

Northwest Project – Starksboro Recommendations

Introduction:

In 2006, Addison Regional Planning Commission performed a study of the major north/south corridors in Addison County which connected to Chittenden County. These included: (1) US 7 in New Haven, Waltham, and Ferrisburgh; (2) Burpee Rd, Monkton Rd. and Silver Street in Bristol and Monkton, and (3) VT 116 in Bristol and Starksboro. A major part of the US 7 study involved visual analysis of the corridor, a generic visual analysis tool for other towns to use, and the development of a basic template for a Corridor Scenic Overlay District for use in town zoning. In addition, and to a lesser extent, access management analysis and recommendations were developed to assist the towns in preserving safe and efficient traffic movement along the corridor. Less emphasis was placed on this aspect because permitting on US 7 is controlled by the state...not the municipalities. The recommendations made really applied to those local roads connecting to the US 7 corridor.

The Starksboro part of the study addresses the VT 116 corridor. In this effort, limited visual analysis was completed, and the primary focus was on access management. The visual analysis tools and documents developed in the US 7 corridor are being made available to the town for their use should they decide to do a more complete visual analysis of the corridor, and incorporate appropriate zoning language for its protection into their local zoning regulations.

Existing Conditions:

VT 116 connects Bristol (and points south) with Starksboro and Chittenden County. From a visual stand point, both the Bristol/Monkton Road and VT 116 through Bristol, Monkton, and Starksboro have a number of basic features in common. They are both located in narrow valleys sandwiched between north/south ridgelines. The character of the two roads differ somewhat in that Monkton Road has more areas of forest, and is home to more development than VT 116. In both cases, the topography results in less open views than exist along US 7, and in more of a sense of enclosure...even though the roads are often flanked by open farm fields and pasture. At this time, development is minimal along these corridors as compared to US 7, though the accompanying build-out maps, based on current local regulations, show that this could change significantly as development occurs over time. Photographs taken from various points along the corridor are included on the map, as well as delineators marking town gateways.

Now we will consider some transportation-related characteristics of this roadway. This is considered to be a minor arterial highway, connecting to Chittenden County in the north, and VT 125 in Leicester. It is assigned an access management category of 4 (see attached category map), which is characterized by moderate vehicular speeds, moderate traffic volumes, over medium and short travel distances. Access permits on category 4 roads are typically granted to abutting property owners as long as access meets typical design standards. Turning movements are not typically restricted, though they may appear under certain circumstances. Typical design level attributes are as follows:

- Uniform signal spacing (500ft intervals)

- Upstream/downstream corner clearance
- Driveway channelizing medians
- Non-traversable medians
- Directional median openings for left turns & u-turns
- Continuous two-way left turn lanes
- Isolated left turn bays
- Use of alternative access when feasible
- Left turn bay at median opening
- Indirect left turn and u-turn
- Right turn bay

VT 116 is the major carrier for north/south vehicular traffic in Starksboro. In addition to VT 116, it is also worth considering traffic patterns on the Monkton Road connecting Bristol and Monkton with Chittenden County. Even though they are not directly within Starksboro, they may have increasing effects upon VT 116 traffic. For that reason, they are included in the discussion below. At present, VT 116 and Monkton Road traffic volumes are near or below 5000 AADT (Annual Average Daily Traffic). The VT 116 Corridor, as well as the Monkton/Burpee Rd corridor, currently has an Average Annual Daily Traffic (AADT) around 3000. Truck traffic percentages are roughly 5% to 7% on VT 116 and 5% to 9% on the Burpee and Monkton Roads. Traffic volumes north and south are fairly evenly split during the peak hours. VT 116 is classified as a minor arterial highway and the Monkton Road is a local collector, though it is increasingly functioning as a minor arterial to Chittenden County.

