

# **New Hampshire**

## **Strategic Highway Safety Plan**

**A Collaborative Effort to Reduce Crashes  
On New Hampshire Highways**



**2007**

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## Introduction Letter -

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The Strategic Highway Safety Plan (SHSP) is an outgrowth of the reauthorization of federal highway funding (under SAFETEA-LU, 23 USC 148), with the purpose of clearly identifying the State's critical safety needs and developing strategies to achieve significant reductions in fatalities and serious injury crashes on all public roads. The SHSP is prepared by the NH Department of Transportation in cooperation and collaboration with other public agencies and private stakeholders involved in highway safety, and provides a mechanism for identifying existing safety programs and proposing new safety programs that could be used in a coordinated effort to maximize resources in addressing the State's traffic safety challenges.

New Hampshire has seen an increase in crashes from 25,000 in 1993 to a level of 41,000 in 2005. Over the same period the State has experienced an average of 120 to 140 fatalities per year with the number of fatalities at 166 in 2005. While the State's fatal crash rate (approximately 1.13 per 100 Million Vehicle Miles Traveled in 2005) is lower than the National average, the cost of highway crashes is very high. Crashes in New Hampshire cost the State over one billion dollars per year (costs in calendar year 2000 per NHTSA) in lost wages, property damage, etc, not to mention the devastation it brings to families.

To continue making progress towards safer highways in New Hampshire, we must build on existing programs and develop new ones. The Strategic Highway Safety Plan contains strategies, that if implemented could have a significant effect on reducing crashes and improving the safety of our highways. Safety of our roadways is the responsibility of state agencies, local governments and private entities with an interest and a role in highway safety, and we must all work together towards the same goal.

# Mission, Vision, & Goal

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## Mission

The mission statement of the Strategic Highway Safety Plan (SHSP) provides direction for the development of the goal and the selection of strategies as well as the formulation of the action plans. The SHSP Stakeholders for this document developed the following mission statement:

**Develop, promote and implement cost effective traffic safety strategies that save lives and reduce the number and severity of traffic crashes and injuries in New Hampshire.**

## Vision

The vision statement of the SHSP provides a desired characteristic or outcome when the goal is reached. The SHSP Stakeholders for this document developed the following vision statement:

**Effectively and consistently achieve the safest travel on New Hampshire roadways where all roadway users act responsibly and arrive safely at their destination.**

## Goal

To make significant progress in achieving the mission and vision of the SHSP, the goal of the SHSP must be specific and expressed in terms of a reduction of crashes in a given time frame. As such the following is a target goal:

**Reduce the number of fatalities/year on New Hampshire roadways to below 100 by 2010.**

# Strategic Highway Safety Plan for New Hampshire

## Glossary of Terms

AAA	American Automobile Association
AADT	Average Annual Daily Traffic
AARP	American Association of Retired Persons
AASHTO	American Association of State Highway and Transportation Officials
BAC	Blood Alcohol Concentration
BRFSS	Behavior Risk Factor Surveillance System Survey
CDC	Centers for Disease Control
CRMS	Crash Record Management System
DMV	NH division of Motor Vehicles
DWI	Driving While Intoxicated
ED	Emergency Department
EMS	Emergency Medical Services
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
GIS	Graphic Information System
IT	Information Technology
MADD	Mothers Against Drunk Driving
MMUCC	Model Minimum of Uniform Crash Criteria
MVMT	Million Vehicle Miles Traveled
NHDHHS	New Hampshire Department of Health and Human Services
NHDOS	New Hampshire Department of Safety
NHDOT	New Hampshire Department of Transportation
NHSA	New Hampshire Highway Safety Agency
NHS	National Highway System
NHTSA	National Highway Traffic Safety Administration
OIT	NH Office of Information Technology
PSA	Public Service Announcement
SAFETEA-LU	Safe Accountable Flexible Efficient Transportation Equity Act: A Legacy for Users
SHSP	Strategic Highway Safety Plan
TEMSIS	Trauma Emergency Management Information System
TRCC	Traffic Records Coordinating Committee
UNH	University of New Hampshire
YRBS	Youth Risk Behavior Survey

# Executive Summary

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The Strategic Highway Safety Plan (SHSP) is brought forward in an effort to reduce the number of fatalities and serious injury crashes on our State's highway system. The current national rate of highway fatalities is 1.5 fatalities per 100 million vehicles miles traveled (MVMT). The rate of highway fatalities on New Hampshire's highway system was 1.13 per 100 MVMT in 2005. The US Department of Transportation (USDOT), which includes Federal Highway Administration (FHWA), Federal Motor Carrier Safety Administration (FMCSA) and National Highway Traffic Safety Administration (NHTSA), set a goal to reduce the national highway fatality rate to 1.0 fatality per 100 MVMT by 2011. Other organizations including the American Association of State Highway and Transportation Officials (AASHTO), Governors Highway Safety Association, International Association of Chiefs of Police and others have also adopted this goal. While New Hampshire's fatality rate (Table 7.) is below the current national average, it has been at a level rate for many years showing no downward trend. The consequence of a crash to individuals, families and the State are considerable. The devastation it brings to a family and the human suffering are immeasurable, and the economic cost of crashes in New Hampshire is estimated to be over \$1.0 billion per year (calendar year 2000 figure).

The USDOT, AASHTO and other public agencies and private organizations developed a framework for preparation of a comprehensive highway safety plan, known as the SHSP, with the intent of reducing the current number of crashes. The intent of the SHSP is to identify the major highway safety challenges, also known as safety emphasis areas, that if addressed would have the greatest effect on reducing fatalities and serious injuries. The participants developing the framework identified 23 safety emphasis areas, as a starting point for states to begin identifying their most critical safety needs. These safety emphasis areas were grouped into the following major sections: Drivers, Special Users, Vehicles, Highways, EMS, and Management.

Currently, State and Federal Agencies, regional and local organizations have been carrying out independent safety initiatives that have been individually focused on reducing fatalities and serious injuries on our highways. The SHSP provides for multiple agencies and organizations to collaborate on delivering safety services more efficiently and effectively, to areas of safety that are felt to have the most significant impact in reducing deaths and serious injuries. The SHSP contains strategies that if implemented by the safety partners could significantly improve safety on New Hampshire's roadways.

## **Partners**

Below is a list of the agencies and organizations that were involved in the development of the New Hampshire SHSP.

AAA Northern New England  
American Association of Retired Persons  
American Traffic Safety Services Association  
Bureau of Highway Patrol (Commercial Vehicles), NHDMV

Bureau of EMS/NH Division of Fire Standards & Training  
Federal Highway Administration  
Federal Motor Carrier Safety Administration  
Injury Prevention Center (Children's Hospital at Dartmouth)  
Lakes Region Planning Commission  
Loving Family Foundation  
Mothers Against Drunk Driving  
Motorcycle Rider Training (NHDOS)  
Nashua Regional Planning Commission  
National Highway Traffic Safety Administration  
NH Attorney General's Office, Department of Justice  
NH Brain Injury Association  
NH Community Technical College System  
NH Department of Education  
NH Department of Health and Human Services  
NH Department of Safety  
NH Department of Transportation  
NH Highway Safety Agency  
NH Insurance Department  
NH Liquor Commission  
NH Older Driver Coalition  
NH Division of State Police  
NH Traffic Safety Institute  
Operation Lifesaver  
Police Standards and Training  
Steven's Driving School  
Regional Planning Commissions

### **Development Process**

The SHSP was developed through a collaborative process involving agencies and organizations that have an interest or role in safety on New Hampshire highways. The NH Department of Transportation led the process and was provided support from the many volunteers from other federal and state agencies and private organizations. Top management's support for the SHSP and its strategies was felt to be critical for successful implementation. An Executive Committee, composed of the Commissioners and Administrators from state and federal agencies involved in highway safety, was formed to provide oversight and to make key decisions.

The development of the SHSP was launched on September 12, 2006 at a safety stakeholders meeting attended by approximately 40 individuals with an interest or role in highway safety. The meeting was facilitated by a FHWA representative from Washington, DC, and involved state, regional, and federal agencies and private organizations. The meeting was held to explain the purpose of a SHSP and to ask the safety partners to identify key safety issues (6 to 8 emphasis issues), which they felt were the most critical in reducing fatal and serious injury crashes on New Hampshire roadways. Crash information for NH roadways was presented to identify the magnitude of the problem for each of the 23 safety emphasis areas to help in the selection of the New Hampshire's major safety emphasis areas. The crash information was developed

from a database from the Department of Safety Motor Vehicle Division, the website information from the New Hampshire Highway Safety Agency, and NHTSA.

The meeting attendees identified eight (8) safety emphasis areas, which they felt were critical in reducing crashes. At this meeting, safety emphasis working groups were formed for each of the safety emphasis areas identified by the meeting attendees, and these emphasis groups were asked to develop strategies for their particular safety issue. These emphasis groups met individually to identify strategies and develop work plans for each of the strategies. A draft of the SHSP strategies and work plans was presented at a stakeholders meeting on April 4, 2007. At the meeting, further input was gathered from the stakeholders and the safety emphasis groups made adjustments to their strategies based upon the input from that meeting.

### **Emphasis Areas**

The critical safety needs in New Hampshire identified by the stakeholders to have the greatest potential for reducing crashes included the following:

- Improving Crash Data
- Increasing Seat Belt Use
- Improving Adolescent (16 to 20) and Elderly (70+) Driver Safety
- Reducing Lane Departure
- Addressing Reckless Driving Behavior
- Reducing Impaired Driving
- Addressing Special Users (Motorcyclists, Pedestrians, Bicyclists, and Commercial Vehicles)
- Improving Emergency Medical Services

### **Action Plan**

The SHSP is a living document that will be revisited and modified as implementation proceeds. The recommended strategies in the SHSP serve as a starting point in a collaborative effort to address crashes on New Hampshire's highways. In order for the recommended strategies to be successful, it will be essential for agencies and organizations identified in the strategies to oversee the implementation of these strategies, to assign responsibility for implementation of the strategies, monitor the performance measures, and review and revise the SHSP as necessary. A number of strategies have already begun and in some cases have recently been completed. The remainder of the strategies will require further development of the action plans. Some strategies will be accomplished over the coming year and the remainder will require longer time frames to accomplish. The following are recommended actions to insure the goal of the SHSP is reached:

- Implementation  
It is recommended that five Functional Area Groups be formed: Enforcement, Education/Outreach, Engineering, Emergency Medical Services, and Data. These Functional Area Groups will be composed of a diverse group of individuals and will be responsible for developing the strategies and work plans that are specific to their group's functional area (ie. The Enforcement Functional Area Group

would develop the Seat Belt Enforcement strategy). They would also be responsible for working with the agencies and organizations associated with the strategy to ensure appropriate actions are taken to implement the strategy and evaluate the performance measure of the strategy indicated in the SHSP.

It is recommended that a Core Strategy Group be formed, which will be made up of the leaders of each Functional Area Group. This Core Group would be responsible for evaluating the overall progress of strategy implementation, evaluating the performance of the plan strategies as a whole, and evaluating the safety needs and emphasis areas for making appropriate changes over time.

The Executive Committee will continue and be responsible for providing overall direction to the SHSP implementation, evaluation, and updating processes.

- SHSP Update Process

The SHSP will be reviewed on a yearly basis to determine its effectiveness in reducing fatalities and serious injuries in light of the various strategies and performance measures outlined in the plan. The Functional Area Groups will evaluate each of their specific strategies and the leader for each group will brief the Core Strategy Group quarterly on the progress and effectiveness of their group's strategies. If the Core Group feels there needs to be an adjustment made to the SHSP strategies or safety emphasis areas, they will make a recommendation to the Executive Committee to update the SHSP accordingly. Upon approval of the recommendations, the Core Group will work with the Functional Area Groups to incorporate the approved changes into the plan and implement any new strategies identified.

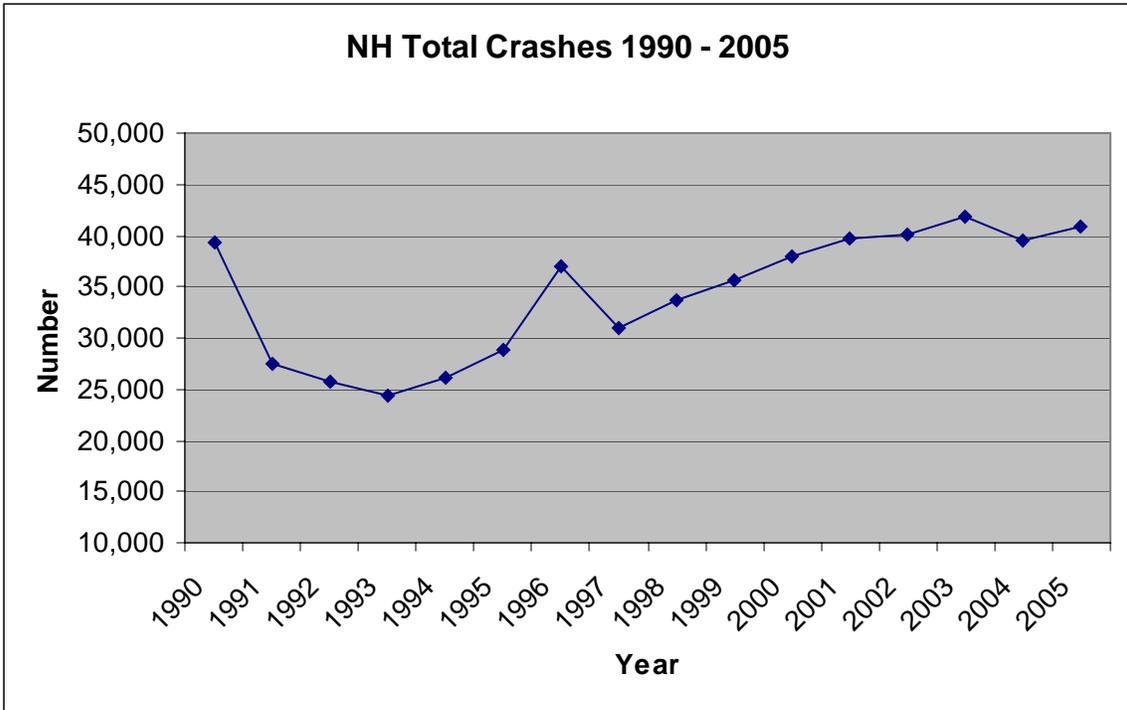
## Crash Trends

The roadway system in New Hampshire consists of approximately 17,000 miles of roads of which approximately 28%, or 4,800 miles, are maintained by the State. This leaves about 12,215 miles of “Local” roads that are maintained by the various Towns and Cities. Of those State maintained roads, approximately 800 miles are on the National Highway System (NHS) and are classified as Interstate or State Primary Routes, while the remaining 4,000 miles of State maintained roads are Non-NHS, or State Secondary Routes (see Table 1 for a complete breakdown of NH’s roadway system)

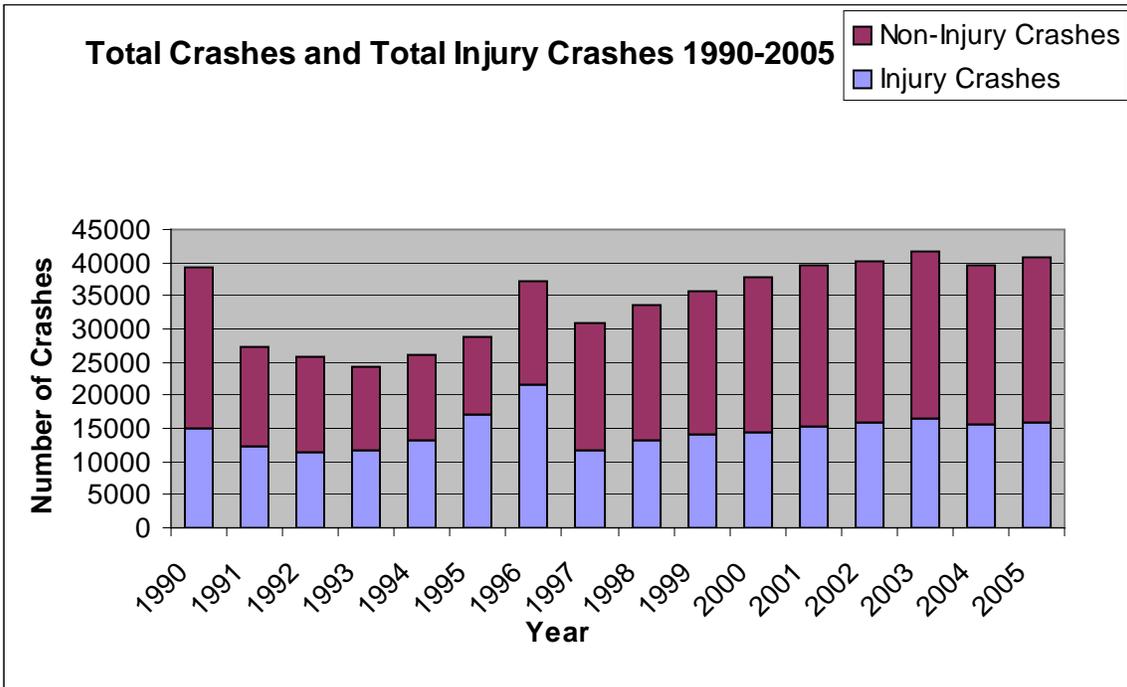
<b>New Hampshire Roadway System (2004)</b>	
	Miles
Total Road System	17,029
State Maintained (28%)	4,814
Non-State Maintained (72%)	12,215
State Maintained System:	
NHS Roads (Total 782 miles)	
Interstate Highway	225
State Primary Roads	
Non-Interstate Turnpike Highway	52
Non-Interstate & Non-Turnpike	505
Non-NHS Roads (Total 4,032 miles)	
State Secondary Roads	
Numbered Routes	2,567
Unnumbered Routes	1,465

**Table 1: New Hampshire Roadway System**

The total number of crashes on New Hampshire roads can be found within Table 2. This represents all crashes regardless of roadway classification or maintenance jurisdictions. The total number of crashes on New Hampshire’s roads has been constantly increasing since the low of just fewer than 25,000 crashes in 1993 to a level of 41,000 as of 2005.



**Table 2: Total Statewide Crashes in New Hampshire from 1990 - 2005**

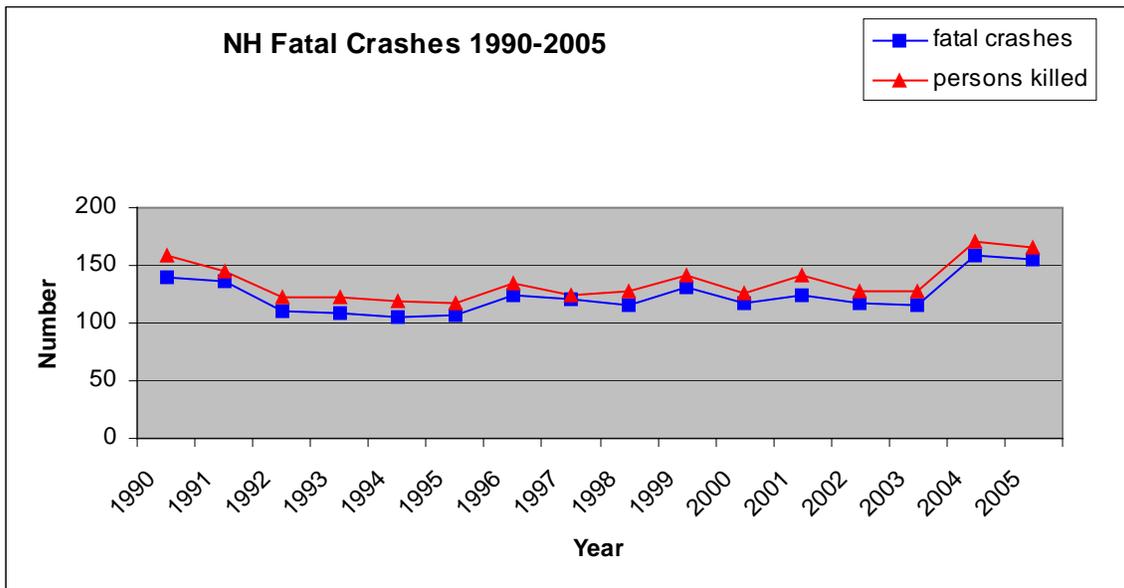


**Table 3: Statewide Crashes and Injury Crashes for 1990-2005**

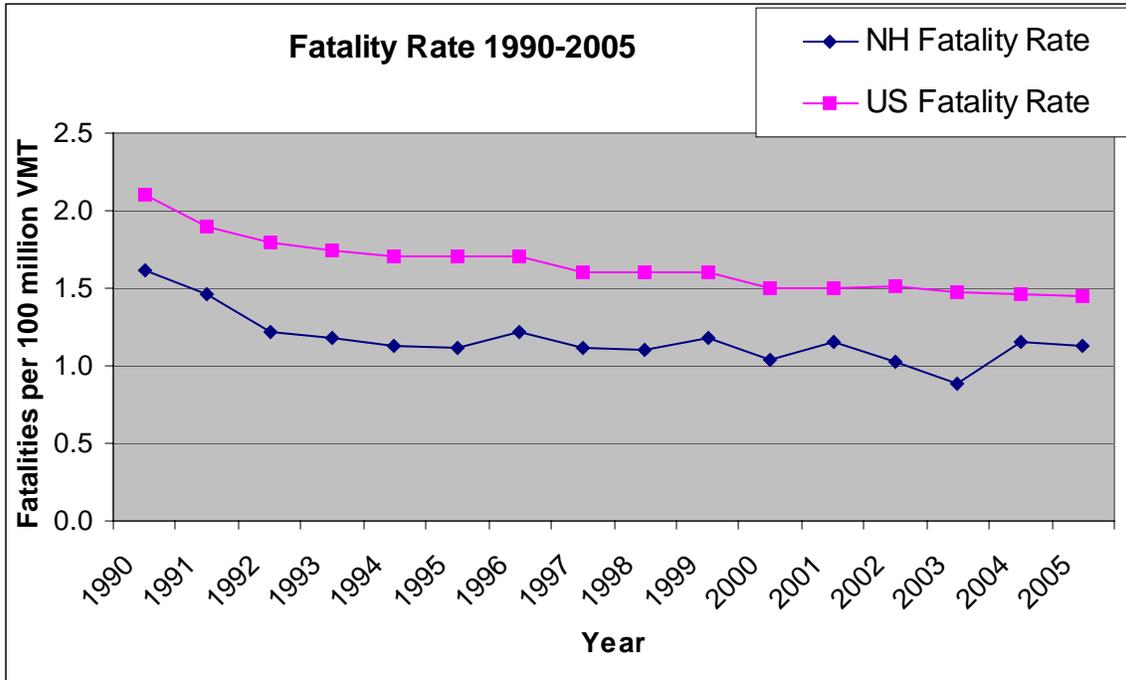
With regards to fatalities on New Hampshire's roads the State has seen a relatively level number of fatal crashes over the last 10 years with the number varying between 120 to 140 per year. The number of fatalities climbed to 171 in 2004 and 166 in 2005. Table 4 gives a representation of the statewide number of fatal crashes and

fatalities on New Hampshire roads. Since the number of drivers, number of vehicles on the road, and miles traveled per year are constantly changing; the measure of fatalities is based upon a rate per miles traveled. The national standard that is used to measure fatalities is the number of fatal crashes per 100 million vehicle miles traveled. The national rate of fatalities is currently (as of 2006) 1.42 fatalities per 100 million vehicle miles traveled (MVMT). The rate of fatalities on New Hampshire roads for 2005 was 1.13 fatalities per 100 MVMT. The rate over the last 10 years has been decreasing slightly but in recent years has leveled out. The New Hampshire rate has kept pace with, and paralleled, the decrease in the national fatality rate. A comparison of the trends in the New Hampshire and the national fatality rate can be seen on Table 5.

