Shelburne Gateway Scoping Study Final Report



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October 2017

ACKNOWLEDGMENTS

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The preparation of this report has been financed in part through grant[s] from the Federal Highway Administration and Federal Transit Administration, U.S. Department of Transportation, under the State Planning and Research Program, Section 505 [or Metropolitan Planning Program, Section 104(f)] of Title 23, U.S. Code. The contents of this report do not necessarily reflect the official views or policy of the U.S. Department of Transportation.

SHELBURNE GATEWAY STUDY

PREPARED FOR: TOWN OF SHELBURNE & CHITTENDEN COUNTY REGIONAL PLANNING COMMISSION







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1 introduction

The Town of Shelburne (Town) and the Chittenden County Regional Planning Commission (CCRPC) initiated the Shelburne Gateway Pedestrian Safety and Mobility Study due to increasing economic activity in Shelburne just south of the village along US 7 in an area known as the Shelburne Southern Gateway. Residents in the area and employees traveling to the area who rely on public transit often walk along US 7 to or from the Green Mountain Transit stop at the intersection of Bostwick/Marsett Roads and US 7. Pedestrian facilities headed south along US 7 end at the cut-through to Ockert Lane. Customers of two popular destinations that are on opposite sides of US 7, Shelburne Vineyard and the Fiddlehead Brewery/ Folino's Wood Fire Pizzeria, cross the roadway on foot in an area with high speed traffic. Anecdotally this behavior is increasing and is resulting in concerns for safety. The increasing number of crossings is resulting in concerns about safety. The growth of the nearby business park has further increased foot traffic between the southern gateway businesses, even though there are no pedestrian facilities other than the road shoulders. An additional source of pedestrian traffic is the Countryside Motel, which provides transient housing, with many residents not owning a vehicle. Together, these concerns prompted the Town of Shelburne to work with the CCRPC to develop a plan to address them. The project area is included in Figure 1.1.

This report summarizes the findings of the study, a process that was enriched by an active technical committee and a variety of opportunities for public and stakeholder input, and generally followed the process outlined in the VTrans Project Scoping Manual (1995). The Public Involvement process included:

- Technical Committee Kick Off Meeting April 7th, 2016;
- Local Concerns Meeting June 14th, 2016;
- Community & Stakeholder Charrette July 26th, 2016;
- Technical Committee Check-In Meeting September 22th, 2016;
- Alternatives Meeting– October 27th, 2016;
- Technical Committee Check-In Meeting May 16th, 2017;
- Final Meeting June 27th, 2017.



Figure 1.1: Project Area



2

existing conditions

The project area is located between the intersection of Bostwick/Marsett Roads and US7 (northern limit) and the intersection of Ridgefield and US 7 (southern limit). The study area includes properties adjacent to this portion of the US 7 corridor on both the west and east sides. US 7 is a State Highway, classified as a principal arterial, with shoulders of variable width.

2.1 Land Use Context

The area has seen significant growth in the last twenty years and the Shelburne Comprehensive Plan (2011) identifies it as part of Growth Area 2. Since the early 1990s, Shelburne had a 'jump' in development from Shelburne Green Phase I and then the construction of VT Teddy Bear as a southern anchor, Ridgefield residential neighborhood constructed, as well as new housing at Ockert Lane in the early 2000s. Shelburne Vineyard was built between 2006 and 2008, and now, in 2017, Shelburne Green Phase II is in construction.

Land uses in the area include:

- Shelburne Vineyard
- Fiddlehead Brewery
- Folino's Wood Fired Pizzeria
- Vermont Teddy Bear
- Numerous commercial tenants at Shelburne Green
- Champlain Housing Trust residential units
- Ridgefield Road residential units
- Countryside Hotel
- Vermont Day School
- Lake Champlain Waldorf High School (immediately west of the study area)







1992



2.2 US Route 7 Corridor

US Route 7 is a principal arterial route, serving north-south traffic in the western part of Vermont, and is considered by CCRPC to be a significant travel corridor. There are no vehicular traffic counts available from VTrans within the study area, but a recent study conducted at Shelburne Green indicates the average annual daily traffic (AADT) of 12,100 vehicles per day. US 7 has one travel lane in each direction, and congestion is acute north of the study area, within Shelburne Village, at the intersection of Harbor/Falls/US 7. There are no plans to widen the roadway in this area.

Local stakeholders are concerned about the relatively high speeds and volume of traffic, making it both difficult and risky to turn onto US 7 or make a left turn onto sidestreets from the roadway. As one enters the study area from the south, the posted speed is 45 mph and changes to 35 mph just prior to Cynosure Drive. Headed south, the posted speed is 45 at Cynosure Drive throughout the rest of the study area. However, regular observers note that vehicles decelerate northbound and accelerate southbound in response to queues – or lack thereof – more than signage.

The intersection of US 7 with Bostwick and Marsett Roads is signalized, with a one lane approaches on US 7 and Marsett, and an exclusive left turn lane with shared through-right lane on Bostwick. There are sidewalks on the east side of US 7 wand on the north side of Marsett and which continues up US 7 northbound. There is one crosswalk at the intersection across the Marsett approach.





The 0.3 mile segment of US 7 from 500 feet north of this intersection through 300 feet south of Cynosure Drive is a high crash location, based on VTrans data from 2012 through 2016. During this period there were 51 crashes resulting in 13 injuries. Public input on safety issues at the intersection included comments regarding poor sight distance from both Bostwick and Marsett, making left turns risky; and high speeds and inattention resulting in rear end crashes for northbound US 7 vehicles. During peak commuting hours, there are lengthy queues extending south from the signal.



