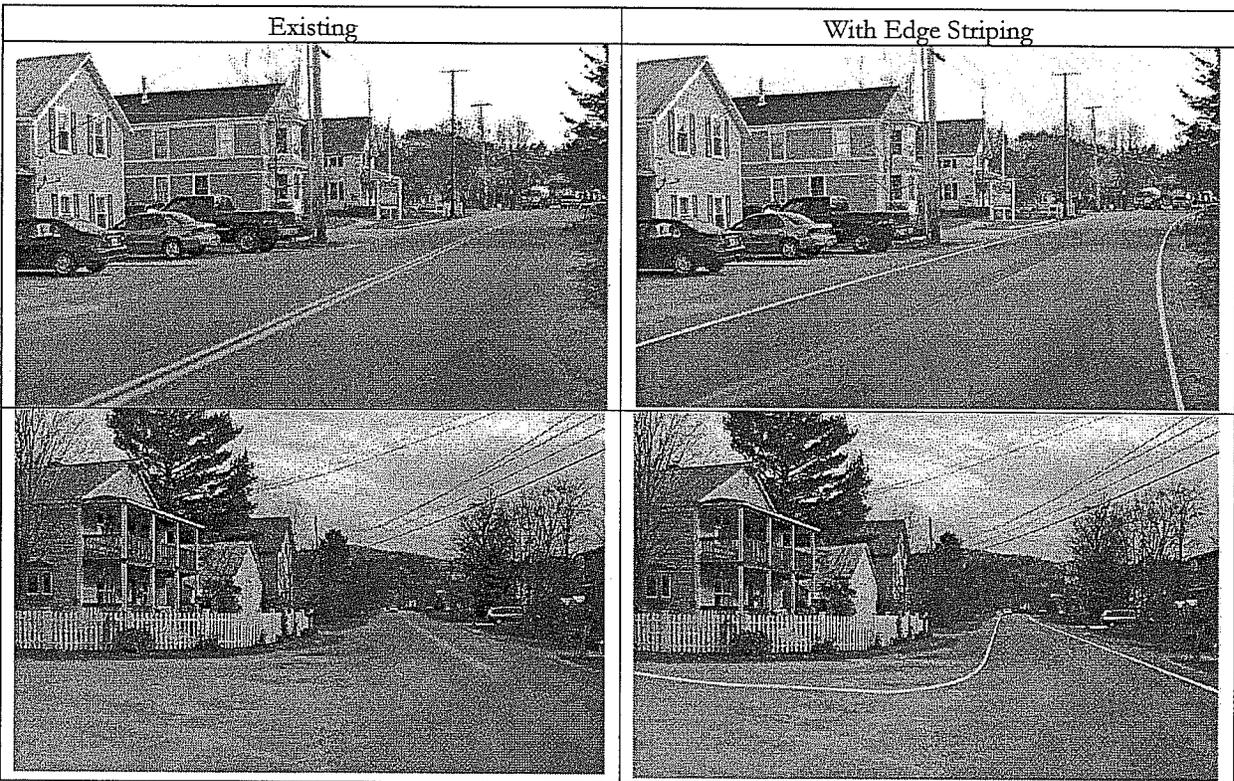


Village Treatments

The following traffic calming strategies are appropriate to consider for the village centers of Lower Village and Huntington Center, where the lower speed limit of 25 mph should be reinforced by a variety of design strategies.

