RICHMOND
bike.walk.trails
PLAN

TOWN OF RICHMOND VERMONT

CHITTENDEN COUNTY RPC
Communities Planning Together

DuBois & King inc.

Contents

Advisory Committee

This project was guided by the insight of an advisory committee, community members and advocates representing local committees and organizations.

Alan Knowles, Richmond Transportation Committee
Cathleen Gent, Richmond Transportation Committee
Chase Rosenberg, Richmond Trails Committee
Ian Stokes, Richmond Climate Action
Jean Bressor, Richmond Trails Committee
Jon Kart, Richmond Transportation Committee
Jonathon Weber, Local Motion

Project Team

Ravi Venkataraman, Town of Richmond
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Introduction

Background

The Richmond Bike, Walk, and Trails Plan (the "Plan") provides a vision, goals and priorities to improve walking and biking in Richmond. The Plan builds upon Town priorities to enhance walking and biking within the Town for Richmond, Vermont's 4,000 plus residents.

This plan was completed in a two-phase process. The first phase was completed in 2021 by the Town of Richmond, and supported by the Chittenden County Regional Planning Commission (CCRPC), volunteer Project Advisory Committee and consultants from Toole Design.

The Advisory Committee has supported both phases of the project and includes members from Richmond's Trails Committee, RiseVT, Richmond Climate Action Committee, Local Motion, and Richmond's Transportation Committee.

Phase 2 began in the fall of 2021 by the Town of Richmond with support from CCRPC, and consultants from DuBois & King.

This document merges Phase 1 and Phase 2 studies into a single Bike, Walk, and Trails Plan for the Town of Richmond. A standalone phase 1 document can be downloaded from the CCRPC website by following this link.

Plan Context

The Town of Richmond envisions its neighborhoods, village, parks, open spaces, schools, and activity areas connected by a safe, comfortable, and convenient network of walking and bicycling paths, trails, and routes.

Walking and bicycling—often referred to together as "active transportation"—can complement the Town's strategic goals as outlined in the Transportation Vision Connection on page 35 in the 2018 Richmond Town Plan. Improved active transportation supports Town goals of affordability, economic opportunities, mobility and transportation options, roadway safety, and supporting natural and working lands.

The Richmond Bike, Walk, and Trails Plan identifies the key infrastructure projects, programs and policies needed to achieve a Complete Streets network that includes off-road trails, paved pathways and trails, sidewalks, and shared roadways and community support for active transportation.

Achieving a continuous walking and bicycling network that is comfortable and accessible for people of all ages and abilities will help the Town achieve its strategic goals and provide many quality-of-life and economic benefits to Richmond.

Goals & Vision Statement

Based on public input and guidance from the volunteer project advisory committee, a vision statement and four goals were developed for this project. Each of these goals guide plan recommendations and implementation strategies for the Town of Richmond.

Goal: Safe and Welcoming Richmond
Richmond will make on-street and off-street walking and biking safe and welcoming to all residents, offering equitable access to work, school, and play. Richmond will set a precedent for neighboring Chittenden County communities by expanding the use of trails as transportation corridors.

Goal: Connected Richmond
Richmond will be connected by foot and bike locally and regionally – among neighborhoods, between neighborhoods and the Village, and to neighboring towns.

Goal: Healthy Richmond
Richmond will build a healthy community, strengthen social connections, and responsibly increase market opportunities through sustainable recreation opportunities for residents and visitors.

Goal: Climate Adaptive Richmond
Richmond will reduce greenhouse gas emissions by providing more opportunities to walk and bike. Richmond will encourage people to choose active transportation by increasing its efficiency and convenience.

Vision Statement:
Richmond will be a place where all residents and visitors have safe and welcoming connections to where they need to and want to go, a place that is a healthy community with recreational and economic opportunities, and a place that is responsive to climate change.

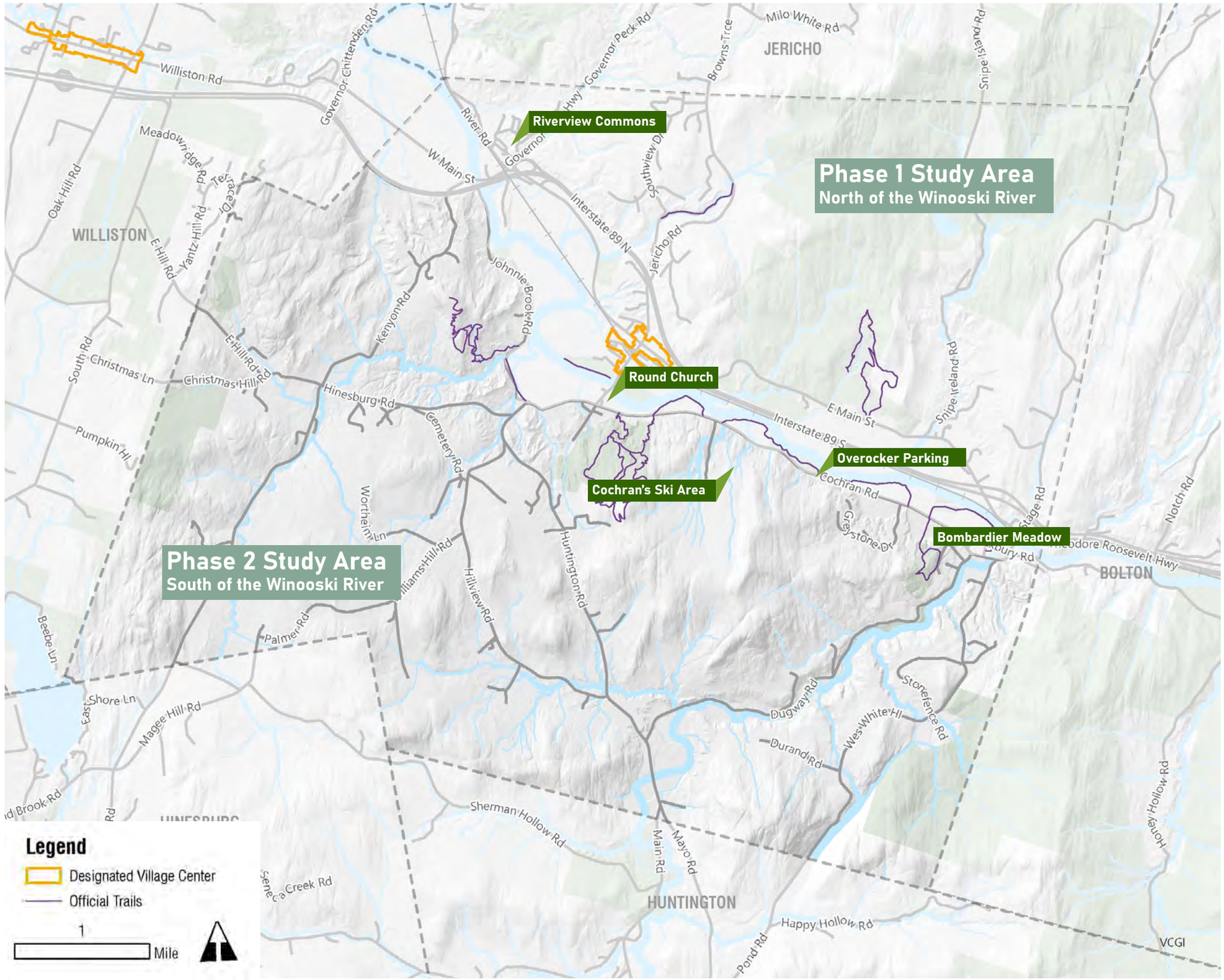
Public Trail Intersection with Cochran Road.

Study Areas

Each phase of this project studied a different geographic area in the Town of Richmond.

Phase 1 studied the lands north of the Winooski River, and Phase 2 studied lands south of the Winooski.

In a general sense, the land of Richmond is a river valley surrounded by steep forested hills. The Winooski River valley contains most the flatter and easily accessible terrain. It also contains Richmond's major roads, I-89, railroad and the Winooski River alongside one another.



Planning Process

This project went through each of these steps to build the Richmond Bike, Walk, and Trails Plan. The process was followed in both phase one and phase two, with the exception of step 2, Establish The Vision. The vision established in phase one was adopted for the Phase 2 effort.

RICHMOND, VERMONT
2018 TOWN PLAN

APPROVED: 11/6/2018
EXPIRES: 11/5/2026
DETERMINATION OF ENERGY COMPLIANCE: 1/16/2019


Town of Richmond, Vermont

Bridge Street Bicycle & Pedestrian Feasibility Study

Final Report

Submitted by:
Broadreach Planning & Design
In conjunction with
Lamoureux & Dickinson Consulting Engineers, Inc
Heritage Landscapes LLC.
University of Vermont Consulting Archeological Program

April 26, 2010

1. Engage the Public and Stakeholders
The Bike, Walk, and Trails Plan reflects the needs and desires of the people who live in, work in, do business in, visit, and take care of the Town of Richmond. Public and stakeholder engagement included an advisory committee, two online open houses, and an interactive online map.

2. Establish the Vision
The desired future for active transportation in Richmond must align with what the community values. Active transportation can have positive impacts on the economy, quality of life, public health, and the environment. The Richmond Bike, Walk, and Trails Plan sets the vision to act as waypoints toward a multimodal transportation system.

3. Evaluate Existing Conditions
Biking and walking in Richmond today can be described by documenting how we travel, how we'd like to travel, and the state of the active transportation network. An evaluation of existing conditions provides the starting point from which to envision a desired future. This evaluation of biking and walking considers previous and ongoing planning, travel patterns, land use, crash trends, and demographic information.

4. Develop Recommendations
The Plan recommends infrastructure projects, programs, and policies to achieve the community's desired vision. These recommendations represent a long-term vision for active transportation in Richmond.

Town staff and partners should revisit and update these recommendations on a regular basis to adapt to and address changes in community needs and transportation conditions.

5. Prioritize Recommendations
Because resources are limited (time, funding, and space), the Plan scores and ranks project recommendations to communicate Richmond's priorities for improving its transportation infrastructure. The prioritization process indicates what's most important to reflect the Plan's vision. Project prioritization serves as a tool to inform Plan implementation.

6. Define a Path to Implementation
The final step of the Plan's process is defining which recommendations to implement in the short-term and which will require more time and resources to implement, thus pushing them into the future. The Plan's implementation strategy provides guidance for what should be done, when it should be done, and by whom.

Community Engagement

Members of the Advisory Committee discuss active transportation issues with neighbors

Phase 1 Process

The Phase 1 public process launched on November 12th, 2020, with a project introduction and visioning meeting. Following that meeting, the WikiMap, an online comment tool, was open for comment from December 17, 2020 to January 22, 2021. Approximately 150 respondents provided comments. Users could submit point or linear suggestions to identify:

Desired Connections
User submitted points identified where ideal walking and biking corridors could be, and what facilities (such as a bike lane, sidewalk, or trail) might best support community desires.

Walking and Biking Barriers
Wikimap and physical map users identified existing conditions that create barriers for those seeking to walk or bike through Richmond.

These data were compiled, along with input from two additional community meetings (March and May 2021) to identify issues and opportunities related to active transportation travel through Richmond. These issues and opportunities, as well as those from the Phase 2 process, are represented here.

Phase 2 Process

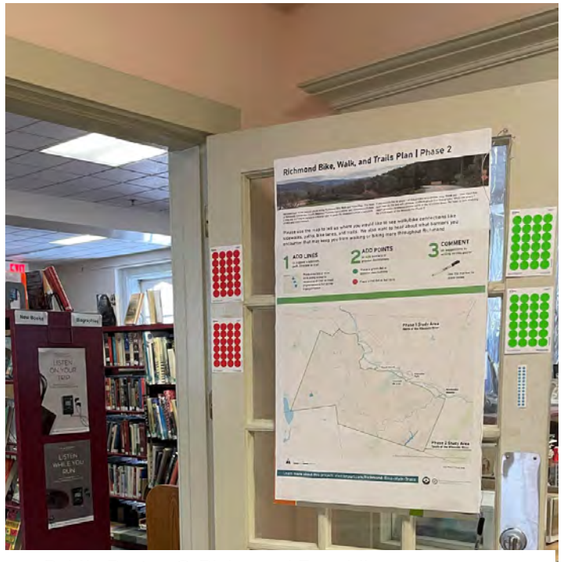
Public outreach took place from February 9 to March 9, 2022. Due to the challenges facing larger in-person meetings during the winter of 2021/22 from the COVID pandemic, the project team developed a community outreach effort for Phase 2 that relied on a public meeting, a continuation of the Wikimap website from Phase 1, and interactive posters placed at the Richmond Free Library and Town Office.

Physical Maps
To reach community members who might not find or be comfortable with the online map tool, physical maps were printed and posted at the Richmond Free Library and Town Office. Community members were invited to place red and green stickers to indicate desired connections and walking and biking barriers. These data were then compiled along with results of the Phase 1 and Phase 2 Wikimaps.

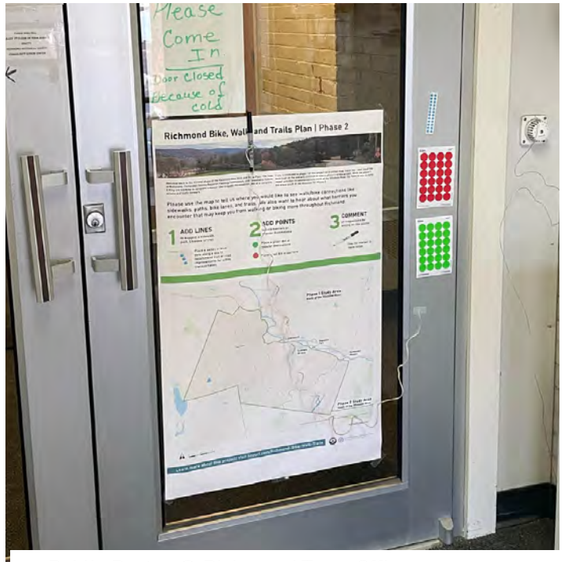
Phase 2 Online WikiMap
An updated version of the Phase 1 Wikimap was relaunched during the Phase 2 public engagement process, and promoted through local Front Porch Forum posts, announcements from CCRPC, Local Motion, the Town of Richmond, and other partners. Approximately 68 respondents provided direct comments on the Phase 2 map.

Phase 2 Visioning Meeting
On February 9th, 2022, The project team hosted a Phase 2 visioning meeting with options to attend virtually and in-person at the Town Office. The meeting was attended by 19 members of the public, which included the project steering committee. This meeting oriented attendees on the overall goals of the Richmond Bike, Walk, and Trails Plan, and focused conversation on the Phase 2 areas south of the Winooski River.

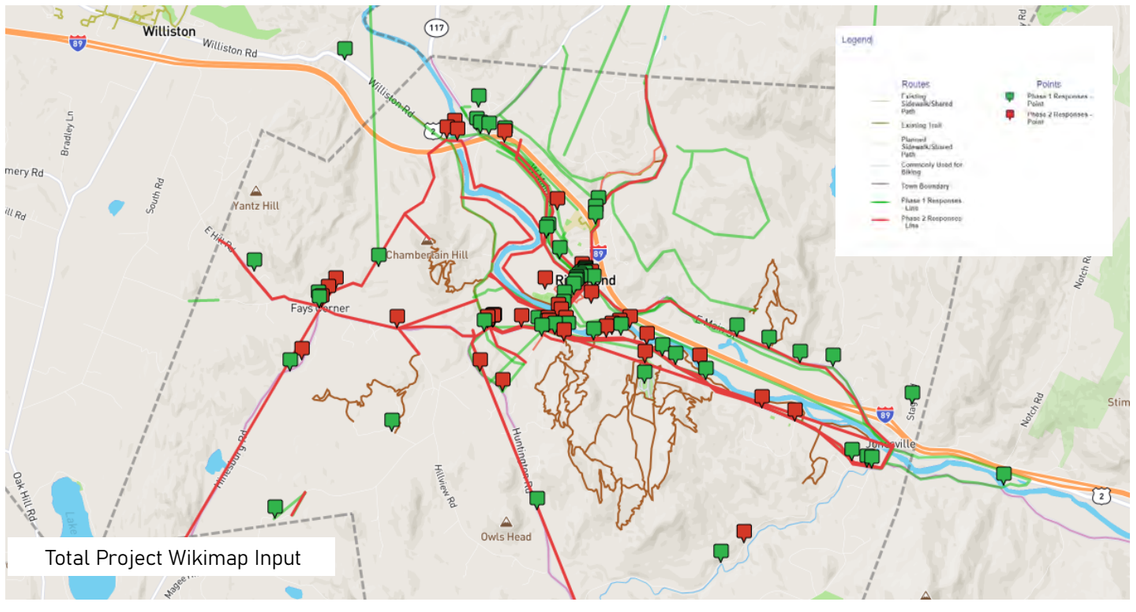
Meeting attendees had the opportunity to attend breakout rooms for small 3-4 person interactive mapping exercises, facilitated by Town, CCRPC, and DuBois & King staff.



Public Poster @ Richmond Free Library



Public Poster @ Richmond Town Office



Total Project Wikimap Input

Public Input Themes and Trends

Although public input spanned the whole Town, the Village Center and the rolling roadways of Route 2 and Cochran Road received more public input than roads traversing steep terrain north and south of the Winooski River valley.

These inputs point to a need for improved bike/pedestrian facilities on roadways where walking and bicycling are most accessible - the (relatively) flat areas of Town, rather than steep hills surrounding the Winooski River valley.

Barrier Clusters

The heatmap at right illustrates, in aggregate, publicly identified barriers through both phases of the Richmond Bike, Walk, and Trails Plan. This input identified numerous barriers. Notable clusters included:

- Village Center / Bridge Street, including intersection issues, crosswalk concerns, lighting, safety for cyclists crossing the bridge, and more.
- Bridge Street at Cochran Road, which has a completed scoping study recommendation for improvements.
- Bridge Street at Route 2.
- I-89 and Route 2 intersections.
- Fays Corner, particularly vehicle travel speeds, sight lines, and conflicts with high speed traffic and school bus stops and residential land uses.
- Generally narrow roadways in the project area, lacking adequate marked shoulders.
- Huntington Road and Johnnie Brook Trail intersection - sight lines and traffic volumes combined with narrow roadways.

In no small part, the pattern of clusters point to a need to prioritize walking and bicycling improvements surrounding the Richmond Village.

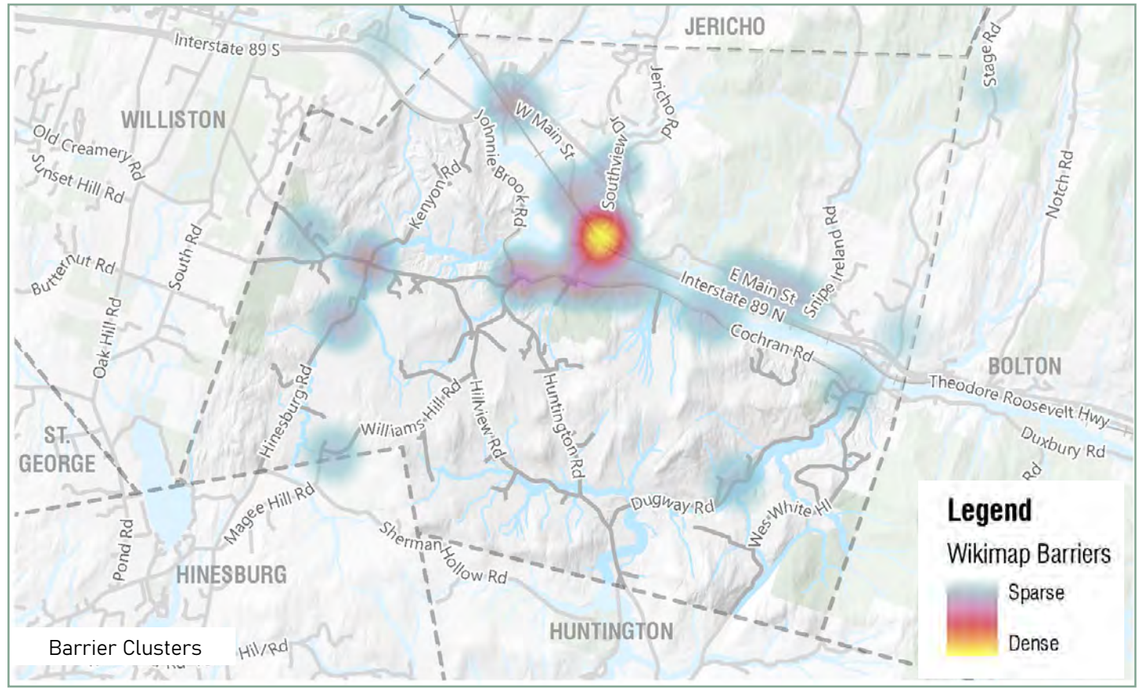
Community-identified issues cluster in the village center, and the compact size of the village center makes walking and bicycling pragmatic forms of transportation in the historic heart of Richmond.

Desired Connections & Improvements

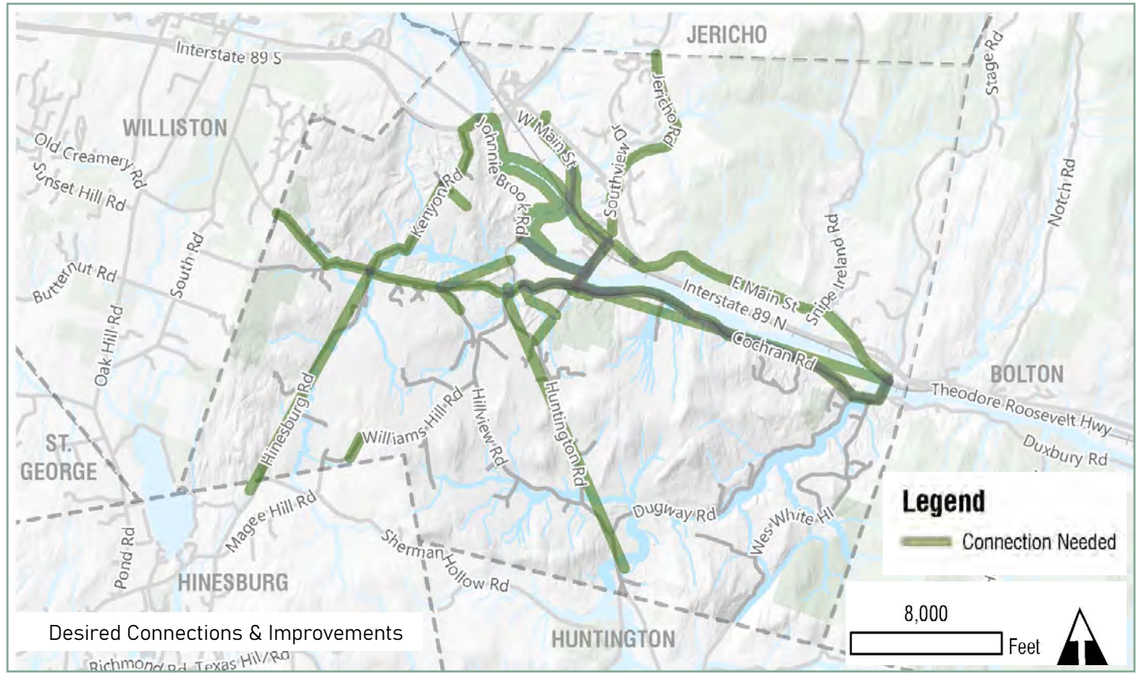
The second map on this page illustrates what the community identified as needed improvements to roadways or new connections.

In aggregate, this feedback illustrates a desire for improvements surrounding all roadways within the Winooski River valley (Route 2, Cochran Road, Village Center roadways) as well as key corridors to the north and south, including Hinesburg Road, Kenyon Road, Huntington Road and Jericho Road. Cochran Road was identified numerous times as a crucial connector in need of improvement for active transportation use. Public comment throughout identified a need for safe and separated bicycle and pedestrian facilities as opposed to sharing narrow roadways with motor vehicles.

Potential trail connections identified in the public process include an extension of the Volunteers Green recreation path, new connections to Johnnie Brook Trail, improvements to trails north of Cochran Road, and connections between Williams Hill Road and Palmer Road in Hinesburg.



Barrier Clusters



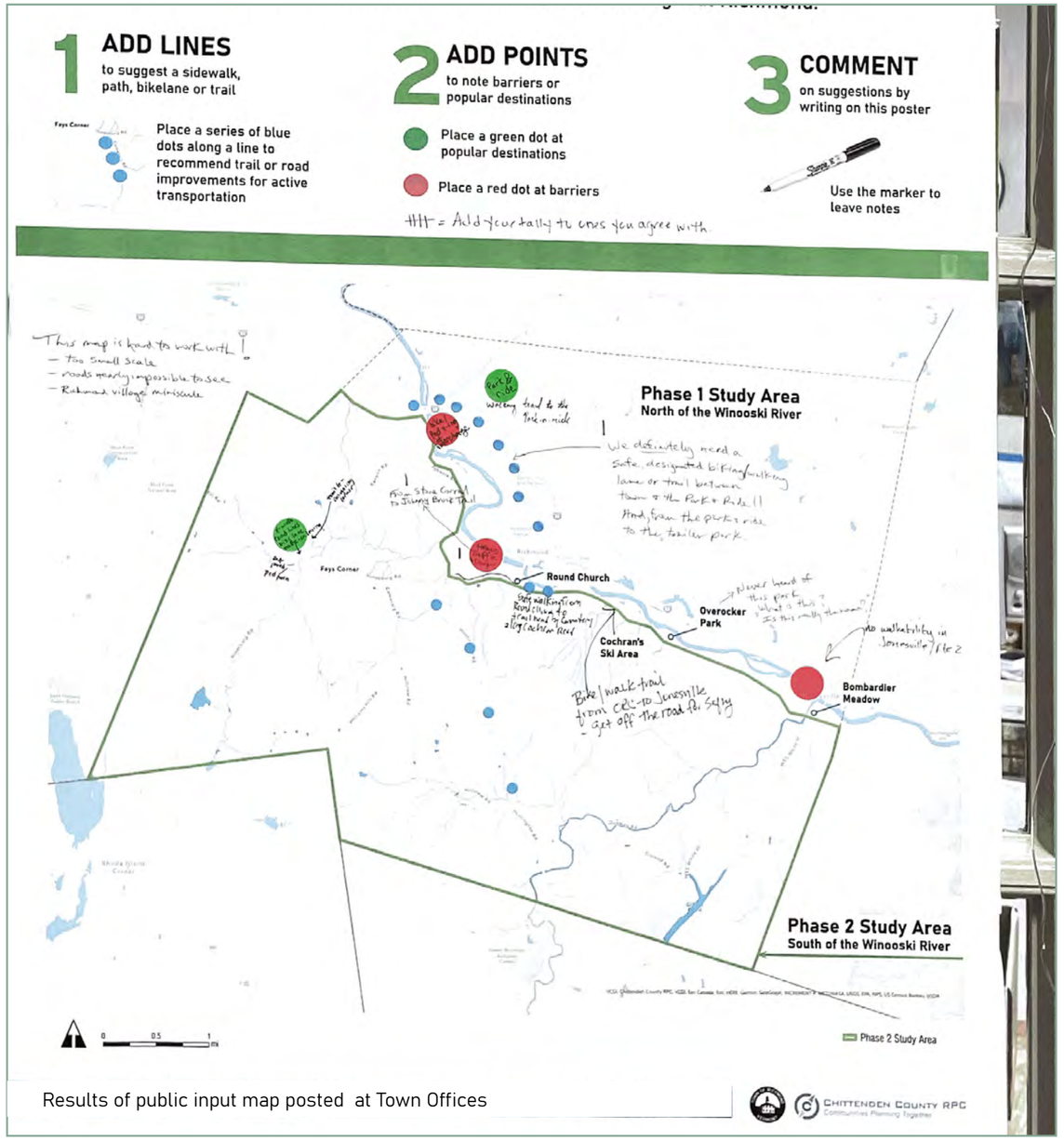
Desired Connections & Improvements

Phase 2 Visioning Major Themes
Major themes emerged through the online input process, public meetings, and further discussion with the Advisory Committee.

These themes are combined with more focused site evaluations and roadway data analysis to generate the concrete conclusions and recommendations in this plan.

In no specific order, these themes include:

- Strong interest for providing safe connections to the middle and elementary schools, Park and Ride, Andrews Community Forest, and the Village.
- Strong interest connecting residential neighborhoods.
- Strong support for providing improved walking and bicycling accommodations along Route 2/Main Street.
- Strong interest in accessing daily destinations (e.g., schools, shopping, library) via walking and bicycling.
- Support for more bicycle lanes, sidewalks, and trails throughout Richmond.
- Increased safety and visibility for pedestrians and bicyclists along Bridge Street and through Richmond Village. Cochran Road is Richmond's "unofficial rec path" with year-round heavy active transportation use but no facilities for this use, and high motor vehicle speeds. The speed limit drops from 45 to 25 MPH coming into the village with no clear warning or transition zones for speed changes.
- Trail access points on Cochran Road need improved pedestrian connectivity and safety, such as at parking areas at Cochran's Ski Area and Overocker Park (see page 21).
- Johnnie Brook Trail needs parking improvements and improved pedestrian access on both ends. Public parking should not block driveways and farm access points.
- Fays Corner has high speeds and poor sight distances. Children cross the road here to get on the school bus.
- The 45 MPH speed limit on Hinesburg Road is too high. Neighboring Towns have 35 MPH speed limits.
- Need for safe connections for walking and biking to neighboring towns.
- Need for recognition that the public drive for recreational trails at times runs afoul of private property rights and unsanctioned trails impact lands without permission - jeopardizing future trail access.
- There is a need for clarity regarding trail access. Some trails are formally open to the public, some require landowner permission, and others are off limits.



Results of public input map posted at Town Offices

Public Feedback on Draft Recommendations

Following a public presentation on June 28th 2022, the project team collected 30 responses to an online survey soliciting feedback on the Richmond Bike.Walk.Trails Plan draft recommendations. This survey was open for a 4 week period, closing on July 28th, 2022.

This survey was a simple three-question prompt:

1. What is the most valuable part of the draft Richmond Bike.Walk.Trails Plan?
2. What is the draft Richmond Bike.Walk.Trails Plan missing?
3. Any other thoughts you'd like to share with the project team?

To encourage focused responses, the survey limited each response to 1000 characters.

Public Support

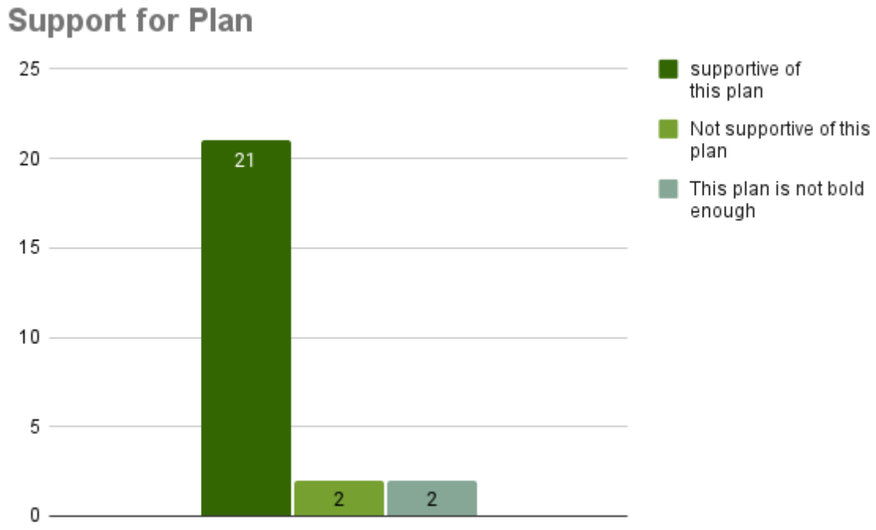
The vast majority of survey respondents supported the plan, although two respondents were clearly in opposition to the plan and felt strongly about it. Two other respondents expressed the opinion that this plan was not bold or ambitious enough. Some other respondents were concerned that the implementation timeline was too ambitious or unrealistic.

The charts on this page show the distribution of survey respondent's general sentiment to the plan.

Priorities of Focus

Several respondents expressed opinions on how the Town of Richmond should prioritize its focus for building out a network of active transportation pathways and routes. Three common opinions emerge from the responses

- Some respondents stressed the importance of focusing on projects that connect people to destinations over recreational paths
- Some other people specifically voiced their support for recreational paths, although none of them said to prioritize these projects over projects that connect to destinations.
- There is desire by some respondents to prioritize improvements in and around the town center and the park and ride.



Common themes in Responses to the Draft Plan

An analysis of the open-ended survey responses reveal several common themes. In the illustrations on this page, recurring words and phrases from the responses are shown in larger text, while less common phrases are shown in smaller text.

