

# **Cove Road PD&E Study**

## **Safety Analysis Report**

**Florida Department of Transportation (FDOT)**  
**District Four**



**Cove Road**  
**from SR 76 / Kanner Highway to SR 5 / US 1**

Martin County, Florida

Project # 14479

Financial Project ID Number: 441700-1-22-01

August 2024

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**PROFESSIONAL ENGINEER CERTIFICATION**  
**SAFETY ANALYSIS REPORT**

I hereby certify that I am a registered professional engineer in the State of Florida practicing with **Ardurra Group, Inc.**, authorized to operate as an engineering business, Certification of Authorization No. 31332, by the State of Florida Department of Professional Regulation, Board of Professional Engineers, and that I have prepared or approved the methodology, evaluation, findings, opinions, conclusions, or technical advice hereby reported for:

Project: Cove Road from SR 76/Kanner Highway to SR 5/US 1  
PD&E Study

County: Martin County

Financial Project ID: 441700-1-22-01

Federal Aid Project No: N/A

I acknowledge that the procedures and references used to develop the results contained in this report are standard to the professional practice of transportation engineering as applied through professional judgement and experience.

Christine N. Lofye, State of Florida, Professional Engineer, License No. 48129

This item has been digitally signed and sealed by Christine N. Lofye on the date indicated here.

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# Section 1.0

## Executive Summary

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### 1.1 Report Summary

The Florida Department of Transportation (FDOT) District 4 is conducting a Project Development and Environment (PD&E) Study to evaluate the social, environmental, and engineering impacts associated with proposed transportation improvements to Cove Road in unincorporated Martin County between the limits of SR 76/Kanner Highway and SR 5/US 1. As part of the PD&E study, a safety evaluation using predictive crash methods was conducted for design alternatives and documented in this Safety Analysis Report. This report follows the procedures outlined in the 2019 FDOT Safety Analysis Guidebook for PD&E Studies, the 2020 FDOT Project Development and Environment Manual, and the approved Cove Road PD&E Safety Analysis Methodology (March 2023).

As part of this study, six alternatives were evaluated along with existing and no-build conditions using the Highway Safety Manual (HSM) Predictive Method. This method utilized historical crash data as well as roadway characteristics to generate predicted crash frequencies.

A Potential for Safety Improvements (PSI) analysis was performed using the generated expected and predicted crash rates for existing conditions (2021). The PSI is 20.9 crashes/year, a 23.6% reduction compared to the expected crash frequency. This demonstrates that the long-term average crash frequency within the project limits is greater than for comparable roadways, and there is the potential and need for safety improvements along the corridor.

The HSM safety analysis was conducted for both the opening year 2025 and design year 2045 for the no-build alternative and each build alternative. This analysis demonstrated a reduction in crash frequency for all build alternatives when compared to no-build conditions. The build alternative that offered the greatest reduction in crashes per year was Build Alternative 1, reducing the overall crash frequency during the opening year by 8.2 crashes per year, and by 4.5 crashes per year in the design year. Fatal and severe injury crashes are predicted to be reduced by 2.4 crashes in the opening year and 1.1 crash in the design year.

## Section 2.0

### Introduction

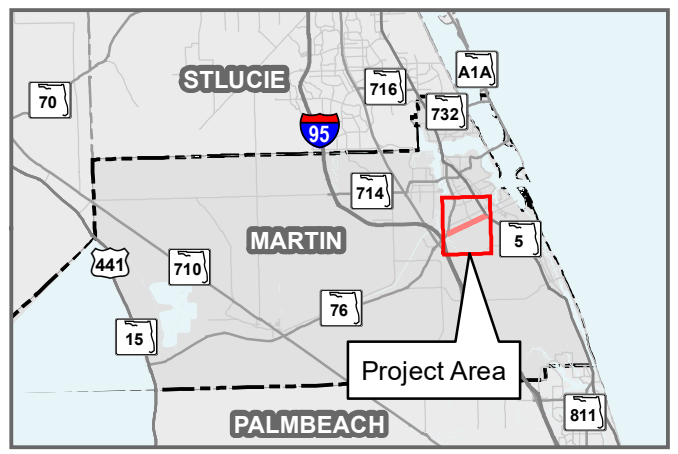
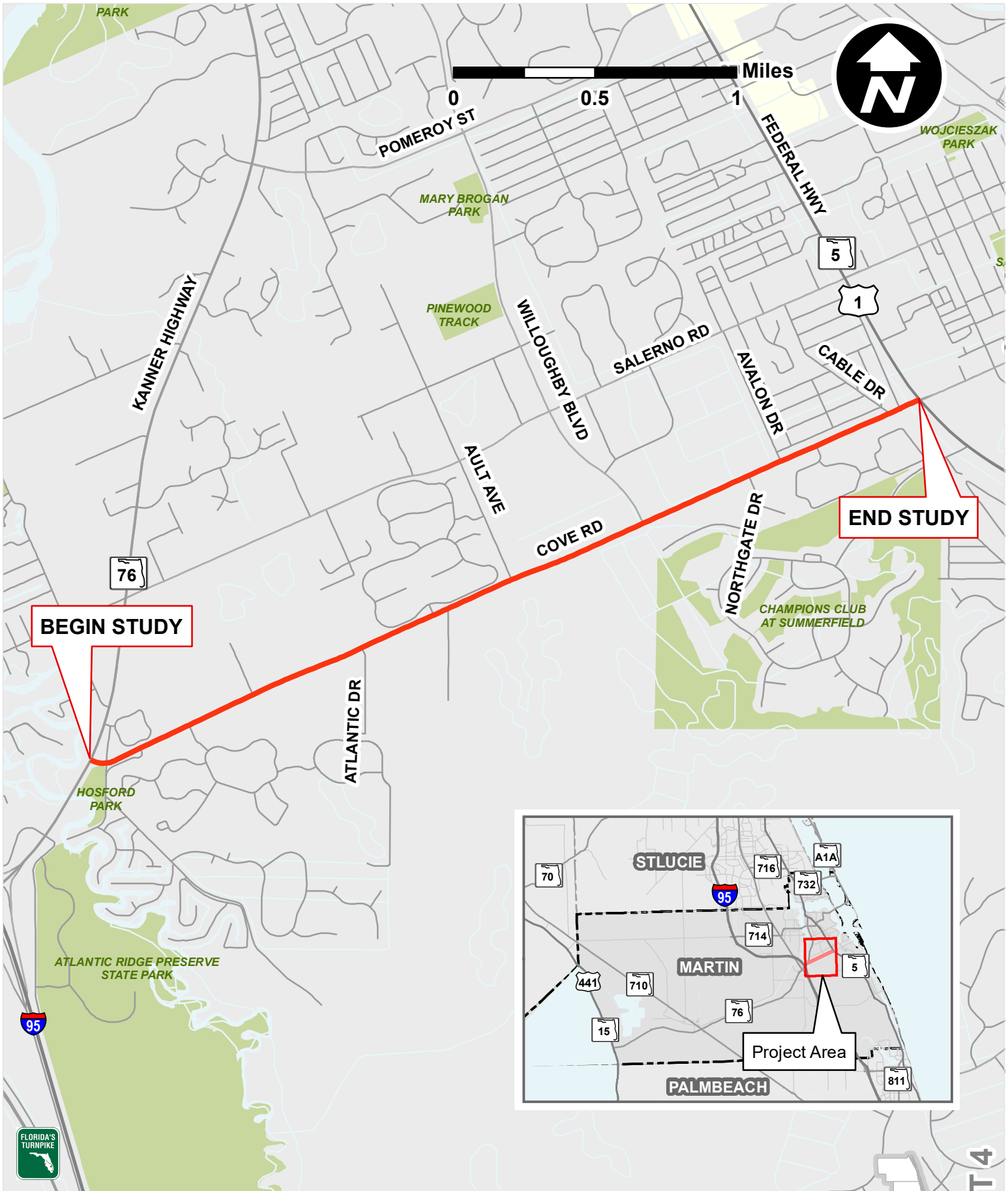
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#### 2.1 Project Description

The Florida Department of Transportation (FDOT) District 4 is conducting a Project Development and Environment (PD&E) Study to evaluate the social, environmental, and engineering impacts associated with proposed transportation improvements to Cove Road in unincorporated Martin County. The project limits are from SR 76/Kanner Highway to SR 5/US 1, shown in **Figure 2-1**, a distance of approximately 3.2 miles.

As part of the PD&E process, alternatives are developed that meet the purpose and need for the project, and impacts and costs of these alternatives are developed. The PD&E Study includes a safety evaluation using predictive crash methods that quantitatively predict safety differences between project alternatives that have different design features.

This Safety Analysis Report follows the procedures outlined in the 2019 FDOT *Safety Analysis Guidebook for PD&E Studies*, as well as the 2020 FDOT *Project Development and Environment Manual*. It includes the timeframes of analysis, the alternatives analyzed, sources of data, and the procedures and tools used to quantitatively describe safety outcomes for existing conditions and future alternatives analysis, and documents the results of this analysis for comparison to aid in decision-making. The approved safety analysis methodology for this project is included as **Appendix A**.



**Cove Road PD&E Study**  
from SR 76/Kanner Hwy. to SR 5/US 1  
Martin County, Florida  
FPID: 441700-1  
Federal ID: D421-137-B

**Project Location Map**



**DISTRICT 4**

## **2.2 Purpose and Need**

### **2.2.1 Purpose**

The primary purpose for the widening of Cove Road from two to four lanes is to add capacity and improve the transportation network. Additional elements include support for economic and social demands, enhanced multimodal connectivity, and improved emergency evacuation. Although the purpose and need statement does not identify safety, this analysis will independently identify safety concerns based on historical crash data and future year predictive analysis for No-Build conditions.

### **2.2.2 Need**

The need for this project includes project status, system linkage, capacity, modal interrelationships, and emergency evacuation.

#### *2.2.2.1 Project Status*

Cove Road is identified as Project Priority #1 within the Martin Metropolitan Planning Organization (MPO) Transportation Improvement Program (TIP) Fiscal Year (FY) 2020/21 – 2024/25. Cove Road is also included in the Martin MPO Martin in Motion 2045 Long Range Transportation Plan (LRTP) and is currently funded for a Project Development and Environment (PD&E) Study for FY 2022/23, FY 2023/24, and FY 2024/25. Cove Road is included in the FDOT Five Year Work Program and STIP with Design funded for FY 2025/26. The project is consistent with Martin County's Comprehensive Plan.

#### *2.2.2.2 System Linkage*

Cove Road is a rural undivided road connecting Stuart and Port Salerno to I-95. Although Cove Road is not designated in the Strategic Intermodal System (SIS), Cove Road connects through Kanner Highway to I-95, a SIS designated road.

#### *2.2.2.3 Capacity*

Cove Road is currently operating at a Level of Service (LOS) D with an Annual Average Daily Traffic (AADT) of 15,500 vehicles. Within the Martin MPO's Martin in Motion LRTP Cost Feasible Plan, the proposed two additional lanes are needed to address operational deficiencies on Cove Road. Cove Road is estimated to exceed capacity by 2045, according to the LRTP Volume to Capacity Ratio Map.

#### *2.2.2.4 Modal Interrelationships*

Cove Road has sidewalk gaps along the south side of the road and a complete lack of bicycle lanes. There are two school located along Cove Road; Dr. David L. Anderson Middle School and Treasure Coast Classical Academy. The Martin County Bicycle and Pedestrian Safety Action Plan identifies Cove Road at Dr. David L. Anderson Middle School as a bicycle and

pedestrian crash hot spot. Adding multimodal improvements to Cove Road will increase safety of the local community.

#### *2.2.2.5 Emergency Evaluation*

Cove Road is classified as an evacuation route and improvements to Cove Road will benefit mobility to I-95 and decrease evacuation and emergency response times.

Although safety is not explicitly identified in the purpose and need statement, this safety analysis identifies any safety concerns based on both historical crash data and future year predictive analysis for No-Build conditions.

## Section 3.0

### Study Area

Cove Road is located in unincorporated Martin County from SR 76/Kanner Highway to SR 5/US 1, a length of 3.2 miles. The project location map was previously presented as **Figure 2-1**.

There are twelve intersections within the project limits. Seven intersections currently are unsignalized stop-controlled and five are signalized. Intersections within the project limits and their intersection control type are shown below in **Table 3-1**.

**Table 3-1**  
**Study Intersections**

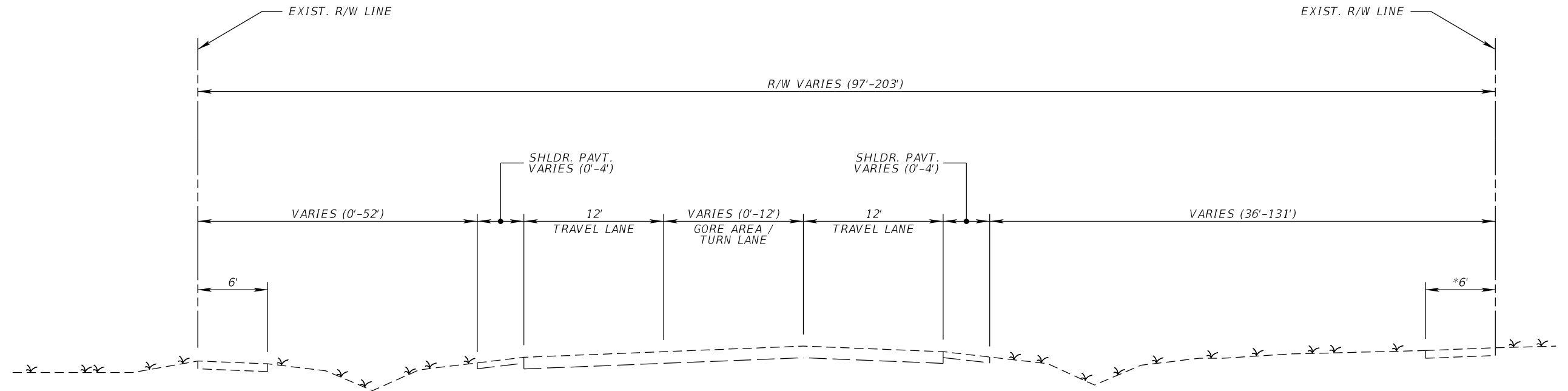
Intersection	Control Type
SR 76 (Kanner Highway)	signalized
SW Gaines Avenue	unsignalized stop
SE Tres Belle Circle	unsignalized stop
Anderson Middle School entrance	unsignalized stop
SE Atlantic Ridge Drive	signalized
SE Legacy Cove Circle	signalized
SE Ault Avenue	unsignalized stop
SE Willoughby Boulevard	signalized
SE Northgate Drive	unsignalized stop
Montego Cove	unsignalized stop
SE Cable Drive	unsignalized stop
US 1/SR 5 (Federal Highway)	signalized

Cove Road, which is functionally classified by Martin County as a major arterial roadway, has a federal functional classification of Principal Arterial. Cove Road has a C3R - Suburban Residential context classification and an Access Management Class 5.

### 3.1 Existing Typical Sections

Cove Road is primarily a 2-lane undivided roadway with one 12-foot travel lane in each direction. There are portions of the roadway where the two travel lanes are divided by a painted median which varies in width to accommodate the development of 12-foot left turn lanes at intersections. On either end of the project there are very short segments where Cove Road is 4-lane divided, between SR 76 and SW Gaines Avenue, and between SE Cable Drive and US 1/SR 5. Shoulder widths vary from 0 to 4 feet. There are intermittent 6-foot sidewalks on both sides of the road and no bicycle facilities.

There are two evaluation segments for Cove Road. Evaluation Segment 1 is from SR 76 to Avalon Drive and Evaluation Segment 2 is from Avalon Drive to US 1/SR 5. Within Evaluation Segment 1 the posted speed limit from SR 76 to SE Ault Avenue is 45 mph and reduces to 40 mph from SE Ault Avenue to Avalon Drive. Existing right-of-way within Evaluation Segment 1 varies from 97 to 203 feet. Within Evaluation Segment 2 from Avalon Drive to US 1/SR 5 the posted speed limit reduces to 35 mph and existing right-of-way is 90 feet. Roadway data, including lane width and shoulder width can be found in the typical sections, found in **Figure 3-1**

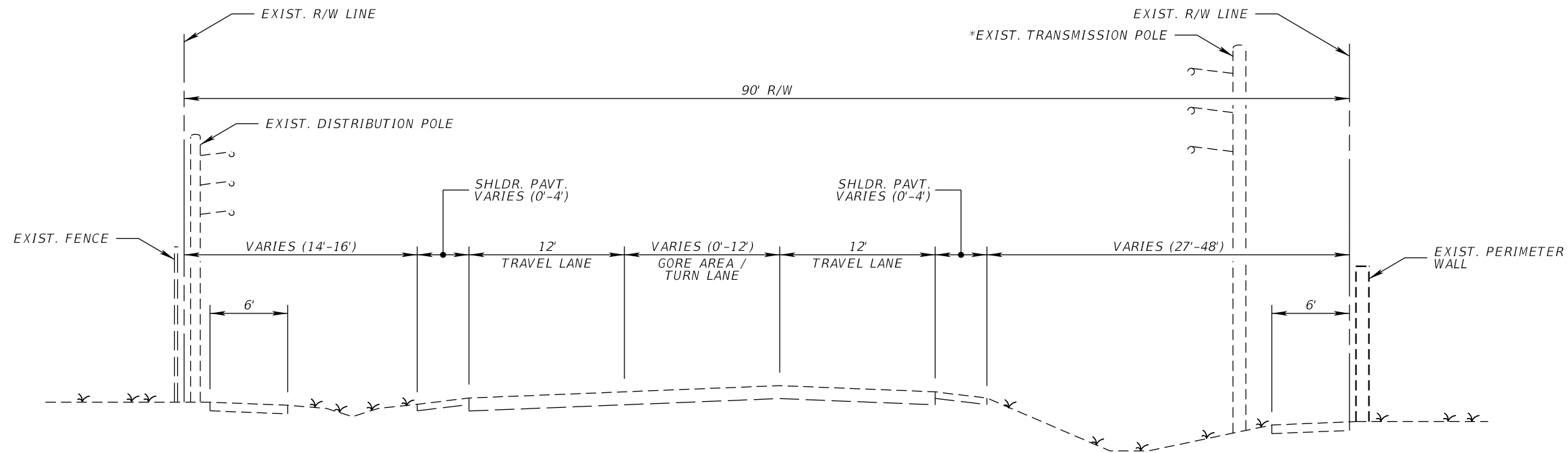


SEGMENT 1  
SR 76 (KANNER HIGHWAY) TO AVALON DRIVE  
EXISTING TYPICAL SECTION

\* FROM SR 76 (KANNER HIGHWAY) TO ATLANTIC RIDGE DRIVE

4/2/2024 5:07:47 PM bboylan F:\ORD\_Works\sets\FDOT\44170012201\Roadway\TYPRD001.dgn

F:\ROAD WORKS\sets\	REVISIONS				ENGINEER OF RECORD  Kevin Joseph Iannarone, PE PE No. 71527 Inwood Consulting Engineers, Inc. 3000 Dovera Drive, Suite 200 Oviedo, Florida 32765	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			FIGURE 3-1 SEGMENT 1 EXISTING TYPICAL SECTION	SHEET NO.
	DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
						COVE RD	MARTIN	441700-1-22-01		1 of 2



SEGMENT 2  
AVALON DRIVE TO SR 5 (US 1)  
EXISTING TYPICAL SECTION

\* FROM EAST OF MONTEGO COVE TO SR 5 (US 1)

REVISIONS				ENGINEER OF RECORD  Kevin Joseph Iannarone, PE PE No. 71527 Inwood Consulting Engineers, Inc. 3000 Dovera Drive, Suite 200 Oviedo, Florida 32765	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			FIGURE 3-1 SEGMENT 2 EXISTING TYPICAL SECTION	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					COVE RD	MARTIN	441700-1-22-01		2 of 2

## Section 4.0

# Safety Analysis Years and Alternatives

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Safety analysis was conducted for the following years:

- Historical Crash Analysis (2018-2022)
- Existing Year 2021
- Opening Year (OY) 2025
- Design Year (DY) 2045

The Highway Safety Manual (HSM) spreadsheet for Chapter 12: Urban and Suburban Arterials (2-5 lanes) was used to determine the safety impacts for each alternative and year. The following sections describe the years analyzed and alternatives analyzed using the HSM.

### 4.1 No-Build Alternative

The No-Build alternative was analyzed for the existing year (2021), opening year (2025) and design year (2045). The No-Build alternative indicates that no changes were made to the existing roadway conditions.

### 4.2 Build Alternatives

Future Build alternatives were developed for two evaluation segments. The Build alternatives were analyzed for opening year (2025) and design year (2045). These alternatives resulted in six future build alternative combinations for the entire corridor.

#### 4.2.1 Segment 1 – SR 76 to Avalon Drive

##### 4.2.1.1 Build Alternative 1A

Alternative 1A has a design speed of 40 miles per hour and includes 7-foot buffered bike lanes, a 6-foot sidewalk on one side of the corridor and a 12-foot shared use path on the other. The median width is 22 feet, and the required right-of-way width is 122.5 feet.

The 1A alternative typical section is found in **Figure 4-1**.

##### 4.2.1.2 Build Alternative 1B

Alternative 1B has a 40 miles per hour design speed. Both sides of the corridor include a 12-foot shared use path; no on-street bike lanes are included in this alternative. The median width is 22 feet, and the required right-of-way width is 119 feet.

The typical section for Build Alternative 1B is found in **Figure 4-2**.

## 4.2.2 Segment 2 – Avalon Drive to US 1/SR 5

### 4.2.2.1 *Build Alternative 2A/2B*

Alternatives 2A and 2B were analyzed as a single build alternative as there were no differences in the inputs required for each in the HSM analysis.

Alternatives 2A and 2B both have a design speed of 35 miles per hour and include a 19.5-foot median. Alternative 2A includes a 7-foot buffered bike lane with a 6-foot sidewalk on one side of the corridor and a 12-foot shared use path on the other. Alternative 2B includes a 12-foot shared use path on both sides of the corridor and does not include on-street bike lanes. Alternative 2A has a right-of-way width of 108.5 feet and Alternative 2B has a right-of-way width of 107.5 feet.

The typical sections for Build Alternative 2A and Build Alternative 2B are found in **Figure 4-3** and **Figure 4-4**, respectively.

### 4.2.2.2 *Build Alternative 2C (best fit)*

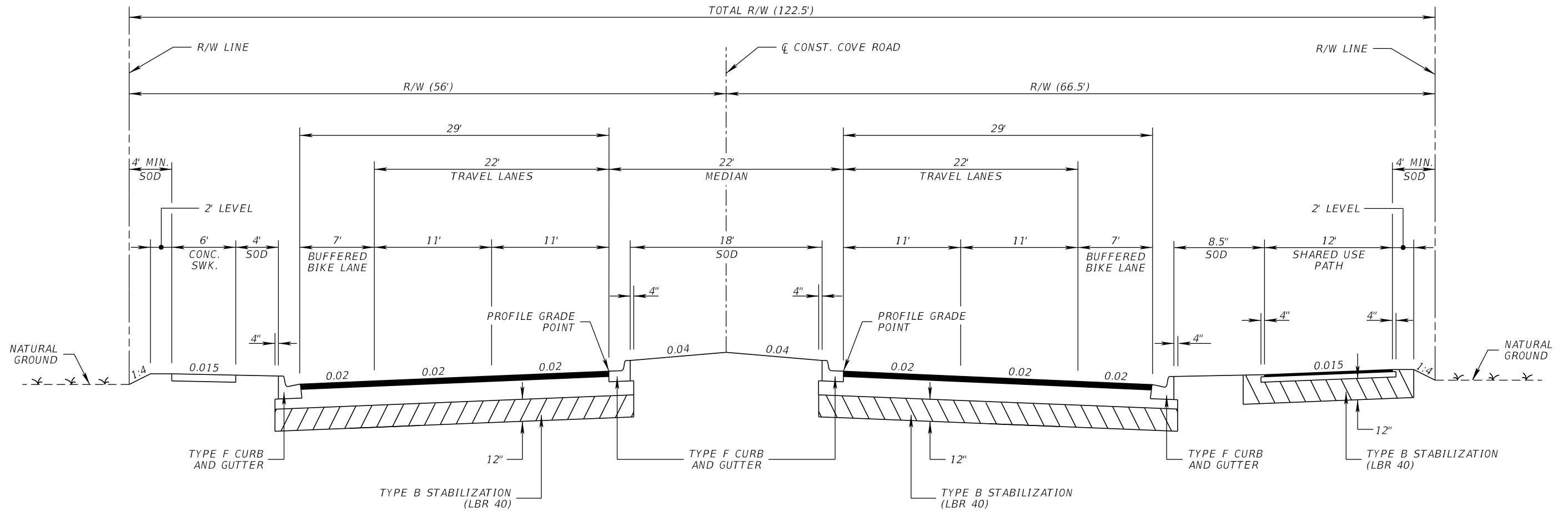
Alternative 2C has a design speed of 35 miles per hour and includes a 15.5-foot median. On each side of the corridor, a 10-foot shared use path is included with no on-street bike lanes. A right-of-way width of 101.5 feet is required.

The typical section for Build Alternative 2C is found in **Figure 4-5**.

### 4.2.2.3 *Build Alternative 2D (minimized)*

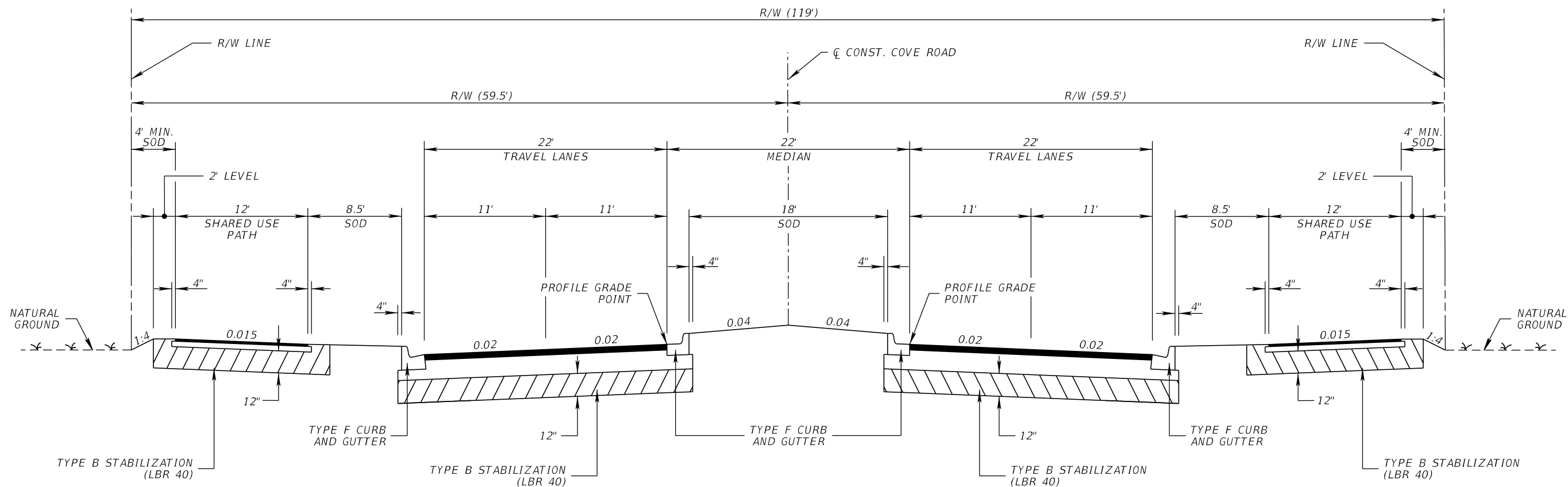
Alternative 2D has a 35 miles per hour design speed with a median width of 15.5 feet. A 6-foot bike lane and 6-foot sidewalk is included on one side of the corridor. A 10-foot shared use path is present on the other side. This alternative has a minimized right-of-way width of 96.25 feet.

The typical section for Build Alternative 2D is found in **Figure 4-6**.



SEGMENT 1  
 SR 76 (KANNER HIGHWAY) TO AVALON DRIVE  
 TYPICAL SECTION ALTERNATIVE 1A  
 DESIGN SPEED = 40 MPH

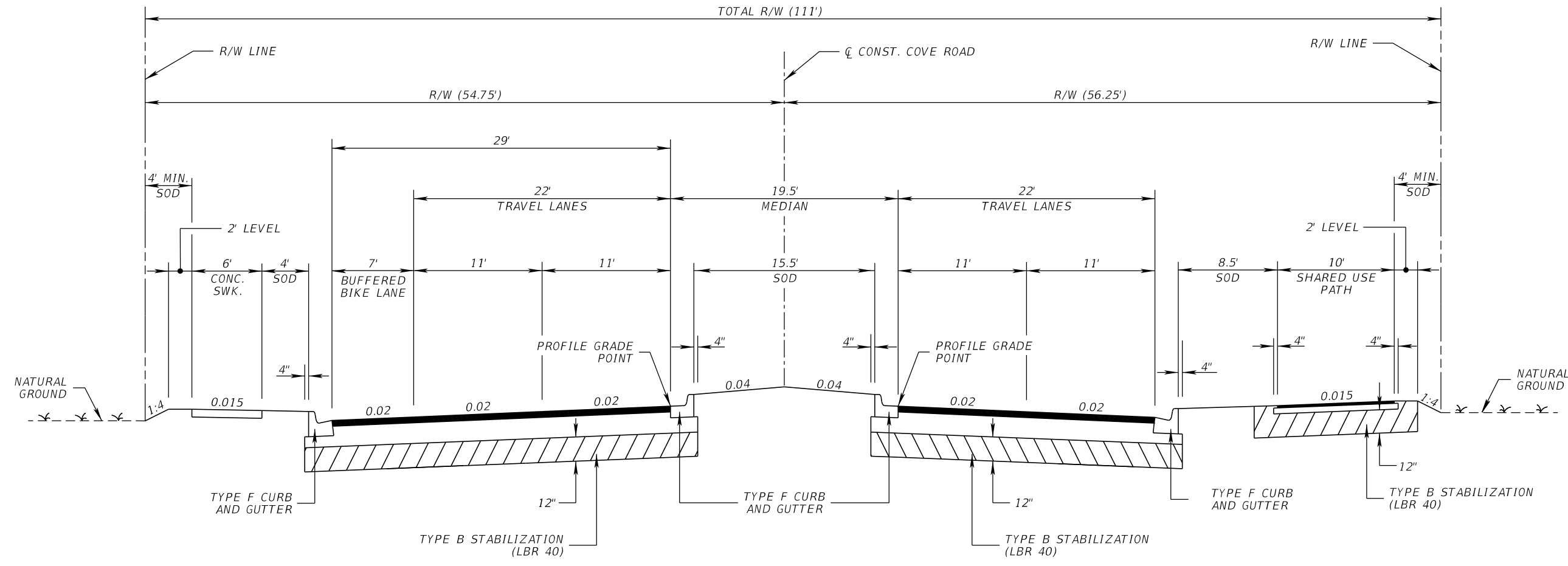
REVISIONS				ENGINEER OF RECORD	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			FIGURE 4-1 TYPICAL SECTION ALTERNATIVE 1A
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
				Kevin Joseph Iannarone, PE PE No. 71527 Inwood Consulting Engineers, Inc. 3000 Dovera Drive, Suite 200 Oviedo, Florida 32765	COVE RD	MARTIN	441700-1-22-01	



SEGMENT 1  
SR 76 (KANNER HIGHWAY) TO AVALON DRIVE  
TYPICAL SECTION ALTERNATIVE 1B

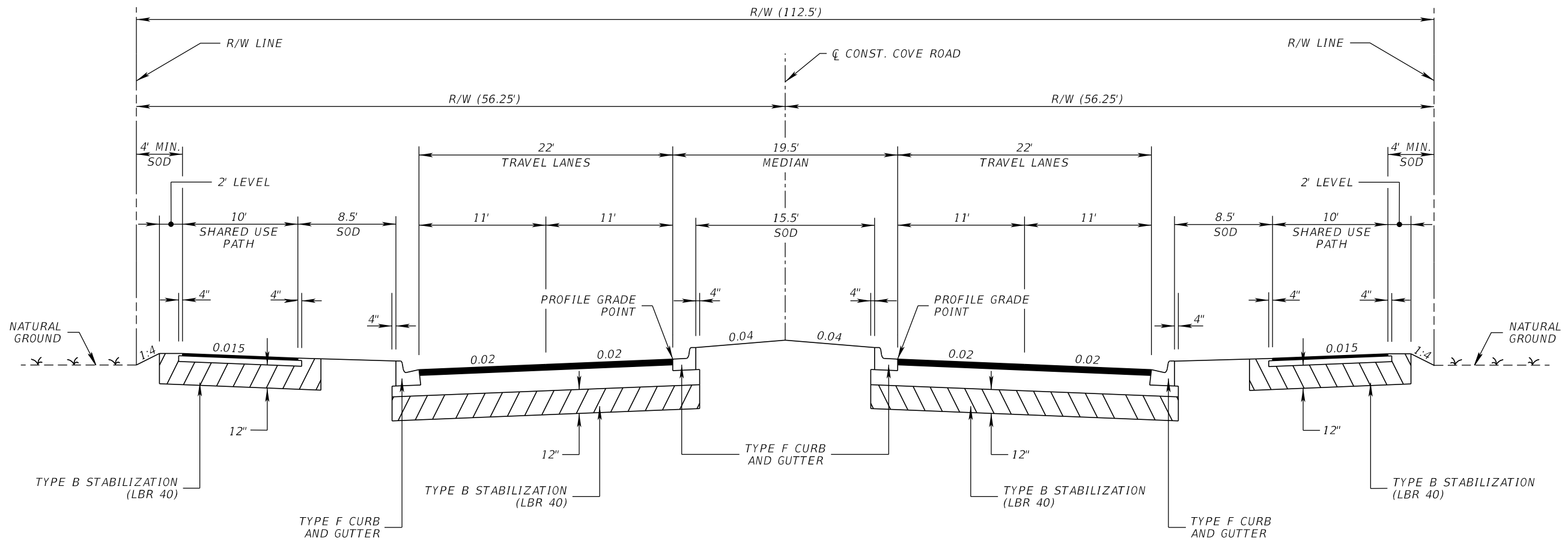
DESIGN SPEED = 40 MPH

REVISIONS				ENGINEER OF RECORD	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			FIGURE 4-2 TYPICAL SECTION ALTERNATIVE 1B
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
					COVE RD	MARTIN	441700-1-22-01	



SEGMENT 2  
AVALON DRIVE TO SR 5 (US 1)  
TYPICAL SECTION ALTERNATIVE 2A  
DESIGN SPEED = 35 MPH

REVISIONS				ENGINEER OF RECORD Kevin Joseph Iannarone, PE PE No. 71527 Inwood Consulting Engineers, Inc. 3000 Dovera Drive, Suite 200 Oviedo, Florida 32765	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			FIGURE 4-3 TYPICAL SECTION ALTERNATIVE 2A
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
					COVE RD	MARTIN	441700-1-22-01	



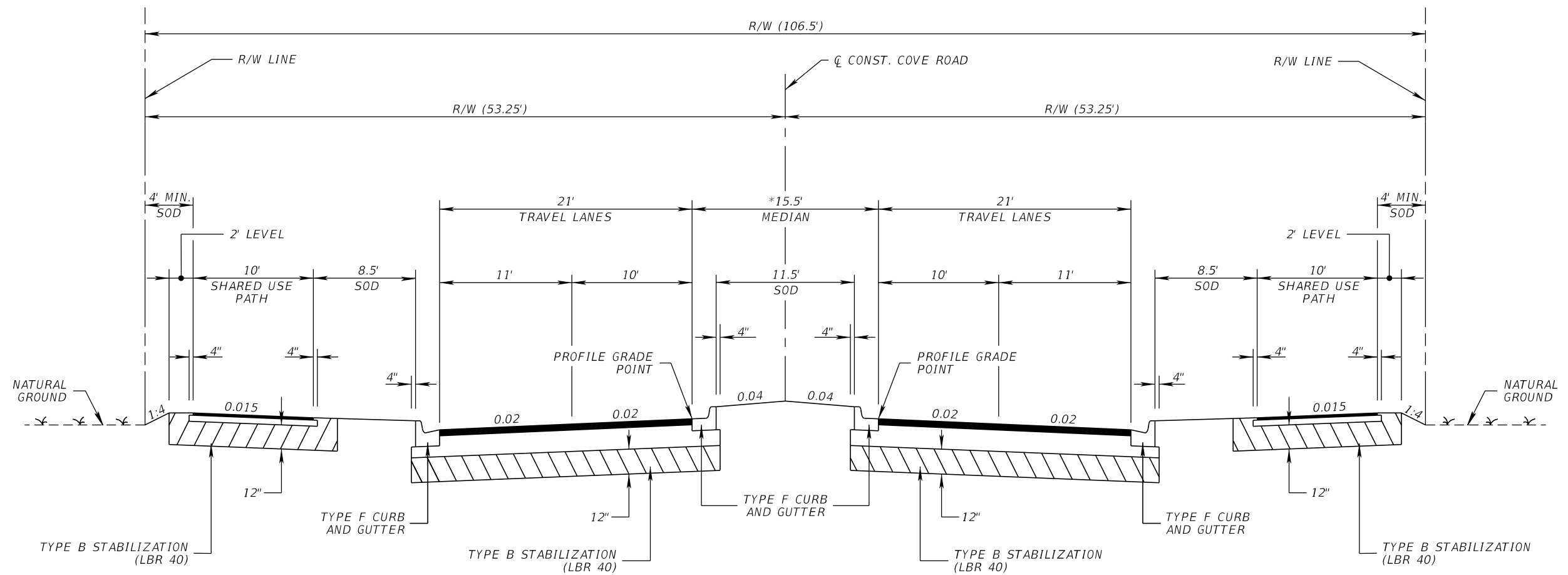
SEGMENT 2  
 AVALON DRIVE TO SR 5 (US 1)  
 TYPICAL SECTION ALTERNATIVE 2B  
 DESIGN SPEED = 35 MPH

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
COVE RD	MARTIN	441700-1-22-01

FIGURE 4-4 TYPICAL SECTION ALTERNATIVE 2B
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SEGMENT 2  
 AVALON DRIVE TO SR 5 (US 1)  
 TYPICAL SECTION ALTERNATIVE 2C

DESIGN SPEED = 35 MPH

DESIGN VARIATION:

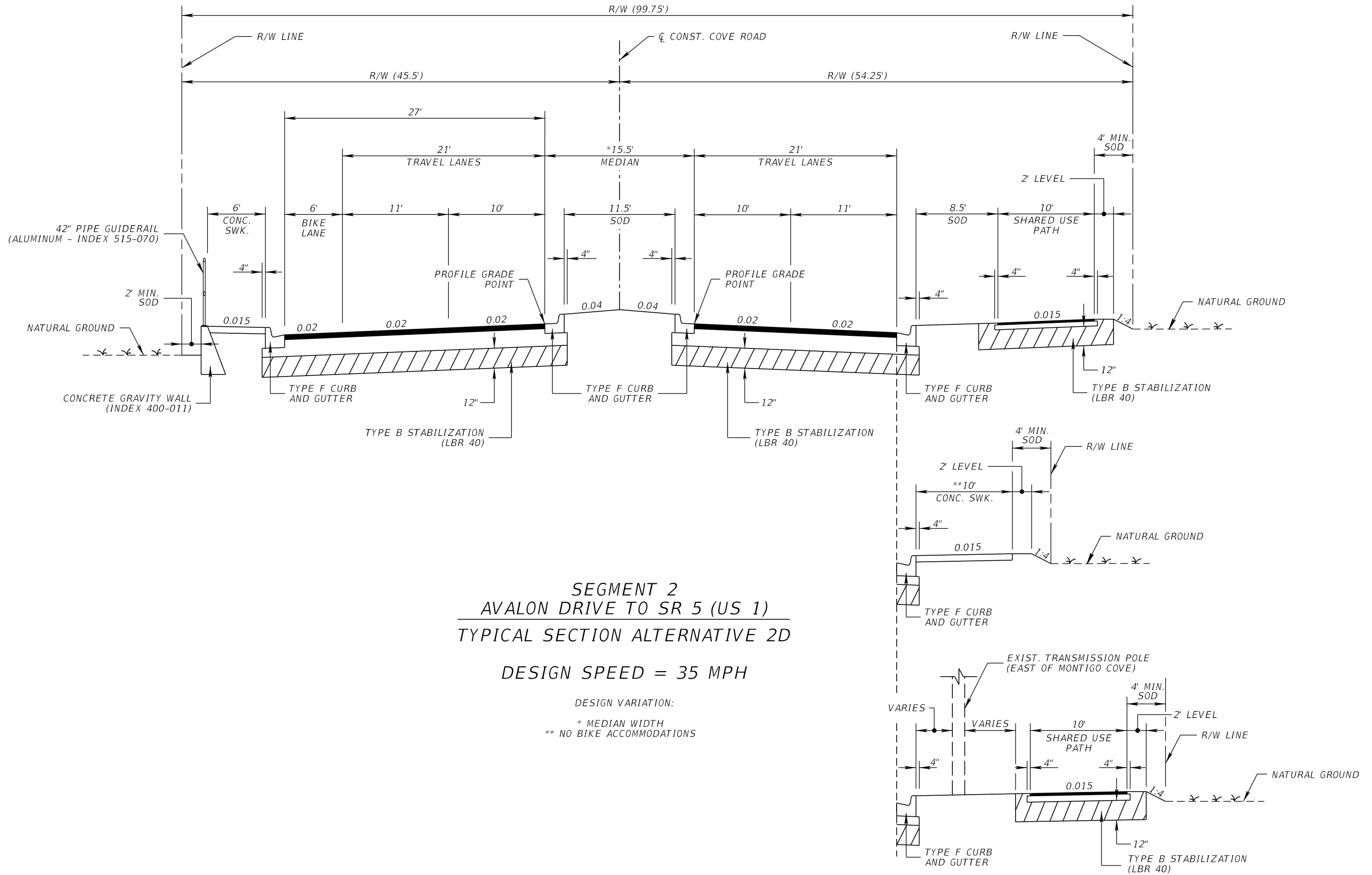
\* MEDIAN WIDTH

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD
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STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
COVE RD	MARTIN	441700-1-22-01

FIGURE 4-5  
 TYPICAL SECTION  
 ALTERNATIVE 2C



SEGMENT 2  
AVALON DRIVE TO SR 5 (US 1)  
TYPICAL SECTION ALTERNATIVE 2D

DESIGN SPEED = 35 MPH

DESIGN VARIATION:  
\* MEDIAN WIDTH  
\*\* NO BIKE ACCOMMODATIONS

REVISIONS				ENGINEER OF RECORD		STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			FIGURE 4-6 TYPICAL SECTION ALTERNATIVE 2D
DATE	DESCRIPTION	DATE	DESCRIPTION	Kevin Joseph Iannarone, PE PE No. 71527 Inwood Consulting Engineers, Inc. 3000 Dovera Drive, Suite 200 Oviedo, Florida 32765		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
						COVE RD	MARTIN	441700-1-22-01	

## Section 5.0

# Data Collection

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### 5.1 Historical Crash Data

Crash data was obtained for the five years of 2018 through 2022 from Signal Four Analytics, the FDOT CAR System, and FDOT SSOGIS, with duplicate and parking lot crashes removed.

Crash data was obtained for the full Cove Road project limits, from SR 76 (Kanner Highway) on the west end to SR 5/US 1 (Federal Highway) on the east. Crash data at intersections included 250 feet along cross streets; however, for the SR 76 and SR 5/US 1 intersections the crash data was collected to extend further than 250 feet to include the full functional area of each intersection.

### 5.2 Roadway Characteristics

Since Cove Road is not a state roadway, a straight-line diagram with roadway characteristics is not available. All existing roadway characteristics needed to complete HSM segment and intersection analysis were documented on FDOT Manual on Uniform Traffic Studies (MUTS) HSM existing conditions data collection forms, attached in **Appendix B**. Roadway characteristics were initially gathered through a desktop review of existing aerial photography (Google Earth) and street views. The inputs into the data collection forms required for the HSM analysis were confirmed and verified through field observations on Tuesday, January 17, 2023.

During the field review, several residential communities were identified within the project limits, including Tres Belle, Legacy Cove, Summerfield, Discovery Cove, and Montego Cove communities. There are several residential communities under construction along the Cove Road corridor: Salerno Reserve at Showcase is on the north side across from Tres Belle; Cove Royale is on the south side just east of the Place of Hope; and The Preserve at Park Trace is on the south side and completes the fourth leg of the signalized intersection at SW Willoughby Boulevard. There was little to no pedestrian or bicycle activity observed during the field review.

### 5.3 Traffic Volumes

The FDOT *Pre-Work for Cove Road PD&E* document dated October 2022 contains existing (2021) AADT and future AADTs for 2025, 2035, and 2045 Build and No-Build alternatives. These daily traffic volumes were used in the HSM analysis for existing and future Build

alternatives. However, future No-Build AADTs were updated using historical growth rates based on No Build projections and provided in the Cove Road Project Traffic Analysis Report, revised March 2024. These updated future No-Build AADTs were used in the HSM safety analysis for the No-Build alternatives.

## Section 6.0

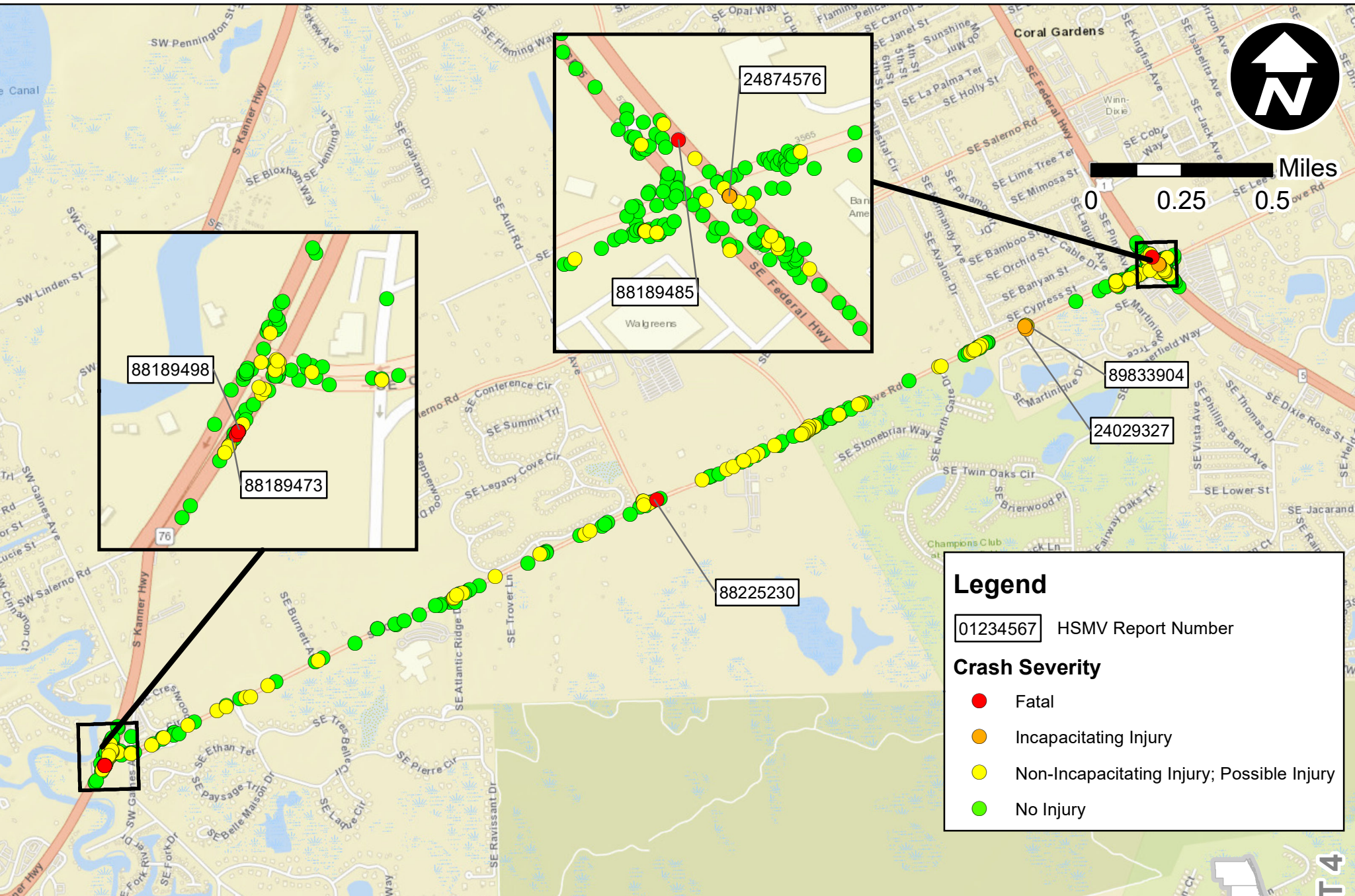
# Historical Crash Analysis

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Crash data was obtained for the five years of 2018 through 2022 from Signal Four Analytics and the FDOT CAR System prior to full merging with Signal Four Analytics, with duplicate and parking lot crashes removed.

Crash data was obtained for the full Cove Road project limits, from SR 76 (Kanner Highway) on the west end to SR 5 (US 1) on the east. Crash data at intersections included 250 feet along cross streets; however, for the SR 76 and SR 5/US 1 intersections the crash data was collected to extend further than 250 feet to include the full functional area of each intersection.

