

Camels Hump Road Speed Study

Introduction

The Town of Huntington requested a traffic speed study for Camels Hump Road from Main Road to the parking area at the end of road. In order for a Legislative Body to determine a safe and reasonable speed on town highways, a traffic engineering investigation (speed study) is required by Vermont Statutes Annotated Title 23, § 1007. This document provides supporting findings that were used to develop recommendations for setting a speed limit for Camels Hump Road.

Existing Conditions

Camels Hump Road primarily serves local residents, and summer and fall recreational traffic providing access to the Camels Hump State Park. This road is unpaved, narrow and winding at various locations. One-lane bridges across Brush Brook are also located along this road. Advisory warning speed limit signs of 20 mph are located at curves along the roadway. No parking signs are located on both sides of the roadway.

Camels Hump Road is classified by the state as a Class III Town Highway and functionally classified as a Local Road. The CCRPC installed three Automatic Traffic Recorders (ATRs) along Camels Hump Road at locations shown in Figure 1 to collect traffic volume and speed data. Data were collected from October 4, 2016 to October 10, 2016 at locations B and C, and from June 1, 2017 to June 7, 2017 at location A. Based on roadway characteristics and adjacent land use, the study corridor is evaluated in two segments; Main Road to Bridge 32, and Bridge 32 to the Parking Area. Figure 1 shows the study area, two segments and ATR locations.

Figure 1: Study Area and ATR Locations



Findings of Windshield Survey

A windshield reconnaissance survey was conducted in both travel directions on Camels Hump Road by the CCRPC team to identify safety related issues, roadway characteristics, limited sight distance locations and roadside safety hazards. Findings from the windshield survey are listed in Table 1.

Table 1: Windshield Survey Findings

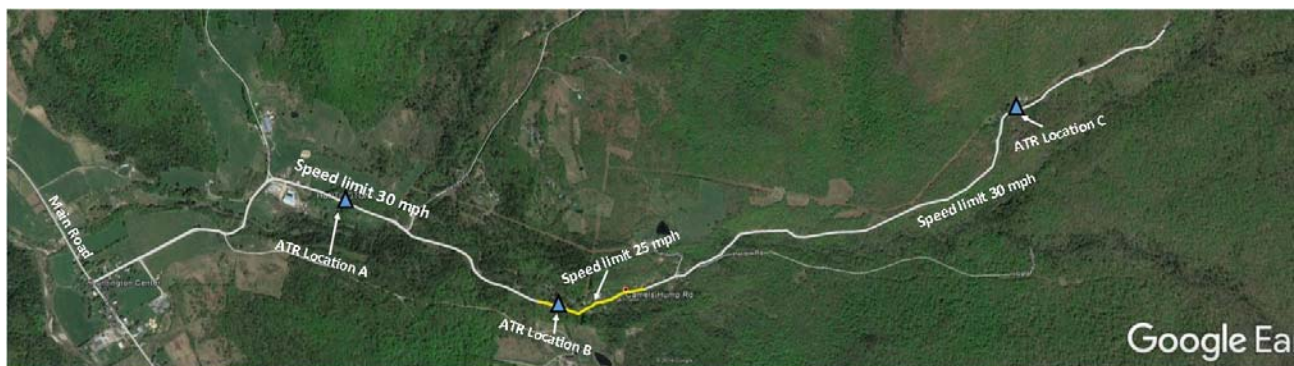
Segment A	Segment B
Roadway Width varies between 18 ft and 20 ft	Roadway Width varies between 14 ft and 18 ft
Posted Speed limit is 30 mph	Posted speed limit is 30 mph, except a stretch of approximately 1,400 ft is posted at 25 mph (See Figure 2)
Limited sight distance along curves	Limited sight distance along curves
Advisory warning speed signs are located at curves	Advisory warning speed signs are located at curves
Utility poles and Mail boxes are located along the road segment	Mail boxes and thick vegetation along the road segment

