Northeastern Vermont Development Association

Regional Transportation Plan for the Northeast Kingdom

2012 Update

March 2013

Section 1
Introduction

The Northeast Kingdom Regional Transportation Plan puts forth a 5-year guide for developing and improving the transportation system in the Region. This plan is an update of the previous plan prepared in 2006. The Northeastern Vermont Development Association (NVDA) has been responsible for the development of this and previous plans. They have addressed the various means of transportation in use in the Northeast Kingdom. The plan looked at the various modes of transportation to determine how they can play an important role in the future development of the region.

In 1991, the Federal Government passed the Inter-modal Surface Transportation and Efficiency Act (ISTEA) with broad goals toward the development of a transportation system that is efficient, economical, respectful of local needs, and integrated with land use planning. The State of Vermont responded to ISTEA by establishing the Transportation Planning Initiative (TPI). The TPI embraces a strong element of local participation and the meaningful consideration of alternative modes of travel.

In 2005, the Federal Government signed into law the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). SAFETEA-LU promotes more efficient and effective Federal surface transportation programs by focusing on transportation issues of national significance, while giving State and local transportation flexibility for solving transportation problems in their communities. SAFETEA-LU was set to expire on September 30, 2009, but Congress has passed a series of extensions while it works on a new transportation bill.

To ensure the local participation mandated by ISTEA and SAFETEA-LU, NVDA has overseen the development of this Regional Transportation Plan (RTP) for Caledonia, Essex and Orleans Counties (the Northeast Kingdom).

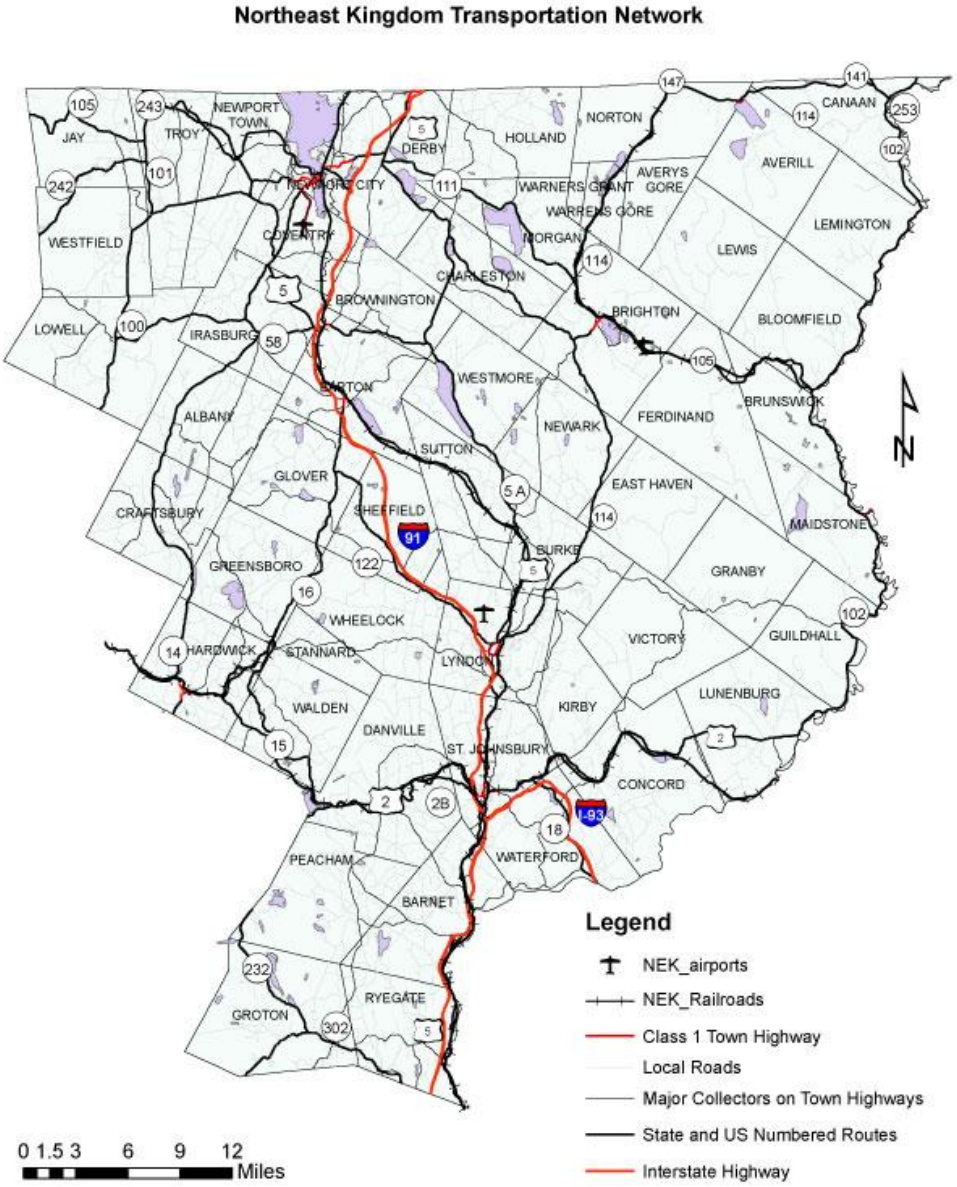
(NVDA) anticipates that it will update this plan again in five years, in accordance with current SAFETEA-LU guidance. The plan was prepared with the assistance of the NVDA Transportation Advisory Committee (TAC), the local municipalities and the residents of the Northeast Kingdom. It will serve as the Transportation Element of the regional plan for the region.

The Plan has been prepared to respond to the characteristics of the Northeast Kingdom. It is also compatible with the State's Long Range Transportation Plan, which emphasizes maintenance, intermodal connections and links to land use.

This plan departs from past efforts in that it will look to address more fully all modes of transportation that are available to the regions residents and visitors. In the past this plan has focused primarily on the auto centered and will now focus on recommendations by corridor.

The Region

The Northeast Kingdom encompasses 55 municipalities, grants and gores, situated in the northeastern most corner of Vermont, as shown in Figures 1.1 and 1.2. The region consists of three counties, Caledonia, Orleans and Essex. It is bordered on the east by the Connecticut River and New Hampshire; to the west by Franklin, Lamoille and Washington Counties; to the north by the Province of Quebec, Canada; and the south by Orange County. The Region's total land area is 2,027 square miles, encompassing about 21% of the State.

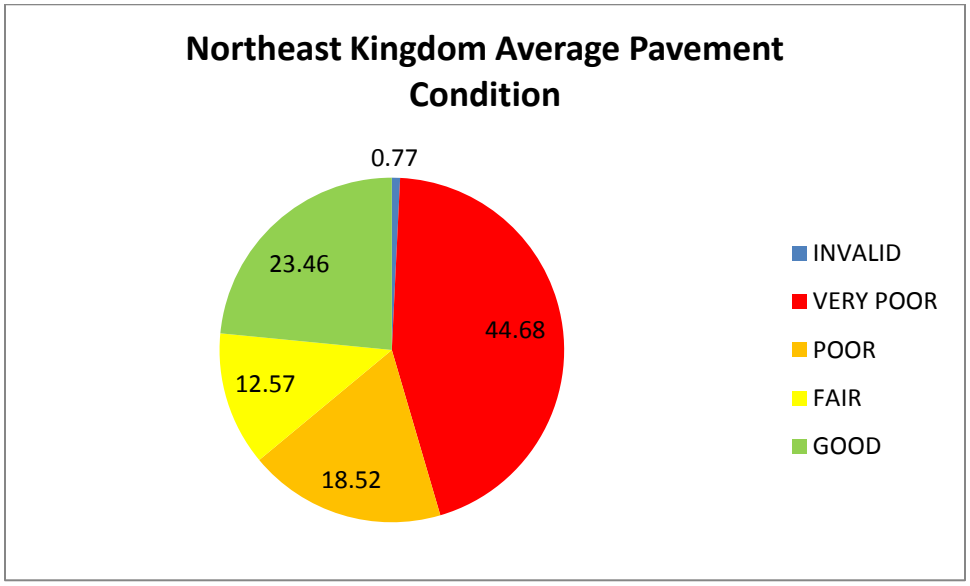


The Northeast Kingdom is the largest, most sparsely populated (10% of Vermont's population) and economically challenged of all the regions in the State.

The State of Vermont uses an asset management strategy to determine where best to allocate limited funding to get the most return for investment. Due to the regions relative low population and thus traffic volumes compared to other areas, the regions share of state transportation infrastructure does not compete well for limited maintenance funding. The result of this situation is illustrated below.

COUNTIES RANKED BY AVERAGE PAVEMENT CONDITION

County	Miles	Avg Condition	% VERY POOR
Grand Isle	45.127	70	8
Bennington	174.173	66	15
Rutland	269.709	63	18
Windham	173.520	62	22
Chittenden	141.601	59	24
Essex	121.921	57	33
Washington	187.347	56	27
Franklin	191.462	55	30
Windsor	307.443	52	36
Lamoille	123.592	51	35
Addison	194.522	48	43
Caledonia	161.884	42	49
Orange	173.521	41	53
Orleans	204.800	39	53



Source: VTrans 2010 Pavement Management

Section 2
Vision and Goals

Vision for Transportation System Development and Improvement

The Vision for the Transportation System in the Northeast Kingdom is one that supports a diverse economy and high quality of life for all residents. It addresses the mobility needs and mode choices of all residents, and provides for the safe, efficient and cost-effective movement of people, goods and services while integrating land use and transportation in a comprehensive and cooperative decision-making process.

This vision strives to provide transportation infrastructures that efficiently and safely handles traffic during natural hazard events and other emergency situations, promotes a funding strategy that realizes the maximum use of all available resources to ensure adequate funding to address the Region's and towns' priority needs of the existing transportation system while preserving environmental, historic, scenic and cultural resources.

Goals and Objectives

Goals and objectives are the necessary cornerstones of any plan. They synthesize the region's vision and represent the general direction of transportation planning for the regional community. The goals and objectives of this regional transportation plan are consistent with the vision presented in the region's general plan and the goals presented in the State Transportation Plan. They are as follows:

Goals

Goal A: Maintain Adequate Road and Bridge Capacity and Mobility

The importance or providing adequate maintenance to our existing infrastructure across all modes and infrastructure asset classes cannot be understated. Where existing facilities have degraded to the point that effective maintenance cannot be employed, support investment to bring the infrastructure up to a maintainable level.

Goal B: Guarantee a Regional Transportation System that Facilitates Economic Development

Economic activity relies upon having the infrastructure in place in good repair to support those activities. Just in-time shipping practices and the global market place require a well maintained and integrated transportation network to be competitive business. These requirements include access to Interstate Highways, Rail, and Air Shipping.

Goal C: Ensure Good Quality of Life

Make transportation investment decisions to enhance the overall quality of life and minimize any negative impacts on natural, cultural, and/or scenic resources without compromising maximum safety conditions. Roadway upgrades and new roadways should be planned so as not to fragment agricultural and forestry lands, or existing and planned growth centers.

Goal D: Ensure Availability of Alternative Transportation Modes to Address Residents' Needs

Seek a reduction in the dependence of the private automobile as the principal means of transportation. Expand and support new and existing public transportation services that are affordable to regional residents and are energy efficient.

Address the problems associated with rural transportation including the movement of people and goods, and access to recreation opportunities and economic development.

Support efforts towards retaining in full use and good repair the operating rail and air service within and to/from the region.

Promote transportation in growth centers, downtowns, and village centers that feature bicycle, pedestrian and other non-motorized forms of transportation.

Promote the development of park-and-ride lots.

Encourage the creation of a barrier-free transportation environment; and support transportation services for senior citizens, low-income groups and the handicapped.

Promote the development of charging stations to facilitate increased use of electric vehicles.

Objectives

Objective 1: Develop Mechanisms for Effective Management and Maintenance of the Region's Transportation System

- Slow the deterioration of individual transportation modes, and assist in reducing/averting costly repairs.
- Increase efficiency and structural longevity of system by supporting access management and preservation of the functional classification of State and US numbered routes.
- Encourage more effective modal linkages.
- Protect and enhance the region's development investments.
- Maintain a consistent level of transportation service and safety.
- Preserve public rights of way by reclassifying Class 4 roads to Legal Trails where towns do not wish to maintain the road but want to preserve access for farming, forestry, or recreation.
- Preserve Abandoned Railroad Rights of Way as Rail Banked corridors. Interim use as a recreational trails should be supported.

Objective 2: Integrate Transportation Planning with Local Land Use and Activity Center Development

- Facilitate a consistent and more effective comprehensive planning process at the regional and local level.
- Insure that transportation concerns are addressed appropriately in light of land use impacts as well as community facility needs.
- Prevent waste of natural and financial resources.
- Encourage the development of inter-city and inter-regional public transportation systems where feasible.
- Policies, plans, projects, and programs should emphasize cooperation with all transportation organizations and with municipalities, major employers, and private landowners.

- Seek to attain consistency with local plans within the planning and project prioritization process.
- Coordinate transportation improvements and management objectives across regional boundaries.

Objective 3: Identify a Variety of Funding Mechanisms to Assist Towns in Maintaining Local Road Infrastructure

- Reduce the dependency on state Capital Program and Project Development.
- Encourage local participation by individual municipalities with respect to project development, design, and scheduling.
- Assist in reducing negative impacts on local town budgets for transportation maintenance and construction.
- Encourage public/private partnerships to fund infrastructure improvements where appropriate.

Objective 4: Enhance Economic Development and the Efficient Movement of Goods and Services While Reducing the Impact of Commercial Traffic on Local Communities

- Reduce time-in-transit for the driving public as well as commercial vehicles.
- Reduce energy consumption in Transportation.
- Initiate projects that will increase the level of safety on local and state highways.
- Manage noise levels associated with transportation activities.
- Encourage and aid neighboring municipalities to work cooperatively on transportation projects of large scope, thus reducing the burden on any one municipality.
- Support regional and extra-regional cooperation in the development of recreation and bicycle trails.

Section 3
Regional Transportation Network

This Section provides a brief overview of the transportation modes available to residents, visitors, and businesses of Caledonia, Essex, and Orleans Counties. The goals and objectives for these will be discussed in more detail within the specific corridor chapters.

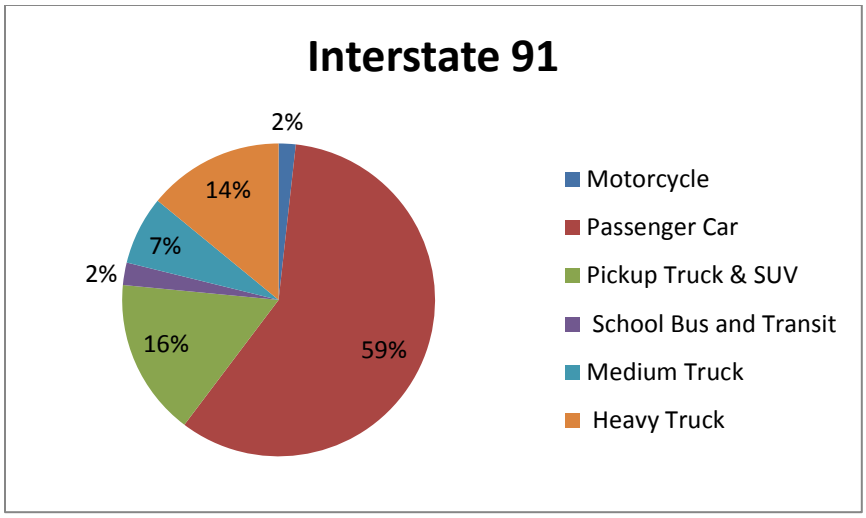
Roadway

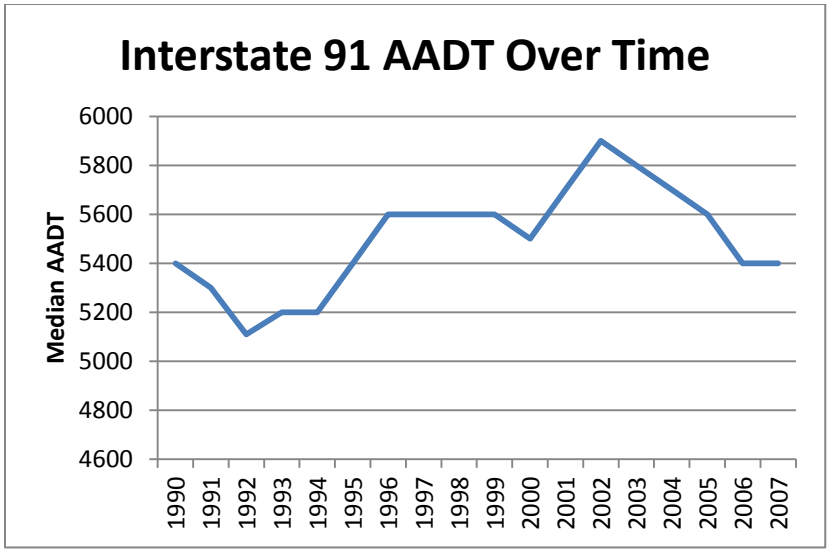
The highway network of the Northeast Kingdom is the by far the most commonly used mode of transportation. There are 2507.5 miles of roadway located in the region that range from Interstates 91 and 93 to local gravel roads and everything in between. Residents in the region totaled 743 million miles in vehicle miles traveled (VMT) in 2009. (UVM TRC Transportation Energy Report 2011).

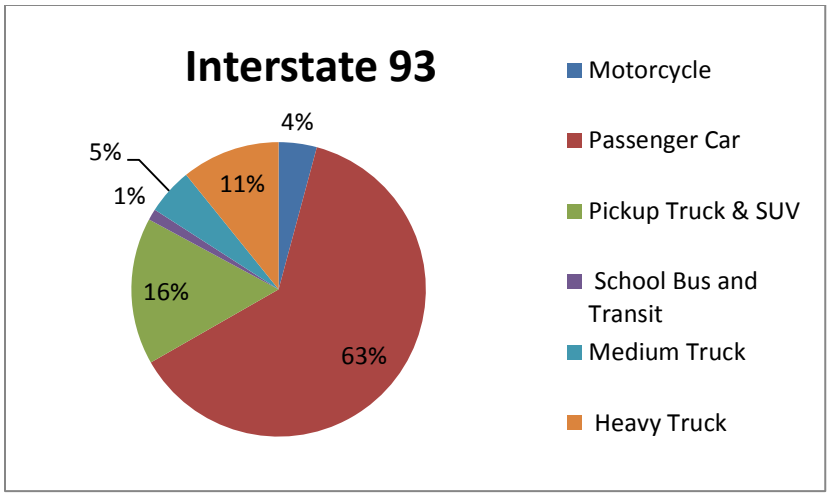
Interstate Highway

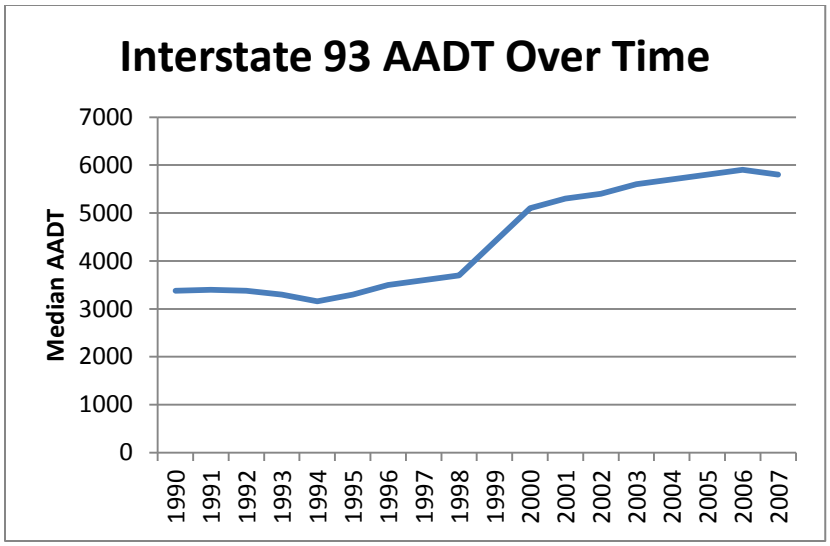
There are approximately 66 miles of Interstate 91 and approximately 11 miles of Interstate 93 located in the region. These roadways provide good north-south access for the region with Interstate

93 connecting to New Hampshire continuing south to Boston and Interstate 91 connecting the region to Canada in the north and South to Massachusetts. They provide higher speed and greater capacity for travelers and goods.









National Highway System (NHS)

The NHS was designated in the Inter-modal Surface Transportation Equity Act (ISTEA) of 1991. Roadways with NHS designation are seen as major roads used to connect important regional destinations. In the Northeast Kingdom, the entire length of Interstate 91 and 93 as well as US Route 2 Form the Cabot Town Line to the New Hampshire Line comprise the total of NHS roadways.

