

Transportation Element

Transportation Element

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Introduction

The 2016 Transportation Element was completed by staff under the direction of the CVRPC Transportation Advisory Committee. The 2016 Regional Transportation Element has a planning horizon and is based on the same land use assumptions and economic and demographic forecasts used in the other elements of the Regional Plan.

Vision and Mission for Transportation in the Region

The Central Vermont Regional Planning Commission takes a regional, multi-modal balanced view of transportation issues. The focus of this transportation plan is therefore on transportation issues which are regional in scope or which have regional implications. This emphasis on regional issues should not be taken to downplay the importance of local transportation issues as they relate the region's transportation system. The region's major highway system, rail freight facilities, transit system, airport system, etc, will not function efficiently without coordinated feeder systems which likewise operate efficiently. To emphasize the scope and scale of the regional transportation issues facing Central Vermont and its communities, CVRPC established a vision and mission statement to guide the development of transportation goals, policies, and action items.

Vision – “To have a balanced, well developed and maintained transportation system that facilitates travel for all modes of transportation while preserving the region’s character.”

Mission – “To preserve, enhance, and develop an, intermodal regional transportation system that accommodates the need for movement of people and commerce in a healthy, safe, cost-effective, environmentally responsible, and equitable manner, that conforms with other elements of the regional plan.”

The vision and mission statements provide an overall direction that CVRPC believes should be followed. To guide these steps, CVRPC established a series of nine goals that further define this direction. These goals are described below, as well as policies that provide guidance for achieving the goals.

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Transportation Executive Summary – Trends, Challenges, Recommendations

Demographic and Land Use Trends Affecting Transportation Demand

If current settlement trends continue, households will disperse throughout the Central Vermont Region while employment and services concentrate in a growing central core consisting of Montpelier, Barre City, Barre Town, and Berlin. Smaller concentrations of employment exist in the Waterbury, Waitsfield/Warren, and Northfield areas.

Driving alone to work is the dominant choice for Central Vermont workers and will likely continue to dominate as households disperse and employment concentrates within a few areas of the Region. Ride-share also plays a significant role in the journey to work and will remain a viable option as households continue to disperse and workers are imported from outside of the Region. Driving alone and ride-share account for 84% of the work trips in the Central Vermont Region. According to Vermont Public Service Dept., transportation accounts for 35% of the State's energy consumption. Similar to national trends, the largest growing age cohort will be people between the age of 55 – 64. This age group will continue to fill jobs as noted above, and may also have special transportation needs.

Highways

Trend –There has been stagnant growth in the vehicle miles traveled in both Washington County and Vermont in recent years. This trend may have resulted from high gasoline prices and the increasing availability to use alternative modes. Also working and shopping from home, has become more common, supporting the trend of housing dispersal. During the last decade bridge and pavement conditions improved. Congestion was limited to the Barre, Berlin, Montpelier, and Waterbury areas of the Region. The intersections and road segments with the highest crash rates are located in the Barre City, Barre Town, Montpelier, and Northfield areas.

Challenges –Maintaining the condition of roads and bridges in the future will require sustained levels of funding for system preservation projects. Intersections are the most dangerous components of the Region's highway system.

Recommendation – Out of the nine intersection high crash locations, eight have been studied, and six are included in projects. The Region will continue to conduct planning studies, and participate in State programs to address high crash locations.

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Public Transit

Trend – Public Transit ridership increased significantly over the years due to expansion of service, with some of the routes having standing room only. The Link Express continues to grow, and the most notable recent addition has been the US 2 Commuter.

Challenges – Choices need to be made between expanding existing services, and creating new services. Costs for additional buses, gasoline, and insurance are rising. The existing funding formula is not sustainable.

Recommendation – The increases in transit ridership underscore the desirability of continued and improved transit service in the Region. New commuter services have been identified for Routes 12 N, 14 N&S, 100 S, 100B, US 302 E. Other new services under consideration are Circulators for Barre City and Town. Extending service periods and service hour, have also been suggested. To meet these demands funding needs to be increased at federal, state, and local levels. Public Transit also needs to be considered in the project review process at all levels.

Ridesharing/Travel Demand Management/Alternative Vehicles

Trend – Park & Ride use has grown since the 1990's, and has closely reflected the cost of gasoline. Alternative vehicle use has grown with the increase in gasoline prices. It is a key component of the State's Comprehensive Energy Plan to reduce greenhouse gas emissions. There are several successful Transportation Management Associations in Vermont. In Central Vermont, the Capital Commuters Program has reduced demand for parking and travel to the National Life Campus, and Downtown Montpelier. This Program is funded through the State of Vermont and National Life, and is believed to be more cost effective than building new infrastructure.

Challenges – There are several State park & ride lots that, at times, are near and over capacity.

Recommendation –The Region recommends expanding and or creating new park & ride lots in Waterbury, Berlin, Williamstown, Barre Town, and East Montpelier. Travel demand management programs in Waterbury, Barre City, and other employment centers, should be expanded. Electric Vehicle Charging Station should be available at all new State park & ride lots.

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Pedestrian and Bicycle System

Trend – There is a increasing variety of bicycle and pedestrian facilities in the Central Vermont Region including sidewalks and cross walks in most cities and villages, bicycle lanes, paved shoulders in rural areas, and separated bike paths in various locations. The desire to have more opportunities/facilities to be more active, the need for traffic calming in villages, the Safe Routes to School Program, and Vermont’s Complete Streets Law, have all contributed to the need to build more sidewalks and bicycle facilities. There is an increasing need for the health and economic benefits of having separated pedestrian and bicycle facilities.

Challenges – Many of the State and local highways do not have adequate shoulders. The hilly terrain of Vermont makes it difficult to site off-road facilities. The constant need for maintenance of existing urban/village sidewalk networks, and a lack of sidewalks in the growing suburban commercial areas, is a challenge, competing with other needs. There are questions as to whether the demand warrants the expense to build facilities. To meet these demands funding needs to be increase at federal, state, and local levels.

Recommendation – CVRPC recommends a minimum 15 ft. combined single lane and shoulder width be provided on state highways where possible (11 ft. lane & 4 ft shoulder). As part of the State’s Complete Streets Law, inclusion of bicycle and pedestrian facilities and accommodations are required to be considered in all VTrans, municipal, and new private development projects in villages, cities, and other growth areas. The incremental progress of expanding the network, if continued over the next twenty years, will help the Region develop an interconnected network of bicycle and pedestrian facilities.

Aviation

Trend – The Edward F. Knapp State Airport in Berlin provides public access to the National Airspace System, air freight/cargo facilities, emergency medical facilities, a search and rescue base, corporate and business opportunities, recreational flying, flight training, avgas and jet refueling, and other aviation activities. The Warren-Sugarbush Airport is a private facility, and provides sailplane rides, instruction, tie-down space, and avgas sales.

Recommendation – The E.F. Knapp Airport has been recently reconstructed, and has met all the Federal safety and navigational requirements. Future needs are Airport Master Planning, and hangar development. Both airports need to maintain and/or upgrade their facilities as needed. An Knapp Airport Committee should be formed to guide future development, and encourage increased use.

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Freight

Trend –The important products transported from the Region are specialty and dairy food products, granite, and wood. Most of these commodities are shipped by truck, with rail transporting a much smaller but significant share (11% statewide). Rail plays an important role in the Region’s trade with Canada.

Challenges –Truck travel in the Region is constrained by highway geometry deficiencies and the hilly terrain. Arterials that carry truck traffic also pass through village centers creating safety and quality of life issues for residents (excessive speed and noise).

Recommendation – Improvements to the highway system and railroads will also improve freight movement. Preventive maintenance is needed to preserve the existing New England Central rail line that serves international trade connection. Laws should be enforced, to control speed and noise limits.

Regional Transportation Recommendations

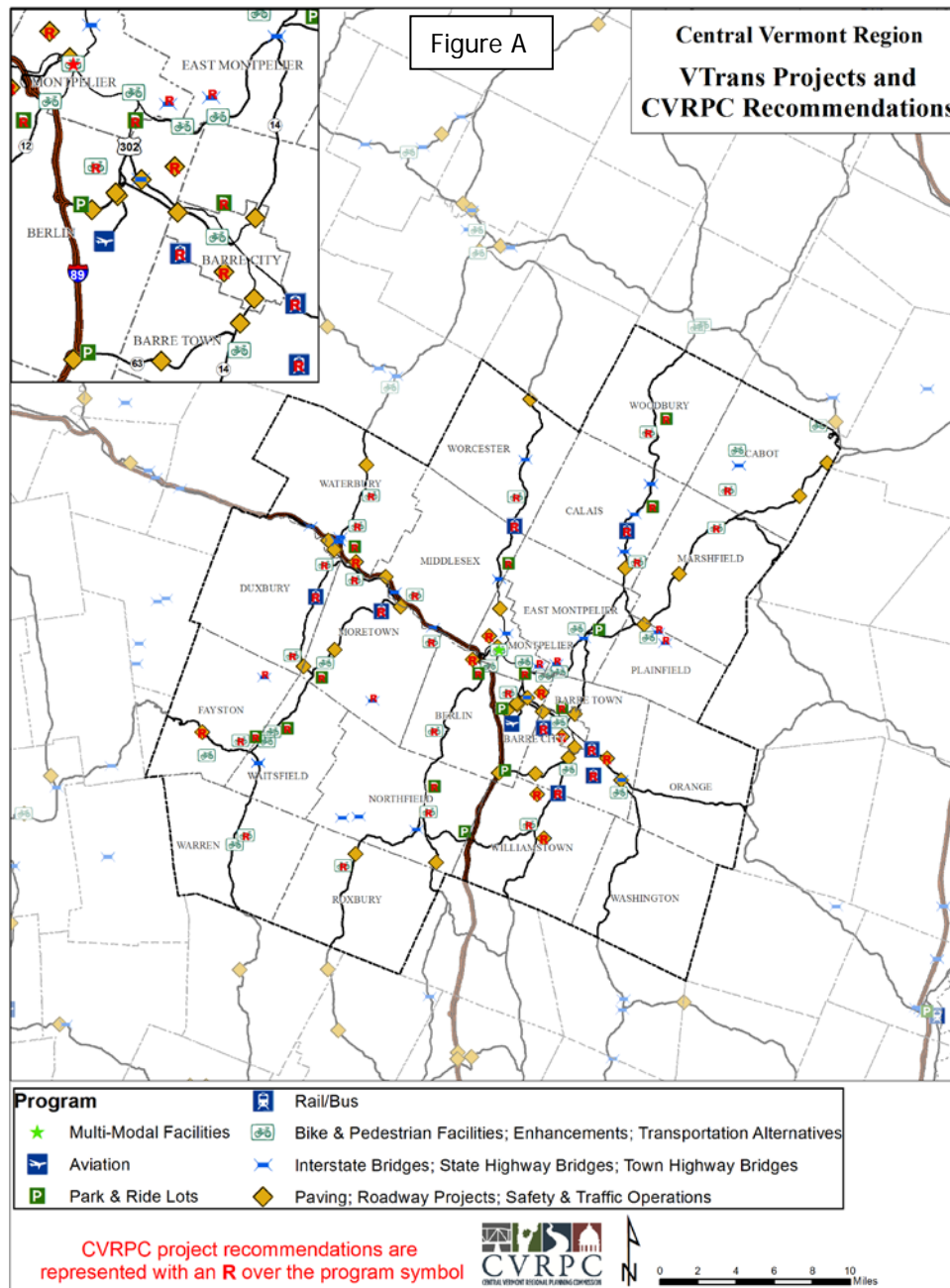
Specific project, program, and policy recommendations are presented on the regional and corridor levels to address the issues identified in the performance assessment and during public meetings held in the Central Vermont Region. The recommendations also address the need for regional planning and cooperation on transportation issues, transportation funding, and mitigation of development impacts to the transportation system, and the project development process. Figure A shows existing VTrans projects, and local & regional project concepts. More details can be found at:

<http://plancentralvermont.org/the-plan/transportation/>

Annual CRVPC Transportation Project Priorities List can be found at:

<http://centralvtplanning.org/programs/transportation/transportation-priorities/>

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Transportation Goals and Policies

The vision and mission statements presented earlier in this element provide an overall direction which the CVRPC believes should be followed. To guide these steps, CVRPC established a series of nine goals that further define this direction. These goals are described below, as well as policies that provide guidance regarding how the goals can be achieved.