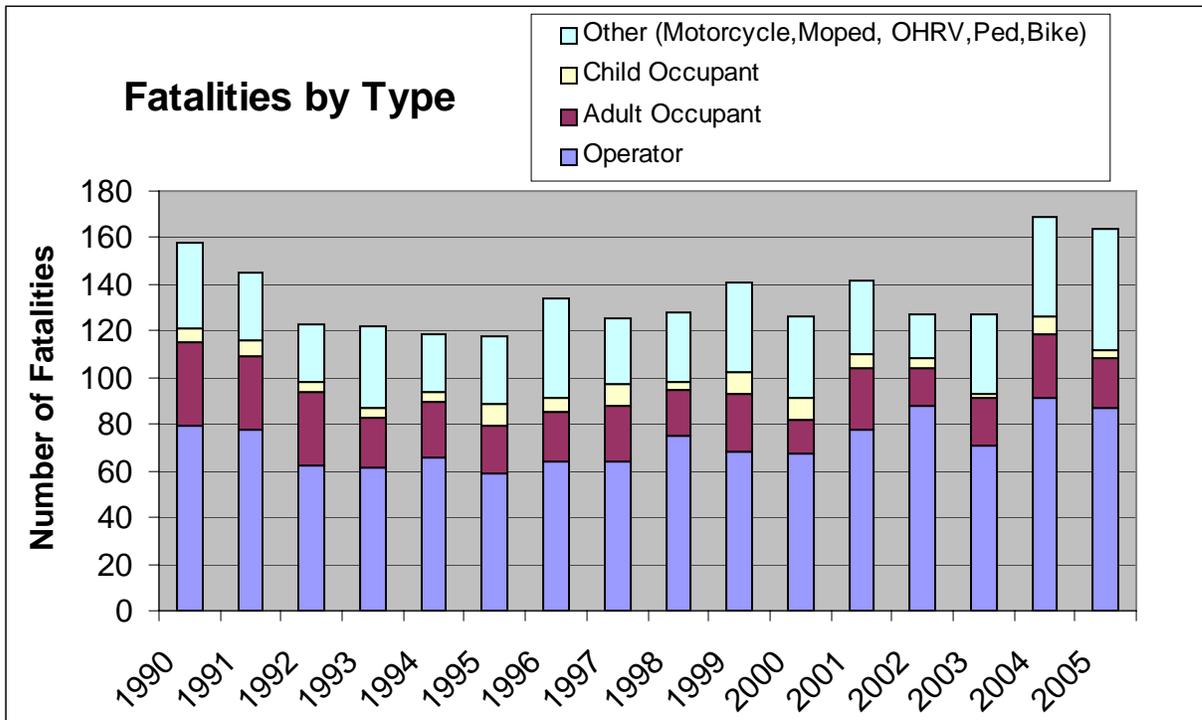
The intent of this plan is to continue the decrease in the fatality rate on New Hampshire’s roadway system by decreasing the number of fatal crashes. The national effort being brought forward by USDOT, and others is to decrease the overall national fatality rate by 30% from 1.42 to 1.0 fatalities per 100 MVMT by 2011. This would represent a national decrease of about 9,000 fatalities per year.



**Table 4: Total Statewide Fatal Crashes in New Hampshire from 1990-2005**



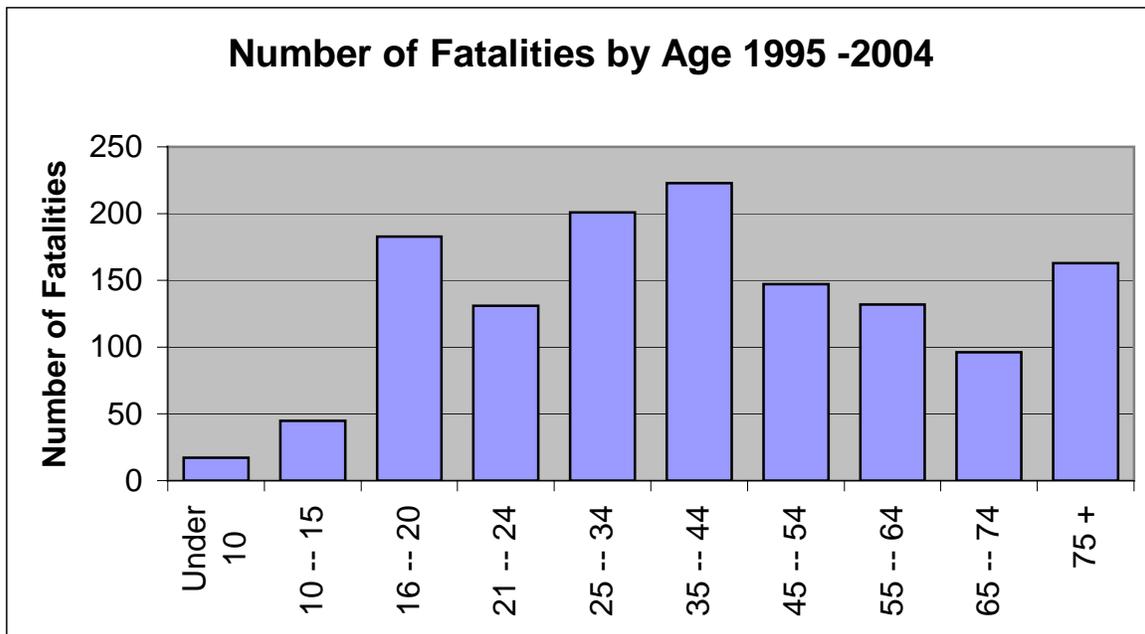
**Table 5: Fatality Rate on New Hampshire Roadways for 1990 - 2005**



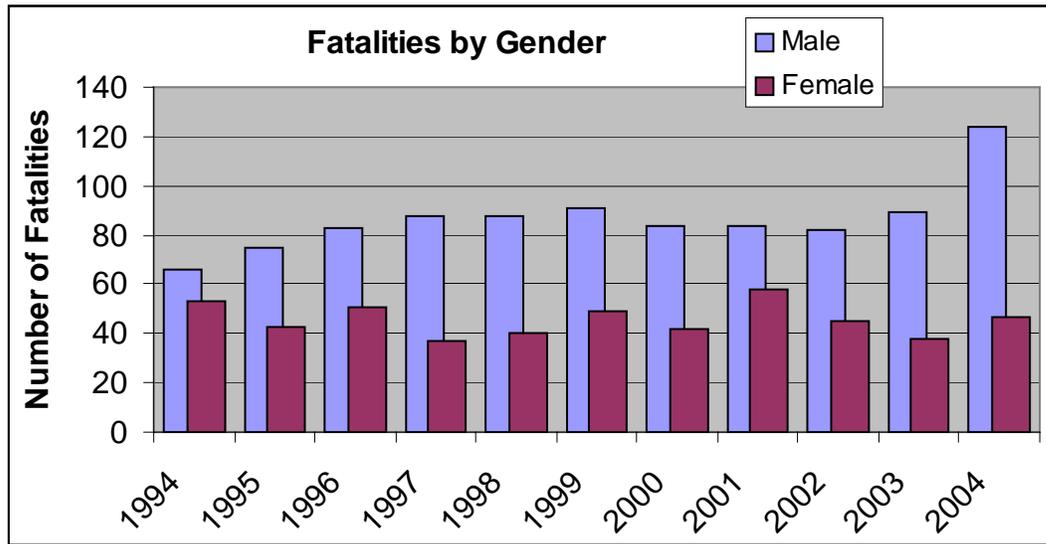
**Table 6: Fatalities by Type for 1990 - 2005**

Comparison 1998-2005	1998	1999	2000	2001	2002	2003	2004	2005	% Change 98-05
Total Crashes	33,686	35,558	37,920	39,639	40,190	41,843	39,555	40,885	21.37%
Fatal Crashes	115	131	117	124	117	116	158	156	35.65%
People Injured	13,272	14,010	14,440	15,323	15,835	16,486	15,585	15,965	20.29%
People Killed	128	141	126	142	127	127	171	166	29.69%
New Hampshire Fatal Rate (100MVT)	1.1	1.18	1.04	1.15	1.02	0.96	1.16	1.13	2.73%
United States Fatal Rate (100MVT)	1.6	1.6	1.5	1.5	1.51	1.48	1.46	1.45	-9.38%
Travel in 100 MVT	115.73	118.94	120.21	123.15	125.78	142.51	147.01	146.49	26.58%
Licensed Drivers	909,620	928,854	940,328	948,863	963,986	979,316	991,799	1,021,305	12.28%
Registered Vehicles	1,165,925	1,224,750	1,231,322	1,307,712	1,340,656	1,354,448	1,417,595	1,400,713	20.14%
Population	1,173,000	1,201,134	1,235,786	1,235,786	1,259,030	1,291,573	1,306,000	1,310,000	11.68%

**Table 7: Crash and Driving Statistics for New Hampshire 1998-2005** (from NHSA)



**Table 8: Number of Fatalities by age**



**Table 9: Number of Fatalities by Gender**

# Emphasis Area 1: Improving Crash Data

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## **Background**

New Hampshire (NH) is striving to reduce highway injuries and fatalities by improving the timeliness, accuracy, completeness, uniformity, integration, and accessibility of its highway safety and traffic records systems. Through the implementation of the Strategic Highway Safety Plan (SHSP), NH will achieve an efficient and timely process for capturing crash data, sharing data with stakeholders for analysis and reporting, and distributing data-driven information to the public.

The Strategic Highway Safety Plan (SHSP) is a data-driven approach to address highway safety needs by targeting Engineering, Education, Enforcement, and Emergency Medical Services, commonly known as the four Es. The strength of the SHSP is in its ability to identify, analyze, prioritize, and evaluate reliable data in support of identified emphasis areas and strategies.

New Hampshire's highway safety data and traffic record systems include traffic crash data systems, traffic citation and adjudication systems, and emergency medical/injury surveillance systems, driver licensing and driver history systems, and road inventory systems. These data systems were created for specific needs and reside in multiple agencies. Sharing, integrating, and accessing these data systems has become a necessity in order to meet the needs of State, regional, local, and federal agencies for timeliness, accuracy, completeness, and uniformity of data; for data that is accessible through user friendly analysis and reporting tools; and to support the development, implementation and evaluation of highway safety strategies and initiatives.

By implementing strategies in the following goals, highway safety data and traffic records systems will be improved and able to assist in the reduction of fatal and serious injuries through the ability to identify, analyze, prioritize, and evaluate reliable data.

- Goal 1: Strengthen support and provide sustainable funding for the improvement and coordination of various state, county, and local safety data systems
- Goal 2: Evaluate existing traffic records systems
- Goal 3: Improve the efficiency of data capture, improve reporting and data analysis, and provide access to data
- Goal 4: Expand data analysis resources and expertise

## **Historic Trends**

New Hampshire's highway safety data and traffic records systems are primarily stand-alone systems that were designed for specific needs and targeted users. Sporadic efforts have taken place over the years to improve crash data collection and analysis, but these

efforts have been held back by a lack of funding and numerous changes in the direction of the state's information technology resources.

In 2003, the state implemented the Office of Information Technology (OIT), under a Chief State Technology Officer, in an effort to focus state IT resources. Ownership of all agency data processing equipment and the supervision of all agency IT employees was transferred to this new agency.

Currently, NHDOS is engaged in several multi-year projects including: MAAP/VISION to create a fully relational database for all DMV records, J-ONE that aims to link the criminal justice system (state, county and local law enforcement, state and county corrections, probation/parole and the courts) together, and the Crash Record Management System (CRMS) to improve the crash data capture and reporting system.

Through the development of fully relational databases across departmental and agency lines, accuracy and timeliness of data can be improved and current labor-intensive processes streamlined. Interoperability between and among data systems will enable databases to communicate with one another in a common language and will facilitate a variety of ad hoc queries without labor-intensive programming efforts for each query.

### **Extent of the Problem**

New Hampshire's older highway safety data and traffic records systems need to be evaluated for user data needs and compliance with national standards. The older highway safety data and traffic records systems involve time-consuming and largely manual processes, specifically the traffic crash data system. These issues contribute to missing and inconsistent crash data and overdue or absent crash reports. These issues also impede the ability to analyze, report, link and share data. The 2006 New Hampshire Strategic Action Plan could only report data between 1999- 2004. In 2004 there were 39,555 motor vehicle crashes; approximately 48% (18,987) of these crashes were not locatable to New Hampshire's highways through GIS analysis.

### **Contributing Factors**

New Hampshire's electronic traffic crash data system is approximately 30 years old and has limited functionality and capabilities, which are not meeting today's needs. Limited law enforcement resources have made efficient crash data collection, data exchange, and reporting a necessity. Police agencies need the ability to target their enforcement efforts toward the days, times, and precise locations where the most crashes are currently occurring, and to focus their enforcement strategies to the types of violations that are the most prevalent causes of these crashes. Timely and accurate crash data will also foster collaboration between enforcement agencies and the NHDOT, to identify locations where changes in signage, altered traffic patterns and roadway improvements can work in tandem with enforcement efforts to reduce the incidence of human factors in crash causation.

## **Other Issues**

Specialized personnel, who are reaching retirement age, maintain NH's traffic crash data system. Replacement personnel are trained in newer technology and do not have the institutional knowledge and skill sets necessary to maintain these older systems.

## **Objective**

The intended outcome of this emphasis area is to improve the highway safety data and traffic record systems to reduce fatal and serious injuries through the ability to identify, analyze, prioritize, and evaluate reliable data. The following outline provides a description of the goals and strategies identified to achieve this outcome.

## **Goal 1 - Strengthen support and sustainable funding for the improvement and coordination of various state, county, and local safety data systems**

### Strategy - Strengthen Traffic Records Coordinating Committee (TRCC)

**Target:** Secure approval of the Traffic Records Executive Committee (TREC) to appoint identified staff to serve on the TRCC. The TRCC membership has been expanded to include individuals currently serving on the SHSP data emphasis work group.

**Implementation:** The New Hampshire's TRCC is an ongoing initiative.

**Time frame:** This was completed in early 2007

**Output:** A statewide coordinating committee that assures coordination of efforts and sharing of data between the various state, county and local safety data systems. The TRCC will enable the state to apply for and qualify for section 408 traffic records funds available under SAFETEA-LU.

**Outcome:** Coordination and data sharing among the various state, county, and local safety data systems and award of SAFETEA-LU section 408 funds.

**Funding:** No funding required

**Agencies involved:** NHHSA, NHDOS, NHDOT, H&HS, FHWA, NHTSA

**Measure of performance:** TRCC completes the Section 408 funds year one grant proposal by June 15<sup>th</sup>, 2007.

### Strategy: Legislative Safety Data Outreach Program

**Target:** Increase legislative support by providing a Legislative Safety Data Outreach Program.

**Implementation:** Outreach Program: a formal, periodic medium or meeting with Legislators and the Governor for educational outreach on highway safety data issues, initiatives, and developments.

**Time:** Short Term (1 to 2 years).

**Output:** This strategy would provide consistent, regularly occurring means to educate Legislators of safety data initiatives, needs, shortcomings, and other issues. It is hoped that this would raise the knowledge level and interest in safety data so that funding needs for initiatives could be met and legal limitations or other issues on the collection and use of data could be addressed in a timely manner.

**Outcome:** An established medium for regularly informing and updating the NH Legislators and the Governor of safety data system needs.

**Data:** No data is needed at this point

**Data Collection:** N/A

**Funding:** Funding requirements would be based on methodology used to communicate with and/or educate Legislators. It is believed this strategy could be accomplished with little or no funding required. Funding should not be an issue in implementing this strategy.

**Agencies Involved:** NHDOS, NHDOT, NHDHHS, NH Highway Safety Agency

**Measure of Performance:** Track Legislators' safety data awareness based on the outreach programs through surveys.

- 1) Increase Legislators' awareness of traffic hazards and proposed counter measures by 30% by 2012.

**Notes:** The key to success is to find a method that efficiently provides good information to the Legislators for them to make informed decisions. This effort will target the Chair and Vice-Chair of the House and Senate Transportation, Public Works, and Finance Committees. A potential roadblock might be with the large number of Legislators, it may require a number of methods to be effective. It will be important to identify potential safety champions or advocates among influential legislators, and provide them with the support and information they will need to effectively carry the safety message to their peers.

**Strategy:** Establish Dedicated Safety Data Funding

**Target:** Improve safety data in NH through strategic planning and related funding. This strategy would be used to address the consistent funding needed to address safety data deficiencies.

**Implementation:** Four initiatives support this strategy:

**Initiative 1:** Secure 408 traffic funds under SAFETEA-LU funding

**Initiative 2:** Educate keepers and users of safety data of the need for consistent funding for upgrades and improvements to safety data systems

**Initiative 3:** Develop a safety data systems improvement Strategic Plan, with associated costs, for updating and enhancing safety data systems.

**Initiative 4:** Develop a safety data improvement Financial Plan that establishes the costs and funding needs associated with implementing the objectives identified in the safety data strategic plan, and ensures that the budget requests of the involved agencies reflect these costs.

**Timing:** Short-term (1- 2 years).

**Output:** Establish a consistent, predictable funding means dedicated to safety data improvements.

**Outcome:** Systematic and efficient efforts to achieve goals set forth.

**Data:** We need to establish a strategic plan for updating and enhancing safety data systems. This will require a good understanding of the cost associated with the strategic plan objectives implementation so that a financial plan can be developed.

**Data collection:** Safety data collection will be a collaborative effort of the safety data keepers and user agencies and their partners. The same people would be needed to establish costs associated with the identified needs and development of an associated financial plan.

**Funding:** There is funding available through the NHTSA 408 program specifically dedicated to safety data improvement. There is also potential funding for safety data using FHWA HSIP funds and FMCSA funds for certain pieces of the safety data needs.

**Agencies Involved:** NHDOS, NHDOT, NHDHHS, NH Highway Safety Agency, NHTSA, FHWA, FMCSA.

**Measure of Performance:** Encumber a set amount of safety funds annually in each of the initiatives by 2010.

**Notes:** One key to success is to make sure the State is cognizant of the Federal funding agency requirements for receiving Federal grants/funding and to make sure all are met. A potential roadblock is that it takes personnel resources to meet the requirements and that often falls on one agency. Therefore, it is key to have an effective team of people from multiple agencies willing and able to meet these needs.

## **Goal 2: Evaluate existing traffic records systems**

Strategy: Conduct a National Highway Traffic Safety Administration (NHTSA) High-level Deficiency Evaluation of NH Traffic Record Systems

**Targets:** A high-level deficiency evaluation of New Hampshire's traffic record systems: crash, roadway, vehicle, driver, enforcement and adjudication, and injury surveillance. The evaluation identifies data items, data collection responsibility, data ownership, data storage, and data quality, which include timeliness, consistency, completeness, accuracy, accessibility, and data integration.

**Implementation:** The NH Highway Safety Agency (NHSA) will work with NHTSA Region 1 to schedule a one-day evaluation utilizing a NHTSA contractor.

**Time frame:** A NHTSA contractor conducted the one-day evaluation in New Hampshire on February 20, 2007.

**Output:** Personnel responsible for data collection, exchange, storage and reporting processes.

**Outcome:** Identified critical problem areas.

**Data needed:** N/A

**Data collection:** N/A

**Funding:** NHTSA

**Agencies involved:** NHTSA, NHSA, NHDOS, NHDOT, and law enforcement

**Measure of performance:**

- 1) Complete a one-day traffic record evaluation workshop to identify traffic records deficiencies.
- 2) Improve/Correct three of the identified data deficiencies in any of the 6 traffic records systems: crash, roadway, vehicle, driver, enforcement and adjudication, and injury surveillance by 2010.

**Notes:** This initiative will qualify NH for Section 408 funds.

Strategy - Conduct Traffic Record Assessment, NHTSA

**Targets:** An in-depth formal review of New Hampshire's safety data and traffic records systems.

**Implementation:** Independent experts, knowledgeable about highway safety data and traffic records systems, will conduct the assessment.

**Time frame:** Short term (1-2 years)

**Output:** Personnel responsible for data collection, exchange, storage and reporting processes,

**Outcome:** A concise, focused list of recommendations to improve New Hampshire's data systems. This initiative will meet one of the criteria to enable the state to qualify for subsequent year Section 408 funds.

