



Vermont Agency of Transportation

Performance Measures

August 5, 2008



VTrans has been systematically developing performance measures since 2001, and they have become a crucial part in managing the assets and services entrusted to the Agency. Performance measures indicate the effectiveness of the Agency in accomplishing its mission. Measures are only useful if acted upon. For example, the condition and performance of bridges, pavement, and road structure affect where funding emphasis should be placed.

* * *

In 2002, the General Assembly instructed the Agency to begin using an *asset management* approach to transportation investment. This requires VTrans to maximize public benefit by evaluating the best way to maintain and invest in the State's existing transportation system. Performance measures are essential to doing this. VTrans is using performance in preparing the transportation program submitted to the legislature. As each program is developed, the Agency examines the impact the proposed program will have on the measures. As a result, the strategic performance measures are organized according to type of transportation "asset", rather than by Agency departments or programs, and are presented in the following areas:

- Highway
- Aviation
- Public Transportation
- Rail
- Bicycling and Walking
- Maintenance
- Buildings
- Central Garage
- Department of Motor Vehicles

This *Performance Measures* document reports on the strategic measures established by VTrans to indicate how well the state's transportation assets are being managed and maintained. Over time, more performance measures will be added as needed, and others removed when they are no longer applicable. Each performance measure either has a target performance measure, or VTrans is collecting history to develop one.

Where possible, VTrans rated the asset condition from "Excellent" to "Very Poor" and explains the meaning of the condition in understandable terms. The asset condition, its importance, and its maintenance requirements influence the budget.

1. Highway Performance Measures

Pavement:

VTrans collects pavement condition information from a specially equipped van that travels about half of state highways annually. The entire highway system is covered within a two year period. Data on roughness, rutting, and cracking is fed into the Agency's Pavement Management System which calculates a pavement condition index. The index is a measure of the overall pavement quality. It quantifies what motorists feel and other distresses that decision makers need to manage the highway system. Vermont, New Hampshire and Maine use the same computer software systems to analyze pavement conditions and are working on developing regional performance measures.

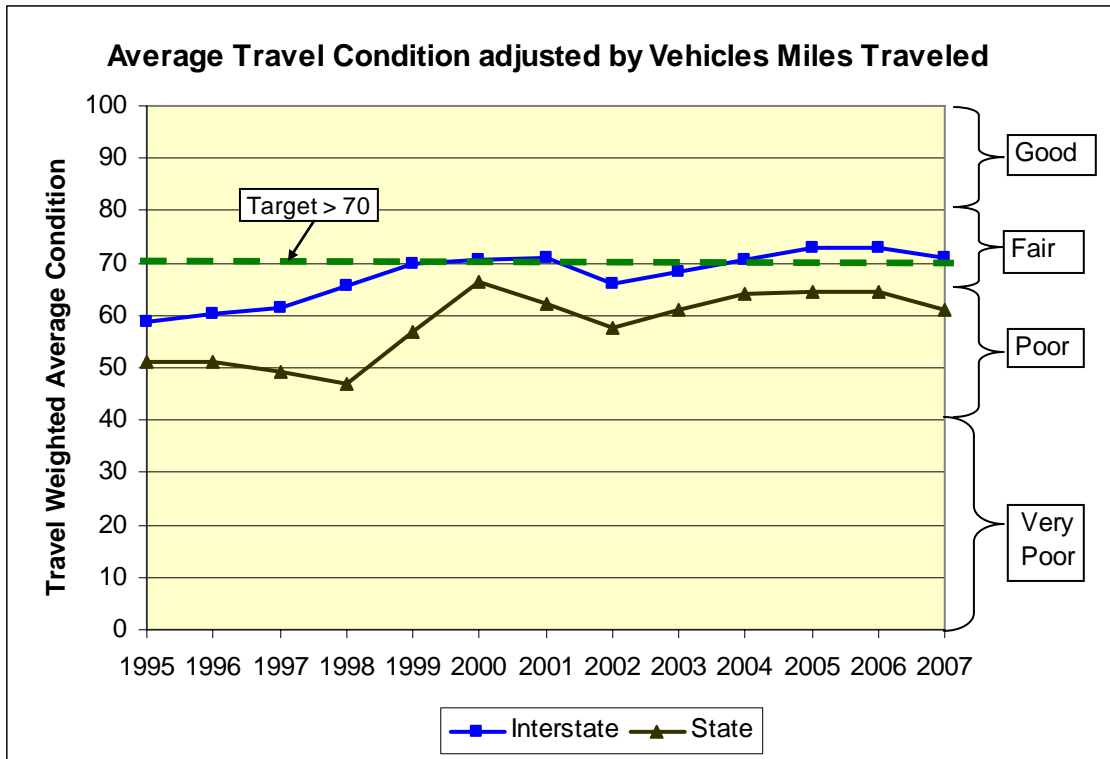
When making paving investment decisions, VTrans places higher priority on highways with greater vehicle miles traveled; however, we also recognize that pavements must be maintained at a certain minimum level in order to provide mobility regardless of traffic volume. The three strategic performance measures described below reflect how well the Agency best serves the traveling public and provides mobility to all.

- **Average travel conditions.**

Pavement conditions are surveyed and rated on a scale of 0 to 100 based on rutting, cracking, and roughness. Highway segments are weighted by their respective traffic volumes and then are averaged. The condition index goal is 70. A condition index under 60 is noticeable in terms of roughness, rutting and cracking. More importantly, if pavement problems are not addressed at the correct time, pavement deterioration will accelerate and will lead to more costly repairs in the future.

Interstate highways are held to a higher standard because of greater speeds, traffic volume, commerce, national security, and safety. VTrans is in the process of developing separate goals for the Interstate.

In Figure 1 the average travel condition on state highways correlates with the wide variations in pavement funding over the last ten years. Pavement condition is highly sensitive to doing the right treatment at the right time.

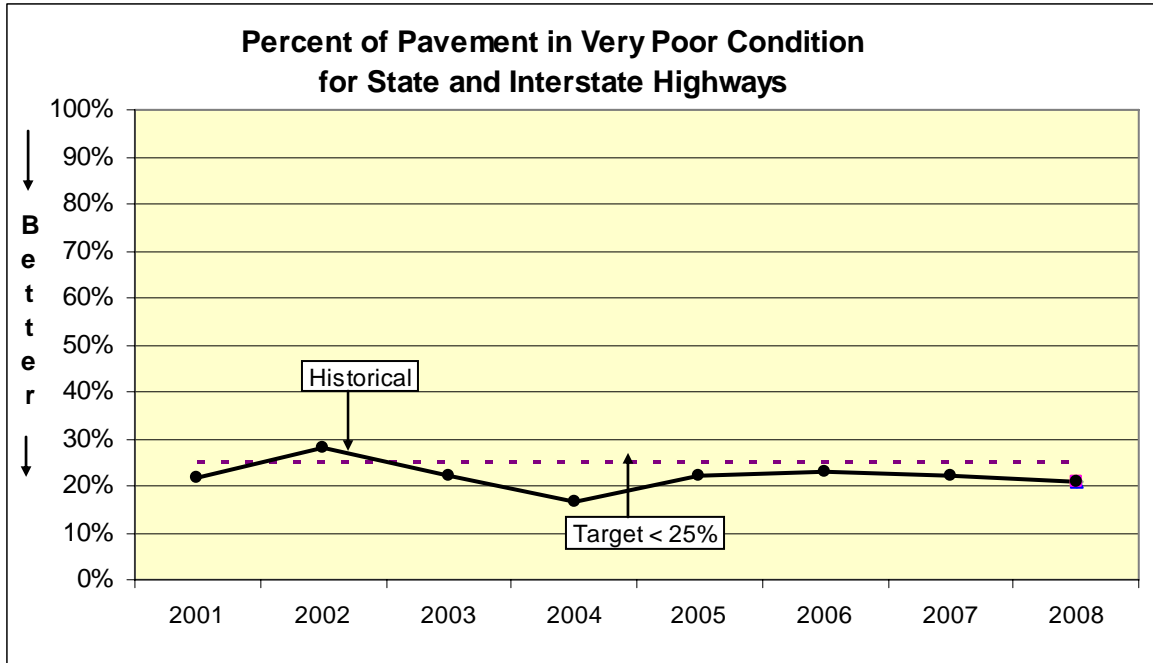


Source: VTrans Pavement Management Section

Figure 1: Average travel condition. “Adjusted by Vehicle Miles Traveled” means that the more heavily traveled roads “count” more when calculating the average condition.

- **Percentage of miles of pavements rated in "very poor" condition:**

This measures VTrans’ ability to provide at least a minimum level of accessibility to all highway users without appreciable discomfort, costs, and risks. “Very poor” is defined as a pavement index of 40 or less that is characterized by severe pavement deterioration, drivers weaving, and compromised safety and mobility. Although Figure 2 below shows that VTrans has held steady the amount of very-poor pavement since 2002, we must continue to apply the right pavement treatment at the right time to avoid losing ground.