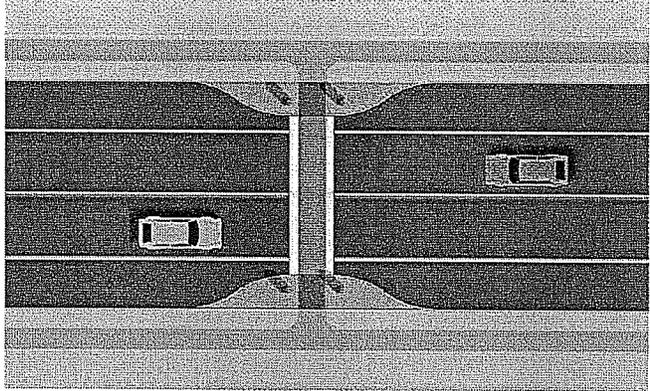
Edge Striping

A relatively inexpensive technique that can be applied relatively easily is edge striping of the roadway. In general, the Main Road through Huntington and Huntington Center have a paved width of at least 24 feet. This paved cross section would be striped to have 2-10 foot lanes, allowing 2 foot shoulders on either side for pedestrians. The edge striping will visually narrow the road, and reinforces slower driving speeds. The following photos show a simulation of how the edge stripes can change the look and feel of the Main Road.



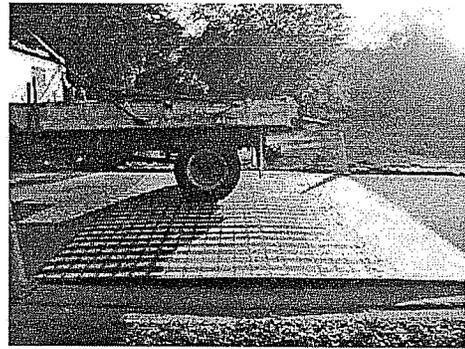
Raised Crosswalks

While a marked and signed crosswalk in Lower Village would be an aid for pedestrian travel, there are techniques to more aggressively demarcate a crosswalk by raising and providing curb extensions to provide for a traffic calming effect as well.



Rubber Speed Humps

Traffic calming on Bridge Street is more challenging as it is not currently paved. In the long term, paving the portion of the street near the bridge, where the street is posted with a 25 mph speed limit, would allow for more traffic calming options. In the short term, one option is the installation of a temporary rubber speed hump, which can be installed with spikes, and removed during the winter months. An example is illustrated at right.



Intersection Reconfiguration for the Lower Village

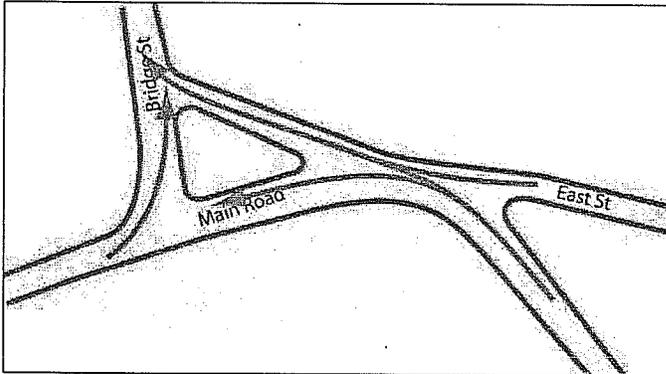
Two long range alternatives have been prepared for the Lower Village area, which are illustrated in the accompanying overview maps. The following figures compare alternatives A and B, although virtually all of these elements can be interchanged and developed into a preferred alternative in the next phases of this project.

Traffic Patterns in Lower Village

Among the most effective types of traffic calming measures are those that create a “self-enforcing” road network. Creating this type of environment in Lower Village can be achieved by tightening corner radii at the major intersections in the village, which will require any traffic that is turning to reduce speed compared to the existing conditions. The following paragraphs describe several possible options for reconfiguring the intersections in the center of Lower Village. The described in the following paragraphs can essentially be “mixed and matched” as desired.

