

Traffic Calming Study

Old Bennington, Vermont

DRAFT



Bennington County Regional Commission

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Background

This study is an update of a previous study from 2003, by students at the State University of New York at Albany, led by professor Jeff Olsen.

STUDY GOALS

1. Collect and assess relevant data:

Vehicle speed: Vehicle speeds were recorded at three locations in the Village, and one location on Monument Ave. south of the Village, to determine average, 85th and 95th percentile speed.

Crash records: VTrans General Yearly Summaries for the years 2008-2012 were reviewed to establish a recent crash history for the Village.

Traffic volume: Reviewed 2012 Average Annual Daily Traffic (AADT) from VTrans Route Logs.

2. Identity problems:

- Identify factors contributing to speeding and cut through traffic.
- Identify conditions that make walking or cycling unsafe or uncomfortable.

3. Recommend solutions

We recommend traffic calming measures and street modifications to address all identified problems. Our recommendations are based on widely used best practices, which, if properly designed, can comply with the Vermont State Design Standards.

Recommendations are identified as:

Short-term – can be implemented in weeks or months.

Medium-term – can be implemented in 1-3 years.

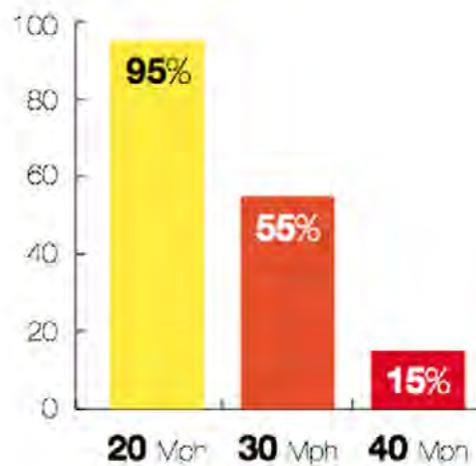
Long-term – realistic implementation time is 2-7 years.

PROBLEM STATEMENT

Speeding

The majority of vehicles traveling through Old Bennington are speeding. On Upper Monument Avenue we found 73% of vehicles drove faster than the 25 mph speed limit; on Main Street 65% of vehicles exceeded the 30 mph speed limit; on West Road, 59% of vehicles exceeded the 30 mph speed limit. Old Bennington’s Police Commissioner also reports speeding is a problem on Bank Street, Fairview Street, and Walloomsac Road.

Pedestrian Survival Rate by Vehicle Speed



Why Speeding is a problem?

Speeding is dangerous. It affects the probability of a crash and the severity of injuries produced by a crash. A general rule of thumb: When travel speed increases by 1%, the injury crash rate increases by about 2%, the serious injury crash rate increases by about 3%, and the fatal crash rate increases by about 4%. <http://www.nhtsa.gov/people/injury/research/pub/hs809012.html>

Speeding is especially dangerous for pedestrians. Pedestrian survival rates in crashes go down exponentially as vehicle speeds go up. (See chart.)

Speeding also negatively impacts the quality of life by adding stress to walking and bicycling. Residents of Old Bennington – a place that prides itself as a historic, walkable community, may be more reluctant to walk or ride a bike if they must contend with speeding vehicles.

Cut-through traffic

A significant number of vehicles use Monument Avenue as a cut-through to avoid traffic signals and congestion in downtown Bennington. High traffic volume in the Village is a quality of life problem for residents. The Village can be used as a short cut to some of the area’s biggest trip generators: Bennington College and Southwestern Vermont Medical Center, the region’s largest employer with 1,300 employees.

Aggressive driving and cut-through traffic in Old Bennington makes cycling stressful and hurts quality of life for all residents.



What is Traffic Calming?

A good definition from the Project for Public Places (PPS):

Developed in Europe, traffic calming (a direct translation of the German “verkehrsberuhigung”) is a system of design and management strategies that aim to balance traffic on streets with other uses. It is founded on the idea that streets should help create and preserve a sense of place, that their purpose is for people to walk, stroll, look, gaze, meet, play, shop and even work alongside cars – but not dominated by them. The tools of traffic calming take a different approach from treating the street only as a conduit for vehicles passing through at the greatest possible speed. They include techniques designed to lessen the impact of motor vehicle traffic by slowing it down, or literally “calming” it. This helps build human-scale places and an environment friendly to people on foot.

See: <http://www.pps.org/reference/livememtraffic/>

TRAFFIC CALMING TOOLKIT

Recommended Traffic Calming Measures for Old Bennington

Right-size streets

Some vehicle travel lanes in Old Bennington are wider than necessary – particularly the travel lanes on Route VT 9. Wider travel lanes are correlated with higher vehicle speeds. Reducing travel lane widths by striping bicycle lanes or shoulders, moving curbs, and installing swales lined with granite pavers (as on Monument Avenue) will calm traffic.

See: <http://nacto.org/usdg/lane-width/>

Compact intersections

Many of Old Bennington’s intersections could be more compact. In particular, some of the intersections around the village green are overbuilt, which invites speeding and uncontrolled vehicle movement and increases stress and danger for pedestrians. Compact intersections reduce pedestrian exposure, slow traffic near conflict points, and increase visibility for all users. Compact intersections also reduce the amount of paved area and allow for more landscaping.

See: <http://nacto.org/usdg/intersections/intersection-design-principles/>

Compact corner radii

Some corner radii in Old Bennington are longer than necessary, which increases turning speeds and lengthens pedestrian crossing distances.

Corner radii directly impact vehicle turning speeds and pedestrian crossing distances. Minimizing the size of a corner radius is critical to creating compact intersections with safe turning speeds. While standard curb radii are 10–15 feet, many cities use corner radii as small as 2 feet. In urban settings, smaller corner radii are preferred and actual corner radii exceeding 15 feet should be the exception.

A large corner radius should not be used to facilitate a truck turning from the right lane into the right lane

-NACTO GUIDE: <http://nacto.org/usdg/corner-radii/>



Mini Roundabouts

The Walloomsac Rd./ Fairview St. intersection is suitable for a mini-roundabout. Drivers often speed as they approach the intersection and then fail to stop.

Mini roundabouts and neighborhood traffic circles lower speeds at minor intersection crossings and are an ideal treatment for uncontrolled intersections.

Mini roundabouts may be installed using simple markings or raised islands, but are best applied in conjunction with plantings that beautify the street and the surrounding neighborhood. Careful attention should be paid to the available lane width and turning radius used with traffic circles.

A mini roundabout on a residential street is intended to keep speeds to a minimum. Provide approximately 15 feet of clearance from the corner to the widest point on the circle.

Shrubs or trees in the roundabout further the traffic calming effect and beautify the street, but need to be properly maintained so they do not hinder visibility.

-NACTO GUIDE: <http://nacto.org/usdg/mini-roundabout/>

Speed Tables

Speed tables are a vertical traffic calming measure – essentially flat-topped speed humps, typically 22-foot wide – long enough to support the wheel base of a passenger car so it does not bottom out. Speed tables can be attractively designed with brickwork, concrete ramps, or stamped asphalt.

They can be designed to different specifications and design speeds, and are commonly used on streets carrying up to 6,000 vehicles a day. Speed tables are more acceptable to emergency responders than speed humps or speed bumps.

To be effective at calming traffic, speed tables need to be spaced close enough to counteract drivers’ tendency to accelerate after crossing a speed table.

Speed table and raised crosswalk.



Curb extensions calm traffic and shorten crossing distances.

An engineering study should be conducted before installing speed tables.

See: <http://www.ite.org/traffic/tcsop/Chapter3c.pdf>
 Also: <http://nacto.org/usdg/speed-table/>

Recommended locations: Monument Avenue, Bank Street

Raised Crosswalks

Raised crosswalks are essentially speed tables with crosswalks on top. They are used to create safe mid-block pedestrian crosswalks and to calm traffic and are often used in conjunction with bulb-outs.

Recommended locations: Monument Avenue, Main Street

See: <http://nacto.org/usdg/midblock-crosswalks/>

Curb Extensions

Curb extensions calm traffic by creating a pinch point in the road or by making intersections more compact. They are very effective in conjunction with crosswalks because they shorten the crossing distance and make it easier for motorists to see pedestrians.