**Data needed:** N/A

**Data collection:** N/A

**Funding:** New Hampshire Highway Safety Agency (NHHSAs)

**Agencies involved:** NHHSAs, NHTSA, NHDOS, NHDOT, NH Unified Court System, H&HS, and law enforcement.

**Measure of performance:** Increase the number of crash data items that meet national compliance, Model Minimum of Uniform Crash Criteria (MMUCC) guidelines from 50% to 75% by the year 2009.

**Goal 3: Improve the efficiency of data capture, improve reporting and data analysis, and provide access to data**

**Strategy: Continue Support for the Development and Implementation of the Crash Record Management System (CRMS) Project and Planned Phases.**

**Target:** The CRMS targets State and local law enforcement and government agencies need for efficient crash data capture, data exchange, data storage, and reporting processes.

**Implementation:** The CRMS is an ongoing initiative, which is the collaboration of efforts from NHDOT, NHDOS, and Resource Computing Center (RCC) @ UNH.

**Timing:** Medium term (1 to 2 years)

**Output:** The completion of the CRMS and planned phases to improve the efficiency of data capture through license barcode scanning and integrated justice information.

**Outcome:** Increase in highway safety by reducing injuries and fatalities through the efficient, timely and streamlined process for capturing crash data and the sharing of the information among all parties concerned for effective analysis and reporting. Increase locatable crashes to 80% by 2015.

**Data:** The CRMS will use the enhanced crash data elements as described in the strategy for enhanced traffic crash data.

**Data Collection:** State and local law enforcement will collect the crash data. No additional cost is associated with this initiative.

**Funding:** This initiative is being funded with Federal Highway Funds (\$850,000).

**Agencies Involved:** Department of Safety and Department of Transportation.

**Measure of Performance:** Implementation of the Crash Record Management System

- 1) Implementation of the Crash Record Management System to all State law enforcement by 2009.
- 2) Increase local law enforcement's electronic crash data submittal from 0% to 50% by 2010 and to 90% by 2012.

Strategy: Enhance Traffic Crash Data Collection Items: DMV Traffic Accident Report, Form DSMV-159, DSMV-160, and DSMV-161

**Target:** A comprehensive review of traffic crash data items focusing on user's data needs and compliance with national standards for items on the NHDOS, Division of Motor Vehicles traffic accident report, form DSMV-159, DSMV-160, and DSMV –161.

**Implementation:** This initiative is in conjunction with NHDOS/NHDOT Crash Record Management System (CRMS) project.

**Time:** Short Term (6 months to 18 months).

**Output:** Evaluation of NHDOS, Division of Motor Vehicles traffic crash reports.

**Outcome:** This strategy will produce a comprehensive evaluation of NH's crash data needs, compliance with national standards, and links to other highway safety data and traffic record systems.

**Data:** The enhanced crash data elements as defined in this strategy.

**Data Collection:** State and local law enforcement are responsible for collecting and reporting traffic crash data.

**Funding:** This initiative is being funded with Federal Highway Funds (\$50,000).

**Measure of Performance:** Increase the number of locatable crashes using GIS tools from 40% to 50% by the year 2009 and to 75% by the year 2012.

Strategy: Link Crash and Medical Outcome Data Sets to Develop an Integrated Data System to Facilitate Population-based Outcome Measurements, Geographic Comparisons, Trend Analysis, and Research.

**Target:** The target is to further develop health outcome data sets (EMS, Trauma Center, Hospital Inpatient, Ambulatory, and Death data) to link with crash data in order to provide population-based outcome measurements, facilitate geographic comparison, monitor trends, and provide research opportunities.

**Implementation:** Develop data linkages between crash and health outcome data to augment crash outcomes including cost, severity, disability, and types of injury.

**Time:** Medium term (3 to 5 years)

**Output:** This linkage of outcome data from motor vehicle crashes

**Outcome:** Methods and processes to acquire, link, and analyze data from motor vehicle crashes

**Data:** Crash data from NHDOS and NHDOT, EMS and Trauma Center data from NHDOS, Emergency Department and hospitalization data from NHDHHS

**Data Collection:** Crash data from NHDOS and NHDOT, EMS and Trauma Center data from NHDOS, Emergency Department and hospitalization data from NHDHHS

**Funding:** DOT NHTSA 408 and anticipated restraint funding

**Agencies Involved:** NHDOS, NHDOT, NHDHHS

**Measure of Performance:** Enhancing three of the five health outcome data sets (EMS, Trauma Center, Hospital Inpatient, Ambulatory, and Death data) to link effectively with the crash data system.

Strategy: Develop and Conduct Crash Data Collection Training

**Target:** Training for State and local law enforcement responsible for completing NHDOS, Division of Motor Vehicles traffic accident report, form DSMV-159, DSMV-160, and DSMV –161.

**Implementation:** Training programs need to be implemented through various resources available to the State, such as the NH Police Standards & Training Council, Department of Safety, Department of Transportation, and Technology Transfer Center @ UNH.

**Timing:** Short Term (1 to 2 years).

**Output:** Training courses that target new law enforcement personnel and refresher courses for active law enforcement personnel.

**Outcome:** Increase in the accuracy, completeness, and uniformity of crash data. Increase locatable crashes to 75% by 2010.

**Data:** This strategy addresses data contained on the NHDOS, Division of Motor Vehicles traffic accident report, form DSMV-159, DSMV-160, and DSMV –161.

**Data Collection:** State and local law enforcement will collect the crash data. No additional cost is associated with this initiative.

**Funding:** This initiative may be funded with Federal Highway Funds (\$50,000).

**Agencies Involved:** NH Police Standards & Training Council, Department of Safety, Department of Transportation, and Technology Transfer Center @ UNH.

**Measure of Performance:** Training for the new Crash Record Management System

#### **Training**

- 1) Train all new state and local law enforcement officers, through Police Academy, by 2009.
- 2) Train 75% of veteran State law enforcement by 2009
- 3) Train 50% of veteran Local law enforcement by 2010

#### **Data Deficiencies**

- 1) Reduce crash data deficiencies from 35% to 10% by 2010

Strategy: Develop a Centralized Traffic Record Data Repository (Traffic Record Data Warehouse)

**Target:** All users of highway safety data and traffic records systems. The traffic record data warehouse will be accessible to all state and local government, private businesses, and citizens; data accessibility will be regulated based on sensitivity.

**Implementation:** The traffic records data warehouse initiative is identified in the CRMS project.

**Timing:** This initiative is medium term (2 to 3 years). The traffic records data warehouse is the reporting and analysis portion of the CRMS and is scheduled to be completed after the data capture and process phases.

**Output:** Accessibility to traffic records data by all users through user-friendly analysis and reporting tools. Reporting will include predefined and user specified reports with the potential for interactive GIS mapping displays and analysis.

**Outcome:** Increase ability to analyze and report crash data to support counter-measures to reduce fatal and serious injury crashes 10% by 2015.

**Data:** The crash data warehouse will store traffic records data and other essential data sets for analysis and reporting.

**Data collection:** The Department of Safety, Department of Transportation and other State and federal agencies will contribute to the warehouse.

**Funding:** The Department of Transportation is funding the data warehouse project, which will be supported and maintained by the Office of Information Technology.

**Agencies Involved:** The Department of Safety, Department of Transportation, and the Office of Information Technology.

**Measure of Performance:** Accessibility of crash data

- 1) Increase accessibility to crash data by 50 % of NHDOT staff for analysis and reporting by 2010.
- 2) Increase accessibility to crash data to three other state agencies: EMS, DHHS, and DMV by 2012.

Strategy: Develop a Mechanism to Provide Public Access to Known Crash Locations in Viewer's Town or in the State, Utilizing Existing On-line Mapping and Report Tools

**Target:** To achieve better understanding by the public of crash data, there is a need for the New Hampshire Department of Transportation to publicize the benefits and shortcomings of the crash data systems in the state.

**Implementation:** Development of a system for the public to access and view the known locations of traffic crashes in New Hampshire.

**Time:** Short Term (1 to 2 years).

**Output:** This strategy would provide a consistent, regularly updated means to allow the public to view crashes in their town or the state. This initiative is to raise the knowledge level and interest in safety data by the public so that grassroots efforts will take place in improving the quality and quantity of information.

**Outcome:** An established method for the public to access and view crash information through NH GRANIT, the statewide geographical information system (GIS).

**Data:** Crash data processed by NHDOS and NHDOT.

**Data Collection:** NHDOS

**Funding:** GRANIT is supported by state agencies to deliver core services, with these funds supplemented by project-specific agreements with various organizations.

**Agencies Involved:** NHDOS, NHDOT, and NH Highway Safety Agency (NHSA)

**Measure of Performance:** Accessibility of crash data through GRANIT's web based interactive data mapper.

- 1) Increase direct accessibility of public crash data from 0% to 100% by 2010.

**Notes:** The key to success is to find a method that efficiently provides good information to the public and that the public will be made aware of this information

#### **Goal 4: Expand Data Analysis Resources and Expertise**

Strategy: Begin Analysis of Partial Data Sets for Incorporation into Commonly Prepared Plans, Studies, and Outreach Materials

**Target:** Effective analysis of the highway safety data and traffic record systems requires knowledge of both the structure and characteristics of the data sets. This type of analysis will require specialized expertise that is not commonly available among GIS staff members at the NH DOT or NH DOS, or the regional planning commissions. This strategy will focus on training programs and resource development to equip appropriately placed specialists to conduct the data analysis.

#### **Implementation:**

**Initiative 1:** Develop a "cookbook" of step-by-step instructions for using the data sets to carry out specific desired types of crash data analysis

**Initiative 2:** Develop and provide a training course for GIS staff members at NH DOS, NH DOT, Metropolitan Planning Organizations and consultants to enable access to data, conduct appropriate analysis, and incorporate resulting analysis products into studies, plans and outreach materials

**Initiative 3:** Complete a literature review to identify existing resources that have been identified in other states

**Time:** Short term (1 – 2 years). Resource development and training could begin immediately using existing partial data sets. In this fashion, the required expertise would already be in place when more complete datasets became available in future years.

**Output:** Two types of output are anticipated:

- 1) Cookbook – A standard resource could be developed providing step-by-step instructions on using the data sets to carry out specific desired types of crash data analysis.

- 2) Training – A training course would be developed for GIS staff members at NH DOS, NH DOT, Metropolitan Planning Organizations and consultants to enable them to access the data, conduct appropriate analysis and incorporate the resulting analysis products into studies, plans and outreach materials as needed.

**Outcome:** Actual analysis of the system data, and incorporation into commonly prepared plans, studies and outreach materials.

**Data:** Activities can start with the data set in its current form. Ultimately, the quality of the analysis will improve as the completeness of the data set increases and as a number of years of data become available.

**Data Collection:** A literature search should be carried out to identify existing resources that have been developed in other states.

**Funding:** Development of the cookbook and training is estimated to be less than \$50,000. Funding opportunities could come from the potential safety funds or grants that could become available from FHWA.

**Measure of Performance:**

**Initiative 1:** Develop a “cookbook” of step-by-step instructions for using the data sets to carry out specific desired types of crash data analysis

**Initiative 2:** Develop and provide a training course for GIS staff members at NH DOS, NH DOT, Metropolitan Planning Organizations, and consultants

**Initiative 3:** Complete a literature review to identify existing resources that have been identified in other states

## Emphasis Area 2: Increase Seat Belt Use

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### **Background**

This emphasis area includes highway crashes in which vehicle occupants not restrained with seat belts suffered fatal or incapacitating injuries. Seat belts reduce the risk of fatal or serious injury crashes by reducing the risk of occupant ejection from the vehicle; spreading the crash forces over the strongest bones of the body; keeping the driver behind the wheel and in control; and preventing unbelted occupants from injuring others in the vehicle.

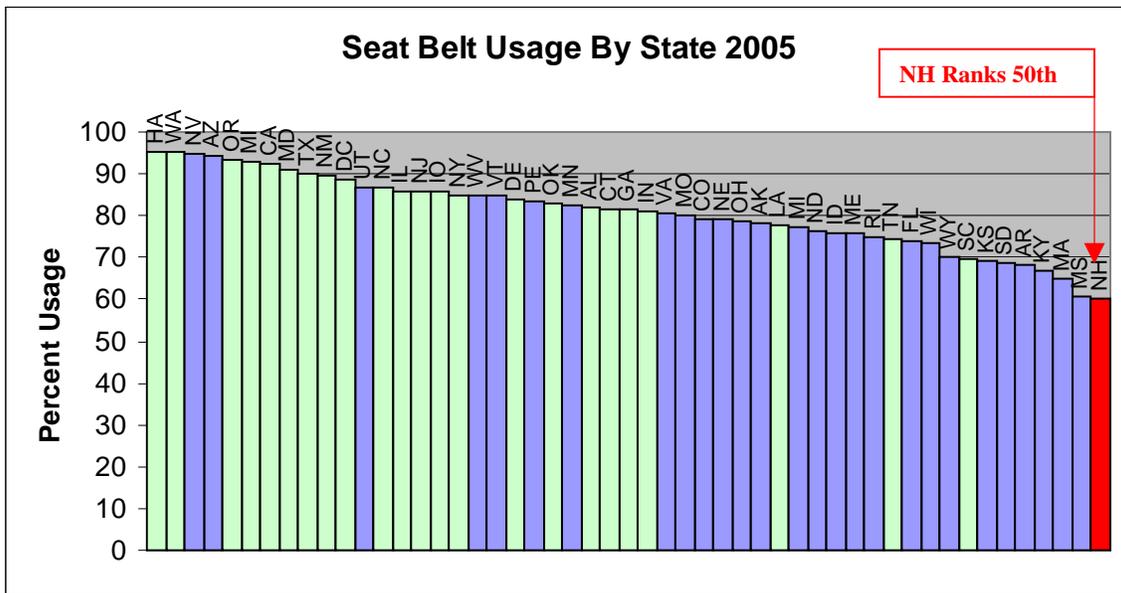
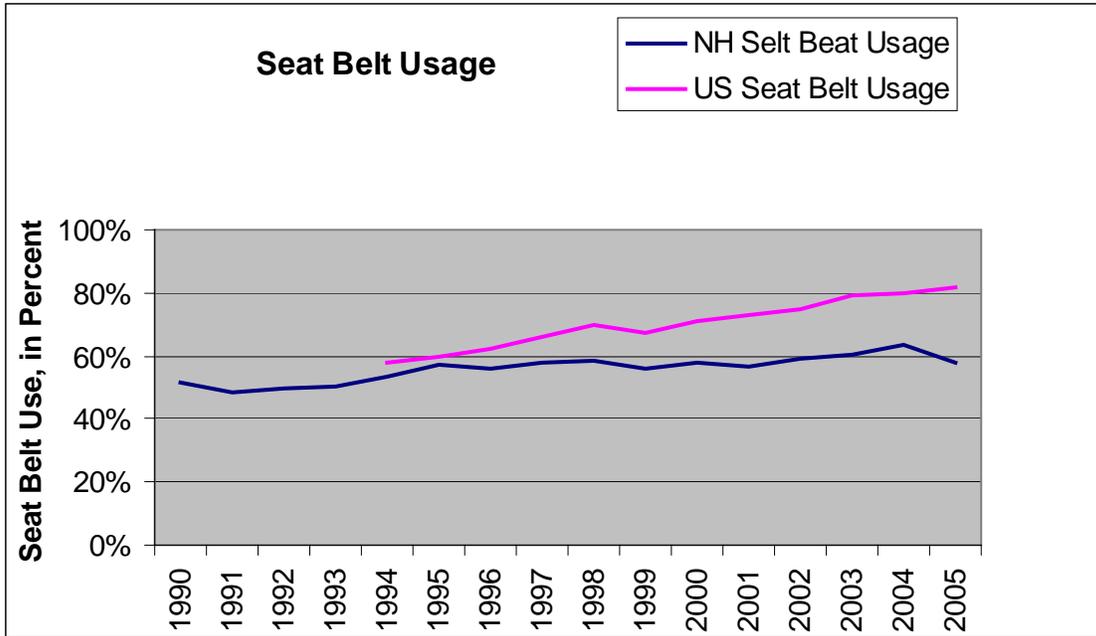
Many studies have been done on the effectiveness of occupant restraints, and they continue to show that vehicle occupants are about 50 percent more likely to be hospitalized from crash related injuries if they were not wearing a seat belt at the time of the crash (Boyle and Sharp, 1997a, 1997c). The National Highway Traffic Safety Administration (NHTSA) reports that the average hospital costs for crash victims who were not wearing seat belts are 50% higher than for those who were wearing seat belts. NHTSA estimates that highway related deaths and injuries that resulted from not using seat belts cost society nationally an estimated \$26 billion annually in medical care, lost productivity, and other injury related costs.

New Hampshire ranks 50<sup>th</sup> of all states in seat belt usage, with a seat belt usage rate in 2006 of approximately 63% (NH Highway Safety Agency survey). This, compared to the 2006 US average seat belt use of 81% (NHTSA NOPUS Survey), shows that New Hampshire is well below the national average. The chart showing the NH Seat belt use versus the US Seat belt use also shows that the NH voluntary seat belt use rate is slipping compared to the nation as a whole.

### **Historical Trends**

The 2006 New Hampshire Strategic Action Plan reports that for the time period of 2003 to 2005, there were 332 occupant fatalities, and of the occupants that died in motor vehicle crashes, 218 occupants or 65.7 percent were unrestrained. In New Hampshire, crash victims who were not wearing a seat belt were four times more likely to be killed than those who were wearing a seat belt.

The NH Department of Safety reported that in New Hampshire, from 1993 to 2000, unbelted occupants were more than twice as likely to suffer an incapacitating injury as those who were wearing a seat belt and 20 times more likely to be ejected from their vehicles. NHTSA reports that occupants that are ejected from their vehicles are 11 times more likely to suffer a traumatic brain injury than those who remain inside.

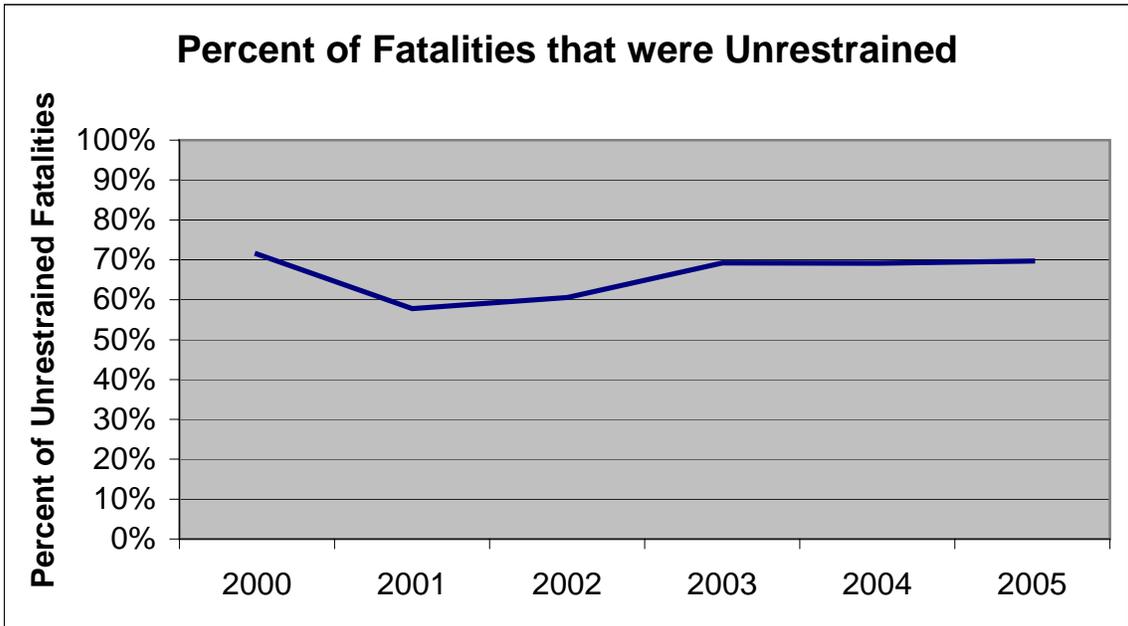
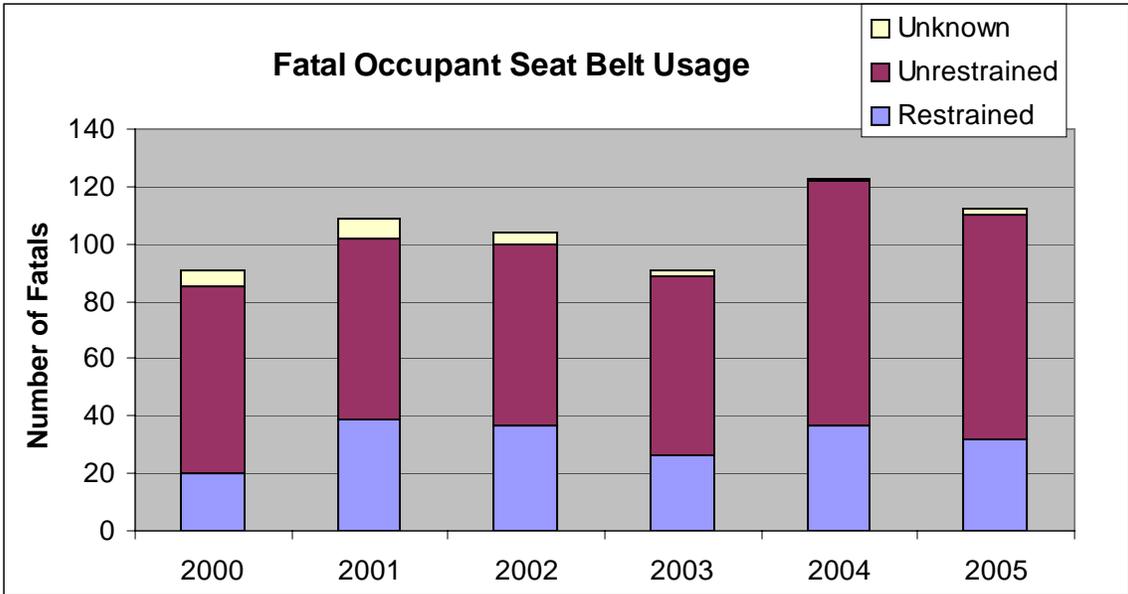


Source: NHTSA Traffic Safety Facts Nov. 2005

Green States have Primary Seat Belt Laws

Blue States have Secondary Seat Belt Law

NH has no Adult Seat Belt Law



**Extent of the Problem**

In 2005, 70% of NH occupants killed were not wearing a seat belt (NH Highway Safety Agency). A look at restraint use by age of operators in fatal crashes indicates that the lowest seat belt use is among those between 21 and 54 years of age.

