway Type	=					
FUNCTIONAL CLASS	=					
DATA YEARS	=					
ADT YEARS USED	=	2023				
COMMENTS	=					
ANALYZED BY	=	HDR Engineering, INC				
SECTION = MORE THAN 0.10 MILE / SPOT = LESS THAN 0.10 MILE						
BLM	ELM	Length	Average AADT	VMT		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
		0.00	0	0		
INTERSECTION Log Mile = Leg Traffic AADT North = 44 East = 2,411 South = 74 West = 2,382 Entering AADT = 2,456 #VALUE! #VALUE!						
		Total	Fatal	Incap. Injury	*Severe Crashes	Other Injury
No. of Crashes	=	1	0	0	0	1
No. of Years	=	3				
SW avg. rate	=	0.747	0.002	0.010	0.012	0.160
14-16 S/W Rates						
Exposure (E)	=	2.6888				
Crash Rate (A)	=	0.372	0.000	0.000	0.000	0.372
Critical Rate (C)	=	2.159				
Severity Index (SI)	=	1.0000				
Actual Rate/SW Average	=	0.50	0.00	0.00	0.00	2.32
Ratio of A/C	=	0.17				
* Severe Crashes are the sum of fatal and incapacitating injury crashes						
Revised 07/16/2018 T.D.O.T. PROJECT PLANNING DIVISION (SAFETY PLANNING SECTION) Hdr Engineering, Inc						

COUNTY	=	Haywood	Date:	7/28/2025		
Route	=	SR-19				
Location	=	SR-19 and Spring Hill Road				
Highway Type	=					
FUNCTIONAL CLASS	=					
DATA YEARS	=					
ADT YEARS USED	=	2023				
COMMENTS	=					
ANALYZED BY	=	HDR Engineering, INC				
SECTION = MORE THAN 0.10 MILE / SPOT = LESS THAN 0.10 MILE						
BLM	ELM	Length	Average AADT	VMT		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
		0.00	0	0		
INTERSECTION Log Mile = Leg Traffic AADT North = 44 East = 2,411 South = 74 West = 2,382 Entering AADT = 2,456 #VALUE! #VALUE!						
		Total	Fatal	Incap. Injury	*Severe Crashes	Other Injury
No. of Crashes	=	0	0	0	0	0
No. of Years	=	3				
SW avg. rate	=	0.747	0.002	0.010	0.012	0.160
14-16 S/W Rates						
Exposure (E)	=	2.6888				
Crash Rate (A)	=	0.000	0.000	0.000	0.000	0.000
Critical Rate (C)	=	2.159				
Severity Index (SI)	=					
Actual Rate/SW Average	=	0.00	0.00	0.00	0.00	0.00
Ratio of A/C	=	0.00				
* Severe Crashes are the sum of fatal and incapacitating injury crashes						
Revised 07/16/2018 T.D.O.T. PROJECT PLANNING DIVISION (SAFETY PLANNING SECTION) Hdr Engineering, Inc						

