



## **MR. JOHN POELMA**

Laramie County Public Works  
13797 Prairie Center Circle  
Cheyenne, WY 82009

## **SPEED STUDY**



# **REESE ROAD (CR 131) BETWEEN PERSHING BLVD AND U.S. HIGHWAY 30 LARAMIE COUNTY, WY**



**INBERG-MILLER ENGINEERS**

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**23682-HE**



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THIS CONSTITUTES THE ORIGINAL

John Poelma  
Laramie County Public Works  
13797 Prairie Center Circle  
Cheyenne, WY 82009

RE: REESE ROAD (CR 131) BETWEEN PERSHING BLVD> AND U.S. HIGHWAY 30  
SPEED LIMIT EVALUATION REPORT  
LARAMIE COUNTY, WY

Dear Mr. Poelma:

This letter transmits our speed limit evaluation report for the above-referenced project. The report outlines our findings for the recommendation of speed limit as requested by Laramie County Public Works.

It has been a pleasure participating in this project.

If you have any questions or comments, please contact us at (307) 635-6827.

Sincerely,

INBERG-MILLER ENGINEERS

Daniel Hayes, P.E.  
Cheyenne Office Manager/Civil Engineer

REVIEWED BY

Gary Steele, P.E.  
Senior Civil Engineer

DJH:GLS:bbP:\23682-HE LARAMIE COUNTY PUBLIC WORKS County Road Speed Studies\Civil\Reese Rd\23682-HE Reese Rd Speed Study Report.docx

Enclosures as stated



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Table of Contents

1.0 INTRODUCTION ..... 1  
2.0 TRAFFIC COUNT ..... 1  
3.0 ROADWAY SAFETY ..... 1  
4.0 DECLARATION OF SPEED LIMIT ..... 2

APPENDICES

Appendix A- Road Overview

Appendix B- Traffic Counts

Appendix C- Speed Study Crash Data Overview

Appendix D- Sign Locations

Appendix E- USLimits 2 Report

## 1.0 INTRODUCTION

Reese Road is a paved county road from E. Pershing Boulevard to U.S. Highway 30 (MP 0.0 to MP 0.50) and has no posted speed limit. The main traffic generator for this portion of Reese Road is residential access. The roadway width is 24 feet with 2 major access points and 6 minor access points which translates to 16 access points per mile. The type of terrain is flat and the adjacent land use is characterized as residential.



Figure 1: Stop Sign at MP 0.4.

## 2.0 TRAFFIC COUNT

The automated traffic counter was located at MP 0.18 and is shown in Appendix A. The traffic counter results are shown in Appendix B. The traffic count was recorded from October 11, 2023, to October 25, 2023, with a total of 1,859 vehicles. The Average Daily Traffic (ADT) was recorded at 133 vehicles a day and the Average Daily Truck Traffic (ADTT) was recorded at less than 10 trucks a day. The 85<sup>th</sup> percentile speed was calculated at 48 mph with the 50<sup>th</sup> percentile speed at 36 mph. The pace speed included 36.6% of vehicles recorded and was calculated from 34 mph to 43 mph. According to the standards, the upper bound of the recommended speed limit is the rounded 85<sup>th</sup> percentile speed that was determined at 50 mph. The lower bound is either the rounded 50<sup>th</sup>-percentile speed or the lower limit of the 10-mph pace which was determined at 35 mph. Appendix C shows a table with general information, roadway characteristics, crash data, and the range of the speed limit.

## 3.0 ROADWAY SAFETY

Prior to conducting the speed study on Reese Road (CR 131) between U.S Highway 30 and E. Pershing Blvd. (MP 0.0 to MP 0.50), a safety assessment was performed on November 10, 2023. This included a sign inventory and crash analysis.

Crash data was provided for a 10-year crash history from 2013 to 2022. There were no reported crashes on this section of the road from the data provided.

Table 1 shows the sign inventory for Reese Road (CR 131). Every sign on the road was inventoried, and given a GPS location and a picture. The condition of each sign was obtained visually with the wear

and type of sheeting of the sign rated. There are a total of 3 signs located between MP 0.0 to MP 0.50. The visual inspection identified 1 sign in poor condition and 2 signs that had reflective sheeting. The locations of all 3 signs are shown on a map in Appendix D. All the signs in poor condition should be replaced and all the signs with old sheeting should be updated with new ASTM sheeting when the sign is replaced in the future.

