

**MEMORANDUM**

To: Traffic Study Files

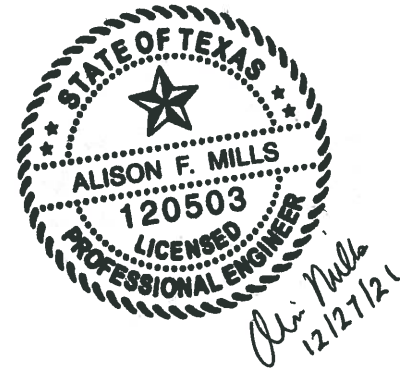
From: Alison Mills, P.E., South Area Transportation Engineer
Transportation Engineering Division
Austin Transportation Department

Date: December 27, 2021

Subject: SPEED ZONE INVESTIGATION

Location: Salt Springs Drive from E William Cannon Drive to Thaxton Road

Date(s) of Previous Investigation: None



A traffic engineering investigation has been conducted by the Transportation Engineering Division to determine the appropriate speed limit on Salt Springs Drive from E William Cannon Drive to Thaxton Road. Currently the speed limit on Salt Springs Drive is 40 MPH. Figure 1 represents a map of the study area.

Location Conditions:

Salt Springs Drive from E William Cannon Drive to Thaxton Road is an undivided, two-way, two-lane, collector roadway. For the purposes of this study Salt Springs Drive was divided into two segments. Salt Springs Drive from E William Cannon Drive to Tara Drive is 40 MPH with bike lanes on both sides of the roadway. This segment has 13 front facing driveways and Palm Elementary School. There is a school zone from Orange Blossom Way to Tupelo Drive; however, before and after school, elementary-aged students cross Salt Springs Drive in the uncontrolled intersections mid-block. Salt Springs Drive from Tara Drive to Thaxton Road is 40 MPH with bike lanes on both sides of the roadway.

Table 1 below shows more information of each street segment studied. Figures 2 and 3 show the street segments studied.

Table 1: Location Information

Street Segment	Segment Length (Miles)	Number of Unsignalized Access Points	Number of Signalized Intersections	Width (ft)
From E William Cannon Drive to Tara Drive	0.5	13	1	44-46
From Tara Drive to Ringsby Road	0.4	0	1	30

**Figure 1: Study Area Aerial**



Figure 2: Salt Springs Drive from E William Cannon Drive to Tara Drive



Figure 3: Street Segment Tara Drive to Thaxton Road

Investigation Data

TED's investigation was conducted in accordance with the TxDOT's "Procedures for Establishing Speed Zones," which focuses on a traditional methodology of 85th percentile speeds.

This investigation also utilized FHWA's USLIMITS2 tool to evaluate speed limits from a safe systems approach, which includes the following inputs to consider in setting reasonable, safe, and consistent speed limits based on the context and operating characteristics on the study segment:

- 85th percentile speed
- 50th percentile speed
- Statutory speed limit
- Section length
- Road alignment
- Median treatment
- Number of through lanes
- Adjacent land use
- Driveway density
- Traffic control devices
- Bicycle, pedestrian, and parking activity
- Daily vehicular volume
- Crash rate

Speed and volume data were collected in November 2021 to determine the appropriate posted speed limit for Salt Springs Drive.

Table 2 summarizes the 85th percentile speed, 50th percentile speed, and daily traffic volumes collected on Salt Springs Road at various points.

Table 2: Speed and Volume Data

Street Segment	Existing Speed Limit (mph)	85% Speed (mph)		50% Speed (mph)		Traffic Volumes (ADT)
		NB	SB	NB	SB	
E William Cannon Drive to Orange Blossom Way	40	44	40	39	35	6596
Orange Blossom Way to Roseborough Drive	40	46	42	40	37	6596

Crash data was obtained from the City of Austin's Vision Zero database. This database obtains crash data from the Texas Department of Transportation (TxDOT) Crash Record Information System (CRIS) database. Total number of crashes and total number of fatal or injury crashes from November 30, 2016 to November 30th, 2021 were obtained for the extents of this project limits and summarized in Table 3. A crash was determined to be within the study area if the primary or secondary address was along Salt Springs Drive.