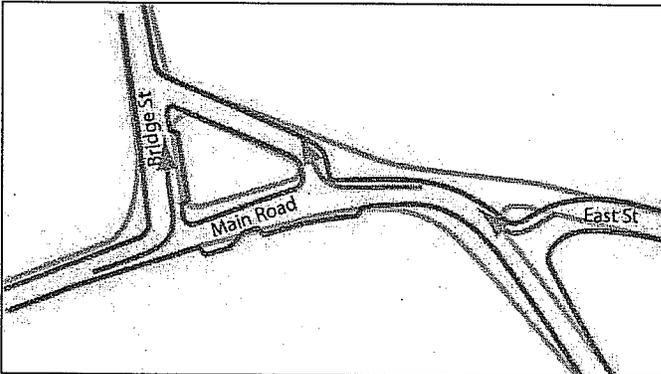
The traffic circulation patterns in the Lower Village are in the vicinity of the Triangle and the East Street intersection are complex, and addressing these would both serve to improve safety for vehicles and pedestrians, and reduce speeds of traffic. The following illustrations show some of the current patterns.

Existing Circulation



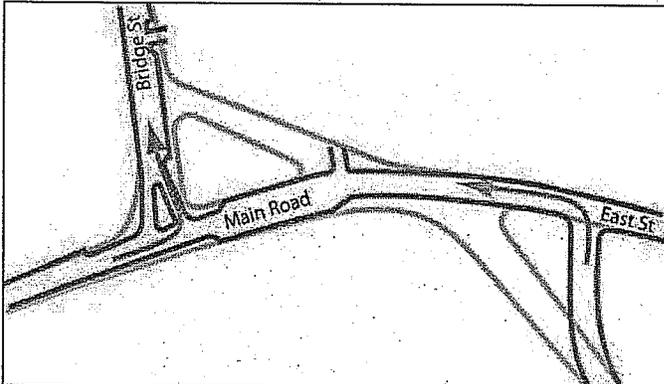
The existing circulation in the core of Lower Village allows for relatively high radius, hence higher speed turning movements. Also, there is a lack of definition of vehicle movements for traffic exiting East Street, and turning onto Main Road. For traffic moving from East Street to Bridge Street, it is possible to slip through without entering Main Road. While volumes are relatively low, this can lead to a chaotic and potentially unsafe traffic situation.

Alternative A Circulation



This alternative maintains the triangle, but narrows the entrances to each intersection with Main Road. This will also reduce the turning radii, and therefore reduce speeds. Main Road is realigned to improve sight distance, and East Street is realigned to be a "T" intersection, also tightening the turning radius and better defining the appropriate traffic circulation.