See: <http://nacto.org/usdg/curb-extensions/>

Bicycle Lanes

Bicycle lanes calm traffic by visually narrowing travel lanes and by alerting drivers to watch for cyclists. There are a wide variety of acceptable bicycle lane designs. Often they are 5-foot wide and marked with a bicycle symbol. Bicycle lanes have led to more cycling in many communities that installed them.

Recommended locations: Main Street, West Road

See: <http://nacto.org/cities-for-cycling/design-guide/bike-lanes/>

Permanent Radar Speed Feedback Signs



Radar speed feedback signs display the speeds of passing vehicles. Studies show they slow traffic and curb speeding. They may work because some speeders do not realize they are speeding or because the signs “shame” speeders. They are not as good at slowing high-speed, thrill-seekers as physi-

cal traffic-calming measures.

Many communities install temporary radar speed feedback signs, but research shows the traffic calming effect disappears when the signs come down. Permanent speed feedback signs calm traffic permanently.

Recommended location: near all village entrances

See: <http://www.fhwa.dot.gov/publications/research/safety/08067/>

Center Island Narrowing & Gateways

Center island narrowings are raised islands in the centerline of a road that narrow the travel lane. Often they are landscaped. Placed at the entrance to neighborhoods, they are often called gateways.

See: <http://www.ite.org/traffic/tcsop/Chapter3c.pdf>

Recommended location: West Road



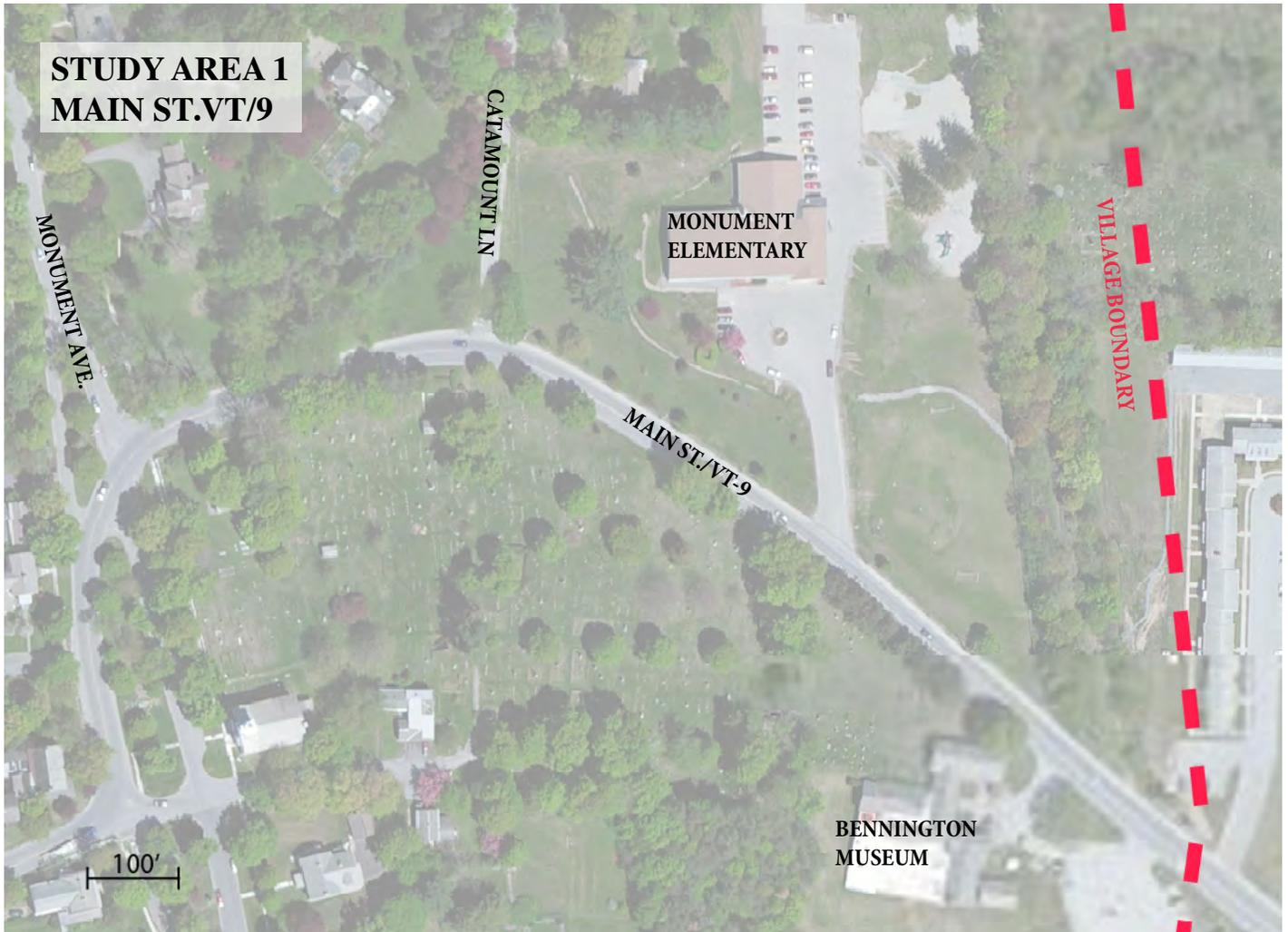
Chicane

Chicanes

Chicanes are curb extensions that alternate from one side of the street to the other, forming S-shaped curves. To effectively calm traffic, they need to be designed so drivers cannot cut straight paths across the centerline.

See: <http://www.ite.org/traffic/tcsop/Chapter3c.pdf>

Also: <http://nacto.org/usdg/chicane/>



Recommended locations: West Road, Fairview Street

STUDY AREAS

**STUDY AREA 1
MAIN STREET/ VT-9**

Road classification:
Class 1 Town Highway
Principal Arterial

2013 AADT:
6,000 (between Monument Ave and Benmont Ave)

Note: Estimated count. The last actual count was in 2010 and showed 6,100 AADT

Speed Limit
30 mph

Speed
Mean speed: 32 mph
85th Percentile Speed: 35 mph
95th Percentile Speed: 39 mph
Top Speed: 43 mph
Sample size: 126 vehicles

Urban to Rural Transect
C-4 General Urban

Mile Markers

3.4 – 3.7 (Main Street from Monument Ave to the eastern Village boundary)

Pedestrian Generators

- Bennington Museum
- Monument Elementary School
- Walking between the Village and downtown Bennington

Bicycle & Pedestrian Traffic Level

Low to moderate

Cross-Section

Edge-of pavement to edge of pavement = 31 to 35 feet.

Crashes 2008-2012 (Source: VTrans General Yearly Summaries)

13 crashes. 5 of the crashes involved injuries. 8 people were injured total. No fatalities. No information if the injured were cyclists or pedestrians.

Traffic Observations

There is a mix of local traffic and thru traffic, including large trucks, traveling east-west on VT-9. Some traffic has been diverted to VT-279. Mix of aggressive, speeding drivers and slower, law-abiding drivers. Traffic tends to platoon behind law-abiding vehicles.

This area has had most of the Village’s crashes resulting in injury in the past five years.

Problems: Factors Contributing to Speed

- The road’s wide 16-foot travel lanes undermine the 30 mph speed limit.
- The road shoulder marking is faded and does

not visually narrow the road.

- The “School Zone” pavement markings in front of Monument Elementary School are faded.
- There is no “School Zone” speed limit, typically indicated with a 25 mph limit sign that flashes during school hours.

Problems for Pedestrians

- There is no safe pedestrian connection to the Bennington Museum.
- There is no sidewalk on the south side of the street to walk to the museum.
- There is no crosswalk to reach the museum from the sidewalk on the north side of the street.
- A steep grade near the museum limits the distance from which drivers can see pedestrians crossing the street.
- There is no buffer between the sidewalk and the vehicle travel lane, despite adequate space for a green strip. This makes walking unpleasant and makes the Village less attractive.
- The long corner radius at Catamount Lane creates a long pedestrian crossing distance.

Problems for Cyclists

- The heavy traffic, large trucks and speeding create a stressful riding environment.
- The road lacks marked shoulders, bicycle lanes or “Share the Road” signs.

