SAFER ROADS SAVE LIVES

United States House of Representatives

Committee on Transportation and Infrastructure

Subcommittee on Highways and Transit

Hon. John J. Duncan, Jr., Chairman

Testimony of:
Mr. Joe Jeffrey, Chairman
American Traffic Safety Services Association (ATSSA)

March 30, 2011

Chairman Duncan, Ranking Member DeFazio, Members of the Subcommittee, thank you very much for the opportunity to testify today on behalf of the roadway safety industry about the critical need for a multi-year transportation authorization. My name is Joe Jeffrey, and I am the Chairman of the 1,600-member American Traffic Safety Services Association (ATSSA). ATSSA's member companies manufacture, distribute, and install roadway safety devices such as pavement markings, signs, guardrail, median barrier and other infrastructure safety features as well as provide temporary traffic control. Making the roadway itself safer is a distinct difference from other aspects of roadway safety including seat belts and distracted driving. I am also the President of Road-Tech Safety Services, a California-based company that specializes in traffic control equipment for the highway construction industry.

As you continue to craft the next transportation authorization legislation, ATSSA believes that safety should and must be a core function and focus of the legislation. ATSSA has developed authorization suggestions and policies which we believe will help America move closer to achieving our overarching goal – to get us ***Toward Zero Deaths*** on our nation's roads.

In this economic climate, where we are all going to have to do more with less, we understand that growing any program in the next transportation authorization is going to be a challenge. Our recommendations for safety improvements throughout this testimony are proven, cost effective ideas that offer significant return on investment. We are not recommending rebuilding roadways for these improvements, but simply making modifications to existing roadways that will drive down fatalities and in turn have economic benefits that will be felt across the nation.

Highway Safety Improvement Program

One of the most successful components of SAFETEA-LU is the Highway Safety Improvement Program (HSIP). This program has been the critical factor in reducing roadway fatalities nationwide. According to a June 2010 study commissioned by ATSSA and conducted by SAIC, investment in the HSIP is critical to saving lives and improving safety. The report, which I ask also be entered into the record, concludes that every $1 million obligated by the HSIP saves seven lives, and with NHTSA's cost of life estimate being over $6 million per person, that is a tremendous return on investment of 42:1. However, at the end of the day, it's about more than societal savings. Through our Victims and Survivors campaign, ATSSA highlights the people who have tragically lost their lives in car crashes and those who were saved by roadway safety infrastructure. These stories help to put a face behind the approximately 34,000 annual roadway deaths.

In Chairman Mica's home state of Florida, there has been great success with the use of guardrail and cable barrier. According to a July 2010 *Orlando Sentinel* article, five years after guardrail was installed on Florida's Turnpike, fatalities decreased by more than half. A January 2007 report in *Florida Transportation Monthly* states that, according to Florida Turnpike Traffic Operations, the Turnpike has seen a nearly 70 percent reduction in cross-over crashes due to the installation of guardrail. In addition, Chairman Duncan, I know you also personally understand

the importance of roadway safety infrastructure - as you've spoken of the concrete barrier that helped to stop your car from a head-on crash last year.

Below are some other examples of how HSIP funds have been utilized across the country:

California:

- Intersection Improvements
  - Channelization, turning lanes, crosswalks, among others
  - Total: 24 projects; $13.6 million
- Roadway/Structure Improvements
  - Shoulder or median rumble strips, signing, pavement marking, striping, among others
  - Total: 29 projects; $41.3 million
- Roadside Improvements
  - Concrete guardrail end treatments and crash cushions, installation/replacement of metal beam guardrail, among others
  - Total: 11 projects; $15.1 million
- Two- and Three- Lane Monitoring Program
  - Centerline rumble strips and rumble strips with thermoplastic traffic stripes
  - Total: 4 projects; 52.7 miles; $1.9 million
- Median Barrier Monitoring Program
  - Installation of thrie beam, cable, or concrete median barrier
  - Total: 6 projects; 20.2 miles; $9 million
- Upgrade Median Barrier
  - Upgrading existing double metal beam barriers to either concrete or thrie beam barrier
  - Total: 2 projects; 14.5 miles; $36.4 million

**Note: The California Department of Transportation makes a concerted effort each year to invest in safety infrastructure above and beyond what California is allocated through federal funding.

Illinois:

- Systemic improvements have helped them reach the **lowest fatality numbers since 1921**.
- Focusing on stretches of dangerous roadway to prevent lane departure has been a priority. This has accounted for the most significant reduction of Illinois fatalities.
- Some examples of the types of projects the state has focused on include
  - Interstate Shoulder Milled Rumble Strips.

- Interstate bridge pier and sign foundation protection.
- Upgrade Guardrail to a higher much better crash performing system.
- Upgrade non-crashworthy guardrail end sections with approved crash tested end sections.
- Cable median barrier has been installed on 210 miles of roadway. The before and after crash data were evaluated. Prior to the barrier's being installed, 6 to 16 cross-median crashes occurred per year at these locations (an average of 11 cross-median crashes per year). As the length of barrier installed increased, the crashes went down to four in 2006 and 2007, and no cross-median crashes over the 210 miles were reported in 2008.
  - **Based on this preliminary safety analysis,** the average annual number of cross-median crashes **was reduced by approximately 60%** in 2006 and 2007.
- Curve improvements including chevrons and rumblestrips.
- Rural highway shoulder paving with rumblestrips at strategic locations.
- Illinois has formed an innovative partnership with the State Highway Patrol whereby the IL State Highway Patrol's accident reconstruction teams have been trained to do Roadway Safety Assessments. This has resulted in low-cost countermeasures such as brighter delineation (pavement markings), signage, and a short section of guardrail installation.

Iowa:

- New centerline rumble strip policy
- Increased focus on curve crashes
  - Systemic sign improvements
  - Low cost improvements only

Kentucky:

- Systemic installation of centerline rumble strips (about 2,000 miles)
- Pilot program: 170 miles of edge line rumble stripes

Minnesota:

- One median cable project resulted in **fatalities going from 13 to 0.**

Mississippi:

- Lane Departure Countermeasures
  - Shoulder rumble strips on 99% of Interstate System
  - Edge line rumble strips/stripes to be installed on all new construction and rehabilitation projects
  - Installed 25 miles of cable median barrier (beginning in 2008)

- Installed 400 miles of centerline rumble strips in 2009
- Installing 6-inch stripes
- Installed concrete median barrier on 20-mile corridor

Missouri:

- System-wide safety solutions
  - Nearly 600 miles of median cable barrier
  - Median barrier was found to be **98% effective in preventing crossover fatalities**.
  - Rumble strips for all major roads (edge line and centerline)
  - 6-inch stripes
  - Install edge line stripes
  - Curve speed plaques for every curve/turn sign, chevrons and fluorescent yellow sheeting

Nevada:

- Installed 1,400 miles of rumble strips on two-lane roadways

Texas:

- Combined Highway Safety Improvement Program and High Risk Rural Roads Program
  - Nearly 500 projects totaling more than $420 million
  - Projects include:
    - Installation of centerline rumble strips
    - Installation of cable/concrete median barrier
    - Intersection improvements
    - Emphasis on cable barrier to stop cross-median head-on collisions
      - About 925 miles of installed median barrier
      - Another 95 miles in pending contracts
      - One-year before-and-after study of median cable barrier installations showed that this one project **saved 18 lives**.

Utah:

- In Utah cable barrier in one area showed **fatalities going from 22 to 0**.
- The state experienced a **56% reduction in crossover crashes** on two-lane roads by installing center line rumble stripes.

In these times of limited federal resources, it is important that we make strategic and meaningful investments that will make a difference in the lives of the American people – and increasing the focus on roadway safety is one way to do this. ATSSA is recommending an increase to the HSIP funding levels, with a target of 10 percent of overall highway program dollars. This investment

can and will go a long way to continuing to reduce the number of deaths that tragically occur on our roadways. In addition, ATSSA is recommending that HSIP funds be used exclusively for roadway safety infrastructure improvements in order to make our roads as safe as possible, as quickly as possible. Given the roadway safety needs in every State, it is our recommendation that States not be allowed to transfer HSIP funds to other programs. On the other hand, if the idea of being able to transfer funds out of HSIP was linked to a performance metric that might be a valid method to allow for transferring funds. For example, if a state reduces fatalities by 90% then transfers would be allowed.

High Risk Rural Roads

SAFETEA-LU also created the High Risk Rural Roads program which aims to increase safety on the nation's rural roads. Funded at $90 million annually for all 50 states, the program was slow to get off the ground, but has started to gain traction and success. ATSSA is recommending an increase to this program in order to continue to highlight this sector of the American transportation network. An individual is 2 ½ times more likely to die on a rural road than on an urban one. That indisputable fact alone should cause us to place a special emphasis on these roadways, including targeted funding. Rural roads link farms to markets, towns to cities and freight from business to ports. Many of these roadways don't even have signs or pavement markings and are commonly curvy or hilly. Often times, these rural roads are not owned or maintained by the State Departments of Transportation – they are owned and maintained by a county, city or other local entity. In fact, according to a 2006 report from the Bureau of Transportation Statistics, "...some 25 percent of the nation's highways were owned by state and federal government, but 75 percent, or 2.9 million miles of America's roads was owned by counties, cities and townships." With a dedicated funding source like the High Risk Rural Roads Program, Congress can ensure that federal dollars are actually used on the rural roadways with the most safety need – regardless of the level of ownership of the roads themselves. Providing for a safe and efficient rural road system throughout the country will allow Americans to live in rural and suburban areas with fewer transportation concerns. Although there are tremendous challenges facing rural America, ATSSA believes that low cost roadway safety solutions aimed at rural roads will help rural America thrive and prosper.

