AGENDA

Eau Claire County

Highway Committee

Date: Thursday, October 7, 2021
Time: 6:15 a.m.
Location: WebEx *Teleconference: To join by phone call 1-415-655-0001*

Meeting number access code: 2590 450 8059

Meeting Password: eMRMppJT398

https://eauclairecounty.webex.com/eauclairecounty/j.php?MTID=mf718b3e85b0f9b1bcb993d76eaffc616

For those wishing to make public or a written comment, you must e-mail **ecchwy@co.eau-claire.wi.us at least 30 minutes prior to the start of the meeting.** You will be called on during the public session to make your comments.

Please mute personal devices upon entry

1) Call to order and confirmation of meeting notice

2) Review/approval of past committee meeting minutes (09/02) - Discussion/Action

3) Public comment

4) Highway Building Committee Update -Discussion

5) CTH Q from Black Ave-CTH P Speed Study- Discussion/Action

6) Highway Report
   - Highway Commissioner Update-Jon Johnson
     - WCHA
   - Operations Update-Brian Spilde
   - Engineering Update-Jon Johnson

7) Review of Payment vouchers (09/03,09/10,09/17,09/24,10/1)

8) Future Meeting dates, times, and agenda items: 10/21, 11/4

9) Adjourn

Prepared by:

MINUTES
Eau Claire County ● Committee on Highway
Thursday, September 02, 2021/ 6:15 a.m.
Virtual WebEx Teleconference

Highway Members Present: Vice Chair Steve Chilson, Supervisor Judy Gatlin, Supervisor Nathan Anderson,

Staff/Other Present: Commissioner Jon Johnson, Assistant Commissioner Brian Spilde, Administrative Assistant Rachael Bien

1. **Meeting called to order by Chair Henning at 6:19 a.m.**

2. **Past committee meeting minutes (08/19/2021) - Discussion/Action**
   Supervisor Gatlin motioned for approval, Supervisor Anderson 2nd. Motion carried 3-0.

3. **Public comment –** No Comment

4. **Highway Building Committee Update -Discussion**
   Bid package # 2 out and some items in bid package # 1 being rebid. Site work scheduled to start mid-October.

5. **Fall Road Tour-Discussion/Action**
   Moving forward with virtual- no action needed

6. **Asset Management Software-Discussion/Action**
   Looking into asset management software to put everything together (culverts, road ratings, and financials)

7. **Addendum-21-22.040 Fact Sheet and resolution for Altoona Property Sale-Discussion/Action**
   Reviewed map of Altoona property. Dean Larsen looked at the property and suggested list price of 1.4M-1.6M. City of Altoona offered 1.225M. Supervisor Gatlin motioned to move forward with the sale of the property Supervisor Anderson 2nd, motion carried 3-0

8. **Highway Report**
   - **Highway Commissioner Update- Jon Johnson**
     - Engineer position open- 2 applicants
     - Applying for grants this month
     - Intergovernmental agreement with the City of Eau Claire
   - **Operations Update-Brian Spilde**
     - Projects are moving along
     - 2nd round of mowing
     - Crack filling
   - **Engineering Update-Jon Johnson**

- Reviewed some of the 2022 projects

9. **Review of Payment Vouchers (8/17,8/20,8/27,8/31)**
   Supervisor Gatlin motioned to accept review of payment vouchers; Supervisor Anderson2nd Motion carried 3-0

10. **Future meeting dates, times, and agenda items**
    Future Meetings:

    Thursday, September 16, 2021 @ 6:15 a.m.
    Thursday, October 7, 2021 @ 6:15 a.m.

11. **Meeting adjourned by Chairman Henning at 7:36 a.m.**

Respectfully submitted,
Rachael Bien
Rachael Bien, Administrative Assistant Eau Claire Highway Department

Rachael Bien

From: Jon Johnson
Sent: Tuesday, July 27, 2021 6:50 PM
To: patriciakathleensullivan@yahoo.com
Cc: Brian Spilde; Rachael Bien
Subject: inquiry to petition a speed limit change and better signage

Hi Patricia,

Thank you for reaching out with your concern. The process of changing a speed limit requires a speed study per state statutes. Before the speed study is conducted, I like to make sure that the speed limit is being enforced/patrolled. Many times, traffic comes back into compliance when this happens. If you'd like to proceed with the formal request the next step is submitting a petition with signatures of those living along CTH Q. For example, your request would be to have a speed study completed to determine if the speed limit can be changed to 35mph from the roundabout east to the residential area. Let me know if you have any questions. I'll also investigate the signage in this area.

Thank you,

Eau Claire COUNTY HIGHWAY

Jon Johnson
Highway Commissioner
2000 Spooner Ave., Altoona, WI 54720
Direct: 715-839-1042
Email: Jon.Johnson@co.eau-claire.wi.us

From: patricia sullivan <patriciakathleensullivan@yahoo.com>
Sent: Tuesday, July 27, 2021 11:33 AM
To: ECCHWY <ecchwy@co.eau-claire.wi.us>
Subject: inquiry to petition a speed limit change and better signage

Could I please be advised on who to contact, concerning a suggested change of speed limit sign location and reduction?

This location would be on HWY Q, Eau Claire, town of Seymour, as it goes from the traffic circle on 312 HWY at 25 miles per hour to 45 miles per hour to 35 miles per hour when it become residential. People rarely go 35 miles per hour, in fact many of the semis driving to the dump are going at least 50 miles per hour. There are children and elderly people living in this area. When people driving over the speed limit come around the curve, we could be getting ready to pull on to HWY Q when out of no where comes a huge truck going over the speed limit. I rarely see a state trooper monitoring the road like they used to.

This area is VERY unsafe due to those who feel the speed limit is not for them. There is also a noise concern as they go speeding by.

What can be done to have the speed limit be 35 off the circle, posted and stay at 35 and perhaps one of those signs that flashes what speed you are going. Perhaps starting with a temporary one?

Thank you for your safety concern!