Recommended Solutions

Short-term

- Stripe a 5-foot bicycle lane on the north side of the road to visually narrow the motor vehicle travel lane to 10-11 feet and give cyclists space to ride uphill.
- Bicycle lanes are not advised for steep down-



There is no crosswalk to reach the Bennington Museum, and no buffer between the sidewalk and the travel lane, which mars the streetscape and makes walking unpleasant.

hill grades. Instead, use sharrow pavement markings in the eastbound travel lane to alert drivers to expect cyclists and to suggest a safe riding position for cyclists.

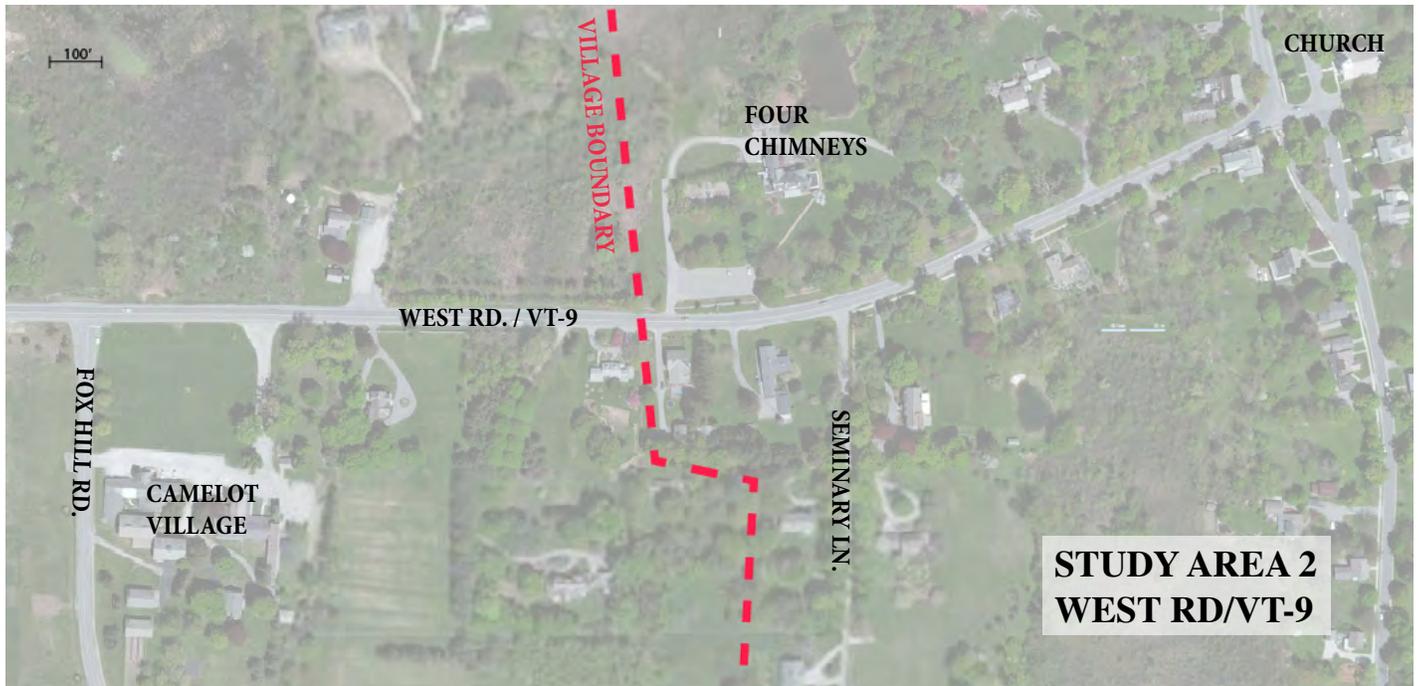
- Install permanent speed feedback signs for each travel direction.
- Install a crosswalk and neck-down so pedestrians can safely cross Main Street to reach the Bennington Museum. The crosswalk should be where there is adequate site distance, away from the steepest part of the hill.
- Increase speed and impaired driving enforcement.

Medium-term

- Move the curb to narrow the road and to create a green strip between the sidewalk and the travel lane. Plant street trees in the green strip where feasible.
- Reduce the corner radius at the Catamount Lane intersection to shorten the pedestrian crossing distance and to calm turning vehicles.

Long-Term

- Explore the feasibility of extending the sidewalk to Monument Avenue.
- Work with The Town of Bennington to extend the sidewalk on the south side of Main Street to link the Museum to downtown.



Sample size: 92 vehicles

**STUDY AREA 2
WEST ROAD/ VT-9**

Road classification:
Class 1 Town Highway
Principal Arterial

2013 AADT:
7,000 (between Seminary Lane and Park Way.)
Note: Estimated count.

Speed Limit
30 mph (within Old Bennington)
40 mph transitional zone beginning at western Village boundary
50 mph beginning at Camelot Village

Speed
Mean speed: 32 mph
85th Percentile Speed: 36 mph
95th Percentile Speed: 39 mph
Top Speed: 40 mph

Urban to Rural Transect
C-3 Suburban Zone

Mile Markers
3.1 – 3.4 (West Road within Village west of Monument Ave.)

Pedestrian Generators

- Camelot Village
- Four Chimneys Inn
- Residences on West Road and on intersecting streets, particularly Fox Hill Road.

Bicycle & Pedestrian Traffic Level
Low to moderate

Cross-Section
Edge-of pavement to edge of pavement = 30-32 feet
Travel lanes = 15-16 feet
Shoulders = markings faded

40 and 50 mph zones outside Village

Edge-of pavement to edge of pavement = 33-34 feet

Travel lanes = 12-12.5 feet

Shoulders = 4-5 feet

Crashes 2008-2012 (Source: VTrans General Yearly Summaries)

4 crashes. Property damage only. No injuries or fatalities.

Traffic Observations

The speed limit drops from 50 mph to 40 mph and then 30 mph just east of the Village boundary. Many vehicles don't slow down enough as they approach the Village.

Problems: Factors Contributing to Speed

- The 50 mph speed limit between Bennington Center for the Arts and Camelot Village is questionable given the proximity to the Village, the number of cyclists and pedestrians using the shoulder, and vehicles turning in and out of intersecting streets and commercial driveways.
- Visually, there is nothing to tell drivers heading east that they are approaching the Village and that they should slow down. There is a long straightaway, which invites speeding, and a curve near Seminary Lane that obscures the view of the Village and the Church ahead.
- The road's cross-section or appearance does not change as the speed limit goes down from 50 to 40 mph.
- The marked shoulders within the Village boundary are mostly worn away and do not visually narrow the 30-foot road or mark space

for pedestrians or cyclists.

Problems for Pedestrians

- The sidewalk ends before reaching pedestrian destinations: Camelot Village, The Four Chimneys, and Fox Hill Road.
- High vehicle speeds create stressful and dangerous conditions for pedestrians and cyclists using the shoulder, particularly just west of the Village boundary, and unsafe conditions for turning vehicles.

Problems for Cyclists

The shoulder striping within the Village boundary is mostly worn away and does not provide a visual separation from the travel lane.

Recommended Solutions

Short-term

- Install a permanent speed feedback sign east of the Village entrance.
- Strip a bicycle lane and narrow the travel lanes to 10 feet within the Village boundary.
- Increase enforcement of the speed limit and impaired driving on West Road.

Medium-term

- Install a center island narrowing with plantings and a village welcome sign just east of the Village boundary. Locate the center island so it does not hinder access to driveways on the south side of the road.
- Request VTrans:
 - Extend the 40 mph zone west to Quarry Road.
 - Narrow the travel lanes in the 40 mph zone from 12-feet to 11-feet.

Long-Term

- Work with the Town of Bennington and VTrans to install a chicane in the 40 mph zone to counteract the straightaway east of the Village boundary.
- Work with the Town of Bennington to extend the southern sidewalk to Fox Hill Road.
- Create a new sidewalk on the north side of

West Road to the Four Chimneys Inn and install a crosswalk and neck-down across West Road at the Seminary Lane intersection.

A straightaway on West Road near the Village encourages speeding. A curve obscures the village ahead.

These children on West Road are at risk from vehicles travelling 50-60 mph.





