VERMONT AGENCY OF TRANSPORTATION

2016 FACT BOOK and Annual Report

Published January 15, 2016

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2016 FACT BOOK
and Annual Report

Welcome

Welcome to this year's edition of the VTrans Fact Book and Annual Report. This is the place people come to for quick answers to perennial questions as well as the place to find the right person to answer some of the more complicated ones. It is important for our Agency to provide as much transparency as we can to make it easy for our customers to evaluate our performance in the stewardship of our state transportation system.

Even as we continue in our effort to provide more real time data on the status of our transportation system, this publication remains the go-to guide for our staff, reporters, legislators and our partners for understanding how VTrans works.

We are always looking for ways to improve and we look forward to hearing your thoughts on what ought to be in next year's VTrans Fact Book and Annual Report.

Sincerely,

Chris Cole

Chris Cole
Secretary of Transportation

VTrans Working to Get You There Vermont Agency of Transportation

VERMONT

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About the Agency

Vermont has an extensive multimodal transportation system.

With oversight from the Vermont Legislature, the Vermont Agency of Transportation (VTrans) is responsible for planning, development, implementation and maintenance of a variety of transportation infrastructure including but not limited to roads, bridges, state-owned railroads, airports, park and ride facilities, bicycle facilities, pedestrian paths, public transportation facilities and services, and Department of Motor Vehicles operations and motor carrier enforcement. VTrans serves the entire population of the State of Vermont.

VTrans has more than 1300 employees organized in three divisions: Policy, Planning and Intermodal Development; Finance and Administration; and Highway. The **Department of Motor Vehicles** is also housed within the Agency of Transportation; it has a main office in Montpelier and ten satellite offices statewide.

VTrans interacts with all State agencies and agencies within the United States Department of Transportation as well as other federal agencies, numerous regional and state governments and international jurisdictions and cross-border organizations, local governments, transit agencies, airports, railroads and the other private and non-profit entities engaged in transportation-related activities.

The **Highway Division** of VTrans, which has the largest number of employees, is organized into five bureaus: Municipal Assistance, Construction and Materials, Maintenance and Operations, Project Delivery, and Asset Management and Performance, and the Office of Highway Safety. Together, the Highway bureaus handle year-round maintenance of the road network; provide oversight for construction projects; ensure the quality of materials; provide grants and technical support for municipal projects; procure and maintain the fleet of trucks; provide information to the traveling public on road conditions; inspect and maintain bridges, culverts, signs, and signals; and is the lead entity on safety and training.

SPRINGFIELD. Park and ride facilities function as mini multimodal centers, offering transit connections, electric vehicle charging, and bike racks.

The **Division of Policy, Planning and Intermodal Development** (PPID) oversees major non-highway transportation modes including state-owned rail lines, nine state-owned airports and public transit providers. In addition to providing statewide planning and policy support, the division works with Vermont's eleven Regional Planning Commissions and, in the Burlington region, the Metropolitan Planning Organization, to develop regional transportation plans and generate input on prioritizing transportation projects in the regions. The division's work is also supported by public input from the Rail Advisory Council, Aviation Advisory Council and the Public Transit Advisory Council. PPID also is the lead on research, mapping, development review and public outreach.

The **Division of Finance and Administration** provides services across the agency to support the activities that deliver on the mission of VTrans including contract administration, information technology, continuous improvement, accounting, budgeting, audit, civil rights, labor compliance and recruitment. As in all aspects of our work, state and federal statutes provide the guidance and boundaries for Finance and Administration's work.

The transportation budget is composed of Federal, State and Local funds. Federal fund sources come from the Federal Highway Administration, Federal Transit Administration, Federal Railroad Administration, Federal National Highway Safety Administration, and the Federal Aviation Administration. State funds are appropriated from the State Transportation Fund. The State Transportation revenues are derived primarily from three sources: the gas tax, the purchase and use tax and Department of Motor Vehicle fees.

To meet these various objectives, VTrans has established a set of five goals that act as guiding principles in everything the Agency does. These goals are:

- Provide a safe and resilient transportation system that supports the Vermont economy.
- Preserve, maintain and operate the transportation system in a cost effective and environmentally responsible manner.
- Provide Vermonters energy efficient travel options.
- Cultivate and continually pursue innovation, excellence and quality customer service.
- Develop a workforce to meet the strategic needs of the Agency.

The Year In Review

To achieve our vision, the agency's activities are focused on five strategic goals. Highlights related to each of these goals are provided below.

GOAL ONE

Provide a safe and resilient transportation system that supports the Vermont economy

Every day our dedicated employees and partners work to improve the safety of our transportation network. From plowing snow to designing bridges, clearing brush to installing centerline rumble stripes, our team puts the safety of the traveling public at the forefront.

VTrans strengthened our commitment to highway safety by integrating the Governor's Highway Safety Program into our recently formed Office of Highway Safety. We continue to work closely with stakeholders through the Vermont Highway Safety Alliance to tackle the myriad issues associated with highway safety. Since 2009, we have seen a 23.4% reduction in major crashes (defined as fatal or incapacitating injury crashes). While this progress is noteworthy, more must be done as we are still losing an average of 60 lives per year on our highways (57 in 2015).

The Department of Motor Vehicles (DMV) is using a pilot position to enhance commercial vehicle safety audits. A new Automated Vehicle Inspection program is in development, and a more comprehensive skills test has been integrated into the Commercial Driver's License road test.

The 2014-15 winter was another record breaker for VTrans with nearly 100 storm events for a total cost of nearly $31 million, compared with our five-year average of just under $26 million. Our drivers logged over 300,000 hours behind the wheel, keeping travelers safe through the storms.

Partnership with other state agencies continues to further enhance our transportation system. The Strong Communities, Better Connections grant program, in partnership with the Agency of Commerce and Community Development, delivers planning grants to communities across the state to improve downtowns and pedestrian access to transportation facilities. Collaboration with the Agency of Natural Resources on monitoring wildlife corridors and river management ensures that the intersections of the built and natural transportation systems are safe and resilient.

Ultimately, as has been the case since the first public road was opened for use, it is the behavior of the user that makes the biggest impact on the safety of the transportation system, and every user needs to take responsibility each and every day to make safe choices.

RICHMOND. A VTrans plow truck cleans up US 2 after a storm.

GOAL TWO

Preserve, maintain and operate the transportation system in a cost effective and environmentally responsible manner

Preserving our system in a state of good repair is part of the daily work of VTrans. In 2015 we continued development of the Transportation Asset Management Plan (TAMP) and implemented business process improvements that helped us make better resource allocation decisions. Since 2008, we have reduced the number of structurally deficient bridges in our system from 494 (16.1%) to 180 (6.6%). In 2009, more than 34% of our roads were in "very poor condition" compared with 15% in 2015. Major runway work was completed at several state airports, and track, crossing and bridge improvements continue along state-owned rail lines.

Our Information Technology section is leading efforts to pull data from a variety of sources to develop a better operating picture of the condition of our network, allowing us to make granular comparisons of projects and facilities. VTransparency is the public-facing version of that system, which allows the public to access data about projects that they care about.

The roll-out of the Transportation Systems Management and Operations (TSMO) section is helping us make better decisions about how to time our work, to better inform the public of potential impacts, and to create better response plans to any unplanned disruptions.

We completed our first major lateral slide-in bridge construction project on I-91 in Hartford this year, replacing two entire bridge decks over two weekend closures. On I-89 in Waterbury, we completed two more conventional deck replacements in a single construction season. More efficient techniques and time lines are driving the critical measures of our system performance in the right direction.

How we manage our projects and their impacts can make a difference in the overall experience of the traveling public. Deploying smart work zones helped to identify ways to improve traffic flow through project areas, reducing vehicle idling and wait times. As part of the congestion mitigation plan for the Waterbury area projects, we added Link Express public transit runs to take cars off the road during peak hours.

When the Environmental Protection Agency released the mandatory clean up plan for Lake Champlain in 2015, run-off and erosion from state and municipal transportation systems were identified as contributing to phosphorous and other pollutant levels in the Lake and its tributaries. VTrans worked with the Agency of Natural Resources as Act 64, the 2015 water quality bill, made its way through the legislative process. As a result, the agency was able to increase state and federal funding to $3.9 million dollars, starting in FY 2017, to aid municipalities in stream bank and ditch stabilization, culvert replacements, and other activities that address water quality and make local roads more resilient to flooding.

GOAL THREE

Provide Vermonters energy efficient travel options

VTrans continue to invest in public transit and ridership is up, topping 5 million in 2015. The realignment of the Vermonter line through the Pioneer Valley in Massachusetts has further reduced travel time to New York City and ridership is up 3.4% in 2015. On the Ethan Allen Express, Business Class is performing particularly well with an increase of 12.5%. In 2015 we added almost 12 miles of continuously welded rail to the Western Corridor in the effort to bring the Ethan Allen Express to Burlington.

As we modernize and expand our park and ride system, more of these facilities are functioning as multimodal hubs with electric vehicle (EV) charging stations, public transit connections and bike facilities included as part of the standard amenities. In 2015 we developed our first statewide park and ride plan, which includes recommendations on siting, management, and operations.

HARTFORD. Using slide-in construction methods, two bridges on I-91 were replaced over two weekends in August.

An intensive public involvement process, including crowd-sourced data gathering and statewide meetings, was at the heart of the ongoing development of our On-Road Bicycle Plan, an important step in our effort to improve the condition of state roads to enhance safety and better accommodate the needs of all bicyclists - families, commuters and recreational riders.

Increasing the use of Electric Vehicles (EVs) on Vermont roadways helps reduce Vermonters' carbon footprint and is an important strategy in the state's 2015 Comprehensive Energy Plan. EVs reduce greenhouse gases and other pollutants from the transportation sector. VTrans is working with sister agencies and the Drive Electric Vermont partnership to help Vermonters better understand and accept EV technology and make electric fueling infrastructure available to the public at park and rides and other facilities.

Capitol Commuters, a program for state employees who work in Montpelier, remains a popular program and a model for deployment in other population centers. Reducing the number of cars accessing our downtowns means a safer and more hospitable environment for pedestrians and avoids the need to construct more parking facilities.

Expanding solar capacity in state-owned right of way and at VTrans facilities continued in earnest in 2015. Airports, garages, park and rides and other parcels owned by the Agency are all being explored as part of a comprehensive plan to improve efficiency and reduce the overall carbon footprint of the Agency and our state. While safety and land use issues may render some sites unsuitable, we remain committed to building out capacity wherever feasible.

GOAL FOUR

Cultivate and continually pursue innovation, excellence and quality customer service

VTrans is utilizing Lean and Business Process Management (BPM) principles to increase internal efficiencies, reduce costs, update processes, improve customer satisfaction, and cultivate a culture of continuous improvement for VTrans staff, by providing tools and resources to implement innovative and creative improvements to increase agency performance.

MONTPELIER. Employees share ideas for improvement during a Lean event.

VTrans has been identifying opportunities brought forth by staff to incorporate Lean principles and is using Value Stream Mapping and BPM architecture to render gains of 60% or more for accelerating process time lines, eliminating wasteful steps and improving customer service to both internal and external customers.

VTrans is committed to accountability and making our work transparent. We are improving communication with communities where we're working and providing better access to information overall. More active community engagement on projects, including the use of community liaisons on major projects is helping to produce higher satisfaction rates with our work. The Hartford slide-in bridge project rendered 85-90% of post-project survey respondents satisfied or very satisfied with the work.

The VTransparancy project has been a catalyst for further efforts to translate our massive amount of data into useful information and efforts are underway to automate processes for developing new communications tools. As our internal business intelligence efforts continue, we will be unveiling even more tools that will help to keep our partners and the public informed.

WATERBURY. An AVL-equipped plow truck cleans up I-89 after a storm.

STOWE. Bridge 2, located in the heart of Stowe Village along VT 108, was replaced using innovative construction techniques during a 40 day closure in April and May of 2015.

The growth of our social media audience continues with over 12,000 Facebook likes and nearly 7,000 Twitter followers including most major media. Our VTransTV YouTube channel was voted Best Video Channel by the American Association of State Highway Transportation Officials in 2015. Radio, print and television remain popular and "On the Road" is featured in a half dozen newspapers and nearly 20 radio outlets every week during construction season. Collaborating with other state agencies and highway safety partners has resulted in reaching an even wider audience with our messaging.

Major renovations at the Department of Motor Vehicles (DMV) office in Montpelier included a complete reconfiguration of the customer service counters. The DMV mobile offices in St. Johnsbury and St. Albans have moved to new, permanent locations.

The majority of our fleet is now equipped with Automatic Vehicle Location (AVL) technology to better manage the deployment of resources. AVL allows districts to see where their assets are in real time and make better decisions about how to adjust as conditions change. The technology also provides data on how the vehicle is performing and rates of material application. Each AVL unit is also a mobile weather station, offering a more comprehensive picture of road conditions for operations.

GOAL FIVE

Develop a workforce to meet the strategic needs of the Agency

We have stepped up our recruitment and training efforts to help fill the gaps left by many experienced employees who retired in 2015. Closer coordination with the Department of Human Resources has allowed us to reach a wider audience as we reinvigorate our workforce. We can be found at job fairs and business events and at school campuses statewide seeking out the next generation of VTrans workers.

The VTrans Training Center (VTTC) remains front and center in our effort to train and retain with classes ranging from the basics of workplace safety to advanced supervision, business analysis, presentation skills—most everything one would need to rise through the ranks in the organization. The trainings also ensure compliance with Federal and State regulations and the Affirmative Action Plan (AAP). In collaboration with VTTC, Community College of Vermont now offers an associate degree in business with a focus on transportation.

Emergency management training remains a focus for the Agency with all staff required to complete incident command training annually in order to ensure that everyone speaks the same language should disaster strikes. Managers and other critical staff train at even higher levels and stand ready to support other agencies through Vermont Emergency Management.

Agency History

1892
The first state supervision of roads in Vermont came with the establishment of a Highway Commission.

1898
The Highway Commission was supposed to conduct a two-year survey of the state's roads, but it ended up as a six-year survey. As a result of the commission, Act 65 established a State Highway Commission, to supervise the state money to be paid out for permanent highway construction.

1921
Act 123 established the first State Highway Board, which operated through the Commissioner of Highways. The Board's members were the Governor, who served as the chairman ex officio, and two others appointed with the advice and consent of the Senate.

1923
Act 7 established the Department of Highways, which was administered by the State Highway Board (the Governor, at this point, was no longer a member of the Board). The Department was responsible for administrative details and policy information.

1960
Act 329 brought an organizational change, and the Department of Highways was now made up of the Commissioner of Highways, the State Highway Board, and the Board of Public Works.

1973
Act 259 established a Transportation Advisory Board, whose duty it was to assess the various organizations and financing alternatives for transportation within Vermont and to submit a ten-year plan to the 1975 general assembly.

1975
Act 120 established the first Agency of Transportation. It included four departments: Aeronautics; Highways; Motor Vehicles; and Bus, Rail, Waterways and Motor Carrier services. Attached to the agency was a seven-member Transportation Board that exercised functions of a policy making, regulatory, or quasi-judicial nature related to transportation.

1986
Act 269 established the current organization. The agency is under the direction and supervision of a Secretary who is appointed by the Governor along with the advice and consent of the Senate. It is comprised of the Department of Motor Vehicles; the Divisions of Policy, Planning and Intermodal Development; Highway; Finance and Administration; and all other boards, councils, committees, or components assigned to or created within the agency. All transportation and transit authorities established by law or executive order are attached to the agency for administrative support.

1988
Act 150 established that the agency shall also respond in writing to concerns raised during Transportation Board hearings and inform the Joint Transportation Oversight Committee of any anticipated loss or reduction of federal funding for transportation purposes.

1991
Act 175 granted the Secretary of the Agency of Transportation the power to create divisions within the agency, necessary to carry out laws. Directors appointed by the Secretary head each division.

The agency administers the provisions of Titles 5 (Aeronautics and Surface Transportation), 19 (Highways), and 23 (Motor Vehicles), as well as other related provisions of the law. The agency has the authority and administrative jurisdiction to develop, promote, supervise, and support safe and adequate transportation services. It exercises general supervision of all transportation functions.

Quick Facts

Infrastructure Inventory

16 Public-Use Airports
10 State-Owned Airports (Included in Total)
90+ Runway Lane Miles

305 Miles of State-Owned Operating Rail
295 Miles of Privately-Owned Railroads
145 Miles of State-Owned Rail-Banked Trail Facilities

392 Public Transit Vehicles
30 State-Owned/Maintained Park-and-Ride Facilities
4 State-Owned/Maintained Park-and-Ride Facilities with EV Level 1 Charging
1,525 Parking Spaces at State-Owned/Maintained Park-and-Ride Facilities
61 Municipal Park-and-Ride Facilities Funded with State Grants

14,171 Total Miles of Local and State Roadway
772 Miles National Highway System (NHS)
2,709 Miles State Highway System (SHS)
139 Miles of Class 1 Town Highways
1,986 Miles of Guardrail

2,723 Inventoried Local and State Long Bridges (Over 20 FT. Long)
1,089 Inventoried Long Bridges on SHS (State-Owned/Maintained)
68 SHS Bridges Classified Structurally Deficient in 2013 (6.45%)

154 Traffic Signals
1,050 Roadway Lights
2,335 Official Business Directional Signs (OBDS)

275 Dump Trucks with Plows and Wings
41 Pick Ups with Plows
374 Licensed CDL Drivers
64 Garages Operated in 2015
310,178 Hours of Plowing in Winter 2014-2015

9.2% Increase in Public Transit Ridership Reported 2011-2015

23.4% Decrease in Major Crashes Reported 2009-2014

15,619 Tons of Material Applied to Protect Banks and Slopes

434 Tons of Trash Collected
$1,087,370 Cost to Collect Trash

6.7 Million Tons of Rail Freight Shipped Each Year

15,254 Acres Mowed

Featured Projects

Lyndonville Bike Lanes

The village of Lyndonville was in the middle of a Class I town highway paving project last summer when local leadership approached VTrans about modifying the striping plans to incorporate bicycle lanes on the major routes through the downtown. The project included paving on US 5, US 2 and Alternate VT 122. Because of the existing paved widths, the project was able to include a relatively new type of bike facility for Vermont – buffered bicycle lanes. The buffer is a painted area 2-5 feet wide between the travel lane and the bicycle lane, offering bicyclists a greater degree of separation from adjacent motor vehicle traffic that has been shown to increase bicyclists comfort level, normally resulting in larger numbers of bicyclists feeling confident enough to ride on the road.

Waterbury Area Projects

The first full year of Waterbury Area Projects saw major progress on construction projects and the implementation of a smart work zone that ensured constant communication to motorists and a predictable and safe flow of traffic in and around work zones. The success of multiple concurrent projects was the product of a strong team effort among VTrans, municipalities, contractors, law enforcement and the business community. Both bridge decks on I-89 at Exit 10 were replaced in a single season, the roundabout at US 2 and VT 100 was completed, as were improvements to sidewalks on Stowe Street, an accelerated bridge construction project on VT 108 in Stowe, paving of VT 100 south toward Waitsfield, and significant work for temporary traffic management during the upcoming construction season. In addition, significant progress was made on the design, permitting, and right-of-way acquisition of the Waterbury Main Street project and pavement rehabilitation of VT 100 between Waterbury and Stowe.

Northern Borders Rail Grant

VTrans continues to work to expand the use of rail infrastructure throughout Vermont. In 2015 VTrans was awarded an economic development grant to allow an existing rail customer to expand their business to a new facility in Barton. Couture Trucking had outgrown their space in the Lyndonville rail yard and needed more space to receive grain products. As the primary supplier of hops and barley to many brewers in the Eastern United States, product demand for their product was growing dramatically. The grant money was used to build additional side tracks that will be used to transfer products from rail car to the storage silos for distribution.

Springfield Park and Ride

The newly reconstructed Springfield Park-and-Ride Facility, located at the intersection of US 5 and VT 11 near Exit 7 of I-91, was opened in August of 2015. This facility was constructed by Bazin Brothers Trucking of Westminster. The facility now has 106 parking spaces, compared to the previous 50 spaces, in addition to LED lighting, a bus shelter, bike racks and 18 Electric Vehicle Level 1 outlets. Public transit service to this facility is being provided by The Current. This facility also provides parking for users of the nearby multi-use recreation path.

Brookfield Floating Bridge

The Brookfield Floating Bridge, originally constructed in 1820, is one of only three floating bridges in the United States. Best known for its floating timber bridge deck, flanking sidewalks and bridge rail, the structure has been replaced seven times since it was originally constructed. Over time the floatation systems became waterlogged, leading to the eventual sinking and failure of the bridge structure. The new floating bridge, opened in May of 2015, utilizes a modern technology known as fiber reinforced polymer (FRP) for the floatation system. FRP is extremely durable and resistant to corrosion, stresses, and strains produced by ice loading and other lateral forces such as impacts from boats. With its modular pontoon construction comprised of five FRP rafts, portions of the bridge can be disassembled and repaired, if necessary. The new bridge is expected to provide a service life of 100 years.

Rutland Airport

VTrans has completed a multi-phase project to improve safety for aviators and cars approaching the Rutland State Airport. Phase 1, in 2011, moved the airport access road, creating more space between the road and runway, increasing safety. Phase 2 added a runway safety area (RSA) at the north end of the primary runway, using approximately 250,000 cubic yards of fill and a 230x36' retaining wall to meet current safety standards. Phase 3 entailed the construction of a two-tiered retaining wall, the relocation of the localizer antennae (used for Air Navigation in inclement weather), and the construction of the Engineered Materials Arrester System (EMAS) which is similar to a runaway truck ramp, but for aircraft. The EMAS replaces the need to build out 1,000 feet of fill to the south of the airport.

Downtown Burlington Transit Center

The Downtown Transit Center (DTC) is designed to replace the current, inadequate bus station on Cherry Street in Burlington. The DTC includes: a Transit Center Building with heated and air conditioned waiting area, ticketing, restroom facilities, and a driver break room; 10 bus berths under a canopy along the center of St. Paul Street; eight on-street bus berths on Pearl Street; and three on-street bus berths on the north side of Cherry Street. A central bus loading/unloading platform is located under the canopy along St. Paul Street and includes monitors, benches, glass wind breaks and radiant heaters for customer convenience and comfort. The facility is expected to be open for business in summer 2016.

Ryegate Culvert

The Ryegate Culvert Project will replace the existing culvert carrying Manchester Brook under US 5 and the Washington County Railroad, which runs parallel I-91. The brook flows approximately 150 feet through the 50-foot high US 5 embankment and 185 feet through the 60-foot high Railroad embankment. The original culverts were constructed around 1930 and 1914, respectively, and are hydraulically deficient. The new culvert is being built along a slightly different alignment and consists of two separate structures: one for US 5 and another for the Railroad. The project maintains traffic using temporary bridges, a temporary earth retaining system and dewatering system, construction of a permanent cast-in-place concrete arch culvert, and a new stream channel to meet hydraulic and Aquatic Organism Passage (AOP) requirements. Construction began in 2015 and is expected to be completed in summer 2016.

Department of Motor Vehicles

The Department of Motor Vehicles (DMV) is responsible for issuing driver licenses, permits, motor vehicle registrations (including snowmobile and motorboat registrations), driver license suspensions and reinstatements, enforcement of motor-vehicle-related laws, and collecting motor fuel revenue for the state of Vermont. The department also manages several safety programs, including vehicle inspections, motor carrier safety, school bus safety and those related to motorcycle training. The Vermont DMV serves a resident population of over 626,000 as well as a significant number of nonresidents.

MONTPELIER. DMV main office.

Revenues FY2015 (fees, taxes and permits)

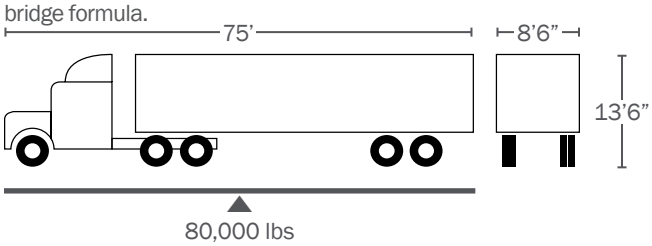
License Fees	$9,171,789.07
Registration Fees	$53,247,346.19
Gas Tax and Clean Up ($0.121/gal.)	$40,655,867.48
2013 Motor Fuel Assessment Fee	$38,975,362.62
Gas Infrastructure Assessment Fee	$17,237,352.02
Sales Tax (6%)	$1,192,688.73
Purchase and Use Tax (6%)	$68,458,579.12
Diesel Tax ($0.28/gal.)	$18,142,769.01
Diesel Infrastructure Assessment Fee	$1,877,279.02
Trucks up to 6,099 lbs.	$15,688,139.44
Trucks up to 25,999 lbs.	$7,808,734.75
IRP from other states	$186,227.26
IRP In-State	$4,593,822.46
Clean Air Fund	$616,826.50
Conservation Plates	$170,645.00
IFTA from other states	$1,258,976.47
IFTA Infrastructure Assessment	$209,540.86
Title Fees	$5,833,731.81
Inspection Fees	$2,927,155.23
Driving Records	$2,356,948.00
Oversize Permits	$2,944,803.40
Miscellaneous	$15,019,038.12
Total	$308,573,622.56

DMV Rates

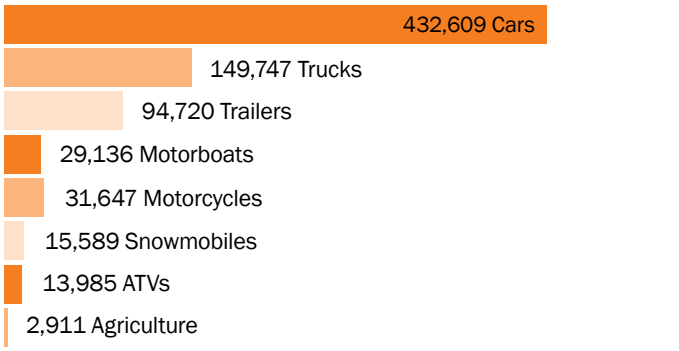
Gas Tax and Clean Up Fee	$0.121 and $0.01 and 2% of retail and current MFTA rate
Motor Fuel Transportation Infrastructure Assessment	2% of the average quarterly retail price
Motor Fuel Tax Assessment	$0.134 per gallon or 4% of the tax-adjusted retail price upon each gallon of motor fuel sold by the distributor not to exceed $0.18, whichever is greater
Diesel Tax, Clean Up Fee and Infrastructure Fee	$0.28 and $0.01 and $0.03
Sales Tax, Purchase and Use Tax, Motor Homes, Trucks up to 10,099 lbs.	6%
Driver Training	$50 – $150
Clean Air Fund	$1/year
Conservation Plates	$23/pair, in addition to registration fee
Title Fees (Vehicle)	$33
Title Fees (ATV, Boats, Snowmobiles)	$20
Oversize Permits	$1 – $500
Survey Fee	$300 – $10,000

Truck Legal Size and Load Limits

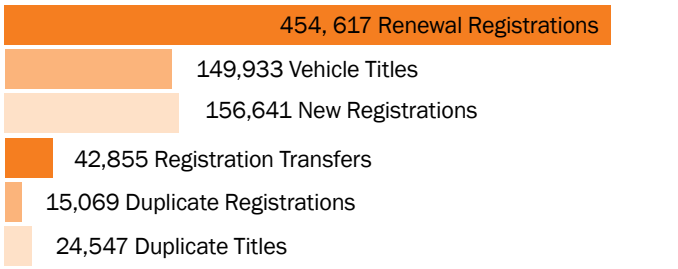
The maximum load on any vehicle axle shall not exceed a gross weight of more than 600 pounds per inch of tire width in conformity with the manufacturer's designated width. Axle weight must conform to federal bridge formula.