Future Conditions:

Residential build-out analysis was completed for the towns which lie within the ½ mile corridor of Vermont Route 116 defined as the study area. The Community Build-Out Analysis software uses current municipal zoning, tax parcels and E911 house locations to determine existing development capacity and project full build-out under current development regulations. It is important to note that the maximum build-out potential is calculated for the corridor area in each town. The software has the ability to reduce development potential due to natural constraints, however in this study only property in public ownership or under a conservation easement (where available) was removed from development consideration. Starksboro and Bristol have current zoning regulations however Starksboro's tax parcel information was current as of 2004 and Bristol's digital parcels were last updated in 1993. Existing development was determined by 2006 E911 house locations. Existing and potential development was determined for the portion of each town with the study corridor.

- Existing curb cuts were mapped in 2006 and potential curbcuts were generated from the potential development using the prototype driveway software. A percent increase was calculated and displayed along the roadway. These values should be considered tentative since the software is very preliminary. Adding new driveway and roads does provide a more realistic depiction of the development. VT 116: 497 potential new residences in Starksboro: 218 in Ag & Scenic Residential and 250 in High

Density Residential & Commercial in the village center. In addition, there are 347 potential new residences along VT 116 from the Village Center of Bristol to the Starksboro town line for a total of 965.

- Monkton Road: 590 potential new residences in Bristol; 726 potential new residences in Monkton for a total of 1316. This is significant in that the Monkton Road is town maintained, and it is possible that efforts will be made to redirect arterial traffic to VT 116 as volumes (and maintenance) grow. This would act to compound traffic volume growth along VT 116 even more.

Note: Statistically, a single family residence generates about 10 trips per day. Applying this to the build out numbers above gives an idea of the potential dramatic increase in AADT...and this does not include increases in truck and flow-thru traffic.

- Over the past 20 years, VT 116 and Monkton Rd traffic has shown a 7.5% average annual increase. This is reflective of both flow-thru *and* local residential growth. If the rate of growth remains constant, the AADT will more than double over the next 10 years. The build-out numbers shown in the bullets above show the maximum development potential. We have no way of knowing when (and if) this development level will be reached, but we it does give some idea of what future traffic volumes may ultimately look like.

Recommendations:

The VT 116 corridor is currently classed as a minor arterial highway and it services not only local traffic, but inter-regional traffic as well. Below are listed a series of access management recommendations. The purpose of these is to provide drivers and pedestrians with adequate information and reaction time to safely move within and through our communities. Access management recommendations remain basically the same throughout a system, but they do vary in emphasis depending on the level and type of usage for a given section of road. Along the VT 116 non-village sections, the goal should be one of maintaining safe flow and speed by providing adequate visibility and decision-making and reaction time to drivers and pedestrians in the area of the roadway. Since speeds are relatively high, limiting conflict points (drive accesses, etc), providing adequate drive spacing, and minimizing the number of conflict points in areas of poor visibility is imperative. With higher speeds comes significantly longer reaction distances. Along the village section of VT 116, the goal is somewhat different. It is to adequately reduce vehicular speeds and to raise driver and pedestrian awareness to levels appropriate this more densely populated village area. Access in the town road system is geared less toward moving large numbers of vehicles at higher speeds for long distances, and more toward getting people from their houses onto the arterial system. Below are recommendations which should further help emphasize, enhance, and achieve a safe and efficient system while minimizing the effect of the increasing traffic volumes resulting from growth and development:

- Require that any drive/road access, and ROW easements be designed to AASHTO & Vermont Standards: A-76 (Town Roads) & B-71 (Residential & Commercial Drives). *A-76 is currently referenced in the local subdivision reg's –section 3.5.3- but B-71 is not referenced for drive standards.*
- Require drive accesses to follow the edge of property lines where possible, and grant the permit with the condition that access may be shared with adjacent property(ies) at a future date. If the shared drive restriction is not possible, maintain a 10' to 20' buffer between the drive and the property line.
- Grant no more than one access per parcel, and require (where possible) any future subdivision of the parcel share that single access where practicable.
- Require a permit for any upgrade or use change.
- Long drives may drain excessive amounts of stormwater into the town road ditch and culvert system. Consider requiring that any stormwater impact be mitigated on site, or provision be made for improvement of the affected town culverts and ditches sufficient to handle the increased hydraulic flow.
- For subdivision access permits, require a pre/post development hydraulic study to be conducted to establish runoff impact on the town road drainage system.
- All accesses must have adequate safe line-of-sight (determined by speed limit) in order to prevent the creation of blind or hidden roads. *Current Starksboro rural residential & commercial road frontage requirements (Zoning Reg's; Article II, Page 5) are the greater of:*
 - 50'
 - 1/3 lot depth for lots < 2 acres
 - 1/4 lot depth for lots < 10 acres
 - 1/5 lot depth for 25 acres
 - 1/6 lot depth for lot > 25 acres

