Vermont in Transition:

A Summary of Social Economic and Environmental Trends

A study by

Center for Social Science Research at Saint Michael's College

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for the

Council on the Future of Vermont

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Chapter 9: PHYSICAL AND ELECTRONIC INFRASTRUCTURE

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Chapter 9:
PHYSICAL and ELECTRONIC INFRASTRUCTURE

No society can flourish without a well functioning infrastructure. Over many years, the public and private sectors have worked in concert to construct an interdependent network of roads, bridges, public transit, telecommunication systems, and airports to transport people and commercial goods. More recently, an information highway is performing a similar function electronically. Trends in each of these areas provide the focus of this chapter.[1]

The introduction of the interstate highway system in the 1960s, which added 320 miles of four lane highways running the length of the state, may very well have been the most important engine for economic development in the last century in Vermont.[2, 3] Along with supporting Vermont's commercial needs, the interstate highway system also made life more convenient and safe for its citizens. In total, there are 14,413 miles of road in Vermont; 2,708 are state highways and 11,399 are town, city or village highways. There are 2,688 bridges greater than 20 feet in length. Besides state workers, there are road crews and departments of public works in 253 towns, cities and villages dedicated to the maintenance of this complex infrastructure. The 2007 State transportation budget of $430,000,000, including the Department of Motor Vehicles, is highly dependent on federal funding (about 51%).[4]

A well-developed electronic communications infrastructure, which includes a statewide network of cell phone and broadband technology, is as important to the future of Vermont as was the development of the interstate highway system. Both technologies have reduced the "distance" which has limited Vermont's access to markets outside the state. Family, friends and the world are no longer quite so far away. With the rise of the Internet and a statewide wireless network, Vermont's rural setting, a strong underpinning for quality of life, will become far less of an economic disadvantage.

Trends in Vermont's Infrastructure

Trend number 1: *Over the past several decades, the miles driven and number of cars registered in Vermont have increased. Air travel at the state's largest airport has increased dramatically, while bus travel in-state and train service have increased at more moderate rates.*

The increase in miles driven, commuting time and their impact on energy use by Vermonters is well documented in Chapter 10, Energy. Another approach to tracking automobile use is to examine the average daily traffic volume recorded by the state's automatic traffic recorder stations. The data reveals a sharp and sustained increase in traffic in Chittenden County since the 1960s, while other areas depicted in the chart below (many of which are at the state's gateways) have also seen a sizable increase in traffic through the mid 1990s, but since then, increases in traffic volume have leveled off.[5]

[1] Other aspects of infrastructure, for example power generation and transmission (Chapter 10), wastewater and solid waste disposal (Chapter 2), banking and insurance (Chapter 4) and education (Chapter 11) are discussed elsewhere in the text. In many ways, Vermont's social and political networks and its government structures (Chapter 14) should also be understood as part of the state's infrastructure.

[2] The interstate highway system, which accounts for four percent of all roads, carries 21% of all traffic. National Transportation Research Group, *Key facts about Vermont's Interstate Highway System.*

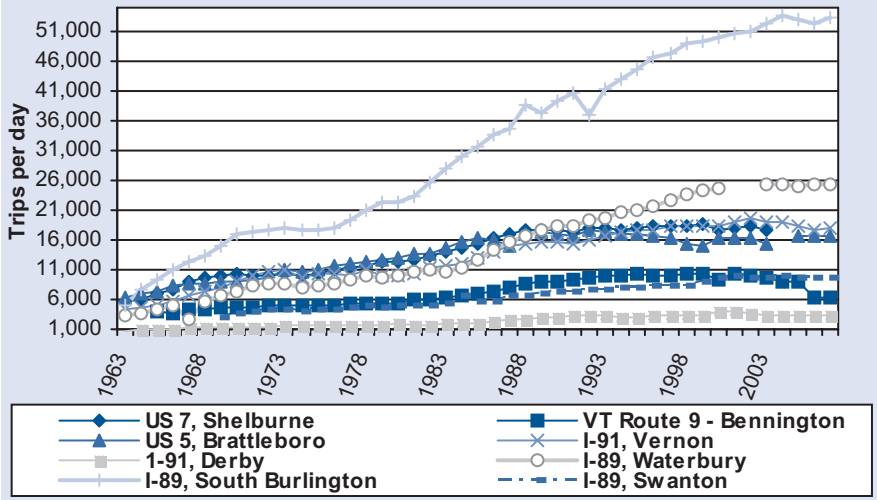
[3] It was with the construction of the Dwight D. Eisenhower interstate highway system that Vermont's per capita income began to converge with the higher U.S. per capita income.

[4] The Road to Affordability, 2007, aot.state.vt.us/Documents/RoadtoAffordability.Briefing.pdf

[5] State of Vermont, Policy and Planning Division, courtesy John Blodgett.

The increase in the number of drivers and road usage has been accomplished with an impressive drop in vehicular per capita death rates (see Appendix, chart 9-1). Part of the reason for the decline undoubtedly can be traced to safer vehicles, wider use of seatbelts (see Appendix, 9-2), and stricter enforcement of speed limits.

Average Daily Traffic Volume
Vermont
1963 to 2007

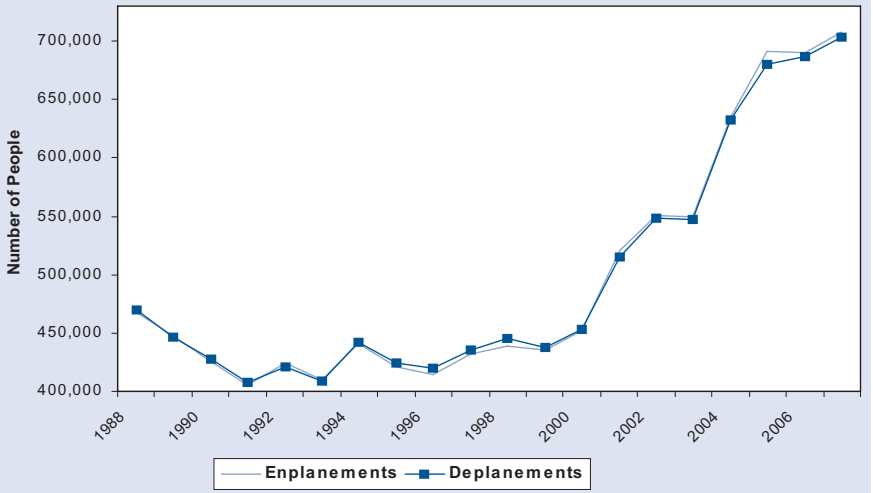


Source: Vermont Policy and Planning Division, internal documents, courtesy John W. Blodgett

Vermont's small population and relatively small land area have earned the state the rank of dead last in the number of urban roadways in the U.S.[6] The fraction of Vermont commuters who use public transportation is quite low—just .8% compared to the national average of 4.8%. Other states are lower still, so Vermont ranks 38th lowest. Vermont has 12 bus companies spread throughout the state, with the Chittenden County Transportation Authority (CCTA) and the Green Mountain Transit Agency (GMTA) being the largest, both of which are public companies. If we can generalize from these providers, the use of public transportation in the state has increased significantly in recent years. For example, between 2004 to 2007, ridership on CCTA's buses increased from 1,799,699 passengers to 2,129,751, an 18% rise. In the case of GMTA, the increase was from 176,935 to 243,244, a four-year jump of 37%.[7] The other bus companies within the state provided service for 1,282,882 passengers in FY 2005.[8]

Vermont has 62 airports, the largest of which is the Burlington International Airport. As can be seen in the charts contained in the Appendix (charts 9-3 and 9-4), 31% of air traffic at Burlington is from air taxis, but 25% is general passenger usage in the form of larger planes carrying the bulk of passengers. Military and commercial flights comprise another 20% of all flights in and out of Burlington.[9] After a period of relative stability, activity at the Burlington International Airport has increased substantially since the turn of the decade.

