



ESSEX KEYSTONE TRAIL CONNECTIVITY PROJECT

PREPARED BY CRO PLANNING & DESIGN
FOR THE TOWN OF ESSEX, VERMONT

ADOPTED DECEMBER 1, 2025

*A portion of the Keystone Trail network in fall.
Front and Back Cover Photo Credit: Drew Pollak-Bruce*

CRO Planning & Design
Communities | Recreation | Open Space

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Students walking to school
Photo Credits: Freepik



Adaptive mountain bikers ride a trail.
Photo Credits: International Mountain Biking Association



Families entering school.
Photo Credits: Freepik



Two people hiking in the forest.
Photo Credits: Zack Smith on Unsplash



Deer wander through protected habitat.
Photo Credits: NJ Department of Environmental Protection



A mountain biker rides trails in Essex, VT.
Photo Credits: Fellowship of the Wheel



Two people with disabilities enjoy an accessible trail.
Photo Credits: Anna Spratt on Unsplash

ACKNOWLEDGMENTS

The project team would like to acknowledge the contributions of all individuals and organizations who supported the development of the Keystone Trail Connectivity Project. We extend our appreciation to the colleagues, partners, and subject-matter experts whose collaboration, insights, and dedicated efforts were essential to completing this plan.

Project Management Team

- Kent Johnson, Town Planner
- Adam Morse, Executive Director, Fellowship of the Wheel

Project Consultant Team

- Drew Pollak-Bruce, Founder & Principal, CRO Planning & Design
- Carolyn Lawrence, Recreation Planner, CRO Planning & Design
- Jenine Estlick, Recreation Planner & Landscape Designer, CRO Planning & Design
- Mistaya Smith, Recreation Planner, CRO Planning & Design
- Tom Hand, Founding Principal, SiteForm Studio

Project Advisory Group

To ensure feedback from multiple perspectives was captured during this project, an Advisory Group was formed with stakeholders representing several committees, departments, and organizations:

- Garry Scott, Director of Facilities, Essex Westford School District
- Duane Millar Barlow, Essex Conservation and Trails Committee
- Matthew Arancio, Planning Manager, Policy, Planning & Research Section, Vermont Department of Transportation
- Melissa Needham, Healthy Communities Specialist, Vermont Department of Health
- Amanda Holland, Active Transportation Manager, Asset Management Bureau, Vermont Department of Transportation
- Jack Evans, Complete Streets Specialist, Local Motion
- Aaron Martin, Essex Director of Public Works
- Lauren Gaffney Cohen, parent, resident, former Conservation and Trails Committee member
- Georgia Lavigne, Vice Chair, Essex Planning Commission Shannon Jackson, Essex Selectboard

- Bino Cummings, Essex Conservation and Trails Committee
- Jean O'Sullivan, Essex Economic Development Coordinator
- Harlan Smith, Essex Parks Supervisor
- Adriane Martin, Director of Essex Parks and Recreation
- Hans Nedde, Essex Trails Coordinator

Project Contributors

The following team members also came together for this project, each bringing unique skills to help make the vision of the Essex Keystone Trail Connectivity Project a reality:

- **Fellowship of the Wheel (FOTW):** FOTW is the largest chapter of the Vermont Mountain Bike Association that maintains and enhances the multi-use trails in Saxon Hill and across Chittenden County. They joined the team to advise on trail connections and conditions.
- **Ide Ride Trail Builders:** A trail-building company that is widely respected for its sustainable trail design, building, and rock-armoring skills, Ide Ride worked with FOTW to identify and flag specific sustainable trail reroutes and new connections. This included trail bridge siting and design.
- **Arrowwood Environmental:** A local environmental consultant firm specializing in habitat and ecosystem analysis, Arrowwood focused on the habitat connectivity portion of this project.
- **Stantec Engineering:** A nationally-known engineering firm with active transportation and engineering specialists, their focus was on creating any necessary engineering plans and identifying associated permits.
- **Common Ground Consulting:** A consulting firm specializing in planning, facilitation, and project management, Common Ground joined the team to help Essex identify and consider different possible futures and the actions they might take in those futures when considering a connected trail system.

The Vermont Outdoor Recreation Economic Collaborative (VOREC) is a state program administered by the Vermont Department of Forests, Parks and Recreation (FPR) in partnership with the Agency of Commerce and Community Development (ACCD). The VOREC Community Grant Program funds community projects that leverage outdoor recreation, which VOREC defines as leisure, sport and therapeutic recreation activities pursued outdoors, mainly in a natural setting. The Town of Essex appreciates the support provided by this funding to advance the community's aspirations to expand access to trails, restore natural habitats, and connect important community destinations.

1 INTRODUCTION & PROJECT BACKGROUND

The Town of Essex in partnership with Fellowship of the Wheel (FOTW) has received \$80,000 in grant funding from the Vermont Outdoor Recreation Community Grant Program through the Vermont Department of Forests, Parks and Recreation for planning work to establish a multi-use trail network in the forest east of Vermont Route 289 (VT 289) to connect the Essex Town Center area with the Saxon Hill area, and other destinations such as neighborhoods, commercial areas, and schools.

PROJECT CONCEPTS

Community Planning: The project concept is supported by numerous planning documents, by recent community engagement results, and by collaboration with Town partners.

Economic and Community Need: The project concept is being advanced at an opportune time when Town staff and residents are seeking to revise the economic development strategy to grow outdoor recreation-related businesses and better tap into Vermont’s outdoor-related tourism economy.

Sustainability and Environmental Stewardship: A key objective of this project is to include robust actions to establish high-quality habitat corridors to reconnect fragmented habitat blocks. If successful, this approach may be expanded throughout Essex.

Innovation and Creativity: This project seeks to combine standard designs and best management practices in a novel way to achieve not just a convenient and attractive trail network, but to make convenient and meaningful community connections to important destinations. This will allow the recreational trail network to also serve the daily transportation needs of bicyclists and pedestrians.

Inclusivity and Increased Participation: The Town is pursuing multiple ways to maximize usage of this proposed trail network. Essex has connected with key community groups and organizations such as the Town’s Conservation and Trails Committee, FOTW, and the Essex Westford School District. Essex is pursuing trail designs that are accessible to individuals with a wide range of abilities by being gentle in slope, adequate in width, and durable in surface.

WHERE ARE WE LOOKING TO DEVELOP TRAILS AND FORM CONNECTIONS?

The focus of this project is connectivity! The hope is to improve bike and pedestrian connections between Essex schools, businesses, neighborhoods, community centers, recreation area and parks such as:

- Essex Middle School
- Founders Memorial School
- Green Mountain Montessori School & Essex Elementary School
- Essex Free Library
- Sand Hill Park
- Mathieu Town Forest
- Saxon Hill
- Business and Shopping Centers East of VT 289
- Business and Shopping Centers West of VT 289 via the Essex Way Bridge
- Residential Neighborhoods

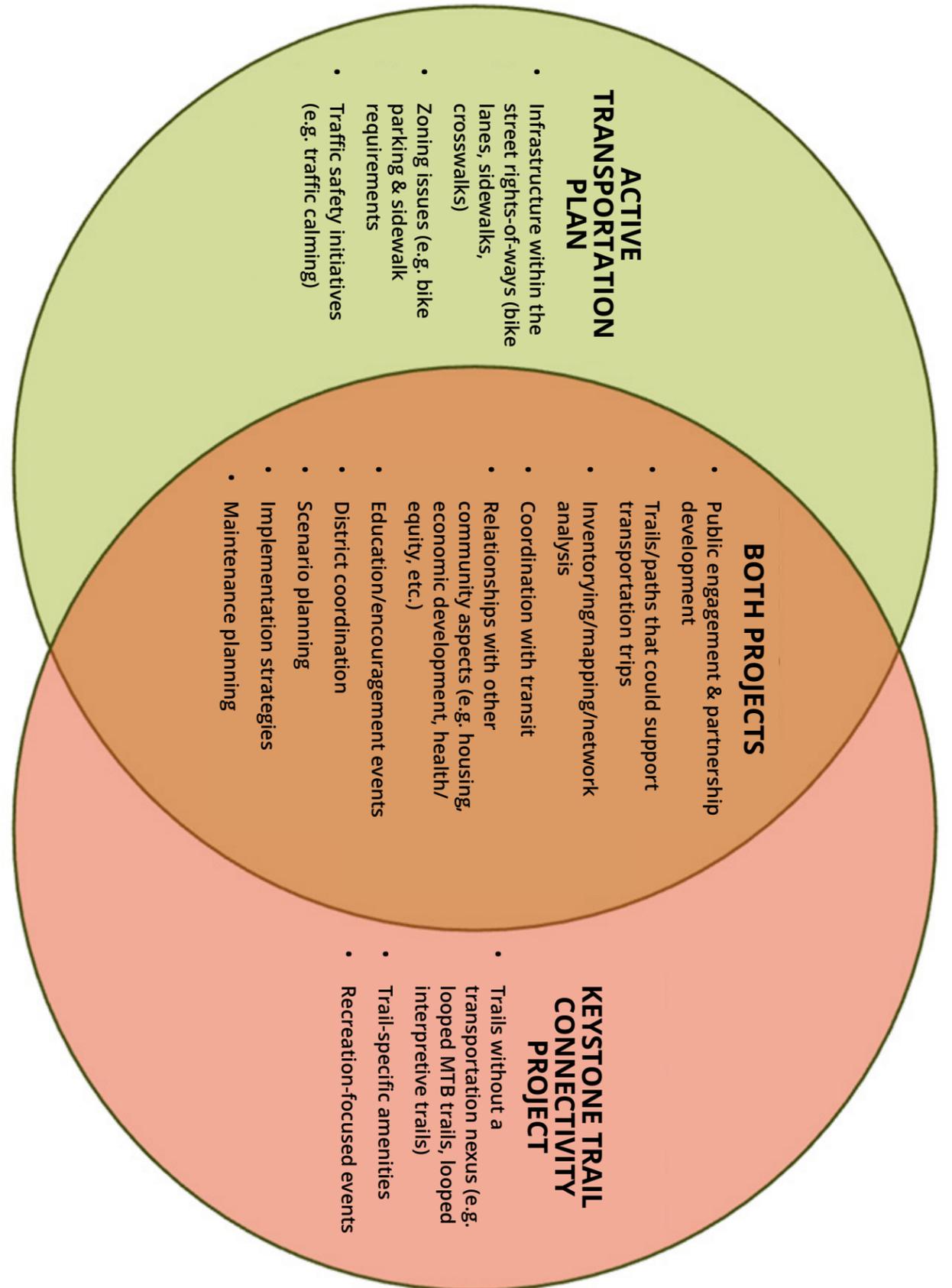
This project was completed in conjunction with the update of the Town’s separate Active Transportation Plan, recognizing the overlap between bicycle and pedestrian modes of transportation and interconnected trails (Figure 1).

HOW DO THE KEYSTONE TRAIL CONNECTIVITY PROJECT AND THE ACTIVE TRANSPORTATION PLAN DIFFER?

The Keystone Trail Connectivity Project focuses on the Town Forest area and surrounding neighborhoods, including developing a potential crossing of VT 289 in that vicinity. The Active Transportation Plan (ATP) will make recommendations for an overall bicycle and pedestrian facilities network Town-wide. This will include how to connect the proposed Keystone trail network with the Essex Town Center, the Susie Wilson Road corridor, neighborhoods, public transit stops and other key designations. The ATP will also offer recommended programs and policies to encourage more walking, biking and rolling as a complement to the built environment.

This master plan, when considered with the Active Transportation Plan and other Essex planning efforts, will enhance connectivity throughout the Town, upgrade existing trails to meet sustainable standards, create additional outdoor recreation opportunities, and identify crucial wildlife habitat connectivity corridors.

Figure 1: Overlap between the Active Transportation Plan, on bicycle and pedestrian modes of transportation, and the Keystone Trail Connectivity Project, on interconnected trails.



2 PUBLIC ENGAGEMENT

Effectively and efficiently engaging with the Town's residents throughout this project was crucial, given the project's primary focus of establishing an interconnected trail network that best serves the community. The Town created a project-specific landing page on its website to serve as a one-stop shop for project information for the public. Additional public engagement followed two phases, each including in-person and online components and included a Public Visioning phase and Community Priorities phase (summary later in this plan).

PUBLIC VISIONING ENGAGEMENT

The public visioning process aimed to understand current and desired trail use, connectivity priorities, and community concerns regarding the envisioned active transportation network in the Keystone Trail Connectivity Project Area.

A Public Visioning Open House was held at the beginning of the project to understand community members' vision, desires, and values for the site and connectivity.

- Public Visioning Open House



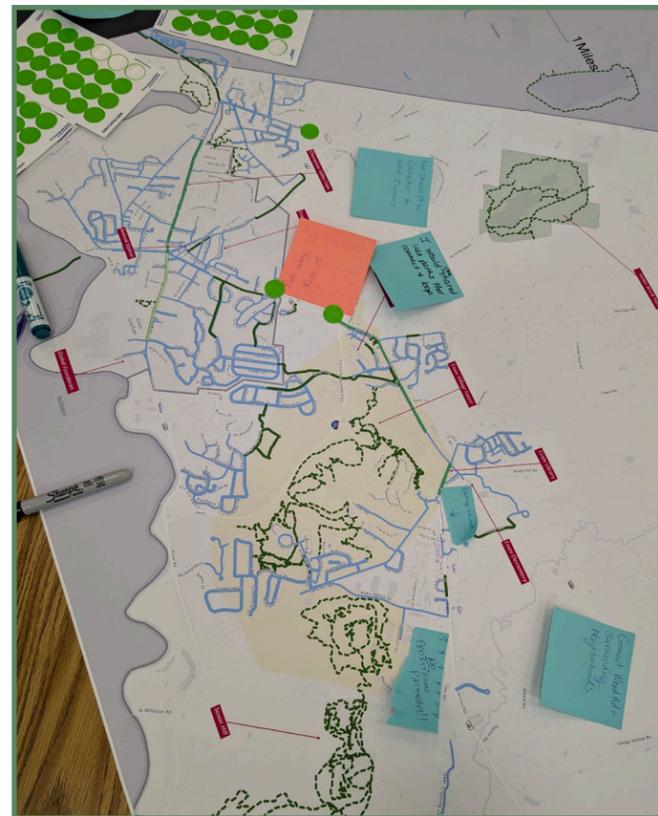
Community members shared their experiences and visions for the Keystone Trail Connectivity Project area.

Photo Credit: Carolyn Lawrence

- Held at Founders Middle School on February 20, 2025
- ~40 people attended to place sticker dots on poster boards that reflected the survey questions

After the Open House, an online survey was distributed throughout the community via email newsletters from multiple Town Departments, Front Porch Forum, social media, and printed flyers in key locations. A total of 322 responses were received, including complete responses and partial responses with enough viable data to be included.

Respondents frequently use trails in the Keystone area, with 19.5% using them daily and 27.4% weekly. The vast majority (91.4%) visit for recreation and exercise, and most outings last between 30 minutes and three hours (93.5%). Those who do not use the trails listed unawareness of the area (66.7%) or a preference for other trail systems (26.7%) as reasons why. The top three



Community members left comments through notes and sticker dots. Photo Credit: Carolyn Lawrence

summer activities respondents want the network to host and prioritize are:

- Walking and running
- Mountain biking
- Gravel/road cycling

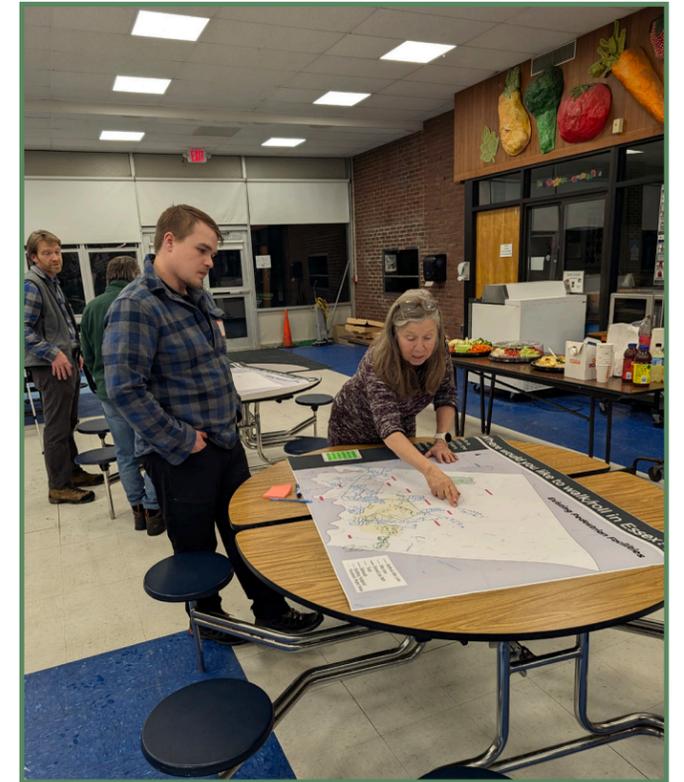
The top three winter activities are:

- Cross-country skiing on groomed snow
- Walking and running on a plowed path
- Fat biking on groomed snow

Participants envision a connected and nature-friendly network that serves multiple purposes. The most desired features include all-season use (69.4%), wildlife connectivity (51.9%), and rustic trails with few amenities (41.3%). When asked about new connections, respondents preferred natural surfaces (83.3%) and unpaved (gravel/crushed stone) paths (63.0%), showing a clear interest in non-paved options.

Connectivity to the following key community assets is seen as vital:

- Residential neighborhoods (43.9% listed these connection locations as "very important")
- Schools such as Essex Middle and Founders Memorial (45.7%)
- Sand Hill Park (40.0%)
- Mathieu Town Forest (45.0%)



Community members discuss trails in the Keystone Trail Connectivity Project area.

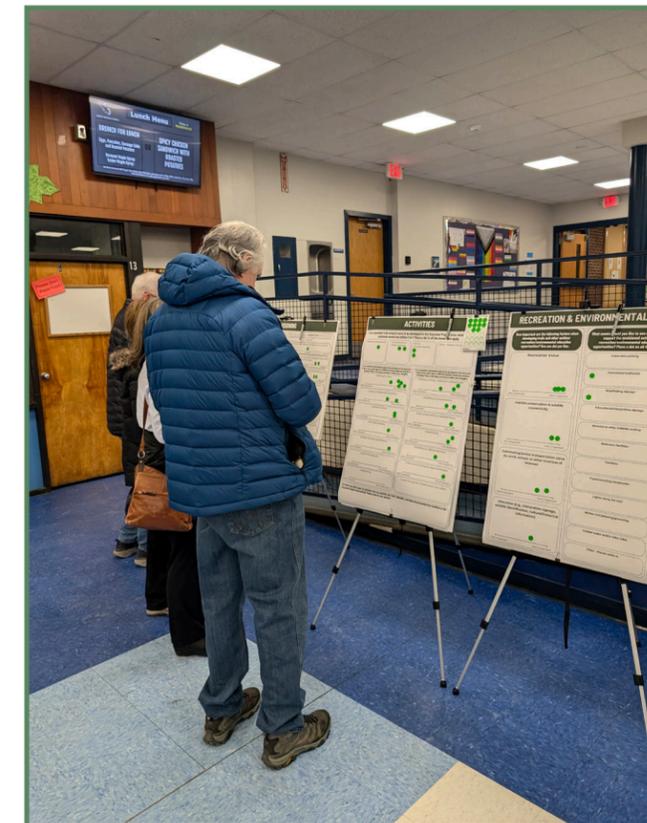
Photo Credit: Carolyn Lawrence

Connections beyond the Keystone Area were also supported (42% "very important"), with many citing the need for safe, continuous routes to Essex Junction, Indian Brook, Saxon Hill, and other regional trail networks.

The most cited challenges to developing the network include obtaining funding for construction (67.5%), habitat sensitivity (35.7%), and maintenance challenges (34.4%). Wildlife and natural resource protection were recurring themes, with residents noting deer wintering areas, wetlands, and vernal pools throughout the project area. Many emphasized balancing recreation with habitat protection and connectivity.

Desired amenities include wayfinding signage (74.7%), formalized trailheads (71.2%), trash receptacles (47.9%), and restroom facilities (41.1%). Key concerns about developing a multi-use trail network include habitat damage (55.0%), vandalism/littering (48.9%), and off-leash dogs (48.9%).

Overall, the community expresses strong support for enhancing trail connectivity and access while maintaining the ecological integrity and rustic feel of the Keystone Trail Connectivity Project Area. Residents prioritize recreation and safe multimodal travel over urban amenities or heavy infrastructure. They envision a trail network that not only links neighborhoods, parks, and schools but also integrates Essex into a broader regional system, fostering both environmental stewardship and community health.



A community member uses sticker dots to represent their opinions. Photo Credit: Carolyn Lawrence

3 EXISTING CONDITIONS

This project began with an existing conditions analysis that began with a review of the 2003 Essex Pre-Scoping Study Report for a Non-Motorized, Multi-Use Pedestrian Crossing and Associated Trail of Vermont Route 289. The report findings listed below were both the impetus of the Keystone Trail Connectivity Project, and helped guide the team's focus for the 2025 project:

- VT 289 crossing alternatives
 - Three options studied:
 - At-grade crossing
 - Culvert underpass
 - Bridge crossing
 - Preferred crossing: A bridge over VT 289 near Alder Brook, connecting Pinewood Manor, Forestdale Heights, and Essex Middle School and Founders Memorial School.

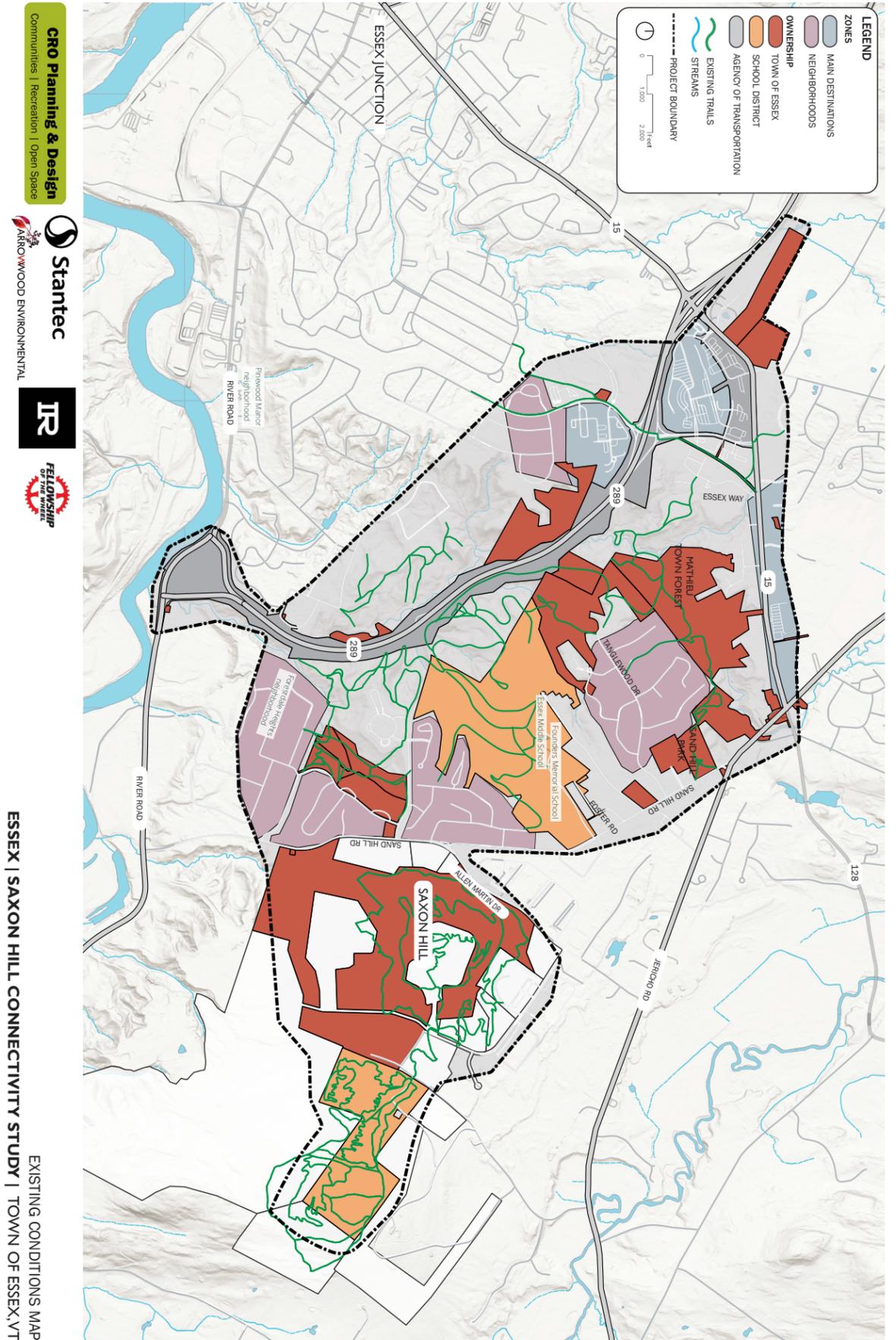
- Trail location possibilities
 - Main trail connects Essex Way to Foster Road to Allen Martin Parkway to Winterlane Circle.
 - Connects key residential neighborhoods and schools; about 1.5–2.5 miles in total.
 - Designed to meet ADA and the Vermont Agency of Transportation (VTrans) standards (8–10 ft width, gentle grades).

