ACTIVE TRANSPORTATION PLAN

For Southern Windsor County, Vermont


Southern Windsor County Regional Planning Commission

Approved by Southern Windsor County TAC: February 25, 2020

Ride Windsor County

SWCRPC

SOUTHERN WINDSOR COUNTY REGIONAL PLANNING COMMISSION

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1.0 INTRODUCTION

Active transportation includes human-powered modes of transportation, such as walking and bicycling. The Southern Windsor County Active Transportation Plan has been developed to:

- *Promote walking and bicycling in the region.*
- *Enhance active transportation opportunities for residents and visitors of all abilities.*
- *Further state and regional goals for vibrant and walkable community centers; a safe, multi-modal transportation system that serves the needs of all users; an outdoor recreation–based economy; energy efficiency; and utilization of 90% renewable energy sources by 2050.*
- *Advance Vermont's Complete Street principles and Healthy Community Initiatives.*
- *Support economic development initiatives for the region.*

The Southern Windsor County Active Transportation Plan updates and replaces the *2006 Southern Windsor County Regional Bicycling and Walking Plan*, which was developed to provide a clear definition of regional bicycling and walking priorities. The Active Transportation Plan provides a baseline for what the region presently offers for active transportation opportunities by inventorying existing facilities. By identifying the existing active transportation network and facility usage, and transportation mode trends, the plan informs the *Southern Windsor County Regional Transportation Plan* and regional economic development priorities.

The plan includes goals, policies, needs, and implementation guidance that assists the region with incorporating complete streets principles and enhancing the walkability and bikeability of the region. It also serves to improve quality of life and make the region more desirable for economic development.

Development of this plan was funded through the Vermont Agency of Transportation (VTrans) Transportation Planning Initiative (TPI) program.

Who is the plan for?

- *SWCRPC and VTrans staff to understand local needs.*
- *Towns to inventory local assets and identify priority needs to enhance active modes of transportation.*
- *Provide guidance to VTrans when designing transportation project about where bicycle and pedestrian accommodations or improvements are desired.*
- *Town, partner organizations and the general public to have meaningful involvement in the regional transportation planning process.*

Since the vast majority of roads in the region are under local control, education and outreach to municipalities is of significant importance both during the development of this plan and in subsequent implementation efforts.

2.0 BENEFITS OF ACTIVE TRANSPORTATION

An active transportation network is instrumental in creating healthier communities. By providing facilities for walking, biking, and engaging in other modes of human-powered transportation, residents and visitors have opportunities for increased physical activity for their commutes and recreational activities.

Active transportation positively impacts communities in multiple ways that range beyond health benefits for individuals who walk and bike. Increased opportunities for walking, biking, and other forms of active transportation have many benefits:

- *Walking, bicycling, and using other forms of active transportation reduces the number of cars on the road, which in turn reduces air pollution and can also lead to reductions in sediment and water pollution.*
- *A community's health is positively affected by active transportation when it reduces pollution in the environment and promotes increased levels of physical activity.*
- *Active transportation impacts local and regional economies in a variety of ways including increasing recreational tourism and revenue for businesses, creating jobs, and increasing real estate values.*
- *Human-powered modes of transportation are gentler on infrastructure, resulting in reduced infrastructure maintenance costs.*
- *Walking and bicycling is an inexpensive, highly efficient way to travel (i.e. generally for shorter distances).*

- *Facilities designed for active transportation can connect residential areas with recreation opportunities, community centers, retail and other services, providing an alternative to using motorized vehicles and encouraging the incorporation of active transportation into both recreational and non-recreational activities.*
- *By providing an alternative to using motorized vehicles with active transportation facilities, communities can create safer transportation experiences for all users, especially when considering the implementation of trail networks, sidewalks, and bike lanes.*

Figure 1: Example of a buffered bike lane in Lyndonville (ruraldesignguide.com).

For the purposes of this plan, we view active transportation networks as important to facilitate the mobility for all users of all ages and abilities (e.g. children, people with wheelchairs, and the visually impaired).

2.1 ACTIVE TRANSPORTATION FACILITIES AND THEIR FUNCTIONS

An active transportation network can include the following types of facilities:

- *Sidewalks and crosswalks*
- *Bike lanes*
- *Buffered bike lanes*
- *Cycle track/protected bike lane*
- *Mixed traffic/advisory shoulder*
- *Shared lane markings (i.e. "Sharrows")*
- *Bike lane/sharrow combination*
- *Multi-use paths/Rail Trails*
- *Bike racks/parking*
- *More rustic paths that serve a transportation function*

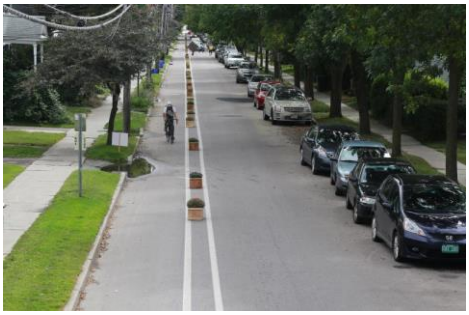

Figure 2: Example of a cycle track in Burlington (City of Burlington).

Figure 3: Example of a mixed traffic roadway with advisory shoulders in Hanover.

This plan also discusses "road diets", which refers to reconfiguring an existing roadway to reduce travel lanes or travel lanes widths and adding or enhancing facilities for walking and biking. See FHWA's website for more information about road diets.

In many cases, low traffic volume backroads serve the purpose of enabling walking and bicycling as well as motor vehicle traffic, although steep or long hills may limit the use for some bicyclists and walkers.

Figure 4: Example of a "Sharrow" (Bike Cleveland).

An active transportation network serves a number of important functions, such as connecting residents and visitors to services and recreation, creating a pleasant and safe environment within our towns and villages, encouraging physical activity, promoting outdoor recreation, attracting tourism such as cyclists and hikers, and providing safe routes to school for children. Increased physical activity levels encouraged by active transportation networks contribute to public health goals, such as healthy body weight.