Crashes were analyzed for a variety of indicators including crash location, crash type, crash severity, roadway conditions, lighting conditions, and contributing causes. Discussion on each of these indicators, along with summary tables and figures, are included in the following sections. Crash locations and severity are shown in **Figure 6-1**.



**Cove Road PD&E Study**  
 from SR 76/Kanner Hwy. to SR 5/US 1  
 Martin County, Florida  
 FPID: 441700-1  
 Federal ID: D421-137-B

**FIGURE 6-1**  
**2018-2022 Crashes By Severity**



**DISTRICT 4**

## 6.1 Overall Crash Analysis

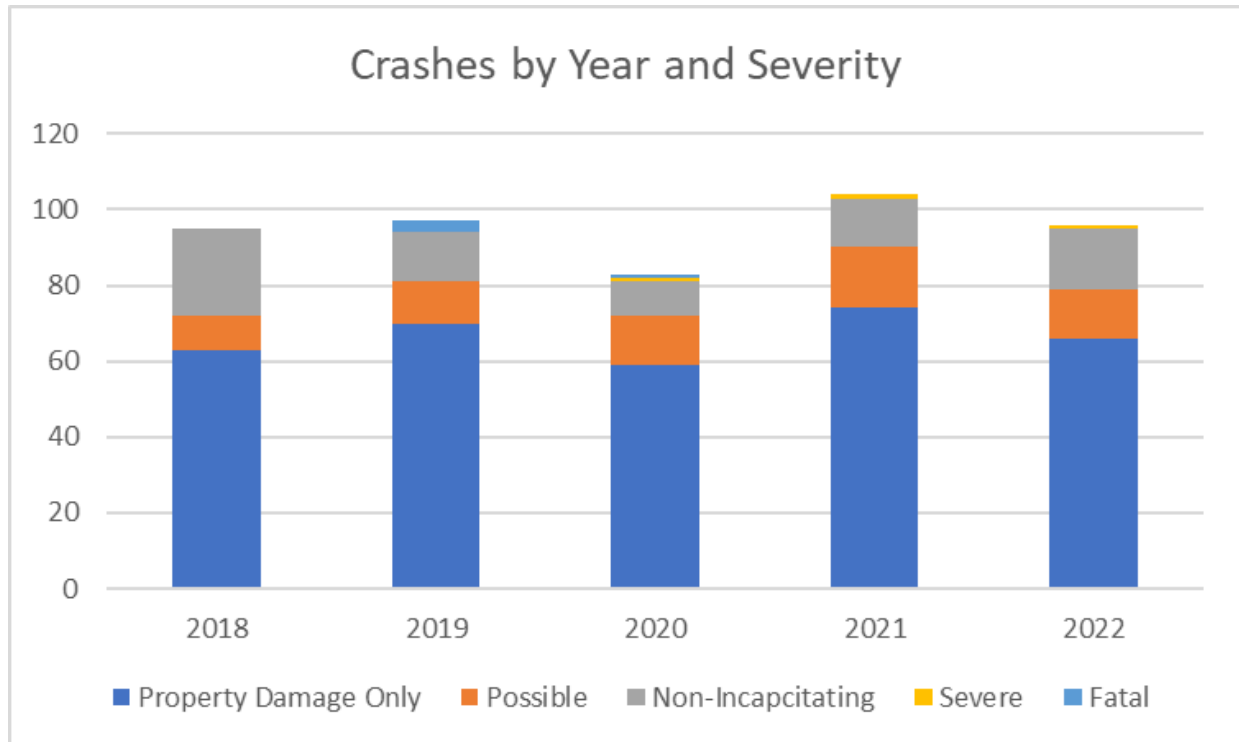
### 6.1.1 Crashes by Severity and Type

In total, 475 crashes occurred in the five years from January 1, 2018 to December 31, 2022. During this time there were a total of four fatal crashes (1%) and 136 injury crashes (29%), with three of the injury crashes resulting in incapacitating injuries (1%). A breakdown of crashes by year and crash severity are shown in both **Table 6-1** and **Figure 6 2**.

**Table 6-1**  
**Crashes by Year and Severity**

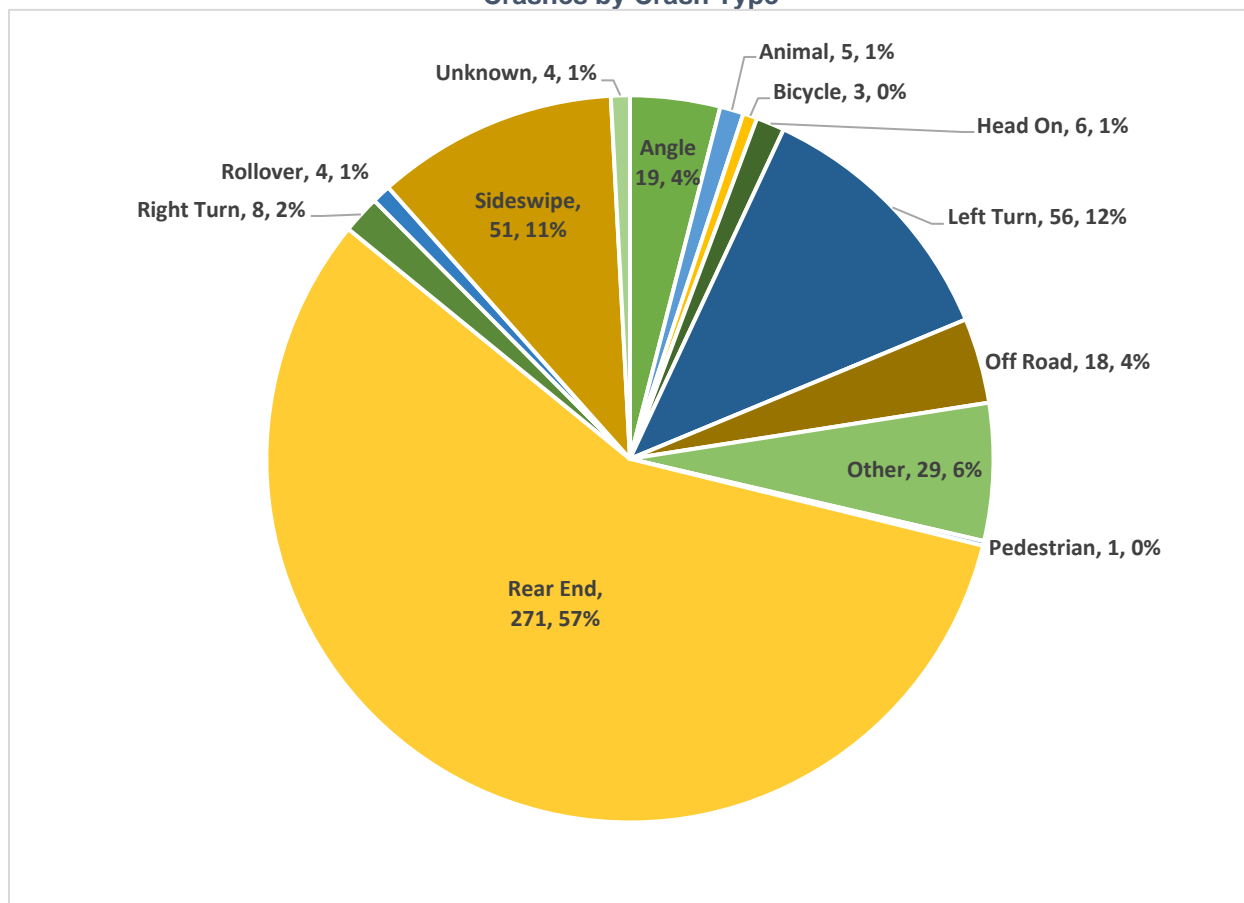
Year	Total Fatal Crashes	Total Fatalities	Total Incapacitating Injury Crashes	Total Incapacitating Injuries	Total Injury Crashes	Total Injuries	Total Property Damage Crashes	Total Crashes
2018	0	0	0	0	32	52	63	95
2019	3	3	0	0	24	35	70	97
2020	1	1	1	1	22	30	59	83
2021	0	0	1	1	29	42	74	104
2022	0	0	1	1	29	42	66	96
Total	4	4	3	3	136	201	332	475
% of Total	<1%		<1%		29%		70%	100%

**Figure 6-2**  
**Crashes by Year and Severity**



The most common crash type, rear-end, comprised 57% of crashes, followed by left turn (12%), sideswipe (11%), other (6%), angle (4%), off-road (4%), right turn (2%) and other crash types resulting in 1% or less of the crashes, shown in **Figure 6-3**.

**Figure 6-3**  
**Crashes by Crash Type**



### 6.1.2 Crashes by Lighting and Roadway Surface Characteristics

Seventy-eight percent (78%) of crashes occurred in daylight conditions, 14% were reported as occurring in dark-lighted conditions, and 3% percent were reported as occurring in dark-not lighted conditions. Eighty-six percent (86%) of crashes occurred with dry roadway surface conditions and 14% occurred on wet road surface conditions. This exceeds the average statewide percentage of wet weather or wet road surface crashes for the five years from 2018-2022, which was 12.6%. A summary of the lighting and road surface condition crash data can be found in **Table 6-2**.

**Table 6-2**  
**Crashes by Lighting and Surface Conditions**

<b>Lighting Condition</b>	<b>Total No. of Crashes</b>	<b>% of Total</b>
<b>Daylight</b>	372	78%
<b>Dark - Lighted</b>	65	14%
<b>Dark - Not Lighted</b>	16	3%
<b>Dawn</b>	11	2%
<b>Dusk</b>	11	2%
<b>Total</b>	475	100%
<b>Surface Condition</b>	<b>Total No. of Crashes</b>	<b>% of Total</b>
<b>Dry</b>	409	86%
<b>Wet</b>	66	14%
<b>Total</b>	475	100%

### 6.1.3 Fatal and Severe Injury Crashes

There were four fatal crashes within the Cove Road project limits within the analysis period:

- HSMV# 88189498: This fatal crash occurred on November 25, 2019 at 2:40 PM during daylight, in clear weather, and on a dry roadway surface. An eastbound vehicle was in the right turn lane on SR 76 approaching Cove Road and rear-ended a stopped motorcyclist in that lane. The stopped motorcyclist was projected into the roadway, causing a fatal injury. The driver of the vehicle was found to have operated the motor vehicle in a careless or negligent manner, and was found to be positive for drug use.
- HSMV# 88189485: This fatal crash occurred on October 11, 2019 at 8:00 PM under dark-lighted conditions, in clear weather, and on a dry roadway surface. A vehicle was traveling northbound on US 1/SR 5 just north of Cove Road when the vehicle changed lanes just as a bicyclist entered the travel lanes in the westbound direction. The bicyclist was walking their bike and crossed midblock not at a marked crosswalk, failing to yield the right of way to the vehicle. The bicyclist suffered a fatal injury and was found to have a blood alcohol level of 0.420.
- HSMV# 88225230: This fatal crash occurred on August 23, 2020 at 5:20 PM during daylight, in cloudy weather, and on a dry roadway surface. A vehicle traveling east on Cove Road lost control when passing a vehicle by overcorrecting and crossing the painted median, entering the opposing travel lane, and striking a westbound vehicle at an angle. The driver of the eastbound vehicle suffered a fatal injury in the head-on crash, and was found to not have used his seatbelt.
- HSMV# 88189473: This fatal crash occurred on August 28, 2020 at 5:08 PM in daylight, in clear weather, and on a dry roadway surface. A vehicle traveling westbound on Cove

Road failed to maintain its lane and crossed the grass median between SR 76 (Kanner Highway) and SW Gaines Avenue, entering the opposing travel lane. The driver of the westbound vehicle, who was found positive for drugs, collided with an eastbound vehicle in an angle collision that resulted in the driver of the westbound vehicle suffering a fatal injury.

There were three severe injury crashes on Cove Road within the analysis period:

- HSMV# 24029327: This severe injury crash occurred on November 5, 2020 at 2:55 PM in daylight, in cloudy weather, and on a dry roadway surface. A westbound vehicle was turning left to travel south on SE Martinique Drive, and struck a bicyclist traveling westbound on the sidewalk along the south side of Cove Road.
- HSMV# 24874576: This severe injury crash occurred on February 26, 2022 at 11:29 AM in daylight, in clear weather, and on a dry roadway surface. A vehicle traveling north on US 1/SR 5 ran a red light and struck a westbound vehicle in the intersection at Cove Road. The vehicle that ran the red light then overturned and landed atop a third vehicle in the left turn lane of southbound traffic, causing an incapacitating injury to the driver of the third vehicle. Witnesses stated that the northbound driver had been running red lights along US 1/SR 5 and was traveling at a speed of approximately 110 mph.
- HSMV# 89833904: This severe injury crash occurred on November 22, 2021 at 6:03 PM in dark-not lighted conditions, in clear weather, and on a dry roadway surface. A vehicle traveling east on Cove Road struck a vehicle that did not have their headlights on that was turning left into SE Montego Cove. The eastbound driver stated they were in a rental car and did not notice the lights were not on.

## 6.2 Comparison to Statewide Averages

The site-specific Empirical Bayes Method was used to analyze segment and intersection crashes, as described in Part C, Appendix A.2.3 of the Highway Safety Manual (HSM). Segment and intersection crash rates were calculated and compared to statewide averages, with locations that exceed state averages identified. For segments or intersections where the calculated average crash rate is significantly higher than the statewide average, further analysis and evaluation have been conducted.

### 6.2.1 Segment Analysis

Segmentation for the purpose of calculating crashes rates was determined based on the roadway type and variations of the existing (2021) AADT based on the Pre-Work for Cove Road PD&E document provided by FDOT, dated October 2022.

Segment crashes included all crashes that occurred within the length of the segment, but excluded intersection crashes related to the segment intersection termini. Segment crash rates were then calculated and compared to statewide averages. The resultant segment crash rates and comparison to statewide averages are shown in **Table 6-3**. Two segments were found to exceed the statewide average:

- Cove Road from SE Ault Avenue to SE Willoughby Boulevard

- Cove Road from SE Northgate Drive to Montego Cove

These two segments had an average of 1.2 times higher crash rates than statewide average crash rates. Crash summary tables for the segments of Cove Road that had crash rates above the statewide averages are included in **Appendix C**.

**Table 6-3**  
**Crash Rates for Roadway Segments**

Crash Rates for Roadway Segments											
Main Road Name		Roadway Type	Segment Length (Mi) <sup>1</sup>	2021 AADT <sup>2</sup>	No. of Crashes	Exposure (MVMT)	Crash Rate			Crash Rate Ranking	
From	To				2018 - 2022	2018 - 2022	Calculated <sup>4</sup>	Statewide Avg.	Exceeded?		
Cove Rd											
	SR 76	SW Gaines Ave	Suburban 4-5Ln 2Wy Divd Rasd	0.176	16,000	4	5.139	0.78	1.745	No	4
	SW Gaines Ave	SE Tres Belle Cir	Suburban 2-3Ln 2Wy Divd Pavd	0.190	15,500	7	5.375	1.30	2.826	No	3
	SE Tres Belle Cir	AMS Ent	Suburban 2-3Ln 2Wy Undivd	0.445	15,500	8	12.588	0.64	1.290	No	7
	AMS Ent	SE Atlantic Ridge Dr	Suburban 2-3Ln 2Wy Divd Pavd	0.232	15,500	0	6.563	0.00	2.826	No	11
	SE Atlantic Ridge Dr	SE Legacy Cove Cir	Suburban 2-3Ln 2Wy Divd Pavd	0.274	16,000	6	8.001	0.75	2.826	No	5
	SE Legacy Cove Cir	SE Ault Ave	Suburban 2-3Ln 2Wy Divd Pavd	0.303	16,500	3	9.124	0.33	2.826	No	9
	SE Ault Ave	SE Willoughby Blvd	Suburban 2-3Ln 2Wy Undivd	0.521	16,000	20	15.213	1.32	1.290	Yes	2
	SE Willoughby Blvd	SE Northgate Dr	Suburban 2-3Ln 2Wy Undivd	0.408	17,500	4	13.031	0.31	1.290	No	10
	SE Northgate Dr	Montego Cove	Suburban 2-3Ln 2Wy Undivd	0.261	17,500	15	8.336	1.80	1.290	Yes	1
	Montego Cove	SE Cable Dr	Suburban 2-3Ln 2Wy Undivd	0.283	17,500	3	9.038	0.33	1.290	No	8
	SE Cable Dr	SR 5	Suburban 4-5Ln 2Wy Divd Rasd	0.631	17,500	14	20.153	0.70	1.745	No	6

- 1 Segment lengths measured in Google Earth Pro and total 3.180 Mi
- 2 Source: FDOT Pre-Work for Cove Road PD&E (October 2022)
- 3 Exposure (MVMT) = Segment Length (Mi) x 2021 AADT x 365 (days) x 5 (years) / 1,000,000
- 4 Calculated crash rate = No. of Crashes / Exposure (MVMT)

Rear-end crashes were the most common crash type for segments with an above average crash rate, followed by crashes involving animals, as shown in **Table 6-4**.

Existing factors contributing to the high incidence of rear-end crashes within these segments are roadway congestion and a lack of turn lanes. There are multiple driveways between SE Ault Avenue and Willoughby Boulevard without turn lanes for deceleration. For the segment between SE Northgate Drive and Montego Cove, drivers turning at SE Avalon Road must wait within the travel lane for opportunities to turn. These disruptions to traffic flow can lead to rear-end crashes, especially during periods of congestion. The project will provide several improvements that should result in fewer rear-end crashes including additional roadway capacity with a two to four lane widening, access management with construction of a median, and turn lanes at key intersections such as SE Avalon Road.

Crash conditions and actions contributing to crashes were analyzed for the roadway segments with above statewide average crash rates.

Crashes on these segments predominantly occurred during daylight and on dry road conditions. On the segment from SE Ault Avenue to Willoughby Boulevard, daylight conditions accounted for seventeen crashes (85%), and dry road conditions accounted for sixteen crashes (80%). Only two crashes (10%) occurred on this segment in unlighted conditions, with another crash occurring at dusk (5%). Similarly, on the SE Northgate Drive to Montego Cove segment, 87% of crashes occurred during daylight conditions and 100% of crashes occurred on dry road conditions. On this segment, one crash (7%) occurred in lighted conditions while another occurred at dusk (7%).

Within the segment of SE Ault Avenue to SE Willoughby Boulevard, there was one crash each attributed to aggressive driving, distracted driving, and speeding of the twenty total crashes within that segment. There were no alcohol or drug related crashes or crashes attributed to speeding between SE Ault Avenue and SE Willoughby Boulevard. However, within the segment of SE Northgate Drive to Montego Cove, four of the fifteen total crashes were attributed to distracted driving.

Driver contributing actions, lighting conditions, and road surface conditions are detailed in **Table 6-5**.

The proposed project will help to mitigate nighttime crashes through corridor roadway lighting and wet roadway crashes through improved pavement friction.

**Table 6-4**  
**Number of Crashes by Crash Type –Above Average Crash Rate Segments**

Number of Crashes by Crash Type for Above Statewide Average Crash Rate Segments		
Crash Type	Segment Limits	
	SE Ault Ave to SE Willoughby Blvd	SE Northgate Dr to Montego Cove
Animal	2	0
Bicycle	0	1
Head On	1	0
Left Turn	0	1
Other	1	0
Rear End	16	13

**Table 6-5**  
**Crash Conditions and Contributing Actions – Above Average Crash Rate Segments**

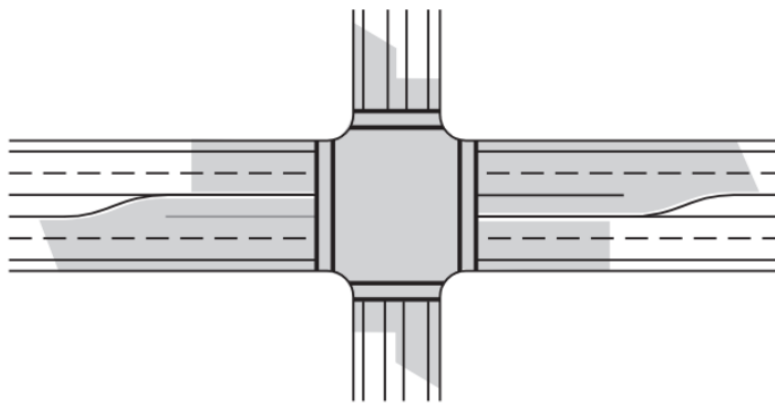
Crash Conditions and Contributing Actions				
Segments Exceeding Statewide Average Crash Rates				
Segment Limits	SE Ault Avenue		SE Northgate Dr	
	SE Willoughby Blvd		Montego Cove	
Lighting Conditions	No. of Crashes	% of Total	No. of Crashes	% of Total
Daylight	17	85%	13	87%
Dark - Lighted	0	0%	1	7%
Dark - Not Lighted	2	10%	0	0%
Dawn	0	0%	0	0%
Dusk	1	5%	1	7%
Road Surface Conditions				
Dry	16	80%	15	100%
Wet	4	20%	0	0%
Driver Contributing Actions <sup>1</sup>				
Aggressive Driving Related	1	5%	0	0%
Alcohol Related	0	0%	0	0%
Drug Related	0	0%	0	0%
Distracted Driving Related	1	5%	4	27%
Speeding Related	1	5%	0	0%
No Action Indicated	18	90%	11	73%

- 1) Crashes can include more than one driver contributing action and will reflect in a total percentage greater than 100%

### 6.2.2 Intersection Analysis

Intersection crashes included crashes that occurred within the functional area of the intersection. The functional area is within the curb limits, as seen in **Figure 6-4** (from the HSM Figure 14-1) and includes crashes on the intersection legs that are intersection related. Signal Four Analytics classifies crashes as intersection related, and for redundancy, each crash outside of the functional area was manually analyzed for intersection relation. Rear-end crashes outside of the functional area, due to queues from the intersection, were counted as intersection related crashes as well as crashes related to a signal malfunction.

**Figure 6-4**  
**Functional Area of an Intersection**



The resultant intersection crash rates and comparison to statewide averages are shown in **Table 6-6**.

Five intersections were found to exceed the statewide average:

- Cove Road at SR 76 (Kanner Highway)
- Cove Road at SE Atlantic Ridge Drive
- Cove Road at SE Willoughby Boulevard
- Cove Road at SE Cable Drive
- Cove Road at US 1/SR 5

The intersections above had average crash rates an average of 2.3 times higher than statewide average crash rates. Crash summary tables for these intersections with crash rates above the statewide averages are included in **Appendix D**.

**Table 6-6  
Crash Rates for Intersections**

Crash Rates for Intersections										
Main Road Name	Control Type	2021 AADT <sup>2</sup>		No. of Crashes	Exposure (MEV) <sup>3</sup>	Crash Rate			Crash Rate Ranking	
Intersecting Road Name		Major	Minor	2018 - 2022	2018 - 2022	Calculated <sup>4</sup>	Statewide Avg.	Exceeded?		
Cove Rd										
	at SR 76	Signal	47,500	16,000	96	115.888	0.830	0.322	Yes	4
	at SW Gaines Ave	Stop	15,750	1,400	5	31.299	0.160	0.270	No	9
	at SE Tres Belle Cir	Stop	15,500	750	1	29.656	0.030	0.279	No	11
	at AMS Ent	Stop	15,500	200	0	28.653	0.000	0.279	No	12
	at SE Atlantic Ridge Dr	Signal	15,750	1,800	11	32.029	0.340	0.279	Yes	5
	at SE Legacy Cove Cir	Signal	16,250	750	8	31.025	0.260	0.524	No	6
	at SE Ault Ave	Stop	16,000	1,300	8	31.573	0.250	0.279	No	7
	at SE Willoughby Blvd	Signal	16,500	5,700	41	40.515	1.010	0.279	Yes	2
	at SE Northgate Dr	Stop	17,500	1,000	2	33.763	0.060	0.279	No	10
	at SE Martinique Dr	Stop	17,500	600	6	33.033	0.180	0.279	No	8
	at SE Cable Dr	Stop	17,500	750	33	33.306	0.990	0.527	Yes	3
	at SR 5	Signal	37,000	16,000	174	96.725	1.800	0.746	Yes	1

- 1 Note: Crash rates were only calculated for intersections with available minor street AADT counts.
- 2 Source: FDOT Pre-Work for Cove Road PD&E (October 2022). Where AADT differed on either side of the intersection, the average AADT was used.
- 3 Exposure (MEV) = (Major AADT + Minor AADT) x 365 (days) x 5 (years) / 1,000,000
- 4 Calculated crash rate = No. of Crashes / Exposure (MEV)

The most common crash type to occur was rear-end crashes, followed by left turn and sideswipe crashes, as shown in **Table 6-7**.

**Table 6-7**  
**Crash Type Summary - Above Statewide Average Crash Rate Intersections**

<b>Crash Type Summary for Above Statewide Average Crash Rate Intersections</b>					
<b>Crash Type</b>	<b>Intersecting with Cove Road</b>				
	<b>SR 76</b>	<b>SE Atlantic Ridge Drive</b>	<b>SE Willoughby Boulevard</b>	<b>SE Cable Drive</b>	<b>SR 5</b>
Angle	0	0	0	7	8
Bicycle	0	0	0	0	1
Head On	3	0	0	0	1
Left Turn	14	1	5	20	8
Off Road	8	0	0	1	2
Other	3	1	1	1	13
Pedestrian	0	0	1	0	0
Rear End	54	8	33	3	111
Right Turn	0	0	0	0	3
Rollover	2	0	0	0	0
Sideswipe	12	1	1	1	25
Unknown	0	0	0	0	2

At the SR 76 intersection, several crash reports for off road crashes indicated that northbound right turning vehicles did not slow sufficiently to stay within the travel lane onto Cove Road. The proposed project will remove the hatched-out painted area in the southeast corner of the intersection and physically reduce the turning radius for speed reduction. One off-road crash was due to the curvature of the westbound approach to the intersection. Rear-end crashes primarily occurred on the northbound and southbound SR 76 (Kanner Highway) approaches; however, the Cove Road project will include extended turn lanes with sufficient storage to reduce rear-end crashes on the westbound approach. The SR 76 intersection is a T-intersection with 12 sideswipe crashes. These crashes can be reduced with improved advance lane use signing and guide signing.

Rear-end crashes at the SE Atlantic Ridge Drive and SE Willoughby Boulevard intersections are expected to be reduced with additional roadway capacity through the Cove Road widening project. The SE Willoughby Boulevard intersection will also include the addition of an exclusive westbound left turn lane and eastbound right turn lane for the Preserve at Park Trace PUD on the south side of the intersection.

The SE Cable Drive intersection is currently an unsignalized intersection with a full median opening. The primary factor leading to the high incidence of left turn crashes (20) at this intersection is its close proximity to the SR 5 intersection. This full median opening does not meet access management spacing criteria from the SR 5 intersection; however, the Cove

Road project proposes to convert this full median opening to a directional median opening allowing left turns in the eastbound direction only. This proposed access management improvement is expected to reduce left turn crashes significantly.

At the SR 5 intersection, the majority of rear-end crashes occurred on the northbound and southbound SR 5 approaches. However, the proposed removal of the westbound left turn lane at the SE Cable Drive intersection as part of the Cove Road project will provide additional space to increase left turn storage on the eastbound approach to SR 5, which can reduce rear-end crashes. Although the SR 5 intersection was found to have 25 sideswipe crashes, none were located on the west leg of the intersection within the Cove Road project limits.

Crash conditions and actions contributing to crashes were analyzed for the intersections with above statewide average crash rates.

At the intersection of SR 76 and Cove Road, there were eight crashes attributed to aggressive driving, twelve crashes attributed to distracted driving, and six crashes attributed to speeding. There were seven alcohol and three drug related crashes at the SR 76 and Cove Road intersection. At the intersection of Atlantic Ridge Drive and Cove Road, two crashes were contributed to aggressive driving and one to speeding, and three crashes were related to distracted driving. At the intersection of Cove Road and Willoughby Boulevard, there was one crash related to both aggressive driving and speeding related, and seven crashes related to distracted driving. At the intersection of Cove Road and Cable Drive, there was one crash related to distracted driving. At the intersection of SR 5 and Cove Road, there were four crashes attributed to aggressive driving and six crashes attributed to alcohol. There were 28 crashes attributed to distracted driving, and three crashes attributed to speeding.

Environmental conditions for crashes occurring at intersections with crash rates above the statewide average include predominantly daylight and dry roadway conditions.

At the SR 76 intersection, 60 crashes (63%) occurred during daylight conditions, with 30 crashes (31%) occurring in street-lighted conditions. The remaining crashes occurred at dawn at dusk with four crashes (4%) and two crashes (2%) respectively. Seventy-eight crashes (81%) occurred during dry roadway conditions.

All crashes at the SE Atlantic Ridge intersection occurred during daylight hours, with seven crashes (64%) during dry roadway conditions.

Daylight crashes at the SE Willoughby Boulevard intersection accounted for 85%, while crashes at unlighted conditions, dawn, and dusk accounted for 5% each. Thirty-one crashes (76%) at this intersection occurred during dry roadway conditions.

At SE Cable Drive intersection, 29 crashes (88%) occurred during daylight, with two (6%) crashes occurring in street-light conditions and two (6%) with unlighted conditions. Dry roadway conditions accounted for 91% of crashes at this intersection.

Eighty percent of crashes at SR 5 occurred during daylight conditions, with 28 crashes (16%) occurring in street-lighted conditions. Additionally, two crashes (1%) occurred in unlighted conditions and three crashes (2%) occurred at dawn with another (1%) at dusk.

Driver contributing actions, lighting conditions, and road surface conditions are detailed in **Table 6-8**. A majority of crashes occurred during daylight and on dry road conditions. However, at the SR 76 intersection 37% of crashes occurred either during dark-lighted, dusk, or dawn lighting conditions. This is higher than the statewide average of 24% night-time crashes during the five years from 2018-2022. The proposed project will help to mitigate nighttime crashes through corridor roadway lighting, as well as improved intersection lighting at signalized intersections. Currently the signalized intersections of Cove Road with SE Atlantic Ridge Drive and SE Willoughby Boulevard are unlit. In addition, 12.6% of crashes statewide during the five years from 2018-2022 occurred in wet weather or roadway conditions. Of the five intersections exceeding statewide average overall crash rates, three of them also had wet roadway crashes higher than the statewide average (SR 76, SE Atlantic Ridge Drive, and SE Willoughby Boulevard). The proposed project will provide improved pavement friction to reduce these crashes.

**Table 6-8**  
**Crash Conditions and Contributing Actions for Intersections Exceeding Statewide Average Crash Rates**

Crash Conditions and Contributing Actions										
Intersections Exceeding Statewide Average Crash Rates										
Lighting Conditions	Intersection with Cove Road									
	SR 76		SE Atlantic Ridge Drive		SE Willoughby Boulevard		SE Cable Drive		SR 5	
	No. of Crashes	% of Total	No. of Crashes	% of Total	No. of Crashes	% of Total	No. of Crashes	% of Total	No. of Crashes	% of Total
Daylight	60	63%	11	100%	35	85%	29	88%	140	80%
Dark - Lighted	30	31%	0	0%	0	0%	2	6%	28	16%
Dark - Not Lighted	0	0%	0	0%	2	5%	2	6%	2	1%
Dawn	4	4%	0	0%	2	5%	0	0%	3	2%
Dusk	2	2%	0	0%	2	5%	0	0%	1	1%
<b>Road Surface Conditions</b>										
Dry	78	81%	7	64%	31	76%	30	91%	156	90%
Wet	18	19%	4	36%	10	24%	3	9%	18	10%
<b>Driver Contributing Actions<sup>1</sup></b>										
Aggressive Driving Related	8	8%	2	18%	1	2%	0	0%	4	2%
Alcohol Related	8	8%	0	0%	0	0%	0	0%	6	3%
Drug Related	3	3%	0	0%	0	0%	0	0%	0	0%
Distracted Driving Related	12	13%	3	27%	7	17%	1	3%	28	16%
Speeding Related	6	6%	1	9%	1	2%	0	0%	3	2%
No Action Indicated	70	73%	6	55%	33	79%	32	97%	136	77%

- 1) crashes can include more than one driver contributing action and will reflect in a total percentage greater than 100%

## Section 7.0

# Highway Safety Manual (HSM) Analysis

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The HSM Predictive Method was used to calculate predicted crashes for each of the alternatives using procedures outlined in HSM Chapter 12, Urban and Suburban Arterials. Safety analysis years and alternatives are described in detail in Section 4.0.

### 7.1 Safety Performance Functions

HSM Chapter 12 provides safety performance functions (SPFs) for the following site types that were applied to the Cove Road project:

- Two-lane undivided arterial (2U) – defined as a roadway consisting of two lanes with a continuous cross-section providing two directions of travel in which the lanes are not physically separate by either distance or a barrier. There are sections of Cove Road where the two-lane undivided roadway widens to allow for the development of left turn lanes at intersections. There are also sections where the eastbound and westbound travel lanes are separated by a painted median. Since there is no SPF for two-lane divided arterials, and a search of applicable crash modification factors (CMF) also resulted in no applicable studies, the two-lane undivided arterial (2U) SPF were applied to all segments of Cove Road with two travel lanes.
- It is proposed to use the four-lane divided arterials (4D) SPF for the following conditions:
  - Existing conditions/future No-Build between SR 76 and SW Gaines Avenue (east)
  - Existing conditions/future No-Build between SE Cable Road and SR 5
  - Future Build alternatives

### 7.2 Tools

Highway Safety Manual (HSM) Chapter 12 Spreadsheets for Urban and Suburban Arterials (2-5 Lanes) were used to conduct the HSM predictive method.

### 7.3 Calibration Factors

The 2023 Florida Design Manual (FDM) Table 122.6.3 HSM Calibration Factors for Florida includes the FDOT calibration factors for roadways and intersections. Calibration factors are applied based on the roadway and intersection facility type and control type.

The FDOT Central Office is currently creating Florida-specific safety performance functions (SPFs) rather than updating Florida-specific roadway and intersection calibration factors. Based on coordination with the FDOT Central Office related to the accuracy of the 4-lane divided calibration factor, it was determined that calibration factors for roadway segments would not be applied. The intersection calibration factors used for this project are listed in **Table 7-1**.

**Table 7-1**  
**HSM Intersection Calibration Factors**

<b>HSM Intersection Calibration Factors</b>		
<b>Facility Type</b>	<b>Facility Description</b>	<b>Calibration Factor</b>
Urban	3-Leg Stop Controlled Intersection	1.14
	3-Leg Signal Controlled Intersection w/Ped. CMFs	2.5
	4-Leg Stop Controlled Intersection	1.87
	4-Leg Signal Controlled Intersection	2.27

## 7.4 Existing Conditions Segmentation

The segmentation into homogenous segments is shown in **Table 7-2**.

**Table 7-2**  
**Existing Conditions HSM Safety Analysis Segmentation and Method**

<b>Cove Road</b>		<b>Roadway Type</b>	<b>Analysis Method</b>
<b>From</b>	<b>To</b>		
SR 76	SW Gaines Ave	4-lane divided	HSM Ch. 12, 4D SPF
SW Gaines Ave	SE Tres Belle Cir	2-lane undivided	HSM Ch. 12, 2U SPF
SE Tres Belle Cir	AMS Ent	2-lane undivided	HSM Ch. 12, 2U SPF
AMS Ent	SE Atlantic Ridge Dr	2-lane undivided	HSM Ch. 12, 2U SPF
SE Atlantic Ridge Dr	SE Legacy Cove Cir	2-lane undivided	HSM Ch. 12, 2U SPF
SE Legacy Cove Cir	SE Ault Ave	2-lane undivided	HSM Ch. 12, 2U SPF
SE Ault Ave	SE Willoughby Blvd	2-lane undivided	HSM Ch. 12, 2U SPF
SE Willoughby Blvd	SE Northgate Dr	2-lane undivided	HSM Ch. 12, 2U SPF
SE Northgate Dr	Montego Cove	2-lane undivided	HSM Ch. 12, 2U SPF
Montego Cove	SE Cable Dr	2-lane undivided	HSM Ch. 12, 2U SPF
SE Cable Dr	SR 5	4-lane divided	HSM Ch. 12, 4D SPF

## 7.5 Existing Conditions Intersections

The following intersections between segments are included in the existing conditions analysis using the listed SPFs. It should be noted that construction is currently underway at the SE Willoughby Boulevard and is planned for the SE Tres Belle Circle intersection, which will add a fourth leg to each. For the existing PSI analysis, these intersections will be analyzed as three-leg intersections since the historical crash data is based on these configurations.

**Table 7-3**  
**Existing Conditions Intersections HSM Analysis Method**

Intersection	Control Type	# legs	SPF
SR 76 (Kanner Highway)	signalized	3	3SG
SW Gaines Avenue	unsignalized stop	3	3ST
SE Tres Belle Circle	unsignalized stop	3	3ST
Anderson Middle School entrance	unsignalized stop	3	3ST
SE Atlantic Ridge Drive	signalized	3	3SG
SE Legacy Cove Circle	signalized	4	4SG
SE Ault Avenue	unsignalized stop	3	3ST
SE Willoughby Boulevard	signalized	3	3SG
SE Northgate Drive	unsignalized stop	3	3ST
Montego Cove	unsignalized stop	3	3ST
SE Cable Drive	unsignalized stop	4	4ST
SR 5/US 1 (Federal Highway)	signalized	4	4SG

## 7.6 Potential for Safety Improvement Analysis

The potential for safety improvement (PSI) analysis conducted for existing conditions uses the HSM predictive method to compare expected average crash frequency to the predicted average crash frequency to determine how much the long-term crash frequency could be reduced in the analysis area.

A total of 475 crashes were reported within the project limits over the 5-year period from January 1, 2018 to December 31, 2022. This equates to an average of 95.0 crashes/year.

Using the HSM predictive method, the total number of predicted crashes for 5 years is 268 crashes (67.5 predicted crashes/year). The EB method was then applied at the segment and intersection level using the observed crashes, resulting in a total of 445 expected crashes (88.4 expected crashes/year).

The potential for safety improvement based on the predicted and expected number of crashes is 20.9 crashes/year (88.4 expected crashes/year – 67.5 predicted crashes/year). This is a reduction of 23.6% compared to the expected crash frequency.

As indicated by the PSI analysis, the long-term average crash frequency within the project limits is greater than for comparable roadways. This demonstrates the potential and need for safety improvements for this project.

## Section 8.0

# HSM Future Conditions Analysis

The Predictive Method was used to evaluate the future No-Build and future Build alternatives. The Empirical Bayes (EB) method was not used because new lanes will be added for the Build alternatives.

### 8.1 No Build Alternatives

The Predictive Method was used to analyze the No-Build alternative. The opening year 2025 No-Build analysis included the addition of the Cove Royale Development Road intersection to the east of SE Legacy Cove Circle. It also included the addition of the fourth leg to the SE Willoughby Boulevard signalized intersection. Additions for the design year 2045 No-Build analysis included the Aquarius Development Road intersection to the east of SE Ault Avenue. It also included the addition of the fourth leg to the SE Tres Belle Circle intersection.

**Table 8-1** through **Table 8-4** depict the segmentation and method of analysis used. Highlighted cells indicate the differences from existing conditions.

**Table 8-1**  
**Opening Year 2025 No-Build Segmentation HSM Safety Analysis Method**

Cove Road		Roadway Type	Analysis Method
From	To		
SR 76	SW Gaines Ave	4-lane divided	HSM Ch. 12, 4D SPF
SW Gaines Ave	SE Tres Belle Cir	2-lane undivided	HSM Ch. 12, 2U SPF
SE Tres Belle Cir	AMS Ent	2-lane undivided	HSM Ch. 12, 2U SPF
AMS Ent	SE Atlantic Ridge Dr	2-lane undivided	HSM Ch. 12, 2U SPF
SE Atlantic Ridge Dr	SE Legacy Cove Cir	2-lane undivided	HSM Ch. 12, 2U SPF
SE Legacy Cove Cir	Cove Royale Dev. Rd	2-lane undivided	HSM Ch. 12, 2U SPF
Cove Royale Dev. Rd	SE Ault Ave	2-lane undivided	HSM Ch. 12, 2U SPF
SE Ault Ave	SE Willoughby Blvd	2-lane undivided	HSM Ch. 12, 2U SPF
SE Willoughby Blvd	SE Northgate Dr	2-lane undivided	HSM Ch. 12, 2U SPF
SE Northgate Dr	Montego Cove	2-lane undivided	HSM Ch. 12, 2U SPF
Montego Cove	SE Cable Dr	2-lane undivided	HSM Ch. 12, 2U SPF
SE Cable Dr	SR 5	4-lane divided	HSM Ch. 12, 4D SPF

**Table 8-2**  
**Opening Year 2025 No-Build Intersections HSM Safety Analysis Method**

Intersection	Control Type	# legs	SPF
SR 76 (Kanner Highway)	signalized	3	3SG
SW Gaines Avenue	unsignalized stop	3	3ST
SE Tres Belle Circle	unsignalized stop	3	3ST
Anderson Middle School entrance	unsignalized stop	3	3ST
SE Atlantic Ridge Drive	signalized	3	3SG
SE Legacy Cove Circle	unsignalized stop	4	4SG
Cove Royale Dev. Road	unsignalized stop	3	3ST
SE Ault Avenue	unsignalized stop	3	3ST
SE Willoughby Boulevard	signalized	4	4SG
SE Northgate Drive	unsignalized stop	3	3ST
Montego Cove	unsignalized stop	3	3ST
SE Cable Drive	unsignalized stop	4	4ST
SR 5/US 1 (Federal Highway)	signalized	4	4SG

**Table 8-3**  
**Design Year 2045 No-Build Segmentation HSM Safety Analysis Method**

Cove Road		Roadway Type	Analysis Method
From	To		
SR 76	SW Gaines Ave	4-lane divided	HSM Ch. 12, 4D SPF
SW Gaines Ave	SE Tres Belle Cir	2-lane undivided	HSM Ch. 12, 2U SPF
SE Tres Belle Cir	AMS Ent	2-lane undivided	HSM Ch. 12, 2U SPF
AMS Ent	SE Atlantic Ridge Dr	2-lane undivided	HSM Ch. 12, 2U SPF
SE Atlantic Ridge Dr	SE Legacy Cove Cir	2-lane undivided	HSM Ch. 12, 2U SPF
SE Legacy Cove Cir	Cove Royale Dev. Rd	2-lane undivided	HSM Ch. 12, 2U SPF
Cove Royale Dev. Rd	SE Ault Ave	2-lane undivided	HSM Ch. 12, 2U SPF
SE Ault Ave	Aquarius Dev. Rd	2-lane undivided	HSM Ch. 12, 2U SPF
Aquarius Dev. Rd	SE Willoughby Blvd	2-lane undivided	HSM Ch. 12, 2U SPF
SE Willoughby Blvd	SE Northgate Dr	2-lane undivided	HSM Ch. 12, 2U SPF
SE Northgate Dr	Montego Cove	2-lane undivided	HSM Ch. 12, 2U SPF
Montego Cove	SE Cable Dr	2-lane undivided	HSM Ch. 12, 2U SPF
SE Cable Dr	SR 5	4-lane divided	HSM Ch. 12, 4D SPF

**Table 8-4**  
**Design Year 2045 No-Build Intersections HSM Safety Analysis Method**

Intersection	Control Type	# legs	SPF
SR 76 (Kanner Highway)	signalized	3	3SG
SW Gaines Avenue	unsignalized stop	3	3ST
SE Tres Belle Circle	unsignalized stop	4	4ST
Anderson Middle School entrance	unsignalized stop	3	3ST
SE Atlantic Ridge Drive	signalized	3	3SG
SE Legacy Cove Circle	unsignalized stop	4	4SG
Cove Royale Dev. Road	unsignalized stop	3	3ST
SE Ault Avenue	unsignalized stop	3	3ST
Aquarius Dev. Road	unsignalized stop	3	3ST
SE Willoughby Boulevard	signalized	4	4SG
SE Northgate Drive	unsignalized stop	3	3ST
Montego Cove	unsignalized stop	3	3ST
SE Cable Drive	unsignalized stop	4	4ST
SR 5/US 1 (Federal Highway)	signalized	4	4SG

HSM inputs for No-Build segments and intersections reflected existing conditions documented during data collection.

## 8.2 Build Alternatives

As previously described in Section 4.2 Build Alternatives, the PD&E study has divided the project into two segments, each with different typical sections alternatives. Evaluation Segment 1 extends from SR 76 to Avalon Drive and includes two alternatives (1A and 1B). Evaluation Segment 2 extends from Avalon Drive to SR 5 (US 1) and includes 4 alternatives (2A, 2B, 2C, and 2D). These evaluation segments are not to be confused with HSM analysis segmentation. The typical sections associated with each of these alternatives are summarized in Section 4.2. Alternatives 2A and 2B were run as a single HSM analysis because their inputs are the same. The evaluation segment alternatives result in 6 separate combinations of Build alternatives for HSM analysis.

All future Build alternatives were analyzed using the HSM Chapter 12, four-lane divided (4D) SPF. Homogenous segments for the opening year and design year Build alternatives HSM analysis matched the segmentation shown in **Tables 8-1 and 8-3**, used for No-Build runs. The only exception is that the separation between Evaluation Segments 1 and 2 at Avalon Drive is between SE Northgate Drive and Montego Cove, requiring the segment between these two intersections to be divided into two parts, one representing the typical section for Evaluation Segment 1 and the other representing the typical section for Evaluation Segment 2.

**Table 8-5** presents the HSM segment inputs that were used for the future Build alternatives.

**Table 8-5**  
**HSM Analysis Inputs for Build Alternatives**

Build Runs	Evaluation Segment 1	Inputs (Median Width, Speed, Offset to Roadside Fixed Objects)	Evaluation Segment 2	Inputs (Median Width, Speed, Offset to Roadside Fixed Objects)
1	1A	20' median, 35 mph or higher, 28' offset	2A/2B	20' median, 35 mph or higher, 22' offset
2	1A	20' median, 35 mph or higher, 28' offset	2C best fit	15' median, 35 mph or higher, 22' offset
3	1A	20' median, 35 mph or higher, 28' offset	2D minimized	15' median, 35 mph or higher, 16' offset
4	1B	20' median, 35 mph or higher, 26' offset	2A/2B	20' median, 35 mph or higher, 22' offset
5	1B	20' median, 35 mph or higher, 26' offset	2C best fit	15' median, 35 mph or higher, 22' offset
6	1B	20' median, 35 mph or higher, 26' offset	2D minimized	15' median, 35 mph or higher, 16' offset

Recommended intersection configurations and intersection improvements developed through the traffic operational analysis were reflected in the Build alternatives safety analysis. All intersections were analyzed using the same intersection control type as the No-Build alternatives, as shown in **Tables 8-2 and 8-4**.

The Ault Avenue intersection is being considered as a future roundabout. HSM analysis does not currently support a roundabout alternative; therefore, the intersection was modeled as a stop-controlled intersection, consistent with the PTAR.

Note also that several intersections are being considered as future directional median openings. The HSM spreadsheets do not provide a way of differentiating between a full median opening and a directional median opening for a stop-controlled intersection.

## Section 9.0

# HSM Analysis Results

A comparison of safety performance measures resulting from each of the future alternatives analyzed is presented, including predicted average crash frequency by crash severity (total crashes, fatal and injury crashes, and property damage only (PDO) crashes).

The HSM spreadsheet for Chapter 12: Urban and Suburban Arterials (2-5 lanes) was compared for each alternative. The HSM analysis can be found in **Appendix E**. The results are displayed in **Table 9-1** for Opening Year 2025 and **Table 9-2** for Design Year 2045.

**Table 9-1**  
**HSM Safety Analysis Results**  
**Opening Year 2025**

Alternative	Predicted Average Crash Frequency (Crashes/Year)		
	Total	Fatal & Severe Injury	Property Damage Only
No-Build	75.2	23.7	51.5
Build Alternative 1 (Segment 1A, Segment 2A/B)	67.0	21.3	45.7
Build Alternative 2 (Segment 1A, Segment 2C best fit)	67.6	21.4	46.2
Build Alternative 3 (Segment 1A, Segment 2D minimized)	67.7	21.4	46.3
Build Alternative 4 (Segment 1B, Segment 2A/B)	67.6	21.4	46.2
Build Alternative 5 (Segment 1B, Segment 2C best fit)	67.6	21.4	46.2
Build Alternative 6 (Segment 1 B, Segment 2D minimized)	67.7	21.5	46.3

**Table 9-2**  
**HSM Safety Analysis Results**  
**Design Year 2045**

Alternative	Predicted Average Crash Frequency (Crashes/Year)		
	Total	Fatal & Severe Injury	Property Damage Only
No-Build	95.2	29.6	65.6
Build Alternative 1 (Segment 1A, Segment 2A/B)	90.7	28.5	62.3
Build Alternative 2 (Segment 1A, Segment 2C best fit)	90.8	28.5	62.3
Build Alternative 3 (Segment 1A, Segment 2D minimized)	90.9	28.6	62.4
Build Alternative 4 (Segment 1B, Segment 2A/B)	90.9	28.6	62.4
Build Alternative 5 (Segment 1B, Segment 2C best fit)	91.0	28.6	62.4
Build Alternative 6 (Segment 1 B, Segment 2D minimized)	91.1	28.6	62.5

The Ault Avenue intersection is being considered as a future roundabout. Although the HSM analysis does not currently support a roundabout alternative, HSM Section 12.9 does provide an interim predictive method for roundabouts through application of a 0.56 crash modification factor (CMF) for conversion of a two-way stop-controlled intersection to a modern

roundabout, demonstrating that even greater safety benefits will be achieved with Build alternatives if Ault Avenue is in fact constructed as a roundabout rather than a stop-controlled intersection.