State Highway

State Highways are roadways maintained by the state that are not Interstates or NHS roadways. These include US 5, VT 14, VT 15, VT 16, VT 18, VT 58, VT 100, VT 101, VT 102, VT 105, VT 111, VT 114, VT 122, VT 141, VT 147, VT 191, VT 232, VT 242, VT 243, VT 253, US 302.

Local Roads

Any roadway not previously listed is a local road. Of the 2507.5 miles of roads in the Northeast Kingdom, 1476.95 miles (58.9%) are unpaved. 1947.9 miles (77.7%) of the total regional mileage is maintained by towns.

Railroads

The Northeast Kingdom has three active rail lines; Washington County Railroad (WACR) and St. Lawrence and Atlantic Railway (SLR), Montreal Maine and Atlantic Railway (MM&A), one inactive line, Twin State Railroad (TSR), and two rail banked rail lines , one converted and open,the Beebe Spur Trail in Derby and one undergoing conversion to a Rail Trail; the Lamoille Valley Rail Trail. There is no passenger service in the NEK but one can access passenger Rail (Amtrak) in either White River Junction or Montpelier.

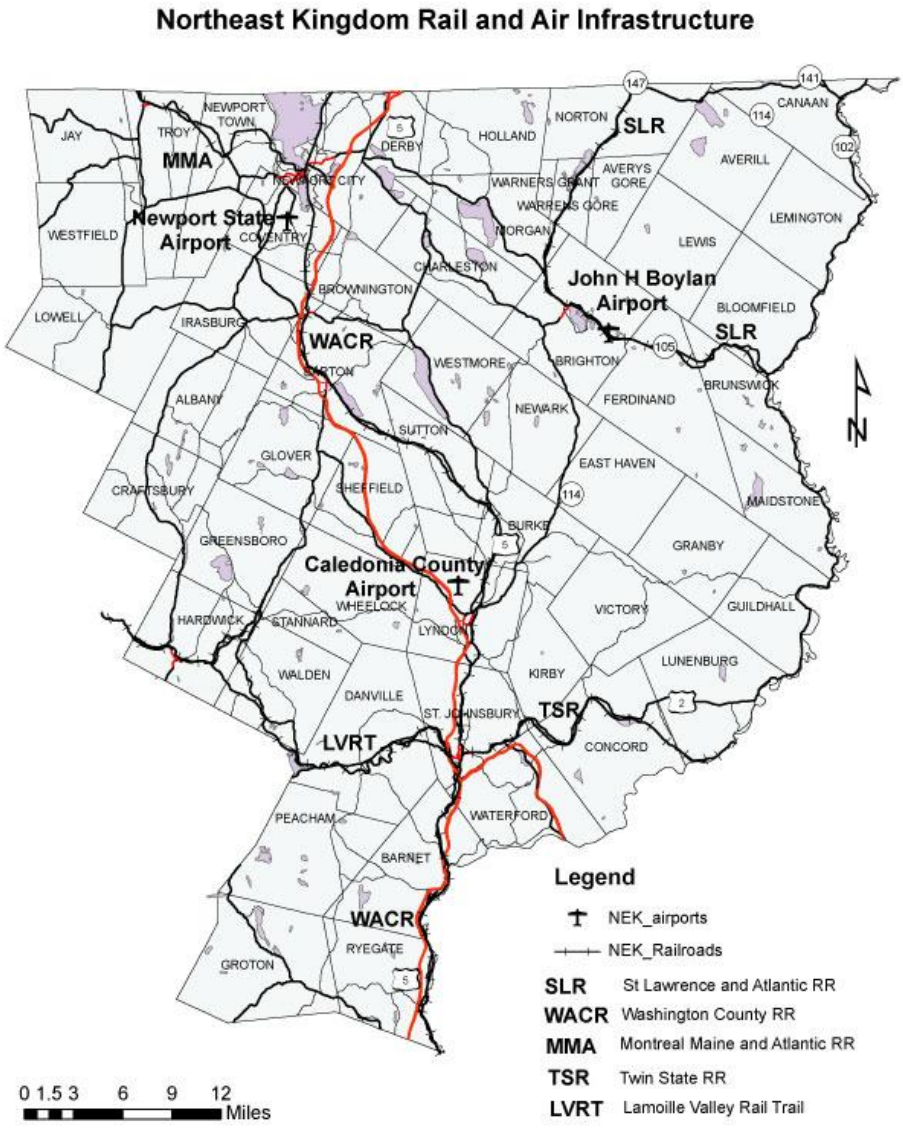
The St. Lawrence and Atlantic Railway (SL&A) operates 30.65 miles of track from Norton VT to North Stratford NH. It is capable of handling double stacked car loads on its entire length. Approximately 26,000 annual carloads of SL&A traffic travel through Vermont, of which approximately 2,060 carloads originate or terminate in Vermont. SLR operates two through freight trains seven days per week. Freight handled consists of carload and mixed intermodal shipments of paper, forest products, chemicals, grain, salt, and various consumer goods. Presently, there are no passenger operations on the line; however potential passenger service exists between Montreal, Vermont, New Hampshire, and Portland, Maine. Part of SL&A, between Portland and Auburn, Maine, has been designated by FRA as a high-speed corridor for passenger rail, and there is an initiative to extend that to Vermont and on to Montreal.

The Washington County Railroad (WACR) Connecticut River Division is a State owned segment of track from White River Jct., to the southern limit of the Newport yard. It is operated by the Washington County Railroad, a subsidiary of Vermont Rail System. It connects with the Montreal, Maine and Atlantic in Newport and in White River with NECR, PAR, and the Claremont Concord Railroad. The Connecticut River Division has seen substantial growth over the past several years. WACR handles 1951 car loadings annually. The condition of the line is consistent with the types and volume of traffic that it serves. WACR handles originating and terminating traffic including corn, petroleum products, calcium chloride, grains, lumber, malt, potassium chloride, soy, urea and wood pulp. Bridge traffic includes lumber, paper, potatoes, sand and fertilizer. The WACR operates daily.

The Montreal, Maine, and Atlantic Railway (MM&A) operates 24.40 miles in Vermont, and associated trackage rights formerly operated as the Bangor and Aroostook Railroad, Canadian American Railroad, Northern Vermont Railroad, Quebec Southern Railway, and Van Buren Bridge Company. It operates from the Newport rail yard through Troy, Vermont into Quebec and reenters Vermont to serve Richford. The line then continues back into Quebec and points north. MM&A handles 3077 car loadings annually. The condition of the line is consistent with the types and volume of traffic that it serves. MM&A carries paper, lumber, grain, round wood and plastics. MM&A operates local freight service on a five-day-a-week basis.

Maine Central Railroad (MEC)/Twin State Railroad (TSR) The MEC runs 19.7 miles from St.Johnsbury to Gilman, Vermont; the 8.36-mile-long connecting segment of former MEC track between Gilman, Vermont and Whitefield, New Hampshire was purchased by the State of New Hampshire in 2002. A former operator, the Twin State Railroad (TSR), still has operating rights over the New Hampshire-owned segment between Gilman and Whitefield. TSR also claims salvage rights

to the entire 28.06 miles between St. Johnsbury and Whitefield. The entire length of this line in Vermont is currently inactive.



Rail infrastructure in the Northeast Kingdom is critical to our competitiveness in the long term. According to the Btu per vehicle mile to freight car-mile, railroads were 56% more efficient than heavy single-unit and combination trucks. Looking at this simple fact shows that as energy costs increase more efficient transportation options will become more important to the region's vitality.

Public Transit

Rural Community Transportation, Inc. (RCT) provides a range of transit services to meet the diverse needs of the traveling public. These include year-round shuttles that serve trips for all purposes, commuter services that operate during peak periods, and shopping shuttles and other demand-response services oriented toward seniors, people with disabilities, and others who have limited transportation alternative

RCT shuttle routes serve St. Johnsbury, Lyndon/Lyndonville, Newport and Derby/Derby Line. Taken together, these cities/towns had a total population of 22,794 in 2010, making up 35% of the population of the Northeast Kingdom (Caledonia, Essex and Orleans counties combined).The US 2 Commuter route connects St. Johnsbury to Montpelier, East Montpelier, Plainfield, Marshfield, and Danville. The Route 2 commuter is operated by RCT in cooperation with Green Mountain Transit Agency (GMTA). RCT's other commuter service includes a pair of express trips operated along the alignment of the Jay-Lyn Shuttle with limited stops and a schedule oriented toward commuters.

U.S. Census population results for the year 2010 at the block level were used to determine the approximate number of persons within easy walking distance of RCT shuttle and commuter route service. Assuming an even population distribution within individual Census blocks, about 16,000 persons live within a 1/4-mile radius of RCT shuttle and commuter route services (equivalent to a 5-minute walk). Another 10,000 people live within 3/4 of a mile from an RCT route (equivalent to a 15-minute walk).

RCT maintains a Regional Short-Range Transit Plan for the Northeast Kingdom and Lamoille County. For more information on the transit plan contact RCT at (802)748-8170 or www.riderct.org.

Air

There are three state-owned airports in the NEK, including the Caledonia State Airport (Lyndon), Newport State Airport (Coventry), and John H. Boylan Airport (Brighton). State-owned airports primarily serve the needs of general aviation. General aviation airports typically provide facilities for privately owned aircraft which are used for business activities and or private flying. Other uses for general aviation airports include flight instructions, aerial photography, crop dusting, and recreational flying. In addition, they provide facilities for local pilots, and provide charter air service to business and recreational travelers. Airports that support aviation related businesses provide the local economies with needed employment opportunities. Recently, the Agency of Transportation has been promoting development opportunities in within the Caledonia and Newport airport facilities. The Newport facility was included as a magnet site in NVDA's Foreign Trade Zone initiative. Most importantly, these airports make up a system linking travelers to the Northeast Kingdom and local residents to the rest of Vermont and the greater New England region.

Bicycle and Pedestrian

The NEK has 38.56 miles of sidewalks in Caledonia (17.37), Essex (2.7), and Orleans (18.49) counties. Aside from these municipal facilities there are three completed Rail Trails (The Beebe Spur, The Cross Vermont Trail ~14 miles and the Three Rivers Bike Path) and one currently undergoing conversion The Lamoille Valley Rail Trail).

With the completion of its bike path the City of Newport has significantly enhanced its downtown and improved access within the community. St.Johnsbury is expecting similar results as it moves forward with the completion of its long-planned bike path. Facilities like these provide mobility and access options for residents and visitors without having to use an automobile. The need for greater access for elders and people with disabilities will continue to increase as our population ages.

Bike and Pedestrian activities are also recognized as having significant economic impact in Vermont. VTrans conducted a study (Economic Impact of Walking and Biking in Vermont 2012) to examine this impact and among its findings were that for the study year (2009), Bike and Pedestrian infrastructure provided significant employment opportunities in construction that resulted in $9.9 million in labor earnings, Bicycle-pedestrian-oriented businesses in Vermont generated a total of 56.3 million in output and supported 1,025 direct and indirect jobs with $26.3 million in labor earnings (wages & salaries plus proprietor income). 40 major Bike and Pedestrian events attracted over 16,000 participants. Combined with associated family and friends, these visitors spent over $6 million in the state. Further analysis indicates these events generate $9.5 million in total output and supports 160 direct and indirect jobs with $4.7 million in labor earnings.

Given these findings it makes sense not only from a quality of life perspective but from an economic development perspective to support the development of these types of facilities and the activities that they attract. The Kingdom Trails organization and multi-use trail network, located in Burke, provides the best example of recreational economic development in the region and Vermont, if not all of New England. The extensive trail network and connection with Burke Mountain ski area is now bringing tens of thousands of visitors to the region each summer.

The table below provides the amount of sidewalks by mile in Northeast Kingdom communities as of (2012):

County	Community	Subarea	Length
Caledonia			
	Burke	West Burke	0.14
	Burke	East Burke	0.26
	Danville	Danville Village	0.39
	Groton	Groton Village	0.41
	Hardwick	East Hardwick	0.18
	Hardwick	Hardwick Village	2.07
	Lyndon	Broad St out to Lyndon Corner	0.73
	Lyndon	Lyndonville	1.64
	Ryegate	East Ryegate	0.45
	St Johnsbury	St J center	0.06
	St Johnsbury	UCZ	11.45
		County	17.78
Orleans			
	Barton	Barton Village	2.2
	Barton	Orleans Village	2.34
	Derby	Derby Line	1.08
	Derby	Derby Center	1.2
	Glover	Glover Village	0.45
	Greensboro	Greensboro Village	0.55
	Newport City	Newport City	8.06
	Troy	North Troy	2.61
		County	18.49
Essex			
	Brighton	Island Pond	1.12
	Canaan	Canaan Village	0.42
	Canaan	Beecher Falls	0.36
	Concord	East Concord	0.04
	Guildhall	Guildhall Village	0.1
	Lunenburg	Lunenburg Village	0.36
	Lunenburg	Gilman	0.3
		County	2.7
		Region	38.97

Intermodal Facilities

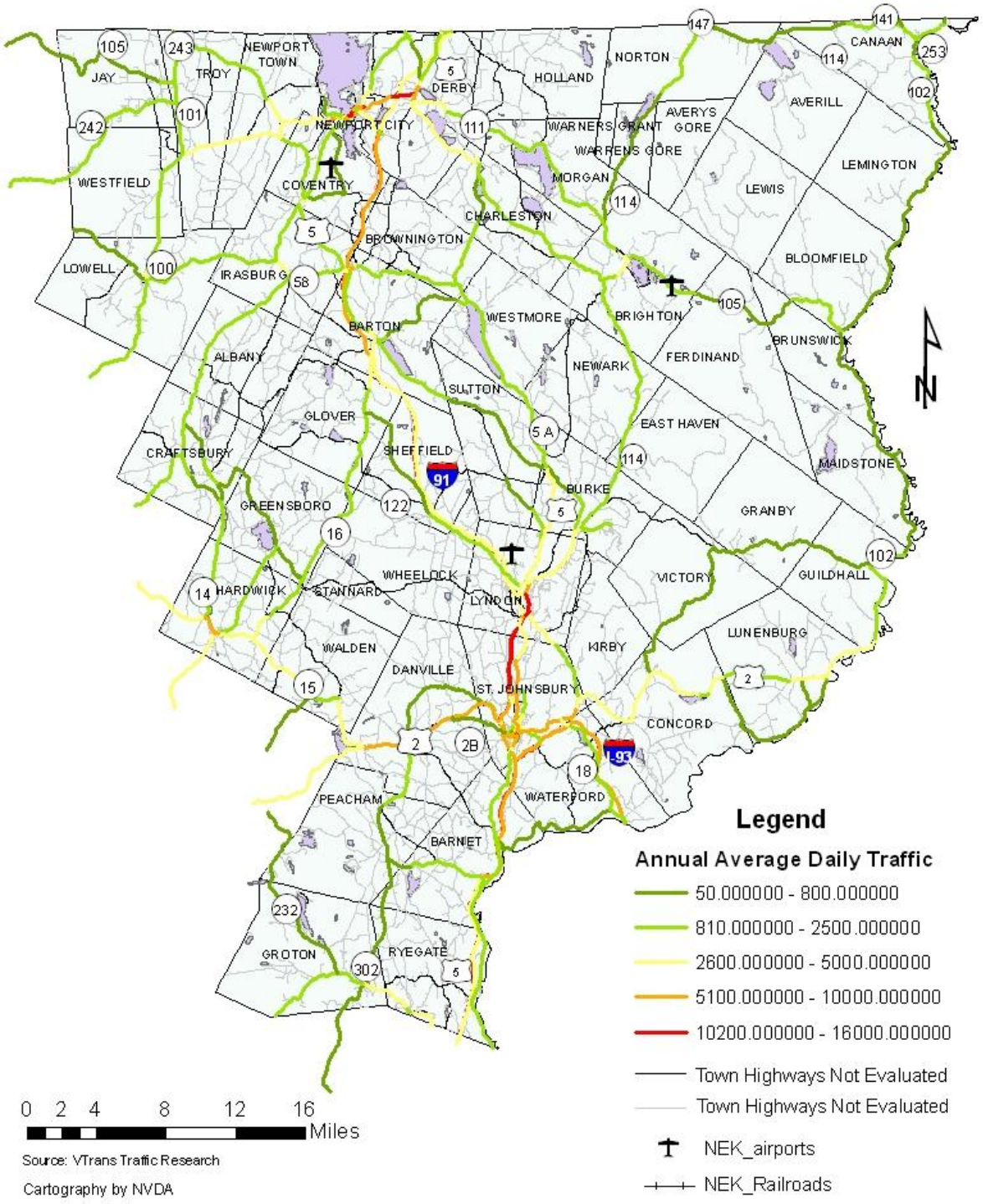
Inter-modal facilities are locations where commuters, tourists, travelers, and/or freight are transferred from one mode of transportation to another. Consequently, the modal-linkages provided by inter-modal facilities are key components of effective multi-modal transportation systems. Park and ride lots, bus stations, airports, and rail yards and sidings are examples of inter-modal facilities found in the Northeast Kingdom.

The automobile is by far the dominant mode of transportation in the Northeastern Vermont. Therefore most inter-modal facilities have automobile parking to accommodate people who drive to an inter-modal facility and switch to another mode of transportation (carpool, vanpool, transit, bus, etc.).

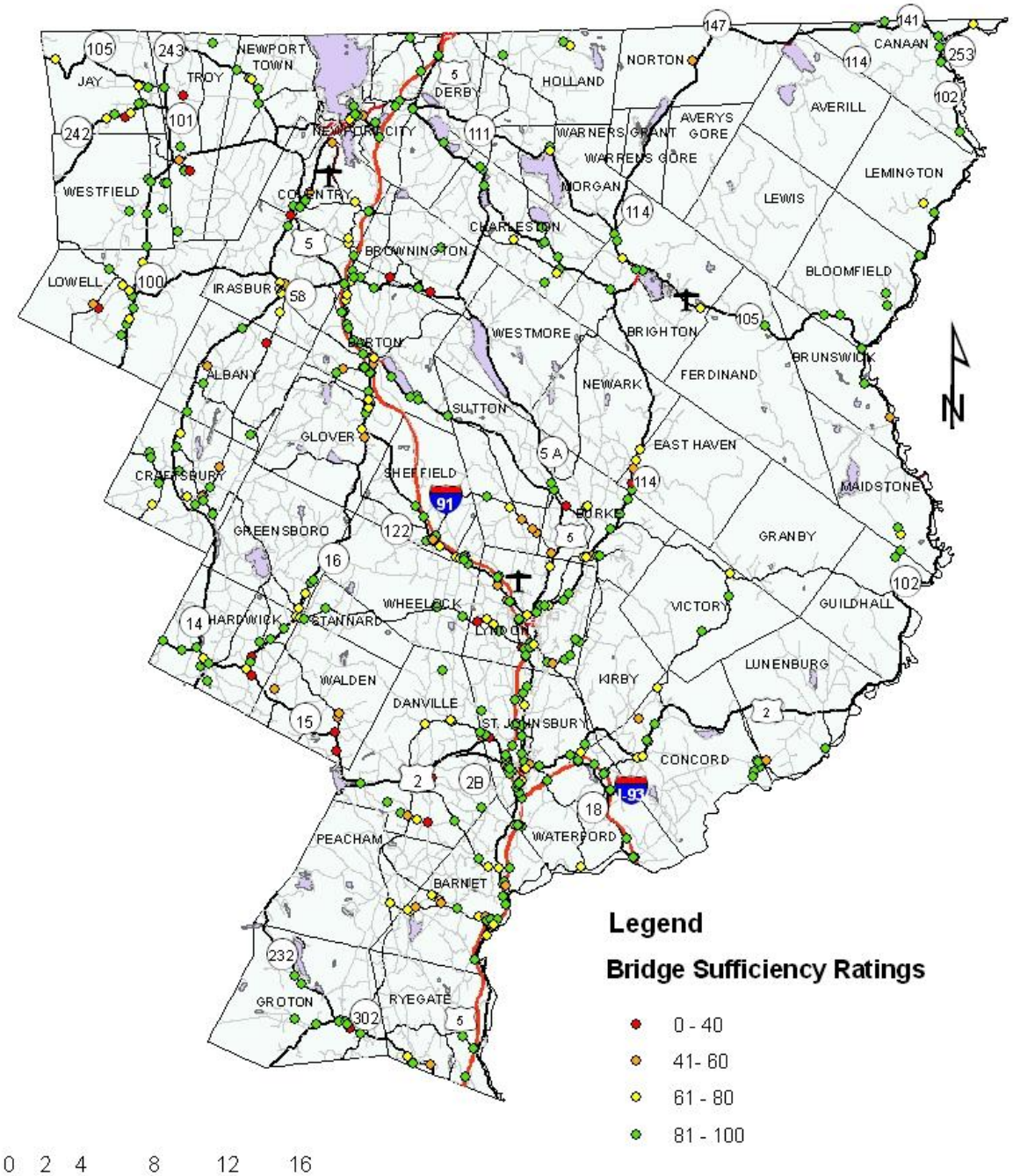
A large percentage of the region's residents work outside their home communities. This creates a demand for transportation services and infrastructure in order to get residents to their places of work and home again. As this demand increases over time, efforts to combine infrastructure capacity improvements with increased public transportation services should be examined at every possible opportunity. The impact of daily commuter migration extends beyond the 'wear and tear' to regional transportation infrastructure such as where the commuters purchase goods and services.