Enplanements and Deplanements
Burlington International Airport
1988 to 2007



Source: Burlington International Airport, courtesy Lisa Santour.

[6] O'Leary, Kathleen and Scott Morgan, CQ's State Fact Finder Series: State Rankings, 2008: A Statistical View of America,

[7] University of Vermont Transportation Research Center, courtesy Karen Glitman.

[8] Data provided by the Vermont Agency on Transportation.

[9] The types of air use at other Vermont public airports is shown in a series of charts in the appendix.

In contrast to local bus and air service, two other sources of public transportation, interstate bus ridership and train travel, have either declined or grown slowly over the last few years (in both cases, data was only available since 2003). Greyhound service, both intrastate and interstate, in Vermont has declined moderately since 2003 (see Appendix, 9-5). Amtrak recorded 72,822 passengers in 2007, up by just over 2,300 passengers since 2003 (see Appendix, 9-6).

Of the 749 miles of railroad tracks in Vermont, 453 miles are state owned and 296 miles are privately owned. According to an analysis conducted by Gleason, Bruno, Tantri and Tyree at Middlebury College, the Vermont rail system is running at only 25% of full capacity.[10] Upgrading the deficient railroad bridges and highway overpasses are a major challenge; most do not accommodate the current national 286,000-pound railcar standard.

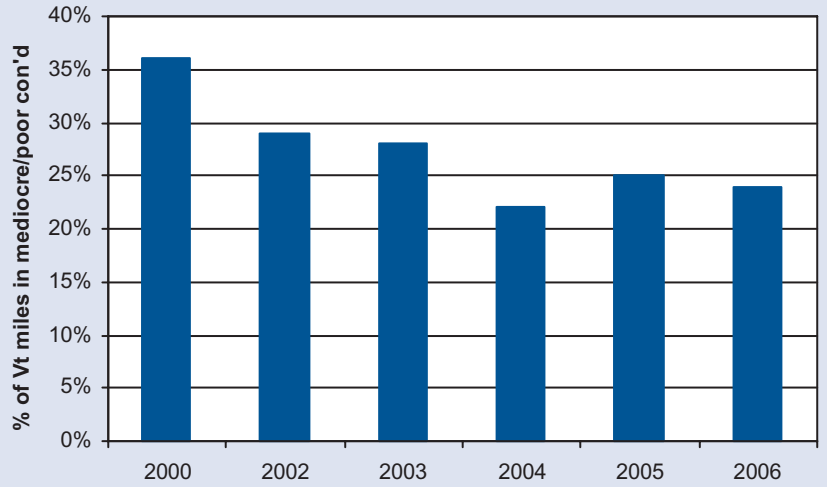
Trend number 2: *While the proportion of Vermont roads in need of repair is higher than the national average, proportions in "mediocre or poor condition" have declined in recent years.*

Like all things physical, transportation infrastructure deteriorates slowly over time, but the rate of deterioration accelerates if steps are not taken to address it. The occasional bridge collapse or the closing of roads and bridges remind us of the vulnerability of our transportation system when maintenance is deferred. New construction is costly, and implementing ongoing maintenance is necessary to protect the initial investment and prolong the life of physical infrastructure. Because deterioration is imperceptible in the beginning, succumbing to the temptation to defer scheduled maintenance is not an uncommon choice.

Deterioration of physical infrastructure in Vermont is exacerbated by the continuing freeze/thaw cycle of the climate that wreaks havoc on pavements and the serviceability of bridges. To make matters worse, Vermont's relatively short construction season means getting necessary work completed in about a 6-month window. Virginia, by comparison, has a ten-month construction season. In addition, New England states have some of the oldest roads in the country, often built on unstable clay or shale.

In spite of the increased public concern about the quality of Vermont's roads, the conditions, according to the "International Roughness Index" of the Federal Highway Administration, has been improving slowly in recent years. However, the report also warns that a more comprehensive measure of road condition would require other measures as well.[11] This federal report presents data showing that in 2006, about 25% of the miles of Vermont roads were in "mediocre or poor condition," down from about 35% in 2000, but significantly worse than the U.S. average of 17%. The goal of course, is 0%. Georgia had a mere 1% in such condition, but New Jersey had roads in the highest state of disrepair—50%.[12]

Vermont Road Conditions
Percent of Miles of Vermont Roadways in "Mediocre or Poor Condition" 2000 to 2006



Source: U.S. Bureau of transportation Statistics, Research and Innovative Technology Administration, various annual reports.
http://www.bts.gov/publications/state_transportation_statistics/state_transportation_statistics_2007/
Note: Based on the "International Roughness Index" of approximately 3,865 miles of both urban and rural roads that states are required to report to the Federal Highway Administration. Footnote indicates that "a comprehensive measure of road condition would require other distresses as well." 2001 NA

[10] Vermont Rail Advocacy Network, "An Analysis of Externality Costs of Freight Transportation in Vermont, 2005" http://www.lifecyclesproject.ca/initiatives/food_miles2/downloads/MiddleburyCollegeStudy2005.pdf

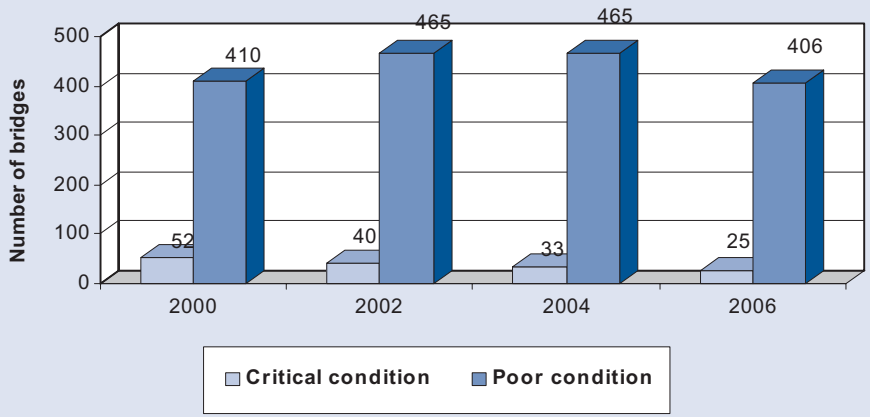
[11] U.S. Bureau of transportation Statistics, Research and Innovative Technology Administration, various annual reports. http://www.bts.gov/publications/state_transportation_statistics/state_transportation_statistics_2007/

[12] O'Leary, Kathleen and Scott Morgan, CQ's State Fact Finder Series: State Rankings, 2008: A Statistical View of America,

Trend number 3: *Deferred bridge maintenance has resulted in high and fairly steady proportions of bridges in "critical" and "poor" condition.*

The great Vermont flood of 1927 resulted in a flurry of bridge replacement and rebuilding for the decade that followed. A second phase of rapid bridge construction occurred in the 1960s and 1970s during the building of the interstate highway system (see Appendix, 9-7 and 9-8). This natural aging coupled with increased use has created a situation of concern. According to the Vermont Agency of Transportation, "Decades of deferred maintenance has pushed structure needs above annual funding levels."[13] Delay in bridge or culvert maintenance can increase a project's cost by ten-fold, and delay in road maintenance can increase costs five-fold.

