RSG INC.
RESOURCE SYSTEMS GROUP, INC.

Documentation for:

WESTFORD SIDEWALK CONCEPTUAL ALIGNMENT STUDY

FINAL REPORT

Westford, VT

Prepared for:

Town of Westford

Chittenden County Metropolitan Planning Organization

24 June 2008

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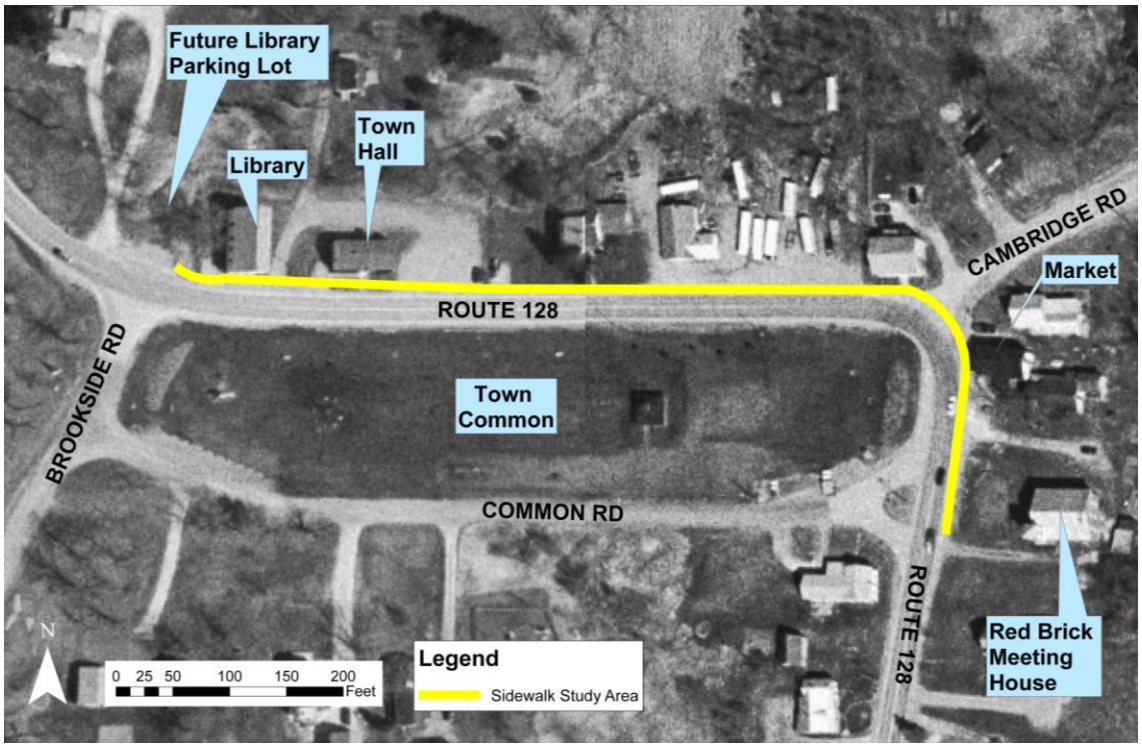
INTRODUCTION

The Westford Sidewalk Conceptual Alignment Study is a joint effort of the Town of Westford, the Chittenden County Metropolitan Planning Organization (CCMPO), the Town Center Committee and local residents to examine the feasibility and potential impacts associated with the construction of a new sidewalk along VT 128 in Westford village. The sidewalk would connect the library and the Red Brick Meeting House. This pedestrian connection would serve as "appropriate infrastructure" to support Goal #4 of the Town Plan, which encourages the Town Center Area to develop as the Town's growth center. Furthermore, the sidewalk serves the Town Plan in its effort to make pedestrian access to the buildings surrounding the Town Common safer and easier.[1]

The purpose of this study is to evaluate the feasibility of constructing a new sidewalk in Westford village and to provide the Town with the documentation necessary to pursue final design and construction funding through applicable federal, VTrans, and CCMPO funding sources. This study builds on 2004 and 2006 studies by T.J. Boyle and Associates.

Figure 1 shows the approximate limits of the study area.

Figure 1: Study Area



[1] Westford Town Plan, adopted October 26, 2004. Pages 2 and 27.

SUMMARY OF EXISTING CONDITIONS

ROADWAY CLASSIFICATION AND DESIGN STANDARDS

VT 128 is a state route maintained by VTrans and classified as a rural major collector through the study area. The roadway cross section consists of 11' travel lanes and 2' shoulders, which is consistent with the *Vermont State Design Standards* for a major collector in a village context. There is currently no curbing along this section.

The Intersection Sight Distance recommended[1] for vehicles on a 30 mph segment is 335 feet. The sight distances measured at Brookside Road and at Cambridge Road exceed this minimum.

VEHICLE CRASHES

VTrans maintains a statewide database of reportable vehicle crashes. A reportable crash is a crash involving $1,000 or more in property damage, an injury, or a fatality. A review of the latest data available from VTrans reveals that between 2002 and 2006 there were no reported vehicle crashes on VT 128 along the study segment. Between 2002 and 2004 there were no crashes involving bicycles or pedestrians reported.

UTILITIES

Overhead power, telephone and cable were identified within the study area. There is a stormwater culvert under VT 128 east of the intersection with Brookside Road, and one catchbasin on the east side of VT 128 in front of the Red Brick Meeting House. In addition, there is a gasoline pump in front of the Market. Although this is not a public utility, the exact location of its associated tank and/or fuel lines must be investigated to determine a conflict with the alignment alternatives. Figure 2 shows the location of visible utilities in the study area.

The identification and location of these utilities is based on field observations. As a number of the utilities could be affected during the construction of pedestrian facilities identified in this report, additional investigation is required to precisely locate the affected utilities and to proceed with necessary permitting.

The conceptual sidewalk designs developed for this study include curbing along the north side of VT 128 to define the edge of the roadway, to channel stormwater runoff, and to better delineate driveway locations.