Patricia

Westwood

1 Systems Drive
Appleton, WI 54914

main (920) 735-6900

MEMORANDUM

Date: September 20, 2021

Re: CTH Q, Black Ave to CTH P, Traffic Speed Study
Eau Claire County
File R3001356.01

To: Jon Johnson, Eau Claire County Highway Commissioner
Cc:
From: Camie Ferrier, P.E., PTOE

Introduction

Westwood was retained by Eau Claire County Highway Department to conduct an Engineering and Traffic Speed Study to determine the reasonable and prudent speed for CTH Q between Black Avenue and CTH P in the Town of Seymour, Eau Claire County, Wisconsin.

In Summer of 2021, Eau Claire County Highway Department received a request to review the speed limit on CTH Q between the roundabout at Black Avenue and CTH P. The purpose of this study is to respond to that request and determine a consistent speed limit for this segment of roadway. This memo documents the data, procedures, findings and recommendations of the traffic speed study. This study was completed under the guidance of the *Wisconsin Department of Transportation Traffic Engineering, Operations, and Safety Manual, Chapter 13-5 (TEOpS Manual),* the *Wisconsin Manual on Uniform Traffic Control Devices (WMUTCD)* and follows Federal Highway Administration (FHWA) policy and best practices.

Wisconsin State Statutes establish speed limits for roadways based on the type of roadway. The state statutes also give local and state governments the authority to change the speed limit of a roadway, but within a certain constraint. Even if the proposed change is within the allowable constraints, all speed limit revisions shall be based on an engineering and traffic speed study. The following table from the TEOpS manual lists the statutory speed limits for roadways and the authority to change them.

Statutory (Fixed) Limits per Statute 346.57(4)[a]	What Local Governments[b] Can do Per Statute 349.11(3) and (7)[a]
70 mph– Freeway/Expressway	WisDOT ONLY
65 mph – Freeway/Expressway	WisDOT ONLY
55 mph – State Trunk Highway	WisDOT ONLY
55 mph – County Trunk Highway, Town Roads	Lower the statutory speed limit by 10 mph or less.
45 mph – Rustic Roads	Lower the statutory speed limit by 15 mph or less.
35 mph – Town Road (1,000' min) with 150' driveway spacing	Lower the statutory speed limit by 10 mph or less.
25 mph – Inside corporate limits of a city or village (other than outlying districts)	Raise the speed limit to 55 mph or lower. Lower the statutory speed limit by 10 mph or less.
35 mph – Outlying district[c] within city or village limits	Raise the speed limit to 55 mph or lower. Lower the statutory speed limit by 10 mph or less.
35 mph – Semiurban district[d] outside corporate limits of a city or village	Raise the speed limit to 55 mph or lower. Lower the statutory speed limit by 10 mph or less.
15 mph – School Zone, when conditions are met	Raise the speed limit to that of the roadway. Lower the speed limit by 10 mph or less.
15 mph – School Crossing, when conditions are met	Raise the speed limit to that of the adjacent street. Lower the speed limit by 10 mph or less.
15 mph – Pedestrian Safety Zone, with Public Transit Vehicle Stopped	No changes permitted.
15 mph – Alley	Lower by 10 mph or less.
15 mph – Street or town road adjacent to a Public Park	Lower by 10 mph or less.
Construction or maintenance zones – as appropriate	State and Local have authority to establish lower limit.

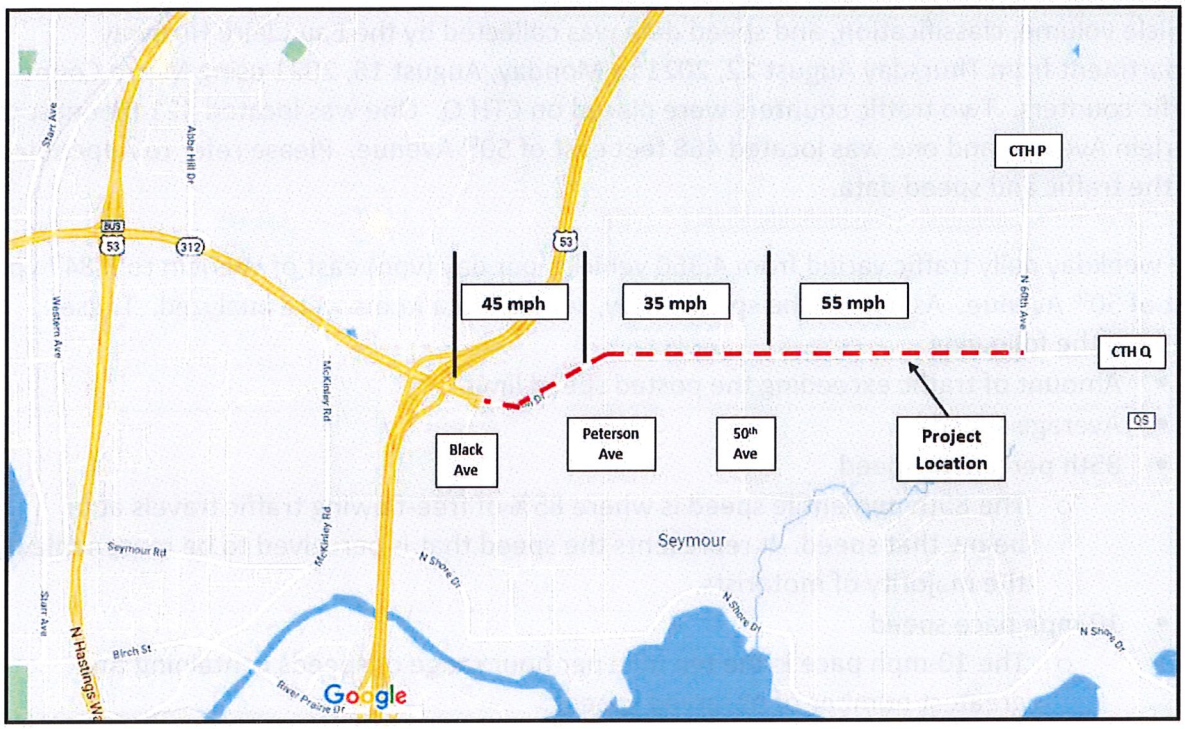
(a) Source: Wisconsin State Statutes
(b) All speed limit changes **shall** be based on a traffic engineering study, including modifications allowed under Statute. Local governments can implement speed limit changes on the local road system without WisDOT approval when proposals are within the constraints identified above.
(c) Per Statute 346.57(1)(ar) "outlying district" is an area contiguous to any highway within the corporate limits of a city of village where on each side of the highway within any 1,000 feet, buildings are spaced on average more than 200 feet apart.
(d) Per Statute 346.57(1)(b) "semiurban district" is an area contiguous to any highway where on either or both sides of the highway within any 1,000 feet, buildings are spaced on average less than 200 feet apart.