Number of Vermont Bridges Rated as "Critical" or "Poor" (Not included: Ratings of "Fair and Good") 2000 to 2006



Source: Vermont Agency of Transportation, Program Development—Structures Section, Annual Report, 2008, p.10.
Note: The total 431 of "critical" and "poor" bridges for 2006 (25+406) represents 16% of the 2,688 bridges rated that year (1387 were rated as "fair" and 870 were rated as "good." Proportions for other years are similar. See Appendix for full ratings.

[13] Vermont Agency of Transportation, Program Development—Structures Section, Annual Report, 2008, page 3.

The previous chart reveals that about 431 bridges in Vermont (2006) were either in "critical" or "poor" condition; this represents 16% of the 2,688 bridges rated that year; another 1,387 were rated as "fair" and 870 were rated as "good." Percentages for other years are similar. While the trend seems quite steady from year to year, bridges that were rated as being in "poor" condition in 2000 have hardly improved with time. The number of bridges closed has been fairly steady (in the range of 12 to 20) most of which are locally, not state owned (see Appendix, 9-9.)

The U.S. Bureau of Transportation Statistics employs a different system of rating that classifies bridges, and their two lowest ratings are "structurally deficient" or "functionally obsolete."[14] The Vermont Agency of Transportation questions the value of this taxonomy, but it does allow for some rough comparison between states. According to this system, about 35% of Vermont's bridges are either "structurally deficient" or "functionally obsolete" (967 of 2,690) exactly 10% higher than the national average of 25%. That many other states have worse proportions (e.g., Rhode Island is at 53%) is of little comfort. The proportions in Vermont are diminishing, however, from 42% in 1995 to 35% in 2007, and the ratings in the index of the National Bridge Inventory is improving slightly (see Appendix, 9-10 through 9-12). The proportion of bridges in Vermont that are rated as "deficient" is approximately equal to the proportion that are rated as "obsolete."

Trend number 4: *Deteriorating revenue and increases in the cost of materials associated with road, bridge and culvert maintenance over the last few years have combined to create major challenges for Vermont to maintain its transportation infrastructure.*[15]

According to data collected and analyzed by the American Road and Transportation Builders Association, material costs increased nearly 46 percent from 2003 through 2007. The Legislative Joint Fiscal Office analysis states that construction cost inflation during the period between

[14] Vermont's treasured covered bridges surely fall into the latter category.

[15] Adapted from *Election 2008: Vermont League of Cities and Towns Issue Paper No. 1: Transportation* (vlct.org)

2001 and 2006 averaged 9 percent each year, maxing out at 20 percent in 2005 and 2006. The State Transportation Fund revenue sources have grown only 2 percent since 2001, and between 2003 and 2008, local highway aid programs grew an average of 2.6 percent annually. The Transportation Fund ended $3.1 million short of its FY08 revenue projections.[16] For further details on Transportation expenditures from 1991 to 2007, see chart 9-13 in the Appendix, courtesy of the University of Vermont Transportation Research Center.

Vermont's transportation revenue comes from four major sources: fuel taxes, motor vehicle fees, a portion of the purchase and use tax, and federal highway aid (most of which comes from the National Highway Trust Fund.) Nearly all of these sources have suffered in recent years. The recent increase in the cost of gas (see Appendix, 9-14) has reduced driving, and as a consequence, revenue for the Transportation Fund. The same is true of the purchase and use tax, as consumers make fewer vehicle purchases. And when consumers do buy cars, they are acquiring high fuel economy automobiles.[17] The National Highway Trust Fund – the source of nearly all federal highway aid – started the decade with a surplus, but is now struggling for resources as well.

Vermont's aging transportation infrastructure demands greater and more costly attention than in the past. Many roads have reached a condition that can no longer be effectively treated with low cost preventive maintenance treatments and requires a significant investment in order to preserve the pavement structure, yet the state funded district leveling program is only designed to address a "worst tolerable condition."[18]

[16] VT League of Cities and Towns, LCT Issue paper No. 1 - Transportation, pp 2, (vlct.org/d/advocacy/issue_paper_1_trans.pdf)

[17] The number of new vehicles purchased in Vermont fell from 42,320 in 2004 to 37,079 in 2007. Source: University of Vermont Transportation Research Center, courtesy RL Polk, February, 2008.

[18] The following statement derives from an Agency of Transportation report: "If we do not act to preserve and maintain our bridges, culverts and roads today, we will have no money for large projects in the future because all of our transportation money will be spent on replacing existing infrastructure that we failed to fix today…The Agency of Transportation has $1.5 billion in highway, bridge, and culvert projects already identified and under development. At our current pace of spending $60 million annually on roadway projects and $50 billion annually on structures like bridges and culverts, it will take about 15 years to complete everything on our books." Vermont Agency of Transportation, "The Road to Affordability Q & A, 2007"

Trend number 5: *As is the case in the rest of the country, the expansion in information and communication technology has been rapid and extensive, although many parts of the state are still underserved, and providing services to this group will be more expensive.*

As noted earlier, a well-developed electronic communications infrastructure is as important for the future of Vermont as was the development of the interstate highway system. The rise of broadband communication and wireless services has made geography less important, especially the extent to which commercial and organizational procedures are becoming digitalized. The state is replete with examples of small and large enterprises that have benefited greatly from access to wider markets and audiences. Yet there are still many parts of the state where coverage is spotty or nonexistent.

Like the rest of the country, Vermonters are changing the way they communicate, acquire information and news, and conduct personal and commercial business. Very few technologies have managed to so permeate life in Vermont as quickly and as profoundly as has the rapid spread of the Internet. According to estimates from the Pew/Internet and American Life Project, fewer than five percent of Americans had a broadband connection at home in 2000, but current estimates now report that 72% of home Internet users have broadband (2007).[19] A more recent Pew survey found that of all Americans (not just those with Internet connections), the broadband adoption had jumped from 47% in March of 2007 to 55% in April, 2008.[20] Yet another survey found that in 1995, only 5% of adults were Internet uses, but by 2006, the number had risen to 70%.[21] The proportion of dial-up Internet users is dropping roughly in proportion to the rate of adoption of high-speed connections.

