Kingdom Roads - Safer Spaces for Walking and Biking in Craftsbury, Greensboro, Hardwick and Barton Village

Draft November 2017

LOCAL MOTION

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David Joslin
Naomi Ranz-Schleifer
John Schweizer
Mary Metcalf
Stew Arnold
Dan Predpall
Jim Flint
Joe Wood
Erika Karp
Michelle Laflam
Kristen Leahy
John C. Stone III
Niall Kirkwood
Peter Romans
Alice Perron
Jennifer Ranz
Ceilidh Galloway-Kane
Jon Jewett, Town of Hardwick
Mike Moriarty
Kristen Leahy
Tess Martin
Lawrence Hamel
Sean Thomson
Patrick Hewes
Emily Purdy
Judy Carpenter
Christine Armstrong
Phil Gray
Todd Hebert
Audrey DeProspero
Alison Low, Northeast Vermont Development Association
Jenny Stoner
Stark Biddle
Tin Barton-Caplin, Barton Village
Amelia Robinson-Frtiz
Susan Houston
Dave Stoner
Eric Remick, Town of Hardwick
Frank Maloney, NVDA
Valcour, Valerie, State of Vermont
Katelin Brewer-Colie, Local Motion

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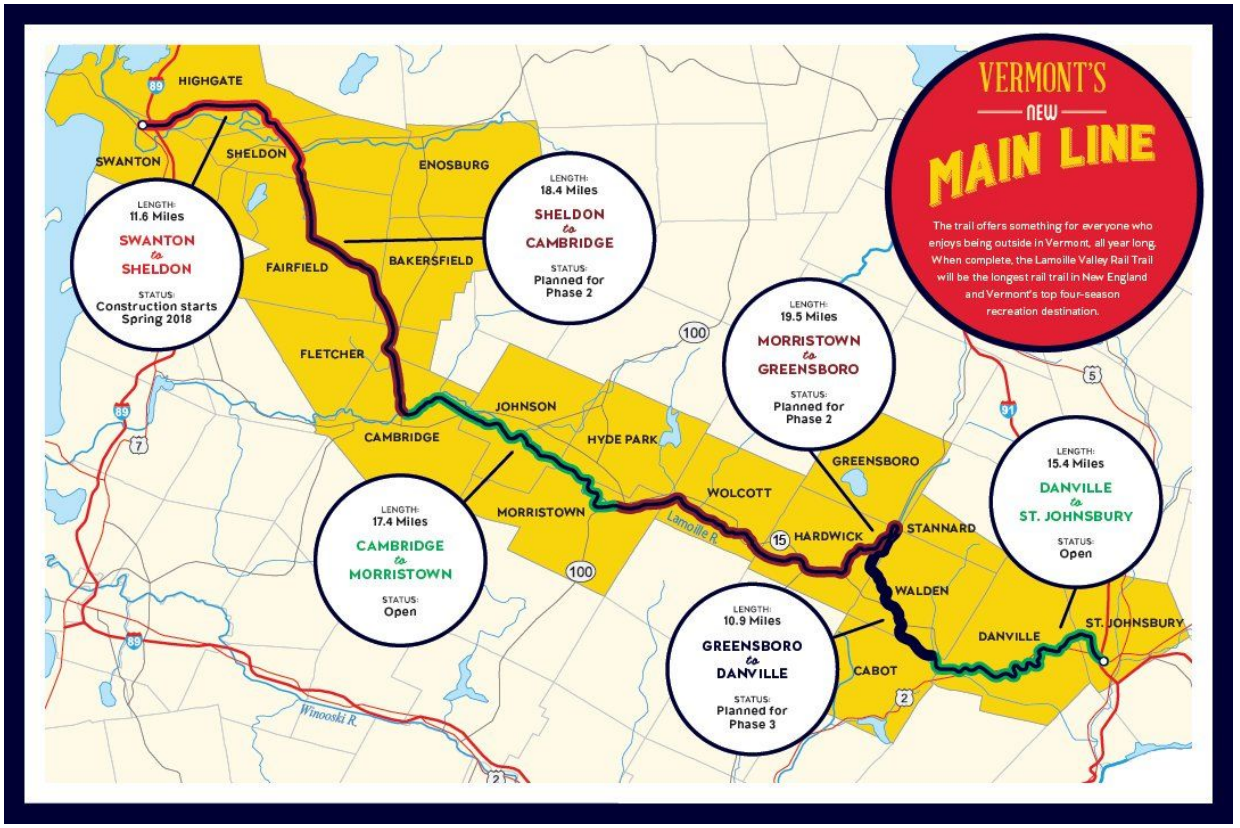
Introduction

The towns of Hardwick, Craftsbury, Greensboro and Barton Village are in the heart of the northern Northeast Kingdom. The area is rural and remote, and the communities are vibrant. Built with walking-scale village centers, locals are regularly out and about at a treasured local general store, library, school or post office. Families and senior citizens, as well as those "from away," are also discovering everyday biking for transportation and for fun. They are also surrounded by scenic beauty in a prime setting for outdoor recreation.

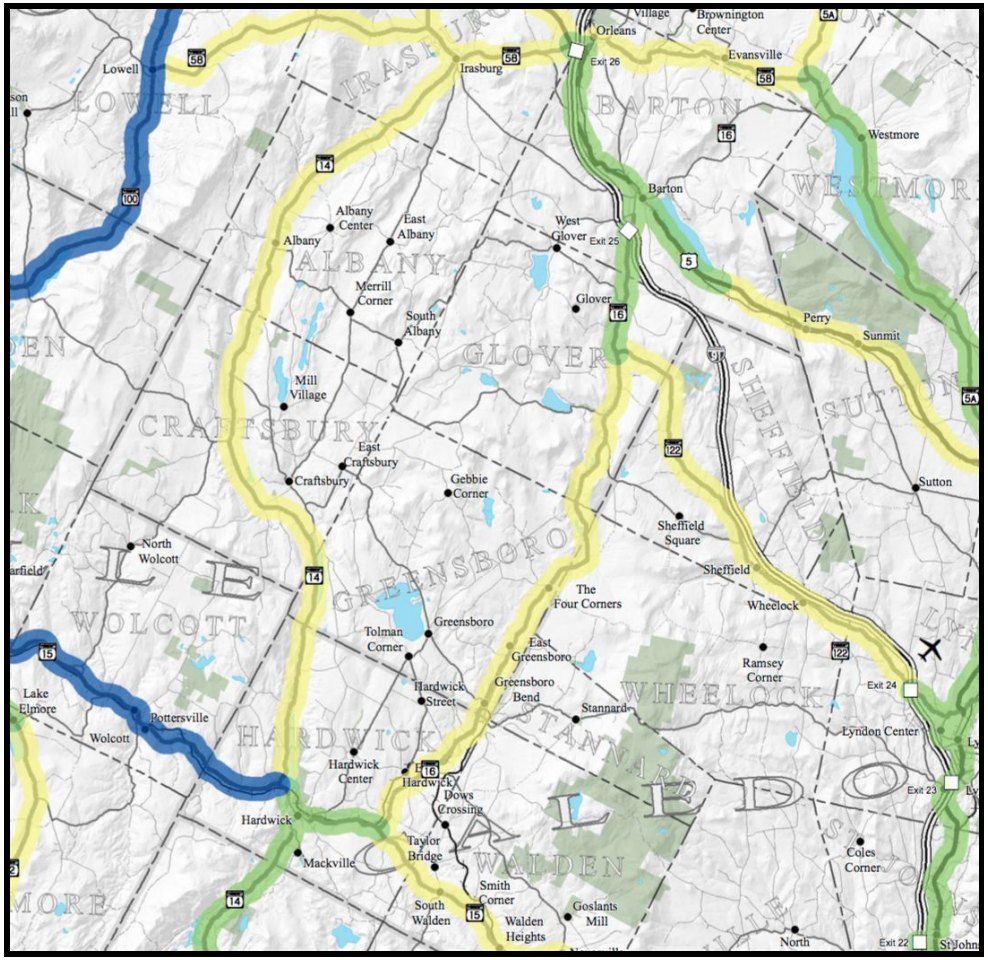
With village centers connected by paved roads along stretches of rural land, speeding is an issue and can be a barrier to safety for those walking and biking. Community leaders and members have pointed out priority areas where this is a concern. This project aims to identify near- and long-term ways that village centers in these NEK towns can become safer for all users by slowing vehicle traffic speeds, providing more visibility for pedestrians and suggesting simple changes to infrastructure to better connect the village centers by bike. Non-infrastructure efforts such as education, policy are also essential to success and support of these changes.



The region's scenic quality and pleasantly-spaced villages make it attractive for bicycle touring, although these ceased for the most part when the Craftsbury Inn closed and there was nowhere to stay for the night. With the Inn re-opening in 2017

we may see more bike tours coming through the area spending money -- Given the same 200 mile stretch, a touring cyclist will make more of an economic impact on the small towns along the way than a person driving in a car[1].

The Lamoille Valley Rail Trail (LVRT) also provides a huge opportunity to bring the health and economic benefits of biking closer to the area. The LVRT is located on the right-of-way of the former St. Johnsbury and Lake Champlain Railroad. The LVRT extends across Northern Vermont passing through 18 communities. When fully complete, the it will create more than 90-miles of four season recreational path between Swanton and St. Johnsbury. The LVRT passes through the heart of downtown Hardwick and Greensboro Bend. While this portion of the trail will be the last to be completed, municipalities should think strategically about how to leverage its location, whether through rail trail-area development, creating safer connections between the trail to nearby village centers, or marketing. The most recently completed sections of the LVRT connect Morrisville to Jeffersonville and St. Johnsbury to Danville and have spurred community development in those areas.



VTrans launched the Statewide On-Road Bike Plan process, a statewide effort sponsored by the VT Agency of Transportation to make state-maintained roads work better and be safer for all people who bike - families, commuters and recreational riders. Based on analysis of state roads in the area and the needs identified by area residents, roads have been ranked on the VTrans Bicycle Corridor Map as shown in the table to the left. Blue indicates that the road is a "High Priority" for bicycle-related improvements, Green indicates that the road is a "Medium Priority" and Yellow indicates that the road is a "Low Priority" for bicycling.

