



TEXAS TRANSPORTATION BY THE NUMBERS: Meeting the State's Need for Safe and Efficient Mobility

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Executive Summary a national transportation research group

Texas' extensive system of roads, highways and bridges provides the state's residents, visitors and businesses with a high level of mobility. This transportation system forms the backbone that supports the state's economy. Texas' 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 Texas 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 Texas' 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.

With a current unemployment rate of 5.1 percent and with the state's population continuing to grow, Texas 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 Texans. Meeting Texas' need to modernize and maintain its system of roads, highways and bridges will require a significant boost in local, state and federal funding.

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.



The impact of inadequate federal surface transportation revenues could be felt as early as August, when the balance in the [Highway Account of the federal Highway Trust Fund](#) is expected to drop below \$1 billion, which will trigger delays in the federal reimbursement to states for road, highway and bridge projects. States are expected to respond to this delay in federal reimbursement for road, highway and bridge repairs and improvements by delaying or postponing numerous projects.

As a further result, nationwide federal funding for highways will be cut by almost 100 percent from the current investment level for the fiscal year starting on October 1, 2014 (FY 2015) unless Congress provides additional transportation revenues. This is due to a cash shortfall in the Highway Trust Fund as projected by the [Congressional Budget Office](#).

The level of funding and the provisions of the federal surface transportation program have a significant impact on highway and bridge conditions, roadway safety, transit service, quality of life and economic development opportunities in Texas.

- TRIP estimates that Texas 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 \$25.1 billion annually in the form of additional VOC (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 lack some desirable safety features. The chart below details the costs to drivers in the Austin, Dallas-Fort Worth-Arlington, Houston and San Antonio areas.

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

- Texas' population reached approximately 26.1 million in 2012, a 53 percent increase since 1990. Texas had 15,252,192 licensed drivers in 2012.
- Vehicle miles traveled (VMT) in Texas increased by 47 percent from 1990 to 2012 – jumping from 162.2 billion VMT in 1990 to 237.8 billion VMT in 2012.

- By 2030, vehicle travel in Texas is projected to increase by another 25 percent.
- From 1990 to 2012, Texas' gross domestic product, a measure of the state's economic output, increased by 107 percent, when adjusted for inflation.

A lack of adequate state and local funding has resulted in sixteen percent of major locally and state-maintained urban roads and highways in Texas having pavement surfaces in poor condition, providing a rough ride and costing motorists in the form of additional vehicle operating costs.

- Sixteen percent of Texas' major urban roads and highways have pavements in poor condition. An additional 51 percent of the state's major urban roads are rated in mediocre or fair condition and the remaining 33 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 Texas motorists a total of \$5.7 billion annually in extra vehicle operating costs. Costs include accelerated vehicle depreciation, additional repair costs, and increased fuel consumption and tire wear.
- The chart below details the pavement conditions on major roads in the state's largest urban areas.



Nineteen percent of locally and state-maintained bridges in Texas 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.

- Two percent of Texas' 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.

- Seventeen percent of Texas' 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.

Texas' traffic fatality rate is significantly higher than the national average. Improving safety features on Texas' 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 2009 and 2013 a total of 16,041 people were killed in traffic crashes in Texas, an average of 3,208 fatalities per year.

- Texas' overall traffic fatality rate of 1.41 fatalities per 100 million vehicle miles of travel in 2013 is significantly higher than the national traffic fatality rate of 1.11.

- The fatality rate on Texas' rural non-Interstate roads was 2.63 fatalities per 100 vehicle miles of travel in 2013, more than two-and-a-half times greater than the 0.99 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 Texas, 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 annual number of hours wasted in traffic by the average driver in each urban area, as well as the annual congestion cost to the average motorist in the form of lost time and wasted fuel:



The efficiency of Texas' 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, \$1.167 trillion in goods are shipped from sites in Texas and another \$1.246 trillion in goods are shipped to sites in Texas, mostly by truck.
- Fifty-nine percent of the goods shipped annually from sites in Texas are carried by trucks and another nine percent are carried by courier services or multiple mode deliveries, which include trucking.
- 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.
- 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.
- 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.



The federal government is a critical source of funding for Texas' roads, highways and bridges and provides a significant return to Texas in road and bridge funding based on the revenue generated in the state by the federal motor fuel tax.

- MAP-21 (Moving Ahead for Progress in the 21st Century Act), approved by Congress in July 2012, increased funding flexibility for states and streamlined project approval processes to improve the efficiency of state and local transportation agencies in providing needed transportation improvements in the state.
- MAP-21, which expires on September 30, 2014, does not provide sufficient long-term revenues to support the current level of federal surface transportation investment.
- The impact of inadequate federal surface transportation revenues could be felt as early as this summer, when federal funding for road, highway and bridge projects is likely to be delayed because the balance in the [Highway Account of the federal Highway Trust Fund](#) is expected to drop below \$1 billion. This delay and uncertainty in funding will likely result in the postponement of numerous projects.
- Nationwide federal funding for highways is expected to be cut by almost 100 percent from the current investment level for the fiscal year starting October 1, 2014 (FY 2015) unless Congress provides additional transportation revenues. This is due to a cash shortfall in the Highway Trust Fund as projected by the [Congressional Budget Office](#).
- If the funding shortfalls into the federal Highway Trust Fund are addressed solely by cutting spending it is estimated that federal funding for highway and transit improvements in Texas will be cut by \$3.4 billion for the federal fiscal year starting October 1, 2014, unless Congress provides additional

transportation revenues.

- From 2008 to 2012, the federal government provided \$1.13 for road improvements in Texas for every dollar the state paid in federal motor fuel fees.
- If Congress decides to provide additional revenues for the federal Highway Trust Fund in tandem with authorizing a new federal surface transportation program, a number of technically feasible revenue options have been identified by the [American Association of State Highway and Transportation Officials](#).

Sources of information for this report include the Texas Department of Transportation (TXDOT), the Federal Highway Administration (FHWA), the Bureau of Transportation Statistics (BTS), the U.S. Census Bureau, the American Association of State Highway and Transportation Officials (AASHTO), the Texas Transportation Institute (TTI) and the National Highway Traffic Safety Administration (NHTSA). All data used in the report is the latest available.