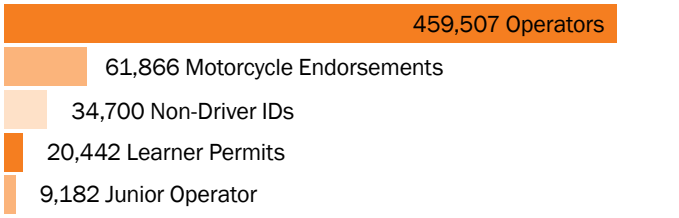
Vehicle Registration



Vehicle Registrations Processed



Vehicle Licenses



License Transactions Processed

Vermont Rider Education Program

129	9	1,361	1,286	1,209	1,150	75
Courses Offered	Training Sites Available	Students Registered	Students Attending	Students Completing the Program	Students Passing the Program	No Shows

DMV Contact Information

Bennington
Bennington County - Branch Office
120 Depot Street
802-447-2756

Dummerston
Windham County - Branch Office
870 US Route 5, Dummerston

Middlebury
Addison County - Branch Office
7 Addison County Courthouse
Mahady Court, 2nd floor

Montpelier
Washington County - Main Office
120 State Street
802-828-2085
802-828-2000
802-828-2050

Newport
Orleans County - Branch Office
100 Main Street
802-334-3363

Rutland
Rutland County - Branch Office
101 State Place
802-786-5815

Saint Albans
Franklin County - Branch Office
27 Fisher Pond Road

Saint Johnsbury
Caledonia County - Branch Office
1998 Memorial Drive

South Burlington
Chittenden County - Branch Office
4 Market Street
802-863-7292

Springfield
Windsor County - Branch Office
100 Mineral Street, Suite 103
802-885-5273

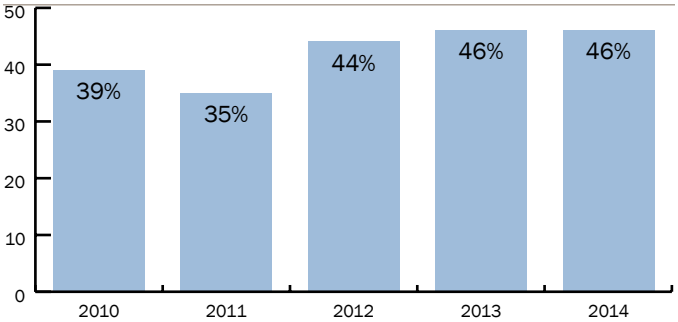
White River Junction
Windsor County - Branch Office
97 South Main Street (VFW)

Highway Safety

The Highway Safety Data Unit section collects and manages data related to highway system conditions, collects highway video, reports highway sufficiency rating data, manages the Crash (highway accident), Fatality Analysis Reporting System (FARS), and the VT Highway Performance Monitoring System (HPMS) data bases, and coordinates highway classification system reviews (both state and federal). Staff are actively involved in the Traffic Records Coordinating Committee and the Vermont Highway Safety Alliance and work closely with statewide law enforcement in the area of crash reporting. The specific functions of collecting highway video and managing the HPMS were transferred to the Asset Management Bureau in late 2015.

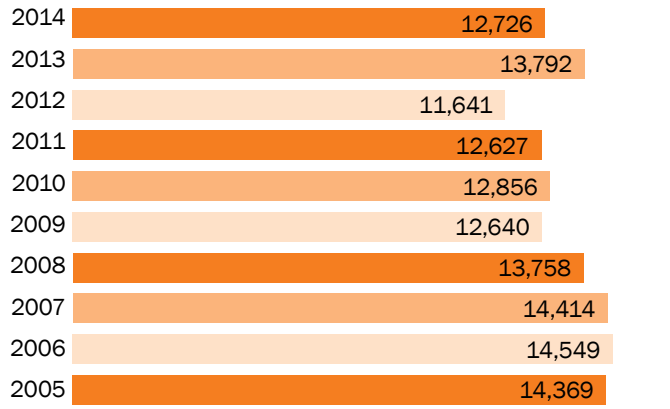
Public Data Query Tool:
app.vtrans.vermont.gov/CrashPublicQueryTool

Occupant Fatalities With No or Improper Restraint

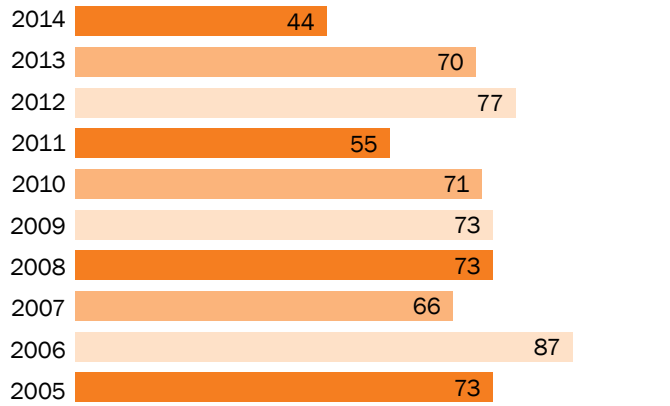


* Data source: VTrans in-house VCSG database or FARS. Data reflected as submitted by law enforcement. Where restraint is "None Used" (VCSG) or "No" (FARS). Includes "Improper Use" and "Non-DOT Compliant Helmet."

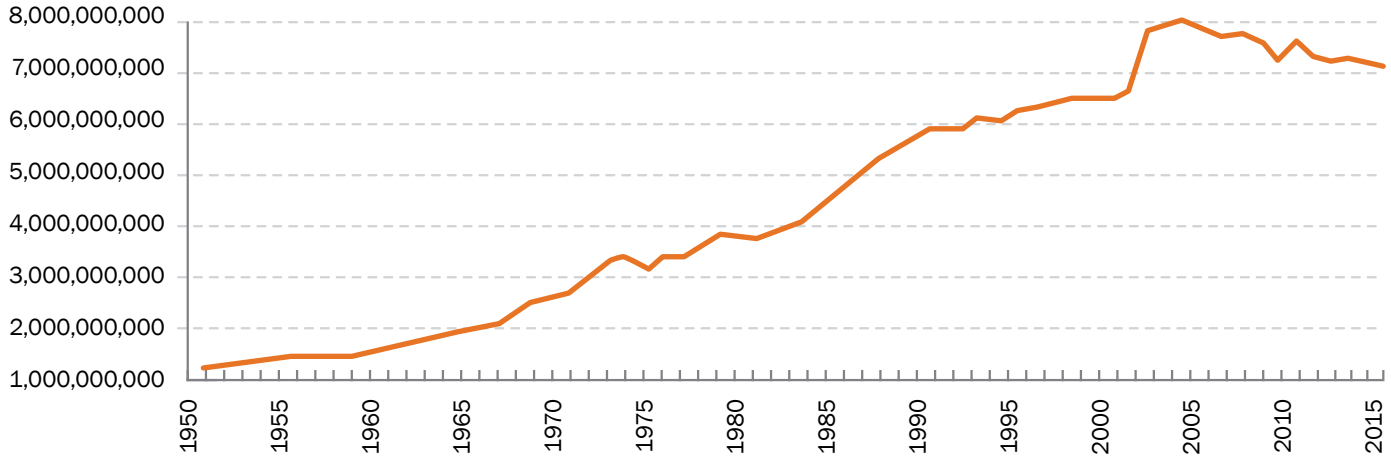
Crashes Reported, by calendar year



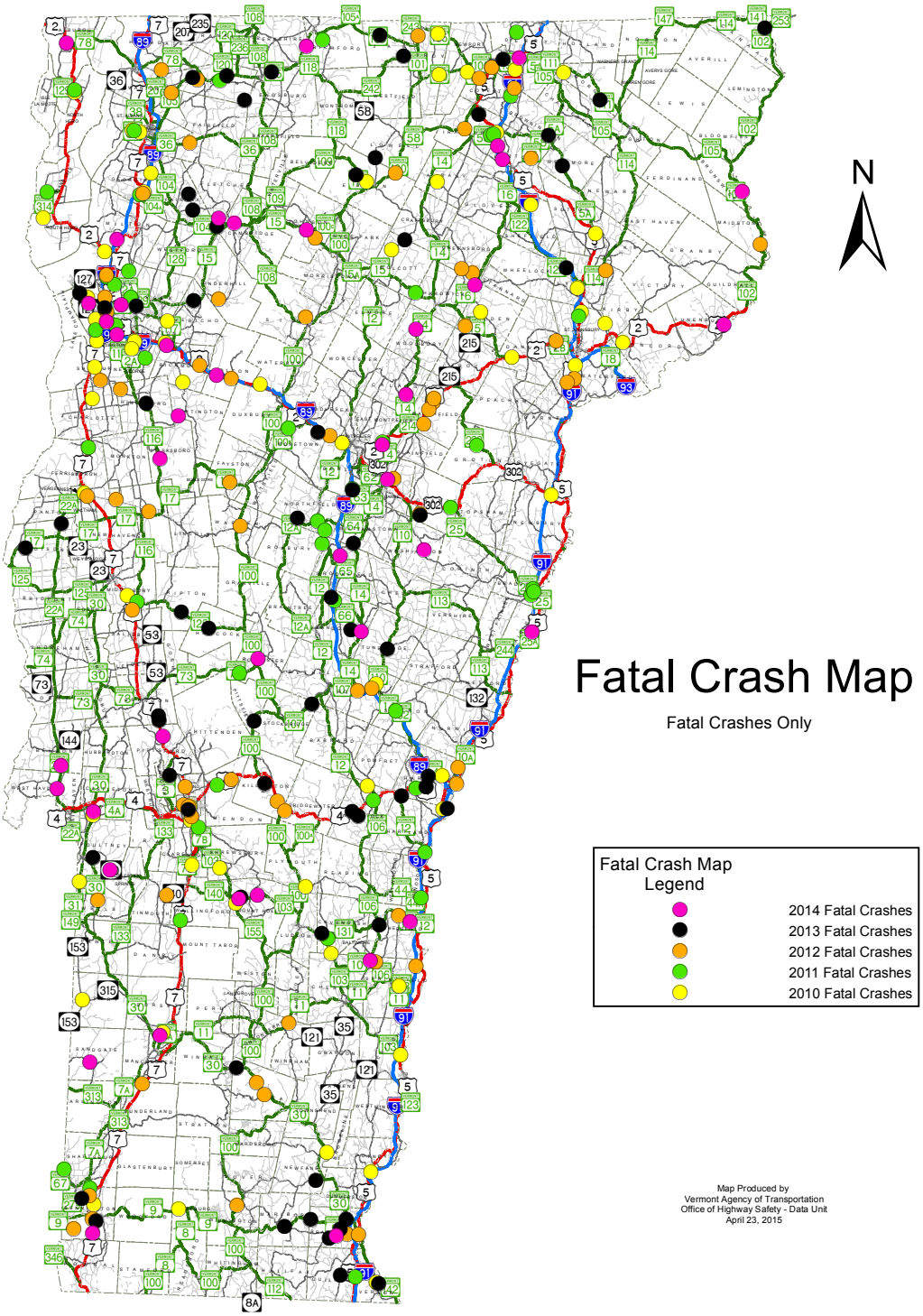
Fatalities, by calendar year



Vehicle Miles of Travel: 1950 – 2015



Fatal Crash Map, 2010–2014



Vermont Highway Safety Alliance

The third year of the Vermont Highway Safety Alliance (VHSA) was one of strong accomplishments and growth in partnerships and membership, resulting in one voice with a stronger message — "One is too many." This year, the number of priorities expanded to include speed, in addition to occupant protection, impaired driving, and distracted driving.

Successes have been the outcome of efforts made by many partners from diverse areas of highway safety. The Education, Outreach, and Marketing Focus Group built the yscvt.wordpress.com website, allowing schools to custom build driver safety fairs for their students. The Data Focus Group unveiled a public access web query tool for Vermont's crash data that allows website visitors the ability to find crash data pertinent to their town, intersection, user type, or demographic. The Enforcement Focus Group continued to support the Drug Recognition Expert (DRE) program and the Advanced Roadside Impaired Driving Enforcement (ARIDE) program, in addition to coordinating several successful high visibility enforcement campaigns. Pedestrian infrastructure improvements were identified through the Rutland Pedestrian Safety Review, a project managed by the NHTSA Region 1 Program Manager that included VTrans, the City of Rutland, the Rutland Regional Planning Commission, local law enforcement, and interested citizens.

MONTPELIER. VTrans' Chief Engineer, Kevin Marshia, former chair of the VHSA, speaks at the Vermont Road Users Rally for Safety in September 2015.

Additionally, the Board established a marketing plan to create unified and consistent messages that would provide our membership and drivers the opportunity to identify with our purpose and mission. Recently created, the VHSA Facebook page and YouTube sites have established the Alliance in the world of social media and have already successfully reached hundreds of people.

The coming year will bring a change in Alliance officers. With new leadership and three successful years as a foundation, the Alliance will continue the effort to increase membership and build a stronger message. The goal is to change the behavior of all road users in Vermont and to build a culture of safety and responsibility to each other throughout the State.

Glen Button
Chair

Lt. John Flannigan
Vice Chair
VSP Traffic

Susan Clark
Coordinator/Secretary
Agency of Transportation

Federal Partners

- Roger Thompson, *Federal Highway Administration*
- Angie Byrne, *National Highway Traffic Safety Administration*
- Ture Nelson, *Federal Motor Carrier Safety Administration*

Board Members

- Vacant, *Co-op Insurance / Vermont Youth Safety Council*
- Bill Mitchell, *Ride Safe Vermont*
- Dave Peters, *AARP*
- George Barrett, *Vermont Truck and Bus Association*
- Tom Williams, *AAA*
- Chrissy Keating, *UVM Medical Center*
- Mitchell Jay, *Vermont Vehicle and Automotive Distributors Association*
- Sheriff Bill Bohnyak, *VT Sheriff Association*
- Chief Frank Koss, *VT Police Association*
- Emily Boedecker, *Local Motion*

Core Positions

- Scott Davidson, *Governor's Highway Safety Program*
- Jake Elovirta, *Department of Motor Vehicles*
- Lt. John Flannigan, *Department of Public Safety*
- Chris Bell, *Department of Health*
- Vacant, *Agency of Education*
- Kevin Marshia, *Agency of Transportation*

Focus Groups

- Mario Dupigny- Giroux, *Data & Performance Measures*
- James Lockridge, *Education, Outreach and Marketing*
- Erik Filkorn, *Education, Outreach and Marketing*
- Tom Fields, *Enforcement*
- Bruce Nyquist, *Infrastructure*

Aviation

The Aviation Program manages 90 runway lane miles at 10 state-owned airports in Vermont, providing a safe environment for users of the system, preserving the publicly-owned infrastructure, promoting aviation-related activities, and expanding travel opportunities.

In 2015, Rutland Southern Vermont Regional Airport (RSVR) had over 6,000 enplanements including regular passenger service offered via Cape Air. 1,040,000 pounds of cargo moved through RSVR in 2015 and 520,000 pounds moved through Knapp State Airport in Berlin.

RUTLAND. Improvements were made to the Rutland Southern Vermont Regional Airport runway and safety areas in 2015.

Airport Contact Information

MUNICIPAL AIRPORTS

Burlington International
Kelly Colling
(802) 863-2874

STATE AIRPORTS

Caledonia County
Daniel Freeto
(802) 626-3353

Edward F. Knapp
John Roberti
(802) 223-2221

Franklin County
Cliff Coy
(802) 868-2822

Hartness
Larry Perry
(802) 886-7500

John H. Boylan
Jim Thompson
(802) 282-7372

Middlebury
Cisco Herrera
(802) 505-8479

Morrisville-Stowe
Tom Anderson
(802) 461-7299

Newport
Dan Gauvin
(802) 334-5001

Rutland Southern Vermont Regional
Chris Beitzel
(802) 786-8881

William H. Morse
Rob Luther
(802) 595-5830

PRIVATE AIRPORTS

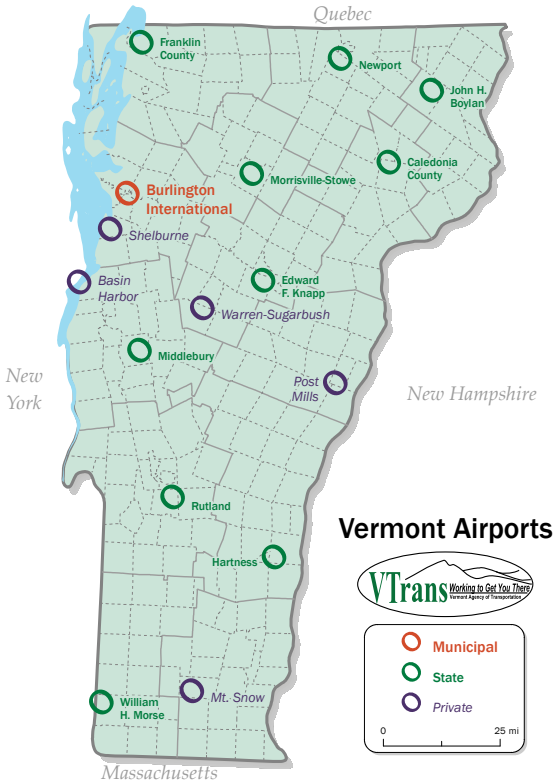
Basin Harbor
Robert Beach, Jr.
(802) 475-2311

Mt. Snow
Jim Barnes
(802) 457-3151

Post Mills
Brian Boland
(802) 333-9254

Shelburne
Ray Magee
(802) 985-2100

Warren-Sugarbush
Rick Hanson
(802) 496-2290



Rail

Passenger Rail Service

The State of Vermont partners with Amtrak to subsidize rail service for Vermonters and visitors to the Green Mountain State.

The **Amtrak Vermonter** runs on the New England Central Railroad (NECR/GWI) from Saint Albans to Massachusetts and Connecticut, and down the Northeast Corridor to New York City and Washington DC. In 2015, the Vermonter route in Massachusetts was changed, reducing track miles and travel times and providing a much smoother ride over brand new rails, which led to ridership increase of 7,417. To learn more visit: http://www.amtrak.com/vermonter-train

Amtrak's Ethan Allen Express runs on the Clarendon and Pittsford Railroad (CLP) from Rutland to Whitehall, New York, and from there continues south to Albany and on to New York City. To learn more visit: http://www.amtrak.com/ethan-allen-express-train

Amtrak Vermonter or Ethan Allen Express reservations:
1-800-USA-RAIL (1-800-872- 7245)
TDD/TTY (1-800-523-6590)
www.AMTRAK.com

2015 Ridership and Revenue

Lines	Ridership	% Change	Revenue	% Change
Vermonter	92,699	3.4%	$5,823,031	5.3%
Ethan Allen Express	52,553	-0.4%	$2,956,374	2.0%

Federal Grants

TIGER V

Awarded in 2013, work is nearly complete

Award total: $9 million Federal Rail Association grant
Project total: $11.2 million
Work includes: 10.12 miles of Continuous Welded Rail (CWR) upgrades
11 farm crossings
1 siding
9 switches

TIGER VII

Awarded in 2015, work to begin in 2016

Award total: $10 million Federal Rail Association grant
Project total: $26.4 million
Work includes: 4.98 + 6.33 = 11.31 miles of CWR upgrades
Rutland and Burlington Wye
Florence and Leicester siding
Bridge, crossing, and platform upgrades

MONTPELIER. VTrans Rail Bridge Inspection Team operating the brand new Aspen Aerials A30 "Snooper" truck at bridge 305 on the Washington County Railroad this Spring.

Public Transportation

The Public Transit Section is responsible for the planning, administration, and oversight of the statewide network of public transit providers. Transit providers operate multiple types of service ranging from traditional fixed-route bus service to special services for the state's elderly and disables citizens.

Transit services provide access to communities, medical services, tourism destinations, and major employers. All transit services either provide or are coordinated with human services transportation providers that include elderly and disabled transportation as well as Medicaid transportation services.

Total Ridership

Public Transit Providers

Addison County Transit Resources (ACTR)
Jim Moulton / jim@actr-vt.org
PO Box 532, 297 Creek Road, Middlebury, VT 05753
Phone (802) 388-1946 / Fax: (802) 388-1888

Advance Transit, Inc.
Van Chesnut / van@advancetransit.com
PO Box 1027, Billings Commerce Park, Wilder, VT 05088
Phone: (802) 295-1824 / Fax:(802) 295-3010

Chittenden County Transportation Authority (CCTA)
Karen Walton / kwalton@cctaride.org
15 Industrial Pkwy, Burlington, VT 05401
Phone: (802) 864-0629x16 / Fax: (802) 864-5564

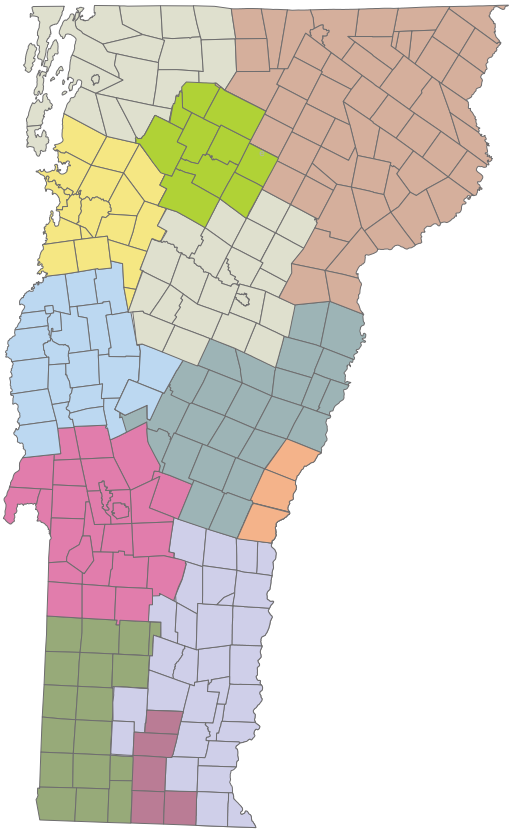
Southeastern Vermont Transit - The Current Division
Rebecca Gagnon / rgagnon@crtransit.org
706 Rockingham Road, Rockingham, VT 05101
Phone: (802) 460-RIDE x201 / Fax: (802) 460-1004
Toll Free: (888) 869-6287

Southeastern Vermont Transit - The Moover Division
Randy Schoonmaker / randys@moover.com
PO Box 429, 100 N. North Commercial Ctr, West Dover, VT 05356
Phone: (802) 464-8487 / Fax: (802) 464-0164

Green Mountain Community Network (GMCN)
Donna Baker / dbaker@greenmtncn.org
215 Pleasant Street, Bennington, VT 05201
Phone: (802) 447-0477 x11 / Fax: (802) 447-2550

Green Mountain Transit Agency (GMTA):
Central Vermont, Franklin and Grand Isle
Karen Walton / kwalton@cctaride.org
6088 VT 12, Berlin, VT 05602
Phone: (802) 223-7287 / Fax (802) 223-6236
Franklin / Grand Isle Area Phone: (802) 527-2181

Marble Valley Regional Transit District (MVRTD; The Bus)
Minga Dana / minga@thebus.com
158 Spruce Street, Rutland, VT 05701
Phone: (802) 773-3244 / Fax: (802) 773-0840



Rural Community Transportation, Inc. (RCTI)
Mary Grant / marygrant.rct@gmail.com
1161 Portland Street, St. Johnsbury, VT 05819
Phone: (802) 748-8170 x301/ Fax: (802) 748-5275

Stagecoach Transportation Services, Inc. (STSI)
Jim Moulton / jim@actr-vt.org
PO Box 356, 1 L Street, Randolph, VT 05060
Phone: (802) 728-3773 / Fax: (802) 728-6232

Ridership Trends

Statewide public transit ridership continues to grow steadily. In SFY 2015, Vermont's public transit systems provided nearly 5 million trips. In the past year, statewide transit ridership saw a modest 3% increase, but has increased about 9% in the past five years. Just over half of those rides are provided in the Chittenden County region, and the other half is spread throughout the rest of the State. Over the past five years, ridership in Chittenden County grew by about 8%, while the rest of the state saw an 11% increase. Many regions, including the Northeast Kingdom, Marble Valley, Bennington County, Upper Valley, and Southeast Vermont, have seen double digit ridership growth.

VTrans is proud to serve the spectrum of the population, from those needing one on one volunteer rides to medical appointments to commuters and others.

