Mount Ascutney Regional Commission

REGIONAL PLAN

VOLUME 2: TRANSPORTATION

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Mount Ascutney Regional Commission
P.O. Box 320
Ascutney Professional Building
Ascutney, VT 05030
(802) 674-9201
www.marcvt.org

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Mount Ascutney Regional Commission Commissioners

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Eric and Barbara Bye, Bicycle and Pedestrian, At-large

Staff

Jason Rasmussen, AICP, Executive Director
Thomas Kennedy, AICP, Director of Community Development
Allison Hopkins, Senior Planner
Otis Munroe, Planner
Chris Yurek, Planner
Martha Harrison, Planner
Malia Cordero, Assistant Planner
Cindy Ingersoll, Community Development Specialist
Cynthia Porter, Financial Administrator
Lisa Comstock, Administrative Assistant

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Title VI Coordinator
Mount Ascutney Regional Commission
PO Box 320
Ascutney, Vermont 05030
(802) 674-9201

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This document and associated maps can also be found online at marcvt.org/2022-regional-plan.

Introduction

This Plan represents *Volume 2 of the Mount Ascutney Regional Plan* (also known as the Regional Transportation Plan, RTP) serves as the transportation element pursuant to 24 V.S.A., Chapter 117 §4348a(a)(4). It also represents a long-range transportation plan to guide transportation decision-making in support of the Region's Transportation Planning Initiative pursuant to 19 V.S.A., Chapter 1 §10l. It documents a vision for transportation and serves as the basis for determining future transportation investments that are important for the Region. The Plan outlines specific steps that can be taken to improve the regional transportation network and provide for future transportation needs. The Plan addresses all modes of travel in order to provide for an equitable, safe, convenient, economic and energy efficient transportation system that respects the integrity of the natural environment and promotes a mutually supportive, balanced and integrated multi-modal network [24 V.S.A. §4302(c)(4)].

The RTP is intended to be used for the following purposes:

1. To serve as the transportation element of the Regional Plan;
2. To provide a wealth of information regarding the condition of the existing transportation system in the Region;
3. To provide a means to express the Region's transportation planning concerns and priorities at the State and local levels;
4. To guide public investment in transportation infrastructure;
5. To be consistent with state planning goals (24 V.S.A., Chapter 117 §4302);
6. To implement the Transportation Planning Initiative and fulfill the duties of regional planning commissions in accordance with 19 V.S.A., Chapter 1 §10l(b); and,
7. To serve as a basis for evaluating transportation programs and projects that impact the Region.

This document is intended to guide the Mount Ascutney Regional Commission (MARC), formerly Southern Windsor County Regional Planning Commission, in evaluating public and private actions affecting the Region's transportation system and to serve as the foundation for the RPC's annual transportation work program. In 1992, the RPC entered into a partnership with the Vermont Agency of Transportation (VTrans), entitled the Transportation Planning Initiative (TPI). The TPI seeks to decentralize transportation planning and encourage participation at the local level in setting transportation investment priorities. This Plan was developed based on the TPI process, and to conform to the general intent of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) and subsequent reauthorizations, including Moving Ahead for Progress in the 21st Century (MAP-21) and Infrastructure Investment and Jobs Act (IIJA).

The RTP is generally updated every five years or sooner in order to reflect the changing conditions of the transportation system and the changing demands of the Region.

Mount Ascutney Regional Commission Transportation Advisory Committee: The RPC established the Mount Ascutney Regional Commission Transportation Advisory Committee (TAC) to advise the RPC on regional transportation issues. Representation on the TAC consists of one representative from each community, an ex-officio representative of the Agency of Transportation and provision for four "at-large" members. The primary mission of the TAC is to develop and update the RTP and guide investments in the transportation network, as approved by the RPC board.

Plan Adoption Process: The RTP was first developed and adopted by the RPC in 1995 and updated previously in 2005, 2009, and 2014 and amended in 2018. It was updated again and adopted by a vote of the RPC following public hearings and a formal recommendation by the TAC. The current version of the Plan becomes effective on November 18, 2022.

Required Plan Elements: This Plan was adopted as the transportation element of the Mount Ascutney Regional Plan pursuant to 24 V.S.A. §§4348 and 4348(a), including the following elements:

1. Inventory of existing, multi-modal transportation facilities are shown or summarized on the maps, tables and figures, and are described in the text found throughout the text of this document, including Appendices and supporting plans that are adopted by reference.
2. Prospective transportation facilities:
    a. A primary goal of this Plan is to prioritize maintenance of the existing transportation system over the construction of new network capacity, since the Region is not experiencing significant growth. An exception is to be made for new or improved bicycle and pedestrian and transit facilities in areas identified through regional and local planning efforts. New roads or new roadway capacity is generally not needed – except where strategically needed to address economic development goals or reduce congestion at key locations discussed in this Plan, *VT Route 103 Corridor Management Plan* and ski corridor planning efforts.
3. Recommendations to meet future needs are primarily addressed in two categories in this Plan:
    a. VTrans and the TAC collaborate to propose and score potential future projects annually through the VTrans Project Selection and Project Prioritization Process (VPSP2). The scores are approved by the RPC Board and the projects prioritized by VTrans. The most recent board-approved list is available on our website,[1] and is updated annually. The costs and methods of financing are addressed under VTrans most recent annual Transportation Program.
    b. Additional recommended needs are also identified in this Plan, but they are at such a stage in the project development process that they warrant further analysis at this time.

Public Participation Process: The RPC sought public participation in the 2022 update of the Regional Plan. In updating the RTP, the RPC began working with the TAC in 2020 to update the existing list of potential transportation project needs. Outreach to road foremen, town selectboards and village trustees, members of the public and other entities started in January 2021 – primarily using the map created by the TAC as a starting point. The following groups and individuals participated in development or review of sections or all of the Regional Transportation Plan:

- Mount Ascutney Regional Commission Transportation Advisory Committee (TAC)
- Town Road Foremen
- Town Selectboards and Village Trustees
- Springfield Airport Commission
- Mt Ascutney Hospital Prevention Partnership
- Southern Windsor and Windham County Elders and Persons with Disabilities (E&D) Committee
- Southeast Vermont Transit

[1] https://marcvt.org/priority-transportation-projects/

- Vermont Agency of Transportation – Main Office and District Maintenance Offices

Outreach methods included:

- Being on the agenda for discussion at scheduled meetings of groups (e.g. Selectboard meetings, Elders and Persons with Disabilities Committee meeting, Airport Commission meeting)
- Soliciting input from individuals in person, by phone or by email (e.g. Road Foremen, Chambers of Commerce, Transit Provider)
- Draft documents posted for public review on MARC website (www.marcvt.org)
- Public Hearings

CH 1: GOALS AND POLICIES

The following are the major goals and policies related to transportation for the Mount Ascutney Regional Commission. All terms are explained more fully within the remaining text of the Regional Transportation Plan.

GOALS: Broad statements of what the Region ultimately wants to achieve.

POLICIES: Agreed-upon courses of action to achieve the goals. Policies contain the standards that guide the organization's development review and project development procedures.

RECOMMENDATIONS/NEEDS: Specific projects or work program activities that are identified to implement the stated goals and policies.

1.1. Goals

The Mount Ascutney regional transportation system will:

1. Prioritize maintenance of the existing roadway network over the construction of new roadway network capacity.
2. Support a diverse economy and high quality of life for all residents.
3. Provide for the safe, secure, convenient, economic, and energy efficient movement of people, goods and services.
4. Meet the mobility needs of all residents.
5. Offer diverse travel choices throughout the Region with an integrated multi-modal transportation system that encourages travel by modes other than single-occupant vehicles and a reduction in the consumption of fossil fuels.
6. Strive to provide transportation infrastructures that are resilient in the face of a changing climate, and that efficiently and safely handle traffic during natural hazard events and other emergency situations.
7. Respect the integrity of the natural environment, as well as historic, scenic and cultural resources.
8. Provide the infrastructure to support traditional settlement patterns of compact villages and downtowns separated by rural countryside.
9. Implement a transportation planning process that is responsive to local, regional and state needs, and engages the public in the decision-making process, especially those historically underserved or negatively impacted by transportation planning and investment.
10. Promote a funding strategy that seeks to maximize the use of all available resources to ensure adequate funding to address the Region's and towns' priority needs of the existing and future transportation system.

11. Promote sound land use planning that minimizes the need to expand the existing highway infrastructure, maximizes transportation system efficiency and safety, and promotes multi-modal and energy efficient travel.

12. Strive to achieve a transportation system free from fatalities and serious injuries.

1.2. Policies

1. New state highway capacity shall not be constructed except as needed to improve safety, address capacity problems identified in this Plan or as warranted, or to facilitate local or regional economic development strategies.

2. Existing rights-of-way, including but not limited to class 4 roads and legal trails, should be kept for future use.

3. An asset management approach is encouraged to determine transportation funding priorities in preference to a "worst first" approach.

4. Safety for all modes shall be a priority criterion for the regional and state project development and prioritization processes.

5. Furthering equity in the transportation system and transportation services shall be a priority criterion for the regional and state project development and prioritization process.

6. The transportation system shall support local and regional economic development plans and strategies, as described in the most current Comprehensive Economic Development Strategy, North Springfield Truck Study, Route 103 Corridor Study and other relevant documents.

7. Incorporate “context sensitive design” principles in all aspects of transportation planning and project development activities to improve stewardship of environmental, cultural, historic and scenic resources.

8. Preservation of covered bridges and other historic structures shall be prioritized over replacement to maintain our Region’s history.

9. *Vermont State Design Standards* as further refined or clarified in the future land use category transportation descriptions shall apply to all projects and development proposals.

10. Roadway design speeds shall conform to future land use transportation standards to be consistent with the desired and appropriate speed of travel in all locations, and consistent with promoting traffic calming in villages and in residential neighborhoods.

11. New transportation construction, reconstruction or replacement projects shall be built according to standards that account for changing weather patterns and more severe flooding events:
    a) The current *Vermont Town Highway Codes and Standards* shall be the minimum standard for achieving basic resiliency; however, additional measures, such as the

strategies recommended in the Transportation Resiliency Planning Tool, may be required due to site conditions and damage history.

b) Relocation of roads and bridges may be preferable in order to mitigate risk of future flooding hazards.
c) Projects shall be designed to conform with phase 2 stream geomorphic assessments and recommended river corridor protections where applicable.

12. Maintenance of the existing transportation system shall minimize water pollution, in accordance with the current *Vermont Town Highway Codes and Standards*, State stormwater rules, the Municipal Roads General Permit, and other best management practices.

13. All non-exempt projects shall seek to incorporate complete streets principals in accordance with the future land use category transportation requirement descriptions.

14. All projects that require Section 1111 (Access and Work within the Right-of-Way) permits shall meet VTrans *B-71 Standards for Residential and Commercial Drives* and the category design standards in the *Access Management Program Guidelines*. (Where these standards differ, the more restrictive shall apply.)

15. The MARC shall coordinate with VTrans and municipalities on all applicable Section 1111 application reviews to promote consistency with local land use permit application procedures or conditions.

16. All developments shall meet sound access management principals to prevent or minimize strip commercial development, including:
    a) One access per lot; explore all alternatives before creating new sole access.
    b) Commercial and industrial uses shall incorporate shared accesses, frontage roads, shared parking to avoid or mitigate strip development patterns. Right-of-way for future connections shall be required for future connections where compatible adjacent land uses or allowable uses under local zoning bylaws exist or are possible.
    c) Safe and clear site circulation.
    d) Provide continuity and safety of pedestrian access and circulation.
    e) Adequate loading and unloading areas shall be provided, minimizing conflicts with other motor vehicles.
    f) Building orientation and location of parking to the building shall be as specified under the future land use transportation category descriptions.
    g) Minimize conflicts/Adequate throat length shall be provided.

17. Substantial improvements (i.e. an investment of more than 50% of a building's market value) to existing non-residential structures in strip commercial areas shall make site improvements to meet the above standards.

18. Development shall conform to Regional future land use categories and the corresponding transportation standards.

19. Developments shall evaluate and mitigate transportation impacts in accordance with the *Regional Traffic Impact Study Guidelines* and *Ski Corridor Management Plan,* including, but not limited to, evaluating existing conditions, cumulative impacts, analysis of impacts along the

broader highway corridor, and mitigation required for negative impacts. Transportation demand management mitigation options are preferred over expanding highway capacity.

20. Developments located outside of villages and downtowns and involving either the creation of 20 or more lots, and/or with 50 or more employees must provide mitigation, when warranted, that supports non-single occupant vehicle travel (i.e. contributions for transit services, or other TDM strategies per the *Regional Traffic Impact Study Guidelines*).

21. Developments along the ski corridor shall address existing ski country corridor plans in accordance with the *Regional Traffic Impact Study Guidelines*.

22. The transportation system shall promote energy efficiency and driving less through the following initiatives:
    a) Invest in and publicize bicycling and walking facilities (sidewalks, multi-use paths, crosswalks, bus stops, bike lanes, bike parking, widened shoulders, ebike charging) within villages and downtowns, and along routes that connect neighborhoods, commercial growth centers, and other destinations.
    b) Continue investment in public transportation and rideshare programs to reduce the region's dependency on single-occupancy vehicle trips.
    c) Support investments in park and ride lot improvements.
    d) Support transportation facility design enhancements that better accommodate bicycling, walking and transit services on the region's existing roads and bridges.
    e) Require large-scale private land use development to invest in transportation infrastructure and services that promote electric vehicles, bicycling, walking and transit or provide the necessary right-of-way to allow public investment in those facilities.
    f) Support the continued expansion of the Region's electric vehicle charging network, especially within villages and downtowns and in proximity to neighborhoods and commercial and employment centers without the construction of new parking areas.

23. All park and ride lot projects shall provide adequate bus circulation.

24. Promote a robust public transportation system for the Region by promoting or supporting:

    a) Funding to support public transportation strategic planning;
    b) Sustainable funding for all services that meet or exceed State performance standards as well as for those services that are necessary to provide adequate mobility for all residents, including, low-income individuals, elders, persons with disabilities, and other transit-dependent individuals;
    c) The continuation of existing transportation service to Boston Logan Airport and establishing new transportation service that connects to other airports (Manchester, Bradley, Burlington and Albany).
    d) Increased capital funding in order to shift to more fuel-efficient or electric transit buses.

25. Prioritize bicycle and pedestrian projects that:
    a) Further the bicycle and pedestrian implementation strategies in this and the Active Transportation Plan;
    b) Improve mobility for populations without reliable access to a personal vehicle;
    c) Bring facilities into compliance with ADA Accessibility Guidelines (ADAAG);

d) Make connections between neighborhoods and destinations, such as schools, employment centers, recreation facilities and villages;
e) Further the creation of Complete Streets.

26. Improve railroad facilities and services for moving people and goods, including:
    a) Maximize the use of rail for freight shipments as a means to improve efficiency and reduce truck traffic.
    b) Promote and preserve commercial and industrial freight rail access.
    c) Maximize the use of the intermodal facilities that serve the Region (e.g. Bellows Falls).
    d) Invest in continued railroad track and bridge upgrades to improve speeds and weight capacities along the GMRR and NECR.
    e) Improve multimodal and transit connections to passenger rail service.
    f) Improve passenger rail facilities.

27. Improve aviation facilities and services for moving people and goods, including:
    a. Support investments to the Hartness State Airport that enhance and expand utilization of this facility.
    b. Support efforts by VTrans, the Springfield Airport Commission, and the Towns of Weathersfield and Springfield to improve the utilization of Hartness State Airport.

28. VTrans and the MARC shall prioritize safety improvement projects that address identified crash problem areas.

29. Remove unnecessary streetlights and support LED retrofits for all existing streetlights in the Region.

30. Interstate interchange areas are subject to the following standards:
    a) Retail services shall be limited to visitor/traveler services only. All other retail and commercial services shall be directed to downtowns and compact villages.
    b) New development shall not degrade the interchange function.
    c) All new developments should use interior roads to limit the number of curb cuts on roads.
    d) New and modified development shall not be carried out as “strip development.”
    e) Proposed developments adjacent to the interchanges should preserve the aesthetic nature and open space that typifies Vermont as discussed in both the MARC’s *Interstate Exits of the Region: Study and Policies* and the *Vermont Interstate Interchange Planning and Development Design Guidelines*.
    f) The Quechee Test will be used to determine if any project in the interchange areas will result in undue adverse impacts to the aesthetics.
        1) Will the proposed project be in harmony with its surroundings or, in other words, whether it will “fit” the context within which it will be located? This evaluation is based on the following factors:
            i. Nature of the project's surroundings;
            ii. Compatibility of the project's design with those surroundings;
            iii. Suitability for the project's context of the colors and materials selected for the project;
            iv. Locations from which the project can be viewed; and
            v. Potential impact of the project on open space.

2) If the project has adverse effect based on the above, then the following criteria will be used to determine if those adverse effects are undue:
    i. Does the Project violate a clear, written community standard intended to preserve the aesthetics or scenic beauty of the area?
    ii. Does the Project offend the sensibilities of the average person? Is it offensive or shocking because it is out of character with its surroundings or significantly diminishes the scenic qualities of the area?
    iii. Has the Applicant failed to take generally available mitigating steps which a reasonable person would take to improve the harmony of the Project with its surroundings?

31. MARC supports the principles of the Scenic Byway Program.

32. Encourage municipalities to evaluate current parking and plan for future needs, including related to expansion of the public EV charging network.

CH 2: REGIONAL TRENDS AND ISSUES

This chapter highlights notable trends and relevant considerations that impact the regional transportation network. Chapter 2 is organized into three distinct sections:

2.1 REGIONAL TRENDS;
2.2 CERTAIN FEDERAL & STATE LEGISLATION; AND,
2.3 A TRANSPORTATION NETWORK TO SUPPORT THE FUTURE LAND USE PLAN.

2.1. Regional Trends

Chapter 2 of the Regional Plan (Volume 1) consists of a profile of the Region. See that section for a more detailed description of this Region. This section is intended as a short summary of the key transportation-related themes that emerged from an assessment of recent trends based on data analysis and stakeholder input. Data is limited at this time to enable an accurate assessment of migration into the region as a result of COVID-19 and any impact on regional trends.

Rural with Small Villages: The Mount Ascutney Region is largely rural with 87% of the existing land area comprised of a patchwork of forests, farms and open fields[2]. Traditional downtown and village centers are surrounded by a mostly rural countryside. This area has not experienced significant levels of growth in the last decade; however, recent development activity has largely been small in scale and located in rural areas. These recent trends are contrary to the future land use aspirations as expressed in Volume 1 of the Regional Plan, which calls for growth to locate in and around the traditional centers. With the exception of downtown Windsor and Springfield, the Region has low population densities and is very auto-dependent for daily travel needs. It is costly to provide public transportation at these low densities. The relative locations of where many residents currently live, work and recreate are generally of such distances that they do not easily facilitate travel by walking or bicycling. This situation limits affordable transportation options for independent travel by children, low-income households, the elderly, and persons with disabilities, as well as initiatives to reduce single-occupant vehicle travel.

