

## **Northwest Project – Bristol Recommendations**

### ***Existing Conditions:***

VT 116 connects Bristol with Starksboro and Chittenden County, while the Monkton & Burpee Roads connect Bristol and Vergennes with 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. Traffic counts on these corridors are near or below 5000 AADT (Annual Average Daily Traffic). The Monkton/Burpee Rd corridor, as well as the VT 116 corridor currently average roughly 3000 AADT range. 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. Both VT 116, Monkton Road, and Burpee Road appear to be basically functioning as north/south minor arterial highways.

### ***Future Conditions:***

Residential build-out analysis was completed for the towns which lie within the ½ mile of Silver Street, Bristol/Monkton/Burpee Road study corridor. 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. Monkton and Bristol have current zoning regulations however Monkton's digital tax parcels were current as of 2001 while Bristol's 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.

In addition, 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 curb cuts 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: 347 potential new residences in Bristol; 474 potential new residences in Starksboro for a total of 821.
- Monkton/Burpee Road: 590 potential new residences in Bristol; 726 potential new residences in Monkton for a total of 1316.  
*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 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, and

***Recommendations:***

Both the VT 116 corridor and the Burpee Rd/Monkton Rd corridors are currently functioning as minor arterials. While traffic volumes are currently manageable, there is great potential for a marked decline in performance and safety as traffic volume continues to increase. There are things that can be done locally to help insure that the safety and efficiency along the corridors are maintained:

- Require that any drive/road access, and ROW easements be designed to AASHTO & Vermont Standards ((A-76, B-71).
- Encourage drives 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 one access per parcel, and require (where possible) any future subdivision of the parcel share the access.
- 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 safe line-of-sight in order to prevent the creation of blind or hidden roads. Current rural residential & commercial road frontage requirements in Bristol are 200 feet. Where possible, consider increasing rural road frontage to provide drive spacing that affords both safety and efficiency:
  - *Reference:* For unsignalized 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 – Unsignalized 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.
- 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.

***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.