Active transportation networks are prioritized within villages and downtowns, and to make connections to neighborhoods, schools, recreation areas, shops, civic buildings, and public transit.

Figure 5: "To-Town Trail" in Brownsville connects the village to the resort.

2.2 STAKEHOLDERS

The stakeholders for this plan involve everyone that has an interest in how the transportation system is managed to accommodate forms of active transportation. This includes, but is not limited to, select boards, planning commissions, town managers, town highway departments, local committees, local recreation departments, outdoor recreation businesses/non-profits, schools, walking and bicycling clubs and organizations, health professionals, individuals interested in healthy activities, and other interested persons.

2.3 OUTREACH AND MEETINGS

Figure 6: Toonerville Trail multi-use path in Springfield.

Input for this study was collected through a variety of means. Much of the information for this project was gathered via phone interviews and email correspondence. Outreach to a variety of organizations was conducted, including with RiseVT, town recreation departments, Springfield Community Health Team Transportation Committee, and the Springfield Trails, Greenways, Byways, and Rural Economy Advisory Committee. Numerous meetings between January 2018 and February 2020 were held with the Southern Windsor County Regional Transportation Advisory Committee (TAC).

A project webpage was developed in order to share information with stakeholders. At this point, project materials can be downloaded at https://swcrpc.org/transportation-projects-and-studies/, including a link to the online interactive map of identified active transportation needs.

3.0 EXISTING CONDITIONS

Southern Windsor County is a region where downtowns and villages are surrounded by rural areas served by a network of largely rural roads, many of which are unpaved. Although the transportation facilities in this region are primarily designed for automobile use, there are facilities intentionally designed for active transportation such as sidewalks, trails, and bike lanes. Existing conditions are summarized in the text box to the right, and are shown in Appendices A, B and C. About 83% of the public roadway network in this region is under municipal control.

Roadway Miles in the Region

State Hwy:	135 miles (16.9%)
Class 1 TH:	12 miles (1.5%)
Class 2 TH:	103 miles (12.9%)
Class 3 TH:	454 miles (56.8%)
Class 4 TH:	67 miles (8.4%)
TH Subtotal:	636 miles (79.6%)
Legal Trails:	28 miles (3.5%)
Total:	799 miles

Active Transportation Network

Bike Lanes:	1 mile
Multi-Use Path:	3 miles
Sidewalk:	41 miles
State Hwys with Minimum 3 Foot Wide Shoulders:	~58%

In general, southern Windsor County is an excellent area for experienced bicyclists, but the conditions are not consistently suitable for many other user types. The existing multi-use path in Springfield does not presently provide connectivity to the downtown and surrounding residential areas, although plans exist to make better connections. Bike lanes are also largely not designated at this time, although some major roadways exhibit wide shoulders. Larger villages and downtowns have extensive sidewalk networks that support walking, but network gaps exist and the need for ADA upgrades remain. (Note that towns should

Figure 7: Toonerville Trail, Springfield

have ADA Transition Plans.) Some smaller villages and hamlets do not have sidewalks. The region is generally lacking in a robust network that encourages active transportation for all users groups.

This chapter inventories the transportation facilities in the region and how they are being used.

Figure 8: Sidewalk improvements, Windsor

3.1 REGIONAL NETWORK

Southern Windsor County has nearly 772 miles of public roads and an additional 28 miles of "legal trails."[1] Shoulder widths and conditions are highly variable, which limits the functionality of the existing system to encourage bicycle activity by casual users. According to data from VTrans, about 58% of the state highways in the region have shoulder widths of 3 feet or wider. Standards generally call for bike lanes to have a width of between 4 and 7 feet, depending upon conditions. Constraints commonly make it difficult to provide ideal shoulder widths. Over the years, our bicycle advisory group has asked for a width of at least three feet to improve bicycling conditions. This 3 foot width is used in this plan as a proxy for whether a road has characteristics suitable for at least moderately experienced bicyclists.

Figure 8: Low volume country roads in the region are well suited for experienced bicyclists. Electric-assist bikes may provide opportunities for other cyclists to navigate these hilly roads.

Figure 9: Example of common existing sidewalk conditions that generally function, but are not ideal especially for persons with mobility issues.

[1] Trails as defined under 19 V.S.A. §302 are commonly referred to as "legal trails". The figures in this plan do not include the many miles of hiking and mountain biking trails in the region.

The often hilly terrain is also a limitation for encouraging greater levels of bicycling, although newer technologies may help (e.g. electric-assist bikes). Traffic volumes are low enough to encourage walking, bicycling, equestrian and other uses on many of the backroads without additional accommodations (Figure 8).

Presently, there are very few formal bike facilities in the region, such as marked bike lanes or buffered bike lanes. The Toonerville Trail (Figure 7) is very popular. It does not currently connect with the nearby residential neighborhoods nor the downtown. A planned expansion project, making a trail connection to the Edgar May Recreation Center, is ongoing in 2019. The Town of Springfield has long-term plans for a cross-town bike facility.

There are about 41 total miles of sidewalks in the region – largely within the villages of Brownsville, Cavendish, Chester, Ludlow, North Springfield, Proctorsville, Springfield and Windsor. These facilities are in varying conditions. Gaps in the network, surface conditions, drainage issues, pedestrian crossings, and ADA upgrades would help to maximize the "walkability" of these villages (Figure 9). Recently towns have been investing in improvements to these networks (Figure 8). There are very small and incomplete sidewalk networks in Ascutney and Felchville.

3.2 BICYCLE ROUTES

It is a goal of this plan to make strategic improvements in order to accommodate safe bicycle usage along all of the state highway networks and major town highways that connect villages, as practical. Appendix A includes a narrative summary of roadway characteristics of these routes. Appendix B depicts existing roadway shoulder conditions.

