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# Crashes vs. Congestion – What's the Cost to Society?

*prepared for*

AAA

*prepared by*

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*March 5, 2008*

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# Executive Summary

When American motorists talk about transportation problems, they generally key in on traffic. Snarled highways, epic commutes, and gridlocked business and commercial districts mar our suburban existence, weighing heavily upon our elected leaders, our policy-makers, and our families. Yet there's a more costly problem to be addressed on America's roads: motor vehicle crashes. In 2006, traffic crashes killed 42,642 people in the United States – about 117 deaths per day, and nearly 5 every hour. Most Americans would be surprised to learn the societal costs associated with motor vehicle crashes significantly exceed the costs of congestion.

AAA commissioned this study to examine the costs of crashes to society. The study, along with recommendations for improvements, is designed to raise awareness of the importance of transportation investments, and provide policy-makers, departments of transportation, and the public with information on the magnitude of the safety problem.

## ■ Methodology

The AAA study compares the costs of crashes to the costs of congestion by calculating a per person cost for crashes and multiplying by the population figures in the same 85 urban areas used by the Texas Transportation Institute (TTI) in the annual *Urban Mobility Report*. The costs of crashes are based on the Federal Highway Administration's (FHWA) comprehensive costs for traffic fatalities and injuries which place a dollar value on 11 components.

The 11 comprehensive cost components include property damage; lost earnings; lost household production (non-market activities occurring in the home); medical costs; emergency services; travel delay; vocational rehabilitation; workplace costs; administrative; legal; and pain and lost quality of life. According to FHWA, in 2005 dollars, the per person cost of a fatality is \$3,246,192 and the cost for an injury is \$68,170. Congestion costs, as reported in the *Urban Mobility Report*, are based on delay estimates combined with value of time and fuel costs.

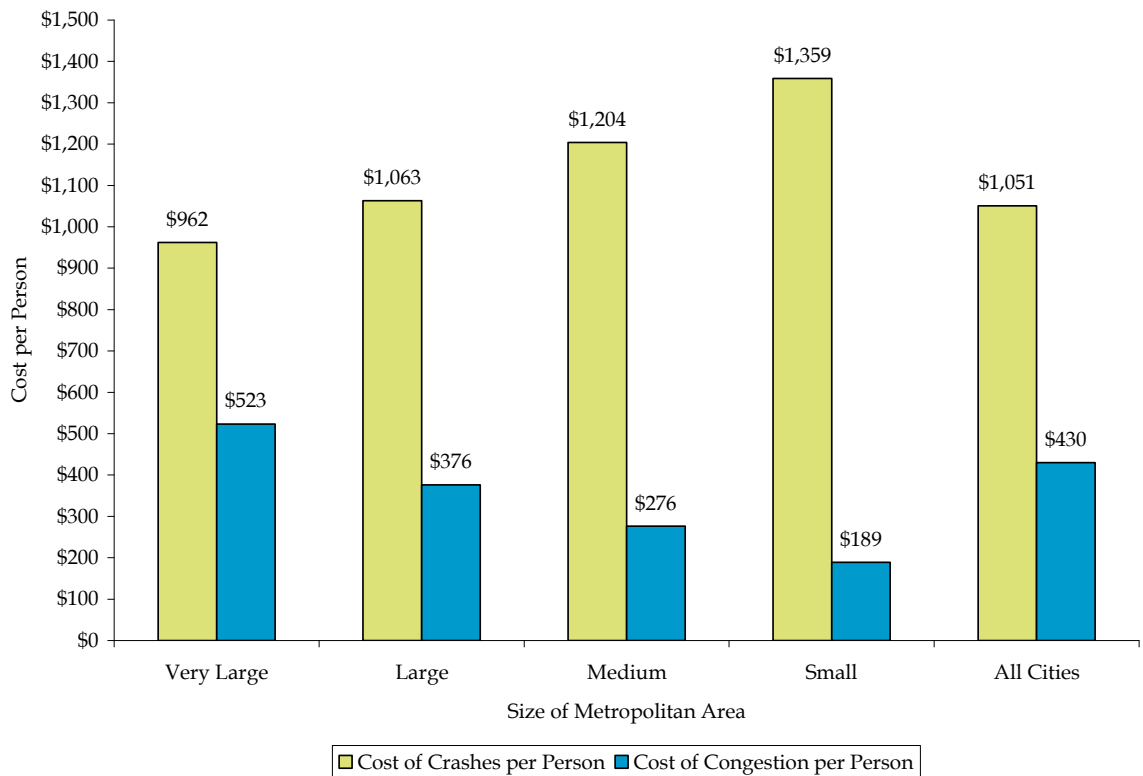
To ensure the accuracy of the study, results are not provided for Atlanta, Georgia, and for cities in Massachusetts and Texas. In the case of Atlanta only one of the two required comparison factors was available; Massachusetts was eliminated due to lack of good data; and Texas did not have recent data available during the course of this study.

