

**NCHRP 20-24(37C)**  
**Comparative Performance Measurement:  
Safety**

Consultant's Final Report

*Requested by:*

American Association of State Highway and Transportation Officials  
(AASHTO)

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## **NCHRP 20-24(37) Measuring Performance among State DOTs: Sharing Good Practices**

Transportation agencies are increasingly using performance measurement to solve complex management challenges. As applications of performance measurement have increased among agencies, their senior managers and technical staff have increased their interest in learning from the performance of their peer agencies that share similar goals and objectives. Comparative performance measurement offers a way to share agency performance data and knowledge about best practices, and in turn to enhance managers' ability to judge their own agencies' effectiveness in program and system management. Identifying "best-in-class" practices and "lessons learned" facilitates managers' efforts to learn from experience.

The NCHRP 20-24(37) project was requested by state DOT CEOs, who recognize that comparative performance measurement is a tool with potential to help improve their organizations. Each of the projects in the NCHRP 20-24(37) series, selected to address a single important aspect of performance, relies on groups of volunteer state DOTs working together to establish meaningful performance measures and then sharing data to enable an individual agency to compare its own performance to the range of experience represented in the data set.

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**LIST OF ACRONYMS**

AAA	American Automobile Association
AADT	Annual Average Daily Traffic
AASHTO	American Association of State Highway and Transportation Officials
BAC	Blood Alcohol Concentration
CIOT	Click it or Ticket
CY	Calendar Year
DMV	Department of Motor Vehicles
DOT	Department of Transportation
DPS	Department of Public Safety
DUI	Driving Under the Influence
DWI	Driving While Impaired
EMS	Emergency Medical Services
FARS	Fatality Analysis Reporting System
FFY	Federal Fiscal Year
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
GDL	Graduated Driver Licensing
GHSA	Governors' Highway Safety Association
GIS	Geographic Information System
GPS	Global Positioning System
HEAT	Highway Enforcement of Aggressive Traffic
HSD	Highway Safety Division
HSIP	Highway Safety Improvement Program
HSO	Highway Safety Office
IRI	International Roughness Index
IM	Interstate Maintenance
ITS	Intelligent Transportation System
LEAF	Local Enforcement Assistance Fund
LEL	Law Enforcement Liaison
LSI	Local Safety Initiative

MADD	Mothers Against Drunk Driving
MCSAP	Motor Carrier Safety Assistance Program
MMUCC	Model Minimum Uniform Crash Criteria
MOU	Memorandum of Understanding
MPO	Metropolitan Planning Organization
NHS	National Highway System
NHTSA	National Highway Traffic Safety Administration
NCHRP	National Cooperative Highway Research Program
NOPUS	National Occupant Protection Use Surveys
PIL	Priority Investigation Location
RFP	Request for Proposals
RSA	Road Safety Audit
RTF	Rural Task Force
RTU	Regional Traffic Unit
RWIS	Road Weather Information System
SAFE	Strategic Area Focused Enforcement
SCOPM	Standing Committee on Performance Management
SCOQ	Standing Committee on Quality
SES	Strategic Evaluation States
SHSP	Strategic Highway Safety Plan
STEP	Selective Traffic Enforcement Program
STIP	State Transportation Improvement Program
STP	Surface Transportation Program
T2	Technology Transfer
TraCS	Traffic and Criminal Software
TRCC	Traffic Records Coordinating Committee
TZD	Towards Zero Deaths
VMT	Vehicle Miles of Travel

## **1. EXECUTIVE SUMMARY**

### **COMPARATIVE PERFORMANCE MEASUREMENT FOR SAFETY**

Today's transportation agencies need to find ways to improve service and demonstrate tangible results for their customers – while operating under increasingly tight resource constraints. Comparative performance measurement is a potentially powerful technique for motivating and facilitating changes that result in improved performance. It motivates organizations to pursue improvements by showing them what their peers have been able to achieve. It facilitates improvement by identifying specific best practices that have led to good results. Establishing comparable measures can take considerable effort, but pays off when participating organizations learn from practices employed by their peers to improve their own performance. Comparative performance measurement efforts also have the important effect of shining a spotlight on current approaches to how data is tracked, how performance is being measured and how results are being used. Participating agencies have an opportunity to examine the consistency and accuracy of their measurement practices, learn about differences in measurement across agencies, and work towards a greater degree of commonality.

This report presents results of the third in a series of comparative performance measurement efforts sponsored by the American Association of State Highway and Transportation Officials (AASHTO) Standing Committee on Quality (SCOQ), Performance Measurement and Benchmarking Subcommittee. The purpose of these efforts is to identify states that have achieved exemplary performance, find out what practices have contributed to their success, and document these practices for the benefit of other states. This effort focuses on safety.

### **CONTRIBUTION OF THIS STUDY**

This study highlights effective highway traffic safety practices associated with states that significantly “moved the needle” downward with respect to fatality rates in the first seven years of the 21<sup>st</sup> century. Looking at what these states have done has allowed for distillation of important practices from what is a highly complex and multi-faceted endeavor. It has added to the existing body of information on best practices in safety, providing a snapshot of current practice and a crystallization of important themes. Its results will add to a growing compendium of best practices for multiple important dimensions of DOT practice.

This study did not yield dramatic new discoveries about how to reduce fatalities on the nation's highways. This is not surprising given the breadth of the topic and the level of resources that have already been devoted to analyzing fatality data and documenting best practices in safety. However, the study does provide a synthesis of important information that may not be well understood by state DOT managers who have not been actively involved in highway safety planning. Presenting this information in the context of comparative performance information provides a compelling basis for executives to quickly identify where they stand, see the potential



for further improvement, and scan the key types of practices that can be explored for achieving that improvement.

## **ANALYSIS OF SAFETY DATA**

In this comparative performance measurement project on the topic of safety, the NCHRP research panel suggested that fatality data from NHTSA's Fatality Analysis Reporting System (FARS) should be used as the primary data source. Use of fatality data (rather than crash or injury data) makes sense for several reasons. Fatalities are a performance measure of interest to states, and are the focus of many national and statewide performance improvement efforts. In addition, FARS provides a solid and reliable data source for comparative analysis. There is currently no comparable national data source that accurately represents individual state performance with respect to crashes or injuries. Unfortunately, definitional differences across states make comparisons using state crash records less reliable.

While fatalities and fatality rates (normalized based on traffic) are compelling performance measures, the selection of fatalities as an indicator poses challenges for comparative performance measurement. Fatalities are relatively rare events and as such, are subject to substantial random variation. Also, studies have found that much of the variation in fatality rates across States can be attributed to differences in travel and socioeconomic characteristics, including the distribution of rural vs. urban travel, population density, income and age distribution.

In order to compensate for these challenges, it was decided to look at *changes* in fatality rates over time rather than absolute values of fatality rates. The percentage change in three year average fatality rates between 2000-2002 and 2005-2007 provided the primary measure used in this study. Using the change in fatality rate as the measure for comparison made it easier to draw a causal link between agency actions and observed performance. However, because looking only at fatality rate changes would tend to overlook states that have already achieved relatively low fatality rates through longstanding exemplary practices, the research team also considered the absolute fatality rate as a secondary factor in the selection of top performing states.

## **IDENTIFICATION OF HIGH PERFORMING STATES**

Identification of high-performing states for discovery of good practice was approached using four different methods:

- Method 1: Select the five states with the highest percentage reduction in fatality rate
- Method 2: Screen out the states with overall fatality rates greater than the national average for the period 2005-2007 (1.41). From remaining states, select the five with the highest percentage reduction in fatality rate
- Method 3: Construct peer groups based on geographic region, and select the state with the highest percentage reduction in fatality rate within each group. Use overall fatality rate as a tie breaker where clusters of states have similar reductions in fatality rates.

- Method 4: Same as method 3, but with peer groups constructed based on the percentage of fatalities on urban roadways. This peer grouping was included in recognition of the clear differences in fatality rates across urban and rural roadways.

Six states were selected as top performers based on being ranked highest using two or more of the four methods. States shown with an asterisk are those that were either tied or a close second utilizing the method indicated.

State	Selected by Which Methods	2000-2002		2005-2007		Pct Change in Fatality Rate
		Number of Fatalities	Fatality Rate	Number of Fatalities	Fatality Rate	
CO	1,2,3,4	722	1.69	565	1.17	-31%
MN	1,2,3,4	617	1.15	519	0.91	-21%
MI	1,2,3*,4*	1329	1.34	1101	1.06	-21%
UT	1,2,4*	331	1.41	289	1.11	-21%
CT	2,3,4	328	1.06	289	0.91	-14%
MA	3*,4*	456	0.86	429	0.78	-9%

*Table E-1 Performance Results for Top Six States*

Interviews to identify best practices focused on these six states. However, given that recent in-depth case studies had already been conducted for Michigan and Minnesota as part of an earlier NCHRP project, project resources allowed for inclusion of four additional states that had been highest ranked in only one of the four methods. Therefore, interviews were also conducted with the states of Alaska (top ranked in method 1), Maryland (top ranked in method 3), Maine and New York (both top ranked in method 4).

The figure below shows changes in fatality rate for all 50 states between 2000-2002 and 2005-2007. States with the greatest decreases in fatalities are well below the diagonal line. The top six selected states are highlighted with orange diamonds; the additional four states with noteworthy performance are highlighted with yellow circles.

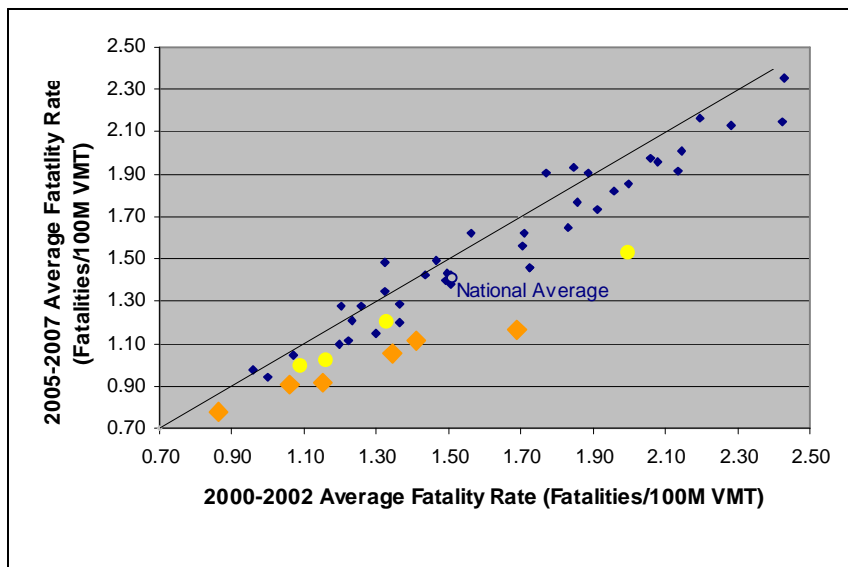


Figure E-1 Changes in Fatality Rates 2000-2002 to 2005-2007 with Selected States Highlighted

## PRACTICES CONTRIBUTING TO FATALITY REDUCTIONS

Twenty-four agency practices were identified through interviews with representatives of the ten states that had achieved substantial fatality reductions between 2000 and 2007. When asked what they thought were the most significant factors that impacted fatality reductions, representatives of nearly every State said that it was either (1) seat belt and DUI legislation and associated enforcement, (2) a shift towards more data driven safety planning, (3) strengthened partnerships, or a combination of these. Specific practices are listed below, organized into six themes that were common to all States.

### Leadership and Interagency Partnerships

Practice #1: Establish an executive level committee to ensure coordination and cooperation and guide major resource allocation decisions.

Practice #2: Identify and empower safety “champions” including state and local elected officials, safety program managers, police chiefs, and other community leaders. At the same time, ensure involvement of a broader set of staff in both strategic and operational decision making to provide “deep roots” for safety leadership and communication and reduce vulnerability of safety programs to staff turnover.

Practice #3: Ensure that there is regular communication among safety partners to share information about problems and their solutions by maintaining weekly informal communication among lead staff for engineering, behavioral programs, and enforcement.

Practice #4: Maintain two-way information flow between enforcement personnel and central safety office personnel to share information about high risk locations and problem areas.

Enforcement personnel can bring the benefit of extensive field observation and knowledge about input from the community on trouble spots.

### **Performance Targets and Continuous Monitoring of Progress**

Practice #5: Adopt a unifying message for all agencies with a highway safety mission. Agree on a “mantra” or theme (e.g. “Towards Zero Deaths” or “Zero Fatalities”) and brand all safety programs and safety-related messaging with this theme. Promote the understanding that everyone is working towards a common goal, that collaboration across agencies is the only way to succeed and that a multi-disciplinary, multi-faceted approach is required.

Practice #6: Set targets through strategic safety planning processes and actively monitor progress. Keep the “collective eye on the ball” by continually sharing performance results among major safety partners – with daily or weekly updates.

Practice #7: Improve dissemination of crash data by making it accessible on the Internet and publishing or distributing maps of crashes by type.

### **Support Legislation to Reduce Highway Fatalities**

Practice #8: Pass primary seat belt laws to allow for citations to be issued for lack of seat belt use alone.

Practice #9: Strengthen graduated driver licensing to impose restrictions on younger drivers while they gain experience.

Practice #10: Pass .08 blood alcohol concentration per se laws to enable immediate license revocation for drunk drivers.

Practice #11: Pass mobile phone usage laws to reduce distracted driving.

### **Use timely and accurate data to target programs and countermeasures for greatest payoff**

Practice #12: Use the Strategic Highway Safety Planning process to identify emphasis areas and select appropriate strategies.

Practice #13: Improve timeliness and accuracy (including locational accuracy) of crash data on both state and local roads.

Practice #14: Use crash data to guide allocation of resources across program areas to target crash types or behaviors that account for a large share of fatalities.

Practice #15: Conduct screening of locations for engineering countermeasures based on crash and highway inventory data. Consider appropriate implementation of low-cost engineering improvements with demonstrated effectiveness, including shoulder and median rumble strips, cable guardrail, curve delineation, improved signage, and signalization. Develop countermeasures based on field review and rank based on cost/benefit.

Practice #16: Focus enforcement activities on jurisdictions, highway locations and time-periods where the highest concentrations of targeted crash types exist.

Practice #17: Target outreach programs to specific populations based on overlaying census, driver licensing and crash data to identify residential areas and demographic segments with higher than average risks.

#### **Maximize coordination across state and local law enforcement agencies**

Practice #18: Use law enforcement liaison(s) (LELs) to maximize involvement of local enforcement agencies in statewide initiatives

Practice #19: Fund (through federal and state sources) overtime enforcement and equipment purchase, with incentives for resource sharing

Practice #20: Develop resource sharing agreements among law enforcement agencies

#### **Pursue creative and proactive public communications and messaging**

Practice #21: Develop and maintain strong relationships between the Highway Safety Office and local media through use of dedicated in-house staff or contractor support to provide consistent communications for all safety messaging.

Practice #22: Involve political leaders in safety-related events to provide enhanced media coverage.

Practice #23: Maximize opportunities to obtain “earned media” coverage (press releases, events) and ensure local media coverage of each fatality.

Practice #24: Develop community-based messaging (e.g. Spanish language, church-based, school-based programs.)

### **IMPROVING FUTURE COMPARATIVE PERFORMANCE MEASUREMENT FOR SAFETY**

The following recommendations were developed to improve the state of the practice in comparative performance measurement for safety:

- **Base Future Comparisons on Fatalities Plus Serious Injuries.** Gain agreement on common definitions and reporting protocols for serious injuries associated with crashes. Use of serious injuries plus fatalities rather than fatalities alone would allow for a more stable and statistically robust basis for making cross-state comparisons. It will also allow for comparative performance analysis based on targeted subsets of crash data. For example, tracking fatalities and injuries associated with speed, impaired driving and unrestrained vehicle occupants would provide a valuable focus on these key risk factors.
- **Narrow the Focus of Future AASHTO Safety Comparative Performance Analyses.** Conduct more focused comparative performance measurement efforts for particular

aspects of highway safety (e.g. work zone safety, two-lane rural road safety, intersection safety) that rely on state crash records rather than FARS data. This type of effort would bring new information to the table and allow for a more detailed look at specific effective practices that are under the control of state DOTs. It would be more consistent in approach with the first two AASHTO comparative performance measurement efforts that involved more active state participation in providing data and selecting measures.

- **Look Beyond the US.** Extend the scope of future comparative performance measurement to the international community. U.S. state safety programs have a high degree of similarity due to the structure of NHTSA and FHWA grant programs and associated requirements. International scans have found innovative and effective practices that have not yet been widely adopted in U.S. settings.
- **Support the NHTSA/GHSA Performance Measures Implementation.** Support implementation of the recommendations of the NHTSA/GHSA performance measurement initiative, including establishment of standard, well documented definitions and measurement methodologies for each measure. While these measures are intended for use within individual states, their implementation will also provide an improved basis for comparative performance measurement.
- **Improve Accuracy of Travel Monitoring.** Continue research to improve monitoring of Vehicle Miles of Travel (VMT), particularly for local roads and for motorcycle travel. Reliable, accurate VMT estimates are crucial for tracking of fatality rates, which are a core measure for comparative safety performance measurement. Current initiatives related to VMT-based user fees in place of the gas tax offer some potential to provide new sources of VMT data that could supplement existing reporting methods.
- **Gather Objective Information on Travel Speeds.** Support initiatives to gather objective information on travel speeds. Currently police accident reports are the only source of information on the extent of speed-related crashes and fatalities. Collection of objective information on travel speeds would provide an improved basis for comparing speeding behavior and associated safety performance across states. The Governor's Highway Safety Association (GHSA) has recommended that Congress fund a biennial national speed monitoring data collection study to determine how fast the traveling public is actually going.
- **Reduce the Lag Time in Compiling and Publishing Fatality, Crash and VMT Information.** Continue support at the state and national levels to improve the timeliness of both VMT and fatality/crash information. National FARS data for a given year is not finalized for over 12 months following the close of that year (to allow for states to complete population of data which may be derived from multiple sources.) Currently availability of final VMT data from FHWA lags behind availability of preliminary FARS data, making it necessary to either rely on older data or utilize estimated VMT for analysis of fatality rates. In interviews conducted for this study, States that had achieved quick turnaround for their crash data have reported significant benefits in terms of willingness to use the data to target resources where they will have the greatest payoff. Similarly at the national level, in order to

maximize relevance, comparative performance efforts should utilize data that are as current as possible.

- **Standardize Tracking of Behavioral Risk Factors.** Support initiatives to gather behavioral information via standard survey instruments that could provide a basis for comparison of changes over time in known risk factors, including drinking and driving, use of cell phones, and speeding.
- **Standardize Tracking of Enforcement Activity Measures.** Explore development of standard measures of enforcement activity coverage in order to allow for comparison across states– for example, percentage of statewide weekend night time vehicle miles or hours of travel exposed to enforcement activity.
- **Standardize Tracking of Highway Safety Feature Implementation.** Explore development of standard measures for comparing and tracking implementation of safety design feature coverage – for example, percentage of Interstate directional miles with shoulder rumble strips.

## 2. INTRODUCTION

### BACKGROUND

In 2004, the American Association of State Highway and Transportation Officials (AASHTO) Standing Committee on Quality (SCOQ) Performance Measures and Benchmarking Subcommittee initiated NCHRP 20-24(37) – Measuring Performance Among State DOT’s. This initiative aims to establish a handful of comparative performance measures in key strategic focus areas – for example, project delivery, system condition, congestion, and safety; facilitate comparisons of these measures across a group of volunteer agencies; and use these comparisons as a way to identify and share best practices and lessons learned. On-time, on-budget project delivery was selected as the initial performance area. The final report for this initial comparative performance measures effort - Project 20-24 (37)A - presents data for 20 states, and provides a synthesis of 28 best practices from the nine top performing states. A second project in the series – 20-24(37)B looked at pavement roughness, as measured using International Roughness Index (IRI). This effort involved 32 states and identified specific practices that were employed by the agencies with the smoothest pavements. Both agency programs and paving contractor practices that contributed to achievement of smooth pavements were identified. The final report also included recommendations for improvements in data collection and analysis methods to achieve a greater degree of consistency in support of future comparative performance measurement initiatives.

This third effort focuses on traffic safety, a topic of critical importance - in 2007, over 41,000 people died on U.S. roads and approximately 2.5 million were injured. The National Surface Transportation Policy and Revenue Commission report, released early this year, recommended that the USDOT establish national a goal to cut surface transportation fatalities in half by 2025. The AASHTO Board of Directors has set a 20 year goal of cutting traffic fatalities in half, which implies an annual reduction of 1,000. Several states have set their own aggressive targets for fatality reduction, and have shown success moving towards these targets through implementation of comprehensive safety programs.