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1 **GOAL 1.** Achieve a regional transportation planning process that is comprehensive,
2 intermodal, and public, and is integrated with regional and local land use planning
3 as outlined in the Central Vermont Regional Plan.
4

5 **Policies:**
6

- 7 1. Encourage municipal analysis of transportation needs at the local level, including
8 the relationships between development patterns and transportation needs, which
9 considers various modes of travel.
10
- 11 2. Encourage coordination and cooperation in comprehensive transportation planning
12 among the various municipalities in the Region and at the regional, State, and
13 private levels.
14
- 15 3. Undertake a comprehensive regional analysis of existing and anticipated travel
16 behavior and intermodal, approaches to accommodating anticipated travel demand.
17
- 18 4. Balance regional and local decision-making, and flexibility in transportation
19 planning, when conflicts develop between local and State plans.
20
- 21 5. Promote a project prioritization process that takes the goals of the Regional Plan
22 into consideration.
23
- 24 6. Promote open and inclusive public participation in the multimodal planning and
25 development of transportation projects, using new technology, such as social
26 media.
27
- 28 7. Plan and design the region's transportation system to encourage development and
29 re-development in desired centers of growth and development, as identified in
30 the Future Land Use Map. Encourage transportation planning that recognizes
31 existing development patterns to maintain the desired level of service. Also
32 encourage development patterns that reflect the planned capacity of the
33 transportation system. Create a transportation system that has capacity for
34 planned development.
35
- 36 8. Encourage the full integration of transportation and land use planning at the
37 regional and local level.
38
- 39 9. Provide guidance to towns, so they can be responsible for how their development
40 affects the regional transportation system.
41
- 42 10. Provide comments/recommendations with regard to the impacts of specific land
43 use projects on the regional transportation system during the permitting process.
44

45 **GOAL 2.** Preserve, maintain, and improve the region's transportation system.
46

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Policies:

1. Provide technical assistance for evaluating, prioritizing, and implementing preventive maintenance programs for all elements of the transportation system.
2. Promote a funding strategy that realizes maximum use of all available resources to ensure adequate maintenance of the existing transportation system.
3. Level of Service C or better will be taken as the preferred condition. Level of Service D should be accepted within the more urban, built-up sectors of the region (for example: Montpelier, Barre City, Northeast Berlin, South Barre, Waterbury Village, Northfield Village, Waitsfield Village, and Irasville).
4. Support the development and maintenance of convenient connections to the rest of Vermont, the US and the world. Examples include: I-89 and other highways, rail, E. F. Knapp and nearby commercial air service, such as Burlington International Airport
5. Plan for disaster resiliency to provide essential transportation system during floods, ice and snow storms, power outages, wind storms, medical epidemics, etc.
6. In coordination with local plans, the region recognizes regionally significant local roads (see Town Road Importance Map).
7. Plan and coordinate sub-surface work (culvert replacement) before a road is repaved/reconstructed, to promote pavement condition and system quality.

GOAL 3. Allow the transportation system to operate at its highest efficiency by managing travel demand and encouraging shifts to under-utilized and more efficient and effective travel modes.

Policies:

1. Develop a strategy that encourages maximum use of all available transportation resources and allocates those resources to the optimum functioning of the transportation system.
2. Provide technical assistance to the Region's employers in the development of Travel Demand Management Programs (e.g. telecommuting, flextime, compressed work weeks, rideshare matching, preferential parking, commuter fringe benefit, etc.). Facilitate the establishment of Transportation Management Associations to organize and administer TDM programs.
3. Educate the public on modal choices available.

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4. Advocate for the preservation of existing rights-of-way for future transportation purposes, such as Class 4 Roads and Legal Trails. In particular, work to retain abandoned railroad rights-of-way for transportation uses such as trails and bike paths.
5. Consider new or expanded public transit services that serve intra-regional and intercity travel needs, to provide alternatives to single occupant vehicles.
6. Encourage full accessibility to the Region's transportation services for the Region's disabled and elderly.
7. Plan for the updating and optimization and/or coordination of traffic signal timings when needed

GOAL 4. Integrate and coordinate modes of travel to allow for their most effective use and ultimately reduce dependence on single occupant vehicles.

Policies:

1. Encourage the development of park and ride lots for ridesharing and public transit use, and encourage employers to provide incentives to car and van pool users.
2. Promote physical and operational connections between various modes of transportation, and prioritize projects that integrate the various modes of transportation.
3. Ensure adequate mobility for all segments of the population, including pedestrians, bikers and residents who cannot or do not use private automobiles.
4. Foster a sense of mutual respect among users of the various modes of transportation.
5. Encourage the availability of multiple options for the movement of people and goods.
6. Provide technical assistance to communities on the Complete Streets law, and use Complete Streets guidelines in the development of all new projects, maintenance and repair of roads, and zoning decisions.
7. Encourage participation in the Safe Routes to School Program and provide technical assistance for associated plans.

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1 **GOAL 5.** Promote and establish a transportation system that is cost effective, energy
2 efficient, and environmentally sound.

3
4 **Policies:**

- 5
6 1. Support efforts to minimize negative environmental impacts associated with the
7 transportation system (including air quality, noise levels, surface water quality,
8 stormwater runoff, vegetation, agricultural land, fragile areas, and
9 historical/archaeological sites).
10
11 2. Support efforts to minimize energy consumption, especially nonrenewable energy
12 resources, and explore expanded use of alternative fuels.
13
14 3. Factor direct and indirect costs and benefits into decision-making. Impacts that
15 are not easily expressed in dollar values should also be considered.
16
17 4. Promote solutions that address adverse environmental impacts of the region's
18 transportation network (such as green stormwater infrastructure).
19
20 5. Develop a transportation system that encourages concentrated development,
21 allows greater access to residences, employment, and services, and facilitates
22 carpooling, bus and rail service, and non-motorized travel.
23

24 **GOAL 6.** Make necessary improvements to achieve a transportation system appropriately
25 structured and designed to safely, effectively, and economically move goods and
26 people.

27
28 **Policies:**

- 29
30 1. Encourage the appropriate scale and design of streets, highways, and other
31 transportation infrastructure to serve local traffic, destination traffic, and through
32 traffic.
33
34 2. Foster a neighborhood street system characterized by a network of
35 interconnected streets that minimizes through traffic in residential neighborhoods.
36
37 3. Prioritize safety-targeted measures at High Crash Locations, and develop
38 strategies for traffic safety region-wide.
39
40 4. Promote safety improvement projects that limit conflicts with the rail system and
41 other modal users of transportation.
42
43 5. Encourage access management policies that improve safety, reduce traffic
44 congestion, and maintain capital investment.
45

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6. Consider new facilities when demand warrants (e.g. when alternatives to reduce congestion and improve safety have been attempted) and/or when other strategic state, regional, or local goals apply.
7. Continue to foster a sense of safety and comfort for riders of public transit.
8. Coordinate with the Vermont Highway Safety Program and other stakeholders on developing projects and strategies for a safer transportation system.
9. Work on removing unsafe conditions for bicyclists and pedestrians that present a barrier to active transportation and recreation
10. Encourage traffic calming efforts to minimize conflicts between traffic and surrounding neighborhoods.

GOAL 7. Promote a transportation system design that strives for aesthetic and functional characteristics that improve the quality of life.

Policies:

1. Promote the design of visually attractive and durable infrastructure such as roadways, pathways, and bridges.
2. Promote high architectural standards for terminal buildings, stations, shelters, garages, and other facilities.
3. Respect and enhance the built environment by restoring period transportation structures where possible and maintaining the natural environment through architectural, landscaped, and engineered features.
4. When feasible, encourage restoration or preservation of historic bridges.
5. Foster improvements that are contextually appropriate.
6. Encourage the preservation and enhancement of scenic views and corridors.

GOAL 8. Promote a regional transportation system that supports economic growth and employment opportunities in desired centers of growth and development, identified in the Future Land Use Map.

Policies :

1. Provide transportation system improvements at locations where they will or can serve regional and town centers.

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2. Foster transportation and commerce links that contribute to the economic health of the region.

3. Encourage transportation system improvements that renew and improve downtowns, land use centers, and neighborhoods.

GOAL 9. Promote a regional and interregional public transit system that is connected to the rest of Vermont and the world, serves residents of Central Vermont in their daily lives, and will reduce the need for private single occupancy vehicles.

Policies :

1. Provide for basic mobility for transit-dependent persons.

2. Plan public transit that provides access to employment.

3. Utilize public transit to encourage congestion mitigation to preserve air quality and the sustainability of the highway network.

4. Plan public transit that advances economic development, including employment, medical services, shopping, and tourist areas.

