

IV. TRANSPORTATION

A. Introduction

Since 1992, the Regional Commission has managed a regional transportation planning program supported by its communities and the Vermont Agency of Transportation (VTrans). As part of state and federal government mandates, regional transportation planning was created to identify and address the transportation problems that communities share within the region. Having one regional planning effort to preserve and enhance the transportation system ensures a consistent, coordinated, and proactive response among all towns. Regional transportation planning promotes transportation as a complete system that must address the diverse mobility needs for all people. And regional transportation planning emphasizes decisions made for the greater enhancement of safety, community livability, economic development, and the preservation of the environment. These are general planning factors not typically considered by state and federal transportation agencies.

This Transportation Chapter directly identifies transportation problems and develops goals and policies for addressing those problems. This is not a comprehensive coverage of transportation, but it is a complete listing of transportation topics that can be addressed by this Regional Commission directly or through the region's local, state, federal, and private partnerships. Including this introduction, there are twenty sections that divide regional transportation into subtopics. Section T, the final section, includes a discussion of unique transportation corridors in the region and an outline of corridor specific policies and recommendations. The Regional Plan also has sections where land use, energy, and economic planning carry transportation related planning issues and recommendations. The transportation element goal is to outline policy that influences private and public planning and investment decisions within the Two Rivers-Ottawaquechee region. These policies inform the Regional Commission on how to represent the region on transportation issues, and contribute to the development of transportation and planning related staff work programs.

B. Background

The Regional Commission's longstanding transportation priorities are maintaining the existing transportation system and diversifying transportation choice by expanding bicycling, walking, and public transportation. These two transportation priorities have been consistently stated as the lead priorities since transportation issues could be discussed on a regional level.

Improvements and Funding

Most of the region's transportation infrastructure is operating at levels well below capacity – traffic congestion is not typically an issue. With an average of 1 to 1.5% annual traffic volume growth, traffic congestion is not anticipated to be an issue in the future.¹ The great frustration among citizens has been that transportation project improvements (maintenance, rehabilitation,

¹ Vermont Agency of Transportation (www.aot.state.vt.us) search for Traffic Data Electronic Publications and traffic growth rates listed as rural primary and secondary.

replacement) have not kept pace with the deteriorating infrastructure. Motorists see a transportation system increasingly degrading from time and usage. This input comes from Vermont Agency of Transportation sponsored surveys and the input regional planners receive at public meetings. Transportation projects are being constructed, but Vermont's current funding structure fails to address the long term system maintenance and upkeep needs. The state and federal governments are not making the financial investments needed to maintain the region's transportation system. The state and federal government are also not addressing new transportation infrastructure or services in the instances where these capacity enhancements are warranted.

Regulatory Authority

Regional transportation planning has few regulatory powers over planning and investment decisions. Vermont law ensures land use development is primarily a municipal responsibility. Regional transportation planning can provide advisory level input in development decisions that impact the transportation system. If the development is a larger project with regional significance, the Act 250 permitting process enables regional input and guidance. With transportation project investment decisions, Vermont law dictates that the state (VSA Title 19 Chapter 1) and the towns (VSA Title 19 Chapter 3) have direct control and responsibility over their respective transportation systems. The Regional Commission has no direct authority in road management. The Regional Commission serves in an advisory role when the state develops its Transportation Improvement Plan (TIP) and the towns develop their capital plans. That advisory position is held with the understanding that the towns and the state are the entities that fund the regional transportation program.

Neighboring Regions and States

The decisions made by the Regional Commission and towns have impacts on adjacent regions and states. The region's transportation system has become connected to the employment and shopping centers in Rutland, Montpelier-Barre, and the greater Upper Valley bi-state regions. 2000 Census journey-to-work data show that most people work within the region (64%), but there is a significant percentage commuting into New Hampshire (21%) and Montpelier-Barre (7%)². There are no specific totals for shopping and recreational trips, but commercial development has occurred at a far slower pace compared to adjacent regions. The assumption is residents are increasingly accessing adjacent regions for shopping and recreational trips facilitating their commercial growth. This is partially confirmed with developer traffic impact studies in adjacent regions showing significant traffic levels originating from or through the region (e.g., proposed Woodsville Wal-Mart in Woodsville, NH predicts 57% of shoppers will pass through Wells River³).

There is a need for inter-regional and bi-state cooperation as transportation projects and services increasingly connect Two Rivers-Ottawaquechee to these economic and social centers. The

² 1990 census showed a higher number of workers staying in the region (67%). Unfortunately 1990 was the first decennial census to include nationwide journey to work data and so the region cannot examine rural transportation trends prior to 1990. This also makes it difficult to explain a 3% commuter fluctuation on two data points.

³ 2006 Hayner/Swanson, Inc. Traffic Impact and Access Study – 2007 proposed Wal-Mart Superstore.

regional transportation program can coordinate planning activities with the other regional and state transportation agencies. The balance is in prioritizing local transportation needs versus the greater regional transportation issues. In numerous public settings, citizens and town officials repeatedly present clear mandates for improving local transportation and planning over creating more efficient transportation models and facilities to leave the town or the region.

Functional Classification

A road system is organized into different categories that influence traffic operations and land use development. There are many ways transportation professionals classify roads, the most widely used standard is based on the functional characteristics. Using that system, there is a hierarchy of road types that include:

- a. **Arterials** are roads that are designed to carry large volumes of traffic for long distances. Arterials are characterized by controlled access, channelized intersections, and restricted parking. These roads usually have signals or stop signs at intersections with side streets, and function primarily to distribute traffic to and from collector streets serving all land uses.
- b. **Collectors** channel traffic from lesser traveled roads to the arterial system. Major collectors generally serve traffic between towns and communities, and minor collectors operate within a town.
- c. **Local Roads** provide access to land and generally have little or no through traffic. They are typically “neighborhood” type streets and have low traffic volumes.

The categorization for roads is only relevant in defining where the Regional Commission places greater emphasis in transportation planning. By necessity, the state and regions focus on the transportation system’s arterials and major collectors. These roads carry greater volumes of traffic over greater distances. Minor collectors and local roads are the town’s domain; these roads tend to serve limited residential traffic over shorter distances. There are three critical exceptions to this rule. The Regional Commission may support town efforts to address transportation issues on local roads because in the aggregate they are actively influencing traffic operations on arterials and major collectors. The Regional Commission may prioritize work on local roads with excessive traffic because the mismatch between infrastructure capacity and demand can lead to significant transportation and land use conflicts. The Regional Commission may get involved when it has been determined that the local roads issue is commonly shared by other towns and therefore constitutes a regional priority for local technical assistance. The third qualification is important because most towns cannot afford transportation services and have collectively pooled their resources to gain those services at the Regional Commission.

Demographics

The region’s demographic trends, outlined in Chapter 2 (History and Development) of this Plan, will have a modest influence on transportation priorities and investment decisions. There are rural areas, such as those towns adjacent to Burlington, whose demographics have dramatically altered land use and transportation development patterns. In contrast, this region has had stable population growth and slow patterns of economic restructuring. Despite over seventy-five years of “throwing up” roads, the region still has a transportation system that evolved from an era of

high populations that intensively used the land to extract goods which were then transported to urban centers. While there are a few exceptions, the region's citizens have inherited a well-functioning transportation system that can absorb more population and traffic growth. The primary demographic concern in transportation is the region's aging population. An older population can be expected to drive less and rely more on public transportation. These services are insufficient and even minor increases in demand would overwhelm the already overburdened public transportation system.

C. Town Officials and Citizen Involvement

The active involvement of town officials and citizens is critical to a transportation planning process that is responsive to the region's collective needs and priorities. A Regional Transportation Advisory Committee (TAC) was organized in 1992 and continues to meet on a regular basis. This Committee consists of locally elected officials and professional staff members. There are also members representing VTrans and other public transportation agencies. The TAC's principal role has been to work with staff, consultants, and VTrans in guiding regional and state transportation planning efforts.

The Transportation Advisory Committee's work is augmented by another five initiatives crafted to solicit town official and citizen involvement. The Orange and Windsor County Road Foreman's group meets regularly to discuss issues in local roads management. There are seasonal meetings on current topics in transportation that are open to the citizens and towns officials. There is an "Elderly and Disabled transportation partners group" that meets quarterly to discuss public transportation services. The Regional Commissioners review transportation issues as needed and support the work of the Transportation Advisory Committee. Finally, there are numerous local transportation groups that are created as needed to discuss specific transportation projects or policy issues.

Getting citizens involved in transportation is a challenging task. Transportation issues and concerns are rarely considered unless they become direct problems to the towns and/or individuals involved. The many different linkages and balances that need to be struck between transportation and issues like community and economic development are not typically acknowledged by town officials and citizens. Their interests remain focused on the single transportation project in question. Finally, the transportation profession itself has created a language of jargon, influenced by data-driven decision making models, that follow detailed project development procedures, and require voluminous amounts of administration that are not meaningful to a town official or citizen. Whether purposeful or not, the transportation profession has in large part excluded participation of the layperson.

Education and public outreach is a key element toward advising town officials and citizens about how to participate. It is unlikely the profession will change on its own, so it is important to train citizens and town officials to effectively participate. Getting town officials and citizen involvement on transportation issues is critical. Public meetings and educational workshops can keep citizens and town officials educated on the processes behind projects and policies. Getting elected officials educated on transportation funding issues will be an additional challenge.

Goals

- (1) Broaden citizen and town official involvement in regional transportation planning.
- (2) Provide educational opportunities for those interested in transportation planning.

Policies

- (1) Emphasize public involvement in all transportation work tasks. Continue to work with citizen and town official advisory groups. Strengthen citizen and town official involvement in local and state planning, policy development, and construction projects.
- (2) Sponsor educational workshops and classes for citizen volunteers and town officials. Provide elected officials with informational materials regarding transportation issues.