Existing Conditions

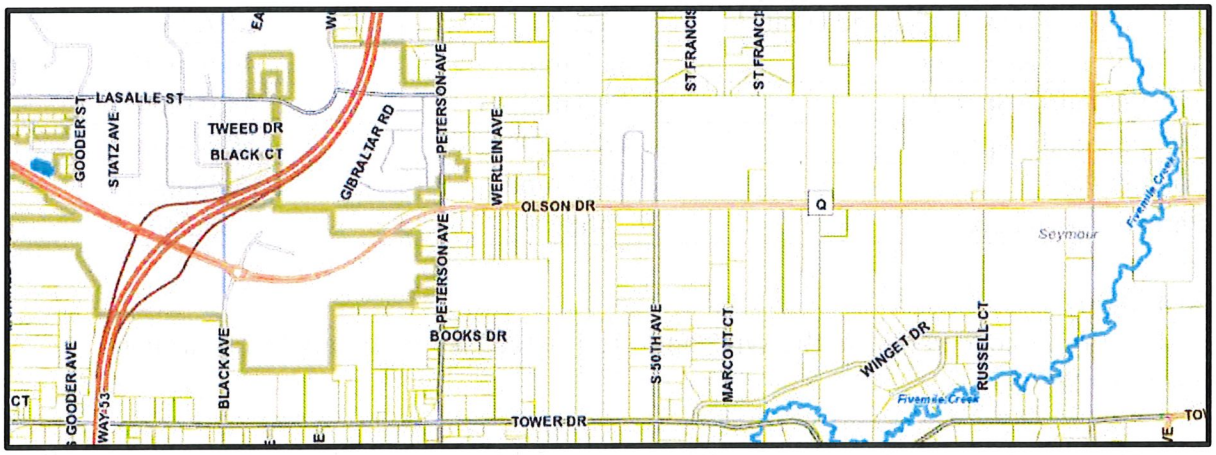
CTH Q runs east-west from STH 53 to CTH XX in Eau Claire County. It is a two-lane minor arterial highway from STH 53 to 50th Avenue and a two-lane major collector rural highway from 50th Avenue to CTH XX. The study limit along CTH Q is approximately 2-miles in length and has several speed limits. They are as follows:

- Section 1: From STH 53 to approximately 700' west of Peterson Avenue, the speed limit is 45 mph.
- Section 2: From 700' west of Peterson Avenue to 1100' east of S. 50th Avenue, the speed limit is 35 mph.
- Section 3: From 1100' east of S. 50th Avenue, the speed limit is 55 mph.

See the location map below for more details.



In addition, section 1, the segment of CTH Q between Black Avenue and approximately 700' west of Peterson Avenue is within the corporate limits of the City of Eau Claire. Sections 2 and 3, from 700' west of Peterson Avenue to the east, are outside any corporate limits.



Between Black Avenue and CTH P there are 6 additional intersections, including Peterson Avenue, Werlein Avenue, three streets into the Cozy Acres Mobil Home Park, and S. 50th Avenue.

Traffic Data

Vehicle volume, classification, and speed data was collected by the Eau Claire Highway Department from Thursday August 12, 2021 to Monday, August 16, 2021 using Metro Count traffic counters. Two traffic counters were placed on CTH Q. One was located 421 feet east of Werlein Avenue and one was located 468 feet east of 50th Avenue. Please refer to Appendix A for the traffic and speed data.

The weekday daily traffic varied from 4,360 vehicles per day (vpd) east of Werlein to 3,847 vpd east of 50th Avenue. As part of the speed study, several data items were analyzed. These included the following:

- Amount of traffic exceeding the posted speed limit
- Average speed
- 85th percentile speed
    - The 85th percentile speed is where 85% of free-flowing traffic travels at or below that speed. It represents the speed that is perceived to be reasonable by the majority of motorists.
- 10 mph pace speed
    - The 10-mph pace is the ten mile per hour range of speeds containing the greatest number of observed speeds.

	Traffic Counter #1 East of Werlein (Section 2)	Traffic Counter #2 East of 50th Avenue (Section 2)
Posted Speed Limit	35 mph	35 mph
Percentage Exceeding Speed Limit	95.8%	97.3%
Mean (Average) Speed	42.5 mph	44.5 mph
50th Percentile Speed	42.0 mph	44.0 mph
85th Percentile Speed	47.2 mph	50.3 mph
10 mph Pace	37-47 mph	38-48 mph
Percentage in Pace	74.06%	63.2%

Crash Data

Crash data was collected from the WisTransPortal Database for January 2016 through December 2020.

During the five years, there were 18 crashes along CTH Q between Black Avenue and CTH P. Crashes at the intersection of CTH Q and Black Avenue were not included in the total. Three crashes occurred at the intersection with Peterson Avenue and 1 crash occurred at the intersection with S. 50th Avenue. Below is a summary of crash types and injury severity.