Speed Data Analysis

A widely used metric in setting speed limits is the 85th percentile speed. This is defined as the speed in which 85% of motorists are traveling at or below. Based on the best available evidence and previous research, speed limits set using the 85th percentile speed data are not only acceptable by the majority of motorists, but also fall within the speed range where crash risk is lowest¹. The Manual on Uniform Traffic Control Devices (MUTCD), which is adopted as the standard for all traffic control devices in Vermont (Title 23 V.S.A. Section 1025), recommends setting speed limits within 5 mph of the 85th percentile speed while taking into consideration other factors such as roadway characteristics, shoulder condition, grade, the speed pace, land uses, development setbacks, parking, crash history, and bicycle/pedestrian activity.

Figure 2 shows currently posted speed limit zones along Camels Hump Road to illustrate speed zone variations between Main Road and the parking area. The posted speed limit along Camels Hump Road is 30 mph except for a stretch of 25 mph for an approximately 1,400 ft segment.

Figure 2: Posted Speed Limit zones along Camels Hump Road



As shown in Figure 2, ATRs at Locations A and C are in the 30 mph speed zone and Location B is in the 25 mph zone. The bidirectional 85th percentile speed associated with the traffic counts at Location A was

¹ Synthesis of Speed Zoning Practice, FHWA-RD-85-096, Technical Summary.

observed as 26 mph, and at Locations B and C were observed as 18 mph and 19 mph, respectively. This indicates that 85 percent of drivers are comfortable driving at an operating **speed of 26 mph or less along Segment A** and at **19 mph or less along Segment B** (See Table 3).

Crash History and Technical Summary

Only one property damage crash was reported in the last five years (between May, 2011 and April, 2016) along Camels Hump Road near Salvus Road. Figure 3 from the VTrans Public Crash Data Query Tool shows historical crash locations along the study corridor.