After reviewing the scoping study, the existing conditions analysis moved into an in-depth assessment of existing trails, sidewalks, side paths, connection points, and other active transportation facilities within the project area. These were then mapped and analyzed so trail and connectivity opportunities and constraints could be effectively understood.



Hikers descend steps on a trail in the Keystone Trail network. Photo Credit: Drew Pollak-Bruce

Figure 2: Existing conditions map.



The analysis began with the acquisition of spatial data from the Fellowship of the Wheel, the Town of Essex, and Arrowwood Environmental to establish a comprehensive understanding of the current trail network. The project team also identified key destination polygons representing lands owned by the Town of Essex, lands owned by the Essex School District, surrounding neighborhoods, and rights-of-way owned by the Vermont Agency of Transportation. Based on this spatial data, approximately 16.5 miles of trails were identified within the defined project area. This analysis provided a clear picture of land ownership and existing trails and trail intersections within the project area, which will later inform necessary permissions and partnerships with landowners to achieve the Town's connectivity goals.

During this process and through engagements with the Advisory Group, several key destinations were identified for connectivity, including:

- **Essex Westford School District:** Founders Memorial School and Essex Middle School
- **Shopping Centers:** The Essex Experience
- **Neighborhoods:** Three to the east of VT 289, and one to the west
- **Outdoor Recreation Areas:** Mathieu Town Forest and Saxon Hill Trails

The existing 16.5 miles of trails achieve some of the desired connectivity between destinations, specifically between the two schools, the neighborhoods east of VT 289, and one informal trail that follows the hill down to the grassy area that runs parallel to VT 289 within the VTrans right-of-way (ROW). However, the conditions of these trails vary. Some are old logging roads, and others are "social trails" that have been worn in over time by those who use them frequently but are not formally maintained by the Town. The trails behind Founders are steep and many pass through wetlands and near riparian zones. Steep trails are prone to erosion and, therefore, are not environmentally sustainable. They also pose challenges to those who use adaptive equipment, those with disabilities, and beginner cyclists/hikers who wish to use the trails. This network of trails is used locally, but not well known because they are not well-mapped, signed, nor promoted (e.g., no trail blazes, no all-encompassing trail map, no informational kiosks). These trail conditions are not ideal, especially considering the amount of use these trails receive from school programming (e.g., cross-country running, Nordic skiing, etc.), and the community's priority of having more outdoor recreation opportunities available to them.

The VT 289 corridor offers an opportunity for additional connectivity, especially between the schools and neighborhoods to the Essex Experience shopping

center. The highway is classified as limited-access, defined in Vermont statute as "a highway where the right of owners or occupants of abutting land or other persons to access, light, air, or view in connection with the highway is fully or partially controlled by public authority", which is VTrans in this case. VTrans VT 289 ROW ownership is the land next to the highway that varies in width along VT 289. This ROW allows ample space for a separated multi-use path that could run longitudinally along VT 289 on the east side of the highway.

The remainder of the Existing Conditions Analysis is organized into the following sections:

- Trail Connectivity
- Active Transportation (with a focus on VT 289)
- Wildlife Habitat Connectivity



A closeup shot of a trail on the Keystone Trail network.
Photo Credit: Drew Pollak-Bruce

4 SOFT SURFACE TRAIL ANALYSIS

On October 15, 2024, Ide Ride, accompanied by other project team members, conducted a field assessment of existing trails across the Mathieu Town Forest, Essex Town land, and Essex Town Westford School District property. The purpose of the visit was to evaluate existing trail conditions, identify key connection points, and propose new alignments and structural improvements. Sustainability and habitat considerations were a focus, and the team set out to answer the following questions:

- What existing trails are formally maintained and managed by the Town?
 - If trails exist that are not Town-maintained, should they be formalized and be part of the desired connected network?
- Of the existing trails, how many are built and maintained to a sustainable and accessible standard? The team specifically considered"
 - Trail grade/steepness
 - Trails that are too steep are not realistic to pedal up on a bike, and are prone to erosion
 - Trail tread width
 - Is the trail wide enough to accommodate adaptive cycles and multiple users?
 - Trail surface conditions
 - Are there lots of roots and rocks on the trail that would be challenging for children or adaptive cycles or to navigate?
 - Stream/wetland crossings
 - Are existing bridges well-built, not broken, and adequate to protect the ecosystem they cross?
 - Should there be a bridge where there is not currently one?

TRAIL ALIGNMENTS AND CONNECTIONS:

Ide Ride identified several potential trail improvements to enhance sustainability, accessibility, and connectivity. The bullet points coincide with the map shown in Figure 3 below.

- **Mathieu Town Forest (Alignments #1–4):** Proposed reroutes to reduce steep grades.
- **Saybrook Property (5) & Allen Brook Development (7):** Potential for a new trail and bridge crossing over Alder Brook, providing a strong connection to the Essex Experience and future trail corridor along VT 289, pending landowner permission.

- **Foster Park to Tanglewood Drive (Alignment #8):** Recommended bridge and new alignment to reduce grade; access dependent on permission from Allen Brook Development Inc.
- **Margaret Street to Essex Middle School and Founders Memorial School (Alignment #9):** Proposed reroute eliminates multiple water crossings and steep grades, improving neighborhood and mountain bike access between Saxon Hill and the Essex Experience.
- **Essex Middle School and Founders Memorial School to Allen Martin Dr/Saxon Hollow Dr:** Three additional reroutes proposed to address unsustainable grades.

BRIDGES AND CROSSINGS:

Existing bridges in the Mathieu Town Forest are simple but functional, effectively spanning wet areas and streams. However, many have steep approach angles due to short spans and unstable soils. While longer-span bridges could improve sustainability, the required engineering and construction costs may be prohibitive. As an alternative, stabilizing the current approaches with armoring and steps is recommended.

The assessment concluded with:

- 11 connection and kiosk points within neighborhood zones
- 10 new trail alignments to reduce grade of existing trails
- 10 existing bridges to reconstruct
- 2 properties, Saybrook and Allen Brook Development Inc., to obtain land access permission

Overall, these recommendations aim to improve trail sustainability, reduce environmental impact, and strengthen connectivity between community recreation areas and key destinations.

5 ACTIVE TRANSPORTATION ANALYSIS

The Keystone Trail Connectivity Project was completed in conjunction with Essex's Active Transportation Plan (ATP). The ATP is a separate plan that explores bicycle and pedestrian connectivity options and priorities throughout the Town with a focus on sidewalks, bike lanes, and recreation/shared-use paths. The Keystone Trail Connectivity Project plan is intended to coordinate with the ATP while providing separate recommendations, centered around a longitudinal trail next to VT 289 and soft-surface/natural-surface trails, and how they can be connected to sidewalks and recreation/shared-use paths.

Stantec's role in the Keystone Trail Connectivity Project was to provide planning-level engineering plans and cost estimates for shared-use paths and other associated infrastructure identified throughout the project.

Their analysis evaluates a proposed longitudinal shared-use path alignment for the VT 289 Corridor and Shared-Use Path. The path is intended to run along the eastern side of VT 289 from VT 117 to Exit 10, connecting to the Essex Shared-Use Path and nearby residential areas and Essex Middle School and Founders Memorial School. Stantec was tasked with assessing the VT 289 corridor and developing two potential alignments that meet design standards and reduce physical and environmental impacts. Stantec's review included:

- Terrain and slope analysis
- Visual inspection using aerial imagery
- Grade assessment and design standards
- Development of two alignments (Alignments 1 and 2) for comparison
- Evaluation of the right-of-way (ROW), grading, and Alder Brook stream crossing impacts

Stantec focused on the VT 289 corridor because of the opportunity it presents. The grassy/brushy area that hugs the east side of VT 289 is relatively large and conducive to trail connectivity, and has an existing informal trail that connects through the woods to Essex Middle School and Founders Memorial School and surrounding neighborhoods.

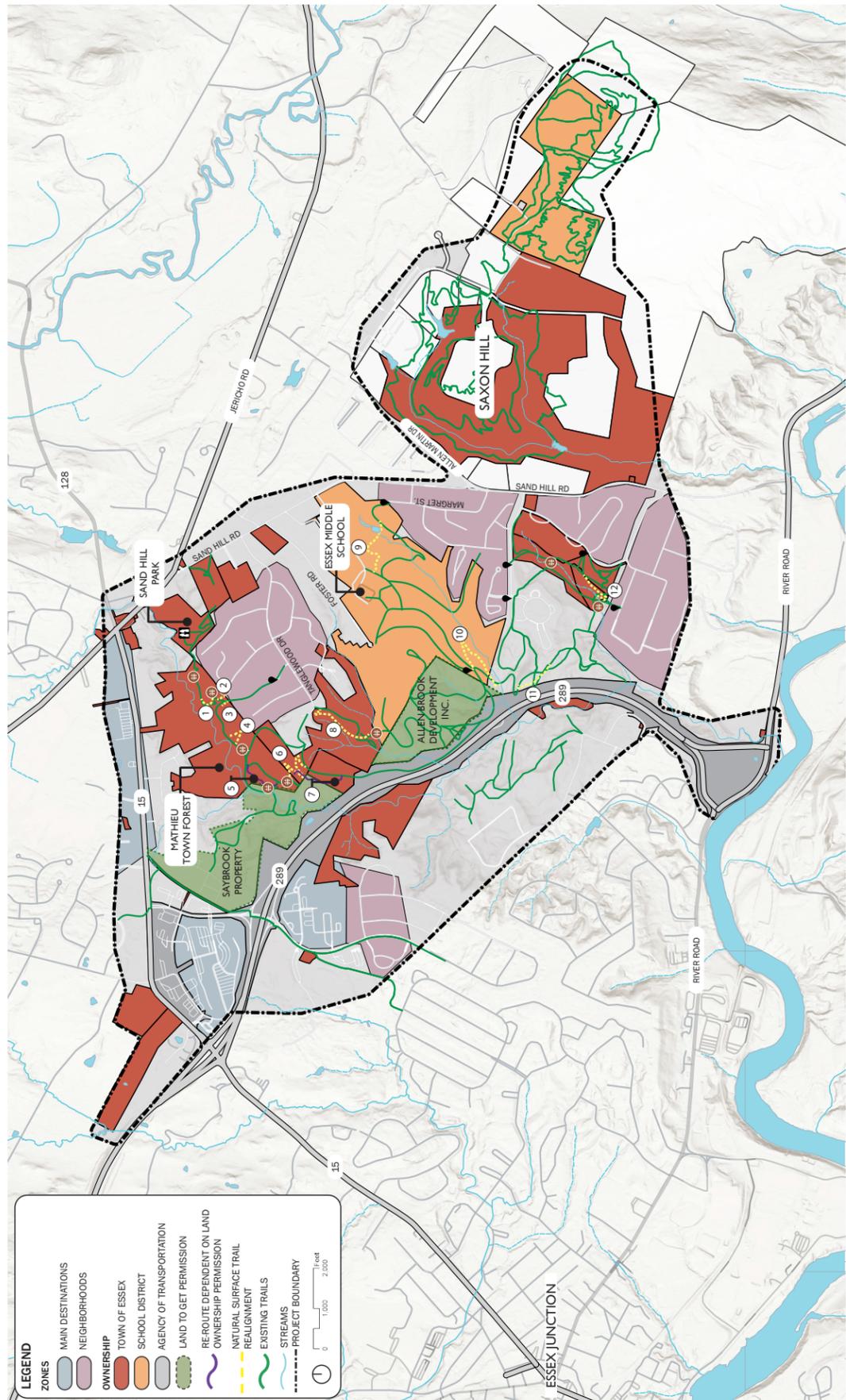
Per the public visioning engagement results and the goals of this project, there is a need for a multi-season, all-abilities trail connection for transportation purposes (e.g., kids going to school, adults commuting for work), and to access other destinations in Town. This trail could also be used for

recreation purposes, including walking, running, cycling, and more. Designing and building a multi-use/shared-use path in the VT 289 corridor would meet these needs and desires.

Several opportunities exist to establish neighborhood connectivity points that could link to the VT 289 corridor, should trail realignments and the trail be pursued. Linking neighborhoods to the trail would further facilitate active transportation in Town by providing additional bicycle/pedestrian routes for families living in these neighborhoods. It should be noted that sidewalk and bike lane connectivity in this area is lacking. Recommendations in the separate Active Transportation Plan focus on improvements to sidewalk/bike lane connectivity that connect to the VT 289 corridor.

There is also a need to connect critical destinations like Essex Town Center and the Saxon Hill Trails to the neighborhoods. Saxon Hill is the most visited mountain bike trail network in Chittenden County. Parking is often constrained at peak times, and the desire for the ability to walk and bike to this network and other recreation destinations around Town is growing, enabling them to begin and end high-quality recreation experiences right out their doors.

The VT 289 trail will need to be designed and built to serve all ages and all abilities. A successful regional example of what it could be is the Route 127 Shared-Use Path that runs along the limited-access highway 127 in Burlington, Vermont. Given the ROW on either side of VT 289, the future VT 289 trail would allow for even more space between the trail and the road, ensuring a better recreation experience and more safety.



IDE RIDE TRAIL ASSESSMENT MAP
ESSEX | SAXON HILL CONNECTIVITY STUDY | TOWN OF ESSEX.VT



Figure 3. Ide Ride October Report Map. Spatial data was provided by Ide Ride and CRO Planning & Design designed the map above to correspond with that data.

6 WILDLIFE HABITAT CONNECTIVITY ANALYSIS

During the winter of 2024 and spring of 2025, Arrowwood Environmental completed a Habitat Connectivity Analysis of the Essex-Saxon Hill Connectivity Project area. The analysis focuses on habitat quality, species use, and potential corridors connecting Saxon Hill, the Mathieu Town Forest, and core forest blocks east of VT 289. The goal was to understand opportunities and constraints for improving both habitat and recreational trail connectivity in one of Essex's most ecologically fragmented landscapes.

The study area extends from Route 15 south to Alder Brook and east to Sand Hill Road, encompassing a mosaic of public and private lands. Ecologists conducted four site visits between December 2024 and May 2025, employing:

- Winter wildlife tracking to record movement across corridors;
- Remote cameras to document activity in key areas; and
- Field assessments to identify habitat types and conditions

Notable documentation included deer, raccoon, fisher, coyote, and beaver activity, as well as wood turtles, a species of concern in Vermont.

Three major habitat features were identified:

- **Hemlock Forests:** Provide essential deer shelter during winter and serve as year-round cover for many species.
- **Valley-Bottom Wetlands:** Linear wetland systems along Alder Brook and tributaries are high-value wildlife areas, supporting beaver, raccoon, and rare turtles. These act as critical travel corridors and should be protected from new trails and development.
- **Trail-Free Zones (Wildlife Refugia):** Areas undisturbed by human activity are scarce. Most of the landscape lies within 150 feet of existing trails or development, leaving limited refuge space for sensitive species such as bobcat or fisher.

Connectivity remains functional but fragile, with development and roads/highways creating substantial barriers:

- **Saxon Hollow Park:** One of the few remaining corridors, but degraded by lack of understory and human disturbance. Deer are using nearby road edges instead of the park.
- **Southeastern Sand Hill Road:** A narrow (~100 ft) forest band that provides a tenuous link for small and medium mammals but is threatened by fragmentation from private land development.
- **Allen Martin Parkway West:** An areas west of a small informal parking area is naturally revegetating and serves as a minor wildlife movement corridor. Opportunities exist to restore vegetation to improve the quality of this area.
- **VT 289 South:** A crucial north-south corridor along Alder Brook and its tributaries. The existing culvert is undersized to serve as a wildlife underpass, likely resulting in animals crossing over VT 289.
- **VT 289:** All of VT 289 serves as an east-west movement corridor for wildlife, with deer and other medium-sized mammals likely crossing over it at night. The highway is a significantly fragmenting feature in the project area.
- **Alder Brook Northeast:** The few remaining forest fragments and riparian zones of this area provide a wildlife connection north toward Westford, but are vulnerable to encroaching development.

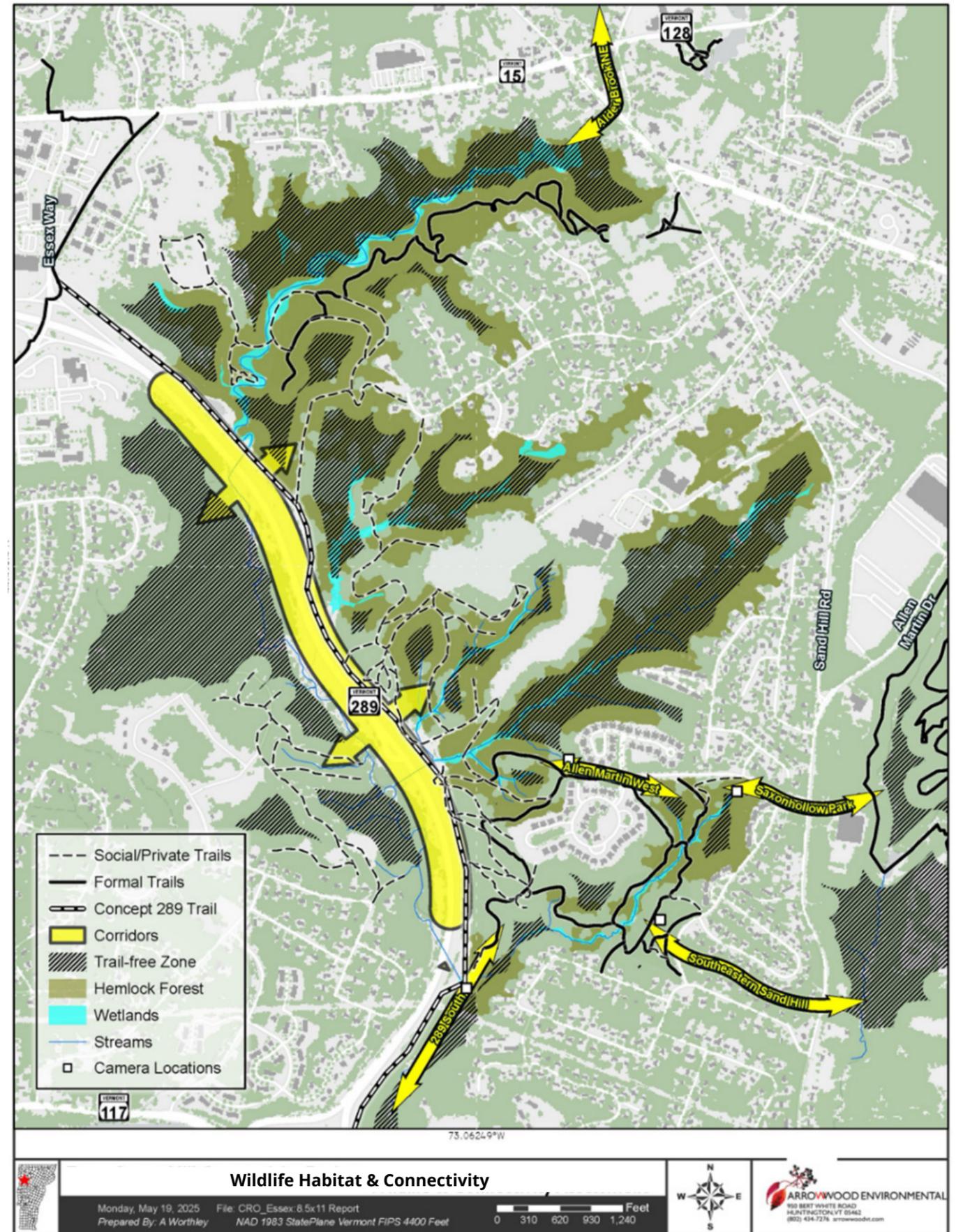


Figure 4: Essex-Saxon Hill Connectivity Project Wildlife and Connectivity Assessment

7 SCENARIO PLANNING

Scenario planning is a tool that helps communities and organizations explore different possible futures and the actions they might take in those futures. Scenario planning prompts conversations before crises hit and challenges the common assumption that the future will be similar to the past. In a scenario planning workshop, participants identify key uncertainties affecting their organization or community and consider how different combinations of those futures might play out.

A scenario planning effort was included in the Keystone Trail Connectivity Project to consider two critical uncertainties: (1) non-Town property status (i.e., there might be successful or unsuccessful outcomes with respect to non-Town properties in the project area) and (2) Keystone Trail maintenance (i.e., there might be stable or unstable maintenance of the trails in the future).

