



MEMORANDUM

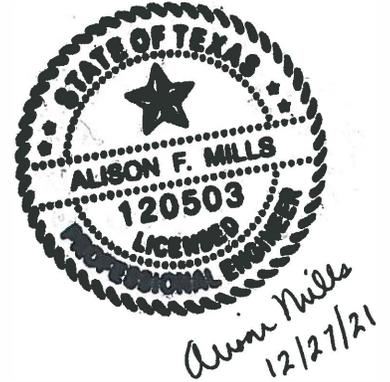
**To:** Traffic Study Files

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

**Date:** December 27, 2021

**Subject:** SPEED ZONE INVESTIGATION

**Location:** Convict Hill Road – Brodie Lane to US Highway 290



**Date(s) of Previous Investigation:** None

A traffic engineering investigation has been conducted by the Transportation Engineering Division (TED) to determine the appropriate speed limit on Convict Hill Road from Brodie Lane to US Highway 290. Currently the speed limit from Brodie Lane to Woodcreek Road is 35 MPH, 40 MPH from Woodcreek Road to Escarpment Boulevard, and 35 MPH from Escarpment Boulevard and US Highway 290. Figure 1 represents a map of the study area.

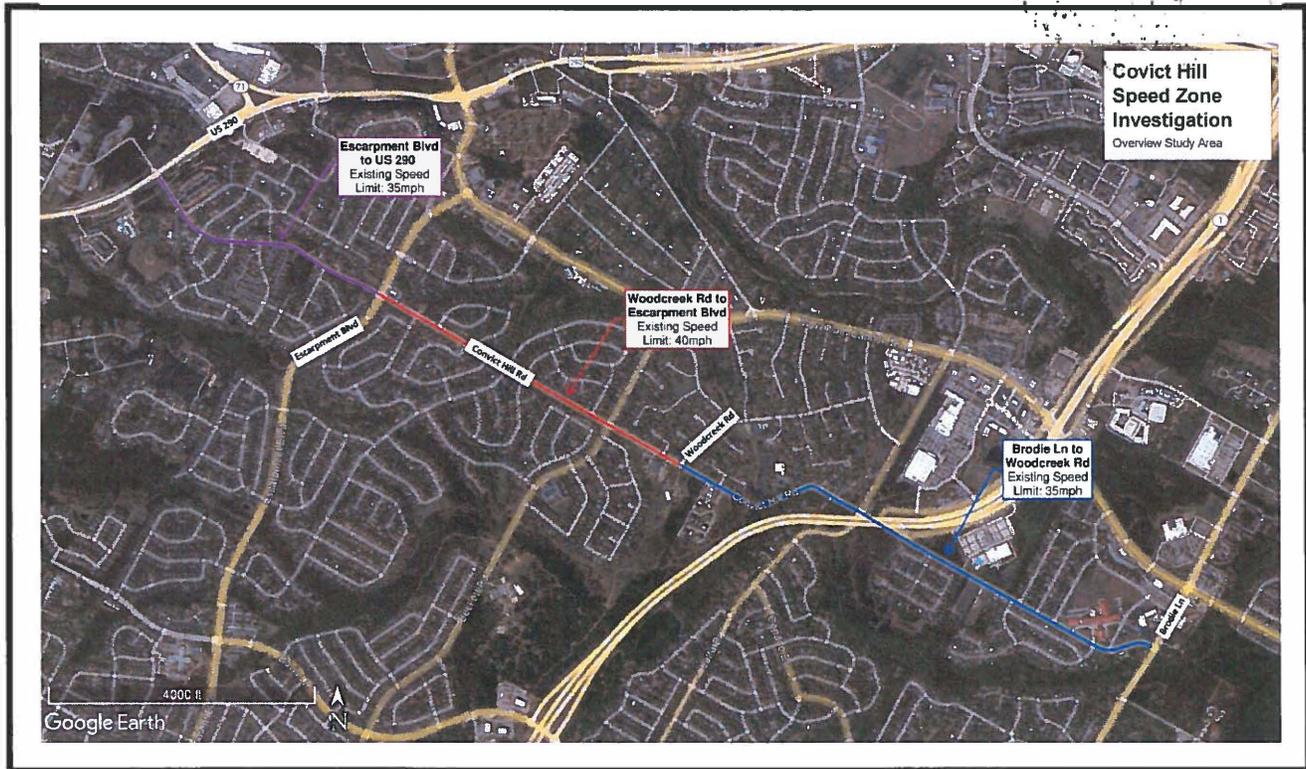
**Location Conditions**

Convict Hill Road from Brodie Lane to US Highway 290 is an undivided, two-way, two-lane, collector roadway. For the purposes of this study, Convict Hill Road was divided into three segments. Convict Hill Road from Brodie Lane to Woodcreek Rd is 35 MPH with very few front facing homes. There is a church and a library in this segment. Woodcreek Road to Escarpment Boulevard is 40 MPH with bike lanes on both sides of the roadway. Escarpment Boulevard to US Highway 290 is 35 MPH with parking on the north side of street and bike lanes on both sides of the street in this segment.

Table 1 presents more information of each street segment studied, while Figures 2, 3, and 4 present maps of the street segments studied.