Figure 3: Historical Crash Location along Camels Hump Road

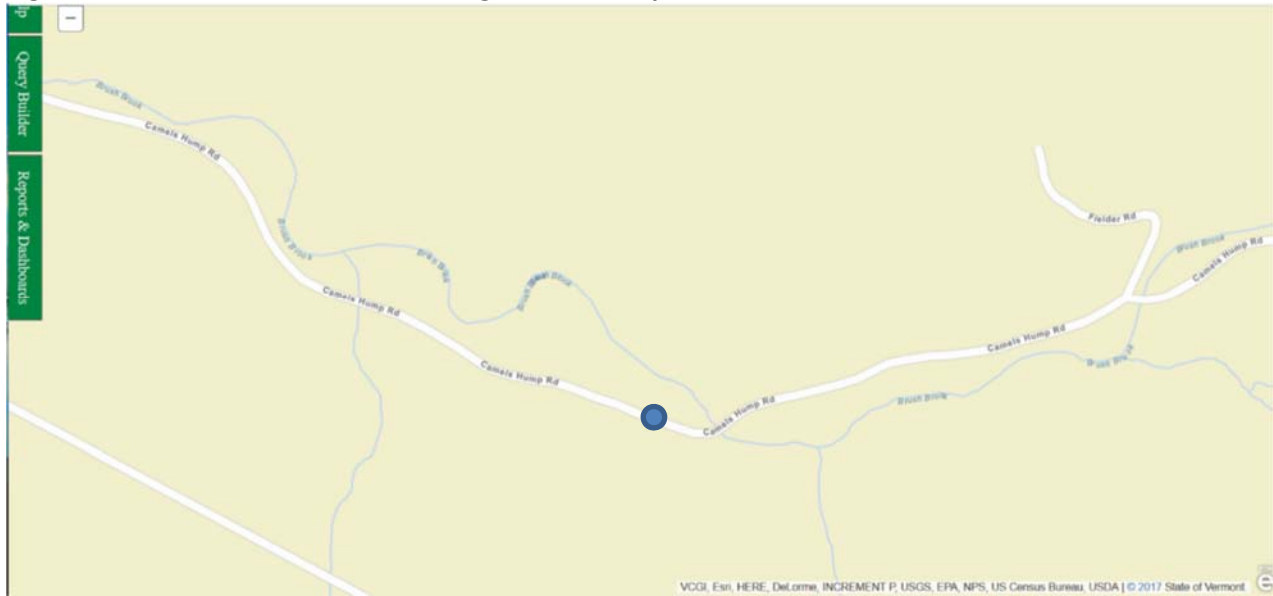


Table 2: Historical Crash Details

Report Number	Crash Date	Time	City/Town	Address	AOT Route	Crash Type	Collision Direction	Weather	Road Group
11A102301	6/6/2011	7:25 AM	Huntington	TH-4 (Camels Hump Road)	Town Road 0004	Property Damage Only	Other- Explain in Narrative	Clear	Not in FA Urban Area

It is evident from the above figure and table that the crash was reported as a property damage only and no other crashes were reported on Camels Hump Road.

Table 3: Technical Summary

Municipality:	Town of Huntington
Road Name:	Camels Hump Road
Location:	From Main Road to the Camels Hump parking area Segment A: Main Road to Bridge 32 Segment B: Bridge 32 to Parking area
Recommended Speed Limit:	25 mph from Main Road to Parking Area
Evaluation By:	Sai Sarepalli, P.E. Transportation Planning Engineer
Final Report Document Date:	06/14/2017

85th Percentile Speed (mph):	<p style="text-align: center;">ATR Location A: 24 MPH: Eastbound 27 MPH: Westbound ATR Location B: 19 MPH : Eastbound 19 MPH : Westbound ATR Location C: 19 MPH: Eastbound 18 MPH: Westbound</p>
10 mph Pace Speed (mph)	<p style="text-align: center;">ATR Location A: 16-25 MPH: Eastbound 16-25 MPH: Westbound ATR Location B: 11-20 MPH: Eastbound 11-20 MPH: Westbound ATR Location C: 11-20 MPH: Eastbound 11-20 MPH: Westbound</p>
Average Test Car Speed (mph)	25 MPH
Safe Speed at Curves and/or Intersections:	20 MPH
Safety problem related to speed:	Motorists driving at excessive speeds along curves can pose safety hazard
Average Daily Traffic (Vehicles per Day)	<p style="text-align: center;">ATR Location A: 233 ADT (06/01/2017 – 06/07/2017) ATR Location B: 288 ADT ATR Location C: 208 ADT (10/04/16 – 10/10/16)</p>
Town Highway and Functional Classification	Class III Town Highway - Rural Local Road
Road Surface	Gravel
Road Width	<p style="text-align: center;">Segment A: 18 ft to 20 ft Segment B: 14 ft to 18 ft</p>

Shoulder Surface	Gravel
Shoulder Width	Varies between 0 and 1.0 ft.
Parking	No Parking
Pedestrian/Bicycles	No marked facilities
Adjacent Land use	Residential and Forest

Conclusion and Recommendations

As per the observed bidirectional 85th percentile speed data, the majority of motorists are driving within the posted speed limit. However, local residents claim to notice higher speeds on this road and vehicles parked along shoulders at parking prohibited locations despite posted “no parking” signs.

While considering the roadway characteristics, seasonal recreational roadway users, road side development and land use, **it is recommended to lower and maintain a posted speed limit of 25 mph for the entire corridor**. This speed limit not only provides a consistent and safer travel conditions for motorists along the winding road, but also provides a safer environment for non-motorized users such as hikers and bikers sharing the narrow roadway.

It is recommended that the Town consider increasing speed limit enforcement especially during the recreational season. The issue of vehicles parked along road side is observed at other similar recreational places in the State. The Town should discuss the parking issue with the Vermont Department of Forests, Parks and Recreation and consider developing a plan for a supplementary parking facility to mitigate the parking issue.