

Washington State's Strategic Highway Safety Plan:
Target Zero

STAKEHOLDER REVIEW
DRAFT

June 5, 2006

Purpose

The Strategic Highway Safety Plan (SHSP) has been developed to identify Washington State's traffic safety needs and to guide investment decisions to achieve significant reductions in traffic fatalities and serious injuries. In developing this plan, Washington State seeks to build traffic safety partnerships throughout the state in order to align and leverage our resources to address Washington's traffic safety challenges.

A state-developed Strategic Highway Safety Plan (SHSP) is a new federal requirement of Safe, Accountable, Flexible, Efficient, Transportation Equity Act – A Legacy for Users (SAFETEA-LU), 23 USC 148. This document meets those federal requirements for Washington State.

Closely following the successful model adopted in the American Association of State Highway and Transportation Officials (AASHTO) Strategic Highway Safety Plan, Washington State's SHSP is strongly data driven. The AASHTO SHSP model was developed in cooperation with the Federal Highway Administration (FHWA), The National Highway Traffic Safety Administration (NHTSA), and the Transportation Research Board (TRB). At the core of Washington State's SHSP are traffic safety emphasis areas and proven strategies/countermeasures that target problems on Washington roadways. These emphasis areas and proven strategies are organized under the following five basic categories: Driver and Occupant Behaviors, Other Special Users, Roadways, Emergency Medical Services, and Traffic Information Systems. The SHSP provides a comprehensive framework of specific goals, objectives, and strategies for reducing traffic fatalities and serious injuries.

Our Partners

The following organizations were consulted in development of Washington State's Strategic Highway Safety Plan (SHSP) and are critical to achieving SHSP's goals

Washington State Agencies:

Department of Transportation
Governor's Office
Traffic Safety Commission
Washington State Patrol
Department of Health
Department of Licensing
Department of Social and Human Services
State House and Senate
Governor's Office of Indian Affairs
Washington Transportation Commission
Washington Utilities & Transportation Commission
County Road Administration Board
Administrative Office of the Courts
Office of Superintendent of Public Instruction
Freight Mobility Strategic Investment Board
Transportation Improvement Board

Local and Regional Agencies and Organizations:

Washington Association of Sheriffs and Police Chiefs
Puget Sound Regional Council
CRAB-CO Road Administration Board
Metropolitan Planning Organizations
Regional Transportation Planning Organizations
The Association of Washington Cities
The Washington Association of Counties
The Washington Association of County Engineers
The Department of Licensing Motorcycle Task Force
North American Tribal Enforcement Officers

Federal Agencies:

National Highway Traffic Safety Administration NW Region
Federal Highway Administration Region
Federal Motor Carrier Safety Administration
Federal Railroad Administration Region 8
Federal Transit Administration

Private Agencies and Organizations:

AAA of Washington
Washington Trucking Association
Mothers Against Drunk Driving (MADD)
American Traffic Safety Services Association

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Chapter 1 / Introduction

1.1 Our Mission

Washington State's Strategic Highway Safety Plan: Target Zero has been developed to identify Washington State's traffic safety needs and guide investment decisions to achieve significant reductions in traffic fatalities and serious injuries on all public roads.

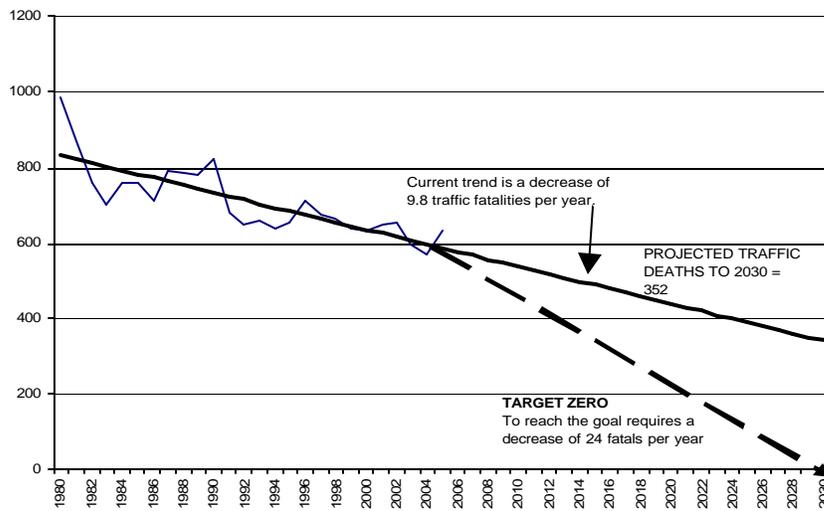
1.2 Our Vision

By the year 2030, Washington State will achieve a transportation system that has zero traffic deaths and zero disabling injuries.

1.3 Our Goal

Washington State seeks to eliminate traffic deaths and disabling injuries. In order for Washington State to achieve Target Zero, the State must experience 24 fewer fatalities each year for the next twenty-five years. See Figure 1-1, Achieving the Target Zero Vision, below.

Figure 1-1: Achieving the Target Zero Vision



1.4 Background

According to the National Highway Traffic Safety Administration, 42,636 people died in motor vehicle crashes in 2004. Nationwide, motor vehicle traffic crashes are the eighth leading cause of death among all ages and the number one cause of death

for every age from three through 33¹. In Washington State, traffic crashes kill more people age one to 44 than disease or other injuries.

Washington State is a leader in traffic safety and our State's roadway fatalities have been dropping: from 712 in 1996 to 563 in 2004. We are proud of our improvements but we believe we can do better. We cannot prevent all traffic crashes but most deaths and disabling injuries are preventable.

We can impact those behaviors that lead to traffic deaths and disabling injuries by eliminating impaired driving, slowing down speeding drivers, increasing seatbelt use, curbing aggressive driving, supporting intermediate driver licensing, keeping drivers alert, focusing on special populations with high death rates, and ensuring all drivers are fully licensed and medically competent.

We can improve accommodations; interactions; designs; facilities; and awareness of and for pedestrians, bicyclists, motorcyclist, and commercial motor vehicles.

We can improve roadways to keep vehicles from leaving the road and minimize the consequences of striking objects or overturning when a vehicle does leave the roadway. We can improve the design and operation of intersections and reduce the possibility of head-on and across-median crashes. We can design safer work zones and school zones.

We can enhance emergency medical capabilities to increase survivability when a collision does occur. We can improve our traffic data collection systems to improve our ability to measure the effects of these strategies and keep us on course to our target of zero deaths and disabling injuries. This guide shows us how.

¹ National Highway Safety Administration, Traffic Safety Facts, Research Note, January 2005, [Motor Vehicle Traffic Crashes As Leading Cause of Death in United States, 2002](http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/RNotes/2005/809831.pdf). (<http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/RNotes/2005/809831.pdf>)

Chapter 2 / Washington's Traffic Safety Trends

During 2001–2005, an average of 126,000 collisions per year have occurred on Washington's roadways. Of those collisions, an average of 3,700 people suffered fatal or disabling injuries resulting in the death of an average of 628 people each year. On average over the last five years, thirty-eight percent of traffic deaths occurred in speeding-related crashes and forty-seven percent of the traffic deaths occurred in impaired-driving crashes. Please refer to Figure 2-1, Summary of All Collision Types, on the next page for more information.

In 2000, the total economic cost of motor vehicle collisions in Washington was more than \$5.3 billion.

Trends in Washington's traffic deaths over the past ten years provide an overview of our traffic safety progress.

From 1993–2003, data from Fatal Accident Reporting System (FARS) shows that nearly eighty percent of people who die in traffic collisions are vehicle occupants, twelve percent are pedestrians, seven percent are motorcyclists, and less than two percent are bicyclists. Males account for sixty-eight percent of traffic deaths, while females account for thirty-two percent. By age group, 15–20 year-olds suffer the highest number of fatalities at 1,181 over the past ten years, followed by 21–25 year-olds at 908 deaths.

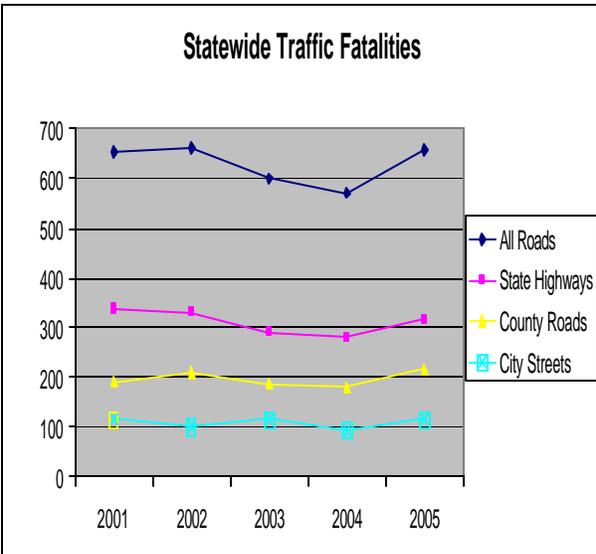
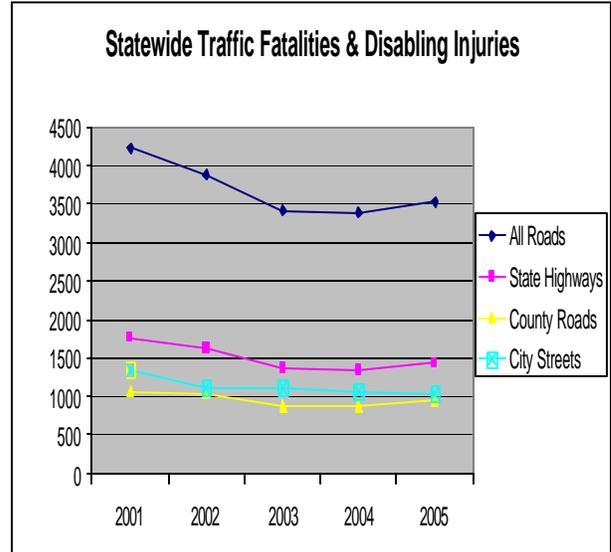
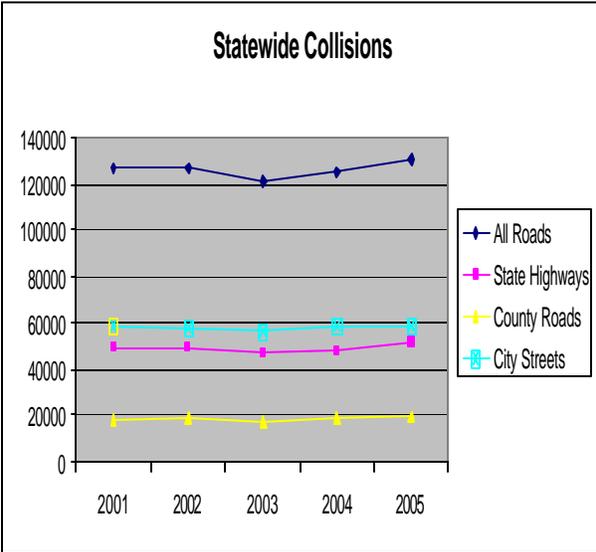
Sixty-one percent of traffic fatalities occur on rural roads, while thirty-nine percent occur on urban roads. By road type, thirty-eight percent of deaths occur on state or US highways, thirty-one percent on county roads, eighteen percent on city streets, and eleven percent on interstates. However, if you consider the rate of death per 100 million vehicle miles traveled (VMT), then county roads suffer the highest fatality rate at 2.28 per 100 million VMT, while State and US highways have a rate of 1.65, city streets are at .90, and the interstate is .53 per 100 million VMT.

Impairment and speed are the top two reasons cited in fatal crashes in Washington. From 1993–2004, impairment accounts for thirty-five percent and speeding accounts for twenty-five percent of all fatal crashes.

Traffic fatality and injury data is further analyzed for each of the Target Zero plan elements within that emphasis area.

Figure 2-1

Summary of All Collision Types 2001–2005



Speed Related Fatalities

Road Type	2000	2001	2002	2003	2004
State Highways	37%	29%	30%	30%	28%
County Roads	44%	44%	50%	49%	60%
City Streets	32%	41%	44%	43%	36%
Other/Unknown	50%	50%	58%	38%	53%
<i>All Roads*</i>	38%	36%	40%	39%	40%

Data Source: FARS

Impairment Related Fatalities

Road Type	2000	2001	2002	2003	2004
State Highways	45%	44%	48%	41%	41%
County Roads	51%	45%	52%	55%	64%
City Streets	42%	43%	52%	50%	46%
Other/Unknown	60%	50%	32%	13%	47%
<i>All Roads*</i>	46%	44%	49%	47%	49%

Data Source: FARS

Chapter 3 / Target Zero Plan Process

3.1 Development Process

Washington State is unique in its position to write a comprehensive, statewide Strategic Highway Safety Plan to better coordinate safety programs, align goals and objectives, and leverage resources to most effectively reduce highway fatalities and serious injuries, because we seek out and value partnerships. In fact, the Washington Traffic Safety Commission was structured by law to provide a mix of leaders who could collaborate to bring about the most efficient and effective management of traffic safety resources. The Commission consists of the Governor (who serves as chair), and the executives of the following state agencies: Office of Superintendent of Public Instruction, Department of Licensing, Department of Transportation, Washington State Patrol, Department of Health, and Department of Social and Health Services. In addition, the Governor appoints representatives from the Association of Washington Cities, the Washington Association of Counties, and the judiciary.

In 2000, Washington State wrote “Target Zero: A Strategic Plan for Highway Safety.” The Target Zero Steering Committee², in cooperation with state, local, and private agencies, focused on reducing traffic-related fatalities and disabling injuries in Washington State. They designed a plan to support the committee’s thirty-year vision to achieve a transportation system with zero deaths and disabling injuries.

In the past five years, our State has made remarkable progress toward the Target Zero vision. Our State’s new primary seatbelt law, combined with statewide high-visibility seatbelt enforcement and media campaigns, has driven our seatbelt use rate to an impressive ninety-five percent. Tougher impaired driving laws, high-visibility impaired driving enforcement, and media campaigns have dropped the percentage of alcohol-related fatalities to forty percent. Initial evaluations of the intermediate driver license laws show a fifty-eight to sixty percent reduction in the number of fatal and disabling injuries collisions for 16 and 17 year-olds licensed under the new provisions.

In 2005, a state-developed Strategic Highway Safety Plan became a federal requirement as part of SAFETEA-LU, 23 U.S.C. §148, and Washington State was well prepared to meet the challenge, having already developed the original Target Zero Plan.

The Washington Traffic Safety Commission (WTSC) and the Washington State Department of Transportation took the lead to gain leadership support for re-visiting the Target Zero Initiative. They identified the WTSC Deputy Director as the initiative’s champion. He enthusiastically began the task of reviewing the Target

² See Appendix A, “2000 Target Zero” for a complete list of steering and sub committee member agencies and organizations.

Zero document and searching current literature for best practices for reducing traffic collisions and fatalities. In his position, he was familiar with what had already been done and the results of existing planning processes and stakeholder meetings in the State. He established a working group that included WTSC; Washington State Department of Transportation; Department of Health; Washington State Patrol; major modes of transportation, Regional Transportation Planning Organizations (RTPOs) and Metropolitan Planning Organizations (MPOs); Operation Lifesaver; major state, local, tribal and private partners; and federal transportation agencies.

The team spent from January to March 2006 analyzing traffic data, considering the results of previous traffic safety summits such as results from the 2005 Annual Impaired Driving Conference, and WSDOT 2004 Safety Conscious Workshop, and existing traffic safety planning documents. A draft of the SHSP was developed. In April the lead State agencies reviewed the draft and provided critical details. In May through June the larger group of stakeholders (listed under Our Partners) reviewed the draft and provided their comments and suggestions. In July and August, after extensive input from our traffic safety partners, the goals, emphasis areas, strategies and performance measures were finalized for the Governor's review and approval in September 2006.

This document records the plan that was developed. It provides guidance to all agencies, groups, and individuals working in the field of traffic safety. It serves as a Statewide Strategic Highway Safety Plan and will be incorporated into the plans and programs of key traffic safety agencies. It directs the commitment of agency resources and funding. It seeks to support agencies, groups, and individuals working together to implement Target Zero strategies. It provides a strong evaluation process that will allow the examination of the progress towards the goals, suggest changes to the strategies, and feed results back into the planning process so that priorities can be revisited and the plan updated periodically.

3.2 Data Analysis Process

Washington's Traffic Records System is comprised of hardware, software, and accompanying processes that capture, store, transmit, and analyze the following types of data: collisions; citations and adjudication; drivers and registered vehicles; motor carriers; injury surveillance including emergency medical services, emergency department, trauma, hospital inpatient and death records; and roadway information including traffic volume, features inventory, and geometrics; and location information, including geographic information systems.

This data system serves as the critical link in identifying problems, selecting appropriate countermeasures, and evaluating the performance of these programs.

The Washington Traffic Records Committee (TRC) is a statewide stakeholder forum created to facilitate the planning, coordination, and implementation of projects to improve the State's traffic records system. The TRC is a partnership of state, local,

and federal interests from the transportation, law enforcement, criminal justice, and health professions. Washington's TRC fosters understanding among stakeholders and provides an appropriate venue to formulate mutually beneficial projects to improve the timeliness, accuracy, integration, and accessibility of statewide traffic data.

In November 2003, the TRC hosted a state traffic records assessment conducted in cooperation with the National Highway Traffic Safety Administration, a division of the US Department of Transportation. This assessment provided a number of recommendations as to how the current system architecture could be improved. In addition, the TRC held numerous strategic planning sessions to develop a foundation for the State's future direction in traffic records. As a result of these efforts, the TRC has created the Washington Traffic Records Strategic Plan. The goals, objectives, and strategies of that plan are available in [Part V, Traffic Information Systems](#), on page 76.

3.3 Scope

Traffic fatalities are declining, despite the fact that we are driving more vehicles more miles. The intersection between the number of fatalities and the number of vehicle miles driven is called the traffic fatality rate. Over the years, the traffic fatality rate has dropped in Washington State from 4.91 deaths per 100 million vehicle miles traveled (VMT) in 1966 to 1.01 deaths per 100 million VMT in 2004. This is well below the Department of Transportation's national goal for 1.44 traffic fatalities per 100 million VMT.

The reasons traffic fatality rates are declining are varied and include improved vehicle safety standards and advanced engineering of vehicles such as the introduction of seatbelts, air bags, anti-lock brakes, crumple zones, and stability steering systems.

Future improvements in vehicle manufacture, crash avoidance, and other intelligent vehicle initiatives hold much promise for further reductions in the death and disabling injury rates. Even medical breakthroughs, such as advances in controlling addiction and alcoholism, or improvements in eye sight, hearing, or reflexes of the aging, could also have a positive effect on the State's fatality rate.

However, it is also a fact that many successful traffic safety programs, tougher legislation, improved roadways, faster emergency responses, and stronger enforcement have also contributed greatly to the decline in traffic deaths. It is in these areas that Washington State's traffic safety partners have worked together to bring about the changes that contributed to Washington's lowest traffic fatality rate on record. This plan provides a comprehensive inventory of proven, effective strategies to help stakeholders identify projects designed to move our State from 563 deaths in 2004 to zero by the year 2030.

Chapter 4 / Emphasis Areas

4.1 Data-Driven Emphasis Areas List

Washington State will continue to reduce traffic deaths and disabling injuries on all roads and highways by focusing on the following:

I. Driver Behaviors

- Impaired Drivers: Reducing collisions involving drunk or drugged drivers
- Speeding Drivers: Reducing collisions involving speeding drivers
- Unrestrained Drivers or Passengers: Increasing correct seatbelt and child restraint use
- Aggressive Drivers: Reducing collisions involving aggressive drivers
- Distracted and Drowsy Drivers: Reducing collisions involving distracted or drowsy drivers
- Young Drivers: Reducing collisions involving novice drivers
- Unlicensed Drivers: Reducing collisions involving drivers who are not properly licensed

II. Other Users

- Pedestrian Safety: Making walking and crossing the street safer, especially in school zones
- Motorcycle Safety: Reducing collisions involving motorcycles
- Commercial Vehicle Safety: Reducing collisions involving heavy trucks

III. Roadway Improvements

- Reducing severe and fatal injuries associated with run-off-road crashes
- Reducing intersection crashes
- Reducing head-on and across median crashes
- Reducing congestion-related crashes

IV. Emergency Medical Service and Trauma Care Systems:

- Enhancing emergency medical capabilities to increase survivability

V. Management:

- Improve traffic data collection systems

4.2 Where to Find More Information

Most of the strategies in the Target Zero plan have been used in one or more places and found to be effective by a properly designed evaluation.

Some of the strategies in the Target Zero plan have not yet been proven effective. Either they are strategies that have been tried and may even be accepted strategies, but for which no valid evaluations that provide a link between the project and an actual reduction in traffic deaths and injuries has been found. When funding such a strategy, the State will require an extensive, properly designed evaluation component be a part of the project.

When building the strategies in this document, two main sources were used to determine if strategies were proven or not. The American Association of State Highway and Transportation Officials has developed a national [Strategic Highway Safety Plan](#)³, available on their web site. The comprehensive plan will substantially reduce vehicle-related fatalities and injuries on the nation's highways. Along with the plan, National Cooperative Highway Research Program has developed guides that document strategies for significantly reducing roadway injuries and fatalities. These guides, which contain proven, tried, and experimental strategies, are linked in this document in the emphasis areas that apply to them.