In addition, recent VTrans engineering guidance for state roadways is to limit motor vehicle travel lane width to 11

[1] *How Bicycles Can Save Small Town America,* Path Less Pedaled.
http://www.pathlesspedaled.com/2012/10/15/how-bicycles-can-save-small-town-america/

feet, with 3 to 5-ft (ideally 4-ft) shoulders in rural areas, or 5 foot bike lanes where possible in downtowns and villages. According to the *Vermont State Design Standards*, some rural collector roads in villages can have motor vehicle travel lanes as narrow as 10 feet.

Benefits of Walking and Biking in Vermont Communities

Walking and biking have significant benefits to offer Vermont communities. They **create safer communities** because wider shoulders, sidewalks and bike lanes help to slow vehicle speeds on our winding country roads. The more varied forms of transportation sharing the road, the safer it is for everyone. As bike use grows, typically the number of all types of crashes declines. Creating a more human scale and pleasant place to stroll and shop in Vermont village centers and downtowns **leads to a stronger local economy** where people can meet their daily needs instead of driving to another town to do so. Transportation is Vermont's largest source of energy consumption so one way to **reduce our carbon footprint** is to walk and bike more for short trips, which make up a large number of our overall travel. Finally, walking and biking **improve community health** by fighting climbing obesity rates and providing lifelong opportunities for physical fitness and mobility. Getting outside also supports mental health and can help counteract Seasonal Affective Disorder. Walking and biking have something to offer everyone in Vermont's communities, rural and urban no matter how big or small.

Issues and Opportunities

Local Motion met with representatives from each town at least twice and conducted at least one field visit per town, in order to learn about priorities, issues related to walking and biking, current walking and biking conditions and habits of residents and visitors, as well as to better understand the opportunities for making improvements. Following an assessment of these issues and opportunities (see Appendix A), community members decided to focus on the following key action projects. Each project includes an option that is lower cost and feasible to implement in the short term with little alteration to existing pavement width, and no need for right-of-way acquisition, as well as a longer term vision for what could happen in the future with additional planning and funding. The table below

summarizes each town's projects, and is followed by conceptual designs for each project. Specifics of the designs are noted on each of the Figures.

Community/Opportunity	Pages	Description
Better Bicycle Connections Between Village Centers	**5-6**	Using Google Earth imagery and field visits Local Motion examined roadway widths along roads between village center where speeding is an issue and where more space for walking and biking is desired. **Figure 1** shows various locations with potential for restriping vehicle travel lanes to narrower widths and wider shoulders. **See pages 5-6**.
Greensboro *Gateway Designs for Safety and Speed Management*	**7-13**	**Figures 2a through 2f** illustrate a variety of gateway and intersection treatments in Greensboro. Local community members attest that speeding is an issue in the village. Gateways will signal the entry to the village, a place where higher volumes of pedestrians are to be expected, and where vehicle speeds should be slow. They are intended to make walking and biking safer in Greensboro by calming traffic and managing vehicle speed through the village. Figure 2b & 2c shows near- and longer-term possibilities for improving pedestrian safery at Craftsbury Rd and Laurendon Ave. at the east end of town. Figures 2e & 2f show concepts for making the intersection at Center Rd/Breezy Ave and Hardwick St/TH 5 safer, by adding crosswalks, creating tighter curb radii, and either intersection art or a small roundabout. **See pages 7-13.**
Hardwick *Main St/Route 15 Traffic Calming and Pedestrian Safety*	**14-15**	**Figure 3** shows how downtown Hardwick can be safer and more accessible for all users along Main St/Rte 15 through downtown, where speeding is an issue. The addition of traditional and raised pedestrian crosswalks, as well as curb extensions along the linear downtown main street makes pedestrians more visible, moderates vehicle speeds and creates a more vibrant atmosphere on Main St. The addition of two speed feedback signs will help vehicles to self-enforce the speed limit. **See pages 14-15**.
Barton Village	**16-19**	**Figures 4a, 4b and 4c** show opportunities for making Barton Village safer and more pedestrian friendly in the heart of the village by providing a more continuous sidewalk system along Church St and creating curb extensions and

Pedestrian safety improvements on Church St and at Church & Elm St intersection		raised crosswalks at the intersection of Church St and Elm St near the school. Some of the sidewalks are existing but aren't continuous due to vast curb cuts. In the short-term, pedestrian space in these areas should be defined through painting or stamping the asphalt. While designs are not included in this document, it should be noted that the Barton Village Trustees would also like wider shoulders along the roads connecting Barton Village and Orleans Village, as well as to the Village Park on Crystal Lake. **See pages 16-19.**
Craftsbury Village *Alternatives for speed management and pedestrian safety*	**20-27**	**Figures 5a through 5g** illustrate several different approaches to speed management on East Craftsbury Rd in Craftsbury Village, ranging from a traditional two-way road with shoulders and a sidewalk (5b through 5e) to a road with a shared center lane with painted advisory shoulders (5f and 5g). All concepts also include safety improvements for all users at the intersection of E Craftsbury Rd and Creek Rd. The Town's preferred alternative is the wide shoulders because they will slow vehicle traffic, create defined space for people walking and biking and are easy to maintain. It should be noted that there is likely a historic sidewalk which has been grown over which could be uncovered to complete at least a portion, if not all of the sidewalk on the south side of E Craftsbury Rd in the village. **See pages 20-27**.
Non-Infrastructure Strategies	**28**	Improve safety using policy, education and outreach. **See Pages 14-15**.

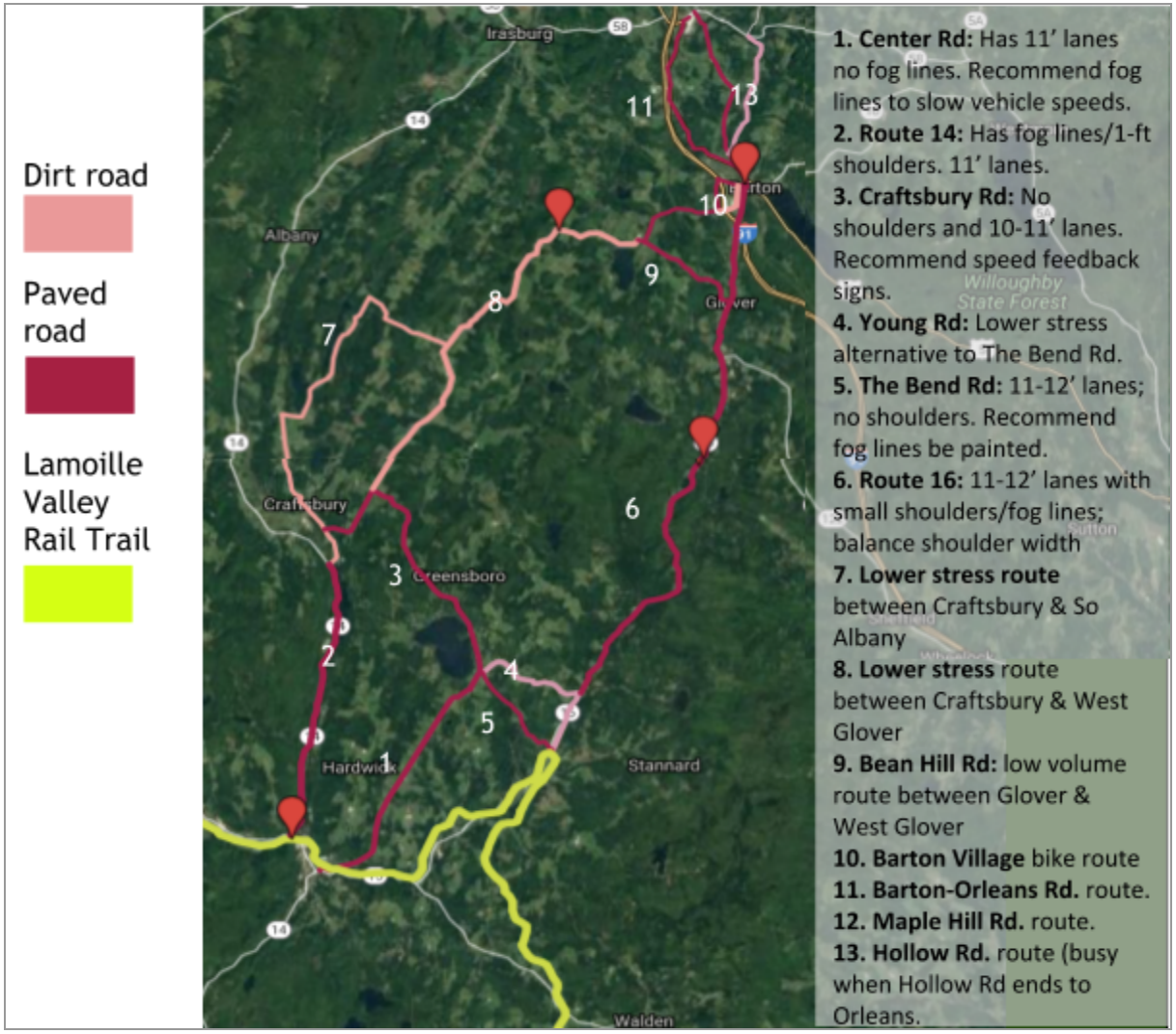
Better Bicycle Connections Between Village Centers

The goal of this priority is to identify ways that the roads connecting Barton Village, Craftsbury, Greensboro, and Hardwick safer and more bike-friendly through re-striping with narrower travel lanes and wider shoulders (Figure 1).

Narrowing the width of vehicle travel lanes to 10 or 11 feet by striping fog lines, shoulders or various types of bike lanes creates a traffic calming effect, meaning that the cars go slower. A maximum 11 foot lane/minimum 4 foot shoulder width is now VTrans engineering practice for all road resurfacing projects. The less available space that drivers perceive causes them to drive more slowly. Slower speeds

result in fewer and less severe crashes for all users and generally contributes to safer roads.[2] In addition to the traffic calming effect, minimum 4 foot shoulders provide dedicated space for bicyclists and people walking.