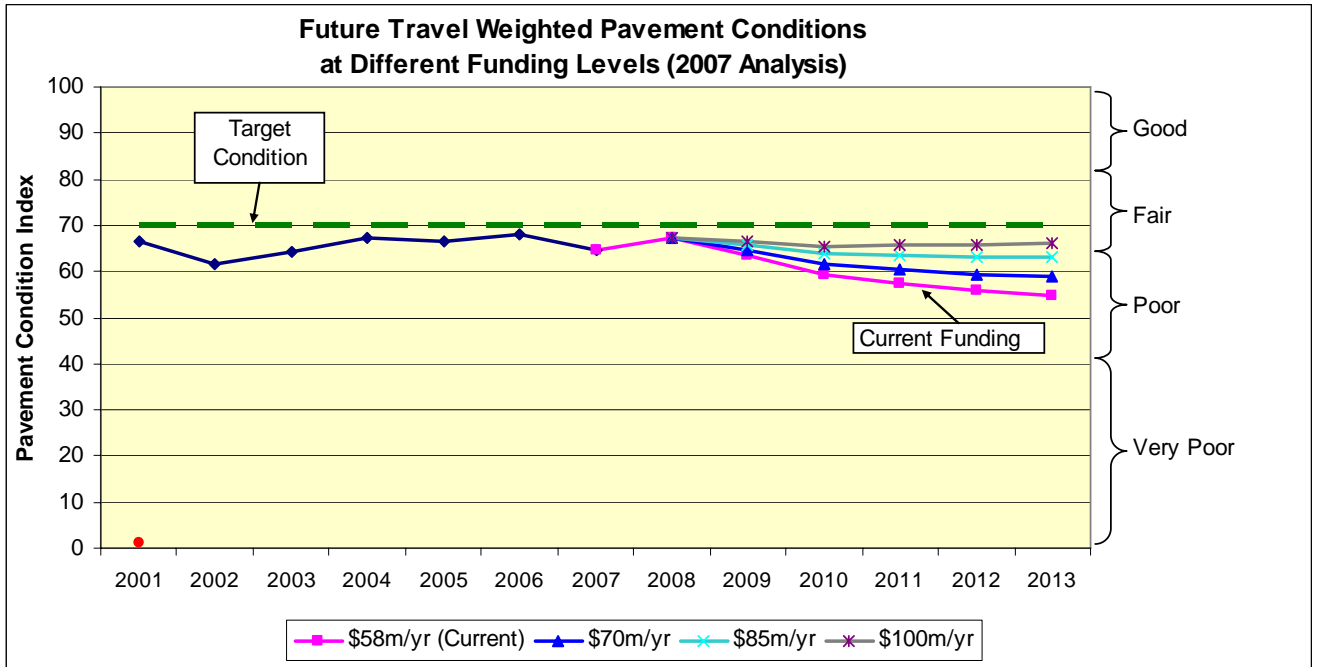


Source: VTrans Pavement Management Section

Figure 2: Percentage of miles with very-poor pavement condition for state and interstate highways

- **Future travel-weighted pavement condition at different funding levels:**

Good asset management principles practiced by most state DOTs require that the right pavement treatment is done at the right time. Relatively inexpensive treatments can extend pavement life for years if problems are caught early enough. If not, pavement quickly deteriorates to the point where expensive reconstruction is the only solution. A “preservation-first” policy delivers a much better overall network pavement condition for the same money.



Source: VTrans Pavement Management Section

Figure 3: Future Travel Weighted Pavement Conditions at Different Funding Levels

Definitions of “Good” through “Very Poor” pavement conditions are as follows:

Pavement				
	Good	Fair	Poor	Very Poor
3200 two lane miles maintained by the State including Interstate, State and US routes, and Class 1 Town Highways.	Like new pavement with few defects perceived by drivers. (Pavement Cond. Index 80-100)	Slight rutting, and/or cracking, and/or roughness become noticeable to drivers. (Pavement Cond. Index 65-79)	Multiple cracks are apparent, and/or rutting may pull at the wheel, and/or roughness causes drivers to make minor corrections. (Pavement Cond. Index 40-64)	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 road defects. (Pavement Cond. Index 0 - 39) 21% of Vermont pavement is poor.

Source: VTrans Pavement Management Section

Bridge System:

VTrans is responsible for 2688 “long” bridges (>20 feet) which are inspected at least every other year and reported to the FHWA for the National Bridge Inventory. Bridges are a critical asset in Vermont’s transportation network. It is vital that this asset remain in good condition, is safe for the public, and carries all traffic allowed for use while also preserving the historical bridges that are part of the Vermont landscape.

Many Vermont bridges were built after the 1927 flood and during the interstate construction era, and are in need of major repairs or replacement. Timely preventive maintenance can add years to the life of a bridge. Unfortunately, time, general wear and tear, and deferred maintenance have pushed bridge needs above annual funding levels.

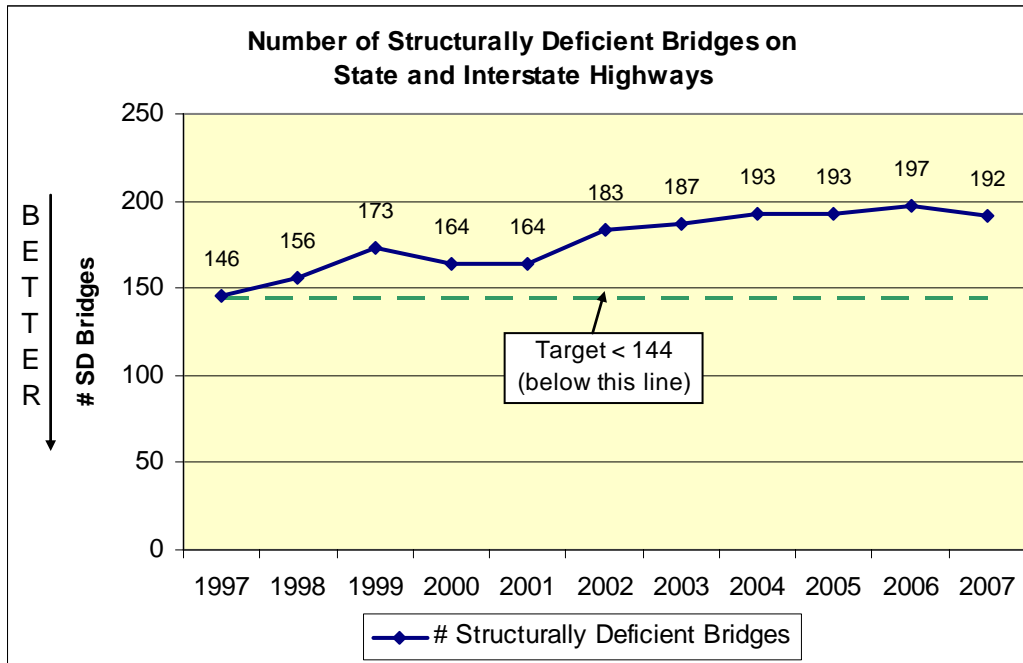
The more traditional way to measure the health of the nation’s bridge network is by determining the number of structurally-deficient bridges. A bridge is determined structurally deficient when one of the three major components (deck, superstructure, and substructure) receives a poor condition evaluation rating. Poor condition is characterized by deterioration, spalling, scour, and advanced section loss. Inadequate waterway capacity or load carrying capacity* may also trigger the structurally deficient rating. Most structurally deficient bridges are safe to use, but if left uncorrected, further deterioration may cause the bridge to be posted for reduced weight or closed. Nationwide, 13.1% of bridges are structurally deficient. Vermont has a greater percentage of structurally deficient bridges at 20.5% on state highways, and 11.2% on the Interstate.

VTrans is exploring additional performance measures that more accurately quantify critical bridge conditions. Average network condition and bridge health index are two options being examined. Vermont, New Hampshire, and Maine all use the Pontis Bridge Management system. VTrans continues to work with those other states to consider common performance measures for our region.

- **Number of structurally deficient bridges on state and Interstate highways:**

State and Interstate bridges handle most of the state’s traffic. Although VTrans repairs and replaces a number of bridges every year, other bridges continue to deteriorate and fall into the Structurally Deficient category. In other words, the state is losing ground as shown in Figure 4 below. The target is to bring the deficient count down to 129 or less (< 107 state bridges and < 22 Interstate bridges).

* Historic bridges such as covered bridges and truss bridges often do not have sufficient carrying capacity. Most of those will be maintained rather than replaced. About 40 such bridges are on town highways in Vermont.



Source: VTrans Structures Section

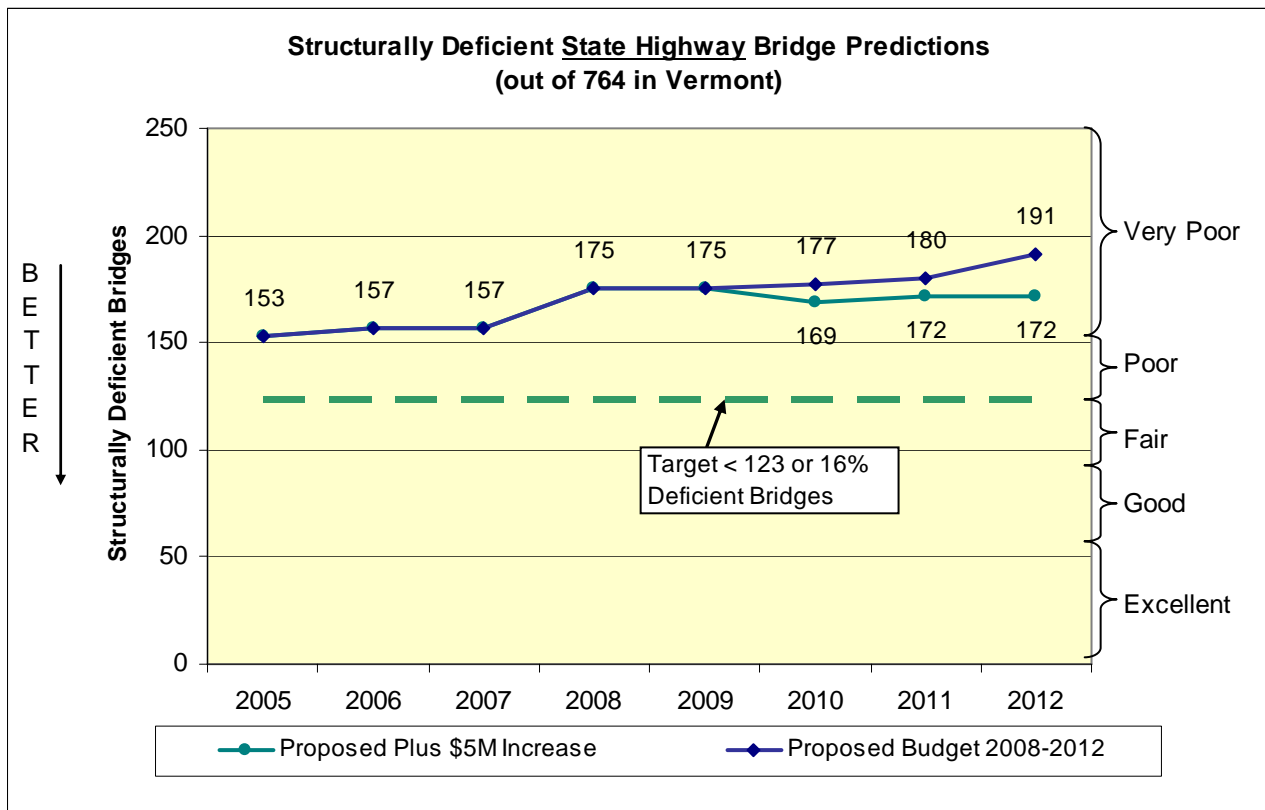
Figure 4: Number of Structurally Deficient Bridges on State and Interstate Highways

Bridge Condition and Funding Levels:

Figures 5, 6, and 7 below show the predicted condition for Interstate, state, and town bridges in Vermont at different funding levels. Note that the desired condition is to be below the green goal line (fewer deficient bridges).