Figure 2.3: Northbound queuing at US 7/Bostwick/Marsett Signalized Intersection

The intersection of US 7 with Shelburne Green's entrance was widened with a southbound left turn lane due to Act 250 permit requirements for the expansion of Shelburne Green Phase II. To the north, between the Shelburne Vineyard and Folino's Wood Fired Pizzeria/Fiddlehead Brewery sites, there is a two-way left turn lane (twltl). There are no pedestrian facilities in the vicinity of this intersection. The posted speed is 45 mph southbound in this location, with the speed limit changing to 35 mph just north of this location.

Figure 2.4: US 7/Shelburne Green driveway



CCRPC conducted counts of both pedestrians and vehicles crossing between Folino's Wood Fired Pizzeria/Fiddlehead Brewery and Shelburne Vineyard. The results, attached in the appendix, show up to 32 pedestrians crossing per hour. Vehicles crossing were also counted, indicating that 85% of all crossings between these two locations were on foot and only 15% by vehicle. This section of US 7 has narrower shoulders, where the road has been widened to accommodate left turn lanes.

Figure 2.5: Narrow shoulders on US 7 at Shelburne Vineyard



As part of Vermont Teddy Bear's permitting, the intersection of US 7 with South Park Road was widened to include a northbound right turn lane and southbound left turn lane, and has no pedestrian facilities. There have been three crashes at this intersection since 2011. Stakeholders expressed concerns about the higher speeds of oncoming traffic when making left turns onto South Park Road feel unsafe. This coupled with a few gaps in traffic during peak commuting hours causes difficulty in executing the turn safely.

Figure 2.6: US 7/South Park Intersection



2.3 Roadway Safety and Crashes

There have been 64 crashes in the study area over the past 5 years, in locations shown in Figure 2.7. Most of the crashes are associated with intersections, with the segment of US 7 through intersection of US 7/Bostwick/Marsett considered a high crash location.



Figure 2.7: Crash Locations within study area (Source: VTrans, May 2011 to 2017)

The 64 crashes in the study resulted in 17 injuries, and no fatalities are reported. The types of crashes were also reviewed; with rear-end crashes being by far the most common type. Figure 2.8 includes a breakdown of crashes.



Figure 2.8: Type of crashes within study area (Source: VTrans, May 2011 to 2017)

The high frequency of rear end crashes for US 7 northbound traffic at the signalized intersection warrants further consideration, but is beyond the scope of this study. Some countermeasures that may warrant consideration include:

- Traffic calming to reduce speeds of oncoming traffic
- Converting signalized intersection to a roundabout
- Adding turning lanes to US 7 to reduce queue lengths

2.4 Multimodal Transportation

This study was initiated due to safety concerns for the existing and potential future pedestrian activity within the project area; both those crossing US 7 and also walking along the highway between the GMT bus stop and Vermont Teddy Bear. Walking along the road can be dangerous because this stretch of US 7, between Ridgefield Road and the Bostwick/Marsett Intersection, is prone to vehicular speeds over the posted limits. In addition, shoulders are narrow and the grass area adjacent to the road is often equipped with a drainage ditch, which makes it challenging for a pedestrian to walk completely off the road. Where US 7 crosses the LaPlatte Tributary, the road and shoulder are narrowed and there is no buffer for pedestrians. Aside from the GMT stop provided north of the site on US 7 and/or Bostwick/ Marsett, the other stops are not frequently serviced. The stop in front of the Vermont Day School has limited service, as does the stop at Vermont Teddy Bear. The frequency of service increases during the company's peak time between December and February, but still leaves several employees without a direct transit connection. Figure 2.9 illustrates the existing transportation network.





2.4.1 Pedestrian Facilities

Pedestrian facilities in the study area are limited to sidewalks connecting Ockert Lane with US 7/Bostwick/Marsett, internal walkways within the Shelburne Green campus and between Countryside Motel buildings. Shoulders are available on most of US 7 for walking, but are narrow in the northern end of the study area, where the addition of turning lanes has tapered the remaining shoulder width. The slender shoulders, combined with high traffic volumes and posted speed limits of 35 to 45 mph, are inadequate for pedestrians in this section of US 7. In addition, the numbers of pedestrians crossing US 7 suggest a crosswalk should be provided, based on VTrans criteria.

Figure 2.10: Existing Pedestrian Facilities in study area: narrow shoulders on US 7 (top left); Ockert Lane sidewalk (top right); discontinuous sidewalks at Shelburne Green (bottom row)





2.4.2 Bicycle Facilities

There are no designated bicycle facilities along the roads in the study area. Shoulders are narrow, ranging from 3 to 4 feet, between the Bostwick/Marsett intersection and the Vineyard. South of this location, they range from 8 to 10 feet wide. There is a Lake Champlain Bikeway rest area at Shelburne Vineyard with an information kiosk, picnic table, bike parking, and restrooms available at the vineyard for use by riders. Shelburne Green provides bike parking on site.

Figure 2.11: Bicycle Parking at Shelburne Green (left) and Lake Champlain Bikeway Map (right); example of a bike rest area shelter (lower left)







2.4.3 Public Transit

Public transit service is available within the study area, with schedules varying by time of day. There are regular stops just north of the study area along US 7 at the Shelburne Museum and at several locations along Marsett Road between the US 7 and Falls Road intersections. There is service to Vermont Teddy Bear twice in the morning and twice in the afternoon, which also stops at Cynosure Drive. Otherwise, transit patrons accessing destinations in the study area must walk along US 7 from the stop at Bostwick/Marsett Road.

Figure 2.12: Green Mountain Transit - Route map for Shelburne service (not all stops shown on map)



Transit ridership data is included in Figure 2.13. On an average weekday, 7 people board and alight at the Vermont Teddy Bear stop. The Shelburne Museum stop is the most heavily used.

Figure 2.13: Transit Ridership at Shelburne stops



2.5 Public Right-of-Way

US Route 7 is a state highway with a typical right-of-way of 6 rods, or 99 feet. In some locations, particularly the brook crossing, additional right-of-way has been acquired, as shown in Figure 2.14.