Several intersections are being considered as future directional median openings. The current HSM does not provide a CMF for this conversion for arterials less than 34,000 AADT; however, increased safety benefits are expected, similar to higher volume arterials.

The HSM analysis for all Build alternatives yielded comparable results, with the total predicted average crash frequency for the alternatives ranging from 67.0 to 67.7 crashes per year for Opening Year 2025, and 90.7 to 91.1 crashes per year for Design Year 2045. The No-Build alternatives were higher in comparison to the Build alternatives, with the Opening Year 2025 No-Build option indicating a total predicted average crash frequency of 75.2 crashes per year, which increased to 95.2 crashes per year in Design Year 2045.

The Build alternative with the least predicted crashes per year was Build Alternative 1 which included the Segment 1A and Segment 2 A/B design options. In Opening Year 2025, this alternative yielded a total predicted average crash frequency of 67.0 crashes per year, with 21.3 fatal and severe injury crashes and 45.7 property damage only crashes. In Design Year 2045, the total average crash frequency is 90.7 crashes per year, with 28.5 fatal and severe injury crashes and 62.3 property damage only crashes.

When compared to the No-Build alternative, Build Alternative 1 reduced the predicted average crash frequency by 8.2 crashes per year in Opening Year 2025, and by 4.5 crashes per year in Design Year 2045. It is important to note that these results are the crash reduction per year, meaning that for the first year after the roadway improvements are completed, 8.2 fewer crashes are predicted. As traffic volumes increase between the opening and design year, crash reduction compared to the no-build condition is predicted to decrease to 4.5 crashes per year in 2045. However, crash reduction is predicted to range from 8.2 to 4.5 crashes per year for each of the 20 years between opening year and design year.

Fatal and severe injury crashes are predicted to be reduced by 2.4 crashes in the opening year and 1.1 crash in the design year, but with fatal and severe injury crash reduction ranging between 2.4 and 1.1 crashes per year for each of the 20 years between opening year and design year. Considering that per FDM Table 122.6.2, the comprehensive crash cost of a single fatal crash is \$10,890,000 and a single severe injury is \$888,030, a 1.1 to 2.4 annual reduction of fatal and severe injury crash for 20 years with the Build alternative is a great benefit. In addition, we must not lose sight that these numbers represent people - a person's life saved or prevented from a severe injury.

The HSM safety analysis results show that all Build alternatives provide safety benefits in terms of crash reduction over the No-Build alternative for both the opening and design year. Build Alternative 1 is predicted to provide the greatest safety benefit overall compared to the other Build alternatives.

## Appendix A

### Approved Project Safety Methodology

# Cove Road Project Development and Environment (PD&E)

## Safety Analysis Methodology

FPID No. 441700-1-22-01

Martin County

Prepared for:

Florida Department of Transportation, District Four



Prepared by:

Inwood Consulting Engineers, Inc.



March 2023

## **Cove Road PD&E Study Safety Analysis Methodology**

### **Analysis Overview**

This safety analysis methodology describes the safety analysis that will be conducted for the Cove Road PD&E Study from SR 76 (Kanner Highway) to SR 5/US 1 (Federal Highway). It includes the timeframes of analysis, alternatives to be analyzed, sources of data, and the procedures and tools that will be used to quantitatively describe safety outcomes for existing conditions and future alternatives analysis.

#### Purpose and Need

The Purpose and Need statement contained within the ETDM Summary Report identifies the primary purpose for the widening of Cove Road is to add capacity and improve the transportation network. Additional elements include support for economic and social demands, enhanced multimodal connectivity, and improved emergency evacuation. Although safety is not identified in the purpose and need statement, the safety analysis will independently identify any safety concerns based on both historical crash data and future year predictive analysis for No-Build conditions.

#### Analysis Years

Safety analysis will be conducted for the following years:

- Historical Crash Analysis (5 full years, 2018-2022)
- Existing Year 2021
- Opening Year (OY) 2025
- Design Year (DY) 2045

### **Data Sources and Needs**

#### Historical Crash Data

Crash data will be obtained for the five years of 2018 through 2022 from Signal Four Analytics, the FDOT CAR System, and FDOT SSOGIS, with duplicate and parking lot crashes removed.

Crash data will be obtained for the full Cove Road project limits, from SR 76 (Kanner Highway) on the west end to SR 5/US 1 (Federal Highway) on the east. Crash data at intersections will include 250 feet along cross streets; however, for the SR 76 and SR 5/US 1 intersections the crash data will be collected to extend further than 250 feet to include the full functional area of each intersection.

#### Roadway Characteristics

Since Cove Road is not a state roadway, a straight line diagram with roadway characteristics is not available. All existing roadway characteristics needed to complete HSM segment and intersection analysis will be documented on FDOT Manual on Uniform Traffic Studies (MUTS) data collection forms. Characteristics will be initially gathered through a desktop review of existing aerial photography (Google Earth) and street views. The inputs into the data collection forms will then be confirmed and verified through field observations.

### Traffic Volumes

Daily traffic volumes (AADTs) to be used in the HSM analysis will be the same as used for the traffic operational analysis and as provided in the FDOT Pre-Work for Cove Road PD&E document.

### Historical Crash Analysis

The safety analysis will include a comparison of corridor-wide crash frequency and severity, crash types, any crash patterns, contributing causes, and clusters of crashes or crash “hot-spots”. A variety of graphs and tables will be created to display the results of the analysis.

Segment and intersection crash rates will be calculated and compared to statewide averages, with locations that exceed state averages identified. For segments or intersections where the calculated average crash rate is significantly higher than the statewide average, further analysis and evaluation will be conducted.

Segmentation for the purpose of calculating crashes rates will be determined based on the roadway type and variations of the existing (2021) AADT based on the Pre-Work for Cove Road PD&E document provided by FDOT, dated October 2022.

The following segmentation is proposed for the calculation of segment crash rates and comparison to statewide averages:

Table 1: Proposed Segmentation for Calculation of Existing Segment Crash Rates

Cove Road		Average Crash Rate Category	Segment Length (Mi) <sup>1</sup>	2021 AADT <sup>2</sup>
From	To			
SR 76	SW Gaines Ave	Suburban 4-5Ln 2Wwy Divd Rasd	0.176	16,000
SW Gaines Ave	SE Tres Belle Cir	Suburban 2-3Ln 2Wwy Divd Pavd	0.190	15,500
SE Tres Belle Cir	AMS Ent	Suburban 2-3Ln 2Wwy Undivd	0.445	15,500
AMS Ent	SE Atlantic Ridge Dr	Suburban 2-3Ln 2Wwy Divd Pavd	0.232	15,500
SE Atlantic Ridge Dr	SE Legacy Cove Cir	Suburban 2-3Ln 2Wwy Divd Pavd	0.274	16,000
SE Legacy Cove Cir	SE Ault Ave	Suburban 2-3Ln 2Wwy Divd Pavd	0.303	16,500
SE Ault Ave	SE Willoughby Blvd	Suburban 2-3Ln 2Wwy Undivd	0.521	16,000
SE Willoughby Blvd	SE Cable Dr	Suburban 2-3Ln 2Wwy Undivd	0.952	17,500
SE Cable Dr	SR 5	Suburban 4-5Ln 2Wwy Divd Rasd	0.087	17,500

- 1 Segment lengths measured in Google Earth Pro and total 3.180 mi
- 2 Source: FDOT Pre-Work for Cove Road PD&E, October 2022

Intersection crash rates will be calculated for the following intersections:

- SR 76 (Kanner Highway)
- SW Gaines Avenue (east)
- SE Tres Belle Circle
- Anderson Middle School entrance
- SE Atlantic Ridge Drive
- SE Legacy Cove Circle

- SE Ault Avenue
- SE Willoughby Boulevard
- SE Northgate Drive
- Montego Cove
- SE Cable Drive
- SR 5/US 1 (Federal Highway)

## Highway Safety Manual (HSM) Safety Analysis

The HSM Predictive Method will be used to calculate predicted crashes for each of the alternatives using procedures outlined in HSM Chapter 12, Urban and Suburban Arterials.

### Years and Alternatives for Analysis

HSM safety analysis will be conducted for the following years and alternatives:

- Existing Year 2021
- No-Build, OY & DY
- Build Alternative 1 (4-lane divided), OY & DY
- Build Alternative 2 (4-lane divided), OY & DY

### Safety Performance Functions (SPFs)

The following HSM Chapter 12 safety performance functions (SPFs) will be applied to the Cove Road project: two-lane undivided arterial (2U) and four-lane divided arterial (4D).

A two-lane undivided arterial (2U) is defined as a roadway consisting of two lanes with a continuous cross-section providing two directions of travel in which the lanes are not physically separate by either distance or a barrier.

There are sections of Cove Road where the two-lane undivided roadway widens to allow for the development of left turn lanes at intersections. There are also sections where the eastbound and westbound travel lanes are separated by a painted median. Since there is no SPF for two-lane divided arterials, and a search of applicable crash modification factors (CMFs) also resulted in no applicable studies, the two-lane undivided arterial (2U) SPF will be applied to all segments of Cove Road with two travel lanes.

It is proposed to use the four-lane divided arterials (4D) SPF for the following conditions:

- existing conditions/future No-Build between SR 75 and SW Gaines Avenue (east)
- existing conditions/future No-Build between SE Cable Road and SR 5
- future Build alternatives

### Tools

Highway Safety Manual (HSM) Spreadsheets for Urban and Suburban Multilane Arterials will be used to conduct the HSM predictive method.

### Calibration Factors

Calibration factors will be obtained from the 2023 FDM Table 122.6.3, HSM Calibration Factors for Florida.

## Existing Conditions Analysis

In addition to the historical safety analysis, the Potential for Safety Improvement (PSI) Analysis will be conducted using HSM procedures with Empirical Bayes (EB) to compare the predicted average crash frequency to the expected average crash frequency, and to determine whether safety should be added to the purpose and need statement for the project.

### Segmentation

The following segmentation into homogeneous segments is proposed for the existing PSI Analysis.

Table 2: Existing Conditions HSM Safety Analysis Segmentation and Method

Cove Road		Roadway Type	Analysis Method
From	To		
SR 76	SW Gaines Ave	4-lane divided	HSM Ch. 12, 4D SPF
SW Gaines Ave	SE Tres Belle Cir	2-lane undivided	HSM Ch. 12, 2U SPF
SE Tres Belle Cir	AMS Ent	2-lane undivided	HSM Ch. 12, 2U SPF
AMS Ent	SE Atlantic Ridge Dr	2-lane undivided	HSM Ch. 12, 2U SPF
SE Atlantic Ridge Dr	SE Legacy Cove Cir	2-lane undivided	HSM Ch. 12, 2U SPF
SE Legacy Cove Cir	SE Ault Ave	2-lane undivided	HSM Ch. 12, 2U SPF
SE Ault Ave	SE Willoughby Blvd	2-lane undivided	HSM Ch. 12, 2U SPF
SE Willoughby Blvd	SE Northgate Dr	2-lane undivided	HSM Ch. 12, 2U SPF
SE Northgate Dr	Montego Cove	2-lane undivided	HSM Ch. 12, 2U SPF
Montego Cove	SE Cable Dr	2-lane undivided	HSM Ch. 12, 2U SPF
SE Cable Dr	SR 5	4-lane divided	HSM Ch. 12, 4D SPF

### Intersections

The following intersections between segments will be included in the existing conditions analysis using the listed SPFs. It should be noted that construction is currently underway at the SE Willoughby Boulevard and is planned for the SE Tres Belle Circle intersection, which will add a fourth leg to each. For existing conditions PSI analysis, these intersections will be analyzed as three-leg intersections since the historical crash data is based on these configurations.

Table 3: Existing Conditions Intersections HSM Safety Analysis Method

Intersection	Control Type	# legs	SPF
SR 76 (Kanner Highway)	signalized	3	3SG
SW Gaines Avenue	unsignalized stop	3	3ST
SE Tres Belle Circle	unsignalized stop	3	3ST
Anderson Middle School entrance	unsignalized stop	3	3ST
SE Atlantic Ridge Drive	signalized	3	3SG
SE Legacy Cove Circle	unsignalized stop	4	4SG
SE Ault Avenue	unsignalized stop	3	3ST
SE Willoughby Boulevard	signalized	3	3SG
SE Northgate Drive	unsignalized stop	3	3ST
Montego Cove	unsignalized stop	3	3ST
SE Cable Drive	unsignalized stop	4	4ST
SR 5/US 1 (Federal Highway)	signalized	4	4SG

## HSM Future Conditions Analysis

The Predictive Method will be used to evaluate the future No-Build (for segments with an SPF) and future Build alternatives. The Empirical Bayes (EB) method will not be used because new lanes will be added for the Build alternatives.

### No Build Alternative

The Predictive Method will be used to analyze the No-Build alternative. The opening year 2025 No-Build analysis will include the addition of the Cove Royale Development Road intersection to the east of SE Legacy Cove Circle. It will also include the addition of the fourth leg to the SE Willoughby Boulevard signalized intersection. Additions for the design year 2045 No-Build analysis will include the PulteAquarius Development Road intersection to the east of SE Ault Avenue. It will also include the addition of the fourth leg to the SE Tres Belle Circle intersection.

The following tables depict the segmentation and method of analysis proposed. Highlighted cells indicate the differences from existing conditions.

Table 4: Opening Year 2025 No-Build HSM Safety Analysis Segmentation and Method

Cove Road		Rdwy Type	Analysis Method
From	To		
SR 76	SW Gaines Ave	4-lane divided	HSM Ch. 12, 4D SPF
SW Gaines Ave	SE Tres Belle Cir	2-lane undivided	HSM Ch. 12, 2U SPF
SE Tres Belle Cir	AMS Ent	2-lane undivided	HSM Ch. 12, 2U SPF
AMS Ent	SE Atlantic Ridge Dr	2-lane undivided	HSM Ch. 12, 2U SPF
SE Atlantic Ridge Dr	SE Legacy Cove Cir	2-lane undivided	HSM Ch. 12, 2U SPF
SE Legacy Cove Cir	Cove Royale Dev. Rd	2-lane undivided	HSM Ch. 12, 2U SPF
Cove Royale Dev. Rd	SE Ault Ave	2-lane undivided	HSM Ch. 12, 2U SPF
SE Ault Ave	SE Willoughby Blvd	2-lane undivided	HSM Ch. 12, 2U SPF
SE Willoughby Blvd	SE Northgate Dr	2-lane undivided	HSM Ch. 12, 2U SPF
SE Northgate Dr	Montego Cove	2-lane undivided	HSM Ch. 12, 2U SPF
Montego Cove	SE Cable Dr	2-lane undivided	HSM Ch. 12, 2U SPF
SE Cable Dr	SR 5	4-lane divided	HSM Ch. 12, 4D SPF

Table 5: Opening Year 2025 No-Build Intersections HSM Analysis Method

Intersection	Control Type	# legs	SPF
SR 76 (Kanner Highway)	signalized	3	3SG
SW Gaines Avenue	unsignalized stop	3	3ST
SE Tres Belle Circle	unsignalized stop	3	3ST
Anderson Middle School entrance	unsignalized stop	3	3ST
SE Atlantic Ridge Drive	signalized	3	3SG
SE Legacy Cove Circle	unsignalized stop	4	4SG
Cove Royale Dev. Road	assume unsignalized stop	3	3ST
SE Ault Avenue	unsignalized stop	3	3ST
SE Willoughby Boulevard	signalized	4	4SG
SE Northgate Drive	unsignalized stop	3	3ST
Montego Cove	unsignalized stop	3	3ST
SE Cable Drive	unsignalized stop	4	4ST
SR 5/US 1 (Federal Highway)	signalized	4	4SG

Table 6: Design Year 2045 No-Build HSM Safety Analysis Segmentation and Method

Cove Road		Rdwy Type	Analysis Method
From	To		
SR 76	SW Gaines Ave	4-lane divided	HSM Ch. 12, 4D SPF
SW Gaines Ave	SE Tres Belle Cir	2-lane undivided	HSM Ch. 12, 2U SPF
SE Tres Belle Cir	AMS Ent	2-lane undivided	HSM Ch. 12, 2U SPF
AMS Ent	SE Atlantic Ridge Dr	2-lane undivided	HSM Ch. 12, 2U SPF
SE Atlantic Ridge Dr	SE Legacy Cove Cir	2-lane undivided	HSM Ch. 12, 2U SPF
SE Legacy Cove Cir	Cove Royale Dev. Rd	2-lane undivided	HSM Ch. 12, 2U SPF
Cove Royale Dev. Rd	SE Ault Ave	2-lane undivided	HSM Ch. 12, 2U SPF
SE Ault Ave	PulteAquarius Dev. Rd	2-lane undivided	HSM Ch. 12, 2U SPF
PulteAquarius Dev. Rd	SE Willoughby Blvd	2-lane undivided	HSM Ch. 12, 2U SPF
SE Willoughby Blvd	SE Northgate Dr	2-lane undivided	HSM Ch. 12, 2U SPF
SE Northgate Dr	Montego Cove	2-lane undivided	HSM Ch. 12, 2U SPF
Montego Cove	SE Cable Dr	2-lane undivided	HSM Ch. 12, 2U SPF
SE Cable Dr	SR 5	4-lane divided	HSM Ch. 12, 4D SPF

Table 7: Design Year 2045 No-Build Intersections HSM Safety Analysis Method

Intersection	Control Type	# legs	SPF
SR 76 (Kanner Highway)	signalized	3	3SG
SW Gaines Avenue	unsignalized stop	3	3ST
SE Tres Belle Circle	unsignalized stop	4	4ST
Anderson Middle School entrance	unsignalized stop	3	3ST
SE Atlantic Ridge Drive	signalized	3	3SG
SE Legacy Cove Circle	unsignalized stop	4	4SG
Cove Royale Dev. Road	assume unsignalized stop	3	3ST
SE Ault Avenue	unsignalized stop	3	3ST
PulteAquarius Dev. Road	assume unsignalized stop	3	3ST
SE Willoughby Boulevard	signalized	4	4SG
SE Northgate Drive	unsignalized stop	3	3ST
Montego Cove	unsignalized stop	3	3ST
SE Cable Drive	unsignalized stop	4	4ST
SR 5/US 1 (Federal Highway)	signalized	4	4SG

### Build Alternatives

All future Build alternatives will be analyzed using the HSM Chapter 12, four-lane divided (4D) SPF. Future Build alternatives analysis will be separated into homogeneous segments based on differences in the projected AADTs, but also upon the features proposed for each of the Build alternatives as a result of the historical safety analysis and future year typical sections.

Recommended intersection configurations and intersection improvements developed through the ICE and traffic operational analysis will be reflected in the Build alternatives safety analysis.

A comparison of safety performance measures resulting from each of the future alternatives analyzed will be presented, including predicted average crash frequency by crash severity (total crashes, fatal and injury crashes, and property damage only (PDO) crashes).

### Documentation

The safety analysis and results, conclusions, and recommendations will be documented in a Safety Analysis Memorandum that will be referenced the PTAR.

Appendix B  
HSM Existing Conditions Data Collection Forms

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

URBAN/SUBURBAN ROADWAY INTERSECTION FOR 6 TO 8 LANES AND ONE-WAY ON THE MAJOR STREET DATA COLLECTION

General Analysis Information		Site Information	
Intersection Number	<u>1</u>	Roadway Name	<u>Cove Road</u>
Intersection Name	<u>SR 76/SW Kanner Hwy</u>	Location	<u>Martin County</u>
Analysis Year	<u>2021</u>	Project Number	<u>441700-1-22-02</u>

**Notes**

1) Values in this spreadsheet may be copied and pasted directly into NCHRP 17-58 spreadsheets which are available from FDOT Safety Office upon request. Note that only values and not formulas should be copied.

**Field Data Collection**

*Intersection Data*

Area type	Suburban
Number of legs	3
Traffic control type	Signalized
Lighting present?	Present
Red-light cameras present?	Not Present
Daily pedestrian volume crossing all legs	20
Maximum number of lanes by a pedestrian	7
Number of bus stops within 1,000 feet of the intersection	0
Schools present within 1,000 feet of the intersection	Not Present
Number of alcohol sales establishments within 1,000 feet of the intersection	0

*Street Data*

	Major	Minor
Street Configuration	Two-way	Two-way
Annual Average Daily Traffic (AADT)	54,000	16,000
Number of through lanes	6	4
Number of approaches with left-turn lanes	2	1
Number of left-turn movements with protected phasing	2	1
Number of right-turn movements prohibited on red	0	0
Number of U-turn movements prohibited	0	0
Number of approaches with right-turn channelization	0	0

**URBAN/SUBURBAN ARTERIAL INTERSECTION FOR 2 TO 5 LANES ON THE MAJOR ST DATA COLLECTION**

General Analysis Information		Site Information	
Intersection Number	<u>2</u>	Roadway Name	<u>Cove Rd</u>
Intersection Name	<u>SW Gaines Ave</u>	Location	<u>Martin County</u>
Analysis Year	<u>2021</u>	Project Number	<u>441700-1-22-02</u>

**Notes**

1) Values in this spreadsheet may be copied and pasted directly into NCHRP 17-38 spreadsheets which are available from FDOT Safety Office upon request. Note that only values, and not formulas should be copied.

2) 3ST= 3 leg stop control, 3SG= 3 leg signalized, 4ST = 4 leg stop control, 4SG = 4 leg signalized

**Field Data Collection**

Intersection type (3ST, 3SG, 4ST, 4SG)

AADT<sub>major</sub> (veh/day) AADT<sub>MAX</sub> = 45,700 h/day)AADT<sub>minor</sub> (veh/day) AADT<sub>MAX</sub> = 9,300 h/day)

Intersection lighting (present/not present)

Calibration factor, C<sub>i</sub>**Data for unsignalized intersections only:**

Number of major-road approaches with left-turn lanes (0,1,2)

Number of major-road approaches with right-turn lanes (0,1,2)

**Data for signalized intersections only:**Number of approaches with left-turn lanes (0,1,2,3,4)  
[for 3SG, use maximum value of 3]Number of approaches with right-turn lanes (0,1,2,3,4)  
[for 3SG, use maximum value of 3]Number of approaches with left-turn signal phasing  
[for 3SG, use maximum value of 3]

Type of left-turn signal phasing for Leg #1

Type of left-turn signal phasing for Leg #2

Type of left-turn signal phasing for Leg #3

Type of left-turn signal phasing for Leg #4 (if applicable)

Number of approaches with right-turn-on-red prohibited  
[for 3SG, use maximum value of 3]

Intersection red light cameras (present/not present)

Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only

Maximum number of lanes crossed by a pedestrian (n<sub>lanesx</sub>)

Number of bus stops within 300 m (1,000 ft) of the intersection

Schools within 300 m (1,000 ft) of the intersection (present/not present)

Number of alcohol sales establishments within 1,000 ft of the intersection

**URBAN/SUBURBAN ARTERIAL INTERSECTION FOR 2 TO 5 LANES ON THE MAJOR ST DATA COLLECTION**

General Analysis Information		Site Information	
Intersection Number	<u>3</u>	Roadway Name	<u>Cove Road</u>
Intersection Name	<u>SE Tres Belle Cir</u>	Location	<u>Martin County</u>
Analysis Year	<u>2021</u>	Project Number	<u>441700-1-22-01</u>

**Notes**

1) Values in this spreadsheet may be copied and pasted directly into NCHRP 17-38 spreadsheets which are available from FDOT Safety Office upon request. Note that only values, and not formulas should be copied.

2) 3ST= 3 leg stop control, 3SG= 3 leg signalized, 4ST = 4 leg stop control, 4SG = 4 leg signalized

**Field Data Collection**

Intersection type (3ST, 3SG, 4ST, 4SG)

AADT<sub>major</sub> (veh/day)      AADT<sub>MAX</sub> = 45,700 h/day)AADT<sub>minor</sub> (veh/day)      AADT<sub>MAX</sub> = 9,300 h/day)

Intersection lighting (present/not present)

Calibration factor, C<sub>i</sub>**Data for unsignalized intersections only:**

Number of major-road approaches with left-turn lanes (0,1,2)

Number of major-road approaches with right-turn lanes (0,1,2)

**Data for signalized intersections only:**Number of approaches with left-turn lanes (0,1,2,3,4)  
[for 3SG, use maximum value of 3]Number of approaches with right-turn lanes (0,1,2,3,4)  
[for 3SG, use maximum value of 3]Number of approaches with left-turn signal phasing  
[for 3SG, use maximum value of 3]

Type of left-turn signal phasing for Leg #1

Type of left-turn signal phasing for Leg #2

Type of left-turn signal phasing for Leg #3

Type of left-turn signal phasing for Leg #4 (if applicable)

Number of approaches with right-turn-on-red prohibited  
[for 3SG, use maximum value of 3]

Intersection red light cameras (present/not present)

Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only

Maximum number of lanes crossed by a pedestrian (n<sub>lanesx</sub>)

Number of bus stops within 300 m (1,000 ft) of the intersection

Schools within 300 m (1,000 ft) of the intersection (present/not present)

Number of alcohol sales establishments within 1,000 ft of the intersection

**URBAN/SUBURBAN ARTERIAL INTERSECTION FOR 2 TO 5 LANES ON THE MAJOR ST DATA COLLECTION**

General Analysis Information		Site Information	
Intersection Number	<b>4</b>	Roadway Name	<b>Cove Rd</b>
Intersection Name	<b>AMS Ent</b>	Location	<b>Martin County</b>
Analysis Year	<b>2021</b>	Project Number	<b>441700-1-22-02</b>

**Notes**

- 1) Values in this spreadsheet may be copied and pasted directly into NCHRP 17-38 spreadsheets which are available from FDOT Safety Office upon request. Note that only values, and not formulas should be copied.
- 2) 3ST= 3 leg stop control, 3SG= 3 leg signalized, 4ST = 4 leg stop control, 4SG = 4 leg signalized

**Field Data Collection**

Intersection type (3ST, 3SG, 4ST, 4SG)	3ST
AADT <sub>major</sub> (veh/day)      AADT <sub>MAX</sub> = 45,700 h/day)	15,500
AADT <sub>minor</sub> (veh/day)      AADT <sub>MAX</sub> = 9,300 h/day)	200
Intersection lighting (present/not present)	Not Present
Calibration factor, C <sub>i</sub>	1.14

**Data for unsignalized intersections only:**

Number of major-road approaches with left-turn lanes (0,1,2)	1
Number of major-road approaches with right-turn lanes (0,1,2)	1

**Data for signalized intersections only:**

Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]	
Type of left-turn signal phasing for Leg #1	
Type of left-turn signal phasing for Leg #2	
Type of left-turn signal phasing for Leg #3	
Type of left-turn signal phasing for Leg #4 (if applicable)	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]	
Intersection red light cameras (present/not present)	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only	
Maximum number of lanes crossed by a pedestrian (n <sub>lanesx</sub> )	
Number of bus stops within 300 m (1,000 ft) of the intersection	
Schools within 300 m (1,000 ft) of the intersection (present/not present)	
Number of alcohol sales establishments within 1,000 ft of the intersection	

**URBAN/SUBURBAN ARTERIAL INTERSECTION FOR 2 TO 5 LANES ON THE MAJOR ST DATA COLLECTION**

General Analysis Information		Site Information	
Intersection Number	<u>5</u>	Roadway Name	<u>Cove Rd</u>
Intersection Name	<u>SE Atlantic Ridge Dr</u>	Location	<u>Martin County</u>
Analysis Year	<u>2021</u>	Project Number	<u>441700-1-22-02</u>

**Notes**

1) Values in this spreadsheet may be copied and pasted directly into NCHRP 17-38 spreadsheets which are available from FDOT Safety Office upon request. Note that only values, and not formulas should be copied.

2) 3ST= 3 leg stop control, 3SG= 3 leg signalized, 4ST = 4 leg stop control, 4SG = 4 leg signalized

**Field Data Collection**

Intersection type (3ST, 3SG, 4ST, 4SG)

3SG

AADT<sub>major</sub> (veh/day) AADT<sub>MAX</sub> = 58,100 h/day)

16,000

AADT<sub>minor</sub> (veh/day) AADT<sub>MAX</sub> = 16,400 h/day)

1,800

Intersection lighting (present/not present)

Not Present

Calibration factor, C<sub>i</sub>

2.50

**Data for unsignalized intersections only:**

Number of major-road approaches with left-turn lanes (0,1,2)

Number of major-road approaches with right-turn lanes (0,1,2)

**Data for signalized intersections only:**Number of approaches with left-turn lanes (0,1,2,3,4)  
[for 3SG, use maximum value of 3]

2

Number of approaches with right-turn lanes (0,1,2,3,4)  
[for 3SG, use maximum value of 3]

2

Number of approaches with left-turn signal phasing  
[for 3SG, use maximum value of 3]

2

Type of left-turn signal phasing for Leg #1 (EB)

Not Applicable

Type of left-turn signal phasing for Leg #2 (WB)

Protected / Permissive

Type of left-turn signal phasing for Leg #3 (NB)

Permissive

Type of left-turn signal phasing for Leg #4 (if applicable)

Not Applicable

Number of approaches with right-turn-on-red prohibited  
[for 3SG, use maximum value of 3]

0

Intersection red light cameras (present/not present)

Not Present

Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only

120

Maximum number of lanes crossed by a pedestrian (n<sub>lanesx</sub>)

4

Number of bus stops within 300 m (1,000 ft) of the intersection

0

Schools within 300 m (1,000 ft) of the intersection (present/not present)

Present

Number of alcohol sales establishments within 1,000 ft of the intersection

0

**URBAN/SUBURBAN ARTERIAL INTERSECTION FOR 2 TO 5 LANES ON THE MAJOR ST DATA COLLECTION**

General Analysis Information		Site Information	
Intersection Number	<b>6</b>	Roadway Name	<b>Cove Rd</b>
Intersection Name	<b>SE Legacy Cove Rd</b>	Location	<b>Martin County</b>
Analysis Year	<b>2021</b>	Project Number	<b>441700-1-22-02</b>
<b>Notes</b>			
1) Values in this spreadsheet may be copied and pasted directly into NCHRP 17-38 spreadsheets which are available from FDOT Safety Office upon request. Note that only values, and not formulas should be copied.			
2) 3ST= 3 leg stop control, 3SG= 3 leg signalized, 4ST = 4 leg stop control, 4SG = 4 leg signalized			
<b>Field Data Collection</b>			
Intersection type (3ST, 3SG, 4ST, 4SG)		4SG	
AADT <sub>major</sub> (veh/day)	AADT <sub>MAX</sub> = 67,700 h/day)	16,500	
AADT <sub>minor</sub> (veh/day)	AADT <sub>MAX</sub> = 33,400 h/day)	750	
Intersection lighting (present/not present)		Not Present	
Calibration factor, C <sub>i</sub>		2.27	
<b>Data for unsignalized intersections only:</b>			
Number of major-road approaches with left-turn lanes (0,1,2)			
Number of major-road approaches with right-turn lanes (0,1,2)			
<b>Data for signalized intersections only:</b>			
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]		3	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]		3	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]		4	
Type of left-turn signal phasing for Leg #1 (EB)		Protected / Permissive	
Type of left-turn signal phasing for Leg #2 (WB)		Protected / Permissive	
Type of left-turn signal phasing for Leg #3 (NB)		Permissive	
Type of left-turn signal phasing for Leg #4 (SB)		Permissive	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]		0	
Intersection red light cameras (present/not present)		Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only		240	
Maximum number of lanes crossed by a pedestrian (n <sub>lanesx</sub> )		4	
Number of bus stops within 300 m (1,000 ft) of the intersection		0	
Schools within 300 m (1,000 ft) of the intersection (present/not present)		Present	
Number of alcohol sales establishments within 1,000 ft of the intersection		0	

**URBAN/SUBURBAN ARTERIAL INTERSECTION FOR 2 TO 5 LANES ON THE MAJOR ST DATA COLLECTION**

General Analysis Information		Site Information	
Intersection Number	<u>7</u>	Roadway Name	<u>Cove Rd</u>
Intersection Name	<u>SE Ault Ave</u>	Location	<u>Martin County</u>
Analysis Year	<u>2021</u>	Project Number	<u>441700-1-22-02</u>

**Notes**

- 1) Values in this spreadsheet may be copied and pasted directly into NCHRP 17-38 spreadsheets which are available from FDOT Safety Office upon request. Note that only values, and not formulas should be copied.
- 2) 3ST= 3 leg stop control, 3SG= 3 leg signalized, 4ST = 4 leg stop control, 4SG = 4 leg signalized

**Field Data Collection**

Intersection type (3ST, 3SG, 4ST, 4SG)	3ST
AADT <sub>major</sub> (veh/day)      AADT <sub>MAX</sub> = 45,700 h/day)	16,500
AADT <sub>minor</sub> (veh/day)      AADT <sub>MAX</sub> = 9,300 h/day)	1,300
Intersection lighting (present/not present)	Not Present
Calibration factor, C <sub>i</sub>	1.14

**Data for unsignalized intersections only:**

Number of major-road approaches with left-turn lanes (0,1,2)	1
Number of major-road approaches with right-turn lanes (0,1,2)	0

**Data for signalized intersections only:**

Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]	
Type of left-turn signal phasing for Leg #1	
Type of left-turn signal phasing for Leg #2	
Type of left-turn signal phasing for Leg #3	
Type of left-turn signal phasing for Leg #4 (if applicable)	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]	
Intersection red light cameras (present/not present)	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only	
Maximum number of lanes crossed by a pedestrian (n <sub>lanesx</sub> )	
Number of bus stops within 300 m (1,000 ft) of the intersection	
Schools within 300 m (1,000 ft) of the intersection (present/not present)	
Number of alcohol sales establishments within 1,000 ft of the intersection	

**URBAN/SUBURBAN ARTERIAL INTERSECTION FOR 2 TO 5 LANES ON THE MAJOR ST DATA COLLECTION**

General Analysis Information		Site Information	
Intersection Number	<u>8</u>	Roadway Name	<u>Cove Rd</u>
Intersection Name	<u>SE Willoughby Blvd</u>	Location	<u>Martin County</u>
Analysis Year	<u>2021</u>	Project Number	<u>441700-1-22-02</u>
<b>Notes</b>			
1) Values in this spreadsheet may be copied and pasted directly into NCHRP 17-38 spreadsheets which are available from FDOT Safety Office upon request. Note that only values, and not formulas should be copied.			
2) 3ST= 3 leg stop control, 3SG= 3 leg signalized, 4ST = 4 leg stop control, 4SG = 4 leg signalized			
<b>Field Data Collection</b>			
Intersection type (3ST, 3SG, 4ST, 4SG)		3SG	
AADT <sub>major</sub> (veh/day)	AADT <sub>MAX</sub> = 58,100 h/day	17,500	
AADT <sub>minor</sub> (veh/day)	AADT <sub>MAX</sub> = 16,400 h/day	5,700	
Intersection lighting (present/not present)		Not Present	
Calibration factor, C <sub>i</sub>		2.50	
<b>Data for unsignalized intersections only:</b>			
Number of major-road approaches with left-turn lanes (0,1,2)			
Number of major-road approaches with right-turn lanes (0,1,2)			
<b>Data for signalized intersections only:</b>			
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]		2	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]		2	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]		2	
Type of left-turn signal phasing for Leg #1 (EB)		Protected / Permissive	
Type of left-turn signal phasing for Leg #2 (WB)		Not Applicable	
Type of left-turn signal phasing for Leg #3 (SB)		Protected	
Type of left-turn signal phasing for Leg #4 (if applicable)		Not Applicable	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]		0	
Intersection red light cameras (present/not present)		Not Present	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only		20	
Maximum number of lanes crossed by a pedestrian (n <sub>lanesx</sub> )		3	
Number of bus stops within 300 m (1,000 ft) of the intersection		0	
Schools within 300 m (1,000 ft) of the intersection (present/not present)		Not Present	
Number of alcohol sales establishments within 1,000 ft of the intersection		0	

State of Florida Department of Transportation

**URBAN/SUBURBAN ARTERIAL INTERSECTION FOR 2 TO 5 LANES ON THE MAJOR ST DATA COLLECTION**

General Analysis Information		Site Information	
Intersection Number	<u>9</u>	Roadway Name	<u>Cove Rd</u>
Intersection Name	<u>SE Northgate Dr</u>	Location	<u>Martin County</u>
Analysis Year	<u>2021</u>	Project Number	<u>441700-1-22-02</u>

**Notes**

- 1) Values in this spreadsheet may be copied and pasted directly into NCHRP 17-38 spreadsheets which are available from FDOT Safety Office upon request. Note that only values, and not formulas should be copied.
- 2) 3ST= 3 leg stop control, 3SG= 3 leg signalized, 4ST = 4 leg stop control, 4SG = 4 leg signalized

**Field Data Collection**

Intersection type (3ST, 3SG, 4ST, 4SG)	3ST
AADT <sub>major</sub> (veh/day)      AADT <sub>MAX</sub> = 45,700 h/day)	17,500
AADT <sub>minor</sub> (veh/day)      AADT <sub>MAX</sub> = 9,300 h/day)	1,000
Intersection lighting (present/not present)	Not Present
Calibration factor, C <sub>i</sub>	1.14
<b>Data for unsignalized intersections only:</b>	
Number of major-road approaches with left-turn lanes (0,1,2)	1
Number of major-road approaches with right-turn lanes (0,1,2)	1
<b>Data for signalized intersections only:</b>	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]	
Type of left-turn signal phasing for Leg #1	
Type of left-turn signal phasing for Leg #2	
Type of left-turn signal phasing for Leg #3	
Type of left-turn signal phasing for Leg #4 (if applicable)	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]	
Intersection red light cameras (present/not present)	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only	
Maximum number of lanes crossed by a pedestrian (n <sub>lanesx</sub> )	
Number of bus stops within 300 m (1,000 ft) of the intersection	
Schools within 300 m (1,000 ft) of the intersection (present/not present)	
Number of alcohol sales establishments within 1,000 ft of the intersection	

**URBAN/SUBURBAN ARTERIAL INTERSECTION FOR 2 TO 5 LANES ON THE MAJOR ST DATA COLLECTION**

General Analysis Information		Site Information	
Intersection Number	<b>10</b>	Roadway Name	<b>Cove Rd</b>
Intersection Name	<b>Montego Cove</b>	Location	<b>Martin County</b>
Analysis Year	<b>2021</b>	Project Number	<b>441700-1-22-02</b>

**Notes**

- 1) Values in this spreadsheet may be copied and pasted directly into NCHRP 17-38 spreadsheets which are available from FDOT Safety Office upon request. Note that only values, and not formulas should be copied.
- 2) 3ST= 3 leg stop control, 3SG= 3 leg signalized, 4ST = 4 leg stop control, 4SG = 4 leg signalized

**Field Data Collection**

Intersection type (3ST, 3SG, 4ST, 4SG)	3ST
AADT <sub>major</sub> (veh/day)      AADT <sub>MAX</sub> = 45,700 h/day)	17,500
AADT <sub>minor</sub> (veh/day)      AADT <sub>MAX</sub> = 9,300 h/day)	600
Intersection lighting (present/not present)	Not Present
Calibration factor, C <sub>i</sub>	1.14
<b>Data for unsignalized intersections only:</b>	
Number of major-road approaches with left-turn lanes (0,1,2)	1
Number of major-road approaches with right-turn lanes (0,1,2)	0
<b>Data for signalized intersections only:</b>	
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]	
Type of left-turn signal phasing for Leg #1	
Type of left-turn signal phasing for Leg #2	
Type of left-turn signal phasing for Leg #3	
Type of left-turn signal phasing for Leg #4 (if applicable)	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]	
Intersection red light cameras (present/not present)	
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only	
Maximum number of lanes crossed by a pedestrian (n <sub>lanesx</sub> )	
Number of bus stops within 300 m (1,000 ft) of the intersection	
Schools within 300 m (1,000 ft) of the intersection (present/not present)	
Number of alcohol sales establishments within 1,000 ft of the intersection	

**URBAN/SUBURBAN ARTERIAL INTERSECTION FOR 2 TO 5 LANES ON THE MAJOR ST DATA COLLECTION**

General Analysis Information		Site Information	
Intersection Number	<u>11</u>	Roadway Name	<u>Cove Rd</u>
Intersection Name	<u>SE Cable Dr</u>	Location	<u>Martin County</u>
Analysis Year	<u>2021</u>	Project Number	<u>441700-1-22-02</u>

**Notes**

1) Values in this spreadsheet may be copied and pasted directly into NCHRP 17-38 spreadsheets which are available from FDOT Safety Office upon request. Note that only values, and not formulas should be copied.

2) 3ST= 3 leg stop control, 3SG= 3 leg signalized, 4ST = 4 leg stop control, 4SG = 4 leg signalized

**Field Data Collection**

Intersection type (3ST, 3SG, 4ST, 4SG)

4ST

AADT<sub>major</sub> (veh/day) AADT<sub>MAX</sub> = 46,800 h/day)

17,500

AADT<sub>minor</sub> (veh/day) AADT<sub>MAX</sub> = 5,900 h/day)

750

Intersection lighting (present/not present)

Not Present

Calibration factor, C<sub>i</sub>

1.87

**Data for unsignalized intersections only:**

Number of major-road approaches with left-turn lanes (0,1,2)

2

Number of major-road approaches with right-turn lanes (0,1,2)

0

**Data for signalized intersections only:**Number of approaches with left-turn lanes (0,1,2,3,4)  
[for 3SG, use maximum value of 3]Number of approaches with right-turn lanes (0,1,2,3,4)  
[for 3SG, use maximum value of 3]Number of approaches with left-turn signal phasing  
[for 3SG, use maximum value of 3]

Type of left-turn signal phasing for Leg #1

Type of left-turn signal phasing for Leg #2

Type of left-turn signal phasing for Leg #3

Type of left-turn signal phasing for Leg #4 (if applicable)

Number of approaches with right-turn-on-red prohibited  
[for 3SG, use maximum value of 3]

Intersection red light cameras (present/not present)

Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only

Maximum number of lanes crossed by a pedestrian (n<sub>lanesx</sub>)

Number of bus stops within 300 m (1,000 ft) of the intersection

Schools within 300 m (1,000 ft) of the intersection (present/not present)

Number of alcohol sales establishments within 1,000 ft of the intersection

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

URBAN/SUBURBAN ROADWAY INTERSECTION FOR 6 TO 8 LANES AND ONE-WAY ON THE MAJOR STREET DATA COLLECTION

General Analysis Information		Site Information	
Intersection Number	12	Roadway Name	Cove Road
Intersection Name	US 1/SR 5/Federal Hwy	Location	Martin County
Analysis Year	2021	Project Number	441700-1-22-02

Notes

1) Values in this spreadsheet may be copied and pasted directly into NCHRP 17-58 spreadsheets which are available from FDOT Safety Office upon request. Note that only values and not formulas should be copied.