Crash Type		Percent
Ditch	4	22.2%
Angle	3	16.7%
Rear-end	3	16.7%
SS-Same	3	16.7%
Head-on	1	5.6%
Mailbox	1	5.6%
Object not fixed	1	5.6%
Other non-collision	1	5.6%
Traffic sign	1	5.6%
Total	**18**	**100.0%**

Crash Frequency & Severity

Year	PD	Possible (C-Level)	Non-Incapacitating (B-Level)	Incapacitating (A-Level)	Fatal	Total
2016	5	0	0	0	0	5
2017	2	0	2	0	0	4
2018	3	1	0	0	0	4
2019	1	1	0	0	0	2
2020	1	1	1	0	0	3
Total	12	3	3	0	0	18
Percent	66.7%	16.7%	16.7%	0.0%	0.0%	100.0%
Year Avg.	2.40	0.60	0.60	0.00	0.00	3.60

In section 1, there were 3 crashes within the study years, resulting in 2 injury crashes and zero fatalities.

In Section 2, there were 14 crashes resulting in 4 injury crashes and zero fatalities. Of these 14 crashes, alcohol was flagged as a contributing factor in 6 of the crashes. In addition, 7 of the crashes occurred on wet, icy, or snowy pavement.

In section 3, there was 1 crash with no injuries or fatalities.

Engineering Analysis

Roadway type

Within the 45-mph segment, there are two horizontal curves and no intersections or driveways. Following the procedures of the TEOpS Manual Section 13-5, this segment is within the corporate limits of the City of Eau Claire but is considered an outlying district. Based on state statutes, the posted speed limit for this roadway should be 35 mph.

The current 35-mph speed zone encompasses approximately 25 driveways and the six intersections including the entrances to the Cozy Acres Mobil Home Park. Following the procedures of the TEOpS Manual Section 13-5, this segment is in an unincorporated area and considered a semiurban district. Based on state statutes, the posted speed limit for this roadway should be 35 mph.

Within the 55-mph segment, there are approximately 18 driveways. Following the procedures of the TEOpS Manual Section 13-5, the semiurban district from the 35-mph segment extends approximately 1100 feet east of 50th Avenue. The remaining portion of this 55-mph segment is classified as a county highway in an unincorporated area, and the statutory speed limit is 55 mph.

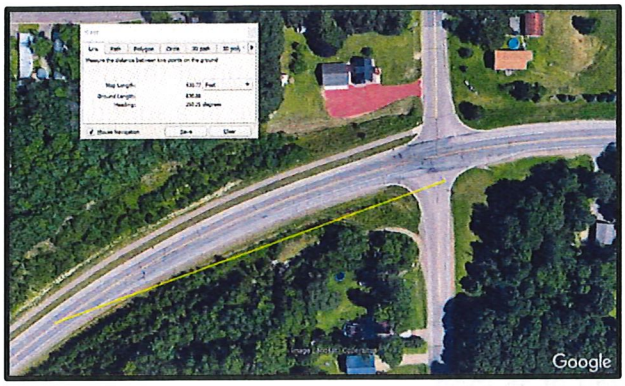
Traffic Data Review

A review of the traffic data indicates that there is a significant amount of variability between the posted speed limit (35 mph), the average speeds (42.5 mph and 44.5 mph), the 85th percentile speeds (47.2 mph and 50.3 mph) and the 10 mph pace speeds (37 to 47 mph and 38 to 48 mph).

Typically, a proposed speed limit should be set within 5 mph of the 85th percentile speed. This value has been found to represent the speed that drivers perceive to be reasonable for the roadway conditions. In addition, per the TEOpS manual, crash rates typically go down when the posted speed limit is within 10-mph of the 85th percentile speed. Typically, the 85th percentile speed is at or near at the upper limit of the 10 mph pace.

Intersection Sight Distance

As a result of the existing vegetation and the horizontal curve to the west, the intersection sight distance for Peterson Avenue was evaluated. Since Peterson Avenue is a collector roadway, per the WisDOT FDM Chapter 11-10-5, Figure 5.1, the design vehicle is a Single-Unit Truck. Per Table 5.2, the minimum intersection sight distance is 630 feet. Utilizing Google maps, the aerial below shows that the intersection sight distance for the south leg may be impacted by existing vegetation.



It should be noted that changes to a regulatory speed limit should not be used to correct spot safety issues. Instead, improvements to the physical environment should be considered. In this case, clearing of the intersection sight distance triangle should be investigated.

Speed Limit Tool

The existing speed limit was checked utilizing the FHWA USLIMITS2 traffic analysis software. This software is a web-based tool used by traffic engineers and practitioners to help set reasonable, safe and consistent speed limits. It was developed based on research through the National Cooperative Highway Research Program (NCHRP) and uses the following factors when recommending a speed limit:

- 50th and 85th percentile operating speeds
- Average annual daily traffic (AADT)
- Roadway and geometric characteristics
- Level of development,
- Crash data
- Parking, pedestrian, and cyclist activity

For section 1, the traffic speed data from Section 2 was utilized and USLIMITS2 recommended a speed limit of 45 mph. For section 2, it recommended a speed limit of 40 mph.

Recommendation
Per the WMUTCD Section 2B.13, a speed limit should be posted within 5 mph of the 85th percentile speed. Research has shown that the majority of drivers will drive at a speed that is reasonable for the prevailing road and traffic conditions and that the 85th percentile speed is this reasonable speed. In addition, this practice promotes safety as research has also shown that the lowest risk of a crash occurs near the 85th percentile speed.

Based on the 85th percentile speed data provided and the secondary check using USLIMITS 2, the recommended speed limit for CTH Q between Black Avenue and the Eau Claire city limits **should remain at the existing posted speed limit of 45 mph**.

Based on the 85th percentile speed data provided and engineering judgement to maintain a consistent speed limit, the recommended speed limit for CTH Q between the Eau Claire city limits and 1100' east of 50th Avenue **should be posted at 45 mph.**

Since there is no new speed data for section 3, from 1100' east of S. 50th Avenue to CTH P, and the segment is considered a rural county highway, it is recommended that **existing posted speed limit of 55 mph remain** as it is the statutory speed limit.