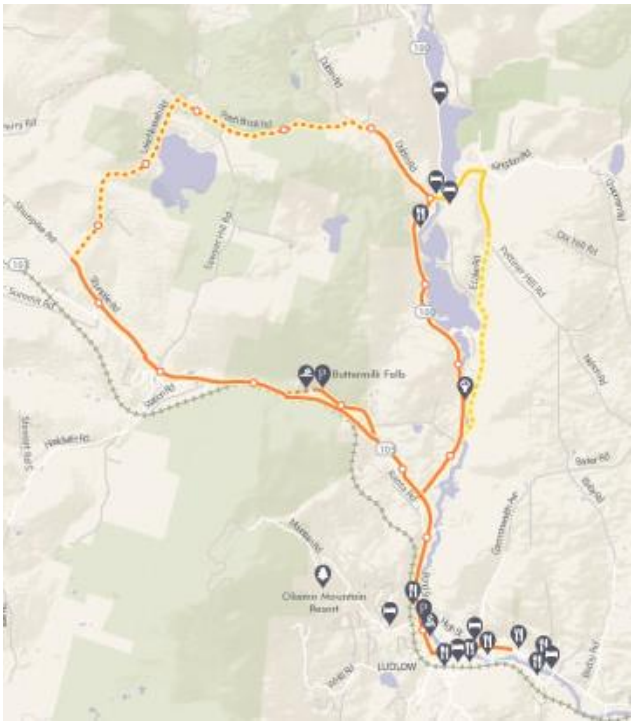

Figure 10: One of the route maps from Ride Windsor County Bicycle Route Guide.

In 2019, the *Ride Windsor County* project was completed. Under the guidance of a stakeholder group of cyclists and with the assistance of the SE Group, the SWCRPC developed a regional bike route map and guide, and launched the Ride Windsor County website. The intended purpose of the project was to encourage residents and visitors to explore our region by bicycle. Figure 10 shows one of the 19 routes included in the guide. It is the SWCRPC's intent to prioritize bicycle improvements to the

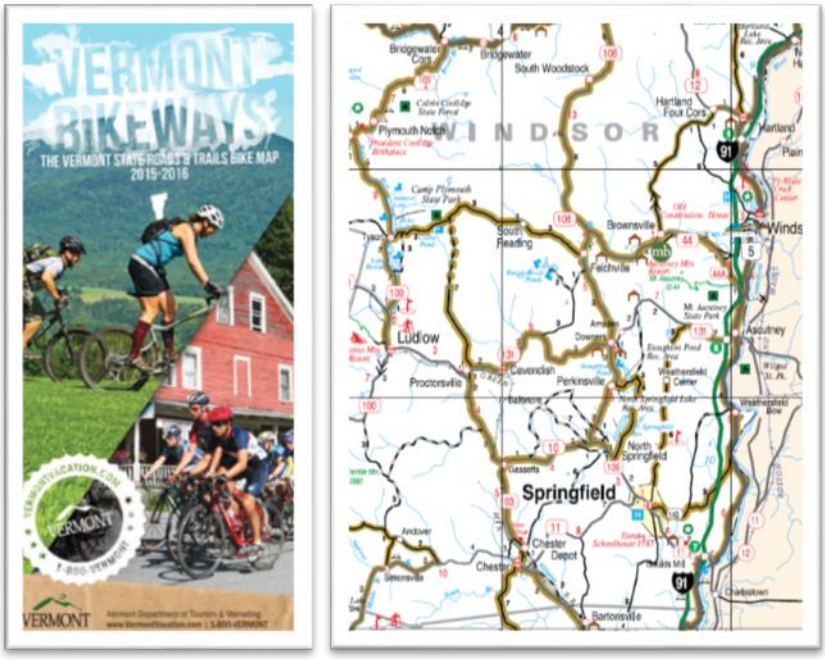

Figure 11: See the Vermont Tourism website for more information

sections of routes identified in this guide that are found to be "uncomfortable" for most bicyclists. (See Figure 12 and the link to VTrans' Bicycle Level of Comfort Map.)

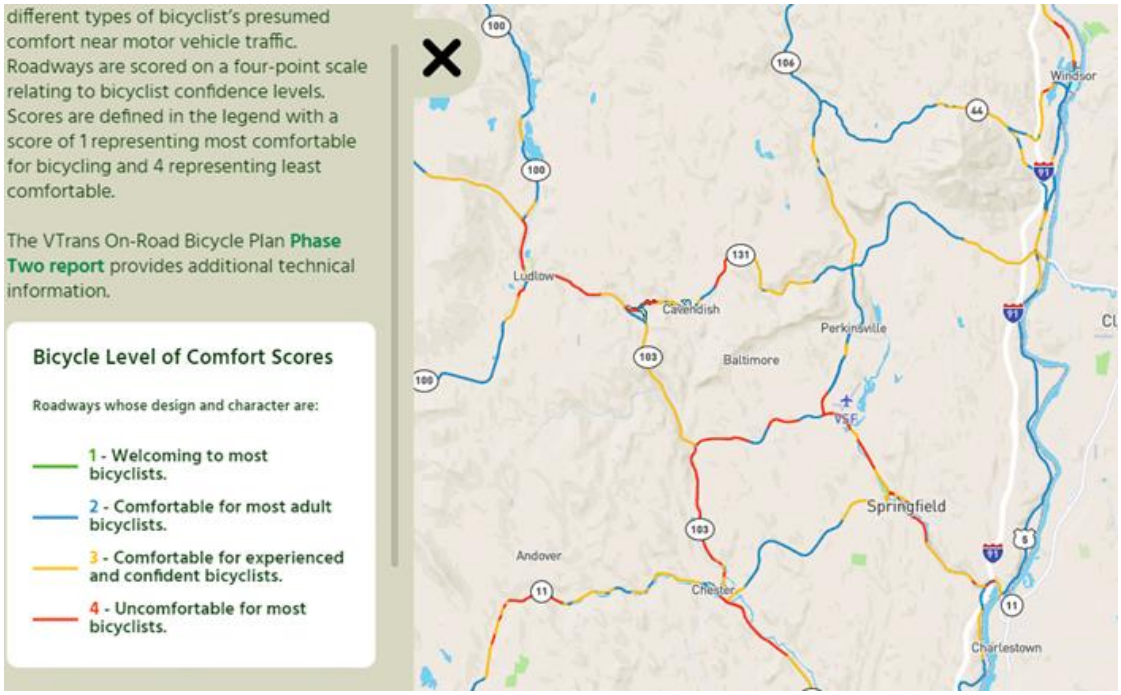

Figure 12: VTrans Bicycle Level of Comfort Map, https://vtrans.vermont.gov/planning/bikeplan