Table 3: Crash Data

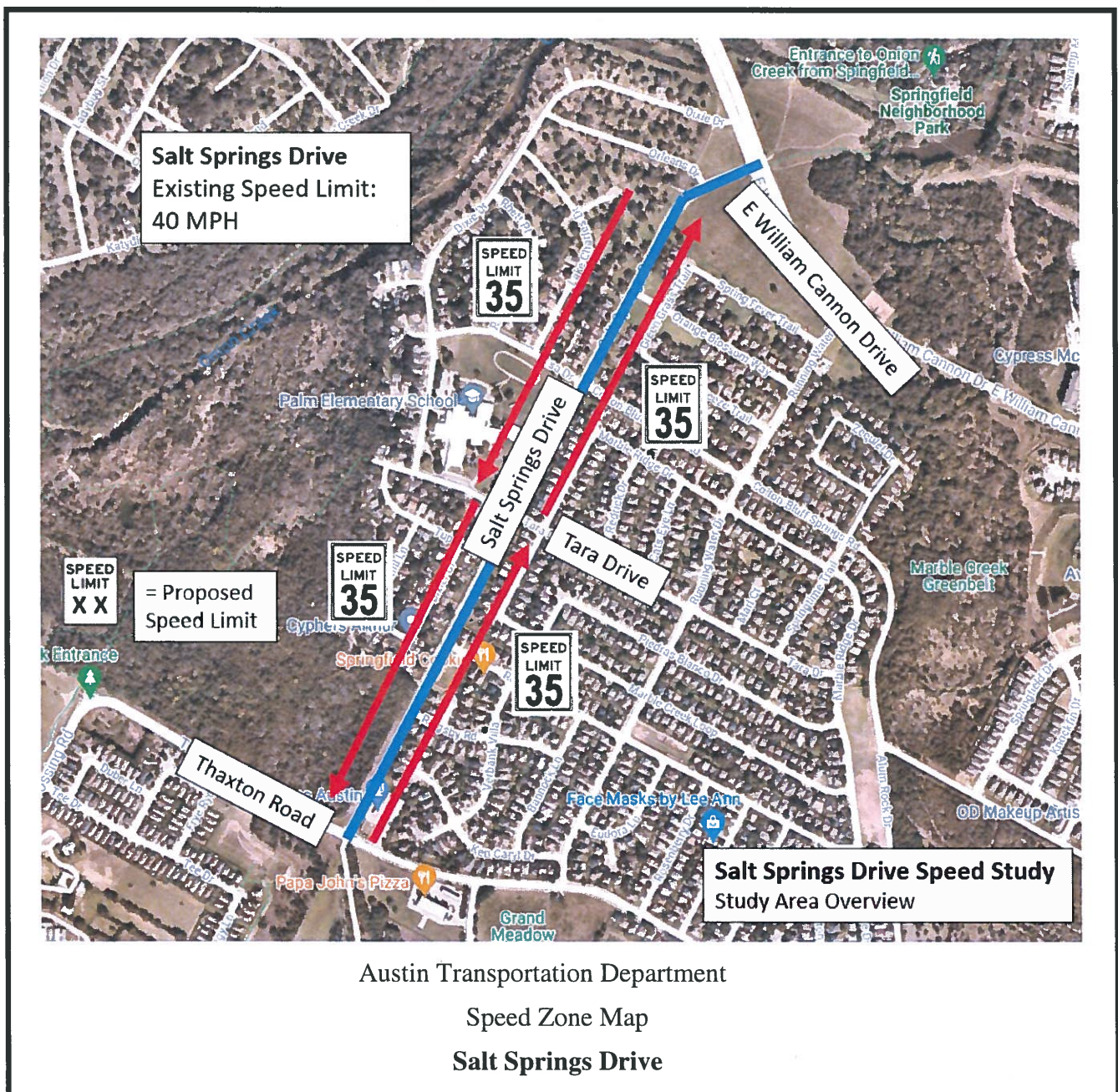
Street	Crashes	
	Total	Injury/Fatal
Salt Springs Drive	51	10