Aging Population: The Mount Ascutney Region is comprised of ten towns with a total population of just under 25,000 year-round residents. The Region is aging, albeit at a slow rate over the last decade. According to the Census Bureau's 2016-2020 American Community Survey (ACS) 24.1% of residents (or 5,677 people) are 65 years of age or older; compared to 21.4% (or 5,257) according to the 2006-2010 ACS.

Public transportation options for elders and persons with disabilities are therefore critically important to provide adequate access to services and maintain a good quality of life. This is a challenge in such a rural area, but necessary to support successful aging-in-place.

[2] 2016 Base Land Cover Dataset from Vermont Center for Geographic Information https://geodata.vermont.gov/pages/land-cover

Declining School Enrollment: Recent declines in school enrollment correspond to a decrease in persons of those less than 18 years old from 4,813 in 2010 to 4,487 in 2018. Recent travel-to-school trends include fewer students riding the morning bus and more parent drop-offs, which leads to traffic circulation problems at and near many school facilities. Smart Growth Principles, the Safe Routes to School program and the 2011 Vermont Complete Streets Law[3] are initiatives that, at least in part, seek to encourage or increase traveling to school by walking or bicycling.

Trucking is Key for Local Employment: Manufacturing, trade, construction, warehousing and natural resource extraction operations are regionally important economic sectors that rely heavily on trucking. Truck volumes on some state highways in this area – such as on VT Routes, 103, 131, 44A and 106 and US Route 5 – are higher than the statewide averages for roads of similar functional classifications[4]. These relatively high truck volumes are due to freight for local businesses as well as shipments that originate and terminate outside of this Region. VT Routes 11 and 103 provide important connections over the Green Mountains with few alternative routes south of Interstate Route 89 (just US Route 4 and Vermont Route 9). The Region is predominantly served by two-lane roadways with constraints in many locations that pose challenges to safe, efficient truck travel. Projections by VTrans suggest significant increases in freight trips which may exacerbate the problems at these constriction points along the network[5]. Many of these locations are identified in the transportation needs listed in Chapter 3. For more information see Chapter 10 in *Volume 1 of the Regional Plan*.

Tourism And Outdoor Recreation: Tourism and outdoor recreation are important parts of the regional economy. Examples of tourism include people visiting the area for hiking, mountain bicycling, skiing, snowmobiling, boating, fishing, visiting museums and covered bridges, Scenic Byway tours, viewing autumn foliage, visiting Windsor's Artisan's Park and similar recreational activities. To support tourism and outdoor recreation, the transportation network needs to be not only oriented for residents and commuters, but also for visitors and recreational users that may need navigational assistance (e.g. directional signage, traveler information services, etc.), and provide diverse transportation options, such as transit and bicycling, and who value the scenic aspects of the transportation system as much as its utility.

Seasonal traffic peaks (e.g. Sunday afternoons during the winter ski season) that exceed the highway capacity for very specific time periods are a significant factor for transportation planning. Since the late 1990s, the MARC has been working with partners on the Ski Corridor Traffic Management Study, to mitigate traffic impacts from large developments at Killington and Okemo Mountain Resorts on a variety of corridors including VT Routes 100 and 103 in this Region. For more information, please refer to the various Ski Corridor Study documents that have been produced over the years.

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[4] Often 11% or more of traffic carried on these routes are trucks. For specifics see the VTrans 2021 Automatic Vehicle Classification Report at http://vtransplanning.vermont.gov/research/traffic/publications

[4] Often 11% or more of traffic carried on these routes are trucks. For specifics see the VTrans 2021 Automatic Vehicle Classification Report at http://vtransplanning.vermont.gov/research/traffic/publications

[5] Increases in truck traffic of more than 40% between 2007 and 2035 is expected on state highways such as VT-11 and VT-100 in the Southern Windsor County Region – according to the Vermont Statewide Freight Plan. May 2012. Revised June 2017. Prepared for VTrans by Cambridge Systematics http://vtransplanning.vermont.gov/reports . See Appendix C for more information.

Long Commutes: Historically, this area was a regional manufacturing center, notably in Springfield and Windsor. While manufacturing remains important, there were significant job losses in that economic sector beginning in the 1970s. Today, many residents commute to jobs in locations outside of the Region, including but not limited to Lebanon, Hanover, Claremont, Rutland and White River Junction. Travel time to work has continued to increase from 23 to 25 minutes between 2010 and 2020. Commuting trips are primarily done in personal motor vehicles, with around 75% of work trips made in single-occupant vehicles and around 12% by carpooling. While Southeast Vermont Transit's commuter routes are successful, only about 1% of work trips were made by public transportation. Park and ride lots are essential for supporting public transportation and carpooling.

Telecommuting and COVID-19: According to the 2016-2020 ACS, around 7% of workers worked from home, but working from home became more widespread in 2020 and 2021 during the COVID-19 pandemic. If this work arrangement becomes a lasting one, it could have implications for the region's transportation and land use patterns. It is not yet clear whether and to what degree increased telecommuting leads to reduced vehicle miles traveled or encourages development further from community and employment centers.

Healthy Communities: Access to safe and reliable transportation is vital to a person's and community's overall health. Transportation is necessary to access healthcare, healthy food, and recreational opportunities. Transportation itself, in the form of active transportation (e.g. walking or biking), can contribute greatly to a healthy lifestyle. This is particularly important In the context of increasing rates of obesity among Vermonters.[6] For more on the nexus of health and transportation, see the Health Chapter of this Plan.

Travel for Goods and Services: The larger towns in the Region have supermarkets, pharmacies, medical facilities and a variety of other goods and services available to residents. However, many residents travel outside of the Region for medical services, shopping or other daily needs. Common destinations include Claremont, Lebanon, Rutland, Keene, and Brattleboro. The rise in popularity of ecommerce, especially during the COVID-19 pandemic, reduces the need for individual travel for goods and services but leads to increased volumes of delivery vehicle trips.

Housing and Transportation Affordability: The availability of safe and decent affordable housing has long been a priority for this Region. As noted above, this area has not experienced significant levels of growth through 2020. However, the pandemic resulted in a surge of in-migration and home-buying. Whether this will be a lasting trend is not clear as of 2022.

Newer residential housing is generally developed at very low densities and located in the rural areas. Transportation costs in this largely rural region are nearly as high as housing costs. The recent development trends generally worsen this transportation affordability problem. To address this situation and become more sustainable, the following are needed:

- More cost-effective transportation options (e.g. public transportation, highly fuel-efficient vehicles, electric vehicles, or other ways to drive less);

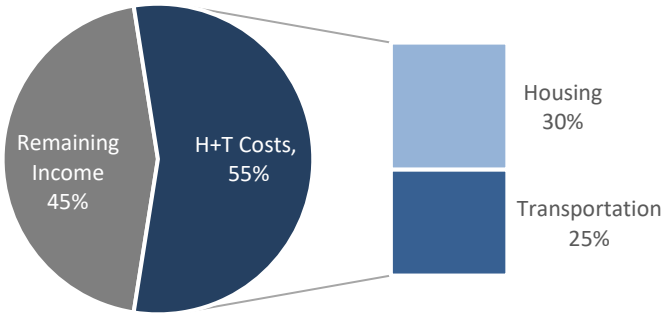
[6] *Vermont State Health Assessment 2018, 38.*

- Focus civic and retail uses and jobs to locate in and around community centers at higher densities and in mixed-use development patterns to better support daily travel by walking, bicycling and public transportation; and,
- A better jobs/housing location balance.

Windsor County 2015 Housing + Transportation Costs as % of Income

Calculated by the
Center For Neighborhood Technology.

Housing + Transportation costs over 45% of household income are considered unaffordable. Average county H+T® costs account for 55% of the Windsor County median household income ($54,744).



Aging Infrastructure: The state highway network in the Region has not changed appreciably since 1970, and a substantial number of bridges are approaching the end of their useful life. Currently, many of the roads and bridges are aging and require investment. Road surface conditions are in constant flux and in recent years an increase in paving projects has improved conditions considerably. See the Road Network section below for more on current road surface conditions. Maintaining our roads and bridges in safe and passable condition is essential for the safety of residents and health of the economy of the Region. Maintenance of the existing highway infrastructure is prioritized over the construction of new roads.

Funding: Funding levels have generally not allowed the State or towns to keep up with routine preventative maintenance. In the 2018 *Transportation Asset Management Plan*, VTrans reported that "current funding provides approximately 67% of the monetary resources needed to maintain Vermont's transportation system in a state of good repair. In 2018, the gap was approximately $258 million."[7] Recent increases in Federal funding through the Infrastructure Investments and Jobs Act (IIJA) have helped address the gap but concurrent cost increases have blunted much of the potential positive impact.

Local property taxes are the primary funding source for the management of municipal transportation systems. Towns often tend to level-fund their local road budgets as there is concern that local property taxes are as high as they can go. In general, local funding levels are not enough to keep up with needs for routine maintenance and infrastructure improvements. This has also led to staffing challenges for town highway departments. Town governments rely on grants and other funding mechanisms to help address their transportation needs.

[7] Vermont Agency of Transportation, *Transportation Asset Management Plan*, 2018, 22, https://vtrans.vermont.gov/sites/aot/files/planning/documents/2018%20Final%20VTrans%20TAMP.pdf

Recent efforts by VTrans, such as the Project Initiation and Innovation Team (PIIT) and Accelerated Bridge Program, are helping to address bridge needs more efficiently and effectively. Towns are taking greater interest in developing capital improvement plans to strategically address local road and bridge needs. While these improvements help, there simply is not enough money to address all of the needs, which highlights the need for an asset management or similar approach to target the expenditure of limited funds where they will have the greatest impact.

Technological Advances: The transportation landscape is constantly evolving with new technologies and methods presenting new opportunities and planning challenges. In recent decades the proliferation of mobile devices has changed how many navigate the transportation network but has also made distracted driving a serious safety issue.[8] Electric bicycles have the potential to drastically expand both the range of bicycle trips and the number of bicyclists but both roadway and bicycle and pedestrian infrastructure and regulations will likely have to account for the presence of e-bikes and their riders. Like e-bikes, electric vehicles could significantly reduce the climate impacts of the transportation system. Yet, EVs require an entirely new approach to trip planning and refueling. Planning for electric vehicle charging often touches on a wide range of related issues including economic development, parking, and housing. Finally, autonomous vehicles too may have wide-ranging impacts on the transportation system though much is still uncertain about their potential application in Vermont. Springfield is one of only a few towns in Vermont to preapprove automated vehicle testing though no testing has yet taken place anywhere in Vermont.

2.2. Certain Federal & State Legislation

The purpose of this section is to summarize how certain federal and state transportation legislation and initiatives influence the transportation decision making for the Region.

Safety & Security: A primary objective of this Plan is to plan, design, build and maintain a transportation system that maximizes the safety of the traveling public. Annually, the MARC works with VTrans and partners to improve safety through a variety of programs, including the Highway Safety Improvement Program (HSIP), High Risk Rural Roads (HRRR) program, Road Safety Audit Reports (RSAR), and other efforts, such as regional safety forums. Security is also an important consideration for transportation planning, especially with consideration to airports, public transit and freight shipments.

Climate Change and Environmental Stewardship: Transportation represents the single largest source of greenhouse gas emissions in Vermont. The 2016 and 2022 State *Comprehensive Energy Plans* and the 2021 *Climate Action Plan* set ambitious greenhouse gas reduction goals, particularly in the transportation sector, to meet the requirements of the Global Warming Solutions Act. One of the most effective methods for reducing transportation greenhouse gas emissions is a reduction in vehicle miles traveled through increased use of transit, biking and walking over single occupancy vehicles. In a rural region, however, single occupancy vehicles are a significant part of the transportation landscape, which is unlikely to change. For this reason, electrification through increased adoption of electric vehicles

[8] For more on distracted driving and highway safety, see the 2022-2026 Vermont Strategic Highway Safety Plan at https://vtrans.vermont.gov/sites/aot/files/highway/documents/Vermont_SHSP_2022-2026-Final.pdf

across personal transportation, freight, and transit will need to be central to meeting the State's and region's climate goals. MARC has been and will continue to partner with VTrans, municipalities, and other local partners on planning for EV charging infrastructure, particularly following the completion of the statewide EV charging plan. For more on MARC's specific greenhouse gas reduction goals and pathways, see the *Regional Energy Plan*.

A State Planning Goal involves providing a transportation system that respects the integrity of the natural environment[9]. As such, all transportation-related projects will be evaluated to improve water quality, reduce greenhouse gas emissions, and to avoid or mitigate negative impacts on sensitive ecological features, including:

- Wetlands and vernal pools;
- Concentrated black bear feeding habitat (mast stands);
- Rare, threatened, and endangered species habitat;
- Significant natural communities; forest blocks and habitat connectors; riparian areas and surface waters;
- Prime agricultural soils;
- Slopes greater than 25%;
- Ledge, talus, and cliff habitat;
- Land in excess of 2,500' in elevation; and
- Habitat as identified by the Vermont Department of Fish and Wildlife as either significant wildlife habitat or necessary wildlife habitat in accordance with 10 V.S.A. § 6086(a)(8)(A).

CLEAN WATER ACT: The Vermont Clean Water Act (Act 64) of 2015 established the Municipal Roads General Permit (MRGP)[10] to reduce stormwater erosion from municipal roads. The MRGP establishes standards for managing stormwater runoff from gravel and paved roads and from closed stormwater systems that serve municipal roads. 15% of non-conforming road segments are required to be brought up to standard by January 2023, and all very high-priority[11] segments by December 31, 2025. All remaining segments will need to meet the standards established in the permit by December 31, 2036.

Resilient Transportation System: Building resilience and adaptation in Vermont's communities and built environment, including the transportation system, is one of five areas around which the 2021 *Climate Action Plan* is organized. Climate projections indicate more intense precipitation, more frequent flash flooding, and increased speed and volume of water in rivers and streams during flood events. If projections hold true, our transportation system will be significantly impacted. Most of our major roadways closely parallel streams and rivers, many culverts and bridges are sized too small, many of the rivers and streams in this Region are susceptible to fluvial erosion hazards, and many of our buildings and infrastructure are built alongside of these same roadways that are in harm's way.

In August 2011, Tropical Storm Irene caused significant, widespread erosion-related damage to our transportation system (up to $250 million in damages to state highways, 450 sections of local roads

[10] A copy of the MRGP can be found on the Department of Environmental Conservation website. https://dec.vermont.gov/sites/dec/files/wsm/stormwater/docs/Permitinformation/MunicipalRoads/sw_FinalMRGP.pdf
[11] Very high priority segments are defined in the Permit as "Hydrologically-connected paved and gravel road segments with drainage ditches scoring 'Does Not Meet'… on slopes greater than 10 %."

damaged, 25 bridges damages, and countless culverts damaged or destroyed). All transportation planning and projects need to be evaluated based on river geomorphology and reasonable efforts taken to mitigate against the likely threat of flooding and erosion hazards. Steps that can be taken to improve resilience, include:

- Use the Transportation Resilience Planning Tool and Statewide Flood Vulnerability Assessment to identify transportation infrastructure at high risk of damage from fluvial processes;
- Avoid (or minimize) further encroachment of transportation infrastructure into river corridors (i.e. fluvial erosion hazard areas);
- New road crossings and recreational paths may be allowed in river corridors, but they must not exacerbate flooding and fluvial erosion;
- Build and maintain local roadways consistent with the most recent model local highway codes and standards and the Municipal Roads General Permit;
- Adapt or relocate roadways to be more resilient to flood and erosion damage, and consider strategic disinvestment of transportation infrastructure as appropriate;
- Size bridges and culverts per VTrans Hydraulics Manual and VT ANR Stream Alteration Rules;
- Ensure that adequate storm water provisions are made for new developments in order to avoid or mitigate flood or erosion risk to roadways or other public infrastructure;
- Protect and restore river corridors, floodplains, wetlands, and upland forested areas that function to mitigate flooding and fluvial erosion risks;
- Develop specific strategies to protect the transportation infrastructure identified to be at risk from flood and fluvial erosion hazard areas, and to mitigate risks to public safety and critical infrastructure.

VTrans and their partners, including regional planning commissions, are in the process of expanding the Transportation Resilience Planning Tool (TRPT)[12] to eventually cover the entire state of Vermont. The TRPT is "a web-based application that identifies bridges, culverts, and road embankments that are vulnerable to damage from floods, estimates risk based on the vulnerability, and criticality of roadway segments, and identifies potential mitigation measures based on the factors driving the vulnerability." The TRPT should be consulted when conducting hazard mitigation, corridor management, project prioritization, or any other transportation or hazard mitigation planning and capital budgeting. The structures and road segments identified as high risk in the TRPT should be prioritized for mitigation and resilience projects. The Williams Watershed is the only part of the Mount Ascutney Region included in the TRPT as of May 2022. The remainder of the Region's transportation system has been evaluated for flood risk and vulnerability through VTrans' Statewide Flood Vulnerability Assessment.[13] This assessment will be used to inform project prioritization in areas not yet covered by the TRPT.

A More Balanced and Integrated Transportation System: At this point, our transportation system heavily favors travel by automobile, at the expense of other modes that are more energy efficient and better provide mobility for all residents. Establishing a more balanced

[12] The TRPT can be found here: https://vtrans.vermont.gov/planning/transportation-resilience#:~:text=The%20Vermont%20Transportation%20Resilience%20Planning,potential%20mitigation%20measures%20based%20on

[13] https://vtrans.vermont.gov/planning/transportation-resilience/statewide

transportation system will require various changes to land use and transportation patterns and investments including investments in sidewalks, crosswalks, and bicycle infrastructure in community centers; road diets and cycle tracks on roadways especially where they transition from rural areas to community centers or connect to destinations; electric vehicle charging; job growth in community centers; land use patterns and densities that make transit more efficient and cost-effective; and a better jobs/housing location balance.

Equity in Transportation: As noted above, access to transportation means access to employment, healthcare, healthy food, recreation and more. Yet, historic investments in transportation have led to disparities in transportation access across communities. In recognition of both the essential nature of transportation and the inadequacy of past practices to provide safe, high-quality, affordable, and convenient transportation for all Vermonters, the Legislature passed Act 55 in 2021. The Act provides the legislative impetus behind the Transportation Equity Framework, "a tool to help decision makers plan for and prioritize projects, ensure accurate representation in decision making, and enhance the equitable delivery of services."[14] Beginning In 2022, VTrans will partner with RPCs to develop the Framework. It is anticipated that the Framework will inform and lead to fundamental changes in project prioritization and development, public outreach, and all other aspects of transportation planning at the state, regional, and local levels.

