
**THE ECONOMIC IMPACTS OF GREATER INVESTMENTS IN
NEW HAMPSHIRE'S TRANSPORTATION
INFRASTRUCTURE FUNDED BY AN
INCREASE IN THE GAS TAX**

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Prepared By
Lisa Shapiro, Ph.D. ,Chief Economist
Heidi Kroll, Market and Policy Analyst
Gallagher, Callahan and Gartrell, P.C.
214 North Main Street
Concord, NH 03301
(800) 528-1181
www.gcglaw.com

**Prepared for
The Aggregate Manufacturers of New Hampshire**

EXECUTIVE SUMMARY

New Hampshire's Ten-Year Highway Plan faces a \$1.167 billion shortfall for the funding of operating and capital expenses.¹ In the Fiscal Year 2010-2011 biennium alone, the operating budget shortfall is estimated at about \$153 million and the capital budget shortfall is nearly \$24 million.² Last year, the Ten-Year Transportation Improvement Plan was cut nearly in half from over \$4 billion to \$2.4 billion. This has impacted the state's ability to repair some of its 137 red listed bridges and has further decreased the miles of roads resurfaced each year from a high of around 600 miles in 1996, to a low of fewer than 300 miles in 2008.

The New Hampshire Legislature is considering House Bill 644,³ a bill that increases the rate of the road toll, establishes the New Hampshire road and bridge account, and limits the uses of road toll revenues, as an option to address New Hampshire's "Infrastructure Crises."⁴ State taxes on gasoline were last increased in 1991.

The Aggregate Manufacturers of New Hampshire ("AMNH") commissioned this study to gain more insight into the economic context of New Hampshire's road toll revenues and to examine the potential economic impacts in New Hampshire of increasing the gasoline tax and investing the additional tax revenues in the state's transportation infrastructure as contemplated in HB 644 as introduced.

The purpose of this study is to provide information on the potential positive and negative impacts that greater expenditures on roads and bridges, funded by a higher gas tax, could have on New Hampshire's economy over the next decade.

This report follows a presentation on the trends in gasoline tax revenues, prices, and gasoline usage presented to a joint hearing of the House Ways & Means and Public Works & Highways Committees.⁵ The findings in that presentation are:

- Consumers appear to be less responsive to small changes in the price of gasoline than they were anytime during the last 30 years.
- Large changes in gasoline prices and sustained, higher prices do lead to both short-term and long-term changes in driving behavior.
- Small differences in state gasoline tax rates appear to have no systemic impact on pricing at gas stations in border towns and states.
- New Hampshire's gasoline tax revenues have not kept pace with the growth in the economy. Periodic adjustments to the New Hampshire gasoline tax rate have enabled the revenues to get more aligned with growth, but the gap has widened significantly over the 18 years since the last increase in New Hampshire's gasoline tax.

Building on the review of trends in gallonage, this report provides an estimate of the economic impact of increasing the gasoline tax in New Hampshire and investing the additional revenue in maintaining and improving New Hampshire's roads and bridges pursuant to HB

644. HB 644 as introduced proposes to raise the gas tax by 15 cents per gallon, phased in over three years.

This report uses the Regional Economic Model, Inc. (REMI), an econometric model of the New Hampshire economy, to estimate the economic impact of HB 644. The REMI model used is a 23-sector regional econometric model widely used by government and private forecasters to simulate the effect on the economy of policy proposals or events. For this report, REMI was used to simulate the effects of higher expenditures and higher gasoline taxes on economic performance compared to a control forecast where there are no additional infrastructure expenditures or increases in the state gasoline tax.

Summary of Economic Impacts from HB 644

- There is an immediate and significant job creation from the investments in New Hampshire roads and bridges, even taking into account any negative impacts from a road toll (gas tax) increase.
 - Between 260 and 300 jobs created (or saved) in 2009.
 - Between 730 and 800 jobs created (or saved) in 2010.
 - Between 1,100 and 1,250 jobs created (or saved) in 2011.
 - Between 1,200 and 1,400 jobs created (or saved) in 2012.
- To the extent the increased costs in fuel are borne by in-state drivers, disposable income is projected to grow at a slower rate over the study period by about \$20 to \$25 million per year. To the extent consumers adjust behavior by purchasing less fuel, or the costs are exported to out-of-state drivers, the impact on disposable income would be less.
- On a cumulative basis over the forecast period, Gross State Product (GSP) is estimated to increase by about \$300 million and economic output is estimated to increase by about \$700 million.
- While changes in driving behavior over time, and the nature of a gallonage tax, are likely to have revenues lagging economic growth rates, the policy adjustments to gas tax rates in HB 644 are forecasted to significantly reduce highway trust fund operating and capital deficits, while significantly boosting employment.
- By the end of the forecast period (2018), this study forecasts that 600 to 900 additional construction jobs will still be supported annually due to HB 644, even taking into account any negative impacts of an increased gas tax, and using a range of driving behavior and economic growth assumptions.