Attachments
Traffic Data
USLIMITS2 printouts

MetroCount Traffic Executive
Speed Statistics

Datasets:

Site:	**CTH Q (421 FEET EAST OF WERLEIN AVE)**
Filter time:	**12:00 Thursday, August 12, 2021 => 12:00 Monday, August 16, 2021 (4)**
Included classes:	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
Speed range:	5 - 100 mph.
Scheme:	Vehicle classification (Scheme F2)
In profile:	Vehicles = 14665 / 15143 (96.84%)

Vehicles = 14665
Posted speed limit = 35 mph, Exceeding = 14052 (95.82%), Mean Exceeding = 42.98 mph
Maximum = 90.7 mph, **Minimum** = 8.2 mph, **Mean** = 42.5 mph
85% Speed = 47.20 mph, **95% Speed** = 51.45 mph, **Median** = 42.05 mph
10 mph Pace = 37 - 47, **Number in Pace** = 10861 (74.06%)
Variance = 27.31, **Standard Deviation** = 5.23 mph

Speed Bins

Speed	Bin	Below	Above	Energy	vMult	n * vMult
0 - 5	0 0.000%	0 0.000%	14665 100.0%	0.00	0.00	0.00
5 - 10	1 0.007%	1 0.007%	14664 100.0%	0.00	0.00	0.00
10 - 15	12 0.082%	13 0.089%	14652 99.91%	0.00	0.00	0.00
15 - 20	19 0.130%	32 0.218%	14633 99.78%	0.00	0.00	0.00
20 - 25	26 0.177%	58 0.395%	14607 99.60%	0.00	0.00	0.00
25 - 30	79 0.539%	137 0.934%	14528 99.07%	0.00	0.00	0.00
30 - 35	476 3.246%	613 4.180%	14052 95.82%	0.00	0.00	0.00
35 - 40	3863 26.34%	4476 30.52%	10189 69.48%	0.00	0.00	0.00
40 - 45	6385 43.54%	10861 74.06%	3804 25.94%	0.00	0.00	0.00
45 - 50	2747 18.73%	13608 92.79%	1057 7.208%	0.00	0.00	0.00
50 - 55	760 5.182%	14368 97.97%	297 2.025%	0.00	0.00	0.00
55 - 60	221 1.507%	14589 99.48%	76 0.518%	0.00	0.00	0.00
60 - 65	49 0.334%	14638 99.82%	27 0.184%	0.00	0.00	0.00
65 - 70	17 0.116%	14655 99.93%	10 0.068%	0.00	0.00	0.00
70 - 75	7 0.048%	14662 100.0%	3 0.020%	0.00	0.00	0.00
75 - 80	0 0.000%	14662 100.0%	3 0.020%	0.00	0.00	0.00
80 - 85	2 0.014%	14664 100.0%	1 0.007%	0.00	0.00	0.00
85 - 90	0 0.000%	14664 100.0%	1 0.007%	0.00	0.00	0.00
90 - 95	1 0.007%	14665 100.0%	0 0.000%	0.00	0.00	0.00
95 - 100	0 0.000%	14665 100.0%	0 0.000%	0.00	0.00	0.00

Total Speed Rating = 0.00
Total Moving Energy (Estimated) = 0.00

Speed limit fields

	Limit	Below	Above
0	35 (PSL)	613 4.2%	14052 95.8%

MetroCount Traffic Executive
Daily Classes

DailyClass-58 -- English (ENU)

Datasets:

Site:	**[35291] GRT.NORTHERN HWY SOUTH OF WEST SWAN RD <90km/h>**
Attribute:	[-31.760354 +116.035329]
Direction:	1 - North bound, A trigger first. **Lane:** 0
Survey Duration:	13:00 Monday, September 20, 1993 => 14:24 Monday, September 27, 1993,
Zone:	
File:	UrbanHwy.ec0 (Plus B)
Identifier:	C355 Rev 9.02 6/3/1993 (c) 1993 Microcom
Algorithm:	Factory default axle (v5.08)
Data type:	Axle sensors - Paired (Class/Speed/Count)

Site:	**[CTH Q ____ E OF WERLEIN AVE] ^**
Attribute:	
Direction:	1 - North bound, A trigger first. **Lane:** 0
Survey Duration:	6:52 Thursday, August 12, 2021 => 13:29 Monday, August 16, 2021,
Zone:	
File:	CTH Q 421 FT E OF WERLEIN AVE.EC0 (Plus)
Identifier:	BJ07MQG0 MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm:	Factory default axle (v5.08)
Data type:	Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time:	**12:00 Thursday, August 12, 2021 => 12:00 Sunday, August 15, 2021 (3)**
Included classes:	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
Speed range:	6 - 99 mph.
Direction:	North, East, South, West (bound), P = North, Lane = 0-16
Separation:	Headway > 0 sec, Span 0 - 328.084 ft
Name:	Default Profile
Scheme:	Vehicle classification (Scheme F2)
Units:	Non metric (ft, mi, ft/s, mph, lb, ton)
In profile:	Vehicles = 11795 / 38852 (30.36%)

Daily Classes

DailyClass-58
Site: 35291.0.0N CTH Q ____ E OF WERLEIN AVE.0.0N
Description: **Multiple sites - See Header sheet for site descriptions.**
Filter time: **12:00 Thursday, August 12, 2021 => 12:00 Sunday, August 15, 2021**
Scheme: Vehicle classification (Scheme F2)
Filter: Cls(1-13) Dir(NESW) Sp(6,99) Headway(>0) Span(0 - 328.084) Lane(0-16)

