JERICHO BICYCLE AND PEDESTRIAN FACILITY MASTER PLAN

MAY 2015

PREPARED FOR:
TOWN OF JERICHO, VT

SUBMITTED BY:
RSG

180 Battery Street, Suite 350
Burlington, VT 05401
802.383.0118
www.rsginc.com

IN COOPERATION WITH:
CHITTENDEN COUNTY REGIONAL PLANNING COMMISSION (CCRPC)

CONTENTS

1.0 INTRODUCTION 4

1.1 | Study Area 4

1.2 | Purpose and Need 6

Purpose 6

Need 6

1.3 | Natural and Cultural Resources 6

1.4 | Permitting and Legislative Compliance 7

Permitting Requirements 7

Complete Streets – ACT 34 7

1.5 | Bicycle and Pedestrian User Types 8

Bicycle User Groups 8

Pedestrian Facility Users 8

1.6 | Bicycle and Pedestrian Origins and Destinations 8

Journey to Work 9

School and Recreation Trips 9

2.0 REVIEW OF PAST STUDIES AND PLANS 12

2.1 | Jericho Center Boardwalk, Town of Jericho (December 2010) 12

2.2 | Jericho Elementary School Pedestrian Circulation Study, CCRPC (October 2008) 12

2.3 | Regional Bicycle – Pedestrian Plan Update, CCRPC (September 2008) 13

2.4 | VT15 Bicycle/Pedestrian Scoping Study (2014) 13

3.0 TRANSPORTATION SYSTEM CHARACTERISTICS AND PERFORMANCE 14

3.1 | Pedestrian Facilities 14
3.2 | Bicycle Facilities 17
Paved Shoulder Bicycle Facility 19
Shared Lane Bicycle Facility 20
Subdivision Streets 20
3.3 | Shared-Use / Off-Road Facilities 21
3.4 | roadway Conditions 21
Roadway Surface 21
Posted Speed Limits 24
3.5 | Traffic Conditions 25
Average Annual Daily Traffic 25
4.0 PLANNED IMPROVEMENTS 26
4.1 | Bicycle and Pedestrian Enhancements 26
4.2 | Connections with Transit and Park & Ride Locations 26
5.0 FUTURE CONDITIONS BICYCLE AND PEDESTRIAN FACILITIES 28
5.1 | Sidewalk/multiuse Path Connections 28
5.2 | On–road Bicycle Accommodations 28
5.3 | Neighborhoods and Amenities Connections 29
5.4 | Other Considerations 30
6.0 CAPITAL PLAN 31
6.1 | Recommendations, Expected Capital Costs & Implementation 31
Other General Recommendations 32
6.2 | Performance Measures and Priorities 33
6.3 | Funding Opportunities 34

Appendices

A. Natural and Cultural Resource Maps
B. Transportation Funding Source Table
C. Bicycle and Pedestrian Facility Maps
    1 Sidewalks and Paths
    2 Trails
    3 Desired Connections
D. Summary of Comments from Dec 2013 Public Local Concerns Meeting
E. Model Bicycle and Pedestrian Land Use Regulation Guide
F. Complete Streets Legislation and Reporting Form
G. Sidewalk inventory memo from CCRPC

List of Figures and Tables

FIGURE 1-1: STUDY AREA 5
FIGURE 1-2: SCHOOL AND RECREATIONAL ORIGINS AND DESTINATIONS 11
FIGURE 3-1: EXISTING SIDEWALK NETWORK – THREE VILLAGE CENTERS 14
FIGURE 3-2: PEDESTRIAN AND BICYCLE FACILITIES – EXISTING AND PROPOSED 18
FIGURE 3-3: PAVED SHOULDER BICYCLE FACILITY 19
FIGURE 3-4: SHARED LANE BICYCLE FACILITY 20
FIGURE 3-5: SHARED-USE FACILITY 21
FIGURE 3-6: ROADWAY SURFACE TYPES IN JERICHO 22
FIGURE 3-7: ROADWAY AND RIGHT-OF-WAY (ROW) WIDTHS 23
FIGURE 3-8: POSTED SPEED LIMITS 24
FIGURE 3-9: 2015 ANNUAL AVERAGE DAILY TRAFFIC 25

TABLE 1-1: JOURNEY TO WORK DATA 9
TABLE 2-1: EXISTING PLAN AND STUDY REVIEW 12
TABLE 3-1: PAVED SHOULDER WIDTHS – VERMONT PEDESTRIAN AND BICYCLE FACILITY PLANNING AND DESIGN MANUAL GUIDELINES 19
TABLE 3-2: PAVED SHOULDER WIDTHS – VERMONT STATE STANDARDS 20
TABLE 6-1: ROAD SHOULDERS – IMPLEMENTATION AND COSTS 31
TABLE 6-2: PATHS AND SIDEWALKS - IMPLEMENTATION AND COSTS 32
TABLE 6-3: PERFORMANCE CRITERIA AND PERCIEVED PRIORITY - WIDENED ROAD SHOULDERS 33
TABLE 6-4: PERFORMANCE CRITERIA AND PERCIEVED PRIORITY - PATHS AND SIDEWALKS 34

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, as well as matching funds provided by Chittenden County's 18 municipalities and the Vermont Agency of Transportation. The contents of this report do not necessarily reflect the official views or policy of the U.S. Department of Transportation.

1.0 INTRODUCTION

The *Jericho Bicycle and Pedestrian Master Plan* investigates and assesses the existing bicycle and pedestrian transportation system, evaluates future conditions, and presents a list of recommendations. The study will be used by the Jericho Planning Commission as it updates the Town Transportation and Municipal Plans, the Development Review Board to assist with project review, and the Selectboard as it updates the Capital Improvement Program, applies for grant funding for enhancement projects, and considers changes to the Impact Fee Schedule adopted in 2009.

This Plan should be considered a supplement to the *2015 Jericho Transportation Study,* which was developed along a similar time frame.

Section 3 of this plan describes the characteristics of the existing bicycle and pedestrian network, including roadways, sidewalks and trails. A description of user types, and their origins and destinations is provided to aid in determining deficiencies and appropriate new facilities. A review of appropriate design standards for road shoulders, sidewalks and paths is also provided in this section.

A Local Concerns public meeting was held in December 2013 to gain insight into the public's perspective on transportation issues throughout the Town. A summary of comments and concerns from the first public meeting is provided in Appendix D.

Section 4 summarizes planned and funded facilities, and Section 5 details additional facilities determined to be appropriate during this study process, with the input from the Town Trails Committee and Town Staff.

Section 6 outlines a capital plan, with a matrix describing various desired projects, their estimated costs and a timeline for planning purposes. An analysis of performance, impacts and priorities is also provided, along with potential funding sources.

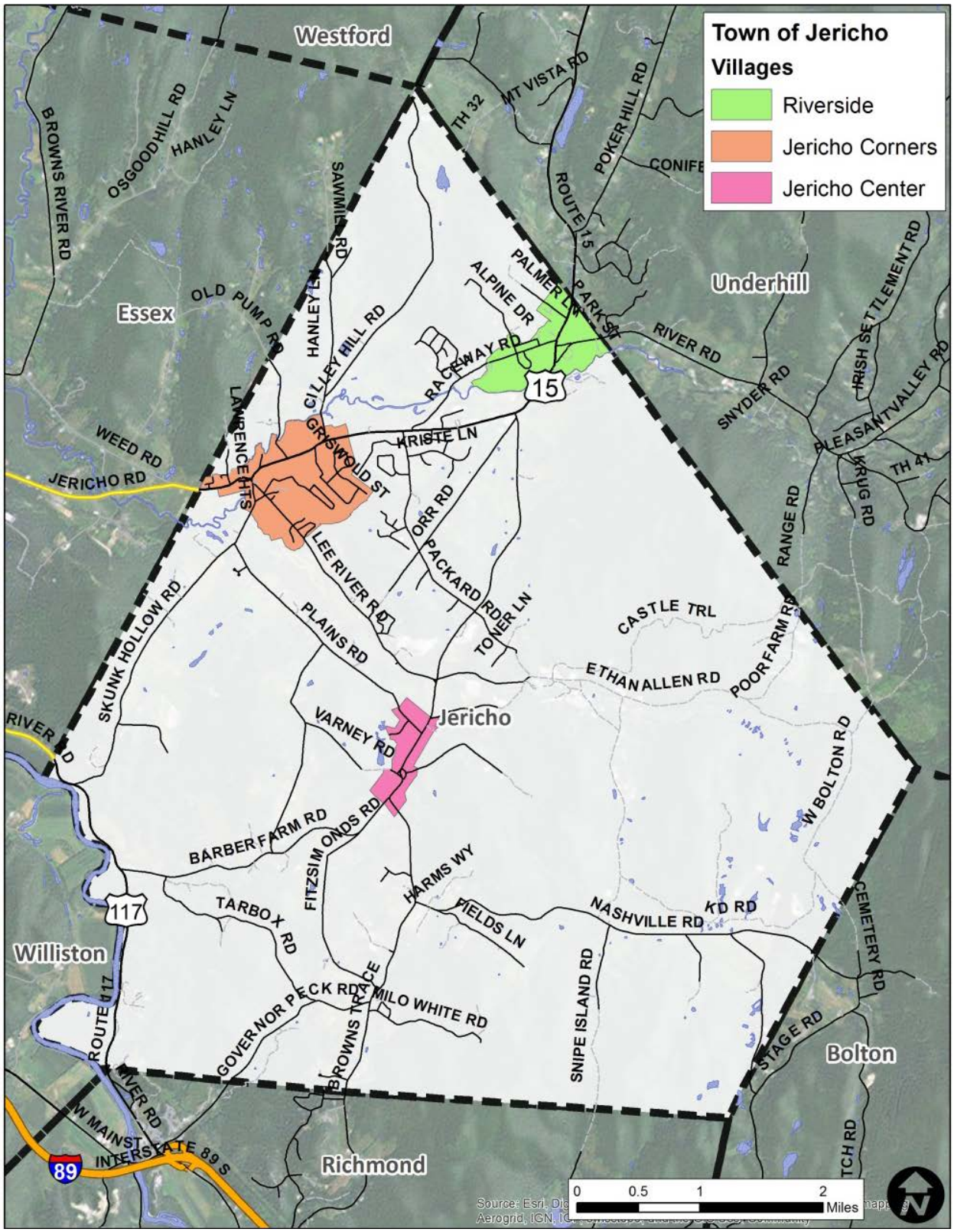
1.1 | STUDY AREA

According to the 2010 Census, the Town of Jericho's population is just over 5,000, which represents zero growth when compared with the number of residents reported in the 2000 Census. The State of Vermont's population estimates for Vermont indicate that Jericho's population is projected at between 5,051 and 5,173 in 2020, which represents approximately one to three percent growth over 2010.[1]

The Town of Jericho is comprised of three village centers in the areas of Jericho Center, Jericho Corners, and Riverside ("The Flats"). In close proximity of the village centers lie schools, town buildings, and other services of the town. The existing transportation network currently serves predominantly passenger vehicles and trucks. Sidewalks currently exist in Jericho Corners, Jericho Center, and Riverside, but only cover limited stretches and do not interconnect for regional access. All existing bicycling facilities are located on private or town recreation centers, and are used primarily as recreational facilities. Figure 1-1 shows the study area.

[1] *Vermont Population Projections – 2010 – 2030*, State of Vermont – Agency of Commerce and Community Development, August 2013.

FIGURE 1-1: STUDY AREA



1.2 | PURPOSE AND NEED

The purpose and need statement is a summary of the context and issues related to the master plan and justifies the need for action. This statement considers existing deficiencies and future needs and incorporates comments received from the public.

PURPOSE

The Purpose of the *Jericho Bicycle and Pedestrian Master Plan* is to assess existing conditions, identify pedestrian and bicyclist user types and needs, and develop a prioritized list of bicycle and pedestrian facility projects for the Town of Jericho.

