Review Draft

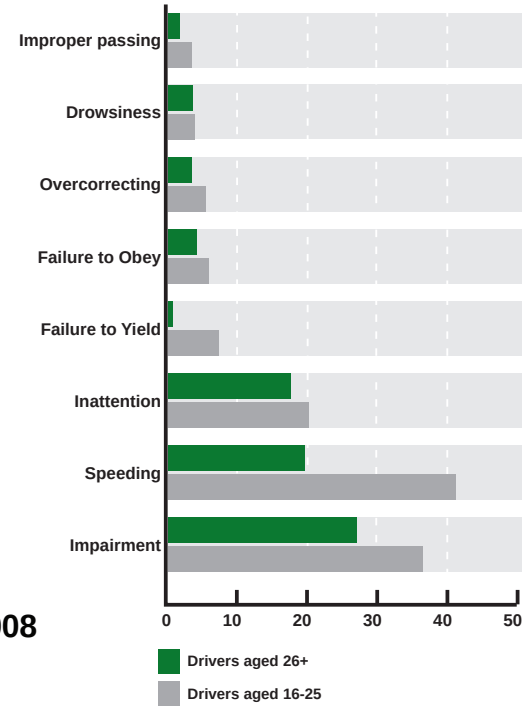
crashes. Between 2006 and 2008, the percentage of 16-20 year-old drivers in fatal crashes who were impaired by alcohol or other drugs dropped by 8.6% compared to 2003-2005. In contrast, the percentage of 21-25 year-old drivers in fatal crashes who were impaired rose by 4.8% during the same period.

Although speeding-related fatal and serious injury crashes declined in both young driver age groups, the drop was eight times greater for 16-20 year-olds than 21-25 year olds. Nevertheless, speeding still contributes to fatal and serious crashes more often among drivers age 16-20 years old than those 21-25.

One area in which drivers 21-25 are improving over those 16-20 is distracted driving. Drivers 16-20 years-old have the highest percentage of distracted driving in fatal crashes of any age group. In fact, between 2006 and 2008, the percentage of 16-20 year-olds driving distracted in fatal crashes increased by 26% compared to 2003-2005. Among 21-25 year-olds, however, the percent driving distracted in fatal crashes dropped by 9% for the same time period.

Driver Errors In Washington Fatal Crashes, 1999-2008

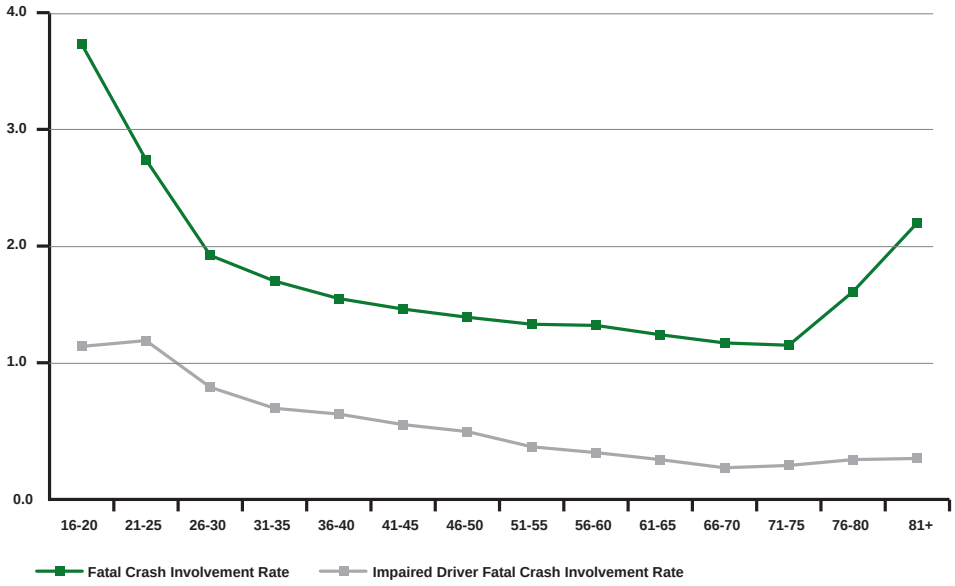
By Age Group, 16-25 year-olds vs 26+ year-olds
By percentage of age-group drivers in fatal crashes



Source: FARS

Washington Fatal Crash Involvement Rate, 1999-2008
Total and Impaired* Drivers in Fatal Crashes

per 10,000 Licensed Drivers, by Driver Age Group



Source: FARS, DOL
*Drivers with either a BAC = or >.08 or a positive drug test

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More Young Drivers are Waiting until Age 18 to Get Drivers License

First-time drivers in Washington State who are 16 or 17 years old face license restrictions that are intended to improve their safety, as well as the safety of other drivers who share the road with them. Sixteen- and 17-year-old drivers are required to complete Driver Training School (DTS) curriculum and other prerequisites. Following licensure, these 16 and 17 year olds then have restrictions on their driving privileges (see green box on p.XX), and lose graduated driving priviledges if they commit violations. With a third violation, the license is suspended until age 18.

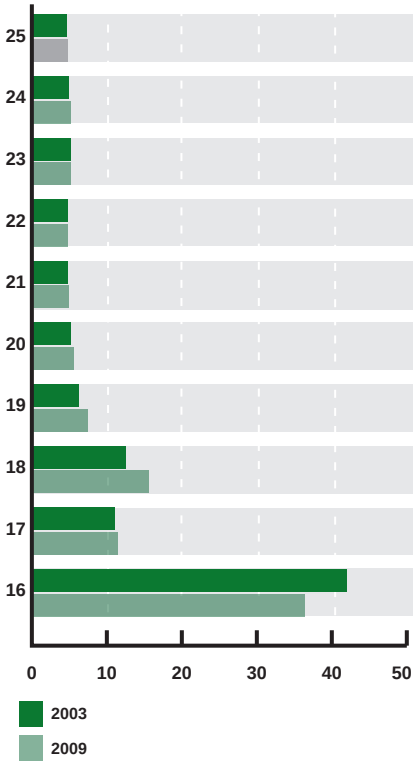
However, if a person waits until age 18 to apply for a drivers license, the only requirement is to pass the knowledge and driving test, the same as for all other new drivers in Washington.

Target Zero analysts have found a trend, as shown in the chart to the right, of fewer new drivers becoming licensed in the IDL period and more waiting until age 18 to become licensed. As of 2009, of the 16 and 18 year olds, about one third of the men and about one quarter of the women are waiting to become licensed until age 18.

Licensing data show a larger proportion of teens are becoming licensed at 18 year old rather than 16-17 year old, potentially to avoid the IDL restrictions. All of the reasons for later licensure have not been identified, nor have all the differences between teens who are licensed under the IDL and teens who are first licensed at age 18.

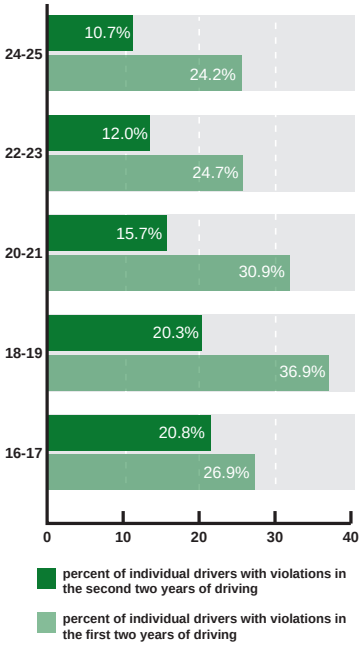
A review of citation data by age at first licensure revealed distinct differences in violation rates between drivers licensed at 16-17 and those licensed at 18-19. As seen in the graphon the previous page, in the first two years after being licensed, 27%

The Young Driver Population:
Percent of 16 through 25 Years Olds at the Age of Their First Licensure in Washington State
2003 vs. 2009



Source: Washington State Department of Licensing
Note: This data also includes drivers who have received their initial drivers licenses in other states, then surrendered their icenses for Washington State drivers licenses.