There is considerable interest in improving consistency and application of safety performance measures. A 2004 FHWA International Performance Measurement Scan found that “safety was viewed as a strategic use of performance measurement that has resulted in a significant decline in fatalities.” The Highway Safety Partners Venture (HSPV) has established a working group (including representatives of AASHTO, Federal Highway Administration (FHWA), the Governors Highway Safety Association (GHSA) and others), to develop national safety performance metrics that could be used to raise public awareness of the scope of the safety problem and the need for investment. The GHSA and the National Highway Traffic Safety Administration (NHTSA) have recently developed guidance on performance measures to be used (on a voluntary basis) by federal, State, and local governments as part of the development and implementation of highway safety plans and programs. In recognition of the critical role of



accurate, consistent, timely and integrated traffic records systems in providing inputs to safety performance tracking, NHTSA and GHSA are currently sponsoring a follow-on effort to develop performance measures for state traffic record systems.

## **RESEARCH OBJECTIVES**

The objective of this project was to use the techniques developed in NCHRP Projects 20-24(37)A and B to develop comparative statistics on highway safety, identify factors that likely influence the safety experience of states, and identify strategies used by states that have shown greatest improvements in safety performance.

The approach to the first two comparative performance measurement projects was to solicit participation from state departments of transportation (DOTs) that agreed to share their data. In these first two projects, participating states were involved in the process of determining appropriate performance measures and identifying the metadata required to understand variations in performance across states. For this third project, a different approach was taken given that (1) the Fatality Analysis Reporting System (FARS) provided a reliable, publicly available national source of data on traffic fatalities for all states, and (2) practices impacting safety performance are not within the sole purview of state DOTs – they involve significant collaboration and coordination across public safety and law enforcement agencies and across local governments. Rather than requesting specific states to participate in this project from the start, performance measures that relied upon FARS data were selected and analyzed with input from the NCHRP project panel. The seven year period from 2000-2007 was selected as the time frame for analysis.

## **LITERATURE REVIEW**

A focused review of literature relevant to this project was conducted to provide a baseline of information to guide the research approach. The review covered three areas: national trends, safety performance measurement and best practices for reducing fatalities. The results of this review are presented below.

### **National Changes in Fatalities 2000-2007**

Prior to looking at comparisons in safety performance across states, it is useful to look at the national trends between 2000 and 2007, the selected time period of interest for this study.

In 2007, 41,059 people were killed in motor vehicle crashes, a 2 percent decrease from 2000. However, due to growth in traffic during this seven year period, the fatality rate (fatalities per 100 million vehicle miles of travel or VMT) decreased by 11 percent - from 1.53 in 2000 to 1.36 in 2007

As shown in Figure 1, while car and light truck occupant fatalities decreased by 10 percent; motorcyclist fatalities rose by 78 percent and increased to account for 13 percent of all fatalities (up from 7 percent in 2000).

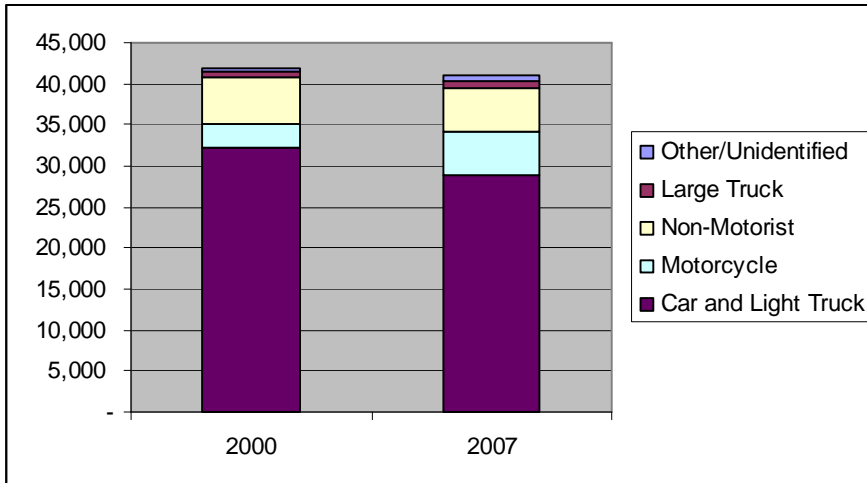


Figure 1 – 2000 and 2007 Fatalities by Type of Vehicle

As shown in Figures 2 - 4, fatality trends were different for rural and urban roadways, due in part to changing travel patterns. Between 2000 and 2007, urban fatalities increased by 10 percent, but grown in urban VMT was greater – 20 percent, resulting in an 8 percent decrease in the urban fatality rate– from 0.95 to 0.88. Rural fatalities decreased by 8 percent while rural VMT decreased by 5 percent, resulting in a 4 percent decrease in the rural fatality rate – from 2.29 to 2.21.

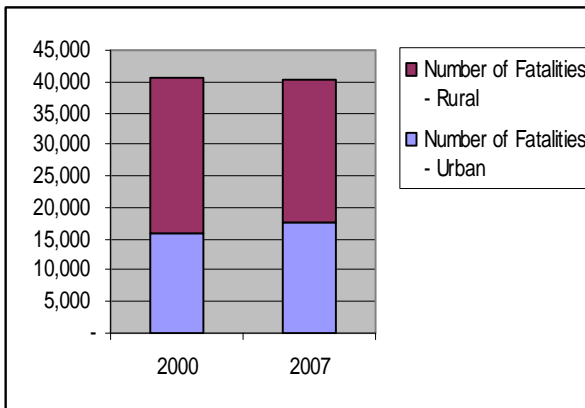


Figure 2 – 2000 and 2007 Fatalities by Roadway Functional Class

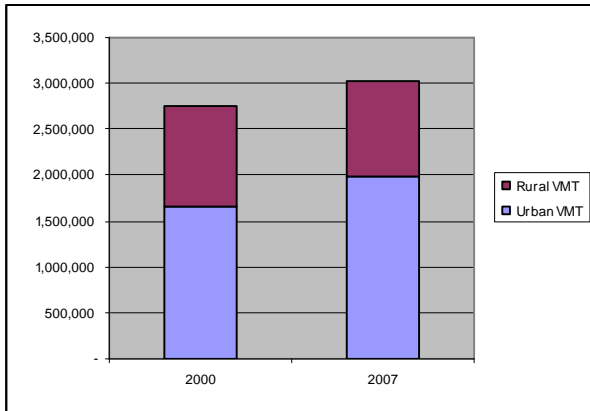


Figure 3 – 2000 and 2007 VMT by Roadway Functional Class

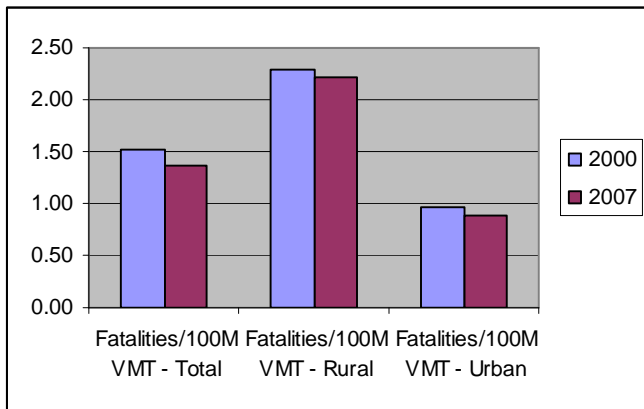


Figure 4 – 2000 and 2007 Fatality Rates by Roadway Functional Class

Examination of the data with respect to the major contributing factors to motor vehicle fatalities – speeding, driving while intoxicated, and use of safety belts (speed, booze and belts) provides further insight into the trends. Alcohol-related fatalities (blood alcohol level .08 and above) accounted for 32 percent of all fatalities, and decreased slightly (by 2 percent) between 2000 and 2007. Speeding-related fatalities accounted for 11-12 percent of all fatalities, and increased slightly (by 2 percent) - from 2000-2007. Unrestrained fatalities (in passenger cars and light trucks) declined by a substantial 19 percent – accounting for 55 percent of all passenger car and light truck fatalities in 2000 to 50 percent in 2007. This last statistic is consistent with the increase in overall seat belt use observed in the NHTSA National Occupant Protection Use Surveys (NOPUS), from 71% to 82% during this time period.

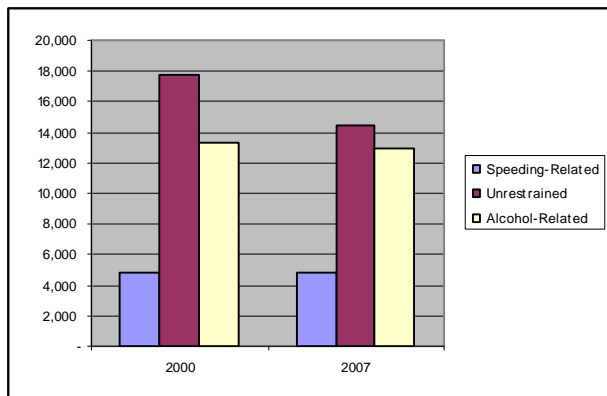


Figure 5 – 2000 and 2007 Speeding-Related, Unrestrained and Alcohol-Related Fatalities

### Safety Performance Measures

All States receiving NHTSA safety funds must submit an annual performance plan with safety goals and associated performance measures. States can choose which performance measures to include in this plan. National fatal accident reporting requirements provide a minimum set of common measures that are reported by all states related to fatal accidents. All States track crashes and injuries, though there is variation across States with respect to data elements collected, and criteria for which crashes are reported and how injuries are defined and tracked. The model minimum uniform crash criteria (MMUCC) provides a standard set of data elements to be tracked for each crash. MMUCC is a voluntary standard, though NHTSA Section 408 grants are made available to States to enhance their traffic safety information systems if they have adopted MMUCC, or if they plan to use the grants to modify their systems to improve match with the MMUCC elements.

Complete data for every state on numbers of crashes and crash-related injuries is not currently compiled. NHTSA's National Automotive Sampling System gathers data on a statistical sampling of police crash reports in the United States, but data from this system cannot be used to infer state-level information.

A recent report (Hedlund, 2008) reviewed safety performance measures in use within the US and abroad, and presented a minimum set of performance measures developed by an expert panel. The National Highway Traffic Safety Administration (NHTSA) and the Governors Highway Safety Association (GHSA) have agreed to move forward with implementation of these measures. The measures are to be used by States and federal agencies in the development and implementation of behavioral highway safety plans and programs. They include three activity measures (measures of what is being done to improve safety), one core behavior measure (how are people responding by changing their behavior), and ten core outcome measures (what is the end result on fatalities and injuries.) State are to set goals for and report progress on the outcome and behavior measures, and report the activity measures beginning with their 2010 Highway Safety Plans and Annual Reports.

Recommended outcome measures are:

- Number of traffic fatalities (FARS)
- Number of serious injuries in traffic crashes (State crash data files)
- Fatalities/VMT (FARS, FHWA) States should report both rural and urban fatalities/VMT as well as total fatalities/VMT.
- Number of unrestrained passenger vehicle occupant fatalities, all seat positions (FARS)
- Number of fatalities in crashes involving a driver or motorcycle operator with a BAC of .08 and above (FARS)
- Number of speeding-related fatalities (FARS)
- Number of motorcyclist fatalities (FARS)
- Number of un-helmeted motorcyclist fatalities (FARS)
- Number of drivers age 20 or younger involved in fatal crashes (FARS)
- Number of pedestrian fatalities (FARS)

Use of 3-5 year moving averages is recommended as a technique for clarifying long term trends.

The report also presents several recommendations to support implementation of these measures and enable development of new measures that would be of value, including:

- Development of uniform definitions, protocols and reporting requirements for each of the recommended measures.
- Provision of assistance to States in establishing data collection and analysis systems for measures that not all States currently report.
- Efforts to support States in moving towards common and improved injury data definitions and reporting practices.
- Development of guidance for speed monitoring in order to improve the quality of information on speeding-related crashes and fatalities.
- Efforts to provide common metrics on law enforcement activities including citations and arrests.
- Efforts to develop common surveys that measure driver attitudes, awareness, and behaviors related seat belt use, impaired driving, and speeding.

### **Comparative Analysis of Safety Performance**

Numbers of fatalities, fatality rates (fatalities per 100 million VMT and per capita) are routinely compiled and reported for all states by NHTSA in annual fact sheets. In addition, NHTSA compiles information on seat belt usage rates reported by each state from probability-based observational surveys conducted based on criteria established by NHTSA.

A number of studies were identified in the literature that made use of comparative performance measures to draw conclusions about influence of various causal factors and to identify effective practices. For example:

- A 2007 paper [Sivak, 2007] entitled “Traffic safety in the U.S.: Re-examining major opportunities” looked at changes in road fatalities, fatalities per billion kilometers driven, and fatalities per capita between 1994 and 2004 for the U.S. and seventeen other developed countries. It points out that Sweden and the Netherlands had substantially greater decreases in fatality rates (31 and 35 percent, respectively) than the US had (17 percent) between 1994 and 2004. It also cited an earlier study that noted that while the U.S. was at the forefront of traffic safety for most of the 20<sup>th</sup> century, its rank with respect to fatality rate had dropped to 10<sup>th</sup> place by 2002. The paper then examines a range of countermeasures that have proven to be successful in other countries and, based on this experience, discusses opportunities for improving safety performance in the US.
- A recent report [Hedland, Gilbert, et. al., 2008] presents case studies of ten states with relatively high seat belt use rates and draws a number of valuable conclusions about key factors that contribute to high belt use.
- A 2006 FHWA paper [FHWA, 2008] looked at changes across states in three year average fatalities and fatality rates between 1996-1998 and 2002-2004 and identified five “success states” which had decreases in fatalities and fatality rates much higher than the national average. It then looked at specific types of fatality reductions (unbelted, alcohol-related, speeding-related, etc.) for these states and concluded that “the states achieving the most improvement in their fatality rates have done so through a multi-faceted approach to safety,” given that these states showed improvements across multiple categories.
- A 2008 NHTSA report [Syner, et. al, 2008] presents case studies of three states that participated in the Strategic Enforcement State (SES) initiative focusing on reducing alcohol-related crashes, injuries, and deaths. The SES involved 15 states; those selected for case studies had demonstrated significant declines in alcohol-related fatalities in one or more years of the program.

The ability to identify high-performing states and link their achievements with successful practices is clearly of value. However, comparisons must be done with care. In particular, comparative analysis of fatalities and fatality rates across states must recognize that (1) fatalities are relatively rare events and are therefore subject to substantial random fluctuations from year to year, and (2) variations in fatality rates are due to multiple interrelated causal factors, many of which cannot be impacted through programs to improve safety via the 4E’s (Engineering, Enforcement, Education and Emergency Response.)

A 2006 paper [O’Neil, 2006] analyzed motor-vehicle crash death rates per mile traveled in the 50 U.S. states from 1980 to 2003 using multiple regression models that related death rates to urbanization and demographic factors such as age, income and ethnicity. It found that almost 70% of the variability in passenger vehicle occupant death rates across states could be explained by urbanization and demographic factors. It concluded that motor-vehicle crash

death rates are strongly influenced by factors unrelated to highway-safety countermeasures, and therefore that overall death rates should not be used as a basis for judging the effectiveness of countermeasures or to assess the relative effectiveness of overall highway safety policies across jurisdictions.

A recent paper [Kweon, 2007] cautions that “comparing fatality rates among states without controlling for any factors is likely to project an erroneous picture of the relative traffic safety among states.” It reports the results of an analysis in which several demographic, economic and roadway characteristics were controlled for in order to provide more reliable estimates of fatality rates. State rankings using these new estimates were compared to rankings based on raw fatality rates. About half of the States that appeared in the top ten use of raw fatality rates (per VMT) dropped out of the top ten in the new rankings, which took into account control factors. However the author noted that the new rankings, while better than the raw rankings, should not be used as stable traffic safety yardsticks for comparison between states, given the high degree of uncertainty in the estimates.

Population density and degree of urbanization are commonly recognized as key factors explaining variation in highway fatality rates. If fatality rates are separately calculated for urban and rural classified roadways, rates for the urban roadways are considerably lower. Therefore, more highly urbanized states will tend to have lower fatality rates. Hedlund [2008] provides an example of “Simpson’s Paradox,” in which state A has a lower overall fatality rate (fatalities per VMT) than state B, but when fatality rates are calculated separately for urban and rural roads, both of these are higher for state A than state B. This situation was due to the fact that state A had a much higher share of urban VMT than state B.

Lower fatality rates are related to lower travel speeds in urban settings. However, there are other factors that are correlated with rural or lower population density settings that influence fatality statistics. A 2006 study [Muelleman, 2006] looked at four different population density regions over a 5-year period in a four-state Midwest region, and found that fatality rates were inversely proportional to population density. Variables related to lower population density were more light and heavy truck types, more frequent alcohol use and higher levels of intoxication, more frequent crashes that are non-collisions on less heavily traveled roads, more frequent crashes on gravel surface types, more frequent occupant ejection, and delayed medical care.

Based on this review of the literature, the research team concluded that it would be more instructive to look at changes in fatality rates over time rather than at current fatality rates as the primary performance measure. It was also decided that the analysis would include examination of changes in urban and rural fatality rates as well as changes in overall rates.

### **Factors Affecting Fatality Rate Reductions**

In order to develop interview questions to explore best practices, the literature review included an investigation of causal factors impacting changes in fatality rates. While there is a vast literature on this topic, the paper by Sivak [Sivak, 2007] was used to provide a foundation for this review given its organization around five major risk factors for traffic fatalities and

associated countermeasures, and its incorporation of findings from a wide variety of studies. The five risk factors covered were: speeding, lack of safety belt use, alcohol impaired driving, young drivers and nighttime driving. It noted that at least one of these five factors were present for about three quarters of all fatally injured drivers in 2004. Key findings from this paper as well as Harsha [2007] and Hedlund [2008] are:

- **Speeding.** Traditional education, enforcement and engineering countermeasures have had limited impacts on speeding. Education has not been successful because in general, drivers do not appreciate that speed is associated with risk in their own driving; they feel that others are the problem. Traditional enforcement of speeding is effective on a localized basis but more globally it has limited impact, since only a small proportion of all speeding violations are detected. Roadway and vehicle designs generally accommodate rather than discourage speeding. Automated speed enforcement methods (use of cameras with speed detectors) and in-vehicle intelligent speed adaptation technology have both been found to be effective in international studies, but have not yet been widely adopted in the U.S.
- **Belt Use.** Safety belt use in the U.S. has been steadily increasing, from 71 percent in 2000 to 82 percent in 2007. There is further potential to increase belt use and as a result, bring down fatality rates. Twelve states had seat belt use rates over 90 percent; nineteen have belt use rates under 80 percent. Hedlund [2008] identified factors leading to high belt use rates including “high-visibility seat belt law enforcement, excellent relations with law enforcement command and officers statewide, effective seat belt law enforcement publicity, high priority for increasing seat belt use, effective planning and implementation of seat belt use programs based on solid data and research, and effective Highway Safety Office and seat belt program management.” The literature review in Sivak [2008] identified mandatory seat belt laws (particularly Primary laws that allow motorists to be stopped and issued citations if seat belts aren’t in use), participation in high-visibility enforcement campaigns, use of advanced reminder systems in vehicles, and safety belt interlock systems as effective techniques for increasing seatbelt use. Sivak notes that many of these methods - especially interlock systems, have been met with public opposition which has limited their deployment.
- **Alcohol-Impaired Driving.** Sivak’s [2008] literature review cites the following as being effective deterrents to drinking and driving: passage of per se laws (laws that declare it illegal to drive above a certain alcohol level, as measured by a blood or breath test), minimum drinking age laws, aggressive enforcement with severe penalties, and use of current generation ignition interlock devices. Review of experience from the NHTSA Strategic Enforcement States Initiative [Syner 2008] found that states with successful programs had the following common characteristics: high-visibility, multi-agency enforcement operations on a monthly basis and year round with a focus on areas that accounted for 65 percent of the alcohol fatality problem; charismatic leadership that secured commitments from law enforcement agencies and provided clear guidance on the direction of the DWI enforcement program; law enforcement training; and targeted messaging through earned and paid media along with outreach efforts.