The Vermont Department of Tourism and Marketing developed a bike route map and has information on their website to encourage bicycle tourism in the state. Their bikeways map includes a number of routes in the region (see Figure 11).

The Vermont Agency of Transportation (VTrans) created a bicycle comfort of level map as part of their *On-Road Bicycle Plan*. The purpose of VTrans' plan is to enhance on-road bicycle improvements on State roadways. The comfort level map (see Figure 12) shows the levels of comfort that a bicyclist may experience on Vermont state roadways based on data available in October 2017. It serves as a planning tool to better inform decision making during corridor planning, prioritizing bicycle improvements in projects and maintenance activities, and defining project scopes.

Routes that some people commonly ride their bikes on are shown in Figure 13, based on data from the Strava app[2]. Red indicates low usage and blue indicates high relative usage. While mountain bicycling trails often have the highest usage in this data set, there are many backroads that are obviously popular, such as Pleasant Valley Road in Springfield and most of the roads around West Windsor and Windsor.

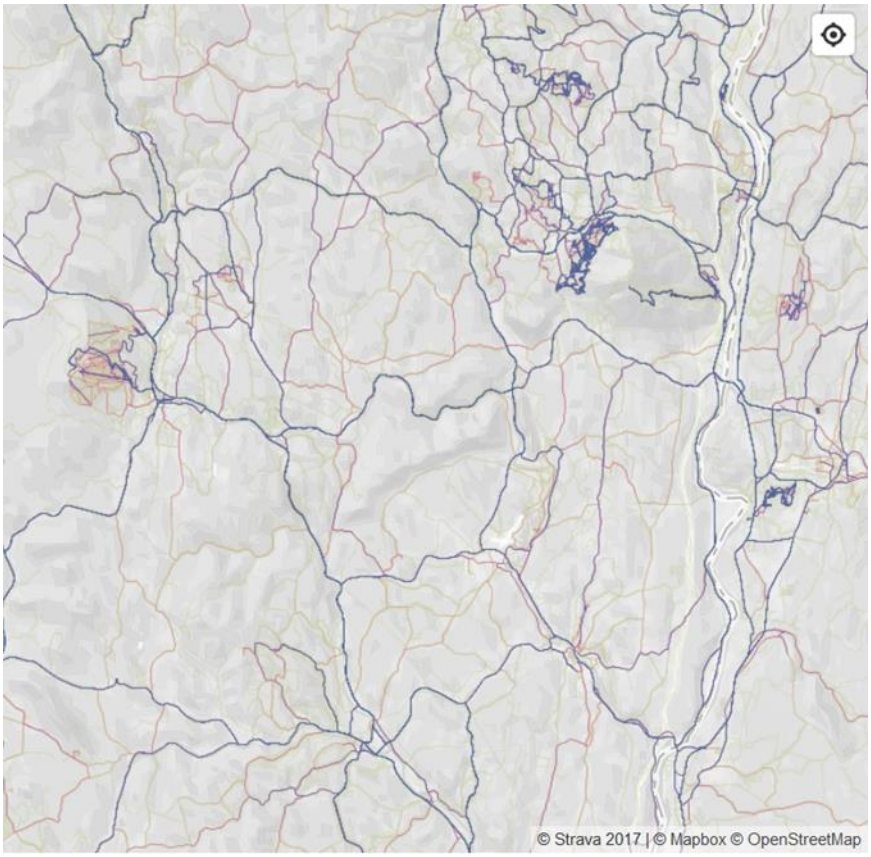

Figure 13: Heat map that shows the bicycle routes of people that use the Strava app.

3.3 WALKING ROUTES

Walking as a mode of transportation is generally limited to short distances. As such, sidewalks and other walking accommodations are prioritized within villages and connecting to residential areas and public transportation stops. Appendix B shows existing sidewalk networks.

Walking routes are also identified in School Travel Plans developed for the Albert Bridge School (West Windsor), State Street School (Windsor), and Weathersfield School.

[2] Strava Metro Heat Map with "ride" data through November 2017. Downloaded 2/6/2018.

Hospitals in the area, in coordination with the Vermont Department of Health and Blue Cross and Blue Shield of Vermont, developed walker's guides for a number of villages in the region. See Appendix C for more information.