D. Safety Planning and Enforcement**Improving Safety**

Improving safety is the single greatest transportation issue for the region. There are two approaches to address improving safety: prevent crashes, and mitigate their effects. Mitigating crash impacts is primarily an engineering issue that involves modifying the road to make it safer, adding road shoulders and guardrails for instance. These transportation enhancements give motorists an added level of protection. Preventing crashes is primarily a behavioral issue that involves education and enforcement. Behavioral factors that contribute to crashes include drunk driving, reckless driving, driving while distracted, speeding, and driving inexperienced. In some situations, crashes may be prevented through effective public education and enforcement. This is especially true for younger drivers who have a disproportional high crash rate. Vermont's Graduated Driver Licensing program, which is consistent with national programs, has been demonstrated to work well. Safety planning is being addressed at many different levels of government depending on the severity of the issue and the organization's abilities. Regional transportation planning can do little in some areas (e.g., distracted drivers) but can influence safety in two key strategic topics – safety audits and speed.

Road Safety Audit

Improving safety by mitigating crash severity is accomplished one project at a time. The road safety audit is an established technique for reviewing a particular road or intersection and proposing engineering, education, or enforcement techniques to address the safety deficiency.⁴ A safety audit team, composed of local, regional, and state representatives investigates hazard locations and creates a set of recommendations for implementation. Safety audit projects in the region will continue and the process is being taught to other transportation groups such as the town road managers. Regionally significant development can have a safety audit of the impacted roads in an effort to address safety deficiencies before traffic volumes increase. This is particularly important with latent road deficiencies that can become real safety deficiencies when

⁴ Road safety audits are described in detail in the Transportation Research Board's NCHRP Synthesis 336 Road Safety Audits (www.trb.org).

traffic volumes increase. There are no official high accident locations (as defined by the State of Vermont), but if that changes then those locations can receive priority for road safety audits.

Speed Enforcement

Setting speed limits and facilitating effective speed enforcement is another safety planning priority. National and state data statistics⁵ show speeding is one of the greatest contributors to crashes. Speeding is also one of the highest contributing factors for fatal crashes. A vehicle traveling a safe speed limit has more time for avoidance maneuvers and, if unavoidable, the overall crash severity is reduced. Helping towns measure vehicle speeds and set enforceable speed limits is one step toward ensuring traffic flows safely and efficiently. Using speed measurement data, law enforcement officials can more accurately enforce speed limits based on times and dates that show the greatest frequency of violations. Contemporary highway building practices and standard engineering practices for determining speed limits has led to an increase in speeds and the associated impacts. Speed limit assessments can take into account all of the ‘driver externalities’ associated with people walking, bicycling, parking, and other typical community interactions.⁶ This is an important distinction because as drivers we tend to drive at speeds generally deemed safe for our person and vehicle, but fail to acknowledge speed impacts on other transportation modes or land uses. Road improvements that accommodate lower vehicle design speeds, especially where commercial or residential land uses are in close proximity, will improve safety. This is of particular importance in regional growth areas where high traffic speeds erode safety and desirability for walking or bicycling.

Goals

- (1) Improve safety for all transportation modes using known and effective methods in transportation planning.
- (2) Educate and promote safety conscious planning for town officials and staff.

Policies

- (1) Evaluate speed limits and monitor traffic speeds along town and state roads. Assist Towns in setting appropriate speed limits on local roads. Maintain a traffic counting program to inventory and assess traffic speeds on local roads.
- (2) Continue to conduct road safety audit projects. Focus safety audits on roads that have development proposals and/or are expected to support increased development. If the state declares a road or intersection a high accident location, then conduct a road safety audit and advocate for those improvements to be implemented.
- (3) Emphasize safety related projects in all transportation planning work tasks. Educate local and state transportation officials about safety related issues and concerns impacting the region. Focus on reviewing speeds on state controlled roads and providing that

⁵ National Highway Traffic Safety Administration’s National Center for Statistics and Analysis (www.nhtsa.dot.gov – click on the traffic safety link)

⁶ This is described in detail in the Transportation Research Board’s NCHRP Report 504 Design Speed, Operating Speed, and Posted Speed Practices (www.trb.org).

information to Towns and the Vermont Agency of Transportation. Work with Towns and the Vermont Agency of Transportation to review speed limits on state controlled roads that pass through regional growth areas.

- (4) Encourage transportation projects that preserve or even reduce traffic speeds on all collectors and local roads. Discourage the use of transportation facility designs that may increase traffic speeds.

E. Local Transportation

Background

In the region, towns control almost ninety percent of the total number of roads.⁷ The local transportation system is a town's single largest capital asset. This asset requires significant financial investments to be made by every taxpaying resident. Roads are the connective element to the entire community and should be managed wisely and effectively. Town citizens demand that roads have a smooth riding surface, are well lit and properly marked, and that there are minimal interruptions due to maintenance and construction related activities. Transportation is the foundation for all local land use and town development, but towns struggle to manage their transportation system amidst a growing list of other local service requirements such as education, fire, police, and recreation. Managing a local transportation system by paving asphalt roads, grading gravel roads, replacing culverts, and repairing bridges places great demands on small budgets. Towns have few opportunities to look beyond their immediate needs and address the long-term transportation planning and project solutions. A town's few professional staff are strictly project focused and most, if not all, long range planning work is handled by citizen volunteers. These volunteers have made great efforts, but the increasing complexity of planning, policy, and project tasks makes it increasingly unlikely that citizens will continue to do this work alone.

Inventories and Capital Plans

Based on project cost comparisons within the region, a program of early intervention using preventative maintenance has proven to be 75-85% cheaper than larger reconstruction work after significant deterioration has occurred. In order to efficiently manage the transportation system, the region's towns have increasingly come to implement management programs and systems that include inventories and capital plans. The Regional Commission has sponsored much of this work and will continue to be involved with participating towns. The inventory identifies road, culverts, and bridge conditions – the assets of a local transportation system. The capital plans list projects for routine maintenance and reconstruction based on the conditions inventory.

⁷ As compiled by the Vermont Agency of Transportation's Official Town Highway Maps (www.aot.state.vt.us – search phrase town highway maps). This is an estimated mileage percentage which fluctuates depending on whether Class 4 road mileage is included or excluded.

Because town budgets can rarely support the full project costs, capital plans are helpful in articulating how state and federal transportation dollars can be used to defray those costs.

Local Land Use Planning



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Photo 4: The Floating Bridge - Brookfield, VT
A transportation facility that enhances village context and scale.

Integrating transportation planning and land use development should be done at the local level, including more than just engineering related transportation factors. Transportation investments can be made when they are found to address economic development and community livability needs as much as daily traffic and road sufficiency ratings. Those transportation solutions can fit the context and scale to match the built and natural landscape. The regional transportation planning process can promote land use planning and regulatory development to facilitate this process.

Goals

- (1) Promote contemporary transportation planning practices in all local planning and project programming activities. Encourage consistency and coordination in local land use and transportation planning activities.
- (2) Support asset management and capital planning practices for all local transportation infrastructure.

Policies

- (1) Inventory transportation assets, prioritize project improvements, and develop capital plans for all towns within the region. Begin to develop a regional assessment of road, bridges, and culvert conditions.
- (2) Local transportation investments should be centered on infrastructure maintenance and repair. State transportation programs should fund proactive road maintenance practices such as crack sealing recently reconstructed roadways. Towns should maintain or reconstruct roads along their existing alignments. In cases where high traffic volume roads are re-surfaced, State policy should promote full-depth reconstruction and resist temporary improvement measures that would fail to yield long term solutions. Gravel roads should remain gravel unless marked increases in daily traffic clearly warrant a paved road upgrade. The narrow and twisting alignments of our rural backroads should be maintained as is unless extenuating safety and mobility concerns warrant upgrading.
- (3) New infrastructure capacity should be considered only when allowed by the combined local and regional land use and environmental policies and regulations. Local road

connections should help preserve and enhance greater transportation system connectivity as opposed to increasing traffic onto a few arterials and major collectors.

- (4) Coordinate town plans with neighboring communities that share the same transportation corridor so land use development and transportation planning policies are mutually supportive. Promote land use planning regulations that incorporate contemporary transportation planning standards into all Town Plans, Zoning and Subdivision regulations.
- (5) If transportation projects are proposed, work with towns to identify project priorities and help pursue state and federal transportation funding for project design and construction.

F. State Transportation

Background

The state controls approximately ten percent of the total road mileage in the region. While a small fraction of the total road mileage, most of the vehicle traffic is on state controlled roads. The Vermont Agency of Transportation collects traffic data along all of its roads. Averaging all traffic count locations in the region, interstate highways support approximately 17,000 trips per day, national highways carry 6,000 trips per day, and state highways carry 2,500 trips per day. With all this traffic, the state controlled transportation system of roads and bridges still meets the region's current and projected mobility needs. The one exception is U.S. Route 4 where small scale improvements such as left turn lanes and wider road shoulders could reduce traffic congestion during seasonal traffic peaks.

Interstates

The region is crossed by Interstates 89 and 91 which intersect in the town of Hartford. These interstates were constructed in the 1960s and 1970s and are just now coming to their lifecycle when more significant repair is needed. Being at the crossroads of two major interstate highways that are also centrally located within the greater New England region brings great opportunity and transportation challenges. Bridge and culvert rehabilitation and paving projects along the highways have been a shared priority of the Vermont Agency of Transportation and Regional Commission. System improvements along interchanges and the connections to the major transportation arterials promote and enhance traffic safety and efficiency. Other goals, policies, and recommendations for interstates and interchanges are in Chapter 3 (Land Use).

State Roads

State controlled roads travel through many of the region's growth areas – regional and town centers, village settlements, and hamlets. The Vermont Agency of Transportation is focused on preserving mobility while minimizing maintenance costs. But with the increases in traffic and speeds, the roads are eroding the quality of life in these regional growth areas. The goal for these regional growth areas is to balance the impacts of through commuting with the activities that support community life. Where necessary, the Vermont Agency of Transportation can create and maintain transportation facilities that support and even enhance these towns (e.g., Brookfield

Floating bridge). Towns may also be encouraged to convert the state controlled road into a “Class 1” which is a legal designation that allows greater local control.

Air Service

With the exception of the private Post Mills airport in Thetford, there are no air service options within the region. Lebanon Regional Airport is the closest airport that offers limited passenger and freight services. National and international flights are available from Manchester, NH and Burlington, VT airports. Both airports have been increasing their operations and have become the major northern New England air facilities for this region.