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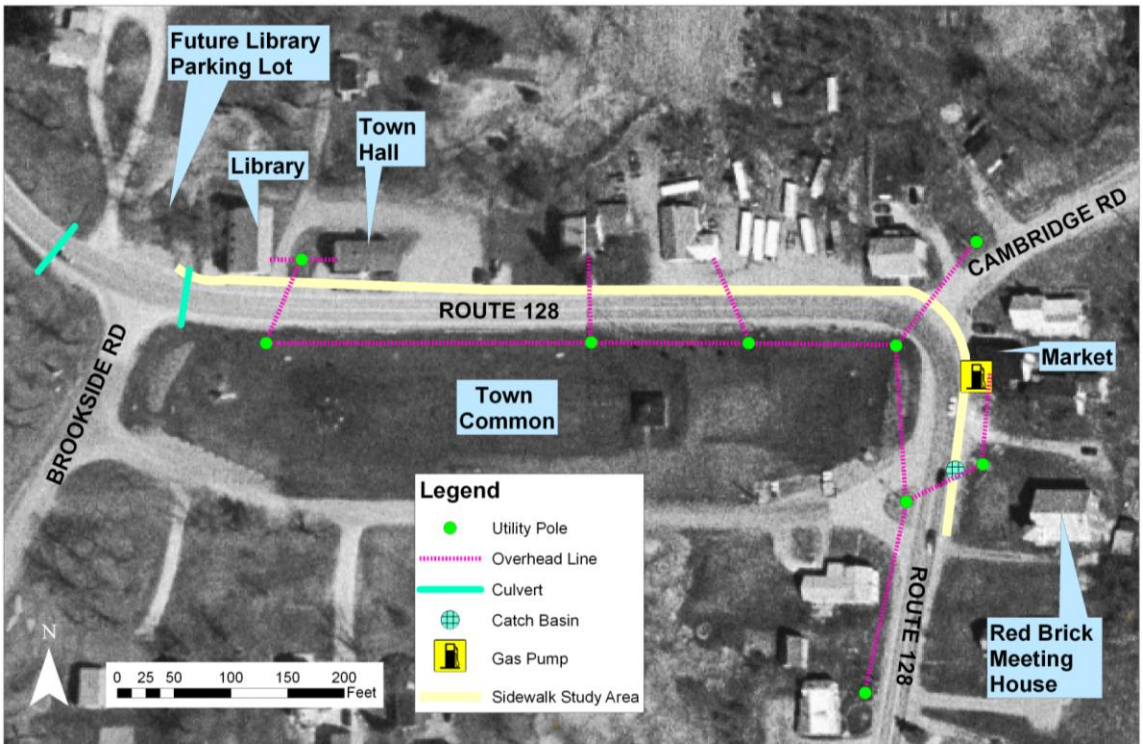
[1] Sight distances as recommended in: American Association of State Highway and Transportation Officials (AASHTO), *A Policy on Geometric Design of Highways and Streets*, 5th Edition (Washington DC: AASHTO, 2004).

Figure 2: Visible utilities in the study area



RIGHT OF WAY WIDTHS

Based on data from the Town, the State right-of-way width along VT 128 to the north of Cambridge Road is 3 rods (50 feet) and to the south of Cambridge Road is 5 rods (83 feet).

Although the conceptual design recommendations remain within the state right-of-way (with the exception of three proposed trees in Alternative 3), it is recommended that a temporary construction easement of 5-20 feet on parcels fronting on the proposed sidewalk be pursued to minimize potential construction-related conflicts.

An access permit will be needed from VTrans to conduct work on the recommended elements within the State right-of-way.

EXISTING PEDESTRIAN FACILITIES

Figure 3 below shows that there is an asphalt sidewalk extending from the library to the Town Hall parking lot. There are two fluorescent yellow signs warning drivers that pedestrians may be crossing the roadway at the Common Road intersection with VT 128; there is also one at the library and one on southbound VT 128 approaching Brookside Road (

Figure 4). These are the only pedestrian facilities in the area; there are no crosswalks.

The asphalt sidewalk abuts the front of the library and is part of the library's entrance. Steps and a wooden wheelchair ramp comprise the sidewalk in this area as shown in Figure 5. Wheelchair access to the library will need to be preserved, whether the sidewalk alignment takes this into account or the access is moved to another point in the library building.

Figure 3: Existing Pedestrian Facilities

Figure 4: Pedestrian warning sign at VT 128-Common Road

Figure 5: The wheelchair ramp that serves the front entrance of the library is part of the sidewalk.

GENERALIZED VILLAGE LAND USES AND PEDESTRIAN TRIP DESTINATIONS

As depicted in Figure 1, the proposed sidewalk will enhance pedestrian accessibility between a number of important locations including the library, Town Hall, Westford Market, the Red Brick Meeting House and the adjoining residences. Residents beyond the project area, including those along Cambridge Rd and Brookside Rd, will also benefit by having a safe walking space when they visit the village.

RECENT PLANS AND STUDIES

Three plans/studies are relevant to the development of a sidewalk in Westford. They are the *Westford Town Plan*, the 2004 *Westford Town Common Enhancement Project for the Town of Westford*, and the 2006 *Westford Town Common Area Project*. Each is summarized below:

1) Among the objectives and recommendations in the 2004 *Westford Town Plan* that are relevant to this study are:
   - "Address pedestrian/recreational use to the extent possible, and consider related traffic calming measures to increase safety (enforcement, stop signs, etc.)." (page 27)
   - "Investigate ways in which pedestrian access to the Town Common and surrounding buildings can be made safer and easier." (page 27)
   - "Support efforts of Town officials and community organizations to develop and enhance use of the Village Common and its associated public and private (e.g., Red Brick Meeting House, United Church) community facilities." (page 42)
2) The December 2004 *Westford Town Common Enhancement Project for the Town of Westford* by T.J. Boyle and Associates considered walkability, traffic calming, and public parking in the Town Center. The study recommended:
   - Improving parking at the library, Town Hall, and the Red Brick Meeting House and putting parking on the town-owned parcel west of the library;
   - Relocating/undergrounding utilities at the intersection of VT 128 & Common Road and possibly along the length of Common Road;
   - Building a fence along the Town Common edge along VT 128;
   - Developing a walkway along the west end of the Common to a crosswalk at Town Hall;
   - Landscaping VT 128;
   - Installing street lights at crosswalks;
   - Developing ADA-compliant[1] access to the bandstand on the Common;
   - Reducing the height of plantings at the east end of the Common to improve drivers' visibility; and
   - Considering a trail from the Common to Browns River and to the school.