The second guidance document is [Countermeasures that Work](#)⁴, A Highway Safety Countermeasure Guide for State Highway Safety Offices by the Governors Highway Safety Association for the National Highway Traffic Safety Administration and the US Department of Transportation. This guide lists countermeasures, best practices, and expected effectiveness.

Other reference material is also linked throughout this document to provide detailed information about these objectives and strategies.

³ <http://safety.transportation.org/plan.aspx>

⁴ <http://www.nhtsa.dot.gov/people/injury/airbags/Countermeasures/index.htm>

Chapter 5 / Priority Objectives and Strategies

5.1 Priority One: Impaired Driving and Speed

Impaired driving and speed are the top two causes of death and disabling injuries on Washington's roadways. On average over the last five years, forty-seven percent of the traffic deaths occurred in impaired-driving crashes and thirty-eight percent of traffic deaths occurred in speed-related crashes. About sixty percent of all speed-related crashes also involve impairment. Please refer to Figure 2-1 Summary of All Collision Types, on page 4 for more information.

From 2001 to 2005, 3,140 people have been killed on Washington's roads. Impaired driving claimed 1,472 lives during these years, and speeding claimed 1,195 lives. Impairment and speed play a role in collisions in almost every other priority area in this document. In other words, if we can meaningfully reduce impaired driving and speed, we could cut the death rates across the board. This makes impaired driving and speed our top priority areas.

To cut the death rate from impaired driving and speed, we believe Washington needs to fully employ two proven strategies: sobriety checkpoints and photo-radar speed enforcement. For more information of impaired driving statistics and strategies, please see 6.1 Impaired Drivers, on page 15. For more information on speeding statistics and strategies, please see 6.2 Speed, on page 20.

5.2 Priority Two: Occupant Protection, Run-Off-Road Collisions, Intersection Collisions, and Traffic Data Systems

Traffic data indicates that the next most important priorities are occupant protection, run-off-road collisions, intersection collisions, and improving our traffic data systems.

Occupant Protection: Seatbelts save lives. Of the 1,646 drivers and passengers killed in Washington in traffic crashes between 2002 and 2005, forty-three percent were unbelted. Additionally, fifty-seven percent of the unbelted drivers had been drinking. Since seatbelts are seventy percent effective in saving lives, increasing seatbelt use is very effective in reducing the highway death toll. Washington's seatbelt use rate is the highest in the nation at ninety-five percent. Occupant protection remains a priority, because we need to protect that rate against decline. If we could reach that last five percent, we could see further reductions in traffic deaths and disabling injuries. For more information on unrestrained drivers and passengers, please see section 6.3 Unrestricted Drivers and Passengers, on page 24.

Run-Off-Road Crashes: During 2001-2005, run-off-road crashes accounted for 178,012 collisions, 8,250 fatal and disabling injuries, and 1,758 deaths, accounting for over half of all traffic deaths during this time period. Keeping vehicles on the roadway is a part of the second priority group for improving traffic safety. Speeding and impaired driving were the leading causes of these crashes. More information on reducing deaths and disabling injuries due to run-off-road crashes is available in section 8.1 Reducing Run-Off-Road Crashes, on page 57.

Intersection-Related Crashes: Intersection-related crashes are also part of the second priority group. Data shows that they accounted for 332,504 collisions, 7,272 fatal and disabling injuries, and 737 deaths during 2001-2005. About one third of intersection related fatalities are also impairment-related fatalities, and twenty-five percent are also speed-related. For more information, please see section 8.2 Reducing Crashes at Intersections, on page 61.

Traffic Data Systems: Reliable data provides the underpinnings of an effective campaign to reduce injuries and fatalities on the State's roadways. This data serves as the critical link in identifying problems, selecting appropriate countermeasures, and evaluating the performance of these programs. Fully implementing Washington Traffic Records Strategic Plan remains a priority for the State. For more information, please see Chapter 10, Traffic Information Systems, on page 76.

5.3 Priority Three: Young Drivers, Distracted and Drowsy Drivers, Unlicensed Drivers, Aggressive Drivers, Pedestrian Safety, Motorcycle Safety, Commercial Vehicle Safety, Head-On and Across Median Crashes, Congestion-Related Crashes, and Emergency Medical Services

Significant traffic safety issues comprise Priority Three. Data shows these areas are important to address in order to reduce traffic disabling injuries and deaths. More information about these issues is included in the emphasis areas that comprise the remainder of this document.

Young Drivers: When we look at the traffic fatality data by age group, we found that 15-20 year old drivers suffer the highest number of fatalities at 1,181 deaths during 1993-2003. These deaths represent 16.5 percent of all fatalities during this time period. Strategies that address compliance with the State's intermediate driver's license law and underage drinking laws will go a long way toward reducing deaths and disabling injuries for this age group. Please see section 6.4 Young Drivers, on page 31 for more information.

Distracted and Drowsy Drivers: Distracted and drowsy drivers made up twenty percent of all drivers involved in fatal crashes during 1993-2004. Please see section 6.5 Distracted and Drowsy Drivers, on page 34 for more information.

Unlicensed Drivers: During 1994-2004, thirteen percent of drivers involved in fatal crashes were not properly licensed, meaning they were unlicensed or had suspended, revoked, expired, canceled, or denied licenses. Of the drivers without a valid license at the time of the crash, sixty-four percent were also impaired and forty-three percent were cited for speed. Please see section 6.6 Unlicensed Drivers, on page 37 for more information.

Aggressive Drivers: Aggressive drivers put themselves and others at grave risk. According to the National Highway Traffic Safety Administration, more than sixty percent of drivers see unsafe driving by others as a major personal threat to themselves and their families. Please see section 6.7 Aggressive Drivers, on page 39 for more information.

Pedestrian Safety: During 2001–2005, an average of sixty-eight pedestrians were killed each year in collisions with vehicles. The majority of these collisions occurred in urban areas. Children under age fourteen are the most likely pedestrian fatalities, followed by adults between the ages 41–45. Please see section 7.1 Pedestrian Safety, on page 42 for more information.

Motorcycle Safety: During 2001–2005, an average of sixty-one motorcyclists were killed each year on Washington’s roadways. This represents an increasing trend when compared to the previous five years, 1996–2000, when the average number of motorcyclists killed was thirty-nine. When we examine motorcycle deaths by age, we find the biggest increase is occurring for motorcyclists over age 40. Please see section 7.2 Motorcycle Safety, on page 49 for more information.

Commercial Motor Vehicle Safety: During 2002–2005, an average of forty-three fatalities occurred in collisions involving commercial motor vehicles. Each year, about a quarter of commercial motor vehicle fatalities involve speeding, and a third involve impairment. Washington State Patrol statistics show that in 2004, seventy-five percent of all fatal collisions involving commercial vehicles were caused by a passenger car. Please see section 7.3 Commercial Vehicle Safety, on page 53 for more information.

Head-On and Across Median Crashes: Head-on and across the median crashes kill an average of 130 people each year in Washington. Speed is a factor in about twenty-six percent of the deaths, and impairment is a factor in forty-nine percent. Please see section 8.3 Reducing Head-On and Across Median Crashes, on page 65 for more information.

Congestion-Related Crashes: [Data is being collected for congestion-related crashes.]

Emergency Medical Service and Trauma Care Systems: After a vehicle collision occurs, the ability of Washington State’s emergency medical services and trauma care system to get the “right” patient to the “right” facility in the “right” amount of time

can be the difference between an injury and a disabling injury, or the difference between life and death. Please see Chapter 9, Emergency Medical Service and Trauma Care Systems, on page 69 for more information.

5.4 Priority Four: Older Drivers, Bicycle Safety, Pupil Transportation, Work Zone Collisions, Wildlife Collisions, and Vehicle-Train Crashes,

While the traffic safety issues in the priority four area represent a small slice of the traffic death toll, it is important to continue to address strategies directed in these areas and to keep data tabs on these issues to ensure that they continue to decline. Because of the data-driven nature of this strategic highway traffic safety plan, these issues are not addressed in the emphasis areas that comprise the rest of this document. Many of these issues will benefit from the state placing the most important emphasis on eliminating impaired driving and speeding.

Older Drivers: Data shows that drivers who are over seventy years old have a higher rate of traffic fatalities per 100,000 population, the actual number of traffic fatalities involving drivers over age 70 remain low, an average of twenty-two deaths per year (compared to an average of 118 deaths each year for the 15-20 year old age group). Over the next twenty-five years, the number of older drivers in the United States will double. By 2030, twenty percent of Americans will be age 65 or older⁵. Although age itself does not determine driving capabilities, older drivers can experience declines in their sensory, cognitive, or physical functioning that can put them at an increased risk of traffic crashes. Washington State will continue to monitor data pertaining to older drivers and develop strategies to plan for an aging population with the goal of enabling older drivers to retain as much mobility, for as long as possible, when it is consistent with their safety and the safety of others. Many highway design and traffic control elements can be improved to better serve their needs. Older drivers can be taught to assess their driving capabilities and voluntarily limit their driving or cease to drive when indicated. Older drivers can prolong their abilities to drive through medical treatments such as eyeglasses or cataract surgery, or through vehicle adaptations such as extra mirrors or hand controls. Finally, older drivers who can no longer drive safely in some situations need to have their driver's licenses restricted or revoked. While these strategies are not part of this document, Washington State will continue to explore and develop effective strategies.

Bicycle Safety: Safer bicycle travel remains an important goal for Washington State even though data shows that vehicle-bicycle collisions account for an average of ten deaths per year over the past five years. With a growing obese population, the importance of promoting and supporting physical activity, including safe walking and biking environments, cannot be overstated. The State will continue current

⁵ Administration on Aging, "Profile of Older Americans," 2000, <http://www.aoa.gov/prof/statistics/profile/2002/2.asp>.

activities directed at educating motorists and bicyclists on the rules of the road and directed at enforcement against both motorists and bicyclists who break the rules. The State will continue to encourage the adoption of policies to better accommodate bicyclists on all public roads and perform an inventory of existing bicycle infrastructure to identify deficiencies.

Pupil Transportation: School bus travel remains the safest way to send children to school and Washington State will continue to ensure 100 percent of school buses receive safety inspections and school bus drivers receive the training in vehicle dynamics, precision driving skills, obstacle avoidance, and evasive maneuvers. From 1994 to the present, there have been no school bus passenger fatalities as a result of any school bus collisions.

Safer Work Zones: During 2001–2005, there has been an average of 1,800 collisions in work zones, accounting for an average of forty-seven fatal and disabling injuries and eight deaths each year. Washington State will continue to improve work zone operations and driver behavior in work zones through training, education, and enforcement.

Wildlife Collisions: Wildlife Collisions accounted for an average of 1,516 collisions per year during 2001-2005, causing an average of seventeen fatal and disabling injuries and an average of two deaths per year. To address this, Washington State will integrate safety elements during the project scoping and development designed to prevent wildlife-vehicle crashes

Vehicle-Train Crashes: Vehicle-train crashes account for only an average thirty-five collisions per year, causing less than an average of four disabling or fatal injuries, and an average of less than two deaths per year in Washington State. SAFETEA-LU provides a set-aside for rail grade crossing safety and requires the State to use the set-aside funds for installing protective devices at railway-highway crossings.

Chapter 6 / Driver Behaviors

6.1 Impaired Drivers: Reducing Collisions Involving Alcohol or Drug Impaired Drivers

Background

Of 563 traffic-related deaths in Washington State in 2004, 213 (or thirty-eight percent) were alcohol-related⁶. This represents a continued improvement from 1983, when fifty-one percent of all traffic deaths were alcohol-related.

Washington has been combating impaired driving for decades. We have vigorously pursued aggressive campaigns designed to change the public perception of the acceptability of drinking and driving. The legislature has enacted tough laws, from the 1968 voter-passed Implied Consent Law to lowering the legal definition of impaired driving to Blood Alcohol Content (BAC) of .08. We have implemented ignition interlock requirements on offenders and designed tougher sanctions for repeat offenders and those with high BACs. For drivers who refuse to take the breath test when asked, we have administrative license suspension. We have zero tolerance for drivers under 21. We have instituted statewide, high-visibility enforcement campaigns. Despite these efforts, impaired driving remains a challenging issue, both for our State and for the nation.

Hardcore drinking drivers (repeat offender-drinking drivers with prior DUI arrest or conviction, or offenders with a BAC of .15 percent or greater) constitute a significant portion of the impaired driver problem. The National Roadside Survey estimates that hardcore drinking drivers constituted less than one percent of all drivers, but represented twenty-seven percent of drivers in fatal crashes. Nationally, in 2004, hardcore drinking drivers were involved in over 9,081 highway fatalities.

In Washington State, drivers with a BAC of .15 or higher, who are killed in crashes, out number lower BAC drivers almost two to one.

Data in Washington State shows an increase in DUI arrests, from 31,651 DUI arrests in 2000 to 35,193 arrests in 2002. Washington's new primary seatbelt law may help account for the increase in DUI arrests which also saw a decrease in the average BAC at arrest of these drivers from .14 percent to .13 percent.

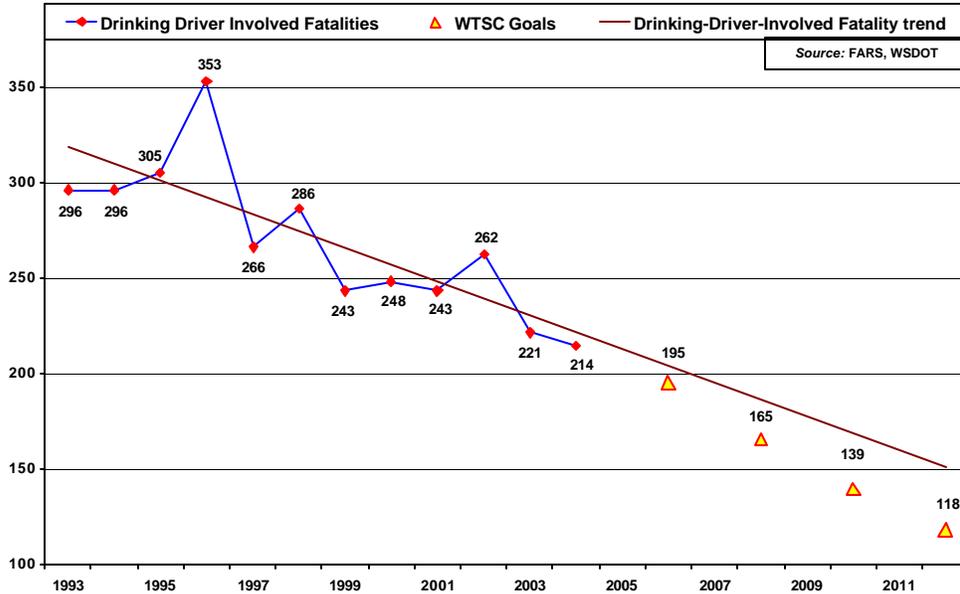
Impaired driving is a societal issue that crosses beyond the traditional traffic safety partnerships. Washington seeks partnerships with prosecutors and courts, prevention and intervention systems, health care communities and hospital emergency room personnel, in an ever-expanding effort to continue to eliminate impaired driving.

⁶ Preliminary data, WTSC

Goals and Performance Measures

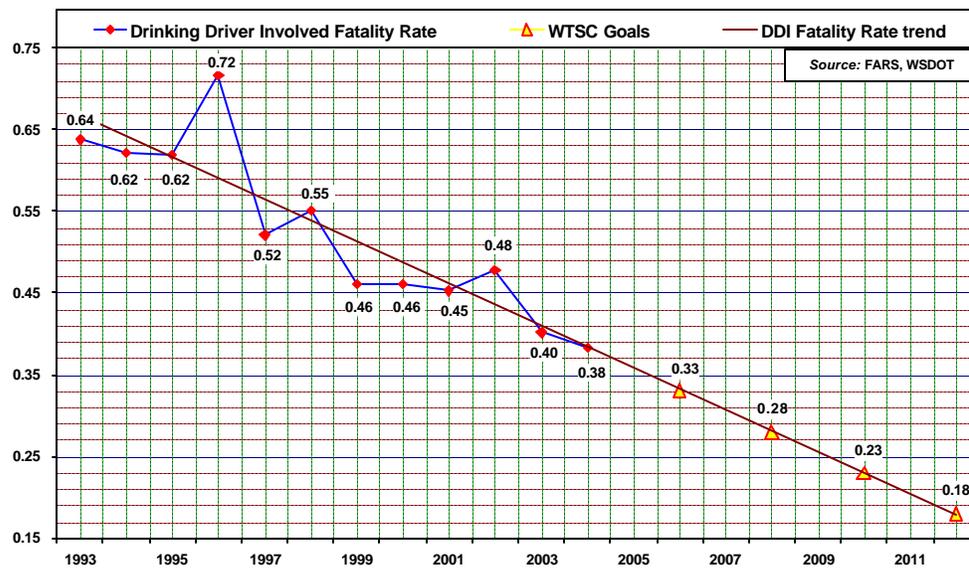
WASHINGTON DRINKING-DRIVER-INVOLVED FATALITIES*, 1993-2004

*At least one involved driver had been drinking before the crash



WASHINGTON DRINKING-DRIVER-INVOLVED FATALITY RATE, 1993-2004

DDI deaths per 100 million VMT



Objectives and Strategies to Reduce Impaired Driving

Objectives	Strategies
6.1 A. Reduce the incidence of impaired driving	6.1.A1. Continue statewide, high-visibility enforcement and media campaigns to reduce the incidence of impaired driving. (P)
	<ul style="list-style-type: none"> • Support efforts to simplify and streamline the DUI arrest process. • Enhance law enforcement training in alcohol and drug detection, and in evidence collection. • Target areas with high numbers of DUI-related crashes. • Develop appropriate messages and methods to reach segments of the population with a high incidence of impaired driving arrests. • Develop education messages in multiple languages.
	6.1.A2. Encourage the enactment of state laws that will enhance enforcement, prosecution, and adjudication of impaired driving laws. (P)
	<ul style="list-style-type: none"> • Support legal changes to allow vehicle checkpoints in Washington. • Support efforts to develop a DUI statutory scheme that provides laws that are sound, rigorous, and easy to enforce and administer. • Support the establishment of DUI courts. • Support efforts to use any money collected from DUI fines in excess of \$101 to support impaired driving programs.
	6.1.A3. Continue to build partnerships designed to reduce the incidence of impaired driving. (P)
	<ul style="list-style-type: none"> • Continue and expand the use of Brief Intervention and Screening in medical settings. (P) • Continue and expand judicial and prosecutorial education addressing DUI issues. (P) • Continue efforts such as the annual impaired driver traffic safety conference. • Utilize community traffic safety task forces to address impaired driving issues. • Collaborate with BIA, Indian Health Services, and NAETO to support Tribal Nations who would like to reduce the incidence of impaired driving on tribal lands. (E) • Expand the EI Protector program to increase traffic safety within the Hispanic Community.
	6.1.A4. Employ corridor safety model to high-crash locations where data suggests a high rate of impaired driving. (P)
	6.1.A5. Encourage the enactment of state laws that will enhance enforcement,

prosecution, and adjudication of impaired driving laws. (P)

- Support legal changes to allow vehicle checkpoints in Washington.
- Support efforts to develop a DUI statutory scheme that provides laws that are sound, rigorous, and easy to enforce and administer.
- Support the establishment of DUI courts.
- Support efforts to use any money collected from DUI fines in excess of \$101 to support impaired driving programs.

6.1.A6. Continue and expand the Liquor Control Board DUI Reduction Project to reduce over-service by licensed liquor premises.

6.1.B. Eliminate Hard Core Drinking Driver

6.1.B1. Establish a comprehensive program that is designed to reduce the incidence of alcohol-related crashes, injuries, and fatalities caused by hard core drinking drivers. (T)

- Develop a system of centralized screening, assessment, referral and monitoring of DUI offenders.

6.1.C. Target Drug-Impaired Driving

6.1.C1. Expand the Drug Recognition and Classification Program. (P)

- Include tribal police in Drug Recognition Expert training.
- Support on-going Drug Recognition Expert training.

Key: To assist stakeholders the strategies have been classified according to the AASHTO model into three categories and identified by these letters:

(P) Proven Strategy: Those strategies that have been used in one or more locations and subjected to properly designed evaluations that show it to be effective.

(T) Tried/Recommended: Those strategies that have been implemented in a number of locations and that may even be accepted as standards or standard approaches, but that lack found valid evaluations; or those strategies that are recommended best practices according to NHTSA.

(E) Experimental: Those strategies that have been suggested and found sufficiently promising that at least one agency has considered trying them on a small scale in at least one location.

Impaired Driver Resources:

NCHRP Report 500, Volume 16: [A Guide for Reducing Alcohol-Related Collisions](http://trb.org/news/blurb_detail.asp?id=5478).
http://trb.org/news/blurb_detail.asp?id=5478

[System Improvements for Dealing with the Hard Core Drinking Driver](http://trafficinjuryresearch.com/DWI_systemImprovements/dwi_system.cfm#project), Traffic Injury Research Foundation.