**Table 1: Location Information**

Street Segment	Segment Length (Miles)	Number of Unsignalized Access Points	Number of Signalized Intersections	Width (ft)
Brodie Ln to Woodcreek Rd	1.5	38	1	22
Woodcreek Rd to Escarpment Blvd	1	18	1	44
Escarpment Blvd to US 290	.75	32	2	44



**Figure 1: Study Area Aerial View**



**Figure 2: Street Segment Brodie Ln to Woodcreek Rd**



**Figure 3: Street Segment Woodcreek Rd to Escarpment Blvd**



**Figure 4: Street Segment Escarpment Blvd to US 290**

**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 85<sup>th</sup> 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 segments.

- 85<sup>th</sup> percentile speed
- 50<sup>th</sup> 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 August 2021 to determine the appropriate posted speed limit for Convict Hill Road.

Table 2 summarizes the 85<sup>th</sup> percentile speed, 50<sup>th</sup> percentile speed, and daily traffic volumes collected on Convict Hill 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)
		EB	WB	EB	WB	
Brodie Ln to Brush Country Rd	35	41	41	36	37	4403
Brush Country Rd to Woodcreek Rd	35	43	38	38	34	4629
Beckett Rd to Abilene Tr	40	44	38	39	34	4496
Escarpment Blvd to US 290	35	45	38	41	34	8933

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 July 9<sup>th</sup>, 2016 to July 9<sup>th</sup>, 2021 were obtained for the extents of this project limits. A crash was determined to be within the study area if the primary address was between 3500 Convict Hill Road and 8000 Convict Hill Road.