Monday, August 9, 2021

	1	2	3	4	5	6	7	8	9	10	11	12	13	Total
Mon*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Tue*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Wed*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Thu*	36	1670	728	39	149	41	15	87	25	16	0	1	2	2809
(%)	1.3	59.5	25.9	1.4	5.3	1.5	0.5	3.1	0.9	0.6	0.0	0.0	0.1	
Fri	60	2393	1210	98	288	43	24	134	63	34	0	0	13	4360
(%)	1.4	54.9	27.8	2.2	6.6	1.0	0.6	3.1	1.4	0.8	0.0	0.0	0.3	
Sat	82	2101	1051	6	220	5	0	75	4	0	0	1	0	3545
(%)	2.3	59.3	29.6	0.2	6.2	0.1	0.0	2.1	0.1	0.0	0.0	0.0	0.0	
Sun*	23	654	335	0	50	3	0	16	0	0	0	0	0	1081
(%)	2.1	60.5	31.0	0.0	4.6	0.3	0.0	1.5	0.0	0.0	0.0	0.0	0.0	

Average daily volume

Entire week	71	2247	1131	52	254	24	12	105	34	17	0	1	7	3953
(%)	1.8	56.9	28.6	1.3	6.4	0.6	0.3	2.6	0.8	0.4	0.0	0.0	0.2	
Weekdays	60	2393	1210	98	288	43	24	134	63	34	0	0	13	4360
(%)	1.4	54.9	27.8	2.2	6.6	1.0	0.6	3.1	1.4	0.8	0.0	0.0	0.3	
Weekend	82	2101	1051	6	220	5	0	75	4	0	0	1	0	3545
(%)	2.3	59.3	29.6	0.2	6.2	0.1	0.0	2.1	0.1	0.0	0.0	0.0	0.0	

* - Incomplete

MetroCount Traffic Executive
Speed Statistics

Datasets:

Site:	**CTH Q (468 FEET EAST OF 50TH AVE)**
Filter time:	**12:00 Thursday, August 12, 2021 => 12:00 Monday, August 16, 2021 (4)**
Included classes:	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
Speed range:	5 - 100 mph.
Scheme:	Vehicle classification (Scheme F2)
In profile:	Vehicles = 12970 / 13117 (98.88%)

Vehicles = 12970
Posted speed limit = 35 mph, Exceeding = 12616 (97.27%), Mean Exceeding = 44.81 mph
Maximum = 95.1 mph, **Minimum** = 10.9 mph, **Mean** = 44.5 mph
85% Speed = 50.33 mph, **95% Speed** = 54.58 mph, **Median** = 43.96 mph
10 mph Pace = 38 - 48, **Number in Pace** = 8197 (63.20%)
Variance = 34.16, **Standard Deviation** = 5.85 mph

Speed Bins

Speed	Bin	Below	Above	Energy	vMult	n * vMult
0 - 5	0 0.000%	0 0.000%	12970 100.0%	0.00	0.00	0.00
5 - 10	0 0.000%	0 0.000%	12970 100.0%	0.00	0.00	0.00
10 - 15	4 0.031%	4 0.031%	12966 100.0%	0.00	0.00	0.00
15 - 20	9 0.069%	13 0.100%	12957 99.90%	0.00	0.00	0.00
20 - 25	4 0.031%	17 0.131%	12953 99.87%	0.00	0.00	0.00
25 - 30	29 0.224%	46 0.355%	12924 99.65%	0.00	0.00	0.00
30 - 35	308 2.375%	354 2.729%	12616 97.27%	0.00	0.00	0.00
35 - 40	2560 19.74%	2914 22.47%	10056 77.53%	0.00	0.00	0.00
40 - 45	4509 34.76%	7423 57.23%	5547 42.77%	0.00	0.00	0.00
45 - 50	3432 26.46%	10855 83.69%	2115 16.31%	0.00	0.00	0.00
50 - 55	1532 11.81%	12387 95.51%	583 4.495%	0.00	0.00	0.00
55 - 60	450 3.470%	12837 98.97%	133 1.025%	0.00	0.00	0.00
60 - 65	108 0.833%	12945 99.81%	25 0.193%	0.00	0.00	0.00
65 - 70	16 0.123%	12961 99.93%	9 0.069%	0.00	0.00	0.00
70 - 75	4 0.031%	12965 100.0%	5 0.039%	0.00	0.00	0.00
75 - 80	3 0.023%	12968 100.0%	2 0.015%	0.00	0.00	0.00
80 - 85	1 0.008%	12969 100.0%	1 0.008%	0.00	0.00	0.00
85 - 90	0 0.000%	12969 100.0%	1 0.008%	0.00	0.00	0.00
90 - 95	0 0.000%	12969 100.0%	1 0.008%	0.00	0.00	0.00
95 - 100	1 0.008%	12970 100.0%	0 0.000%	0.00	0.00	0.00

Total Speed Rating = 0.00
Total Moving Energy (Estimated) = 0.00

Speed limit fields

	Limit	Below	Above
0	35 (PSL)	354 2.7%	12616 97.3%

MetroCount Traffic Executive
Daily Classes

DailyClass-59 -- English (ENU)

Datasets:

Site:	**[CTH Q ____ E OF 50TH AVE] ^**
Attribute:	
Direction:	1 - North bound, A trigger first. **Lane:** 0
Survey Duration:	6:56 Thursday, August 12, 2021 => 13:42 Monday, August 16, 2021,
Zone:	
File:	CTH Q 468 FT E OF 50TH AVE.EC0 (Plus)
Identifier:	TA51R9JE MC5900-X13 (c)MetroCount 09Nov16
Algorithm:	Factory default axle (v5.08)
Data type:	Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time:	**12:00 Thursday, August 12, 2021 => 12:00 Sunday, August 15, 2021 (3)**
Included classes:	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
Speed range:	6 - 99 mph.
Direction:	North, East, South, West (bound), P = North, Lane = 0-16
Separation:	Headway > 0 sec, Span 0 - 328.084 ft
Name:	Default Profile
Scheme:	Vehicle classification (Scheme F2)
Units:	Non metric (ft, mi, ft/s, mph, lb, ton)
In profile:	Vehicles = 10421 / 13117 (79.45%)

Daily Classes

DailyClass-59
Site: CTH Q ____ E OF 50TH AVE.0.0N
Description: ^
Filter time: **12:00 Thursday, August 12, 2021 => 12:00 Sunday, August 15, 2021**
Scheme: Vehicle classification (Scheme F2)
Filter: Cls(1-13) Dir(NESW) Sp(6,99) Headway(>0) Span(0 - 328.084) Lane(0-16)