Where possible, consider establishing minimum rural road frontage consistent with AASHTO design standards. This will support improved safety and efficiency:

- *Reference:* For un-signalized access spacing standards, here are the *lower* limits of the AASHTO stopping sight distances. The resultant spacing standards, shown in Table 2-2, would enable a driver traveling at the design or posted speed to monitor only one driveway at a time and, if necessary, to stop.

Table 2.2 – Un-signalized Access Spacing (ft)

POSTED SPEED or DESIGN SPEED (mph)	UNSIGNALIZED ACCESS SPACING* (ft)
20	115
25	155

30	200
35	250
40	305
45	360
50	425
55	495

(*Spacing shown is based on level terrain: adjustment factors are required for segments with grades)

Source: Derived from Exhibit 3-1(Pg.112) (Stopping Sight Distance) from AASHTO A Policy on Geometric Design of Highways and Streets, 2001

- No access shall be constructed closer than 500 feet from a sharp curve, hill, or blind area (50 mph zone). This minimum corner distance drops to 440 feet at 40 mph, and 330 feet at 30 mph (*the local reg's currently say within 275 feet*).
- No access shall be constructed within 100' of a neighboring property unless the driveways or roads oppose one another.
- Drives should intersect the main line ideally at 90 degrees, but at no less than 60 degrees (*already in current subdivision reg's: page 7*).
- Special considerations within the village area:
 - Combine accesses wherever possible through frontage roads and shared drives.
 - Provide increased enforcement
 - Clearly delineate the beginning and end of the village area
 - Introduce stop signs at intersections on the local town roads to slow down residential traffic.

Conclusion - Public Presentation:

As the final stage of this project, the information collected and developed was presented to the Bristol, Monkton, and Starksboro planning commissions at separate meetings. Early on in the process, ACRPC staff members had preliminary visits with the local boards to discuss the project and take feedback. All towns expressed an interest in preserving the rural nature of the corridor, but all also acknowledged the reality and importance of the growth that was occurring. Initially Bristol, the most southern town (and the farthest from Chittenden County) was the least interested in learning about access management practices as they related to town planning. The general feeling was that these principles were appropriate for suburban communities on the outskirts of large urban areas, but that they had no place in a rural area like Vermont. On the other hand Starksboro, whose village is bisected by VT 116, was having significant pedestrian access safety and access problems caused by the speed and frequency of vehicular traffic through the town, and they were very interested in the outcome of the study. Like Starksboro, Monkton was having severe traffic speed and volume problems...especially since the US 7 reconstruction at Shelburne Road had begun. Monkton Road and Silver Street were increasingly being used as a bypass, and this commuting traffic tended to be

both fast and high volume. Because of these problems, Starksboro and Monkton were very interested in the study and its outcome.

After completing the study work, the final presentation to each town turned out to be very interesting. Each presentation was done separately on a different night. The presentation opened with a discussion of the project in general (including discussion of the visual analysis work being done on US 7), and then the build-out potential was discussed...including its impact on current traffic levels. This information was clearly delineated on maps, and the potential impact of this growth trend was clear. At that time, access management principles and specifics were discussed, especially for reducing the number of curb cuts, and thus, conflict points. The build-out map demonstrated the utility of combined and shared access points very well. Many questions were asked in all three towns, and the level of interest in planning of this type seemed to be very high.