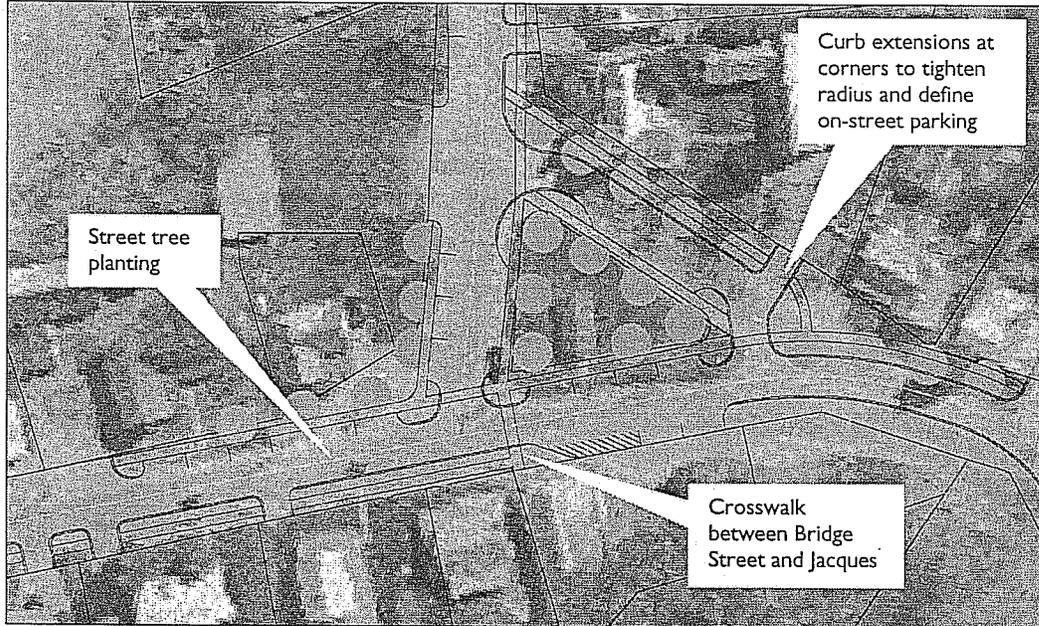
Alternative B Circulation



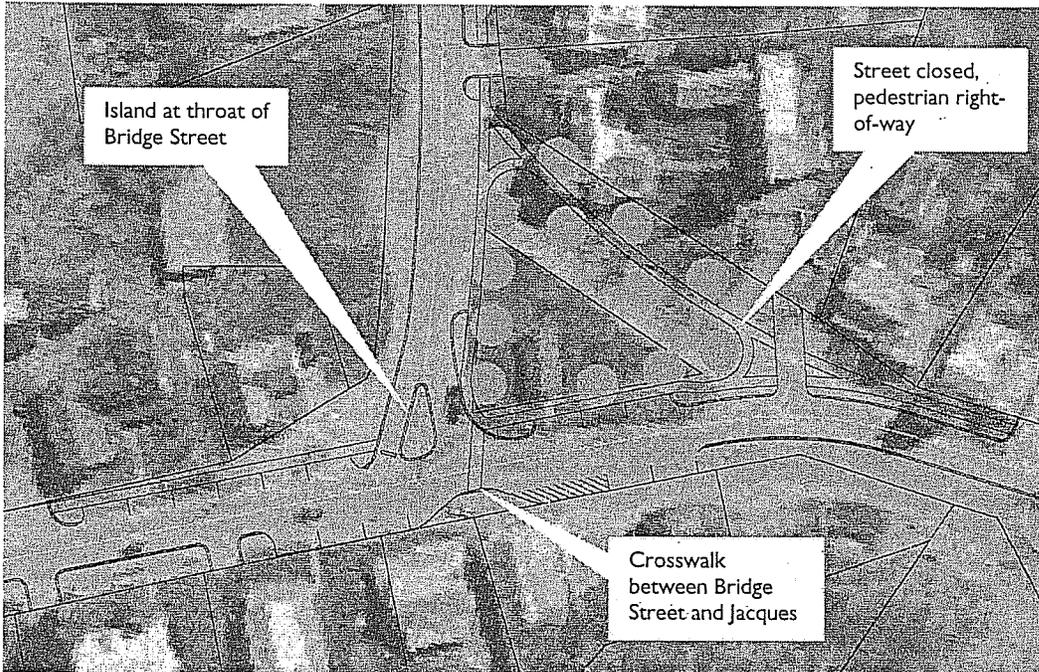
In this plan, the side of the triangle is closed, and the intersection of Bridge Street and Main Road is narrowed and defined. This results in smaller turning radii for traffic movements in this area, which will substantially reduce traffic speeds. This alternative also includes realignment of Main Road to a "T" intersection with East Street, in which Main Road traffic would be required to stop. This will significantly reduce northbound speeds into the village core.

These plans are illustrated in more detail in the attached graphics, and will reinforce the traffic calming elements by creating a "self enforcing" traffic environment.

