Main Road Speed Limit Study

Huntington, Vermont

FINAL REPORT ~ 21 December 2009
Main Road Speed Limit Study
Technical Assistance for the Town of Huntington, Vermont

Final Report: 21 December 2009

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Chittenden County Metropolitan Planning Organization
110 West Canal Street, Suite 202
Winooski, Vermont 05404-2109
T 802-660-4071
F 802-660-4079
http://www.cccmpo.org/
info@ccmpo.org

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“State law and the Manual On Uniform Traffic Control Devices (MUTCD) regulate the procedures for establishing effective and enforceable speed limits. Title 23 V.S.A. Section 1007 authorizes the local governing body to establish effective and enforceable speed limits on town highways at not more than 50 MPH or less than 25 MPH and to do so on the basis of a traffic engineering investigation or study. This provision mandates that any speed limit must be justified and reasonable, based on the conditions that prevail on the particular road or street being considered.” (Vermont Local Roads Program, 1995)
I. Introduction

This study was undertaken at the request of the Town of Huntington in order to evaluate existing and potential speed transition zones buffering the town’s three villages along Main Road (The Lower Village, Huntington Center, and Hanksville: See Figure 1). Based on recommendations from the “Huntington Traffic Calming Plan” completed in June 2008\(^1\), the town installed retroreflective speed reduction signs along Main Road at all three village gateways in the spring of 2009 (see example in Figure 2).

Currently, Main Road has a posted speed limit of 45 mph for the entire length in the town outside the village areas. The Lower Village and Huntington Center are posted at 25 mph. Hanksville has a posted speed limit of 35 mph. Prior to the 1994 “Huntington Speed Limit Study”\(^2\) most of Main Road had unposted speed limits (i.e. 50 mph by default), while the three villages were each posted at a speed limit of 35 mph.

II. Lower Village ~ Southbound Approach

Presently, the southbound approach along Main Road just north of the Lower Village has a transition sign placed in an area posted at a 45 mph speed limit, which warns motorists to reduce their speed ahead to 25 mph. (see Figure 3 below). Here the Institute of Transportation Engineers (ITE) “Traffic Control Devices Handbook” advises:

> “Good engineering practice indicates that speed reductions through a speed zone should be signed at intervals no greater than 15 mph.”\(^3\)

The handbook further observes considerations for sign spacing intended to successively decrease speed limits. In the case of Huntington’s 45 mph to 25 mph reduction, two speed transition signs would be employed: 1. A 35 mph transition sign placed at least 410 ft. (but no greater than 1000 ft.) ahead of the posted 35 mph speed zone, and 2. A 25 mph transition sign placed at least 290 ft. ahead of a 25 mph speed zone. It is advisable that each sign have a legibility at a distance of 100 ft. upon their approach\(^4\).

---

1 Huntington Traffic Calming Plan, 2008
2 Huntington Speed Limit Study, 1994
3 Institute of Transportation Engineers: Traffic Control Devices Handbook, 2001
It is at the location of southbound 25 mph speed limit sign adjacent to Maplewood Cemetery (See Figure 3) that an Automatic Traffic Recorder (ATR) was set up to collect speed and volume data during September of 2007. Here the traffic count captures an “85th Percentile Speed” (i.e. The maximum speed at which 85% of all vehicles are traveling) in southbound direction of 44 mph, and a “10 MPH Pace Speed” (i.e. 10 mph range in which the majority of vehicles are traveling) indicating a southbound pattern ranging from 31-40 mph (See Table 1). The current 25 mph speed transition sign to the north of the cemetery (Figure 3) was installed in the Spring of 2009 (after the data collection period). Although it is unlikely the installation of this sign has had much speed reduction effect upon this location, it would require another traffic count to verify this. Nevertheless, the Traffic Control Devices Handbook would recommend adding a section of this road to be posted to a 35 mph speed limit, between the 45 mph and 25 mph speed zones. This would require a readjustment of sign placement on this approach.

