

Vermont Transportation Funding Options
Section 40
Act 153 (2012)

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Prepared by:
Section 40 Committee on Transportation Funding

For:
House Committee on Transportation
Senate Committee on Transportation

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EXECUTIVE SUMMARY

Section 40 of [Act 153](#), passed by the 2012 Vermont Legislature and signed by Governor Shumlin, establishes a Committee on Transportation Funding to 1) estimate the gap between revenue sources and the cost to maintain, operate, and build the state's transportation system; and 2) evaluate potential new state revenue sources, and how existing state revenue sources could be optimally modified to address the five-year and longer term transportation funding gaps. This report addresses these charges and presents transportation funding options for consideration by the Legislature.

Transportation Funding Trends and Challenges

Vermont's transportation system has contributed substantially to the state's quality of life and economic prosperity. However, it is becoming increasingly difficult for the Vermont Agency of Transportation (VTrans) to meet capital and operating service needs within current funding constraints.

Key trends and issues likely to affect Vermont's short and long-term transportation funding include:

- **Declining State Gasoline Tax Revenues** – The state gas tax is an important source of revenue (accounting for over a quarter of state transportation revenues) and continues to decline as residents drive less and shift to more fuel efficient vehicles.
- **Federal Highway Trust Fund Uncertain** – The future of the federal Highway Trust Fund (HTF), which is the source for approximately half of Vermont's total transportation budget, is uncertain. The fund is intended to be self-sustaining but has fallen behind as the federal gasoline tax (18.4-cents per gallons) has not increased since 1993.
- **Federal Transportation Reauthorization** - The federal surface transportation authorization bill - Moving Ahead for Progress in the 21st- Century (MAP-21) - does not provide sufficient long-term funding for Vermont's transportation needs. In addition, MAP-21 increases the minimum returns provided to states from their contribution to the HTF from 92% to 95%, possibly resulting in reduced federal funding for Vermont in subsequent authorizations.

VTrans has recently received substantial federal funding as a result of the American Recovery and Reinvestment Act (2009), Emergency Relief program, earmarks, and discretionary federal grants. However, these programs are temporary and, without additional state or federal revenue, funding levels will return to pre-2010 levels.

Needs and Funding Gap Analysis

The estimated annual costs to maintain, operate, and administer Vermont's transportation system for the five year period between 2014 and 2018 is estimated at \$700 million. Revenue

estimates during that period range from \$469 and \$486 million, highlighting an average gap of more than \$240 million per year.

The needs estimate includes the cost to preserve the state’s existing transportation system in a state of good repair. It assumes that preserving the functionality of the road network is fundamental to meeting basic travel needs of people and goods, and therefore includes the necessary funding to preserve bridges and roads. It does not include expansion of rail or transit beyond existing levels of service and does not include any major roadway expansion beyond projects already in the pipeline.

This estimate is consistent with previous gap analyses. In 2008, the Joint Fiscal Office estimated a gap of \$203 million per year to maintain existing roads and bridges in serviceable condition. Vermont’s Long Range Transportation Business Plan estimates that the state will need an additional \$210-\$435 million annually through 2025 to meet its base needs.

Table ES-1: Basic Needs Funding Gap Summary – Annual Average 2014 to 2018

Program	Total
Highway/Safety	\$252,000,000
Bridges (including Town Highway bridge)	\$152,000,000
Maintenance & Buildings	\$76,503,815
Town Highway Aid Programs	\$54,977,244
Rail	\$50,459,136
Aviation	\$6,267,000
Public Transit	\$28,285,565
Park and Ride	\$4,000,000
Transportation Alternatives	\$3,000,000
DMV, Admin, Rest Areas, Multi-Modal	\$70,844,111
Total Needs	\$698,336,870
Available Funding	457,028,894
Deficit	241,307,976

Funding and Revenue Options

The annual gap between available revenue and the cost to meet basic needs is significant relative to the typical Vermont transportation budget of approximately \$450-\$500 million. Given the size of Vermont’s population and economic base, and considering other needs it would be very difficult to close the transportation funding gap with state revenue only. While additional federal support is necessary, this report identifies and evaluates revenue options for the state’s transportation fund over which the Legislature has some control and focuses on the options that are practical to consider in a five-year time frame.

Evaluation criteria were developed to assess different funding options. These criteria fall within the general categories of Revenue stream Opportunities (revenue potential, sustainability, flexibility), Implementation/Administration (public acceptance, ease/cost of implementation,

administration, and enforcement), Economic Efficiency (efficient use and promotion) and Equity Considerations (user, income and geographic).

The summary below identifies options available to raise transportation revenues, and the amount to be generated based on a single unit increase in existing fees/taxes, or their introduction. Revenue estimates are order of magnitude and do not account for price elasticity or other complex economic feedback effects.

Table ES-2: Funding Options Revenue Potential

Revenue Option	Existing	Revenue Potential
Vehicle Inspection Fees	\$5 per inspection	\$640,000 for every \$1 increase
Vehicle Lease Tax	None	\$29,000 for every \$1 charged
Vehicle Rental Tax	9%	\$403,000 for every 1% increase
Tire Fee	Existing 6% sales tax, no per tire charge	\$1.9 million for every \$1 charged
Heavy Vehicle Registration Fees	\$1,440-\$4,375	\$5,000 for every \$1 increase
Inflation Indexed Fuel Taxes	None	\$12.3 million average through 2025
Gasoline Tax Increase	20 cents/gallon	\$3.3 million for each 1-cent increase
Diesel Tax Increase	26 cents/gallon	\$640,000 for each 1-cent increase
TIB Gasoline Fee Increase	2% on retail cost per gallon	\$8.3-11.5 million for each 1% increase
TIB Diesel Fee Increase	3 cents/gallon	\$640,000 for each 1-cent increase
DMV Registration Fees	\$70	\$715,000 for each \$1 across the board increase
Purchase & Use Fees	6% (2% to Education Fund, 4% to T-Fund)	\$13.6 million for 1% increase (from 6% to 7%, assuming all of the increase is dedicated to the transportation fund)
Reduce Amount of P&U Tax to Education Fund	\$27 million currently diverted to Education Fund	\$270,000 for every 1% reduction in amount diverted
Ad Valorem Vehicle Tax	None	\$24 million per 1% assessment on vehicle value
Vehicle Miles Travelled Tax	None	<ul style="list-style-type: none"> • \$64 million for every 1 cent per mile. • To replace existing gas and diesel revenue: 1.5 cents per mile; • To replace entire state transportation fund revenue: 3.9 cents per mile

Summary

The findings of this report suggest the need for continued focus on the transportation funding challenge. Vermont, like other rural states with small populations, will continue to rely on federal funds to meet our transportation needs. Over the next two years Congress will debate the reauthorization of MAP-21 and we must partner with these other states to make the case for preserving and enhancing federal funds. To help make the case, VTrans should document the contribution of the transportation system to the state's economy. At the same time, VTrans should encourage municipalities to plan and prioritize needs in preparation for reduced federal and state transportation funds. VTrans should also continue its efforts to use available funds as efficiently as possible by applying best practices and pursuing innovation.

1.0 INTRODUCTION

Section 40 of [Act 153](#), passed by the 2012 Vermont Legislature and signed by Governor Shumlin, establishes a Committee on Transportation Funding that is charged with estimating the gap between revenue sources and the cost to maintain, operate, and build the state's transportation system. The Committee consists of the following members:

The secretary of transportation or designee, who shall serve as chair;

- The commissioner of motor vehicles or designee;
- One member appointed by the senate committee on committees;
- One member appointed by the speaker of the house;
- One member designated by the Vermont League of Cities and Towns;
- One member designated by the Vermont Association of Planning and Development Agencies; and
- One member designated by the James M. Jeffords Center for Policy Research.

The Committee is charged with evaluating potential new state revenue sources and how existing state revenue sources could optimally be modified to address the five-year and longer term expected transportation funding gaps. The committee shall estimate the amount of funds that would be generated from each new and modified revenue source, and identify implementation structures, requirements, and challenges.

This report is divided in the following sections:

- Section 2 examines transportation funding trends and challenges
- Section 3 details short and long-range funding projections
- Section 4 assesses transportation funding needs and the funding gap
- Section 5 presents funding and revenue options

2.0 TRANSPORTATION FUNDING TRENDS AND CHALLENGES

This section provides background information on transportation funding in Vermont and highlights the trends and factors that will affect transportation revenues available to the Vermont Agency of Transportation (VTrans). The information presented is intended to provide a common base of understanding on the context for the study and provides the foundation from which the five-year funding gap will be determined.

Vermont has a diverse, multi-modal transportation system that encompasses networks of highways, railways, aviation facilities, and public transit routes. The transportation system has contributed substantially to the state's quality of life and economic prosperity. However, it is becoming increasingly difficult for VTrans to meet capital and operating service needs within current funding constraints. The state now confronts an increasingly aging transportation system that will require more funding to preserve and maintain.

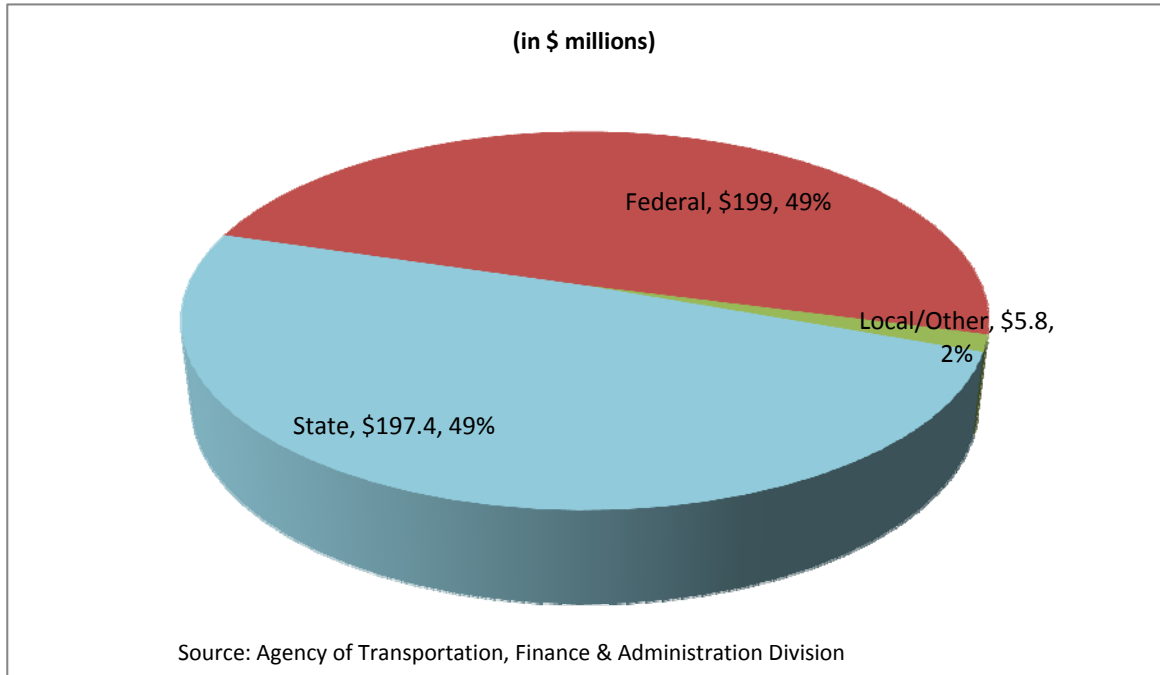
Key trends and issues likely to affect Vermont's short and long-term transportation funding include:

- **Declining State Gasoline Tax Revenues** – an important source of revenue (accounting for over a quarter of state transportation revenues) continues to decline as residents drive less and shift to more fuel efficient vehicles. Impacted by volatile fuel prices and the national recession, overall vehicle miles of travel (VMT) in Vermont declined substantially for the first time in recent history, which has led to a decline in motor fuel consumption. While VMT is expected to increase as the nation's economy recovers from years of stagnation, steady improvements in vehicle efficiency along with greater use of alternative fuels and electric vehicles are likely to offset fuel consumption from an increases in VMT—particularly as the federal government has increased automobile fuel economy standards (Corporate Average Fuel Economy) through 2025. Declining revenues from the state gas and diesel taxes have been offset in recent years by inflation adjustments to DMV fees and the Transportation Infrastructure Bond (TIB) funds. Other funding mechanisms will be necessary beyond these options to offset anticipated declines in gas and diesel tax revenues.
- **Federal Highway Trust Fund Uncertain** – The future of the federal Highway Trust Fund (HTF), which is the source for approximately half of Vermont's total transportation budget, is uncertain. The HTF – which collects taxes on gasoline and diesel sales - is the primary federal mechanism to fund highway and transit programs. The fund is intended to be self-sustaining. In the past 5 years, however, Congress has approved multi-billion dollar transfers from the General Fund to the HTF to cover shortfalls. The HTF's long-term solvency continues to be threatened by lower than anticipated revenues and inflation – the federal gasoline tax (18.4-cents per gallons) has not been increased since 1993.
- **Federal Transportation Reauthorization** - The federal surface transportation authorization bill - Moving Ahead for Progress in the 21st- Century (MAP-21) - does not provide sufficient long-term funding for Vermont's transportation needs. Although level-funded from the previous authorization bill, the bill does not provide sufficient funding to reduce the backlog of VTrans projects or keep up with the inflation associated with capital and operating costs (i.e. cost of steel, asphalt, fuel, etc). In addition, the bill increases the minimum returns provided to states from their contribution to the HTF from 92% to 95%, possibly resulting in reduced federal funding for Vermont in subsequent authorizations.

2.1 Vermont Transportation Funding and Expenditures

Vermont relies primarily on a combination of federal and state funding to maintain and operate the state's transportation system. Figure 1 presents the federal, state and local funding sources for an average year during from 2004 to 2008¹. Approximately 50% is derived from federal sources, while state funding accounts for 48%.

Figure 1: Typical Annual Pre-ARRA/ER VTrans Funding by Source (2004-2008 Average)



In the past five years, VTrans' budget increased substantially due to a flurry of federal funding designed to lift the nation's economy from recession (Figure 2):

- ARRA funding - starting in 2009, the federal government provided Vermont with an additional \$245 million for highway, rail, aviation, and public transit projects. These funds were provided to have an immediate impact on employment in construction and related industries.
- Discretionary grants – the previous transportation authorization legislation - Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) – authorized dozens of competitive grant programs across all modes. VTrans received approximately \$70 million in competitive grant funding under several programs to acquire public transit vehicles, rehabilitate rail lines, and make energy efficiency improvements to various facilities.

¹ These years were selected to show the typical state, federal and local share without ARRA or Irene related federal funding. The TIB assessment was created in 2010 and is therefore not included in these data.

- Tropical Storm Irene FHWA Emergency Relief and Federal Emergency Management Agency (FEMA) funding – Vermont suffered significant damage from the effects of Tropical Storm Irene. Approximately \$85 million in funding was provided from these sources to remedy damage caused by Irene.
- Transportation Infrastructure Bond (TIB) – introduced in SFY10, the TIB has added an additional \$71 million to VTrans’ budget. TIB revenue is dedicated to the debt service of TIB bonds and to the extent not needed to cover debt service, to long lived transportation infrastructure projects.

The funding increases in VTrans’ budget, with the exception of the TIB, are temporary and, without additional state or federal funding, will return to pre-2010 levels. MAP-21 only authorizes level-funding, and all the federal funding programs noted above are non-recurring and will expire.

Figure 2: VTrans Budget, SFY 2007-2013

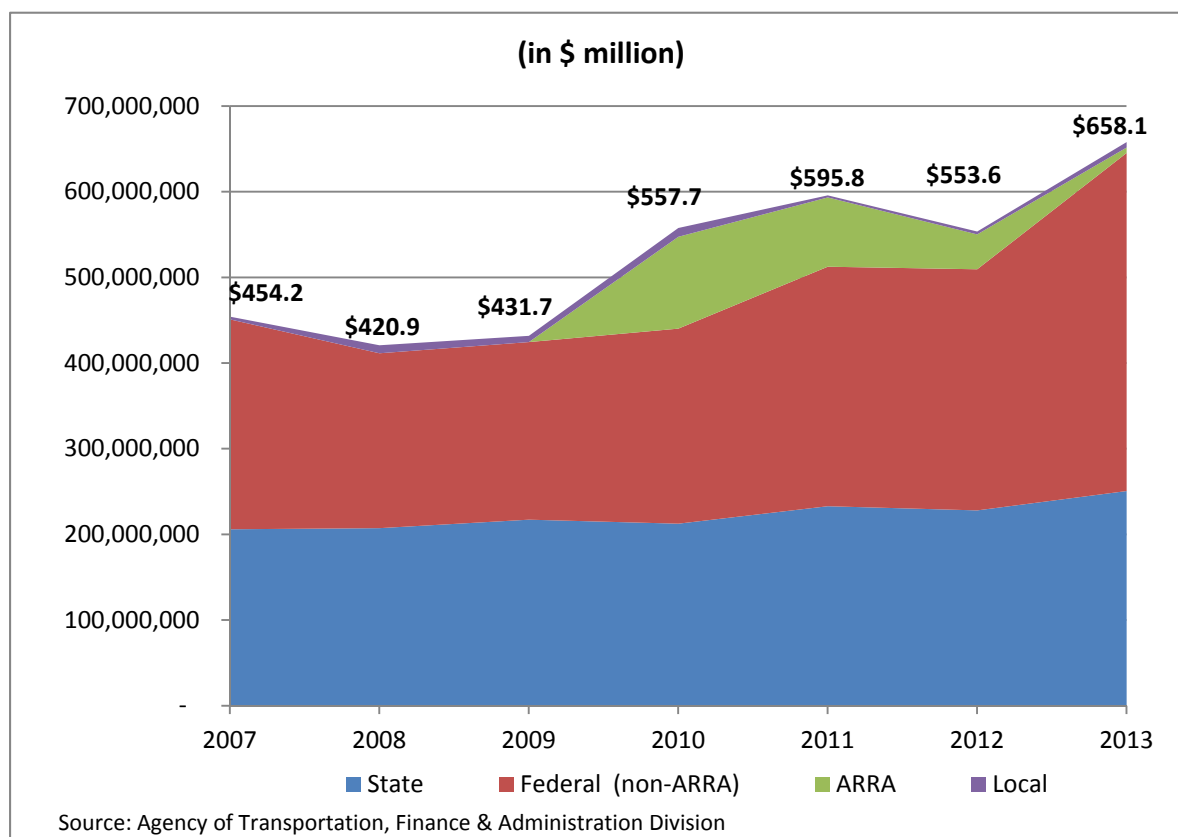
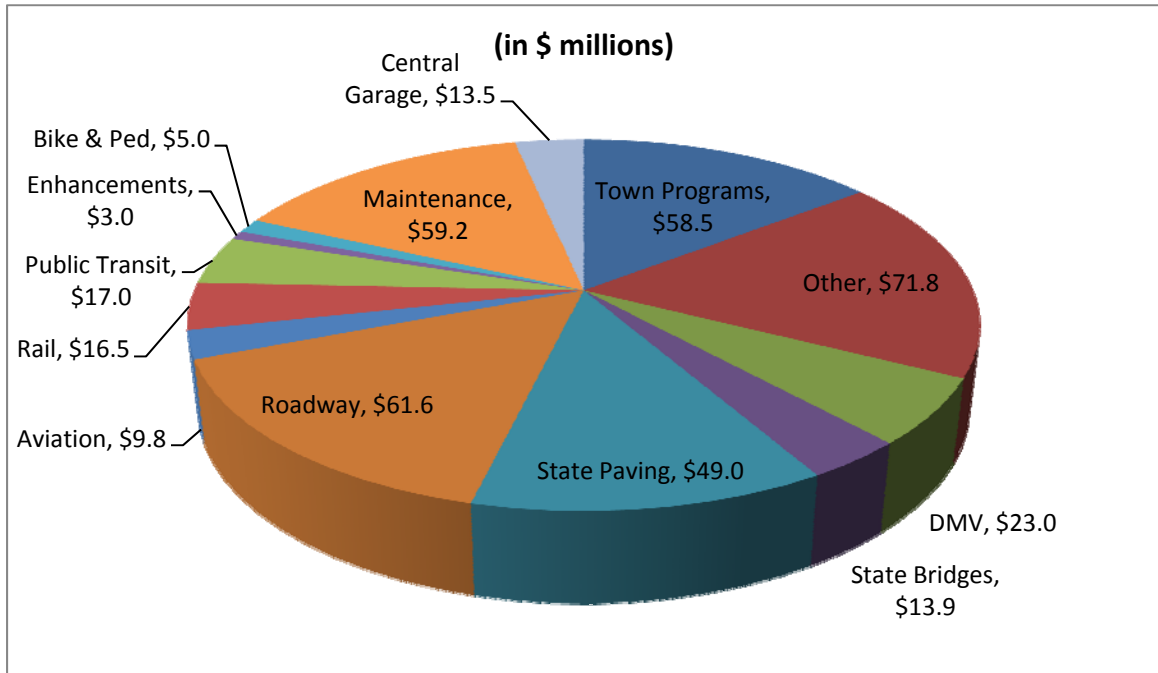


Figure 3 details VTrans’ expenditures by program area. Just under half of the transportation budget funds town and state paving/bridges projects (46%). Other major expenditures include maintenance (18%). Public transit, rail and aviation collectively account for 11% of the transportation budget. Bicycle, pedestrian and enhancement projects account for less than 2% of the total transportation budget.

Figure 3: Typical Annual Pre-ARRA/ER VTrans Budget by Program Area (2004-2008 Average)



Across program areas, state funding is generally used to match federal funds, which differ in their contribution across modes.

