

The Snelling Center for Government

presents

VERMONT ROADS AND BRIDGES: TO FIX OR ABANDON?



Vermont Transportation Critical Data



VERMONT'S ROADS AND BRIDGES: TO FIX OR ABANDON?

THE PROBLEM

Vermont has fallen behind in the rehabilitation of roads and bridges. Our infrastructure is reaching an age and condition where preventive maintenance will be ineffective. One choice will be full replacement at extreme cost; another will be continued deterioration and abandonment of some infrastructure when traveler safety cannot be assured. In *Principles of the Road to Affordability*, the Vermont Agency of Transportation (VTrans) states that the timely preventative investment of \$1,000,000 will avoid road bed replacements of \$5,000,000 or bridge replacements of \$10,000,000.

Currently, Vermont is not making sufficient preventative investments to avoid those higher long-run costs associated with deferred maintenance. VTrans working documents and Joint Fiscal Office estimates suggest that transportation revenues will need to increase by 50 to 100% over the next 20 years (depending on inflation) in order to maintain current condition and service levels.

A HISTORY OF FRUGALITY

Vermont has opted for frugality on roads, bridges and other capital expenditures. In the last 10 years (1997 to 2007) we reduced long term debt from \$536 million to \$438 million. Viewed another way, our general obligation debt was nearly 4% of personal income; it is now less than 2%. This consistent discipline has resulted in a bond rating upgrade to the coveted "AAA" level.

Moreover, recent administrations of both major political parties have successfully maintained discipline around not raising tax rates. One way this goal has been achieved has been to transfer transportation monies to support general fund expenditures. Over the years, hundreds of millions of dollars have been transferred from the Transportation Fund to the General Fund. One third of the revenues collected from the Motor Vehicle Purchase and Use Tax is used to support the Education Fund, thereby offsetting an equal amount of property tax.



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I. 1. How to Use This Guide

The purpose of the Vermont Transportation Critical Data guide is to provide an overview of some of the major issues facing the future of transportation infrastructure funding in Vermont. Where possible, the guide minimizes the narrative and presents information in graph or chart form, with bullet pointed summary statements. This data was originally in conjunction with speaker presentations at The Snelling Center for Government's conference *Vermont Roads and Bridges: To Fix or Abandon?* held at Basin Harbor Club in Vergennes, Vermont, on September 26, 2008.



II. 1 "THE PERFECT STORM"

In the late fall of 2007, a large culvert was replaced on Interstate 89 in South Burlington. It was an emergency project due to the unacceptable risk that the road could collapse into a void that had washed out between the pavement and the culvert. The replacement cost was reportedly around \$2.5 million. Four years earlier, for \$250,000, a permanent liner could have been installed to patch corrosion holes in the culvert and prevent the problem.

Vermont's roads, bridges and culverts are deteriorating rapidly. Hundreds of bridges and miles of pavement are reaching the point where preventive maintenance is ineffective. Four macro-factors are converging to make this a "perfect storm":

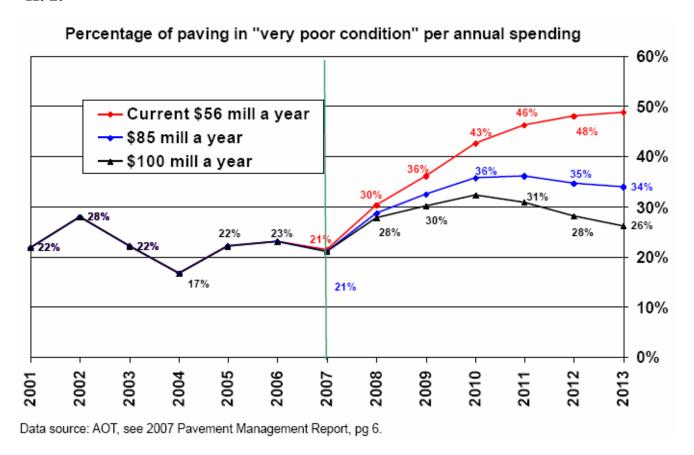
- 1. The window for effective rehabilitation is closing. For example, 924 (35%) of Vermont's long bridges (> 20 feet) are of an age when modest rehabilitation can add long life. Current spending allows for the preventative rehabilitation of a handful of those bridges each year. Over 1,200 long bridges are past the age where preventative rehabilitation is generally effective in adding long life. Of these, 500 are structurally deficient, and 50 (excluding historic covered bridges) are posted with weight restrictions.
 - At current spending levels the percentage of Vermont pavement in "very poor" condition will go from 21% to 49% by 2013, accordingly to the Agency of Transportation.
- 2. State fuel tax revenues are declining as high fuel prices drive down consumption, reducing the cash to pay for road and bridge repairs.
- 3. The Federal Highway Trust Fund is depleted, due in large measure to the reduction in fuel consumption.
- 4. Construction costs, due to international demand for steel, petroleum and other materials have risen at an average of about 10.5% annually over the last 4 years. This compares to a 3.5% average increase in the consumer price index over the same period.