In March 2025, a group of twelve key stakeholders and community members explored four different possible

futures based on those two critical uncertainties, and how the community might best prepare for, support, or avoid them. Workshop attendees explored and described what many aspects of the four possible futures could look like, based on the two above uncertainties:

- **Future 1:** Unsuccessful outcomes for non-Town properties and stable Keystone Trail maintenance
- **Future 2:** Successful outcomes for non-Town properties and stable Keystone Trail maintenance
- **Future 3:** Successful outcomes for non-Town properties and unstable Keystone Trail maintenance
- **Future 4:** Unsuccessful outcomes for non-Town properties and unstable Keystone Trail maintenance

The key themes and action areas the group identified across the four possible future scenarios to best prepare for various possibilities in the Keystone Trail area:

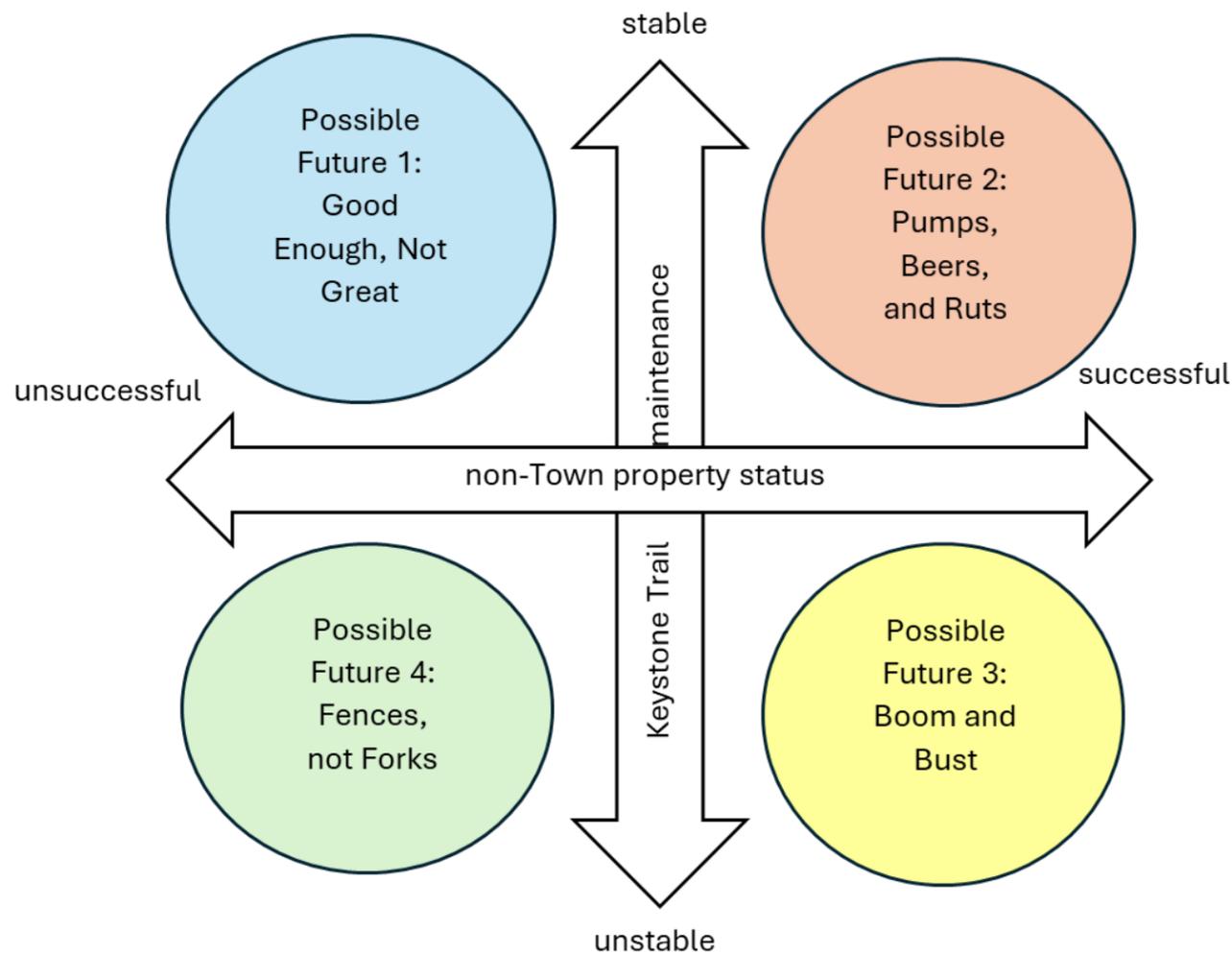


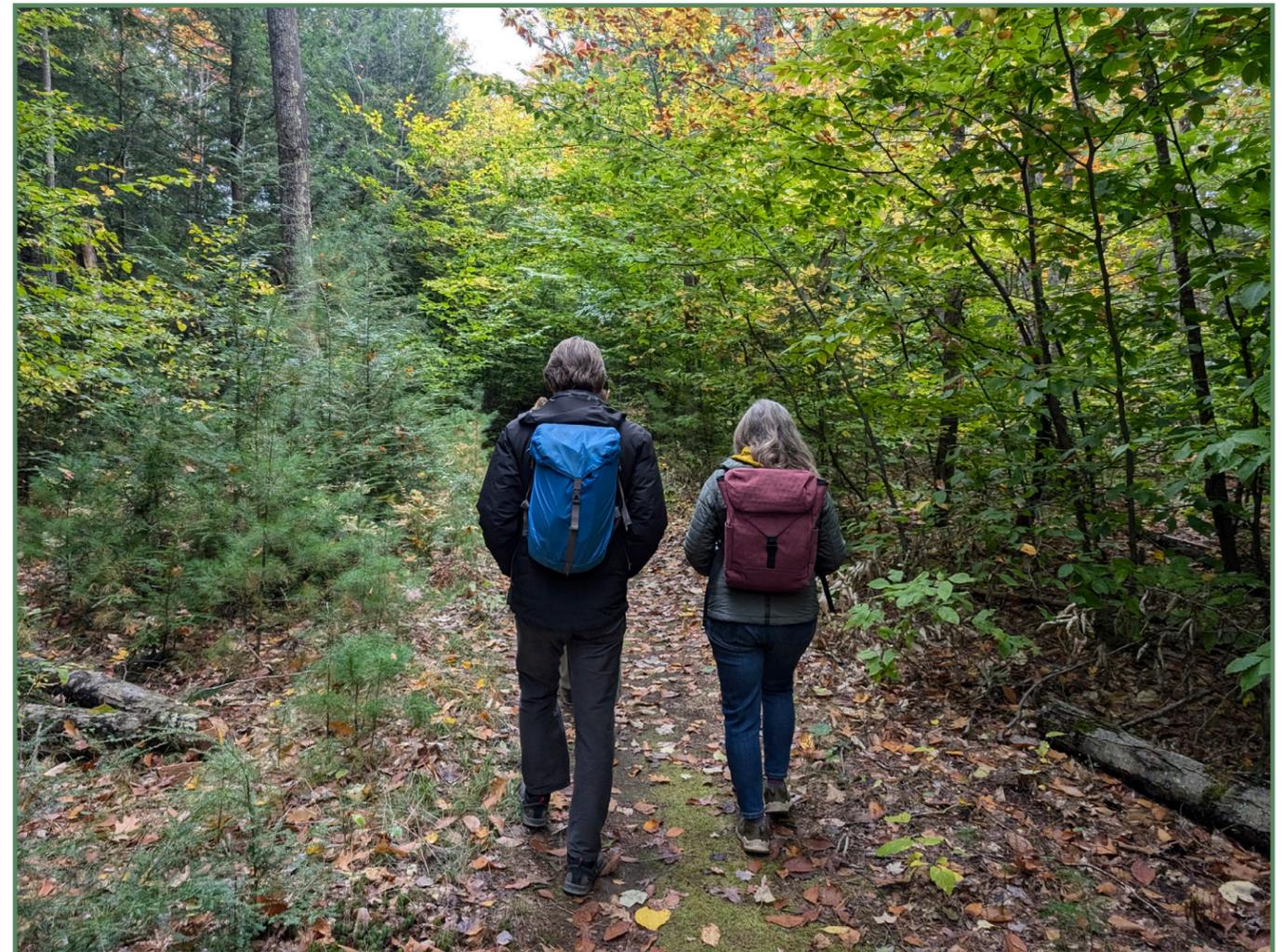
Figure 5: The four possible futures as identified by the Scenario Planning group.

- A need for strong communication among all landowners and users
- A desire for accurate, usable data and maps across the project area
- A need to identify priority lands for Town ownership, trails, and amenities
- A clear, well-planned trail network that developers, nonprofits, municipal staff, and private businesses can rely on to predict future outcomes
- A commitment to protecting natural habitats and minimizing environmental impacts
- A reevaluation of fund sources and possible financial resources, especially for long-term operations and maintenance

Annual or regular review of the scenario planning futures can help elected officials, community members, partners, and staff assess where the community is with respect to the critical uncertainties. For example, what among these

descriptors of the future are we seeing around us right now? How might that help us understand our current situation, and where we might be heading in the future? What actions could we take to plan for or ameliorate this possible future?

A scenario planning workshop creates four distinct futures based on two critical uncertainties. In reality, an organization or a community “bounces around” between different futures, perhaps spending time in one quadrant for a short while, then moving to another quadrant based on future conditions. Organizations and communities are best served by working on actions that keep themselves closer to the center of the matrix, rather than finding themselves at one extreme of one uncertainty or another.



Two hikers enjoy a walk in Essex's Keystone Trail network. Photo Credit: Drew Pollak-Bruce

8 TRAIL DESIGN & MAPS

PROPOSED TRAILS DECOMMISSION MAP

The existing trail network was comprehensively evaluated by professional trail builders to assess its current condition, sustainability, and overall capacity to support long-term use. This analysis identified areas where targeted adjustments may be necessary to enhance resiliency and ensure continued functionality. Concurrently, ecologists from Arrowwood Environmental conducted an ecological assessment of the site, delineating several no-trail zones to preserve critical wildlife habitats and protect sensitive ecosystems.

Following these assessments, and in consultation with the Executive Director of the Fellowship of the Wheel, several trail segments were identified for potential decommissioning or further review to determine their suitability for inclusion within the maintained trail system.

PROPOSED FUTURE TRAILS NETWORK

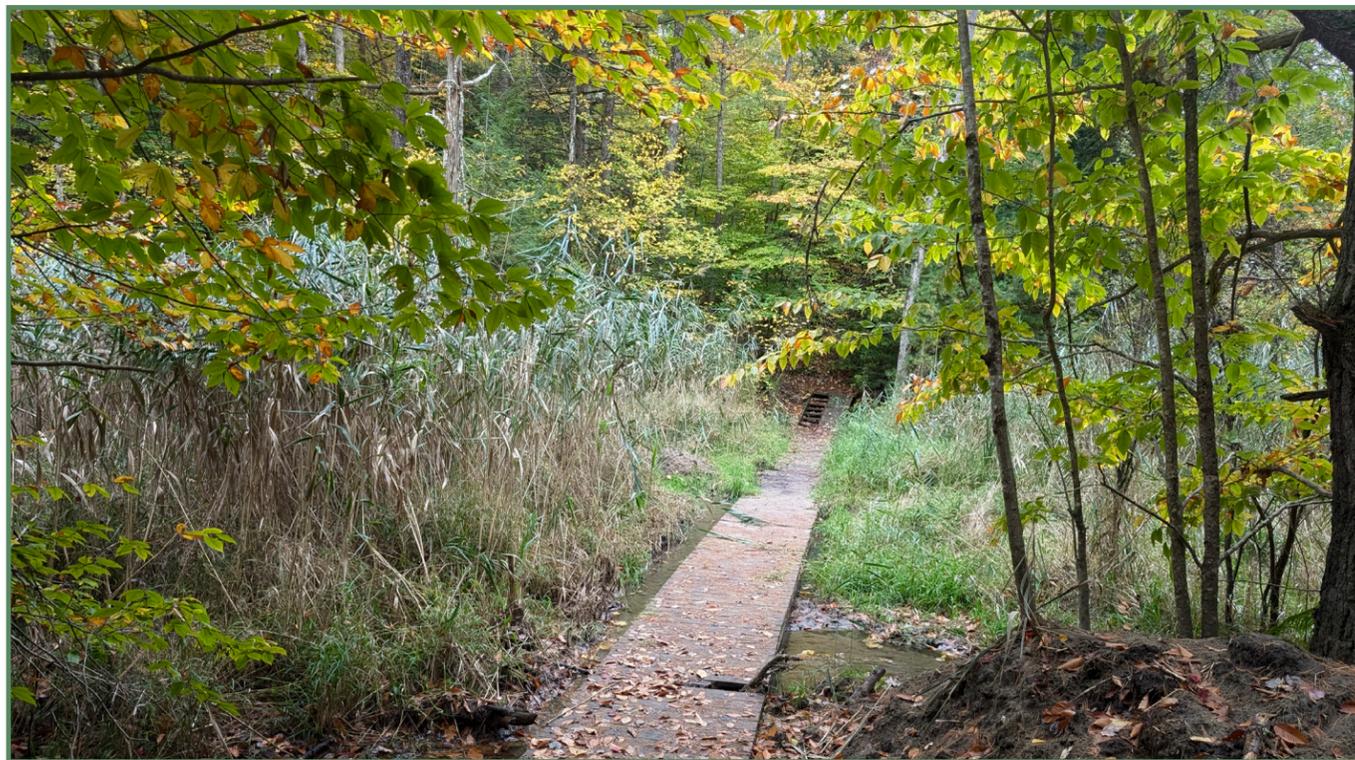
The final proposed future trails map represents the culmination of multiple design iterations completed throughout the course of this project. It integrates key recommendations from several assessments, including trail realignments identified by Ide Ride, a decommissioning

analysis provided by the Fellowship of the Wheel, and a pathway assessment along the VT 289 corridor conducted by Stantec.

Key elements of the proposed future trail network include:

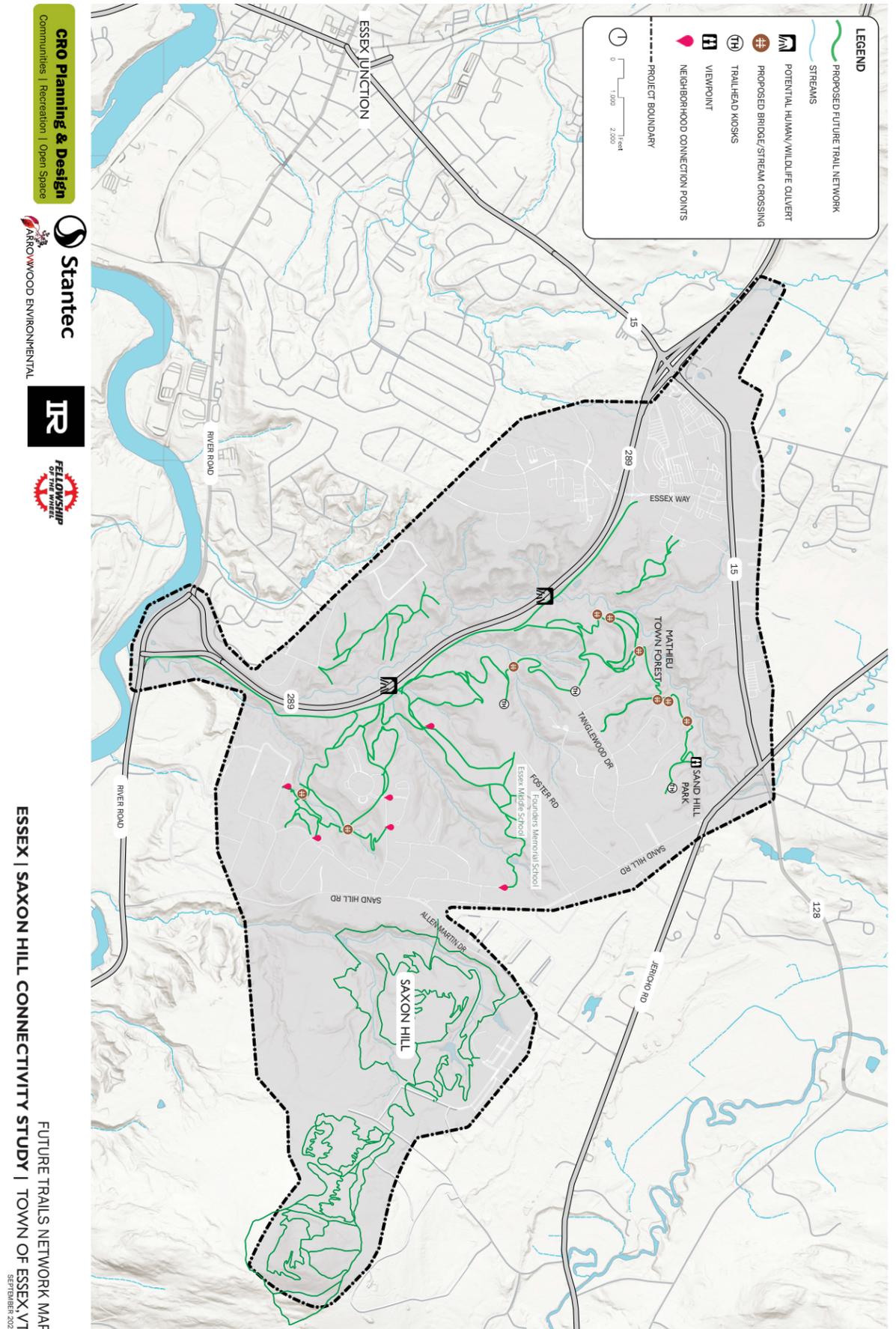
- A proposed paved or natural surface pathway along VT 289 corridor connecting the Essex trail network with the Essex Experience and River Road
- The phased development of a multi-use natural surface trail transitioning to a paved path linking the school district to the VT 289 trail
- The creation of a combined human and wildlife culvert crossing beneath VT 289
- The overall future trails plan, as shown in Figure 7, comprises approximately 13.5 miles of natural and paved surface trails (excluding the Saxon Hill area)

Building a paved multi-use path can take many years and significant funding, especially when considering right-of-ways (ROWs) and obtaining necessary permits. Recognizing these barriers, and to help address community needs in a timelier fashion, the Town could pursue building the longitudinal VT 289 trail and other connector trails first as a soft/natural surface trail, and later formalizing in different contexts, as depicted in Figure 8.



A boardwalk crosses over a marshy area of the Keystone Trail network. Photo Credit: Drew Pollak-Bruce

Figure 7: Future Trails Network Map.

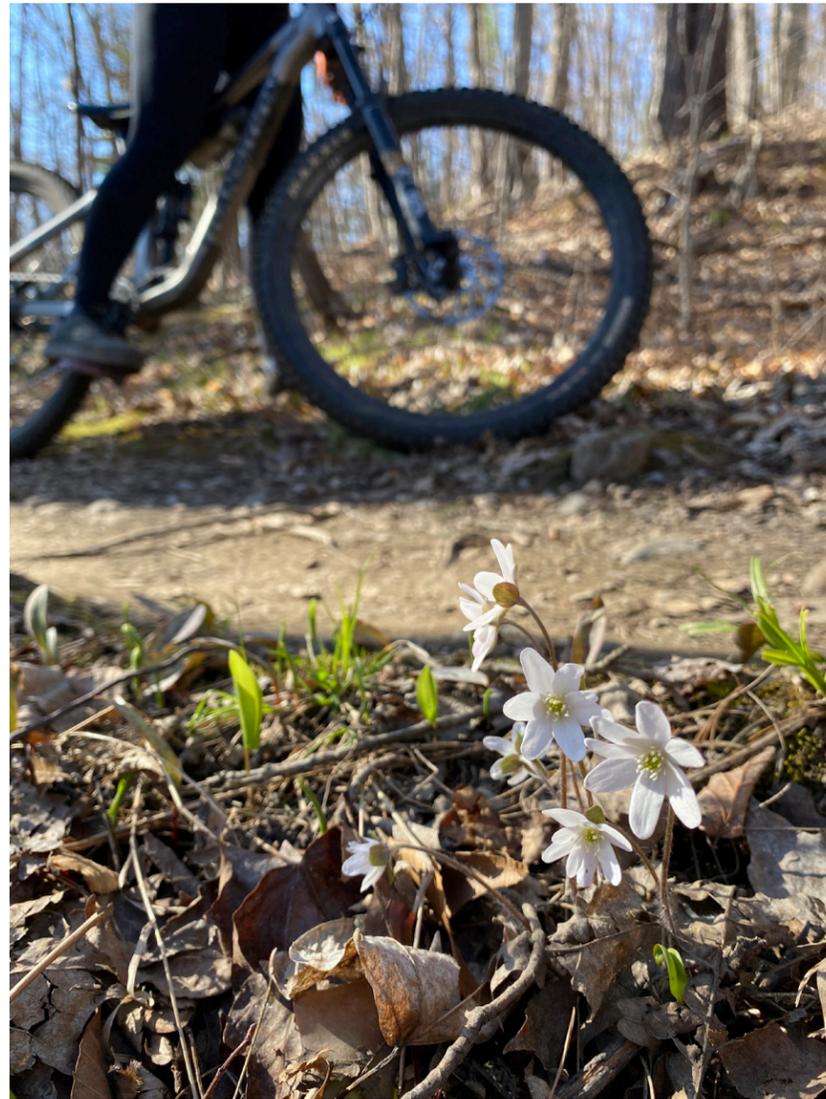


FUTURE TRAILS NETWORK MAP
ESSEX | SAXON HILL CONNECTIVITY STUDY | TOWN OF ESSEX, VT
SEPTEMBER 2025

- Begin with suggested trail reroutes and upgrades on soft/natural surface trails that are outside of the VTrans ROW. Trail development outside the ROW will not require a scoping study, and soft-surface trail work requires less funds than paved work. Additional planning is needed, but the Town could work with partners like Fellowship of the Wheel (FOTW) to move the needle and submit applications for grants such as the Recreational Trails Program grant to hire a trail builder for the identified soft-surface trail reroutes and improvements.
- Consider building the VT 289 longitudinal trail to Essex Middle School and Founders Memorial School

as a soft/natural surface trail first before fully paving it. This would require conducting a scoping study and approvals with VTrans because the corridor is within the ROW, but would reduce up-front costs if built initially as a soft/natural surface trail. Paving could happen later when more funds are available.

- Formalize and improve the connection from the VT 289 longitudinal trail to Founders Memorial School as a soft/natural surface trail. Once initially built as a soft/natural surface trail, the Town could pursue paving it to allow for multi-season use, reduce maintenance needs, and accommodate heavier bicycle/pedestrian traffic.



A mountain biker rests in the background, while spring flowers break through the leaves in the foreground.
Photo Credit: Carolyn Lawrence

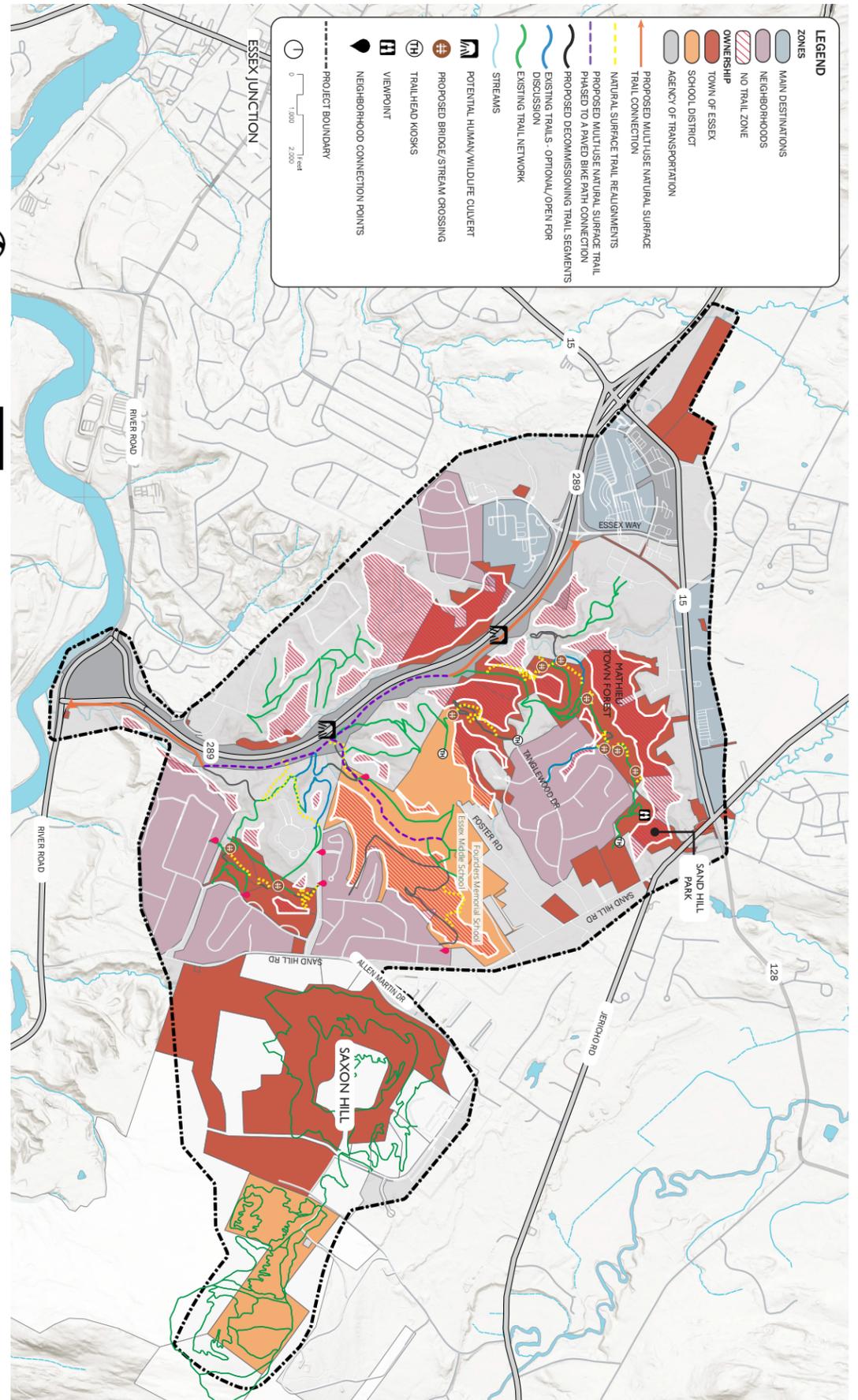


Figure 8: Phased Trail Typology Map

CRO Planning & Design
 Communities | Recreation | Open Space

Stantec
 ANTHONY WOOD ENVIRONMENTAL

TR
 FELLOWSHIP OF THE WHEEL

TRAIL TYPOLOGIES

To best meet the residents' desires and needs for an interconnected trail network, several trail typologies were explored for this project:

SHARED-USE PATH

A Paved Shared-Use Path is a shared-use trail designed for both transportation and recreation, offering a smooth, durable surface that accommodates cyclists, pedestrians, and other non-motorized users. Typically 10 feet wide (with a recommended range of 8–14 feet) and featuring 2-foot shoulders on each side, these paths provide a safe, comfortable experience for moderate to heavy bicycle and pedestrian use. Paved paths are often separated from roads by at least 5–6.5 feet, and up to 24 feet along high-speed corridors, to enhance safety and enjoyment. They are suitable for gentle to moderate slopes (0–5% ideal, up to 12% for short segments) with resting intervals as needed for accessibility. Road crossings may include marked crosswalks or signalized intersections, depending on traffic volume and speed. Paved surfaces offer year-round usability (if plowed in the winter) and low maintenance, while gravel variations improve drainage and provide a softer, low-impact option for recreation, but with more challenges for winter use (harder to plow).