Explore an interactive version of this map here: https://tinyurl.com/Kingdomroads

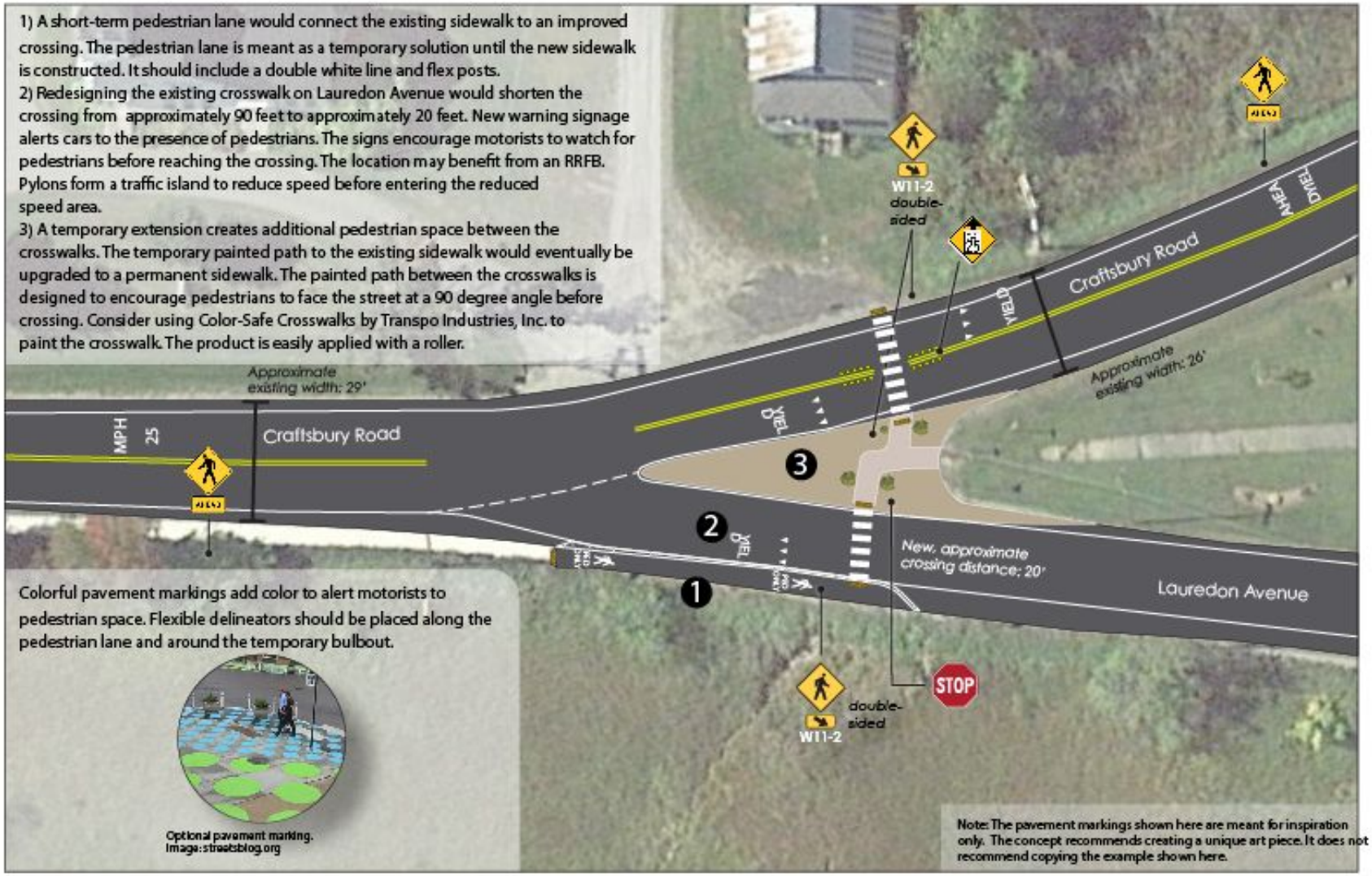


[2] *Narrower Lanes, Safer Streets*, Dewan Masud Karim, P.Eng., PTOE


LOCAL MOTION
Greensboro
GREENSBORO
CHARTERED
1781
Greensboro Nursing Home
Greensboro United Church
TOLMAN CORNER
Mountain View Country Club
1. 30 MPH speed: Add speed feedback sign southbound
2. Make pedestrian crossing safer by shortening crosswalk on Laurenden
3. Craftsbury Rd gateway: Manage speed with slight extension to green
4. Where speed changes to 25 MPH at Church Ln, paint markings on roadway
5. Extend Breezy Ave sidewalk to Tolman Corners
6. New sidewalk to Highland Center for the Arts
7. Tolman Corner gateway: Short and longer term speed management with paint and traffic calming
8. Speed feedback sign coming down the hill into Tolman Corners

Figure 2a. Existing Conditions at Craftsbury Rd and Laurendon Ave

Figure 2b. Short-Term Gateway & Pedestrian Safety Improvements at Craftsbury Rd & Laurendon Ave

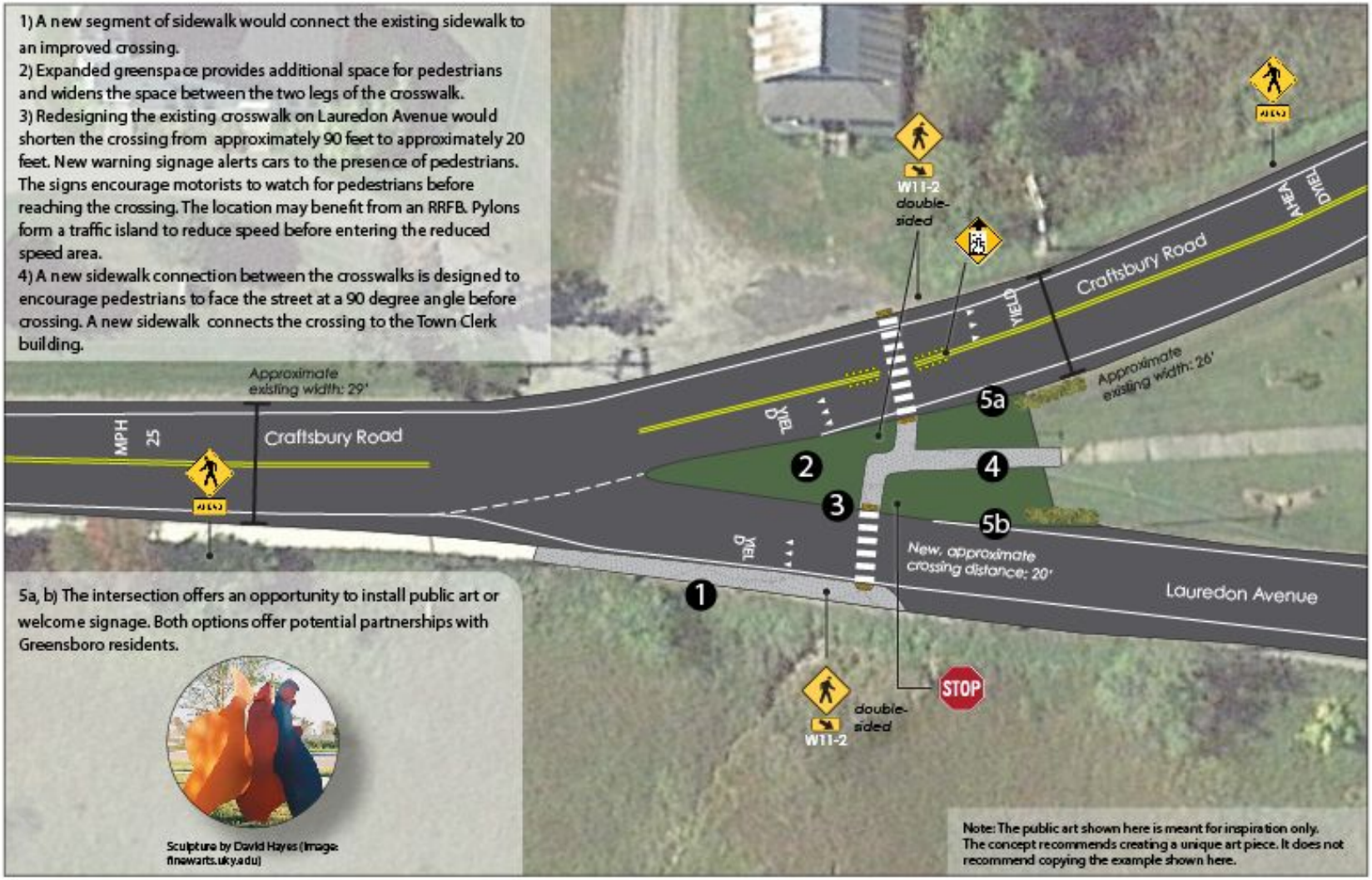


Craftsbury Rd/Town Hwy 1 and Lauredon Ave | Greensboro, VT

Improved Crossing: Short-term

Drawing is intended for planning purposes only. Not to scale.
Measurements originated from aerial imagery and are subject to field review.