Rail Service

The rail industry is an important transportation mode for freight and passenger services. All indications are that limited Amtrak passenger rail service will continue with stops in Randolph and White River Junction. There are challenges for rail freight to compete with other transport modes, namely tractor trucks. Increases in rail freight service can occur as long as this is carried out in conjunction with necessary safety improvements. Rail industries can be located within the region as long as town land use policies are supportive and the necessary transportation road and bridge infrastructure exists. The Regional Commission can work with towns to consider land use and transportation investment policies that would make rail based industries a viable commercial activity. The Regional Commission has had long standing goals with which to pursue expanding rail service - preserving the existing infrastructure, expanding capacity where needed to accommodate double-stacked rail cars, and continuing the public’s purchasing of privately held rail lines.

Goals

- (1) Support the ongoing maintenance and upkeep of the region’s existing transportation system.
- (2) Promote transportation project improvements that preserve and enhance the region’s historically rural landscape while promoting economic development.
- (3) Support transportation projects that enhance regional growth areas as destinations and not as mobility corridors.

Policies

- (1) Planned maintenance that prolongs the life of the existing road and bridges is the region’s lead transportation priority. When needed transportation improvements go beyond maintenance, efforts should be on rehabilitation and replacement without any major modifications or improvements that could alter traffic operations.
- (2) On all new construction, transportation design speeds should be maintained or reduced with both roads and bridges maintaining their existing alignments. Geometric constraints that if removed could encourage greater volumes of traffic and/or truck traffic, should be left in place. All improvements should be made to context sensitive designs that enhance the surrounding natural and built rural landscape.

- (3) Projects that involve on-street parking, pedestrian and bicycling facilities, lighting systems, traffic calming, and landscaping are actively encouraged. Projects that are designed to remove on-street parking and crosswalks are strongly discouraged. Regional growth areas that have sufficient population concentrations (e.g., Bradford and Norwich) are encouraged to request the state re-designate state controlled roads to the locally controlled legal designation of Class 1 road status.
- (4) The region supports the state's policy of investing greater resources for roads identified in the state's tractor truck network.⁸

G. Public Transportation

Background

The region has a number of public transportation services increasingly important to a rural transportation system. Fixed route services from the region to the employment and commercial centers allow residents to work and shop. Elderly and disabled transportation services give alternatives to people partially or completely unable to drive on their own. The Vermont Agencies of Human Services and Transportation have extensively studied public transportation usage and all projections indicate demand for the State and this region will continue to increase. This issue is increasingly a concern as the region's population ages and more citizens become dependent on public transportation. Already, one of the greatest criticisms for public transportation is that services are "too successful" and "over-subscribed" and that capacity limitations have discouraged greater ridership. The Regional Commission has consistently supported public transportation through planning, participation on committees, grant writing, and appropriating funds for marketing and planning services. The region depends on two public transportation providers - Stagecoach Transportation Services and Advance Transit. These two agencies are recognized by the State of Vermont to provide public transportation services within the Two Rivers-Ottawaquechee region.

Fixed Routes

Fixed route commuter buses serve communities along the Interstate 91 and U.S. Route 5 corridor and the Interstate 89 and VT Route 14 corridor. Bradford, Randolph, Norwich, and Hartford have additional bus service within town plus connections to adjacent communities. Notably absent is a commuter bus connecting towns along U.S. Route 4 to the Upper Valley. Regionally, all public transportation services are focused on connections within the region or to the Upper Valley region. There is also an unmet need for a commuter bus service connecting the region with the Montpelier-Barre employment center.

Commuter Parking Facilities

Public transportation services depend on park and rides, bus pull-offs, and parking lot designs that can accommodate larger buses. These facilities provide a safe and convenient method for picking up and dropping off bus riders. Bus pull-offs and parking lots help serve short-distance

⁸ Vermont's Highway System Policy Plan (June 2004) provided at www.aot.state.vt.us, VTrans search word HSPP.

bus lines serving the developed towns in the Upper Valley. Increasing the number of park and ride lots better supports regional public transportation. In Vermont, park and ride usage is highest along interstate interchanges because of the high traffic volumes and proximity to local road systems.⁹ These park and rides are important because they put people on buses before they contribute to the traffic congestion found in the major employment centers. In commercial growth areas, park and rides can be combined with rest areas, tourist information centers, restaurants, and other land uses. This increases land use densities, keeps properties on local tax rolls, combines maintenance needs, and improves the overall likelihood that the park and ride will be successful.¹⁰

Elderly and Disabled

Elderly and disabled transportation services are a unique asset to the transportation system and one that operates almost invisibly to most citizens. These services, whether provided by Medicaid or Elderly & Disabled funding programs, offer transportation to eligible individuals for accessing medical appointments, senior meal sites, adult day programs, and commercial service and shopping centers. While the core funding comes from state and federal programs, the region is unique in that it extends program resources by using volunteer drivers (i.e., trips provided by individuals using their own cars). The federal and state transportation programs are chronically under-funded and have become increasingly regulated by the respective transportation agencies. The Regional Commission can advocate for increased funding and resources to meet present and projected needs. The Regional Commission can also collaborate with the public transportation agencies, investing staff time to address these increasing regulations. The ironic reality has been that state and federal regulatory procedures add an unfunded administrative burden that has reduced public transportation services and curtailed volunteer contributions.

Goals

- (1) Increase the availability and diversity of public transportation options for the entire region.
- (2) Support the public transportation and human service agencies charged with providing public transportation in the region by advocating for funding, presenting the societal benefits, and identifying undue regulatory burdens.

Policies

- (1) Support town, human service agencies, and the regional public transportation agencies in providing more public transportation services for a greater percentage of the region. Continue assisting public transportation agencies with planning, marketing, and general coordination.

⁹ As evidenced by Park and Ride usage surveys conducted by the Vermont Agency of Transportation and the Regional Commissions in 1991, 1995, 2003 and 2006.

¹⁰ Based on observations of Northern New England park and rides and information provided in the American Association of State Highway and Transportation Officials' Guide for Park and Rides facilities (2004) found at www.transportation.org.

- (2) Encourage and facilitate coordination between public transportation agencies and the Vermont Agency of Transportation in the construction of park and rides. Give higher priority to park and ride projects occurring along interstate interchanges and existing bus routes.
- (3) Advocate for increased capital investments in public transportation services and facilities. Support the start of the Royalton to Montpelier I-89 north commuter bus service. Support the start of the Bridgewater to the Upper Valley U.S. Route 4 commuter bus service.
- (4) Support funding increases to meet demand in Elderly and Disabled transportation services.

H. Access Management

Background

Access management is a process to provide reasonable accessibility to adjacent land uses while maintaining a safe and efficient flow of traffic in terms of safety, capacity needs, and speed.¹¹ Without adequate access to the transportation system, businesses and citizens are unable to safely and conveniently reach desired destinations. Conversely, the management of the location and number of driveways on public highways is critical to maintaining traffic flow efficiency and safety. There is a relationship that demonstrates this connection – as access increases (driveways, road intersections) mobility decreases and crashes increase.

Regulatory Authority

Regulatory authority for access management rests with VTrans for state highways and towns for local roads (VSA Title 19 Chapter 11). The law grants access for abutting properties using safety as the deciding criteria. Compliance with town plans, local ordinances, and regulations related to highways and land use provides additional guidance. Under the Act 250 permitting process, prior to granting a permit for a major development or subdivision, it must be found that the traffic and land use impacts associated with these projects fit local, regional, and state access management goals and policies, do not cause unsafe conditions or congestion, endanger the public's investment in a road, or interfere with its function. A review of development and access changes must be relevant to: 1) transportation system conditions; 2) goals, objectives, and policies of the Regional Plan; and 3) contemporary access management goals and practices. The Regional Commission follows all access management strategies through Act 250 and when working with towns in plan and ordinance development.

Goals

- (1) Enhance the use of access management in local, regional, and state development permitting activities.
- (2) Promote access management for all local and state transportation projects.

¹¹ The primary resource for this chapter comes from access management materials provided by the Vermont Agency of Transportation at www.vtaccessmanagement.info.

Policies

- (1) On town roads, access design standards should be implemented for all driveways without distinction if the access is temporary or permanent. The access permitting process should encourage the use of shared driveways and/or permitting an access that may result in a future shared driveway. And the permitting of access for commercial or industrial land uses should be purposely guided towards existing development nodes in order to preserve or create road segments that possess fewer access points. Continue to develop access management standards with Towns using the Regional Commission driveway access model ordinance. Continue working with towns to improve town plan, zoning and subdivision regulations to better promote access management. Continue working with towns to update highway and public work ordinances that more effectively emphasize access management principles.
- (2) In Act 250 developments, require connections to adjacent roads and between existing and future developments and minimize access points outside of village and town centers. On regionally managed transportation enhancement projects, ensure existing accesses are more effectively designed and managed.
- (3) On state controlled highways, cooperate with VTrans in implementing the state's access management program. Private development should have permanent landscaping and roadside enhancements to visually define access points and contribute to the road's aesthetic character. Access locations should be clustered together to promote development nodes with slower speed limits and multiple accesses along with road segments that have higher speed limits and fewer driveways. Sight distance standards will be based on actual travel speeds and not the posted speed limits. Land owners will utilize a local road access or acquire an access easement to avoid direct access to a state or national highway – particularly on the region's tractor truck highway network. Work with VTrans staff to clarify the state's administrative process so access permits follow state law and are "compatible with any regional plan, state agency plan or approved municipal plan." (VSA Title 19, Chapter 11).

I. Class 4 Roads

As a transportation facility, Class 4 roads serve the most adventurous of vehicle operators; they are the scenic travel corridors for hikers and off-road bicyclists, and they serve as limited access to hunting and conservation lands. Public utility services or other town infrastructure, that typically accompany roads, is nearly nonexistent on Class 4 roads. Very little private development has occurred along Class 4 roads in this region. Towns have used Class 4 roads to establish land use policies that discourage development along a town's periphery. Towns have also employed Class 4 road designation to maximize the public's investment on road maintenance and snow plowing responsibilities. In areas where only seasonal homes or no homes exist, towns have re-designated a Class 3 road to Class 4 status in order to reduce maintenance obligations. Class 4 roads and right-of-way are a public resource, although the

towns have no legal obligation to maintain road surface, culverts, or bridges.¹² Class 4 roads were created by the VTrans local road classification system which required towns to identify Class 1, 2, and 3 roads for state aid but not Class 4 roads. Since Class 4 roads were not eligible for state aid, they were not as consistently identified or mapped, although many of them are known to local residents. New state laws addressing “Ancient Roads” now require Class 4 roads to be mapped or they will revert to private ownership by 2015. Towns should explore the role of Class 4 roads in their land use development policies, needs for present and future traffic circulation, emergency management access, and impacts to natural and historic resources. Class 4 roads can be mapped and presented to the Vermont Agency of Transportation for inclusion on the official town highway map.