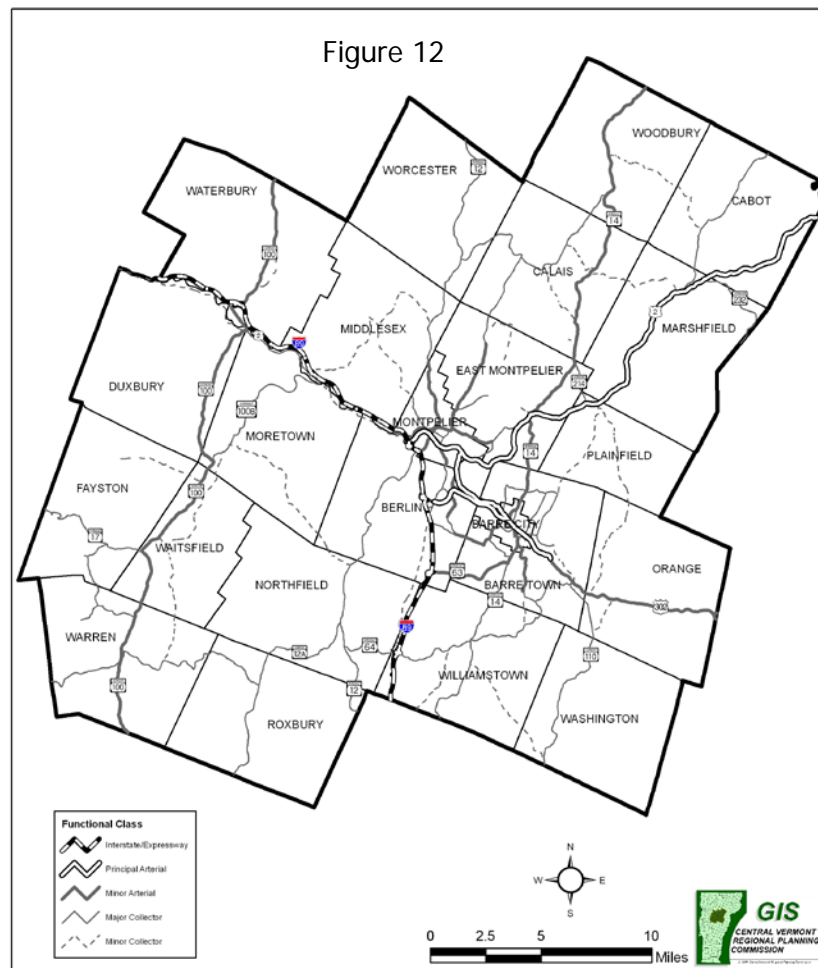
Highways:

Roadway Functional Classification

The road network in the region consists of highways classified as interstate highway and expressways, principal arterials; minor arterials; major collectors; minor collectors; and local streets, as shown in **Figure 12** . The classification system is organized as a hierarchy of facilities, based on the degree to which the roadway facility serves mobility and access to adjacent land uses. Interstate highways and expressways, at the top of the hierarchy, are devoted exclusively to mobility, with very limited access to adjacent land. Arterials and Collectors provide both mobility and access. The local road system is devoted exclusively to providing local access, with limited capacity and relatively slow speeds.

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Central Vermont Roads by Functional Class

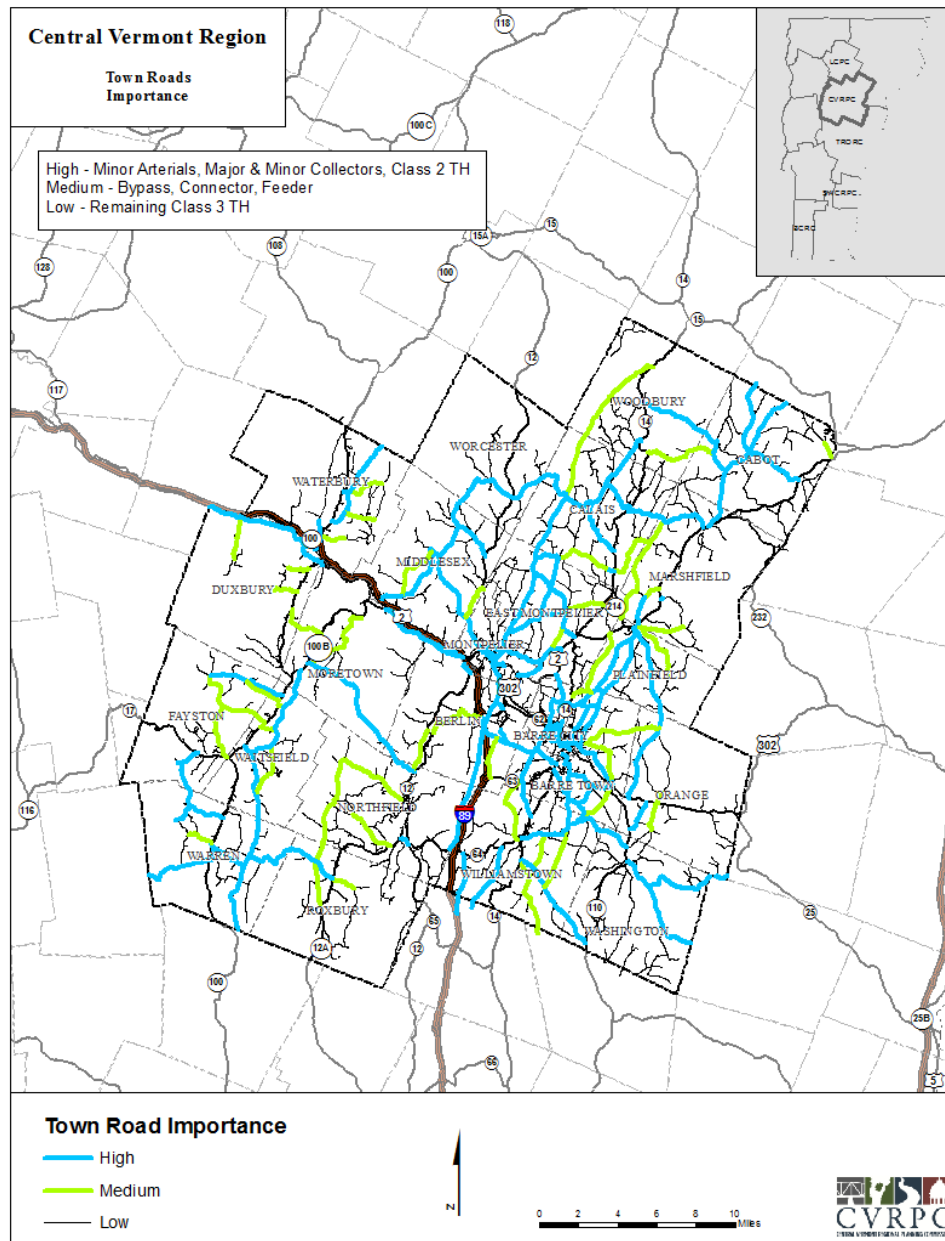


Town Road Importance

To help prioritize culvert inventories, VTrans asked each Regional Planning Commission to identify town roads by three categories of importance. High Importance are roads that already have some kind of classification, Minor Arterials, Major & Minor Collectors, and Class 2 Town Highways. Medium Importance are roads that can be used as bypasses of the State System, connectors between State Highways, and feeder roads from developed areas in towns. Another purpose for this designation is that it can be used in the Project Review Process. See Figure 13.

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Figure 13

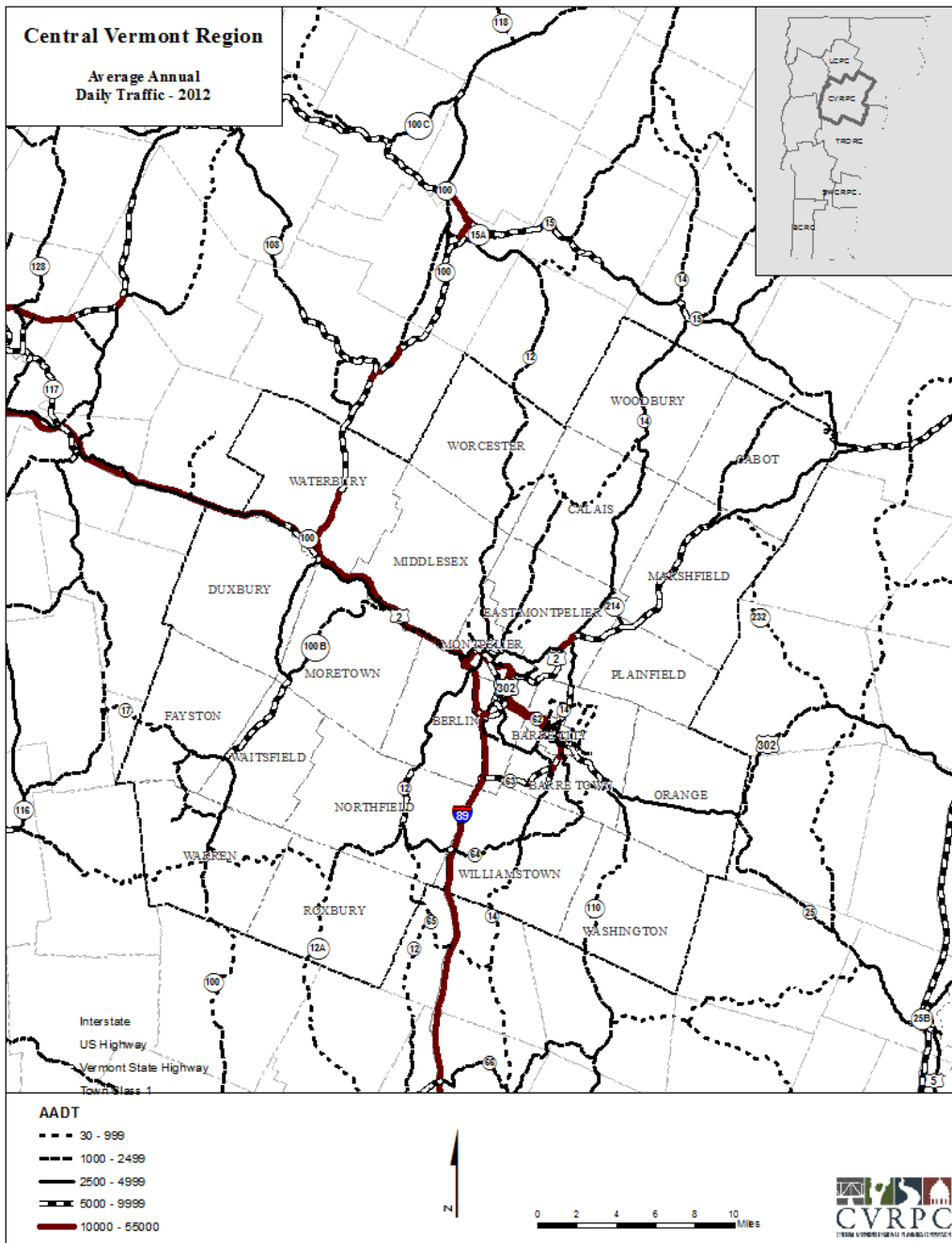


Traffic Volumes and Trends

Average annual daily traffic (AADT) volumes for all state highways and several other major roadways in the region are shown in **Figure 14**. These AADT values are for the year 2012 and are based on automatic traffic recorder counts taken by VTrans. Year 2012 AADT for major road segments can be found at <http://vtransplanning.vermont.gov/research/traffic/publications>

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Figure 14



For over forty years the Vehicle Miles Traveled (VMT) showed very steady growth with the exception of the 1974 energy crisis. More recent VMT data (2003-2005) showed a significant decline, which relates to the sharp spike in fuel prices. Even more recent VMT data has shown no significant growth in Table 17 and Figure 16. Table 17A shows a sample of historic data.