According to the Vermont Department of Public Service, "…the growth in high-speed computer access has kept pace with national trends and

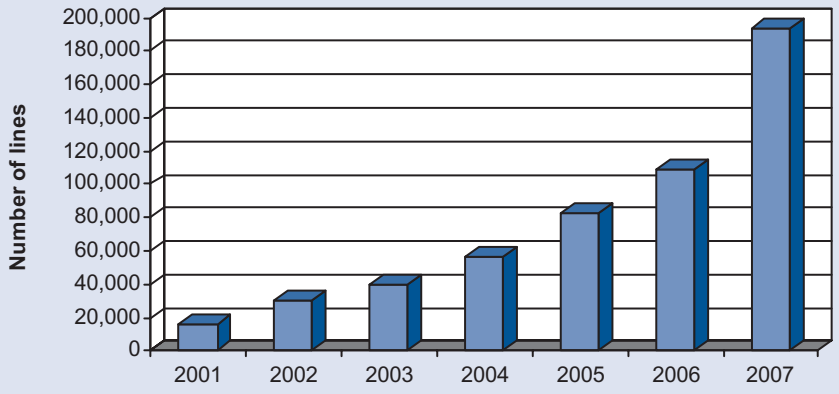
[19] Vermont Department of Public Service, "Understanding Broadband Deployment in Vermont" February, 2007, page 8.

[20] Pew/Internet and American Life Project, "Home Broadband Adoption 2008"

[21] U.S. Bureau of the census, Statistical Abstracts of the U.S., 2008.

does not appear likely to slow."[22] Almost 90% of Vermonters have access to at least one mass-market broadband service, although rural areas are most difficult to serve. Among the counties, Essex had the lowest rate of access, while Chittenden and Grand Isle had the highest rates. Access, however, is different from actually having the connection, and estimates of connectivity vary considerably. In June of 2007, Vermont had 193,151 high speed lines, up from 16,230 in June of 2001 (see chart below).

**High Speed Internet Lines in Vermont*
June, 2001 to June, 2007**



Source: Federal Communication Commission, Industry Analysis and technology Division, Wireless Competition Bureau, March, 2008, "High-Speed Services for Internet Access: Status as of June, 2007."
*Over 200 kbps in at least one direction.

If Vermont is consistent with national trends, then rates of usage drop from youth to old age. They also drop from those with the highest education to those with the least education, and from those with the highest incomes to those with the lowest incomes. Finally, rural areas are the most underserved part of any state, each contributing to the ongoing problem of the "digital divide."[23] Other notable national trends in the utilization of electronic media are surely manifest in Vermont as well. Some notable *national* trends in household access: wired cable television, up from 20% in 1980 to 68% in 2005; VCRs are up from 1% in 1980 to 90% in 2005; the average number of televisions per household are up from 1.7 in 1980 to 2.6 in 2005; and the number of cell phone subscribers has risen from 5,283,000 in 1990 to 233,041,000 in 2006.[24]

The percent of Vermont's population with telephone service ranks within the top ten states in the nation; perhaps even more impressive, according to the Vermont Public Service Department, is that telephone penetration among low incomes households is the highest in the country, at 97%, only half a percentage point behind all households.[25]

Cell phone subscriptions in Vermont have risen substantially just within the last few years. In July of 2005, 295,971 people in Vermont had cell phone services—nearly half the state's population. By December of 2007, 358,052 Vermonters had cell phones, or 57% of the public. While the increase in usage has been high, the percentages are far under national rates of 84% coverage.[26] According to officials at the Vermont Telecom Authority, approximately one half of the land area in Vermont now has cell phone coverage, although the percent of the population covered is considerably higher.[27] The private sector has cell towers located in nearly all areas of the state that appear to be economically viable from their perspective. The additional cell towers required to achieve the goal of universal access will become increasingly expensive to install because of the small populations and the remoteness of the areas not currently covered. The Vermont Telecom Authority is considering ways to achieve the goal of universal coverage either through public expenditures or public-private partnerships.

[22] Vermont Department of Public Service, "Understanding Broadband Deployment in Vermont" February, 2007.
[23] Pew/Internet and American Life Project, "Home Broadband Adoption 2008"
[24] U.S. Bureau of the census, Statistical Abstracts of the U.S., 2008.
[25] The numbers cited by the Vermont Public Service Department are higher then the rate of 95% (of all households) reported by the U.S. Bureau of Census in the 2008 *Statistical Abstracts of the U.S.*
[26] Data supplied by the Vermont Public Service Department.
[27] The Vermont Telecom Authority is a public authority established by ACT 78 with the ambitious goal ensuring that all households and businesses have access to affordable broadband and mobile telecommunications services in all regions of the state by 2010.

In summary, the following are the most notable trends dominating the transportation and electronic communication infrastructure:

1. Over the past several decades, the miles driven and number of cars registered in Vermont have increased. Air travel at the state's largest airport has increased dramatically, while bus travel in-state and train service have increased at more moderate rates.
2. While the proportion of Vermont roads in need of repair is higher than the national average, proportions in "mediocre or poor condition" have declined in recent years.
3. Deferred bridge maintenance has resulted in high and fairly steady proportions of bridges in "critical" and "poor" condition.
4. Deteriorating revenue and increases in the cost of materials associated with road, bridge and culvert maintenance over the last few years have combined to create major challenges for Vermont to maintain its transportation infrastructure.
5. As is the case in the rest of the country, the expansion in information and communication technology has been rapid and extensive, although many parts of the state are still underserved, and providing services to this group will be more expensive.

For the appendices and for pdf versions of this report, please visit the Council on the Future of Vermont's website; www.futureofvermont.org or visit Vermont Council on Rural Development at www.vtrural.org.

The Appendix for this chapter contains the following charts:

1. Motor Vehicle Accident Death Rates, Vermont and United States, 1982-2004
2. Percent of Population Using Seatbelts, Vermont and United States, 1985-2007
3. Burlington International Airport Operational Statistics, Daily Aircraft Operations, Burlington, VT.
4. Edward F Knapp State Airport Operational Statistics, Daily Aircraft Operations, Barre-Montpelier, VT
5. Interstate and Intrastate Greyhound Bus Travel in Vermont, 2003 to 2008
6. Total Number of Passengers Boarding and Detraining, All of Vermont Amtrak Stations, 2003-2007
7. Age of Long Bridge Structures, Vermont, Pre-1900 to Present
8. Age of Short Bridge Structures, Vermont, Pre-1900 to Present
9. Number of Closed Bridges in Vermont, 1997-2007
10. Percent of Vermont Road Bridges, Classified as "Structurally Deficient or Functionally Obsolete," 1995-2007
11. Averaged National Bridge Inventory Conditions Ratings (All Bridges), Vermont, 2000-2006
12. Lowest Rated Component (All Bridges), Vermont, 2000-2006
13. Selected Transportation Expenditures in Vermont, Millions of Dollars, 1991, 2002, 2007
14. Weekly Retail Gasoline Prices, United States, April 1993-April 2008