Below are a series of maps that relate information on Traffic Volume, Bridge Sufficiency Rating, High Crash Locations and Pavement condition for the regions highways as well as formal Park and Ride Locations. These maps will be broken out into corridor specific maps so as to provide a more detailed view of existing conditions within each corridor.

Northeast Kingdom Traffic Volume



Northeast Kingdom Bridge Sufficiency Ratings

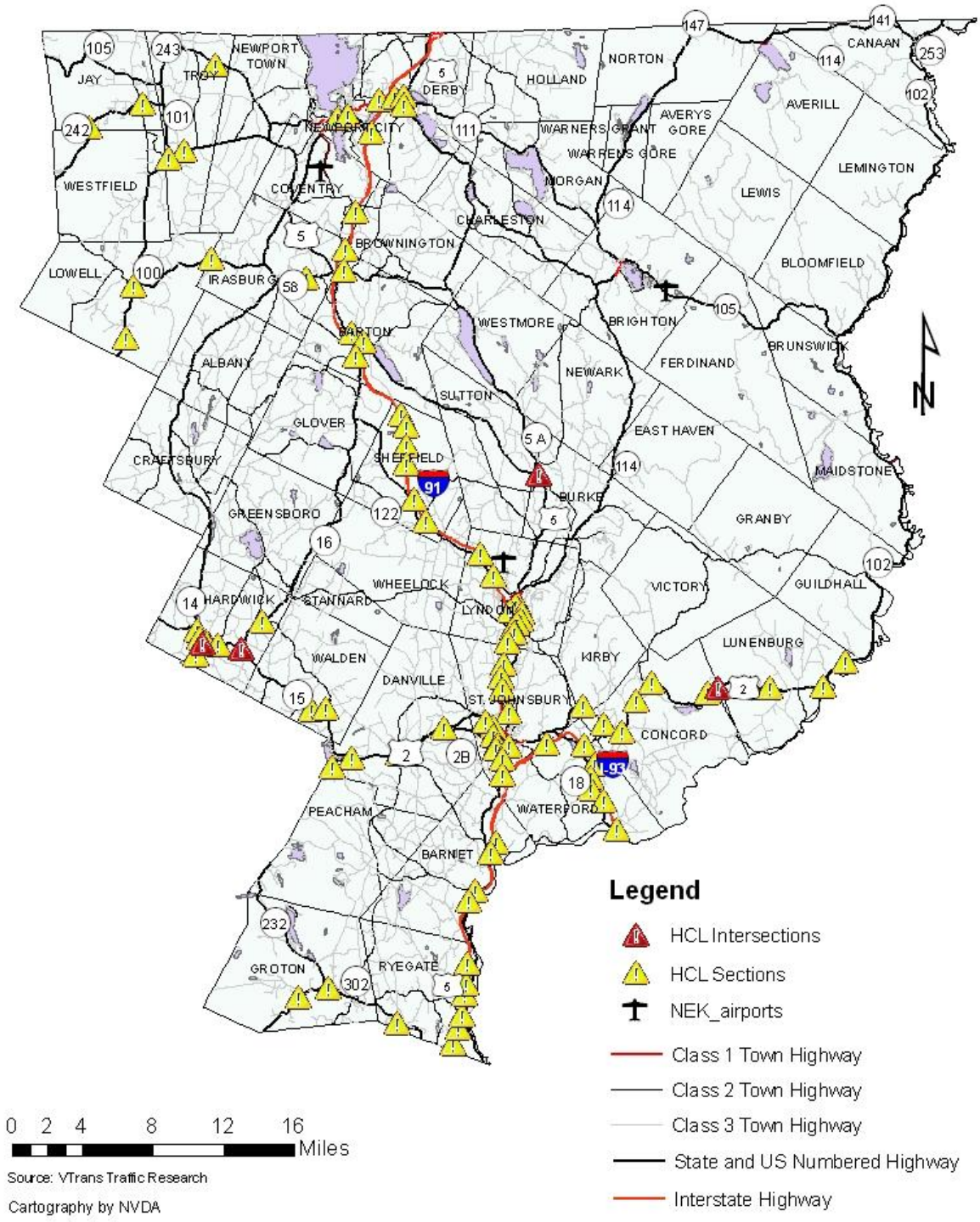


Source: VTrans Pavement Management

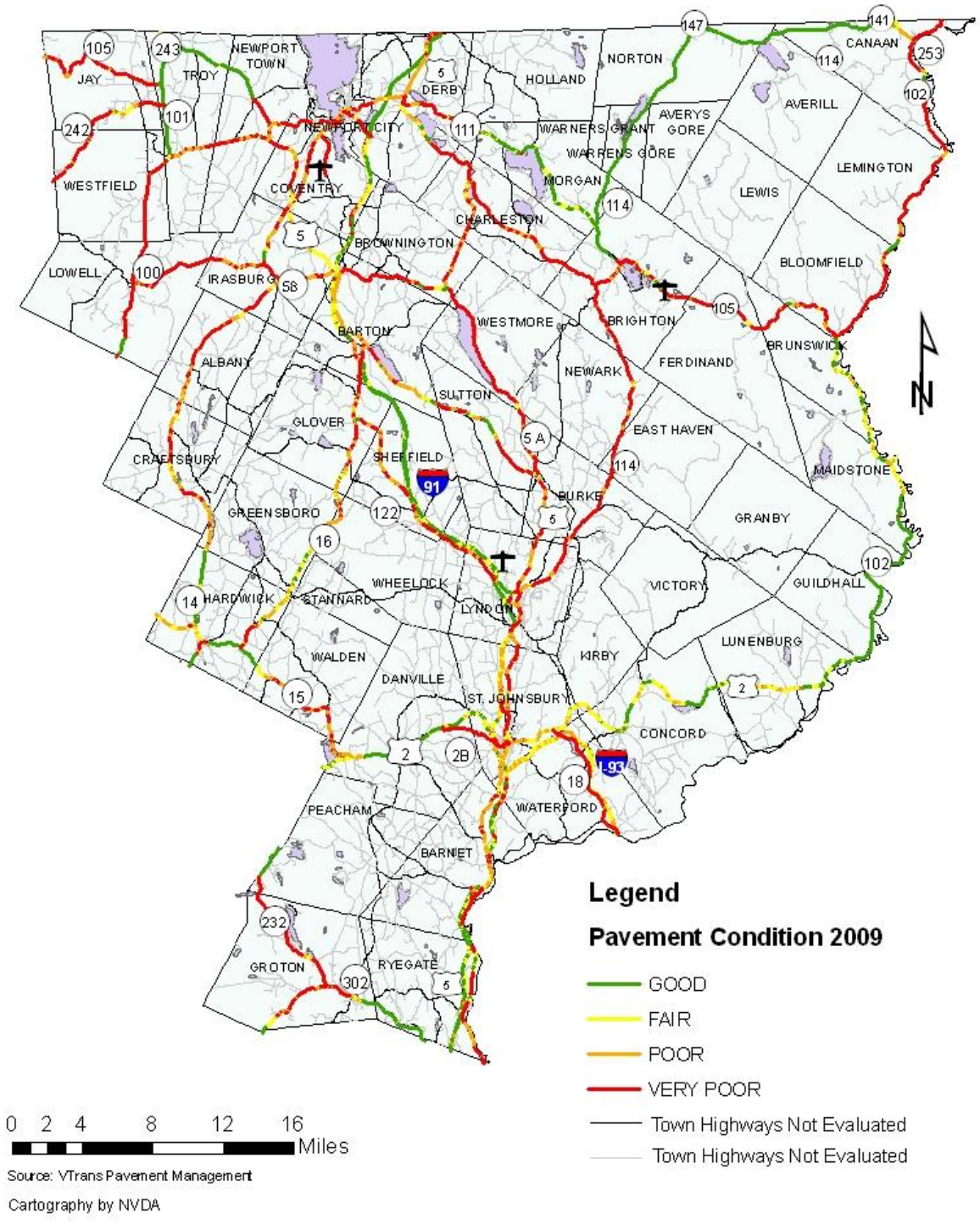
Cartography by NVDA

Completed in 2010, this sufficiency rating is based on structural condition, bridge geometry and traffic considerations. Bridges or culverts longer than20 feet are inspected by VAOT at least every two years.

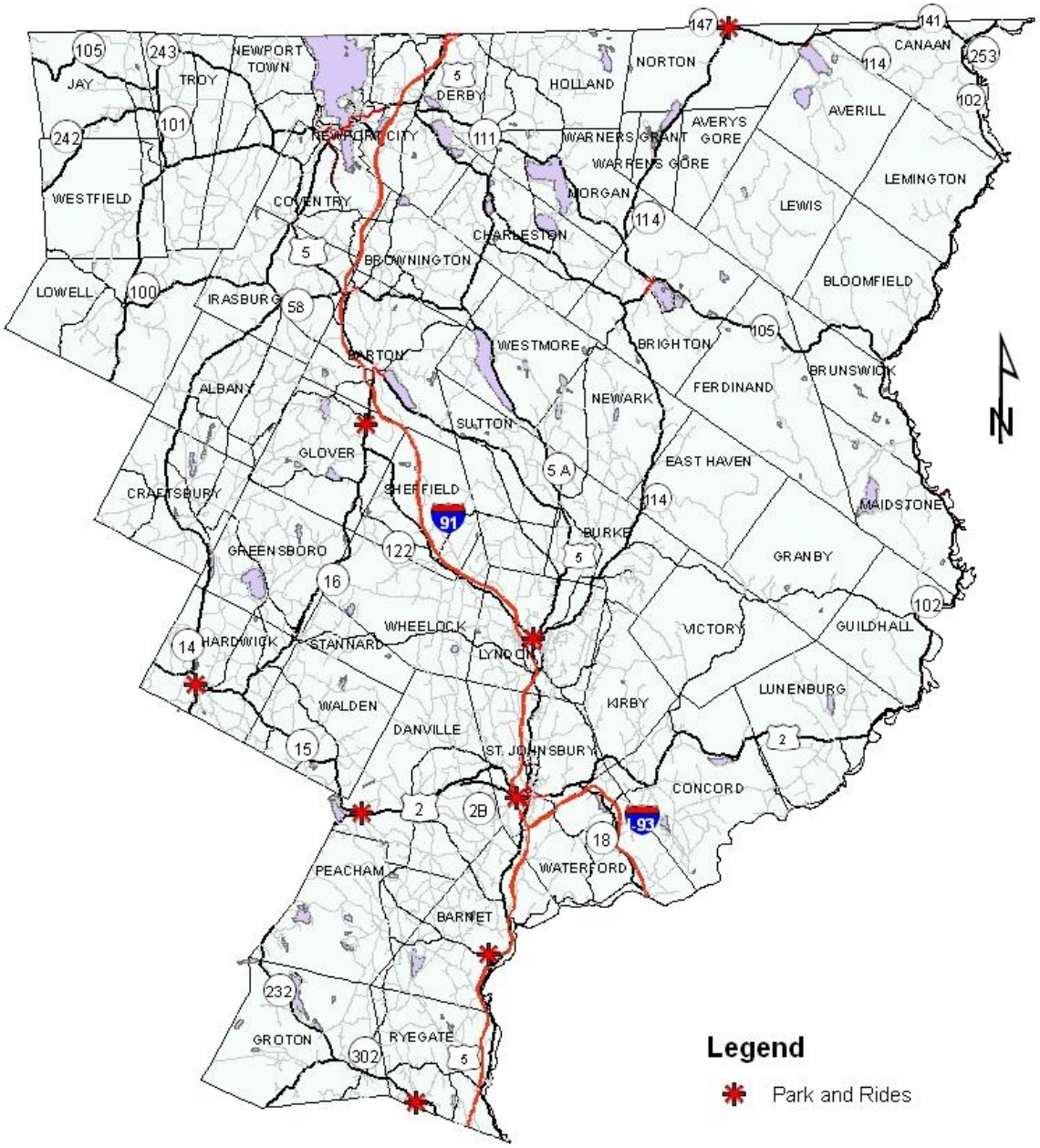
Northeast Kingdom High Crash Locations 2006-2010



Northeast Kingdom Pavement Condition 2009



Northeast Kingdom Park and Ride Locations 2012



Source: VTrans Park and Ride Program

Cartography by NVDA

The remainder of the Transportation Plan will now focus regional transportation corridors. The corridor discussion will identify known issues and incorporate existing data relevant to that corridor, as well as provide specific goals and recommendations for corridor maintenance and improvement. For additional information on Agency of Transportation plans, programs, and resources please visit the Agency's website: http://www.aot.state.vt.us/ .

Section 4
Regional Corridor Details/Recommendations

US Route 2
Narrative
US Route 2 serves as a major east-west inter-regional connection between the New Hampshire Border at Guildhall continuing on to Maine to the East and to the New York Border in the west beyond the regions Borders which end in Danville. This highway is Functionally Classified as a Principal Arterial and as such should be managed to preserve a high level of mobility. Aside from its major role with commuters and freight movements within the southern part of the region and beyond, US Route 2 also serves as the main street for the many communities in Essex and Caledonia Counties through which it traverses. This dual purpose can create challenges for communities with regard to safety of non-motorized users as well as accommodating the need for freight to move through and within these communities without sacrificing the unique character of these historic population centers.

Also included in this corridor is VT Route 18 which runs from the intersection of US Route 2 in St Johnsbury and runs generally southerly through Waterford to the New Hampshire Border and the Connecticut River. VT Route 18 becomes NH Route 18 in New Hampshire and goes on to Littleton. VT Route 18 is classified functionally as a major collector and as such is should be managed with equal consideration to both mobility and land access.

This corridor has two somewhat dated studies.
US Rte 2 Corridor Multimodal Access Management Plan 1996
Study develops corridor concepts which better balance competing demands for access, necessitated by town centers, and mobility, generated by the increasing inter-regional significance of US Rte 2 for commerce and daily commuting. Study completed by Louis Berger & Associates.

US Rte 2 Corridor Study, St Johnsbury to Guildhall 2000
Study compares existing conditions to state standards and identifies problem areas and recommends ways of correcting them. Study was done as part of a tri state application to the National Corridor planning and Development Program as well as the Coordinated Border Infrastructure Program. Study completed by Vanasee,Hangen Burstlin, Inc.

Based on the fact of the dates of these studies and the increased importance of this corridor to the region and as a conduit for inter-regional connectivity this corridor should be the focus of renewed study in the next 5 years.

Roadway Sufficiency Ratings

The majority of US Route 2 in the Northeast Kingdom has either a Good (39.2%) or Fair (17.9%) sufficiency rating. US Route 2 has a large percentage in Poor (25%) or Bad (17.9%) condition as well. The Bad sections are comprised of five sections. The first and second sections are located starting at the eastern terminus of US Route 2 at the Cabot town line and continue a combined 1.43 miles just past Woodward Rd in West Danville. The third is .75 miles starting west of the Danville School and continuing through the Village of Danville ending just west of Marty's First Stop. The Fourth and Fifth Section begins approximately at the US Route 2 and VT Route 18 Intersection and continues1.39 miles essentially to the end of the village of East St Johnsbury. There have been or are currently ongoing projects to address some of the worst sections in Danville so these numbers should improve as sufficiency ratings for this roadway is updated.

The majority of VT Route 18 is in Fair condition (57.1%) with the remainder (42.9%) in Good condition.

Completed in 2008, this sufficiency rating is based on the structural condition of the road (including pavement surface, foundation and ditches), safety (including road bed width, shoulder width and stopping sight distances) and service (including safe operating speed and passing sight distances).

Bridge Sufficiency Ratings

The sufficiency rating for the majority of structures on US Route 2 are unknown. There are ratings for 10 structures over 20ft on Route 2. Seven are in Good condition and three are in Fair condition.

On VT Route 18 the majority of sufficiency ratings are unknown. There is one structure over 20 ft in good condition on VT route 18.

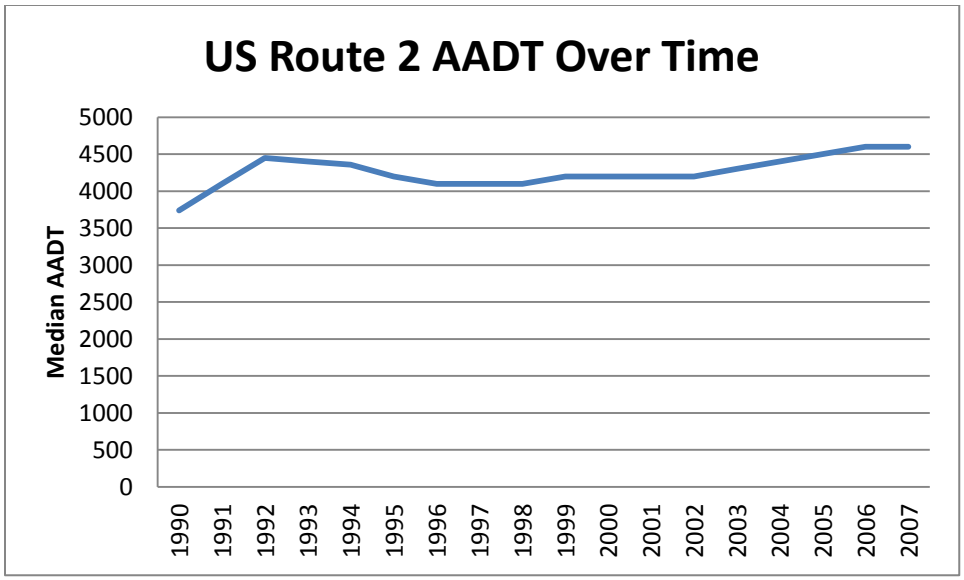
High Crash Locations

High Crash Locations (HCL) are intersections and discrete sections of highway that have a critical number of accidents over time. This report utilizes accident data between the years 2006-2010 and is focused exclusively on roads that fall under the Federal Aid Highway System. US Route 2 has 17 HCL Sections and 1 HCL intersection.

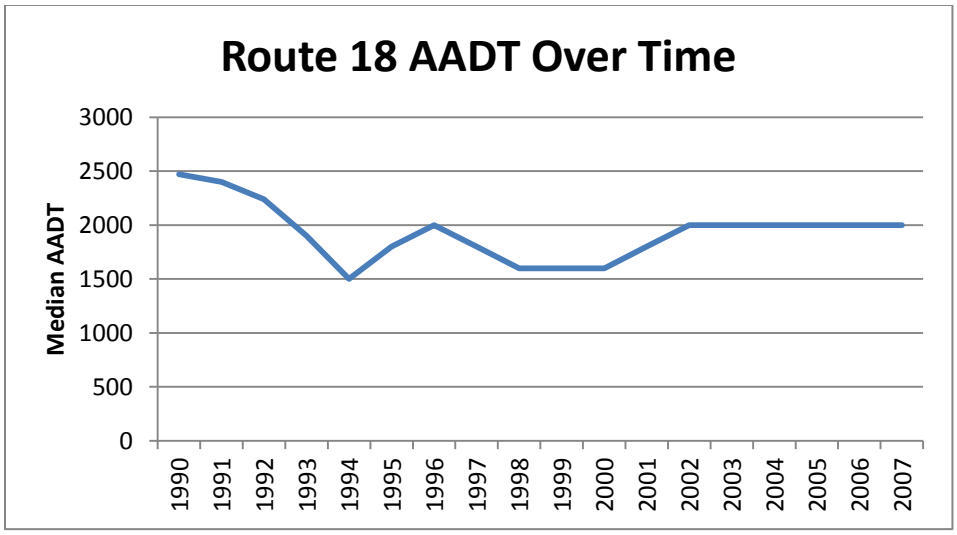
Traffic Volumes

Traffic volume along US Route 2 has experienced relatively slow steady growth with minor decline in some segments. The highest traffic volumes on US Route 2 on the NEK are located within the St

Johnsbury Urban Compact Zone (UCZ) (8600 ADDT) on Portland St between Rail Road St and Caledonia St. The majority of Traffic Volumes for the non UCZ locations do not exceed 4400 AADT.



VT Route 18 has experienced significant growth on the section between US Route 2 and Interstate 93. In 1990 Traffic Volume between US Route 2 and the Waterford town line was 1430 AADT; in 2007 the ADDT was 3800 at the same location. The rest of this corridor has experienced relatively minor growth or remained flat.