A USLIMITS2 study was run in both directions for all identified data points on Salt Springs Drive. In accordance with the "Texas Procedures for Establishing Speed Zones," the same speed limit shall be maintained in both directions of travel on undivided roadways. Therefore, the recommended speed limit is to be 35 MPH along all identified street segments. In addition, on Salt Springs Road, the land use and functional classification is maintained for the length of the segment. Speed recommendations at each point were considered to select one consistent speed limit for the length of the segment. The results of the USLIMITS2 Speed Zoning Report are summarized in Table 4 below.

Table 4: USLIMITS2 Speed Zoning Report Results

Street Segment	Existing Speed Limit (NB & SB) (mph)	USLIMITS2 Recommended Speed Limit		Recommended Speed Limit (NB & SB) (mph)
		Northbound (mph)	Southbound (mph)	
From E William Cannon Drive to Tara Drive	40	40	35	35
From Tara Drive to Thaxton Road	40	40	35	35

Figure 4 presents a map of the study area and the proposed speed limit based on the collected data and analysis.

**Figure 4: Proposed Speed Limits Along Salt Springs Drive**

Recommendation

TED has determined a speed limit of 35 mph is appropriate for the study segments, based on the two methodologies used for setting speed limits.

Appendix

USLIMITS2 Speed Zoning Report

Project Overview

Project Name: Salt Springs NB 332 Speed Limit Study

Analyst: Maggie Chan

Date: 2021-12-17

Basic Project Information

Route Name: Salt Springs Drive
From: E William Cannon Drive
To: Tara Drive
State: Texas
County: Travis County
City: Austin city
Route Type: Road Section in Developed Area
Route Status: Existing

Crash Data Information

Crash Data Years: 5.00
Crash AADT: 6596 veh/day
Total Number of Crashes: 51
Total Number of Injury Crashes: 10
Section Crash Rate: 424 per 100 MVM
Section Injury Crash Rate: 83 per 100 MVM
Crash Rate Average for Similar Roads: 235
Injury Rate Average for Similar Roads: 68

Roadway Information

Section Length: 1 mile(s)
Statutory Speed Limit: None
Existing Speed Limit: 40 mph
Adverse Alignment: No
One-Way Street: No
Divided/Undivided: Undivided
Number of Through Lanes: 2
Area Type: Residential-Collector/Arterial
Number of Driveways: 13
Number of Signals: 2

Traffic Information

85th Percentile Speed: 44 mph
50th Percentile Speed: 39 mph
AADT: 6596 veh/day
On Street Parking and Usage: Not High
Pedestrian / Bicyclist Activity: High

Recommended Speed Limit:



Note: The section crash rate of 424 per 100 MVM is above the critical rate (312). A comprehensive crash study should be undertaken to identify engineering and traffic control deficiencies and appropriate corrective actions. The speed limit should only be reduced as a last measure after all other treatments have either been tried or ruled out.

Note: The road section is in an area with high pedestrian or bicycle activity. Consider implementing engineering measures to reduce speeds before lowering the recommended speed limit. See [Engineering Countermeasures for Speed Management](#) and [PedSafe](#) for more guidance.