Field Data Collection

Intersection Data

Area type	Suburban
Number of legs	4
Traffic control type	Signalized
Lighting present?	Present
Red-light cameras present?	Not Present
Daily pedestrian volume crossing all legs	50
Maximum number of lanes by a pedestrian	9
Number of bus stops within 1,000 feet of the intersection	2
Schools present within 1,000 feet of the intersection	Not Present
Number of alcohol sales establishments within 1,000 feet of the intersection	5

Street Data

	Major	Minor
Street Configuration	Two-way	Two-way
Annual Average Daily Traffic (AADT)	39,500	17,500
Number of through lanes	6	2
Number of approaches with left-turn lanes	2	2
Number of left-turn movements with protected phasing	2	2
Number of right-turn movements prohibited on red	0	0
Number of U-turn movements prohibited	1	0
Number of approaches with right-turn channelization	0	0

**URBAN/SUBURBAN ARTERIAL SEGMENT FOR 2 TO 5 LANES DATA COLLECTION****General Analysis Information**

Segment Number 1  
 Segment Limits SR 76 to SW Gaines Ave  
 Analysis Year 2021

**Site Information**

Roadway Name Cove Rd  
 Location Martin County  
 Project Number 441700-1-22-02

**Notes**

- 1) A roadway must have homogeneous characteristics in order to be analyzed as a single segment. If any characteristics change, including any of the data inputs in this spreadsheet, then the roadway must be analyzed as separate segments and this spreadsheet should be copied and filled out for each analysis segment independently.
- 2) Values in this spreadsheet may be copied and pasted directly into NCHRP 17-38 spreadsheets which are available from FDOT Safety Office upon request. Note that only values and not formulas should be copied.
- 3) 2U = 2 lane undivided, 3T = 3 lane with center left turn lane, 4U = 4 lane undivided, 4D = 4 lane divided, 5T = 5 lane with center left turn lane

**Field Data Collection**

Roadway type (2U, 3T, 4U, 4D, 5T)

4D

Length of segment, L (mi)

0.176

AADT (veh/day)  $AADT_{MAX} = 66,000$  (veh/day)

16,000

Type of on-street parking (none/parallel/angle)

None

Proportion of curb length with on-street parking

0

Median width (ft) - for divided only

30

Lighting (present / not present)

Not Present

Auto speed enforcement (present / not present)

Not Present

Major commercial driveways (number)

0

Minor commercial driveways (number)

1

Major industrial / institutional driveways (number)

0

Minor industrial / institutional driveways (number)

0

Major residential driveways (number)

1

Minor residential driveways (number)

0

Other driveways (number)

0

Speed Category

Posted Speed Greater than 30 mph

Roadside fixed object density (fixed objects / mi)

80

Offset to roadside fixed objects (ft)

15

[If greater than 30 or Not Present, input 30]

Calibration Factor, Cr

1.00

State of Florida Department of Transportation

**URBAN/SUBURBAN ARTERIAL SEGMENT FOR 2 TO 5 LANES DATA COLLECTION**

General Analysis Information		Site Information	
Segment Number	<u>2</u>	Roadway Name	<u>Cove Rd</u>
Segment Limits	<u>SW Gaines Ave to SE Tres Belle Ci</u>	Location	<u>Martin County</u>
Analysis Year	<u>2021</u>	Project Number	<u>441700-1-22-02</u>

**Notes**

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- 2) Values in this spreadsheet may be copied and pasted directly into NCHRP 17-38 spreadsheets which are available from FDOT Safety Office upon request. Note that only values and not formulas should be copied.
- 3) 2U = 2 lane undivided, 3T = 3 lane with center left turn lane, 4U = 4 lane undivided, 4D = 4 lane divided, 5T = 5 lane with center left turn lane

**Field Data Collection**

Roadway type (2U, 3T, 4U, 4D, 5T)	2U
Length of segment, L (mi)	0.19
AADT (veh/day) $AADT_{MAX} = 32,600$ (veh/day)	15,500
Type of on-street parking (none/parallel/angle)	None
Proportion of curb length with on-street parking	0
Median width (ft) - for divided only	Not Present
Lighting (present / not present)	Not Present
Auto speed enforcement (present / not present)	Not Present
Major commercial driveways (number)	0
Minor commercial driveways (number)	0
Major industrial / institutional driveways (number)	0
Minor industrial / institutional driveways (number)	0
Major residential driveways (number)	0
Minor residential driveways (number)	0
Other driveways (number)	0
Speed Category	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)	55
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]	15
Calibration Factor, Cr	1.00

**URBAN/SUBURBAN ARTERIAL SEGMENT FOR 2 TO 5 LANES DATA COLLECTION****General Analysis Information**

Segment Number 3  
 Segment Limits SE Tres Belle Cir to AMS Ent  
 Analysis Year 2021

**Site Information**

Roadway Name Cove Rd  
 Location Martin County  
 Project Number 441700-1-22-02

**Notes**

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- 2) Values in this spreadsheet may be copied and pasted directly into NCHRP 17-38 spreadsheets which are available from FDOT Safety Office upon request. Note that only values and not formulas should be copied.
- 3) 2U = 2 lane undivided, 3T = 3 lane with center left turn lane, 4U = 4 lane undivided, 4D = 4 lane divided, 5T = 5 lane with center left turn lane

**Field Data Collection**

Roadway type (2U, 3T, 4U, 4D, 5T)

Length of segment, L (mi)

AADT (veh/day)  $AADT_{MAX} = 32,600$  (veh/day)

Type of on-street parking (none/parallel/angle)

Proportion of curb length with on-street parking

Median width (ft) - for divided only

Lighting (present / not present)

Auto speed enforcement (present / not present)

Major commercial driveways (number)

Minor commercial driveways (number)

Major industrial / institutional driveways (number)

Minor industrial / institutional driveways (number)

Major residential driveways (number)

Minor residential driveways (number)

Other driveways (number)

Speed Category

Roadside fixed object density (fixed objects / mi)

Offset to roadside fixed objects (ft)  
[If greater than 30 or Not Present, input 30]

Calibration Factor, Cr

2U

0.445

15,500

None

0

Not Present

Not Present

Not Present

0

1

0

1

0

2

0

Posted Speed Greater than 30 mph

25

30

1.00

State of Florida Department of Transportation

**URBAN/SUBURBAN ARTERIAL SEGMENT FOR 2 TO 5 LANES DATA COLLECTION**

General Analysis Information		Site Information	
Segment Number	<u>4</u>	Roadway Name	<u>Cove Rd</u>
Segment Limits	<u>AMS Ent to SE Atlantic Ridge Dr</u>	Location	<u>Martin County</u>
Analysis Year	<u>2021</u>	Project Number	<u>441700-1-22-02</u>

**Notes**

- 1) A roadway must have homogeneous characteristics in order to be analyzed as a single segment. If any characteristics change, including any of the data inputs in this spreadsheet, then the roadway must be analyzed as separate segments and this spreadsheet should be copied and filled out for each analysis segment independently.
- 2) Values in this spreadsheet may be copied and pasted directly into NCHRP 17-38 spreadsheets which are available from FDOT Safety Office upon request. Note that only values and not formulas should be copied.
- 3) 2U = 2 lane undivided, 3T = 3 lane with center left turn lane, 4U = 4 lane undivided, 4D = 4 lane divided, 5T = 5 lane with center left turn lane

**Field Data Collection**

Roadway type (2U, 3T, 4U, 4D, 5T)	2U
Length of segment, L (mi)	0.232
AADT (veh/day) $AADT_{MAX} = 32,600$ (veh/day)	15,500
Type of on-street parking (none/parallel/angle)	None
Proportion of curb length with on-street parking	0
Median width (ft) - for divided only	Not Present
Lighting (present / not present)	Not Present
Auto speed enforcement (present / not present)	Not Present
Major commercial driveways (number)	0
Minor commercial driveways (number)	0
Major industrial / institutional driveways (number)	0
Minor industrial / institutional driveways (number)	0
Major residential driveways (number)	0
Minor residential driveways (number)	0
Other driveways (number)	0
Speed Category	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)	50
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]	25
Calibration Factor, Cr	1.00

State of Florida Department of Transportation

**URBAN/SUBURBAN ARTERIAL SEGMENT FOR 2 TO 5 LANES DATA COLLECTION**

General Analysis Information		Site Information	
Segment Number	5	Roadway Name	Cove Rd
Segment Limits	Atlantic Ridge Dr to SE Legacy Cov	Location	Martin County
Analysis Year	2021	Project Number	441700-1-22-02

**Notes**

- 1) A roadway must have homogeneous characteristics in order to be analyzed as a single segment. If any characteristics change, including any of the data inputs in this spreadsheet, then the roadway must be analyzed as separate segments and this spreadsheet should be copied and filled out for each analysis segment independently.
- 2) Values in this spreadsheet may be copied and pasted directly into NCHRP 17-38 spreadsheets which are available from FDOT Safety Office upon request. Note that only values and not formulas should be copied.
- 3) 2U = 2 lane undivided, 3T = 3 lane with center left turn lane, 4U = 4 lane undivided, 4D = 4 lane divided, 5T = 5 lane with center left turn lane

**Field Data Collection**

Roadway type (2U, 3T, 4U, 4D, 5T)	2U
Length of segment, L (mi)	0.274
AADT (veh/day) $AADT_{MAX} = 32,600$ (veh/day)	16,000
Type of on-street parking (none/parallel/angle)	None
Proportion of curb length with on-street parking	0
Median width (ft) - for divided only	Not Present
Lighting (present / not present)	Not Present
Auto speed enforcement (present / not present)	Not Present
Major commercial driveways (number)	0
Minor commercial driveways (number)	0
Major industrial / institutional driveways (number)	0
Minor industrial / institutional driveways (number)	0
Major residential driveways (number)	0
Minor residential driveways (number)	5
Other driveways (number)	0
Speed Category	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)	35
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]	30
Calibration Factor, Cr	1.00

**URBAN/SUBURBAN ARTERIAL SEGMENT FOR 2 TO 5 LANES DATA COLLECTION**

General Analysis Information		Site Information	
Segment Number	<u>6</u>	Roadway Name	<u>Cove Rd</u>
Segment Limits	<u>SE Legacy Cove Cir to SE Ault Ave</u>	Location	<u>Martin County</u>
Analysis Year	<u>2021</u>	Project Number	<u>441700-1-22-02</u>

**Notes**

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- 2) Values in this spreadsheet may be copied and pasted directly into NCHRP 17-38 spreadsheets which are available from FDOT Safety Office upon request. Note that only values and not formulas should be copied.
- 3) 2U = 2 lane undivided, 3T = 3 lane with center left turn lane, 4U = 4 lane undivided, 4D = 4 lane divided, 5T = 5 lane with center left turn lane

**Field Data Collection**

Roadway type (2U, 3T, 4U, 4D, 5T)	2U
Length of segment, L (mi)	0.303
AADT (veh/day) $AADT_{MAX} = 32,600$ (veh/day)	16,500
Type of on-street parking (none/parallel/angle)	None
Proportion of curb length with on-street parking	0
Median width (ft) - for divided only	Not Present
Lighting (present / not present)	Not Present
Auto speed enforcement (present / not present)	Not Present
Major commercial driveways (number)	0
Minor commercial driveways (number)	0
Major industrial / institutional driveways (number)	0
Minor industrial / institutional driveways (number)	0
Major residential driveways (number)	0
Minor residential driveways (number)	4
Other driveways (number)	1
Speed Category	Posted Speed Greater than 30 mph
Roadside fixed object density (fixed objects / mi)	40
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]	30
Calibration Factor, Cr	1.00

**URBAN/SUBURBAN ARTERIAL SEGMENT FOR 2 TO 5 LANES DATA COLLECTION**

General Analysis Information		Site Information	
Segment Number	<u>7</u>	Roadway Name	<u>Cove Road</u>
Segment Limits	<u>SE Ault Ave to SE Willoughby Blvd</u>	Location	<u>Martin County</u>
Analysis Year	<u>2021</u>	Project Number	<u>441700-1-22-02</u>
<b>Notes</b>			
<p>1) A roadway must have homogeneous characteristics in order to be analyzed as a single segment. If any characteristics change, including any of the data inputs in this spreadsheet, then the roadway must be analyzed as separate segments and this spreadsheet should be copied and filled out for each analysis segment independently.</p> <p>2) Values in this spreadsheet may be copied and pasted directly into NCHRP 17-38 spreadsheets which are available from FDOT Safety Office upon request. Note that only values and not formulas should be copied.</p> <p>3) 2U = 2 lane undivided, 3T = 3 lane with center left turn lane, 4U = 4 lane undivided, 4D = 4 lane divided, 5T = 5 lane with center left turn lane</p>			
<b>Field Data Collection</b>			
Roadway type (2U, 3T, 4U, 4D, 5T)		2U	
Length of segment, L (mi)		0.521	
AADT (veh/day)	AADT <sub>MAX</sub> = 32,600 (veh/day)	16,000	
Type of on-street parking (none/parallel/angle)		None	
Proportion of curb length with on-street parking		0	
Median width (ft) - for divided only		Not Present	
Lighting (present / not present)		Not Present	
Auto speed enforcement (present / not present)		Not Present	
Major commercial driveways (number)		0	
Minor commercial driveways (number)		5	
Major industrial / institutional driveways (number)		0	
Minor industrial / institutional driveways (number)		0	
Major residential driveways (number)		0	
Minor residential driveways (number)		9	
Other driveways (number)		3	
Speed Category		Posted Speed Greater than 30 mph	
Roadside fixed object density (fixed objects / mi)		50	
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	
Calibration Factor, Cr		1.00	

**URBAN/SUBURBAN ARTERIAL SEGMENT FOR 2 TO 5 LANES DATA COLLECTION****General Analysis Information**

Segment Number 8  
 Segment Limits ± Willoughby Blvd to SE Northgate  
 Analysis Year 2021

**Site Information**

Roadway Name Cove Road  
 Location Martin County  
 Project Number 441700-1-22-02

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- 2) Values in this spreadsheet may be copied and pasted directly into NCHRP 17-38 spreadsheets which are available from FDOT Safety Office upon request. Note that only values and not formulas should be copied.
- 3) 2U = 2 lane undivided, 3T = 3 lane with center left turn lane, 4U = 4 lane undivided, 4D = 4 lane divided, 5T = 5 lane with center left turn lane

**Field Data Collection**

Roadway type (2U, 3T, 4U, 4D, 5T)

Length of segment, L (mi)

AADT (veh/day)  $AADT_{MAX} = 32,600$  (veh/day)

Type of on-street parking (none/parallel/angle)

Proportion of curb length with on-street parking

Median width (ft) - for divided only

Lighting (present / not present)

Auto speed enforcement (present / not present)

Major commercial driveways (number)

Minor commercial driveways (number)

Major industrial / institutional driveways (number)

Minor industrial / institutional driveways (number)

Major residential driveways (number)

Minor residential driveways (number)

Other driveways (number)

Speed Category

Roadside fixed object density (fixed objects / mi)

Offset to roadside fixed objects (ft)  
[If greater than 30 or Not Present, input 30]

Calibration Factor, Cr

2U

0.408

17,500

None

0

Not Present

Not Present

Not Present

1

0

0

0

0

1

0

Posted Speed Greater than 30 mph

25

30

1.00

**URBAN/SUBURBAN ARTERIAL SEGMENT FOR 2 TO 5 LANES DATA COLLECTION****General Analysis Information**

Segment Number 9  
 Segment Limits SE Northgate Dr to Montego Cove  
 Analysis Year 2021

**Site Information**

Roadway Name Cove Road  
 Location Martin County  
 Project Number 441700-1-22-02

**Notes**

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- 2) Values in this spreadsheet may be copied and pasted directly into NCHRP 17-38 spreadsheets which are available from FDOT Safety Office upon request. Note that only values and not formulas should be copied.
- 3) 2U = 2 lane undivided, 3T = 3 lane with center left turn lane, 4U = 4 lane undivided, 4D = 4 lane divided, 5T = 5 lane with center left turn lane

**Field Data Collection**

Roadway type (2U, 3T, 4U, 4D, 5T)

Length of segment, L (mi)

AADT (veh/day)  $AADT_{MAX} = 32,600$  (veh/day)

Type of on-street parking (none/parallel/angle)

Proportion of curb length with on-street parking

Median width (ft) - for divided only

Lighting (present / not present)

Auto speed enforcement (present / not present)

Major commercial driveways (number)

Minor commercial driveways (number)

Major industrial / institutional driveways (number)

Minor industrial / institutional driveways (number)

Major residential driveways (number)

Minor residential driveways (number)

Other driveways (number)

Speed Category

Roadside fixed object density (fixed objects / mi)

Offset to roadside fixed objects (ft)  
[If greater than 30 or Not Present, input 30]

Calibration Factor, Cr

2U

0.261

17,500

None

0

Not Present

Not Present

Not Present

0

0

0

0

1

2

0

Posted Speed Greater than 30 mph

60

30

1.00

**URBAN/SUBURBAN ARTERIAL SEGMENT FOR 2 TO 5 LANES DATA COLLECTION****General Analysis Information**

Segment Number 10  
 Segment Limits Montego Cove to SE Cable Dr  
 Analysis Year 2021

**Site Information**

Roadway Name Cove Road  
 Location Martin County  
 Project Number 441700-1-22-02

**Notes**

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- 2) Values in this spreadsheet may be copied and pasted directly into NCHRP 17-38 spreadsheets which are available from FDOT Safety Office upon request. Note that only values and not formulas should be copied.
- 3) 2U = 2 lane undivided, 3T = 3 lane with center left turn lane, 4U = 4 lane undivided, 4D = 4 lane divided, 5T = 5 lane with center left turn lane

**Field Data Collection**

Roadway type (2U, 3T, 4U, 4D, 5T)

Length of segment, L (mi)

AADT (veh/day)  $AADT_{MAX} = 32,600$  (veh/day)

Type of on-street parking (none/parallel/angle)

Proportion of curb length with on-street parking

Median width (ft) - for divided only

Lighting (present / not present)

Auto speed enforcement (present / not present)

Major commercial driveways (number)

Minor commercial driveways (number)

Major industrial / institutional driveways (number)

Minor industrial / institutional driveways (number)

Major residential driveways (number)

Minor residential driveways (number)

Other driveways (number)

Speed Category

Roadside fixed object density (fixed objects / mi)

Offset to roadside fixed objects (ft)  
[If greater than 30 or Not Present, input 30]

Calibration Factor, Cr

2U

0.283

17,500

None

0

Not Present

Not Present

Not Present

0

0

0

0

0

0

0

Posted Speed Greater than 30 mph

80

30

1.00

**URBAN/SUBURBAN ARTERIAL SEGMENT FOR 2 TO 5 LANES DATA COLLECTION****General Analysis Information**

Segment Number 11  
 Segment Limits SE Cable Dr to SR 5 (US 1)  
 Analysis Year 2021

**Site Information**

Roadway Name Cove Road  
 Location Martin County  
 Project Number 441700-1-22-02

**Notes**

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- 2) Values in this spreadsheet may be copied and pasted directly into NCHRP 17-38 spreadsheets which are available from FDOT Safety Office upon request. Note that only values and not formulas should be copied.
- 3) 2U = 2 lane undivided, 3T = 3 lane with center left turn lane, 4U = 4 lane undivided, 4D = 4 lane divided, 5T = 5 lane with center left turn lane

**Field Data Collection**

Roadway type (2U, 3T, 4U, 4D, 5T)

4D

Length of segment, L (mi)

0.087

AADT (veh/day)  $AADT_{MAX} = 66,000$  (veh/day)

17,500

Type of on-street parking (none/parallel/angle)

None

Proportion of curb length with on-street parking

0

Median width (ft) - for divided only

10

Lighting (present / not present)

Not Present

Auto speed enforcement (present / not present)

Not Present

Major commercial driveways (number)

2

Minor commercial driveways (number)

0

Major industrial / institutional driveways (number)

0

Minor industrial / institutional driveways (number)

0

Major residential driveways (number)

1

Minor residential driveways (number)

0

Other driveways (number)

0

Speed Category

Posted Speed Greater than 30 mph

Roadside fixed object density (fixed objects / mi)

490

Offset to roadside fixed objects (ft)

15

[If greater than 30 or Not Present, input 30]

Calibration Factor, Cr

1.00

Appendix C  
Collision Summaries  
Segments with Crash Rates Exceeding State  
Averages

Segment Crashes from SE Ault Avenue to Willoughby Blvd																												
HSMV Report No.	Crash Date	Investigating Agency Report No.	Form Type	City	Crash Street	Offset Distance	Direction	Intersecting Street	Light Condition	Weather	Road Surface	First Harmful Event	Location	Junction	Crash Type	Crash Type Detailed	Crash Severity	Aggressive Driving	Alcohol Related	Distraction Related	Drug Related	Speeding Related	Injury Count	Fatality Count	Est. Damage	Latitude	Longitude	
87482873	2/5/2018	18-02527	L	Stuart	COVE RD SE	851	West	WILLOUGHBY BLVD SE	Daylight	Cloudy	Wet	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	11000	27.12677897	-80.22503527	
87483056	2/21/2018	18-03694	L	Palm City	COVE RD SE	500	West	WILLOUGHBY BLVD SE	Dusk	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	Y	N	N	N	Y	0	0	20000	27.12717097	-80.22404927	
89038911	2/22/2019	19-03313	L	Stuart	SE COVE RD	897	West	SE WILLOUGHBY BLVD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	Non-Incapacitating Injury	N	N	N	N	N	2	0	13100	27.1267503	-80.22517787	
89039682	5/13/2019	19-08243	S	Stuart	SE COVE RD	1076	East	SE AULT AVE	Daylight	Clear	Wet	Motor Vehicle in Transport	On Roadway	Driveway/Alley Access Related	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	1600	27.12594787	-80.22716607	
89039742	5/17/2019	19-08552	L	Unincorporated	SE COVE RD	726	West	SE WILLOUGHBY BLVD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	1500	27.12695573	-80.22470195	
89040028	6/19/2019	19-10382	S	Stuart	SE COVE RD	1122	East	SE AULT AVE	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	2000	27.12601119	-80.22704099	
89040438	8/14/2019	19-13299	S	Stuart	SE COVE RD	416	West	SE WILLOUGHBY BLVD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	5000	27.12730102	-80.22383271	
89040827	10/1/2019	19-15997	S	Unincorporated	SE COVE RD	1230	East	SE AULT AVE	Dark - Not Lighted	Clear	Dry	Animal	On Roadway	Other	Animal	Animal	No Injury	N	N	N	N	N	0	0	5000	27.12608735	-80.22671392	
89041140	11/3/2019	19-17937	S	Stuart	SE COVE RD	1083	West	SE WILLOUGHBY BLVD	Daylight	Rain	Wet	Motor Vehicle in Transport	On Roadway	Driveway/Alley Access Related	Backed into	Other	No Injury	N	N	N	N	N	0	0	600	27.12652742	-80.22569495	
89831591	2/19/2020	20-03053	L	Unincorporated	SE COVE RD	1223	West	SE ATLANTIC DR	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	Non-Incapacitating Injury	N	N	N	N	N	1	0	7300	27.12634747	-80.22607441	
24028072	5/29/2020	20-08463	L	Unincorporated	COVE RD	302	East	AULT AVE SE	Dark - Not Lighted	Rain	Wet	Animal	On Roadway	Non-Junction	Animal	Animal	No Injury	N	N	N	N	N	0	0	3000	27.12518197	-80.22939027	
24028376	7/2/2020	20-10459	S	Unincorporated	SE COVE RD	234	West	SE WILLOUGHBY BLVD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	3000	27.1275011	-80.22331863	
24030873	4/28/2021	21-06847	L	Stuart	SE COVE RD	1041	West	SE WILLOUGHBY BLVD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	Non-Incapacitating Injury	N	N	N	N	N	1	0	9300	27.12659263	-80.22558433	
24030859	4/29/2021	21-06866	L	Stuart	SE COVE RD	1093	East	SE AULT AVE	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	17500	27.1259809	-80.22712899	
89832254	5/19/2021	21-08023	L	Unincorporated	SE COVE RD	540	West	SE WILLOUGHBY BLVD	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	Possible Injury	N	N	N	N	N	1	0	10000	27.12715828	-80.22417662	
88225230	7/16/2021	FHPL20OFF046548	L	Unincorporated	SE COVE ROAD	249	East	SE AULT AVENUE	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Non-Junction	Head On	Head On	Fatal (within 30 days)	N	N	N	N	N	1	1	9000	27.12513265	-80.22954118	
24874949	4/15/2022	2022-00044475	L	Stuart	SE COVE RD	971	East	SE AULT AVE	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Non-Junction	Rear End	Rear End	Possible Injury	N	N	N	N	N	3	0	16500	27.12585454	-80.22747341	
24875617	6/26/2022	2022-00075516	L	Port Salerno	SE COVE RD	809	West	SE WILLOUGHBY BLVD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	Possible Injury	N	N	Y	N	N	1	0	10000	27.12685596	-80.22493439	
24876361	9/16/2022	2022-00113010	L	Stuart	SE COVE RD	1324	West	SE WILLOUGHBY BLVD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	Possible Injury	N	N	N	N	N	1	0	3000	27.1262601	-80.22636903	
25601357	11/1/2022	2022-00135972	S	Jensen Beach	SE COVE RD	995	West	SE WILLOUGHBY BLVD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	100	27.12662622	-80.22544559	

Segment Crashes from SE Northgate Drive to Montego Cove																												
HSMV Report No.	Crash Date	Investigating Agency Report No.	Form Type	City	Crash Street	Offset Distance	Direction	Intersecting Street	Light Condition	Weather	Road Surface	First Harmful Event	Location	Junction	Crash Type	Crash Type Detailed	Crash Severity	Aggressive Driving	Alcohol Related	Distraction Related	Drug Related	Speeding Related	Injury Count	Fatality Count	Est. Damage	Latitude	Longitude	
87485675	12/4/2018	18-21442	L	Stuart	SE AVALON DR	1	North	SE COVE RD	Dark - Lighted	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Left Leaving	Left Turn	Possible Injury	N	N	N	N	N	2	0	27000	27.13084197	-80.21482828	
89039060	3/5/2019	19-04042	L	Unincorporated	SE COVE RD	161	West	SE AVALON DR	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	Y	N	N	0	0	6500	27.13068452	-80.21529007	
89831763	3/9/2020	20-04222	S	Stuart	SE COVE RD	144	East	SE AVALON DR	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	1000	27.13102361	-80.21442963	
24028242	6/15/2020	20-09512	L	Stuart	SE COVE RD	101	West	SE AVALON DR	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	Possible Injury	N	N	N	N	N	1	0	17500	27.13071489	-80.2151037	
24028223	6/17/2020	20-09645	S	Stuart	SE COVE RD	39	West	SE AVALON DR	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	200	27.13078491	-80.21492884	
24028230	6/17/2020	20-09646	L	Stuart	SE COVE RD	34	East	SE AVALON DR	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Rear End	Rear End	Possible Injury	N	N	Y	N	N	1	0	8000	27.13091742	-80.2147479	
24029834	1/7/2021	21-00343	L	Stuart	SE COVE RD	151	West	SE AVALON DR	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	Possible Injury	N	N	N	N	N	1	0	8500	27.13065615	-80.21524317	
24030271	2/24/2021	21-03216	S	Stuart	SE COVE RD	18	West	SE AVALON DR	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	2000	27.13084118	-80.21488477	
89833298	9/17/2021	2021-00196379	S	Stuart	SE COVE RD	105	East	SE AVALON DR	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	1000	27.13099645	-80.21454727	
89833675	10/27/2021	2021-00211925	L	Stuart	SE COVE RD	130	East	SE AVALON DR	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Non-Junction	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	6000	27.13101817	-80.21447494	
89833945	11/23/2021	2021-00222620	L	Unincorporated	SE COVE RD	78	West	SE AVALON DR	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	Non-Incapacitating Injury	N	N	Y	N	N	1	0	1700	27.130747	-80.21504205	
24873770	12/25/2021	2021-00235206	S	Stuart	SE COVE RD	0		SE AVALON DR	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	1500	27.13082165	-80.21480757	
24874351	2/16/2022	2022-00019521	L	Stuart	SE AVALON DR	0		SE COVE RD	Daylight	Cloudy	Dry	Pedalcycle	On Roadway	Intersection-Related	Bicycle	Bicycle	Non-Incapacitating Injury	N	N	N	N	N	1	0	1000	27.130845	-80.21482729	
24874675	3/22/2022	2022-00033943	L	Stuart	SE COVE RD	183	West	SE AVALON DR	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	19000	27.13062426	-80.21533349	
25601468	11/30/2022	2022-00149729	L	Stuart	SE COVE RD	239	West	SE AVALON DR	Dusk	Clear	Dry	Motor Vehicle in Transport	On Roadway	Non-Junction	Rear End	Rear End	No Injury	N	N	Y	N	N	0	0	24000	27.13056362	-80.21549007	

Appendix D  
Collision Summaries  
Intersections with Crash Rates Exceeding State  
Averages

Intersection Crashes at Cove Road and SR 76																												
HSMV Report No.	Crash Date	Investigating Agency Report No.	Form Type	City	Crash Street	Offset Distance	Direction	Intersecting Street	Light Condition	Weather	Road Surface	First Harmful Event	Location	Junction	Crash Type	Crash Type Detailed	Crash Severity	Aggressive Driving	Alcohol Related	Distraction Related	Drug Related	Speeding Related	Injury Count	Fatality Count	Est. Damage	Latitude	Longitude	
87482719	1/17/2018	18-01183	S	Stuart	SW KANNER HWY	5	South	SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Same Direction Sideswipe	Sideswipe	No Injury	N	N	N	N	N	0	0	1000	27.11564917	-80.25467146	
87482795	1/26/2018	18-01799	S	Stuart	KANNER HWY SW	98	West	COVE RD SE	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	2500	27.11540018	-80.25458728	
87482819	1/27/2018	18-01890	L	Unincorporated	COVE RD SE	191	South	KANNER HWY S	Dark - Lighted	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Same Direction Sideswipe	Sideswipe	No Injury	N	N	N	N	N	0	0	1250	27.11516898	-80.25471636	
87482992	2/14/2018	18-03216	L	Unincorporated	KANNER HWY S	191	South	COVE RD SE	Dark - Lighted	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Left Rear	Left Turn	Non-Incapacitating Injury	N	N	N	N	N	1	0	18000	27.11516898	-80.25471636	
87483000	2/15/2018	18-03274	L	Unincorporated	KANNER HWY SW	265	South	COVE RD SE	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Same Direction Sideswipe	Sideswipe	No Injury	N	N	N	N	N	0	0	500	27.11499288	-80.25483016	
87483193	2/26/2018	18-04044	L	Stuart	KANNER HWY S	291	South	COVE RD SE	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Same Direction Sideswipe	Sideswipe	No Injury	N	N	N	N	N	0	0	2000	27.11493008	-80.25487066	
87483297	3/16/2018	18-05281	L	Unincorporated	KANNER HWY SW	265	South	COVE RD SE	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	Non-Incapacitating Injury	N	N	Y	N	N	2	0	4500	27.11499288	-80.25483016	
87483411	3/27/2018	18-06083	L	Stuart	KANNER HWY SW	491	South	COVE RD SE	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	5000	27.11445598	-80.25518426	
87483491	4/3/2018	18-06574	S	Unincorporated	KANNER HWY SW	1	North	COVE RD SE	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	2100	27.11565797	-80.25465006	
87483548	4/8/2018	18-06955	L	Jensen Beach	KANNER HWY S	191	South	COVE RD SE	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Same Direction Sideswipe	Sideswipe	No Injury	N	N	N	N	N	0	0	2000	27.11516898	-80.25471636	
87483769	4/22/2018	18-07872	L	Stuart	S KANNER HWY	191	South	SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Left Entering	Left Turn	Non-Incapacitating Injury	N	N	N	N	N	2	0	1200	27.11516898	-80.25471636	
87483788	4/30/2018	18-08383	L	Stuart	KANNER HWY S	165	South	COVE RD SE	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	Possible Injury	N	N	N	N	N	1	0	700	27.11523138	-80.25467606	
87483896	5/13/2018	18-09283	L	Unincorporated	KANNER HWY	238	South	COVE RD SE	Dark - Lighted	Rain	Wet	Traffic Sign Support	On Roadway	Intersection	Off Road	Off Road	No Injury	Y	Y	N	N	Y	0	0	16500	27.11505598	-80.25478936	
87483928	5/17/2018	18-09484	S	Stuart	COVE RD SE	49	East	GAINES AVE SE	Daylight	Rain	Wet	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	1000	27.11564232	-80.25337881	
87483948	5/19/2018	18-09609	L	Stuart	KANNER HWY S	217	South	COVE RD SE	Daylight	Rain	Wet	Motor Vehicle in Transport	On Roadway	Intersection	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	2000	27.11510588	-80.25475716	
87484130	6/10/2018	18-10913	L	Stuart	KANNER HWY SW	202	South	COVE RD SE	Dark - Lighted	Clear	Wet	Motor Vehicle in Transport	On Roadway	Non-Junction	Rear End	Rear End	Possible Injury	N	N	N	N	N	1	0	1250	27.11514348	-80.25473286	
87484329	7/5/2018	18-12387	L	Unincorporated	S KANNER HWY	191	South	COVE RD SE	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Left Leaving	Left Turn	Possible Injury	N	N	N	N	N	3	0	10000	27.11516898	-80.25471636	
87484639	7/28/2018	18-13738	L	Unincorporated	KANNER HWY	191	South	COVE RD	Daylight	Rain	Wet	Motor Vehicle in Transport	On Roadway	Intersection	Left Entering	Left Turn	Non-Incapacitating Injury	Y	N	N	N	Y	2	0	9000	27.11516898	-80.25471636	
87484853	9/5/2018	18-15971	S	Unincorporated	KANNER HWY			COVE RD SE	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Rear End	Rear End	No Injury	N	N	Y	N	N	0	0	2250	27.11601741	-80.25439938	
87485009	9/21/2018	18-16970	L	Hobe Sound	KANNER HWY	44	South	COVE RD	Dark - Lighted	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	Possible Injury	N	N	Y	N	N	1	0	4500	27.11552268	-80.25449576	
87485078	9/22/2018	18-17034	S	Unincorporated	KANNER HWY	42	South	SALERNO RD SE	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Same Direction Sideswipe	Sideswipe	No Injury	Y	N	N	N	N	0	0	1200	27.1155145	-80.2544606	
87485273	10/24/2018	18-18930	L	Stuart	SE COVE RD	322	East	SW GAINES AVE	Dark - Lighted	Clear	Dry	Motor Vehicle in Transport	On Roadway	Non-Junction	Rear End	Rear End	Possible Injury	N	N	Y	N	N	1	0	3000	27.11590598	-80.25259627	
87485642	11/30/2018	18-21138	L	Unincorporated	KANNER HWY S	212	South	COVE RD SE	Dark - Lighted	Clear	Dry	Work Zone/Maintenance Equipment	On Roadway	Non-Junction	Single Vehicle	Other	No Injury	N	Y	N	N	N	0	0	1000	27.11511838	-80.25474906	
89038678	1/15/2019	19-00868	L	Stuart	COVE RD SE	191	South	KANNER HWY	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Non-Junction	Same Direction Sideswipe	Sideswipe	No Injury	N	N	N	N	N	0	0	200	27.11516898	-80.25471636	
89038644	1/30/2019	19-01779	L	Stuart	S KANNER HWY	149	South	SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	10500	27.11526938	-80.25465156	
89038969	3/1/2019	19-03755	S	Stuart	SW KANNER HWY	63	South	SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	1500	27.11551996	-80.25477518	
89039391	4/9/2019	19-06239	S	Stuart	S KANNER HWY	7	North	SE COVE RD	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	Y	N	N	0	0	2250	27.11567619	-80.25464963	
89039415	4/9/2019	19-06241	S	Stuart	SW KANNER HWY	176	South	SE COVE RD	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	1000	27.11523262	-80.254912	
89039486	4/19/2019	19-06866	S	Stuart	SW KANNER HWY	146	South	SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	3000	27.11529716	-80.25468338	
89039686	5/13/2019	19-08271	L	Stuart	SE COVE RD	191	South	SW KANNER HWY	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	Possible Injury	N	N	N	N	N	1	0	2000	27.11516898	-80.25471636	
89039696	5/14/2019	19-08337	S	Stuart	S KANNER HWY	154	North	SE COVE RD	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	1000	27.11604291	-80.25446042	
89040017	6/12/2019	19-10025	L	Stuart	SE COVE RD	191	South	SW KANNER HWY	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Same Direction Sideswipe	Sideswipe	No Injury	N	N	N	N	N	0	0	200	27.11516898	-80.25471636	
89040220	7/17/2019	19-11808	L	Stuart	SE COVE RD	202	South	SW KANNER HWY	Dawn	Clear	Dry	Curb	Median	Intersection-Related	Off Road	Off Road	No Injury	N	N	N	N	N	0	0	15500	27.11514348	-80.25473286	
89040618	8/24/2019	19-13892	L	Stuart	SE COVE RD	191	South	SW KANNER HWY	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	Non-Incapacitating Injury	N	Y	N	N	N	1	0	20300	27.11516898	-80.25471636	
89041045	10/23/2019	19-17340	S	Stuart	S KANNER HWY	139	North	SE COVE RD	Dark - Lighted	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	650	27.11600381	-80.25447629	
89041089	10/28/2019	19-17606	S	Unincorporated	S KANNER HWY	410	North	SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Non-Junction	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	0	27.11665985	-80.25407079	
89040663	11/7/2019	19-14257	L	Stuart	SE COVE RD	191	South	SW KANNER HWY	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	Non-Incapacitating Injury	N	Y	N	Y	N	2	0	18000	27.11516898	-80.25471636	
88189473	12/18/2019	FHPL19OFF057047	L	Unincorporated	SE COVE ROAD	191	South	STATE ROAD 76 (SW KANNER HIGHWAY)	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Head On	Head On	Fatal (within 30 days)	N	N	N	Y	N	1	1	20000	27.11516898	-80.25471636	
89831063	12/26/2019	19-21045	S	Stuart	SW KANNER HWY	451	South	SE COVE RD	Daylight	Cloudy	Wet	Motor Vehicle in Transport	On Roadway	Through Roadway	Same Direction Sideswipe	Sideswipe	No Injury	N	N	N	N	N	0	0	0	27.11455532	-80.25511574	
89831076	12/28/2019	19-21146	L	Stuart	SE COVE RD	191	South	SW KANNER HWY	Dark - Lighted	Rain	Wet	Motor Vehicle in Transport	On Roadway	Through Roadway	Head On	Head On	No Injury	N	N	N	N	N	0	0	300	27.11516898	-80.25471636	
89831634	2/19/2020	20-03050	L	Stuart	S KANNER HWY	191	South	SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Left Entering	Left Turn	Non-Incapacitating Injury	N	N	N	N	N	3	0	35000	27.11516898	-80.25471636	
89831876	3/14/2020	20-04575	L	Stuart	SW KANNER HWY	243	South	SE COVE RD	Dark - Lighted	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	Possible Injury	N	Y	N	N	N	1	0	25500	27.11504348	-80.25479746	
89039933	4/25/2020	19-09801	L	Stuart	SE COVE RD	191	South	SW KANNER HWY	Dark - Lighted	Clear	Dry	Tree (standing)	Off Roadway	Intersection-Related	Off Road	Off Road	No Injury	N	Y	N	N	N	0	0	1500	27.11516898	-80.25471636	
89832111	5/4/2020	20-07135	S	Stuart	SE COVE RD	137	East	SW KANNER HWY	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	0	27.11571392	-80.254014	
24028232	6/8/2020	20-09082	L	Unincorporated	SE COVE RD	191	South	SW KANNER HWY	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	Y	N	N	0	0	10000	27.11516898	-80.25471636	
24028732	8/24/2020	20-13344	L	Stuart	S KANNER HWY	238	South	COVE RD SE	Daylight	Clear	Dry	Tree (standing)	Roadside	Through Roadway	Off Road	Off Road	Possible Injury	N	N	N	N	N	1	0	8000	27.11505598	-80.25478936	
88189498	9/21/2020	FHPL19OFF077980	L	Unincorporated	STATE ROAD 76 ( SW KANNER HIGHWAY)	202	South	SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Rear End	Rear End	Fatal (within 30 days)	Y	Y	N	Y	N	0	1	1500	27.11514348	-80.25473286	
24029079	10/7/2020	20-15737	L	Stuart	SE COVE RD	191	South	SW KANNER HWY	Dark - Lighted	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Left Leaving	Left Turn	No Injury	N	N	N	N	N	0	0	1500	27.11516898	-80.25471636	
24029072	10/7/2020	20-15692	L	Stuart	SE COVE RD	191	South	SW KANNER HWY	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	Possible Injury	N	N	N	N	N	1	0	0	27.11516898	-80.25471636	
24029141	10/13/2020	20-16044	L	Stuart	S KANNER HWY	3	North	SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	3000	27.11563708	-80.25442656	
24029646	12/4/2020	20-18795	S	Unincorporated	SW KANNER HWY	20	South	SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Same Direction Sideswipe	Sideswipe	No Injury	N	N	N	N	N	0	0	300	27.11560718	-80.25467466	

Intersection Crashes at Cove Road and SR 76																												
HSMV Report No.	Crash Date	Investigating Agency Report No.	Form Type	City	Crash Street	Offset Distance	Direction	Intersecting Street	Light Condition	Weather	Road Surface	First Harmful Event	Location	Junction	Crash Type	Crash Type Detailed	Crash Severity	Aggressive Driving	Alcohol Related	Distraction Related	Drug Related	Speeding Related	Injury Count	Fatality Count	Est. Damage	Latitude	Longitude	
24029917	1/12/2021	21-00637	L	Stuart	S KANNER HWY	0		SE COVE RD	Daylight	Cloudy	Wet	Motor Vehicle in Transport	On Roadway	Intersection	Left Entering	Left Turn	Non-Incapacitating Injury	N	N	N	N	N	1	0	12500	27.11568372	-80.25441391	
24030092	1/28/2021	21-01610	S	Unincorporated	S KANNER HWY	193	North	SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	5700	27.11613906	-80.25440507	
24030199	2/16/2021	21-02737	S	Stuart	SW KANNER HWY			SE COVE ROAD	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	400	27.11625415	-80.25434559	
24030306	2/26/2021	21-03314	S	Stuart	S KANNER HWY	185	North	SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Non-Junction	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	0	27.11610606	-80.25438362	
24030540	3/25/2021	21-04876	L	Stuart	S KANNER HWY	18	North	SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	14000	27.11570268	-80.25463971	
24030748	4/18/2021	21-06244	L	Unincorporated	SW KANNER HWY	0		SE COVE RD	Dark - Lighted	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Left Entering	Left Turn	No Injury	N	N	N	N	N	0	0	2500	27.11568123	-80.25437642	
24030877	4/30/2021	21-06968	S	Jensen Beach	SE COVE RD	95	East	SW KANNER HWY	Dark - Lighted	Clear	Wet	Motor Vehicle in Transport	On Roadway	Intersection	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	1000	27.11569682	-80.25414182	
24030942	5/7/2021	21-07356	S	Stuart	S KANNER HWY	169	North	SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	Y	N	N	0	0	2000	27.11605035	-80.25436904	
89832420	6/3/2021	21-08867	L	Stuart	S KANNER HWY	0		SE COVE RD	Dark - Lighted	Rain	Wet	Motor Vehicle in Transport	On Roadway	Intersection	Left Entering	Left Turn	Possible Injury	N	N	N	N	N	2	0	13000	27.11577044	-80.25439942	
89832720	7/3/2021	21-10388	L	Stuart	SE COVE RD	107	East	S KANNER HWY	Dark - Lighted	Clear	Dry	Curb	Off Roadway	Intersection-Related	Off Road	Off Road	Non-Incapacitating Injury	N	N	Y	N	N	1	0	13000	27.11566716	-80.25410351	
89832851	7/28/2021	21-11610	S	Stuart	COVE RD	74	East	KANNER HWY	Daylight	Clear	Dry	Work Zone/Maintenance Equipment	Median	Through Roadway	Single Vehicle	Other	No Injury	N	N	N	N	N	0	0	0	27.11560418	-80.2542105	
89833117	8/22/2021	21-12966	L	Stuart	S KANNER HWY	186	South		Dark - Lighted	Clear	Dry	Motor Vehicle in Transport	Off Roadway	Driveway/Alley Access Related	Head On	Head On	No Injury	N	N	N	N	N	0	0	14000	27.11518158	-80.25470826	
89833143	8/28/2021	21-13257	L	Stuart	S KANNER HWY	0		SE COVE RD	Dark - Lighted	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Other	Other	No Injury	N	N	N	N	N	0	0	30000	27.11573518	-80.25442906	
89833204	9/6/2021	21-13678	S	Stuart	SE COVE RD	119	East	S KANNER HWY	Dark - Lighted	Cloudy	Wet	Other Post, Pole or Support	On Roadway	Through Roadway	Off Road	Off Road	No Injury	N	N	N	N	N	0	0	1200	27.11562544	-80.25406953	
89833416	9/30/2021	2021-00201623	L	Stuart	S KANNER HWY	141	North	SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	Possible Injury	N	N	Y	N	N	1	0	300	27.11599423	-80.25444711	
89833635	10/23/2021	2021-00210450	L	Stuart	SW KANNER HWY	122	South	SE COVE RD	Dark - Lighted	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	Y	N	N	N	Y	0	0	16500	27.1153545	-80.25465116	
89833638	10/25/2021	2021-00210892	S	Unincorporated	SE COVE RD			S KANNER HWY	Dark - Lighted	Rain	Wet	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	400	27.11571968	-80.2541033	
89833702	10/31/2021	2021-00213374	L	Stuart	S KANNER HWY	0		SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Left Rear	Left Turn	Non-Incapacitating Injury	N	N	N	N	N	3	0	30000	27.11568586	-80.25440816	
89833791	11/5/2021	2021-00215463	L	Stuart	S KANNER HWY	48	North	SE COVE RD	Dark - Lighted	Cloudy	Wet	Motor Vehicle in Transport	On Roadway	Through Roadway	Left Entering	Left Turn	Possible Injury	N	N	N	N	N	2	0	15000	27.11574955	-80.25437233	
89833795	11/11/2021	2021-00217693	S	Stuart	SE COVE RD	518	East	SW GAINES AVE	Dawn	Clear	Wet	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	Y	N	N	N	Y	0	0	4000	27.11619838	-80.25208467	
24873578	12/7/2021	2021-00228100	L	Stuart	S KANNER HWY	153	North	SE COVE RD	Dusk	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	10000	27.11603742	-80.25446261	
89833796	12/19/2021	2021-00215181	L	Stuart	S KANNER HWY	0		SE COVE RD	Dark - Lighted	Rain	Wet	Motor Vehicle in Transport	On Roadway	Intersection	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	15000	27.11586042	-80.25450588	
24873906	1/10/2022	2022-00003836	S	Stuart	SE COVE RD	0		S KANNER HWY	Dark - Lighted	Rain	Wet	Curb	Median	Intersection	Off Road	Off Road	No Injury	Y	N	N	N	Y	0	0	2500	27.11568014	-80.25427392	
24873995	1/19/2022	2022-00007423	S	Stuart	SE COVE RD	85	East	S KANNER HWY	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	6000	27.1157565	-80.25417066	
24874049	1/25/2022	2022-00009931	S	Stuart	S KANNER HWY	165	North	SE COVE RD	Dawn	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	12500	27.11605377	-80.2544053	
24874151	1/30/2022	2022-00012366	L	Stuart	SW GAINES AVE	191	South		Dark - Lighted	Clear	Dry	Curb	Shoulder	Through Roadway	Off Road	Off Road	No Injury	N	N	N	N	N	0	0	9500	27.11516898	-80.25471636	
24874366	2/9/2022	2022-00016441	L	Unincorporated	S KANNER HWY	233	North	SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Same Direction Sideswipe	Sideswipe	No Injury	N	N	N	N	N	0	0	2000	27.11623866	-80.25436577	
24874301	2/17/2022	2022-00019984	S	Stuart	S KANNER HWY	422	North	SE COVE RD	Dusk	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	Y	N	N	0	0	7000	27.11670397	-80.25409587	
24874432	3/1/2022	2022-00024699	L	Stuart	SE COVE RD	0		S KANNER HWY	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Left Entering	Left Turn	No Injury	N	N	N	N	N	0	0	14000	27.11565498	-80.25464731	
24874585	3/7/2022	2022-00027393	S	Stuart	SE COVE RD	358	East	SW GAINES AVE	Daylight	Cloudy	Wet	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	4000	27.11595922	-80.25250387	
24874539	3/8/2022	2022-00027767	L	Stuart	SW KANNER HWY	59	South	SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	Possible Injury	N	N	N	N	N	1	0	15750	27.11548865	-80.25452137	
24874590	3/11/2022	2022-00029162	L	Stuart	SE COVE RD	534	East	SW GAINES AVE	Daylight	Rain	Wet	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	Possible Injury	Y	N	N	N	Y	2	0	5500	27.11619936	-80.25203477	
24875202	5/10/2022	2022-00055369	S	Stuart	SE COVE RD	10	East	S KANNER HWY	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	700	27.11563436	-80.25440592	
24875541	6/18/2022	2022-00072326	S	Stuart	S KANNER HWY	0		SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	1000	27.11565498	-80.25464731	
24875569	6/20/2022	2022-00073021	S	Stuart	SE COVE RD	17	East	S KANNER HWY	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	300	27.11563397	-80.25438571	
24875652	6/29/2022	2022-00076878	S	Stuart	SE COVE RD	17	East	S KANNER HWY	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	3500	27.11563397	-80.25438571	
24875905	7/28/2022	2022-00088858	S	Stuart	SE COVE RD	0		SW GAINES AVE	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	1800	27.11561674	-80.25359798	
24875950	8/1/2022	2022-00090805	L	Stuart	SW KANNER HWY	0		SE COVE RD	Dark - Lighted	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Rear End	Rear End	Non-Incapacitating Injury	N	Y	Y	N	N	2	0	9000	27.11553897	-80.25454182	
24876121	8/23/2022	2022-00100849	L	Stuart	S KANNER HWY	0		SE COVE RD	Dark - Lighted	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Left Entering	Left Turn	Non-Incapacitating Injury	N	N	Y	N	N	1	0	45000	27.11575785	-80.25438765	
24876255	9/7/2022	2022-00108755	L	Stuart	SW KANNER HWY	54	South	SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N</										

Intersection Crashes at Cove Road and SE Atlantic Ridge Drive																												
HSMV Report No.	Crash Date	Investigating Agency Report No.	Form Type	City	Crash Street	Offset Distance	Direction	Intersecting Street	Light Condition	Weather	Road Surface	First Harmful Event	Location	Junction	Crash Type	Crash Type Detailed	Crash Severity	Aggressive Driving	Alcohol Related	Distraction Related	Drug Related	Speeding Related	Injury Count	Fatality Count	Est. Damage	Latitude	Longitude	
87484176	6/15/2018	18-11152	L	Stuart	SE COVE RD	0		SE ATLANTIC RIDGE DR	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Left Entering	Left Turn	Non-Incapacitating Injury	N	N	N	N	N	1	0	8500	27.12144097	-80.23882327	
87483962	5/21/2018	18-09700	L	Unincorporated	COVE RD SE	10	East	ATLANTIC RIDGE DR SE	Daylight	Rain	Wet	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	Non-Incapacitating Injury	N	N	Y	N	N	2	0	15000	27.12145297	-80.23879627	
87484700	8/16/2018	18-14761	S	Stuart	SE COVE RD	77	West	SE ATLANTIC RIDGE DR	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Non-Junction	Opposing Sideswipe	Sideswipe	No Injury	N	N	N	N	N	0	0	200	27.12127103	-80.23899607	
87483565	4/10/2018	18-07073	L	Stuart	COVE RD SE	151	East	ATLANTIC RIDGE DR SE	Daylight	Rain	Wet	Motor Vehicle in Transport	On Roadway	Through Roadway	Other	Other	Non-Incapacitating Injury	Y	N	N	N	Y	1	0	6000	27.12162097	-80.23840727	
87484047	5/24/2018	18-09922	S	Hobe Sound	SE COVE ROAD	204	West	SE COVE ROAD/SE ATLANTIC RIDGE	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	Y	N	N	N	N	0	0	5000	27.12118734	-80.23938758	
89038990	3/4/2019	19-03950	S	Stuart	SE COVE RD	111	East	SE ATLANTIC RIDGE DR	Daylight	Clear	Wet	Motor Vehicle in Transport	On Roadway	Non-Junction	Rear End	Rear End	No Injury	N	N	Y	N	N	0	0	2500	27.1216089	-80.23853524	
24029458	11/19/2020	20-18038	L	Stuart	SE COVE RD	62	East	SE ATLANTIC RIDGE DR	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	Non-Incapacitating Injury	N	N	Y	N	N	1	0	11000	27.1215497	-80.2386725	
89833659	10/22/2021	2021-00209785	S	Unincorporated	SE ATLANTIC RIDGE DR	70	South	SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	1000	27.12126619	-80.23874422	
89040870	10/4/2019	19-16144	L	Stuart	SE COVE RD	922	West	SE ATLANTIC RIDGE DR	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	20000	27.12043316	-80.2414282	
24030120	2/8/2021	21-02214	S	Stuart	SE COVE RD	219	West	SE ATLANTIC RIDGE DR	Daylight	Cloudy	Wet	Motor Vehicle in Transport	On Roadway	Non-Junction	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	1000	27.12116367	-80.23942688	
89831593	2/19/2020	20-03052	L	Unincorporated	SE COVE RD	557	West	SE ATLANTIC RIDGE DR	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	4500	27.12079525	-80.24038101	