**Table 3: Crash Data**

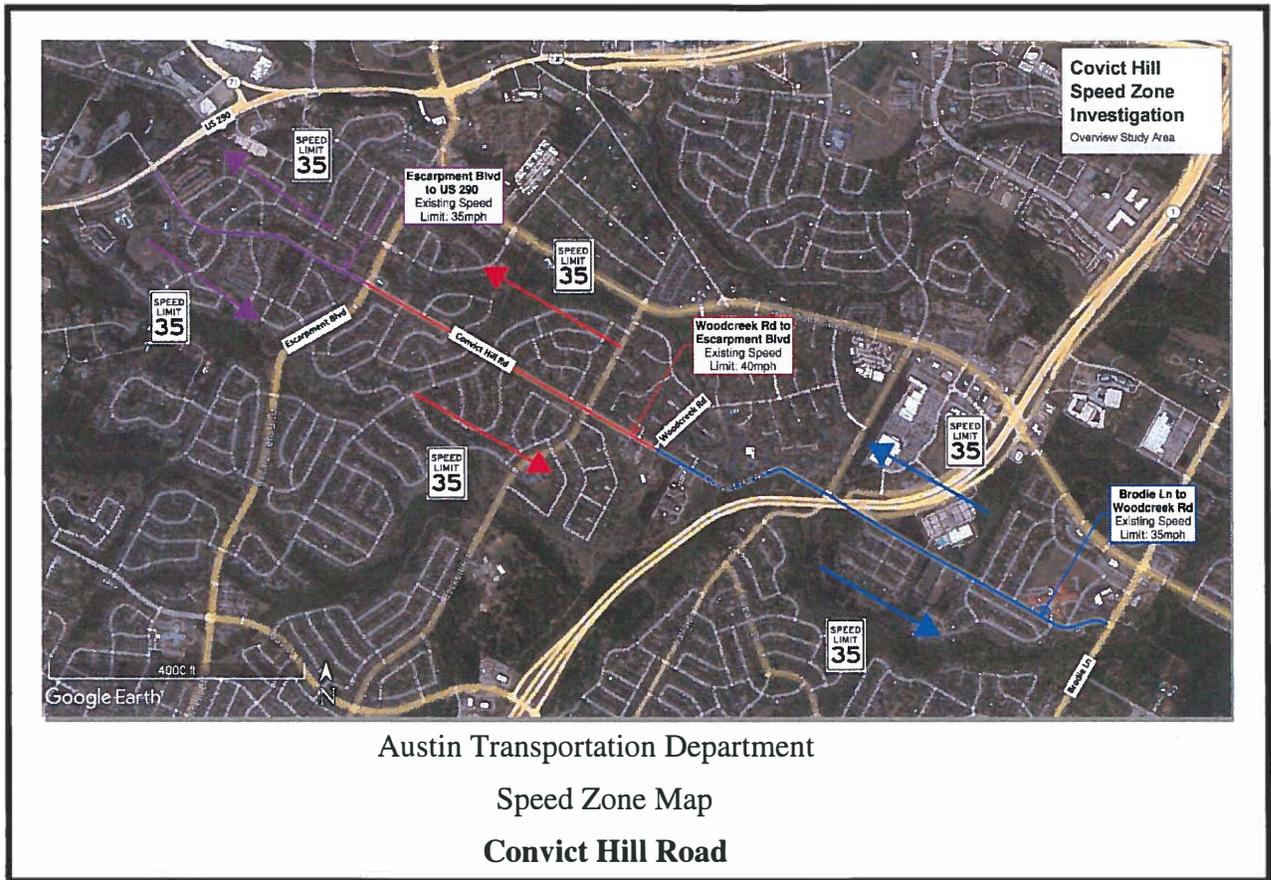
Street Segment	Crashes	
	Total	Injury/ Fatal
From Brodie Ln to Woodcreek Rd	27	8
From Woodcreek Rd to Escarpment Blvd	14	3
From Escarpment Blvd to US 290	16	3

A USLIMITS2 study was run in both directions for all identified street segments on Convict Hill Road. 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 Convict Hill 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 (EB & WB) (mph)	USLIMITS2 Recommended Speed Limit (mph)		Recommended Speed Limit (EB & WB) (mph)
		Eastbound	Westbound	
From Brodie Ln to Woodcreek Rd	35	35	35	<b>35</b>
From Woodcreek Rd to Escrp. Blvd	40	40	35	<b>35</b>
From Escarpment Blvd to US 290	35	40	35	<b>35</b>

Figure 5 presents a map of the study area and the proposed speed limit based on the collected data and analysis.



**Figure 5: Proposed Speed Limits Along Convict Hill Road**

**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 and taking into account that the crash rate and injury crash rates for the study segments both exceed average crash rates for similar roads.