When asked the about what they thought was the most important part of the Draft Plan, respondents commonly mentioned the proposed changes to Cochran Road.

Safety was also a common theme, with some respondents recounting their personal experience with near misses on Richmond's roads and the sentiment that improved safety would encourage more walking and cycling in Richmond.

Some respondents voiced their concerns about the impact some of the plan's proposals would have on private property. This concern was particularly common among those opposed to the plan who fear increased "loitering, littering, noise, and an increased risk of crime" around multi use trails.

Several corridors and locations were commonly mentioned as needing additional attention. These include:

- Old Jericho Road
- Huntington Road
- Cross VT Trail connection/Volunteers Green

There was also repeated mention of support for lowering speed limits and improved signage. Concern over centerline removal was also mentioned.

What is the most valuable part of the draft Richmond Bike.Walk.Trails Plan?

What is the draft Richmond Bike.Walk.Trails Plan missing?

Any other thoughts you'd like to share with the project team?

Existing Conditions

Riding to Johnnie Brook Road from Kenyon Road

Bicycling Facilities

Outside of the off-road trail networks, the Town lacks dedicated bicycle facilities. People riding their bikes also noted a lack of convenient places to park them in the Village area. Community feedback highlighted a need for bridges across the Winooski River, as bicyclists must share the limited bridges and narrow lanes with motor vehicles, and only three such crossings exist within Town.

Walking Facilities

High-quality pedestrian infrastructure is critical to making walking safe, comfortable and dignified in Richmond. While the Village area has marked crosswalks at the majority of its intersections, these crossings are not controlled (such as with call buttons and pedestrian signals), creating potential conflicts between people driving and people walking. There are also significant sidewalk gaps along walking routes on Jericho Road and Bridge Street. Though it would be impractical to extend sidewalks along all Town roadways, the cluster of destinations and village development patterns in the Town Center points to this area as a clear focal point for future pedestrian facility improvements.

Community feedback suggests that although walking and biking are desired modes of travel in Richmond, there are significant barriers to developing safe and comfortable active transportation for all ages and abilities. These barriers are not unique to Richmond, and are common in many rural American communities.

Commute and Transit

The largest neighboring employment centers are in Williston/South Burlington/Burlington, and Waterbury/Montpelier. Because of this employment distribution, 82% of Richmond residents commute out of town for work. The Park and Ride in Richmond enables carpooling and access to the I-89 commuter buses, but 88% of commuters still travel in personal vehicles. The Park and Ride also has inadequate capacity for the parking demand. [1]

Transit
There are no transit options apart from a bus stop at the Park and Ride, and there is no weekend or evening bus service and no stop or access point in the Village. While a rail line runs through Richmond carrying freight and twice-daily Amtrak passenger service (morning and evening), the nearest Amtrak stops are in Essex Junction and Waterbury.

[1] See the 2018 Town Plan, page 35

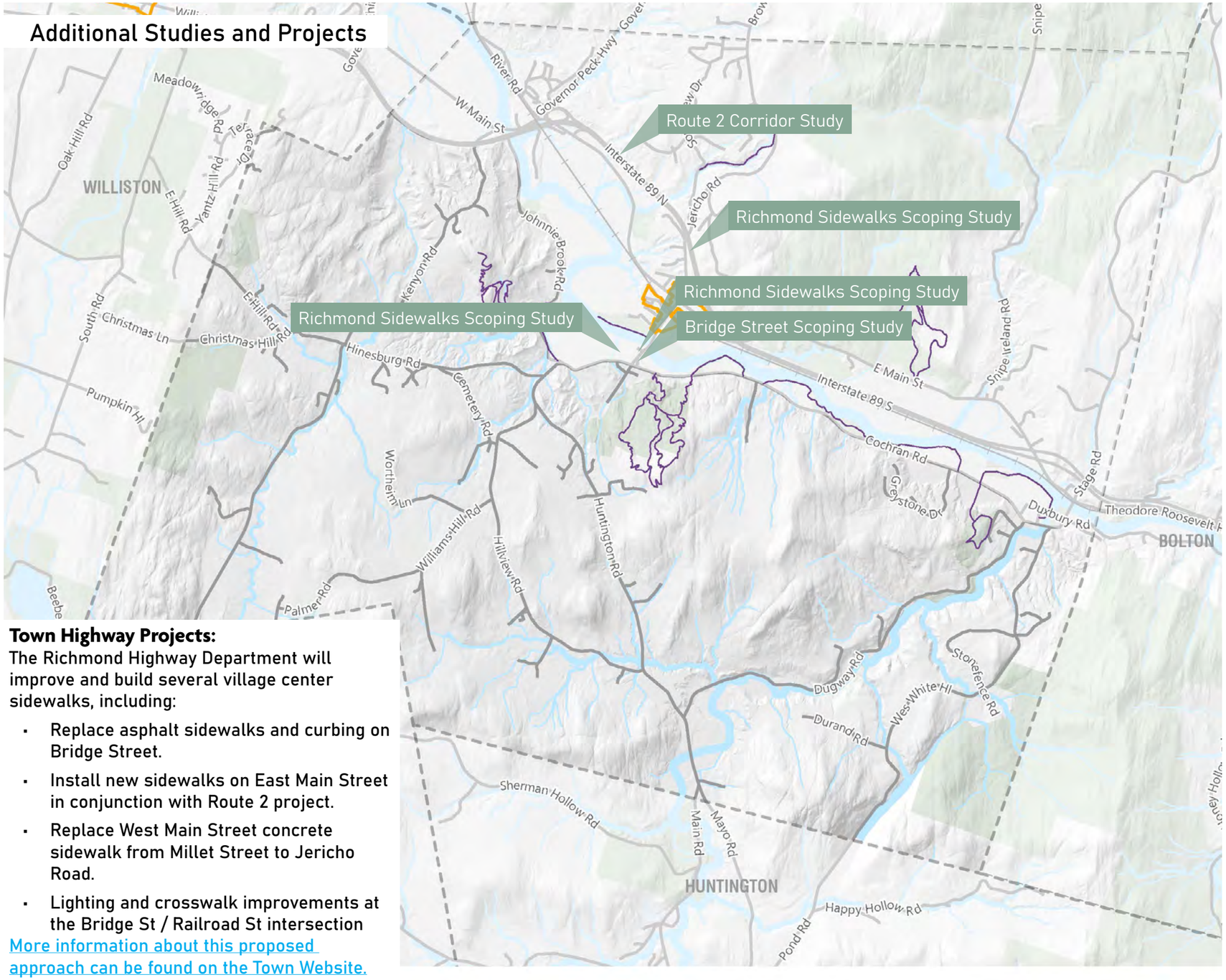
Additional Studies

This Bike, Walk, and Trails Plan comes at a time when many of the improvements discussed in the public process and as part of the Phase 1 / Phase 2 recommendations are already under study or have implementation efforts in place. These include:

Richmond Sidewalks Scoping Study (2022)
Moving in parallel with this broader planning effort, this scoping study seeks to design solutions for three critical gaps in the Village sidewalk network. This study is looking to improve pedestrian access to Bridge Street, lower Jericho Road, and Huntington Road. More information about the process can be found at the CCRPC website.

Bridge Street Scoping Study (2021)
In late 2021, the Bridge Street Complete Streets Corridor Study was conducted to identify and prioritize improvements along the Bridge Street corridor. The study evaluated options for improved bicycle and pedestrian infrastructure on Bridge Street, including designs for the Thompson/Cochran/Bridge Street intersection. This study provides preliminary plan sets for the recommended alternative. The full document can be reviewed on the CCRPC website.

Route 2 Corridor Study (2014)
This study provides a series of recommendations to support the development of a shared use path linking Bridge Street / Route 2 intersection with the Route 2 corridor west of the I-89/Route 2 intersection. Numerous constraints and issues are identified in this study including wetlands, conflicts with existing rail lines and more. The full report can be reviewed on the CCRPC website.



Town Highway Projects:
The Richmond Highway Department will improve and build several village center sidewalks, including:

- Replace asphalt sidewalks and curbing on Bridge Street.
- Install new sidewalks on East Main Street in conjunction with Route 2 project.
- Replace West Main Street concrete sidewalk from Millet Street to Jericho Road.
- Lighting and crosswalk improvements at the Bridge St / Railroad St intersection

More information about this proposed approach can be found on the Town Website.

Origins & Destinations

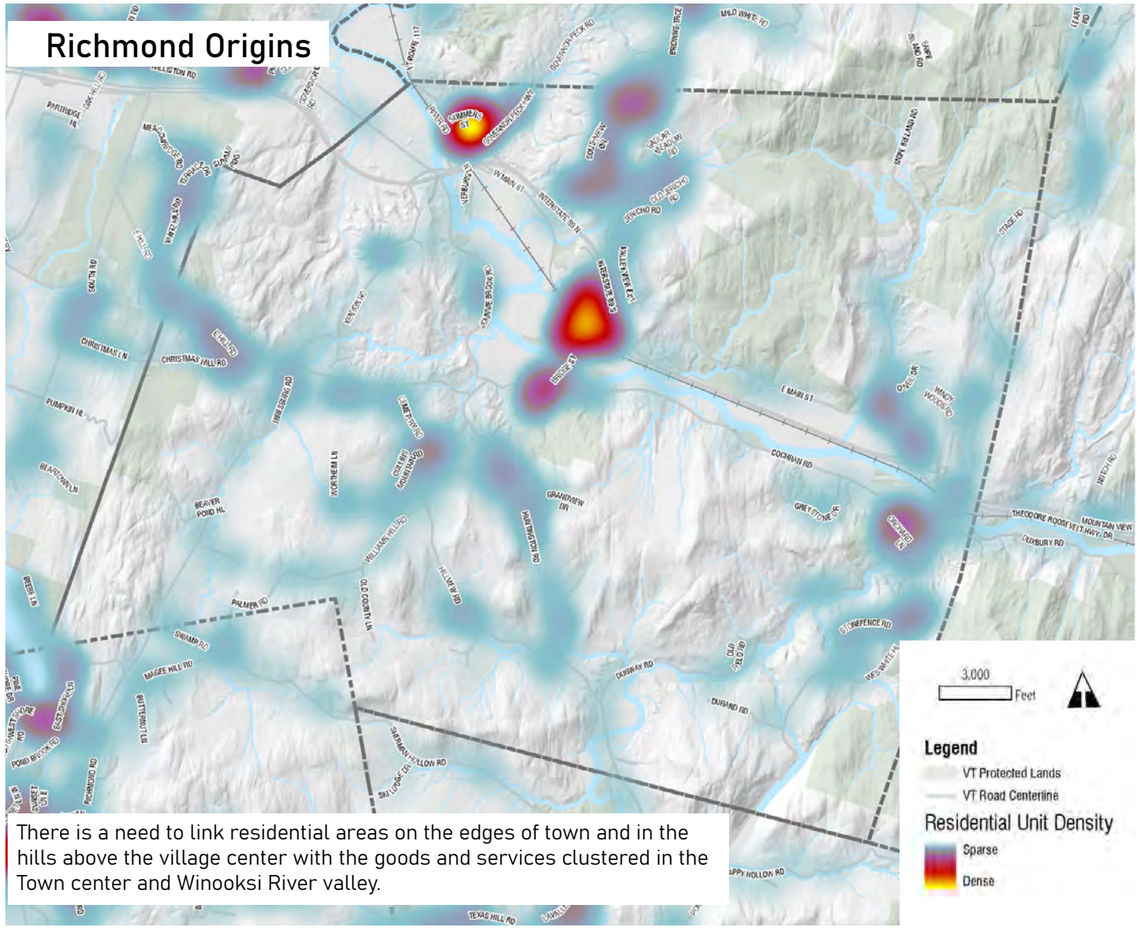
The majority of Richmond's land is utilized for rural residential developments and for agriculture and forestry, with development activity focused on the commercial retail areas in the Village Center and around the Route 2 / I-89 interchange.

Planning for walking and bicycling as transportation requires an understanding of origins and destinations. Origins can be loosely defined as anywhere people live, and destinations as places for community gathering, such as schools, churches, retail and employment centers, parks, and trailheads.

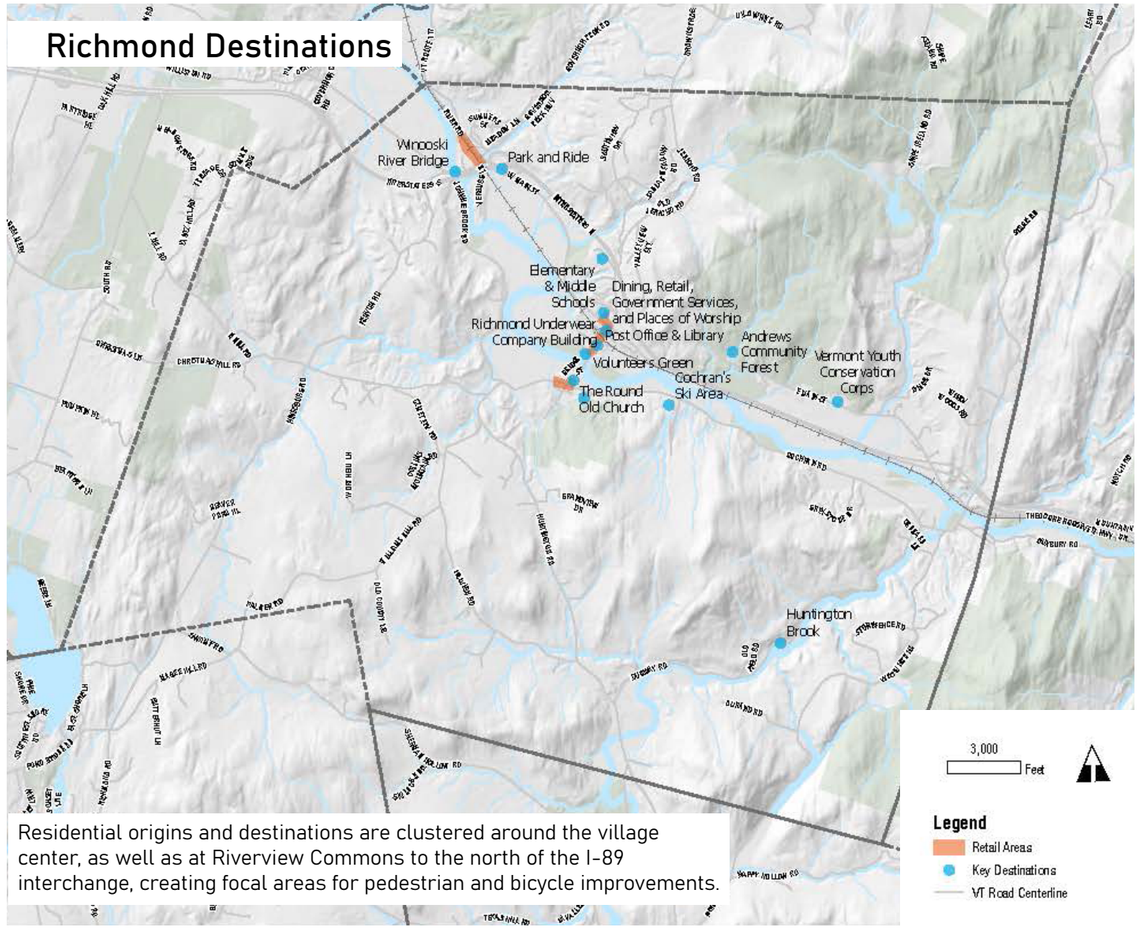
These maps illustrate the distribution of origins and destinations throughout Richmond. Residential patterns were sourced from E911 data identifying any residential farm, multifamily dwelling, single family dwelling or other residential use. Destinations and retail areas were identified through public input and results of the Phase 1 report.

These distributions reveal two main findings:

- That residential origins and destinations are clustered around the village center, as well as at Riverview Commons to the north of the I-89 interchange, creating focal areas for pedestrian and bicycle improvements.
- A need to link residential areas on the edges of town and in the hills above the village center with the goods and services clustered in the Town center and Winooksi River valley.



There is a need to link residential areas on the edges of town and in the hills above the village center with the goods and services clustered in the Town center and Winooksi River valley.



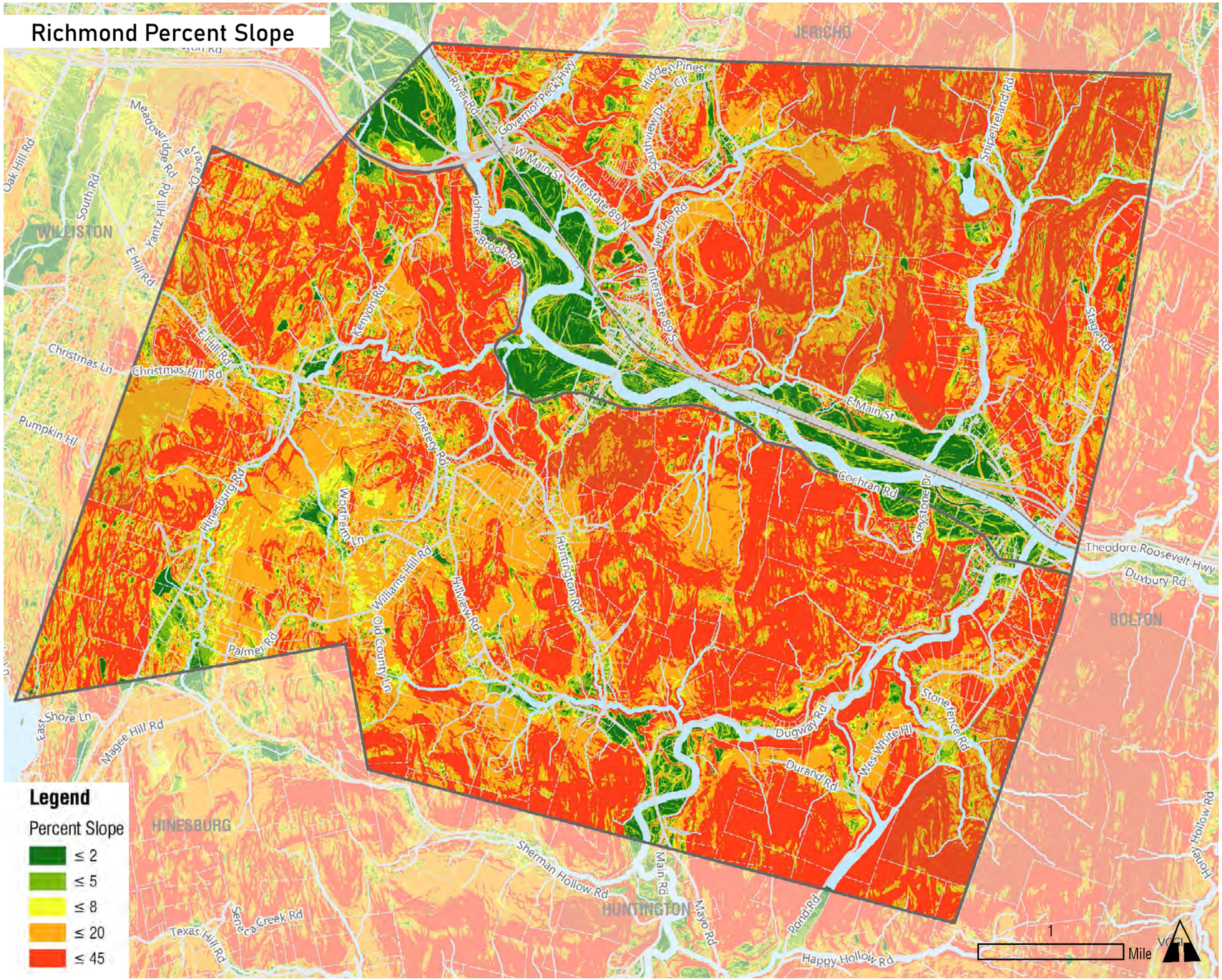
Residential origins and destinations are clustered around the village center, as well as at Riverview Commons to the north of the I-89 interchange, creating focal areas for pedestrian and bicycle improvements.

Topography

The landscape of Richmond, like so many of its neighbors in the Green Mountains is steep. As anyone who has gone for a walk or bicycle ride outside knows, the hills mean more work to travel up, higher speeds going down, and flat areas mean easier travel.

This slope map (red = steep, green = flatter) illustrates how many Richmond roadways traverse steep slopes to the north and south of the Winooski River valley. Key exceptions to this trend include Cochran Road, Johnnie Brook Road, and Route 2. To a lesser extent, Dugway Road and Kenyon Road offer lower-slope traverses to Town destinations, but short sections of steep grade on these roads still compel some riders to dismount and walk.

A basic slope analysis offers one way to prioritize walking and bicycling infrastructure along corridors that are more accessible to those that may not have the ability or interest in traversing steep Vermont roadways up and down hillsides.



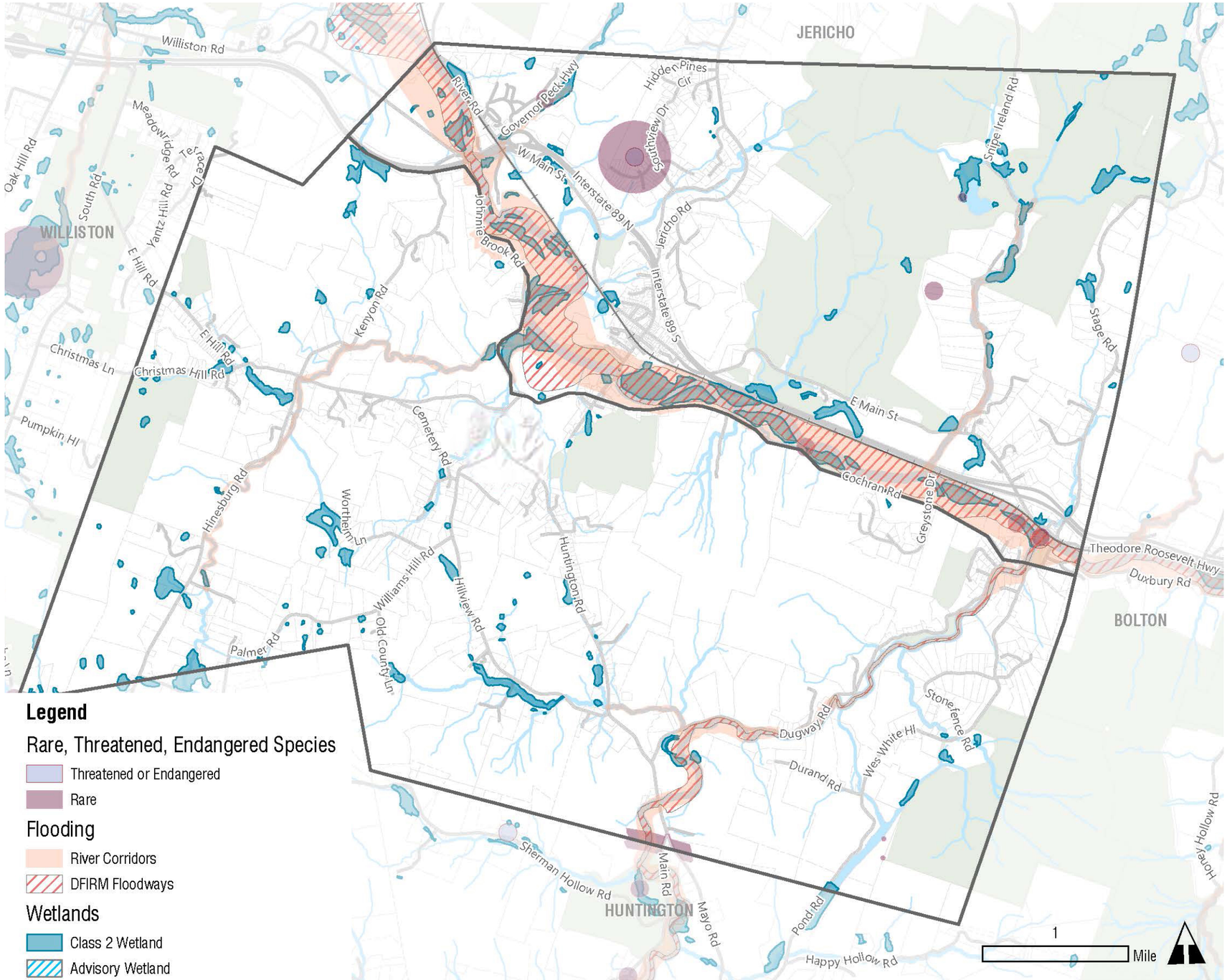
Environmental Concerns

The composite map at right illustrates areas of known wetlands, river corridors, threatened and endangered species, and flood plains throughout the Town of Richmond.

At a master planning level, these resources should be considered when weighing the approach to any given project. For example, projects on the north side of Cochran Road may be more impacted by permitting and environmental impacts than projects surrounding Route 2 to the north.

Of particular consideration are the existence of rare, threatened and endangered species on this map - these general areas should be avoided for future trail construction to reduce disruption to these critical wildlife habitats.

This map and overview serves as a preliminary review, and any potential project identified in this plan would need to undergo appropriate assessment and permitting processes to better understand how environmental impacts should be mitigated.



Legend

Rare, Threatened, Endangered Species
- Threatened or Endangered
- Rare

Flooding
- River Corridors
- DFIRM Floodways

Wetlands
- Class 2 Wetland
- Advisory Wetland

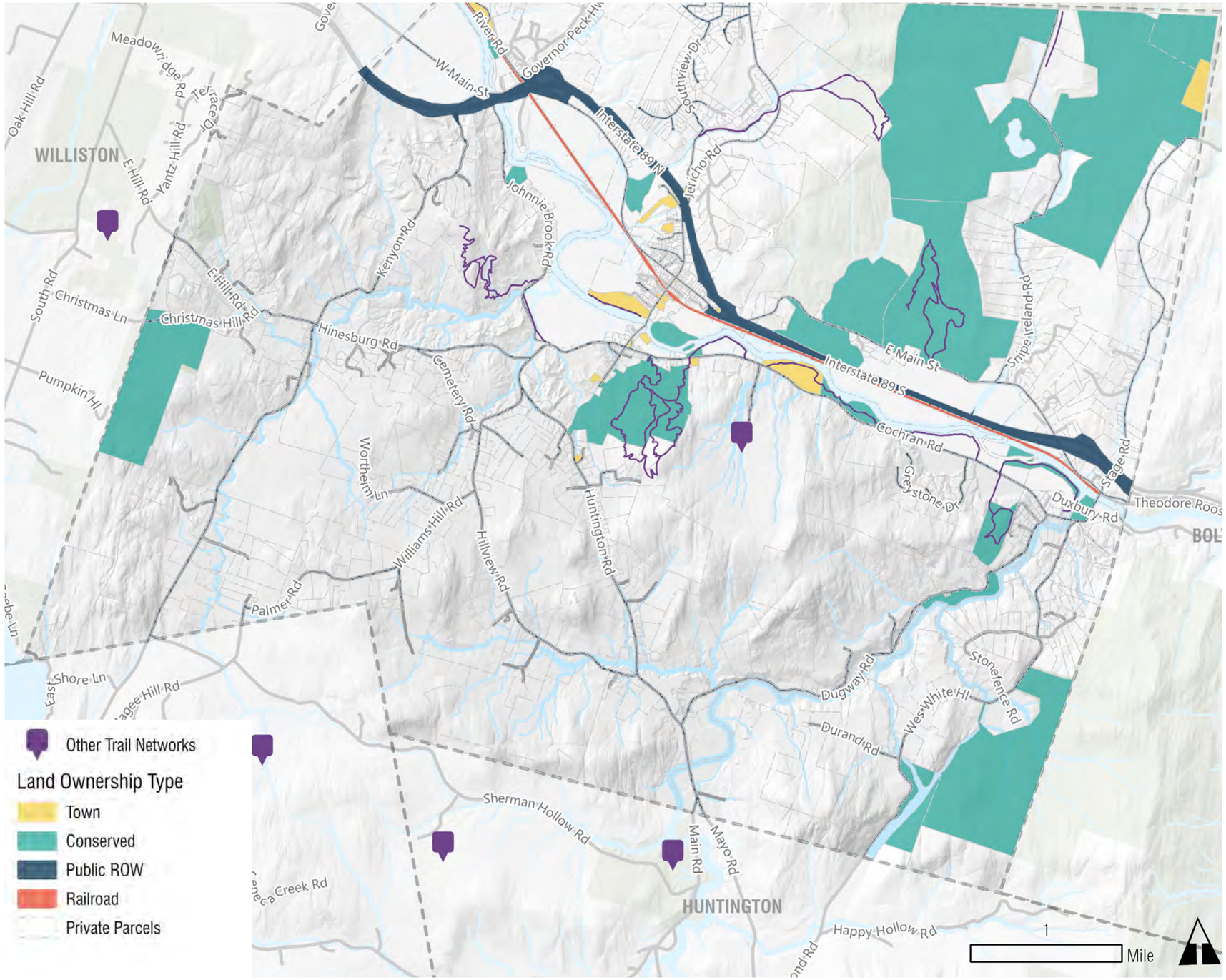
Land Ownership & Trails

When considering the potential to expand any community trail network, a crucial first step is to acknowledge land ownership and recognize that public trails are built only with full landowner permission.

Many public and private landowners in Richmond have been supportive partners of trail networks on their properties. However, landowners have experienced problems, with unsanctioned trail building and access occurring on their properties.

Managing these impacts, eliminating illegally built trails, and working closely with landowners to build a robust network of recreational access is a win-win for the Town, trail user, as well as for the land owner if trails are carefully planned, clearly marked, and well maintained by users. Such collaborative and mutually beneficial trail network development is the intent of this plan, and numerous trails advocacy groups are working diligently in the Town of Richmond.

The map at right overlays trail networks on land ownership patterns through the Town of Richmond. Such an overlay can facilitate dialog between the Town, trail advocacy groups, and landowners that could evaluate and consider moving forward with future trail projects as identified elsewhere in this plan.



Roadways

The Vermont Agency of Transportation and the Town of Richmond maintain public roadways throughout the Town.

As public transportation corridors, these roadways must accommodate all transportation uses, from a couple out for an evening stroll, to large truck deliveries, a bike ride to the grocery store, or carpooling to elementary school.

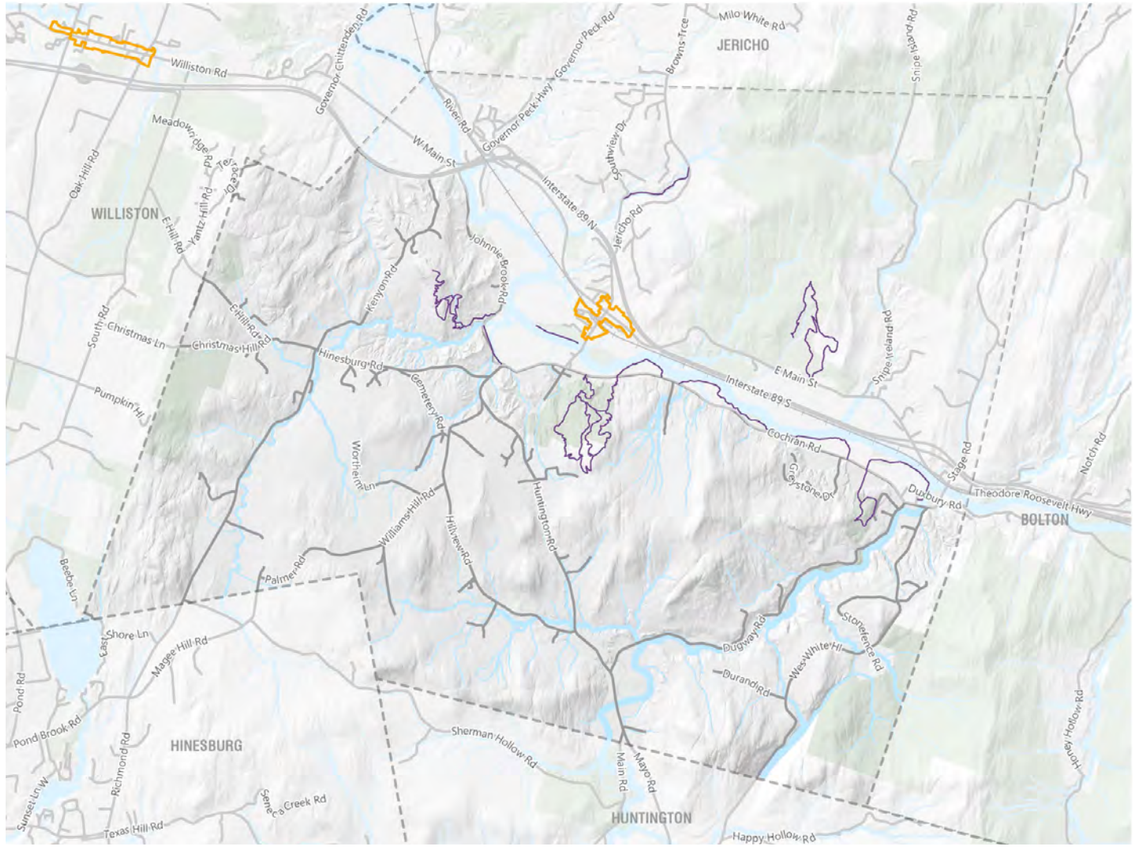
Throughout this network, there are some commonalities.