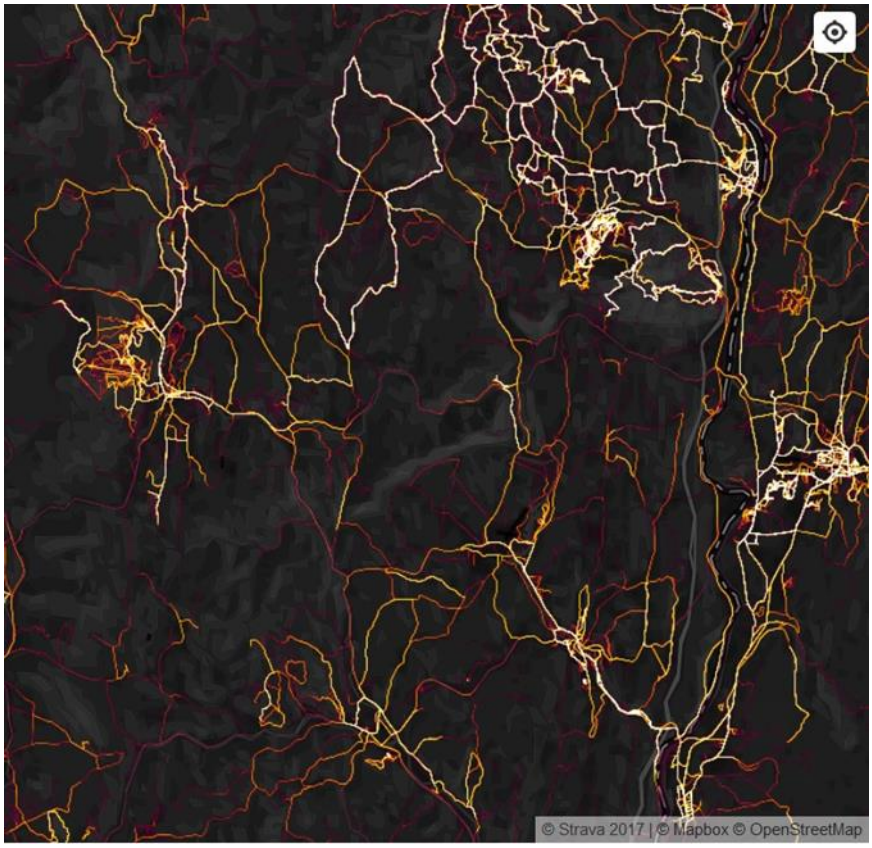

Figure 14: Heat map that shows the jogging routes of people that use the Strava app.

Indications of popular jogging routes are shown in Figure 14, based upon data downloaded from the Strava app[3]. Red indicates low usage and white indicates high relative usage. Clear patterns of use in our village centers are discernable, as well as on recreation trail networks. Some of our backroads also show a lot of usage, such as in West Windsor.

3.4 TRENDS AND OBSERVATIONS

Commuting

As a rural area, this region is heavily reliant on traveling by automobile. Most commuting trips in this region are done by driving alone (77%). About 6% of trips are by walking and 1% by public transportation[4]. While the percentages are generally low, nearly 7%[5]

[3] Strava Metro Heat Map with "run" data through November 2017. Downloaded 2/6/2018
[4] 2012 – 2016 American Community Survey 5-year Estimate, US Census Bureau
[5] This figure represents commuting trips by either walking or public transportation.

of commuters might directly benefit from more robust active transportation infrastructure, which may encourage more people to walk or bike to work or to the bus stop.

Workers in the region generally have long commutes which limits the usefulness of walking or biking to work. The mean travel time to work for the region is nearly 25 minutes[4]. However, there may be a benefit to providing safe bike route connections to park-and-ride lots that are served by commuter buses.

While commuting information is helpful, other trips are also important, such as to the grocery store, doctor's offices and school.

Autoless Households

The data on vehicles per household reflects the significant dependence on automobiles for transportation in the region. In this region, 58% of all households have 2 or more cars and 35% have 1 car. According to American Community Survey data, 713 households (or 7% of all households) do not own a motor vehicle. Providing for active modes of transportation is essential for families that do not own a motor vehicle.

Average Distances Walking or Biking

In order to plan for active transportation, it is helpful to understand common distances that people are willing to walk and bike. The National Household Travel Survey (2009) included a sample of 360 trips which started and/or ended in the region. This survey shows that about 2% of all trips were completed by bicycle and 11% by walking. Residents walked or biked just over 10 minutes per trip, which is about 2.4 miles on a bicycle and 0.6 miles by walking. These distances are consistent with planning rules of thumb about how far people are generally willing to travel on foot or bicycle.

Figure 15: Average Distances Traveled by Mode

Method of travel	*Average minutes per trip*	*Average miles per trip*
Bicycle	12.3 mins	2.4 miles
Walk	11.6 mins	0.6 miles

Survey results indicate that destinations for walking trips commonly include the post office. Destinations for bicycling trips include schools and recreation areas.

Alternative Infrastructure

It is very expensive to build sidewalks and multi-use paths. On average, constructing a 1,000 linear feet of sidewalk can cost roughly $315,000, and that does not include typical costs for design, permitting and other expenses. Recent estimates suggest constructing a mile of paved multi-use path can cost roughly $2 million. Typical transportation grants can take 4 years or more to complete projects, and the long process can be frustrating for municipalities. Therefore, many towns are looking for alternatives.

Given the rural characteristics of the region, rustic walking paths can be more appropriate and cost effective than sidewalks in some locations. For example, residents in Cavendish are planning to develop a trail that will connect the Villages of Proctorsville and Cavendish, which will become an alternative to using Route 131 for non-motorized travel between the villages. There are also conceptual plans to expand this trail to include the neighboring Towns of Weathersfield and Ludlow, allowing for active transportation travel between the three towns.

Many towns across the country and in Vermont are looking for solutions that are cheaper and easier to build. If there is sufficient roadway or right-of-way width, options like bike lanes, buffered bike lanes or cycle tracks may be more feasible and affordable than a separate multi-use path.

"Tactical urbanism" refers to short-term, low-cost solutions (see Figure 16). Often these techniques are a great way to test out design ideas, before investing in permanent facilities.

Figure 16: This photo shows temporary bike lanes that Local Motion established as a demonstration at the 2018 Vermont Walk Bike Summit.

Economics of Outdoor Recreation

Southern Windsor County can benefit from expanding its active transportation network for use by residents and visitors. Developing facilities dedicated to walking and bicycling can positively impact the health of those using the facilities while also positively impacting the natural environment and regional economy.

Many studies show that bicycle tourism, whether on roads or on trails, contributes to local economies in rural areas[6]. Bicycle tourism companies sometimes post their routes on popular tracking websites (e.g. Strava) so local roads like Tyson Road and Twentymile Stream Road are promoted online.