NEED

The need for the *Jericho Bicycle and Pedestrian Master Plan* can be best described by identifying existing deficiencies in the network of bicycle and pedestrian facilities in the Town of Jericho. The deficiencies that this Plan will address are:

- Overall, the sidewalk system has improved significantly in the last decade, with key gaps completed in Jericho Corners, Jericho Center, and Riverside; however, these sidewalks only cover limited stretches and do not interconnect for regional access.
- There are critical gaps for bicycle travel along the existing road network in Jericho where the shoulder widths do not meet the Vermont Agency of Transportation (VTrans) guidelines for shared bicycle use.
- A comprehensive pedestrian and bicycle network, with connections to regional routes, can help to promote Jericho as a travel destination. The network could tie together several important sites within the Town.
- Many important destinations in Jericho (cultural, scenic, civic, etc.) can currently only be reached safely by automobile. By providing alternate connections (i.e., sidewalks or bike lanes), residents and visitors will not be as reliant on automobiles for all trips.
- A more fully integrated pedestrian and bicycle system will encourage Jericho residents to bicycle and walk to destinations, thus encouraging a healthier lifestyle.

1.3 | NATURAL AND CULTURAL RESOURCES

The Town of Jericho is rich with natural and historic features that must be considered should they be impacted by the construction of any improvements. Previously disturbed areas, such as historic rights of way, typically have low potential for historic or archaeological resources. Work proposed outside rights of way, particularly in the historic district(s), must be scrutinized carefully. Other points of heightened resource impact potential include at stream or culvert crossings. The latest mapping database of natural resources in Vermont can be viewed at http://anrmaps.vermont.gov/websites/anra/. Maps showing 1) Natural Communities, and 2) Streams, Wetlands and Floodways are provided in Appendix A.

1.4 | PERMITTING AND LEGISLATIVE COMPLIANCE

PERMITTING REQUIREMENTS

As proposed development projects are planned, designed, and constructed, the Town could require that developers construct portions of sidewalk or paths as part of a zoning / permitting requirement. In developing these zoning bylaws, the Town should specify the type of facility (e.g., five-foot concrete sidewalk, 10-foot asphalt path, etc.) as desired along specific roadway corridors. This would help the Town to achieve their goals of an interconnected walking/biking network. Other potential permits that may be required include:

- Any project that constructs more than 1 acre of impervious surface will require a stormwater permit from the State of Vermont.
- Any project that requires access to or work within the State right-of-way requires a Section 1111 permit from VTrans.
- Any new sidewalks or paths must meet the standards and requirements of the Americans with Disabilities Act, as amended.
- A wetland permit may be required from the state's Agency of Natural Resources for any activity with a wetland or its 50-foot buffer zone.
- The Vermont Division for Historic Preservation Act 250 provides District Commissions with comments and the necessary information for them to make a positive finding under the historic sites aspect of Criterion 8 of Act 250. Under 10 V.S.A. Chapter 151 (Act 250), section 6001 (9), the Vermont Advisory Council on Historic Preservation is responsible for providing testimony about the significance of historic and archeological resources. In some cases, an Act 250 project also has federal funding or requires a federal permit. In such cases, the project is also subject to the provisions of Section 106 of the National Historic Preservation Act. Compliance with Section 106 generally satisfies the needs of the Act 250 process, but not in all cases.
- A categorical exclusion (CE) may be provided for work to occur in previously disturbed areas.

Using the maps in Appendix A will help pre-screen which of the permits may be required depending on the specific project location. Actual resource delineation is typically necessary during project development, however.

COMPLETE STREETS – ACT 34

The Vermont Legislature passed Complete Streets Legislation (Act 34) which became effective on July 1, 2011. Its purpose is to ensure the needs of all transportation users, regardless of their age, ability or preferred mode of transportation, be considered in all phases of transportation projects. Any transportation improvements within the Town should comply with the Complete Streets law. The full text of Act 34, as well as a project reporting form, is included in Appendix F.

1.5 | BICYCLE AND PEDESTRIAN USER TYPES

BICYCLE USER GROUPS

Bicyclists vary in their level of experience, age, interests and needs. A three-tiered classification system can be used to generally describe a bicyclist's ability to interact with traffic and help Town staff plan for the proper facility to meet the needs and skill levels of bicyclists.

Advanced Bicyclists

These bicyclists are generally experienced riders, are comfortable riding in traffic using the existing roadway system, and operate at maximum speed with minimum delay. They require minimal space on the roadway or shoulder to reduce the need for either the bicyclist or the motor vehicle operator to change position when passing. They are best served by wide outside lanes on urban arterials and collectors, and usable shoulders on rural highways.

Basic Bicyclists

These cyclists are casual or new adult or teenage riders. They are less confident of their ability to operate in traffic without special provisions for bicycles. Some will become advanced bicyclists, while others will remain basic riders. They prefer low-speed, low traffic-volume streets or designated bicycle facilities.

These bicyclists are best served by more operating space when riding on the roadway, with low speeds on neighborhood streets, and network of designated bicycle facilities (bicycle lanes, side-street bicycle routes and shared-use paths) or usable shoulders on rural highways.

Children

These are usually pre-teen riders. Roadway use is initially monitored by parents. They may not comply with traffic regulations and they (and their parents) prefer residential streets with low motor vehicle volumes and speed limits, and well-defined separation of bicycles and motor vehicles or separate pathways.

These riders are best served by ensuring low speeds on neighborhood streets. They require even more operating space when riding on the roadway or facilities separated from motor vehicle traffic such as a network of designated bicycle facilities (bicycle lanes, paved shoulders, sidestreet bicycle routes, shared use paths, and rail trails). The often ride on a sidewalk where pedestrians are not endangered or when pedestrian activity is low.

PEDESTRIAN FACILITY USERS

Virtually everyone is a pedestrian, thus exhibiting a range of needs, varying greatly in age, height, physical ability, visual acuity, awareness of their surroundings and reaction time. As children age they require less supervision and acquire more physical and judgmental skills. At some point they may act invincibly. As people get older they lose physical acuity and slow down. People with disabilities have an additional range of characteristics and needs. Pedestrian facilities must serve all users equally.

1.6 | BICYCLE AND PEDESTRIAN ORIGINS AND DESTINATIONS

For the purposes of this study, bicycle and pedestrian origins and destinations are characterized as either commuter trips (Journey to Work) or school and recreation.

JOURNEY TO WORK

The residents of Jericho work in a number of towns within Chittenden County, but also other locations inside and outside of Vermont. The majority of commuters work within Chittenden County in Burlington and Essex. The third largest destination of employment is the Town of Jericho itself. Table 1-1 shows the locations of employment for the residents of Jericho. This information was obtained as part of the US Census Bureau's 2010 Census.

TABLE 1-1: JOURNEY TO WORK DATA

Place of Work	Employed Persons Living in Jericho	% of Total
Chittenden County	***2,560***	***90.7***
Bolton Town	9	0.3
Buels Gore	0	
Burlington City	611	21.7
Charlotte Town	0	
Colchester Town	126	4.5
Essex Town	539	19.1
Hinesburg Town	3	0.1
Huntington Town	0	
Jericho Town	427	15.1
Milton Town	17	0.6
Richmond Town	45	1.6
St. George Town	0	
Shelburne Town	22	0.8
South Burlington City	390	13.8
Underhill Town	51	1.8
Westford Town	5	0.2
Williston Town	283	10.0
Winooski City	32	1.1
Addison County	***11***	***0.4***
Franklin County	***22***	***0.8***
Lamoille County	***50***	***1.8***
Washington County	***85***	***3.0***
Rest of VT	***45***	***1.6***
Other	***48***	***1.7***
Total	**2,821**	**100.0**

Source: 2006-2010 5-year ACS County-to-County Worker Flows

It is important to note that those work trips made by residents of Jericho within Jericho (15.1 percent of all work trips) and to adjacent communities could potentially be made by walking or biking. Improvements to the bicycle and pedestrian network will allow more Jericho residents to have an alternative to driving a vehicle to/from their workplace.

SCHOOL AND RECREATION TRIPS

Apart from work trips, school and recreation trips also account for a significant number of trips made in and around Jericho. Any improvements to the pedestrian and bicycle network will improve accessibility to these major attractions, which in turn may result in less congestion on local roadways, less demand on limited parking facilities, and better overall community health. Focusing pedestrian and bicycle connections to the following facilities (listed below and shown in Figure 1-2) will yield the greatest benefit:

Jericho Elementary School (Jericho Corners) – Enrollment of 216 students in kindergarten to grade 4.

Browns River Middle School (Riverside) – Enrollment of 429 students in grades 5-8 from Jericho and Underhill.

Underhill ID Elementary School (Riverside) – Kindergarten to grade 4 school with an enrollment of 97 students.

Mount Mansfield Union High School (near Jericho Center) – This high school is centrally located on Browns Trace Road, with an enrollment of nearly 1,000 grade 9-12 students.

Mills Riverside Park (Riverside) – 216 acres of woodland hiking trails, camping, athletic fields, and an off-leash dog area. It is also host to a summer concert series and a farmer's market.

Old Mill Park (Jericho Corners) – 12 acre park located behind the Old Red Mill featuring scenic trails and picnic tables.

Mobbs Farm Trails (near Jericho Center) – 260 acres of land open to all forms of non-motorized recreation, including hiking, running, cross-country skiing, horseback riding, and mountain biking.

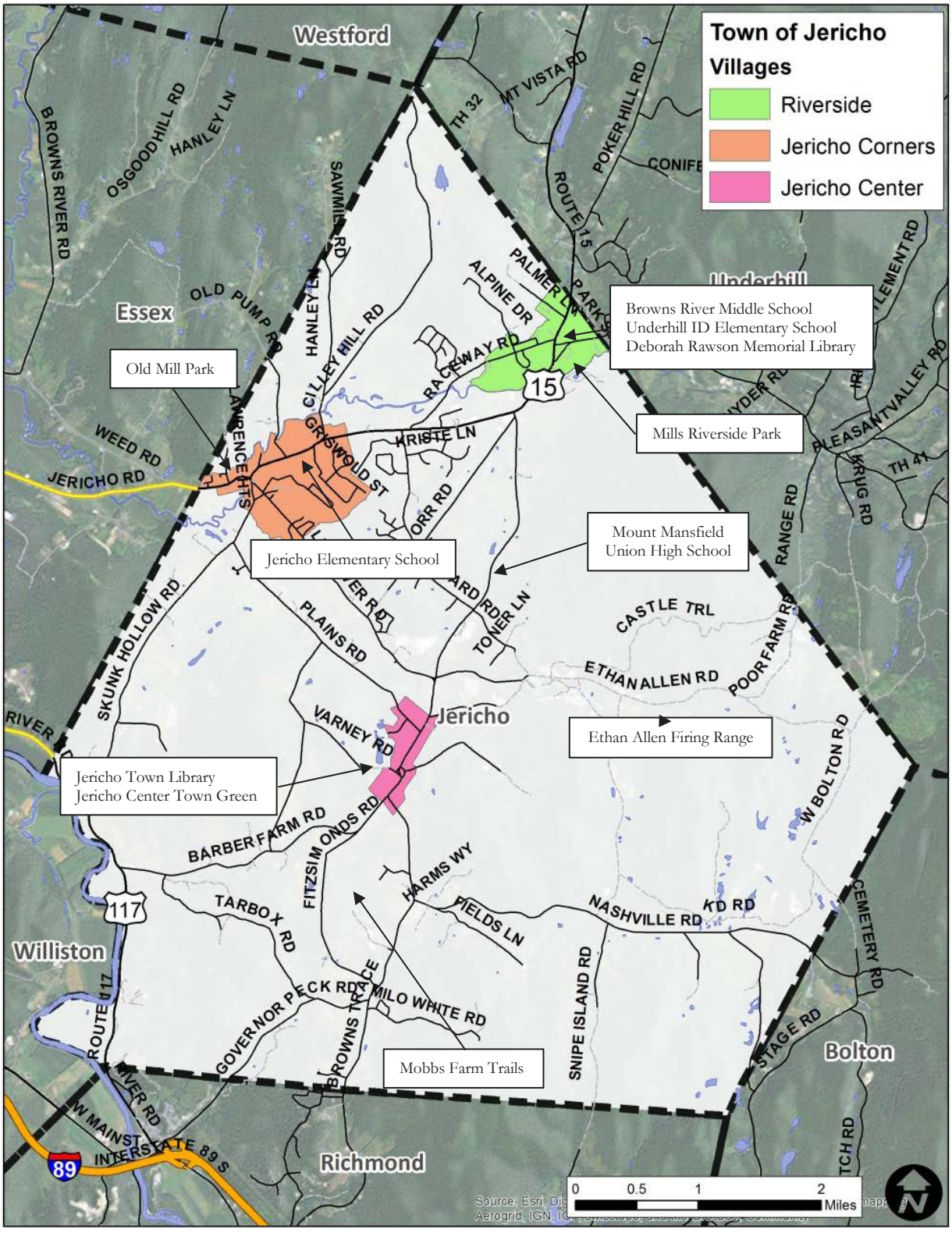
Deborah Rawson Memorial Library (Riverside) – 5,000 square foot facility opened in 1998 offering a diverse collection of books and materials in various formats, and programming for all ages