Consultants, who are preparing the statutory update to the Long Range Transportation Business Plan for the Agency of Transportation, estimate that current law transportation revenues will fall short over the next 20 years by between \$4.2 and \$8.7 billion (depending on the inflation assumption) in order to maintain the transportation system in its current condition.

Looking forward to 2030 Vermont's population, both rural and urban, is expected to grow steadily. While fuels and modes of transportation may change, demand for a safe infrastructure, both for economic development and daily life, will continue. The risk that some communities will become isolated due to restricted or closed bridges, or other infrastructure failures, is not insignificant.



II. 2.

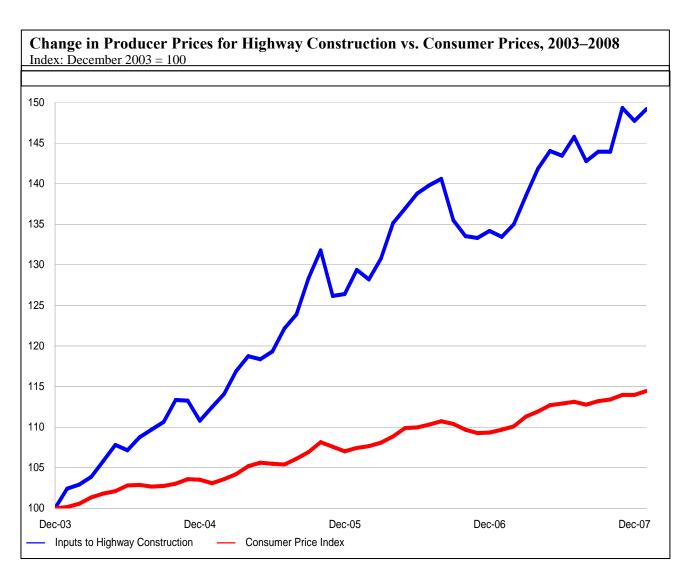


- The red line indicates that current annual expenditure on paving will result in continued rapid deterioration in the average pavement condition in Vermont.
- The blue line indicates that an additional expenditure of \$29 million annually on pavement will flatten the deterioration curve at 34% of "pavement in very poor condition."
- The black line indicates that an additional expenditure of \$44 million annually on pavement will reverse the deterioration trend at a peak of about 32% of "pavement in very poor condition."

The graph does not take inflation into account.



II. 3. CONSTRUCTION INFLATION



- From December 2003 to January 2008 the Producer Price Index for inputs to <u>all construction</u> industries rose a cumulative 30.2 percent, compared to 14.5 percent for the CPI.
- The rise in inputs to <u>highway and street construction</u> rose even greater, with a 49.2% increase since 2003.

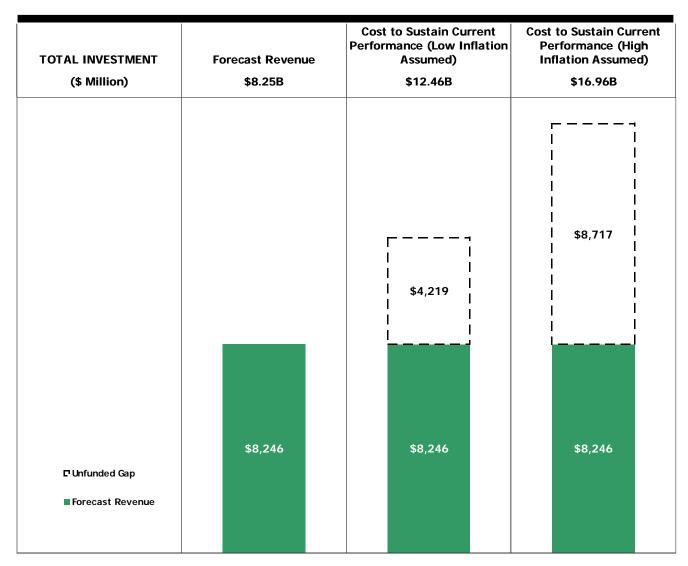
Source: U.S. Bureau of Labor Statistics and Morgan Stanley



II. 4. ESTIMATE OF REVENUE SHORTFALL

In the 2007 document entitled "Vermont Long Range Transportation Business Plan, Working Paper 3, Financial Analysis", VTrans' consultants projected that current law revenue collections over the next 20 years would total \$8.25 billion. The consultant further estimated that, depending on inflation, a minimum of an additional \$4.2 billion would be required to maintain the current performance and service level of Vermont's transportation system. The high side inflation estimate increased the projected funding gap to \$8.7 billion.