## **Contributing Factors**

Overall, in NH, drivers of pick-up trucks were consistently found to have the lowest seat belt usage rate. In the NH Highway Safety Agency surveys between 2003 and 2005, seat belt use rates among pick-up truck drivers averaged 41% compared to 64% among drivers of all other vehicles.

## **Other Issues**

It is important to note the correlation between the use of seat belts among drivers and the children that are occupants in their vehicles. Children are two to three times more likely to be properly restrained when the driver is buckled than when s/he is not.

## **Objective**

The goal of this emphasis area is to reduce the number of fatal crashes in which occupants are not wearing a seat belt by increasing the overall seat belt usage rate from 63 percent to 83 percent by 2010.

## **Strategies**

- Pass legislation for a primary seat belt law.
- Continue and expand educational programs to promote and encourage the use of seat belts.
- Increase enforcement of existing occupant protection laws.

### Strategy – Pass a Primary Seat Belt Law

**Target:** A seat belt law would be intended to include all drivers and vehicle occupants in New Hampshire, with the exception of people riding in exempted vehicles (for example, vehicles for hire, school buses over 10,000 pounds, vehicles manufactured without seat belts) and those with a health condition that contraindicates it.

**Implementation:** Legislative action. A bill (HB 802) was introduced in the NH legislature in early 2007 for passage of a primary seat belt law. It passed the House, but was defeated in the Senate. There was an amendment to HB 533 to establish a committee to recommend a comprehensive plan to increase seat belt use.

**Time:** Short Term (1 to 2 years).

**Output:** This strategy will require public outreach and lobbying by business and motorist groups and public agencies including the NHDOT, to encourage active support for the primary seat belt law. Form a coalition to provide Legislative representatives evidence of success in reducing fatal and serious injury accidents with a seat belt law, as well as educating the public and encouraging them to contact their Legislative representatives to support the passage of a primary seat belt law.

This strategy should also support the efforts of the committee established in HB 533 to increase the use of seat belts.

**Outcome:** Increase seat belt usage by 20%, leading to less fatal and serious injuries and ultimately reducing healthcare and related costs.

**Data:** Need TEMSIS data, seat belt use, number of fatal and serious injury crashes, number and percentage of unbelted fatal and serious injury crashes, and number of seat belt citations issued for child passenger restraint. Cost of serious injury and death in motor vehicle crashes. Impact of costs of serious and fatal motor vehicle crashes on segments of society (families, businesses, etc.)

**Data Collection:** Data for seat belt use, unbelted fatalities, etc is collected by the Department of Safety and the NH Highway Safety agency. Cost statistics for crashes may be derived from NHTSA data.

**Funding:** Some programs for this emphasis area could be funded with a portion of the 10% flexibility in the Highway Safety Funds (\$500,000). There is also a one-time incentive available to states that implement a qualifying primary seat belt law, which is estimated to be approximately \$3.7 million. This one-time incentive is available until July 1, 2009. It should also be noted that additional incentive money maybe available to states (that qualify for the primary seat belt law incentive) from a redistribution of funds.

**Measure of Performance:** Passage of a Primary Seat Belt Law. The measure of how well a seat belt law is working can be monitored in the future by the NH Highway Safety Agency survey of the usage of seat belts. In addition, in the future the data on the number of unbelted fatalities and the percent of unbelted fatalities collected by the Department of Safety will be used to determine the effectiveness. The number of citations issued for violations of the Child Passenger Restraint law will show the extent of non-compliance with existing laws.

### Strategy - Education

**Target:** All New Hampshire with a special emphasis on groups with the lowest usage rate: young drivers (16 to 39) and pick-up truck drivers

**Implementation:** There are a number of educational programs in the NH Strategic Action Plan that will be used, along with an expansion in these programs where it would be feasible and effective.

**Timing:** These programs are ongoing. Any expansion would likely take place with additional funding from the 10% flexibility in the Highway Safety Improvement Program.

**Output:** Media and education programs currently in the NH Strategic Action Plan, and expansion of these existing programs

**Outcome:** Increase child restraint usage to 97% by 2010. Increase seat belt use in the targeted groups to 83% by 2010.

**Data:** Observational survey data (to determine seat belt use); Crash data (percent of seat belt usage in fatal and serious injury crashes); Cost of crashes – all costs including potential years of life lost and monetary costs – medical, insurance, property, etc.

**Data Collection:** Data collected by the NH Department of Safety and NH Highway Safety Agency. Costs will be collected from NHTSA.

**Funding:** This strategy would be funded with the existing safety funding and possibly some funds from the 10% flexibility in the Highway Safety Improvement Plan funds.

**Agencies Involved:** Department of Safety and NH Highway Safety Agency and NHTSA.

**Measure of Performance:** Seat belt usage from the NH Highway Safety Agency surveys. Number of unbelted fatalities and percent of unbelted fatalities. Number of citations issued for violations of Child Restraint laws.

## Strategy – Enforcement

**Target:** Law Enforcement Agencies in New Hampshire

**Implementation:** This will require increased support for law enforcement in the form of training and resources

**Timing:** These programs are already ongoing. Any expansion would take place with additional funding from the 10% flexibility in the Highway Safety Improvement Program.

**Output:** the law enforcement community would continue existing programs and create additional or fine-tune existing programs. If the Primary Seat Belt Law passed, enforcement of that law would be additional.

**Outcome:** Increase seat belt use by those currently covered by existing laws to 97% by 2010.

**Data:** Present and future number of child restraint citations issued, number of fatalities or serious injuries that could have been avoided if child restraints were used.

**Data collection:** The Department of Safety and the NH Highway Safety Agency.

**Funding:** Current programs in NH Strategic Action Plan; Legislature; Federal Grants; and Incentive payments.

**Agencies Involved:** State and Local Law Enforcement Agencies, NH Highway Safety Agency

**Measure of Performance:** Number of unbelted fatalities and percent usage of seat belts

## Emphasis Area 3: Adolescent and Elderly Drivers

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### Teen Driving

#### **Background**

Motor vehicle crashes continue to be the number-one cause of death for New Hampshire adolescents (ages 13-19). It's also the number-one cause of death for ages 1 through 34 (in some years going to 44). Although adolescents hold only 7% of the driver licenses in the state of New Hampshire, their death rate is substantially higher than any other age group (NH DHHS, 2007). The risk of motor vehicle crashes is higher among 16- to 19-year-olds than among any other age group. In fact, per mile driven, adolescent drivers ages 16 to 19 are four times more likely than older drivers to crash (Insurance Institute for Highway Safety, 2005). In 2003, adolescents accounted for 10 percent of the U.S. population and 13 percent of motor vehicle crash deaths (Insurance Institute for Highway Safety, 2005). In New Hampshire, adolescents accounted for 6.5 percent of the population and 17 percent of the total amount of motor vehicle crashes (NH Department of Safety, 2007).

#### **Historical Trends**

In 2002 nationally, the estimated economic cost of police-reported crashes (both fatal and nonfatal) involving drivers ages 15 to 20 was \$40.8 billion (National Highway Traffic Safety Administration, 2003). In New Hampshire, the estimated costs of motor vehicle crashes for ages 0 to 24 during the year 2007, based on year 2000 hospitalizations and deaths, 1985 cost estimates, and adjustments for inflation and population growth, would be approximately \$91,960,000, with adolescents making up the majority of the costs (NH DHHS, 2007).

In 2004, hospitalizations resulting from motor vehicle crashes among adolescents 10 to 14 were so few that a reliable rate cannot be calculated. For those 15-19, the rate of hospitalizations for females was 45.6 hospitalizations per 100,000 people and the rate for males was 90.7. According to CDC's WISQARS, this rate is substantially lower than the national rates. Hospitalizations for adolescents due to motor vehicle crashes cost the state approximately two and a half million dollars in 2004, with males making up a majority of that figure (NH DHHS, 2007).

Traffic fatalities for all ages have been increasing in New Hampshire with a 35% increase from 2003 to 2004. Most of the fatalities occurred on local roads, where speed, inexperience, and drug use were contributing factors. Motor vehicle crashes continue to be the number-one cause of death for New Hampshire children ages 1 through 19 (1-34 overall). In 2003, for 10 through 19-year-olds, the rate for fatalities was 4.82 per 100,000 people while the national average was 7.85.

## **Extent of the Problem**

In 2004, adolescent injuries due to motor vehicle crashes represented approximately 30% of the total number of EMS runs. Emergency Department (ED) visits for New Hampshire youth age 15-19 years old decreased from 2000 to 2001 and have since remained stable. In 2004, the rate for male adolescents 10 to 14 years was 212.6 ED visits per 100,000 people. For females, the rate was 307.7 ED visits per 100,000 people. For male adolescents age 15-19, the rate predictably increases to 1,927.5 visits per 100,000 people. For females in the same age category, it is 2,765.8. These ED visits for adolescents due to motor vehicle crashes cost the state approximately two and a half million dollars in 2004.

Adolescents hold 7% of the licenses in the state of New Hampshire.

## **Contributing Factor**

Alcohol plays a large part in motor vehicle fatalities in New Hampshire as elsewhere. In 2004 among all ages, 35% of fatalities involved a .08 or higher blood alcohol content. In 2000, alcohol was a factor in 21% of New Hampshire's crash costs. Alcohol-related crashes in New Hampshire cost the public an estimated four hundred million dollars including monetary and quality of life costs.

**Objective:** Decrease adolescent fatalities and injuries in motor vehicle crashes.

### **Strategies (Teen Drivers)**

- Increase Enforcement of Existing Seat Belt Laws
- Increase Communities Engaging in Enforcement and Education on Adolescent Seat Belt Use
- Strengthen Graduated Licensing Law
- Add Advanced Skill Training to Driver Education

### Strategy – Increase Enforcement of Primary Seat Belt Law For Adolescents 17 and Under

**Seat Belt Use:** New Hampshire is unique in that it is the only state in the nation without a seat belt law for adults. However, the state does require the appropriate restraint for children up to the age of 18, which is a primary law.

According to the New Hampshire Highway Safety Agency annual seatbelt survey, adolescent males are much less likely to wear seatbelts than females. While there's been some variation over the years, males' seat belt usage has never exceeded 50%. Given the deaths and injuries sustained, any increase in adolescent seat belt usage in the state is likely to make a great impact. Looking at results of the 2005 Youth Risk Behavior Survey, 13% of adolescents surveyed said they rarely or never wore safety belts. This is higher than the national median and rate (Figure 1). The observational survey would indicate that the actual usage rate is even more of a problem.

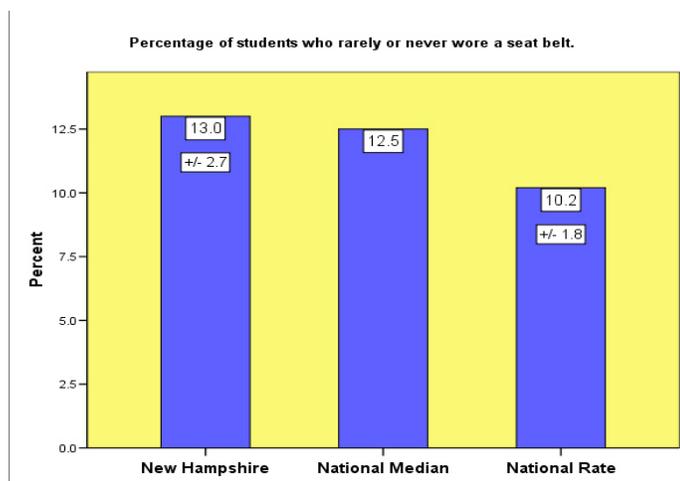


FIGURE 1: 2005 Youth Risk Behavior Survey, Jeffrey Metzger, NHDHHS.

**Increased enforcement as a strategy:** Increased enforcement of seat belt laws, if highly publicized and visible, has been shown to increase seat belt use in the general population. Almost every state’s seatbelt use rate has benefited from engaging in high profile enforcement efforts like Click It or Ticket (Solomon, 2004). It is reasonable to assume adolescent seat belt use would increase in tandem. If enforcement is tailored to adolescents (e.g., near high schools, colleges, recreational facilities; publicized on youth-oriented radio stations and television channels), it could potentially increase belt use by adolescents, but it must be frequent, consistent, and sustained. Nighttime enforcement in areas where adolescents congregate has the potential to encourage compliance and higher usage.

- In Illinois, Operation SCORE (Student Concentrated Occupant Restraint Efforts) included a zero-tolerance enforcement and an educational component. Observational surveys showed that safety belt use increased from an average of 43 percent to as much as 70 percent in some high schools. (Illinois: Operation SCORE (Student Concentrated Occupant Restraint Efforts, as written in “Programs, Interventions and Strategies That Have Potential to Increase Safety Belt Use by Teens in N.H. Communities” by Chris Hanna, Children’s Safety Network)

**Target:** Adolescent drivers and passengers.

**Implementation:**

- Increase incentives both statewide and in those communities where seat belt usage is low, so that the law enforcement community can adequately target those adolescents in violation of the primary seat belt law for those ages 17 and under.
- Tailor the enforcement to adolescents (as stated previously).

**Time:** 2007-2010.

**Output:** Increased seat belt use by adolescents

**Outcomes:**

- By the 2009 Youth Risk Behavior Survey (YRBS), decrease from 13% to 10% the number of adolescents reporting that they rarely or never wore seat belts.
- By 2008, increase adolescent male seat belt usage to more than 50% on a consistent basis in the New Hampshire Highway Safety Agency's annual seat belt survey.
- By 2008, increase adolescent female seat belt usage to more than 70% on a consistent basis in the New Hampshire Highway Safety Agency's annual seat belt survey.
- Reduce emergency department visits of adolescents involved in motor vehicle crashes by 5%.
- Reduce hospitalizations of adolescents involved in motor vehicle crashes by 5%.
- Reduce fatalities of adolescents involved in motor vehicle crashes by 10%.

**Data needed:**

- YRBS
- NH Highway Safety Agency's annual seat belt survey
- Emergency Department visits
- Hospitalizations
- Fatalities
- Crash data

**Data Collection:** The appropriate State departments involved in administration of the above data, including, but not limited to the NH Department of Safety and the NH Department of Health and Human Services.

**Funding:** Funding for enforcement would come from identified local resources as well as the New Hampshire Highway Safety Agency and the New Hampshire Department of Transportation funds. Funding for enforcement needs to increase.

**Agencies Involved:**

- NH Department of Safety
- NH Department of Health and Human Services
- NH Highway Safety Agency
- NH Department of Transportation
- Other statewide partners

## Strategy - Increase Communities Engaging in Enforcement and Education on Adolescent Seat Belt Use

Most of the research shows that it takes combined strategies involving education, publicity, visible enforcement, and community outreach to affect behavior. There are other strategies, which if aimed toward teens, appear to have potential to increase seat belt use for that population. Some examples include:

- A **comprehensive program** in Minnesota titled Teens Driving Safe, which also has been shown to effectively increase safety belt use among teen drivers. This program used both **enforcement** and **education** strategies. Analysis of crash data, police records, and observational surveys indicated that the program increased 16-18-year-old teens' safety belt use from 74 to 78 percent.  
*[Teens Driving Safe: Final Report – Plymouth, Maple Grove and Minnetonka, Minnesota.]*
- In Spokane, Washington, a program titled Driving for Life combined education and awareness activities, **strict enforcement**, media efforts, peer education, and **community involvement**. The increased enforcement led to more citations issued for safety belt violations, but more importantly, observed safety belt use increased by 10 to 16 percent at three area high schools. Further, self-reported belt use of “always” using a safety belt increased from 46 to 71 percent.  
*[Driving for life: Final report – Spokane, Washington.]*

**Target:** Communities in New Hampshire where adolescents live, go to school, and play.

### **Implementation:**

- Facilitate workshops in communities showing them how to increase their adolescents' seat belt use according to best practice.
- Work with communities across the state on special projects to increase seat belt use according to best practice.

**Time:** 2007-2010

**Output:** Increased seat belt use by adolescents

### **Outcome:**

- Facilitate four workshops statewide on best practice in increasing adolescent seat belt use.
- In those communities implementing special projects, including enhanced enforcement, increase seat belt use by adolescents by 5-10%.
- By the 2009 Youth Risk Behavior Survey, decrease the number of adolescents reporting that they rarely or never wore seat belts from 13% to 10%.
- By 2008, increase adolescent male seat belt usage to over 50% on a consistent basis in the New Hampshire Highway Safety Agency's annual seat belt survey.
- By 2008, increase adolescent female seat belt usage to over 70% on a consistent basis in the New Hampshire Highway Safety Agency's annual seat belt survey.

- Reduce emergency department visits of adolescents involved in motor vehicle crashes by 5%.
- Reduce hospitalizations of adolescents involved in motor vehicle crashes by 5%.
- Reduce fatalities of adolescents involved in motor vehicle crashes by 10%.

**Data needed:**

- Workshop evaluations
- Survey data from communities participating in special projects
- YRBS
- NH Highway Safety Agency's annual seat belt survey
- Emergency Department visits
- Hospitalizations
- Fatalities
- Crash data

**Data Collection:** The appropriate State departments involved in administration of the above data, including, but not limited to the NH Department of Safety and the NH Department of Health and Human Services.

**Funding:** Funding for the enforcement, as previously stated, would come from identified local resources as well as the New Hampshire Highway Safety Agency and the New Hampshire Department of Transportation funds. Funding for enforcement needs to be increased. Funding for additional components such as education would have to come from special grant sources, or local funds, which are unknown at this time.

**Agencies Involved:**

- AAA
- NH Highway Safety Agency
- Injury Prevention Center at Dartmouth College
- Department of Education
- NH Department of Safety
- NH Department of Transportation
- NH Department of Health and Human Services
- NH Teen Driving Committee
- Other statewide partners

**Strategy - Strengthen Graduated Licensing Law**

Adolescent drivers, just starting out, have several risk factors working against them. First, is their inexperience behind the steering wheel. The second is their greater likelihood of engaging in risky driving behaviors such as speeding, driving under the influence, and following other vehicles too closely. New adolescent drivers tend to overestimate their own driving abilities and underestimate the dangers on the road (Insurance Institute for Highway Safety, 2007). In 2006, there were more cases of 16-year-olds attended to by emergency medical responders because of motor vehicle crashes, than any other

adolescent age group (TEMSIS, Department of Safety, 2006). Males were more likely to be hospitalized, while females were more likely to be seen in the emergency department and discharged (DHHS, 2007).

Graduated driver licensing is a system developed to phase in new drivers (in this case adolescents) to full driving privileges as they become older and develop their driving skills. There are graduated driver licensing systems in most states. There are usually three stages to a graduated system: a supervised learner's period; an intermediate license (after passing the driver test) that limits driving in high-risk situations except under supervision; and then a license with full privileges, available after completing the first two stages.

In New Hampshire, consent of a parent or guardian is required for a minor to be licensed. At any time the person who consented can revoke the consent, and the permit or license will be cancelled. New Hampshire has no learner's permit. To practice driving, you must:

- Be at least 15-and-a-half years old and supervised.

To get a youth operator license you must:

- Be at least 16 years old.
- Drive at least 20 hours supervised.
- Complete drivers' education.
- Pass a driving test.

After getting a youth operator license you may:

- Not drive between 1 a.m. and 5 a.m. This restriction ends after 13 months or at age 18, whichever comes first.
- Not carry more than one passenger younger than 25, other than family members, unless supervised. This restriction ends after 6 months or at age 18, whichever comes first.

Crashes or violations may delay getting a full license.

Research indicates that graduated driver licensing programs have reduced crashes among new adolescent drivers from about 10 to 30 percent (Insurance Institute for Highway Safety, 2007).

New Hampshire's system is rated as "Fair" by the Insurance Institute for Highway Safety (2007). It does not extend its nighttime or passenger restrictions to be consistent with best practice. Four of every 10 deaths of adolescents in motor vehicles occur between 9 p.m. and 6 a.m. Studies show that nighttime driving restrictions typically are associated with crash reductions of about 40 to 60 percent during the restricted hours.

Crash risk for adolescent drivers increases incrementally with one, two, or three or more passengers. With three or more, fatal crash risk is about three times higher than when a

beginner is driving alone (Chen, L.H.; Baker, S.P.; Braver, E.R.; and Li, G. 2000). The best systems include nighttime driving restrictions, starting at 9 or 10 p.m. and no more than one passenger is allowed with an unsupervised driver anytime during the day.

New Hampshire should also add a penalty system for seat belt violations resulting in extension of the restricted period.

**Target:** New adolescent drivers and their parents/caregivers.

**Implementation:**

- Establish an adolescent driving Legislative task force, perhaps as a subcommittee of the New Hampshire Teen Driving Committee.
- Work with Legislators in the 2008-2009 Legislative session to introduce a bill amending New Hampshire's current graduated driver licensing system.
- After the bill passes, the adolescent driving Legislative task force will work with law enforcement, driver education instructors, parents, and adolescents to increase awareness of the law, as well as enforcement.
- Implementation of a beginner's permit. This would ensure that young drivers, before they get behind the wheel would be tested on signs, rules and regulations, and their records would be checked to ensure that they do not have anything in their past that would make them ineligible for a license. It would also require they pass an eye exam.

**Time Frame:** 2007-2010

**Output:** Revised graduated driver licensing system in New Hampshire, which better reflects best practice.

**Outcome:**

- Bill introduced into legislative session.
- Legislation passed and in effect by January of 2009 or 2010.
- Reduce total number of motor vehicle crashes involving adolescents by 10%.
- Reduce total number of adolescents seen and transported by emergency medical providers by 5%.
- Reduce emergency department visits of adolescents' aged 16 and 17 involved in motor vehicle crashes by 5%.
- Reduce hospitalizations of adolescents aged 16 and 17 involved in motor vehicle crashes by 5%.
- Reduce fatalities of adolescents aged 16 and 17 involved in motor vehicle crashes by 10%.