(http://trafficinjuryresearch.com/DWI_systemImprovements/dwi_system.cfm#project)

National Traffic Safety Board, Most Wanted Transportation Safety Improvements, [Eliminate Hard Core Drinking Driver](http://www.nts.gov/recs/mostwanted/hard_core_drinking.htm). http://www.nts.gov/recs/mostwanted/hard_core_drinking.htm

National Highway Traffic Safety Administration, Strategies for Addressing the DWI Offender: [10 Promising Sentencing Practices](#). 2004
<http://www.nhtsa.gov/people/injury/enforce/PromisingSentence/pages/>

[Countermeasures that Work](#), A Highway Safety Countermeasure Guide for State Highway Safety Offices by the Governors Highway Safety Association for the National Highway Traffic Safety Administration and the U.S. Department of Transportation. <http://www.nhtsa.dot.gov/people/injury/airbags/Countermeasures/index.htm>

National Highway Traffic Safety Administration, Emergency Nurses Association, and American College of Emergency Physicians, [Developing Best Practices of Emergency Care for the Alcohol-Impaired Patient](#). 2000.
<http://www.nhtsa.gov/people/injury/alcohol/EmergCare/toc.htm>

2006 IACP Highway Safety Committee, Impaired Driving Subcommittee Staff Study of Impaired Driving will be available on the WSP web site in October 2006.

The Journal of Trauma, Injury Infection and Critical Care. Alcohol and other drug problems among hospitalized trauma patients: Controlling complications, mortality and trauma recidivism. Vol. 59 No.3, September 2005. Entire issue addresses Screening and Brief Intervention.

6.2 Speed

Background

Speed is the second most commonly cited driver error, accounting for thirty-eight percent of all fatal crashes over the past five years, according to data from the Washington State Department of Transportation. From 2001-2005, there have been an average of 27,000 speed-related crashes each year, 1,157 of those resulted in fatal and disabling injuries and killed 237 people. Fifty-eight percent of speed-related fatalities were also impaired-driving related. Please refer to Figure 6.2-1 Speed-Related Collisions 2001-2005, on page 21 for more information.

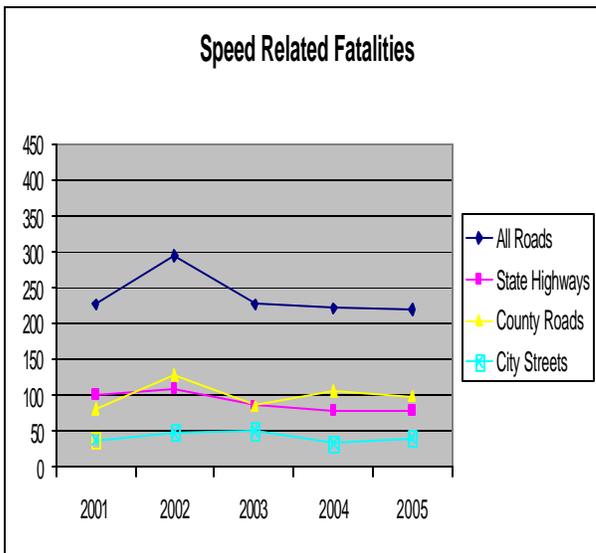
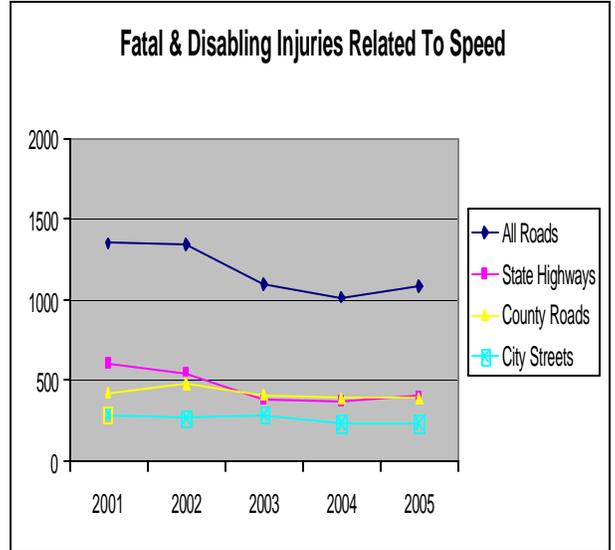
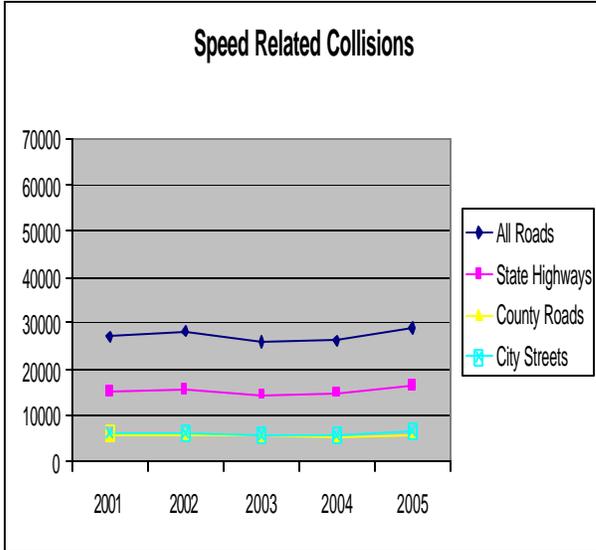
Although speed-related collisions occur most frequently on freeways, speed-related fatalities occur most frequently on county roads. Run-off-road crashes on curves are often speed-related.

Speed can be broken into two separate categories—speed too fast for conditions and exceeding the speed limit. Speed too fast for conditions may not include traveling over the posted speed limit, but relates more to the speed at which a driver will lose control of their vehicle given conditions such as wet, icy, or debris covered roads, heavy traffic, or poor vehicle maintenance. Dangerous speed related directly to the speed of a vehicle in relation to the limit posted for that roadway.

Engineering, education, and enforcement can all play a role in getting drivers to slow down. Some roadway designs give motorists the impression that it is safe to drive at faster than the posted speed limit, putting pedestrians and other vehicles at risk. Designing roads with features that keep speed limits down or employing traffic calming measures can help.

Figure 6.2-1

Speed-Related Collisions 2001-2005



Speed Related Fatalities

Road Type	2000	2001	2002	2003	2004
State Highways	100%	100%	100%	100%	100%
County Roads	100%	100%	100%	100%	100%
City Streets	100%	100%	100%	100%	100%
Other/Unknown	100%	100%	100%	100%	100%
<i>All Roads*</i>	100%	100%	100%	100%	100%

Data Source: FARS

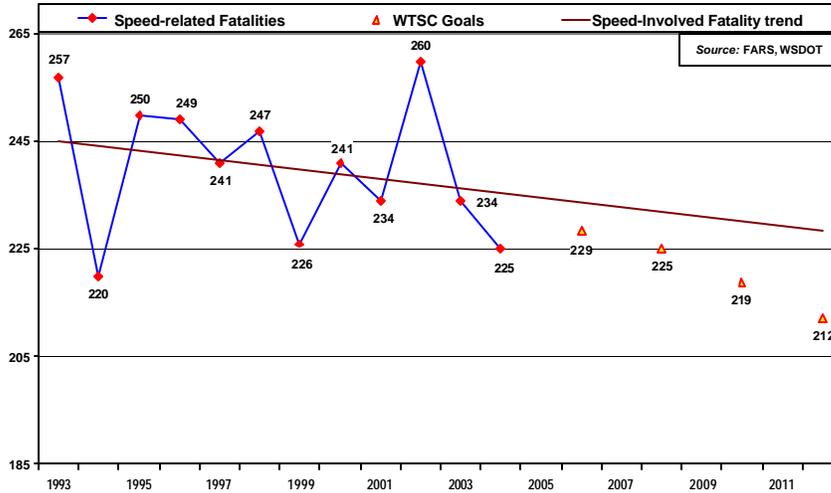
Impairment Related Fatalities

Road Type	2000	2001	2002	2003	2004
State Highways	50%	48%	48%	48%	49%
County Roads	63%	58%	66%	63%	68%
City Streets	66%	67%	75%	72%	63%
Other/Unknown	80%	50%	36%	33%	38%
<i>All Roads*</i>	57%	56%	60%	59%	60%

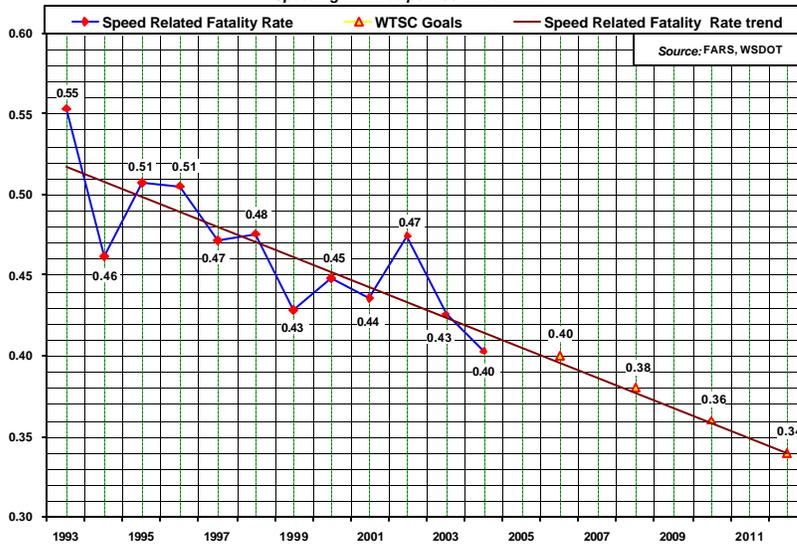
Data Source: FARS

Goals and Performance Measures

WASHINGTON SPEEDING-RELATED FATALITIES, 1993-2004
By Year



WASHINGTON SPEEDING-RELATED FATALITY RATE, 1993-2004
Speeding fatalities per 100 million VMT



Objectives and Strategies to Reduce Speed Related Collisions

Objectives

6.2.A. Reduce speed through enforcement activities.

Strategies

6.2.A1. Increase use of photo-radar automatic speed enforcement.

6.2.A2 Conduct high visibility enforcement efforts that strategically address speeders, locations, and conditions most common, or most hazardous, in speeding-related crashes

6.2.A3 Ensure law enforcement officers have appropriate equipment for speed enforcement.

6.2.B. Reduce speed through engineering measures to effectively manage speed.	6.2.B1. Use roadway design factors to influence driver speed selection appropriate to type of roadway.
	6.2.B2. Employ traffic calming devices where appropriate.
6.2.C Build partnerships to increase support for speed reducing measures	6.2.C1. Educate the public about the dangers of excessive speed and speed to fast for conditions and its big role in traffic fatalities.
	<ul style="list-style-type: none"> • Develop appropriate messages and methods to reach segments of the population inclined to speed or drive too fast for conditions. • Develop education messages in multiple languages.
	6.2.C2. Educate prosecutors and judges to ensure speed violations are treated seriously and fairly.
	6.2.C3. Employ corridor safety model to high-crash locations where data suggests a high rate of speed-related crashes. (P)
	6.2.C4. Utilize community traffic safety task forces to address speed issues.
	6.2.C5. Collaborate with BIA, Indian Health Services, and NAETO to support Tribal Nations who seek to reduce speed related collisions on tribal lands. (E)
	6.2.C6. Expand the EI Protector program.

Key: To assist stakeholders the strategies have been classified according to the AASHTO model into three categories and identified by these letters:

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(E) Experimental: Those strategies that have been suggested and found sufficiently promising that at least one agency has considered trying them on a small scale in at least one location.

Speed Management Resources

National Highway Traffic Safety Administration, "[Speed Management Strategic Initiative](#)," September 2005, DOT HS 809 924.

<http://www.nhtsa.dot.gov/people/injury/enforce/SpeedManagement-content/index.html>

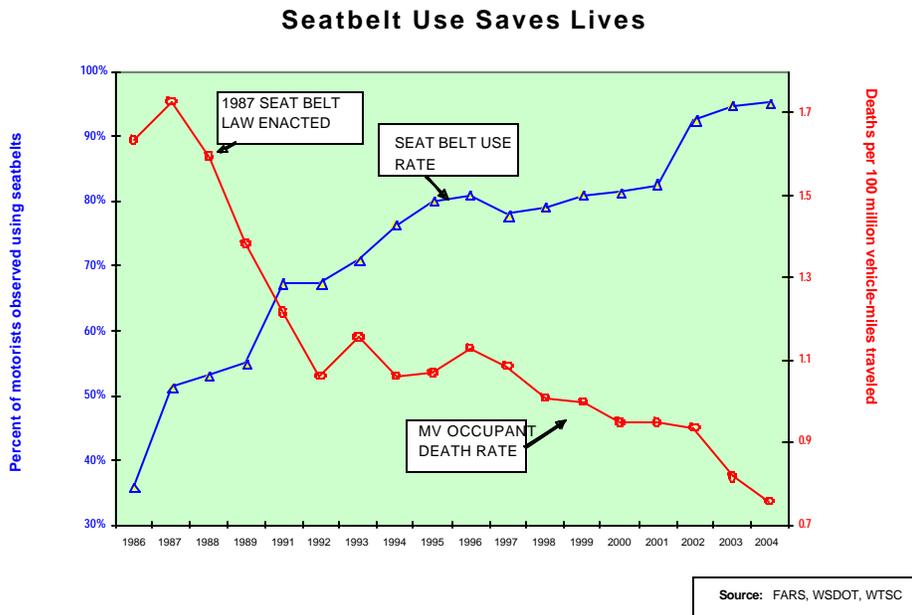
NCHRP plans to release an implementation guide addresses speeding collisions in 2006.

6.3 Unrestrained Drivers and Passengers: Increasing Correct Seatbelt and Child Restraint Usage

Background

Seatbelts are up to seventy percent effective in saving lives in collisions. This means a person wearing a seatbelt has a seventy percent better chance of surviving a crash than a non-belted person. In fact, as Washington's seatbelt use rate has increased, traffic death rates have decreased. Seatbelts save lives, as shown in Figure 6.3-1. Yet in 2003, forty-four percent of motor vehicle occupants who were killed were not wearing their seatbelts. See Figure 6.3-2 Seatbelt Use in Fatal Collisions on page 27.

Figure 6.3-1



Currently, ninety-five percent of all Washington State drivers use their seatbelts. According to “Ninety-Five Percent: An Evaluation of Law Policy, and Programs to Promote Seatbelt Use in Washington State⁷,” this rate is one of the highest in the nation and is directly attributable to a series of policy and program initiatives, including:

- In 2002, Washington’s primary enforcement seatbelt law became effective
- The Chief of the Washington State Patrol made seatbelt enforcement one of the core missions of that agency

⁷ Salzberg, Phillip M., PhD and Moffat, John M. *Ninety Five Percent: An Evaluation of Law, Policy, and Programs to Promote Seatbelt Use in Washington State*, 2003. Traffic Research and Data Center, Washington Traffic Safety Commission, Olympia, WA

- Washington initiated their “Click it or Ticket” enforcement and public information campaign

Non-belted users represent only five percent of the population, yet almost half of those killed in traffic crashes were unbelted, representing an extremely high risk for fatal traffic crashes. Therefore, even though the increase in percentage usage will be smaller in the future, the potential savings in both lives and economic loss can be proportionately higher. In “The Last Five Percent: Who are the Non-Users of Seatbelts in Washington State?”⁸ the authors compared subjects who had received traffic tickets for seatbelt violations to subjects who have received tickets for other violations and found that non-seatbelt users were more likely to be males over age 40 who drove pickup trucks and had poor driving records.

A 2005 study⁹ by the Washington State University found that seventy percent of children under forty pounds were using child safety seats, and that about half of children between the ages of 4 to 8 were using some type of booster seat.

Booster seats protect kids from serious injury better than adult seatbelts alone. Booster seats reduce the risk of injury by fifty-nine percent, compared to using only a seatbelt.

In 2005, Washington State upgraded its child passenger safety law requiring all children under age 13 to ride in the back seat and that children under age 8 need to use an appropriate child restraint system, such as child car seats or booster seats. This change in the law will become effective June 1, 2007.

Ensuring proper use of child restraint systems as children grow and change from rear-facing child safety seats to front-facing child safety seats to booster seats to using adult seatbelts can provide a challenge. Nationally, very high misuse rates have been documented. According to a national study by USA Safe Kids Campaign¹⁰, nearly thirty-three percent of children were using the wrong type of restraint for their size.

According to the study by the National Highway Traffic Safety Administration and the Interior Department's Bureau of Indian Affairs, nationally about fifty-five percent of American Indian motorists wear their seatbelt. The report noted that seatbelt use varies widely among tribes. Reservations with primary seatbelt laws, which allow police to stop motorists who fail to use seatbelts, had a sixty-eight percent use rate.

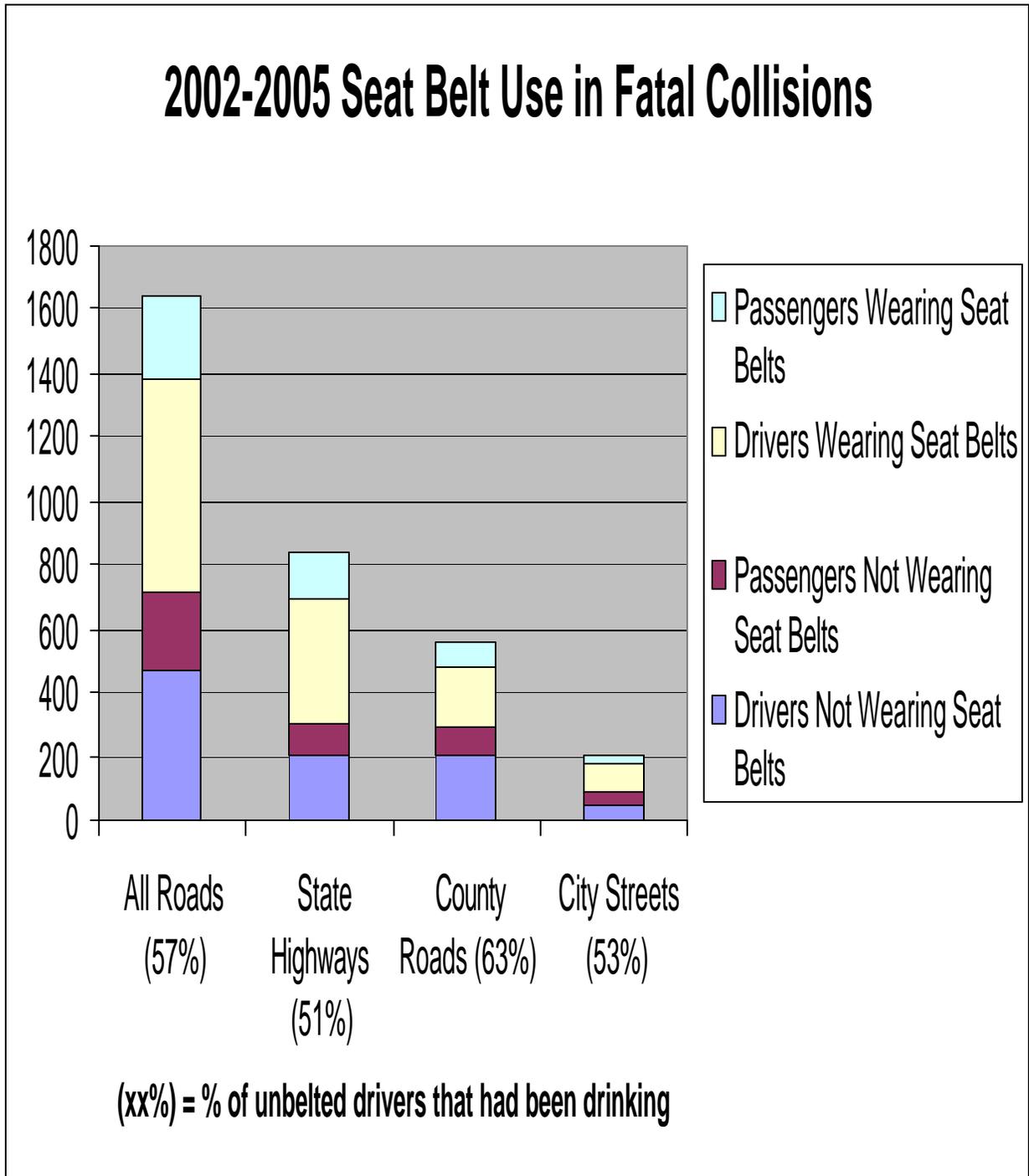
⁸ Beard, Melissa M., MA and Salzberg, Phillip M., PhD. “The Last Five Percent: Who Are the Non-Users of Seatbelts in Washington State?” 2005. Traffic Research and Data Center, Washington Traffic Safety Commission, Olympia, WA.

⁹ Stehr, Steven D. and Lovrich, Nicholas P. “An Assessment of Child Safety Restraint Usage in the State of Washington: Results of a Statewide Observational Study Conducted in 2004.” Washington State University, Pullman, WA. February 2005.