Goals

- (1) Promote opportunities for towns to evaluate their Class 4 road system.
- (2) Encourage towns to utilize Class 4 roads for transportation and recreation and to guide local land use decisions.

Policies

- (1) Continue to actively support Class 4 road mapping and survey projects. Work with towns to secure grant funding and technical expertise to properly inventory and map Class 4 roads.
- (2) Work with towns to develop Class 4 road use policies and to better utilize Class 4 roads and road re-designations to define and support land use development policies.

J. Parking Management

Parking allows motorists access to residential, commercial, industrial, and public lands.¹³ Parking also brings financial, environmental, and community livability costs. Parking space requirements and parking lot placement can degrade land uses by creating excessive, highly visible paved lots that are rendered unusable for anything other than parking. This is an acute challenge in regional growth areas where a concentrated land use pattern makes land a valued commodity.

National standards require parking space standards be linked to a category of land use to meet peak usage rates and maximize the motorist’s convenience. Those standards are based on a single development and do not take into account the opportunity for shared parking from adjacent land uses. Parking design standards are focused on the internal lot and not on using on-street parking that may contribute to a business district’s historic parking pattern which also

¹² The Vermont League of Cities and Towns offers legal council stating towns are responsible for culverts and bridges. This Plan, based on the input of local road managers, states a transportation opinion that maintaining bridges and culverts absent the roads does not constitute the wise application of public funds. This issue has not been formally addressed by the courts nor have law makers sought to clarify state statutes.

¹³ The primary resource for this chapter comes from the American Planning Association’s *The High Cost of Free Parking* by Donald Shoup.

contributes to traffic calming. Parking space locations can be appropriately sited for the different usage patterns. Off site parking is an encouraged practice in regional growth areas either through shared facilities or the provision of town parking lots. Land using planning and regulations can be developed to support flexible parking standards that promote on-street and shared parking solutions.

National experts agree that parking facility capacity can accommodate a majority of users, not the highest peak need. Parking facilities can take into account the development's location and lower parking requirements if it is likely citizens would access the development using other transportation modes such as public transportation, bicycling and walking. The proximity of parking spaces can be balanced with the needs of the particular land use to include other needed amenities such as community space, sidewalks, and traffic calming. Parking spaces that have high turn-over may be closely situated, but longer term parking lots can be located further away and not use space that is better situated for other amenities.

Goal

- (1) Encourage contemporary parking management standards in all land use development regulations and transportation project designs.

Policies

- (1) Develop contemporary parking standards for inclusion in Town Plans, zoning and subdivision regulations. Discourage parking standards that connect land uses and square footage limits to parking space requirements. Encourage greater flexibility in design review. Support parking standards to preserve rural character outside development nodes. Support parking standards that maximize land uses within regional growth areas. Seek opportunities to promote shared parking, rear lot parking access, covered parking, and other techniques that minimize land disturbances.
- (2) Support these same parking standards when reviewing Act 250 developments.

K. Walking and Bicycling

Walkers and bicyclists use the region's roads and sidewalks for recreation, getting to school, commuting, errands, and other transportation related travel activities. Walking and bicycling helps offset vehicle traffic and its related "wear and tear" to roads and bridges. In contrast to automobiles and tractor trucks, walkers and bicyclists provide great benefits to town/village residential and commercial land uses without the related safety, noise, and environmental impacts of motorized traffic.

Walking and bicycling conditions have minimally improved as the public and private sectors increasingly make accommodations to roads, sidewalks, and related facilities (e.g., bicycle racks, street lighting). In regional growth areas, walking and bicycling facilities are considered a regional priority. While walking and bicycling are local in scale, the regional priority has been to incorporate these facilities in every town. There should be a clear expectation that walking and bicycling facilities are present in every regional growth center. Particular emphasis has been given to sidewalk and bicycle lane projects that extend or connect existing facilities. Nationally,

an emerging priority in walking and bicycling projects is addressing streetscaping and traffic calming initiatives. These improvements seek to increase the desirability of walking or bicycling alongside roads.

The traffic criterion under Vermont's Act 250 development review process has been important to evaluate a proposed development's vehicular traffic impacts. The region and towns have also placed a priority on evaluating the potential impacts to pedestrian and bicycle traffic.

Some of the nation's premier bicycling corridors navigate through the region. The White, Ottauquechee, and the Connecticut River valleys offer rolling hills, scenic views of the region's agricultural and natural landscapes, and beautiful quaint villages which are all very attractive to the recreating bicyclist. These bicyclists, often traveling in the summer, contribute to the region's economy. As part of the tourism industry, bicyclists help the region expand upon the busy fall and winter seasons. Transportation and land use planning can preserve and enhance bicycling conditions in the region.



C. Wise © 2006

Photo 5: Bicycling group using US Route 4.

The Safe Routes to School program is a national initiative designed to promote walking and bicycling among school children. Improving safety is the primary program emphasis, but there are also other goals of improving physical fitness and mitigating school caused traffic impacts. The region has been supportive of federal and state initiatives that incorporate safe routes programs primarily in schools in or near the larger regional growth areas.

Goals

- (1) Expand opportunities for walking and bicycling in the region.
- (2) Promote walking and bicycling as a viable means of transportation and recreation.

Policies

- (1) Work with towns and VTrans to institutionalize pedestrian and bicycle accommodations in all of its planning, engineering, and construction related activities. In addition to the existing local land use regulations, develop free-standing Bicycle and Pedestrian Plans for interested towns.

- (2) Work with towns to support land use regulations that increase the density and mixed use development pattern that improves walking and bicycling conditions by shortening trips between where people live, work, and recreate.
- (3) Cooperate with private and public initiatives that seek to market walking and bicycling in towns and the region. Participate in state and local initiatives that promote bicycling and walking.
- (4) On all Act 250 developments, consider the pedestrian and bicycle traffic impacts to preserve mobility and safety. Facilities and land use controls shall be incorporated where walking and bicycling are both anticipated and desired travel options. Accommodations will involve constructing the actual facility, developing the site to accommodate the facility, participating in federal grant programs to provide the local match requirement, and/or deeding the public the rights of way to secure the land needed for facility construction. Encourage developers to develop internal walking and bicycling circulation plans as well as accommodating connections to adjacent parcels – whether developed or not.
- (5) Continue to support the Safe Routes to School program. Encourage more schools to participate in the program – especially those schools within densely settled villages or town centers.

L. Traffic Calming

Traffic calming involves changing the physical design of a road and using enforcement to reduce the undesirable impacts of vehicular traffic within residential and commercial areas. When successfully employed, traffic calming can decrease cut-through traffic volumes, lower traffic speeds, and improve safety for all transportation modes. Traffic calming initiatives have to balance the needs for slower vehicles with emergency management access and road maintenance needs. Roads that are a priority for traffic calming changes should be within or adjacent to regional growth areas, schools, commercial centers, and areas designated for high density development. Safety and quality of life are the primary considerations that are considered when evaluating

the necessity for traffic calming.



C. Wise © 2006

Photo 6: On street parking in regional growth areas

A wide range of traffic calming techniques are available - installation of roundabouts at selected intersections, reduction of travel lane widths within regional growth areas, on-street parking and enhanced road lighting, bump outs and splitter islands for pedestrian crossings, and pavement markings.

Streetscaping is a method of improving the aesthetic quality of roads with landscaping and tree plantings. Trees and landscaping have been shown to be an important component of a successful traffic-calming road enhancement. The landscaping and trees help restore a sense of community to a road, often mirroring the historic look and feel of New England tree-lined streets. A better looking road evokes a psychological reaction where motorists identify a road's character as a road supporting a community use as opposed to a highway which is just a means to connect to a destination. Projects that incorporate traffic calming and other bicycle and pedestrian enhancements can include landscaping and tree plantings.

Pavement markings are often a simple and affordable method for improving safety and encouraging lower traffic speeds. Center line and fog line markings clearly delineate travel lanes. They also serve to visually narrow lane widths which encourage motorists to decrease vehicle speeds.

Goal

- (1) Mitigate motor vehicle impacts on the region's transportation system and adjacent communities.

Policies

- (1) Promote local traffic calming projects for town roads that are located within regional growth areas and/or have speeding related safety concerns. Work with towns to develop road standards that promote traffic calming in private development.
- (2) Work to ensure state transportation policies accommodate traffic calming principles. Require that transportation projects follow the Vermont Agency of Transportation traffic calming guidelines. Ensure that greater amounts of traffic calming related projects are selected by the Vermont Agency of Transportation. Discourage the elimination of on-street parking for the benefit of increased traffic capacities within all regional growth areas. Develop transportation enhancement projects that advance traffic calming and landscaping techniques within areas where walking and bicycling occurs or is desirable.
- (3) Advocate state transportation agencies more actively apply pavement center line markings on state-controlled and Class 2 roadways. Support fog line markings for all Class 1 and 2 paved roads.

M. Scenic Preservation

Many of the region's transportation corridors are considered scenic resources that provide direct benefits to tourism and serve to attract residential and commercial investments. These roads reflect the culture and history of the region's rural agricultural identities. The roads themselves are the region's public spaces that are enjoyed by residents and visitors in the region. In many circumstances, a motorist's perspective of the towns in the region comes primarily from their views as they travel along the transportation system.

In this region, towns have been relatively successful in protecting rural aesthetic qualities and as a consequence we have drawn many people attracted to this environment. These people may not understand the values that brought them here or the efforts it has taken to maintain the aesthetic and functional character of these roads and surrounding landscapes. As such there has been an increase of interest to preserve and promote certain transportation corridors as particularly unique in scenic character and qualities. Unfortunately, this interest is often in response to proposed development that has been viewed as a detriment to the town's scenic character.