Table 1: Sign Inventory

MP	Sign	MUTCD	Reflectivity	Condition	Comment
0.00	Stop	R1-1	Y	Good	
0.1	T Intersection Ahead	M1-4	N	Poor	Birdshot
0.4	Stop	R1-1	Y	Good	

#### 4.0 DECLARATION OF SPEED LIMIT

Posted speed limits (other than statutory speed limits) on Wyoming local roads should be documented by a Declaration of Speed Limit form as shown in Figure 2. Any speed limit change from the statutory limits shall be verified and sealed by a professional engineer in Wyoming. The form, with appropriate background information, should be presented to the county commission where a resolution approving the proposed speed limit should be approved. The resolution number should be added to the declaration of speed limit form. The form is then returned to appropriate county officials so that the necessary signing changes can be made. Enforcement of the new speed limit cannot occur until the appropriate signs giving notice of the new speed limit have been erected.

According to the speed study data overview summarized in Appendix C, the acceptable range of speed limit on Reese Road (CR 131) between U.S. Highway 30 and E. Pershing Boulevard (MP 0.0 to MP 0.50) is between 35 and 50 mph.

It is recommended that the speed limit be posted at 50 mph due to:

- ❖ 85<sup>th</sup> Percentile Speed

Post a 50 mph by at MP 0.1 for northbound traffic and MP 0.3 for southbound traffic.

A US Limits 2-speed zone report was completed through the Federal Highway Administration to verify our recommended speed limit. The USLimits 2 report came back at a 50-mph speed recommendation based on inputs from our speed study report. This report can be found in Appendix E. A Laramie County representative should consider safety measures at adverse curves such as signage, advisory speeds, delineation, shoulder widening, or guardrails.

Figure 2. Declaration of Speed Limit Form for Paved Roads

DECLARATION OF SPEED LIMIT ON PAVED ROADS

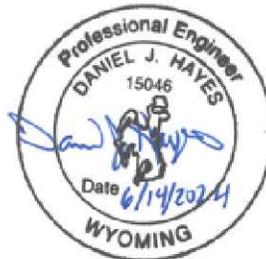
LOCATION: County Road 131, Resse Road, MP 0.0 to MP 0.5.

Method Used: Visual inspection and engineering judgment. Free flow spot speeds to determine 85th percentile speed and pace. Procedures for locally establishing speed limits were followed.

Summary of Results: The existing speed limit is 45 mph. The 85th percentile speeds was recorded at 48.0 mph and the 50th percentile speed at 36 mph. The 10-mph pace speed was recorded from 34.0 mph to 43 mph. The roadway width is 24 feet, and the road has 8 access points along the section which translates into 16 access points per mile. There were 0 reported crashes in the last 10 years.

Recommendations: It is recommended that the speed limit be set at 50 mph for this section of the road. Post a 50 mph speed limit at MP 0.1 for northbound traffic and MP 0.3 for southbound traffic.

Data Collected by. Hayden Altenburg 11/10/2023 Date Printed Name
Data Summarized by. Daniel Hayes, P.E. 6/12/2024 Date Printed Name