Jericho Town Library (Jericho Center) – Collection of 8,000 items, summer reading programs

Jericho Center Town Green – hosts various festivals throughout the year

Ethan Allen Firing Range – located off of Ethan Allen Road in the eastern part of Jericho, this 11,000 acre facility serves as an Army training ground for nearly 20,000 troops annually. It is also host to Vermont's Mountain Warfare School, a cross-country ski and biathlon facility.

FIGURE 1-2: SCHOOL AND RECREATIONAL ORIGINS AND DESTINATIONS



2.0 REVIEW OF PAST STUDIES AND PLANS

Several locations within the Town of Jericho have been studied for infrastructure improvements, safety analysis, and pedestrian/bicycling issues. The relevant studies are listed in Table 2-1. Please refer to the latest *2015 Jericho Transportation Study* for a summary of items 1-7 and their recommendations for infrastructure improvements. Items 8-11 were also reviewed and relevant sections are summarized below.

TABLE 2-1: EXISTING PLAN AND STUDY REVIEW

	Date	Report Title	Prepared By	Sponsor
1	*2004*	*Jericho Transportation Study*	*RSG*	*Town of Jericho*
2	2013	Chittenden County ECOS Plan	CCRPC	CCRPC
3	2012	Jericho Park-and-Ride Feasibility Study and Alternatives Evaluation	Lamoureux & Dickinson	CCRPC
4	2011	Mount Mansfield Union High School to Jericho Center Multimodal Connection	VHB	Town of Jericho
5	2011	Dickinson Street Improvements Scoping Report	Stantec	CCRPC
6	2011	Comprehensive Town Plan	Town of Jericho	Town of Jericho
7	2008	Road Safety Audit Review – Browns Trace Road, Town of Jericho	VTrans	VTrans
8	2010	Jericho Center Boardwalk	Town of Jericho	Town of Jericho
9	2008	Jericho Elementary School Pedestrian Circulation Study	RSG	CCRPC
10	2008	Regional Bicycle – Pedestrian Plan Update	Wilbur Smith Associates	CCRPC
11	2014	VT15 Bicycle/Pedestrian Scoping Study	Lamoureux & Dickinson	Town of Jericho

2.1 | JERICHO CENTER BOARDWALK, TOWN OF JERICHO (DECEMBER 2010)

The Jericho Center Boardwalk project was initiated to gather information and develop plans for a potential boardwalk to be constructed between Varney Road and Wilder Road in Jericho Center. The pedestrian boardwalk (bicyclists must dismount and walk) would be six-feet wide and would include two or more 12-foot wide observation decks, and would be constructed completely within the public right-of-way. The boardwalk would extend the full length of the wetland, and would include several measures to minimize potential impacts on wildlife.

2.2 | JERICHO ELEMENTARY SCHOOL PEDESTRIAN CIRCULATION STUDY, CCRPC (OCTOBER 2008)

The purpose of the Jericho Elementary Pedestrian Circulation Study site improvements is to address bicycle and pedestrian safety issues, to enhance the walking and bicycling environment to encourage those modes, and to circulate all modes of traffic efficiently. Three alternatives were developed to reflect the variety of funding situations that may arise:

- Alternative 1: short-term (immediate)/low cost improvements
- Alternative 2: mid-term (less than five years)/intermediate cost improvements
- Alternative 3: long-term (greater than five years)/higher cost improvements

The Steering Committee agreed that Alternative 3 is preferable but may not be possible financially. Elements of each alternative are independent and could be rearranged for a fourth alternative that would meet the school's priorities while matching the available funding capacity. That is, the elements are relatively independent of one another and could be selected in an "a la carte" fashion to create a custom alternative that reflects whatever funding situation emerges. This project was funded by Safe Routes to School (SRTS) infrastructure funds and was constructed in summer 2013.

2.3 | REGIONAL BICYCLE – PEDESTRIAN PLAN UPDATE, CCRPC (SEPTEMBER 2008)

This update to the 2003 Bicycle and Pedestrian Plan serves as the bicycle and pedestrian component of the metropolitan long-range transportation plan and guides the implementation of an interconnected regional bicycle and pedestrian transportation network in Chittenden County. The following six goals provide guiding principles which establish a framework for enhancing Chittenden County's pedestrian and bicycle system:

- Continue to build and enhance the regional network of bicycle and pedestrian facilities
- Continue to make bicycling and walking safer throughout the CCRPC region
- Ensure facilities are appropriately planned and designed
- Enhance community and regional acceptance of bicycling and walking as transportation modes
- Enhance environmental protection, economic vitality, and healthy lifestyle efforts
- Educate the public and the business community on the benefits of bicycling & walking

The update included reference to several improvements in Jericho that were either built or proposed between 2003 and 2008. These include new sidewalks in Jericho/Riverside (completed), VT 15 Streetscape (completed), Jericho Village Rail Path Bridge (proposed).

2.4 | VT15 BICYCLE/PEDESTRIAN SCOPING STUDY (2014)

This study examined the existing pedestrian circulation adjacent to the Underhill I.D. elementary school and the Browns River Middle School, and along VT15 between Dickinson Street and River Road. Specific recommendations include enhanced crosswalks: a pedestrian hybrid beacon and center refuge island at River Road, and a pedestrian activated rapid flashing beacon at Dickinson Street.

3.0 TRANSPORTATION SYSTEM CHARACTERISTICS AND PERFORMANCE

This section focuses on transportation system characteristics and performance that are relevant to bicyclists and pedestrians in the Town of Jericho. Details not specific to bicycle and pedestrian safety and/or access (e.g., functional classification, jurisdiction, access management, etc.) are provided in the *2015 Jericho Transportation Study*.

3.1 | PEDESTRIAN FACILITIES

The existing pedestrian network in Jericho consists of 1.33 miles of slab-based concrete sidewalks and 0.94 miles of asphalt sidewalks. Pedestrian facilities are concentrated in the Town's three villages (Jericho Corners, Jericho Center, and Riverside), in addition to an informal network of paths connecting Jericho Elementary School to surrounding neighborhoods. There are also recreational trail networks concentrated at Mobbs Farm and Mills Park. There are no existing paved multi-use off-road facilities located within the Town, although one is proposed that would generally follow VT 15 and continue west to Essex and east to Underhill. The existing sidewalk network in each of the three village centers is depicted in Figure 3-1.

FIGURE 3-1: EXISTING SIDEWALK NETWORK – THREE VILLAGE CENTERS

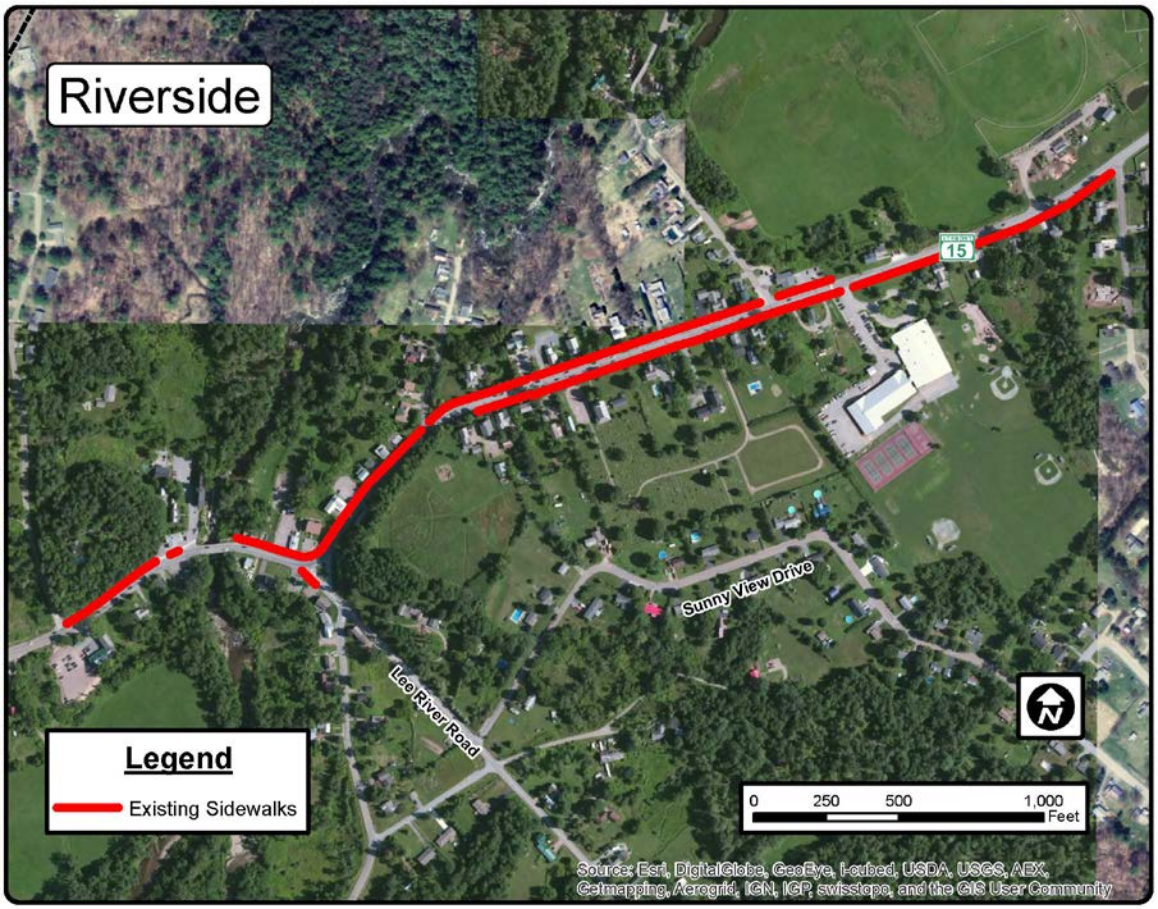
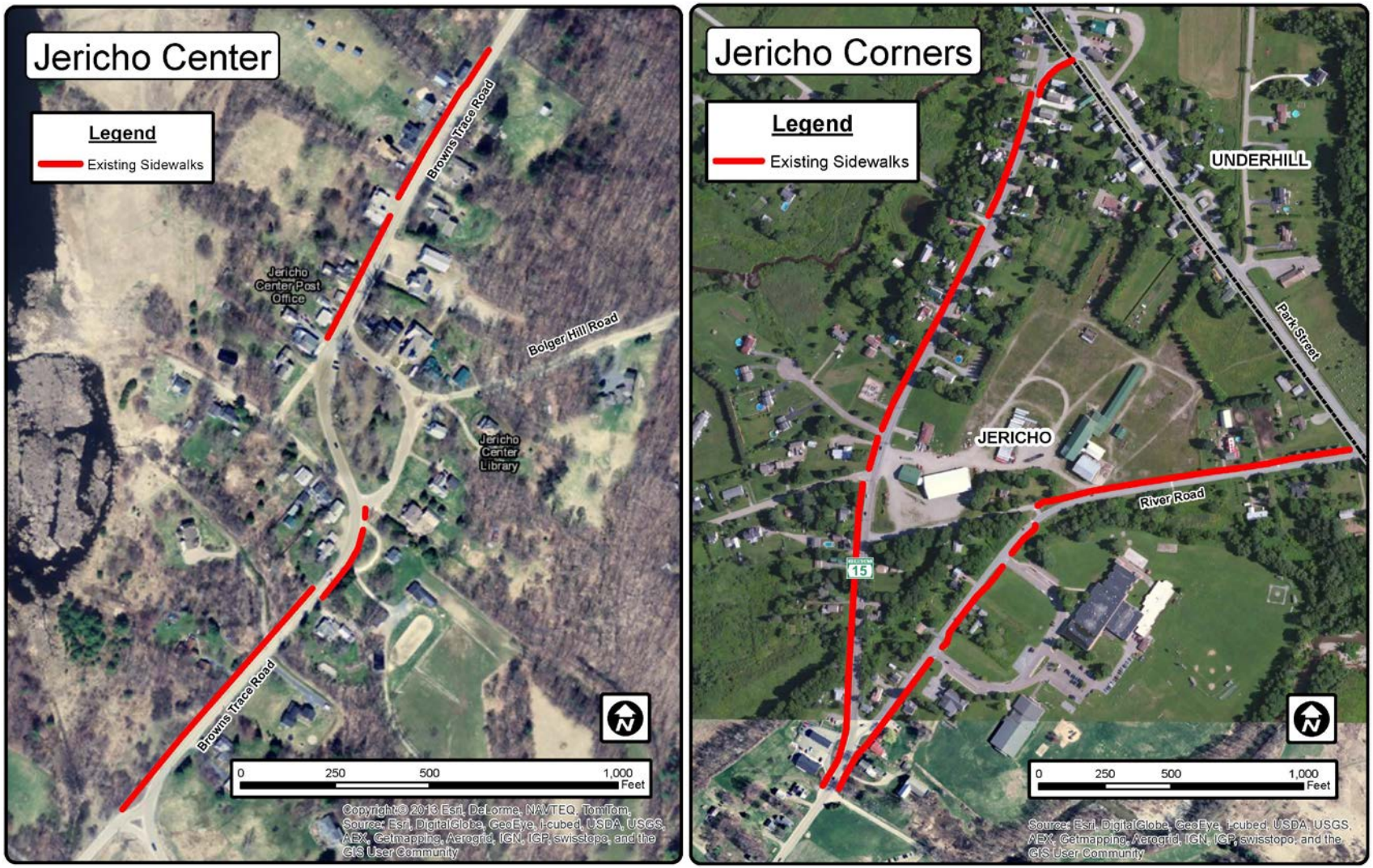