A VTrans report that focused on economic impacts of active transportation estimated that events related to bicycling and running in Vermont generated $4,166,027 in expenditures from tourists during 2009[7].

[6] For an introduction to bicycle tourism and its impacts visit http://www.pathlesspedaled.com/bike-tourism-101/. For a variety of studies visit - https://www.adventurecycling.org/bicycle-tourism/building-bike-tourism/economic-impact/

[7] https://headwaterseconomics.org/trail/84-bicycling-walking-vermont/

A study conducted by the Outdoor Industry Association[8] found that Outdoor recreation in Vermont generates:

- *$5.5 billion in annual consumer spending;*
- *51,000 direct jobs;*
- *$1.5 billion in wages and salaries;*
- *$505 million in state and local tax revenue.*

A number of businesses and non-profits in the area focus on outdoor recreation or active transportation, such as Okemo Mountain Resort, Ascutney Outdoors, Paradise Sports and Mountain Cycology. Many other local businesses, such as inns and restaurants, cater, at least in part, to outdoor recreation-based visitors to the area.

Events are important in the region, many of which rely on our transportation networks for at least a portion of the event activities. Some of these events are listed below:

- *Springfield Dam Run*
- *Edgar May Thanksgiving Day 5k, Springfield*
- *Vermont 50 Ultra Run, West Windsor*
- *Vermont 100 Ultra Run, West Windsor*
- *Trot It Off 5K, Ludlow*
- *Harpoon Flannel 5K, Windsor*
- *Point to Point Ride, West Windsor*
- *Crown Point Cyclecross & VT State CX Championships, Springfield*
- *The Vermont Epic Cycling Weekend, Ludlow*
- *The Vermont Overland Maple Adventure Ride, Reading & West Windsor*
- *Mt. Ascutney Bicycle Hill Climb, Windsor*

Another potential future option is to explore innovations that combine bicycle tourism with local infrastructure, such as the US Bicycle Route System, which connects over 50,000 miles of bike routes across the

[8] https://outdoorindustry.org/resource/vermont-outdoor-recreation-economy-report/

country. In Vermont, Route 7 is part of the US Bicycle Route System, and some roads in this Region may have potential.

Oregon has combined the idea of Scenic Byways and bicycle routes to create Scenic Bikeways. With two designated Scenic Byways in our region already (Connecticut River Byway and Scenic Route 100 Byway), there is already some wayfinding and marketing for these routes. The region could pursue more formalized Bikeways as a strategy for attracting visiting cyclists and expanding the active transportation network.

3.5 SUMMARY OF ACTIVE TRANSPORTATION IN THE REGION

The following things are generally true of this region:

- *The region is rural, located in a cold climate, served by a transportation system that is heavily auto-centric, and the roads are generally narrow and curvy. Many of the roads are hilly, but river valley roads, such as US Route 5, are relatively flat.*
- *Motorized transportation continues to be the dominant mode of transportation in the region.*
- *Active transportation facilities are expensive and must compete for limited funding with road paving and bridge reconstruction needs.*
- *There is a general lack of shoulder width continuity on roads throughout the region, which may dissuade cyclists from using the regional road network, especially on high-speed, high-volume roads.*
- *Densely populated villages separated by large swaths of forest and agriculture lands make connecting population centers with active transportation facilities challenging.*
- *Roads in disrepair dissuade many bicyclists.*
- *Low visibility and poor sight distances are common problems on a number of the road segments in the region.*
- *There is a lack of dedicated bicycle facilities in much of the region.*
- *Different user groups desire different facilities/conditions, many of which – such as bike paths – are in short supply.*

The following things are changing, which may influence our active transportation future:

- *Technology has been introduced that aides in easier travel route finding for different modes (i.e. car, bus, walking or bicycling), such as online maps and route-planning applications for smartphones.*
- *Technology is impacting safety. Drivers, bicyclists and pedestrians can become distracted by their smartphones, posing risks to others using roads, bike lanes, and sidewalks.*
- *As hybrid and electric cars have increased in popularity, concerns have been raised about how quiet they are at low speeds and the dangers they may pose to pedestrians, especially pedestrians with vision and hearing impairments.*
- *There are safety concerns with electric bicycles and electric scooters.*
- *Automated vehicle technology could transform mobility networks, improve safety and provide greater access to underserved populations.*
- *Technology is expanding opportunities. Electric bicycles now make it easier to navigate steep hills on backroads, expanding bikeability for a number of residents and potential visitors.*
- *Given funding constraints, which are not new, VTrans is now undertaking an effort to prioritize maintenance activities and capital improvements in relation to bicycling on state roads (e.g. the VTrans Statewide On-Road Bicycle Plan[9]).*
- *Transportation funding at the local level is now further constrained by the newer focus on water quality (e.g. Municipal Roads General Permit).*
- *An increased focus on healthy communities within Vermont has brought attention to integrating infrastructure that considers multiple modes of transportation, including walking and biking.*
- *Increased awareness of Americans with Disabilities Act guidance and the need for local transition plans.*
- *Considering the integration of Complete Streets infrastructure as part of transportation infrastructure construction projects is now law. Act 34 requires the state and municipalities to consider the needs of all users in all transportation projects at all phases, regardless of funding sources. It took effect on July 1, 2011.*
- *As the region's population ages, there has been an increasing number of residents who are unable to drive to carry out their daily activities and access services.*

[9] http://vtrans.vermont.gov/planning/bikeplan

- *There is a generational shift in transportation preferences taking place. Younger generations, such as "millennials", prefer living in walkable and bikeable communities to locations that are auto-centric, requiring cars to access services and entertainment.*

4.0 DESIRED CONDITIONS

The overall purpose of this plan is to encourage the development of network improvements that enable active transportation for all user groups. The following section includes a vision for the region and implementation steps to help achieve that vision.