# Appendix

## USLIMITS2 Speed Zoning Report

### Project Overview

**Project Name:** ConvictHill1

**Analyst:** Gavin Jones

**Date:** 2021-11-30

#### Basic Project Information

Route Name: Convict Hill Road  
From: Brodie Lane  
To: Woodcreek 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: 4629 veh/day  
Total Number of Crashes: 27  
Total Number of Injury Crashes: 8  
Section Crash Rate: 213 per 100 MVM  
Section Injury Crash Rate: 63 per 100 MVM  
Crash Rate Average for Similar Roads: 217  
Injury Rate Average for Similar Roads: 66

#### Roadway Information

Section Length: 1.5 mile(s)  
Statutory Speed Limit: None  
Existing Speed Limit: 35 mph  
Adverse Alignment: Yes  
One-Way Street: No  
Divided/Undivided: Undivided  
Number of Through Lanes: 2  
Area Type: Residential-Collector/Arterial  
Number of Driveways: 38  
Number of Signals: 1

#### Traffic Information

85th Percentile Speed: 43 mph  
50th Percentile Speed: 36 mph  
AADT: 4629 veh/day  
On Street Parking and Usage: Not High  
Pedestrian / Bicyclist Activity: High

### Recommended Speed Limit: **35**

**Note:** Sections with adverse alignments may need specific 'advisory speed warnings' which may be different from the general speed limit for the section. See [Procedures for Setting Advisory Speeds on Curves](#), Publication No. FHWA-SA-11-22, June 2011, for more guidance.

**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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## How the Recommended Speed Limit was Determined

The questions and responses below, and the referenced page numbers, correspond to the flowcharts found in the [Decision Rules Flowchart document](#).

### Terms Used in the Recommendation

- **Closest 85th:** This is the 5 mph increment that is closest to the 85th percentile speed (e.g., if the 85th percentile speed is 63 mph, the Closest 85th will be 65 mph).
- **Rounded-down 85th:** This is the 5 mph increment obtained by rounding down the 85th percentile to the nearest 5 mph increment (e.g., if the 85th percentile speed is 63 mph, the Rounded-down 85th will be 60 mph).
- **Closest 50th:** This is the 5 mph increment that is closest to the 50th percentile speed (e.g., if the 50th percentile speed is 58 mph, the Closest 50th will be 60 mph).
- **SL\_1:** Speed limit determined using site characteristics (e.g., AADT, interchange spacing, roadside hazard rating, ped/bike activity, number of traffic signals, etc.).
- **SL\_2:** Speed limit determined using crash data from the crash module.
- **SL:** Recommended Speed Limit.

The Recommended Speed Limit (SL) is the lower of the speed limit determined without crash data (SL\_1) and the speed limit determined with crash data (SL\_2).

### Determine SL\_1 Using Site Characteristics (pg. K-23)

**Note:** The number of signals per mile is being calculated as 0.67 signals per mile.

**Note:** The number of driveways per mile is being calculated as 25.33 driveways per mile.

**Question 1:** Are any of the following true: there are more than four signals per mile, pedestrian or bicyclist activity is high, parking activity is high, or there are more than 60 driveways per mile?

**Results:** Yes. There are 0.67 signals per mile, 25.33 driveways per mile, high pedestrian/bicyclist activity, and not high parking activity. **The SL\_1 is set to the closest 50th percentile speed (35 mph).**

**Question 2:** Are crash data available?

**Results:** Yes, so use these data to determine SL\_2.

### Determine SL\_2 Using Crash Data (pg. K-24)

**Question 3:** Is more than one year of crash data available?

**Results:** Yes, at least one year of crash data is available.

**Note:** The crash rate is calculated to be 213 crashes per 100M VMT, and the injury rate is calculated to be 63 crashes per 100M VMT.

