



TRIP Reports: Deficient Roadways Cost Massachusetts Drivers \$8.3 Billion Annually, As Much As \$1,900 Per Driver. Costs Will Rise And Transportation Woes Will Worsen Without Significant And Reliable Level Of Funding

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Roads and bridges that are deficient, congested or lack desirable safety features cost Massachusetts motorists a total of \$8.3 billion statewide annually – as much as \$1,900 per driver – due to higher vehicle

operating costs, traffic crashes and congestion-related delays. Significant investment in transportation improvements at the local, state and federal levels could relieve traffic congestion, improve road and bridge conditions, boost safety, and support long-term economic growth in Massachusetts, according to a new report released today by [TRIP](#), a Washington, DC based national transportation organization.

The TRIP report, [“Massachusetts Transportation by the Numbers: Meeting the State’s Need for Safe and Efficient Mobility”](#) finds that throughout Massachusetts, approximately one-fifth of major roads and highways are in poor condition and more than half of Massachusetts’ bridges are structurally deficient or functionally obsolete. The state’s major urban roads have high levels of congestion, with drivers wasting significant amounts of time and fuel each year. And, Massachusetts’ rural non-interstate traffic fatality rate is more than three-and-a-half times higher than the fatality rate on all other roads in the state.

Driving on deficient roads costs each driver as much as \$1,913 per year in the form of extra vehicle operating costs (VOC) as a result of driving on roads in need of repair, lost time and fuel due to congestion-related delays, and the financial cost of traffic crashes. The TRIP report calculated the cost to motorists of insufficient roads in Massachusetts’ largest urban areas: Boston, South Coast, Springfield and Worcester. A breakdown of the costs per motorist in each area and a statewide total is below.

The TRIP report finds 19 percent of Massachusetts’ major roads and highways have pavements in poor condition, while an additional 64 percent of the state’s major roads are rated in mediocre or fair condition and the remaining 17 percent are rated in in good condition. Driving on deteriorated roads costs the state’s motorists \$2.3 billion each year in extra vehicle operating costs, including accelerated vehicle depreciation, additional repair costs, and increased fuel consumption and tire wear.

A total of 52 percent of Massachusetts’ bridges show significant deterioration or do not meet modern design standards. Nine percent of Massachusetts’ bridges are structurally deficient, with significant deterioration to the bridge deck, supports or other major components. An additional 43 percent of the state’s bridges are functionally obsolete, which means they no longer meet modern design standards, often because of narrow lanes, inadequate clearances or poor alignment.

Traffic congestion is mounting across the state, costing each driver as much as \$1,147 annually in lost time and wasted fuel, a total of \$3.9 billion statewide.

“Improvements to our infrastructure are an investment in public safety – whether it be for drivers, cyclists or pedestrians,” said Mary Maguire, director of public and government affairs for AAA Southern New England.

Traffic crashes in Massachusetts claimed the lives of 1,697 people between 2008 and 2012. Traffic crashes on Massachusetts’ non-Interstate rural roads are particularly deadly, with a fatality rate in 2012 of 2.07 traffic fatalities per 100 million vehicle miles of travel, more than three-and-a-half times the fatality rate of 0.58 on all other roads and highways in the state.

The efficiency of Massachusetts’ transportation system, particularly its highways, is critical to the health of the state’s economy. A [2007 analysis by the Federal Highway Administration](#) found that every \$1 billion invested in highway construction would support approximately 27,800 jobs.

In 2013 the Massachusetts legislature passed the Transportation Finance Act of 2013 that is projected to raise an estimated \$600 million annually. However, this much-needed infusion of additional funding falls \$400 million short of fully addressing additional funding needs – estimated at \$1 billion per year over the next 20 years – for Massachusetts’ roads, rails, and public transit systems. A [report released earlier this year by Transportation for Massachusetts](#) found that the 2013 state funding package has been very helpful in providing additional funds for the state’s public transit agencies as well as more than 75 additional road and bridge projects in the state, including the I-91 Viaduct in Springfield.

“Improving these conditions in Massachusetts and reducing transportation costs to the public will require significant and reliable funding at the state and federal levels,” said Will Wilkins, TRIP’s executive director.