2.6 Existing Utilities

The following table summari	zes the utilities in the study a	rea, followed by maps:

Utility	Presence/Features
Overhead Electric	Present on US 7 on eastern side; Bostwick Road on north side. (See Figure 2.15)
Vermont Gas	Natural gas service is present in the study area, with gas lines along US 7 and South Park
	Road (access to Vermont Teddy Bear)
Water Supply	The project area is within the town's water supply's reach.
Stormwater	Stormwater management along the public roadways in the project area is limited to
Infrastructure	drainage swales along the roadways. The study area is considered within the Urbanized
	Area subject to Clean Water Act regulations. The Vermont Teddy Bear site has existing
	stormwater management infrastructure. The Shelburne Green project has included the
	construction of an on-site stormwater detention pond, shown on the attached plans.
Wastewater	The study area is within the sewer service area of Plant 2.

Figure 2.15: Town of Shelburne Water and Wastewater Service



Figure 2.16: Overhead Electric Utilities and Gas Lines



2.7 Environmental and Cultural Resources

The following table summarizes the resources documented in the study area. The attached basemap shows existing features in the project area.

Table 2.1	l: Environmental	and Cultural	Resource	Summarv
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Potential Resources	Presence/Absence in Study Area
Wetlands	Wetlands are located on either side of US 7 along McCabes Brook, and in the drainage swales between the signalized intersection and Graham Way. In addition, wetlands have been mapped on the Shelburne Green and Vermont Teddy Bear sites as part of Act 250 and state permitting. Hydric soils are found on lands east of US 7.
Lakes/Ponds/Streams/Rivers	McCabes Brook crosses US 7 in the study area, and has associated wetlands and floodplain areas, more extensively on the east side of US 7.
Floodplains	There are no mapped flood hazard areas in the study area.
Endangered Species	No natural heritage sites or biological natural areas are present within the study area
Flora/Fauna	No areas of critical wildlife habitat are within the study area
Fluvial Erosion Hazard Areas	The McCabes Brook has fluvial erosion hazard levels of "extreme" or "very high" in the study area, suggesting that projects should avoid impacts to or construction within the corridor of this waterway.
Hazardous Wastes	One site along Cynosure Drive is reported by ANR; it is not anticipated to be affected by the project.
Agricultural Soils	Much of the study area lands have prime or statewide agricultural soils, therefore consideration of mitigation may be required as part of any required Act 250 permits.
Forest Land	There are limited forest lands in the study area, as it is mainly open due to former or current (vineyard) agricultural use.
Archaeological Resources	Lands along McCabes Brook and generally throughout the study area are likely to be archaeologically sensitive; therefore, a phase 1B testing and evaluation will be required for any federally funded project. Phase 1B shovel testing conducted as part of the Shelburne Green project did not find any archaeological resources.
Historic Resources	There are few historic structures in the study area; there is an historic residential building at the southwest corner of the US 7/Bostwick/Marsett intersection.

Figure 2.17: Wetlands in roadside swale north of Graham Way (left); Mapped and observed wetlands in project area (right)



3 purpose and need

3.1 Purpose

The purpose of this project is to provide for safe, comfortable pedestrian travel along US 7 between the intersection of Marsett and Bostwick Road and Vermont Teddy Bear, and also for pedestrians crossing US 7 at Shelburne Vineyard.

3.2 Need

There are two unsafe pedestrian and vehicular circulation conditions that initiated the study of Shelburne's Southern Gateway. There is a lack of infrastructure for the pedestrian traveling along US 7 of employees, customers, residents or visitors to numerous destinations in the study area, or crossing between Shelburne Vineyard and Fiddlehead Brewery and Folino's Wood Fired Pizzeria. The need is created by employees who rely on public transportation to reach the bus which stop at the Bostwick/Marsett intersection, hotel residents, and visitors to the vineyard/brewery wishing to park once and visit both venues. The need for pedestrian infrastructure is elevated by vehicle volumes and speeds, lack of a designated crossing at the vineyard/brewery and an incomplete pedestrian network.

3.3 Project goals

The following are goals for the project were articulated by project stakeholders including the Town, CCRPC, Green Mountain Transit, and business owners in the study area, and should be considered in the evaluation of alternatives:

- Improve and enhance the safety and comfort for all modes of travel in Shelburne Gateway area
- Provide places to walk or bike for visitors and employees in the Shelburne Gateway area
- Identify facilities to highlight the area as a gateway into Shelburne Village
- Deliver a project that is realistic, cost-effective, feasible and has community support



4 alternatives

The following sections review the alternatives that were considered and provide an evaluation of options.

4.1 Overview of Alternatives

An overview of the alternatives for the project area is shown in Section 7 (attachments). The design criteria that are common among all of the alternatives are summarized in the table below.

Design Feature	Design Criteria
Shared Use Paths	Paved surface for easier maintenance, minimum of 8 feet wide in constrained areas; 10 ft desirable width
Lighting	As needed where lighting is not present; assume solar lighting to reduce costs and impacts
Signage and wayfinding	Kiosks and signage for routes that are on private property
Sidewalks	Concrete; preferably with landscaped buffer; granite curb where necessary
Medians	Landscaped where width allows (10 ft or wider); textured hardscape on narrower medians that are intended to be mountable.
Posted Speed	Posted speed should be reduced to 35 mph from 40 mph throughout project area as implementation proceeds. Speed limit changes should be accompanied by traffic calming measures to reinforce the new speed limit, including median islands, street tree planting and radar feedback signs. The Traffic Committee will need to approve any limit changes on US 7.

Table 4.1: Design Criteria



4.2 No Build Alternative

The no build alternative is offered as a baseline, and required in the VTrans project scoping manual. It does not address any of the safety concerns that have been raised in the process of this study, and therefore does not meet the purpose and needs of this project.