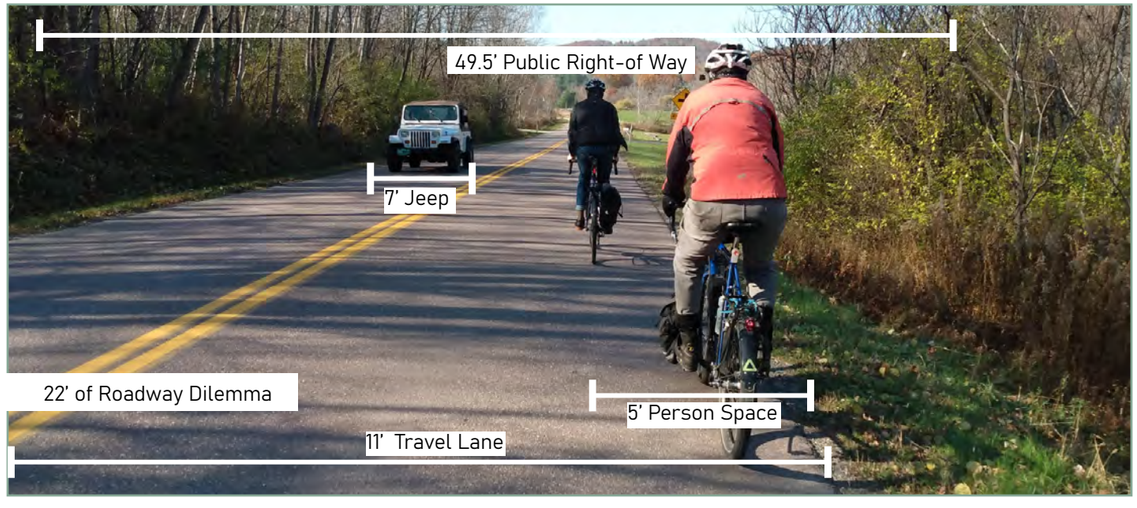
- Based on GIS data, all roadways are accommodated by a 49.5 foot right of way.
- A majority of paved roadways in this network are paved to a 22 foot wide asphalt standard, resulting in two 11 foot wide travel lanes. These lanes are not sufficiently wide enough to allow two way vehicular and bicycle/pedestrian traffic simultaneously, and require motorists to cross the centerline to safely pass vulnerable road users. This challenging condition is illustrated at right.

Within this network there is also the recent Class 4 roadway decision regarding Williams Hill Road. Although a vote was passed by the Town Selectboard to maintain public access on this historic corridor, that decision is currently being challenged in court. Should the challenge be upheld, this corridor would be lost to public use. Should the challenge be struck down, this would be a potential connection for future over-mountain travelers between Richmond and Hinesburg / Huntington.

Table –1 - Through Road Characteristics

Street	Surf. Type	Width (ft)	AADT (Daily Traffic)	Posted Speed (MPH)
Bridge St	**Paved**		5705	25
Cemetery Road	**Gravel**		No data	30
Cochran Road	**Paved**	**22-24**	950 (2020)	25 / 45 / 25
Dugway Road	**Gravel**	**18-22**	No data	25 /30
Duxbury Road	**Paved**	**24**	No data	25
East Hill Road	**Paved**	**24**	2000 (2009)	35
Governor Peck Road	**Paved**		2500	35
Hillview Road	**Gravel**	**22**	No data	35
Hinesburg Road (E/W Portion)	**Paved**	**22-24**	1850 (2021)	45
Hinesburg Road (N/S Portion)	**Paved**	**22-24**	1500 (2021)	45
Huntington Road (E/W Portion)	**Paved**	**24-26**	3400 (2020)	30
Huntington Road (N/S Portion)	**Paved**	**24-26**	2100 (2021)	35
Jericho Road	**Paved**		3000	25/35/45
Kenyon Road	**Gravel**	**22-24**	No data	35
River Road / Vermont 117	**Paved**		3626	40/50
Route 2 / Main St	**Paved**		4100 East, 8300 West (2020)	30 / 40 / 50
Snipe Ireland Road	**Gravel**		No Data	25
Southview Road			No data	25
Stage Road	**Gravel**			35
Valley View Road			No data	35
Wes White Hill	**Paved / Gravel**	**24**	No data	35
Williams Hill	**Gravel**	**20-22**	No data	35





Roadway Patterns

Traffic Counts

Average Annualized Daily Traffic (AADT) is a metric that helps planners and transportation engineers understand the amount of vehicular traffic that typically flows through any stretch of roadway.

This data applied to Richmond (without considering the interstate) shows highest traffic volumes along Route 2 and through the village center.

The higher the traffic volumes and the higher speeds, the greater need for improved bicycle and pedestrian infrastructure to improve safety and expand transportation options. This points towards the value of projects in the village center and along major collectors with higher traffic counts.

Surface Type

For better and for worse, Vermont is known for its gravel road network. Richmond has a complete network of paved roads, linked by numerous gravel connectors. Key routes, such as Cochran Road, Route 2, Huntington and Hinesburg roads are paved, with unpaved links of Kenyon, Hillview, and Dugway between them.

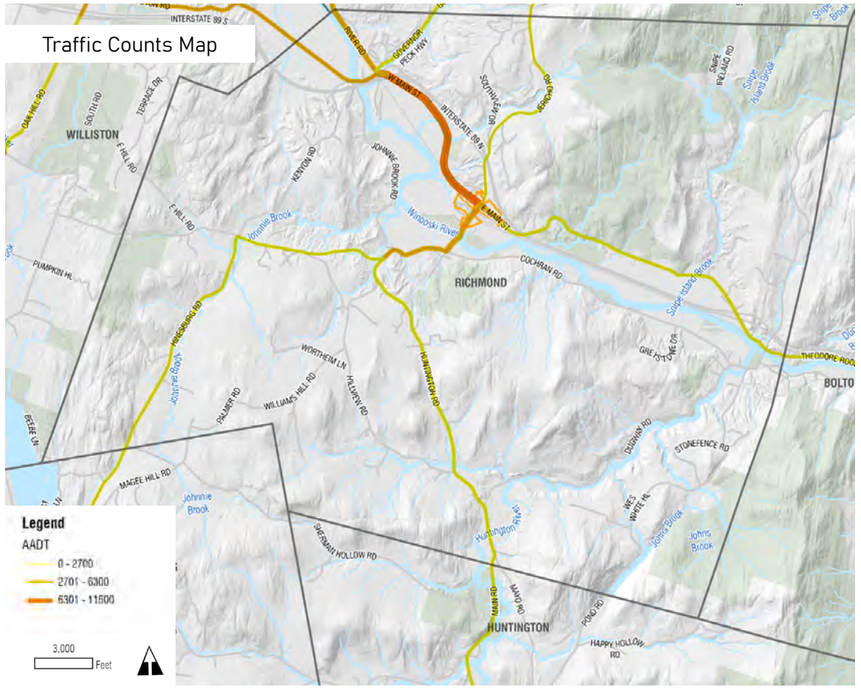
Roadway surface types play a direct role in selecting the types of active transportation treatments, as bike lanes are only applicable on paved roadways, and sidewalks and multi use paths must be set farther back from gravel roadway edges due to drainage concerns.

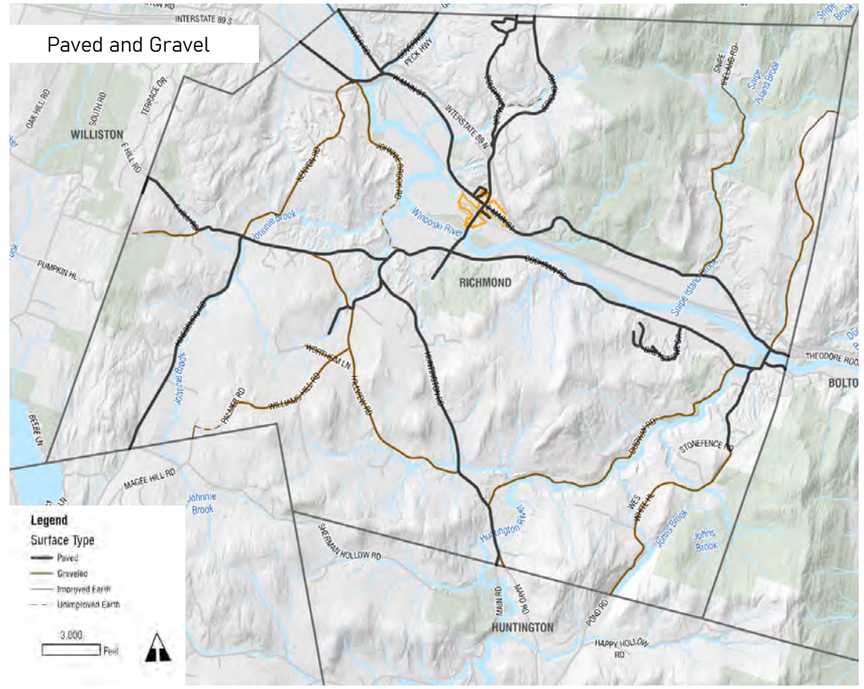
Crash Patterns

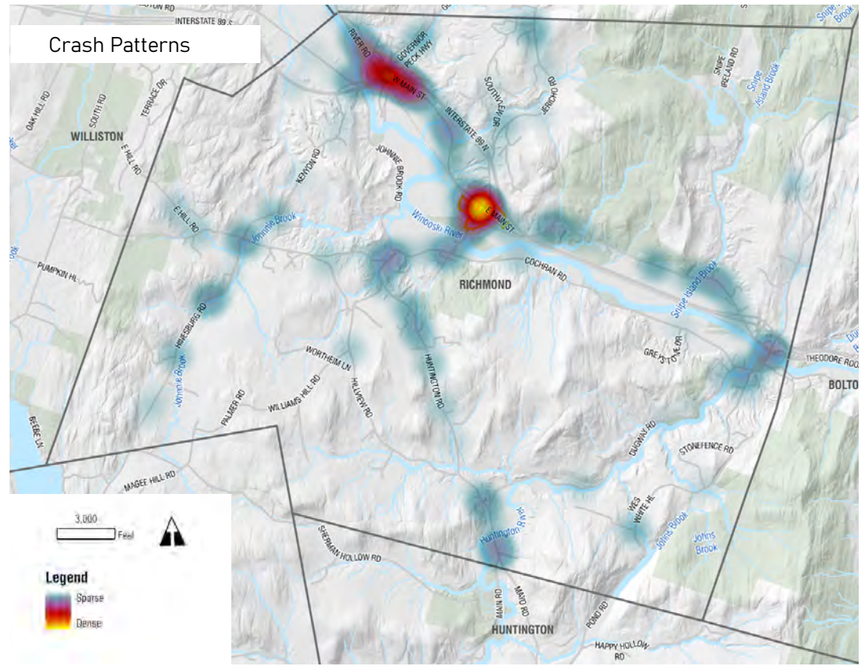
The heat map at right illustrates historic crash patterns throughout Richmond's road network. When reviewing this data, it is important to remember that it is presented in aggregate, rather than any percentage of total traffic.

Higher volumes of traffic (AADT) on any roadway segment will naturally lead to higher rates of crashes. In comparing AADT patterns to crash patterns in Richmond, key clusters stand out, such as the I-89/Route 2 intersection, Route 2/ Cochran Road, and Hinesburg/East Hill Road intersections, as well as Fays Corner intersection between Kenyon, Hinesburg, and East Hill Road.

Data on this page are sourced from the Town of Richmond, the Vermont Center for Geographic Information (VCGI), and VTrans.







Functional Classification
The functional classification system is a national standard for categorizing roads based on a ratio of the mobility that a road provides for vehicles and the level of access a road provides to the surrounding land.

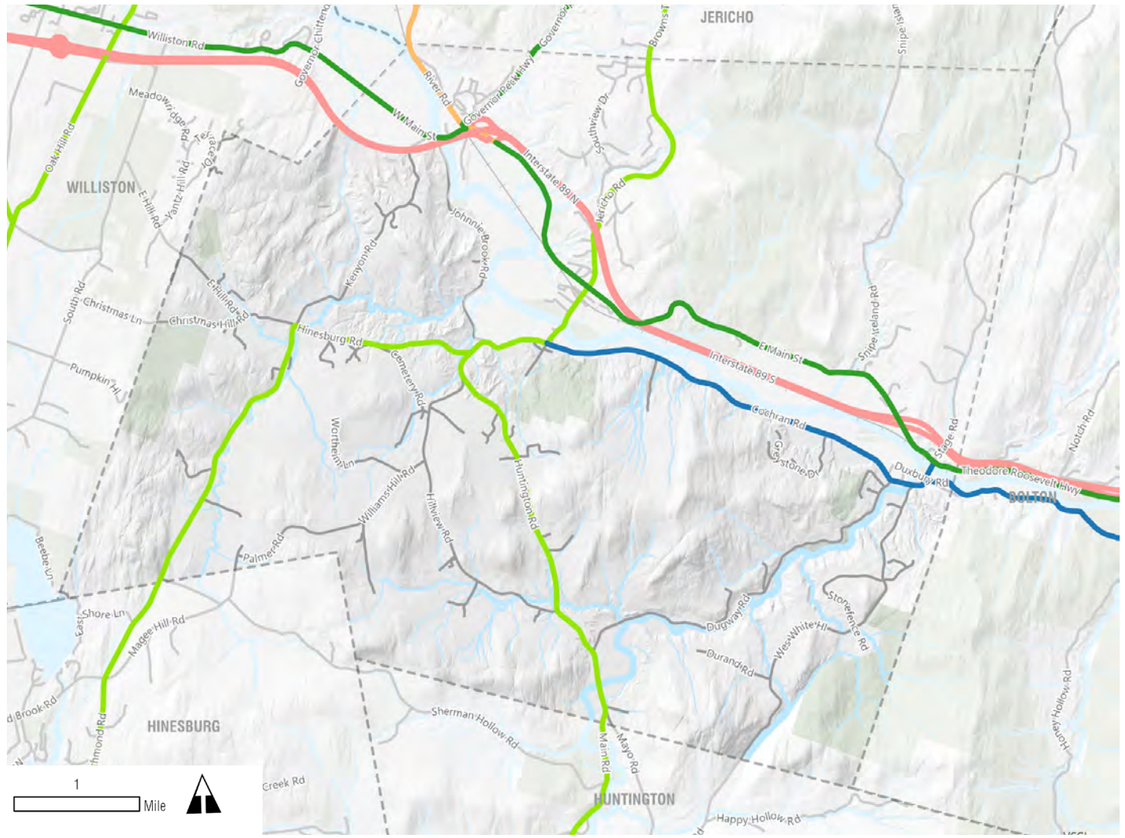
The Vermont State Design Standards (1997) provide design guidelines for roads based on their functional classification. In the Phase 2 project area, Bridge Street, Huntington Road and Hinesburg Road are classified as major collectors, Cochran Road is a minor collector, and the remaining streets do not have a functional classification designated by VTrans, and are assumed to be local roads.

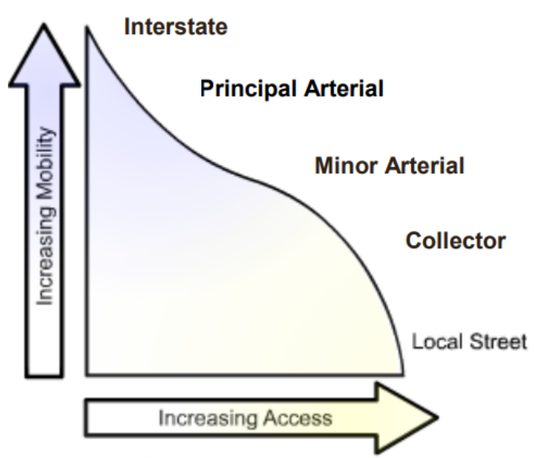
The minimum lane and shoulder widths for two lane rural collectors from the Vermont State Design Standards are shown in the table below. The minimums for local roads are the same as shown in the table below, except for roads with and average daily traffic (AADT) of less than 100 vehicles per day.

It should be noted that as they currently exist, some of the roads in Richmond do not adhere to the Vermont State Design Standards, which may themselves be somewhat outdated due to their automotive-centric nature, and more recent research and guidance for on-road bicycle facilities. For example, the minimum shoulder widths specified for rural roads do not meet the minimum dimensions for bike lanes.

Projected Design Traffic Volume	AADT 0-400	AADT 400-1500	AADT 1500-2000	AADT Over 2000
Design Speed (mph)		Width of Lane/Shoulder (ft)		
25	9/2	9/2	10/3	11/3
30	9/2	9/2	10/3	11/3
35	9/2	9/2	10/3	11/3
40	9/2	9/2	10/3	11/3
45	9/2	9/2	10/3	11/3
50	9/2	10/2	10/3	11/3

Minimum Width of Lanes and Shoulders for Two Lane Rural Collectors from the Vermont State Design Standards





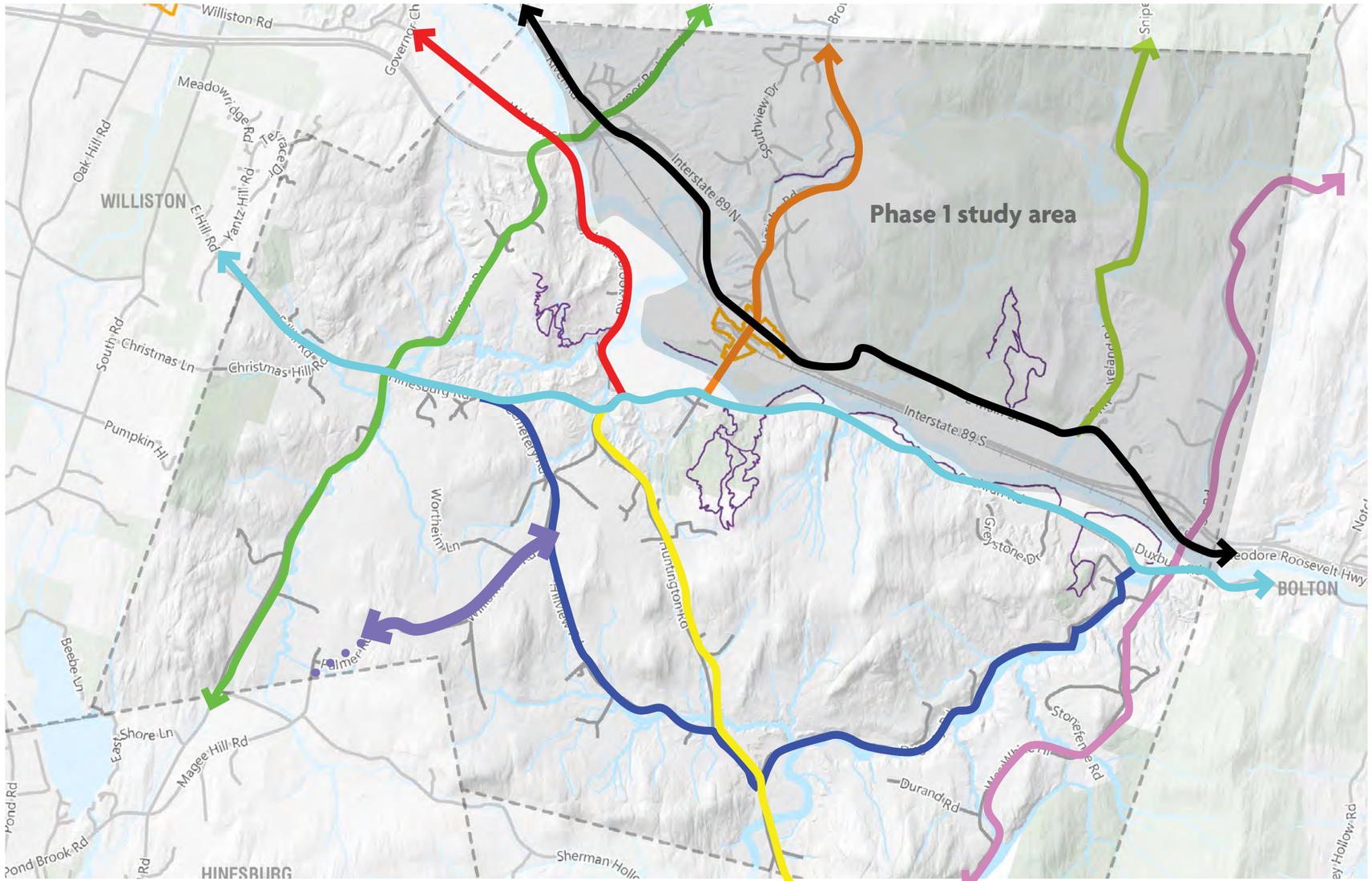
Functional Classification Concept: Mobility vs Access
(chart from the Virginia Department of Transportation)

Major Travel Corridors

There are a finite number of roads in Richmond. Fewer still when you remove dead end or cul-de-sac roadways. The remaining roads are the most crucial from a transportation planning standpoint, as these through corridors act as connectors between origins and destinations within and beyond the Town.

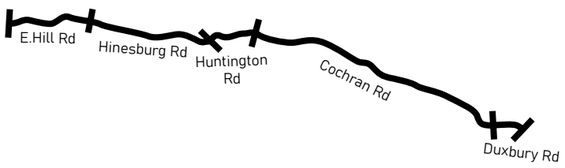
This diagram at right takes cues from a subway map and overlays bold colors on the major corridors through Richmond. The study area is made up of a road network that forms 10 unique corridors through Richmond south of the Winooski River.

The remainder of this chapter takes a look at each of these unique corridors within the Phase 2 study area and assesses opportunities and constraints along each as they relate to creation of an improved walking and bicycling network.



- West Main St / Johnnie Brook Rd
- Kenyon Rd / Hinesburg Rd
- Bridge St
- E. Hill / Hinesburg / Cochran Rds
- Cemetery / Hillview / Dugway Rds
- Huntington Rd
- Williams Hill Rd
- Wes White Hill
- Snipe Ireland Rd

Cochran Rd / E. Hill Rd Corridor



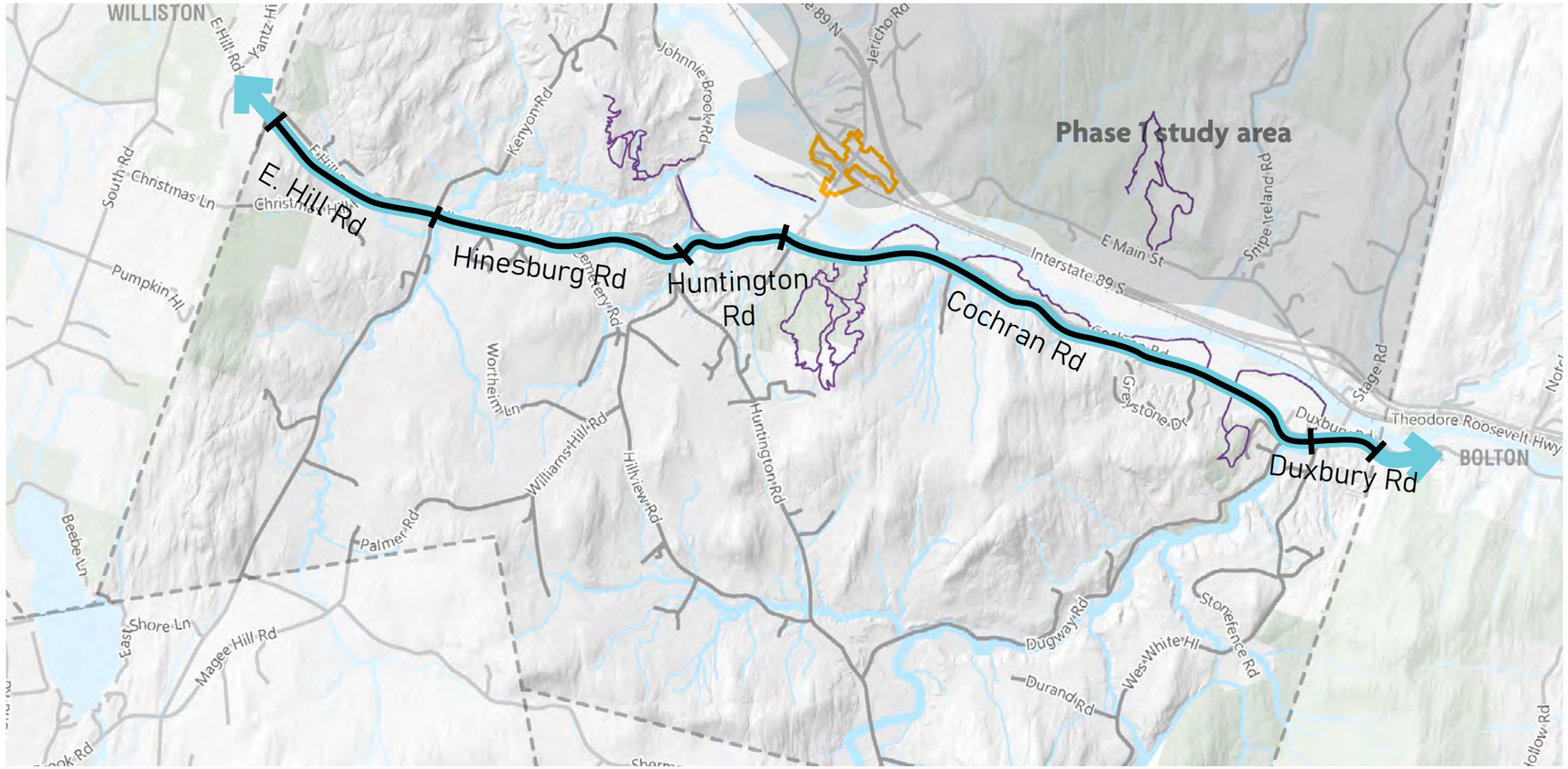
This a major east-west corridor in the Phase 2 study area, and the one with the least elevation gain/loss. In public meetings, Cochran Road was referred to as “Richmond’s unofficial recreation path” and is used frequently by people walking and bicycling. There are several off-road trails that can be accessed from Cochran Road.

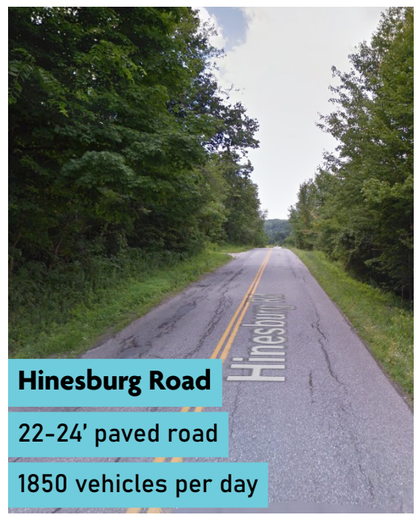
The Cross Vermont Trail comes into Richmond from the east along Duxbury Road, then follows Cochran Road and Huntington Road, before connecting with the Johnnie Brook Trail and heading north.

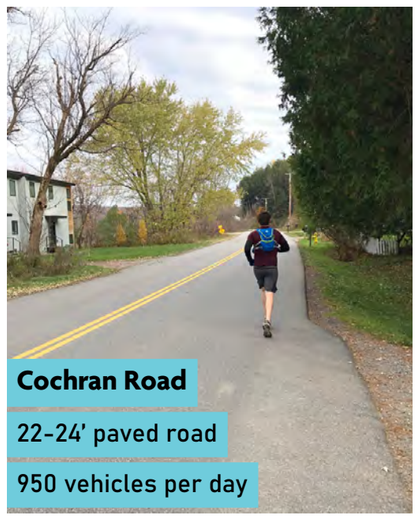
ROW
Based on GIS parcel data, this corridor has 49.5 foot (3 rod) right-of-way (ROW) throughout.

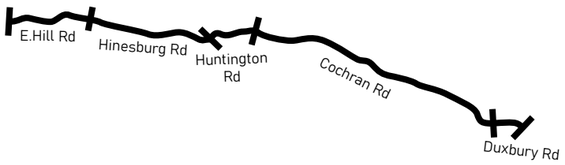
Elevation
The elevation change from east to west is 862+/- over 7.5 miles, making it an accessible walking or biking route. Along with Route 2, this corridor forms one of the easiest roadway to power through on foot or bicycle.

Surfacing
The whole of the corridor is paved surfaces, varying from 22 feet to 26 feet of pavement width. Its current pavement condition is quite good and smooth, with few potholes. This is notable in comparison with Route 2 on the far side of the Winooski river, which has not received as recent a repaving treatment.



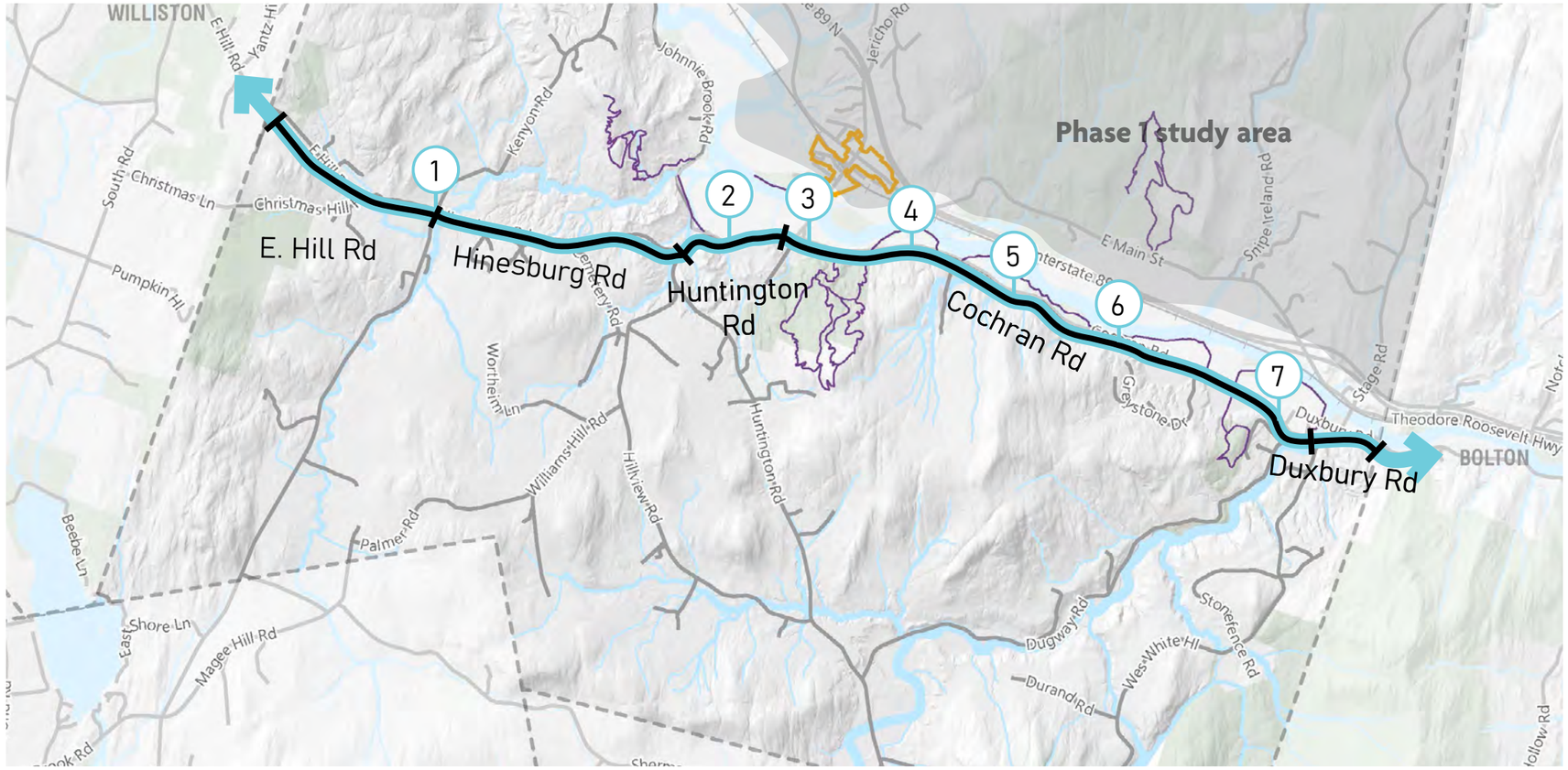




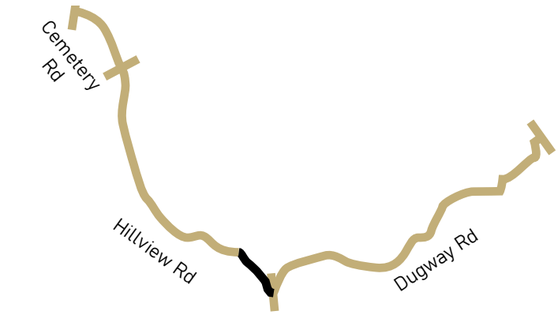


Cochran Road Places & Trail Connections
This corridor connects key commercial and recreational destinations with the Richmond Village Center. Listed here are just a few of the destinations which bring people walking, biking, and driving along this corridor.