National Scenic Byways Program

The National Scenic Byways Program (Byways) is a program available to communities that desire to proactively formalize corridors by scenic and heritage qualities. The Byways program was established under federal transportation legislation in 1991 and has been reauthorized under subsequent transportation bills. Currently, the Connecticut River Scenic Byway and Route 125 Middlebury Gap are the only designated corridors in the region. Because of statewide and community interests, priority should be focused on determining the feasibility of extending these byway corridors to Interstate 89, portions of U.S. Route 4, VT Route 100, and other corridors as identified by interested communities. However, these programs operate best when they are born from grass root coalitions and not from state or regional officials. Whenever citizen groups and communities mobilize to seek scenic byway designation, the Regional Commission can aid those efforts by developing corridor management plans and implementation strategies that could help create and then market scenic byways.

Scenery preservation can also be implemented on a smaller scale. Developers should leave undeveloped land adjacent to the public right-of-way or install tree screening for commercial and residential developments so they are obscured from the road. This is particularly important along major tourism routes. This is also critical along town roads to preserve the collective aesthetics of the region's rural back road system.

A properly managed scenic road is also a safe and efficient travel corridor. Many of the practices and principles behind scenic byway management translate to good transportation system operations – preserving safety, mobility, and encouraging bicycling and walking.

Goals

- (1) Preserve the aesthetic character of the region's roads and surrounding landscapes.

Policies

- (1) Support the designation, corridor planning, and promotion of scenic byways as identified by interested communities and local citizens.
- (2) Continue to promote the Connecticut River Scenic Byway and Route 125 Middlebury Gap.
- (3) Work with towns to ensure planning regulations accommodate development buffers and/or tree screenings along scenic roads.

N. Development Impacts

This region is fortunate to have a development community that has been responsible for enhancing the quality of the transportation system. Their interests in “doing no harm” has helped towns responsibly develop while preserving the safety, efficiency, and aesthetic values of the region’s transportation resources. It is in the public’s good to support development and to create the partnerships that promote the long-term success of the regional economy. As development continues, towns in this region have an obligation to foster this important relationship with private developers. If the state and federal governments continue to lack the funds to stabilize the existing transportation system and/or add new infrastructure and services, public-private partnerships will help ensure that development is successfully supported by a well functioning, multimodal transportation system.

A proposed development considers the operations and character of the existing transportation system and devises strategies to mitigate possible impacts and improve transportation conditions. If there is no public transportation, bicycle, or pedestrian facilities, then those facilities are typically considered in development proposals. Bicycle and pedestrian facilities can be included even if they only accommodate three seasons of travel. Public transportation, within regional growth areas, is considered even if there are presently no fixed route services in the immediate area. Bus pull-offs and driveway circulation patterns that accommodate buses provide present and/or future opportunities for public transportation. Most importantly, the built environment does not preclude the expansion facility upgrades. The assumption is that the continued development may increase ridership demand and allow for public transportation services to be started/expanded offsetting negative vehicle traffic impacts.

Goals

- (1) Develop the region while preserving the safety, efficiency, and character of the region’s transportation system.
- (2) Prevent development from defining a built environment that would create great cost and conflict should the public’s transportation system require improvements.

Policies

- (1) Guide development to mitigate impacts to the transportation system with improvements that fit the region’s rural context. Development that carries significant traffic related

impacts can be situated within regional growth areas where the necessary infrastructure exists. The priority is to support the land use and economic development objectives recommended in the Regional Plan and the Town Plans. Development that exceeds the capacity of the rural road transportation system is inconsistent with the policies of this Plan even if urban-scale infrastructure improvements could be made to mitigate impacts. This is particularly relevant for rural residential developments that could increase traffic volumes beyond what gravel roads can sustain necessitating undesirable and costly paving projects.

- (2) Encourage development that promotes safe and efficient multimodal accessibility for residential, commercial, and industrial uses. Develop a transportation system based on anticipated and desired multimodal demand. Road expansion projects will be considered necessary, only after all other transportation demand management and multimodal solutions have been explored and deemed insufficient to address transportation impacts.
- (3) Developers must demonstrate they have considered their plans within the context of the local and regional transportation system. Developments should provide connections to adjacent developments and other local roads, not just a single collector or arterial road. If connections to adjacent parcels are not yet possible, then the appropriate easement or development permit conditions will be required so connections can be accommodated in the future.
- (4) Regionally significant development, that shall require greater involvement from the Regional Commission, will be defined by the Act 250 development process.

O. Truck Traffic

Tractor trucks play a unique role in the region's transportation system and economy. In Vermont, trucks account for ninety percent of the total flow of commodities. Trucking typically accounts for 5 to 15% of the total traffic volumes along major arterials. The trucking community is a diverse industry comprised of many different operators and there is little available information about their trip origins and destinations. Based on national and statewide tractor truck studies, it is known that truck traffic has been increasing over the past ten to twenty years and growth is expected to continue.

The State of Vermont designated a network of roads for tractor truck traffic (VSA Title 23 Chapter 13, Section 1432). In the region this includes; Interstate 89, Interstate 91, U.S. Route 4, US Route 302, and sections of U.S. Route 5, VT Route 14, and VT Route 100. These roads receive a greater priority in transportation funding. While a minority in percentage of total traffic, trucks cause the greatest amount of pavement wear on the region's arterial and major collector roads. Asphalt pavement deterioration is heavily dependent on a road's construction characteristics, pavement quality and thickness, underlying base/native soils, and environmental conditions. A fully loaded truck is equivalent to 10,000 passenger vehicles (weight increase raised to the third or fourth power). While it is difficult to evaluate broadly, these impacts appear consistent for gravel roads, culverts, and bridges.

Posting Weight Limits

While the state has a continuing program of enforcement on state roads, there is an inconsistency for how towns post and enforce truck traffic standards. In 2007, a majority of towns were posting seasonal weight restrictions and a few selected towns had year round restrictions. The number of town roads with posted weight limits varied from three to 300. Truck weights were primarily enforced by the Vermont Department of Motor Vehicles. There were a few towns that actively weighed trucks and only one town regulated Vermont length restrictions. The inconsistency in posting and enforcing weight restrictions creates confusion among the trucking community. It also encourages truck traffic rerouting away from towns with enforcement to towns without enforcement. This creates a hardship for the more rural towns that have limited financial resources to monitor and enforce truck traffic restrictions.

Goal

- (1) Encourage towns to address truck traffic impacts to the region's transportation system.

Policy

- (1) Seasonal and year round weight restrictions are a responsible method to mitigate truck traffic impacts. Work with Towns to advocate greater consistency in posting roads and enforcing weight restrictions.
- (2) Promote personnel time and equipment sharing (e.g., truck scales) between towns. Allocate Transportation Planning Initiative funds to better measure tractor truck volumes on state and local roads.

P. Roads and Ecology

Background

The region's transportation system has created negative impacts to soil, water, and air quality. It is the linear nature of a road system that leads to the deterioration and fragmentation of land tracts and wildlife habitats.¹⁴ Functioning ecosystems depend on large continuous land areas, roads crisscrossing the landscape serve to divide the land and disrupt the flow of these natural processes. For wildlife, bridges and culverts can discourage fish passage; roads can physically prevent the seasonal movement of amphibians; and traveling vehicles can dissuade or collide with moose, deer, and bear. Towns can now consider stream geomorphic conditions and fish passage when constructing transportation projects. For air quality, choices in fuel (e.g., gas, diesel, biodiesel, etc.) and fuel economy (i.e., miles per gallon) can result in significant changes in the production of greenhouse gases and federally regulated pollutants. And for water quality, failing culverts, deteriorating gravel roads, improper roadside ditching, and other insufficient stormwater mitigation techniques allow the discharge of polluted sediment into streams and rivers.

¹⁴ As described in *Road Ecology: Science and Solutions* (2003, Island Press) and the Transportation Research Board's NCHRP Synthesis 305 *Interaction Between Roads and Wildlife Ecology* (www.trb.org).

Mitigation

Not all impacts can be controlled, but there are mitigation strategies the Regional Commission can help implement. Funding has been the primary limiting factor. The Regional Commission can pursue funding opportunities to advance the planning and construction of projects that preserve or enhance water quality. Replacing deficient culverts and bridges carries the greatest potential for addressing water quality – designing appropriately scaled structures that can handle flood events, stormwater runoff, promote fish passage, and minimize the discharge of road sediment. These upgraded culverts and bridges, operating in greater harmony with the natural environment, will also be less likely to fail during storm events. This is a particular concern as officials from the Agencies of Natural Resources and the Agency of Transportation plan for the possibility of another storm event equivalent to the 1927 flood. This has been illustrated in recent years as adjacent regions have suffered massive infrastructure damage and loss of life during flood events.

Stormwater Management

Transportation facilities introduce impervious surfaces that prohibit water from percolating into soils. These surfaces increase runoff that results in “non-point source” pollution impairing water quality and increasing the chances for downstream flooding. The transportation networks evolved from paths and wagon trails to gravel and paved roads, but in most instances still track along historic alignments parallel to the region’s streams, rivers, and lakes. This situation means impervious transportation surfaces have greater impacts than similarly scaled land uses set further back from waterways. The State of Vermont requires new and reconstructed transportation facilities to follow established stormwater management best practices¹⁵. Transportation facilities that can reduce impervious surfaces, accommodate onsite stormwater mitigation facilities, and provide sufficient landscaping to buffer discharges into nearby waterways are being encouraged. The towns can update stormwater ordinances (as authorized under VSA Title 23 Chapters 91 and 101) to require private construction to accommodate best practices. Where general exceptions exist for town activities, towns can enact standards that conform to the latest version of the *Vermont Better Back Roads Manual*. The regions are best able to support stormwater transportation standards by providing education opportunities to town and regional officials about the advantages and costs associated with stormwater management.

Biodiesel Fuels

Diesel fuel powers highway equipment, town and emergency management vehicles, and school buses. Diesel releases significant volumes of air pollutants that impact the environment and the public’s health. These impacts have been reduced with fuel additives and low sulfur blends, but it still qualifies as ‘dirty diesel’ as described by transportation professionals. The use of biodiesel blends that are partially derived from vegetable oils result in far better air quality and can provide improved vehicle performance and efficiencies. The Regional Commission has invested significant time in education and outreach activities that promotes the use of biodiesel blend options. The Regional Commission can continue to advance biodiesel as a viable fuel alternative for use by towns and the Vermont Agency of Transportation.