Intersection Crashes at Cove Road and Willoughby Blvd																												
HSMV Report No.	Crash Date	Investigating Agency Report No.	Form Type	City	Crash Street	Offset Distance	Direction	Intersecting Street	Light Condition	Weather	Road Surface	First Harmful Event	Location	Junction	Crash Type	Crash Type Detailed	Crash Severity	Aggressive Driving	Alcohol Related	Distraction Related	Drug Related	Speeding Related	Injury Count	Fatality Count	Est. Damage	Latitude	Longitude	
87483305	3/16/2018	18-05305	L	Stuart	COVE RD SE	0		WILLBOUGHBY BLVD SE	Dusk	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Left Entering	Left Turn	Possible Injury	N	N	N	N	N	1	0	8000	27.12773097	-80.22264127	
87485674	12/4/2018	18-21410	L	Stuart	COVE RD SE	0		WILLBOUGHBY BLVD SE	Daylight	Rain	Wet	Motor Vehicle in Transport	On Roadway	Intersection	Left Entering	Left Turn	Non-Incapacitating Injury	N	N	Y	N	N	1	0	7000	27.12773097	-80.22264127	
87485861	12/22/2018	18-22539	L	Stuart	COVE RD SE	11	East	WILLBOUGHBY BLVD SE	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Non-Junction	Rear End	Rear End	Non-Incapacitating Injury	N	N	N	N	N	1	0	15000	27.12774197	-80.22261327	
87484094	6/7/2018	18-10748	S	Unincorporated	COVE RD SE	40	East	WILLBOUGHBY BLVD SE	Daylight	Rain	Wet	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	2000	27.12781236	-80.22255022	
87483140	2/28/2018	18-04230	S	Stuart	COVE RD SE	49	East	WILLOUGHBY BLVD SE	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	1400	27.1277903	-80.22250896	
87483490	4/2/2018	18-06523	L	Stuart	COVE RD	49	West	WILLBOUGHBY BLVD SE	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	1000	27.12767497	-80.22278227	
87484352	7/3/2018	18-12233	L	Unincorporated	SE COVE RD	79	West	WILLOUGHBY BLVD SE	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	Non-Incapacitating Injury	N	N	Y	N	N	1	0	9000	27.12764097	-80.22286627	
87482547	1/3/2018	18-00179	S	Stuart	COVE RD SE	98	East	WILLOUGHBY BLVD SE	Daylight	Rain	Wet	Motor Vehicle in Transport	On Roadway	Intersection	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	300	27.12784563	-80.22237065	
87483052	2/21/2018	18-03651	S	Stuart	COVE RD SE	126	East	WILLOUGH BLVD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Non-Junction	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	8000	27.12790534	-80.22230912	
87483725	4/24/2018	18-07561	S	Unincorporated	COVE RD SE	236	East	WILLOUGHBY BLVD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Non-Junction	Rear End	Rear End	No Injury	N	N	Y	N	N	0	0	3500	27.12802372	-80.22199547	
89041215	11/12/2019	19-18430	L	Stuart	COVE RD SE	0		WILLOUGHBY BLVD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Left Rear	Left Turn	Non-Incapacitating Injury	N	N	N	N	N	2	0	35000	27.1277616	-80.222658	
89040057	6/19/2019	19-10368	L	Stuart	COVE RD SE	74	West	WILLOUGHBY BLVD SE	Daylight	Rain	Wet	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	Non-Incapacitating Injury	N	N	N	N	N	1	0	12500	27.12761844	-80.22283798	
89039870	5/31/2019	19-09404	L	Stuart	SE COVE RD	83	East	SE WILLOUGHBY BLVD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	2000	27.12785677	-80.22242708	
24029001	10/2/2020	20-15273	S	Stuart	SE COVE RD	53	West	SE WILLOUGHBY BLVD	Dawn	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Same Direction Sideswipe	Sideswipe	No Injury	N	N	N	N	N	0	0	700	27.12765909	-80.22278736	
89832183	5/14/2020	20-07672	S	Unincorporated	SE COVE RD	83	West	SE WILLOUGHBY BLVD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	0	27.12760938	-80.22286342	
24030049	2/1/2021	21-01819	S	Stuart	COVE RD	0		WILLBOUGHBY BLVD SE	Daylight	Cloudy	Wet	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	0	27.12773502	-80.22264735	
24873692	12/16/2021	2021-00231789	S	Unincorporated	SE COVE RD	13	West	SE WILLOUGHBY BLVD	Dusk	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Left Entering	Left Turn	No Injury	N	N	N	N	N	0	0	2000	27.1277491	-80.22269692	
89833678	10/29/2021	2021-00212533	L	Stuart	SE COVE RD	104	East	SE WILLOUGHBY BLVD	Dawn	Cloudy	Wet	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	Y	N	N	0	0	17000	27.1278828	-80.22237015	
24030089	1/30/2021	21-01719	L	Stuart	SE COVE RD	108	East	SE WILLOUGHBY BLVD	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	Possible Injury	N	N	N	N	N	2	0	9000	27.12788221	-80.22235798	
89833664	10/27/2021	2021-00211927	S	Stuart	SE COVE RD	126	West	SE WILLOUGHBY BLVD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	4000	27.1275589	-80.22298288	
89833444	10/1/2021	2021-00202127	L	Port Salerno	SE COVE RD	143	East	SE WILLOUGHBY BLVD	Dark - Not Lighted	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	6000	27.1279222	-80.22226005	
24874691	3/20/2022	2022-00032911	L	Stuart	SE COVE RD	0		SE WILLOUGHBY BLVD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Left Entering	Left Turn	Non-Incapacitating Injury	N	N	N	N	N	2	0	24000	27.12774051	-80.22274917	
24874396	2/27/2022	2022-00023962	S	Stuart	SE WILLOUGHBY BLVD	0		SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	2000	27.12773502	-80.22264735	
24875102	4/30/2022	2022-00050979	L	Stuart	SE COVE RD	93	West	SE WILLOUGHBY BLVD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	Non-Incapacitating Injury	N	N	N	N	N	3	0	17000	27.12759935	-80.22289309	
24875369	5/20/2022	2022-00059793	L	Stuart	SE COVE RD	117	West	SE WILLOUGHBY BLVD	Daylight	Rain	Wet	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	Non-Incapacitating Injury	Y	N	N	N	Y	1	0	4500	27.12757199	-80.22295905	
24030755	4/19/2021	21-06288	S	Stuart	COVE RD SE			WILLOUGHBY BLVD SE	Daylight	Rain	Wet	Motor Vehicle in Transport	On Roadway	Intersection	Rear End	Rear End	No Injury	N	N	Y	N	N	0	0	500	27.1276063	-80.22281183	
89038954	2/27/2019	19-03639	S	Stuart	COVE RD SE			WILLOUGHBY BLVD SE	Daylight	Rain	Wet	Motor Vehicle in Transport	On Roadway	Intersection	Backed Into	Other	No Injury	N	N	N	N	N	0	0	4500	27.12763377	-80.2228091	
24029857	2/3/2021	21-00271	S	Stuart	SE COVE ROAD			SE WILLOUGHBY BLVD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	8000	27.12775614	-80.22265839	
89832835	7/14/2021	21-10962	L	Port Salerno	SE COVE RD				Dark - Not Lighted	Clear	Dry	Pedestrian	Off Roadway	Other	Pedestrian	Pedestrian	Possible Injury	N	N	N	N	N	1	0	0	27.12788381	-80.22259132	
89831864	3/6/2020	20-04076	L	Stuart	SE COVE RD			10TH AVE NE	Daylight	Cloudy	Dry	Motor Vehicle in Transport	Off Roadway	Non-Junction	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	12400	27.12857763	-80.22078257	
24875037	4/19/2022	2022-00045905	S	Stuart	SE COVE RD	476	West	SE NORTH GATE DR	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	11000	27.12958018	-80.21803433	
24875783	7/14/2022	2022-00083266	L	Stuart	SE COVE RD	352	East	SE WILLOUGHBY BLVD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Non-Junction	Rear End	Rear End	No Injury	N	N	Y	N	N	0	0	13000	27.12815908	-80.22167229	
25601528	12/5/2022	2022-00152150	S	Stuart	SE COVE RD	376	East	SE WILLOUGHBY BLVD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Non-Junction	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	5500	27.12817262	-80.22160047	
25601566	12/9/2022	2022-00153919	L	Stuart	SE COVE RD	501	East	SE WILLOUGHBY BLVD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	Possible Injury	N	N	N	N	N	1	0	6000	27.12832202	-80.22125163	
89038652	1/31/2019	19-01853	L	Stuart	SE COVE RD	845	East	SE WILLOUGHBY BLVD	Daylight	Rain	Wet	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	Non-Incapacitating Injury	N	N	N	N	N	2	0	20000	27.12870731	-80.22028565	
89040029	6/19/2019	19-10385	L	Unincorporated	SE COVE RD	551	East	SE WILLOUGHBY BLVD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Non-Junction	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	5000	27.12837577	-80.2211127	
89041165	11/6/2019	19-18125	S	Jensen Beach	SE COVE RD	489	East	SE WILLOUGHBY BLVD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	5000	27.1282817	-80.22127278	
89831525	2/13/2020	20-02650	L	Unincorporated	SE COVE RD	819	East	SE WILLOUGHBY BLVD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	Non-Incapacitating Injury	N	N	N	N	N	1	0	12000	27.12868143	-80.22036083	
89832246	5/18/2021	21-07979	L	Unincorporated	SE COVE RD	872	East	SE WILLOUGHBY BLVD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	Possible Injury	N	N	N	N	N	1	0	8000	27.12873851	-80.2202112	

Intersection Crashes at Cove Road and Cable Drive																												
HSMV Report No.	Crash Date	Investigating Agency Report No.	Form Type	City	Crash Street	Offset Distance	Direction	Intersecting Street	Light Condition	Weather	Road Surface	First Harmful Event	Location	Junction	Crash Type	Crash Type Detailed	Crash Severity	Aggressive Driving	Alcohol Related	Distraction Related	Drug Related	Speeding Related	Injury Count	Fatality Count	Est. Damage	Latitude	Longitude	
87485869	12/23/2018	18-22584	L	Stuart	SE COVE RD	0		SE CABLE DR	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Left Entering	Left Turn	Non-Incapacitating Injury	N	N	N	N	N	2	0	20000	27.13325697	-80.20857728	
87485703	12/2/2018	18-21288	L	Stuart	COVE RD SE	0		CABLE DR SE	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Left Rear	Left Turn	No Injury	N	N	N	N	N	0	0	10000	27.13337197	-80.20829428	
87485349	10/19/2018	18-18668	L	Stuart	SE COVE RD	0		SE CABLE DR	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Left Entering	Left Turn	Non-Incapacitating Injury	N	N	N	N	N	2	0	4000	27.13325697	-80.20857728	
87485736	12/3/2018	18-21377	L	Stuart	SE COVE RD	0		SE CABLE DR	Dark - Not Lighted	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Left Rear	Left Turn	Non-Incapacitating Injury	N	N	N	N	N	2	0	4000	27.13325697	-80.20857728	
87485348	10/22/2018	18-18834	L	Stuart	SE COVE RD	0		SE CABLE DR	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Left Leaving	Left Turn	Non-Incapacitating Injury	N	N	N	N	N	1	0	5600	27.13325697	-80.20857728	
87483192	2/26/2018	18-04062	L	Stuart	COVE RD SE	0		CABLE DR SE	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Left Rear	Left Turn	Non-Incapacitating Injury	N	N	N	N	N	2	0	10000	27.13325697	-80.20857728	
87484789	8/27/2018	18-15401	S	Stuart	SE CABLE WAY	0		SE COVE RD	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	2000	27.13310255	-80.2084739	
87485208	10/16/2018	18-18477	L	Stuart	SE COVE RD	0		SE CABLE DR	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Left Leaving	Left Turn	Non-Incapacitating Injury	N	N	N	N	N	3	0	6000	27.13325697	-80.20857728	
87483363	3/22/2018	18-05741	S	Stuart	CABLE DR SE	0	North	COVE RD SE	Daylight	Clear	Dry	Curb	Shoulder	Intersection-Related	Off Road	Off Road	No Injury	N	N	N	N	N	0	0	1000	27.1332722	-80.2085833	
87483922	5/16/2018	18-09409	L	Stuart	COVE RD SE	9	East	CABLE DR SE	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	5000	27.13326897	-80.20854828	
89038971	2/28/2019	19-03720	S	Stuart	SE COVE RD	0		SE CABLE DR	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Left Entering	Left Turn	No Injury	N	N	N	N	N	0	0	8000	27.13314647	-80.20855694	
89040410	8/11/2019	19-13135	L	Stuart	SE COVE RD	0		SE CABLE DR	Dark - Not Lighted	Cloudy	Wet	Motor Vehicle in Transport	On Roadway	Through Roadway	Right Angle	Angle	Possible Injury	N	N	N	N	N	2	0	5000	27.13320511	-80.20851374	
89041276	11/18/2019	19-18866	L	Stuart	SE COVE RD	0		SE CABLE DR	Dark - Lighted	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Left Entering	Left Turn	Possible Injury	N	N	N	N	N	1	0	22000	27.13316473	-80.20853411	
87485939	1/2/2019	19-00120	L	Unincorporated	SE COVE RD	0		SE CABLE DR	Dark - Lighted	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Left Rear	Left Turn	No Injury	N	N	N	N	N	0	0	15000	27.13314728	-80.20857567	
89039699	5/14/2019	19-08351	L	Stuart	SE COVE RD	5	East	SE CABLE DR	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Left Entering	Left Turn	Possible Injury	N	N	N	N	N	2	0	15000	27.13316402	-80.20850777	
89040565	8/29/2019	19-14163	S	Stuart	SE COVE RD	7	West	SE FEDERAL HWY	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Non-Junction	Left Rear	Left Turn	No Injury	N	N	N	N	N	0	0	5000	27.13319381	-80.20856643	
24028523	7/29/2020	20-11619	L	Stuart	SE COVE RD	0		SE CABLE DR	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Left Entering	Left Turn	Possible Injury	N	N	N	N	N	1	0	19000	27.13315206	-80.20857906	
89831246	1/15/2020	20-00854	L	Stuart	SE COVE RD	3	West	SE CABLE DR	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Right Angle	Angle	No Injury	N	N	Y	N	N	0	0	8000	27.13321174	-80.20856059	
89831506	2/6/2020	20-02248	L	Stuart	SE COVE RD	5	West	SE CABLE DR	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Right Angle	Angle	Possible Injury	N	N	N	N	N	1	0	11500	27.13319659	-80.20855939	
24029384	11/12/2020	20-17636	L	Stuart	SE COVE RD	10	East	SE CABLE DR	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Left Entering	Left Turn	No Injury	N	N	N	N	N	0	0	25000	27.1331769	-80.20849864	
24029160	10/14/2020	20-16130	L	Stuart	SE COVE RD	11	East	SE CABLE DR	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Left Rear	Left Turn	No Injury	N	N	N	N	N	0	0	10000	27.13318322	-80.20849916	
89832034	4/19/2020	20-06362	S	Stuart	SE CABLE DR	28	North	SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Non-Junction	Right Angle	Angle	No Injury	N	N	N	N	N	0	0	2000	27.13331786	-80.20864292	
24029842	1/8/2021	21-00394	L	Stuart	SE COVE RD	0		SE CABLE DR	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	300	27.13332446	-80.20854063	
24030245	2/11/2021	21-02453	L	Stuart	SE COVE RD	0		SE CABLE DR	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Left Entering	Left Turn	Non-Incapacitating Injury	N	N	N	N	N	2	0	20000	27.13315946	-80.20856761	
24030713	4/14/2021	21-05998	L	Stuart	SE COVE RD	0		SE CABLE DR	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Left Entering	Left Turn	Possible Injury	N	N	N	N	N	1	0	28000	27.13316272	-80.20852415	
89832626	6/29/2021	21-10164	S	Stuart	SE COVE RD	7	West	SE CABLE DR	Daylight	Clear	Wet	Motor Vehicle in Transport	On Roadway	Through Roadway	Right Angle	Angle	No Injury	N	N	N	N	N	0	0	4500	27.13315829	-80.20854931	
89833292	9/16/2021	2021-00196000	S	Stuart	SE COVE RD	51	East	SE CABLE DR	Daylight	Cloudy	Wet	Motor Vehicle in Transport	On Roadway	Through Roadway	Other	Other	No Injury	N	N	N	N	N	0	0	4000	27.1332376	-80.20838949	
25601163	10/20/2022	2022-00129989	S	Port Salerno	SE COVE RD	0		SE CABLE DR	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Same Direction Sideswipe	Sideswipe	No Injury	N	N	N	N	N	0	0	2500	27.13332102	-80.20843932	
25601630	12/14/2022	2022-00156440	L	Stuart	SE COVE RD	0		SE CABLE DR	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Right Angle	Angle	Non-Incapacitating Injury	N	N	N	N	N	2	0	8000	27.13330761	-80.20858464	
24874448	2/28/2022	2022-00024235	L	Stuart	SE COVE RD	0		SE CABLE DR	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Left Entering	Left Turn	Non-Incapacitating Injury	N	N	N	N	N	2	0	14000	27.13330006	-80.20859507	
24875237	5/7/2022	2022-00054110	S	Stuart	SE COVE RD	0		SE CABLE DR	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Left Rear	Left Turn	No Injury	N	N	N	N	N	0	0	11999	27.13326504	-80.20857729	
24874381	2/25/2022	2022-00023338	L	Stuart	SE COVE RD	0		SE CABLE DR	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Left Entering	Left Turn	No Injury	N	N	N	N	N	0	0	25000	27.13314734	-80.20859179	
24874865	4/6/2022	2022-00040450	L	Port Salerno	SE COVE RD	1	East	SE CABLE DR	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Right Angle	Angle	Possible Injury	N	N	N	N	N	1	0	4500	27.13319849	-80.20853879	

Intersection Crashes at Cove Road and SR 5																												
HSMV Report No.	Crash Date	Investigating Agency Report No.	Form Type	City	Crash Street	Offset Distance	Direction	Intersecting Street	Light Condition	Weather	Road Surface	First Harmful Event	Location	Junction	Crash Type	Crash Type Detailed	Crash Severity	Aggressive Driving	Alcohol Related	Distraction Related	Drug Related	Speeding Related	Injury Count	Fatality Count	Est. Damage	Latitude	Longitude	
87482568	1/4/2018	18-00273	S	Stuart	FEDERAL HWY SE	0		COVE RD SE	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Same Direction Sideswipe	Sideswipe	No Injury	N	N	N	N	N	0	0	7000	27.13401497	-80.20672728	
87482743	1/4/2018	18-00275	S	Stuart	FEDERAL HWY SE	20	North	COVE RD SE	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	Y	N	N	0	0	1000	27.13397792	-80.20695409	
87482654	1/12/2018	18-00814	L	Stuart	FEDERAL HWY SE	78	South	COVE RD SE	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	7000	27.13384217	-80.20657568	
87483026	2/18/2018	18-03496	L	Unincorporated	FEDERAL HWY SE	65	North	COVE RD SE	Dark - Lighted	Clear	Dry	Fell/Jumped From Motor Vehicle	On Roadway	Intersection-Related	Single Vehicle	Other	Non-Incapacitating Injury	N	N	N	N	N	1	0	1000	27.13414517	-80.20685498	
87483044	2/20/2018	18-03621	S	Unincorporated	COVE RD SE	95	West	SR 5	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	Y	N	N	0	0	5000	27.13387528	-80.20720726	
87483285	3/14/2018	18-05190	S	Unincorporated	FEDERAL HWY	194	South	COVE RD	Dark - Lighted	Clear	Dry	Motor Vehicle in Transport	On Roadway	Non-Junction	Rear End	Rear End	No Injury	N	N	Y	N	N	0	0	700	27.13359986	-80.20635166	
87483497	4/3/2018	18-06612	L	Unincorporated	SR 5	165	North	COVE RD SE	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	Y	N	N	0	0	8000	27.13435987	-80.20704968	
87483502	4/4/2018	18-06637	S	Stuart	COVE RD SE	147	East	FEDERAL HWY	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	5000	27.13415773	-80.20630473	
87483667	4/18/2018	18-07634	S	Unincorporated	FEDERAL HWY	149	North	COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Non-Junction	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	50	27.13426349	-80.20718977	
87483809	5/2/2018	18-08514	S	Stuart	COVE RD SE	150	West	SR 5	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	700	27.13368816	-80.20730496	
87484084	6/5/2018	18-10628	S	Stuart	COVE RD SE	97	West	FEDERAL HWY SE	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	2000	27.1337489	-80.20715683	
87484662	8/12/2018	18-14587	L	Stuart	SE FEDERAL HWY	0		SE COVE RD	Daylight	Clear	Dry	Other Post, Pole or Support	On Roadway	Intersection-Related	Off Road	Off Road	No Injury	N	N	N	N	N	0	0	1000	27.13393117	-80.20666018	
87484730	8/20/2018	18-14988	S	Stuart	SE COVE RD	114	East	SE FEDERAL HWY	Daylight	Rain	Wet	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	0	27.13410936	-80.20639136	
87484778	8/26/2018	18-15329	S	Stuart	SE FEDERAL HWY	131	North	SE COVE RD	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Same Direction Sideswipe	Sideswipe	No Injury	N	N	N	N	N	0	0	2000	27.13425486	-80.20703624	
87485123	10/2/2018	18-17657	S	Stuart	SE COVE RD	103	East	SE FEDERAL HWY	Dark - Lighted	Clear	Dry	Motor Vehicle in Transport	On Roadway	Non-Junction	Same Direction Sideswipe	Sideswipe	No Injury	N	N	N	N	N	0	0	1500	27.13414433	-80.20644307	
87485154	10/5/2018	18-17803	S	Stuart	SE COVE RD	54	West	SE FEDERAL HWY	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	Y	N	N	0	0	150	27.13377533	-80.20702549	
87485283	10/8/2018	18-18008	S	Unincorporated	COVE RD SE	50	West	FEDERAL HWY	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Rear End	Rear End	No Injury	N	N	Y	N	N	0	0	4000	27.13375055	-80.20700105	
87485392	10/24/2018	18-18975	S	Hobe Sound	SE COVE RD	0		SE FEDERAL HWY	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Same Direction Sideswipe	Sideswipe	No Injury	N	N	N	N	N	0	0	0	27.13395878	-80.20703225	
87485537	11/17/2018	18-20452	S	Unincorporated	SR 5	399	North	SE COVE RD	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	2500	27.13484335	-80.20760378	
87485566	11/20/2018	18-20642	L	Stuart	SE FEDERAL HWY	173	East	SE COVE RD	Dark - Lighted	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	Non-Incapacitating Injury	N	N	N	N	N	3	0	700	27.13364307	-80.20638648	
87485572	11/21/2018	18-20682	S	Hobe Sound	SE COVE RD	136	East	SE FEDERAL HWY	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Non-Junction	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	1000	27.13409907	-80.20631338	
87485587	11/24/2018	18-20805	L	Stuart	SE COVE RD	9	East	SE FEDERAL HWY	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Head On	Head On	Non-Incapacitating Injury	N	N	N	N	N	3	0	8000	27.13393117	-80.20666018	
87485627	11/28/2018	18-21021	L	Stuart	SE COVE RD	9	East	SE FEDERAL HWY	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	Possible Injury	N	N	N	N	N	1	0	1600	27.13393117	-80.20666018	
87485676	12/4/2018	18-21439	L	Unincorporated	SE COVE RD	9	East	SE FEDERAL HWY	Dark - Lighted	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	3000	27.13393117	-80.20666018	
87485768	12/15/2018	18-22091	S	Unincorporated	FEDERAL HWY SE			COVE RD SE	Daylight	Rain	Wet	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	4000	27.1342137	-80.20710966	
87485789	12/18/2018	18-22255	S	Stuart	SE COVE RD			SE FEDERAL HWY	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Backed Into	Other	No Injury	N	N	N	N	N	0	0	1500	27.13418476	-80.20633164	
87485836	12/21/2018	18-22487	S	Stuart	SE FEDERAL HWY	474	South	SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	5900	27.13302809	-80.20577548	
87485932	1/1/2019	19-00025	S	Stuart	SE FEDERAL HWY			SE COVE RD	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Backed Into	Other	No Injury	N	N	N	N	N	0	0	800	27.13428057	-80.20707253	
87485987	1/7/2019	19-00411	S	Stuart	SE COVE RD	115	West	SE FEDERAL HWY	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	750	27.13372399	-80.20720386	
87486082	1/12/2019	19-00716	L	Stuart	SE FEDERAL HWY	173	East	SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	Non-Incapacitating Injury	N	N	Y	N	N	1	0	1800	27.13364307	-80.20638648	
87486100	1/17/2019	19-01009	L	Stuart	SE COVE RD	9	East	SE FEDERAL HWY	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	Non-Incapacitating Injury	N	N	Y	N	N	2	0	0	27.13393117	-80.20666018	
89038606	1/21/2019	19-01211	L	Unincorporated	SE COVE RD	0		SE FEDERAL HWY	Daylight	Clear	Dry	Other Non-Fixed Object	On Roadway	Intersection	Single Vehicle	Other	Possible Injury	N	N	Y	N	N	1	0	350	27.13393117	-80.20666018	
87486137	1/22/2019	19-01238	S	Stuart	SE COVE RD	106	East	SE PINE AVE	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Non-Junction	Rear End	Rear End	No Injury	N	N	Y	N	N	0	0	1750	27.13355024		

Intersection Crashes at Cove Road and SR 5																												
HSMV Report No.	Crash Date	Investigating Agency Report No.	Form Type	City	Crash Street	Offset Distance	Direction	Intersecting Street	Light Condition	Weather	Road Surface	First Harmful Event	Location	Junction	Crash Type	Crash Type Detailed	Crash Severity	Aggressive Driving	Alcohol Related	Distraction Related	Drug Related	Speeding Related	Injury Count	Fatality Count	Est. Damage	Latitude	Longitude	
89040519	8/22/2019	19-13723	S	Stuart	SE FEDERAL HWY	179	South	SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	1300	27.13366621	-80.20633608	
89040552	8/28/2019	19-14093	S	Stuart	SE COVE RD	96	East	SE FEDERAL HWY	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	400	27.1341418	-80.20646669	
89040610	8/30/2019	19-14206	L	Stuart	SE COVE RD	9	East	SE FEDERAL HWY	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	Non-Incapacitating Injury	N	N	N	N	N	1	0	10000	27.13393117	-80.20666018	
89040711	9/14/2019	19-14961	L	Stuart	SE FEDERAL HWY	0		SE COVE RD	Daylight	Rain	Wet	Curb	Shoulder	Intersection	Off Road	Off Road	No Injury	Y	N	N	N	Y	0	0	5000	27.13393117	-80.20666018	
89040738	9/19/2019	19-15247	S	Stuart	SE COVE RD	72	West	SE FEDERAL HWY	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	1300	27.13372995	-80.2070653	
89040747	9/21/2019	19-15350	S	Stuart	SE COVE RD	114	West	SE FEDERAL HWY	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	1500	27.13371349	-80.20719695	
89040789	9/25/2019	19-15600	L	Stuart	SE COVE RD	9	East	SE FEDERAL HWY	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	Non-Incapacitating Injury	N	N	N	N	N	1	0	300	27.13393117	-80.20666018	
89040815	9/30/2019	19-15875	S	Stuart	SE COVE RD	0		SE FEDERAL HWY	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Left Entering	Left Turn	No Injury	N	N	N	N	N	0	0	9000	27.13389601	-80.20698904	
88189485	10/11/2019	FHPL19OFF067536	L	Unincorporated	US HIGHWAY 1 (FEDERAL HIGHWAY)	112	North	SE COVE RD	Dark - Lighted	Clear	Dry	Pedalcycle	On Roadway	Non-Junction	Bicycle	Bicycle	Fatal (within 30 days)	N	N	N	N	N	0	1	720	27.13424687	-80.20694718	
89040974	10/15/2019	19-16828	S	Stuart	SE COVE RD	131	East	SE FEDERAL HWY	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Non-Junction	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	3000	27.13411158	-80.20633695	
89040998	10/19/2019	19-17073	S	Stuart	SE COVE RD	0		SE FEDERAL HWY	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	200	27.13379257	-80.20697015	
89041147	11/4/2019	19-17979	S	Stuart	SE FEDERAL HWY			SE COVE RD	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	200	27.13367186	-80.20650683	
89041156	11/5/2019	19-18047	S	Stuart	SE FEDERAL HWY	0		SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	1250	27.1340077	-80.20701015	
89041164	11/6/2019	19-18122	S	Stuart	SE FEDERAL HWY			SE COVE RD	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Same Direction Sideswipe	Sideswipe	No Injury	N	N	N	N	N	0	0	2000	27.13366297	-80.20666335	
89041487	12/13/2019	19-20272	L	Unincorporated	SE COVE RD	9	East	SE FEDERAL HWY	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	Non-Incapacitating Injury	N	N	N	N	N	1	0	400	27.13393117	-80.20666018	
89831231	1/14/2020	20-00791	S	Stuart	SE FEDERAL HWY			SE COVE RD	Daylight	Cloudy	Wet	Motor Vehicle in Transport	On Roadway	Intersection-Related	Right Angle	Angle	No Injury	N	N	N	N	N	0	0	1800	27.13434981	-80.2071431	
89831303	1/21/2020	20-01232	L	Stuart	SE FEDERAL HWY	0		SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Right Angle	Angle	Non-Incapacitating Injury	N	N	N	N	N	3	0	35000	27.13393117	-80.20666018	
89831348	1/25/2020	20-01544	L	Port Salerno	SE COVE RD	0		SE FEDERAL HWY	Dark - Lighted	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Backed Into	Other	No Injury	N	Y	N	N	N	0	0	1500	27.13393117	-80.20666018	
89831376	1/29/2020	20-01777	S	Stuart	SE FEDERAL HWY	279	South	SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Non-Junction	Same Direction Sideswipe	Sideswipe	No Injury	N	N	N	N	N	0	0	1750	27.13343876	-80.20616002	
89831389	1/30/2020	20-01840	S	Stuart	SE FEDERAL HWY	154	North	SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	Y	N	N	0	0	5500	27.13426764	-80.20721157	
89831403	2/1/2020	20-01954	S	Unincorporated	SE FEDERAL HWY	97	South	SE COVE RD	Daylight	Rain	Wet	Motor Vehicle in Transport	On Roadway	Non-Junction	Rear End	Rear End	No Injury	Y	N	N	N	Y	0	0	0	27.13380517	-80.20654295	
89831706	3/2/2020	20-03771	S	Stuart	SE COVE RD	127	East	SE FEDERAL HWY	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Non-Junction	Same Direction Sideswipe	Sideswipe	No Injury	N	N	N	N	N	0	0	7000	27.13411211	-80.20634887	
89831721	3/3/2020	20-03856	S	Stuart	SE FEDERAL HWY	274	North	SE COVE RD	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Same Direction Sideswipe	Sideswipe	No Injury	N	N	N	N	N	0	0	3000	27.13454208	-80.20741472	
89831769	3/9/2020	20-04264	S	Stuart	SE FEDERAL HWY	157	South	SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Non-Junction	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	4000	27.13369859	-80.20639657	
89831798	3/11/2020	20-04358	S	Unincorporated	SE COVE RD	108	East	SE FEDERAL HWY	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Right Angle	Angle	No Injury	N	N	N	N	N	0	0	2500	27.13397688	-80.20635527	
89831848	3/13/2020	20-04454	L	Stuart	SE FEDERAL HWY	35	South	SE COVE RD	Dark - Lighted	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Left Rear	Left Turn	Possible Injury	N	N	N	N	N	2	0	15000	27.13393117	-80.20666018	
89832013	4/13/2020	20-06113	S	Stuart	SE COVE RD			SE FEDERAL HWY	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	0	27.13408498	-80.20633769	
89832122	4/30/2020	20-06905	L	Stuart	SE COVE RD	129	East	SE PINE AVE	Daylight	Rain	Wet	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	Possible Injury	N	N	N	N	N	2	0	1000	27.13358391	-80.20752877	
24028130	5/26/2020	20-08311	L	Unincorporated	SE COVE RD	9	East	SE FEDERAL HWY	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Same Direction Sideswipe	Sideswipe	No Injury	N	N	N	N	N	0	0	1000	27.13393117	-80.20666018	
24028085	5/30/2020	20-08551	S	Jensen Beach	SE COVE RD	144	East	SE FEDERAL HWY	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	2250	27.13416442	-80.20631493	
24028092	5/31/2020	20-08621	S	Stuart	SE COVE RD	103	East	SE FEDERAL HWY	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Non-Junction	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	5000	27.1341187	-80.20643144	
24028191	6/13/2020	20-09364	L	Stuart	SE COVE RD	9	East	SE FEDERAL HWY	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	Non-Incapacitating Injury	N	N	N	N	N	2	0	30000	27.13393117	-80.20666018	
24028217	6/17/2020	20-09611	L	Stuart	SE COVE RD	9	East	SE FEDERAL HWY	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	0	27.13393117	-80.20666018	
240286																												

Intersection Crashes at Cove Road and SR 5																												
HSMV Report No.	Crash Date	Investigating Agency Report No.	Form Type	City	Crash Street	Offset Distance	Direction	Intersecting Street	Light Condition	Weather	Road Surface	First Harmful Event	Location	Junction	Crash Type	Crash Type Detailed	Crash Severity	Aggressive Driving	Alcohol Related	Distraction Related	Drug Related	Speeding Related	Injury Count	Fatality Count	Est. Damage	Latitude	Longitude	
24029480	11/23/2020	20-18216	L	Stuart	SE COVE RD	32	West	SE PINE AVE	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Non-Junction	Rear End	Rear End	Possible Injury	N	N	Y	N	N	1	0	1500	27.133381	-80.20797249	
24029502	11/26/2020	20-18345	L	Stuart	SE FEDERAL HWY	130	East	SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	250	27.13373167	-80.20647068	
24029573	12/4/2020	20-18782	S	Stuart	SE COVE RD	0		SE FEDERAL HWY	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	7000	27.13372704	-80.20704937	
24029819	1/4/2021	21-00191	S	Port Salerno	SE COVE RD	174	East	SE FEDERAL HWY	Dusk	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Same Direction Sideswipe	Sideswipe	No Injury	N	N	N	N	N	0	0	5000	27.13408982	-80.20618517	
24029960	1/20/2021	21-01084	L	Stuart	SE FEDERAL HWY	215	South	SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Same Direction Sideswipe	Sideswipe	No Injury	N	N	N	N	N	0	0	1500	27.13357475	-80.206285	
24030042	1/25/2021	21-01409	L	Unincorporated	SE COVE RD	0		SE FEDERAL HWY	Dark - Lighted	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Right Angle	Angle	Non-Incapacitating Injury	N	Y	N	N	N	1	0	17000	27.13391329	-80.20679272	
24030024	1/28/2021	21-01591	S	Stuart	SE FEDERAL HWY	53	North	SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	Y	N	N	0	0	600	27.1340594	-80.20700436	
24030032	1/29/2021	21-01684	S	Stuart	SE COVE RD	71	West	SE FEDERAL HWY	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	5400	27.13371877	-80.20705792	
24030132	2/9/2021	21-02286	S	Stuart	SE FEDERAL HWY	209	South	SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Non-Junction	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	6500	27.13355842	-80.20633433	
24030177	2/13/2021	21-02606	S	Stuart	SE FEDERAL HWY	0		SE COVE RD	Dark - Lighted	Cloudy	Wet	Motor Vehicle in Transport	On Roadway	Intersection	Left Leaving	Left Turn	No Injury	N	N	Y	N	N	0	0	3000	27.13388451	-80.20686446	
24030273	2/18/2021	21-02858	L	Stuart	SE FEDERAL HWY	244	South	SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	Possible Injury	N	N	N	N	N	2	0	20000	27.13352692	-80.20621212	
24030553	3/27/2021	21-04963	L	Stuart	SE COVE RD	37	West	SE FEDERAL HWY	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Non-Junction	Rear End	Rear End	Non-Incapacitating Injury	N	N	Y	N	N	1	0	3500	27.1334114	-80.20800309	
24030648	4/1/2021	21-05238	L	Stuart	SE COVE RD	0		SE FEDERAL HWY	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Same Direction Sideswipe	Sideswipe	No Injury	N	N	N	N	N	0	0	8500	27.13409354	-80.2065728	
24030786	4/21/2021	21-06400	S	Stuart	SE FEDERAL HWY	139	South	SE COVE RD	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	4000	27.13368235	-80.20650236	
24030866	4/24/2021	21-06586	L	Stuart	SE FEDERAL HWY	153	South	SE COVE RD	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	Possible Injury	N	N	N	N	N	1	0	12000	27.1336788	-80.2064416	
24030892	5/3/2021	21-07071	L	Stuart	SE FEDERAL HW	0		SE COVE RD	Dark - Lighted	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	Y	N	N	0	0	2700	27.13394843	-80.20682676	
24030962	5/10/2021	21-07518	S	Stuart	SE FEDERAL HWY	359	South	SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	2300	27.13328026	-80.2059877	
89832334	5/20/2021	21-08118	L	Stuart	SE COVE RD	91	West	SE FEDERAL HWY	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	Possible Injury	N	N	Y	N	N	1	0	1500	27.13373602	-80.20713096	
89832582	6/22/2021	21-09836	L	Stuart	SE COVE RD	160	East	SE FEDERAL HWY	Daylight	Rain	Wet	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	7000	27.13418576	-80.20627432	
89832928	8/5/2021	21-11998	S	Stuart	SE FEDERAL HWY	326	North	SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	3600	27.1346507	-80.20752052	
89832996	8/12/2021	21-12392	L	Port Salerno	SE COVE RD	114	East	SE FEDERAL HWY	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	Y	N	N	N	0	0	2500	27.13415552	-80.20641103	
89833038	8/13/2021	21-12462	L	Stuart	SE FEDERAL HWY	171	East	SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Non-Junction	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	1750	27.1336586	-80.20637423	
89833032	8/14/2021	21-12502	L	Stuart	SE FEDERAL HWY	95	East	SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Right Angle	Angle	No Injury	N	N	N	N	N	0	0	2900	27.13371149	-80.20674972	
89833061	8/18/2021	21-12715	L	Unincorporated	SE FEDERAL HWY	282	East	SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Same Direction Sideswipe	Sideswipe	No Injury	N	N	N	N	N	0	0	2500	27.1334341	-80.20615195	
89833067	8/19/2021	21-12772	L	Stuart	SE FEDERAL HWY	147	East	SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	Non-Incapacitating Injury	N	N	Y	N	N	2	0	600	27.13371185	-80.20642671	
89833090	8/22/2021	21-12958	L	Unincorporated	SE FEDERAL HWY	0		SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Opposing Sideswipe	Sideswipe	No Injury	N	N	N	N	N	0	0	9500	27.13420608	-80.20701721	
89833168	8/25/2021	21-13091	S	Stuart	S KANNER HWY			SE COVE ROAD	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Same Direction Sideswipe	Sideswipe	No Injury	N	N	N	N	N	0	0	6000	27.13364569	-80.20662336	
89833216	9/7/2021	21-13724	S	Stuart	SE FEDERAL HWY	62	East	SE COVE RD	Daylight	Rain	Wet	Motor Vehicle in Transport	On Roadway	Intersection-Related	Other	Other	No Injury	N	N	N	N	N	0	0	4500	27.13394783	-80.20652241	
89833288	9/15/2021	2021-00195347	L	Stuart	SE FEDERAL HWY	0		SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Right Angle	Angle	Possible Injury	N	N	N	N	N	1	0	10000	27.133899	-80.20655477	
89833334	9/22/2021	2021-00198481	L	Port Salerno	SE FEDERAL HWY	0		SE COVE RD	Dark - Lighted	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Left Rear	Left Turn	Possible Injury	N	N	N	N	N	1	0	19000	27.1339779	-80.20669137	
89833342	9/23/2021	2021-00198773	S	Stuart	SE FEDERAL HWY	78	East	SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	300	27.13382161	-80.20660761	
89833423	10/1/2021	2021-00202038	S	Stuart	SE FEDERAL HWY	118	North	SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	300	27.13419752	-80.20713159	
89833447	10/4/2021	2021-00202879	S	Unincorporated	SE FEDERAL HWY	118	North	SE COVE RD	Dawn	Clear	Dry																	

Intersection Crashes at Cove Road and SR 5																												
HSMV Report No.	Crash Date	Investigating Agency Report No.	Form Type	City	Crash Street	Offset Distance	Direction	Intersecting Street	Light Condition	Weather	Road Surface	First Harmful Event	Location	Junction	Crash Type	Crash Type Detailed	Crash Severity	Aggressive Driving	Alcohol Related	Distraction Related	Drug Related	Speeding Related	Injury Count	Fatality Count	Est. Damage	Latitude	Longitude	
24875209	5/12/2022	2022-00056288	S	Stuart	SE COVE RD	182	East	SE PINE AVE	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	5000	27.1336422	-80.20737726	
24875217	5/14/2022	2022-00057102	S	Stuart	SE FEDERAL HWY	147	East	SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	No Injury	N	N	Y	N	N	0	0	2000	27.13370217	-80.20644176	
24875349	5/22/2022	2022-00060727	L	Stuart	SE COVE RD	93	West	SE FEDERAL HWY	Dark - Lighted	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	Y	N	N	N	0	0	6000	27.13373753	-80.207137	
24875442	6/6/2022	2022-00067073	S	Port Salerno	SE COVE RD	37	West	SE FEDERAL HWY	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Other	Other	No Injury	N	N	N	N	N	0	0	3500	27.1340511	-80.20662148	
24875503	6/14/2022	2022-00070332	L	Stuart	SE COVE RD	0		SE FEDERAL HWY	Dark - Lighted	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Left Entering	Left Turn	No Injury	N	N	Y	N	N	0	0	25000	27.13393044	-80.20695975	
24875734	7/8/2022	2022-00080587	S	Stuart	SE FEDERAL HWY	52	South	SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Other	Other	No Injury	N	N	N	N	N	0	0	3000	27.13382738	-80.20680969	
24875829	7/12/2022	2022-00082424	L	Stuart	SE FEDERAL HWY	0		SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Right Angle	Angle	Non-Incapacitating Injury	N	N	N	N	N	2	0	30000	27.13390128	-80.20660864	
24876006	7/30/2022	2022-00089978	L	Stuart	SE COVE RD	84	West	SE FEDERAL HWY	Dark - Lighted	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	5000	27.13374792	-80.20711107	
24876017	8/8/2022	2022-00093755	S	Stuart	SE COVE RD	252	East	SE FEDERAL HWY	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Same Direction Sideswipe	Sideswipe	No Injury	N	N	N	N	N	0	0	1200	27.13416153	-80.20595838	
24876093	8/17/2022	2022-00098190	S	Stuart	SE FEDERAL HWY	162	East	SE COVE RD	Dark - Not Lighted	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	15000	27.13367876	-80.20639106	
24876191	8/29/2022	2022-00103972	S	Port Salerno	SE COVE RD	0		SE FEDERAL HWY	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	300	27.13384542	-80.20717101	
24876296	9/6/2022	2022-00108312	S	Stuart	SE FEDERAL HWY	0		SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	2000	27.13404233	-80.2070093	
24876339	9/14/2022	2022-00112108	L	Stuart	SE FEDERAL HWY	224	East	SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Unknown	Unknown	No Injury	N	N	N	N	N	0	0	13000	27.13352151	-80.20630057	
24876464	9/28/2022	2022-00119176	L	Stuart	SE COVE RD	162	East	SE FEDERAL HWY	Daylight	Rain	Wet	Motor Vehicle in Transport	On Roadway	Non-Junction	Rear End	Rear End	Non-Incapacitating Injury	N	N	Y	N	N	2	0	6750	27.13418189	-80.20626382	
24876560	10/3/2022	2022-00121694	L	Stuart	SE FEDERAL HWY	132	North	SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	Possible Injury	N	N	N	N	N	1	0	19000	27.13422135	-80.20715606	
25601523	12/5/2022	2022-00152187	S	Stuart	SE FEDERAL HWY	132	South	SE COVE RD	Dark - Lighted	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection	Same Direction Sideswipe	Sideswipe	No Injury	N	N	Y	N	N	0	0	3600	27.13369267	-80.20651221	
25601547	12/8/2022	2022-00153452	S	Stuart	SE COVE RD	0		SE FEDERAL HWY	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Rear End	Rear End	No Injury	N	N	N	N	N	0	0	2150	27.1338819	-80.20706764	
25601744	12/16/2022	2022-00157208	S	Stuart	SE FEDERAL HWY	0		SE COVE RD	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Through Roadway	Other	Other	No Injury	N	N	N	N	N	0	0	6000	27.13375342	-80.20673572	
25601643	12/16/2022	2022-00157377	S	Unincorporated	SE COVE RD	0		SE FEDERAL HWY	Dark - Lighted	Rain	Wet	Motor Vehicle in Transport	On Roadway	Intersection	Right/Through	Right Turn	No Injury	N	N	N	N	N	0	0	3000	27.13396005	-80.20711112	
25601690	12/20/2022	2022-00159055	L	Stuart	SE FEDERAL HWY	167	East	SE COVE RD	Daylight	Clear	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	Non-Incapacitating Injury	N	N	N	N	N	1	0	25000	27.13366398	-80.20638761	
25601721	12/25/2022	2022-00161253	L	Stuart	SE COVE RD	74	West	SE FEDERAL HWY	Daylight	Cloudy	Dry	Motor Vehicle in Transport	On Roadway	Intersection-Related	Rear End	Rear End	Non-Incapacitating Injury	N	N	N	N	N	1	0	11000	27.13372659	-80.20706764	

## Appendix E

### HSM Analysis Spreadsheet Summaries

Existing Conditions  
HSM Spreadsheet Summaries

Year: Existing

**Worksheet 3A -- Predicted Crashes by Severity and Site Type and Observed Crashes Using the Site-Specific EB Method for Urban and Suburban Arterials**

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Collision type / Site type	Predicted average crash frequency (crashes/year)			Observed crashes, $N_{\text{observed}}$ (crashes/year)	Overdispersion Parameter, k	Weighted adjustment, w	Expected average crash frequency, $N_{\text{expected}}$
	$N_{\text{predicted}}$ (TOTAL)	$N_{\text{predicted}}$ (FI)	$N_{\text{predicted}}$ (PDO)				
						Equation A-5 from Part C Appendix	Equation A-4 from Part C Appendix

**ROADWAY SEGMENTS****Multiple-vehicle nondriveway**

Segment 1	0.456	0.130	0.326	0.2	1.320	0.624	0.360
Segment 2	0.593	0.173	0.420	0.8	0.840	0.667	0.662
Segment 3	1.205	0.351	0.854	0.8	0.840	0.497	1.001
Segment 4	0.678	0.198	0.481	0.4	0.840	0.637	0.577
Segment 5	0.803	0.234	0.569	1.2	0.840	0.597	0.963
Segment 6	0.946	0.275	0.671	0.4	0.840	0.557	0.704
Segment 7	1.584	0.461	1.123	2.6	0.840	0.429	2.164
Segment 8	1.354	0.393	0.961	0.4	0.840	0.468	0.846
Segment 9	0.945	0.274	0.670	1.8	0.840	0.558	1.323
Segment 10	1.073	0.312	0.761	0.6	0.840	0.526	0.849
Segment 11	0.489	0.139	0.350	0.8	1.320	0.608	0.611

**Single-vehicle**

Segment 1	0.121	0.020	0.101	0.2	0.860	0.906	0.129
Segment 2	0.206	0.041	0.166	0.4	0.810	0.857	0.234
Segment 3	0.419	0.082	0.336	1	0.810	0.747	0.515
Segment 4	0.236	0.046	0.189	0.4	0.810	0.840	0.262
Segment 5	0.269	0.052	0.217	0	0.810	0.821	0.221
Segment 6	0.307	0.059	0.248	0.2	0.810	0.801	0.286
Segment 7	0.531	0.104	0.428	0.4	0.810	0.699	0.492
Segment 8	0.411	0.078	0.333	0.2	0.810	0.750	0.358
Segment 9	0.287	0.054	0.233	0.2	0.810	0.812	0.270
Segment 10	0.326	0.062	0.264	0	0.810	0.791	0.258
Segment 11	0.120	0.020	0.100	0	0.860	0.907	0.109

**Multiple-vehicle driveway-related**

Segment 1	0.035	0.010	0.025	0.4	1.390	0.953	0.052
Segment 2	0.000	0.000	0.000	0	0.810	1.000	0.000
Segment 3	0.109	0.035	0.074	0.2	0.810	0.919	0.117
Segment 4	0.000	0.000	0.000	0	0.810	1.000	0.000
Segment 5	0.088	0.028	0.060	0	0.810	0.933	0.082
Segment 6	0.102	0.033	0.069	0.2	0.810	0.923	0.110
Segment 7	0.536	0.173	0.363	1	0.810	0.697	0.676
Segment 8	0.204	0.066	0.138	0.2	0.810	0.858	0.204
Segment 9	0.147	0.048	0.100	1	0.810	0.893	0.238
Segment 10	0.000	0.000	0.000	0	0.810	1.000	0.000
Segment 11	0.217	0.062	0.155	2	1.390	0.768	0.630

**INTERSECTIONS****Multiple-vehicle**

Intersection 1	18.509	5.327	13.182	17	0.330	0.141	17.040
Intersection 2	0.939	0.346	0.593	1	0.800	0.571	0.965
Intersection 3	0.701	0.280	0.421	0.2	0.800	0.641	0.521
Intersection 4	0.407	0.191	0.217	0	0.800	0.754	0.307
Intersection 5	3.414	1.308	2.106	2.2	0.330	0.470	2.771
Intersection 6	3.437	1.145	2.292	1.4	0.390	0.427	2.270
Intersection 7	1.096	0.407	0.688	1	0.800	0.533	1.051
Intersection 8	5.088	1.761	3.328	8.2	0.330	0.373	7.038
Intersection 9	0.903	0.347	0.556	0.4	0.800	0.581	0.692
Intersection 10	0.851	0.349	0.502	1	0.800	0.595	0.911
Intersection 11	2.071	0.784	1.287	6.4	0.400	0.547	4.032
Intersection 12	11.965	4.180	7.785	33.8	0.390	0.176	29.946

**Single-vehicle**

Urban and Suburban Predictive Method

Intersection 1	0.874	0.254	0.619	2.4	0.360	0.761	1.239
Intersection 2	0.137	0.043	0.094	0.2	1.140	0.865	0.146
Intersection 3	0.099	0.032	0.068	0.0	1.140	0.898	0.089
Intersection 4	0.051	0.017	0.034	0.0	1.140	0.946	0.048
Intersection 5	0.275	0.070	0.204	0.0	0.360	0.910	0.250
Intersection 6	0.219	0.057	0.163	0.2	0.360	0.927	0.218
Intersection 7	0.155	0.049	0.106	0.6	1.140	0.850	0.221
Intersection 8	0.452	0.133	0.319	0.0	0.360	0.860	0.389
Intersection 9	0.117	0.037	0.080	0.0	1.140	0.882	0.103
Intersection 10	0.105	0.034	0.072	0.2	1.140	0.893	0.115
Intersection 11	0.259	0.085	0.174	0.2	0.650	0.856	0.251
Intersection 12	0.622	0.141	0.481	1.0	0.360	0.817	0.691
COMBINED (sum of column)	67.544	21.389	46.156	95	--	--	86.610

**Worksheet 3B -- Predicted Pedestrian and Bicycle Crashes for Urban and Suburban Arterials**

(1)	(2)	(3)
Site Type	N <sub>ped</sub>	N <sub>bike</sub>
<b>ROADWAY SEGMENTS</b>		
Segment 1	0.012	0.003
Segment 2	0.004	0.003
Segment 3	0.009	0.007
Segment 4	0.005	0.004
Segment 5	0.006	0.005
Segment 6	0.007	0.005
Segment 7	0.013	0.011
Segment 8	0.010	0.008
Segment 9	0.007	0.006
Segment 10	0.007	0.006
Segment 11	0.016	0.004
<b>INTERSECTIONS</b>		
Intersection 1	0.011	0.213
Intersection 2	--	0.020
Intersection 3	--	0.015
Intersection 4	--	0.008
Intersection 5	0.045	0.101
Intersection 6	0.064	0.125
Intersection 7	--	0.023
Intersection 8	0.019	0.152
Intersection 9	--	0.019
Intersection 10	--	0.017
Intersection 11	--	0.078
Intersection 12	0.277	0.429
COMBINED (sum of column)	0.511	1.261