[1] ADA stands for Americans with Disabilities Act, the federal legislation which ensures that new facilities are designed to be accessible by individuals with disabilities.

3) The April 2006 *Westford Town Common Area Project* by T.J. Boyle and Associates for the Town of Westford proposed alignments for a pedestrian walkway along Brookside and Cambridge Roads as well as enhancements to the Common.

   - A gravel path would connect the Common to Westford Elementary School. Because of existing utility locations, rock outcrops, grading constraints and the location of buildings, the preferred alignment for the path was on the west side of Brookside Road north to VT 128. The path would then cross Brookside Road onto the Common and continue along the north edge of the Common for 200' and cross VT 128.
   - An alignment for a gravel path along Cambridge Road between VT 128 and Huntley Road was also identified. The path would follow the north side of Cambridge Road to the covered pedestrian bridge.
   - The study includes the alignment for a concrete sidewalk along the northern side of VT 128 from the western edge of the Library to the parking lot entrance south of the Red Brick Meeting House. The study specifically states that "at the point where the sidewalk passes the Westford Market, careful consideration will need to be taken to ensure that parking for the market will still be available after the creation of the sidewalk."

Public response to previous studies has indicated that a walkway on the Town Common is not supported. Furthermore, VTrans does not support crosswalks on this segment of VT 128.

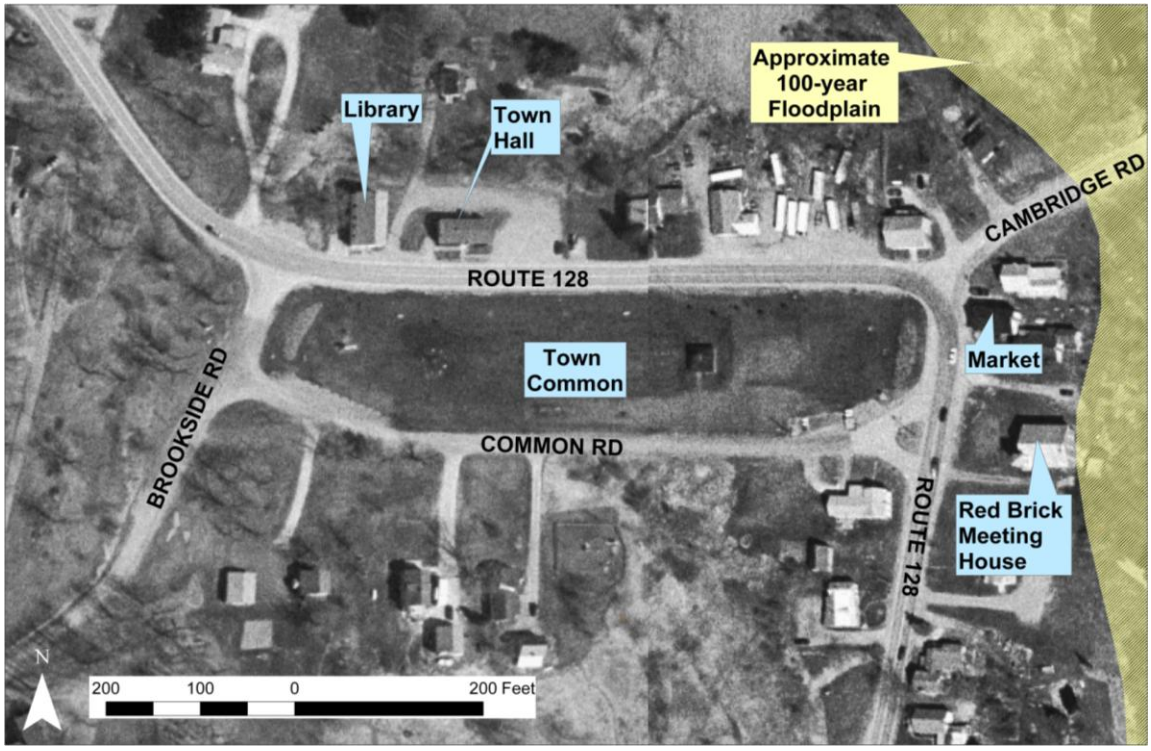
ENVIRONMENTAL AND CULTURAL RESOURCES

The study area was examined for potential environmental, natural, and cultural resource impacts based on site assessments and existing GIS resource data. This preliminary resource assessment should be revisited during the preliminary and final design stages.

FLOOD ZONES

The latest Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for Westford identified the 100-year flood zone for Browns River as approximately 200 feet down Cambridge Road from its intersection with VT 128, and extending south behind the Red Brick Meeting House. Figure 6 shows the approximate limits of the floodplain.

Figure 6: Approximate 100-year floodplain based on Chittenden County FEMA GIS coverage



WETLANDS

Based on the Vermont Significant Wetlands Inventory, there are no significant wetlands in the study area. However, there is a spring in the vicinity of the future library parking lot to the west of the library.

HISTORIC AND ARCHEOLOGICAL RESOURCES

The University of Vermont Consulting Archaeology Program (UVM CAP) conducted an Archeological Resources Assessment to identify the potential for archeological information to exist within the village. The study did not find any areas of archaeological sensitivity within the project area, concluding that "the proposed Westford Sidewalk Project would have no effect to archaeological resources in the area because it will be constructed in a previously disturbed landscape."[1]

Final plans will need to be reviewed by the State Historic Preservation Officer to determine whether any potentially sensitive historic properties are impacted.

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[1] UVM CAP Archeological Resources Assessment, page 6.

HAZARDOUS WASTE SITES

The Vermont Agency of Natural Resource's Active Hazardous Waste Site List (5/06) shows no hazardous waste sites within the study area. However, the Hazardous Waste Generator list includes the bus repair garage.