A national coalition has emerged to advocate on behalf of this issue. The Roadway Infrastructure Safety Coalition (RISC), of which ATSSA is a founding partner, is comprised of ATSSA, AAA, American Highway Users Alliance, American Public Works Association, American Society of Civil Engineers, American Society of Highway Engineers, National Association of Counties, National Association of County Engineers, and the National Association of Development Organizations.

Whether it is the HSIP, the High Risk Rural Roads Program or the use of safety performance measures, ATSSA and the members of RISC are committed to working with the Committee to solve these very important issues.

Below is an example of the positive benefit-cost ratio from low cost road safety improvements on rural roads:

The Missouri DOT issued a final report in November 2008 that evaluated their striping and delineation program, "Benefit-Cost Evaluation of MoDOT's Total Striping and Delineation Program." Some of the most effective treatments that occurred on rural roadways included:

- Wider markings with resurfacing on rural multilane undivided highway (Benefit-Cost Ratio = 91:1)
- Wider markings without resurfacing on rural freeways (Benefit-Cost Ratio = 64:1)
- Wider markings and both center line and edge line rumble stripes with resurfacing on rural two-lane highways (Benefit-Cost Ration = 59:1)

Older Driver Infrastructure Safety

As the United States' population ages, it is going to be critical to make the roads as safe as possible for our older citizens - allowing them to live safely and independently for as long as possible. It is estimated that by 2025, one out of four American drivers will be 65 years or older. In SAFETEA-LU, section 1405 raised awareness for the need to invest in infrastructure safety aimed at older drivers; however, no funds were ever appropriated for this important program. Because of this, a recent GAO report from 2007 found that only approximately half of the States had implemented the Federal Highway Administration's recommendations from the *Highway Design Handbook for Older Drivers and Pedestrians.*

ATSSA is recommending that funds be available in the next authorization bill to allow states to make improvements to aid older drivers and older pedestrians. Some of the improvements would include larger and brighter signs, wider and brighter pavements markings, and dedicated left turn lanes, among others. Improvements such as these will help not only older drivers, but all drivers. A study from the Texas Transportation Institute has shown that enlarging edge line pavement markings from 4 inches to 6 six inches dramatically helps older drivers to stay within their lanes. This is critical because lane departure is the number one cause of fatalities across the country.

The Coalition for Older Roadway User Safety (CORUS) has been created to focus attention on this issue as well. CORUS is made up of ATSSA, AARP, American Highway Users Alliance, Easter Seals, National Association of Area Agencies on Aging, and Transportation for America.

Conclusion

As I mentioned previously, ATSSA is committed to helping America move ***Toward Zero Deaths***. Although this is a lofty goal, our Association and many transportation stakeholders believe that it's the only goal worth striving for. With low cost investments geared toward the Highway Safety Improvement Program, High Risk Rural Roads, and Older Driver Safety, we will be able to make great headway. At the end of the day, Congress needs to pass a multi-year transportation authorization bill as soon as possible. In addition to creating jobs and rebuilding

the country's crumbling infrastructure, this next authorization bill will save the lives of thousands of Americans: men, women, and children alike.

Mr. Chairman, as I mentioned, I am a small businessman. I understand the importance of prioritization when it comes to using limited funds. In order to regain the confidence of the American people in the federal transportation program, we need to demonstrate the improvement to the quality of their lives that can come from this program. I firmly believe that safety is one area that we can all agree should remain a focus and priority of the federal government. ATSSA members stand ready to work with the Committee over the next weeks and months on the transportation authorization bill and we hope you will look to us as a resource.

Mr. Chairman, Ranking Member DeFazio, and Subcommittee Members, thank you for the opportunity to testify today, and I look forward to your questions.

Highway Safety Improvement Program (HSIP) Obligations and Fatalities on U.S. Highways: Final Report

Prepared for:
The American Traffic Safety Services Association (ATSSA)

Prepared by:

Science Applications International Corporation (SAIC)
Transportation Solutions Division

June 29, 2010

Statement

This report was developed by Science Applications International Corporation (SAIC) under contract with the American Traffic Safety Services Association (ATSSA). The purpose of the analysis was to examine the relationship between the Highway Safety Improvement Program (HSIP) and a decrease in roadway fatalities for the period 2005 – 2009. The principle investigators were Robert P. Haas and Brian E. Chandler.

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Executive Summary

The most recent transportation funding legislation, the Safe, Accountable, Flexible, Efficient Transportation Equity Act – A Legacy for Users (SAFETEA-LU) established the Highway Safety Improvement Program (HSIP) "to achieve a significant reduction in traffic fatalities and serious injuries on all public roads." Beginning in 2006, SAFETEA-LU provided increased funding for traffic safety projects as shown in Figure ES-1.[1]

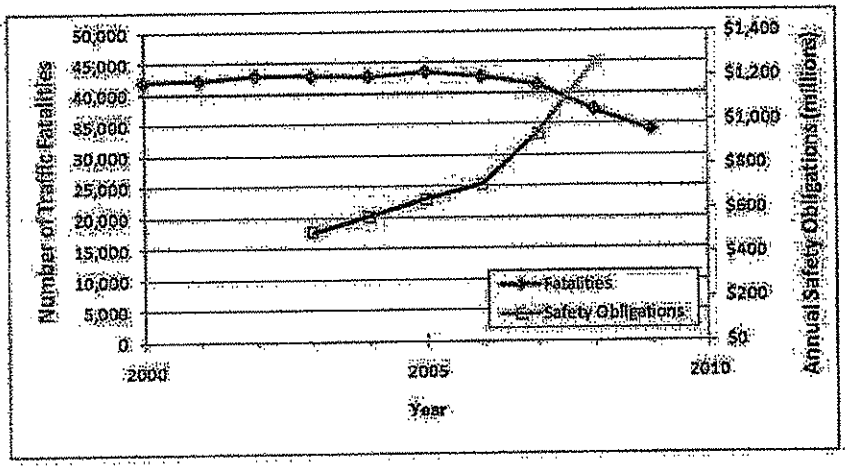

Figure ES-1. Traffic Fatalities and Annual Safety Obligation

At about that same time, traffic fatalities began to decrease noticeably, and have continued to decrease through 2009. These data indicate that the increase in safety obligations has had an effect on the decrease in traffic fatalities. However, many other factors could have impacted the number of traffic fatalities and might explain this decrease. A review of several of the most commonly cited factors indicated that none of them satisfactorily explained the sudden decrease in traffic fatalities:

- Seat belt usage has been steadily increasing since 2001, and there was no change in that trend in 2006.
- Air bag availability has been steadily increasing since 2001, and there was no change in that trend in 2006.
- Annual vehicle miles traveled (VMT) steadily increased between 1995 and 2007. Annual VMT dropped in 2008 and 2009, which could explain part of the decrease in traffic fatalities that occurred.
- The percent of VMT that is classified as rural has been decreasing steadily since 2002, and there was no change in that trend in 2006.
- The unemployment rate showed a sharp increase starting in 2007. However, a similar increase in 2001 did not result in a corresponding change in the number of traffic fatalities that occurred.

Of the factors considered, only the annual safety obligations shows the type of significant change beginning in 2006 that correlates with the sharp decrease in traffic fatalities.

After verifying that increases in annual safety obligations provided a plausible explanation for the decrease in traffic fatalities, the next step was to estimate the size of this impact – how much were traffic fatalities reduced for every $1 million increase in HSIP obligations? To estimate this, a model of traffic fatalities was developed. This model took

1. This figure includes safety obligations related to the HSIP (after 2006) and the TEA-21 and Surface Transportation Extension Programs (prior to 2006, with carry-over funds after that year). The safety obligation line is shaded red for the years when TEA-21 and ST funds dominated, transitioning to yellow for the years when HSIP funds were dominant.

into consideration the historical trends of decreasing fatality rates and increasing safety obligations in order to estimate the impact of the sharp rise in safety obligations that resulted from HSIP. As shown in Figure ES-2, this model does a remarkable job of reproducing the annual traffic fatalities that have occurred since 2003, including the drop in traffic fatalities that began in 2006.

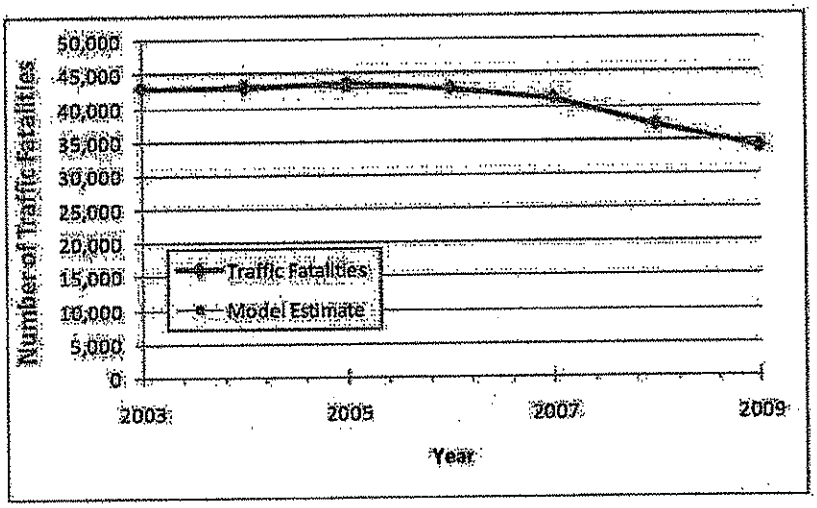

Figure ES-2. Traffic Fatalities and Model Estimates of Traffic Fatalities, 2003 to 2009

This model indicates that, for every $1 million increase in safety obligations, a reduction of seven traffic fatalities annually occurred. Based on economic values developed by the National Highway Traffic Safety Administration (NHTSA)[2], the savings to society from preventing a single traffic fatality is $6.1 million. Using this figure, calculations indicate that every $1 million increase of HSIP funds obligated results in an annual savings of approximately $42.7 million in societal costs to the United States (i.e., a benefit/cost ratio of 42.7 to 1).