**Table 1. Speed Data: Main Road North of Lower Village at Cemetery, 2007**

<table>
<thead>
<tr>
<th>Posted Speed : 25 mph</th>
<th>NB Direction</th>
<th>SB Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>85th Percentile Speed</td>
<td>46 mph</td>
<td>44 mph</td>
</tr>
<tr>
<td>10 mph Pace Speed</td>
<td>36-45 mph</td>
<td>31-40 mph</td>
</tr>
<tr>
<td>Average Speed</td>
<td>40 mph</td>
<td>37 mph</td>
</tr>
</tbody>
</table>

Another traffic count was taken at the location 0.1 mile north of the 25 mph speed reduction sign (See Figure 3) in September of 2009 (See Table 2)

**Table 2. Speed Data: Main Road 0.1 Mile North of Cemetery, 2009**

<table>
<thead>
<tr>
<th>Posted Speed : 45 mph</th>
<th>NB Direction</th>
<th>SB Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>85th Percentile Speed</td>
<td>52 mph</td>
<td>49 mph</td>
</tr>
<tr>
<td>10 mph Pace Speed</td>
<td>41-50 mph</td>
<td>41-50 mph</td>
</tr>
<tr>
<td>Average Speed</td>
<td>45 mph</td>
<td>43 mph</td>
</tr>
</tbody>
</table>
By comparing data from Tables 1 & 2, it is demonstrated that southbound traffic traveling into the Lower Village slows down 5 mph by the time it reaches the cemetery. This may be due to the curved portion that precedes the cemetery, the speed reduction sign, or both. It would require an additional ATR setup south of the cemetery to determine how much traffic slows down before it enters the village compact.

Figure 4 (above) proposes a speed transition sign placement strategy just north of the Lower Village. Following the aforementioned Traffic Control Devices Handbook specifications, the current 25 mph transition sign (shown in Figure 3) is replaced with a 35 mph transition sign and moved northward about 170 ft from its current position. A 35 mph speed limit sign is then installed 410 ft. south of that sign. A 25 mph transition sign would then be installed about 290 ft. north of the currently placed 25 mph speed limit sign located at the southern boundary of Maplewood Cemetery along Main Rd.

For the purpose of maintaining a bidirectional consistency of the speed buffer for the Lower Village, it is advisable to replace the current northbound 45 mph speed limit sign (across from the cemetery) with a 35 mph sign. Appendix C of this report has the speed limit engineering document supporting a reduction of the current 45 mph posted speed limit for this area to 35 mph. As the recommended speed reduction specifications have some flexibility, the detailed ITE Minimum Speed Signing Placement table is referenced below (See Table 3).

Table 3. ITE Traffic Control Devices Handbook: Minimum Speed Signing Placement

<table>
<thead>
<tr>
<th>Reduced Speed (mph)</th>
<th>Approach Speed (mph)</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>2320 1990 1680 1390 1130 890 670 480 310</td>
</tr>
<tr>
<td>20</td>
<td>2240 1910 1600 1310 1040 800 590 390 230</td>
</tr>
<tr>
<td>25</td>
<td>2140 1800 1490 1200 940 700 480 290 120</td>
</tr>
<tr>
<td>30</td>
<td>2000 1670 1360 1070 810 570 350 180</td>
</tr>
<tr>
<td>35</td>
<td>1850 1520 1200 920 650 410 200</td>
</tr>
<tr>
<td>40</td>
<td>1670 1340 1030 740 470 230</td>
</tr>
<tr>
<td>45</td>
<td>1470 1140 820 540 270</td>
</tr>
<tr>
<td>50</td>
<td>1250 910 600 310</td>
</tr>
<tr>
<td>55</td>
<td>1000 660 350</td>
</tr>
<tr>
<td>60</td>
<td>720 390</td>
</tr>
<tr>
<td>65</td>
<td>430</td>
</tr>
</tbody>
</table>

- Distances are rounded to the nearest interval of 10 ft.
- Based on 2 seconds of PIEV time (Perception, Identification, Emotion, and Volition), vehicle deceleration/acceleration rates of 2.3 ft./sec sq. (typical deceleration in gear without braking), and legibility distances of 100 ft.
- Good engineering practice indicates that speed reductions through a speed zone should be signed at intervals no greater than 15 mph. The light-purple shaded numbers are speed reduction intervals greater than 15 mph.