RARE, THREATENED OR ENDANGERED SPECIES AND SIGNIFICANT COMMUNITIES

Based on the latest assessment released by the Vermont Fish and Wildlife Department (2007), there are no identified species or communities in the study area. There are no deer wintering areas in the study area.

PRIME AGRICULTURAL SOILS

The soils potentially impacted by the conceptual sidewalk alignment are not identified by the Natural Resource Conservation Service as being prime agricultural soils. However, most of the soils are identified as of Statewide importance for the production of food, feed, fiber, forage, and oilseed crops. However, the village setting of the proposed sidewalk is not typically considered for reversion to farmland.

PERMITTING

ACT 250 LAND USE PERMIT

An Act 250 permit will likely not be needed since none of the identified alternatives impacts more than 10 acres or specifies improvements above the elevation of 2,500 feet.

401 WATER QUALITY PERMIT

A 401 Water Quality Permit will likely not be required since the proposed alignments do not impact any identified waters of the US.

404 CORPS OF ENGINEERS PERMIT

A 404 Army Corps of Engineers permit will likely not be required since the proposed alignments do not impact any delineated wetlands.

STREAM ALTERATION PERMIT

A Stream Alteration Permit will likely not be required since no streams will be impacted by the proposed improvements.

CONDITIONAL USE DETERMINATION

A Conditional Use Determination will likely not be required since the proposed alignments do not impact any Class 1 or Class 2 wetlands or buffer areas.

STORMWATER DISCHARGE PERMIT

Since the proposed alignment includes additional impervious area and new curbing, a stormwater discharge permit will likely be needed.

SHORELAND ENCROACHMENT PERMIT

A Shoreland Encroachment Permit will likely not be required since the proposed alignments do not impact any public water body.

ENDANGERED AND THREATENED SPECIES PERMIT

An Endangered and Threatened Species Permit will likely not be required since the proposed alignments do not adversely impact any state-listed rare, endangered, or threatened species.

VTRANS ACCESS PERMIT

A VTrans Access Permit will be required to allow work to be completed within the State right-of-way.

CATEGORICAL EXCLUSION (CE)

Due to the relatively minor impacts of the proposed alignments, the improvements will likely qualify for Categorical Exclusion status. Since Federal Funds will likely be used for a portion of the final design and construction, a Categorical Exclusion Environmental Analysis will need to be submitted to VTrans and the Federal Highway Administration for review and approval.

PUBLIC OUTREACH

This sidewalk feasibility study was developed through a public process that included two public meetings and coordination with the Town Center Committee through the Town Planner.

One of the most important issues brought to light in this public process was the need to reduce vehicle speeds through the village center. An associated issue is northbound vehicles turning right from VT 128 onto Cambridge Road. These vehicles often cut through the private driveway to the south of Cambridge Road and are essentially traveling on the gravel shoulder as they round the corner at high speeds.

CONCEPTUAL ALIGNMENT EVALUATION

Three alternatives were developed for the sidewalk feasibility: a No Build alternative; an alternative in which the Town takes over VT 128, and an alternative in which VTrans continues to maintain VT 128. This section describes each alternative, including an overview of the alternative's proposed elements, potential impacts, cost estimates, and a comprehensive evaluation matrix.

ALTERNATIVE 1: NO BUILD

Under Alternative 1, there would be no change to the existing conditions. No sidewalk or curbing would be constructed, and VTrans would continue to maintain VT 128. Figure 7 shows the existing conditions along VT 128 in Westford.

SCALE 1"=50'

50 25 0 50 100

Future parking

Stream

Future parking

Floodplain

Library

Wheelchair ramp

Town Office

Bus Repair Garage

Cambridge Road

15'

7'

VT Rte. 128

Westford Market

Playground

Gazebo

GASOLINE PUMP

Future parking

Kiosk

Red Brick Meeting House

Common Road

Utility pole to be relocated (by others)

Westford Sidewalk Conceptual Alignment Study 6/27/08

Alternative 1 No Build

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CCMPO Chittenden County Metropolitan Planning Organization

Town of Westford, VT

Legend

- fence
- utility pole
- overhead electric/phone line
- sign
- culvert
- park bench
- mailbox
- VT 128 Right-of-Way
- parcel line

ALTERNATIVE 2: TOWN MAINTAINS VT 128

Alternative 2 (Figure 8) follows the *Vermont State Design Standards*, which indicate that for a major collector in a village setting, travel lanes should be 11' wide and shoulders should be 2' wide. The critical assumption of Alternative 2 is that the Town would take over maintenance of VT 128 from VTrans. This is because installing curbing and a 2' shoulder width would mean that the distance from the roadway centerline to the curb would be 13', and VTrans' snowplow blades are approximately 14' wide, requiring a distance of at least 15' between the centerline and the curb[1] to avoid potential conflicts. Therefore, the Town would have to take over maintenance of this section of VT 128 if Alternative 2 were pursued.

Alternative 2 includes a 2' shoulder with granite curbing on the north and east sides of VT 128 between the Library and the Red Brick Meeting House. The width of the concrete sidewalk is 5' to be consistent with ADA Accessibility Guidelines. Where possible, a 5' wide greenstrip is located between the curb and the sidewalk. Where appropriate, landscaping the greenstrip may help to calm traffic. However, it is unlikely that trees would be able to survive in such a narrow greenstrip, so landscaping options would be shrubs or bushes.

Per the *Vermont Pedestrian & Bicycle Facility Planning and Design Manual*: "When a concrete or asphalt surface sidewalk crosses an unpaved driveway, it is preferred to pave the driveway ramp to the street and to pave the driveway back from the sidewalk at least 10 feet."[2] This 10' pavement extension is shown on each of the driveways that the sidewalk traverses.

A computer program which models vehicle turning radii was used to estimate whether 45' long intercity coaches would be able to access the bus repair garage and its parking lot. The resulting design includes the necessary provisions for this access.

Curbing is proposed at the Cambridge Road intersection to improve corner definition. This design has three purposes: 1) make vehicles reduce their speeds as they turn the corner; 2) eliminate travel in the shoulder; 3) eliminate vehicle encroachment in the private driveway.