It is possible that other changes that occurred at about the same time as the increase in safety funding through HSIP explain part of the observed decrease in traffic fatalities. For example, behavioral-focused traffic safety funds available through NHTSA increased after 2006. Also, SAFETEA-LU required that States develop crash data systems and Strategic Highway Safety Plans, which may have resulted in more effective use of existing safety funds. Insufficient data was available to include these factors in the model.

Even if those factors do explain some of this decrease, this analysis still suggests that the increase in HSIP obligations provided a tremendous savings in terms of lives saved and the societal costs of traffic fatalities.

2 *Value of a Statistical Life and Comprehensive Value of Life*, National Highway Traffic Safety Administration. April 2010. http://www.nhtsa.gov/staticfiles/administration/pdf/Value_of_a_Statistical_Life.pdf (accessed May 2010).

Introduction to the Highway Safety Improvement Program

The Safe, Accountable, Flexible, Efficient Transportation Equity Act – A Legacy for Users (SAFETEA-LU) established the Highway Safety Improvement Program (HSIP) "to achieve a significant reduction in traffic fatalities and serious injuries on all public roads."[3] This program authorized about $1.3 billion per year from 2006 to 2009 to be spent on safety projects. Of this, $220 million per year was set aside for the Railway-Highway Crossing program. The remainder was apportioned to States using the following factors:

- One-third of the HSIP funds were apportioned to States based on the number of lane miles of Federal-aid highway in each State.
- One-third of the HSIP funds were apportioned to States based on the number of vehicle miles traveled on Federal-aid highways in each State.
- One-third of the HSIP funds were apportioned to States based on the number of fatalities on the Federal-aid system in each State.

The HSIP legislation also required each State to develop a Strategic Highway Safety Plan (SHSP), establish a crash data system, and report locations with severe safety needs annually. (Additional information on HSIP requirements is documented in 23 CFR 924.)[4]

Three years after its inception, it is natural to explore whether the HSIP has achieved its objectives. Did it primarily result in a significant reduction in traffic fatalities and serious injuries? Figure 1, which depicts annual traffic fatalities from 1994 to 2009, seems to indicate that the answer to this question is "Yes."

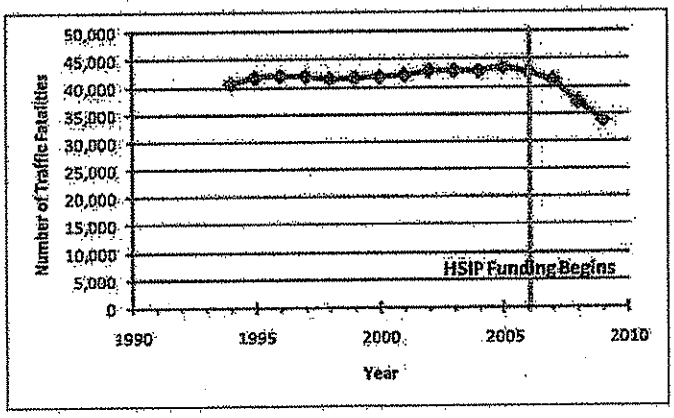

Figure 1. Annual Traffic Fatalities, 1994 to 2009

After more than 10 years with little change in the number of annual traffic fatalities, the number of fatalities began to drop just when HSIP was established. The purpose of this analysis is to examine that apparent effect in order to estimate what part of that drop, if any, can be attributed to HSIP.

Traffic Fatalities and Safety Obligations

One of the impacts of HSIP was a significant increase in the amount of funds allocated for traffic safety. However, the HSIP funds were not introduced into a vacuum. Prior to 2006, safety funding was available through the TEA-21 and Surface Transportation Extension programs. Carry-over funds from these programs continued to be obligated after 2006. Figure 2 depicts nationwide traffic fatalities and safety program obligations.

3 HSIP fact sheet, http://www.fhwa.dot.gov/safetealu/factsheets/hsip.htm (accessed April 2010).
4 Highway Safety Improvement Program (HSIP), Federal Highway Administration Office of Safety website, http://safety.fhwa.dot.gov/hsip/ (accessed April 2010).

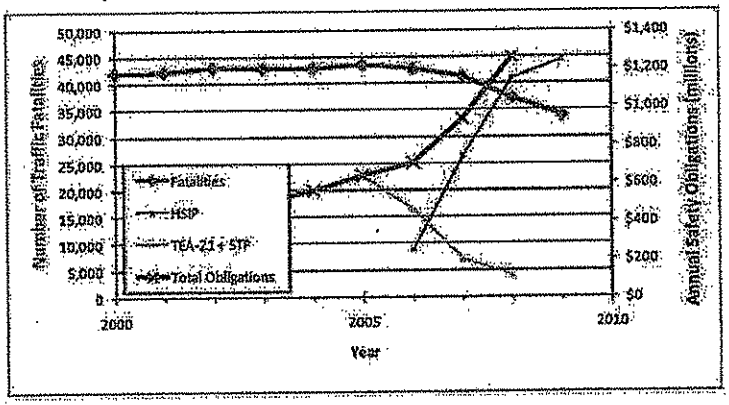

Figure 2. Nationwide Traffic Fatalities and Safety Program Obligations[5]

Note that the rapid drop in traffic fatalities that occurred between 2007 and 2009 was preceded by the sharp increase in safety program obligations that occurred between 2006 and 2007. This is the relationship one would expect if HSIP funding were responsible for this drop in fatalities – obligations for projects completed in 2007 and 2008 resulted in decreased fatalities during 2008 and 2009.

Observation Summary: Traffic fatalities began decreasing at about the same time as safety obligations began increasing due to HSIP.

Traffic Fatalities and Seat Belt Usage

Another factor that could impact the number of traffic fatalities is seat belt usage. As shown in Figure 3, seat belt usage has been increasing steadily since 2001, from about 73 percent in 2001 to 83 percent in 2008.[6] During most of that period, traffic fatalities remained fairly constant, with sharp declines in 2007 and 2008.

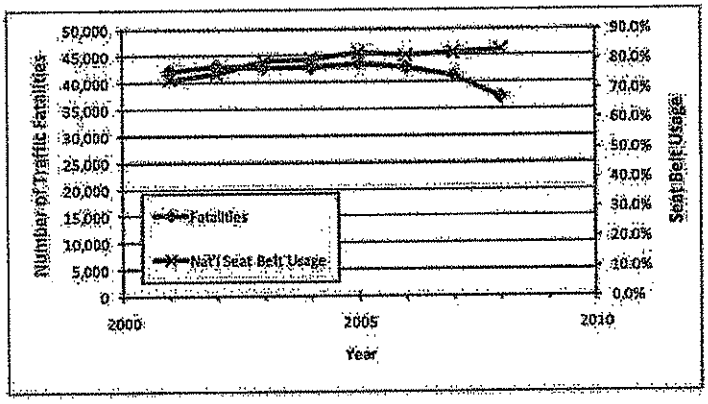

Figure 3. Nationwide Fatalities and Seat Belt Use, 2001 to Present

While the increase in seat belt usage has surely increased traffic safety during this period, there was no recent change in the seat belt usage trend that could explain the sudden change in the number of traffic fatalities.

Observation Summary: Seat belt usage frequency has been increasing. However, there was no change in this rate of increase in 2006 that would explain the decrease in traffic fatalities that began to occur at that time.

5 *Status of Funds Provided (various)*, FY2003-2009. United States Department of Transportation, Federal Highway Administration, Fiscal Management Information System (FMIS).

6 National Highway Transportation Safety Administration, "Seat Belt Use in 2008 – Use Rates in the States and Territories," *NHTSA Traffic Safety Facts*. DOT HS 811 106, April 2009.

Traffic Fatalities and Airbags

Airbags would be expected to play a similar role in traveler safety as seat belts – increased availability of airbags in the fleet of vehicles on U.S. roadways would be expected to decrease fatalities similarly to increased seat belt usage. Figure 4 depicts the percentage of people listed in the FARS database as being in a car during a fatal crash for which an airbag was available.

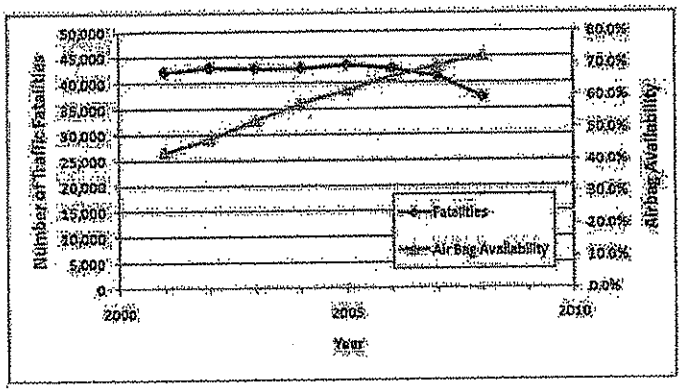

Figure 4. Traffic Fatalities and Airbag Availability[7]

As would be expected given the increased market penetration of airbags in the vehicle market, air bag availability for occupants of a car involved in a fatal crash has increased dramatically during this period from about 43 percent in 2001 to 72 percent in 2008.[8] While the availability of airbags has been increasing steadily over this period, there is no change in that trend that corresponds to the change in the number of traffic fatalities that began in 2007.