Separately, the Joint Fiscal Office of the Legislature estimated in 2007 that the funding shortfall for optimal system investment was around \$204 million annually.



Source: VT LRTBP Working Paper 3, "Financial Analysis," Feb. 2007



II. 5. INVENTORY OF STATE TRANSPORTATION INFRASTRUCTURE

The current state transportation infrastructure in Vermont includes:

- 3,200 two-lane miles of pavement on state roads;
- 2,765 bridges and large culverts greater than 20 feet in length;
- 40,000 small culverts;
- 10 state-owned airports;
- 305 miles of state-owned rail line with 265 bridges;
- 122 heated and 289 unheated buildings;
- Other assets including vehicle fleet, park & ride lots, rest areas, and other highway assets.

 Source: Vermont Agency of Transportation

II. 6. VERMONT'S HIGHWAY STRUCTURE POPULATION BY JURISDICTION, 2007

Structure Type	Interstate	State Highway	Town Highway	Other	Total
Long structures	313	764	1,606	5	2,688
(span length					
>20 feet)					
Short	223	1,071	Inventory not	Inventory not	1,294
structures (span			maintained by	maintained by	
length ≥6 feet			VTrans	VTrans	
and ≤20 feet)					
Total	536	1,835	1,606	5	3,982

Source: Vermont Agency of Transportation

II.7. LONG BRIDGES BY AGE; JURISDICTION; OPPORTUNITY FOR RENOVATION

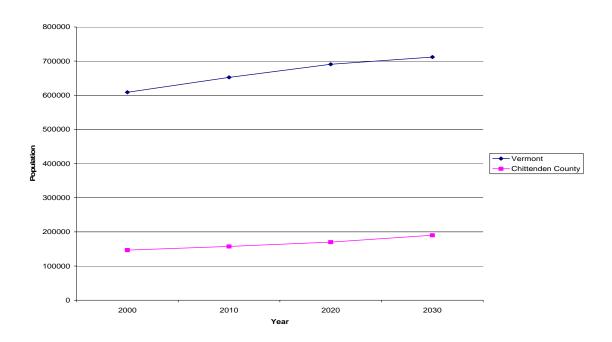
	Interstate	State Highway	Town Highway
Under 25 years old, or since last renovation	14	138	352
25 to 50 years old; eligible for long life renovation	299	257	368
50 years old or older; typically past point of effective long term renovation	0	369	889
totals	313	764	1609

- VTrans asserts that \$1.00 of timely bridge renovation can prevent \$10 in replacement cost.
- Appropriate maintenance work on older bridges will extend the useful life to some extent.

Source: Vermont Agency of Transportation



II. 8. VERMONT AND CHITTENDEN COUNTY POPULATION FORECAST: 2000-2030



Year	Vermont	Chittenden
		County
2000	608,827	146,571
2010	652,512	157,400
2020	690,686	170,000
2030	711,867	190,000
	16.90%	29.60%

Source: U.S. Census Bureau



III. 1. DEFINITIONS

Federal Highway Trust Fund: The Highway Revenue Act of 1956 established the Federal Highway Trust Fund (HTF) for the direct purpose of funding the construction of an Interstate System and aiding in the finance of primary, secondary, and urban routes, what are also commonly known as the federal-aid highways. The HTF is funded primarily by a federal tax on motor fuels, currently \$.184 per gallon.

SAFETEA-LU: On August 10, 2005, the Safe, Accountable, Flexible, Efficient Transportation Equity Act (SAFETEA-LU) was signed into law for the years 2005-2009. With guaranteed funding for highways, highway safety, and public transportation totaling \$244.1 billion, SAFETEA-LU represents the largest surface transportation investment in our Nation's history.

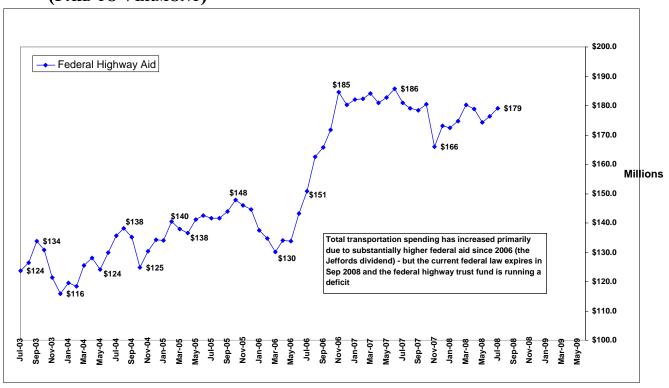
Fuel Taxes: Fuel taxes represent about 90 percent of total revenues to the Federal HTF. Federal fuel tax rates have remained unchanged since 1993. Since that time, however, purchasing power has decreased by 40 percent when compared to the Producer Price Index for Highway and Street Construction. The other taxes supporting the Federal HTF are truck-related taxes.