**Data:**

- Legislative bill
- TEMSIS data
- Emergency Department visits

- Hospitalizations
- Fatalities
- Crash data

**Data Collection:** The appropriate State departments involved in administration of the above data, including, but not limited to the NH Department of Safety and the NH Department of Health and Human Services.

**Funding:** In-kind donations of personnel time.

**Agencies Involved:**

- AAA
- NH Highway Safety Agency
- Injury Prevention Center at Dartmouth College
- NH Department of Education
- NH Department of Safety
- NH Department of Transportation
- NH Department of Health and Human Services
- Other statewide partners

**Strategy – Increase Parental Involvement in Graduated Driver Licensing and Training**

Parents have an inordinate amount of influence on their adolescents. That extends to their child’s driving experience in several ways. First, the way a parent drives is a strong influence and example for the subsequent driving of his/her adolescent. Research has shown that adolescents drive in similar ways to their parents (Insurance Institute for Highway Safety). This includes whether or not the parent wears a seat belt.

Second, because on the road training within driver education is limited, parents remain the primary people responsible for preparing their adolescents for independent driving. Recent research has shown that parent management of the early independent driving experience of novice adolescents improves crash outcomes. Other research has shown that it is possible to increase parent management practices (Simons –Morton and Ouimet, 2006). The research is also clear that risky driving, traffic violations, and crashes are lower among adolescents whose parents apply restrictions. Parents should be limiting the exposure their novice drivers have with known risk factors such as other adolescent passengers and nighttime driving.

Graduated driver licensing programs enhance parental limitations on new adolescent drivers. Research has additionally shown that parents strongly favor graduated driver licensing systems (Insurance Institute for Highway Safety, 2007). Although many parents want their children to get their licenses early so they no longer have to be taken to school,

work, or other activities, these same parents are worried about the risks of novice drivers, when they know what they are.

There are some programs such as Checkpoints, developed by researchers at the National Institute of Child Health and Human Development that teach parents to limit their adolescents' exposure to certain driving conditions for the first year after they receive their licenses. The Checkpoints Program's central feature is a written agreement that parents and adolescents sign. The agreement limits adolescents driving under conditions that place them at increased risk for a crash: driving at night, driving with other adolescents in the car, driving during bad weather, and driving on high-speed roads.

**Target:** Parents/caregivers of new adolescent drivers.

**Implementation:**

- Collaboratively design a statewide media campaign to inform parents about the graduated driver licensing system and new adolescent drivers.
- Involve parent advocates in the push for a revised graduated driver licensing system, as it relates to best practice, in all of the ways stated previously.
- Encourage programs, which support the use of a written agreement between parents and their new adolescent drivers.
- Advocate for a parent night requirement in the State's Driver Education Scope of Services, Safe C 3100.
- Develop and provide a NH publication for parents of young people, to be issued to parents at the time of issuance of a beginner's permit, outlining GDL and related responsibilities, driver information, and rules of the road.  
(example – Oregon would allow NH to adopt and adapt their Parent Guide to Teen Driving which is now also used with necessary changes in Washington State)

**Time Frame:** 2007-2010

**Output:**

- Increased parental knowledge, both about the State's graduated licensing system and why it's important and the risks to adolescent drivers, especially those who are novice.
- Revised graduated driver licensing system in New Hampshire, which better reflects best practice.

**Outcome:**

- Media campaign targeted towards parents of novice drivers.
- Mandated parent night during Driver Education instruction, at which graduated driver licensing is explained.
- Survey designed to measure parental support of graduated driver licensing and understanding of limitations it sets. Parental support of GDL and accompanying restrictions at 75%.

- Programs in two communities utilizing written agreements between parents and their new adolescent drivers.
- Bill introduced into Legislative session.
- Legislation passed and in effect by January of 2009 or 2010.
- Reduce total amount of motor vehicle crashes involving adolescents by 10%.
- Reduce total amount of adolescents seen and transported by emergency medical providers by 5%.
- Reduce emergency department visits of adolescents aged 16 and 17 involved in motor vehicle crashes by 5%.
- Reduce hospitalizations of adolescents aged 16 and 17 involved in motor vehicle crashes by 5%.
- Reduce fatalities of adolescents aged 16 and 17 involved in motor vehicle crashes by 10%.

**Data:**

- Media data
- Driver Education class data
- Survey data
- Legislative bill
- TEMSIS data
- Emergency Department visits
- Hospitalizations
- Fatalities
- Crash data

**Data Collection:** The appropriate State departments involved in administration of the above data, including, but not limited to the NH Department of Safety and the NH Department of Health and Human Services.

**Funding:** In-kind donations of personnel time. Funding for additional components such as education would have to come from special grant sources, which are unknown at this time.

**Agencies Involved:**

- AAA
- NH Highway Safety Agency
- Injury Prevention Center at Dartmouth College
- NH Department of Education
- NH Department of Safety
- NH Department of Transportation
- NH Department of Health and Human Services
- Other statewide partners

## Strategy – Make Advanced Skills Training and Drivers’ Attitudinal Courses Accessible to All Adolescents

### **Driver Attitudinal Courses**

Defensive driving Attitude courses offer an emphasis on the participants’ needs to identify their driving attitudes and choices, the importance of accepting responsibility for those choices and the resulting outcomes, and the necessity to make safer and more effective choices.

Studies have shown that the majority of the individuals attending these courses have fewer violations and crashes during the 3 years after completing an attitude course compared to the 3 years before attendance.

### **Advanced Skills**

Researchers have identified the two-second sequence prior to a crash as an opportunity to help adolescents avoid or minimize the severity of a crash. Two seconds is the average time needed to successfully avoid or lessen the severity of a collision once a hazard is detected (Insurance Institute for Highway Safety, 2007). Inexperienced adolescent drivers often notice a hazard later than experienced drivers because their skills are not yet developed. Even when a hazard is detected, they don’t know what to do to manage it to avoid a crash. In addition, hazards may not be seen as such by adolescents. They tend to underestimate the risk of crashes in hazardous situations and overestimate their ability to avoid threats they identify (Arnett, 2002; Deery, 1999). Thus, advanced training giving an adolescent the skills, perceptions, and attitudes to increase their driving safety is best practice.

The hands-on driving is to be taught on a closed course (off public roads) facility at realistic secondary and highway speeds. Emergency Skills trainers should meet the facility and curriculum guidelines currently in place in states such as Massachusetts.

**Target:** All adolescent drivers, especially those that are novice.

### **Implementation:**

- Identify places where adolescents can receive advanced skills and approved driver attitude training.
- Work with those places to ensure that all New Hampshire adolescents are able to access this training.

**Time:** 2007-2010

**Output:** Accessible advanced skills and approved driver attitude training for all New Hampshire adolescents.

**Outcome:**

- 50% of novice adolescent drivers in the state have taken advanced skills and driver attitude training by 2010.
- 25% of adolescent drivers (those with their license for more than 12 months) in the state have taken advanced skills and driver attitude training by 2010.
- Reduce total amount of motor vehicle crashes involving adolescents by 10%.
- Reduce total amount of adolescents seen and transported by emergency medical providers by 5%.
- Reduce emergency department visits of adolescents involved in motor vehicle crashes by 5%.
- Reduce hospitalizations of adolescents involved in motor vehicle crashes by 5%.
- Reduce fatalities of adolescents involved in motor vehicle crashes by 10%.

**Data:**

- Attendance records from advanced skills driver attitude training programs
- Census data
- TEMSIS data
- Emergency Department visits
- Hospitalizations
- Fatalities
- Crash data

**Data Collection:** The appropriate State departments involved in administration of the above data, including, but not limited to the NH Department of Safety and the NH Department of Health and Human Services.

**Funding:** Currently the Lovering Family Foundation is providing discounted registrations for the advanced skills courses. However, additional funding both for the attitudinal courses and advanced skills courses is needed. It is uncertain where this funding will come from, and other funding sources should be explored.

**Agencies Involved:**

- NH Traffic Safety Institute
- AAA of Northern New England
- Lovering Volvo Family Foundation and other similar organizations
- NH Highway Safety Agency
- Injury Prevention Center at Dartmouth College
- NH Department of Education
- NH Department of Safety
- NH Department of Transportation
- NH Department of Health and Human Services
- Other statewide partners

## ELDERLY DRIVERS

### **Background**

As a group, individuals over the age of 65 are relatively safe drivers. This age group has lower rates of crashes and crashes involving injury per licensed driver than younger drivers, the lowest percentage of crashes involving alcohol use, and the highest rate of seatbelt use (AARP, 2007; Insurance Institute for Highway Safety 2007; CDC, 2007). Older drivers also tend to drive when conditions are safest. They limit their driving during bad weather and at night, and they drive fewer miles than younger drivers (Transportation Research Board, 1988). In 2006, 67.6% of NH adults age 65 and older reported always using seat belts when driving or riding in a car (BRFSS, 2007). The 65 and older age group is the fastest-growing segment of the population; more than 40 million older adults will be licensed drivers by 2020 (Dellinger 2002). In New Hampshire, older drivers account for approximately 18 percent of the total number of licenses issued (NH Department of Safety, 2007).

### **Historic Trend**

When measuring crashes by per mile driven, the data show a substantial increase after age 70. In fact, older drivers have higher crash death rates per mile driven than all but adolescent drivers (Insurance Institute for Highway Safety, 2003). In addition, property damage liability claims and collision claims per insured vehicle year (for 2002-04 models) start increasing after about age 65, meaning that seniors more often are involved in crashes (AARP, 2007). With advancing age, physical, cognitive, and visual abilities may decline. Several studies have shown that higher levels of physical, cognitive, or visual impairment among older drivers are associated with increased risk of crash involvement. Many older drivers also take medications, which can impair driving ability at any age but can be especially impairing for an older person. (Insurance Institute for Highway Safety, 2007).

### **Extent of the Problem**

Because of their increased frailty, injuries in older drivers (and their older passengers) due to motor vehicle crashes are likely to be more serious. They are also more likely to die from their injuries. In New Hampshire over the last five years, older women are more likely to be seen in the emergency department than older men due to motor vehicle crashes. However, older men are more liable to be hospitalized than older women (NH DHHS, 2007).

### **Contributing Factors**

In New Hampshire, renewal applicants for drivers' licenses must take a road test and eye exam if they are over the age of 75. Illinois is the only other state that requires this. No

other different provisions are made. Currently, older drivers renew every five years like all other drivers.

### **Strategies (Older Drivers)**

- Strengthen the role of the legislatively appointed medical advisory board
- Update procedures for assessing medical fitness to drive
- Utilize DHHS's Link to Older Adult Resource Centers/Service Link to promote safe mobility choices
- Invest in low cost modifications to roadways

### Strategy – Strengthen the Role of the Legislatively Appointed Medical Advisory Board

Many states typically have medical review boards composed of health care professionals who advise on licensing standards and on individual cases in which a person's ability to drive safely is in doubt. After reviewing a person's fitness to drive, the medical board may allow the person to retain the license, refuse to renew the license, or suspend, revoke, or restrict the license. Typical restrictions prohibit nighttime driving, require the vehicle to have additional mirrors, or restrict driving to specified places or a limited radius from the driver's home. Where the renewal cycle is not shorter for older drivers, some medical advisory boards have the authority to shorten the renewal cycle for individual license holders if their condition warrants. The goal of restricted licensing is to allow drivers to continue to drive in safer conditions based on individual abilities. Restrictions may address, for example, vehicle speed, geography, and nighttime driving. No state restricts drivers based on age alone.

Renewal procedures for older drivers include accelerated renewal cycles that provide for shorter renewal intervals for drivers older than a specified age; a requirement that they renew their licenses in person rather than electronically or by mail where remote renewal is permitted; and testing that is not routinely required of younger drivers (vision and road tests, for example). These special renewal procedures for older drivers apply in addition to the license renewal procedures that exist in all states for dealing with licensed drivers of any age who no longer meet the standards for licensure because of physical or mental infirmities. As stated previously, New Hampshire requires those citizens 75 and older, upon renewal, to pass a road and eye exam.

New Hampshire had a medical advisory board established in 2005 by the Legislature (TITLE XXI, Motor Vehicles, Chapter 263, Drivers' Licenses, Section 263:6-b, Medical/Vision Advisory Board). The Board's duties are the following:

- Create and keep current criteria and science-based guidelines for use by Department of Safety Hearing Examiners in making licensing determinations.
- Develop and promote assessment techniques available to healthcare providers to assist patients in driving-related issues.
- Assist the division (Division of Motor Vehicles) in developing policy regarding medical conditions' effects on driving.

- Serve as liaison to the healthcare community in promoting best medical practices related to driving safely.

In reality, this Board has not functioned as such. In addition, the Board was only to meet quarterly after the first full year. Legislation has been introduced to amend the Board's mandate to reinvigorate it and make it stronger. However, the bill was held in committee for the summer and will be reintroduced during the 2007 – 2008 legislative session.

Under existing NH legislation it is extremely problematic to achieve and maintain an expertly staffed medical advisory board. There is no appropriation to fund such a board, and physicians in the various specialties needed find it difficult without being compensated for their services, to take time away from their practices to attend regular sessions of the board. To be successful, board members need to be compensated at a level commensurate with their training and experience. Meanwhile, the DMV reports it has been successful in accessing assistance from various rehabilitation agencies and organizations when dealing with questions of medical suitability for driver licensing.

**Target:** Legislators and the citizens of New Hampshire.

**Implementation:**

- Support current legislation strengthening the role and funding of the medical advisory board and reducing the renewal times for those 70 and older.
- Assist the Division of Motor Vehicles in establishing, funding and maintaining the Medical Advisory Board in any way possible.

**Time Frame:** 2007-2010

**Output:** Medical Advisory Board established, funded and functioning.

**Outcome:**

- Adequate funding of the Medical Advisory Board
- Referral process in place to Medical Advisory Board
- Assessment policy for Medical Advisory Board in place
- Reduce total number of motor vehicle crashes involving older adults by 10%.
- Reduce total number of older adults seen and transported by emergency medical providers by 5%.
- Reduce emergency department visits of older adults involved in motor vehicle crashes by 5%.
- Reduce hospitalizations of older adults involved in motor vehicle crashes by 5%.
- Reduce fatalities of older adults involved in motor vehicle crashes by 10%.

**Data:**

- Referral to Medical Advisory Board
- Medical Advisory Board meeting notes

- Process evaluation of Medical Advisory Board
- TEMSIS data
- Emergency Department visits
- Hospitalizations
- Fatalities
- Crash data

**Data Collection:** The appropriate state departments involved in administration of the above data, including, but not limited to the NH Department of Safety and the NH Department of Health and Human Services.

**Funding:** In-kind personnel donations of Medical Advisory Board members. State funding in the Division of Motor Vehicle budget. Staffing would need to come from the Division of Motor Vehicles, NH Department of Safety since the Medical Advisory Board is under its purview.

**Agencies Involved:**

- NH Highway Safety Agency
- Injury Prevention Center at Dartmouth College
- NH Department of Education
- NH Department of Safety
- NH Department of Transportation
- NH Department of Health and Human Services
- Other statewide partners
- AARP

**Strategy – Utilize Service Link Resource Center for NH to Promote Safe Mobility Choices for Older Adults**

The Service Link Resource Centers are a statewide network of community- based offices that make the link to the community’s human service providers for the older adult. The Centers provide information, referrals and assistance via phone, email, and personal meetings. They facilitate needs assessments, give access to certain types of clinical consultations, and offer planning and preventative long-term support education programs. Service Link is a suitable venue for connecting the community living older adult to services that would promote safe mobility choices.

They would also be able to refer to agencies capable of helping functionally impaired older drivers and programs that can assess drivability. One of these programs is the *Drivability* adaptive driving program at Exeter Hospital, which offers the services of driver educators with dual certification in occupational therapy and driver education. They evaluate abilities, recommend equipment, teach new skills and develop strengths

that help people with disabilities recover or maintain independence. NH division of Motor Vehicles makes referrals to this program and holds it in high regard.

There are several different pieces of equipment or adjustments to motor vehicles that older adults could utilize that may decrease their crash risk. Technologies include seat belt force limiters that limit the force of restraints during a crash, and advanced airbags that reduce the likelihood of injuries resulting from airbags. Improved head restraint systems help protect occupants against whiplash and other neck injuries. Some motor vehicles also provide adjustable seats and pedals as well as bigger and brighter displays and controls. Service Links would be able to refer older adults to places where these types of equipment and adjustments are available.

**Target:** Older adults, 65 years and older.

**Implementation:**

- Initial and ongoing training of Service Link staff on older drivers and availability of resources.
- Establish referral list and policy for Service Link on resources available for older drivers.

**Time:** 2007-2010

**Output:**

- Appropriate referrals located at all Service Link sites.
- Older adults are referred to appropriate programs in the community.

**Outcome:**

- Increase utilization of Service Link
- Increase utilization of adaptive driving programs and equipment
- Reduce total number of motor vehicle crashes involving older adults by 10%.
- Reduce total number of older adults seen and transported by emergency medical providers by 5%.
- Reduce emergency department visits of older adults involved in motor vehicle crashes by 5%.
- Reduce hospitalizations of older adults involved in motor vehicle crashes by 5%.
- Reduce fatalities of older adults involved in motor vehicle crashes by 10%.

**Data:**

- Log of calls to Service Link related to older driver issues
- Feedback from community providers
- TEMSIS data
- Emergency Department visits
- Hospitalizations
- Fatalities
- Crash data

**Data Collection:** The appropriate state departments involved in administration of the above data, including, but not limited to the NH Department of Safety and the NH Department of Health and Human Services.

**Funding:** There would need to be appropriate funding both to develop a referral list for Service Link and provide ongoing training.

**Agencies Involved:**

- NH Highway Safety Agency
- Injury Prevention Center at Dartmouth College
- NH Department of Education
- NH Department of Safety
- NH Department of Transportation
- NH Department of Health and Human Services (Bureau of Elderly and Adult Services)
- AARP
- Older Driver Coalition
- Other statewide partners

**Strategy – Invest in Low Cost Modifications to Roadways**

Much can be done to improve roadway safety. Improving the visibility of road signs and pavement markings through lettering, size, or color can be particularly important for older drivers who may have visual impairments due to macular degeneration, glaucoma, cataracts, or other health factors. Intersections are a particular problem for older drivers, and countermeasures may include adding left-turn lanes and left-turn traffic signals. One study found that low-cost modifications to intersections (e.g., making traffic signals more visible, adding a dedicated left-turn lane) resulted in a 13 percent greater reduction in injury crashes per licensed driver for drivers 65 and older compared with drivers ages 25-64.

**Target:** Older adults, 65 years and older.

**Implementation:**

- Design and location determination of appropriate road modifications utilizing state roadway information and FHWA guidebook on Highway Design for Older Drivers.
- Installation of appropriate road modifications.

**Time Frame:** 2007-2010

**Output:**

- Appropriate modifications made to the State's roadways resulting in safer roads.

**Outcome:**

- Reduce total number of motor vehicle crashes involving older adults by 10%.
- Reduce total number of older adults seen and transported by emergency medical providers by 5%.
- Reduce emergency department visits of older adults involved in motor vehicle crashes by 5%.
- Reduce hospitalizations of older adults involved in motor vehicle crashes by 5%.
- Reduce fatalities of older adults involved in motor vehicle crashes by 10%.

**Data needed:**

- Location and details of modifications
- Crash data at those specific sites
- TEMSIS data
- Emergency Department visits
- Hospitalizations
- Fatalities
- Crash data

**Data Collection:** The appropriate state departments involved in administration of the above data, including, but not limited to the NH Department of Transportation and the NH Department of Health and Human Services.

**Funding:** Federal, state, and local funding needs to be utilized for the modifications, installation, and maintenance.

**Agencies Involved:**

- NH Department of Transportation
- NH Highway Safety Agency
- Injury Prevention Center at Dartmouth College
- NH Department of Education
- NH Department of Safety
- NH Department of Health and Human Services
- NH Older Driver Coalition
- AARP
- Other statewide partners

## Emphasis Area 4: Lane Departure

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### **Background**

This emphasis area focuses on motor vehicle crashes that result from one or more motorists inadvertently or unexpectedly leaving their lane either into oncoming traffic or off the road. Since the resulting crashes typically involve striking a fixed object, or worse, a head-on collision, they represent some of the most severe crashes, including the majority of highway fatalities.