1. Fays Corner
2. Johnnie Brook Trail
3. Huntington, Cochran, Thompson, Bridge St Intersection; Farr Complex
4. Preston Forest Legacy & River Trail Access; Trail Crossing
5. Cochran's Ski Area & Trails
6. Overocker & Beeken Rivershore Parking
7. Bombardier Meadow; Trail Crossing



Dugway - Hillview Corridor



This hilly corridor accesses popular swimming holes along the Huntington River off of Dugway Road, all the way up to Huntington Gorge. On a sunny summer day, there will be cars parked where they can legally fit along Dugway Road to access the many swimming holes. Multiple road widening efforts have attempted to provide some parking areas along this corridor to accommodate recreational access.

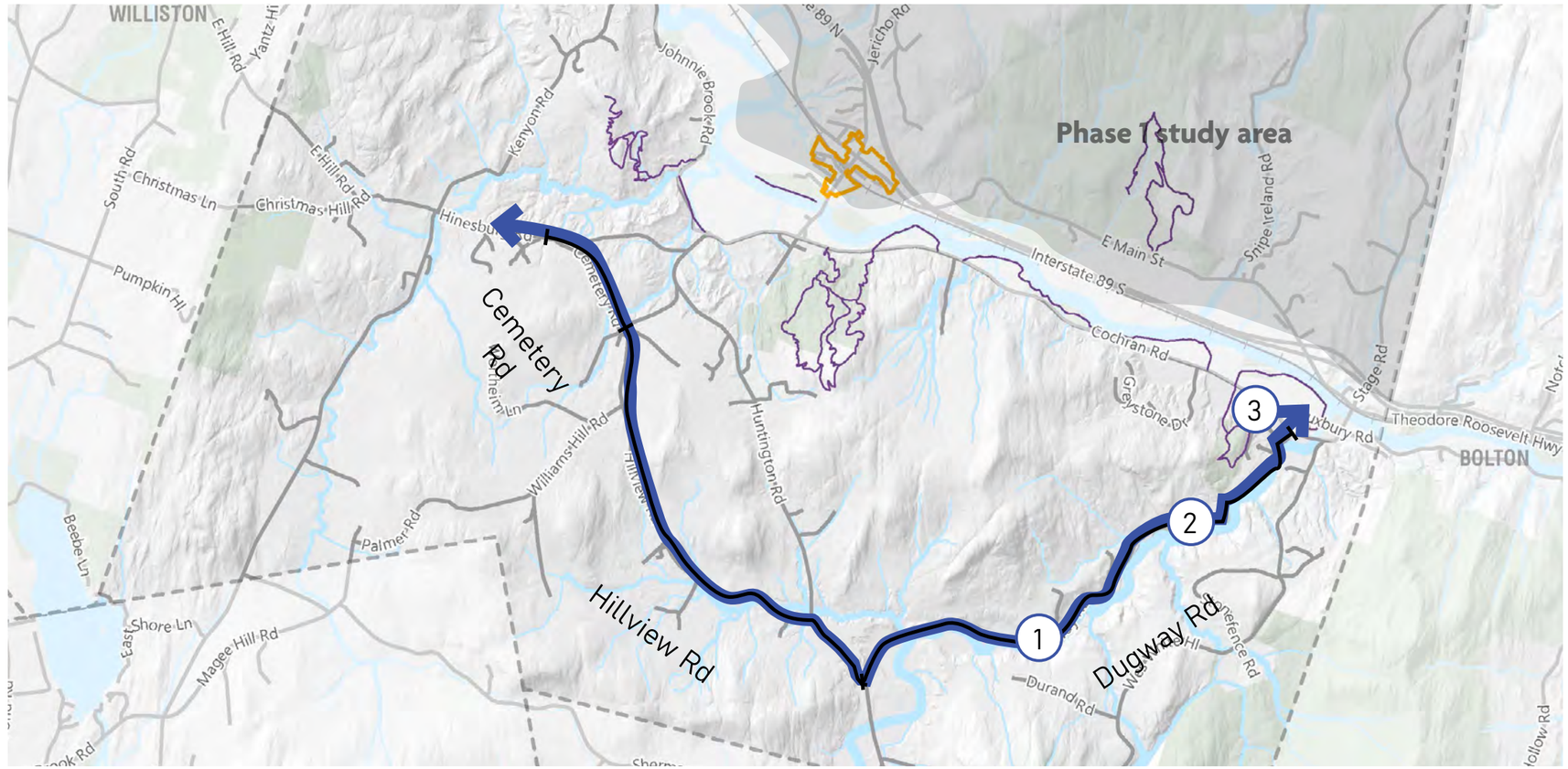
ROW
Based on GIS parcel data, this corridor has 49.5 foot (3 rod) right-of-way throughout.

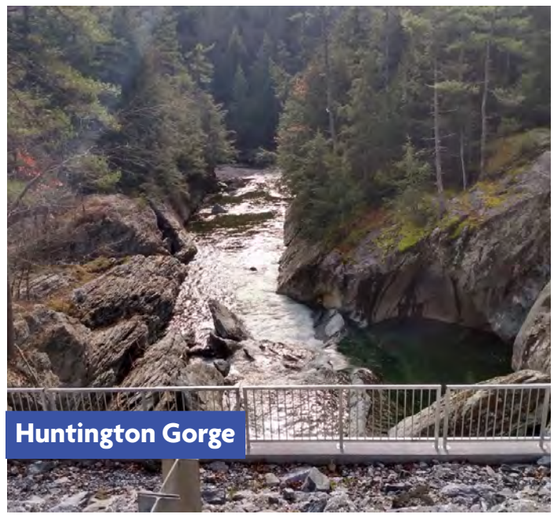
Elevation and Slopes
There are significant roadside slopes along the entirety of Dugway Road and much of Hillview Road as well. This roadway's elevation change is +/- 1117' over 7.5 miles, with Hillview being a higher average grade than Dugway Road.

Surfacing
Beyond a short stretch of this corridor where Huntington Road serves as a connector between Dugway and Hillview roads, the entire corridor is a 22 foot wide gravel road.

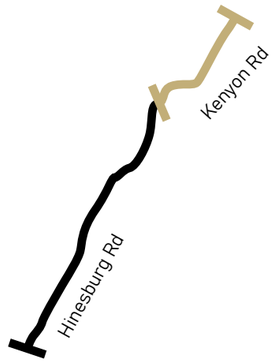
Key Places & Trail Connections

1. Huntington Gorge
2. Triple Buckets Swimming Hole
3. Bombardier Meadow





Hinesburg - Kenyon Corridor



This corridor connects Route 2 to Hinesburg and some areas boast iconic views of Vermont's Green Mountains. This roadway is one of four segments in town with a 45 mile per hour speed limit. These high speed limits point to a potential conflict between people walking and bicycling and those driving motor vehicles. In addition, the 45 mph speed limit appears high when other roadways in Town have higher AADT than Hinesburg's 1500 but lower speed limits, such as Huntington (30 mph @ 3400 AADT).

This corridor's junction at East Hill and Hinesburg Road is known as Fays Corner and is a particularly challenging intersection due to offset legs, broad turning radii, and adjacent school bus stops and recreational water access.

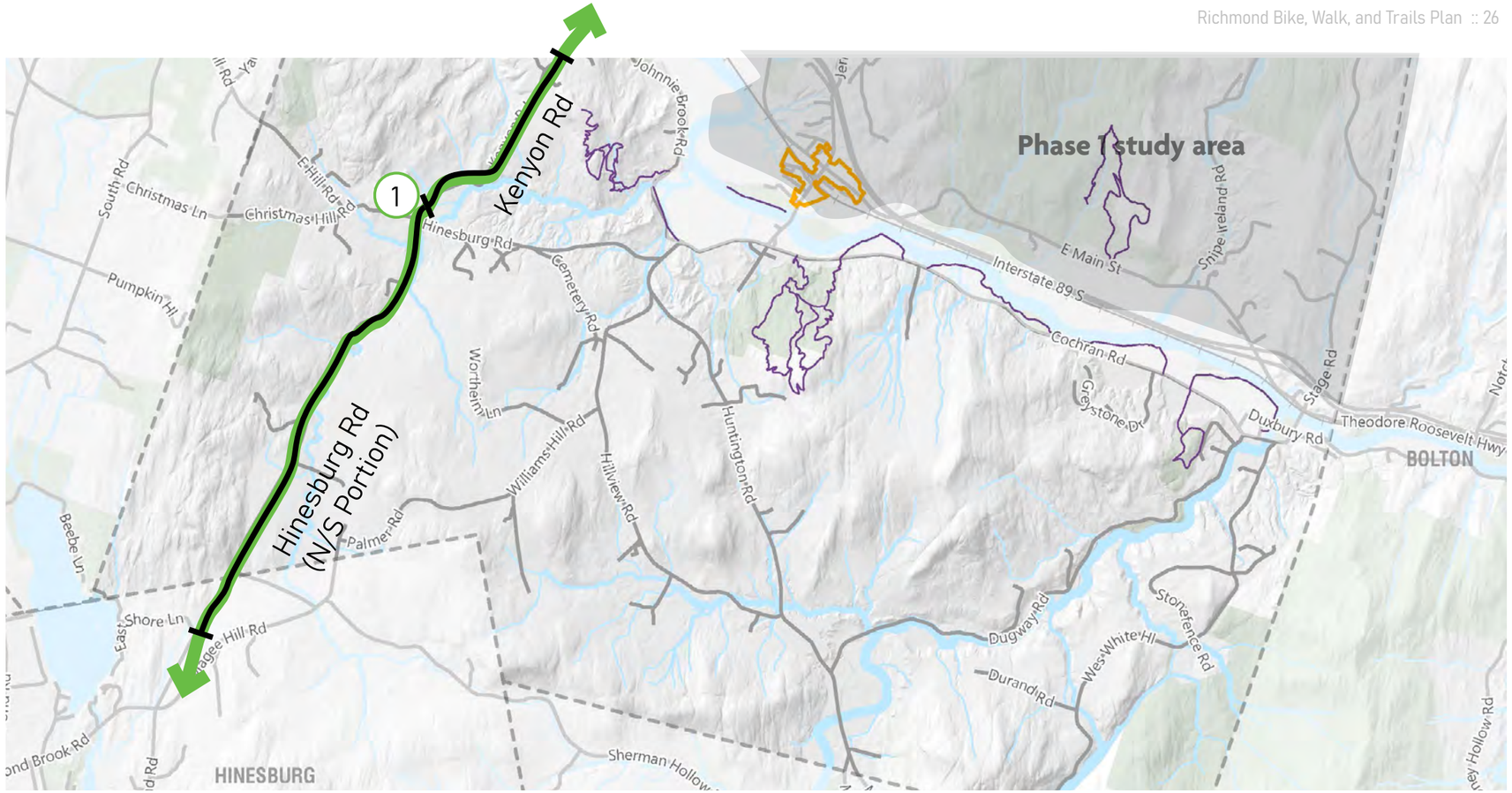
ROW
Based on GIS parcel data, this corridor has 49.5 foot (3 rod) right-of-way throughout.

Elevation
Elevation change is +/- 689' over 4.2 miles.

Surfacing
Kenyon Rd is a 22-24 foot wide gravel road, and Hinesburg Rd is a 22-24 foot wide paved road that sees a much higher daily traffic load.

Key Places and Trail Connections

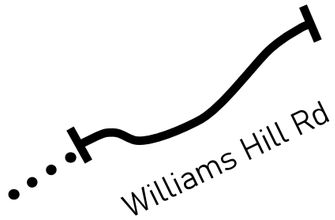
1 Fays Corner



Hinesburg Road (N/S Portion)
22-24' paved road
1500 vehicles per day

Kenyon Road
22-24' gravel road

Williams Hill Corridor



This corridor was only a true through road in distant memory. Considered a 'Class IV' roadway, the northern segment of Williams Hill Road has long served as a dead end roadway accessing agricultural and residential properties. However, in 2022 the Town Selectboard voted to preserve public access through an approximate 1200 foot corridor connecting Williams Hill Road to Palmer Road in Hinesburg as a Class IV road.

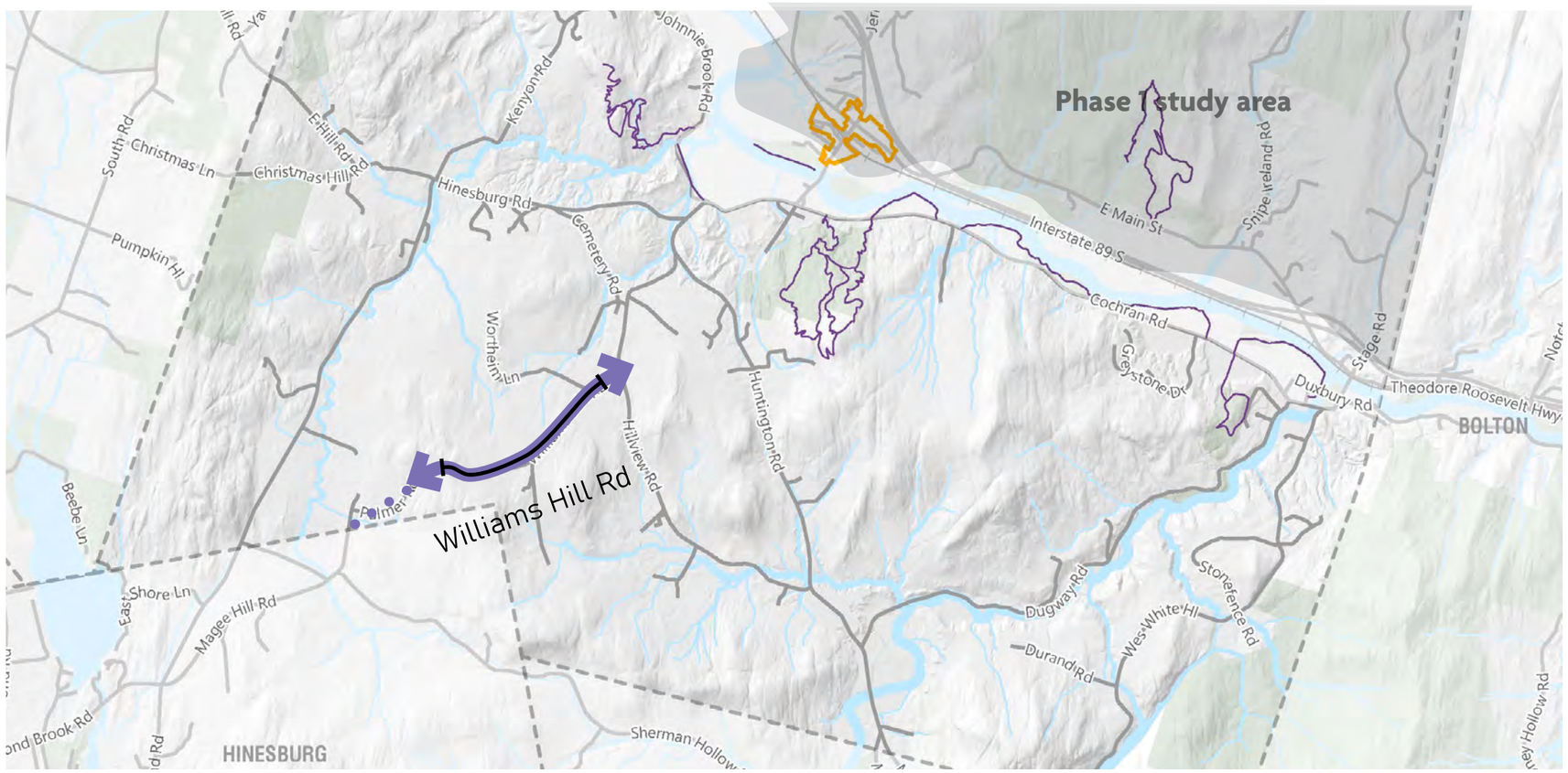
At the time this plan was being developed (2022), the future of this road is under litigation, and the outcome may be a public corridor, or closed to public access. This plan will assume that the corridor is preserved for public access, but notes that projects there can not proceed until litigation has been resolved in favor of such access.

ROW
Based on GIS parcel data, this corridor has 49.5 foot (3 rod) right-of-way throughout.

Elevation
Elevation change is +/- 575 feet over 1.7 miles.

Surfacing
The whole of this roadway is unpaved gravel surfacing.

Key Places & Trail Connections
This road right-of-way, despite its hilly and rugged nature, has potential for a connection to Sleepy Hollow Ski and Bike Center in Huntington and beyond.



Huntington Road Corridor

As its name suggests, Huntington Road connects Richmond to Huntington. This hilly and paved roadway is one of the busiest outside of the Village Center and VTrans roadways, with 3400 AADT recorded in 2020, which is likely an undercount given the impact of COVID 19 on travel patterns.

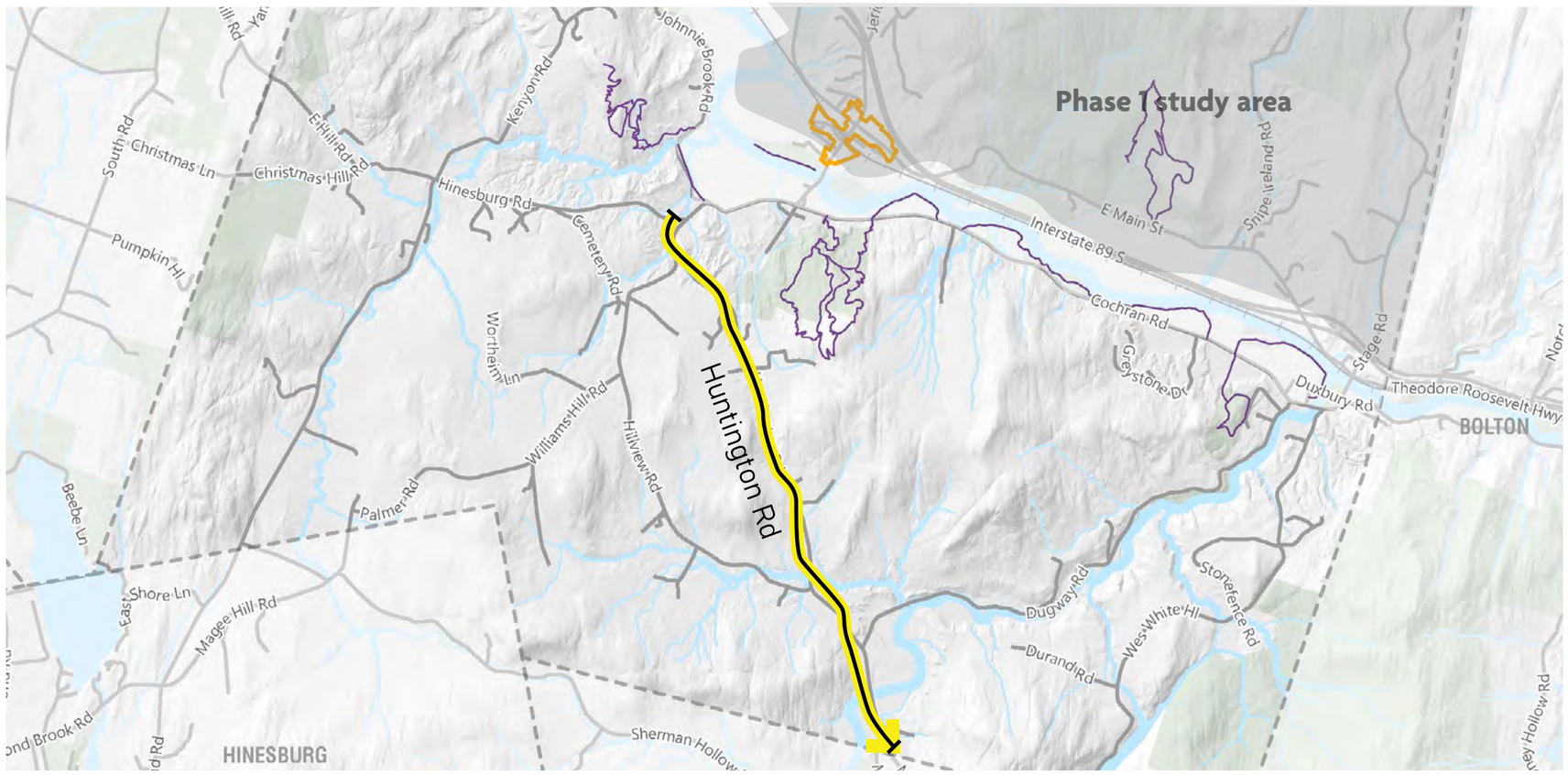
The higher traffic loads on this road point to need for safe accommodations for all modes of travel along this central corridor.

ROW
Based on GIS parcel data, this corridor has 49.5 foot (3 rod) right-of-way throughout.

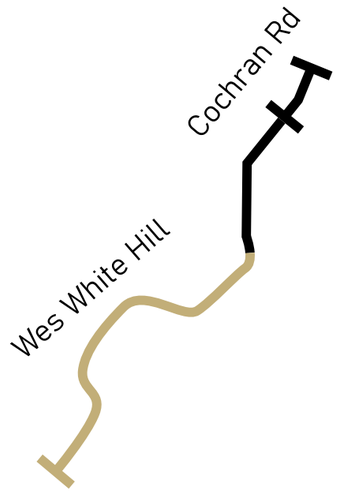
Elevation and Slopes
Steep hillside slopes and roadside drainages abut most portions of this corridor, with exceptions at spot locations and the intersection with Dugway Road. Elevation change is +/- 673 feet over 3.3 miles.

Surfacing
This roadway is a fully paved 22-26 foot wide roadway.

Key Places & Trail Connections
Though no formal trails currently exist, there is potential to connect into the Preston Forest Legacy Trails. The Forest's parcel touches Huntington Road across the street from Lawrence Road.



Wes White - Cochran Corridor

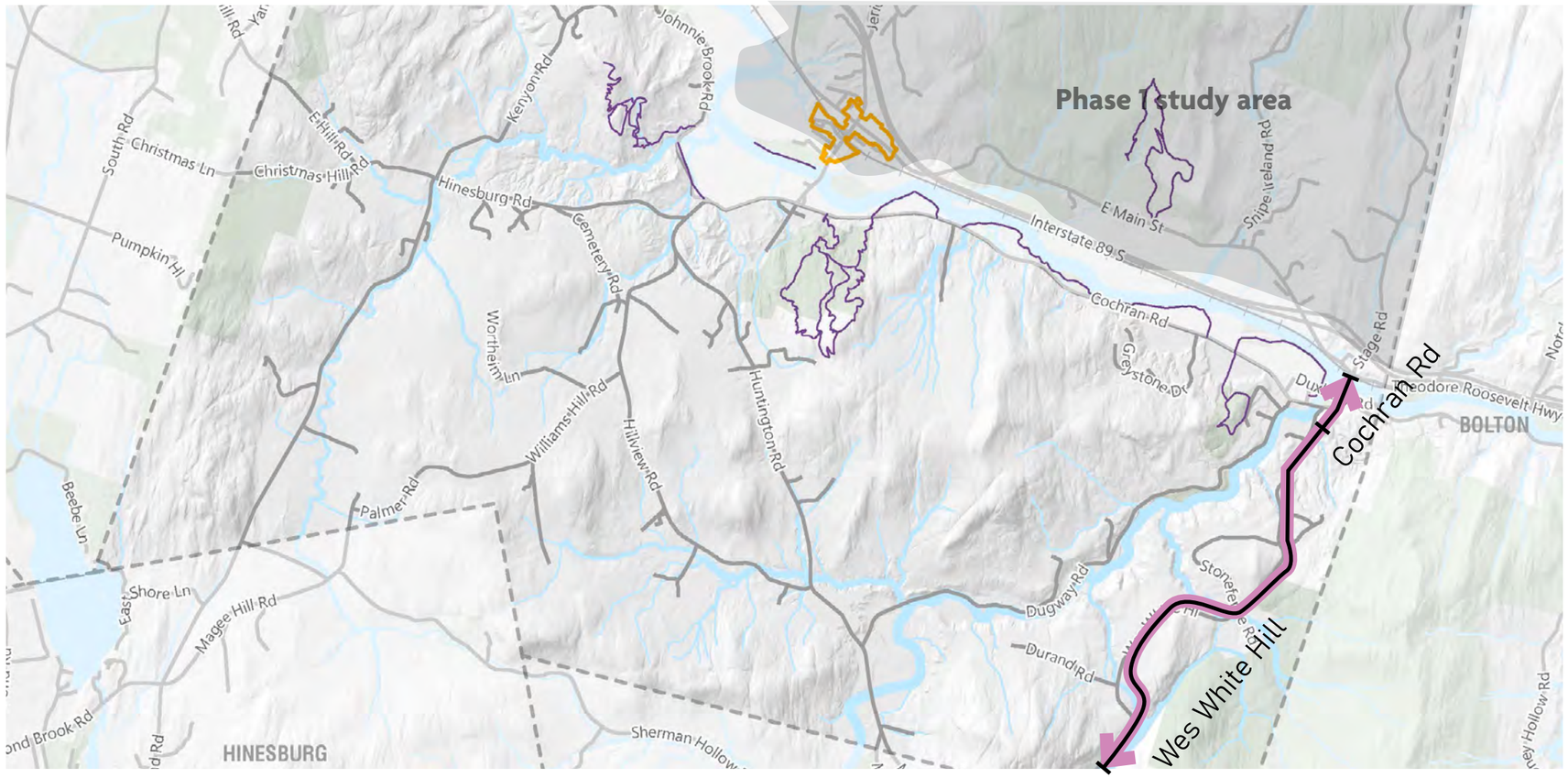


This corridor connects Route 2 in Jonesville to Huntington, passing by recreation amenities like the Chittenden County Fish & Game Club, Gillett Pond, and the Robbins Mountain Wildlife Management Area.

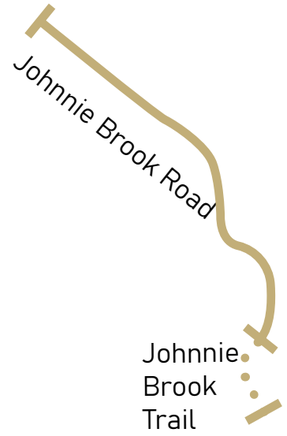
ROW
Based on GIS parcel data, this corridor has 49.5 foot (3 rod) right-of-way throughout.

Elevation and Slopes
Elevation change is +/- 703 feet over 3.3 miles

Surfacing
The lower segments of this roadway are paved, with a switch to gravel road surface at the top of the hill near the Stonefence Road intersection.



Johnnie Brook Corridor



This corridor links the southern edge of Kenyon Road to Huntington Road just west of Richmond Village Center. This corridor serves a unique purpose in that through travel is only possible by foot or bike as the southernmost segment of this corridor is the Johnnie Brook Trail - a natural surface trail for hiking and biking access only.

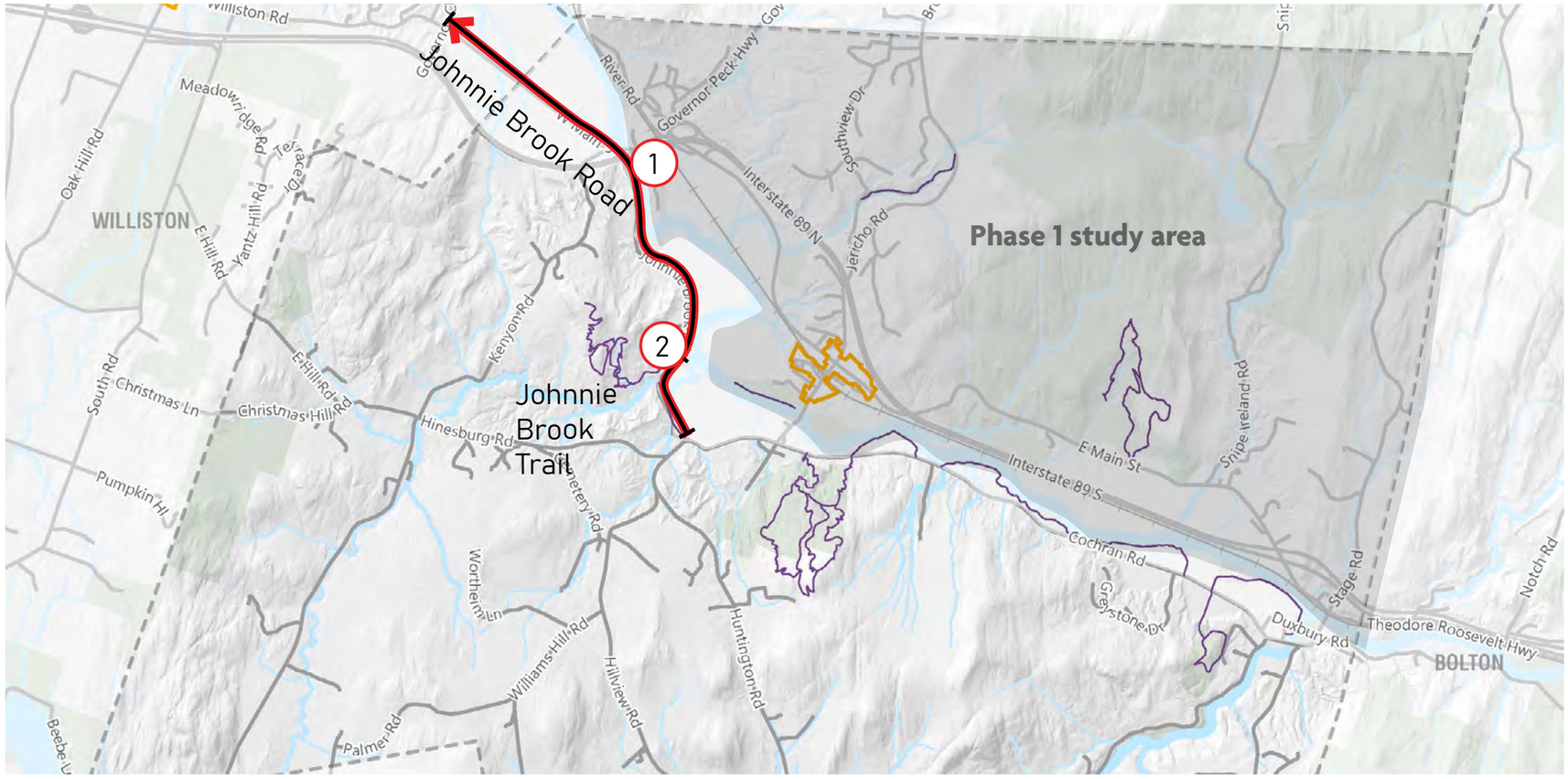
ROW
Based on GIS parcel data, this corridor has 49.5 foot (3 rod) right-of-way throughout.

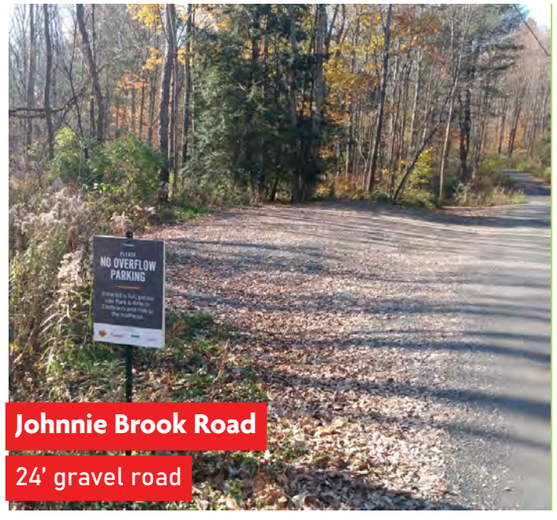
Elevation and Slopes
Elevation change is +/- 243 feet over 2.1 miles

Surfacing
The whole of the roadway is a 22 foot wide unpaved gravel roadway, which reduces to a 4-8 foot wide natural surface pathway.

Key Places & Trail Connections

1. Temporary Recreation Parking Access
2. Chamberlain Trailhead





Johnnie Brook Road
24' gravel road

Johnnie Brook Trail
4-8' dirt path

Recommendations

Disclaimer

The Richmond Walk, Bike, and Trails Plan is a long-term vision for how the town envisions its interconnected bicycle and pedestrian network in the future.