Percent of Young Drivers Newly Licensed in Washington State with Violations in the first 4 years Following Licensure,
2003-2009, *by age of first licensing*



Source: Washington State Department of Licensing
Note: This refelcts the percent of individual drivers who received at least one violation within the first 24 or second 24 months of driving.
Note: This data also includes drivers who have received their initial drivers licenses in other states, then surrendered their licenses for Washington State drivers licenses.

What is a Driving Violation?

A violation, for the purposes of the young driver data in Target Zero, is any driving infraction that will be placed on an individual's driving record. This would include relatively minor infractions, such as driving 5 mph over the speed limit, up to the most serious, such as vehicular homicide. It does not include the most minor infractions, such as a parking ticket.

of drivers who got their license at age 16-17 have violations. By comparison, 36% of 18-19 year olds in their first two years of driving have violations. (The difference in violation rates evens out in the second two years.) Drivers first licensed at 16-17 had to meet the requirements of the IDL. In addition, other factors such as amount of travel, parental influence, and income may also contribute to these citation rate differences. Regardless of the reasons, becoming licensed at a later age is associated with more driving violations in the first two years of licensure.

Intermediate Driver License Requirements

- Get the consent of a parent or guardian
- Hold an instruction permit for at least six months
- Complete a Driver Training School course
- Complete 50 hours of supervised driving,10 of which are at night
- Commit no violations within 6 months of application
- Pass a knowledge test and driving test
- During the first six months of licensure, carry no passengers under 20 years old except members of the driver's immediate family
- During the second six months of licensure, carry no more than three passengers under 20 years old uexcept members of the driver's immediate family
- In the first year of licensure, refrain from driving between 1:00 am and 5:00 am unless with a parent, a guardian, or a licensed driver who is at least 25 years old

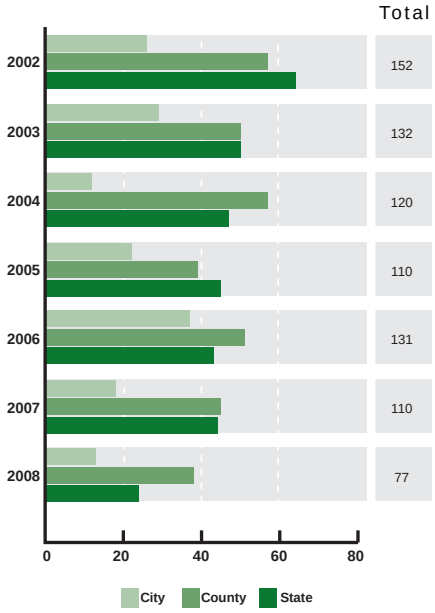
Reducing Young-Driver-Related Fatalities and Serious Injuries

Strategies to reduce young-driver-related fatalities and serious injuries focus on enforcing and strengthening the IDL, discouraging young driver drinking, and improving young driver education. According to recent studies, Washington's IDL law could be strengthened by implementing a nighttime curfew starting at 9 or 10 p.m. (versus the current 1 a.m. requirement) and by extending the young passenger restrictions beyond the first six months of licensure (Williams, 2003; Williams, Ferguson, & McCartt, 2007).

In Washington, we are working to improve young driver safety through the work of the Young Driver Task Force. This group, comprised of both public and private entities, meets at least quarterly to ensure a coherent approach to reducing fatalities and serious injuries among young drivers in Washington. Their priorities include working to increase compliance with the IDL through involving parents and law enforcement, strengthening pre-licensure driver education, and encouraging improvements to the IDL

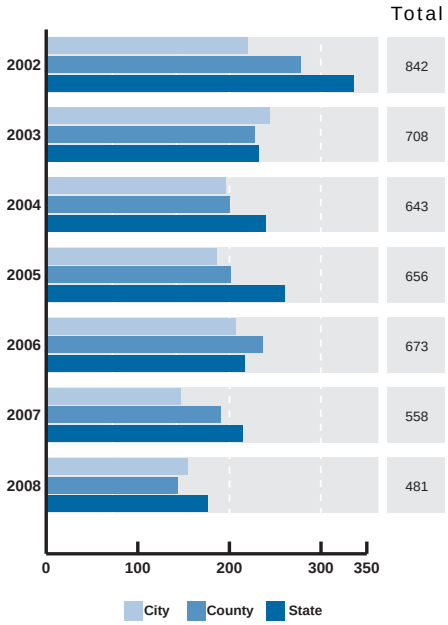
Review Draft

Fatalities Involving Drivers 16 to 20



Source: Washington Traffic Safety Commission - Fatality Analysis Recording System

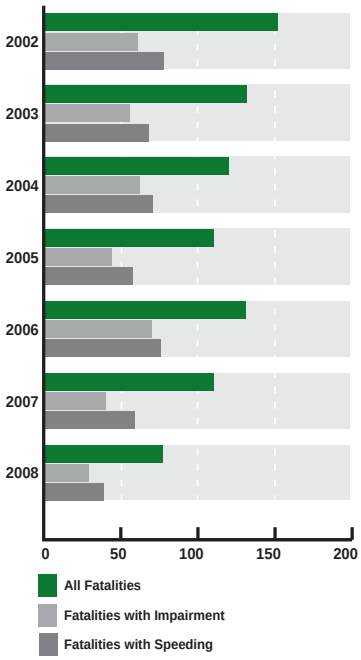
Serious Injuries Involving Drivers 16 to 20



Source: WSDOT Collision Database

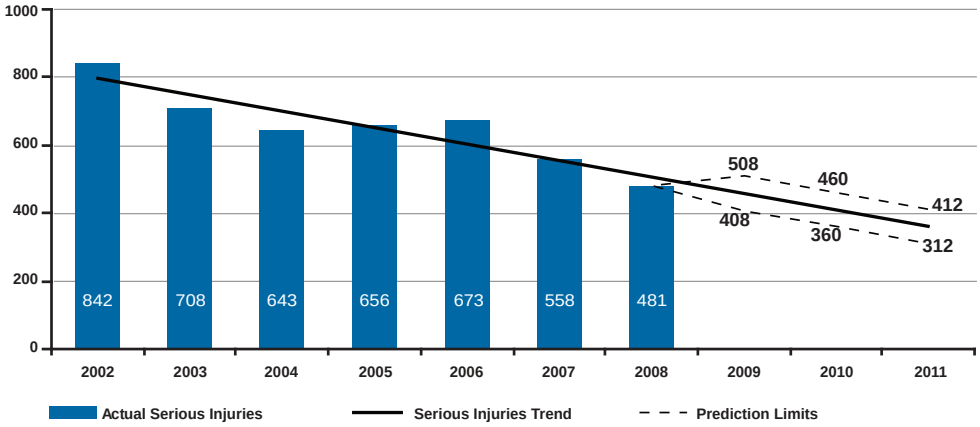
Drivers 16 to 20

Including Impairment and Speed Related



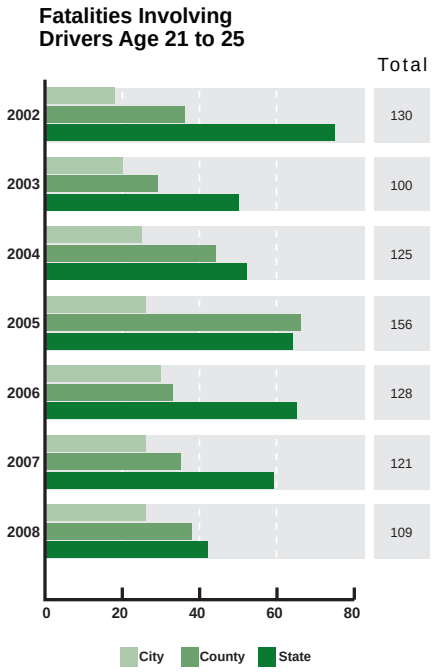
Source: Washington Traffic Safety Commission - Fatality Analysis Recording System (FARS)