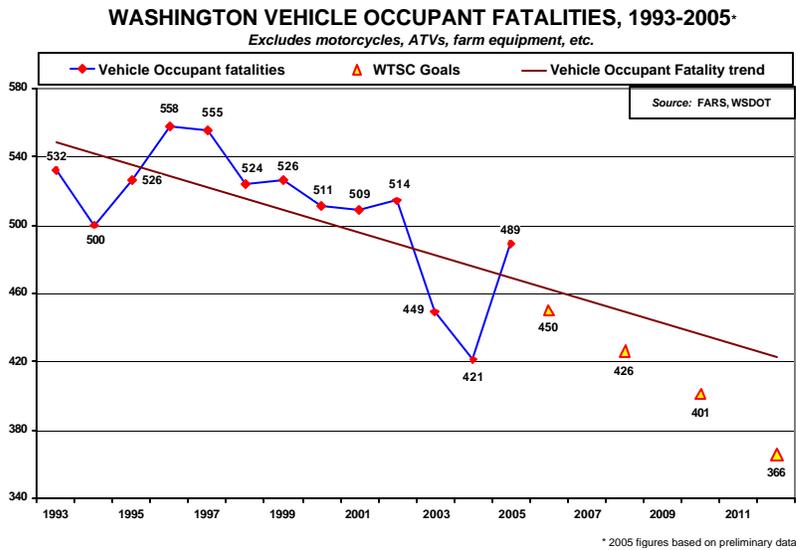
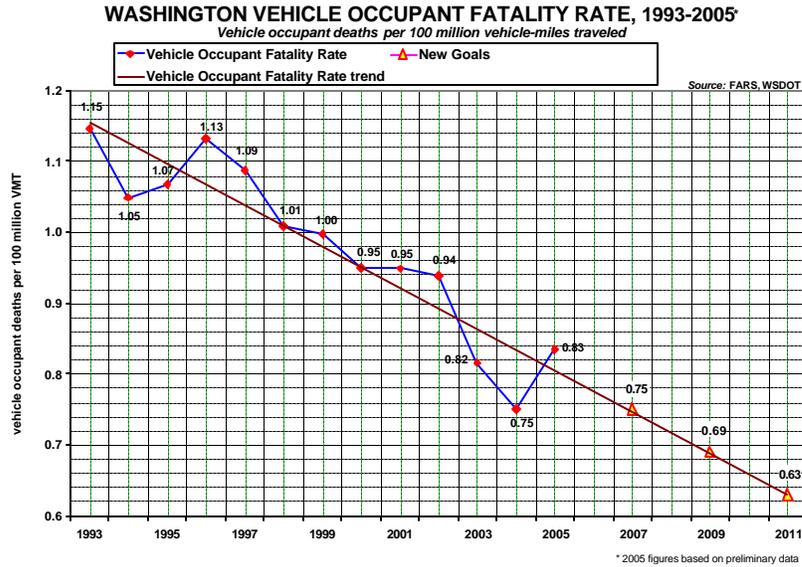
¹⁰ National Safe Kids Campaign, “Child Passengers at Risk in America: A National Study of Restraint Use,” February 2002, <http://www.usa.safekids.org/>

The rate was about fifty-three percent on reservations with secondary laws, in which police can issue a seatbelt violation only if a driver is stopped for another infraction. Only about a quarter of motorists were belted on reservations with no seatbelt laws.

Figure 6.3-2



Goals and Performance Measures



Objectives and Strategies to Increase Correct Seatbelt and Child Restraint Use

Objectives	Strategies
6.3.A. Maximize use of occupant restraints by all vehicle occupants.	<p>6.3.A1. Continue statewide high-visibility enforcement and media campaigns to maximize restraint use. (P)</p> <ul style="list-style-type: none"> • Develop incentive program targeting individual law enforcement officers and law enforcement agencies to encourage continued enforcement of the seatbelt law during non-campaign times. • Develop a program to address nighttime seatbelt enforcement.
	<p>6.3.A2. Provide enhanced public education to population groups with lower than average restraint use rates. (P)</p>

-
- Target efforts towards sub-populations of non-seatbelt users.
 - Utilize community traffic safety task forces to address occupant protection issues.
 - Provide support for Tribal Nations seeking to improve seatbelt and child restraint use.
 - Target children 7-15 years of age who are less likely than their counterparts to be buckled up properly.

6.3.A3. Employ corridor safety model in high-crash locations where data suggests low seatbelt use. (P)

6.3.A4. Encourage the enactment of state laws that will enhance enforcement of occupant protection laws. (T)

- Support efforts to retain the primary seatbelt law.
- Support the upgrade of child passenger safety law.

6.3.B. Insure that restraints, especially child and infant restraints are properly used.

6.3.B1. Conduct high-profile "child restraint inspection" events at multiple community locations. (P)

6.3.B2. Provide community locations for instruction in proper child restraint use, including both public safety agencies and health care providers, that are almost always available. (T)

- Send child passenger safety law violators to education class.

6.3.B3. Partner with Safe Kids Coalitions, EMS providers and other public health constituents to provide training and education. (T)

6.3.B4. Train law enforcement personnel to check for proper child restraint use in all motorist encounters. (T)

6.3.C. Provide access to appropriate information, materials, and guidelines.

6.3.C1. Enhance the statewide child passenger safety website, toll free information line, child safety seat distribution and education programs. (T)

Key: To assist stakeholders the strategies have been classified according to the AASHTO model into three categories and identified by these letters;

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(E) Experimental: Those strategies that have been suggested and found sufficiently promising that at least one agency has considered trying them on a small scale in at least one location.

Occupant Protection Resources

NCHRP Report 500, Volume 11: [A Guide for Increasing Seatbelt Use](http://safety.transportation.org/guides.aspx?cid=28).
<http://safety.transportation.org/guides.aspx?cid=28>

[Countermeasures that Work](http://www.nhtsa.dot.gov/people/injury/airbags/Countermeasures/index.htm), A Highway Safety Countermeasure Guide for State Highway Safety Offices by the Governors Highway Safety Association for the National Highway Traffic Safety Administration and the U.S. Department of Transportation. <http://www.nhtsa.dot.gov/people/injury/airbags/Countermeasures/index.htm>

National Center for Injury Prevention and Control. [Community-Based Interventions to Reduce Motor Vehicle-Related Injuries: Evidence of Effectiveness from Systematic Reviews](http://www.cdc.gov/ncipc/duip/mvsafety.htm). <http://www.cdc.gov/ncipc/duip/mvsafety.htm>

National Safe Kids Campaign, [Child Passengers at Risk in America: A National Rating of Child Occupant Protections Laws](http://www.usa.safekids.org/content_documents/ACF15F4.pdf) (February 2001)
http://www.usa.safekids.org/content_documents/ACF15F4.pdf

National Safe Kids Campaign, [Child Passengers at Risk in America: A National Study of Restraint Use](http://www.usa.safekids.org/content_documents/ACFD68.pdf) (February 2002)
http://www.usa.safekids.org/content_documents/ACFD68.pdf

Safe Kids USA, [Transportation in Child Care Settings: Parent Knowledge and State Regulations](http://www.usa.safekids.org/tier3_cd.cfm?content_item_id=9330&folder_id=680) (February 2003)
http://www.usa.safekids.org/tier3_cd.cfm?content_item_id=9330&folder_id=680

National Safe Kids Campaign, [Crossing the Gaps Across the Map: A Progress Report on SAFE KIDS' Efforts to Improve Child Occupant Protection Laws](http://www.usa.safekids.org/content_documents/ANNUAL_REPORT_2004.pdf) (February 2004) http://www.usa.safekids.org/content_documents/ANNUAL_REPORT_2004.pdf

National Safe Kids Campaign, [Report to the Nation: Trends in Unintentional Childhood Injury Mortality, 1987-2000](http://www.usa.safekids.org/content_documents/nskw03_report.pdf) (May 2003)
http://www.usa.safekids.org/content_documents/nskw03_report.pdf

6.4 Young Drivers

Background

Young Drivers: Motor vehicle crashes are the leading cause of death for American teenagers. Newly licensed drivers with less than one year of driving experience have the highest crash rate of any driver group. Nearly half of the 16 year-old fatal crashes were single vehicle crashes. Nationally, two out of three teen passenger deaths occur when another teen is driving.

In Washington State, before the new intermediate driver's license law took effect, even though teens made up only seven percent of all drivers, they were involved in fifteen percent of all traffic fatalities and twenty percent of all collisions, giving 16-20 year-olds the highest age-based fatality rate at 4.47 per 10,000 licensed population. Since the new law took effect on July 1, 2001, Washington has experienced a forty-five percent drop in the number of collisions involving 16-year-old drivers and a fifteen percent drop in collisions involving 17 year-olds (Figure 6.4-1).

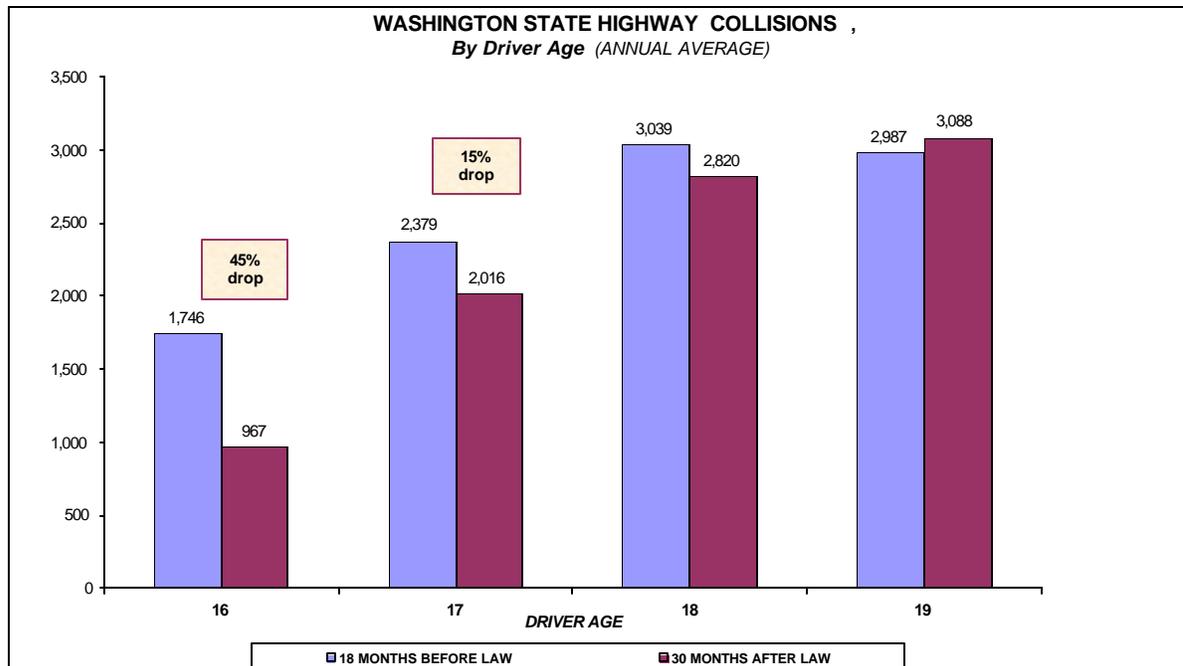
Figure 6.4-1

Drivers 16-19 years old Involved in Washington Highway Collisions

Preliminary Before / After Study of Intermediate Drivers' License Law

January 1, 2000 to June 30, 2001 ("Before" Period) Numbers represent ANNUAL AVERAGE

July 1, 2001 to December 31, 2003 ("After" Period) Numbers represent ANNUAL AVERAGE



Goals and Performance Measures

[To be developed.]

Strategies to Reduce Collisions Involving Young Drivers

Objectives	Strategies
6.4.A. Encourage compliance with the State's Intermediate Driver's License law.	6.4.A1. Provide education and training. (T) <ul style="list-style-type: none"> Educate teen drivers and their parents about intermediate license restrictions and penalties. Educate law enforcement officers about intermediate license laws.
	6.4.A2. Encourage enforcement of intermediate driver's licensing law. (T) <ul style="list-style-type: none"> Provide overtime funding for law enforcement agencies for targeted enforcement of intermediate license law.
	6.4.A3. Encourage changes to state intermediate license laws that will enhance clarity and effectiveness of the law. (T) <ul style="list-style-type: none"> Recommend adjustments to Intermediate License laws as research-based data suggests is needed.
	6.4.A4. Continue to build partnerships to ensure the intermediate driver's license law is as effective as possible. (T) <ul style="list-style-type: none"> Support the activities of the Intermediate Driver License Implementation Committee which includes the Traffic Safety Commission, law enforcement agencies, the Office of Superintendent of Public Instruction, Department of Health, Department of Licensing, Washington State University, and Commercial Driver Training Schools. Utilize community traffic safety task forces to implement programs to reduce collisions involving young drivers. Collaborate with BIA, Indian Health Services, and NAETO to support Tribal Nations seeking to reduce collisions involving young drivers. (E)
	6.4.A5. Employ corridor safety model in high-crash locations where data suggests high number of young drivers crashes. (P)
6.4.B. Encourage compliance with the State's underage drinking law.	6.4.B1. Encourage zero tolerance enforcement of underage drinking laws. (T)
6.4.C. Improve pre-licensure driver education.	6.4.C1. Create model traffic safety education curriculum. (E)
	6.4.C2. Explore increasing minimum standards for traffic safety education instructors based on best practices. (E)

Key: To assist stakeholders the strategies have been classified according to the AASHTO model into three categories and identified by these letters:

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Young Driver Safety Resources

[Countermeasures that Work](http://www.nhtsa.dot.gov/people/injury/airbags/Countermeasures/index.htm), A Highway Safety Countermeasure Guide for State Highway Safety Offices by the Governors Highway Safety Association for the National Highway Traffic Safety Administration and the U.S. Department of Transportation. <http://www.nhtsa.dot.gov/people/injury/airbags/Countermeasures/index.htm>

6.5 Distracted or Drowsy Drivers: Reducing collisions involving distracted or drowsy drivers

Background

A distracted driver is one whose attention has been drawn away from the demands of driving. He can be distracted visually, such as looking at something inside the car like a music CD, or looking at something outside the car like a crash on the side of the road; audibly, for example, by construction noise or kid fighting in the back seat; physically such as reaching for food or dialing a cell phone number; or cognitively such as being lost in thought or deep in conversation. Cell phones and other wireless devices have the potential to distract drivers all four ways.

Drowsy drivers include those who are suffering from a lack of sleep as well as drivers who are physically tired from activity or long drives. A drowsy driver risks falling asleep at the wheel, but even those who manage to stay awake can suffer from poor driving performance and are at increased risk of collision.

In Washington State, during 1993—2004, the estimated cause of seventeen percent of fatal crashes was inattention and four percent was drowsiness.

According to a new study by NHTSA and the Virginia Tech Transportation Institute, nearly eighty percent of crashes involved some form of driver inattention within three seconds before the event. The study found that:

- Drowsiness increased the risk of a crash or near-crash by at least a factor of four, but noted that drowsiness may be underreported by police crash investigations.
- Reaching for a moving object increased crash risk by a factor of nine, looking at an external object by 3.7 times, reading by three times, applying makeup by three times, dialing a hand-held device (typically a cell phone) by almost three times, and talking or listening on a hand-held device by 1.3 times.
- The most common distraction for drivers is the use of cell phones.
- Drivers who engage frequently in distracting activities are more likely to be involved in crashes or near-crashes.

Goals and Performance Measures

[To be developed.]

Strategies to reduce collisions involving drowsy or distracted drivers.

Objectives	Strategies
6.5.A. Gather data	6.5.A1. Analyze new distracted driver data being collected with the new Police Traffic Collision Report beginning in July 2006. (T)
6.5.B. Make roadways safer for drowsy or distracted drivers.	6.5.B1. Employ corridor safety model on high crash locations where data indicates a high incidence of drowsy or distracted crashes. (P)
	6.5.B2. Implement a targeted shoulder rumble strip program. (P/T)
	6.5.B3. Implement strategies designed for reducing run-off-road collisions (section 8.1) and reducing head-on and across the centerline collisions (section 8.3). (P/T)
	6.5.B4. Improve areas for drivers to pull off the road and get sleep when needed. (T)
6.5.C. Increase driver awareness of the risks of drowsy and distracted driving and promote driver awareness.	6.5.C1. Conduct statewide educational campaigns (T)
	6.5.C3. Develop a drowsy driver awareness and prevention program and encourage employers to offer it to employees who rotate shifts or work nights. (P)
	6.5.C4. Utilize community traffic safety task forces to address drowsy or distracted driver issues.
6.5.C. Enforce and strengthen laws and regulations aimed at reducing distracted and drowsy driving.	6.5.C5. Develop education campaigns for high-risk populations. (T/E)
	6.5.D1. Strengthen the intermediate driver's license law to reduce distractions for young drivers. (P/T)
	6.5.D2. Implement strategies for commercial motor vehicle safety (Section 7.3).

Key: To assist stakeholders the strategies have been classified according to the AASHTO model into three categories and identified by these letters:

(P) Proven Strategy: Those strategies that have been used in one or more locations and subjected to properly designed evaluations that show it to be effective.

(T) Tried/Recommended: Those strategies that have been implemented in a number of locations and that may even be accepted as standards or standard approaches, but that lack found valid evaluations; or those strategies that are recommended best practices according to NHTSA.

(E) Experimental: Those strategies that have been suggested and found sufficiently promising that at least one agency has considered trying them on a small scale in at least one location.

Drowsy and Distracted Driver Resources

NCHRP Report 500, Volume 14: [A Guide for Reducing Crashes Involving Drowsy and Distracted Drivers](http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_500v14.pdf). http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_500v14.pdf

[Countermeasures that Work](http://www.nhtsa.dot.gov/people/injury/airbags/Countermeasures/index.htm), A Highway Safety Countermeasure Guide for State Highway Safety Offices by the Governors Highway Safety Association for the National Highway Traffic Safety Administration and the U.S. Department of Transportation. <http://www.nhtsa.dot.gov/people/injury/airbags/Countermeasures/index.htm>

6.6 Unlicensed Drivers

Background

In Washington State, during 1994-2004, thirteen percent of drivers involved in fatal crashes were not properly licensed, meaning they were unlicensed or had suspended, revoked, expired, canceled, or denied licenses. Of the drivers without a valid license at the time of the crash, sixty-four percent were also impaired, and forty-three percent were cited for speed.

According to a study by the Insurance Research Council (2001), fifteen percent of drivers on the roads in Washington are not properly licensed (unlicensed, suspended, revoked, expired, or canceled).

Nationally, it is estimated that seventy-five percent of drivers with suspended or revoked licenses continue to drive and that one in every five fatal crashes involves at least one driver who is not properly licensed.

In 2002, there were 59,000 convictions for Driving While Suspended or Revoked (DWLS/R) in Washington State. Department of Licensing data shows that of the 59,000 convictions issued, four percent were for DWLS/R in the first degree (issued mostly to “habitual traffic offenders) and eight percent were for DWLS/R in the second degree (issued largely to DUI offenders). The remaining eight-eight percent were issued for DWLS/R third degree, which is given to people with expired driver’s licenses, people who have failed to pay traffic infractions or child support, or a variety other offenses which are not necessarily related to dangerous driving behaviors.

Goals and Performance Measures

[To be determined.]

Strategies to Reduce Collisions involving Unlicensed Drivers and Drivers with Suspended or Revoked Licenses

Objectives	Strategies
6.6.A. Apply special enforcement practices.	6.6.A1. Increase enforcement in areas with detected high rates of unlicensed drivers as seen by crashes, violations, or routine license checks. (T)
	6.6.A2. Routinely link citations with driver records. (T)
	6.6.A3. Create and distribute "hot sheets." (T)
	6.6.A4. Employ corridor safety model in locations where data suggests high number of crashes involving suspended, revoked, or unlicensed drivers.
6.6.B. Restrict mobility through license plate modification or removal.	6.6.B1. "Stripe" license plate. (P)
	6.6.B2. Impound license plate. (P)
6.6.C. Restrict mobility through vehicle modification.	6.6.C1. Immobilize/impound/seize vehicle. (P)
	6.6.C2. Install ignition interlock device. (P)
6.6.D. Restrict mobility through direct intervention with offender.	6.6.D1. Monitor electronically. (P)
	6.6.D2. Incarcerate. (P)
6.6.E. Eliminate need to drive.	6.6.E1. Provide alternative transportation service. (P)
6.6.F. Increase the courts ability to effectively process DWLS/R cases.	6.6.F1. Evaluate the impact of new legislation on DWLS/R 3 rd degree
	6.6.F2. Evaluate the effectiveness of DWLS/R laws.

Key: To assist stakeholders the strategies have been classified according to the AASHTO model into three categories and identified by these letters:

(P) Proven Strategy: Those strategies that have been used in one or more locations and subjected to properly designed evaluations that show it to be effective.

(T) Tried/Recommended: Those strategies that have been implemented in a number of locations and that may even be accepted as standards or standard approaches, but that lack found valid evaluations; or those strategies that are recommended best practices according to NHTSA.

(E) Experimental: Those strategies that have been suggested and found sufficiently promising that at least one agency has considered trying them on a small scale in at least one location.