Observation Summary: Air bag availability in the U.S. fleet of vehicles has been increasing. However, there was no change in the rate of increase in 2006 that would explain the decrease in traffic fatalities that began to occur at that time.

Traffic Fatalities and Vehicle Miles Traveled

All other things being equal, the number of traffic fatalities would be expected to scale approximately linearly with vehicle miles traveled (VMT) – a given percentage increase in vehicle miles traveled would result in a similar percentage increase in fatalities, unless there is some reason that the risk in the additional miles traveled was different than the risk for the previous mileage. Figure 5 shows a different relationship than expected between traffic fatalities and VMT. VMT increased annually from 2001 to 2007, before dropping in 2008 and 2009, presumably due to the recent economic downturn. However, the number of traffic fatalities did not increase during this period of increased travel.

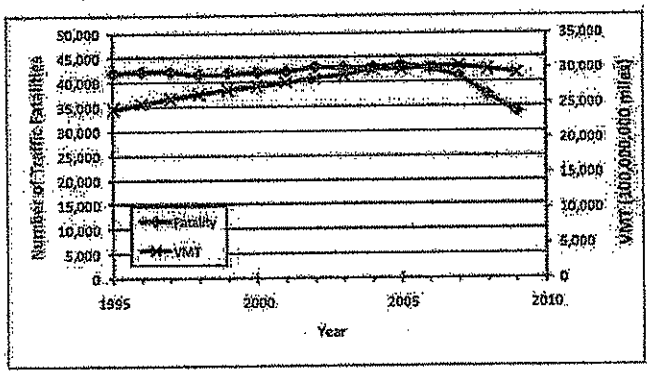

Figure 5. Traffic Fatalities and Vehicle Miles Traveled

7 Fatality Analysis Reporting System (FARS), National Highway Traffic Safety Administration, http://www.fars.nhtsa.dot.gov (Accessed April 2010).

8 Because airbags are expected to decrease occupant fatalities, the fraction of car occupants with an airbag available in a crash involving a fatality is likely lower than the same fraction for the general population.

The rate of increase in VMT began to slow in 2006, and VMT actually fell between 2007 and 2009. While this timing does correlate with the timing of the drop in traffic fatalities, one would not expect a small decrease in VMT (about 2 percent) to result in such a large decrease in traffic fatalities (about 22 percent). Thus, it would seem that the drop in VMT that occurred starting in about 2006 might explain a small part of the observed decrease in traffic fatalities that occurred since that time, but not all of it. Figure 6 examines the *fatality rate* per 100,000,000 VMT from 1995 to 2009, along with a trend line that fits that data from 1998 to 2006.

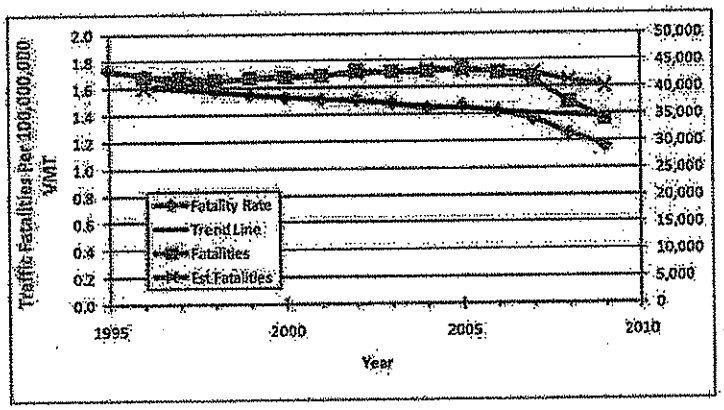

Figure 6. Traffic Fatalities per 100,000,000 VMT and Traffic Fatalities

Note that during the period, the fall in the fatality rate is nearly linear. This trend line was used to calculate the estimated number of traffic fatalities that would have occurred if the situation as it existed from 1998 to 2006 had continued to exist by multiplying the estimated fatality rate (from the trend line) by the actual VMT. This is the purple curve. Note that this curve provides an extremely close fit to the observed number of fatalities for the period from 1998 to 2006.[9] Beginning in 2007, something happened that changed the trend, something that resulted in 6,000 fewer traffic fatalities in 2009 than would have been expected from looking at historical trends alone.

Observation Summary: VMT did begin to decrease in 2006, at about the same time as the number of traffic fatalities began to decrease. However, the small decrease in VMT is not sufficient to explain the large decrease in traffic fatalities.

Based on historical trends, the decrease in VMT between 2006 and 2009, combined with the lowering fatality rate that was occurring historically, would have resulted in a decrease of about 2,800 traffic fatalities during that period. That leaves an additional decrease of 6,000 fatalities unexplained by historical trends.

Traffic Fatalities and Rural vs Urban VMT

Another factor that affects the number of traffic fatalities is the percent of vehicle miles traveled that are urban rather than rural. As shown in Figure 7, the fatality rate per VMT is much higher for miles traveled in rural areas than in urban areas. Thus, a shift over time from rural to urban travel would result in a lower overall fatality rate.

9. Although not within the scope of this study, it also appears that something occurred in about 1998 that affected the trend line - the fatality rate was falling more rapidly prior to 1998 than it did after 1998.

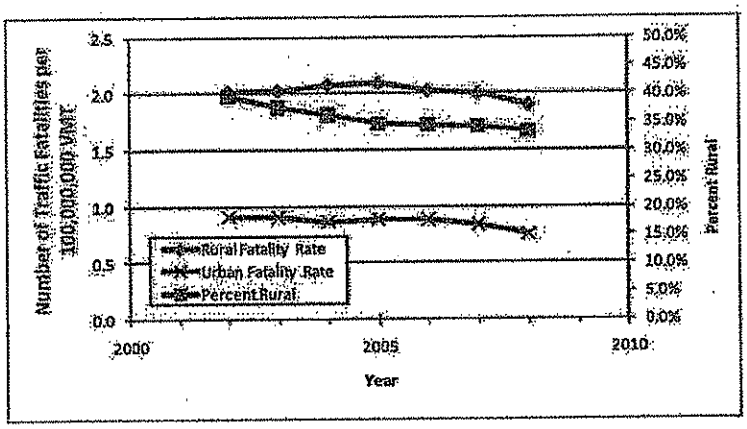

Figure 7. Rural and Urban Traffic Fatality Rate

This is exactly what is observed in the data. Between 2002 and 2006, the percent of VMT that occurred in rural areas dropped from about 40 percent to about 34 percent (see Figure 8).

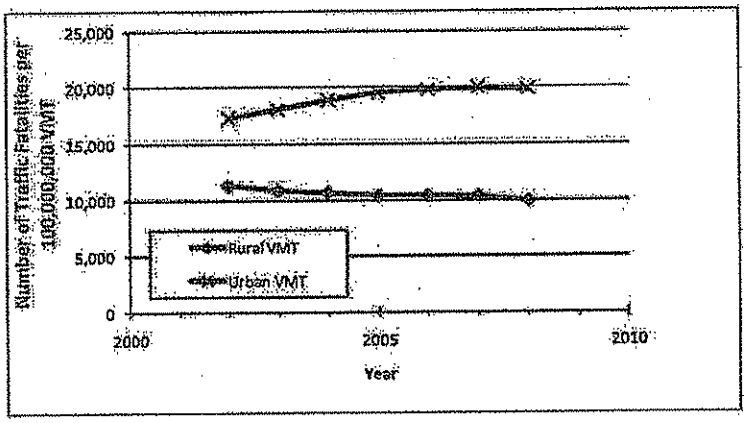

Figure 8. Rural and Urban VMT, 2002 to 2008

This shift could explain, in part, why the number of fatalities did not increase during this period, despite the increase in VMT. While total VMT was increasing, the number of rural VMT was decreasing.[10]

There are two other things to note about these charts related to the drop in traffic fatalities since 2005. First, the decrease in the percent of VMT that was rural occurred mostly between 2002 and 2005 and has remained relatively constant since that time. So, this factor does not explain the changes that have occurred since 2005. Second, in both the urban and rural numbers, a drop in fatalities per VMT occurs between 2005 and 2008. Thus, some other factor that occurred during this time period seems to have made both rural and urban driving safer.

Observation Summary: A decrease in the percent of overall VMT that were classified as rural would result in a decrease in the overall fatality rate, and such a decrease occurred between 2002 and 2008. This could explain part of the decrease in the overall fatality rate that is observed during that period. However, this does not explain the decreases that occurred since 2006. In fact, the percent of VMT classified as rural leveled off at about the same time that the fatalities began to decrease more quickly.

10 One potential issue is the change in rural and urban roadway designation of a route. Reclassifications, annexations, and absorptions into Metropolitan Statistical Areas (MSA) over time have increased the percent of urban VMT without a change in driving habits. For the purpose of this report, these changes are assumed to have little effect on the nationwide urban/rural VMT split during the study period.

Unemployment Rate

Another factor that has sometimes been related to traffic fatalities is the unemployment rate. Figure 9 depicts the relationship between the unemployment rate and the number of traffic fatalities since 1994.