Route Performance

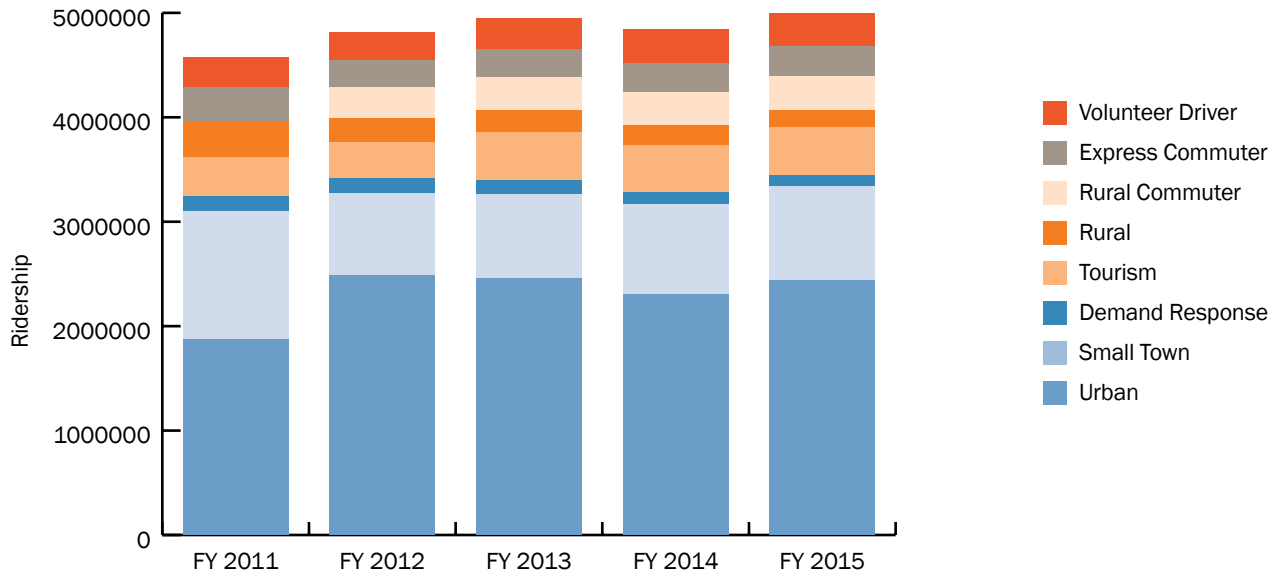
VTrans looks for areas to add more routes where ridership is likely to be high and seeks to provide technical support to improve ridership on low-performing routes. The Public Transit Section has established route categories based on the type of service provided. Transit providers submit monthly Service Indicator Reports for each route and all services reflecting total cost, ridership, miles, etc. Each service category is compared to Vermont and comparable routes in other states. This data reveals overall route performance and trends. Routes that are underperforming or losing ridership over time will be changed or canceled. No routes were canceled last year. Some high performers in FY15 were the Green Route expansion (Advance Transit) in White River Junction and the additional service on the LINK commuter between Burlington and Montpelier, which was the first time that a transit route service increase was used to reduce congestion in a construction project on the interstate.

Farebox Revenue & Local Share

VTrans has an established statewide goal of 20% local share participation for public transportation, adopted as part of the 2012 Public Transit Policy Plan. Local share includes fare revenue, private contributions, contracts from outside agencies, payments from cities and towns, and in-kind contributions.

The local share analysis found that 27% of statewide transit funding comes from local sources, including fares. Of nine agencies in the state, seven charge fares on at least some routes. Other routes are offered fare-free due to local contributions from towns and institutions. Total fare revenue collected statewide in SFY2015 was $3.335 million. Fare recovery ratios (% of operating costs covered by fares) range from roughly 1% on some rural routes to 69% on the Montpelier-Burlington LINK Express. The average among all routes that collect fares is 12%. Fare revenue makes up between 20% and 25% of the operating budget for CCTA.

Statewide Transit Ridership by Service Category



Elders and Persons with Disabilities "E&D" Transportation Program

In SFY 2015, the total amount spent on the E&D program in Vermont was $4.5 million. This funding provided 181,935 rides, for a cost per passenger trip of about $25.

In SFY 2015, approximately 44% of E&D-funded trips were provided by vans operated by transit agencies. Some 13% of E&D trips were provided on regular bus routes, 6% in sedans or taxicabs, and most importantly, 37% in private cars operated by volunteer drivers. In recent years, about 10% of E&D trips have shifted from vans to volunteer drivers.

The volunteer driver program accounts for 43% of the cost of E&D overall and 83% of the miles driven, making it the most cost-effective mode. The cost per mile for volunteer driver trips is about $1, compared to nearly $6 for van trips. Volunteer drivers often take clients to medical appointments, sometimes in adjoining states where special services are required. Volunteer driver trips are especially important in RCT's service area in the Northeast Kingdom where the population is thinly distributed over a very large area. RCT accounts for nearly 30% of the E&D-funded volunteer driver trips statewide. The high degree of cost-effectiveness of these trips is essential to allow for coverage of large rural areas.

Intercity Bus Service

VTrans has entered into partnerships with commercial bus services to bring more connectivity and travel options to the state. In addition to ongoing services provided by Greyhound, Megabus, and Yankee Trails, two new intercity routes were developed with Vermont Translines in 2014 and bus service now includes routes between Burlington to Albany, NY and/or Rutland and White River Junction. All intercity routes connect to national bus networks. All intercity service and routes can be found at the Go Vermont website or by calling 1-800-685-RIDE.

Go Vermont Program

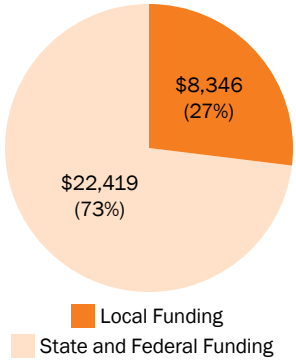
go! VERMONT
CONNECTINGCOMMUTERS.ORG

This program is a "one-click/one-call" resource for Vermonters who want to reduce the cost and environmental impact of driving alone. Services provided through the Go Vermont program include an automated carpool and vanpool matching service, a subsidized vanpool program, and information on all efficient transportation options in the state (bus info, park and ride locations, trains, Drive Electric VT, Car Share, ferries, biking, etc.), as well as an emergency ride home service for those who have used efficient transportation but need to take an unplanned emergency trip. In addition, we also offer program development and transportation demand management (TDM) assistance to Vermont employers. The Public Transit Section administers this program with assistance from the Vermont Energy Investment Corporation, which provides a call center service and outreach activities.

For more information, please visit www.connectingcommuters.org

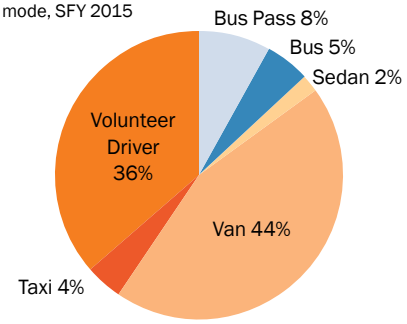
Local Funding Share Statewide

in $ thousands

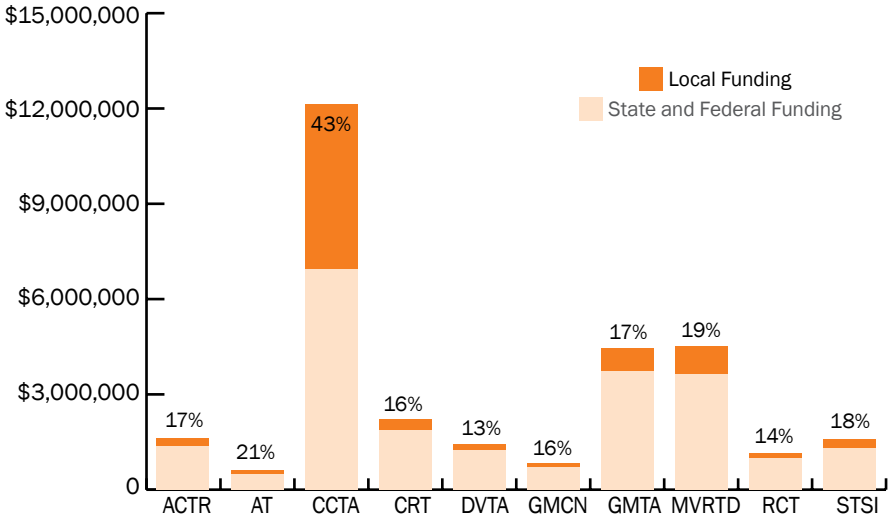


Elders and Persons with Disabilities "E&D" Trips

by mode, SFY 2015



2015 Funding and Local Share by Transit System

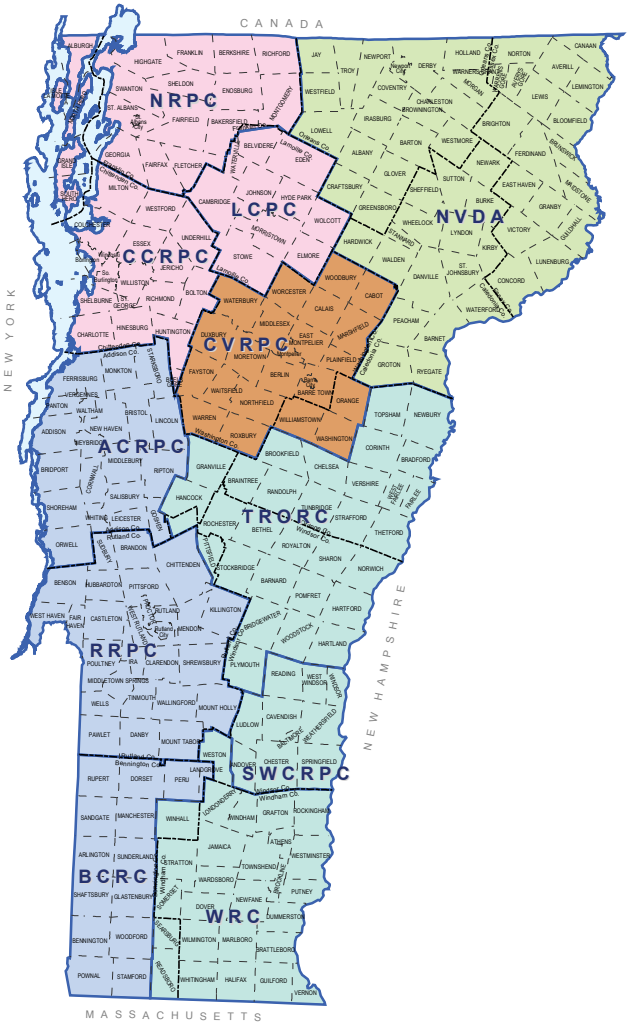


Park and Ride Locations

Regional Planning

The Policy and Planning section coordinates and collaborates with all agency divisions, other state agencies, regional planning commissions, the public and other stakeholders as it considers all modes of travel in the context of broader economic, land use, environmental, energy and equity goals.

Through the Transportation Planning Initiative (TPI), VTrans provides grants to Regional Planning Commissions for transportation planning and to facilitate collaboration between municipalities and the agency.



Transportation Planning Coordinators

CCRPC, LCPC, NRPC
Amy Bell
Phone (802) 828-2678
amy.bell@vermont.gov
CCRPC: Chittenden County Regional Planning Commission
LCPC: Lamoille County Planning Commission
NRPC: Northwest Regional Planning Commission

NVDA
Matthew Langham
Phone (802) 828-5578
matthew.langham@vermont.gov
NVDA: Northeastern Vermont Development Association

CVRPC
Scott Bascom
Phone (802) 828-5748
scott.bascom@vermont.gov
CVRPC: Central Vermont Regional Planning Commission

SWCRPC, TRORC, WRC
Jackie Cassino
Phone (802) 272-2368
jackie.cassino@vermont.gov
SWCRPC: So. Windsor County Regional Planning Commission
TRORC: Two Rivers-Ottauquechee Regional Commission
WRC: Windham Regional Commission

ACRPC, BCRC, RRPC
Sommer Bucossi
Phone (802) 828-3384
sommer.bucossi@vermont.gov
ACRPC: Addison County Regional Planning Commission
BCRC: Bennington County Regional Commission
RRPC: Rutland Regional Planning Commission

Winter Maintenance

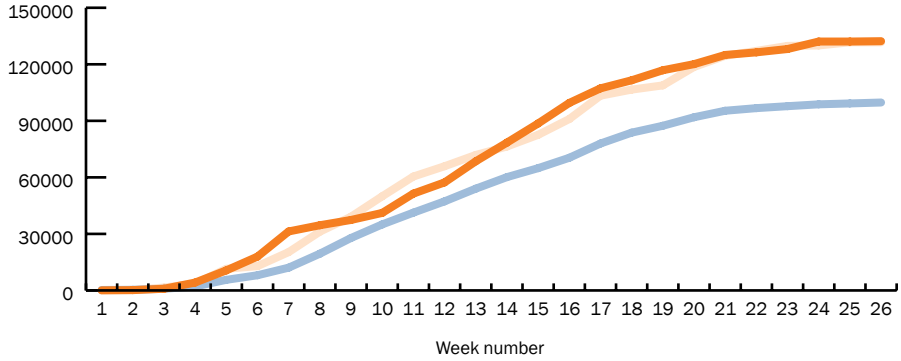
2014–15 Data

Five-Year Salt Price Comparison

Location	FY2012 Price	FY2013 Price	FY2014 Price	FY2015 Price	FY2016 Price
District 1	$61.10	$59.59	$53.79	$73.79	$76.74
District 2	$62.71	$61.90	$58.65	$78.65	$81.80
District 3	$63.68	$62.17	$54.02	$76.02	$79.06
District 4	$64.77	$62.67	$56.52	$75.52	$78.54
District 5	$62.18	$61.58	$58.73	$72.18	$74.35
District 7	$65.46	$65.21	$60.16	$76.76	$79.83
District 8	$63.70	$63.28	$61.67	$78.44	$80.79
District 9	$67.29	$68.05	$67.95	$82.26	$84.73

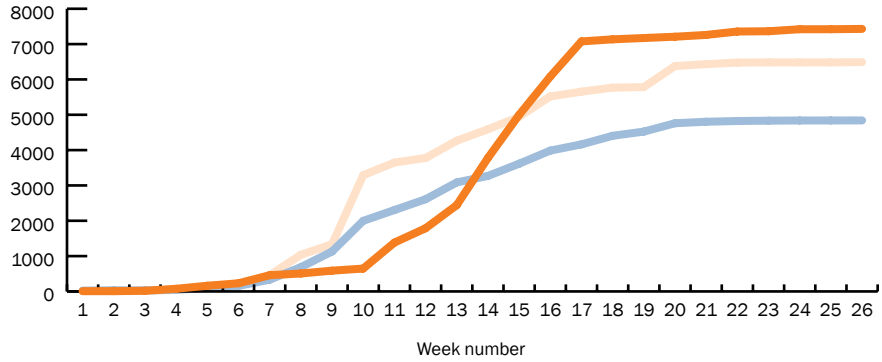
Salt Usage (in tons)

FY2015:	132,271
FY2014:	131,684
5-yr average:	99,723



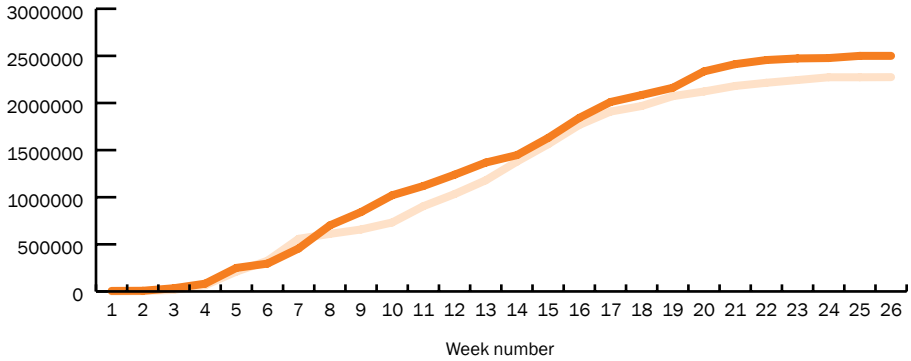
Sand Usage (in cubic yards)

FY2015:	7,430
FY2014:	6,489
5-yr average:	4,840



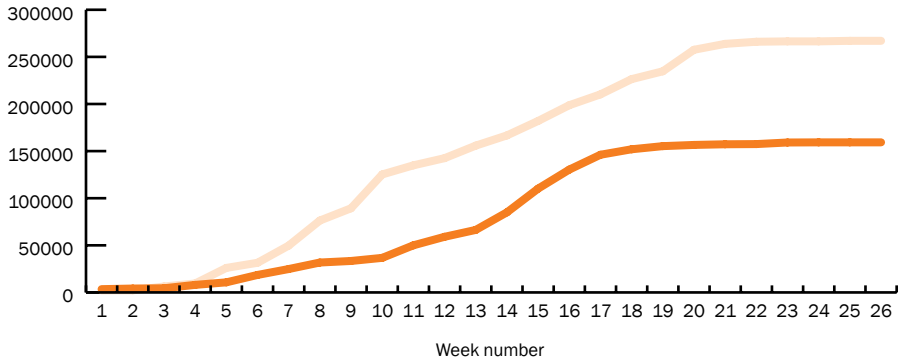
Brine Usage (in gallons)

FY2015:	2,274,378
FY2014:	2,500,165



De-Icer Usage (in gallons)

FY2015:	159,284
FY2014:	267,036

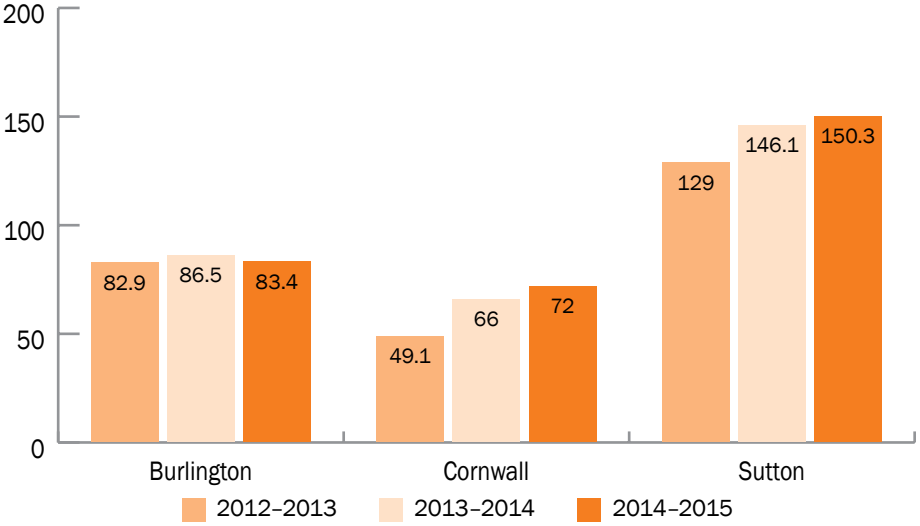


Winter Maintenance Events

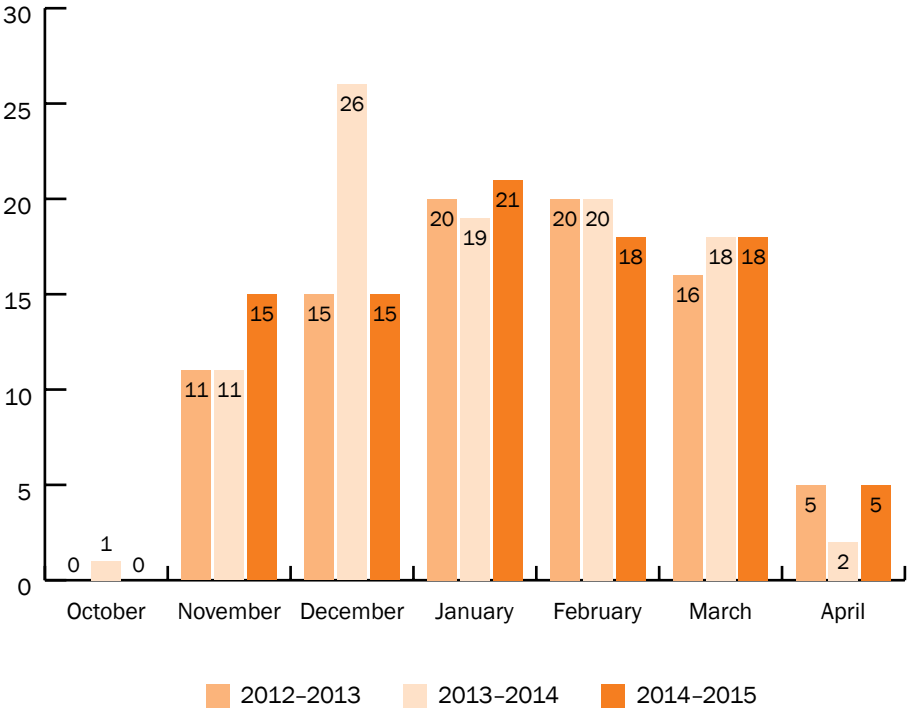
A Winter Maintenance Event is defined as one in which three or more districts are engaged in winter maintenance activities requiring snow plowing, salting or sanding. These can last anywhere from a few hours to several days.

Total Winter Events, Three-Year Comparison

Total Snowfall, Three-Year Comparison (in inches)



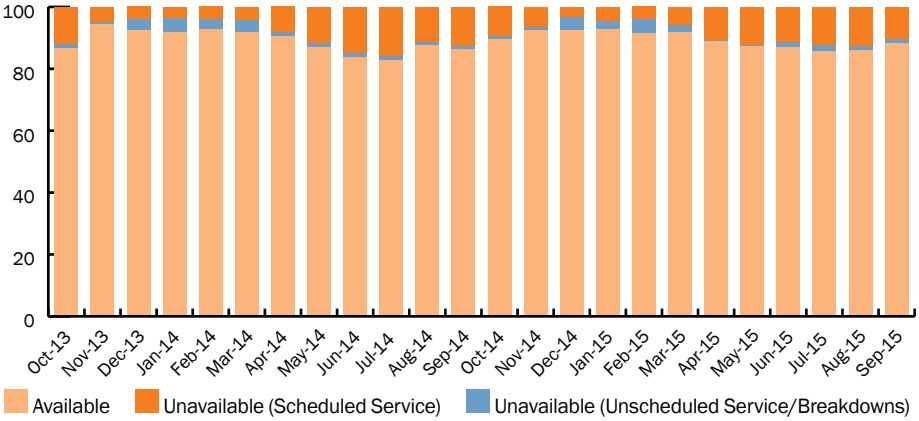
Average Winter Maintenance Event Days, Three-Year Comparison



Equipment Performance Measures

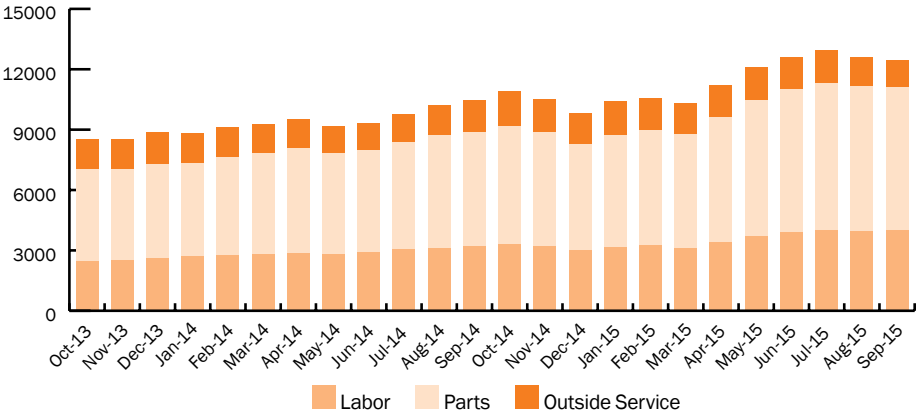
Plow/Dump Truck Availability

Target: ≥ 90% Available; ≤ 2% Breakdowns



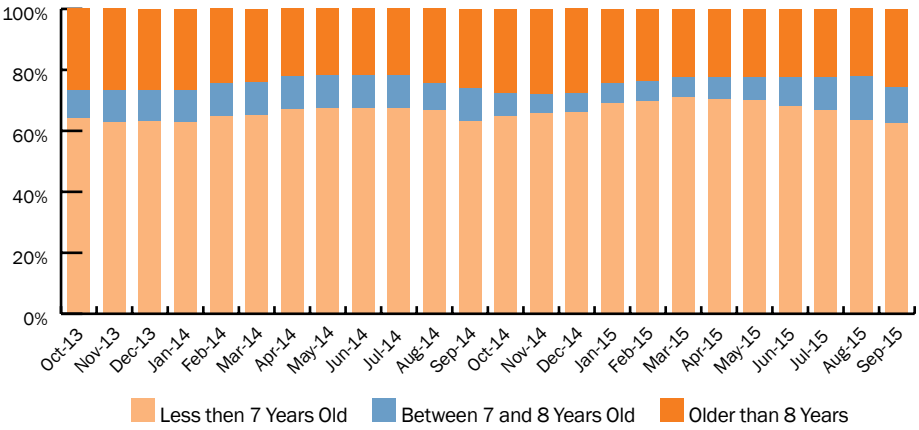
Plow/Dump 12-month Average Service Cost

Target: Minimize as practical



Plow/Dump Truck Age

Target: ≤ 15% Older than 8 years



Operations Statistics

BY DISTRICT

VTrans Maintenance Districts

District 1
Plow route
Rob Faley
359 Bowen Road, Bennington, VT 05201
Phone: (802) 447-2790 / Fax: (802) 447-2793

District 2
Plow route
Tammy Ellis
870 US 5, Dummerston, VT 05301
Phone: (802) 254-5011 / Fax: (802) 251-2000

District 3
Plow route
Rob Faley
61 Valley View Suite #2, Mendon, VT 05701
Phone: (802) 786-5826 / Fax: (802) 786-5894

District 4
Plow route
Tammy Ellis
221 Beswick Drive, White River Jct, VT 05001
Phone: (802) 295-8888 / Fax: (802) 295-8882

District 5
Plow route
David Blackmore
189 Troy Avenue, Colchester, VT 05446
Phone: (802) 655-1580 / Fax: (802) 655-6642

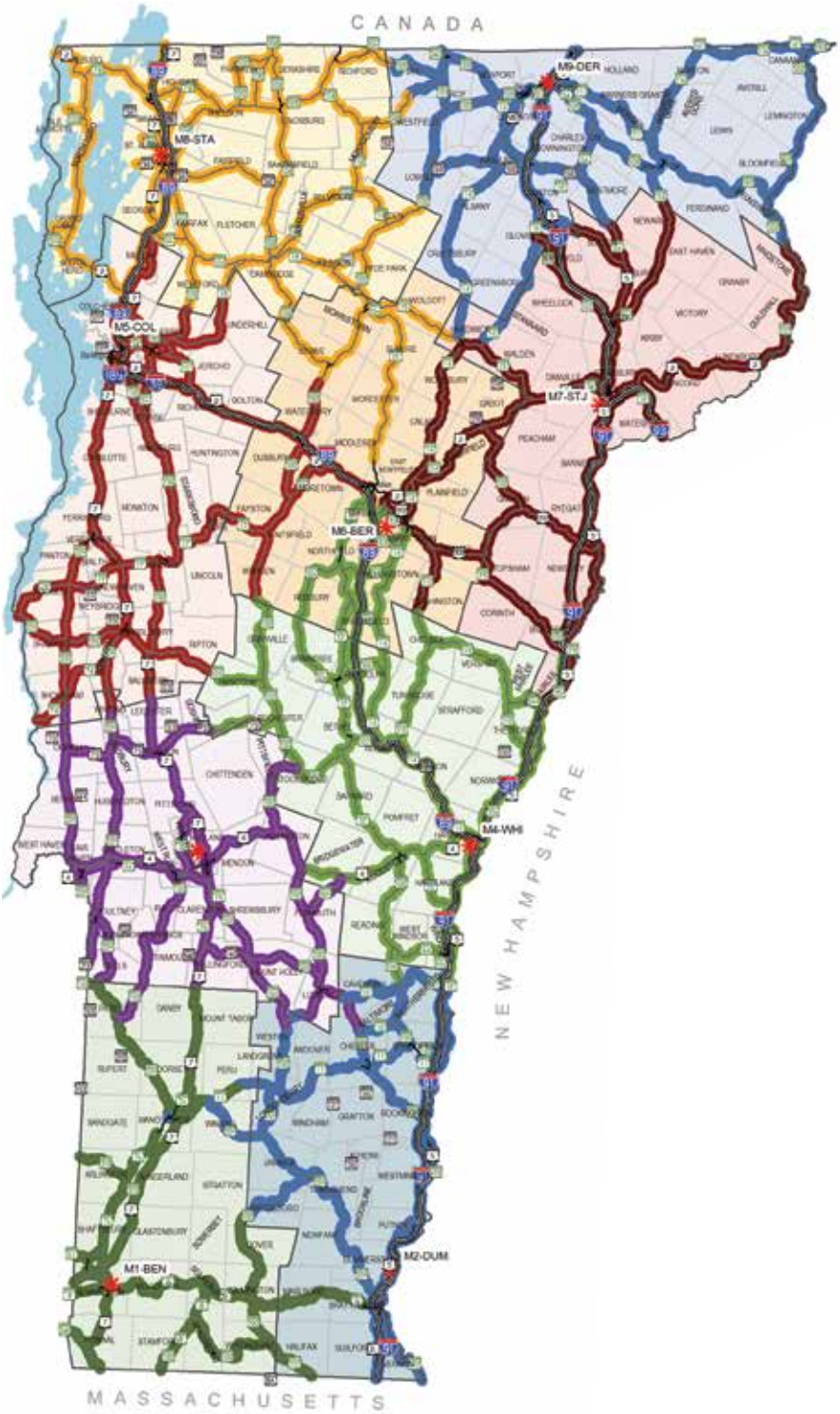
District 6
Todd Law
186 Industrial Lane Road, Barre, VT 05641
Phone: (802) 828-2691 / Fax: (802) 828-3530

District 7
Plow route
Dale L. Perron
1068 US 5, Ste 2, St. Johnsbury, VT 05819
Phone: (802) 748-6670 / Fax: (802) 748-6671

District 8
Plow route
David Blackmore
680 Lower Newton Road, St. Albans, VT 05478
Phone: (802) 524-5926 / Fax: (802) 524-7940

District 9
Plow route
Dale L. Perron
4611 US 5, Newport, VT 05855
Phone: (802) 334-7934 / Fax: (802) 334-3337

✳ District Headquarters



Southwest Region

District 1

359 Bowen Road
Bennington, VT 05201
Phone: (802) 447-2791

507 Lane Miles

District Transportation Administrator
Rob Faley

General Maintenance Manager
William Leach Jr.