Figure 2c. Long-Term Gateway & Pedestrian Safety Improvements at Craftsbury Rd & Laurendon Ave in Greensboro



Craftsbury Rd/Town Hwy 1 and Lauredon Ave | Greensboro, VT

Improved Crossing: Long-term

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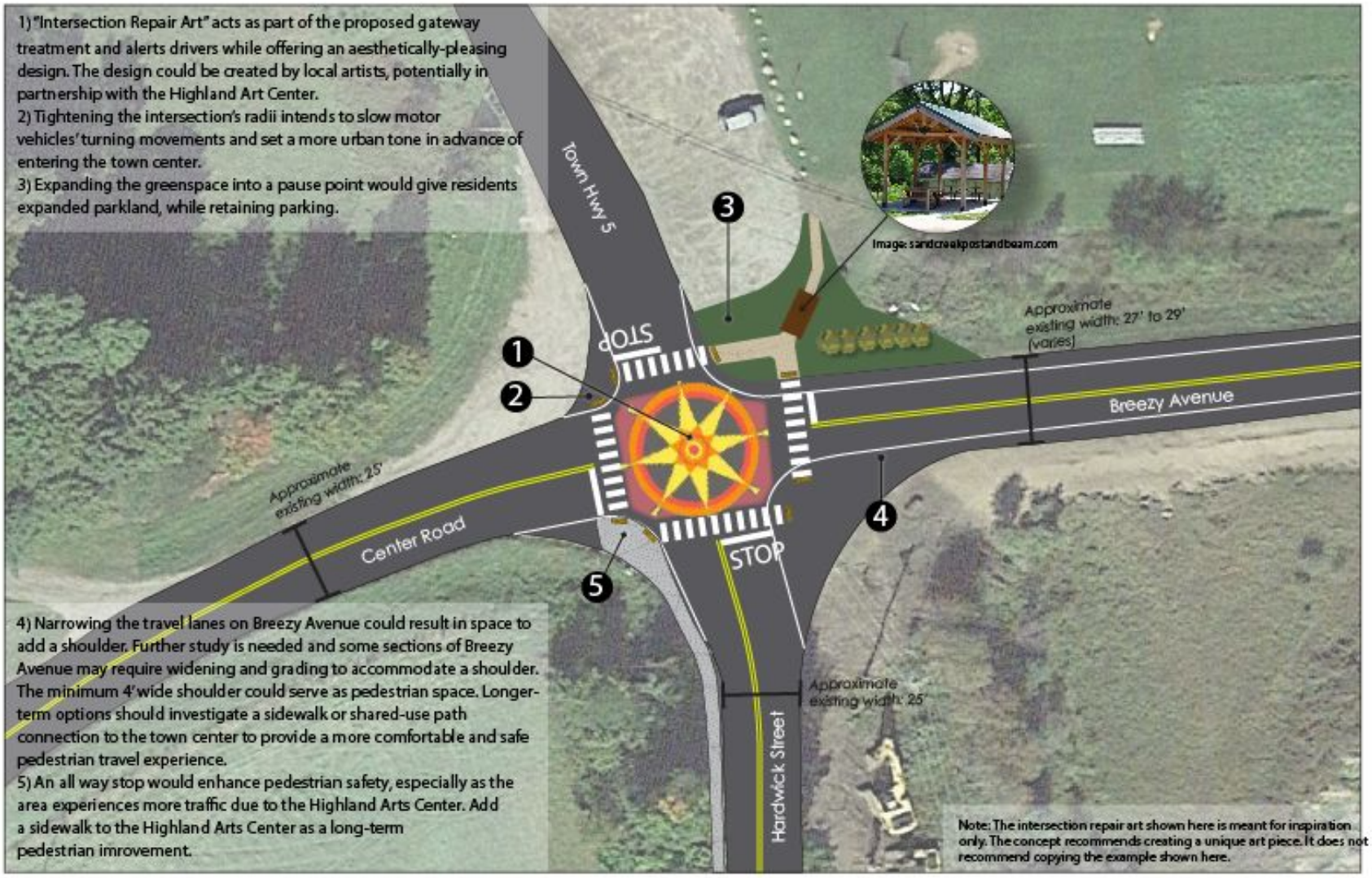
Figure 2d. Existing Conditions - Intersection at Hardwick St/TH 5 & Center/Breezy Ave.

Figure 2e. Traditional Gateway, Speed Management & Pedestrian Safety Improvements at Hardwick St/TH 5 & Center/Breezy Ave



Center Rd and Town Hwy 5| Greensboro, VT

Option 1: Intersection Repair, Radii Adjustment, and Pause Point

Intersection repair design example from cityrepair.org/street-painting-examples/ (Originally from: cyclotram.blogspot.com/2014/08/sunny-crossroads.html)

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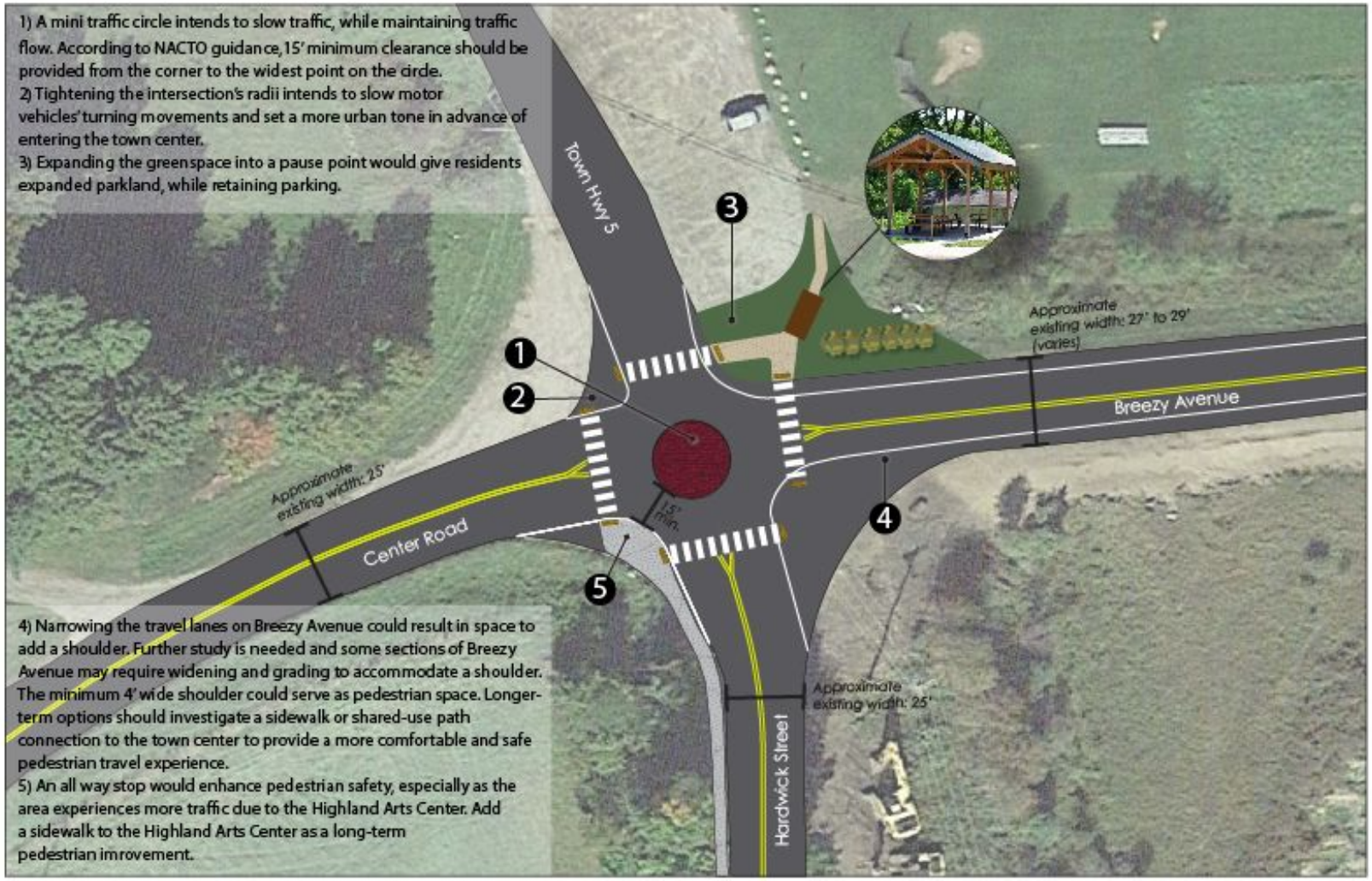
Figure 2f. Roundabout Gateway, Speed Management & Pedestrian Safety Improvements at Hardwick St/TH 5 & Center/Breezy Ave



Center Rd and Town Hwy 5 | Greensboro, VT

Option 2: Mini Traffic Circle and Pause Point

Intersection repair design example from cityrepair.org/street-painting-examples/ (Originally from: cyclofram.blogspot.com/2014/08/sunny-crossroads.html)