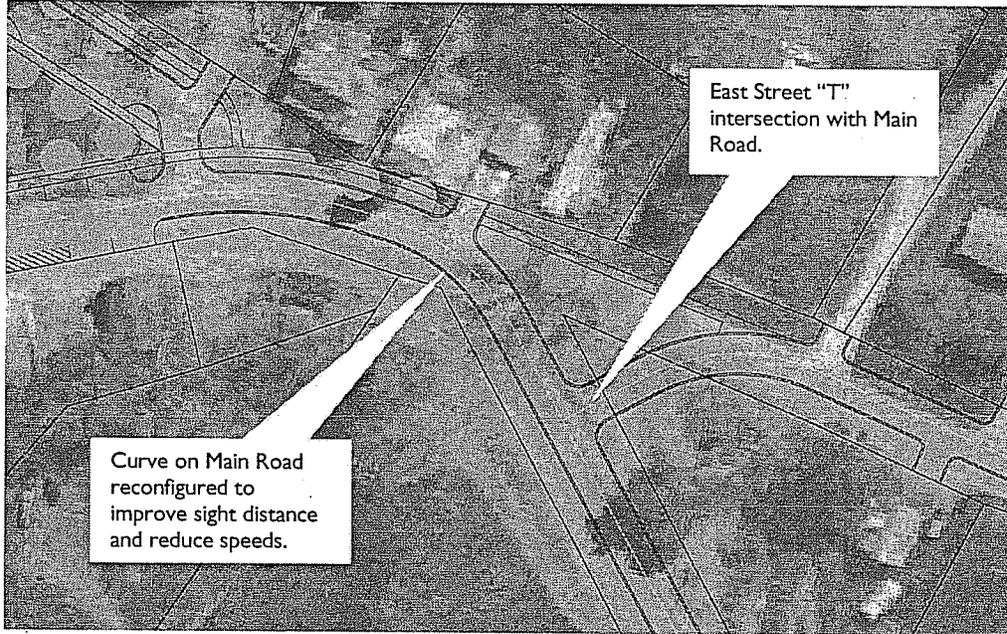
Alternative A: Bridge Street/Main Road Intersection Area



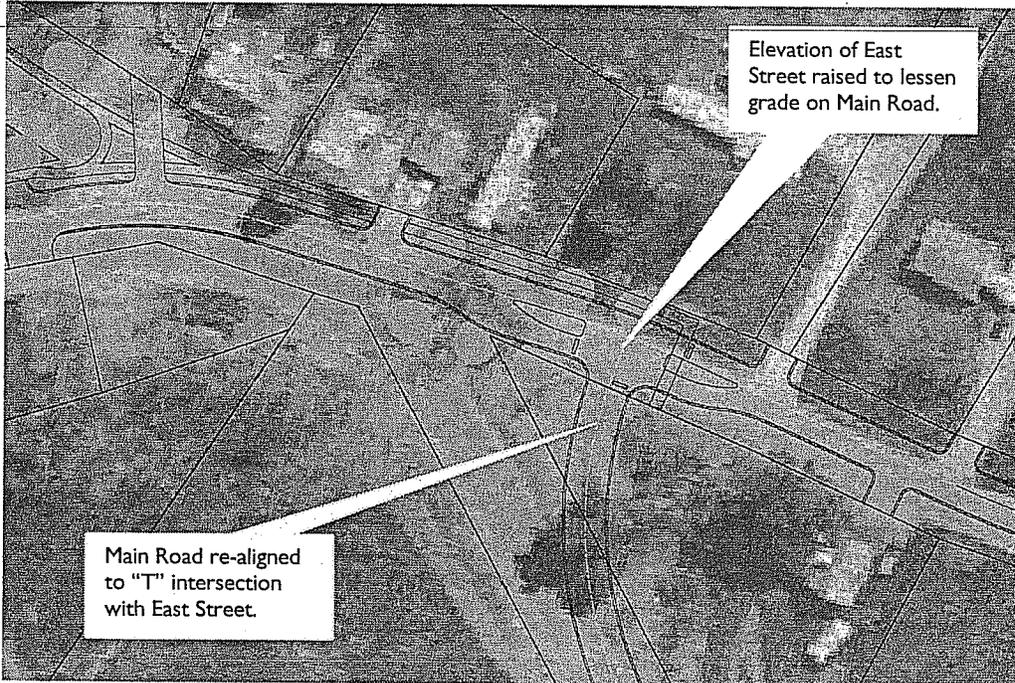
Alternative B: Bridge Street/Main Road Intersection Area