- Structurally deficient state bridges at different funding levels:

The target is to have fewer than 123 deficient state bridges or below 16%.

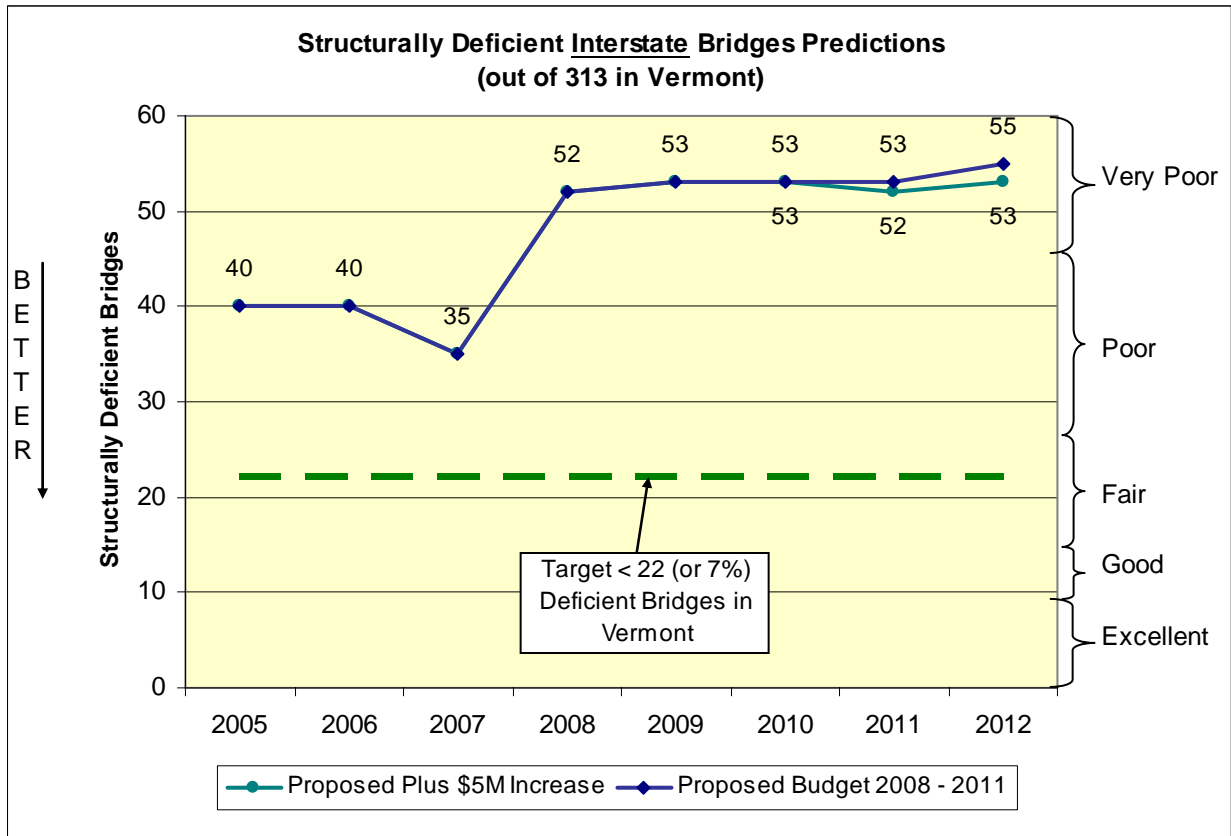


Source: VTrans Structures Section

Figure 5: Structurally Deficient State Bridges at Different Funding Levels.

- Structurally deficient Interstate bridges at different funding levels:

Figure 6 illustrates the effect of deferred maintenance from 2001 until now. VTrans is striving to reverse the trend. The target is to have fewer than 22 deficient bridges or less than 7% (a higher standard than for state or town bridges).



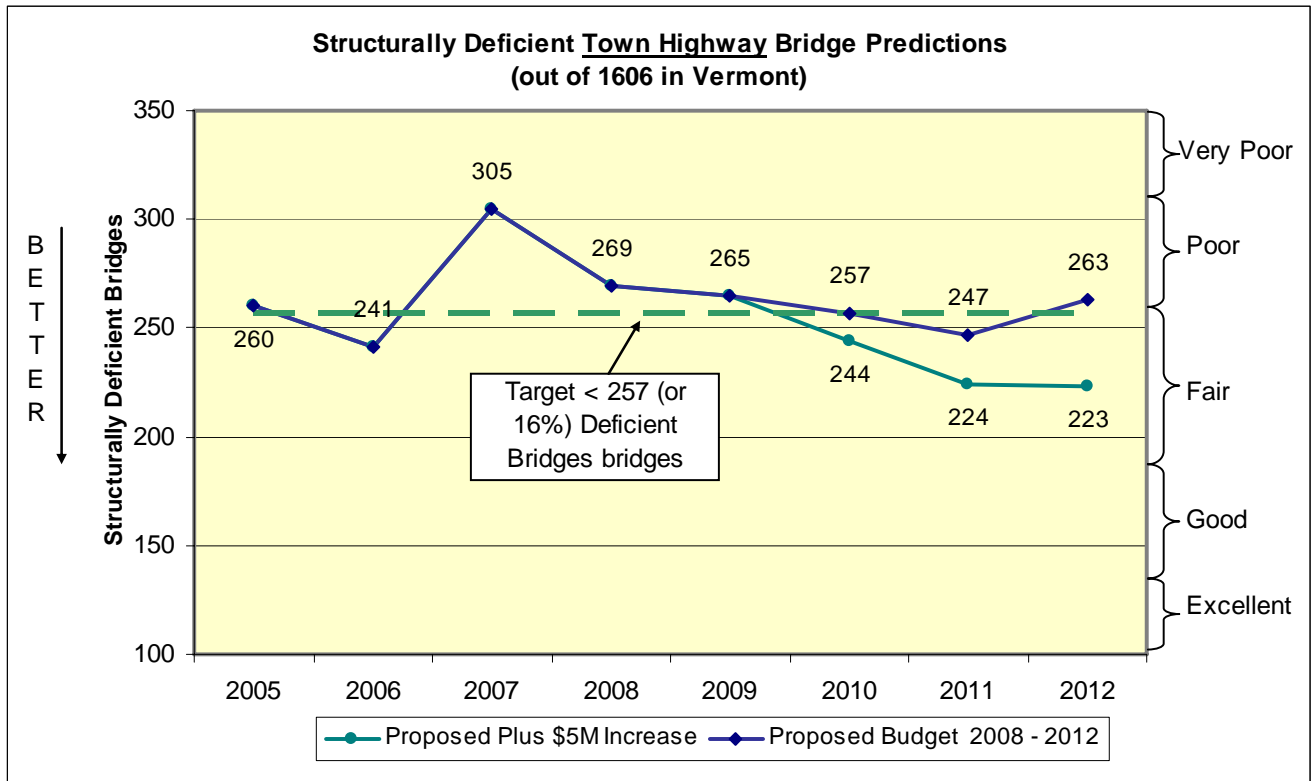
Source: VTrans Structures Section

Figure 6: Structurally deficient Interstate bridges at different funding levels.

Currently several Interstate bridge projects are in the design phase. The Agency is committed to upgrading the condition of this critical part of our transportation network.

- **Structurally deficient town bridges at different funding levels:**

Town bridges are close to their target level of performance of less than 16% deficient bridges.



Source: VTrans Structures Section

Figure 7: Structurally deficient town bridges at different funding levels.

- **Bridge Condition:**

The Agency has established standard definitions to gauge the overall bridge condition in the State. This recognizes that there will always be a number of deficient bridges, but timely maintenance is needed to minimize that number. The definitions of “excellent” through “very poor” are shown in the table below. Note that the Interstate system is held to a higher standard than other systems. The target is to maintain the bridge network in a “fair” condition.

The Agency is placing more emphasis on bridge maintenance and repair in order to minimize the number of bridges falling into the “deficient” category.