ECONOMIC IMPACT ANALYSIS

The report uses the Regional Economic Model, Inc. (REMI), an econometric model of the New Hampshire economy. REMI is widely used by government and private forecasters to simulate the effect on the economy of a proposal or event.

Methodology

The REMI model is founded on econometrics – the use of mathematics, statistics, and economic theory to provide an empirical model and quantitative analysis to explain and forecast economic performance and the effect of policy changes on that performance. This study used a 23-sector, single-region model of New Hampshire. To simulate an increase in the gas tax, price increases were allocated to consumers, commercial and industrial users. To simulate an increase in expenditures on New Hampshire's transportation infrastructure, additional investment was put into the construction and maintenance of state and municipal highways, streets and bridges.

Inputs

A key input needed for the model was an estimate of the revenue stream that an increased gas tax might raise (that is, the amount of additional tax that consumers and commercial and industrial users would pay), and an equal and immediate amount of additional spending on transportation infrastructure. A number of different scenarios, reflecting a range of assumptions on gasoline usage, were modeled to develop a range of revenue estimates.

The first step was to look at fiscal note estimates,⁶ which estimate that an increase of 1 cent per gallon in the gas tax will increase revenues by \$8,432,613 in Fiscal Year 2010. This figure served as a starting point in the model and was grossed up to be a 5 cent, 10 cent, and 15 cent per gallon tax increase in Fiscal Years 2010, 2011, and 2012, respectively. According to the fiscal note, the estimate of \$8.4 million is based on the assumption that the three year average of road toll gallons (net of refunds) collected during Fiscal Years 2006 through 2008, an average of 843,261,305 gallons, will equal the number of gallons taxed in Fiscal Year 2010. This three year average is about 0.6% below the gallons for Fiscal Year 2008 that were reported in the fiscal note. Road toll gallons in Fiscal Year 2009 year-to-date are tracking at about 5% below the road toll gallons in Fiscal Year 2008 for the same year-to-date period. The fiscal note was used as a practical starting point in the model. The study then considered a variety of revenue growth scenarios. These included declining, flat, and growing revenues.

The amount of gasoline and diesel fuel that is consumed in the future will drive the amount of additional revenues that can be raised from the higher gas tax set forth in HB 644. In this study, consumption in New Hampshire was increased at different growth rates to model potential trends in usage during and after the current recession. Actual trends during and after the recession will depend on short- and long-term changes in factors such as retail gas prices, consumer behavior, vehicle fuel efficiency, and commuting habits and patterns. The scenarios

described below are intended to capture potential trends driven by changes in these types of factors. They are not intended to be forecasts of consumption.

In the lowest revenue case scenario that was modeled, the study assumes that consumption would drop by 4% in Fiscal Year 2011 and again in Fiscal Year 2012, after which the revenue would hold steady at a 0% growth rate through Fiscal Year 2019. These assumptions are meant to reflect a pessimistic outlook: two years of considerable decline followed by no growth in consumption. New Hampshire has seen gas consumption recently decline in the range of 4%-5%. The federal Energy Information Administration forecasts that gasoline consumption will decline by 1% in calendar year 2009 and then increase by 0.5% in calendar year 2010. Because of the negative economic outlook and the somewhat higher starting revenue assumptions, however, this scenario used significant declines in revenue and then no growth to approximate a negative outlook.

In the highest case scenario that was modeled, the study assumed consumption would hold steady (at 0% growth in Fiscal Years 2011, 2012, and 2013), after which the growth rate would return to the 10-year historical average of 2% per year through Fiscal Year 2019. These assumptions are meant to reflect a guardedly optimistic outlook: no growth for the next three years before consumption begins to increase again at the historical average rate.