This trail type would be well-suited for the longitudinal trail along VT 289, discussed in more detail later in the "Active Transportation" sections of this plan.

MULTI-USE NATURAL SURFACE TRAIL

A Multi-Use Natural Surface Trail is an accessible, unpaved path designed for diverse recreational activities such as mountain biking, walking, trail running, and hiking. Typically 6–12 feet wide with a clear height of 8–12 feet, these trails feature a firm, stable natural surface that is free of major obstacles like roots or rocks. The tread width ranges from 36–60 inches, with passing zones where narrower, and the trail includes a 2–3% cross slope for drainage. Preferred grades are 5% or less, with a maximum of 10%, ensuring accessibility and comfort for a variety of users. Construction emphasizes sustainability, minimizing vegetation removal and soil disturbance, compacting the tread for durability, and shaping the trail to maximize proper drainage and longevity within the natural landscape.

This trail type would be well-suited for the "main thoroughfare artery trail" that would serve as the main connection throughout the Town.

MOUNTAIN BIKING TRAIL

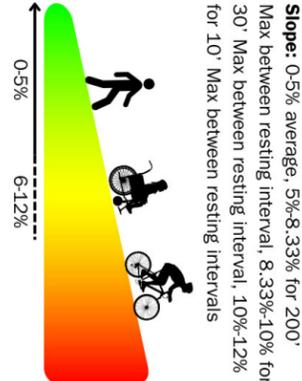
A Mountain Biking Trail is a singletrack natural surface path designed with flowy contours to support enjoyable and sustainable mountain biking experiences. These trails typically range from 4–8 feet in width, with a tread width of 18–36 inches and an overhead clearance of 8–12 feet. Slopes vary by difficulty: easy trails maintain grades between 0–5% on average (up to 15% for short segments), while moderate trails accommodate 0–10% average grades, with short sections up to 15% when reinforced for stability. Surfaces are firm, compacted, and free of obstacles over 2 inches, ensuring both safety and rideability. Construction emphasizes sustainability by minimizing vegetation removal, stabilizing and compacting the tread, controlling drainage through 2–5% cross slopes, and limiting disturbance beyond the trail corridor to preserve the surrounding natural environment.

This trail type is well-suited for the mountain bike "spur" trails that the Town could develop off the main thoroughfare trail to meet the community's desires for more outdoor recreation opportunities.



Fall leaves and greenery around the Keystone Trail network.
Photo Credit: Drew Pollak-Bruce

Paved Shared-Use Path



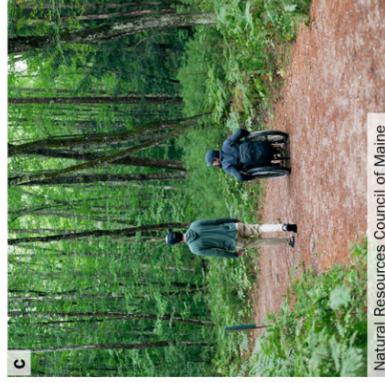
Slope: 0-5% average, 5%-8, 3-3% for 200' Max between resting interval, 8, 3-3%-10% for 30' Max between resting interval, 10%-12% for 10' Max between resting intervals

- Shared Use Path (A, B, D):** transportation and recreation path separate from road
- Specs:**
 - 10ft trail width for moderate to heavy usage (keep between 8-14ft)
 - 2ft shoulder on each side of the path, clear of obstruction
- Signage:** For mixed-use, include right of way signage
- Road Crossings:** For low-volume, low-speed streets, marked crosswalks are sufficient. For high-volume and/or high-speed streets, intersection enhancements are necessary (stoplight, flashing, etc)
- Surfaces:** Paved paths (A, B) are plowable and lower maintenance. Gravel (D) paths have better storm water absorption and provide a low-impact recreation surface
- Sidepath (C):** 2-way path next to high volume or high-speed road
- Width:**
 - 10ft trail width for moderate to heavy usage (keep between 8-14ft)
 - 2ft shoulder on each side of the path, clear of obstruction
- Roadway separation:** 5ft minimum, 6, 5ft recommended minimum, up to 24ft for high-speed roads (>55mi/h)

An infographic depicts four photos of Shared Use Paths.

Sources: Slope from "Hiking (Universal Access)" trail character in VT Town Forest Trail Design Guide. Specs, Signage, Road Crossings, Roadway Separation from "Shared Path" and "Sidepath" in FHWA Small Town and Rural Multimodal Networks.

Multi-Use Natural Surface Trail



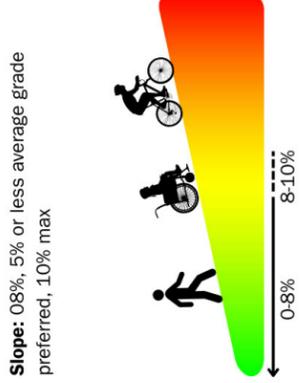
Accessible, natural surface trail for mountain biking, walking, trail running, and other forms of recreation

Specs:

- 6-12 feet trail width
- Unobstructed height of 8-12 feet
- 36-60 inch tread width with passing room if under 60 inches
- 2-3% cross slope

Surfaces: Firm and stable natural surfaces free of obstacles like roots and rocks.

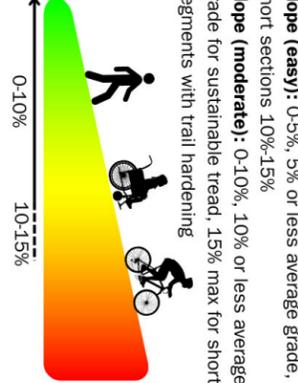
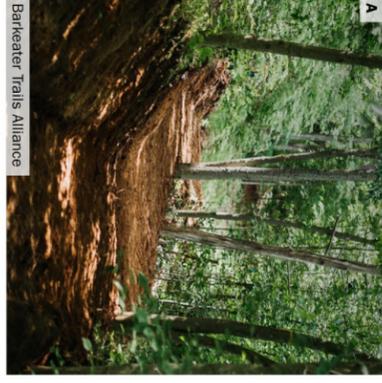
Construction: Prioritize trail sustainability in the construction process. Minimize tree and vegetation removal, ensure stable and compacted trail tread, limit disturbance beyond the trail corridor, construct trail tread with slopes that maximize proper drainage, etc.



Sources: Slope, Specs, Surfaces from: 'Walking/Nature Trail' trail character in VT Town Forest Trail Design Guide. Construction from VMBA Best Management Practices for Mountain-Bike-Optimized and Multiuse Trail Construction and Maintenance

An infographic depicts four photos of multi-use natural surface trails.

Mountain Biking Trail



Sources: Slope, Specs, Surfaces from: 'Mountain Biking (Easy)' and 'Mountain Biking (Moderate)' trail character in VT Town Forest Trail Design Guide. Construction from VMBA Best Management Practices for Mountain-Bike-Optimized and Multiuse Trail Construction and Maintenance

Singletrack natural surface trails with flow contours, less technical components, primed for mountain biking

Specs:

- 4-8 feet trail width
- Unobstructed height of 8-12 feet
- 18-36 inch tread width
- 2.5% cross slope

Surfaces: Natural surfaces free of obstacles greater than 2 inches.

Construction: Prioritize trail sustainability in the construction process. Minimize tree and vegetation removal, ensure stable and compacted trail tread, limit disturbance beyond the trail corridor, construct trail tread with slopes that maximize proper drainage, etc.

An infographic depicts four photos of mountain bike trails.

TABLE 1. TRAIL REALIGNMENTS

Tables 1 and 2 reference Figures 9 and 10.

#	DESCRIPTION	LENGTH
1	Includes connection to bridge A. Avoids steep sections. Eliminates 1 bridge. Moves from wetland. Multi-use natural surface trail feasible. Blue and white stripe flagging.	785 feet
2	Avoids steep sections. Multi-use natural surface trail. Multi-use natural surface trail feasible. Blue and white stripe flagging.	252 feet
3	Avoids steep sections. Moves from riparian buffer. Multi-use natural surface trail feasible. Blue and white stripe flagging.	516 feet
4	Avoids steep sections. Multi-use natural surface trail. Blue and white stripe flagging.	378 feet
5	Avoids steep sections. Moves from riparian buffer. Multi-use natural surface trail feasible. Blue and white stripe flagging.	1245 feet
6	Navigates hillside with switchbacks and stays mostly on town land. Not ideal as turns on steep side slope are problematic and expensive, not feasible for Multi-use natural surface trail. Blue and white stripe flagging.	1032 feet
7	Avoids steep sections. Preferable option to #6 but requires private landowner permission. Multi-use natural surface trail feasible. Will likely require retaining walls for Multi-use blue and white flagging.	1128 feet
8	Avoids steep sections. Multi-use natural surface trail feasible. Will likely require retaining walls for Multi-use pink and black stripe flagging.	2035 feet
9	Avoids steep sections, hydric soils and multiple water crossing. Multi-use natural surface trail feasible.	1373 feet
10	Connection from Middle school to VT 289 ROW. Multi-use natural surface trail likely. Proposed alignment in assessment report is redundant and likely not worth pursuing. If mountain bike (MTB) trail on that alignment is desired, recommending crossing water on VT 289 ROW.	1100 feet
11	Connects VT 289 ROW to neighborhoods and Saxon Hill, 2 possible alignments identified. Requires landowner permission. MTB trail. No flagging.	550-1075 feet
12	Avoids steep sections. Requires landowner permission. MTB trail. No flagging.	300-1200 feet
13	Avoids steep sections. Connects VT 289 ROW to neighborhoods and Saxon Hill. MTB trail. Pink and black flagging.	892 feet
14	Avoids steep sections. Connects 289 ROW to neighborhoods and Saxon hill. MTB trail. Pink and black flagging.	1450 feet

TABLE 2. BRIDGES & BOARDWALK

BRIDGE	DESCRIPTION
A	45' bridge Hemlocks close by 12'-15' above water 40'-45' to stable ground without retaining 2-5 ton excavators crew of 5 Bridge construction 1 week Full Bank armor 2 weeks (might not be necessary)
B	30' bridge Hemlocks close 4' above water 1-2 ton excavator 3 person crew Bridge 1 week Bank armor 2 days

BRIDGE	DESCRIPTION
C	60' bridge 30' bridge over stream to cribbing piles 10' bridge to bank 1
D	60' bridge 30' bridge over stream to cribbing piles 10' bridge to bank 1 20' bridge to bank 2 10' from stream bed to deck 2 4'-5' tall cribbing piles Hemlocks close 1 Excavator 4 person crew Bridge 1.5 weeks Bank armor 1 week not crucial
E	60" bridge 30' over stream to cribbing piles 10' bridge to bank 2 20' bridge to bank 1 10' from stream bed to deck 2 4'-5' tall cribbing piles Hemlocks close 1 Excavator 4 person crew Bridge 1.5 weeks
F	60' bridge 30' bridge over stream to cribbing piles 10' bridge to bank 2 20' bridge to bank 1 10' from stream bed to deck 2 4'-5' tall cribbing piles Hemlocks close 1 Excavator 4 person crew Bridge 1.5 weeks
G	100' board walk Dimensional lumber 5 20' spans to 3 3' tall cribbing piles 5 person crew 1 week
H	30' bridge Dimensional lumber, no hemlocks close access 16' over steam 16' boardwalk 3 days 1 excavator 4 people
I	30' bridge Hemlocks close Easy span from bank to bank 3 days 1 excavator 4 people

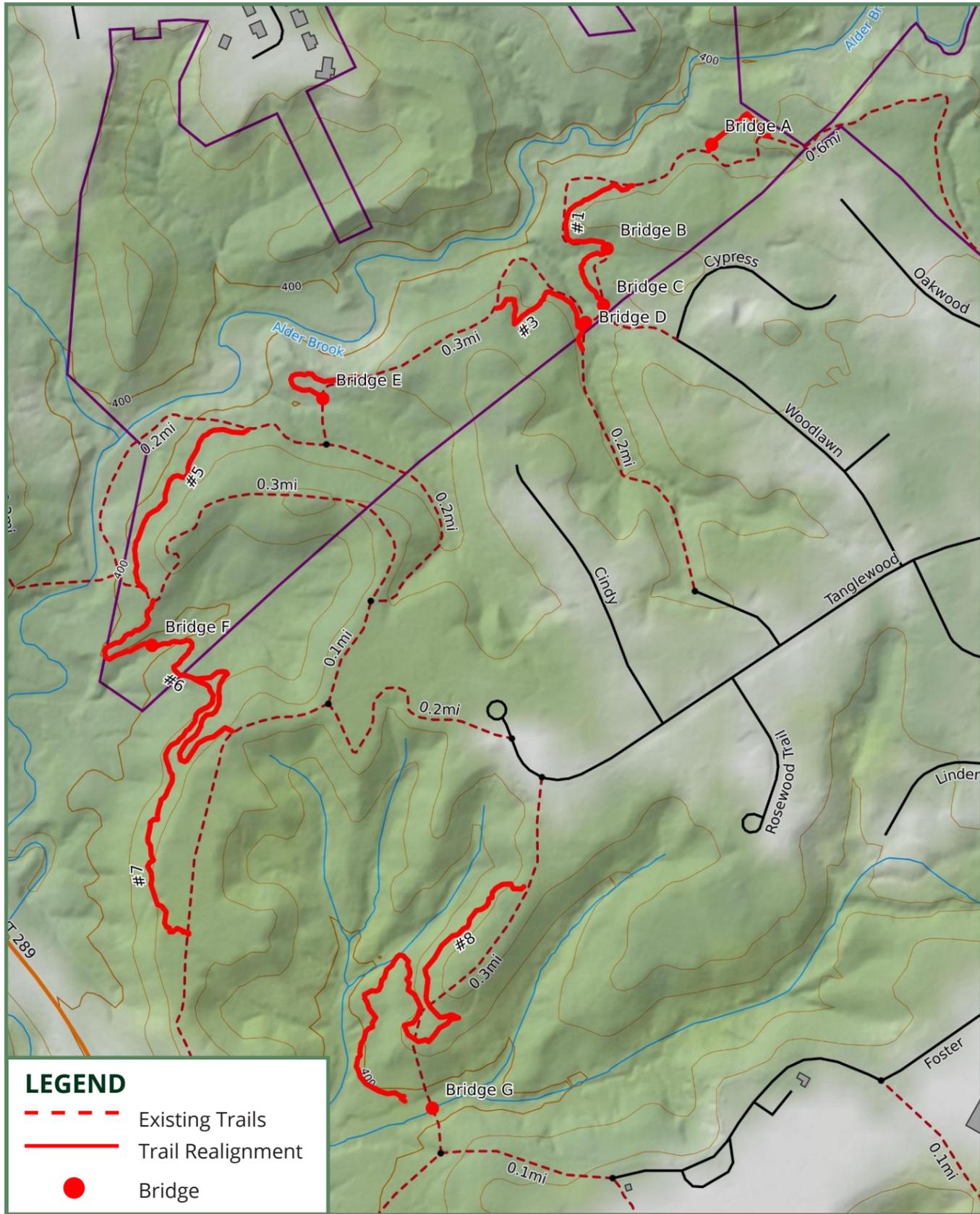


Figure 9: Trail Realignments and Bridges

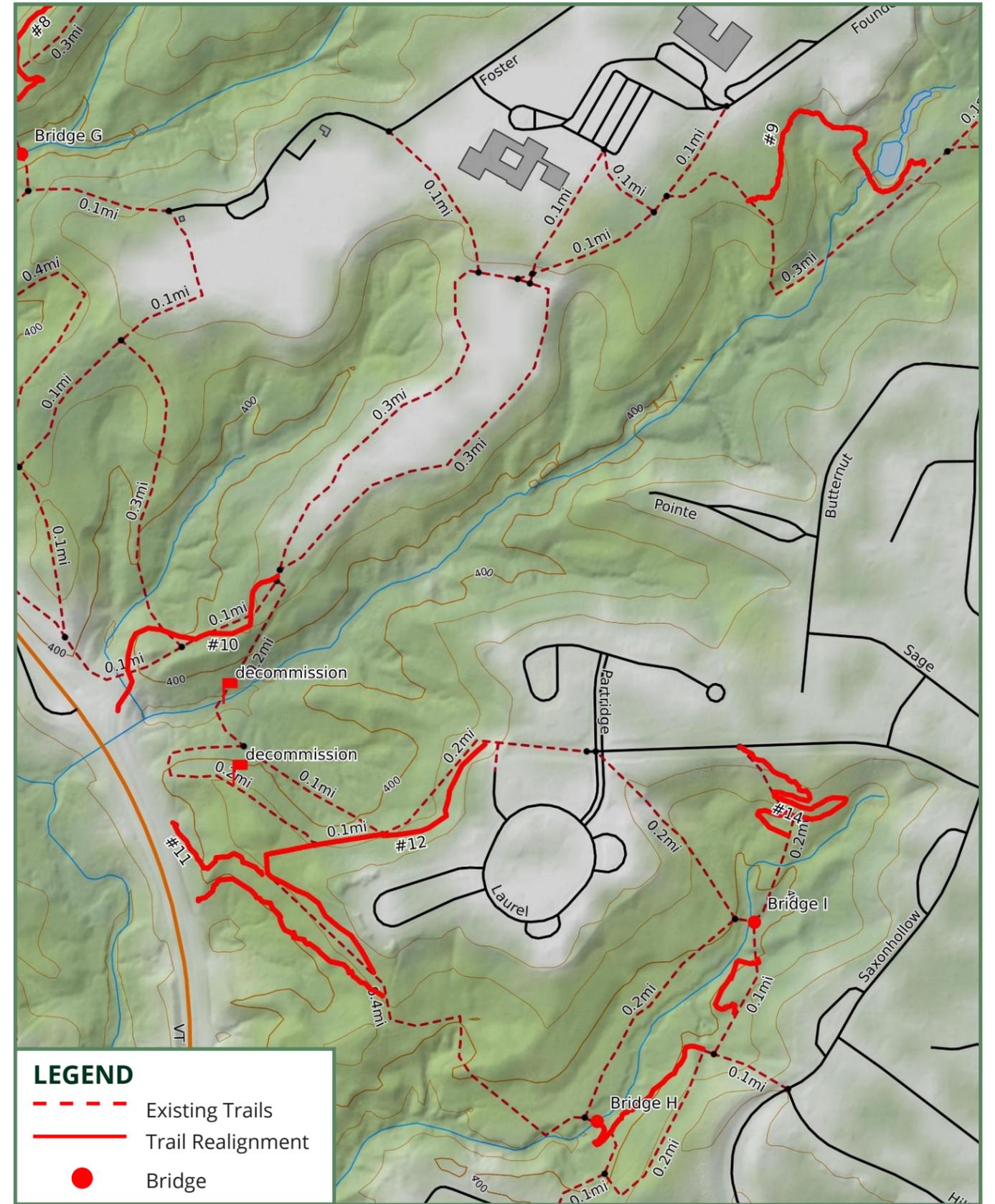


Figure 10: Trail Realignments and Bridges

9 RECOMMENDATIONS & IMPLEMENTATION PLAN

While moving through this project, key objectives and goals for the Keystone Trail Connectivity Project area rose to the top:

Objectives:

- Build a separated Shared-Use Path along the VT 289 corridor
- Prioritize school connection trail from VT 289
- Consider trail-free zones to maintain wildlife refugia

Goals:

- Build accessible connectivity through Town and partner properties
- Begin with natural surface trails and eventually transition into paved Shared-Use Paths
- Blend recreation with transportation by connecting the trail system to schools, neighborhoods, recreation areas, businesses, and more
- Maximize trail-free zones to protect wildlife corridors
- Minimize redundant trails

Considering these higher-level objectives and goals, the plan recommendations are organized into the following categories:

- Soft Surface Trail Design and Construction
- Active Transportation (VT 289 considerations)
- Planning, Partnerships, Operations, and Maintenance
- Wildlife Habitat and Connectivity

SOFT SURFACE TRAIL DESIGN AND CONSTRUCTION RECOMMENDATIONS

The Town has several miles of existing formal and informal trails. The following recommendations are related to these trails, and the new ones that need to be built to achieve the level of connectivity the Town and its residents desire.

FORMALIZE EXISTING CONNECTOR TRAILS ON TOWN LAND

There are currently several informal trails that traverse Town-owned land in Essex. The Town could consider formalizing those that provided key connections and recreational uses through the development of a

management plan with Town staff and the Conservation and Trails Committee.

PURSUE 14 TRAIL REALIGNMENTS AS STATED IN IDE RIDE REPORT

Fourteen trail reroutes and additions were suggested by Ide Ride to achieve maximum trail sustainability. This includes reducing trail grades to fall between 2% and 5%, keeping trails out of sensitive ecosystems like wetlands, and adding new trails where necessary to facilitate connections between Essex schools, neighborhoods, and businesses.

REBUILD 9 BRIDGES AS STATED IN IDE RIDE REPORT

Nine bridges are recommended to cross existing streams, wetlands, and areas with poor drainage. These bridges will both protect the associated ecosystems and improve user experience.

BUILD 11 KIOSKS/WAYFINDING AT IDENTIFIED KEY TRAILHEADS/NEIGHBORHOOD CONNECTIONS AS STATED IN IDE RIDE REPORT

Installing kiosks and/or other wayfinding options at key entrances and exits into schools and neighborhoods will help keep users oriented throughout the network, improving their experience.

