New Hampshire DOT
Department of Transportation

THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION

Victoria F. Sheehan
Commissioner

William Cass, P.E.
Assistant Commissioner

RECEIVED
JUN 09 2021

June 3, 2021

Board of Selectmen
Carla C. Mary, Chair
46 Main Street
Greenville, NH 03048

Re: Request to reduce speed limit
NH Route 31 near Blanch Farm Road

Dear Board of Selectmen:

Please accept my apologies for the delay in responding to your request to reduce the speed limit along NH 31 in Greenville. My staff completed the required engineering and traffic investigation in September and I had a chance to review the location in person with John Kallfelz, District 4 Engineer, in July of last year. I regret that I did not follow up with a summary of our findings.

I have attached the summary of the engineering and traffic investigation for your information. Included in the summary are results from USLIMITS2, a web-based program provided by the Federal Highway Administration that utilizes data from highway segments throughout the country to determine recommended speed limits for specific highway segments.

Federal regulations recommend that speed limits be set within 5 mph of the measured 85th percentile speed of free-flowing vehicles. As you can see from the data collected in two locations along this segment in August, 2020, the measured 85th percentile speeds are in excess of 50 mph. Therefore, the engineering and traffic investigation does not support reducing the speed limit.

I recognize that there are seemingly similar highway segments in the region with lower speed limits as noted by Mr. Sadowski; however, the lower speed limits do not necessarily result in lower speeds. It is entirely possible that an engineering and traffic investigation of those locations might support increasing the speed limits. It has been our experience that simply changing the value of the speed limit signs without a corresponding change in the character of the highway does not change the speed of traffic unless there is targeted and sustained enforcement.

Should you have further questions, please do not hesitate to contact me.

Sincerely,

William R. Lambert, PE
Traffic Engineer/Administrator

CC:J. Kallfelz, District 4 Engineer

STATE OF NEW HAMPSHIRE
- INTRA-DEPARTMENT COMMUNICATION -

DATE: September 15, 2020

NBS

FROM: Nick Sanders, P.E.
Emma Bell

AT (OFFICE)
Department of Transportation
Bureau of Traffic

SUBJECT: Greenville: Track It 4335
Speed Data

TO: William R. Lambert, P.E.
Administrator, Bureau of Traffic

MEMORANDUM

Per your request, the Research group of the Bureau of Traffic has completed a speed study on NH 31 in Greenville. Data were collected on NH 31 within the existing 50 mph zone between Hemlock Rd and Malderelli Rd and between Malderelli Rd and the NH 31 Mason town line/Walker Brook Rd.

The results of this effort are summarized below, and the speed study summary reports are attached for your use and review.

Table 1 - Speed Summary Data
Greenville - NH 31 North of Blanch Farm Rd (50 mph)

Measurement	NB	SB	Combined
Observations	10,914	10,709	21,623
Average Speed	42 mph	45 mph	43 mph
50th Percentile Speed	42 mph	46 mph	44 mph
85th Percentile Speed	**49 mph**	**53 mph**	**51 mph**
10 mph pace	40-50 mph	40-50 mph	40-50 mph
Posted Speed Limit	50 mph	50 mph	--

Speed data collected: Wednesday, August 12 to Monday, August 17, 2020.

Table 2 - Speed Summary Data
Greenville - NH 31 South of Livingston Rd/Barrett Rd (50 mph)

Measurement	NB	SB	Combined
Observations	12,852	12,809	25,661
Average Speed	46 mph	53 mph	50 mph
50th Percentile Speed	47 mph	53 mph	49 mph
85th Percentile Speed	**52 mph**	**59 mph**	**57 mph**
10 mph pace	40-50 mph	50-60 mph	45-55 mph
Posted Speed Limit	50 mph	50 mph	--

Speed data collected: Wednesday, August 12 to Monday, August 17, 2020.

In addition to collecting speed data, the speed limits on these sections of NH 31 were evaluated with USLIMITS2, a web based tool designed by the Federal Highway Administration. USLIMITS2 weighs the existing speed profile, crash history, and other geometric and operating characteristics of the highway under study.

Within the existing 50 mph zone along NH 31, USLIMITS2 recommends:

- a speed limit of 50 mph between Hemlock Rd and Malderelli Rd; and
- a speed limit of 55 mph between Malderelli Rd and the NH 31 Mason town line/Wallker Brook Rd.

Based on the empirical free-flow speed data and the USLIMITS2 evaluation there appears to be no justification for reducing the existing 50 mph speed limit along NH 31.

Should you require any additional information or clarification on this matter, please contact me directly.