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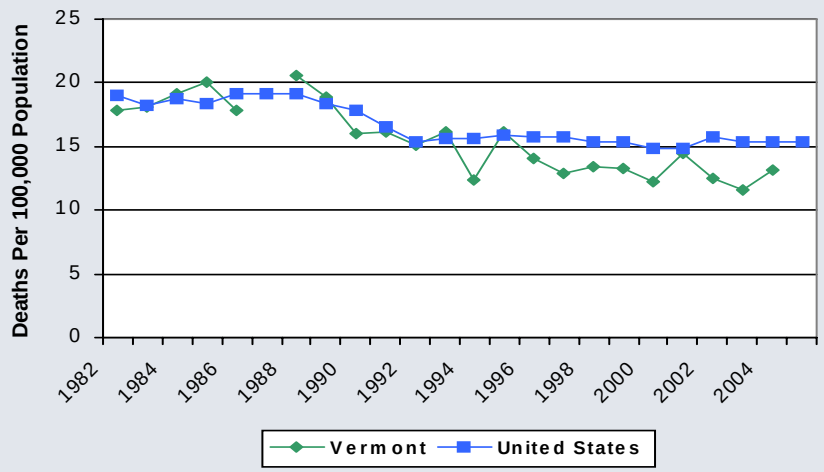
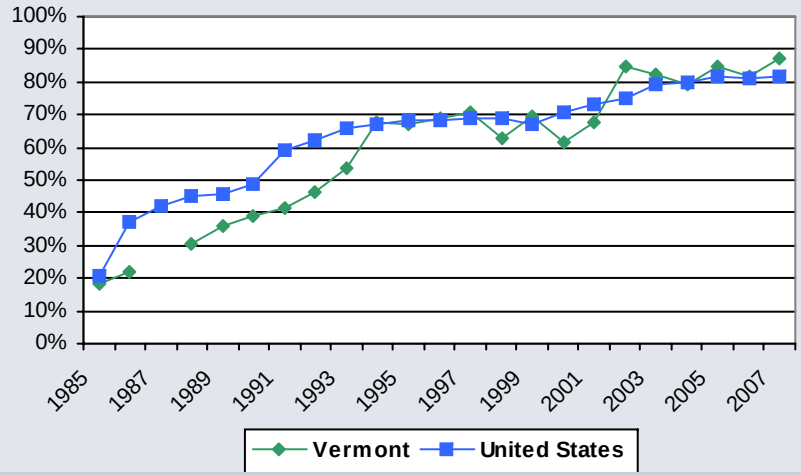
Chart 9-1
Motor Vehicle Accident Death Rates
Vermont and United States, 1982 to 2004



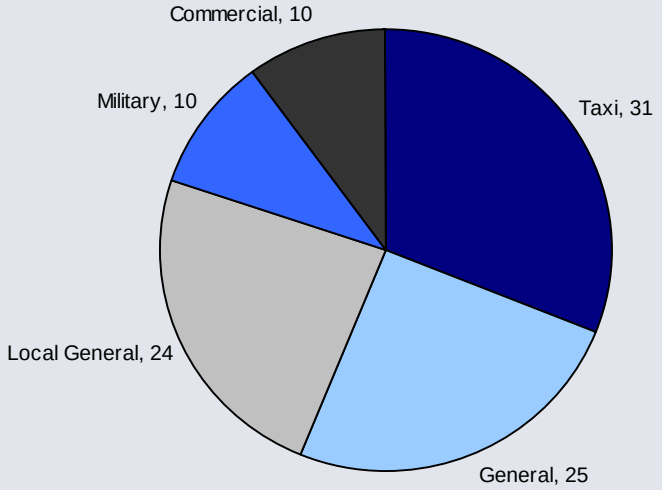
Source: Bureau of the Census, "Statistical Abstract of the United States," various years; Vermont Department of Health, "Vermont Vital Statistics," various years; "Datapedia of the United States: American History in Numbers," (2004), George Thomas Kurian

Chart 9-2
Percent of Population Using Seatbelts
Vermont and United States
1985 to 2007



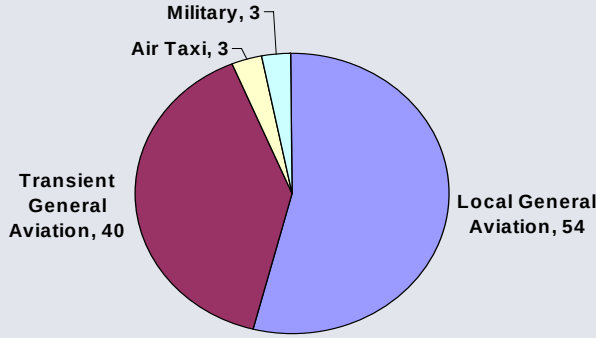
Source: Vermont Department of Public Safety, Governor's Highway Safety, courtesy Steve Reckers*Note: A change in method of data collection partially explains the drop in 1998.

Chart 9-3: Burlington International Airport Operational Statistics, Daily Aircraft Operations
Burlington, Vermont



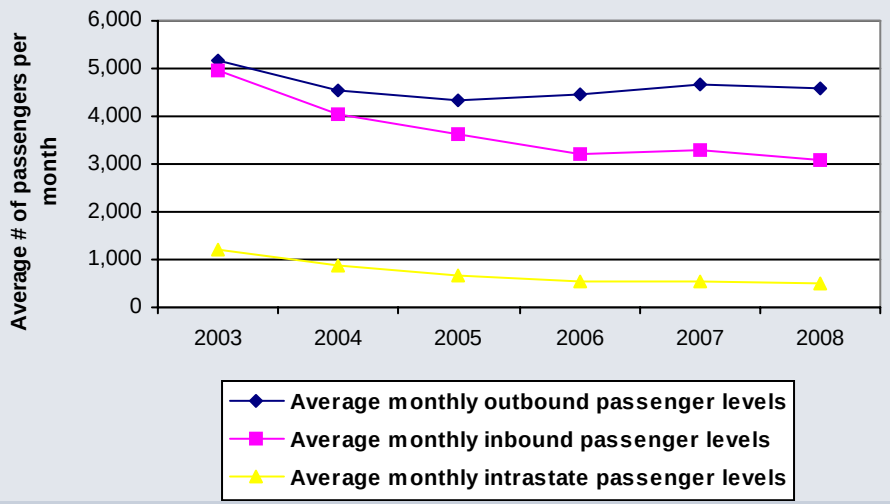
Source: AIRNAV.com, Burlington International Airport http://www.airnav.com/airport/KBTV

Chart 9-4: Edward F Knapp State Airport Operational Statistics, Daily Aircraft Operations
Barre and Montpelier, Vermont
2007