4.3 Segment 1: Bostwick/Marsett/US 7 to Graham Way

The alternatives for this segment are shown in plan sheet A-3 (included at the end of the report), and summarized as follows:

- a) Shared Use Path on west side of US 7 between Bostwick/Marsett and Shelburne Vineyard and sidewalk on north side of Bostwick to Lake Champlain Waldorf High School. A shared use path rather than a sidewalk is proposed for this segment as it will connect the Champlain Bikeways route on Bostwick/Marsett with the existing Bike Rest Area and associated amenities at the Shelburne Vineyard. This could eventually form a link in a shared use path parallel with US 7 between Bostwick/Marsett and Ridgefield.
- b) Sidewalk on the east side of US 7 from Marsett to Graham Way and sidewalk on north side of Bostwick to Lake Champlain Waldorf High School. The US 7 sidewalk could fit within the right of way, but there is some challenging topography, ledge, overhead utilities and roadside wetlands that should be considered in the design.

Additional connections between the Bostwick/Marsett intersection towards Shelburne Village along the west side of US 7 and also towards the Lake Champlain Waldorf High School along the north side of Bostwick Road were discussed to connect pedestrians to the bus stop and beyond. Any future work in this area would require conversations with adjacent landowners.

The impacts and issues are summarized in the table below:

	a) Shared Use Path	b) Sidewalk
Right of way	Within public right-of-way	Within public right-of-way
Environmental Impacts	None anticipated	Wetlands impact on roadside
Historic/Cultural	Phase 1B required	Phase 1B required
Resources		
Utilities	2 potential relocations on Bostwick	2 potential relocations on Bostwick
		6 potential relocations on US 7
Topography	Relatively level, with minor grading	Ledge removal and grading required
	required	along US 7

 Table 4.2: Alternatives Analysis for Segment 1

For this segment, a short term option is to connect the gaps in the existing sidewalk network on Ockert Lane outward toward Cynosure Drive and similarly, from Shelburne Green to Cynosure Drive and along Graham Way to create a continuous facility.

Due to safety concerns relating to the numbers of pedestrians crossing US 7 between the Vineyard and Brewery/Pizzeria, CCRPC conducted pedestrian counts, which indicated that more than 30 crossings per hour occurred at peak times. The count is attached to the report.

Figure 4.1: Proposed Crossing Design at Shelburne Vineyard on US Route 7 (left); examples of refuge islands (right)



The VTrans guidance on crosswalks states:

"Crosswalks at uncontrolled locations should not be marked on 3 or 4 lane roadways with AADT greater than 9,000 vehicles per day unless other crosswalk enhancements, such as pedestrian refuge islands, advanced yield lines, or rectangular rapid flashing beacons are included, and an engineering study concludes that pedestrian safety will be enhanced."

The VTrans criteria for a mid-block crossing are summarized in the following table.

Table 4.3: Midblock Crossing Criteria:	Vineyard-Folino's Proposed	Crosswalk
--	----------------------------	-----------

VTrans Criteria	Shelburne Gateway Conditions	Comments
Speed limit is 40 mph or less	Posted speed =45 mph at crossing	Study recommends reducing to 35 mph in crossing area due to a change in context from rural to developed; installing traffic calming median islands to reinforce safe speed.
20 or more pedestrians crossing per hour	CCRPC counts from 2014 show more than 30 crossings per hour during peak hours	Visitors to Shelburne Vineyard and Fiddlehead choose to walk between destinations rather than drive
AADT exceeds 3,000	2016 AADT = 12,000	
Sidewalk or adequate shoulder for use by pedestrians	Pedestrians are crossing US 7 to travel between two destinations, and are generally not travelling along US 7.	A sidewalk network is proposed with Shelburne Gateway plan (attached)
No crosswalks within 200 feet	None present	1,200 ft +/- from signal at Marsett/Bostwick
Adequate sight distance is available in both directions	Yes.	Exceeds intersection sight distance requirements
Cross section	3 lanes	2 travel lanes plus two-way left turn lane

Figure 10 from the VTrans crosswalk guidelines is also shown below, with the conditions for the Shelburne crossing area highlighted.

Roadway Type	3000 ±	≤ AADT ≤ 9	9,000	AADT >9	,000 and ≤	12,000	AAI	DT > 12,00	00
	≤ 30 MPH	35 MPH	40 MPH	≤ 30 MPH	35 MPH	40 MPH	≤ 30 MPH	35 MPH	40 MPH
2 Lanes									
3 Lanes									
4 or more Lanes <u>with</u> Raised Median			Enhancon			d if			
4 or more Lanes <u>without</u> Raised Median			posted included	speed = 40 if speed = 3	; should b 35 or 30 m	e ph		11	

Figure 10: Appropriateness of Marked Crosswalks

Marked Crosswalk alone may be appropriate	1
Additional crosswalk enhancements should be included	1
Additional crosswalk enhancements must be included, a marked crosswalk alone is not appropriate	1

The proposed crosswalk meets all of the VTrans criteria except for the posted speed on US 7, which is currently 45 mph. With the significant changes in land use and associated travel behavior in the past 10 to 15 years, it is

appropriate to consider changing the current posted speed of 45 mph to allow for safety improvements to address pedestrians crossing between key destinations in the Shelburne Gateway. Initial discussion between the Town of Shelburne and VTrans staff indicates that a reduced posted speed would be acceptable given the pedestrian activity arising from the changing land use context, as long as it is accompanied by traffic calming to reinforce the new speed.

The proposed crossing design includes a median, found by FHWA to be the safest type of crossing:

The Federal Highway Administration (FHWA) strongly encourages the use of raised medians (or refuge areas)...in urban and suburban areas, particularly in areas where there are mixtures of a significant number of pedestrians, high volumes of traffic (more than 12,000 vehicles per day) and intermediate or high travel speeds.