Bridge (Interstate)					
	Excellent	Good	Fair	Poor	Very Poor
313 Interstate Bridges	Fewer than 2% of bridges are structurally deficient (<7 Interstate bridges)	2% to <4% of bridges are structurally deficient (7 to 12 Interstate bridges)	4% to <7% of bridges are structurally deficient (13 to 22 Interstate bridges)	7% to <12% of bridges are structurally deficient (23 to 38 Interstate bridges)	12% or more of bridges are structurally deficient (39 or more Interstate bridges) 35 Interstate bridges are structurally deficient today.
Bridge (State)					
764 State Bridges	Fewer than 7% of bridges are structurally deficient (<54 bridges)	7% to <11% of bridges are structurally deficient (54 to 84 bridges)	11% to <16% of bridges are structurally deficient (85 to 122 bridges)	16% to <20% of bridges are structurally deficient (123 to 152 bridges)	20% or more of bridges are structurally deficient (153 or more bridges) 157 state bridges are structurally deficient today.
Bridge (Town)					
1598 Town Bridges	Fewer than 7% of bridges are structurally deficient (<111 bridges)	7% to <11% of bridges are structurally deficient (112 to 175 bridges)	11% to <16% of bridges are structurally deficient (176 to 255 bridges)	16% to <20% of bridges are structurally deficient (256 to 319 bridges) 305 town bridges are structurally deficient today.	20% or more of bridges are structurally deficient (320 or more bridges)

Source: VTrans Structures Section

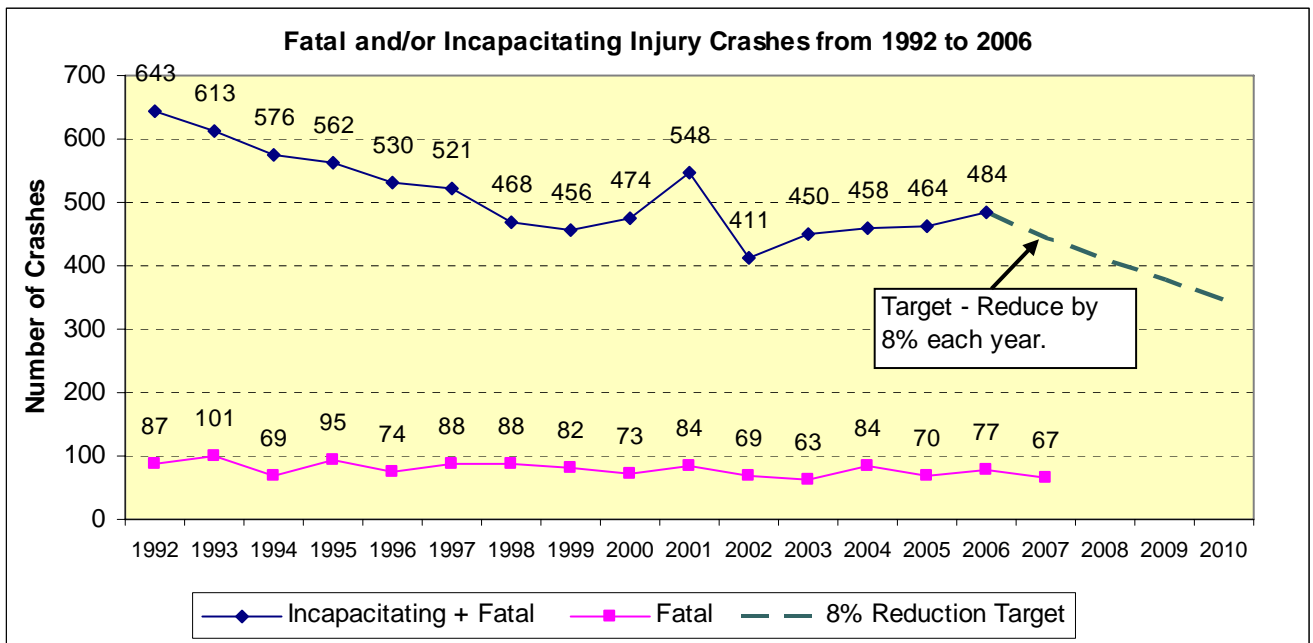
Crash and Safety Program:

Highway safety is an integral part of the Agency's activities. The Agency collects statistics on thousands of crashes, and solicits input from other sources including law enforcement, town officials, and District staff. That information is part of the Highway Safety Improvement Program that seeks to maximize safety improvements with limited dollars. Highway safety considerations are an important factor in engineering decisions, maintenance activities, permitting, and traffic operations. The Traffic Operations Unit has developed three strategic measures that indicate how well VTrans is accomplishing this important function.

- **Reduce fatal plus incapacitating crashes to 350 by 2010**

Crashes involving a fatality and/or incapacitating injury account for the greatest impact in terms of human suffering and economic loss. Figure 8 shows that between 1992 and 2006 there has been general decline of severe crashes causing injuries. Fatal crashes, however, have tracked relatively steady. Vermont’s 2006 fatality rate was 1.11 fatalities per hundred million vehicle miles traveled. This is a reduction from 1.24 in 2004. The national average is 1.41 fatalities. (Source: National Highway Traffic Safety Administration. 2006 is the most recent data available.)

The goal of the Governor’s *Vermont Strategic Highway Safety Plan* is to reduce the number of fatal plus incapacitating crashes to 350/year. That will require about a 8% annual reduction between now and 2010.



Source: VTrans Traffic Operations Section

Figure 8: Fatal and/or incapacitating crashes from 1992 to 2006

- **Percent of high-priority safety needs addressed (Highway Safety Improvement Plan)**

One reason for the decline in crashes is the Highway Safety Improvement Program (HSIP) that identifies, prioritizes, and addresses highway safety problems for approximately fifty locations annually. Where practical, safety improvements are identified for either VTrans or towns to implement. Solutions range from inexpensive signs and pavement markings to expensive capital projects such as roadway realignment.

In addition to the VTrans efforts, the Governor’s Highway Safety Program focuses on education, seat belt usage, enforcement, younger drivers, and alcohol abuse.

VTrans identifies safety issues on both state and town roads. The table below shows that VTrans is striving towards the 100% goal on state roads. On town roads, however, VTrans only acts as an advisor.

Number & Percentage of High Priority Safety Needs Addressed		
Target – 100%		
	State Roads	Town Roads
FY 2004	16 addressed out of 21 = 76%	3 addressed out of 23 = 13%
FY 2005	25 addressed out of 29 = 86%	6 addressed out of 29 = 21%
FY 2006	25 addressed out of 31 = 81%	7 addressed out of 19 = 37%

- **Crash reduction attributable to the *Highway Safety Improvement Program*.**

VTrans addresses high priority safety needs identified by the Highway Safety Improvement Program. The outcome of these actions should be a reduction in crashes. VTrans is collecting crash figures on the locations that were treated and will report it in 2008.

Signs (State & Interstate):

VTrans is responsible for 75,000 signs on state highways and 6000 signs on the Interstates. Over time, the colors and sign reflectivity deteriorate making them difficult to read especially at night. Signs must be replaced on a cycle of about 15 years to keep up with normal deterioration. That equates to about 5000 signs per year on state highways. The outcome of this effort is improved highway safety and providing useful information to the traveling public.

Additionally, signs are replaced or new ones installed for reasons other than life-cycle. These reasons include:

- Manual for Uniform Traffic Control Devices (MUTCD) compliance: MUTCD standards assure that the meaning, appearance and placement of signs are consistent between states. Drivers know what to expect. Sometimes out-of-compliance signs are replaced prior to the end of their life cycle especially if highway safety is an issue.
- Knockdowns and stolen signs.
- Changing roadway conditions such as school bus stops, speed limit changes, and traffic patterns.

At a 15 year replacement cycle, signs will be readable, relevant to roadway conditions, and reasonably current with MUTCD requirements.

- **Reduce the average age of signs on state highways to 7.5 years.**

The target is to reach an average of 7.5 years in order to achieve a 15 year replacement cycle. Today the average age of signs on state highways is 8.1 years. 71% of the signs are greater than 7.5 years old.

- **Reduce the average age of signs on Interstate highways to 7.5 years.**

Interstate highways signs are more expensive and difficult to replace and are in poorer condition today. Today the average age of signs on state highways is 9.5 years. 77% are greater than 7.5 years old.

The definitions of “excellent” through “very poor” condition for highway signs are:

Signs (State Highways)					
	Excellent	Good	Fair	Poor	Very Poor
75,000 Signs on State Highways.	>95 % of signs on the National Highway System (NHS) in compliance with current <i>Manual on Uniform Traffic Control Devices</i> (MUTCD) standards, and ranging in age from 0 to 15 years.	> 95 % of signs on NHS in compliance with current MUTCD standards, and ranging in age from 0 to 15 years. >95 % of signs on other state highways in substantial compliance with MUTCD, and less than 20 years old.	> 90 % of signs on NHS in compliance with current MUTCD standards, and ranging in age from 0 to 15 years. > 90% of signs on other state highways in substantial compliance with MUTCD, and less than 20 years old.	> 80 % of signs on in compliance with current MUTCD standards, and ranging in age from 0 to 15 years. > 80% of signs on other state highways in substantial compliance with MUTCD, and less than 20 years old	< 80 % of signs on NHS in compliance with current MUTCD standards, and ranging in age from 0 to 15 years. < 80% of signs on other state highways in substantial compliance with MUTCD, and less than 20 years old
Signs (Interstate Highways)					
	Excellent	Good	Fair	Poor	Very Poor
6,000 Signs on the Interstate & “interstate-like” highways	>95 % of signs in compliance with current MUTCD standards, and ranging in age from 0 to 15 years in age.	> 95 % of signs on NHS and Interstate in compliance with current MUTCD standards, and ranging in age from 0 to 15 years.	> 90 % of signs on NHS and Interstate in compliance with current MUTCD standards, and ranging in age from 0 to 15 years.	> 80 % of signs on NHS and Interstate in compliance with current MUTCD standards, and ranging in age from 0 to 15 years.	< 80 % of signs on NHS and Interstate in compliance with current MUTCD standards, and ranging in age from 0 to 15 years.
Notes on Signs:					
<ul style="list-style-type: none"> • The federal <i>Manual on Uniform Traffic Control Devices</i> (MUTCD) details specifications for signs. Signs are managed by the Traffic Operations Unit; however, the most of the actual work and funding is accomplished by other Sections in the Agency. Signs are often part of paving projects, construction, and maintenance. • Interstate signs are more expensive and difficult to replace. Most have never been replaced and are reaching the end of their lifecycle. 					