## ■ Crash Costs Summary Results

Figure ES.1 shows data from 2005. The yellow bar graph shows, in 2005 dollars, the total cost of fatal and injury crashes for very large metropolitan areas (population over 3 million); large urban areas (population of 1 million but less than 3 million); medium areas (over 500,000 and less than 1 million); and small areas (less than 500,000). The blue bar shows the costs of congestion as reported by TTI in their 2007 *Urban Mobility Report*.

**Figure ES.1 Per Person Cost of Crashes and Congestion**

*Cost of Crashes includes Fatality and Injury Costs and excludes Property Damage Only (PDO) Crashes*

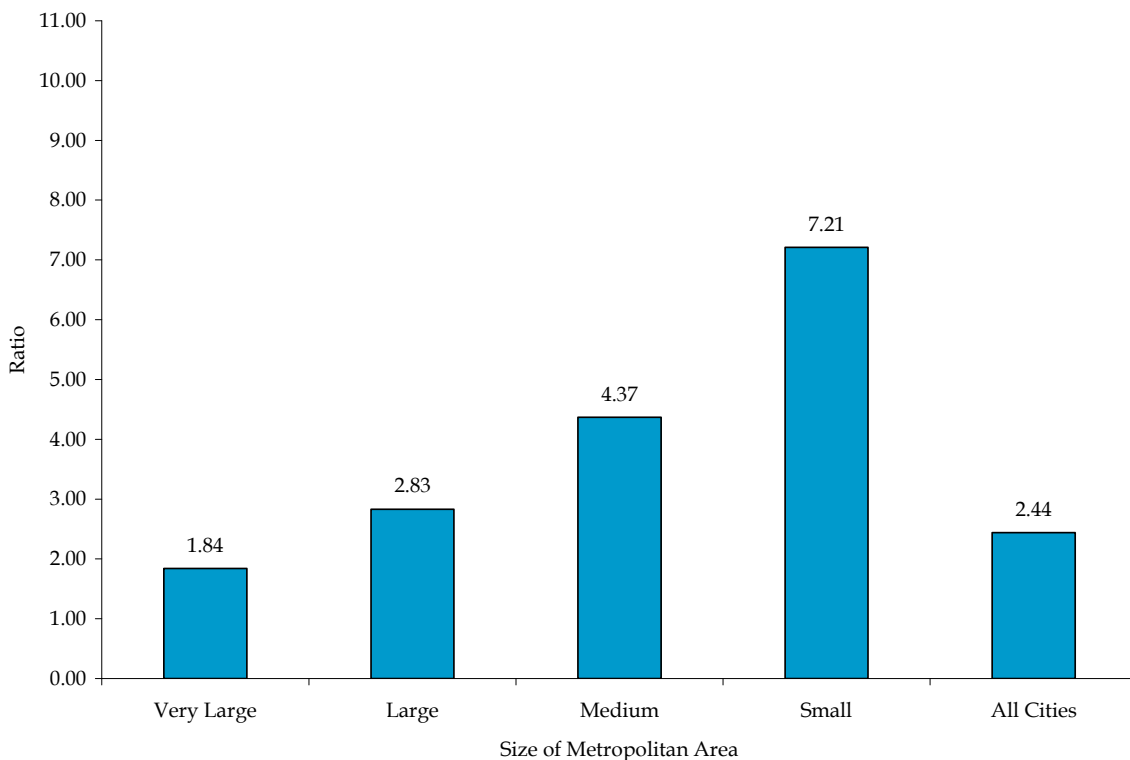


## ■ Key Findings

- In the urban areas studied, the cost of traffic crashes is nearly two and a half times the cost of congestion – \$164.2 billion for traffic crashes and \$67.6 billion for congestion.
- The crash costs include property damage; lost earnings; lost household production (non-market activities occurring in the home); medical costs; emergency services; travel delay; vocational rehabilitation; workplace costs; administrative; legal; and pain and lost quality of life. The economy and the environment also are impacted but those costs are not quantified in the study. According to FHWA, in 2005 dollars, the average cost of a fatality is \$3,246,192 and the average cost of an injury is \$68,170.