Unlicensed Driver Resources

[Countermeasures that Work](http://www.nhtsa.dot.gov/people/injury/airbags/Countermeasures/index.htm), A Highway Safety Countermeasure Guide for State Highway Safety Offices by the Governor's Highway Safety Association for the National Highway Traffic Safety Administration and the US Department of Transportation. <http://www.nhtsa.dot.gov/people/injury/airbags/Countermeasures/index.htm>

NCHRP Report 500, Volume 2, [A Guide for Addressing Collisions Involving Unlicensed Drivers and Drivers with Suspended or Revoked Licenses](http://safety.transportation.org/guides.aspx?cid=23), addresses many of these strategies in detail. <http://safety.transportation.org/guides.aspx?cid=23>

6.7 Aggressive Drivers: Reducing collisions involving aggressive drivers

The National Highway Traffic Safety Administration defines aggressive driving as, "The commission of two or more moving violations that is likely to endanger other persons or property, or any single intentional violation that requires a defensive reaction of another driver."

According to the National Highway Traffic Safety Administration, more than sixty percent of drivers see unsafe driving by others as a major personal threat to themselves and their families.

In Washington State, law enforcement officers can charge aggressive drivers with negligent driving in the second degree, a \$500 fine, or they can cite the driver for each individual driving infraction at \$101 per violation.

According to the Washington State Patrol (WSP) 2005 Annual Report, troopers issued 59,066 citations for aggressive driving, an increase of seven percent over 2004.

The WSP established the Aggressive Driving Apprehension Team (ADAT) in 1998, using unmarked cars to target aggressive drivers. The ADAT, which is made up of forty-three troopers across the State, was responsible for twenty-six percent of the aggressive driving contacts. In addition, the WSP developed an aggressive driving web site through which citizens can report aggressive drivers to the WSP. This information is sent to district commanders throughout the state and used to deploy officers to areas where there are higher incidents of aggressive driving.

Aggressive driving is different from road rage. Road rage is defined as, "An assault with a motor vehicle or other dangerous weapon by the operator or passenger(s) of one motor vehicle on the operator or passenger(s) of another motor vehicle caused by an incident that occurred on a roadway." Road rage is a criminal offense; not a traffic violation.

Street racing, red light running, and speeding over 100 mph need to be addressed when looking at this emphasis area.

Goals and Performance Measures:

[To be determined.]

Strategies to Reduce Collisions Caused by Aggressive Drivers

Objectives	Strategies
6.7.A. Deter aggressive driving in specific populations, including those with a history of such behaviors, and at specific locations.	<p>6.7.A1. Continue targeted aggressive driving enforcement. (T)</p> <ul style="list-style-type: none"> • Support the WSP Aggressive Driving Apprehension Team. • Evaluate pilot projects aimed at using unmarked vehicles on city and county roads to target aggressive drivers. • Support county and municipal adoption of state traffic safety camera law.
	<p>6.7.A2. Support legislative changes that would deter aggressive driving. (E)</p> <ul style="list-style-type: none"> • Focus additional penalties on repeat aggressive drivers. • Encourage mandatory vehicle impound for street racing and notification of insurers when a vehicle is modified.
	<p>6.7.A3. Continue to develop aggressive driving data. (P)</p> <ul style="list-style-type: none"> • Develop data on aggressive driving in order to identify repeat aggressive driving offenders. • Develop data on aggressive driving in order to identify specific locations and populations with a history of aggressive driving. • Develop data to identify the number of disabling injuries and deaths caused by aggressive driving.
	<p>6.7.A4. Conduct educational and public information campaigns. (T)</p> <ul style="list-style-type: none"> • Use public information campaigns and coordinated enforcement aimed at specific populations or locations where aggressive driving is prevalent. • For a public awareness and/or media campaign, conduct focus group with aggressive drivers to determine why they drive aggressively and what might deter them. (P) • Utilize community traffic safety task forces to address aggressive driving, road rage and street racing issues. • Distribute road rage and street racing education videos to teens, parents and driving schools. • Educate judges and prosecutors to heighten awareness of aggressive driving issues.
6.7.B. Improve Driving Environment to Eliminate or Minimize “Triggers” of Aggressive Driving	<p>6.7.B1. Change or mitigate the effects of identified elements in the driving environment. (E)</p> <hr/> <p>6.7.B2. Reduce Nonrecurring delays and provide better information about these delays. (E)</p>

Key: To assist stakeholders the strategies have been classified according to the AASHTO model into three categories and identified by these letters:

(P) Proven Strategy: Those strategies that have been used in one or more locations and subjected to properly designed evaluations that show it to be effective.

(T) Tried/Recommended: Those strategies that have been implemented in a number of locations and that may even be accepted as standards or standard approaches, but that lack found valid evaluations; or those strategies that are recommended best practices according to NHTSA.

(E) Experimental: Those strategies that have been suggested and found sufficiently promising that at least one agency has considered trying them on a small scale in at least one location.

Aggressive Driver Resources

NCHRP Report 500, Volume 1, [A Guide for Addressing Aggressive Driving Collisions](http://safety.transportation.org/guides.aspx?cid=22), addresses many of these strategies in detail.
<http://safety.transportation.org/guides.aspx?cid=22>

NHTSA, [Aggressive Driving Enforcement](http://www.nhtsa.dot.gov/people/injury/enforce/aggressdrivers/aggenforce/index.html), provides strategies for implementing best practices. <http://www.nhtsa.dot.gov/people/injury/enforce/aggressdrivers/aggenforce/index.html>

[Countermeasures that Work](http://www.nhtsa.dot.gov/people/injury/airbags/Countermeasures/index.htm), A Highway Safety Countermeasure Guide for State Highway Safety Offices by the Governors Highway Safety Association for the National Highway Traffic Safety Administration and the U.S. Department of Transportation. <http://www.nhtsa.dot.gov/people/injury/airbags/Countermeasures/index.htm>

Social Marketing Can Enhance Prevention Programming, PREVENTION Alert, Volume 1, Number 6, October 24, 1997, National Clearinghouse for Alcohol and Drug Information (NCADI)

Kotler P, Roberts N, Lee N. Social Marketing: Improving the Quality of Life. Sage Publications, 2002

Chapter 7 / Other Users

7.1 Pedestrian Safety: Making walking and street crossing safer

Background

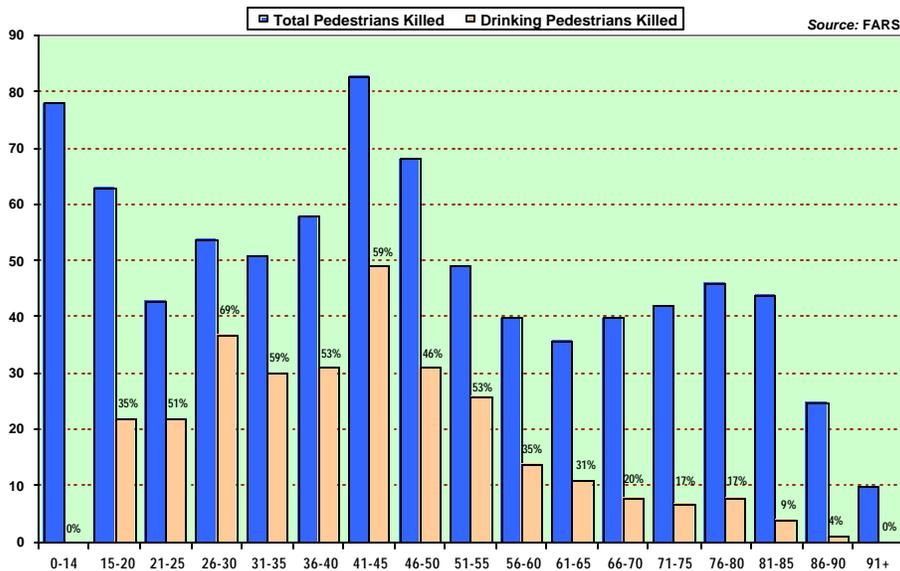
Most of us are pedestrians at some point each day, and all modes of transportation include a pedestrian component. Many people in Washington walk to work, school, for recreation, shopping, and to connect with transit and other services.

Currently, walking accounts for five percent of all trips statewide (higher in urban areas), however, twelve percent of traffic crashes involved pedestrians. Reducing pedestrian deaths and injuries, while at the same time providing for and improving opportunities to walk, will require partnership and commitment that includes education, enforcement, and engineering.

Sixty pedestrians were killed in 2004 in Washington State, down from seventy-five in 2003 and a high of ninety-two in 1996. Between the ages of 21 to 55, more than fifty percent of those pedestrians killed had been drinking, according to WTSC data from 1993 to 2003, as shown below in Table 7.1 -1 Pedestrian Fatalities.

Table 7.1-1

Washington Pedestrian Fatalities, 1993-2003
By Age Group and Alcohol Intake



Nationally, 4,641 pedestrians were killed in traffic crashes in 2004. More than two-thirds of the pedestrians killed were males, and twenty percent were either children under 15 years old, or over the age of 69.

Impairment: Alcohol played a role—either for the driver or for the pedestrian—in nearly one-half of the traffic crashes that resulted in all pedestrian fatalities in the nation. Pedestrians with a BAC at .08 or higher account for thirty-four percent of all pedestrian fatalities; drivers with a BAC at .08 or higher account for thirteen percent of all pedestrian fatalities; and both drivers and pedestrians with a BAC at .08 or higher account for six percent of the fatalities.

In Washington, impairment played a role in an average of forty-four percent of pedestrian deaths during 2000–2004. See table 7.1-3 Pedestrian Collisions, on page 45.

This indicates a clear need for additional improvements in public education and enforcement.

Speed: Speed is a major contributing factor in the severity of a pedestrian-vehicle crash. The faster the motorist drives prior to a collision with a pedestrian, the more likely the pedestrian is to die from the injuries. A pedestrian hit while the vehicle is traveling at 40 mph has an eighty-five percent chance of dying, while a pedestrian hit by a vehicle traveling at 20 mph has a ninety-five percent chance of surviving.

Recent studies show that motorists are less likely to crash with pedestrians when there are more people walking along a corridor.¹¹ This is because motorists drive more slowly and cautiously when they see many pedestrians, and faster when they see fewer.

Urban Areas: Collisions involving pedestrians are more frequent and severe in urban areas. During 1999–2004, seventy-four percent of all pedestrian fatalities occurred in urban areas.

Location of Pedestrian Deaths:

Lack of crossing opportunities continues to be of concern for pedestrians in Washington. On State highways, ten percent of legal

crossings are marked by signing, signals, striping, or other treatments. Fifty-two percent of pedestrian deaths during 1993–2004 occurred while crossing the street when a marked crosswalk was not available. See Table 7.1-2, “Location of Pedestrian Fatalities.”

Demographics of Risk: The young, particularly school age children under the age of 15, have been identified as a risk population for pedestrian-involved fatal

Table 7.1-2
Location of Pedestrian Fatalities

1993-2004	
Location	Percent of Fatalities
Crossing - in crosswalk	15%
Crossing - not in crosswalk	20%
Crossing – marked crosswalk not available	52%
Shoulder	8%
Other – Off Roadway	4%
Unknown	1%

Source: FARS

¹¹ Jacobsen, PL. Safety in Numbers: More Walkers and Bicyclists, Safer Walking and Bicycling. Injury Prevention, 2003.

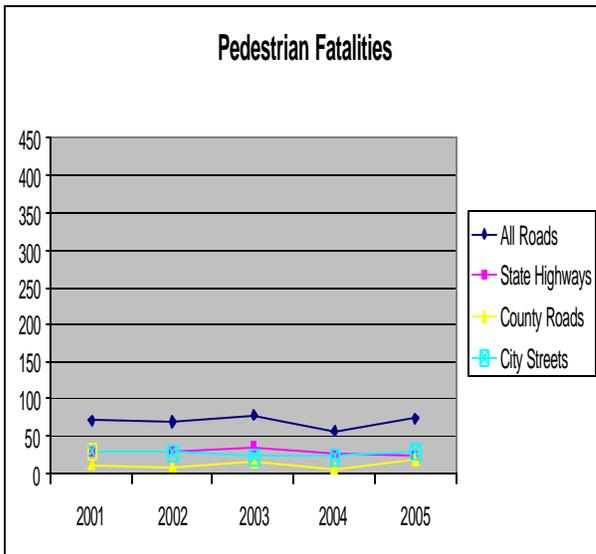
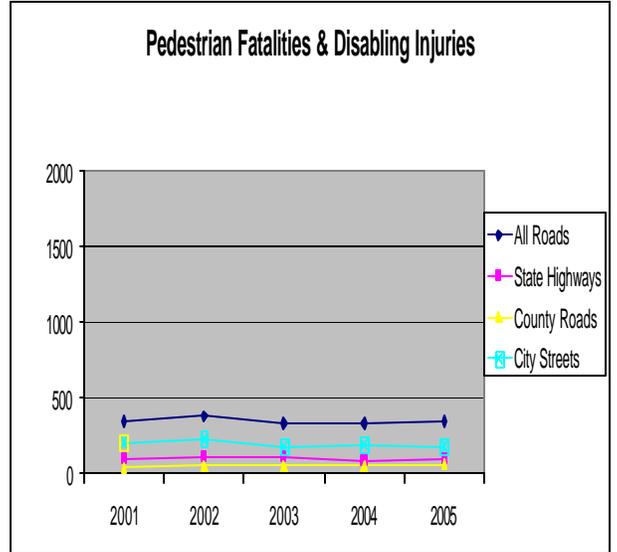
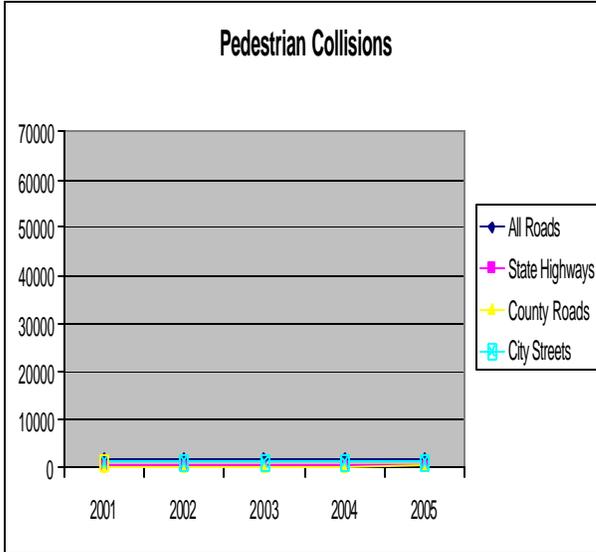
collisions. In Washington, pedestrian injuries remain the third leading cause of injury deaths for children ages one to 16, according to the Department of Health.

Over the next twenty-five years, the number of older citizens in the United States will double so that by 2030, twenty percent of Americans will be age 65 or older¹². By 2020, over one million people in Washington will be 65 or older—almost twice the number of people in that age group today. The National Institute on Aging reports that more than one in five adults age 65 and older do not drive. Currently, the aging population in Washington represents twelve percent of the population, yet they make up twenty percent of the pedestrian deaths.

¹² Administration on Aging, “Profile of Older Americans,” 2000, <http://www.aoa.gov/prof/statistics/profile/2002/2.asp>.

Table 7.1-3

Pedestrian Collisions 2001-2005



Speed Related Fatalities

Road Type	2000	2001	2002	2003	2004
State Highways	4%	-	3%	7%	16%
County Roads	18%	-	-	6%	14%
City Streets	-	6%	-	3%	8%
Other/Unknown	0%	-	-	-	-
<i>All Roads*</i>	6%	3%	1%	5%	12%

Data Source: FARS

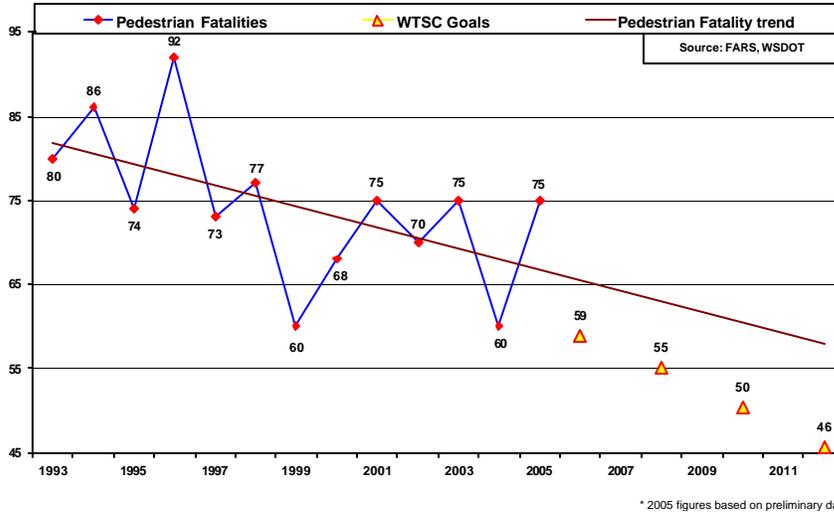
Impairment Related Fatalities

Road Type	2000	2001	2002	2003	2004
State Highways	52%	50%	67%	53%	56%
County Roads	41%	36%	40%	56%	71%
City Streets	25%	32%	31%	28%	31%
Other/Unknown	100%	-	-	-	-
<i>All Roads*</i>	40%	40%	48%	44%	47%

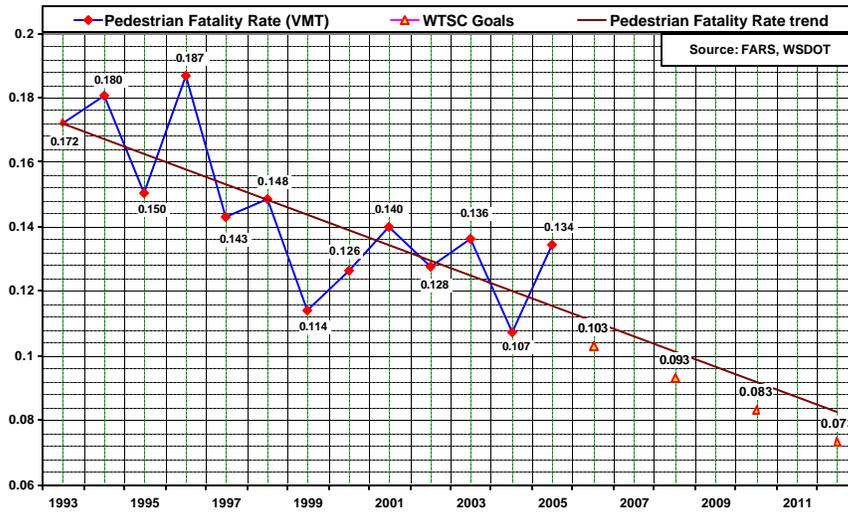
Data Source: FARS

Goals and Performance Measures

WASHINGTON PEDESTRIAN FATALITIES, 1993-2005*
By Year



WASHINGTON PEDESTRIAN FATALITY RATE, 1993-2005*
Pedestrian fatalities per 100 million vehicle-miles traveled



Strategies to Reduce Pedestrian Fatalities

Objectives

7.1.A. Improve Pedestrian and Motorist Safety Awareness and Behavior

Strategies

7.1.A1. Continue to provide education, outreach, and training (P)

- Distribute School Zone Safety Curriculum Kit and Resource Guide and the School Administrator's Guide the School Walk Routes and Student Pedestrian Safety.

- Improve pedestrian and motorists safety awareness and behavior. Focus education efforts on improving public understanding of Washington's crosswalk laws and the positive effects of targeted cross walk enforcement.
- Expand the printed education materials to include multiple languages.
- Educate judges on pedestrian laws and targeted crosswalk enforcement projects.
- Continue to build partnerships designed to reduce the incidence of pedestrian fatalities.
- Utilize community traffic safety task forces to address pedestrian safety issues.
- Implement programs (engineering, enforcement and education) to influence impaired pedestrians. Solutions for improving the built environment should focus on appropriate zoning, crossing treatments and other safety improvements near high speed, high volume, multi-lane arterials.

7.1.A2. Expand enforcement campaigns. (P)

- Maintain dedicated school zone violators funding and continue with incentive rewards for law enforcement agencies who write school zone citations.
- Expand targeted cross walk enforcement.
- Improve academy and in-service pedestrian safety education to law enforcement officers at state and local levels.

7.1.B. Improve Pedestrian Facilities.

7.1.B1. Update existing and develop new warrants, guides, and standards for the safe accommodation of pedestrians. (P)

7.1.B2. Develop programs to improve pedestrian safety accommodations at intersections and interchanges. (P)

7.1.B3. Implement pedestrian safety programs targeting pedestrian crash concerns in major urbanized areas and select rural areas. (P)

- Provide safer crossings.
- Reduce pedestrian exposure to vehicular traffic.
- Improve sight distances and/or visibility between motor vehicles and pedestrians.
- Reduce vehicle speeds.

7.1.D. Improve Data and Performance Measurers

7.1.D1. Inventory existing pedestrian infrastructure and identify deficiencies. (P)

Key: To assist stakeholders the strategies have been classified according to the AASHTO model into three categories and identified by these letters:

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(T) Tried/Recommended: Those strategies that have been implemented in a number of locations and that may even be accepted as standards or standard approaches, but that lack found valid evaluations; or those strategies that are recommended best practices according to NHTSA.