- **Highway and Bridge Programs:** Federal funding is authorized under MAP-21. Generally, most programs are funded using an 80% federal 20% state formula, with some exceptions such as interstate projects that use 90%-10% formula.
- **Public Transportation:** Similarly authorized under MAP-21. VTrans funds the state’s rural public transit providers (Chittenden County Transportation Authority is an urbanized transit system and receives direct appropriations). While the same 80%-20% federal/state formula generally applies, the state requires that the 20% non-federal match be split with the local transit providers (80%-10%-10%). In addition to capital expenditures for fleet and facilities, a portion of transit funds are used for operating expenses.
- **Aviation:** Federal funding is authorized under the Federal Aviation Administration and Reform Act. The major source of funding for Vermont airports is the FAA Airport Improvement Program, which provides funding for small primary and general aviation airports in the 90-95% federal range. Source: Agency of Transportation, Finance & Administration Division
- **Rail:** Rail is the only transportation mode that has no dedicated federal funding. Despite statutory provisions in both the surface transportation legislation and its stand-alone Passenger Rail Investment and Improvement Act (PRIIA), the rail budget consists primarily of

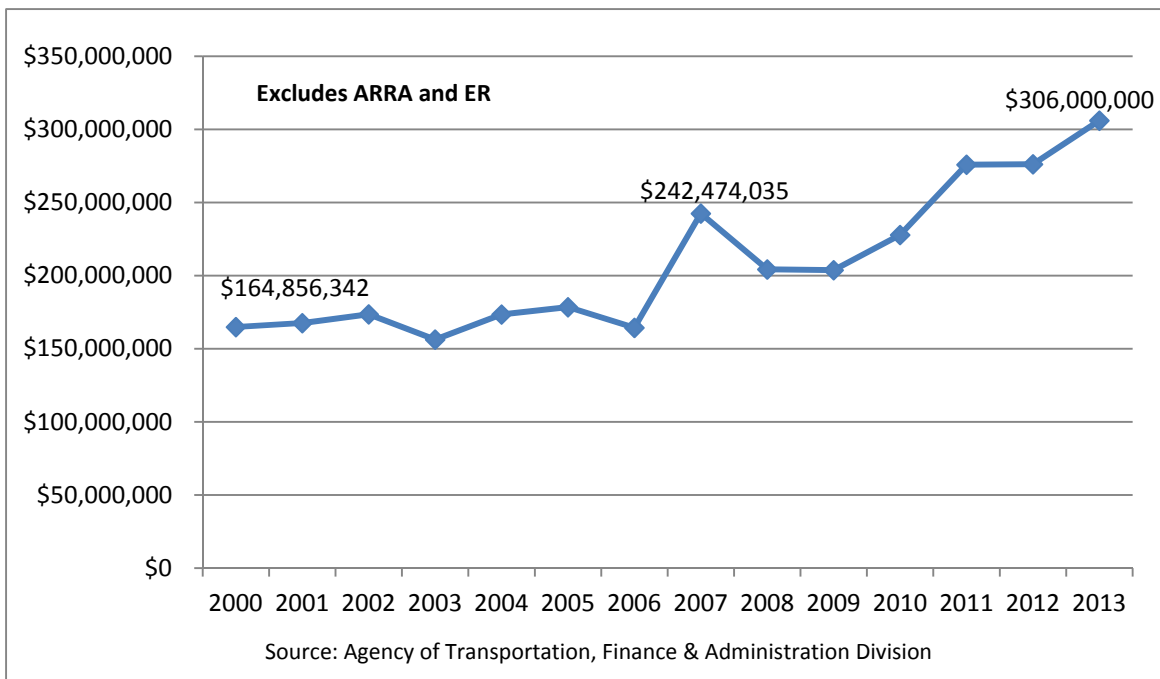
state funds, used for both capital freight projects and operating expenses for intercity passenger rail routes.

2.2 Federal Funding Trends

As noted, Vermont relies heavily on federal funding for its highway, public transit, rail, and aviation programs. For SFY 2013, Vermont is obligating a record \$396,838,592 in federal funds. Vermont benefitted from \$84,505,016 in FEMA and FHWA Emergency Relief funds related to Tropical Storm Irene. Even without FEMA and ER funding, federal funds peaked due to ARRA and competitive grant funding (Figure 4).

From FY 2010-2012, Vermont obtained \$238,536,880 in ARRA funding. The additional funding enabled VTTrans to accelerate the schedule of dozens of projects and implement projects that would not have been possible without federal assistance (i.e. rail rehabilitations projects, transit fleet acquisition).

Figure 4: Federal Transportation Funding in VT SFY 2000-201



Highway Trust Fund Concerns

Most federal funding for highways and transit originates from the HTF. Since it was established in 1956, the HTF generally provided stable and reliable highway and transit funding. However, that stability and adequacy has diminished in recent years. The Federal motor fuel taxes are 18.4-cent per gallon tax on gasoline and the 24.4-cent per gallon tax on diesel fuel. These user fees have not been increased since 1993 and in the past five years, the amount the HTF has paid out has exceeded what it has taken in. Since 2008, a series of recurring Congressional transfers from the general fund to the HTF totaling \$34.5 billion have been used to stabilize the HTF.

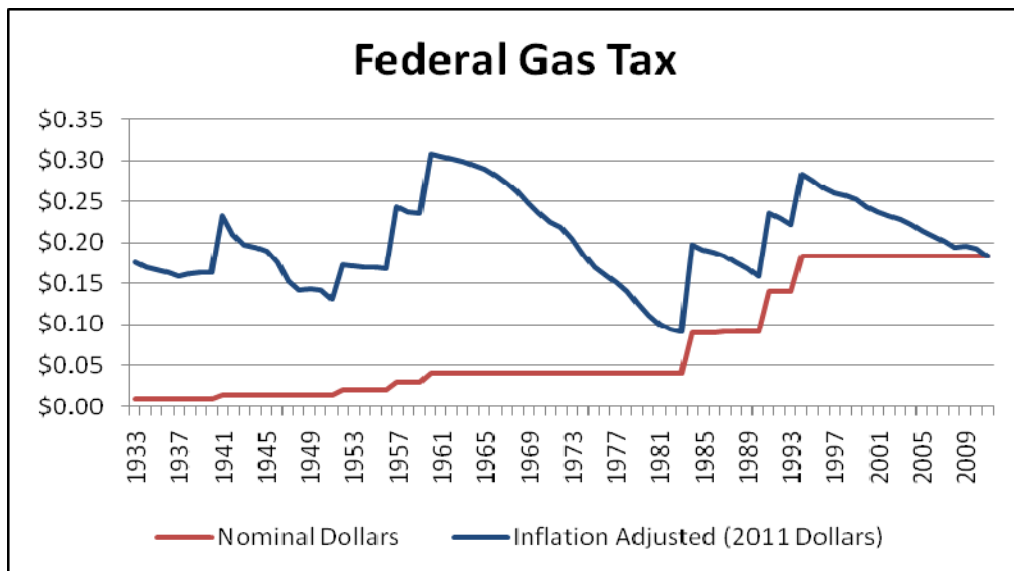
The long-term HTF forecast signals continuing problems. The Congressional Budget Office (CBO) (<http://www.cbo.gov/publication/43198>) projects that the fund will pay out \$589 billion to states by 2022, but will only take in \$442 billion.

The decline of the HTF has generally been attributed to two causes: inflation and a reduction in expected revenues.

Inflation

Inflation has diminished the HTF’s buying power. Figure 5 highlights the difference in the nominal and inflation-adjusted power of the gas tax. At 18.4¢ per gallon, the gas tax is the highest it has ever been in nominal dollars. But if adjusted for inflation, its value decreases substantially. For example, in January 1994, 18.4¢ was worth 28¢ in 2011 dollars. The result is a reduction of 34% in the purchasing power of the tax.

Figure 5: Impact of Inflation on Federal Gas Tax¹



Reduction in Revenues

The CBO report also notes that higher fuel economy standards for all cars and light trucks starting in 2016 will reduce gasoline consumption to the point that already-dwindling gas tax revenues may shrink by 21% by 2040.

Current fuel efficiency standards call for new vehicles to travel 29.7 miles per gallon of gas—a level which will rise to 54.5 miles per gallon by 2025. The effects of more fuel-efficient vehicles can be seen in the nation’s consumption of gasoline. Americans consumed 8.7 million barrels of gasoline a day in 2011, down from 9.3 million barrels in 2008.

¹ Source: <http://greatergreaterwashington.org/post/11871/inflation-not-bike-sharing-is-why-the-gas-tax-isnt-enough/>

MAP-21 Funding Formulae

MAP-21 was intended to fill a short-term need for reliable federal transportation funding over the next two years. However, if ‘minimum returns’ included in this law are used as a basis for future reauthorizations, Vermont may find itself with a declining share of federal transportation funding.

Historically, Vermont (as other rural and sparsely populated states) has depended on an above-average share of the HTF to maintain and develop its highway network. A combination of ‘guaranteed base shares’ and earmarks contained in both TEA21 and SAFETEA-LU sustained growth in Vermont’s transportation budget since the 1990s. Currently, Vermont earns \$2.95 for every dollar it contributes to the HTF.

This ‘bump up’ is earned through a federal transportation formula that recognizes the challenges smaller, rural states have in maintaining their road networks, including the critical National Highway System. Under SAFETEA-LU, every state was entitled to a minimum return of 92% of their contributions to the HTF. The balance between this percentage and the total HTF is what FHWA uses to provide ‘bump-up’ funding to states like Vermont, its program administration & oversight, management of federal lands, and MPO funding.

MAP-21 ensures that states will receive a minimum return of 95% of their HTF payments. As indicated in Figure 6, the 95% minimum guarantee is the highest recorded, and a far higher share than the 85% contained in STURAA (1987). ‘Donor’ states have complained for years that their minimum return was too low, and should be as close to 100% as possible.

Figure 6: Minimum Return on Federal Highway Funds by Transportation Reauthorization

<i>Transportation Bill</i>	STURAA	ISTEA	TEA21	SAFETEA_LU	MAP-21
<i>Year</i>	1987	1991	1998	2005	2012
<i>Guaranteed Minimum Return</i>	85%	90%	90.50%	92%	95%



The 95% minimum return is problematic as it can reduce both the ‘bump up’ Vermont receives and federal discretionary spending, which benefits VTrans. A certain percentage of the federal transportation budget is set aside for federal administrative and programmatic activities. Historically, transportation bills have included a 1.5% administrative takedown, 1% for Metropolitan Planning Organizations, and roughly 2% or more for non-state specific programs (i.e. Federal Lands Highways Program). This leaves the 95% equity mechanism with little room to maneuver. Since these administration and programmatic functions noted above are requirements in MAP-21, states such as Vermont may not be able to count on funding levels seen in previous reauthorizations. A main reason Vermont has benefited from ‘bump ups’ since SAFETEA-LU is a series of recurring Congressional transfers from the general fund to the HTF (\$34.5 billion since FY08). With a 95% minimum return, MAP-21 effectively reduces the amounts that can be provided to states as bump ups, in the absence of continued general fund transfers.

A glimpse of the potential risk of increasing minimum returns is highlighted in testimony before the Vermont Senate and House Transportation Committees provided by David Weinstein and Jeff Munger, policy advisors to U.S. Senator Bernie Sanders, on March 21, 2012. They note that an amendment to MAP 21 that was defeated on the floor of the U.S. Senate would have

returned each state the percentage of all fuel taxes they pay into the HTF, effectively cutting Vermont's federal allocation by almost half. This would have resulted in almost \$100 million less in federal funds, severely limiting VTrans' ability to initiate and complete programmed highway/bridge projects.

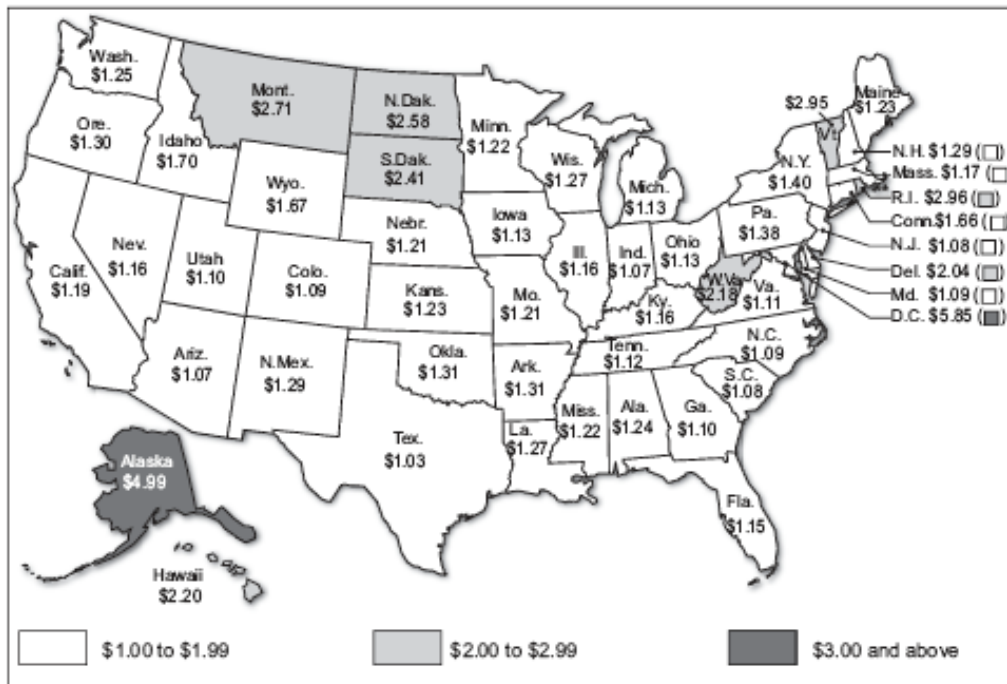
By agreeing to 95% minimum returns, Congress may have set a precedent that will be very difficult to reverse. This decision furthers the goal of "donor states", who argued that their dollars have been subsidizing the maintenance and operations of 'donee' state infrastructure, especially the older highway infrastructure in the Northeast. Some of the 'donor' states argue for a drastically reduced federal role, including streamlining or eliminating the Federal-Aid Highway Program, and limiting the FHWA's role to primarily serving as a conduit for block grants to the states.

'Donee' states argue that the age of their highway infrastructure, the high cost of working on heavily congested urban roads, and the limited financial resources in sparsely populated States justify their 'donee' status. They also argue that there are needs that are inherently federal rather than state and that a national highway network cannot be based solely on state or regional boundaries.

The 'doner-donee' debate has, in the past few years, been masked by general fund transfers. These transfers have allowed all states to receive more than their contribution to the HTF, effectively turning all states into 'donee' states (Figure 7). The issue for future reauthorizations, however, lies in continued dependence on general fund transfers. How long will Congress continue to support these recurring transfers?

Vermont, like other rural states with small populations, will continue to rely on federal funds to meet our transportation needs. Over the next two years Congress will debate the reauthorization of MAP-21 and we must build a coalition with these other states to make the case for preserving and enhancing federal funds.

Figure 7: States' Return for Every \$1.00 Contributed to the HTF (2005-2009)¹



2.3 State Funding Trends

State revenues account for the second largest share of transportation revenues. The current SFY budget includes slightly over \$200 million in non-TIB state funds (Figure 8). State funding sources (excluding TIB) have risen very slowly since 2007, increasing by only 4.7% or an annual average of 0.8%. This rate is well below the inflation rate.

The addition of approximately \$30 million in TIB funding has effectively increased the amount of state funding available and allowed VTtrans to complete more projects by providing matching funds for federal-eligible projects.

Vermont’s state transportation funding encompasses a diverse combination of gasoline and diesel tax, purchase & use, motor vehicle fees, TIB funding, and other. Examples of revenue sources in the other includes oversize/overweight permits, jet fuel sales tax, title certificates, lease income from airports and railroads, etc (Table 1). Gasoline and diesel taxes account for 40% of revenue, followed closely by Department of Motor Vehicle (DMV) fees (30%) and purchase & use fees (23%) (Figure 9).

¹ Source: <http://www.gao.gov/products/GAO-11-918>

Figure 8: State Transportation Funds, SFY 2000-2013

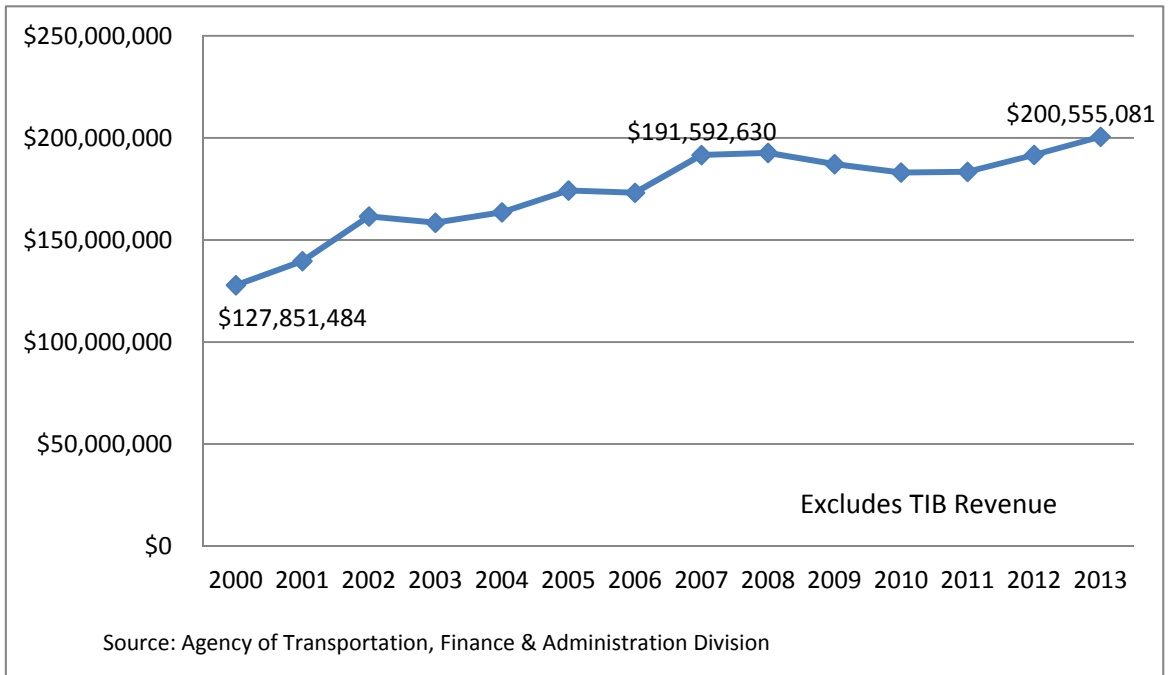


Figure 9: VT State Transportation Fund Sources, Consensus Revenue Forecast, SFY 2013

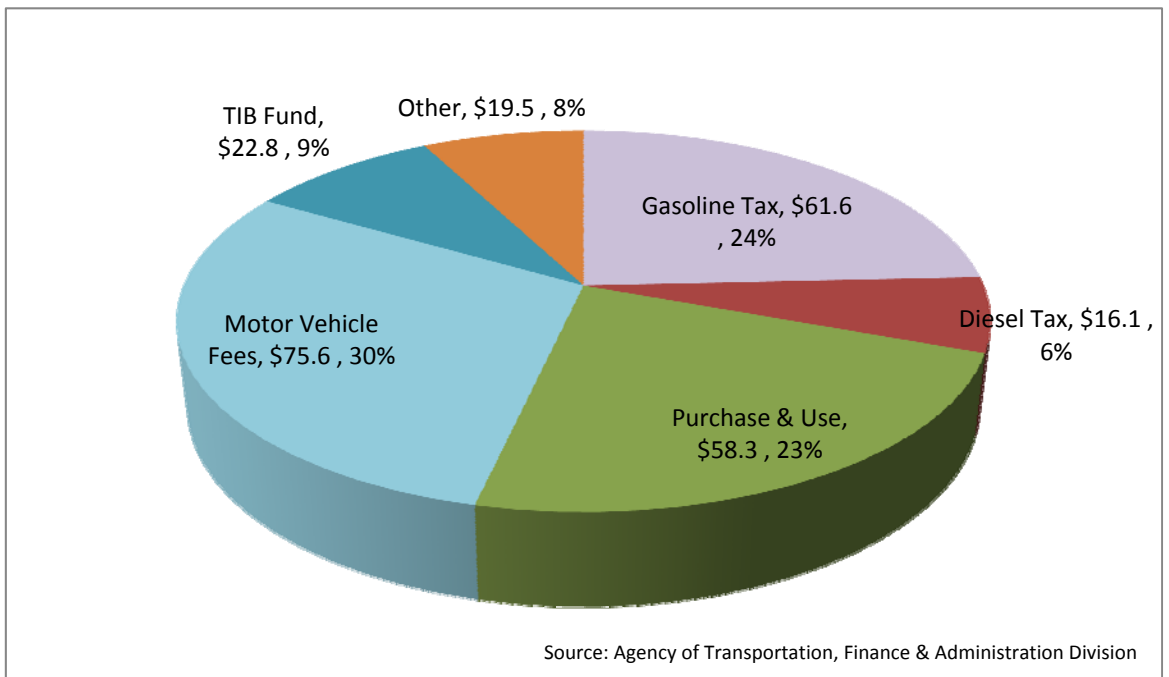


Table 1: Other Fees

Item	Revenue	Item	Revenue	Item	Revenue
Railroad	\$110,825	Bldg Bright Future Plate- Initi	\$640	Fines Pending Allocation	-\$118,082
Jet & Railroad Fuel	\$1,575,178	Bldg Bright Future Plate- Renew	\$2,847	Civil Traffic Fines State	\$4,257,535
Fuel Gross Receipts	\$0	Conservation Plates - Renewal	\$17,467	Civil Traffic Fines Local	\$0
Directional Signs	\$252,282	Conservation Plates - Initial	\$8,330	Motor Vehicle Violations	-\$32,070
Oversize Permits	\$2,548,617	Rents-General	\$42,712	ATV Fines - 15%	\$2,686
Fuel User	\$77,794	Temp Bridge Rental	\$11,252	CCVS Restitution	\$10,786
Inspection Sticker Fees	\$1,177,145	Railroads	\$1,244,950	Littering Fines	\$12,610
All Terrain Vehicle Reg	\$50,333	Airports	\$266,600	Seatbelt Violations	\$41,789
Motorboat Registrations	\$187	Sale of Maps, Plans, etc.	\$7,839	State/Local Fines	\$0
Victim's Assistance	\$0	Surplus Property Sales	\$127,649	Interest Income - Program	\$18,598
Title Certificate	\$4,996,643	Sales of Services	\$26,594	Other Revenues - General	\$15,118
TB-New Vehicle Dealer Fee	\$8,700	Copy - Printing & Duplicating	\$4,511	Accident Damage Recovery	\$166,558
TB-Manufacturers Fee	\$18,600	Municipal Fines	\$0	Other Revenues	\$56,322
TB-Protest Filing Fee	\$0	Non-Suff Fund Check Charges	\$10,224	Donations	\$600
IFTA-72 Hour Trip Permit	\$10,770	Criminal Fines	\$280	Sale of Surplus Property	\$0
Motorcycle Training	\$458,238	Uniform Traffic Tick Fines St	\$16,141	Proceeds from Sale of Assets	\$0
Safety/Service Organization	\$3,075	Uniform Traffic Tick Fines Loc	\$0	Recoveries General	\$0
VTSTRONG Plate	\$73,660	Title 23 Crim DWI	\$697,322		
Veterans Plates	\$15	Surcharge Fines - Victims Rest	-\$16		

The outlook for state funding is stable. According to the Fiscal 2013-2014 Revenue Outlook¹ there will be \$232.4 million in revenue “Available to the transportation Fund” for fiscal year 2013, and a \$239.3 million for 2014 excluding TIB funds.