An on-street parking lane is provided in front of the Red Brick Meeting House. This area will accommodate three 10' by 22' parking spaces, which should help to calm traffic and enhance the village feel. Two 15' No Parking areas are included on either end as suggested in the *VTrans Pavement Marking Placement Guideline*.[3]

In front of the Library and the house on the northwest corner of the Cambridge Road intersection, the greenstrip width is reduced to minimize the impact on the existing buildings. The area in front of

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[1] Per communication with VTrans Utilities and Permits Unit.

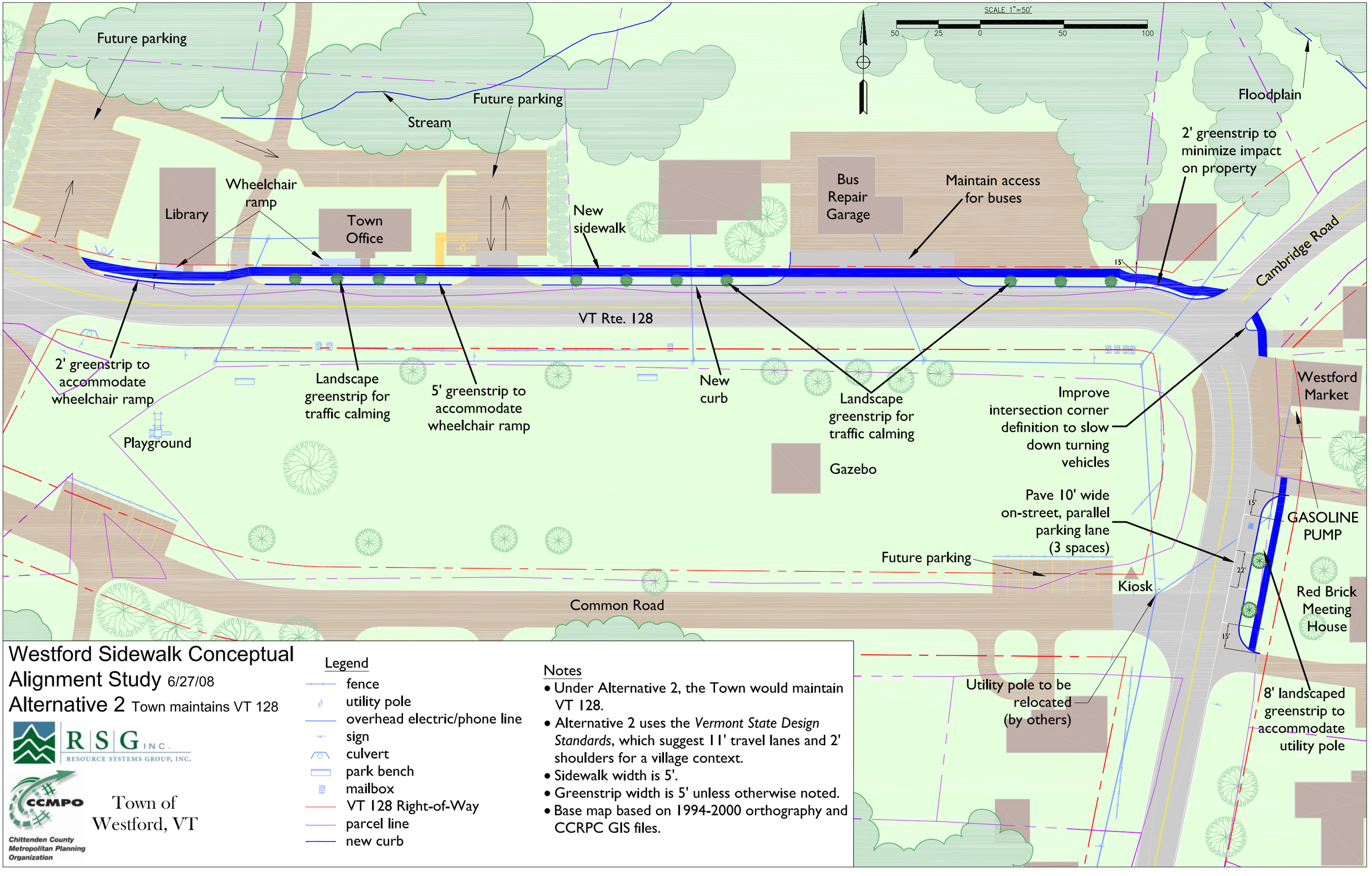
[2] Page 3-17.

[3] Page 23.

the Red Brick Meeting House has an 8' greenstrip between the sidewalk and the curb. The additional width will avoid the need to relocate the utility pole in this segment.

The proposed concrete sidewalk would replace the existing asphalt sidewalk segments in front of the Library and Town Offices. The proposed sidewalk is aligned to fulfill the functions of these existing sidewalks. Other impacts of the proposed sidewalk and curbing involve the relocation of some existing signs. The new pavement for the on-street parking in front of the Red Brick Meeting House will impact an existing catch basin.

The curb radii for the driveways to the future parking lots by the Library and the Town Offices would have to be designed to tie into the proposed curbing along VT 128.



Westford Sidewalk Conceptual Alignment Study 6/27/08

Alternative 2 Town maintains VT 128

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CCMPO Chittenden County Metropolitan Planning Organization

Town of Westford, VT

Legend

- fence
- utility pole
- overhead electric/phone line
- sign
- culvert
- park bench
- mailbox
- VT 128 Right-of-Way
- parcel line
- new curb

Notes

- Under Alternative 2, the Town would maintain VT 128.
- Alternative 2 uses the *Vermont State Design Standards*, which suggest 11' travel lanes and 2' shoulders for a village context.
- Sidewalk width is 5'.
- Greenstrip width is 5' unless otherwise noted.
- Base map based on 1994-2000 orthography and CCRPC GIS files.