Between the high and low cases, the study also considered a range of different starting points and revenue growth assumptions.

In the manner described above, various estimates were made of total revenues that would be raised in each fiscal year through a higher gas tax and would be available for immediate investment in the State's transportation infrastructure. The starting estimate in Fiscal Year 2010 was approximately \$42 million and grew to a range of \$116 million to \$145 million by Fiscal Year 2020, depending on the scenario. These estimates were translated into calendar years 2009 through 2019 for entry into the REMI model.

Another important set of inputs needed for the model were estimates of how much of the new revenue would come from the three types of motor fuel users: consumers, commercial users, and industrial users. A Florida study⁷ that looked at increasing user fees and taxes to fund investment in transportation infrastructure found that the business sector in that state paid 32.6% of the total state and local sales tax and consumers paid 67.4% of the sales tax. In addition, national data gathered by the Federal Highway Administration shows that commercial and industrial users purchase about one third of the gallons of gas consumed and consumers use the remainder.⁸ Therefore, in this study, two thirds of the new revenues raised by the gas tax increase were assumed to come from consumers and the other one third was assumed to come from commercial and industrial users. Diesel usage for the purpose of this study was assumed to be taxed at the same rate and follow the same revenue scenarios, and gasoline and diesel usage were combined and referred to throughout the study as "gasoline."

Results

Based on the results from the REMI modeling described above, the overall economic impact in New Hampshire of increasing the gasoline tax as contemplated in HB 644, and spending the additional revenues on the state’s transportation infrastructure, are forecasted to be positive, with the exception of the impact on disposable personal income. The estimated positive impacts on employment and gross state product resulting from higher expenditures on roads and bridges more than offset negative impacts resulting from increasing the gas tax. This is true every year over the ten-year planning horizon and under every revenue scenario considered.

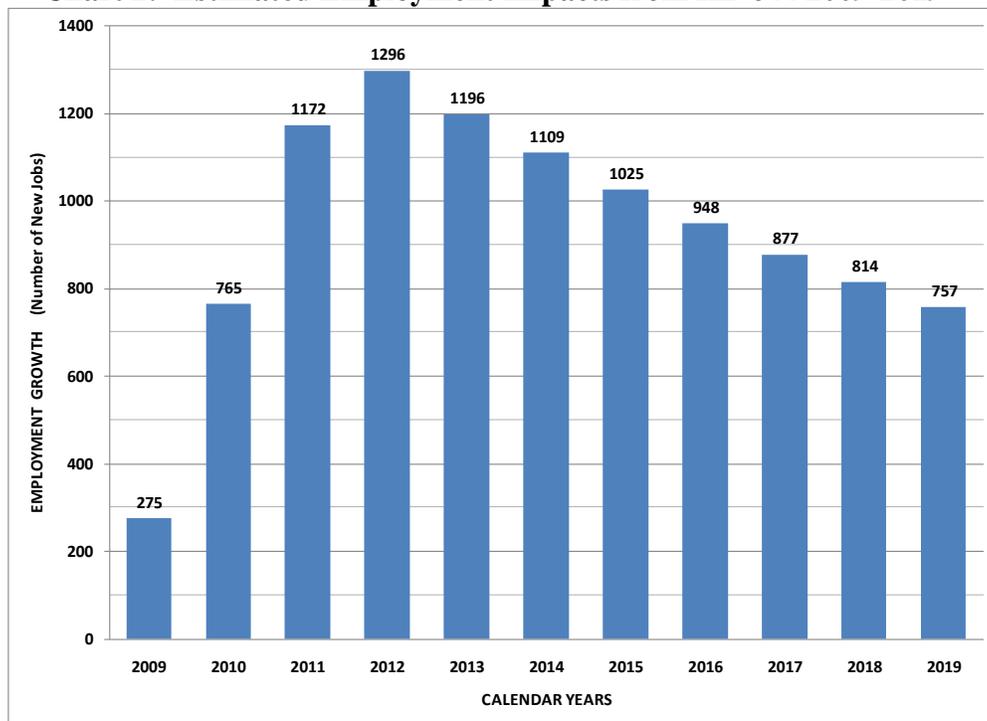
**Table 1: Estimated Average Annual Economic Impacts of HB 644
Change in Jobs, Gross State Product, Sales and Personal Income
Calendar Years 2009-2019**