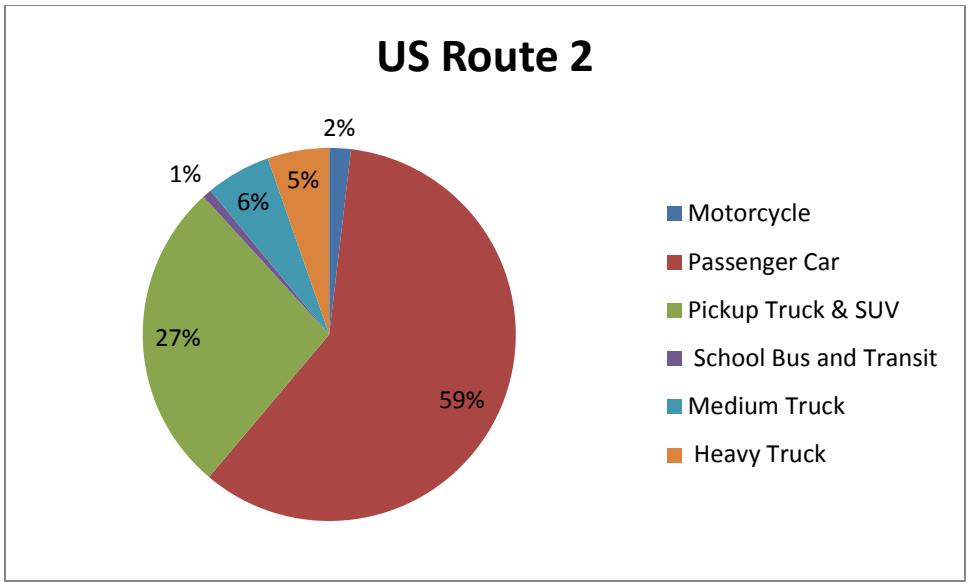


Border Crossing

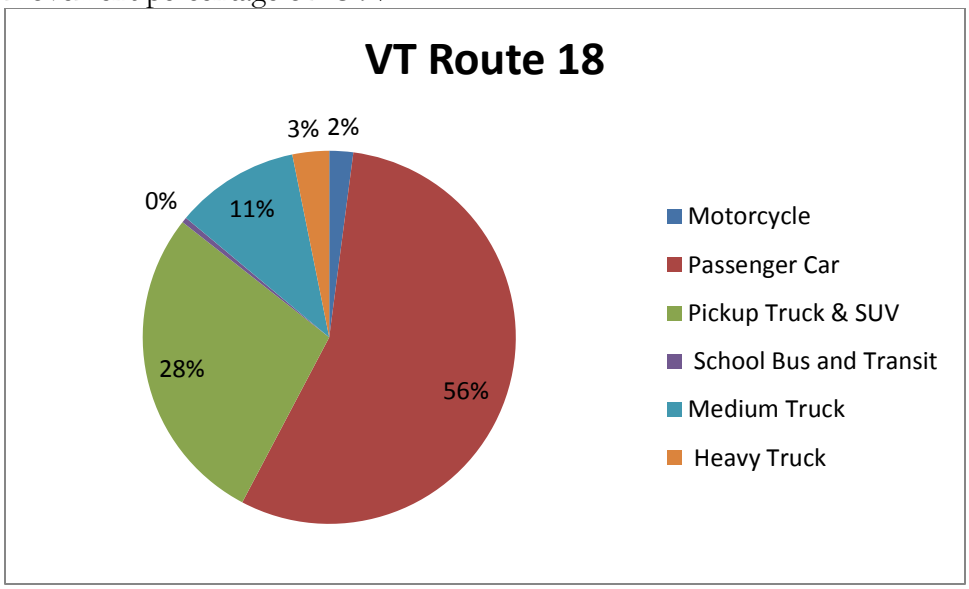
There are no international crossings on US Route 2 in the NEK region.

Goods Movement

In 2010 there was significant variability along the corridor from 16.28% Truck traffic in Concord to 8.33% in Danville w of 2B. The breakdown of vehicle classification is provided below.



Vermont Route 18 has a similar split of vehicle types as US Route 2. It has an overall freight movement percentage of 13.9%.



Local Public Transit

RCT and GMTA operate the US 2 Commuter. This service connects Montpelier to St. Johnsbury. There are four full-route round-trips per weekday (split between the two agencies) and one additional round-trip just between Montpelier and Marshfield, operated by GMTA. Aside from this fixed route RCT operates an on demand service.

Airports
There are no airports along this corridor.

Bike & Ped
There are several Villages that claim US Route 2 as their "Main St" or as a major corridor for their residents. This can lead to lead to perceived conflicts between users. There are significant pedestrian facilities in the Villages of Danville, St Johnsbury, and Concord. Outside of the core settlement areas pedestrians must use road shoulders which can be a challenge for both older and younger travelers.

The Lamoille Valley Rail Trail – a 96 mile trail on a rail banked state owned Right of Way that extends from St Johnsbury to Swanton. This trail roughly parallels US Route 2 between St. Johnsbury and West Danville. Total miles within the region are ~ 35.5 miles and ~15 miles between St Johnsbury and West Danville.

Three Rivers Bike Path – approximately 1.5 mile multi use path that begins at the terminus of the Lamoille Valley Rail Trail at Mt Vernon St. and runs easterly to S Main St.

Railroad
Freight Rail Service is available through the Connecticut River subdivision of Washington County Railroad in St Johnsbury. There are 10 sidings on this line; 5 double ended passing sidings and 5 industrial sidings. There is also a limited multimodal transfer capability at the Rail yard in St Johnsbury. There is also an inactive rail line (Twin State Railroad) that could serve as an important East West connection for Northern New England.

Intermodal
There are two Park and Rides along US Route 2. One is located in St Johnsbury at the intersection of US Route 2 and 2B. In St Johnsbury the town's Welcome Center functions as a multi modal transfer center. The Route 2 Commuter line begins and ends at this location.

US Route 2 Corridor Goals and Objectives

Goal A; Maintain Adequate Road and Bridge Capacity and Mobility

1. Update Corridor Management /Access Management Plan for US Route 2.

Goal B: Guarantee a Regional Transportation System that Facilitates Economic Development

1. Work to facilitate greater efficiency in agricultural freight movements to include shipping and distribution nodal development.
2. Support Access Management and in Village development.
3. Support the widening of shoulders on all paving projects where feasible.

Goal C: Ensure Good Quality of Life

1. Support Municipalities, Businesses and Residents in the development of the Lamoille Valley Rail Trail.
2. Support the development and maintenance of pedestrian facilities within traditional villages.
3. Support the widening of shoulders on all paving projects where feasible.

Goal D: **Ensure Availability of Alternative Transportation Modes to Address Residents' Needs**

1. Support increased development of inter-city transit service.
2. Continue to support efforts to increase walking and bicycling for schools and workers within a 2 mile radius of traditional Village centers.
3. Encourage/facilitate the preservation of the Twin State Railroad Right of Way and pursue the restoration of this line for freight rail service.
4. Work to identify locations for electric vehicle charging stations.

US Route 5

Narrative

US Route 5 is an important north south connector that serves functionally as a major collector that connects to central and Southern Vermont through Newbury to the south and to the Canadian Border in Derby at Derby Line. This Route serves as a main street to many of the villages through which it travels. US Route 5 was at one time the principal route for the center of the region as well as the only major north south route to regions beyond our own. The legacy of this importance is that this route still serves as the major economic corridor for the towns through which it flows. In some towns this has created sprawl-like development that has now been recognized as problematic. US Route 5 is classified functionally as a major collector and as such is should be managed with equal consideration to both mobility and land access.

There are two US Route 5 focused studies commissioned by NVDA; one corridor wide and one more focused on the Newport - Derby Section of US Route 5. NVDA has also conducted a regional study of transportation infrastructure focused on development by the Burke Mountain Resort that looked in detail at US Route 5 from the US Route 5, VT Route 114 intersection to Exit 23 on Interstate 91.

US 5 Corridor/Access Management Plan (1997)

Study looks at land use and local planning and zoning documents of municipalities along the corridor and makes specific recommendations to address current and future conflicts. Major focus is on maintaining roadway capacity. Study completed by T.Y. Lin International.

US Rte 5 Newport City- Derby Center Corridor Study (2006)
Study looks out 20 year and includes build out analysis of corridor. There are recommendations for infrastructure improvements at specific locations along corridor as well as critiques of planning and zoning documents of municipalities. Study conducted by Resource Systems Group.

Burke Mountain Area Transportation Infrastructure Study (2007)
This study focuses on the current and future transportation infrastructure needs and land use regulation recommendations in Burke and Lyndon, as well as a review of related needs in the surrounding towns. The major transportation facilities in the study area include: I-91 Exit 23 and 24, US 5, VT 114, VT 122, Back Center Road, and Stevens Loop. This plan identifies transportation improvements for all modes and recommends changes to existing land use regulations to help accommodate future growth in a sensible manner. Study completed by Resource Systems Group.

Roadway Sufficiency Ratings

The majority of US Route 5 in the NEK is in Poor condition (52%) with 27% in Fair condition, 16% in Good condition and 5% in Bad condition. There are two contiguous sections in Bad condition in the Town of Lyndon beginning at the St Johnsbury Town Line and continuing north1.32 miles to approximately York St.

The Majority of VT Route 5A is in Fair condition (60%) with the remaining 40% in Poor condition. The worst segments of VT Route 5a are located between Westmore and Charleston.

The entirety of VT Route 191 is in Good condition.

Completed in 2008, this sufficiency rating is based on the structural condition of the road (including pavement surface, foundation and ditches), safety (including road bed width, shoulder width and stopping sight distances) and service (including safe operating speed and passing sight distances).

Bridge Sufficiency Ratings

There are 21 structures over 20 ft. on US Route 5. Fourteen of these are in good condition and seven are in Fair condition.

There are two structures on VT Route 5A with known sufficiency ratings. They are both in Good condition.

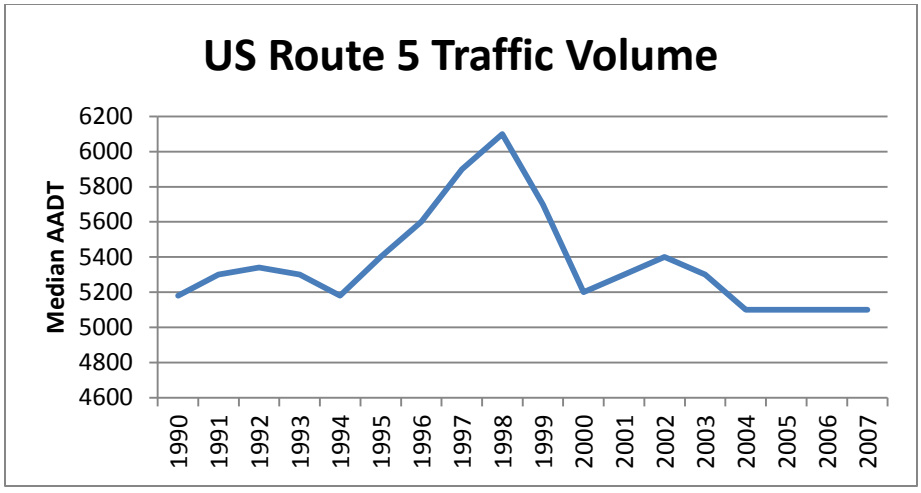
There are two structures in VT Route 191 with known sufficiency ratings. They are both in Good condition.

High Crash Locations

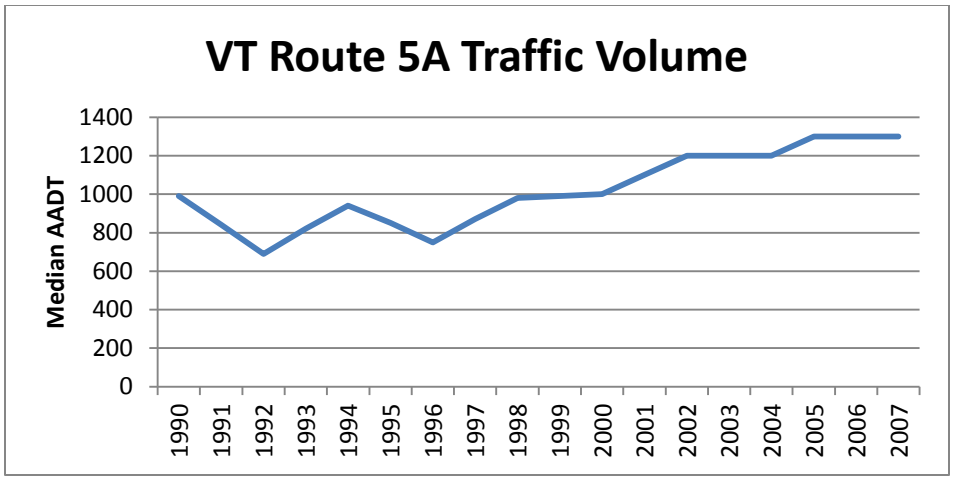
High Crash Locations (HCL) are intersections and discrete sections of highway that have a critical number of accidents over time. This report utilizes accident data between the years 2006-2010 and is focused exclusively on roads that fall under the Federal Aid Highway System. US Route 5 has 14 HCL and 1 HCL Intersection.

Traffic Volumes

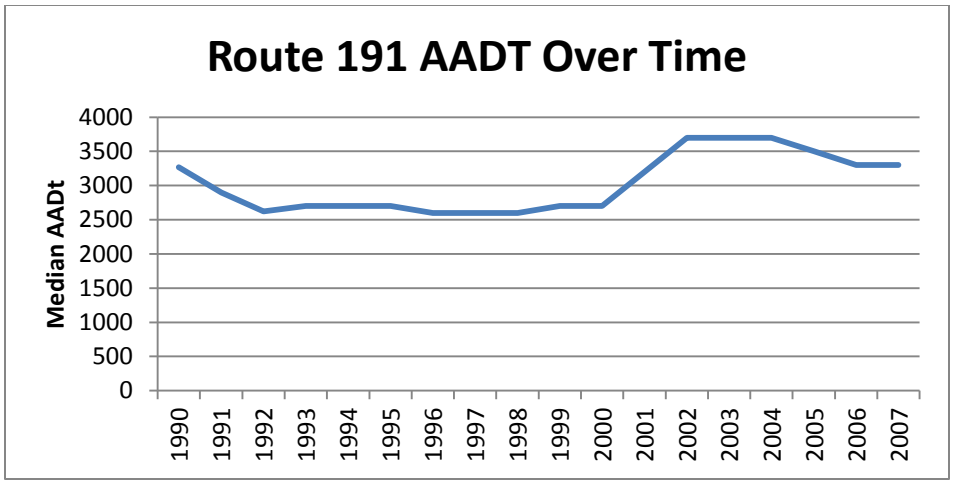
Traffic Volumes on US Route 5 have generally remained flat or have declined over the period between 1990 and 2007. There are exceptions but generally this trend holds and mirrors the trend elsewhere on the National Highway system in Vermont. There is also a spit in the data between very distinct sections of relatively high traffic volumes and a lower volume of mostly local traffic on the rest of this corridor. The focus of high volume traffic segments are located in the Newport City-Derby area and the St Johnsbury and Lyndon Area. The highest Traffic Volumes are between Coventry St and the Long Bridge in Newport City (16000 AADT), Broad St between Back Center Rd and Red Village Rd in Lyndon (14000 AADT), and Railroad St between Portland and Concord Ave in St. Johnsbury (8600 AADT). The majority of the remainder outside these "urban" boundaries does not exceed 4000 AADT.



Traffic Volume along the VT Route 5A corridor has remained relatively flat over the period between 1990 and 2007. The highest traffic volume on VT route 5A is in the village of West Burke between US Route 5 and Burke Hollow Rd (2200).



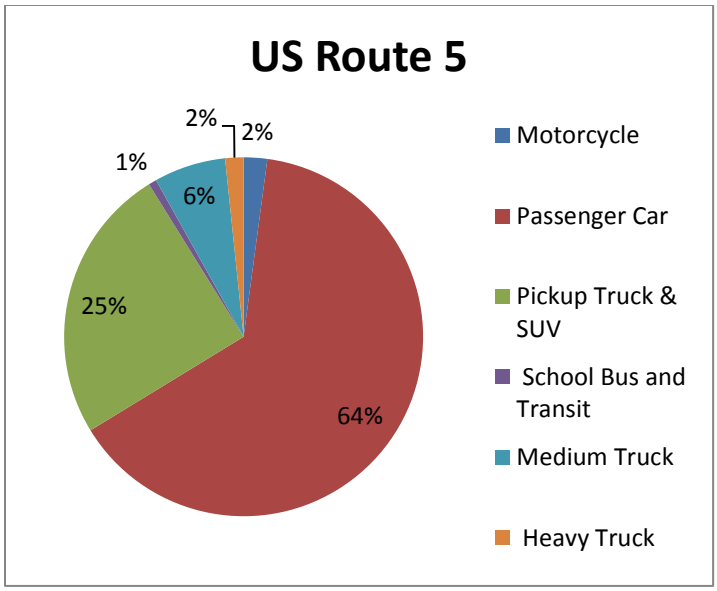
Traffic Volume along the Route 191 corridor has remained relatively flat or grown slightly over the period between the 1990 and 2007. The highest traffic volume on VT Route 191 is between the Derby town line and Western Ave (3300 AADT). Traffic Volume between Western Ave and US Route 5 is 1100 AADT.

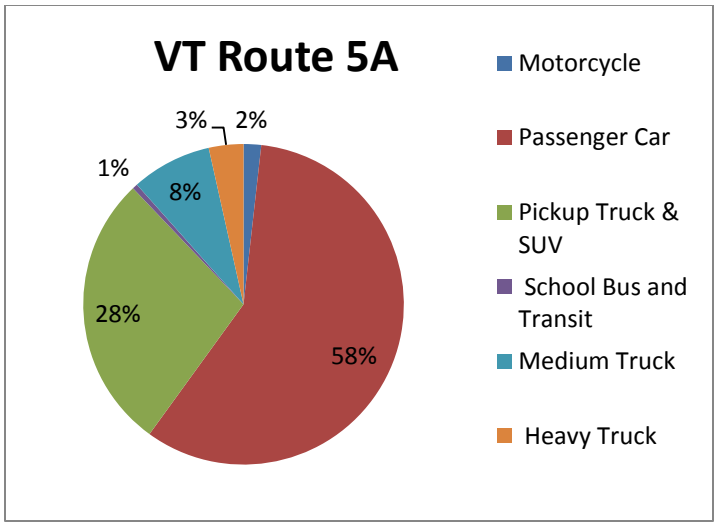


Border Crossing

US Route 5 provides access to the very busy border crossing in the village of Derby Line at the northern terminus of US Route 5. This crossing is within the village and has significant traffic impacts for local traffic and those just passing through. US Route 5 also provides indirect access to the Interstate 91 Border crossing at Derby Line which is a major crossing point.

Goods Movement





There was no classification data available for VT Route 191.

Local Public Transit

There are two deviated fixed route lines on US Route 5. They are the Jay Lyn Shuttle between St Johnsbury and Lyndonville and the Highlander between Newport City and Derby Line.

Airports

US Route 5 services both the Caledonia County State Airport and the Newport State Airport in Coventry. Neither facility is directly located on US Route 5 but they are the closest major route to each. Detailed information on the regions airports is available from the State of Vermont http://aviation.vermont.gov/airports.

Bike & Ped

The Three Rivers Bike Path is a 1.5 mile multi-use path located in the Town of St. Johnsbury on the former Lamoille Valley Railroad. It is the beginning/terminus of the Lamoille Valley Rail Trail and was completed in 2012. It provides a multi-use path that is available for village residents as well serving as an added attraction for visitors. The Town of St. Johnsbury is continuing to develop an extension of the three Rivers Bike Path.

The Beebee Spur Bike Path is a 4-mile rail-trail running from Newport City towards the Canadian border. It follows Lake Memphremagog for most of the way, offering outstanding views of the water, as well as the Green Mountains. Although fairly level, mountain bikes are recommended due to the trail's packed gravel surface.

Railroad

Freight Rail Service is available through the Connecticut River subdivision of Washington County Railroad which closely parallels US Route 5 for its entire length. There are 10 sidings on this line; 5 double ended passing sidings and 5 industrial sidings. There is also a limited multi-modal transfer capability at the Rail yard in St. Johnsbury.

Intermodal

There is a multi-modal transfer center located at the former St. Johnsbury Train station, now the St. Johnsbury Welcome Center. It currently serves as the start/terminus of the Route 2 commuter line. This is a deviated fixed route that is operated jointly between RCT and GMTA. There is also the Jay Lyn shuttle that services a deviated fixed route between St. Johnsbury and Lyndon that operates out of the Welcome Center. There is an informal Park and Ride located at the Interstate 91 exit 23 northbound off ramp. There is an informal Park and Ride located on the Village of Orleans at the intersection of US Route 5 and VT Route 58.