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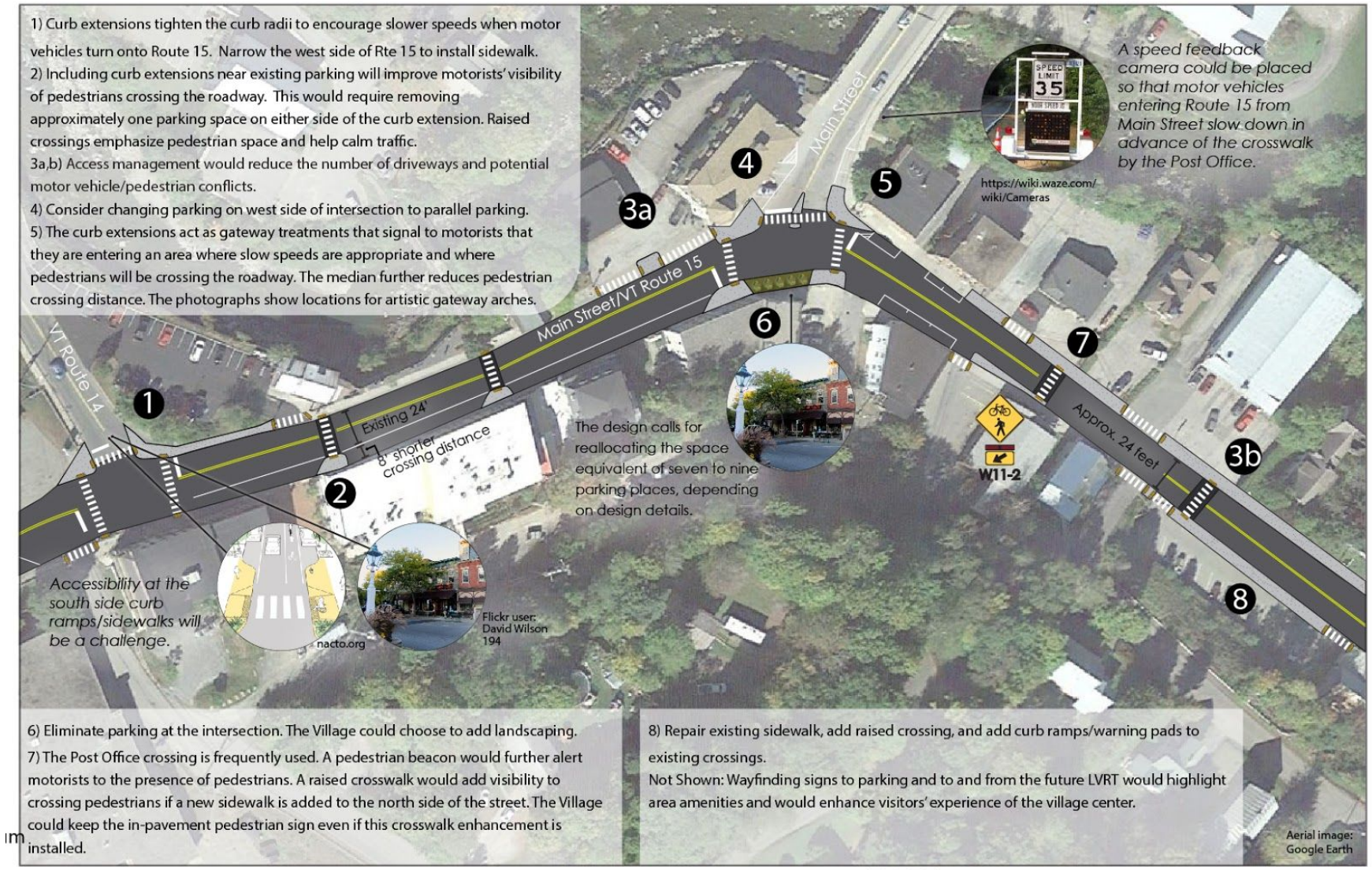
Village Center | Hardwick, VT

Existing Conditions

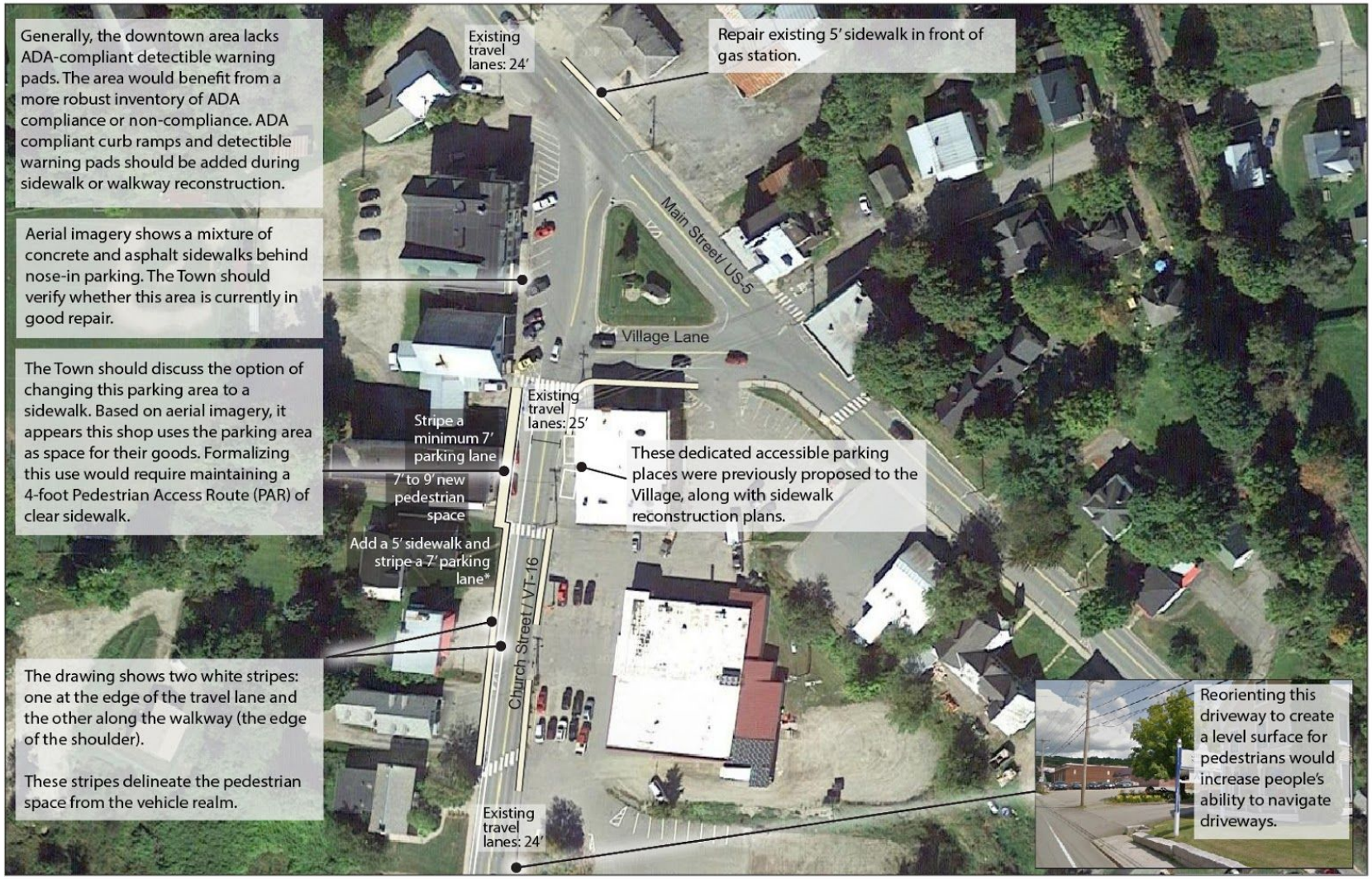
Figure 3. Proposed Pedestrian Safety and Speed Management Improvements in Downtown Hardwick



Downtown Sidewalk Study | Barton, VT

Existing Conditions

Figure 4a. Proposed Pedestrian Safety Improvements in Barton Village's Center



Downtown Sidewalk Study | Barton, VT

Proposed Improvements

N

Drawing intended for planning purposes only. Not to scale.
Measurements from aerial imagery and subject to field review.
Aerial image source: Nearmap/Google Earth

Figure 4b. Existing Conditions at Church and Elm Street in Barton Village

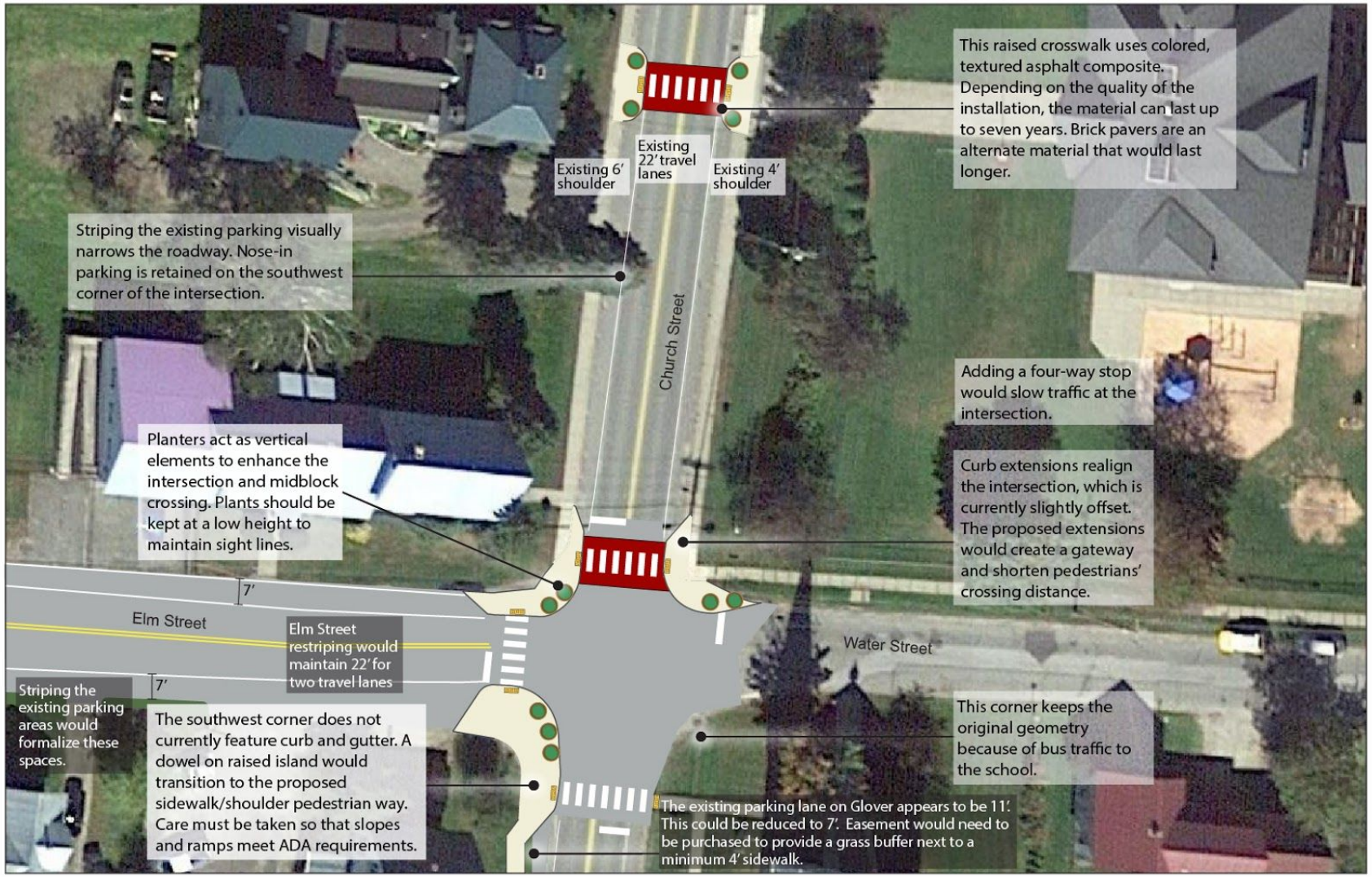
Elm Street and Church Street | Barton, VT

Existing Conditions

N

Aerial Imagery:Nearmap/Google

Figure 4c. Proposed Pedestrian Safety and Traffic Calming Improvements at Church & Elm Street in Barton Village



Elm Street and Church Street | Barton, VT

Gateway Treatment: Four-way Stop and Curb Extensions

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Drawing intended for planning purposes only. Not to scale.
Measurements from aerial imagery and subject to field review.
Aerial image source: Nearmap/Google Earth

Craftsbury Road | Craftsbury, VT

Existing Conditions

Measurements originated from aerial imagery and are subject to field review.