FIGURE 3-1 (CONT): EXISTING SIDEWALK NETWORK – THREE VILLAGE CENTERS



In 2014 CCRPC staff conducted a sidewalk inventory and analysis to determine the condition of the existing sidewalk infrastructure. Overall, Jericho's sidewalks are in "good" condition, with a few segments in Riverside and Jericho Corners rated in "fair" condition. More detailed information is contained in the 2014 Jericho Sidewalk Inventory dataset available from the CCRPC, but the sidewalk network is generally new and the sidewalk segments noted previously are isolated and do not suggest a systemic problem at a greater scale. A complete description of the sidewalk inventory process and results are included in Appendix G.

A proper sidewalk must meet ADA[2] standards, which includes having a firm, even, slip resistance surface (typically asphalt or portland concrete) and a maximum grade of 8.2%[3]. The *Vermont Pedestrian and Bicycle Facility Planning and Design Manual* suggests new sidewalks are a minimum of 5 feet wide, 6 feet or more preferred. A buffer to traffic must be provided to include the road shoulder, and a combination of curb (optional), and/or a green strip. The minimum buffer to a sidewalk varies, but should be at least 5 feet. More may be required, particularly on busy roads. While there are no standards that address snow plowing specifically[4], it is important to consider providing enough space for snow storage, especially if a sidewalk will be plowed in addition to the roadway and shoulder.

3.2 | BICYCLE FACILITIES

The Town of Jericho has made a commitment to provide support for alternative transportation modes of travel, as stated in the Town Plan. The *CCRPC Regional Pedestrian/Bicycle Plan* (2008) mentions several changes that are in the planning stages for the Town including creating an off-road shared-use path running parallel to VT 15, and establishing an extensive on-road bicycle network. State highways VT 15 and VT 117 and all Class 2 Town Highways (Skunk Hollow Road, Lee River Road, Browns Trace Road, River Road, Barber Farm Road, Governor Peck Road, and Nashville Road) are proposed as on-road bicycle routes. Figure 3-2 shows the locations of existing and proposed bicycle facilities in Jericho.

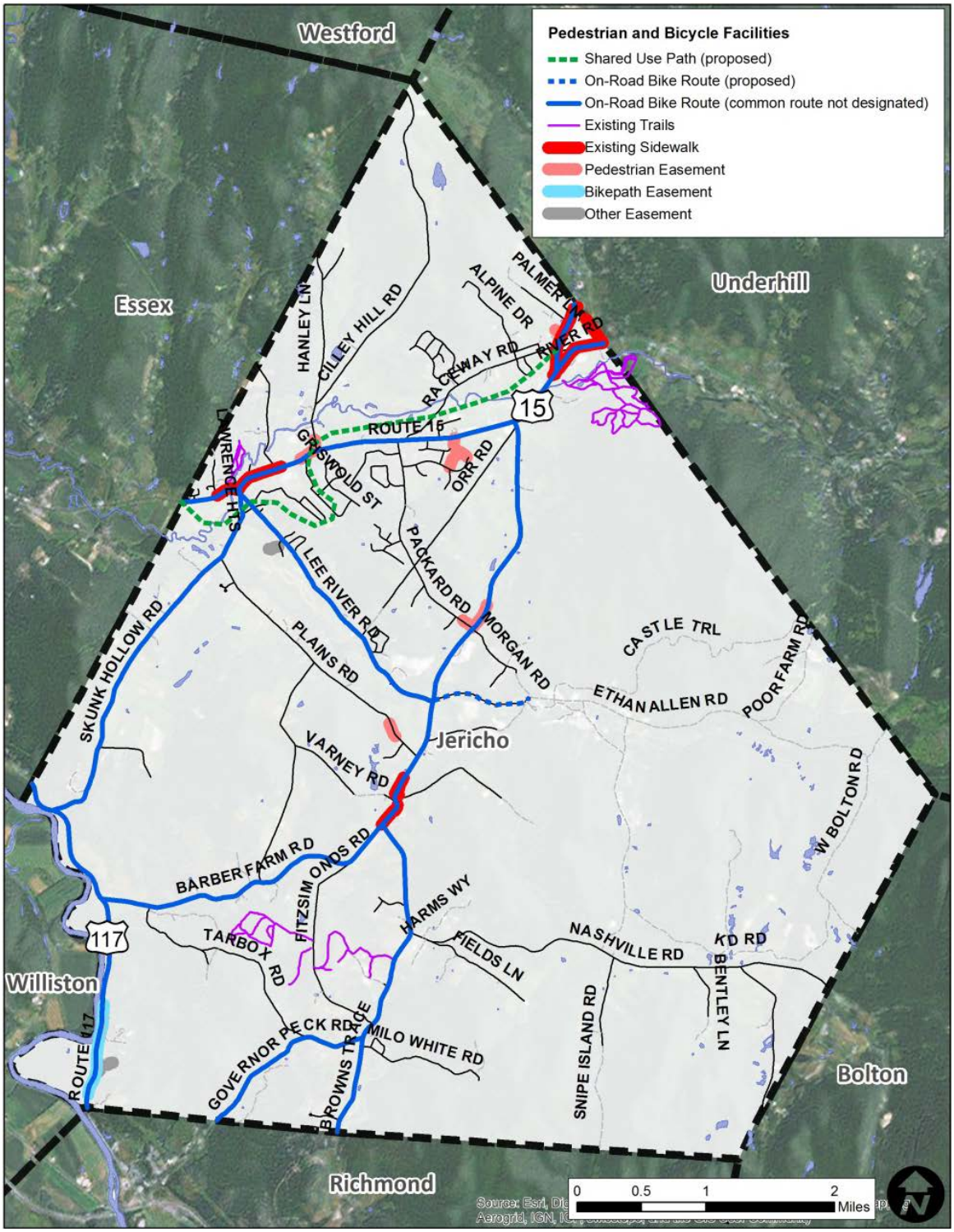
The two types of on-road bicycle facilities most appropriate in rural areas such as Jericho are paved shoulders and shared travel lanes. Each type of facility has specific standards and typical accepted usage, which are described in the *Vermont Pedestrian and Bicycle Facility Planning and Design Manual* (VTrans, 2002) and the *Vermont State Standards for the Design of Transportation Construction, Reconstruction, and Rehabilitation of Freeways, Roads, and Street* (VTrans, 1997). The design criteria for on-road bicycle facilities take into consideration the following variables: roadway width, vehicular traffic volumes, and condition of roadway surface. Cross sections and descriptions of on-road bicycle facilities are described in the following sections. None of the existing

Bicyclist on Browns Trace Road

[2] Americans with Disabilities Accessibility Guidelines
[3] Sidewalks adjacent to existing roadways with grades greater than 8% are allowable in some cases.
[4] The State of Vermont requires 16 feet of space to the right of the centerline for plowing.

highways in Jericho where on-road bicycle facilities are recommended meet the design criteria in either the *Vermont State Standards* or the *Vermont Pedestrian and Bicycle Facility Planning and Design Manual.*

FIGURE 3-2: PEDESTRIAN AND BICYCLE FACILITIES – EXISTING AND PROPOSED



PAVED SHOULDER BICYCLE FACILITY

A paved shoulder bicycle facility is contiguous with the highway travel lane and can be used by bicyclists as well as pedestrians, stopped vehicles, and for emergency purposes. A typical cross-section for a paved shoulder bicycle facility is shown in Figure 3-3.

FIGURE 3-3: PAVED SHOULDER BICYCLE FACILITY

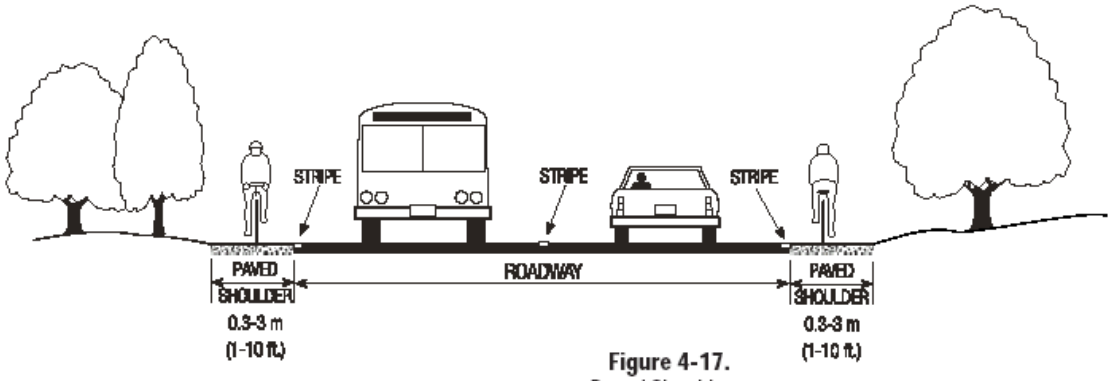


Figure 4-17.
Paved Shoulders.