Source: VTrans Program Development Section

Bicycle/Pedestrian Program:

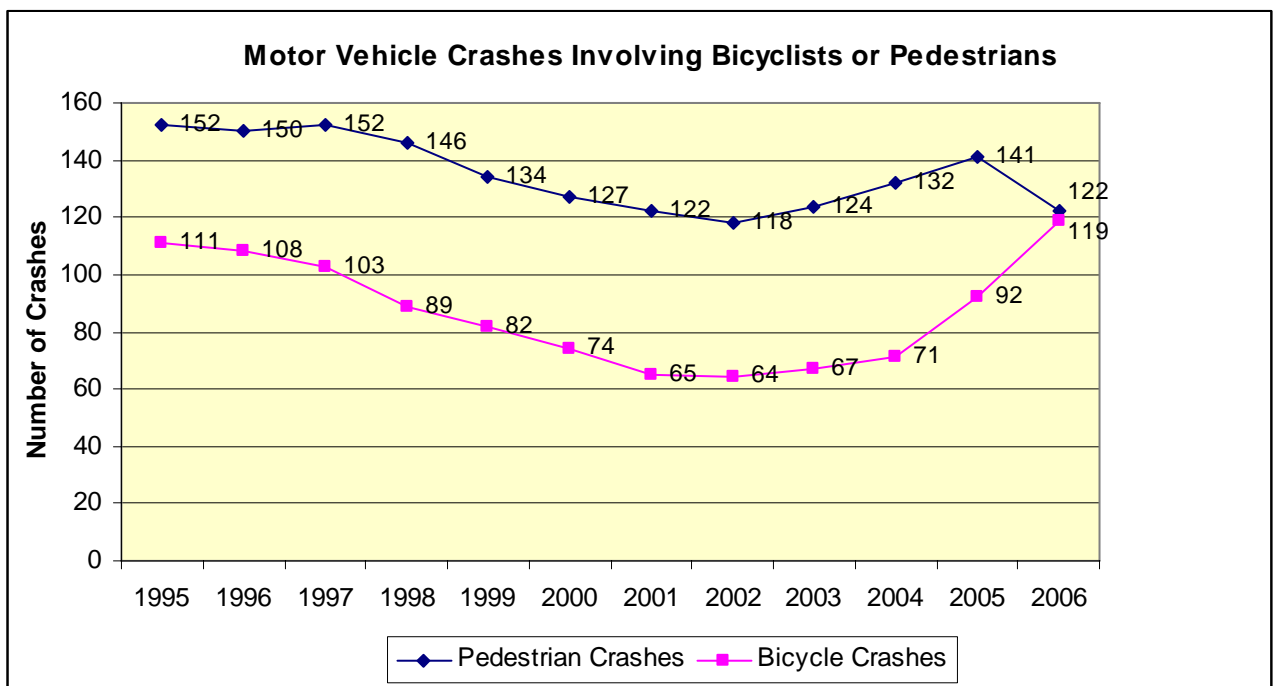
Bicycling and walking facilities (roadway shoulders, shared use paths, rail trails, bicycle lanes, and sidewalks and crosswalks) play an integral role in Vermont’s multi-modal transportation system. The 2006 Local Range Transportation Business Plan survey revealed that Vermonter’s spend almost as much time walking (61 minutes daily) as they drive (70 minutes) which indicates the

important role that walking plays in the multi-modal transportation system. VTrans is continuing to plan and integrate these assets into a comprehensive transportation strategy by updating engineering specifications, design standards and incorporating bicycle and walking facility needs into all VTrans projects.

As population density increases in suburban areas, more residents are utilizing bicycle/pedestrian facilities to travel to work, or to conduct every-day business. In rural settings, bike paths and bike friendly highways have developed into an important sector of the economy, providing increased opportunities for bicycle based tourism. In addition, designated pathways and lanes improve safety and decrease the number of crashes between vehicles, pedestrians, and cyclists as tracked in Figure 9. VTrans, via the Bicycle and Pedestrian Program, has funded the construction of a total of 72 miles of bicycle and walking facilities since 1993 as shown in Figure 10.

- **Reported motor vehicle crashes involving bicyclists & pedestrians**

This measure indicates the change in reported crashes involving motor vehicles and pedestrians and/or bicyclists over time. This measure will enable VTrans to track the number of incidents to determine whether providing facilities and bicycle/pedestrian education are resulting in greater overall safety. Figure 10 reflects the five-year rolling average of crashes.



Source: VTrans Bike/Ped Section

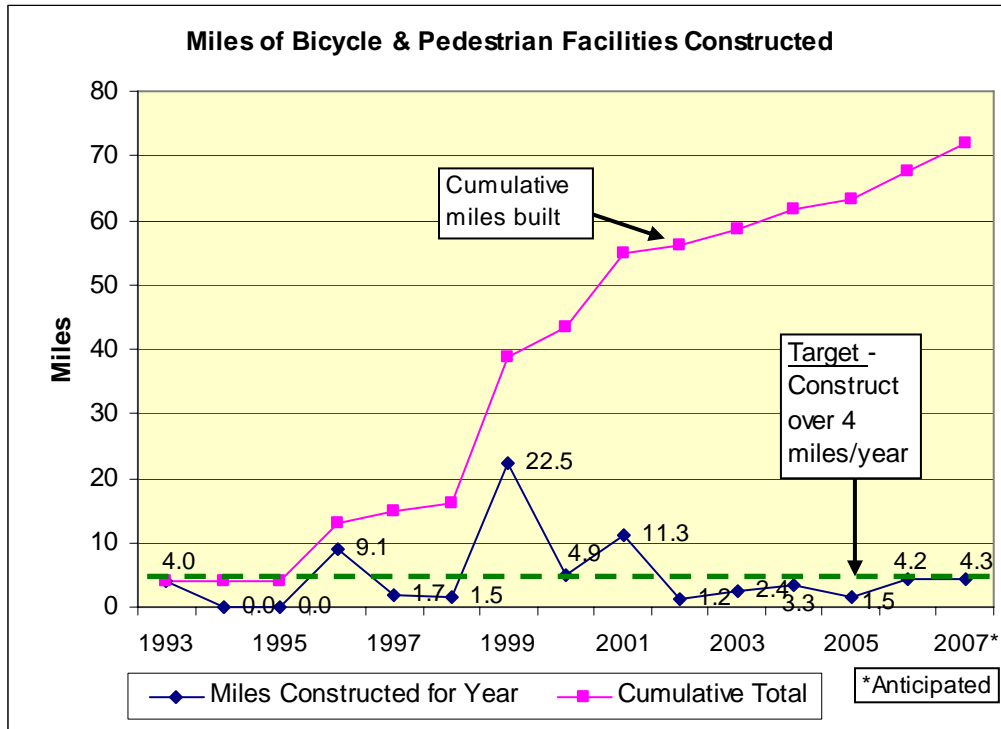
Figure 9: Reported motor vehicle crashes involving bicyclists and pedestrians

Crashes are, of course, influenced by usage. The target performance is to hold-steady or reduce the number of crashes. This is a challenge as traffic volume, and bicycling and walking increases. VTrans is undertaking an effort to identify bicycle and pedestrian volume at certain

key locations. In the future, VTrans will report on police-reported pedestrian and bicycle crashes per number of minutes spent walking and bicycling.

- **Miles of bicycle and pedestrian facilities developed:**

Figure 10 shows the increase in the construction of bicycle and pedestrian facilities (shared use paths, bike lanes, and sidewalks). When correlated with the crash and other data, this measure indicates greater opportunities for walking and bicycling in a safer environment.



Source: VTrans Bike/Ped Section

Figure 10: Miles of bicycle and pedestrian facilities constructed

The condition of the bicycling and walking program is “fair” based on the ability to build four miles of new facilities each year as defined in the table below.

Bicycle & Pedestrian Facilities					
	Excellent	Good	Fair	Poor	Very Poor
Assets consist of: <ul style="list-style-type: none"> • Sidewalks, walkways & boardwalks • Shared-use Paths • Bike Lanes • Bicycling and Walking Bridges 	Funding and personnel are available to meet all current project needs. No competitive selection process is necessary. All communities requesting funding receive funding. (Build 5 or more miles/year)	The ability to construct greater than four miles of facilities per year (Build 3 to 4.9 miles/year)	The ability to construct four miles of facilities per year (Build 2 to 2.9 miles/year)	The ability to construct less than four miles of facilities per year (Build less than 2 miles/year)	No projects constructed

Park & Ride Facilities:

VTrans owns and maintains 27 strategically placed Park & Ride lots with 1014 spaces throughout the state. Park & Ride facilities are an effective method to reduce traffic and minimize fuel emissions. The available spaces were 66% full per a 2007 survey. The usage figures and feedback indicate the Park & Ride program enjoys wide public support.

According to the informal Park-and-Ride user counts completed in November 2007, there is on average at least one hundred new users to the State Park-and-Ride system this year. This does not include the users of the Municipal Park-and-Ride Facility system. This is showing that Park-and-Ride usage is on the increase in the State of Vermont. This trend will continue as the cost of transportation continues to increase.

Park & Ride usage is expected to increase due to four activities/trends:

- VTrans has observed a direct relationship between fuel prices and Park & Ride usage.
- VTrans is improving existing facilities with lighting, paving, appearance, and security. Usage increases as the facility and security is improved.
- New facilities will be built and existing ones expanded to meet demand.
- Increased connectivity with public transit.

VTrans also runs a Municipal Park-and-Ride Grant Program for facilities owned by towns. Four new facilities were opened this year - Bridport, Dummerston, Hartford and Warren for a total of eighty plus new spaces. There are now eighteen official Municipal Park-and-Ride Facilities located throughout the State with over two hundred and sixty-three parking spaces available. This program funds municipalities to construct small Park-and-Ride Facilities within their communities with one hundred percent State Funds.

One new State Park-and-Ride Facility, Ferrisburgh-Vergennes, was built and opened this year. This new facility is in a location where no other facility was previously located. The Ferrisburgh-Vergennes Facility adds an additional eighty-three new spaces to the system for a new grand total of 1,014 State Facility parking spaces in twenty-seven facilities.