Washington State Serious Injuries from Motor Vehicle Collisions Involving Drivers 16 to 20: Trends and Forecasts

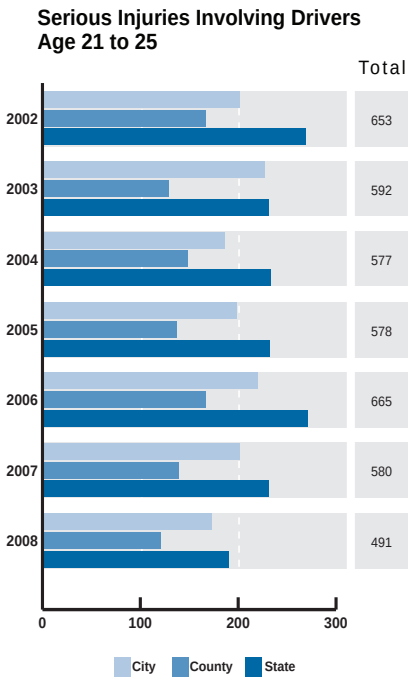


Source: WSDOT Collision Database

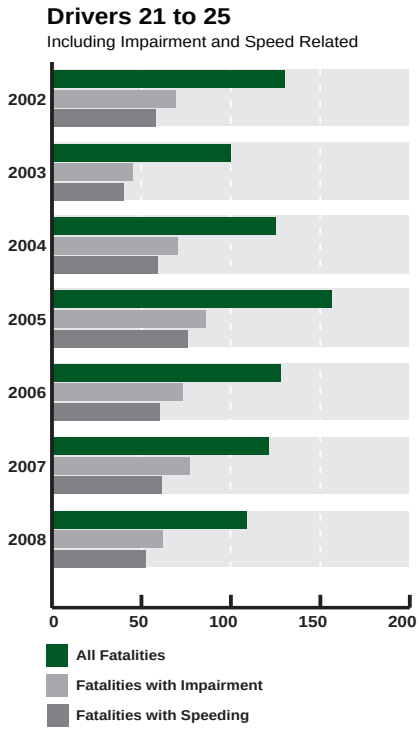
Review Draft



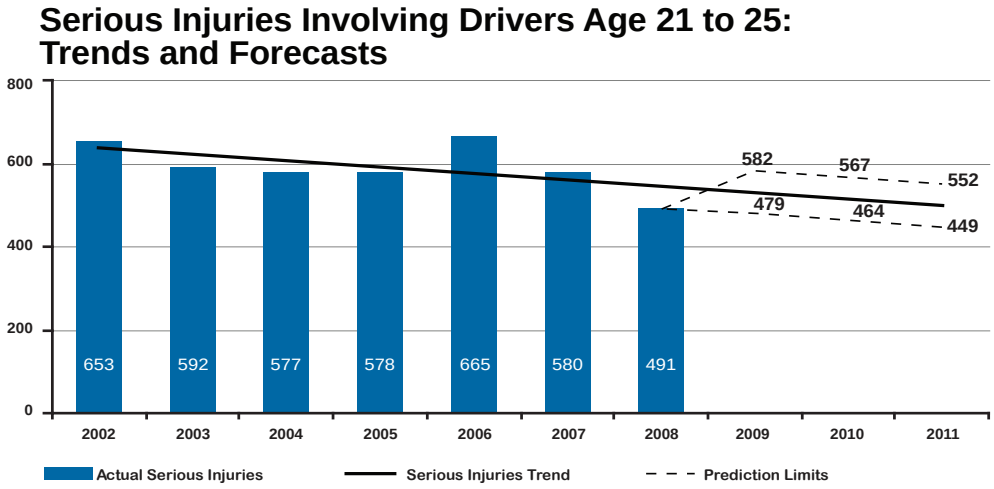
Source: Washington Traffic Safety Commission - Fatality Analysis Recording System



Source: WSDOT Collision Database



Source: Washington Traffic Safety Commission - Fatality Analysis Recording System (FARS)



Source: WSDOT Collision Database

Review Draft

2.1 Strategies to Reduce Collisions Involving Young Drivers	
2.1.A. Emphasize compliance with the State's Intermediate Driver's License law.	2.1.A1. Provide education and training. (T) • Educate teen drivers and their parents about intermediate license restrictions and penalties. • Educate law enforcement officers about intermediate license laws. • Encourage Tribes to pass intermediate drivers license laws for young drivers. (P)
	2.1.A2. Continue statewide high-visibility enforcement and media campaigns to maximize enforcement of intermediate driver's licensing law. (T) • Provide overtime funding for law enforcement agencies to enforce the intermediate license law. • Allow parents to opt-in to marking vehicles of IDL license holders (E)
	2.1.A3. Encourage changes to State intermediate license laws that will bring them into alignment with the model proposed by NHTSA and the Governors' Highway Safety Association (P) • Adjust curfew to avoid hours when young-driver serious injury and fatality crashes are highest
	2.1.A4. Continue to build partnerships to ensure the intermediate driver's license law is as effective as possible. (T) • Support the activities of the Young Driver Task Force • Use Target Zero 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)
2.1.B. Enforce compliance with the State's underage drinking law	2.1.B1 Track the results of Pierce County's Party Intervention Patrol model, and consider expanding the program..
2.1.C. Improve young driver education and intervention.	2.1.C1. Continue updating model traffic safety education curriculum to match new NHTSA standards. (P)
	2.1.C2. Expand the warning letter program as an early intervention to more young drivers at their earliest stage of increasing risk (E)
	2.1C3. Consider expanding new driver restrictions (E)
2.1.D Support the new state law banning wireless devices.	2.1.D1 Provide education and enforcement to implement the state law prohibiting Learner's Permit and Intermediate Driver License holders from driving while communicating with any wireless device, including a hands-free cell phone and other wireless devices. (T)

P=Proven, T=Tried, E=Experimental

Priority Level Two: Distracted Drivers

Review Draft

Distracted driving1 is any non-driving activity that diverts a driver's attention from the primary task of driving and increases the risk of crashing. Safety researchers recognize three main types of driver distractions: visual, manual, and cognitive. Distractions that take a driver's eyes off the road are visual. Manual distractions take a driver's hands off the steering wheel, and those that take a driver's mind off the road are cognitive. Driver distractions include activities such as cell phone use, texting while driving, eating, drinking, talking with passengers, and using in-vehicle technologies and portable electronic devices. Some non-driving activities, such as texting, are particularly dangerous because they involve all three types of distractions.