The attachments include a fact sheet, "Proven Safety Countermeasures Medians and Pedestrian Crossing Islands in Urban and Suburban Areas" which documents that a median refuge should be included at this crossing to address the safety concerns highlighted throughout this report. A median would also be effective in reducing delays to both vehicles and traffic, as vehicles only need to yield when the pedestrian is crossing their lane, and not for the entire duration of the crossing. A median will also reinforce safe driving speeds, and providing space for amenities such as landscaping, signs and lighting.

Throughout the study, the local VTrans district expressed a preference for not including a median; however, the proposed crosswalk includes a median as it is by far the safest option. At the end of the study, VTrans representatives indicated that there is a need for further internal discussion at VTrans on the topic of median refuges, as they are an important tool for crosswalk enhancement to address pedestrian safety, and their use is consistent with VTrans crosswalk guidelines. The Town has agreed to maintain the median, and safety is the highest priority for the evaluation of alternatives. The following table provides an evaluation of alternatives:

Criteria	RRFB	Median
Safety (pedestrian)	Less safe than a median	The safest option for a crosswalk with the combination of volumes and speeds in this location, per FHWA research and reports.
Safety (vehicular)	May increase rear end collisions; less effective in speed reduction	May increase rear end collisions; more effective in speed reduction
Aesthetics	Not aesthetically appealing	Appealing with hardscape materials or landscaping
Maintenance	Town maintains	Town maintains

Table 4.4: Analysis of Alternatives: Crosswalk Design

4.4 Segment 2: Vineyard/ Brewery to Vermont Teddy Bear

The alternatives for this segment are shown in plan sheet A-4 & A-5 (attached to this report), and summarized as follows:

a) Shared Use Path east of US 7 on private property between Graham Way and Vermont Teddy Bear. Solar lighting would be provided along the route to serve late shift workers at Vermont Teddy Bear. This could eventually form a link in a shared use path parallel with US 7 between Bostwick/Marsett and Ridgefield, and

enhance the experience for visitors to Vermont Teddy Bear. Private connections could extend to the Countryside Motel and Shelburne Green.

b) Sidewalk on the east side of US 7 from Graham Way to the Countryside Motel There is some challenging topography, ledge, overhead utilities and wetlands that should be considered in the design.

The impacts and issues are summarized in the table on the following page:

Table 4.5: Alternatives Analysis for Segment 2

	a) Shared Use Path	b) Sidewalk
Right of way	On private property; affected landowners	Within public right-of-way
	have been enthusiastic in their support of	
	this concept	
Environmental Impacts	Path is aligned to avoid wetlands, but will	Path may be in wetlands buffer area
	be within buffer area.	
Historic/Cultural	Phase 1B required if federal funding is	Phase 1B required if federal funding is
Resources	used.	used.
Utilities	None required; solar lighting proposed for	3 potential relocations on US 7
	path to minimize impacts	
Topography	Relatively level, with minor grading	Some ledge removal and grading
	required	required along US 7

4.5 Segment 3: Vermont Teddy Bear to Ridgefield Road

The alternatives for this segment are shown in a plan sheet attached to this report, and summarized as follows:

- a) Shared Use Path along South Park from Vermont Teddy Bear to US 7, and on west side of US 7 between South Park and Ridgefield Road. This is proposed as a shared use path rather than a sidewalk so that it can eventually form a link in a shared use path parallel with US 7 between Bostwick/Marsett and Ridgefield.
- b) Sidewalk on the east side of US 7 South Park to Ridgefield. A sidewalk could fit within the right of way, but there is some challenging topography, ledge, overhead utilities and roadside wetlands that should be considered in the design.

The impacts and issues are summarized in the table below:

	a) Shared Use Path	b) Sidewalk
Right of way	Within public right-of-way	Within public right-of-way
Environmental Impacts	Wetlands impacts on roadside	None Anticipated
Historic/Cultural	Phase 1B required	Phase 1B required
Resources		
Utilities	2 potential relocations on US 7	4 potential relocations on US 7
Topography	Relatively level, with minor grading	Ledge removal and grading required
	required	along US 7
Pedestrian/Bike Crossing	Protected with median refuge (greatest	Crosswalk not protected by a refuge
	safety)	island; RRFB required for crossing to
		Ridgefield

Table 4.6: Alternatives Analysis for Segment 3

A landscaped median island with lane reassignment at US 7/South Park is proposed to create an attractive gateway and reinforce the desired safe speed. The island also provides an enhanced crosswalk as recommended in the VTrans crosswalk guidelines. However, District 5 has similar concerns to the pedestrian median at the vineyard/brewery crossing, including the costs for maintaining the trees, and the additional concern that the median would be unexpected in a rural area.

Figure 4.2: Median Refuge Reconfiguration at US 7/South Park



4.6 Additional Considerations

The following sections describe some additional planning considerations as the Town of Shelburne moves toward implementation of the proposed improvements.

4.6.1 Speed limit change

In order to meet the VTrans crosswalk guidelines, the posted speed must be reduced from 45 mph to 40 mph or lower. The Town intends to request this change from VTrans following the completion of this report. Preliminary discussions with VTrans indicates that the change would be appropriate due to the increased pedestrian activity, and would likely be supported by VTrans if traffic calming elements to reinforce the lower speed are also implemented, as signs alone will not result in lower vehicle speeds and increased safety. This may include a radar feedback sign initially, and the median islands in the longer term.

4.6.2 Jurisdiction of US Route 7

VTrans currently encourages communities with state highways through their village center to consider reclassification of the state highway to a class 1 town highway. A recent publication by VTrans, "White Paper on Class 1 Town Highways," provides more detail on the process and considerations that should be part of this decision. Proposed design features for this project that include medians, landscaping and crosswalks are important considerations for the Town of Shelburne. Several reclassification scenarios were discussed with the Town officials and steering committee, summarized on the map below.