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Table 17

Vehicle Miles Traveled		
Year	Vermont	Washington Co.
2008	7,176,200,000	
2009	7,537,028,000	663,820,000
2010	7,243,500,000	670,800,000
2011	7,141,039,000	667,000,000
2012	7,195,900,000	679,000,000
2013	7,117,900,000	669,500,000

Figure 16

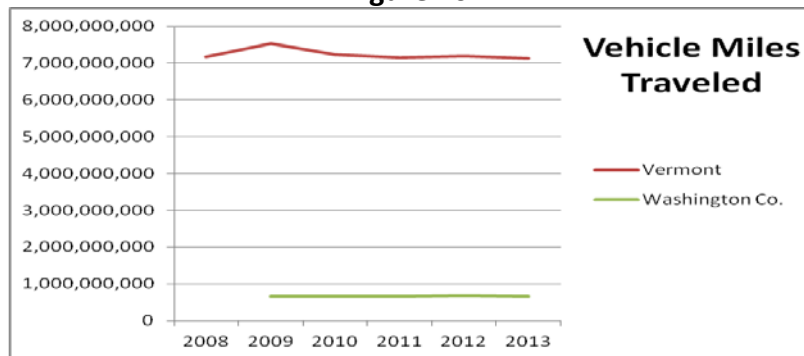


Table 17A

Historic Annual Average Daily Traffic				
Highway	Segment	2005	2012	% Change
Interstate 89	between Exits 8 and 9 (Route 2)	26,000	25,900	-0.38%
	north of Exit 10	25,100	26,600	5.98%
U.S. Route 2 (east)	Taylor Street to Main Street	11,800	12,100	2.54%
U.S. Route 302	between Route 2 and Berlin State Hwy	14,500	13,000	-10.34%
	east of Route 14 (west)	16,900	13,900	-17.75%
Vt. Route 12 (north)	at Montpelier/Middlesex line	3,400	3,500	2.94%
Vt. Route 14 (south)	Williamstown Village	2,400	2,600	8.33%
Vt. Route 14 (north)	between Seminary Rd and Route 302	6,400	5,300	-17.19%
	south of Route 2	4,700	3,700	-21.28%
Vt. Route 17	west of Irasville	4,300	3,700	-13.95%
Vt. Route 62	I-89 Exit 7 to Berlin State Highway	13,600	13,500	-0.74%
	between Berlin St Hwy and Route 302	12,000	11,100	-7.50%
Vt. Route 63	I-89 Exit 6 to Route 14	7,100	5,700	-19.72%
Vt. Route 64	I-89 Exit 5 to Route 14	2,800	2,800	0.00%
Vt. Route 100 (south)	between Warren and Waitsfield	5,800	4,800	-17.24%
	Irassville (north of Route 17)	8,300	7,100	-14.46%
Vt. Route 100 (north)	between Waterbury Vill and Waterbury Ctr	15,000	14,500	-3.33%

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Congestion

Level of service (LOS) is the standard measure used to quantify the operational performance of highway facilities as perceived by the user. The grades A, B, C, D, E and F are the six possible LOS ratings where “A” indicates excellent conditions with free flow, “E” indicates intolerable conditions with unstable flow, and “F” indicates that demand exceeds capacity. For the Central Vermont Region, LOS D is considered the extreme and should only be accepted for long-term planning purposes within the more urban, built-up sectors of the region (for example: Montpelier, Barre City, Northeast Berlin, South Barre, Waterbury Village, Northfield Village, and Waitsfield). Throughout most of the region, LOS C or better will be taken as the preferred condition and the threshold to be used in identifying potential problem locations.

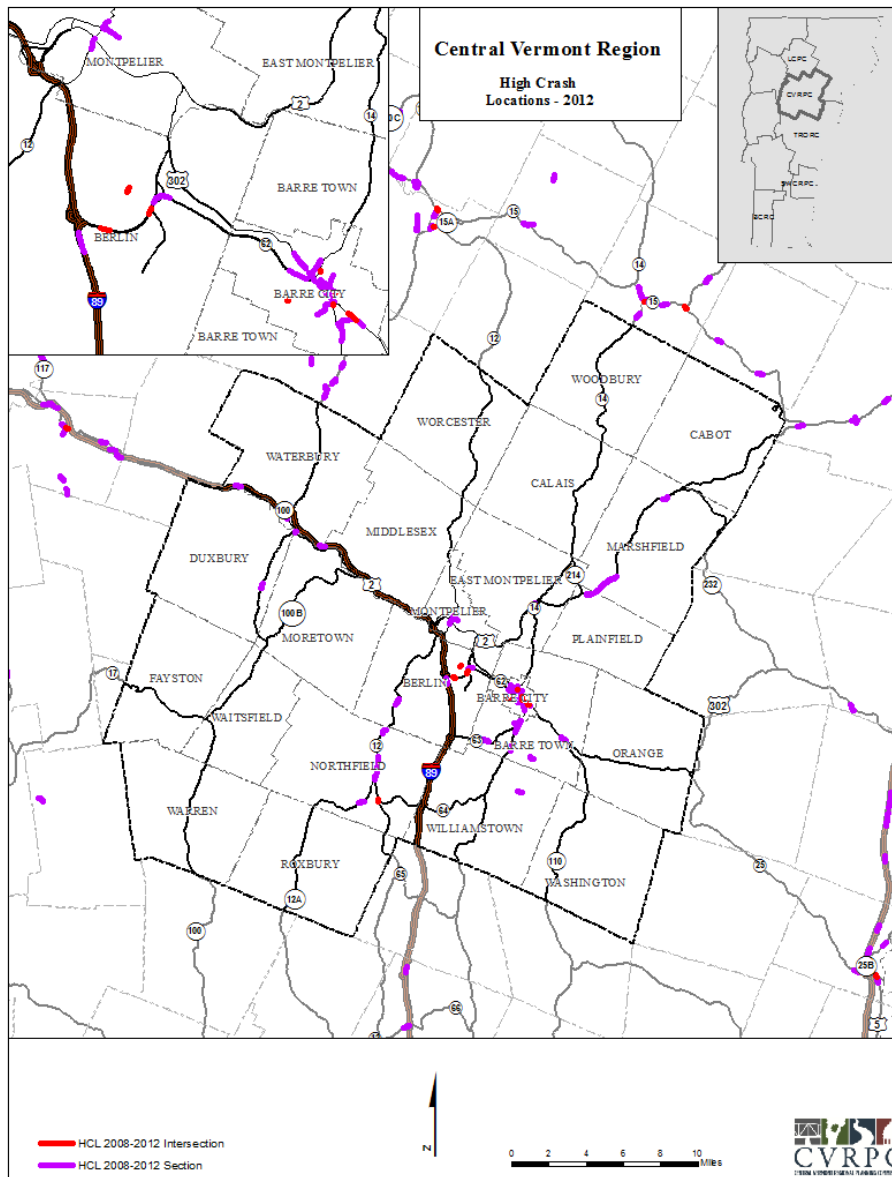
VTrans High Crash Locations

VTrans analyzes the number of crashes occurring along road segments and at intersections and compares the frequency and severity to statewide averages for similar facilities. The crashes included in these analyses involve injuries or fatalities, or result in at least \$1,000 of property damage. Any intersection or road section (0.3 mile section) that 1) has at least 5 crashes over a 5-year period and 2) has an actual crash rate (number of crashes per million vehicles) that exceeds the state’s critical crash rate¹ is then classified as a High Crash Location (HCL). VTrans summarizes the HCLs in its High Crash Location Report. The most current version is based on crashes which occurred between 2008 and 2012. The report indicates that there are a total of 47 HCLs in the Central Vermont region (**Figure 19**) including 9 intersections and 38 road segments.

Figure 19.

¹ The critical crash rate is based on the average crash rates of similar roadways in the state and is related to the functional class of the highway and whether it is located in an urban or rural area.

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The Commission recommends these locations be investigated for feasible safety improvements. The Commission also recommends VTrans continue developing the Strategic Highway Safety Plan, and implement the Highway Safety Improvement Program, Road Safety Audit Reviews, and the High Risk Rural Road Program.

Access Management

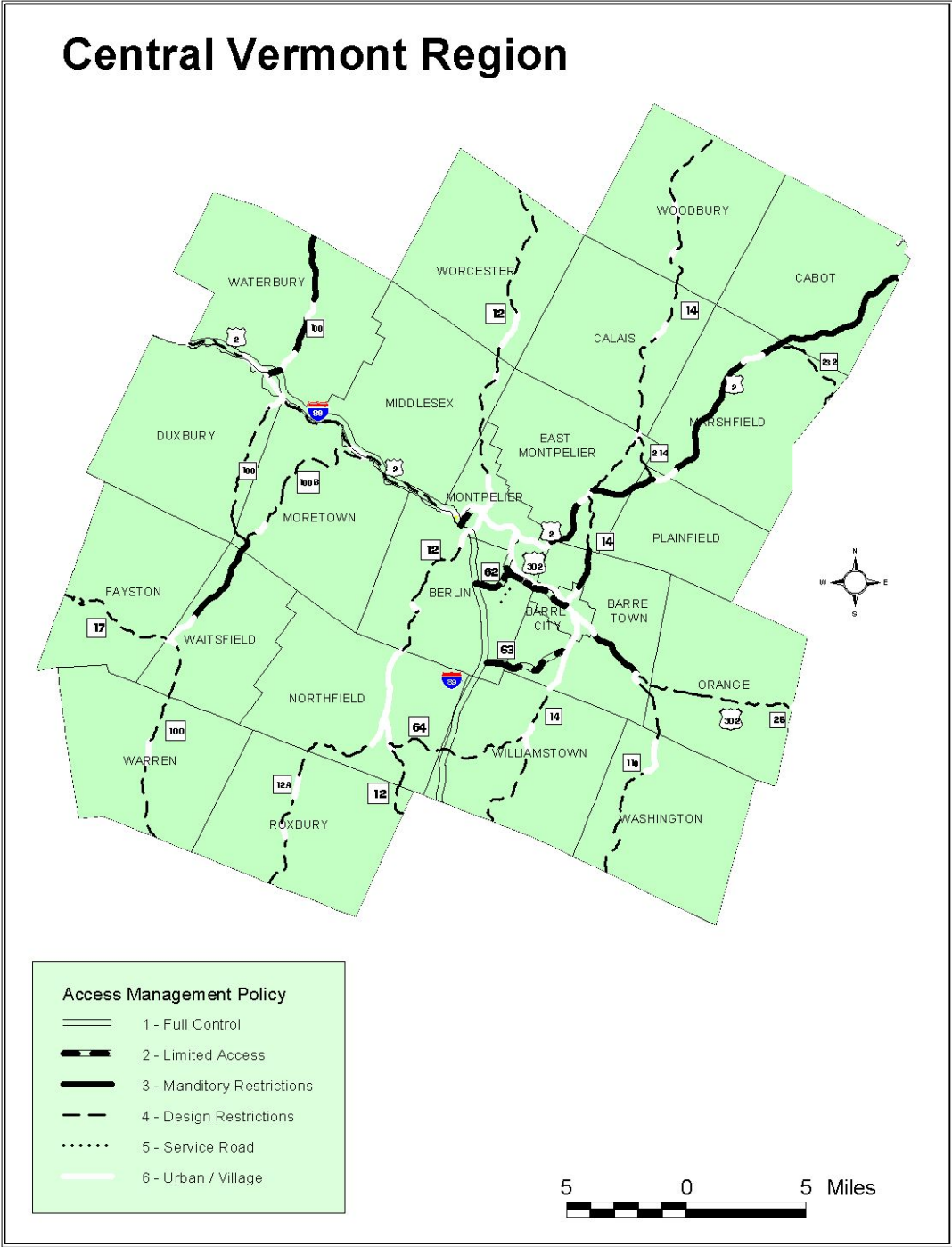
An essential component of the management of the region's highway system is the complementary management of access along each highway corridor. How access management principles can and should be applied in the Central Vermont Region are described below, and shown in Figure 20.