The maps in the Richmond Walk, Bike, and Trails Plan are conceptual and for planning purposes only. Unless explicitly stated, the lines in the maps in the plan are recommendations for future projects, not actual designs or locations of paths or trails. Do not use the maps in the plan as a paths or trails map.

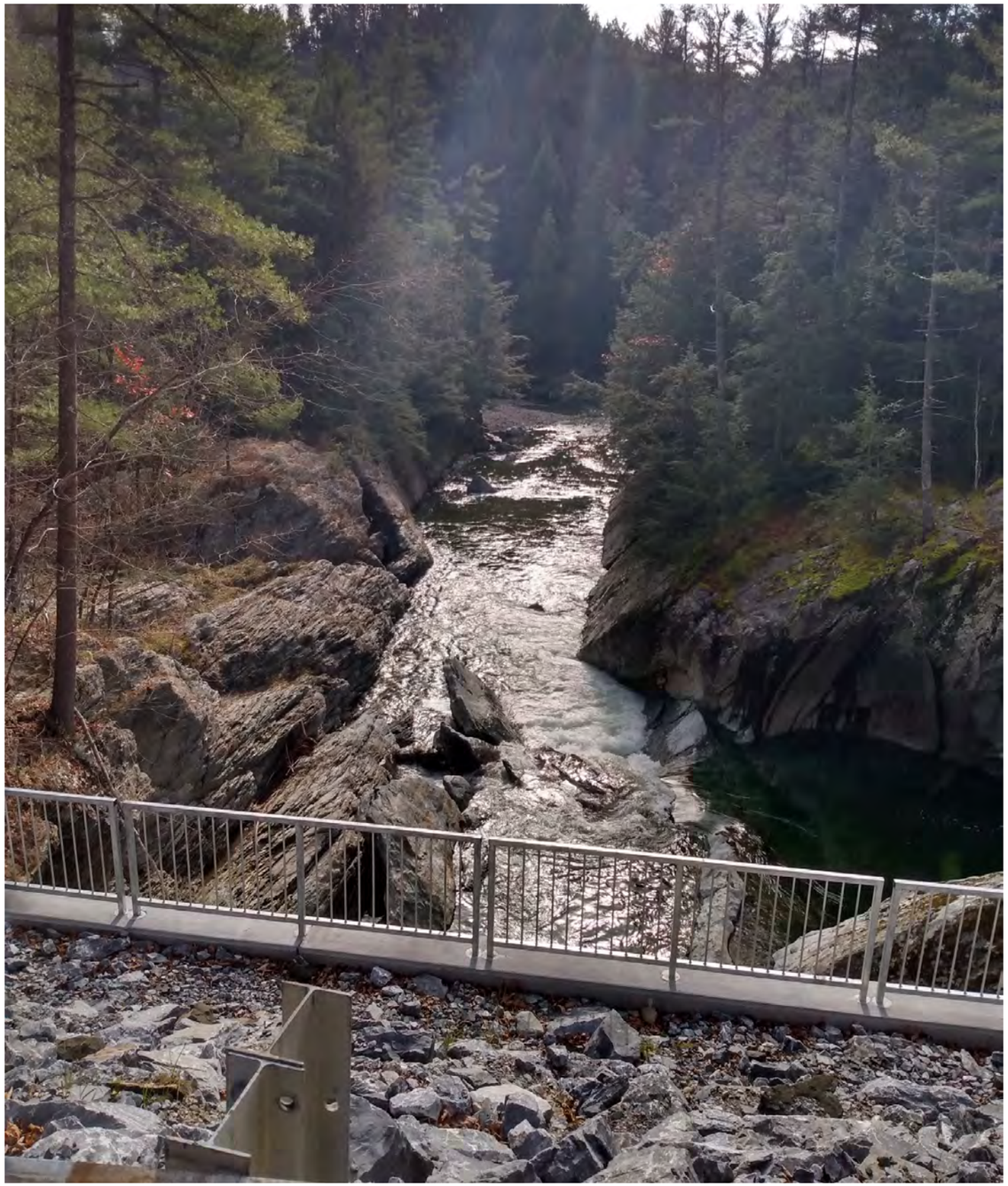
The Town of Richmond is committed to collaborative relationships with landowners and will not proceed with any conceptual trail projects without express support and permission from private property owners.

This plan is a precursor to any discussions about whether the Town is interested in investigating into building new sidewalks or paths. Typically, in order for the Town to build a new section of a sidewalk or a path, the following process is required:

- (1) public meetings to decide on whether to look into building out a path or trail,
- (2) a yearlong feasibility analysis and design process that includes conversations with property owners and the community at-large,
- (3) additional discussions with the community on whether to build out a path or trail based on the need, cost, and other factors, and
- (4) an engineering process that will also include conversations with the community at-large to make sure the path or sidewalk meets their needs. All in all, building a new sidewalk or path takes years.

-As of this writing, other than the new sidewalks along Bridge Street, East Main Street, and Jericho Road, the Town has not had discussions about building any new trails, paths or sidewalks as depicted on these maps in the draft plan.

This plan is the result of multiple public review cycles in order to ensure that recommendations are representative of the Town's vision to improve bicycle and pedestrian connections throughout town, and to ensure these connections are safe and accessible for all.



Vision & Plan Recommendations

In the future, a network of trails and shared use paths connects people walking and biking through and across the Winooski Valley. Bridges and mountain roads have been redesigned to provide safe space for people to travel to work in the village, to reach shops and businesses, and just to get out and ride, hike or ski with friends. The rich network of public lands is more accessible than ever before, bringing every home in Richmond closer to safe and comfortable walking and bicycling facilities. No longer just the realm of athletes, walking and bicycling from home to the Village center is a way of life for many who are fortunate enough to call Richmond home.

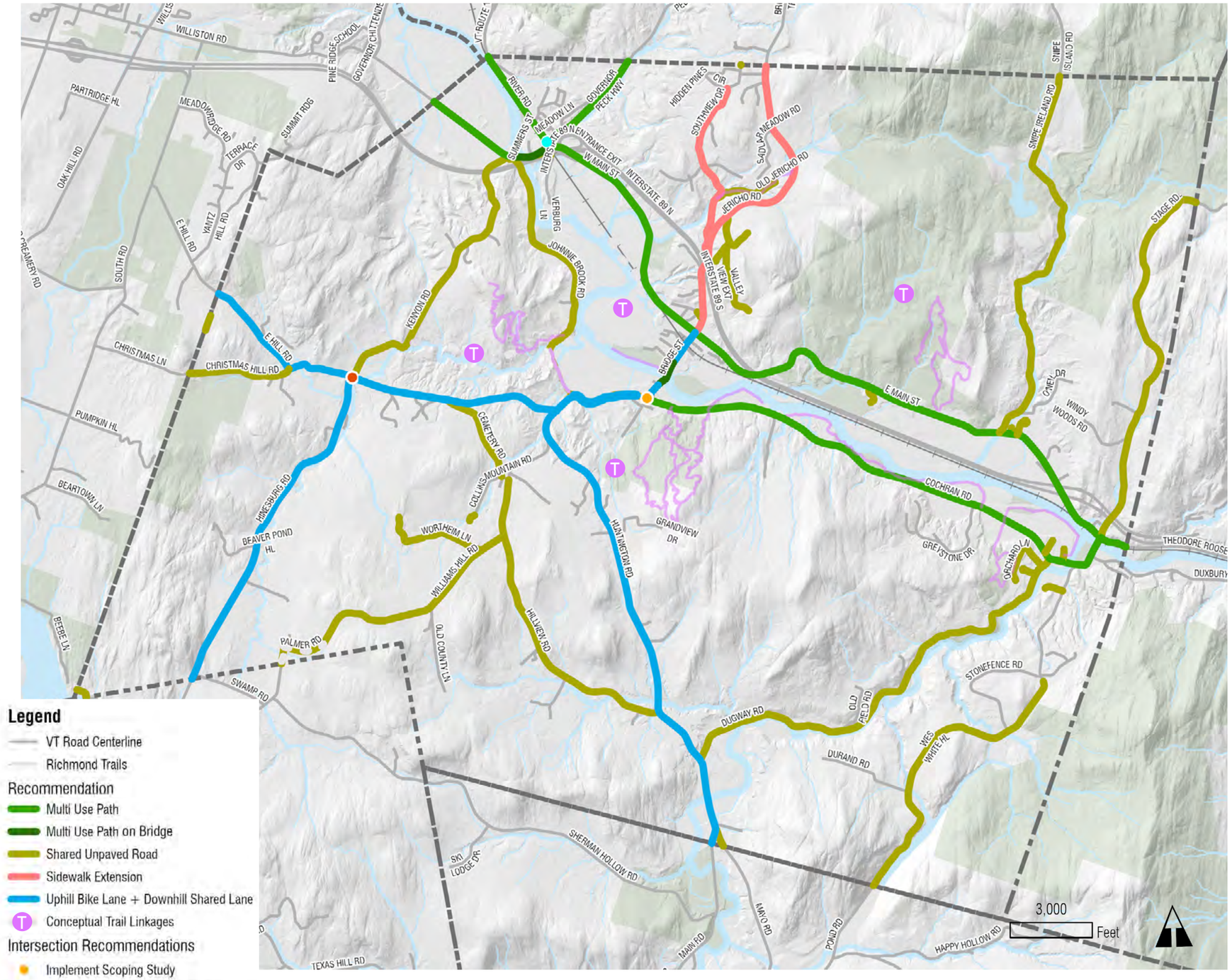
This vision could be accomplished through development of a complete walking and biking network throughout the Town. The map at right illustrates this proposed network as a whole.

Recommendation Categories

This plan's infrastructure recommendations are divided into four major categories:

[Roadway Recommendations]
[Trail Recommendations]
[Intersection Projects]
[Community Actions]

Throughout this chapter, blue highlighted recommendations are hyperlinked. If viewed as a digital PDF document, these links can be clicked upon to navigate directly to specific recommendations



Plan Recommendation Types

Throughout this plan, specific terms are used to describe recommendations for improvement to roads and trail corridors throughout the Town of Richmond. This page illustrates the most common recommendation types, and a color code that matches overall map and callout recommendations throughout this document.

Multi Use Path

These dedicated pathways create walking and bicycling corridors completely separated from roadway traffic.

Multi Use Path - Bridge

Shared use paths should extend along either side of a bridge to allow for safe passage of all travelers.

Shared Roadway

Many roadways are recommended for minimal structural change, but added signage and lowered speeds can improve road user's safely.

Traffic Calming

These improvements can be temporary or permanent in nature, and are designed to create a slower, safer street where they are applied.

Sidewalk Extension

Expansions to Richmond's sidewalk network can allow more people to safely walk to destinations in the Town center.

Bike Lane

Paved roadways can benefit from the establishment of 5' or greater paved shoulders dedicated to active transportation use.

Trail Linkages

These natural surface or graveled paths offer off-roadway opportunities for safe non-motorized travel.

Roadway Recommendations

If you are viewing this document as a digital PDF, click on the project name to be directed to the relevant page in this document, or click on hyperlinks for additional information online.

Project Name	Short Term Recommendations	Long Term Recommendations
Bridge Street Improvements*	Implement Recommendations from Bridge Street Scoping Study This road is the subject of a 2022 scoping study. which recommends a 5' sidewalk and grass strip on the eastern side of Bridge Street from Jolina Court to Esplanade Street	Pursue intersection improvements at Main & Bridge Street Add curb extensions with truck aprons to tighten corner radii, create more landing area, and reduce crossing exposure at SE, NE, and NW Shorten curb cuts at gas station on the corner
Bridge Street Bridge Improvements*	Explore feasibility of widening to accommodate biking and walking Increase visibility of shared roadway signage Install advisory bike lanes as feasible	Develop bridge upgrades or replacements that provide space for all road users 10' multi-use pathways are envisioned for both sides of a future bridge
Cochran Road (V1, V2, V3)	Study feasibility of long term recommendations for road corridor Install traffic calming and pedestrian crossing elements such as speed tables and raised crosswalks to reduce driver speed along corridor and improve comfort for vulnerable road users. Many components could be tested as seasonal quick builds prior to investing in permanent infrastructure	Develop a safe and contiguous corridor that prioritizes active transportation on or by this roadway. V1 - Sidewalk at western end, link to improved and widened natural surface trails throughout corridor V2 - Develop a continuous sidepath from Bridge Street to Route 2
East Hill Road	Narrow travel lanes to establish climbing bike lane and descending shared road markings	Widen road to include 5 foot bike lanes
Gravel Roads*	Install signage to draw attention to presence of pedestrians and bicyclists in roadway Install wayfinding signage directing to adjacent recreational trail opportunities Reduce speed limits	Same as Short Term
Governor Peck Road*	Install marked crosswalks, pedestrian crossing signs, and bicycle conflict markings at all crossings (River Road, Lower Cir, Summer St) to draw attention to pedestrians and bicyclists. Reduce speed limit to 30mph Install advisory bike lanes as feasible	Install sidepath on north side of roadway.
Hidden Pines Circle*	Install traffic calming measures as needed	Same as short term

Project Name	Short Term Recommendations	Long Term Recommendations
Hinesburg Road (E/W Corridor)	Narrow travel lanes to establish climbing bike lane and descending shared road markings	Widen the road to include 5 foot bike lanes on both sides of the roadway, and two 10.5-11 foot travel lanes, where possible.
Hinesburg Road (N/S Corridor)	Narrow travel lanes to establish climbing bike lane and descending shared road markings	Widen the road to include 5 foot bike lanes on both sides of the roadway, and two 10.5-11 foot travel lanes.
Huntington Road	Narrow travel lanes to establish climbing bike lane and descending shared road markings This road is subject of a 2022 scoping study. which recommends no build and future study of road and building relocation.	Additional study recommended to consider road and building relocation.
Jericho Road*	Install mirrors at blind turns, reduce 45mph and 35mph speed limits to 25mph, install advisory bike lanes where feasible This road is subject of a 2022 scoping study. which recommends a 5 foot wide sidewalk along this road.	Reduce travel lanes to 10 foot widths and extend planned sidewalk on west side
Route 2*	Roadway expansions should focus on establishing 5 foot minimum paved shoulders along all portions of Route 2 / Main Street to allow for the bare minimum of functional safe travel by bicyclists and pedestrians along this corridor. These improvements are anticipated by VTrans in 2023. Key gaps in the 5' shoulders due to physical constraints are being studied by the Town.	An 8-10' wide sidepath would provide safe multimodal travel along this corridor. Numerous physical constraints would need to be addressed, by alternating the pathway from northern to southern sides, converting the sidepath to widened shoulders, and narrowing vehicular travel lane widths where required.
Route 117*	Install "share the road" signs and bike/ped warning signs at key activity areas, such as crossings Reduce Speed Limit to 35mph Pursue scoping study to evaluate and prepare for long term recommendations in VTrans ROW	Build shared use path or sidepath along road corridor.
Southview Drive*	Install crosswalks at all intersections	Install a sidewalk on one side Tighten corner radii at all intersections with paint and posts Evaluate feasibility of roundabouts at key intersections
Western Winooski Bridge*	Explore feasibility of creating a shared space, such as advisory shoulders Coordinate with current bridge project	Widen or cantilever out to accommodate biking and walking

*Recommendations from phase 1 report

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Trail Recommendations

Project Name	Recommendations
Andrews Community Forest Trails*	Continue working with community members on the development of trails as allowed in the Town Forest Management Plan and Conservation Easement
Johnnie Brook Trail Extension	Develop a broad, graveled shared use path linking Johnnie Brook Trail with Fays Corner to provide an alternative route to Hinesburg Road Pursue open dialog with landowners regarding opportunity for Johnnie Brook Trail extension
Old Jericho Road Trail*	Add wayfinding signage
Palmer Road Class IV Road	Pending outcome of litigation, preserve corridor for rugged connectivity to Huntington/Hinesburg. Note that corridor, due to existing topography, does not merit significant improvements, and will be a steep, rocky and eroded class 4 roadway - for which Vermont is (in)famous. Recommendation is for wayfinding and maintenance only.
Preston Forest Western Access Trail	Develop access point from western edge of Preston Forest. This could be developed through a link to the public land at Huntington Road, or closing a short gap through private property to Grandview Dr.
Sip of Sunshine Trail *	Expand and connect to Andrews Community Forest
Volunteers Green Trail Extension *	Lengthen trail for a recreational loop, following Winooski River northwest to Park & Ride - 3 Alternatives Alternative 1a: Verburg Rd to W Main St > Park & Ride Alternative 1b: Verburg Rd > Park & Ride (following approximate path of I-89 offramp) Alternative 2: Follow river up to River View Cemetery > cross railroad to W Main St
West Village Connector Trail*	Obtain easements and formalize connections on western ends of Esplanade, Church St, Railroad St, and Borden St and mark public right-of-way for walking loops (connect the western end of Esplanade to W Main St)

Intersection Recommendations

Project Name	Short Term Recommendations	Long Term Recommendations
Bridge Street at Main/Route 2*	Implement Recommendations from Bridge Street Scoping Study	Pursue additional intersection improvements at Main & Bridge Street Add curb extensions with truck aprons to tighten corner radii, create more landing area, and reduce crossing exposure at SE, NE, and NW Shorten curb cuts at gas station on the corner
Fays Corner	Study potential of improvements to create a safer and more visible intersection. Further study is needed to evaluate opportunities and constraints related to: - 2 way stop design - 4 way stop design - Roundabout	Update intersection design to improve safety for all road users, extend sight lines, create safe school bus drop-off/pickup, and reduce through traffic speeds.
Governor Peck Road @ River Road / Route 117*	Install "don't block the box / intersection" markings Install sufficient lighting for pedestrians and bicyclists Evaluate feasibility of installing a Rectangular Rapid Flashing Beacon (RRFB) at the intersection	

*recommendations from phase 1 report

Bridge Street Recommendations

Implement Completed Scoping Study Recommendations

The Richmond Bridge Street Complete Streets Corridor Study provides recommendations and preliminary plans for improvements at the Bridge / Cochran / Hinesburg Road intersection, as well as for Bridge Street between Main and Railroad Streets. These developed recommendations should become the first of a series of improvements for better bicycle and pedestrian access across this crucial corridor linking the southern side of Town with the Village Center.

Bridge Street Bridge

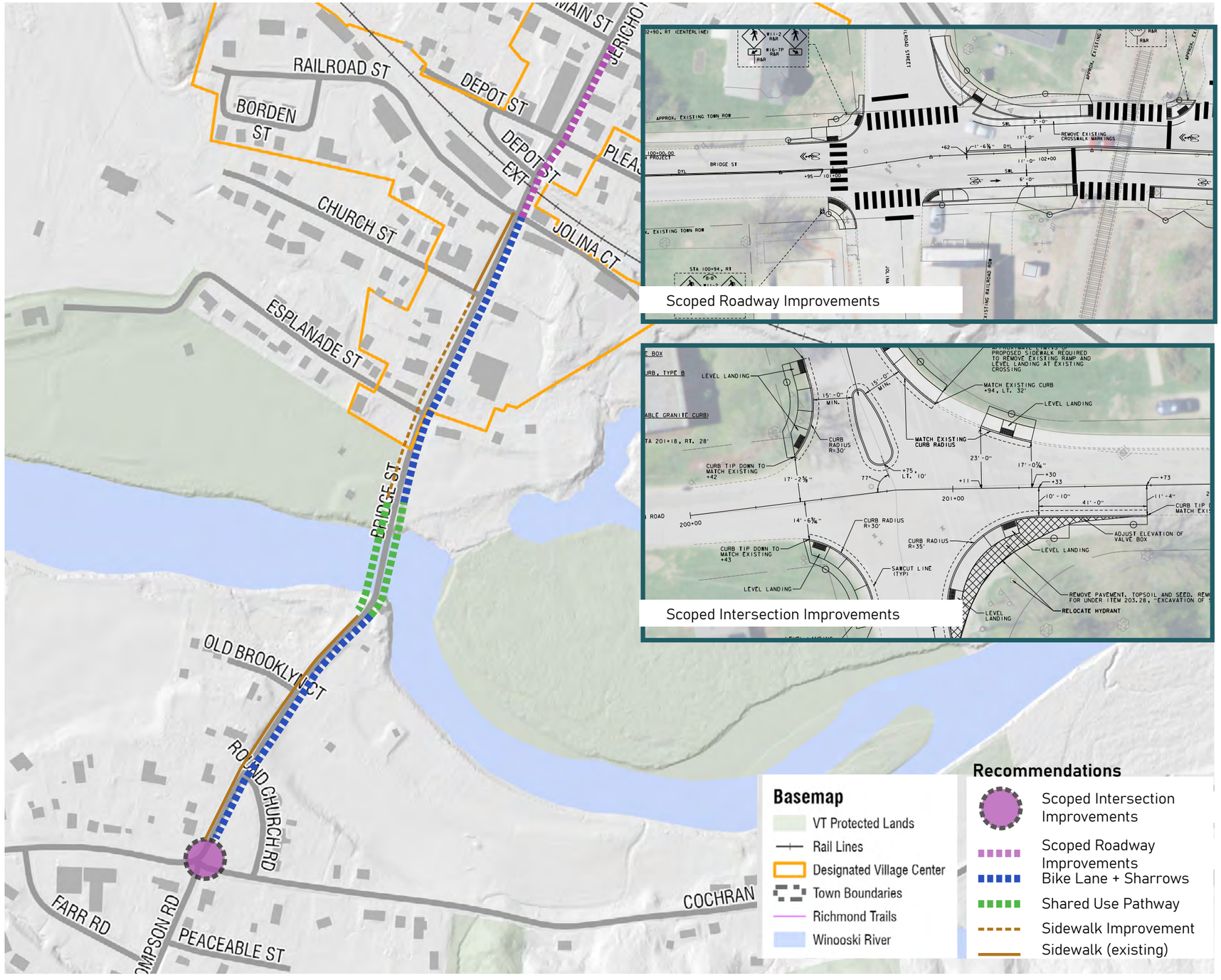
The Bridge Street bridge (Vermont Bridge #31) was built in 1928. The road deck was completely replaced and beams below the deck refurbished and reinforced in 2009. As this structure approaches 100 years of use, its condition is reasonable for its age, but the superstructure has identified issues that will require ongoing maintenance.**

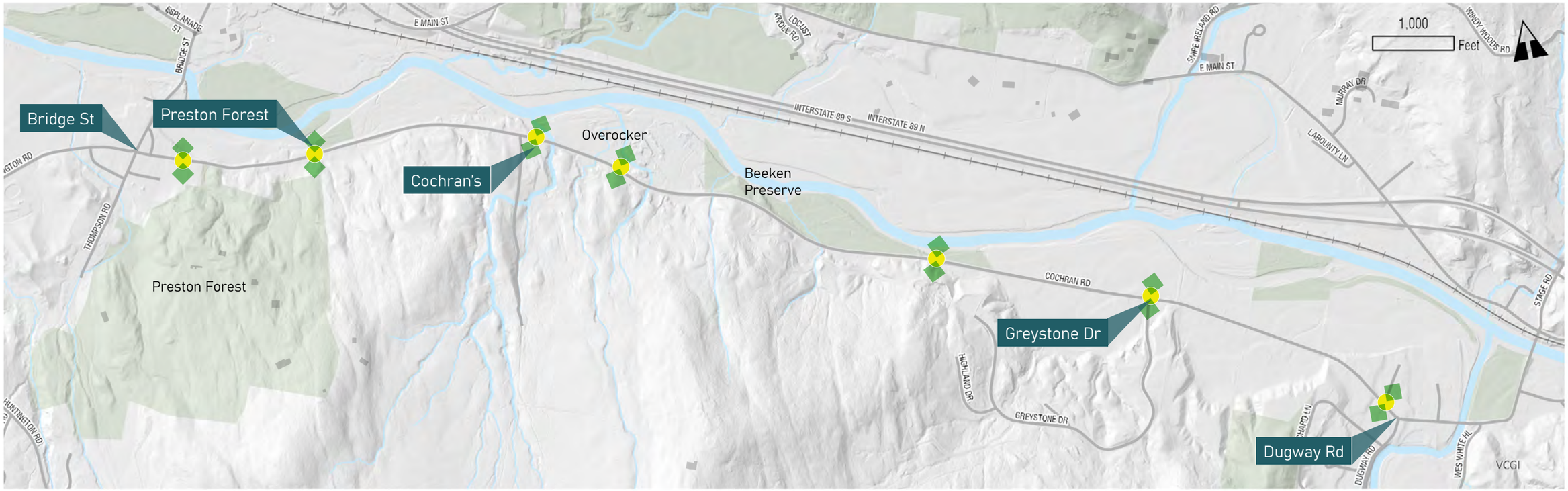
At a future date when significant repairs to the bridge are needed, this plan envisions such repairs coinciding with widening and development of dual direction 10 foot bike/ped pathways along the bridge's edges that can safely accommodate simultaneous bicycle, pedestrian, and automotive traffic.

Bridge Street Corridor

North and South of the Bridge Street bridge, this plan envisions extending the Bridge Street Corridor Study recommendations along the whole of Bridge Street. A climbing bike lane in the northbound direction would link to a future shared use path across the bridge. The southbound travel lanes would receive shared roadway markings, and the existing sidewalk would be improved and pedestrian crossing distances reduced.

**information courtesy of VTrans Bridge Inspection Reports





Cochran Road Recommendations

This town roadway connects to numerous recreational resources, and is in constant use by travelers on foot, bicycle, and automobile.

Three potential solutions are recommended here. Further study would be needed to detail potential project costs and environmental impacts for each of these alternatives.

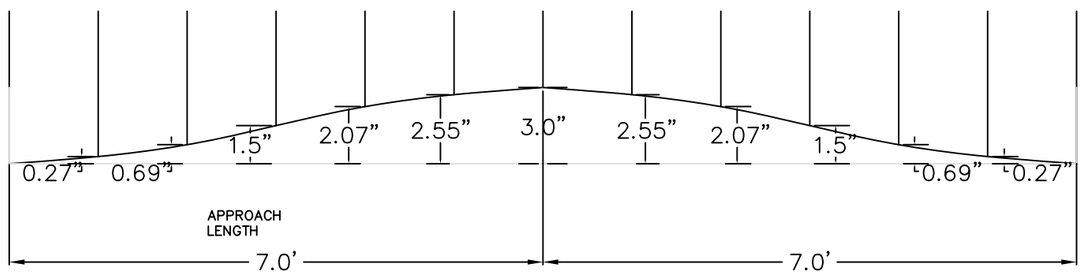
These three concepts are ordered from least to most complex, and can be seen as a phased approach to improving safety and comfort along Cochran Road for everyone.

Cochran Road Segments
All alternatives are divided by segments marked by current uses along the roadway.

Segment 1: Bridge Street to Preston Forest
Segment 2: Preston Forest to Cochran's
Segment 3: Cochran's to Greystone Drive
Segment 4: Greystone Drive to Dugway

Cochran Short Term Improvements - Shared Roadway and Traffic Calming
This alternative is envisioned as 'roadway acupuncture.' The Preston Forest entrance, Cochran's Ski Area entrance, Recreational Parking access areas and other strategic locations would be sites of traffic calming and pedestrian crossing improvements in the roadway. These improvements would install pedestrian crossing improvements and a series of speed humps or chicanes to emphasize the use of Cochran Road as shared and low-speed road. This design offers a low-cost opportunity to improve the safety of pedestrian crossings along the roadway while reducing motorized traffic speeds.

Recommended Traffic Calming & Pedestrian Crossing



Plowable speed tables could be installed to reduce traffic speeds.

CROSS SECTION

Preston Forest Access Traffic Calming Design Concept

This conceptual rendering illustrates traffic calming doubling as pedestrian and bicycle crossings of Cochran Road to Preston Forest. A raised crosswalk slows traffic and provides a safer pedestrian crossing between existing trails.

Key concepts illustrated here include:

1. Raised pedestrian crossing is also a plowable speed table.

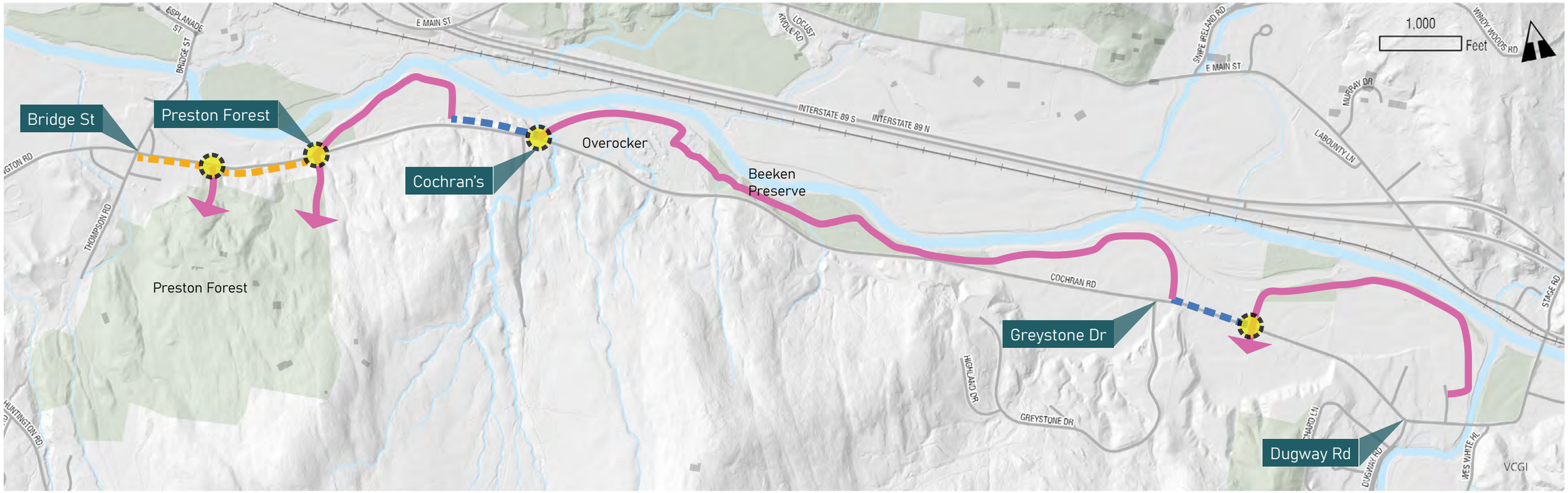
2. Pedestrian 'landings' on either side of crosswalk provide a space for pedestrians and cyclists to wait before crossing the road.

3. Push button operated Rectangular Rapid Flashing Beacons (RRFB) provide improved visibility for people crossing the road at all times of day.

4. With traffic calming measures installed, a speed study should be undertaken to determine how to appropriately lower existing speed limits.

5. Small sidewalk connection to Richmond Cemetery.

6. Crossing can link to existing trail networks in Preston Forest & River Trail.



Cochran Long Term Alternative 1 - Sidewalk and Natural Surface Trail

This alternative envisions a neighborhood sidewalk linking Bridge Street to the Preston Forest trailhead and St. Mary's Cemetery. Traveling east, users would be routed to existing river trails and shared roadway improvements to create a safe and continuous route. Shared roadway improvements could include future sidewalk/pathway or expanded shoulder, and should be developed in coordination with planning for longer-term improvements.

Improved pedestrian crossings at Preston Forest entrances, Cochran's Ski Area and other key entrances would be included to improve access and road user safety.

Sidewalk access to the western neighborhoods acts as a traffic calming element.

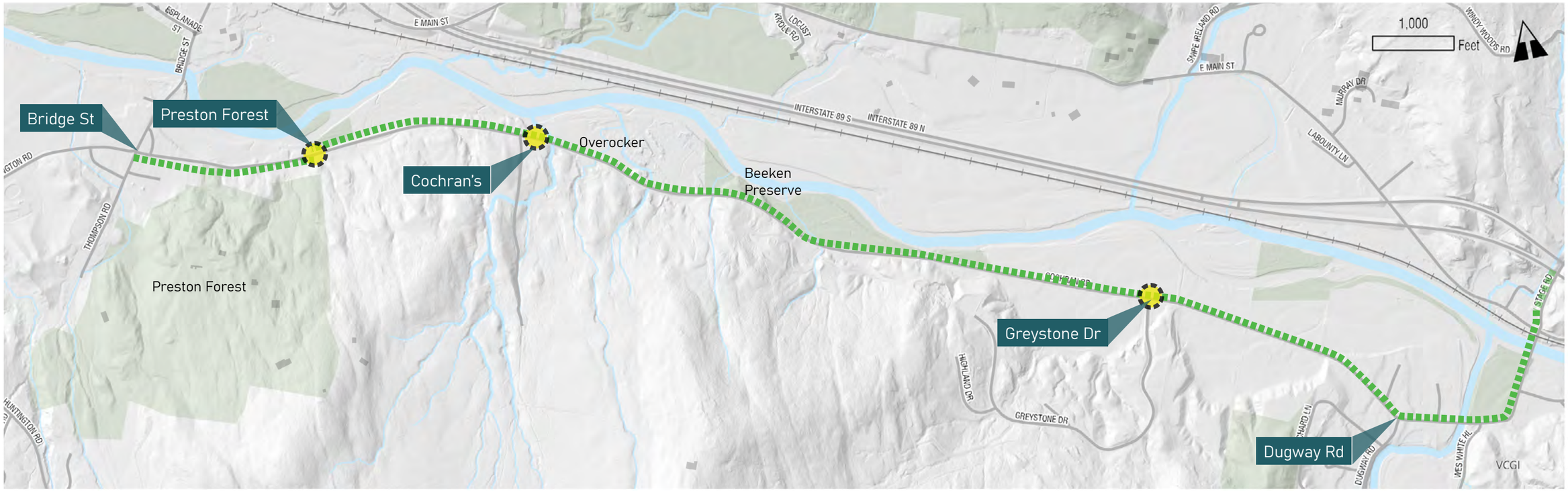
Crossing Improvements would link directly to existing trail access.