¹⁵ More information can be found at Vermont Department of Environmental Conservation’s Water Quality Division, www.vtwaterquality.org.

Goals

- (1) Actively mitigate all transportation caused impacts to soil, water, and air quality.
- (2) Encourage towns and the state to address roadway ecology in all their planning, maintenance, and construction related activities.

Policies

- (1) Continue to inventory culverts and bridges and create capital plans that give greater priority to replacement projects along important natural resource corridors. Cooperate with Vermont Better Backroads and the Vermont Agency of Natural Resources to advocate for improved culvert and bridge designs that are environmentally sensitive and less likely to be damaged by storm events.
- (2) Promote education and outreach activities that educate and advocate stormwater management practices.
- (3) Continue to promote the use of biodiesel and other alternative fueled vehicles through educational workshops and meetings.

Q. Project Prioritization Process

All the state's regional commissions are required to annually prioritize state transportation projects. The Regional Commissions use planning factors for project prioritizing. The input of the Regional Commission accounts for twenty percent of the overall ranking process, with VTrans providing the other eighty percent of the ranking system based on engineering related factors. Developing regional ranking criteria must be accomplished within the legislated system that requires Regional Commissions to consider project impacts on mobility and congestion; social, cultural, and economic impacts; and conformity to local and regional plans. The current regional ranking system was developed to meet Regional Plan priorities and was influenced by contributions from the Transportation Advisory Committee. The Regional Commission evaluates projects with the following criteria: preservation of the transportation system; improvements to safety, social, cultural, and economic priorities; and multimodalism/mobility enhancements. There have been discussions of standardizing the project evaluation process so that each region ranks projects similarly. This would effectively restrict the autonomy and self determination exercised by the various regions in the state.

Goal

- (1) Support the region's role in project prioritization for all state and federally funded projects.

Policies

- (1) The Regional Commissions must be given sufficient autonomy to emphasize the goals, policies, and recommendations articulated within its regional plan if rankings become standardized across the state.

- (2) There is an initiative to standardize regional rankings across the state and that can be addressed insofar as Regional Commissions are given sufficient autonomy to emphasize the goals, policies, and recommendations articulated within their regional plans.

R. Transportation Funding

Federal

Transportation funding is the most important mechanism directing planning and project development activities. Transportation funding comes from numerous combinations of the local tax base, state and federal gas tax receipts, state and federal registration fees, and private financing sources. The most significant funding for Vermont comes from the federal transportation bill, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). The transportation bill is the most recent authorization financed through revenues in the federal highway trust fund. This fund has supported transportation since the Eisenhower highway building era, but at the federal level, there is an increasing gap between revenue and transportation needs¹⁶.

National experts predict the Highway Trust Fund will be in a deficit before the end of the SAFETEA-LU authorization period and that future authorizations will reflect a reduced national role in financing transportation. This will be a particular hardship for states like Vermont that primarily rely on federal funding. It will also be a hardship for Vermont because as a “donee state” that receives more federal funding than it contributes, funding reductions will likely lead to “donor states” working harder to address their perspective of funding inequities.

Transportation officials have stressed funding concerns over the last three transportation reauthorizations with the goal that other funding programs be established now to address projected shortfalls. At each authorization, funding amounts and the issue of “donor and donee” states has become increasingly contested. Adjusting registration fees is not as great a priority as the gas tax because registrations are not based on usage rates and are borne solely by Vermont citizens. Fuel taxes are based on fuel consumption which is a relatively accurate measure of transportation use – more driving requires greater contributions. There is also a greater opportunity for the 10-12 million tourists that enter our state every year to help compensate Vermonters for their use of roads, bridges, and other transportation infrastructure.

Taxes and Registration

Transportation financing is developing into a critical debate and the region has established advocacy positions for ensuring reliable sources of revenue. It is assumed that managing our transportation infrastructure is a priority and that investments require reliable sources of revenue fairly extracted from Vermont citizens and transportation system users. Fuel taxes were last set in 1997 for gas and in 2000 for diesel at rates significantly below New England and national averages¹⁷. These taxes remain the same despite cost of living increases and recent construction

¹⁶ As reported by the National Surface Transportation Policy and Revenue Study Commission in July 2006 (www.surfacecommission.gov – click Commission meetings). Vermont is in the bottom 25% in fuel tax rates right behind Texas in the rankings.

¹⁷ October 2006 Motor Fuel Tax summaries, American Petroleum Institute (www.api.org – click on Policy Issues).

inflation rates of 4 to 6% annually. Gas and diesel taxes are user based fees and the burden to Vermonters is defrayed by non-residents using our transportation system. Fuel taxes also create incentives for higher fuel economy vehicles and vehicle miles trip reductions that support many environmental and transportation planning objectives. Registration and other dedicated fees that were raised in 2006 can also be indexed to annual cost of living rates. Rather than the occasional rate increase, an indexed fee rate would guarantee a consistency in funding that is automatically adjusted if economic conditions for citizens improve or decline.

Public/Private Partnerships

Although optimistic projections only anticipate private funds to account for five percent of total transportation project funding, there is an opportunity to increase the amount of public/private partnerships to help address needed transportation investments. The Regional Commission, working in collaboration with the towns, can seek creative partnerships with private developers to help offset transportation infrastructure costs. This may involve transportation impact fees and/or developers providing the local match for federal/state transportation projects. State policy has been evolving so that in 2007, the Vermont Agency of Transportation will require newly proposed transportation projects have innovative financing packages prior to be accepted by the Agency. This is an active acknowledgement that capital investments need more diverse funding sources.

Goal

- (1) Sufficient revenues to pay for transportation system investments, including maintenance.

Policies

- (1) Support creating a series of tax strategies that secure dedicated revenue levels needed to maintain the existing transportation system. Stress that Vermont fuel taxes remain consistent with other New England states and that those taxes are indexed to annual cost of living rates. Continue working with the State legislators to develop and implement taxation strategies that provide sufficient revenues to maintain the transportation system.
- (2) Transportation revenues should be used for transportation and funds allocated for general governmental services shall be actively discouraged.
- (3) Sponsor educational opportunities that help continue a local and regional dialogue for addressing anticipated shortfalls in federal funding.

S. Performance Measures

The Regional Plan outlines a direction for the region's future and guides the development and implementation of the transportation work program. Goals and actions are presented on a multitude of transportation topics and this chapter describes the methods available and recommendations to implement those tasks. The transportation work program and the local technical assistance tasks must be related to the goals, policies, and recommendations of the Regional Plan. The ways in which the Regional Commission evaluates and provides input into local and regional development must adhere to the Regional Plan. The ways in which the State

continues its systematic investment into transportation system maintenance, rehabilitations, or other improvements will be guided by the Regional Plan.

Goals

- (1) Guarantee that Regional Plan transportation topics provide guidance that is meaningful and useful to citizens and town officials in the region.
- (2) Sets Plan standards that are achievable by the staff at the Regional Commission.

Policy

- (1) After each revision of the Regional Commission's transportation element, evaluate the policies and recommendations for action to assess Plan implementation. Subsequent Plan updates shall report on the progress of transportation policies.

T. Transportation Corridor Planning

The previous transportation sections address general policies pertaining to regional transportation. This section focuses on unique transportation corridors in the region. The goal of this section is to outline corridor specific policy recommendations that augment those policies in the general transportation chapter. Each transportation corridor is briefly described with an overview, then a summary of infrastructure and traffic conditions, a review of capital projects, and finally a listing of planning and implementation priorities.

US Route 302

US Route 302 is a major east-west travel corridor connecting the northern New England region from Portland, ME to Montpelier, VT. US Route 302 was originally part of the old New England interstate system that pre-dates the Eisenhower era national highway system. Of the approximately 170 mile highway there are only 8 miles that fall within the Two Rivers-Ottawquechee region in the towns of Newbury (5 miles) and Topsham (3 miles). US Route 302 is part of the Vermont's tractor truck network which means that this roadway receives a greater priority for transportation project investments. Within our region, US Route 302 crosses Interstate 91 at the Exit 17 interchange. Despite all the strategic advantages to the Two Rivers-Ottawquechee and greater North New England region, it is still a two lane road that offers scenic views of rural landscapes and the Wells and Connecticut Rivers.

There are modest traffic demands on US Route 302 with an approximate average traffic volume of 3,700 vehicles per day. The road has been evaluated by transportation engineers as being in poor condition with an average sufficiency rating of 59. Tractor truck traffic is 8% of the overall traffic volumes. Posted travel speeds along US 302 are 50 mph with the exception of 25 mph posting in Wells River Village. There have been no traffic speed counts conducted over the last 5 years.

There are land use changes and traffic increases anticipated for US Route 302. As in other parts of the region, New Hampshire land use development decisions will significantly impact traffic volumes for those road segments between the Interstate 91 interchange (the principal north-south arterial for all of the Upper Valley) and the New Hampshire state line. The Town of Newbury has designated part of US Route 302 as a highway commercial district, has established an industrial park, and continues to encourage development in Wells River Village. In the Town of Topsham, there are no

relevant land use or transportation policies. These land use designations or lack thereof make it increasingly important to preserve the safety and mobility of this roadway for the traveling public.

The US Route 302 corridor has one scheduled transportation project in the Vermont Agency of Transportation’s multi-year capital program which is:

	State Project #	Work Description
Newbury	BHF 020-2(32)	Roadway realignment at the railroad underpass.

The Plan recommends five improvement strategies along US Route 302 to promote economic development while preserving transportation safety and mobility.

- (1) Project Implementation – Support the completion of the road realignment at the railroad underpass.
- (2) Project Implementation – Identify transportation enhancement and safety projects within Wells River Village to ensure that US Route 302 better supports village life and commercial activities.
- (3) Project Implementation – Construct a park and ride for the US 302 and Interstate 91 interchange. Work to collocate the park and ride with a suitable/complimentary business.
- (4) Planning – Continue to implement access management policies for all development along US Route 302. Promote access within defined development nodes and actively discourage access along sections of highway outside of those development districts. Emphasize access management in development review from the Interstate 91 interchange to the New Hampshire state line.
- (5) Planning – Initiate a data collection program to assess traffic operations along the US Route 302 corridor. Focus traffic counts within Wells River and the interstate Interchange to monitor traffic speeds and truck traffic volumes.

