



TECHNICAL MEMORANDUM

Project: Masterson & Son Excavation – Bristol
Date: September 29, 2023
From: Ryan Augustine, PE
Checked by: Roger Dickinson, PE
Subject: Traffic Impact Assessment

Introduction

The purpose of this traffic impact assessment (TIA) is to examine the potential impacts of Masterson & Son Excavation's proposed operational shop located in the Town of Bristol, Vermont on future traffic congestion and safety conditions.

Project Description

Masterson & Son is a full-service earthworks contractor based in Bristol, Vermont. The current workshop is located at 88b North Street in downtown Bristol. Josh Masterson purchased a 71-acre on Lower Notch Road in Bristol, Vermont. This lot is intended to be used as his home, and eventually an operational shop for Masterson & Son. This report analyzes potential traffic congestion and safety impact on Lower Notch Road.

Trip Generation

The existing trip generation of 2600 Lower Notch Road consists of residential trips. The Institute of Transportation Engineers (ITE) suggests approximately 10 trips per day for single-family homes. A traffic count performed by this office (see below) indicated that there were 7 trips generated between 6 am and 6 pm, with 4 trips leaving the Masterson Property and 3 return trips.

The existing shop at 88B North Street generates an estimated 50 Trips per day.¹ Given the business headquarters will remain at this location, the estimated trips per day utilizing the contractors yard at 2600 Lower Notch Road will be 15 trips per day. Dump trucks and tractor trailer trucks that travel to and from Masterson Property will do so by using Lower Notch Road south to Notch Road and thence VT Route 116. Non heavy-vehicle traffic that travels to and from the site can do so via Lower Notch Road from the North or South of the property.

¹ Information provided from Josh Masterson

Lower Notch Road Level of Service

There is limited traffic count information for Lower Notch Road. To collect information regarding traffic volumes at the intersection of Lower Notch Road and the intersection of Masterson's driveway, a counting camera was installed at the corner of Masterson driveway. Turning movement counts were collected on Wednesday, August 30th, between the hours of 6am and 6pm. The results for the total vehicular traffic can be found below in diagram 1.

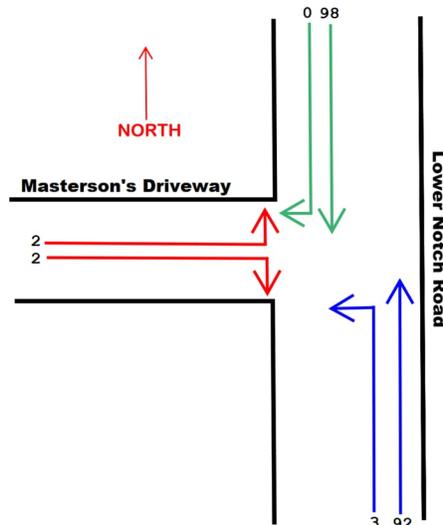


Figure 1: Turning Count Movement for hours 6am to 6pm at the Masterson Driveway

The peak hours for the intersection obtained through the counting camera were between the hours of 4 pm and 6 pm. The peak hour volume (phv) for this time was 20 vehicles per hour (vph). The annual average daily traffic from this count is estimated to be 224 (vpd).

Per VTrans' guidelines, the estimated design hour volume (DHV) on a rural non-interstate highway having an AADT of 224 vpd is 35 vph. The DHV is defined as being the 30th highest hourly volume occurring annually and is used to design roadways and intersections, and to assess traffic congestion conditions. A DHV of 35 vph for lower Notch Road creates little or no traffic congestion. The resulting level of service (LOS) rating for Lower Notch Rd is LOS A.

Based on the existing conditions of the road and zoning, other background traffic growth is not anticipated for Lower Notch Road, and was not accounted for in this analysis.

If the Masterson & Sons Excavations headquarters is moved to 2600 Lower Notch Road Location, we estimate that the future traffic volumes will increase on Lower Notch Road from 224 vpd to 274 vpd. This will increase the DHV from 35 vph to 45 vph.

Future traffic congestion conditions and the LOS will not be affected by this proposed increase.

Traffic Safety

Lower Notch Road is a relatively narrow roadway with the width varying between 22-24 ft, and having a posted speed limit of 35 mph. The roadway is both paved and gravel. The road is paved at the entrance of the site, but turns to gravel just north of the site access. There are no crashes listed in VTrans' 2018-2022 five-year crash history on Lower Notch Road.

Available intersection sight distances along Lower Notch Road at the driveway of the Masterson & Son's shop are below the recommended 390 ft for oncoming traffic traveling at the 35 mph speed limit. For traffic safety purposes, the minimum acceptable sight distance is the safe stopping sight distance, which at 35 mph equals 250 ft.

Existing sight distances are 150 ft looking north and 226 ft looking south. It appears that these sight distances can be improved with additional vegetation clearing to meet the recommended 390 ft of intersection sight distance.

Conclusions

In conclusion, the proposed use of the contractor yard at 2600 Lower Notch Road, with the business headquarters on North Street, will not have an impact on future traffic congestion and safety conditions on the roadways in the immediate vicinity of those facilities. Furthermore, given 50 trips per day, if the business operated exclusively from the 2600 Lower Notch Road, it will not have an impact on future traffic congestion and safety it will not have an impact on future traffic congestion and safety conditions on the roadways in the immediate vicinity of those facilities. We recommend, though, vegetation clearing to improve sight distances along Lower Notch Road.



Ryan Augustine

AADT CALCULATIONS

Traffic count between 6 am-6 pm on Wednesday August 30th = 194 vehicles

Comparable traffic data from VTrans ATR AXEI on Notch Rd

Average weekday daily volume in April 2013 = 434 vehicles
/ day

Average weekday 6 am – 6 pm volume in April 2013 = 332 vehicles

Ratio = 0.77

Lower Notch Rd estimated average daily traffic volume

ADT for Wednesday August = $194 * 434/332$

= 254 vehicles per day

2022 Seasonal Adjustment factor for Wednesday's in August = 0.876

AADT = 254 vehicles per day * 0.876 = 223 vehicles per day