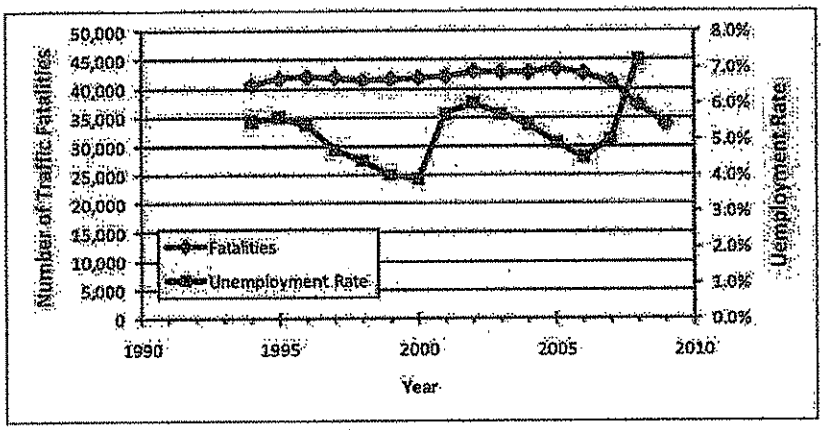

Figure 9. Traffic Fatalities and Unemployment Rate, 1994 to 2008[11]

While it is true that the unemployment rate began to rise at about the same time that the recent drop in the number of traffic fatalities began, a similar rise in unemployment in 2000 had no similar impact on traffic fatalities. Also, no changes in the number of traffic fatalities occurred when drops in unemployment began in 1995 and 2002. This suggests that the fact that unemployment began to rise in 2006 at about the same time that traffic fatalities began to fall was coincidental rather than causal.

Also, one would also expect the primary impact of unemployment on traffic fatalities to be on vehicle miles traveled – high unemployment indicates a more sluggish economy, which would result in less travel and, therefore, potentially fewer fatalities. Comparing the chart relating VMT to the fatality rate and the number of fatalities (Figure 6 on page 5) implies that VMT correlates much more strongly with the number of fatalities than does the unemployment rate.

Observation Summary: An increase in the unemployment rate did occur at about the same time as the 2006 decrease in the number of traffic fatalities. However, similar changes in the unemployment rate in the past did not coincide with a similar impact on the number of traffic fatalities. Any relationship between unemployment and traffic fatalities seems best explained through changes in VMT that might occur when the economic environment changes (as represented by unemployment).

Federal Safety Funding Obligation Ratio

One factor that safety analysts have related to traffic fatalities is the obligation ratio – the percent of safety funds that a State obligates to safety projects, relative to the amount they were authorized to spend. It has been assumed that States with a higher obligation ratio would have a lower fatality rate. The actual relationship is shown in Figure 10. In this figure, the blue line is the trend line depicting the relationship between the average HSIP obligation ratio and the fatality rate. (Each dot represents the HSIP obligation ratio and the fatality rate of a single State.)

11 *Annual Regional and State Unemployment, Bureau of Labor Statistics*, 1994-2008. http://www.bls.gov/schedule/archives/all_nr.htm#SRGUNE (Accessed May 2010).

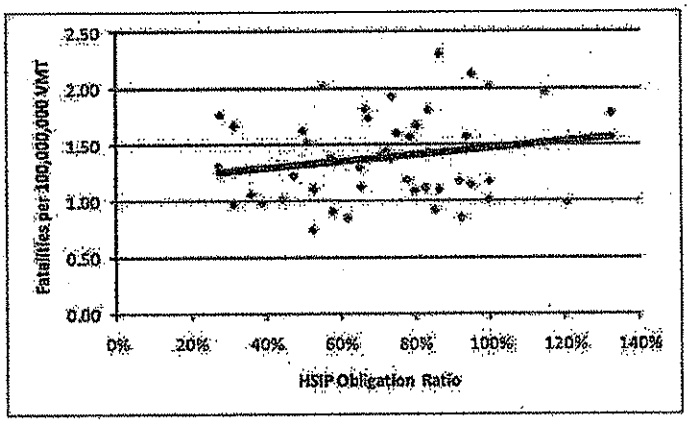

Figure 10. HSIP Obligation Ratio versus Fatalities per 100,000,000 VMT

This relationship is surprising, because it shows that the fatality rate was (on average) higher in States that had a higher HSIP obligation ratio.

The reason for this correlation relates to the complexity of the relationship between State HSIP obligation ratios and traffic fatalities. For example, States that have a higher overall fatality rate (partially due to a higher rural VMT percentage) appear to be more aggressive about obligating HSIP funds. In fact, Figure 11 shows exactly this relationship between the percentage of State VMT that is rural and the HSIP obligation ratio.

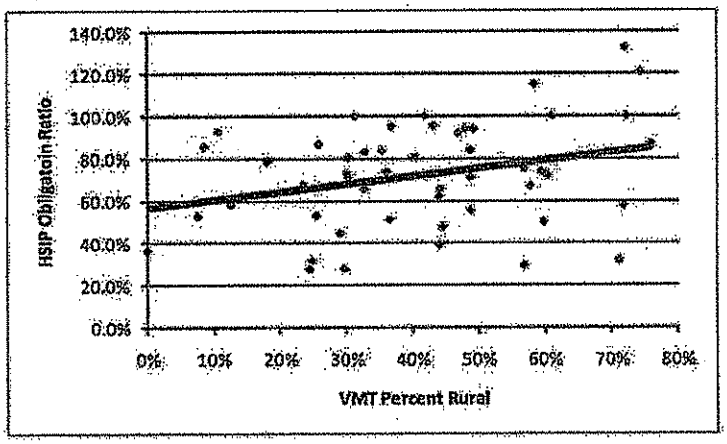

Figure 11. State HSIP Obligation Ratio versus VMT Percent Rural

This implies that the relationship shown in Figure 10 is misleading. High State HSIP obligation ratios do not result in high fatality rates. Instead, States with high fatality rates tend to be more aggressive about obligating their HSIP apportionments due to their awareness of the safety problem.

Observation Summary: The relationship between traffic fatalities and the HSIP obligation ratio is complex because the HSIP obligation ratio correlates with other factors that impact traffic fatalities, such as the percent of VMT that is rural.

A National Model Estimating the Impact of Safety Funds on Fatalities

Several of the observations above can be combined to produce an estimate of the impact of safety funds on traffic fatalities.

- Fatality rates followed a decreasing linear trend from 1998 to 2005 (see Figure 6 on page 5). This linear trend was used to estimate the fatality rate that would have occurred from 2006 through 2009 if these historical trends had continued.
- Observed VMT began decreasing in 2006. The actual VMT was multiplied by the fatality rate estimated by the fatality rate trend line to estimate the number of fatalities that would have occurred if the historical trend in fatality rates had continued.
- Safety obligations followed an increasing linear trend from 2003 to 2006 (see Figure 2 on page 2). This annual increase in safety obligations was likely responsible for at least part of the trend of decreasing fatality rates. This linear trend was used to estimate the amount that safety funding increased, over-and-above the historical trends.

The results of these calculations are shown in Table 1.

Table 1. Traffic Fatalities and Safety Obligations, 2006 to 2009

Variable	2003	2004	2005	2006	2007	2008	2009
Traffic Fatalities							
Actual	42,884	42,836	43,510	42,708	41,259	37,261	33,963
Trend	42,858	43,444	42,967	42,802	42,607	41,308	40,027
Difference	-26	608	-543	-94	1,348	4,047	6,064
Safety Obligations (millions)							
Actual	$497	$560	$638	$705	$933	$1,257	$1,267
Trend	$495	$565	$635	$705	$775	$846	$916
Difference	$2	-$5	$3	$0	$158	$411	$351
Cumulative Difference	$2	-$2	$0	0	$158	$569	$920

A chart of the 'Difference' row under Traffic Fatalities and the 'Cumulative Difference' row under Safety Obligations shows an astonishingly strong relationship between these two variables, as shown in Figure 12.

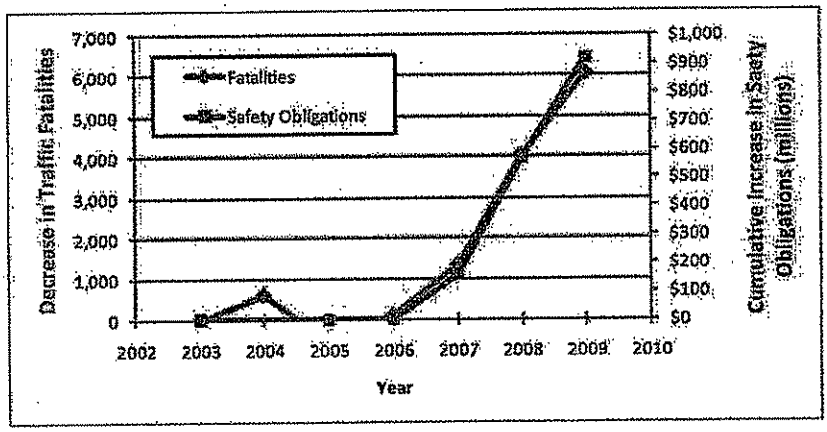

Figure 12. Decrease in Traffic Fatalities and Increase in Safety Obligations

A plausible explanation for this relationship is as follows. Most safety obligations are spent on specific safety improvement projects (e.g., installing cable median barrier). These expenditures would impact traffic safety not just in the year they were deployed, but in every future year until the system aged and was no longer effective or the system was

replaced. For example, a guardrail deployed in 2006 would continue to impact safety in 2009. Over the period of time shown in the figure above, few of the safety treatments applied during that period would have aged or been replaced. Therefore, the safety benefits observed in 2007 would result from the increase in safety expenditures that occurred in both 2006 and 2007.

The increase in safety funding (over and above the historical trend) correlates remarkably with the decrease in traffic fatalities that occurred during this period. This relationship suggests that, for every $1 million of HSIP appropriation obligated during this period, a reduction of about 7 traffic fatalities per year occurred. Including this observation produces a model that provides a closely correlated reproduction of the dramatic drop in traffic fatalities that has occurred since 2006, as shown in Figure 13.