The following is a summary of the differences between the six categories along with the access management guidelines recommended by VTrans:

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- **Category 1** highways are basically the Interstate, where high speed and high traffic volume capacity is needed. No access is allowed except at interchanges with public highways.
- **Category 2** highways are Other Principal Arterials and Limited Access Major Collectors such as Vermont Route 62 in Berlin and Vermont Route 63 in Berlin and Barre. These highways carry high volumes of traffic at medium to high rates of speed. Private access is generally not permitted unless access to the property was reserved when the limited access facility was established.
- **Category 3** highways are Principal Arterials, Minor Arterials, and Non-Limited Access Major Collectors on State Highway & Class 1 Town Highways with a high traffic volume. Access is generally restricted if other reasonable access from a side street is available. Temporary access is allowed until side street access is available. Each parcel is limited to one access, and if a large parcel is subdivided each new parcel will use the existing access. Another important design feature of category 3 highways is the $\frac{1}{4}$ to $\frac{1}{2}$ mile spacing of new streets.
- **Category 4** highways are Minor Collectors, Minor Arterials on State Highways or Class 1 Town Highways, and Non-Limited Access Major Collectors on State Highway & Class 1 Town Highways with a low traffic volume. Category 4 highways allow one access on State routes for abutting parcels, and may allow additional access if the Agency determines that the additional access would not be detrimental to the safety and operation of the highway. Category 4 highways also require $\frac{1}{2}$ to $\frac{1}{4}$ mile spacing of new public highway intersections.
- **Category 5** highways are highways that are designated as frontage or service roads. Direct property access is allowed, but signal spacing can be no less than 500 feet.
- **Category 6** highways are “urban” and village sections of highways. The restrictions on these highways are similar to Category 3 highways, where direct access to the highway can be denied and turning movements are restricted, requiring connection of future properties, and combining access points. However, one additional design feature requires access by a side street if access density is over 60 curb cuts per mile within a Category 6.

Figure 20



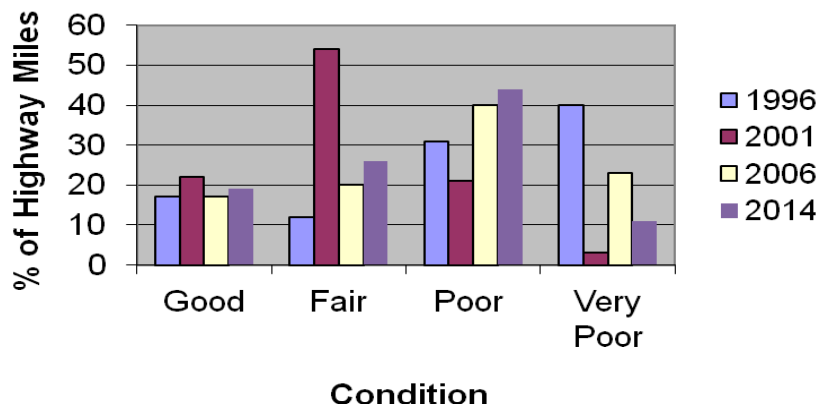
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Roadway Pavement Ratings

Figure 24, summarizes the miles of highway in the Region under these four condition categories for 1996, 2001, 2006, and 2014. To see the current map of pavement condition, go to: <http://vtransparency.vermont.gov/>

Figure 24.

CVRPC Non-Interstate Pavement Condition Index

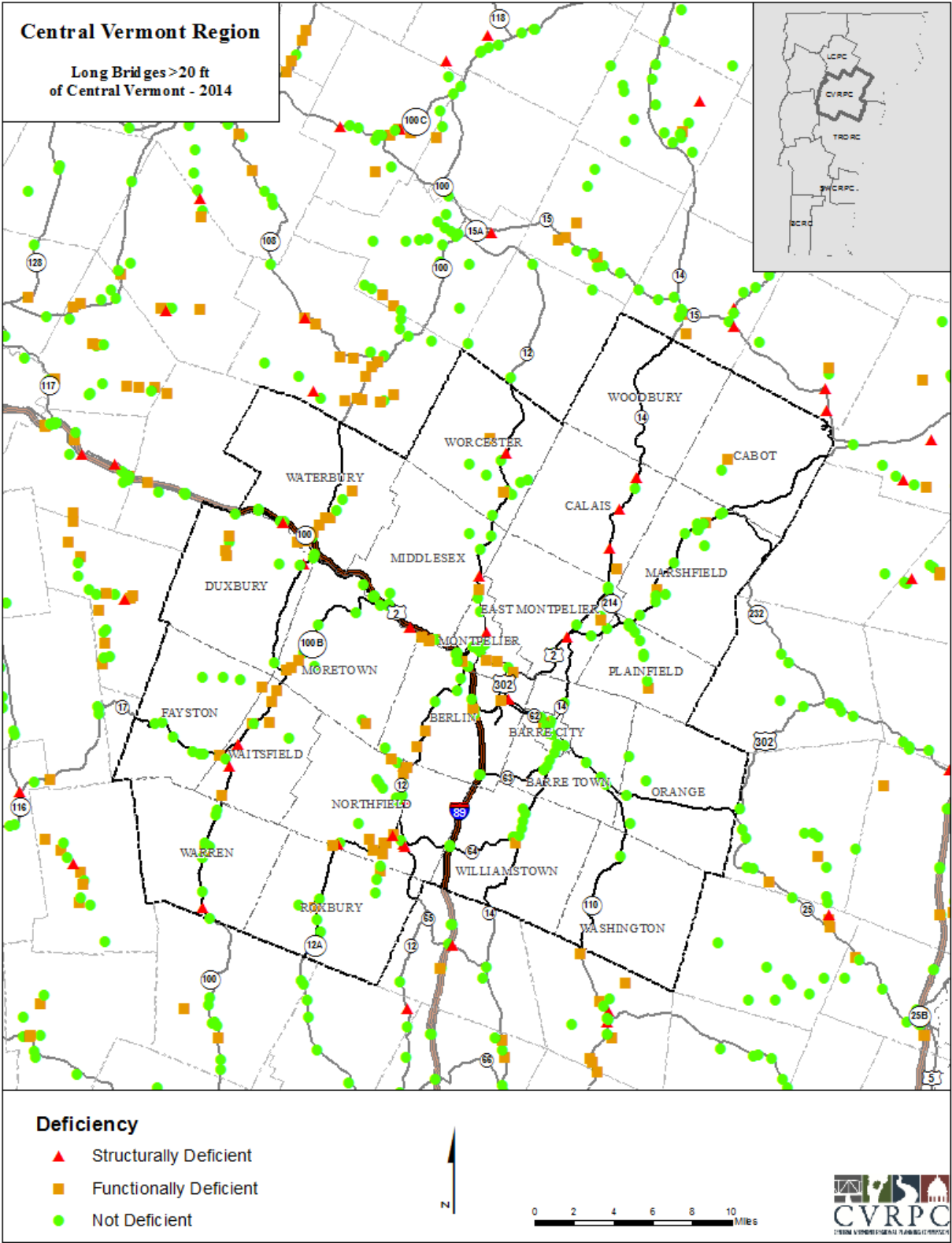


Bridge Sufficiency Ratings

VTrans rates bridges on both structural and functional standards. Bridges are rated from 0 to 100 under both categories. The evaluation of bridges by VTrans typically starts with the computation of a Federal Sufficiency Rating (FSR). The rating is based on three factors: (1) structural adequacy (i.e. deck, superstructure, and substructure); (2) a compared inventory rating (i.e. its standing truck load rating); and (3) serviceability and functional obsolescence (i.e. geometry, width of bridge compared with amount of traffic). These measures are used to classify the bridge as structurally, functionally, or not deficient. Another element that is considered in the FSR is the length of detour and how much time it would take to travel the detour if the bridge were to be closed. All local and state highway system bridges with spans greater than twenty feet are inspected every one to two years (depending on condition). To view the bridge inspection reports, go to; <http://vtransparency.vermont.gov/>

The locations of bridges with spans greater than twenty feet are identified in **Figure 26**. Since 2008, the number of structurally deficient bridges has improved (28–21), and the number of functionally deficient has gone up (54–59).

Figure 26



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Maintaining the Existing System

The existing highway system is by far the most used and most costly aspect of our transportation system. Because of our low population densities and rural character, significant portions of the region are dependent on the automobile for work, shopping, and social trips. Our resident population and employment base has grown and spread throughout the region increasing the demand on the highway system. This demand along with increasing costs have caused the highway system to deteriorate faster than it can be maintained.

When considering improvement strategies, the two extremes are either (1) to defer and eventually rebuild, and (2) to provide preventive maintenance. The defer and rebuild strategy allows the transportation facility condition to deteriorate, for maybe twenty years, until reconstruction is necessary. Reconstruction involves building a new foundation, drainage, and surface for roads. Bridge reconstruction would involve building new deck and abutments.

The preventive maintenance strategy applies corrective measures more frequently thereby keeping the facility at a more constant level of condition. Preventive maintenance includes such items as overlay paving, crack sealing, drainage cleaning, and bridge painting. Over the life time of the facility, preventive maintenance costs can be as little as a third of reconstruction costs.

Rehabilitation lies between these two strategies in both cost and amount of work needed for the improvement. Rehabilitation usually addresses only part of the facility and can include structural paving, deck work, minor widening, and improving problem spots.

Clearly preventive maintenance is the most cost effective, and the Commission recommends and supports the Vermont Agency of Transportation attempts to emphasize this strategy. However, there are a significant number of roads and bridges that have deteriorated beyond maintenance. Which strategy is appropriate for any of our region's particular needs will have to be decided during scoping and project development. Current conditions, costs, life cycle factors, function within the highway system, and the corridor as a whole will have to be considered in developing an improvement program.