Between 2006 and 2008, distracted driving in Washington State was a factor in 1,060 serious injuries and 451 fatalities, or 12.7% of all serious injuries and 26.1% of all fatalities, according to state collision data. Distracted driving deaths peaked on weekends and weekday afternoons. Forty percent of all distracted driving fatalities occurred during the weekend; between 6 pm Friday and 6 am Monday. Another one-quarter (26.6%) occurred on weekdays, Monday through Thursday between 12 pm and 6 pm.

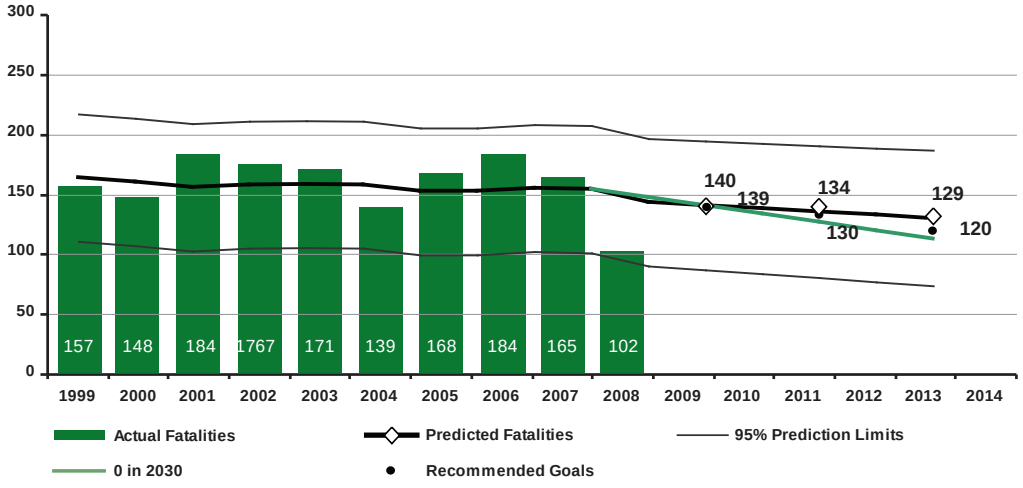
The true size of the distracted driving problem is unknown because collision data collected by crash investigators often underreports driver distraction. In 2006, specific distraction items were added to Washington's Police Traffic Collision Report to better identify the types of distractions that contributed to crashes (see box on page XX) Nonetheless, to select any of the 13 distraction items on the collision report, either the officer or an involved party needs to witness the distraction, or else it must be self-reported by the driver.

In 2008, the number of fatalities involving distracted driving decreased while the number of serious injuries remained unchanged. The reason(s) for the decrease in fatalities has not been identified, and will be the subject of further analysis.

Distracted driving has received more attention in light of increased use of wireless communication devices and safety research on the risks associated with driving while talking or texting on a cell phone. In 2009, 85% of the total US population subscribed to a wireless device (Lenhart 2009). A 2008 national survey estimated that 11% of US drivers were using either hand-held or hands-free cell phones during daylight hours (NHTSA 2009). Researchers are in nearly-unanimous agreement that using a cell phone—hand-held or hands-free— while driving significantly degrades many skills essential to driving and increases crash risk (Caird and Scialfa 2005).

Virginia Tech Transportation Institute (VTTI) conducted a

Fatalities Involving Distracted Drivers: Trends, Forecasts, and Goals



Source: Washington Traffic Safety Commission - Fatality Analysis Recording System

[1] In the previous edition of Target Zero, distracted driving was combined with drowsy driving and ranked as Priority Three. These two safety issues have been separated with distracted driving elevated to Priority Two. Drowsy driving, which accounted for 4.5% of traffic fatalities, is now ranked as Priority Four.

Review Draft

two-year study monitoring driver behavior using video equipment (2009). Study results showed that drivers of light vehicles who dial a cell phone are 2.8 times more likely to have a crash or near-crash as non-distracted drivers. Drivers of heavy trucks who dial a cell phone are 5.9 times more likely to have a crash or near-crash than their non-distracted counterparts. Drivers of heavy trucks who text are 23.2 times more likely to have a crash or near crash than their non-distracted counterparts.

Reducing Distracted Driving Collisions

Using a hand-held wireless communications device or texting while operating a motor vehicle becomes a primary enforcement law in Washington effective June 10, 2010. Additionally, this primary law prohibits the holder of either an intermediate driver's license (IDL) or an instruction permit from operating a motor vehicle while using a wireless communication device except in the case of an emergency.

In addition to tougher laws, Washington plans to decrease fatal and serious injury collisions involving distracted driving by increasing driver awareness of the risks associated with distracted driving. This will be coupled with extra law enforcement, as well as implementing roadway engineering solutions such as installing centerline and shoulder rumble

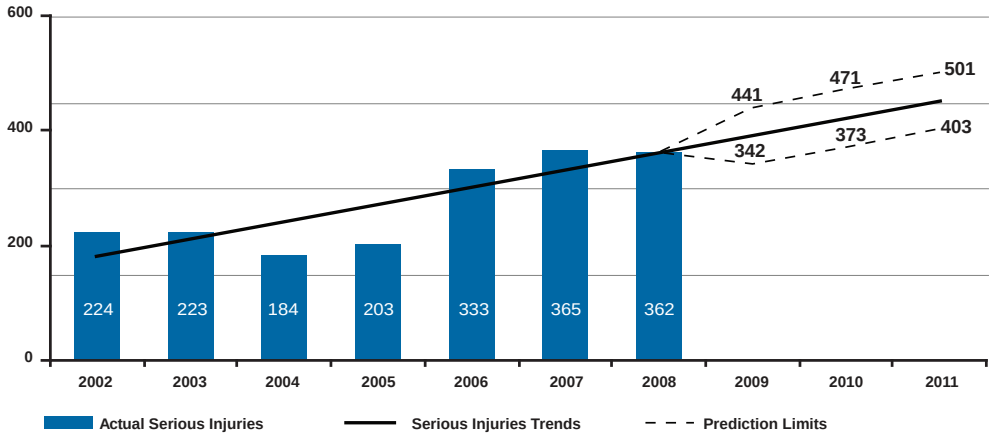
Gathering Distracted Driver Data

When preparing reports on collisions, law enforcement officers currently have a total of 44 possible items from which to identify the causes of a collision. The officer may select up to three different items for each driver. Of the 44 items, there are 13 different "distraction" items, for instance: driver operating handheld telecommunication device.

The collection of the 13 distraction items became effective January 1, 2006. In order to use one of the 13 distraction items, either the officer or any involved party needs to witness the situation, or the item must be "self-reported" by the driver. Because of this, it is very likely that the distraction items may be underreported within the collision data repository.

In 2010, the Fatality Analysis Reporting System (FARS) will begin gathering more specific distracted driving information. Included will be such pre-crash data as, "[driver] talking or listening to cellular phone," "[driver] adjusting climate controls/radio, etc.," cellular telephone present in vehicle," and "cellular phone in use in vehicle."