	Scenario	Total Revenue	Total Costs	Net Cost to Town
А	Village Designated Boundary to Ridgefield Rd	\$ 20,854	\$ 24,095	\$ 3,241
В	Jughandle to Ridgefield Rd	\$ 27,463	\$ 35,722	\$ 8,259
С	South Burlington City Line to Ridgefield Rd	\$ 72,076	\$ 64,951	\$ (7,125)





4.6.3 Compatibility with Planning Efforts

A Composite Future Land Use map for Shelburne shows the area west of US 7 as a future growth area for residential use, while the commercial/industrial area, where Shelburne Green and VT Teddy Bear are located will remain commercial/industrial. The project area was identified as a high-priority high-feasibility project in the Chittenden County Regional Planning Commission's Active Transportation Plan (2017).

The Chittenden Country Regional Planning Commission recently completed a county-wide active transportation plan which highlights the feasibility of active transportation routes within the county. Within the project area, Bostwick Road is a low priority, Marsett Road is a medium priority and Shelburne Road/ US 7 to approximately S. Park Road is a high priority.

5

recommendations

5.1 Preferred Alternative

The preferred alternative is illustrated on the attached drawing, and consists of the following elements, from north to south:

Preferred Elements	Phasing
Shared use path on west side of US 7 from Bostwick to Shelburne Vineyard	2
Pedestrian crossing with raised median at Shelburne Vineyard/ Fiddlehead Brewery/ Folino's Wood Fired Pizzeria	1
Sidewalk gap construction between US 7/Marsett/Bostwick and Shelburne Green to form a continuous pedestrian route	1
Shared use path from Fiddlehead Brewery/ Folino's Wood Fired Pizza to Vermont Teddy Bear on private lands east of US 7	1
Shared use path from Vermont Teddy Bear to Ridgefield Road along S. Park and US 7, with lane reconfiguration and median island at crossing	3

An additional element to be considered in the future is a sidewalk on US 7 and Bostwick from Green Mountain Transit Stop to Lake Champlain Waldorf High School.



The maintenance of these facilities will need to be the responsibility of either the Town of Shelburne or the adjacent private landowners, in keeping with the overall goal of a public-private partnership. It is anticipated that the new facilities will be maintained in the winter and kept clear of snow.

5.2 Costs

Table 5.1 shows the construction costs and phasing proposed for this project. Table 5.2 shows the total project costs including allowances for project development and permitting, right-of-way, construction engineering, and local project management by implementation phase. The following table provides an initial assumption on maintenance responsibility.

	Phase	Facility Type	Length (ft)	Unit Cost	Construction Cost	Maintenance
Segment 1: Intersection to Gra	aham Wa	y				
Route 7: Bus Stop to Bostwick Rd	1	Sidewalk with curb/buffer	220	\$220	\$ 48,400	Town
Bostwick Rd: Route 7 to Lake Champlain Waldorf High School	1	Sidewalk with curb/buffer	655	\$220	\$144,100	Town
Sidewalk gap: Ockert to Shelburne Green	1	Sidewalk with curb/buffer	180	\$180	\$ 32,400	Private
Route 7: Graham Way to Fiddlehead/Folinos	1	Shared Use Path (paved)	147	\$280	\$ 41,160	Private
Graham Way: Shelburne Green to Route 7	1	Sidewalk with curb/buffer	477	\$200	\$ 95,400	Private
Route 7: Bostwick Rd to Vineyard	2	Shared Use Path (paved)	1,173	\$250	\$293,250	Town
Pedestrian Crossing: Folinos - Vineyard	1	Median Refuge	1	\$ 28,000	\$ 28,000	Town
Segment 2: Graham Way to S.	Park Roa	d				
Shared-Use Path: Teddy Bear 'circle' to Graham Way	1	Shared Use Path (paved)	1,725	\$290	\$500,250	Private
Segment 3: S. Park Road to Ri	dgefield R	oad				
Route 7: South Park Rd to Ridgefield	3	Shared Use Path (paved)	825	\$260	\$214,500	Town
Route 7 Crossing at South Park Rd	3	Median Refuge	1	\$ 60,000	\$ 60,000	Town
S. Park Road: US 7 to Teddy Bear 'circle'	1	Shared Use Path (paved)	553	\$240	\$132,720	Private

Table 5.1: Conceptual Cost Estimate for Shelburne Gateway Projects

The total cost for each phase (assigned based on priority) is summarized in the table below. The estimates assume that the Town will seek federal funds for implementation, so permitting and certification costs are included.

Phase	Construction Costs	Contingency	Project Development	Construction Engineering	Project Management	TOTAL COST
Phase 1	\$ 1,022,431	\$ 102,243	\$ 255,607	\$ 153,364	\$ 102,243	\$ 1,635,889
Phase 2	\$ 293,252	\$ 29,325	\$ 73,313	\$ 43,987	\$ 29,325	\$ 469,203
Phase 3	\$ 274,503	\$ 27,450	\$ 68,625	\$ 41,175	\$ 27,450	\$ 439,204
Total	\$ 1,590,186					\$ 2,544,297

Table 5.2: Total Project Costs by Potential Phase

5.2.1 Permits and Certifications Required

Following are known requirements for implementation of the preferred alternative:

- **Wetlands.** The proposed alignment avoids proximity to known class 2 wetlands, but would be partly within the 50 ft buffer of class 3 wetlands. The project will therefore require a conditional use permit.
- Archaeology. If federal funding is used, phase 1B archaeology investigations will be required to comply with Section 106.
- Act 250. Two properties within the project area have existing Act 250 permits. Any significant alterations to
 the conditions of those permits (such as the installation of the proposed path) will require a permit
 amendment. The preferred alternative has been designed to minimize most impacts, however two specific
 Act 250 criteria will require communication with state agencies to determine whether any concerns will be
 raised during the permit amendment process, they are:

<u>Criterion 1(D) Floodways</u>, will need to be addressed for the portion of the proposed alternative that crosses over McCabe Brook on the Vermont Teddy Bear property. The stream has no identified floodplain, but does have an identified 50 mapped River Corridor area. The Department of Environmental Conservation (DEC) will most likely recommend to the District Environmental Commission that any proposed project within this area meet the No Adverse Impact Standard to avoid restricting or diverting the flow of flood waters, and endangering the health, safety, and welfare of the public or of riparian owners during flooding. There are several exceptions to this policy identified within the Vermont DEC Flood Hazard Area and River Corridor Protection Procedures, which may apply, but consultation with the DEC is recommended prior to pursing a permit amendment.