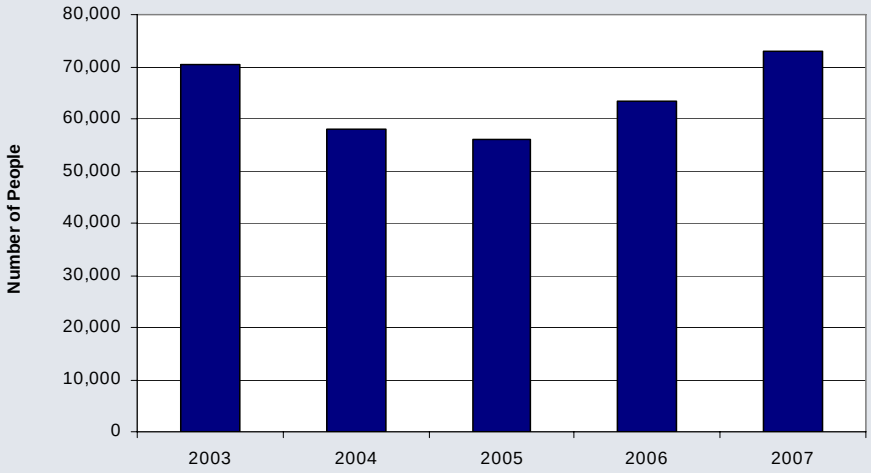
Source: AIRNAV.com, Burlington International Airport http://www.airnav.com/airport/KBTV

Chart 9-5: Interstate and Intrastate Greyhound Bus Travel in Vermont 2003 to 2008*



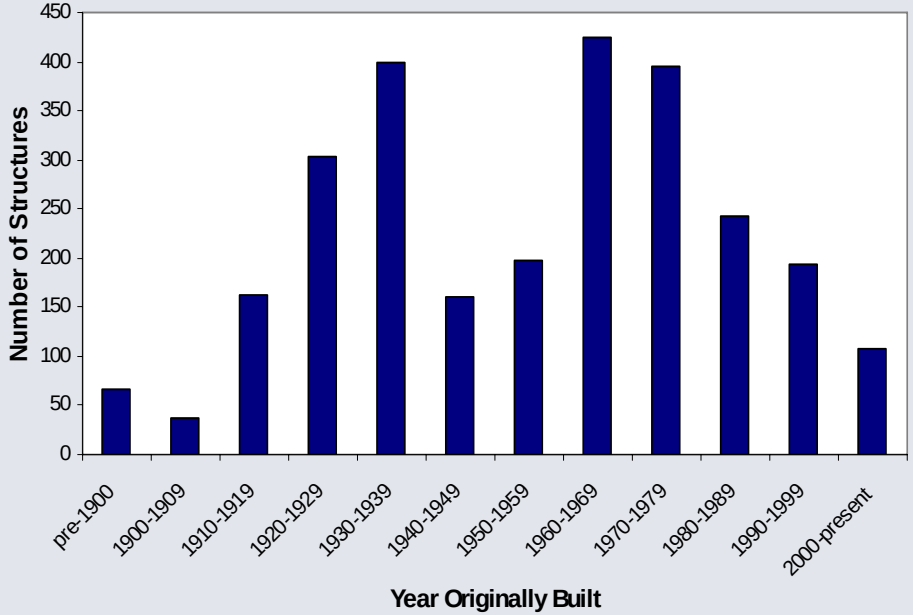
Source: Greyhound Corporation.
* Intrastate travelers are included in both outbound and inbound passenger levels.
* Ridership levels are calculated for only four months in 2003 and nine months in 2008.

Chart 9-6: Total Number of Passengers Boarding and Detraining, All of Vermont Amtrak Stations 2003 to 2007



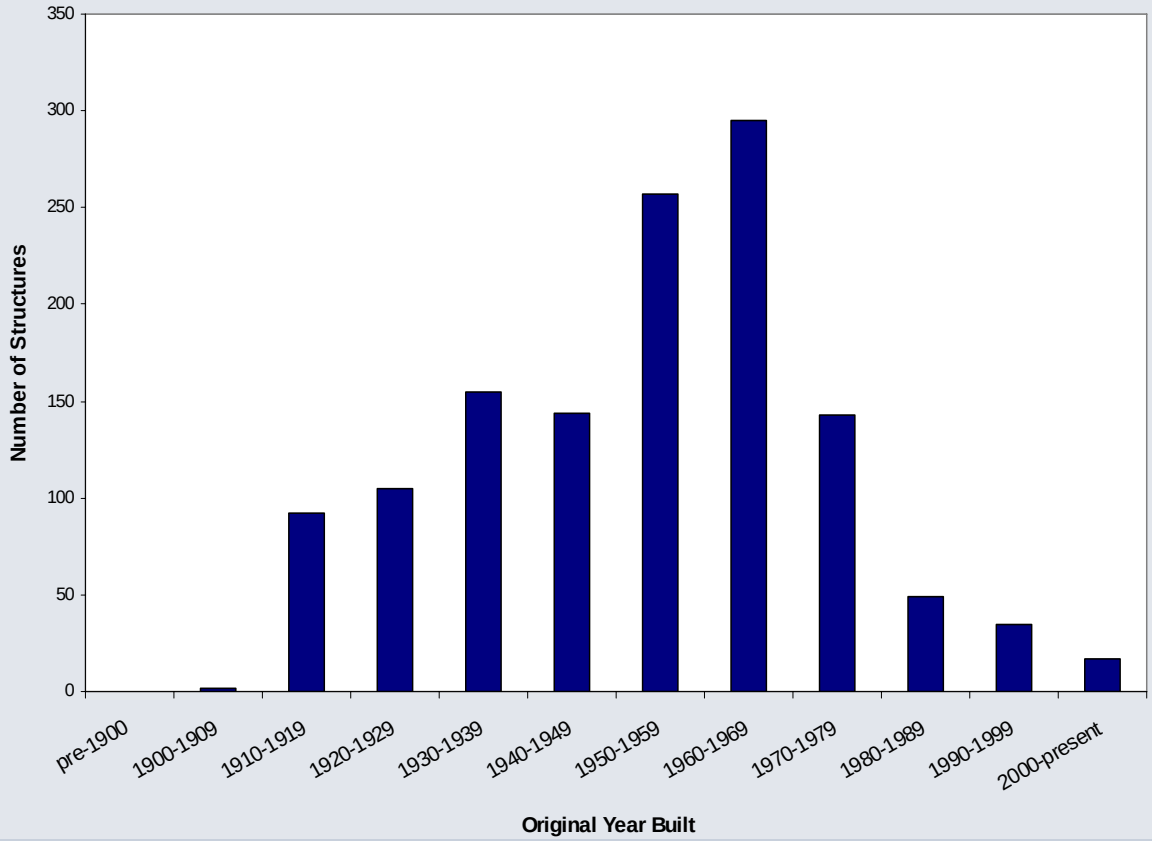
Source: National Association of Railroad Passengers, http://www.narprail.org/cms/images/uploads/fact_sheets_all06.pdf (p847)