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Equations Used in the Crash Data Calculations

Exposure (M)

$$M = (\text{Section AADT} * 365 * \text{Section Length} * \text{Duration of Crash Data}) / (100000000)$$
$$M = (6596 * 365 * 1 * 5.00) / (100000000)$$
$$M = 0.1204$$

Crash Rate (Rc)

$$Rc = (\text{Section Crash Average} * 100000000) / (\text{Section AADT} * 365 * \text{Section Length})$$
$$Rc = (10.20 * 100000000) / (6596 * 365 * 1)$$
$$Rc = 423.67 \text{ crashes per 100 MVM}$$

Injury Rate (Ri)

$$Ri = (\text{Section Injury Crash Average} * 100000000) / (\text{Section AADT} * 365 * \text{Section Length})$$
$$Ri = (2.00 * 100000000) / (6596 * 365 * 1)$$
$$Ri = 83.07 \text{ injuries per 100 MVM}$$

Critical Crash Rate (Cc)

$$Cc = \text{Crash Average of Similar Sections} + 1.645 * (\text{Crash Average of Similar Sections} / \text{Exposure}) ^ {1/2} + (1 /$$

(2 * Exposure))

$Cc = 235.03 + 1.645 * (235.03 / 0.1204)^{(1/2)} + (1 / (2 * 0.1204))$

Cc = 311.87 crashes per 100 MVM

Critical Injury Rate (Ic)

$Ic = \text{Injury Crash Average of Similar Sections} + 1.645 * (\text{Injury Crash Average of Similar Sections} / \text{Exposure})^{(1/2)} + (1 / (2 * \text{Exposure}))$

$Ic = 67.63 + 1.645 * (67.63 / 0.1204)^{(1/2)} + (1 / (2 * 0.1204))$

Ic = 110.77 injuries per 100 MVM

USLIMITS2 Speed Zoning Report

Project Overview

Project Name: Salt Springs NB 333 Speed Limit Study

Analyst: Maggie

Date: 2021-12-17

Basic Project Information

Route Name: Salt Springs Drive
From: Tara Drive
To: Thaxton Road
State: Texas
County: Travis County
City: Austin city
Route Type: Road Section in Developed Area
Route Status: Existing

Crash Data Information

Crash Data Years: 5.00
Crash AADT: 6596 veh/day
Total Number of Crashes: 51
Total Number of Injury Crashes: 10
Section Crash Rate: 424 per 100 MVM
Section Injury Crash Rate: 83 per 100 MVM
Crash Rate Average for Similar Roads: 235
Injury Rate Average for Similar Roads: 68

Roadway Information

Section Length: 1 mile(s)
Statutory Speed Limit: None
Existing Speed Limit: 40 mph
Adverse Alignment: No
One-Way Street: No
Divided/Undivided: Undivided
Number of Through Lanes: 2
Area Type: Residential-Collector/Arterial
Number of Driveways: 13
Number of Signals: 2

Traffic Information

85th Percentile Speed: 46 mph
50th Percentile Speed: 40 mph
AADT: 6596 veh/day
On Street Parking and Usage: Not High
Pedestrian / Bicyclist Activity: High

Recommended Speed Limit:



Note: The section crash rate of 424 per 100 MVM is above the critical rate (312). A comprehensive crash study should be undertaken to identify engineering and traffic control deficiencies and appropriate corrective actions. The speed limit should only be reduced as a last measure after all other treatments have either been tried or ruled out.

Note: The road section is in an area with high pedestrian or bicycle activity. Consider implementing engineering measures to reduce speeds before lowering the recommended speed limit. See [Engineering Countermeasures for Speed Management](#) and [PedSafe](#) for more guidance.

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Equations Used in the Crash Data Calculations

Exposure (M)

$$M = (\text{Section AADT} * 365 * \text{Section Length} * \text{Duration of Crash Data}) / (100000000)$$
$$M = (6596 * 365 * 1 * 5.00) / (100000000)$$
$$M = 0.1204$$

Crash Rate (Rc)

$$Rc = (\text{Section Crash Average} * 100000000) / (\text{Section AADT} * 365 * \text{Section Length})$$
$$Rc = (10.20 * 100000000) / (6596 * 365 * 1)$$
$$Rc = 423.67 \text{ crashes per 100 MVM}$$

Injury Rate (Ri)

$$Ri = (\text{Section Injury Crash Average} * 100000000) / (\text{Section AADT} * 365 * \text{Section Length})$$
$$Ri = (2.00 * 100000000) / (6596 * 365 * 1)$$
$$Ri = 83.07 \text{ injuries per 100 MVM}$$