<u>Criterion 9(B) Primary Agricultural Soils.</u> Within the project area, there are several identified groupings of Prime agricultural soils. Ag soil values in the project area range from 2 to 6b, with the highest quality soils being a 1 and the lowest being a 7. The Agency of Agriculture must determine what impacts the proposed path will have on Prime or Statewide agricultural soils and whether or not onsite or offsite mitigation is needed. During the permitting process, the Agency of Agriculture will need to be provided with specific information regarding the type of soils impact, their agricultural value, and any previous impacts to those soils that may have occurred. Upon review of the information the Agency will submit a soils review letter to the District 4 Environmental Commission who will make a determination as to whether or not mitigation is required. The Commission considers whether or not the agricultural soils in the impacted area have lost agricultural potential due to impacts from previously constructed improvements, wetlands or other topography. If mitigation is required, some additional property may need to be permanently conserved on

site or applicants may need to pay an off-site mitigation fee (calculated on a per-acre basis). It is recommended that prior to submitting an Act 250 permit amendment request, the potential applicants engage directly with the Agency of Agriculture so that their comments can be included in the application.

- **Stormwater.** Amendments to existing permits (Lake Champlain Housing Development Corp, The Shelburne Corporation and VT Teddy Bear) may be required, but new permitting is not anticipated due to the limited area of impervious surface (which will be below the 1-acre impervious surface threshold).
- Federal Right-of-way. If federal funds are used for the construction of this project, the acquisition of property
 or easements must follow the Federal "Uniform Act" process. The landowners will need to be offered just
 compensation for the easements. If they chose to donate an easement, the value can be used to offset some
 of the local project match. Throughout this study process, the affected landowners have expressed
 unanimous support for the project and its goals.

6 attachments

Project Area Existing Conditions Basemap	A-1
Site Analysis of Project Area	A-2
Overview of Alternatives	A-3
Segment 1 Alternatives	A-4
Segment 2 Alternatives	А-б
Segment 3 Alternatives	A-7
Preferred Alternative	A-8
FHWA Info on median refuges	. following A-8



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Page A-3



US 7 Shelburne Gateway
June 2017 Preferred Alternative







Path Cononections

Shared-Use Path Along Route 7



US 7 Shelburne Gateway June 2017 Preferred Concepts: Enla

Preferred Concepts: Enlarged Vineyard-Brewery/ Pizzeria Crossing







US 7 Shelburne Gateway June 2017 Pre

Preferred Concepts: Segement 2: S. Park Road to Graham Way







US 7 Shelburne Gateway September 2016 Pro

Proposed Concepts: Segment 3 - S. Park Road to Ridgefield Road



Proven Safety Countermeasures

Medians and Pedestrian Crossing Islands in Urban and Suburban Areas

A *median* is an area between opposing lanes of traffic, excluding turn lanes. Medians in urban and suburban areas can either be open (pavement markings only) or they can be channelized (raised medians or islands) to separate various road users.

Pedestrian crossing islands (or refuge areas)—also known as center islands, refuge islands, pedestrian islands, or median slow points—are raised islands placed on a street at intersections or midblock locations to separate crossing pedestrians from motor vehicles.



There are several types of medians and pedestrian

crossing islands, and if designed and applied appropriately, they improve the safety benefits to both pedestrians and vehicles in the following ways:

- They may reduce pedestrian crashes by 46 percent and motor vehicle crashes by up to 39 percent.
- They may decrease delays (by greater than 30 percent) for motorists.
- They allow pedestrians a safe place to stop at the mid-point of the roadway before crossing the remaining distance.
- They enhance the visibility of pedestrian crossings, particularly at unsignalized crossing points.
- They can reduce the speed of vehicles approaching pedestrian crossings.
- They can be used for access management for vehicles (allowing only right-in/right-out turning movements).
- They provide space for supplemental signage on multi-lane roadways.

Background

Midblock locations account for more than 70 percent of pedestrian fatalities. This is where vehicle travel speeds are higher, contributing to the larger injury and fatality rate seen at these locations. More than 80 percent of pedestrians die when hit by vehicles traveling at 40 mph or faster while less than 10 percent die when hit at 20 mph or less. Installing such raised channelization on approaches to multi-lane intersections has been shown to be especially effective. Medians are a particularly important pedestrian safety countermeasure in areas where pedestrians access a transit stop or other clear origins/destinations across from each other. Providing raised medians or pedestrian refuge areas at marked crosswalks has demonstrated a 46 percent reduction in pedestrian crashes. At unmarked crosswalk locations, medians have demonstrated a 39 percent reduction in pedestrian crashes.





Guidance

Raised medians (or refuge areas) should be considered in curbed sections of multi-lane roadways in urban and suburban areas, particularly in areas where there are mixtures of significant pedestrian and vehicle traffic (more than 12,000 Average Daily Traffic (ADT)) and intermediate or high travel speeds. Medians/refuge islands should be at least 4 feet wide (preferably 8 feet wide to accommodate pedestrian comfort and safety) and of adequate length to allow the anticipated number of pedestrians to stand and wait for gaps in traffic before crossing the second half of the street.