Public Transit

The Public Transit section of Central Vermont Regional Planning Commission's Regional Plan is based on the Green Mountain Transit Agency's (GMTA) Transit Development Plan (TDP), which provides a program for the expansion and enhancement of public transportation service in central and northwestern Vermont over a 10-year period and beyond. It is the foundational planning document for GMTA, as it establishes the framework within which all other short term service planning and capital planning occurs. A primary goal of the GMTA TDP is to work towards a unified public transportation system within the rural service area along with meaningful connections to the urban system in Chittenden County. To read GMTA's full TDP, please visit <http://gmtaride.org/ccta-resources/transportation-documents/>.

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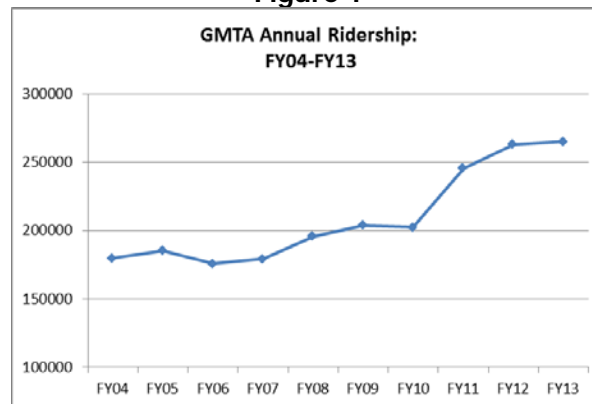
Service Summary

The GMTA system in Central Vermont currently serves all of Washington County plus three towns in Orange County – Orange, Washington, and Williamstown. A range of GMTA services work to meet the diverse needs of the traveling public. These include year-round local routes that serve trips for all purposes, commuter routes that operate primarily during peak periods, seasonal routes that mainly serve skiers in the Mad River Valley and in Stowe, shuttle routes and other demand response services oriented toward seniors, people with disabilities and others who have limited transportation alternatives, and lastly a network of volunteer drivers. Regular scheduled bus services are summarized in Table 1 below; infrequent shuttle services that run less than once per day are not included in the table. Figure 1 presents GMTA annual ridership. For more specific GMTA route information, please visit <http://gmtaride.org>.

Table 1 GMTA Service Summary

Region/Service	Towns/Corridors Served	Span of Service	Level of Service
Central VT – Local	Montpelier, Barre City, Berlin	Monday-Saturday; 6:00 a.m. to 6:00 p.m. with longer hours on City Commuter and a later start on Saturday	Mostly hourly, with 30-minute peak service on City Commuter
Central VT – Commuter	US 2 corridors to Waterbury and St. J.; I-89 to Burlington; Route 12 to Northfield	Monday-Friday; peak periods only, with one midday Northfield and LINK trip	2 or more round-trips per peak period
Central VT – Seasonal	Mad River Valley	Daily during ski season; 7:00 or 8:00 a.m. to 5:00 p.m.	Every 30 minutes or better for most routes
Lamoille – Commuter	Route 100 Morrisville to Waterbury	Monday-Friday peak periods only	Four round-trips per day

Figure 1



**Chart includes fixed route ridership only, excludes Link Express*

While ridership has trended toward the positive, changes in services and fares have had effects on ridership. Several routes have been cancelled over time due to under-

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performance, the Lamoille Valley Weekend Commuter for instance, while new routes have been added, such as the US 2 Commuter and the locally funded Montpelier Circulator. In response to a decline in ridership and budgetary allowances, fares were reduced in FY11. While this had the desired effect of increasing ridership, the FY12 budget required the increase of fares to their previous levels. The Link Express from Burlington to Montpelier, has shown tremendous growth, and has discounted fares for State Employees in Montpelier.

Intercity Transportation

Greyhound provides intercity bus service to Montpelier scheduling four round-trips per day between Montreal and Boston. Connecting service to New York City, Boston, and Rutland is provided at White River Junction.

Megabus serves Montpelier daily. on the route between Burlington and Boston.

Amtrak operates in the Central Vermont Region with stops in Berlin (named the Montpelier Junction station) and in Waterbury. The service is two-way with a northerly endpoint in St. Albans, Vermont and the southerly endpoint in Washington, D.C. (via Brattleboro, Vermont; Hartford, Connecticut; and New York City). The schedule has been designed to provide one-daytime trip from Vermont to reach New York City in the late afternoon, and return to Vermont in the evening.

Service Needs

As mentioned above, many of GMTA's riders belong to the market segment made up of people who depend on public transit for most or all of their mobility needs. More recently, as GMTA has introduced new commuter services such as the US 2 Commuter between Montpelier and St. Johnsbury (jointly operated with RCT), GMTA has been tapping into the commuter market, attracting riders who *are* able to drive, known as choice riders. GMTA's services are designed to appeal to and meet the needs of both markets, though some routes are more oriented toward one or the other. The "commuter" routes (e.g., Link Express) and shuttles are aimed at commuters. Most of GMTA's local routes are more oriented to transit-dependent riders in the Barre-Berlin-Montpelier zone. These routes are slower and more indirect, but offer wide coverage to densely developed neighborhoods. As mentioned above, GMTA periodically surveys its riders and the general public through telephone and on-board surveys. These surveys and public outreach efforts identified a number of areas where GMTA service could be expanded to better meet the needs of the riders. These include longer service hours in the evening and more service on weekends, improved frequency, and service to more areas.

Infrastructure and Facility Needs

Beyond service expansion, respondents to surveys and participants in public outreach requested further investment in shelters, benches, bike racks and other passenger facilities,

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as well as new technology such as real-time passenger information, Wi-Fi on buses, and trip planning software. Such investments in physical infrastructure and technology make the system more appealing to existing riders and future choice riders.

The pedestrian environment in bus service corridors is an essential element of the overall system. All passengers are pedestrians (either on foot or in a wheelchair) before they board the bus and after they exit. If the pedestrian environment is not safe, comfortable, attractive and accessible, then neither is the bus system, no matter how good the service is.

Perhaps most significantly, an investment in a viable multi-modal transit station is imperative. Steps have been made towards such a facility in downtown Montpelier: The so called “Carr Lot” on Taylor Street in Montpelier’s Downtown could serve GMTA’s local and commuter routes and Greyhound intercity routes, and would also improve connectivity for pedestrians’ and bicyclists’ access to these services. Additional information regarding the Taylor Street (formerly known as the Carr Lot) may be found here, <http://www.montpelier-vt.org/group/102.html>.

Service Strategies

With the needs identified above, the Plan includes a wide range of service recommendations to be implemented as funding becomes available. These include the following:

- Commuter routes based in Central Vermont
 - Route 14 corridor north and south of Barre City with connections to Montpelier & Hardwick
 - Route 12 corridor north of Montpelier
 - US 302 corridor into Barre City, Berlin, and Montpelier
 - Warren/Waitsfield to Montpelier and Waterbury
 - *Link Express service extension to Barre City, (added by CVRPC, January 2014)*
 - *Direct Link service to Burlington International Airport, (added by CVRPC, January 2014)*
- Year-round local services
 - Circulator service in Barre City
 - Extension of City Route to South Barre & Barre City Elementary School
 - Service to East Barre/Websterville
 - Upgrades on existing local routes in Central Vermont
 - *ADA paratransit service during City Commuter service hours (Montpelier to Barre), (added by CVRPC, January 2014)*
- Seasonal service
 - Extended service period for Mad Bus routes
 - Connections to the LINK Express for resort employees
- Demand response service
 - Increased service levels on existing shuttles
 - New shuttles from rural areas in Washington County to employment centers in Lamoille, Orleans and Caledonia counties
 - *ADA dedicated service provider akin to Special Services Transportation Agency in Chittenden County, (added by CVRPC, January 2014)*

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Criteria for Service Development and Implementation

An essential factor in moving any of the service concepts listed above toward implementation is support from the community. This support can take the form of petitions from potential riders expressing a desire to ride the bus in a given corridor, but more importantly, it consists of financial commitments from town governments to provide the local share of the net operating cost of the route. A second critical factor is ridership potential. In evaluating possible services, GMTA looks at available commuting and travel data to determine the likelihood that a new bus route would attract a sustainable level of ridership. Cooperation and support from other external parties can also play a critical role in the development and implementation of a new service. A final, but critical consideration is cost. Other things being equal, a new or expanded service with a lower cost will be favored over one with a higher cost. This fact reflects the reality that funding is scarce and that existing dollars need to be as stretched as far as possible.

Ridesharing/Travel Demand Management/Alternative Vehicles

In rural areas, where densities do not support traditional transit service, ridesharing and vanpools offer individuals an alternative to the single occupancy vehicle. There are active ridesharing (also known as carpooling) and vanpooling groups within the Central Vermont region. More information can be found at:

GO VERMONT – [HTTP://WWW.CONNECTINGCOMMUTERS.ORG/](http://www.connectingcommuters.org/)

The vast majority of rideshare arrangements are created on an informal basis (i.e., without the benefit of outside facilitation). Carpoolers typically represent co-workers who live in the same general vicinity or family members who work in proximate locations. In some cases, however, introduction of potential rideshare partners may be necessary in order for a carpool or vanpool to be created. In most carpool arrangements, each passenger is picked up at or near their place of residence. In some cases, it may be necessary for a rideshare passenger to drive to a park-and-ride lot to meet the carpool or vanpool. See Table 29 for existing use, and Graph 2, for the relation to gas prices. More information can be found at: [HTTP://WWW.CONNECTINGCOMMUTERS.ORG/PARK-RIDE-LOCATIONS/](http://www.connectingcommuters.org/park-ride-locations/)

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Table 29 FY 2014 Park & Ride Lots in Central Vermont Region