- **Young Drivers.** The 2007 NHTSA Young Driver fact sheet [NHTSA, 2007] reports that 3,174 15-20 year olds were killed on the roads and that motor vehicle crashes are the leading cause of death in this age range. Drivers in the 15-20 age range make up about six percent of all licensed drivers in the U.S. but account for twelve 12 percent of the drivers involved in fatal accidents. Effective countermeasures to reduce young driver fatalities include comprehensive and well-enforced graduated driver licensing programs, zero tolerance laws for drinking and driving, use of sobriety checkpoints, increasing the legal driving age, and education programs targeted at parents.
- **Nighttime Driving.** Nighttime fatality rates are more than double daytime rates. While alcohol use, fatigue and a higher proportion of young drivers at night contribute to the higher risk, part of the risk is due to decreased visibility. Sivak's literature review cited a study that attributed 3,855 fatalities per year in the U.S. to darkness, with the largest component of these fatalities being pedestrian fatalities - about 2,334 per year. Sivak suggests several countermeasures to address this risk factor, though no specific evidence is presented as to their past effectiveness: education targeted at informing pedestrians about how to improve drivers' ability to see them at night; improvements to lighting, pedestrian crosswalks and signals; changes in laws and education to promote increased use of high beams; and potentially, further development and deployment of adaptive headlamps.

A final set of documents were included in the literature review that present a higher level view of what is needed to achieve substantial reductions in traffic fatalities. In 2006, the AAA Foundation for Traffic Safety started a "traffic safety culture" initiative by commissioning a series of papers on the topic by leading researchers representing a variety of perspectives. A synthesis was prepared for the compendium of these papers [Hedlund, 2007.] Key points from this synthesis were:

- The current traffic safety culture in the U.S. can be characterized as one of "indifference" or "complacency" given our willingness to tolerate over 40,000 deaths per year on the roads.
- Strong safety cultures exist for other modes (e.g. passenger air), and in other countries (e.g. Sweden, Australia, U.K, and the Netherlands), characterized by a zero tolerance for injuries and fatalities, strong leadership, a commitment to safety in both words and actions, allocation of resources, strategic planning with clear goals and performance measures, and coordination across agencies and organizations to achieve these goals.
- Improving the traffic safety culture in the U.S. will involve actions on three levels – increased national priority and allocation of resources to safety, strengthening the infrastructure of organizations responsible for traffic safety to improve the scientific basis for strategy selection and implementation, and changes in behavior on the part of individual drivers, passengers, cyclists and pedestrians. There are substantial barriers to be overcome at each of these levels.
- Multiple strategies can be employed to move towards a culture in which traffic safety is the norm. These include effective use of communications; development of well-targeted

programs based on scientific principles; conduct of research to improve knowledge of effective practices; provision of strong, coordinated and consistent national leadership; establishment of safety goals and performance measures at the national, state and local levels with regular reporting; and elevating the priority of traffic safety in law enforcement agencies and the courts.

A set of case studies were conducted by Betty Mercer under NCHRP Project 17-18 (016) entitled: "Creating a Traffic Safety Culture – A Case Study of Four Successful States." [Mercer Consulting Group, LLC, 2007]. The four states were selected based on success in reducing fatalities and serious injuries over time. These case studies focus on organizational elements that support successful State programs and strategies to reduce highway fatalities and serious injuries. They provide in-depth coverage of key milestones and the actions of specific individuals and agencies that resulted in a culture of safety. Two of the states included in this case study series were also selected in the current project. The case studies provided a rich base of information for documentation of successful safety practices.

## **REPORT ORGANIZATION**

Section 3 presents the analysis of the fatality data and the methodology that was used for identifying top performing states. Section 4 summarizes results of the interviews with these states, and presents overall findings and recommendations from this effort.

### 3. IDENTIFICATION OF STATES WITH NOTABLE PERFORMANCE

#### PERFORMANCE MEASURE SPECIFICATION

The initial task in the project was to specify performance measures to be used for the comparative analysis. At the start of the study, the panel directed the research team to focus on fatalities (rather than crashes or injuries), and utilize data from NHTSA's Fatality Analysis Reporting System (FARS). The focus on fatalities makes sense for several reasons. Fatalities are a performance measure of great interest to states, and are the focus of many national and statewide performance improvement multiple initiatives. In addition, FARS provides a solid and reliable data source for comparative analysis. There is currently no comparable national data source for crashes or injuries, and definitional differences make comparisons across states less reliable.

However, the selection of fatalities as an indicator poses a challenge for comparative performance measurement. First, fatalities are relatively rare events and as such, are subject to substantial random variation. Second, fatalities are the result of multiple interacting factors related to exposure (travel and population), driver behavior, roadway characteristics, and vehicle characteristics.

For the purposes of comparative analysis across states, looking at *fatality rates* as opposed to straight fatality numbers provides a way to normalize performance data based on exposure. Comparing *changes* in fatality rates over time rather than absolute values of fatality rates provides a focus on what has changed over the time period to impact performance, and makes it easier to draw a causal link between agency actions and observed performance. It can be argued, however, that looking only at fatality rate changes would tend to overlook states that have already achieved relatively low fatality rates through implementation of effective practices prior to the period considered by this study. In addition, while looking at fatality rate changes makes it easier to control for the influence of exogenous factors, it does not eliminate the need to consider them. Differences across states in growth patterns, changes in congestion levels, and demographic changes can impact changes in fatality rates. This can make it difficult to say whether one state's fatality rate reduction of 10 percent is due to a growth in urban VMT (and associated slower travel speeds and availability of better emergency response) or due to a targeted enforcement program.

Ideally, one would want to "drill down" to look at specific types of fatalities in specific circumstances - for example, reductions in rural run-off-the-road crashes involving drivers in the 24-65 age range - in order to control for exogenous factors and discern performance improvements that are likely to be related to deliberate programmatic actions. However, 22 of the 50 states had less than 500 total fatalities in 2007. This fact means that valid statistical comparisons for sub-groupings of fatalities are very difficult to make across 50 states. This limitation has two implications: (1) there may be states with safety practices that have proved to be very effective in a site-specific context that won't be picked up through this analysis, and (2)

we will need to recognize that exogenous factors that may account for some of the performance improvement observed in the states identified as good performers.

Starting with the basic assumption that fatalities would be used as the basis for this effort, the research team developed the following approach to defining specific indicators and measures that reflect the complexities discussed above. This approach was influenced by and is consistent with the recent NHTSA/GHSA report that recommended safety performance measures.

- Use Fatality Rate = fatalities per 100M VMT rather than fatality numbers as the primary performance indicator, since this takes into account variations in exposure to crashes.
- Look at the first seven years of the 21<sup>st</sup> century – 2000-2007.
- Calculate three year moving averages in order to smooth out year-to-year variations in results.
- Use the percentage change in fatality rate between the 2000-2002 and the 2005-2007 three-year averages as the primary criteria for identifying states with good safety performance.
- Use the absolute fatality rate (three year moving average from 2005-2007) as a secondary measure in conjunction with the percentage change in rate. This allows for giving some weight in the selections to states that have lower fatality rates.
- Calculate the following detailed fatality measures to use as a resource for understanding the pattern of fatality reductions in the top performing states: percent change in urban and rural fatality rates, speeding-related fatalities, unrestrained fatalities, motorcyclist fatalities, unhelmeted motorcyclist fatalities, young driver-related fatalities, alcohol-related fatalities, and pedestrian fatalities.
- Rank states both on a national basis and within peer groupings of states.
- Select states for further investigation based on slicing the data multiple ways, recognizing that the primary emphasis of this research is not to definitively identify “who is best”, but rather to document the practices of states who have recently been able to reduce their fatality rates.

## DATA COMPILATION

Fatality data were compiled from the NHTSA FARS Encyclopedia web site (<http://www-fars.nhtsa.dot.gov/main/index.aspx>.) The standard reporting and query facilities on this website were used to download data for each state on total fatalities, alcohol-related fatalities, unrestrained fatalities, young driver involvement in fatal crashes, motorcycle fatalities and pedestrian fatalities. For speeding-related fatalities, data were obtained from NHTSA fact sheets given the complexity of the query specification for this type of fatality. VMT data were compiled from the FHWA web site: 2000-2006 data from <http://www.fhwa.dot.gov/policy/ohpi/qftravel.cfm> ; 2007 data were downloaded from <http://www.fhwa.dot.gov/policyinformation/statistics/2007/>. Note that 2007 VMT data from

FHWA became available in January 2009 – this data source was used in the analysis rather than the preliminary national figures on the NHTSA FARS Encyclopedia web site. Therefore, the fatality rates utilized for the analysis may vary slightly from the FARS information.

Three-year moving averages for each type of fatality and for total, urban and rural fatality rates were calculated in spreadsheets. Percent changes in the three year moving averages from 2000-2002 to 2005-2007 were calculated.

Census information was compiled for each state: 2007 population and population density, 2000 percentage of population in urbanized areas, percentage of elderly (65+) population, median household income. Categories for population, density, urbanization, elderly population and income were assigned based on ranking states from low to high values, and splitting the states into three even groupings. Each state was assigned to one of the five FHWA travel monitoring regions shown in Figure 6 below. Note that Washington DC was excluded from the analysis given lack of comparability to other “States.”

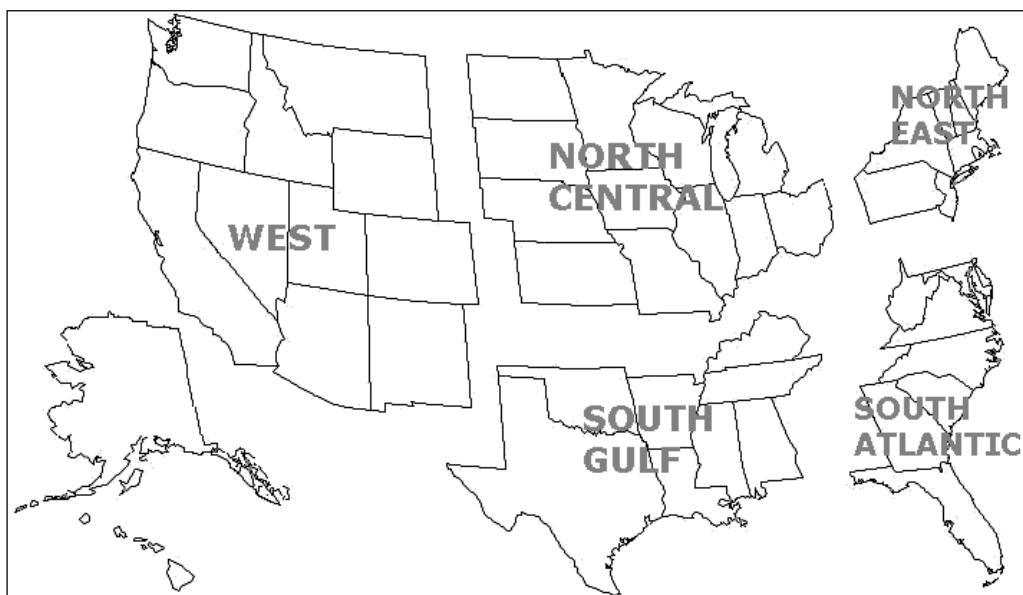


Figure 6 – FHWA Travel Monitoring Regions

## DATA ANALYSIS AND SELECTION OF STATES FOR PRACTICE INVESTIGATION

Identification of high-performing states for discovery of good practice was approached using four different methods:

- Method 1: Select the five states with the highest percentage reduction in fatality rate

- Method 2: Screen out the states with overall fatality rates greater than the national average for the period 2005-2007 (1.41). From remaining states, select the five with the highest percentage reduction in fatality rate
- Method 3: Construct peer groups based on geographic region, and select the state with the highest percentage reduction in fatality rate within each group. Use overall fatality rate as a tie breaker where clusters of states have similar reductions in fatality rates.
- Method 4: Same as method 3, but with peer groups constructed based on the percentage of fatalities on urban roadways. This peer grouping was included in recognition of the clear differences in fatality rates across urban and rural roadways.

Additional peer groupings were constructed based on income and population density, but there was not sufficient variation among states within these peer groupings to draw meaningful conclusions.

### Data Highlights

The national average three year fatality rate for 2000-2002 was 1.51. The rate decreased by 7 percent for 2005-2007 to 1.41. For 2000-2002, the fatality rate varied from a low of .86 to a high of 2.43. For 2005-2007, the range was .78 to 2.35. In 40 of the 50 states, the fatality rate decreased between 2000-2002 and 2005-2007. Changes in fatality rate ranged from a 31 percent decrease to a 12 percent increase.

### Method 1 - Five States with Largest Fatality Reductions

The five states with the largest percentage reductions in their fatality rate are listed in Table 1 below. These states had reductions of three to four times the rate for the country as a whole.

State	2000-2002		2005-2007		Pct Change in Fatality Rate
	Number of Fatalities	Fatality Rate	Number of Fatalities	Fatality Rate	
CO	722	1.69	565	1.17	-31%
AK	95	2.00	77	1.52	-24%
MI	1329	1.34	1101	1.06	-21%
UT	331	1.41	289	1.11	-21%
MN	617	1.15	519	0.91	-21%

Table 1 – Top Five Ranked States based on Percentage Change in Fatality Rate

### Method 2 – Five States with Largest Fatality Reductions of the States with Fatality Rates Lower than the National Average

This was a two step analysis. First, 25 states with fatality rates lower than the national average of 1.41 were identified. Then, these 25 states were sorted by the percentage change in fatality rate. The five states with the greatest fatality reductions are listed in Table 2 below.

State	2000-2002		2005-2007		Pct Change in Fatality Rate
	Number of Fatalities	Fatality Rate	Number of Fatalities	Fatality Rate	
CO	722	1.69	565	1.17	-31%
MI	1329	1.34	1101	1.06	-21%
UT	331	1.41	289	1.11	-21%
MN	617	1.15	519	0.91	-21%
CT	328	1.06	289	0.91	-14%

**Table 2 – Top Five Ranked States based on Percentage Change in Fatality Rate (Filtered by Lower than Average Fatality Rate)**

Both methods 1 and 2 result in selection of Colorado, Michigan, Utah and Minnesota. When states with fatality rates higher than the national average are eliminated, Connecticut replaces Alaska in the list.

### Method 3 – Geographic Peer Groups

Peer groupings were based on the five FHWA regions used for presentation of travel monitoring information.

Rankings within geographic peer groups were conducted based on percentage reduction in fatality rate. Overall fatality rate was used as a tie-breaker. For two of the regions, a second state was identified as worthy of consideration for investigation.

Region	Selection	Reasons	Other Candidates
West	CO	Largest decrease in fatality rate (31%)	
South Gulf	TX	largest overall decrease in fatality rate (16%); only state in this group with absolute reduction in fatalities	
South Atlantic	MD	MD was one of 6 states in this group of 8 with 5-10%. MD had the lowest fatality rate of the peer group.	
Northeast	CT	Largest decrease in fatality rate (14%); ME, MA and NY were close behind with 10-12% decreases. CT had second lowest overall fatality rate.	MA - notable for having the lowest fatality rate in the country; also has shown steady decreases.
North Central	MN	Tied with MI for largest decrease in fatality rate (22-23%). MN had largest decrease in rural fatality rate and largest absolute fatality reduction	MI - close second to MN

**Table 3 – Top Ranked States within Geographic Peer Groups based on Percentage Change in Fatality Rate**

Performance results for selected states (including the two “runner up states”) are shown below in Table 4:

Region	State	2000-2002		2005-2007		Pct Change in Fatality Rate
		Number of Fatalities	Fatality Rate	Number of Fatalities	Fatality Rate	
West	CO	722	1.69	565	1.17	-31%
South Gulf	TX	3779	1.72	3477	1.46	-16%
South Atlantic	MD	636	1.22	627	1.11	-9%
Northeast	CT	328	1.06	289	0.91	-14%
	MA	456	0.86	429	0.78	-9%
North Central	MN	617	1.15	519	0.91	-21%
	MI	1329	1.34	1101	1.06	-21%

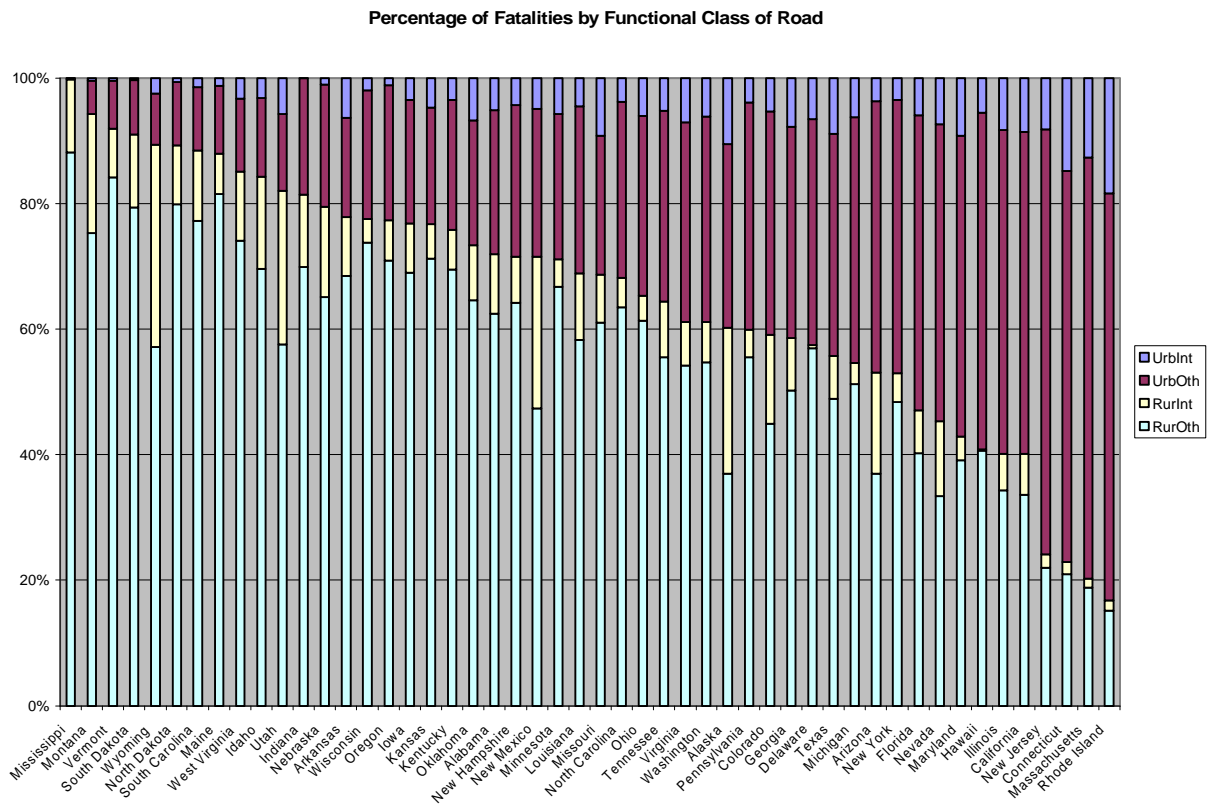
*Table 4 – Performance Results for Top Ranked States based on Geographic Peer Groups*

Using the geographic peer grouping method adds TX, MD and MA into the group of states for consideration.

**Method 4 – Peer Groupings Based on Share of Fatalities on Urban Roadways**

The peer groupings were assembled based on the share of total fatalities on roadways classified as Urban – from 2000-2002 FARS data.





**Figure 7 – Peer Grouping Based on Percentage of Fatalities on Urban vs Rural Roadways**

The following five groups were established:

- Group 1: less than 15 percent of fatalities on Urban Classified Roads (9 states)
- Group 2: 16-30 percent of fatalities on Urban Classified Roads (15 states)
- Group 3: 31-45 percent of fatalities on Urban Classified Roads (14 states)
- Group 4: 46-60 percent of fatalities on Urban Classified Roads (8 states)
- Group 5: over 60 percent of fatalities on Urban Classified Roads (4 states)

Rankings within these peer groups resulted in the following selections:

Peer Group	Selection	Reasons	Other Candidates
1 (<=15% Urban Fatalities) [9 states]	ME	Tied with MS for largest decrease in fatality rate, close second to VT for lowest fatality rate. Balance of declining fatality rate and relatively low fatality rate in this peer group.	
2 (16-30% Urban Fatalities) [15 states]	MN	Greatest decrease in fatality rate and lowest fatality rate	UT-low and declining fatality rate MI, - lowest fatality rate in group and declining rate; AK- also had significant decline in rate
3 (31-45% Urban Fatalities) [14 states]	CO	Greatest decrease in fatality rate and at the low end of the range in fatality rates for this group.	
4 (46-60% Urban Fatalities) [8 states]	NY	Greatest decrease in fatality rate and lowest fatality rate	
5 (61-75% Urban Fatalities) [4 states]	CT	Greatest decrease in fatality rate; second lowest rate.	MA - lowest fatality rate

Table 5 – Top Ranked States within Peer Groups based on Percentage of Fatalities on Urban Classified Roadways

This peer grouping adds two new states – ME and NY for consideration.