**Worksheet 3C -- Site-Specific EB Method Summary Results for Urban and Suburban Arterials**

(1)	(2)	(3)	(4)	(5)	(6)
Crash severity level	N <sub>predicted</sub>	N <sub>ped</sub>	N <sub>bike</sub>	N <sub>expected (VEHICLE)</sub>	N <sub>expected</sub>
Total	(2) <sub>COMB</sub> from Worksheet 3A	(2) <sub>COMB</sub> from Worksheet 3B	(3) <sub>COMB</sub> from Worksheet 3B	(8) <sub>COMB</sub> Worksheet 3A	(3)+(4)+(5)
	67.5	0.5	1.3	86.6	88.4
Fatal and injury (FI)	(3) <sub>COMB</sub> from Worksheet 3A	(2) <sub>COMB</sub> from Worksheet 3B	(3) <sub>COMB</sub> from Worksheet 3B	(5) <sub>TOTAL</sub> * (2) <sub>FI</sub> / (2) <sub>TOTAL</sub>	(3)+(4)+(5)
	21.4	0.5	1.3	27.4	29.2
Property damage only (PDO)	(4) <sub>COMB</sub> from Worksheet 3A	--	--	(5) <sub>TOTAL</sub> * (2) <sub>PDO</sub> / (2) <sub>TOTAL</sub>	(3)+(4)+(5)
	46.2	0.0	0.0	59.2	59.2

Opening Year 2025  
HSM Spreadsheet Summaries

Year: 2025  
Alternative: No-Build

Worksheet 4A -- Predicted Crashes by Collision and Site Type and Observed Crashes Using the Project-Level EB Method for Urban and Suburban Arterials

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Collision type / Site type	Predicted crashes			Observed crashes, $N_{\text{observed}}$ (crashes/year)	Overdispersion Parameter, k	$N_{\text{predicted } w0}$	$N_{\text{predicted } w1}$	$W_0$	$N_0$	$w_1$	$N_1$	$N_{\text{expected/comb}}$
	$N_{\text{predicted}}$ (TOTAL)	$N_{\text{predicted}}$ (FI)	$N_{\text{predicted}}$ (PDO)			Equation A-8 $(6)*(2)^2$	Equation A-9 $\text{sqrt}((6)*(2))$	Equation A-10	Equation A-11	Equation A-12	Equation A-13	Equation A-14
ROADWAY SEGMENTS												
Multiple-vehicle nondriveway												
Segment 1	0.499	0.142	0.358	--	1.320	0.329	0.812	--	--	--	--	--
Segment 2	0.666	0.194	0.472	--	0.840	0.372	0.748	--	--	--	--	--
Segment 3	1.352	0.393	0.959	--	0.840	1.535	1.066	--	--	--	--	--
Segment 4	0.761	0.221	0.540	--	0.840	0.487	0.800	--	--	--	--	--
Segment 5	0.897	0.261	0.637	--	0.840	0.677	0.868	--	--	--	--	--
Segment 6a	0.531	0.154	0.377	--	0.840	0.237	0.668	--	--	--	--	--
Segment 6b	0.534	0.155	0.379	--	0.840	0.240	0.670	--	--	--	--	--
Segment 7	1.771	0.515	1.256	--	0.840	2.635	1.220	--	--	--	--	--
Segment 8	1.514	0.439	1.075	--	0.840	1.925	1.128	--	--	--	--	--
Segment 9	1.056	0.306	0.750	--	0.840	0.937	0.942	--	--	--	--	--
Segment 10	1.200	0.348	0.852	--	0.840	1.209	1.004					
Segment 11	0.535	0.151	0.384	--	1.320	0.377	0.840					
Single-vehicle												
Segment 1	0.125	0.021	0.104	--	0.860	0.013	0.328	--	--	--	--	--
Segment 2	0.214	0.041	0.173	--	0.810	0.037	0.417	--	--	--	--	--
Segment 3	0.435	0.084	0.351	--	0.810	0.153	0.594	--	--	--	--	--
Segment 4	0.245	0.047	0.198	--	0.810	0.049	0.446	--	--	--	--	--
Segment 5	0.280	0.053	0.226	--	0.810	0.063	0.476	--	--	--	--	--
Segment 6a	0.159	0.030	0.129	--	0.810	0.020	0.359	--	--	--	--	--
Segment 6b	0.160	0.030	0.130	--	0.810	0.021	0.360	--	--	--	--	--
Segment 7	0.552	0.105	0.446	--	0.810	0.246	0.668	--	--	--	--	--
Segment 8	0.427	0.079	0.348	--	0.810	0.147	0.588	--	--	--	--	--
Segment 9	0.298	0.055	0.243	--	0.810	0.072	0.491	--	--	--	--	--
Segment 10	0.338	0.063	0.275	--	0.810	0.093	0.523	--	--	--	--	--
Segment 11	0.124	0.021	0.103	--	0.860	0.013	0.326	--	--	--	--	--
Multiple-vehicle driveway-related												
Segment 1	0.038	0.011	0.027	--	1.390	0.002	0.230	--	--	--	--	--
Segment 2	0.000	0.000	0.000	--	0.810	0.000	0.000	--	--	--	--	--
Segment 3	0.117	0.038	0.079	--	0.810	0.011	0.308	--	--	--	--	--
Segment 4	0.000	0.000	0.000	--	0.810	0.000	0.000	--	--	--	--	--
Segment 5	0.094	0.030	0.064	--	0.810	0.007	0.276	--	--	--	--	--
Segment 6a	0.110	0.035	0.074	--	0.810	0.010	0.298	--	--	--	--	--
Segment 6b	0.110	0.035	0.074	--	0.810	0.010	0.298	--	--	--	--	--
Segment 7	0.573	0.185	0.388	--	0.810	0.266	0.681	--	--	--	--	--
Segment 8	0.218	0.070	0.148	--	0.810	0.039	0.420	--	--	--	--	--
Segment 9	0.157	0.051	0.107	--	0.810	0.020	0.357	--	--	--	--	--
Segment 10	0.000	0.000	0.000	--	0.810	0.000	0.000	--	--	--	--	--
Segment 11	0.234	0.066	0.167	--	1.390	0.076	0.570	--	--	--	--	--
INTERSECTIONS												
Multiple-vehicle												
Intersection 1	19.841	5.652	14.188	--	0.330	129.907	2.559	--	--	--	--	--
Intersection 2	0.999	0.365	0.635	--	0.800	0.799	0.894	--	--	--	--	--
Intersection 3	0.777	0.308	0.469	--	0.800	0.483	0.788	--	--	--	--	--
Intersection 4	0.439	0.205	0.234	--	0.800	0.154	0.593	--	--	--	--	--
Intersection 5	3.765	1.429	2.335	--	0.330	4.677	1.115	--	--	--	--	--
Intersection 6	3.947	1.325	2.622	--	0.390	6.076	1.241	--	--	--	--	--
Cove Royale Dev	0.876	0.341	0.535	--	0.800	0.614	0.837	--	--	--	--	--
Intersection 7	1.221	0.449	0.772	--	0.800	1.193	0.988	--	--	--	--	--
Intersection 8	6.896	2.258	4.638	--	0.390	18.544	1.640	--	--	--	--	--
Intersection 9	0.972	0.373	0.599	--	0.800	0.756	0.882	--	--	--	--	--
Intersection 10	0.916	0.375	0.541	--	0.800	0.672	0.856	--	--	--	--	--
Intersection 11	2.222	0.848	1.374	--	0.400	1.975	0.943	--	--	--	--	--
Intersection 12	12.412	4.341	8.071	--	0.390	60.083	2.200	--	--	--	--	--

Single-vehicle												
Intersection 1	0.915	0.267	0.648	--	0.360	0.301	0.574	--	--	--	--	--
Intersection 2	0.143	0.045	0.098	--	1.140	0.023	0.404	--	--	--	--	--
Intersection 3	0.104	0.033	0.071	--	1.140	0.012	0.344	--	--	--	--	--
Intersection 4	0.051	0.017	0.034	--	1.140	0.003	0.241	--	--	--	--	--
Intersection 5	0.292	0.075	0.217	--	0.360	0.031	0.324	--	--	--	--	--
Intersection 6	0.245	0.062	0.183	--	0.360	0.022	0.297	--	--	--	--	--
Cove Royale Dev	0.111	0.035	0.076	--	1.140	0.014	0.356	--	--	--	--	--
Intersection 7	0.162	0.051	0.112	--	1.140	0.030	0.430	--	--	--	--	--
Intersection 8	0.459	0.123	0.336	--	0.360	0.076	0.407	--	--	--	--	--
Intersection 9	0.119	0.037	0.081	--	1.140	0.016	0.368	--	--	--	--	--
Intersection 10	0.106	0.034	0.072	--	1.140	0.013	0.348	--	--	--	--	--
Intersection 11	0.267	0.087	0.180	--	0.650	0.046	0.417	--	--	--	--	--
Intersection 12	0.642	0.145	0.496	--	0.360	0.148	0.481	--	--	--	--	--
COMBINED (sum of column)	75.221	23.710	51.511	0	--	238.995	40.304	0.239	18.007	0.651	48.978	33.493

**Worksheet 4B -- Predicted Pedestrian and Bicycle Crashes for Urban and Suburban Arterials**

(1)	(2)	(3)
Site Type	N <sub>ped</sub>	N <sub>bike</sub>
<b>ROADWAY SEGMENTS</b>		
Segment 1	0.013	0.003
Segment 2	0.004	0.004
Segment 3	0.010	0.008
Segment 4	0.005	0.004
Segment 5	0.006	0.005
Segment 6	0.004	0.003
Segment 7	0.014	0.012
Segment 8	0.011	0.009
Segment 9	0.008	0.006
Segment 10	0.008	0.006
Segment 11	0.017	0.004
<b>INTERSECTIONS</b>		
Intersection 1	0.011	0.228
Intersection 2	--	0.021
Intersection 3	--	0.016
Intersection 4	--	0.009
Intersection 5	0.045	0.112
Intersection 6	0.065	0.143
Intersection 7	--	0.025
Intersection 8	0.033	0.276
Intersection 9	--	0.020
Intersection 10	--	0.019
Intersection 11	--	0.084
Intersection 12	0.284	0.444
COMBINED (sum of column)	0.538	1.460

**Worksheet 4C -- Project-Specific EB Method Summary Results for Urban and Suburban Arterials**

(1)	(2)	(3)	(4)	(5)	(6)
Crash severity level	N <sub>predicted</sub>	N <sub>ped</sub>	N <sub>bike</sub>	N <sub>expected (vehicle)</sub>	N <sub>expected</sub>
Total	(2) <sub>COMB</sub> from Worksheet 4A	(2) <sub>COMB</sub> from Worksheet 4B	(3) <sub>COMB</sub> from Worksheet 4B	(13) <sub>COMB</sub> Worksheet 4A	(3)+(4)+(5)
	75.2	0.5	1.5	33.5	35.5
Fatal and injury (FI)	(3) <sub>COMB</sub> from Worksheet 4A	(2) <sub>COMB</sub> from Worksheet 4B	(3) <sub>COMB</sub> from Worksheet 4B	(5) <sub>TOTAL</sub> * (2) <sub>FI</sub> / (2) <sub>TOTAL</sub>	(3)+(4)+(5)
	23.7	0.5	1.5	10.6	12.6
Property damage only (PDO)	(4) <sub>COMB</sub> from Worksheet 4A	--	--	(5) <sub>TOTAL</sub> * (2) <sub>PDO</sub> / (2) <sub>TOTAL</sub>	(3)+(4)+(5)
	51.5	0.0	0.0	22.9	22.9

Year: 2025  
Alternative 1

Worksheet 4A -- Predicted Crashes by Collision and Site Type and Observed Crashes Using the Project-Level EB Method for Urban and Suburban Arterials

Collision type / Site type	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	Predicted crashes			Observed crashes, $N_{\text{observed}}$ (crashes/year)	Overdispersion Parameter, k	$N_{\text{predicted w0}}$	$N_{\text{predicted w1}}$	$W_0$	$N_0$	$w_1$	$N_1$	$N_{\text{expected/comb}}$	
	$N_{\text{predicted}}$ (TOTAL)	$N_{\text{predicted}}$ (FI)	$N_{\text{predicted}}$ (PDO)			Equation A-8 $(6)*(2)^2$	Equation A-9 $\text{sqrt}((6)*(2))$	Equation A-10	Equation A-11	Equation A-12	Equation A-13	Equation A-14	
ROADWAY SEGMENTS													
Multiple-vehicle nondriveway													
Segment 1	0.450	0.128	0.323	--	1.320	0.268	0.771	--	--	--	--	--	
Segment 2	0.450	0.128	0.322	--	1.320	0.267	0.770	--	--	--	--	--	
Segment 3	0.963	0.274	0.689	--	1.320	1.225	1.128	--	--	--	--	--	
Segment 4	0.523	0.149	0.374	--	1.320	0.361	0.831	--	--	--	--	--	
Segment 5	0.628	0.178	0.450	--	1.320	0.521	0.910	--	--	--	--	--	
Segment 6a	0.363	0.103	0.260	--	1.320	0.174	0.692	--	--	--	--	--	
Segment 6b	0.365	0.104	0.262	--	1.320	0.176	0.694	--	--	--	--	--	
Segment 7	1.223	0.348	0.876	--	1.320	1.975	1.271	--	--	--	--	--	
Segment 8	0.994	0.281	0.713	--	1.320	1.305	1.146	--	--	--	--	--	
Segment 9a	0.249	0.070	0.179	--	1.320	0.082	0.573	--	--	--	--	--	
Segment 9b	0.456	0.129	0.327	--	1.320	0.275	0.776	--	--	--	--	--	
Segment 10	0.796	0.225	0.571	--	1.320	0.836	1.025	--	--	--	--	--	
Segment 11	0.417	0.118	0.299	--	1.320	0.230	0.742	--	--	--	--	--	
Single-vehicle													
Segment 1	0.110	0.018	0.092	--	0.860	0.010	0.308	--	--	--	--	--	
Segment 2	0.113	0.019	0.095	--	0.860	0.011	0.312	--	--	--	--	--	
Segment 3	0.249	0.041	0.208	--	0.860	0.053	0.463	--	--	--	--	--	
Segment 4	0.135	0.022	0.113	--	0.860	0.016	0.341	--	--	--	--	--	
Segment 5	0.158	0.026	0.132	--	0.860	0.021	0.369	--	--	--	--	--	
Segment 6a	0.089	0.015	0.074	--	0.860	0.007	0.277	--	--	--	--	--	
Segment 6b	0.090	0.015	0.075	--	0.860	0.007	0.278	--	--	--	--	--	
Segment 7	0.308	0.051	0.257	--	0.860	0.082	0.515	--	--	--	--	--	
Segment 8	0.238	0.040	0.198	--	0.860	0.049	0.452	--	--	--	--	--	
Segment 9a	0.058	0.010	0.048	--	0.860	0.003	0.224	--	--	--	--	--	
Segment 9b	0.107	0.018	0.089	--	0.860	0.010	0.303	--	--	--	--	--	
Segment 10	0.186	0.031	0.155	--	0.860	0.030	0.400	--	--	--	--	--	
Segment 11	0.097	0.016	0.081	--	0.860	0.008	0.289	--	--	--	--	--	
Multiple-vehicle driveway-related													
Segment 1	0.034	0.010	0.024	--	1.390	0.002	0.218	--	--	--	--	--	
Segment 2	0.000	0.000	0.000	--	1.390	0.000	0.000	--	--	--	--	--	
Segment 3	0.022	0.006	0.016	--	1.390	0.001	0.176	--	--	--	--	--	
Segment 4	0.000	0.000	0.000	--	1.390	0.000	0.000	--	--	--	--	--	
Segment 5	0.016	0.005	0.011	--	1.390	0.000	0.149	--	--	--	--	--	
Segment 6a	0.019	0.005	0.013	--	1.390	0.000	0.162	--	--	--	--	--	
Segment 6b	0.019	0.005	0.013	--	1.390	0.000	0.162	--	--	--	--	--	
Segment 7	0.106	0.030	0.076	--	1.390	0.015	0.383	--	--	--	--	--	
Segment 8	0.040	0.011	0.029	--	1.390	0.002	0.236	--	--	--	--	--	
Segment 9a	0.029	0.008	0.021	--	1.390	0.001	0.201	--	--	--	--	--	
Segment 9b	0.030	0.008	0.021	--	1.390	0.001	0.203	--	--	--	--	--	
Segment 10	0.000	0.000	0.000	--	1.390	0.000	0.000	--	--	--	--	--	
Segment 11	0.183	0.052	0.131	--	1.390	0.046	0.504	--	--	--	--	--	
INTERSECTIONS													
Multiple-vehicle													
Intersection 1	19.726	5.613	14.113	--	0.330	128.404	2.551	--	--	--	--	--	
Intersection 2	1.067	0.389	0.678	--	0.800	0.911	0.924	--	--	--	--	--	
Intersection 3	0.798	0.316	0.482	--	0.800	0.509	0.799	--	--	--	--	--	
Intersection 4	0.437	0.204	0.233	--	0.800	0.152	0.591	--	--	--	--	--	
Intersection 5	3.406	1.294	2.113	--	0.330	3.829	1.060	--	--	--	--	--	
Intersection 6	3.551	1.190	2.361	--	0.390	4.918	1.177	--	--	--	--	--	
Cove Royale Dev	0.865	0.337	0.528	--	0.800	0.598	0.832	--	--	--	--	--	
Intersection 7	1.206	0.443	0.762	--	0.800	1.163	0.982	--	--	--	--	--	
Intersection 8	6.142	2.001	4.142	--	0.390	14.714	1.548	--	--	--	--	--	
Intersection 9	0.961	0.369	0.592	--	0.800	0.738	0.877	--	--	--	--	--	
Intersection 10	0.905	0.371	0.535	--	0.800	0.656	0.851	--	--	--	--	--	

Urban and Suburban Arterial Predictive Method

Intersection 11	2.202	0.840	1.362	--	0.400	1.940	0.939	--	--	--	--	--
Intersection 12	12.447	4.356	8.091	--	0.390	60.424	2.203	--	--	--	--	--
<b>Single-vehicle</b>												
Intersection 1	0.919	0.270	0.650	--	0.360	0.304	0.575	--	--	--	--	--
Intersection 2	0.144	0.045	0.099	--	1.140	0.024	0.406	--	--	--	--	--
Intersection 3	0.104	0.033	0.071	--	1.140	0.012	0.345	--	--	--	--	--
Intersection 4	0.051	0.017	0.034	--	1.140	0.003	0.241	--	--	--	--	--
Intersection 5	0.265	0.068	0.197	--	0.360	0.025	0.309	--	--	--	--	--
Intersection 6	0.222	0.056	0.165	--	0.360	0.018	0.282	--	--	--	--	--
Cove Royal Dev	0.111	0.035	0.076	--	1.140	0.014	0.356	--	--	--	--	--
Intersection 7	0.162	0.051	0.111	--	1.140	0.030	0.430	--	--	--	--	--
Intersection 8	0.417	0.113	0.304	--	0.360	0.062	0.387	--	--	--	--	--
Intersection 9	0.118	0.037	0.081	--	1.140	0.016	0.367	--	--	--	--	--
Intersection 10	0.106	0.034	0.072	--	1.140	0.013	0.348	--	--	--	--	--
Intersection 11	0.266	0.087	0.179	--	0.650	0.046	0.416	--	--	--	--	--
Intersection 12	0.642	0.145	0.497	--	0.360	0.148	0.481	--	--	--	--	--
COMBINED (sum of column)	67.555	21.408	46.146	0	--	227.744	38.528	0.229	15.454	0.637	43.019	29.237

**Worksheet 4B -- Predicted Pedestrian and Bicycle Crashes for Urban and Suburban Arterials**

(1) Site Type	(2) N <sub>ped</sub>	(3) N <sub>bike</sub>
<b>ROADWAY SEGMENTS</b>		
Segment 1	0.011	0.003
Segment 2	0.011	0.003
Segment 3	0.023	0.006
Segment 4	0.013	0.003
Segment 5	0.015	0.004
Segment 6	0.009	0.002
Segment 7	0.031	0.008
Segment 8	0.024	0.006
Segment 9	0.006	0.002
Segment 10	0.019	0.005
Segment 11	0.013	0.003
<b>INTERSECTIONS</b>		
Intersection 1	0.012	0.227
Intersection 2	--	0.022
Intersection 3	--	0.016
Intersection 4	--	0.009
Intersection 5	0.054	0.101
Intersection 6	0.070	0.128
Intersection 7	--	0.025
Intersection 8	0.039	0.246
Intersection 9	--	0.020
Intersection 10	--	0.018
Intersection 11	--	0.083
Intersection 12	0.283	0.446
COMBINED (sum of column)	0.633	1.388

**Worksheet 4C -- Project-Specific EB Method Summary Results for Urban and Suburban Arterials**

(1) Crash severity level	(2) N <sub>predicted</sub>	(3) N <sub>ped</sub>	(4) N <sub>bike</sub>	(5) N <sub>expected (vehicle)</sub>	(6) N <sub>expected</sub>
Total	(2) <sub>COMB</sub> from Worksheet 4A 67.6	(2) <sub>COMB</sub> from Worksheet 4B 0.6	(3) <sub>COMB</sub> from Worksheet 4B 1.4	(13) <sub>COMB</sub> Worksheet 4A 29.2	(3)+(4)+(5) 31.3
Fatal and injury (FI)	(3) <sub>COMB</sub> from Worksheet 4A 21.4	(2) <sub>COMB</sub> from Worksheet 4B 0.6	(3) <sub>COMB</sub> from Worksheet 4B 1.4	(5) <sub>TOTAL</sub> * (2) <sub>FI</sub> / (2) <sub>TOTAL</sub> 9.3	(3)+(4)+(5) 11.3
Property damage only (PDO)	(4) <sub>COMB</sub> from Worksheet 4A 46.1	-- 0.0	-- 0.0	(5) <sub>TOTAL</sub> * (2) <sub>PDO</sub> / (2) <sub>TOTAL</sub> 20.0	(3)+(4)+(5) 20.0

Year: 2025  
Alternative 2

Worksheet 4A -- Predicted Crashes by Collision and Site Type and Observed Crashes Using the Project-Level EB Method for Urban and Suburban Arterials

Collision type / Site type	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	Predicted crashes			Observed crashes, $N_{\text{observed}}$ (crashes/year)	Overdispersion Parameter, k	$N_{\text{predicted } w0}$	$N_{\text{predicted } w1}$	$W_0$	$N_0$	$w_1$	$N_1$	$N_{\text{expected/comb}}$	
	$N_{\text{predicted}}$ (TOTAL)	$N_{\text{predicted}}$ (FI)	$N_{\text{predicted}}$ (PDO)			Equation A-8 $(6)*(2)^2$	Equation A-9 $\text{sqrt}((6)*(2))$	Equation A-10	Equation A-11	Equation A-12	Equation A-13	Equation A-14	
ROADWAY SEGMENTS													
Multiple-vehicle nondriveway													
Segment 1	0.450	0.128	0.323	--	1.320	0.268	0.771	--	--	--	--	--	
Segment 2	0.450	0.128	0.322	--	1.320	0.267	0.770	--	--	--	--	--	
Segment 3	0.963	0.274	0.689	--	1.320	1.225	1.128	--	--	--	--	--	
Segment 4	0.523	0.149	0.374	--	1.320	0.361	0.831	--	--	--	--	--	
Segment 5	0.628	0.178	0.450	--	1.320	0.521	0.910	--	--	--	--	--	
Segment 6a	0.363	0.103	0.260	--	1.320	0.174	0.692	--	--	--	--	--	
Segment 6b	0.365	0.104	0.262	--	1.320	0.176	0.694	--	--	--	--	--	
Segment 7	1.223	0.348	0.876	--	1.320	1.975	1.271	--	--	--	--	--	
Segment 8	0.994	0.281	0.713	--	1.320	1.305	1.146	--	--	--	--	--	
Segment 9a	0.249	0.070	0.179	--	1.320	0.082	0.573	--	--	--	--	--	
Segment 9b	0.461	0.130	0.331	--	1.320	0.280	0.780	--	--	--	--	--	
Segment 10	0.804	0.227	0.577	--	1.320	0.853	1.030	--	--	--	--	--	
Segment 11	0.422	0.119	0.303	--	1.320	0.235	0.746	--	--	--	--	--	
Single-vehicle													
Segment 1	0.110	0.018	0.092	--	0.860	0.010	0.308	--	--	--	--	--	
Segment 2	0.113	0.019	0.095	--	0.860	0.011	0.312	--	--	--	--	--	
Segment 3	0.249	0.041	0.208	--	0.860	0.053	0.463	--	--	--	--	--	
Segment 4	0.135	0.022	0.113	--	0.860	0.016	0.341	--	--	--	--	--	
Segment 5	0.158	0.026	0.132	--	0.860	0.021	0.369	--	--	--	--	--	
Segment 6a	0.089	0.015	0.074	--	0.860	0.007	0.277	--	--	--	--	--	
Segment 6b	0.090	0.015	0.075	--	0.860	0.007	0.278	--	--	--	--	--	
Segment 7	0.308	0.051	0.257	--	0.860	0.082	0.515	--	--	--	--	--	
Segment 8	0.238	0.040	0.198	--	0.860	0.049	0.452	--	--	--	--	--	
Segment 9a	0.058	0.010	0.048	--	0.860	0.003	0.224	--	--	--	--	--	
Segment 9b	0.108	0.018	0.090	--	0.860	0.010	0.304	--	--	--	--	--	
Segment 10	0.188	0.031	0.156	--	0.860	0.030	0.402	--	--	--	--	--	
Segment 11	0.098	0.016	0.082	--	0.860	0.008	0.291	--	--	--	--	--	
Multiple-vehicle driveway-related													
Segment 1	0.034	0.010	0.024	--	1.390	0.002	0.218	--	--	--	--	--	
Segment 2	0.000	0.000	0.000	--	1.390	0.000	0.000	--	--	--	--	--	
Segment 3	0.022	0.006	0.016	--	1.390	0.001	0.176	--	--	--	--	--	
Segment 4	0.000	0.000	0.000	--	1.390	0.000	0.000	--	--	--	--	--	
Segment 5	0.016	0.005	0.011	--	1.390	0.000	0.149	--	--	--	--	--	
Segment 6a	0.019	0.005	0.013	--	1.390	0.000	0.162	--	--	--	--	--	
Segment 6b	0.019	0.005	0.013	--	1.390	0.000	0.162	--	--	--	--	--	
Segment 7	0.106	0.030	0.076	--	1.390	0.015	0.383	--	--	--	--	--	
Segment 8	0.040	0.011	0.029	--	1.390	0.002	0.236	--	--	--	--	--	
Segment 9a	0.029	0.008	0.021	--	1.390	0.001	0.201	--	--	--	--	--	
Segment 9b	0.030	0.008	0.021	--	1.390	0.001	0.204	--	--	--	--	--	
Segment 10	0.000	0.000	0.000	--	1.390	0.000	0.000	--	--	--	--	--	
Segment 11	0.185	0.052	0.132	--	1.390	0.047	0.507	--	--	--	--	--	
INTERSECTIONS													
Multiple-vehicle													
Intersection 1	19.726	5.613	14.113	--	0.330	128.404	2.551	--	--	--	--	--	
Intersection 2	1.067	0.389	0.678	--	0.800	0.911	0.924	--	--	--	--	--	
Intersection 3	0.798	0.316	0.482	--	0.800	0.509	0.799	--	--	--	--	--	
Intersection 4	0.437	0.204	0.233	--	0.800	0.152	0.591	--	--	--	--	--	
Intersection 5	3.406	1.294	2.113	--	0.330	3.829	1.060	--	--	--	--	--	
Intersection 6	3.551	1.190	2.361	--	0.390	4.918	1.177	--	--	--	--	--	
Cove Royale Dev	0.865	0.337	0.528	--	0.800	0.598	0.832	--	--	--	--	--	
Intersection 7	1.206	0.443	0.762	--	0.800	1.163	0.982	--	--	--	--	--	
Intersection 8	6.142	2.001	4.142	--	0.390	14.714	1.548	--	--	--	--	--	
Intersection 9	0.961	0.369	0.592	--	0.800	0.738	0.877	--	--	--	--	--	
Intersection 10	0.905	0.371	0.535	--	0.800	0.656	0.851	--	--	--	--	--	

Urban and Suburban Arterial Predictive Method

Intersection 11	2.202	0.840	1.362	--	0.400	1.940	0.939	--	--	--	--	--
Intersection 12	12.447	4.356	8.091	--	0.390	60.424	2.203	--	--	--	--	--
<b>Single-vehicle</b>												
Intersection 1	0.919	0.270	0.650	--	0.360	0.304	0.575	--	--	--	--	--
Intersection 2	0.144	0.045	0.099	--	1.140	0.024	0.406	--	--	--	--	--
Intersection 3	0.104	0.033	0.071	--	1.140	0.012	0.345	--	--	--	--	--
Intersection 4	0.051	0.017	0.034	--	1.140	0.003	0.241	--	--	--	--	--
Intersection 5	0.265	0.068	0.197	--	0.360	0.025	0.309	--	--	--	--	--
Intersection 6	0.222	0.056	0.165	--	0.360	0.018	0.282	--	--	--	--	--
Cove Royal Dev	0.111	0.035	0.076	--	1.140	0.014	0.356	--	--	--	--	--
Intersection 7	0.162	0.051	0.111	--	1.140	0.030	0.430	--	--	--	--	--
Intersection 8	0.417	0.113	0.304	--	0.360	0.062	0.387	--	--	--	--	--
Intersection 9	0.118	0.037	0.081	--	1.140	0.016	0.367	--	--	--	--	--
Intersection 10	0.106	0.034	0.072	--	1.140	0.013	0.348	--	--	--	--	--
Intersection 11	0.266	0.087	0.179	--	0.650	0.046	0.416	--	--	--	--	--
Intersection 12	0.642	0.145	0.497	--	0.360	0.148	0.481	--	--	--	--	--
COMBINED (sum of column)	67.578	21.414	46.163	0	--	227.774	38.549	0.229	15.462	0.637	43.031	29.246

**Worksheet 4B -- Predicted Pedestrian and Bicycle Crashes for Urban and Suburban Arterials**

(1) Site Type	(2) N <sub>ped</sub>	(3) N <sub>bike</sub>
<b>ROADWAY SEGMENTS</b>		
Segment 1	0.011	0.003
Segment 2	0.011	0.003
Segment 3	0.023	0.006
Segment 4	0.013	0.003
Segment 5	0.015	0.004
Segment 6	0.009	0.002
Segment 7	0.031	0.008
Segment 8	0.024	0.006
Segment 9	0.006	0.002
Segment 10	0.019	0.005
Segment 11	0.013	0.004
<b>INTERSECTIONS</b>		
Intersection 1	0.012	0.227
Intersection 2	--	0.022
Intersection 3	--	0.016
Intersection 4	--	0.009
Intersection 5	0.054	0.101
Intersection 6	0.070	0.128
Intersection 7	--	0.025
Intersection 8	0.039	0.246
Intersection 9	--	0.020
Intersection 10	--	0.018
Intersection 11	--	0.083
Intersection 12	0.283	0.446
COMBINED (sum of column)	0.633	1.388

**Worksheet 4C -- Project-Specific EB Method Summary Results for Urban and Suburban Arterials**

(1) Crash severity level	(2) N <sub>predicted</sub>	(3) N <sub>ped</sub>	(4) N <sub>bike</sub>	(5) N <sub>expected (vehicle)</sub>	(6) N <sub>expected</sub>
Total	(2) <sub>COMB</sub> from Worksheet 4A	(2) <sub>COMB</sub> from Worksheet 4B	(3) <sub>COMB</sub> from Worksheet 4B	(13) <sub>COMB</sub> Worksheet 4A	(3)+(4)+(5)
	67.6	0.6	1.4	29.2	31.3
Fatal and injury (FI)	(3) <sub>COMB</sub> from Worksheet 4A	(2) <sub>COMB</sub> from Worksheet 4B	(3) <sub>COMB</sub> from Worksheet 4B	(5) <sub>TOTAL</sub> * (2) <sub>FI</sub> / (2) <sub>TOTAL</sub>	(3)+(4)+(5)
	21.4	0.6	1.4	9.3	11.3
Property damage only (PDO)	(4) <sub>COMB</sub> from Worksheet 4A	--	--	(5) <sub>TOTAL</sub> * (2) <sub>PDO</sub> / (2) <sub>TOTAL</sub>	(3)+(4)+(5)
	46.2	0.0	0.0	20.0	20.0

Year: 2025  
Alternative 3

Worksheet 4A -- Predicted Crashes by Collision and Site Type and Observed Crashes Using the Project-Level EB Method for Urban and Suburban Arterials

Collision type / Site type	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	Predicted crashes			Observed crashes, $N_{\text{observed}}$ (crashes/year)	Overdispersion Parameter, k	$N_{\text{predicted } w0}$	$N_{\text{predicted } w1}$	$W_0$	$N_0$	$W_1$	$N_1$	$N_{\text{expected/comb}}$	
	$N_{\text{predicted}}$ (TOTAL)	$N_{\text{predicted}}$ (FI)	$N_{\text{predicted}}$ (PDO)			Equation A-8 $(6)*(2)^2$	Equation A-9 $\text{sqrt}((6)*(2))$	Equation A-10	Equation A-11	Equation A-12	Equation A-13	Equation A-14	
ROADWAY SEGMENTS													
Multiple-vehicle nondriveway													
Segment 1	0.450	0.128	0.323	--	1.320	0.268	0.771	--	--	--	--	--	
Segment 2	0.450	0.128	0.322	--	1.320	0.267	0.770	--	--	--	--	--	
Segment 3	0.963	0.274	0.689	--	1.320	1.225	1.128	--	--	--	--	--	
Segment 4	0.523	0.149	0.374	--	1.320	0.361	0.831	--	--	--	--	--	
Segment 5	0.628	0.178	0.450	--	1.320	0.521	0.910	--	--	--	--	--	
Segment 6a	0.363	0.103	0.260	--	1.320	0.174	0.692	--	--	--	--	--	
Segment 6b	0.365	0.104	0.262	--	1.320	0.176	0.694	--	--	--	--	--	
Segment 7	1.223	0.348	0.876	--	1.320	1.975	1.271	--	--	--	--	--	
Segment 8	0.994	0.281	0.713	--	1.320	1.305	1.146	--	--	--	--	--	
Segment 9a	0.249	0.070	0.179	--	1.320	0.082	0.573	--	--	--	--	--	
Segment 9b	0.471	0.133	0.338	--	1.320	0.293	0.789	--	--	--	--	--	
Segment 10	0.828	0.234	0.594	--	1.320	0.905	1.045	--	--	--	--	--	
Segment 11	0.467	0.132	0.335	--	1.320	0.287	0.785	--	--	--	--	--	
Single-vehicle													
Segment 1	0.110	0.018	0.092	--	0.860	0.010	0.308	--	--	--	--	--	
Segment 2	0.113	0.019	0.095	--	0.860	0.011	0.312	--	--	--	--	--	
Segment 3	0.249	0.041	0.208	--	0.860	0.053	0.463	--	--	--	--	--	
Segment 4	0.135	0.022	0.113	--	0.860	0.016	0.341	--	--	--	--	--	
Segment 5	0.158	0.026	0.132	--	0.860	0.021	0.369	--	--	--	--	--	
Segment 6a	0.089	0.015	0.074	--	0.860	0.007	0.277	--	--	--	--	--	
Segment 6b	0.090	0.015	0.075	--	0.860	0.007	0.278	--	--	--	--	--	
Segment 7	0.308	0.051	0.257	--	0.860	0.082	0.515	--	--	--	--	--	
Segment 8	0.238	0.040	0.198	--	0.860	0.049	0.452	--	--	--	--	--	
Segment 9a	0.058	0.010	0.048	--	0.860	0.003	0.224	--	--	--	--	--	
Segment 9b	0.110	0.018	0.092	--	0.860	0.010	0.308	--	--	--	--	--	
Segment 10	0.193	0.032	0.161	--	0.860	0.032	0.408	--	--	--	--	--	
Segment 11	0.109	0.018	0.091	--	0.860	0.010	0.306	--	--	--	--	--	
Multiple-vehicle driveway-related													
Segment 1	0.034	0.010	0.024	--	1.390	0.002	0.218	--	--	--	--	--	
Segment 2	0.000	0.000	0.000	--	1.390	0.000	0.000	--	--	--	--	--	
Segment 3	0.022	0.006	0.016	--	1.390	0.001	0.176	--	--	--	--	--	
Segment 4	0.000	0.000	0.000	--	1.390	0.000	0.000	--	--	--	--	--	
Segment 5	0.016	0.005	0.011	--	1.390	0.000	0.149	--	--	--	--	--	
Segment 6a	0.019	0.005	0.013	--	1.390	0.000	0.162	--	--	--	--	--	
Segment 6b	0.019	0.005	0.013	--	1.390	0.000	0.162	--	--	--	--	--	
Segment 7	0.106	0.030	0.076	--	1.390	0.015	0.383	--	--	--	--	--	
Segment 8	0.040	0.011	0.029	--	1.390	0.002	0.236	--	--	--	--	--	
Segment 9a	0.029	0.008	0.021	--	1.390	0.001	0.201	--	--	--	--	--	
Segment 9b	0.031	0.009	0.022	--	1.390	0.001	0.206	--	--	--	--	--	
Segment 10	0.000	0.000	0.000	--	1.390	0.000	0.000	--	--	--	--	--	
Segment 11	0.204	0.058	0.146	--	1.390	0.058	0.533	--	--	--	--	--	
INTERSECTIONS													
Multiple-vehicle													
Intersection 1	19.726	5.613	14.113	--	0.330	128.404	2.551	--	--	--	--	--	
Intersection 2	1.067	0.389	0.678	--	0.800	0.911	0.924	--	--	--	--	--	
Intersection 3	0.798	0.316	0.482	--	0.800	0.509	0.799	--	--	--	--	--	
Intersection 4	0.437	0.204	0.233	--	0.800	0.152	0.591	--	--	--	--	--	
Intersection 5	3.406	1.294	2.113	--	0.330	3.829	1.060	--	--	--	--	--	
Intersection 6	3.551	1.190	2.361	--	0.390	4.918	1.177	--	--	--	--	--	
Cove Royale Dev	0.865	0.337	0.528	--	0.800	0.598	0.832	--	--	--	--	--	
Intersection 7	1.206	0.443	0.762	--	0.800	1.163	0.982	--	--	--	--	--	
Intersection 8	6.142	2.001	4.142	--	0.390	14.714	1.548	--	--	--	--	--	
Intersection 9	0.961	0.369	0.592	--	0.800	0.738	0.877	--	--	--	--	--	
Intersection 10	0.905	0.371	0.535	--	0.800	0.656	0.851	--	--	--	--	--	

Urban and Suburban Arterial Predictive Method

Intersection 11	2.202	0.840	1.362	--	0.400	1.940	0.939	--	--	--	--	--
Intersection 12	12.447	4.356	8.091	--	0.390	60.424	2.203	--	--	--	--	--
<b>Single-vehicle</b>												
Intersection 1	0.919	0.270	0.650	--	0.360	0.304	0.575	--	--	--	--	--
Intersection 2	0.144	0.045	0.099	--	1.140	0.024	0.406	--	--	--	--	--
Intersection 3	0.104	0.033	0.071	--	1.140	0.012	0.345	--	--	--	--	--
Intersection 4	0.051	0.017	0.034	--	1.140	0.003	0.241	--	--	--	--	--
Intersection 5	0.265	0.068	0.197	--	0.360	0.025	0.309	--	--	--	--	--
Intersection 6	0.222	0.056	0.165	--	0.360	0.018	0.282	--	--	--	--	--
Cove Royal Dev	0.111	0.035	0.076	--	1.140	0.014	0.356	--	--	--	--	--
Intersection 7	0.162	0.051	0.111	--	1.140	0.030	0.430	--	--	--	--	--
Intersection 8	0.417	0.113	0.304	--	0.360	0.062	0.387	--	--	--	--	--
Intersection 9	0.118	0.037	0.081	--	1.140	0.016	0.367	--	--	--	--	--
Intersection 10	0.106	0.034	0.072	--	1.140	0.013	0.348	--	--	--	--	--
Intersection 11	0.266	0.087	0.179	--	0.650	0.046	0.416	--	--	--	--	--
Intersection 12	0.642	0.145	0.497	--	0.360	0.148	0.481	--	--	--	--	--
COMBINED (sum of column)	67.696	21.446	46.251	0	--	227.906	38.666	0.229	15.503	0.636	43.087	29.295

**Worksheet 4B -- Predicted Pedestrian and Bicycle Crashes for Urban and Suburban Arterials**

(1) Site Type	(2) N <sub>ped</sub>	(3) N <sub>bike</sub>
<b>ROADWAY SEGMENTS</b>		
Segment 1	0.011	0.003
Segment 2	0.011	0.003
Segment 3	0.023	0.006
Segment 4	0.013	0.003
Segment 5	0.015	0.004
Segment 6	0.009	0.002
Segment 7	0.031	0.008
Segment 8	0.024	0.006
Segment 9	0.006	0.002
Segment 10	0.019	0.005
Segment 11	0.015	0.004
<b>INTERSECTIONS</b>		
Intersection 1	0.012	0.227
Intersection 2	--	0.022
Intersection 3	--	0.016
Intersection 4	--	0.009
Intersection 5	0.054	0.101
Intersection 6	0.070	0.128
Intersection 7	--	0.025
Intersection 8	0.039	0.246
Intersection 9	--	0.020
Intersection 10	--	0.018
Intersection 11	--	0.083
Intersection 12	0.283	0.446
COMBINED (sum of column)	0.635	1.389

**Worksheet 4C -- Project-Specific EB Method Summary Results for Urban and Suburban Arterials**

(1) Crash severity level	(2) N <sub>predicted</sub>	(3) N <sub>ped</sub>	(4) N <sub>bike</sub>	(5) N <sub>expected (vehicle)</sub>	(6) N <sub>expected</sub>
Total	(2) <sub>COMB</sub> from Worksheet 4A 67.7	(2) <sub>COMB</sub> from Worksheet 4B 0.6	(3) <sub>COMB</sub> from Worksheet 4B 1.4	(13) <sub>COMB</sub> Worksheet 4A 29.3	(3)+(4)+(5) 31.3
Fatal and injury (FI)	(3) <sub>COMB</sub> from Worksheet 4A 21.4	(2) <sub>COMB</sub> from Worksheet 4B 0.6	(3) <sub>COMB</sub> from Worksheet 4B 1.4	(5) <sub>TOTAL</sub> * (2) <sub>FI</sub> / (2) <sub>TOTAL</sub> 9.3	(3)+(4)+(5) 11.3
Property damage only (PDO)	(4) <sub>COMB</sub> from Worksheet 4A 46.3	-- 0.0	-- 0.0	(5) <sub>TOTAL</sub> * (2) <sub>PDO</sub> / (2) <sub>TOTAL</sub> 20.0	(3)+(4)+(5) 20.0

Year: 2025  
Alternative 4

Worksheet 4A -- Predicted Crashes by Collision and Site Type and Observed Crashes Using the Project-Level EB Method for Urban and Suburban Arterials

Collision type / Site type	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	Predicted crashes			Observed crashes, $N_{\text{observed}}$ (crashes/year)	Overdispersion Parameter, k	$N_{\text{predicted } w0}$	$N_{\text{predicted } w1}$	$W_0$	$N_0$	$W_1$	$N_1$	$N_{\text{expected/comb}}$	
	$N_{\text{predicted}}$ (TOTAL)	$N_{\text{predicted}}$ (FI)	$N_{\text{predicted}}$ (PDO)			Equation A-8 $(6)*(2)^2$	Equation A-9 $\text{sqrt}((6)*(2))$	Equation A-10	Equation A-11	Equation A-12	Equation A-13	Equation A-14	
ROADWAY SEGMENTS													
Multiple-vehicle nondriveway													
Segment 1	0.453	0.128	0.324	--	1.320	0.271	0.773	--	--	--	--	--	
Segment 2	0.451	0.128	0.323	--	1.320	0.269	0.772	--	--	--	--	--	
Segment 3	0.965	0.275	0.690	--	1.320	1.230	1.129	--	--	--	--	--	
Segment 4	0.525	0.149	0.375	--	1.320	0.364	0.832	--	--	--	--	--	
Segment 5	0.630	0.179	0.451	--	1.320	0.523	0.912	--	--	--	--	--	
Segment 6a	0.364	0.103	0.261	--	1.320	0.175	0.693	--	--	--	--	--	
Segment 6b	0.366	0.104	0.263	--	1.320	0.177	0.695	--	--	--	--	--	
Segment 7	1.228	0.349	0.879	--	1.320	1.990	1.273	--	--	--	--	--	
Segment 8	0.996	0.282	0.714	--	1.320	1.310	1.147	--	--	--	--	--	
Segment 9a	0.250	0.071	0.179	--	1.320	0.082	0.574	--	--	--	--	--	
Segment 9b	0.456	0.129	0.327	--	1.320	0.275	0.776	--	--	--	--	--	
Segment 10	0.796	0.225	0.571	--	1.320	0.836	1.025	--	--	--	--	--	
Segment 11	0.417	0.118	0.299	--	1.320	0.230	0.742	--	--	--	--	--	
Single-vehicle													
Segment 1	0.111	0.018	0.093	--	0.860	0.011	0.309	--	--	--	--	--	
Segment 2	0.114	0.019	0.095	--	0.860	0.011	0.313	--	--	--	--	--	
Segment 3	0.250	0.041	0.209	--	0.860	0.054	0.463	--	--	--	--	--	
Segment 4	0.136	0.022	0.113	--	0.860	0.016	0.342	--	--	--	--	--	
Segment 5	0.159	0.026	0.132	--	0.860	0.022	0.369	--	--	--	--	--	
Segment 6a	0.089	0.015	0.075	--	0.860	0.007	0.277	--	--	--	--	--	
Segment 6b	0.090	0.015	0.075	--	0.860	0.007	0.278	--	--	--	--	--	
Segment 7	0.309	0.051	0.258	--	0.860	0.082	0.516	--	--	--	--	--	
Segment 8	0.238	0.040	0.199	--	0.860	0.049	0.453	--	--	--	--	--	
Segment 9a	0.058	0.010	0.049	--	0.860	0.003	0.224	--	--	--	--	--	
Segment 9b	0.107	0.018	0.089	--	0.860	0.010	0.303	--	--	--	--	--	
Segment 10	0.186	0.031	0.155	--	0.860	0.030	0.400	--	--	--	--	--	
Segment 11	0.097	0.016	0.081	--	0.860	0.008	0.289	--	--	--	--	--	
Multiple-vehicle driveway-related													
Segment 1	0.034	0.010	0.025	--	1.390	0.002	0.218	--	--	--	--	--	
Segment 2	0.000	0.000	0.000	--	1.390	0.000	0.000	--	--	--	--	--	
Segment 3	0.022	0.006	0.016	--	1.390	0.001	0.176	--	--	--	--	--	
Segment 4	0.000	0.000	0.000	--	1.390	0.000	0.000	--	--	--	--	--	
Segment 5	0.016	0.005	0.011	--	1.390	0.000	0.149	--	--	--	--	--	
Segment 6a	0.019	0.005	0.013	--	1.390	0.000	0.162	--	--	--	--	--	
Segment 6b	0.019	0.005	0.013	--	1.390	0.000	0.162	--	--	--	--	--	
Segment 7	0.106	0.030	0.076	--	1.390	0.016	0.384	--	--	--	--	--	
Segment 8	0.040	0.011	0.029	--	1.390	0.002	0.236	--	--	--	--	--	
Segment 9a	0.029	0.008	0.021	--	1.390	0.001	0.202	--	--	--	--	--	
Segment 9b	0.030	0.008	0.021	--	1.390	0.001	0.203	--	--	--	--	--	
Segment 10	0.000	0.000	0.000	--	1.390	0.000	0.000	--	--	--	--	--	
Segment 11	0.183	0.052	0.131	--	1.390	0.046	0.504	--	--	--	--	--	
INTERSECTIONS													
Multiple-vehicle													
Intersection 1	19.726	5.613	14.113	--	0.330	128.404	2.551	--	--	--	--	--	
Intersection 2	1.067	0.389	0.678	--	0.800	0.911	0.924	--	--	--	--	--	
Intersection 3	0.798	0.316	0.482	--	0.800	0.509	0.799	--	--	--	--	--	
Intersection 4	0.437	0.204	0.233	--	0.800	0.152	0.591	--	--	--	--	--	
Intersection 5	3.406	1.294	2.113	--	0.330	3.829	1.060	--	--	--	--	--	
Intersection 6	3.551	1.190	2.361	--	0.390	4.918	1.177	--	--	--	--	--	
Cove Royale Dev	0.865	0.337	0.528	--	0.800	0.598	0.832	--	--	--	--	--	
Intersection 7	1.206	0.443	0.762	--	0.800	1.163	0.982	--	--	--	--	--	
Intersection 8	6.142	2.001	4.142	--	0.390	14.714	1.548	--	--	--	--	--	
Intersection 9	0.961	0.369	0.592	--	0.800	0.738	0.877	--	--	--	--	--	
Intersection 10	0.905	0.371	0.535	--	0.800	0.656	0.851	--	--	--	--	--	