The *Vermont Pedestrian and Bicycle Facility Planning and Design Manual* and the *Vermont State Standards* each provide guidance on minimum shoulder width requirements when a highway is designated as a bicycle route. The design criteria provided in the *Vermont Pedestrian and Bicycle Facility Planning and Design Manual* are more stringent than the criteria presented in the *Vermont State Standards* and should be used when designating roadways as on-road bicycle facilities. Tables 3-1 and 3-2 show the shoulder widths recommended from each design manual. For average conditions, a striped three-foot wide shoulder is the minimum width. Wider shoulders are desirable when there are physical barriers near the edge of pavement (guardrails or curbs for example), long grades, or higher volumes of truck traffic.

TABLE 3-1: PAVED SHOULDER WIDTHS – VERMONT PEDESTRIAN AND BICYCLE FACILITY PLANNING AND DESIGN MANUAL GUIDELINES

Condition	Width (feet)
Average conditions (i.e. where traffic or edge conditions do not dictate additional bicycle lane width).	3
Preferred shoulder width from the edge of an outside travel lane to the face of a guardrail, curb or other roadside barrier and to fully accommodate the operating width of a bicycle	4
On highways with steep up-grades where bicyclists require additional maneuvering width or where downgrades exceed 1:20 (5 percent) for a distance of 1 km (0.6 mi) or more.	5
On highways where there are 30 or more heavy vehicles per hour in the outside lane.	5

TABLE 3-2: PAVED SHOULDER WIDTHS – VERMONT STATE STANDARDS

Design Speed (mph)	ADT 0-1500	ADT 0-2000	DHV 200-400	DHV Over 400
Rural Principal Arterial				
35	-	2	2	3
40	-	2	3	3
45	-	3	3	3
Rural Minor Arterial				
35	2	2	2	3
40	2	2	3	3
45	2	3	3	3

Note: ADT = Average Daily Traffic; DHV = Design Hour Volume

SHARED LANE BICYCLE FACILITY

A shared lane bicycle facility has no delineations (e.g., striping) between through traffic and the adjacent bicyclist. This configuration is shown in Figure 3-4: SHARED LANE BICYCLE FACILITY

4. Typically, this configuration is used on lightly traveled residential roadways or rural highways. The *Vermont Pedestrian and Bicycle Facility Planning and Design Manual* states that the shared use configuration should only be used when travel speeds and traffic volumes are low or where paving and upgrading the road may detract from the rural nature of the road. The traffic volume should be below 1,000 vehicles per day. The *Vermont State Standards* do not recommend minimum widths for a shared use travel lane in a rural area without curbing.

FIGURE 3-4: SHARED LANE BICYCLE FACILITY

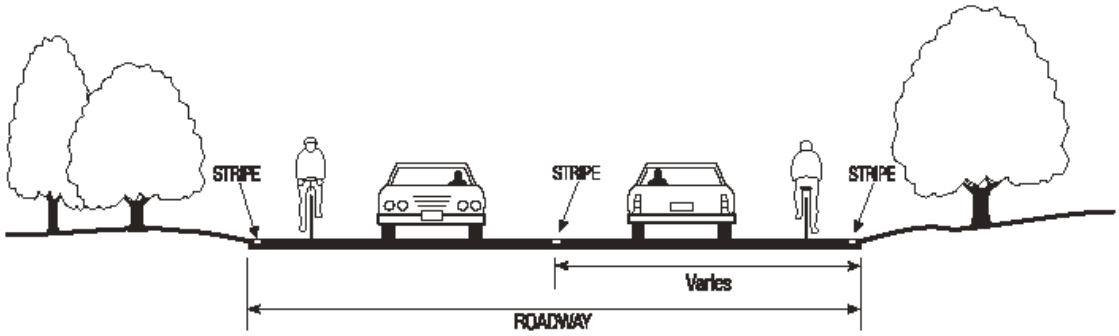


Figure 4-18.
Shared Lanes.

SUBDIVISION STREETS

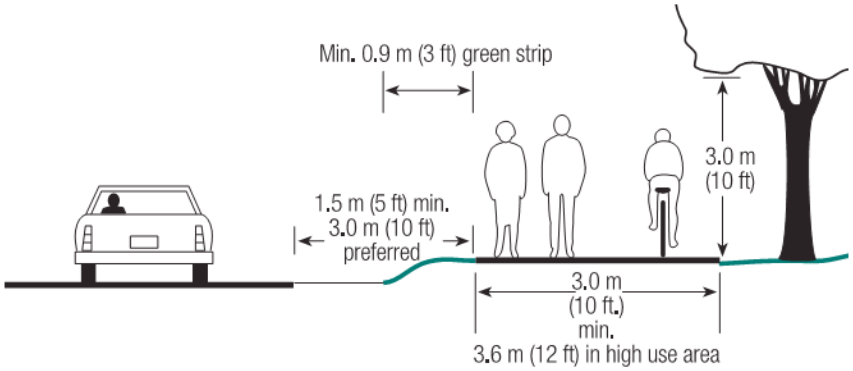
In anticipation of continued growth in alternative modes of travel, the widths of the traveled way and shoulders were examined along the subdivision roadways as they pertain to bicycle safety. As stated in the *Jericho Public Works Specifications Ordinance* (2009), all uncurbed streets shall include a 2-foot shoulder. For roadways with an Average Daily Traffic (ADT) of 1,000 or less and low speeds, a shared on-road bicycle facility can be recommended. For the roadway minimums presented in the *Public Works Specifications*, a shared on-road facility would be the most feasible to implement. In order to correctly specify a shared on-road facility, the shoulders and gutters, between roadway and curb, should not be painted with a white fog-line. If the shoulders were to be striped as a distinct lane, shoulder widths

should be increased to recommended widths outlined above and treated as a paved shoulder bicycle facility.

3.3 | SHARED-USE / OFF-ROAD FACILITIES

As stated previously, the *CCRPC Regional Pedestrian/Bicycle Plan* (2008) proposes the creation of an off-road shared-use path running parallel to VT 15. Based on the guidance provided in the *Vermont Pedestrian and Bicycle Facility Planning and Design Manual*, a shared-use path running alongside an uncurbed roadway (i.e., VT 15) would generally be 10-feet wide with a buffer between the roadway and the path as well as adequate overhead and side clearance to avoid conflicts with trees or other potential obstructions. This cross section, shown in Figure 3-5, is intended to minimize conflicts between diverse path users, who travel at different speeds and require different amounts of space depending upon skill level and trip type.

FIGURE 3-5: SHARED-USE FACILITY



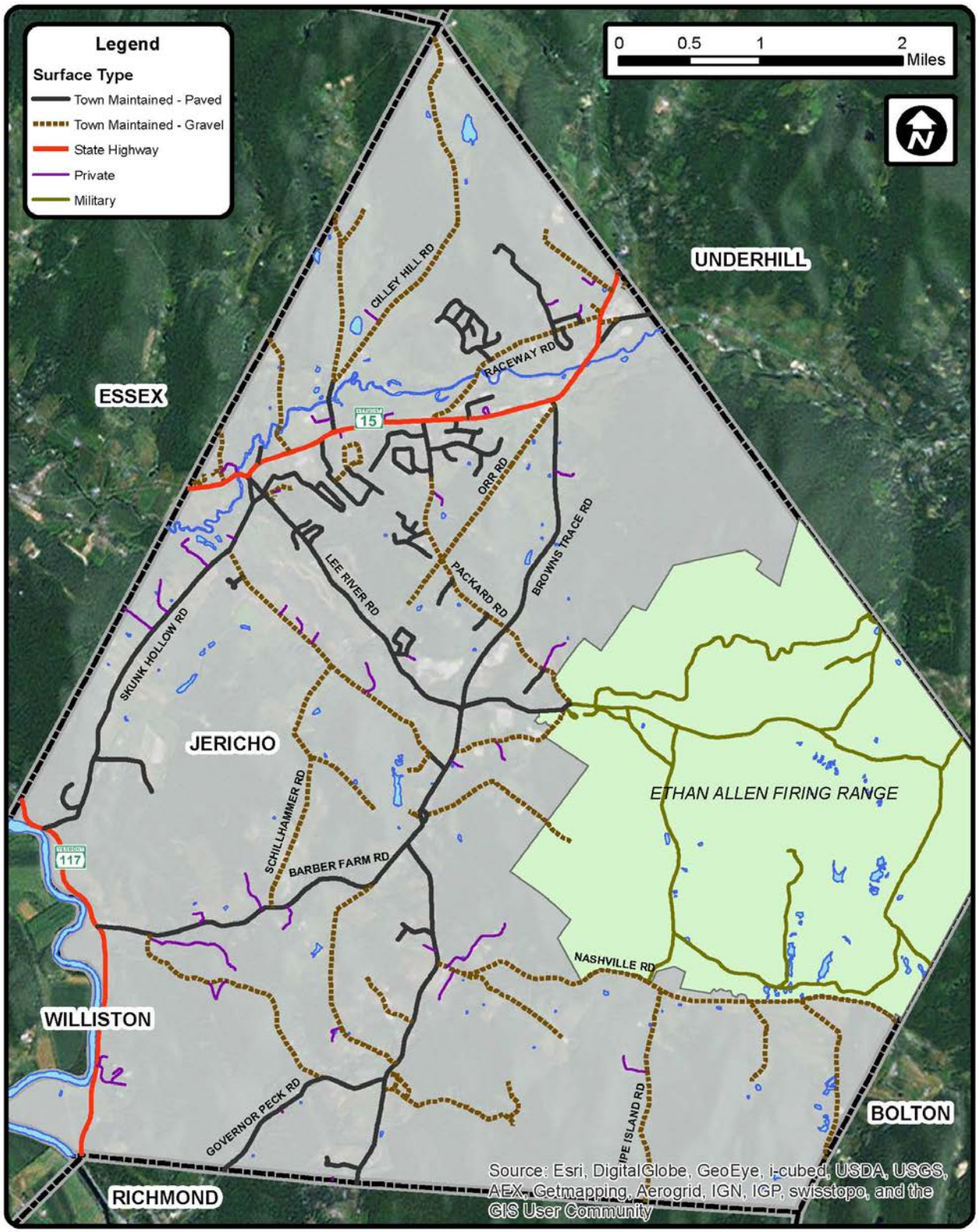
3.4 | ROADWAY CONDITIONS

Roadway conditions such as road surface type, condition, width, speed limits and traffic levels, contribute greatly to the safety, usability and attractiveness of bicyclists and pedestrians. The following section on roadway conditions is condensed from a broader discussion in the *2015 Jericho Transportation Study*.