Performance results for selected states are shown in Table 6:

Peer Group	State	2000-2002		2005-2007		Pct Change in Fatality Rate
		Number of Fatalities	Fatality Rate	Number of Fatalities	Fatality Rate	
1 (<=15% Urban Fatalities) [9 states]	ME	192	1.33	180	1.20	-10%
2 (16-30% Urban Fatalities) [15 states]	MN	617	1.15	519	0.91	-21%
	UT	331	1.41	289	1.11	-21%
3 (31-45% Urban Fatalities) [14 states]	CO	722	1.69	565	1.17	-31%
	MI	1329	1.34	1101	1.06	-21%
4 (46-60% Urban Fatalities) [8 states]	NY	1518	1.16	1407	1.02	-12%
5 (61-75% Urban Fatalities) [4 states]	CT	328	1.06	289	0.91	-14%
	MA	456	0.86	429	0.78	-9%

Table 6 – Performance Results for Top Ranked States within Peer Groups based on Percentage of Fatalities on Urban Classified Roadways

### Summary Results and Recommendations for Best Practice Identification

Table 7 shows the six states that were selected using two or more of the four methods. States shown with an asterisk are those that were either tied or a close second utilizing the method indicated.

State	Selected by Which Methods	2000-2002		2005-2007		Pct Change in Fatality Rate
		Number of Fatalities	Fatality Rate	Number of Fatalities	Fatality Rate	
CO	1,2,3,4	722	1.69	565	1.17	-31%
MN	1,2,3,4	617	1.15	519	0.91	-21%
MI	1,2,3*,4*	1329	1.34	1101	1.06	-21%
UT	1,2,4*	331	1.41	289	1.11	-21%
CT	2,3,4	328	1.06	289	0.91	-14%
MA	3*,4*	456	0.86	429	0.78	-9%

Table 7 – Performance Results for Top Six States

Interviews to identify best practices focused on these six states. However, given that recent in-depth case studies had already been conducted for Michigan and Minnesota as part of an earlier NCHRP project, project resources allowed for inclusion of four additional states that had been highest ranked in only one of the four methods. Therefore, interviews were also conducted with the states of Alaska (top ranked in method 1), Maryland (top ranked in method 3), Maine and New York (both top ranked in method 4).

Figure 8 shows a scatter plot in which each state is represented by a diamond. The x coordinate for each state is its 2000-2002 average fatality rate; the y coordinate is its 2005-2007 average fatality rate.

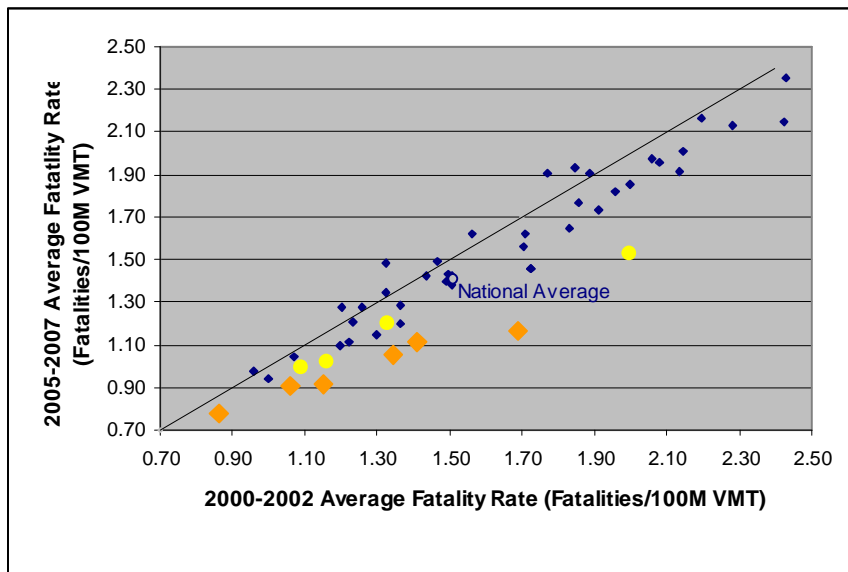


Figure 8 – Changes in Fatality Rates 2000-2002 to 2005-2007 with Selected States Highlighted

Points on or near the diagonal line are states where the fatality rate showed little change between the two periods. Points above the diagonal line are states where the fatality rate increased. Points below the line are states which achieved a decrease in their fatality rate. The top six states selected for interviews are shown as larger orange diamonds. The additional four states selected for interviews are shown as yellow circles.

## 4. IDENTIFICATION OF EFFECTIVE PRACTICES

### STATE INTERVIEWS - METHODOLOGY

Telephone interviews were conducted with the ten states identified through the methods discussed in Section 3. As noted in Section 3, recent case studies conducted for Michigan and Minnesota were used as a base of information for those two states and interviews were used to update and confirm that information. An interview guide was developed to be used to ensure that a standard set of factors were covered in the discussion for each state – this guide is included in Appendix A. However, the objective of these interviews was to ascertain what practices had the greatest impact on achievement of fatality reductions rather than to document each state’s safety practices in detail.

Prior to the interview, available documents about each state’s highway safety activities were reviewed, including strategic highway safety plans and annual reports. Each state received a copy of the interview guide, partially filled-in with information assembled from the document review. Interviews generally included representatives of the state’s highway safety office (within either the state public safety or transportation department) and of the traffic safety engineering function within the state DOT. Following the interview, a draft summary was prepared utilizing notes from the interview, supplemented with additional information from published reports. The draft summary was transmitted to the primary state contact for review. Each state provided comments, which were incorporated into the final versions of the summaries.

### HIGHLIGHTS OF PRACTICES BY INDIVIDUAL STATES

Summaries of each state interview are provided in Appendix B. Highlights from the top six states are presented below.

#### **Colorado**

Colorado was selected because of the substantial drop in fatality rate (fatalities per 100 million vehicle miles traveled) from 1.69 in the 2000-2002 period to 1.17 in the 2005-2007 period – a 31 percent decrease. Colorado’s success can be attributed to a combination of factors: passage of safety legislation to reduce fatalities associated with drinking and driving and younger drivers, close working relationships among different safety partners – facilitated by co-location of the behavioral and engineering safety program offices within the state DOT, an aggressive and strategically targeted enforcement program led by a charismatic State Patrol Chief, availability of grants for local enforcement funded through fines and fees assessed against DUI offenders, data-driven problem identification that uses linked driver licensing and crash information to target both roadway locations and home counties of high risk drivers, and an effective communication and public relations function.

## Minnesota

Minnesota's fatality rate dropped 21 percent from 1.15 to .91. Minnesota's achievement of such a low overall fatality rate is notable given the State's geographic location and degree of urbanization. Minnesota's success can be attributed to a long history of strong champions and active partnerships in the traffic safety arena. Minnesota's Toward Zero Deaths (TZD) program, established following an increase in fatalities in the late 1990's provided a renewed focus for safety programs, with common targets and a consistent message that linked together the different safety programs in the State. Minnesota safety staff interviewed for this project commented that the strategic planning process continues to provide a strong, participatory and data driven foundation for the state's decision making process about where to invest available resources for maximum impact. Minnesota also has a very active county highway safety community that has been able to secure state funds to support rural road safety improvements.

Key programmatic initiatives in Minnesota in the 2000-2007 period included enforcement campaigns that combine targeted enforcement in high risk locations with media coverage that reinforce messages about seat belt use, impaired driving, and speeding; the HEAT program that combined increases in speed limits with increased speed enforcement; a shift away from a "black spot" approach to highway safety analysis that has changed the focus of engineering improvements towards rural lane departure and intersection crashes, improvements to crash data timeliness and accessibility, provision of crash mapping and query tools for use at both state and local levels, and development of a safety toolbox for local agencies.

## Michigan

Michigan's fatality rate dropped from 1.34 to 1.06 – a 21 percent decrease. Like Minnesota, Michigan has enjoyed a long history of executive-level commitment to safety and strong interagency partnerships among state and local agencies in the safety arena. Between 2000 and 2007, Michigan was able to increase its seat belt use rate from 70 to 94 percent which resulted in a 35 percent reduction in unrestrained passenger fatalities. Michigan did this by passing a primary seat belt law (in 2000), and implementing an effective, data driven enforcement program supported by strong partnerships with law enforcement agencies throughout the state. Michigan also passed a .08 blood alcohol concentration per se law in June, 2003 and paired high visibility enforcement of impaired driving laws with strong public information and education campaigns to achieve a 17 percent decrease in alcohol-related fatalities.

Michigan made improvements to quality and accuracy of its crash data within the 2000-2007 timeframe, increasing the percentage of reported crashes that could be located on the road network from 70-75 percent to 98 percent. According to a 2004 NHTSA Assessment, Michigan was one of the few states that was providing uniform location data on all of its crash records, including those for local roads. Availability of accurate geo-coded crash data allowed both state and local engineers to better target engineering improvements. Between 2000-2007, Michigan made use of available NHTSA incentive funds to fund engineering improvements on both the state trunk-line and local roadway networks. Michigan was one of the early implementers of shoulder rumble strips for its state-maintained freeway network, achieving a

40 percent reduction in “drift off the road” crashes due to its milled-in rumble strips. Michigan is also notable for its emphasis on strengthening local agency safety planning capabilities. Michigan’s Local Safety Initiative (LSI) office provides free technical assistance for local road authorities for review and analysis of crash data, road safety reviews and development of countermeasures. Funds have been set aside to implement fixes on the local system identified as part of this process, with a focus on “low-cost” fixes such as signing, pavement markings, signal modifications and improved sight distance and visibility to reduce fatal and serious injury crashes. Michigan’s Office of Highway Safety Planning and Department of Transportation have worked with all of the State’s MPOs and Rural Task Forces (RTFs) to encourage safety conscious planning and, with support from FHWA, have held safety forums in all of the MPO areas. The County Road Association of Michigan (CRAM) also provides assistance to member counties, which has included support for an integrated roadway management system that incorporates inventory, safety and pavement condition information.

## Utah

Utah achieved a 21 percent decrease in its fatality rate – from 1.41 to 1.11. Utah safety staff pointed to ease of personal communication and informal working relationships that exist among the individuals and organizational units with key roles in highway safety as the single most important ingredient for success. The fact that Utah is a small state, with relatively flat organizational structures within its agencies has facilitated development of strong personal relationships. This has allowed agencies to continually adapt their activities based on emerging information from multiple channels about where the problems are and what solutions are most effective. In 2001, the state DOT revamped its methods for analyzing and prioritizing projects which has helped to focus available dollars in a manner that maximizes results. A multi-agency Fatality and Crash Review Committee meets annually to develop a collective understanding of the data and its implications. Utah safety representatives noted that six years ago (in 2003) there was recognition within the safety community of the importance of pooling available resources in a coordinated manner to achieve the shared mission of reducing highway fatalities. Resource sharing arrangements are worked out through extensive informal discussion about specific problems, needed solutions, and available funding, equipment and manpower that can be brought to the table.

Following achievement of a 24 percent reduction in fatalities between 2000 and 2005, Utah launched its “Zero Fatalities” program, emphasizing the importance of continuing to drive down fatality numbers. This program has provided a valuable focus for Utah’s highway safety initiatives and has reinforced existing partnerships across agencies.

Utah’s Department of Public Safety has placed particular emphasis on removing impaired drivers from the road. Since 2001, the State Highway Patrol has utilized a special DUI squad that works across the state in conjunction with local law enforcement crews to provide ongoing overtime coverage. Utah was able to achieve a 31 percent decrease in alcohol-related fatalities, bringing the state’s percentage of alcohol-related fatal crashes down to 17 percent – the lowest in the nation.

Utah's safety program has had strong engineering and education elements as well. Utah has installed rumble strips on all of its rural Interstate highways, and has systematically evaluated statewide opportunities for median separation treatments. Both the state DOT and the DPS have developed strong relationships with the local media, and view the media as important partners for achieving highway safety goals. Ensuring that every fatal crash receives media coverage is viewed as an extremely effective way to educate the public about safety problems and their prevention and to build public support for safety programs

### **Connecticut**

Connecticut brought its fatality rate down from 1.06 to .91, a 14 percent decrease. Safety staff point to several institutional factors that have contributed to this decrease including strong and visible support for safety programs on the part of the Governor and Lieutenant Governor (in office since July 2004), strengthening of partnerships among the key agencies responsible for traffic safety, and consolidation of transportation safety units within the Bureau of Policy and Planning at ConnDOT. These changes have in turn, supported a more focused, performance-based, data-driven approach to implementation of safety programs and projects.

Between 2000 and 2007, Connecticut strengthened DUI and graduated driver licensing legislation and imposed a ban on use of mobile phones. Connecticut's Impaired Driving program includes both sobriety checkpoints and roving patrols, and uses statewide media campaigns to draw attention to enforcement activities and consequences of being caught. Connecticut has established a regional approach to traffic enforcement. There are currently 18 Regional Traffic Units (RTUs) made up of 70 local jurisdictions who have established mutual aid agreements for sharing of equipment and personnel. Connecticut's RTUs work with the State Police to target enforcement activities to locations with observed high crash rates and high incidence of speeding or aggressive driving. The State Highway Safety Office has been working closely with larger urban counties, which have the greatest number of fatalities.

### **Massachusetts**

Massachusetts brought its already low fatality rate of .86 down to .78 – a 9 percent decrease. State officials attribute these low fatality rates to high congestion levels, and relatively slow travel speeds. They feel that state safety programs have helped to bring down unrestrained, alcohol-related and young driver fatalities. Strong executive support has reinforced coordination and cooperation among staff with safety responsibilities located within the Executive Office of Public Safety and Security (EOPSS) and the Executive Office of Transportation. Through the development of the state's Strategic Highway Safety Plan (SHSP), stronger communication channels were established within the state's safety community. The state EOPSS Highway Safety Division (HSD) representative pointed to use of small group "listening sessions" as a particularly effective communication tool that resulted in identification of many good ideas for inclusion in the SHSP.

Massachusetts passed several pieces of legislation between 2000 and 2007 that substantially toughened the state's drunk driving laws. While Massachusetts does not have a primary seat



belt law and its seatbelt use rate is among the lowest in the country, there was a significant increase in seatbelt use between 2000 and 2007 – from 50 to 69 percent which contributed to the reduction in fatality rate.

Because Massachusetts is a small state, there are close working relationships between the Mass Highway Department (MHD) central office and the districts, which has facilitated implementation of roadway safety improvements on the state highway system. Frequent communication between MHD and Massachusetts state troopers has also been helpful for identifying particularly hazardous locations where improved signage or installation of guardrail is warranted.

## **SYNTHESIS OF PRACTICES CONTRIBUTING TO FATALITY REDUCTIONS**

While there were variations in emphasis and approach among the selected high performing states, several common themes emerged. When asked what they thought were the most significant factors that impacted fatality reductions, nearly every state said that it was either seat belt and DUI legislation and associated enforcement, a shift towards more data driven safety planning, strengthened partnerships, or a combination of these. These and other key areas of commonality are highlighted below, along with examples of specific practices that are in use among the states interviewed. Many, if not all of these practices are well established in the safety literature. This list of practices serves to reinforce current directions and underscore the importance of strong leadership and a multi-faceted, coordinated, performance-focused, data-driven approach to safety.

### **Leadership and Interagency Partnerships**

Practice #1: Establish an executive level committee to ensure coordination and cooperation and guide major resource allocation decisions.

Practice #2: Identify and empower safety “champions” including state and local elected officials, safety program managers, police chiefs, and other community leaders. At the same time, ensure involvement of a broader set of staff in both strategic and operational decision making to provide “deep roots” for safety leadership and communication and reduce vulnerability of safety programs to staff turnover.

Practice #3: Ensure that there is regular communication among safety partners to share information about problems and their solutions by maintaining weekly informal communication among lead staff for engineering, behavioral programs, and enforcement.

Practice #4: Maintain two-way information flow between enforcement personnel and central safety office personnel to share information about high risk locations and problem areas. Enforcement personnel can bring the benefit of extensive field observation and knowledge about input from the community on trouble spots.

### **Performance Targets and Continuous Monitoring of Progress**

Practice #5: Adopt a unifying message for all agencies with a highway safety mission. Agree on a “mantra” or theme (e.g. “Towards Zero Deaths” or “Zero Fatalities”) and brand all safety programs and safety-related messaging with this theme. Promote the understanding that everyone is working towards a common goal, that collaboration across agencies is the only way to succeed and that a multi-disciplinary, multi-faceted approach is required.

Practice #6: Set targets through strategic safety planning processes and actively monitor progress. Keep the “collective eye on the ball” by continually sharing performance results among major safety partners – with daily or weekly updates.

Practice #7: Improve dissemination of crash data by making it accessible on the internet and publishing or distributing maps of crashes by type.

### **Support Legislation to Reduce Highway Fatalities**

Practice #8: Pass primary seat belt laws to allow for citations to be issued for lack of seat belt use alone.

Practice #9: Strengthen graduated driver licensing to impose restrictions on younger drivers while they gain experience.

Practice #10: Pass .08 blood alcohol concentration per se laws to enable immediate license revocation for drunk drivers.

Practice #11: Pass mobile phone usage laws to reduce distracted driving.

### **Use timely and accurate data to target programs and countermeasures for greatest payoff**

Practice #12: Use the Strategic Highway Safety Planning process to identify emphasis areas and select appropriate strategies.

Practice #13: Improve timeliness and accuracy (including locational accuracy) of crash data on both state and local roads.

Practice #14: Use crash data to guide allocation of resources across program areas to target crash types or behaviors that account for a large share of fatalities.

Practice #15: Conduct screening of locations for engineering countermeasures based on crash and highway inventory data. Consider appropriate implementation of low-cost engineering improvements with demonstrated effectiveness, including shoulder and median rumble strips, cable guardrail, curve delineation, improved signage, and signalization. Develop countermeasures based on field review and rank based on cost/benefit.

Practice #16: Focus enforcement activities on jurisdictions, highway locations and time-periods where the highest concentrations of targeted crash types exist.

Practice #17: Target outreach programs to specific populations based on overlaying census, driver licensing and crash data to identify residential areas and demographic segments with higher than average risks.

**Maximize coordination across state and local law enforcement agencies**

Practice #18: Use law enforcement liaison(s) (LELs) to maximize involvement of local enforcement agencies in statewide initiatives

Practice #19: Fund (through federal and state sources) overtime enforcement and equipment purchase, with incentives for resource sharing

Practice #20: Develop resource sharing agreements among law enforcement agencies

**Pursue creative and proactive public communications and messaging**

Practice #21: Develop and maintain strong relationships between the Highway Safety Office and local media through use of dedicated in-house staff or contractor support to provide consistent communications for all safety messaging.

Practice #22: Involve political leaders in safety-related events to provide enhanced media coverage.

Practice #23: Maximize opportunities to obtain “earned media” coverage (press releases, events) and ensure local media coverage of each fatality.

Practice #24: Develop community-based messaging (e.g. Spanish language, church-based, school-based programs.)

## **5. IMPROVING FUTURE COMPARATIVE PERFORMANCE MEASUREMENT FOR SAFETY**

### **CURRENT STATE OF THE PRACTICE**

Performance measurement in the safety area is relatively mature compared to other key areas of interest to the AASHTO community. The national FARS data set provides a consistent set of data on fatal crashes, which can and has been used extensively to analyze trends and identify factors – both exogenous and programmatic – that influence fatalities. Prior studies have compared fatality rates (and rates of seat belt use) across states and best practices have been identified and documented in the form of case studies. Highway safety representatives interviewed for this project were generally extremely interested in learning about effective practices from their peers, and were seeking new ideas to improve effectiveness of their programs. The Strategic Highway Safety Planning Process has reinforced the importance of data-driven safety planning, and has institutionalized the process of monitoring safety performance and allocating resources where they will have the greatest impact. Safety practitioners have institutionalized use of performance data for discovery of what works well and what doesn't. Safety programs and projects are routinely evaluated using before/after studies, and there is a growing base of information about effectiveness of countermeasures in different circumstances.

### **RECOMMENDATIONS**

Given the high degree of receptivity within the safety community to learning from peers, continued use of comparative performance measurement to identify best practice is important and is likely to pay off. If there is a single "take away" message from the interviews conducted with top performing states, it is that credible and timely data is an essential ingredient driving the focus needed for success in traffic safety. The following steps are recommended to derive additional value from comparative performance measurement in the future. Many of these have been identified as needs based on the NHTSA/GHSA effort to establish core performance measures for states and federal agencies [Hedlund, 2008].