Chart 9-7 Age of Long Bridge Structures in Vermont Pre-1900 to Present



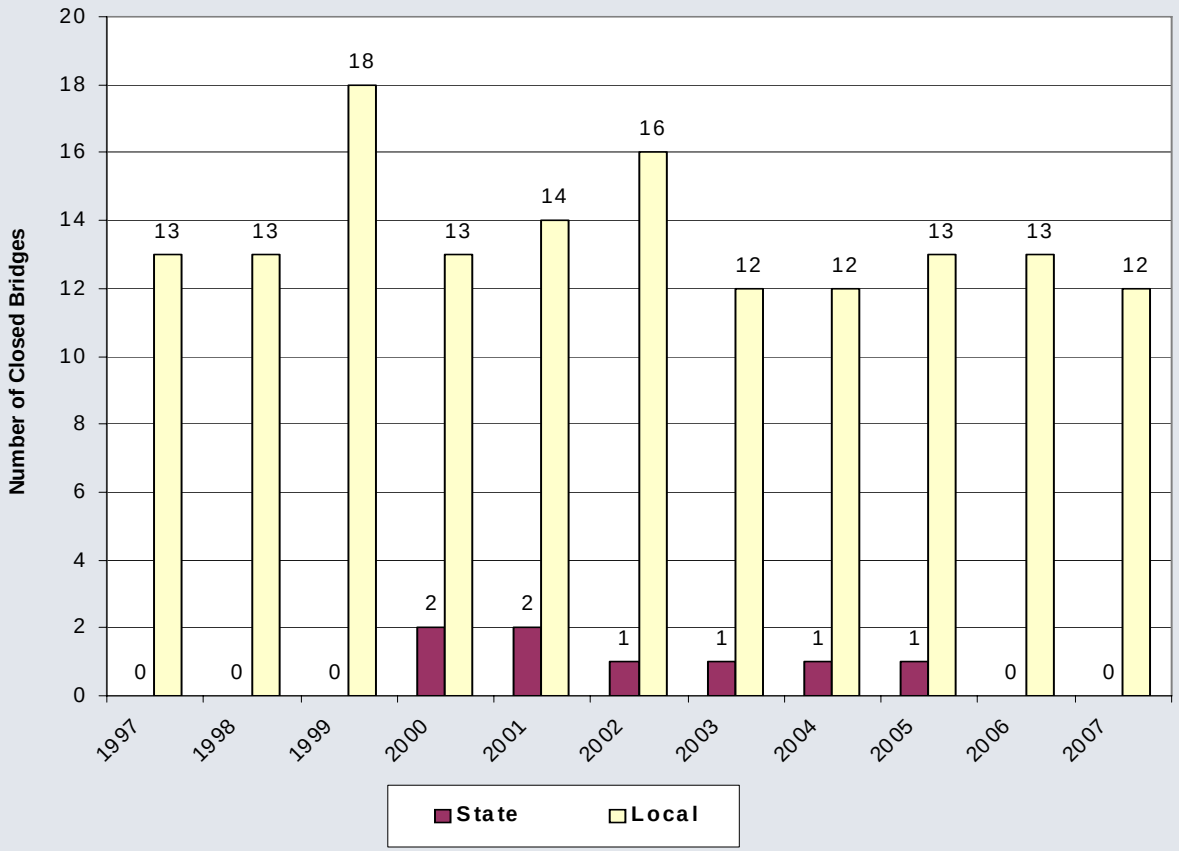
Source: Vermont Agency of Transportation, Program Development-Structures Section, Annual Report, 2008, page 5.
Note: Long Structures span more than 20 feet. Also, the peaks of building represent construction after a flood in 1927 and the interstate era (approximately 1958 to 1978).

Chart 9-8
Age of Short Bridge Structures in Vermont
Pre-1900 to Present



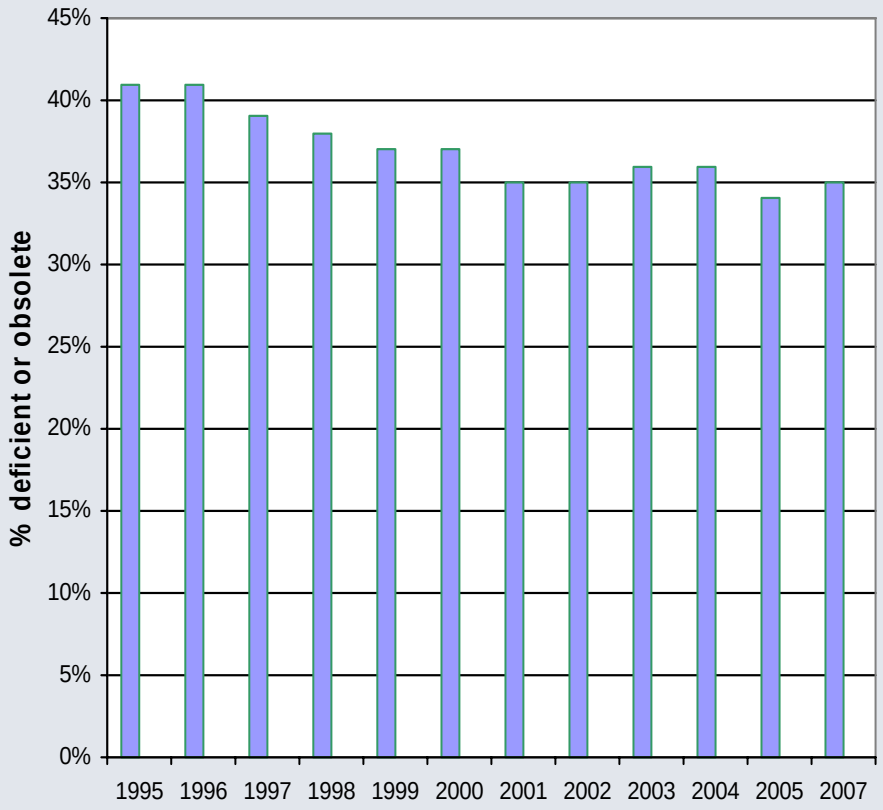
Source: Vt Agency of Transportation, Program Development—Structures Section, Annual Report, 2008.
* Note: Short bridges span more than 6 ft, but are not designated as 'long'.

Chart 9-9
Number of Closed Bridges in Vermont
1997 to 2007



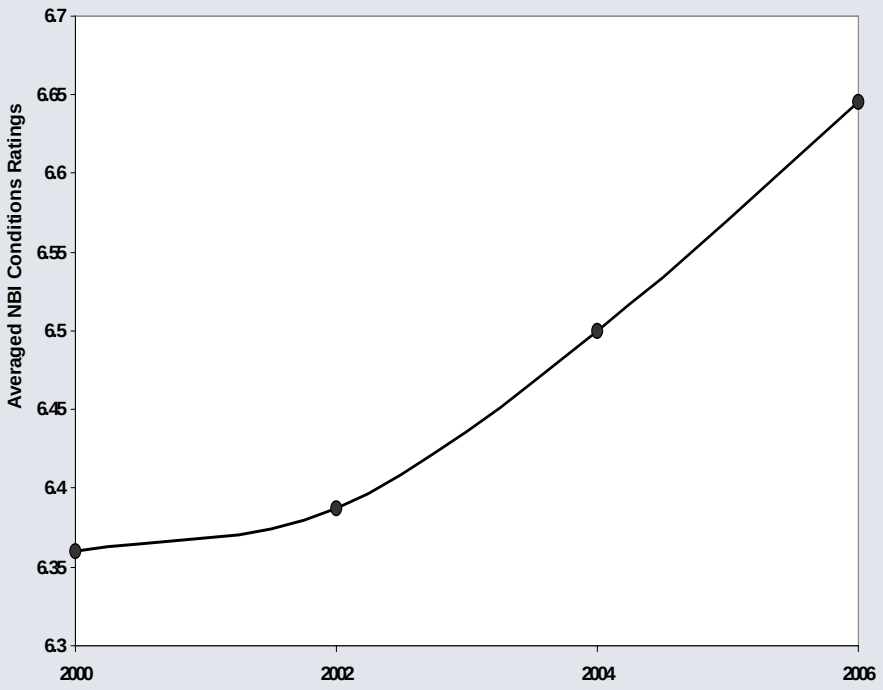
Source: Vermont Agency of Transportation, Program Development—Structures Section, Annual Report, 2008, page 11.