ROADWAY SURFACE

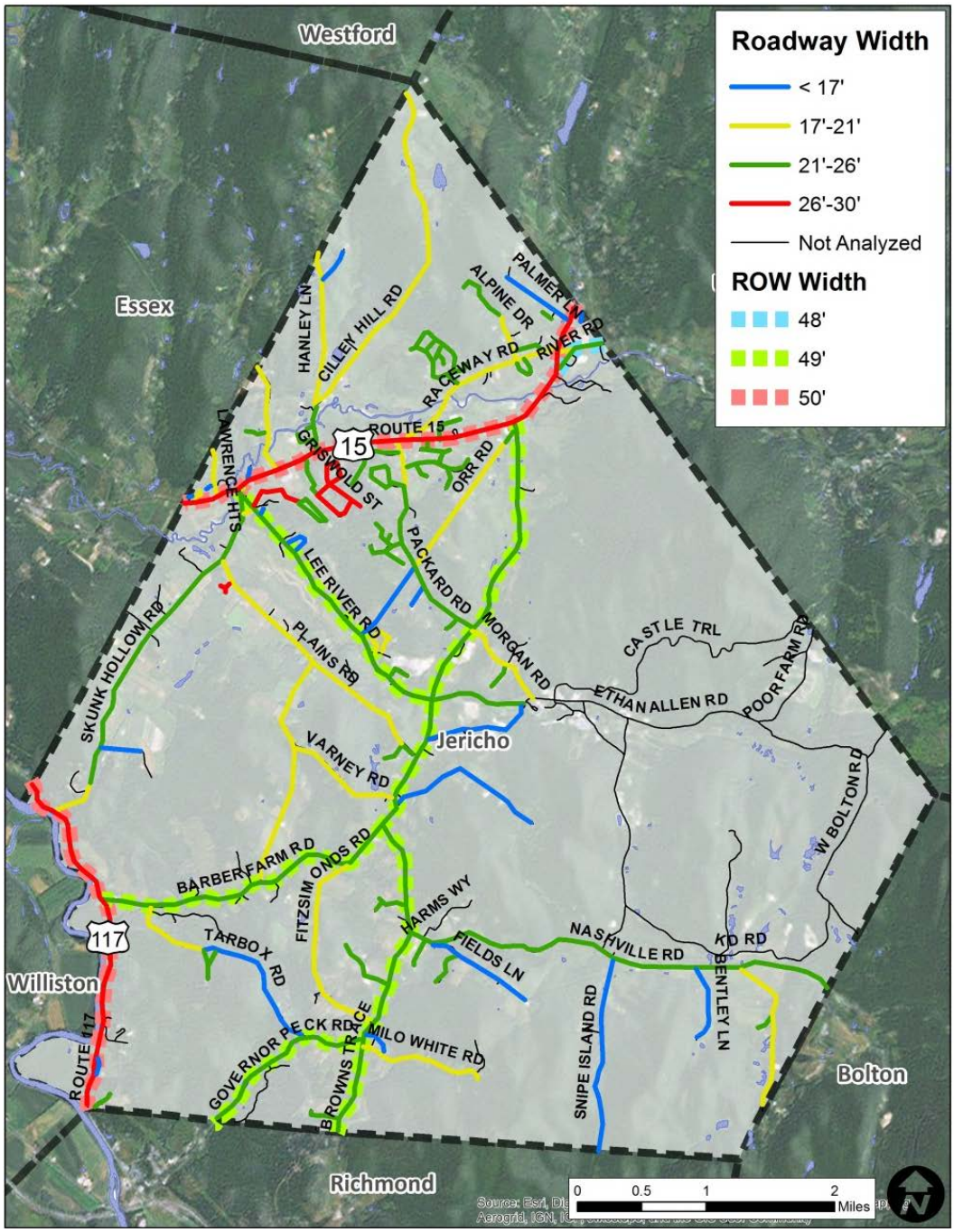
PAVER is a pavement management system that rates the roadway surface on a scale of 1-100, called the Pavement Condition Index (PCI). The CCRPC updated the PAVER data for the Town of Jericho in 2014. The Town of Jericho maintains a total network of approximately 64 miles of roadways. Approximately 34 miles are unpaved gravel roadways, and the remaining 30 miles of roadway are paved. Figure 3-6 depicts the existing roadway surface types in the Town of Jericho.

FIGURE 3-6: ROADWAY SURFACE TYPES IN JERICHO



A recent CCRPC road surface survey provided an inventory of roadway and shoulder widths for all town-maintained roadways. As seen in Figure 3-7, primary roadways within the Town of Jericho vary in width from 22 to 24 feet from pavement edge to pavement edge. For the most part, shoulder widths are less than one-foot wide. State Highways VT 15 and VT 117 are typically 28-feet wide from pavement edge to pavement edge, often with one- to two-foot wide shoulders. Some stretches of VT 15 have been upgraded to provide approximately three-foot wide shoulders. Right-of-way (ROW) widths, which range from 48 to 50 feet, are also shown for Minor Arterials, Major Collectors, and Minor Collectors.

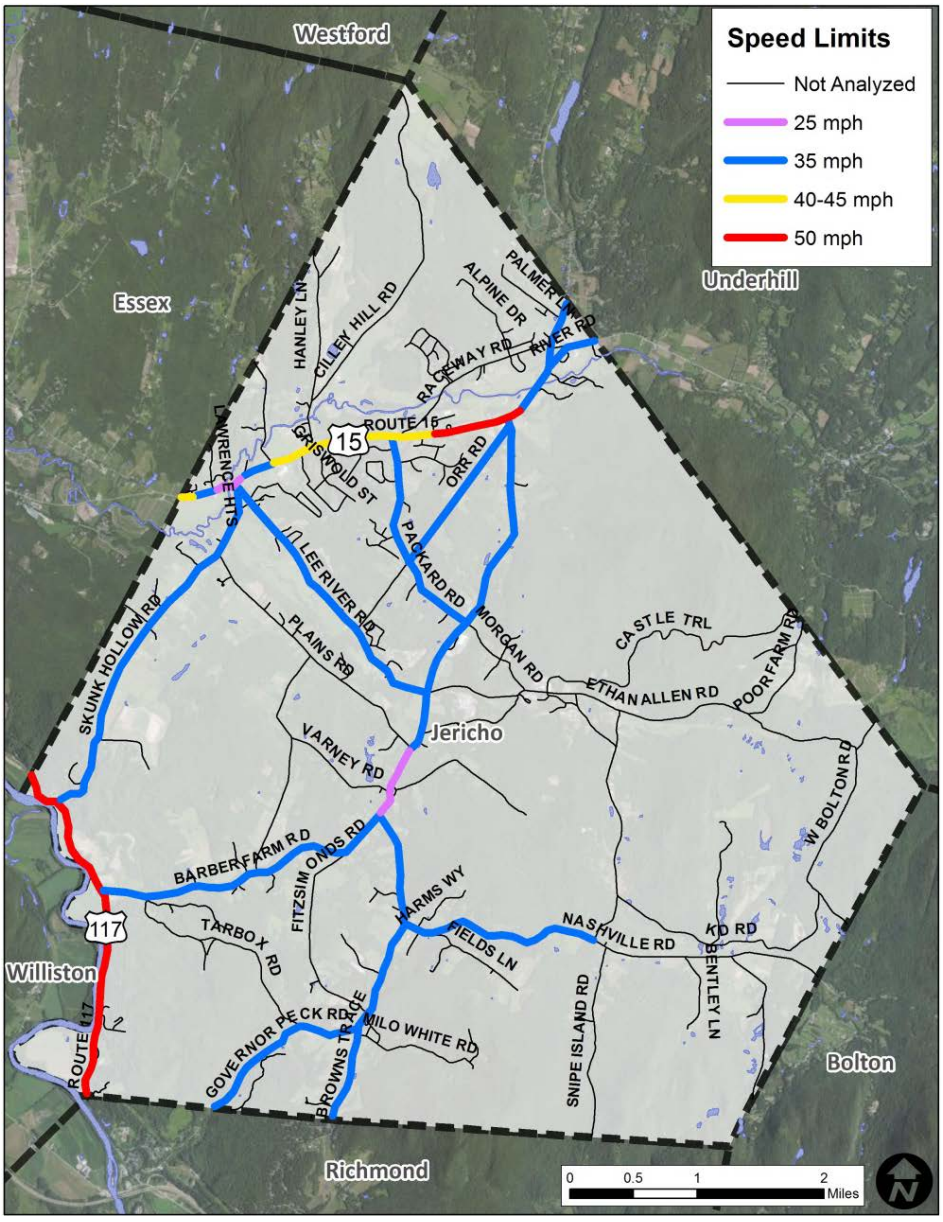
FIGURE 3-7: ROADWAY AND RIGHT-OF-WAY (ROW) WIDTHS



POSTED SPEED LIMITS

The speed limits within the Town of Jericho are between 25 and 50 miles per hour (mph). State Highways VT 15 and VT 117 have the highest speed limits in the Town with 50 mph zones. The posted speed limit on VT 15 varies widely through the Town with the lowest speed being 25 mph through Jericho Corners and 35 mph through Riverside. VT 117 maintains a 50-mph limit for the entire stretch in Jericho, though around the corner at Barber Farm Road a 40-mph advisory speed limit is posted. Posted speed on the remaining town highways is 35 mph except for a segment of Browns Trace Road through the village area of Jericho Center, which has a speed limit of 25 mph. The Class 2 roadways of Nashville Road (gravel) and Skunk Hollow Road (recently paved) also have a speed limit of 35 mph. Figure 3-8 displays the speed limits found along the roadways investigated.

FIGURE 3-8: POSTED SPEED LIMITS



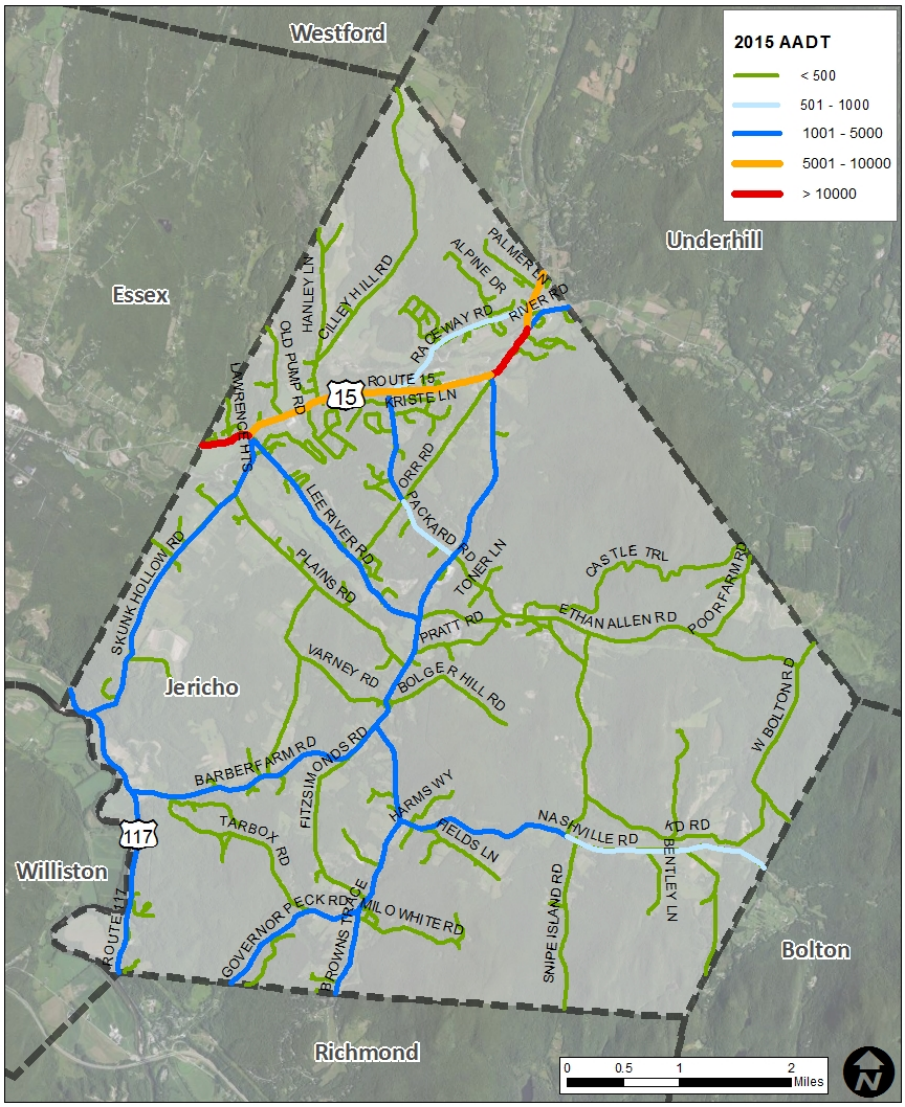
3.5 | TRAFFIC CONDITIONS

An understanding of traffic conditions on primary travel routes through Jericho is essential in understanding the bicycle and pedestrian environment, as the majority of bicycle and pedestrian activity occurs on or adjacent to roadways. Please refer to the *2015 Jericho Transportation Study* for additional information on data collection and analysis methodologies, as well as select intersection operations.