Project Manager
Christopher Taft

Facility Locations
Bennington
East Dorset
Readsboro
Wilmington
Marlboro

40
FULL TIME POSITIONS

43
PIECES OF CENTRAL GARAGE ASSIGNED EQUIPMENT

$2,881,632
WINTER MAINTENANCE COSTS

9,263

1,562

30,412

490,465

District 3

122 State Place
Rutland, VT 05701
(802) 786-5826

637 Lane Miles

District Transportation Administrator
Rob Faley

General Maintenance Manager
Bruce Nichols

Project Manager
Brian Sanderson

Facility Locations
Brandon
Castleton
Clarenden
Ludlow
Mendon
Rutland
Sudbury

47
FULL TIME POSITIONS

59
PIECES OF CENTRAL GARAGE ASSIGNED EQUIPMENT

$3,313,572
WINTER MAINTENANCE COSTS

13,514

47

35,995

452,486

Southeast Region

District 2

870 US 5
Dummerston, VT 05301
(802) 254-5011

658 Lane Miles

District Transportation Administrator
Tammy Ellis

General Maintenance Manager
Joseph Ruzzo

Project Manager
Marc Pickering

Facility Locations

Ascutney
Chester
Dummerston
Jamaica
Londonderry
Marlboro
Rockingham
Springfield
Westminster

44
FULL TIME POSITIONS

45
PIECES OF CENTRAL GARAGE ASSIGNED EQUIPMENT

$3,144,173
WINTER MAINTENANCE COSTS

16,004

30

2,720

20,529

District 4

221 Beswick Drive
White River Jct., VT 05002
(802) 295-8888

1,126 Lane Miles

District Transportation Administrator
Tammy Ellis

General Maintenance Manager
Trevor Starr

Project Manager
Chris Bump

Facility Locations

Fairlee
Randolph
Reading
Rochester
Royalton
Sharon
Thetford
Tunbridge
White River Jct.
Windsor
Williamstown
Woodstock

69
FULL TIME POSITIONS

81
PIECES OF CENTRAL GARAGE ASSIGNED EQUIPMENT

$5,129,922
WINTER MAINTENANCE COSTS

15,253

947

12,984

394,314

Northwest Region

District 5

PO Box 168
Essex Jct., VT 05453
(802) 655-1580

952 Lane Miles

District Transportation Administrator
David Blackmore

General Maintenance Manager
Rejean Lafleche

Project Manager
Richard Hosking

Facility Locations
Chimney Corners
Colchester
Essex
Middlebury
New Haven
Waitsfield
Middlesex

65
FULL TIME POSITIONS

77
PIECES OF CENTRAL GARAGE ASSIGNED EQUIPMENT

$3,919,761
WINTER MAINTENANCE COSTS

15,253

947

12,984

394,314

District 8

680 Lower Newton Road
St. Albans, VT 05478
(802) 524-7927

939 Lane Miles

District Transportation Administrator
David Blackmore

General Maintenance Manager
Ernie Patnoe

Project Manager
Jim Cota

Facility Locations
Cambridge
Eden
Enosburg
Georgia
N. Hero
Highgate
Montgomery
Morrisville
St. Albans

56
FULL TIME POSITIONS

67
PIECES OF CENTRAL GARAGE ASSIGNED EQUIPMENT

$4,906,827
WINTER MAINTENANCE COSTS

18,401

203

23,294

610,665

Northeast Region

District 7

1068 US 5, Suite 2
St. Johnsbury, VT 05819
Phone: (802) 748-6670

967 Lane Miles

District Transportation Administrator
Dale Perron

General Maintenance Manager
Tom Lewis

Project Manager
Shauna Clifford

Facility Locations

Boltonville
Bradford
W. Danville
Lunenburg
Lyndon
Newbury
North Montpelier
Orange
St. Johnsbury

61
FULL TIME POSITIONS

75
PIECES OF CENTRAL GARAGE ASSIGNED EQUIPMENT

$4,643,563
WINTER MAINTENANCE COSTS

23,198

2,437

11,055

137,178

District 9

4611 US 5
Newport, VT 05855
(802) 334-7934

736 Lane Miles

District Transportation Administrator
Dale Perron

General Maintenance Manager
Bill Jewell

Project Manager
Shane Morin

Facility Locations

Barton
Bloomfield
Canaan
Derby
Irasburg
Island Pond
Westfield
Westmore

46
FULL TIME POSITIONS

48
PIECES OF CENTRAL GARAGE ASSIGNED EQUIPMENT

$2,888,681
WINTER MAINTENANCE COSTS

10,343

1,328

2,515

65,498

Statewide

Maintenance Operations Bureau - Headquarters

One National Life Dr.,
Montpelier, VT 05633
(802) 828-2692

Director, Scott Rogers
Deputy Director, Wayne Gammell
Maintenance Engineer, Todd Law

Facility Locations

Berlin
Montpelier

Headquarters includes administrative and technical services support and oversight for operations of the Maintenance Operations Bureau.

11
FULL TIME POSITIONS

25
PIECES OF DISTRICT OWNED EQUIPMENT

Tech Services

One National Life Dr.,
Montpelier, VT 05633
(802) 828-1776

Tech Services Engineer, Alec Portalupi

Services

Logistics/Facilities
Transportation System Management & Operations (TSMO)
Statewide Bridge Crew
Emergency and Engineering Support
Pavement
Environmental

39
FULL TIME POSITIONS

Central Garage

US 302 #31756
Berlin, VT 05602
(802) 828-1776

Superintendent, Ken Valentine

Facility Locations

Berlin
Colchester
Lyndonville
Rutland
White River Junction

55
FULL TIME POSITIONS

54
PIECES OF CENTRAL GARAGE OWNED EQUIPMENT

VTrans Training Center (VTTC)

1716 US 302
Berlin, VT 05633
(802) 828-3768

Program Manager, Christine Hetzel
Health & Safety, Camille Erwin
Employee Development, Kim Persons
Finance & Logistic, Joann Stevens

The VTrans Training Center (VTTC) provides a wide spectrum of health and safety and employee development training for VTrans staff to ensure regulatory compliance, a safe and respectful workplace and offers the necessary tools for employees to grow their careers at VTrans.

Vermont Local Roads

1716 US 302
Berlin, VT 05633
(802) 828-2537
vermontlocalroads.org

Branch Manager, Kevin Gadapee
Circuit Rider, Todd Eaton
Program Coordinator, Holly Hayden

The Vermont Local Roads Program provides information, training and technical assistance to cities, towns and villages in Vermont. This is done through seminars and workshops, distribution of materials and technical assistance to fulfill service requests.

Vermont's Bridge Population

In conformance with the National Bridge Inventory (NBI), Vermont maintains a historical record of all bridges subject to the National Bridge Inspection Standards (NBIS). These standards establish requirements for inspection procedures, frequency of inspections, qualifications of personnel, inspection reports, and both the preparation and maintenance of a state bridge inventory. The NBIS apply to all structures defined as bridges that are longer than 20 feet in length and located on public roads. These assets are commonly referred to as long structures. Short structures are those having a span length of greater than six feet up to or equal to 20 feet.

Vermont's "Highway" Structure Population (as submitted to FHWA in April 2015)

	Interstate	State Highway	Town Highway	Other	Totals
Long Structures	310	779	1,627	7	2,723
Short Structures	210	1,055	*	*	1,265
Totals	520	1,834	1,627	7	3,988

Long Structures

	Interstate	State Highway	Town Highway	Other	Totals
Above Ground	262	715	1,521	6	2,504
Buried	48	64	106	1	219
Totals	310	779	1,627	7	2,723

Short Structures

	Interstate	State Highway	Town Highway	Other	Totals
Above Ground	0	173	*	*	173
Buried	210	882	*	*	1,092
Totals	210	1,055	*	*	1,265

Vermont's "Off-Highway" Structure Population (as of November 2015)

	State Highway	Town Highway	Totals
Retaining Walls	160	**	160
Recreation Path Structures	0	121	121
Overhead Sign Support Structures	138	***	138
Totals	298	121	419

Long Structure
Bridges having a span length greater than 20 feet in length and located on public roads.

Short Structure
Bridges having a span length of greater than six feet up to or equal to 20 feet and located on public roads.

* VTrans does not maintain an inventory of or inspect town highway or other short structures.

Buried Structure
These structures include metal culverts, concrete box culverts, frames, masonry arches, and concrete arches.

Retaining Wall
Height greater than 3 feet

Recreation Path Structures
Span length greater than 6 feet

** VTrans does not maintain an inventory of or inspect municipally-owned retaining walls or overhead sign support structure bases.

*** This number is expected to change as inspection criteria are refined (i.e., minimum sign size, attachment, etc.).

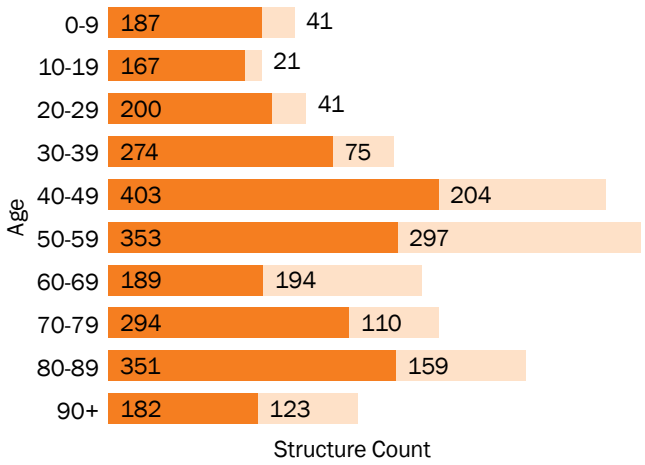
Aging Bridge and Culvert Inventory

With 1927 flood-era bridges now over 80 years old and nearing the end of their useful design life, as well as the 1958-to-1978 Interstate-era bridges averaging around 50 years old and in need of repairs or rehabilitation, a wave of structures in need of major investment is quickly approaching.

- Interstate, State Highway, and Town Highway Long Structures
- Interstate and State Highway Short Structures

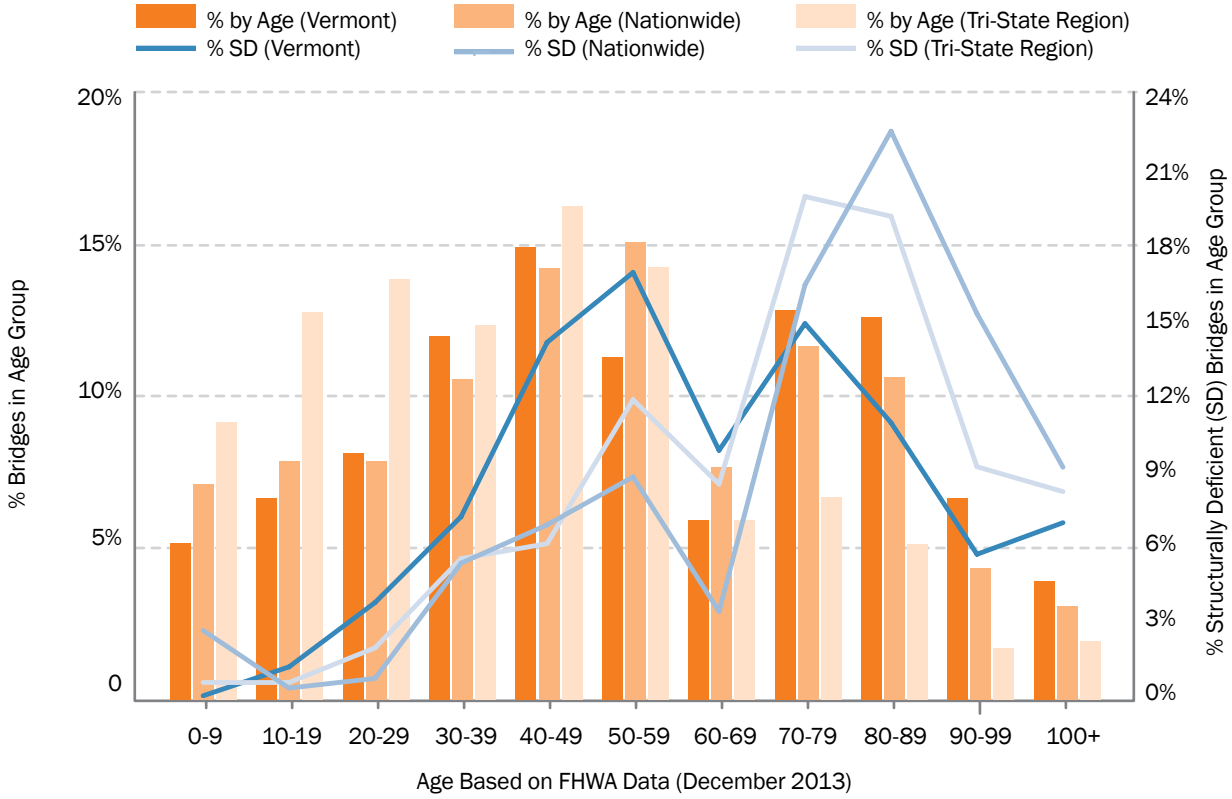
* Based on year of original build (as submitted to FHWA, April 2015). Does not include Division of Historic Preservation, rail or private bridges.

Age of Structures (in years*)



Age of Structures Compared

Vermont's bridges are similar to the other northern New England states, but are considerably older than the national average. Covered bridges, steel truss bridges and other historic structures contribute to our village centers and scenic character. These older bridges require regular maintenance and are a challenge to keep serviceable.



Bridge Inspection and Condition Ratings

The nation's current bridge inspection practice was established largely as a response to disasters involving bridge failures. With each failure, new information emerged and new standards were implemented. Some of the events that have dramatically influenced national inspection and maintenance practices are listed here:

- On December 15, 1967, the 2,235 foot Silver Bridge at Point Pleasant, West Virginia collapsed into the Ohio River killing 46 drivers and passengers. This tragic accident aroused national concern about bridge safety inspection and maintenance, and motivated Congress to enact improvements to the Federal Highway Act of 1968. Three years later in 1971, National Bridge Inspection Standards (NBIS) were created, setting national policy for inspection frequency, inspector training and qualifications, reporting formats, and procedures for inspection and rating.
- During the 1970s, similar attention was also directed to culverts after several collapses claimed more lives.
- In 1983, the Mianus River Bridge in Connecticut collapsed after one of its pin-and-hanger assemblies failed, leading to an emerging national emphasis on fatigue and fracture-critical elements.
- In April 1987 with the fall of the Schoharie Creek Bridge on the New York Thruway, new attention also was focused on underwater inspection of bridge foundations.
- In August of 2007 the I-35W highway bridge over the Mississippi River in Minneapolis collapsed. Undersized gusset plates and the stress of 287 tons of stockpiled construction material were singled out in the National Transportation Safety Board (NTSB) Accident Report as reasons for the failure. Federal safety investigators said the collapse was unavoidable once gusset plates in the bridge's center span failed, dragging other sections and rush-hour commuters into the Mississippi River. The collapse killed 13 people and injured 145 others. This has led to an emphasis on gusset plate inspection and design.

Guided by federal requirements, all bridges in excess of a 20-foot span and located on public roads receive regular, biennial inspections by qualified personnel to ensure safety of the traveling public. Short structures, those greater than 6 feet and up to 20 feet in span length, located on either the interstate or state highway systems are inspected once every 60 months. Bridge safety is taken very seriously. If deemed necessary because of deteriorating conditions, bridges are inspected more frequently.

FHWA recently strengthened oversight of bridge inspections and maintenance with the introduction of a new bridge initiative using systematic, data-driven, and risk based reviews and analysis to improve oversight of how states are performing their bridge inspections. This new process, using and reporting on key metrics, each linked directly to NBIS requirements, will help identify opportunities for improvement in achieving consistent compliance with the National Bridge Inspection Standards (NBIS).

The new process is based on objective, statistical data, providing for greater consistency in bridge inspections nationwide and more strategic approaches to identifying problem areas. Key metrics include inspection records; determination of bridge load limits; qualifications of inspection personnel; procedures for underwater, fracture-critical, and complex bridge inspections; and inspection frequency.

Through periodic safety inspections, data is collected on the condition of each structure's primary components. Condition ratings are collected for the following bridge components:

Deck
The portion of a bridge that provides a surface for vehicular or pedestrian traffic

Superstructure
The portion of a bridge above the substructure that supports the deck, including beams, girders, trusses, and bearing devices which support traffic and transfer the loads to the substructure

Substructure
The portion of a bridge below the bearing device, built to support the superstructure and transmit loads to the foundation

The culvert condition rating describes all structural elements of culvert designs which do not have a distinct deck, superstructure or substructure and are buried under fill. The channel and the channel protective system are also rated, describing the physical conditions of slopes, as well as the channel or water flow through the bridge.

Bridge inspectors utilize a point system from zero to nine, where nine indicates an excellent condition and zero indicates a failed condition. Inspectors visually assess the ratings based on engineering expertise, training, and experience. These ratings form the basis for assessing the structural condition of the bridge.

MILTON. Inspecting the I-89 bridges over the Lamoille River.

Recommendations for maintenance or repair needs, load restrictions, posting, or closure originate with, and are based on, inspection findings. Inspection provides a visual record of structural health—including deterioration—and the consequent determination of a structure's ability to continue to perform in a safe manner.

The challenges faced in the northeast—having an older and aging infrastructure, seasonal limitations on performing inspections, extensive use of deicing salts and accelerated corrosion rates—are among the more demanding and the importance of routine inspections cannot and should not be underestimated.

BROOKFIELD. The Floating Bridge is one of only three such bridges in the United States.

Restrictions

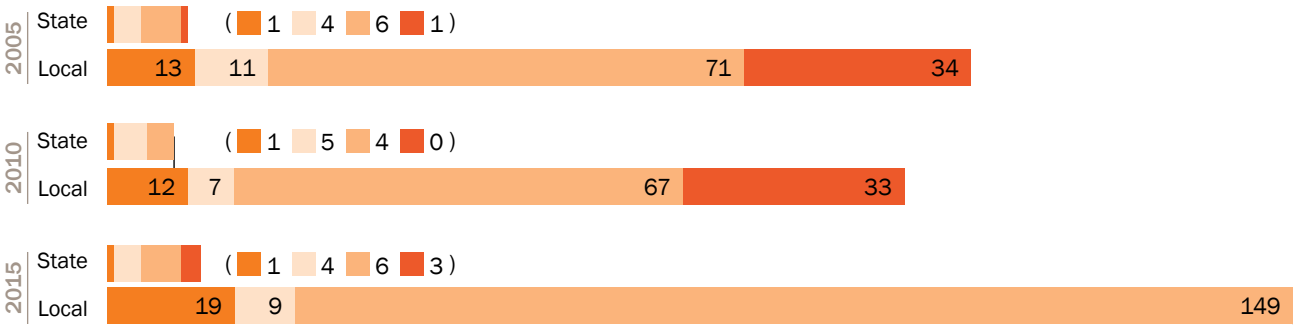
VTrans continually evaluates the most appropriate performance measures to target which structures are in highest need of repair or rehabilitation, weighed against what is either being lost or gained in terms of keeping our assets open and unrestricted for public travel.

Due to recent public attention on the condition of our bridges, many believe Vermont has more restricted bridges than it did 10 years ago. In fact, prior to 2012 (which showed an increase as a result of infrastructure damage caused by Tropical Storm Irene), the state trend had been decreasing. As large storms become more frequent and infrastructure continues to age, downward trends will become more difficult to maintain in the future.

Restricted Structures (as submitted to FHWA April, 2015)

Restrictions—a limitation of or inability to use a structure—come in four basic categories:

- **Closed** — Bridge closed to all traffic.
- **Temporary** — Open but with a temporary structure in place to carry legal loads while original structure is closed and awaiting replacement or rehabilitation.
- **Posted** — Reduced maximum allowed weight. Posted structures may include other restrictions such as temporary bridges which are load posted.
- **Restricted** — Posted for other load capacity restrictions such as speed, number of vehicles, vertical clearance, etc.



Structurally Deficient and Functionally Obsolete

The agency is evaluating a number of performance measures by which to judge how well we are maintaining our structure assets. Measures such as bridge health index; averaged condition; worst condition; numbers and deck area of structurally deficient and functionally obsolete bridges; and the number of restricted, posted, closed, or temporary bridges are all being considered.

For many years, the Federal Highway Administration (FHWA) has used structural deficiency and functional obsolescence measures. Similarly, VTrans has used percent bridges structurally deficient by system (interstate, state highway, and town highway).

Where do the terms structurally deficient and functionally obsolete come from and how are they defined? Both are terms FHWA uses to classify bridges "according to serviceability, safety, and essentiality for public use" to meet the requirements of Title 23 of the United States Code (23 U.S.C. 144). The technical definitions are as follows (source: 23 C.F.R. 650D).

Structurally Deficient (SD)

A bridge becomes structurally deficient when at least one of six items from the National Bridge Inventory (NBI) reaches a set threshold. The criteria are a Deck Condition Rating, Superstructure Condition Rating, Substructure Condition Rating, or Culvert Condition Rating of 4 (Poor Condition) or less, or a Structural Evaluation Appraisal Rating or Waterway Adequacy Appraisal Rating of 2 (basically intolerable, requiring a high priority of replacement) or less. Any bridge that is classified structurally deficient is excluded from the functionally obsolete category.

Functionally Obsolete (FO)

A bridge becomes functionally obsolete when at least one of five items from the National Bridge Inventory reaches a set threshold. The criteria are a Deck Geometry Appraisal Rating, Underclearances Appraisal Rating, Approach Roadway Alignment Appraisal Rating, Structural Evaluation Appraisal Rating or Waterway Adequacy Appraisal Rating of 3 (basically intolerable, requiring a high priority of corrective action) or less. Any bridge that is classified structurally deficient is excluded from the functionally obsolete category.

HARTFORD. Inspectors examine Bridge 7 across the White River.

Highway bridges classified as functionally obsolete are not structurally deficient, but according to federal standards their design is outdated. They may have lower load carrying capacity, narrower shoulders, or less clearance underneath than bridges built to the current federal standard. Vermont, due to the historic nature of its bridges as well as environmental concerns associated with bridge widening, has established state standards that differ from federal standards. As a result, it is possible for a new bridge built in Vermont to be classified as functionally obsolete. Also, Vermont does not always "modernize" its functionally obsolete bridges. An example is the state's covered bridges, which are functionally obsolete, but no one wants them altered.

While functional obsolescence is not one of our performance measures, we report it here as a federal measure. It is important to note that when structural repairs are made to structurally deficient bridges the functional obsolescence count may rise.

The fact that a bridge is structurally deficient (SD) or functionally obsolete (FO) does not mean the bridge is inherently unsafe. The VTrans inspection unit takes bridge safety very seriously. If unsafe conditions are identified during an inspection, the structure will be restricted or closed.