CONSIDER A MAIN THOROUGHFARE TRAIL TO SERVE AS THE “ARTERY” OF THE NETWORK

The Town has prioritized a need for a wide, multi-use trail that serves as the main “artery” of the network. This main thoroughfare should be wide enough to accommodate adaptive cycles and strollers, welcome multiple recreation uses, and be natural surface or crushed stone (not paved), and be able to be plowed in the winter. The vision is for children to be able to use this to commute by bike or foot to school, and for all residents to access shopping centers and other neighborhoods.

DESIGN AND BUILD MOUNTAIN-BIKE OPTIMIZED TRAIL “SPURS” OFF THE MAIN THOROUGHFARE/ARTERY TRAIL

The Essex community ranked outdoor recreation as the main reason they want to see this trail network developed, a mountain biking was listed by survey respondents and Open House attendees as the top activity for which they would use an expanded trail network. This is unsurprising given the proximity to the popular mountain bike destination, Saxon Hill. Considering this, the main thoroughfare artery trail should consider spur trails that are optimized for mountain biking to provide more opportunities for recreation within the community. This will also benefit Saxon Hill, ideally spreading the traffic the area sees and reducing wear and tear on its trails.

ACTIVE TRANSPORTATION RECOMMENDATIONS

As mentioned earlier, the Keystone Trail Connectivity Project was completed in conjunction with Essex’s Active Transportation Plan (ATP). The ATP is a separate plan that explores bicycle and pedestrian connectivity options and priorities throughout the Town with a focus on sidewalks and recreation/Shared-Use Paths. The Keystone Trail Connectivity Project plan is intended to coordinate with the ATP while providing separate recommendations, largely centered around a longitudinal trail along VT 289 and soft-surface/natural-surface trails, and how they can be connected to sidewalks and recreation/Shared-Use Paths.

This section will focus on Stantec’s recommendations for the longitudinal VT 289 trail and the associated infrastructure options needed to cross the highway – for both humans and wildlife.

Given the challenges of the initial trail location explored by CRO, Stantec’s revised alignments were developed to maintain grades within the design specifications for the VT 289 Corridor and Shared-Use Paths; to reduce stream crossings; and to reduce or avoid impacts to right-of-ways (ROW), cut and fill areas, and existing vegetation.

- Alignment 1
 - Designed to preserve the natural, trail-like character of CRO’s concept, staying close to the tree line while meeting design grade limits.
 - Uses a series of tangents similar to the original layout.
 - Still includes some steep and constrained sections, especially near the VT 289 northbound entrance ramp, where a retaining wall and bridge are likely needed.
- Alignment 2

- Incorporates a minimum 24-foot offset from the VT 289 roadway, per corridor specifications.
- Uses a combination of tangents and curves to smooth grades and reduce environmental and ROW impacts.
- Better compliance with design criteria and roughly half the ROW impact area compared to Alignment 1 (~41,000 sq ft vs. 89,000 sq ft).

The cost for acquiring ROWs for both alignment alternatives is unknown, but Alignment 2 is the more practical and cost-efficient option for further design development given it’s ROW impacts are half of Alignment 1.

A high-level construction cost was estimated for both Stantec Alignments using an updated unit cost of \$240 per linear foot (based on recent construction bids and inflation-adjusted from VTrans 2020 data). The estimated construction cost for both alternative alignments is approximately \$3.2 million (excluding engineering, administration, ROW acquisition, and inspection costs). Other cost estimates include \$500,000 for a 7-foot tall, 550-foot long retaining wall and any necessary bridges over the Alder Brook.

Stantec also provided potential next steps to move a longitudinal trail along VT 289 forward. This included specific steps for the path itself, a bicycle/pedestrian crossing (an underpass, at-grade, or a bridge), and a VT 289 wildlife crossing.

VT 289 Path steps:

- Conduct scoping study to define the project, including developing and evaluating alternatives, and documenting the information required prior to obtaining funding and starting engineering design.
- Alternatives would include different possible alignments within the VT 289 corridor.
- This could be pursued through the Chittenden County Regional Planning Commission (CCRPC) or through the Vermont Agency of Transportation (VTrans).
- Once a scoping study is completed, with a preferred alternative selected and endorsed by VTrans and the Town of Essex, funding for design and construction can be pursued.
- Once funding is acquired, engineering design and plan development would occur.
- After engineering design and plan development, the project would be bid for construction.

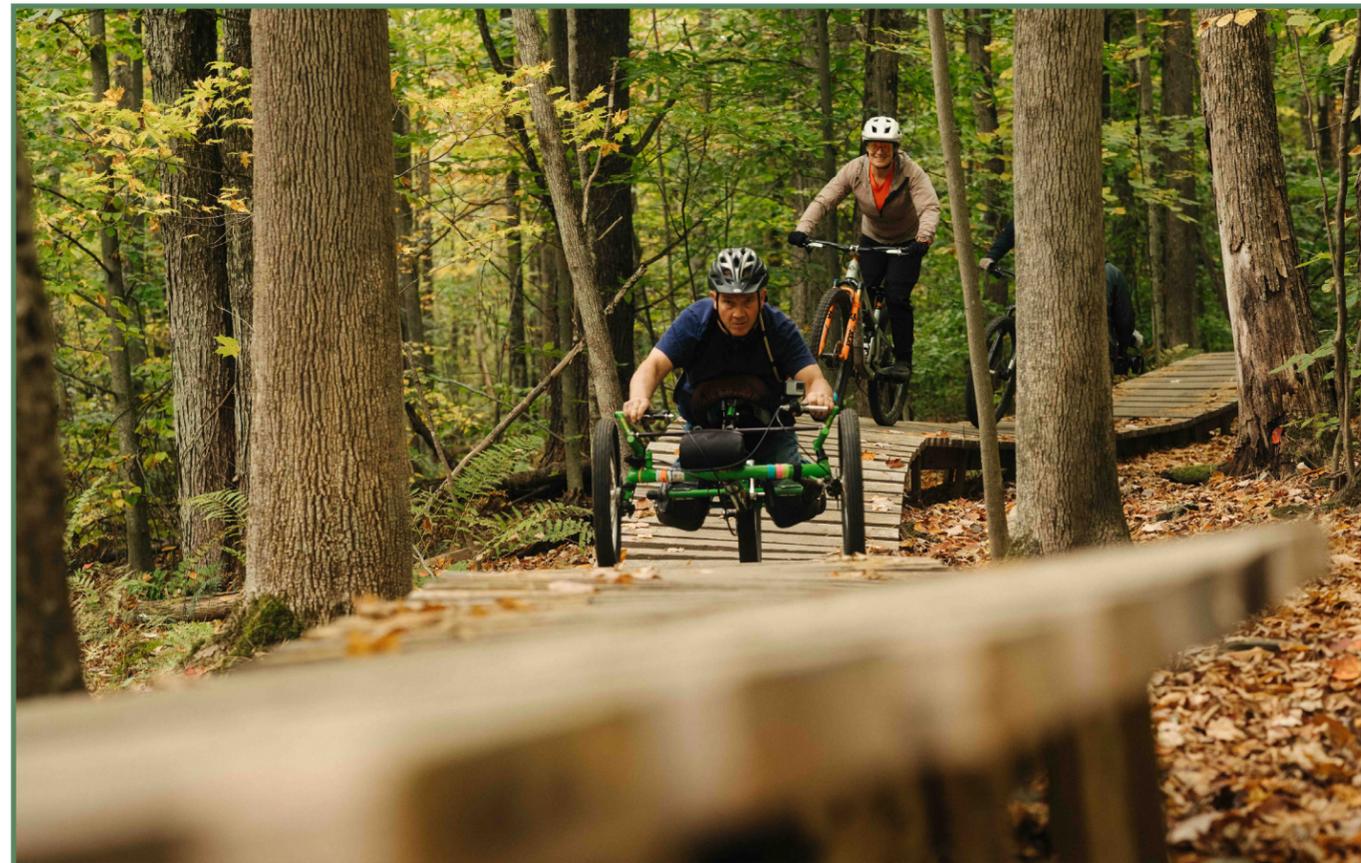
- If VT 289 ROW has already been cleared through environmental, could save costs on environmental/archeologic/historic (National Environmental Policy Act, or NEPA), could save on costs during scoping.
- \$50,000 to \$60,000+ for scoping study

- Once funding is acquired, engineering design and plan development would occur.
- After engineering design and plan development, the project would be bid for construction.
- \$30,000 to \$60,000 for scoping study. It depends on number of alternatives and amount of resource identification (survey/wetlands/archeological) vs waiting for some resource ID during conceptual design.

VT 289 Wildlife Crossing steps:

- VT 289 Bicycle/Pedestrian Crossing steps:
- Conduct scoping study to define the project, including developing and evaluating alternatives, and documenting the information required prior to obtaining funding and starting engineering design.
 - Alternatives would likely include a pedestrian/bicycle bridge and pedestrian/bicycle tunnel or could just look at tunnel with alternative locations
 - This could be pursued through the CCRPC or VTrans.
 - Once a scoping study is completed, with a preferred alternative selected and endorsed by VTrans and the Town of Essex, funding for design and construction can be pursued.

- Conduct scoping study to define the project, including developing and evaluating alternatives, and documenting the information required prior to obtaining funding and starting engineering design.
- Alternatives would likely include converting an existing culvert to a bridge for wildlife to cross below, a wildlife bridge overpass above VT 289, and a wildlife tunnel.



Two mountain bikers ride a feature on the Saxon Hill trails.
Photo Credit: Top Spin Studios

- This could be pursued through the CCRPC or VTrans.
- Once a scoping study is completed, with a preferred alternative selected and endorsed by VTrans and the Town of Essex, funding for design and construction can be pursued.
- Once funding is acquired, engineering design and plan development would occur.
- After engineering design and plan development, the project would be bid for construction.
- \$30,000 to \$60,000 for scoping study. It depends on number of alternatives and amount of resource identification (survey/wetlands/archeological) vs waiting for some resource ID during conceptual design.

If all three projects were combined into one scoping study, there could be some overall cost savings. This caliber of scoping study would be closer to \$100,000.

PLANNING, PARTNERSHIPS, OPERATIONS, AND MAINTENANCE RECOMMENDATIONS

Creative collaboration with internal and external groups will help the Town achieve the goals of the Keystone Trail Connectivity Project, as will effective planning. The following recommendations will suggest relationships the Town can build, as well as other planning needs related to the network.

DEVELOP A WORK PLAN FOR THE CONSERVATION AND TRAILS COMMITTEE.

The Town's Conservation and Trails Committee has existing "mission, powers, and duties", and an annual work plan to supplement this guiding language will help the committee accomplish its current goals, as well as goals relating to the Keystone Trail Connectivity Project. The Committee and relevant Town staff could work together to establish roles and responsibilities for the committee and how they will weave into the interconnected trail network. A work plan will also help the committee plan trail maintenance and management for existing trails on Town-owned land.

WORK WITH THE FELLOWSHIP OF THE WHEEL (FOTW), WHERE APPROPRIATE, FOR TRAIL MAINTENANCE, TRAIL DECOMMISSIONING, AND ASSOCIATED MAPPING, TRAIL QUANTIFICATION, ETC.

FOTW is the largest chapter of the Vermont Mountain Bike Association. A registered 501c3, this organization has been managing and maintaining the trails in Saxon Hill for decades, in addition to several other trail networks across

Chittenden County. Recognizing the Town's Conversation and Trails Committee is largely comprised of volunteers (as is FOTW's board of directors), collaboration between the two groups could help in achieving high-quality maintenance and stewardship across more trails, especially as the Keystone network gets built out.

OBTAIN LANDOWNER PERMISSION FOR TRAILS FROM SAYBROOK/ALLEN BROOK DEVELOPMENT.

The Saybrook and Allen Brook Developments are two privately-owned parcels that the proposed Keystone trail network crosses. Working with the landowners to allow public access to their land for the purposes of building and maintaining the trails would help establish the connectivity the Town is seeking. This recommendation was also one that came out of the scenario planning process.

DEVELOP ACCURATE, USABLE MAPS AND WAYFINDING SIGNS/TRAIL BLAZES.

One of the major goals of this project is to build an interconnected trail network that connects schools, neighborhoods, and shopping centers that residents will use for active transportation and outdoor recreation. Maps, on-trail wayfinding, kiosks entry points will be essential for keeping trail users oriented, and to ensure their experience using the trails is positive. This recommendation was also one that came out of the scenario planning process.

IDENTIFY PRIORITY LANDS FOR TOWN OWNERSHIP, TRAILS, AND AMENITIES.

What parcels of land that the trail network will cross should the Town consider acquiring? Are trail easements an option where land acquisition is unfeasible? This recommendation was also one that came out of the scenario planning process.

DEVELOP A STRONG COMMUNICATION SYSTEM BETWEEN TOWN STAFF AND COMMITTEE MEMBERS, TRAIL MANAGERS, LANDOWNERS, AND USERS.

Maintaining this large trail network will require multi-faceted collaboration across several groups, and strong communication between stakeholders will be crucial. The communication system could include regular meetings, a digital space where updates/needs for the trails are shared, etc. Consider including local chambers and tourism groups as well. This recommendation was also one that came out of the scenario planning process.

DEVELOP A MAINTENANCE PLAN FOR THE CURRENT AND FUTURE TRAIL NETWORK.

Trails require ongoing maintenance to ensure a positive user experience and sustainability. Establishing roles and

responsibilities for each group involved in stewarding the trail system, a monitoring plan, how often minor vs major maintenance will occur, how issues that need to be addressed will be reported, an standard operating procedure standard operating procedure for for addressing social/unsanctioned trails, etc., will help guarantee ongoing, high-quality maintenance throughout the trail network.

WILDLIFE HABITAT AND CONNECTIVITY RECOMMENDATIONS

The results of the wildlife study conducted by Arrowwood will help determine where best to locate future trails and/or reroute existing trails, minimizing impacts to sensitive, rare, and/or threatened ecosystems and wildlife corridors.

Based on the analysis findings, it was determined that the Keystone Trail Connectivity Project area functions as a critical stepping-stone habitat, connecting larger forest blocks to the north and south and supporting wildlife movement across an otherwise fragmented suburban matrix. The following recommendations are organized around the various areas that Arrowwood named for the purposes of the study:

TOWN-WIDE RECOMMENDATIONS

- Consider a broader wildlife study that assesses all of Essex beyond the project area
 - For the Town to maximize wildlife habitat protection, a full-picture view of the habitat blocks and movement corridors is necessary. Understanding where high-value parcels for wildlife exist across Essex could help the Town plan and zone accordingly for protection of these properties.
- Avoid building trails in hemlock forests, when possible, to protect Deer Wintering Areas
- Maximizing trail-free zones in dense hemlock forests will help protect these deer habitats, which are essential for them to survive Vermont winters
- Minimize trails and trail crossings in valley-bottom wetlands
 - Wetlands are extremely valuable for wildlife. The wetlands documented within the project area are long and linear, and located along streams. Avoid building trails along these wetlands.
- Maintaining existing trail-free zones (wildlife refugia) should be done as much as possible, but recognizing the demand for enhanced connectivity throughout Essex, some trails may be considered. The following recommendations should be followed when considering new trails:
 - Locate new trails to avoid wildlife refugia/trail-free zones

- If new trails are necessary within an existing trail-free zone, minimize their impact by locating them on the outer edge of the zone
- Minimize trail crossings through trail-free zones if possible
- Evaluate the existing trail network for redundant or unnecessary trails to increase wildlife refugia
- Maintain as much natural cover as possible within the corridor by keeping existing and/or planting more trees, shrubs, and ground cover to improve wildlife crossing quality
 - Avoid additional fragmentation (e.g. building buildings, parking areas, fences, etc.) and infill development should it reduce the width of the corridor to less than 250 feet
 - Keep road and trail corridors as narrow as possible and maintain vegetation
 - Natural surface trails are preferred over paved and hardened surfaces
- Reduce artificial lighting at night as much as possible
 - Direct artificial lights downward
 - Do not direct lights toward or into a forest block or wildlife corridor
 - Use amber or yellow-colored lights
 - Use time-restricted lighting

AREA RECOMMENDATIONS

- Saxon Hollow Park
 - Consider expanding the Park's northern edge 15-50 feet east to west
 - 50 feet would be ideal to establish a larger zone for wildlife movement
 - Plant native trees, shrubs, and groundcover to provide cover for wildlife in this area (see full report for species recommendations)
- Southeastern Sand Hill Road
 - Limit development
 - Building new trails at the ends of this corridor should be avoided
 - Consider consolidating existing trails to the west of the corridor
 - Planting additional native vegetation could help improve the quality of the corridor
- Revegetate the early succession forest on Allen Martin Parkway West
- VT 289 South

- Locate trails away from the valley bottom and Alder Brook along the east side of VT 289 South, given the importance of the forested corridor
- Avoid new development and trail infrastructure close to the stream and riparian zones
- Future culvert and/or bridge designs should be designed to accommodate wildlife movement
- VT 289
 - Maintain vegetation as close to the highway as possible to accommodate wildlife movement across the road
 - Consider designing and building a wildlife overpass over VT 289
 - This would require further study to evaluate where along the highway wildlife prefers to cross
- Alder Brook Northeast
 - Avoid severing wildlife connectivity
 - Further assessment is required to assess this corridor in relation to other habitat areas

The full report with additional details for these recommendations can be found in the Plan Appendix.

IMPLEMENTATION MATRIX

The Appendix contains an Implementation Matrix that is formatted as an Excel spreadsheet. It is a tool that will help the Town implement the recommendations in this plan, and contains the following columns:

- Project Goals
- Task
- Task Details
- Timeline
- Cost Estimate
- Potential Partners
- Possible Funding Sources (often abbreviated in the spreadsheet, but full names and information listed below in this plan document)
- Permits and Analysis
- Additional Planning Needs

The implementation matrix contains suggested short, medium, and long-term time periods for when tasks can be pursued. The tasks listed below are what should be pursued first and foremost in 2026. The reasoning behind this prioritization considers factors including necessary processes, low-hanging fruit, and systems

that should be in place before other tasks can be set in motion.

- Continue efforts to develop a work plan for and formalize communication between the Conservation and Trails Committee and the Town Trails Coordinator to define roles and responsibilities for trail maintenance and management on Town-owned lands.
- Work with the Fellowship of the Wheel (FOTW), where appropriate, for trail maintenance, trail decommissioning, associated mapping, trail quantification, etc.
 - FOTW could also help the town identify which recommended trail realignments can and should be pursued first of the 14 identified by Ide Ride.
- Apply for a Recreational Trails Program (RTP) grant to implement the decided-on prioritized trail realignments/improvements suggested by Ide Ride
- Apply for funding for a scoping study that would explore the feasibility of a longitudinal trail/shared-use path along VT 289. The study would cover the trail/shared-use path, a bicycle/pedestrian crossing of VT 289, and a wildlife crossing of VT 289. The grants the Town could apply for include:
 - VTrans Bicycle and Pedestrian Program
 - VTrans Town Highway Structures Program
 - VTrans Transportation Alternatives Program
- Continue the pursuit of funding for a Town-wide wildlife habitat and corridor study
- Install trail counters to gather user data that will help inform maintenance and management needs and answer questions like, which trails are used most heavily and therefore require the most maintenance? This data can be supplemented with observational data, e.g., Conservation and Trails Committee members reporting back how many people and which activities they were participating in while doing trail work.

10 PUBLIC ENGAGEMENT: COMMUNITY PRIORITY SUMMARY

The Community Priority public engagement process sought to obtain community feedback on which proposed actions and recommendations from the plan should be prioritized for implementation.

The Community Priority Open House was held at Founders Memorial School on September 30, 2025, and nine people attended to place sticker dots on poster boards that reflected the online survey questions.

After the Open House, an online survey was distributed throughout the community via email newsletters from multiple Town Departments, Front Porch Forum, social media, and printed flyers in key locations. The survey garnered 253 total responses, including complete and usable partial responses with enough data to be valid.

The Open House meeting boards and survey asked respondents to rank how important each draft recommendation is to them on a scale of 1 to 10.

Among natural surface trail design concepts, support was highest for developing a multi-use thoroughfare connecting schools and neighborhoods (average rating: 8.2/10) and formalizing existing town-owned trails (8.0). Respondents also strongly favored building a paved path along VT 289 (7.4) and constructing kiosks at trailheads for orientation (6.7). Building mountain-bike-optimized trail spurs off a main thoroughfare trail received a more mixed response (5.4), reflecting community division between those seeking experiences specific to mountain biking.

Respondents emphasized the importance of coordinated stewardship and communication. The highest-rated action overall was to work with private landowners to expand access (8.4), followed closely by developing strong communication among town staff, committees, landowners, and users (8.0). Developing maps, wayfinding signs, and trail blazes for the network came in strong (7.8), as did working and creating a detailed work plan for the Trails Committee (7.5). Respondents also supported collaboration with organizations like Fellowship of the Wheel and developing maps and wayfinding signage (6.9). Comments underscored a desire for clarity in roles, sustainable maintenance funding, and collaboration with existing user groups to avoid redundancy or overuse.

Environmental protection was proven to be a consistent community priority. Respondents supported actions such

as tree and shrub planting along corridors (7.5), keeping new trails away from river edges and sensitive wildlife areas (7.5), maintaining vegetation along VT 289 (7.2), and creating wildlife crossings such as overpasses or underpasses (7.0). Other recommendations, including turning lights off at night to protect wildlife and birds (6.5) and a town-wide wildlife study (6.2), also received support. Many comments reflected appreciation for integrating wildlife needs into planning, with caution expressed toward overdevelopment and light pollution. Several respondents encouraged simple, cost-effective improvements like preserving existing stream crossings to balance recreation and habitat protection.

While opinions varied on paving and mountain biking opportunities, there was a broad consensus that trail connectivity, safety, and environmental stewardship should guide project prioritization. Residents value collaborative planning, transparent communication, and incremental implementation to ensure the trail network enhances both recreation and ecological resilience.

11 POSSIBLE FUNDING SOURCES

There are several funding opportunities that could help the Town of Essex pursue the asks in this plan. Below are descriptions and links to the grant programs identified, and the associated acronym or grant short name from the matrix.

Better Places Program

- Better Places is a community matching grant program empowering Vermonters to create inclusive and vibrant public places serving Vermont's designated downtowns, village centers, new town centers, or neighborhood development areas. The program is led by the Vermont Department of Housing and Community Development (DHCD) in partnership with the Vermont Community Foundation, and Patronicity, our crowdfunding experts. The program supports community-led projects that create, revitalize, or activate public spaces that bring people together to build welcoming and thriving communities across Vermont.
- Match: Variable/Crowdsourcing

Building Communities Grants (BCG) Programs: Recreational Facilities Grants

- The Recreational Facilities Grants Program is administered by the Department of Buildings and General Services (BGS). The goal of the program is to provide competitive grants to Municipalities and to NonProfit Organizations for capital costs associated with the development and creation of community recreational opportunities in Vermont communities.
- Match: 50%

Recreational Trails Program (RTP)

- RTP is administered by the Vermont Department of Forests, Parks, and Recreation annually, with funding coming from the Federal Highway Administration. For non-motorized trails, organizations can apply for \$35,000 grants that can be used for trail maintenance and/or building. This grant would be ideal for trail improvement projects such as replacing old bridges and pursuing the trail realignments recommended by Ide Ride.
- Match: 20%

Downtown Transportation Fund

- The Downtown Transportation Fund is a financing tool which assists municipalities in paying for transportation-related capital improvements within or serving a Designated Downtown and eligible Designated Village Centers. Investment in the infrastructure of public spaces stimulates private investment and creates a sense of identity and pride in Downtowns and Village Centers across Vermont. Since its inception in 1999, the program has invested over \$17 million in Vermont's downtowns and villages.

Northern Borders Regional Commission Catalyst Grant

- This program is designed to stimulate economic growth and inspire partnerships that improve rural economic vitality, including growing the outdoor recreation economy. The maximum award is \$3,000,000 and could fund several initiatives laid out in this plan.
- Match: 50%

USDA Rural Development

- This \$50,000 grant is meant to promote economic development and job creation projects in rural communities.
- Match: None.