**Note:** The critical crash rate is calculated as 289 crashes per 100M VMT.

**Question 4:** Is the crash rate (213 per 100M VMT) greater than the critical crash rate (289 crashes per 100M VMT)?

**Results:** No, so the crash level is classified as low.

**Question 5:** Is the injury crash rate (63 per 100M VMT) greater than the critical injury rate (107 crashes per 100M VMT)?

**Results:** No, so the injury crash level is classified as low.

**Question 6:** Are either of the crash level (low) or injury crash level (low) classified as medium or high?

**Results:** No, so the total crash level is classified low.

**Question 7:** Is the total crash level (low) classified as medium or high?

**Results:** No, so **SL<sub>2</sub>** is set as the closest 85th speed (45 mph).

Determine SL (pg. K-22)

**Note:** SL is set as the lower of SL<sub>1</sub> (35 mph) and SL<sub>2</sub> (45 mph). **The SL is set to 35 mph.**

Determine the Final Recommended Speed Limit (pg. K-28)

**Question 8:** Is the SL less than 20 mph or greater than 50 mph?

**Results:** The SL (35 mph) is between 20 mph and 50 mph. **The SL remains the same.**

**Final Recommendation:** The recommended speed limit is 35 mph.

## Equations Used in the Crash Data Calculations

*Exposure (M)*

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

$$M = (4629 * 365 * 1.5 * 5.00) / (100000000)$$

$$M = 0.1267$$

*Crash Rate (Rc)*

$$Rc = (\text{Section Crash Average} * 100000000) / (\text{Section AADT} * 365 * \text{Section Length})$$

$$Rc = (5.40 * 100000000) / (4629 * 365 * 1.5)$$

$$Rc = 213.07 \text{ crashes per 100 MVM}$$

*Injury Rate (Ri)*

$$Ri = (\text{Section Injury Crash Average} * 100000000) / (\text{Section AADT} * 365 * \text{Section Length})$$

$$Ri = (1.60 * 100000000) / (4629 * 365 * 1.5)$$

$$Ri = 63.13 \text{ injuries per 100 MVM}$$

*Critical Crash Rate (Cc)*

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

$$Cc = 217.36 + 1.645 * (217.36 / 0.1267)^{(1/2)} + (1 / (2 * 0.1267))$$

$$Cc = 289.43 \text{ crashes per 100 MVM}$$

*Critical Injury Rate (Ic)*

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

$$I_c = 65.57 + 1.645 * (65.57 / 0.1267)^{1/2} + (1 / (2 * 0.1267))$$

$I_c = 106.94$  injuries per 100 MVM

# USLIMITS2 Speed Zoning Report

## Project Overview

**Project Name:** ConvictHill2

**Analyst:** Gavin Jones

**Date:** 2021-11-30

### Basic Project Information

Route Name: Convict Hill Road WB  
From: Brodie Lane  
To: Woodcreek 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: 4629 veh/day  
Total Number of Crashes: 27  
Total Number of Injury Crashes: 8  
Section Crash Rate: 213 per 100 MVM  
Section Injury Crash Rate: 63 per 100 MVM  
Crash Rate Average for Similar Roads: 217  
Injury Rate Average for Similar Roads: 66

### Roadway Information

Section Length: 1.5 mile(s)  
Statutory Speed Limit: None  
Existing Speed Limit: 35 mph  
Adverse Alignment: Yes  
One-Way Street: No  
Divided/Undivided: Undivided  
Number of Through Lanes: 2  
Area Type: Residential-Collector/Arterial  
Number of Driveways: 38  
Number of Signals: 1

### Traffic Information

85th Percentile Speed: 41 mph  
50th Percentile Speed: 37 mph  
AADT: 4629 veh/day  
On Street Parking and Usage: Not High  
Pedestrian / Bicyclist Activity: High

## Recommended Speed Limit: 35

**Note:** Sections with adverse alignments may need specific 'advisory speed warnings' which may be different from the general speed limit for the section. See [Procedures for Setting Advisory Speeds on Curves](#), Publication No. FHWA-SA-11-22, June 2011, for more guidance.