Monday, August 9, 2021

	1	2	3	4	5	6	7	8	9	10	11	12	13	Total
Mon*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Tue*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Wed*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Thu*	27	1536	564	34	121	47	23	70	27	16	0	1	4	2470
(%)	1.1	62.2	22.8	1.4	4.9	1.9	0.9	2.8	1.1	0.6	0.0	0.0	0.2	
Fri	60	2299	886	71	197	66	32	123	69	36	0	1	7	3847
(%)	1.6	59.8	23.0	1.8	5.1	1.7	0.8	3.2	1.8	0.9	0.0	0.0	0.2	
Sat	65	2069	822	4	122	7	0	59	9	0	0	1	0	3158
(%)	2.1	65.5	26.0	0.1	3.9	0.2	0.0	1.9	0.3	0.0	0.0	0.0	0.0	
Sun*	15	642	253	0	19	3	0	13	0	0	0	0	1	946
(%)	1.6	67.9	26.7	0.0	2.0	0.3	0.0	1.4	0.0	0.0	0.0	0.0	0.1	

Average daily volume

Entire week														
	63	2184	854	38	160	37	16	91	39	18	0	1	4	3503
(%)	1.8	62.4	24.4	1.1	4.6	1.0	0.5	2.6	1.1	0.5	0.0	0.0	0.1	
Weekdays														
	60	2299	886	71	197	66	32	123	69	36	0	1	7	3847
(%)	1.6	59.8	23.0	1.8	5.1	1.7	0.8	3.2	1.8	0.9	0.0	0.0	0.2	
Weekend														
	65	2069	822	4	122	7	0	59	9	0	0	1	0	3158
(%)	2.1	65.5	26.0	0.1	3.9	0.2	0.0	1.9	0.3	0.0	0.0	0.0	0.0	

* - Incomplete

USLIMITS2 Speed Zoning Report

Project Overview

Project Name: CTH Q - Black Ave to City Limits

Analyst: Camie Ferrier - Westwood

Date: 2021-09-20

Basic Project Information
Route Name: CTH Q
From: Black Ave
To: City Limits
State: Wisconsin
County: Eau Claire County
City: Eau Claire city
Route Type: Road Section in Undeveloped Area
Route Status: Existing

Crash Data Information
Crash Data Years: 5.00
Crash AADT: 4360 veh/day
Total Number of Crashes: 3
Total Number of Injury Crashes: 2
Section Crash Rate: 105 per 100 MVM
Section Injury Crash Rate: 70 per 100 MVM
Crash Rate Average for Similar Roads: 91
Injury Rate Average for Similar Roads: 20

Roadway Information
Section Length: 0.36 mile(s)
Statutory Speed Limit: 35 mph
Existing Speed Limit: 45 mph
Adverse Alignment: Yes
Divided/Undivided: Undivided
Number of Lanes: 2
Roadside Hazard Rating: 2
Transition Zone: No

Traffic Information
85th Percentile Speed: 47 mph
50th Percentile Speed: 42 mph
AADT: 4360 veh/day

Recommended Speed Limit:

Note: The final recommended speed limit is higher than the 35 mph statutory speed limit for this type of road. An engineering study such as the one carried out with USLIMITS is usually required to set a speed limit above the statutory limit.

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 injury crash rate for the section of 70 per 100 MVM is more than 30 percent above the average for similar roads (20) but below the critical rate (82). 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: A speed zone of 0.36 miles is generally too short for the recommended speed limit. Consider lengthening the speed zone (if that is possible) or using the speed limits from adjacent sections (if they are appropriate for this section). If the speed and other data you provided are representative of conditions for this short section, then the speed limit noted above may be considered. If the data were taken in an area with adverse horizontal and vertical alignment or unique geometric and/or traffic control features, then the above noted speed limit may not be appropriate because this expert system is not designed to recommend speed limits for sharp horizontal curves or in other special traffic situations.

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-14)

Question 1: What is the roadside hazard rating (RHR)?

Results: Because the RHR (2) is less than 4, **the SL_1 is the closest 85th speed (45 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-15)

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 105 crashes per 100M VMT, and the injury rate is calculated to be 70 crashes per 100M VMT.

Note: The critical crash rate is calculated as 201 crashes per 100M VMT.

Question 4: Is the crash rate (105 per 100M VMT) greater than the critical crash rate (201 crashes per 100M VMT)?

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

Question 5: Is the injury crash rate (70 per 100M VMT) greater than the critical injury rate (82 crashes per 100M VMT)?

Results: No, but the injury crash rate is greater than 1.3 times the average injury crash rate. **The injury level is classified as medium.**

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

Results: Yes, **so the total crash level is classified as medium.**

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

Results: Yes, so **SL_2 is set as the higher of the rounded-down 85th and closest 50th speeds (45 mph).**

Determine SL (pg. K-12)

Note: SL is set as the lower of SL_1 (45 mph) and SL_2 (45 mph). **The SL is set to 45 mph**.

Determine the Final Recommended Speed Limit (pg. K-19)

Question 8: Is the SL less than 25 mph or greater than 65 mph?

Results: The SL (45 mph) is between 25 mph and 65 mph. **The SL remains the same.**

Final Recommendation: The recommended speed limit is 45 mph.