Serious Injuries Involving Inattentive/Distracted Drivers: Trends and Forecasts



Source: WSDOT Collision Database

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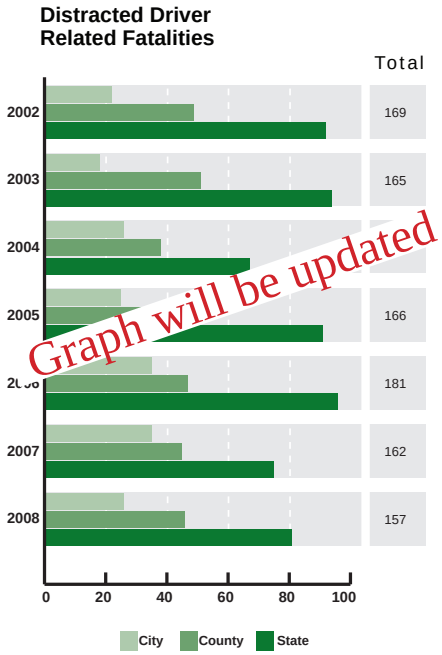
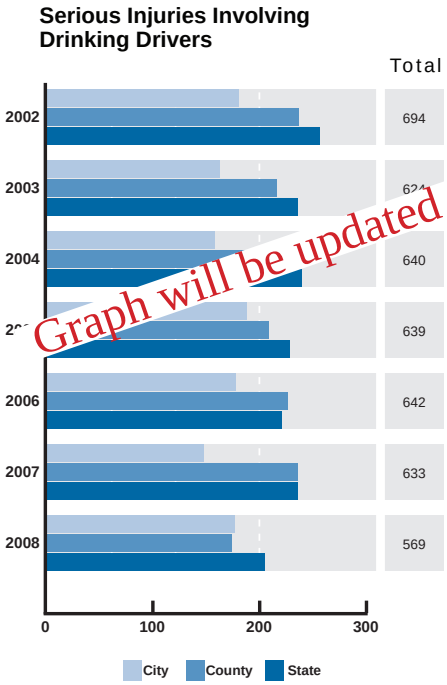
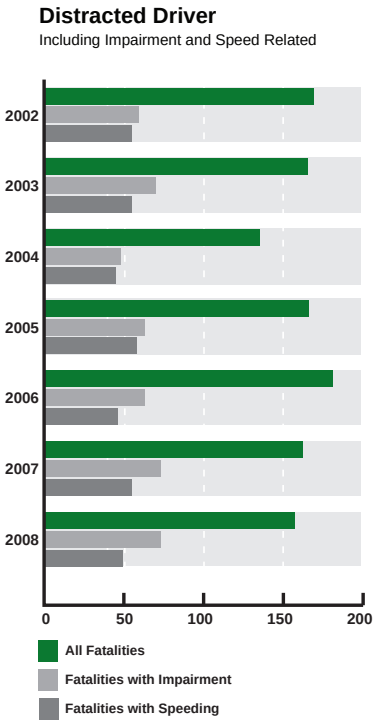


Source: Washington Traffic Safety Commission - Fatality Analysis Recording System



Source: WSDOT Collision Database



Source: Washington Traffic Safety Commission - Fatality Analysis Recording System (FARS)

strips, a proven low-cost engineering strategy to alert inattentive drivers with noise and vibration when their vehicles deviate from the lane.

Review Draft

2.2 Strategies to Reduce Collisions Involving Distracted Drivers	
2.2.A. Gather data	2.2.A1. Analyze new distracted driver data being collected with the new Police Traffic Collision Report beginning in July 2006. (T)
2.2.B. Use roadway engineering to reduce the consequences of distracted driving	2.2.B1. Implement corridor safety model on high crash locations where data indicates a high incidence of distracted crashes. (P)
	2.2.B2. Implement a targeted shoulder rumble strip program. (P/T)
2.2.C. Increase driver awareness of the risks of distracted driving and promote driver awareness.	2.2.C1. Conduct statewide educational combined with targeted enforcement (T)
	2.2.C2. Utilize community traffic safety task forces to address distracted driver issues. (E)

P=Proven, T=Tried, E=Experimental

Priority Level Two: Unrestrained Vehicle Occupants

Review Draft

One of the leading factors in the steady decline in traffic fatalities and serious injuries in Washington has been increased seat belt usage. Fatalities related to non-usage of seat belts have dropped at a rate of 14 deaths per year since 2002, when the Click-it-or-Ticket (CIOT) campaign began. The graph below shows the dramatic improvement in seatbelt related fatalities in recent years.

Washington State seat belt enforcement efforts began in 1986 with the passage of a secondary seat belt law. Under the secondary law, a law enforcement officer could not stop a vehicle with an unbuckled occupant unless he or she also spotted a primary violation. The primary enforcement law went into effect in June 2002, resulting in policies,and programs that had a dramatic effect on seat belt use rates. During this time, the Washington State Patrol made seat belt enforcement one of its core missions and the WTSC launched the Click-it-or-ticket program.

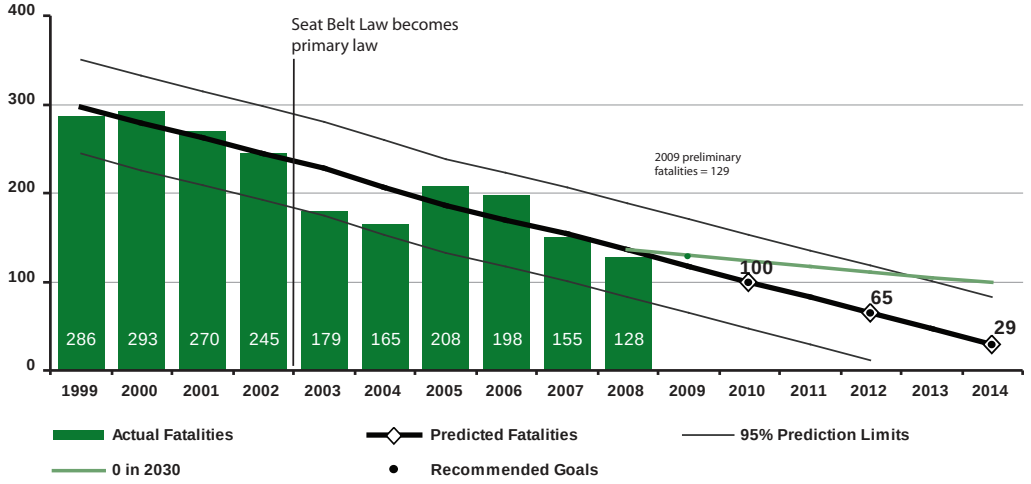
To increase seat belt usage, the Click-it-or-Ticket campaigns use grants to fund law enforcement patrols that focus primarily on seat belt violators. These campaigns also uses extensive publicity about the increased law enforcement patrols for seat belt usage, including television ads, radio spots, and public relations activities. In addition, the semi-annual Click-it-or-Ticket special emphasis events are advertised via WSDOT's 125 variable message signs on freeways and highways across the state. Also, 625 permanent seat belt road signs advertise the program at all hours on all road types.

Nighttime enforcement efforts

In 2006, in partnership with the National Highway Traffic Safety Administration (NHTSA), the WTSC focused its seatbelt efforts on unbuckled motorists who travel at night. The reason: the nighttime vehicle occupant death rate is at least four times higher than the daytime rate. Preliminary research indicates that nighttime unbuckled motorists have more traffic violations and are more likely to be involved in a fatal or serious injury collision than their buckled counterparts. They are also more likely to have criminal records than other motorists.

The Nighttime Seat Belt Project Enforcement (NTSBE) partnership included $1.3 million in additional grant funding from NHTSA, plus funding from WTSC. Beginning with the May 2007 statewide mobilization, all grant-funded seat belt patrols and media messages focused on nighttime drivers. The table on the next page illustrates why nighttime unbuckled motorists are a concern, as well as the beneficial impacts of the nighttime focus.

Unrestrained Passenger Vehicle Occupant Fatalities: Trends, Forecasts, and Goals



Source: Washington Traffic Safety Commission - Fatality Analysis Recording System

New strategies focus on tribes, child restraints, and teens

Car crashes are the leading cause of death for Washington's teens. In 2002, a NHTSA-sponsored study of seat belt use determined that the lowest seat belt use of any age category nationally was teens ages 16 – 20.