Approved. Daniel Hayes, P.E. 6/12/2024
Professional Engineer P.E. Seal Date

ORDER TO ESTABLISH RESTRICTED SPEED ZONE

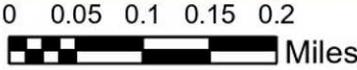
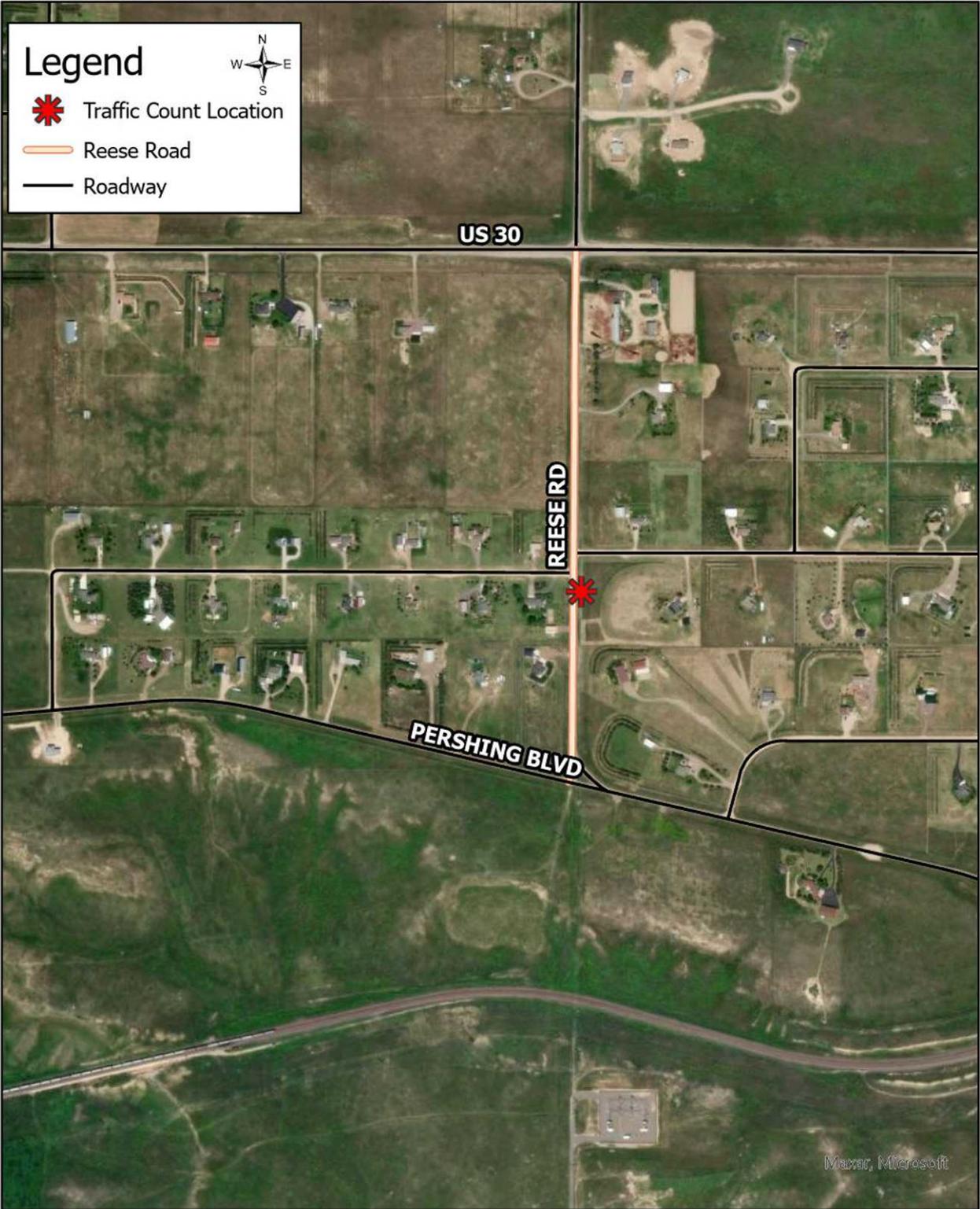
The County Commission approves changing the speed limit to 50 miles per hour on the paved roadway section described above.