Economic Indicator	Average Annual
Employment	1,000 Jobs
Annual Gross State Product (2009\$)	\$29 Million
Annual Output / Sales (2009\$)	\$65 Million
Annual Disposable Personal Income (2009\$)	-\$22 Million

Employment

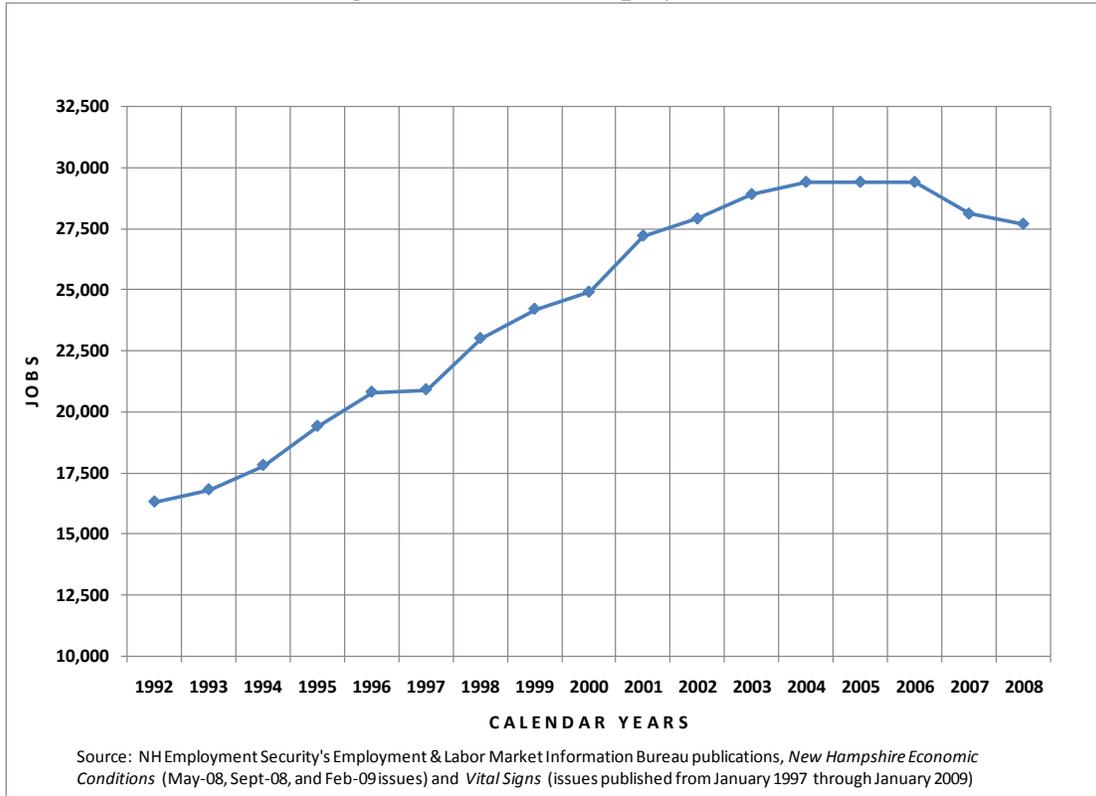
A higher gas tax coupled with higher expenditures on transportation infrastructure is forecast to create between 1,200 and 1,400 new jobs⁹ in New Hampshire in the peak year, calendar year 2012, with the annual average number of new jobs over the study period of about 1,000 jobs saved or created once the full 15 cents is phased in.

Chart 2: Estimated Employment Impacts from HB 644 2009-2019¹⁰



The major sector for job creation is the construction industry. Employment in the construction industry has seen a significant decline – an estimated 1,700 jobs since 2006 – as a result of the decline in the housing market beginning in 2006, and now magnified by the worldwide credit crises and the significant economic downturn. HB 644 would put a significant number of displaced members of the construction workforce back to work.

Chart 3: Average Construction Employment in NH 1992-2008



Gross State Product

Gross State Product (GSP) is the value added to the economy through the net output of goods and services. It is estimated to increase under HB 644 under all scenarios. New Hampshire's annual GSP is estimated to increase by as much as \$47 million to \$52 million in 2012, with the average increase in the annual GSP estimated at \$27 million to \$31 million. Based on the estimated increases in GSP each year during the period 2009-2019, the state's GSP could be an estimated \$298 million to \$344 million higher on a cumulative basis than it would be in the absence of a higher gas tax coupled with higher expenditures on transportation infrastructure.