Figure 5a. Existing Conditions on East Craftsbury Rd in Craftsbury Village

Craftsbury Road | Craftsbury, VT

Existing Conditions

Measurements originated from aerial imagery and are subject to field review.

Figure 5b. Pedestrian Safety and Striped Parking for Craftsbury Rd & Creek Rd

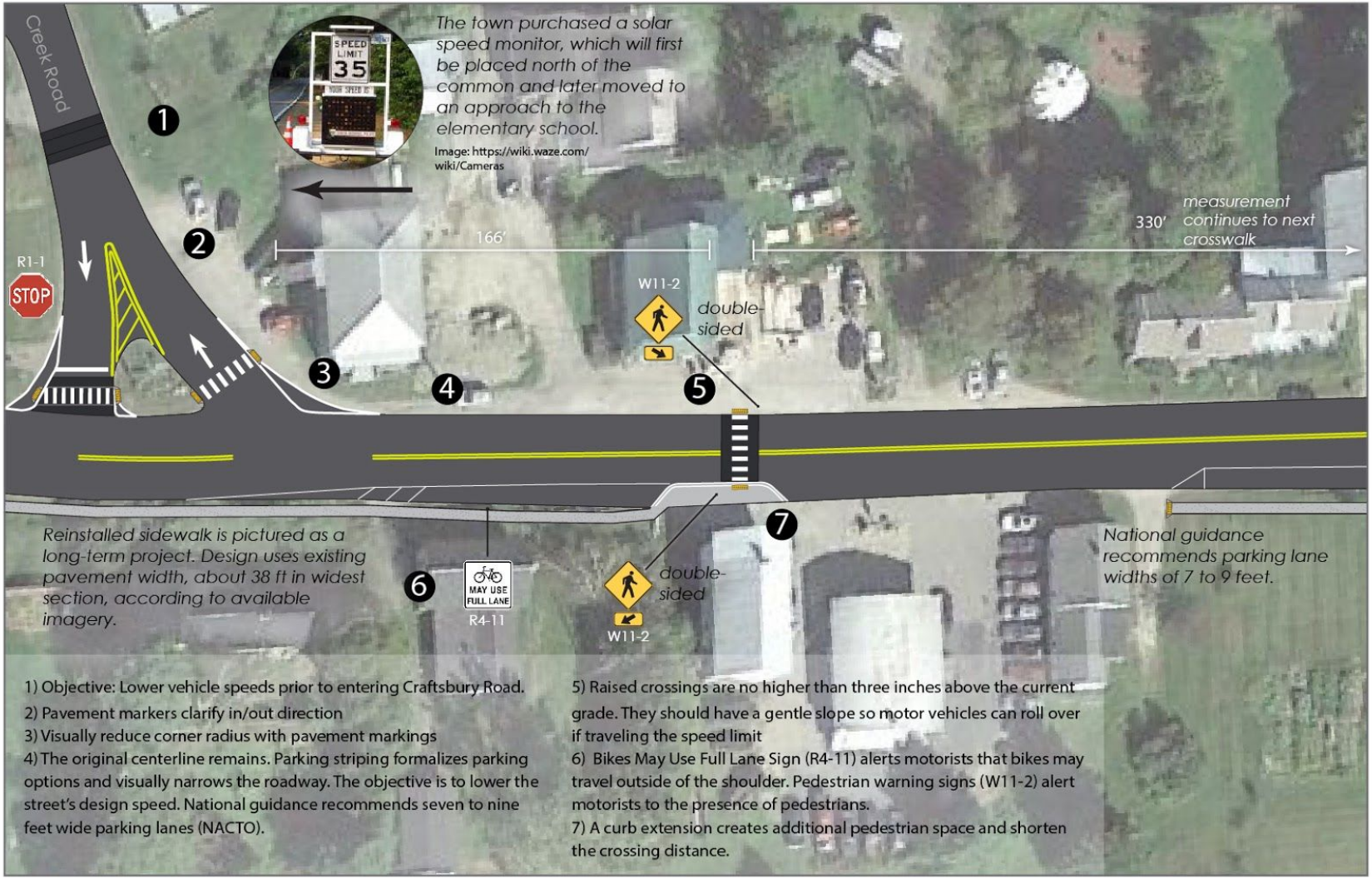
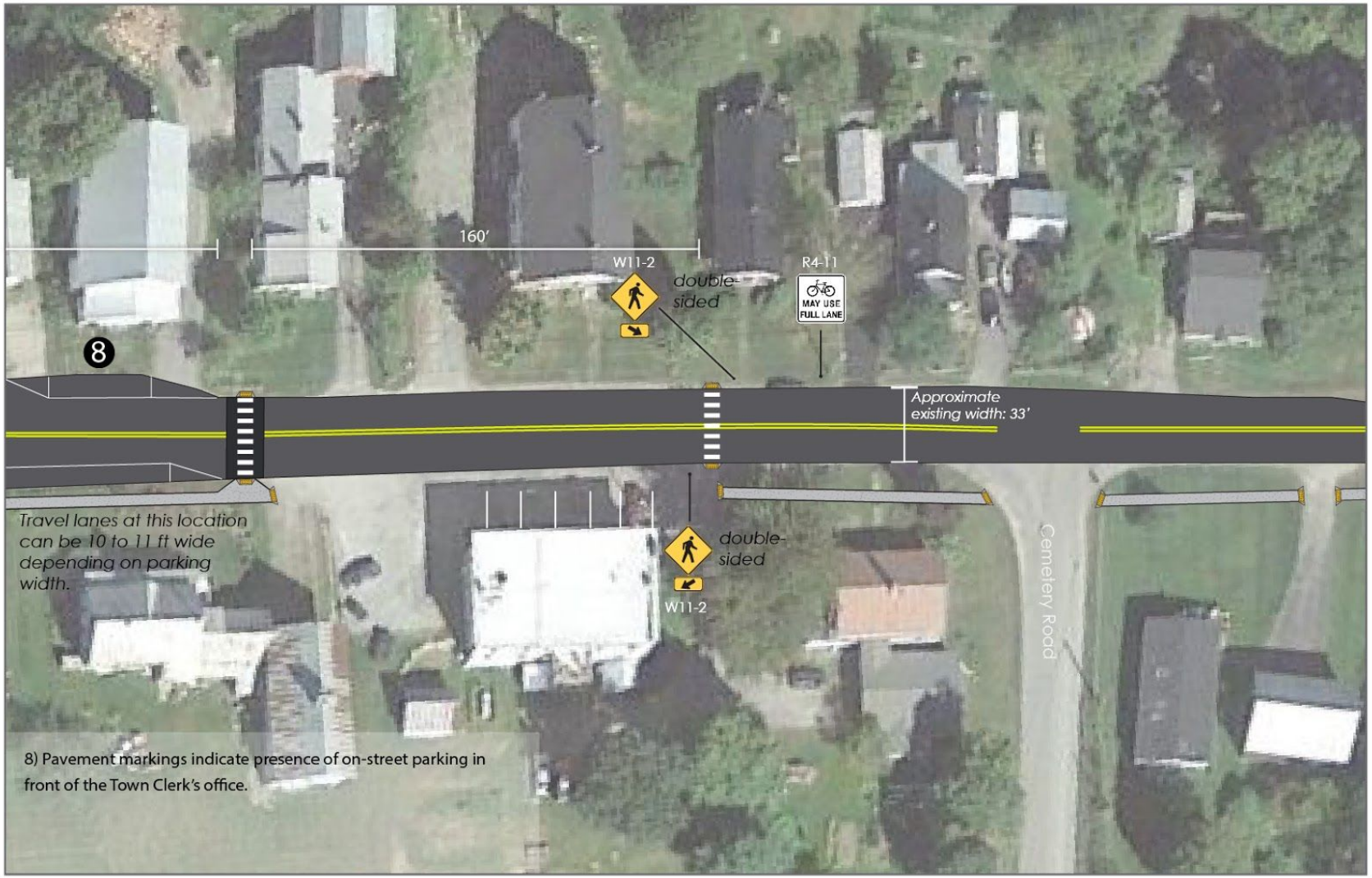


Figure 5c. Pedestrian Crossings and Striped Parking on Craftsbury Rd



Craftsbury Road | Craftsbury, VT

Pedestrian Crossings and Formal Parking

Curb Bump (on Creek Road)
Raised Crosswalk
Pedestrian Refuge
Warning Strip

Drawing is intended for planning purposes only. Not to scale.
Measurements originated from aerial imagery and are subject to field review.