Alternative A: East Street/Main Road Intersection Area



Alternative B: East Street/Main Road Intersection Area



Huntington Center Plan

The plan for Huntington Center is shown on the overview map, with detailed elements discussed below. In many ways, this is a more challenging location because Main Road is very straight, and there are fewer opportunities for reconfiguring intersections that will be effective in traffic calming. The major features of the plan are discussed below:

Gateway Treatments

The village gateways should be established with village entrance identity sign and radar feedback signs. On the north end of the village, it may be possible to establish a bridge railing treatment at the culvert to reinforce a gateway. At the south gateway, a splitter island may be more effective, as this is a very straight section of roadway that visually gives motorists little reason to reduce speed.

Roadway Cross Section

Inside the village gateways, edge stripes should be established that identify 10 foot travel lanes and an area for pedestrians outside the lanes. The overall width is approximately 24 feet, allowing for 2 foot shoulders, or one 4 foot pedestrian way on one side.

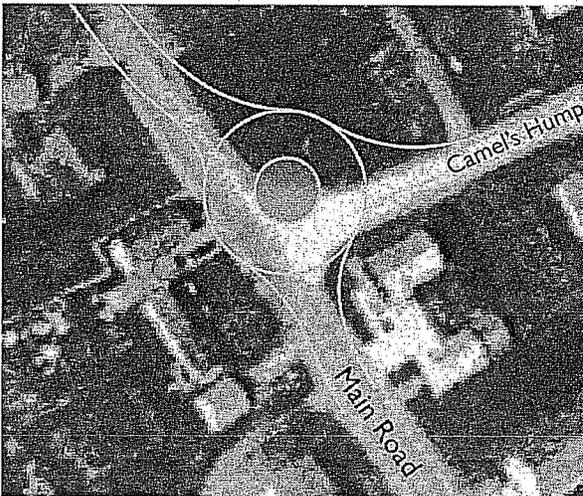
Raised Crosswalk

The crosswalk providing for schoolchildren access recreation facilities could be a traffic calming feature as well with more accentuated marking, and possibly reconfiguration as a raised crosswalk or incorporating a central refuge island (see examples below).

Intersection with Camels Hump Road

This intersection could be reconfigured in a way that would support speed reduction through the village, including as a modern roundabout. The figure below shows a possible location for a roundabout with an outside diameter of 100 feet, which can be designed to allow longer trucks through. At the right is a photograph of a similarly sized roundabout in Lisbon, Maryland.

Possible Roundabout Layout in Huntington Center



Single Lane Roundabout in Lisbon, MD



Project Phasing

The following lists show possible action steps based on likely cost and complexity:

Phase 1: Short Term (within 2 years)

- Establish a “traffic tamers” education program, possibly through the elementary school, to educate the community about the safety benefits for the entire community that would result from greater observance of the speed limits.
- Increased speed enforcement following the initiation of the above education program.
- Edge striping in Lower Village and Huntington Center to define 10 foot travel lanes.
- Establish informational gateway traffic calming treatments including gateway signs, radar feedback signs, and dynamic striping
- Striped Crosswalks in Huntington Center and Lower Village near Post Office.

Phase 2: Medium term (2 to 10 years)

- Establish tighter turning radii in Lower Village at Bridge Street
- Establish tighter radii at Camels Hump Road and Main Road, and raised median at crosswalk in Huntington Center.
- Pave and construct sidewalks on Bridge Street
- Establish splitter islands at gateways

Phase 3: Long Term (10 to 20 years)

- Reconfiguration of Camels Hump Road and Main Road intersection as roundabout
- Construction of sidewalk in Lower Village and curbing.
- Construction of sidewalk in Huntington Center.

Further survey and engineering will be required for the medium and long term implementation.

Cost Estimates

The traffic calming elements are described below in three phases. Phase 1 is “Signs and Stripes”, which include edge striping of 10 foot lanes, crosswalks and appropriate signs, and radar feedback signs in both Lower Village and Huntington center.