US Route 5 Corridor Goals and Objectives

Goal A: Maintain Adequate Road and Bridge Capacity and Mobility

1. Update US Route 5 Corridor Management Plan to include the latest development plans focused on Jay Peak and Burke Mountain and Newport City.

2. Implement recommendations of Burke Mountain Area Transportation Infrastructure Study and US Rte 5 Newport City- Derby Center Corridor Study.
3. Support the Broad St. Project in Lyndon/Lyndonville.

Goal B: Guarantee a Regional Transportation System that Facilitates Economic Development

1. Work to facilitate greater efficiency in agricultural freight movements to include shipping and distribution nodal development.
2. Encourage the development of Freight Rail transportation to fully utilize existing sidings and the development on new sidings.
3. Support upgrading of Rail infrastructure to accommodate 286,000 lb. loading and double stack cars.

Goal C: Ensure Good Quality of Life

1. Support the development and maintenance of pedestrian facilities.
2. Facilitate increased awareness of the health benefits of both walking and bicycling as well as the legal rights of all users to access transportation corridors.
3. Support the widening of shoulders on all paving projects where feasible.

Goal D: Ensure Availability of Alternative Transportation Modes to Address Residents' Needs

1. Encourage high density mixed-use development within traditional village/city limits.
2. Work to identify locations for electric vehicle charging stations.

VT Route 15

Narrative

VT Route 15 serves as one of the few East –West Highways in Northern Vermont and as such is of significant importance in both economic and quality of life terms. This Highway begins in the region in West Danville at the intersection of US Route 2 at Joe's Pond. It generally travels in a westerly direction and leaves the region at the Hardwick/Wolcott Town Line. VT Route 15 is a Minor Arterial Highway and thus should be managed to preserve a higher level of mobility. Regardless of this designation, VT Route 15 provides access to numerous farms and agricultural enterprises and thus sees frequent usage by various agricultural vehicles throughout the fair weather. This Highway

serves as the Main St. for the town of Hardwick and as such needs special consideration at this location. It also roughly parallels the Lamoille Valley Rail Trail between West Danville and the Hardwick/ Wolcott Town Line.

There are two studies looking at VT Route 15 completed for NVDA in the recent past. One is a corridor study that evaluated capacity and infrastructure needs. The second study looked specifically at the section of VT Route 15 in the Village of Hardwick. This study looks at capacity, access management and infrastructure needs.

VT Rte 15 Corridor Analysis Study Hardwick to West Danville 1998
Study looks at current and projected transportation deficiencies. Recommends improvements and provides a schedule for the improvements. Study completed by North Woods Engineering.

Hardwick Village VT Route 15 Transportation Assessment 2009
This interim report evaluates and summarizes the existing transportation, infrastructure, and land use characteristics along the VT 15 study corridor and present preliminary recommendations for improvement.

VT Rte 15 &14 Access Management Plan Hardwick to Danville 1998
Study looks at VT Rte 15 and VT Rte 14 around Hardwick Village to identify problems regarding access and develops solutions. Main focus of study is to maintain roadway capacity. Specific changes to current access points, local zoning and regulatory processes are recommended. Study completed by North Woods Engineering.

Roadway Sufficiency Ratings

The majority of VT Route 15 (83.3%) is in Fair condition with 16.7%in Poor condition. The Poor segment correlates to the entire 7.16 mile length in the town of Walden.

Completed in 2008, this sufficiency rating is based on the structural condition of the road (including pavement surface, foundation and ditches), safety (including road bed width, shoulder width and stopping sight distances) and service (including safe operating speed and passing sight distances).

Bridge Sufficiency Ratings

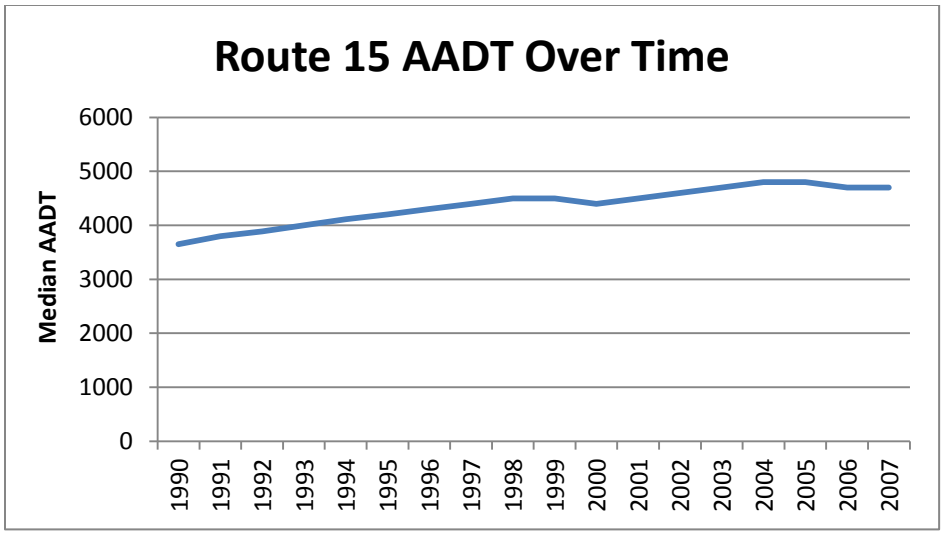
The vast majority of structures on VT Route 15 are of unknown sufficiency. There is one structure in good condition, one in fair, and one in bad condition. This structure, over Joe's Brook Rd, is slated to be replaced in 2015.

High Crash Locations

High Crash Locations (HCL) are intersections and discrete sections of highway that have a critical number of accidents over time. This report utilizes accident data between the years 2006-2010 and is focused exclusively on roads that fall under the Federal Aid Highway System. There are two HCL intersections on VT Route 15; one at the intersection of VT Routes 15 and 16, and one at the intersection of VT Routes 15 and 14. There are 6 HCL sections on VT Route 15, One HCL Section on VT Route 16, One HCL Section on VT Route 1.

Traffic Volumes

Traffic volumes have grown relatively steadily over time from 3650 vehicles per day in 1990 to 4700 vehicles per day in 2007. The highest volumes on VT Route 15 are concentrated in the Hardwick Village (Wolcott St/Main St) area with a count in 2010 of 6100 vehicles per day near Lamoille Valley Ford and 8600 vehicles per day just west of Granite St. Outside of Hardwick Village traffic volumes do not exceed 3500 vehicles per day.

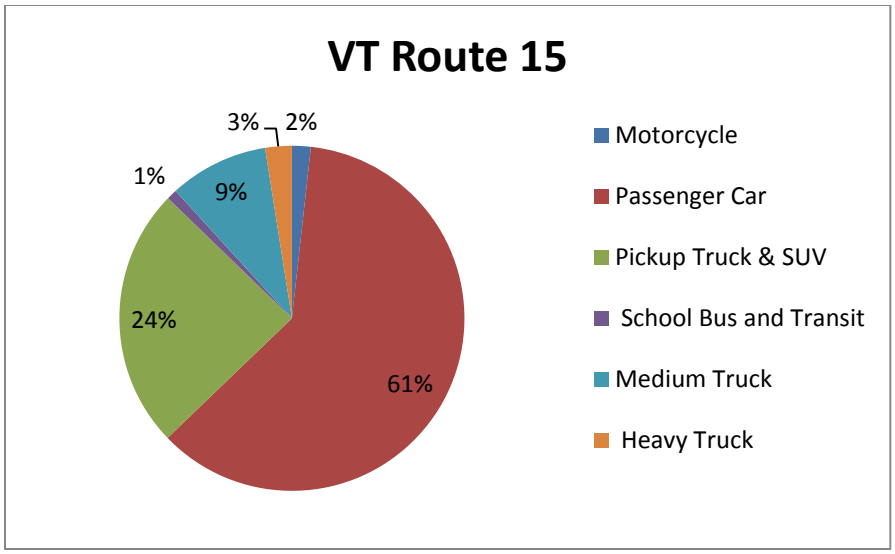


Border Crossing

There are no border crossings on this corridor.

Goods Movement

Trucks are the primary means of goods distribution along VT Route 15 and in Caledonia County. Currently freight movements make up 11.8% of total traffic volume. The statewide average for a road of this class is ~7.3%. By far the largest share of traffic on VT Route 15 is made up of passenger cars (61%) and pickup trucks and SUV's (24%).



Local Public Transit

There is no fixed route transit along the VT Route 15 corridor. RCT does operate the Route 2 commuter with a stop in West Danville at the terminus of VT Route 15. There is potential for a fixed transit route between Hardwick and Montpelier on VT Route 14. There has been discussion by GMTA to operate such a route coupled with strong community support.

Airports

There no airports along the VT Route 15 Corridor.

Bike & Ped

The Lamoille Valley Rail Trail – a 96-mile trail on a rail banked state-owned Right of Way that extends from St. Johnsbury to Swanton. This trail roughly parallels VT Route 15 between West Danville and the Hardwick/Wolcott Town Line.

Railroad

There are no active rail lines within the Route 15 corridor.

Intermodal

There are two formal and one informal Park and Ride facilities along the VT Route 15 corridor. A state-owned park and ride at the junction US Route 2 and VT Route 15 is the location of a regular stop for the Route 2 Commuter operated jointly by RCT and GMTA. There is a state funded, municipal park and ride at the Hardwick fire station. There is also an informal lot that is located on state property at the junction of VT Routes 15 and 16.

VT Route 15 Corridor Goals and Objectives

Goal A: Maintain Adequate Road and Bridge Capacity and Mobility

1. Support the rehabilitation of Wolcott St in Hardwick.
2. Support the rehabilitation of VT Route 15 in Walden.
3. Work to address HCL's intersections and sections.

Goal B: Guarantee a Regional Transportation System that Facilitates Economic Development

1. Work to facilitate greater efficiency in agricultural freight movements to include shipping and distribution nodal development.

Goal C: Ensure Good Quality of Life

1. Support Municipalities, Businesses and Residents in the development of the Lamoille Valley Rail Trail.
2. Support the widening of shoulders on all paving projects where feasible.

Goal D: **Ensure Availability of Alternative Transportation Modes to Address Residents' Needs**

1. Support the development of new inter-regional transit service between Hardwick and Montpelier.
2. Support the formalization of new park and ride facilities which would ideally be connected by coordinated transit service.
3. Work to identify locations for electric vehicle charging stations.

VT Route 14/VT Route 16/ VT Route 122

Narrative

VT Route 14 is a Major Collector and serves as an inter-regional corridor between Northern Orleans County and Central Vermont and on to New Hampshire at White River Junction. It provides a high level of mobility for the rural residents of this part of our region and conveys significant amount of commuters as well as freight movements.

VT Route 16 is a Minor Arterial and serves as an inter-regional connector between southern Orleans and Caledonia Counties and to Central Vermont and beyond. It should be managed to maintain to preserve a relatively high level of mobility.

VT Route 122 is a Major Collector and serves as an intra-regional corridor. It is primarily used by residents between southern Orleans and northern Caledonia counties. It should be managed for a balance of mobility and land access.

All of these state highways are relatively similar in their profile of land use and function.

VT Rte 15 &14 Access Management Plan Hardwick to Danville 1998
Study looks at VT Rte 15 and VT Rte 14 around Hardwick Village to identify problems regarding access and develops solutions. Main focus of study is to maintain roadway capacity. Specific changes to current access points, local zoning and regulatory processes are recommended. Study completed by North Woods Engineering.

VT Rte 14 & 100 Corridor Study 1997
Study looks at both VT Rte 100 & 14, and VT Rte 58 from Irasburg to Lowell and makes recommendations for improvements. Includes an addendum with all technical data used to derive study findings. Study completed by Resource Systems Group.

Roadway Sufficiency Ratings

VT Route 14 is overwhelmingly (92%) in Fair condition, with 8% in Poor condition. VT Route 16 is largely in Fair condition (62.5%) with 25% in Good condition and 12.5% in Poor condition. VT Route 122 is roughly evenly split between Fair (45.4%) and Poor (36.4%) condition with the remainder (18%) in Bad condition.

Completed in 2008, this sufficiency rating is based on the structural condition of the road (including pavement surface, foundation and ditches), safety (including road bed width, shoulder width and stopping sight distances) and service (including safe operating speed and passing sight distances).

Bridge Sufficiency Ratings

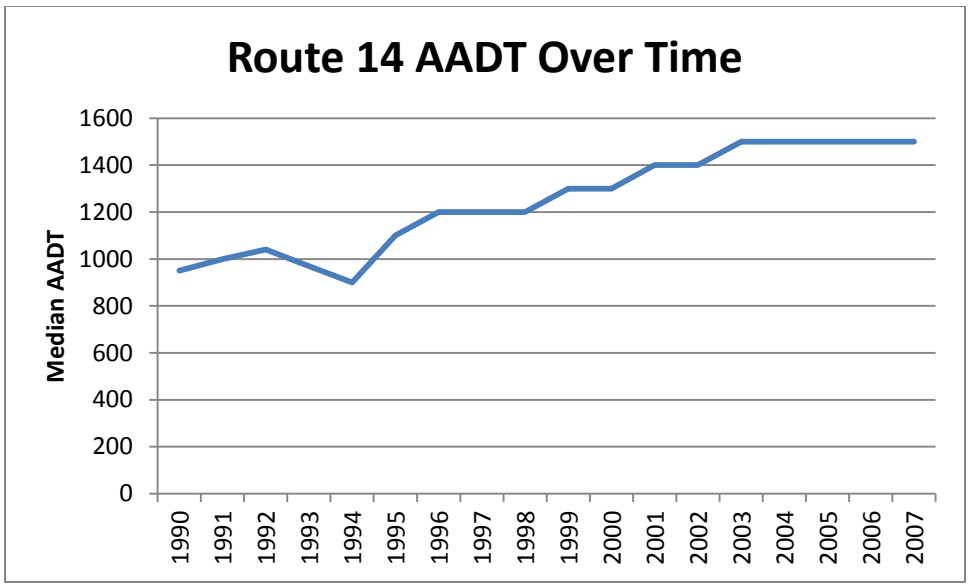
The vast majority of sufficiency ratings for structures on VT Routes 14 and 16 are unknown. There are 3 structures on VT Route 14 with a Good rating and 2 with a Fair rating. On VT Route 16 there are 2 structures with a Good rating and 4 structures with a Poor rating.

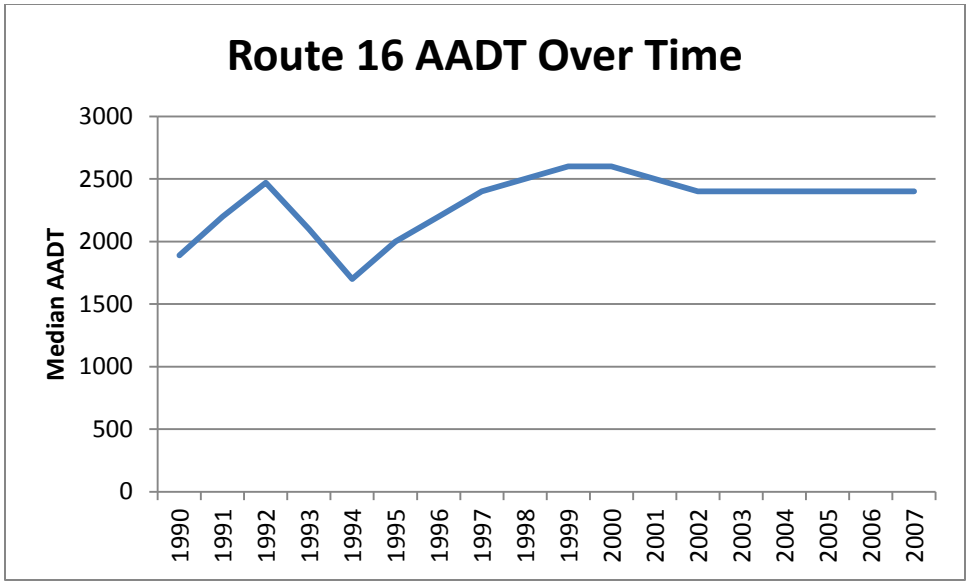
High Crash Locations

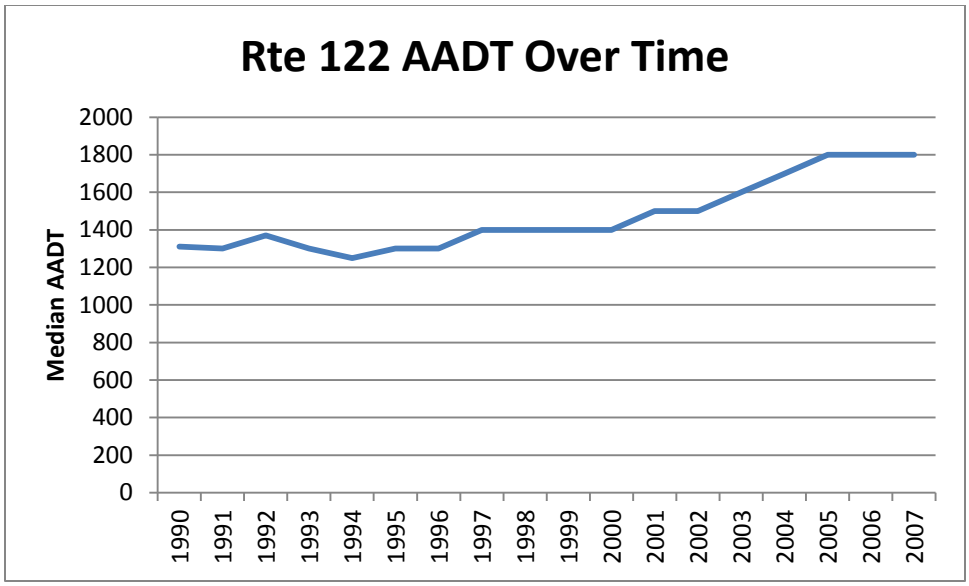
High Crash Locations (HCL) are intersections and discrete sections of highway that have a critical number of accidents over time. This report utilizes accident data between the years 2006-2010 and is focused exclusively on roads that fall under the Federal Aid Highway System. There are two HCL intersections on VT Route 15; one at the intersection of VT Routes 15 and 16 and one at the intersection of VT Routes 15 and 14. There are 6 HCL sections on VT Route 15, One HCL Section on VT Route 16, One HCL Section on VT Route 14, and one HCL section on VT Route 122.

Traffic Volumes

VT Routes 14, 16 and 122 has seen a significant increase while much of the regions roads have either remained flat or decreased in volume.





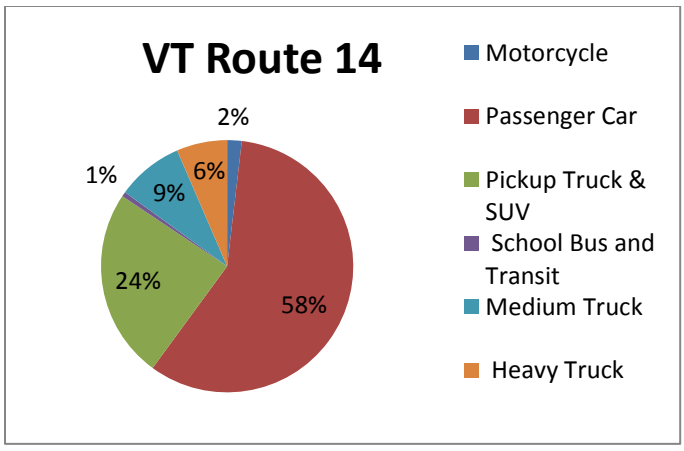


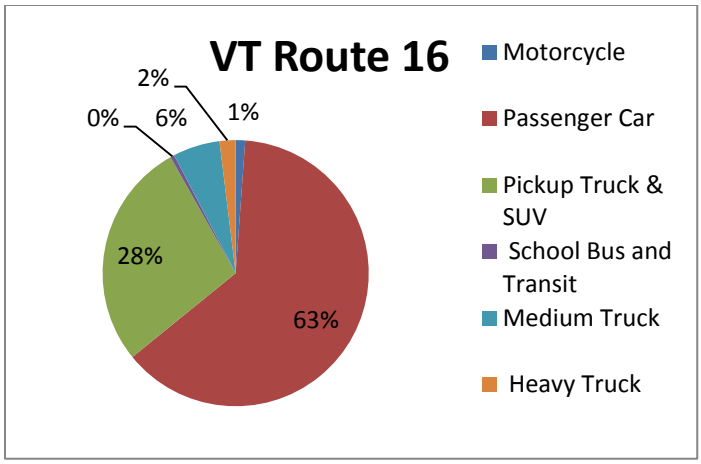
Border Crossing

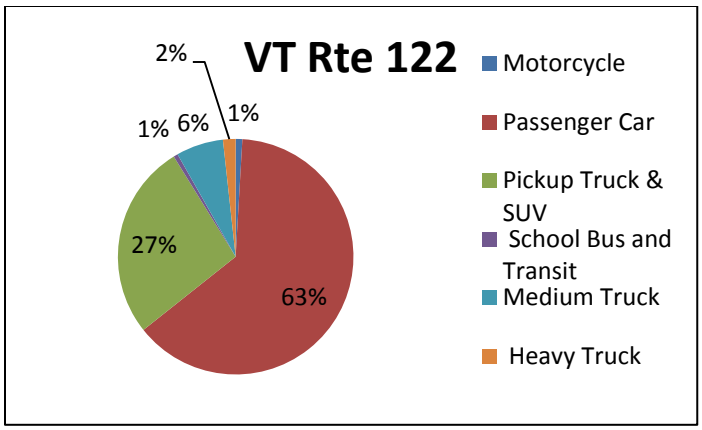
There are no international crossings on VT Routes 14, 16, or 122 in the NEK.