Clean, safe, and secure facilities with adequate spaces encourage usage. The state owned facilities and conditions as of November 2007 are:

Location	Lot Size	Parking Spaces Used	Pct Utilization	Adequacy (considers condition and size)
Barre Town (South)	34	17	50%	Good
Berlin	77	60	78%	Good
Bradford	23	31	135%	Poor
Bristol	10	3	30%	Very Poor
Cambridge	19	7	37%	Poor
Colchester	108	48	44%	Excellent
Ferrisburgh - Vergennes	83	14	17%	Excellent
Georgia	25	23	92%	Fair
Hartland	40	25	63%	Poor
Manchester	30	3	10%	Very Poor
Middlesex	24	11	46%	Good
Montpelier	55	32	58%	Good
Morrisville-Stowe	6	3	50%	Good
Randolph	15	20	133%	Very Poor
Richmond	105	108	103%	Fair
Royalton	15	6	40%	Very Poor
Sharon	24	20	83%	Fair
Springfield	24	40	167%	Poor
St. Albans	86	47	55%	Excellent
St. Johnsbury	35	13	37%	Fair
Thetford	25	10	40%	Poor
Waterbury	60	39	65%	Poor
Weathersfield	50	60	120%	Very Poor
West Danville	17	3	18%	Fair
Williamstown	24	22	92%	Fair

* Utilization was estimated through a survey during daytime hours. The spaces occupied are compared to the lot's capacity. When calculating the "condition weighted by size", the larger lots influence the average more than the smaller lots.

The adequacy standards are defined as follows:

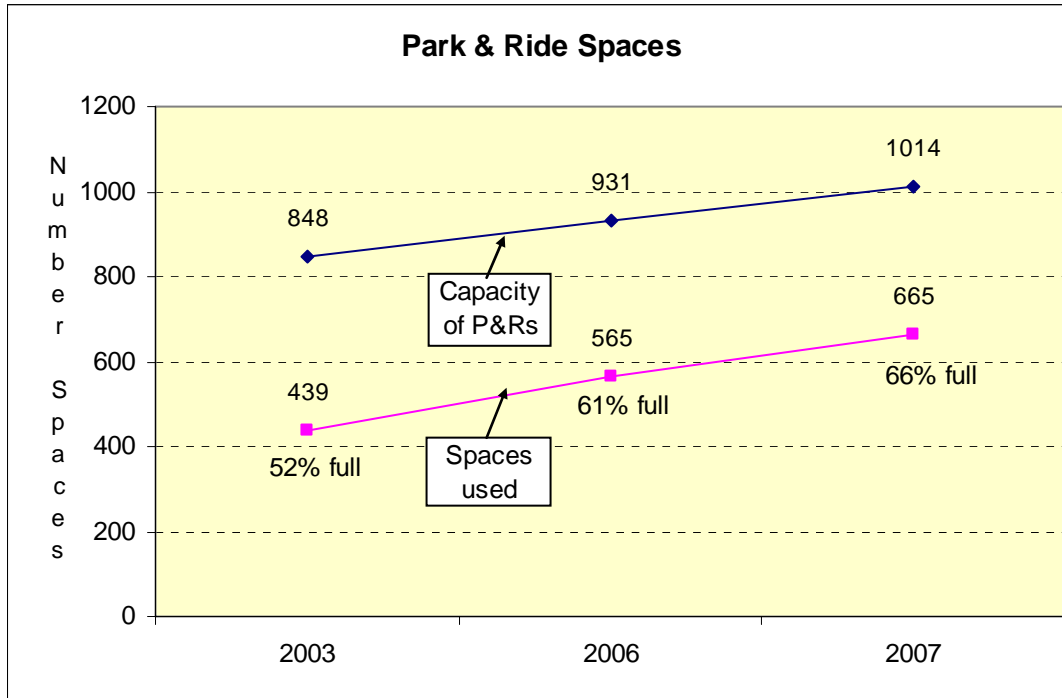
Park & Ride	Excellent	Good	Fair	Poor	Very Poor
25 Park & Ride facilities run by the agency	New facility Has all amenities Size is good	Newer facility. Has all amenities Size is good	Gravel or paved surface Some amenities Lighting Well used for size	Gravel surface May have amenities Some lighting Well used for size	Gravel surface No amenities Brushy borders Little or no lighting Little usage

Notes on Park & Ride:

The rating of Park-and-Ride Facilities is based on the users' perspective. It considers physical condition, security, maintenance, visual, and usage conditions. Considerations are gravel or paved surface, lighting, line striping, bus shelter, security, landscaping, visual appearance, maintenance, litter, capacity and usage. Ideally, usage should be about 60%-70% of capacity. Good facility condition attracts more Park & Ride users. The total program rating is the average of all the individual facilities' ratings.

- **Park & Ride spaces used:**

Park & Ride utilization has increased by 100 spaces or 18% between 2006 and 2007. This figure is determined on an annual basis by visiting each area on sample days. VTrans expects this trend to continue as fuel prices rise and additional spaces are added in improved facilities.



Target: Increase the number of spaces used each year.

Figure 11: Park & Ride capacity and spaces used

- **Average Park & Ride facility condition:**

The average facility condition weighted by facility size is “fair” 3.2 in both the 2003 and 2006 survey and 3.3 .

Condition weighted by usage was “fair” at 3.0 in both the 2006 and 2007 survey. (When calculating the “condition weighted by usage”, the heavily used lots influence the average more than the lightly used lots.)

These measures indicate that VTrans is maintaining Park & Ride facilities at the current condition. The measure reflects the quality of preventive maintenance and encourages cost effective investments in those areas where demand is greatest.

Target: Improve the average facility condition each year.

2. Aviation Program Performance Measures

At the ten state owned airports, the Agency continues to reconstruct runways, and add taxiways, hangars, safety area improvements, tie-downs, instrumentation, and lighting systems to improve safety and security. Convenient air service is an integral asset for moving people and goods and has been determined to be among those criteria reviewed by businesses evaluating Vermont sites. Air facilities are important for freight and passengers; however, their usefulness depends on the modal interconnectivity to move passengers and goods between airports and other parts of the state. The Agency will pursue both public and private options for integrating transit with air and rail services and service locations.

The Agency must plan for future growth. At the same time, we will continue to maintain and upgrade the air facility infrastructure in order to improve service to the public, passengers and freight service customers; and plan for the long term financial sustainability of the airports.

- **Airport Pavement Condition: Maintain all pavements on runways, taxiways and aprons at a condition of “Good” or better.**

The average pavement condition at the ten state-owned airports is “Good” (Pavement Condition Index = 80.)

VTrans calculates a pavement condition index that measures roughness, cracking, and the general condition. Unlike highways, poor runway pavement presents an unacceptable safety hazard. The Agency and/or FAA would close the runway.

- **Airport Revenue: Maintain all airport revenues at “Good” or better.**

Airports generate revenue from leases, landing fees, hanger and tie-down rentals, and fuel fees. Although the state subsidized airport operation, the additional revenue from users is critical to the successful operation of an airport.

The revenue generation status of Vermont’s ten state owned airports is “fair”. The revenue figure of \$372,656 is a benchmark figure to compare future years against.

The definitions of “Excellent” through “Very Poor” for pavement condition and revenue generation are as follows:

Pavement Condition Index (PCI) for Runways, Taxiways, and Aprons					
Excellent	Good	Fair	Poor	Very Poor	Current Rating
All pavements are new and have a 100% PCI rating.	Runway PCI 85 - 65 Taxiway PCI 80 - 60 Apron PCI 75 - 55 Annual crack filling is occurring. Overall PCI for Vermont airports is 80.	Runway PCI <65 Taxiway PCI <60 Apron PCI <55 Pavement requires crack filling, patching and some overlays.	Runway PCI >40 Taxiway PCI >40 Apron PCI >40 Pavement requires overlays or total reconstruction.	Runway PCI >20 Taxiway PCI >20 Apron PCI >20 Airport is closed due to severe deterioration. Reconstruct required.	Good – Pavement management & maintenance program in place. CIP targets airport overlays and reconstructs over next 5 years
Airport Revenue					
Completed Airport Business Plan. Revenue increased by greater than 3% annually.	Completed Airport Business Plan. Revenue increased by 3% annually.	Airport Business Plan in development. No increase in revenue.	No established Airport Business Plan. Decrease in revenue by 5%.	No established Airport Business Plan. Decrease in revenue by 10%.	Fair – Two Business Plans are being developed. Eight are complete.

Source: VTrans Aviation Section

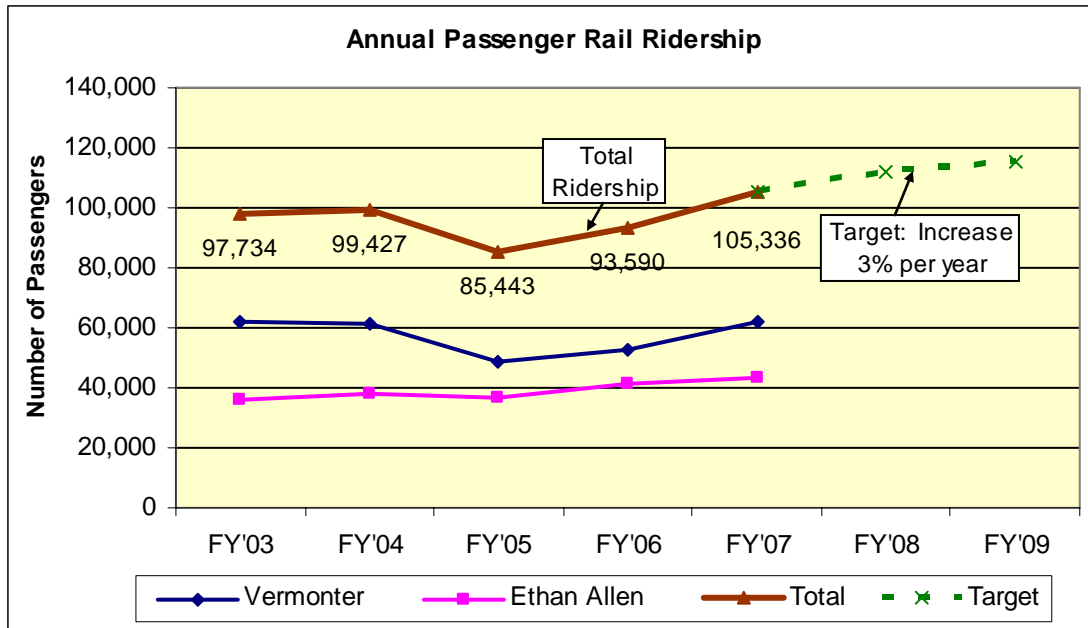
3. Rail Program Performance Measures

Over the past ten years, the state has acquired an additional 133 miles of rail line in an effort to preserve those corridors for active freight traffic, passenger service, or conversion to alternate transportation if no longer feasible for rail use. Purchasing, maintaining and improving Vermont’s rail infrastructure will provide future opportunities to develop safe, cost effective passenger and/or intercity rail transport that is economically feasible and will provide the highest degree of service possible. Maintaining the rail infrastructure and encouraging increased use of freight rail is essential to future economic development and to the goal of decreasing truck traffic on Vermont highways.