Relative to the consensus revenue forecast of last January, these forecasts correspond to a relatively small +\$1.3 million (or +0.6% from the forecast of last January) upward adjustment for fiscal year 2013, and an even smaller +\$0.4 million (or +0.2% from the forecast of last January) upward adjustment for fiscal year 2014. These forecast changes are unexpectedly small in both fiscal years 2013 and 2014 given the Transportation Fund fee legislation passed last session— which was expected to boost receipts by closer to \$6 million for each fiscal year.

As noted above, Vermont receives more federal transportation funds than it pays in the federal gas tax. However, Vermonters do provide a fair share of transportation system costs when compared to other states. Vermont ranks 8th in the nation in the ratio of the state transportation fund to Gross Domestic Product. Vermont ranks 17th relative to the burden of the state transportation fund on household income (Table 2).

¹ July 20, 2012, <http://www.leg.state.vt.us/jfo/>

Table 2: State Transportation Fund Burden - 2011¹

Measure	Vermont	National Average	VT Ranking Among States
State Transportation Fund relative to State GDP	0.8%	0.7%	8th Highest
State Transportation Fund percent of Median Household Income	1.6%	1.8%	17th Highest

Gasoline Taxes

Vermont's gas tax is 20 cents per gallon (19¢ is allocated to the transportation fund and 1¢ to the petroleum clean-up fund). The national gas tax is 18.4 cents per gallon. Combined state and federal gasoline tax rates in Vermont fall below the national average. Information from the American Petroleum Institute compares fuel taxes in Vermont with its counterparts across the nation and considers all federal, state and local taxes on fuel. The state currently ranks twenty-fourth nationally in its combined federal/state/local gasoline taxes (43.9 cents/gallon versus a US average of 49.5) (Table 3).

Table 3: Federal and State Gasoline Motor Fuel Taxes – April 2012²

State	Fuel Taxes
1. New York	69.6¢
2. California	69.0¢
3. Hawaii	68.0¢
4. Connecticut	64.4¢
5. Illinois	62.8¢
.....
17. National Average	49.5¢
.....
24. Vermont	43.9¢
.....
46. Oklahoma	35.4¢
47. South Carolina	35.2¢
48. New Jersey	32.9¢
49. Wyoming	32.4¢
50. Alaska	26.4¢

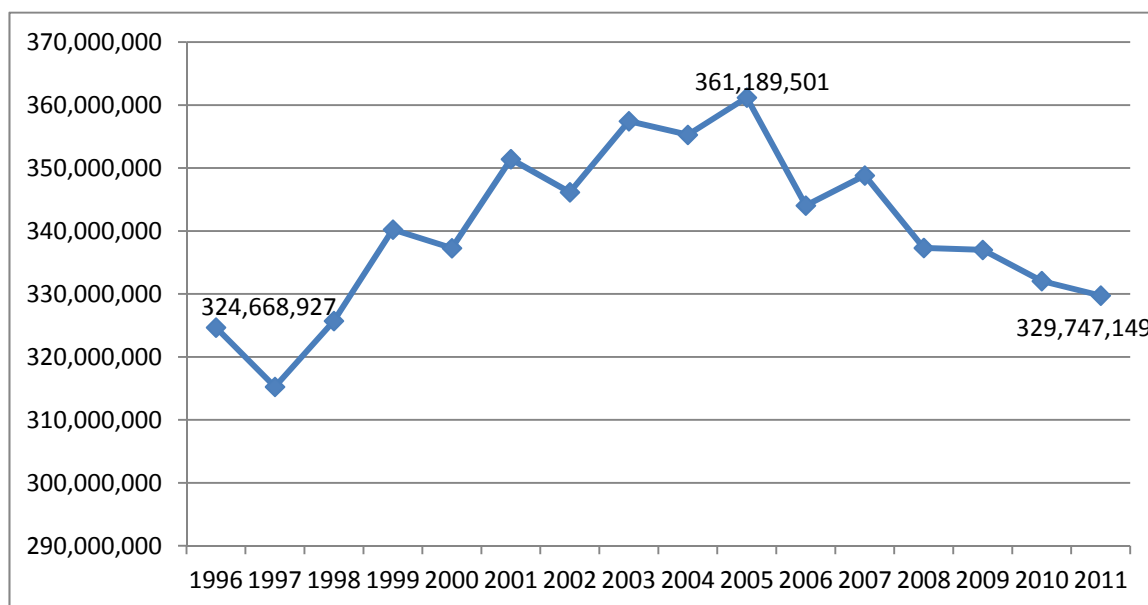
¹ Sources: "Transportation Governance and Finance, A 50-State Review of State Legislatures and Departments of Transportation"; AASHTO, May 2011; 2010 US Census; Bureau of Economic Analysis

² American Petroleum Institute, April 2012 Summary Report; <http://www.api.org/Oil-and-Natural-Gas-Overview/Industry-Economics/Fuel-Taxes.aspx>

Gasoline consumption has declined in Vermont, mirroring national trends of lower consumption. Between 1996 and 2005, gasoline consumption increased annually at an average rate of 1.1%, reaching an historic peak of 361,189,501 gallons (Figure 10). Since that time, however, that rate has reversed to minus 1.4% annually. Compared to the 2005 peak, 31.4 million less gallons were sold in 2011, representing a decline of 8.7%.

Gasoline consumption trends have correlated with increases in gasoline prices and reduced vehicle miles traveled since 2005. As the cost of gasoline continued to climb, significant declines in gasoline consumption and VMT were observed (Figures 10, 13)

Figure 10: Gasoline Consumption in VT (Gallons), 1996-2011¹



Forecasts for anticipated gasoline revenue continue to point to below average returns. Between 1981 and 2011, the average annual growth in gasoline revenues was 3.5%. The TIB Forecast Report projects that through 2040, gasoline revenues will increase by \$7 million (from current levels) an average of 0.4% annually (Figure 11).

The sustained decline in gasoline consumption has significant implications for transportation funding, as it compounds the problem of inflation and insufficient funding. Even small changes in fuel consumption have a direct impact on transportation revenues.

The rise in the cost of gasoline has mirrored declines in VMT and played a significant role in trip reduction and associated fuel tax revenues. For years, Vermont motorists enjoyed stable (and low) gasoline prices, particularly when factoring in inflation. By 2006, however, gasoline prices exceeded \$2.00 per gallon for the first time, marking the beginning of an unprecedented period of volatility (Figure 12). By January 2008, prices exceeded \$3.00 per gallon before eventually climbing to a peak of over \$4.00 that summer.

¹ Joint Fiscal Office; <http://www.leg.state.vt.us/jfo/transportation.aspx>

Figure 11: Change in Historic and Projected Gasoline and Diesel Revenue¹

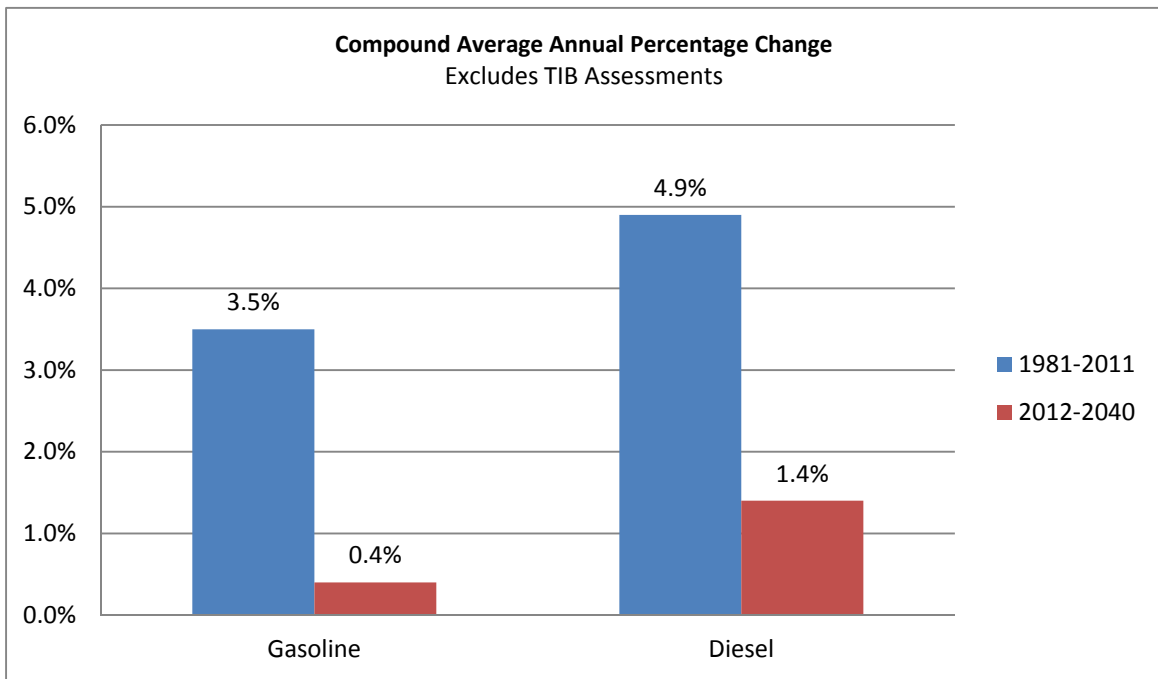
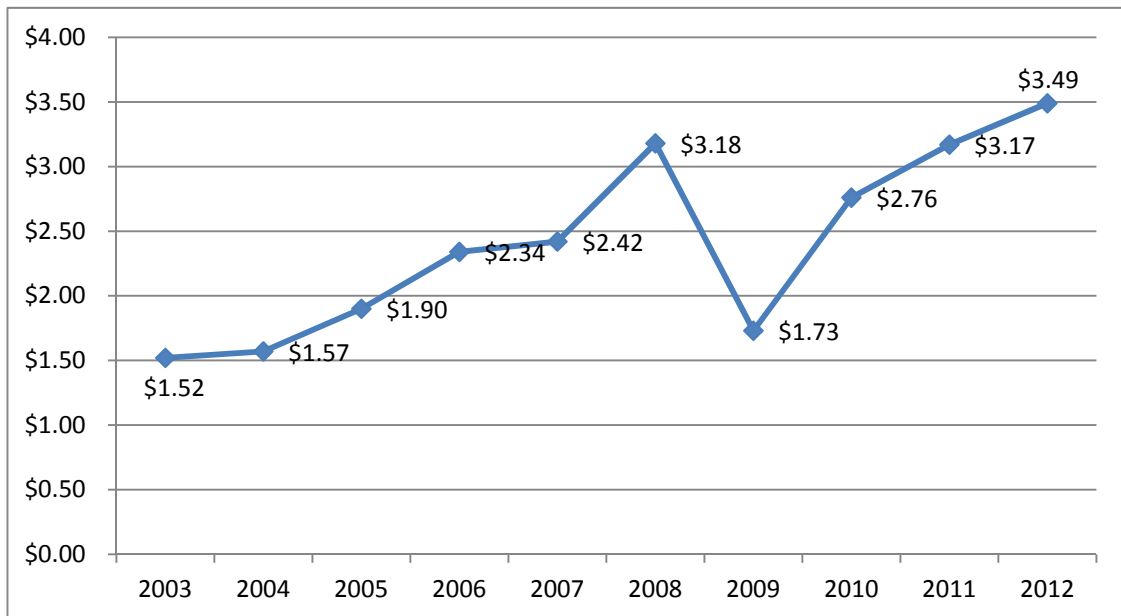


Figure 12: Retail Gasoline Prices in Vermont in January, 2003-2012²

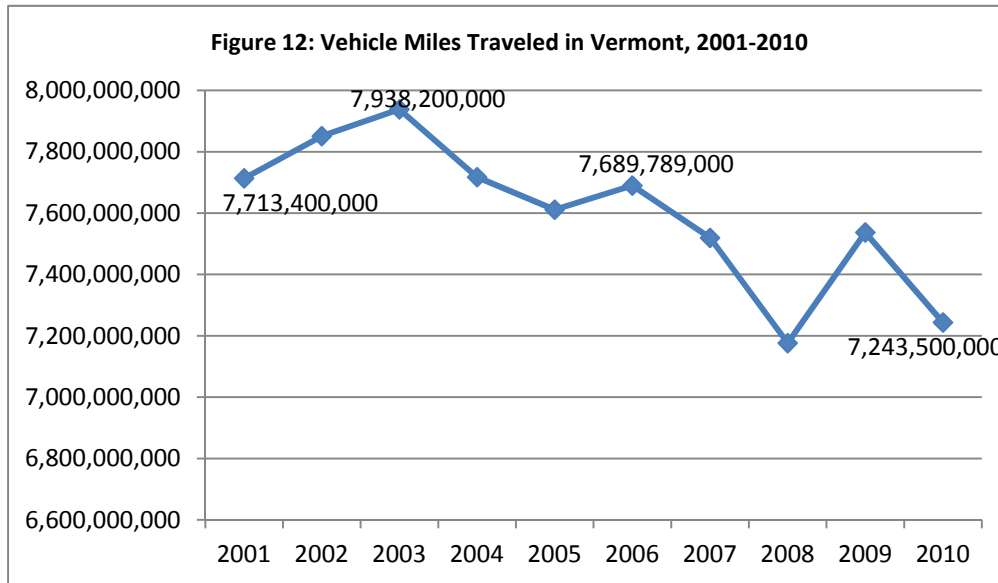


¹ "Feasibility Study Update Associated with State of Vermont Special Obligation Transportation Infrastructure Bonds – 2012 Series A"; pg. 16; July 2012. Excl

² Vermont Department of Public Service – Vermont Fuel Prices; <http://publicservice.vermont.gov/pub/vt-fuel-price-report.html>

Throughout the 1990s and early 2000s, VMT in Vermont increased an average of 2% annually, peaking in 2003 at 7.9 billion. Since then, VMT declined by 797 million miles, or 10%, posting its largest decline since records were kept starting in 1925 (Figure 12). While this rate of decline is not expected to be sustained, it is reasonable to assume that the historical 2% annual increases are no longer a guarantee.

Figure 13: Vehicle Miles Travelled in Vermont, 2001-2010¹

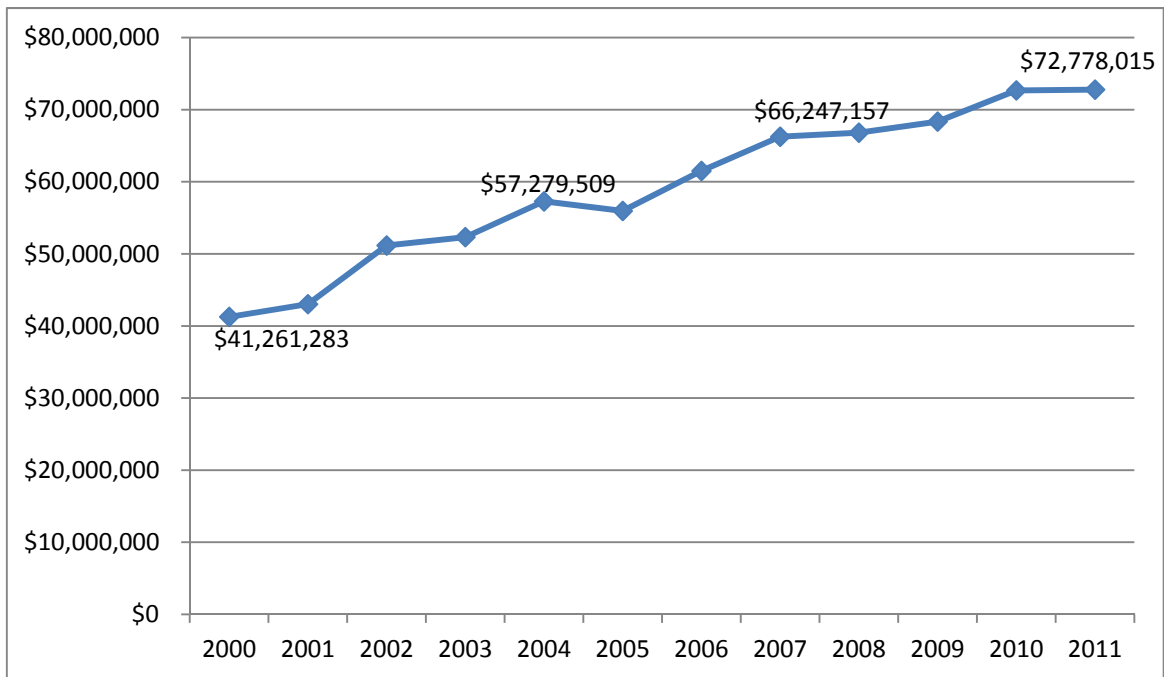


DMV Fees

DMV fees account for the second highest share of state transportation revenues. In contrast to gasoline taxes, these fees have held steady and increased in the past five years, assisted by three fee adjustments in the past decade that ensured fees kept up with inflation (Figure 14).

¹ Vermont Agency of Transportation;
<http://www.aot.state.vt.us/planning/Documents/HighResearch/Publications/pub.htm>

Figure 14: State Transportation Revenues Generated from DMV Fee¹s



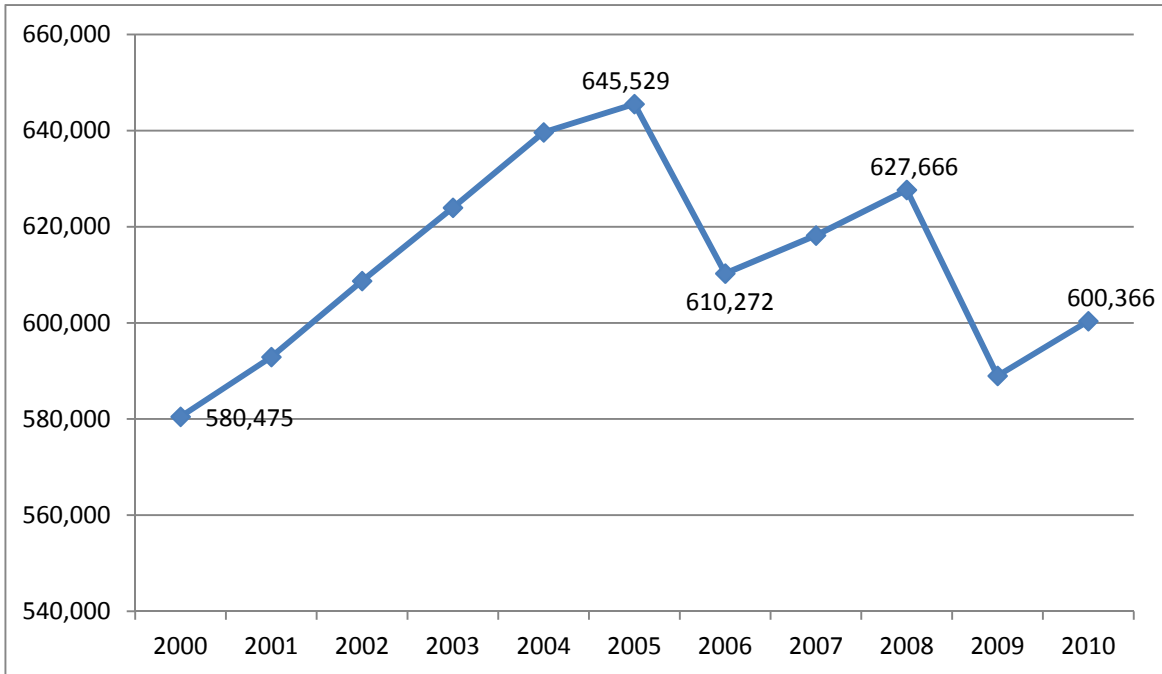
Licenses, Permits and Endorsements

A major component of these fees consists of licenses, permits and endorsements (LPEs). The number of LPEs declined from a peak of 645,529 in 2005 to 600,366 in 2010 (Figure 15).

Licensed drivers are required to pay licensing fees of \$30 every two years or \$48 every four years (or an average of \$12-15 annually). The national average is approximately \$19 per year, placing Vermont below the national average for license fees.

¹ Joint Fiscal Office – Transportation Fund Review; <http://www.leg.state.vt.us/jfo/transportation.aspx>

Figure 15: Number of Vermont Licenses/Permits/Endorsements Issued, 2000-2010¹



Vehicle Registration Fees

Vermont DMV stratifies the state's vehicle fleets into an array of 27 categories of vehicle types, including 4 categories for trucks (based on weight). Of Vermont's 714,780 registered vehicles, 414,373, or 58%, are passenger vehicles. Vermont currently segments passenger vehicles by fuel type (e.g., gasoline, diesel, and others) but not by segment or body type (e.g., compact, minivan, crossover, SUV, etc.).