- Gaining agreement on common definitions and reporting protocols for serious injuries associated with crashes. Use of serious injuries plus fatalities rather than fatalities alone would allow for a more stable and statistically robust basis for making cross-state comparisons. It will also allow for comparative performance analysis based on targeted subsets of crash data. For example, tracking fatalities and injuries associated with speed, impaired driving and unrestrained vehicle occupants would provide a valuable focus on these key risk factors.

- Support implementation of the recommendations of the NHTSA/GHSA performance measurement initiative, including establishment of standard, well documented definitions and measurement methodologies for each measure.
- Continue research to improve monitoring of Vehicle Miles of Travel (VMT), particularly for local roads and for motorcycle travel. Reliable, accurate VMT estimates are crucial for tracking of fatality rates, which are a core measure for comparative safety performance measurement. Current initiatives related to VMT-based user fees in place of the gas tax offer some potential to provide new sources of VMT data that could supplement existing reporting methods.
- Support initiatives to gather objective information on travel speeds. Currently police accident reports are the only source of information on the extent of speed-related crashes and fatalities. Collection of objective information on travel speeds would provide an improved basis for comparing speeding behavior and associated safety performance across states. The Governor's Highway Safety Association (GHSA) has recommended that Congress fund a biennial national speed monitoring data collection study to determine how fast the traveling public is actually going.
- Continue support at the state and national levels to improve the timeliness of both VMT and fatality/crash information. National FARS data for a given year is not finalized for over 12 months following the close of that year (to allow for states to complete population of data which may be derived from multiple sources.) Currently availability of final VMT data from FHWA lags behind availability of preliminary FARS data, making it necessary to either rely on older data or utilize estimated VMT for analysis of fatality rates. In interviews conducted for this study, States that had achieved quick turnaround for their crash data have reported significant benefits in terms of willingness to use the data to target resources where they will have the greatest payoff. Similarly at the national level, in order to maximize relevance, comparative performance efforts should utilize data that are as current as possible.
- Support initiatives to gather behavioral information via standard survey instruments that could provide a basis for comparison of changes over time in known risk factors, including drinking and driving, use of cell phones, and speeding.
- Explore development of standard measures of enforcement activity coverage in order to allow for comparison across states– for example, percentage of statewide weekend night time vehicle miles or hours of travel exposed to enforcement activity.
- Explore development of standard measures for comparing and tracking implementation of safety design feature coverage – for example, percentage of Interstate directional miles with shoulder rumble strips.
- Conduct more focused comparative performance measurement efforts for particular aspects of highway safety (e.g. work zone safety, two-lane rural road safety, intersection safety) that rely on state crash records rather than FARS data. This type of effort would bring new information to the table and allow for a more detailed look at specific effective

practices that are under the control of state DOTs. It would be more consistent in approach with the first two AASHTO comparative performance measurement efforts that involved more active state participation in providing data and selecting measures.

- Extend the scope of future comparative performance measurement to the international community. U.S. state safety programs have a high degree of similarity due to the structure of NHTSA and FHWA grant programs and associated requirements. International scans have found innovative and effective practices that have not yet been widely adopted in U.S. settings.

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## APPENDIX A – INTERVIEW GUIDE FOR IDENTIFICATION OF BEST PRACTICES

### General

We are interested in your thoughts on factors contributing to the reduction in fatality rates in your state between 2000 and 2007. Please be as specific as possible about strategies that you have undertaken during this period that might be replicated by other states.

1. Describe the key state-level agency units involved in safety planning and program development in your state. What level of resources, staffing, expertise and experience do they bring to the table for safety planning and program management?

### Performance Management Approach

2. Does your state set specific targets for highway safety improvement? If yes, did you have targets for specific types of crashes or fatalities?
3. Does your state use safety data to guide strategy and countermeasure development? If yes, please provide some examples of what was learned from the data and how it impacted your strategies.
4. Have you upgraded your safety data systems over the past seven years? If so, how?

### Resource Allocation

5. What funds has your state utilized for its safety programs:
  - Federal Highway HSIP
  - Federal Highway NHS, STP, IM
  - NHTSA Section 402
  - NHTSA Other (e.g. motorcycle safety grants, occupant protection grants, etc.)
  - Other Federal
  - State/Local
6. Has your state made full use of available federal funds for safety?
7. Were there specific programs and funding allocations related to safety? What were they? How were resource allocation decisions made?
8. Were there specific types of initiatives that were given priority?

9. In what ways were safety considerations incorporated into the statewide and urban transportation planning and programming processes?
10. How was the cost of safety initiatives balanced with other demands on resources?

### **Collaboration and Partnerships**

11. Have there been particular agenc(ies) and individuals in your state that have stood out as champions for highway safety improvement?
12. Does your state have mechanisms for interdisciplinary, multi-agency and interjurisdictional coordination, including relationship with federal partners? What are they? When were they established? If coordination bodies exist, how often do they meet?
13. Does the state DOT have mechanisms for internal coordination across traffic and safety engineering, design, construction, planning and programming functions? What are they? When were they established?
14. Over the past seven years, have there been any changes in how state or local governmental agencies (law enforcement, public safety, public works, planning) approach safety – have any agencies undertaken more proactive safety practices? If yes, what did they do, and how were they motivated to become more active?
15. Are there any arrangements for sharing of resources (staff, information systems, data) across agencies with safety functions in your state?
16. Which agencies participated in developing your SHSP? Who took the lead?
17. Which agency is primarily accountable for oversight of the SHSP implementation? Are there performance measures in place to track results of SHSP strategies?

### **Legislation**

18. Have there been changes over the past seven years in legislation related to passenger restraints, helmet laws, DUI, cell phone use, graduated driver licensing? Have there been changes in approaches to enforcement of existing legislation?
19. To what extent have your elected officials made safety a priority? If they have, what were the motivating factors?

### **Engineering Solutions**

20. Has your state implemented any of the following engineering approaches to highway safety improvement? If yes, please describe them.
  - Road safety audits
  - Black spot programs (targeting of high-crash locations)

- Corridor- or system-wide implementation of improvements to minimize lane departures (e.g. rumble strips, cable-barriers)
- Methodologies for targeting and prioritization of countermeasures to make best use of resources

### **Enforcement Solutions**

21. Over the past seven years, have there been any changes in the level, coverage or methods of traffic safety enforcement solutions in your state?
22. Have you implemented:
  - Targeted or data-driven approaches
  - Approaches involving multi-agency coordination
  - Technology applications
  - Synergistic programs combining education and enforcement

### **Education and Technical Assistance**

23. Over the past seven years, have there been any changes in the level, coverage or methods of disseminating public information or providing local agency technical assistance related to traffic safety in your state?
24. Have you implemented:
  - Media campaigns aimed at changing driver behavior (speeding, aggressive driving, seatbelt use, helmet use, impaired driving)
  - Combinations of public information and enforcement in targeted locations or for targeted types of safety problems?
  - Training and technical assistance targeted at local agencies

### **Emergency Response System Improvements**

25. Over the past seven years, have there been any changes to emergency response or emergency medical services?

### **Other**

26. Please share any other safety-related practices you feel have that contributed to your state's safety performance.

27. Are there demographic, socio-economic, transportation system changes, or other factors unrelated to programmatic or legislative actions that may have contributed to the reduction in your state's fatality rate since 2000?

## **APPENDIX B – STATE INTERVIEW SUMMARIES**

This appendix contains brief summaries of each of the state interviews, organized in alphabetical order:

- Alaska
- Colorado
- Connecticut
- Massachusetts
- Maryland
- Maine
- Michigan
- Minnesota
- New York
- Utah

## ALASKA

### Safety Performance Summary

Alaska safety performance results 2000-2002 vs. 2005-2007:

- 19 percent decrease in total fatalities
- 24 percent decrease in fatalities per 100 million VMT
- 26 percent decrease in speeding-related fatalities
- 22 percent decrease in young driver involvement in fatal crashes
- 36 percent decrease in alcohol-related fatalities (highest driver blood alcohol concentration .08 or above)
- 33 percent decrease in unrestrained passenger vehicle occupant fatalities, all seat positions (related to an increase in the seat belt usage rate from 76 percent in 2000 to 84.5 percent in 2007)
- 12 percent decrease in pedestrian fatalities
- 36 percent decrease in head-on fatalities
- 19 percent decrease in intersection fatalities

### Practice Summary

Practices that may have contributed to these results are summarized below.

- **Safety Corridors.** In 2006, the Alaska State Legislature passed a Safety Corridors bill that allowed for a doubling of fines for traffic violations on designated high accident corridors. The legislation allows 50% of the revenues from fines to be dedicated to highway safety programs. The initial corridor (designated in May, 2006) was a 27 mile stretch of rural two-lane Interstate (the Seward Highway.) Over 50% of the fatal crashes in the corridor were head-on collisions. Multiple stakeholders were involved in planning and implementation of a 3E (engineering, education and enforcement) approach to safety improvement in the corridor. Engineering improvements included additional speed limit signage, with plans for centerline and edge line rumble strips and new “no passing” zones. Preliminary evaluation results indicated a drop in the crash rate (fatal and incapacitating crashes per 100 million VMT) from 13.10 to 1.22. A second Safety Corridor was designated in October, 2006 on a 13 mile stretch of the Parks Highway. Preliminary results for this corridor showed a drop in the crash rate from 17.30 to 10.36. The process of evaluating and implementing safety corridors fostered improved communication with the state legislature on the nature and location of the state’s highway safety problems.

- **Multi-faceted Impaired Driving Enforcement Program.** Between 2004 and 2006, Alaska was one of 13 states participating in the NHTSA Strategic Evaluation States (SES) initiative which sought to reduce alcohol-related crashes, injuries and deaths in states with higher-than average alcohol-related fatalities or fatality rates. Participants were required to implement several program elements: participation in national impaired driving law enforcement crackdowns; conduct of highly visible, sustained enforcement activities at least monthly; and involvement of sufficient law enforcement agency participation to cover at least 65 percent of the population or geographic areas where at least 65 percent of the alcohol-related fatalities occur. In Alaska, saturation patrols were deployed every Friday and Saturday evening in key locations. Grants for overtime enforcement were offered to encourage participation of the larger enforcement agencies. The Alaska Highway Safety Office (AHSO) negotiated with smaller agencies to arrange for coordinated multijurisdictional enforcement periods. A Law Enforcement Coordinating Committee was established to ensure visibility of expanded enforcement activities. Strong interagency coordination was recognized as a key success factor, with larger law enforcement agencies (the Alaska State Troopers and Police Departments in Anchorage and Fairbanks) providing support to smaller agencies. Alaska has continued its enforcement program, building on the techniques and relationships established in the SES program. Law enforcement agencies currently participate in the Alaska Strategic Traffic Enforcement Partnership with support from the AHSO. Project Coordination Grants are used to clarify each agency's responsibility and ensure, for example, that agencies participating in targeted enforcement efforts do not cut back on their prior levels of enforcement.
- **Active Major City Enforcement Program.** In 2003, under the leadership of a new mayor who made public safety one of his major priorities, an aggressive, high visibility enforcement program was initiated in the City of Anchorage. A Traffic Unit within the Anchorage Police Department (APD) was reinstated and staffed with four officers. The Unit has steadily increased to fourteen officers because of public approval. Through a grant from the State Highway Safety Office, the APD was able to conduct sustained enforcement efforts targeting DUI and seat belt usage. The APD also aggressively targeted red-light running. The APD attributes a decrease in fatal collisions between 2004 and 2007 to "high visibility traffic enforcement, education and availability of grant funding for targeted enforcement."
- **Holistic Approach to Safety Planning and Resource Allocation.** Both the AHSO and the state's commercial vehicle enforcement function are located within the Department of Transportation and Public Facilities. Location of the highway safety office within the Department's Program Development Division supports a coordinated approach to safety planning and resource allocation. It facilitates integration of safety planning into the state's long-range transportation planning, programming, and project implementation processes. Interagency working relationships have been further strengthened through implementation of safety corridors – which involved formation of multi-agency task forces, and through development of the initial Strategic Highway Safety Plan. Alaska is currently working to institutionalize interagency partnerships through establishment of a Governor's Road Safety

Advisory sub-Cabinet to ensure that cross-agency cooperation is sustained as changes in personnel occur.

- **Engineering Improvements.** Alaska systematically identifies high accident locations and programs cost-effective engineering (e.g. passing lanes, curve delineation, roundabouts, rumble strips, guardrail, turn lanes, traffic signals, etc ) for funding under the HSIP program (\$25-30 million annually). The HSIP is the department's only program that evaluates its own actual effectiveness using benefit-cost analysis. Actual B/C ratios for HSIP projects average 3:1. Between 2000 and 2002, rumble strips were installed on two major highways in the Central Region. A 22% reduction in run off the road fatal and injury crashes was achieved on these facilities.
- **ITS Program.** Alaska launched its Intelligent Transportation Systems (ITS) program "Iways" in 2000. The program has included implementation of a road weather information system (RWIS), a 511 traveler information program, and installation of variable message signs in remote locations to warn drivers of hazardous conditions.
- **Legislation.** A graduated licensing law was passed in May 2004. Alaska passed primary seatbelt legislation in May, 2006.

#### Information Sources:

Telephone Interview, March 31, 2009 with:

- Cindy Cashen, Highway Safety Office Administrator, Statewide Planning Division, Alaska Department of Transportation & Public Facilities
- Kurt Smith, State Traffic and Safety Engineer, Alaska Department of Transportation & Public Facilities
- Jeff Ottesen, Director of Statewide Planning, Alaska Department of Transportation & Public Facilities

Document Review:

- Alaska Strategic Highway Safety Plan, September 2007
- Alaska Highway Safety Plan, FFY 2008
- Alaska Highway Safety Office Annual Reports, 2006 and 2007
- NHTSA Impaired Driving Technical Assessment of the State of Alaska, October 2008
- Alaska Highway Safety Improvement Program Handbook, 2009
- NHTSA, "Strategic Evaluation States Initiative", Case Studies of Alaska, Georgia and West Virginia", April 2008.
- Synthesis Study: Effectiveness of Safety Corridor Programs, Report on Tasks 1-3, Midwest Transportation Consortium, Final Report, July 2008. Web link:



<http://www.ctre.iastate.edu/mtc/reports/SafetyCorridorSynthesis.pdf> (accessed April 3, 2009)

- “Innovative Strategies for High Visibility Enforcement – the Road to Change”, presentation by Cindy Cashen, Alaska Highway Safety Office and Lt. Nancy Reeder, Anchorage Police Department, April 2008. Web link: <http://www.lifesaversconference.org/handouts2008/Cashen.pdf> (accessed April 3, 2009)

## COLORADO

### Safety Performance Summary

Colorado safety performance results 2000-2002 vs. 2005-2007:

- 22 percent decrease in total fatalities
- 31 percent decrease in fatalities per 100 million VMT
- 35 percent decrease in speeding-related fatalities
- 30 percent decrease in young driver involvement in fatal crashes
- 20 percent decrease in alcohol-related fatalities (highest driver blood alcohol concentration of .08 or above)
- 36 percent decrease in unrestrained passenger vehicle occupant fatalities, all seat positions (related to an increase in the seat belt usage rate from 65.1 percent in 2000 to 81.1 percent in 2007)
- 21 percent decrease in pedestrian fatalities

### Practice Summary

Practices that may have contributed to these results:

- **DUI Programs.** Executive leadership and the work of grass roots organizations such as Mothers Against Drunk Driving (MADD) were instrumental in Colorado's passage of a .08 per se law (2004) and an open container law (2005.) Colorado's Law Enforcement Assistance Fund (LEAF) was established in 1982 to provide grants to local communities in support of drunk driving prevention and enforcement. This fund is self-sustaining through fines and fees assessed against DUI offenders. CDOT, together with the Colorado State Patrol (CSP) and LEAF grant recipients have worked together to implement several high visibility DUI enforcement programs, including "The Heat is On", and "You Drink, You Drive, You Lose." This latter program combines the use of paid and earned media to support overtime enforcement and the use of fixed and mobile sobriety checkpoints, and saturation patrols to enforce Colorado's DUI laws. NHTSA grant funds are utilized in conjunction with state LEAF funds to support these programs. A high level of participation from local law enforcement agencies (70 percent) has been achieved. Through Colorado's "The Heat is On" program, enforcement statistics are reported on CDOT's public Traffic Safety website (see <http://www.dot.state.co.us/TrafficSafety/HEAT/index.cfm> )
- **Active and Strategic Approach to Enforcement by the Colorado State Patrol.** In July 2002, the Colorado State Patrol (CSP) implemented a balanced scorecard approach to strategic planning and established a goal to "eliminate most traffic fatalities in Colorado by

2025.” They set interim year targets for reductions in fatalities and injuries and fatality rates. To achieve these targets, the CSP’s strategic plan established a three-pronged enforcement approach involving targeting specific stretches of road (“safety zones”), targeting driving behaviors that lead to serious crashes (impaired, distracted, aggressive and unrestrained driving), and targeting designated time periods to stop all fatalities over a period of several days. CSP initiated the “Colorado Target Zero” program in 2004, in which all CSP uniformed officers (including the chief) participated in a high visibility enforcement campaign over the Memorial Day weekend. The CSP 2007 Strategic Plan notes that: “Since implementing the Balanced Scorecard approach to strategic planning on July 1, 2002, the Patrol has made a difference in the quality of life in Colorado by lowering the traffic fatality rate on CSP roads by 35.4 percent between CY 2001 and CY 2005. This is the largest four-year reduction in the United States and helped to move Colorado’s overall ranking from thirty second (32nd) to eighteenth (18th).” The CSP’s success was due in part to the efforts of a highly experienced, committed and effective chief.

- **Graduated licensing laws.** Colorado initially passed a Graduated Licensing Law in July 1999, and later strengthened key provisions of the law in July 2005. New provisions prohibit driving between midnight and 5 am for the first year of licensure, imposed restrictions on use of mobile communication devices, and prohibits transport of non-family members within the first six months of holding a license. Colorado’s Strategic Highway Safety Plan noted a general downward trend in fatal crash rates among 16 and 17 year old drivers since implementation of these laws.
- **Emphasis on using data to identify safety problems and target solutions.** Colorado develops an annual problem identification report to provide the basis for targeting of limited resources for enforcement and education. The report links crash and fatality data with driver license data and census data to create profiles of drivers involved in crashes. Analysis is conducted to identify cities and counties that have a higher than average incidence of registered drivers involved in crashes. This information is used to target community-based safety education programs. Safety office staff note that availability of robust and accurate crash and roadway data allows them to identify and address actual, as opposed to perceived problems. Each grantee is required to connect their proposed program with achievement of a safety performance measure using available data.
- **Close working relationships among engineering and behavioral safety program staff.** Managers of the Colorado DOT (CDOT) Safety and Traffic Engineering branch and the CDOT Office of Transportation Safety attribute much of the success of the state’s safety programs to the co-location of their respective units within the DOT, providing a pool of highly experienced staff with long history of collaboration. Safety office staff also maintain regular (weekly) communication with state patrol to share information and coordinate on enforcement programs.
- **Strong and active partnerships.** The Colorado Highway Safety Office works closely with a wide variety of partner agencies and groups to develop and implement traffic safety programs. CDOT maintains a focus on effective intergovernmental relations and provision

of strong advocacy in the state legislature for transportation safety issues. The Highway Safety Office cultivates strong collaborative relationships with the Colorado State Police, Metropolitan Planning Organizations (MPOs), federal partners (NHTSA and FHWA), state and local political leaders, and community groups. An interagency Task Force on Drunk Driving meets quarterly, with broad representation from state agencies, local enforcement agencies, prosecutors and defense attorneys, victims, community groups, and alcoholic beverage manufacturers and retailers.

- **Strong communications program.** CDOT credits its in-house communications staff dedicated to traffic safety with creating effective public relations materials and maintaining good relationships with local media spanning a variety of topics including motorcycle safety, teen driving safety, distracted driving, and seat belt use. As an example, the Office of Transportation Safety launched a campaign to increase seat belt use among Hispanic men – given the statistic that 70 percent of Hispanic drivers and passengers were men who were not wearing seat belts. The campaign involved live matches between professional wrestlers from Mexico with skits performed by actors during the shows to highlight the importance of seat belt safety. A portion of the proceeds were used to purchase car seats for disadvantaged Hispanic families throughout the Denver metro area.