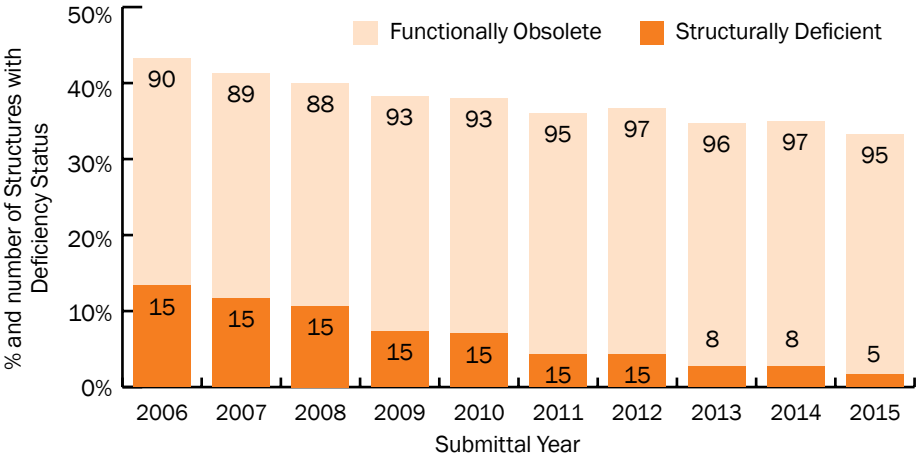
Functional Obsolescence/Deficient (FO) and Structural Deficiency (SD) Population

(as of or reported to FHWA, April 2015)

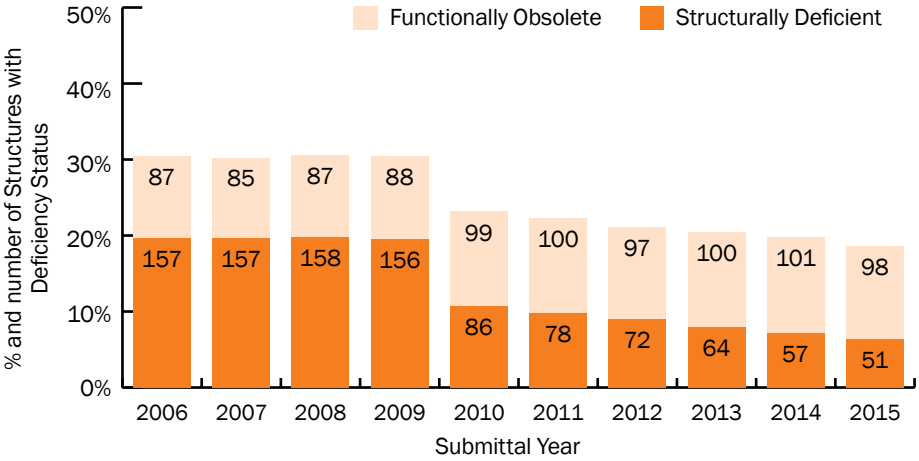
	FO	% FO	SD	% SD
Interstate "Long" Structures	95	30.65%	5	1.61%
State Highway "Long" Structures	98	12.58%	51	6.55%
Town Highway "Long" Structures	361	22.19%	123	7.56%
On-System "Short" Structures	N/A	N/A	83*	6.56%
System Total	554	–	362	–

* FO and SD are federal definitions not applied to "short" structures. This number represents "short" structures having a condition rating of poor or less.

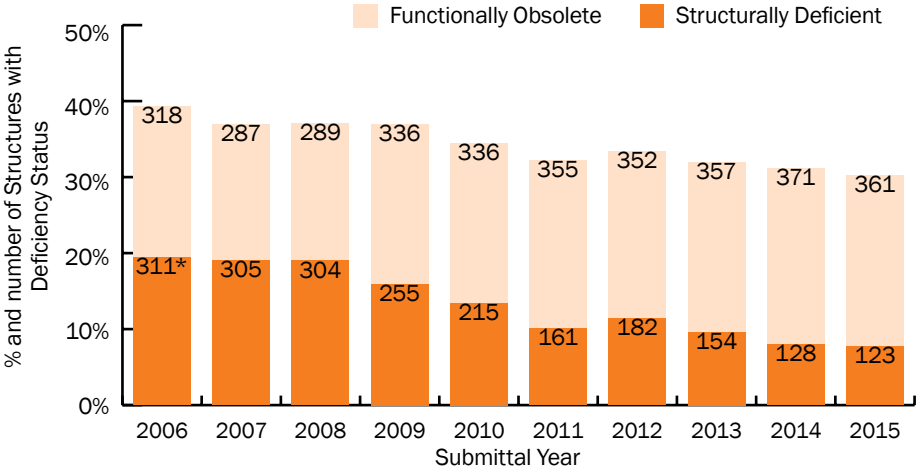
Interstate Structure Trends



State Highway Structure Trends



Town Highway Structure Trends



* Corrected to reflect oversight in NBI inventory rating reporting format

WINDSOR. I-91 Design-build.

BURKE. A new gateway to Burke Mountain.

Performance Goals and Measures

In the past, VTrans relied on the Federal Highway Administration's measures of structural deficiency and functional obsolescence to evaluate bridge condition. Vermont, however, is evaluating new performance measures that VTrans believes better model the average condition of Vermont's bridge network. The federal measures do not do a good job evaluating a bridge's true condition, so VTrans is exploring the use of measures that better quantify critical conditions.

VTrans is not doing away with the federal measures and the agency will continue to supply FHWA data for these determinations.

With the passage of MAP-21, the federal transportation bill, government recognized the need for and created a performance measure stipulating in law a minimum condition level requirement that National Highway System (NHS) bridge deck area on SD bridges must not exceed 10% of total NHS bridge deck area for that state and, in addition, mandated that national measures, with targets set by the state, be established.

Still being used, the previous federal measures—Structural Deficiency and Functional Obsolescence—imply but do not really tell us anything about the bridge's overall condition, nor do they tell us how bad a particular bridge component is. The federal measures only indicate that one or more bridge components have deteriorated to a point where they are within a range that requires assessment. They may or may not need treatment.

For example, our interest in fitting bridges into the historic Vermont landscape—all covered bridges and many historic truss bridges are considered functionally obsolete—lead to the development of Vermont specific standards that allow us to design bridges narrower than the federal standards. Many of Vermont's new designs and rehabilitations are considered functionally obsolete though they function very well.

To better evaluate our structures, VTrans, together with Maine and New Hampshire, is working to develop and implement a more holistic approach to measuring the condition and performance of our structures. Although these efforts are still in development, Vermont and our partner states see promise in utilizing a condition index as an effective management tool that can be compared across state lines.

Bridge condition index (BCI), percent structurally deficient by deck area and the national deficiency comparison (number of SD/FO bridges) are all measures being used and evaluated at the tri-state level (Maine, New Hampshire, and Vermont). The goal is to develop a network measure which reflects the relative health of our bridge population.

As the agency moves to new performance measures, structural deficiency performance goals will continue.

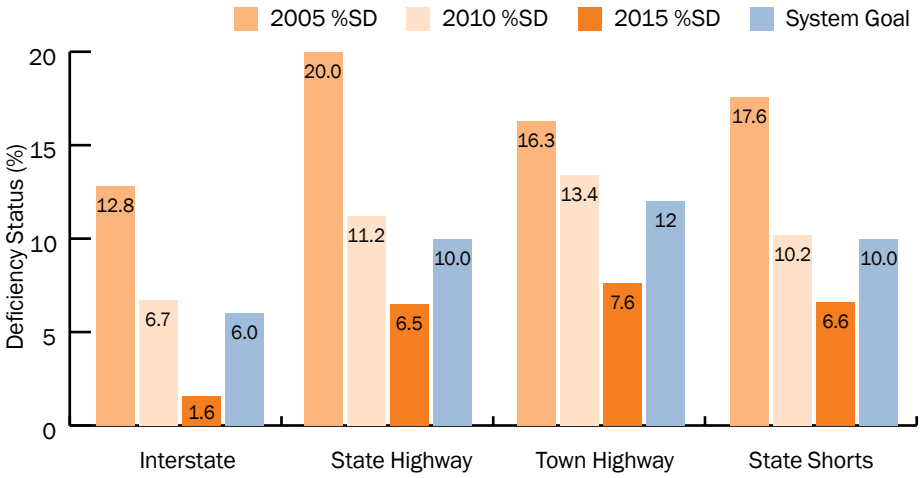
- 6% on the interstate system (18 bridges)
- 10% on the state highway system (77 bridges)
- 12% on the town highway system (195 bridges)
- 10% on interstate/state highway system culverts (126 culverts)

The following chart represents the change in percent of structural deficiency by system over a 10-year period.

RUTLAND. River Street town highway bridge.

Structural Deficiency Over Time by System

* 2005, 2010 and 2015 represent year data submitted to FHWA



Structures and Hydraulics Highlights

Structures and Hydraulics Section

The Structures and Hydraulics Section (SHS) is responsible for the delivery of bridge and culvert rehabilitation and replacement projects including project initiation, hydraulic analyses, design, and construction support. SHS staff streamline the project delivery process and reduce construction duration and associated traffic impacts through public engagement, customer service, resiliency to future flood events, effective collaboration with partners, and innovative construction and contracting methods.

Structures and Hydraulics joined forces in 2014 — now engineers sit side by side, encouraging knowledge transfer, collaboration, and expedited internal review and decision making. Design engineers can work part-time on a rotational program for Hydraulics, where they learn to analyze the conveyance of river and streamflow and make recommendations for scour countermeasures and the proper sizing of new culvert and bridge structures.

Setting the Stage for Success

The Project Initiation and Innovation Team (PIIT) vetted various initiatives to identify and remove impediments to project delivery including the development of traffic management plans, public involvement plans and risk registries. These documents are updated at each plan milestone during the design process and handed off to construction following procurement, promoting consistency and enhanced communication, and removing barriers throughout the life of a bridge project. A collaboration phase was added to the project initiation process to ensure that project managers, designers and resource groups, such as Environmental, Utilities and Right-of-Way Sections, have the opportunity to engage in meaningful dialogue and brainstorm the best approaches to expedite project delivery, minimize project impacts and impacts to the traveling public while delivering a quality project.

Quality Customer Service

An electronic audience response system was recently integrated into Regional Concerns and Preferred Alternative Public Meetings. Questions are posed to engage participants on topics ranging from demographics, the preferred length and timing of proposed bridge closures, areas of concerns and overall satisfaction with the recommended scope. Responses help refine the project scope. Survey results, scoping reports, milestone plan sets, and public factsheets are available on a public site. The engagement work is paying off — over 90% of respondents to customer satisfaction surveys were satisfied with accelerated bridge construction and short term road closures. To learn more visit vtransparency.vermont.gov

Innovative Contracting

The Design-Build (D-B) contract technique is underway on three bridge replacement projects in Brattleboro, Milton, and Ryegate, and additional projects are under procurement in South Burlington, Georgia, and Rockingham. Unlike the traditional design-bid-build, D-B allows for design and construction to easily overlap, fast tracking construction. The Contract Manager/General Contractor (CMGC) technique was used to replace two interstate bridges on I-91 in Hartford using lateral slide technology. This alternative ensures successful, fast track implementation of large projects and new innovations by collaborating with the contractor during the design phase. The CMGC contracting method will also be used to replace Bridge 68 on VT 14 and Bridge 8 on US 2.

Hydraulics Manual Updated

The 2015 Hydraulics Manual, previously published in 1998, was revised by an interdisciplinary team and includes the latest guidance from FHWA and AASHTO. This manual complements the VT ANR River Management policies and practices, clearly defining stream crossing standards and promoting a more seamless design process.

2015 Celebration of Success

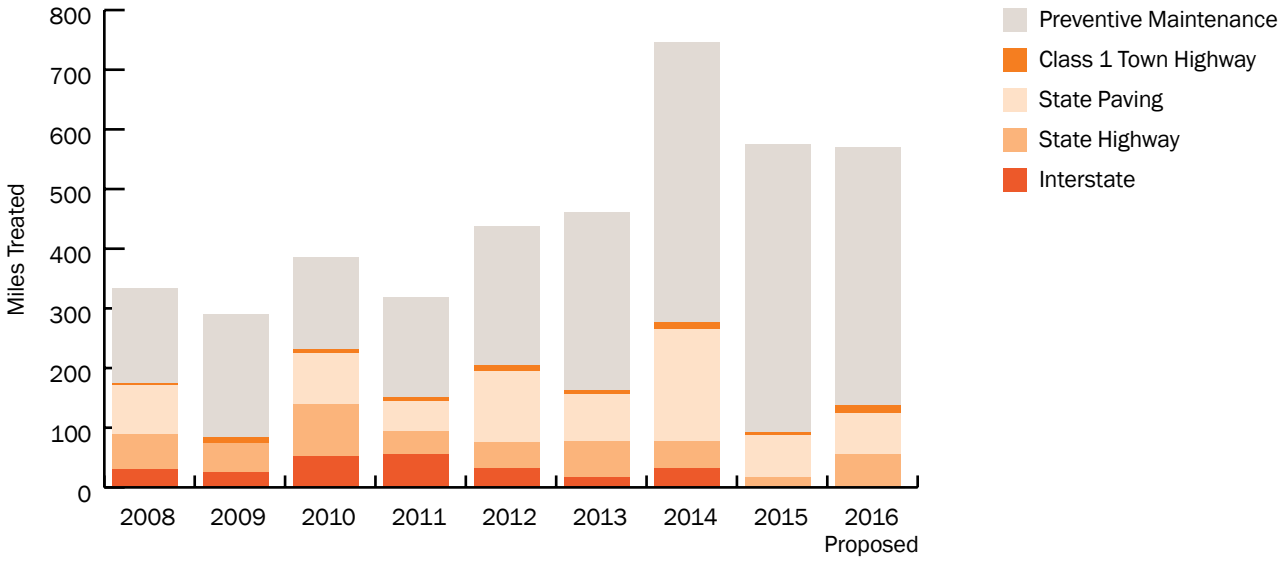
- 33 bridge replacement, rehabilitation and preventative maintenance projects totaling $70 million dollars.
- 23 projects advertised, representing an 85% success rate of advertising on-time. 39% are state highway projects, 35% are town highway projects, 17% are preventative maintenance project and 9% are covered bridge rehabilitation projects.
- All 14 Emergency Irene bridge replacement projects are complete.
- 11 projects were designated into the Accelerated Bridge Program (ABP). 45% are state highway projects, 45% are town highway projects and 10% are interstate projects.
- 5 ABP projects were advertised in 2015. 3 projects were advertised within 24 months and the remaining 2 projects were delivered in 27 and 28 months.
- 100% of the ABP projects advertised in 2014 were successfully constructed during 2015 construction season.
- 11 projects were designated as Conventional Projects, 12 projects were advertised, and 23 bridge projects were under construction during the 2015 construction season.
- The Hydraulics Unit sized approximately 150 culverts for towns and 45 culverts on state routes for the Maintenance and Operations Bureau, in addition to working on 45 programed projects from the Project Delivery Bureau.
- Several videos were created showcasing the use of innovation and public engagement to deliver projects that meet community needs. View at: youtube.com/user/VTransTV.

Pavement Management

Paving Mileage Summary (Two-lane miles, rounded to the nearest mile)

Category	Construction Season								
	Proposed 2016	2015	2014	2013	2012	2011	2010	2009	2008
Interstate	0	0	33	18	32	55	53	25	30
Carried forward from previous year	0	0	0	31	0	6	0	0	0
Incomplete, to be carried forward	0	0	0	0	31	0	6	0	0
Rut Filling (single lane miles)	0	10	0	0	0	0	0	0	0
Surface Treatments	64	64	50	61	37	44	45	52	21
Carried forward from previous year	12	12	0	31	0	*	*	*	*
Incomplete, to be carried forward	0	0	12	0	31	0	*	*	*
State Highway	55	18	44	59	43	39	87	50	59
Carried forward from previous year	26	20	13	7	0	3	27	0	10
Incomplete, to be carried forward	41	26	20	13	7	0	3	27	0
Surface Treatments	57	0	43	25	85	12	26	7	14
Carried forward from previous year	0	11	13	*	*	*	*	*	*
Incomplete, to be carried forward	0	0	11	13	*	*	*	*	*
Class 1 Town Highway	12	4	11	6	10	6	8	9	4
Carried forward from previous year	7	7	0	0	0	1	0	2	0
Incomplete, to be carried forward	0	7	7	0	0	0	1	0	2
State Paving	57	85	189	80	120	51	84	0	82
Crack Seal	300	361	362	212	110	111	82	147	124
Carried forward from previous year	0	0	0	0	0	0	0	0	0
Incomplete, to be carried forward	0	0	0	0	0	0	0	0	0
Paving Project Total (items in orange)	157	134	290	201	205	161	259	86	185
Preventive Maintenance Total (items in gray)	433	484	468	298	232	167	153	206	159

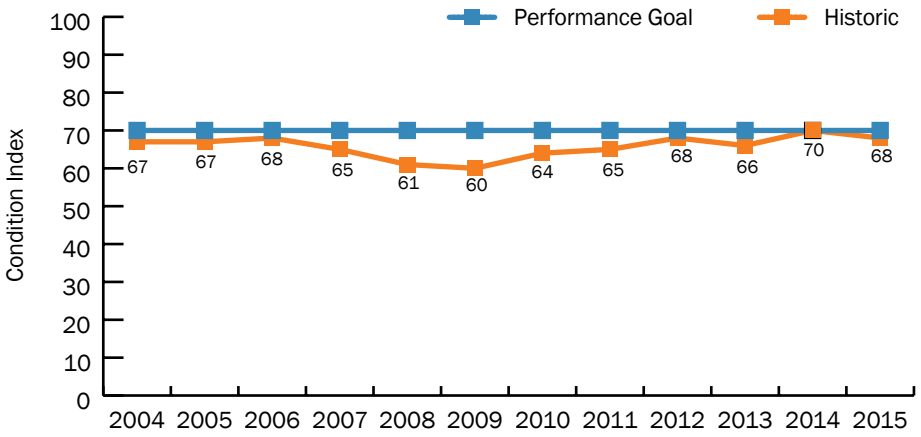
Paving Mileage Summary (as per table above)



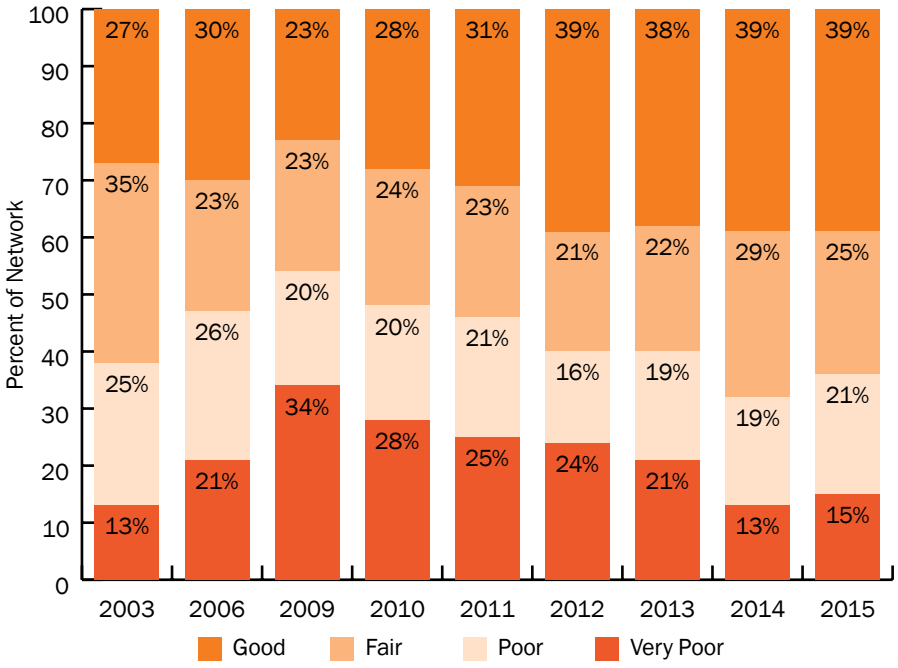
Performance Measures

Automated surveys are conducted annually to determine pavement conditions across the state. Each segment of road is rated on a scale of 1 to 100 based on rutting, cracking, and roughness. These are then weighted by their respective traffic volumes. The VTrans goal for this performance measure is 70.

Travel Weighted Average Network Condition



Conditions Over Time, Unweighted



Percent of Network in "Very Poor" Condition

While the "Travel Weighted Average Network Condition" graph measures VTrans performance for the majority of road users, the "Conditions Over Time, Unweighted" graph measures the agency's performance for all users, including those on low volume roads. The VTrans goal for the percentage of roads in very poor condition is no more than 25%.

Pavement Condition Descriptions

Good
Like new pavement with few defects perceived by drivers
Composite Pavement Condition Index 80-100

Fair
Slight rutting, and/or cracking, and/or roughness become noticeable to drivers
Composite Pavement Condition Index 65-79

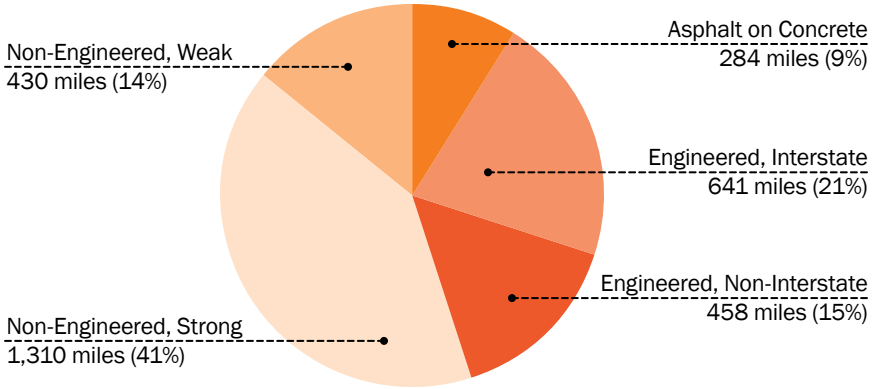
Poor
Multiple cracks are apparent, and/or rutting may pull at the wheel, and/or roughness causes drivers to make minor corrections
Composite Pavement Condition Index 40-64

Very Poor
Significant cracks may cause potholes, and/or rutting pulls at the vehicle, and/or roughness is uncomfortable to occupants. Drivers may need to correct to avoid defects.
Composite Pavement Condition Index 0-39

Network Pavement Structural Types

The "Pavement Type Distribution" chart represents the breakdown of the various pavement structural types a motorist will encounter throughout the agency's highway network. This information provides a sense of how the network structures vary, and how that can pose a challenge from a management perspective.

Pavement Type Distribution (Two-lane miles, percent of network miles)



Interstate travel provides a motorist the best example of an engineered pavement/highway. Engineered pavement is designed and constructed from the bottom up with the expectation that if maintained properly over time, the pavement will stand up very well to Vermont's harsh climate for 40 years or more. About 36 percent of the state's pavements are engineered, and it is these pavements which can be managed the most effectively, both in terms of cost and serviceability.

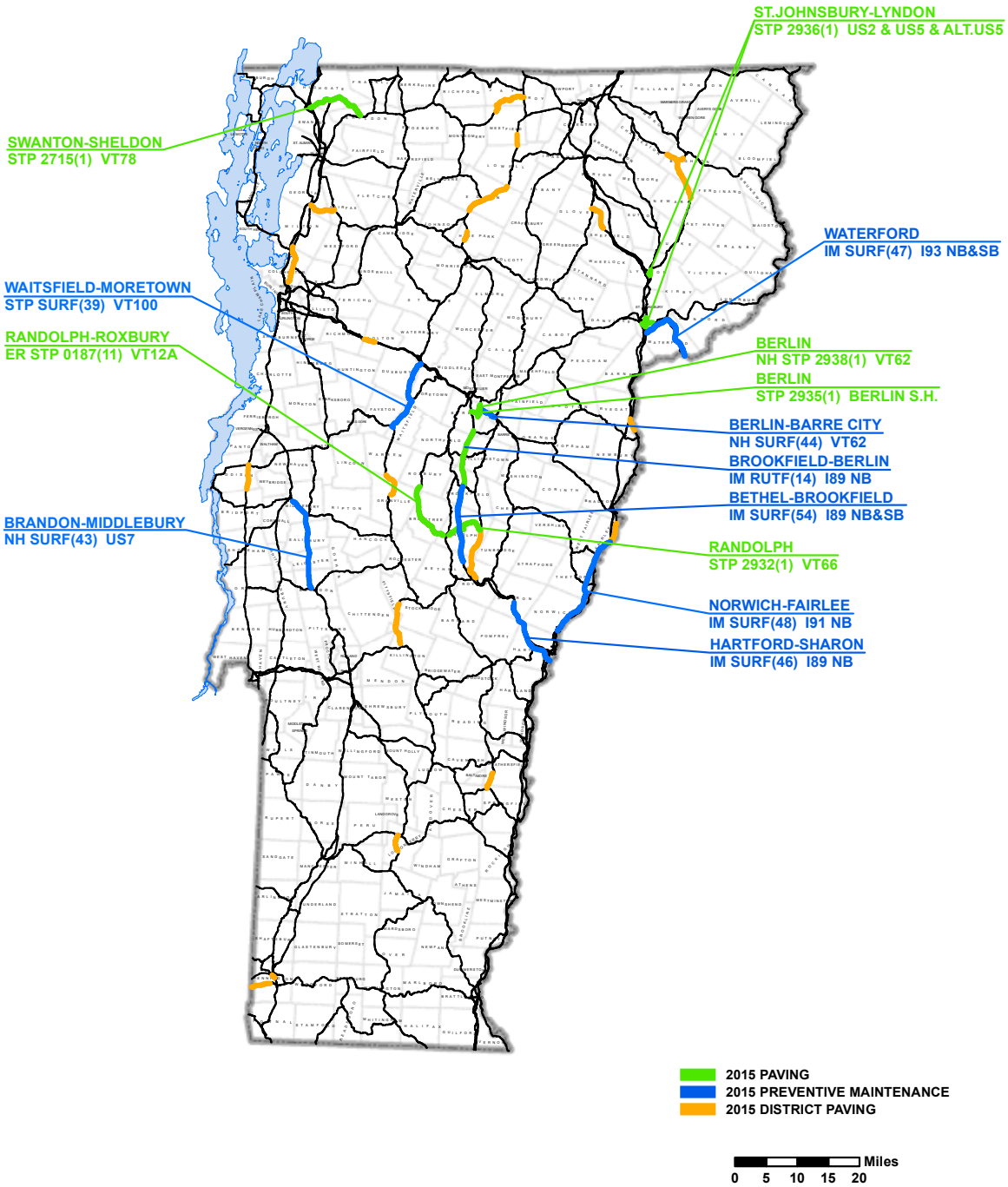
About 55 percent of the network is composed of non-engineered pavements. A non-engineered pavement is a structure that has been built-up over the years based on minor treatments and maintenance activities. The end result is a highway evolving from what may have once been a logging road into what is now a paved roadway. Some of these pavements perform reasonably well over time. Fortunately, 41 percent of the network's pavements respond in this manner and are considered non-engineered Strong. It is the remaining percent—the 14 percent of the network that is non-engineered weak pavements—that pose the greatest challenge to the agency. A significant investment is required to keep these pavements in good condition for a reasonable amount of time.

The last pavement structure classification is Asphalt on Concrete. These comprise 9 percent of the state highway network pavements, and they are a challenge to manage effectively. Often times they are discernible to the untrained eye where cracks reflect through the asphalt revealing the slabs beneath. While strong, problems exist where a lane has been widened beyond the slab's edge because the additional pavement will distress or settle differently creating a poor ride. Unfortunately, these structures are typically maintenance intensive and do not perform well with a conventional resurfacing treatment.