AVERAGE ANNUAL DAILY TRAFFIC

Year 2015 Average Annual Daily Traffic (AADT) volumes were developed using the CCRPC and VTrans count data for the roadway network. Using VTrans growth factors the current AADT counts were adjusted to represent near-term year 2015 volumes. Figure 3-9 depicts the study segments and the associated 2015 AADT. The highest AADT in Jericho occurs on VT 15, where traffic ranges from approximately 7,000 vehicles per day near the Underhill town line to nearly 12,000 vehicles per day near the Essex town line.

FIGURE 3-9: 2015 ANNUAL AVERAGE DAILY TRAFFIC



4.0 PLANNED IMPROVEMENTS

This section provides a summary of all programmed transportation improvements that may affect bicycle and pedestrian mobility, access, and safety in the Town of Jericho. Transportation improvements not expected to affect the bicycle and pedestrian environment are discussed in the *2015 Jericho Transportation Study*.

4.1 | BICYCLE AND PEDESTRIAN ENHANCEMENTS

Jericho Boardwalk – This proposed pedestrian boardwalk (bicyclists must dismount and walk) would be six-feet wide and would include two or more 12-foot wide observation decks, and would be constructed completely within the public right-of-way between Wilder Road and Varney Road in Jericho Center. The boardwalk would extend the full length of the wetland, and would include several measures to minimize potential impacts on wildlife. The results of the study were submitted to the Selectboard in December 2010 for their review/action.

Riverside Sidewalks – Conceptual plans have been developed for sidewalks on the north and south sides of VT 15 from Palmer Lane to the Underhill Town Line. Reconstruction of the west side sidewalk was completed in summer 2013, while construction of the sidewalk on the east side of VT 15 has been deferred for a future project.

Browns Trace Road Bicycle/Pedestrian Path and Sidewalk Extension – This project will construct a bicycle/pedestrian path along Browns Trace Road, beginning at Pratt Road and extending to Plains Road. It will also construct sidewalk/shoulders from Plains Road to the existing sidewalk in Jericho Center. This project is funded by a 2010 Transportation Enhancement grant and 2014 Transportation Alternatives grant, both from VTrans.

Jericho Village Rail Path Bridge – This proposed shared use path would follow the former railroad alignment across Browns River, closing a major gap in the sidewalk network in Jericho Corners. VTrans plans to complete this project in 2015.

Browns River Middle School and Union ID School Crossing Improvements – The 2014 VT15 Bicycle/Pedestrian Scoping Study recommended a pedestrian hybrid beacon and center island at River Road, and rectangular rapid flashing beacons at Dickinson Street. This project received a 2014 VTrans Bicycle/Pedestrian grant award for construction.

Jericho Corners Connection Project – This scoping study, funded by a 2014 VTrans Bicycle/Pedestrian grant award, will evaluate bicycle/pedestrian facilities in Jericho Corners Village Center and Lee River Road.

4.2 | CONNECTIONS WITH TRANSIT AND PARK & RIDE LOCATIONS

There are currently no official Town or VTrans park-and-ride sites located in the Town of Jericho; the nearest formal park-and-ride sites are located to the west in Essex near the intersection of VT 15 and VT 128 and to the south in Richmond at Exit 11 (I-89). Several potential sites were evaluated in the *Jericho Park-and-Ride Feasibility Study and Alternatives Evaluation* (2012) and the development of a site in Jericho is

a top CCRPC scoping priority. The site will feature pedestrian and bicycle linkages and will capture Underhill, Jericho, and Lamoille County travelers.

The Chittenden County Transportation Authority (CCTA) began operating transit service in the Town of Jericho on October 14, 2013. The Jeffersonville Commuter travels between Jeffersonville and Burlington along VT 15 with stops in Jericho Corners (at the post office) and in Riverside (at Dickinson Street). Service consists of two weekday trips corresponding with the morning and afternoon commute peaks. Parking is available at the Riverside stop location where a park and ride has been established by agreement between CCTA and the property owner. Both locations are connected to sidewalks for pedestrian access; bicyclists must use on-road, shared facilities.

5.0 FUTURE CONDITIONS BICYCLE AND PEDESTRIAN FACILITIES

5.1 | SIDEWALK/MULTIUSE PATH CONNECTIONS

Proposed sidewalks and multiuse paths will connect neighborhoods, often along existing roads, and fill gaps in the existing sidewalk network. Based on conversations with Town staff and the Jericho Trails Commmittee, the following sidewalks/paths are considered in this study (see Appendix C for maps):

- Multiuse path on south side of VT 15 connecting Griswold Street to Raceway Road
- Sidewalk or path along Packard Road connecting Starbird Road neighborhood to VT 15
- Sidewalk or path along Lee River Road connecting Clover Lane neighborhood to Jericho Corners
- Sidewalk along Plains Road connecting the Tillotson Drive neighborhood to the new sidewalk on Browns Trace Road and Jericho Center
- Sidewalk connecting the Alpine Drive houses to Raceway Road and VT 15
- Sidewalk on southeast side of VT 15 adjacent to the Riverside development
- Utilize the former Central Vermont Railway railroad bed to create a path connecting Jericho Corners with Riverside

There is no set priority for this list of connections, but see Table 6-4 for a rating of performance criteria and perceived priority for each project. The Town should install sidewalks or paths in each area when there are roadway or other improvements in the same area or when safety demands dictate it, such as if schoolchildren are present or if unsafe conditions currently exist.

5.2 | ON–ROAD BICYCLE ACCOMMODATIONS

On-road bicycle accommodations are intended to provide bicyclists with adequate shoulder width on existing roads to travel more safely with vehicles. Proposed town road accommodations are envisioned as three-foot striped shoulders, as discussed in Section 3. Note that this type of accommodation is considered the minimal[5] treatment for on-road bicycle use. However, it would be desirable to provide four-foot shoulders as described in Table 3-1 where possible, and particularly where adjacent to curbing, guardrail, or on steep uphill grades. On State routes, the higher volumes, speeds and proportion of heavy vehicles dictate a minimum shoulder width of five feet.

In the absence of funds necessary for shoulder widening, short-term incremental improvements can significantly improve bicycle safety by reallocating existing pavement width to provide as little as two feet of shoulder width. This can be accomplished in some places where existing road width is adequate to accommodate these facilities, while additional pavement will be required in other places.

Accommodations along the following roads are considered the highest priority:

- Jericho Corners to Jericho Center via Lee River Road
- Jericho Center to Riverside via Browns Trace Road
- Riverside to Jericho Corners via VT 15

[5] Chapter 4, Pedestrian and Bicycle Facility Planning and Design Manual, VTrans, 12/2002

These connections will enable safe bicycle travel between the three commercial centers of Jericho (Jericho Corners, Jericho Center, and Riverside), and would serve the greatest density of adjacent residences and businesses. Since VT 15 is a State-owned road, the Town will need to work with VTrans to improve VT 15 in line with the recent Complete Streets legislation, which includes facilities for bicycles. Given the higher priority of these connections, the Town may want to pursue widening where needed along these routes irrespective of roadway improvements.

Connections along the following roads are also desirable, but are a lower priority than the ones stated above:

- Jericho Corners to Essex via VT 15
- Jericho Corners to VT 117 via Skunk Hollow Road
- Jericho Center to VT 117 via Barber Farm Road
- Access to the Richmond Park and Ride via VT 117 and Governor Peck Road
- Jericho Center to Richmond via Browns Trace Road
- Williston to Essex via VT 117

For more information regarding performance criteria and prioritization, please see Section 6-2.

These connections will enable safe bicycle travel to and from areas outside of Jericho such as the Richmond park and ride, Saxon Hills, and neighboring towns. The Town should pursue widening where needed as road improvement projects are initiated.

This study examines the general feasibility and cost of such facilities based on aerial photography. A detailed design of such facilities is beyond the scope of this study and would be required before such facilities could be built.

5.3 | NEIGHBORHOODS AND AMENITIES CONNECTIONS

Numerous subdivisions have been built in the Town of Jericho over the last several decades, but little work has been done to ensure connection between these neighborhoods. Similarly, many parcels have been designated common or conserved land, but it can be difficult to move from one area to another without a vehicle. In the interest of improving mobility between these locations, desirable connections are outlined below.

This list is designed to provide the Town with goals to work toward. Many of these connections will involve paths across private land, so the Town will need to work with landowners and explore various options over time. The type of connection (e.g., trail, multiuse path, sidewalk) will need to be decided on a case-by-case basis depending on the needs of potential users and funding availability.

Connections between the following neighborhoods and amenities are proposed (see maps in Appendix C):

- Griswold Street neighborhood to the Twin Meadows Lane and Lafayette Drive neighborhoods
- Snowflake Drive neighborhood to VT 15. The Town currently owns parcels/easements that will allow this connection
- Varney Road to Jericho Center, currently proposed as a pedestrian-only boardwalk and awaiting funding

- Kettle Creek Road neighborhood to Mobbs Farm
- Mount Mansfield Union High School (via the ballfield on Packard) to Orr Road and the neighborhoods on the south side of VT 15
- Orr Road to Lee River Road. This is currently a steep Class 4 road and would likely be a trail
- River Road near the Underhill town line to Mills Riverside Park
- UVM Research Forest/Mobbs Farm to Barber Farm/Kikas Valley
- Snipe Island neighborhood to Wolf Run, possibly via Bentley Lane
- UVM Research Forest to Governor Peck, possible via the Villeneuve parcel
- Allow bicycle access to Saxon Hill Park in Essex via Skunk Hollow Road and VT 15. This could be accomplished with a multiuse path or widening along roadways

This list of connections is not in priority order. The Town should pursue connections where landowners are amenable or when the Town will have particular influence over a tract of land, for example when a subdivision is proposed. Additionally, the Town should pursue connections more aggressively when safety demands dictate it, such as in the presence of schoolchildren or the finding of unsafe conditions.

5.4 | OTHER CONSIDERATIONS

Gravel roads tend to be lower volume roads, and as such are attractive to bicyclists, as well as pedestrians. However, some consideration for traffic calming may be appropriate, particularly where vehicle speeds have been noted as a concern (e.g., Packard Road, Plains Road, Nashville Road). Measures that may be employed include:

1. Strategic/ occasional use of radar speed trailers. Speed trailers, particularly when they are new, have been shown to have an effect on vehicle speeds. Having a Town-owned trailer that can be moved around would be a cost-effective way of addressing speeding concerns.
2. "Share the road" and bicycle warning signs can raise the awareness of drivers that other users might be present.
3. "Watch for pedestrians & cyclists" signs can be used at sight distance-constrained locations.

6.0 CAPITAL PLAN

6.1 | RECOMMENDATIONS, EXPECTED CAPITAL COSTS & IMPLEMENTATION

Tables 6-1 and 6-2 present a list of specific recommendations for potential projects to pursue in order to address the existing and future issues identified in this study. The recommendations include pedestrian and bicycle facility improvements such as shoulder widening, sidewalks, paths and other connections. The recommendations include projects identified from previous studies and additional projects or studies resulting from the findings of this analysis. Suggestions are general except where specific improvements have been described in greater detail from previous studies. The recommendations presented are listed in no particular order and do not suggest a priority ranking (prioritization is discussed in Section 6.2)

Every recommendation requires some additional planning, design, and/or engineering work before implementation. The "next steps" column describes the action that is necessary to keep the recommendation moving forward and "lead party" identifies the entity responsible for taking action.

Suggested prioritization and an analysis of performance measures has been provided in Section 6.2. Prioritization generally reflects that the projects in the "triangle" connecting the three villages are higher priority. Cost plays a role as larger projects simply take longer to implement due to process and complexity. Note that a high priority project may have a long time-frame due to cost and complexity.