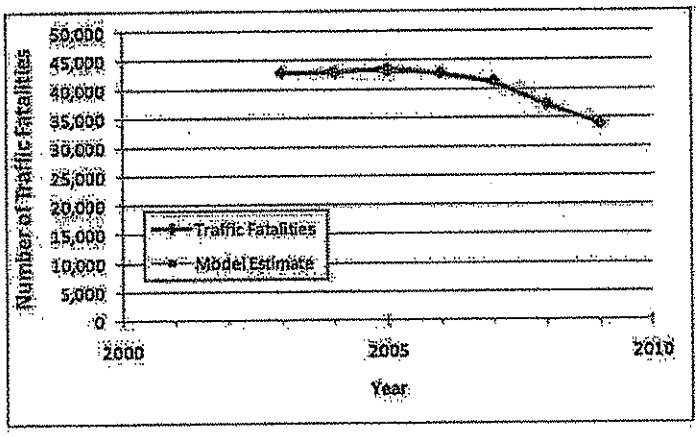

Figure 13. Traffic Fatalities and Model Estimates of Traffic Fatalities, 2003 to 2009

These curves are reproduced in Figure 14, magnified so that the differences between the observed traffic fatalities and the model estimates for fatalities can be viewed.

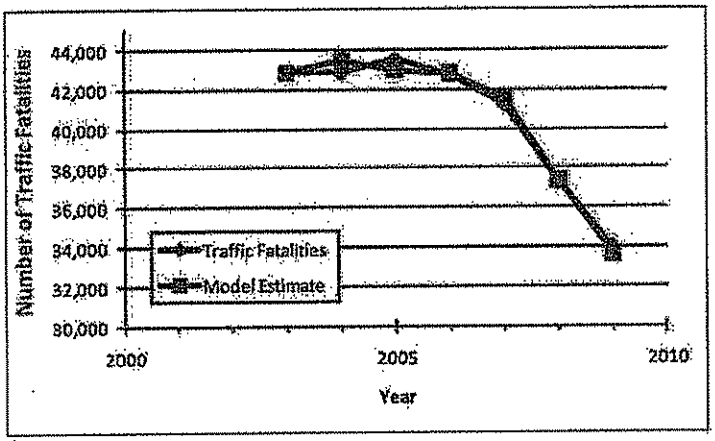

Figure 14. Close Up View of Traffic Fatalities and Model Estimates of Traffic Fatalities, 2003 to 2009

The simplest explanation for this correlation is that the increase in HSIP obligations resulted in the decrease in traffic fatalities, so that every $1,000,000 increase in HSIP obligations resulted in a reduction of about 7 traffic fatalities per year.

Observation Summary: After correcting for historical trends, there has been a large increase in traffic safety program obligations and a large decrease in traffic fatalities since 2006. If one assumes that this decrease in traffic fatalities was caused by the increase in safety program obligations, then every $1,000,000 increase in HSIP appropriations that was obligated resulted in a reduction of about seven traffic fatalities per year.

The Impact of Increased HSIP Safety Obligations

The analysis described in this report strongly suggests that the increase in HSIP obligations helped bring about a large decrease in traffic fatalities. The traffic fatality model developed for this report indicates that a decrease of seven fatalities per year occurred for every $1 million increase in HSIP obligations. The National Highway Traffic Safety Administration (NHTSA) has developed an economic value of preventing a human fatality; that value is currently $6.1 million.[12] A basic calculation yields that every $1 million increase of HSIP funds obligated resulted in an annual savings of $42.7 million in societal costs to the United States.

While this conclusion is a direct result of the model developed for this report, it is possible that the number of fatalities prevented through HSIP obligations may be a bit lower than the value of seven suggested by this analysis due to potential effect of other safety-related efforts during this time period. For example, this analysis only considered FHWA safety obligations, while NHTSA funds targeting traffic safety also increased during this same period. Thus, it is possible that the increase in this source of traffic safety funding explains part of the decrease in traffic fatalities that occurred since 2006. However, preliminary data available to these researchers indicate that the increase in NHTSA funds during this period was smaller than the increase in safety obligations considered in this analysis, so it would likely have only a small effect on the estimates in this report.

Another possible explanation for part of the decrease in traffic fatalities is the list of other safety-related requirements in SAFETEA-LU, including that each State develop a Strategic Highway Safety Plan (SHSP), establish a crash data system, and report locations with severe safety needs annually. The establishment of these traffic safety program features could have helped States spend existing safety funds more effectively. In other words, the decrease in traffic fatalities could have resulted from both the increase in safety obligations and more effective application of these safety funds. As with the increase in NHTSA funds, these researchers believe that this would have only a small effect on the estimates in this report.

Summary and Conclusions

The Safe, Accountable, Flexible, Efficient Transportation Equity Act—A Legacy for Users (SAFETEA-LU) established the Highway Safety Improvement Program (HSIP) "to achieve a significant reduction in traffic fatalities and serious injuries on all public roads." This resulted in a significant increase in funds available for traffic safety improvement projects beginning in 2006, as shown in Figure 15. In this figure, the safety obligations were predominately TEA-21 and Surface Transportation Extension programs funds prior to 2006 (shaded red) and predominately HSIP funds in later years (shaded yellow).

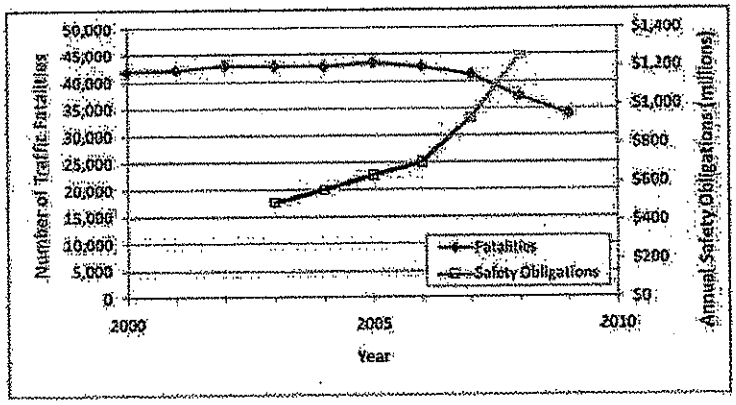

Figure 15. Traffic Fatalities and Annual Safety Obligations

At about that same time, traffic fatalities began to decrease noticeably, and have continued to decrease through 2009. These data indicate that the increase in safety obligations has had an effect on the decrease in traffic fatalities. However, many other factors could have impacted the number of traffic fatalities and might explain this decrease. A review of

12. *Value of a Statistical Life and Comprehensive Value of Life*, National Highway Traffic Safety Administration. April 2010. http://www.nhtsa.gov/staticfiles/administration/pdf/Value_of_a_Statistical_Life.pdf (accessed May 2010).

several of the most commonly cited factors indicated that none of them satisfactorily explained the sudden decrease in traffic fatalities:

- Seat belt usage has been steadily increasing since 2001, and there was no change in that trend in 2006.
- Air bag availability has been steadily increasing since 2001, and there was no change in that trend in 2006.
- Annual vehicle miles traveled (VMT) steadily increased between 1995 and 2007. Annual VMT dropped in 2008 and 2009, which could explain part of the decrease in traffic fatalities that occurred.
- The percent of VMT that is classified as rural has been decreasing steadily since 2002, and there was no change in that trend in 2006.[13]
- The unemployment rate showed a sharp increase starting in 2007. However, a similar increase in 2001 did not result in a corresponding change in the number of traffic fatalities that occurred.

Based on this review, a model was developed to estimate annual traffic fatalities. This model used historical trends to estimate the fatality rate per 100 million vehicle miles traveled (VMT), taking into account any factors whose trend continued to follow the historical patterns discussed above. Figure 16 shows this trend line and the fit to the 1998 to 2005 data.

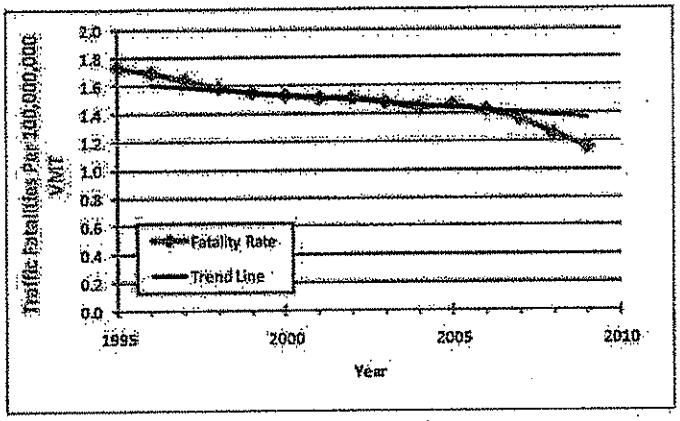

Figure 16. Fatality Rate Trend

This fatality rate trend was then used to estimate the number of traffic fatalities that would have occurred if some outside factor had not changed these trends, beginning in 2006. Figure 17 shows the actual number of traffic fatalities that occurred each year and the estimate for this number, based on the above trend line for the fatality rate and the actual VMT. The difference between these two curves is the amount of the drop in traffic fatalities that is not explained by the historical trends.

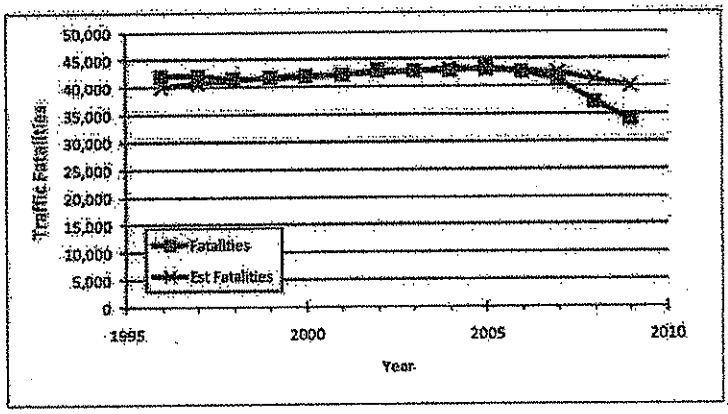

Figure 17. Actual Traffic Fatalities and Estimated Fatalities Based on Historical Trends

13 Traffic statistics indicated that the number of traffic fatalities per rural VMT is much higher than the corresponding value for urban VMT.