It is further advisable to install a northbound 45 mph speed limit sign somewhere north of the curve (just north of the Maplewood Cemetery). Figure 4 indicates this sign’s proposed installation to be adjacent to the southbound 35 mph transition sign. Installation could alternatively be adjacent to the proposed southbound 35 mph speed limit sign or other approximate location.
III. Lower Village ~ (Northbound Approach)

The northbound approach of Main Rd. into the southern gateway of the Lower Village currently has installation of signage following the successive speed reduction principle outlined within the Traffic Control Devices Handbook (See Figure 5). A traffic count was taken near the position of the 35 mph speed reduction sign, just north of Hinesburg Hollow Road (shown in Figures 5 & 6) in July of 2008 (See Table 4). At this location, the 85th Percentile Speed indicates that drivers are relatively following the posted speed limit.

As it is the intention of the town to extend the current speed reduction buffer on Main Road 0.1 mile to the south of Hinesburg Hollow Road (shown in Figure 6), an additional traffic count was taken at this location in September of 2009 (See Table 5 below). Appendix A and B of this report have the speed limit engineering documents supporting an extension of the current 35 mph speed transition zone ending north of Hinesburg Hollow Road to the proposed southern terminus at Spence Road.

Table 4. Speed Data: Main Road, South of Lower Village, North of Hinesburg Hollow Road, 2008

<table>
<thead>
<tr>
<th></th>
<th>NB Direction</th>
<th>SB Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>85th Percentile Speed</td>
<td>46 mph</td>
<td>46 mph</td>
</tr>
<tr>
<td>10 mph Pace Speed</td>
<td>36-45 mph</td>
<td>36-45 mph</td>
</tr>
<tr>
<td>Average Speed</td>
<td>39 mph</td>
<td>41 mph</td>
</tr>
</tbody>
</table>

Table 5. Speed Data: Main Rd. Between Hinesburg Hollow Road and Spence Road, 2009

<table>
<thead>
<tr>
<th></th>
<th>NB Direction</th>
<th>SB Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>85th Percentile Speed</td>
<td>51 mph</td>
<td>49 mph</td>
</tr>
<tr>
<td>10 mph Pace Speed</td>
<td>41-50 mph</td>
<td>41-50 mph</td>
</tr>
<tr>
<td>Average Speed</td>
<td>44 mph</td>
<td>42 mph</td>
</tr>
</tbody>
</table>

While the town may move forward to extend the transition zone using documents in the appendix, the traffic speed data collected suggests it is questionable if reducing the posted speed limit in this location would actually reduce traffic speed unless traffic calming measures were undertaken by the town (e.g. painting foglines at the edge of pavement, installing gateway splitter islands, or implementing other recommendations outlined in the 2008 Traffic Calming Plan). The current 85th Percentile Speed south of Hinesburg Hollow Road already exceeds the posted speed limit by about 6 mph in the northbound direction. According to the “Manual on Uniform Traffic Control Devices” (MUTCD):
“When a speed limit within a speed zone is posted, it should be within 5 mph of the 85th-percentile speed of free-flowing traffic.”

Notwithstanding, Figure 7 proposes a speed transition sign placement strategy just north of Hinesburg Hollow Rd., which also follows the aforementioned Traffic Control Devices Handbook specifications. The current 35 mph transition sign north of Hinesburg Hollow Rd. (shown in Figure 6) would be replaced with a 35 mph speed limit sign, which is posted to advise motorists turning north on to Main Rd. from Hinesburg Hollow Rd. An additional 35 mph speed limit sign would be installed in the northbound direction between Spence Rd. and Hinesburg Hollow Rd. And a 35 mph transition sign is then installed at least 410 ft. south of that sign (Based on Table 3 above). For the purpose of maintaining a bidirectional consistency of the speed buffer for the southern gateway of the Lower Village, it is advisable to replace the current southbound 45 mph speed limit sign (just north of Hinesburg Hollow Rd.) with a 35 mph speed limit sign.

IV. Huntington Center

As with the other villages in the town, Huntington Center has had speed transition signs installed at both of its gateways in the spring of 2009. Due to a lack of traffic counts collected in the vicinity of the village, it is difficult to determine if the new transitional speed buffers are having the desired effect of speed reduction in the village. However, one traffic count was taken in just north of Camel’s Hump Road within the village (See Table 6 and Figure 8).