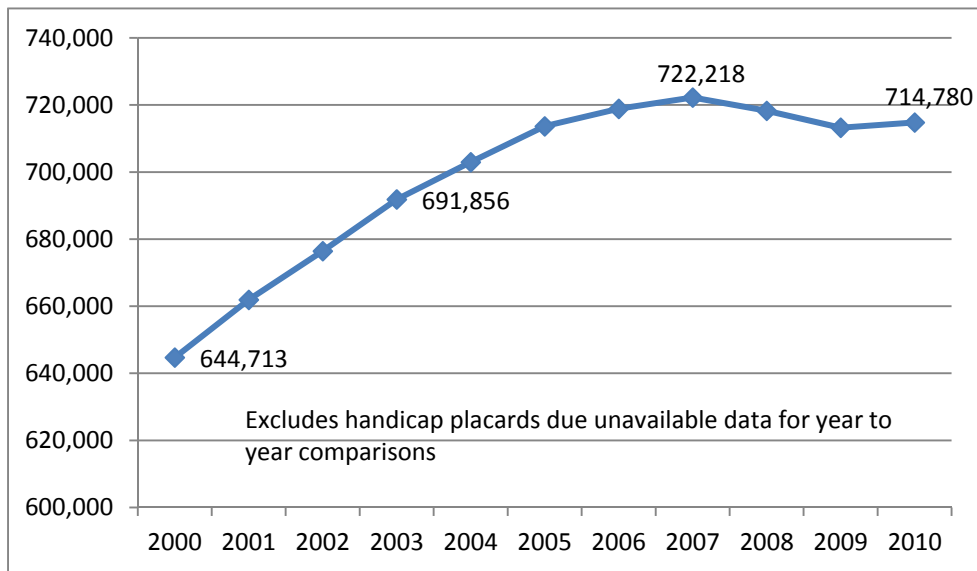
At a \$70 flat fee for passenger vehicles (gasoline-powered), Vermont has substantially lower annual registration fees than the national average (\$167). The national average figure includes all state, county and local fees required registering a vehicle.

Vermont's fee schedule does not take into account the many sub-vehicle types within the passenger vehicle bloc. The flat fee structure means that the driver of a 5,800-pound Cadillac Escalade SUV pays the same in vehicle registration fees as the driver of a 2,907-pound Ford Focus compact.

Vehicle registrations peaked in 2007 at 722,218 registrations, and subsequently declined by 7,438 or 1% since then (Figure 16).

¹ Department of Motor Vehicles – License/Permits/Endorsements Statistics; http://dmv.vermont.gov/dmv_info/statistics

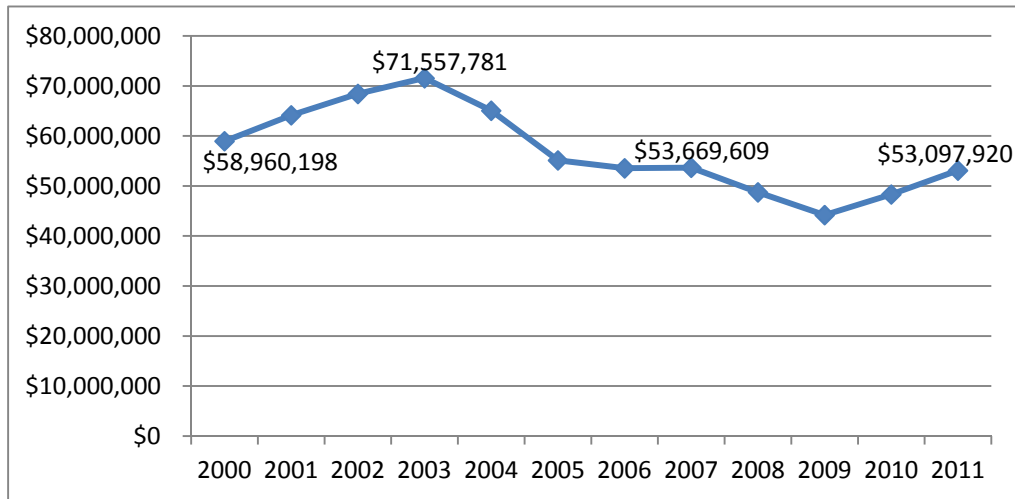
Figure 16: Number of Vehicle Registrations in Vermont, 2000-2010¹



Purchase & Use Fees

The purchase and use fee (P&U) is 6% of the cost of a vehicle; 4% is allocated to the Transportation Fund and 2% to the Education Fund. P&U fees contribute 23% of state transportation fund revenues. These fees account for the third highest share of state revenues, after gasoline & diesel taxes, and DMV fees. P&U revenues have held stable in the past five years but are substantially below their 2003 peak of \$71.6 million (Figure 16). Since that time, P&U revenues declined by \$18,459,861, or 26%.

Figure 17: State Transportation Fund Revenue from Purchase and Use Fees, 2000-2011¹



¹ Department of Motor Vehicles – License/Permits/Endorsements Statistics; http://dmv.vermont.gov/dmv_info/statistics

3.0 FUNDING PROJECTIONS

This section presents a forecast of available transportation funds for a twenty-year planning horizon. The data sources and assumptions are described, a series of tables are included that present the results of the analysis, and general observations are provided.

3.1 State Transportation Fund Forecast

Sources for the state transportation fund include the gasoline tax, diesel tax, vehicles purchase and use tax, motor vehicle fees, other revenues, and gasoline and diesel assessments dedicated to debt service for Vermont Special Obligation Transportation Infrastructure Bonds (TIB). Table 2 presents the forecast for the non-TIB revenue sources and also identifies the transfers from the transportation fund for public safety and drivers' education², other miscellaneous transfers³ and debt service for outstanding non-TIB bonds.

Table 3 presents the forecasts for the TIB dedicated gasoline and diesel assessments and includes the grand total of non-TIB and TIB state transportation fund revenue. All forecasts are presented in constant 2012 dollars and are based largely on the following two sources:

- *July 2012 Economic Review and Revenue Forecast Update* (Kavet, Rockler & Associates for the Office of the State Treasurer; July 20, 2012). This document presents the Consensus JFO and Administration Forecast (Consensus Forecast) for all state revenue sources including those that support the transportation fund through 2017. Forecasts for the gasoline and diesel taxes, purchase and use tax, motor vehicle fees and other revenue sources are taken directly from this source for years 2013 through 2017.
- *Feasibility Study Update Associated with State of Vermont Special Obligation Transportation Infrastructure Bonds – 2012 Series A* (Kavet, Rockler & Associates for the Office of the State Treasurer; July 5, 2012). The purpose of this document (TIB Feasibility Report) is to forecast likely revenue streams from the 2% assessment on gasoline sales and the 3 cent/gallon assessment on diesel dedicated to TIB debt service. The document provides forecasts to 2040 and is the basis for gasoline and diesel revenue forecasts presented in this study between 2018 and 2033 for non-TIB and TIB sources. The TIB Feasibility Report also includes population forecasts for Vermont which are the basis for the annual growth in the purchase and use tax, motor vehicle fees, and other fees between 2018 and 2033 presented in .

¹ Joint Fiscal Office – Transportation Fund Review; <http://www.leg.state.vt.us/jfo/transportation.aspx>

² Often referred to as JTOC because the transfers when first established were based on a report prepared by the Joint Transportation Oversight Committee.

³ \$400,000 to the Downtown Fund, \$1,120,000 to the Central Garage, and \$370,000 to the state's recreational trail grant program, and assumed \$200,000 for the Stabilization Reserve.

Fuel Efficiency Adjustment

Section 40 of Act 153 requires that the revenue forecasts for this funding study take into account motor vehicle fuel efficiency mandates and trends. The Corporate Average Fuel Economy (CAFE) standards are federal regulations, first enacted by the U.S. Congress in 1975 with the purpose of reducing the amount of fuel consumed by cars and light trucks¹. The forecasts contained in the Consensus Forecast and TIB Feasibility Report assumes a 35 mpg CAFE standards is achieved by 2020 and stays constant through 2035. New CAFE standards have recently been implemented which require an average vehicle fleet fuel efficiency of 54.5 mpg by 2025 (Table 4). For the purpose of this study, it is assumed that the revenue forecasts presented in the Consensus Forecast adequately reflect fuel efficiency improvements through 2017.

A fuel efficiency adjustment has been made for revenue forecasts from 2018 to 2033 to reflect the difference between the 35 mpg standard assumed in the TIB Feasibility Study and the 54.5 mpg standard of the current CAFE standards. The impact of the CAFE standards will be affected by the rate at which new vehicles enter the fleet. This turnover rate can be estimated based on the average age of existing vehicles. The average age of vehicles in the United States has steadily increased since the early 1970s. In more recent years, the average age increased from between 8 and 9 years in 2000² to just over 11 years in 2011³. Based on VT-DMV records, the average age of vehicles registered in Vermont is 10.1 years.

These data suggest that approximately 10% of the fleet is replaced each year. Table 5 shows the assumed turnover rate and resulting overall effect on total fleet efficiency. The national fleet fuel efficiency improvements are assumed to apply to Vermont and have been used to adjust the forecasted gasoline consumption and related gas tax and TIB revenue as shown in Table 4 and Table 5. The adjustment presented in Table 5 is coarse and does not account for the economic interactions that occur due to technology changes, cost and other factors that are reflected by the sophisticated macroeconomic models that are used for the Consensus Forecast and TIB Feasibility Report. However, the analysis helps define the order of magnitude impact of improving fuel efficiency on revenue.

Observations

- Assuming no changes to motor fuel tax rates and the other fees that generate revenue, the state's transportation fund will lose about 45% of its purchasing power in the next twenty years. (See analysis in Table 6). The analysis accounts for increased revenues that will be generated by the purchase and use tax as vehicle prices increase, and by the TIB 2% assessment as gasoline prices increase (these are the only two revenue sources that are automatically affected by market conditions and will change without action by the Legislature). The analysis also accounts for the effect of fuel efficiency improvements on revenue from the gas tax.

¹ <http://www.nhtsa.gov/fuel-economy>

² <http://www.fhwa.dot.gov/ohim/onh00/onh2p3.htm>

³ <http://www.kbb.com/car-news/all-the-latest/average-age-of-us-car-and-truck-fleets-hit-record-high-levels/>

- In the near term, fuel efficiency improvements are not expected to have a large impact on the state transportation fund because of the time required for new vehicles to enter the fleet and the gradual phase in of the CAFE standards over 13 years. Based on the order of magnitude methodology described above, fuel efficiency improvements could reduce state transportation revenues in the long term by approximately \$27 million from the gas tax and \$10 million from TIB revenues in a single year resulting in a 12% reduction in the overall transportation fund.

3.2 Federal Transportation Funds

As described in Section 2 of this report, the federal surface transportation authorization bill, MAP-21, was recently passed by Congress and signed into law by President Obama. MAP-21 provides federal funding for FFY 2013 and 2014. The amount of federal formula funds for highway and transit programs apportioned to Vermont has remained essentially unchanged as a result of MAP-21, at least for the next two years. Formula funds do not include earmarks, stimulus funding, Federal Highway Administration Emergency Relief Funds for Irene or other disasters, or funding won through competitive discretionary grant programs. All of these supplemental sources resulted in a spike in federal funding and contributed to a total budget for the Agency of Transportation of approximately \$658 million in the state 2013 capital program, of which \$390 million is from federal sources. After the remaining Irene, ARRA and earmark related project work is completed, the total transportation budget is expected to reduce to the \$420 to \$450 million range (Table 7).

Observations

Issues related to federal funding challenges are discussed in greater detail in section 2 and generally include:

- Uncertainty with the sustainability of the Highway Trust Fund, the underlying source of federal transportation funding; and
- Uncertainty with Vermont's federal appropriation beyond 2014. MAP-21 guarantees that all states will receive at least 95% of the federal gas tax collected in their state, up from 92%. Unless Congress decides to raise additional revenues, there will be fewer funds to re-allocate to small "donee" rural states like Vermont.

Table 4: State Transportation Fund Forecast without TIB Revenue

Year	Gasoline Tax Revenue					Diesel Tax Revenue		Purchase and Use Revenue		Motor Vehicle Fees		Other Revenue		Deductions			Available State Transportation Fund Revenue w/out TIB
	Annual Change from Previous Year ⁽¹⁾	Revenue without Fuel Efficiency Adjustment	Fuel Efficiency Adjustment	Reduction in Revenue due to Fuel Efficiency	Adjusted Gas Tax Revenue	Annual Change from Previous Year ⁽¹⁾	Revenue	Annual Change ⁽²⁾	Revenue ⁽³⁾	Annual Change ⁽²⁾	Revenue	Annual Change ⁽²⁾	Revenue	Public Safety	Other Out Transfers	Other Debt Service	
2013	1.70%	\$60.30	Included in base forecast		\$60.30	1.20%	\$16.20	5.10%	\$57.40	8.50%	\$79.80	2.30%	\$18.70	(\$25.20)	(\$2.09)	(\$2.48)	\$202.63
2014	1.80%	\$61.39	Included in base forecast		\$61.39	3.10%	\$16.70	5.50%	\$60.50	2.30%	\$81.60	2.10%	\$19.10	(\$25.20)	(\$2.09)	(\$2.41)	\$209.58
2015	1.3%	\$62.18	Included in base forecast		\$62.18	2.4%	\$17.10	4.40%	\$63.16	0.20%	\$81.76	2.10%	\$19.50	(\$25.20)	(\$2.09)	(\$2.09)	\$214.33
2016	1.1%	\$62.87	Included in base forecast		\$62.87	2.3%	\$17.50	4.00%	\$65.69	2.00%	\$83.40	2.10%	\$19.91	(\$25.20)	(\$2.09)	(\$1.95)	\$220.12
2017	0.8%	\$63.37	Included in base forecast		\$63.37	1.7%	\$17.79	3.80%	\$68.18	0.50%	\$83.82	2.00%	\$20.31	(\$25.20)	(\$2.09)	(\$1.88)	\$224.30
2018	0.2%	\$63.51	-1.85%	(\$1.18)	\$62.33	0.7%	\$17.92	0.65%	\$68.63	0.65%	\$84.36	0.65%	\$20.44	(\$25.20)	(\$2.09)	(\$1.71)	\$224.69
2019	0.2%	\$63.61	-3.38%	(\$2.15)	\$61.47	0.9%	\$18.09	0.65%	\$69.08	0.65%	\$84.91	0.65%	\$20.57	(\$25.20)	(\$2.09)	(\$1.63)	\$225.20
2020	0.2%	\$63.76	-5.32%	(\$3.39)	\$60.37	1.0%	\$18.28	0.65%	\$69.53	0.65%	\$85.47	0.65%	\$20.71	(\$25.20)	(\$2.09)	(\$0.56)	\$226.50
2021	0.4%	\$64.04	-7.67%	(\$4.91)	\$59.13	1.2%	\$18.49	0.65%	\$69.98	0.65%	\$86.03	0.65%	\$20.84	(\$25.20)	(\$2.09)	(\$0.54)	\$226.64
2022	0.4%	\$64.30	-10.42%	(\$6.70)	\$57.60	1.2%	\$18.72	0.65%	\$70.44	0.65%	\$86.59	0.65%	\$20.98	(\$25.20)	(\$2.09)	(\$0.50)	\$226.54
2023	0.4%	\$64.56	-13.55%	(\$8.75)	\$55.81	1.3%	\$18.97	0.65%	\$70.90	0.65%	\$87.15	0.65%	\$21.12	(\$25.20)	(\$2.09)	(\$0.33)	\$226.33
2024	0.3%	\$64.79	-17.07%	(\$11.06)	\$53.73	1.3%	\$19.20	0.65%	\$71.36	0.65%	\$87.72	0.65%	\$21.26	(\$25.20)	(\$2.09)	(\$0.32)	\$225.66
2025	0.2%	\$64.93	-20.94%	(\$13.59)	\$51.34	1.2%	\$19.44	0.65%	\$71.83	0.65%	\$88.29	0.65%	\$21.39	(\$25.20)	(\$2.09)	(\$0.31)	\$224.69
2026	0.2%	\$65.08	-24.41%	(\$15.89)	\$49.19	1.2%	\$19.68	0.65%	\$72.30	0.65%	\$88.87	0.65%	\$21.53	(\$25.20)	(\$2.09)	(\$0.29)	\$223.99
2027	0.3%	\$65.26	-27.54%	(\$17.97)	\$47.28	1.3%	\$19.93	0.65%	\$72.77	0.65%	\$89.45	0.65%	\$21.67	(\$25.20)	(\$2.09)	(\$0.52)	\$223.29
2028	0.3%	\$65.43	-30.36%	(\$19.87)	\$45.57	1.3%	\$20.18	0.65%	\$73.24	0.65%	\$90.03	0.65%	\$21.82	(\$25.20)	(\$2.09)	(\$0.28)	\$223.27
2029	0.3%	\$65.61	-32.90%	(\$21.58)	\$44.03	1.3%	\$20.45	0.65%	\$73.72	0.65%	\$90.62	0.65%	\$21.96	(\$25.20)	(\$2.09)	(\$0.27)	\$223.21
2030	0.3%	\$65.79	-35.18%	(\$23.14)	\$42.65	1.3%	\$20.71	0.65%	\$74.20	0.65%	\$91.21	0.65%	\$22.10	(\$25.20)	(\$2.09)	\$0.00	\$223.58
2031	0.3%	\$65.97	-37.23%	(\$24.56)	\$41.41	1.3%	\$20.98	0.65%	\$74.69	0.65%	\$91.81	0.65%	\$22.25	(\$25.20)	(\$2.09)	\$0.00	\$223.84
2032	0.3%	\$66.15	-39.08%	(\$25.85)	\$40.30	1.3%	\$21.25	0.65%	\$75.17	0.65%	\$92.41	0.65%	\$22.39	(\$25.20)	(\$2.09)	\$0.00	\$224.23
2033	0.3%	\$66.33	-40.74%	(\$27.02)	\$39.30	1.3%	\$21.52	0.65%	\$75.66	0.65%	\$93.01	0.65%	\$22.54	(\$25.20)	(\$2.09)	\$0.00	\$224.75

All dollar amounts in \$ Millions

¹ Values for 2013 to 2017 from July 2012 Consensus JFO and Administration Forecast, Annual Change from 2018-2033 from July 2012 TIB Feasibility Study

² Annual change for 2013 and 2017 from July 2012 Consensus Forecast, 2018-2033 based on population growth in TIB Feasibility Report

³ Value after the transfer to the education fund.

Table 5: TIB Revenue and Total Transportation Fund Forecast

Year	TIB GASOLINE REVENUE					TIB DIESEL REVENUE		NET TIB REVENUE		Available Transportation Fund Revenue with TIB
	Annual Change from Previous Year ⁽⁴⁾	Revenue without Fuel Efficiency Adjustment	Fuel Efficiency Adjustment	Reduction in Revenue due to Fuel Efficiency	Adjusted TIB Gas Revenue	Annual Change in TIB Diesel Revenue ⁽⁴⁾	TIB Diesel Revenue	TIB Bond Debt Service	Sub-Total TIB Revenue Balance	
2013	0.7%	21.0	Included in base forecast		21.0	1.9%	2.0	(\$1.00)	\$22.04	\$224.67
2014	4.9%	22.0	Included in base forecast		22.0	3.4%	2.1	(\$1.05)	\$23.08	\$232.66
2015	1.8%	22.4	Included in base forecast		22.4	2.7%	2.2	(\$2.68)	\$21.90	\$236.23
2016	1.1%	22.7	Included in base forecast		22.7	2.4%	2.2	(\$2.75)	\$22.12	\$242.25
2017	3.3%	23.4	Included in base forecast		23.4	1.3%	2.2	(\$2.75)	\$22.90	\$247.20
2018	0.2%	23.5	-1.85%	(\$0.43)	23.0	0.7%	2.3	(\$2.75)	\$22.54	\$247.22
2019	0.2%	23.5	-3.38%	(\$0.79)	22.7	0.9%	2.3	(\$2.76)	\$22.23	\$247.43
2020	0.2%	23.6	-5.32%	(\$1.25)	22.3	1.0%	2.3	(\$2.75)	\$21.85	\$248.35
2021	0.4%	23.7	-7.67%	(\$1.82)	21.8	1.2%	2.3	(\$2.75)	\$21.42	\$248.06
2022	0.4%	23.8	-10.42%	(\$2.48)	21.3	1.2%	2.4	(\$2.75)	\$20.89	\$247.43
2023	0.4%	23.9	-13.55%	(\$3.23)	20.6	1.3%	2.4	(\$2.76)	\$20.26	\$246.59
2024	0.3%	23.9	-17.07%	(\$4.09)	19.9	1.3%	2.4	(\$2.76)	\$19.52	\$245.18
2025	0.2%	24.0	-20.94%	(\$5.02)	19.0	1.2%	2.5	(\$2.75)	\$18.66	\$243.36
2026	0.2%	24.0	-24.41%	(\$5.87)	18.2	1.2%	2.5	(\$2.75)	\$17.90	\$241.89
2027	0.3%	24.1	-27.54%	(\$6.64)	17.5	1.3%	2.5	(\$2.75)	\$17.23	\$240.52
2028	0.3%	24.2	-30.36%	(\$7.34)	16.8	1.3%	2.5	(\$2.76)	\$16.62	\$239.90
2029	0.3%	24.2	-32.90%	(\$7.97)	16.3	1.3%	2.6	(\$2.75)	\$16.09	\$239.30
2030	0.3%	24.3	-35.18%	(\$8.55)	15.8	1.3%	2.6	(\$2.76)	\$15.61	\$239.19
2031	0.3%	24.4	-37.23%	(\$9.07)	15.3	1.3%	2.6	(\$2.75)	\$15.19	\$239.03
2032	0.3%	24.4	-39.08%	(\$9.55)	14.9	1.3%	2.7	(\$2.75)	\$14.82	\$239.04
2033	0.3%	24.5	-40.74%	(\$9.98)	14.5	1.3%	2.7	(\$1.70)	\$15.54	\$240.28

All dollar amounts in \$ Millions

⁴. July 2012 TIB Feasibility Study

Table 6: U.S. Corporate Average Fuel Economy (CAFE) Standards

Year	CAFE Standards	Annual Improvement in Fuel Efficiency of New Vehicles
2012	25 mpg	Not Applicable
2016	35.5 mpg	9.2% 2012 to 2016
2025	54.5 mpg	4.9% 2017 to 2025