COUNTY	=	Haywood	Date:	7/28/2025																																																																		
Route	=	SR-19																																																																				
Location	=	SR-19 & Forked Deer Rd/SR-180																																																																				
Highway Type	=																																																																					
FUNCTIONAL CLASS	=																																																																					
DATA YEARS	=																																																																					
ADT YEARS USED	=	2023																																																																				
COMMENTS	=																																																																					
ANALYZED BY	=	HDR Engineering, INC																																																																				
SECTION = MORE THAN 0.10 MILE / SPOT = LESS THAN 0.10 MILE																																																																						
	BLM	ELM	Length	Average AADT																																																																		
	0.00	0.00	0.00	0																																																																		
	0.00	0.00	0.00	0																																																																		
	0.00	0.00	0.00	0																																																																		
	0.00	0.00	0.00	0																																																																		
	0.00	0.00	0.00	0																																																																		
	0.00	0.00	0.00	0																																																																		
	0.00	0.00	0.00	0																																																																		
			0.00	0																																																																		
INTERSECTION Log Mile = 2.12 Leg Traffic AADT North = 456 East = 2,249 South = 132 West = 1,941 Entering AADT = 2,389 #VALUE! #VALUE! #VALUE! <table border="1"> <thead> <tr> <th></th> <th>Total</th> <th>Fatal</th> <th>Incap. Injury</th> <th>*Severe Crashes</th> <th>Other Injury</th> </tr> </thead> <tbody> <tr> <td>No. of Crashes</td> <td>1</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>No. of Years</td> <td>3</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>SW avg. rate</td> <td>0.747</td> <td>0.002</td> <td>0.010</td> <td>0.012</td> <td>0.160</td> </tr> <tr> <td colspan="6">14-16 S/W Rates</td> </tr> <tr> <td>Exposure (E)</td> <td>2.6160</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Crash Rate (A)</td> <td>0.382</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> <td>0.000</td> </tr> <tr> <td>Critical Rate (C)</td> <td>2.182</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Severity Index (SI)</td> <td>0.0000</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Actual Rate/SW Average</td> <td>0.51</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> </tr> <tr> <td>Ratio of A/C</td> <td>0.18</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> * Severe Crashes are the sum of fatal and incapacitating injury crashes						Total	Fatal	Incap. Injury	*Severe Crashes	Other Injury	No. of Crashes	1	0	0	0	0	No. of Years	3					SW avg. rate	0.747	0.002	0.010	0.012	0.160	14-16 S/W Rates						Exposure (E)	2.6160					Crash Rate (A)	0.382	0.000	0.000	0.000	0.000	Critical Rate (C)	2.182					Severity Index (SI)	0.0000					Actual Rate/SW Average	0.51	0.00	0.00	0.00	0.00	Ratio of A/C	0.18				
	Total	Fatal	Incap. Injury	*Severe Crashes	Other Injury																																																																	
No. of Crashes	1	0	0	0	0																																																																	
No. of Years	3																																																																					
SW avg. rate	0.747	0.002	0.010	0.012	0.160																																																																	
14-16 S/W Rates																																																																						
Exposure (E)	2.6160																																																																					
Crash Rate (A)	0.382	0.000	0.000	0.000	0.000																																																																	
Critical Rate (C)	2.182																																																																					
Severity Index (SI)	0.0000																																																																					
Actual Rate/SW Average	0.51	0.00	0.00	0.00	0.00																																																																	
Ratio of A/C	0.18																																																																					
Revised 07/16/2018																																																																						
T.D.O.T. PROJECT PLANNING DIVISION (SAFETY PLANNING SECTION)																																																																						
Hdr Engineering, Inc																																																																						

Date: 7/28/2025

ANALYZED BY = HDR Engineering, INC

[illegible]

0.00	0	0
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Log Mile	=	2.12
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North = 456

South = 132

Entering AADT = 2,389

#VALUE!

#VALUE!

		Total	Fatal	Incap. Injury	*Severe Crashes	Other Injury
No. of Crashes	=	0	0	0	0	0
No. of Years	=	3				
SW avg. rate	=	0.747	0.002	0.010	0.012	0.160

Exposure (E)	=	2.6160				
Crash Rate (A)	=	0.000	0.000	0.000	0.000	0.000
Critical Rate (C)	=	2.182				
Severity Index (SI)	=					

Actual Rate/SW Average	=	0.00	0.00	0.00	0.00	0.00
Ratio of A/C	=	0.00				

* Severe Crashes are the sum of fatal and incapacitating injury crashes

Revised 07/16/2018

T.D.O.T. PROJECT PLANNING DIVISION (SAFETY PLANNING SECTION)

Hdr Engineering, Inc

COUNTY	=	Haywood	Date:	7/28/2025
Route	=	SR-19		
Location	=	SR-19 and Jim Binford Lane		
Highway Type	=			
FUNCTIONAL CLASS	=			
DATA YEARS	=			
ADT YEARS USED	=	2023		
COMMENTS	=			
ANALYZED BY	=	HDR Engineering, INC		
SECTION = MORE THAN 0.10 MILE / SPOT = LESS THAN 0.10 MILE				
	BLM	ELM	Length	Average AADT
	0.00	0.00	0.00	0
	0.00	0.00	0.00	0
	0.00	0.00	0.00	0
	0.00	0.00	0.00	0
	0.00	0.00	0.00	0
	0.00	0.00	0.00	0
	0.00	0.00	0.00	0
	0.00	0.00	0.00	0
			0.00	0
INTERSECTION Log Mile = Leg Traffic AADT North = 44 East = 2,411 South = 74 West = 2,382 Entering AADT = 2,456 #VALUE! #VALUE!				
		Total	Fatal	Incap. Injury
No. of Crashes	=	1	0	0
No. of Years	=	3		
SW avg. rate	=	0.747	0.002	0.010
14-16 S/W Rates				
Exposure (E)	=	2.6888		
Crash Rate (A)	=	0.372	0.000	0.000
Critical Rate (C)	=	2.159		
Severity Index (SI)	=	0.0000		
Actual Rate/SW Average	=	0.50	0.00	0.00
Ratio of A/C	=	0.17		
* Severe Crashes are the sum of fatal and incapacitating injury crashes				
Revised 07/16/2018 T.D.O.T. PROJECT PLANNING DIVISION (SAFETY PLANNING SECTION) Hdr Engineering, Inc				