Table 6. Speed Data: Main Road, Just North of Camel’s Hump Road, 2007

<table>
<thead>
<tr>
<th>Posted Speed : 25 mph</th>
<th>NB Direction</th>
<th>SB Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>85th Percentile Speed</td>
<td>44 mph</td>
<td>40 mph</td>
</tr>
<tr>
<td>10 mph Pace Speed</td>
<td>31-40 mph</td>
<td>31-40 mph</td>
</tr>
<tr>
<td>Average Speed</td>
<td>38 mph</td>
<td>34 mph</td>
</tr>
</tbody>
</table>

5 Manual of Uniform Traffic Control Devices, 2009
It is unlikely that there has been much reduction of traffic speed within the village. As the speed in this location is well in excess of the posted 25 mph speed limit, the town should consider adding new traffic calming measures and greater enforcement. Additional traffic counts should then be undertaken within the village center and its gateways before and after such improvements are made to document their level of effectiveness.

![FIGURE 8: Existing Speed Signage Posted North of Huntington Center](image)

![FIGURE 9: Existing Speed Signage Posted South of Huntington Center](image)

V. Hanksville

Traffic counts were taken at the northern and southernmost outskirts of Hanksville along Main Road. The location of the northernmost count was placed just north of Carse Rd. and the southernmost count was taken at the 35 mph speed reduction sign shown on the map (See Figure 10 below), just south of Weaver Rd.

### Table 7. Speed Data: Hanksville, Main Road, Just North of Carse Road, 2009

<table>
<thead>
<tr>
<th>Posted Speed : 35 mph</th>
<th>NB Direction</th>
<th>SB Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>85th Percentile Speed</td>
<td>45 mph</td>
<td>45 mph</td>
</tr>
<tr>
<td>10 mph Pace Speed</td>
<td>36-45 mph</td>
<td>36-45 mph</td>
</tr>
<tr>
<td>Average Speed</td>
<td>31 mph</td>
<td>36 mph</td>
</tr>
</tbody>
</table>

### Table 8. Speed Data: Hanksville Main Road, Just South of Weaver Road, 2009

<table>
<thead>
<tr>
<th>Posted Speed : 45 mph</th>
<th>NB Direction</th>
<th>SB Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>85th Percentile Speed</td>
<td>49 mph</td>
<td>50 mph</td>
</tr>
<tr>
<td>10 mph Pace Speed</td>
<td>36-45 mph</td>
<td>41-50 mph</td>
</tr>
<tr>
<td>Average Speed</td>
<td>41 mph</td>
<td>42 mph</td>
</tr>
</tbody>
</table>
The data from the Hanksville gateway counts (See Tables 7 and 8) indicate that traffic traveling into the village from both the north and southbound directions is consistently moving at 45 mph or greater.

For the Main Rd. southbound direction (just north of Hanksville), a 35 mph speed limit is posted at the intersection of Carse Rd. Currently, there is no speed reduction warning sign posted north of this sign. Based on the ITE Minimum Speed Signing Placement (see Table 3 above), it is recommended that a 35mph transition warning sign be placed at least 410 feet (but not more than 1,000 feet) north of the 35 mph speed limit sign near the Carse Rd. intersection (See Figure 11).

For the Main Rd. northbound direction, just south of Hanksville near Weaver Rd., there is a posted 35 mph speed reduction warning sign. In this case it would be desirable to place another traffic count closer to Beane Rd. to see if traffic speed is reduced within the village. It is possible that the slightly lower speed indicators in northbound direction (See Table 8) may be indication of the effectiveness of the sign.

**VI. Traffic Calming Examples in Chittenden County**

As the town assesses their needs over the course of time, there are footnotes to add to some of the traffic calming options highlighted within the 2008 Huntington Traffic Calming Plan, where CCMPO has collected relevant data.

**Speed Humps**: Between 2005 and 2007, three asphalt speed humps were installed on Laurel Hill Drive in South Burlington, Vermont (see Figure 13). CCMPO conducted before and after traffic counts at the same position on the road, several feet west of the speed hump (the center hump shown in Figure 13) to measure the effectiveness of the traffic calming device (see Table 9 on page 12).
The three speed humps were installed 200-300 ft. apart with warning signs (MUTCD W17-1) facing traffic in both travel lanes (See Figure 13). The speed humps span almost the entire width of the roadway, 11’ 10” along the length of it, with a center peak height of 3-4 inches.