Goods Movement

Significant truck traffic on VT Route 14 ranging from 19.01% in Coventry, and 9.26% in Albany are significantly higher than the state averages for this Class of State Highway at 7.34%.







Local Public Transit
There are no deviated fixed routes on these state highways.

Airports
VT Route 14 joins US Route 5 in Coventry and passes near the Newport State Airport.

Bike & Ped
The Lamoille Valley Rail Trail crosses VT Route 16 in Hardwick between the villages of Greensboro Bend and East Hardwick.

Railroad
There are no active Railroads along these state highways.

Intermodal
There is an informal Park and Ride at the intersection of VT Routes 15 and 16.

VT Route 14/16/122 Corridor Goals and Objectives

Goal A: Maintain Adequate Road and Bridge Capacity and Mobility

1. Support the rehabilitation/reconstruction of VT Route 122.

Goal B: Guarantee a Regional Transportation System that Facilitates Economic Development

1. Work to facilitate greater efficiency in agricultural freight movements to include shipping and distribution nodal development.

Goal C: Ensure Good Quality of Life

1. Support the widening of shoulders on all paving projects where feasible.

Goal D: Ensure Availability of Alternative Transportation Modes to Address Residents' Needs

1. Support the formalization of park and ride at VT Route 15/14 intersection.
2. Identify new locations for Park and Rides.
3. Work to identify locations for electric vehicle charging stations.

VT Route 100

Narrative

VT Route 100 serves as a Minor Arterial highway in the region and functions as an inter-regional connection between Newport City and Central Vermont. VT Route 100 runs in its full extent from the Massachusetts and Canadian Borders. In the Northeast Kingdom VT route 100 serves commuters as well as conveys skiers from Chittenden County to Jay Peak. It also supports numerous agricultural enterprises.

VT Route 58 is a Major Collector that serves mainly to provide land access to local residents and farms.

There are two studies looking at VT Route 100 and one looking at VT Route 58.

VT Rte 14 & 100 Corridor Study 1997

Study looks at both VT Rte 100 & 14, and VT Rte 58 from Irasburg to Lowell and makes recommendations for improvements. Includes an addendum with all technical data used to derive study findings. Study completed by Resource Systems Group.

VT Rte 100 Lowell and Westfield Village Pedestrian Safety Study 2012

This study evaluates existing conditions on VT Rte 100 within the villages of Lowell and Westfield to identify the safety of pedestrian and bicyclist movements and to recommend improvements for those modes.

VT Rte 58 Access Management Plan Barton to Irasburg 1998
Study looks at existing conditions as well as municipal planning and zoning documents to attempt to maintain roadway mobility as well as address specific problem issues. Study completed by North Woods Engineering.

Roadway Sufficiency Ratings

VT Route 100 is overwhelmingly in Fair condition (85.7%) with the remainder (14.3%) in Poor condition.

Completed in 2008, this sufficiency rating is based on the structural condition of the road (including pavement surface, foundation and ditches), safety (including road bed width, shoulder width and stopping sight distances) and service (including safe operating speed and passing sight distances).

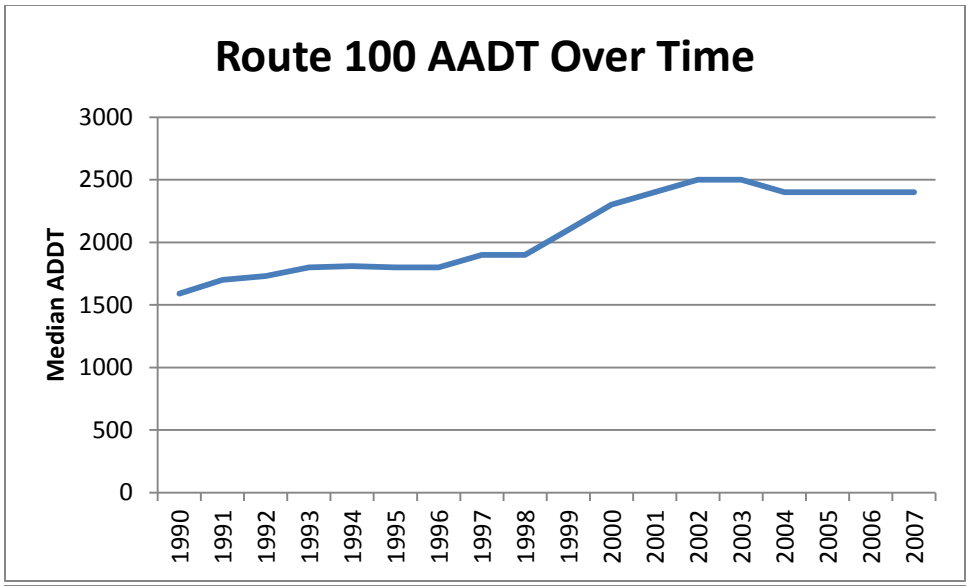
Bridge Sufficiency Ratings

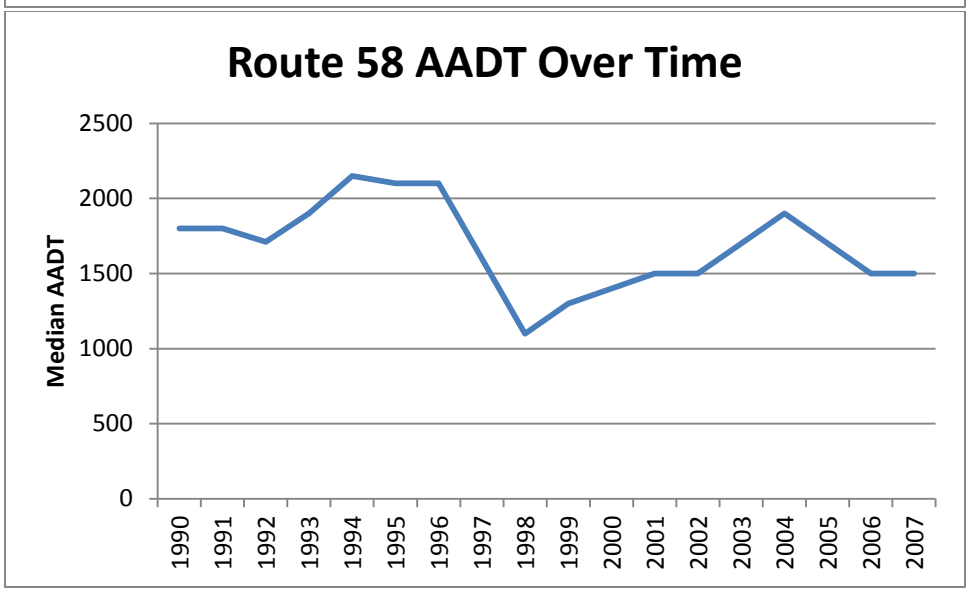
The majority of sufficiency ratings for structures on VT Route 100 are unknown. There are seven structures over 20 ft. in length. Four are in Good Condition, two are in Fair condition and one is in Poor condition.

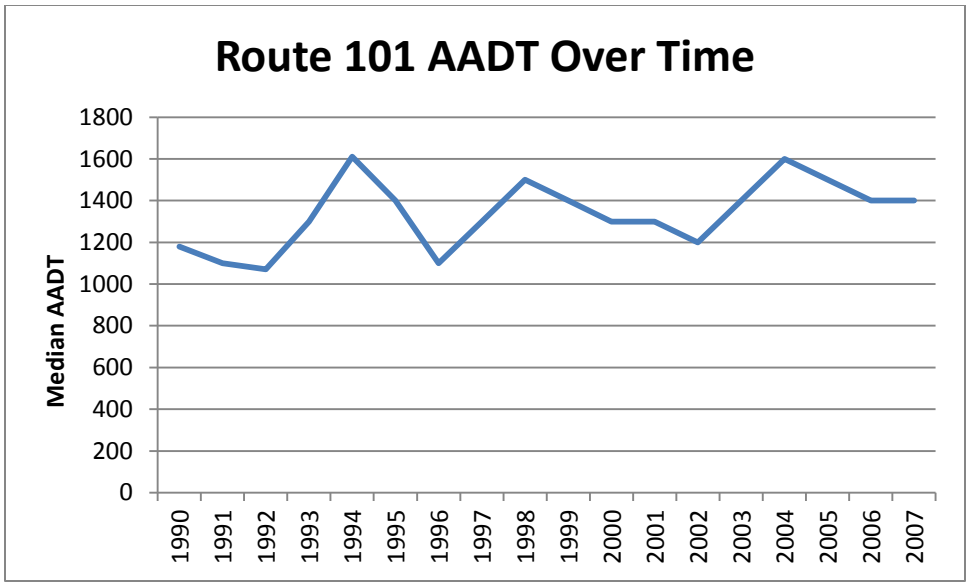
High Crash Locations

High Crash Locations (HCL) are intersections and discrete sections of highway that have a critical number of accidents over time. This report utilizes accident data between the years 2006-2010 and is focused exclusively on roads that fall under the Federal Aid Highway System. There are four HCL sections on VT Route 100 - two in Lowell and two in Troy.

Traffic Volumes





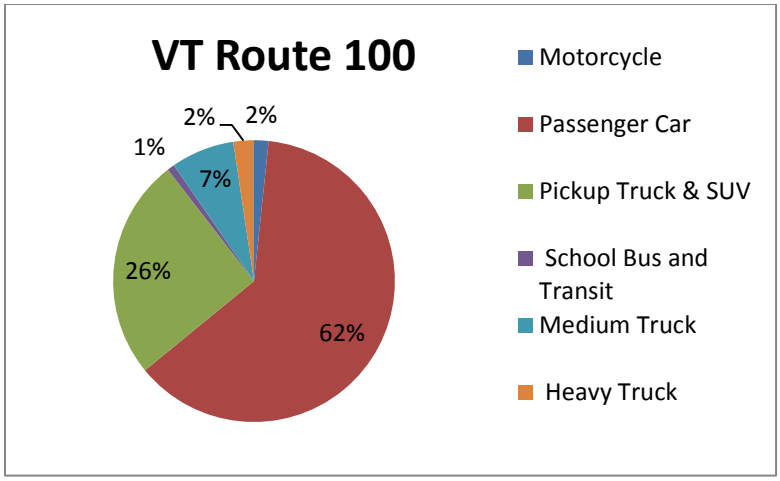


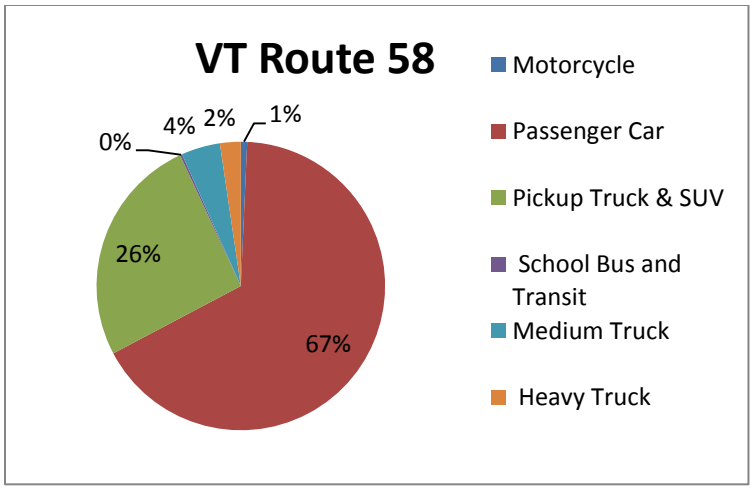
Border Crossing

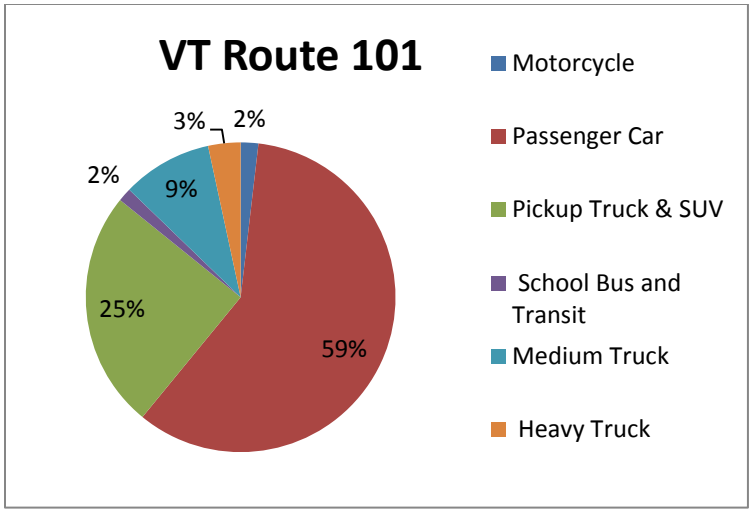
There are no international crossings on VT Route 100 in the NEK.

Goods Movement

All freight movements in the VT Route 100 corridor are made with trucks. The vast majority of traffic on the three highways in this corridor is made up of Passenger Cars, Pickup Trucks and SUV's(Route 100 (88%), Route 58 (93%), and Route 101(84%)).







Local Public Transit

There are no deviated fixed route transit lines on the VT Route 100 Corridor.

Airports

There are no airports on the VT Route 100 Corridor.

Bike & Ped

There are no dedicated Bike and Pedestrian facilities on VT Route 100.

Railroad

There are no active Railroads on the VT Route 100 Corridor.

Intermodal

There are no Intermodal Facilities on the VT Route 100 Corridor.

VT Route 100 Corridor Goals and Objectives

Goal A: Maintain Adequate Road and Bridge Capacity and Mobility

1. Support the rehabilitation of VT Route 100.
2. Work to address safety issues around HCL sections.

Goal B: Guarantee a Regional Transportation System that Facilitates Economic Development

1. Work to facilitate greater efficiency in agricultural freight movements to include shipping a distribution nodal development.

Goal C: Ensure Good Quality of Life

1. Support the implementation of recommendations of Pedestrian Safety Study for Villages of Lowell and Westfield.
2. Support the widening of shoulders on all paving projects where feasible.

Goal D: Ensure Availability of Alternative Transportation Modes to Address Residents' Needs

1. Identify new Park and Ride locations.

VT Route 114

Narrative

VT Route 114 is a Major Collector that serves as the major corridor to Northern Essex County form the south through access to Interstate 91 in Lyndon. It runs from Lyndon to the New Hampshire Border in Canaan. This route traverses some of the most rural areas of the Northeast Kingdom. VT Route 114 intersects with the St Lawrence and Atlantic Railroad in Island Pond which has an active multi modal transfer facility and generates a significant amount of truck traffic. There is also a significant amount of through truck traffic to and from Quebec. Included in this overall corridor are VT Routes 147, 141, 253, and 102. These are all Major Collectors. VT Routes 147 in Norton and 141 in Canaan are border roads and continue as those route numbers in Quebec.

There is a dated Corridor study for VT Route 114 that was commissioned by NVDA in 1998.

VT Rte 114 Corridor Analysis Study Lyndon to Canaan1998
Study provides a detailed look at the corridor and provides a series of improvements. Study completed by North Woods Engineering.

Roadway Sufficiency Ratings

VT Route 114 is overwhelmingly in Fair (61%) and Poor (33%) condition with the remainder (6%) in Bad Condition. The Bad section is essentially in the village of East Burke starting just south of the village and running all the through the village to approximately the access for the village park.

VT 102 is overwhelmingly in Fair Condition, with 13.3% in Poor Condition, and 6.7% in Good Condition.

VT Route 253 is 100% in Fair Condition.

VT Route141 is 100% 1n Good Condition.

VT Route 147 is 100% in Fair Condition.

Completed in 2008, this sufficiency rating is based on the structural condition of the road (including pavement surface, foundation and ditches), safety (including road bed width, shoulder width and stopping sight distances) and service (including safe operating speed and passing sight distances).

Bridge Sufficiency Ratings

There are 13 structures with known sufficiency ratings on VT Route 114. Of those 9* are in Good condition, 4 are in Fair condition and 1 is in Poor condition. There is one functionally deficient structure, Bridge 13 in the Village of East Burke.

VT 102 - 9 structures, 8 in Good Condition, and 1 in Poor Condition. The structure in Poor condition, Bridge #6 is located in Brunswick over Paul Stream.

VT 253 - no structures with Sufficiency Data.

VT 141- no structures with Sufficiency Data.

VT 147 - no structures with Sufficiency Data.

*(at the updating of this plan, a full rehabilitation of Bridge 18 on VT Route 114 was being completed. It is anticipated that this will push Bridge 18 into the good category).

High Crash Locations

There are no High Crash Locations on VT Route 114 or the associated corridors.

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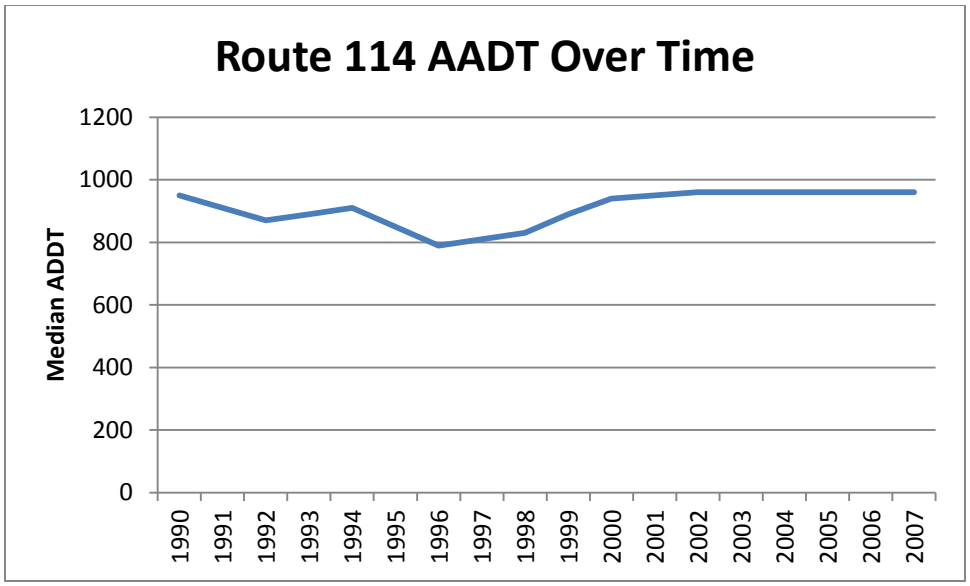
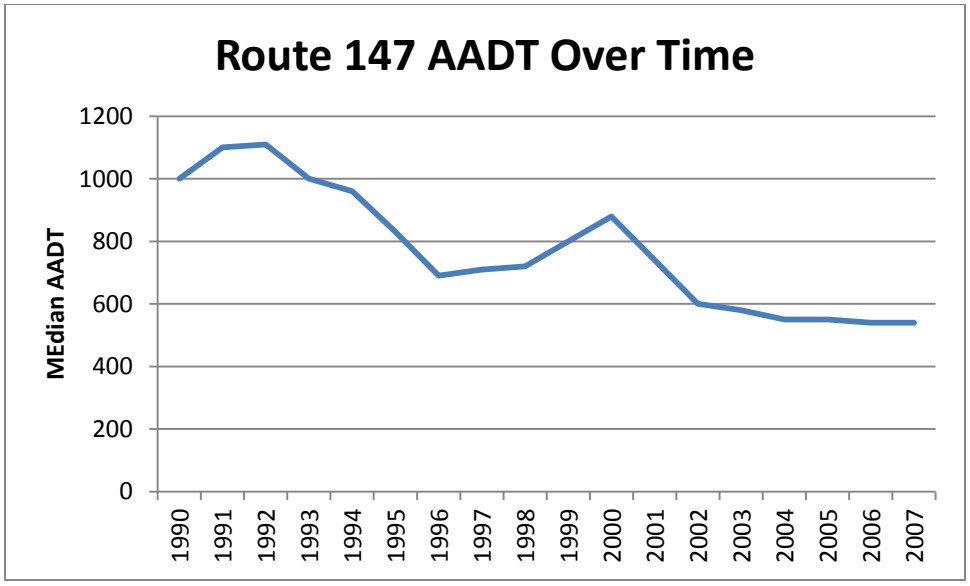
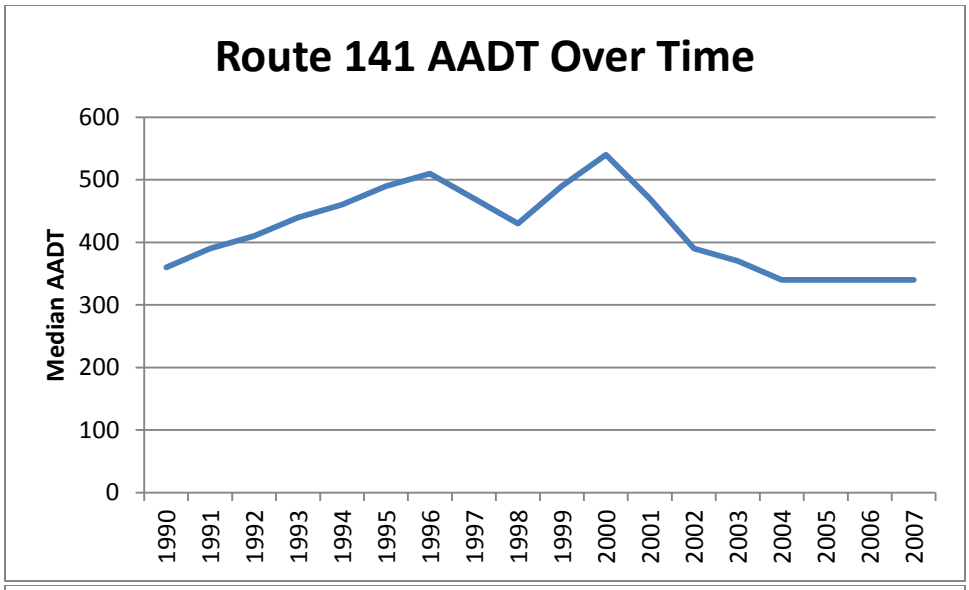
Traffic Volumes

Traffic Volumes on VT Route 114 have remained relatively flat over the period between 1990 and 2007. There are significantly higher Traffic Volumes on the ends of the corridor in Lyndon.