Key Resources

A Review of Pedestrian Safety Research in the United States and Abroad, p. 85-86
http://www.walkinginfo.org/library/details.cfm?id=13
Pedestrian Facility User's Guide: Providing Safety and Mobility, p. 56
http://drusilla.hsrc.unc.edu/cms/downloads/PedFacility_UserGuide2002.pdf
Guide for the Planning, Design, and Operation of Pedestrian Facilities, American Association of State Highway
and Transportation Officials, 2004 [Available for purchase from AASHTO]
https://bookstore.transportation.org/item_details.aspx?id=119
Pedestrian Road Safety Audits and Prompt Lists
http://www.walkinginfo.org/data/library/details.cfm?id=3955
FHWA Office of Safety Bicycle and Pedestrian Safety
http://safety.fhwa.dot.gov/ped_bike/
Safety Effects of Marked vs. Unmarked Crosswalks at Uncontrolled Locations, p. 55
http://www.walkinginfo.org/library/details.cfm?id=54
Handbook of Road Safety Measures
http://www.cmfclearinghouse.org/study_detail.cfm?stid=14
Analyzing Raised Median Safety Impacts Using Bayesian Methods
http://www.cmfclearinghouse.org/study_detail.cfm?stid=213

FHWA Contacts

Office of Safety: Tamara Redmon, tamara.redmon@dot.gov, 202-366-4077 FHWA Office of Research: Ann Do, ann.do@dot.gov, 202-493-3319 FHWA Resource Center: Peter Eun, peter.eun@dot.gov, 360-753-9551 FHWA Web site: http://safety.fhwa.dot.gov/policy/memo071008/#ped_refuge



every day counts An Innovation Partnership with States

Safe Transportation for Every Pedestrian (STEP)



Cost-effective countermeasures with known safety benefits can help reduce pedestrian fatalities at uncontrolled crossing locations and un-signalized intersections.

Pedestrians account for over 17.5 percent of all fatalities in motor vehicle traffic crashes, and the majority of these deaths occur at uncontrolled crossing locations such as mid-block or un-signalized intersections. These are among the most common locations for pedestrian fatalities generally because of inadequate pedestrian crossing facilities and insufficient or inconvenient crossing opportunities, all of which create barriers to safe, convenient, and complete pedestrian networks.

Expecting pedestrians to travel significantly out of their way to cross a roadway to reach their destination is unrealistic and counterproductive to encouraging healthier transportation options. By focusing on uncontrolled locations, agencies can address a significant national safety problem and improve quality of life for pedestrians of all ages and abilities.



Knowing how to determine good crossing locations and which countermeasures to use enables highway agencies and other organizations to increase pedestrian safety.

PEDESTRIAN SAFETY COUNTERMEASURES

FHWA is promoting the following pedestrian safety countermeasures through the fourth round of Every Day Counts (EDC-4):

- Road Diets can reduce vehicle speeds and the number of lanes pedestrians cross, and they can create space to add new pedestrian facilities.
- Rectangular rapid flash beacons (RRFBs) can help drivers detect pedestrians by making crossings more visible.
- Pedestrian hybrid beacons (PHBs) are a beneficial intermediate option between RRFBs and a full pedestrian signal. They provide positive stop control in areas without the high pedestrian traffic volumes that typically warrant signal installation.
- Pedestrian refuge islands allow pedestrians a safe place to stop at the midpoint of the roadway before crossing the remaining distance. This is particularly helpful for older pedestrians or others with limited mobility.
- Raised crosswalks can reduce vehicle speeds.
- Crosswalk visibility enhancements, such as crosswalk lighting and enhanced signing and marking, help drivers detect pedestrians particularly at night.

STATE OF THE PRACTICE

Road Diets, pedestrian refuge islands, and PHBs are all considered Proven Safety Countermeasures by the Federal Highway Administration (FHWA). The FHWA is also promoting Road Diets through EDC-3.



Safe Transportation for Every Pedestrian (STEP)

Communities benefitting from their use include Austin, Texas, where at least 39 PHBs are already installed and residents can request additional sites for them. In Michigan, the Department of Transportation (DOT) developed a Road Diets checklist to ensure smooth administrative procedures.

Countermeasures such as RRFBs, crosswalk lighting, and raised crosswalks are being promoted through FHWA's PEDSAFE, a tool that helps transportation agencies diagnose and treat pedestrian safety issues. PEDSAFE includes numerous case studies that describe how communities across the country have implemented these safety improvements. The RRFB has been demonstrated to greatly increase driver yielding rates in several communities, including St. Petersburg, Florida.

This EDC-4 effort will help more communities deploy these pedestrian safety improvements based on their specific roadway contexts and needs. It also aligns with U.S. DOT's Safer People, Safer Streets initiative and with other U.S. DOT efforts such as Ladders of Opportunity, which aims to provide people with safe, reliable and affordable connections to employment, education, healthcare and other essential services. STEP is also an important action in FHWA's *Strategic Agenda for Pedestrian and Bicycle Transportation*, which is a collaborative framework for pedestrian and bicycle planning, design, and research efforts being developed over the next five years.



BENEFITS

- Improved Safety. Countermeasures are available that offer proven solutions for reducing pedestrian fatalities at uncontrolled crossing locations.
- Targeted Investment. By focusing on uncontrolled locations, agencies can address a significant national pedestrian safety problem.
- Enhanced Quality of Life. Improving crossing opportunities boosts quality of life for pedestrians of all ages and abilities.

RESOURCES

EDC-4 STEP: <u>https://www.fhwa.dot.gov/innovation/</u> everydaycounts/edc_4/step.cfm

FHWA Proven Safety Countermeasures: http://safety.fhwa.dot.gov/provencountermeasures/

Pedestrian and Bicycle Information Center: <u>http://www.pedbikeinfo.org</u>

For additional information, please contact:

U.S. Department of Transportation

Federal Highway Administration

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Every Day Counts (EDC), a State-based initiative of FHWA's Center for Accelerating Innovation, works with State, local and private sector partners to encourage the adoption of proven technologies and innovations aimed at shortening and enhancing project delivery.



FHWA-16-CAI-020