- **Annual passenger rail ridership**

An increase in ridership provides a benefit to the State in terms of higher revenues and a reduction in the subsidy paid by the State of Vermont for Amtrak service. Figure 12 shows the number of passengers arriving at or departing from points on the Vermont-supported segments.

The target is a 3% increase in rail ridership each year. Note that the increase in 2007 was 13%.



Source: VTrans Rail Section

Figure 12: Annual passenger rail ridership to or from points on the Vermont-supported segments.

4. Maintenance Program Performance Measures

The primary goal of the Maintenance Program is to keep Vermont state highways and airports open, safe, and aesthetically pleasing to travelers, while managing the system in a cost effective and environmentally sensitive manner. Maintenance is vital to keeping Vermont's existing transportation systems in working order and helping to reduce costs of repair, refurbishing or replacement of infrastructure. The Operations Division, including the maintenance program, has a lead role in supporting overall Agency objectives for safety, fiscal investment, mobility and organizational performance.

The Operations Division has nine maintenance districts that decide when to apply their resources to a particular problem or condition. Factors for those decisions in priority order are:

1. **Time critical activities:** These are related to safety such as snow and ice control, critical structural repairs, safety related repairs (Guardrail, signs, potholes), emergency repairs and storm damage. The focus is on keeping the transportation system functional and safe. These activities take place primarily on State facilities, but Districts often provide aid to towns in these areas.
2. **Maintenance Activities:** These activities are often seasonal such as mowing, ditching, culvert maintenance, etc. The focus is on maintaining the condition of the transportation system. The amount of these activities accomplished is determined by funding and staffing resources.
3. **Preventive Maintenance Activities:** These strategic activities add service life to the system and include bridge repairs such as membranes, culvert linings, and inverts. Funding often dictates the amount done.

Several important activities undertaken by the Operations Division that extend the life of roadway assets are:

- **Percent of bridges cleaned and washed annually (50% target)**

In order to extend the life of State-owned bridges, the Agency has set a target of washing the state's washable bridge every two years.

In 2005, the target was exceeded. 988 washable bridges (87.7%) were washed.

- **Percent of state highway centerlines renewed annually (100% target)**

In order to enhance the safety of the state highway system, the Agency has established a target of reapplying the centerlines on all state highways annually.

In 2005, 89% of the state highway centerlines were renewed.

- **Mowing: Mow at least two swaths on all major state roads and arteries each calendar year (100% target).**

Preventing excess vegetation on roadsides improves visibility, safety and the attractiveness of Vermont highways.

Achieved 97% of the state roadside mowing for 2005.

- **Potholes: Patch 100% of post-winter potholes on the state roads by June 1.**

Timely repairs of potholes prevent further damage to highways and to vehicles, and improve highway safety.

Achieved 95% of the post-winter pothole patching in 2005. That required 2,909 tons of patch material.

- **Litter pickup: Complete spring clean up of litter on 100% of state roads by the end of May each year.**

Litter pickup is performed by Agency staff and volunteers after the snow melt. In 2005, 299 tons of trash were removed from Vermont Highways, requiring 29,990 hours of labor.

Achieved 96% of target in 2005.

- **Bridge Painting: Paint at least 780 tons of structural steel each calendar year.**

Bridge painting is part of the normal bridge preventive maintenance. Preventive maintenance is essential if bridges are to reach their design life-expectancy (about 80 years).

Achieved 782 tons, or 100% of the target.

- **Winter Measure:**

The Operations Division is developing a winter measure related to the time it takes to clear a road after the end of the storm. That time will be compared to a predetermined standard from the *VTrans Winter Snow and Ice Control Plan*. The Maintenance Activity Tracking System (MATS) will track when a storm starts and stops and when roads meet the standards.

5. Transportation Buildings Performance Measures

The primary goal for the Transportation Buildings Program is to ensure that VTrans has adequate facilities to use, protect, store, or make repairs to the state transportation system. This program is primarily driven by the need for: offices for district employees; garages to house and maintain trucks and other heavy equipment; material testing laboratories; storage sheds to protect materials such as sand and salt; and terminals and other buildings for state airports, rail, and public transit services provided by VTrans. Interstate welcome centers and rest areas, although owned by VTrans, are maintained by Buildings and General Services. The Transportation Buildings Program includes funds for capital improvements and major component replacement/repair for all VTrans-owned buildings.

VTrans owns and maintains 107 heated buildings and 290 unheated buildings such as salt & sand sheds and storage areas (not including rest area buildings). These buildings support the maintenance and operation of the transportation network.

- **Building condition index**

A common way for businesses to evaluate the condition of their building assets is to conduct a thorough inspection and determine the *building condition index*. VTrans inventoried transportation buildings and their condition in the winter of 2005-2006. This data has been entered into computer software that tracks and reports on the major components of the Agency’s buildings.

The buildings are measured against the condition definitions defined below.

Buildings	Excellent	Good	Fair	Poor	Very Poor
Maintenance garages/heated storage	Sound, weatherproof, well maintained, well insulated, efficient and effective HVAC, safe and comfortable working conditions	No more than one subsystem is in poor condition requiring action	No more than 2 sub systems are in poor condition requiring action	3 or more sub systems are in poor condition requiring action	Building has safety issues requiring immediate action before using
Salt/sand shed	Sound, weatherproof, well maintained, no broken or poorly operating components	Needs minor cosmetic repairs	Needs structural or electrical repairs	Building is useable but needs replacement	Building is not useable due to safety concerns and should be demolished

Cold storage	Sound, weatherproof, well maintained, no broken or poorly operating components	Needs minor cosmetic repairs	Needs structural or electrical repairs	Building is useable but needs replacement	Building is not useable due to safety concerns and should be demolished
Notes on Buildings: The agency owns and maintains 108 heated buildings and 290 unheated buildings such as salt & sand sheds and storage areas. These buildings support the maintenance and operation of the transportation network.					

6. Central Garage Performance Measures

The mission of the Central Garage is to maintain a safe and reliable fleet that efficiently meets the Agency's needs.

- **Fleet vehicles are up-to-date and appropriate to meet customer needs.**

Retaining equipment beyond its cost-effective service life results in increased repair costs and reduced productivity. It becomes more difficult to have all the equipment ready to respond to unanticipated events.

The goal of the Central Garage is to have at least 85% of its vehicles and equipment within their cost-effective service lives. A regular and sustainable replacement schedule results in lower overall costs and minimizes costly unscheduled downtime.

88% of the Central Garage equipment is in fair or better condition, and within their cost-effective service lives. The condition breakdown is as follows:

- Plow Trucks: Excellent. 100% are within their cost-effective service life (8 years).
- Light Utility Vehicles: Fair. 74% are within their cost-effective service life (6 +/- years).
- Heavy Utility Vehicles: Fair. 76% are within their cost-effective service life (10 +/- years).
- Construction & Miscellaneous Equipment: Good. 90% are within their cost-effective service life (15 +/- years).

% Equipment within Cost Effective Service Life

Equipment	2006	2007	Change
Plow Trucks	100%	100%	0%
Light Utility Vehicles	82%	74%	-8%
Heavy Utility Vehicles	88%	76%	-12%
Construction and Misc Equipment	77%	90%	13%

Central Garage Equipment	Excellent	Good	Fair	Poor	Very Poor
Plow trucks, light and heavy utility vehicles, and construction & Misc. Equipment 641 Units	95% to 100% vehicles are within their cost effective service life.	85% - 94% of vehicles are within their cost-effective services life.	70% - 84% of vehicles are within their cost-effective service life	50% - 69% of vehicles are within their cost-effective service life	Fewer than 50% of vehicles are within their cost-effective service life.

7. Department of Motor Vehicles Performance Measures

The Department of Motor Vehicles (DMV) is responsible for:

- Issuing driver's licenses & permits
- Motor vehicle registrations
- Registrations for boats, snowmobiles and trailers
- Driver license suspensions and reinstatements
- Regulating inspection stations and vehicle dealerships
- Investigating crimes concerning motor vehicles
- Enforcing commercial trucking regulations
- Collecting motor fuel taxes for the State of Vermont
- Providing highway safety training,
- Motorcycle safety training
- Informational programs.