Resolution number: \_\_\_\_\_

Date: \_\_\_\_\_



# Reese Road - Location Map



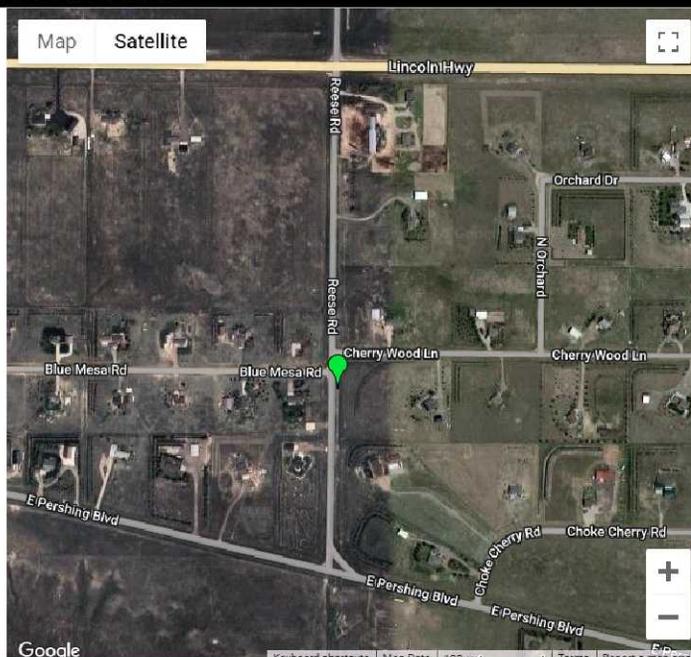


# SPEED DATA ANALYSIS

## Location



Latitude: 41.154816  
Longitude: -104.694041



## Analysis Time Period



Start	End
10/11/2023 10:54 AM	10/25/2023 9:43 AM

## Vehicles Analyzed



1,859

## Speed Limit



65

## Total Enforceable Violations



23

## Average Speed



37

## 85th Percentile Speed



48

## Fastest Speed



104

## 10 MPH Pace Speed



34-43

## Slowest Speed



1

Default Report Title  
 Use Preferences to Define Titles

Site Code: Reese Road  
 Station ID: Between Pershing and US 30  
 Start Date: 10/11/2023  
 End Date: 10/25/2023

Comment 1:  
 Serial Number: 41398  
 Latitude: 41.154816  
 Longitude: -104.694041  
 GPS Accuracy: 25.33333 ft

Combined Lanes 10/11/2023 to 10/25/2023

**Peak Analysis**

Classes Excluded From Peaks: None

Date	AM Peak	Hour Volume	Highest Interval Time	Highest Interval Volume	Peak Hour Factor	Pm Peak	Hour Volume	Highest Interval Time	Highest Interval Volume	Peak Hour Factor
10/11/2023	10:48 AM	13	10:57 AM	8	0.41	5:02 PM	17	5:12 PM	8	0.53
10/12/2023	8:27 AM	11	8:27 AM	4	0.69	3:15 PM	19	3:36 PM	7	0.68
10/13/2023	10:54 AM	5	11:34 AM	3	0.42	12:00 PM	10	12:00 PM	4	0.63
10/14/2023	8:09 AM	6	8:50 AM	5	0.30	1:28 PM	21	2:09 PM	9	0.58
10/15/2023	10:30 AM	12	10:53 AM	5	0.60	12:33 PM	14	1:11 PM	6	0.58
10/16/2023	6:14 AM	10	6:24 AM	5	0.50	3:59 PM	25	4:38 PM	11	0.57
10/17/2023	10:09 AM	13	10:24 AM	5	0.65	4:33 PM	17	5:16 PM	7	0.61
10/18/2023	7:39 AM	11	7:39 AM	6	0.46	4:36 PM	20	5:18 PM	11	0.45
10/19/2023	6:18 AM	12	6:19 AM	4	0.75	3:20 PM	19	3:22 PM	6	0.79
10/20/2023	10:50 AM	12	11:27 AM	5	0.60	3:41 PM	20	4:20 PM	8	0.63
10/21/2023	8:31 AM	15	9:12 AM	6	0.63	4:46 PM	17	4:47 PM	6	0.71
10/22/2023	11:00 AM	13	11:11 AM	5	0.65	12:48 PM	22	12:53 PM	10	0.55
10/23/2023	10:55 AM	15	11:39 AM	5	0.75	2:59 PM	18	3:23 PM	7	0.64
10/24/2023	6:39 AM	20	7:20 AM	8	0.63	3:30 PM	21	3:31 PM	9	0.58
10/25/2023	6:39 AM	15	6:39 AM	6	0.63	No Volume				

**Axle Statistics**

# Axles	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Count	1785	39	30	3	2	0	0	0	0	0	0	0	0	0	0
Avg.	129.6	249.9	412.3	610.3	771.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