Athletic Brewing Two for the Trails

- Also offered annually, this grant supports projects focused on trail construction and maintenance, waterway protection, environmental stewardship, and other outdoor conservation initiatives. It is another avenue to help fund trail improvement projects in Essex.
- Match: None.

Santa Cruz Pay Dirt

- Offered through Santa Cruz Bicycles, this annual grant funds anything from trail maintenance to programming to new signs. It could be a good one to apply for funding for interpretative signs, wayfinding signs, and new kiosks.
- Match: None.

Lintilhac Foundation

- This quarterly grant offers a maximum award of \$30,000 to Vermont-based organizations pursuing projects related to conservation and sustainable outdoor recreation, forest health and biodiversity, and several other project categories. It is another great avenue for implementing trail improvement projects across Essex.
- Match: None.

Land & Water Conservation Fund (LWCF)

- The Land and Water Conservation Fund Program (LWCF) became effective in January 1965 to create parks and open spaces, protect wilderness and forests, and provide outdoor recreation opportunities. Funds are derived from federal recreation fees, Outer Continental Shelf (OCS) revenues from leasing oil and gas sites in coastal waters, federal surplus real property sales, and a portion of federal motorboat fuel taxes. Funds are apportioned to federal agencies, and to the 50 states and 6 territories through the U.S. Department of the Interior National Park Service (NPS). In Vermont, LWCF is administered by the Vermont Department of Forests, Parks & Recreation.
- Match: 50%

Vermont Community Foundation (VCF)

- The Vermont Community Foundation supports nonprofit partners with nonprofit reserve and endowment funds, planned giving partnerships, grants, and integrated capital.
- Match: None/Varies

Vermont Municipal Planning Grant (MPG)

- The Municipal Planning Grant (MPG) program encourages and 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.
- Match: 10%

Vermont Bike/Ped Grants

- The intent of the VTrans Bicycle and Pedestrian Program is to improve access and safety for people walking and bicycling through the planning, design and construction of infrastructure projects.
- Match: Federal funding pot for bigger projects is 20% match, State pot for smaller projects is 50%

Vermont Community Development Program

- The Vermont Community Development Program (VCDP) administers U.S. Housing and Urban Development (HUD) Community Development Block Grant (CDBG) funding. Vermont's CDBG funding assists communities on a competitive basis by providing financial and technical assistance to identify and address local needs in areas of, housing, economic development, public facilities, public services, and handicapped accessibility modifications.

VTrans Transportation Alternative Program

- The Transportation Alternatives Program (TAP) provides funding for projects defined as transportation alternatives (click here for additional FHWA guidance), including on- and off-road pedestrian and bicycle facilities, infrastructure projects for 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.
- Match: 20%

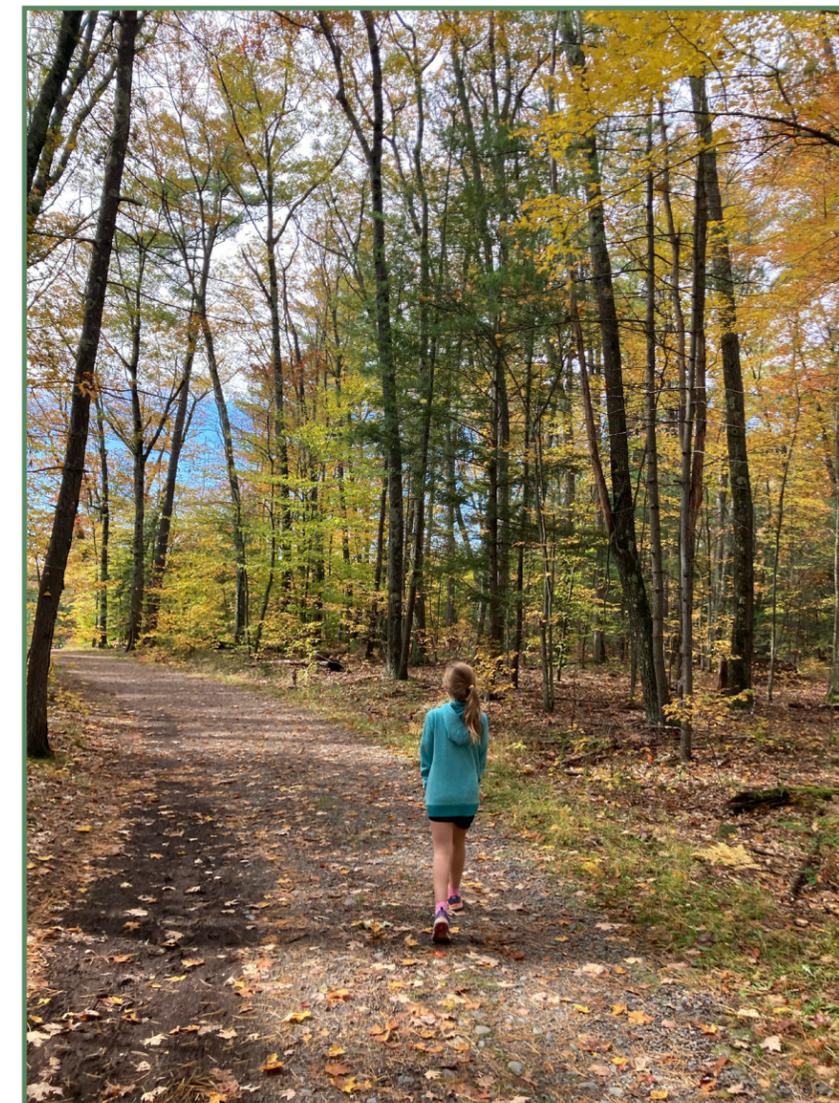


A paved shared use path.
Photo Credit: *Drew Pollak-Bruce*

12 CONCLUSION

The Keystone Trail Connectivity Project is an important milestone in Essex's evolution as an independent municipality dedicated to advancing recreation, connectivity, and environmental stewardship. By combining the expertise of engineers, ecologists, trail designers, and planners with strong community input, the Town has created a clear and actionable roadmap for enhancing both human and wildlife connectivity. The proposed network of trails and crossings will connect neighborhoods, schools, and recreation areas while safeguarding the habitats that both define Essex's character and are crucial for the wildlife that live and move through them. This project exemplifies a balanced approach, one that prioritizes sustainable recreation, community well-being, and the preservation of vital ecological corridors.

The recommendations outlined in this plan will help Essex transform its vision into reality through strategic partnerships, phased implementation, and ongoing maintenance. The collaborative spirit that shaped this plan, from public engagement to interagency coordination, will remain central as the Town pursues funding and executes next steps. Together, these efforts will yield a trail system that not only strengthens local quality of life but also positions Essex as a model for how communities can grow outdoor recreation responsibly while honoring the landscapes that make Vermont special.



A girl enjoys a walk on a multi-use natural surface trail.
Photo Credit: *Deana Stoneback*

13 APPENDIX

This report is accompanied by the following appendices. Appendix A is located at the end of this document. All other appendices can be accessed as external PDFs in the Appendices folder associated with this report.

APPENDIX A: MAPS AND TECHNICAL REPORTS

APPENDIX B: IDE RIDE REPORTS

APPENDIX C: SCENARIO PLANNING REPORT

APPENDIX D: ARROWWOOD REPORT

APPENDIX E: STANTEC REPORTS

APPENDIX F: SURVEY REPORTS

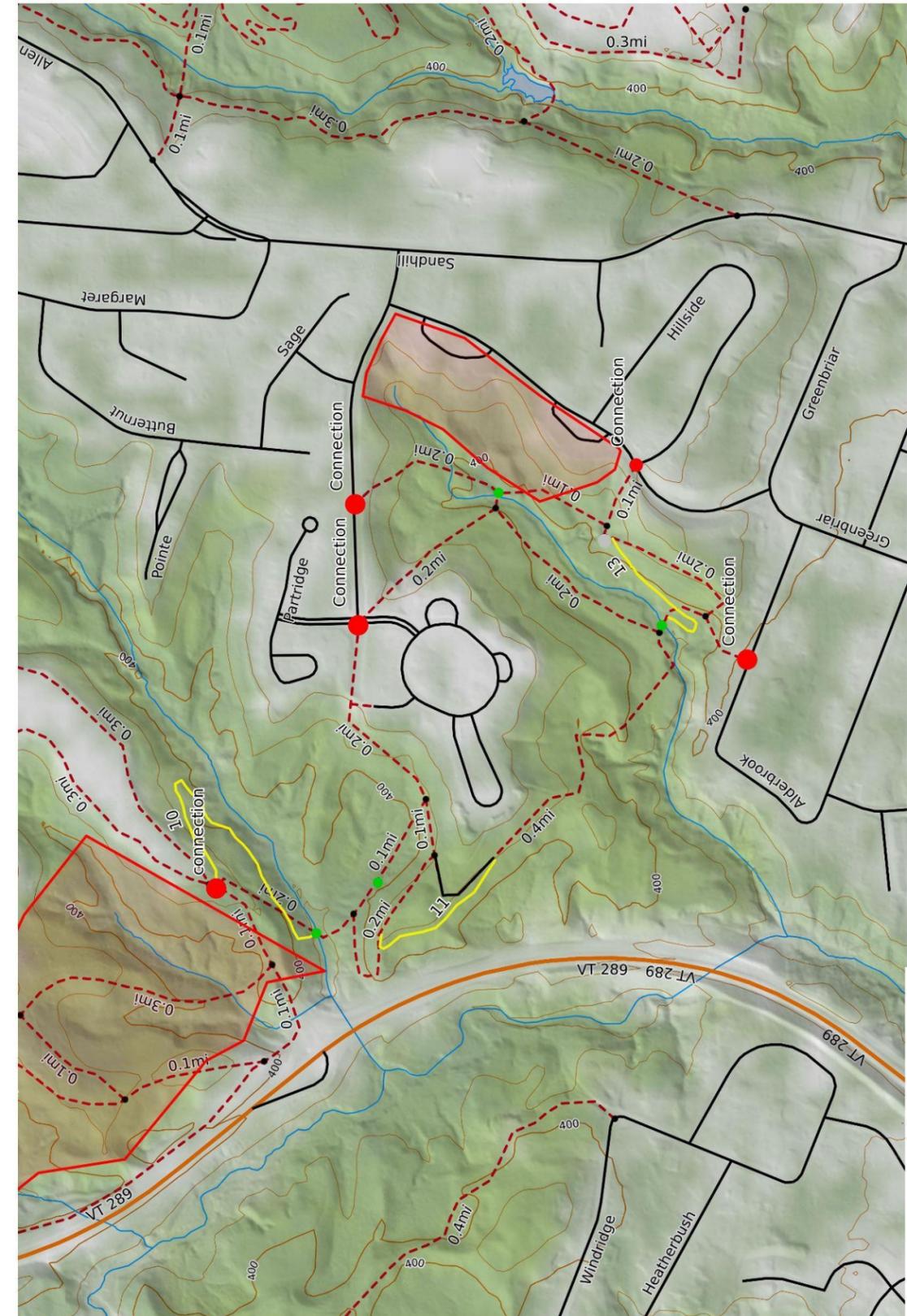
APPENDIX G: IMPLEMENTATION MATRIX



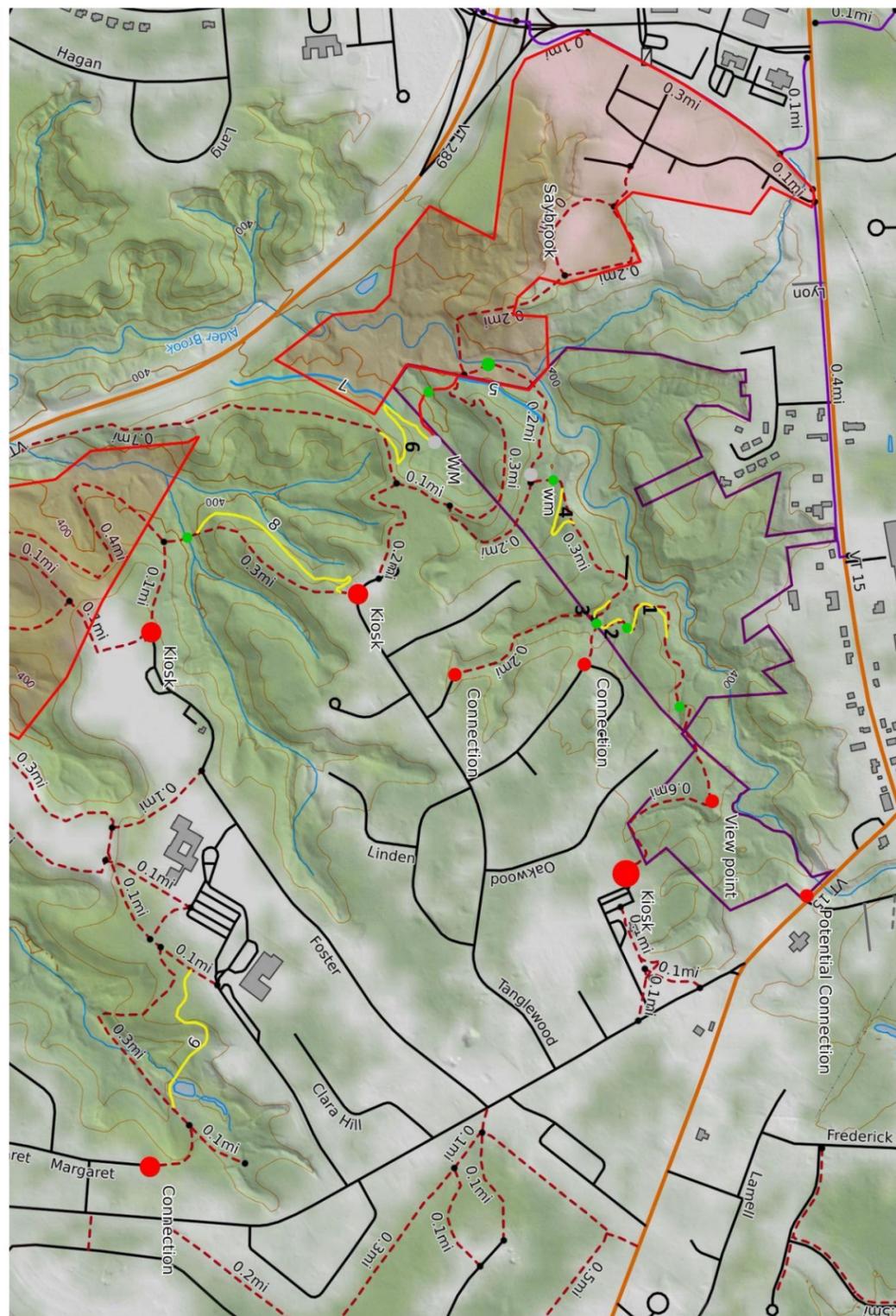
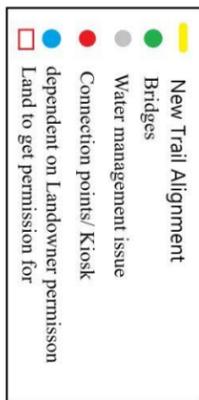
A trail sign directs hikers through a mowed meadow.
Photo Credit: *Trail Finder*

APPENDIX A

MAPS AND TECHNICAL REPORTS



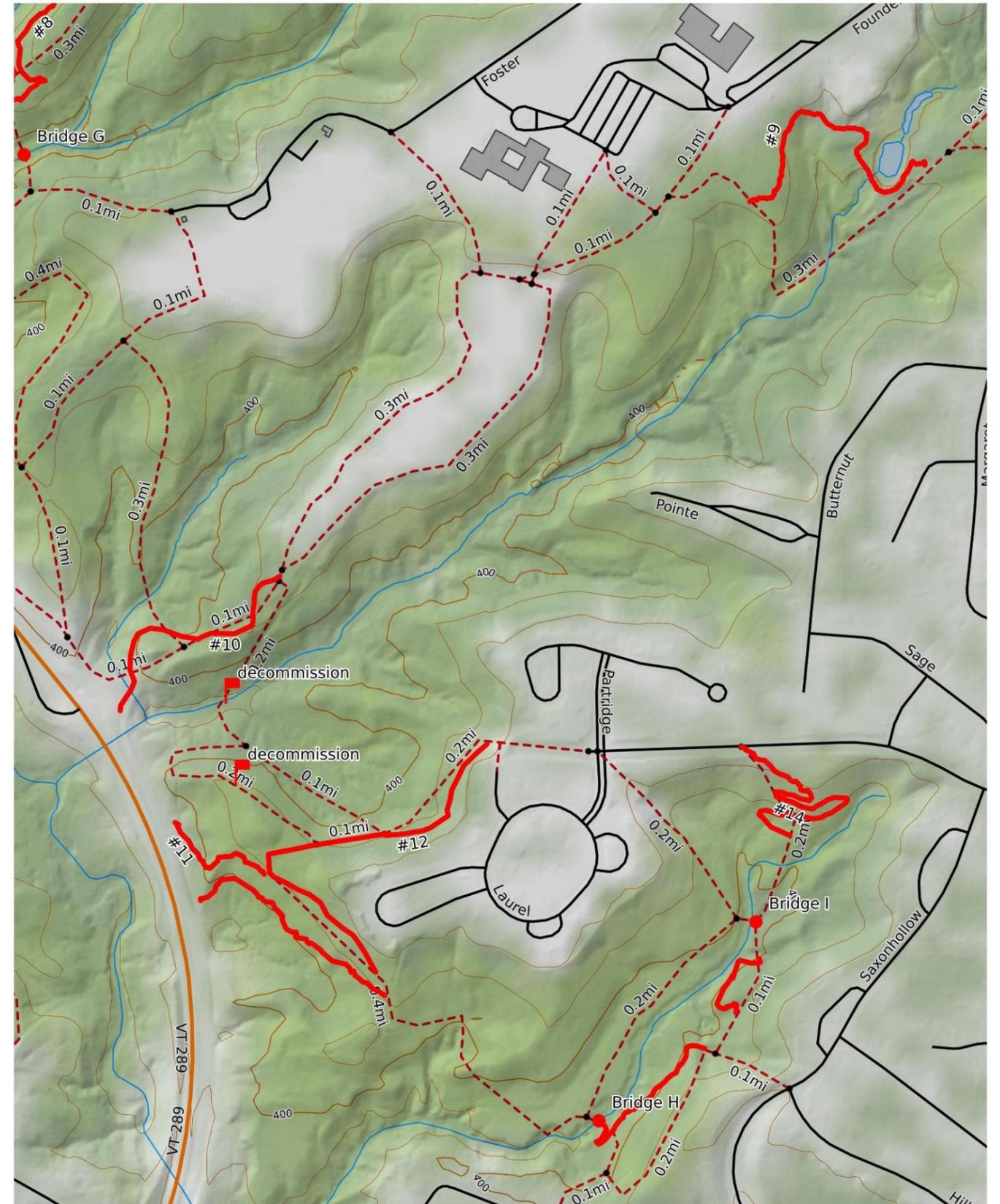
	New Trail Alignment
	Bridges
	Water management issue
	Connection points/ Kiosk

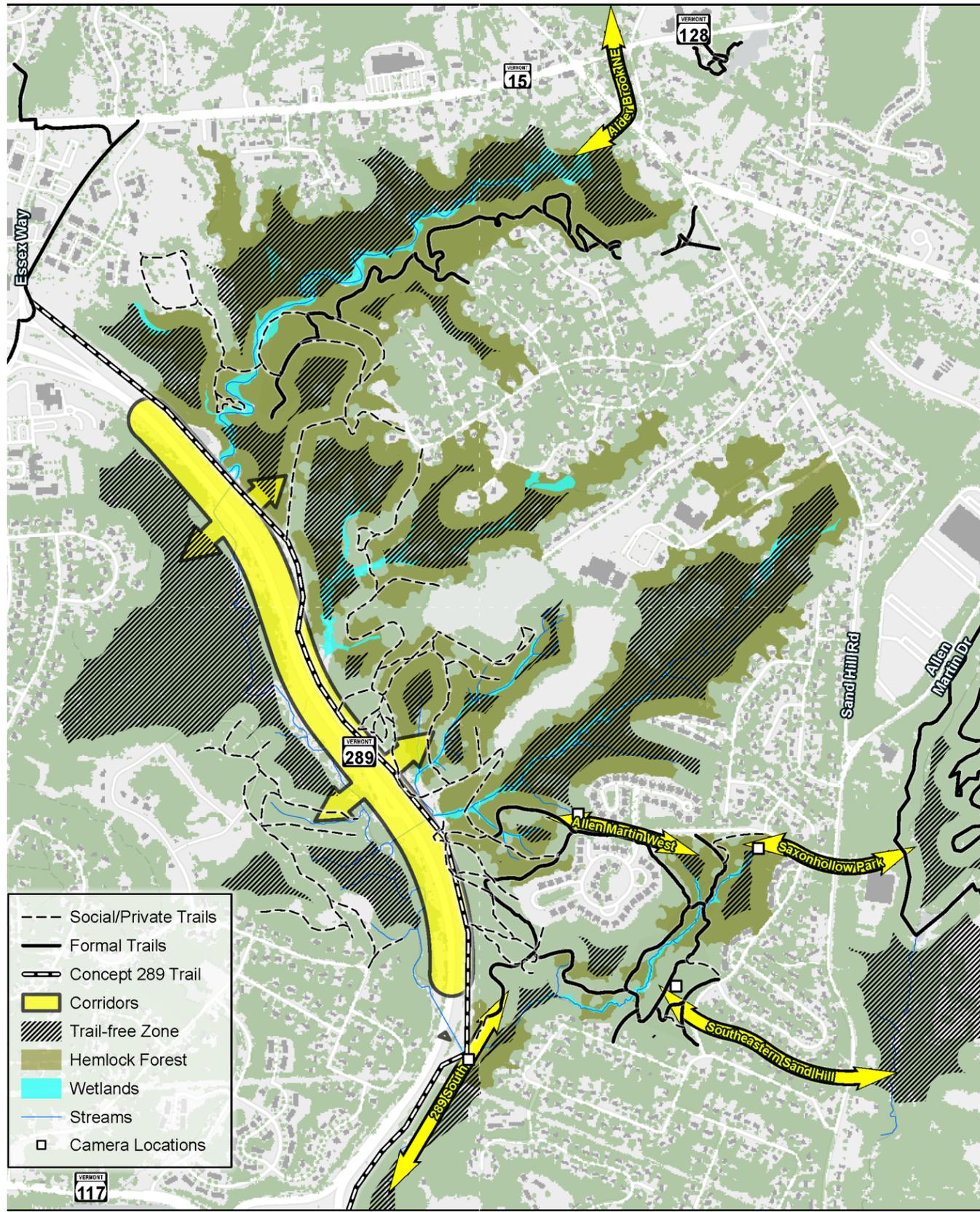


Assessment

- 11 connection/kiosk points in Neighborhoods
- 10 new trail alignments to reduce grade of existing trails
- 10 existing bridges to reconstruct
- 2 properties to get land permission for trail access (Saybrook/Allen Brook Development inc)