- Improving safety may improve congestion. Forty to 50 percent of all nonrecurring congestion is associated with traffic incidents.
- The cost of crashes on a per person basis decreases as the size of the metropolitan area increases. This is the inverse of the cost of congestion, which increases with an increase in the size of the metropolitan area.

Figure ES.2 shows the relationship between crash and congestion costs for very large, large, medium, and small urban areas along with the average for all cities in the study. For example, in the case of very large cities, for every dollar of congestion costs, the crash costs are \$1.84.

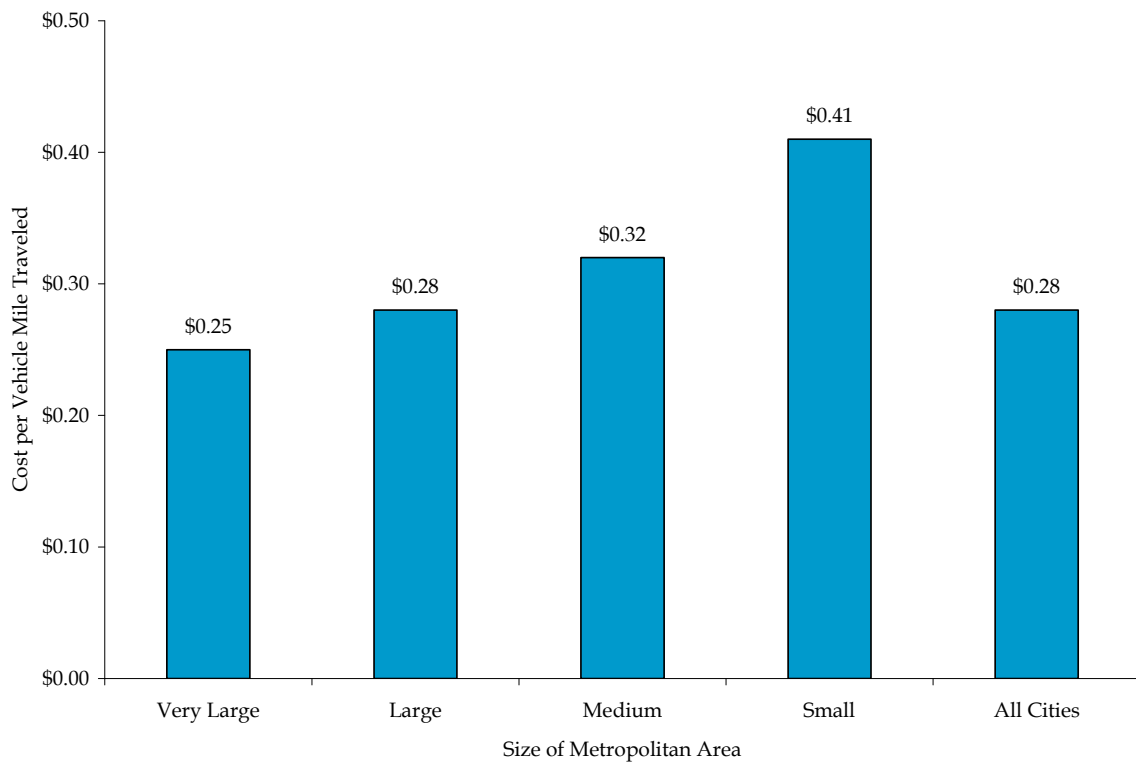
**Figure ES.2 Crash Costs Compared to Congestion Costs**



**■ Key Findings**

- In every city, the crash costs on a per person basis exceed the congestion costs. Overall, crash costs are nearly two and half times those of congestion. For very large urban areas (over 3 million), crash costs are nearly double those of congestion; for large urban areas (1 million to less than 3 million), crash costs are nearly two and a half times more than congestion; for medium-sized urban areas (500,000 to less than 1 million), crash costs are over four times more than congestion; and for small urban areas (less than 500,000), crashes are seven times more costly than congestion.