**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)*

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

$$M = (4629 * 365 * 1.5 * 5.00) / (100000000)$$
$$M = 0.1267$$

*Crash Rate (Rc)*

$$Rc = (\text{Section Crash Average} * 100000000) / (\text{Section AADT} * 365 * \text{Section Length})$$
$$Rc = (5.40 * 100000000) / (4629 * 365 * 1.5)$$
$$Rc = 213.07 \text{ crashes per 100 MVM}$$

*Injury Rate (Ri)*

$$Ri = (\text{Section Injury Crash Average} * 100000000) / (\text{Section AADT} * 365 * \text{Section Length})$$
$$Ri = (1.60 * 100000000) / (4629 * 365 * 1.5)$$
$$Ri = 63.13 \text{ injuries per 100 MVM}$$

*Critical Crash Rate (Cc)*

$$Cc = \text{Crash Average of Similar Sections} + 1.645 * (\text{Crash Average of Similar Sections} / \text{Exposure}) ^{(1/2)} + (1 / (2 * \text{Exposure}))$$
$$Cc = 217.36 + 1.645 * (217.36 / 0.1267) ^{(1/2)} + (1 / (2 * 0.1267))$$
$$Cc = 289.43 \text{ crashes per 100 MVM}$$

*Critical Injury Rate (Ic)*

$$Ic = \text{Injury Crash Average of Similar Sections} + 1.645 * (\text{Injury Crash Average of Similar Sections} / \text{Exposure}) ^{(1/2)} + (1 / (2 * \text{Exposure}))$$
$$Ic = 65.57 + 1.645 * (65.57 / 0.1267) ^{(1/2)} + (1 / (2 * 0.1267))$$
$$Ic = 106.94 \text{ injuries per 100 MVM}$$

# USLIMITS2 Speed Zoning Report

## Project Overview

**Project Name:** ConvictHill3

**Analyst:** Gavin Jones

**Date:** 2021-12-02

### Basic Project Information

Route Name: Convict Hill Road EB  
From: Woodcreek Rd  
To: Escarpment Blvd  
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: 4496 veh/day  
Total Number of Crashes: 14  
Total Number of Injury Crashes: 3  
Section Crash Rate: 171 per 100 MVM  
Section Injury Crash Rate: 37 per 100 MVM  
Crash Rate Average for Similar Roads: 232  
Injury Rate Average for Similar Roads: 66

### 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: 18  
Number of Signals: 1

### Traffic Information

85th Percentile Speed: 44 mph  
50th Percentile Speed: 38 mph  
AADT: 4496 veh/day  
On Street Parking and Usage: Not High  
Pedestrian / Bicyclist Activity: High

## Recommended Speed Limit: 40

**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)*

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

$M = (4496 * 365 * 1 * 5.00) / (100000000)$

$M = 0.0821$

*Crash Rate (Rc)*

$Rc = (\text{Section Crash Average} * 100000000) / (\text{Section AADT} * 365 * \text{Section Length})$

$$R_c = (2.80 * 100000000) / (4496 * 365 * 1)$$

R<sub>c</sub> = 170.62 crashes per 100 MVM

*Injury Rate (R<sub>i</sub>)*

$$R_i = (\text{Section Injury Crash Average} * 100000000) / (\text{Section AADT} * 365 * \text{Section Length})$$