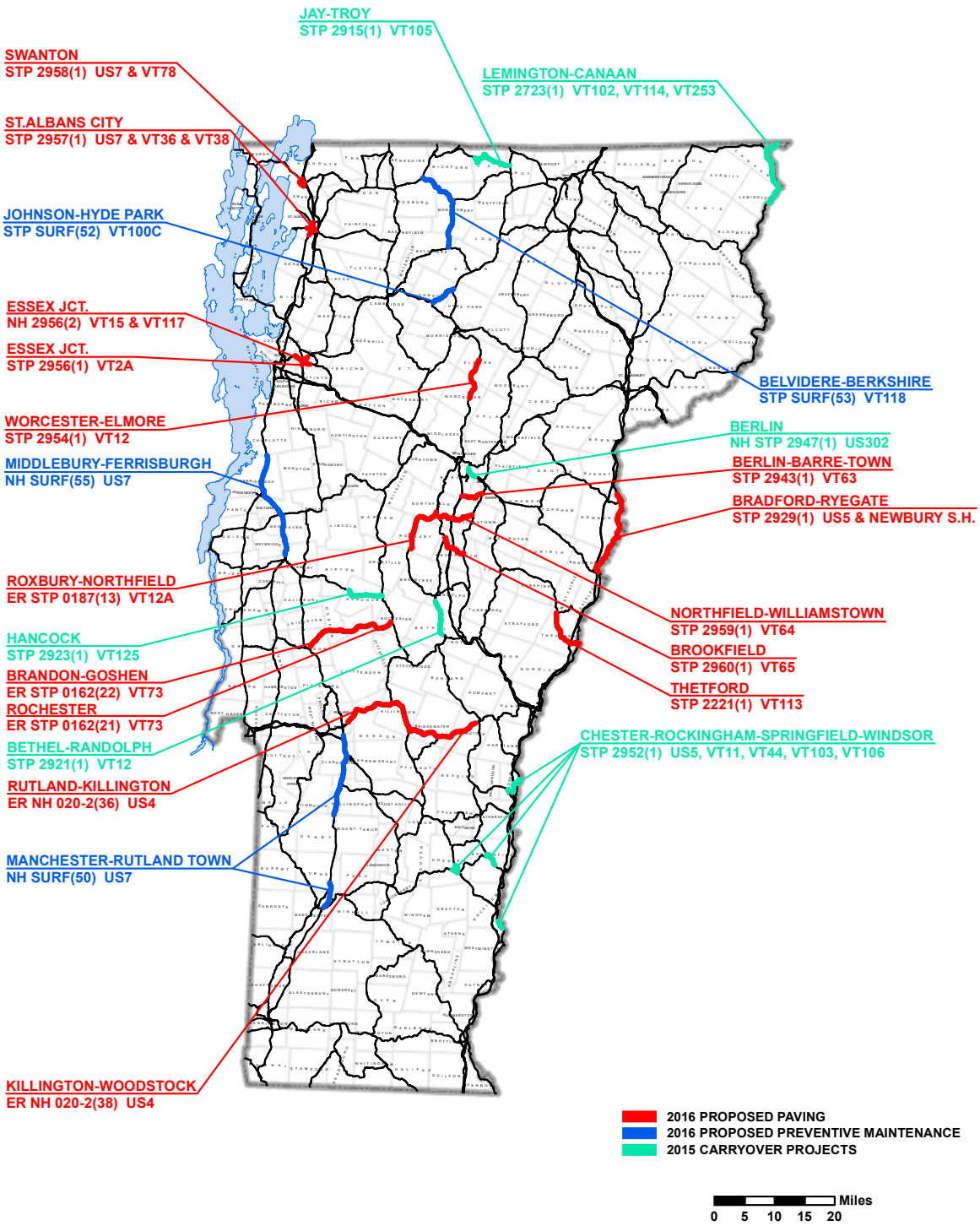
Hot recycled in place pavement.

Testing material density.

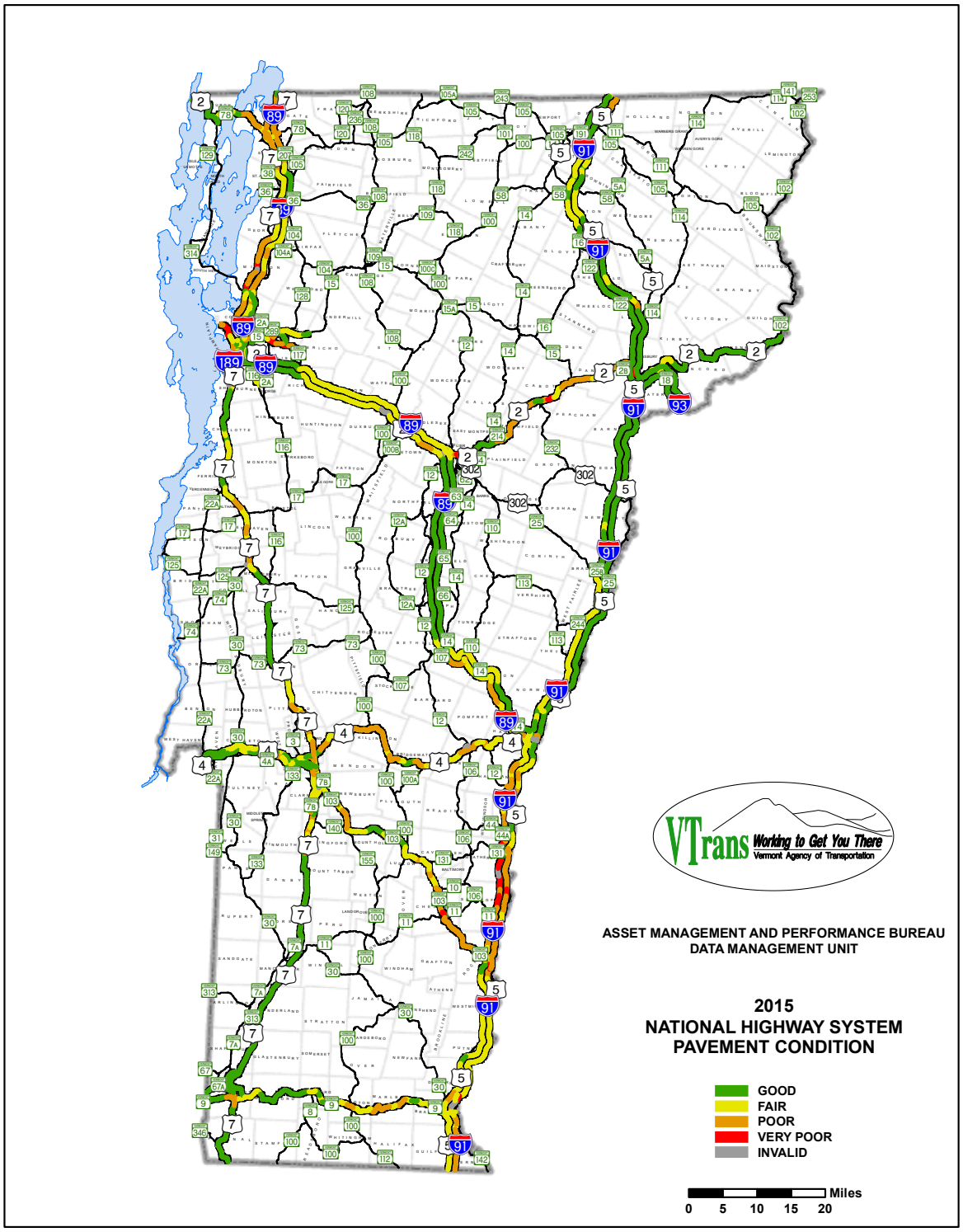
2015 Paving Accomplishments



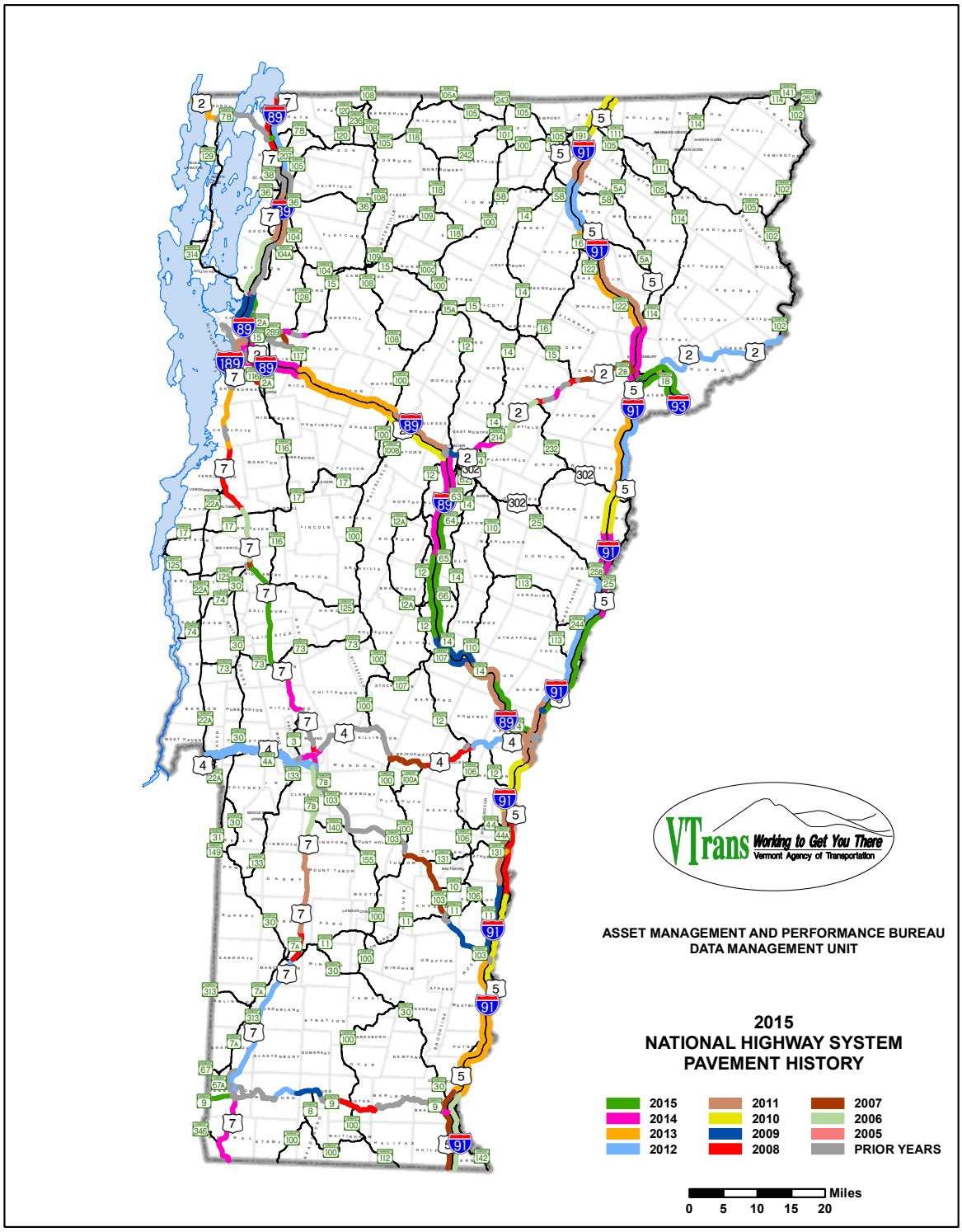
2016 Proposed Paving Program



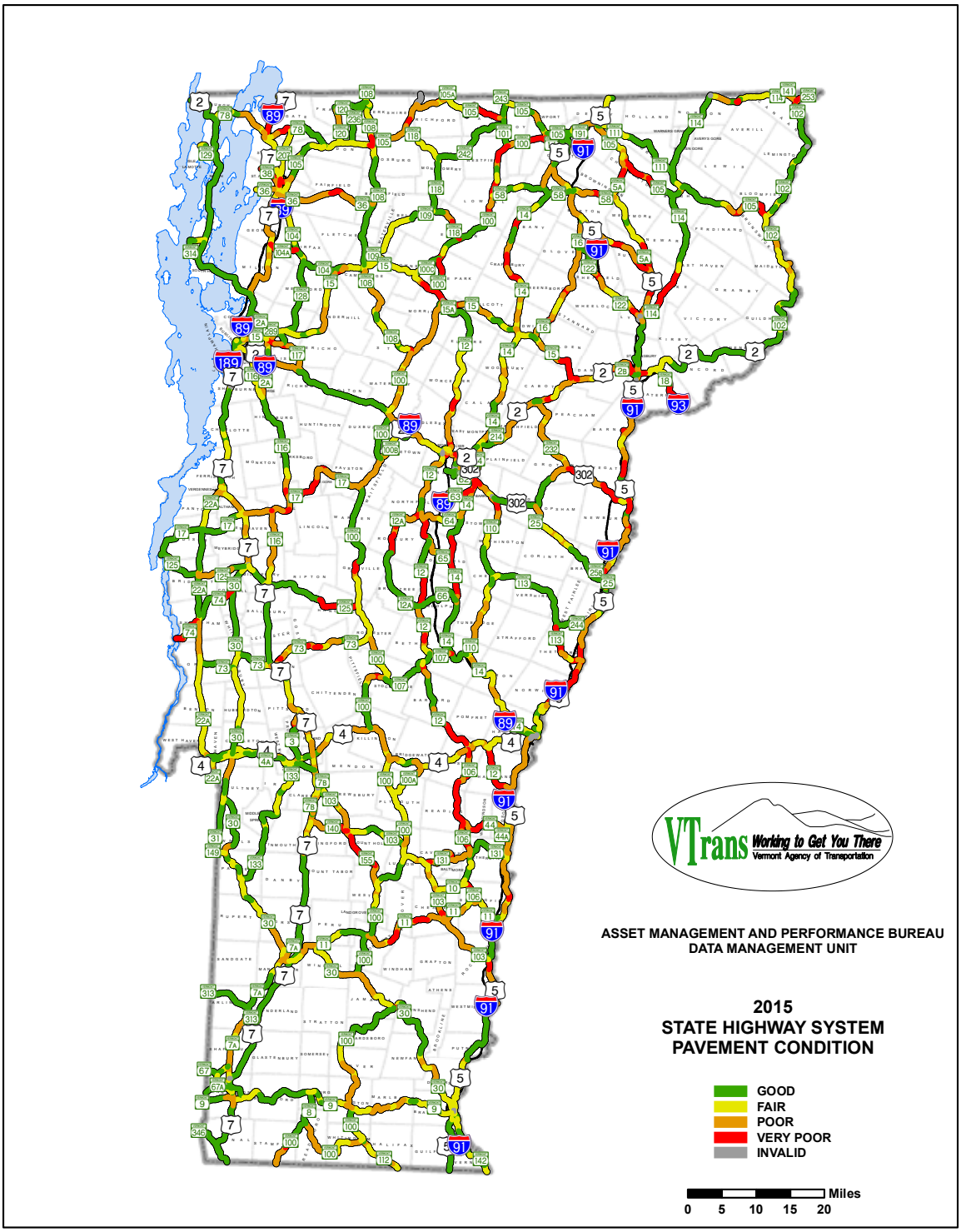
National Highway System Pavement Conditions



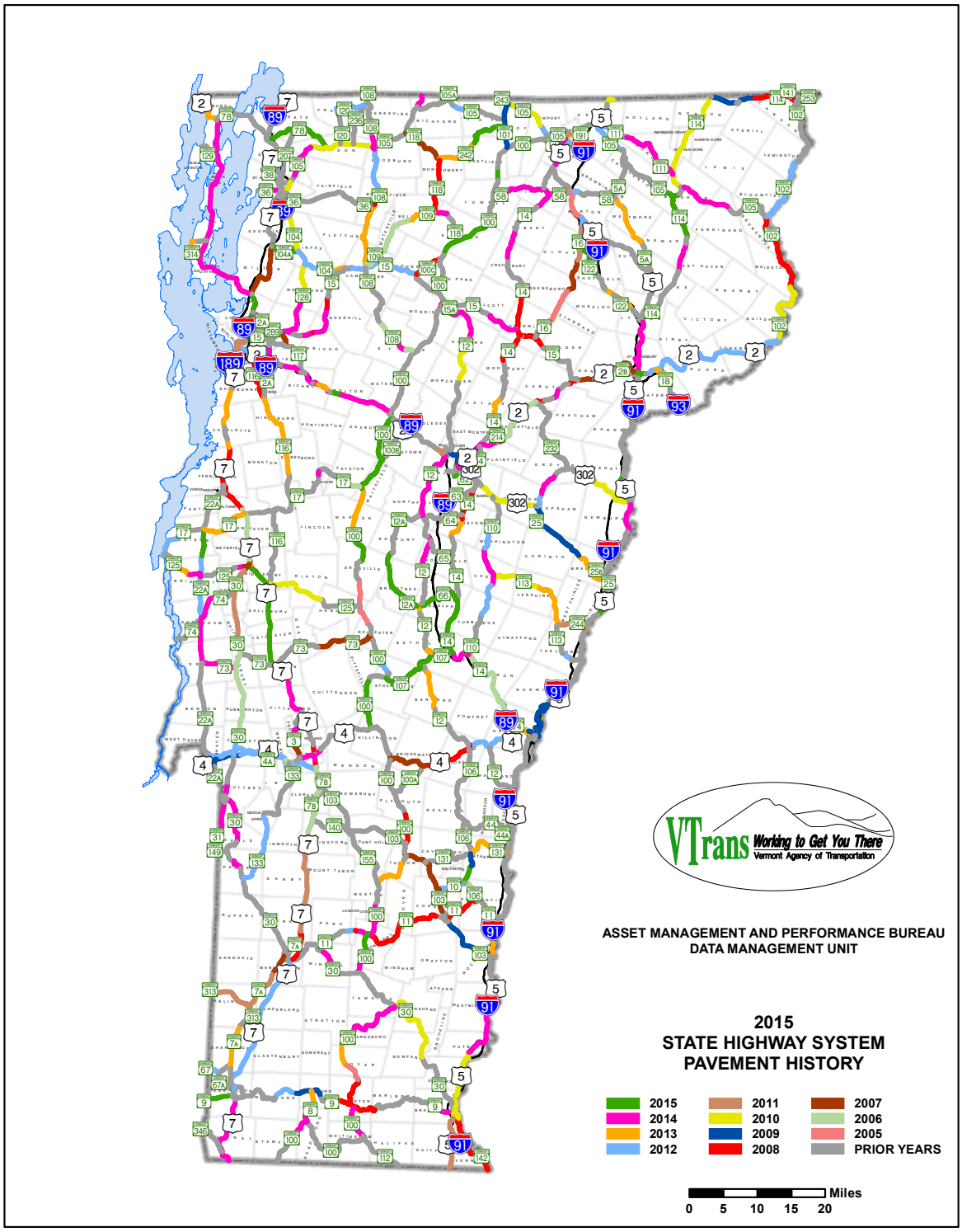
National Highway System Pavement History



State Highway System Pavement Conditions



State Highway System Pavement History



Asset Management

Introduction

Vermonters depend on VTrans to be good stewards of the State's transportation, environmental and financial resources. This trust is something that VTrans does not take lightly; VTrans has consistently and diligently worked hard to build accountability for its actions and gain credibility with the public and the Legislature. In 2013, the message to the Legislature was that VTrans has renewed its commitment to asset management and that "asset management was going to change how VTrans conducts its business." These words were supported by actions as VTrans transformed the Project Development Division into the Highways Division, which now includes the Maintenance and Operations Bureau and the newly created Asset Management and Performance Bureau.

Although asset management now "has a home" within VTrans' organizational structure, asset management is and has always been tightly woven into the fabric that is VTrans' culture. Asset management encompasses the planning, programming, design, construction and maintenance phases of an asset's lifecycle and is supported by all Agency employees in one capacity or another.

Asset Management Philosophy

Asset management is the strategy that allows VTrans to invest the right amount of funds in the right asset at the right time. Asset management, when fully implemented, will allow the Agency to monitor asset status and condition, determine appropriate customer service levels performance and determine the level of unmet needs. The primary goal of VTrans Asset Management is to conduct effective and efficient decision-making processes based on a combination of quality data and information and well-defined performance objectives, enabling VTrans to effectively program construction and maintenance activities at strategic points in an asset's life.

Asset Management Best Practices

Asset Inventory	Customer Service and Continuous Improvement	Risk Management	Life Cycle Cost Management	Trade-off Analysis
Identify and prepare an accurate asset inventory database, graphically represented spatially on a GIS platform	Work with stakeholders to determine Customer Service Levels (CSLs). Identify performance measures and indicators to continuously monitor status.	Develop Agency risk registry. Identify, quantify and prioritize risks associated with asset management. Develop risk mitigation plans to reduce exposure.	Determine minimum life cycle costs for maintaining, rehabilitating and replacing assets to provide the highest levels of service over time.	Develop ability to predict asset condition over time and to use this information to establish long term funding strategies to maintain assets at sustainable CSLs.
EXAMPLES				
Interactive GIS map of asset locations with "pop-up" information of asset condition.	Condition Target: Maintain a minimum of 75% of pavements above a "Very Poor" Condition.	Analyze freight corridors for bridge restrictions and overall economic impacts. Strategies are developed to remove restrictions.	Apply the right treatment, using the right materials, at the right location and at the right time.	Manage customer expectations in a fiscally responsible and environmentally sensitive manner for present and future generations.

Asset management at VTrans represents a best practices approach to managing infrastructure performance that is both strategic and proactive. In addition, asset management seeks to identify risks across the Agency and managing these risks to reduce threats while increasing innovations and opportunities. Effective management of infrastructure risks increases the likelihood that the Agency will achieve its strategic goals and associated performance objectives.

Responsible Fiscal Management

Asset management is a collection of best practices targeted at utilizing available funding strategically and efficiently. VTrans asset management practices are performed with a "preservation first" principle rather than "worst first." The Agency applies this principle by optimally balancing regular preventive maintenance activities with construction of carefully planned and programmed rehabilitation and replacement projects. These activities are performed with the intent of increasing the asset's useful life. Typically, an asset with a long useful life requires multiple intervention points including a combination of repair and maintenance activities. The strategic timing of these intervention points effectively optimizes the balance between the asset's useful life and its overall lifecycle costs, thereby maximizing the value of the Agency's financial resources.

VTrans' Asset Management and Performance Bureau will be responsible for managing effective and realistic scopes, accurate cost estimates, and reliable schedules for these activities. The Bureau is committed to providing these services at an acceptable level of risk to the Agency and within current forecasted revenue projections while delivering customer service levels that the public expects and decision makers require. Maintaining our highways at a fair, good or very good condition is more cost-effective than allowing it to erode to a poor or very poor condition where replacement costs dramatically increase. VTrans utilizes asset management, performance management and risk management principles to effectively manage both the physical and financial condition of its assets to achieve its strategic

objectives. This renewed commitment and focus on asset management complements the Agency's desire to become more customer service oriented.

Customer Service Levels

Assets provide services to our customers by providing them with the ability to get where they need to go in a safe and timely manner. VTrans' customers are Vermont residents, businesses and visitors who rely on VTrans to manage the needs of our transportation system in a cost-effective, efficient, safe and sustainable manner. Through asset management and its commitment to the stewardship of public resources, VTrans manages the condition and performance of highway assets by minimizing life cycle costs through the timely programming of capital improvement projects and maintenance activities. Simply stated, VTrans is developing an initial asset inventory and documenting where it is located while at the same time assessing the asset's condition and understanding the financial costs required to maintain the State's infrastructure at an acceptable condition state to maintain the required level of customer service.

These actions form the foundation of VTrans' commitment to providing quality customer service, for both present and future customers. VTrans is currently engaging stakeholders in discussions of customer service levels. Recent progress in this area has resulted in the Maintenance and Operations Bureau collaborating with the Asset Management and Performance Bureau to develop customer service levels based on VTrans' current understanding of customer expectations and past policies.

Risk Based—Performance Driven

Asset management is risk-based and performance driven; driven by policy goals and performance objectives outlined in the Agency's Strategic Plan. Asset management represents an approach to managing infrastructure that is both strategic and proactive, and places a premium on quality data and information. Many of these objectives have time frames that span several years. Failure to acknowledge, measure and manage both short and long term uncertainties is to overlook obvious risks that affect the credibility and success of the Agency's decisions. Thus the effective management of VTrans' highway assets must rely on risk management to enhance its decision making processes.

VTrans embarked on a journey beginning in 2014 to develop an Agency-wide risk registry that will ultimately enhance its decision making processes by documenting internal and external risks that may affect its performance objectives. These risks will be identified at the enterprise level and across Agency programs, projects and activities. Both performance and risk management play an integral role in supporting asset management activities towards the achievement of the Agency's strategic goals

To summarize, the risks and challenges to manage transportation infrastructure assets in a fiscally responsible and sustainable manner has led VTrans to emphasize an asset management policy and incorporate business processes that ensure that quality decisions are made based on accurate data and analysis while mitigating identified risks.

Asset Management Framework and the TAMP

Currently there are significant efforts being expended to develop a transportation asset management plan (TAMP). The TAMP is the tactical plan for managing the Agency's assets and one of its primary objectives is to support the Agency's Strategic Plan. This effort is being coordinated through the Agency's Transportation Asset Management Plan Working Group (TAMP-WG). This group is comprised of 27 individuals representing asset management functions across VTrans; they are participating and leading 9 task forces that are focused on developing different parts of the overall plan.

The collective efforts of the TAMP-WG combined with the energy and on-going activities of the Asset Management and Performance Bureau team are synergistically developing an asset management framework to support the Agency's asset management efforts to comply with future MAP-21 requirements and Vermont State Statute 19 V.S.A §10k. The components of this framework reflect the recommendations of the Federal Highway Administration (FHWA), MAP-21 and best practices of the international community.

VTrans' asset management framework is designed to support the Agency's policies and goals related to accountability, mobility, resiliency, safety, sustainability and transparency. The proposed framework is envisioned to include a continuous cycle of asset condition and inventory, performance, and risk and cost assessments. These activities will provide data and information that asset managers can use to develop, implement and support the TAMP.

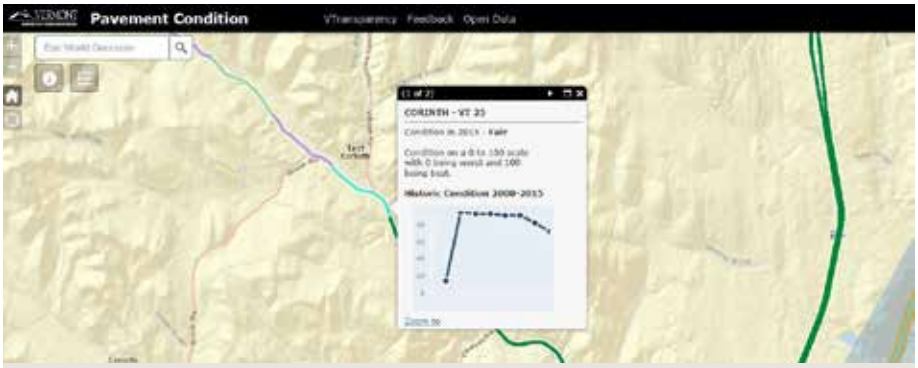
Conclusion

The Asset Management and Performance Bureau is in its infancy but is committed to measuring and monitoring the Agency's performance relative to its assets and provision of those assets to VTrans' customers. VTrans believes that through education and effective communication that it can provide its customers with a deeper understanding of the costs and benefits of individual functions (asset maintenance, resurfacing, rehabilitation and replacement) and how these costs impact overall Agency programs and budgets. In return, the customers (the public) can then use this information to communicate more clearly to the decision-makers (the legislators) the level of infrastructure investment, maintenance and condition they expect. The decision-makers can then use this information in partnership with VTrans to collaboratively make the decisions they believe reflect the best stewardship of the public resources.