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Figure 5d. Pedestrian Safety and Wide Shoulders for Speed Management on Craftsbury Rd & Creek Rd

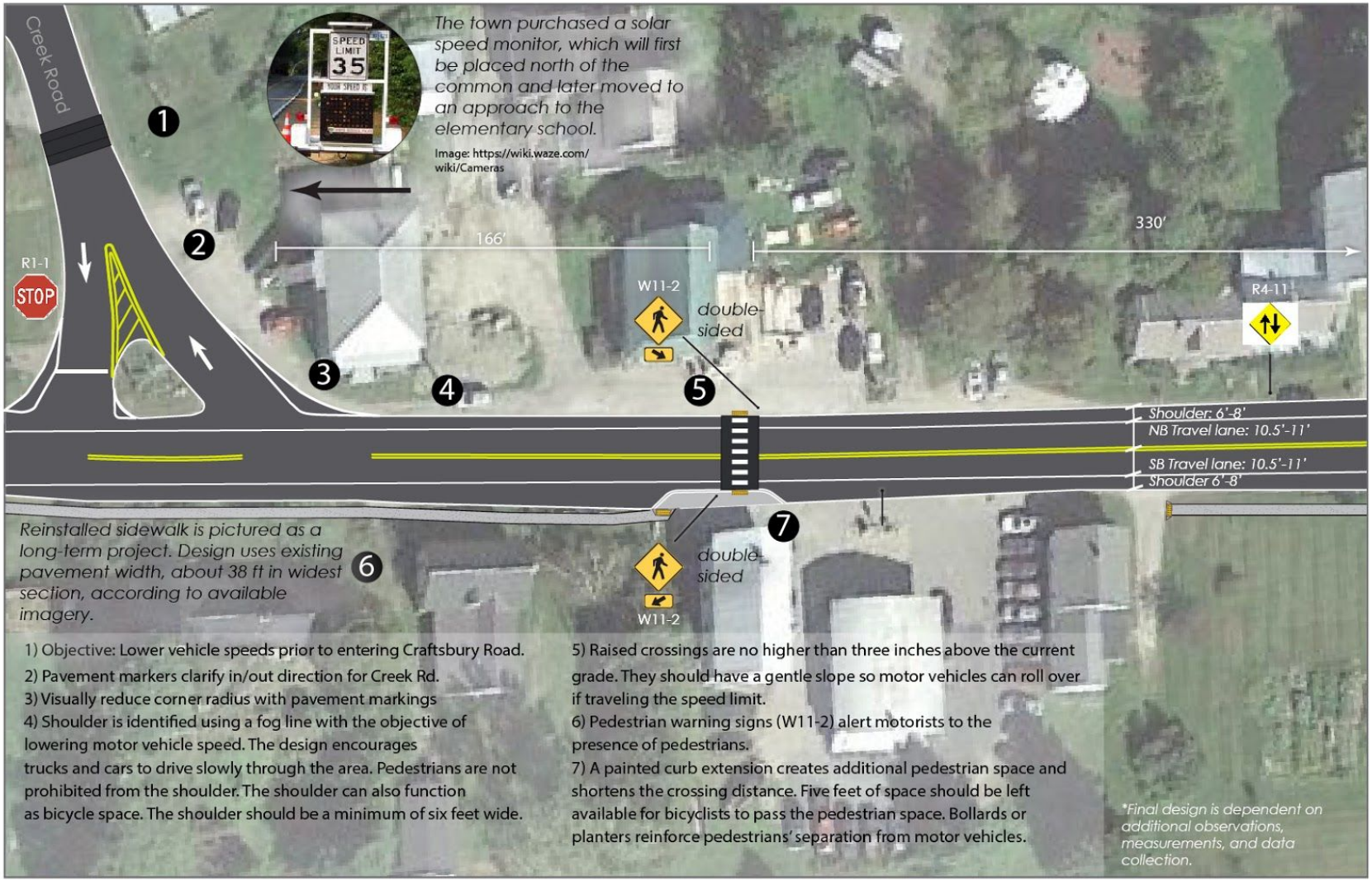
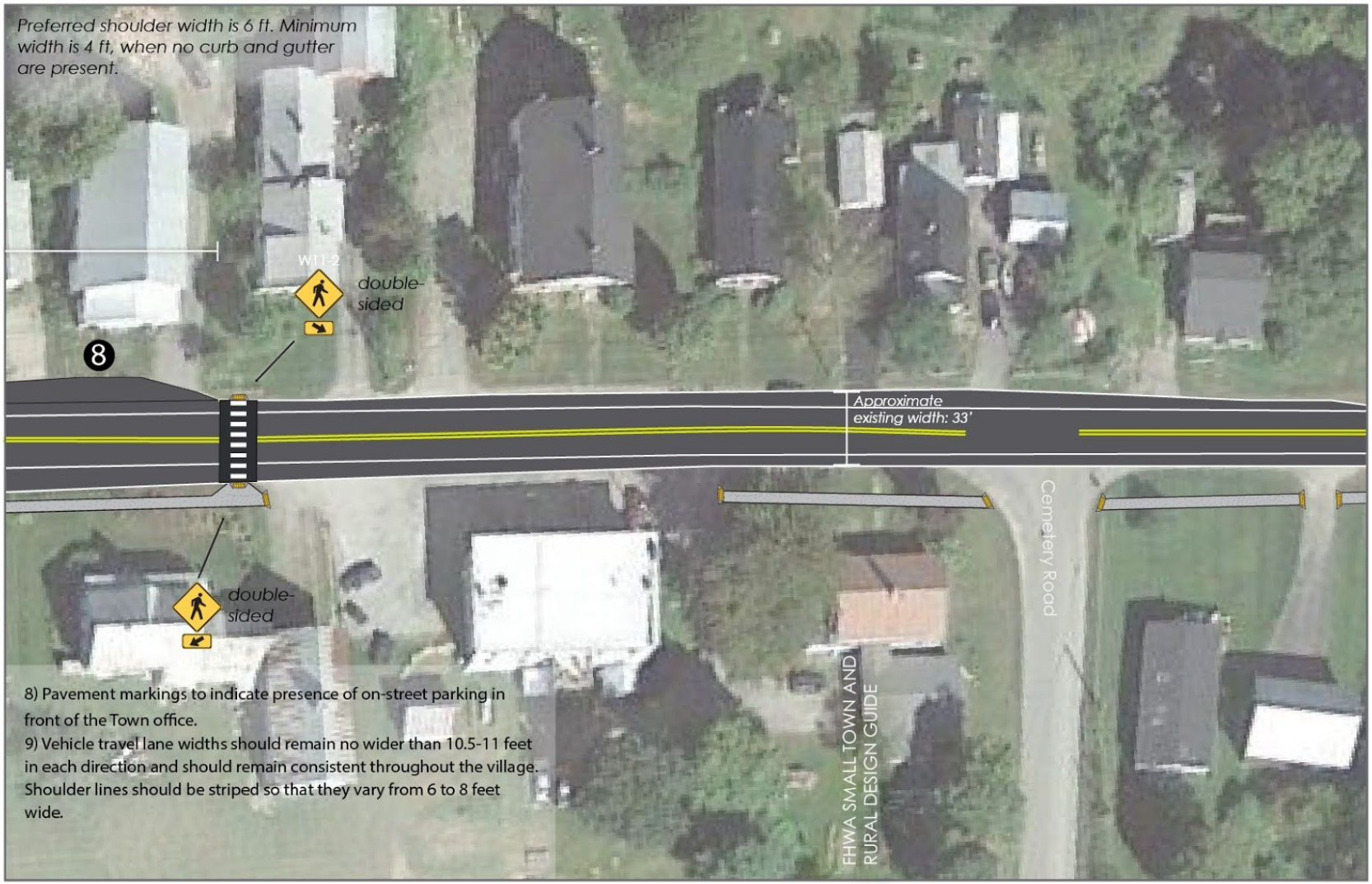


Figure 5e. Pedestrian Safety and Wide Shoulders for Speed Management on E Craftsbury Rd



Note: If an "Advisory shoulder" design is preferred, it requres a request to experiment, per MUTCD Section 1A.10

Figure 5f. Two-Way "Slow Street" Design with Advisory Shoulders for Pedestrians and Bikes at E. Craftsbury Rd & Creek Rd