$$R_i = (0.60 * 100000000) / (4496 * 365 * 1)$$

R<sub>i</sub> = 36.56 injuries per 100 MVM

*Critical Crash Rate (C<sub>c</sub>)*

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

$$C_c = 231.80 + 1.645 * (231.80 / 0.0821)^{1/2} + (1 / (2 * 0.0821))$$

C<sub>c</sub> = 325.33 crashes per 100 MVM

*Critical Injury Rate (I<sub>c</sub>)*

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

$$I_c = 66.27 + 1.645 * (66.27 / 0.0821)^{1/2} + (1 / (2 * 0.0821))$$

I<sub>c</sub> = 119.12 injuries per 100 MVM

# USLIMITS2 Speed Zoning Report

## Project Overview

**Project Name:** ConvictHill4

**Analyst:** Gavin Jones

**Date:** 2021-12-02

### Basic Project Information

Route Name: Convict Hill Road WB  
From: Woodcreek Rd  
To: Escarpment Blvd  
State: Texas  
County: Williamson County  
City: Austin city  
Route Type: Road Section in Developed Area  
Route Status: Existing

### Crash Data Information

Crash Data Years: 5.00  
Crash AADT: 4496 veh/day  
Total Number of Crashes: 14  
Total Number of Injury Crashes: 3  
Section Crash Rate: 171 per 100 MVM  
Section Injury Crash Rate: 37 per 100 MVM  
Crash Rate Average for Similar Roads: 232  
Injury Rate Average for Similar Roads: 66

### 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: 18  
Number of Signals: 1

### Traffic Information

85th Percentile Speed: 38 mph  
50th Percentile Speed: 34 mph  
AADT: 4496 veh/day  
On Street Parking and Usage: Not High  
Pedestrian / Bicyclist Activity: High

## Recommended Speed Limit: **35**

**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)*

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

$M = (4496 * 365 * 1 * 5.00) / (100000000)$

$M = 0.0821$

*Crash Rate (Rc)*

$Rc = (\text{Section Crash Average} * 100000000) / (\text{Section AADT} * 365 * \text{Section Length})$

$$R_c = (2.80 * 100000000) / (4496 * 365 * 1)$$

R<sub>c</sub> = 170.62 crashes per 100 MVM

*Injury Rate (R<sub>i</sub>)*

$$R_i = (\text{Section Injury Crash Average} * 100000000) / (\text{Section AADT} * 365 * \text{Section Length})$$

$$R_i = (0.60 * 100000000) / (4496 * 365 * 1)$$

R<sub>i</sub> = 36.56 injuries per 100 MVM

*Critical Crash Rate (C<sub>c</sub>)*

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

$$C_c = 231.80 + 1.645 * (231.80 / 0.0821)^{1/2} + (1 / (2 * 0.0821))$$

C<sub>c</sub> = 325.33 crashes per 100 MVM

*Critical Injury Rate (I<sub>c</sub>)*

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

$$I_c = 66.27 + 1.645 * (66.27 / 0.0821)^{1/2} + (1 / (2 * 0.0821))$$

I<sub>c</sub> = 119.12 injuries per 100 MVM

# USLIMITS2 Speed Zoning Report

## Project Overview

**Project Name:** ConvictHill5

**Analyst:** Gavin Jones

**Date:** 2021-11-30

### Basic Project Information

Route Name: Convict Hill Road EB  
From: Escarpment Blvd  
To: US 290  
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: 8933 veh/day  
Total Number of Crashes: 16  
Total Number of Injury Crashes: 3  
Section Crash Rate: 131 per 100 MVM  
Section Injury Crash Rate: 25 per 100 MVM  
Crash Rate Average for Similar Roads: 235  
Injury Rate Average for Similar Roads: 70

### Roadway Information

Section Length: .75 mile(s)  
Statutory Speed Limit: None  
Existing Speed Limit: mph  
Adverse Alignment: No  
One-Way Street: No  
Divided/Undivided: Undivided  
Number of Through Lanes: 2  
Area Type: Residential-Collector/Arterial  
Number of Driveways: 32  
Number of Signals: 2

### Traffic Information

85th Percentile Speed: 45 mph  
50th Percentile Speed: 39 mph  
AADT: 8933 veh/day  
On Street Parking and Usage: High  
Pedestrian / Bicyclist Activity: High