Executive Summary

Ten Key Transportation Numbers in Massachusetts

\$8.3 billion	Driving on deficient roads costs Massachusetts motorists a total of \$8.3 billion annually in the form of additional vehicle operating costs (VOC), congestion-related delays and traffic crashes.
\$1,913 \$1,608 \$1,642 \$1,733	TRIP has calculated the cost to the average motorist in Massachusetts' largest urban areas in the form of additional VOC, congestion-related delays and traffic crashes. The average Boston driver loses \$1,913 each year; each South Coast area motorist loses \$1,608 annually; each Springfield motorist loses \$1,642 annually; and each Worcester driver loses \$1,733.
339 1,697	On average 339 people were killed annually in Massachusetts traffic crashes from 2008 to 2012, a total of 1,697 fatalities over the five year period.
3.5X	The fatality rate on Massachusetts' non-interstate rural roads is more than three and a half times higher than that on all other roads in the state (2.07 fatalities per 100 million vehicle miles of travel vs. 0.58).
\$212 billion \$196 billion	Annually, \$212 billion in goods are shipped from sites in Massachusetts and another \$196 billion in goods are shipped to sites in Massachusetts, mostly by truck.
52 %	A total of 52 percent of Massachusetts bridges are in need of repair, improvement or replacement. Nine percent of the state's bridges are structurally deficient and 43 percent are functionally obsolete.
53 hours 22 hours 28 hours 33 hours	The average driver in the Boston urban area loses 53 hours each year as a result of traffic congestion; each South Coast area driver loses 22 hours annually; each Springfield area driver loses 28 hours annually; and each Worcester area motorist loses 33 hours each year.
\$1 billion= 27,800 jobs	An analysis by the Federal Highway Administration found that every \$1 billion invested in highway construction would support approximately 27,800 jobs.
\$400 million	Last year the Massachusetts legislature approved the Transportation Finance Act of 2013 which provides an additional \$600 million annually for improvements to the state's roads, bridges, rails and public transit systems, which still falls \$400 million short of the \$1 billion needed annually in additional state transportation funding.
\$1.00 = \$5.20	The Federal Highway Administration estimates that each dollar spent on road, highway and bridge improvements results in an average benefit of \$5.20 in the form of reduced vehicle maintenance costs, reduced delays, reduced fuel consumption, improved safety, reduced road and bridge maintenance costs, and reduced emissions as a result of improved traffic flow.

Massachusetts' extensive system of roads, bridges, highways and public transit provides the state's residents, visitors and businesses with a high level of mobility. This transportation system, which also includes pedestrian and bicycle facilities, forms the backbone that supports the state's economy. Massachusetts' surface transportation system enables the state's residents and visitors to travel to work and school, visit family and friends, and frequent tourist and recreation attractions while providing its businesses with reliable access to customers, materials, suppliers and employees.

As Massachusetts looks to retain its businesses, maintain its level of economic competitiveness and achieve further economic growth, the state will need to maintain and modernize its roads, highways and bridges by improving the physical condition of its transportation network and enhancing the system's ability to provide efficient and reliable mobility for motorists and businesses. Making needed improvements to Massachusetts' roads, highways and bridges could also provide a significant boost to the state's economy by creating jobs in the short term and stimulating long term economic growth as a result of enhanced mobility and access.

Massachusetts must improve its system of roads, highways and bridges to foster economic growth and keep businesses in the state. In addition to economic growth, transportation improvements are needed to ensure safe, reliable mobility and quality of life for all residents. Meeting Massachusetts' need to modernize and maintain its system of roads, highways and bridges will require a significant boost in local, state and federal funding.

Last year the Massachusetts legislature approved the Transportation Finance Act of 2013 which is anticipated to provide an additional \$600 million annually for improvements to the state's roads, bridges, rails and public transit systems. This infusion of additional funding has allowed the Bay State to move forward with numerous projects for improvements to the state's roads, highways, bridges, rail lines and public transit systems, but falls \$400 million short of the estimated \$1 billion in additional annual transportation investment needed in the state.

The federal government is another critical source of funding for Massachusetts' surface transportation system. Congress recently approved an eight-month extension of the federal surface transportation program, MAP-21 (Moving Ahead for Progress in the 21st Century Act), which provides the state with road, highway, bridge and transit funding through May 31, 2015.

Meeting Massachusetts' need to further improve and modernize its system of roads, rails and public transit will require that the recent state funding boost is maintained and that a long-term, reliably funded, federal surface transportation program is approved.

An inadequate transportation system costs Massachusetts residents a total of \$8.3 billion every year in the form of additional vehicle operating costs (VOC), congestion-related delays and traffic crashes.

- TRIP estimates that Massachusetts roadways that lack some desirable safety features, have inadequate capacity to meet travel demands or have poor pavement conditions cost the state's residents approximately \$8.3 billion annually in the form of additional vehicle operating costs (including accelerated vehicle depreciation, additional repair costs, and increased fuel consumption and tire wear), the cost of lost time and wasted fuel due to traffic congestion, and the financial cost of traffic crashes.

- TRIP has calculated the average cost to drivers in the state's largest urban areas as a result of driving on roads that are deteriorated, congested and lacking some desirable safety features. The chart below details the costs to drivers in the Boston, Springfield and Worcester urban areas.