Review Draft

Washington State Passenger Vehicle Occupant Fatalities[1] and Seatbelt Use, 1998-2008

Period	Years	Average annual vehicle occupant fatalities[1]		Average annual vehicle occupant nighttime fatalities[1]		Statewide Seatbelt usage rate	Seatbelt Usage rate in nighttime[2] fatal collisions
		number	% change	number	% change		
Before Primary Seat Belt Law and Click it or Ticket (CIOT)	1998-2002	507	n/a	218	n/a	83%	31%
After Primary Seat Belt Law and Click it or Ticket (CIOT), before Nightime Seatbelt Enforcement (NTSBE)	2003-2006	445	-12%	199	-9%	95%	46%
After CIOT & NTSBE	2007-2008	376	-16%	171	-14%	96%	47%

Source: FARS, Statewide Observational Seat Belt Survey

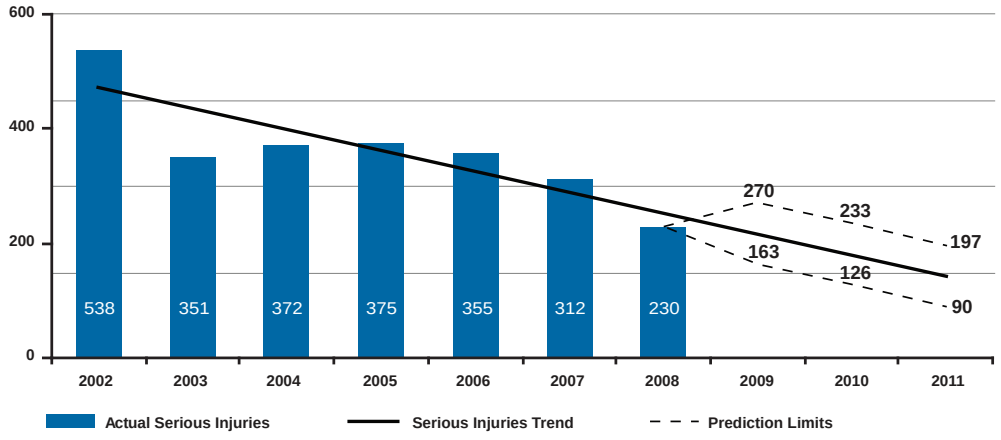
[1] These figures do not include pedestrian, bicycle, and motorcycle fatalities, nor passengers in motorhomes, buses, or commercial motor vehicles.

[2] Nighttime collisions from 7pm to 4:49 am

In 2007, WTSC spearheaded a seat belt promotional program aimed at increasing seat belt use among teens. Piloted in the Tri Cities at Southridge High School in Kennewick, the project promoted seat belt use with a mix of positive reinforcement and peer-to-peer education. A later evaluation found that it raised seat belt use among the school population from 81% to 96% during the project; an observational survey conducted three months after the end of the project found that seat belt use had remained high, at 95%.

Because the research shows low seat belt use patterns on Tribal reservations, and over-representation of seat-belt non-usage for Native Americans in fatality collisions, this seat belt promotional project is being expanded to tribal reservations in 2009 and 2010.

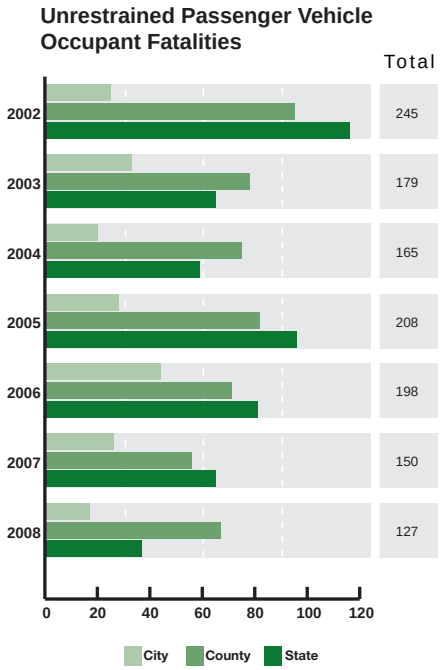
Unrestrained Passenger Vehicle Occupant Serious Injuries: Trends and Forecasts



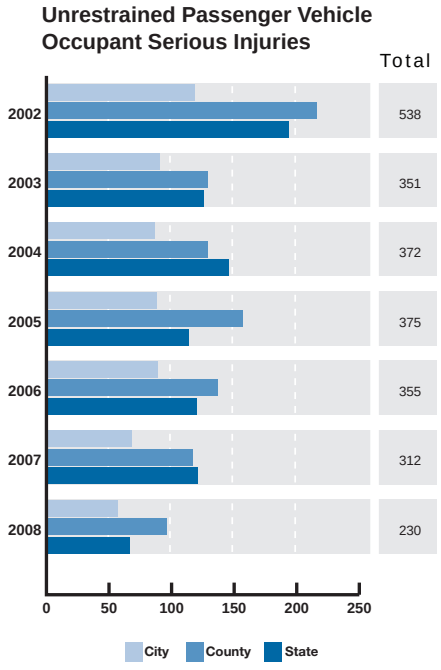
Source: WSDOT Collision Database

Priority Level Two: Unrestrained Vehicle Occupants

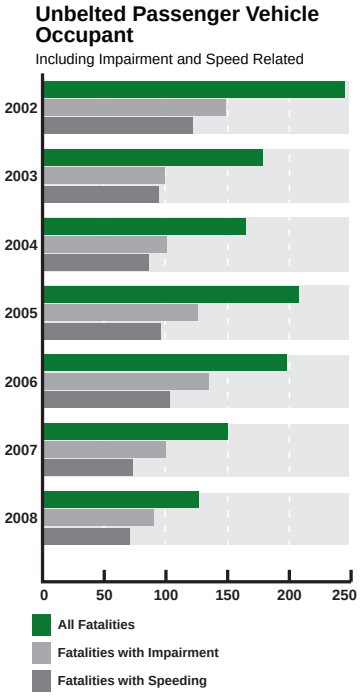
Review Draft



Source: Washington Traffic Safety Commission - Fatality Analysis Recording System



Source: WSDOT Collision Database



Source: Washington Traffic Safety Commission -

Child Car Seat Initiatives

Seat belt usage is just one part of appropriate restraint; babies and young children must use car seats proportionate with their size in order to be protected in the event of a collision. Washington state collision data shows children who incur either minor injuries or none at all in collisions were appropriately restrained at least 86% of the time. When

Percent of children restrained in carseats or wearing seatblets in collisions, by age and injury severity, 2002-2005

	Severity of Injury					
Age	No Injury	Possible Injury	Evident Injury	Minor Injury	Serious Injury	Fatal
0	97.4%	93.8%	90.9%	92.6%	81.8%	81.8%
1 to 3	99.3%	91.9%	90.4%	90.9%	82.7%	76.5%
4 to 7	98.0%	90.1%	85.8%	87.7%	80.7%	82.4%
8 to 12	98.3%	97.0%	96.5%	96.7%	82.8%	81.7%

Source: WSDOT Collision Database

Washington's Child Car Seat Law

- Infants must ride in rear-facing infant seats
- Children ages 1 to 4 must ride in child car seats with a five point harness
- Children up to age 8 or 4'9" tall must ride in booster seats
- Children up to age 13 must ride in the back seat when it it practical to do so

a child is seriously injured or killed in a collision, he or she is only likely to be using appropriate restraints 77-83% of the time.