**STUDY AREA 3
UPPER MONUMENT AVENUE**

Road Classification:

Class 2 Town Highway
Major Collector

2013 AADT:

3,100 (Main St to Monument Ave Ext)
2,100 (Monument Ave Ext to Walloomsac Rd)

Speed Limit

25 mph

Speed (Both directions. See details in appendix)

Mean speed: 28.4 mph
85th Percentile Speed: 34 mph
95th Percentile Speed: 36 mph
Top Speed: 45 mph
Sample size: 279 vehicles

Urban to Rural Transect

C-4 General Urban Zone

Mile Markers

0.4 to 0.7 (Main Street to Monument Circle)

Pedestrian Generators

- The Bennington Monument
- Tourists walking between the Monument and the Old First Church
- Residences along Monument Avenue

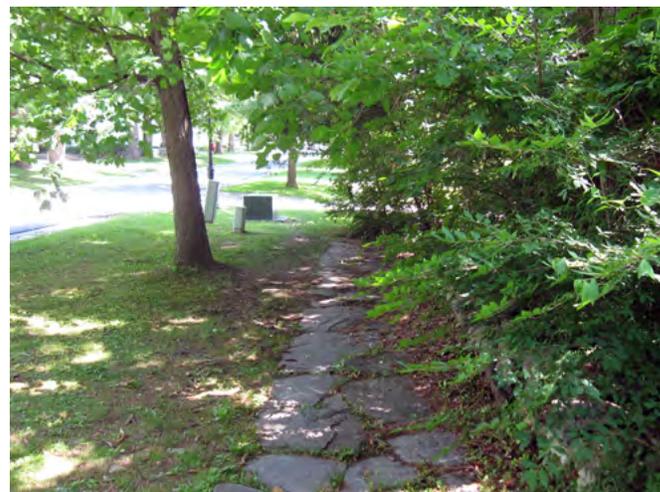
Bicycle & Pedestrian Traffic Level

Low to moderate

Cross-Section

Edge-of pavement to edge of pavement = 20-21 feet

Branches block this section of dilapidated sidewalk on Upper Monument Ave.



Travel lanes = 9-11 feet
 Drainage swales = 2.5 feet

Crashes 2008-2012 (Source: VTrans General Yearly Summaries)
 2 crashes. Property damage only.

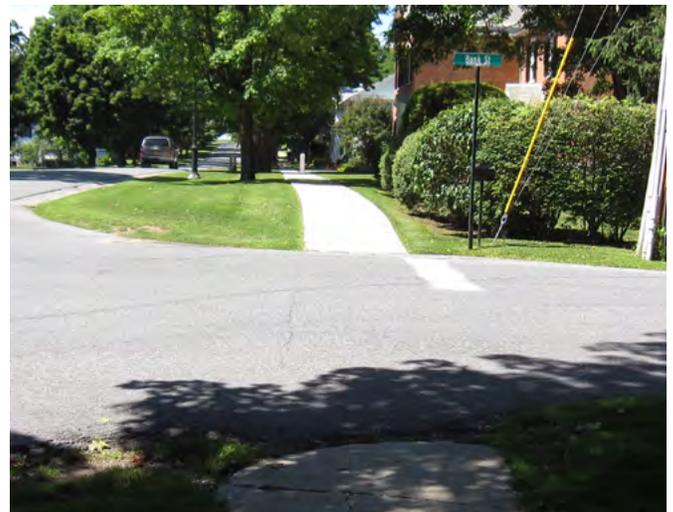
Traffic Observations

There is a significant amount of cut-through traffic headed to points north and west of Bennington.

Problems: Factors Contributing to Speed

- The majority of drivers (73%) speed on upper Monument Avenue, but the road doesn't have obvious features that invite speeding. The edge of pavement width is relatively narrow: about 20 feet. Swales made from granite pavers extend out another 2.5 feet and visually narrow the road.
- Many drivers use Monument Ave. as a cut-through to avoid traffic lights and congestion delays downtown, and that may be why a high percentage of vehicles speed. Drivers use short cuts to save time and may drive faster than local residents using Monument Ave. to access their homes.
- The centerline (recently added by VTrans) makes Monument Avenue look more like a highway, which might cause people to drive faster, although a review of the engineering literature didn't turn up any conclusive studies that prove yellow centerlines cause faster driving.

Note: the *Manual on Uniform Traffic Control Devices* (MUTCD) does not require the yellow centerline, because Monument Avenue is within Bennington's Urban Compact and has an ADT of less than 6,000 vehicles per day.



There is no crosswalk to safely cross Bank Street.

“Center line markings shall be placed on all paved urban arterials and collectors that have a traveled way of 20 feet or more in width and an ADT of 6,000 vehicles per day or greater.”

-Manual on Uniform Traffic Control Devices-Section 3B.01 Yellow Center Line Pavement Markings and Warrants (MUTCD)

Problems for Pedestrians

- Stretches of sidewalk are in poor condition or overgrown.
- Sidewalks lack ADA compliant curb ramps.
- There is no crosswalk across Upper Monument Avenue for more than 0.3 miles.
- The crosswalk is missing across Bank Street.
- The crossing distance at Bank Street is long due to long turning radii.

Problems for Cyclists

- The narrow 10-11 foot travel lanes calm traffic but don't allow a wide passing distance.
- Traffic speed and volume make cycling on Monument Avenue stressful for less experienced cyclists.

Recommended Solutions

Short-term

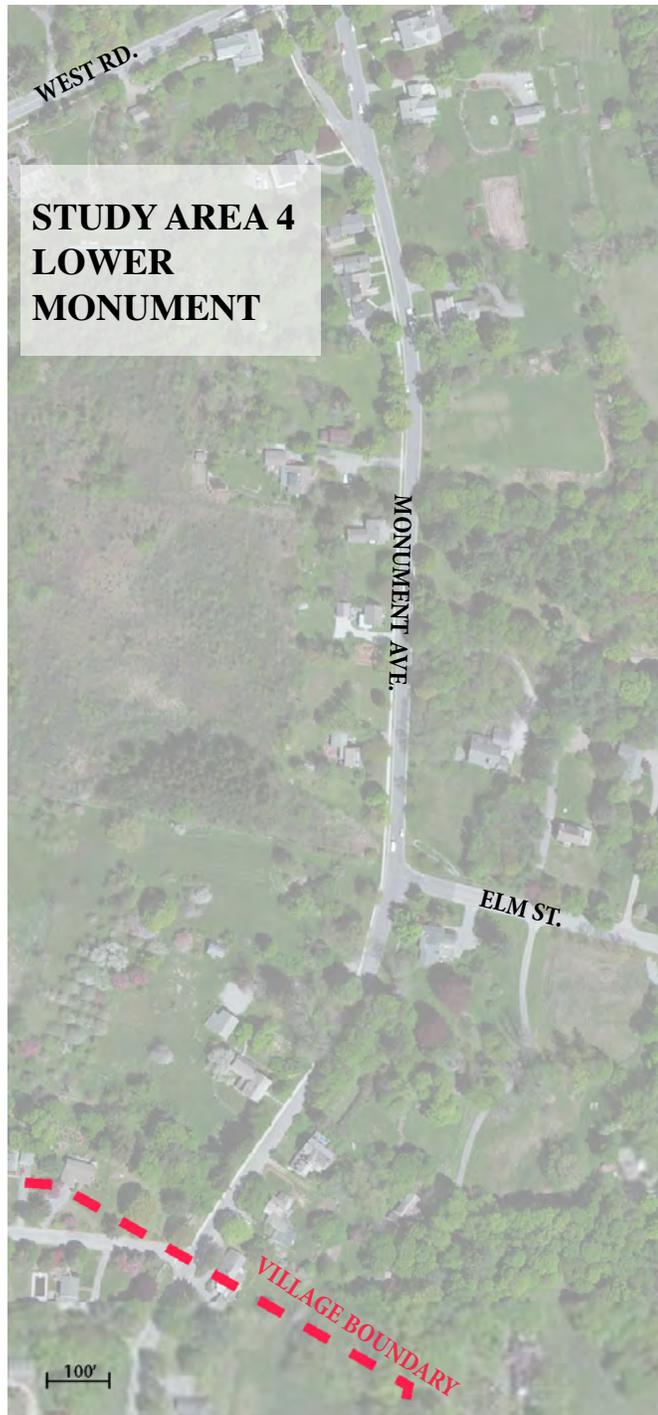
- Install permanent speed feedback signs in both directions.
- Install a crosswalk across Bank Street.
- Clear vegetation blocking sidewalks.
- Increase speed and impaired driving enforcement.