Federal Match Program: In many federal-aid programs there is a required match of federal funds from a non-federal source for transportation projects. States are not regulated in how they address this; in Vermont, matching funds usually originate at the state and local level. For interstate projects, the match is usually 90% federal/ 10% non-federal; for bridges, paving, roadway, and other projects the match is usually 80% federal/ 20% non-federal. Safety projects are the exception, where federal funds may be 100%, for example signals, signs, pavement markings, roundabouts, park and Ride, etc.

In Vermont, the required non-federal funds normally fall to the state and local governments. Local roadway and town-highway bridge projects are often 80% federal/ 10% state/ 10% local, except where projects are for bridge rehabilitation and the breakdown may become 15% state/ 5% local. Highway projects on the State system are usually matched entirely with state funds. If the project is on the local highway system a local match is normally required.

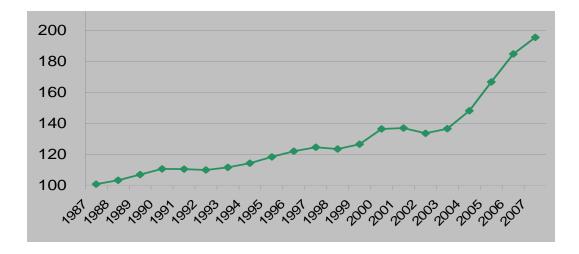


III. 2. FEDERAL HIGHWAY AID RECEIPTS - 12 MONTH ROLLING TOTAL (PAID TO VERMONT)



III. 2. TOTAL HIGHWAY CONSTRUCTION COSTS

Index: Base = June 1986



Reasons why future revenue will fall short of meeting highway and transit investment requirements:

- The fuel tax is not indexed to inflation and does not keep pace with rising construction costs;
- Transportation funds are being used for a broader range of purposes than originally intended.

Source: The National Surface Transportation Policy and Revenue Study Commission



IV. 1. PRINCIPLES OF THE ROAD TO AFFORDABILITY

(Adopted January 2007)

Vermont has an aging transportation infrastructure that demands greater and more costly attention than in the past. As a result, bridge, culvert and road repair are competing with new roadway construction projects for limited funds.

Given this reality, Vermont must first step back and preserve its existing assets so that they do not deteriorate to the point that they require major reconstruction and become a financial drain on the entire system. Such early intervention and preventative maintenance can result in significant savings:

- A \$100,000 investment in a culvert less than 20 feet of fill on the Interstate today will save over \$1 million for replacement construction and detours tomorrow.
- A \$100,000 investment in a new bridge membrane today will save over \$1 million for deck replacement tomorrow.
- A \$1 million investment in the pavement of a good roadbed today will save over \$5 million in costly reconstruction in the future.
- Preventative maintenance done today also eliminates future aggravation and delays for the traveling public and freight haulers.

Another critical component of the Road to Affordability is a set of strategic parameters. These include:

Realignment of priorities:

- Primary investment will focus on traveler safety and the preservation of existing infrastructure.
- Optimize financial resources by focusing attention on a practical number of large projects.
- Set realistic timetables for large projects and new roadway segments, and balance funding within the Roadway Program to reflect a priority on system preservation.

Rethink project focus:

- Back to Basics Where design status allows, develop project scopes that limit the addition of project amenities not related to preservation and environmental protection. (Example: undergrounding of utilities, streetscapes)
- Innovative Finance Any proposed new roadway-segment project not presently in the Development & Evaluation portion of the Capital Program will require an innovative financing approach acceptable to the Agency prior to being considered for inclusion in the capital program.
- Just-in-time delivery of Design, Right of Way, & Permitting VTrans will begin these processes only after project funding has been identified and a time line has been established so time, money and effort is not wasted.

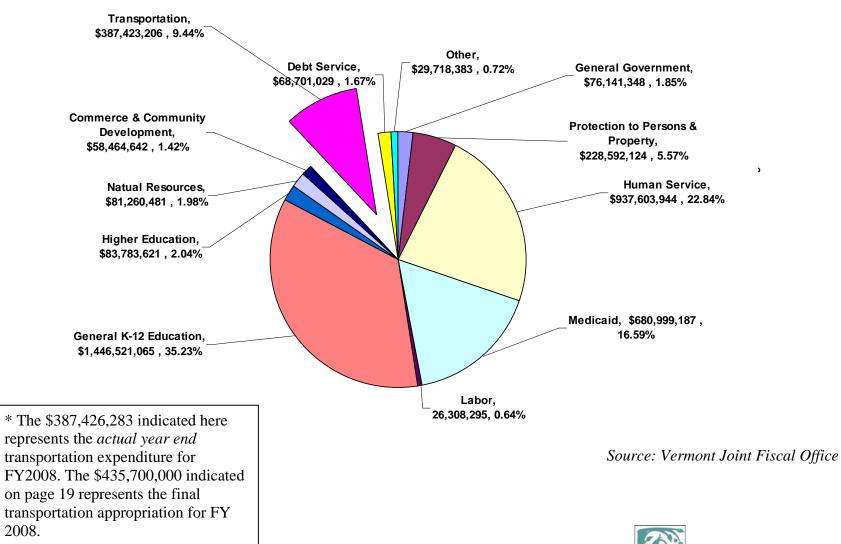
Source: Vermont Agency of Transportation