**Table 7: Estimated Effect of Fleet Fuel Efficiency Based on CAFE Standards and Vehicle Turnover Relative to Efficiency Assumed in July 2012
TIB Feasibility Analysis**

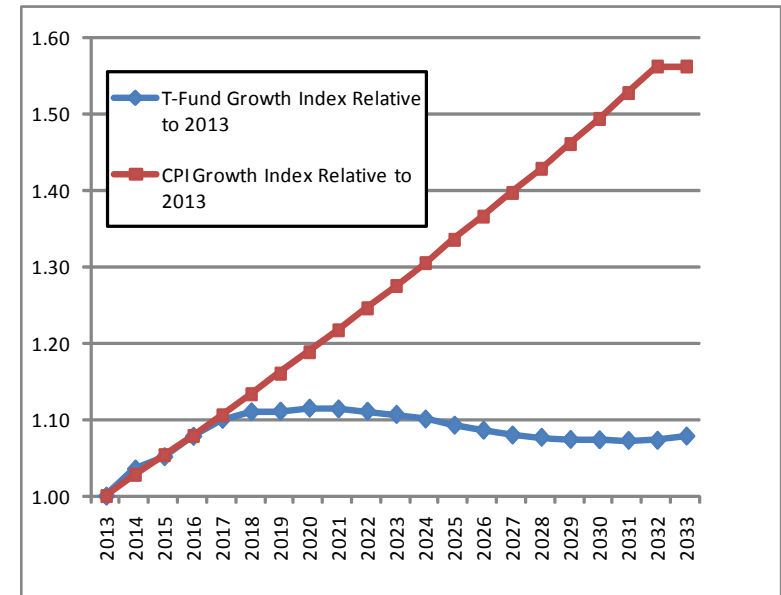
Year	Assumed Average Age of Vehicle Fleet (years)	Percent Turnover to New Vehicles	Assumed MPG Standard in July 2012 TIB Feasibility Study	CAFE Standard	Average Fleet Fuel Efficiency	Fuel Efficiency Improvement Relative to TIB Analysis Assumption	Total Fleet Fuel Efficiency Improvement	Notes
2016	10	10.0%	35	35.5	35.1	1.4%	0.14%	1
2017	10	10.0%	35	37.2	35.3	6.4%	0.77%	
2018	10	10.0%	35	39.1	35.6	11.6%	1.85%	
2019	10	10.0%	35	41.0	36.2	17.1%	3.38%	
2020	10	10.0%	35	43.0	36.9	22.8%	5.32%	
2021	10	10.0%	35	45.1	37.7	28.8%	7.67%	
2022	10	10.0%	35	47.3	38.6	35.1%	10.42%	
2023	10	10.0%	35	49.6	39.7	41.8%	13.55%	
2024	10	10.0%	35	52.1	41.0	48.7%	17.07%	
2025	10	10.0%	35	54.5	42.3	55.7%	20.94%	2
2026	10	10.0%	35	54.5	43.5	55.7%	24.41%	
2027	10	10.0%	35	54.5	44.6	55.7%	27.54%	
2028	10	10.0%	35	54.5	45.6	55.7%	30.36%	
2029	10	10.0%	35	54.5	46.5	55.7%	32.90%	
2030	10	10.0%	35	54.5	47.3	55.7%	35.18%	
2031	10	10.0%	35	54.5	48.0	55.7%	37.23%	
2032	10	10.0%	35	54.5	48.7	55.7%	39.08%	
2033	10	10.0%	35	54.5	49.3	55.7%	40.74%	

1. 35.5 mpg average fleet fuel efficiency CAFE standard for new vehicles.

2. 54.5 mpg average fleet fuel efficiency CAFE standard for new vehicles

Table 8: Transportation Fund Purchasing Power Analysis

Year	T-Fund adjusted for Inflation ⁽¹⁾	CPI ⁽²⁾	T-Fund Growth Index Relative to 2013	CPI Growth Index Relative to 2013
2013	\$224.67	230.9	1.00	1.00
2014	\$232.66	236.7	1.04	1.03
2015	\$236.23	243.3	1.05	1.05
2016	\$242.25	249.4	1.08	1.08
2017	\$247.20	255.3	1.10	1.11
2018	\$249.43	261.7	1.11	1.13
2019	\$249.62	268.2	1.11	1.16
2020	\$250.52	274.6	1.12	1.19
2021	\$250.29	281.2	1.11	1.22
2022	\$249.62	288.0	1.11	1.25
2023	\$248.67	294.8	1.11	1.27
2024	\$247.32	301.7	1.10	1.30
2025	\$245.50	308.8	1.09	1.34
2026	\$244.03	316.0	1.09	1.37
2027	\$242.60	323.2	1.08	1.40
2028	\$241.94	330.5	1.08	1.43
2029	\$241.33	338.0	1.07	1.46
2030	\$241.21	345.6	1.07	1.49
2031	\$241.04	353.4	1.07	1.53
2032	\$241.06	361.4	1.07	1.56
2033	\$242.32	369.6	1.08	1.56



T-Fund Purchasing Power Loss: 45%

1. Revenue generated by the Purchase and Use Tax will increase as vehicle prices rise. Revenue generated by the 2% TIB assessment on gasoline sales will increase as gasoline prices increase. All other T-Fund revenue sources remain unchanged unless modified by the legislature.

2. Table 3. TIB Feasibility Study, July 5, 2012

Table 9: Total Transportation Budget Forecast

Year	State Transportation Fund	Federal Highway Formula Funds ⁽¹⁾	Federal Transit Formula Funds (FTA)	Federal Aviation Formula Funds (FAA)	Total
2013	\$224.67	\$194.59	\$9.50	\$1.35	\$430.10
2014	\$232.66	\$196.26	\$9.50	\$1.36	\$439.78
2015	\$236.23	\$198.22	\$9.60	\$1.38	\$445.42
2016	\$242.25	\$200.20	\$9.69	\$1.39	\$453.53
2017	\$247.20	\$202.20	\$9.79	\$1.40	\$460.60
2018	\$247.22	\$204.22	\$9.89	\$1.42	\$462.75
2019	\$247.43	\$206.27	\$9.98	\$1.43	\$465.12
2020	\$248.35	\$208.33	\$10.08	\$1.45	\$468.21
2021	\$248.06	\$210.41	\$10.19	\$1.46	\$470.12
2022	\$247.43	\$212.52	\$10.29	\$1.48	\$471.71
2023	\$246.59	\$214.64	\$10.39	\$1.49	\$473.11
2024	\$245.18	\$216.79	\$10.49	\$1.51	\$473.97
2025	\$243.36	\$218.96	\$10.60	\$1.52	\$474.43
2026	\$241.89	\$221.15	\$10.70	\$1.54	\$475.28
2027	\$240.52	\$223.36	\$10.81	\$1.55	\$476.24
2028	\$239.90	\$225.59	\$10.92	\$1.57	\$477.97
2029	\$239.30	\$227.85	\$11.03	\$1.58	\$479.76
2030	\$239.19	\$230.13	\$11.14	\$1.60	\$482.06
2031	\$239.03	\$232.43	\$11.25	\$1.61	\$484.32
2032	\$239.04	\$234.75	\$11.36	\$1.63	\$486.79
2033	\$240.28	\$237.10	\$11.48	\$1.65	\$490.51

All dollar amounts in \$ Millions

1. 2013 and 2014 Federal revenues are apportionment amounts from MAP-21. The 2013 total does not include FHWA-Emergency Relief Funds for Irene, or any carry-forward for earmarks or ARRA funds. Discretionary grant funds are not included. Values after 2014 assume a 1% annual increase.

4.0 NEEDS AND FUNDING GAP ANALYSIS

This section presents a preliminary estimate of the cost to maintain, operate, build and administer Vermont's transportation system for the five year period between 2014 and 2018. Needs estimates are provided for one basic needs scenario:

- **Basic Needs:** Includes the cost to preserve the state's existing transportation system in a state of good repair. It assumes that preserving the functionality of the road network is fundamental to meeting basic travel needs of people and goods and therefore includes the necessary funding to preserve bridges and roads. It does not include expansion of rail or transit beyond existing levels of service and does not include any major roadway expansion beyond projects already in the pipeline.

Table 8 presents the system-wide gap analyses for the Basic Needs scenario. Assumptions and methods are described in the rest of this section for the items included in the summary table. Potential additions to basic needs scenario are described under each program area for information, but have not been incorporated into the gap analysis.

General study caveats include the following:

- Needs assessments were prepared by VTrans staff. The estimates were prepared to satisfy the requirements of this study and do not represent a budget request.
- Estimates were prepared based on needs and are not constrained by available funding, the number of VTrans staff, or the capacity of private consulting firms and contractors to provide services.
- All estimates are order of magnitude and subject to change as assumptions and methods are refined throughout the study process or as VTrans improve its asset management systems.
- All estimates are in 2012 dollars.

As indicated in Table 10, the annual gap between needs and revenue ranges between approximately \$230 and \$250 million during the five year period. This estimate is consistent with previous gap analyses. In 2008, the Joint Fiscal Office estimated a gap of \$203 million per year to maintain existing roads and bridges in serviceable condition¹. That estimate did not account for any other modes. Vermont's Long Range Transportation Business Plan estimates that the state will need an additional \$210-\$435 million annually through 2025 to meet its base needs depending on broad assumptions about growth in needs².

¹ Slide 16, "[Vermont Transportation Funding an Ongoing Dilemma](#)", Legislative Joint Fiscal Office; October 2009.

² Derived from Table 12, page 26; "Vermont Long Range Transportation Business Plan; Working Paper 3-Financial Analysis"; Hubert H. Humphrey Institute of Public Affairs for VTrans; February 27, 2007

Table 10: Basic Needs Funding Gap Summary

NEEDS ANALYSIS	SFY2014	SFY2015	SFY2016	SFY2017	SFY2018
Transportation Needs					
Highway/Safety	\$252,000,000	\$252,000,000	\$252,000,000	\$252,000,000	\$252,000,000
Bridges (including Town Highway bridge)	\$152,000,000	\$152,000,000	\$152,000,000	\$152,000,000	\$152,000,000
Maintenance & Buildings	\$73,504,251	\$74,974,336	\$76,473,823	\$78,003,299	\$79,563,365
Town Highway Aid Programs	\$54,977,244	\$54,977,244	\$54,977,244	\$54,977,244	\$54,977,244
Rail	\$56,150,000	\$50,300,000	\$48,454,500	\$48,613,635	\$48,777,544
Aviation	\$5,845,000	\$12,820,000	\$6,090,000	\$2,580,000	\$4,000,000
Public Transit	\$27,485,565	\$27,485,565	\$29,485,565	\$29,485,565	\$27,485,565
Park and Ride	\$4,000,000	\$4,000,000	\$4,000,000	\$4,000,000	\$4,000,000
Transportation Alternatives	\$3,000,000	\$3,000,000	\$3,000,000	\$3,000,000	\$3,000,000
Other (DMV, Planning, Finance and Administration, Rest Areas, etc)	\$70,844,111	\$70,844,111	\$70,844,111	\$70,844,111	\$70,844,111
Total Needs	\$699,806,171	\$702,401,256	\$697,325,242	\$695,503,854	\$696,647,829
ANTICIPATED REVENUES					
Available Funding (by SFY):					
FHWA	\$196,260,000	\$198,220,000	\$200,200,000	\$202,200,000	\$204,220,000
FTA	\$9,500,000	\$9,600,000	\$9,690,000	\$9,790,000	\$9,890,000
FAA	\$1,360,000	\$1,380,000	\$1,390,000	\$1,400,000	\$1,420,000
FRA	\$10,500,000	\$4,500,000	\$2,500,000	\$2,500,000	\$2,500,000
Total Federal	\$217,620,000	\$213,700,000	\$213,780,000	\$215,890,000	\$218,030,000
State Transportation Fund	\$202,627,558	\$209,582,622	\$214,328,209	\$220,124,449	\$224,299,074
State Transportation TIB	\$23,075,217	\$21,901,940	\$22,120,835	\$22,904,316	\$22,535,058
Total State	\$225,702,775	\$231,484,562	\$236,449,044	\$243,028,765	\$246,834,132
Local	\$4,433,228	\$4,451,846	\$4,502,290	\$4,589,188	\$4,648,641
Total Available Funding	\$447,756,003	\$449,636,408	\$454,731,334	\$463,507,953	\$469,512,773
Revenues versus Needs	(\$252,050,168)	(\$252,764,848)	(\$242,593,908)	(\$231,995,901)	(\$227,135,056)

4.1 Highways and Safety

VTrans is responsible for 3,200 two-lane miles of highway. This includes interstate, state and Class 1 Town Highways. Several asset management systems exist to inventory, analyze and manage the various asset classes within these highway segments, while other systems are currently under development. Table 11 provides a general summary of the assets that exist within the highway system.

Table 11: Highway System Assets

Highway System Asset	Description
Interstate System	640 two lane miles
State System	2,421 two lane miles
Class 1 TH	139 two lane miles
Small Culverts (less than 72" dia.)	Approx. 70,000
Guardrail	1,000+ miles
Traffic Signs	70,000 + signs
Highway Lighting	1016 fixtures
Traffic Signals	154 signals

Analysis of the highway asset requires integration across asset classes. The funding needs identified in this report recognizes that not only will existing strategies need to continue but new strategies will continue to evolve and mature into a holistic integrated approach to managing the transportation system.

The pavement structure is a significant component of the highway system and therefore VTrans has two pavement performance measures. Each year data is collected on every mile of the highway network that measures four different pavement distresses. Each segment of highway is then rated on a scale of 1 to 100. The first performance measure is the "Travel Weighted Average Network Condition" and the performance goal is 70. Figure 17 indicates the recent history with this measure.

While the "Travel Weighted Average Network Condition" summarizes performance for the majority of road users, pavement condition based on roadway miles, Pavement Condition by Category (Figure 18) measures 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%.

Figure 18: Travel Weighted Average Network Condition¹

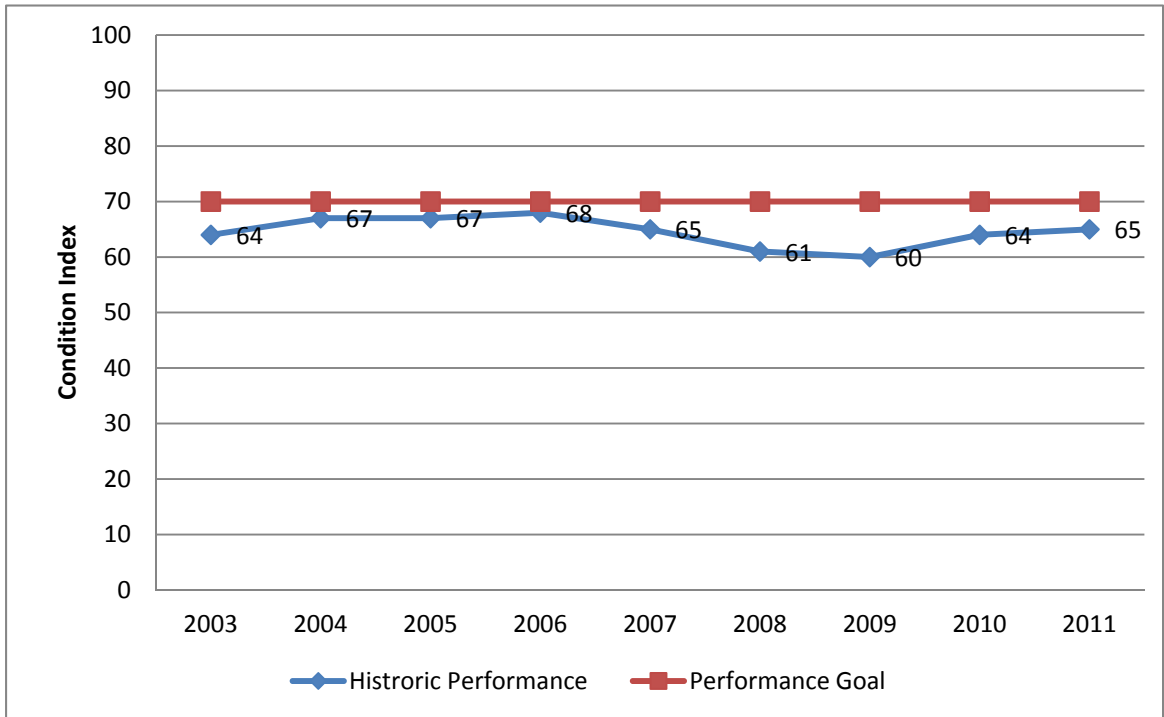


Figure 19: Pavement Condition by Category (%)²



Based on the inventory of assets and the above performance measures, several categories of needs have been identified on the highway system:

¹ Agency of Transportation, Program Development Division

² Agency of Transportation, Program Development Division

- Highway Safety: As a core mission of VTrans, safety is integrated into the everyday activities of all areas of the Agency. However there are several programs that are dedicated specifically to addressing highway safety concerns on the network that are identified and prioritized based on crash data. Based on historical expenditures, existing initiatives and the fact that there are over 13,000 crashes annually on Vermont's highways, there is a need to continue funding these specific initiatives. **ANNUAL NEED: \$15 million.**
- Pavement Surface Condition: To achieve the performance measures noted above, the Pavement Management System was utilized to determine the most cost effective methods to maintain the network. The percentage of miles rated as very poor, rather than the weighted average network condition, is the limiting network performance measure. **ANNUAL NEED: \$82 million.**
- Asphalt on Concrete Highway Segments: Asphalt on concrete comprises 9% of the overall network miles. These segments are a challenge to manage effectively. Often times they are discernible to the untrained eye where cracks reflect through the asphalt revealing the concrete 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. These road structures are typically maintenance intensive and do not perform well with a conventional resurfacing treatment. A long term goal is to reconstruct these sections over 20 years. **ANNUAL NEED: \$45 million.**
- Reconstruction – State routes: Over 50 percent of Vermont's highway network is non-engineered, with many of these highway segments being former farm to market roads intended more for horse and wagon than today's large vehicles. While some of these highway segments have strong foundations as they were constructed over quality, native subbase material; many are through mountain passes or in valleys where the underlying material is a silt or clay. In addition, increases in traffic volumes and loadings in some areas of the state are accelerating the deterioration of the pavement structure. It is assumed that ten percent of the state highway system needs to be reconstructed over a 20 year period to address some of the greatest needs on the network that cannot be addressed through basic pavement surfacing. **ANNUAL NEED: \$60 million.**
- Reconstruction – Interstate routes: Vermont's interstate system was designed for an estimated 20 year pavement life and a 40 year subbase life. Given that the majority of Vermont's interstate system began construction in the 1960's and was completed in the 1970's, this vital infrastructure has already exceeded its initial service life. With ever increasing traffic volumes and weights, it is time to begin the process of major rehabilitation and or reconstruction of Vermont's interstate pavement structures. In addition, VTrans is increasingly faced with maintenance challenges of slopes, sinkholes and aging assets on this system. Assuming that continued preventive maintenance and management of the various

assets, it is estimated that the interstate system could be rehabilitated/reconstructed over a 40 year period. **ANNUAL NEED: \$50 million.**

The combined total of the basic needs for these components is presented in Table 12.

Table 12: Highway and Safety Basic Needs

Component	Annual Needs (\$ Millions)
Highway Safety	\$15
Pavement Surface	\$82
Asphalt on Concrete	\$45
Reconstruction - State	\$60
Reconstruction - Interstate	\$50
Total	\$252

Additional Highway and Safety Needs

The reconstruction estimates for the interstate and state systems assume some increases in capacity such as adding truck climbing lanes on rural roadways and minor lane additions, sidewalks and shoulders as appropriate in village and urban areas. However, major capacity expansions are not assumed in the basic needs estimates and could be considered in an additional scenario. Examples of major roadway capacity projects might include adding through lanes to the interstate, building new interchanges or adding through lanes over longer distances to state roadways.

4.2 Bridges

The estimate of bridge needs is based on the inventory presented in Table 13. VTrans is required to inspect all bridges of 20-ft span or greater (considered “long structures”) on all interstate, state and town highways. The inventory also includes long structures on town highways which are eligible for federal funding. Short structures (between 6 and 20 feet) on the state system are also inspected by VTrans. Short structures on town highways are not inspected by VTrans and are therefore not included in this inventory. Town short structures are supported by grants provided through the state’s Town Highway Structures Grant program which is included as a separate item in the needs assessment and discussed latter in this document.

Table 13: Vermont Bridge Inventory

Structure Type	Interstate	State Highway	Town Highway	Inventory Totals
Long Structures (Greater than 20 ft span)	313	773	1,620	2,706
Short Structures (Less than 20 ft span)	212	1,054	Note 1	1,266
Totals	525	1,827	1,620	3,972

1. VTrans does not maintain an inventory of short town highway bridges

The inventory above includes information on the age of each structure and the most recent year that it was subject to rehabilitation or reconstruction. This information is the basis for determining the next year that some level of work is required on each specific bridge included in the inventory. Table 14 describes an assumed schedule for different improvements over the lifecycle of a typical bridge. The actual schedule will be different for each structure as deterioration will vary based on numerous factors such as traffic and truck volume, the materials used to build the bridge, and whether or not it is crossing a river, railroad or road. Additional work is required by VTrans to verify the assumed lifecycle schedule. However, as an average applied to nearly 4,000 bridges, the lifecycle improvement schedule provides a reasonable preliminary estimate of needs.

Table 14: Assumed Average Lifecycle Improvements for Long Structures

Lifecycle Stage	Improvement Category	Improvement Description
15, 30 and 45 years	Major Preventive Maintenance	Examples include. Deck replacement, grinding and painting steel, replacing the deck membrane, minor patching to the concrete deck and repaving
60 Years	Rehabilitation	Examples include replacing the deck and steel and rebuilding the substructure unit. At least one component of the original structure must remain in use to be classified as a rehabilitation project.
80 Years	Reconstruction	Complete removal and rebuilding of a bridge. May include alignment changes, widening or other changes for consistency with current standards.