WB  
 Axles Per Vehicle: 2.0624

**AADT**

Date	Lane	Volume	x	User	x	Daily	=	ADT	x	Season	=
10/11/2023	A to B, None Specified	41		1.00		1.00		41		1.00	
10/11/2023	B to A, None Specified	58		1.00		1.00		58		1.00	
10/11/2023	Day Total	99						99			
10/12/2023	A to B, None Specified	57		1.00		1.00		57		1.00	
10/12/2023	B to A, None Specified	62		1.00		1.00		62		1.00	
10/12/2023	Day Total	119						119			
10/13/2023	A to B, None Specified	7		1.00		1.00		7		1.00	
10/13/2023	B to A, None Specified	51		1.00		1.00		51		1.00	
10/13/2023	Day Total	58						58			
10/14/2023	A to B, None Specified	65		1.00		1.00		65		1.00	
10/14/2023	B to A, None Specified	79		1.00		1.00		79		1.00	
10/14/2023	Day Total	144						144			
10/15/2023	A to B, None Specified	61		1.00		1.00		61		1.00	
10/15/2023	B to A, None Specified	45		1.00		1.00		45		1.00	
10/15/2023	Day Total	106						106			
10/16/2023	A to B, None Specified	70		1.00		1.00		70		1.00	
10/16/2023	B to A, None Specified	69		1.00		1.00		69		1.00	
10/16/2023	Day Total	139						139			
10/17/2023	A to B, None Specified	68		1.00		1.00		68		1.00	
10/17/2023	B to A, None Specified	64		1.00		1.00		64		1.00	
10/17/2023	Day Total	132						132			

Default Report Title  
 Use Preferences to Define Titles

Site Code: Reese Road  
 Station ID: Between Pershing and US 30  
 Start Date: 10/11/2023  
 End Date: 10/25/2023

Comment 1:  
 Serial Number: 41398  
 Latitude: 41.154816  
 Longitude: -104.694041  
 GPS Accuracy: 25.33333 ft

Date	Lane	Volume	x	User	x	Daily	=	ADT	x	Season	=
10/18/2023	A to B, None Specified	80		1.00		1.00		80		1.00	
10/18/2023	B to A, None Specified	57		1.00		1.00		57		1.00	
10/18/2023	Day Total	137						137			
10/19/2023	A to B, None Specified	69		1.00		1.00		69		1.00	
10/19/2023	B to A, None Specified	72		1.00		1.00		72		1.00	
10/19/2023	Day Total	141						141			
10/20/2023	A to B, None Specified	72		1.00		1.00		72		1.00	
10/20/2023	B to A, None Specified	63		1.00		1.00		63		1.00	
10/20/2023	Day Total	135						135			
10/21/2023	A to B, None Specified	68		1.00		1.00		68		1.00	
10/21/2023	B to A, None Specified	73		1.00		1.00		73		1.00	
10/21/2023	Day Total	141						141			
10/22/2023	A to B, None Specified	69		1.00		1.00		69		1.00	
10/22/2023	B to A, None Specified	78		1.00		1.00		78		1.00	
10/22/2023	Day Total	147						147			
10/23/2023	A to B, None Specified	84		1.00		1.00		84		1.00	
10/23/2023	B to A, None Specified	76		1.00		1.00		76		1.00	
10/23/2023	Day Total	160						160			
10/24/2023	A to B, None Specified	81		1.00		1.00		81		1.00	
10/24/2023	B to A, None Specified	78		1.00		1.00		78		1.00	
10/24/2023	Day Total	159						159			
10/25/2023	A to B, None Specified	32		1.00		1.00		32		1.00	
10/25/2023	B to A, None Specified	10		1.00		1.00		10		1.00	
10/25/2023	Day Total	42						42			
Total		1859						1859			
Average		124						124			



**SPEED STUDY DATA OVERVIEW (REESE ROAD BETWEEN PERSHING BLVD. AND U.S. HIGHWAY 30 CR 131)**

<b>GENERAL INFORMATION</b>	
LOCAL JURISDICTION:	Laramie County
ROUTE:	CR 131
LOCATION:	Reese Road (Between Pershing Blvd. and U.S. Highway 30)
DATE:	11/10/2023

<b>AUTOMATED TRAFFIC COUNT VALUES</b>	
85th PERCENTILE:	50 mph
50th PERCENTILE:	36 mph
PACE SPEED:	34-43 mph
AVERAGE DAILY TRAFFIC:	133 vehicles a day
AVERAGE DAILY TRUCK TRAFFIC:	Less than 10 trucks a day