FIGURE 12: Speed Hump on Laurel Hill Drive Facing West in South Burlington, VT, 2009

FIGURE 13: Speed Humps Installed on Laurel Hill Drive, South Burlington, VT, 2009
Table 9. Change in Speed Data on Laurel Hill Drive: 2005 to 2007

<table>
<thead>
<tr>
<th>Posted Speed: 25 mph</th>
<th>EB Change in Speed</th>
<th>WB Change in Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>85th Percentile Speed</td>
<td>27 mph Δ 26 mph</td>
<td>27 mph Δ 24 mph</td>
</tr>
<tr>
<td>10 mph Pace Speed</td>
<td>16-25 mph ~ No Change</td>
<td>21-30 mph Δ 16-25 mph</td>
</tr>
<tr>
<td>Average Speed</td>
<td>22 mph Δ 21 mph</td>
<td>23 mph Δ 19 mph</td>
</tr>
</tbody>
</table>

Another before and after data collection effort was made for speed humps installed on Shunpike Road in South Burlington, Vermont. A traffic count was conducted just before installation in 2003, with a follow up count completed in 2008. The ATR was set up in the exact position in both time periods, within 1 ft. south of the device.

Table 10. Change in Speed Data on Shunpike Rd.: 2003 to 2008

<table>
<thead>
<tr>
<th>Posted Speed: 25 mph</th>
<th>SB Change in Speed</th>
<th>NB Change in Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>85th Percentile Speed</td>
<td>29 mph Δ 26 mph</td>
<td>29 mph Δ 25 mph</td>
</tr>
<tr>
<td>10 mph Pace Speed</td>
<td>16-25 mph ~ No Change</td>
<td>16-25 mph ~ No Change</td>
</tr>
<tr>
<td>Average Speed</td>
<td>23 mph Δ 21 mph</td>
<td>22 mph Δ 20 mph</td>
</tr>
</tbody>
</table>

Dynamic Striping: During the summer through the fall of 2009, the FHWA Office of Transportation Operations (HOTO) approved a “Request to Experiment with Traffic Control Devices” from the Town of Underhill, Vermont. The request outlined a plan to implement a dynamic striping pilot project on River Rd., just west of Sand Hill Rd. outside of Underhill Center.

Dynamic stripes are commonly used to warn motorists of features in the roadway (e.g. splitter islands, speed humps, etc.). Following specifications of previous VTrans experiments undertaken in 2004, the markings were applied as converging horizontal 1 ft. thick stripes painted perpendicular across the roadway (shown in Figures 14a and 14b).

![FIGURE 14a: Dynamic Striping on River Road Facing East in Underhill, VT, 2009](image1)

![FIGURE 14b: Dynamic Striping on River Road Facing West in Underhill, VT, 2009](image2)

The stripes run a course of 252 ft. along the eastbound lane of road and increase in width across the travel lane whilst successively converging closer together. The first of the 13 stripes begins at a width of 2 ft., with each successive stripe widening an additional 6 inches until the last stripe measures 8 ft. across the travel lane.

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CCMPO conducted before and after traffic counts to measure the effectiveness of this project (See Table 11).

Table 11. Change in Speed Data on River Rd., Underhill, VT: 2009

<table>
<thead>
<tr>
<th>Posted Speed : 25 mph</th>
<th>EB Change in Speed</th>
<th>WB Speed Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>85th Percentile Speed</td>
<td>48 mph Δ 47 mph</td>
<td>49 mph ~ No Change</td>
</tr>
<tr>
<td>10 mph Pace Speed</td>
<td>36-45 mph ~ No Change</td>
<td>41-50 mph ~ No Change</td>
</tr>
<tr>
<td>Average Speed</td>
<td>42 mph Δ 41 mph</td>
<td>44 mph Δ 43 mph</td>
</tr>
</tbody>
</table>

The resulting 85th Percentile Speed (and Average Speed) reduced by 1 mph in the eastbound direction. However, the corresponding reduction of 1 mph in Average Speed in the westbound lane (where striping was not applied) raises the question of whether this difference is negligible, or if there is a small collateral speed reduction effect from eastbound striping.