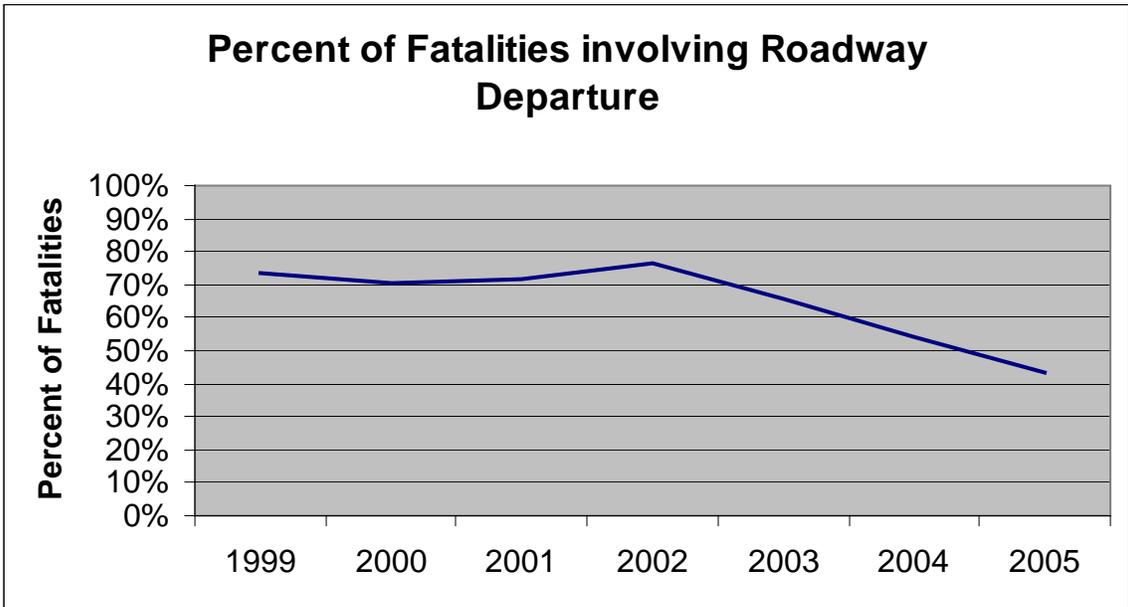
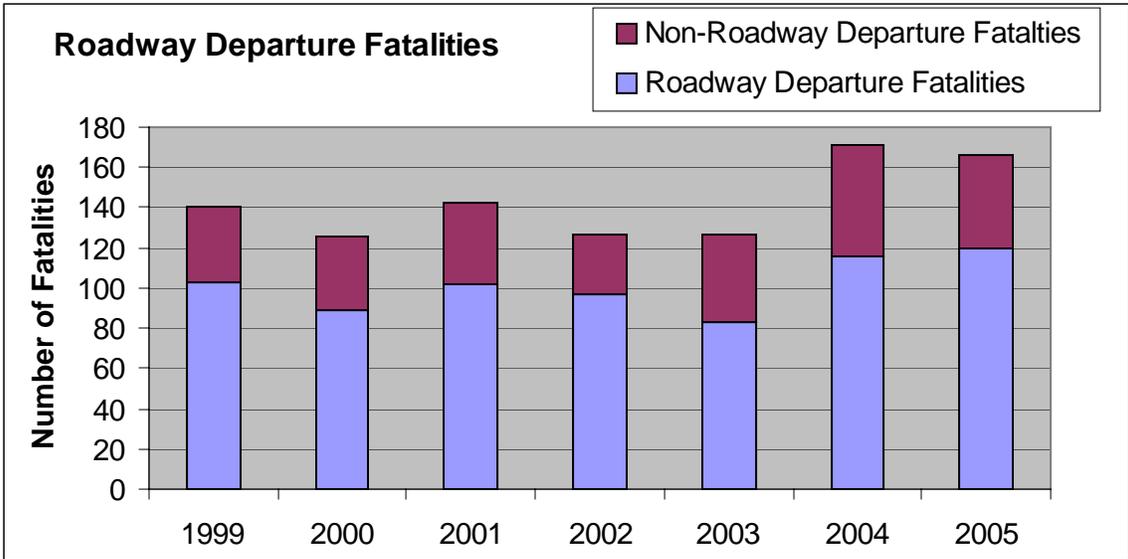
Several factors can contribute to motorists leaving a lane, such as driver inattention, high speeds, unexpected changes in alignment, driving while impaired and/or drowsy, or driver impatience. Over the years, there have been numerous attempts to address these measures. Highway design standards have addressed issues relative to alignment so that unexpected lane shifts are minimized and horizontal and vertical geometry is designed in a manner to promote consistent driver expectation.

Pavement markings, initially introduced to address hazardous locations only, are routinely used along the entire length of most highways and to identify lane assignments. Highway warning signs have been used to identify unexpected changes in alignment since the early days of travel by automobile. Additional signs and other devices have been introduced over the years to address issues relative to alignment, including chevrons, arrows, and dynamic systems that implement flashing beacons based on predetermined measures of existing traffic speed. In more recent times, edge-line and centerline rumble strips have been milled into the pavement surface to provide a tactile and audible warning to motorists straying from their lane and/or road.

Motor vehicle standards have also evolved over the years to provide improved occupant protection from all crashes. This includes items such as passenger restraints, air bags, bumper systems, and vehicle structural framing. Roadside design and maintenance activities have evolved to maintain a roadside “clear zone” relatively free of fixed objects. Lastly, roadside safety systems, such as guardrail and breakaway sign installations have been improved to reduce the severity of road departure crashes.

### **Historical Trends**

Statewide crash statistics published by the New Hampshire Highway Safety Agency in the Strategic Action Plan, Fiscal Year 2006, for the period 1999 – 2004 indicate an increase in total crashes reported that exceeds the growth in state population and estimated motor vehicle miles traveled (based on data provided through Calendar Year 2003). The same trend is not apparent for fatal crashes and fatalities for the same time period, however the number of fatalities continues to be well over 100 persons per year.



**Extent of the Problem**

Because lane departure crashes can be related to a number of factors, many of which are included in the remaining emphasis areas, the extent of the problem is reflected in the overall crash history of the state. For instance, increasing seat belt use would have a direct impact on the extent of the problem of lane departures as it relates to the severity of injuries and numbers of fatalities. In addition, addressing some of the issues relative to inexperienced, inattentive, distracted, fatigue, or mature motorists would help to keep those populations in their respective lanes and reduce the number of lane departure crashes accordingly.

One area of concern is the apparent absence of data relative to head-on collisions. This makes the determination of the extent of the problem for that particular lane departure crash difficult.

### **Contributing Factors**

There are a number of factors that could contribute to a motorist's departure from a particular lane or departure from the road. There are highway factors, such as alignment, lane shifts, and the like. Environmental factors include winter weather conditions, sun glare, and animal crossings. Other factors would be primarily related to driver behavior, such as speed, impairment, reckless driving, experience, distraction, fatigue and inattention.

### **Objective**

The objective for this emphasis area would be to reduce the number of motor vehicle crashes resulting from lane departure and/or run off the road by 5% and the number of injuries reported due to these collisions by 5%. The validity or attainability of those goals is somewhat limited by the data available. Namely, improved crash data collection and categorization could result in an increase in reported/recorded crashes when there may be an actual decrease in the number of crashes. For that reason, there would have to be a baseline of crash data records established in order to verify the objective stated above.

### **Strategies**

- Establish Department plan to a) document where existing edge-line and centerline rumble strips are located, b) determine where additional edge-line and centerline rumble strips are appropriate, and c) develop program to install and subsequently maintain rumble strips consistent with said plan.
- Maintain roadside clear of hazardous trees through regular mowing and tree clearing programs.
- Develop rural ITS/Technology solutions to address lane departure crashes.

### Strategy- Appropriate Use of Centerline and Edge-line Rumble Strips

**Target:** All of New Hampshire's highway users.

#### **Implementation:**

- a) Document existing locations: Edge-line rumble strips were initially milled along the median and right side shoulders of rural interstate highway segments where run off the road crashes were considered common. This practice gradually expanded to include nearly all of the interstate, turnpike, and multi-lane divided highway (i.e. NH 101, Manchester to Hampton) systems. Later,

centerline rumble strips were installed on a case-by-case basis along highway sections, namely NH 111 in Hudson and NH 101 in Milford, where there were severe crashes attributed in part to driver inattention. To date, these installations have not been inventoried as a specific highway system asset or feature. Implementation of this sub-strategy is to recognize rumble strips as assets and determine the responsible party within the Department of Transportation. Completion of a statewide inventory that can be correlated to highway crash data would be considered completion of this task.

- b) Determine criteria for additional locations: Previously rumble strip, especially centerline rumble strip installations have been determined on a case-by-case basis, often following severe crashes. There should be a more objective process to determine where these devices would be most effective based on highway conditions, crash data, and other appropriate criteria. This would involve literature search of available research, and should identify measures to include New Hampshire data in any ongoing or future research projects. The criteria should be developed by a task force within the DOT that includes a cross-section of internal stakeholders such as Materials and Research, Traffic, Planning and Community Assistance, and Highway Maintenance with additional representation from the regional planning commissions. The final criteria should include a means for continued evaluation and be approved by the Commissioner and/or Assistant Commissioner.
- c) Based on the criteria developed above, the Department of Transportation should develop a short and long-term plan to add additional rumble strips where appropriate and to maintain/replace existing installations impacted by pavement management activity.

**Time:**

Part a) above could reasonably be completed in six months once the responsible party is determined by the Commissioner. Preferably, this inventory would be completed in a geo-spatial format that is compatible with other G.I.S. systems.

Part b) can be performed concurrently with part a), but will likely take longer to complete, given the literature search and task force coordination. It would be reasonable to complete this task in 12-18 months.

Part c) could be completed initially in 6-12 months. However, it should result in a continuous review process to identify and prioritize installation locations and to determine when it might be cost-effective to perform this work with State forces.

**Output:** Develop a program where rumble strips are deployed in a manner that addresses recognized locations where run off the road crashes and/or crashes resulting from inadvertent centerline crossings are common

**Outcome:** The outcome for this strategy would be a reduction of lane departure crashes following new rumble strip installations. The goal would be to reduce the number of lane

departure crashes in those areas by 25%, with statewide reduction in lane departure crashes by 5% over the next five years.

**Data:** Statistical data of all lane departure crashes, along with data relative to location of edge-line and centerline rumble strips.

**Data Collection:** Crash data collected by the Division of Motor Vehicles from police crash reports. Rumble strip data collected by a Department of Transportation entity to be determined.

**Funding:** This strategy would be funded by existing and/or enhanced highway funds through the State's transportation improvement program.

**Agencies Involved:** Department of Transportation; Department of Safety.

**Measure of Performance:** The number of highway crashes resulting from lane departure and/or vehicles running off the road.

### Strategy-Maintain Roadside Clear of Hazardous Trees and Objects

**Target:** All motorists would benefit from a roadside reasonably free of large vegetation and other fixed objects, but rural highway users would generally experience the most obvious benefit. With parked vehicles considered a fixed object, motorists in more-developed areas would benefit from adequate off-street parking, especially for large trucks.

**Implementation:** The New Hampshire Department of Transportation and local public works agencies have the means to maintain roadsides clear of large vegetation, but often struggle with inadequate resources. Resources must be addressed by elected officials. Keeping roadsides free of other fixed objects, such as parked vehicles, disabled vehicles, equipment, signs, and the like is often an enforcement issue that would be addressed by State and local law enforcement and/or local code enforcement.

**Time:** Long-term as roadway users, elected officials, and the general public (including highway abutters) need to recognize the hazard of fixed objects adjacent to high-speed traffic so that enforcement is manageable, and in order to secure appropriate resources for roadside vegetation maintenance.

**Output:** This strategy will involve a measure of public outreach to convince the public of the nature of the problem and to secure support for resources.

**Outcome:** Reduce the number of fixed object crashes by 5 % statewide over the next 5 years based on the current crash information.

**Data:** Data relative to vegetation would include a measure of roadside mowing and/or tree clearing. Data relative to removal of other fixed objects would include records of parking regulation enforcement.

**Data Collection:** The Department of Transportation Maintenance Asset Tracking System (MATS) should provide data relative to the cost and measure of mowing and tree removal operations. Parking enforcement data would be available from the responsible law enforcement agencies, which would likely be local law enforcement.

**Funding:** Funding of roadside maintenance activities is part of the Department of Transportation's annual maintenance budget. Unfortunately, it competes for funding with items that are typically given a higher priority, such as asphalt maintenance, winter maintenance, and bridge repair. It is imperative to address the overall maintenance funding to preserve a safe and efficient highway infrastructure.

**Measure of Performance:** Number of Fixed Object crashes.

### Strategy-Develop ITS/Technology Solutions for Rural Applications

**Target:** Rural highway users where changes in highway alignment and/or roadside conditions may not be as evident or expected as they are in more-developed areas.

**Implementation:** Rural highways present unique challenges from a safety perspective. Because motorists are generally traveling to or from points that are removed from these highways, they may not be as alert to the conditions of the highway. In addition, they may not be as familiar with specific changes in alignment or condition as there are fewer landmarks. Because of this, certain conditions, such as sharp curves, dark intersections, or reduced speed limits may not be as evident. Static warning signs or permanent flashing beacons can become part of the landscape and therefore less effective. Some agencies have developed dynamic, responsive Intelligent Transportation System (ITS) devices to address these issues. An example would be a standard curved alignment warning sign, possible with an advisory speed, that includes single, or multiple flashing beacons. The beacons would be activated by an advance speed sensor that detects a vehicle approaching at a rate of speed too high for the curve. Other conditions that might benefit from similar technology would be unexpected intersections or even large animal crossings. Implementation would include identifying these locations and deploying these technologies as a research exercise.

**Time:** Securing the research funding and agency, determining appropriate locations, installing and monitoring the devices, and reporting the results could be as much as a two-year project.

**Output:** A positive output would be the determination that these devices were effective and securing the resources and additional personnel to implement a statewide program.

**Outcome:** Reduce the number of crashes in subject locations by 25% after installing the devices.

**Data:** Geo-locatable crash data for rural highways to be correlated with highway alignment data. Warning sign inventory data would also be helpful to identify alignment locations with warning signs that have abnormal crash history.

**Data Collection:** Crash data collected by Department of Safety and location of sites collected by Department of Transportation

**Funding:** Funding for this initial effort should be through available research programs, such as the federal SPR program. Installation of “pilot” devices for evaluation may be funded through programs available with the New Hampshire Highway Safety Agency. If successful, continued funding for additional installations and maintenance would be through the Department of Transportation’s operating budget.

**Agencies involved:** Department of Transportation (Bureaus of Traffic, Planning and Community Assistance, and Materials and Research), Department of Safety, and the Highway Safety Agency.

**Measure of Performance:** Number of crashes at specific locations.

## Emphasis Area 5: Reckless Driving Behavior

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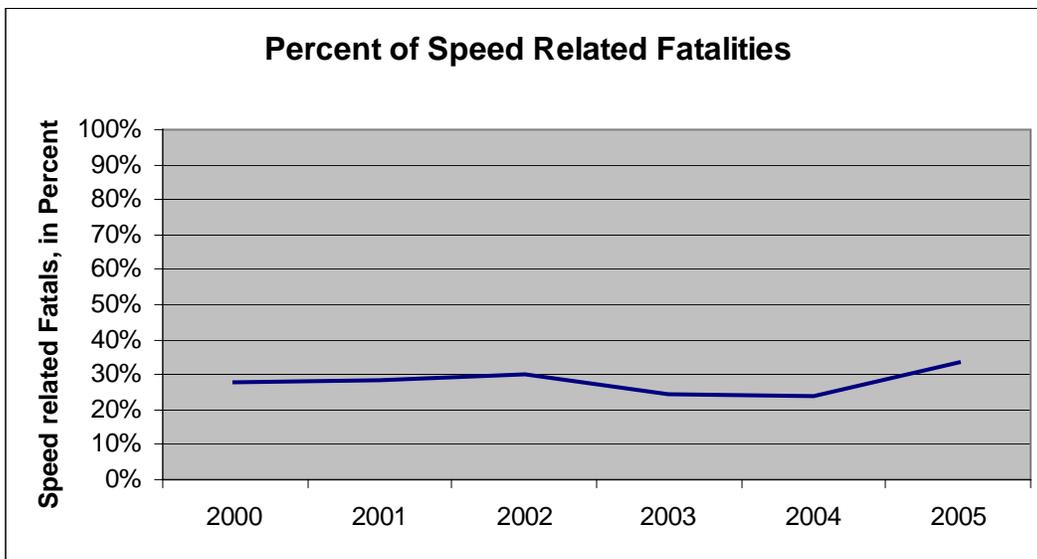
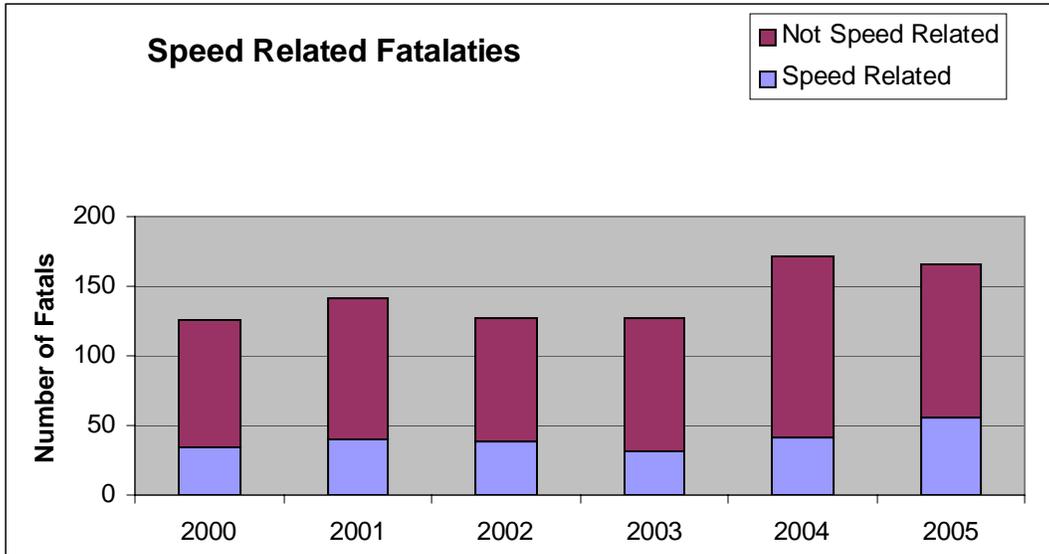
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### **Background**

Reckless driving is all around us and is committed by members of the driving public of all ages, races and genders. Its form ranges from excessive speed and unsafe and erratic lane changes to road rage, impaired and inattentive drivers. Reckless driving behavior is a violation of New Hampshire law (RSA 265:79). Reckless driving includes drivers who operate their vehicles in a selfish, pushy, impatient way. This type of driving often has an adverse affect on other members of the motoring public. The law states in part that whoever “drives a vehicle recklessly or causes a vehicle to be driven recklessly... or so that the lives and safety the public shall be endangered...” shall be guilty of a violation. The violator shall be fined not less than \$500 for a first offense and \$750 for a second offense, nor more than \$1000. In addition the violator’s license shall be revoked for a period of 60 days for the first offense and from 60 days to one year for the second offense. A person acts recklessly, according to State law, when they are aware of and consciously disregard a substantial and unjustifiable risk. This behavior could include but is not limited to excessive speed, aggressive lane changes, unsafe passing, following too closely, and impaired driving. The State also has a negligent driving statute, with lesser penalties. A driver acts negligently when they fail to become aware of a substantial and unjustifiable risk that an ordinary observant person would identify. This behavior would include many instances of distraction and inattention (RSA 265: 79-b).

### **Historical Trends**

Speed related fatalities make up approximately 30% of NH Highway fatalities. According to the 2007 New Hampshire Strategic Action Plan, unsafe speed is one of the main contributors to personal injury collisions, second only to driver inattention. Specific statistics for reckless driving are unavailable; however, Police officers and the public agree that there seems to be a significant increase in the amount and seriousness of reckless driving.



### Extent of the Problem

Based on the available crash statistics and enforcement figures, it is apparent that the number of automobile crashes is on the increase. According to the Strategic Action Plan, 2005 statistics show the highest contributing factors for personal injury crashes were driver inattention/distraction, unsafe speed, failure to yield, following too closely, physical impairment, and improper turns. Although it is impossible to say if all of these qualify as reckless driving, it is factual to say that reckless driving could include any one or all of these ingredients.

## **Contributing Factors**

New Hampshire has seen a steady increase in population. During the years between 2000 and 2005 the State's population increased by 6% to 1,310,000. During that same period licensed drivers increased by 8.6%, registered motor vehicles went up 13.75% and crashes increased by 7.8%. We are trying to fit a larger volume of motor vehicles across the same infrastructure that has been in place for decades. Combine these factors with the societal changes that have taken place over the past twenty years, and you have the recipe for disaster. People are under pressure to get more done in less time, thus they are naturally in a hurry. People tend to drive faster and more aggressively in order to get to such places as work, meetings, shopping or home. Drivers are more apt to be seen using electronic devices like ipods, cell telephones and PDAs. In addition drivers eat, drink, put on makeup, read and text message while driving. All of these factors lead to a driver who is stressed out and not paying attention while driving down a road that is over-crowded.

## **Objectives**

The goal of this emphasis area is to reduce the number of incidents of reckless (and negligent) driving as well as to reduce the number of highway accidents that result from reckless (and negligent) driving by 24% in the next three years.

## **Strategies**

- Increase in Public Awareness
- Increase in Enforcement of Existing Laws
- Combine Aggressive Driver Enforcement Details

### Strategy- Increase Public Awareness

**Target:** All of New Hampshire's highway users.

**Implementation:** Educational public service announcements would be shown on TV, aired on the radio and placed in the newspapers, as well as rented billboards. The Department of Transportation would use strategically located variable message boards with educational messages. Public speaking engagements would be given by members of the law enforcement community to increase the public's awareness of the dangers of reckless and careless driving. Finally, an increase in the amount of time spent on this topic would be included in driver education classes.

**Time:** Although there are some educational programs already ongoing, these additional measures would be put in place when funding is secured and agencies' efforts coordinated.

**Output:** Better educate the motoring public to the dangers of reckless and careless driving.

**Outcome:** Reduce the number of crashes resulting from incidents of reckless driving by 8% over the next three years.

**Data:** Statistical data of crashes caused by reckless (and negligent) driving.

**Data Collection:** Data collected by the Division of Motor Vehicles from police crash reports.

**Funding:** This strategy would be funded by existing and/or enhanced Highway Safety Agency funds, along with possible funds from the insurance industry.

**Agencies Involved:** State, county and local law enforcement, the NH Department of Transportation and the NH Highway Safety Agency.

**Measure of Performance:** The number of highway crashes resulting from reckless (and/or negligent) driving.

### Strategy- Increase Enforcement

**Target:** New Hampshire Law Enforcement.

**Implementation:** This strategy will require increasing the number of uniformed law enforcement officers assigned to traffic enforcement, as well as increasing the training in regards to identifying and apprehending the reckless driver. It also will increase the commitment of police administrators, managers, and supervisors to be proactive in traffic enforcement and a growing recognition of the importance of every uniformed officer recognizing traffic enforcement as one of their primary responsibilities, and the dual role of traffic enforcement in crash reduction and crime suppression.

This effort should tie in with better traffic records systems. The times, locations and types of violations should be matched to the times, locations, and causes of collisions, to ensure that enforcement efforts are targeted to achieve maximum effect.+

**Time:** The training aspect could occur in the short term and would be ongoing. The increase in officers would be contingent on funding and getting those officers properly equipped and trained.