V. 1.

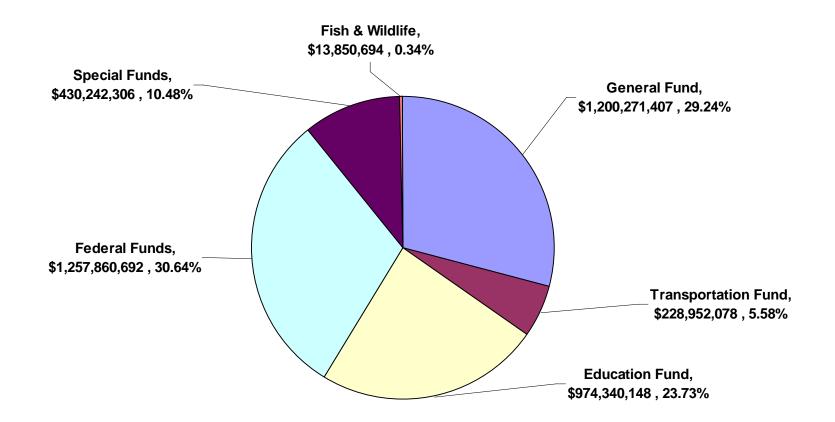
VERMONT APPROPRIATIONS, 2008 \$4,105,517,325*

(excluding pension, trust, private purpose, enterprise and duplicative sources)



V. 2.

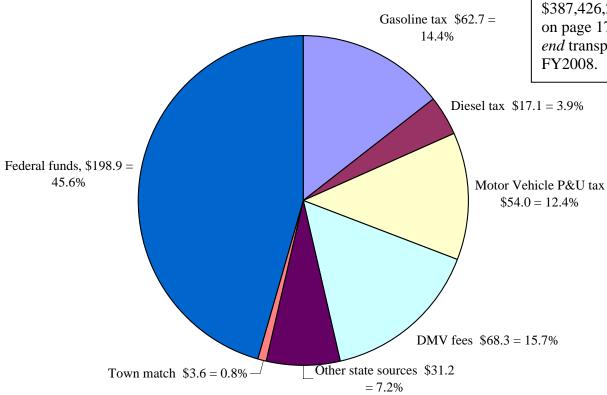
VERMONT SOURCES OF FUNDS, 2008 \$4,105,517,325





VI. 1.

VERMONT TRANSPORTATION FUND SOURCES, 2008 \$435,700,000*

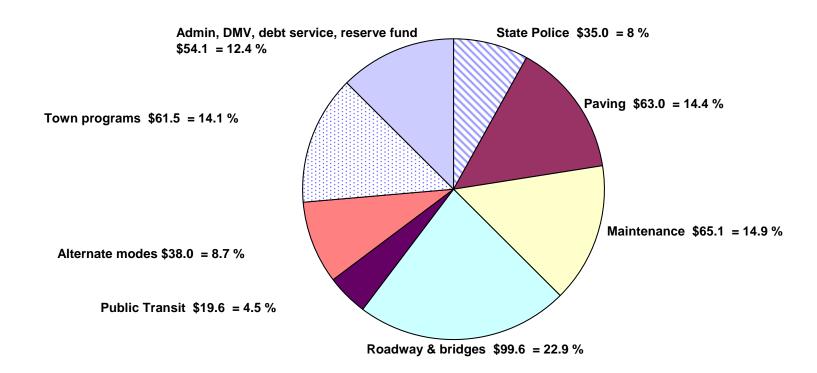


* The \$435,700,000 indicated here represents the final transportation appropriation for FY 2008. The \$387,426,283 indicated in the chart on page 17 represents the *actual year end* transportation expenditure for FY2008.



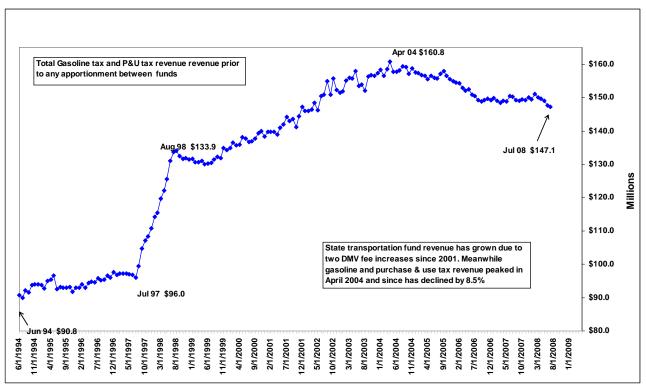
VI. 2.