<b>ROADWAY CHARACTERISTICS</b>	
ROADWAY LENGTH:	0.5 miles
NUMBER OF ACCESS POINTS:	8 access points
ACCESS POINTS PER MILE:	16 access points per mile
ROADWAY WIDTH:	24 feet
ADJACENT LAND-USE:	Residential
TYPE OF TERRAIN:	Flat

<b>HISTORICAL CRASH DATA</b>	
FATAL:	0
INJURY:	0
PDO:	0
EPDO:	0
EPDO PER MILE:	0

<b>RANGE OF SPEED LIMIT (MAXIMUM = 65 MPH)</b>	
PREFERRED SPEED LIMIT:	50 mph
LOWEST ACCEPTABLE SPEED LIMIT:	40 mph



# Reese Road (South) - Sign Location Map





# USLIMITS2 Speed Zoning Report

## Project Overview

### Project Name: Laramie County Speed Studies

**Analyst:** Daniel Hayes

**Date:** 2024-06-12

#### Basic Project Information

Project Number: IME 23682-HE  
Route Name: Reese Road County Road 131  
From: MP 0.0 Pershing Boulevard  
To: MP 0.5 U.S Highway 30  
State: Wyoming  
County: Laramie County  
City: Rural  
Route Type: Road Section in Undeveloped Area  
Route Status: Existing

#### Crash Data Information

Crash Data Years: 10.00  
Crash AADT: 133 veh/day  
Total Number of Crashes: 0  
Total Number of Injury Crashes: 0  
Section Crash Rate: 0 per 100 MVM  
Section Injury Crash Rate: 0 per 100 MVM  
Crash Rate Average for Similar Roads: 118  
Injury Rate Average for Similar Roads: 44

#### Roadway Information

Section Length: 0.5 mile(s)  
Statutory Speed Limit: 65 mph  
Existing Speed Limit: mph  
Adverse Alignment: No  
Divided/Undivided: Undivided  
Number of Lanes: 2  
Roadside Hazard Rating: 3  
Transition Zone: No

#### Traffic Information

85th Percentile Speed: 48 mph  
50th Percentile Speed: 36 mph  
AADT: 133 veh/day

### Recommended Speed Limit:



**Disclaimer:** The U.S. Government assumes no liability for the use of the information contained in this report. This report does not constitute a standard, specification, or regulation.

## Equations Used in the Crash Data Calculations

#### Exposure (M)

$$M = (\text{Section AADT} * 365 * \text{Section Length} * \text{Duration of Crash Data}) / (100000000)$$
$$M = (133 * 365 * 0.5 * 10.00) / (100000000)$$
$$M = 0.0024$$

#### Crash Rate (Rc)

$$Rc = (\text{Section Crash Average} * 100000000) / (\text{Section AADT} * 365 * \text{Section Length})$$
$$Rc = (0.00 * 100000000) / (133 * 365 * 0.5)$$
$$Rc = 0.00 \text{ crashes per 100 MVM}$$

#### Injury Rate (Ri)

$$Ri = (\text{Section Injury Crash Average} * 100000000) / (\text{Section AADT} * 365 * \text{Section Length})$$
$$Ri = (0.00 * 100000000) / (133 * 365 * 0.5)$$
$$Ri = 0.00 \text{ injuries per 100 MVM}$$

#### Critical Crash Rate (Cc)

$$Cc = \text{Crash Average of Similar Sections} + 1.645 * (\text{Crash Average of Similar Sections} / \text{Exposure}) ^ (1/2) + (1 / (2 * \text{Exposure}))$$
$$Cc = 117.88 + 1.645 * (117.88 / 0.0024) ^ (1/2) + (1 / (2 * 0.0024))$$
$$Cc = 686.40 \text{ crashes per 100 MVM}$$

#### Critical Injury Rate (Ic)

$$I_c = \text{Injury Crash Average of Similar Sections} + 1.645 * (\text{Injury Crash Average of Similar Sections} / \text{Exposure}) ^{(1/2)} + (1 / (2 * \text{Exposure}))$$
$$I_c = 43.99 + 1.645 * (43.99 / 0.0024) ^{(1/2)} + (1 / (2 * 0.0024))$$
$$I_c = 471.45 \text{ injuries per 100 MVM}$$