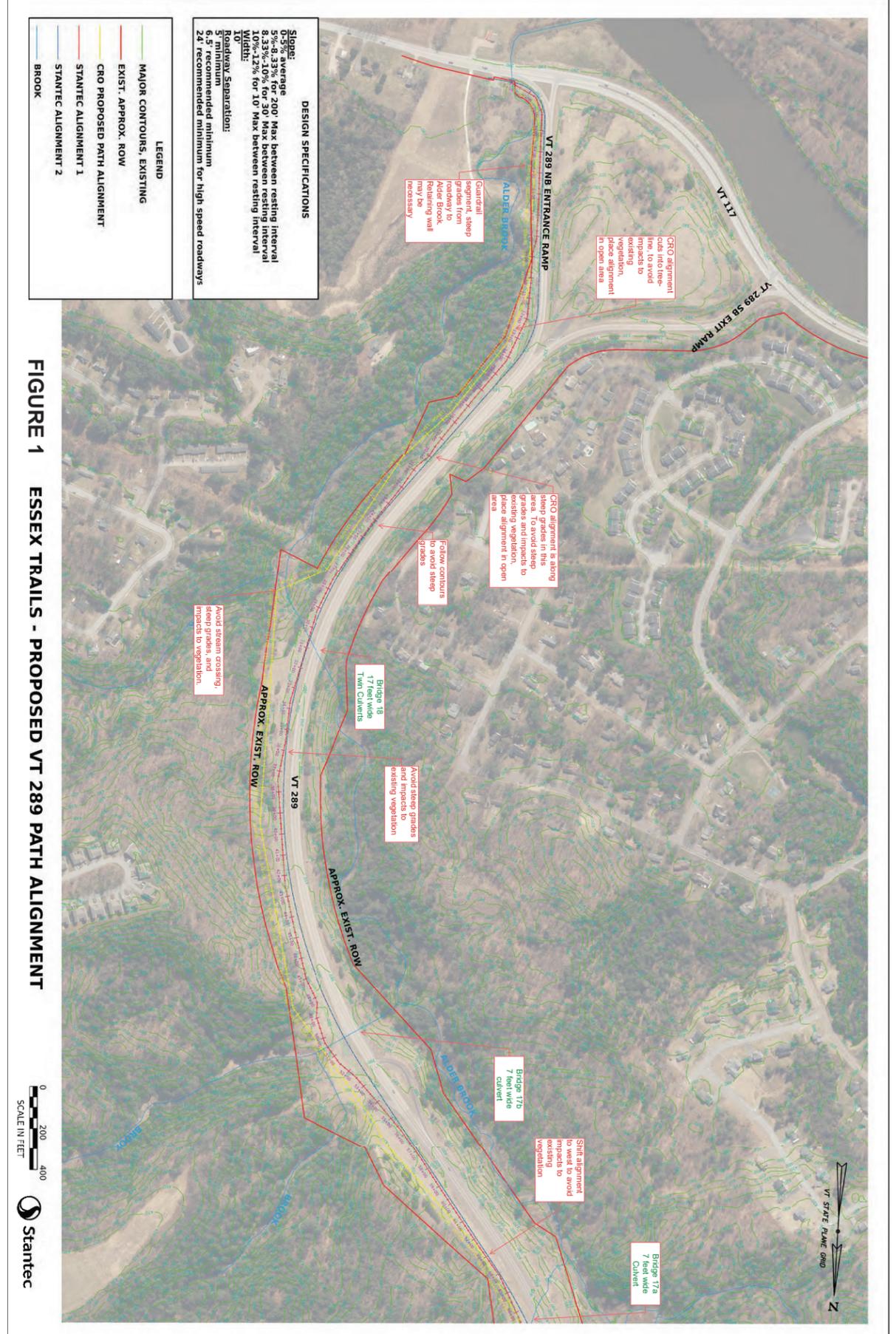


- Social/Private Trails
- Formal Trails
- Concept 289 Trail
- Corridors
- ▨ Trail-free Zone
- Hemlock Forest
- Wetlands
- Streams
- Camera Locations

Wildlife Habitat & Connectivity

Monday, May 19, 2025 File: CRO_Essex:8.5x11 Report
 Prepared By: A Worthley NAD 1983 StatePlane Vermont FIPS 4400 Feet

0 310 620 930 1,240 Feet



DESIGN SPECIFICATIONS

Slope:
 0.5%-8.33% average for 200' Max between resting interval
 8.33%-10% for 100' Max between resting interval
 10%-12% for 10' Max between resting interval
Width:
 10' (roadway Separation)
 6.5' recommended minimum for high speed roadways

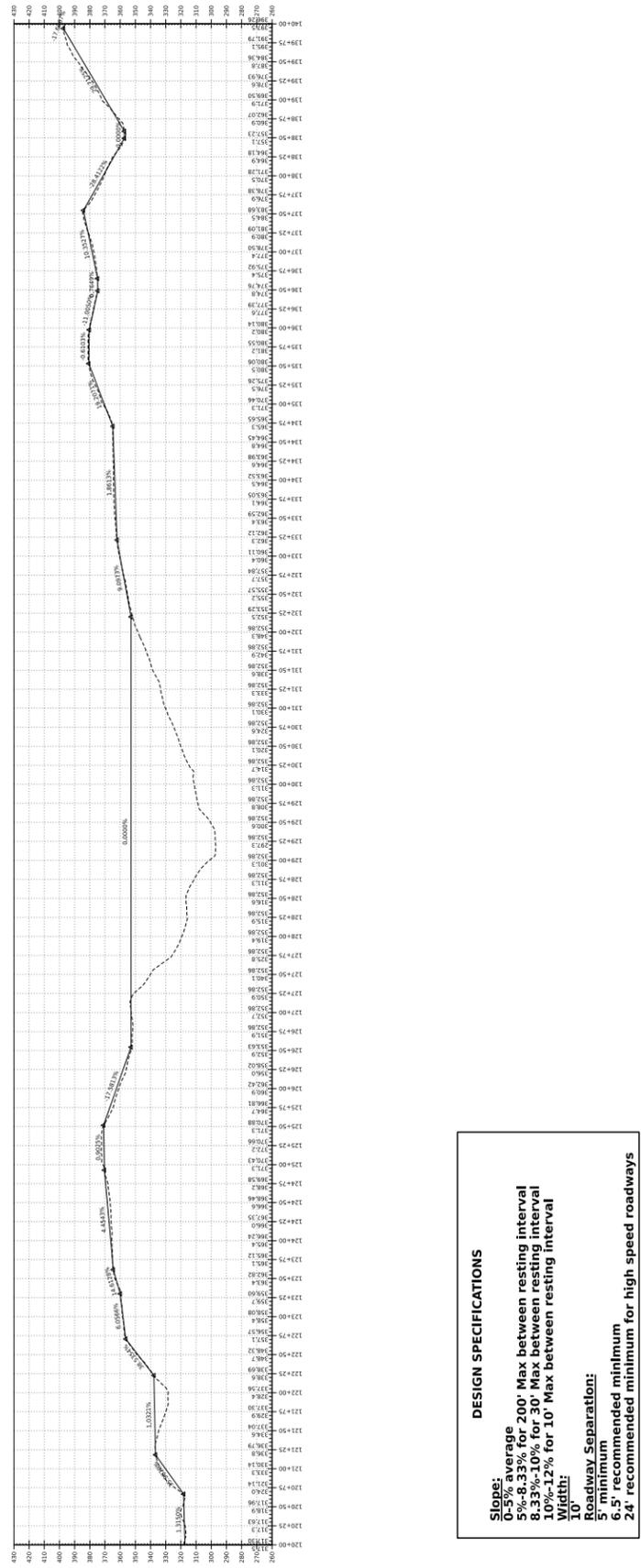
- LEGEND**
- MAJOR CONTOURS, EXISTING
 - EXIST. APPROX. ROW
 - CRO PROPOSED PATH ALIGNMENT
 - STANTEC ALIGNMENT 1
 - STANTEC ALIGNMENT 2
 - BROOK

FIGURE 1 ESSEX TRAILS - PROPOSED VT 289 PATH ALIGNMENT

0 200 400 SCALE IN FEET



CRO Profile
FIGURE 2

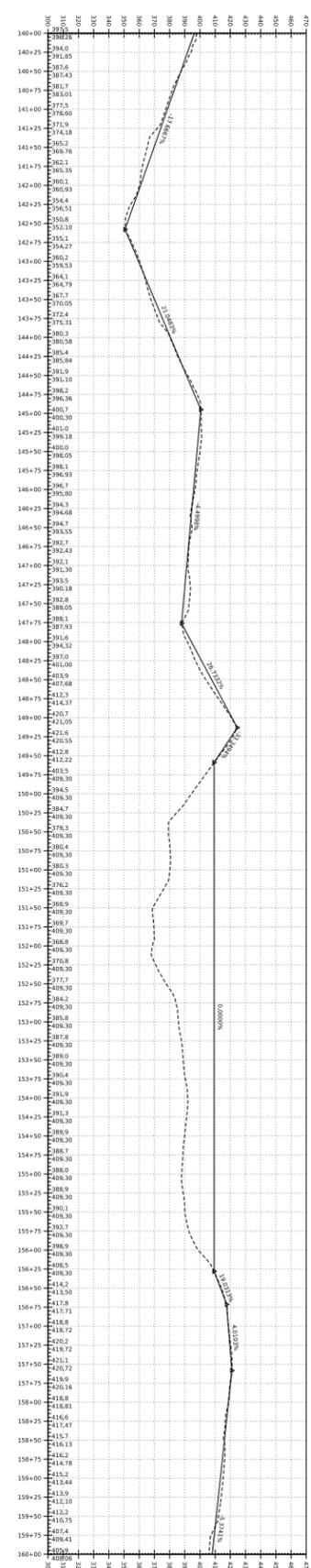


CRO Profile
FIGURE 2

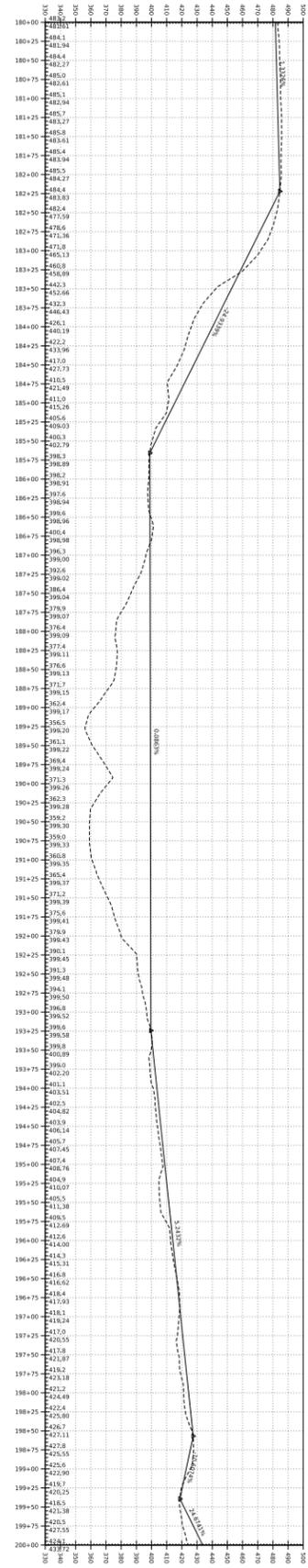
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Width:
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Roadway Separation:
 5' minimum
 6.5' recommended minimum for high speed roadways



CRO Profile
FIGURE 2

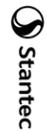


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Shoulder Separation:
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 6.5' recommended minimum for high speed roadways

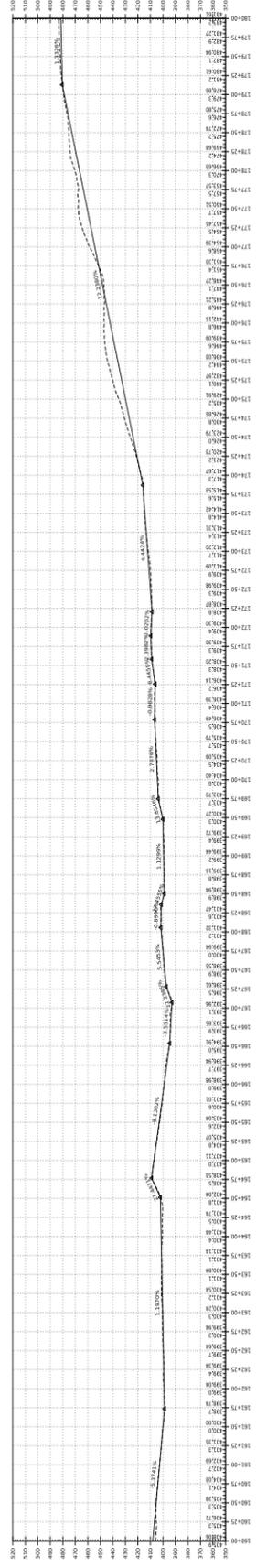


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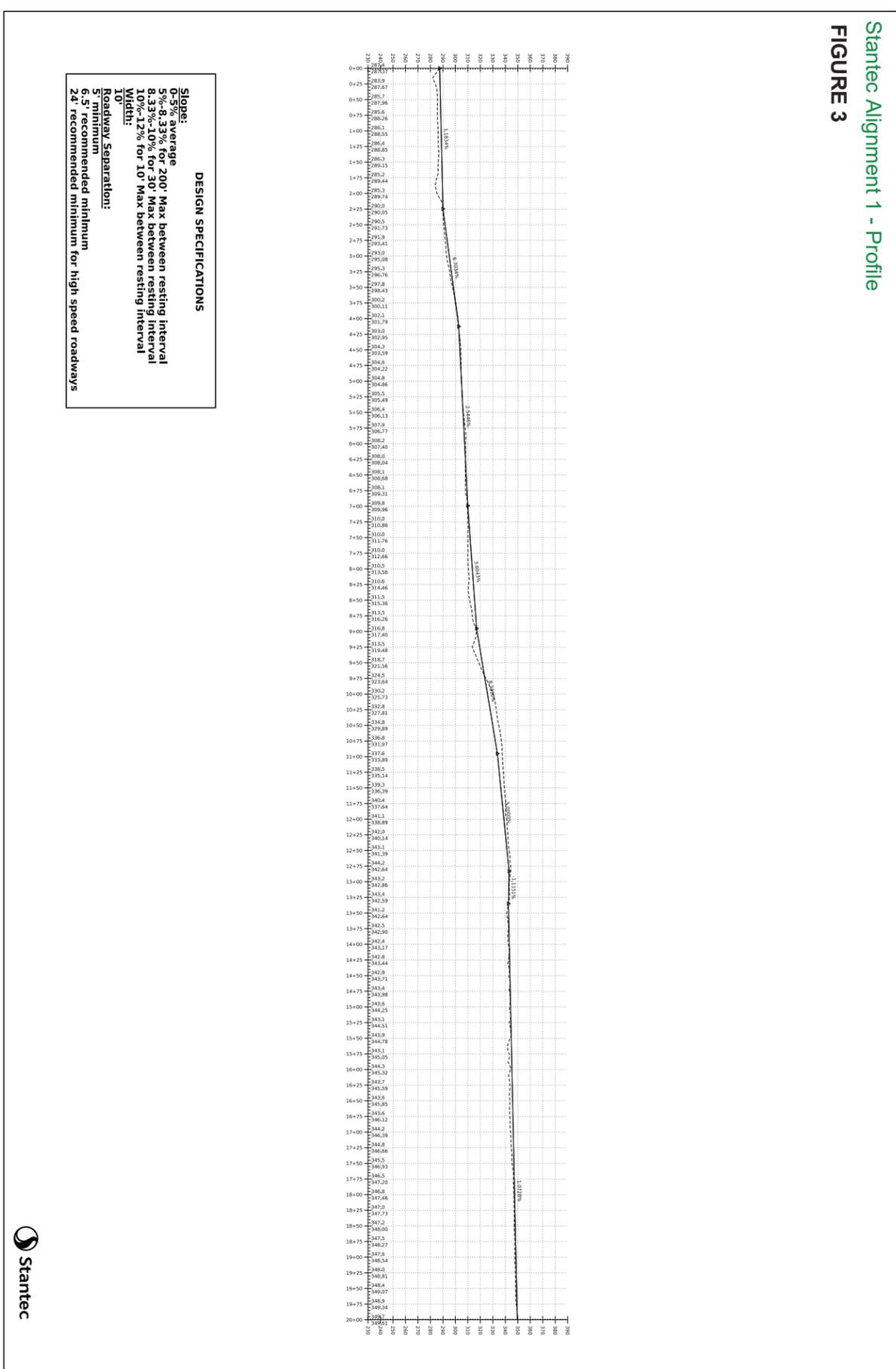
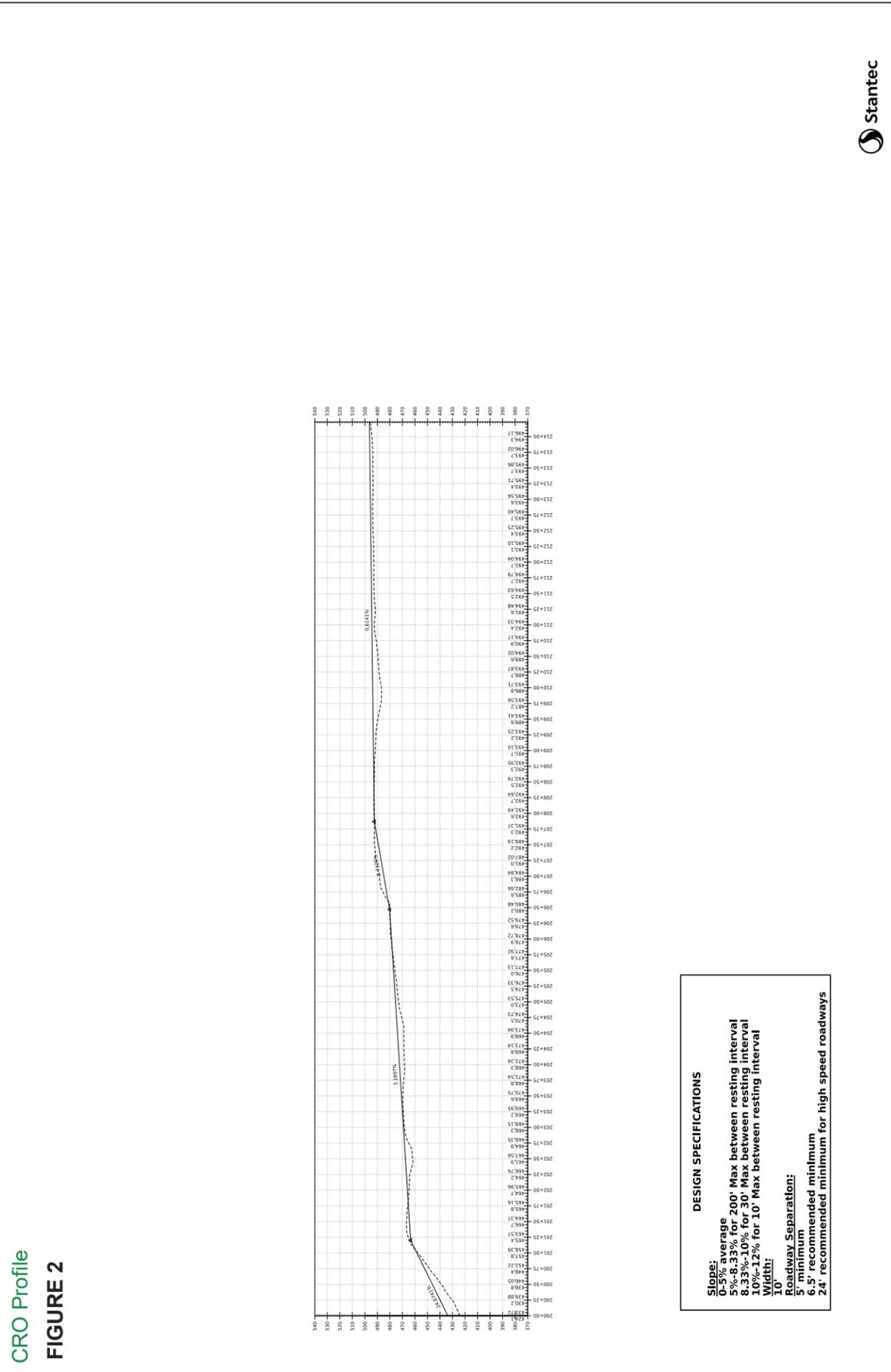
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Width:
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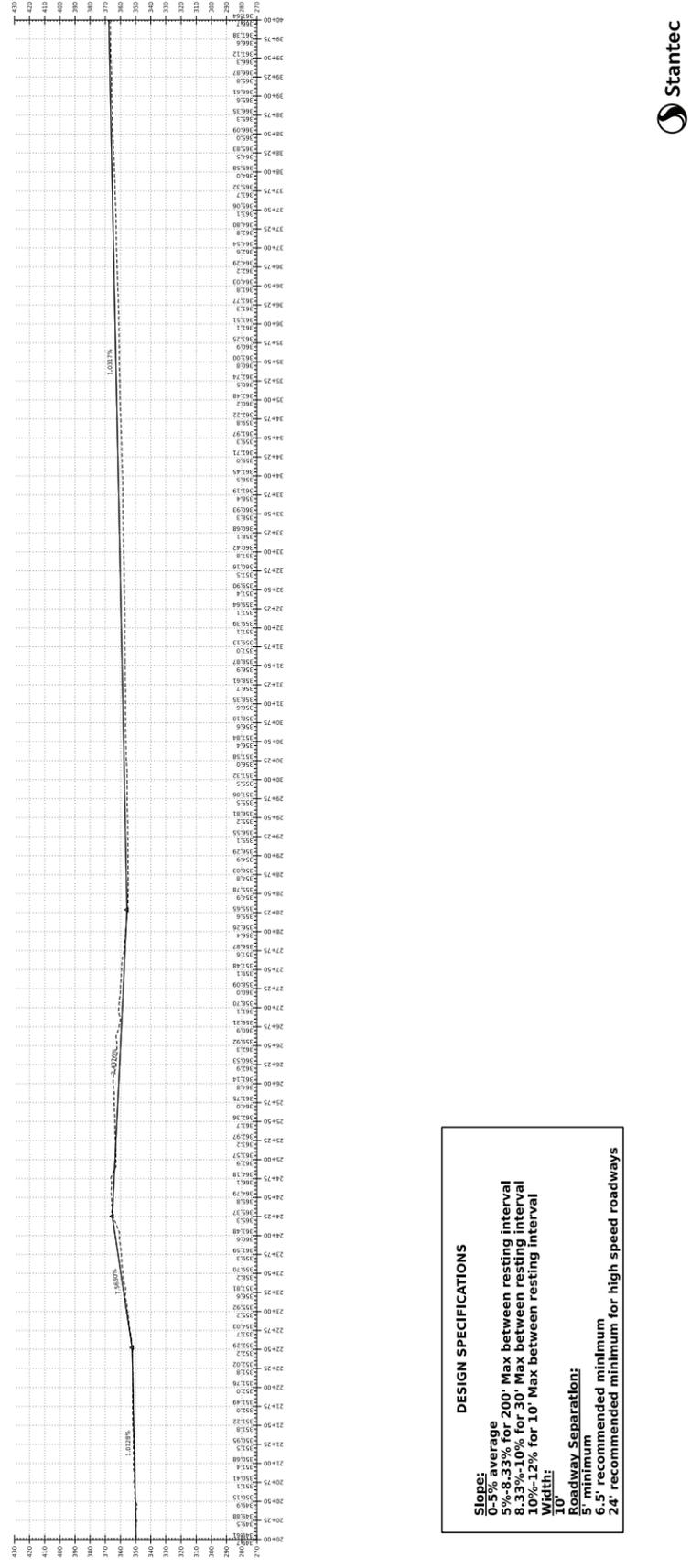
Shoulder Separation:
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 6.5' recommended minimum for high speed roadways