2.3. A Transportation Network to Support the Future Land Use Plan

Transportation and land use are inextricably linked, each effecting how the other functions. This section will focus on the interrelationship between land use and transportation, and the role transportation has in facilitating the desired future land use patterns for the Mount Ascutney Region.

Our existing transportation system is heavily focused on travel by automobile. While that is to be expected in a rural area, an overly auto-oriented transportation system is not ideal. To move toward a more sustainable and equitable future, we need a transportation system that increases transportation options and reduces vehicle miles traveled. This can only be done with a corresponding change in land use.

Land Use Classifications and Special Use Areas

Desired future land use for the Mount Ascutney Region is described in more detail in Chapter 3 of Volume 1 of the Regional Plan and is discussed in relation to the following land use classifications and special use areas.

[14] https://vtrans.vermont.gov/equity.

LAND USE CLASSIFICATIONS

SPECIAL USE AREAS

1. RIPARIAN AREAS
2. RESORT AND RECREATIONAL AREAS
3. INTERCHANGE
4. COMMERCIAL NODES AND CORRIDORS
5. INSTITUTIONAL
6. INDUSTRIAL

Conservation

Working Lands

Rural Residential

Hamlets & Village Centers

Residential Neighborhood

Town & Regional Centers

Least Developed

Most Developed

Future Transportation-Land Use Network: The following section is intended to describe the desired characteristics of the transportation system in relation to the above land use classifications and

special use areas. VTrans State Design Standards, the most recently adopted town road and bridge standards, and other applicable standards will apply to all applicable roadway work. The following desired characteristics seek to clarify or modify the above standards to further the future land use chapter, State Planning Goals and the intent of the Complete Streets Law. Flexibility (i.e. "context sensitive design") will be needed in implementing the following desired transportation system characteristics based upon the scale and function of each individual area as well as any constraints, such as right-of-way limitations, historic structures, and flood resilience strategies.

TOWN AND REGIONAL CENTERS

Springfield and Windsor Main Streets

Generalized Locations	Core areas of Ludlow, Springfield, Windsor, and Chester-Chester Depot.
Primary Roadways	"Main Street" sections include state highways and Class 1 sections of VT Routes 11, 100, 103 and 106 and US Route 5; Functional Classification: varies from Rural Principal Arterial to Major Collector
Traffic Volume of Primary Roadways	- Moderate to High traffic volumes (AADTs of 3,000 to 10,000+). - Relatively high truck volumes. - Can experience commuter peak hour congestion. - Ski traffic congestion conditions along the VT 103 corridor.
Desired Future Land Use Characteristics	- Larger traditional settlement areas in the Region that have a range of governmental services and institutions including hospitals, schools, libraries, and fire and police protection. - Served by a public water and sewer system. A mix of land uses is desired, including residential, commercial, and civic, at the highest densities. Multi-story, vertically mixed use buildings typical of a downtown are desired.
Desired Attributes for "Main Streets"	- Typical urban transportation facilities that accommodate commuters, tourists, industry, commerce, pedestrians, bicyclists, and public transit providers. - Pedestrian-oriented streetscapes with wide sidewalks, on-street parking, bicycle lanes, bus stops.
	- Capable of supporting higher traffic volumes. - Support non-motorized travel while providing safe and reliable links to outside markets and resources.

	- Maintain or achieve desired Town or Regional Center character.
	- Narrow travel lanes to encourage slower driving and improve safety for pedestrians. - Low design speeds (20-30mph). - Intermodal connections encouraged (i.e. bicycle parking, bus stops). - Flexible roadway standards in order to maintain historic and cultural integrity. - Prioritize on-street parking, off-street parking located to the rear of the building. - Pedestrian friendly environment with wide sidewalks, crosswalks, and few curb cuts. - Buildings built close to the sidewalk/street. - Provide bicycle lanes.
Access Management	- Access Category 6. Few curb cuts. - Additional curb cuts should not be encouraged. - Lot access from a side street or from rear of property.
Other Streets	The above articulates the generalized desirable conditions for the major roads within the future land use areas. Because each community is different, the standards will need to be applied as appropriate for each area. The other streets in these areas should aspire to a lesser degree of these same standards as appropriate for the functional classification of each roadway and the surrounding land area that it serves. For example, small residential streets located in these areas will have similar desired characteristics to the Medium Density Residential category.

HAMLETS AND VILLAGE CENTERS

Felchville and Brownsville

Generalized Locations	Villages of Brownsville, Perkinsville, Cavendish, Proctorsville, Ascutney, and Felchville, and hamlets of Amsden, Gassetts, Peasville, South Reading, Hammondsville, Weathersfield Center, and Weathersfield Bow. Grahamsville is encouraged to grow to become a village center.
Primary Village Roadways	Major streets are mostly State Highways and include VT Routes 44, 106 and 131 and US Route 5; Functional Classification: Major Collector *
Traffic Volume of Primary Roadways	- Low to moderate traffic volumes (AADTs of 500 to 6,000) - Relatively high truck volumes - Ski traffic congestion conditions along the VT 103 corridor
Desired Future Land Use Characteristics	- Traditional settlement areas of medium density residential with civic and limited commercial uses that serve a more localized area. - Many of these areas do not currently have public water or sewer systems.
Desired Attributes for Primary Village Roadways	- Typical village transportation facilities that accommodate a mix of users, including cars, trucks, pedestrians, bicyclists, and public transit providers. - Pedestrian-oriented streetscapes with wide sidewalks, bicycle lanes, bus stops. Where sidewalks are not feasible, widened roadway shoulders can accommodate pedestrians and bicyclists.
	- Capable of supporting moderate traffic volumes. - Support non-motorized travel while providing safe and reliable links to outside markets and resources. - Maintain or achieve desired village character. - Limited financial resources for infrastructure (i.e. public water and sewer systems, sidewalks).
	- Narrow travel lanes to encourage slower driving and improve safety for pedestrians. - Low design speeds (25-35mph). - Modify roadway standards to maintain historic and cultural integrity. - Prioritize on-street parking, off-street parking located to the rear or side of the building. - Pedestrian friendly environment with sidewalks in pedestrian-traveled areas. - Widen shoulders for on-street parking or bicycle lanes.

	- Buildings built close to the street with short driveways.
Access Management	- Access Category 6. Some curb cuts - While additional curb cuts are not encouraged, this is a preferred location for road access, unless access from a side street is available.
Other Streets	The above articulates the generalized desirable conditions for the major roads within the future land use areas. Because each community is different, the standards will need to be refined as appropriate for each area. The other streets in these areas should aspire to a lesser degree of these same standards as appropriate for the functional classification of each roadway and the surrounding land area that it serves. For example, small residential streets located in these areas will have similar desired characteristics to the Medium Density Residential category.

NEIGHBORHOOD RESIDENTIAL

Pleasant Street in Ludlow (Photo by Tom Johnson) and lower Tyson Road in Felchville

Generalized Locations	Residential neighborhoods that immediately surround centers in Cavendish, Chester, Ludlow, Springfield, Weathersfield, and Windsor.
Applicable Roadways	Smaller residential streets (public or private); Functional Classifications are mostly Local
Traffic volume	- Mostly very low traffic volumes (AADTs below 500). - Truck volumes predominately limited to residential deliveries.
Desired Future Land Use Characteristics	- Medium density residential areas surrounding the larger traditional settlement areas. - Limited civic and small-scale commercial uses may be appropriate (primarily on busier Class 2 and 3 roads) as long as they are compatible with the area.
Desired Attributes for Small	- Quiet residential streets that allow access to properties by car, foot and bicycle. - Allows for easy walking access to school bus and/or public transportation services.
	- Sidewalks are often provided.

Residential Streets	- Pedestrians and bicycles share the roadway.
	- Narrow travel lanes to encourage slower driving and improve safety for pedestrians. - Low design speeds (20-25mph). - Interconnected street network, avoiding cul-de-sacs. - Buildings set close to the street with short driveways and small front yards. - Streetscape to include street trees and sidewalks to create a pleasant pedestrian environment. - New roads (public or private) to be built to adopted town road standards. - New developments to provide logical connections to the street and sidewalk networks.
Access Management	- Subject to local access permits or subdivision/zoning review. - Primary function of local residential street is for access to properties / many curb cuts.
Other Streets	The above articulates the generalized desirable conditions for small residential streets within this future land use area. Because each community is different, the standards will need to be refined as appropriate for each area. The other streets in these areas should aspire to a lesser or greater degree of these same standards as appropriate for the functional classification of each roadway and the surrounding land area that it serves. For example, busy Class 2 roadways will need to incorporate aspects of the Village Center primary road attributes.

RURAL COUNTRYSIDE

VT-131 and South Reading Road in Cavendish

Conservation, Working Lands, and Rural Residential Future Land Use Areas are combined here because the desired transportation characteristics are similar.

	Paved / Major Roads	**Unpaved / Minor Roads**
Generalized Locations	Rural countryside areas that surround the settlement areas. This is the majority of the Region where there is no discernible concentration of development. Land is in	

	Paved / Major Roads	**Unpaved / Minor Roads**
	large lots, conserved, actively worked for resource-dependent uses, or low-density residential use.	
Applicable Roadways	- State and Town Highways. - Functional classifications of Collector or Local.	- Mostly local unpaved roads (Class 3 town highways or private development roads). - Local or no functional classifications.
Traffic Volume	- Moderately high traffic volumes (AADTs above 3,000 on state highways) - High to moderate truck volumes.	- Very low traffic volumes (AADTs often below 500) - Low truck volumes.
Desired Future Land Use Characteristics	- Rural working landscape (i.e. farms, forestry, earth extraction), low- to very-low density residential uses, conserved or resource areas which should be protected. - Generally no governmental or institutional uses in these areas.	
Desired Attributes of Applicable Roadways	- Maintain rural, scenic two-lane roads. Generally modestly widened shoulders can accommodate bicyclists and more occasional pedestrian activity.	
	- Capable of supporting higher traffic volumes/facilitating mobility. - Minimize impacts on natural resources. - Accommodate working landscape activities.	- Minimize impacts on natural resources. - Accommodate working landscape activities.
	- Variable design speeds (40-50 mph). - Widened shoulders for cyclists. - Maintain rural character. - Avoid steep new roads and driveways over 12% average grade. - Avoid long new roads or driveways.	- Moderate design speeds (35mph / unposted speed limit). - Minimum width for safety and to allow two cars to pass at low speeds. - Avoid long, dead-end roads that serve only a few houses. - Maintain rural character. - Shared roadway for motor vehicles, horses, bicyclists and pedestrians. - New roads (public or private) to be built to adopted town road standards. - Avoid steep new roads and driveways over 12% average grade. - Avoid long new roads or driveways.
Access Management	- Access Category 3 & 4 along state highways; local roads subject to town access permits. - Curb cuts minimized to prioritize mobility along the state highways.	- Subject to town access permits. - Subject to A-76 & B-71 Standards. - Curb cuts are appropriate to provide safe access to adjacent properties.
Other Streets	The above articulates the generalized desirable conditions for certain roads within this future land use area. Because each community is different, the standards will need to be refined as appropriate for each area.	

RESORT AND RECREATION AREAS

East Lake Road and the Okemo Mountain Ski Trails in Ludlow

Generalized Locations	Okemo Mountain Resort in Ludlow, the former Ascutney Mountain Resort in Brownsville and the Lakes Region in Ludlow. Resorts are an important economic sector
Applicable Roadways	- VT Routes 44, 100 and 103 - Class 2 or 3 municipal highways - Private roads
Traffic volume	- Variable traffic volumes. - Seasonal peak traffic during winter ski season, fall foliage or summer lake season.
Desired Future Land Use Characteristics	- Second homes/condominiums - Outdoor recreation facilities and ski resorts with related recreation-related commercial uses.
Desired Attributes of Transportation Facilities	- Roadways to be shared by automobiles, public transit services, pedestrians and bicyclists. - Wayfinding for visitors is an important consideration. - Sidewalks may be warranted within the resort base lodge areas and connecting to resort residential facilities. - Provide pedestrian, bicyclist, or transit connections to nearby Town and Regional or Village Center areas if feasible.
	- Capable of supporting seasonally high traffic volumes - Mitigation for traffic congestion on affected state highway corridors as warranted. Ski Corridor Management Plan applies to Okemo and Killington ski areas. - Support public transit services and non-motorized travel. - Take reasonable efforts to minimize water quality threats from roads
	- Mostly lower design speeds (20-30mph). - New roads (public or private) to be built to adopted town road standards. - Avoid steep new roads and driveways over 12% average grade. - Avoid long new roads or driveways.
Access Management	- Mostly subject to municipal access permits or subdivision review. - Curb cuts are generally suitable for low volume, low speed local roads.

	- Subject to B-71 Standards.

INDUSTRIAL SITES

Generalized Locations	Dean Industrial Park in Ludlow, North Springfield Industrial Park, Artisan's Park and other industrial sites shown on the Future Land Use Map
Roadways	- Mostly paved local roads (Class 2 or 3) with access off state highways. - Variety of functional classifications.
Traffic volume	- Moderate traffic volumes. - High volume of trucks.
Desired Future Land Use Characteristics	- Locations where larger scale or higher impact industrial and related commercial uses are encouraged to provide local jobs and increase the tax base. - Generally served by municipal water and sewer.
Desired Attributes of Transportation Facilities	- Providing adequate access for cars and trucks is the primary consideration. - Provide adequate wayfinding information for freight, deliveries and visitors. - Improve access for public transportation services.
Access Management	- Mostly subject to local access permits. - Subject to A-76 and B-71 Standards. - Intersections and curb cuts to accommodate large trucks.
Special Considerations	- Minimize negative impacts on adjacent non-industrial land uses. - Integrated roadway networks, signage and wayfinding.
Desired Road Characteristics	- Take advantage of rail freight, where available. Growth is encouraged but providing adequate access for cars and trucks between sites and the major transportation network is a primary concern. Take steps to minimize impacts or provide alternative access where primary access passes through residential areas.

INTERCHANGE

Generalized Locations	- I-91 Exit 7 in Springfield, I-91 Exit 8 in Weathersfield
Roadways	- State highways and other roads in close proximity to interstate highway interchanges.
Traffic volume	- Moderate to high traffic volumes (AADTs of approximately 5,000 to 10,000)
Desired Future Land Use Characteristics	- Attractive gateways to the region and host community - Provide necessary travelers services and wayfinding information - Avoid auto-oriented sprawl
Desired Attributes of Transportation Facilities	- Minimize congestion and avoiding unsafe traffic conditions - Providing adequate access for cars and trucks is the primary consideration. - If cyclists and pedestrians are present, provide for safe travel through protected and/or buffered sidewalks and paths.

Access Management	- Intersections and curb cuts to accommodate large trucks. - Subject to A-76 & B-71 Standards. - Minimize conflicts with relatively high speed and volume traffic through use of shared accesses to minimize curb cuts. - Maximize mobility, avoid strip commercial development patterns
Special Considerations	- Businesses and services in interchange areas should serve travelers without competing with those located within town, regional, and village centers.
Desired Road Characteristics	- Capable of supporting moderate to high traffic volumes. - Moderate to high design speeds (35mph - 50 mph). - Create attractive gateways to the region.

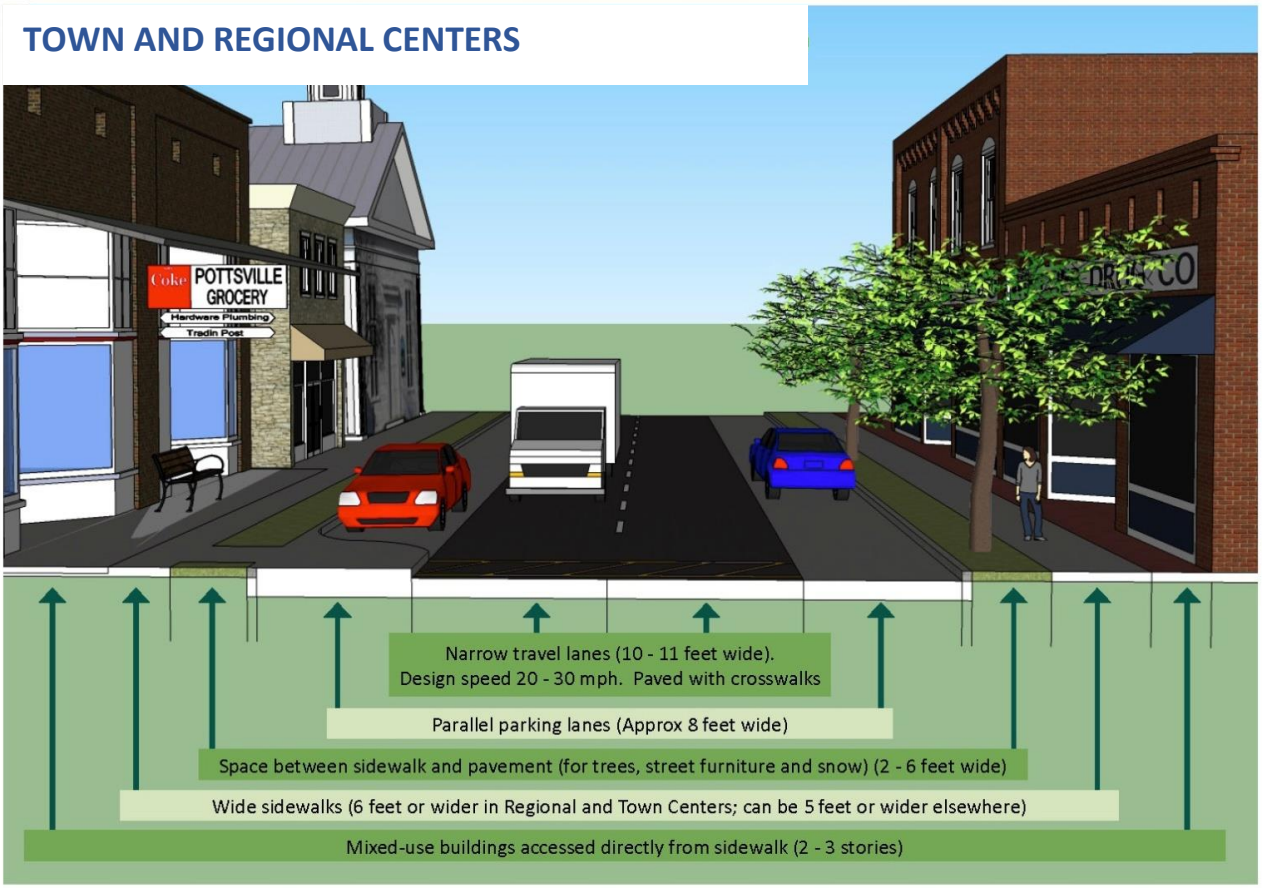
COMMERCIAL NODES AND CORRIDORS

Generalized Locations	- Locations outside of traditional centers that have been developed for commercial and light industrial uses, primarily since the 1960s.
Roadways	- State highways and occasionally Class 2 town highways
Traffic volume	- Moderate to high traffic volumes (AADTs of approximately 2,500 - 10,000)
Desired Future Land Use Characteristics	- Gateways into commercial centers - Serve important economic function distinguished from, and complimentary to, the function of the commercial centers - Redevelopment and infill of previously developed sites is preferred over further greenfield development.
Desired Attributes of Transportation Facilities	- Multi-modal facilities that support and encourage all forms of transportation including bicyclists, pedestrians, transit riders, and drivers. - Encourage transformation of these areas from single-use, car-dominated development into attractive, mixed-use, pedestrian-friendly development.
Access Management	- Subject to A-76 & B-71 Standards. - Coordinated accesses, shared parking and/or frontage roads must be considered.
Special Considerations	- Mitigate or avoid issues associated with sprawl – such as poor access management, excessive signage, lot frontages dominated by pavement, lack of sidewalks, and low-quality, generic, single-purpose buildings – through appropriate site planning and design.
Desired Road Characteristics	- Multi-functional streetscapes that accommodate all modes safely with wide sidewalks, bicycle lanes, bus stops. - Create attractive gateways to the region's traditional centers