A detailed break down of estimated costs is provided on the following table. This includes itemized estimated costs based on information from vendors, other communities, and the VTrans cost estimate guidelines. In addition, a 25% allowance for management, contingencies, unforeseen additional costs, etc. is included.

The total cost for the “Signs and Strips” phase is estimated to be \$32,000 for both Huntington Center and Lower Village. One approach would be to implement the striping portion and crosswalks in year 1, for approximately \$10,000, and use radar feedback signs available from the vendors for a temporary trial. If the trial experience is successful, permanent signs can be implemented in year 2 for about \$20,000.

Detailed Cost Estimate for Phase 1

Lower Village

Treatment	Unit Cost	#	Units	Total Cost	
Reduced Speed Ahead signs	\$ 500	3	each	\$ 1,500	
Radar Speed Signs	\$ 3,000	2	each	\$ 6,000	Basic unit -- needs power connection, no data collection
Data collection capability	\$ 1,000	2	each	\$ 2,000	Allows for monitoring of effectiveness of traffic calming
Solar Power Units for above	\$ 1,000	2	each	\$ 2,000	Avoids need to connect to power
Rubber Speed Hump	\$ 300	1	each	\$ 300	Bridge Street (can be relocated)
Pedestrian Bollards	\$ 300	1	each	\$ 300	Identifies cross walks
Pedestrian Crosswalk Signs	\$ 200	2	each	\$ 400	Identifies cross walks
Crosswalk Striping	\$ 400	1	each	\$ 400	Identifies cross walks
Edge Striping	\$ 1,000	1.4	miles	\$ 1,400	Visually narrows road; provides space for pedestrians
TOTAL				\$ 14,300	

Huntington Center

Treatment	Unit Cost	#	Units	Total Cost	
Radar Speed Signs	\$ 3,000	2	each	\$ 6,000	Basic unit -- needs power connection, no data collection
Data collection capability	\$ 1,000	2	each	\$ 2,000	Allows for monitoring of effectiveness of traffic calming
Solar Power Units for above	\$ 1,000	2	each	\$ 2,000	Avoids need to connect to power
Pedestrian Crosswalk Signs	\$ 200	2	each	\$ 400	Identifies cross walks
Crosswalk Striping	\$ 400	1	each	\$ 400	Identifies cross walks
Edge Striping	\$ 1,000	0.8	miles	\$ 800	Visually narrows road; provides space for pedestrians
TOTAL				\$ 11,600	

Cost Elements: Phase 1

Miscellaneous contingencies (start up, over-runs, engineering)	\$ 25,900
Grand Total: Phase 1	\$ 6,500
	\$ 32,400

Phase 2: Define Edges

This phase includes several “hardscape” features that will have a more deliberate traffic calming effect through physically narrowing the roadway and tightening turning radii. These include splitter islands at the gateways of both villages, curbing around the triangle and Bridge Street intersection in Lower Village, and curbing and a median crosswalk in Huntington Center. Bridge Street would be resurfaced to allow for road striping, and a sidewalk would be included at that time. In addition, this phase includes installation of more attractive gateway signs to be installed at the splitter islands.

Phase 2 Costs

Survey			each	\$ 15,000
Splitter Islands	\$ 15,375	4	each	\$ 61,500
Defining Edge: Lower Village			each	\$ 47,500
Defining Edge: Huntington Center			each	\$ 7,000
Paving and Sidewalk on Bridge St	\$ 250	500	feet	\$ 125,000
Gateway Signs	\$ 2000	4	each	\$ 8,000

TOTAL Phase 2:

\$264,000

Details of this cost estimate are provided in the appendix. This cost estimate is for long range planning purposes, and more detailed design and engineering should be conducted to develop a more refined estimate at such time that the town is ready to pursue any of these project elements. Possible sources of funds would be from the VTtrans Enhancement Program of Bicycle Pedestrian Program (sidewalk).