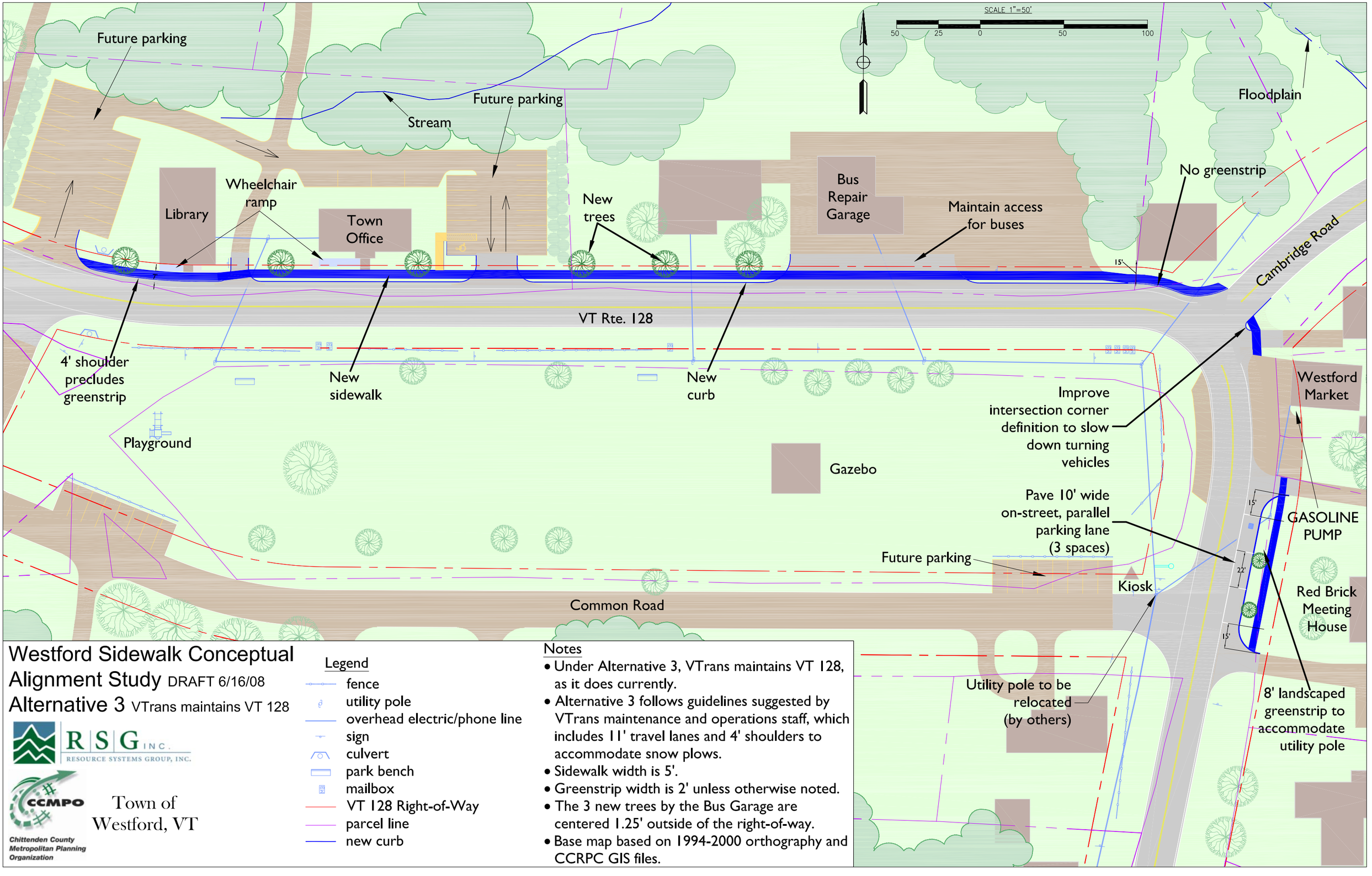
ALTERNATIVE 3: VTRANS MAINTAINS VT 128

As described in Alternative 2, VTrans would require a minimum 15' centerline-to-curb distance if it is to continue to maintain VT 128. Under Alternative 3 (Figure 9), the 15' width is achieved through an 11' travel lane and a 4' shoulder, so there would be no change in maintenance responsibilities. As with Alternative 2, the curbing and shoulder improvements are only on the north and east sides of VT 128.

In Alternative 3, the 4' shoulder width results in a 2' wide greenstrip, except in places where it would be completely infeasible, such as in front of the Library and the house on the northwest corner of the Cambridge Road intersection. The 2' wide greenstrip precludes any landscaping between the sidewalk and the road.

For the most part, there is still enough room between the sidewalk and the right-of-way to plant trees on the north side of the sidewalk. However, the three proposed trees between the bus repair garage and the Town Office parking lot would be centered 1.25' north of the right-of-way line. This is because the trees would need to be planted at least 4' from the concrete sidewalk to survive.

Other than these distinctions, Alternative 3 and its remaining impacts are identical to Alternative 2.



Westford Sidewalk Conceptual Alignment Study DRAFT 6/16/08

Alternative 3 VTrans maintains VT 128

RSG INC. RESOURCE SYSTEMS GROUP, INC.

CCMPO Chittenden County Metropolitan Planning Organization

Town of Westford, VT

Legend

- fence
- utility pole
- overhead electric/phone line
- sign
- culvert
- park bench
- mailbox
- VT 128 Right-of-Way
- parcel line
- new curb

Notes

- Under Alternative 3, VTrans maintains VT 128, as it does currently.
- Alternative 3 follows guidelines suggested by VTrans maintenance and operations staff, which includes 11' travel lanes and 4' shoulders to accommodate snow plows.
- Sidewalk width is 5'.
- Greenstrip width is 2' unless otherwise noted.
- The 3 new trees by the Bus Garage are centered 1.25' outside of the right-of-way.
- Base map based on 1994-2000 orthography and CCRPC GIS files.

PRELIMINARY COST ESTIMATES

Preliminary cost estimates are presented below for each alternative. The estimates include costs associated with final design, construction, construction inspection, municipal project management, right-of-way acquisition and contingencies. The unit costs are based on the VTrans Average Bid Price Listing (5/06). There is no cost estimate for Alternative 1 because it is the No Build scenario.