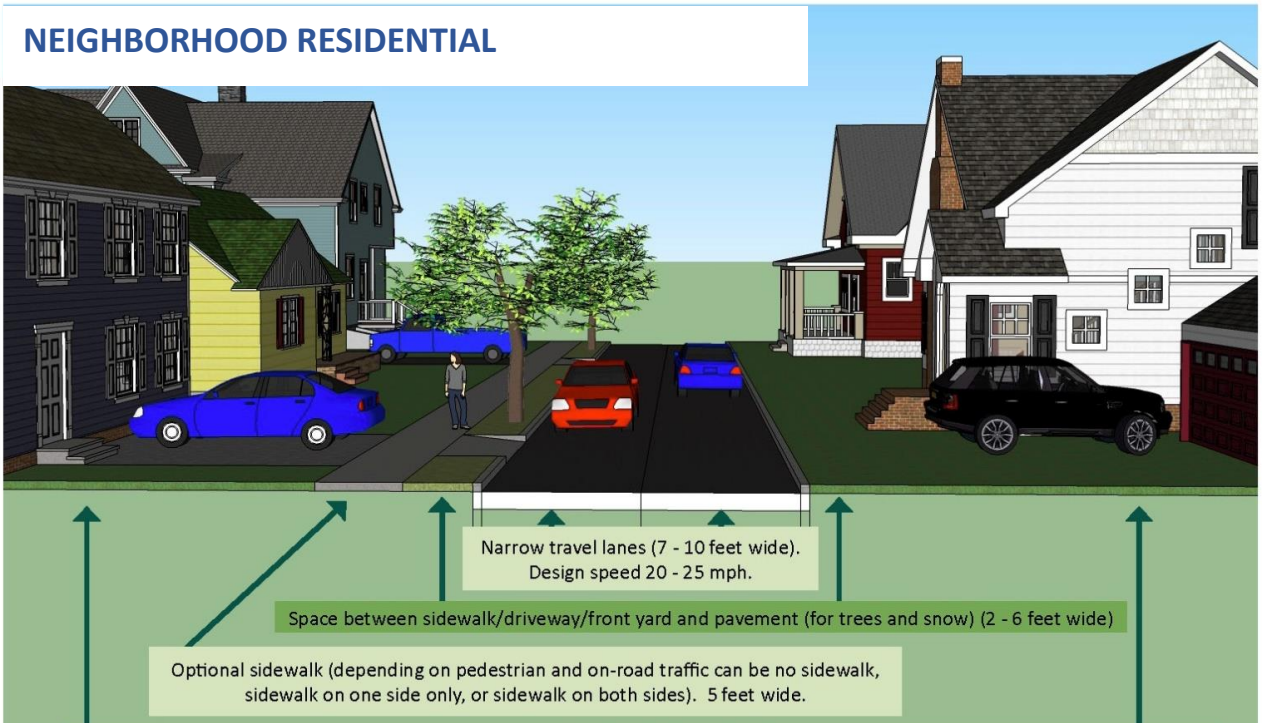
ROAD CROSS SECTIONS

The following cross sections are provided only to illustrate the concepts described in this section. Application of these concepts will differ based on the unique conditions for each road and location, and the functional purpose of the roadway.

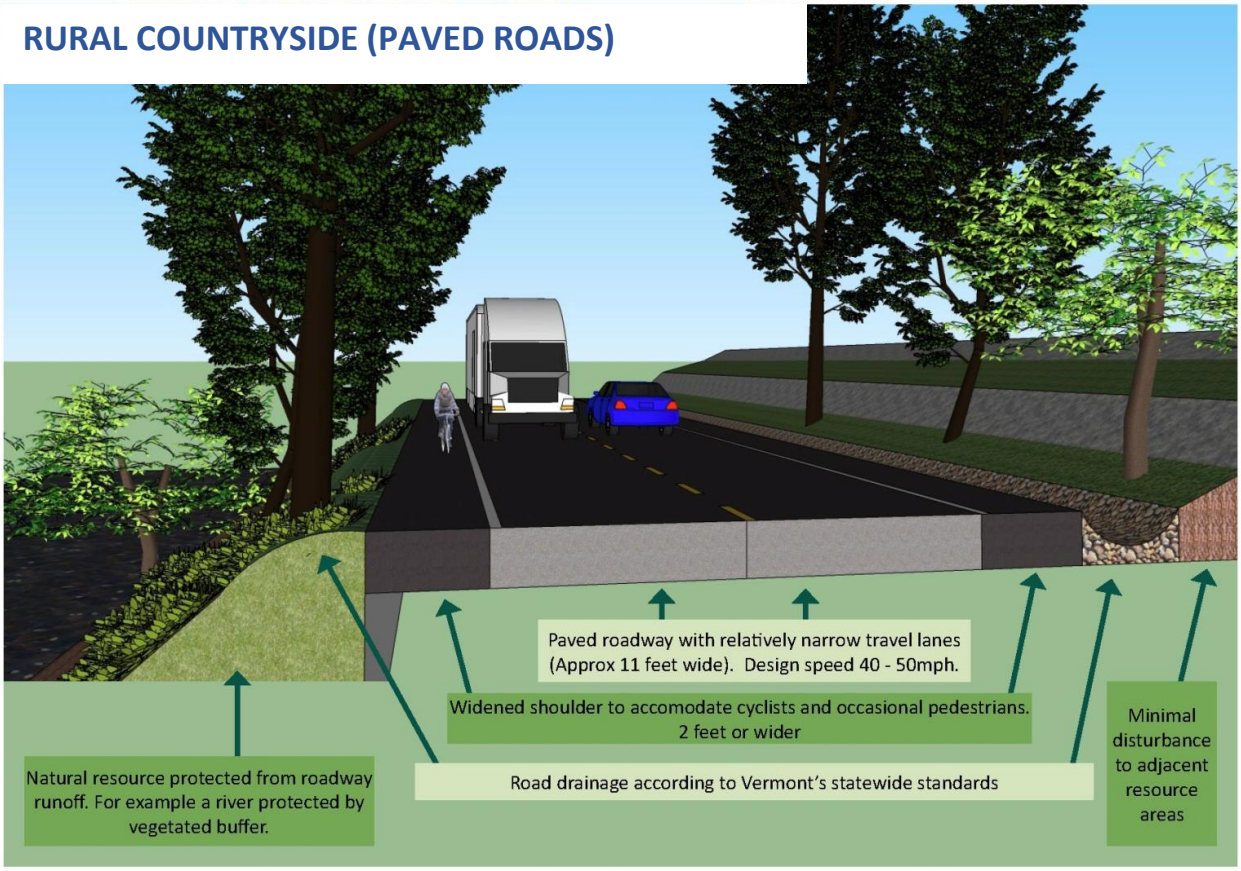
TOWN AND REGIONAL CENTERS



NEIGHBORHOOD RESIDENTIAL



RURAL COUNTRYSIDE (PAVED ROADS)



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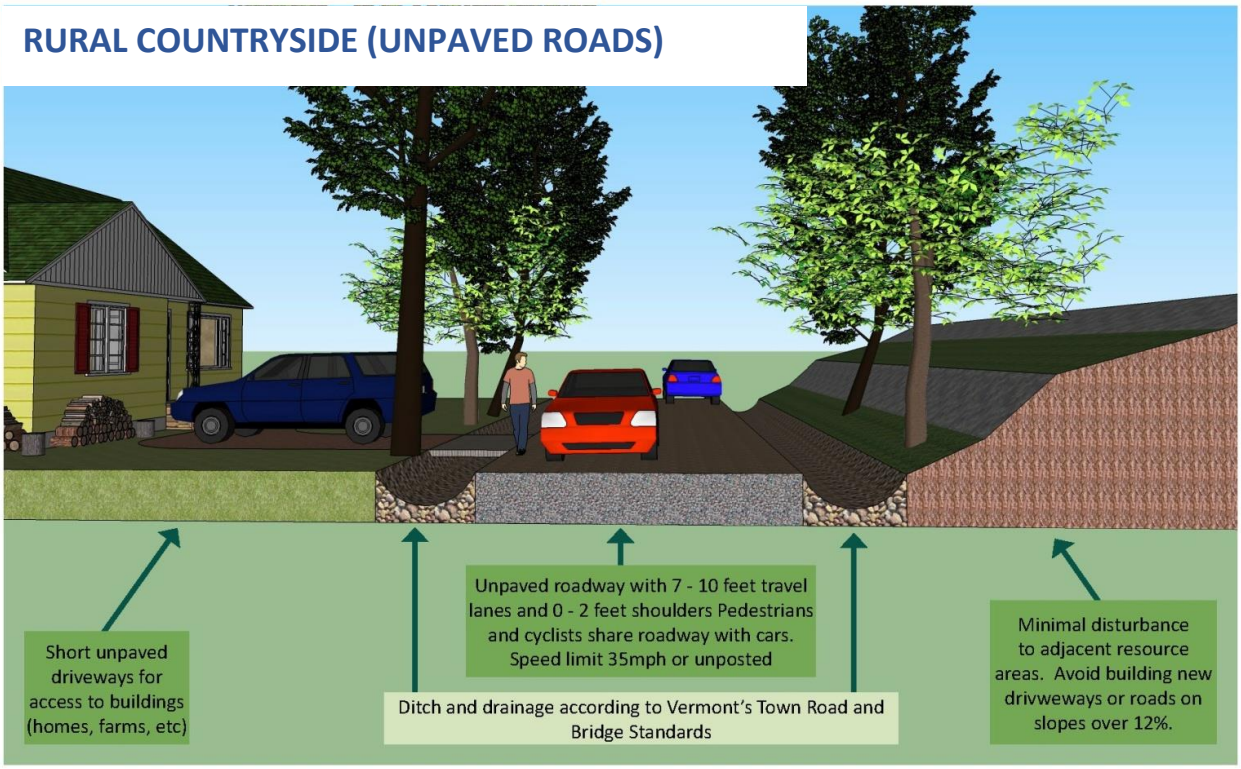
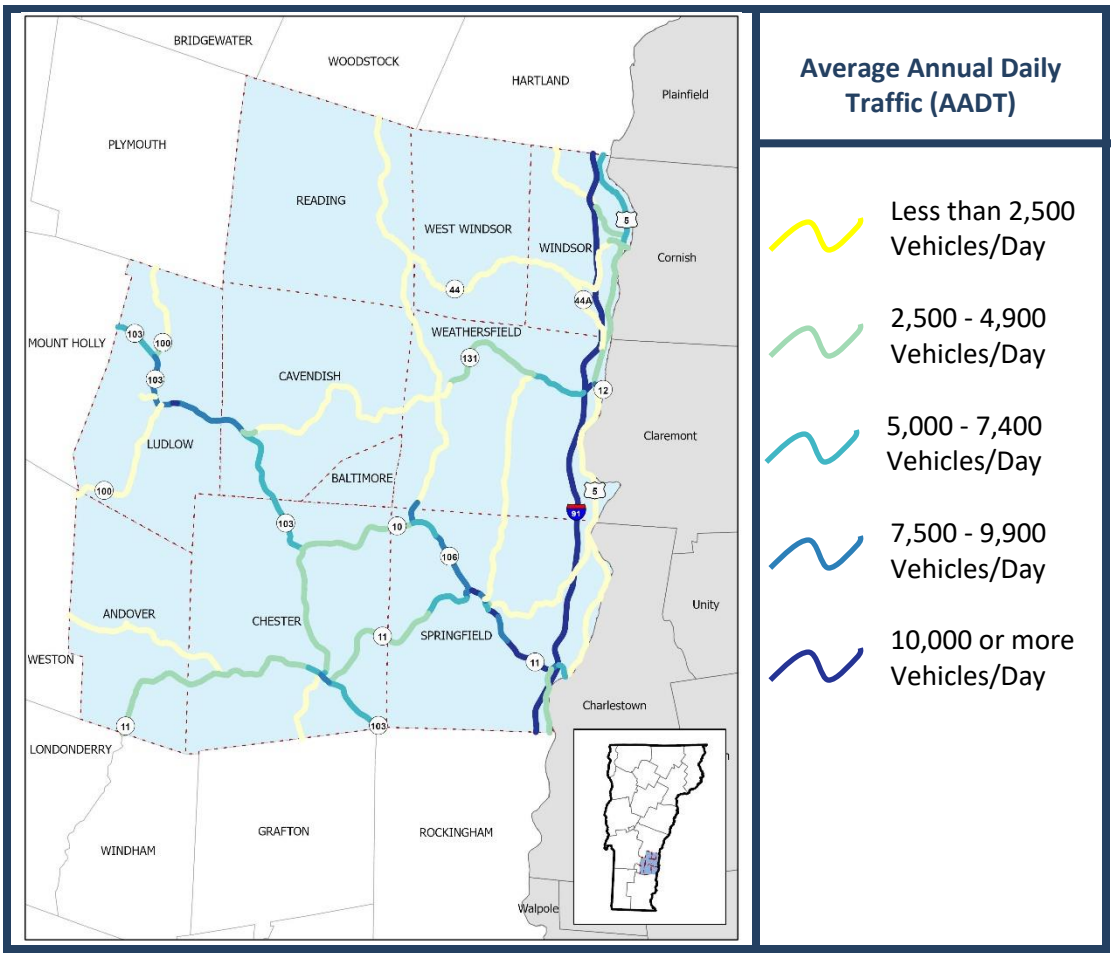


CH 3: TRANSPORTATION NETWORKS AND MODES

While the roadway system is the primary transportation infrastructure in the Region, other modes and networks are vitally important for the economy and for the mobility of residents and travelers. A primary goal of the RTP is to encourage a multimodal network that is consistent with the State Planning Goals in 24 V.S.A. §4302 and strives to meet the mobility needs of all residents and businesses.

3.1. Road Network

Roadways form the backbone of the Region's transportation system, carrying personal and commercial vehicles and many of the Region's bicyclists. There are approximately 825 public road miles in the region. The most heavily traveled portions of the road network are Interstate 91 and the State and Federal Highways (US 5, VT 10, VT 11, VT 44, VT 100, VT 103, VT 106, and VT 131).



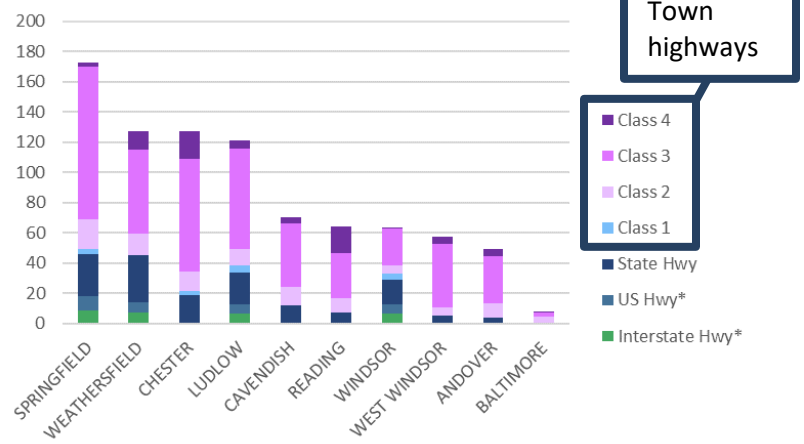
Road Network

Source:VTrans 2019

While Interstate 91, and the state and federal highways in the region are important travel corridors, the vast majority of roadway miles, approximately 77%, are local roads owned and maintained by the Region's towns.

VT Town Highway Classifications:[15]

Class 1: Form the extension of a state highway route and carry a State highway route number.
Class 2: Carry larger than normal amounts of traffic. and connect neighboring towns.
Class 3: All other town highways maintained for year-round use.
Class 4: All other town highways without regular maintenance except certain erosion controls.



While the Region's road network has not appreciably changed in the last decade, notable improvements have occurred in recent years:

- Since 2018, VTrans has repaved approximately 80 miles of roadway, including 20 miles of Interstate, and replaced/ significantly repaired multiple bridges in this Region.
- Town Road and Bridge Standards were updated in 2019 to better align them with the Municipal Roads General Permit (MRGP).