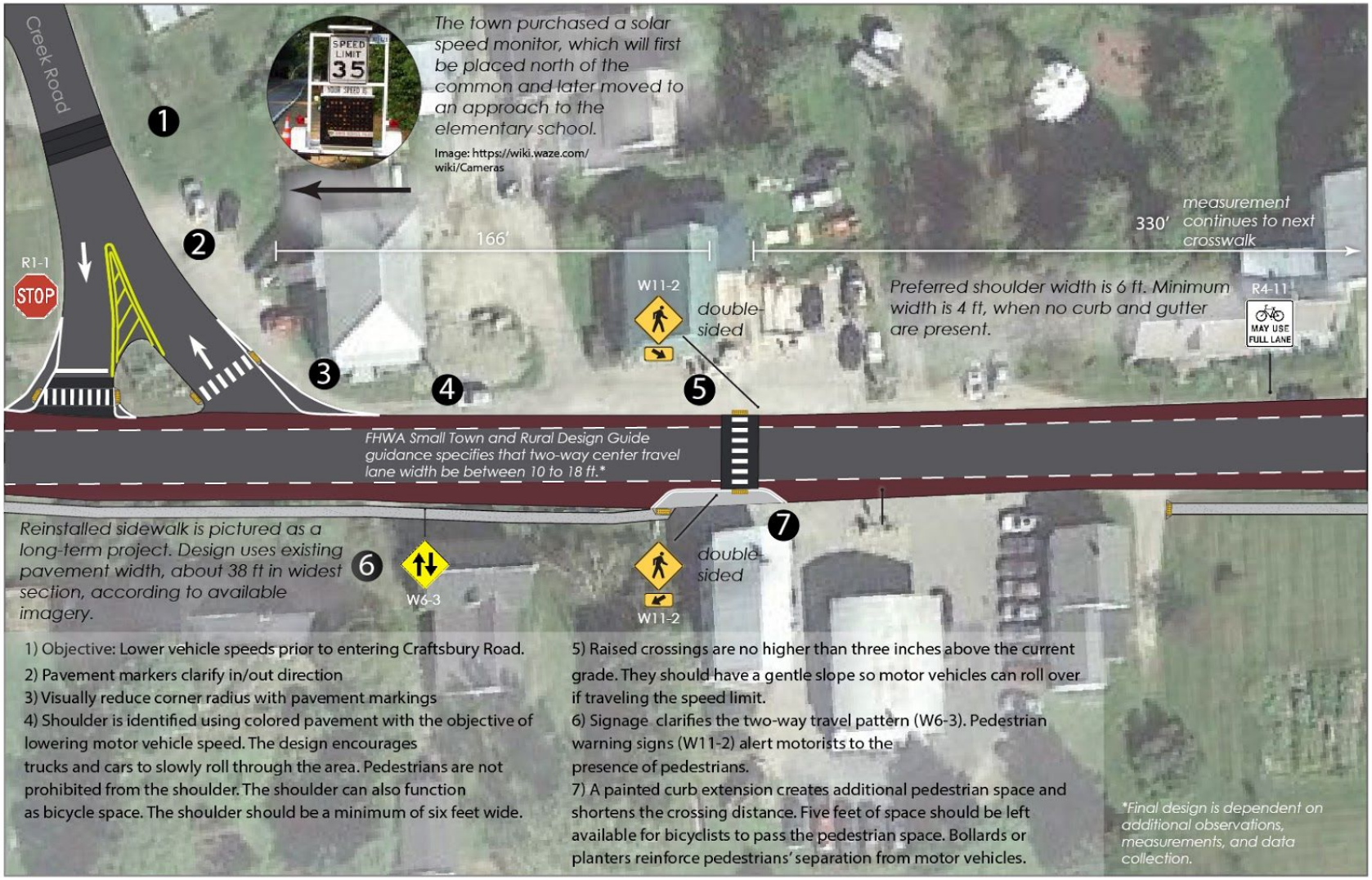
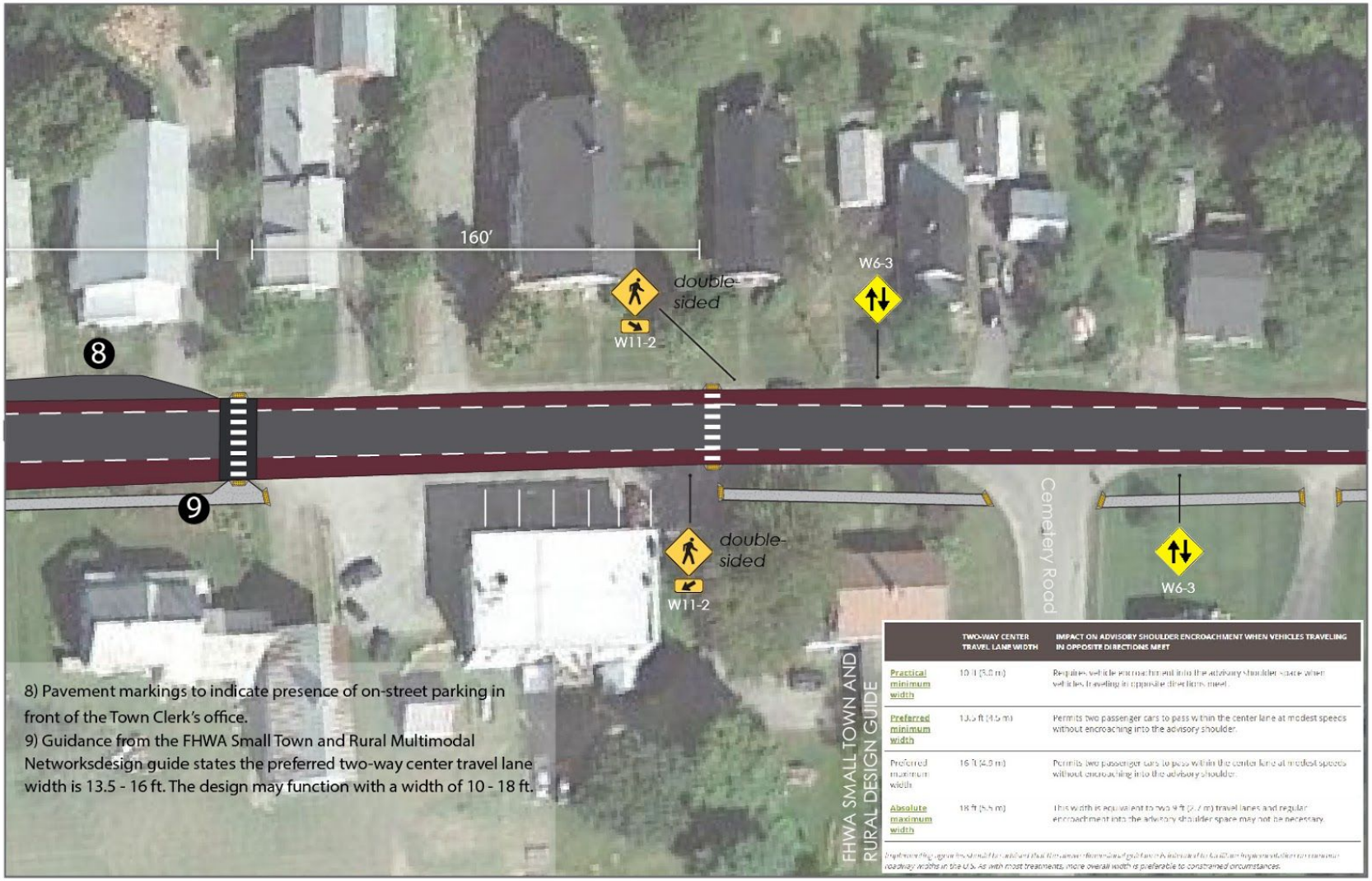


Figure 5g. Two-Way "Slow Street" Design with Advisory Shoulders for Pedestrians and Bikes at E. Craftsbury Rd



Craftsbury Road | Craftsbury, VT

Pedestrian Crossings and Advisory Shoulder

Note: Advisory shoulders requre a request to experiment, per MUTCD Section 1A.10

Curb Bump (on Creek Road)
Raised Crosswalk
Pedestrian Refuge
Optional Colored Pavement
Warning Strip

alta PLANNING + DESIGN

Drawing is intended for planning purposes only. Not to scale.
Measurements originated from aerial imagery and are subject to field review.

Non Infrastructure Recommendations

In addition to the location-specific infrastructure improvements noted in this *Walk-Bike Safety Action Plan*, Local Motion identified several potentially viable non-infrastructure strategies for improving walk-bike safety. In addition to the strategies outlined below, these and others are presented in much greater detail in the "Toolkits" section of the Safe Streets Vermont website, which is available online at http://safestreets.vermont.gov/toolkits.

Strategy	Description	Partners and Examples
A. Update local ordinances	Update local ordinances regarding the rights and responsibilities of non-motorized users of local roads. The town of Middlebury recently undertook a comprehensive rewrite of those portions of its ordinances that pertain to vulnerable users, with an eye towards clarifying where and how people can walk and bike on streets, sidewalks, and paths in town.	Middlebury's rewrite was led by local volunteers in close collaboration with the police chief. The language was recently approved by the selectboard. It might serve as a useful starting point for the NEK municipalities to do the same.
B. Organize a sidewalk stenciling campaign	Organize a downtown sidewalk stenciling campaign to promote safe walking and biking.	Local Motion offers materials and assistance with local volunteer-led stenciling of safety messages and graphics on sidewalks using temporary spray chalk.
C. Apply for *Walk-Friendly Community/ Bicycle-Friendly Community* recognition.	These free programs, from Walk Friendly America and the League of American Bicyclists, help communities evaluate how effectively it supports and promotes walking and biking respectively. Qualifying communities are awarded recognition starting at bronze and going up to diamond levels, and all communities that apply are given detailed feedback on steps to take to achieve the next level of recognition.	Local Motion can assist with the application process. A municipality must be the formal applicant.

D. Presentation on the benefits of walking and biking	Offer one or several workshops or presentations for local elected officials and/or staff regarding the benefits of and strategies for making the community more walk- and bike-friendly.	Local Motion can develop customized presentations on topics that are particularly relevant to Morristown and then present them to any group of community leaders.
E. Walking and/or biking tour	Organize a walking and/or biking tour of key sites of concern with local officials and community leaders.	Local Motion could lead the tour, highlighting issues and solutions as outlined in this proposal.
F. Bike Smart program	Make it easier for kids to walk and bike to school by instituting regular bike skills training for kids in grades 3 through 6.	Local Motion can provide a cargo trailer filled with kids' bikes and all needed equipment for building bike skills training into PE and/or afterschool at a nominal cost, and can train school staff in how to implement our bike skills curriculum. Partner with school and teachers.
G. Add walk-bike policy language to municipal plans	Amend tow/village plans to include policies about narrowing lane widths and creating a connected walk-bike networks. Review zoning standards to ensure that new development supports walking and biking.	Work independently or with regional partners.
H. Work with business community on using biking to enhance tourism and economic development	Capitalizing on the municipalities' locations adjacent to the LVRT to bring more economic activity, with the goal of drawing riders off the trail and into local businesses, and to surrounding towns.	Work with VT Agency of Commerce and Community Development
I. Identify pop-up demonstration projects	Choose one project from each community to run as a pop-up to demonstrate low cost, low risk temporary ways to try out new ideas.	Contact Local Motion to use our Pop-Up Demonstration trailer.

Next Steps

There is great potential to capitalize on the energy in this area, the Bike and Pedestrian Committee work to date and the opportunities ahead. We recommend the following next steps.

1. **Apply for a Vermont Bike-Ped Program Grant or other grant funding sources in 2017:** Select specific projects from the recommendations in this plan to implement.

2. **Continue to meet as a Steering Committee:** Meet quarterly or monthly as a steering committee. We recommend that the steering committee organize into a local advocacy group that can spearhead future walk-bike projects.

3. **Amend Local Plans to include Walk-Bike goals and policies.** Strong policy language lays the groundwork for long term support of safety improvements and will make the town more competitive when applying for grants and other funding for projects. The town could adopt this plan into the Plans by reference.

4. **Identify additional pilot projects.** The steering committee should identify pilot projects that they advocate for demonstrating around the area. Any of the restriping projects in this plan could start as pilot projects. Recruit volunteers, borrow Local Motion's pilot trailer and make them happen!

5. **Celebrate!** Plan a spring Walk-Bike event to highlight the positive changes in the community so far and what you've accomplished together.