A similar approach was applied to safety obligations. The actual obligations and the obligation trend line is shown in Figure 18. The difference between these lines is the increase in safety funding that occurred during this period over and above the historical trend.

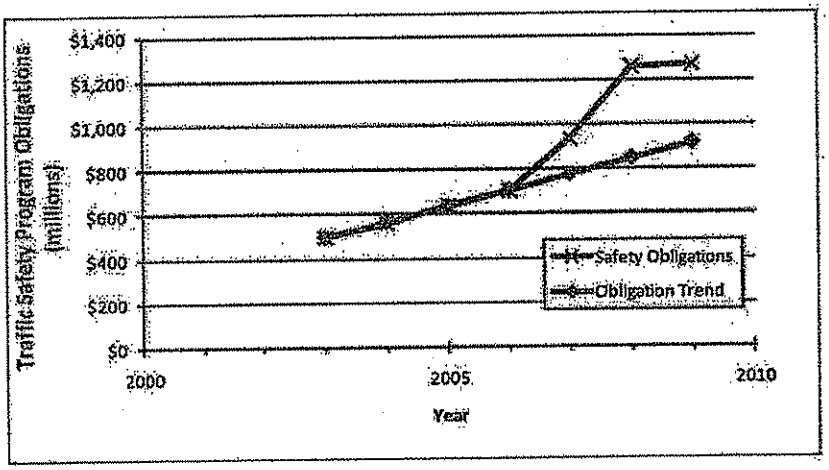

Figure 18. Actual Safety Obligations and Estimated Safety Obligations Based on Historical Trends

Figure 19 shows the relationship between this drop in traffic fatalities and the cumulative increase in safety obligations. These curves show that for every $1 million increase in safety obligations, traffic fatalities were reduced by about seven fatalities per year.[14]

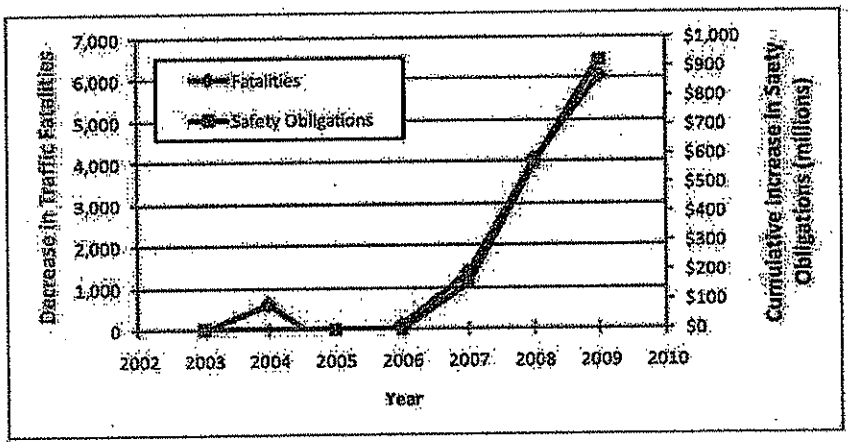

Figure 19. Decrease in Traffic Fatalities and Increase in Safety Obligations

14 This includes HSIP, TEA-21 and Surface Transportation Extension program obligations.

Combining these factors results in a model that does a remarkable job of reproducing the drop in traffic fatalities that occurred since 2006, as shown in Figure 20.

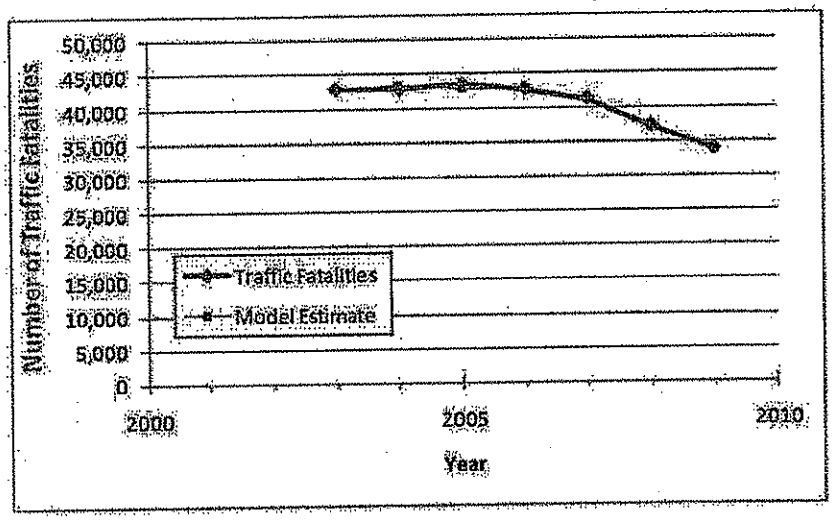

Figure 20. Traffic Fatalities and Model Estimates of Traffic Fatalities, 2003 to 2009

This model indicates that, for every $1 million increase in safety obligations, a reduction of seven traffic fatalities annually occurred. Based on economic values developed by the National Highway Traffic Safety Administration (NHTSA),[15] the savings to society from preventing a single human fatality is $6.1 million. Using this figure, calculations indicate that every $1 million increase of HSIP funds obligated results in an annual savings of approximately $42.7 million in societal costs to the United States (i.e., a benefit/cost ratio of 42.7 to 1).

It is possible that other changes that occurred at about the same time as the increase in safety funding through HSIP explain part of the observed decrease in traffic fatalities. For example, traffic safety funds available through NHTSA programs increased after 2006. Also, SAFETEA-LU required that States develop crash data systems and Strategic Highway Safety Plans, which may have resulted in more effective use of existing safety funds. Insufficient data was available to include these factors in the model.

Even if those factors' funds do explain some of this decrease, this analysis still suggests that the increase in HSIP obligations provided a tremendous savings in terms of lives saved and the societal costs of traffic fatalities.

15 *Value of a Statistical Life and Comprehensive Value of Life*, National Highway Traffic Safety Administration. April 2010. http://www.nhtsa.gov/staticfiles/administration/pdf/Value_of_a_Statistical_Life.pdf (accessed May 2010).

For additional copies, visit the Online Store at ATSSA.com
call the Products Department at (877) 642-4637 or write to:

ATSSA
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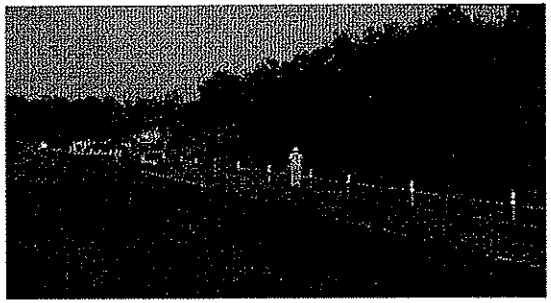
Training Grants

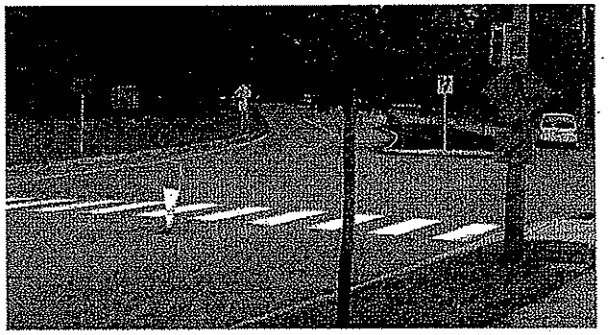
- **Work Zone Safety Grant Renewal**
  - Purpose: Continue to train workers across the country on proper work zone safety procedures, resulting in safer work zones for both workers and motorists.
  - Duration: Six year grant program

- **Roadway Safety Training Institute**
  - Purpose: Develop and deliver work zone safety training to non-traditional areas of operation that establish work zones and impact mobility, including incident responders; law enforcement officers; and, utility workers .
  - Develop targeted courses and training on proper guardrail installation, inspection and maintenance
  - Sponsor Americans with Disabilities Act work zone access demonstrations around the country, bringing together policy makers, product developers and disabled users to test roadway devices.
  - Duration: Six year grant program.

About ATSSA

The American Traffic Safety Services Association (ATSSA) has represented companies and individuals in the traffic control and roadway safety industries since 1969. More than 1600 ATSSA members provide the majority of traffic control devices and roadway safety features throughout the nation. ATSSA's core purpose is <u>To Advance Roadway Safety</u>. Under a SAFETEA-LU work zone training grant from FHWA, ATSSA has trained over 15,000 workers across the country. The American Traffic Safety Services Foundation provides college scholarships to the children of workers killed in work zones, conducts a national work zone poster contest for elementary school children, and administers the National Work Zone Memorial.