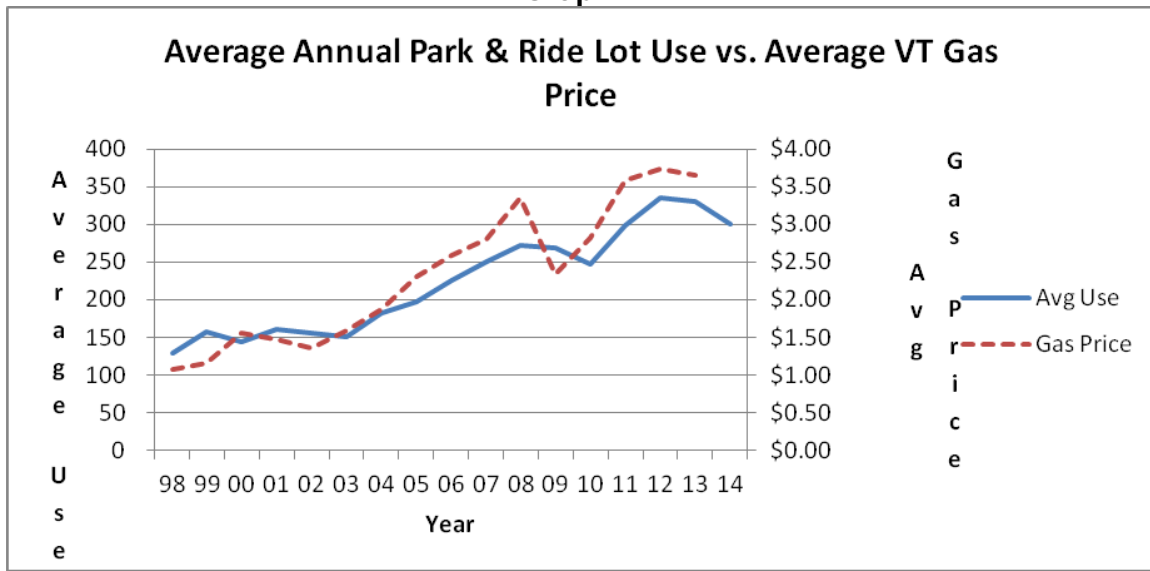
Jurisdiction	Location	Capacity	Average Usage
State Lots			
Montpelier	Montpelier Junction State Highway (near Montpelier State Highway and Exit 8)	55	35
Montpelier	Montpelier Department of Labor	170	74
Berlin*	Intersection of Route 62 and Payne Turnpike (near Exit 7)	81	66
Barre Town	Intersection of Route 14 and Route 63 (near Exit 6)	34	12
East Barre	Route 302	10	2
Waterbury*	Center Brook Road near Route 100 interchange with I-89 (near Exit 10)	69	57
Middlesex	Route 2 near Middlesex State Highway interchange with I-89 (near Exit 9)	28	16
Williamstown*	Route 64 near I-89 Exit 5	25	17
Municipal Lots			
Warren	Main St. Warren Village	12	6
Roxbury	At the Town Garage	8	3
Plainfield	Lower Village, near the Town Office	22	3
Orange	At the Town Offices/Town Hall	26	3
Marshfield**	At the Town Office	6	3
East Warren**	Roxbury Mountain Rd	15	3
East Montpelier**	At US 2 / VT 14 North Intersection	4	2
Cabot**	At Grange Hall	19	New

* These Park & Ride Lots have experienced near and over capacity usage surveys.

** New Park & Ride Lots since 2008 Regional Transportation Plan

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Graph 2



Potential Future Park & Ride Lots

The potential development of park and ride lots has been supported by an Agency of Transportation program that was instituted in 2004, known as the Municipal Park & Ride Grant Program. This program provides funding to municipalities for the development (engineering and construction) of small municipally-owned park and ride facilities. The region has investigated where potential future park and ride lots could be located when the opportunity presents itself. Consideration was given to sites where major intersections occur, on state or town owned ROW, co-location with existing businesses, villages, and the type of use. Table 31 identifies these locations.

Park and Ride Recommendations

The following existing lots are under design for enlargement and added features (which could include; bus shelters, bike racks, sidewalks, lights, fencing): Berlin Exit 7, Williamstown Exit 5, East Montpelier Village. The Future Lot in Berlin Exit 6, is also under design. The Waterbury Exit 10 lot, although recently upgraded, is still near capacity, and is difficult for buses to access. It could be designated as a car lot, and designated space could be established at the nearby Shaw's Shopping Center for bus use. Level 1 Electric Charging Stations at light posts, should be considered at all existing and future lots.

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Table 31

Future Park & Ride Sites to be considered when conditions warrant

Type	Town	Route	Location
Interstate	Berlin	VT 63/I 89	At Exit 6 Ramp
Rural Commuter	Waterbury	VT 100	At Shaw's for Buses
Rural Commuter	Moretown	VT 100B	Village Municipal Lot
Rural Commuter	Waitsfield	VT 100	Irasville Commercial Lots
Rural Commuter	Middlesex	VT 12	Wrightsville Area
Urban Shuttle	Barre City	US 302	North End, Jones Brothers
Urban Shuttle	Montpelier	US 2/US 302	Grossman's
Urban Shuttle	Montpelier	VT 12	Econo Lodge
Ski Shuttle	Waitsfield	VT 100	Village, Irasville
Rural Commuter	Woodbury	VT 14	Village

Travel Demand Management

Throughout many areas in the United States, travel demand management (TDM) is used to encourage efficiency in the transportation system. In many situations, travel demand is managed by an entity known as a Transportation Management Association (TMA). A TMA recognizes that employers and developers play an important role in an area's transportation system and works to create partnerships between employers, developers, and the local government. TMAs help to build local consensus, raise funds, implement specialized programs/services, and manage travel demand.

In Central Vermont, Capital Commuters is a new program run by the Vermont Agency of Transportation, for State of Vermont Montpelier employees. The Capital Commuter program is designed to alleviate parking problems in Montpelier, and to encourage efficient commuting through walking, biking, carpool, vanpool or public transit. About 400 employees participate to date. National Life has a similar program for their employees. The region has several other large employers, in Barre City and Waterbury, who might be well-suited to implement these programs.

Tele-Commuting:

Tele-commuting, also known as telework, is one alternative work format with a particularly impressive mix of potential benefits for employers, employees, and communities. Tele-commuting involves an employee completing work tasks from a remote location, usually his or her home, using various forms of communication. As the speed and availability of internet connections has grown, so has the

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feasibility of tele-commuting. However, barriers to wide-spread use of tele-commuting remain.

Alternative Vehicles

Electric Vehicles - <http://www.driveelectricvt.com/>

Electric vehicles (EV) can offer a means to increase Vermont's energy independence, dramatically reduce the carbon footprint of Vermont's transportation sector, and guard against rising petroleum prices.

Carshare Vermont - <http://www.carsharevt.org/>

Carshare Vermont has operated in Chittenden County and started in Montpelier, in the spring of 2015. CarShare Vermont has two vehicles parked in at City Hall and the Library, that can be used by the hour or day whenever a member needs to drive. It is an easy and affordable alternative to owning a car.

Pedestrian and Bicycle Facilities

Bicycle and pedestrian facilities are a vital piece of the transportation system. These facilities are very important to the safety and convenience of bicyclists, pedestrians and vehicular traffic. Bicycle and pedestrian facilities provide improved circulation and access in cities, villages, and other densely developed growth areas. These facilities are especially important to people with mobility limitations. The ability to walk or bike to your destinations reduces the need for vehicles, use of fossil fuel, and the creation of pollution. It also supports public transit services, facilitates traffic calming, and provides health benefits. The economic benefits are also readily apparent. Tourists are more likely to visit an area with a good sidewalk network. Bicycle touring is very popular on Vermont's scenic highways.

Sidewalks and crosswalks are common in most cities and villages. Although there are exceptions, the minimum width suggested in Vermont Design Standards is five feet. The following communities have sidewalks: Barre City, Barre Town, Cabot, East Montpelier, Marshfield, Montpelier, Moretown, Northfield, Plainfield, Waitsfield, Warren, Waterbury, and Williamstown.

Paved shoulders are the most common facility in rural areas. The Region recommends a minimum 15 ft. combined single lane and shoulder width be provided on state highways where possible (11 ft. lane & 4 ft shoulder). **Figure 31** illustrates highway segments with suitable shoulder widths.

Bicycle lanes are designated shoulders for the preferential or exclusive use by bicyclists. They require pavement lines, markings and signs. The minimum width is 4 ft., but wider lanes are recommended in areas with higher speeds,

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1 higher volume of traffic, or with on-street parking, and/or drainage grates. For
2 example, there are existing bicycle lanes on portions of US 2 in Montpelier.

3
4 Shared use lanes are appropriate in village and urban areas where traffic speeds
5 are lower and there is no room for a wider facility. Sometimes they are marked
6 with “sharrows” in the travel lane. Examples can be found in Barre City,
7 Montpelier, Northfield, and Waterbury.

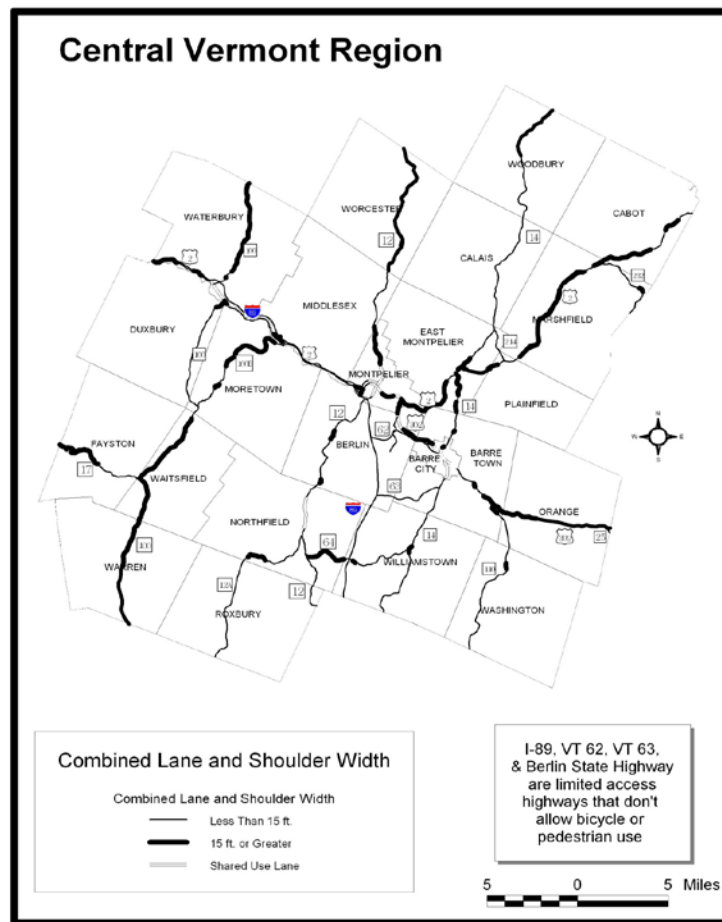
8
9 “Road Diet” is a new term where the number of travel lanes is reduced or
10 reconfigured to make room for any of the above facilities. Montpelier did this on
11 US 2 on the east side of the city. There used to be two lanes east bound, and
12 one lane west bound. Now there are bicycle lanes, and one travel lane in each
13 direction. Berlin is recommending this on US 302, where five lanes would be
14 reduced to one lane in each direction, a two way center turn lane, and buffered
15 bicycle lanes (lanes are separated from the travel lane by a painted shoulder).

16
17 Separated shared use paths are off-road facilities for bicyclists and pedestrians
18 with an improved surface. This type of facility is useful to make connections
19 between destinations, when the existing road network isn’t suitable (narrow
20 widths) or as a short cut. A variation of this is a rail trail, where a rail bed that is
21 inactive, abandoned or railbanked is used for a shared use path. The minimum
22 width is 8 ft., but wider widths are suggested if high volume use is expected.
23 Examples are sections of the Central Vermont Regional Path in Montpelier, Barre
24 City, and Barre Town.

25
26 The Safe Routes to School (SR2S) Program was a new program that VTrans
27 offered in 2006, and consists of sustained efforts by parents, schools, community
28 leaders and local officials to improve the health and well-being of children by
29 enabling and encouraging them to walk and bicycle to school.
30 Seventeen Central Vermont schools have participated.