Costs for each improvement category were estimated based on historical project cost records maintained by the VTrans Structures section and have been converted into average costs per bridge deck area (Table 15).

Table 15: Unit Costs for Long Structure Improvements (\$/Deck Area)

Improvement Category	Interstate	State	Town
Preventive Maintenance	\$10	\$10	Note 1
Rehabilitation	\$175	\$300	\$450
Reconstruction	\$500	\$660	\$700

1. Municipalities are responsible for preventive maintenance on town highway bridges

Short structures, many of which are underground, are assumed to be replaced every 50 years with a unit cost based on the span of the structure (Table 16).

Table 16: Short Structure Lifecycle and Unit Cost

Lifecycle	Unit Cost
Reconstruction every 50 Years	\$9,500 per ft of span

The unit costs have been applied to total amount of deck area for long structures and span for short structures for each year from 2012 to 2033. The results are presented in Table 15. On average, the state needs to invest approximately \$152 million each year to maintain the lifecycle improvement schedule described above. This average is consistent with the 2008 Transportation Study on Bridges conducted by VTrans which estimated an annual need of \$158.3 million¹.

¹ "Bridges and Culverts Long-Term Assessment and Funding Options; Report to the Governor and the General Assembly"; Office of the State Treasurer; November 15, 2008.

Table 17: Structures Needs Estimate

Interstate Bridge Deck Area by Best Practice Preservation Category (Square Feet)

Work Category	Bridge Age	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Preventive Maint	15 Years	0	0	37,489	37,383	31,164	53,043	0	0	13,104	16,308	18,674	18,438	31,113	9,159	6,702	0	0	0	0	0	0	0
Preventive Maint	30 years	50,307	0	0	0	0	0	6,596	0	139,086	33,234	0	0	16,135	0	24,603	0	0	37,489	37,383	31,164	53,043	0
Bridge Rehabilitation	45 years	300,467	275,523	57,640	165,065	213,927	102,049	144,127	82,082	87,126	75,891	140,779	135,628	49,492	49,492	99,799	49,492	49,492	49,492	49,492	49,492	49,492	56,088
Preventive Maint	60 Years	0	0	0	0	0	0	9,761	16,691	194,893	60,328	124,776	92,365	134,436	240,629	115,958	250,975	226,031	8,148	115,573	164,435	52,557	94,635
Reconstruction	80 years	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Interstate Bridge Annual Cost by Work Category (\$ Millions)

Category	Cost/SF	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Preventive Maint	\$10	\$ -	\$ -	\$ 0.4	\$ 0.4	\$ 0.3	\$ 0.5	\$ -	\$ -	\$ 0.1	\$ 0.2	\$ 0.2	\$ 0.2	\$ 0.3	\$ 0.1	\$ 0.1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Preventive Maint	\$10	\$ 0.5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 0.1	\$ -	\$ 1.4	\$ 0.3	\$ -	\$ -	\$ 0.2	\$ -	\$ 0.2	\$ -	\$ -	\$ 0.4	\$ 0.4	\$ 0.3	\$ 0.5	\$ -
Bridge Rehabilitation	\$175	\$ 52.6	\$ 48.2	\$ 10.1	\$ 28.9	\$ 37.4	\$ 17.9	\$ 25.2	\$ 14.4	\$ 15.2	\$ 13.3	\$ 24.6	\$ 23.7	\$ 8.7	\$ 8.7	\$ 8.7	\$ 17.5	\$ 8.7	\$ 8.7	\$ 8.7	\$ 8.7	\$ 8.7	\$ 9.8
Preventive Maint	\$10	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 0.1	\$ 0.2	\$ 1.9	\$ 0.6	\$ 1.2	\$ 0.9	\$ 1.3	\$ 2.4	\$ 1.2	\$ 2.5	\$ 2.3	\$ 0.1	\$ 1.2	\$ 1.6	\$ 0.5	\$ 0.9
Reconstruction	\$500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total Interstate		\$ 53.1	\$ 48.2	\$ 10.5	\$ 29.3	\$ 37.7	\$ 18.4	\$ 25.4	\$ 14.5	\$ 18.7	\$ 14.4	\$ 26.1	\$ 24.8	\$ 10.5	\$ 11.2	\$ 10.1	\$ 20.0	\$ 10.9	\$ 9.1	\$ 10.2	\$ 10.6	\$ 9.7	\$ 10.8

State Bridge Deck Area by Work Category by Year (Square Feet)

Work Category	Bridge Age	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Preventive Maint	15 Years	32,855	25,441	9,728	49,419	49,792	44,174	127,609	15,995	14,480	26,870	204,885	20,144	36,625	63,985	74,824	71,928	9,709	10,150	0	20,930	5,092	14,854
Deck Replacement	30 years	61,334	37,339	48,396	22,942	106,395	250,386	74,255	34,403	20,384	63,578	19,567	56,181	35,709	17,210	30,024	32,855	25,441	9,728	49,419	49,792	44,174	127,609
Bridge Rehabilitation	45 years	95,449	71,454	82,511	57,057	140,511	284,502	108,371	68,519	54,500	97,693	53,683	90,296	69,824	51,326	64,139	66,970	59,556	43,843	83,534	83,908	78,290	161,724
Preventive Maint	60 Years	25,488	12,550	69,014	18,359	37,072	15,332	26,646	83,753	89,991	47,736	46,381	36,703	72,481	79,326	46,966	119,391	246,457	44,030	129,344	166,437	66,402	168,652
Reconstruction	80 years	122,723	249,789	47,363	132,676	169,769	69,735	171,984	32,953	95,126	23,059	25,064	49,122	40,844	71,817	12,906	64,666	40,671	51,728	26,274	109,728	253,718	77,587

State Bridge Annual Cost by Work Category (\$ Millions)

Category	Cost/SF	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Preventive Maint	\$10	\$ 0.3	\$ 0.3	\$ 0.1	\$ 0.5	\$ 0.5	\$ 0.4	\$ 1.3	\$ 0.2	\$ 0.1	\$ 0.3	\$ 2.0	\$ 0.2	\$ 0.4	\$ 0.6	\$ 0.7	\$ 0.7	\$ 0.1	\$ 0.1	\$ -	\$ 0.2	\$ 0.1	\$ 0.1
Preventive Maint	\$10	\$ 0.6	\$ 0.4	\$ 0.5	\$ 0.2	\$ 1.1	\$ 2.5	\$ 0.7	\$ 0.3	\$ 0.2	\$ 0.6	\$ 0.2	\$ 0.6	\$ 0.4	\$ 0.2	\$ 0.3	\$ 0.3	\$ 0.3	\$ 0.1	\$ 0.5	\$ 0.5	\$ 0.4	\$ 1.3
Bridge Rehabilitation	\$300	\$ 28.6	\$ 21.4	\$ 24.8	\$ 17.1	\$ 42.2	\$ 85.4	\$ 32.5	\$ 20.6	\$ 16.3	\$ 29.3	\$ 16.1	\$ 27.1	\$ 20.9	\$ 15.4	\$ 19.2	\$ 20.1	\$ 17.9	\$ 13.2	\$ 25.1	\$ 25.2	\$ 23.5	\$ 48.5
Preventive Maint	\$10	\$ 0.3	\$ 0.1	\$ 0.7	\$ 0.2	\$ 0.4	\$ 0.2	\$ 0.3	\$ 0.8	\$ 0.9	\$ 0.5	\$ 0.5	\$ 0.4	\$ 0.7	\$ 0.8	\$ 0.5	\$ 1.2	\$ 2.5	\$ 0.4	\$ 1.3	\$ 1.7	\$ 0.7	\$ 1.7
Reconstruction	\$660	\$ 81.0	\$ 164.9	\$ 31.3	\$ 87.6	\$ 112.0	\$ 46.0	\$ 113.5	\$ 21.7	\$ 62.8	\$ 15.2	\$ 16.5	\$ 32.4	\$ 27.0	\$ 47.4	\$ 8.5	\$ 42.7	\$ 26.8	\$ 34.1	\$ 17.3	\$ 72.4	\$ 167.5	\$ 51.2
Sub-Total Interstate		\$ 110.8	\$ 187.1	\$ 57.3	\$ 105.6	\$ 156.1	\$ 134.5	\$ 148.3	\$ 43.6	\$ 80.4	\$ 45.9	\$ 35.4	\$ 60.6	\$ 49.4	\$ 64.4	\$ 29.3	\$ 65.0	\$ 47.5	\$ 47.9	\$ 44.2	#####	\$ 192.1	\$ 102.8

Town Bridge Deck Area by Work Category by Year (Square Feet)

Work Category	Bridge Age	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Bridge Rehabilitation	45 years	29,743	37,174	58,754	43,665	48,048	40,319	58,704	64,028	46,393	44,113	43,430	55,065	25,711	50,611	45,247	41,720	78,201	63,342	49,615	72,011	34,681	45,978
Reconstruction	80 years	16,786	17,697	35,551	25,854	22,520	28,997	39,281	103,115	43,902	21,202	14,105	18,456	14,156	19,667	27,381	37,656	36,834	43,205	30,220	23,952	23,451	31,832

Town Bridge Annual Cost by Work Category (\$ Million)

Category	Cost/SF	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Bridge Rehabilitation	\$450	\$ 13.4	\$ 16.7	\$ 26.4	\$ 19.6	\$ 21.6	\$ 18.1	\$ 26.4	\$ 28.8	\$ 20.9	\$ 19.9	\$ 19.5	\$ 24.8	\$ 11.6	\$ 22.8	\$ 20.4	\$ 18.8	\$ 35.2	\$ 28.5	\$ 22.3	\$ 32.4	\$ 15.6	\$ 20.7
Reconstruction	\$700	\$ 11.8	\$ 12.4	\$ 24.9	\$ 18.1	\$ 15.8	\$ 20.3	\$ 27.5	\$ 72.2	\$ 30.7	\$ 14.8	\$ 9.9	\$ 12.9	\$ 9.9	\$ 13.8	\$ 19.2	\$ 26.4	\$ 25.8	\$ 30.2	\$ 21.2	\$ 16.8	\$ 16.4	\$ 22.3
Sub-Total Interstate		\$ 25.1	\$ 29.1	\$ 51.3	\$ 37.7	\$ 37.4	\$ 38.4	\$ 53.9	\$ 101.0	\$ 51.6	\$ 34.7	\$ 29.4	\$ 37.7	\$ 21.5	\$ 36.5	\$ 39.5	\$ 45.1	\$ 61.0	\$ 58.7	\$ 43.5	\$ 49.2	\$ 32.0	\$ 43.0

Combined length of short Structures for Reconstruction (Feet)

Short Structures	Structure Age	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Interstate	50 years	110	81	114	136	60	82	195	90	94	100	170	160	50	14	62	20	42	0	0	0	131	0
State Roads	50 years	154	129	156	222	99	281	282	125	172	187	54	127	90	161	57	157	153	125	240	193	99	8
Total Length		264	210	270	358	159	363	477	215	266	287	224	287	140	175	119	177	195	125	240	193	230	8

Category	Cost/Lf	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Reconstruction	\$9,500	\$ 2.5	\$ 2.0	\$ 2.6	\$ 3.4	\$ 1.5	\$ 3.4	\$ 4.5	\$ 2.0	\$ 2.5	\$ 2.7	\$ 2.1	\$ 2.7	\$ 1.3	\$ 1.7	\$ 1.1	\$ 1.7	\$ 1.9	\$ 1.2	\$ 2.3	\$ 1.8	\$ 2.2	\$ 0.1

Total Bridge Program Needs (\$ Million)	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
	\$191.6	\$266.4	\$121.6	\$176.0	\$232.8	\$194.8	\$232.1	\$161.2	\$153.2	\$97.7	\$93.0	\$125.9	\$82.6	\$113.8	\$80.1	\$131.8	\$121.3	\$117.0	\$100.1	\$161.6	\$236.0	\$156.6

4.3 Operations and Maintenance

The VTrans Operations Division developed an estimate of its needs based on the following factors:

- The Operations Division budget includes personal services and operating money. Historically, personal services remained less than 50% of the budget; but over the past few years, a challenging trend has emerged. The personal services expenditures have caught up to and passed operating expenditures (equipment, materials, etc). This trend is expected continue reducing the portion of the budget available for operating costs. Part of the reason is VTrans’ aging workforce. Senior employees have higher salaries and more benefits than new employees.
- Changing environmental regulations continue to require more / different activities. There is a definite cost associated with compliance, but it is impossible to quantify.
- Increases in training costs are anticipated over the next few years to comply with the large number of required safety trainings. Training is also needed to improve supervisor and management skills for engineers, technicians and plow drivers.
- Implementation of asset management systems will optimize resources, but will have a cost associated with new software, or modifications to existing systems. There will also be labor costs associated with maintaining asset inventories, monitoring and analyzing data and training.
- Other costs related to equipment, materials and fuel are included. There cost factors will increase with inflation, but have been kept in 2012 dollars for the purpose of this report.

At a minimum, The Operations Division estimates a need for a 2% increase each year to maintain status quo based on all the factors listed above which is represented in the Basic Needs Scenario (Table 16). This increase does not account for inflation.

Table 18: Operations and Maintenance Basic Needs

Basic Needs Scenario ⁽¹⁾	FY 2013 As Passed	2014	2015	2016	2017	2018
Maintenance	\$69.4	\$70.8	\$72.2	\$73.6	\$75.1	\$76.6
Transportation Buildings	\$2.7	\$2.7	\$2.8	\$2.8	\$2.9	\$2.9
Total Maintenance	\$72.1	\$73.5	\$75.0	\$76.5	\$78.0	\$79.6

1. Assumes 2% annual increase to account for cost factors described above. Does not include inflation.

Additional Operations and Maintenance Needs

A 12% annual increase would make it possible to catch up with outstanding maintenance issues (guardrail repair, ditching, tree cutting, etc) that have fallen behind in past years.

4.4 Town Highway Programs

The Operations Division also administers two town highway grant programs. The programs include the Town Highway Structures Program and the Town Highway Class 2 Program both of which provide a maximum amount of \$175,000 per grant. The available funding for these two programs is approximately \$13.5 million annually and currently covers about 25% to 50% of the total amount requested by municipalities each year. Maintaining town bridges and roadways is a basic need. Therefore, to close the gap, the basic needs scenario assumes a doubling of the town highway and bridge grant programs.

In addition to these two grant programs, the state makes an annual appropriation for state aid to town highways based on mileage of class 1, 2 and 3 town highways. Other local transportation programs include supplemental aid, mitigation grants and the VT Local Roads program. Funding for these programs is assumed to remain at current levels (Table 19).

Table 19: Town Highway Program Basic Needs Scenario

Basic Needs	FY 2013 As Passed	2014	2015	2016	2017	2018
TH Class II Roadways ⁽¹⁾	\$7.2	\$14.5	\$14.5	\$14.5	\$14.5	\$14.5
TH Structures ⁽¹⁾	\$6.3	\$12.7	\$12.7	\$12.7	\$12.7	\$12.7
TH Aid ⁽²⁾	\$26.0	\$26.0	\$26.0	\$26.0	\$26.0	\$26.0
TH Supplemental Aid ⁽²⁾	0.13	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1
VT Local Roads ⁽²⁾	0.4	\$0.4	\$0.4	\$0.4	\$0.4	\$0.4
Muni Mitigation Grants ⁽²⁾	1.3	\$1.3	\$1.3	\$1.3	\$1.3	\$1.3
Total TH Programs	\$41.4	\$55.0	\$55.0	\$55.0	\$55.0	\$55.0

1. Program doubles to meet grant request demands

2. Assumes level funding

Additional Local Roads Needs

As noted above, VTrans currently funds approximately half of the town highway structures and class 2 roadway grant requests. The total value of all grant requests is the best available indicator of local needs, but some municipalities may not be submitting applications due to the amount of competition. Therefore, additional increases beyond those included in the basic needs scenario could be included in an additional scenario. Additionally, the Agency of Natural Resources is evaluating the costs to address stormwater runoff from gravel roads in the state, which are primarily located on the town highway system. ANR's preliminary analysis indicates a need for approximately \$10.5 million per year to address unregulated stormwater runoff from road networks²⁵.

4.5 Transit

Vermont has one urbanized and ten rural transit providers. While the urbanized provider (Chittenden County Transportation Authority) received direct FTA funding obligations, VTrans provides capital and

²⁵ Page 20, "Water Quality Remediation, Implementation, and Funding Report; Prepared for the VT General Assembly in Accordance with Act 138 (2012), Section 19"; Vermont Agency of Natural Resources; Draft, Dec 14, 2012

operating funding to the state’s rural providers. The basic needs scenario for transit includes the development of a northwest transit facility (Table 20).

Table 20: Transit Basic Needs Scenario

NEEDS ANALYSIS	SFY2014	SFY2015	SFY2016	SFY2017	SFY2018
3 YEAR DEMONSTRATION-OPERATING-CMAQ	1,472,453	1,472,453	1,472,453	1,472,453	1,472,453
ADMINISTRATIVE SUPPORT	464,950	464,950	464,950	464,950	464,950
NON-URBANIZED TRANSPORTATION & MARKETING	6,051,606	6,051,606	6,051,606	6,051,606	6,051,606
INTERCITY BUS SERVICE	540,750	540,750	540,750	540,750	540,750
URBAN ASSISTANCE	839,450	839,450	839,450	839,450	839,450
5% INCREASE IN COMMUTER ROUTE SERVICE	164,800	164,800	164,800	164,800	164,800
INCREASE IN URBAN ASSISTANCE	154,500	154,500	154,500	154,500	154,500
STATE PUBLIC TRANSPORTATION FUNDS	5,747,220	5,747,220	5,747,220	5,747,220	5,747,220
RURAL PREVENTIVE MAINTENANCE	515,000	515,000	515,000	515,000	515,000
CCTA PREVENTIVE MAINTENANCE	515,000	515,000	515,000	515,000	515,000
TECHNICAL ASSISTANCE	206,000	206,000	206,000	206,000	206,000
RURAL TECHNICAL ASSISTANCE	93,712	93,712	93,712	93,712	93,712
ELDERS & PERSONS WITH DISABILITIES PROGRAM	3,604,537	3,604,537	3,604,537	3,604,537	3,604,537
25% INCREASE TO COVER ALL CRITICAL CARE	901,134	901,134	901,134	901,134	901,134
VERMONT KIDNEY ASSOCIATION GRANT	30,900	30,900	30,900	30,900	30,900
JOB ACCESS/REVERSE COMMUTE	492,909	492,909	492,909	492,909	492,909
NEW FREEDOMS	156,224	156,224	156,224	156,224	156,224
GO VERMONT/STATEWIDE MARKETING	566,500	566,500	566,500	566,500	566,500
CAPITAL - GENERAL PUBLIC	4,526,850	4,526,850	4,526,850	4,526,850	4,526,850
CAPITAL ASSISTANCE - ELDERLY AND DISABLED	441,070	441,070	441,070	441,070	441,070
Northwest Region Transit Facility	0	0	2,000,000	2,000,000	0
Total Transit Needs	27,485,565	27,485,565	29,485,565	29,485,565	27,485,565

4.6 Rail

Vermont maintains an active rail program for both freight and passenger rail. Through a series of acquisitions through 1970s and 1980s, Vermont now owns and manages 305 miles of active rail lines. The State also provides operating subsidies for two intercity passenger rail services: the Ethan Allen Express (from Rutland to New York City) and the Vermonter (from St. Albans to Washington D.C)

Error! Reference source not found. presents rail program funding for the basic needs scenario which includes all capital projects and existing passenger rail services. The basic needs scenario also includes:

- The cost to bring state-owned freight lines to a state of good repair (SGR) and the national 286,000 lbs carload standard is estimated at \$300 million over a ten year period. SGR requires that all state-owned rail lines are upgraded continuously-welded rail, new ballast, ties, other track work as needed, crossing upgrades (including for passenger rail along the western corridor) and bridges brought up to the 286,000 lbs standard. Estimates are based on costs incurred for the New England Central Railroad High Speed Intercity Passenger Rail project (HSIPR) and preliminary engineering for Track 2 HSIPR grant applications.
- Eliminating vertical clearance restrictions is estimated at \$54 million (8 bridge replacements at \$8 million each and 6 grade suppressions estimated at \$1 million each).

- TIGER/FHWA Grants²⁶: Approximately \$10 million in federal grants for track and highway-rail grade crossing improvements awarded with work anticipated in SFY 2014 and 2015.
- Anticipated budget assumes that no more discretionary federal funding is awarded after the completion of existing TIGER and FHWA rail-highway grade crossings projects.

Table 21: Rail Program Basic Needs

NEEDS ANALYSIS	SFY2014	SFY2015	SFY2016	SFY2017	SFY2018
Operating Services					
Vermonter	5,500,000	5,500,000	5,500,000	5,500,000	5,500,000
Ethan Allen Express	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000
Bennington/Machester	0	0	0	0	0
Capital Projects					
State of Good Repair/286K Upgrades	30,000,000	30,000,000	30,000,000	30,000,000	30,000,000
Vertical Clearances	5,400,000	5,400,000	5,400,000	5,400,000	5,400,000
Inactive Line Maintenance	750,000	750,000	750,000	750,000	750,000
TIGER/FHWA Crossing Grants	8,000,000	2,000,000	0	0	0
Rail Section Admin, Project Mgt & Property Mgt	5,000,000	5,150,000	5,304,500	5,463,635	5,627,544
Total Rail Needs	56,150,000	50,300,000	48,454,500	48,613,635	48,777,544

Additional Rail Needs

- Vermonter extended to Montreal in SFY 2016, adding \$2 million in operating service costs (Amtrak estimate)
- Ethan Allen Express extended to Burlington in SFY 2017, adding \$1.5 million in operating service costs (estimate based on existing track-mile costs)
- New Intercity Passenger Rail Service to Rutland via Bennington and Manchester (estimate based on existing track-mile costs.²⁷

4.7 Aviation

VTrans oversees 11 airports in Vermont and provides capital improvements to maintain airports in a state of good repair (Table 22). VTrans primarily uses Federal Aviation Administration funds for these airport improvements. Therefore, aviation needs have only a marginal impact on state transportation funds.