(E) Experimental: Those strategies that have been suggested and found sufficiently promising that at least one agency has considered trying them on a small scale in at least one location.

Resources

NCHRP Report 500, Volume 10: [A Guide for Reducing Collisions Involving Pedestrians](#) discusses many of these strategies in detail.

<http://safety.transportation.org/guides.aspx?cid=29>



Pedestrian E.doc

Evaluation of “Targeted Pedestrian Enforcement,” Salzberg, Phillip M and Moffat, John M, January 2003.

7.2 Motorcycle Safety: Reducing collisions involving motorcycles

Background

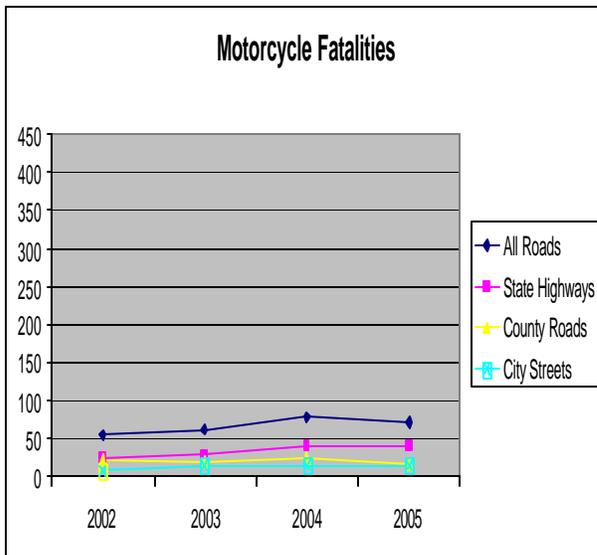
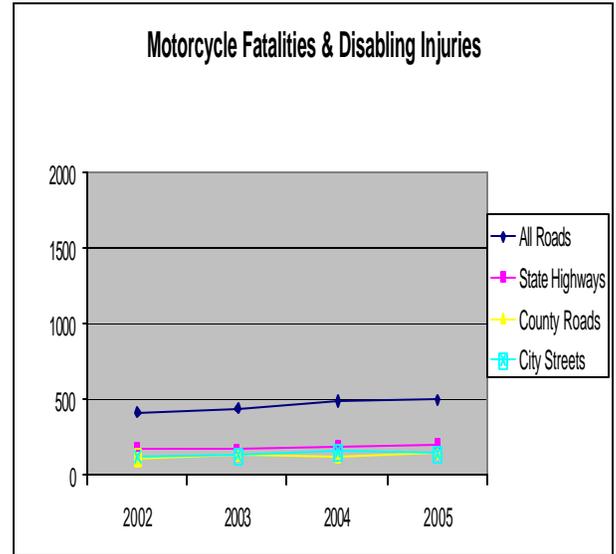
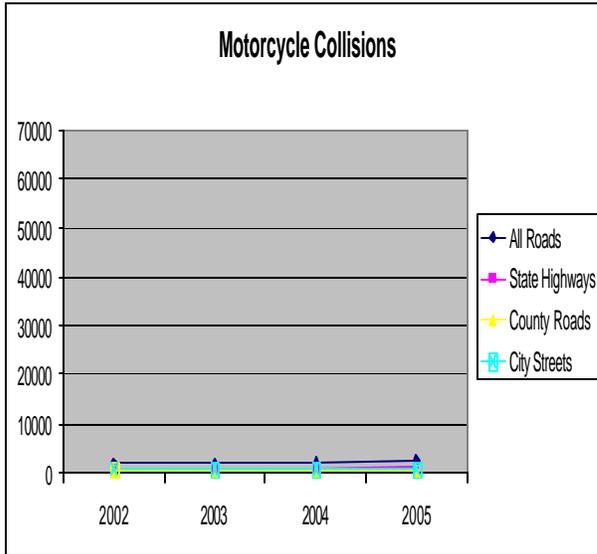
Motorcycle fatalities claimed seventy-two lives in Washington State during 2004. Ninety-one percent were wearing helmets and twenty-nine percent had been drinking. This is more than double the thirty-five motorcyclists that died ten years ago in 1994. Washington mirrors a national trend of increasing motorcyclist fatalities, especially an increase in the over 40 age group and on motorcycles with larger engine sizes. In 1994 there were eleven deaths for motorcyclists over age 40, while in 2004, more than three times as many (thirty-four) motorcyclists over age 40 were killed.

Impaired-driving related crashes accounted for fifty-one percent of motorcycle deaths over the past five years, while speed-related collision accounted for fifty percent of motorcycle deaths. See Figure 7.2-1 Motorcycle Collisions, on page 50 for more information.

Of the seventy-four riders killed, only ten had motorcycle training. Nationally, twenty-four percent of motorcycle operators in fatal crashes did not have a valid license or proper endorsement.

During 1993—2003, thirty-eight percent of motorcycle fatalities occurred on county roads, twenty-six percent on state routes, twenty-two percent on city streets, seven percent on interstates, and five percent on US highways.

Figure 7.2-1
Motorcycle Collisions 2001-2005



Speed Related Fatalities

Road Type	2000	2001	2002	2003	2004
State Highways	67%	39%	45%	26%	35%
County Roads	46%	50%	26%	79%	52%
City Streets	67%	43%	80%	69%	41%
Other/Unknown	-	-	50%	-	-
<i>All Roads*</i>	<i>57%</i>	<i>45%</i>	<i>45%</i>	<i>53%</i>	<i>42%</i>

Data Source: FARS

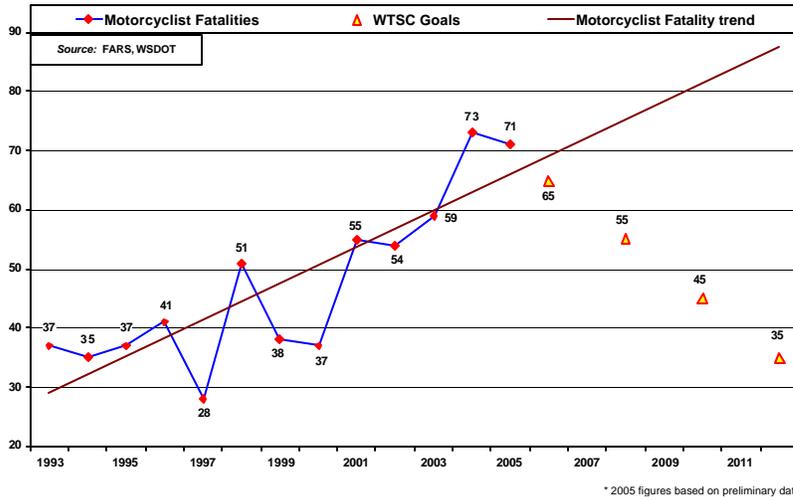
Impairment Related Fatalities

Road Type	2000	2001	2002	2003	2004
State Highways	58%	50%	50%	37%	26%
County Roads	69%	42%	58%	53%	70%
City Streets	56%	57%	60%	54%	47%
Other/Unknown	100%	-	50%	-	-
<i>All Roads*</i>	<i>63%</i>	<i>47%</i>	<i>55%</i>	<i>46%</i>	<i>45%</i>

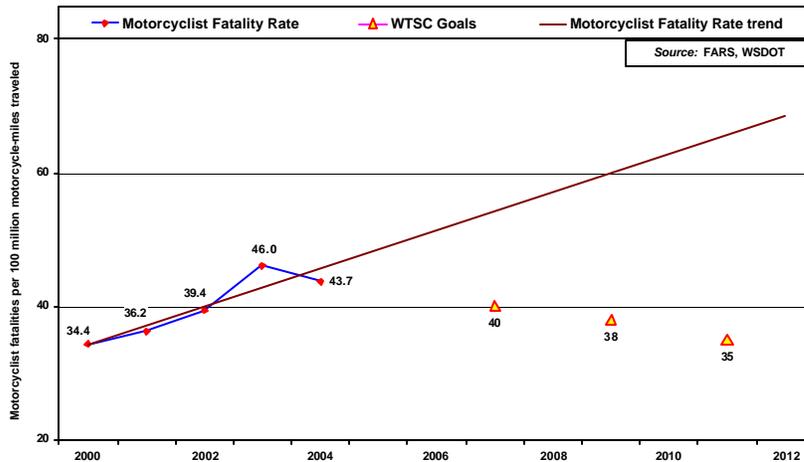
Data Source: FARS

Goals and Performance Measures

WASHINGTON MOTORCYCLIST FATALITIES, 1993-2005*



WASHINGTON MOTORCYCLIST FATALITY RATE, 1996-2004
Motorcyclist fatalities per 100 million motorcycle-miles traveled



Strategies to reduce collisions involving motorcycles.

Objectives

Strategies

Washington State Department of Licensing Motorcycle Taskforce is set to release recommendations in 2006. Those recommendations will become the foundation for these strategies.

Key: To assist stakeholders the strategies have been classified according to the AASHTO model into three categories and identified by these letters:

(P) Proven Strategy: Those strategies that have been used in one or more locations and subjected to properly designed evaluations that show it to be effective.

(T) Tried/Recommended: Those strategies that have been implemented in a number of locations and that may even be accepted as standards or standard approaches, but that lack found valid evaluations; or those strategies that are recommended best practices according to NHTSA.

(E) Experimental: Those strategies that have been suggested and found sufficiently promising that at least one agency has considered trying them on a small scale in at least one location.

Motorcycle Safety Resources

[Countermeasures that Work](http://www.nhtsa.dot.gov/people/injury/airbags/Countermeasures/index.htm), A Highway Safety Countermeasure Guide for State Highway Safety Offices by the Governors Highway Safety Association for the National Highway Traffic Safety Administration and the US Department of Transportation. <http://www.nhtsa.dot.gov/people/injury/airbags/Countermeasures/index.htm>

[“Promising Practices in Motorcycle Rider Education and Licensing,”](http://www.nhtsa.dot.gov/people/injury/pedbimot/motorcycle/MotorcycleRider/) National Highway Traffic Safety Administration (NHTSA), DOT HS 809 852, July 2005 <http://www.nhtsa.dot.gov/people/injury/pedbimot/motorcycle/MotorcycleRider/>

7.3 Commercial Vehicle Safety: Reducing collisions involving heavy trucks

Background

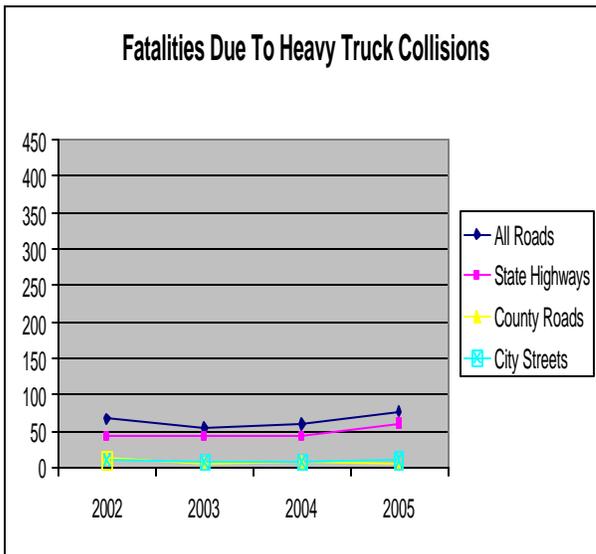
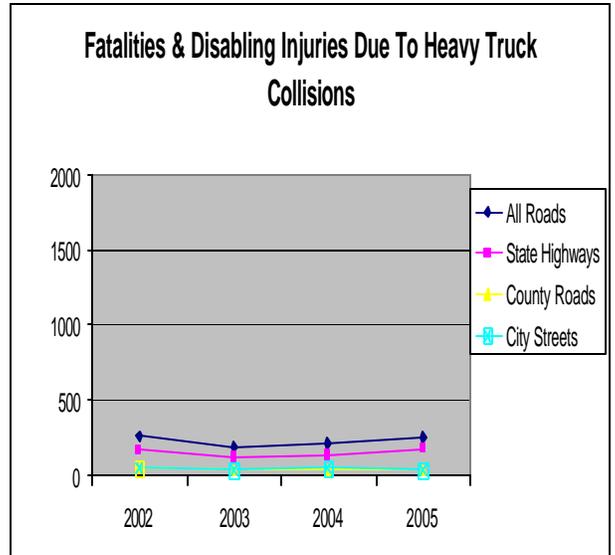
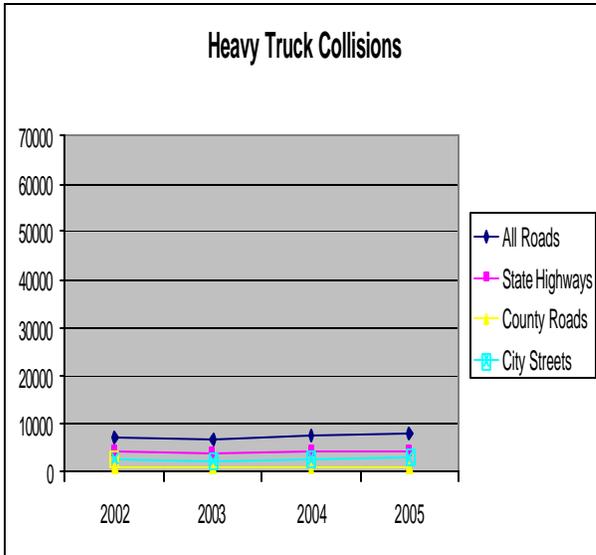
In 2004, there were forty-eight Commercial Motor Vehicle (CMV) -related fatalities; sixty-seven percent occurring on state highways, twenty-three percent on county and city roadways, and ten percent on interstate highways. In 2005, sixty-nine percent of the fifty-nine CMV-related fatalities occurred on state highways, twenty percent on Interstate, and six percent on county and city roadways. The total number of injury and fatal collisions were down in 2005 by six percent; with a 3.8 percent decrease in CMV-caused collisions.

Over the past five years in Washington State, impaired driving related crashes was cited in thirty-four percent of heavy truck collision deaths and speed was cited in twenty percent of heavy truck deaths. See Figure 7.3-1 Heavy Truck Collisions, on page 54 for more information.

Washington State Patrol (WSP) statistics show that in 2004, seventy-five percent of all fatal collisions involving commercial motor vehicles were caused by the passenger car. Ticket Aggressive Cars & Trucks (TACT), initially titled the Step Up and Ride Program, involves enforcement and education strategies to reduce collisions between passenger vehicles and CMVs. The TACT enforcement strategy involves placing a trooper in a commercial vehicle who radios ahead to strategically located patrol cars the violations observed around the truck. The marked units stop the violator and take the appropriate enforcement.

In 2005, the WSP Commercial Vehicle Division conducted 126,644 Commercial Vehicle Safety Alliance inspections.

Table 7.3-1
Heavy Truck Collisions



Speed Related Fatalities

Road Type	2000	2001	2002	2003	2004
State Highways	38%	29%	11%	28%	22%
County Roads	22%	-	33%	-	8%
City Streets	-	-	38%	20%	-
Other/Unknown	-	-	-	-	0%
<i>All Roads*</i>	32%	26%	20%	27%	18%

Data Source: FARS

Impairment Related Fatalities

Road Type	2000	2001	2002	2003	2004
State Highways	36%	27%	54%	28%	32%
County Roads	22%	20%	25%	75%	50%
City Streets	14%	-	-	60%	33%
Other/Unknown	-	-	-	-	0%
<i>All Roads*</i>	32%	26%	40%	37%	35%

Data Source: FARS

Goals and Performance Measures

[To be developed.]

Strategies to reduce collisions involving heavy trucks.

Objectives	Strategies
7.3.A. Reduce collisions caused by fatigue and inattention	7.3.A1. Provide areas for truckers to pull off the road and get required sleep. (T)
	7.3.A2. Increase truck driver compliance with hours of service requirements through education, enforcement, and continued collaboration with industry.
	7.3.A3. Utilize data to identify contributing factors of collisions involving CMVs and respond with resource reallocation, enforcement, and education strategies. (E)
7.3.B. Reduce collisions caused by defective equipment	7.3.B1. Provide inspection facilities to identify mechanical deficiencies.
	7.3.B2. Provide officers conducting inspections with initial and on-going training for completing thorough CVSA safety inspections.
	7.3.B3. Enhance existing programs to effectively partner and monitor industry through compliance and education of Washington-based CMV companies regarding federal and state regulations.
	7.3.B4. Utilize data to identify CMV companies involved in collisions resulting from defective equipment and subsequently conducting audits of those Washington-based companies. Further, data will support increased enforcement areas to target defective equipment.
7.3.C. Reduce collisions in areas with high potential for impacts to the barrier.	7.3.C1. Improve barrier designs in such areas. (T)
	7.3.C2. Employ rumble strips in such areas. (T)
7.3.D. Reduce CMV collisions involving passenger vehicles	7.3.D1. Expand the TACT education and enforcement strategies in areas identified as having a higher than average number of aggressive driver complaints, and passenger vehicle caused CMV collisions. (T)
	7.3.D2. Provide education through, media ride-a-longs, personal contacts, and letters to complainants, to change public perception that CMV related collisions are usually caused by the truck.

Key: To assist stakeholders the strategies have been classified according to the AASHTO model into three categories and identified by these letters:

(P) Proven Strategy: Those strategies that have been used in one or more locations and subjected to properly designed evaluations that show it to be effective.

(T) Tried/Recommended: Those strategies that have been implemented in a number of locations and that may even be accepted as standards or standard approaches, but that lack found valid evaluations; or those strategies that are recommended best practices according to NHTSA.

(E) Experimental: Those strategies that have been suggested and found sufficiently promising that at least one agency has considered trying them on a small scale in at least one location.

Commercial Motor Vehicle Safety Resources

NCHRP Report 500, Volume 13, [A Guide for Addressing Collisions Involving Heavy Trucks](#), addresses many of these strategies in detail.

<http://safety.transportation.org/guides.aspx?cid=34>

WSP Safetynet data, 2004 and 2005.

Chapter 8 / Roadway Improvements

8.1 Reducing Fatal and Disabling Injuries Associated with Run-Off-Road Crashes

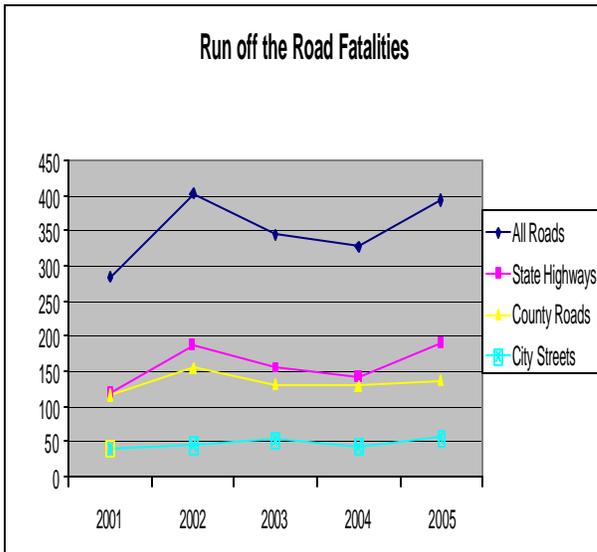
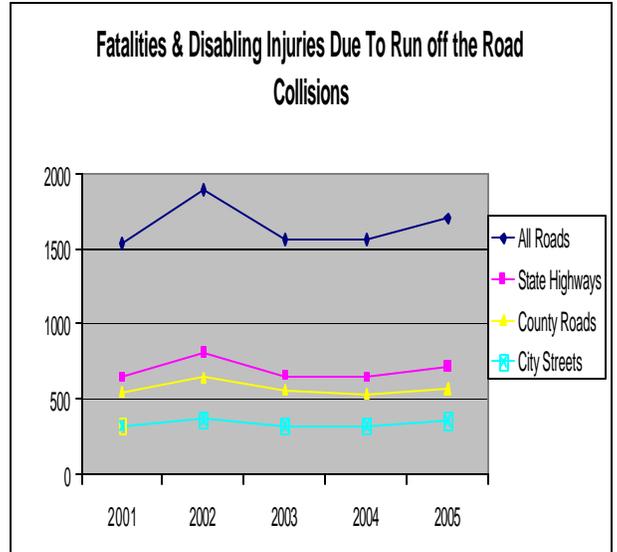
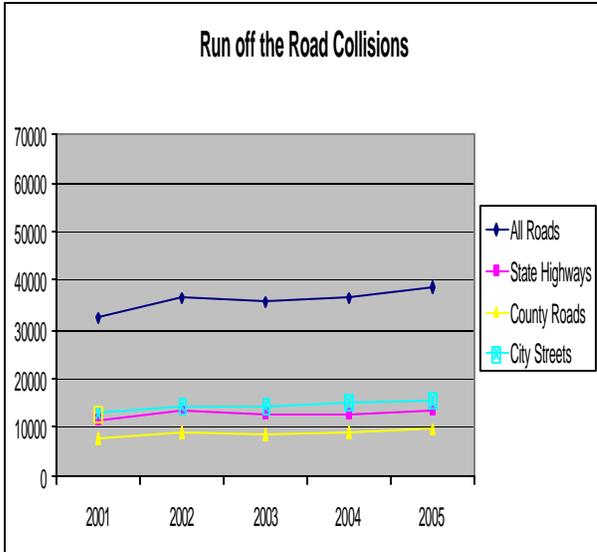
Background

According to the Federal Highway Administration, roadway departures account for over half of all traffic fatalities nationally. In Washington State, during 2001-2005, run-off-road crashes accounted for 178,012 collisions, 8,250 fatal and disabling injuries, and 1,758 deaths, accounting for fifty-six percent of all traffic deaths during this time period. Speeding was a factor in run-off-road crashes fifty-six percent of the time, and impaired driving was a factor fifty-six percent of the time. More information on run-off-road crash data, please see Figure 8.1-1 Run-Off-Road Collisions, on page 58.