COUNTY	=	Haywood	Date:	7/28/2025		
Route	=	SR-19				
Location	=	SR-19 & Small Road				
Highway Type	=					
FUNCTIONAL CLASS	=					
DATA YEARS	=					
ADT YEARS USED	=	2023				
COMMENTS	=					
ANALYZED BY	=	HDR Engineering, INC				
SECTION = MORE THAN 0.10 MILE / SPOT = LESS THAN 0.10 MILE						
BLM	ELM	Length	Average AADT	VMT		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
0.00	0.00	0.00	0	0		
		0.00	0	0		
INTERSECTION Log Mile = Leg Traffic AADT North = 0 East = 2,249 South = 44 West = 2,235 Entering AADT = 2,264 #VALUE! #VALUE!						
		Total	Fatal	Incap. Injury	*Severe Crashes	Other Injury
No. of Crashes	=	0	0	0	0	0
No. of Years	=	3				
SW avg. rate	=	0.747	0.002	0.010	0.012	0.160
14-16 S/W Rates						
Exposure (E)	=	2.4791				
Crash Rate (A)	=	0.000	0.000	0.000	0.000	0.000
Critical Rate (C)	=	2.226				
Severity Index (SI)	=					
Actual Rate/SW Average	=	0.00	0.00	0.00	0.00	0.00
Ratio of A/C	=	0.00				
* Severe Crashes are the sum of fatal and incapacitating injury crashes						
Revised 07/16/2018 T.D.O.T. PROJECT PLANNING DIVISION (SAFETY PLANNING SECTION) Hdr Engineering, Inc						

Date: 7/28/2025

ANALYZED BY = HDR Engineering, INC

[illegible]

0.00	0	0
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Log Mile =

North = 257

East = 2,308

South = 37

West = 2,249

Entering AADT =	2,426
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#VALUE!

#VALUE!

#VALUE!

		Total	Fatal	Incap. Injury	*Severe Crashes	Other Injury
No. of Crashes	=	0	0	0	0	0
No. of Years	=	3				
SW avg. rate	=	0.747	0.002	0.010	0.012	0.160

14-16 S/W Rates

Exposure (E)	=	2.6559				
Crash Rate (A)	=	0.000	0.000	0.000	0.000	0.000
Critical Rate (C)	=	2.169				
Severity Index (SI)	=					
Actual Rate/SW Average	=	0.00	0.00	0.00	0.00	0.00
Ratio of A/C	=	0.00				

* Severe Crashes are the sum of fatal and incapacitating injury crashes

Date: 7/28/2025

ANALYZED BY = HDR Engineering, INC

[illegible]

0.00	0	0
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Log Mile =

North = 0

East = 2,352

South = 221

West = 2,308

Entering AADT = 2,441

#VALUE!

#VALUE!

#VALUE!

		Total	Fatal	Incap. Injury	*Severe Crashes	Other Injury
No. of Crashes	=	1	0	0	0	0
No. of Years	=	3				
SW avg. rate	=	0.747	0.002	0.010	0.012	0.160

Exposure (E)	=	2.6723				
Crash Rate (A)	=	0.374	0.000	0.000	0.000	0.000
Critical Rate (C)	=	2.164				
Severity Index (SI)	=	0.0000				
Actual Rate/SW Average	=	0.50	0.00	0.00	0.00	0.00
Ratio of A/C	=	0.17				

* Severe Crashes are the sum of fatal and incapacitating injury crashes