US Route 4

US Route 4 is one of a few east-west arterials in Vermont. In this region the primarily two lane rural road parallels the Ottauquechee River valley along the old railroad alignment and winds through many sensitive natural landscapes and a number of vibrant community centers. US Route 4 is on the national highway system and Vermont’s tractor truck network so mobility and safety issues are a top priority. US Route 4 is also a Main Street for a number of villages and hamlets. The road is a gateway into Vermont, a tourism destination for experiencing the region’s rural landscapes. Many residents’ quality of life and the vitality of commercial businesses greatly depend on preserving this unique road and surrounding landscape. US Route 4 faces difficult challenges of preserving mobility, safety, and traveling efficiency while continuing to support community life and commercial activities. There are no other parallel roads or alternative travel options available and the topographical and environmental constraints would restrict all reasonably feasible roadway expansion projects. As traffic increases and land development intensifies, the region will be forced to accommodate that growth with little or no further transportation capacity improvements.

There is a 27.5 mile segment of US Route 4 in the region. US Route 4 has been consistently studied and evaluated over the last 40 years making it the most researched road in the region. US Route 4 rates low in engineering standards with an average rating of poor (sufficiency rating of 55) – this accounts for the road’s structural conditions, safety record, and generally how the highways serves the motorist (excluding walkers or bicyclists). Pavement condition evaluations rate the road from

good to poor – this accounts for just pavement and whether it is sealed and smooth or cracking and rutting. Most US Route 4 intersections are stop controls, there are no fully signalized intersections until White River Junction as US Route 4 exits the region to New Hampshire. The level of service for these intersections ranges from poor (e.g., Quechee Main Street) to excellent (e.g., Happy Valley Road in Taftsville). Less than 3 miles of the total road have adequate walking and bicycling facilities. Shoulders are non-existent in some places, other infrastructure such as culverts, short-span bridges, and guardrails are in deteriorating condition. The scale of development pressure in the Hartford-Woodstock area is the most significant in the region.

The traffic demands on US Route 4 are unparalleled in the region. In 2006, the road had an average traffic volume of 8,600 vehicles per day. Tractor truck traffic represents 5-15% percent of the overall traffic volumes. Posted travel speeds varied from 25-50 mph with motorists showing a broad range of driving habits from mostly violating (76% exceed speed limit in Quechee) to near total compliance (98% follow speed limit in Woodstock Village). Seasonal activities bring many numbers of tourists and the traffic (i.e., 10-50% above average conditions) results in significant congestion and delays around Woodstock Village, Quechee, and White River Junction. Since the 1990’s, US Route 4 has averaged 30 reported vehicle crashes per year. There are few pedestrians observed along US Route 4, walking is generally restricted to settlement areas and commercial centers. There are only 3.3 miles of sidewalk in Woodstock Village and the Quechee Gorge. Bicycling is allowed, but is also strongly recommended for alternative routes through Quechee, Woodstock, and Bridgewater. There are sections in Hartford and Bridgewater where bicyclists must use US Route 4. There are also bicycle tours and/or individual bicyclists utilizing all of US Route 4.

The US Route 4 corridor has a number of scheduled transportation projects in the Vermont Agency of Transportation’s multi-year capital program. They are:

	State Project #	Work Description
Woodstock Village	BHF 020-2(32)	Bridge Replacement
Killington –Woodstock	NH 2410 (1)S	Paving and road rehabilitation
Woodstock Village	NH 020-2(31)	Paving and road rehabilitation
Bridgewater-Woodstock	NH 020-2(33)S	Village sidewalks and road improvements
Hartford	STP VINS (1)	Turn lane addition

This Plan recommends five strategies for improving multi-modal operations and enhancing community livability along the US Route 4 corridor.

- (1) Project Implementation – Support the completion of the major transportation projects listed under the Vermont Agency of Transportation’s Capital program.
- (2) Project Implementation – Support the continued work from Vermont Agency of Transportation District forces: Remove ledge and brush along road curves to improve sight distances; Repair and replace culverts and ditching to reduce erosion and other flooding damage; Increase shoulder widths and upgrade guardrail to improve traffic safety; Address roadway sections that have the poorest engineering ratings; and provide minimal capacity enhancements such as left and right turn lanes for active intersections and commercial business driveways.
- (3) Planning – Strengthen access management guidelines to emphasize access permitting within existing development nodes while restricting access along the high speed sections of roadway. Along the sections of US Route 4 that offer high speed travel, require businesses and residents

share driveways accesses. VTrans, the Towns, and this Regional Commission should work with developers to secure easements or other rights-of-way to connect residential homes onto local roads or existing driveways. Implement access management guidelines in all Town Plans and Land Use development regulations to ensure a consistent and coordinated application of guidelines that support the Regional Plan and Vermont Agency of Transportation access management goals. Support additional access management activities through the Transportation Planning Initiative.

- (4) Project Implementation – Prior to approving major new development, upgrade the Waterman Hill Road and Quechee Main Street intersections in Quechee. These intersections are at capacity and improvements must be made to safely accommodate continued growth in Quechee Village and Quechee Lakes.
- (5) Project Implementation – Enhance historic settlement areas and improve commercial centers, minimize traffic related disturbances, and maximize facilities for on-street parking. Pursue walking, bicycling, and traffic calming enhancement projects for all villages and hamlets along US Route 4. Pursue village designation for all villages along US Route 4.

US Route 5

US Route 5 is one of two north-south arterials in the region that runs adjacent to the Connecticut River. US Route 5 is a two lane rural road that parallels the river and offers many scenic landscapes and a number of vibrant village and town centers. US Route 5 has become part of the bi-state Scenic Byway and as such is recognized for its “unique historic, cultural, environmental, agricultural and railroading traditions and resources” (Connecticut River Scenic Byway - www.ctrivertravel.net). While US Route 5 is not included on Vermont’s tractor truck network, many logging and other commercial trucks utilize this road to avoid interstate imposed weight restrictions. US Route 5 serves as a Main Street for a significant number of town centers, villages, and hamlets. The region and the greater bi-state tourist industry rely heavily on US Route 5.

The region has a 54.1 mile segment of US Route 5 which constitutes approximately 30% of the total US Route 5 mileage in the state. The road has been evaluated by transportation engineers as being in fair condition with an average sufficiency rating of 64. There are few areas with traffic congestion and US Route 5 efficiently works in concert with Interstate 91 to provide regional north-south travel. It has often been observed that US Route 5 serves more as a ‘major collector’ with motorists coming from local roads and New Hampshire arterials and then accessing the nearest interstate interchange to continue their trips. Because of that, there are relatively low traffic volumes throughout the corridor. In 2006, the road had an average traffic volume of 3,200 vehicle trips per day. If you excluded specific road segments near interstate interchanges, within village centers, and the Hartford-Norwich urban corridor, traffic volumes decrease to an average of 2100 vehicle trips per day. These traffic volumes are well below the total traffic capacity of US Route 5. Over the last 5 years, the Regional Commission has evaluated tractor truck traffic along US Route 5 which has averaged 5-8% of the overall traffic volumes. The majority of activity is trucking wood products northbound and these vehicles traditionally carry heavier loads than other forms of trucking. Speed limits have also been monitored within the villages and town centers. In those instances, speeds are shown to average 5-15 mph above posted speed limits although more active enforcement in Hartford, Norwich, Fairlee, Bradford, and Newbury has shown to reduce speeds in those areas.

The Upper Connecticut River is a nationally renowned destination for bicyclists with US Route 5 and NH Route 10 providing excellent bicycling loops. US Route 5 is a combination of gently rolling hills and flat terrain that challenges but does not overtax a bicyclist. No official counts have been

conducted along US Route 5, but it is readily observed that the highest bicycling activity in the region occurs on these roads. The most popular routes are the Norwich – Thetford and Thetford – Fairlee sections of US Route 5 and NH Route 10.

The US Route 5 corridor has scheduled transportation projects in the Vermont Agency of Transportation’s multi-year capital program. They are:

	State Project #	Work Description
Hartland	CMG PARK(25)	Installation of a bus shelter at the park and ride and acquisition of an abutting property for future expansion.
Hartland	STP EH05(14)	Project is for design of sidewalks along US Route 5 in Hartland Three Corners.
Hartford	RS 0113(40)	Reconstruction of US5 in the area known as Tafts Flats.
Hartford	STP 0113(59)S	Construction of a roundabout on US5 and Sykes Mountain Avenue and a smaller roundabout on Sykes Mountain Avenue and Ralph Lehman Drive.
Hartford	CMG PARK(12)SC	Project scoping to determine location for an Interstate 91 park and ride facility.
Hartford-Norwich	STP 2206(1)S	Road resurfacing for US5 north of the Tafts Flat project extending into Norwich for 4.3 miles. Project also includes resurfacing Bugbee Street.
Norwich	STP EH98(21)	Sidewalk and traffic calming improvements from the Ledyard Bridge to Norwich village.

This Plan recommends five strategies in preserving US Route 5 to enhance tourism opportunities, multimodalism, and community interactions.

- (1) Project Implementation – Support the completion of the major transportation projects listed under the Vermont Agency of Transportation’s Capital program.
- (2) Project Implementation – Prioritize improvements for all US Route 5 / Interstate 91 park and ride projects. Establish park and rides and/or parking facilities in Hartford, Norwich, Fairlee, and Newbury Village. Improve park and ride facilities in Thetford. Improve and expand park and ride facilities in Bradford and Hartland.
- (3) Project Implementation – Target enhancement and traffic calming projects for bicyclists and pedestrians within all town and village centers. Ensure sidewalks and/or walking paths are provided in Hartland Three Corners, North Hartland, East Thetford, and Fairlee Village. Expand and/or improve sidewalks in Wilder, Norwich Village, Bradford, Newbury Village, and Wells River.
- (4) Planning – Advance scenic preservation activities utilizing the Transportation Planning Initiative program. Actively encourage and facilitate the implementation of scenic preservation projects that provide facilities and markets the Upper Connecticut River Valley to visitors.
- (5) Planning – Support land use policies that preserve the existing land use and transportation operations for US Route 5. Support economic development within existing villages, town centers, and development nodes. Preserve and maintain rural development patterns along the town peripheries.