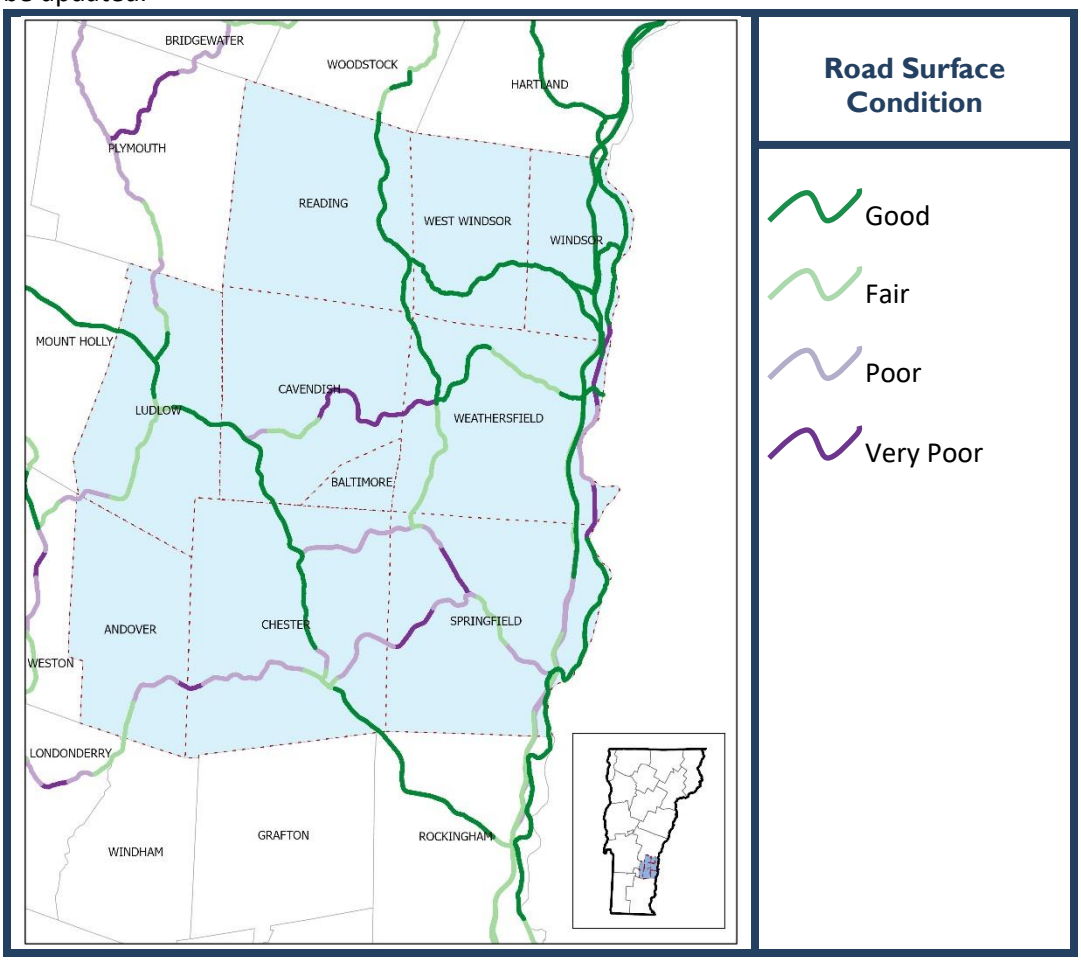
This Plan strives to implement "Complete Streets" principles, which involves consideration of accommodations for all users in the planning, design, construction and maintenance of all roadways. The principle underlying the Complete Streets concept is that streets should safely accommodate all transportation system users, regardless of age, ability, or what mode of transportation they prefer – walking, biking, driving, or use of transit. Making a street "complete" could involve a variety of activities, including widening shoulders in rural areas, installing/ maintaining sidewalks and crosswalks, creating multi-use paths and improving intersection geometry and facilities. In many cases, high construction and maintenance costs as well as site constraints prevent the inclusion of Complete Streets improvements in projects.

For a list of specific road network needs see Section 4.5.2 Outstanding Transportation Needs.

[15] 19 V.S.A. § 302

Road Network Conditions: The condition of the road network has wide ranging implications for all users. A well-maintained network provides a safer and more comfortable travel experience for motorists, pedestrians, bicyclists and others alike.

Road surface condition data is collected for Interstate 91 annually along with the entire National Highway System. In addition, Vermont state highway surface condition data is collected every other year and after every paving project. Of the approximately 450 miles of roadway surface analyzed in Windsor County, 59% was found to be in good or fair condition and the remaining 41% to be in poor or very poor condition. The routes in the worst condition within the Mount Ascutney Region, those with 50% or more mile-long segments scoring as poor or very poor include, VT 10, VT 11, and VT 100. Recently completed paving projects are not yet reflected on the pavement conditions map below because the data is yet to be updated.



Road Surface Condition *Source: VTrans 2021*

Multiple Users of the Roadway Network: The Region's roadway network is used by a variety of users, including trucks, passenger cars, public transit buses, bicyclists, pedestrians and other users. Making the roadway accessible and safe to all users is an important step to achieving equity in the transportation system. Those without access to a vehicle of their own still require access to employment, services, and other destinations and often the roadway network is the only means available to reach them. Travel lane and shoulder widths vary significantly across the Region as do traffic

speeds, traffic volumes and number of trucks, all of which greatly influence the safety of each road for all user groups.

Recreational and commuting bicyclists use local and state roads for travel, and the increasing availability and popularity of electric bicycles (ebikes) is likely to lead to higher numbers of bicyclists using the roadway network in the coming years.

3.2. Park and Ride Facilities

Park and ride facilities are an integral component of the transportation system in the Mount Ascutney Region as they support both ridesharing as an alternative to single-occupant vehicle travel and public transportation services by providing convenient park-and-ride options. The Commission periodically assesses existing and future park and ride facilities that serve the Region. There are currently two state park and ride lots within the Region, with a third nearby in Hartland, and two municipal lots in Ludlow and Weathersfield.

For a list of specific park and ride needs see Section 4.5.2 Outstanding Transportation Needs.

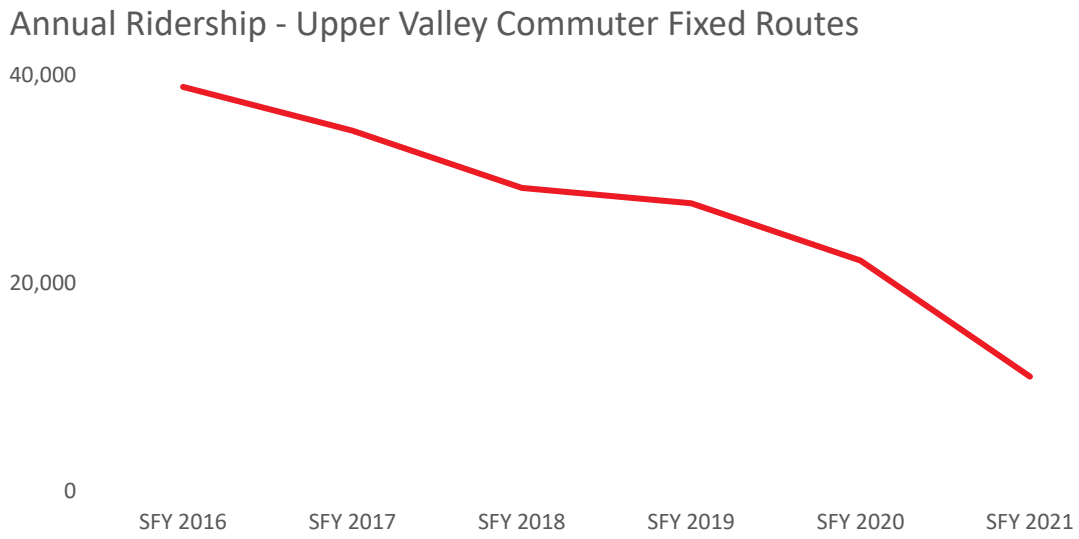
3.3. Public Transportation Network

As shown in the Regional Profile Chapter, the Region is expecting to have an increasing percentage of its population as "transit dependent" in the future – particularly as the percentage of the population over 65 increases. Given the rural character of the Region, it can be challenging to provide public transportation that will meet the needs of all transit dependent populations in a cost- and time-efficient manner. Traditional urban models of depending on fixed-route buses to meet needs do not work – thus the public transportation network includes a wider range of options in the Region.

MOOver bus

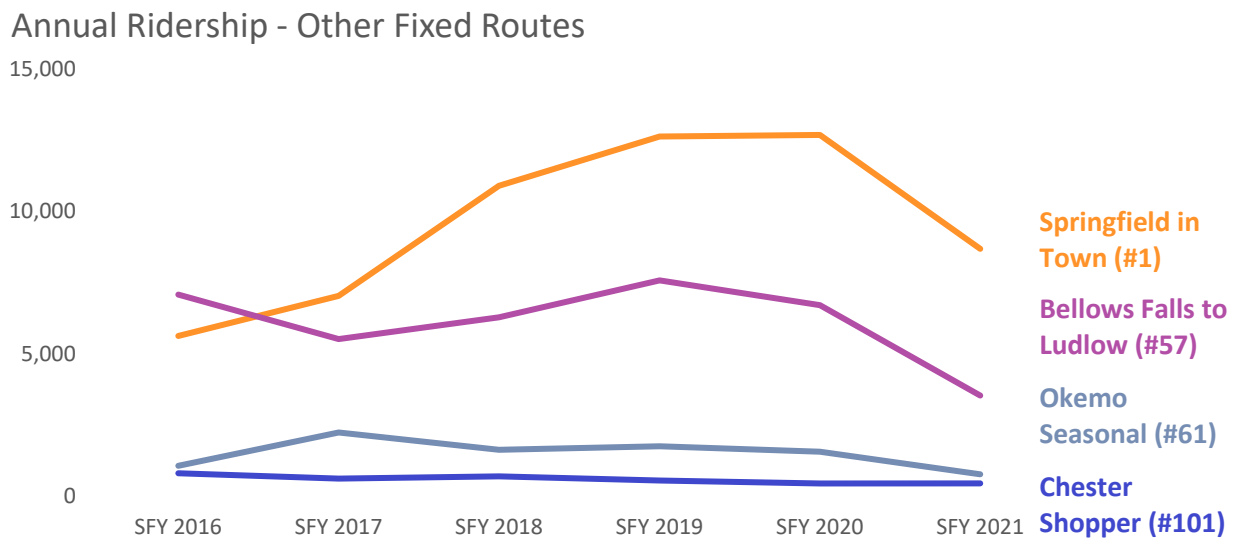
Southeast Vermont Transit (SEVT), known as the MOOver, is the designated transit provider within the Region and connecting it to the Upper Valley and destinations to the south and west. SEVT provides deviated fixed route, fixed-route commuter, elderly and persons with disabilities, ADA, and Medicaid services**.** On deviated fixed-routes, buses stop at particular locations at particular times, with an ability

to deviate from the fixed route by 1/4 mile if requested by a rider in advance. The three current commuter routes run from the I-91 park and ride lots at Exits 6, 7, 8 and 9 to the Upper Valley and its major employers. Ridership numbers from SEVT show that approximately 11,000 trips were made by public transit in from July 2020 thru June 2021 (see chart below).[16] Ridership across all forms of transit decreased in recent years as a result of the COVID-19 pandemic due to public health concerns and the temporary suspension of routes; closure of adult day centers, meal sites and other destinations; and suspension of some non-emergency medical procedures. So far, ridership is back up substantially on all routes in SFY22.



SEVT operates an in-town service in Springfield, and connecting service between Bellows Falls, Springfield and Ludlow year-round and between Bellows Falls, Springfield, Chester and Ludlow/Okemo in the winter months. Realtime bus tracking and text message notification is available for these routes through the Transit smartphone app.

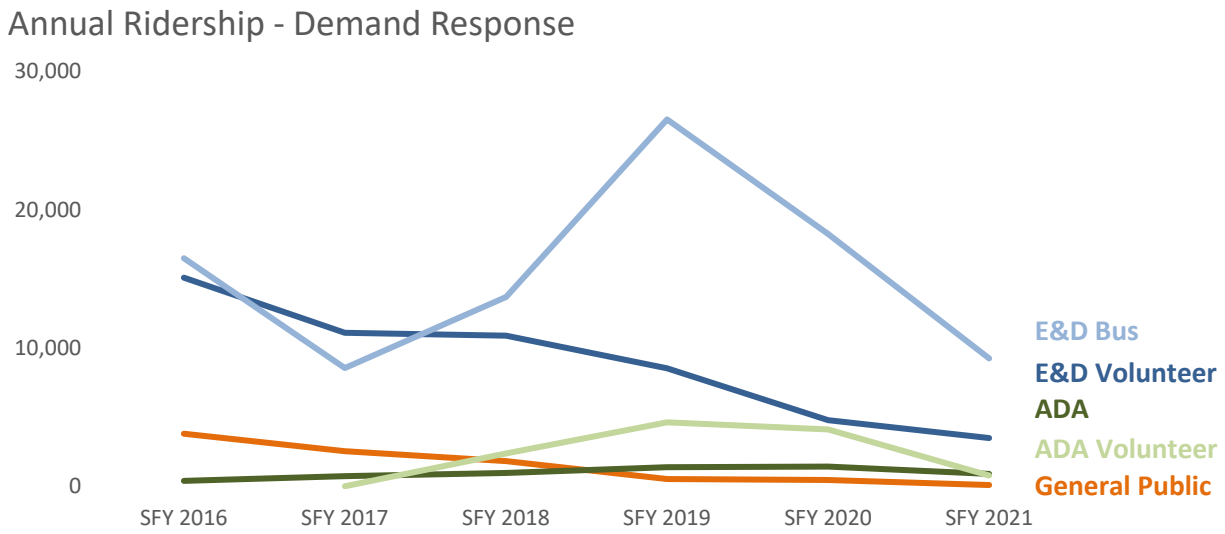
[16] All ridership data provided by SEVT.



In addition to SEVT's service, Marble Valley Transit meets the SEVT bus in Ludlow to provide a connection to Rutland. Okemo Mountain Resort operates four shuttle routes within the resort area and between the resort, Ludlow, and Proctorsville Villages during the winter season. Ludlow Municipal Transit operated within Ludlow until the closure of the High School in 2020. A feasibility study was recently completed in Ludlow. It recommends a supplemental transit service in the form of an after-hours shuttle that would operate during Friday and Saturday nights and holidays during the ski season. which .

A statewide microtransit feasibility study was also recently completed that evaluates potential microtransit service in the Brattleboro, Springfield, and Windsor areas among others. A pilot service in Windsor is expected to begin in early 2023 . An ongoing microtransit pilot in Montpelier has met with some success. Microtransit in yet more rural areas is a potentially promising model to deliver transit services in less densely populated areas but is largely untested. Upcoming pilots in more rural locations such as Windsor will help to determine the viability of microtransit there.

SEVT also provides demand response service for Medicaid clients and elders and persons with disabilities for the Region. These services transport people from their homes to medical appointments and are provided by a combination of SEVT buses, volunteer drivers (who use their own cars and are reimbursed for mileage only), and local taxi/ ambulance services. SEVT began providing Medicaid transportation again in March 2021 after a two-year hiatus during which other transit providers provided the service within the Region. The Elders and Persons with Disabilities (E&D) program also provides transportation to Adult Day centers, congregate meal sites, group shopping trips and personal care trips. The E&D Program is managed by a committee made up of SEVT, the RPCs, Adult Day Centers, Senior Solutions, the Bellows Falls Senior Center and other service providers.



Several community groups such as Volunteers in Action (Windsor) also help fill in gaps in the transportation network. Volunteers in Action in Windsor, for example, helps people get from their homes, offers prescription pick-ups and deliveries, and rides to meet other daily needs, including rides to non-urgent medical appointments. SEVT has compiled a list of transportation options in Southern Windsor and Windham Counties on the MOOver website[17].

The Mount Ascutney Region is currently not served directly by intercity bus service, although it is close to the hubs of White River Junction and Bellows Falls (for Greyhound) and Lebanon, NH (for Dartmouth Coach).

Carpools, vanpools and ridesharing are other options available for those wishing to minimize the number of trips or miles they travel alone in their vehicle. Car and vanpools can also provide reliable transportation to and from work for those without regular access to a personal vehicle. These arrangements can be set up informally amongst personal networks or through Go Vermont and can be coordinated with employers [18].

The Region currently has very limited service from taxi **providers or ride hailing services** to fill any additional gaps in transportation options. Therefore, any loss of taxi service in the Region has a profound impact on the ability of those without regular access to a vehicle to meet their transportation needs. This was demonstrated in 2022 when Springfield's only taxi service shut down, leaving many individuals and service providers scrambling to find transportation to medical appointments, grocery stores, and other vital destinations. The Region also does not have any rental car services. The closest are located in Claremont, NH, White River Junction, VT and Lebanon, NH.

[17] https://www.moover.com/wp-content/uploads/2021/04/Ride-Guide.pdf
[18] Go Vermont (www.connectingcommuters.org/)

The annual Vermont commuter challenge called **Way To Go** – is an effort by Go Vermont to improve awareness of travel options in the Region that do not involve riding alone in a car.[19]

Since 2012 the two hospitals within the Region – Mount Ascutney and Springfield – have been actively trying to improve access to transportation. There are a variety of ways in which they have pursued this goal, including:

- seeking grants to fill funding gaps and service gaps
- completing surveys to identify gaps in needs and knowledge of local services
- educating local medical and social service providers about what services are available and how to be more transit-friendly (eg appointment times)
- designing signage, posters and leaflets to educate the public on available transportation options
- Providing transportation services such as the Rides to Wellness pilot project and Volunteers in Action at Mount Ascutney

Public Transportation Needs

1. Continue to monitor rising public transportation needs and carry out studies to assess needs for new, expanded, reduced or modified services and schedules regularly. Consider mobility solutions beyond traditional fixed routes to include microtransit, automated vehicles, and other transit innovations.

2. Support adequate bus circulation in all facilities designed to accommodate public transit, including Park and Ride lots

3. Continue to support provision and improvement of demand-response services for elders and persons with disabilities.

4. Where possible, to reduce the need for demand-response services, encourage the coordination of existing fixed-route and deviated fixed route public transportation schedules with medical and non-medical service providers, to reduce the need for more expensive demand-response services.

5. Consider public transportation as an option to mitigate traffic impacts in major development proposals.

6. Improve public awareness of public transportation options within the Region through informational and outreach efforts. These might include accessible informational signage and service maps, webpages, and mobile applications.

7. Develop a plan for public transportation services within the Region which includes references to private transportation services that fill in gaps in transportation needs. Keep the A to B Mobility Study updated as an initial step.

8. Continue to assist Southeast Vermont Transit to evaluate existing routes and make improvements where needed. The Current Route Evaluation and Planning Project (2016) is a recent example.

[19] https://www.waytogovt.org/

9. Support the efforts of the Springfield Area Working Communities Challenge (WCC) to meet the transportation needs of the Region's employers and workforce.

10. Support the adoption of electric transit vehicles to provide public transportation where feasible.

3.2. Bicycling and the Bicycle Network

Toonerville Trail in Springfield

Bicycling is primarily a recreational activity in the Mount Ascutney Region, although according to the 2020 ACS some commuters in Springfield and Cavendish use bicycling as their primary mode of travel to and from work. Recreational cycling is an important economic driver in the region. Several major regional bicycling events take advantage of the roads and trails on and around Mount Ascutney.
The area around Okemo, including Vermont Routes 131, 103, and 100 are popular for bicycle tours and are an important draw for visitors to the area outside of the ski season. The Region's many gravel roads too are a draw for recreational bicyclists and pedestrians with their scenic views and relatively low vehicle speeds. In 2019, the Mount Ascutney Regional Commission developed a bicycle route guide[20] to encourage residents and visitors to explore the region by bicycle. The guide provides both maps and narrative descriptions of 19 cycling routes along gravel and paved roads.