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(540) 368 - 1717

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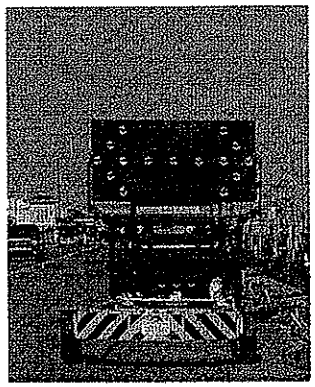
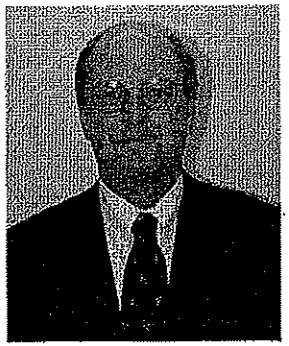
This Much We Know - Safer Roads Save Lives

<u>TRANSPORTATION AUTHORIZATION PRIORITIES</u>

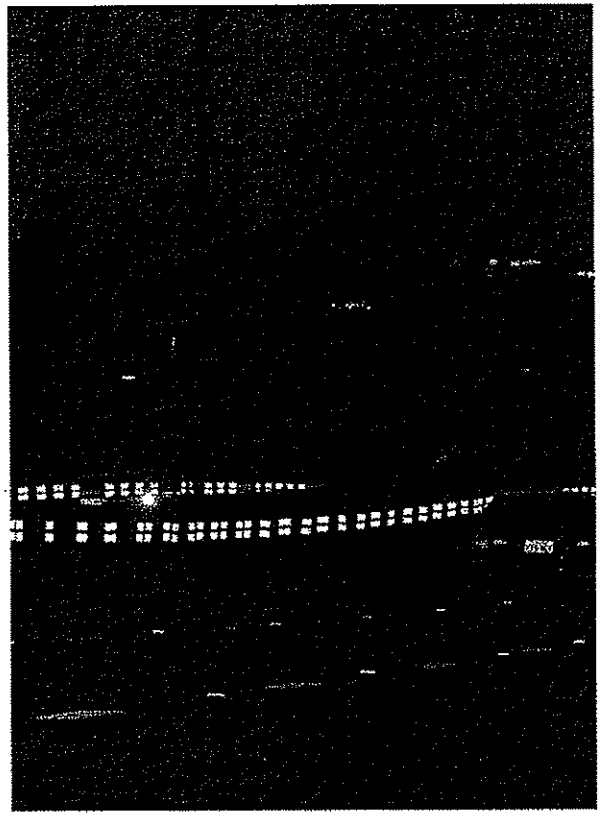
The American Traffic Safety Services Association

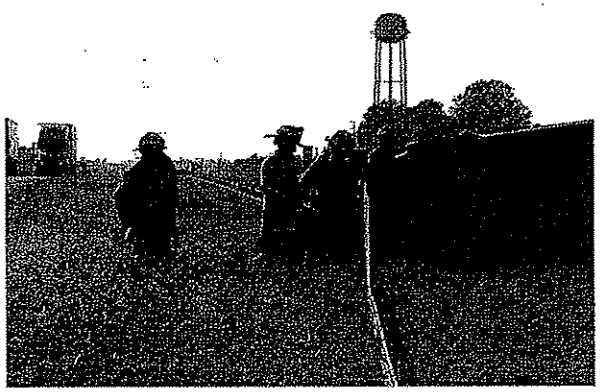
SAFER ROADS SAVE LIVES





Former ATSSA member Chuck Bailey -
(Photo courtesy Victims & Survivors Program)





Background

For the past decade, an average of over 40,000 people have died on our roadways each and every year. That's one every 13 minutes. It's the equivalent of 76 fully loaded 747 passenger planes crashing to the earth annually.

Over the past two years, we have seen some significant declines in roadway deaths. Some of this decline *may* be attributable to the fact that Americans are driving a little less as they have faced personal economic challenges. But *most certainly,* we are beginning to reap some real dividends as a result of the Highway Safety Improvement Program authorized by Congress in SAFETEA-LU. The effectiveness of this program is repeatedly demonstrated by "Before and After" analyses undertaken by state Departments of Transportation.

As we face the current highway authorization challenge, the American Traffic Safety Services Association (ATSSA) suggests that Congress adopt the following five principles:

1. If we are really going to get serious about saving lives on our roadways, we need to establish a national goal of "Zero Deaths."
2. We should build upon the success of the Highway Safety Improvement Program and dedicate additional funds to roadway infrastructure safety.
3. Efforts to promote Livable, Walkable and Sustainable Communities must include roadway safety, with a particular emphasis on the nexus between automobiles, bicycles, and pedestrians.
4. We must develop a focused safety program for rural roads where the fatality rate is almost 2.5 times that of urban roads.
5. We must prepare our system for the fact that by 2020 one in five drivers will be over 65 years of age.

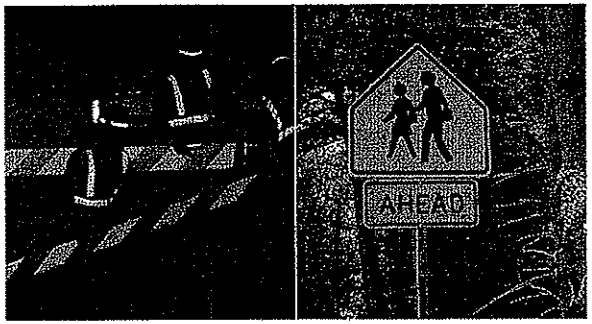
ATSSA was the first national trade association to develop an authorization policy, ***Toward Zero Deaths: A Vision for Safer Roads in America,*** in early 2008. Based on that document, we recommend the following priorities for federal highway program reauthorization in the areas of funding, policy, and training.

Key Funding Issues

- Reserve Highway Safety Improvement Program (HSIP) funds exclusively for roadway safety infrastructure that saves lives. Disallow transfers to other programs.
- Increase funding in the HSIP, with a target of 10 percent of overall highway funding.
- Establish a separate obligation limit for the Highway Safety Improvement Program.

Policy Priorities

- Increase funding for the High Risk Rural Roads (HRRR) Program to at least $1 billion annually and target that funding at cost effective improvements for maximum return on investment.
- Authorize $500 million annually in funding for roadway safety infrastructure improvements targeting the needs of Older Drivers.
- Require states to establish a process for local governmental entities to receive financial assistance to meet any potential obligation arising under a federal rule establishing a national standard for maintaining minimum levels of retroreflectivity for traffic signs or pavement markings.



Joseph M. Jeffrey

www.road-tech.com

CURRICULUM VITAE

Shingle Springs
CA. / 95682

Current

I own and operate Road-Tech Safety Services, Inc. a supplier of traffic control equipment, supplies and contracting in California, Oregon and Nevada. I am also a roadway safety advocate, serving in the Strategic Highway Safety Plan process and in industry associations.

Abilities

I am a licensed traffic control contractor with 19 years experience in the design and installation of temporary traffic control. I have 30 years management experience having run three different companies. I also have a strong interest and experience in work zone and rural intelligent transportation systems.

Key Skills

Languages:	English and Spanish
Licenses:	California Traffic Contractors License # 796857 C31 (Traffic Control)
Public Speaking:	Toastmasters Advanced

Education

1973-1977	BA, Economics	University of California, Davis
1969-1970	High School Certificate	Encina High School, Sacramento, CA

Prior Employment

1998-2000 **Director of Sales, ADDCO,** St. Paul, Minnesota
Managed traffic control division of equipment manufacturer. Hired, trained, developed and oversaw sales activities in US and Canada.

1992-1998 **Western Region Manager, ADDCO,** St. Paul, Minnesota
All sales in 7 western states and 3 provinces. Met with contractors and government agencies, demonstrated equipment, tracked highway projects and followed up as required.

1985-1991 **President, Sierra Saw Chain**, Sacramento, California
Set strategic direction for company and oversaw all operations in 7 states.

Advocacy

2010-2012 **Chairman, Board of Directors, American Traffic Safety Services Assoc. (ATSSA)**
Trade association with 1600 members serving roadway safety infrastructure contractors, manufacturers and government agencies throughout North America.

2007-Present **Member, Steering Committee, California Strategic Highway Safety Plan (SHSP)**
Oversee development and implementation of SHSP and its 17 Challenge Areas.

2007-Present **Co-Chair, Work Zone Challenge Area, Calif. Strategic Highway Safety Plan**
Oversee development and implementation of strategies specific to work zone safety.

2007-2010 **Member, Board of Directors, American Traffic Safety Services Association**

1994-Present **Member, Safety & Public Awareness Committee, ATSSA**

1995-Present **Member, Intelligent Traffic Systems Council, ATSSA**

Associations

American Traffic Safety Services Association
Institute of Transportation Engineers
ITS, California

COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE

Truth in Testimony Disclosure

Pursuant to clause 2(g)(5) of House Rule XI, in the case of a witness appearing in a nongovernmental capacity, a written statement of proposed testimony shall include: (1) a curriculum vitae; and (2) a disclosure of the amount and source (by agency and program) of each Federal grant (or subgrant thereof) or contract (or subcontract thereof) received during the current fiscal year or either of the two previous fiscal years by the witness or by an entity represented by the witness. Such statements, with appropriate redaction to protect the privacy of the witness, shall be made publicly available in electronic form not later than one day after the witness appears.

(1) Name: Joe Jeffrey

(2) Other than yourself, name of entity you are representing:
American Traffic Safety Services Association (ATSSA)

(3) Are you testifying on behalf of an entity other than a Government (federal, state, local) entity?

(YES) **If yes, please provide the information requested below and attach your curriculum vitae.**

NO

(4) Please list the amount and source (by agency and program) of each Federal grant (or subgrant thereof) or contract (or subcontract thereof) received during the current fiscal year or either of the two previous fiscal years by you or by the entity you are representing:

Work Zone Safety Grant (FHWA) 2010: $ 2,942,146.39
Work Zone Safety Grant (FHWA) 2011: $ 138,081.16

Subcontracts:
Local Roads Rural Road Owners with SAIC (FHWA) 2010: $12,500
Roadway Departure Tech Transfer with SAIC (FHWA) 2010: $48,000

Signature: Joe Jeffrey

Date: 3/23/11