Equations Used in the Crash Data Calculations

Exposure (M)
M = (Section AADT * 365 * Section Length * Duration of Crash Data) / (100000000)
M = (4360 * 365 * 0.36 * 5.00) / (100000000)
M = 0.0286

Crash Rate (Rc)
Rc = (Section Crash Average * 100000000) / (Section AADT * 365 * Section Length)
Rc = (0.60 * 100000000) / (4360 * 365 * 0.36)
Rc = 104.73 crashes per 100 MVM

Injury Rate (Ri)
Ri = (Section Injury Crash Average * 100000000) / (Section AADT * 365 * Section Length)
Ri = (0.40 * 100000000) / (4360 * 365 * 0.36)
Ri = 69.82 injuries per 100 MVM

Critical Crash Rate (Cc)
Cc = Crash Average of Similar Sections + 1.645 * (Crash Average of Similar Sections / Exposure) ^ (1/2) + (1 / (2 * Exposure))
Cc = 90.91 + 1.645 * (90.91 / 0.0286) ^ (1/2) + (1 / (2 * 0.0286))
Cc = 201.04 crashes per 100 MVM

Critical Injury Rate (Ic)
Ic = Injury Crash Average of Similar Sections + 1.645 * (Injury Crash Average of Similar Sections / Exposure) ^ (1/2) + (1 / (2 * Exposure))
Ic = 20.49 + 1.645 * (20.49 / 0.0286) ^ (1/2) + (1 / (2 * 0.0286))
Ic = 81.94 injuries per 100 MVM

USLIMITS2 Speed Zoning Report

Project Overview

Project Name: CTH Q - City Limits to East of 50th Avenue

Analyst: Camie Ferrier - Westwood

Date: 2021-09-20

Basic Project Information
Route Name: CTH Q
From: City Limits
To: East of 50th Avenue
State: Wisconsin
County: Eau Claire County
City: Eau Claire city
Route Type: Road Section in Developed Area
Route Status: Existing

Crash Data Information
Crash Data Years: 5.00
Crash AADT: 4360 veh/day
Total Number of Crashes: 14
Total Number of Injury Crashes: 4
Section Crash Rate: 207 per 100 MVM
Section Injury Crash Rate: 59 per 100 MVM
Crash Rate Average for Similar Roads: 91
Injury Rate Average for Similar Roads: 20

Roadway Information
Section Length: 0.85 mile(s)
Statutory Speed Limit: 35 mph
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: 35
Number of Signals: 0

Traffic Information
85th Percentile Speed: 47 mph
50th Percentile Speed: 42 mph
AADT: 4360 veh/day
On Street Parking and Usage: Not High
Pedestrian / Bicyclist Activity: Not High

Recommended Speed Limit:

Note: The final recommended speed limit is higher than the 35 mph statutory speed limit for this type of road. An engineering study such as the one carried out with USLIMITS is usually required to set a speed limit above the statutory limit.

Note: The section crash rate of 207 per 100 MVM is above the critical rate (159). The injury crash rate for the section of 59 per 100 MVM is above the critical rate (57). 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.

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 0.00 signals per mile.

Note: The number of driveways per mile is being calculated as 41.18 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: No. There are 0.00 signals per mile, 41.18 driveways per mile, not high pedestrian/bicyclist activity, and not high parking activity.

Question 2: Are there between 40 and 60 driways per mile, more than 3 signals per mile, and the area type is commercial or residential-collector?

Results: No. There are 41.18 driveways per mile, 0.00 signals per mile, and the area type is residential-collector/arterial. **The SL_1 is set to the closest 85th speed (45 mph)**.

Question 3: Are crash data available?

Results: Yes, so use these data to determine SL_2.

Determine SL_2 Using Crash Data (pg. K-24)

Question 4: 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 207 crashes per 100M VMT, and the injury rate is calculated to be 59 crashes per 100M VMT.

Note: The critical crash rate is calculated as 159 crashes per 100M VMT.

Question 5: Is the crash rate (207 per 100M VMT) greater than the critical crash rate (159 crashes per 100M VMT)?

Results: Yes, the crash rate is greater than the critical crash rate. **The crash level is classified as high.**

Question 6: Is the injury crash rate (59 per 100M VMT) greater than the critical injury rate (57 crashes per 100M VMT)?

Results: Yes, so the injury crash rate is greater than the critical injury rate. **The injury crash level is classified as high.**

Question 7: Are either of the crash level (high) or injury crash level (high) classified as medium or high?

Results: Yes, **so the total crash level is classified as high.**

Question 8: Is the total crash level (high) classified as medium or high?

Results: Yes, so **SL_2 is set as the lower of the rounded-down 85th and closest 50th speeds (40 mph).**

Determine SL (pg. K-22)

Note: SL is set as the lower of SL_1 (45 mph) and SL_2 (40 mph). **The SL is set to 40 mph**.

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

Question 9: Is the SL less than 20 mph or greater than 50 mph?

Results: The SL (40 mph) is between 20 mph and 50 mph. **The SL remains the same.**

Final Recommendation: The recommended speed limit is 40 mph.

Equations Used in the Crash Data Calculations

Exposure (M)
M = (Section AADT * 365 * Section Length * Duration of Crash Data) / (100000000)
M = (4360 * 365 * 0.85 * 5.00) / (100000000)
M = 0.0676

Crash Rate (Rc)
Rc = (Section Crash Average * 100000000) / (Section AADT * 365 * Section Length)
Rc = (2.80 * 100000000) / (4360 * 365 * 0.85)
Rc = 206.99 crashes per 100 MVM

Injury Rate (Ri)

Ri = (Section Injury Crash Average * 100000000) / (Section AADT * 365 * Section Length)
Ri = (0.80 * 100000000) / (4360 * 365 * 0.85)
Ri = 59.14 injuries per 100 MVM

Critical Crash Rate (Cc)
Cc = Crash Average of Similar Sections + 1.645 * (Crash Average of Similar Sections / Exposure) ^ (1/2) + (1 / (2 * Exposure))
Cc = 90.91 + 1.645 * (90.91 / 0.0676) ^ (1/2) + (1 / (2 * 0.0676))
Cc = 158.61 crashes per 100 MVM

Critical Injury Rate (Ic)
Ic = Injury Crash Average of Similar Sections + 1.645 * (Injury Crash Average of Similar Sections / Exposure) ^ (1/2) + (1 / (2 * Exposure))
Ic = 20.49 + 1.645 * (20.49 / 0.0676) ^ (1/2) + (1 / (2 * 0.0676))
Ic = 56.51 injuries per 100 MVM