VT Route 66

VT Route 66 is a short 7.6 mile state roadway entirely within the Town of Randolph. It is a two lane rural road accessing Interstate 89 and is the primary gateway to East Randolph, Randolph Center, Randolph Village, and adjacent towns. VT Route 66 is the geographic center of the State of Vermont and connects the Vermont Technical College to the interstate. A master plan for the interchange was completed in 1999 and its results reported in the land use section of this Regional Plan. There are a number of transportation and land use factors very encouraging and supportive of additional development along this roadway. These attributes confer a significantly unique potential and challenge to the region’s transportation system.

The average traffic volume in 2006 are estimated at 4,500 vehicle trips per day, but these numbers can double under full build out scenarios described in the Exit 4 Master Plan. The road has been evaluated by transportation engineers as being in poor condition with an average sufficiency rating of 59. Most of VT Route 66 is posted at 50 mph despite having numerous geometric and sight distance deficiencies. As a rural low traffic volume road, the alignment challenges do not create any real safety or mobility concerns. With the increased development, however, those balances can be negatively altered. As seen in other regions, it is possible that development can impair traffic operations and/or restrict the full build-out potential of a roadway. The challenge is to preserve mobility and safety while continuing to support and encourage a land use development pattern that is supported by this Regional Plan and the Randolph Town Plan. The additional challenge will be to implement transportation enhancements that protect the ‘scenic vistas’ that are also well supported in the Regional Plan and Town Plan.

VT Route 66 has one scheduled transportation project in the Vermont Agency of Transportation’s multi-year capital program which is:

	State Project #	Work Description
Randolph	CMG PARK(21)	Park and ride construction.

Beyond resurfacing projects, there are no further improvements planned or anticipated. The State of Vermont transportation plans and policies do not prioritize VT Route 66 for additional investment. The Town of Randolph has neither the authority nor the financial ability to underwrite transportation enhancements. Since there is no likelihood of additional public investments, changes to the existing land use that require transportation improvements will need to be privately funded.

This Plan recommends four strategies for ensuring that development does not degrade the safety or mobility of VT Route 66.

- (1) Project Implementation – Support the completion of the Park and Ride project listed under the Vermont Agency of Transportation’s Capital program.
- (2) Project Implementation – Advocate for continued resurfacing and proactive maintenance especially in the relatively high-traffic road segments between the Vermont Technical College and Randolph Village.
- (3) Planning – Private development should account for projected traffic growth and address existing road deficiencies that could compromise safety or mobility prior to being approved. TRORC supports implementing access management principles over other capacity type projects that would deteriorate the ‘look and feel’ of this rural highway.

- (4) Planning – Initiate a data collection program to assess traffic operations along the VT Route 66 corridor. Focus traffic counts between the Vermont Technical College and Randolph Village to monitor traffic speeds and truck traffic volumes for use in development review and setting access management standards.

VT Route 100

VT Route 100 is Vermont's primary north-south highway with a 41.3 mile segment traversing the Two Rivers-Ottawaquechee region. VT Route 100 is a scenic, two lane rural road that connects Plymouth and Bridgewater, exits the region, and then continues through the 'Quintown region' as the primary access for Stockbridge, Pittsfield, Rochester, Hancock, and Granville. VT Route 100 is most notable for its scenic panoramas of rural farming and pasture lands and uninterrupted views of rivers, meadows, and mountains. VT Route 100 supports a number of transportation users as a major ski highway, travel route for tourism destinations north and south, local access, and as its own destination for traveling visitors.

There are relatively low traffic volumes throughout the corridor and rarely any observed traffic congestion. Road conditions are rated as 'fair' by transportation engineers (65 sufficiency rating). In 2006, the road had an estimated traffic volume of 2,300 vehicle trips per day which is below the total traffic carrying capacities. Tractor truck traffic volumes along VT Route 100 fluctuate from 5-11% of the overall traffic volumes. There is a great diversity of truck traffic volumes and activities. Trucks carrying lumber and a multitude of consumer products can be seen going north and south. Posted travel speeds varied from 25-35 mph within settlement areas to 40-50 mph along the peripheries of town. Speed limit data have not been collected along any section of VT Route 100.

No where else in the region is local land use and transportation policy so uniformly consistent and emphatic about preserving a state roadway. The prevailing theme is the connection that the health of VT Route 100 is closely aligned to the health of these communities. All Town Plans offer clear language that transportation improvements will be restricted to basic maintenance and resurfacing projects. There is an active opposing of any private or public transportation project or facility that erodes the road's scenic character. There is clear language for promoting safer bicycling and walking conditions throughout the corridor. And there is clear language that traffic capacities must not erode the 'Main Street' qualities necessary for village and hamlet life.

There are a number of tourism programs, books, and websites that nationally promote VT Route 100 as an 'exceptionally scenic' route through the Green Mountains. Automobile drives, motorcycle rides, and bicycling are all successfully promoted by different tourism companies, car and motorcycle groups, and other organizations. The impacts are that this roadway, frequented by visitors, has real economic value to the towns within the corridor and to the greater region and state.

The VT Route 100 corridor has scheduled transportation projects in the Vermont Agency of Transportation's multi-year capital program. They are:

	State Project #	Work Description
Stockbridge	STP 022-1(22)S	Replacement or lining of existing bridge 127 over Guernsey Brook.
Stockbridge	BRF 013-4(21)	Replacement of Bridge 130 over the White River.
Granville	BRF 013-4()	Replacement of Bridge 155 over Meadow Brook.

The Plan recommends five strategies to preserve the highly celebrated scenic resources of VT Route 100 while maintaining traffic mobility, economic opportunity, and community life.

- (1) Project Implementation – Capacity enhancements are not acceptable and TRORC supports ongoing maintenance, resurfacing projects, and the completion of the major transportation projects listed under the Vermont Agency of Transportation’s Capital program.
- (2) Planning – Start a data collection program to better assess traffic operations along the VT Route 100 corridor. Focus traffic counts within major villages to monitor traffic speeds and truck traffic volumes. Measure bicycle and pedestrian traffic and identify suitable enhancement projects.
- (3) Planning – Using the Pittsfield 2005 Town Plan as a model, support revisions to other Plans that more consistently summarize/centralize VT Route 100 planning priorities and identify potential improvement or preservation projects.
- (4) Planning – Access management planning should be implemented to forestall or prevent the need for costly road improvements and to preserve the visual character of the road and adjacent land uses. Regional planning should take an assertive role in promoting access management in all development reviews and will work with towns to ensure adequate access management policies in their planning and development regulations.
- (5) Planning – Promote scenic preservation activities utilizing the Transportation Planning Initiative program. Actively encourage and facilitate local efforts to market VT Route 100 tourism opportunities.

VT Route 107

VT Route 107 is a short 13.5 mile east-west state highway that falls entirely within the region. VT 107 is a two lane rural road that connects Royalton, Bethel, and Stockbridge with Routes 14, 12, 100, and Interstate 89. An east-west route secondary to US Route 4, the VT 107/100 corridor serves as access from Interstate 89 to the Rutland employment and commercial centers. A master plan for the Exit 3 interchange was completed in 2000 and its results are reported in the land use section of this Regional Plan. There are a number of transportation and land use factors that strongly support additional development. VT Route 107 has already seen considerable development in recent years and these favorable attributes promise an additional intensifying of land uses. Ensuring that development is not permitted until the infrastructure is in place is essential. A particularly unique asset in Royalton and Bethel, the road runs parallel to the New England Central rail line and with the interstate connections can readily support rail based development. The greatest regional challenge will be preserving traffic capacities while allowing development opportunities consistent with the land use policies of the Town and Regional Plans.

The average traffic volumes in 2006 were estimated at 4,300 vehicle trips per day. Road conditions are rated as ‘fair’ by transportation engineers (65 sufficiency rating) and this is one of the better constructed state highways in the region. Unlike most state highways, a significant portion of VT Route 107 has smooth traveling surfaces, adequate road shoulders, and sufficient sight distances.

Posted travel speeds along VT Route 107 are 50 mph throughout the corridor with the exception of a 25 mph posting in the Bethel Village and a 35 mph for Stockbridge Central School. In the few instances where travel speeds were recorded, motorists typically exceeded the posting by 5-10 mph. This is a particular concern within the villages and in areas where intersecting local roads have minimal sight distances. Tractor truck traffic represents 5-10% percent of the overall traffic volumes. VT Route 107 was not identified on the state’s primary truck network, although the high truck traffic volumes absent the local destinations suggest truckers continue to use the road as an alternative east-west facility. The challenge will be to better monitor trucking activity and to be more vigorous in enforcing trucking weights and safety laws. Finally transportation professionals utilize the VT Route 107 / 100 corridor to accommodate traffic rerouting plans for US Route 4 construction projects.

VT Route 107 has three transportation projects in the Vermont Agency of Transportation’s multi-year capital program which are:

	State Project #	Work Description
Bethel	BRF 022-1(14)	Replacement of Bridge 15 over the White River.
Royalton	CMG PARK(27)	Park and ride construction.
Stockbridge	BRF 022-1(20)S	Replacement of Bridge 9 over Stoney Brook.

The Plan recommends four strategies for accommodating development while maintaining the safety and efficiency of VT Route 107.

- (1) Project Implementation – Support the completion of the major transportation projects listed under the Vermont Agency of Transportation’s Capital program.
- (2) Planning – Continue to emphasize access management around the Exit 3 interchange from VT Route 14 to Bethel Village. Private development will accommodate projected traffic growth and not compromise traffic speeds, vehicle safety, or mobility.
- (3) Planning – Support the work of the Towns and the Vermont Agency of Transportation for improving local road access onto sections of VT Route 107 that have limited sight distances. Promote Town Plan language encouraging local road development to safely accommodate traffic increases at their intersections with VT Route 107.

Planning – Initiate a data collection program to assess traffic operations along the VT Route 107 corridor. Focus traffic counts between VT Route 14 and Bethel Village to monitor traffic speeds and truck traffic volumes for use in development review and setting access management standards. Pay particular attention to traffic counts within Bethel Village along Bridge 15 over the White River.