In 2008-09, Washington developed Click-it-or-Ticket-style patrols aimed at improving parental compliance with Washington's child car seat law. In Spokane, Moses Lake, Aberdeen/Hoquiam and Wenatchee, organizers used local radio and television PSAs, bright orange pop up signs and variable message signs on busy roads, and posters and banners to raise awareness about the child car seat law and the patrols conducted as part of the project.

Child Passenger Safety Public Education and Technician Training

WTSC's comprehensive child passenger safety project, organized by the non-profit Safety Restraint Coalition, conducts on-going efforts to reduce injuries and deaths by educating parents about the importance of correctly installing and using child safety seats, booster seats and seat belts.

The Coalition trains safety technicians who check for correct placement of child car seats at such venues as child car seat check stations and safety fairs.

The Coalition also distributes educational materials to parents via the 1-800-BUCK-L-UP hotline. The hotline has a Spanish-language component since research shows lower -than-average car seat use among the children of Spanish-speaking parents. In 2009, the hotline received nearly 5000 calls. Parents and caregivers can access detailed child passenger safety information through the WSSRC website: www.800bucklup.org.

Who doesn't wear a seat belt?

The WTSC commissions a statewide observational survey of about 100,000 front seat drivers and passengers to determine the statewide seat belt use rate. The numbers reflect lower seat belt use in the less densely populated, rural areas of Washington. WTSC's analysis of demographic information about unbuckled motorists who die in vehicle crashes shows that this population skews male, age 16-34. Research conducted by NHTSA corroborates these findings, and further identifies those who tend to be unbuckled as more likely to be blue-collar professionals and pickup trucks drivers, with over-representation among Hispanic and Native American populations.

Reducing Unbelted Collisions

Effective strategies for this issue focus on getting more people to use restraints properly. Enforcement and education are the two main components of these strategies. They include more statewide seat belt mobilizations focused on nighttime drivers, ongoing and regular enforcement focused on low seat belt use areas, teen-focused seat belt promotional projects in high schools across Washington, and additional projects aimed at improving the correct use of child car seats.

Review Draft

2.3 Objectives and Strategies to Increase Correct Seat Belt and Child Restraint Use

2.3.A. Maximize use of occupant restraints by all vehicle occupants.	2.3.A1. Continue statewide high-visibility enforcement and media campaigns to maximize restraint use. (P) • Develop programs encouraging individual law enforcement officers and law enforcement agencies to enforce the seat belt law during non-campaign times. • Continue program to address nighttime seat belt enforcement.
	2.3.A2. Provide enhanced public education to population groups with lower than average restraint use rates. (P) • Target efforts towards sub-populations (as shown through research) of non-seat belt users, such as Spanish speakers, Native Americans, and people who live in rural areas. • Utilize community traffic safety task forces to address occupant protection issues. • Provide support for Tribal Nations seeking to improve seat belt and child restraint use.
	2.3.A3. Encourage the enactment of State and tribal laws that will enhance enforcement of seat belt laws. (T) • Encourage tribes to enact seatbelt laws.
	2.3.A4 Promote seat belt and child restraint use among Tribal Nations.
	2.3.A5 Take appropriate steps to promote parental and care giver adherence to Washington's child car seat law and to ensure that children are properly restrained • Conduct and research pilot projects aimed at gaining compliance with the WA child restraint law but which use the Click it or Ticket program model. • Promote child car seat law education among grandparents. • Conduct high profile "child restraint inspection" events at multiple community locations, and expand areas in the community where people can get their child car seats checked and expand the types of professionals who check child car seats. (P), (E) • Increase child car seat resources for low-income families, such as subsidized car seats and education. • Continue the statewide child passenger safety website, toll free information line, and education programs.
	2.3.A6 Continue researching the impact of the teen-focused Click it And Ticket Project. If research shows that the program is successful, expand the project to other areas (colleges, tribal programs, etc.)

P=Proven, T=Tried, E=Experimental

Priority Level Two: Intersections

Review Draft

Intersections, the place where two or more roads join or cross, are the major source of encounters between road users. Intersections involve turning and crossing maneuvers that provide abundant opportunities for vehicle-vehicle, vehicle-pedestrian, and vehicle-bicycle conflicts, some of which will result in collisions.

Between 2006 and 2008, intersection-related collisions in Washington State resulted in 2,908 serious injuries and 356 fatalities, 35% of all serious injuries and 21% of fatalities. During this time period, intersections on city streets were involved in 51% of serious injuries and 39% of fatalities. On city-operated state routes, intersections were involved in 54% of serious injuries and 40% of fatalities.

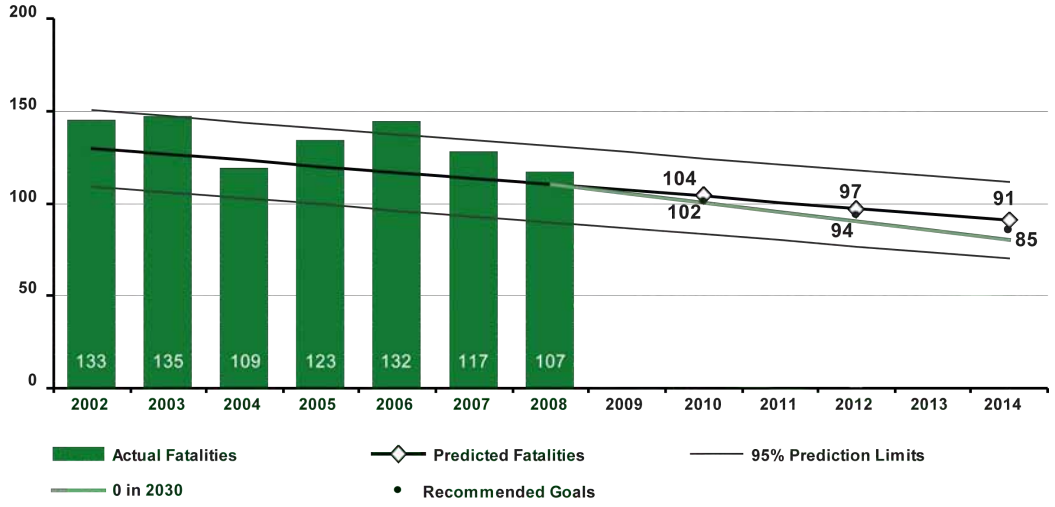
Angle crashes are the number one fatal or serious injury intersection-related crash type on all roadway facilities. Angle collisions usually involve vehicles turning in front of an oncoming vehicle, or vehicles entering an intersection at 90 degrees in front of an oncoming vehicle. Between 2006 and 2008, angle crashes were responsible for 184 fatalities and 1,345 serious injuries, 52% and 46%, respectively, of all intersection-related fatalities and serious injuries. Additional common fatal and serious injury collisions at intersections include pedestrian or bicyclist involved collisions (22%) and rear-end collisions (12%).

From 2006-2008, speed was a factor for 13% of drivers involved in fatal or serious injury intersection-related crashes; impairment was a factor 11% of the time. Addressing these issues with related strategies will help reduce fatalities and serious injuries involving intersections. It should be noted that, while significant, this is a relatively low percentage for these factors as compared to most other types of collisions in *Target Zero*.