For the most part, bicyclists share the road with motorized vehicles due to the lack of dedicated bicycle infrastructure. In some cases, there are wider shoulders which enable a safer ride as discussed in more detail in the *2020 Active Transportation Plan*. VTrans continues to make an effort to widen shoulders along priority bicycle routes as identified in the State's 2021 *Bicycle and Pedestrian Strategic Plan*; however, 5-8 foot wide shoulders are expensive and not feasible in many locations due to site constraints such as steep banks, drainage, and adjacent waterbodies. Where widened shoulders already exist, are feasible to construct, or vehicle travel lanes may be safely narrowed, however, consideration should be given to relatively low-cost solutions such as the establishment of marked cycle tracks separated from the travel lane by temporary bollards or other barriers. Buffered or protected cycle tracks offer some modest separation from traffic and are therefore more attractive to less experienced or confident cyclists.

[20] The guide is made available through the dedicated website: https://ridewindsorcountyvt.weebly.com/

Multi-use paths or other off-road bicycling facilities are generally the most desirable form of bicycle and pedestrian infrastructure to support tourism and for less experienced bicyclists and children but are expensive to construct and maintain. There are only two multi-use paths in the region – the Toonerville Trail in Springfield and a very short path connecting the Fairgrounds in Windsor to a residential side street. Efforts are underway to extend the Toonerville trail and construction on a segment connecting to the Edgar May Recreation Center should begin soon. Planning efforts have evaluated additional multi-use paths in Ludlow and North Springfield but high projected costs have largely stalled efforts to move forward to design and construction. There is currently only one designated on-road bicycle lane in the region connecting the Toonerville Trail to downtown Springfield and the Shopping Center. Additional bike lanes and bike parking facilities should be considered within regional and village centers to facilitate bicycling in these areas where trip generators and destinations are in close proximity.

Providing a double-track, mountain bike-type path between destinations is lower in cost to build and may be suitable to encourage transportation in some locations.

Bicycle Needs

1. Support state and local efforts to harmonize bicycle and pedestrian infrastructure projects with other transportation projects such as roadway, bridge, and paving projects.
2. Encourage the addition of dedicated bicycle facilities, such as cycle tracks, to roadways on priority state, regional, and local bike routes particularly where off road facilities are not feasible.
3. Assist towns to apply for and manage state and federal funding to plan and build bicycle facilities.
4. Promote the safe use of bicycles, including ebikes, as an alternative to single occupancy vehicles.
5. Implement the *2020 Active Transportation Plan.*

3.3. Pedestrians and the Pedestrian Network

Walking is popular in the Region's village centers and downtowns, particularly where sidewalks are provided. According to the 2016-2020 ACS, 4% of the region's workers commute to work by walking. The only towns without any pedestrian commuters are also those with no downtowns or village centers, Andover and Baltimore. Since 2007, MARC has been conducting annual bicyclist and pedestrian counts on Ludlow, Springfield and Windsor Main Streets, and on Springfield's Toonerville Trail. The counts show a steady usage of pedestrian facilities (sidewalks and multi-use paths) in most seasons. Summer counts on Ludlow Main Street average around 300-500 trips per day. Toonerville Trail usually sees between 100 and 160 trips per day.

Sidewalks and pedestrian paths are expensive to construct and maintain but greatly enhance pedestrian comfort and safety. Sidewalk extensions should therefore be constructed largely to connect destinations such as schools, downtowns, and neighborhoods and to complete logical pedestrian routes. Sidewalks provide the greatest benefit when built and maintained to Americans with Disabilities Act (ADA) standards and combined with streetscape and traffic calming enhancements such as vegetated buffers, curb extensions, and pedestrian refuge islands. Street trees, lighting, benches, frontage zones

(e.g. sidewalk cafés or sandwich board signs), and other amenities further enhance the network for walking as well as providing important place-making and economic development functions.

The table below and the Bicycling and Pedestrian Network Map summarizes existing off-road bicycle and pedestrian facilities in the region. Widened shoulders are not listed.

Town	Location	Facility Type	Approx. Mileage	% Network Rated as Poor	Recent Study or Inventory
Springfield	Downtown and some residential areas	Sidewalk	20 miles	23%	Sidewalk Inventory 2013
Springfield	North Springfield	Sidewalk	2 miles	13%	Sidewalk Inventory 2013
Springfield	Toonerville Trail	Multi-Use Path	3 miles		
Windsor	Downtown and some residential areas	Sidewalk	6.6 miles	3%	Sidewalk Inventory 2021
Windsor	Fairgrounds to Fairview/Enright Ave	Bike Path	Less than 0.1 miles		
Ludlow	Village and some residential areas	Sidewalk	4.5 miles	3%	Sidewalk Inventory 2021
West Windsor	Brownsville village	Sidewalk	0.5 miles	0%	Sidewalk Inventory 2013
Chester	Chester and Chester Depot	Sidewalk	3.5 miles	9%	Sidewalk Inventory 2021
Cavendish	Proctorsville village	Sidewalk	0.6 miles		Sidewalk Inventory 2011
Cavendish	Cavendish village	Sidewalk	1.6 miles		Sidewalk Inventory 2011

Pedestrian Needs

1. Develop municipal ADA transition plans to evaluate public sidewalks and other facilities and to ultimately implement current Americans with Disabilities Act of 1990 (ADA) Accessibility Guidelines.
2. Expand road shoulders for pedestrians in smaller village centers or higher pedestrian usage areas where sidewalks are not feasible.
3. Enhance sidewalks and crosswalks to better promote pedestrian safety and comfort and support state planning goals, including Complete Streets.
4. Make logical sidewalk and multi-use path network expansions to make connections between destinations.

3.4. Rail Network

Rail in Windsor.

Rail service, as discussed in this section, is comprised of both passenger rail and freight services. Each is respectively discussed below. Without freight rail service there would be no passenger rail service – the tracks are maintained by the freight rail services, which in turn host the passenger rail services in Vermont.

Vermont's rail network is highly dependent on the Interconnecting rail networks of its surrounding states and provinces as freight and passengers often cross state and national borders. Rail projects and schedules have to be carefully coordinated with stakeholders across the Northeast.

Passenger Rail: The Mount Ascutney Region is currently served by two passenger rail services: Amtrak's "Vermonter and the Green Mountain Railroad's "Green Mountain Flyer".

Amtrak passenger service currently passes through the Region twice daily along the New England Central Railroad (NECR) tracks. The "Vermonter," with service between St. Albans, VT and Washington D.C., currently stops in Windsor, as well as in nearby White River Junction, Bellows Falls, and Claremont, NH (see Regional Transportation System Map). This daytime service, which replaced the Montrealer in 1995, is popular with business travelers, college students, and tourists. Given the single round trip schedule, the train is not particularly conducive to commuting. The track has had significant upgrades in recent years which have improved travel speeds between New York City and the Region. Efforts are currently underway to restore Vermonter service to Montreal. The State of Vermont currently subsidizes the Vermonter to maintain services in this portion of the State.

Rail users can access the region from the Windsor-Mount Ascutney Rail Station and the nearby stations in Claremont, White River Junction, and Bellows Falls. Amtrak recently completed ADA and other improvements to the platform at the Windsor station, but additional needs remain including a passenger shelter, informational and wayfinding signage, and EV charging. In 2019 there were around 1,198 boardings and alightings from the station. Low and Medium Growth ridership projections

formulated as part of the 2021 State Rail Plan predict that ridership at the Windsor station will remain near 2019 levels through 2040.[21]

All Amtrak service in Vermont was suspended on March 26, 2020 due to the COVID-19 pandemic. Service resumed on July 19, 2021, and returning ridership to 2019 levels will be an immediate priority.

The Green Mountain Railroad provides tourist-oriented passenger services on the "Green Mountain Flyer" leaving from Chester, VT to Bellows Falls and Rutland. These special scenic excursion services are available from early summer through the fall. The Green Mountain Railroad also suspended 2020 service due to the COVID-19 pandemic.

The Green Mountain Railroad hopes to relocate the Ludlow station to a more accessible location and resume service to Ludlow. The station relocation is part of the larger Ludlow Transportation HUB project that envisions a multi-modal transportation facility to accommodate buses, electric vehicle charging, and other mobility and tourist services.

The draft Chester Village Center Master Plan recommends expanding the use of the historic station to provide more visitor services such as a museum, visitor Information, and public restrooms. The area around the Depot also presents challenges, particularly to pedestrians, due to intersection and roadway geometry. Improvements are needed to the Depot and surrounding area to accommodate all users of the transportation network and provide a more welcoming northern entrance to the Village Center.

Freight Rail: Freight rail is an important mode for shipping commodities and can offer greater economies of scale than trucking for certain commodities. In 2018, rail carried 6.9 million tons of freight or 15% of the total carried to, from, within, or through Vermont. Freight carriers are trying to diversify from their traditional dependence in Vermont on lumber, with top commodities today including petroleum and coal products, nonmetallic minerals, and food products .[22] There is opportunity to expand the use of rail for such freight that is not time-sensitive for delivery (ie not "Just-In-Time" delivery that is used for things like food and stocking most retail stores) - such as Liquefied Petroleum Gas (LPG), sand, gravel, talc, limestone slurry, livestock feed, and logs and lumber. Rail has the advantage over other modes with heavy shipments – with weight limits of up to 286,000 pounds far above the limit of 99,000 on most interstate highways.

The Mount Ascutney Region is served by two railroads – New England Central Railroad (NECR) and Green Mountain Railroad (GMR). The Green Mountain Railroad (GMR) became affiliated with the Vermont Rail System in 1997 and provides freight service through a lease agreement with the State of Vermont. Its service area lies between North Clarendon, VT and Cold River, NH with stops in Chester and Ludlow. The Green Mountain Railroad links with the New England Central Railroad in Bellows Falls and VT Railway in Rutland. The New England Central Railroad (NECR) is a higher speed line than the GMR, and provides access north towards White River Junction VT, south towards Springfield MA, and beyond. Recent improvements to the clearance of the Bellows Falls tunnel increased the freight capacity of both the NECR and GMR lines. Vermont Railway was recently granted NECR trackage rights from Bellows

[21] VT Rail Plan Tech Memo #4: Passenger Rail Ridership Forecast
[22] VT State Rail Plan, 2021.

Falls to White River Junction, which should make a big difference in the timing of freight movements to and from the region.

Freight rail service is available in Windsor's downtown industrial area and is a preferred alternative to local industrial trucking activity in the downtown. Chester Depot is an existing transfer point on the GMR. Increased use of the GMR and the NECR tracks for both freight and passenger service has the potential to alleviate some of the traffic, truck and safety issues on US Route 5 and VT Route 103.

Rail Needs

The following are potential needs and upcoming projects concerning the rail network:

1. Support the location of businesses that could use freight rail transportation near existing rail lines and transfer points where possible.

2. Preserve existing freight rail accesses and promote the economic development potential of parcels with existing access. Ensure zoning continues to allow for uses that would benefit from freight rail access where it currently exists.

3. Support improvements to the tracks and service to allow for higher speeds (eg Knowledge Corridor[23] and New England Intercity Rail Initiative[24]).

4. Coordinate with local and state entities to promote the benefits of Amtrak and dedicated tourist passenger rail service with the goal of rebuilding and increasing ridership beyond pre-pandemic levels.

5. Support efforts to continue to improve the Windsor Amtrak platform including the addition of a passenger shelter, informational and wayfinding signage, EV charging, intermodal connections, and other amenities.

6. Implement the recommendations of the Chester Village Center Master Plan to expand the services available at the Chester Depot and improve the bicycle and pedestrian experience In and around the Depot.

3.5. Air Network

[25] VASP Draft 020421, 3-47
[25] VASP Draft 020421, 3-47

The Region is currently served by numerous commercial and general aviation airports. Air service is important for business and personal travel as well as for emergency responders, medical services and air cargo. All but one airport is located outside of this Region, making easy access to the larger commercial airports an important consideration of this Plan. Maximizing the use of the Hartness State Airport is a primary objective for this Region.

Commercial Flights are available at large airports including Manchester-Boston Regional (NH), Bradley International (CT), Boston Logan International (MA), and Burlington International (VT). These airports provide service for domestic and international flights. In addition, Lebanon Municipal Airport and Rutland-Southern Vermont Regional Airport provide limited commuter service within New England and the Northeast, as well as general aviation.

Hartness State Airport: Hartness State Airport is located in Springfield and Weathersfield and provides general aviation for the Region and beyond. It is owned by the State of Vermont. It has two runways, one of which is the second longest in the State (5,501ft), after Burlington. Hartness is the oldest airport in Vermont. In 1927, Charles Lindbergh landed at the airport and visited Governor James Hartness, for whom the airport was named. VTrans contracts out fixed-base operator services for this airport, including aircraft maintenance, storage, fuel, charters, and flight instruction. In addition to providing flying lessons, Hartness is also a center for glider activity. 19 fixed wing, single engine aircraft and 8 other (gliders, ultralight or experimental) aircraft were based at Hartness in 2017.[25]

In addition to providing general aviation services, Hartness State Airport also serves important functions for hospitals, National Guard and Civil Air Patrol (CAP) operations. It is also important for economic development. VTrans' *Aviation Program-Wide Business Plan*[26] estimates the total economic impact of the Hartness State Airport was over $1.8 million in 2010. Hartness Airport is in close proximity to ski areas, golf courses and many other tourist destinations and/or special resources. Hartness State Airport is underutilized, but the State of Vermont has several plans to improve utilization of Hartness alongside other Vermont airports.

Airport Permitting: All airports are important to maintain since building new air facilities is difficult and expensive. Airport related projects are subject to a variety of permits and approvals. Recent hangar expansion projects at Hartness Airport are subject to Act 250 permits. The Town of Springfield adopted an airport overlay district in their zoning bylaws in order to protect encroachments into the flight path of the airport. New landing strips and helicopter pads are subject to approval from the State Transportation Board as a "restricted landing area". The Transportation Board cannot consider land use impacts during their review. Only municipalities may regulate new airstrips and helicopter pads based on land use impacts. Municipal approval (usually under municipal zoning provisions or an ordinance) is a

[25] VASP Draft 020421, 3-47
[26] Aviation Program-Wide Business Plan 2011. January 2012 http://aviation.vermont.gov/maps

requirement of the state permit application in accordance with 5 V.S.A. §207. Lack of a municipal zoning provision or ordinance is treated as automatic approval.

CH 4: IMPLEMENTATION

The purpose of this chapter is to articulate how the MARC intends to implement this *Regional Transportation Plan*. Chapter 11 of *Volume 1 of the Regional Plan* identifies plan implementation measures. This chapter of *Volume 2 of the Regional Plan* is intended to supplement *Volume 1* with respect to implementation measures specific to transportation-related requirements as specified below:

1. Statutory requirements for the elements of a regional plan under 24 V.S.A. §4348a specify that the transportation element may include a description of "present and prospective transportation and circulation facilities" and "recommendations to meet future needs for such facilities, with indications of priorities of need, costs, and method of financing".

2. 24 V.S.A. §4348a also requires that the plan include "[a] program for the implementation of the regional plan's objectives, including a recommended investment strategy for regional facilities and services".

To address the above requirements, this document is intended to serve as both a policy document as well as a planning guide for future transportation system investments. The goals and policies listed in Chapter 1 (*Volume 2*) are primarily intended to guide future investments in the transportation system and shape how subsequent land use development affects the safety, functionality and efficiency of the transportation network. The needs listed throughout Chapter 3 identify both programmed projects that will be addressed through the annual VTrans capital transportation budgets, and future needs that will need additional planning and scoping before implementation can occur. Some of the identified needs will also serve as the basis for the MARC's annual work programs, as we work to implement these projects over time.

MARC intends to implement *Volume 2 of the Regional Plan* in the following ways. For the purposes of this document, implementation measures are discussed in four broad categories.

4.1 Public Participation & Coordination

As discussed in the introduction section of *Volume 2*, public participation was a critically important aspect of developing this document, especially with respect to developing policy statements, and identifying and prioritizing transportation needs. Similarly, the successful implementation of this document will require significant levels of additional public participation and coordination. All reasonable efforts will be made to maintain a clear, transparent implementation process that seeks meaningful levels of public involvement during the entire subsequent implementation processes. This will be accomplished through a variety of means, including, but not limited to the programs and strategies highlighted in this section. It Is anticipated that these strategies will be further refined as a result of the Transportation Equity Framework that is currently in development with the goal of widening representation and participation in transportation planning and implementation.

Transportation Advisory Committee: MARC has a Transportation Advisory Committee (TAC) that advises on regional transportation issues with representatives from each community in the Mount

Ascutney region, an ex-officio representative from VTrans and up to four "at-large" members. Part of their work includes an annual project prioritization project with VTrans to prioritize their work across the state. More information about the TAC's meetings, agendas and work can be found on their webpage at https://marcvt.org/tac/.

Coordination Efforts Between Different Partners: Over the years, the MARC has become a vital connection between a variety of partners involved in or who would be affected by changes to transportation in the region. The MARC enables coordination between federal, state and local governments, the general public and other interested parties. Coordination with these partners is important for planning as well as implementation of transportation-related projects and programs.

The MARC participates in or coordinates with a variety of transportation-related committees and groups that meet regularly including, but not limited to,:

- Vermont Transportation Planning Initiative (TPI)
- Mount Ascutney Region Transportation Advisory Committee (TAC)
- Orange and Windsor Counties Town Road Foremen
- Springfield Airport Commission
- Mt Ascutney Hospital Prevention Partnership
- Southern Windsor and Windham County Elders and Persons with Disabilities (E&D) Committee
- The Vermont Transportation Efficiency Network (VTEN)
- The Springfield Area Working Communities Challenge

Other typical partners which the MARC coordinates with on transportation-related issues include:

- Vermont Agency of Transportation
- Southeast Vermont Transit
- Chambers of Commerce
- Town Selectboards and Village Trustees
- Town Managers
- Town Clerks
- Town Zoning Administrators
- Emergency Services Personnel – particularly Police and Fire
- Springfield Regional Development Corporation

For more information about the partners and particular coordination efforts of the MARC, see the most recent *Transportation Planning Initiative (TPI) Work Plan*.

Communication Methods: To improve public access to information related to the implementation of this Plan, the MARC uses a variety of media and communication methods to disseminate information:

- MARC webpage https://marcvt.org/
- MARC facebook page https://www.facebook.com/MountAscutneyRC
- MARC newsletter https://marcvt.org/newsletters/
- MARC YouTube page https://www.youtube.com/channel/UCB-6iFpfJWkTbFVu3mS93aw
- Town listservs, newsletters, blogs and websites
- Email lists of interested parties

- Newspaper advertisements and press releases
- Paper copies of all reports and plans are available upon request
- Local public access television

As technology continues to improve and popular social media changes, the above means of communication will need to be altered to utilize the most effective and easily accessible formats for residents of this Region.