Medium term

- Install a raised, mid-block crosswalk just north of the Bank Street intersection where site distance is adequate.
- Install speed tables with a design speed of 20-25 mph for speed control and traffic volume reduction.
- Reduce the turning radius at the Bank Street intersection to shorten the pedestrian crossing distance and to slow turning speeds.

Long-term

Reconstruct damaged sidewalks and install ADA compliant curb ramps.



**STUDY AREA 4
LOWER MONUMENT**

Road Classification:

Class 2 Town Highway
Principal Arterial

2013 AADT:

2,600 (Village boundary – Elm St)
3,500 (Elm St. to Church St.)

Speed Limit

25 mph

Speed

N/A

Urban to Rural Transect

C-4 General Urban Zone

Mile Markers

0.0 to 0.3 (Village boundary to Park Way)

Pedestrian Generators

- The Old First Church
- Residences along Monument Avenue
- Southern Vermont College

Bicycle & Pedestrian Traffic Level

Low to moderate

Cross-Section

- Edge-of pavement to edge of pavement = 20-21 feet
- Travel lanes = 10-11 feet
- Drainage swales = 2.5 feet

Crashes 2008-2012 (Source: VTrans General Yearly Summaries)

1 crash, property damage only

Traffic Observations

There is a significant amount of cut through traffic to the hospital, to Southern Vermont College, and south to Route 7.

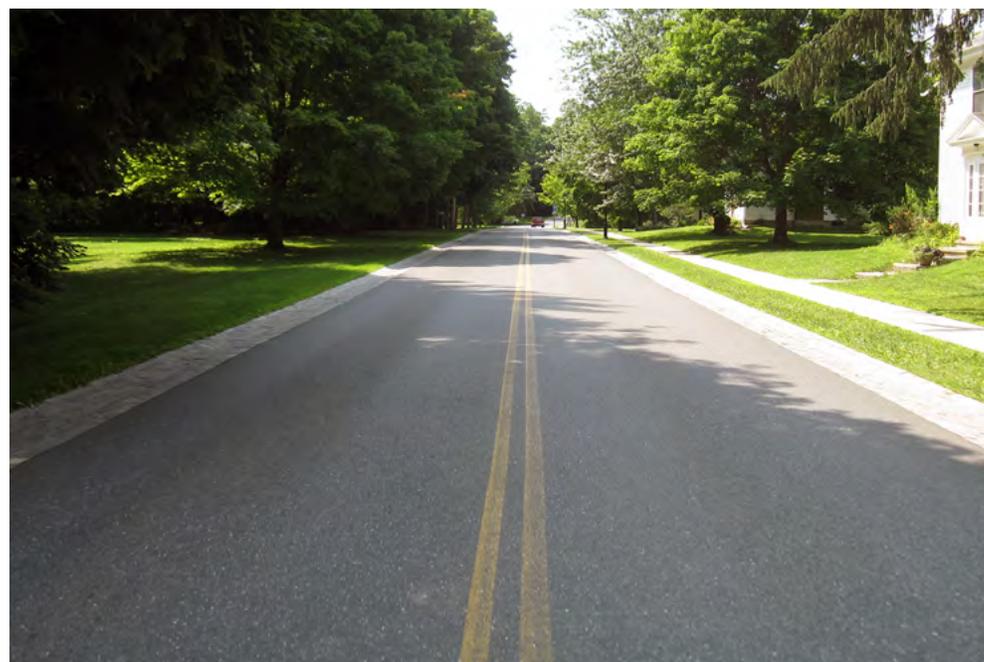
Problems: Factors Contributing to Speed

- Excessive turning radius at the Elm Street intersection allows fast turning speeds and lengthens the pedestrian crossing distance.
- Lack of speed enforcement along the southern end of Monument Avenue between Elm Street and Route 7 may contribute to speeding and cut through traffic in the Village. (Note: speed enforcement records have been requested from the Bennington Police Department)

Problems for Pedestrians

- The sidewalk stops short of the entrance to Southern Vermont College (outside the Village boundary), which may discourage walking between the school and the Village.
- There are no sidewalks on the eastern side of Monument Avenue.

Lower Monument’s straight alignment invites speeding. The yellow centerline, which is not warranted by the MUTCD, makes the street look more like a highway.



Problems for Cyclists

- The narrow 10-11 foot travel lanes calm traffic but don’t allow wide passing distance.
- Traffic speed and volume make cycling on Monument Avenue stressful for less experienced cyclists.

Recommended Solutions

Short-term

- Install permanent speed feedback signs in both directions.
- Increase speed and impaired driving enforcement within the Village.
- Work with the Town of Bennington Police Department to increase enforcement on Monument Avenue between the Village boundary and Route 7.

Medium-term

- Install speed tables with a design speed of 20-25 mph for speed control and traffic volume reduction.
- Reduce the turning radius at the Elm Street intersection to shorten the pedestrian crossing distance and to calm turning vehicles.

Long-Term

- Work with the Town of Bennington to extend the sidewalk to the entrance of Southern Vermont College.
- Study the feasibility of constructing a sidewalk on the eastern side of Monument Avenue.



**STUDY AREA 5
VILLAGE GREEN**

Road Classification:

Main St/West Rd.
Class 1 Town Highway
Principal Arterial

Monument Ave
Class 2 Town Highway
Major Collector

2013 AADT:

5,900 (VT-9 between Park Way and Monument Ave.)

Speed Limit

25 mph Monument Ave
30 mph VT-9

Speed

N/A

Urban to Rural Transect

C-4 General Urban Zone

Pedestrian Generators

- The Old First Church
- Residences

Bicycle & Pedestrian Traffic Level

Low to moderate

Crashes 2008-2012 (Source: VTrans General Yearly Summaries)

7 crashes: property damage only.

Problems & Recommended Solutions: Factors Contributing to Speed

- Some of the roads and intersections in the village green area have excessive paved areas and corner radiuses, which invite speeding, make walking uncomfortable and mar aesthetics. In particular [see diagram]:
 - *Solution:* (short-term) Reduce the corner radius with flexible bollards.
 - *Solution:* (medium-term) Reduce the corner radius by moving the curb.
- Traffic is poorly channelized. Some vehicles stray outside their lanes at the curve. [2]
 - *Solution:* (short-term) channelize and calm traffic with flexible bollards in the center of the road east of the crosswalk.
 - *Solution:* (medium-term) install a narrow curbed median in the center of the road east of the crosswalk to channelize and calm traffic and protect the pedestrian crossing.
- Curb-to-curb distance of 26 feet is too wide.
 - *Solution:* (long-term) Move curbs to extend green space and narrow the road to 22 feet. [3]
- Curb-to-curb distance of 27 feet is too wide. [4]
 - *Solution:* (short-term) Mark the parking lane.
- Curb-to-curb distance of 37-39 is too wide. [5]
 - *Solution:* (medium-term) Rebuild sidewalk, green strip and curb. Distance curb-to-curb should be 32 feet: two 11-foot travel lanes and two 5-foot bicycle lanes.

- The mouth of the intersection is too wide. [6]
 - *Solution:* (long-term) Narrow the intersection’s mouth by enlarging the island. Relocate the drain inlet.
- The Intersection is too wide. Traffic is not well channelized. [7]
 - *Solution:* (long-term) Compact the intersection either by moving the curbs in on the northeast corner of the intersection or by creating a planted island in the mouth of the entrance to upper Monument Ave to channelize and calm traffic.

Also:

- The speed limit on VT 9 is 30 mph, 5 mph higher than the Village speed limit of 25 mph.
 - *Solution:* Work with VTrans to establish a 25 mph speed limit on VT-9 to comply with the 25 mph Village speed limit.