²⁶ TIGER – Transportation Investment Generating Economic Recovery grants are awarded by USDOT on a competitive basis for projects that will have a significant impact on the Nation, a metropolitan area or a region. <http://www.dot.gov/tiger/>

²⁷ The Track 3 Planning study is currently underway and is evaluating alternative rail services between Rutland, Manchester, Bennington and Albany and other NY locations.

Table 22: Aviation Basic Needs

NEEDS ANALYSIS	SFY2014	SFY2015	SFY2016	SFY2017	SFY2018
Projects Contained in the Aviation Capital Program					
E.F Knapp (KMPV)	575,000	0	0	375,000	NA
Franklin County (KFSSO)	150,000	100,000	0	300,000	NA
Hartness (KVVSF)	510,000	800,000	160,000	0	NA
Caledonia County (KCDA)	0	0	2,000,000	0	NA
Middlebury (6B0)	100,000	150,000	0	150,000	NA
Morrisville-Stowe (KMVL)	850,000	4,000,000	0	0	NA
Newport (KEFK)	280,000	0	0	675,000	NA
Rutland (KRUT)	2,430,000	7,520,000	780,000	930,000	NA
W.H. Morse (Bennington)	150,000	0	3,000,000	0	NA
Statewide	800,000	250,000	150,000	150,000	NA
Total Aviation Needs	5,845,000	12,820,000	6,090,000	2,580,000	NA

NA = Not Available

4.8 Transportation Alternatives

At the request of VTrans, Vermont’s eleven regional planning commissions recently gathered information about bicycle and pedestrian project needs in their regions. Almost 200 projects were identified. About two-thirds of the projects were defined enough to provide reliable costs totaling approximately \$60 million. Even using conservative estimates, by expanding the cost of these defined design/construction projects, it is reasonable to assume that the estimated total need statewide is most likely in the range of \$100 million²⁸.

In the past three years, bicycle and pedestrian projects have been funded through the Transportation Enhancement Program at the following levels: 2010 - \$2.9M; 2011 – \$2.7M; 2012 - \$3.6M. The basic needs estimate is consistent with this recent history, or \$3 million per year.

4.9 Other Transportation Needs

This category includes the Department of Motor Vehicles, VTrans administrative and planning functions, rest areas, and other miscellaneous items. The gap analysis assumes these needs remain constant over the five year time frame (Table 23).

Table 23: Other Transportation Expenditures

Category	SFY 2013
F&A	\$11,766,498
DMV	\$25,728,361
Rest Area	\$6,143,000
Policy & Planning	\$10,098,944
Multi-Modal	\$1,650,000
Program Development Admin	\$15,457,308
Total Other	70,844,111

²⁸Memorandum re: Summary of Regional Bike/Ped Needs and funding level of Bike/Ped Program; Jon Kaplan to Regional Planning Commissions ; June 7, 2012

5.0 REVENUE OPTIONS

This section identifies and evaluates revenue options for the Vermont Transportation. The Committee is charged with evaluating potential new state revenue sources and how existing state revenue sources could optimally be modified to address the five-year and longer term expected transportation funding gaps. The Committee is also charged with estimating the amount of funds that would be generated from each new and modified revenue source, and identifies implementation structures, requirements, and challenges.

Previous sections provide background information on transportation funding in Vermont, a forecast of available revenue, and document the cost to maintain, operate and build the state's transportation system (basic needs). The annual gap between basic needs and revenue ranges between approximately \$240 to \$260 million during the five year period from 2014 and 2018. This funding gap is significant relative to the Vermont's typical annual transportation budget of approximately \$450-\$500 million. Given the size of Vermont's population and economic base, and considering other needs it would be very difficult to close the transportation funding gap with state revenue only. While additional federal support is necessary, this section identifies and evaluates revenue options for the state's transportation fund over which the Legislature has some control and focuses on the options that are practical to consider in a five-year time frame.

The list of potential funding mechanisms was generated as a result of research²⁹ and brainstorming sessions between Agency of Transportation, Agency of Administration and the Joint Fiscal Office staffs. The funding options are evaluated relative to revenue generation and policy criteria as described below. The evaluation of funding options was prepared by VTrans staff with assistance from JFO.

5.1 Evaluation Criteria

Each funding option is evaluated against the criteria listed below that fall within the general categories of Revenue Stream, Implementation/Administration, Economic Efficiency and Equity considerations.

Revenue Stream Considerations

- Revenue Potential - the extent to which the option generates significant revenue. Results are presented as unit costs. For example, a 1 cent increase in the gas tax generates approximately \$3.3 million. Revenue estimates are order of magnitude and do not account for price elasticity or other complex economic feedback effects. For example, a simple calculation indicates that a ten cent increase in the state gas tax would generate \$33 million in revenue. However, increasing the cost of gas may result in less consumption which would reduce the actual revenue generated to less than \$33 million.
- Sustainability - *the extent to which the option self-adjusts or can be adjusted easily from year to year in order to provide a stable, reliable source of revenue.*

²⁹ National Surface Transportation Infrastructure Enhancing Commission, "Paving Our Way, A New Framework for Transportation Finance", 2009; Pennsylvania State Transportation Advisory Committee, "Transportation Funding Study: Final Report", 2010.; State Smart Transportation Initiative, "A Survey of State and Local Transportation Revenue Sources", 2012.

- Flexibility - *the extent to which the mechanism is appropriate for a wide range of investments (and different transportation modes) and can be redirected to meet changing needs.*

Implementation and Administration Considerations

- Public Acceptance and Political Viability - *the feasibility of gaining public and political acceptance of the mechanism.*
- Appropriateness for State Use - *the appropriateness of statewide implementation, including consideration of the impact on local governments (i.e. introducing certain fees).*
- Ease/Cost of Implementation, Administration and Enforcement - *the ease and cost to implement, administer, and enforce relative to the revenue-raising potential.*

Economic Efficiency and Impact Considerations

- Promotion of Efficient Use and Investment - *the extent to which the mechanism provides incentives for efficient use of the system by influencing travel choices and behavior.*

Equity Considerations

- User and Beneficiary Equity - *the extent to which the mechanism can be structured to charge those who directly use or otherwise benefit from the funded investment.*
- Equity Across Income Groups - *the extent to which the mechanism limits costs for those who face the most difficulty in paying.*
- Geographic Equity - *the extent to which the cost allocation and impact of the mechanism can be structured to match the geographic distribution of the benefit.*

5.2 Revenue Options

This section provides a brief description of each funding option considered and summarizes the evaluation.

Vehicle Inspection Fees

The State charges a \$5 flat fee for inspection stickers to licensed inspection stations.³⁰ In SFY 12, 638,575 vehicles were inspected, generating \$2,554,300 in revenues. Inspection sticker fees are anticipated to raise approximately \$3.2 million in SFY 13. This funding source has the potential to generate moderate revenues. Every \$1 increase in sticker fees will yield approximately \$640,000 in additional funding.

Like most state transportation funding sources, these funds are flexible and can be used with few restrictions. The collection mechanism is already in place as this fee currently exists. However, sticker fees will require periodic adjustments through DMV and legislative action to keep pace with inflation.

Sticker fees place transportation funding responsibility on vehicle owners who directly benefit from transportation improvements, but they do not reflect system usage.

Table 24: Vehicle Inspection Fee Evaluation

Revenue Stream Considerations	
Revenue Potential	Moderate revenue generation potential. Every \$1 dollar increase in the price of inspection stickers will generate an additional \$640,000 in revenue.
Sustainability	Will require periodic DMV/Legislative action to keep pace with inflation.
Flexibility	Revenue generated can be used without restrictions.
Implementation & Administration	
Public Acceptance	Small fee increase in annual fee may not be objectionable to most
Appropriateness for State Use	Fee is currently in place.
Ease/Cost of Implementation & Administration	Currently administered.
Economic Efficiency & Impact	
Promotion of Efficient Use & Investment	No effect.
Equity Considerations	
User & Beneficiary Equity	Annual fee that does not vary with use.
Income Equity	Insignificant burden on lower incomes. Limited costs relative to other fees/taxes.
Geographic Equity	Burden consistent for all geographies

³⁰ The fee was increased from \$4 per sticker on July 1, 2012 - http://dmv.vermont.gov/sites/dmv/files/DMV-Bltn-Insp_12-003.pdf

Vehicle Lease Tax

A vehicle lease tax would impose a fixed charge on all leased vehicles. Based on DMV records, there were 28,526 leased vehicles in SFY 12. Funding yields from this source is low to moderate. Each \$1 tax on leased vehicles would yield approximately \$29,000 annually.

The mechanism to collect vehicle lease tax revenue does not currently exist, and the Department of Taxes would have to develop it. The tax would need to be adjusted periodically to keep pace with inflation.

One potential negative impact of the vehicle lease tax is that it may result in lower vehicle leases.

Although the vehicle lease tax places transportation funding responsibility on vehicle owners who directly benefit from transportation improvements, they do not reflect system usage.

Table 25: Vehicle Lease Tax Evaluation

Revenue Stream Considerations	
Revenue Potential	Low-moderate revenue generation potential. Every \$1 tax on a leased vehicle dollar will generate \$29,000 in revenue.
Sustainability	Will require periodic DMV/Legislative action to keep pace with inflation.
Flexibility	Revenue generated can be used without restrictions.
Implementation & Administration	
Public Acceptance	Scale of the fee increase unlikely to raise substantial opposition
Appropriateness for State Use	Appropriate, directly tied to transportation infrastructure.
Ease/Cost of Implementation & Administration	New collection mechanism would need to be developed.
Economic Efficiency & Impact	
Promotion of Efficient Use & Investment	No effect.
Equity Considerations	
User & Beneficiary Equity	Annual fee that does not vary with use.
Income Equity	Insignificant burden on lower incomes. Limited costs relative to other fees/taxes
Geographic Equity	Burden consistent for all geographies

Vehicle Rental Tax

There is currently a 9% vehicle rental tax, with 6% dedicated to the transportation fund and 3% allocated to the education fund. In SFY 12, this revenue source generated \$3,629,592 of which \$2,419,728 was allocated to the transportation fund. Potential revenue from this source is low as it would generate approximately \$363,000 for every 1% increase in the tax.

The collection mechanism is already in place as this fee currently exists and is self-adjusting (automatically indexed) due to prices set by vehicle rental companies. However, vehicle rentals are subject to economic trends and can fluctuate.

Vehicle rental tax places transportation funding responsibility on vehicle owners who directly benefit from transportation improvements. They also reflect system usage to some extent in that the tax is based on the number of days a vehicle is rented.

Table 26: Vehicle Rental Fee Evaluation

Revenue Stream Considerations	
Revenue Potential	Low revenue generation potential. Every 1% increase in the rate will generate an additional \$403,000 in revenue (assuming the entire increase was dedicated to the transportation fund).
Sustainability	Self-adjusting to keep pace with inflation.
Flexibility	Revenue generated can be used without restrictions.
Implementation & Administration	
Public Acceptance	Impact of the fee increase unlikely to raise substantial opposition
Appropriateness for State Use	Fee is currently in place.
Ease/Cost of Implementation & Administration	Currently administered.
Economic Efficiency & Impact	
Promotion of Efficient Use & Investment	No effect.
Equity Considerations	
User & Beneficiary Equity	Direct link to system users.
Income Equity	Unlikely to affect lower incomes.
Geographic Equity	Burden consistent for all geographies

Tire Fee

There were 1,893,654 tires sold in Vermont during SFY 12. Tires are taxed at the regular 6% state sales tax rate. The tire fee would be added to the cost of each tire sold. Revenue potential from this new source would be moderate. Every \$1 dollar fee on tires would generate approximately \$1.9 million.

Tire fees would represent a new funding source and the collection mechanism would have to be established by the Department of Taxes. Tire fees would also represent a stable and predictable funding source but would have to be periodically adjusted to keep pace with inflation.

Tire fees place transportation funding responsibility on vehicle owners who directly benefit from transportation improvements. This fee reflects system use to a small extent system because tires wear down and must be replaced based on miles travelled.

Table 27: Tire Fee Evaluation

Revenue Stream Considerations	
Revenue Potential	Moderate revenue generation potential. Every \$1 dollar tax to the cost of a tire will generate an additional \$1.9 million in revenue.
Sustainability	Will require periodic DMV/Legislative action to keep pace with inflation.
Flexibility	Revenue generated can be used without restrictions.
Implementation & Administration	
Public Acceptance	Scale of the fee increase unlikely to raise substantial opposition
Appropriateness for State Use	Appropriate, directly tied to transportation infrastructure.
Ease/Cost of Implementation & Administration	New collection mechanism would need to be developed.
Economic Efficiency & Impact	
Promotion of Efficient Use & Investment	No effect.
Equity Considerations	
User & Beneficiary Equity	Applies to system users and varies to some extent with use.
Income Equity	Insignificant burden on lower incomes.
Geographic Equity	Burden consistent for all geographies

Heavy Vehicle Registration Fees

Heavy vehicles (those 55,000lbs or higher) have higher impacts on roadways and bridges, and the higher registration fees paid for these vehicles reflect these impacts. There are currently 4,773 heavy vehicles registered in Vermont. Registration fees for heavy vehicles currently range between \$1,440 to \$4,375 depending on loaded weight and fuel type. On average, every \$1.00 increase in heavy vehicle registration fees would generate approximately \$5,000 in revenue.

Higher heavy vehicle registration fees may be viewed negatively since they are in addition to the existing federal Heavy Vehicle Use Tax.

The collection mechanism is already in place as this fee currently exists. However, heavy vehicle registration fees will require periodic adjustments through DMV and legislative action to keep pace with inflation.

These fees place transportation funding responsibility on vehicle owners who directly benefit from transportation improvements. Because the fees vary by weight, they do account to some extent for the impact of heavier vehicles on roads and bridges. However, since this fee does not vary by distance travelled, it does not completely account for system use. They are focused on a narrow portion of the travel market, placing little pressure on those who face the most difficulty in paying.

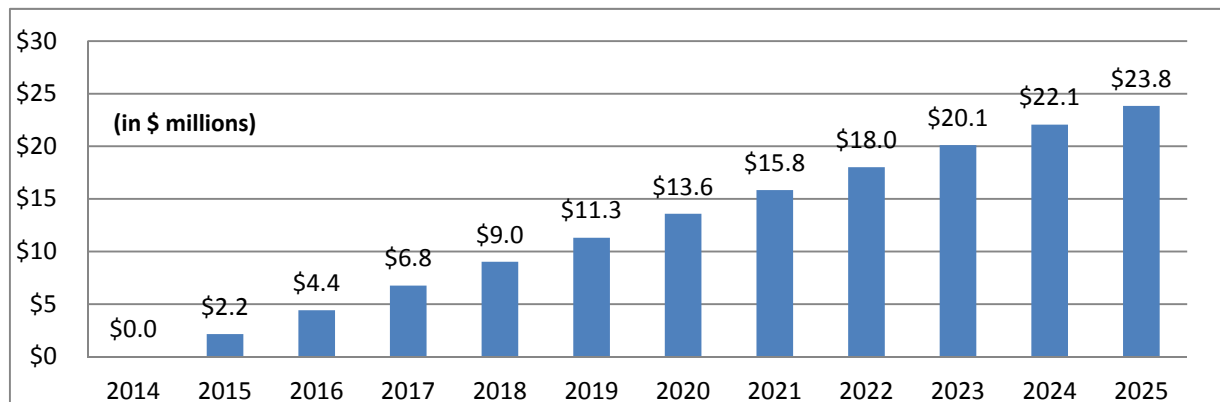
Table 28: Heavy Vehicle Registration Fee Evaluation

Revenue Stream Considerations	
Revenue Potential	Low revenue generation potential. Every \$1 dollar increase in heavy vehicle registration will generate an additional \$5,000 in revenue.
Sustainability	Will require periodic DMV/Legislative action to keep pace with inflation.
Flexibility	Revenue generated can be used without restrictions.
Implementation & Administration	
Public Acceptance	Fee increase will likely raise opposition from the trucking industry and shippers.
Appropriateness for State Use	Fee is currently in place.
Ease/Cost of Implementation & Administration	Currently administered.
Economic Efficiency & Impact	
Promotion of Efficient Use & Investment	No effect.
Equity Considerations	
User & Beneficiary Equity	Annual fee paid by system users that is based to some extent on impact on roadways and bridges.
Income Equity	Not applicable
Geographic Equity	Burden consistent for all geographies

Indexing Gasoline & Diesel Taxes to Inflation

Gasoline is currently taxed at a flat rate of 20 cents per gallon plus a 2% assessment on the average quarterly retail price for gasoline dedicated to the Transportation Infrastructure Bond (TIB). Diesel fuel is taxed at \$0.26 per gallon plus \$0.03 per gallon for the TIB assessment. With the exception of the additional TIB assessments, gasoline and diesel taxes have not changed since 1989. Indexing the non-TIB related components of gas and diesel taxes to the rate of inflation, starting in 2014 would generate significant revenues. Assuming a 2.5% annualized inflation rate, revenues would yield an annualized average of \$12.3 million through 2025 (Figure 20).

Figure 20: Potential Revenue from Indexing Gasoline and Diesel to Inflation



Gasoline and diesel taxes are flexible and can be used with few restrictions. The collection mechanism is already in place as these taxes currently exist, and they are sustainable as they would automatically be indexed to the rate of inflation.

While indexing to inflation will allow the State to keep pace with the increasing cost of construction facilities, operating services, and maintenance, their benefit will decline in the long-run due to fleet efficiencies.

Historically, fuel taxes levy the greatest burden on the heaviest users of the transportation system but that relationship is becoming less direct with the highly variable fuel economy.

Table 27: Gas and Diesel Tax Indexing Evaluation

Revenue Stream Considerations	
Revenue Potential	Very high revenue generation potential. Applying inflation will generate an average of \$12.3 million in revenue.
Sustainability	Self adjusts to keep pace with inflation.
Flexibility	Revenue generated can be used without restrictions.
Implementation & Administration	
Public Acceptance	Likely to raise opposition
Appropriateness for State Use	Fee is currently in place.
Ease/Cost of Implementation & Administration	Currently administered.
Economic Efficiency & Impact	
Promotion of Efficient Use & Investment	May induce less driving.
Equity Considerations	
User & Beneficiary Equity	Direct link to system users.
Income Equity	Moderate-high burden on lower incomes. Potentially higher costs relative to other fees/taxes
Geographic Equity	More burden on rural residents because they drive more

Gasoline Taxes

Gasoline taxes are one of the major sources of state transportation funds, accounting for approximately 325 million gallons consumed and \$60 million in revenue in SFY 12. Currently fixed at \$0.20 per gallon, each 1 cent increase in the gas tax could yield \$3.3 million in revenue.

A major benefit of gasoline taxes is that a slight rate increase could generate a significant amount of revenue, and fees are relatively inexpensive to administer in relation to yield. The collection mechanism is already in place as the tax is currently collected. However, it will require periodic adjustments through legislative action to keep pace with inflation (as described above) and to offset declining gasoline consumption as vehicles become more efficient.

Historically, fuel taxes levy the greatest burden on the heaviest users of the transportation system but that relationship is becoming less direct with the highly variable fuel economy.

Table 28: Gasoline Tax Evaluation

Revenue Stream Considerations	
Revenue Potential	High revenue generation potential. Every 1 cent increase in the gas tax will generate an additional \$3.3 million in revenue.
Sustainability	Will require periodic Legislative action to keep pace with inflation and declining consumption due to fuel efficiency improvements.
Flexibility	Revenue generated can be used without restrictions.
Implementation & Administration	
Public Acceptance	Likely to raise opposition
Appropriateness for State Use	Fee is currently in place.
Ease/Cost of Implementation & Administration	Currently administered.
Economic Efficiency & Impact	
Promotion of Efficient Use & Investment	An increase of 1¢ is unlikely to affect travel behavior
Equity Considerations	
User & Beneficiary Equity	Direct link to system users.
Income Equity	Minor-Moderate impact on lower incomes.
Geographic Equity	More burden on rural residents because they drive more

Diesel Fuel Taxes

Approximately 64 million gallons of diesel were consumed in SFY 12. While lower in revenue compared to gasoline taxes, diesel taxes nevertheless accounted for \$16 million in transportation revenues. Currently fixed at \$0.26 per gallon, diesel taxes can generate \$640,000 for every 1¢ increase.

The collection mechanism is already in place as the tax is currently collected. However, it will require periodic adjustments through legislative action unless indexed to inflation.

Similar to the gas tax, its effect will decline with ongoing fleet efficiencies.

Historically, fuel taxes levy the greatest burden on the heaviest users of the transportation system but that relationship is becoming less direct with the highly variable fuel economy.

Table 29: Diesel Tax Evaluation

Revenue Stream Considerations	
Revenue Potential	Moderate revenue generation potential. Every 1 cent increase in diesel taxes will generate an additional \$640,000 in revenue.
Sustainability	Will require periodic DMV/Legislative action to keep pace with inflation.
Flexibility	Revenue generated can be used without restrictions.
Implementation & Administration	
Public Acceptance	Likely to raise opposition
Appropriateness for State Use	Fee is currently in place.
Ease/Cost of Implementation & Administration	Currently administered.
Economic Efficiency & Impact	
Promotion of Efficient Use & Investment	No effect.
Equity Considerations	
User & Beneficiary Equity	Direct link to system users.
Income Equity	Minor-Moderate impact on lower incomes.
Geographic Equity	More burden on rural residents because they drive more

TIB Gasoline Fees

The TIB assessment on gasoline is 2% of the average quarterly price paid at the pump. As of June 2012, TIB gasoline revenues were \$20,901,468. Assuming \$3.00 to 4.00/gallon, a 1% increase collected on the retail price of gasoline would generate between \$8.3 and 11.5 million annually. The reason the 1% increase is significantly higher than a 1¢ increase in the gas tax, is the multiplier effect the increase has on the pegged retail price, versus the per gallon tax.