Chart 9-10
Percent of Vermont Road Bridges Classified as "Structurally Deficient or Functionally Obsolete", 1995 to 2007



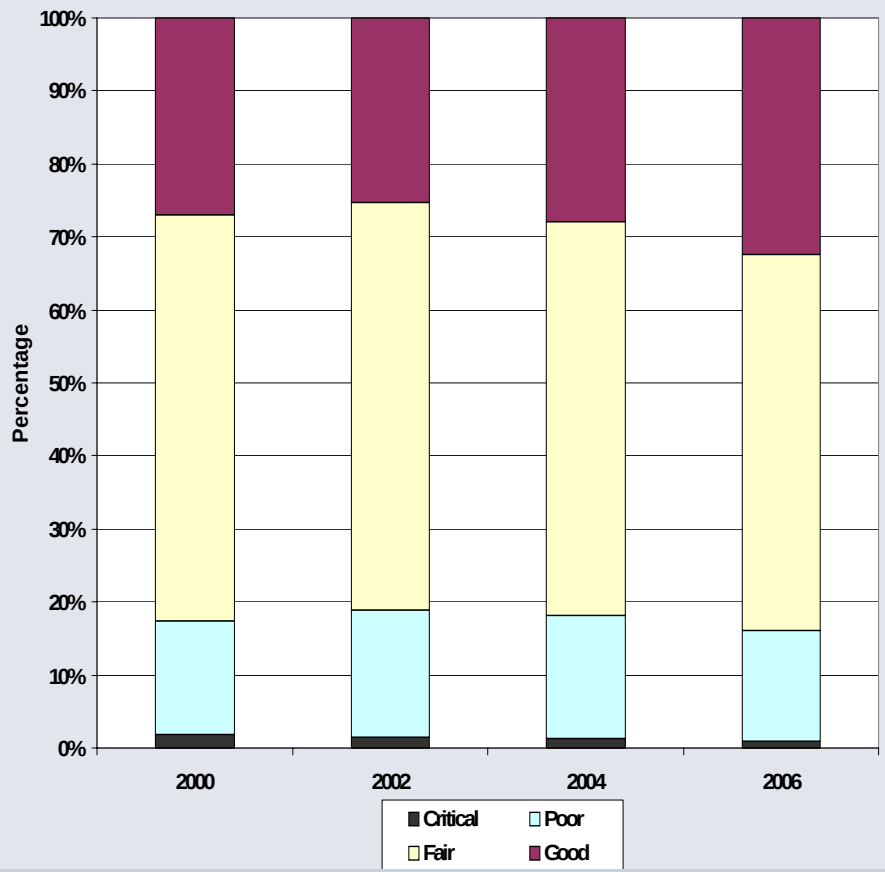
Source: U.S. Bureau of Transportation Statistics, Research and Innovative Technology Administration, various annual reports.
Note: The total number bridges rated in Vermont varied slightly from about 2,686 to 2,716. Explanations for the terms "structurally deficient or functionally obsolete" can be found at the following source:
http://www.fhwa.dot.gov/policy/2006cpr/pdfs/chap3.pdf
http://www.bts.gov/publications/state_transportation_statistics/state_transportation_statistics_2007/

Chart 9-11
Averaged National Bridge Inventory Conditions Ratings (All Bridges) Vermont 2000 to 2006



Source: Vermont Agency of Transportation, Program Development—Structures Section, Annual Report, 2008, page 9.
Note: The scale ranges from 0 to 10, with 10 being the highest.

Chart 9-12
Lowest Rated Component (All Bridges) in Vermont
2000 to 2006



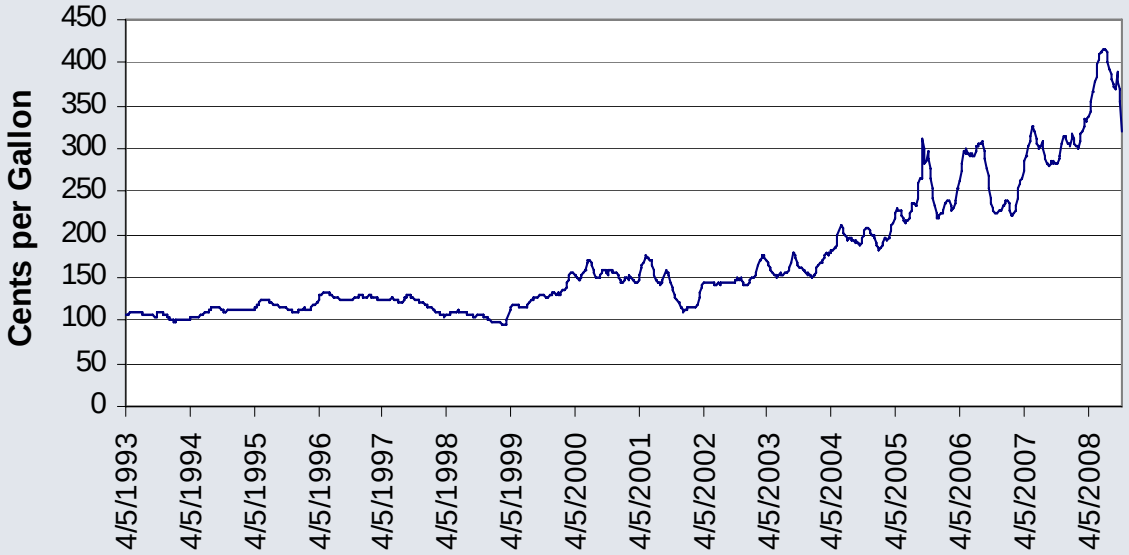
Source: Vermont Agency of Transportation, Program Development—Structures Section, Annual Report, 2008, page 10.

Chart 9-13
Selected Transportation Expenditures in Vermont
Millions of Dollars
1991, 2002, 2007

	1991	2002	2007
Paving	12.1	38.3	51.5
Maintenance	37.9	46.8	59.4
Town Highway Bridges	2.5	23.6	28.0
Public Transit	2.0	11.9	15.6
Project development (excluding paving)	68.7	94.1	110.9
Rail	2.3	12.5	10.4
Aviation	5.5	10.1	9.8
Entire Budget (includes other categories)	166.3	327.6	387.9

Source: University of Vermont Transportation Research Center, courtesy Karen Glitman

Chart 9-14
Weekly Retail Gasoline Prices
United States
April, 1993 to April, 2008



Source: Energy Information Administration, Petroleum Navigator, http://tonto.eia.doe.gov/dnav/pet/hist/mg_tt_usW.htm
Note: Gasoline is all grades and formulations.