## Recommended Speed Limit: 40

**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)*

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

$M = (8933 * 365 * .75 * 5.00) / (100000000)$

$M = 0.1223$

*Crash Rate (Rc)*

$Rc = (\text{Section Crash Average} * 100000000) / (\text{Section AADT} * 365 * \text{Section Length})$

$$R_c = (3.20 * 100000000) / (8933 * 365 * .75)$$

R<sub>c</sub> = 130.86 crashes per 100 MVM

*Injury Rate (R<sub>i</sub>)*

$$R_i = (\text{Section Injury Crash Average} * 100000000) / (\text{Section AADT} * 365 * \text{Section Length})$$

$$R_i = (0.60 * 100000000) / (8933 * 365 * .75)$$

R<sub>i</sub> = 24.54 injuries per 100 MVM

*Critical Crash Rate (C<sub>c</sub>)*

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

$$C_c = 234.74 + 1.645 * (234.74 / 0.1223) ^{(1/2)} + (1 / (2 * 0.1223))$$

C<sub>c</sub> = 310.91 crashes per 100 MVM

*Critical Injury Rate (I<sub>c</sub>)*

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

$$I_c = 69.91 + 1.645 * (69.91 / 0.1223) ^{(1/2)} + (1 / (2 * 0.1223))$$

I<sub>c</sub> = 113.33 injuries per 100 MVM

# USLIMITS2 Speed Zoning Report

## Project Overview

**Project Name:** ConvictHill6

**Analyst:** Gavin Jones

**Date:** 2021-11-30

### Basic Project Information

Route Name: Convict Hill Road WB  
From: Escarpment Blvd  
To: US 290  
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: 8933 veh/day  
Total Number of Crashes: 16  
Total Number of Injury Crashes: 3  
Section Crash Rate: 131 per 100 MVM  
Section Injury Crash Rate: 25 per 100 MVM  
Crash Rate Average for Similar Roads: 235  
Injury Rate Average for Similar Roads: 70

### Roadway Information

Section Length: .75 mile(s)  
Statutory Speed Limit: None  
Existing Speed Limit: 35 mph  
Adverse Alignment: No  
One-Way Street: No  
Divided/Undivided: Undivided  
Number of Through Lanes: 2  
Area Type: Residential-Collector/Arterial  
Number of Driveways: 32  
Number of Signals: 2

### Traffic Information

85th Percentile Speed: 38 mph  
50th Percentile Speed: 34 mph  
AADT: 8933 veh/day  
On Street Parking and Usage: High  
Pedestrian / Bicyclist Activity: High

## Recommended Speed Limit: 35

**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)*

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

$M = (8933 * 365 * .75 * 5.00) / (100000000)$

$M = 0.1223$

*Crash Rate (Rc)*

$Rc = (\text{Section Crash Average} * 100000000) / (\text{Section AADT} * 365 * \text{Section Length})$

$$R_c = (3.20 * 100000000) / (8933 * 365 * .75)$$

R<sub>c</sub> = 130.86 crashes per 100 MVM

*Injury Rate (R<sub>i</sub>)*

$$R_i = (\text{Section Injury Crash Average} * 100000000) / (\text{Section AADT} * 365 * \text{Section Length})$$

$$R_i = (0.60 * 100000000) / (8933 * 365 * .75)$$

R<sub>i</sub> = 24.54 injuries per 100 MVM

*Critical Crash Rate (C<sub>c</sub>)*

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

$$C_c = 234.74 + 1.645 * (234.74 / 0.1223) ^{(1/2)} + (1 / (2 * 0.1223))$$

C<sub>c</sub> = 310.91 crashes per 100 MVM

*Critical Injury Rate (I<sub>c</sub>)*

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

$$I_c = 69.91 + 1.645 * (69.91 / 0.1223) ^{(1/2)} + (1 / (2 * 0.1223))$$

I<sub>c</sub> = 113.33 injuries per 100 MVM