Costs were derived using the *VTrans Report on Shared-Use Path and Sidewalk Unit Costs*, updated August 2014. Note that the road shoulder widening projects assume only a portion of the road sections are deficient in width, typically from 40-60%, assessed on a case-by-case basis.

TABLE 6-1: ROAD SHOULDERS – IMPLEMENTATION AND COSTS

	Location	Segment	Time frame(1)	Next step(2)	Lead	Length (ft)	Total Cost(3)
1	Jericho Corners to Jericho Center via Lee River Road	Lee River Rd	med	Scoping	Town/RPC	11,800	$1,500,000
		Browns Trace				4,100	$500,000
2	Jericho Center to Riverside via Browns Trace Road	Browns Trace	med	Scoping	Town/RPC	12,500	$1,500,000
		VT15 (to Dickenson)			Town/VTrans	3,800	$500,000
3	Riverside to Jericho Corners via VT 15	VT15 (to Griswold)	med	Scoping	Town/RPC	8,800	$1,100,000
4	Jericho Corners to Essex via VT 15		long	Scoping	Town/RPC	1,400	$200,000
5	Jericho Corners to VT 117 via Skunk Hollow Road	Skunk Hollow	long	Scoping	Town/RPC	13,100	$1,600,000
		Plains				2,850	$400,000
6	Jericho Center to VT 117 via Barber Farm Road		long	Scoping	Town/RPC	13,900	$1,700,000
7	Access to the Richmond Park and Ride via VT 117 and Governor Peck Road		long	Scoping	Town/RPC	12,100	$1,500,000
8	Jericho Center to Richmond via Browns Trace Road		long	Scoping	Town/RPC	14,500	$1,800,000
9	Williston to Essex via VT 117		long	Scoping	town/VTrans	14,500	$1,800,000

(1) short (1-5 yr.), medium (5-10 yr.), or long term (more than 10 years)
(2) typically planning precedes scoping, which precedes PE (preliminary engineering & design), simple projects often don't require preliminary phase
(3) scoping, engineering, construction; Report on Shared-Use Path and Sidewalk Unit Costs, Updated 2014

TABLE 6-2: PATHS AND SIDEWALKS - IMPLEMENTATION AND COSTS

	Location	Time frame(1)	Next step(2)	Lead	Total Cost(3)
1	Multiuse path on south side of VT 15 connecting Griswold Street to Raceway Road	med	Scoping	Town/RPC	$1,140,000
2	Sidewalk or path along Packard Road connecting Starbird Road neighborhood to VT 15	med	Scoping	Town/RPC	$280,000
3	Sidewalk or path along Lee River Road connecting Clover Lane neighborhood to Jericho Corners	med	Scoping	Town/RPC	$470,000
4	Sidewalk along Plains Road connecting the Tillotson Dr neighborhood to the new sidewalk on Browns Trace Road and Jericho Center	med	PE	Town	$120,000
5	Sidewalk connecting the Alpine Drive houses to Raceway Road and VT 15	med	Scoping	Town/RPC	$270,000
6	Sidewalk on southeast side of VT 15 adjacent to the Riverside development	short	PE	Town	$90,000
7	Utilize the former Central Vermont Railway railroad bed to create a path connecting Jericho Corners with Riverside				
	- Cilley Hill to Raceway Road	long	Planning	Town/RPC	$1,350,000
	- Raceway to VT15				$1,080,000
	- bridge over Brown's River				$140,000
8	Multimodal Path on Browns Trace Jericho Center to MMU(4) (Phase 1)	n/a	PE	Town	$ 320,000

(1) short (1-5 yr.), medium (5-10 yr.), or long term (more than 10 years)
(2) typically planning precedes scoping, which precedes PE (preliminary engineering & design), simple projects often don't require preliminary phase
(3) scoping, engineering, construction; Report on Shared-Use Path and Sidewalk Unit Costs, Updated 2014
(4) FY15-18 TIP (FY15 CONS)

As described in Section 5.3, additional neighborhood connections should be sought through the efforts of the Jericho Trails Committee and as opportunities in the Town planning process allow.

OTHER GENERAL RECOMMENDATIONS

Land Use and Zoning Recommendations – related policies and ordinances that should be considered in order to facilitate non-motorized travel include those that:

- Enhance site development regulations to ensure that the needs of non-motorized travelers accessing the site are addressed.
- Encourage mixed use developments which create opportunities for bicycle/pedestrian use within the development and adjacent developments.
- Address development access management to minimize conflicts
- Encourage clustered / higher density developments in order to increase the benefits of bike/ped facilities and their use.
- Consider Transportation Oriented Development (TOD). Developments that maximize the potential for walking, biking (and transit use) are often designed with mixed uses, accommodating all modes or travel, and smart parking features such as shared parking, or credits for reduced parking

A model list of ordinances is presented in Appendix E[6]. Further information can be found at: http://www.pedbikeinfo.org/data/faq_details.cfm?id=4199

[6] Model Bicycle & Pedestrian Facilities Land Use Regulations, A Guide for CSRA Local Governments, 12/06

6.2 | PERFORMANCE MEASURES AND PRIORITIES

Several measures were assessed to determine which projects would be a priority for progressing to the next phase of planning or design and funding. The criteria listed below were assigned high/medium/low or yes/no values, and shading shown in Tables 6-3 and 6-4 reflects whether they are positive attributes (green), negative attributes (red), or moderate values (yellow). Those projects with the most positive attributes are designated as priorities. The criteria used includes:

- Cost – scoping, engineering/design, construction; see Tables 6-1 and 6-2 for estimates.
- Potential users served – considering the density of adjoining neighborhoods and traffic intensity.
- Impacts to natural or cultural resources – sidewalk projects that can fit within the existing right-of-way were considered to have a low potential for impacts, while wide paths or projects outside existing rights of way were considered to have a high potential for impacts.
- Right-of-Way impacts (ROW) – potential for projects to have impacts on rights-of-way.
- Potential safety benefit – those projects that are located on higher volume roads, or the paths that provide separation from traffic for all users are considered to have a higher safety benefit.
- Those projects located along the village triangle between Jericho Center, Riverside, and Jericho Corners.

TABLE 6-3: PERFORMANCE CRITERIA AND PERCIEVED PRIORITY - WIDENED ROAD SHOULDERS

		Potential Impact						
	Location	Cost	Residents Served	Resources	ROW	Safety Benefit	Village Triangle(1)	Priority
1	Jericho Corners to Jericho Center via Lee River Road	high	med	low	low	med	yes	
	via Browns Trace	med	med	low	low	med	yes	*
2	Jericho Center to Riverside via Browns Trace Road	high	low	low	low	low	yes	*
	via VT15 (to Dickenson)	med	high	low	low	high	yes	*
3	Riverside to Jericho Corners via VT 15	high	high	low	low	high	yes	*
4	Jericho Corners to Essex via VT 15	low	high	low	low	high	no	*
5	Jericho Corners to VT 117 via Skunk Hollow Road	high	low	low	low	low	no	
	via Plains Rd	low	low	low	low	low	no	*
6	Jericho Center to VT 117 via Barber Farm Road	high	low	low	low	low	no	
7	Access to the Richmond Park and Ride via VT 117 and Governor Peck Road	high	low	low	low	low	no	
8	Jericho Center to Richmond via Browns Trace Road	high	med	low	low	med	no	
9	Williston to Essex via VT 117	high	med	low	low	med	no	

(1) Village Triangle: Corners<=>Center<=>Riverside

TABLE 6-4: PERFORMANCE CRITERIA AND PERCIEVED PRIORITY - PATHS AND SIDEWALKS

		Potential Impact					
	Location	Cost	Residents Served	Resources	ROW	Safety Benefit	Priority
1	Multiuse path on south side of VT 15 connecting Griswold Street to Raceway Road	high	high	low	med	high	
2	Sidewalk or path along Packard Road connecting Starbird Road neighborhood to VT 15	med	low	low	low	low	*
3	Sidewalk or path along Lee River Road connecting Clover Lane neighborhood to Jericho Corners	high	low	low	low	low	
4	Sidewalk along Plains Road connecting the Tillotson Dr neighborhood to the new sidewalk on Browns Trace Road and Jericho Center	low	low	low	low	low	*
5	Sidewalk connecting the Alpine Drive houses to Raceway Road and VT 15	med	med	low	med	med	
6	Sidewalk on southeast side of VT 15 adjacent to the Riverside development	low	low	low	low	med	*
7	Utilize the former Central Vermont Railway railroad bed to create a path connecting Jericho Corners with Riverside	high	high	high	high	high	
8	Multimodal Path on Browns Trace Jericho Center to MMU (Phase 1)	n/a - project already in TIP					

6.3 | FUNDING OPPORTUNITIES

The "next steps" in Tables 6-1 and 6-2 may be funded using Town of Jericho, CCRPC, or VTrans funds as follows:

Town of Jericho Funding

- Capital Budget and Program - A municipal capital budget and program, often referred to as a "capital improvement program," is a locally adopted fiscal management tool that schedules needed capital projects – including proposed road and infrastructure improvements or land acquisitions – for the coming fiscal year, and for the following five-year period. It also identifies estimated costs and sources of financing for each project – which may include local property taxes, impact fees, state funding, and other available loan and grant programs.

Chittenden County RPC Funding Programs

- CCRPC Annual Work Program – This program provides funds for conducting a variety of traffic engineering and transportation planning studies. The CCRPC maintains a list of consultants that are available to CCRPC members as requested. Projects typically require that municipalities contribute 20% local match towards the cost of a study. http://www.ccrpcvt.org/workplan/
- CCRPC Sidewalk Grant Program – This competitive annual grant program is intended to provide a supplement to the Transportation Alternatives and Bicycle & Pedestrian Programs

through VTrans. This program funds preliminary engineering and construction of sidewalk/path projects and requires a 20% local match.

- CCRPC Transportation Improvement Program and State Transportation Improvement Program - Every project that uses federal funds in Chittenden County must be listed on the CCRPC's Transportation Improvement Program (TIP) as well as the statewide version managed by VTrans (STIP). The TIP is a prioritized, fiscally-constrained, and multi-year list of federally-funded, multimodal transportation projects and operations in Chittenden County. All projects in the TIP must be prioritized at the regional level and have clearly identified funding sources. The TIP authorizes the implementing agency (e.g., Vermont Agency of Transportation) to obligate federal funds for listed projects and operations over a three year period. The TIP is typically adopted annually by the CCRPC Board of Directors and amended periodically throughout the year. A project needs to be sufficiently defined, usually through the CCMPO's Project Development Program, before it is added to the TIP.

Vermont Agency of Transportation Funding Programs

- VTrans Transportation Alternatives (TA) Program - The TA Program provides funds for construction, planning and design of eligible projects including bicycle/pedestrian, Safe Routes to School, some environmental mitigation, and other types of projects. The TA program provides funds to either develop scoping (feasibility) studies or to develop projects that lead to construction. All projects must demonstrate a strong transportation link. There is a required sponsor funding match of 20% for construction projects and 50% for scoping studies. http://vtransengineering.vermont.gov/sections/ltf/transportationalternatives

- VTrans Bicycle and Pedestrian Program – A statewide competitive grant program that provides funding for either a scoping study or design/construction of approved bike and pedestrian projects. The program funds vary from year to year and awards require a 10% local match. http://vtransengineering.vermont.gov/sections/ltf/bike_ped

A more extensive guide to potential funding opportunities is provided in Appendix B.

With the increased interest in walking and bicycling in the Town of Jericho and throughout Chittenden County, and given the many desirable destinations within the Town, the opportunity is ripe to expand the existing sidewalk, path and trail networks. By seeking additional funding to advance the priority projects, and implementing a variety of land use and zoning changes, the Town can incrementally create a connected system that allows people to choose to walk and bike rather than rely on the automobile to commute, run errands, and recreate. This Plan provides the foundation for a concerted effort to improve the health and wellbeing of residents and visitors alike.