Attachments

Cc: M. O'Donnell, Bureau of Traffic
File

USLIMITS2 Speed Zoning Report

Project Name: Greenville NH Segment 1 NH 31

Analyst: Emma Bell

Date: 08-21-2020

Basic Project Information
Project Number: 4335
Route Name: NH 31
From: Hemlock Rd
To: Malderelli Rd
State: New Hampshire
County: Hillsborough County
City: Greenville CDP
Route Type: Road Section in Undeveloped Area
Route Status: Existing

Roadway Information
Section Length: .8 mile(s)
Statutory Speed Limit: 50 mph
Existing Speed Limit: 50 mph
Adverse Alignment: No
Divided/Undivided: Undivided
Number of Lanes: 2
Roadside Hazard Rating: 5
Transition Zone: No

Crash Data Information
Crash Data Years: 15.50
Crash AADT: 3986 veh/day
Total Number of Crashes: 8
Total Number of Injury Crashes: 2
Section Crash Rate: 44 per 100 MVM
Section Injury Crash Rate: 11 per 100 MVM
Crash Rate Average for Similar Roads: 136
Injury Rate Average for Similar Roads: 44

Traffic Information
85th Percentile Speed: 51 mph
50th Percentile Speed: 44 mph
AADT: 3986 veh/day

Recommended Speed Limit:

Equations Used in Crash Data Calculations

Exposure (M)
M = (Section AADT * 365 * Section Length * Duration of Crash Data) / (100000000)
M = (3986 * 365 * .8 * 15.50) / (100000000)
M = 0.1804

Crash Rate (Rc)
Rc = (Section Crash Average * 100000000) / (Section AADT * 365 * Section Length)
Rc = (0.52 * 100000000) / (3986 * 365 * .8)
Rc = 44.34 crashes per 100 MVM

Injury Rate (Ri)
Ri = (Section Injury Crash Average * 100000000) / (Section AADT * 365 * Section Length)
Ri = (0.13 * 100000000) / (3986 * 365 * .8)
Ri = 11.09 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 = 135.88 + 1.645 * (135.88 / 0.1804) ^ (1/2) + (1 / (2 * 0.1804))
Cc = 183.79 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 = 43.74 + 1.645 * (43.74 / 0.1804) ^ (1/2) + (1 / (2 * 0.1804))
Ic = 72.13 injuries per 100 MVM

USLIMITS2 Speed Zoning Report

Project Name: Greenville NH Segment 2 NH 31

Analyst: Emma Bell

Date: 08-21-2020

Basic Project Information
Project Number: 4335
Route Name: NH 31
From: Maldarelli Rd
To: NH 31 Mason TL/Walker Brook Rd
State: New Hampshire
County: Hillsborough County
City: Greenville CDP
Route Type: Road Section in Undeveloped Area
Route Status: Existing

Roadway Information
Section Length: .81 mile(s)
Statutory Speed Limit: 50 mph
Existing Speed Limit: 50 mph
Adverse Alignment: No
Divided/Undivided: Undivided
Number of Lanes: 2
Roadside Hazard Rating: 5
Transition Zone: No

Crash Data Information
Crash Data Years: 15.50
Crash AADT: 3676 veh/day
Total Number of Crashes: 13
Total Number of Injury Crashes: 3
Section Crash Rate: 77 per 100 MVM
Section Injury Crash Rate: 18 per 100 MVM
Crash Rate Average for Similar Roads: 148
Injury Rate Average for Similar Roads: 48

Traffic Information
85th Percentile Speed: 57 mph
50th Percentile Speed: 49 mph
AADT: 3676 veh/day

Recommended Speed Limit:

Note: The final recommended speed limit is higher than the 50 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.

Equations Used in Crash Data Calculations

Exposure (M)
M = (Section AADT * 365 * Section Length * Duration of Crash Data) / (100000000)
M = (3676 * 365 * .81 * 15.50) / (100000000)
M = 0.1685

Crash Rate (Rc)
Rc = (Section Crash Average * 100000000) / (Section AADT * 365 * Section Length)
Rc = (0.84 * 100000000) / (3676 * 365 * .81)
Rc = 77.17 crashes per 100 MVM

Injury Rate (Ri)
Ri = (Section Injury Crash Average * 100000000) / (Section AADT * 365 * Section Length)
Ri = (0.19 * 100000000) / (3676 * 365 * .81)
Ri = 17.81 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 = 148.04 + 1.645 * (148.04 / 0.1685) ^ (1/2) + (1 / (2 * 0.1685))
Cc = 199.77 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 = 47.77 + 1.645 * (47.77 / 0.1685) ^ (1/2) + (1 / (2 * 0.1685))
Ic = 78.43 injuries per 100 MVM