VII. Conclusion

As recommended by engineering practice, there is evidence to support the adjustment of speed reduction buffers and their signage near the three villages along Main Road. Nevertheless, reducing posted speed limits and installing speed reduction signs may not significantly reduce driver speeds in these areas. A study cited by the Federal Highway Administration’s Turner-Fairbank Highway Research Center (TFHRC) states that drivers do not generally comply with changes (lowered or raised) in posted speed limits on non-freeways in rural or urban areas, especially in speed zones posted at 40 mph or lower7.

Significant reductions in traffic speed are more likely to require implementation of the traffic calming measures recommended in the 2008 "Huntington Traffic Calming Plan" along with enhanced enforcement activities. CCMPO will continue to collect traffic data along Main Road to track changes in driver behavior over time.

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APPENDIX A.

Speed Limit Engineering Study:
Between Hinesburg Hollow & Spence Rd.
The following summary documents the traffic engineering investigation required by Vermont Statutes Annotated Title 23 § 1007 for a Legislative Body to determine a safe and reasonable speed.

**Municipality:** Huntington  
**Road Name:** Main Rd (TH #1)  
**Location:** Between Hinesburg Hollow Rd & Spence Rd  
**Recommended Speed Limit:** 35 miles per hour  
**Evaluation By:** Daryl Benoit  
**Transportation Planner**  
**Date:** December 17, 2009

1. **85th Percentile Speed (mph):**
   - 49 mph Southbound  
   - 51 mph Northbound
2. **10 mph pace (mph):**
   - 36-45 mph Southbound  
   - 36-45 mph Northbound
3. **Average test car speed (mph):**
   - 35-40 mph Southbound  
   - 35-40 mph Northbound
4. **Safe speed at curves and intersections:**
   - 35 mph
5. **Safety problem related to speed:**
   - Vermont AOT Crash reports document 5 crashes **Not related** to speeding from 2004-2008 between Milemarkers 6 & 7 on FAS 0211.
6. **Average Annual Daily Traffic (vehicles per day):**
   - 1600  
   (2009 count)
7. **Road Class**
   - Rural Major Collector – Class II Town Highway
8. **(a) Road Surface:** Asphalt  
   **(b) Road Width:** 24 feet ~ No Foglines
9. **(a) Shoulder Surface:** Varies  
   **(b) Shoulder Width:** 1-2 ft
10. **Parking:**
   - None
11. **Pedestrians/Bicycles:**
   - Informal Bicycle Route
12. **Adjacent Land Use:**
   - Residential, Agricultural.

**General Remarks:** The recommended maximum speed limit of 35 mph is safe and reasonable for both directions due to the roadway geometrics and residential nature of the abutting land. The 35 mph recommendation is significantly lower than the 85th percentile speed, which is generally preferred in setting speed limits. However, taking into consideration other factors, such as the roadway characteristics, pace speed, and roadside development, the 35 mph speed limit is reasonable. This recommendation is consistent with the Vermont State Design Standards which allows for a design speed of 45 mph (posted speed of 40 mph) for rural collector roads with a minimum of 10 ft travel lanes and 3 ft shoulders when the ADT is between 1500 and 2000 vehicles per day.
Figure 1. View looking north on Main Rd. towards the intersection of Hinesburg Hollow Road (Left).

Figure 2. Southbound view on Main Rd. looking towards Spence Road.
APPENDIX B.

Speed Limit Engineering Study:
North of Hinesburg Hollow Rd. to Lower Village
The following summary documents the traffic engineering investigation required by Vermont Statutes Annotated Title 23 § 1007 for a Legislative Body to determine a safe and reasonable speed.