VERMONT TRANSPORTATION FUND USES, 2008 \$435,700,000





VI. 3. GASOLINE + P&U TAX REVENUE - SOURCE TOTAL - 12 MONTH ROLLING TOTAL



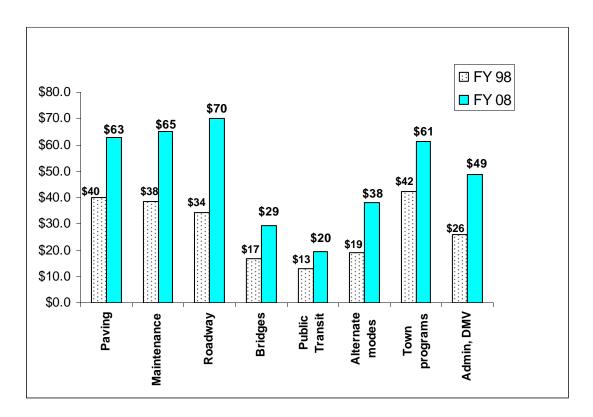
Source: Vermont Joint Fiscal Office

In the 7 years between June 2001 and June 2008, the Transportation Fund grew at an average annual rate of 3%. This compares to highway construction inflation and CPI which have grown 10.5% and 3.5% respectively in recent years. The gasoline tax and the Motor Vehicle Purchase and Use Tax are the major components of the Transportation Fund and receipts for both are trending downward with high fuel prices and economic downturn in 2008 and 2009.

Looking forward, assuming no change in the tax rates or sources, Transportation revenues are forecast to be in decline, with an \$8 million reduction forecast for the current fiscal year.



VI. 4. FY-98 vs. FY-08 TRANSPORTATION SPENDING



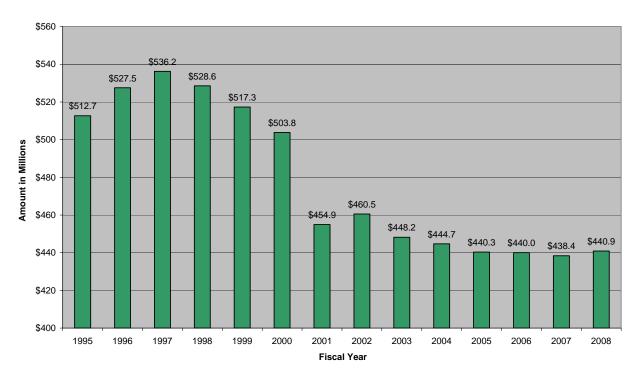


VII. 1. VERMONT'S DEBT MANAGEMENT PROCESS

The Capital Debt Affordability Advisory Committee (CDAAC) was created by the 1990 Vermont Legislature to estimate annually the maximum amount of new long-term general obligation debt that prudently may be authorized by the state for the next fiscal year. The Committee's estimate is required by law to be based on a number of considerations, historic and projected, including debt service requirements, debt service as a percent of General and Transportation Fund revenues, outstanding debt as a percent of personal income, and per capita debt ratios.

VII. 2.





Source: Vermont State Treasurer's Office

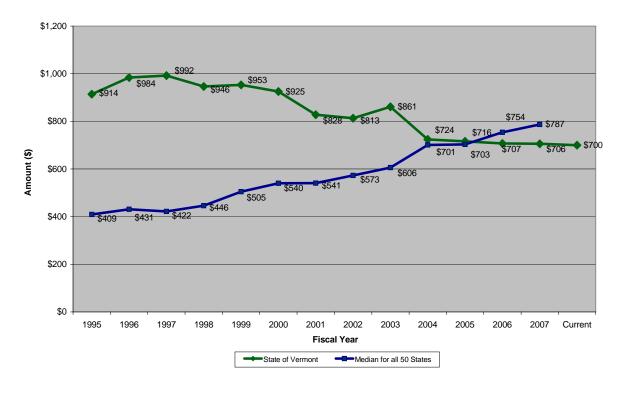


VII. 3. VERMONT TAX-SUPPORTED DEBT: 10-YEAR COMPARISON

	1998	2007
Personal Income	\$13,750,000,000	\$22,775,000,000
Total Tax Supported Debt	\$536,200,000	\$438,400,000
Moody's Rating for Vermont	Aa2	AAA
Tax Supported Debt	3.9%	1.9%
(% personal income)		