The collection mechanism is already in place as the tax is currently collected. Because the TIB gasoline assessment is a percentage of the retail price, it is related to inflation. However, unlike a per gallon assessment, the retail price of gasoline can fluctuate and be highly volatile. In addition, fleet efficiencies will reduce its effect in the long-run.

Historically, fuel taxes levy the greatest burden on the heaviest users of the transportation system but that relationship is becoming less direct with the highly variable fuel economy.

Table 30: Gasoline TIB Assessment Evaluation

Revenue Stream Considerations	
Revenue Potential	Very high revenue generation potential. Every 1% increase on the retail price of gasoline will generate between \$8.3 and 11.5 million in revenue.
Sustainability	Self adjusts to keep pace with inflation, but will be reduced as fuel efficiency improvements reduce consumption.
Flexibility	Revenue generated can be used without restrictions.
Implementation & Administration	
Public Acceptance	Likely to raise opposition
Appropriateness for State Use	Fee is currently in place.
Ease/Cost of Implementation & Administration	Currently administered.
Economic Efficiency & Impact	
Promotion of Efficient Use & Investment	No effect.
Equity Considerations	
User & Beneficiary Equity	Direct link to system users.
Income Equity	Moderate-Significant burden on lower incomes.
Geographic Equity	More burden on rural residents because they drive more

TIB Diesel Fees

The TIB assessment on diesel is 3 cents per gallon. As of June 2012, TIB revenues for diesel were \$1,920,465. A 1 cent increase per gallon of diesel would generate approximately \$640,000 annually.

The collection mechanism is already in place as the tax is currently collected. However, it will require periodic adjustments through legislative action to keep pace with inflation.

Historically, fuel taxes levy the greatest burden on the heaviest users of the transportation system but that relationship is becoming less direct with the highly variable fuel economy.

Table 31: Diesel TIB Assessment Evaluation

Revenue Stream Considerations	
Revenue Potential	Low revenue generation potential. Every 1 cent dollar increase per gallon of diesel will generate an additional \$640,000 in revenue.
Sustainability	Will require periodic DMV/Legislative action to keep pace with inflation.
Flexibility	Revenue generated can be used without restrictions.
Implementation & Administration	
Public Acceptance	Likely to raise opposition
Appropriateness for State Use	Fee is currently in place.
Ease/Cost of Implementation & Administration	Currently administered.
Economic Efficiency & Impact	
Promotion of Efficient Use & Investment	No effect.
Equity Considerations	
User & Beneficiary Equity	Direct link to system users.
Income Equity	Minor-Moderate burden on lower incomes. Limited costs relative to other fees/taxes
Geographic Equity	More burden on rural residents because they drive more

DMV Registration Fees

DMV registration fees contribute a substantial part of state transportation revenues. In SFY 12, 715,000 vehicle registrations accounted for \$49,231,549 in revenue. The potential revenue yield from increased registration fees is high. A \$1 dollar across the board increase in all vehicle registration fees results in approximately \$715,000 in revenue.

Registration fees have been well established as a stable and predictable transportation funding source. Vermont's fixed registration fees (\$70 annually for passenger vehicles) are low compared to the national average (\$167 according to the Pennsylvania Funding Study), making them a feasible option for further consideration. The structure of registration fees could also change from a flat per vehicle fee to a schedule of rates based on factors such as vehicle type, weight, age, or value. Fees could have strong sustainability if tied to vehicle value.

Registration fees have been periodically adjusted and kept pace with inflation, thereby enjoying steady growth. The collection mechanism is already in place but will require continued periodic adjustments. Registration fees place transportation funding responsibility on vehicle owners who directly benefit from transportation improvements, but does not reflect system usage.

Table 32: DMV Registration Fee Evaluation

Revenue Stream Considerations	
Revenue Potential	High revenue generation potential. Every \$1 dollar increase in DMV registration fees will generate an additional \$715,000 in revenue. Doubling the fee to make more consistent with national average registration fees would generate \$49 million.
Sustainability	Will require periodic DMV/Legislative action to keep pace with inflation.
Flexibility	Revenue generated can be used without restrictions.
Implementation & Administration	
Public Acceptance	Scale of the fee increase may result in opposition
Appropriateness for State Use	Fee is currently in place.
Ease/Cost of Implementation & Administration	Currently administered.
Economic Efficiency & Impact	
Promotion of Efficient Use & Investment	No effect.
Equity Considerations	
User & Beneficiary Equity	Annual fee that does not vary with use.
Income Equity	Moderate-Significant burden on lower income depending on total increase.
Geographic Equity	Burden consistent for all geographies

Purchase & Use Fees

The existing 6% Purchase & Use tax (P&U) generated \$82 million in SFY 12, a third of which was allocated to the education fund, leaving the state transportation fund with a balance of \$54,694,421. The revenue potential for P&U fees is very high as every 1% increase would generate \$13.6 million in new revenue, assuming all of the increase is allocated to the Transportation Fund.

The collection mechanism is already in place as fees are currently collected. However, it will require periodic adjustments through DMV/Legislative action to keep pace with inflation.

One disadvantage of P&U fee increase is the potential negative impact on vehicle sales.

P&U fees place transportation funding responsibility on vehicle owners who directly benefit from transportation improvements, but do not reflect system usage. They have a higher impact on those who face the most difficulty in paying.

Table 33: Purchase and Use Fees Evaluation

Revenue Stream Considerations	
Revenue Potential	Very high revenue generation potential. Every 1% increase in P& U fees will generate an additional \$13.6 million in revenue.
Sustainability	Self adjusts to keep pace with inflation.
Flexibility	Revenue generated can be used without restrictions.
Implementation & Administration	
Public Acceptance	Likely to raise opposition for auto dealerships.
Appropriateness for State Use	Fee is currently in place.
Ease/Cost of Implementation & Administration	Currently administered.
Economic Efficiency & Impact	
Promotion of Efficient Use & Investment	No effect.
Equity Considerations	
User & Beneficiary Equity	One-time user fee that does not vary with use.
Income Equity	High burden on lower income.
Geographic Equity	Burden consistent for all geographies

Reduction in Transfer from P&U Fund to Education Fund

Approximately \$27 million in P&U funds were directed to the Education Fund this year – an annual contribution that is set by legislative action and P&U receipts. A 1% reduction in P&U funds to the Education Fund will yield approximately \$270,000, but the total amount available (\$27 million) is potentially high. The collection mechanism is already in place as fees are currently collected. Although this option has the potential to result in a significant amount of funding for the transportation fund, the loss to the Education Fund would have to be offset with other revenue sources.

Table 34: Reduction in P&U Education Fund Allocation Evaluation

Revenue Stream Considerations	
Revenue Potential	High revenue generation potential. Every 1% less in diverted funding will generate an additional \$270,000 in revenue. Total potential is \$27 million.
Sustainability	Not Applicable
Flexibility	Revenue generated can be used without restrictions.
Implementation & Administration	
Public Acceptance	Likely to raise opposition.
Appropriateness for State Use	Fee is currently in place.
Ease/Cost of Implementation & Administration	Currently administered.
Economic Efficiency & Impact	
Promotion of Efficient Use & Investment	Not Applicable
Equity Considerations	
User & Beneficiary Equity	Not Applicable
Income Equity	Not Applicable
Geographic Equity	Burden consistent for all geographies

Ad Valorem Tax

This tax is typically imposed annually during vehicle registration, and is based on the value of a vehicle. Many states use variations of this tax, including as a supplement above base vehicle license fees, or as a revenue-generating mechanism for local governments. For example, in Mississippi owners of vehicles with a Gross Vehicle Weight (GVW) of 10,000 lbs or less must pay motor vehicle ad valorem taxes on their vehicles at the time of registration. The tax is based on the assessed value of the vehicle multiplied by the rate set by the local governments.

A 1% ad valorem tax on passenger cars and light trucks registered in Vermont could generate approximately \$24 million. This estimate is based on the number and average age (10.1 years) of registered vehicles in Vermont and the Blue Book Value of vehicles that are ten years old.

Because the fee is based on the value of a vehicle, and vehicle value is arguably correlated with income, it may have less of a relative impact on lower income groups. The fee is not currently collected in Vermont and may be challenging to establish as it requires a consistent method for determining the value each vehicle.

Table 32: Ad Valorem Tax Evaluation

Revenue Stream Considerations	
Revenue Potential	A 1% tax would raise \$24 million*.
Sustainability	Based on vehicle price which is automatically affected by inflation.
Flexibility	Revenue generated can be used without restrictions.
Implementation & Administration	
Public Acceptance	Scale of the fee increase may result in opposition
Appropriateness for State Use	Applicable statewide.
Ease/Cost of Implementation & Administration	May be complicated to administer.
Economic Efficiency & Impact	
Promotion of Efficient Use & Investment	No effect.
Equity Considerations	
User & Beneficiary Equity	Annual fee that does not vary with use.
Income Equity	Somewhat sensitive to income assuming vehicle value is correlated with income.
Geographic Equity	Burden consistent for all geographies

* Preliminary estimate based on small sample size.

Vehicle Miles Traveled Fee

Vehicle miles traveled (VMT) charges (also referred to as mileage-based user fees), have emerged as an important alternative to motor fuel taxes. User fees have been the foundation for highway programs for over half a century. To support transportation construction, operations, and maintenance, all states and the federal government currently collect taxes on the consumption of motor fuel, which is strongly correlated with the use of the transportation system. However, average fuel economy for automobiles, other light-duty vehicles, and trucks is projected to increase substantially in coming years, thereby reducing state and federal transportation revenues. In addition, vehicles powered by alternative fuels, hybrid vehicles, and electric vehicles will pay little or no motor fuel tax. Given that reality, the current transportation funding structure will not be sustainable in the long run.

Motor fuel use per mile of travel may decline as much as 50% over the next 25 years, as greater fuel efficiency is achieved due to increased fuel efficiency standards and mandates³¹. Federal fuel economy standards adopted in August 2012 mandate an average fuel economy of 54.5 miles per gallon for the 2025 model year³². According to the U.S. Department of Energy’s Annual Energy Outlook 2011, vehicle miles traveled by light and commercial vehicles nationally will grow 1.61% per year from 2011 through 2035, but motor fuel consumption will grow only 0.61% in that period³³. In an era of dire need for transportation investments, Vermont faces the prospect of significantly lower revenue growth under the current funding structure. The gap between highway user revenues and documented needs will only grow larger.

³¹ Page 13, http://i95coalition.org/i95/Portals/0/Public_Files/pm/reports/I-95CC%20ConOps%20for%20Administration%20of%20MIBUF%20in%20a%20Multistate%20Environment%202012_04.pdf

³² <http://www.epa.gov/fueleconomy/regulations.htm>

³³ <http://www.eia.gov/oiaf/aeo/gas.html>

Given the potential for further transportation funding gaps, many transportation planners and policy makers are advocating for a shift to a more direct ‘user pay’ charge in the form of a fee for each mile driven – rather than on fuel consumed. Such a VMT fee system would be both more sustainable and more equitable since it would not be influenced by increasing vehicle fuel efficiency or the use of alternative energy sources.

Implementing a VMT fee system will be technologically, administratively, and politically complex. VMT user fees are far from accepted or well understood by the general public, legislators, and transportation professionals. There are no general purpose mileage-based user fees in any U.S. jurisdiction, and state policymakers would have to consider many factors in shifting to a VMT fee system. These include:

- How to enroll vehicles
- How to collect the VMT revenues
- How to collect revenue from non-residents travelling in Vermont and share revenue across state lines for Vermonters travelling in other parts of the country
- How to develop the functional and technical requirements of the system; and
- How to develop authorizing legislation

Costs associated with administering a VMT fee system are uncertain for a number of reasons. The implementation is likely to occur well in the future, and involve many unknowns about available future technologies and what they will cost. The NCHRP report on “*Costs of Alternative Revenue-Generation Systems*”³⁴ estimated that, if implemented now, average administrative and collection costs for motor fuel taxes to be just under 1% of total fuel tax revenues, compared to a lowest percentage of 4.1% for mileage-based user fees.

Were Vermont to shift from a fuel tax to a VMT fee in the long run, revenues equivalencies would be needed. Agency of Transportation staff calculated that the shift would translate to approximately 1.51 cents for every vehicle mile traveled. This calculation was arrived at by determining annual VMT (7,141,039,000) minus the portion of VMT that is non-resident (10% according to data contained in the Vermont Travel Demand Model). The resident VMT of 6,426,935,100 was then divided by the total revenue from state gasoline and diesel taxes, and TIB assessments (\$97,205,829) in 2011, which translates into 1.51 cents per mile traveled.

If all state transportation revenues (\$249 million) were to be converted to a vehicle mile traveled fee, then using the same calculation, the VMT fee would be 3.87 cents per mile traveled.

Shifting from a tax on gasoline and diesel consumption to VMT would not by itself generate more revenue. For every \$0.01 increase above the revenue neutral benchmark, a VMT tax would generate approximately \$64 million.

³⁴ http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_689.pdf

Table 35: VMT Tax Evaluation

Revenue Stream Considerations	
Revenue Potential	High revenue generation potential is adjusted above the revenue neutral equivalent of current funding sources. \$0.01 per mile generates \$64 million per year.
Sustainability	Stable but could decline if VMT decreases.
Flexibility	Revenue generated can be used without restrictions.
Implementation & Administration	
Public Acceptance	Significant concerns about privacy which may abate over time
Appropriateness for State Use	Requires multi-state implementation and related agreements
Ease/Cost of Implementation & Administration	Highly difficult to implement and administer.
Economic Efficiency & Impact	
Promotion of Efficient Use & Investment	Variation in per mile fees by time of day, or by area, may be used to influence travel choices
Equity Considerations	
User & Beneficiary Equity	Direct link to system users
Income Equity	Moderate impact to lower income.
Geographic Equity	More burden on rural residents because they drive more

5.3 Options Not Evaluated

Other transportation funding options were considered but have not been evaluated for the reasons described below.

- **Department of Public Safety Diversion:** Approximately \$25 million annually is transferred from transportation funds to the Department of Public Safety³⁵. The annual allocation to the DPS is being evaluated under a separate legislative study.
- **Tolling:** Consists of fees imposed on existing or new highways, which fund improvements to those highways or general transportation projects. The minimum amount of daily traffic for tolls to be feasible is generally regarded as 30,000 vehicles per day. Cost factors include the cost of constructing toll facilities, and ongoing operations and maintenance. Using the 30,000 threshold, only a small portion of I-89 in Chittenden County would qualify, rendering the concept unworkable in the vast majority of the state.
- **Auto Parts Tax:** Additional assessment on all auto parts sold in Vermont. Because Vermont belongs to the streamlined sales and tax agreement³⁶, the State would not be able to increase taxes on auto-parts unless it raised sales tax across the board.
- **Freight Waybill Tax (or bill of lading tax):** Sales tax on freight shipping costs for goods movement within Vermont. The State does not keep records of freight movements and would therefore be difficult to administer. It also unclear whether enough freight is shipped in Vermont to raise sufficient revenues.
- **Weight & Distance Tax:** Freight-related taxes imposed based on either the weight of freight moved (a ton-freight tax) or as a function of both weight and distance (a ton-mile tax). Variations of these taxes have been imposed by a few states in the past. Oregon has been charging heavy trucks a weight-mile tax since 1947 and currently does so in lieu of fuel taxes for this vehicle class. Kentucky, New Mexico, and New York also use variations of the weight-mile tax in combination with fuel taxes for their highway use taxation. Vermont does not keep records of the commodity data needed to impose such as tax, and would therefore be difficult to administer. It also unclear whether enough freight is shipped in Vermont to raise sufficient revenues.
- **Purchase & Use Fees for “In-Transit” Registration:** This option would charge the 6% P&U tax on vehicles purchased in Vermont but registered in another state. This fee would likely violate the commerce clause contained in *Barringer v. Griffes*, 1 F.3d 1331 (2d Cir. 1993).
- **Other Broad Based Taxes:** Other revenue sources such as the income and property taxes are not considered because they are not directly related in some manner to transportation.

³⁵ Previously referred to as the Joint Transportation Oversight Committee, JTOC, and transfer.

³⁶ <http://www.streamlinedsalestax.org/>

5.4 Revenue Options Summary

Table 36 summarizes the revenue potential of each option and Table 37 summarizes the qualitative evaluation.

Table 36: Summary of Revenue Generation Potential

Revenue Option	Existing	Revenue Potential
Vehicle Inspection Fees	\$5 per inspection	\$640,000 for every \$1 increase
Vehicle Lease Tax	None	\$29,000 for every \$1 charged
Vehicle Rental Tax	9%	\$403,000 for every 1% increase
Tire Fee	Existing 6% sales tax, no per tire charge	\$1.9 million for every \$1 charged
Heavy Vehicle Registration Fees	\$1,440-\$4,375	\$5,000 for every \$1 increase
Inflation Indexed Fuel Taxes	None	\$12.3 million average through 2025
Gasoline Tax Increase	20 cents/gallon	\$3.3 million for each 1-cent increase
Diesel Tax Increase	26 cents/gallon	\$640,000 for each 1-cent increase
TIB Gasoline Fee Increase	2% on retail cost per gallon	\$8.3-11.5 million for each 1% increase
TIB Diesel Fee Increase	3 cents/gallon	\$640,000 for each 1-cent increase
DMV Registration Fees	\$70	\$715,000 for each \$1 across the board increase
Purchase & Use Fees	6% (2% to Education Fund, 4% to T-Fund)	\$13.6 million for 1% increase (from 6% to 7%, assuming all of the increase is dedicated to the transportation fund)
Reduce Amount of P&U Tax to Education Fund	\$27 million currently diverted to Education Fund	\$270,000 for every 1% reduction in amount diverted
Ad Valorem Vehicle Tax	None	\$24 million per 1% assessment on vehicle value
Vehicle Miles Travelled Tax	None	<ul style="list-style-type: none"> \$64 million for every 1 cent per mile. To replace existing gas and diesel revenue: 1.5 cents per mile; To replace entire state transportation fund revenue: 3.9 cents per mile

Table 37: Qualitative Evaluation Summary

Revenue Option	Revenue Stream Considerations			Implementation & Administration			Economic Efficiency & Impact	Equity Considerations		
	Total Revenue Potential	Stability	Flexibility	Potential Public Acceptance	Appropriate for State Use	Implementation & Administration Ease		User Pays	Income	Geographic
Vehicle Inspection	Moderate	Low	High	Moderate	High	High	Low	Moderate	High	High
Vehicle Lease Tax	Low	Low	High	Moderate	High	Low	Low	Moderate	High	High
Vehicle Rental Tax	Low	High	High	Moderate	High	High	Low	Moderate	High	High
Tire Fee	Moderate	Low	High	Moderate	High	Low	Low	Moderate	High	High
Heavy Vehicle Registration	Low	Low	High	Low	High	High	Low	Moderate	N/A	High
Gasoline & Diesel Inflation Indexing	High	High	High	Low	High	High	High	High	Low	Moderate
Gasoline Tax	High	Low	High	Low	High	High	High	High	Low	Moderate
Diesel Tax	Moderate	Low	High	Low	High	High	High	High	Low	Moderate
TIB Gasoline Fees	High	Low	High	Low	High	High	High	High	Low	Moderate
TIB Diesel Fees	Moderate	Low	High	Low	High	High	High	High	Low	Moderate
DMV Registration Fees	High	Low	High	Moderate	High	High	Low	Moderate	Low	High
Purchase & Use Fees	High	Low	High	Low	High	High	Low	Moderate	Low	High
P&U to Education Fund Reduction	High	Low	High	Moderate	High	High	Low	N/A	N/A	High
Ad Valorem Tax	High	High	High	Low	High	Low	Moderate	High	Moderate	High
VMT Tax	High	High	High	Low	High	Low	High	High	Low	High

6.0 REPORT SUMMARY

This report describes transportation funding in Vermont and presents a revenue forecast that accounts for the effect of anticipated fuel efficiency improvements on the gas tax, which is one of the primary sources of revenue to the state transportation fund. The revenue forecast is compared to an estimated cost to meet basic transportation needs. In recent years, Vermont benefited from increased federal funding from the American Recovery and Reinvestment Act of 2009, earmarks, and discretionary grant programs. These additional sources of revenues are coming to an end and without additional state or federal funding, the budget will return to pre-2010 levels.

The annual gap between available revenue and the cost to meet basic needs is approximately \$240 million and is significant relative to the typical Vermont transportation budget of approximately \$450-\$500 million. If the gap is not addressed, it will be increasingly difficult to maintain the same level of mobility and access currently provided by the state's road and bridge networks. Reduced mobility and access will impact Vermonters' quality of life, will increase the cost of conducting business, will threaten the state's economic competitiveness and ability to retain and attract employers and jobs.

Given the size of Vermont's population and economic base, and considering other needs it would be very difficult to close the transportation funding gap with state revenue only. While additional federal support is necessary, this report identifies and evaluates revenue options for the state's transportation fund over which the Legislature has some control and focuses on the options that are practical to consider in a five-year time frame.

As the federal fuel efficiency standards are phased in over the next twenty years, the amount of revenue generated by the gas tax is estimated to decrease significantly. The loss of revenue could be addressed through periodic adjustments to the gas tax rate, indexing the gas tax to inflation, and/or raising other fees. In the long-term the gas tax should be replaced by a more stable revenue source such as the vehicle miles travelled tax which is directly link to system use and will not be affected by fuel economy. There are numerous challenges to implementing a VMT tax and it is not feasible for Vermont to establish this type of system on its own in the near term. There are several feasible options available that could be implemented in the short term to increase revenue. At the same time, the state should begin planning for a shift to the VMT tax, or other similar stable, user-based fee structure.

The findings of this report suggest the need for continued focus on the transportation funding challenge. Vermont, like other rural states with small populations, will continue to rely on federal funds to meet our transportation needs. Over the next two years Congress will debate the reauthorization of MAP-21 and we must build a coalition with these other states to make the case for preserving and enhancing federal funds. To help make the case, VTrans should document the contribution of the transportation system to the state's economy. At the same time, VTrans should encourage municipalities to plan and prioritize needs in preparation for reduced federal and state transportation funds. VTrans should also continue its efforts to use available funds as efficiently as possible by applying best practices and pursuing innovation.