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Telephone Interview, April 8, 2009 with:

- Gabriela Vidal, Branch Manager, Safety and Traffic Engineering, Colorado Department of Transportation
- Mike Nugent, Manager, Office of Transportation Safety, Colorado Department of Transportation

Document Review:

- Colorado Integrated Safety Plan 2006 – 2008, August 2005, web link: <http://www.atssa.com/galleries/default-file/CO%20Strategic%20Hwy%20Safety%20Plan.pdf>, accessed April 17, 2009.
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- 2007 Problem Identification Report, Colorado Department of Transportation, Safety and Traffic Engineering Branch, web link: [http://www.dot.state.co.us/Traffic Manuals Guidelines/Problem ID/FY 2007 Problem ID.pdf](http://www.dot.state.co.us/Traffic_Manuals_Guidelines/Problem_ID/FY_2007_Problem_ID.pdf), accessed April 17, 2009.
- 2009 Problem Identification Report, Colorado Department of Transportation, Safety and Traffic Engineering Branch, web link: <http://www.dot.state.co.us/safety/2009%20Problem%20ID%20Report%20-%20Final.pdf>, accessed April 17, 2009.

## CONNECTICUT

### Safety Performance Summary

Connecticut safety performance results 2000-2002 vs. 2005-2007 :

- 12 percent decrease in total fatalities
- 14 percent decrease in fatalities per 100 million VMT
- 33 percent decrease in speeding-related fatalities
- 18 percent decrease in young driver involvement in fatal crashes
- 16 percent decrease in alcohol-related fatalities (based on fatalities in crashes with driver BAC of .08 or above)
- 30 percent decrease in unrestrained passenger vehicle occupant fatalities, all seat positions (related to an increase in the seat belt usage rate from 76 percent in 2000 to 84.5 percent in 2007)
- 21 percent decrease in pedestrian fatalities

### Practice Summary

Practices that may have contributed to these results:

- **Political Leadership.** Strong and visible support for safety programs on the part of the Governor and Lieutenant Governor (in office since July 2004) has been highly instrumental in gaining media attention and solidifying public support for safety programs.
- **Team-Based Approach to Safety.** Partnerships among the key agencies responsible for traffic safety in Connecticut have grown stronger over the past decade in response to the increasing national recognition of the importance of collaboration in fostering a safety culture. Federal safety grant programs and the Strategic Highway Safety Planning process have reinforced the development of partnerships across agencies. While Connecticut does not have a formal Traffic Safety Advisory Committee, cross agency working groups are routinely utilized for targeted efforts – for example, the Highway Safety Law Enforcement Committee, the Work Zone Safety Committee, the Subcommittee on Lane Departures, and the Traffic Records Coordinating Committee (TRCC). These working groups have involved members of multiple organizations including the ConnDOT Division of Transportation Safety, The Department of Public Safety (State Police), the Department of Motor Vehicles, the Office of Motor Carrier Safety, the Technology Transfer (T2) Center at the University of Connecticut, local law enforcement agencies, and the FHWA and NHTSA regional offices.

- **Organizational Consolidation of Safety Functions within the DOT.** Consolidation of transportation safety units within the Bureau of Policy and Planning at ConnDOT (between 2004 and 2006) resulted in a more comprehensive and coordinated view of safety within the state. This in turn, supported a more focused, performance-based, data-driven approach to implementation of safety programs and projects. In previous years, the Transportation Safety Office resided in the Bureau of Engineering. At that time, the Office included Occupant Protection, Traffic Records, Children Passenger Safety, Motorcycle Safety, and DUI Enforcement Initiatives. Currently, the Office is under the Bureau of Policy and Planning and has combined their efforts with Operation Lifesaver (Highway/Rail At-Grade Railroad Crossing Safety Program) and Safe Routes to School. The Safety Office also has involvement in the “Share the Road” campaign and is organizing efforts with the Bicycle and Pedestrian Program Coordinator. The merging of these offices and programs has created greater coordination efforts between all facets of Transportation Safety within the Department.
- **Resource Sharing Agreements for Traffic Enforcement.** Connecticut has established a regional approach to traffic enforcement. There are currently 18 Regional Traffic Units (RTUs) made up of 70 local jurisdictions who have established mutual aid agreements for sharing of equipment and personnel. These numbers has grown 20% since 2004, when there were 12 RTUs made up of 56 local jurisdictions. The first RTU was formed in the mid 1990’s. RTU members receiving federal safety grants for new equipment must agree to share this equipment within their RTU.
- **High-Visibility Enforcement and Public Information Campaigns.** Connecticut’s Impaired Driving Program features involvement of over 100 local agencies in statewide DUI enforcement. It includes both sobriety checkpoints and roving patrols, and uses statewide media campaigns to draw attention to enforcement activities and consequences of being caught. Similarly, Connecticut’s Occupant Protection Program has combined concentrated enforcement activities with media coverage and community outreach.
- **Targeting of Enforcement Activities.** Connecticut’s Regional Traffic Units work with the State Police to target enforcement activities to locations with observed high crash rates and high incidence of speeding or aggressive driving. The State Highway Safety Office has been working closely with larger urban counties, which have the greatest number of fatalities. A major cities traffic enforcement assistance project was undertaken in 2006 involving a collaborative effort between Connecticut State Police and local police in the cities of Bridgeport, Hartford, New Haven and New London.
- **Effective Leveraging of Safety Grant Funds.** NHTSA grants to state and local law enforcement agencies are utilized to maximize participation across the state. Starting in 2006, DUI-related grants were consolidated – in the past, there were separate grant programs for enforcement mobilization and equipment. The consolidation provides greater incentives for broad participation. Grant recipients are expected to participate fully and reach out to regional partners. In addition, Connecticut requires a 25% match (as opposed to the required 20%) in order to make funds go further and ensure a strong level of

commitment and buy-in on the part of grant recipients. Another method for leveraging federal funding for safety is to require local jurisdictions to fund engineering and design costs for projects undertaken under the Local Accident Reduction Program. Construction costs are picked up by the state.

- **Streamlined DUI Adjudication Process.** As a result of a NHTSA alcohol assessment in 2000, Connecticut took a number of steps to streamline the DUI arrest and adjudication process, which may be a contributing factor to reductions in DUI-related fatalities. The Connecticut Judiciary has made a serious commitment to judicial education. They have implemented an extensive pre-bench training program and conduct an annual Connecticut Judges Institute where advanced training is offered in specialized areas of concern. Funding was re-established for a DUI prosecution coordinator. In their agreement with the Department of Motor Vehicles (DMV), DOT has committed federal funds earmarked to combat DUI by supporting personnel costs for DMV's Administrative Hearings Attorney 2 (AR-28) who represents the state's interests in Per Se hearings.
- **Black Spot Program.** A data-driven program has been in place for over 30 years to develop a Suggested List of Surveillance Study Sites (SLOSSS) that have higher than average accident rates and implement safety improvements based on an analysis of likely benefits vs. costs.
- **Targeting Reductions in Roadway Departure Crashes.** Connecticut has selected lane departure accidents as a targeted crash type for reduction. Starting in 2006, the department has invested roughly \$4 million per year to upgrade guardrails to NCHRP 350 standards. These investments are targeted on corridors with relatively high percentages of lane departure crashes. Connecticut has also emphasized improved delineation of sharp curves, resulting in significant decreases in nighttime lane departure crashes in these locations.
- **Integrating Safety Features in Design Standards.** In 2002 the Chief Engineer at ConnDOT started to institutionalize safety features within design standards. For example, ConnDOT began a freeway rumble strip installation program in 1996, which was shown to reduce single-vehicle, fixed object crashes by 33% (See Transportation Research Record, Volume 1908, 2005) Rumble strips are now a standard design feature for limited access highways. Other safety elements that have been added to various Department design standards include high reflectivity sheeting for certain types of signs, increased visibility crosswalks, use of NCHRP 350 approved attenuators, and use of 45" F-shape concrete barrier curb on expressways.
- **Flexible Programming of Urban Area Safety Improvements.** Regional and/or MPO STIP approval for various location traffic signal projects related to the SLOSSS program is done prior to the identification of specific intersections. This allows for flexibility to respond to safety issues as they are identified. It also allows for "batching" of improvements in various locations in order to achieve economies of scale and better leverage available safety funds. A streamlined project approval process has been developed that has resulted in the ability to move projects forward for implementation in an expeditious manner. .

- **Safety-Related Legislation.** Connecticut modified its graduated licensing requirements in 2005, imposing additional restrictions on 16 and 17 year old drivers. (These requirements were made more stringent in August 2008.) In 2001 the standards for elevated blood alcohol concentration was revised from 0.1 to 0.08. In 2003, legislation was passed requiring ignition interlock devices for convicted DUI offenders. In 2005 a prohibition of the use of mobile phones while driving went into effect.

**Information Sources:**

Telephone Interview, March 31, 2009 with:

- H. James Boice, Governor's Highway Safety Representative
- Joseph T. Cristalli, Transportation Safety Coordinator, Connecticut Department of Transportation
- John Carey, Manager, Traffic Engineering, Connecticut Department of Transportation
- Judd Everhart, Communications Director, Connecticut Department of Transportation
- Mario Damiata, NHTSA Region 1

Document Review:

- Connecticut Strategic Highway Safety Plan, September 2006
- State of Connecticut Highway Safety Plans for FFY 2005-2009
- Connecticut Highway Safety Annual Reports for FFY 2006-2007
- Erika B. Smith and John N. Ivan, "Evaluation of Safety Benefits and Potential Crash Migration Due to Shoulder Rumble Strip Installation on Connecticut Freeways ;, Transportation Research Record, Volume 1908/2005.



## MASSACHUSETTS

### Safety Performance Summary

Massachusetts safety performance results 2000-2002 vs. 2005-2007:

- 6 percent decrease in total fatalities
- 10 percent decrease in fatalities per 100 million VMT
- 8 percent decrease in speeding-related fatalities
- 13 percent decrease in young driver involvement in fatal crashes
- 17 percent decrease in alcohol-related fatalities (based on fatalities in crashes with driver BAC of .08 or above)
- 14 percent decrease in unrestrained passenger vehicle occupant fatalities, all seat positions (related to an increase in the seat belt usage rate from 50 percent in 2000 to 68.7 percent in 2007)
- 10 percent decrease in pedestrian fatalities

### Practice Summary

Practices that may have contributed to these results:

- **Executive-Level Support and Cooperation.** At the state-level, highway safety responsibilities exist in two executive agencies: Executive Office of Transportation (EOT) and Executive Office of Public Safety and Security (EOPSS). Each EO secretary has also made safety a priority, resulting in financial and organizational support for safety-related initiatives. There has been strong communication and collaboration by the EOT and EOPSS secretaries, mirrored by strong working relationships at the staff level.
- **Team-Based Approach to Safety.** Partnerships across state agencies and with local agencies have contributed to improved safety results. These partnerships have been strengthened recently through the Strategic Highway Safety Planning process. The EOPSS Highway Safety Division (HSD) initiated listening sessions at the start of the Strategic Highway Safety Plan (SHSP) development process. Safety partners of all types (enforcement, advocacy groups, local agencies, etc.) were invited to small group listening sessions (5 – 30 people) to express ideas, concerns, and other issues related to improving roadway safety in the future. These sessions resulted in many good ideas which were included in the SHSP; they also led to stronger communication channels with the safety community. Safety partners are also encouraged to submit their ideas via a website to the HSD for funding safety improvement initiatives. Ideas with merit are then turned into grant requests. This pipeline of candidate safety projects/initiatives from the state safety

community has grown since starting the listening sessions. To help increase seatbelt usage in the state, incentives are provided to grantees to have a published seatbelt policy.

- **Safety-Related Legislation.** Massachusetts passed several pieces of legislation between 2000 and 2007 that substantially toughened the state's drunk driving laws. Effective November 29, 2002, Massachusetts changed the lookback period for subsequent impaired driving offenses from ten years to a lifetime period. Previously, any conviction more than 10 years old would have no effect on subsequent offense charges or mandatory sentencing. The Massachusetts Legislature passed a .08 blood alcohol concentration per se law on July 1, 2003. Under this law, a person whose blood alcohol level is .08 or higher is considered too intoxicated to operate a vehicle, thus relieving the state of the burden of proving an individual was too drunk to drive. In 2005, Massachusetts passed Melanie's Law, which added new penalties for repeat drunk drivers – including addition of an ignition interlock device requirement for license reinstatement after a 2nd or greater offense conviction. Massachusetts has a traffic safety resource prosecutor who can provide input on revisions to alcohol-related statutes. A DUI task force works with the registry, state police and private/public organizations, such as Mothers Against Drunk Driving, to draft, revise, and lobby for improved legislation. Finally, a new Junior Operator's Law was passed in January 2007, which gave the Registry of Motor Vehicles responsibility for the content of drivers education courses, and imposed additional restrictions on new drivers and more severe consequences for traffic violations.
- **High-Visibility Enforcement and Public Information Campaigns:** Massachusetts participates in six mobilizations annually aimed at seatbelt use, drunk driving, and aggressive driving. The campaigns utilize earned and paid media and technical and marketing support to draw attention to enforcement activities and consequences of illegal behavior. The state has had up to 282 local agencies involved in the mobilizations. The state also uses its two "B. A. T. Mobiles" at checkpoints. Each of these highly visible vans are equipped with an exterior mast mounted surveillance camera and telescopic lights to allow for constant monitoring of checkpoint activities, facilities for breath alcohol testing and/or drug recognition exams, a booking desk with mug shot board, and two holding cells installed for prisoner holding until transport can be arranged.
- **Data Use and Coordination.** Relying on data to make better decisions has been a key focus area for the Massachusetts safety program. Moving the Registry of Motor Vehicles from Public Safety to the Transportation executive office improved the coordination of data use between the licensing/enforcement functions and the traffic management and engineering functions. Local agencies must submit data on top crash locations and results of their efforts as part of the granting process. The state also utilizes crash rates and crash data to determine engineering project priorities.
- **Engineering Solutions.** Because Massachusetts is a small state, there are close working relationships between the MHD central office and the districts, which has facilitated implementation of roadway safety improvements on the state highway system. Frequent communication between MHD and Massachusetts state troopers has also been helpful for

identifying particularly hazardous locations where improved signage or installation of guardrail is warranted. Massachusetts is a designated lead state for lane departure fatalities – nearly half of the fatal crashes between 2002 and 2004 were lane departures. To address this issue, MHD and HSD are identifying key lane departure crash locations and working with regional and local agencies to improve risk factors. Rumble strips have been installed on full access control highways and other state highways with posted speed limit of 40 mph or greater, if the roadway is not in a residential area. The state is also increasing use of speed reader boards. Rumble strips and six-inch pavement markings have been a component of every project since the late 1990s.

- **Emergency Response Solutions:** Massachusetts benefits from a high number of world class medical facilities. However, traffic congestion can impede an ambulance driver's ability to move quickly from a crash site to a hospital. The state has an active first responders task force to reduce traffic-related fatalities. A "Unified Response Manual" has been developed, and updated twice since 2000, with standard procedures to facilitate quick incident clearance.

#### Information Sources:

In Person Interview, April 10, 2009 with:

- Tom Broderick, Deputy Chief Engineer for Safety and Mobility, Massachusetts Highway Department
- Neil Boudreau, State Traffic Engineer, Massachusetts Highway Department
- Caroline Hymoff, Senior Program Manager, Highway Safety Division, Executive Office of Public Safety & Security

Document Review:

- Massachusetts Strategic Highway Safety Plan, 2006, web link: [http://www.mhd.state.ma.us/downloads/MA%20Strategic%20Highway%20Safety%20Plan Complete.pdf](http://www.mhd.state.ma.us/downloads/MA%20Strategic%20Highway%20Safety%20Plan%20Complete.pdf), accessed April 17, 2009.
- Massachusetts Highway Safety Division website: [www.mass.gov/highwaysafety](http://www.mass.gov/highwaysafety).
- Massachusetts Highway Safety Performance Plan, FFY 2008
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- AASHTO Standing Committee on Highway Traffic Safety (SCOHTC) 2008 Massachusetts State Trend Report
- Massachusetts Traffic Safety Toolbox, online information sheets produced by the Massachusetts Highway Department

## MARYLAND

### Safety Performance Summary

Maryland safety performance results 2000-2002 vs. 2005-2007:

- 1 percent decrease in total fatalities
- 9 percent decrease in fatalities per 100 million VMT
- 5 percent increase in speeding-related fatalities
- 13 percent decrease in young driver involvement in fatal crashes
- 3 percent decrease in alcohol-related fatalities (based on fatalities in crashes with driver BAC of .08 or above)
- 11 percent decrease in unrestrained passenger vehicle occupant fatalities, all seat positions (related to an increase in the seat belt usage rate from 85.0 percent in 2000 to 93.3 percent in 2008)
- 5 percent increase in pedestrian fatalities

### Practice Summary

Practices that may have contributed to these results are summarized below.

- **Expanded Participation in Safety Programs through Development of a Multi-Agency Strategic Highway Safety Plan (SHSP).** The Maryland State Highway Administration (SHA) developed a multi-agency, objective-focused SHSP in 2003. The plan was updated and re-submitted in September 2006. As part of the SHSP effort, Maryland secured Memoranda of Understanding (MOUs) from all of the SHSP Executive Committee's members, placing traffic safety as a top priority in the business plans of more than 30 federal, state and local agencies. Safety Summits were held in 2006 and 2007. Through the SHSP, the Maryland Highway Safety Office (MHSO) developed relationships with a multitude of partners, many of whom became engaged in traffic safety programs for the first time or stepped up their level of involvement. For example, the Maryland Motor Vehicle Administration became increasingly more active in highway safety (and recently created a new Driver Safety Division). The Baltimore Metropolitan Council increased their highway safety activities and set the stage for greater involvement of other Metropolitan Planning Organizations (MPOs). The Southern Maryland Tri County Council became heavily involved in young driver issues. The Maryland Chiefs of Police became involved in several new training initiatives, as well as a marketing campaign directed toward Law Enforcement entitled "Traffic Safety IS Public Safety." There are currently over 500 SHSP stakeholders.

- **Infrastructure for Sustained Partnerships.** Executive oversight for safety planning is provided by the Strategic Highway Safety Plan Executive Committee, chaired by the Secretary of Transportation and the Secretary of the Maryland State Police. The Traffic Records Coordinating Committee (TRCC) provides oversight for traffic records information system development and is chaired by the State Highway Administration Administrator. Fourteen teams were established corresponding to each of the selected emphasis areas in the SHSP. In addition, MHSO facilitates and receives input from eight task forces which meet on a quarterly basis. Each task force focuses on particular aspects of traffic safety, including impaired driving, motorcycle safety, pedestrian safety, occupant protection, young drivers, and diversity. The task forces consist of diverse memberships from multiple public, private for-profit and non-profit organizations. In addition to the topically-based task forces, a highway safety task force is facilitated by the Community Traffic Safety Program in each jurisdiction. Each of Maryland's 23 counties and Baltimore City has designated a local highway safety coordinator to provide a focal point for communication and cooperation among local government agencies and the private sector on traffic safety matters and with the MHSO. MHSO management also co-chairs the training and traffic safety committees for the Maryland Chiefs of Police Association, and serves on the board of the MD Victims Assistance, Washington Regional Alcohol Program, and the American Trauma Society.
- **Targeted Allocation of Expanded Resources for Enforcement and Education–** As federal grants to support enforcement and education increased, the MHSO established data driven methods to focus those resources. To decrease impaired driving, routine and saturation patrol and sobriety checkpoints have been conducted in areas and on roads where impaired driving has been identified as a problem. A heavy concentration of law enforcement has been deployed in Aggressive Driving Enforcement Zones established along highway corridors in five counties that have been identified as having a high incidence of aggressive driving. The MHSO uses over-representation data (normalized crash data using exposure measures) at the macro level to assist with funding decisions and at the more micro level to provide guidance to grantee agencies on where to focus specific countermeasures. For education efforts, analysis is conducted to identify overrepresented age groups, genders, and counties for particular types of crashes. Enforcement efforts are targeted based on counties, roadway types, time of year, and time of the day. MHSO links enforcement and education efforts so that limited resources can be utilized for maximum impact. Media campaigns have included support for the multi-state CheckPoint StrikeForce and Smooth Operator programs (targeting DUIs and aggressive driving, respectively).
- **Improvement in Grants Management.** The MHSO began training its grantee agencies annually in 2000, with growing specificity each year regarding the use of over-representation to focus projects. MHSO also began using an annual Grant Review Team to make funding decisions. Funding formulas were established based on fatal, injury, crash and alcohol impaired driving crash rates and population.