Proposed Sidewalk

Shared Roadway Improvements

Existing Trails

Pedestrian Crossing Improvement



Cochran Long Term Alternative 2 - Shared Use Path

This alternative envisions a paved, shared use path being constructed between Bridge street and Route 2. The path would likely need to cross the roadway at key points to keep construction costs in check. Regardless of final design, this pathway would be an expensive but valuable project to create a multi-use transportation corridor along Cochran Road for pedestrians and cyclists of of all ages and abilities.

Short term recommendations include developing a scoping study for this Cochran Road pathway which would further detail costs, design, and feasibility for this recommendation.

Investment in a sidepath along Cochran Road would create a dedicated and safe space for walking and bicycling on this busy corridor.

Proposed Multi Use Path

Pedestrian Crossing Improvement

Shared Use Path Design Concept

This evolution of the traffic calming rendering illustrates how shared use path recommendations could append and compliment traffic calming improvements. A 10' wide asphalt pathway could parallel Cochran road, offering direct and safe pedestrian and bike connections.

Gravel Road Recommendations

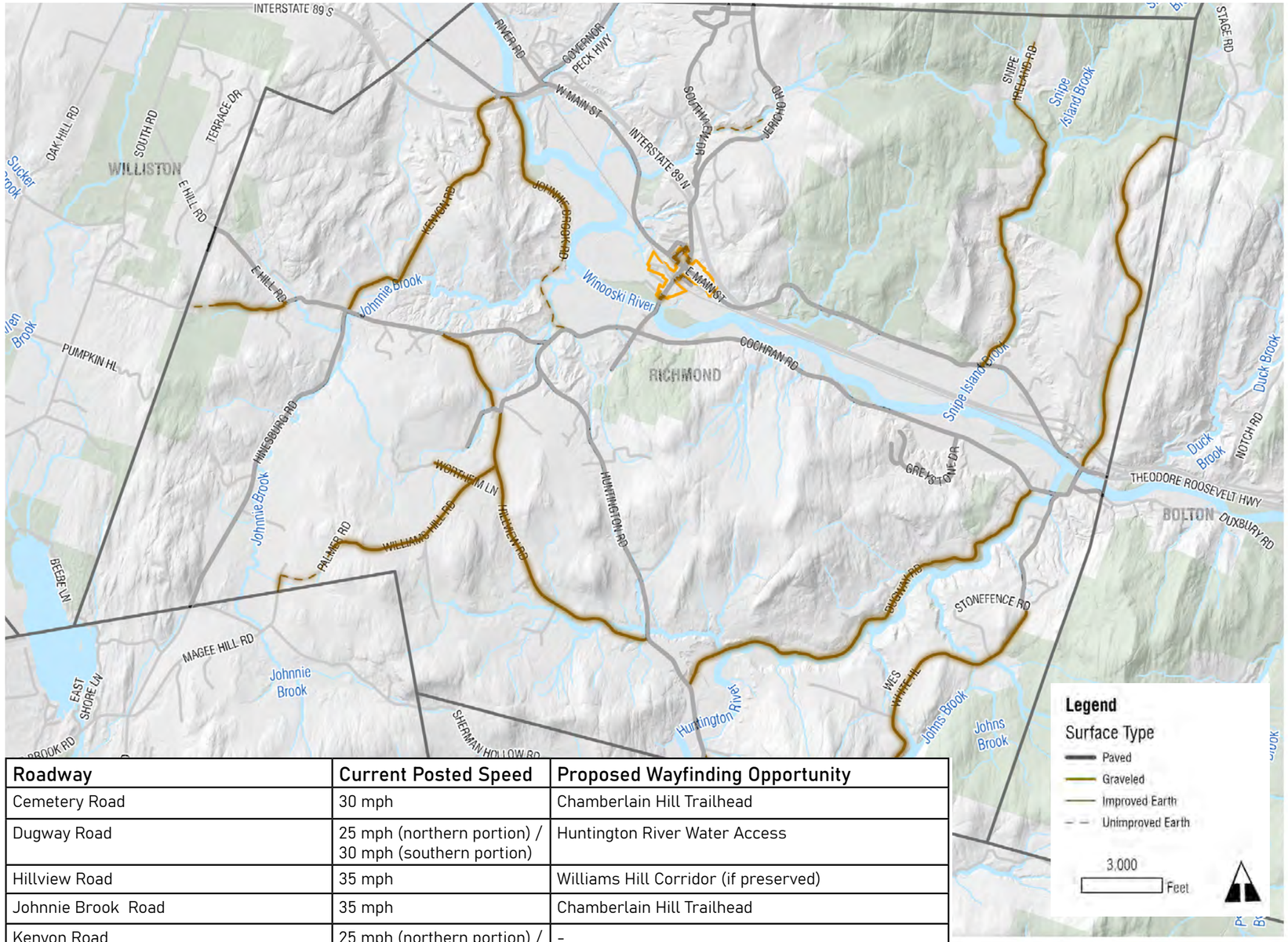
Many active transportation improvements are focused on re-allocation of paved roadway surfaces and creating safe space for bicyclists and pedestrians. Re-striping, and reducing lane widths to create more room for active transportation, bike lanes, and sidewalks are all examples of this type of improvement.

However, on gravel roads, these approaches are not as feasible because there are no painted lanes. Paved or Gravel, shared use paths can provide important benefits alongside gravel roadways, but these require significant investment and space adjacent to the roadway.

Unimproved roadway surfaces can be made more pedestrian and bike friendly by reducing traffic volumes and speeds. Throughout the Town of Richmond, these gravel road routes should be considered shared roadways, and appropriate signage and sight line maintenance should be applied to improve safety for all road users.

Key steps to improve the quality of gravel roads in Richmond for multi-modal use include:

- Install signage to draw attention to presence of pedestrians and bicyclists in roadway
- Install wayfinding signage directing to adjacent recreational trail opportunities
- Reduce speed limits to 30mph



Roadway	Current Posted Speed	Proposed Wayfinding Opportunity
Cemetery Road	30 mph	Chamberlain Hill Trailhead
Dugway Road	25 mph (northern portion) / 30 mph (southern portion)	Huntington River Water Access
Hillview Road	35 mph	Williams Hill Corridor (if preserved)
Johnnie Brook Road	35 mph	Chamberlain Hill Trailhead
Kenyon Road	25 mph (northern portion) / 35 mph (southern portion)	-
Snipe Ireland Road	25 mph	Recreation in West Bolton
Stage Road	35 mph	Recreation in West Bolton
Valley View Road & Hidden Pines Circle	25 mph	Old Jericho Road

Paved Road Recommendations – Short Term

A simple re-alignment of road markings could create a more welcoming and safe shared roadway system across Richmond. Shaving off 'extra' space in the vehicular travel lane can allow the creation of uphill bike lanes to provide dedicated space for non-motorized travelers.

These improvements are recommended as short term efforts that do not require expansion of the roadway or construction of new facilities. These paint-based changes can be tested on roads in Richmond without a significant capital investment. These improvements are recommended for:

- East Hill Road
- Huntington Road
- Hinesburg Road (N/S and E/W Corridor)
- Bridge Street South

These roads are chosen for their nature as ascending/descending Richmond's hills, rather than flat or rolling roads.

1. Narrow the Travel Lanes

Vehicular travel lanes should be reduced from 12 to 10 feet to provide a 4 foot climbing bike lane on the uphill side of the road.

2. Remove (some) Centerline Markings

The centerline could be removed on some roads along with this treatment. Based on guidelines from the Manual on Uniform Traffic Control Devices (MUTCD), Section 3B.01, "Center line markings should also be placed on all rural arterials and collectors that have a traveled way of 18 feet or more in width and an AADT of 3,000 vehicles per day or greater."

This suggests that it would be appropriate to remove the centerline on East Hill Road and Hinesburg Road (AADT below 3,000 vehicles per day), but may not be appropriate for Huntington Road or Bridge Street.

Centerline removal is intended to reduce driver certainty and encourage lower speeds. This treatment intends to structure roadways as 'shared space' and reduce the Town's centerline paint maintenance costs.

3. Add 4 Foot Wide Uphill Bike Lanes

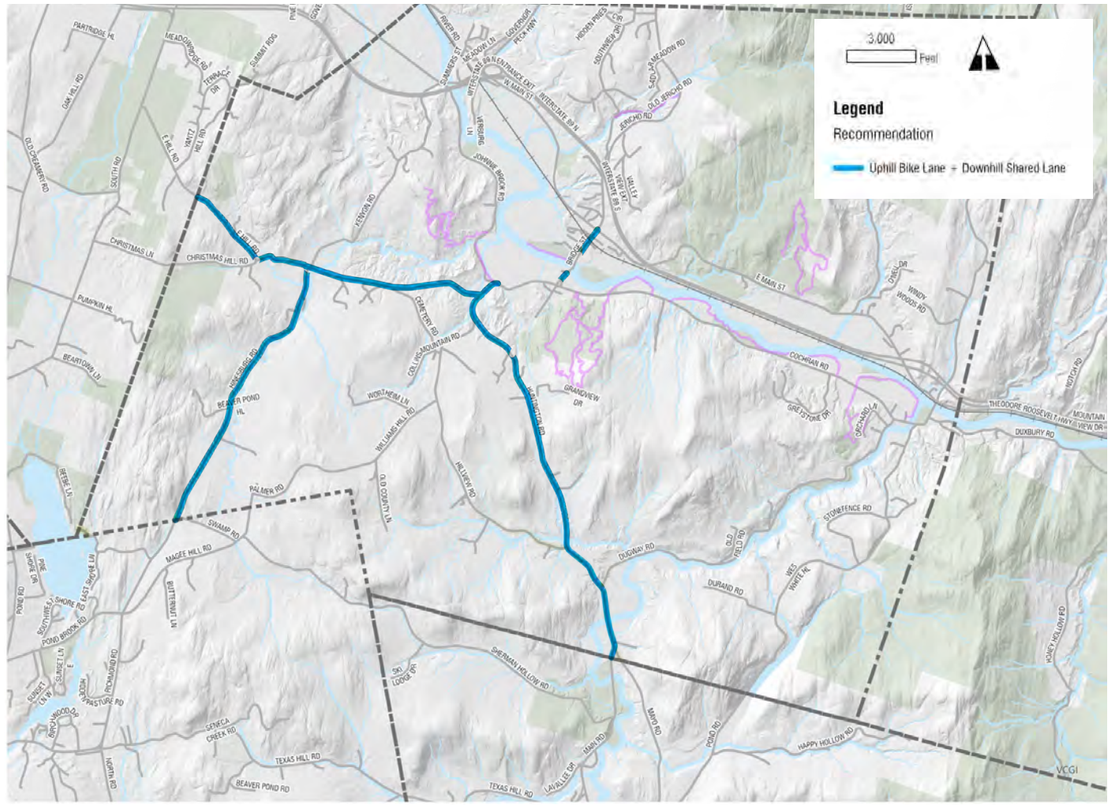
The uphill climbing speeds of bicycles will always be significantly slower than their downhill speeds. This means that cyclists spend much more time exposed to risk climbing hills than descending them. The bigger speed differential between bikes and cars going uphill also means that drivers have to slow down excessively when coming upon an cyclist in the road. An uphill lane will provide dedicated space for cyclists (or walkers/runners) climbing these roads.

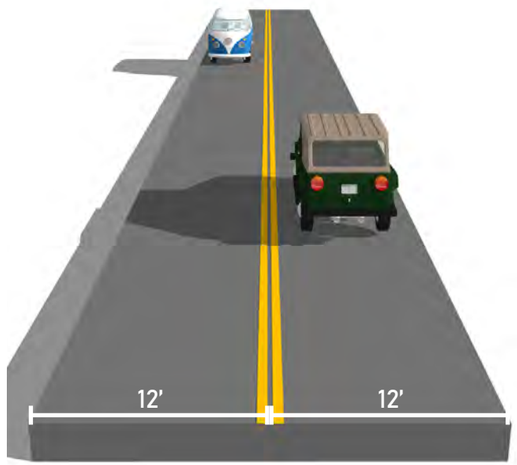
4. Add Downhill Shared Lane Markings

Based on guidance from the MUTCD, Section 9C.07, shared lane markings should not be placed on roads with a speed limit above 35 mph. This guidance would discourage this treatment on Hinesburg Road, unless further study reduces the posted speed of 45mph. The Town of Hinesburg has the same corridor posted to 35mph, and public comment during the plan process indicated a public desire to review Hinesburg Road's posted speed. A speed study is recommended to review actual driver behavior on this segment of road with shared lane markings applied.

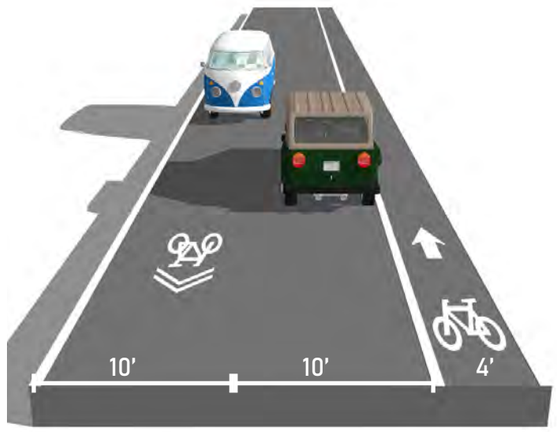
5. Budget for Striping Maintenance

Pavement markings disappear over time as cars drive over them, plows scrape the road, and salt corrodes the road surface. Since this facility only exists as paint on the road, it is essential that the pavement markings are re-painted annually. In Vermont, this typically happens in the spring.





Typical Richmond Roadway Profile



Proposed Richmond Roadway Profile

Paved Road Recommendations – Long Term

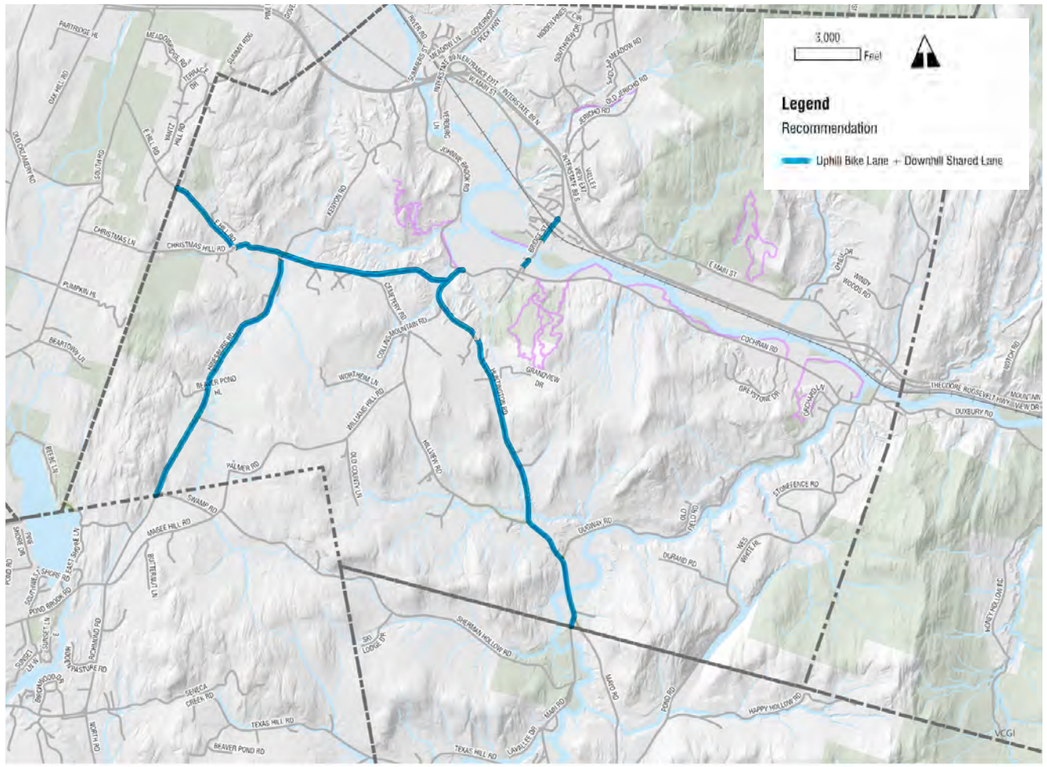
In the long term, the paved roads with climbing bike lanes and downhill shared lanes should be widened to include 5 foot bike lanes in both directions.

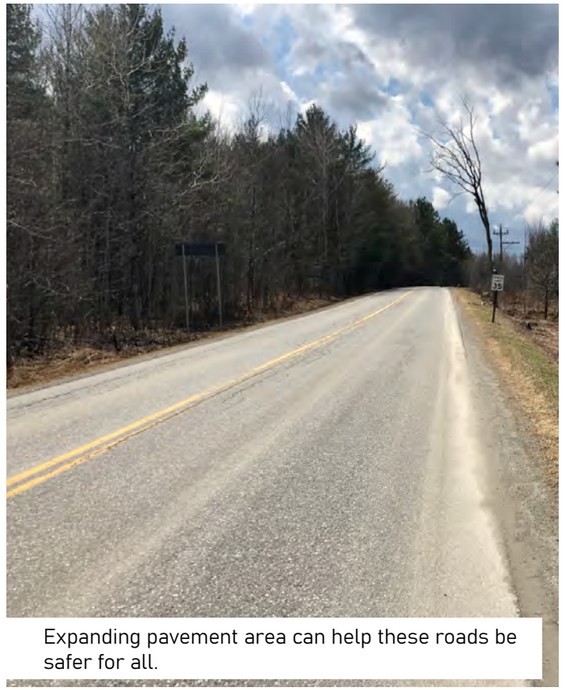
Through a widening project, auto travel lanes could also be expanded to make the total road width equivalent to the suggested road width suggested in the VTrans Vermont State Design Standards.

The Vermont State Design Standards provide recommended widths based on each road's functional classification and average daily traffic. To match these widths and classifications, our long term recommended widths for travel lanes on roads where the climbing bike lane configuration is proposed are as follows:

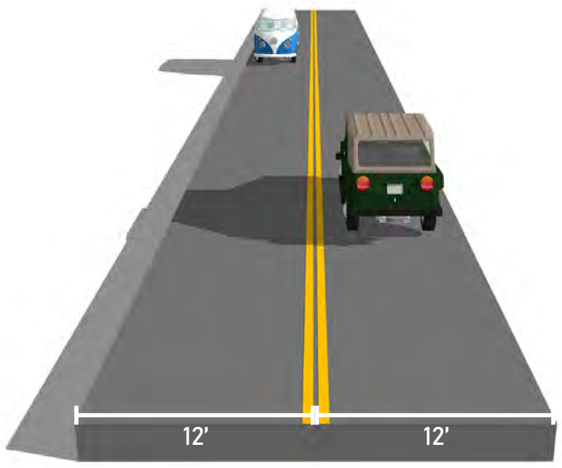
- East Hill Road, 10.5 ft travel lanes without centerline, 5 ft bike lanes
- Huntington Road, 11.5 ft travel lanes with centerline, 5 ft bike lanes
- Hinesburg Road (N/S and E/W Corridor), 10.5 ft travel lanes without centerline, 5 ft bike lanes
- Bridge Street South, 11.5 ft travel lanes with centerline, 5 ft bike lanes

Current widths of these roads are outlined in Table 1 - Through Road Characteristics

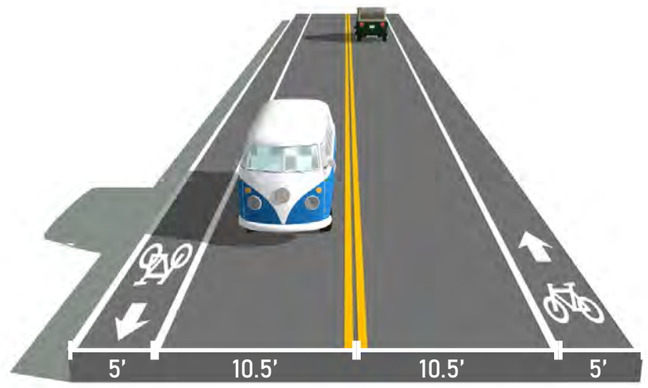




Expanding pavement area can help these roads be safer for all.



Typical Richmond Roadway Profile



Proposed Long Term Richmond Roadway Profile

Governor Peck Road

Short Term Recommendation
Install marked crosswalks, pedestrian crossing signs, and bicycle conflict markings at all crossings (River Road, Lower Cir, Summer St) to draw attention to pedestrians and bicyclists. Reduce speed limit to 30mph. Install Advisory Bike Lanes as feasible[1].

Long Term Recommendations
Install a sidepath on north side of roadway.

Route 117

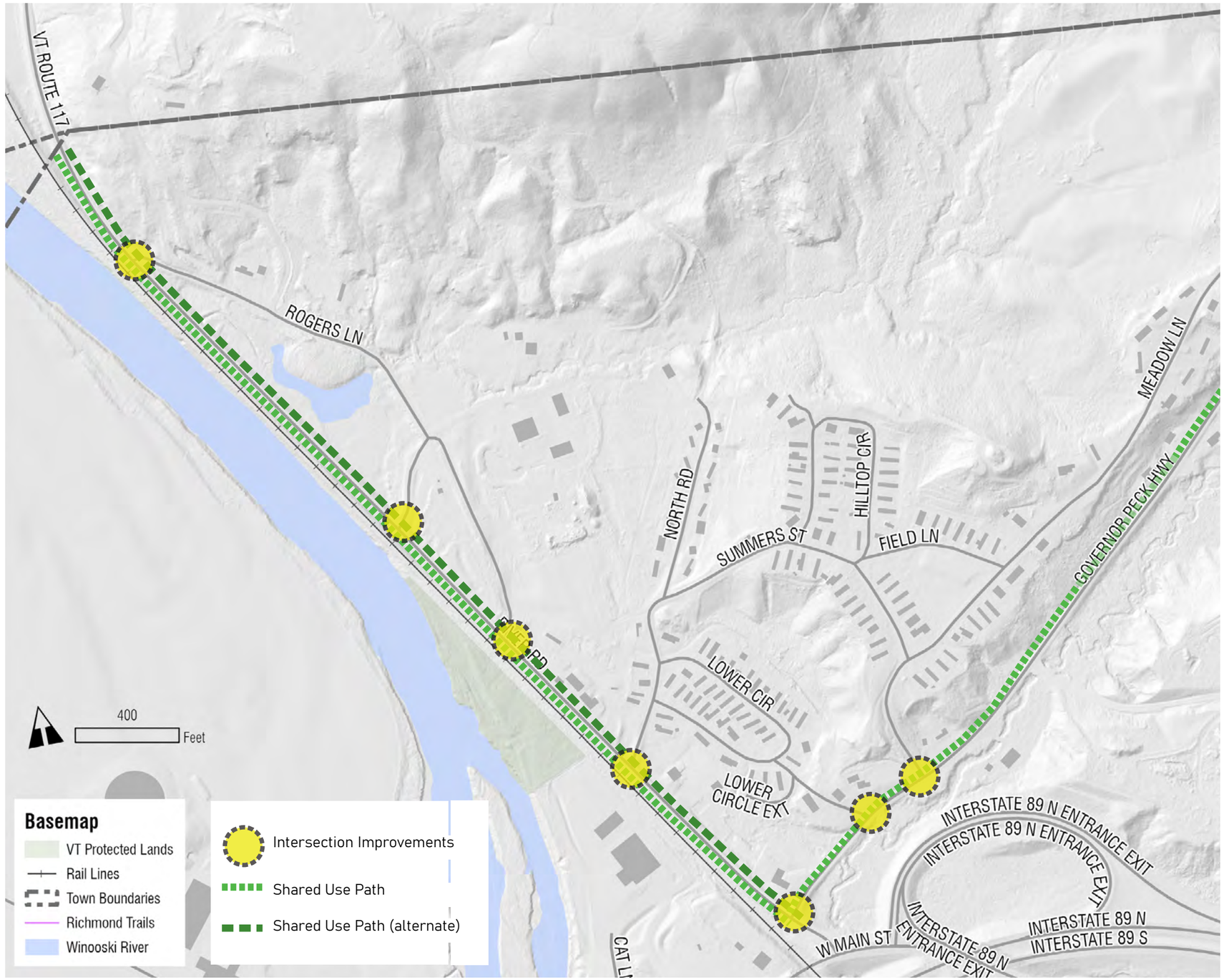
Short Term Recommendation
Install "bicycles may use full lane" signs and Rectangular Rapid Flashing Beacons (RRFBs) at key activity areas, such as crossings.
Reduce Speed Limit to 35mph throughout corridor. Pursue scoping study to prepare for long term recommendations in VTrans ROW.

Long Term Recommendations
Evaluate feasibility of two alternatives for a shared use path or sidepath:

Alternative A: Widen for shared use path along railroad on west side. Install high visibility marked crossings at all intersections to provide connection between path and destinations on east side. A sidewalk on the east side from the store down along the mobile home community would anchor the crossings from the west side to a safe walking facility on the east side.

Alternative B: Widen for a sidepath on east side.

1 Advisory Bike Lanes, also known as "edge lane roads" is s a roadway striping configuration which provides for two-way motor vehicle in a single center lane, and for non-motorized traffic using bike lanes on both sides. This is standard design on paved rural roads in the Netherlands and is currently being studied through numerous Federal Highway Administration (FHWA) approved experiments throughout the US. New FHWA guidance is expected in the near future



Route 2 - East of Village

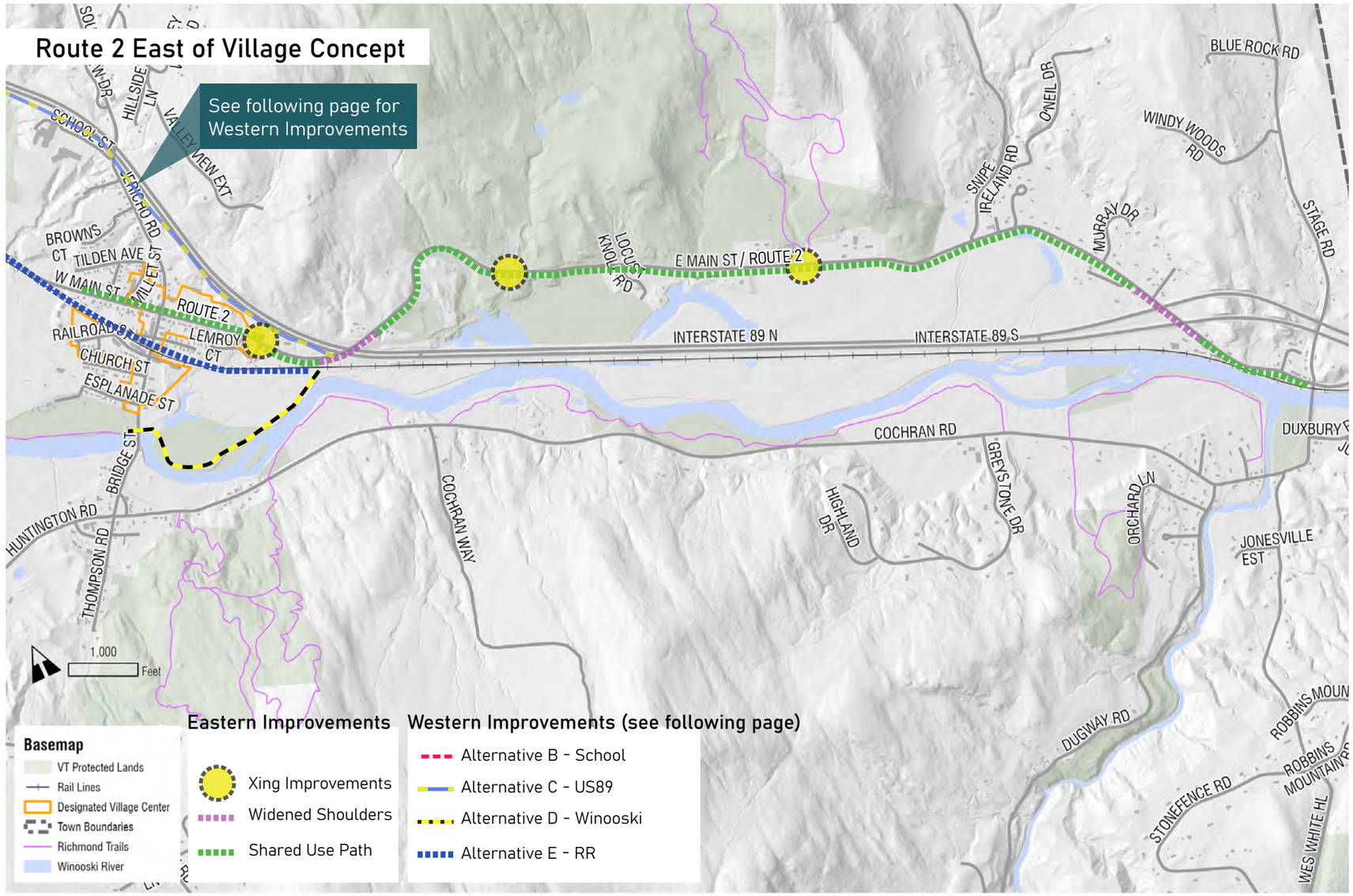
North of the Winooski, Route 2 (aka. Main Street) offers the only direct, non-interstate through route for travel across Richmond. Because of the lack of alternate routes there is a strong need for future improvements in order to safely and comfortably accommodate all road users.

This plan envisions the future of this corridor as a complete street with dedicated space for people to drive, walk, and bike safely and comfortably through Route 2.

Short Term Recommendations
Near term improvements should focus on establishing 5 foot minimum paved shoulders along all portions of Route 2 / Main Street to allow for the bare minimum of functional safe travel by bicyclists and pedestrians.

Long Term Recommendations
An 8 to 10 foot wide sidepath should be constructed to provide safe multi modal travel along this corridor. At key locations, such as highway underpasses, the sidepath could convert to widened shoulders and narrowed vehicular travel lanes.

Within the Village Center, from approximately 217 W Main Street to Lemroy Court, the pathway is envisioned to replace the sidewalk on the north side of the roadway, leaving the south side unchanged. From Lemroy Court to Cochran/ Stage Road intersection, the sidepath is envisioned to be constructed on the south side of the highway, with key crossing improvements for Vermont Youth Conservation Corps Access as well as access to Andrew's Town Forest.



Route 2 - West of Village

This segment of Route 2 is significantly constrained by the Railroad corridor, Winooski River, Interstate 89, steep slopes and property lines. This plan recommends multiple Route 2 alternatives to be studied in pursuit of a complete and safe east west bicycle and pedestrian corridor through Richmond.

Short Term Recommendations

Establish 5 foot minimum paved shoulders along all portions of Route 2 / Main Street to allow for safe travel by bicyclists and pedestrians.