Location	VOC	Congestion	Safety	TOTAL
Boston	\$468	\$1,147	\$298	\$1,913
South Coast	\$429	\$425	\$754	\$1,608
Springfield	\$514	\$575	\$553	\$1,642
Worcester	\$541	\$677	\$515	\$1,733
Massachusetts	\$2.3 Billion	\$3.9 Billion	\$2.1 Billion	\$8.3 Billion

Population and economic growth in Massachusetts have resulted in increased demands on the state's major roads and highways, leading to increased wear and tear of the transportation system.

- Massachusetts' population reached approximately 6.6 million residents in 2012, a ten percent increase since 1990. Massachusetts had 4,733,936 licensed drivers in 2012.
- Vehicle miles traveled (VMT) in Massachusetts increased by 21 percent from 1990 to 2012 – from 46.1 billion VMT in 1990 to 55.9 billion VMT in 2012.

- By 2030, vehicle travel in Massachusetts is projected to increase by another 15 percent.
- From 1990 to 2012, Massachusetts' gross domestic product, a measure of the state's economic output, increased by 45 percent, when adjusted for inflation.

A lack of adequate state and local funding has resulted in one-fifth of major roads and highways in Massachusetts having pavement surfaces in poor condition, providing a rough ride and costing motorists in the form of additional vehicle operating costs (VOC).

- Nineteen percent of Massachusetts' major roads and highways have pavements in poor condition, while an additional 64 percent of the state's major roads are rated in mediocre or fair condition and the remaining 17 percent are rated in in good condition.
- Roads rated in poor condition may show signs of deterioration, including rutting, cracks and potholes. In some cases, poor roads can be resurfaced, but often are too deteriorated and must be reconstructed.
- Driving on rough roads costs all Massachusetts motorists a total of \$2.3 billion annually in extra VOC. Costs include accelerated vehicle depreciation, additional repair costs, and increased fuel consumption and tire wear.

The chart below details the percentage of major roads in poor, mediocre, fair and good condition in the state's major urban areas:

Location	Poor	Mediocre	Fair	Good
Boston	7%	81%	4%	9%
South Coast	2%	86%	1%	11%
Springfield	13%	74%	3%	10%
Worcester	21%	62%	5%	13%

More than half of locally and state-maintained bridges in Massachusetts show significant deterioration or do not meet current design standards often because of narrow lanes, inadequate clearances or poor alignment. This includes all bridges that are 20 feet or more in length.

- Nine percent of Massachusetts' bridges are structurally deficient. A bridge is structurally deficient if there is significant deterioration of the bridge deck, supports or other major components. Structurally deficient bridges are often posted for lower weight or closed to traffic, restricting or redirecting large vehicles, including commercial trucks and emergency services vehicles.
- Forty-three percent of Massachusetts' bridges are functionally obsolete. Bridges that are functionally obsolete no longer meet current highway design standards, often because of narrow lanes, inadequate clearances or poor alignment.
- In the Boston urban area, ten percent of bridges are structurally deficient and 54 percent are functionally obsolete. Eleven percent of bridges in the South Coast area are structurally deficient and 40 percent are functionally obsolete; eight percent of bridges in the Springfield urban area are structurally deficient, while 47 percent are functionally obsolete. In the Worcester urban area, seven percent of bridges are structurally deficient and an additional 40 percent are functionally obsolete.

Improving safety features on Massachusetts' roads and highways would likely result in a decrease in the state's traffic fatalities and serious crashes. It is estimated that roadway features are likely a contributing factor in approximately one-third of all fatal and serious traffic crashes.

- Between 2008 and 2012 a total of 1,697 people were killed in traffic crashes in Massachusetts, an average of 339 fatalities per year.
- The chart below details the average number of fatalities in each of Massachusetts' largest urban areas from 2010 to 2012 as well as the annual cost of traffic crashes to the average motorist in each area.

Location	Avg. Fatalities	Safety Cost
Boston	107	\$298
South Coast	50	\$754
Springfield	31	\$553
Worcester	50	\$515

Massachusetts' overall traffic fatality rate of 0.62 fatalities per 100 million vehicle miles of travel in 2012 is lower than the national traffic fatality rate of 1.13.

The fatality rate on Massachusetts' rural non-Interstate roads was 2.07 fatalities per 100 million vehicle miles of travel in 2012, more than three and a half times the 0.58 fatality rate on all other roads and highways in the state.

Roadway features that impact safety include the number of lanes, lane widths, lighting, lane markings, rumble strips, shoulders, guard rails, other shielding devices, median barriers and intersection design. The cost of serious crashes includes lost productivity, lost earnings, medical costs and emergency services.