Critical Crash Rate (Cc)

$$Cc = \text{Crash Average of Similar Sections} + 1.645 * (\text{Crash Average of Similar Sections} / \text{Exposure}) ^ {1/2} + (1 /$$

(2 * Exposure))

$Cc = 235.03 + 1.645 * (235.03 / 0.1204)^{(1/2)} + (1 / (2 * 0.1204))$

Cc = 311.87 crashes per 100 MVM

Critical Injury Rate (Ic)

$Ic = \text{Injury Crash Average of Similar Sections} + 1.645 * (\text{Injury Crash Average of Similar Sections} / \text{Exposure})^{(1/2)} + (1 / (2 * \text{Exposure}))$

$Ic = 67.63 + 1.645 * (67.63 / 0.1204)^{(1/2)} + (1 / (2 * 0.1204))$

Ic = 110.77 injuries per 100 MVM

USLIMITS2 Speed Zoning Report

Project Overview

Project Name: Salt Springs SB 332 Speed Limit Study

Analyst: Maggie

Date: 2021-12-17

Basic Project Information

Route Name: Salt Springs Drive
From: E William Cannon Drive
To: Tara Drive
State: Texas
County: Travis County
City: Austin city
Route Type: Road Section in Developed Area
Route Status: Existing

Crash Data Information

Crash Data Years: 5.00
Crash AADT: 6596 veh/day
Total Number of Crashes: 51
Total Number of Injury Crashes: 10
Section Crash Rate: 498 per 100 MVM
Section Injury Crash Rate: 98 per 100 MVM
Crash Rate Average for Similar Roads: 235
Injury Rate Average for Similar Roads: 68

Roadway Information

Section Length: .85 mile(s)
Statutory Speed Limit: None
Existing Speed Limit: 40 mph
Adverse Alignment: No
One-Way Street: No
Divided/Undivided: Undivided
Number of Through Lanes: 2
Area Type: Residential-Collector/Arterial
Number of Driveways: 13
Number of Signals: 2

Traffic Information

85th Percentile Speed: 40 mph
50th Percentile Speed: 35 mph
AADT: 6596 veh/day
On Street Parking and Usage: Not High
Pedestrian / Bicyclist Activity: High

Recommended Speed Limit:



Note: The section crash rate of 498 per 100 MVM is above the critical rate (319). The injury crash rate for the section of 98 per 100 MVM is more than 30 percent above the average for similar roads (68) but below the critical rate (115). A comprehensive crash study should be undertaken to identify engineering and traffic control deficiencies and appropriate corrective actions. The speed limit should only be reduced as a last measure after all other treatments have either been tried or ruled out.

Note: The road section is in an area with high pedestrian or bicycle activity. Consider implementing engineering measures to reduce speeds before lowering the recommended speed limit. See [Engineering Countermeasures for Speed Management](#) and [PedSafe](#) for more guidance.

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Equations Used in the Crash Data Calculations

Exposure (M)

$M = (\text{Section AADT} * 365 * \text{Section Length} * \text{Duration of Crash Data}) / (100000000)$
 $M = (6596 * 365 * .85 * 5.00) / (100000000)$
 $M = 0.1023$

Crash Rate (Rc)

$Rc = (\text{Section Crash Average} * 100000000) / (\text{Section AADT} * 365 * \text{Section Length})$
 $Rc = (10.20 * 100000000) / (6596 * 365 * .85)$
 $Rc = 498.43 \text{ crashes per 100 MVM}$

Injury Rate (Ri)

$Ri = (\text{Section Injury Crash Average} * 100000000) / (\text{Section AADT} * 365 * \text{Section Length})$
 $Ri = (2.00 * 100000000) / (6596 * 365 * .85)$
 $Ri = 97.73 \text{ injuries per 100 MVM}$

Critical Crash Rate (Cc)