On VT Routes 102 and 147 there has been a significant decline in Traffic Volume between 1990 and 2007. On VT Route 102 traffic volume was recorded as 890 AADT in 1990 and 470 AADT in 2007. On VT Route 147 traffic volume was recorded as 1000 AADT in 1990 and 540 AADT in 2007.




Route 141 AADT Over Time
Median AADT
600
500
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300
200
100
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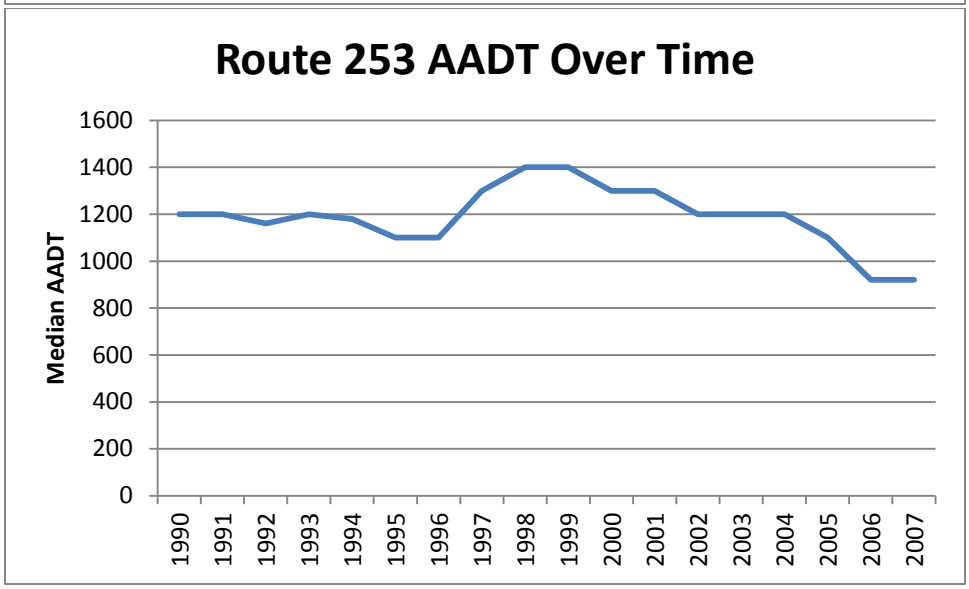
2005
2006
2007


Route 253 AADT Over Time
Median AADT
1600
1400
1200
1000
800
600
400
200
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1995
1996
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2004
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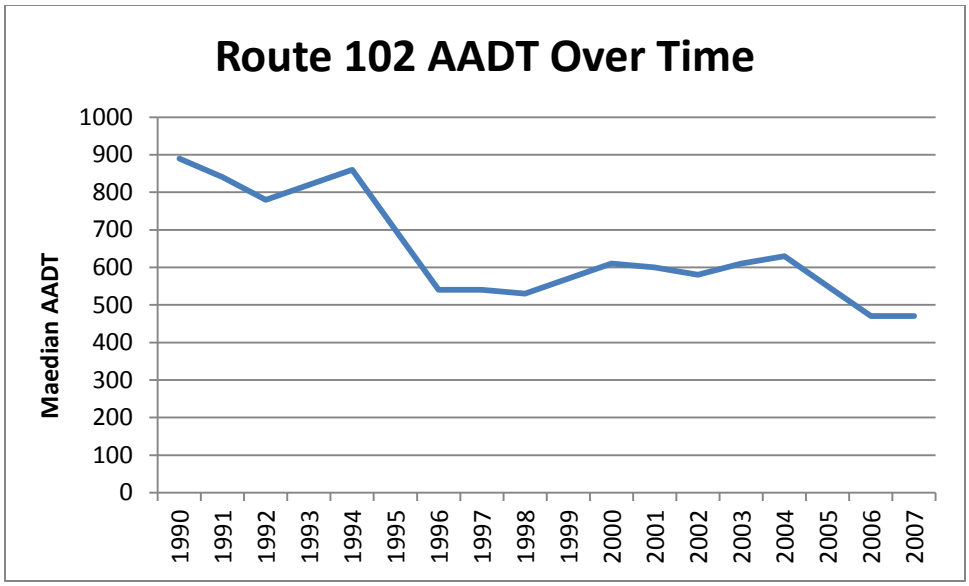
2006
2007

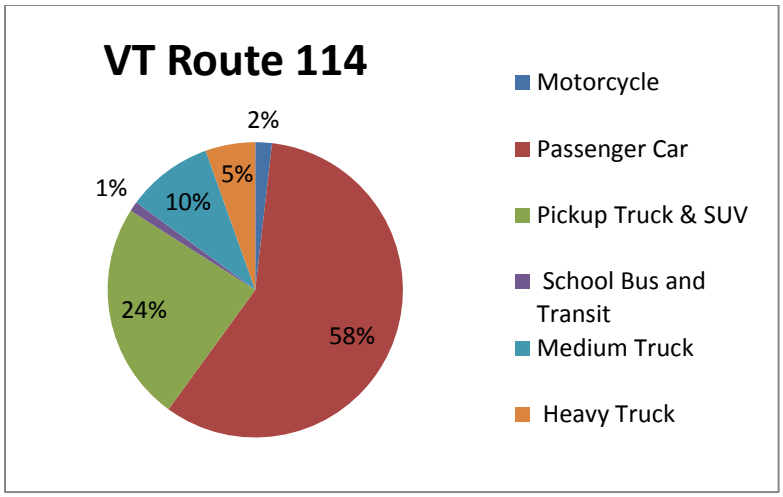


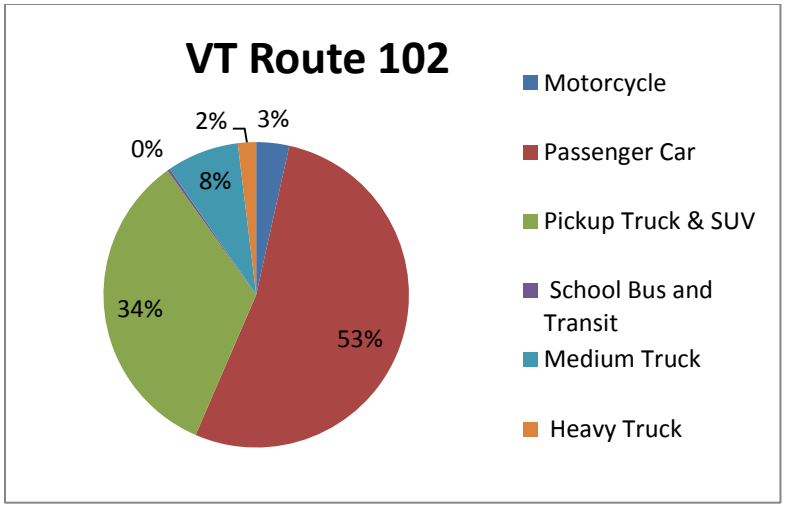
Border Crossing

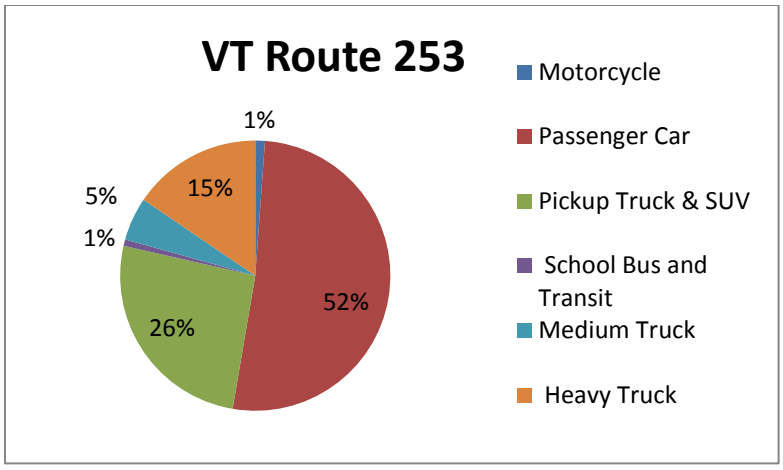
There are international Border Crossings on VT Routes 147, 141, and 253. Both VT Routes 147 and 253 have seen significant declines in Volume between 1990 and 2007; from 1000 to 540, and 1200 to 920 respectively. The number of crossings at VT Route 141 has remained relatively flat.

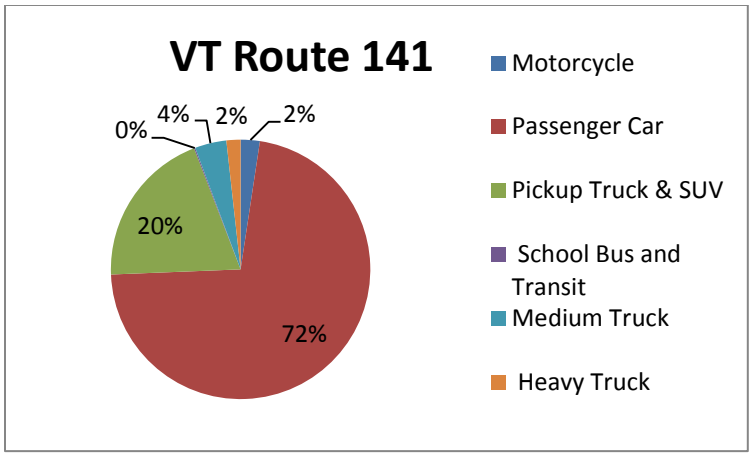
Goods Movement

Trucking is the dominant means of supplying businesses or shipping goods to market. VT Route 114 has a high proportion of trucks (15%) for this class of state highway. VT Rte 253 has a higher percentage (20%) of trucks and a much higher percentage of Heavy Trucks (Tractor Trailers) than VT Route 114 (15% vs. 5%). The highest percentage of traffic volume on all corridors is dominated by the passenger cars, pickups, and SUVs.


VT Route 114
2%
5%
1%
10%
24%
58%
Motorcycle
Passenger Car
Pickup Truck & SUV
School Bus and Transit
Medium Truck
Heavy Truck


VT Route 102
2%
3%
0%
8%
34%
53%
Motorcycle
Passenger Car
Pickup Truck & SUV
School Bus and Transit
Medium Truck
Heavy Truck


VT Route 253
1%
5%
15%
1%
52%
26%
Motorcycle
Passenger Car
Pickup Truck & SUV
School Bus and Transit
Medium Truck
Heavy Truck



VT Route 147 has no classification data.

Local Public Transit

There is no regular deviated fixed route line along any of these corridors.

Airports

Caledonia County Airport is located at the southern end of VT Route 114 in Lyndon.

John H Boylan Airport is located on Route 105 in Brighton near VT Route 114.

Bike & Ped

There are no dedicated Bike and Pedestrian facilities on VT Routes 114, 147, 141, 253, or 102. There is a rail-banked ROW in Canaan owned by the state of New Hampshire that the town has expressed a desire to convert into a multi-use path. The town has completed a feasibility study looking this possibility.

Railroad

The Saint Lawrence and Atlantic Railroad parallels VT Route 114 from Island Pond to the Canadian Border. There is a transfer yard in Island Pond that is the source of a significant number of truck trips on VT Route 114, mostly just going through to destinations outside of the region and the state.

Intermodal

There is a municipal Park and Ride located at the Norton Town Office adjacent to VT Route 114. There is also a Municipal Park and Ride located at the southern terminus of VT Route 112 actually located on VT Route 122 at the intersection of Center St and VT Route 122.

VT Route 114 Corridor Goals and Objectives

Goal A: Maintain Adequate Road and Bridge Capacity and Mobility

1. Update Corridor Management Plan.

Goal B: Guarantee a Regional Transportation System that Facilitates Economic Development

1. Continue to support the maintenance and upgrade of rail infrastructure to facilitate the increased use of rail for freight shipping.

Goal C: Ensure Good Quality of Life

1. Continue to support the Town of Canaan in their efforts towards the creation of safe multi-modal alternatives between the Village of Canaan and Beecher Falls.
2. Support the widening of shoulders on all paving projects where feasible.

Goal D: Ensure Availability of Alternative Transportation Modes to Address Residents' Needs

1. Identify new Park and Ride locations.
2. Work to identify locations for electric vehicle charging stations.

VT Route 105

Narrative

VT Route 105 is the most northern east west highway in Vermont. It goes from Bloomfield at the New Hampshire border to Jay in the western end of the region, and on to St Albans on Lake Champlain. Because of this, Route 105 is of significant importance in both economic and quality of life terms. It is a Minor Arterial Highway and should be managed for higher mobility than land access. It serves as an inter-regional and intra-regional corridor, conveying commuters as well as commerce.

This corridor also contains VT Routes 111, 243, and 242.

VT Route 111 is Major Collector that roughly parallels VT Route 105 between Island Pond and Derby Center. It functions mainly as a local access highway.

VT Route 243 is a Major Collector essentially functioning as an international gateway with a border crossing to Quebec in North Troy.

VT Route 242 is a Major Collector that allows inter-regional connectivity between northern Orleans and Franklin Counties. This State Highway also serves as the access road for Jay Peak Resort.

There are three studies that look at VT Route 105. The first was a full corridor study completed jointly between NVDA and Northwest Regional Planning Commission. It is dated but safety recommendations for the entire corridor were completed as part of the 2010 study in Newport City. The two other studies focus primarily on infrastructure in Newport City.

There is one study that looked at the impact of development at Jay Peak on the regional transportation infrastructure.

Newport City Thoroughfare Study 2010
This report first reviews and evaluates many of the different functions and users of Newport's thoroughfare network, and then considers each corridor separately with more detailed review and recommendations. This study was completed by Smart Mobility.

Newport City Main Street, Causeway, and Railroad Sq Intersection Study 2008
This study focuses on the intersection of Main St, Causeway, Railroad Square and looks at alternative alignments that address safety and capacity concerns. This study was completed by Lameroux and Dickenson.

VT Route 105 Corridor Study St Albans Bloomfield 1998
Study looks at current and projected transportation deficiencies. Recommends improvements and provides a schedule for the improvements. Study was completed by Louis Berger & Associates.

Jay Area Transportation Infrastructure 2006
The goal of this planning study is to quantify the scope of development impacts and then work with key stakeholders and residents to develop a set of recommendations to best maintain efficient traffic flows, accommodate growth pressures, and maintain a strong quality of life throughout the region. This study was completed by RSG.

Roadway Sufficiency Ratings

VT Route 105 has its largest percentage of road sections in Poor (46.1%) or Fair (34.6%) condition, followed by 11.5% in Bad condition, and 7.7% in good condition.

VT Route 111 has 42.9% in Fair condition, 42.9 Poor condition, and 14.2% in Bad condition.

VT Route 243 is 100% in Good condition.

VT Route 242 is 75 % in Poor condition and 25% in Fair condition.

Completed in 2008, this sufficiency rating is based on the structural condition of the road (including pavement surface, foundation and ditches), safety (including road bed width, shoulder width and stopping sight distances) and service (including safe operating speed and passing sight distances).

Bridge Sufficiency Ratings

VT Route 105 has 12 structures for which Sufficiency ratings could be determined. Of those 10 are in Good condition, 1 is in Fair condition, and one was a temporary structure at the time of the release of the 2010 VTrans Sufficiency data used for this plan.

VT Route 111 has two structures with sufficiency data available; one in Good condition and one in Fair condition.

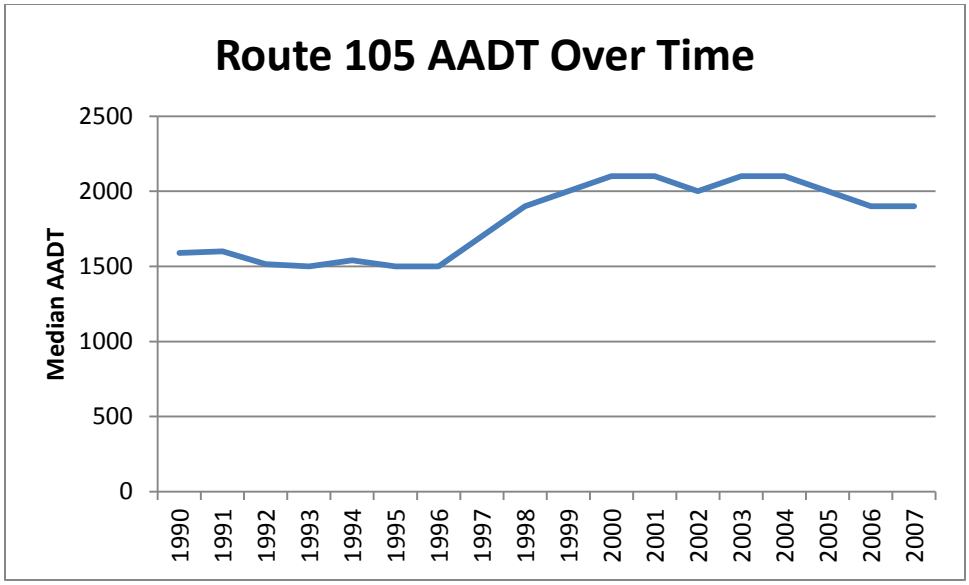
VT Route 243 has no structures with sufficiency data available.

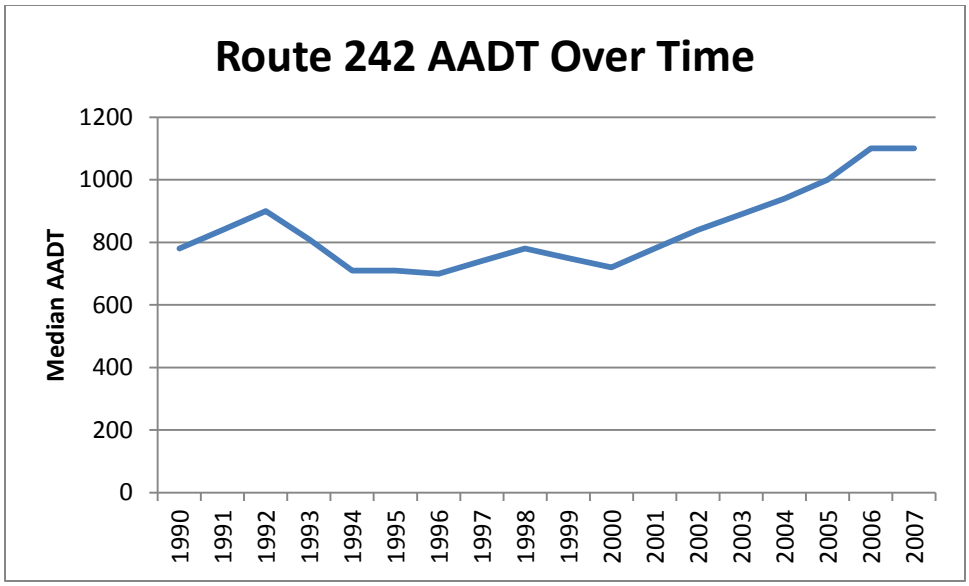
VT Route 242 has two structures with sufficiency data available; one in Good condition and one in Fair condition.