- **Seat Belt Enforcement** – Maryland enacted a Primary Seat Belt Law in 1997, and has achieved steady gains in seat belt use since then through active enforcement of this law. A recent case study (see Hedlund, 2008) attributed the increases in seat belt usage to several factors: year-round (24/7) enforcement of the primary belt law (without use of grants for overtime enforcement), the Maryland Chief's Challenge program and, starting in 2004, Maryland's participation in the national Click it or Ticket (CIOT) campaign. The Chief's Challenge program was initiated in 1988 by the Maryland Chiefs of Police Association (MCPA) and the Maryland Committee for Safety Belt Use (MCFBSBU.) Program participants undertake special education and enforcement activities during May and June and provide a report on their activities. An evaluation panel ranks the submittals based on education, outreach and enforcement activities undertaken; and citations and warnings issued. Participants are invited to an annual banquet, where highest-ranking agencies receive awards. In 2008, 100 out of 162 law enforcement agencies in the state participated in the Challenge. Maryland uses enforcement zones for intensified belt use law enforcement during the Chiefs' Challenge period. Motorists are informed about these zones through temporary signage. Within the zones, spotters are used to identify unbelted occupants. The spotters are in radio communication with downstream officers who issue citations. Hedland notes that "Chiefs' Challenge has been remarkably successful in achieving its goals at very little cost." He also observes that "Creating and maintaining law enforcement support requires personal relationships developed over a long time, constant communications, feedback, rewards, listening to and fixing problems, and simple thanks for jobs done well."
- **Engineering Improvements.** Maryland identifies and prioritizes spot safety improvements based on identifying intersections and road sections on the state highway system having abnormally high frequencies and rates of collisions. Maryland also targets locations with unusually high incidence of pedestrian, nighttime, or wet weather collisions for special improvement consideration. Maryland has undertaken various blanket safety improvement programs to enhance safety where problems are too pervasive to be efficiently addressed through spot improvements. These have included installation of rumble strips and median barriers to prevent lane departure collisions. Maryland extended an existing rumble strip program (that had focused on rural Interstates and other controlled access facilities) to include shoulder and centerline rumble strips on two-lane rural roads. Maryland also has increased the width of its edge line to 5 inches throughout its system and is continuing to use raised or recessed pavement markers as additional lane departure countermeasures. Maryland has institutionalized conduct of road safety audits (RSAs) for state highways, emphasizing locations where work is proposed. SHA has also provided training, assistance and guidance to local agencies for conduct of RSAs.
- **Graduated Driver Licensing (GDL)Laws.** Maryland was the first jurisdiction to implement a GDL program. In 2005, several new provisions were added: a cell phone ban, further restrictions on passengers under 18 years of age, an increase in the minimum age for a learners permit and an increase in the minimum period a permit holder must wait to

receive a provisional license. Implementation and enhancement of GDL laws were instrumental in sustaining decreases in young driver fatalities and injuries.

- **DUI Laws.** Maryland enacted its Administrative per-se law in 1989 and a .10 illegal per-se law in 1995. In 2001, the per-se limit was lowered to .08 and in 2002, repeat offender and open container laws were enacted. In 2003, it became unlawful to drive within 12 hours following an alcohol-driving related arrest. Penalties for chemical test refusal were increased in 2005. In 2006, higher penalties were established for drivers with an alcohol concentration of .15 or higher.
- **NHTSA Assessments.** NHTSA Assessments in the areas of Traffic Records, Emergency Medical Services, Motorcycle Safety and Impaired Driving were conducted between 2005 and 2007, and were instrumental in guiding Maryland's safety initiatives.

#### **Information Sources:**

Telephone Interview, April 9, 2009 with:

- Vernon F. Betkey, Jr., Chief, Maryland Highway Safety Office & Maryland Highway Safety Coordinator, Chairman, Governor's Highway Safety Association (provided written answers to questions prior to the interview)

Document Review:

- Maryland Strategic Highway Safety Plan, web link:  
<http://www.marylandroads.com/safety/oos/SHSP.pdf>, accessed April 11, 2009
- Hedlund, James, S. Hope Gilbert, Katherine Ledingham, and David Preusser, "How States Achieve High Seat Belt Use" prepared for the US Department of Transportation, National Highway Traffic Safety Administration, August 2008.

## MAINE (DRAFT)

### Safety Performance Summary

Maine safety performance results 2000-2002 vs. 2005-2007:

- 6 percent decrease in total fatalities
- 10 percent decrease in fatalities per 100 million VMT
- 7 percent increase in speeding-related fatalities
- 11 percent decrease in young driver involvement in fatal crashes
- 18 percent increase in alcohol-related fatalities (based on fatalities in crashes with driver BAC of .08 or above)
- 29 percent decrease in pedestrian fatalities

### Practice Summary

Practices that may have contributed to these results:

- **Safety-Related Legislation.** Effective September 13, 2003, Maine implemented a new law that requires a three-step graduated drivers licensing system for new drivers who are under 18 years of age. The law includes restrictions for drivers under 21 years of age and prohibits the use of handheld devices, including cell phones, for drivers under 18. Maine is seeing the benefit of this legislation in teenage drivers. On January 1, 2003, Maine enacted a child restraint law that requires all children under 8 years of age and under 80 pounds to wear a federally approved child restraint system. Maine enacted a primary seat belt law toward the end of the period covered in this study (May 3, 2007). Officers began issuing tickets for violations on April 1, 2008.
- **Team-Based Approach to Safety.** Maine has made significant strides in creating partnerships with other state and local agencies, including the Department of Public Safety, the Department of Motor Vehicles, State Health Department, AAA, insurance agencies, Maine Turnpike Authority, motorcycle groups, the Maine Transportation Safety Coalition (MTSC), Mothers Against Drunk Driving and other private and nonprofit corporations. The MTSC meets monthly with representatives from all organizations to discuss safety issues, share data, and talk about how to move forward together. These unified efforts allow for optimal use of staff and dollars and help create a consistent message that has more impact on the public. The partnerships also enhance the state's ability to get funds to the local communities.
- **Organizational Consolidation of Safety Functions within the DOT.** Over the past 5-6 years, Maine has brought design, maintenance and planning functions together so that they can work more effectively on safety-related issues. An advantage Maine has over other



states is a relatively small department size. In addition, individuals within the organization have recognized the value of information sharing and cooperation.

- **High-Visibility Enforcement and Public Information Campaigns.** Maine found that high-visibility enforcement campaigns like “Click It or Ticket” and “Drunk Driving. Over the Limit, Under Arrest” initiatives lost their novelty and impact over time. The state has moved to year-round enforcement and has 80% of local, state and county agencies participating in enforcement activities, effectively covering 80% of the state. However, the high-visibility campaigns, combined with public information campaigns, were effective during some of the years covered by this study. Specific campaigns targeted occupant protection, distracted driving, and motorcycle safety, and Maine has found that a single state-wide message is more effective than multiple messages coming from different agencies. For example, the Department of Transportation, Turnpike Authority, and Department of Public Safety cooperated on a radio and television campaign targeting lane departures and occupant safety. To maximize their media investment, Maine ties messaging to increased enforcement and requires grantees to utilize local media opportunities, such as town or regional newspapers and high school brochures. A 12 month bookmark program with a message a month has been successful. “Think About It” and “You Hold the Key! Crashes are No Accident” are on each side of the bookmark. A different safety message is presented each month. The Maryland Highway Safety Program’s Strategic Communication Plan provided the idea for the bookmark initiative. Maine has recently issued an RFP for a media person to handle all safety-related issues.
- **Effective Leveraging of Safety Grant Funds/Resource Sharing for Traffic Enforcement.** Maine has successfully requested and secured every NHTSA funding opportunity available. The number one state and local resource allocation priority is to match available federal funds. Maine has used this focus on funding as a means to strengthen collaboration and partnerships with the safety community (state agencies, local agencies, non-profits). Enforcement agencies must provide data about safety problems in order to get funding. Members of the safety community now identify where their problems are and focus on them. The State Police have their own internal reporting system so they can look at complaints from the community, track their own crash data, and analyze the crash data that the DOT uses. They identified all their high-crash locations and type of crash. They call it SAFE - Strategic Area Focused Enforcement. They send their troopers out to the SAFE areas to do focused enforcement.
- **Black Spot Program.** Maine uses a data-driven program to identify and prioritize safety improvements. The program considers a number of factors, including physical needs, cost, crash information and mobility to avoid locations with a single fatal crash driving the priority. Better communication and better data from local agencies has also helped systematize and prioritize improvements. Maine works with local partners to determine where new or replacement guardrails are most needed rather than making guardrails a programmatic initiative.

- **Greater Use of Data to Obtain Results.** Maine has established targets for reductions in fatalities related to lane departure, young and old drivers, speeding, and unrestrained occupants. Data is used to identify effective strategies for achieving these targets. Maine has automated crash reporting, improved data accuracy and significantly reduced the amount of time it takes to get a crash into central repository (by statute, crash reports have to be submitted within five days.) In order to prioritize funding for safety improvements and problem areas, Maine puts out solicitations to municipalities every two years and searches data from enforcement, operations, and engineering. The search yields type 100 locations (crash w/ fatality or injury crash, lane departure crashes), and these sites are field reviewed by the regional traffic engineer, bureau of planning and representatives from the affected municipality (if they choose to be involved). The information is incorporated into a spreadsheet for analysis and project prioritization. Sharing of data across agencies and jurisdictions is facilitated by the Maine Traffic Safety Coalition (MTSC). This coalition has broad representation from state and local agencies community groups. The MTSC produced “The Status of Transportation Safety in Maine” in 2003 after there had been a steady increase in highway fatalities. This report presented data and an analysis of key safety-related performance areas. A data committee of the MTSC focused on collecting the data necessary to prepare this report.
- **Young Drivers.** In 2006, Maine implemented the “Safeguard” philosophy to protect teenagers. Any kind of law enforcement officer who pulls over a teen or finds teens partying initiates contact and communication with the parents or guardians of every teenager involved.
- **Emergency Response.** The most significant change in emergency response during the study period was the transition from paper to electronic reporting, resulting in more accurate and complete data. Maine also transitioned to a single EMS dispatch protocol that works toward modifying criteria aimed at reducing ambulance crashes. Beginning January 1, 2007, ambulance drivers were required to complete a basic ambulance driver course. The state also has a course and brochures aimed at safely transporting children in ambulances. The program was initiated in response to the finding that 3-5 children die in ambulance crashes each year.

#### **Information Sources:**

Telephone Interview, April 8, 2009 with:

- Lauren Stewart, Director, Bureau of Highway Safety, Department of Public Safety
- Darryl Belz, Bureau of Planning, Maine DOT
- Bradford Foley, Director of Safety, Maine DOT
- Duane Brunell, Safety Performance Analysis Manager, Safety Office, Maine DOT
- Bruce Ibarguen, State Traffic Engineer, Engineering Division, Maine DOT

Document Review:

- Maine Highway Safety Plan, 2008, web link:  
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- Maine Transportation Safety Coalition, The Status of Transportation Safety in Maine Report – August 2004, web link:  
<http://www.themtsc.org/publications/databook/databook.php>, accessed April 17, 2009.

## MICHIGAN

### Safety Performance Summary

Michigan safety performance results 2000-2002 vs. 2005-2007:

- 17 percent decrease in total fatalities
- 21 percent decrease in fatalities per 100 million VMT
- 19 percent decrease in speeding-related fatalities
- 32 percent decrease in young driver involvement in fatal crashes
- 17 percent decrease in alcohol-related fatalities (highest driver blood alcohol concentration of .08 or above)
- 35 percent decrease in unrestrained passenger vehicle occupant fatalities, all seat positions (related to an increase in the seat belt usage rate from 70 percent in 2000 to 94 percent in 2007)
- 20 percent decrease in pedestrian fatalities

### Practice Summary

Practices that may have contributed to these results:

- **Longstanding Executive Level Interagency Partnerships for Safety.** The Michigan State Safety Commission (MSSC) was created in 1941 with membership from departments of Community Health, Education, State Police, State and Transportation. According to a recent case study [Mercer, 2007]: "...the MSSC began its work by fostering critical partnerships among key State agencies to strengthen the chance of significant success. Together, these safety leaders were charged with spearheading legislative reforms and systematically addressing challenges that would lead to monumental improvements in Michigan's roadway safety. From its onset, the MSSC has provided a solid foundation upon which all future success has been built." Today's Governor's Traffic Safety Advisory Commission, created in 2002 as a merger between the existing MSSC and the Michigan Traffic Safety Management System (MTSMS) continues to provide strong leadership, meeting on a bi-monthly basis, and supporting participation of their respective staffs on action teams that have been established under the Strategic Highway Safety Planning umbrella. Michigan's OHSP provides data and staff support to facilitate the activities of the teams.
- **Seat Belt Legislation and Enforcement.** Michigan passed a primary seat belt law in April 2000 with a \$25 fine. In the first year of the law, Michigan's belt use rate increased 13 percentage points to 83.5 percent. By 2007, their belt use rate was 94.0 percent. According to Hedlund (2008), Michigan was able to achieve this level of belt use through a

combination of data-driven strategic planning and strong partnerships with law enforcement - "Michigan's Office of Highway Safety Planning sets explicit goals, develops strategies based on extensive belt use and demographic data, works closely with law enforcement and other partners to implement these strategies, evaluates results, and adjusts strategies and activities as needed." Michigan's primary seat belt enforcement mobilization has taken place during the national May "Click it or Ticket" campaigns. In 2003, Michigan had 20 grantee counties, 8 of which were asked to participate in a pilot of safety belt enforcement zones. Safety belt enforcement zones were located on roadways where crash problems are prevalent or belt use is low. Portable "safety belt enforcement zone" signs are used to alert motorists that they are entering an enforcement area. Officers work in groups - one serving as a spotter, radioing unbelted motorist information to a one or more downstream officers who pull over offending motorists and issue citations. Once all belt enforcement was moved to zones, OHSP invited more counties to broaden geographic coverage, and by 2005, 55 counties were participating (collectively covering 90% of the population.) Enforcement campaigns are accompanied by high quality paid advertisements that target demographics of lowest compliance.

- **DUI Legislation and Enforcement.** Michigan passed a .08 blood alcohol concentration per se law in June, 2003. The state has paired high visibility enforcement of impaired driving laws with strong public information and education campaigns. Michigan's OHSP provides grants for overtime enforcement to local law enforcement agencies (for both seat belt and DUI enforcement) and encourages all law enforcement to participate through a statewide law enforcement challenge program.
- **Data Driven Planning using Timely and Accurate Crash Data.** Michigan achieved improvements to quality and accuracy of its crash data within the 2000-2007 timeframe. Between 2000 and 2005, the percentage of reported crashes that could be located on the road network increased from 70-75 percent to 98 percent. According to a 2004 NHTSA Assessment, Michigan was one of the few states that was providing uniform location data on all of its crash records, including those for local roads. Location descriptions in crash records are all converted to standard location codes utilizing specialized software. Michigan also established an Internet access tool providing retrieval and analysis capabilities for local law enforcement agencies. Currently, crash data is available on the web within 20 days. As noted in Michigan's Strategic Highway Safety Plan, "As more data becomes computerized and the Michigan safety agencies have developed their organizational capacity for data analysis, the review of crash data has become a continual process rather than an annual event." Improvements to credibility and accessibility of data during the 2000-2007 period led to greater use of the data at both statewide and local levels in support of safety decision making. Selection of the emphasis areas for the Strategic Highway Safety Plan were based on detailed analysis of the crash data, and the data has been used extensively for targeting of both engineering and behavioral safety projects and programs.
- **Engineering Improvements.** During the period between 2000-2007, Michigan made use of available NHTSA incentive funds to fund engineering improvements on both the state trunkline and local roadway networks. Michigan was one of the early implementers of

shoulder rumble strips for its state-maintained freeway network. A 2003 Better Roads article reported that Michigan achieved a 40 percent reduction in “drift off the road” crashes due to its milled-in rumble strips. Also during the 2000-2007 time period, Michigan DOT undertook a major program to modernize and retime state trunkline traffic signals by corridor. As part of this program, MDOT placed countdown pedestrian signals on high pedestrian routes.

- **Strong State-Local Safety Partnerships.** MDOTs decentralized structure of Transportation Service Centers has helped to improve local community access to MDOT resources and strengthen state-local partnerships in safety. There are several active programs and initiatives that support local governments in strengthening their safety planning capabilities. Michigan’s Local Safety Initiative (LSI) office provides free technical assistance for local road authorities for review and analysis of crash data, road safety reviews and development of countermeasures. Funds have been set aside to implement fixes on the local system identified as part of this process, with a focus on “low-cost” fixes such as signing, pavement markings, signal modifications and improved sight distance and visibility to reduce fatal and serious injury crashes. Michigan’s OHSP has also funded Wayne State University to provide traffic safety engineering services to member municipalities. OHSP and MDOT have worked with all of the State’s MPOs and Rural Task Forces (RTFs) to encourage safety conscious planning and, with support from FHWA, have held safety forums in all of the MPO areas. These forums provide an opportunity to establish and strengthen cross-discipline safety partnerships at the local level. The County Road Association of Michigan (CRAM) also provides assistance to member counties, which has included support for an integrated roadway management system that incorporates inventory, safety and pavement condition information.

#### **Information Sources:**

Telephone Interview, April 9, 2009 with:

- Dale Lighthizer, Supervising Engineer, Standard, Safety and Services, Michigan Department of Transportation, Traffic and Safety Division
- Kathy Farnum, Safety Planning and Administration Section Chief, Michigan Office of Highway Safety Planning
- Pietro Semifero, Planning and Evaluation Coordinator, Michigan Office of Highway Safety Planning

Document Review:

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- Hedlund, James, S. Hope Gilbert, Katherine Ledingham, and David Preusser, “How States Achieve High Seat Belt Use” prepared for the US Department of Transportation, National Highway Traffic Safety Administration, August 2008.
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## MINNESOTA

### Safety Performance Summary

Minnesota safety performance results 2000-2002 vs. 2005-2007:

- 16 percent decrease in total fatalities
- 21 percent decrease in fatalities per 100 million VMT
- 23 percent decrease in speeding-related fatalities
- 28 percent decrease in young driver involvement in fatal crashes
- 21 percent decrease in alcohol-related fatalities (based on fatalities in crashes with driver BAC of .08 or above)
- 32 percent decrease in unrestrained passenger vehicle occupant fatalities, all seat positions (related to an increase in the seat belt usage rate from 73.4 percent in 2000 to 86.7 percent in 2008)
- 12 percent decrease in pedestrian fatalities

### Practice Summary

Practices that may have contributed to these results are summarized below.

- **Performance Focus: Toward Zero Deaths** – Minnesota's Toward Zero Deaths (TZD) program is an interagency partnership led by the Department of Public Safety (DPS), the Department of Transportation (Mn/DOT), and the Department of Health in cooperation with the Federal Highway Administration, Minnesota county engineers, and the Center for Transportation Studies at the University of Minnesota. TZD's vision is to reduce fatalities and serious injuries on Minnesota's roads to zero. Its mission is "to create a culture where traffic fatalities are no longer acceptable through the integrated application of education, engineering, enforcement, and emergency medical services. These efforts will be driven by data, best practices, and research." TZD was initiated to provide renewed focus to the state's safety programs following an increase in fatalities in the late 1990's – after a long downward trend. Momentum for this program was built over a period of 2-3 years of discussion between Mn/DOT and DPS on ways to enhance collaboration. Annual TZD "4E" conferences are held and performance goals are set. Daily updates on cumulative year to date fatalities compared to the previous year are provided to 13 of the key individuals in the TZD State partner agencies. The initial TZD goals were to reduce highway fatalities from 657 in 2002 to 500 in 2008, and to reduce the fatality rate (fatalities per 100 million VMT) from 1.21 to below 1.0 during that same period. By 2006, Minnesota had surpassed these goals, with 496 fatalities and a fatality rate of .87.