Urban and Suburban Arterial Predictive Method

Intersection 11	2.202	0.840	1.362	--	0.400	1.940	0.939	--	--	--	--	--
Intersection 12	12.447	4.356	8.091	--	0.390	60.424	2.203	--	--	--	--	--
<b>Single-vehicle</b>												
Intersection 1	0.919	0.270	0.650	--	0.360	0.304	0.575	--	--	--	--	--
Intersection 2	0.144	0.045	0.099	--	1.140	0.024	0.406	--	--	--	--	--
Intersection 3	0.104	0.033	0.071	--	1.140	0.012	0.345	--	--	--	--	--
Intersection 4	0.051	0.017	0.034	--	1.140	0.003	0.241	--	--	--	--	--
Intersection 5	0.265	0.068	0.197	--	0.360	0.025	0.309	--	--	--	--	--
Intersection 6	0.222	0.056	0.165	--	0.360	0.018	0.282	--	--	--	--	--
Cove Royal Dev	0.111	0.035	0.076	--	1.140	0.014	0.356	--	--	--	--	--
Intersection 7	0.162	0.051	0.111	--	1.140	0.030	0.430	--	--	--	--	--
Intersection 8	0.417	0.113	0.304	--	0.360	0.062	0.387	--	--	--	--	--
Intersection 9	0.118	0.037	0.081	--	1.140	0.016	0.367	--	--	--	--	--
Intersection 10	0.106	0.034	0.072	--	1.140	0.013	0.348	--	--	--	--	--
Intersection 11	0.266	0.087	0.179	--	0.650	0.046	0.416	--	--	--	--	--
Intersection 12	0.642	0.145	0.497	--	0.360	0.148	0.481	--	--	--	--	--
COMBINED (sum of column)	67.580	21.415	46.165	0	--	227.784	38.551	0.229	15.462	0.637	43.032	29.247

**Worksheet 4B -- Predicted Pedestrian and Bicycle Crashes for Urban and Suburban Arterials**

(1) Site Type	(2) N <sub>ped</sub>	(3) N <sub>bike</sub>
<b>ROADWAY SEGMENTS</b>		
Segment 1	0.011	0.003
Segment 2	0.011	0.003
Segment 3	0.024	0.006
Segment 4	0.013	0.003
Segment 5	0.015	0.004
Segment 6	0.009	0.002
Segment 7	0.031	0.008
Segment 8	0.024	0.006
Segment 9	0.006	0.002
Segment 10	0.019	0.005
Segment 11	0.013	0.003
<b>INTERSECTIONS</b>		
Intersection 1	0.012	0.227
Intersection 2	--	0.022
Intersection 3	--	0.016
Intersection 4	--	0.009
Intersection 5	0.054	0.101
Intersection 6	0.070	0.128
Intersection 7	--	0.025
Intersection 8	0.039	0.246
Intersection 9	--	0.020
Intersection 10	--	0.018
Intersection 11	--	0.083
Intersection 12	0.283	0.446
COMBINED (sum of column)	0.633	1.388

**Worksheet 4C -- Project-Specific EB Method Summary Results for Urban and Suburban Arterials**

(1) Crash severity level	(2) N <sub>predicted</sub>	(3) N <sub>ped</sub>	(4) N <sub>bike</sub>	(5) N <sub>expected (vehicle)</sub>	(6) N <sub>expected</sub>
Total	(2) <sub>COMB</sub> from Worksheet 4A 67.6	(2) <sub>COMB</sub> from Worksheet 4B 0.6	(3) <sub>COMB</sub> from Worksheet 4B 1.4	(13) <sub>COMB</sub> Worksheet 4A 29.2	(3)+(4)+(5) 31.3
Fatal and injury (FI)	(3) <sub>COMB</sub> from Worksheet 4A 21.4	(2) <sub>COMB</sub> from Worksheet 4B 0.6	(3) <sub>COMB</sub> from Worksheet 4B 1.4	(5) <sub>TOTAL</sub> * (2) <sub>FI</sub> / (2) <sub>TOTAL</sub> 9.3	(3)+(4)+(5) 11.3
Property damage only (PDO)	(4) <sub>COMB</sub> from Worksheet 4A 46.2	-- 0.0	-- 0.0	(5) <sub>TOTAL</sub> * (2) <sub>PDO</sub> / (2) <sub>TOTAL</sub> 20.0	(3)+(4)+(5) 20.0

Year: 2025  
Alternative 5

Worksheet 4A -- Predicted Crashes by Collision and Site Type and Observed Crashes Using the Project-Level EB Method for Urban and Suburban Arterials

Collision type / Site type	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	Predicted crashes			Observed crashes, $N_{\text{observed}}$ (crashes/year)	Overdispersion Parameter, k	$N_{\text{predicted } w0}$	$N_{\text{predicted } w1}$	$W_0$	$N_0$	$W_1$	$N_1$	$N_{\text{expected/comb}}$	
	$N_{\text{predicted}}$ (TOTAL)	$N_{\text{predicted}}$ (FI)	$N_{\text{predicted}}$ (PDO)			Equation A-8 $(6)*(2)^2$	Equation A-9 $\text{sqrt}((6)*(2))$	Equation A-10	Equation A-11	Equation A-12	Equation A-13	Equation A-14	
ROADWAY SEGMENTS													
Multiple-vehicle nondriveway													
Segment 1	0.453	0.128	0.324	--	1.320	0.271	0.773	--	--	--	--	--	
Segment 2	0.451	0.128	0.323	--	1.320	0.269	0.772	--	--	--	--	--	
Segment 3	0.965	0.275	0.690	--	1.320	1.230	1.129	--	--	--	--	--	
Segment 4	0.525	0.149	0.375	--	1.320	0.364	0.832	--	--	--	--	--	
Segment 5	0.630	0.179	0.451	--	1.320	0.523	0.912	--	--	--	--	--	
Segment 6a	0.364	0.103	0.261	--	1.320	0.175	0.693	--	--	--	--	--	
Segment 6b	0.366	0.104	0.263	--	1.320	0.177	0.695	--	--	--	--	--	
Segment 7	1.228	0.349	0.879	--	1.320	1.990	1.273	--	--	--	--	--	
Segment 8	0.996	0.282	0.714	--	1.320	1.310	1.147	--	--	--	--	--	
Segment 9a	0.250	0.071	0.179	--	1.320	0.082	0.574	--	--	--	--	--	
Segment 9b	0.461	0.130	0.331	--	1.320	0.280	0.780	--	--	--	--	--	
Segment 10	0.804	0.227	0.577	--	1.320	0.853	1.030	--	--	--	--	--	
Segment 11	0.422	0.119	0.303	--	1.320	0.235	0.746	--	--	--	--	--	
Single-vehicle													
Segment 1	0.111	0.018	0.093	--	0.860	0.011	0.309	--	--	--	--	--	
Segment 2	0.114	0.019	0.095	--	0.860	0.011	0.313	--	--	--	--	--	
Segment 3	0.250	0.041	0.209	--	0.860	0.054	0.463	--	--	--	--	--	
Segment 4	0.136	0.022	0.113	--	0.860	0.016	0.342	--	--	--	--	--	
Segment 5	0.159	0.026	0.132	--	0.860	0.022	0.369	--	--	--	--	--	
Segment 6a	0.089	0.015	0.075	--	0.860	0.007	0.277	--	--	--	--	--	
Segment 6b	0.090	0.015	0.075	--	0.860	0.007	0.278	--	--	--	--	--	
Segment 7	0.309	0.051	0.258	--	0.860	0.082	0.516	--	--	--	--	--	
Segment 8	0.238	0.040	0.199	--	0.860	0.049	0.453	--	--	--	--	--	
Segment 9a	0.058	0.010	0.049	--	0.860	0.003	0.224	--	--	--	--	--	
Segment 9b	0.108	0.018	0.090	--	0.860	0.010	0.304	--	--	--	--	--	
Segment 10	0.188	0.031	0.156	--	0.860	0.030	0.402	--	--	--	--	--	
Segment 11	0.098	0.016	0.082	--	0.860	0.008	0.291	--	--	--	--	--	
Multiple-vehicle driveway-related													
Segment 1	0.034	0.010	0.025	--	1.390	0.002	0.218	--	--	--	--	--	
Segment 2	0.000	0.000	0.000	--	1.390	0.000	0.000	--	--	--	--	--	
Segment 3	0.022	0.006	0.016	--	1.390	0.001	0.176	--	--	--	--	--	
Segment 4	0.000	0.000	0.000	--	1.390	0.000	0.000	--	--	--	--	--	
Segment 5	0.016	0.005	0.011	--	1.390	0.000	0.149	--	--	--	--	--	
Segment 6a	0.019	0.005	0.013	--	1.390	0.000	0.162	--	--	--	--	--	
Segment 6b	0.019	0.005	0.013	--	1.390	0.000	0.162	--	--	--	--	--	
Segment 7	0.106	0.030	0.076	--	1.390	0.016	0.384	--	--	--	--	--	
Segment 8	0.040	0.011	0.029	--	1.390	0.002	0.236	--	--	--	--	--	
Segment 9a	0.029	0.008	0.021	--	1.390	0.001	0.202	--	--	--	--	--	
Segment 9b	0.030	0.008	0.021	--	1.390	0.001	0.204	--	--	--	--	--	
Segment 10	0.000	0.000	0.000	--	1.390	0.000	0.000	--	--	--	--	--	
Segment 11	0.185	0.052	0.132	--	1.390	0.047	0.507	--	--	--	--	--	
INTERSECTIONS													
Multiple-vehicle													
Intersection 1	19.726	5.613	14.113	--	0.330	128.404	2.551	--	--	--	--	--	
Intersection 2	1.067	0.389	0.678	--	0.800	0.911	0.924	--	--	--	--	--	
Intersection 3	0.798	0.316	0.482	--	0.800	0.509	0.799	--	--	--	--	--	
Intersection 4	0.437	0.204	0.233	--	0.800	0.152	0.591	--	--	--	--	--	
Intersection 5	3.406	1.294	2.113	--	0.330	3.829	1.060	--	--	--	--	--	
Intersection 6	3.551	1.190	2.361	--	0.390	4.918	1.177	--	--	--	--	--	
Cove Royale Dev	0.865	0.337	0.528	--	0.800	0.598	0.832	--	--	--	--	--	
Intersection 7	1.206	0.443	0.762	--	0.800	1.163	0.982	--	--	--	--	--	
Intersection 8	6.142	2.001	4.142	--	0.390	14.714	1.548	--	--	--	--	--	
Intersection 9	0.961	0.369	0.592	--	0.800	0.738	0.877	--	--	--	--	--	
Intersection 10	0.905	0.371	0.535	--	0.800	0.656	0.851	--	--	--	--	--	

Urban and Suburban Arterial Predictive Method

Intersection 11	2.202	0.840	1.362	--	0.400	1.940	0.939	--	--	--	--	--
Intersection 12	12.447	4.356	8.091	--	0.390	60.424	2.203	--	--	--	--	--
<b>Single-vehicle</b>												
Intersection 1	0.919	0.270	0.650	--	0.360	0.304	0.575	--	--	--	--	--
Intersection 2	0.144	0.045	0.099	--	1.140	0.024	0.406	--	--	--	--	--
Intersection 3	0.104	0.033	0.071	--	1.140	0.012	0.345	--	--	--	--	--
Intersection 4	0.051	0.017	0.034	--	1.140	0.003	0.241	--	--	--	--	--
Intersection 5	0.265	0.068	0.197	--	0.360	0.025	0.309	--	--	--	--	--
Intersection 6	0.222	0.056	0.165	--	0.360	0.018	0.282	--	--	--	--	--
Cove Royal Dev	0.111	0.035	0.076	--	1.140	0.014	0.356	--	--	--	--	--
Intersection 7	0.162	0.051	0.111	--	1.140	0.030	0.430	--	--	--	--	--
Intersection 8	0.417	0.113	0.304	--	0.360	0.062	0.387	--	--	--	--	--
Intersection 9	0.118	0.037	0.081	--	1.140	0.016	0.367	--	--	--	--	--
Intersection 10	0.106	0.034	0.072	--	1.140	0.013	0.348	--	--	--	--	--
Intersection 11	0.266	0.087	0.179	--	0.650	0.046	0.416	--	--	--	--	--
Intersection 12	0.642	0.145	0.497	--	0.360	0.148	0.481	--	--	--	--	--
COMBINED (sum of column)	67.603	21.421	46.182	0	--	227.813	38.572	0.229	15.470	0.637	43.043	29.257

**Worksheet 4B -- Predicted Pedestrian and Bicycle Crashes for Urban and Suburban Arterials**

(1) Site Type	(2) N <sub>ped</sub>	(3) N <sub>bike</sub>
<b>ROADWAY SEGMENTS</b>		
Segment 1	0.011	0.003
Segment 2	0.011	0.003
Segment 3	0.024	0.006
Segment 4	0.013	0.003
Segment 5	0.015	0.004
Segment 6	0.009	0.002
Segment 7	0.031	0.008
Segment 8	0.024	0.006
Segment 9	0.006	0.002
Segment 10	0.019	0.005
Segment 11	0.013	0.004
<b>INTERSECTIONS</b>		
Intersection 1	0.012	0.227
Intersection 2	--	0.022
Intersection 3	--	0.016
Intersection 4	--	0.009
Intersection 5	0.054	0.101
Intersection 6	0.070	0.128
Intersection 7	--	0.025
Intersection 8	0.039	0.246
Intersection 9	--	0.020
Intersection 10	--	0.018
Intersection 11	--	0.083
Intersection 12	0.283	0.446
COMBINED (sum of column)	0.634	1.388

**Worksheet 4C -- Project-Specific EB Method Summary Results for Urban and Suburban Arterials**

(1)	(2)	(3)	(4)	(5)	(6)
<b>Crash severity level</b>	<b>N<sub>predicted</sub></b>	<b>N<sub>ped</sub></b>	<b>N<sub>bike</sub></b>	<b>N<sub>expected (vehicle)</sub></b>	<b>N<sub>expected</sub></b>
Total	(2) <sub>COMB</sub> from Worksheet 4A	(2) <sub>COMB</sub> from Worksheet 4B	(3) <sub>COMB</sub> from Worksheet 4B	(13) <sub>COMB</sub> Worksheet 4A	(3)+(4)+(5)
	67.6	0.6	1.4	29.3	31.3
Fatal and injury (FI)	(3) <sub>COMB</sub> from Worksheet 4A	(2) <sub>COMB</sub> from Worksheet 4B	(3) <sub>COMB</sub> from Worksheet 4B	(5) <sub>TOTAL</sub> * (2) <sub>FI</sub> / (2) <sub>TOTAL</sub>	(3)+(4)+(5)
	21.4	0.6	1.4	9.3	11.3
Property damage only (PDO)	(4) <sub>COMB</sub> from Worksheet 4A	--	--	(5) <sub>TOTAL</sub> * (2) <sub>PDO</sub> / (2) <sub>TOTAL</sub>	(3)+(4)+(5)
	46.2	0.0	0.0	20.0	20.0

Year: 2025  
Alternative 6

Worksheet 4A -- Predicted Crashes by Collision and Site Type and Observed Crashes Using the Project-Level EB Method for Urban and Suburban Arterials

Collision type / Site type	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	Predicted crashes			Observed crashes,  $N_{\text{observed}}$ (crashes/year)	Overdispersion Parameter, k	$N_{\text{predicted } w0}$	$N_{\text{predicted } w1}$	$W_0$	$N_0$	$W_1$	$N_1$	$N_{\text{expected/comb}}$	
	$N_{\text{predicted}}$ (TOTAL)	$N_{\text{predicted}}$ (FI)	$N_{\text{predicted}}$ (PDO)			Equation A-8 $(6)*(2)^2$	Equation A-9 $\text{sqrt}((6)*(2))$	Equation A-10	Equation A-11	Equation A-12	Equation A-13	Equation A-14	
ROADWAY SEGMENTS													
Multiple-vehicle nondriveway													
Segment 1	0.453	0.128	0.324	--	1.320	0.271	0.773	--	--	--	--	--	
Segment 2	0.451	0.128	0.323	--	1.320	0.269	0.772	--	--	--	--	--	
Segment 3	0.965	0.275	0.690	--	1.320	1.230	1.129	--	--	--	--	--	
Segment 4	0.525	0.149	0.375	--	1.320	0.364	0.832	--	--	--	--	--	
Segment 5	0.630	0.179	0.451	--	1.320	0.523	0.912	--	--	--	--	--	
Segment 6a	0.364	0.103	0.261	--	1.320	0.175	0.693	--	--	--	--	--	
Segment 6b	0.366	0.104	0.263	--	1.320	0.177	0.695	--	--	--	--	--	
Segment 7	1.228	0.349	0.879	--	1.320	1.990	1.273	--	--	--	--	--	
Segment 8	0.996	0.282	0.714	--	1.320	1.310	1.147	--	--	--	--	--	
Segment 9a	0.250	0.071	0.179	--	1.320	0.082	0.574	--	--	--	--	--	
Segment 9b	0.471	0.133	0.338	--	1.320	0.293	0.789	--	--	--	--	--	
Segment 10	0.828	0.234	0.594	--	1.320	0.905	1.045	--	--	--	--	--	
Segment 11	0.467	0.132	0.335	--	1.320	0.287	0.785	--	--	--	--	--	
Single-vehicle													
Segment 1	0.111	0.018	0.093	--	0.860	0.011	0.309	--	--	--	--	--	
Segment 2	0.114	0.019	0.095	--	0.860	0.011	0.313	--	--	--	--	--	
Segment 3	0.250	0.041	0.209	--	0.860	0.054	0.463	--	--	--	--	--	
Segment 4	0.136	0.022	0.113	--	0.860	0.016	0.342	--	--	--	--	--	
Segment 5	0.159	0.026	0.132	--	0.860	0.022	0.369	--	--	--	--	--	
Segment 6a	0.089	0.015	0.075	--	0.860	0.007	0.277	--	--	--	--	--	
Segment 6b	0.090	0.015	0.075	--	0.860	0.007	0.278	--	--	--	--	--	
Segment 7	0.309	0.051	0.258	--	0.860	0.082	0.516	--	--	--	--	--	
Segment 8	0.238	0.040	0.199	--	0.860	0.049	0.453	--	--	--	--	--	
Segment 9a	0.058	0.010	0.049	--	0.860	0.003	0.224	--	--	--	--	--	
Segment 9b	0.110	0.018	0.092	--	0.860	0.010	0.308	--	--	--	--	--	
Segment 10	0.193	0.032	0.161	--	0.860	0.032	0.408	--	--	--	--	--	
Segment 11	0.109	0.018	0.091	--	0.860	0.010	0.306	--	--	--	--	--	
Multiple-vehicle driveway-related													
Segment 1	0.034	0.010	0.025	--	1.390	0.002	0.218	--	--	--	--	--	
Segment 2	0.000	0.000	0.000	--	1.390	0.000	0.000	--	--	--	--	--	
Segment 3	0.022	0.006	0.016	--	1.390	0.001	0.176	--	--	--	--	--	
Segment 4	0.000	0.000	0.000	--	1.390	0.000	0.000	--	--	--	--	--	
Segment 5	0.016	0.005	0.011	--	1.390	0.000	0.149	--	--	--	--	--	
Segment 6a	0.019	0.005	0.013	--	1.390	0.000	0.162	--	--	--	--	--	
Segment 6b	0.019	0.005	0.013	--	1.390	0.000	0.162	--	--	--	--	--	
Segment 7	0.106	0.030	0.076	--	1.390	0.016	0.384	--	--	--	--	--	
Segment 8	0.040	0.011	0.029	--	1.390	0.002	0.236	--	--	--	--	--	
Segment 9a	0.029	0.008	0.021	--	1.390	0.001	0.202	--	--	--	--	--	
Segment 9b	0.031	0.009	0.022	--	1.390	0.001	0.206	--	--	--	--	--	
Segment 10	0.000	0.000	0.000	--	1.390	0.000	0.000	--	--	--	--	--	
Segment 11	0.204	0.058	0.146	--	1.390	0.058	0.533	--	--	--	--	--	
INTERSECTIONS													
Multiple-vehicle													
Intersection 1	19.726	5.613	14.113	--	0.330	128.404	2.551	--	--	--	--	--	
Intersection 2	1.067	0.389	0.678	--	0.800	0.911	0.924	--	--	--	--	--	
Intersection 3	0.798	0.316	0.482	--	0.800	0.509	0.799	--	--	--	--	--	
Intersection 4	0.437	0.204	0.233	--	0.800	0.152	0.591	--	--	--	--	--	
Intersection 5	3.406	1.294	2.113	--	0.330	3.829	1.060	--	--	--	--	--	
Intersection 6	3.551	1.190	2.361	--	0.390	4.918	1.177	--	--	--	--	--	
Cove Royale Dev	0.865	0.337	0.528	--	0.800	0.598	0.832	--	--	--	--	--	
Intersection 7	1.206	0.443	0.762	--	0.800	1.163	0.982	--	--	--	--	--	
Intersection 8	6.142	2.001	4.142	--	0.390	14.714	1.548	--	--	--	--	--	
Intersection 9	0.961	0.369	0.592	--	0.800	0.738	0.877	--	--	--	--	--	
Intersection 10	0.905	0.371	0.535	--	0.800	0.656	0.851	--	--	--	--	--	

Urban and Suburban Arterial Predictive Method

Intersection 11	2.202	0.840	1.362	--	0.400	1.940	0.939	--	--	--	--	--
Intersection 12	12.447	4.356	8.091	--	0.390	60.424	2.203	--	--	--	--	--
<b>Single-vehicle</b>												
Intersection 1	0.919	0.270	0.650	--	0.360	0.304	0.575	--	--	--	--	--
Intersection 2	0.144	0.045	0.099	--	1.140	0.024	0.406	--	--	--	--	--
Intersection 3	0.104	0.033	0.071	--	1.140	0.012	0.345	--	--	--	--	--
Intersection 4	0.051	0.017	0.034	--	1.140	0.003	0.241	--	--	--	--	--
Intersection 5	0.265	0.068	0.197	--	0.360	0.025	0.309	--	--	--	--	--
Intersection 6	0.222	0.056	0.165	--	0.360	0.018	0.282	--	--	--	--	--
Cove Royal Dev	0.111	0.035	0.076	--	1.140	0.014	0.356	--	--	--	--	--
Intersection 7	0.162	0.051	0.111	--	1.140	0.030	0.430	--	--	--	--	--
Intersection 8	0.417	0.113	0.304	--	0.360	0.062	0.387	--	--	--	--	--
Intersection 9	0.118	0.037	0.081	--	1.140	0.016	0.367	--	--	--	--	--
Intersection 10	0.106	0.034	0.072	--	1.140	0.013	0.348	--	--	--	--	--
Intersection 11	0.266	0.087	0.179	--	0.650	0.046	0.416	--	--	--	--	--
Intersection 12	0.642	0.145	0.497	--	0.360	0.148	0.481	--	--	--	--	--
COMBINED (sum of column)	67.721	21.452	46.269	0	--	227.945	38.689	0.229	15.511	0.636	43.099	29.305

**Worksheet 4B -- Predicted Pedestrian and Bicycle Crashes for Urban and Suburban Arterials**

(1) Site Type	(2) N <sub>ped</sub>	(3) N <sub>bike</sub>
<b>ROADWAY SEGMENTS</b>		
Segment 1	0.011	0.003
Segment 2	0.011	0.003
Segment 3	0.024	0.006
Segment 4	0.013	0.003
Segment 5	0.015	0.004
Segment 6	0.009	0.002
Segment 7	0.031	0.008
Segment 8	0.024	0.006
Segment 9	0.006	0.002
Segment 10	0.019	0.005
Segment 11	0.015	0.004
<b>INTERSECTIONS</b>		
Intersection 1	0.012	0.227
Intersection 2	--	0.022
Intersection 3	--	0.016
Intersection 4	--	0.009
Intersection 5	0.054	0.101
Intersection 6	0.070	0.128
Intersection 7	--	0.025
Intersection 8	0.039	0.246
Intersection 9	--	0.020
Intersection 10	--	0.018
Intersection 11	--	0.083
Intersection 12	0.283	0.446
COMBINED (sum of column)	0.636	1.389

**Worksheet 4C -- Project-Specific EB Method Summary Results for Urban and Suburban Arterials**

(1) Crash severity level	(2) N <sub>predicted</sub>	(3) N <sub>ped</sub>	(4) N <sub>bike</sub>	(5) N <sub>expected (vehicle)</sub>	(6) N <sub>expected</sub>
Total	(2) <sub>COMB</sub> from Worksheet 4A 67.7	(2) <sub>COMB</sub> from Worksheet 4B 0.6	(3) <sub>COMB</sub> from Worksheet 4B 1.4	(13) <sub>COMB</sub> Worksheet 4A 29.3	(3)+(4)+(5) 31.3
Fatal and injury (FI)	(3) <sub>COMB</sub> from Worksheet 4A 21.5	(2) <sub>COMB</sub> from Worksheet 4B 0.6	(3) <sub>COMB</sub> from Worksheet 4B 1.4	(5) <sub>TOTAL</sub> * (2) <sub>FI</sub> / (2) <sub>TOTAL</sub> 9.3	(3)+(4)+(5) 11.3
Property damage only (PDO)	(4) <sub>COMB</sub> from Worksheet 4A 46.3	-- 0.0	-- 0.0	(5) <sub>TOTAL</sub> * (2) <sub>PDO</sub> / (2) <sub>TOTAL</sub> 20.0	(3)+(4)+(5) 20.0

Design Year 2045  
HSM Spreadsheet Summaries

Year: 2045

Alternative: No-Build

Worksheet 4A -- Predicted Crashes by Collision and Site Type and Observed Crashes Using the Project-Level EB Method for Urban and Suburban Arterials

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Collision type / Site type	Predicted crashes			Observed crashes,  N <sub>observed</sub> (crashes/year)	Overdispersion Parameter, k	N <sub>predicted w0</sub>	N <sub>predicted w1</sub>	W <sub>0</sub>	N <sub>0</sub>	w <sub>1</sub>	N <sub>1</sub>	N <sub>expected/comb</sub>
	N <sub>predicted</sub> (TOTAL)	N <sub>predicted</sub> (FI)	N <sub>predicted</sub> (PDO)			Equation A-8 (6)*(2) <sup>2</sup>	Equation A-9 sqrt((6)*(2))	Equation A-10	Equation A-11	Equation A-12	Equation A-13	Equation A-14
ROADWAY SEGMENTS												
Multiple-vehicle nondriveway												
Segment 1	0.738	0.205	0.533	--	1.320	0.720	0.987	--	--	--	--	--
Segment 2	1.068	0.309	0.759	--	0.840	0.959	0.947	--	--	--	--	--
Segment 3	2.169	0.627	1.542	--	0.840	3.953	1.350	--	--	--	--	--
Segment 4	1.222	0.353	0.868	--	0.840	1.254	1.013	--	--	--	--	--
Segment 5	1.455	0.420	1.035	--	0.840	1.779	1.106	--	--	--	--	--
Segment 6a	0.854	0.247	0.608	--	0.840	0.613	0.847	--	--	--	--	--
Segment 6b	0.860	0.248	0.612	--	0.840	0.621	0.850	--	--	--	--	--
Segment 7a	1.345	0.388	0.956	--	0.840	1.519	1.063	--	--	--	--	--
Segment 7b	1.527	0.441	1.086	--	0.840	1.958	1.132	--	--	--	--	--
Segment 8	2.449	0.706	1.743	--	0.840	5.038	1.434	--	--	--	--	--
Segment 9	1.709	0.493	1.216	--	0.840	2.452	1.198	--	--	--	--	--
Segment 10	1.941	0.559	1.381	--	0.840	3.164	1.277					
Segment 11	0.789	0.218	0.571	--	1.320	0.823	1.021					
Single-vehicle												
Segment 1	0.143	0.025	0.118	--	0.860	0.018	0.351	--	--	--	--	--
Segment 2	0.251	0.044	0.207	--	0.810	0.051	0.451	--	--	--	--	--
Segment 3	0.510	0.089	0.420	--	0.810	0.210	0.642	--	--	--	--	--
Segment 4	0.287	0.050	0.237	--	0.810	0.067	0.482	--	--	--	--	--
Segment 5	0.328	0.057	0.272	--	0.810	0.087	0.516	--	--	--	--	--
Segment 6a	0.186	0.032	0.154	--	0.810	0.028	0.389	--	--	--	--	--
Segment 6b	0.188	0.032	0.155	--	0.810	0.029	0.390	--	--	--	--	--
Segment 7a	0.304	0.053	0.251	--	0.810	0.075	0.496	--	--	--	--	--
Segment 7b	0.345	0.060	0.285	--	0.810	0.096	0.528	--	--	--	--	--
Segment 8	0.501	0.084	0.417	--	0.810	0.203	0.637	--	--	--	--	--
Segment 9	0.349	0.059	0.291	--	0.810	0.099	0.532	--	--	--	--	--
Segment 10	0.397	0.067	0.330	--	0.810	0.128	0.567					
Segment 11	0.141	0.025	0.117	--	0.860	0.017	0.349					
Multiple-vehicle driveway-related												
Segment 1	0.052	0.015	0.037	--	1.390	0.004	0.270	--	--	--	--	--
Segment 2	0.000	0.000	0.000	--	0.810	0.000	0.000	--	--	--	--	--
Segment 3	0.155	0.050	0.105	--	0.810	0.019	0.354	--	--	--	--	--
Segment 4	0.000	0.000	0.000	--	0.810	0.000	0.000	--	--	--	--	--
Segment 5	0.126	0.041	0.085	--	0.810	0.013	0.319	--	--	--	--	--
Segment 6a	0.146	0.047	0.099	--	0.810	0.017	0.344	--	--	--	--	--
Segment 6b	0.146	0.047	0.099	--	0.810	0.017	0.344	--	--	--	--	--
Segment 7a	0.764	0.247	0.517	--	0.810	0.472	0.787	--	--	--	--	--
Segment 7b	0.764	0.247	0.517	--	0.810	0.472	0.787	--	--	--	--	--
Segment 8	0.291	0.094	0.197	--	0.810	0.068	0.485	--	--	--	--	--
Segment 9	0.209	0.068	0.142	--	0.810	0.036	0.412					
Segment 10	0.000	0.000	0.000	--	0.810	0.000	0.000					
Segment 11	0.321	0.091	0.229	--	1.390	0.143	0.667	--	--	--	--	--
INTERSECTIONS												
Multiple-vehicle												
Intersection 1	25.052	6.983	18.070	--	0.330	207.114	2.875	--	--	--	--	--
Intersection 2	1.159	0.415	0.744	--	0.800	1.074	0.963	--	--	--	--	--
Intersection 3	0.990	0.378	0.613	--	0.400	0.392	0.629	--	--	--	--	--
Intersection 4	0.511	0.232	0.278	--	0.800	0.209	0.639	--	--	--	--	--
Intersection 5	4.140	1.547	2.593	--	0.330	5.656	1.169	--	--	--	--	--
Intersection 6	4.356	1.465	2.892	--	0.390	7.401	1.303	--	--	--	--	--
CoveRoyalDev	0.920	0.358	0.562	--	0.800	0.677	0.858					
Intersection 7	1.355	0.489	0.866	--	0.800	1.469	1.041	--	--	--	--	--
PulteAquarius	1.739	0.627	1.112	--	0.800	2.420	1.180					
Intersection 8	7.525	2.469	5.056	--	0.390	22.086	1.713	--	--	--	--	--
Intersection 9	1.059	0.401	0.658	--	0.800	0.897	0.920	--	--	--	--	--
Intersection 10	1.052	0.418	0.634	--	0.800	0.885	0.917					
Intersection 11	2.400	0.925	1.475	--	0.400	2.304	0.980	--	--	--	--	--

Intersection 12	13.767	4.857	8.910	--	0.390	73.920	2.317	--	--	--	--	--
<b>Single-vehicle</b>												
Intersection 1	1.015	0.291	0.724	--	0.360	0.371	0.604	--	--	--	--	--
Intersection 2	0.155	0.048	0.107	--	1.140	0.027	0.420	--	--	--	--	--
Intersection 3	0.120	0.039	0.082	--	0.650	0.009	0.280	--	--	--	--	--
Intersection 4	0.058	0.019	0.039	--	1.140	0.004	0.257	--	--	--	--	--
Intersection 5	0.316	0.082	0.234	--	0.360	0.036	0.337	--	--	--	--	--
Intersection 6	0.268	0.068	0.201	--	0.360	0.026	0.311	--	--	--	--	--
CoveRoyalDev	0.112	0.035	0.077	--	1.140	0.014	0.358	--	--	--	--	--
Intersection 7	0.175	0.054	0.121	--	1.140	0.035	0.447	--	--	--	--	--
PulteAquarius	0.225	0.070	0.155	--	1.140	0.058	0.506	--	--	--	--	--
Intersection 8	0.497	0.132	0.364	--	0.360	0.089	0.423	--	--	--	--	--
Intersection 9	0.125	0.039	0.086	--	1.140	0.018	0.378	--	--	--	--	--
Intersection 10	0.120	0.038	0.082	--	1.140	0.016	0.370	--	--	--	--	--
Intersection 11	0.276	0.089	0.188	--	0.650	0.050	0.424	--	--	--	--	--
Intersection 12	0.689	0.153	0.536	--	0.360	0.171	0.498	--	--	--	--	--
COMBINED (sum of column)	95.206	29.556	65.650	0	--	354.649	48.439	0.212	20.149	0.663	63.101	41.625

**Worksheet 4B -- Predicted Pedestrian and Bicycle Crashes for Urban and Suburban Arterials**

(1) Site Type	(2) N <sub>ped</sub>	(3) N <sub>bike</sub>
<b>ROADWAY SEGMENTS</b>		
Segment 1	0.018	0.005
Segment 2	0.007	0.005
Segment 3	0.014	0.011
Segment 4	0.008	0.006
Segment 5	0.010	0.008
Segment 6	0.006	0.005
Segment 7	0.012	0.010
Segment 8	0.016	0.013
Segment 9	0.011	0.009
Segment 10	0.012	0.009
Segment 11	0.024	0.006
<b>INTERSECTIONS</b>		
Intersection 1	0.011	0.287
Intersection 2	--	0.024
Intersection 3	--	0.023
Intersection 4	--	0.010
Intersection 5	0.046	0.123
Intersection 6	0.069	0.157
Intersection 7	--	0.028
Intersection 8	0.036	0.301
Intersection 9	--	0.022
Intersection 10	--	0.021
Intersection 11	--	0.090
Intersection 12	0.289	0.492
COMBINED (sum of column)	0.588	1.665

**Worksheet 4C -- Project-Specific EB Method Summary Results for Urban and Suburban Arterials**

(1) Crash severity level	(2) N <sub>predicted</sub>	(3) N <sub>ped</sub>	(4) N <sub>bike</sub>	(5) N <sub>expected (vehicle)</sub>	(6) N <sub>expected</sub>
Total	(2) <sub>COMB</sub> from Worksheet 4A	(2) <sub>COMB</sub> from Worksheet 4B	(3) <sub>COMB</sub> from Worksheet 4B	(13) <sub>COMB</sub> Worksheet 4A	(3)+(4)+(5)
	95.2	0.6	1.7	41.6	43.9
Fatal and injury (FI)	(3) <sub>COMB</sub> from Worksheet 4A	(2) <sub>COMB</sub> from Worksheet 4B	(3) <sub>COMB</sub> from Worksheet 4B	(5) <sub>TOTAL</sub> * (2) <sub>FI</sub> / (2) <sub>TOTAL</sub>	(3)+(4)+(5)
	29.6	0.6	1.7	12.9	15.2
Property damage only (PDO)	(4) <sub>COMB</sub> from Worksheet 4A	--	--	(5) <sub>TOTAL</sub> * (2) <sub>PDO</sub> / (2) <sub>TOTAL</sub>	(3)+(4)+(5)
	65.6	0.0	0.0	28.7	28.7

Year: 2045  
Alternative 1

Worksheet 4A -- Predicted Crashes by Collision and Site Type and Observed Crashes Using the Project-Level EB Method for Urban and Suburban Arterials

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Collision type / Site type	Predicted crashes			Observed crashes, N <sub>observed</sub> (crashes/year)	Overdispersion Parameter, k	N <sub>predicted w0</sub>	N <sub>predicted w1</sub>	W <sub>0</sub>	N <sub>0</sub>	w <sub>1</sub>	N <sub>1</sub>	N <sub>expected/comb</sub>
	N <sub>predicted</sub> (TOTAL)	N <sub>predicted</sub> (FI)	N <sub>predicted</sub> (PDO)			Equation A-8 (6)*(2) <sup>2</sup>	Equation A-9 sqrt((6)*(2))	Equation A-10	Equation A-11	Equation A-12	Equation A-13	Equation A-14
ROADWAY SEGMENTS												
Multiple-vehicle nondriveway												
Segment 1	0.692	0.192	0.500	--	1.320	0.632	0.956	--	--	--	--	--
Segment 2	0.678	0.189	0.490	--	1.320	0.607	0.946	--	--	--	--	--
Segment 3	1.337	0.374	0.963	--	1.320	2.361	1.329	--	--	--	--	--
Segment 4	0.726	0.203	0.523	--	1.320	0.696	0.979	--	--	--	--	--
Segment 5	0.892	0.249	0.643	--	1.320	1.050	1.085	--	--	--	--	--
Segment 6a	0.511	0.142	0.369	--	1.320	0.344	0.821	--	--	--	--	--
Segment 6b	0.514	0.143	0.371	--	1.320	0.349	0.824	--	--	--	--	--
Segment 7a	0.864	0.240	0.624	--	1.320	0.986	1.068	--	--	--	--	--
Segment 7b	0.981	0.273	0.708	--	1.320	1.270	1.138	--	--	--	--	--
Segment 8	1.306	0.364	0.942	--	1.320	2.253	1.313	--	--	--	--	--
Segment 9a	0.345	0.096	0.249	--	1.320	0.157	0.674	--	--	--	--	--
Segment 9b	0.632	0.175	0.456	--	1.320	0.527	0.913	--	--	--	--	--
Segment 10	1.102	0.306	0.796	--	1.320	1.603	1.206					
Segment 11	0.578	0.160	0.417	--	1.320	0.441	0.873					
Single-vehicle												
Segment 1	0.128	0.022	0.106	--	0.860	0.014	0.332	--	--	--	--	--
Segment 2	0.130	0.023	0.108	--	0.860	0.015	0.335	--	--	--	--	--
Segment 3	0.279	0.048	0.231	--	0.860	0.067	0.490	--	--	--	--	--
Segment 4	0.151	0.026	0.126	--	0.860	0.020	0.361	--	--	--	--	--
Segment 5	0.178	0.031	0.148	--	0.860	0.027	0.392	--	--	--	--	--
Segment 6a	0.100	0.017	0.083	--	0.860	0.009	0.294	--	--	--	--	--
Segment 6b	0.101	0.017	0.083	--	0.860	0.009	0.295	--	--	--	--	--
Segment 7a	0.166	0.029	0.137	--	0.860	0.024	0.378	--	--	--	--	--
Segment 7b	0.189	0.033	0.156	--	0.860	0.031	0.403					
Segment 8	0.261	0.045	0.216	--	0.860	0.059	0.474	--	--	--	--	--
Segment 9a	0.065	0.011	0.054	--	0.860	0.004	0.236	--	--	--	--	--
Segment 9b	0.119	0.021	0.098	--	0.860	0.012	0.320					
Segment 10	0.208	0.036	0.172	--	0.860	0.037	0.423					
Segment 11	0.109	0.019	0.090	--	0.860	0.010	0.306					
Multiple-vehicle driveway-related												
Segment 1	0.048	0.014	0.035	--	1.390	0.003	0.259	--	--	--	--	--
Segment 2	0.000	0.000	0.000	--	1.390	0.000	0.000	--	--	--	--	--
Segment 3	0.029	0.008	0.021	--	1.390	0.001	0.201	--	--	--	--	--
Segment 4	0.000	0.000	0.000	--	1.390	0.000	0.000	--	--	--	--	--
Segment 5	0.021	0.006	0.015	--	1.390	0.001	0.172	--	--	--	--	--
Segment 6a	0.025	0.007	0.018	--	1.390	0.001	0.186	--	--	--	--	--
Segment 6b	0.025	0.007	0.018	--	1.390	0.001	0.186					
Segment 7a	0.147	0.042	0.106	--	1.390	0.030	0.453	--	--	--	--	--
Segment 7b	0.147	0.042	0.106	--	1.390	0.030	0.453					
Segment 8	0.050	0.014	0.036	--	1.390	0.003	0.264	--	--	--	--	--
Segment 9a	0.038	0.011	0.027	--	1.390	0.002	0.230					
Segment 9b	0.039	0.011	0.028	--	1.390	0.002	0.231					
Segment 10	0.000	0.000	0.000	--	1.390	0.000	0.000					
Segment 11	0.238	0.068	0.170	--	1.390	0.079	0.575	--	--	--	--	--
INTERSECTIONS												
Multiple-vehicle												
Intersection 1	25.914	7.053	18.862	--	0.330	221.613	2.924	--	--	--	--	--
Intersection 2	1.595	0.567	1.028	--	0.800	2.035	1.130	--	--	--	--	--
Intersection 3	1.238	0.485	0.753	--	0.400	0.613	0.704	--	--	--	--	--
Intersection 4	0.625	0.283	0.342	--	0.800	0.313	0.707	--	--	--	--	--
Intersection 5	4.711	1.734	2.977	--	0.330	7.324	1.247	--	--	--	--	--
Intersection 6	4.408	1.513	2.895	--	0.390	7.579	1.311	--	--	--	--	--
Cove Royale Dev	1.143	0.443	0.701	--	0.800	1.045	0.956					
Intersection 7	1.726	0.619	1.107	--	0.800	2.382	1.175	--	--	--	--	--
PulteAquarius	2.215	0.794	1.420	--	0.800	3.924	1.331					
Intersection 8	8.765	2.915	5.850	--	0.390	29.961	1.849	--	--	--	--	--
Intersection 9	1.395	0.514	0.881	--	0.800	1.558	1.057	--	--	--	--	--

Intersection 10	1.294	0.512	0.782	--	0.800	1.340	1.018	--	--	--	--	--
Intersection 11	2.795	1.097	1.698	--	0.400	3.125	1.057	--	--	--	--	--
Intersection 12	14.371	5.058	9.313	--	0.390	80.544	2.367	--	--	--	--	--
<b>Single-vehicle</b>												
Intersection 1	1.121	0.335	0.786	--	0.360	0.453	0.635	--	--	--	--	--
Intersection 2	0.162	0.049	0.113	--	1.140	0.030	0.430	--	--	--	--	--
Intersection 3	0.132	0.042	0.089	--	0.650	0.011	0.292	--	--	--	--	--
Intersection 4	0.059	0.019	0.040	--	1.140	0.004	0.260	--	--	--	--	--
Intersection 5	0.313	0.079	0.234	--	0.360	0.035	0.336	--	--	--	--	--
Intersection 6	0.252	0.060	0.191	--	0.360	0.023	0.301	--	--	--	--	--
Cove Royale Dev	0.116	0.036	0.080	--	0.360	0.005	0.204	--	--	--	--	--
Intersection 7	0.181	0.055	0.162	--	1.140	0.037	0.455	--	--	--	--	--
PulteAquarius	0.233	0.071	0.162	--	1.140	0.062	0.515	--	--	--	--	--
Intersection 8	0.549	0.141	0.408	--	0.360	0.109	0.445	--	--	--	--	--
Intersection 9	0.141	0.043	0.097	--	1.140	0.023	0.400	--	--	--	--	--
Intersection 10	0.123	0.039	0.085	--	1.140	0.017	0.375	--	--	--	--	--
Intersection 11	0.294	0.094	0.200	--	0.650	0.056	0.437	--	--	--	--	--
Intersection 12	0.725	0.161	0.563	--	0.360	0.189	0.511	--	--	--	--	--
COMBINED (sum of column)	90.749	28.527	62.257	0	--	378.178	46.802	0.194	17.562	0.660	59.871	38.717

**Worksheet 4B -- Predicted Pedestrian and Bicycle Crashes for Urban and Suburban Arterials**

(1)	(2)	(3)
Site Type	N <sub>ped</sub>	N <sub>bike</sub>
<b>ROADWAY SEGMENTS</b>		
Segment 1	0.016	0.004
Segment 2	0.015	0.004
Segment 3	0.031	0.008
Segment 4	0.017	0.004
Segment 5	0.021	0.005
Segment 6	0.012	0.003
Segment 7	0.022	0.006
Segment 8	0.031	0.008
Segment 9	0.009	0.002
Segment 10	0.025	0.007
Segment 11	0.018	0.005
<b>INTERSECTIONS</b>		
Intersection 1	0.012	0.297
Intersection 2	--	0.032
Intersection 3	--	0.028
Intersection 4	--	0.012
Intersection 5	0.053	0.138
Intersection 6	0.077	0.159
Intersection 7	--	0.035
Intersection 8	0.045	0.349
Intersection 9	--	0.028
Intersection 10	--	0.026
Intersection 11	--	0.104
Intersection 12	0.311	0.514
COMBINED (sum of column)	0.715	1.780

**Worksheet 4C -- Project-Specific EB Method Summary Results for Urban and Suburban Arterials**

(1)	(2)	(3)	(4)	(5)	(6)
Crash severity level	N <sub>predicted</sub>	N <sub>ped</sub>	N <sub>bike</sub>	N <sub>expected (vehicle)</sub>	N <sub>expected</sub>
Total	(2) <sub>COMB</sub> from Worksheet 4A 90.7	(2) <sub>COMB</sub> from Worksheet 4B 0.7	(3) <sub>COMB</sub> from Worksheet 4B 1.8	(13) <sub>COMB</sub> Worksheet 4A 38.7	(3)+(4)+(5) 41.2
Fatal and injury (FI)	(3) <sub>COMB</sub> from Worksheet 4A 28.5	(2) <sub>COMB</sub> from Worksheet 4B 0.7	(3) <sub>COMB</sub> from Worksheet 4B 1.8	(5) <sub>TOTAL</sub> * (2) <sub>FI</sub> / (2) <sub>TOTAL</sub> 12.2	(3)+(4)+(5) 14.7
Property damage only (PDO)	(4) <sub>COMB</sub> from Worksheet 4A 62.3	-- 0.0	-- 0.0	(5) <sub>TOTAL</sub> * (2) <sub>PDO</sub> / (2) <sub>TOTAL</sub> 26.6	(3)+(4)+(5) 26.6

Year: 2045

Alternative: 2

Worksheet 4A -- Predicted Crashes by Collision and Site Type and Observed Crashes Using the Project-Level EB Method for Urban and Suburban Arterials

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Collision type / Site type	Predicted crashes			Observed crashes, N <sub>observed</sub> (crashes/year)	Overdispersion Parameter, k	N <sub>predicted w0</sub>	N <sub>predicted w1</sub>	W <sub>0</sub>	N <sub>0</sub>	w <sub>1</sub>	N <sub>1</sub>	N <sub>expected/comb</sub>
	N <sub>predicted</sub> (TOTAL)	N <sub>predicted</sub> (FI)	N <sub>predicted</sub> (PDO)			Equation A-8 (6)*(2) <sup>2</sup>	Equation A-9 sqrt((6)*(2))	Equation A-10	Equation A-11	Equation A-12	Equation A-13	Equation A-14
ROADWAY SEGMENTS												
Multiple-vehicle nondriveway												
Segment 1	0.692	0.192	0.500	--	1.320	0.632	0.956	--	--	--	--	--
Segment 2	0.678	0.189	0.490	--	1.320	0.607	0.946	--	--	--	--	--
Segment 3	1.337	0.374	0.963	--	1.320	2.361	1.329	--	--	--	--	--
Segment 4	0.726	0.203	0.523	--	1.320	0.696	0.979	--	--	--	--	--
Segment 5	0.892	0.249	0.643	--	1.320	1.050	1.085	--	--	--	--	--
Segment 6a	0.511	0.142	0.369	--	1.320	0.344	0.821	--	--	--	--	--
Segment 6b	0.514	0.143	0.371	--	1.320	0.349	0.824	--	--	--	--	--
Segment 7a	0.864	0.240	0.624	--	1.320	0.986	1.068	--	--	--	--	--
Segment 7b	0.981	0.273	0.708	--	1.320	1.270	1.138	--	--	--	--	--
Segment 8	1.306	0.364	0.942	--	1.320	2.253	1.313	--	--	--	--	--
Segment 9a	0.345	0.096	0.249	--	1.320	0.157	0.674	--	--	--	--	--
Segment 9b	0.638	0.177	0.461	--	1.320	0.537	0.918	--	--	--	--	--
Segment 10	1.113	0.309	0.804	--	1.320	1.636	1.212					
Segment 11	0.584	0.162	0.422	--	1.320	0.450	0.878					
Single-vehicle												
Segment 1	0.128	0.022	0.106	--	0.860	0.014	0.332	--	--	--	--	--
Segment 2	0.130	0.023	0.108	--	0.860	0.015	0.335	--	--	--	--	--
Segment 3	0.279	0.048	0.231	--	0.860	0.067	0.490	--	--	--	--	--
Segment 4	0.151	0.026	0.126	--	0.860	0.020	0.361	--	--	--	--	--
Segment 5	0.178	0.031	0.148	--	0.860	0.027	0.392	--	--	--	--	--
Segment 6a	0.100	0.017	0.083	--	0.860	0.009	0.294	--	--	--	--	--
Segment 6b	0.101	0.017	0.083	--	0.860	0.009	0.295	--	--	--	--	--
Segment 7a	0.166	0.029	0.137	--	0.860	0.024	0.378	--	--	--	--	--
Segment 7b	0.189	0.033	0.156	--	0.860	0.031	0.403					
Segment 8	0.261	0.045	0.216	--	0.860	0.059	0.474	--	--	--	--	--
Segment 9a	0.065	0.011	0.054	--	0.860	0.004	0.236	--	--	--	--	--
Segment 9b	0.120	0.021	0.099	--	0.860	0.012	0.322					
Segment 10	0.210	0.037	0.173	--	0.860	0.038	0.425					
Segment 11	0.110	0.019	0.091	--	0.860	0.010	0.308					
Multiple-vehicle driveway-related												
Segment 1	0.048	0.014	0.035	--	1.390	0.003	0.259	--	--	--	--	--
Segment 2	0.000	0.000	0.000	--	1.390	0.000	0.000	--	--	--	--	--
Segment 3	0.029	0.008	0.021	--	1.390	0.001	0.201	--	--	--	--	--
Segment 4	0.000	0.000	0.000	--	1.390	0.000	0.000	--	--	--	--	--
Segment 5	0.021	0.006	0.015	--	1.390	0.001	0.172	--	--	--	--	--
Segment 6a	0.025	0.007	0.018	--	1.390	0.001	0.186	--	--	--	--	--
Segment 6b	0.025	0.007	0.018	--	1.390	0.001	0.186					
Segment 7a	0.147	0.042	0.106	--	1.390	0.030	0.453	--	--	--	--	--
Segment 7b	0.147	0.042	0.106	--	1.390	0.030	0.453					
Segment 8	0.050	0.014	0.036	--	1.390	0.003	0.264	--	--	--	--	--
Segment 9a	0.038	0.011	0.027	--	1.390	0.002	0.230					
Segment 9b	0.039	0.011	0.028	--	1.390	0.002	0.233					
Segment 10	0.000	0.000	0.000	--	1.390	0.000	0.000					
Segment 11	0.241	0.068	0.172	--	1.390	0.080	0.578	--	--	--	--	--
INTERSECTIONS												
Multiple-vehicle												
Intersection 1	25.914	7.053	18.862	--	0.330	221.613	2.924	--	--	--	--	--
Intersection 2	1.595	0.567	1.028	--	0.800	2.035	1.130	--	--	--	--	--
Intersection 3	1.238	0.485	0.753	--	0.400	0.613	0.704	--	--	--	--	--
Intersection 4	0.625	0.283	0.342	--	0.800	0.313	0.707	--	--	--	--	--
Intersection 5	4.711	1.734	2.977	--	0.330	7.324	1.247	--	--	--	--	--
Intersection 6	4.408	1.513	2.895	--	0.390	7.579	1.311	--	--	--	--	--
Cove Royale Dev	1.143	0.443	0.701	--	0.800	1.045	0.956					
Intersection 7	1.726	0.619	1.107	--	0.800	2.382	1.175	--	--	--	--	--
PulteAquarius	2.215	0.794	1.420	--	0.800	3.924	1.331					
Intersection 8	8.765	2.915	5.850	--	0.390	29.961	1.849	--	--	--	--	--
Intersection 9	1.395	0.514	0.881	--	0.800	1.558	1.057	--	--	--	--	--