Problems & Recommended Solutions for Pedestrians

- [1] Many visitors cross here to walk between the Old First Church and the monument, but the crossing is uncomfortable, poorly designed, dangerous, and not ADA compliant. It has the following deficiencies:
 - The large drainage inlet in the middle of the crosswalk is a trip hazard.
 - The crossing distance is excessive due to a long turning radius and wide travel lanes.
 - The sidewalk slope leading into the crosswalk is too steep.
 - There are no curb ramps.
 - The crosswalk markings are faded.
 - Some vehicles fail to yield to pedestrians at the crosswalk.

Solutions

- (Short-term) Restripe the crosswalk.
- (Short-term) Shorten the crossing distance by creating temporary bulb-outs with flexible bollards or plastic, movable planters.
- (Medium-term) Move the drainage inlet outside of the crosswalk.
- (Medium-term) Install bulb-outs and raise the crosswalk to curb height with a speed table. This will reduce the slope ratio, shorten the crossing distance, calm traffic, and force vehicles to slow down at the crosswalk making it more likely they will yield.
- Crosswalk needed where the sidewalk ends on the east side of Monument Ave.

The crosswalk at Main Street /VT-9 has a long crossing distance due to a long corner radius. The drain inlet in the middle of the crosswalk is a trip hazard.

- *Solution:* (short-term) Install a new crosswalk.
- Crosswalk needed. [8]
- *Solution:* (short-term) Install a new crosswalk.
- The sidewalk along the western side of Monument near West Road is overgrown and impassable.
- *Solution:* (short-term) clear vegetation, and (medium-term) rebuild the sidewalk

Other problems:

- The Village’s crosswalks made from pavers are not visible to motorists.
- *Solution:* (short-term) Mark crosswalks with paint or thermoplastic.
- The path system within the village green’s



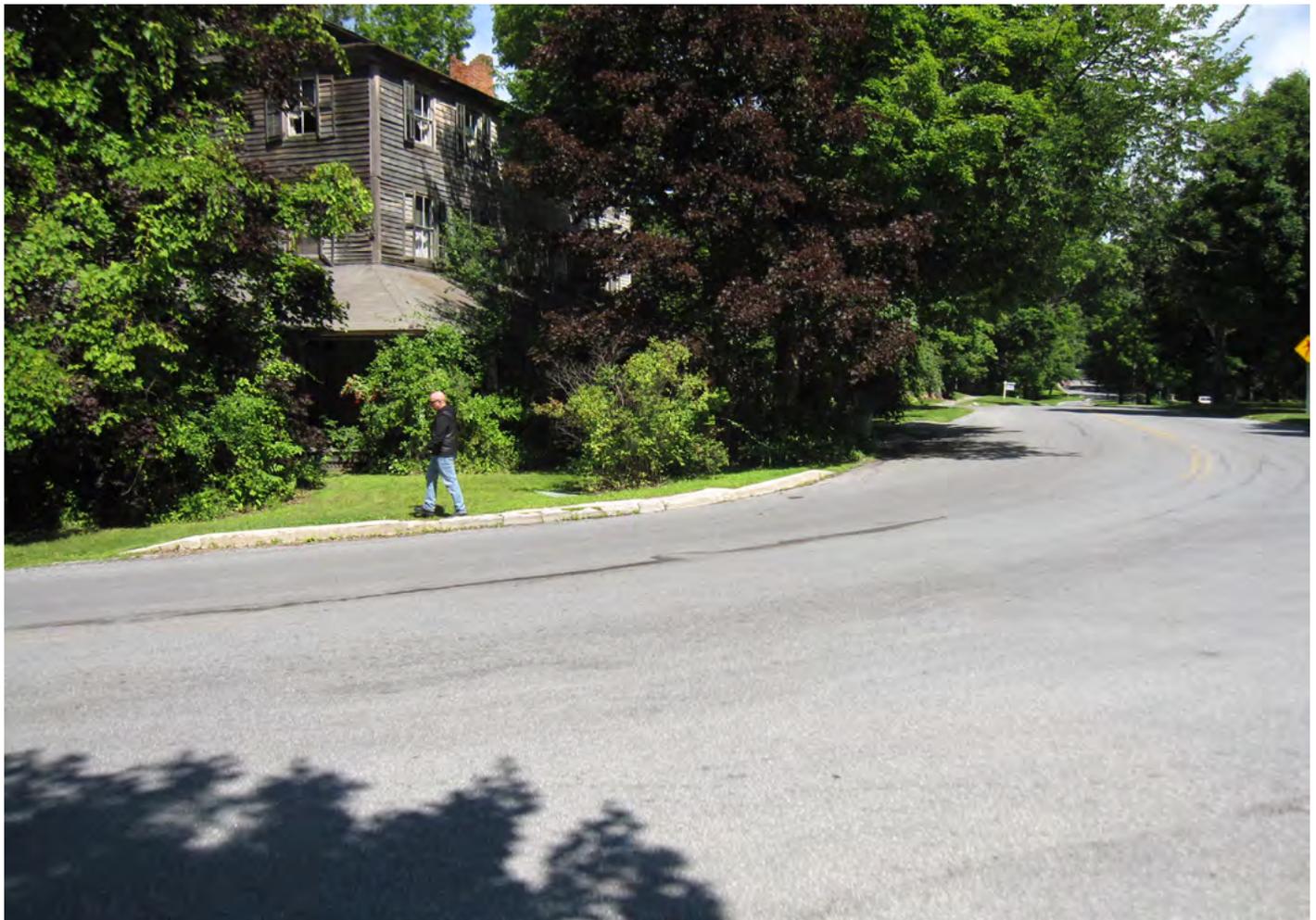
islands is incoherent.

- *Solution:* (long-term) Hire a landscape architect to design a path system that considers the Village’s walking patterns.

Problems & Recommended Solutions for Cyclists

- Lack of bicycle lanes or markings on VT-9
- *Solutions:* (short-term) Install 5-foot bike lanes on VT-9

VT-9 is wider than necessary near the village green which limits pedestrian space and encourages aggressive driving.





**STUDY AREA 6
MONUMENT CIRCLE**

Road Classification:
Class 2 Town Highway
Major Collector

2013 AADT:
N/A

Speed Limit
25 mph

Speed
N/A

Urban to Rural Transect
C-4 General Urban Zone

Pedestrian Generators
Bennington Monument

Bicycle & Pedestrian Traffic Level
Low to moderate

Traffic Observations
There is significant tourist traffic on Monument Circle in the summer and during fall foliage. In the offseason there is not much traffic.

- Problems: Factors Contributing to Speed**
- A wide corner radius allows vehicles to make fast right turns from Walloomsac onto Monument Ave.
 - Some vehicles traveling north on Monument Ave. fail to stop at the Walloomsac intersection STOP sign. The STOP bar there is faded and hard to see.

- Problems for Pedestrians**
- The Monument/Walloomsac intersection lacks crosswalks or curb ramps.
 - Tourists wander into the middle of upper Monument Avenue to snap pictures of the monument.
 - There is not enough pedestrian space in front of the Seth Warner statue.

Problems for Cyclists
Traffic in the Monument/Walloomsac intersection may make some cyclists uncomfortable.



Park visitors could use more space in front of the Seth Warner statue.



A wide corner radius encourages fast right turns onto Monument Ave.

Recommended Solutions

Short-term

- Repaint the stop bar at the top of Monument Avenue.