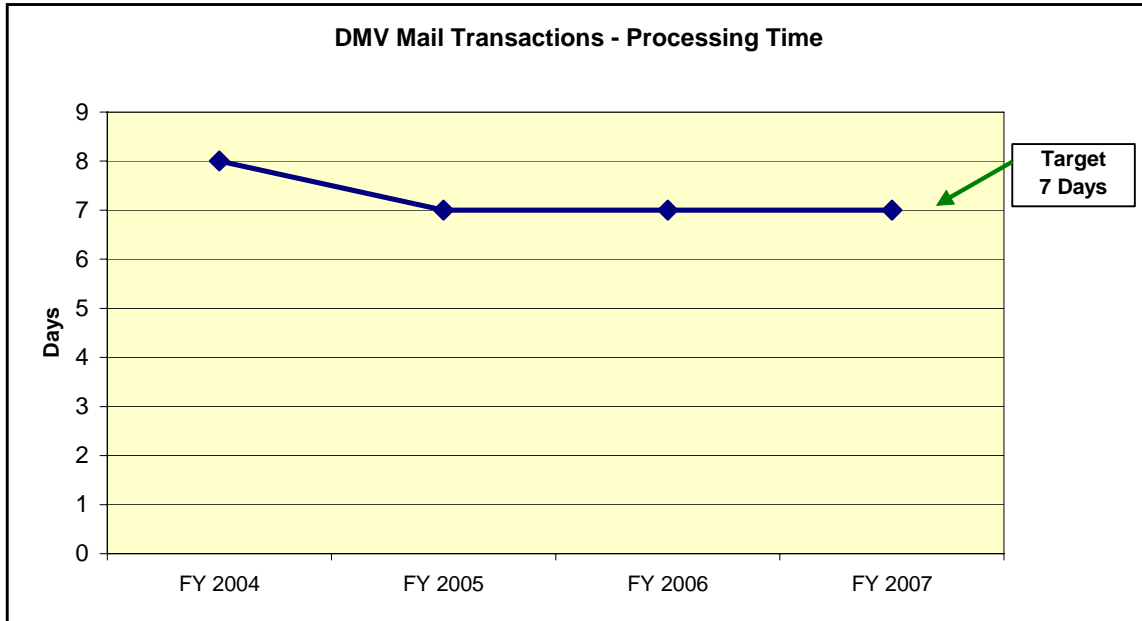
DMV is directly involved with citizens more than any division in the Agency. DMV understands that service to customers and their safety is paramount. There is a concerted effort to utilize computers, technologies, and customer focus training in an effort to provide better, more efficient, and cost effective service.

Feedback from DMV customers has been consistent in terms of their expectations. First, customers want their service to be as quick as possible, and, secondly, they would like more services available closer to their homes. Two performance measures address DMV customer service.

- **Customer Service:**

- **Process DMV mail transactions within the seven day standard:**

Implementation of an incentive plan in the mail-processing unit increased productivity by 20%. Mail backlogs have been reduced and DMV is now within the seven-day mail turnaround standard. This is from the time the USPS delivers mail to DMV until the completed transaction paper work is mailed back to the customer.



Source: Department of Motor Vehicles

Figure 13: Average days to process DMV mail transactions.

- **Walk-in customers processed within 30 minutes at all office locations.**

In recognition of the continued improvement in service provided to its walk in customer traffic, DMV changed its long-standing 45-minute wait time standard. A new performance expectation was developed to serve 90 percent of the walk-in customers within 30 minutes. Since FY 2006 we have met and surpassed this goal.

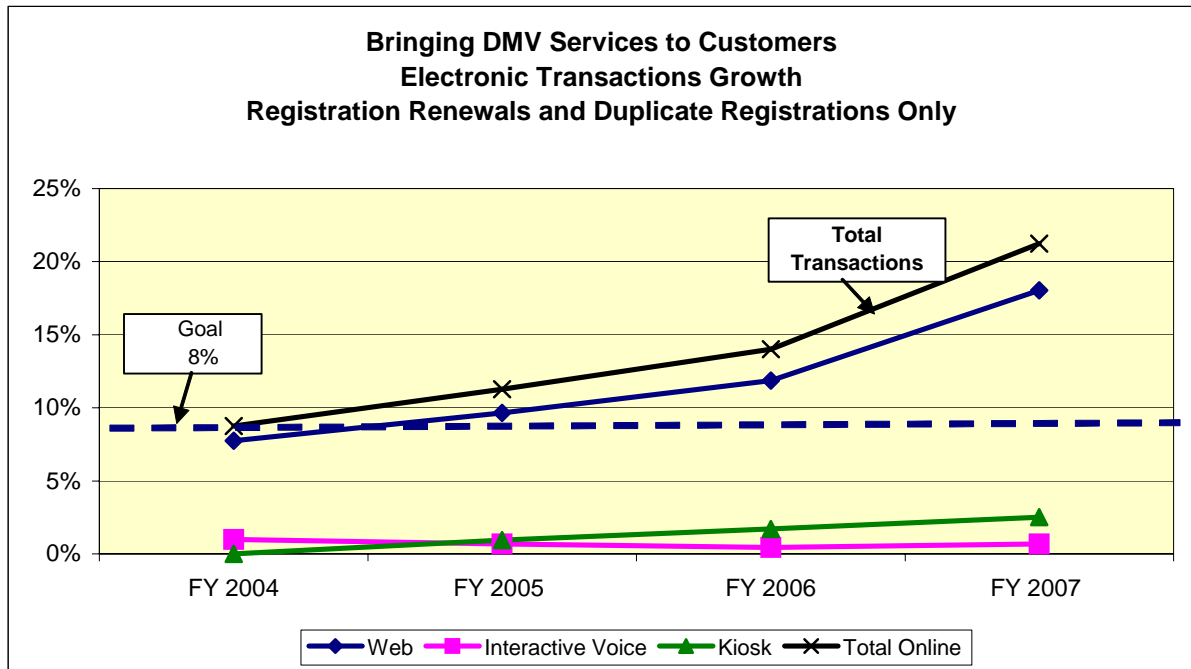
% Walk-in customers serviced within 30 minutes	
FY 2005	79.4%
FY 2006	90.2%
FY 2007	93.3%

- **DMV – Easy to do business with:**

Over the years, DMV has brought services to their customers rather than requiring them to visit a DMV office. Services are available in mobile vans, over the Internet, town clerk offices, mail, and kiosks. Additionally, DMV continues to make more transaction types available at mobile van locations.

Of particular interest is the growth of electronic transactions, which include web based transactions, kiosks, and interactive voice response. Customers processed over 15,000 more transactions by these means in FY06; representing a 30% increase over the FY 05 figures. There was another significant increase of over 17,000 transactions in FY 07, which represents a 28% increase over FY 06 totals.

Figure 14 below shows how these efforts are paying off, as the percentage of registration renewals and duplicate registrations processed by electronic means continues to grow. DMV expects the trend to continue as more Vermonters have access to high-speed Internet connections, and as the state's central IT department expands the web portal.



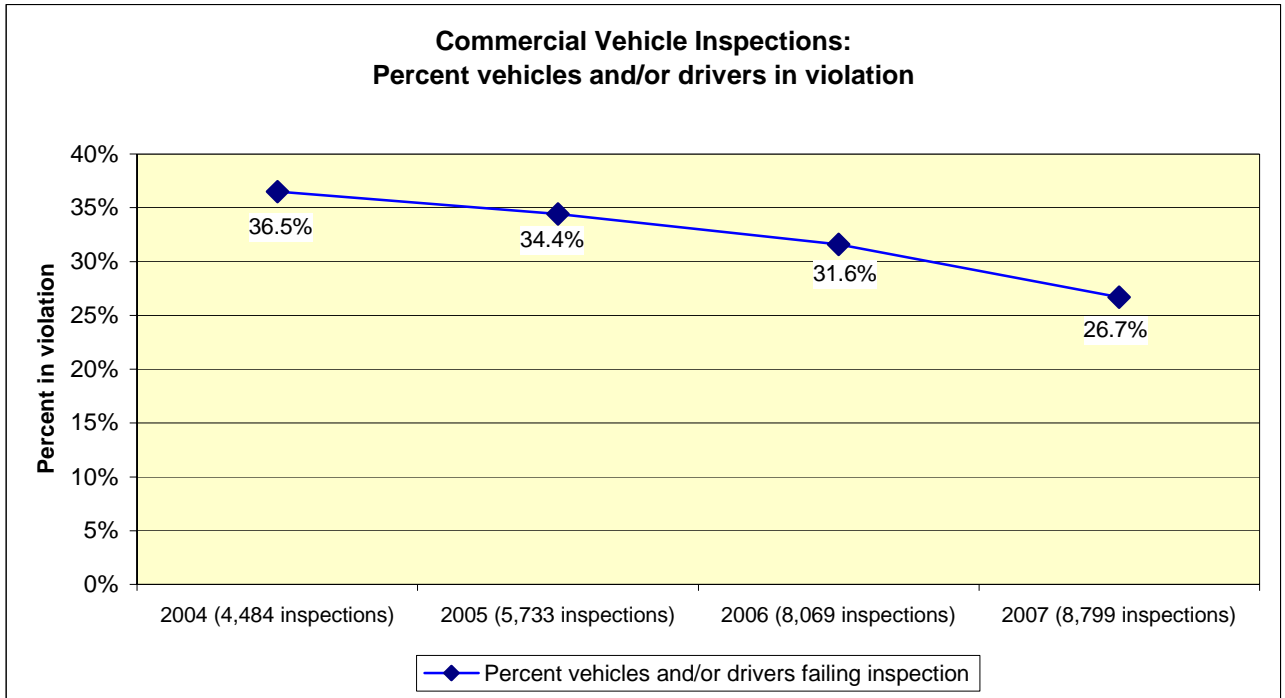
Source: Department of Motor Vehicles

Figure 14: Percent Electronic Transactions

- **Highway Safety**

- **Commercial vehicle inspections: Percentage commercial vehicle inspection failures at vehicle checkpoints.**

DMV conducts over 8,000 commercial vehicle inspections at various checkpoints in the state. The purpose is to increase highway safety by reducing the number of unsafe commercial vehicles and out-of-service drivers on the highways. Since 2004, DMV has increased the number of inspections from 4,400 to nearly 8,800 per year. The chart below shows that violations decline when commercial vehicle operators realize that Vermont's safety regulations are actively enforced. The target is to continue to reduce the violation rate through rigorous enforcement.



Source: Department of Motor Vehicles

Figure 15: Percent commercial vehicles and/or drivers in violation