The estimates below suggest a cost of approximately $85 per linear foot for a 5'-wide concrete sidewalk with granite curbing. However, the *VTrans Report on Shared-use Path and Sidewalk Unit Costs* (2006) suggests $140 per linear foot for such a configuration. Therefore, the detailed estimates below represent the low end of a range of cost estimates that reaches $266,000 and $272,000 for Alternatives 2 and 3, respectively. The estimates below are used in the Evaluation Matrix because they have been developed for this particular project and are expected to therefore be more accurate than the gross unit costs.

Westford Sidewalk - Alternative 2 - Preliminary Cost Estimate

ITEM	QUANTITY	UNITS	$/UNIT*	TOTAL
Pedestrian Facilities				
Common Excavation	125	cubic yards	$10	$1,255
Excavation of Surfaces and Pavements	24	cubic yards	$20	$485
Subbase of Crushed Gravel	150	cubic yards	$35	$5,241
Concrete sidewalk	449	square yard	$70	$31,446
Detectable Warning Surface	8	square feet	$60	$480
Vertical Granite Curb	720	linear feet	$35	$25,200
Highway Facilities				
Common Excavation	198	cubic yards	$10	$1,981
Subbase of Crushed Gravel	198	cubic yards	$35	$6,934
2" Bituminous Concrete Pavement	22	ton	$100	$2,229
Striping for On-Street Parking and Shoulder	866	linear feet	$5	$4,330
Utility/Feature Relocation				
Changing Elevation Of DI, Catch, Manhole	1	each	$625	$625
Sign Relocation	3	each	$65	$195
Landscaping				
New Deciduous Trees	13	each	$600	$7,800
Excavation for New Trees	31	cubic yards	$10	$308
Fill for New Trees	31	cubic yards	$30	$924
Grass seed & fertilizer	3	lb	$10	$30
Topsoil	34	cubic yards	$30	$1,024

Total Construction *(assuming 2010 construction w/ 4% annual inflation)*	$97,871
Engineering/Permitting (20%):	$19,574
Municipal Project Management (10%):	$9,787
Construction Inspection (15%):	$14,681
Contingency (20%):	$19,574
Mobilization (5%):	$4,894
Traffic Control (8%):	$7,830
Right-of-Way:	$0
TOTAL:	**$174,000**

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* Unit costs based on latest VTrans Average Bid Price List

Westford Sidewalk - Alternative 3 - Preliminary Cost Estimate

ITEM	QUANTITY	UNITS	$/UNIT*	TOTAL
Pedestrian Facilities				
Common Excavation	119	cubic yards	$10	$1,195
Excavation of Surfaces and Pavements	24	cubic yards	$20	$485
Subbase of Crushed Gravel	144	cubic yards	$35	$5,031
Concrete sidewalk	431	square yard	$70	$30,186
Detectable Warning Surface	8	square feet	$60	$480
Vertical Granite Curb	826	linear feet	$35	$28,910
Highway Facilities				
Common Excavation	246	cubic yards	$10	$2,459
Subbase of Crushed Gravel	246	cubic yards	$35	$8,605
2" Bituminous Concrete Pavement	28	ton	$100	$2,766
Striping for On-Street Parking and Shoulder	866	linear feet	$5	$4,330
Utility/Feature Relocation				
Changing Elevation Of DI, Catch, Manhole	1	each	$625	$625
Sign Relocation	3	each	$65	$195
Landscaping				
New Deciduous Trees	8	each	$600	$4,800
Excavation for New Trees	19	cubic yards	$10	$190
Fill for New Trees	19	cubic yards	$30	$569
Grass seed & fertilizer	2	lb	$10	$20
Topsoil	21	cubic yards	$30	$621

Total Construction *(assuming 2010 construction w/ 4% annual inflation)*	$98,929
Engineering/Permitting (20%):	$19,786
Municipal Project Management (10%):	$9,893
Construction Inspection (15%):	$14,839
Contingency (20%):	$19,786
Mobilization (5%):	$4,946
Traffic Control (8%):	$7,914
Right-of-Way (5%):	$4,946
TOTAL:	**$181,000**

June 13, 2008

* Unit costs based on latest VTrans Average Bid Price List

EVALUATION MATRIX

The Evaluation Matrix below provides design construction and maintenance costs and summarizes engineering factors, potential environmental and cultural impacts, local and regional issues, and potential permits required for each of the alternatives.

The Annual Maintenance Costs for Alternative 2 include the increased costs that the Town of Westford would incur from taking over maintenance responsibilities of this segment of VT 128 from VTrans. Maintenance responsibilities include plowing and road salt application, re-striping, crack sealing, and other miscellaneous tasks. It is likely that VTrans would take care of paving projects.

If Alternative 2 were pursued and this segment VT 128 were to become a town highway, Westford would receive some funding from VTrans for general maintenance through the Town Highway Grant program. The amount distributed to Westford would depend on how much funding would be appropriated into the statewide pool each year and how many total lane miles the town would maintain.

The Annual Maintenance Cost for Alternative 3 is the estimated cost that the Town would face to maintain the sidewalk only.

WESTFORD SIDEWALK STUDY
EVALUATION MATRIX

		Alternative 1: No Build	Alternative 2: Build-Town takes over VT 128 maintenance	Alternative 3: Build-VTrans continues to maintain VT 128
COST (order of magnitude)	Preliminary Cost Estimate (final design, construction, inspection, contingency)	$0	$174,000	$181,000
	Annual Maintenance Costs	No change from current costs	$17,000	$7,000
ENGINEERING	Traffic Safety	No Change	Improve	Improve
	Level of Service/Congestion	No Change	No Change	No Change
	Roadway Alignment Change	No Change	No Change	No Change
	Bicycle/Pedestrian Access	No Change	Improve	Improve
	Hydraulic Performance	No Change	Additional impervious surface & curbing	Additional impervious surface & curbing
IMPACTS	Agricultural Lands	No	No	No
	Archaeological	No	No	No
	Historic Structures/Sites	No	Potential	Potential
	Floodplain	No	No	No
	Fish and Wildlife	No	No	No
	Rare, Threatened & Endangered	No	No	No
	Public Lands	No	No	No
	Noise	No	No	No
	Wetlands	No	No	No
LOCAL & REGIONAL ISSUES	Community Character	No Change	Improve	Improve
	Economic Impacts	No Change	Improve	Improve
	Conformance to Westford Town Plan	No	Yes	Yes
PERMITS	Act 250	No	No	No
	401 Water Quality	No	No	No
	404 Corps of Engineers Permit	No	No	No
	Stream Alteration	No	No	No
	Conditional Use Determination	No	No	No
	Storm Water Discharge	No	No	No
	Shoreland Encroachment	No	No	No
	Endangered & Threatened Species	No	No	No
	State Historic Preservation Office Clearance	No	Potential	Potential
	VTrans Access Permit	No	Yes	Yes
	Categorical Exclusion	No	Yes	Yes