Title VI Plan: In 2020, the MARC updated its Title VI Plan which outlines how the RPC plans to address the requirements of Title VI of the Civil Rights Act of 1964, the Civil Rights Restoration Act of 1987 and related Federal and State statutes[27]. A key element for addressing Title VI at the planning phase is having an effective public involvement process. That process must be proactive and provide complete information, timely public notice, full public access to key decisions and an opportunity for early and continuing involvement. A public involvement process should also include a process for seeking out and considering the needs of those who are traditionally ignored or underserved (e.g. by existing transportation systems). The *Title VI Plan* outlines as a system of procedures and mechanisms to assure nondiscrimination in all of the MARC's programs, activities and services, whether Federally-funded or not[28].

4.2 Annual Work Program

A significant amount of the transportation work done by the MARC is carried out through participation in Vermont's Transportation Planning Initiative (TPI) which represents a formal collaboration between the VTrans and the eleven Vermont Regional Planning Commissions. Each federal fiscal year (Oct – Sept) an RPC Transportation Work Program is established, which details the work that will be carried out in the Mount Ascutney Region under this initiative. This work program seeks to implement both programmed projects and needs as identified in the Regional Transportation Plan. It also includes special projects and other activities needed to implement this Plan, such as corridor studies, modal plans, regional safety forums, and other transportation planning activities. The most current Transportation Work Program is available online at http://marcvt.org/transportation/.

Additional funding may be necessary to conduct planning efforts identified in this Plan such as robust, meaningful modal plans or corridor studies.

4.3 Targeted Transportation Investments

Recommendations to meet future needs can generally be classified into two major types: programmed projects and identified future needs. Programmed projects have construction funding included in the

[27] Title VI of the Civil Rights Act of 1964, the Civil Rights Restoration Act of 1987, and related Federal and State statutes and regulations, prohibits discrimination and provides that no person in the United States shall, on the grounds of race, color, national origin, gender, age, low income status, or mental or physical disability be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance.
[28] For more information see MARC's Title VI and Civil Rights webpage https://marcvt.org/title-vi-and-civil-rights/

State Transportation Program and are included in the STIP, as discussed in Section 4.3.1. Identified needs represent a list of regional transportation needed investment, but at this time do not have implementation money identified (see Section 4.3.2). Some of these needs may be easily addressed through regular roadway maintenance activities. Some other needs may be able to be addressed through local funding or through smaller grant programs, such as Better Backroads, Structures, or the Class 2 Town Highway Programs. Other needs may require significant funding for future implementation. There is clearly not enough money in the State Transportation Program to address all of these needs. Implementation of these needs will happen only as future funding allows. These needs will be evaluated on a regular basis, at least every five years, as both transportation infrastructure and funding conditions change.

Programmed Projects: Programmed projects include transportation investments that are included in VTrans' FY 2022 Transportation Program. MARC and the TAC partner with VTrans to evaluate and prioritize potential projects on an annual basis together with town highway departments and other town officials. Past and most recent MARC annual project prioritization lists are posted online at https://marcvt.org/priority-transportation-projects/.

Ongoing Evaluation and Coordination Concerning Programmed Projects: Each year, the annual VTrans Transportation Program is approved by the State Legislature and posted online at http://vtrans.vermont.gov/. In addition, the Statewide Transportation Improvement Program (STIP) is developed by VTrans. The STIP lists how VTrans intends to spend funding from the Federal Highway Administration and the Federal Transit Administration over the next four year period. MARC staff review both funding documents to evaluate the status of programmed projects. Where questions arise, the MARC will coordinate with town, state and federal levels regarding the status of these programmed projects. Staff also assists VTrans with outreach for annual STIP hearings, attend the hearings, and provide comments to the STIP coordinator.

Identified Future Needs: A list of needs and potential projects were identified with the assistance of a variety of regional stakeholders – as listed in the Introduction of this Plan. In general, the identified regional needs and potential projects are summarized as described below:

- Topics include, but are not limited to, safety improvements, hazard mitigation, pedestrian and cyclist-related improvements, byways, traffic flow and access management, transit and park & ride.
- Short range and long range needs. While some needs may be met in the next few years as they are incorporated into routine maintenance and small transportation projects, many projects may not be completed for many years, if at all. However, it is useful to get a comprehensive idea of the major needs across the region so needs can be prioritized as funding and opportunities become available.
    - High – Within next five years. Project either relatively easy fix or can be addressed in a capital project that is already programmed.
    - Medium – Within next five to fifteen years.
    - Low – Most likely will not be addressed for at least another fifteen years, unless circumstances change.
- The primary entity who would be responsible for the project or to address the potential need is identified. Note: Distinction is made between efforts of the VTrans Main Office ("State") and

the VTrans Maintenance District Offices ("District") due to different personnel and funding mechanisms.

Potential project costs and funding sources are not identified for most projects, as detailed scoping or project cost estimates are not available. It is intended that this list of needs and priorities be used to inform the annual transportation work program of MARC and that where possible MARC will assist Towns and VTrans to seek funding and opportunities to address these needs.

Examples of funding and opportunities that may be relevant for implementation include:

- High Risk Rural Roads Program – Assessment and implementation of low cost safety improvements to rural roads in Vermont (most roads which are not state highway or Class 1 Town Highways).
- Better Back Roads grants – awarded annually to address transportation issues related to water quality issues.
- Municipal Park and Ride grants
- Transportation Alternatives Program grants – awarded annually using federally defined eligibility through VTrans. Particularly useful for pedestrian and bicycling projects.
- Vermont Bicycle and Pedestrian Program grants – awarded annually by VTrans for Bicycling and Pedestrian projects.
- Hazard Mitigation Grant Program (HMGP) grants.
- Town Highway Structures and Class2 Highway grants.

Paving and maintenance projects through VTrans may be able to address minor needs without significantly increasing scope (and cost) of a programmed project.

4.4. Development Review

The MARC takes an active role in reviewing development proposals (e.g. permit applications for Section 1111, Act 250, Section 248) to ensure that projects are in conformance with this document and do not result in undue impacts on the transportation system or public investments in the transportation system. Such projects are evaluated based on the goals and policies listed in Chapter 1 (*Volume 2*), regional *Traffic Impact Study Guidelines*, existing permit findings and conditions, and consistency with other planning documents (e.g. *VT 103 Corridor Management Plan*, *North Springfield Truck Study*, *Ski Corridor Traffic Management Plan*, etc.). See Chapter 11 of *Volume 1* of the *Regional Plan* for more information on development review and substantial regional impact determinations.

4.5. Needs and Priorities

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This section contains a list of recently completed and programmed projects and a list of outstanding needs as identified by MARC staff, the TAC, and town boards and officials including road foremen. For a

periodically updated map of the Region's transportation needs, see the Region's Transportation Needs[29] web map.

First, the following are some needs/ considerations which would apply to the broader roadway network across the entire region

1. Add higher hand rails to all bridges. These rails are useful for pedestrian safety and allow for easier maintenance.
2. Where possible add sidewalks or widen shoulders on bridges.
3. Support transportation-related projects of the Connecticut River Byway (US Route 5, and parts of VT Routes 11, 44A and 44).
4. Support transportation-related projects of the Scenic Route 100 Byway (VT Route 100, and part of VT Route 103).
5. Support efforts to implement the VT-131 Scenic Highway Corridor Management Plan.
6. Work to implement the *2004 SWC Regional Interstate Exits Study.*
7. Implement the *Ski Corridor Management Plan*. Develop a corridor management plan to update and replace the Ski Corridor Management Plan.
8. Improve access management on River St (VT-106) in Springfield per local zoning provisions.
9. Develop a regional transportation system safety plan.

[29] https://marcvt.maps.arcgis.com/apps/webappviewer/index.html?id=3a64eda63ea44e98bde6425e52d69291

Recently Completed Projects: What follows is a list of projects from previous versions of the Regional Transportation Plan that have been completed as of June 2022.

ID	Short Description
8	US-5 ~ Improve condition of Exit 9 Park & Ride Lot ~ Hartland
9	VT-11 ~ Improve Exit 7 Park & Ride Lot ~ Springfield
12	Repave VT-131 ~ Cavendish
13	VT-131 from Upper Falls Road to Whitesville ~ Cavendish & Weathersfield ~ Widen shoulders, improve sight distances and improve drainage where possible
14	VT-131 ~ Cavendish ~ Improve drainage around Chubb Hill Ledges
19	Repave Class 1 town highway ~ Chester
20	Repave Class 1 town highway ~ Springfield
21	Repave Class 1 town highway ~ Windsor
22	Reconstruct Maple St ~ Weathersfield
23	Upgrade Railroad Crossing ~ Ludlow
25	Replace Bridge 1 ~ Cavendish
26	Repair/ Replace Bridge 58 ~ Cavendish
27	Replace Bridge 25 (Walker Bridge) ~ Ludlow
34	Replace deck on Bridge 4 ~ West Windsor
35	Replace deck on Bridge 7 ~ West Windsor
36	Replace I-91 Bridges N&S ~ Windsor
42	Repair/ Replace Bridge 28 ~ Reading
67	VT-131 west of Cavendish village ~ Potential hazard mitigation site
82	VT-131 in Cavendish village ~ Cavendish ~ Improve drainage
105	VT-103 & VT-100N ~ Ludlow ~ Improve safety at high crash intersection
106	VT-103N and Buttermilk Falls Rd and Jackson Gore entrance ~ Ludlow ~ Improve intersection geometry to improve safety
116	VT-131 & VT-106 in Downers ~ Weathersfield ~ Improve intersection safety
137	Airport Rd ~ Weathersfield ~ Improve paving
140	Repair/Replace Bridge 13 (Massey Rd) ~ Springfield

Programmed Projects: What follows is a list of all programmed projects in the Region as of the FY2022 VTrans Capital Program

Project	Description
CAVENDISH-WEATHERSFIELD ER STP 0146(14)	Rehab VT131 - Irene Damage
CHESTER-SPRINGFIELD STP 2942(1)	Resurface VT10
CHESTER-SPRINGFIELD STP PS19(4)	Resurface VT11
LUDLOW NH PC25(4)	Resurface Class I - VT103
LUDLOW STP PC25(3)	Resurface Class I - VT100
LUDLOW-BRIDGEWATER STP FPAV(46)	Resurface VT100
SPRINGFIELD STP PS19(5)	Resurface VT106
SPRINGFIELD IM 091-1(83)	Rehab BR28 N&S
WEATHERSFIELD IM 091-1(69)	Replace BR30 N&S Decks on I91
CHESTER BF 0134 (50)	Replacement of BR51 on VT11
CHESTER BF 025-1 (45)	Replace BR14 on VT103
CHESTER BF 025-1 (46)	Rehab BR16
LUDLOW BF 013-3 (16)	Replace BR102 on VT100
SPRINGFIELD BF 0134(43)	Replace BR57 on VT11
SPRINGFIELD BM19201	Place invert on VT106 BR4
CHESTER STP CULV (60)	Rehab culvert on VT10
LUDLOW-BRIDGEWATER STP CULV(74)	Rehab or replacement of culverts on VT100
SPRINGFIELD STP CULV(47)	Replace 2 Culverts on US5
CHESTER-SPRINGFIELD STP CULV(70)	Replacement or rehab of culverts along VT 11
WINDSOR TCSP TCSE(008)C/3	Streetscape improvements
CHESTER STP BP17 (4)	Upgrade sidewalk
CHESTER TAP TA17 (9)	Replace BR52 (culvert)

Outstanding Transportation Needs: What follows is first a list of all specific identified regional transportation needs. A description of how this list was compiled can be found in Chapter 4.3.2.

ID	Short Description	Type	More Information	Priority	Responsibility	Known or Estimated Cost
38	Repair/ Replace Bridge 14 ~ Chester (Gassetts)	Bridge	VT-103 over Black River and railroad, north of Gassetts. Candidate State Highway Bridge Project.	High	State	
40	Repair/ Replace Bridge 17 ~ Ludlow	Bridge	Pleasant St Extension Bridge. Pre-Candidate Town Highway Bridge Project.	Medium	Town	
43	Repair/ Replace Bridge 56 ~ North Springfield	Bridge	Main St (North Springfield) bridge between Fairbanks Road and VT-10. Pre-Candidate Town Highway Bridge Project. SB.	High	Town	
44	Repair/ Replace Bridge 62 (McDs) ~ Springfield	Bridge	McDs bridge on VT-11 (Chester Road) between River St and Middle School. Candidate Town Highway Bridge Project. SB.	High	Town	
45	Repair/ Replace Bridge 79 ~ Springfield	Bridge	Park St Bridge between VT-11 (Main St) and Mineral St. Pre-Candidate Town Highway Bridge project. SB.	High	Town	
46	Repair/ Replace Bridge 63 ~ Weathersfield	Bridge	Ascutney Basin Road Bridge near VT-106. Pre-Candidate Town Highway Bridge project.	Low	Town	
47	Repair/ Replace Bridge 24 ~ Windsor	Bridge	Brook Road, east of Estey Lane. Pre-Candidate Town Highway Bridge program.	Low	Town	
48	VT-131 ~ Increase Exit 8 Park & Ride lot	Transit and Park & Ride	Increase Park & Ride lot capacity. Supported by 2011 SWC Park & Ride Count Report. Town Plan, TAC, SB.	Low	State	

	capacity ~ Weathersfield				
49	VT-131 & VT-103 in Proctorsville ~ Cavendish ~ Potential new Park & Ride lot location	Transit and Park & Ride	Identified in 2012 SWC Park and Ride Needs Assessment. TAC. {Low responsibility}	Low	Town
50	VT-106 & VT-10 in North Springfield ~ Springfield ~ Potential new Park & Ride lot location	Transit and Park & Ride	Identified in 2012 SWC Park and Ride Needs Assessment.	Low	Town
51	US-5 ~ Windsor ~ Improve public transit access	Transit and Park & Ride	Improve public transit options to major employment centers from Windsor. SB.	High	Town
68	Hartland-Brownsville Rd near Coon Club Road ~ West Windsor ~ Hazard mitigation needed	Roadway	Hazard mitigation needed near intersection with Coon Club Road. RF.	High	Town
69	VT-103 and Commonwealth Ave ~ Ludlow ~ Hazard mitigation needed	Roadway	Need hazard mitigation work done. SB, RF.	Medium	Town
70	VT-103 in Stone Village ~ Chester ~ Mitigate truck traffic issues	Roadway	Heavy truck volumes along VT-11 and VT-103 have wear and tear on roads and there is concern for the impacts on the historic Stone Village. SB.	Low	State, RPC, Town
71	VT-11 & VT-103 ~ Chester ~ Improve traffic flow during peak times and	Roadway	Chester triangle (Maple St/ South Main St/ Depot St). Ski traffic congestion, hard for trucks to make the corner. Explore improvements as identified in 2008 VT 103	Medium	State, RPC, Town

	improve road geometry		Corridor Management Plan, including improving the geometry for trucks. Identified High Crash location in 2006-2010 data from VTrans. 1999 State Truck Network study. TAC, SB.		
72	VT-103 ~ Ludlow ~ Manage and mitigate traffic congestion during peak travel	Roadway	Experiences congestion caused by peak hour tourist travel. Identified in VT-103 Corridor Management Plan 2009.	High	State, RPC, Town
73	VT-131 in Amsden ~ Weathersfield ~ Improve roadway safety	Roadway	"Deadman's Corner". Tight corner. Issues start from Cerassimo and end at VT-106. Identified High Crash Location in 2006-2010 data from VTrans. Would be a big project to address. TAC, SB.	Low	State
74	VT-131 & VT-103 in Proctorsville ~ Cavendish ~ Study intersection and improve safety	Roadway	Study to find improvement. Railroad tracks distracting. Too much happening at once. Issues with traffic flow. Identified High Crash Intersection in 2006-2010 data from VTrans. TAC. Town Plan.	Low	State
77	VT-100N from VT-103 to Plymouth townline ~ Ludlow ~ Widen shoulders and improve sight distances to improve safety	Roadway	Through the Lakes District. Improve safety for motorists and bicyclists. Identified in 2006 Bicycling and Pedestrian Plan. TAC, RF, SB. Geographic and lake constraints would make it hard to do.	Low	State
78	Grafton Road ~ Chester ~ Address issues of roadway and stream bank stabilization	Roadway	Roadway significantly damaged in Irene - roadway is falling into the stream and needs rip rap/ stream stabilization. Hazard mitigation. Close to stream. Town continues to work to address issues. TAC, SB. Clay soils make work in the area hard. Need to armor banks over time.	Medium	Town

79	VT-106 & VT-10 in North Springfield ~ Springfield ~ Improve intersection safety	Roadway	Improve access management especially at gas station - which would mean waiting for an access management permit to be triggered. TAC.	Low	State
81	VT-131 & Upper Falls Rd ~ Weathersfield ~ Improve intersection layout	Roadway	Wide and confusing intersection near covered bridge. TAC. District to talk with town about altering the pull-off (which is town-owned) which makes the intersection too wide.	Low	State, Town
84	VT-44 & US-5 ~ Windsor ~ Improve intersection safety	Roadway	Union/Bridge/Main St. Identified High Crash Location in 2006-2010 data from VTrans. TAC.	Low	Town
85	VT-10 and Baltimore Rd ~ Springfield ~ Improve intersection safety	Roadway	Improve safety. Change speed limit and add intersection warning signs? High speeds through the area - especially as come around the corner from VT-106/ River St. Baltimore SB.	Low	State, Town
86	VT-44 around Windsor/ West Windsor townline ~ West Windsor & Windsor ~ Widen shoulders to improve safety	Roadway	Identified High Crash Location in 2003-2007 data from VTrans. Road surface pitches considerably. Already removed some trees to make it better. Quite a few bikes and walkers. Narrow roadway. TAC. Could address in future paving project.	Medium	State
87	VT-44 near Coaching Lane ~ West Windsor ~ Install crossing for pedestrians and bicyclists	Roadway	Improve safety for recreational users crossing the road - including horse riders and mountain bicyclists. State has approved a crossing. Should be completed in 2013. TAC, RF. District assisted with engineering to re-do the intersection but cannot help with construction. Cannot have crosswalk since in a 50mph zone.	Medium	Town