Output / Sales

Output, or sales, captures all of the intermediate goods purchased as well as all of the final goods and services that are captured in GSP. Based on the modeling in this study, New Hampshire's annual sales are estimated to increase by as much as \$98 million to \$107 million in 2012, with the average increase in annual sales estimated at \$60 million to \$69 million. Based on the estimated increases in sales each year during the period 2009-2019, the state's output could be an estimated \$656 million to \$754 million higher on a cumulative basis than it would be in the absence of a higher gas tax coupled with higher expenditures on transportation infrastructure.

Disposable Personal Income

Disposable personal income in the REMI model is the income received by New Hampshire residents from wages and salaries (and supplements thereto), proprietors' income, rental income, interest and dividends, and transfer receipts (e.g., retirement and disability insurance benefits, Medicare, etc.), less taxes and contributions for government social insurance. The estimated average slowdown in the growth in annual disposable personal income over the study period of about \$20 million to \$25 million is driven by the higher gas tax.

The REMI model's estimated drop in disposable income could be over-stated because the model may have too much of the tax increase being paid by residents and not enough being paid by non-residents. If indeed the model has over-allocated the tax to New Hampshire residents, then the slowdown in projected growth in disposable personal income may be smaller than the estimates reported here suggest.

Sustainability

Over time, the gasoline tax revenues are forecast to lag real economic growth, so the overall positive impacts are reduced, although still quite significant. Annual employment impacts drop from a high of 1,200 to 1,400 in 2012 to between 600 to 900 in 2019. The significantly positive employment impacts hold throughout the forecast period, even under increasing use of alternative vehicles and strong consumer response to a scenario with sustained higher gasoline prices. While a gallonage tax is not expected to keep pace with economic growth, the policy adjustments contemplated in HB 644 are expected to close the gap in the highway trust fund. HB 644 provides for a pay-as-you-go revenue source, creating a significant number of new jobs, even when taking into account any negative impacts of a gasoline tax increase.

¹ NH Dept. of Transportation (NHDOT) cited an estimated shortfall of \$1.042 billion in its “Presentation to the House Ways & Means Committee & Public Works Committee,” presented by Commissioner Campbell, January 29, 2009. A more recent estimate was presented by Rep. David Campbell in “NH Roads & Bridges – Information Compiled from NHDOT Briefings and HB 103 Highway Trust Fund Commission Hearings,” February 4, 2009.

² NHDOT cited estimated budget shortfalls of \$147.5 million and \$23.8 million for operating and capital, respectively, in its “Presentation to the House Ways & Means & Public Works Committee” on January 29, 2009. A more recent estimate of the operating budget shortfall was presented by Rep. David Campbell in “NH Roads & Bridges – Information Compiled from NHDOT Briefings and HB 103 Highway Trust Fund Commission Hearings,” February 4, 2009. These analyses do not include the Governor’s budget proposal for FY 2010-2011 or the federal stimulus plan.

³ Link to the bill: <http://www.gencourt.state.nh.us/legislation/2009/HB0644.html>.

⁴ See NH DOT Commissioner George Campbell’s “Presentation to the House Ways & Means & Public Works Committee,” January 29, 2009, pg. 8, “Major Factors of NH Infrastructure Crises.”

⁵ Lisa K. Shapiro, Ph.D., “Economic Factors Affecting Road Toll Revenues,” presented to Joint Hearing of House Ways & Means and Public Works & Highways Committees, January 29, 2009

⁶ A fiscal note to HB 644 was not available at the time of this study. Thus, the fiscal note to HB 124, relative to the rate of the gas tax, was used. A link to the bill: <http://www.gencourt.state.nh.us/legislation/2009/HB0124.html>.

⁷ “Special Report: Transportation Infrastructure Investment Will Stimulate Florida’s Sluggish Economy and Increase Productivity,” *Florida TaxWatch*, April 2008.

⁸ Federal Highway Administration, Table VM-1, “Annual Vehicle Distance Traveled in Miles and Related Data, by Highway Category and Vehicle Type.”

⁹ Jobs include full-time and part-time jobs.

¹⁰ Median of range estimates