CRO Profile
FIGURE 2



Stantec Alignment 1 - Profile
FIGURE 3



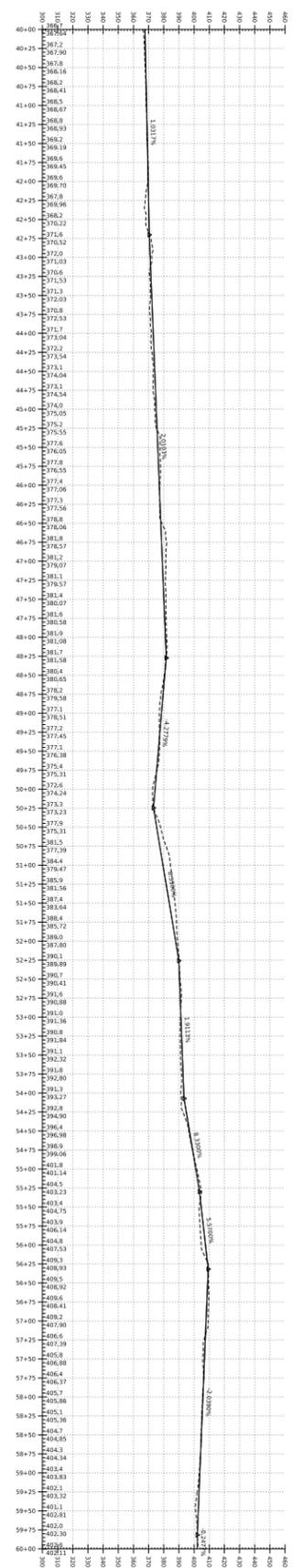
Stantec Alignment 1 - Profile
FIGURE 3

DESIGN SPECIFICATIONS

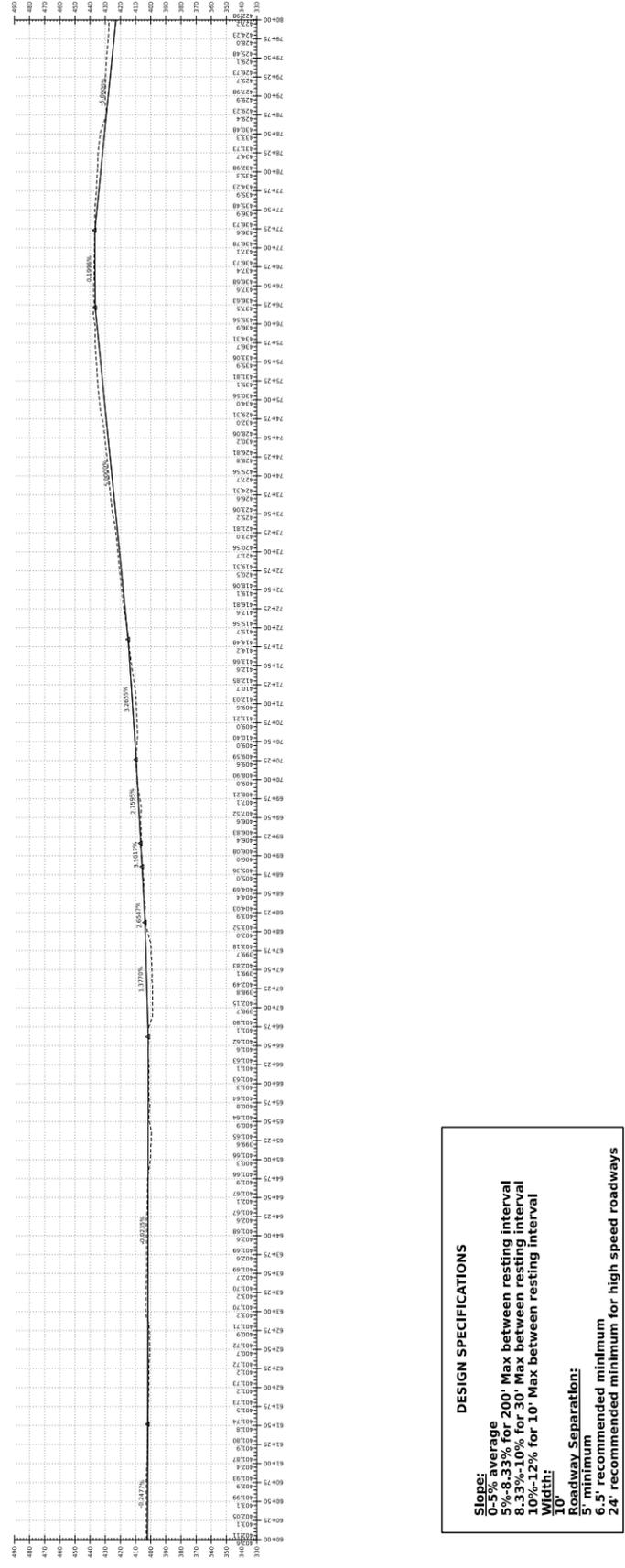
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Width:
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Roadway Separation:
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 6.5' recommended minimum for high speed roadways



Stantec Alignment 1 - Profile
FIGURE 3

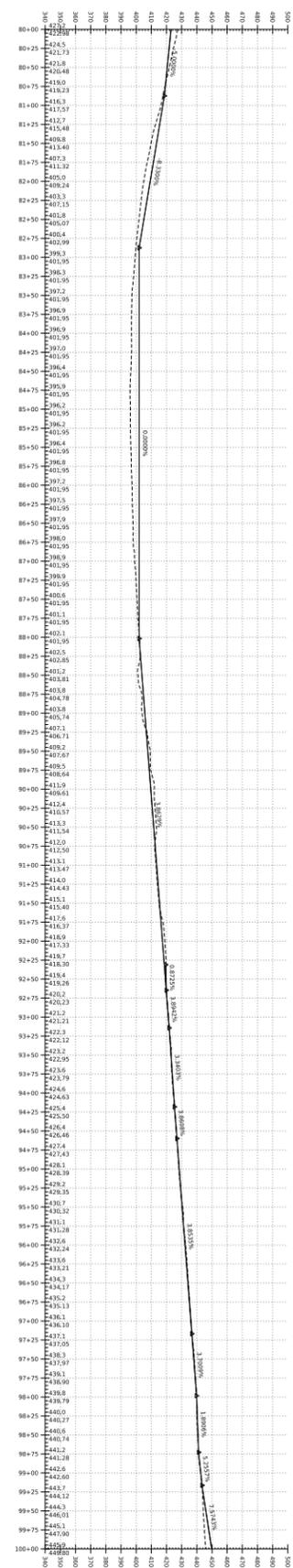


Stantec Alignment 1 - Profile
FIGURE 3

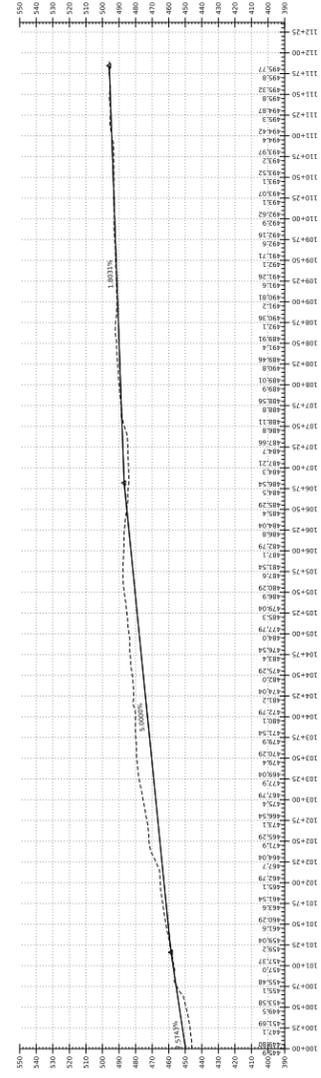
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Width:
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Roadway Separation:
 5' minimum
 6.5' recommended minimum for high speed roadways



Stantec Alignment 1 - Profile
FIGURE 3



DESIGN SPECIFICATIONS

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Width:
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Roadway Separation:
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 6.5' recommended minimum for high speed roadways



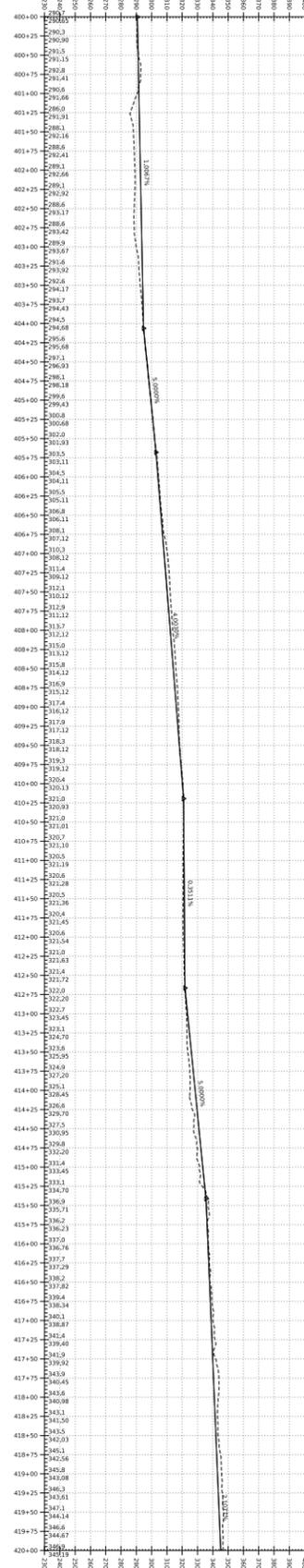
Stantec Alignment 2 - Profile
FIGURE 4

DESIGN SPECIFICATIONS

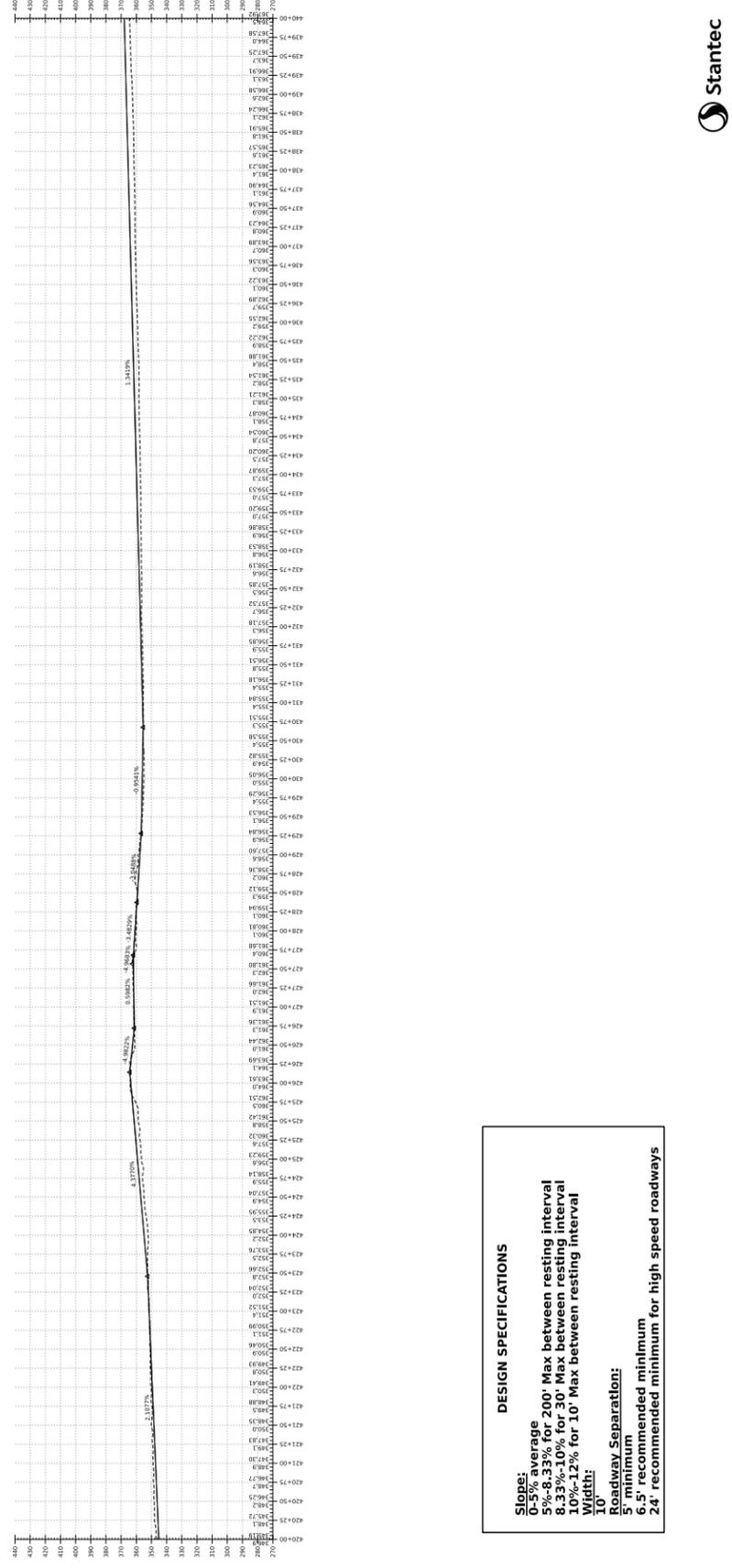
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Width:
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Roadway Separation:
 5' minimum
 6.5' recommended minimum for high speed roadways



Stantec Alignment 2 - Profile
FIGURE 4

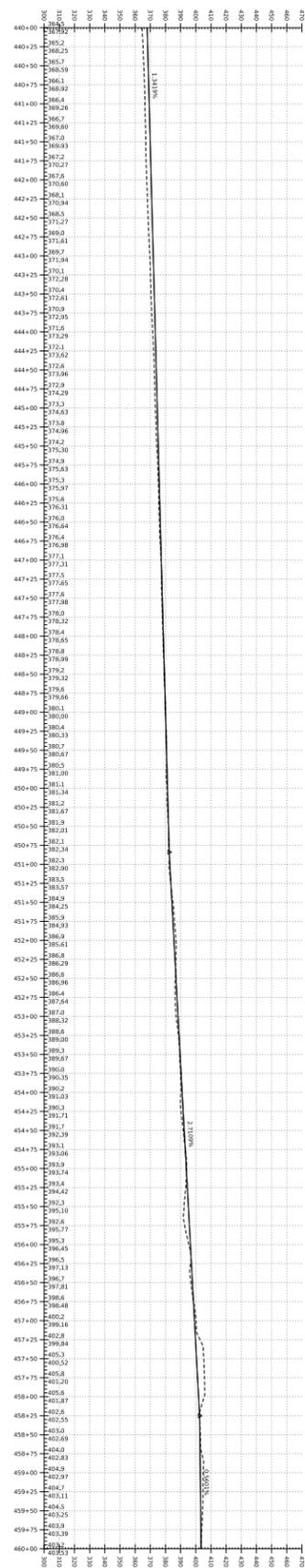


Stantec Alignment 2 - Profile
FIGURE 4

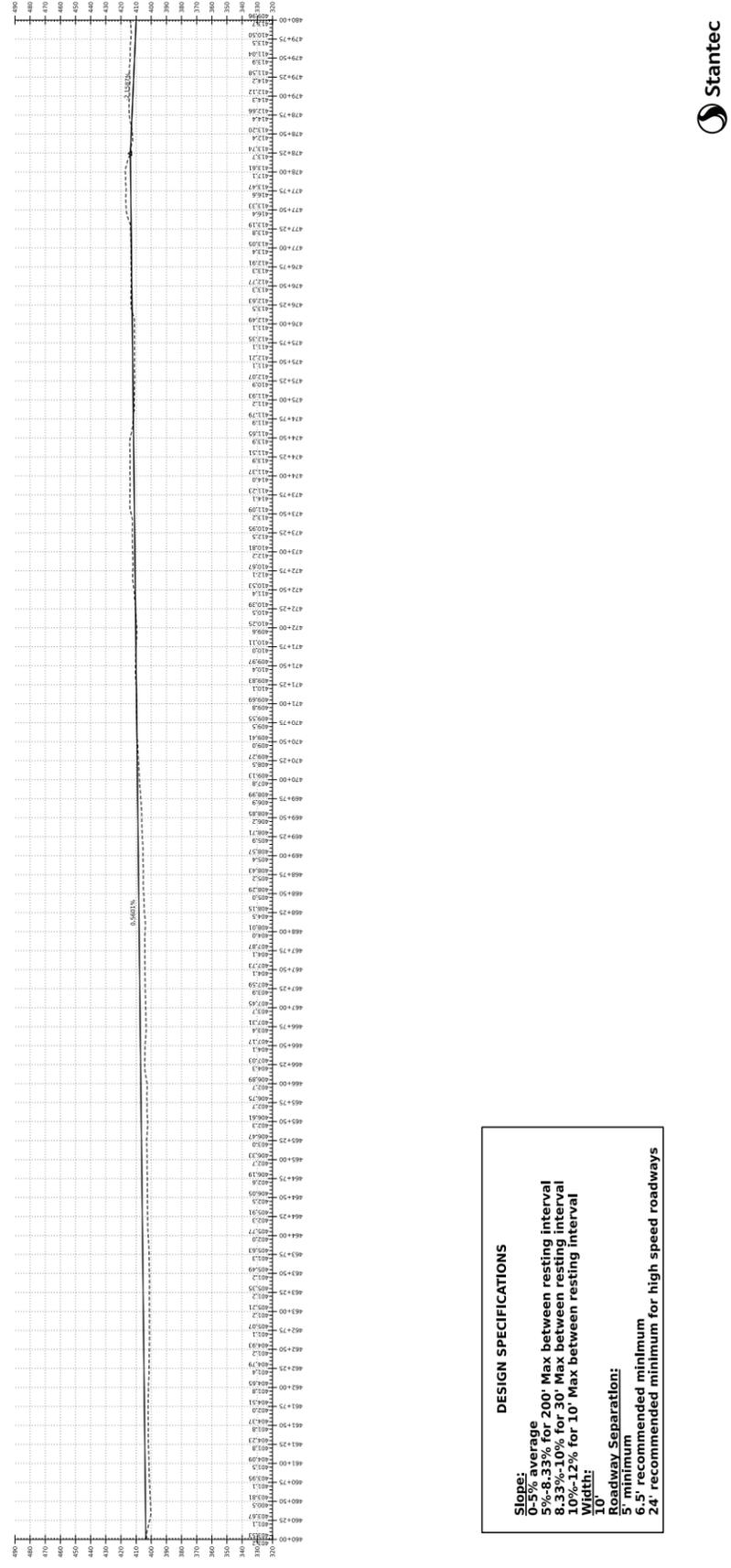
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 8.33%-10% for 30' Max between resting interval
 10%-12% for 10' Max between resting interval
Width:
 30'

Roadway Separation:
 5' minimum
 6.5' recommended minimum for high speed roadways



Stantec Alignment 2 - Profile
FIGURE 4



Stantec Alignment 2 - Profile
FIGURE 4

DESIGN SPECIFICATIONS

Slope:
 0-5% average
 5%-8.33% for 200' Max between resting interval
 8.33%-10% for 30' Max between resting interval
 10%-12% for 10' Max between resting interval

Width:
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Roadway Separation:
 5' minimum
 6.5' recommended minimum for high speed roadways

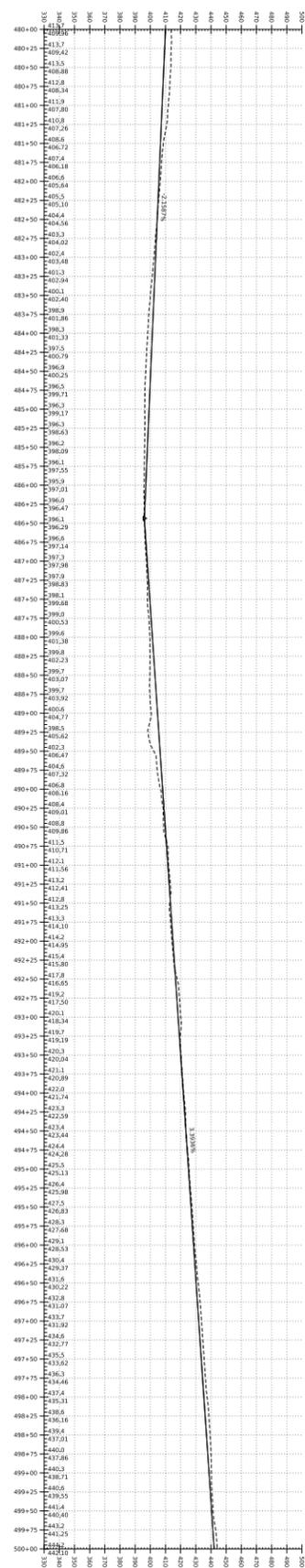


Figure 5
289 Corridor & Shared-Use Path



A
 FHWA: Small Town and Rural Multimodal Networks

B
 FHWA: Small Town and Rural Multimodal Networks

C
 FHWA: Small Town and Rural Multimodal Networks

D
 FHWA: Small Town and Rural Multimodal Networks

Slope: 0-5% average, 5%-8.33% for 200' Max between resting interval, 8.33%-10% for 30' Max between resting interval, 10%-12% for 10' Max between resting intervals

Shared Use Path (A, B, D): transportation and recreation path separate from road

Speeds:

- 10ft trail width for moderate to heavy usage (keep between 8-14ft)
- 2ft shoulder on each side of the path, clear of obstruction

Signage: For mixed-use, include right of way signage

Road Crossings: For low-volume, low-speed streets, marked crosswalks are sufficient. For high-volume and/or high-speed streets, intersection enhancements are necessary (stoplight, flashing, etc)

Surfaces: Paved paths (A, B) are plowable and lower maintenance. Gravel (D) paths have better storm water absorption and provide a low-impact recreation surface

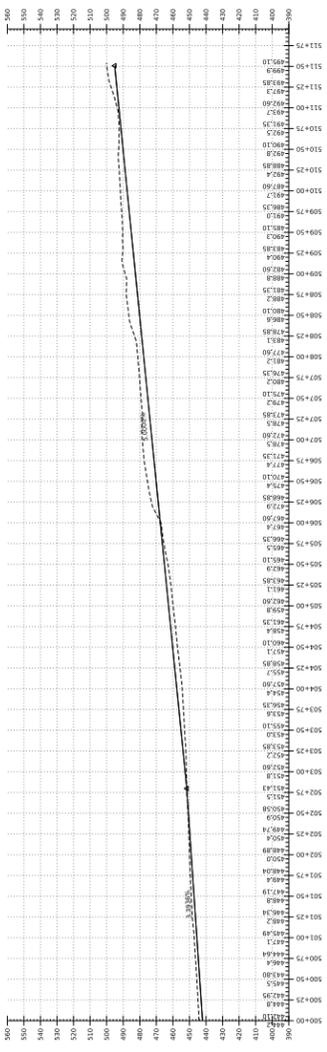
Sidewalk (C): 2-way path next to high volume or high-speed road

Width:

- 10ft trail width for moderate to heavy usage (keep between 8-14ft)
- 2ft shoulder on each side of the path, clear of obstruction

Roadway separation: 5ft minimum, 6.5ft recommended minimum, up to 24ft for high-speed roads (>55mi/h)

Sources: Slope from 'Hiking (Universal Access)' trail character in VT Town Forest Trail Design Guide. Specs, Signage, Road Crossings, Roadway Separation from 'Shared Path' and 'Sidewalk' in FHWA Small Town and Rural Multimodal Networks.



DESIGN SPECIFICATIONS

Slope:
 0-5% average
 5%-8.33% for 200' Max between resting interval
 8.33%-10% for 30' Max between resting interval
 10%-12% for 10' Max between resting interval

Width:
 10' minimum
 5' minimum
 6.5' recommended minimum
 24' recommended minimum for high speed roadways

Roadway Separation:
 5' minimum
 6.5' recommended minimum
 24' recommended minimum for high speed roadways

Stantec Alignment 2 - Profile
FIGURE 4



ESSEX KEYSTONE TRAIL CONNECTIVITY PROJECT

CRO Planning & Design

Communities | Recreation | Open Space