In summary, VTrans is in the process of adopting asset management policies and processes consistent with internationally accepted best practices to maximize the value of its infrastructure assets and to guide its decision-making processes. VTrans is committed to responding proactively to Vermont's transportation needs and is responsible for ensuring that Vermont's transportation system remains in a state of good repair -regardless of its age.

Asset Inventory

As stewards of Vermont's highway infrastructure, the Agency of Transportation is responsible for understanding the components of the State's transportation system and how asset improvements to these components can be budgeted to preserve the integrity of our highway system in a cost effective and efficient manner. To support this understanding, several Asset Management projects have been undertaken across the Agency.



VTRANSPARANCY. A powerful tool for asset management and public information.

Small Culvert Inventory

In response to several maintenance and safety issues associated with aging culverts, the Agency has dedicated significant resources to generating an inventory of small culverts with diameters ranging between 12 and 72 inches. Through a collaborative effort between the Asset Management and Performance Bureau and the Maintenance and Operations Bureau, crews have been working over the last seven years to locate drainage structures within the highway right-of-way, storing location and inspection information in a centralized GIS database. In 2015, a concerted effort brought the initial inventory stage to completion, resulting in a database of over 50,000 small culverts statewide. With the initial inventory complete, the focus of the small culvert inventory project now moves into a secondary phase including the utilization of the small culvert data to prioritize maintenance and repair work while keeping the asset information updated through regular inspections and work reporting.

Asset management staff inspecting a culvert in the field.

Maintenance Assets

A renewed interest in performance management has increased the Agency's focus on core maintenance activities. Historically, the Agency has done an excellent job of reporting its maintenance activities and asking "How much work is being done?" but now the question of "How much of each activity should we be doing?" is being asked as well.

To answer the second question, the Agency has focused on several core maintenance activities and is developing asset inventories, thereby enhancing its capabilities to report on infrastructure condition. This year's focus was on guardrail inventory, pavement markings, and mowing areas. An inventory of each of these assets is being developed and integrated into VTrans' mapping systems and maintenance management system. Once these inventories are complete, the Agency will analyze the cyclical, routine and major maintenance needs to understand how much work needs to be done on an annual basis to achieve Agency performance measures.

Statewide Roadway Data Inventory

Roadway data collection technology and tools have developed over the years and as the capabilities of the data have expanded over time so too has the desire for this data to assist different programs within the Agency. Information about the highway surface and roadway geometry is used by several groups within the Agency and has been historically acquired through various means. In recent years the collection of roadway data has been continually consolidated into one contract. In 2015, the consolidation of these data needs continued with the inclusion of pavement conditions, forward facing photography, lane width, shoulder width and bike lanes, all within a singular vendor contract. This consolidation has decreased data acquisition and administrative overhead costs while greatly reducing the need for data integration across the Agency. The collection of the statewide roadway data will provide the Agency with effective corridor management tools and technology increasing its ability to ensure that the right asset is being treated at the right time.

Project Prioritization

In compliance with 19 V.S.A. paragraph 10b(c), a priority ranking system was developed for each asset type.

Structures

Bridge Condition
30 points maximum

Remaining Life
10 points maximum

Functionality
5 points maximum

Load Capacity and Use
15 points maximum

Waterway Adequacy and Scour Susceptibility
10 points maximum

Project Development and Momentum
5 points maximum

Regional Input and Priority
15 points maximum

Asset—Benefit Cost Factor
10 points maximum

Points are then summarized for each program, with the highest score receiving the top ranking. Rankings will change from year to year as projects are completed, as bridges change in condition, or as regional planning commissions' priorities change. These priorities are used in developing the capital program, help in deciding which bridges to advance next, and have enabled us to clear a backlog of projects in a defined, documented, and efficient manner.

Selection for proposed rehabilitation and reconstruction projects will continue to utilize the priority system. To become a project and have design initiated, the bridge will need to be among the highest ranked.

The bridge priority system, which is used to rank major bridge replacement and rehabilitation projects, will continue to be used for project selection and determining funding needs. However, this system is not inclusive as it does not rank short structures or maintenance needs, both preventive and routine.

Bridge replacement and rehabilitation projects progress through the VTrans Project Development Process. With its current reorganization, the Structures Section is aggressively looking for opportunities to streamline project delivery while reducing project scope, impacts and costs.

Scope reduction can be achieved by various methods: reducing approach work, minimizing or eliminating enhancements, phased construction or road closures. Although inconvenient for a community, the elimination of a temporary bridge reduces timelines, cost, need for significant right-of-way acquisition and resource impacts. Swiftness of construction and improved safety conditions are benefits of road closures.

Where appropriate, accelerated bridge construction (ABC) and materials are utilized. The technique minimizes traffic disruptions and congestions, improves work-zone safety, and lessens environmental impacts. Additionally, prefabrication can improve constructability, increase quality, and lower life-cycle costs.

The establishment of the bridge maintenance program gave us a start, enabling us to perform much-needed preventive maintenance on a limited number of bridges, but it was just the beginning. Preventive maintenance is not a high-profile activity; if done on a routine schedule, however, its benefits will be obvious as it will extend service life and delay the rate at which our bridges become structurally deficient. The agency has substantially grown the program from its origins and has now integrated it into the regular program.

Focusing efforts toward preventive maintenance activities will slow, but not reduce, the number of bridges becoming structurally deficient. Preventive maintenance does not correct existing structural deficiencies, but instead retards deterioration so that a bridge's lifespan can be extended, thus preventing the structure from becoming structurally deficient. To this end, preventive maintenance is essential to slowing the rate at which structural deficiencies evolve over time.

The value of preventive maintenance will be appropriately demonstrated in the future through new performance measures that evaluate a bridge's overall core unit condition or network health.

HARTFORD. One of the I-91 bridges.

Pavement

Asset Condition (PCI)

Pavement Condition Index

- Combination of; Ride, Rut, Cracking
- Scoring structured to recognize need to address roads in very poor condition regardless of traffic

Project Economics (Benefit Cost)

Benefit Cost Ratio

- Benefit compares condition difference between the selected treatment and doing nothing on the project section over the lifespan of the treatment
- Benefits are weighted by traffic volume
- Cost is present value financial cost to the state
- Measures the "Bang for the buck" amongst candidate projects

Regional Planning Commission (RPC) Rank

Regional Importance

- Allows RPCs to address socio-economic, cultural/local importance and impact on local economy of candidate projects
- Scoring structure helps create a geographically distributed program

Roadway

Highway System

(40 points)

This factor looks at the Highway Sufficiency Rating and the network designation. Interstates are held to the highest standard, followed by non-Interstate primary and then off-primary roads. The Highway Sufficiency Rating considers traffic, safety, width, subsurface road structure, and more.

Cost per vehicle mile

(20 points)

This is the project cost divided by the estimated number of miles vehicles will travel on the project. This is a relatively easy method to get a benefit/cost ratio for comparing similar projects.

WAITSFIELD / MORETOWN. Paving project.

Regional Priority

(20 points)

The top RPC Roadway project is assigned 20 points. The score is reduced for lower RPC priorities. Projects listed as priority #10 and lower get two points.

Project Momentum

(20 points)

This factor considers where the project is in the development process and anticipated problems such as right of way or environmental permitting. Some projects are so far along that they must be completed or the Agency would have to pay back federal funds.

Designated Downtown project

Per 19 V.S.A. § 10g(l)(3), VTrans awards ten bonus points to the base score for projects within a designated downtown development district established pursuant to 24 V.S.A. § 2793.

Traffic Design

Intersection Capacity

(40 points maximum)

This factor is based on Level of Service (LOS) for the intersection and the number of intersections that are in the coordinated system. Projects with a lower LOS and that are part of a larger coordinated system receive higher scores for this category.

Accident Rate

(20 points maximum)

This factor is based on the critical-accident ratio for the intersection. Projects with higher critical-accident ratios receive higher scores for this category.

Cost per Intersection Volume

(20 points maximum)

This factor uses the estimated construction cost and average-annual-daily traffic through the intersection. VTrans calculates the construction cost of the project for each anticipated user through the intersection. Projects with lower costs per intersection volume receive higher scores for this category.

Regional Input and Priority

(20 points maximum)

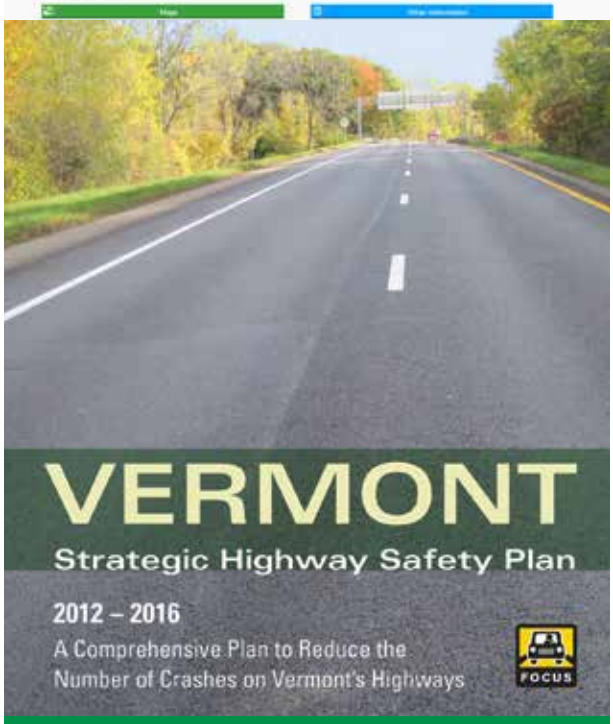
This factor is based on the ranking of projects from the RPCs/MPO. The RPCs/MPO rank the projects based on criteria they develop. Projects with higher regional rankings receive higher scores for this factor.

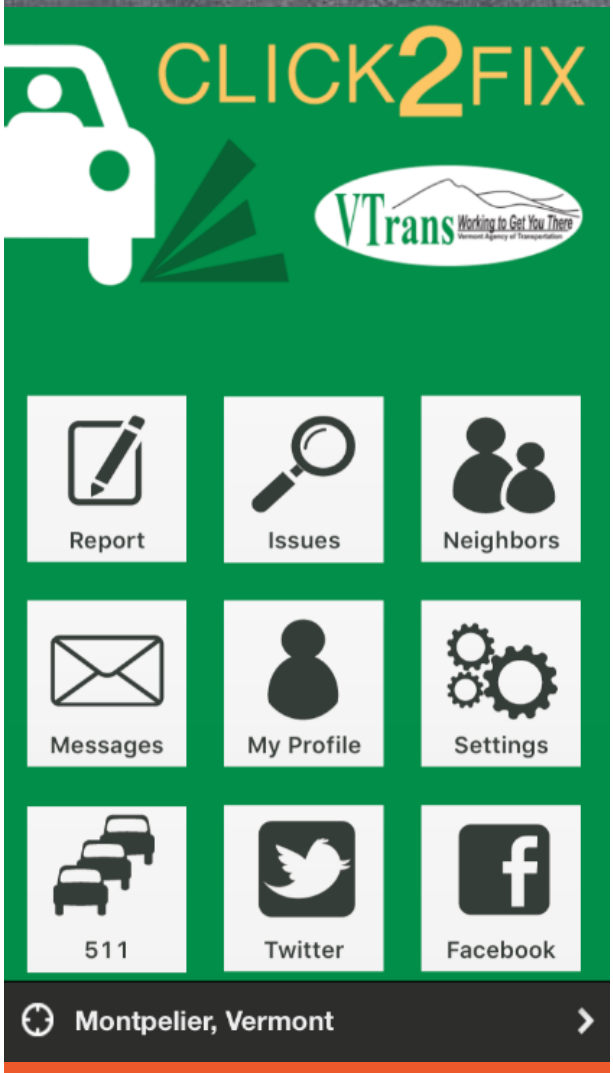
Project Momentum

(10 points maximum)

This factor considers:

- Where the project is in the development process
- Anticipated problems such as right of way or environmental permitting
- Funding





Resources

Additional reports available from the Agency of Transportation include:

Vermont Strategic Highway Safety Plan

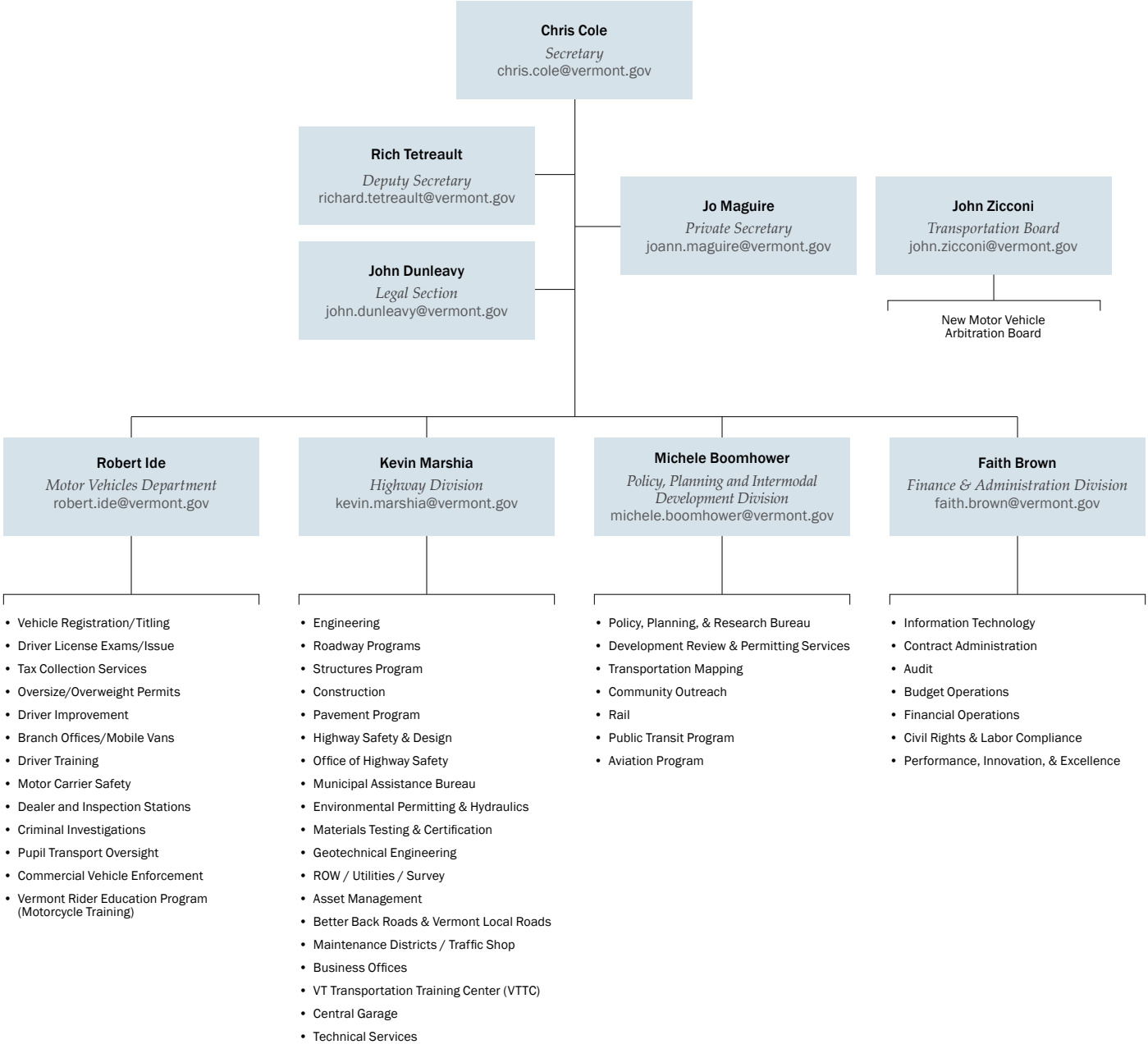
Tri-State Performance Measures Annual Report

Public Transit Route Performance Reviews

Annual Report to the State Aviation Council

http://vtrans.vermont.gov/publications-maps/reports

Agency of Transportation Organizational Chart



- Vehicle Registration/Titling
- Driver License Exams/Issue
- Tax Collection Services
- Oversize/Overweight Permits
- Driver Improvement
- Branch Offices/Mobile Vans
- Driver Training
- Motor Carrier Safety
- Dealer and Inspection Stations
- Criminal Investigations
- Pupil Transport Oversight
- Commercial Vehicle Enforcement
- Vermont Rider Education Program (Motorcycle Training)

- Engineering
- Roadway Programs
- Structures Program
- Construction
- Pavement Program
- Highway Safety & Design
- Office of Highway Safety
- Municipal Assistance Bureau
- Environmental Permitting & Hydraulics
- Materials Testing & Certification
- Geotechnical Engineering
- ROW / Utilities / Survey
- Asset Management
- Better Back Roads & Vermont Local Roads
- Maintenance Districts / Traffic Shop
- Business Offices
- VT Transportation Training Center (VTTC)
- Central Garage
- Technical Services

- Policy, Planning, & Research Bureau
- Development Review & Permitting Services
- Transportation Mapping
- Community Outreach
- Rail
- Public Transit Program
- Aviation Program

- Information Technology
- Contract Administration
- Audit
- Budget Operations
- Financial Operations
- Civil Rights & Labor Compliance
- Performance, Innovation, & Excellence

Boards and Councils

Transportation Board

John Zicconi
Executive Secretary

Nicola Marro
Chair

William Tracy Carris
David Coen
Richard Bailey
Larry Bruce
Vanessa Kittell
Thomas Dailey

Motor Vehicle Arbitration Board

Pauline Liese
Lemon Law Administrator
(802) 828-2943
LemonLaw@vermont.gov

Mitchell Jay, Chair
New Car Dealer Member

David Baker, Vice-Chair
Technician Member

David Curtis
Citizen Member

Peter Hood
Citizen Member

John Manahan
Citizen Member

Alternates
Stephen Carbone
Technician Member

Gina Germond
Citizen Member

Michael Loschiavo
New Car Dealer Member

Public Transit Advisory Council

Chris Cole
Secretary, Agency of Transportation
Michele Boomhower, *Director of Policy, Planning & Intermodal Development* (VTrans) is his designee

Mary Grant
Rural Community Transportation

Randy Schoonmaker
Deerfield Valley Transit Association

Jim Moulton
Addison County Transit Resources

Karen Walton
Chittenden County Regional Transit

Hal Cohen
Secretary, Agency of Human Services
Susan Bartlett is his designee.

Annie Noonan
Secretary, Department of Labor

Pat Moulton
Secretary, Agency of Commerce and Community Development
John E. Adams, *Planning Coordinator for Department of Housing and Community Development* (ACCD) is her designee.

Peter Johnke
Vermont Center for Independent Living

Sheila Burnham
Council of Vermont Elders (COVE)
Usually represented by Lee Cattaneo, COVE

John Sharrow
Mountain Transit

Bob Young
Premier Coach

Susan Schreibman
Acting Executive Director, Rutland Planning Commission

Karen Horn
Vermont League of Cities and Towns

Bethany Whitaker
Citizen

Senator Jane Kitchel of Danville

Rep. Mollie Burke of Brattleboro

Aviation Council

Chris Cole
Secretary, Agency of Transportation, Chair

Russell Barr
Paul Carroccio
Kelly Colling
George Coy
Robert Flint
Janice Peaslee
Edward Peet
William Rozensky
Patricia Sears
Douglas White

Non-voting Board Members
Pat Moulton

Rail Council

Chris Cole
Secretary, Agency of Transportation, Chair

David Allaire
Christopher Andreasson
Arthur Whitman
Joann Erenhouse
Carl Fowler
Charles Hunter
David Wulfson
Jan Eastman
Charlie Moore
Rick Moulton
Jeff Munger

Snow and Ice Control Plan

FOR STATE AND INTERSTATE HIGHWAYS

The Vermont Agency of Transportation (VTrans) is responsible for nearly 3,313 miles of roads and 2,655 bridges statewide, which equates to 6,626 snow-lane miles. Standing at the ready to battle winter weather are 275 dump trucks with plows and wings, 41 pickups with plows, and 68 loaders and graders, along with 375 licensed department operators.

Purpose and need

The purpose of the Snow and Ice Control Plan is to define the operational procedures and best management practices (BMPs) for storing and utilizing snow and ice control materials, and for performing winter maintenance activities. It defines the levels of service that VTrans will strive to provide at our facilities and on our highways. This plan allows for and encourages improvement in operational efficiency in providing the desired levels of service. It also provides guidance to help minimize leaching of salt-laden and other winter maintenance material runoff from state-owned paved surfaces and storage facilities into the ground or into surface waters.

Since storms vary dramatically across the state and occur over a variety of paved surfaces and traffic conditions, this Snow and Ice Control Plan (SIC Plan) is intended to be flexible. It is a guide structured to fit average conditions, but able to accommodate the wide variety of conditions that will be encountered by maintenance crews who are working to maintain safe roads at safe speeds.

Level of service: General information

VTrans Maintenance District snow and ice control operations are limited by the resources (budget, personnel, equipment and materials) available for winter maintenance. Consequently, VTrans' SIC Plan calls for "safe roads at safe speeds," and not "bare roads." This means that roads during a storm are maintained to allow safe travel at safe speeds, but that drivers should expect to see snow on the roadway during a storm. Most travel takes place during the day, so the majority of VTrans resources are used between 4 am and 10 pm. During those hours, the average plow routes will be between 2 to 2-½ hours. However, motorists should anticipate reduced coverage and varying road conditions at night, and should drive accordingly.

Corridor priorities

Four color-coded levels of service have been established and are shown on the "Corridor Priority Map" (see page 28). Priorities were established based on winter traffic volumes, roadway classification, and expected truck traffic. Note that critical areas such as intersections, areas of extreme curvature and problem grades may have to be treated differently to retain proper mobility and safety regardless of the corridor designation assigned to the balance of the route.

Corridor priority 1

Interstate and limited access highways (orange roads)

Snow will be removed between 3 am and 10 pm. Equipment such as tow plows and graders will be utilized to facilitate snow removal activities. During off hours, resources will be shifted to prioritize coverage on these routes. Materials noted under Section E will be applied as needed to keep the roads open for traffic and provide a safe surface on which to operate, though road surface may be snow covered at times during the storm. After the storm has subsided, bare travel lanes shall be provided as soon as practical and on these roads before all others. In most cases, this will occur within 4 daylight hours. A bare pavement shoulder to shoulder will be provided as soon as practical. The suggested maximum travel speed during the storm for "Orange Roads" is 50 mph, or 10 mph below the posted speed limit, whichever is less.

Corridor priority 2

High traffic highways & truck routes (blue roads)

Snow will be removed between 4 am and 10 pm. During off hours a skeleton crew will be used as needed. Materials noted under Section E will be applied as needed to keep the roads open for traffic and provide a safe surface on which to operate, though road surface may be snow covered at times during the storm. After the storm has subsided, a bare pavement shoulder to shoulder will be provided as soon as practical. The suggested maximum travel speed for "Blue Roads" is 45 mph, or 10 mph below the posted speed limit, whichever is less.

Corridor priority 3

Medium traffic highways (green roads)

Snow will be removed between 4 am and 10 pm. During off hours a skeleton crew will be used as needed. Materials noted under Section E will be applied as needed to keep the roads open for traffic and provide a safe surface on which to operate, though road surface may be snow covered at times during the storm. During the next regular working day after the storm has subsided, a bare pavement shoulder to shoulder will be provided as soon as practical. The suggested maximum travel speed for "Green Roads" is 40 mph, or 10 mph below the posted speed limit, whichever is less.

Corridor priority 4

Low traffic highways (yellow roads)

Snow will be removed between 4 am and 10 pm. During off hours a skeleton crew will be used as needed. Materials noted under Section E will be applied as needed to keep the roads open to traffic and provide a safe surface on which to operate. Road surface may be snow covered during and immediately following the storm. During the next regular working day after the storm has subsided, one third bare pavement, in the middle of the road, will be provided as soon as practical. As soon thereafter as practical, a bare pavement

shoulder to shoulder will be provided. The suggested maximum travel speed for "Yellow Roads" is 35 mph, or 10 mph below the posted speed limit, whichever is less.

Performance measurement and program effectiveness assessment

Performance during and immediately following individual storm events will be periodically monitored by the District General Manager and the Area Maintenance Supervisors to ensure VTrans is providing safe roads at safe speeds and performing snow and ice removal in accordance with established priorities noted under "Corridor Priorities."

In addition, to monitor performance, the following information will be reviewed by the Director of Operations, the Maintenance Transportation Administrator (MTA) and the District Transportation Administrators ("DTAs") annually to gauge program effectiveness:

- Material application rates
- Vehicle speeds during and after storm events
- Condition of travel lanes and shoulders during and after storm events
- Storm data (precipitation, air temperature, road surface temperature, wind speed, etc.)
- Plowing frequency

Overall performance during and following the winter season will be measured by monitoring material usage, labor costs, and equipment costs with respect to the number of lane miles maintained and the number of storm events addressed. Assessments will be made based upon consideration of the resources used versus the winter severity encountered, as well as through comparisons between adjacent and nearby geographical areas that have encountered similar winter conditions.

VTrans Operations Division will publish an annual report each spring which summarizes the previous winter, and VTrans' performance according to the above mentioned metrics.

Materials and application procedures

The materials in this section are those that are primarily used by VTrans for snow and ice control on highways throughout Vermont. This section describes the general purpose of each material, the typical use that is expected under normal conditions, and the application procedure. Choice of materials will depend on experienced consideration of the following variables: pavement temperature, nature of the particular snow and ice event, forecast storm conditions, air temperature and wind velocity, traffic volume, time of day/year, and the availability of resources.

Procedures for determining application rates and methods will be the responsibility of District Personnel based on this SIC Plan, available material application technology, and other factors that vary across the state from region to region.

Salt (NaCl)

Unless otherwise designated for specific routes, salt is the primary material used on the majority of roads maintained by VTrans. Salt is used to prevent the bonding of snow and ice onto the pavement surface, and to melt snow and ice that cannot be removed by plowing. Unless salt is pre-wetted with a liquid having a lower working temperature than sodium chloride, the lowest effective working temperature is approximately 15 degrees F.