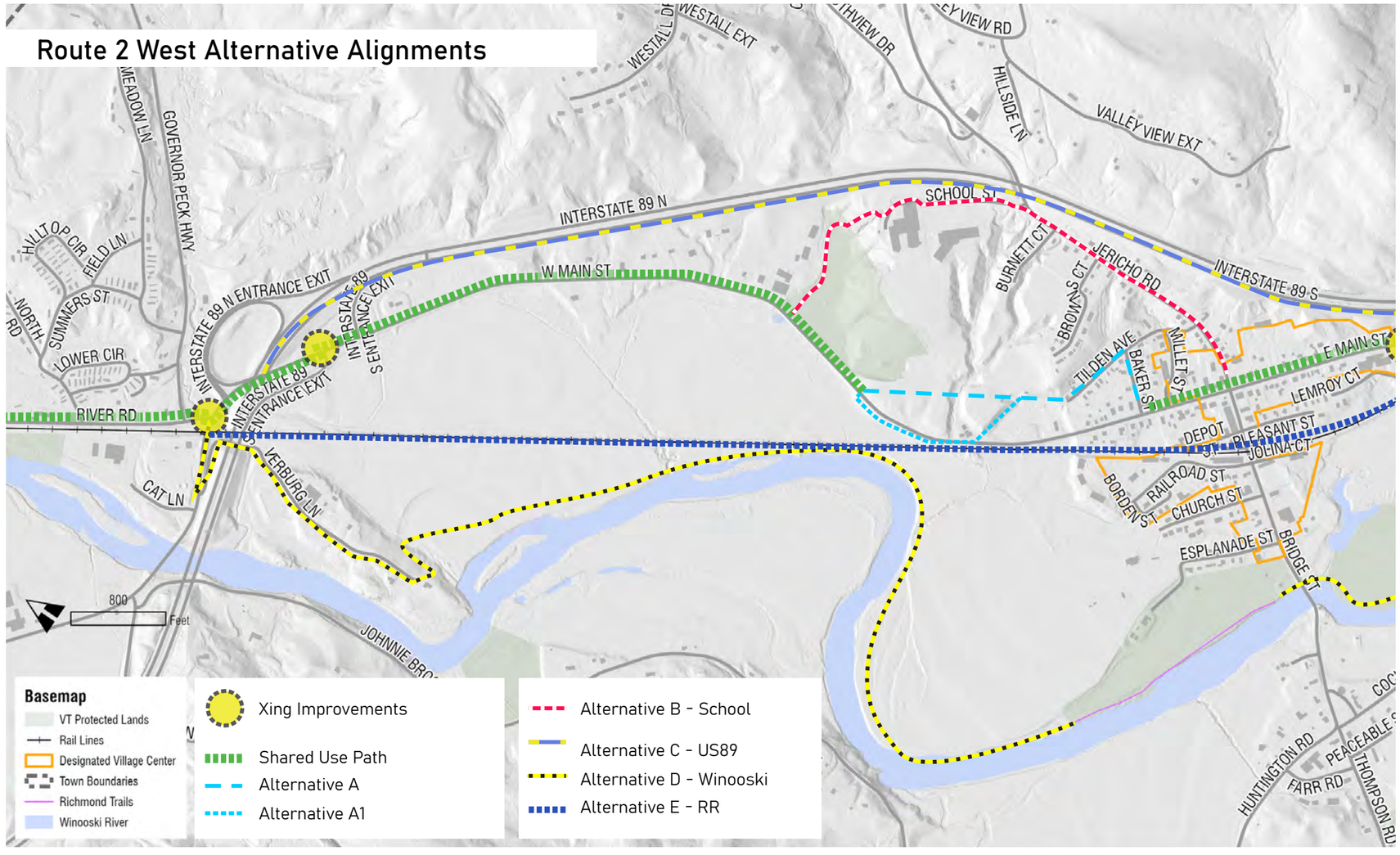
Long Term Recommendations

An 8 to 10 foot wide sidepath is envisioned to connect the Village to the Park and Ride and planned facilities on River Road / Governor Peck Road. Where illustrated in green, the pathway has fewer constraints limiting feasibility.
The other corridors illustrated here are all alternatives - only one should be built, but all should be considered to create a safe connection from the Village Center to destinations west.

Alternative Alignments

This map illustrates five unique alignments that could be considered for the most constrained portions of roadway.

- A: Baker-Tilden Corridor: Town maintained residential streets would link with a future sidepath connecting through Riverview Cemetery, following the eastern property line.
- A1: Baker Tilden Corridor B: Alternatively, this corridor could cross the stream before entering the cemetery and utilize the southern side of Route 2 for a pathway.
- B: Jericho Road - School Road: A pathway through these roadways could then connect to the Richmond Elementary School Campus and Richmond Land Trust Property.



- C: Highway 89 Right of Way: Departing from the Route 2 Corridor east of the Village, a shared use path could be built within / underneath the Highway 89 Right of Way.
- D: Winooski River Right of Way: Departing from the Route 2 Corridor east of the Village, a shared use path could be built alongside the Winooski River, utilizing the existing Volunteers green pathway as well as various conserved and private properties in the flood zone.
- E: Railroad ROW: A shared use path could be built along the Railroad Right of Way as a Rail with Trail arrangement.

Determining the best alternative alignment to pursue will require additional study. This plan recommends that those studies be used to identify the most feasible option for implementation.

As of this writing, the Town of Richmond has received funding from the Chittenden County Regional Planning Commission to further study these corridors and identify a preferred route.

Additional Roadway Recommendations

Additional roadway recommendations are listed here to guide public safety improvements across Richmond.

AR1. Jericho Road

Short Term Recommendations

- Implement recommendations from Jericho Road Scoping Study - Build sidewalk/path along West Side of Jericho Rd from School St to Valley View Road.
- Install mirrors at blind turns, reduce 45mph and 35mph speed limits to 25mph, Install advisory bike lanes as feasible.

Long Term Recommendations

- Reduce travel lanes to 10 feet in width and extend planned sidewalk on west side.

AR2. Hidden Pines Circle

Short and Long Term Recommendation:

- Add traffic calming measures as needed.

AR3. Southview Drive

Long Term Recommendations

- Install a sidewalk on one side of roadway. Tighten corner radii at all intersections with paint and posts.
- Install crosswalks at all intersections, evaluable feasibility of roundabouts at key intersections.

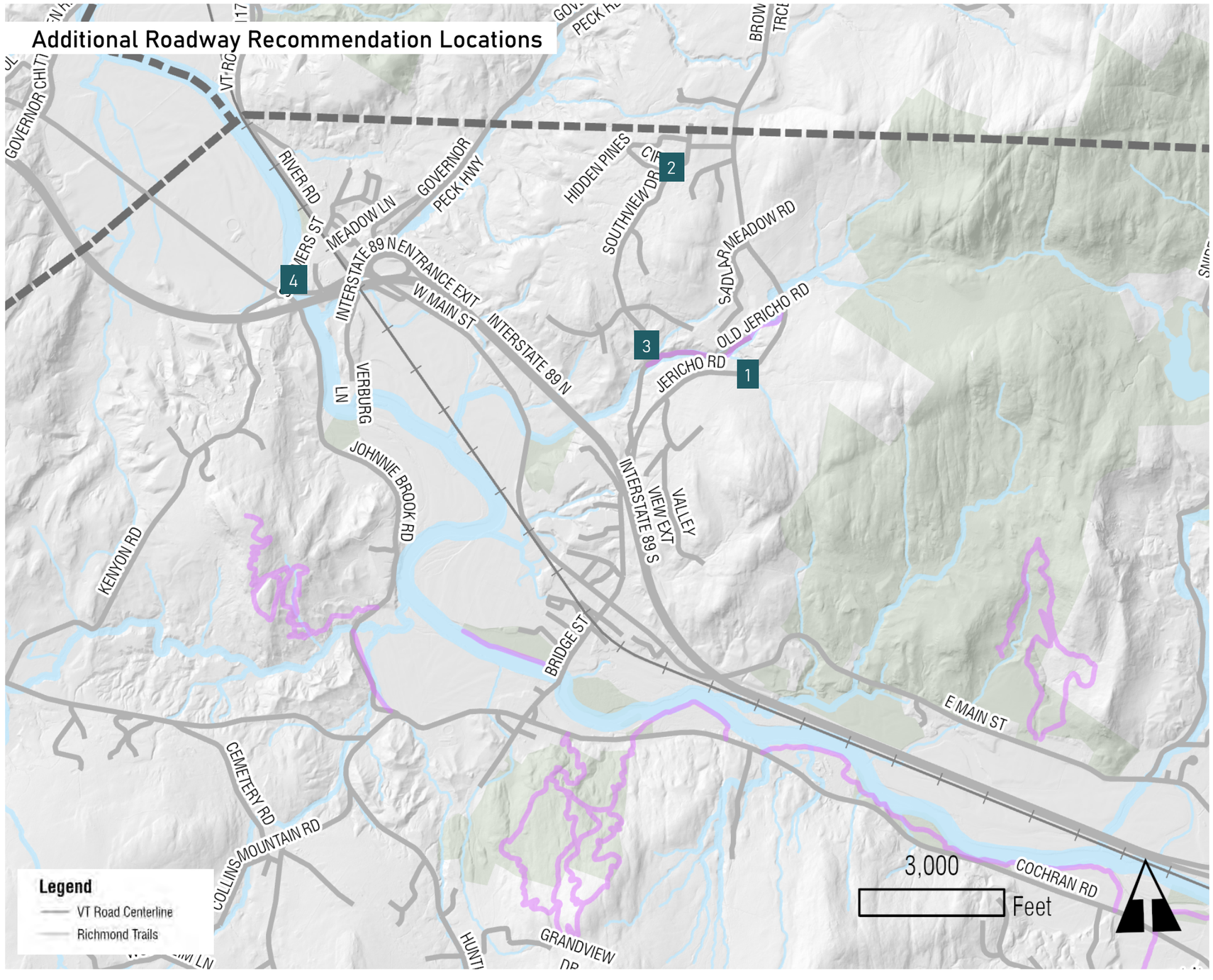
AR4. Route 2 Winooski Bridge

Short Term Recommendations

- Explore feasibility of creating a shared space such as advisory shoulders. Coordinate with ongoing bridge projects for improvements.

Long Term Recommendations

- Widen or cantilever out bridge surface to accommodate biking and walking.



Trail Recommendations

Trails as Transportation

Trails offer the Town of Richmond more than recreation and can provide a transportation function as well. A good example is to consider how many more walking and bicycling conflicts might occur on Cochran road in the summer months were it not for the presence of the parallel river trail. Where trails can offer a safe and separated alternative to sharing a roadway, they offer some of the lowest cost and highest return investments for Richmond's transportation network.

The trail recommendations described here are conceptual and do not represent exact alignments. No trail project can proceed without express permission from affected landowners. These recommendations are aspirational, rather than a predetermined plan outcome.

T1. Andrews Community Forest Trails

Continue working with community members on the development of trails as allowed in the Town Forest Management Plan and Conservation Easement.

T2. Sip O Sunshine Trail

Slated for expansion in summer of 2022, this trail will connect to Andrews Community Forest.

T3. Johnnie Brook Trail Extension

A natural surface trail could connect Johnnie Brook Road (and trail) to Kenyon Road and/or Fays Corner. This trail connection could provide a safe alternative route to Hinesburg Road.

T4. Old Jericho Road Trail

Add wayfinding signage to this trail.

T5. Palmer Road Class IV Access (Williams Hill)

In early 2022, the Richmond Selectboard voted to maintain public access to the roadway corridor at the end of William Hill, connecting to Palmer Road and Hinesburg. This action to preserve the corridor for public use has been met with contention by private landowners and is currently in litigation. Should the roadway corridor be preserved as Class 4 roadway with public access, it would offer a unique connection for active transportation use.

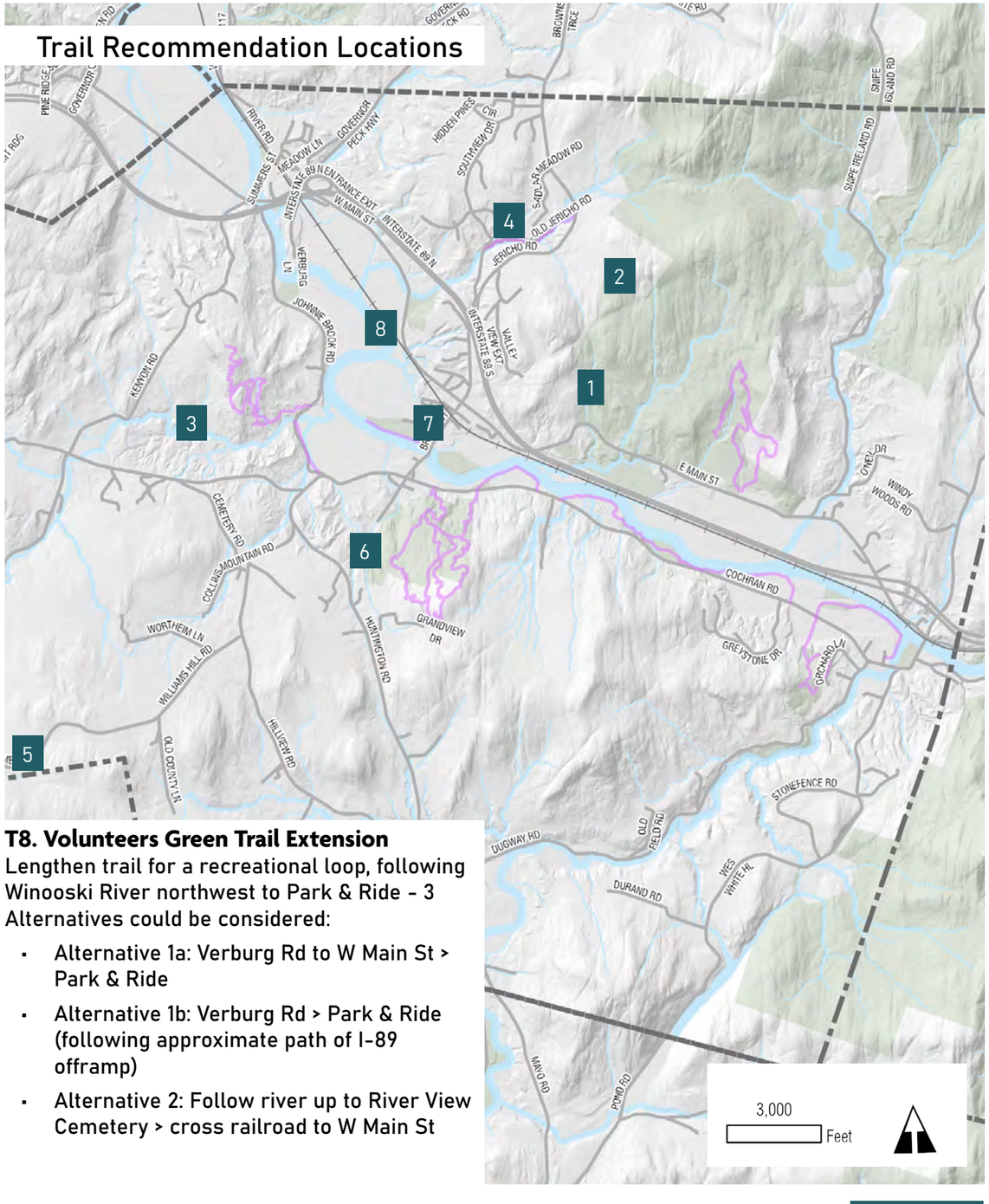
However, its steep slopes and eroded condition will make it a 'rugged' route, and few significant investments in corridor condition are anticipated as part of this plan. This recommendation is for wayfinding and corridor preservation, not reconstruction.

T6. Preston Forest Access

The conserved land of Preston Forest contains a small segment that abuts Huntington Road. Despite the steep ravine separating the road from the Forest trails, feasibility should be studied to link the lower trail access points to this public roadway. Such a link could provide a transportation function to Preston Forest trails. Alternative linkages from Preston Forest to Huntington Road include access through private property abutting the Forest and Grandview Drive.

T7. West Village Connector Trail

Obtain easements and formalize connections on western ends of Esplanade, Church St, Railroad St, and Borden St and mark public right-of-way for walking loops (connect the western end of Esplanade to W Main St).



T8. Volunteers Green Trail Extension

Lengthen trail for a recreational loop, following Winooski River northwest to Park & Ride - 3 Alternatives could be considered:

- Alternative 1a: Verburg Rd to W Main St > Park & Ride
- Alternative 1b: Verburg Rd > Park & Ride (following approximate path of I-89 offramp)
- Alternative 2: Follow river up to River View Cemetery > cross railroad to W Main St

Intersection Recommendations

I1. Fays Corner Improvements
This intersection creates unsafe roadway conditions for all road users. This intersection should be studied to improve safety and function for pedestrians, cyclists and drivers. The image at right highlights some of the major safety and circulation issues at hand.

A. Unhindered Turning Movement
This intersection prioritizes through turning movements along the curve of Hinesburg Road. This unhindered and high speed turning movement is dangerous for pedestrians or cyclists crossing the roadway in any direction.

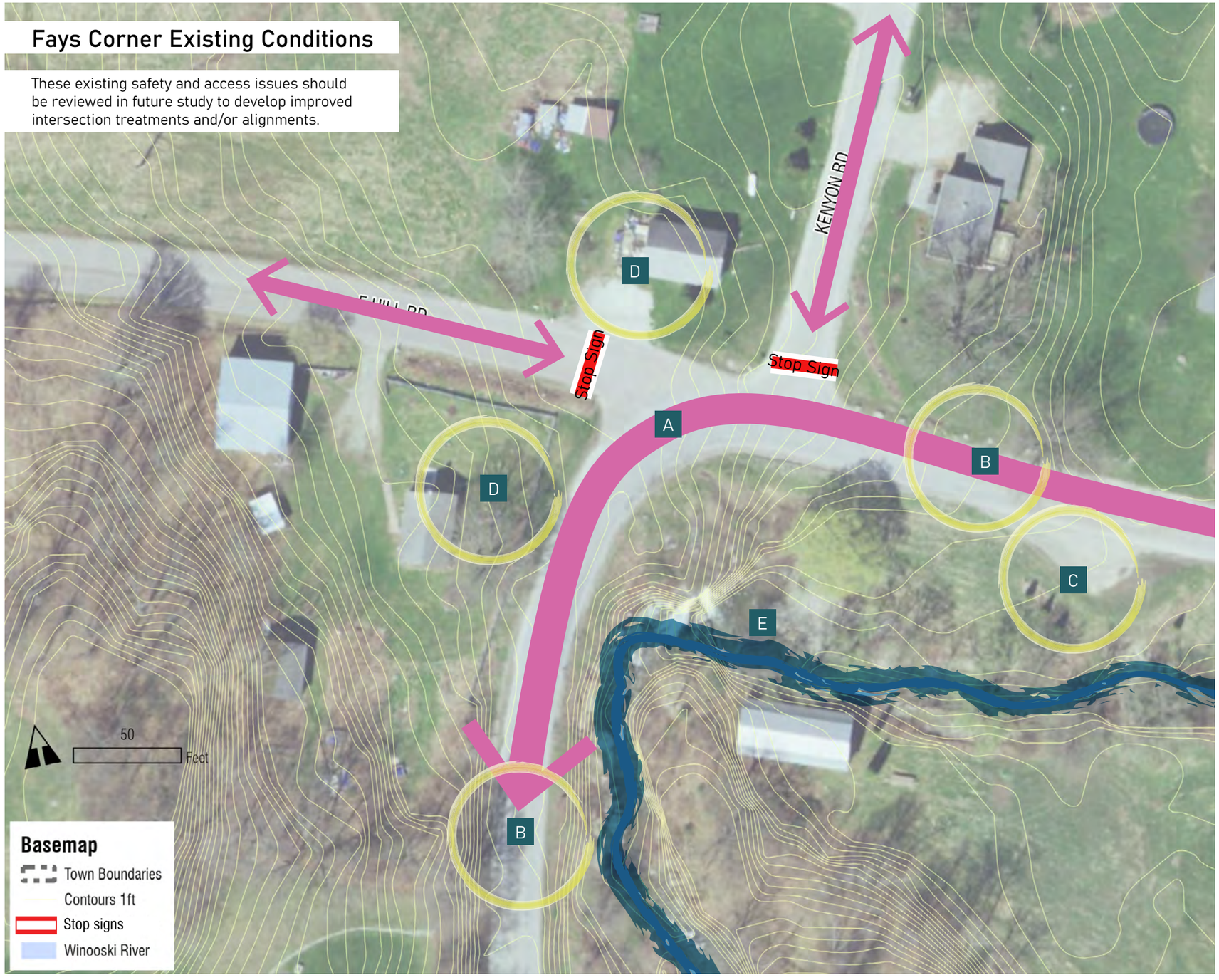
B. Sight Lines
The rise in terrain to the West and South, combined with roadside vegetation and the sharp turn in Hinesburg Road limit visibility from each arm of this intersection.

C. School Bus Stop
This pull out on the south side of Hinesburg Road is used as a school bus stop, increasing the need for pedestrian safety at this location.

D. Adjacent Property
Residential properties border all sides of this intersection. This introduces regular pedestrian traffic as well as a need for sensitivity to property impacts related to future intersection designs.

E. Johnnie Brook Adjacency
This portion of Johnnie Brook is close to the roadway and points to a need for environmental sensitivity in any intersection change.

Future study should consider redesign as a four way stop, two way stop, or other design to slow down traffic at this intersection and create a more safe and predictable experience for all road users.

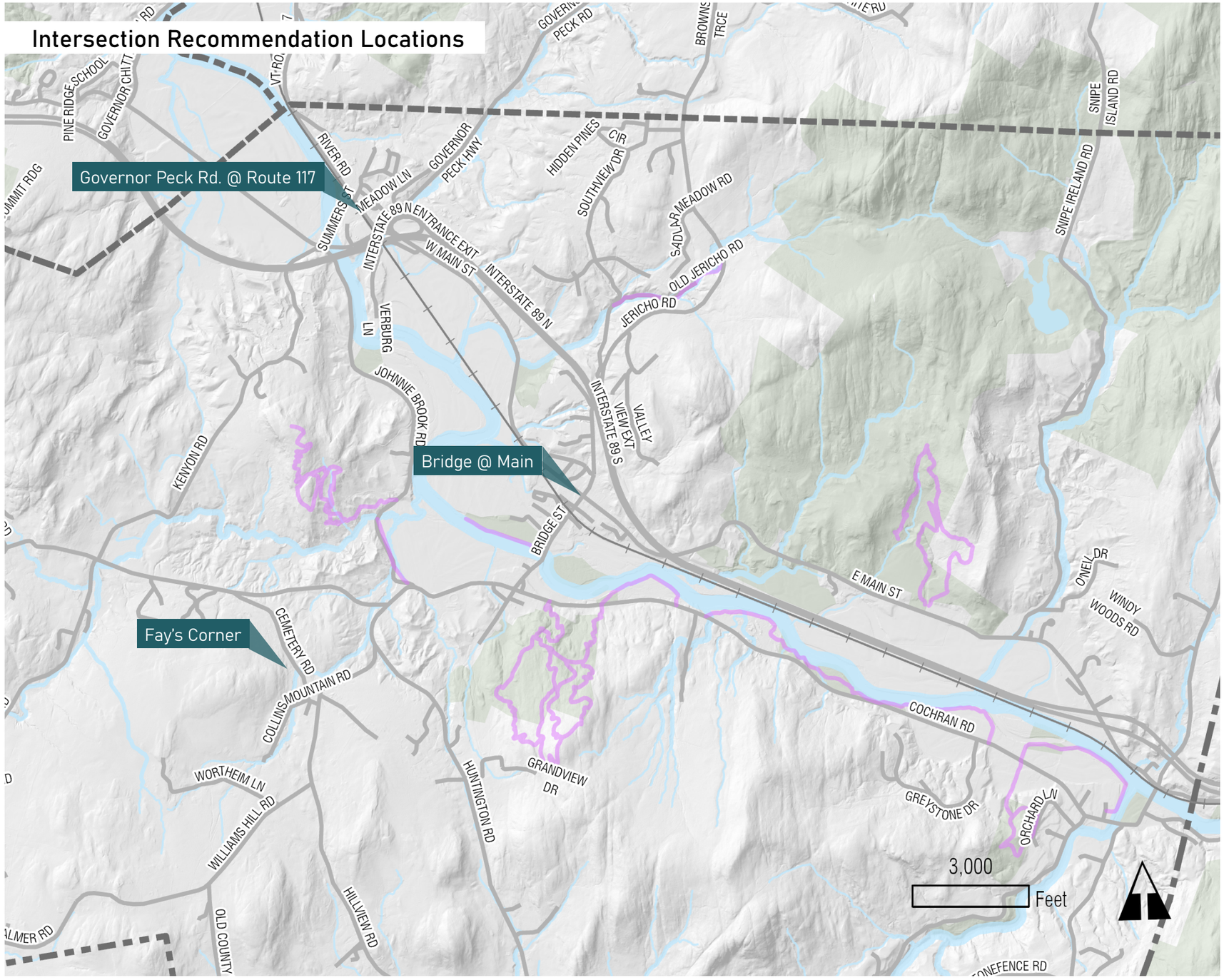


12. Bridge Street at Main/Route 2
Short term improvements at this location are part of the Bridge Street Scoping Study.

Long term recommendations include pursuing improvements that can add curb extensions with truck aprons in order to tighten corner radii, creating a larger pedestrian landing area and reducing bicycle and pedestrian crossing exposure, particularly at the SE, NE and NW sides of this busy intersection. Part of these long term improvements should also consider reducing the curb cuts at the corner gas station to create a more predictable and safe entry/exit of vehicles from this gas station while improving overall pedestrian safety.

13. Governor Peck Road at River Road/Route 117
Improved lighting and "don't block the box / intersection" markings here should be installed to promote bicycle and pedestrian safety at these busy crossroads.

Feasibility of a Rectangular Rapid Flashing Beacon (RRFB) at this location should be also be studied to improve road user safety at this crossing.



Community Actions

In addition to changes to the infrastructure of roadways and trails throughout Richmond, direct community actions by the town, committees, and aligned groups can offer unique and creative low cost solutions to improve conditions for walking and biking along Richmond's roadways and trails.

Speed Limit Coordination

Coordination with the Town of Hinesburg and other adjacent municipalities could allow the Town to work with its neighbors to ensure that road corridors receive consistent speed limits that better accommodate the shared use of common roads.

Hinesburg Road was mentioned multiple times in the public engagement process as a concern due to the relatively high 45mph speed limit. In addition, when one crosses the invisible boundary to the Town of Hinesburg, the same roadway shifts immediately to a 35mph speed limit. This also happens at the Jericho boundary on Jericho Road.

Organize a Bicycle & Pedestrian Count Program

The Town can work with the CCRPC to collect bicycle and pedestrian count data on key roads and trails throughout Richmond. This would support future grant applications and inform the design of new facilities.

Promote a Trails / Walking and Biking Map

This can be an online map or printed map showing bike routes, relative biking/walking level of comfort for various routes and corridors, distance between major destinations, sites of interest, and other amenities such as public restrooms and water fountains. Work with local businesses to distribute the map.

Improve Access to Bike Parking

The availability of bike parking is often a major factor in encouraging bicycling and attracting customers who travel by bicycle. Work with local businesses on implementation. Consider updating town zoning ordinances to strengthen bike parking requirements as part of new development.

Install Public Bike Maintenance Stations

Public maintenance stations allow bicyclists to fill tires with air and complete minor repairs. These stations offer convenience to bicyclists and increase the visibility of bicycling in the community. Potential priority locations include the Park and Ride, the Village, or Volunteers Green.

Host Walk Audits

The Town can use the AARP Walk Audit Tool Kit to host walk audits that engage the community and bring people together to talk about how to make roads safer for people walking.

During the summer of 2022 the Transportation Committee conducted walk audits for the Richmond Village, Jonesville, and Round Church area.

Implementation

Implementation

This chapter is intended to serve as a guide to making this plan and the ideas within become reality. Written for the Town of Richmond's staff, elected officials, advocacy groups, and community members, this chapter provides a guide to the next steps, funding mechanisms, and ongoing coordination and planning efforts needed to move from idea to implementation.

This chapter includes information on:

- Project Delivery Timelines
- Project Prioritization
- Opinions of Probable Costs
- Additional Planning Recommendations
- Future Funding Opportunities
- Case Study Examples

Project Timelines

The projects recommended in this plan exist along a wide spectrum of 'readiness'. Some projects, such as Bridge Street sidewalks and pedestrian crossing improvements, have already been fully scoped and await funding for implementation. Others, such as a redesigned Fays Corner intersection, will need an additional level of public engagement and study before they are shovel-ready.

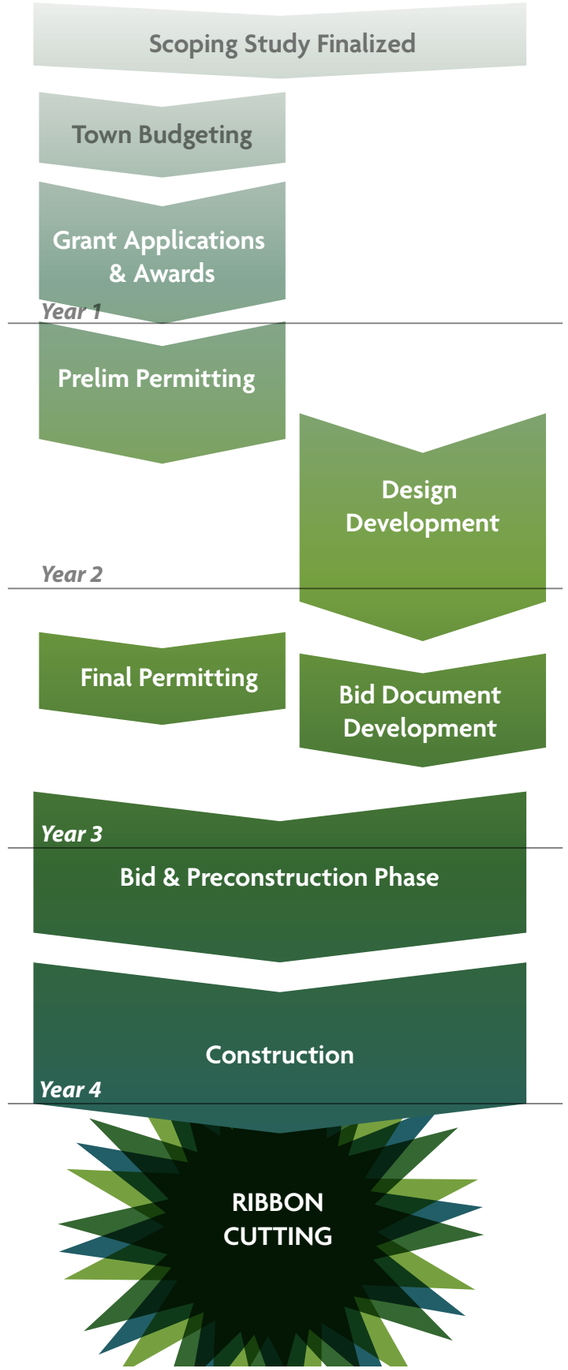
The additional work that is needed to bring conceptual recommendations to implementation funding readiness is commonly referred to as a scoping study. A scoping study investigates relevant permitting requirements, develops detailed alternative designs and cost estimates, and conducts additional public engagement to ensure that the community is in support of a proposed change, and that the Town is sufficiently prepared to approach the project financially.

Scoping studies typically take 12-18 months to complete. Once complete, the Town can move to the next step of budgeting and developing grant applications to fund permitting, design, and construction.

A general timeline for major infrastructure projects is pictured at right, and should be estimated as a 4 year process.

There are recommendations in this plan, such as short term solutions for many corridors involving paint only or temporary construction that would be able to shortcut this timeline. Some projects, such as trails on private land to be constructed with volunteer labor, do not require federal funding resources and can be realized in a much shorter timeframe.

This timeline is conceptual, and can not account for unforeseen elements such as severe winter and climate delays, unmapped / unanticipated underground constraints, or politics and/or litigation.



Project Prioritization

The Bike, Walk, and Trails Plan includes a prioritization framework that scores and ranks infrastructure projects according to criteria that fall under the Plan's vision framework: safe and welcoming, connected, healthy, and climate adaptive. The table at right describes the five categories and measures used to generate the project priority list found on the following page.

This scoring approach should be used as one of many tools in planning a strategy for implementation. Scoring criteria are determined by project committee and professional judgment and because that is itself subjective, it is important to apply a human touch to how the Town enhances its transportation network.

For example, the scoring criteria do not include social and political factors, public perception or opinion related to need or impact, and some realities of project delivery. Additionally, prioritization scoring lacks a consideration for funding constraints.

For these reasons, a project with a lower score may need to be completed prior to a higher scored project to realize the broader vision of this plan and the Town's transportation network goals.

Category	Measure	Description	Points
Equity	Does the project help people in disadvantaged communities?	Connectivity to an area designated as a "disadvantaged community"	Direct connection to a disadvantaged community: 10 points Indirect connection: 5 points
Safety	Does the project address a high crash risk location?	Project is located along a high-crash node	Located at top-2 crash location: 10 points Other crash location: 5 points
Bicyclist/ Pedestrian Comfort	Does the project improve comfort for people walking and biking?	The extent to which the project improves bicyclist/pedestrian level of comfort	New path or trail: 10 points New sidewalk: 5 points New separated bike lane: 5 points New on-street bikeway: 2 points Traffic calming/advisory bike lane: 1 point
Connectivity	How many essential location types does the project connect to?	Points for connectivity to each of the following categories: · School · Park or open space · Neighboring municipality · Park & Ride · Commercial Destination	Direct connection: 2 points Indirect connections: 1 point
Feasibility	Is the project located along a roadway where right of way, topography, or other issues make implementation challenging and/or expensive?	Project has one of the following challenges: · Limited right-of-way or need for acquisitions/easements · Complicated environmental permitting · Construction Complexity	Subtract 5 points for each

Project Priority Summary

This table illustrates how each project scores based on the criteria listed on the previous page. The following pages contain tables detailing the individual equity, safety, comfort, connectivity and feasibility scores which generated each project's final ranking.