High Crash Locations

High Crash Locations (HCL) are intersections and discrete sections of highway that have a critical number of accidents over time. This report utilizes accident data between the years 2006-2010 and is focused exclusively on roads that fall under the Federal Aid Highway System. VT route 105 has two High Crash Locations; one in Derby and one in Troy. VT Route 242 has two High Crash Locations located in the town of Jay.

Traffic Volumes




Route 242 AADT Over Time
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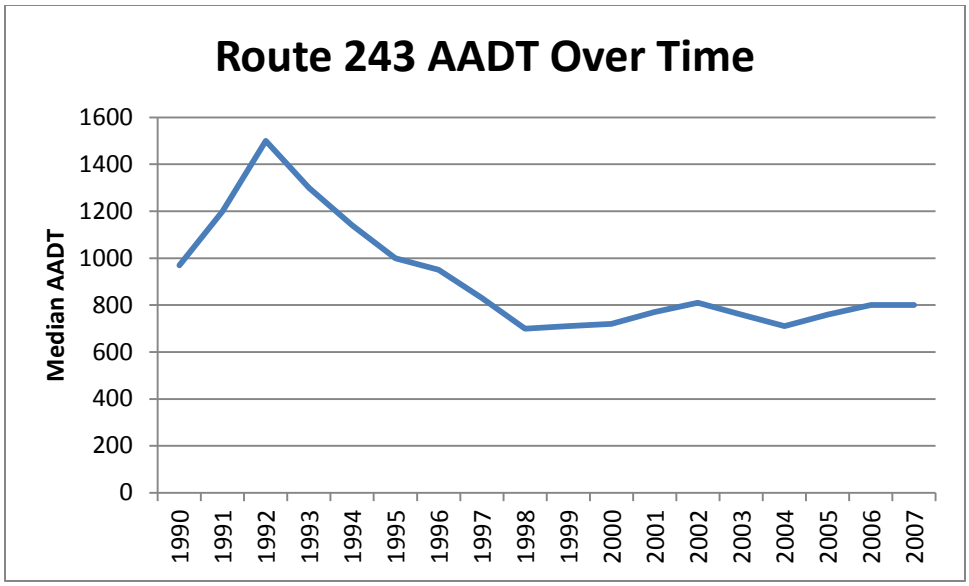
Route 243 AADT Over Time
Median AADT
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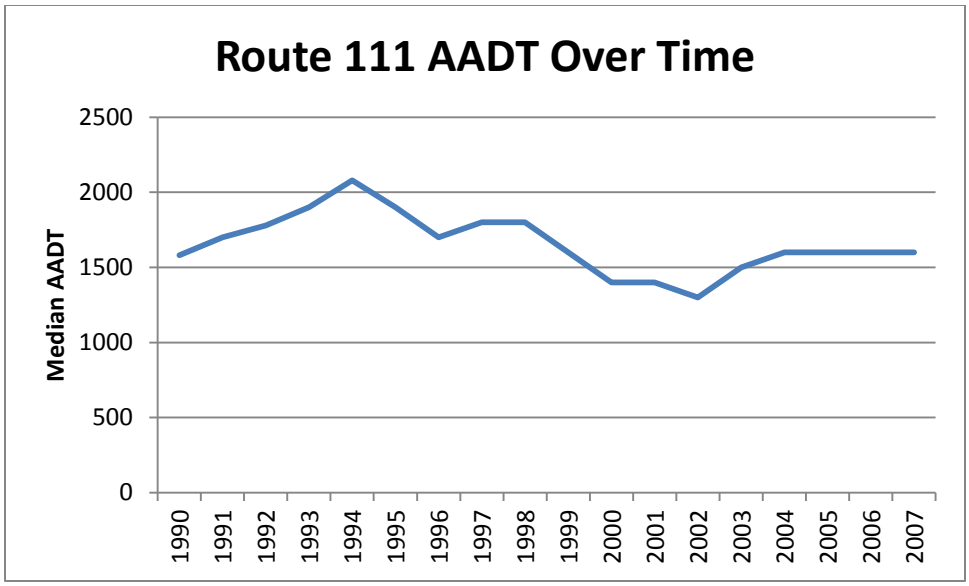
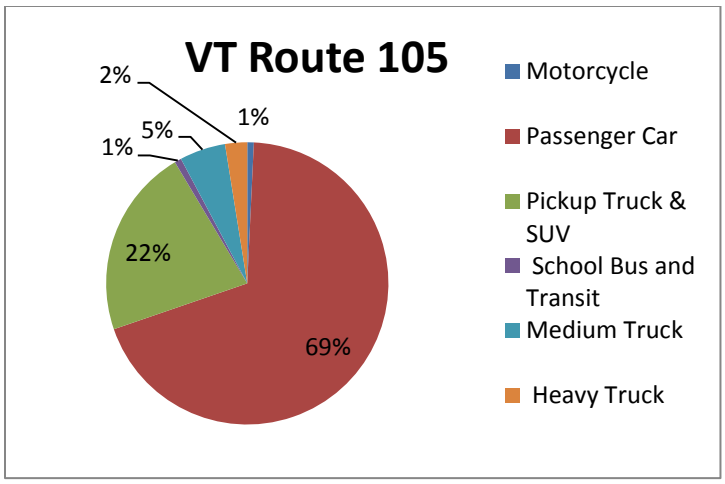
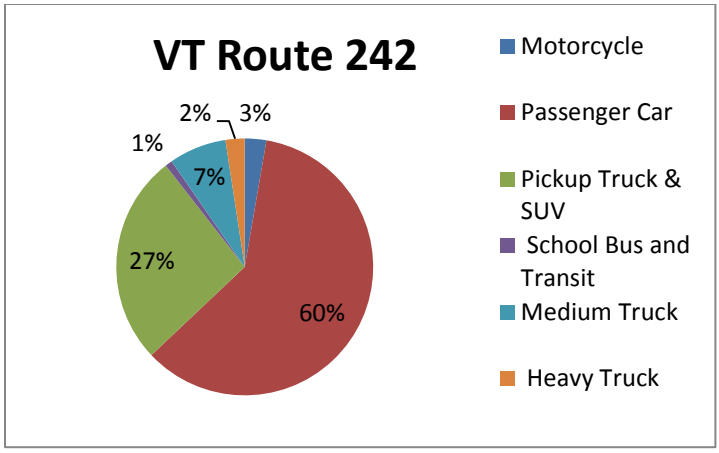


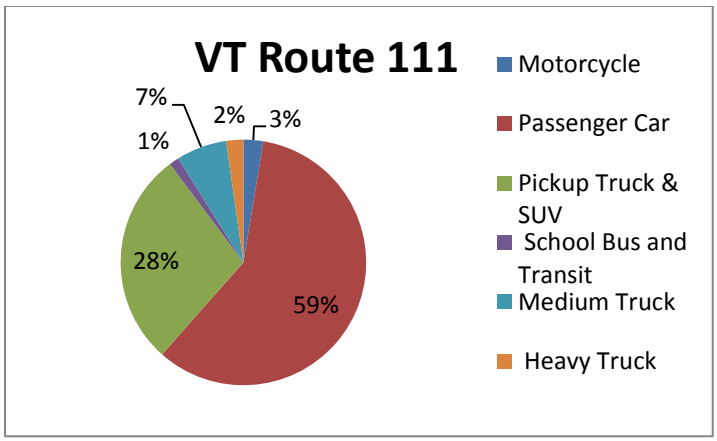
Border Crossing

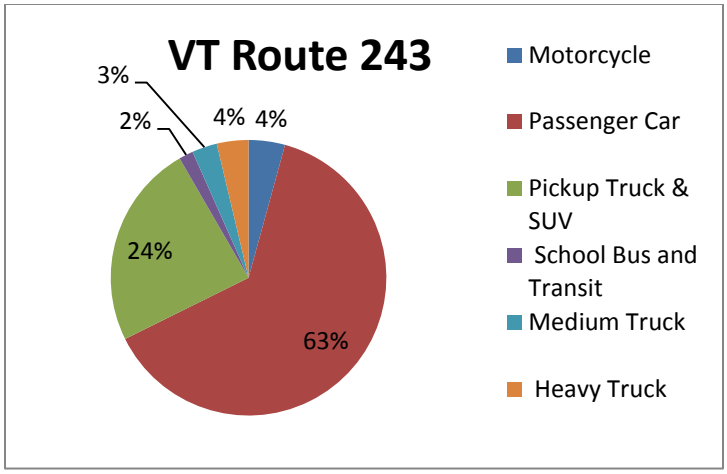
There is an international crossing on VT Route 243 in North Troy.

Goods Movement









Local Public Transit

There is no regular deviated fixed route line along any of these corridors. There have been discussions between Jay Peak Resort and RCT to establish a transit shuttle.

Airports
VT Route 105 runs close to the Newport State Airport in Coventry.

Bike & Ped
The Beebee Spur Bike Path is a 4-mile rail-trail running from Newport City towards the Canadian border. It follows Lake Memphremagog for most of the way, offering outstanding views of the water, as well as the Green Mountains. Although fairly level, mountain bikes are recommended due to the trail's packed gravel surface.

Railroad
The Montreal Maine & Atlantic meets the Conn River subdivision of the Washington County Railroad in Newport City and runs west to cross into Quebec in North Troy.

Intermodal
There are no formal Park and Rides or other intermodal facilities on these corridors.

VT Route 105 Corridor Goals and Objectives

Goal A: Maintain Adequate Road and Bridge Capacity and Mobility

1. Promote the improvement of Pavement conditions on VT Route 105, 111, and 242.

Goal B: Guarantee a Regional Transportation System that Facilitates Economic Development

1. Continue to support the maintenance and upgrade of rail infrastructure to facilitate the increased use of rail for freight shipping.
2. Work to facilitate greater efficiency in agricultural freight movements to include shipping a distribution nodal development.

Goal C: Ensure Good Quality of Life

1. Support the widening of shoulders on all paving projects where feasible.

Goal D: Ensure Availability of Alternative Transportation Modes to Address Residents' Needs

1. Identify new Park and Ride locations.
2. Work to identify locations for electric vehicle charging stations.

US Route 302/ VT Route 232

Narrative

US Route 302 is a Minor Arterial Highway and should be managed to preserve mobility over land access. It serves as part of an inter-regional route between US Route 2 in Montpelier and ultimately Portland Maine. In the region US Route 302 traverses Groton and Ryegate. It serves as an inter-regional and intra-regional corridor, conveying commuters as well as commerce. US Route 302 also serves to bring visitors to Groton State Forest via VT Route 232.

There is one intersection study that addresses VT Route 232. It does have some corridor wide information but it focus is on one intersection.

Groton VT Route 232 Boulder Beach Rd Intersection Study 2009
This study evaluates the existing conditions at the intersection of VT232 and Boulder Beach Road in Groton, Vermont, and identifies preliminary recommendations for consideration at this intersection.

Roadway Sufficiency Ratings

US Route 302 is roughly evenly split between 57% Good condition, 43% Fair condition.

VT Route 232 is overwhelmingly (60%) in Poor condition, with 20% in Fair condition, and 20% in Bad condition.

Completed in 2008, this sufficiency rating is based on the structural condition of the road (including pavement surface, foundation and ditches), safety (including road bed width, shoulder width and stopping sight distances) and service (including safe operating speed and passing sight distances).

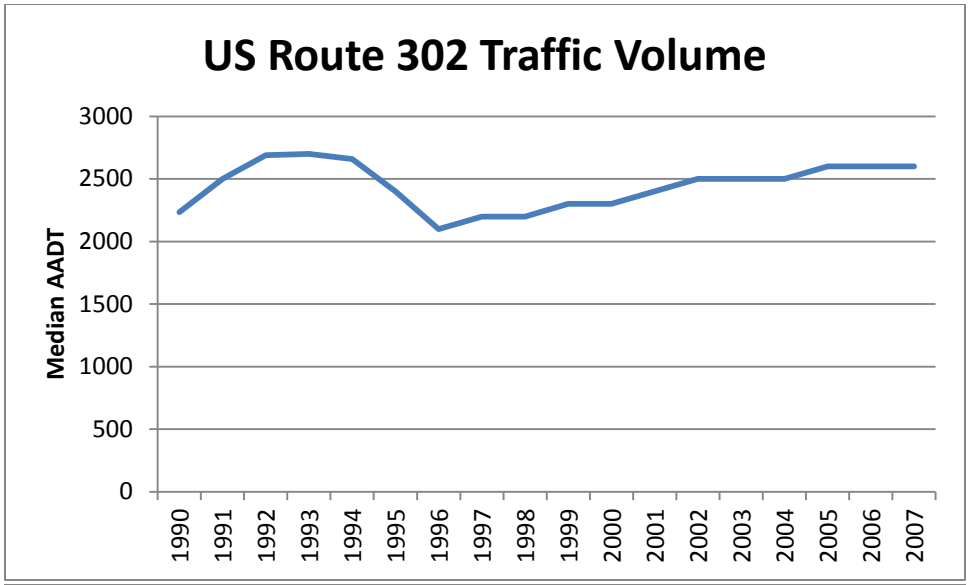
Bridge Sufficiency Ratings

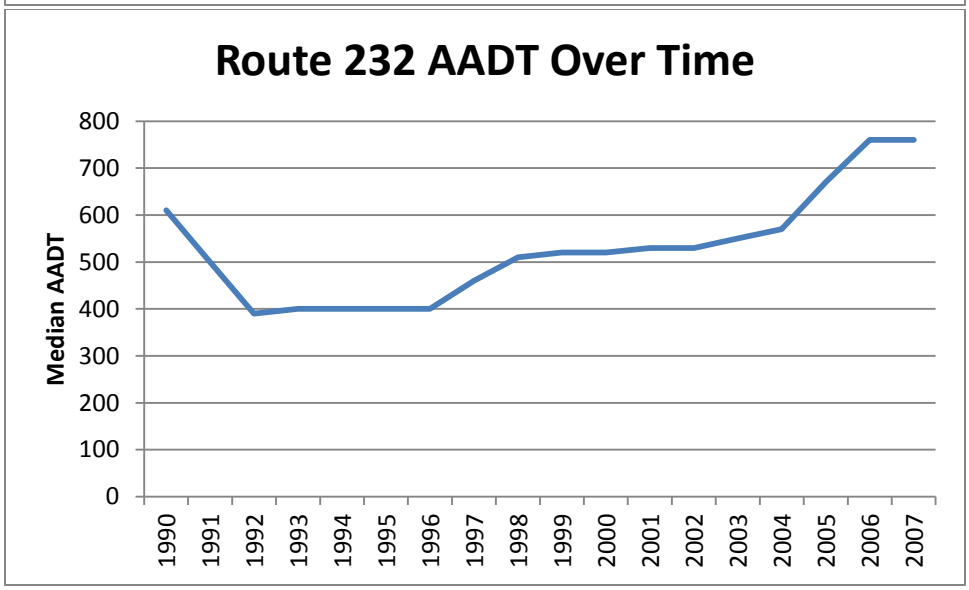
US Route 302 has 5 structures with sufficiency ratings; 4 in Good condition and one in Fair condition. VT route 232 has 2 structures with sufficiency data available. Both are in Good condition.

High Crash Locations

High Crash Locations (HCL) are intersections and discrete sections of highway that have a critical number of accidents over time. This report utilizes accident data between the years 2006-2010 and is focused exclusively on roads that fall under the Federal Aid Highway System. There are 3 HCL on US Route 302; two in Groton (near Daniels and Welch Rd and one near the intersection of VT Route 232) and one in Ryegate (in The village of South Ryegate).

Traffic Volume



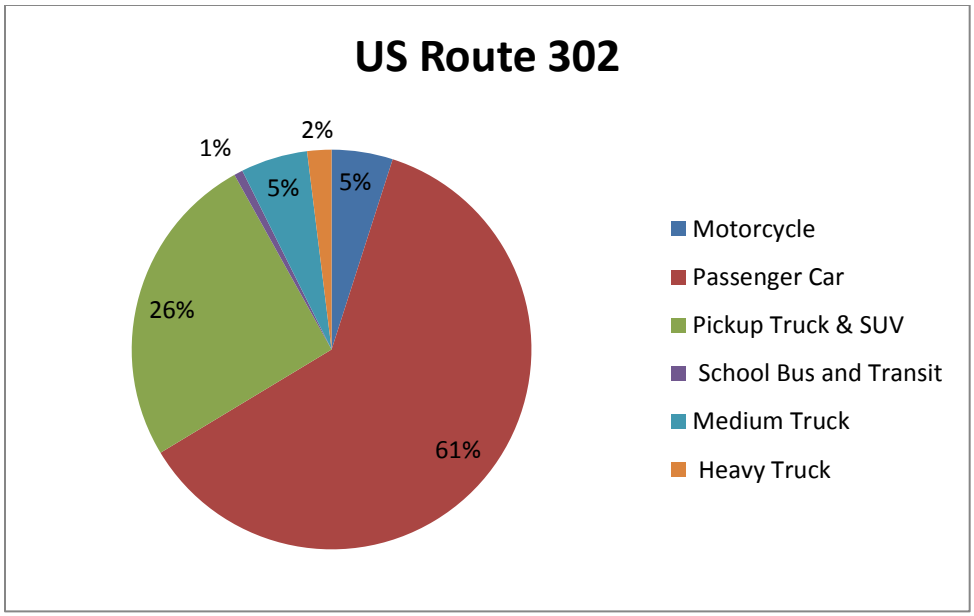


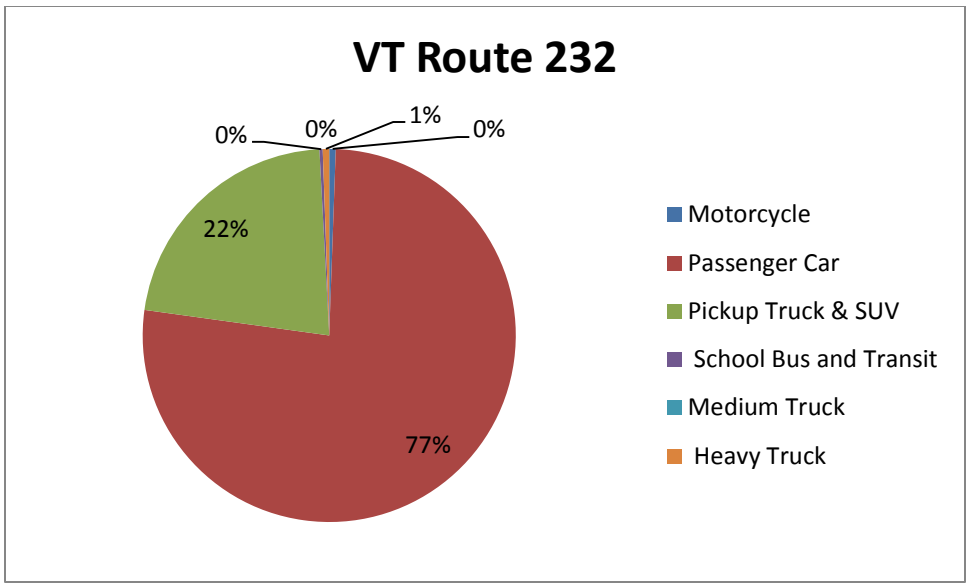
Border Crossing

There are no international border crossings on either corridor.

Goods Movement

US Route 302 mostly serves rural residential and agricultural land uses. It has a lower than average number of truck traffic for its class of highway; 8% vs. 9.6 %. VT Route 232 also has a lower than average number of trucks for its class of highway.





Local Public Transit

There are no scheduled deviated fixed route transit lines on these corridors.

Airports

There are no airports on these corridors.

Bike & Ped

The Cross Vermont Trail consists of roughly 14 miles of shared use access between Ryegate and Groton. This trail continues beyond the regions borders in either direction.

Railroad

There is no active Rail service along either corridor.

Intermodal

There is a municipal Park and Ride (awarded in 2012) located at the Ryegate Fire station in South Ryegate.

US Route 302/232 Corridor Goals and Objectives

Goal A: Maintain Adequate Road and Bridge Capacity and Mobility

1. Work to address safety issues related to HCL's on US Route 302.
2. Support rehabilitation of VT Route 232.

Goal C: Ensure Good Quality of Life

1. Support the efforts of the Cross Vermont Trail Association to maintain and upgrade the CVT.
2. Support the widening of shoulders on all paving projects where feasible.

Goal D: **Ensure Availability of Alternative Transportation Modes to Address Residents' Needs**

1. Identify new Park and Ride locations.
2. Work to identify locations for electric vehicle charging stations.