- **Mature, Well-Established Programs and Partnerships** – Minnesota has a long history of strong champions and active partnerships in the traffic safety arena, and until recently, has had a great deal of stability in key traffic safety positions. This stability has ensured a persistent and consistent approach to safety programs that allowed the state to steadily improve its programs and their results. Executive recognition of the importance of inter and intra-agency partnerships has been key to sustaining active relationships as new safety program managers have come on board. The next generation of managers have worked to involve a larger pool of staff in inter and intra-agency coordination activities in order to ensure “deeper roots” for safety partnerships. In addition to well-established interagency partnerships, collaboration with a variety of external public and private entities continues to be a strong component of Minnesota’s comprehensive traffic safety efforts.
- **Strong Strategic Planning Process** – The initial Minnesota Comprehensive Highway Safety Plan (CHSP) was finalized December 31, 2004. FHWA awarded the state one of the 2005 National Roadway Safety Awards, noting that: “The CHSP includes the “4 E s” of highway safety: engineering, education, enforcement and emergency medical services. The plan addresses traffic safety both proactively and reactively by reaching out and coordinating with the state’s safety partners, and addressing local roadway system safety needs.” Minnesota safety staff interviewed for this project commented that the strategic planning process continues to provide a strong, participatory and data driven foundation for the state’s decision making process about where to invest available resources for maximum impact.
- **Targeted Enforcement/Media Campaigns** – One of the keys to Minnesota’s success has been the effective implementation of enforcement campaigns that combine targeted enforcement in high risk locations with media coverage that reinforce messages about seat belt use, impaired driving, and speeding. Minnesota has conducted year-round enforcement of impaired driving and seat belt usage throughout the 2002-2007 period through the State’s *Safe & Sober* campaign, with two annual seatbelt and two annual impaired driving campaigns. In 2006, enforcement involved about two-thirds of the state’s agencies, with 140 receiving overtime enforcement funds. While Minnesota does not have a primary seat belt law, its belt citation rate per 1,000 population in 2006 was comparable to that of many primary law States. Minnesota has also operated a nighttime DUI enforcement program called *Operation NightCAP* that is focused within the “thirteen deadliest impaired driving counties.” Four Law Enforcement Liaisons (LELs) have been highly instrumental in gaining local law enforcement participation. The Department of Public Safety’s Office of Traffic Safety (OTS) also utilizes regular communication with law enforcement officers to identify areas where enforcement program operations should be improved. OTS Safe Communities Coalition Grantees also support law enforcement activities during Safe and Sober mobilizations by assisting in planning and organizing of media events and other activities.
- **Highway Enforcement of Aggressive Traffic (HEAT)** – HEAT was a \$3 million effort launched in September 2005 that combined increases in speed limits from 55 to 60 miles per hour on 850 miles of highway with increased speed enforcement. A majority of the

funding was used to support roughly 50,000 hours of enforcement by State Patrol, county sheriffs and local police. The Office of Traffic Safety launched an extensive media and public education campaign, including nearly 18,000 radio spots. An evaluation of the program found that the program successfully reduced travel speeds and resulted in significant decreases in fatal and severe-injury crashes on all road types during the enforcement periods. There were large decreases in the number of drivers traveling at least 10 MPH above the speed limit, ranging from 11 percent in the Twin Cities Metro area to 30 percent in Greater Minnesota. Based on its success in 2005, HEAT was re-launched from June 2007 – September 2008 and, just recently, funding was secured to continue the program for three (3) additional years beginning in June 2009.

- **Proactive and Creative Communications** – Minnesota makes effective use of media to get safety messages out to the public. An experienced in-house public communications staff cultivates close media relationships and produces creative and targeted communications materials. Efforts are made to keep the traffic safety message relevant and topical throughout the year by publicizing trends or tacking a safety message on holiday periods. A major emphasis is put on keeping the message fresh to entice media, and audiences - this includes employing creative ideas. In December, "Designated Driver Action Figures" - life-sized "toy" boxes - were produced and distributed to partners to use for an interactive public display and media component. Also, "Designated Driver Gift Cards" were produced and distributed to bars and liquor stores statewide to encourage people to "give the gift of a safe lift." A major component to outreach is a strong paid media campaign to target ads to primary audiences, young adults. Minnesota also develops and provides localized media kits to support partners' efforts in promoting campaigns. Community-based education/outreach programs are also pursued, including use of peer-to-peer messaging at high schools and parent outreach aimed at young drivers; and work with sports teams to reach 18-35 year old males.
- **Targeted Engineering** – HSIP funds are allocated to different geographic regions of the state based on the percentage of fatal and serious injury (types "K" and "A") crashes. Highway safety improvements within each area are targeted based on analysis of crash history data. Starting in 2000, Mn/DOT has created a ranked list of top 200 intersections and 150 roadway sections with the highest crash costs. These locations are investigated to identify countermeasures for programming in the State Transportation Improvement Program (STIP.) A shift from using only this method that looked simply at high crash locations, sometimes referred to as "black spot", to looking at the reducing "types" of fatalities and serious injury accidents has changed the focus of engineering improvements towards lane departure and intersection crashes primarily in rural areas. Mn/DOT and counties have aggressively installed rumble strips, rumble stripes, wider pavement markings, curve delineation, intersection lighting, upgraded signing and cable median. Safety funds are targeted toward low cost systematic improvements that can be applied to miles of roadways and multiple intersections.
- **Timely and Easily Accessible Crash Data.** Since 2000, improvements to crash data timeliness and accessibility have been made. Currently, 93% of crash reports are

transmitted online. Timeliness of data has allowed Minnesota to identify emerging trends (e.g. overrepresentation of younger drivers in fatalities) and take steps to respond immediately. It has also helped to keep media messages fresh and relevant. Maps of fatal and serious injury crashes by type (alcohol-related, unrestrained, etc.) have been found to be a particularly effective communication tool, especially with legislators. Fatality Review Committees, within Safe Communities Coalitions, use recent crash reports to review each fatal crash in their area to determine patterns that can be addressed to help prevent similar crashes in the future.

- **Funding and Toolbox for Local Roads.** As part of Minnesota's strategic highway planning process, emphasis was placed on local safety improvement given that over 45 percent of fatal crashes were occurring on roadways that are not part of the state trunkline system. A safety toolbox was developed with 120 strategies for improving safety along with guidance for matching these strategies to local conditions and setting priorities. The Minnesota County Engineers Association (MCEA) has a very active County Highway Safety Committee which has operated since 2003. They were instrumental in getting additional state funding for local safety improvements - in 2004, a \$50 million authorization in state obligation bonds was made for a Rural Road Safety Account (RRSA.) RRSA funds have been combined with available federal funds to support a range of local road safety projects including lighting, signage, guardrail, and geometric improvements. Minnesota has made extensive use of Road Safety Audits (RSAs) to identify opportunities for local safety improvements. Counties target areas for improvement utilizing a crash mapping analysis tool (originally developed in Iowa) that includes GIS mapping, querying capabilities, and reporting tools for ten years of Minnesota crash data.

#### Information Sources:

Telephone Interview, April 6, 2009 with:

- Cheri Marti, Director, Office of Traffic Safety, Minnesota Department of Public Safety
- Susie Palmer, Acting Deputy Director, Office of Traffic Safety, Minnesota Department of Public Safety
- Jean Ryan, Alcohol Programs Coordinator, Office of Traffic Safety, Minnesota Department of Public Safety
- Gordy Pehrson, Youth and Alcohol Coordinator, Office of Traffic Safety, Minnesota Department of Public Safety
- Kathleen Haney, Traffic Records Coordinator, Office of Traffic Safety, Minnesota Department of Public Safety
- Sue Groth, Director of Office of Traffic, Safety, & Technology, Minnesota Department of Transportation
- Dave Engstrom, State Traffic Safety Engineer; Office of Traffic, Safety, & Technology, Minnesota Department of Transportation

- Cassandra Isackson, Assistant State Traffic Engineer, Office of Traffic, Safety, & Technology, Minnesota Department of Transportation

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## NEW YORK

### Safety Performance Summary

New York's safety performance results 2000-2002 vs. 2005-2007:

- 7 percent decrease in total fatalities
- 12 percent decrease in fatalities per 100 million VMT
- 6 percent decrease in speeding-related fatalities
- 21 percent decrease in young driver involvement in fatal crashes
- 22 percent increase in fatalities in crashes where the highest driver BAC concentration is .08 or above. (This figure is based on the FARS Encyclopedia. Note that figures for alcohol-related fatalities reported in New York State Highway Strategic Plans indicate only a 1 percent increase.)
- 24 percent decrease in unrestrained passenger vehicle occupant fatalities, all seat positions (related to an increase in the seat belt usage rate from 77.3 percent in 2000 to 83.5 percent in 2007)
- 11 percent decrease in pedestrian fatalities

### Practice Summary

Practices that may have contributed to these results:

- **Intergovernmental Committee as Safety Lead.** New York's highway safety activities are coordinated by the Governor's Traffic Safety Committee (GTSC), which was established in 1987, (replacing an earlier intergovernmental traffic safety committee.) The GTSC is chaired by the Commissioner of Motor Vehicles and includes members from Departments of Education, Health, Criminal Justice Services and Transportation, the Secretary of State, the Superintendents of State Police and Insurance, the Directors of Alcoholism and Alcohol Abuse, Substance Abuse and Probation and the Chairpersons of the State Liquor Authority and New York State Thruway Authority. The GTSC staff are responsible for operation of the state highway safety office, which administers New York's federal safety grant programs. This somewhat unique institutional structure for a lead state traffic safety organization has worked well to ensure interagency communication and coordination for implementation of safety programs.
- **County Traffic Safety Boards.** New York State Law allows for establishment of County Traffic Safety Boards whose functions include formulation of county-wide highway safety programs, coordination of the efforts of interested parties and agencies engaged in traffic safety education, and coordination of local activities related to the implementation of the state highway program. These boards have established a strong cooperative local

infrastructure for safety planning that replicates what is being done at the state level. The New York State Association of Traffic Safety Boards meets quarterly and have been very effective at helping with statewide mobilization of safety programs and disseminating traffic safety messages.

- **Safety Legislation.** New York has had a primary seat belt law on the books since 1984. Key safety legislation passed in the 2000-2007 period (and championed by the GTSC) included an open container law (2000), a law banning cell phone use while driving (2001), a .08 BAC per se law and tougher penalties and ignition interlock device requirements for repeat DUI offenders (2003), a graduated driver licensing law (2003), an upgraded booster seat law (2005), and an aggravated DWI law that mandates stricter penalties for drivers arrested with a BAC of 0.18 or above (Nov 2006).
- **Stop DWI Program.** New York established the STOP-DWI Program in 1981 in an effort to decrease alcohol related fatalities and injuries in the state. Fine revenues from DWI/DUI related convictions are returned to each county, where they can be used for public information & education, enforcement, prosecution, probation, and treatment. The enabling legislation for the program requires participating counties to develop a plan and appoint a STOP-DWI coordinator. Counties are given latitude to develop programs that meet their specific local needs. A 2005 NHTSA evaluation of the program noted that it was the only completely self-sustaining impaired driving program in the nation and that the program has “had a sustained impact in assisting the State at further reducing alcohol-related motor vehicle crash fatalities in New York.”
- **Performance-Based and Data Driven Safety Planning.** New York was an early adopter of strategic highway safety planning practices. In 2000, the GTSC worked with the administrators of the Motor Carrier Safety Assistance Program (MCSAP) to develop a joint strategic plan called “the 20/10 Initiative” to reduce motor vehicle fatalities and serious injuries by 20% over a ten year period. Safety grants administered under the NHTSA/FHWA Section 402 program as well as the MCSAP program have been based on review of data that allows for targeting specific problem areas and prioritization across applications to ensure that the available resources are well used. The Institute for Traffic Safety Management and Research (affiliated with the State University of New York system) provides data and analysis support to the GTSC, which includes preparation of annual data packets for each county. These packets are used to develop county safety grant requests. In addition, annual statewide data summaries are compiled for all crashes and special subsets of crashes, including pedestrian, bicycle, motorcycle, large truck, alcohol-related, and speed-related crashes.
- **Targeted and Coordinated Enforcement.** New York’ Selective Traffic Enforcement Program (STEP) provides grants for overtime enforcement targeting aggressive driving behaviors. STEP programs are data-driven, focusing on high crash areas and targeting the violations that contribute to those crashes. Enforcement is conducted on the specific days of the week and times of day when the incidents most often occur. A corridor approach has recently been pursued, focusing on locations across the state where speeding and other

aggressive driving behaviors are known to cause crashes. The New York State Police implemented the highly effective High Enforcement of Aggressive Driving (HEAT) STEP program. This program was designed to redirect a significant amount of enforcement activity from Interstate highways where fatality rates are the lowest, to the state's more dangerous rural secondary roads where serious crashes are more likely to occur. The Buckle Up New York (BUNY) campaign, conducted in conjunction with the national Click it or Ticket campaign, has been active throughout the 2000-2007 period, combining public education and zero-tolerance enforcement of the occupant restraint law. New York also actively participates in the national Safe and Sober impaired driving mobilization. Three NHTSA-funded law enforcement liaisons (LELs) help to coordinate statewide enforcement activities. They serve as "fingers" that extend the reach of statewide initiatives to the extensive network of over 500 state and local police forces.

- **Pushing Operational Enforcement Planning Responsibility to the Troop Level.** In 2004, the New York State Police implemented a Troop Traffic Safety Plan Concept in which responsibility for operational planning for seat belt enforcement was shifted from the division headquarters to the troop level. This approach provided greater flexibility and accountability and resulted in Troop Commanders and other field staff taking a more active role in identifying and attacking specific local problems. It has also reinforced coordination and communication between the State Police and local agencies, facilitating combined efforts in enforcement, education and media publicity.
- **Electronic Ticketing and Crash Records Implementation.** New York initiated implementation of the Traffic and Criminal Software (TraCS) in 2001. A statewide electronic traffic ticket and motor vehicle crash report form was developed for use by all police agencies in New York State. Use of GPS devices and DOT GIS maps were incorporated into TraCS during the summer of 2005, enabling accurate plotting of accidents. Police agencies are now able to send their ticket and accident data electronically through TraCS to DMV, DOT and the Office of Court Administration (for forwarding to the respective local courts). TraCS is currently being utilized by all New York State Police troops and more than 320 local police agencies.
- **Integration of Road Safety Audits with Pavement Resurfacing Program.** Starting in the late 1990's, NYSDOT incorporated use of Road Safety Audits (RSAs) into their pavement resurfacing program. This program, called SAFETAP, has been implemented both for state-maintained roadways as well as for MPO-programmed roadway resurfacing projects. The program was implemented based on an observation that simple resurfacing without roadside improvements contributed to increases in the number of crashes in the 3 years following resurfacing. Following selection of resurfacing locations, an audit team analyzes crash data for the location, makes a site visit, and develops recommendations for safety work (including shoulder treatments, pavement markings, rumble strips, guardrails, curve delineation, treatment of fixed objects, and signage.) Identified safety work is scheduled in coordination with paving on the basis of need, complexity, and resource availability. An evaluation of the first three years of the program found crash reductions

from 20-40 percent at more than 300 high-crash locations treated with low-cost improvements.

- **Other Engineering Activities.** New York's Highway Safety Improvement Program identifies and treats high-accident locations, called Priority Investigation Locations (PILs), with proven engineering safety countermeasures. NYSDOT has a skid-accident reduction program involving friction testing on roadway locations with unusually high proportions of wet road accidents, and treatment of sections experiencing both high wet road accidents and low friction numbers. Other pro-active engineering strategies to ensure safety on state highways include installation of rumble strips on all Interstates and ramps, incorporation of shoulder wedge joint requirements into paving contracts, a median barriers warrant program, and ongoing revisions to the highway design manual to improve shoulder widths. NYSDOT contracts with Cornell University to provide training and technical assistance to local road agencies (through the Local Technical Assistance Program) on a variety of roadway and roadside safety-related topics.
- **Partnership with the New York Broadcasters Association.** The GTSC has developed a partnership with the New York Broadcasters Association that has enabled production and airing of traffic safety messages at a fraction of the normal cost. The Broadcasters Association uses grant money from the GTSC to pay for the production, distribution and airing of traffic safety messages. Member stations of the Broadcasters Association provide their unsold commercial time to the Broadcasters, which in turn, make it available to GTSC for airing safety messages.
- **Centralized Production of Outreach Materials.** New York's DMV has an in-house communications office with multiple artists on staff that produces creative educational and outreach materials and maintains active media relationships. The GTSC makes materials produced at the statewide level available to local agencies for their own use/customization. This approach ensures consistency in messaging and makes better use of resources than the older strategy of funding locals to produce their own media spots.

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- Jim Allen – GTSC Director
- Ken Brown – Deputy Director for Communications, New York Department of Motor Vehicles
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## UTAH (DRAFT)

### Safety Performance Summary

Utah safety performance results 2000-2002 vs. 2005-2007 :

- 13 percent decrease in total fatalities
- 21 percent decrease in fatalities per 100 million VMT
- 16 percent decrease in speeding-related fatalities
- 22 percent decrease in young driver involvement in fatal crashes
- 31 percent decrease in alcohol-related fatalities based on fatalities in crashes with driver BAC of .08 or above (Utah had the lowest percentage of alcohol related fatal crashes in the nation – 17% in 2007)
- 38 percent decrease in unrestrained passenger vehicle occupant fatalities, all seat positions (related to an increase in the seat belt usage rate from 76 percent in 2000 to 86 percent in 2007)
- 11 percent decrease in pedestrian fatalities

### Practice Summary

Practices that may have contributed to these results are summarized below.

- **Strong Interagency Relationships.** A Safety Leadership Team was established in 2002 with membership from the Utah Departments of Transportation, Public Safety and Health; the Utah Transit Agency; Metropolitan Planning Organizations; federal partners (FHWA, NHTSA, and FMCSA) and other safety stakeholder organizations. The executive membership of this team meets on a quarterly basis; the full team meets periodically to update the state's Strategic Highway Safety Plan. While this formal coordination mechanism is important, Utah safety representatives view the informal working relationships that exist among the individuals and organizational units with key roles in highway safety as the single most important ingredient for success. There is ongoing coordination and communication among the State Highway Safety Office, the Utah Highway Patrol and the Driver Licensing Division (within the Department of Public Safety or DPS), the state Department of Transportation (DOT) Traffic and Safety Division, the Violence and Injury Prevention and Emergency Medical Services divisions of the Utah Department of Health, and the Utah Office of Education.. The fact that Utah is a small state, with relatively flat organizational structures within its agencies has facilitated development of strong personal relationships. Ease of personal communication is cited as a critical element behind Utah's performance results. This has allowed agencies to

continually adapt their activities based on emerging information from multiple channels about where the problems are and what solutions are most effective.

- **Strong Media Relationships.** Both the state DOT and the DPS have developed strong relationships with the local media, and view the media as important partners for achieving highway safety goals. Ensuring that every fatal crash receives media coverage is viewed as an extremely effective way to educate the public about safety problems and their prevention and to build public support for safety programs.
- **Resource Sharing to Achieve Common Goals.** Utah safety representatives noted that six years ago (in 2003) there was a recognition within the safety community of the importance of pooling available resources in a coordinated manner to achieve the shared mission of reducing highway fatalities. There is a common understanding that traffic safety is a multi-faceted problem that requires a coordinated set of engineering, enforcement, education and emergency response strategies. Resource sharing arrangements are worked out through extensive informal discussion about specific problems, needed solutions, and available funding, equipment and manpower that can be brought to the table. For example, funding for media campaigns is made available by Utah DOT to support the collective safety programs of the Department of Public Safety and the DOT. As another example, the State Highway Patrol has stepped up enforcement at times to make up for fluctuations in federal grant funding.
- **Use of Information to Drive Decision Making.** Utah uses crash data and other supporting information to select emphasis areas for the safety plan, to identify critical locations to target for engineering and enforcement activities, and to prioritize safety projects. In 2001, the state DOT revamped its methods for analyzing and prioritizing projects which has helped to focus available dollars in a manner that maximizes results. While there are units that analyze crash data in both the DOT and the DPS (the FARS unit is located within the DPS), a multi-agency Fatality and Crash Review Committee meets annually to develop a collective understanding of the data and its implications. This committee ensures that a consistent picture of trends and problem areas is communicated to the public safety community, political leaders and the general public. Safety officials also note that informal communication of information about trouble spots between the highway patrol and the state DOT is extremely valuable for development of countermeasures.
- **Aggressive and Focused Enforcement.** Utah's DPS has placed particular emphasis on removing impaired drivers from the road. Since 2001, the State Highway Patrol has utilized a special DUI squad that works across the state in conjunction with local law enforcement crews to provide ongoing overtime coverage. DUI enforcement efforts are funded with a combination of federal grants, state funds (including an annual appropriation of \$0.5 million), and contributions from local automobile dealers (\$20,000-\$40,000 per year) The Highway Safety Office supports a multi-agency task force that targets specific areas of the state for enforcement activities.
- **Zero Fatalities Program.** Following achievement of a 24 percent reduction in fatalities between 2000 and 2005, Utah launched its "Zero Fatalities" program, emphasizing the

importance of continuing to drive down fatality numbers. This program has provided a valuable focus for Utah's highway safety initiatives and has reinforced existing partnerships across agencies. "Zero Fatalities" is used as a brand on various related information campaigns (e.g. Click it or Ticket.) Use of an "umbrella" message about the central purpose of highway safety programs reinforces the effectiveness of individual media campaigns.

- **Engineering Improvements.** Utah has been able to utilize roughly \$13 million in state funds for safety projects on top of the \$9-10 million in federal safety funds that are available. (Availability of state funds for engineering improvements facilitated Utah's ability to take advantage of the 10% flexibility in use of federal HSIP funds for non-engineering improvements.) In addition to its regular program of identifying and programming cost-effective spot safety improvements at high crash locations, Utah has installed rumble strips on all of its rural Interstate highways, and has systematically evaluated statewide opportunities for median separation treatments.

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