<table>
<thead>
<tr>
<th>Municipality:</th>
<th>Huntington</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road Name:</td>
<td>Main Rd (TH #1)</td>
</tr>
<tr>
<td>Location:</td>
<td>North of Hinesburg Hollow Rd. to Lower Village</td>
</tr>
<tr>
<td>Recommended Speed Limit:</td>
<td>35 miles per hour</td>
</tr>
<tr>
<td>Evaluation By:</td>
<td>Daryl Benoit Transportation Planner</td>
</tr>
<tr>
<td>Date:</td>
<td>December 17, 2009</td>
</tr>
</tbody>
</table>

1. 85th Percentile Speed (mph):
   - Southbound: 46 mph
   - Northbound: 46 mph

2. 10 mph pace (mph):
   - Southbound: 36-45 mph
   - Northbound: 36-45 mph

3. Average test car speed (mph):
   - 30-35 mph

4. Safe speed at curves and intersections:
   - 35 mph

5. Safety problem related to speed:
   - Vermont AOT Crash reports document 5 crashes Not related to speeding from 2004-2008 between Milemarkers 6 & 7 on FAS 0211.

6. Average Annual Daily Traffic (vehicles per day):
   - 1700 (2008 count)

7. Road Class
   - Rural Major Collector – Class II Town Highway

8. (a) Road Surface: Asphalt (b) Road Width: 24 feet ~ No Foglines
9. (a) Shoulder Surface: Varies (b) Shoulder Width: 1-2 ft
10. Parking: None
11. Pedestrians\Bicycles: Informal Bicycle Route

**General Remarks:** The recommended maximum speed limit of 35 mph is safe and reasonable for both directions due to the restricted sight distances, roadway geometrics, and residential nature of the abutting land. The 35 mph recommendation is significantly lower than the 85th percentile speed, which is generally preferred in setting speed limits. However, taking into consideration other factors, such as the roadway characteristics, setbacks, roadside development, and crash experience, the 35 mph speed limit is reasonable. This recommendation is consistent with the Vermont State Design Standards which allows for a design speed of 45 mph (posted speed of 40 mph) for rural collector roads with a minimum of 10 ft travel lanes and 3 ft shoulders when the ADT is between 1500 and 2000 vehicles per day.
Figure 1. View looking north on Main Rd., just north of Hinesburg Hollow Road.

Figure 2. View looking south on Main Rd. towards the intersection of Hinesburg Hollow Road (Right).
APPENDIX C.

Speed Limit Engineering Study:
North of Maplewood Cemetery to Ledge View Dr.
The following summary documents the traffic engineering investigation required by Vermont Statutes Annotated Title 23 § 1007 for a Legislative Body to determine a safe and reasonable speed.

**Municipality:** Huntington  
**Road Name:** Main Rd (TH #1)  
**Location:** North of Maplewood Cemetery to Ledge View Dr.  
**Recommended Speed Limit:** 35 miles per hour  
**Evaluation By:** Daryl Benoit Transportation Planner  
**Date:** December 17, 2009

1. 85th Percentile Speed (mph):  
2. 10 mph pace (mph):  
3. Average test car speed (mph):  
4. Safe speed at curves and intersections:  
5. Safety problem related to speed:
   - Vermont AOT Crash reports document 5 crashes Not related to speeding from 2004-2008 between Milemarkers 6 & 7 on FAS 0211.

7. Road Class  
   - Rural Major Collector – Class II  
   - Town Highway  
8. (a) Road Surface: Asphalt  
   - (b) Road Width: 24 feet ~ No Foglines  
9. (a) Shoulder Surface: Varies  
   - (b) Shoulder Width: 1-2 ft  
10. Parking: None  
11. Pedestrians\Bicycles: Informal Bicycle Route  

**General Remarks:** The recommended maximum speed limit of 35 mph is safe and reasonable for both directions due to the restricted sight distances, roadway geometrics, and residential nature of the abutting land. The 35 mph recommendation is significantly lower than the 85th percentile speed, which is generally preferred in setting speed limits. However, taking into consideration other factors, such as the roadway characteristics, setbacks, roadside development, and crash experience, the 35 mph speed limit is reasonable. This recommendation is consistent with the Vermont State Design Standards which allows for a design speed of 45 mph (posted speed of 40 mph) for rural collector roads with a minimum of 11 ft travel lanes and 3 ft shoulders when the ADT is higher than 2000 vehicles per day.
Figure 1. View looking north on Main Rd. (just north of Maplewood Cemetery) towards Ledge View Drive (located on the far left).

Figure 2. View looking south on Main Rd. towards Ledge View Drive (located on the right).