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Figure 31



Deficiencies

There are a number of factors to consider when evaluating the suitability of a highway for bicycle and pedestrian use. These include width, volume, grade, curves/alignment, speed limit, pavement condition, and number of curb cuts. In urban and village settings, bicyclists have to share the lane with motorized vehicles. In busy commercial areas, such as the Barre–Montpelier Road, high volume, high speeds, and multiple turning movements create an environment suitable only for the most experienced bicyclist.

Figure 31 illustrates that there are many segments of the State Highway System that have deficient combined lane and shoulder width (less than 15 ft.) for bicycle and pedestrian use. Areas with suitable widths are fragmented which limits their use for longer distance trips and as a regional system. For example, VT 100 is heavily used by bicycle touring groups. The lack of a suitable shoulder in Duxbury is exacerbated by the steep grades and winding curves of VT 100. Touring groups struggling uphill are slow moving, spread out, and in the travel lane. This creates an uncomfortable and dangerous situation for the bicyclists

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1 and vehicles attempting to pass. This situation may occur on other narrow
2 shoulder highways such as US 2, US 302, VT 14, VT 12, VT 12A, VT 17, and VT
3 110.

4
5 Sidewalk networks exist in a number of the Region's cities and villages. There is
6 a constant need to maintain these facilities. In certain areas the sidewalks are
7 undersized, or have been neglected, which diminishes their usefulness, and
8 safety and, may no longer meet ADA Standards. There are other villages and
9 developed areas that have no pedestrian facilities. Shoppers on the Barre-
10 Montpelier Rd. in Berlin need to use their vehicles to get from one store to
11 another because there are no sidewalk connections.

12
13 The Vermont Agency of Transportation (VTrans) is developing an On-Road
14 Bicycle Plan in support of enhancing on-road bicycle improvements on the State
15 highways. The VTrans On-Road Bicycle Plan is a planning effort using public
16 input and roadway characteristics to categorize state highway corridors into
17 several tiers. The tier system will rank the state highway corridors for on-road
18 bicycling based on where bicyclists ride now and where bicyclists want to ride.
19 The Plan will assist VTrans in understanding where to focus limited resources
20 towards bicycle improvements and allow better integration into Agency projects.

21 22 Recommendations

23
24 CVRPC will continue to promote appropriate land uses to facilitate walking and
25 bicycling as a viable means of transportation.

26
27 As part of the State's Complete Streets Law, inclusion of bicycle and pedestrian
28 facilities and accommodations should be considered in all paved VTrans, Town,
29 and new private development projects in villages, cities, and other growth areas.

30
31 CVRPC recommends a minimum 15 ft. combined single lane and shoulder width
32 be provided on state highways where possible (11 ft. lane & 4 ft shoulder).

33
34 Guardrail installation can have a negative effect on bicycle safety and comfort in
35 areas with narrow shoulders. Fill should be considered to reduce slopes instead
36 of guardrail installation. Box beam is the preferred type if guardrail is necessary,
37 because it maximizes shoulder width.

38
39 Highways should be swept to remove sand and debris after winter.

40
41 CVRPC supports the implementation, expansion, and completion of the Central
42 Vermont Regional Path, the Cross Vermont Trail, the Mad River Path, the
43 Lamoille Valley Rail Trail, and other community bicycle & pedestrian plans.

44
45 Bicycle and pedestrian facility planning and development should be coordinated
46 with adjacent communities and regions.

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Public transit vehicles should accommodate bicycles, and bus stops should have appropriate pedestrian facilities, such as sidewalks, signage, and crosswalks.

Accommodations should be provided for bicycles at logical termini (i.e. bike racks, covered racks, storage lockers at all public parking areas, park and rides, etc.)

Schools should consider planning and constructing facilities conducive to bicycle and pedestrian activity, and include these facilities in their capital improvements. They should also consider participating in the Safe Routes to School Program.

Planning for bicycle and pedestrian facilities should be included in municipal plans, and with consideration for education, encouragement, engineering, enforcement, and evaluation activities and strategies, patterned after the Safe Routes to School Program.

CVRPC will continue to aid municipalities, tourism, and economic development partners in designing and undertaking GIS mapping that can be used as bicycle/walking promotional materials.

Air Transportation

Aviation provides an important contribution to the State's transportation system. The two airports located in the Central Vermont Region are mapped in **Figure 34**: the Edward F. Knapp State Airport and the Warren-Sugarbush Airport. Burlington International Airport is the closest commercial service airport. Greyhound service is available to the Manchester-Boston Regional Airport and Burlington International Airport from Montpelier.

The State's public-use airports provide economic benefits to the Central Vermont Region. However, airports' contributions to their communities are not limited to their roles as economic engines. Each also contributes to the health, safety, security, recreation, and general quality-of-life in the communities they serve in ways that cannot be stated in dollar terms.

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Figure 34

Vermont's Public Use Airports



Edward F. Knapp State Airport

Edward F. Knapp State Airport is located in the Town of Berlin, Vermont in the central portion of the State. The airport is located centrally between Montpelier and Barre, within five miles of both cities. The airport's proximity to both the State capital, Montpelier, and the population center of the Montpelier-Barre area accounts for a large portion of its usage.

Access to Edward F. Knapp State Airport is via Airport Rd., which is easily accessible off of Route 62.

Recent improvements to the airport include:

2010 Constructed full-length parallel taxiway for the RW17/35; reconfigured and reconstructed RW 5/23; and, constructed a jet ramp.

2012 Completed total airport perimeter security fencing

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Warren-Sugarbush Airport

Warren-Sugarbush is located in the town of Warren. The airport is a privately-owned public access airport. Access is limited to small aircraft.

Existing and Future Deficiencies

Edward F. Knapp State Airport

The FY 2015–2020 VTrans Airport Capital Facilities Program and VTrans staff identified the following project needs for the future.

The short-term (within 5 years) projects are:

- a. Airport Master Planning & forming a Knapp Airport Committee
- b. Northeast Hangar Development feasibility study to include extending a taxiway on the eastern terminus of Comstock Road.
- c. Hangar Construction
- d. Solar Hazard Beacon Replacement

Additionally, there is a statewide Airport Pavement Management & Maintenance Program that is updated biennially of all statewide airport pavements conditions to prioritize pavement maintenance Efforts.

Sugarbush-Warren Airport

Sugarbush-Warren Airport, a privately owned facility, doesn't receive Federal or State funding. Maintenance of the existing facilities is an on-going need.

Freight

According to the 2015 Vermont Freight Plan

(<http://vtransplanning.vermont.gov/reports>) in 2007, 89% of freight value in, out, within, and through Vermont is moved by truck, 11% by rail, and 0.03% by air. 42% of total freight flows by value move through Vermont. Vermont receives approximately 2.3 times more freight than it ships out. Washington County receives about 2.5 times as much freight as it sends out. Of the fourteen counties in the state, Chittenden County is the largest shipper/receiver of freight and Washington County is the 3rd.

In 2001, the important commodities transported from the region are specialty and dairy food products, granite, and wood. Also, it has been observed that fuel and salt are important commodities transported to the region. Washington County's largest trading partner is the rest of Vermont. Seventy-five percent of the County's exports and 41% of its imports have destinations or origins within Vermont. The highest percentage of freight exported outside of Vermont from

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Washington County to a single state has destinations in Maine. Outside of Vermont, the state of New Hampshire and the Province of Quebec are also important trading partners. Washington County imports 12% of its freight from the state of New Hampshire and 11% from the Province of Quebec.

Trucks

It is critical, that adequate highways be provided to support safe and efficient truck travel because trucking is important to the economic vitality of the region. The routes that currently, and in the future, carry even modest numbers of trucks must be constructed and maintained for the safe movement of both people and goods. Important truck routes consist of all interstate routes and segments of US and Vermont State routes. In Central Vermont, the highest truck volumes are on I-89, US 2, and US 302. There is no overall length limit on the interstate. For US and VT routes, the total length of a truck and trailer may not exceed 72 feet without a permit.

Rail

The New England Central Railroad operates the trackage which follows the Route 12A corridor through Roxbury and Northfield, the Route 12 corridor through Northfield and Berlin, and the I-89/Route 2 corridor to the Burlington area. Freight service is operated over this line in addition to Amtrak passenger rail service. Amtrak has stations in Berlin (Montpelier Junction) and in Waterbury. This rail line is an important link between Canada and Southern New England. The major commodities transported are pulp/paper, lumber/wood, non-metallic minerals, glass, petroleum products, and stone. New England Central serves a salt shed in Middlesex, a fuel depot in Montpelier Junction, and picks up freight transferred from the Washington County Railroad, also at Montpelier Junction. Otherwise, the majority of the freight traffic on the New England Central is considered overhead, or through traffic, and does not impact the Central Vermont region.

The rail spur between Montpelier Junction and the Rock of Ages Granite quarry in Barre Town is owned by the State of Vermont and is known as the Washington County Railroad (WACR). The Washington County Railroad is a private operator that leases the line from the State. WACR handles originating and terminating traffic including petroleum products, calcium chloride, lumber, and stone. Between Montpelier and Barre Town.

Existing and Future Freight Deficiencies

Freight transportation demand is expected to grow 43 percent between 2007 and 2035, or 1.28 percent per year. This increased traffic will not appear evenly over the entire network, but instead will affect some highway (and other modal) links

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more than others. However, present truck volumes on many of the State's routes are modest and the congestion impact (measured as overall volume-to-capacity ratio) on most of these routes will generally be minor. Apart from sections of Interstate 89 and U.S. Routes 2 and 7 in the immediate vicinity of Burlington, the State's highway network has the capacity to accommodate freight traffic now and in the future. Similarly, the projected carload increase anticipated on the NECR, VRS, and the other railroads in the state can be accommodated using existing rail capacity. Terminal capacity and landside access are generally adequate at all of Vermont's airports and ferry terminals.

Existing and Future Rail Deficiencies

The New England Central Railroad line is a Federal Railroad Administration (FRA) Class 3 Railroad, which allows freight use operating at speeds up to 40 miles per hour, and passenger use operating at speeds up to 60 miles per hour. The tracks were upgraded in 2012, to increase passenger rail speed, and handle 286,000 lb. cars. It is currently one of the few rail lines with a preventative maintenance program. To preserve public investment in the upgrade, this preventative maintenance program should continue.

The Washington County Railroad's 13-mile long track between Montpelier Junction and Barre Town is a Federal Railroad Administration (FRA) Class 1 Railroad, which means the train travel is restricted to a maximum speed of 10 miles per hour for freight use, and 15 miles per hour for passenger use.

There are four system initiatives identified in response to the above trends and observations that will support the future of the Vermont rail system. These initiatives are:

- Bridge and track upgrades to maintain and improve railcar loading capability to Vermont railroads.
- Doublestack clearance improvements
- Transload freight facilities
- Passenger rail system enhancements