Project #	Project Name	Project Score	Project Rank	
3	River Road/VT-117	33	1	Top Third
2	Governor Peck Highway	32	2	
1	Main Street/US-2	28	3	
4	Bridge Street	19	4	
5	Jericho Road	16	5	
21	Cochran Road - Full Shared Use Path	15	6	
14	Snipe Ireland Trail	14	7	
27	Huntington Road	13	8	
11	Johnnie Brook Trail	12	9	
13	Old Jericho Rd Trail	12	9	
35	Preston Forest Western Access Trail	11	11	
22	Cochran Road - Traffic Calming Only	10	12	Middle Third
12	Sip of Sunshine Trail	10	12	
15	Stage - Snipe Ireland Connector	10	12	
16	Warren & Ruth Beeken River Shore Trail	10	12	
17	Volunteers Green Trail Extension	10	12	
18	West Village Connector Loop	10	12	
19	Andrews Community Forest	10	12	
24	East Hill Road	9	19	
25	Hinesburg Road (E/W Corridor)	9	19	
26	Hinesburg Road (N/S Corridor)	9	19	
37	Fays Corner	9	19	
20	Cochran Road - Sidewalk and Trail Connections	8	23	
10	Stage Road	8	23	Lower Third
34	Johnnie Brook Trail Extension	7	25	
6	Southview Drive	6	26	
33	Wes White Hill	5	27	
9	Snipe Ireland Road	4	28	
28	Dugway Road	4	28	
36	Palmer Road Class 4 Road	4	28	
7	Valley View Road	2	31	
30	Hillview Road	2	31	
31	Kenyon Road	2	31	
8	Hidden Pines Circle	1	34	
29	Cemetery Road	1	34	
32	Williams Hill Road	1	34	

Project Priority Summary - Phase 1

Project Number	Project Name	Short-Term Recommendation	Long-Term Recommendation	Length (FT)	Prioritization Scores					Final Score	Final Priority Ranking
					Equity	Safety	Comfort	Connectivity	Feasibility		
1	Main Street/US-2	Bike Lanes	SUP	29,478	5	10	10	**9**	**6**	28	3
2	Governor Peck Highway	Advisory Lane	SUP	4,220	10	10	10	**4**	**2**	32	2
3	River Road/VT-117	SLM	SUP	4,053	10	10	10	**5**	**2**	33	1
4	Bridge Street	Climbing Lane & Painted Walkway	Sidewalks	3,009	0	10	7	**2**	**0**	19	4
5	Jericho Road	Advisory Lane	Sidewalk & Climbing Lane	9,507	0	5	7	**4**	**0**	16	5
6	Southview Drive	Neighborway	Sidewalks	6,738	0	0	5	**1**	**0**	6	26
7	Valley View Road	Neighborway	Advisory Lane	4,809	0	0	1	**1**	**0**	2	31
8	Hidden Pines Circle	Neighborway		4,426	0	0	1	**0**	**0**	1	34
9	Snipe Ireland Road	Neighborway		15,173	0	0	1	**3**	**0**	4	28
10	Stage Road	Neighborway		14,339	0	5	1	**2**	**0**	8	23
11	Johnnie Brook Trail		Trail Upgrades	1,853	0	0	10	**2**	**0**	12	9
12	Sip of Sunshine Trail		Trail	7,352	0	0	10	**2**	**2**	10	12
13	Old Jericho Rd Trail		Trail Upgrades	3,319	0	0	10	**2**	**0**	12	9
14	Snipe Ireland Trail		Trail Upgrades	2,581	0	0	10	**4**	**0**	14	7
15	Stage - Snipe Ireland Connector		Trail	3,571	0	0	10	**2**	**2**	10	12
16	Warren & Ruth Beeken River Shore Trail		Trail	6,397	0	0	10	**2**	**2**	10	12
17	Volunteers Green Trail Extension		Trail	12,305	0	0	10	**2**	**2**	10	12
18	West Village Connector Loop		Trail	1,744	0	0	10	**2**	**2**	10	12
19	Andrews Community Forest		Trail	8,452	0	0	10	**2**	**2**	10	12

Project Priority Summary – Phase 2

Project Number	Project Name	Short-Term Recommendation	Long-Term Recommendation	Length (FT)	Prioritization Scores					Final Score	Final Priority Ranking
					Equity	Safety	Comfort	Connectivity	Feasibility		
20	Cochran Road - Sidewalk and Trail Connections	West End Sidewalk & Natural Surface Trails		18,122	0	0	5	**9**	**-6**	8	23
21	Cochran Road - Full Shared Use Path		Continuous Sidepath from Bridge to Dugway	18,122	0	0	10	**9**	**-4**	15	6
22	Cochran Road - Traffic Calming Only	Traffic Calming at Crossings		18,122	0	0	1	**9**	**0**	10	12
24	East Hill Road	Climbing Bike Lane	Bike lanes in both directions w/ widening	3,954	0	5	5	**1**	**-2**	9	19
25	Hinesburg Road (E/W Corridor)	Climbing Bike Lane	Bike lanes in both directions w/ widening	7,718	0	5	5	**1**	**-2**	9	19
26	Hinesburg Road (N/S Corridor)	Climbing Bike Lane	Bike lanes in both directions w/ widening	12,241	0	5	5	**1**	**-2**	9	19
27	Huntington Road	Climbing Bike Lane	Bike lanes in both directions w/ widening	20,963	0	5	5	**5**	**-2**	13	8
28	Dugway Road	Bike/ped safety & wayfinding signage; Reduce speed limits		16,943	0	0	1	**3**	**0**	4	28
29	Cemetery Road	Bike/ped safety & wayfinding signage; Reduce speed limits		3,860	0	0	1	**0**	**0**	1	34
30	Hillview Road	Bike/ped safety & wayfinding signage; Reduce speed limits		14,021	0	0	1	**1**	**0**	2	31
31	Kenyon Road	Bike/ped safety & wayfinding signage; Reduce speed limits		11,238	0	0	1	**1**	**0**	2	31
32	Williams Hill Road	Bike/ped safety & wayfinding signage; Reduce speed limits		7,347	0	0	1	**0**	**0**	1	34
33	Wes White Hill	Bike/ped safety & wayfinding signage; Reduce speed limits		16,383	0	0	1	**4**	**0**	5	27
34	Johnnie Brook Trail Extension	Trail		3,242	0	0	10	**1**	**-4**	7	25
35	Preston Forest Western Access Trail	Preston Forest west-side access			0	0	10	**1**	**0**	11	11
36	Palmer Road Class 4 Road	Connectivity pending litigation		1,033	0	0	5	**1**	**-2**	4	28
37	Fays Corner	Study 2 or 4-way stop	Update intersection design		0	5	10	**0**	**-6**	9	19

Opinions of Probable Cost

Opinions of probable cost ranges were developed by identifying major pay items and establishing rough quantities to determine a order of magnitude cost.

Additional pay items have been assigned approximate lump sum prices based on a percentage of the anticipated construction cost. Planning-level cost opinions include a contingency to cover items that are undefined or are typically unknown early in the planning phase of a project. This plan's costs apply a 25% contingency.

Cost opinions do not include easement and right-of-way acquisition; permitting, inspection, or construction management; engineering, surveying, geotechnical investigation, environmental documentation, special site remediation, escalation, or the cost for ongoing maintenance.

The overall cost opinions are intended to be general and used only for planning purposes. There are no guarantees or warranties regarding the cost estimates herein. Construction costs will vary based on the ultimate project scope, actual site conditions and constraints, schedule, and economic conditions at the time of construction. Because resources utilized to derive this cost estimate were developed in 2020, a 17.5% increase has been added to original estimates to account for likely continued inflation into 2023.

What are the costs based on?

Most unit prices in these estimates are based on VTrans 2020 Report on Shared-Use Path and Sidewalk Costs. These unit costs are based on linear length or presented as a lump-sum total for some types of infrastructure. Some additional items are based on the upper end of cost range from the ITE Traffic Calming Fact Sheets May 2018 Update.

All projects include a 5% cost factor to account for contractor mobilization, which is the typical "starting" cost that contractors charge for moving equipment into place and setting up and tearing down job sites. All projects also include a estimated 5% factor to account for the cost of flaggers and equipment necessary to direct traffic in work zones.

What's included in the cost estimates?

The approach for estimating costs is similar for each type of project. The elements included in the cost estimates of each type of project are summarized as follows:

Sidewalks - Sidewalks are assumed to be 5' wide, with concrete curbs. The linear cost of $277 per linear foot is based on topography that requires typical amounts of grading and leveling, drainage, and landscaping and utility relocation.

Shoulder Widening and Paving - Shoulder widenings are assumed to cost $510,000 per mile at a width of 5'. Some bike lane projects require shoulder widening.

Enhanced Crosswalks - Crosswalks at busy or strategically important locations are assumed to include solar powered Rectangular Rapid Flashing Beacons, at a cost of about $10,000 per crossing.

Traffic Calming - Traffic Calming projects are uniquely costed based on the anticipated treatment to be included. Traffic calming along Cochran Road is assumed to include asphalt raised crosswalks, costed at a unit price of $8,000 each. When speed humps are included, they are estimated cost $2,500 each.

Paint and Signs - Traffic signs are included as necessary and are estimated at a unit cost of $300 and paint is estimated at a unit cost of $75 per square yard. Annual maintenance costs are not included in these estimates.

Trails - Trails are assumed to be 8' wide gravel surface trails at a cost of $20 per linear foot. Trail projects include an additional 2% cost factor for erosion and sediment control.

Shared-Use Paths - Shared-use paths are assumed to be 10' wide asphalt paths at a base cost of $82 per linear foot. All shared used path projects include $190,000 per mile for utility relocation and $370,000 per mile for site walls. Actual costs may vary based on actual utility placement and topography.

Phase 1 Projects - North of Winooski River

Project Number	Project Name	Opinion of Probable Cost (2020 Dollars)	Projected Opinion of Probable Cost (2023 Dollars)
1	Main Street/US-2 - Short Term	$115,350.00	$135,540.00
1	Main Street/US-2	$6,302,580.00	$7,405,530.00
2	Governor Peck Highway - Short Term	$27,300.00	$32,080.00
2	Governor Peck Highway	$1,657,260.00	$1,947,280.00
3	River Road/VT-117 - Short Term	$7,280.00	$8,550.00
3	River Road/VT-117	$1,636,700.00	$1,923,120.00
4	Bridge Street - Short Term	$289,810.00	$340,530.00
4	Bridge Street	$1,154,020.00	$1,355,970.00
5	Jericho Road - Short Term	$61,940.00	$72,780.00
5	Jericho Road	$3,742,410.00	$4,397,330.00
6	Southview Drive - Short Term	$66,600.00	$78,260.00
6	Southview Drive	$2,584,180.00	$3,036,410.00
7	Valley View Road - Short Term	$50,040.00	$58,800.00
8	Hidden Pines Circle	$45,520.00	$53,490.00
9	Snipe Ireland Road	$152,660.00	$179,380.00
10	Stage Road	$146,420.00	$172,040.00
11	Sip of Sunshine Trail	$213,710.00	$251,110.00
12	Old Jericho Rd Trail	$6,800.00	$7,990.00
13	Snipe Ireland Trail	$6,800.00	$7,990.00
14	Stage - Snipe Ireland Connector	$104,070.00	$122,280.00
15	Warren & Ruth Beeken River Shore Trail	$185,910.00	$218,440.00
16	Volunteers Green Trail Extension	$357,810.00	$420,430.00
17	West Village Connector Loop	$50,850.00	$59,750.00
18	Andrews Community Forest	$245,660.00	$288,650.00

Phase 2 Projects - South of Winooski River

Project Number	Project Name	Opinion of Probable Cost (2020 Dollars)	Projected Opinion of Probable Cost (2023 Dollars)
20	Cochran Road - Sidewalk and Trail Connections	$1,151,110.00	$1,352,550.00
21	Cochran Road - Full Shared Use Path	$4,762,030.00	$5,595,390.00
22	Cochran Road - Traffic Calming Only	$90,290.00	$106,090.00
24	East Hill Road Bike Lanes - Short Term	$53,920.00	$63,360.00
24	East Hill Road Bike Lanes	$750,870.00	$882,270.00
25	Hinesburg Road (E/W Corridor) Bike Lanes - Short Term	$105,250.00	$123,670.00
25	Hinesburg Road (E/W Corridor) Bike Lanes	$1,465,380.00	$1,721,820.00
26	Hinesburg Road (N/S Corridor) Bike Lanes - Short Term	$166,920.00	$196,130.00
26	Hinesburg Road (N/S Corridor) Bike Lanes	$2,324,240.00	$2,730,980.00
27	Huntington Road Bike Lanes - Short Term	$285,860.00	$335,890.00
27	Huntington Road Bike Lanes	$3,980,720.00	$4,677,350.00
28	Dugway Road Huntington River Water Access Wayfinding	$6,800.00	$7,990.00
29	Cemetery Road Chamberlain Hill Trailhead Wayfinding	$2,720.00	$3,200.00
30	Hillview Road Speed Limits and Wayfinding	$6,470.00	$7,600.00
31	Kenyon Road Speed Limits	$1,930.00	$2,270.00
32	Williams Hill Speed Limits and Wayfinding	$2,270.00	$2,670.00
33	Wes White Hill Speed Limits	$1,810.00	$2,130.00
34	Johnnie Brook Trail Extension	$94,200.00	$110,690.00
35	Preston Forest Western Access Trail	$15,680.00	$18,420.00
36	Palmer Road Class 4 Road	$410.00	$480.00
37	Fays Corner - Short Term	$50,000.00	$58,750.00
37	Fays Corner	$2,025,000.00	$2,379,380.00

Additional Actions for a Safe, Welcoming and Connected Richmond

Once this plan is adopted, it represents the first step towards building a safe, welcoming, connected, healthy and climate resilient Transportation system for Richmond. Additional efforts that could be considered for the town are listed below.

Adopt an Official Map to Support Future Roads and Trail Development

The Vermont Planning and Development Act (24 V.S.A., Chapter 117) authorizes municipalities that have a municipal plan in effect to prepare and adopt an official map (§4421). The Official Map can include existing and future planned road and trail corridors to ensure that future development complements, and does not conflict with, planned expansion of the active transportation network throughout Richmond.[1]

Richmond's neighboring Town of Hinesburg has adopted an official map that clearly outlines the location of future roads and trails to be developed as the Village Center grows and changes. This type of official map can ensure that future development along key corridors such as Cochran Road, Route 2, or Route 117 does not impede the potential of future shared use paths along these corridors.

In the absence of an official map, the maps included in this report should be utilized to gauge the impact of development proposals on planned active transportation infrastructure.

Pedestrian and Bicycle Connectivity Policies

Street connectivity is a fundamental component of walkability as it determines if walking or biking to a nearby destination is even possible. A child may live within half a mile of their school as-the-crow-flies, but if they live on a dead-end street, they may have to walk a mile out of the way to get there. This additional distance may be insignificant in a car, but it can make walking, biking, or reaching a bus stop much more difficult. Pictured at the bottom right is a local example of the impacts of a disconnected street grid.

If future development in Richmond includes dead-end streets or cul-de-sacs, the Town should consider passing ordinances that require direct pedestrian connections, sidewalks, or cut-throughs at the terminus of cul-de-sacs. Such an ordinance can be a low-cost and highly effective way to improve the function of a bicycle and pedestrian network through Richmond, while maintaining the ability to eliminate motor vehicle through-traffic on quiet neighborhood streets.

The Town of Williston provides an example of guidance on connectivity in its Comprehensive Plan in Section 6.1.4:

> "The Town of Williston will require multiple points of access to most developments. It will also strongly encourage safe, functional connections between neighborhoods, and within residential and commercial areas and public places."

Trails Project Implementation

Richmond enjoys a robust network of trails on both public and private lands throughout the community. This plan identifies several general trail projects that could improve overall active transportation connections and link existing road and trail networks at much lower cost than road expansions or improvements.

Implementation of trail projects, both within and beyond what is recommended in this plan should be developed on a collaborative basis between individual landowners and trail advocacy organizations such as the Richmond Trails Committee and Richmond Mountain Trails. These committees are ideal groups to develop proposals for trail connections and open dialog with landowners outside of a public planning process.

For many future trail projects, the answer may not be in this plan. Trails on private land should be discussed directly with landowners, and in many cases, may proceed only if trail advocates agree to abide by agreements that limit the trail's public profile to prevent overcrowding, excessive noise, or other specific impacts on private land.

Route 2 Corridor Implementation

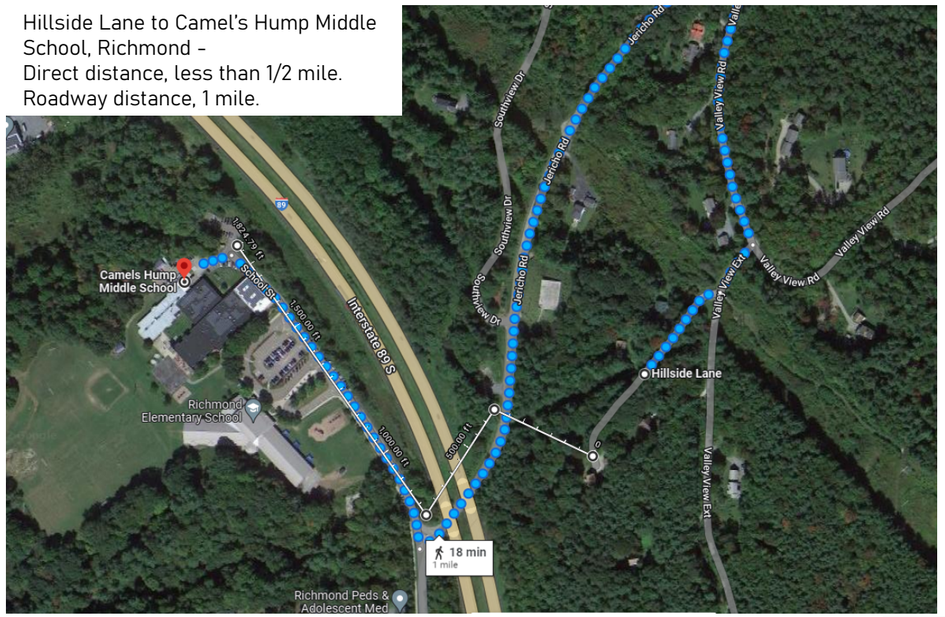
Route 2/Main Street is scheduled for repaving sometime between summer 2022 to 2024. This project will provide 5' shoulders along much of this corridor, but some pinch points will still have shoulders narrower than 1' due to physical constraints.

As of this writing, the Town is pursuing a targeted scoping study which could address these gaps in functional shoulder width. The town is also pursuing additional studies with the CCRPC to develop design alternatives to build a Route 2 corridor to link the Riverview Commons Neighborhood with the Park and Ride and Village core.

It is worth noting that some VTrans policies will make implementation of some corridor recommendations difficult. Most significant is the agency's standard requiring 14 ft from the centerline on state highways to be clear of obstructions, including parallel parking or a shared use path.

This makes many complete streets recommendations impossible in villages; and often prompts the discussion of the Town taking over the road from VTrans. If the town of Richmond elected to take over Route 2/Main Street through the Village; it would need to take on maintenance responsibility, but could get funding from VTrans that mostly offsets the costs. This would allow the Town to have full control of the design, speeds limits, and parking throughout this corridor.

Hillside Lane to Camel's Hump Middle School, Richmond -
Direct distance, less than 1/2 mile.
Roadway distance, 1 mile.



1 Learn more about Official Maps at http://vpic.info/Publications/Reports/Implementation/OfficialMap.pdf

Funding Source Opportunities

Implementation of these projects will not be accomplished solely with town funding. Additional costs can be funded collaboratively through state and federal grants and matching local funds. If viewed digitally, the title of each grant hyperlinks to a project webpage with more specific information. In addition to this document, the CCRPC maintains a Funding Opportunities database for planning and infrastructure-related projects[1].

Local Funding

Richmond Conservation Reserve Fund:
The fund was created for the purpose of providing outdoor recreational opportunities (as well as preserving water quality, protecting wildlife, and conserving natural, agricultural, and historic resources). The fund may be used to establish and maintain hiking trails; permanently preserve public access to land valued for hiking, biking, and other types of affordable outdoor recreation; and maintain Richmond's rural character, historical heritage, beautiful scenery, and economic viability and quality of life.

CCRPC's Unified Planning Work Program:
The Unified Planning Work Program (UPWP) is a federally mandated document serving as the annual work plan for local and regional transportation planning projects. The document is updated annually and summarizes transportation and land use planning activities for CCRPC, member agencies, and other groups working in the Chittenden County region. Projects are selected from those submitted during an open request for proposals. The Town should request funding for scoping or other studies to advance the recommendations in this report.

Applications are solicited annually from CCRPC member communities.

1 See https://www.ccrpcvt.org/funding-opportunities/ for more details

Private Funding

AARP Community Challenge Grant program:
This program is part of AARP's nationwide Livable Communities initiative, which supports the efforts of cities, towns, and neighborhoods and rural areas to become great places to live for people of all ages. The program supports all community types, with nearly 40% of past projects benefiting rural communities. Grants range from several hundred dollars for small, short-term activities to several thousand or tens of thousands for larger projects.

Recent deadline: March 22, 2022

VNRC Small Grants for Smart Growth:
Vermont Natural Resources Council provides grants for community-based initiatives related to smart growth. Eligible transportation activities include hiring a designer to improve walking and biking amenities, organizing a diverse group of stakeholders to engage in a planning process, and convening landowners for discussions about connecting trail networks, and more. Up to $3,000 is available in a grant round and additional grants are available for $500 to $1,500.

Applications accepted on a rolling basis.

PeopleForBikes Community Grant Program:
The PFB Community Grant Program supports bicycle infrastructure projects and targeted advocacy initiatives that make it easier and safer for people of all ages and abilities to ride. Most grant funds are focused on bicycle infrastructure projects like bike paths, lanes, trails, and bridges; mountain bike facilities; bike parks and pump tracks; BMX facilities; and end-of-trip facilities like bike racks, bike parking, bike repair stations, and bike storage. Engineering and design work are funded. Grant requests up to $10k may be made and total funding must be leveraged by at least 50%.

Recent deadline: October 31, 2022

State Administered Funding[2]

Vermont Community Development Program
This program assists communities by providing financial and technical assistance to support infrastructure development and planning. Of the grant types offered, planning and implementation grants are anticipated to be the most useful in supporting this plan's recommendations. Planning grants range from $3,000 - $60,000 and implementation grants to fund infrastructure development range from $50,000 to $1,000,000.

Recent deadline: April 12th, 2022

ACCD Municipal Planning Grants
The Municipal Planning Grant (MPG) program supports planning and revitalization for local municipalities in Vermont. Awarded annually and administered by the Department of Housing and Community Development, the MPG program works to strengthen Vermont by funding local planning initiatives that support statewide planning goals. Grants offer up to $35k in state funding that offers a flexible range of planning services to Vermont communities.

Recent deadline: December 1, 2022

VTrans Better Roads Program:
This program provides Vermont towns with funding and technical assistance to implement cost-effective techniques that reduce erosion on roads while enhancing water quality. Grants are provided by the Agency of Transportation in partnership with the Agency of Natural Resources. Different categories of grants are available, including for the installation of grass- or stone-lined ditches, small culverts, rain gardens that treat road runoff, and catch basins or drop inlets. Projects range in cost from $10k to $75k and a 20% local match is required.

2 The majority of the state-administered funds are from federal sources and must comply with all federal guidelines.

Next deadline: Fall 2023

VTrans Bicycle and Pedestrian Program:
The intent of the program is to improve access and safety for bicyclists and/or pedestrians through the planning, design, and construction of infrastructure projects. Both small-scale grants (for signs, pavement markings, crossing enhancements, on-road bike facilities) and federal aid grants (for scoping or feasibility studies and design/construction of projects) are available.

Recent deadline: Fall 2023

VEDA Electric Vehicle Charging Station Loan Program: This program is funded through the State Infrastructure Bank (SIB), operated by the Vermont Economic Development Authority with VTrans and the Federal Highway Administration. The financing is available for the purchase and/or installation of electric vehicle charging stations made available for use by the general public. The loan amount is up to $100,000, the interest rate is 1% fixed, and there is a 2% commitment fee.

VTrans Municipal Highway and Stormwater Mitigation Program:
This program funds environmental mitigation activities, including pollution prevention and pollution abasement activities and mitigation to address stormwater management, control, and water pollution prevention or abatement related to highway construction or due to highway runoff. Potentially eligible projects include bank stabilization, culvert replacement or resizing, detention ponds, permeable pavers, subsurface detention systems, and bio retention systems – among others. This funding source may be applied to a project for Route 2/Main Street or I-89. A 20% local match is required.

Recent deadline: Fall 2022

VTrans Park and Ride Program:
This program includes grants for the assessment and upgrade of existing state-owned facilities and the management of ancillary support activities. The 2014 Park-and-Ride Study noted the need for the Richmond lot to be upgraded. There may be an opportunity to apply for funds for EV charging stations, electric bike charging stations, improvements to bicycle and pedestrian access, and secure bicycle parking.

Recent deadline: September 2, 2022

VTrans Municipal Roads Grants-in-Aid Program:
Provides technical support and grant funding to municipalities to promote the use of erosion control and maintenance techniques that save money while ensuring best management practices are completed in accordance with the Vermont Department of Environmental Conservation's Municipal Roads General Permit (MRGP). Based on estimated hydrologically connected municipal road miles and as of May 2021, Richmond has approximately 35 to 40 connected road miles and is eligible for $18,400 from VTrans, not including a required 20% local match. This grant could support road shoulder widening work as recommended in this plan.

Recent deadline for letter of intent to participate: June 24, 2022

VTrans Transportation Alternatives Program (TAP): TAP provides funding for on- and off-road pedestrian and bicycle facilities; infrastructure projects improving non-driver access to public transportation and enhancing mobility, community improvement activities, and environmental mitigation; trails that serve a transportation purpose; and safe routes to school projects.

Recent deadline: November 24, 2021

Vermont State Infrastructure Bank (SIB):
SIB is operated by the Vermont Economic Development Authority with VTrans and the Federal Highway Administration. The bank offers loans to municipalities and private sector companies contracted with public authorities to assist in the construction and reconstruction of highways, roads and bridges, pedestrian facilities, and certain rail transit or public transit facilities. Interest rates are 1% fixed for loans to municipal-type borrowers and loan term may not exceed 30 years with repayment, commencing no later than five years after completion of project.

Federally Administered Funding

Infrastructure for Rebuilding America (INFRA)
INFRA is a discretionary grant program to fund transportation projects of national and regional significance. Projects will be evaluated on whether they were planned as part of a comprehensive strategy to address climate change, or whether they support strategies to reduce greenhouse gas emissions such as deploying zero-emission-vehicle infrastructure or encouraging modal shift and a reduction in vehicle-miles-traveled. The USDOT seeks local sponsors who are significantly invested and is positioned to proceed rapidly to construction. Projects may be large (at least $25 million) or small (at least $5 million). The USDOT reserves at least 25% of funding for rural projects. Projects leveraging non-federal funding sources will be prioritized.

Recent deadline: May 23, 2022

Rebuilding American Infrastructure with Sustainability and Equity (RAISE):
RAISE provides capital funding directly to any public entity, including municipalities and counties. Funding is intended to benefit communities large and small and the available funding will be distributed equally (50/50) in urban and rural areas. These discretionary grants, formerly known as BUILD and TIGER, offer up to $25 million for each award.

Safe Streets and Roads for All (SS4A)
This new grant resource supports planning, infrastructure, behavioral, and operational initiatives to prevent death and serious injury on roads and streets involving all roadway users, including pedestrians; bicyclists; public transportation, personal conveyance, and micromobility users; motorists; and commercial vehicle operators.

Recent Deadline: September 15, 2022

State Economic & Infrastructure Development Investment Program
The Northern Border Regional Commission is a partnership between the federal government and the States of Maine, New Hampshire, New York and Vermont. Grants invest in economic development and infrastructure projects that create jobs and help reduce poverty, unemployment and outmigration. Up to $1M can be granted for infrastructure projects.

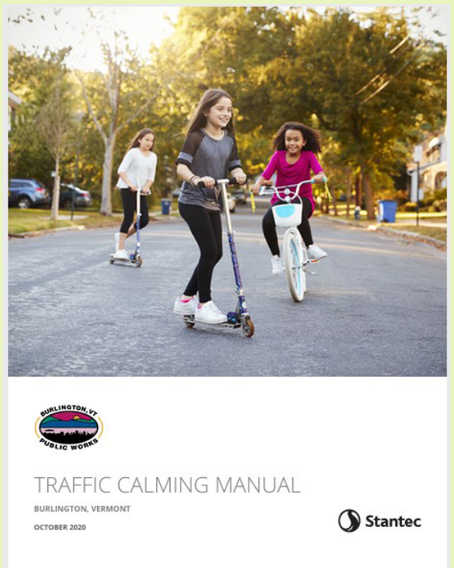
Case Studies

Case studies are provided here as a reference to tools and local precedents that may be useful for the Town of Richmond as it works to implement this plan. These projects have been implemented recently, are located in Vermont, and are similar in proposed design and scope to projects proposed in this plan. Each case study includes a brief description as well as links to online resources and project contacts who may have direct knowledge of the history, design, implementation, and public feedback from these infrastructure projects.

A toolkit for Traffic Calming in Burlington VT

The City of Burlington has developed an official traffic calming manual to streamline the study, approval, and implementation of traffic calming treatments throughout city. This manual outlines the many available options for managing speed and traffic volume through design interventions and their effectiveness and appropriateness on different types of streets.
www.burlingtonvt.gov/sites/default/files/Traffic_Calming_Manual_FINAL_100920.pdf

Since the launch of this manual, the city of Burlington has designed or implemented traffic calming measures on six corridors throughout the city.



Local Example - Shared Use Path Adjacent to State Highway in Montpelier VT

The Cross Vermont Trail is a phased, ongoing project to create a multi-use path across the width of the state of Vermont. One recently completed phase of the project that is particularly relevant to Richmond's future shared-use paths projects is the segment east of Montpelier between the newly installed Winooski Bridge and the Hidden Dam trailhead parking area about 2,000 ft to the east. This section of trail runs between the Winooski River and Route 2, partly in the woods, and partly along the road behind a new guardrail. Some of this trail is directly located on VTrans right-of-way, as may be the case for some sections of Richmond's future shared-use paths.

This short but jurisdictionally complex section of trail was funded with a $150,400 Federal and State grant and matched with locally raised matching funds of $37,600.

For more information on this project, see https://www.crossvermont.org/about_us/gallery_bigproject.htm#Budget or contact Greg Western, the Executive Director of the Cross Vermont Trail Association, the non-profit organization behind the success of this project.


photo by Cross Vermont Trail Association

Local Example: Uphill Bike Lanes in Burke, VT

There are precedents for re-striping of two-lane roads to include an uphill bike lane throughout North America but one particularly recent and relevant local example is Darling Hill, in Burke, VT. East Darling Hill Road is a connector road that sees heavy usage by mountain bikers accessing the Kingdom Trails Association trail network. Stemming from funding constraints and topographical challenges for addition of a multi-use path highlighted in a 2015 Scoping Study, the Town of Burke elected to reconstruct the road with a 0.7 mile five-food wide uphill bike lane with a downhill shared-use markings. This project cost $956,000 and was funded by the Northern Border Regional Commission, with matching local funds by the Town of Burke and the Kingdom Trails Association.

For more information on this project, contact Burke Town Manager Mike Harris, or the executive director of Kingdom Trails Association, Abigail Long.

Local Examples: Paved Road without Centerline in Smuggler's Notch, VT

Some existing paved roads in Vermont forgo a centerline in order to encourage slower speeds on narrow pavement. This example below is near Smuggler's Notch, on VT-108. The pavement varies in width but is able to safely accommodate simultaneous two-way traffic in most segments.

This section of road carries an Annual Average Daily Traffic (AADT) volume of 1,684 but there have been no collisions over the past 10 years recorded in the VTrans Public Crash Database in this area.

Note that tractor-trailer combinations over 45 feet are now banned from this area due to several tight curves along the route where they have the potential of getting stuck.