SHRP2 SOLUTIONS
TOOLS FOR THE ROAD AHEAD

New Safety Data Available to Tackle Tough Safety Issues, Improve Highway Safety

Two new databases offer results of national study of driving behaviors

Drivers cause or contribute to as much as 90 percent of crashes, resulting in a tragic loss of life and serious injuries. In 2012, more than 33,000 fatalities and 2.2 million injuries in the United States occurred as a result of traffic accidents. Research to date has studied driver behavior only indirectly by examining crashes and attempting to reconstruct the events that produced them. To progress further, direct and detailed observational data on driver behavior are needed.

The Solution

In response, the most comprehensive database ever gathered on driver behavior was developed through the second Strategic Highway Research Program (SHRP2) and will soon be available.

The Naturalistic Driving Study (NDS) includes data from:

- 3,150 volunteer participants, ages 16–80
- 6 sites across the U.S.
- Heavily instrumented vehicles, including video of driver, vehicle location, forward radar, vehicle control positions, and many other data elements
- Continuous records from all trips taken over two years
- 49.5 million travel miles resulting in 2 petabytes of data

It is accompanied by the Roadway Information Database (RID), containing detailed roadway data collected on approximately 12,500 centerline miles of highways in and around the study sites plus additional information from state inventories, including crash histories, traffic and weather conditions, work zones, and active safety campaigns in the study areas.

The NDS and RID data sets will be linked by December 2014 to provide state departments of transportation, researchers, and others with a uniquely powerful data resource. Both data sets are geo-referenced, allowing for driver behavior to be associated with the physical environment, such as signs, other roadside hardware, and road design details, as well as with transient elements of the driving environment such as work zones and weather.

Concept to Countermeasure – Research to Deployment Using the SHRP2 Safety Databases

FOCUS AREA: Safety

New data will aid research in developing new countermeasures to improve safety

Save Time

- Traffic crashes are a leading cause of nonrecurring congestion. Fewer crashes mean less congestion.

Save Money

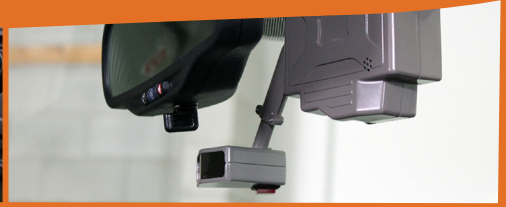
- For every 1 percent reduction in traffic-related injuries and fatalities, an estimated $2.3 billion annually can be saved in hospital bills, lost time for workers, and replacement and maintenance costs. Reducing crashes may also reduce fuel consumed during accident-related delays.

Save Lives

- By identifying the driver, vehicle, and infrastructure factors that cause crashes, better safety solutions can be developed to reduce the number of traffic-related injuries and fatalities.

How can states use these safety databases?

Through the SHRP2 Implementation Assistance Program, the Federal Highway Administration and the American Association of State Highway and Transportation Officials will solicit applications from state DOTs and their partner research agencies for research proposals to use the SHRP2 Safety databases. They are seeking proposals that are likely to lead to practical measures that reduce highway crashes and achieve highway safety targets.



Topic areas of particular interest could include:

- Driver speed behaviors and adjustments or reactions to various roadway or environmental conditions (e.g., work or school zones, weather, traffic control devices).
- The influence of roadway features on driver behavior (e.g., signage, rumble strips, lighting).
- Driver behaviors before crashes and in successful crash avoidance events.
- Driver interaction and response to pedestrians, bicyclists, or motorcyclists.
- How drivers modify their behaviors in response to varying roadway features such as lighting conditions, signs or pavement markings, signalized versus un-signalized intersections, or by the presence of pedestrians, broken out by driver age or other driver characteristics.

Photo credit: Courtesy of Virginia Tech Transportation Institute

The Benefits

An in-depth understanding of how drivers interact with their vehicles and the roadway will support life-saving improvements such as:

- Development and deployment of new safety countermeasures
- Updating current design guides and associated practices
- Driver training programs
- Vehicle design
- Infrastructure improvements
- Public policy and enforcement
- New approaches to Public Safety Campaigns

How can I learn more?

Information about the forthcoming SHRP2 Implementation Assistance Program can be found at http://shrp2.transportation.org/Pages/Safety.aspx and http://www.fhwa.dot.gov/goshrp2/.

Review the results of Integration of Analysis Methods and Development of Analysis Plan (S02-RW-1) for many research topics that could be pursued with SHRP2 Safety Data.

Register on the Naturalistic Driving Study web site and apply for IRB certification on the NDS web site for use of data necessary to conduct some simplified research.

Article on the Safety Training and Analysis Center, STAC data enclave at Turner Fairbanks Highway Research Center.

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SHRP2 SOLUTIONS

About SHRP2 Implementation

The second Strategic Highway Research Program is a national partnership of key transportation organizations: the Federal Highway Administration, the American Association of State Highway and Transportation Officials, and the Transportation Research Board. Together, these partners conduct research and deploy products that will help the transportation community enhance the productivity, boost the efficiency, increase the safety, and improve the reliability of the Nation's highway system.