Figure ES.3 shows the cost of crashes and congestion per vehicle miles of travel. According to the FHWA, the average per vehicle miles traveled in 2005 was 12,084. Based on 28 cents per mile for the average city, this translates to a cost of over \$3,000 per year for all Americans. For individuals living in very large urban areas, crashes cost \$3,021; in large urban areas the crash costs are \$3,384; for medium urban areas the costs are \$3,867; and for small urban areas crashes cost \$4,954.

**Figure ES.3 Cost of Crashes and Congestion per Vehicle Mile Traveled**

## ■ Report Recommendations

Further progress on traffic safety is going to take all the “tools” in the traffic safety toolbox, plus some new thinking about approaches. Among the most significant challenges going forward will be how to change our culture of complacency as it relates to traffic safety. There is no single action or strategy that will bring about a cultural change. Rather, it will take new approaches to enhance public support for increased funding and help transportation planners focus on areas that will have the greatest safety benefits.

### *Leadership*

- Leadership and commitment are needed at the Federal, state, and local levels to make safety a priority in all transportation planning. Focusing planning and resources on safety improvements will not only save lives and prevent injuries, but can also reduce congestion.
- Greater political will is needed to pass legislation and enforce laws that can have a positive impact on safety such as primary safety belt requirements, impaired driving countermeasures, and full implementation of graduated driver licensing systems.

- Congress and the U.S. Department of Transportation should ensure states follow through on implementation of their strategic highway safety plans and evaluate the results to determine effectiveness.<sup>1</sup>
- National safety goals should be established and strategies implemented to cut surface transportation fatalities in half by 2025, as recommended by the National Surface Transportation Policy and Revenue Study Commission.

#### *Communication & Collaboration*

- The transportation safety community needs to develop more effective ways of getting the public to understand the impact of traffic crashes, the need for effective countermeasures, and the role their own behavior plays in safety.
- Increased collaboration among traffic safety professionals, public health specialists, and health communications experts is needed to incorporate the best available science on behavior modification.

#### *Research & Evaluation*

- Increased funding for testing and evaluation of safety interventions should be a priority. Programs should be based on sound scientific principles rather than “conventional wisdom,” populist fervor, or political expediency. Systematic evaluation allows identification and expansion of successful programs and interventions so that limited resources can be applied more effectively.
- Further testing and implementation of a road risk assessment tool, e.g., U.S. Road Assessment Program (usRAP), should be encouraged to ensure dollars are spent on roads and bridges with the greatest safety problems. Understanding road safety risks will help state DOTs focus on solutions that will have the greatest safety benefits and should result in broader public support for needed improvements.<sup>2</sup>

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<sup>1</sup> In 1997, the American Association of State Highway & Transportation Officials (AASHTO) developed a Strategic Highway Safety Plan (SHSP) and identified 22 of the nation’s most pressing highway safety problems. The plan focused on drivers, special users, vehicles, highways, emergency medical services, and management. In 2005, Congress passed the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) which directed states to use data to determine their most serious transportation safety problems and develop a SHSP to address them.

<sup>2</sup> The U.S. Road Assessment Program (usRAP) is a pilot program of the AAA Foundation for Traffic Safety, built upon successful programs already established in Europe (EuroRAP) and Australia (AusRAP). usRAP produces color-coded risk maps that display the crash rates and crash densities of roads, derived from historical crash data and traffic volume data, and also “star ratings” that communicate the relative safety of the physical characteristics and safety features of the roads, which are assessed through physical inspection of the roads. The pilot program has developed risk maps of rural primary roads in four states, and is expanding into several additional states in 2008.