PREFERRED ALTERNATIVE

A public meeting was held on Thursday, June 19, 2008 to discuss the three alternatives. Attendees agreed that Alternative 3 was the preferred alternative. Reasons cited include:

- the increased cost of annual maintenance to the town; and
- the improved aesthetic of trees rather than shrubs, which are not likely to survive road salt and snow banks piled by the snow plows.

SUMMARY AND NEXT STEPS

SIDEWALK ANALYSIS

This study evaluated the feasibility of constructing a new sidewalk in the village of Westford to improve pedestrian accessibility and safety. The main goal of this study and accompanying plans is to determine which sidewalk alternative is preferred and to develop a recommended plan to proceed for preliminary design and construction. To that end, this feasibility study identified existing facilities and land use in the village, potential encroachments outside of the State right-of-way, potential impacts to environmental and cultural resources, permits that would be needed prior to construction, and cost estimates for each alternative.

The most significant issue that was raised during the public process is the need to reduce vehicle speeds through the village. High speed traffic creates unsafe conditions and conflicts with the village setting. In this respect, the proposed sidewalk, curbing, and on-street parking spaces will act as traffic calming measures. These design elements alert drivers to the fact that they are no longer in a rural high speed area and should slow down to an appropriate speed. In particular, the improved corner definition provided by the reduced radius and curbing at the Cambridge Road intersection should compel northbound drivers to make the right turn more slowly.

TRAFFIC CALMING

Besides the sidewalk, curbing and landscaping, other possible traffic calming elements that might be appropriate for Westford include:

- Lighting (for example, traditional gas lamp posts with hanging plants) on the north side of VT 128 (along the sidewalk in the greenstrip)
- Village gateways: these would likely have a significant impact on speeds because they alert drivers to slow down before the reach the village. In reality, by the time a vehicle reaches the Cambridge Road intersection, it is too late to try to slow it down. Speed reductions need to take place on the way in to the village.

- Transverse pavement markings (chevrons, stripes, etc.)[1]
- Enforcement: either a heightened police presence or a temporary speed radar trailer at the entrances to the village.

NEXT STEPS

Based on our investigation and findings, we have determined that each of the alternatives is feasible and that Alternative 3 is preferred by the Town and can move forward for further design and construction.

The primary funding sources which can be used to advance the sidewalk plans include the CCMPO Sidewalk Program, the Transportation Enhancements (TE) grant program, the VTrans Bicycle and Pedestrian Program, and municipal funding sources. The TE and sidewalk grant programs will provide the Town with the best opportunities for advancing the sidewalk in a timely manner.

- CCMPO Sidewalk Program: The program is designed to improve and expand the region's sidewalk infrastructure through grants to member municipalities for preliminary engineering and sidewalk construction. The next round of applications for this program will begin in May 2009. This program uses 80% federal funds and 20% local funds from the community. The program began in FY05 and makes available $250,000 per year.[2]
- Transportation Enhancements (TE) Program: The TE program consists of federal reimbursement grants for projects that enhance multi-modal transportation goals in the areas of historic preservation, bike and pedestrian paths, scenic protection, archeological planning, mitigation of highway water runoff, tourist and welcome centers, and transportation museums. Funding for bicycle and pedestrian projects through the TE program will be considered on a two year cycle, alternating with non-bike/ped projects in the off years. The project must be included in the CCMPO's Transportation Improvement Program and the VTrans Capital Program. TE grants are competitive and require a 20% local match, so the Town would need to budget for that amount prior to the grant application. In the past, the range of these grants has been $10,000 to approximately $350,000. The next opportunity for Westford to apply will begin in June 2009, when a Letter of Intent will be due. The final application deadline is in August.[3]
- VTrans Bicycle and Pedestrian Program: $2 million is available for design, acquisition of right-of- way and construction of approved bike and pedestrian projects. To be eligible for

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[1] Iowa Highway Research Board, *Evaluation of Gateway and Low-Cost Traffic-Calming Treatments for Major Routes in Small, Rural Communities*, November 2007, page 30.

[2] Contact: Peter Keating, CCMPO Senior Transportation Planner, 802-660-4071 x.14.

[3] See application for annual dates. Contact: Curtis Johnson, VTrans Enhancement Coordinator, 802-828-0583.

funding in this category, projects must have completed the preliminary planning stage and have a completed feasibility study or equivalent type study. Construction funding is intended to assist in the development of bicycle and pedestrian facilities. This includes activities that enhance the transportation system through the building and improvement of existing facilities to make them more usable and friendly for pedestrians and bicyclists. Projects based solely on the maintenance or repair of existing facilities (i.e. repaving or rehabilitation of sidewalks and multi-use paths) are not eligible for funding assistance through this program. Projects should focus on the elimination of barriers to bicycling and walking and implementation of a continuous network of bicycle and pedestrian facilities throughout the community. Applications with the following emphasis are considered favorably:

- connectivity to other bicycle and pedestrian facilities
- proximity and access to and within village centers and downtown areas
- multi-town, multi-regional projects
- projects that demonstrate a strong relationship to economic development
- Projects that enhance larger transportation projects and which resolve conflicts between users of different modes in favor of bicyclists and pedestrians are strongly encouraged.

More information is available at:
http://www.aot.state.vt.us/progdev/Sections/LTF/LTF.htm