Source: State of Vermont "General Obligation Bonds" 2007 Series E

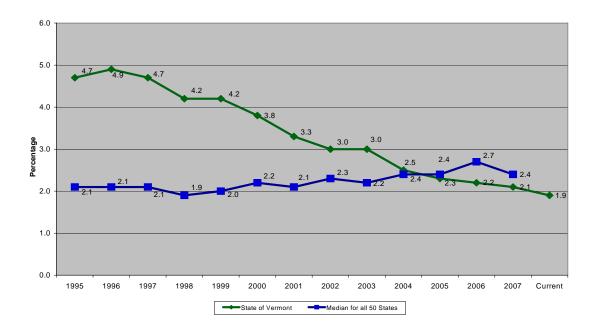
VII. 4. PER CAPITA DEBT COMPARISON: VERMONT VS. NATIONAL MEDIAN



Source: Vermont State Treasurer's Office



VII. 5. VERMONT DEBT COMPARISON: PERCENTAGE OF PERSONAL INCOME



Source: Vermont State Treasurer's Office

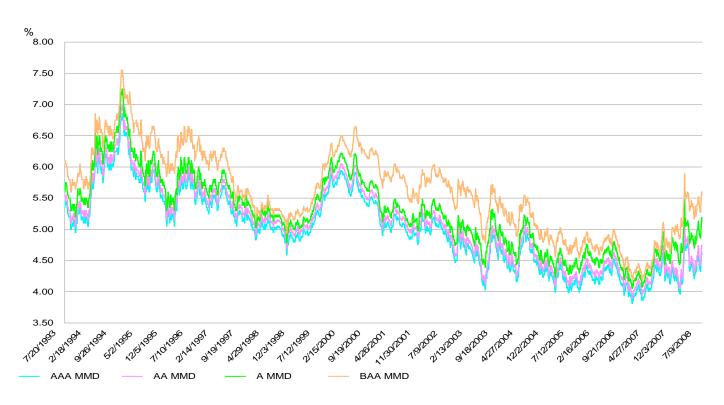
VII. 6. DEBT COMPARISON AMONG OTHER VERMONT INSTITUTIONS

Outstanding bonds &	
notes	6/30/07
University of Vermont	\$325,426,000
Vermont Student	
Assistance Corporation	\$2,016,320,000
Vermont Housing Finance	
Agency	\$719,800,000
State of Vermont	
general obligation, tax	
supported debt	\$438,400,000
Fletcher Allen Healthcare	\$430,555,000

Source: Morgan Stanley



VII. 7. COMPARISON OF TAX-EXEMPT BORROWING RATES



Source: Morgan Stanley

- Interest rates for public debt are still near an historic low point, in spite of recent turmoil in capital markets.
- The rate (cost) difference between AAA and AA rated long term public debt is consistently less than ½%.
- The current AA 20 year borrowing rate of about 4.75% compares favorably to highway construction inflation which has averaged 10.5% over the last four years (see Chart II.3 on page 7).



APPENDIX A. 1.

U.S. highway fund crushed by cutback in driving

As drivers cut back on gas, The Department of Transportation says its Highway Trust Fund will be depleted and needs an \$8 billion emergency infusion.

By Tami Luhby, CNNMoney.com senior writer Last Updated: September 5, 2008: 3:35 PM EDT

NEW YORK (CNNMoney.com) -- An unprecedented decline in driving will deplete the federal Highway Trust Fund by the end of September and prompted the Bush administration on Friday to ask Congress for an \$8 billion emergency infusion.

Gasoline sales are crucial to maintaining the nation's highway infrastructure. About 90% of the fund's total revenues comes from taxes on motor fuels, according to a July report from the Congressional Budget Office.

Without the additional money, the Department of Transportation will not be able to fully reimburse states for their highway investments. Officials are projecting that in September the department will collect \$4.4 billion in funding requests but collect only \$2.7 billion in revenues.

If Congress doesn't act, the department will start reimbursing states on a pro-rated basis as soon as next week, U.S. Transportation Secretary Mary Peters said.

"We can't write checks if we don't have money in the account," Peters said.

Chaos for states

Partial reimbursements would throw state infrastructure projects into chaos, said John Horsley, executive director for the American Association of State Highway and Transportation Officials. States already have many programs underway and are used to submitting receipts daily to the Transportation Department to receive reimbursements for contractors.

"Either the states would have to borrow money to close the gap, divert money from elsewhere or stiff the contractors," Horsley said. "None of it is good. This is the first time in 50 years that we've seen the cash flow get to the point where they can't honor their commitments."

Peters said the Administration favors a bill put forth by Rep. Charles Rangel, D-N.Y., that would transfer \$8 billion from the General Fund to the Highway Trust Fund. The bill passed the House before it recessed for summer break.

Support for this bill is a reversal for the Bush administration, which had threatened to veto the legislation.