Medium-term

• “Right-size” the Monument Ave/Walloomsac intersection to calm traffic, improve pedestrian safety and aesthetics. In particular:

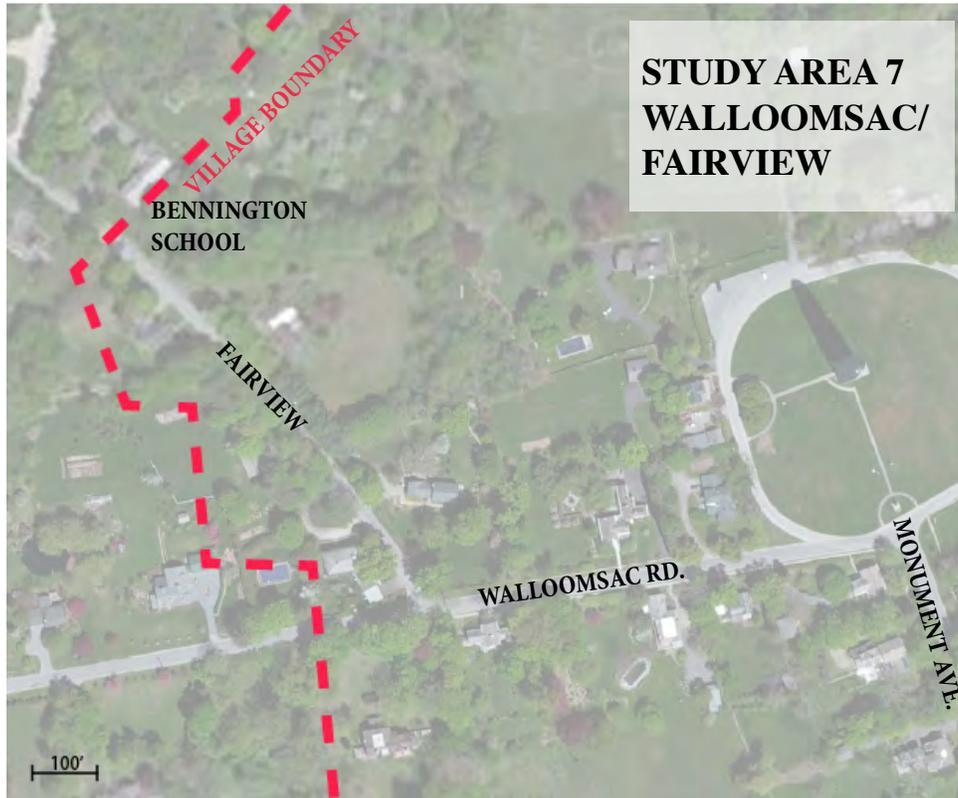
- Tighten the turning radius for vehicles turning right onto Monument Avenue, either by moving the curb or by using mountable granite pavers to visually tighten the intersection.
- Move the curb in front of the Seth Warner statue to give more space to park visitors and to re-

move unnecessary pavement.

- Add curb ramps and crosswalks at the Monument Ave/Walloomsac intersection.

Long-Term

- Study the feasibility of constructing a planted pedestrian refuge island near the top of Monument Avenue to calm traffic and to give visitors a place to photograph the monument.



Pedestrian Generators

- The Bennington Monument
- Bennington School
- Residences

Bicycle & Pedestrian Traffic Level

Low to moderate

Crashes (Source: VTrans General Yearly Summaries)

None reported

Traffic Observations

There is significant cut-through traffic heading to and from Silk Road.

Cross-Section

WALLOOMSAC RD. & FAIRVIEW ST.

N/A

Road Classification:

Class 3 Town Highway
Major Collector

Problems: Factors Contributing to Speed

- The School Zone and crosswalk at the Bennington School are poorly marked.
- A straightaway on Fairview invites speed.

2013 AADT:

2,000 (Walloomsac, between Fairview and Monument Circle)

Problems for Pedestrians

Lack of sidewalks on Fairview connecting the Bennington School to the Village

Speed Limit

25 mph

Problems for Cyclists

Traffic speed and volume make cycling stressful for less experienced cyclists.

Speed

N/A

Recommended Solutions

Urban to Rural Transect

C-3 Suburban Zone

Short-term

- Install a permanent speed feedback sign on Fairview for vehicles entering the Village.



A straightaway encourages speeding on Walloomsac Rd.

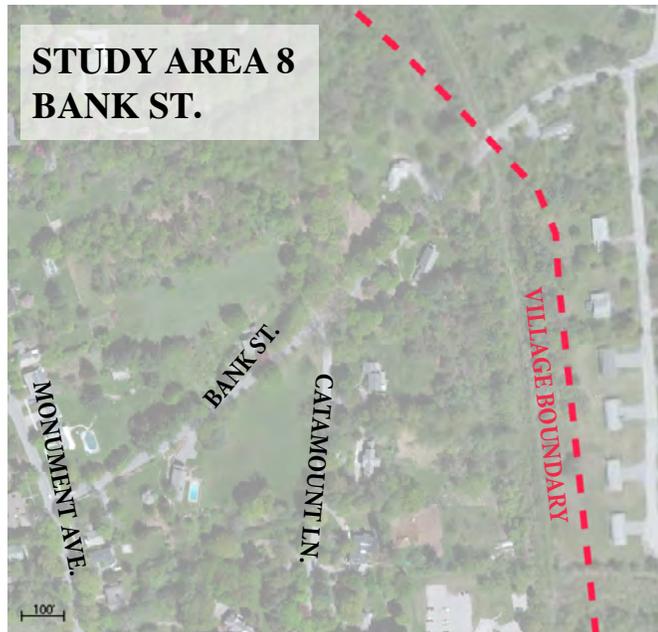
- Improve school zone markings and crosswalk visibility at the Bennington School.

Medium-term

- Replace the four-way stop with a mini-roundabout at the Walloomsac/Fairview intersection.
- Install a chicane on Fairview with a design speed of 20-25 mph to interrupt the straightaway south of the Bennington School.
- Install a speed table on Walloomsac Rd. with a design speed of 20-25 mph.

Long-Term

Study the feasibility of constructing a sidewalk linking the Bennington School and the existing sidewalk on Walloomsac Rd.



**STUDY AREA 8
BANK STREET**

Road Classification:

Class 3 Town Highway
Major Collector

2013 AADT:

1,200

Speed Limit

25 mph

Speed

N/A

Urban to Rural Transect

C-3 Suburban Zone

Pedestrian Generators

- Bennington Country Club
- Residences along Bank Street

Bicycle & Pedestrian Traffic Level

Low

Cross-Section

Bank Street is 21 feet wide.

Crashes 2008-2012 (Source: VTrans General Yearly Summaries)

3 crashes. Property damage only.

Traffic Observations

Some cut-through traffic to Hunt Street/Benmont Ave.

Problems: Factors Contributing to Speed

Cut through drivers use Bank Street to save time. There are no physical barriers to speeding on Bank Street.

Problems for Pedestrians

Bank Street has no sidewalks and no paved shoulders to walk on. In many places pedestrians must walk in the travel lane.

Problems for Cyclists

Vehicle speed and limited site distance contribute to cycling stress and danger.

Recommended Solutions**Short-term**

Where feasible, clear and build up the grass area along the road's edge within the right of way to give pedestrians a safe place to walk.

Medium-term

Install speed tables with a design speed of 20-25 mph.

Long-Term

Study the feasibility of constructing a sidewalk along one side of Bank Street.

APPENDIX

Upper Monument Ave Speed Limit 25	Both Directions	Southbound	Northbound
Vehicles	279	92	187
Mean Speed	28.4	24.8	33.1
Mode Speed	30	30	32
Median (50 th Percentile Speed)	29	25	31
85 th Percentile Speed	34	31	34
95 th Percentile Speed	36	33	36.65
Top Speed mph	45	37	45
% Speeding 5 mph of more	41.1%	26.0%	60.4%
% Speeding 10 mph of more	10.0 %	2.1%	13.9%
% Speeding Overall	73.1%	46.7%	86.0%

Lower Monument Ave Speed Limit 30	Both Directions	Southbound	Northbound
Vehicles	238	110	128
Mean Speed	32.8	32.3	33.3
Mode Speed	34	34	34
Median (50 th Percentile)	33	33	33
85 th Percentile Speed	38	37	37
95 th Percentile Speed	40	38.55	42.3
Top Speed mph	49	43	49
% Speeding 5 mph or more	37.8%	34.5%	29.6%
% Speeding 10 mph or more	7.9%	3.6%	11.7%
% Speeding Overall	69.7%	68.1%	71.0%