Nationally, twenty-five percent of crashes involve a single vehicle leaving the roadway. Rollovers (forty-two percent) and striking a tree (twenty-five percent) are the most common reasons for death in run-off-road crashes.

In Washington State, during 2001 to 2005, there were 939 fatalities involving collisions with fixed objects, 2,959 disabling injuries, and 13,839 collisions.

Figure 8.1-1
Run-Off-Road Collisions



Speed Related Fatalities

Road Type	2000	2001	2002	2003	2004
State Highways	51%	45%	49%	38%	44%
County Roads	56%	57%	67%	61%	69%
City Streets	61%	70%	81%	80%	59%
Other/Unknown	56%	67%	67%	43%	50%
All Roads*	54%	54%	61%	54%	56%

Data Source: FARS

Impairment Related Fatalities

Road Type	2000	2001	2002	2003	2004
State Highways	55%	45%	51%	44%	48%
County Roads	61%	52%	64%	57%	66%
City Streets	67%	59%	81%	80%	59%
Other/Unknown	-	-	-	100%	-
All Roads*	59%	50%	60%	55%	57%

Data Source: FARS

Goals and Performance Measures

[To be developed.]

Strategies to Reduce Fatal and Disabling injuries Associated with Run-Off-Road Crashes.

Objectives	Strategies
8.1.A. Keep Vehicles on the Roadway	8.1.A1. Implement a comprehensive program to improve driver guidance through better pavement markings, delineation, signing and illumination. (P)
	8.1.A2. Establish or maintain programs to improve roadway maintenance to enhance highway safety. (P)
	8.1.A3. Improve or maintain a design process that explicitly incorporates safety considerations and facilitates better design decisions. (T)
	8.1.A4. Implement a targeted shoulder rumble strip program. (T)
8.1.B. Minimize the Consequences of Leaving the Roadway	8.1.B1. Expand the use and maintain existing best practices for the selection, installation, and maintenance of roadside safety hardware. (P)
	8.1.B2. Develop and implement guidance to improve ditches and backslopes to minimize crash severity. (P)
	8.1.B3. Implement a statewide policy to reduce the hazard from roadside utility poles. (T)
	8.1.B4. Implement, in an environmentally acceptable manner, a statewide effort to address hazardous trees. (T)
	8.1.B5. Develop and implement guidelines for safe urban streetscape design. (T)
	8.1.B6. Complete all guardrail infill where necessary. (T)
	8.1.B7. Replace all non-standard guardrail ends. (T)

Key: To assist stakeholders the strategies have been classified according to the AASHTO model into three categories and identified by these letters:

(P) Proven Strategy: Those strategies that have been used in one or more locations and subjected to properly designed evaluations that show it to be effective.

(T) Tried/Recommended: Those strategies that have been implemented in a number of locations and that may even be accepted as standards or standard approaches, but that lack found valid evaluations; or those strategies that are recommended best practices according to NHTSA.

(E) Experimental: Those strategies that have been suggested and found sufficiently promising that at least one agency has considered trying them on a small scale in at least one location.

Reducing Run-Off-Road Collision Resources

NCHRP Report 500, Volume 6, [A Guide for Addressing Run-Off-Road Collisions](http://safety.transportation.org/guides.aspx?cid=27), addresses many of these strategies in detail. <http://safety.transportation.org/guides.aspx?cid=27>

NCHRP Report 500, Volume 3, [A Guide for Addressing Trees in Hazardous Locations](http://safety.transportation.org/guides.aspx?cid=24), addresses many of these strategies in detail. <http://safety.transportation.org/guides.aspx?cid=24>

NCHRP Report 500, Volume 8, [A Guide for Addressing Collisions Involving Utility Poles](http://safety.transportation.org/guides.aspx?cid=31), addresses many of these strategies in detail. <http://safety.transportation.org/guides.aspx?cid=31>

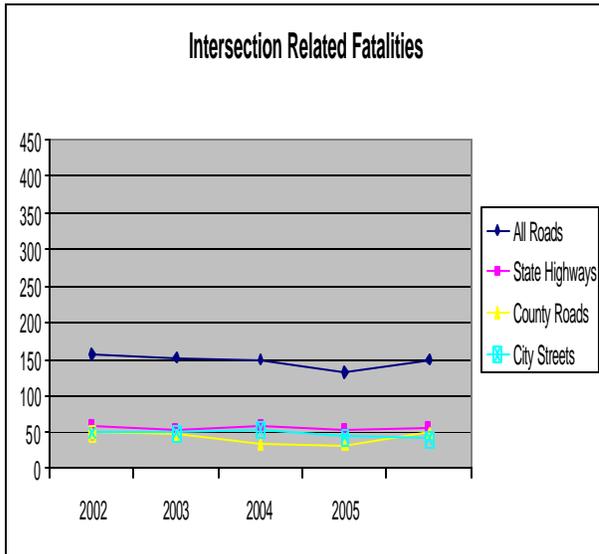
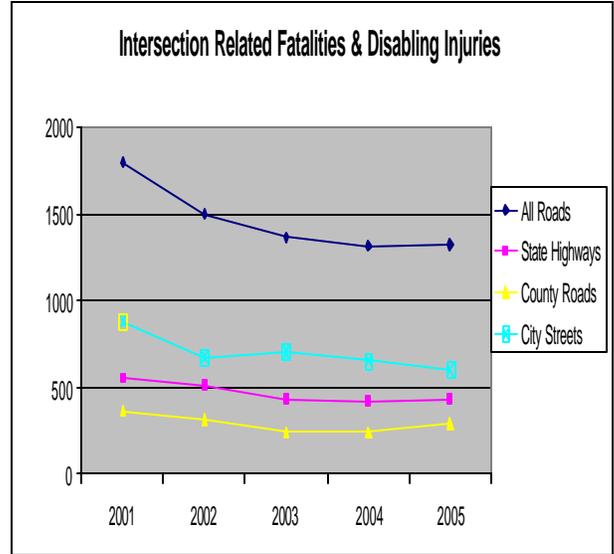
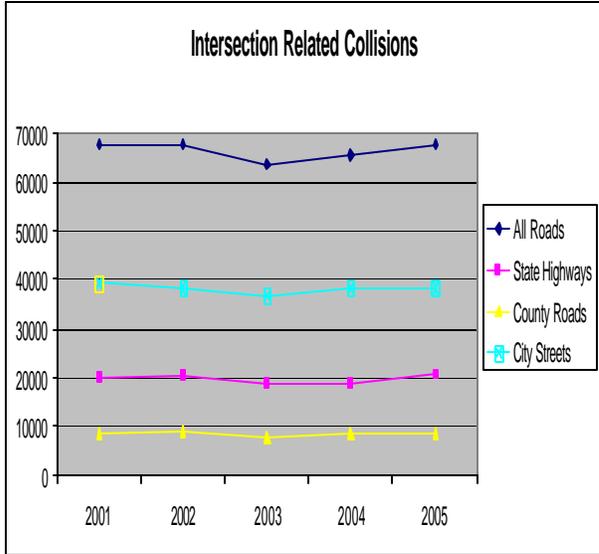
8.2 Reducing Crashes at Intersections

Background

In Washington State, intersection crashes account for over half of all collisions and twenty-four percent of fatal collisions. Data shows that crashes at intersections account for 66,500 collisions, 14,544 fatal and disabling injuries, and 147 deaths on average each year between 2001-2005. Thirty-three percent of intersection related fatalities are impairment-related fatalities, and twenty-five percent are speed-related. The majority of intersection collisions occur on city streets. For more information, please see Figure 8.2-1 Intersection Related Collisions, on page 62.

Nationally, fifty percent of crashes occur at intersections, with almost a quarter of them fatal.

Figure 8.2-1
Intersection Related Collisions



Speed Related Fatalities

Road Type	2000	2001	2002	2003	2004
State Highways	14%	7%	8%	21%	13%
County Roads	33%	23%	28%	48%	43%
City Streets	20%	31%	29%	33%	29%
Other/Unknown	-	-	50%	-	-
<i>All Roads*</i>	<i>21%</i>	<i>20%</i>	<i>24%</i>	<i>33%</i>	<i>28%</i>

Data Source: FARS

Impairment Related Fatalities

Road Type	2000	2001	2002	2003	2004
State Highways	28%	48%	22%	27%	20%
County Roads	39%	26%	23%	50%	51%
City Streets	39%	31%	38%	37%	31%
Other/Unknown	-	-	50%	-	-
<i>All Roads*</i>	<i>34%</i>	<i>35%</i>	<i>28%</i>	<i>37%</i>	<i>33%</i>

Data Source: FARS

Goals and Performance Measures

[To be determined.]

Strategies to Improve the Design and Operation of Highway Intersections.

Objectives	Strategies
7.2.A. Reduce collisions at signalized intersections.	7.2.A1. Consider traffic control and operational improvements where appropriate: <ul style="list-style-type: none"> Optimize clearance intervals. (P) Employ signal coordination. (P) Employ emergency vehicle preemption. (P) Remove unwarranted signal. (P) Improve operation of pedestrian and bicycle facilities. (P, T) Employ multiphase signal operation. (P, T)
	7.2.A2. Consider geometric improvements where appropriate: <ul style="list-style-type: none"> Provide left-turn channelization. (P) Provide right-turn channelization. (P) Improve geometry of pedestrian and bicycle facilities. (P and T)
7.2.B. Reduce collisions at unsignalized intersections.	7.2.B1. Install traffic control devices, channelization, and illumination where appropriate.
	7.2.B2. Consider geometric design improvements where appropriate: <ul style="list-style-type: none"> Provide left-turn lanes at intersections (P) Realign intersection approaches to reduce/eliminate intersection skew (P) Provide right-turn lanes at intersections (P) Provide longer left-turn lanes at intersections (T) Provide offset left-turn lanes at intersections (T) Provide bypass lanes on shoulders at T-intersections (T) Provide left-turn acceleration lanes at divided highway intersections (T) Provide longer right-turn lanes at intersections (T) Provide offset right-turn lanes at intersections (T) Provide right-turn acceleration lanes at intersections (T) Provide full-width paved shoulders in intersection areas (T) Restrict or eliminate turning maneuvers by signing (T) Restrict or eliminate turning maneuvers by providing channelization or closing median openings (T) Close or relocate "high-risk" intersections (T) Convert four-legged intersections to two T-intersections (T) Convert offset T-intersections to four-legged intersections (T) Use indirect left-turn treatments to minimize conflicts at divided highway intersections (T) Improve pedestrian and bicycle facilities to reduce conflicts between motorists and nonmotorists (varies)
7.2.C. Continue and/or enhance effective access management policies with a safety perspective	7.2.C1. Develop a statewide proactive strategy to reduce the number of access points prior to the development of the highway.
	7.2.C2. Develop a twenty-year plan for access control on state highways.
7.2.D. Improve driver compliance at intersections.	7.2.D1. Implement automated enforcement (cameras) of red-light running. (P)
	7.2.D2. Provide targeted enforcement at intersections and intersection approaches. (T)
	7.2.D3. Provide public information and education. (T)
7.2.E. Improve driver awareness of intersections and signal control	7.2.E1. Improve visibility of intersections on approach. (T)
	7.2.E2. Improve visibility of signals and signs at intersections. (T)
	7.2.E3. Improve sight distances. (P and T)

7.2.F. Reduce collisions at intersection with new technology and devices. 7.2.F1. Utilize new technology and devices to improve intersection safety.

Key: To assist stakeholders the strategies have been classified according to the AASHTO model into three categories and identified by these letters:

(P) Proven Strategy: Those strategies that have been used in one or more locations and subjected to properly designed evaluations that show it to be effective.

(T) Tried/Recommended: Those strategies that have been implemented in a number of locations and that may even be accepted as standards or standard approaches, but that lack found valid evaluations; or those strategies that are recommended best practices according to NHTSA.

(E) Experimental: Those strategies that have been suggested and found sufficiently promising that at least one agency has considered trying them on a small scale in at least one location.

Resources

NCHRP Report 500, Volume 12, [A Guide for Addressing Collisions at Signalized Intersections](http://safety.transportation.org/guides.aspx?cid=33), addresses many of these strategies in detail.
<http://safety.transportation.org/guides.aspx?cid=33>

NCHRP Report 500, Volume 05, [A Guide for Addressing Collisions at Unsignalized Intersections](http://safety.transportation.org/guides.aspx?cid=26), addresses many of these strategies in detail.
<http://safety.transportation.org/guides.aspx?cid=26>

8.3 Reducing Head-On and Across Median Crashes

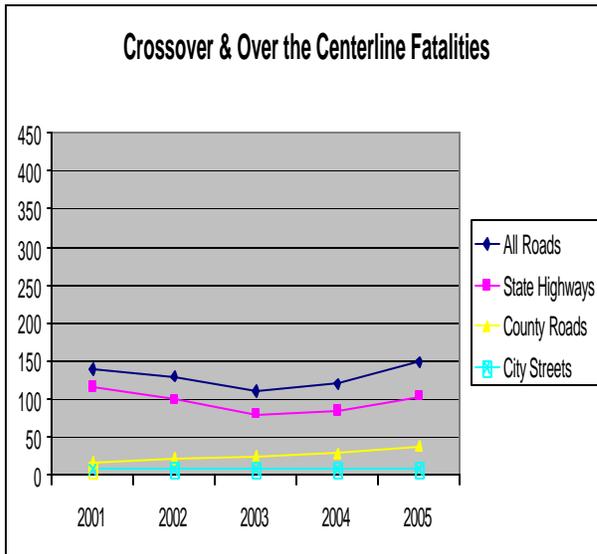
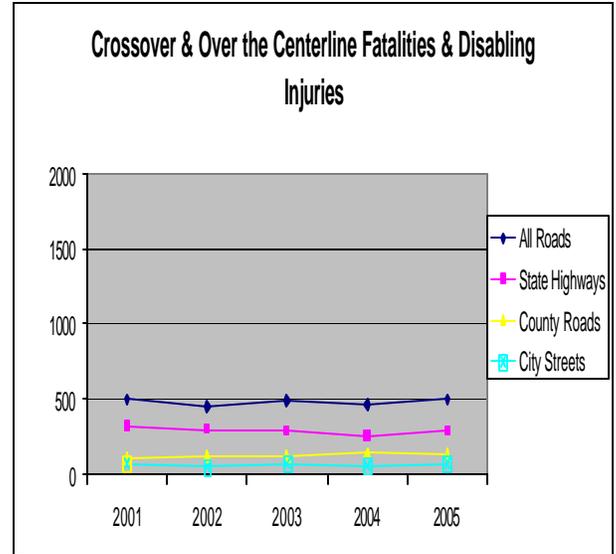
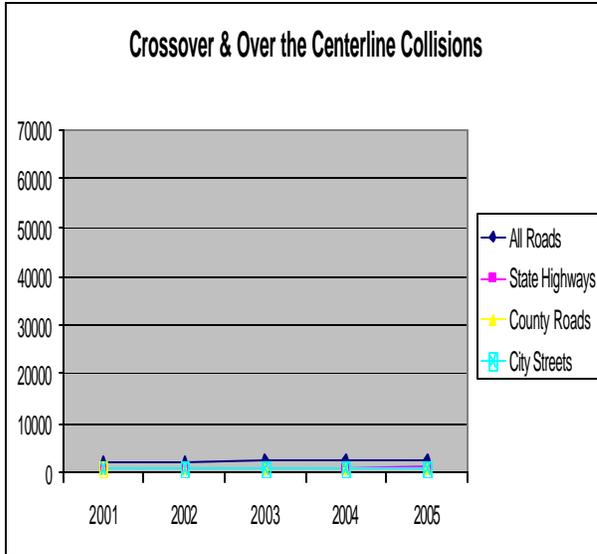
Background

On average each year in Washington State , 2,400 head-on or across median crashes occur causing an average of 388 fatal and disabling injuries. Head-on and across the median crashes kill an average of 130 people each year in Washington. Speed is a factor in about twenty-six percent of the deaths and impairment is a factor in forty-nine percent of the deaths.

While head-on and across median crashes occur with almost equal occurrence on state highways, county roads, and city streets, fatal head-on collisions happen more frequently on state highways.

Please see Figure 8.3-1 Head-On and Across Median Collisions, on page 66 for more information.

Figure 8.3-1
Head-on and Across Median Collisions 2001-2005



Speed Related Fatalities

Road Type	2000	2001	2002	2003	2004
State Highways	32%	26%	7%	18%	8%
County Roads	23%	60%	36%	41%	76%
City Streets	57%	75%	25%	43%	-
Other/Unknown	-	100%	-	-	-
<i>All Roads*</i>	33%	34%	13%	26%	24%

Head-On Collisions only Data Source: FARS

Impairment Related Fatalities

Road Type	2000	2001	2002	2003	2004
State Highways	47%	50%	47%	40%	40%
County Roads	46%	50%	71%	71%	82%
City Streets	57%	75%	50%	57%	50%
Other/Unknown	-	100%	-	-	-
<i>All Roads*</i>	48%	51%	51%	49%	50%

Head-On Collisions only Data Source: FARS

Goals and Performance Measures

[To be developed.]

Strategies to Reduce Head-On and Across Median Crashes.

Objectives	Strategies
8.3.A. Reduce Across Median Crashes	8.3.A1. Implement innovative centerline treatments to reduce head-on crashes on two lane highways. (T)
	8.3.A2. Provide safe passing opportunities on two-lane rural highways by constructing passing lanes where cost effective. (T)
	8.3.A2. Focus on across median crashes on highways with narrow medians. (T)
8.3.B. Reduce Head-On Crashes	8.3.B1. Add raised medians or other access control on multi lane arterials. (T)

Key: To assist stakeholders the strategies have been classified according to the AASHTO model into three categories and identified by these letters:

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(T) Tried/Recommended: Those strategies that have been implemented in a number of locations and that may even be accepted as standards or standard approaches, but that lack found valid evaluations; or those strategies that are recommended best practices according to NHTSA.

(E) Experimental: Those strategies that have been suggested and found sufficiently promising that at least one agency has considered trying them on a small scale in at least one location.

Head-On Collision Resources

NCHRP Report 500, Volume 4, [A Guide for Addressing Head-On Collisions Involving](http://safety.transportation.org/guides.aspx?cid=25), addresses many of these strategies in detail.
<http://safety.transportation.org/guides.aspx?cid=25>

8.4 Reduce Congestion-Related Crashes

Background

[To be developed.]

Goals and Performance Measures

[To be developed.]

Strategies to Reduce Congestion-Related Crashes.

Objectives	Strategies
8.4.A. Improve communication with drivers to reduce congestion	8.4.A1. Implement ITS solutions to warn drivers of incidents and/or congestion to improve safety.
	8.4.A2. Implement and expand Incident Response programs to reduce incident-created congestion.
8.4.B. Improve Speed Variations	8.4.B1. Develop better guidance through a combination of geometric, traffic control, and enforcement techniques.
8.4.C. Improve Capacity	8.4.C1. Reduce congestion by improving capacity at choke points.
	8.4.C2. Prepare a twenty-year plan for the development and improvement of frontage roads and alternate routes to congested urban areas to divert traffic during emergencies and natural disasters.

Key: To assist stakeholders the strategies have been classified according to the AASHTO model into three categories and identified by these letters:

(P) Proven Strategy: Those strategies that have been used in one or more locations and subjected to properly designed evaluations that show it to be effective.

(T) Tried/Recommended: Those strategies that have been implemented in a number of locations and that may even be accepted as standards or standard approaches, but that lack found valid evaluations; or those strategies that are recommended best practices according to NHTSA.

(E) Experimental: Those strategies that have been suggested and found sufficiently promising that at least one agency has considered trying them on a small scale in at least one location.