**Output:** This strategy would result in a reduction in the occurrences of reckless and careless driving behavior, which would have a direct result in the reduction of the number of crashes resulting from this type of behavior.

**Outcome:** To reduce the number of crashes resulting from incidents of reckless (and negligent) driving by 8% over the next three years.

**Data Needed:** Enforcement statistics such as the number of warnings, citations and arrests. Also, the number of crashes resulting from reckless driving.

**Data Collection:** Law Enforcement Agencies and the Division of Motor Vehicles.

**Funding:** Federal Grants, existing and enhanced New Hampshire Highway Safety Agency grants and Court fines.

**Agencies Involved:** State, county and local law enforcement, Department of Motor Vehicles and the New Hampshire Highway Safety Agency.

**Measure of Performance:** The number of crashes resulting from reckless (and negligent) driving as well as the increased enforcement statistics.

### Strategy- Combine Aggressive Driver Enforcement Details

**Target:** New Hampshire Law Enforcement

**Implementation:** Combine and coordinate the efforts of State, county and local law enforcement into specific aggressive driver enforcement details in targeted areas of our State.

**Time:** This could be implemented immediately and would continue with emphasis on commuter hours and high volume traffic days.

**Output:** Increase law enforcement visibility and enforcement of targeted behavior.

**Outcome:** To reduce the number of crashes resulting from incidents of reckless and negligent driving by 8% over the next three years.

**Data:** Enforcement statistics such as the number of warnings, citations and arrests. Also, the number of crashes resulting from reckless and negligent driving.

**Data Collection:** Law Enforcement Agencies and the Division of Motor Vehicles.

**Funding:** Existing and enhanced funds from the New Hampshire Highway Safety Agency.

**Agencies Involved:** State, county and local law enforcement.

**Measure of Performance:** The number of crashes resulting from reckless and negligent driving, as well as the increased enforcement statistics.

## Emphasis Area 6: Impaired Drivers

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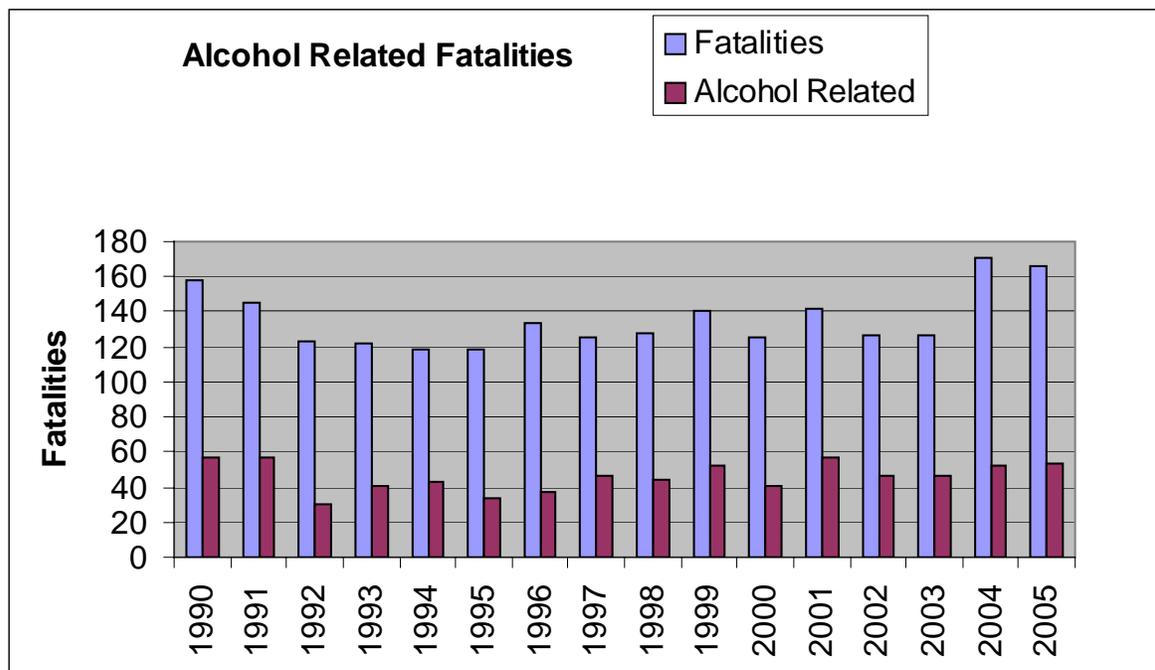
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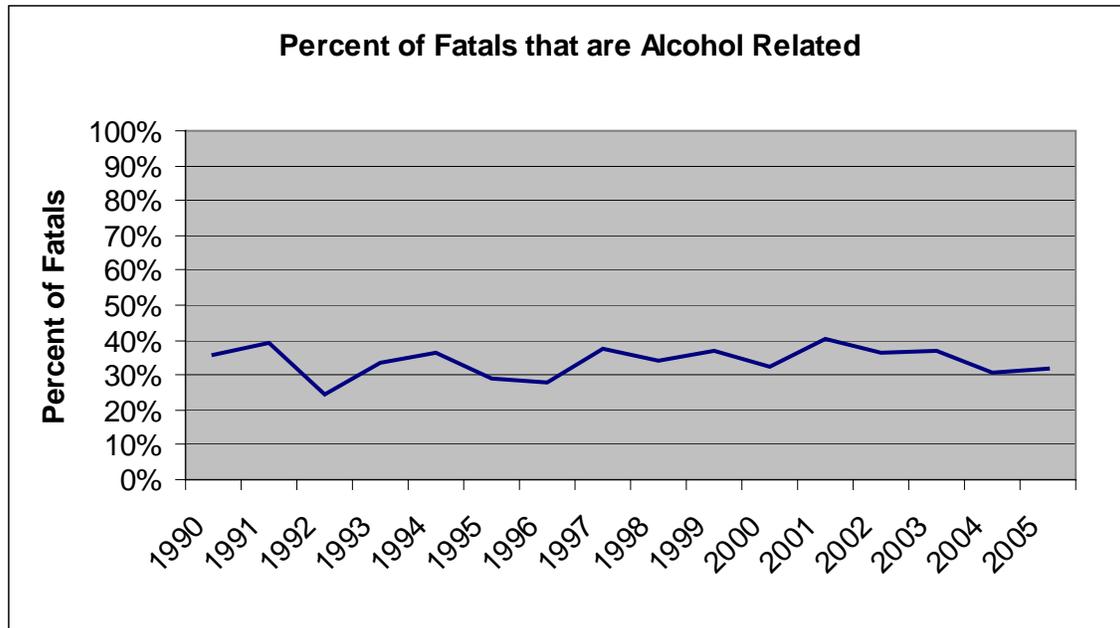
### Background

This emphasis area includes highway crashes in which vehicle operators are under the influence of drugs or alcohol. Alcohol-impaired driving is among the most common contributors to motor vehicle crashes in the United States. In 2005, 16,885 individuals were killed in a motor vehicle crash in which the driver or other participant had a positive blood alcohol concentration (BAC), and 14,539 of those were 0.08 percent or above, which is the legal limit for drivers in all 50 states and the District of Columbia. The 16,885 alcohol-related fatalities represent 39 percent of the 43,443 motor vehicle fatalities that occurred in 2005. Alcohol-related crashes are estimated to cost the public more than \$50 billion yearly.

### Historical Trend

There were declines in alcohol-related fatal crashes from the 1980s to the early 1990s; but there has been little change since that time. Between 1994 and 2003, alcohol-related traffic fatal crashes range between 16,500 and 17,500 a year nationwide. In NH 30% to 40% of all fatal crashes are related to impaired drivers.





### Extent of the Problem

Over the past three decades, alcohol-related crashes have decreased nationwide and have decreased in NH to a consistent level, with anomalous increases in specific years. Traffic safety professionals attribute the decline in alcohol-related crashes to a combination of the programs to reduce drunk driving and changes in values as a society, where we no longer tolerate DWI as it had been accepted many years ago. Although there had been a decrease in fatal crashes in NH as noted, recent years have seen the pursuit of healthier lifestyles, engineering improvements in roadways and vehicles, substantially increased use of seatbelts, and the changing age composition of the population (there is a decreasing number of people in the age group most likely to drink heavily and to drive after doing so). The two fundamental methods to reduce alcohol-related crashes are (1) to reduce excessive drinking through policies and programs to control alcohol sales and over-serving, and inform drinkers of the dangers of excessive drinking and (2) to deter driving while impaired by alcohol.

### Other Issues

#### Objective

The goal of this emphasis area is to eliminate crashes where impaired drivers are at fault.

#### Strategies

- Education - Public Announcements and Education
- Increase DWI Patrols

## Strategy – Education

**Target:** An Education initiative extolling the virtues of driving sober would include public service announcements, billboards, and Driver Education class curricula. This initiative targets groups that include school children (High School and Elementary), the public, business owners, and media groups.

**Implementation:** Implementation will require buy-in from media and business partners, law enforcement, MADD, and NHSA.

**Time:** The impact and rollout of this initiative are both immediate and long-term. Education campaigns will be scheduled around specific events and times of year. The target audience will become disinterested with the announcements if bombarded constantly. Specific dates or events are July 4<sup>th</sup>, New Year's, graduation, prom season, and spring break.

**Output:** Impaired driving eliminated.

**Outcome:** By 2017 there will be no impaired driving fatalities. Currently, 30% of all fatalities are a result of alcohol or drug impaired driving. By reducing the percentage each year by 3% over 10 years, impaired driving related fatalities will be eradicated.

**Data:** Need data on incidents of arrests and convictions.

**Data Collection:** Data regarding the number of arrests and convictions for impaired driving will be collected in the field by law enforcement.

**Funding:** This could be funded with the funds derived from the Highway Safety Improvement Program, 10% flexible spending. Also, this could be funded via existing safety grant projects or with an increase in the alcohol tax.

**Agencies Involved:** Department of Safety, Division of State Police, local police, County Sheriffs, Partnership for a Drug Free America, Department of Corrections, NH Department of Transportation, the NH Highway Safety Agency, NH Liquor Commission, and National Highway Traffic Safety Administration.

**Measure of Performance:** Data showing the percent decrease in fatal crashes, the number of violations recorded, and the number of violators taking the required DWI training program.

## Strategy – Increase DWI Patrols

**Target:** The target for this strategy is the impaired driver.

**Implementation:** Implementation will require the Division of State Police to hire additional personnel and deploy DWI patrols as their priority function. These personnel would be a dedicated resource and would only in emergency situations deviate from this task and only then until support would arrive freeing them to again resume their DWI patrol. Assignment to these patrols would be rotated periodically. This would increase Division-wide expertise in detecting impaired drivers, and ensure that the effectiveness of the unit would not be compromised by growing demands for the assigned officers to appear as witnesses in an ever-growing number of contested DWI trials.

Implementation would also require the NHDOS to hire professional prosecutors to present the additional DWI cases in court, to ensure success.

**Time:** The impact and rollout of this initiative are both immediate and long-term. DWI Patrols would have an immediate impact in arresting drunk drivers and would produce a long-term deterrence to drunk driving.

**Output:** More enforcement of laws and better conviction rate in court.

**Outcome:** By 2017 there will be no impaired driving fatalities. Currently, 30% of all fatalities are a result of impaired driving. By reducing the percentage each year by 3% over 10 years, impaired driving related fatalities will be eradicated.

**Data:** Arrests and convictions.

**Data Collection:** Data regarding the number of arrests and convictions for impaired driving will be collected in the field by law enforcement.

**Funding:** An increase in the liquor tax could be earmarked for the patrols and prosecutors. Also, a portion of the costs to individuals required to take remedial courses could also be earmarked to fund the patrol personnel.

**Agencies Involved:** Department of Safety, State Police, local police, County Sheriffs, NH Liquor Commission

**Measure of Performance:** Data showing the percent decrease in fatal crashes, the number of violations recorded, and the number of violators taking the required DWI training program.

# Emphasis Area 7: Special Users

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## Background

This emphasis area includes all bicycle and pedestrian crashes involving a motorized vehicle. It also includes motorcycle and commercial vehicle crashes. School buses are categorized as commercial vehicles but are treated separately in this report. All of these special users share the roadway with a significantly higher number of motorized vehicles.

## Bicycle & Pedestrian

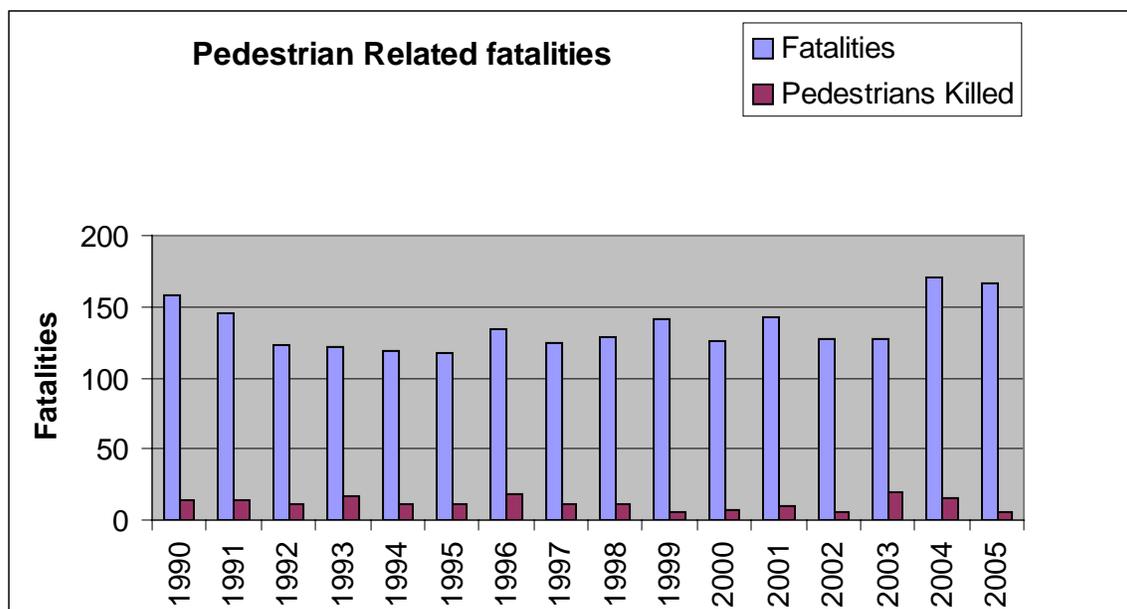
### Historical Trend

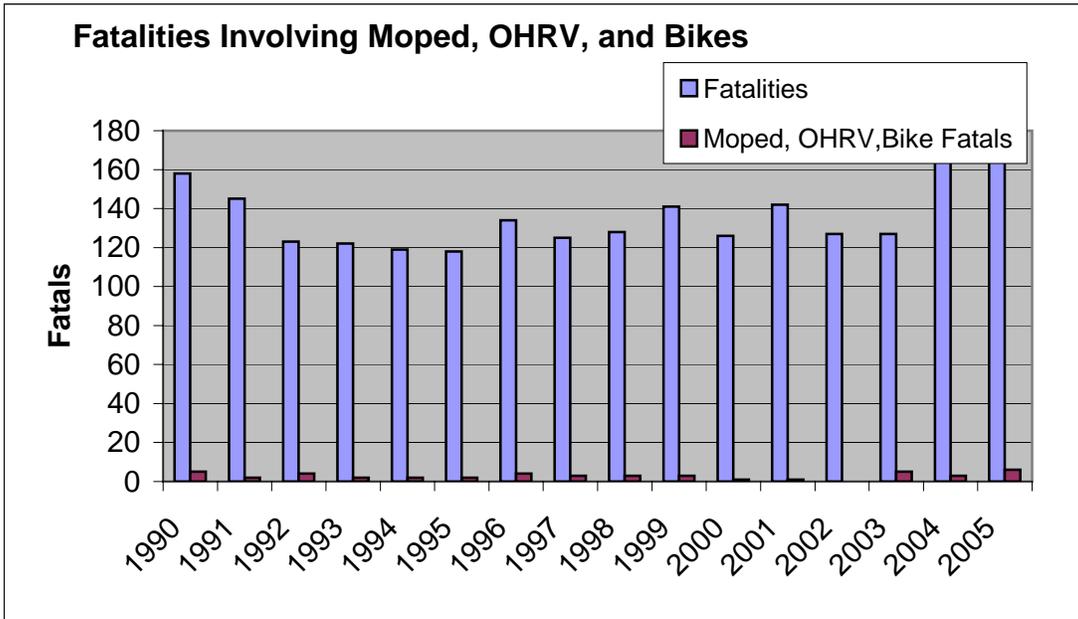
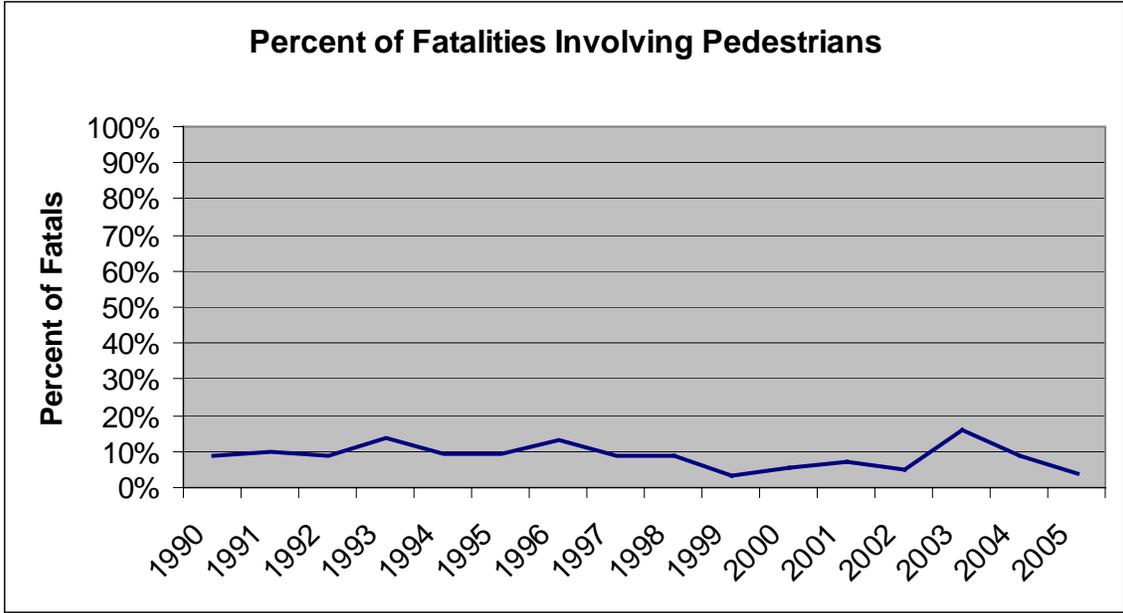
#### a) Bicycles

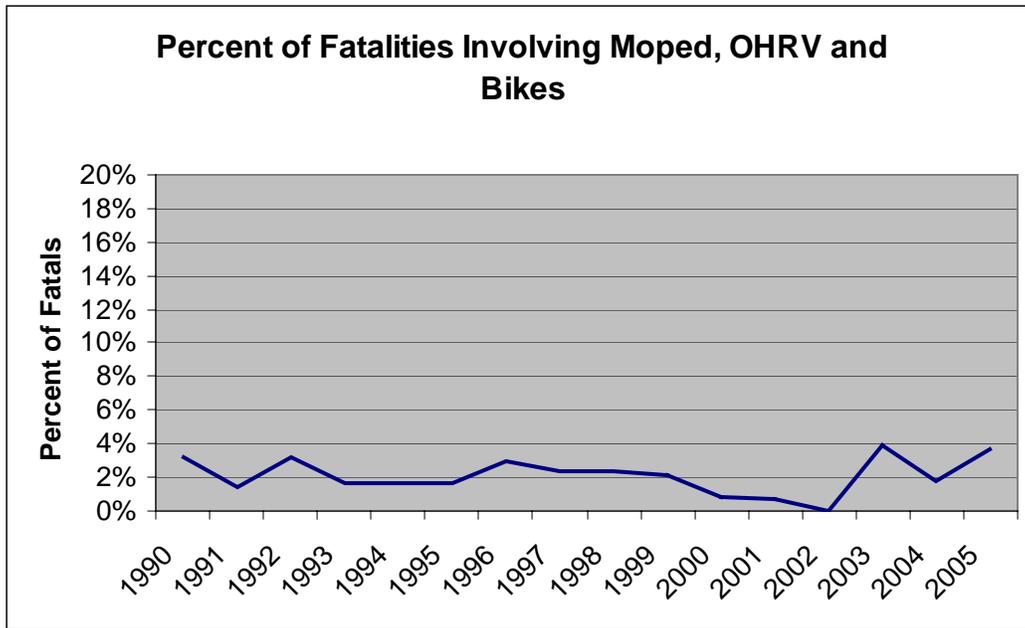
For the time period of 2002 to 2005 there were 498 bicycle crashes with 6 bicycle crashes ending in a fatality. 1 fatality was a child and 5 were adults. (Child is defined as 15 years old or younger)

#### b) Pedestrians

For the time period of 2002 to 2005 there were 47 pedestrian crashes ending in a fatality. 7 fatalities were children and 40 were adults. (Child is 15 years old or younger)







**Extent of the Problem**

a) **Bicycles and Pedestrians:**

The data indicates education is the most important factor to deter this type of crash. Most of the fatalities were adults, so this should be the area to focus on.

**Objective**

Increase safe motorcycling, bicycling, walking, and commercial vehicle operation, including school buses.

**Strategies**

- Education

Strategy – Education

**Target:** All citizens of NH with an emphasis on adult behavior.

**Implementation:** Mass media, PSA announcements and school programs. Partner with the Departments of Education and Health and Human Services and AARP. Form coalition and advocacy groups.

**Time:** Ongoing

**Output:** This strategy will require public outreach and acceptance by the public school system. It should also target the private sector to provide educational materials when

selling bicycles, scooters and mopeds. Senior centers should be targeted for pedestrian safety.

**Outcome:** Increase bicycle usage and promote walking as a mode choice. Decrease percentage of bicycle and pedestrian crashes.