4.1 VISION FOR ACTIVE TRANSPORTATION IN THE REGION

Southern Windsor County will safely accommodate and promote active transportation by residents and visitors of all mobility levels along a majority of roadway corridors in the region. Village centers will be pedestrian-friendly areas where priority in transportation and land use considerations is given to walking and bicycling, over motor vehicles. Bicycling facilities that provide connectivity between villages or that connect residential areas to schools, recreation areas or villages will be prioritized. Active transportation infrastructure that provides safe recreational opportunities, connects existing outdoor recreation resources as an economic development tool, and supports the region's outdoor recreation-based economic sector is also prioritized. State and local governments and private businesses will take proactive steps to ensure that walking and bicycling are given representative consideration with all transportation modes.

4.2 RECOMMENDED ACTIONS

1. *SWCRPC staff will provide local technical support to enhance active transportation in the region, including:*
    a) *Updating local sidewalk inventories.*
    b) *Continuing to collect pedestrian and bicycle counts.*
    c) *Promoting active transportation in town plans and local bicycle and pedestrian plans.*
    d) *Supporting transportation project development activities that involve active transportation enhancements.*
    e) *Provide assistance with implementing projects recommended in local plans (i.e. capital improvement plans, grant writing, municipal project management).*
    f) *Assisting towns with developing ADA transition plans.*
    g) *Support projects that encourage bicycle and outdoor recreation tourism, such as establishing bike lanes/trails and promoting the Ride Windsor County bike route guide.*
2. *Town governments and VTrans should address active transportation through routine maintenance activities, including:*
    a) *Ensure sidewalks are maintained and negotiable for people of all ages and abilities, including snow and ice removal[10].*
    b) *Provide lighting for areas designed for pedestrians in downtowns and village centers to increase safety and visibility of and for pedestrians and other users of transportation facilities.*
    c) *Regularly maintain pavement markings, including shoulder delineations, bike stencils and pedestrian crosswalks. Pay particular attention to refreshing pavement markings after the winter season and when biking season begins.*
    d) *Sweep roadways of lose sand and debris after the winter.*

[10] Sidewalk maintenance is a municipal responsibility; VTrans does not maintain sidewalks, even those along state highways.

e) *Clear brush in areas identified as posing a danger to motorists, pedestrians and bicyclists due to reduced visibility.*

3. *Recognizing that details matter, enhance designs of transportation projects and development projects to provide for active modes of transportation:*
    a) *Locate pedestrian crosswalks in locations where there is a high potential or need for pedestrians to cross.*
    b) *Optimize signal timings to facilitate pedestrians of all abilities to cross.*
    c) *Provide good lighting to improve safety and encourage pedestrian activity during evening hours.*
    d) *Construct mid-point pedestrian refuges where pedestrians must cross overly wide roadways.*
    e) *Align storm drain covers to be bicycle-friendly.*
    f) *Design village streets to slow motor vehicle traffic (i.e. very low design speed).*
4. *Establish an education program to further active transportation in the region:*
    a) *Provide training for municipal officials and staff about the importance of active transportation.*
    b) *Facilitate an item at Regional Road Foremen and Transportation Advisory Committee (TAC) meetings at least once a year about active transportation topics, such as Complete Streets, sidewalk maintenance, paved shoulders and bicycle lanes, "road diets" or ADA accessibility.*
    c) *Hold a workshop for zoning administrators and development review board members about the consideration of active transportation accommodations in local development review procedures.*
    d) *Increase awareness of bicycling as a low cost form of transportation.*

e) *Consider establishing a program to help low income residents with the equipment needed for safe bicycle transportation, including refurbished bikes, bike maintenance, helmets and other safety equipment.*

4.3 IDENTIFIED PHYSICAL IMPROVEMENTS

The following physical improvements are also displayed on an online map that can be viewed at http://arcg.is/KPOve.

1. *Create walkable and bikeable downtowns and villages:*
    a) *To-Town Trail – West Windsor – Improve and expand the existing To-Town Trail to provide a walking and biking connection between the village of Brownsville and the resort, where many Albert Bridge School students live. This connection would support Safe Routes to School and the proposed "Mountain Curriculum".*
    b) *VT Route 131 – Proctorsville (Cavendish) – Phase 1 improvements to existing sidewalks in Proctorsville is complete. Resurface the remaining village sidewalks, make ADA upgrades and improve drainage in subsequent phases: Phase 2 between Singleton's Store and the Castle, Phase 3 includes the eastern most section of sidewalk in Proctorsville.*
    c) *VT Route 131 – Village of Cavendish – Resurface existing village sidewalks, make ADA upgrades and improve drainage in subsequent phases: Phase 1 between Town Offices and Mack Molding, Phase 2 between CVFD firehouse and "the Canyon" near Dutton School Drive, Phase 3 between Black River Health*

Center to the end of the sidewalk network to the west.

d) *VT Route 103 – Chester – Plan for and construct a sidewalk extension to connect the village to the Green Mountain High School.*
e) *Lover's Lane – Chester – Plan for and construct a walking facility that connects the Village via the existing sidewalk to the Pinnacle Recreation Area.*
f) *Church Street – Chester – Construct pedestrian and bicycle improvements along Church Street to connect Chester Village with the Stone Village, based on the findings of the pending 2019 feasibility study.*
g) *Various – Chester – Implement recommendations in Rediscovering Chester: A Master Plan for Chester Village Center.*
h) *Various – Springfield – Implement recommendations in the 2017 Main Street Master Plan.*
i) *VT Route 106 – Reading – Study pedestrian improvements within the village of Felchville.*
j) *VT Route 103 – Ludlow – Make streetscape improvements along Main Street in the Village.*
k) *US Route 5 – Weathersfield – Implement recommendations identified in the 2018 Village Center revitalization planning project, which included concepts for pedestrian accommodations within the village of Ascutney.*
l) *VT Route 106 – Weathersfield – Implement recommendations identified in the 2018 Village Center revitalization planning project, which included concepts for pedestrian*

accommodations, including trail connections, within the village of Perkinsville.