- Several factors are associated with vehicle crashes that result in fatalities, including driver behavior, vehicle characteristics and roadway features. TRIP estimates that roadway features are likely a contributing factor in approximately one-third of fatal traffic crashes.
- Where appropriate, highway improvements can reduce traffic fatalities and crashes while improving traffic flow to help relieve congestion. Such improvements include removing or shielding obstacles; adding or improving medians; improved lighting; adding rumble strips, wider lanes, wider and paved shoulders; upgrading roads from two lanes to four lanes; and better road markings and traffic signals.
- Investments in rural traffic safety have been found to result in significant reductions in serious traffic crashes. A 2012 report by the [Texas Transportation Institute](#) (TTI) found that improvements completed recently by the Texas Department of Transportation that widened lanes, improved shoulders and made other safety improvements on 1,159 miles of rural state roadways resulted in 133 fewer fatalities on these roads in the first three years after the improvements were completed (as compared to the three years prior). TTI estimates that the improvements on these roads are likely to save 880 lives over the next 20 years.

Increasing levels of traffic congestion cause significant delays in Massachusetts, particularly in its larger urban areas, choking commuting and commerce. Traffic congestion robs commuters of time and money and imposes increased costs on businesses, shippers and manufacturers, which are often passed along to the consumer.

- Increasing levels of congestion add significant costs to consumers, transportation companies, manufacturers, distributors and wholesalers and can reduce the attractiveness of a location to a company to consider expansion or even to locate a new facility. Congestion costs can also increase overall operating costs for trucking and shipping companies, leading to revenue losses, lower pay for drivers and employees, and higher consumer costs.
- The chart below details the average annual number of hours lost to congestion by each motorist in Massachusetts' largest urban areas, as well as the annual congestion cost per driver in the form of lost time and wasted fuel.

Location	Hours Lost	Congestion Cost
Boston	53 Hours	\$1,147
South Coast	22 Hours	\$425
Springfield	28 Hours	\$575
Worcester	33 Hours	\$677

The efficiency of Massachusetts' transportation system, particularly its highways, is critical to the health of the state's economy. Businesses are increasingly reliant on an efficient and dependable transportation system to move products and services. A key component in business efficiency and success is the level and ease of access to customers, markets, materials and workers.

- Annually, \$212 billion in goods are shipped from sites in Massachusetts and another \$196 billion in goods are shipped to sites in Massachusetts, mostly by truck.
- Seventy percent of the goods shipped annually from sites in Massachusetts are carried by trucks and another 23 percent are carried by courier services or multiple mode deliveries, which include trucking.
- Businesses have responded to improved communications and greater competition by moving from a push-style distribution system, which relies on low-cost movement of bulk commodities and large-scale warehousing, to a pull-style distribution system, which relies on smaller, more strategic and time-sensitive movement of goods.
- Increasingly, companies are looking at the quality of a region's transportation system when deciding where to re-locate or expand. Regions with congested or poorly maintained roads may see businesses relocate to areas with a smoother, more efficient and more modern transportation system.
- Highway accessibility was ranked the number one site selection factor in a 2011 survey of corporate executives by [Area Development Magazine](#).
 - A [2007 analysis by the Federal Highway Administration](#) found that every \$1 billion invested in highway construction would support approximately 27,800 jobs, including approximately 9,500 in the construction sector, approximately 4,300 jobs in industries supporting the construction sector, and approximately 14,000 other jobs induced in non-construction related sectors of the economy.
- The [Federal Highway Administration](#) estimates that each dollar spent on road, highway and bridge improvements results in an average benefit of \$5.20 in the form of reduced vehicle maintenance costs, reduced delays, reduced fuel consumption, improved safety, reduced road and bridge maintenance costs and reduced emissions as a result of improved traffic flow.

Massachusetts' roads, highways, bridges and public transit systems are funded by local, state and federal governments. The 2013 boost in state funding helped close the gap in state transportation funding needs. But improving the state's transportation system will require a continued strong state transportation program and approval of a long-term, reliably funded federal transportation program.
- In 2013 the Massachusetts legislature passed the Transportation Finance Act of 2013 which is projected to raise an estimated \$600 million annually. However, this much-needed infusion of additional funding falls \$400 million short of fully addressing additional funding needs – estimated at \$1 billion per year over the next 20 years – for Massachusetts' roads, rails, and public transit systems.
- A [report released earlier this year by Transportation for Massachusetts](#) found that the 2013 state funding package has been very helpful in providing additional funds for the state's public transit agencies as well as more than 75 additional road and bridge projects in the state, including the I-91 Viaduct in Springfield.
 - Signed into law in July 2012, MAP-21 (Moving Ahead for Progress in the 21st Century Act), has improved several procedures that in the past had delayed projects, MAP-21 does not address long-term funding challenges facing the federal surface transportation program.
 - Congress recently approved an eight-month extension of the federal surface transportation program, on which states rely for road, highway, bridge and transit funding. The program, initially set to expire on September 30, 2014, will now run through May 31, 2015.