$Cc = \text{Crash Average of Similar Sections} + 1.645 * (\text{Crash Average of Similar Sections} / \text{Exposure}) ^ {1/2} + (1 / (2 * \text{Exposure}))$

$Cc = 235.03 + 1.645 * (235.03 / 0.1023) ^ {1/2} + (1 / (2 * 0.1023))$

$Cc = 318.76$ crashes per 100 MVM

Critical Injury Rate (Ic)

$Ic = \text{Injury Crash Average of Similar Sections} + 1.645 * (\text{Injury Crash Average of Similar Sections} / \text{Exposure}) ^ {1/2} + (1 / (2 * \text{Exposure}))$

$Ic = 67.63 + 1.645 * (67.63 / 0.1023) ^ {1/2} + (1 / (2 * 0.1023))$

$Ic = 114.81$ injuries per 100 MVM

USLIMITS2 Speed Zoning Report

Project Overview

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Date: 2021-12-17

Basic Project Information

Route Name: Salt Springs Drive
From: Tara Drive
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State: Texas
County: Travis County
City: Austin city
Route Type: Road Section in Developed Area
Route Status: Existing

Crash Data Information

Crash Data Years: 5.00
Crash AADT: 6596 veh/day
Total Number of Crashes: 51
Total Number of Injury Crashes: 10
Section Crash Rate: 424 per 100 MVM
Section Injury Crash Rate: 83 per 100 MVM
Crash Rate Average for Similar Roads: 235
Injury Rate Average for Similar Roads: 68

Roadway Information

Section Length: 1 mile(s)
Statutory Speed Limit: None
Existing Speed Limit: 40 mph
Adverse Alignment: No
One-Way Street: No
Divided/Undivided: Undivided
Number of Through Lanes: 2
Area Type: Residential-Collector/Arterial
Number of Driveways: 13
Number of Signals: 2

Traffic Information

85th Percentile Speed: 42 mph
50th Percentile Speed: 37 mph
AADT: 6596 veh/day
On Street Parking and Usage: Not High
Pedestrian / Bicyclist Activity: High

Recommended Speed Limit:



Note: The section crash rate of 424 per 100 MVM is above the critical rate (312). A comprehensive crash study should be undertaken to identify engineering and traffic control deficiencies and appropriate corrective actions. The speed limit should only be reduced as a last measure after all other treatments have either been tried or ruled out.

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Equations Used in the Crash Data Calculations

Exposure (M)

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$$M = (6596 * 365 * 1 * 5.00) / (100000000)$$
$$M = 0.1204$$

Crash Rate (Rc)

$$Rc = (\text{Section Crash Average} * 100000000) / (\text{Section AADT} * 365 * \text{Section Length})$$
$$Rc = (10.20 * 100000000) / (6596 * 365 * 1)$$
$$Rc = 423.67 \text{ crashes per 100 MVM}$$

Injury Rate (Ri)

$$Ri = (\text{Section Injury Crash Average} * 100000000) / (\text{Section AADT} * 365 * \text{Section Length})$$
$$Ri = (2.00 * 100000000) / (6596 * 365 * 1)$$
$$Ri = 83.07 \text{ injuries per 100 MVM}$$

Critical Crash Rate (Cc)

$$Cc = \text{Crash Average of Similar Sections} + 1.645 * (\text{Crash Average of Similar Sections} / \text{Exposure}) ^ {1/2} + (1 /$$

(2 * Exposure))

$Cc = 235.03 + 1.645 * (235.03 / 0.1204)^{(1/2)} + (1 / (2 * 0.1204))$

Cc = 311.87 crashes per 100 MVM

Critical Injury Rate (Ic)

$Ic = \text{Injury Crash Average of Similar Sections} + 1.645 * (\text{Injury Crash Average of Similar Sections} / \text{Exposure})^{(1/2)} + (1 / (2 * \text{Exposure}))$

$Ic = 67.63 + 1.645 * (67.63 / 0.1204)^{(1/2)} + (1 / (2 * 0.1204))$

Ic = 110.77 injuries per 100 MVM