m) *North Springfield Lake – Springfield – Study pedestrian improvements in the Maple Street, Causeway, Reservoir Road and Piper Road-loop in the vicinity of the U.S. Army Corps. North Springfield Lake.*

n) *VT Route 44 and Hartland-Brownsville Road – West Windsor – Implement recommendations in the* 2015 Bicycle and Pedestrian Master Plan*.*

o) *VT Route 44 – Windsor – Improve pedestrian connection to the Fairgrounds recreation area. Currently, there is no sidewalk in a narrow section of road and pedestrians need to cross the road several times to stay on a sidewalk.*

p) *Various – Windsor – Continue to improve and make ADA upgrades to existing sidewalks in the downtown and surrounding neighborhoods.*

q) *Intersection of Clinton Street/Main Street/South Street – Springfield – Improve intersection geometry and pedestrian accommodations to improve safety for all users. It is a confusing intersection with 5 incoming road sections and has been a High Crash Location numerous times over the years.*

2. *Make safe bicycle accommodations connecting neighborhoods to destinations:*

a) *US Route 5 – Windsor – Plan for and construct a path that connects downtown Windsor to the Artisans Park.*

b) *VT Route 11/Clinton Street – Springfield – Install a bike crossing to connect the southbound bike lane with the Toonerville Trailhead.*

c) *VT Route 103/100 – Ludlow – Construct a bicycle facility to connect the Village of Ludlow to Jackson Gore. Consider alternatives to the multi-use path identified in the 2014 feasibility study, such as a cycle track or path through the cemetery.*

d) *VT Route 100 – Ludlow – Study options to make safety improvements for a bicycle connection between the Village of Ludlow and the Lakes District.*

e) *Reservoir Road and Stoughton Pond Road – Springfield and Weathersfield – Improve bicycle safety along this narrow road that experiences relatively high traffic speeds.*

f) *VT Route 131 Corridor – Weathersfield, Cavendish, Ludlow – Continue long term planning for a bicycle trail connection from Upper Falls Road Extension in Perkinsville, through Cavendish including both villages, and terminating at Fletcher Fields in Ludlow. Investigate the feasibility of establishing a walking path between the guardrail and river along VT Route 103 to complete the connection to Fletcher Fields.*

g) *VT Routes 11 and 106 Corridors – Springfield – Continue to plan and construct the cross-town bike path/route facility in phases.*

3. *Make reasonable improvements as part of programmed or planned paving, roadway or intersection projects to safely accommodate bicyclists along major roadways that are identified as priority bike routes:*

   a) *VT Route 11 – Andover and Chester – Widen shoulders to improve safety for cyclists and runners between the Weston-Andover Road and Windham town line.*

b) *VT Route 131 – Cavendish and Weathersfield – Improve conditions for cyclists and motor vehicles by widening shoulders, improving sight distances and addressing drainage problems, where possible, between Upper Falls Road and Whitesville.*

c) *VT Route 10 – Chester and Springfield – Widen shoulders to improve safety for cyclists from Gassetts to North Springfield.*

d) *VT Route 44 – West Windsor and Windsor – Widen shoulders to improve safety for cyclists. The entire roadway is a popular bike route.*

e) *US Route 5 – Weathersfield and Windsor – Widen shoulders to improve safety for cyclists between VT Route 131 in Ascutney and VT Route 44 in Windsor.*

f) *VT Route 103 – Cavendish – Widen shoulders to improve safety for cyclists through the Proctorsville Gulf.*

g) *US Route 5 – Windsor – Widen shoulders where possible through the s-curves by the golf course to improve safety for cyclists and motorists.*

4. *Provide amenities to support active transportation:*

a) *Install bike parking in village centers and other destinations (e.g. supermarket, parks).*

b) *Install pedestrian lighting along sidewalks within village centers and in public parking areas.*

c) *Establish or maintain tree canopies along pedestrian ways in village centers to provide shade, create a pleasant walking environment, and to provide other environmental benefits.*

5.0 RESOURCES

5.1 COMMON FUNDING OPPORTUNITIES

- *Bicycle and Pedestrian Program (VTrans)*
- *Community Change Grants (America Walks)*
- *Downtown Transportation Fund (Department of Housing and Community Development)*
- *Economic and Infrastructure Development Investments (Northern Borders Regional Commission)*
- *Land and Water Conservation Fund Program (Department of Forests, Parks and Recreation)*
- *Main Street Grants (National Life Group Foundation)*
- *Recreation Economy for Rural Communities (US EPA)*
- *Recreational Facilities Grant (Department of Buildings and General Services)*
- *Recreational Trails Program (Department of Forests, Parks and Recreation)*
- *Transportation Alternatives Program (VTrans)*
- *Vermont Outdoor Recreation Communities Pilot Grant Program (Department of Forests, Parks and Recreation)*

5.2 REFERENCE MATERIALS

- *ADA Guidelines and Standards (U.S. Access Board)*
- *ADA Transition Plan Guidelines*
- *Bicycle Level of Comfort Map (VTrans)*
- *Complete Streets: A Guide for Vermont Communities (Department of Health)*
- *Cost Estimating Information (VTrans)*
- *Crosswalk Guidelines (VTrans, 2004)*
- *Local Motion's Pop-up Demonstrations*
- *Mount Ascutney Outdoor Recreation Plan (SWCRPC, SE Group)*

- *Report on Shared-Use Path and Sidewalk Unit Costs (VTrans, 2014)*
- *Ride Windsor County Bicycling Route Guide (SWCRPC)*
- *Road Diets Factsheet (FHWA)*
- *Small Town and Rural Design Guide: Facilities for Walking and Biking*
- *Southern Windsor County Regional Transportation Plan (SWCRPC)*
- *Tactical Urbanist's Guide*
- *Urban Street Design Guide (NACTO)*
- *Vermont Bikeways (Department of Tourism)*
- *Vermont Pedestrian and Bicycle Facility Planning and Design Manual (VTrans)*