Chapter 9 / Emergency Medical Services

9.1 Enhancing Emergency Medical Capabilities to Increase Survivability

Background

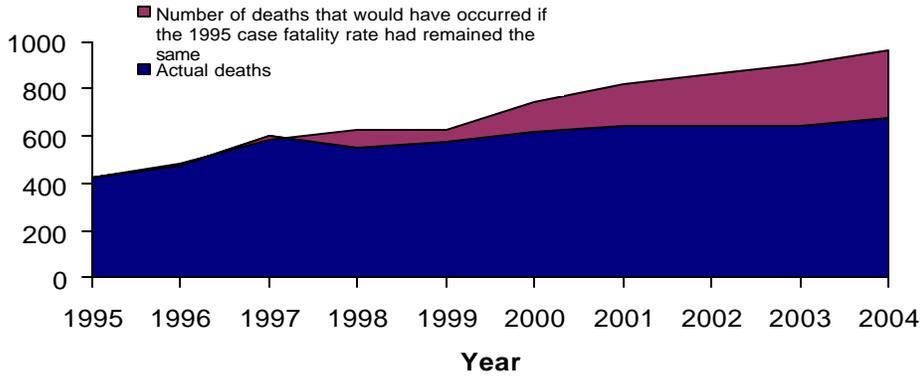
The importance of an Emergency Medical Services (EMS) and Emergency Management and Trauma Care (EMSTC) System cannot be underestimated. With the establishment of a comprehensive EMSTC System in Washington State, a steady decrease in the number of motor vehicle related deaths has been realized. Motor vehicle crashes account for the vast majority of unintentional, trauma-related deaths, both nationally and within Washington State.¹³ Since its inception in 1990, the State of Washington's EMSTC System has experienced great success in reducing the number of deaths occurring from injuries. This success can be directly attributed to the presence of a comprehensive trauma care system that encompasses all facets of care from prevention activities to pre-hospital, in-patient, and rehabilitation services. Each of these components work in concert to reduce death and disability of injured people throughout the State. Washington's trauma care system strives to assure the resources are available and the infrastructure exists to deliver the "right" patient to the "right" facility in the "right" amount of time. In a recent national evaluation of the effect of trauma-center care on mortality, MacKenzie and colleagues discussed the importance of triaging severely injured patients to the highest level trauma center.¹⁴ The results of this study underscored the fact that overall risk of death is "significantly lower when care is provided in a trauma center than when it is provided in a non-trauma center". This highlights the importance of a well-coordinated system of ensuring that severely traumatized patients will arrive at the most appropriate level of trauma center in the most optimum time span. To accomplish this goal, pre-hospital EMS professionals must have at their disposal the knowledge, technology, protocols, and expertise to effectively care for patients and determine the appropriate receiving facility. In some cases, this may require bypassing lower level trauma centers to ensure patients receive the most optimum care, minimizing the risk of death resulting from the injury.

¹³ Nathens, AB, Jurkovich, GJ, Rivara FP, Maier RV. Effectiveness of State Trauma Systems in Reducing Injury-Related Mortality: A National Evaluation. *J Trauma*; January 2000, 48:1

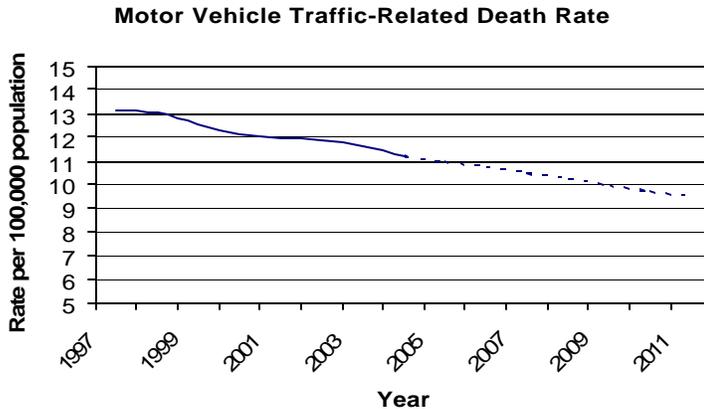
¹⁴ MacKenzie, EJ, Rivara FP, Jurkovich GJ, Nathens AB, Frey KP, Egleston BL, Salkever DS, and Scharfstein DO. A National Evaluation of the Effect of Trauma-Center Care on Mortality; *N Engl J Med*, Jan. 26, 2006; pp 366-378

The following figure illustrates the strides made in impacting the trauma epidemic within the State of Washington.

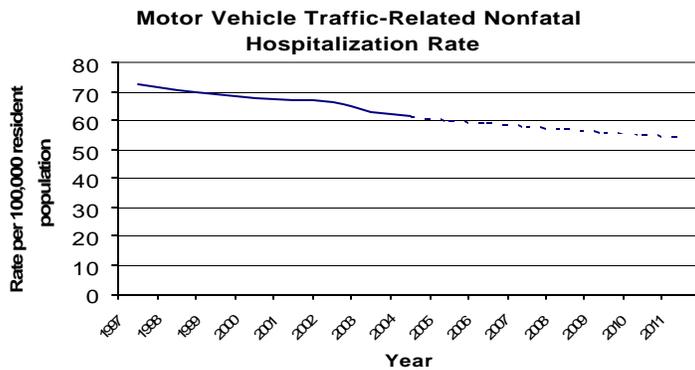
1190 lives potentially saved since the implementation of the Washington Trauma System in 1995



Washington's trauma system spans the continuum from injury prevention through post-acute rehabilitation. As such, a population-based look at overall motor vehicle traffic-related death rates in Washington also supports progress.



The rate of nonfatal hospitalizations for motor vehicle traffic-related incidents is also declining.



Thirty to forty percent of all trauma deaths occur within hours of the injury. This underscores the importance of a well-coordinated system, delivering care to the injured person in the pre-hospital and hospital setting. Many of these deaths are considered preventable when an effective, organized trauma system exists. Accordingly, it is important to analyze the on-scene response times of pre-hospital resources to assess the ability of the pre-hospital system to respond to trauma related incidents in a timely and efficient manner. Washington Administrative Code (WAC) identifies specific response time criteria within four geo-classifications (urban, suburban, rural, and wilderness). EMS agencies must meet these criteria on eighty percent of all calls. Expeditious response to trauma scenes equates to faster hospital access times for major trauma patients. Therefore, increasing the percentage of compliance by pre-hospital resources will equate to improved outcomes. In order to adequately assess pre-hospital response times, a central data repository must be developed and pre-hospital data gathered and analyzed to appropriately assess system efficacy.

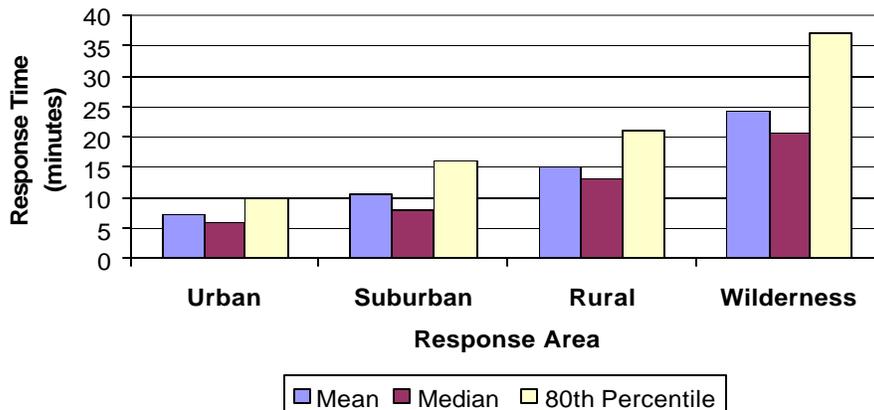
Response time efficiencies are affected by a number of dynamics including, but not limited to, the distribution of available EMS resources, public access to those resources, effective communications systems, and rapid recognition and routes of travel to the accident scene by EMS providers. Sophisticated communication systems that allow a multiplicity of response personnel to effectively communicate are essential to an efficacious EMS response system. In 1973, Congress enacted the Emergency Medical Services Systems Act (public law 93-154), identifying fifteen essential components to an EMS System. Communications is one of these fifteen essential components and represents a significant challenge for the State’s EMS response community. A comprehensive communications system provides EMS personnel with access to additional resources that may be required, as well as medical direction. Additionally, an effective communications system allows responding personnel to coordinate activities related to scene management ensuring optimum patient care. The ability to communicate with other responding resources both on the ground and in the air, ensure rescuer safety and efficient preparation of the patient for transport. It is also imperative that all responding personnel have the ability to communicate among each other as the scene unfolds. During any

response to a motor vehicle crash, agencies representing EMS, fire service, and law enforcement will be engaged. The ability to easily and effectively communicate between response agencies promotes an effective response system. The current level of interoperability between response agencies is minimal and the economic and technical barriers must be addressed.

Equally important to coordinating the response activities of the various agencies is the presence of communication personnel utilizing medical dispatch protocols. Several medically oriented dispatch protocol packages are utilized nationally and provide a solid foundation for appropriate deployment of EMS resources, as well as providing pre-arrival instructions to citizens reporting an accident or EMS incident. Currently, communications centers throughout the State vary in the level of medical dispatch protocol from none at all in some centers, to well developed, computerized, medical dispatch triage processes. The disparity in the presence of these essential protocols lends itself to inconsistent deployment of EMS resources. Without consistent medical dispatch protocols, EMS resources are prone to over or under utilization. The EMS system in the State should pursue implementation of medical dispatch protocols in every EMS dispatch center.

Emerging technology utilizing Global Positioning Satellites (GPS) in EMS vehicles is one manner of reducing EMS response times to incident scenes. With an increase in the number of citizens traveling rural and wilderness roads, it is important that EMS providers know the exact location of a motor vehicle accident, and importantly, the most appropriate and rapid route to the scene. With the advent of on-board GPS systems, medically trained dispatchers are able to disseminate incident information via mobile data terminals. Accurate maps identifying the most appropriate route of travel to the incident scene can accompany any critical information identified during the caller interrogation process. Providing accurate travel routes shortens the time from the initial call for assistance until responding EMS units are on scene. While increasingly prevalent in some of the large urban areas of the State, most if not all of the rural areas lack this technology. Achieving a statewide implementation of the technology will ensure better response times, lessening the total time from the actual incident until a patient arrives at the appropriate trauma center.

EMS Response Times for Traffic-Related Calls, 2005



Washington’s EMSTC system has been built upon a broad consensus among a divergent group of health care professionals and industry experts. These groups have continuously strived to address the complex political, economic, logistical, legal, and clinical issues associated with trauma care in this State. Enhancing the capabilities of the entire EMSTC System will continue to reduce the number of fatalities and long-term affects of trauma related to motor vehicle crashes.

Providing education and funds to support equipment and supplies, as well as developing strategically focused EMSTC System plans, are all essential to the continued efficiency of the State’s EMSTC System. In each of the aforementioned areas, it is important to base decisions upon reliable injury-related data. Developing forward thinking strategies and making decisions based upon empirical data is critical to the continued success of the EMSTC System in Washington. Therefore, any goals and performance measures should incorporate the gathering, archiving, and analysis of data related to EMS and Trauma incidents. This evidence based focus will ensure the EMSTC System realizes its full potential and continues to favorably impact the outcomes of injured people in the State.

Goals and Performance Measures

Reduced the motor vehicle traffic-related death rate as follows:

<u>Year</u>	<u>Rate per 100,000 residents</u>
2007	10.5
2009	10.0
2011	9.5

Reduce the rate of nonfatal motor vehicle traffic-related hospitalizations as follows:

<u>Year</u>	<u>Rate per 100,000 residents</u>
2007	58
2009	56
2011	54

Strategies to enhance emergency medical capabilities to increase survivability.

Objectives	Strategies
9.1.A Reduce injury deaths Reduce injury hospitalizations	9.1.A1. Ensure all pre-hospital EMS personnel receive adequate trauma training through Ongoing Training and Evaluation Programs (OTEP). (P)
	9.1.A2. Ensure efficient and adequate distribution of Level 1 and Level 2, Designated Trauma Centers. (P)
	9.1.A3. Ensure that all major trauma patients are transported to the highest level of designated trauma center within a 30 minute transport. (P)
	9.1.A4. Develop and implement state-wide EMS data system that promotes efficient and accurate assessment of EMS System performance related to all EMS incidents. (P)
	9.1.A5. Increase the percentage of EMS on-scene arrival responses that are within state requirements. (P)
	9.1.A6. Ensure adequate and efficient distribution of pre-hospital EMS resources at all levels (aid and ambulance). (P)
	9.1.A7. Obtain all response time data for pre-hospital EMS agencies and archive in a central EMS data repository for analysis. (P)
	9.1.A8. Implement Medical Dispatch Protocols in each EMS communications center within Washington State. (P)
	9.1.A9. Assure that all EMS Communications Centers in Washington State utilize a computerized system of Medical Dispatch protocols including pre-arrival instructions. (P)
	9.1.A10. Assure that all EMS Communications Personnel are trained in Medical Dispatch techniques to ensure appropriate utilization of available EMS Resources. (P)
	9.1.A11. Increase use of GPS Technology by EMS agencies throughout the State. (E)
	9.1.A12. Assure that seamless communications capabilities between EMS, Law Enforcement and Fire Service agencies is achieved through interoperability. (P)
	9.1.A13. Expand the Comprehensive Hospital Abstract Reporting System (CHARS) to include emergency department data to promote assessment of EMS system performance to enhance injury surveillance capabilities. (P) Note: This is a Federal requirement to be a CODES state.

Resources

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US Department of Health and Human Services; Health Resources and Services Administration; “A 2002 National Assessment of State Trauma System Development, Emergency Medical Services Resources, and Disaster Readiness for Mass Casualty Events.” August 2003

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Chapter 10 / Traffic Information Systems

10.1 Improving Information and Decision Support Systems

Background

Traffic safety data is the primary source of knowledge about our State's transportation environment. Reliable data provides the underpinnings of an effective campaign to reduce injuries and fatalities on the Washington's roadways. This data serves as the critical link in identifying problems, selecting appropriate countermeasures, and evaluating the performance of these programs.

Washington's information and decision support system is comprised of the hardware, software, and accompanying processes that capture, store, transmit, and analyze the following types of data:

- Collisions
- Citations & Adjudication
- Drivers & Registered Vehicles
- Traffic Fatalities
- Motor Carriers (Commercial Vehicles)
- Injury Surveillance (Emergency Medical Services, Emergency Department, Trauma, Hospital inpatient, Death Records)
- Roadway (Traffic Volume, Features Inventory, Geometrics, etc.) and Location (Geographic Information Systems)

Together, these data systems make up what is commonly referred to as Washington's Traffic Records System. Each component of this system provides key information to support decisions regarding public and transportation safety. Information derived from these data systems is valuable in documenting progress toward key measures of performance to enhance management and accountability in public service. Timely, accurate, integrated, and accessible traffic records data is crucial to Washington's effort to improve public safety.

The Washington Traffic Records Committee (TRC) is a statewide stakeholder forum created to facilitate the planning, coordination, and implementation of projects to improve the State's traffic records system. The TRC is a partnership of state, local, and federal interests from the transportation, law enforcement, criminal justice, and health professions. Washington's TRC fosters understanding among stakeholders and provides an appropriate venue to formulate mutually beneficial projects to improve the timeliness, accuracy, integration, and accessibility of statewide traffic data.

In November 2003 the TRC hosted a state traffic records assessment conducted in cooperation with the National Highway Traffic Safety Administration, a division of the US Department of Transportation. This assessment provided a number of recommendations as to how the current system architecture could be improved. In addition, the TRC held numerous strategic planning sessions to develop a foundation for the State's future direction in traffic records. As a result of these efforts, the TRC has created the Washington Traffic Records Strategic Plan. This document serves as a blueprint for future improvements to the State's system of collecting, distributing, and using traffic records data. The goals, objectives, and strategies listed below have been taken directly from the Washington Traffic Records Strategic Plan.

Participating Agencies

- ◆ Washington State Patrol
- ◆ Administrative Office of the Courts
- ◆ Association of Washington Cities
- ◆ County Road Administration Board
- ◆ Department of Health
- ◆ Department of Transportation
- ◆ Federal Highway Administration
- ◆ Federal Motor Carrier Safety Administration
- ◆ Office of Superintendent of Public Instruction
- ◆ Washington Association of Sheriffs and Police Chiefs
- ◆ Washington Traffic Safety Commission
- ◆ Washington Integrated Justice Information Board
- ◆ Department of Licensing
- ◆ National Highway Traffic Safety Administration

Goals and Performance Measures

1. Leverage technology and appropriate government and industry standards to improve the collection, dissemination, and analysis of traffic records data.
2. Improve the interoperability and exchange of traffic records data among systems and stakeholders for increased efficiency and enhanced integration.
3. Provide an ongoing statewide forum for traffic records and support the coordination of multi-organizational initiatives and projects.
4. Promote the value of traffic records data and encourage training opportunities to maximize its effectiveness as decision support.

Strategies to improve information and decision support systems.

Objectives	Strategies
10.1.A. Replace paper-based data collection processes with automated electronic systems	10.1.A1. Issue bar code imprinted driver licenses and vehicle registrations to Washington drivers to expedite in-vehicle electronic forms preparation for law enforcement officers.
	10.1.A2. Provide a data collection software application to law enforcement agencies pursuing mobile field reporting solutions.
	10.1.A3. Support the eTRIP Initiative, Objective #1 to provide law enforcement with methods to issue tickets and collision reports electronically.
10.1.B. Reduce paper exchanges among traffic records systems and stakeholders	10.1.B1. Provide the ability for law enforcement agencies to electronically submit citation and infraction information to the Administrative Office of the Courts (AOC).
	10.1.B2. Develop a method for law enforcement agencies to electronically submit collision report data to the state repository at the Department of Transportation (WSDOT).
	10.1.B3. Design a process for county engineers to view images of collision reports, code location, and electronically submit the location coding form (CLDF).
	10.1.B4. Design a method for citizens to submit collision reports (VCR) electronically.
10.1.C. Develop a statewide Emergency Medical Services (EMS) Registry	10.1.C1. Determine participant agency capabilities and requirements and develop WEMSYS infrastructure.
	10.1.C2. Create web-based reporting solution and/or facilitate establishment of database systems for EMS agencies lacking electronic systems to support reporting requirements.
	10.1.C3. Seek statutory authority and operational funding for the centralized collection of statewide EMS data.
	10.1.C4. Develop tailored solutions to increase the reporting capabilities of volunteer and resource-limited agencies.
10.1.D. Create a more accurate statewide system for roadway feature and event location	10.1.D1. Develop a statewide transportation data layer (WA-Trans) for use in Geographic Information Systems across the state.
	10.1.D2. Develop a process and software tool for the continual maintenance of WA-Trans data.
	10.1.D3. Utilize WA-Trans to improve the accuracy of locating traffic-related events.
	10.1.D4. Encourage statewide use of WA-Trans data to enhance transportation analysis and safety efforts.
10.1.E. Improve the timeliness, utility, and accessibility of statewide collision data	10.1.E1. Ensure statewide collision reports are scanned, indexed, and processed into the CLAS system within 60 days of the event.
	10.1.E2. Provide authorized users with access to CLAS collision report images.
	10.1.E3. Acquire or develop a robust collision analysis software application to provide to state and local transportation safety professionals for in-depth analysis of jurisdiction relevant collision data.
	10.1.E4. Provide Counties the ability to utilize collision data in conjunction with roadway inventory data to improve analysis and planning capabilities.
10.1.F. Design a new Police Traffic Collision Report (PTCR) and citizen report (VCR)	10.1.F1. Revise the layout and content of the current collision report (PTCR).
	10.1.F2. Implement statewide law enforcement training program.
	10.1.F3. Revise the citizen report (VCR) to conform to similar data element, value, and definition revisions of the PTCR.
	10.1.F4. Modify primary collision database and other secondary systems to accommodate revised forms.

10.1.G. Enhance the structure and activities of the Traffic Records Committee	10.1.G1. Frame a Traffic Records Committee Charter to clarify purpose, define member make-up and responsibilities, and detail the governance structure and decision-making process.
	10.1.G2. Maintain appropriations to support a full-time Traffic Records Coordinator.
	10.1.G3. Increase understanding and awareness of the TRC and its activities.
	10.1.G4. Support training opportunities for transportation and safety professionals.

Resources

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Chapter 11 / Next Steps

11.1 Implementation

Washington State's Strategic Highway Safety Plan (SHSP): Target Zero will be implemented through a variety of channels, action plans, and linking the plans strategies and goals with other elements of the transportation planning process.

State agencies with traffic safety responsibilities will adopt the Strategic Highway Safety Plan's recommendations and link this document to other transportation and safety planning guides. They will use the SHSP to guide their funding decisions. They will adopt portions of the plan as part of their agency or department Governor's Management Accountability and Performance (GMAP) process which provides who, what, when, where, why, and how details.

Other traffic safety partners will be encouraged to utilize those portions of the SHSP that apply to them.

11.2 Evaluation

Washington State's Strategic Highway Safety Plan: Target Zero will be evaluated annually and revised at least every four or five years. Each set of traffic safety data, goals, and performance measures will be updated to evaluate progress and determine the effectiveness of the strategies to reduce traffic deaths and disabling injuries.

For each emphasis area, information will be gathered from the State agencies' GMAP process. The GMAP process documents specific projects and tasks within emphasis areas and strategies. At the specific project level, we will gather a record of crash experiences before and after the implementation of the project. Safety partners other than state agencies that receive state or federal funds are required to provide evaluations of their individual projects.

After this information is gathered, the evaluation process will look at a comparison of crash numbers, rates, and severity observed before and after the implementation of a strategy. Finally, the cost of the safety countermeasures implemented will be compared to the safety benefits (and economic savings) resulting from the countermeasures.

The findings resulting from the evaluations process will be used to determine how emphasis areas and strategies will be revised.