Phase 3: Sidewalks and Intersection Reconstruction

The following cost estimates are extremely preliminary, for long term planning purposes. As of this time, there are not specified plans for the length or design of sidewalks, but the following cost estimates reflect the general conditions in the attached street design drawings. In addition, the reconstruction of East Street with Main Road, and a small roundabout at the intersection of Camels Hump Road and Main Road are included, which both safety and traffic calming benefits.

Phase 3 Costs

Lower Village Sidewalk	\$290,000
Huntington Center Sidewalk	\$ 85,000
Roundabout Construction	\$375,000
East St Realignment	\$200,000
Total	\$950,000

Funding Sources

The traditional funding source for these projects involves establishing a town capital improvement program with annual contributions made until enough funds are available to build one or more of the budgeted items.

In addition, possible grant funding sources for the sidewalks include the CCMPO's Sidewalk program and the Vermont Agency of Transportation's Enhancement program. Both of these sources require a town contribution of 20% of the awarded funding amount.

There may be funding available through state and local Safe Routes to School programs for improvements related to the elementary school.

The grant funding programs are competitive and require an application process. These programs are usually funded by the federal government and so there may be federal requirements for review and design which can increase total project costs.

Attachments

Overview Map-Lower Village

Overview Map - Huntington Center

Huntington Lower Village

Traffic Calming Plan Elements



Main Road Gateway Treatments:
 Phase 1: Radar feedback signs, dynamic striping
 Phase 2: Splitter Island, Gateway Sign, landscape

Bridge Street Gateway Treatments:
 Phase 1: Signage, rubber speed humps
 Phase 2: Pavement marking or speed humps



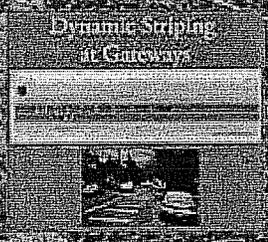
Lower Village Cross Sections:
 Phase 1: Edge striping for 10 foot travel lanes
 Phase 2: Bridge Street Paving, Sidewalks



Traffic Circulation Options to tighten the corners and reduce speed:



Village Center Treatments:
 Phase 1: Stripe and sign crosswalk
 Phase 2: Tighten corner radii
 Phase 3: Reconfigure intersections



Main Road Gateway Treatments:
 Phase 1: Radar feedback signs, dynamic striping
 Phase 2: Splitter Island, Gateway Sign, landscape





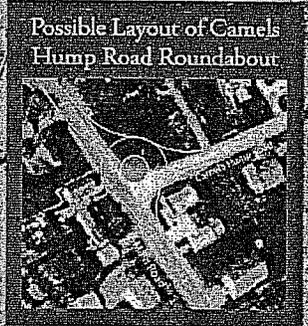
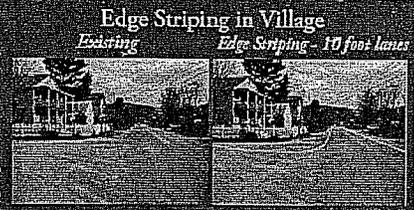
Huntington Center Traffic Calming Plan Elements



Main Road Gateway Treatments:
 Phase 1: Radar feedback signs, dynamic striping
 Phase 2: Splitter Island, Gateway Signs
 Phase 3: Decorative Bridge Railings

Lower Village Cross Sections
 Phase 1: Edge striping for 10 foot travel lanes
 Phase 3: Sidewalk

Camels Hump Road Intersection
 Phase 2: Define Corners and Tighten radii
 Phase 3: Reconfigure intersection, consider Modern Roundabout



Crosswalk Treatments
 Phase 1: Improve Sign and Restripe Perpendicular to road
 Phase 2: Raised crosswalk with Median Refuge

Main Road Gateway Treatments:
 Phase 1: Radar feedback signs, dynamic striping
 Phase 2: Splitter Island, Gateway Sign, landscape