Intersection 10	1.294	0.512	0.782	--	0.800	1.340	1.018	--	--	--	--	--
Intersection 11	2.795	1.097	1.698	--	0.400	3.125	1.057	--	--	--	--	--
Intersection 12	14.371	5.058	9.313	--	0.390	80.544	2.367	--	--	--	--	--
<b>Single-vehicle</b>												
Intersection 1	1.121	0.335	0.786	--	0.360	0.453	0.635	--	--	--	--	--
Intersection 2	0.162	0.049	0.113	--	1.140	0.030	0.430	--	--	--	--	--
Intersection 3	0.132	0.042	0.089	--	0.650	0.011	0.292	--	--	--	--	--
Intersection 4	0.059	0.019	0.040	--	1.140	0.004	0.260	--	--	--	--	--
Intersection 5	0.313	0.079	0.234	--	0.360	0.035	0.336	--	--	--	--	--
Intersection 6	0.252	0.060	0.191	--	0.360	0.023	0.301	--	--	--	--	--
Cove Royale Dev	0.116	0.036	0.080	--	0.360	0.005	0.204	--	--	--	--	--
Intersection 7	0.181	0.055	0.162	--	1.140	0.037	0.455	--	--	--	--	--
PulteAquarius	0.233	0.071	0.162	--	1.140	0.062	0.515	--	--	--	--	--
Intersection 8	0.549	0.141	0.408	--	0.360	0.109	0.445	--	--	--	--	--
Intersection 9	0.141	0.043	0.097	--	1.140	0.023	0.400	--	--	--	--	--
Intersection 10	0.123	0.039	0.085	--	1.140	0.017	0.375	--	--	--	--	--
Intersection 11	0.294	0.094	0.200	--	0.650	0.056	0.437	--	--	--	--	--
Intersection 12	0.725	0.161	0.563	--	0.360	0.189	0.511	--	--	--	--	--
COMBINED (sum of column)	90.779	28.535	62.280	0	--	378.233	46.826	0.194	17.571	0.660	59.888	38.729

**Worksheet 4B -- Predicted Pedestrian and Bicycle Crashes for Urban and Suburban Arterials**

(1)	(2)	(3)
Site Type	N <sub>ped</sub>	N <sub>bike</sub>
<b>ROADWAY SEGMENTS</b>		
Segment 1	0.016	0.004
Segment 2	0.015	0.004
Segment 3	0.031	0.008
Segment 4	0.017	0.004
Segment 5	0.021	0.005
Segment 6	0.012	0.003
Segment 7	0.022	0.006
Segment 8	0.031	0.008
Segment 9	0.009	0.002
Segment 10	0.025	0.007
Segment 11	0.018	0.005
<b>INTERSECTIONS</b>		
Intersection 1	0.012	0.297
Intersection 2	--	0.032
Intersection 3	--	0.028
Intersection 4	--	0.012
Intersection 5	0.053	0.138
Intersection 6	0.077	0.159
Intersection 7	--	0.035
Intersection 8	0.045	0.349
Intersection 9	--	0.028
Intersection 10	--	0.026
Intersection 11	--	0.104
Intersection 12	0.311	0.514
COMBINED (sum of column)	0.715	1.780

**Worksheet 4C -- Project-Specific EB Method Summary Results for Urban and Suburban Arterials**

(1)	(2)	(3)	(4)	(5)	(6)
Crash severity level	N <sub>predicted</sub>	N <sub>ped</sub>	N <sub>bike</sub>	N <sub>expected (vehicle)</sub>	N <sub>expected</sub>
Total	(2) <sub>COMB</sub> from Worksheet 4A	(2) <sub>COMB</sub> from Worksheet 4B	(3) <sub>COMB</sub> from Worksheet 4B	(13) <sub>COMB</sub> Worksheet 4A	(3)+(4)+(5)
	90.8	0.7	1.8	38.7	41.2
Fatal and injury (FI)	(3) <sub>COMB</sub> from Worksheet 4A	(2) <sub>COMB</sub> from Worksheet 4B	(3) <sub>COMB</sub> from Worksheet 4B	(5) <sub>TOTAL</sub> * (2) <sub>FI</sub> / (2) <sub>TOTAL</sub>	(3)+(4)+(5)
	28.5	0.7	1.8	12.2	14.7
Property damage only (PDO)	(4) <sub>COMB</sub> from Worksheet 4A	--	--	(5) <sub>TOTAL</sub> * (2) <sub>PDO</sub> / (2) <sub>TOTAL</sub>	(3)+(4)+(5)
	62.3	0.0	0.0	26.6	26.6

Year: 2045  
Alternative 3

Worksheet 4A -- Predicted Crashes by Collision and Site Type and Observed Crashes Using the Project-Level EB Method for Urban and Suburban Arterials

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Collision type / Site type	Predicted crashes			Observed crashes, N <sub>observed</sub> (crashes/year)	Overdispersion Parameter, k	N <sub>predicted w0</sub>	N <sub>predicted w1</sub>	W <sub>0</sub>	N <sub>0</sub>	w <sub>1</sub>	N <sub>1</sub>	N <sub>expected/comb</sub>
	N <sub>predicted</sub> (TOTAL)	N <sub>predicted</sub> (FI)	N <sub>predicted</sub> (PDO)			Equation A-8 (6)*(2) <sup>2</sup>	Equation A-9 sqrt((6)*(2))	Equation A-10	Equation A-11	Equation A-12	Equation A-13	Equation A-14
ROADWAY SEGMENTS												
Multiple-vehicle nondriveway												
Segment 1	0.692	0.192	0.500	--	1.320	0.632	0.956	--	--	--	--	--
Segment 2	0.678	0.189	0.490	--	1.320	0.607	0.946	--	--	--	--	--
Segment 3	1.337	0.374	0.963	--	1.320	2.361	1.329	--	--	--	--	--
Segment 4	0.726	0.203	0.523	--	1.320	0.696	0.979	--	--	--	--	--
Segment 5	0.892	0.249	0.643	--	1.320	1.050	1.085	--	--	--	--	--
Segment 6a	0.511	0.142	0.369	--	1.320	0.344	0.821	--	--	--	--	--
Segment 6b	0.514	0.143	0.371	--	1.320	0.349	0.824	--	--	--	--	--
Segment 7a	0.864	0.240	0.624	--	1.320	0.986	1.068	--	--	--	--	--
Segment 7b	0.981	0.273	0.708	--	1.320	1.270	1.138	--	--	--	--	--
Segment 8	1.306	0.364	0.942	--	1.320	2.253	1.313	--	--	--	--	--
Segment 9a	0.345	0.096	0.249	--	1.320	0.157	0.674	--	--	--	--	--
Segment 9b	0.653	0.181	0.472	--	1.320	0.563	0.928	--	--	--	--	--
Segment 10	1.146	0.318	0.828	--	1.320	1.734	1.230					
Segment 11	0.646	0.179	0.467	--	1.320	0.551	0.923					
Single-vehicle												
Segment 1	0.128	0.022	0.106	--	0.860	0.014	0.332	--	--	--	--	--
Segment 2	0.130	0.023	0.108	--	0.860	0.015	0.335	--	--	--	--	--
Segment 3	0.279	0.048	0.231	--	0.860	0.067	0.490	--	--	--	--	--
Segment 4	0.151	0.026	0.126	--	0.860	0.020	0.361	--	--	--	--	--
Segment 5	0.178	0.031	0.148	--	0.860	0.027	0.392	--	--	--	--	--
Segment 6a	0.100	0.017	0.083	--	0.860	0.009	0.294	--	--	--	--	--
Segment 6b	0.101	0.017	0.083	--	0.860	0.009	0.295	--	--	--	--	--
Segment 7a	0.166	0.029	0.137	--	0.860	0.024	0.378	--	--	--	--	--
Segment 7b	0.189	0.033	0.156	--	0.860	0.031	0.403					
Segment 8	0.261	0.045	0.216	--	0.860	0.059	0.474	--	--	--	--	--
Segment 9a	0.065	0.011	0.054	--	0.860	0.004	0.236	--	--	--	--	--
Segment 9b	0.123	0.021	0.102	--	0.860	0.013	0.325					
Segment 10	0.216	0.038	0.179	--	0.860	0.040	0.431					
Segment 11	0.122	0.021	0.101	--	0.860	0.013	0.324					
Multiple-vehicle driveway-related												
Segment 1	0.048	0.014	0.035	--	1.390	0.003	0.259	--	--	--	--	--
Segment 2	0.000	0.000	0.000	--	1.390	0.000	0.000	--	--	--	--	--
Segment 3	0.029	0.008	0.021	--	1.390	0.001	0.201	--	--	--	--	--
Segment 4	0.000	0.000	0.000	--	1.390	0.000	0.000	--	--	--	--	--
Segment 5	0.021	0.006	0.015	--	1.390	0.001	0.172	--	--	--	--	--
Segment 6a	0.025	0.007	0.018	--	1.390	0.001	0.186	--	--	--	--	--
Segment 6b	0.025	0.007	0.018	--	1.390	0.001	0.186					
Segment 7a	0.147	0.042	0.106	--	1.390	0.030	0.453	--	--	--	--	--
Segment 7b	0.147	0.042	0.106	--	1.390	0.030	0.453					
Segment 8	0.050	0.014	0.036	--	1.390	0.003	0.264	--	--	--	--	--
Segment 9a	0.038	0.011	0.027	--	1.390	0.002	0.230					
Segment 9b	0.040	0.011	0.028	--	1.390	0.002	0.235					
Segment 10	0.000	0.000	0.000	--	1.390	0.000	0.000					
Segment 11	0.266	0.076	0.191	--	1.390	0.098	0.608	--	--	--	--	--
INTERSECTIONS												
Multiple-vehicle												
Intersection 1	25.914	7.053	18.862	--	0.330	221.613	2.924	--	--	--	--	--
Intersection 2	1.595	0.567	1.028	--	0.800	2.035	1.130	--	--	--	--	--
Intersection 3	1.238	0.485	0.753	--	0.400	0.613	0.704	--	--	--	--	--
Intersection 4	0.625	0.283	0.342	--	0.800	0.313	0.707	--	--	--	--	--
Intersection 5	4.711	1.734	2.977	--	0.330	7.324	1.247	--	--	--	--	--
Intersection 6	4.408	1.513	2.895	--	0.390	7.579	1.311	--	--	--	--	--
Cove Royale Dev	1.143	0.443	0.701	--	0.800	1.045	0.956					
Intersection 7	1.726	0.619	1.107	--	0.800	2.382	1.175	--	--	--	--	--
PulteAquarius	2.215	0.794	1.420	--	0.800	3.924	1.331					
Intersection 8	8.765	2.915	5.850	--	0.390	29.961	1.849	--	--	--	--	--
Intersection 9	1.395	0.514	0.881	--	0.800	1.558	1.057	--	--	--	--	--

Urban and Suburban Arterial Predictive Method

Intersection 10	1.294	0.512	0.782	--	0.800	1.340	1.018	--	--	--	--	--
Intersection 11	2.795	1.097	1.698	--	0.400	3.125	1.057	--	--	--	--	--
Intersection 12	14.371	5.058	9.313	--	0.390	80.544	2.367	--	--	--	--	--
<b>Single-vehicle</b>												
Intersection 1	1.121	0.335	0.786	--	0.360	0.453	0.635	--	--	--	--	--
Intersection 2	0.162	0.049	0.113	--	1.140	0.030	0.430	--	--	--	--	--
Intersection 3	0.132	0.042	0.089	--	0.650	0.011	0.292	--	--	--	--	--
Intersection 4	0.059	0.019	0.040	--	1.140	0.004	0.260	--	--	--	--	--
Intersection 5	0.313	0.079	0.234	--	0.360	0.035	0.336	--	--	--	--	--
Intersection 6	0.252	0.060	0.191	--	0.360	0.023	0.301	--	--	--	--	--
Cove Royale Dev	0.116	0.036	0.080	--	0.360	0.005	0.204	--	--	--	--	--
Intersection 7	0.181	0.055	0.162	--	1.140	0.037	0.455	--	--	--	--	--
PulteAquarius	0.233	0.071	0.162	--	1.140	0.062	0.515	--	--	--	--	--
Intersection 8	0.549	0.141	0.408	--	0.360	0.109	0.445	--	--	--	--	--
Intersection 9	0.141	0.043	0.097	--	1.140	0.023	0.400	--	--	--	--	--
Intersection 10	0.123	0.039	0.085	--	1.140	0.017	0.375	--	--	--	--	--
Intersection 11	0.294	0.094	0.200	--	0.650	0.056	0.437	--	--	--	--	--
Intersection 12	0.725	0.161	0.563	--	0.360	0.189	0.511	--	--	--	--	--
COMBINED (sum of column)	90.937	28.577	62.395	0	--	378.481	46.959	0.194	17.616	0.659	59.969	38.793

**Worksheet 4B -- Predicted Pedestrian and Bicycle Crashes for Urban and Suburban Arterials**

(1) Site Type	(2) N <sub>ped</sub>	(3) N <sub>bike</sub>
<b>ROADWAY SEGMENTS</b>		
Segment 1	0.016	0.004
Segment 2	0.015	0.004
Segment 3	0.031	0.008
Segment 4	0.017	0.004
Segment 5	0.021	0.005
Segment 6	0.012	0.003
Segment 7	0.022	0.006
Segment 8	0.031	0.008
Segment 9	0.009	0.002
Segment 10	0.026	0.007
Segment 11	0.020	0.005
<b>INTERSECTIONS</b>		
Intersection 1	0.012	0.297
Intersection 2	--	0.032
Intersection 3	--	0.028
Intersection 4	--	0.012
Intersection 5	0.053	0.138
Intersection 6	0.077	0.159
Intersection 7	--	0.035
Intersection 8	0.045	0.349
Intersection 9	--	0.028
Intersection 10	--	0.026
Intersection 11	--	0.104
Intersection 12	0.311	0.514
COMBINED (sum of column)	0.718	1.781

**Worksheet 4C -- Project-Specific EB Method Summary Results for Urban and Suburban Arterials**

(1) Crash severity level	(2) N <sub>predicted</sub>	(3) N <sub>ped</sub>	(4) N <sub>bike</sub>	(5) N <sub>expected (vehicle)</sub>	(6) N <sub>expected</sub>
Total	(2) <sub>COMB</sub> from Worksheet 4A 90.9	(2) <sub>COMB</sub> from Worksheet 4B 0.7	(3) <sub>COMB</sub> from Worksheet 4B 1.8	(13) <sub>COMB</sub> Worksheet 4A 38.8	(3)+(4)+(5) 41.3
Fatal and injury (FI)	(3) <sub>COMB</sub> from Worksheet 4A 28.6	(2) <sub>COMB</sub> from Worksheet 4B 0.7	(3) <sub>COMB</sub> from Worksheet 4B 1.8	(5) <sub>TOTAL</sub> * (2) <sub>FI</sub> / (2) <sub>TOTAL</sub> 12.2	(3)+(4)+(5) 14.7
Property damage only (PDO)	(4) <sub>COMB</sub> from Worksheet 4A 62.4	-- 0.0	-- 0.0	(5) <sub>TOTAL</sub> * (2) <sub>PDO</sub> / (2) <sub>TOTAL</sub> 26.6	(3)+(4)+(5) 26.6

Year: 2045  
Alternative 4

Worksheet 4A -- Predicted Crashes by Collision and Site Type and Observed Crashes Using the Project-Level EB Method for Urban and Suburban Arterials

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Collision type / Site type	Predicted crashes			Observed crashes, N <sub>observed</sub> (crashes/year)	Overdispersion Parameter, k	N <sub>predicted w0</sub>	N <sub>predicted w1</sub>	W <sub>0</sub>	N <sub>0</sub>	w <sub>1</sub>	N <sub>1</sub>	N <sub>expected/comb</sub>
	N <sub>predicted</sub> (TOTAL)	N <sub>predicted</sub> (FI)	N <sub>predicted</sub> (PDO)			Equation A-8 (6)*(2) <sup>2</sup>	Equation A-9 sqrt((6)*(2))	Equation A-10	Equation A-11	Equation A-12	Equation A-13	Equation A-14
ROADWAY SEGMENTS												
Multiple-vehicle nondriveway												
Segment 1	0.696	0.193	0.503	--	1.320	0.639	0.958	--	--	--	--	--
Segment 2	0.681	0.189	0.492	--	1.320	0.612	0.948	--	--	--	--	--
Segment 3	1.340	0.375	0.965	--	1.320	2.370	1.330	--	--	--	--	--
Segment 4	0.729	0.204	0.525	--	1.320	0.701	0.981	--	--	--	--	--
Segment 5	0.894	0.249	0.645	--	1.320	1.055	1.086	--	--	--	--	--
Segment 6a	0.512	0.143	0.370	--	1.320	0.347	0.822	--	--	--	--	--
Segment 6b	0.649	0.181	0.468	--	1.320	0.555	0.925	--	--	--	--	--
Segment 7a	0.867	0.241	0.626	--	1.320	0.993	1.070	--	--	--	--	--
Segment 7b	0.985	0.274	0.711	--	1.320	1.280	1.140	--	--	--	--	--
Segment 8	1.309	0.365	0.944	--	1.320	2.261	1.314	--	--	--	--	--
Segment 9a	0.346	0.096	0.250	--	1.320	0.158	0.676	--	--	--	--	--
Segment 9b	0.632	0.175	0.456	--	1.320	0.527	0.913	--	--	--	--	--
Segment 10	1.102	0.306	0.796	--	1.320	1.603	1.206					
Segment 11	0.578	0.160	0.417	--	1.320	0.441	0.873					
Single-vehicle												
Segment 1	0.129	0.023	0.106	--	0.860	0.014	0.333	--	--	--	--	--
Segment 2	0.131	0.023	0.108	--	0.860	0.015	0.336	--	--	--	--	--
Segment 3	0.279	0.048	0.232	--	0.860	0.067	0.490	--	--	--	--	--
Segment 4	0.152	0.026	0.126	--	0.860	0.020	0.362	--	--	--	--	--
Segment 5	0.179	0.031	0.148	--	0.860	0.028	0.392	--	--	--	--	--
Segment 6a	0.100	0.017	0.083	--	0.860	0.009	0.294	--	--	--	--	--
Segment 6b	0.127	0.022	0.105	--	0.860	0.014	0.331	--	--	--	--	--
Segment 7a	0.167	0.029	0.138	--	0.860	0.024	0.379	--	--	--	--	--
Segment 7b	0.189	0.033	0.157	--	0.860	0.031	0.404					
Segment 8	0.262	0.045	0.217	--	0.860	0.059	0.475	--	--	--	--	--
Segment 9a	0.065	0.011	0.054	--	0.860	0.004	0.237	--	--	--	--	--
Segment 9b	0.119	0.021	0.098	--	0.860	0.012	0.320					
Segment 10	0.208	0.036	0.172	--	0.860	0.037	0.423					
Segment 11	0.109	0.019	0.090	--	0.860	0.010	0.306					
Multiple-vehicle driveway-related												
Segment 1	0.049	0.014	0.035	--	1.390	0.003	0.260	--	--	--	--	--
Segment 2	0.000	0.000	0.000	--	1.390	0.000	0.000	--	--	--	--	--
Segment 3	0.029	0.008	0.021	--	1.390	0.001	0.201	--	--	--	--	--
Segment 4	0.000	0.000	0.000	--	1.390	0.000	0.000	--	--	--	--	--
Segment 5	0.021	0.006	0.015	--	1.390	0.001	0.172	--	--	--	--	--
Segment 6a	0.025	0.007	0.018	--	1.390	0.001	0.186	--	--	--	--	--
Segment 6b	0.031	0.009	0.022	--	1.390	0.001	0.209					
Segment 7a	0.148	0.042	0.106	--	1.390	0.030	0.454	--	--	--	--	--
Segment 7b	0.148	0.042	0.106	--	1.390	0.030	0.454					
Segment 8	0.050	0.014	0.036	--	1.390	0.003	0.264	--	--	--	--	--
Segment 9a	0.038	0.011	0.027	--	1.390	0.002	0.230					
Segment 9b	0.039	0.011	0.028	--	1.390	0.002	0.231					
Segment 10	0.000	0.000	0.000	--	1.390	0.000	0.000					
Segment 11	0.238	0.068	0.170	--	1.390	0.079	0.575	--	--	--	--	--
INTERSECTIONS												
Multiple-vehicle												
Intersection 1	25.914	7.053	18.862	--	0.330	221.613	2.924	--	--	--	--	--
Intersection 2	1.595	0.567	1.028	--	0.800	2.035	1.130	--	--	--	--	--
Intersection 3	1.238	0.485	0.753	--	0.400	0.613	0.704	--	--	--	--	--
Intersection 4	0.625	0.283	0.342	--	0.800	0.313	0.707	--	--	--	--	--
Intersection 5	4.711	1.734	2.977	--	0.330	7.324	1.247	--	--	--	--	--
Intersection 6	4.408	1.513	2.895	--	0.390	7.579	1.311	--	--	--	--	--
Cove Royale Dev	1.143	0.443	0.701	--	0.800	1.045	0.956					
Intersection 7	1.726	0.619	1.107	--	0.800	2.382	1.175	--	--	--	--	--
PulteAquarius	2.215	0.794	1.420	--	0.800	3.924	1.331					
Intersection 8	8.765	2.915	5.850	--	0.390	29.961	1.849	--	--	--	--	--
Intersection 9	1.395	0.514	0.881	--	0.800	1.558	1.057	--	--	--	--	--

Intersection 10	1.294	0.512	0.782	--	0.800	1.340	1.018	--	--	--	--	--
Intersection 11	2.795	1.097	1.698	--	0.400	3.125	1.057	--	--	--	--	--
Intersection 12	14.371	5.058	9.313	--	0.390	80.544	2.367	--	--	--	--	--
<b>Single-vehicle</b>												
Intersection 1	1.121	0.335	0.786	--	0.360	0.453	0.635	--	--	--	--	--
Intersection 2	0.162	0.049	0.113	--	1.140	0.030	0.430	--	--	--	--	--
Intersection 3	0.132	0.042	0.089	--	0.650	0.011	0.292	--	--	--	--	--
Intersection 4	0.059	0.019	0.040	--	1.140	0.004	0.260	--	--	--	--	--
Intersection 5	0.313	0.079	0.234	--	0.360	0.035	0.336	--	--	--	--	--
Intersection 6	0.252	0.060	0.191	--	0.360	0.023	0.301	--	--	--	--	--
Cove Royale Dev	0.116	0.036	0.080	--	0.360	0.005	0.204	--	--	--	--	--
Intersection 7	0.181	0.055	0.162	--	1.140	0.037	0.455	--	--	--	--	--
PulteAquarius	0.233	0.071	0.162	--	1.140	0.062	0.515	--	--	--	--	--
Intersection 8	0.549	0.141	0.408	--	0.360	0.109	0.445	--	--	--	--	--
Intersection 9	0.141	0.043	0.097	--	1.140	0.023	0.400	--	--	--	--	--
Intersection 10	0.123	0.039	0.085	--	1.140	0.017	0.375	--	--	--	--	--
Intersection 11	0.294	0.094	0.200	--	0.650	0.056	0.437	--	--	--	--	--
Intersection 12	0.725	0.161	0.563	--	0.360	0.189	0.511	--	--	--	--	--
COMBINED (sum of column)	90.949	28.580	62.405	0	--	378.452	46.989	0.194	17.622	0.659	59.967	38.795

Worksheet 4B -- Predicted Pedestrian and Bicycle Crashes for Urban and Suburban Arterials

(1) Site Type	(2) N <sub>ped</sub>	(3) N <sub>bike</sub>
<b>ROADWAY SEGMENTS</b>		
Segment 1	0.017	0.004
Segment 2	0.015	0.004
Segment 3	0.031	0.008
Segment 4	0.017	0.004
Segment 5	0.021	0.005
Segment 6	0.012	0.003
Segment 7	0.022	0.006
Segment 8	0.031	0.008
Segment 9	0.009	0.002
Segment 10	0.025	0.007
Segment 11	0.018	0.005
<b>INTERSECTIONS</b>		
Intersection 1	0.012	0.297
Intersection 2	--	0.032
Intersection 3	--	0.028
Intersection 4	--	0.012
Intersection 5	0.053	0.138
Intersection 6	0.077	0.159
Intersection 7	--	0.035
Intersection 8	0.045	0.349
Intersection 9	--	0.028
Intersection 10	--	0.026
Intersection 11	--	0.104
Intersection 12	0.311	0.514
COMBINED (sum of column)	0.715	1.780

Worksheet 4C -- Project-Specific EB Method Summary Results for Urban and Suburban Arterials

(1) Crash severity level	(2) N <sub>predicted</sub>	(3) N <sub>ped</sub>	(4) N <sub>bike</sub>	(5) N <sub>expected (vehicle)</sub>	(6) N <sub>expected</sub>
Total	(2) <sub>COMB</sub> from Worksheet 4A 90.9	(2) <sub>COMB</sub> from Worksheet 4B 0.7	(3) <sub>COMB</sub> from Worksheet 4B 1.8	(13) <sub>COMB</sub> Worksheet 4A 38.8	(3)+(4)+(5) 41.3
Fatal and injury (FI)	(3) <sub>COMB</sub> from Worksheet 4A 28.6	(2) <sub>COMB</sub> from Worksheet 4B 0.7	(3) <sub>COMB</sub> from Worksheet 4B 1.8	(5) <sub>TOTAL</sub> * (2) <sub>FI</sub> / (2) <sub>TOTAL</sub> 12.2	(3)+(4)+(5) 14.7
Property damage only (PDO)	(4) <sub>COMB</sub> from Worksheet 4A 62.4	-- 0.0	-- 0.0	(5) <sub>TOTAL</sub> * (2) <sub>PDO</sub> / (2) <sub>TOTAL</sub> 26.6	(3)+(4)+(5) 26.6

Year: 2045  
Alternative 5

Worksheet 4A -- Predicted Crashes by Collision and Site Type and Observed Crashes Using the Project-Level EB Method for Urban and Suburban Arterials

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Collision type / Site type	Predicted crashes			Observed crashes, N <sub>observed</sub> (crashes/year)	Overdispersion Parameter, k	N <sub>predicted w0</sub>	N <sub>predicted w1</sub>	W <sub>0</sub>	N <sub>0</sub>	w <sub>1</sub>	N <sub>1</sub>	N <sub>expected/comb</sub>
	N <sub>predicted</sub> (TOTAL)	N <sub>predicted</sub> (FI)	N <sub>predicted</sub> (PDO)			Equation A-8 (6)*(2) <sup>2</sup>	Equation A-9 sqrt((6)*(2))	Equation A-10	Equation A-11	Equation A-12	Equation A-13	Equation A-14
ROADWAY SEGMENTS												
Multiple-vehicle nondriveway												
Segment 1	0.696	0.193	0.503	--	1.320	0.639	0.958	--	--	--	--	--
Segment 2	0.681	0.189	0.492	--	1.320	0.612	0.948	--	--	--	--	--
Segment 3	1.340	0.375	0.965	--	1.320	2.370	1.330	--	--	--	--	--
Segment 4	0.729	0.204	0.525	--	1.320	0.701	0.981	--	--	--	--	--
Segment 5	0.894	0.249	0.645	--	1.320	1.055	1.086	--	--	--	--	--
Segment 6a	0.512	0.143	0.370	--	1.320	0.347	0.822	--	--	--	--	--
Segment 6b	0.649	0.181	0.468	--	1.320	0.555	0.925	--	--	--	--	--
Segment 7a	0.867	0.241	0.626	--	1.320	0.993	1.070	--	--	--	--	--
Segment 7b	0.985	0.274	0.711	--	1.320	1.280	1.140	--	--	--	--	--
Segment 8	1.309	0.365	0.944	--	1.320	2.261	1.314	--	--	--	--	--
Segment 9a	0.346	0.096	0.250	--	1.320	0.158	0.676	--	--	--	--	--
Segment 9b	0.638	0.177	0.461	--	1.320	0.537	0.918	--	--	--	--	--
Segment 10	1.113	0.309	0.804	--	1.320	1.636	1.212					
Segment 11	0.584	0.162	0.422	--	1.320	0.450	0.878					
Single-vehicle												
Segment 1	0.129	0.023	0.106	--	0.860	0.014	0.333	--	--	--	--	--
Segment 2	0.131	0.023	0.108	--	0.860	0.015	0.336	--	--	--	--	--
Segment 3	0.279	0.048	0.232	--	0.860	0.067	0.490	--	--	--	--	--
Segment 4	0.152	0.026	0.126	--	0.860	0.020	0.362	--	--	--	--	--
Segment 5	0.179	0.031	0.148	--	0.860	0.028	0.392	--	--	--	--	--
Segment 6a	0.100	0.017	0.083	--	0.860	0.009	0.294	--	--	--	--	--
Segment 6b	0.127	0.022	0.105	--	0.860	0.014	0.331	--	--	--	--	--
Segment 7a	0.167	0.029	0.138	--	0.860	0.024	0.379	--	--	--	--	--
Segment 7b	0.189	0.033	0.157	--	0.860	0.031	0.404					
Segment 8	0.262	0.045	0.217	--	0.860	0.059	0.475	--	--	--	--	--
Segment 9a	0.065	0.011	0.054	--	0.860	0.004	0.237	--	--	--	--	--
Segment 9b	0.120	0.021	0.099	--	0.860	0.012	0.322					
Segment 10	0.210	0.037	0.173	--	0.860	0.038	0.425					
Segment 11	0.110	0.019	0.091	--	0.860	0.010	0.308					
Multiple-vehicle driveway-related												
Segment 1	0.049	0.014	0.035	--	1.390	0.003	0.260	--	--	--	--	--
Segment 2	0.000	0.000	0.000	--	1.390	0.000	0.000	--	--	--	--	--
Segment 3	0.029	0.008	0.021	--	1.390	0.001	0.201	--	--	--	--	--
Segment 4	0.000	0.000	0.000	--	1.390	0.000	0.000	--	--	--	--	--
Segment 5	0.021	0.006	0.015	--	1.390	0.001	0.172	--	--	--	--	--
Segment 6a	0.025	0.007	0.018	--	1.390	0.001	0.186	--	--	--	--	--
Segment 6b	0.031	0.009	0.022	--	1.390	0.001	0.209					
Segment 7a	0.148	0.042	0.106	--	1.390	0.030	0.454	--	--	--	--	--
Segment 7b	0.148	0.042	0.106	--	1.390	0.030	0.454					
Segment 8	0.050	0.014	0.036	--	1.390	0.003	0.264	--	--	--	--	--
Segment 9a	0.038	0.011	0.027	--	1.390	0.002	0.230					
Segment 9b	0.039	0.011	0.028	--	1.390	0.002	0.233					
Segment 10	0.000	0.000	0.000	--	1.390	0.000	0.000					
Segment 11	0.241	0.068	0.172	--	1.390	0.080	0.578	--	--	--	--	--
INTERSECTIONS												
Multiple-vehicle												
Intersection 1	25.914	7.053	18.862	--	0.330	221.613	2.924	--	--	--	--	--
Intersection 2	1.595	0.567	1.028	--	0.800	2.035	1.130	--	--	--	--	--
Intersection 3	1.238	0.485	0.753	--	0.400	0.613	0.704	--	--	--	--	--
Intersection 4	0.625	0.283	0.342	--	0.800	0.313	0.707	--	--	--	--	--
Intersection 5	4.711	1.734	2.977	--	0.330	7.324	1.247	--	--	--	--	--
Intersection 6	4.408	1.513	2.895	--	0.390	7.579	1.311	--	--	--	--	--
Cove Royale Dev	1.143	0.443	0.701	--	0.800	1.045	0.956					
Intersection 7	1.726	0.619	1.107	--	0.800	2.382	1.175	--	--	--	--	--
PulteAquarius	2.215	0.794	1.420	--	0.800	3.924	1.331					
Intersection 8	8.765	2.915	5.850	--	0.390	29.961	1.849	--	--	--	--	--
Intersection 9	1.395	0.514	0.881	--	0.800	1.558	1.057	--	--	--	--	--

Urban and Suburban Arterial Predictive Method

Intersection 10	1.294	0.512	0.782	--	0.800	1.340	1.018	--	--	--	--	--
Intersection 11	2.795	1.097	1.698	--	0.400	3.125	1.057	--	--	--	--	--
Intersection 12	14.371	5.058	9.313	--	0.390	80.544	2.367	--	--	--	--	--
<b>Single-vehicle</b>												
Intersection 1	1.121	0.335	0.786	--	0.360	0.453	0.635	--	--	--	--	--
Intersection 2	0.162	0.049	0.113	--	1.140	0.030	0.430	--	--	--	--	--
Intersection 3	0.132	0.042	0.089	--	0.650	0.011	0.292	--	--	--	--	--
Intersection 4	0.059	0.019	0.040	--	1.140	0.004	0.260	--	--	--	--	--
Intersection 5	0.313	0.079	0.234	--	0.360	0.035	0.336	--	--	--	--	--
Intersection 6	0.252	0.060	0.191	--	0.360	0.023	0.301	--	--	--	--	--
Cove Royale Dev	0.116	0.036	0.080	--	0.360	0.005	0.204	--	--	--	--	--
Intersection 7	0.181	0.055	0.162	--	1.140	0.037	0.455	--	--	--	--	--
PulteAquarius	0.233	0.071	0.162	--	1.140	0.062	0.515	--	--	--	--	--
Intersection 8	0.549	0.141	0.408	--	0.360	0.109	0.445	--	--	--	--	--
Intersection 9	0.141	0.043	0.097	--	1.140	0.023	0.400	--	--	--	--	--
Intersection 10	0.123	0.039	0.085	--	1.140	0.017	0.375	--	--	--	--	--
Intersection 11	0.294	0.094	0.200	--	0.650	0.056	0.437	--	--	--	--	--
Intersection 12	0.725	0.161	0.563	--	0.360	0.189	0.511	--	--	--	--	--
COMBINED (sum of column)	90.980	28.588	62.428	0	--	378.507	47.014	0.194	17.631	0.659	59.983	38.807

**Worksheet 4B -- Predicted Pedestrian and Bicycle Crashes for Urban and Suburban Arterials**

(1) Site Type	(2) N <sub>ped</sub>	(3) N <sub>bike</sub>
<b>ROADWAY SEGMENTS</b>		
Segment 1	0.017	0.004
Segment 2	0.015	0.004
Segment 3	0.031	0.008
Segment 4	0.017	0.004
Segment 5	0.021	0.005
Segment 6	0.012	0.003
Segment 7	0.022	0.006
Segment 8	0.031	0.008
Segment 9	0.009	0.002
Segment 10	0.025	0.007
Segment 11	0.018	0.005
<b>INTERSECTIONS</b>		
Intersection 1	0.012	0.297
Intersection 2	--	0.032
Intersection 3	--	0.028
Intersection 4	--	0.012
Intersection 5	0.053	0.138
Intersection 6	0.077	0.159
Intersection 7	--	0.035
Intersection 8	0.045	0.349
Intersection 9	--	0.028
Intersection 10	--	0.026
Intersection 11	--	0.104
Intersection 12	0.311	0.514
COMBINED (sum of column)	0.716	1.780

**Worksheet 4C -- Project-Specific EB Method Summary Results for Urban and Suburban Arterials**

(1) Crash severity level	(2) N <sub>predicted</sub>	(3) N <sub>ped</sub>	(4) N <sub>bike</sub>	(5) N <sub>expected (vehicle)</sub>	(6) N <sub>expected</sub>
Total	(2) <sub>COMB</sub> from Worksheet 4A 91.0	(2) <sub>COMB</sub> from Worksheet 4B 0.7	(3) <sub>COMB</sub> from Worksheet 4B 1.8	(13) <sub>COMB</sub> Worksheet 4A 38.8	(3)+(4)+(5) 41.3
Fatal and injury (FI)	(3) <sub>COMB</sub> from Worksheet 4A 28.6	(2) <sub>COMB</sub> from Worksheet 4B 0.7	(3) <sub>COMB</sub> from Worksheet 4B 1.8	(5) <sub>TOTAL</sub> * (2) <sub>FI</sub> / (2) <sub>TOTAL</sub> 12.2	(3)+(4)+(5) 14.7
Property damage only (PDO)	(4) <sub>COMB</sub> from Worksheet 4A 62.4	-- 0.0	-- 0.0	(5) <sub>TOTAL</sub> * (2) <sub>PDO</sub> / (2) <sub>TOTAL</sub> 26.6	(3)+(4)+(5) 26.6

Year:2045  
Alternative 6

Worksheet 4A -- Predicted Crashes by Collision and Site Type and Observed Crashes Using the Project-Level EB Method for Urban and Suburban Arterials

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Collision type / Site type	Predicted crashes			Observed crashes, N <sub>observed</sub> (crashes/year)	Overdispersion Parameter, k	N <sub>predicted</sub> w0	N <sub>predicted</sub> w1	W <sub>0</sub>	N <sub>0</sub>	w <sub>1</sub>	N <sub>1</sub>	N <sub>expected/comb</sub>
	N <sub>predicted</sub> (TOTAL)	N <sub>predicted</sub> (FI)	N <sub>predicted</sub> (PDO)			Equation A-8 (6)*(2) <sup>2</sup>	Equation A-9 sqrt((6)*(2))	Equation A-10	Equation A-11	Equation A-12	Equation A-13	Equation A-14
ROADWAY SEGMENTS												
Multiple-vehicle nondriveway												
Segment 1	0.696	0.193	0.503	--	1.320	0.639	0.958	--	--	--	--	--
Segment 2	0.681	0.189	0.492	--	1.320	0.612	0.948	--	--	--	--	--
Segment 3	1.340	0.375	0.965	--	1.320	2.370	1.330	--	--	--	--	--
Segment 4	0.729	0.204	0.525	--	1.320	0.701	0.981	--	--	--	--	--
Segment 5	0.894	0.249	0.645	--	1.320	1.055	1.086	--	--	--	--	--
Segment 6a	0.512	0.143	0.370	--	1.320	0.347	0.822	--	--	--	--	--
Segment 6b	0.649	0.181	0.468	--	1.320	0.555	0.925	--	--	--	--	--
Segment 7a	0.867	0.241	0.626	--	1.320	0.993	1.070	--	--	--	--	--
Segment 7b	0.985	0.274	0.711	--	1.320	1.280	1.140	--	--	--	--	--
Segment 8	1.309	0.365	0.944	--	1.320	2.261	1.314	--	--	--	--	--
Segment 9a	0.346	0.096	0.250	--	1.320	0.158	0.676	--	--	--	--	--
Segment 9b	0.653	0.181	0.472	--	1.320	0.563	0.928	--	--	--	--	--
Segment 10	1.146	0.318	0.828	--	1.320	1.734	1.230					
Segment 11	0.646	0.179	0.467	--	1.320	0.551	0.923					
Single-vehicle												
Segment 1	0.129	0.023	0.106	--	0.860	0.014	0.333	--	--	--	--	--
Segment 2	0.131	0.023	0.108	--	0.860	0.015	0.336	--	--	--	--	--
Segment 3	0.279	0.048	0.232	--	0.860	0.067	0.490	--	--	--	--	--
Segment 4	0.152	0.026	0.126	--	0.860	0.020	0.362	--	--	--	--	--
Segment 5	0.179	0.031	0.148	--	0.860	0.028	0.392	--	--	--	--	--
Segment 6a	0.100	0.017	0.083	--	0.860	0.009	0.294	--	--	--	--	--
Segment 6b	0.127	0.022	0.105	--	0.860	0.014	0.331	--	--	--	--	--
Segment 7a	0.167	0.029	0.138	--	0.860	0.024	0.379	--	--	--	--	--
Segment 7b	0.189	0.033	0.157	--	0.860	0.031	0.404					
Segment 8	0.262	0.045	0.217	--	0.860	0.059	0.475	--	--	--	--	--
Segment 9a	0.065	0.011	0.054	--	0.860	0.004	0.237	--	--	--	--	--
Segment 9b	0.123	0.021	0.102	--	0.860	0.013	0.325					
Segment 10	0.216	0.038	0.179	--	0.860	0.040	0.431					
Segment 11	0.122	0.021	0.101	--	0.860	0.013	0.324					
Multiple-vehicle driveway-related												
Segment 1	0.049	0.014	0.035	--	1.390	0.003	0.260	--	--	--	--	--
Segment 2	0.000	0.000	0.000	--	1.390	0.000	0.000	--	--	--	--	--
Segment 3	0.029	0.008	0.021	--	1.390	0.001	0.201	--	--	--	--	--
Segment 4	0.000	0.000	0.000	--	1.390	0.000	0.000	--	--	--	--	--
Segment 5	0.021	0.006	0.015	--	1.390	0.001	0.172	--	--	--	--	--
Segment 6a	0.025	0.007	0.018	--	1.390	0.001	0.186	--	--	--	--	--
Segment 6b	0.031	0.009	0.022	--	1.390	0.001	0.209					
Segment 7a	0.148	0.042	0.106	--	1.390	0.030	0.454	--	--	--	--	--
Segment 7b	0.148	0.042	0.106	--	1.390	0.030	0.454					
Segment 8	0.050	0.014	0.036	--	1.390	0.003	0.264	--	--	--	--	--
Segment 9a	0.038	0.011	0.027	--	1.390	0.002	0.230					
Segment 9b	0.040	0.011	0.028	--	1.390	0.002	0.235					
Segment 10	0.000	0.000	0.000	--	1.390	0.000	0.000					
Segment 11	0.266	0.076	0.191	--	1.390	0.098	0.608	--	--	--	--	--
INTERSECTIONS												
Multiple-vehicle												
Intersection 1	25.914	7.053	18.862	--	0.330	221.613	2.924	--	--	--	--	--
Intersection 2	1.595	0.567	1.028	--	0.800	2.035	1.130	--	--	--	--	--
Intersection 3	1.238	0.485	0.753	--	0.400	0.613	0.704	--	--	--	--	--
Intersection 4	0.625	0.283	0.342	--	0.800	0.313	0.707	--	--	--	--	--
Intersection 5	4.711	1.734	2.977	--	0.330	7.324	1.247	--	--	--	--	--
Intersection 6	4.408	1.513	2.895	--	0.390	7.579	1.311	--	--	--	--	--
Cove Royale Dev	1.143	0.443	0.701	--	0.800	1.045	0.956					
Intersection 7	1.726	0.619	1.107	--	0.800	2.382	1.175	--	--	--	--	--
PulteAquarius	2.215	0.794	1.420	--	0.800	3.924	1.331					
Intersection 8	8.765	2.915	5.850	--	0.390	29.961	1.849	--	--	--	--	--
Intersection 9	1.395	0.514	0.881	--	0.800	1.558	1.057	--	--	--	--	--

Intersection 10	1.294	0.512	0.782	--	0.800	1.340	1.018	--	--	--	--	--
Intersection 11	2.795	1.097	1.698	--	0.400	3.125	1.057	--	--	--	--	--
Intersection 12	14.371	5.058	9.313	--	0.390	80.544	2.367	--	--	--	--	--
<b>Single-vehicle</b>												
Intersection 1	1.121	0.335	0.786	--	0.360	0.453	0.635	--	--	--	--	--
Intersection 2	0.162	0.049	0.113	--	1.140	0.030	0.430	--	--	--	--	--
Intersection 3	0.132	0.042	0.089	--	0.650	0.011	0.292	--	--	--	--	--
Intersection 4	0.059	0.019	0.040	--	1.140	0.004	0.260	--	--	--	--	--
Intersection 5	0.313	0.079	0.234	--	0.360	0.035	0.336	--	--	--	--	--
Intersection 6	0.252	0.060	0.191	--	0.360	0.023	0.301	--	--	--	--	--
Cove Royale Dev	0.116	0.036	0.080	--	0.360	0.005	0.204	--	--	--	--	--
Intersection 7	0.181	0.055	0.162	--	1.140	0.037	0.455	--	--	--	--	--
PulteAquarius	0.233	0.071	0.162	--	1.140	0.062	0.515	--	--	--	--	--
Intersection 8	0.549	0.141	0.408	--	0.360	0.109	0.445	--	--	--	--	--
Intersection 9	0.141	0.043	0.097	--	1.140	0.023	0.400	--	--	--	--	--
Intersection 10	0.123	0.039	0.085	--	1.140	0.017	0.375	--	--	--	--	--
Intersection 11	0.294	0.094	0.200	--	0.650	0.056	0.437	--	--	--	--	--
Intersection 12	0.725	0.161	0.563	--	0.360	0.189	0.511	--	--	--	--	--
COMBINED (sum of column)	91.137	28.630	62.543	0	--	378.755	47.147	0.194	17.676	0.659	60.065	38.871

**Worksheet 4B -- Predicted Pedestrian and Bicycle Crashes for Urban and Suburban Arterials**

(1)	(2)	(3)
Site Type	N <sub>ped</sub>	N <sub>bike</sub>
<b>ROADWAY SEGMENTS</b>		
Segment 1	0.017	0.004
Segment 2	0.015	0.004
Segment 3	0.031	0.008
Segment 4	0.017	0.004
Segment 5	0.021	0.005
Segment 6	0.012	0.003
Segment 7	0.022	0.006
Segment 8	0.031	0.008
Segment 9	0.009	0.002
Segment 10	0.026	0.007
Segment 11	0.020	0.005
<b>INTERSECTIONS</b>		
Intersection 1	0.012	0.297
Intersection 2	--	0.032
Intersection 3	--	0.028
Intersection 4	--	0.012
Intersection 5	0.053	0.138
Intersection 6	0.077	0.159
Intersection 7	--	0.035
Intersection 8	0.045	0.349
Intersection 9	--	0.028
Intersection 10	--	0.026
Intersection 11	--	0.104
Intersection 12	0.311	0.514
COMBINED (sum of column)	0.719	1.781

**Worksheet 4C -- Project-Specific EB Method Summary Results for Urban and Suburban Arterials**

(1)	(2)	(3)	(4)	(5)	(6)
Crash severity level	N <sub>predicted</sub>	N <sub>ped</sub>	N <sub>bike</sub>	N <sub>expected (vehicle)</sub>	N <sub>expected</sub>
Total	(2) <sub>COMB</sub> from Worksheet 4A	(2) <sub>COMB</sub> from Worksheet 4B	(3) <sub>COMB</sub> from Worksheet 4B	(13) <sub>COMB</sub> Worksheet 4A	(3)+(4)+(5)
	91.1	0.7	1.8	38.9	41.4
Fatal and injury (FI)	(3) <sub>COMB</sub> from Worksheet 4A	(2) <sub>COMB</sub> from Worksheet 4B	(3) <sub>COMB</sub> from Worksheet 4B	(5) <sub>TOTAL</sub> * (2) <sub>FI</sub> / (2) <sub>TOTAL</sub>	(3)+(4)+(5)
	28.6	0.7	1.8	12.2	14.7
Property damage only (PDO)	(4) <sub>COMB</sub> from Worksheet 4A	--	--	(5) <sub>TOTAL</sub> * (2) <sub>PDO</sub> / (2) <sub>TOTAL</sub>	(3)+(4)+(5)
	62.5	0.0	0.0	26.7	26.7