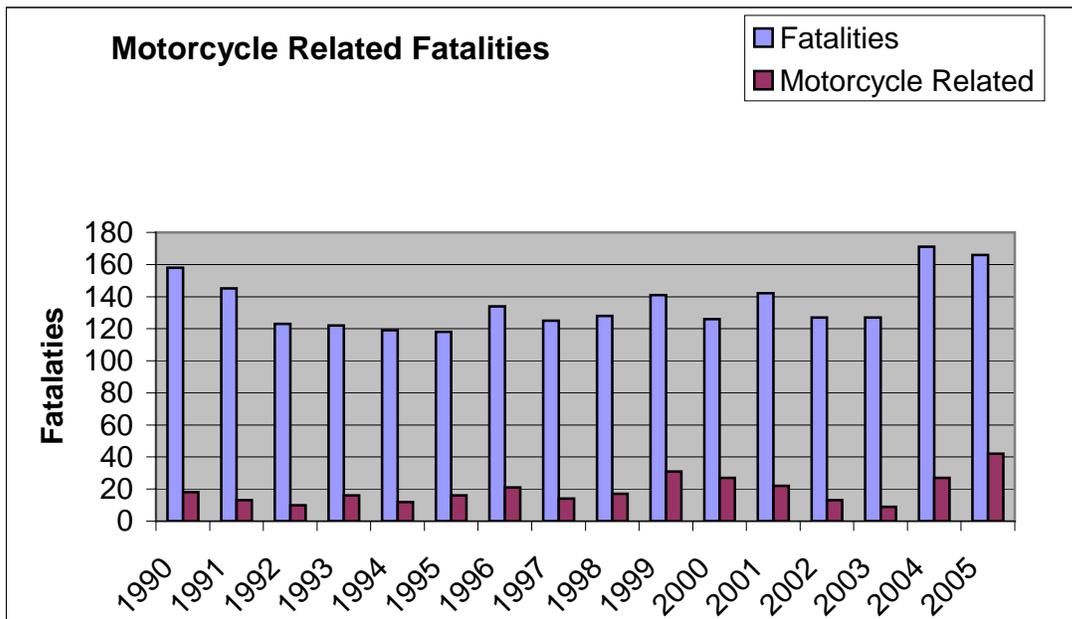
**Data:** Need crash data to identify age group, type of crash, and conditions.

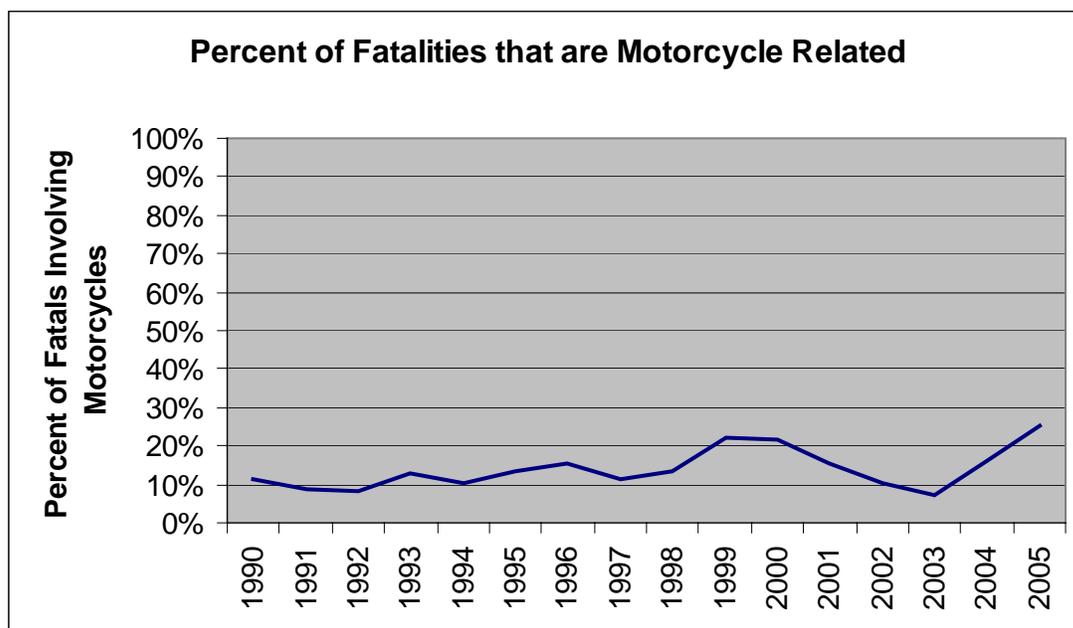
**Funding:** Some funding exists – Safe routes to school program, Highway Safety Agency. Also, some grants have been given to private citizens conducting safety and awareness campaigns.

## Motorcycles

### Historical trend

For the time period of 2003 to 2005 there were 3,504 motorcycle crashes, with 91 motorcycle crashes ending in a fatality.





### Extent of the Problem

One common problem motorcyclists have is being seen by other drivers. In trying to create an awareness, motorcyclists may promote unsafe behaviors such as riding the centerline of a roadway. Education seems to be the most important factor to deter this behavior.

### Objective

Increase safe motorcycling

### Strategies

- Education

### Strategy - Education

**Target:** All roadway users

**Implementation:** PSA's, continued effort of Motorcycle Safety and Awareness Task Force, outreach such as State Fairs and other major events.

**Time:** Ongoing

**Output:** Public outreach, increased education, add questions to driver's exam.

**Outcome:** Increase awareness on behalf of motorcycling public, and increase participation in formal training to decrease motorcycle crashes.

**Data:** Education and Training totals, Hemet usage data, improved crash data.

**Funding:** Highway Safety Agency

## Commercial Vehicles

### Historical trend

#### **Commercial Vehicles**

For the time period of 2003 to 2005 there were 3,524 commercial vehicle crashes, with 14 ending in a fatality.

#### **School Buses**

For the time period of 2002 to 2005 there were 207 Bus crashes, with 61 injuries. There has only been 1 on-board fatality in the last 30 years.

### Extent of the Problem

#### **Commercial Vehicles:**

Commercial vehicles share the roadway with much smaller vehicles. Statistics show that most crashes with commercial vehicles are caused by passenger vehicles. Blind spots and other factors such as poor road geometry create situations that are hazardous. Education of the motorist, and better road design seem to be the most important factors to eliminate these hazards.

### Strategies

- Education

### Strategy – Education

**Target:** All roadway users

**Implementation:** PSA's

**Time:** Ongoing

**Output:** Public outreach, increased education (including more questions on driver's exams regarding school buses and commercial vehicles). Consider renting billboard space to raise awareness levels and more focused/directed enforcement of passenger vehicles operating unsafely around CMV's.

**Outcome:** Increased awareness by other motor vehicle operators, resulting in a decrease in crashes with commercial vehicles.

**Data:** Crash data, age, and other factors

**Funding:** DOS, Highway Safety Agency

## Emphasis Area 8: Emergency Medical Services

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### **Background**

Each year in New Hampshire, there are over 110,000 requests for emergency medical services (EMS). Many of these requests are patients who have sustained injuries in highway related crashes and other traumatic events. New Hampshire's Department of Safety, Division of Fire Standards and Training and Emergency Medical Services is responsible for ensuring that victims of serious injury crashes have access to the most appropriate and timely EMS care.

In New Hampshire, emergency medical care is provided by more than 4,500 emergency medical providers who are employed by over 290 Emergency Medical Services (EMS) Units (services). New Hampshire providers are a mix of career and volunteer, certified at one of five levels of care, spanning from the basic Emergency Medical Technician (EMT) to paramedic. In 2004, EMS Units responded to 19,654 trauma cases recorded by hospitals, of which 7,933 were motor vehicle crashes. Of these motor vehicle crashes, 126 were considered critical victims.

New Hampshire's pre-hospital EMS system is comprised of municipal (3<sup>rd</sup> service and Fire Department), commercial, hospital, and volunteer services. The volunteer EMS Units are often the only source of pre-hospital emergency care in rural communities. As with other volunteer sectors, recruiting new volunteers and maintaining a volunteer base is a challenge for EMS. Many communities are experiencing a decline in applicants and have difficulty retaining existing volunteers. Commercial Units are also struggling to retain a steady workforce.

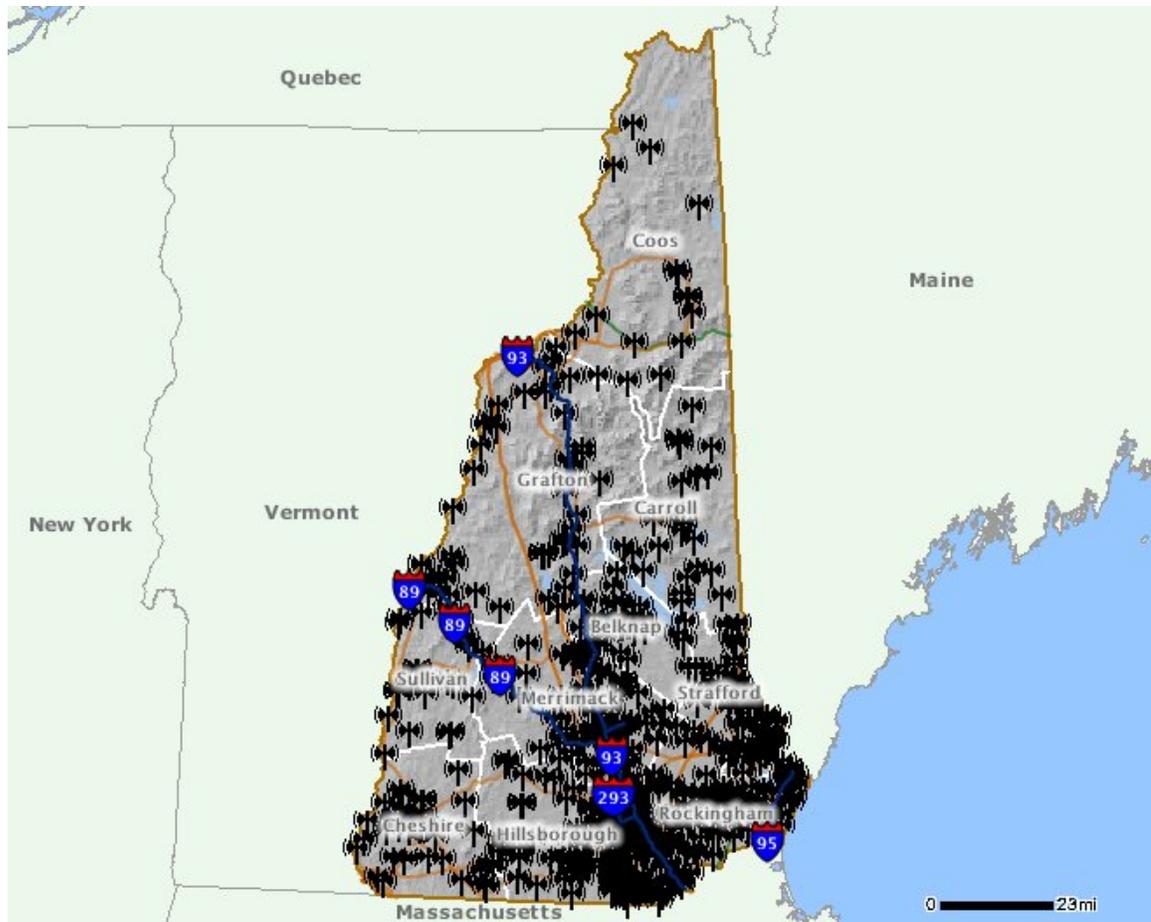
### **Historical Trend**

There are three broad areas of concern:

1. Access to EMS and identification of crash location
2. Behavior of drivers at a crash while EMS Providers are responding
3. Injury and death of EMS Providers in crashes

#### **1.) Access to EMS and identification of crash location**

There are two issues surrounding access to EMS and the identification and location of motor vehicle crashes in New Hampshire. The first is accessing EMS. As has been noted in the press, there are areas of the state without adequate cellular coverage. The map in figure 1, clearly demonstrates there is a dearth of coverage in Sullivan and Coos counties.



**Figure 1 Cell towers in New Hampshire N.H. GRANIT Data Map  
Personal Wireless Service**

The State of New Hampshire Department of Transportation provides emergency mile markers every 0.2 miles on I-93, I-89, I-95, the Everett and Spaulding Turnpikes. They are not in place in any other areas such as other state-maintained roads. This method of location identification has proven effective by more timely emergency responses, faster traffic incident clearance, fewer crash-related delays, and fewer secondary crashes. In a study of mile markers in Tennessee,

“Highway agency personnel and emergency response personnel have also expressed satisfaction with the markers. Results indicate highway agency and emergency response personnel generally feel that spacing of the reference markers at 0.2-mile intervals was satisfactory.”<sup>1</sup>

<sup>1</sup> Pigman, J. Evaluation of Tennessee reference markers. April 2002.  
<http://www.tdot.state.tn.us/longrange/reports/Res-1183.pdf>

## 2.) Behavior of Drivers at a crash while EMS Providers are responding

There are two New Hampshire statutes that are applicable to the behavior of drivers. First is RSA 264:25-A, Expedited Clearance of Roadways at Accident Scenes. “The driver of a vehicle who has been involved in an accident on the traveled portion of the roadway, shall move such vehicle from the traveled portion to an un-traveled area if it is possible to move such vehicle without risk of further damage to property or injury to persons.”

Second is RSA 265:37-A, Motorist Duties When Approaching Highway Emergencies. “When in or approaching an incident involving a fire, collision, disaster, or other emergency resulting in partial or complete blockage of a highway, or a location where a police officer has made a traffic stop, every driver other than the driver of an emergency response vehicle, shall:

I. Maintain a reduced speed.

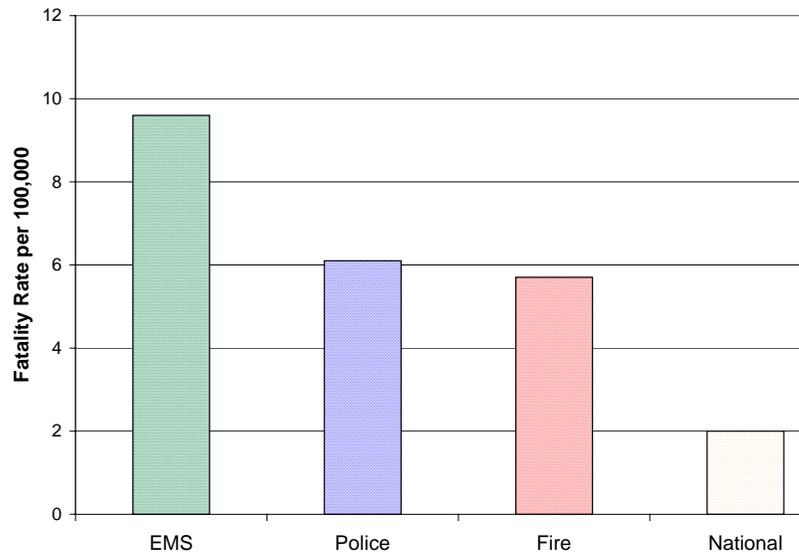
II. Obey the directions of any authorized person directing traffic and of all applicable emergency signals and traffic control devices.

III. Vacate as soon as possible any lane wholly or partially blocked.

IV. Give a wide berth, without endangering oncoming traffic, to public safety personnel and any persons in the roadway.”

As discussed in the following section, there are still provider injuries responding to and at the scene of motor vehicle crashes due in part to the behavior of other drivers.

## 3.) Injury and death of EMS Providers in Crashes



**Figure 2 Fatality Rate per 100,000 Public Safety Workers Motor-Vehicle Crashes, 1994-1997**

Information gathered from three fatality databases: the Census of Fatal Occupational Injuries (1992 to 1997), the National EMS Memorial Service (1992 to 1997) and the National Highway Traffic Safety Administration’s Fatal Analysis Reporting System (1994 to 1997) demonstrated 114 EMS worker fatalities. The primary cause of death for

EMS workers is motor vehicle crashes with an estimated rate of 9.6 per 100,000 for EMS workers 6.1 for police and 5.7 for firefighters. The national average for work related motor vehicle deaths is 2.0 per 100,000.<sup>2</sup>

In a study<sup>3</sup> of 339 EMS related crashes, there were 405 fatalities and 838 injuries. These crashes occurred more often between noon and 6 PM (39%), on improved (99%), straight (86%), dry roads (69%), during clear weather (77%), while going straight (80%), through an intersection (53%), and striking (81%) another vehicle (80%) at an angle (56%). Most crashes (202/339) and fatalities (233/405) occurred during emergency use.

Further, the crashes occurred significantly more often at intersections, at an angle, with another vehicle. Thirty pedestrians and 1 bicyclist accounted for 9% of fatalities. In the ambulance, most serious and fatal injuries occurred in the rear (OR 2.7 vs front) and to improperly restrained occupants (OR 2.5 vs restrained). Sixteen percent of ambulance operators were cited; 41% had poor driving records.

Within New Hampshire, two of the memorial awards presented on a yearly basis for excellence in EMS are named for providers killed in ambulance crashes. Pamela Mitchell and Richard Connelly worked with Ross Ambulance, Littleton; and Lawrence Volz worked with the Newington Fire Department.

During the last two years, there have been three significant crashes in New Hampshire involving EMS vehicles. On April 22, 2005, one person was killed after a crash where their car collided with an EMS vehicle. On November 3, 2006, three people were taken to the hospital after an ambulance flipped on its side when it swerved to avoid an oncoming car. On November 27, 2006, a paramedic and a motorcyclist were injured when motorcycle struck an EMS vehicle.

## **Objective**

Reduce traffic fatalities and serious injuries on roadways

## **Strategies**

- Increase access to Emergency Medical Services for users of New Hampshire's roadways by increasing the availability of communication
- Improve EMS response to motor vehicle crashes on highways by better identifying location of crashes
- Educate public on responsibility after a motor vehicle crash
- Prevent additional injuries at motor vehicle crashes

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<sup>2</sup> MacGuire, B. J., Hunting K. L., Smith, G. S., Levick, N. R., Occupational fatalities in emergency medical services: a hidden crisis, *Annals of Emergency Medicine*, 40(6) 625-632.

<sup>3</sup> Kahn, C.A., Pirralo, R.G., Kuhn, E.M. Characteristics of fatal ambulance crashes in the United States: an 11-year retrospective analysis. *Prehospital Emergency Care* 2001 Jul-Sep;5(3):261-9

Strategy – Increase Access to Emergency Medical Services for Users of New Hampshire’s Roads and Highways by Increasing the Availability of Communication

**Targets:** Crashes occurring in rural areas with unacceptable cell phone reception

**Implementation:** Identify the poor areas of cell phone reception

**Time Frame:** One year

**Output:** Identification of poor cell phone reception areas

**Outcome:** By 2009, all areas of poor cell phone reception will be identified

**Data Needed:** 9-1-1 calls from cell phones for crashes will be compared to the crashes reported without cell phones. Maps of cell coverage areas from Public Utilities Commission (PUC).

**Data Collection:** Data collected by 9-1-1 and PUC can be collated by Department of Safety staff

**Funding:** Evaluation or traffic records funding

**Agencies Involved:** 9-1-1, DFST&EMS, DOT, PUC, and DOS/FMO

**Measure of Performance:** Successful comparison of rate of cell to landline phone usage in motor vehicle crashes as measured by the improvements in coverage (engineering), requests for public safety by cell phone in previously identified “dead spots” (EMS and enforcement)

**Notes:** Cooperation of key agencies is critical to success

Strategy – Improve EMS Response to Motor Vehicle Crashes on the Highway by Better Identifying Location of Crash

**Targets:** Better location identification of all crashes on interstates and secondary roads

**Implementation:** Location signage on all major roadways in New Hampshire

**Time Frame:** Five years

**Output:** Location signage of all major roadways in 1/10 mile increments

**Outcome:** By 2010, location signage will be in place in 90% on New Hampshire’s major roads

**Data Needed:** Locations of areas without the signage from DOT

**Data Collection:** DOT, roadway inventory

**Funding:** Strategic Highway Safety Funds

**Agencies Involved:** DOT DOS/DFTS&EMS, and DOS/FMO

**Measure of Performance:** Increased percentage of location signage (engineering), and better identification of crash location (EMS and enforcement)

### Strategy – Educate Public on Responsibility After a Motor Vehicle Crash

**Targets:** Change behavior of public after a crash

**Implementation:** Public Service Announcements (PSA’s) involving Fire, EMS, and Law Enforcement on appropriate behaviors such as calling 9-1-1, assisting the injured, and moving out of traffic.

**Time Frame:** Three years

**Output:** Identification and reduction of secondary crashes on secondary roadways

**Outcome:** By 2010, PSA’s will run during times of high traffic and DOT will place “clear out traffic” and “move over law” signage in high volume areas.

**Data Needed:** Locations of areas of high volume traffic from DOT

**Data Collection:** DOT, roadway inventory

**Funding:** Strategic Highway Safety Funds

**Agencies Involved:** DOT and DOS/DFTS&EMS

**Measure of Performance:** PSA displays and increased percentage of signage (education), less EMS involved crashes (EMS and enforcement)

### Strategy – Prevent Additional Injuries at Motor Vehicle Crashes

**Targets:** Motor vehicle crashes requiring the response of emergency medical services

**Implementation:** Training of emergency medical services providers to protect themselves and existing victims of motor vehicle crashes

**Time Frame:** By the end of 2010

**Output:** Train EMS Providers in safe practices while at crash scenes

**Outcome:** By the end of 2010, all providers of emergency medical services in New Hampshire will be trained in safe practices at the scene of motor vehicle crashes.

**Data Needed:** Crash Report linked to a list of ambulance plates and Vehicle Identification Numbers to identify ambulances and EMS vehicles involved in crashes

**Data Collection:** Crash report, EMS Licensing system, and records of safe practices training

**Funding:** Strategic Highway Safety Funding

**Agencies Involved:** DOS/DMV, DOS/FST&EMS

**Measure of Performance:** Reduction in severity and number of ambulance-involved crashes (EMS and enforcement)

**Notes:** Keys to success include cooperation between FST&EMS and DOS/DMV and potential roadblocks include funding for the training