Application Rates shall normally be selected from the "Salt Application Quick Reference Guideline" and shall be based

Salt Application Quick-Reference Guidelines *(**Double these rates for centerline applications**)*

Pavement Temp. Range	Application Rate (#/LM)	Pre-Wet Material	Comments
Above 32˚	0 to 100	Salt Brine or Blend	A little salt goes a long way when temperatures are near freezing.
25˚ to 32˚	100 to 200	Salt Brine or Blend	Salt is very effective here. Pre-wetting with a blend will allow lower application rates.
20˚ to 25˚	200 to 300	Salt Brine, Chemical, or Blend	Salt effectiveness is dropping off in this range. A blend or straight chemical will help.
15˚ to 20˚	300 to 400	Chemical or Blend	Pre-wetting is especially important. Liquids will provide the extra boost needed.
15˚ or Below	Snow is usually dry and blowing in this range. If no ice or pack exists, plow only—DO NOT APPLY MATERIAL.		If necessary, spot treat icy patches with abrasives. If glazing occurs on high-volume, high-speed, sand will not last and higher salt applications, with pre-wetting, will be needed.

General Notes

- Application rates should be on the lower end when temperatures are on the higher side of the range or remaining steady. Falling temperatures, and temperatures on the lower side of the range, will require applications on the higher side, and possibly in the next range if dropping rapidly.
- In any of the ranges, if the snow is dry and blowing off the roadway, do NOT apply material.
- Pre-wetting under wet storm conditions is not required. In cases where the only pre-wetting liquid available is a high-performance chemical, it is better to save those products for the drier and colder conditions.
- This is a guideline only. Application rates will vary based on climatic conditions experienced in the field, as well as corridor priority.

upon the pavement temperature, snow-ice conditions encountered, and anticipated trends. Initial applications should normally be 25% higher than the average rate indicated by the chart. Generally, salt will be used when the pavement temperatures are 15 degrees F or higher. When pavement temperatures are less than 15 degrees F and not rising, winter sand may be used when necessary for temporary traction. During cold storms, when the pavements are dry and the snow is blowing off the travel lanes, the application of salt or winter sand is to be avoided for as long as possible since it will hasten the formation of ice on the pavement. When ice does begin to form under these conditions, considerable judgment will be required on whether to use salt that is pre-wetted with liquid or spot applications of winter sand.

"Application Rates vs. Miles You Can Treat" is provided as a quick reference guide for maintenance workers and supervisors.

Salt Application Rates vs. Miles You Can Treat

Application Rate (Pounds Per Lane Mile)

Number of Tons	100	150	200	250	300	350	400
1	20.0	13.3	10.0	8.0	6.7	5.7	5.0
2	40.0	26.7	20.0	16.0	13.3	11.4	10.0
3	60.0	40.0	30.0	24.0	20.0	17.1	15.0
4	80.0	53.3	40.0	32.0	26.7	22.9	20.0
5	100.0	66.7	50.0	40.0	33.3	28.6	25.0
6	120.0	80.0	60.0	48.0	40.0	34.3	30.0
7	140.0	93.3	70.0	56.0	46.7	40.0	35.0
8	160.0	106.7	80.0	64.0	53.3	45.7	40.0
9	180.0	120.0	90.0	72.0	60.0	51.4	45.0
10	200.0	133.3	100.0	80.0	66.7	57.1	50.0

Lane Miles You Can Treat

Winter Sand

Winter sand shall consist of coarse, clean, sharp sand or other granular material. Sand is generally used to provide traction at intersections and corners during icy conditions. When conditions warrant, salt may be mixed with sand to break the bond between the ice pack and road surface.

Sand should generally be used in the following situations:

- On hills, curves and intersections where the supervisor determines that temporary traction is needed
- In situations where salt cannot work fast enough (i.e. accident scenes involving excessive ice)
- When pavement temperatures are too low for salt to work properly
- When wet pavements exist on lower volume corridors and falling nighttime temperatures may cause glazing

Liquids

A variety of liquids are used to either "pre-wet" solid materials that are applied from the plow trucks or to "anti-ice" the highways in advance of a storm event. Following are descriptions of the types of liquids used by VTrans, and descriptions of the "anti-icing" and "pre-wetting" process.

Salt Brine

Salt brine is a 23% solution of salt in water. It can be used to either "pre-wet" solid materials that are applied from the plow trucks or to "pre-treat" the highways in advance of a storm event. However, unless salt brine is mixed with additives, the effective working temperature is the same as salt in its solid form—approximately 15 degrees F or greater.

Chemical Additives

Chemical additives are used to pre-wet the solid materials that are applied by the plow trucks to lower the effective working temperature of salt and to help keep the solid materials on the road during the application process. Examples of such chemicals may include magnesium chloride ($MgCl_2$), calcium chloride ($CaCl$) and a number of proprietary products including an "Organic Based Performance Enhancer". Chemical additives shall include a corrosion inhibitor. A 3% solution of the corrosion inhibited chemical product shall have a corrosion value at least 70% less than that of a 3% solution of sodium chloride.

Liquid Chloride Blends

Liquid Chloride blends are used to stretch the working range of salt brine without incurring the full cost of a chemical product.

Anti-icing

For anti-icing with salt brine, the application rates per lane mile may vary when pavement temperatures during the storm are anticipated to be 15 degrees F or greater. Application will generally occur on designated routes 6 to 8 hours prior to the projected start of the storm, however, up to 12 hours may be permissible based on timing of the storm. Anti-icing may also be used to spot treat bridge decks and other problem areas located on any priority corridor whenever weather forecasts indicate the possibility of glazing. When anti-icing the roads with a blend, application rates may be cut back.

Pre-wetting

Pre-wetting is the application of liquids onto solid materials. In general, salt brine shall normally be used when the pavement temperatures are above approximately 15 degrees F and chemical additive or blend shall be used when below.

Equipment

Washing Equipment

Snow and ice control equipment are to be thoroughly washed during regular working hours as soon after use as practicable. Particular attention is to be paid to the areas of equipment in contact with sand, salt and liquid chlorides. With heated power washers, truck washing will normally be accomplished outdoors in designated areas.

Overnight Loads

In general, trucks should not be left loaded overnight since it subjects the equipment to unnecessary wear. However, in the event that a winter storm is forecast at some point during the approaching night, a crew may load trucks to enable a quicker response to the storm. Such loading shall be in compliance with the following:

a) Load size shall not exceed a level-load;

b) If the storm does not occur, the truck(s) loaded in advance shall be unloaded and washed out the following working day.

Spreaders

Each spreading unit shall be calibrated annually, and after any spreader or hydraulic maintenance, to insure that selected rates of application are attained.

Operations

Mailboxes and Other Structures Within the Highway Right-Of-Way

Occasionally mailboxes or other devices are damaged by snow plowing operations due to poor visibility, the mailbox being buried in a snow bank or the weight/volume of the snow being plowed. This damage is not deliberate and in most cases is unavoidable. VTrans is not responsible for damage and does not repair, replace or re-erect boxes that are located within the highway right-of-way unless physically struck by a VTrans plow truck. In these cases, VTrans will replace the mailbox at no cost to the property owner with a generic United States Post Office approved box.

Widening or Pushing Back Snow Banks

Following storms with heavy snowfall or when several storms result in substantial snow banks, VTrans will undertake a roadway widening procedure, which will push back the snow banks. This is generally done during normal working hours, and is a necessary operation because it accomplishes the following:

a) Provides room for future snow storage;

b) Reduces or prevents melted snow from running out onto the roadway pavement and creating icing conditions;

c) Increases safe sight distance at intersections and driveways;

d) Maintains a uniform line by eliminating protrusions at driveways and intersections.

Unfortunately, there is no way to prevent depositing snow in previously cleaned driveways or walkways except to leave a hazardous projecting mound of snow. With thousands of driveways of all sizes and descriptions along our highway system it is impossible to clear these individual drives as the cost would be prohibitive.

Sidewalks

The maintenance of the sidewalks, including snow removal, is the responsibility of the local community. This is firm and longstanding statewide. In addition, in those communities where on-street parking is permitted, snow removal from the parking areas, including plowing and or hauling away, is a local responsibility.

Tow Plows

Tow plows will be used primarily on limited access facilities and interchanges to clear multiple lanes at the same time. An effort will be made to avoid impacts to traffic during morning and evening commute times.

State and federal regulatory oversight

Winter Maintenance Practices located within designated National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) areas, including Watersheds of Sediment Impaired Waterways, and in the Lake Champlain Watershed Basin

Winter maintenance activities in these areas have and will continue to be regulated and addressed under the VTrans MS4 Stormwater Management Plan. Please refer to the VTrans Operations Environmental Program web site for more information regarding the above referenced designations as they may change from time to time and for information regarding the VTrans MS4 Stormwater Management Plan.

Winter Maintenance Practices: Statewide Implementation and Jurisdiction

VTrans SIC Plan has and will continue to be implemented across the state and will not be subject to ANR jurisdiction outside the designated MS4 & Lake Champlain Basin areas. The Operations Environmental Program will forward to the state Agency of Natural Resources (ANR) the SIC Plan as often as updates are made.

Best management practices, tracking and reporting

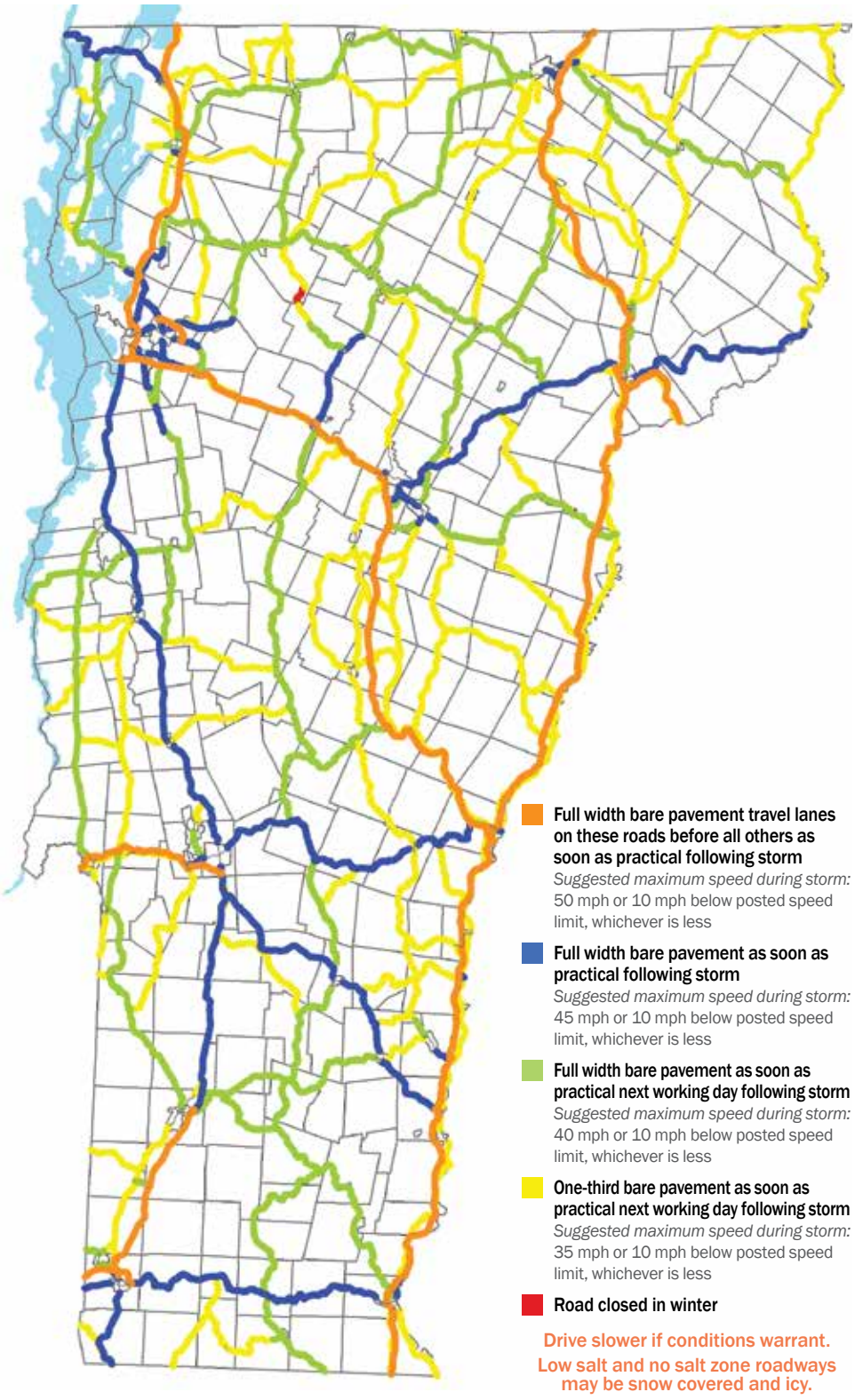
Best management practices associated with winter maintenance activities in conformance with the provisions of the VTrans SIC Plan include, but are not limited to:

1. Normal winter maintenance will conform to the provisions of the current VTrans winter maintenance standards included in this SIC Plan.
2. VTrans shall disseminate the SIC Plan statewide to employees involved in the application and storage of winter snow and ice control materials and train such employees in the proper performance of these standards. The Operations Environmental Program Manager will ensure that this information is posted on the VTrans Web Site, kept current, and made available to ANR.
3. Low salt and no salt roads (zones) will be signed in the field accordingly.
4. Weekly internal reporting of salt/sand usage will be completed by Operations Division staff commencing on the first week of November and terminating 26 weeks later, typically with the last week of April. VTrans shall make note of any single de-icing salt application

in excess of 800 pounds per two-lane mile and report such incidents as part of the weekly reporting. The Director of Operations will make this information available to ANR upon request.

5. VTrans shall fully cover with impervious material all bulk salt storage areas under their control to reduce the amount and concentration of salt to the runoff of stormwater from these storage areas. All bulk salt storage shall be situated on an impervious material so as to minimize leaching of salt-laden runoff into the ground.
6. VTrans shall locate sand piles at District Maintenance Facilities in areas that will not result in sediment-laden runoff into surface waters. If sand piles are located in close proximity to surface waters then VTrans shall install adequate erosion prevention and sediment control practices to ensure sediment-laden runoff will not impact surface waters.
7. When it is desirable to charge sand piles with salt to prevent freezing (resulting in mixes or blends), the percentage of salt in the pile shall not exceed 5%.
8. VTrans will implement these activities on a statewide basis in accordance with the protocols and best management practices established within the MS4 and Lake Champlain Basin areas for seamless operational efficiencies across the state and to support the stated purpose of this SIC Plan. The Operations Environmental Program will report on these tasks as a part of each annual MS4 report to ANR.
9. VTrans will plan, organize and conduct an annual public outreach campaign associated with safe winter driving, as funding allows.
10. Nothing in this SIC Plan shall preclude the agency from utilizing experimental and new technologies to achieve higher efficiency in a cost effective and environmentally sensitive manner. VTrans actively supports innovation and promotes the idea of finding new and better ways to reach our goals.

Corridor Priorities (Effective November 2014)



Projects Completed in 2015

Rail Projects

Maintenance Projects Completed 2015

Project Name & Number	Line	DOT Crossing #	Project Type	Asset
Barre	WACR M&B	837-341H	Maintenance	Crossing
Barre Town	WACR M&B	837-360M	Maintenance	Crossing
Fair Haven	CLP	248-944E	Maintenance	Crossing
Richmond	NECR	247-685S	Maintenance	Crossing
Shelburne	VTR Northern	851-409D	Maintenance	Crossing

Standard and Emergency Projects Completed 2015

Project Name & Number	Line	DOT Crossing #	Project Type	Asset
Hardwick RREW12U	LVRT		Emergency	Slope
St. Johnsbury REW4001A	LVRT		Emergency	Slope
Barton STP 0286(6)	WACR Lyndonville	850-896Y	Programmed Project	Crossing
Clarendon STP 2033(25)	GMRC Bellows Falls	859-894R	Programmed Project	Crossing
Ferrisburgh STRB1502	VTR Northern		Emergency	Bridge
Hartford STRB15(6)	WACR Conn-River		Programmed Project	Bridge
Leicester STP 2033(24)	VTR Northern	851-341S	Programmed Project	Crossing
Ludlow STP 2033(23)	GMRC Bellows Falls	859-859C	Programmed Project	Crossing

Construction Projects

Regular Projects Substantially Completed in 2015

Project Name & Number	Route Number	Description of Work
ALBURGH-COLCHESTER STPG SIGN(45)	US 2	Install New Traffic Signs
ANDOVER BHF 016-1(29)	VT 11	Bridge 41 Superstructure Replacement
BARRE TOWN STP SCRP(10)	VT 14	New Box Culvert
BARTON BRO 1449(31)	TH 2	Replace Bridge 8
BARTON STP 0286(6)	WACR	Reconstruct Rail Crossing
BARTON-DERBY STPG SIGN(46)	US 5	Install New Traffic Signs
BERLIN STPG SGNL(40)	VT 62	Intersection Improvement; New Signals and Turn Lanes
BERLIN-BARRE CITY NH SURF(44)	VT 62	Paver Placed Surface Treatment
BETHEL-BROOKFIELD IM SURF(54)	I-89	Paver Placed Surface Treatment
BLOOMFIELD STP 0271(21)	VT 102	Slope Stabilization and Drainage Improvements
BRADFORD CMG PARK(33)	VT 25	Reconstruct Park and Ride
BRIDGEWATER BF MEMB(34)	US 4	Bridge Membranes
BRIDPORT STP CULV(29)	VT 125	New Box Culvert
BRISTOL BRF 021-1(29)	VT 116	Replace Bridge 6
BRISTOL STP F 021-1(15)	VT 116	Replace Bridge 8
BROOKFIELD BRF FLBR(2)	VT 65	Replace Floating Bridge
BROOKFIELD-BERLIN IM RUTF(14)	I-89	Mill and Fill Travel Lane
BURKE BRF 0269(13)	VT 114	Replace Bridge 13
CAMBRIDGE BRO 1448(39)	TH 46	Replace Bridge 28
CASTLETON BRF 015-2(10)	VT30	Replace Bridge 93
CASTLETON-WEST RUTLAND BF BPNT(15)	US 4	Bridge Painting
COLCHESTER STP 5600(12)	TH27	Replace Bridge 12
CORINTH BRO 1447(29)	TH 16	Replace Bridge 36
CLARENDON STP 2033(25)	GMRC	Reconstruct Rail Crossing
ESSEX STP 2912(2)	VT 128	Roadway Stabilization Flood Resiliency
FAIR HAVEN-WEST RUTLAND BF MEMB(35)	US 4	Bridge Membranes
FAIRFIELD BRF 0281(25)	TH 1	Replace Bridge 14
FAIRFIELD BRO 1448(41)	TH 47	Replace Bridge 46
GUILFORD-ROCKINGHAM IMG SIGN(44)	I-91	Install New Traffic Signs
HARDWICK RREW12U	LVRT	Reconstruct Rail Trail
HARTFORD IM 091-2(79) (CMGC)	I-91	Replace Bridges 43N & 43S
HARTFORD -SHARON IM SURF(46)	I-89	Paver Placed Surface Treatment
IRASBURG STP CULV(30)	VT 58	New Box Culverts (2)
JAMAICA ER STP 013-2(12)	VT 100	New Box Culvert
JERICHO STP FTBR(3)	VT 15	New Pedestrian Bridge
JOHNSON BRF 030-2(26)	VT 15	Replace Bridge 32
LEICESTER STP 2033(24)	TH 12	Reconstruct Rail Crossing

Regular Projects Substantially Completed in 2015, continued

Project Name & Number	Route Number	Description of Work
LINCOLN BRF 0188(8)	TH1	Replace Bridge 19
LUDLOW STP 2033(23)	GMRC	Reconstruct Rail Crossing
MIDDLESEX BRF 024-1 (37)	VT 12	Replace Bridge 77
MORETOWN ER STP 0167(15)	VT 100B	Slope Stabilization and Drainage Improvements
NORWICH-FAIRLEE IM SURF(48)	I-91	Paver Placed Surface Treatment
PERU STP SCRP(4)	VT 11	New Box Culvert
PUTNEY CMG PARK(26)	PARK N RIDE	New Park and Ride
RANDOLPH BRO 1444 (57)	VT 14	Replace Bridge 35
RANDOLPH STP 2932(1)	VT 66	Reclaim and Resurface
RANDOLPH-ROXBURY ER STP 0187(11)	VT12A	Reclaim and Resurface
RICHFORD BRF 0302(29)	TH 3	Replace Bridge 6
ROCHESTER ER STP 0162 (18)	VT 73	Replace Bridge 19
ROCKINGHAM BRF 0126(12)	VT 121	Replace Bridge 11
ROYALTON BRS 0147(13)	VT14	Replace Bridges 27 & 28
SHARON ER STP 0147(20)	VT 14	Slope Stabilization and Drainage Improvements
SHREWBURY BHO 1443(49)	TH 6	Covered Bridge Rehabilitation
SHREWSBURY STP 1443(44)	TH 4	Replace Bridge 37
SPRINGFIELD CMG PARK(32)	US 5	New Park and Ride
ST JOHNSBURY-LYNDON STP 2936(1)	US 2/US 5/ALT US 5/ ALT VT 122	Resurfacing
ST. JOHNSBURY REW4001A	LVRT	Slope Stabilization and Drainage Improvements
STATEWIDE NORTH REGION STPG MARK(302)	VARIOUS	Pavement Markings
STATEWIDE SOUTH REGION STPG MARK(303)	VARIOUS	Pavement Markings
STATEWIDE STP CRAK(33)	VARIOUS	Crack Filling
STATEWIDE SW REGION STPG SIGN(47)	VT 125	Install New Traffic Signs
STOCKBRIDGE-BETHEL STP 2910(1)	VT 107	Reclaim and Resurface
STOWE BRF 0235(11)	VT 108	Replace Bridge
SWANTON-SHELDON STP 2715(1)	VT 78	Resurfacing
TOWNSHEND STP 015-1(22)	VT 30	Ledge Removal
WAITSFIELD-MORETOWN STP SURF(39)	VT 100	Paver Placed Surface Treatment
WALDEN BRF 030-3(5)	VT 15	Replace Bridge 83
WARDSBORO BF 013-1(21)	VT 100	New Box Culvert
WARDSBORO BF 013-1(22)	VT 100	New Box Culvert
WARDSBORO-JAMAICA ER STP 013-1(17)	VT 100	New Box Culvert
WATERBURY AREA STP WKZN(9) C\2	US2 & VT100	New Traffic Signal
WATERFORD IM SURF(47)	I-93	Paver Placed Surface Treatment
WINHALL STP CULV(31)	VT 30	New Box Culvert
WOODFORD ER NH 010-1(47)	VT 9	Slope Stabilization and Drainage Improvements
WOODSTOCK ER 0241(40)	VT 12	Slope Stabilization and Drainage Improvements

Municipally Managed Projects

Scoping Projects Substantially Completed in 2015

Arlington STP BP13(14)	Scoping study for pedestrian facilities along VT 7A
Bennington STP BP13(13)	Scoping study for the Ninja Bicycle Path
Berlin STP BP13(16)	Scoping study to improve bike/ped access along US302
Hartford TAP TA13(7)	Bicycle/Pedestrian scoping study in Quechee Village
Highgate STP BP13(20)	Scoping study of Bike/Ped access along VT78
Montpelier TAP TA13(8)	Bicycle and pedestrian scoping for various streets
North Bennington STP BP13(22)	Scoping study for Mechanics Street
Plainfield STP BIKE(57)	Scoping study for pedestrian improvements
Stowe-Morristown STP EH11(12)	Scoping study for bicycle/pedestrian improvements along VT100
West Rutland STP SRIN(40)	Safe-Routes-To-School feasibility study for pedestrian school travel
Wilmington TAP TA14(10)	Study to analyze bike lanes/sidewalks along Main St
Windsor STP BP13(23)	Scoping study of Bike/Ped access along VT78
Wolcott STP EH10(11)	Trailhead scoping for the Lamoille Valley Rail Trail
Woodstock-Barnard PLH PVCP(1)	Feasibility Study for Acquisition of Scenic Easements along the Prosper Valley

Construction Projects Substantially Completed in 2015

Brattleboro STP BIKE(58)	Pedestrian facilities improvements to Western Ave./Union St. Intersection
Brattleboro STP EH10(15)	Pedestrian facilities improvements on Main Street
Bristol STP EH09(2)	Lighting and improvements to Bristol Village Green
Burlington STP 5000(17)C/3	Shared use path improvements
Burlington STP 5000(17)C/4	Shared use path along Battery Street
Burlington STP EH10(19)	Relocation of the Burlington Bike Path
Burlington STP SDWK(13)	Sidewalk construction
Burlington STP SDWK(3)	Pedestrian facilities improvements
Burlington STP SDWK(6)	Sidewalk along Cliff Street
Burlington STP SRIN(23)	Pedestrian signals improvements at various locations
Cabot ST PRDP(141)	New park and ride facility
Canaan ST PRDP(151)	New park and ride facility
Castleton ST PRDP(142)	Improvements to existing park and ride facility
Corinth ST PRDP(131)	New park and ride facility
Essex Town STP BP13(24)	Shared use path along VT 2A
Essex Town STP SDWK(9)	Sidewalks along VT 2A
Hinesburg STP EH08(19)	Sidewalk and landscaping along VT 116
Ira ST PRDP(143)	New park and ride facility
Jericho STP EH12(10)	Shared use path along Browns Trace Road
Jericho STP SDWK(22)	Sidewalk along Browns Trace Road
Killington ST PRDP(133)	New park and ride facility
Lake Champlain Scenic Byway	Signage, visitor information and various improvements
Lyndon STP EH05(18)	Pedestrian Improvements at covered bridge
Monkton STP EH08(4)	Roadway underpass for amphibians along Monkton Road
Plainfield ST PRDP(134)	Improvements to existing park and ride facility
Ryegate ST PRDP(125)	New park and ride facility
St. Albans City TAP TA14(2)	Sidewalks, lighting and landscaping along Main Street
Starksboro ST PRDP(106)	Improvements to existing park and ride facility
Waitsfield STP EH08(6)	Bridge rehabilitation on Bridge Street over the Mad River
Westford ST PRDP(127)	New park and ride facility
Williston STP SDWK(15)	Sidewalk along VT 2A
Windsor STP SRIN(22)	Sidewalk improvements along VT 44
Better Back Roads Projects	Municipal Mitigation projects at various locations statewide

We hope you've enjoyed this year's edition of the Fact Book. There's always something new happening here at VTrans. For all the latest on what's going on, we encourage you to visit our website where you can download many other reports, statistics, maps and other information about Vermont's transportation network at http://vtrans.vermont.gov.

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