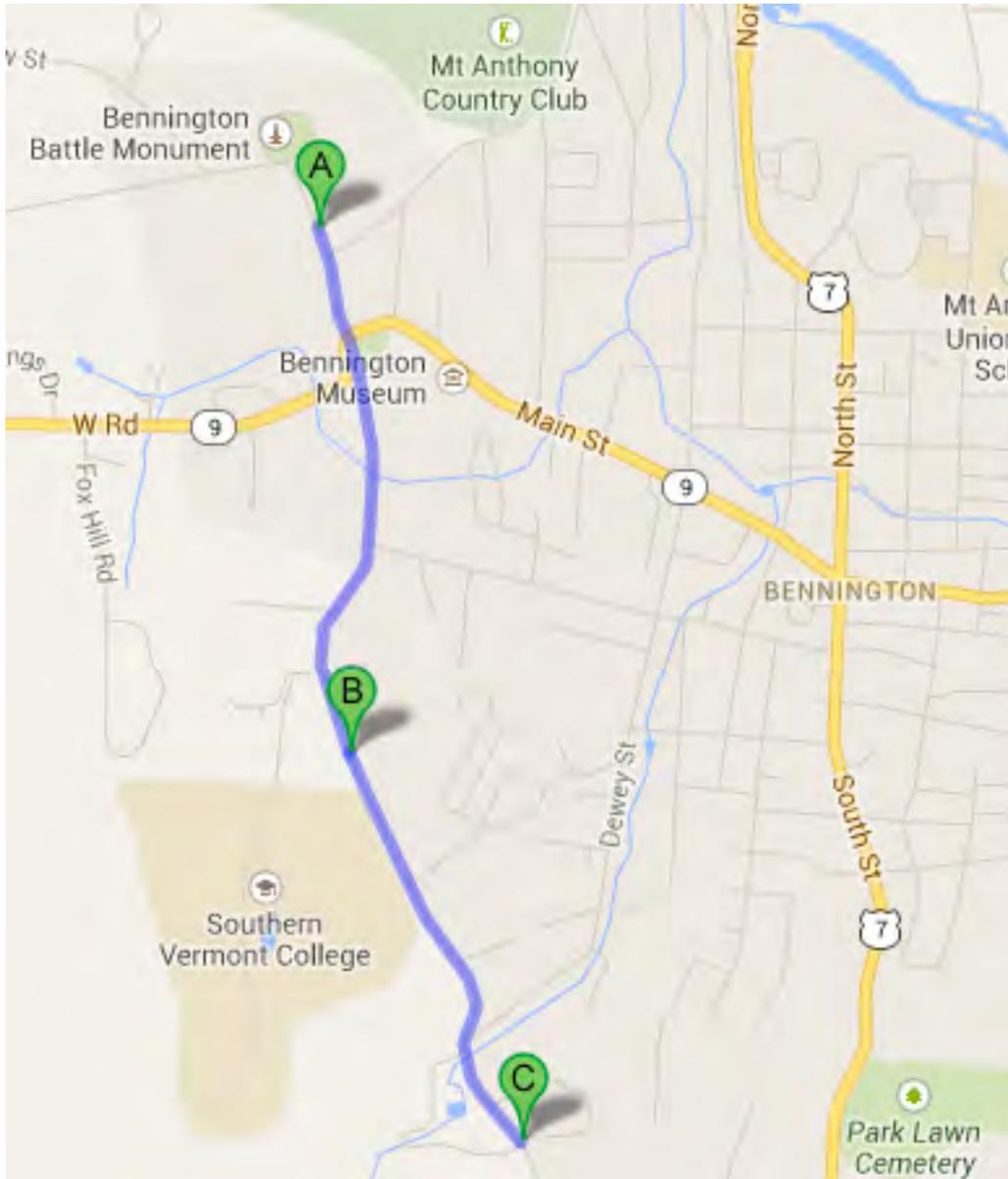
Speed data was collected on Monument Ave six times at two main locations, upper Monument Ave (in Old Bennington Village, between Bank St. and the Monument) and lower Monument Ave (both just south and north of the hospital), for about half an at hour each location.

- Monday 3/24 from 9:45-11:30 am
- Tuesday 3/25 from 7:45-8:45 am
- Wednesday 3/26 from 12:15-1:20 pm
- Wednesday 4/9 from 5:00-5:50pm
- Thursday 4/10 from 12:00-12:55 pm
- Thursday 4/10 from 5:00-6:00pm
- Thursday 4/17 from 7:00-8:00pm

Only unhindered vehicles were recorded (lead vehicles in platoons or vehicles traveling alone).

Locations:

- (A.) House at 25 Monument Ave
- (B.) Turnoff just north of Hospital Dr.
- (C.) Meadowbrook Dr.



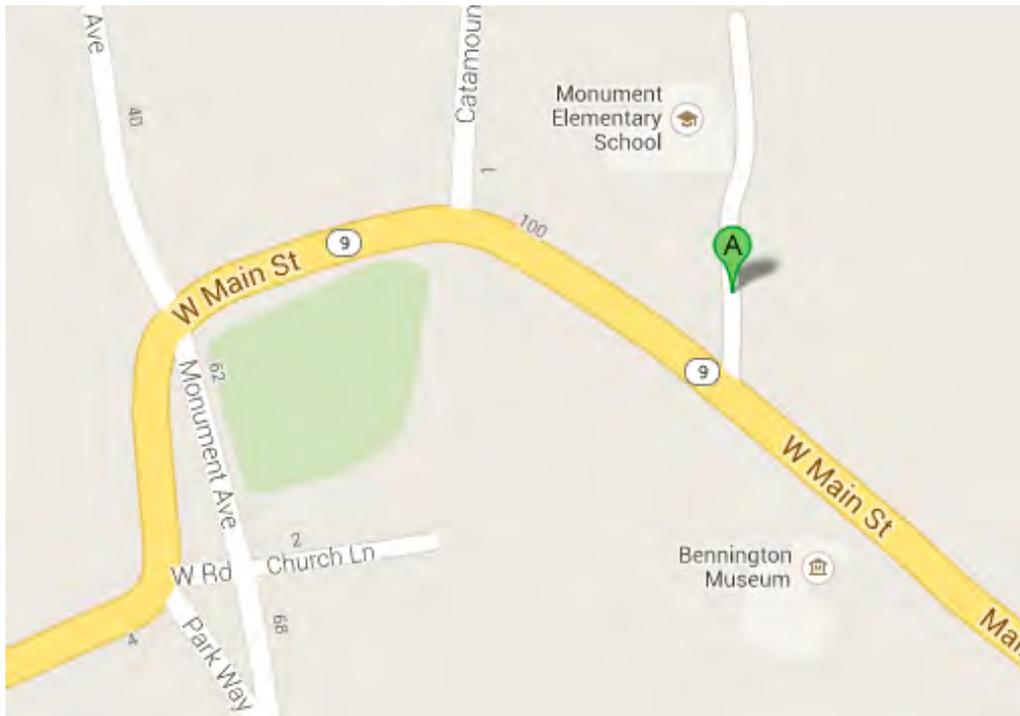
Main St./VT-9

Speed Limit 30 mph	Both Directions	Westbound	Eastbound
Total Vehicles	126	70	56
Mean Speed	32.23	32.01	30.82
Mode Speed	33	30	30
Median Speed	32	32	31
85 th Percentile	35	35	33.75
95 th Percentile	39	37	34.25
Top Speed mph	43	42	43

% Speeding 5 mph or more	21%	11%	19%
% Speeding 10 mph or more	4%	2%	7%
% Speeding (31 mph or greater)	65%	61%	71%

Notes:

- Speed data was collected:
 - At the driveway of Monument Elementary School
 - On Wednesday July 30, 2014 from 5:00pm-5:45pm



West Rd./VT-9

30 MPH Speed Limit	Eastbound
Total Vehicles	92
Mean Speed	31.71
Mode Speed	32
Median Speed	31.5
85 th Percentile	36
95 th Percentile	39
Top Speed mph	40

40 MPH Speed Limit	Eastbound
Total Vehicles	83
Mean Speed	35.79
Mode Speed	34
Median Speed	36
85 th Percentile	40
95 th Percentile	42
Top Speed mph	43

Speed Limit	30 MPH	40 MPH
% Speeding 5 mph or more	25%	0%
% Speeding 10 mph or more	2%	0%
% Speeding (31 mph or greater)	58.6%	12.6%

Notes:

- Speed data was collected on West Rd./VT-9, counting only eastbound traffic going in to Old Bennington Village. Speed zones change from 50 mph to 40 mph to 30 mph.
- Speed data was collected:
 - At the driveway on Old School House Rd., near the 40 mph speed limit sign, and the driveway of the Four Chimneys Inn, near the 30 mph speed limit sign.
 - Wednesday July 30, 2014 from 11:40am-12:20pm and 12:20pm-1:00pm