The crunch comes as Americans have drastically cut back on their driving amidst record high gas prices. The number of miles driven has dropped by 53.2 billion miles since last November, the first time it has topped 50 billion, officials said.

The 18.4-cent tax per gallon on gas and gas-ethanol blends accounts for two-thirds of the trust fund's revenues. Another quarter comes from the 24.3-cent tax on diesel fuels.

"The less Americans drive, the less gas tax revenue is collected," Peters said.

In 2007, the Highway Trust Fund took in about \$38.8 billion in revenue. It started the 2008 fiscal year last October with a balance of \$8.1 billion but has blown through that cushion as revenue slowed. It expects to start its 2009 fiscal year on Oct. 1 with a zero balance.

Candidates weigh in

The fund has become an election issue since Republican nominee John McCain favored eliminating the 18.4-cent gas tax this summer to alleviate some of the pressure Americans are feeling from the higher gas prices. Critics said this would endanger the trust fund.

Barack Obama, the Democratic nominee, recently proposed an emergency plan that would inject \$25 billion into a Jobs and Growth Fund that would be used, in part, to replenish the Highway Trust Fund.

First Published: September 5, 2008: 1:49 PM EDT

Find this article at:

http://money.cnn.com/2008/09/05/news/economy/highway_trust_fund/index.htm?postversion=2008090515

APPENDIX A. 2.

2008

Bridge closure stings Richmond

By Adam Silverman, Free Press Staff Writer



September 6,

RICHMOND — Business plummeted; commuters scrambled for alternate routes; emergency workers made contingency plans and worried about response times; the school district strained under the weight of added fuel costs; and town officials considered scrapping this weekend's annual rubber-ducky race Friday after the Bridge Street bridge in Richmond was closed.

On the green at the span's north terminus, a few patrons browsed the tents of a farmers market. Friday is usually a big day for merchants, they said, but people were scarce, as they were at businesses throughout town.

"We're just in there by ourselves," said Bridge Street Cafe owner Marvin Carpenter. "This town thrives on people. If this bridge is closed for a long time, I think it would have a very detrimental effect on our town."

Added Ben Bush, owner of On The Rise Bakery, "The village isn't on one side or the other of this bridge; it's really on both."

Transportation Agency inspectors closed the 232-foot truss bridge Thursday after an examination the day before found deteriorating steel support beams under the structure. The span, built over the Winooski River in 1928 after destructive floods, had worsened to a point two years ago that traffic was reduced from two lanes to one, but the bridge had remained passable until this week.

The bridge must be repaired rather than replaced because of a federal historic designation, Richmond Selectboard Chairwoman Mary Houle said. Town officials said they hope a contractor can evaluate the structure and complete repairs within a matter of weeks, but the timeframe and cost of an eventual fix was little more than speculation.

"What we hope right now is to at least return the bridge to one lane." Houle said.

Under the bridge, steel support beams are pockmarked with rust-chewed holes. Some sections have crumbled away entirely, leaving gouges like giant bites ripped from the metal.

About 6,000 vehicles cross the bridge each day, said Erik Filkorn, a Selectboard member who helps handle bridge issues in town. The shortest way around is through Jonesville on U.S. 2 and Cochran Road, a trip of about 7½ miles and 15 minutes. The detour causes delays and adds mileage at a time when fuel prices remain steep, affecting school buses and budgets — and emergency services in addition to shoppers, business owners and commuters.

Buses from the Chittenden East Supervisory Union made 17 passes each weekday across the bridge, and the closure is adding \$300 a day in gasoline and staff costs, Superintendent Jim Massingham said. Can the district absorb the increase? "Oh, gosh, no," he said. "We're already in a deep hole."

Some students at Richmond Elementary or Camels Hump Middle schools spend an hour on the bus; now they're taking rides of up to 90 minutes, Massingham said.

The length of the detour is of especial concern to fire and rescue personnel. The fire department Friday moved one truck from its station on the north side of the bridge to the town garage on the south side, but crews still might need extra time to reach the vehicles before they can race to an emergency, Fire Chief Tom Levesque said.

He said members of the public are "as safe as they can be, but we can't say the equipment that's over there on the south side of the bridge is going to be available in a timely basis, which is the problem."

Federal authorities are likely to shoulder 80 percent of the cost of repairs, with the town and state covering the remainder, Transportation Agency spokesman John Zicconi said. The bridge had not been scheduled for replacement, but the agency was monitoring the structure with frequent inspections, Zicconi said.

A walkway on the west side of the bridge remains open to pedestrians and bicycles, but only a few at a time, Filkorn said. Accordingly, he said, Sunday's planned duck race, a fundraiser for the Richmond Teen Center, has become potentially too risky as spectators often crowd onto the bridge to watch the excitement below.