88	VT-44 & VT-44A ~ Windsor ~ Improve Safety	Roadway	Limited sight distances at intersection. TAC. Would need to acquire property at intersection. [State responsibility, but town assistance to purchase property would get it moving]	Medium	State
89	VT-11 at Clinton/Main/South St ~ Springfield ~ Improve intersection geometry to improve safety	Roadway	Confusing junction with 5 incoming road sections. Identified High Crash Location in 2006-2010 data from VTrans. TAC, SB. Study replacement with a roundabout or other improvements per the 2016 Main Street Master Plan.	Low	Town
90	VT-11 (River St) ~ Springfield ~ Address access management issues to improve safety	Roadway	Identified High Crash Location in 2006-2010 data from VTrans. Gas station access management issues. New activity at 100 River St (which includes Springfield Health Center) contributes to increased activity/ conflicts. Implement parking and bike/ped improvements in Main Street Master Plan TAC, SB.	Low	Town
91	VT-11 (Chester Rd) near Plaza ~ Springfield ~ Improve intersection safety at high crash location	Roadway	Identified High Crash Location in 2006-2010 data from VTrans. TAC. Study traffic controls and reexamine intersection configuration.	Low	Town
92	VT-11 (Chester Rd) near Riverside School ~ Springfield ~ Improve intersection safety	Roadway	Identified High Crash Location in 2006-2010 data from VTrans. TAC. Springfield Selectboard is considering doing something here.	High	Town
94	VT-103S around Peck Rd ~ Chester ~ Add advanced warning signs for intersections to improve safety	Roadway	Add intersection warning signs? High speeds in the area. Identified High Crash Location in 2003-2007 data from VTrans, but not in 2006-2010 data. . TAC, RF, SB.	High	State

99	US-5 and VT-44A ~ Weathersfield ~ Improve intersection geometry to improve safety	Roadway	Improve geometry (to right angle) - for 44A to US-5 southbound. TAC.	Medium	State
100	VT-44 & Union St/ Ascutney St ~ Windsor ~ Improve sight distances at intersection	Roadway	Improve intersection. Bad sight distances. Yields and stops confusing. TAC.	Low	Town
101	VT-44 near Shattuck Hill Rd ~ West Windsor ~ Remove ledge to improve road safety	Roadway	Near Shattuck Hill Road. Remove ledge - very close to roadway. TAC.	Low	State
102	VT-44 near Shattuck Hill Rd ~ West Windsor ~ Improve sight distances	Roadway	Just west of Shattuck Hill Road. Improve sight distances, maybe by raising the height of the road. Talc plant land is likely to become recreation land (including ATVs) around 2019/2020 once it has been rehabilitated. TAC. District says not likely to happen.	Low	State
103	VT-100S & VT-103 ~ Ludlow ~ Improve intersection geometry and traffic flow	Roadway	High Crash Location 2006-2010. Issues during ski traffic season. Improve road markings and signage? Closed on ski days& traffic control near Shaws. Need to make intersection more obvious, including signage.	Medium	Town
104	VT-103 between village and VT-100N ~ Ludlow ~ Improve roadway safety	Roadway	Several accidents. Tendency for speeding at heading out of town. TAC. Blinking speed limit sign has helped.	Low	State

107	VT-100N at Rod and Gun Club Road ~ Ludlow ~ Improve Safety	Roadway	Poor sight distances pulling out of Rod and Gun Club Road. TAC. Would need to cut away at bank.	Low	State
108	Improve industrial site access in North Springfield ~ Springfield	Roadway	Implement North Springfield Truck Study 2008.	High	Town
109	VT-103 & VT-10 ~ Chester ~ Improve intersection configuration and safety	Roadway	Need to improve safety at intersection, particularly with the high speeds on VT-103. Remove median? Add a feeder lane to get out of 10 safely? Reduce speed limit? TAC. Should have been addressed in last VT-103 paving project. Would need to remove island.	Low	State
111	VT-11 (Chester Rd) ~ Springfield ~ Improve roadway safety	Roadway	Chester Road near Fairground Heights Road. Lots of crashes. Wide. Several businesses. TAC.	Low	Town
112	VT-11 (Clinton Street) ~ Springfield ~ Improve safety and access management	Roadway	Springfield (Clinton St). Identified High Crash Location in 2006-2010 data from VTrans. Access management issues? Several crashes. Good sight distances. TAC, SB.	Low	Town
113	Exit ramp from I-91 southbound to VT-11 westbound ~ Springfield ~ Improve geometry as feeds into VT-11 to improve safety	Roadway	Safety issues as traffic feeds from I-91S exit ramp onto VT-11W. Right directional lights don't shut off from interstate which confuses drivers. TAC. Change signage from yield to stop?	Medium	State
114	Exit ramp from I-91 northbound to VT-11 westbound and eastbound ~	Roadway	Change signage or alter priority (eg VT-11 stop?) to stop people running through the stop sign from the exit ramp. TAC.	Medium	State

	Springfield ~ Improve signage or priorities to improve safety				
115	VT-106 & Maple St/ Quarry St in Perkinsville ~ Weathersfield ~ Improve sight distances at interection/ add advanced warnings on VT-106	Roadway	Several crashes and near misses. Cars, pedestrians, cyclists. Might help if narrow road abit. TAC, RF, SB. District will look at it.	Medium	State
117	VT-106 & Felchville Gulf Road ~ Reading ~ Improve sight distances to improve intersection safety	Roadway	Improve visibility. Remove berm and trees? Hard to see southbound from Knapp Brook Road (continuation of Felchville Gulf Rd in Cavendish). TAC, SB. District will look at it.	Medium	State
118	VT-103 and Depot St ~ Cavendish ~ Improve intersection geometry to improve safety	Roadway	Improve intersection. Currently two roads join into one just before the intersection. Improve safety for Depot St side which has issues of speeding. Improve traffic flow and reduce truck traffic on Depot St. TAC. Town Plan. More police patrolling on VT-103 is helping. Repaving slip lane and making it a T-intersection would help, but would have to wait until the next VT-103 repaving project.	Medium	Town
119	US-5 and Putnam Road ~ Springfield ~ Improve safety	Roadway	Remove this access to US-5? Make a dead end road. This is a problem area. Very steep. TAC, SB.	Medium	Town
121	Weston-Andover Rd ~ Andover ~ Address speeding issues	Roadway	Issue with speeding on Weston-Andover Road. Help town address through traffic	Low	Town

			calming, enforcement and other techniques. SB.		
123	VT-131 ~ Weathersfield ~ Address safety issues at steep curve	Roadway	Steep curve with crashes there often. Add more signage or banking. Identified High Crash Location in 2006-2010 data from VTrans. SB.	Low	State
126	VT 11 & US-5S ~ Springfield ~ Improve intersection configuration to improve safety	Roadway	Next to P&R lot. Dangerous intersection that needs improvement. SB.	Medium	State
128	VT-131 & Weathersfield Center Rd ~ Weathersfield ~ Improve sight distances at intersection	Roadway	Bad sight distances and high speeds. SB. Not much to do.	Low	State
129	VT-103 (Depot St) at railroad crossing ~ Chester ~ Improve pavement conditions	Roadway	Pavement and railroad crossing is in very poor condition near the Depot. Improve the crossings and approaches during future paving project. SB. District is aware of issue - on District List.	Medium	District
130	VT-11 (Pleasant St) at railroad crossing ~ Chester ~ Improve pavement conditions	Roadway	Railroad crossing in poor condition. District is aware of issue - on District List.	Medium	District
131	VT-44 & Johnson Rd ~ West Windsor ~ Improve sight distances	Roadway	Bad sight distances to the west. Maybe addressed in 2013? RF.	Medium	State, Town

132	VT-44 near Cherry St and Mill Pond ~ Windsor ~ Improve sight distances and reduce pedestrian crossing issues to improve safety	Roadway	Bad sight distances and pedestrian issues. RF.	Low	Town
133	State St & Ascutney St ~ Windsor ~ Improve intersection safety	Roadway	Need to improve safety. Next to school and on route to Mt Ascutney Hospital. RF.	Low	Town
134	US-5 in Windsor downtown ~ Windsor ~ Improve access to Industrial area	Roadway	Improve access to industrial area - particularly for trucks. SB.	Low	Town
136	US-5S ~ Windsor ~ Improve safety on curve	Roadway	Near house 869 on curve, which includes a mini-layby. Several accidents, including a serious one in 2012/2013. Police chief. Operations review?	Low	State
141	Repair/Replace Culvert (Mineral/Grove St) ~ Springfield	Roadway		Medium	Town
143	Repair/Replace Bridge 5 (Weston-Andover Rd) ~ Andover	Bridge		High	State/Town
144	Repair/Replace Bridge 7 (Weston-Andover Rd) ~ Andover	Bridge		High	State/Town
145	Repair/Replace Bridge 6 (East Hill Rd) ~ Andover	Bridge		High	State/Town

146	Add guardrails to bridges and large culverts on Brownsville-Hartland Rd ~ West Windsor	Roadway	Low	Town
148	Add guardrails to Reservoir Road ~ Weathersfield ~ to improve safety	Roadway	Medium	Town
149	Repair/Replace Bridge 6 (VT-44) ~ West Windsor	Bridge	Medium	State
150	Raise VT-44 at intersection with Esty Ln to address drainage issues	Roadway	Low	State
151	VT-11 (River St/ Main St) & Park St ~ Springfield ~ Reconfigure intersection to improve safety	Roadway	Medium	Town
152	VT-103 & VT-131 ~ Cavendish ~ Reconfigure intersection to improve safety	Roadway	Medium	State
153	Investigate the feasibility of a multimodal transportation hub in Ludlow	Transit and Park & Ride	Low	Town/Railroad

154	Implement the recommendations of the Active Transportation Plan	Bicycle and Pedestrian	Projects to improve bicycle and pedestrian conditions are listed in the 202 Active Transportation Plan	Various	Various

ABBREVIATIONS AND GLOSSARY

Abbreviations

AADT	Annual Average Daily Travel
ABC	Accelerated Bridge Construction
ACS	American Community Survey
ADA	Americans with Disabilities Act of 1990
ADAAGADA Accessibility Guidelines	
ADT	Average Daily Travel
ANR	Agency of Natural Resources
BBR	Better Back Roads (funding source for some bridge & culvert inventories)
CMAQ	Congestion Mitigation and Air Quality Improvement
CMP	Corridor Management Plan
CRT	Connecticut River Transit (operates "The Current")
CTPP	Census Transportation Planning Package
DHV	Design Hour Volume
E&D	Elderly and Persons with Disabilities (also sometimes referred to as PTAC)
FEH	Fluvial Erosion Hazard area (now known as River Corridors)
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GIS	Geographic Information Systems
GPS	Global Positioning System
HMGP	Hazard Mitigation Grant Program
HRRR	High Risk Rural Roads (connected to HRRR and HSIP)
HSIP	Highway Safety Improvement Program (connected to HRRR and RSAR)
ITE	Institute of Transportation Engineers
LEHD-OTM	Longitudinal Employment Household Dynamics On-The-Map
MAP-21	Moving Ahead for Progress in the 21st Century
MARC	Mount Ascutney Regional Commission (previously SWCRPC)
MFI	Median Family Income
MUTCD	Manual of Uniform Traffic Control Devices
NHTS	National Household Travel Survey
P&R	Park and Ride (also sometimes PNR)
Region	Mount Ascutney Region
RPC	Mount Ascutney Regional Commission
RSAR	Road Safety Audit Review (connected to HRRR and HSIP)
RSMS	Road Surface Management System (software for road inventories)
RTP	Regional Transportation Plan
SHSP	Strategic Highway Safety Plan
SOV	Single Occupancy Vehicle

SR2S	Safe Routes To School (sometimes SRTS)
STRAHNET	Strategic Highway Network
STRACNET	Strategic Rail Corridor Network
SWCRPC	Southern Windsor County Regional Planning Commission
SWCTAC	Southern Windsor County Transportation Advisory Commission
TAC	Transportation Advisory Committee
TAP	Transportation Alternatives Program (formerly Transportation Enhancements)
TDM	Transportation Demand Management
TEAC	Transportation Enhancements Advisory Committee
TOD	Transit Oriented Development
TPI	Transportation Planning Initiative
UVTMA	Upper Valley Transportation Management Association
VBC	Vermont Byways Council
VLR	Vermont Local Roads
VHSA	Vermont Highway Safety Alliance
VMT	Vehicle Miles Travelled
VOBCIT	Vermont Online Bridge and Culvert Inventory Tool
VSA	Vermont Statutes Annotated
VTrans	VT Agency of Transportation (or VAOT) (sometimes referred to as DOT)
WTG	Way To Go Commuter Challenge week

Other abbreviations for publications:

- Orange Book – VTrans Handbook for Local Officials (includes info on different VTrans funding programs, standards, technical assistance)
- Red Book – Continuous Traffic Counter Grouping Study and Regression Analysis Report

Glossary

Average Annual Wage – The average wage paid per year per employee within a given geographic area.

Average Daily Trip (ADT) –An indicator of traffic volume. Measured by counting the number of vehicles that pass a certain point. Daily totals are averaged for a given period, usually one year. Often reported as AADT-annual average daily traffic. AADT is corrected for seasonal variations.

Bicycle Facilities – A general term denoting improvements and provisions made to accommodate or encourage bicycling and walking, including parking facilities, maps, bikeways, walkways, sidewalks, and shared roadways not specifically designated for bicycle use.

Bikeway – Any road, path, or way which in some manner is specifically designated as being open to bicycle travel, regardless of whether such facilities are shared with other modes of transportation or for exclusive use of bicyclists.

Context Sensitive Design – Design considerations that are based upon FHWA's Context Sensitive Solutions approach that seeks to provide flexibility in all phases of the transportation project

development process in order to preserve and enhance scenic, aesthetic, historic, community, and environmental resources, while improving or maintaining safety, mobility, and infrastructure conditions. Flexibility in design (i.e. reducing roadway standards) in order to preserve community character is essential in Vermont as many state arterial and collector highways serve as Main Streets where they pass through village centers. For more information, see: *Flexibility in Highway Design* (FHWA, 1997) and http://contextsensitivesolutions.org/.

Design Hour Volume (DHV) – DHV is the traffic volume for the design hour, which is typically the 30th highest hour of the year. DHV is the figure used as the basis for traffic analyses for traffic impact studies and determining solutions for highway capacity problems,

Double Stack Containers – A type of rail transport that involves stacking trailers two high on top of one another while attached to a rail car.

Fixed Route – Bus or rail service which follows an established route with scheduled stops.

General Aviation Services – All aircraft, not including military and commercial airlines.

Goods Movement – The transporting of consumer products that people use.

Human Service Agencies – Those agencies which provide social services.

Infrastructure – The underlying foundation or basic framework of a system.

Intermodal – Providing seamless connections for travelers and shippers between different modes of transport.

Level of Service – A measure of how traffic-free or traffic-congested a road segment or intersection is. Levels range from A (complete maneuverability) to F (gridlock).

Median Family Income (MFI) – The midpoint in the range of incomes – as many families earn above this point as below.

Median – The midpoint in a range of values.

Mobility Limited – Difficulty related to transportation based on inability to leave home without assistance because of mental or physical limitations.

Multimodal – Using more than one mode of transportation.

National Highway System – A federal highway funding initiative intended to insure that all areas of the country are served by highways meeting minimum design, construction, and performance standards.

Paratransit Service – A sub-category of public transportation which provides service to the mobility-impaired on a regular basis. Para-transit services include demand-responsive transportation services such as shared-ride taxi.

Public Transportation – Transit systems such as bus, rail, air, and taxi used to convey the general public.

Road Classification – A system for grouping roads into categories according to specified criteria. Useful in inventorying, describing, and discussing roads.

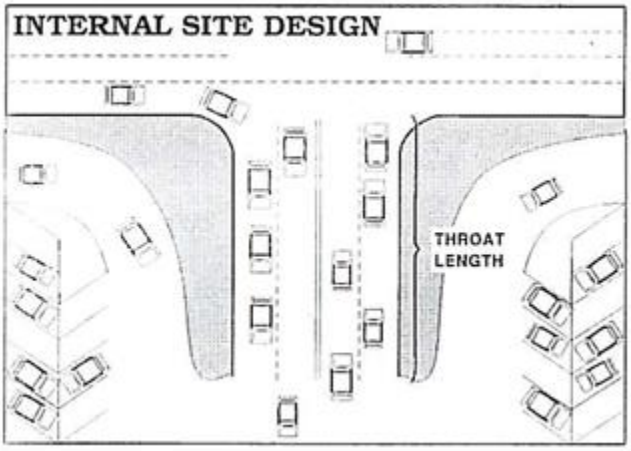
Seasonal Unit – Vacation housing units used or intended for use only during certain seasons, for weekends, or for other occasional use throughout the year; includes time-shares or shared-ownership units.

Single Occupancy Vehicle (SOV) – Private vehicle conveying one person.

Strip Commercial Development – Commercial or retail uses, usually one-story high and one-store deep, that front on a major street and are auto-oriented, usually with large parking lots in front of the building and large signs that can be read by fast-moving cars along the major road. State planning law discourages strip development along major highways, meaning that intensive developments, including retail, commercial and intensive residential development, are ideally suited to locations within community centers and are not suitable along rural highway corridors.

Sufficiency Rating – An evaluation of the adequacy of a bridge or road to perform its required functions, based on structural, safety, and service conditions.

Throat Length – Throat length is an access management term for providing safe access to a development site. Traffic circulation within a commercial site (i.e. access, parking lot) needs to provide safe and clear traffic circulation, including the provision of adequate storage space for vehicles entering and exiting the site, while minimizing traffic conflicts. The image below illustrates throat length.



Source: *Model Land Development and Subdivision Regulations That Support Access Management* (Center for Urban Transportation Research, University of South Florida)

Traffic Calming – A series of techniques used to control traffic and reduce travel speeds that seeks to maximize mobility, while creating more livable surroundings by reducing the undesirable side effects of mobility.[30]

Transportation Disadvantaged – Persons who, for reasons of health, age, lack of private vehicle, and/or low income may have a transportation need.

Vehicle-Miles Traveled (VMT's) – Also known as Total Vehicle-Miles. An indicator of automobile usage over a given time period (usually on an annual basis). Equal to the total number of miles traveled by all vehicles. Estimated using surveys and traffic counts.

Warrants – Warrants refer to traffic engineering criteria used to determine if certain roadway improvements are required, such as approach [traffic] volumes and percentage right turns in advancing volumes. If the applicable warrants are met, then certain roadway improvements are needed (e.g. turning lanes, traffic signals, pedestrian crossing, etc.).

[30] Institute of Transportation Engineers (ITE). Traffic Calming Definition. Accessed 3/19/2013 at www.ite.org/traffic/index.asp. Traffic Calming: State of the Practice. August 1999. Prepared for the Federal Highway Administration (FHWA) by Institute of Transportation Engineers (ITE)/ Reid Ewing. Available online at www.ite.org/traffic/tcstate.asp

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MAPS

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APPENDICES

View the following maps at marcvt.org/2022-Regional-Plan/:

- Regional Transportation Network
- Public Transit Network