A major goal of intersection safety is to not only improve intersections for motor vehicles, but also for the pedestrians and bicyclists who use them as well. We can reduce the opportunities for pedestrian collisions by adjusting signal timing to provide to give pedestrians lead time to get out ahead of turning vehicles, creating "refuge" islands in the middle of crossings, and installing pedestrian scale lighting. Other solutions include providing more guidance to drivers at intersections, such as installing flashing yellow arrows, better signing and striping, or illumination at nighttime. Bicyclist safety can be improved with colored bicycle lanes and the installation of bicycle boxes at intersections.

Reducing the number of conflict points for roadway users will also reduce collisions. This can be done with improvements like roundabouts and turn lanes, operational restrictions such as signs and signals, and modifications in vehicle access, like reducing the number of driveways in or adjacent to intersections.

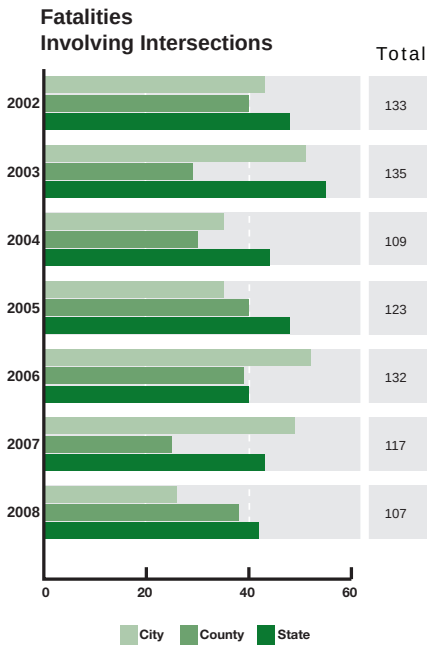
Fatalities Involving Intersections: Trends, Forecasts, and Goals



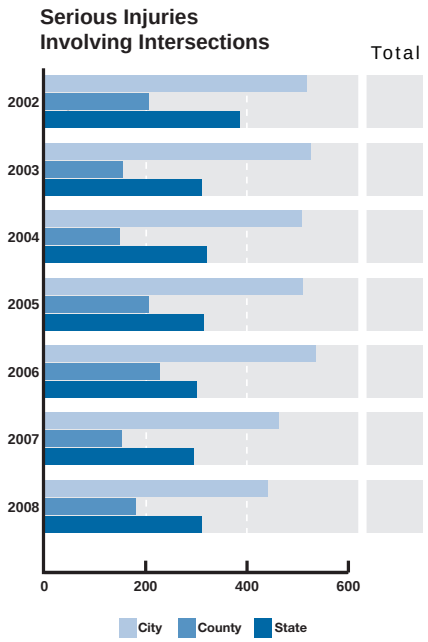
Source: Washington Traffic Safety Commission - Fatality Analysis Recording System

Priority Level Two: Intersections

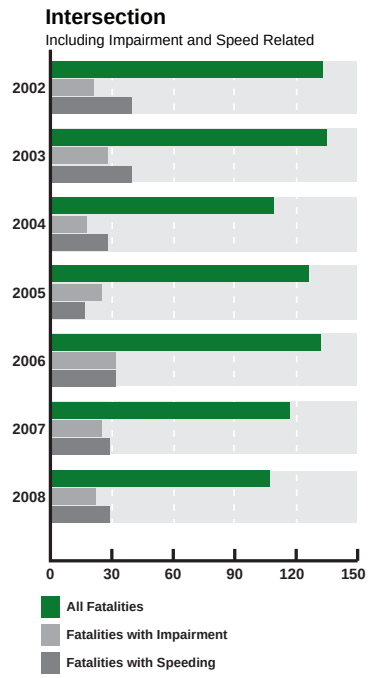
Review Draft



Source: Washington Traffic Safety Commission - Fatality Analysis Recording System

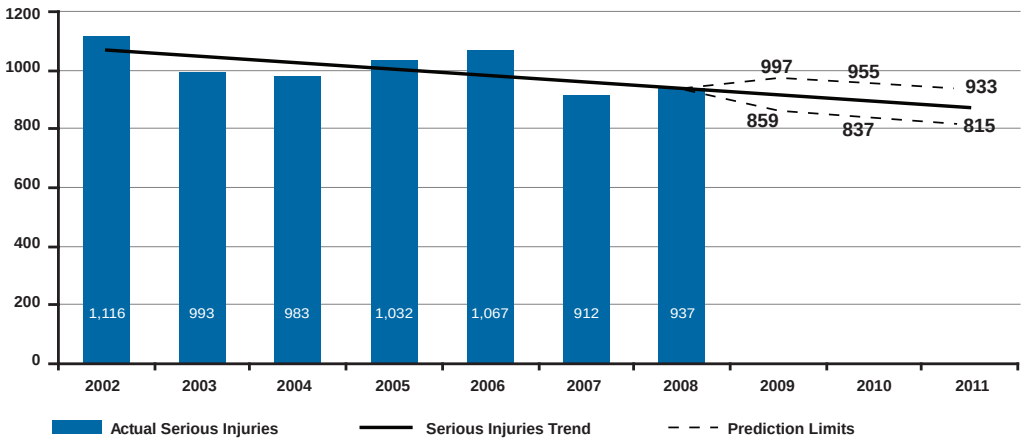


Source: WSDOT Collision Database



Source: Washington Traffic Safety Commission - Fatality Analysis Recording System (FARS)

Serious Injuries Involving Intersections: Trends and Forecasts



Source: WSDOT Collision Database

Review Draft

2.4 Strategies to Reduce Intersection-Related Collisions	
2.4.A. Reduce collisions at intersections.	2.4.A1. Implement traffic control and operational improvements where appropriate: • Optimize clearance intervals. (P) • Improve signal timing to reduce rear-end collisions • Employ emergency vehicle preemption. (P) • Remove unwarranted signals. (P) • Employ Flashing Yellow Arrows at signals. (E) • Limit turning movements at intersections to reduce conflict points. (Note: Mike is following up with H&LP on this.) • Improve the pavement surface and/or establish better maintenance practices in regard to snow & ice control.
	2.4.A2. Implement geometric improvements where appropriate: Provide left- and right-turn channelization when warranted. (P) • Reduce speeds at intersections through engineering • Install roundabouts and educate drivers. (P)
	2.4.A3. Install illumination where appropriate. (P)
2.4.B. Reduce the occurrence of existing driveways, and discourage the use of new driveways, within or adjacent to intersections.	
2.4.C. Improve driver compliance at intersections.	2.4.C1. Implement automated enforcement (cameras) of red-light running. (P) 2.4.C2. Provide targeted enforcement at intersections and intersection approaches. (P) 2.4.C3. Provide public information and education, especially related to bicycles and pedestrians. (T)
2.4.D. Improve driver awareness of intersections and signal control	2.4.D1. Improve visibility of intersections on approach. (T)
	2.4.D2. Improve visibility of signals and signs at intersections. (T)
	2.4.D3. Improve sight distances. (P)
	2.4.D4. Provide advance warning of intersections. Provide advance warning signs at strategic locations, including real time flashing lights warning of traffic signals ahead and transverse rumble strips
2.4.E Reduce vehicle collisions involving pedestrians and bicyclists at intersections	2.4.E1 Improve intersection geometry to increase bicycle and pedestrian safety; provide refuge islands and raised medians for pedestrians (P)
	2.4.E2 Improve signal timing for pedestrians, such as providing countdowns and crossing lead-times. (P)
	2.4.E3 Improve pavement markings with high visibility crosswalks and bicycle lanes. (T)
	2.4.E4. Install colored bicycle lanes and bicycle boxes (E)
	2.4.E4 Improve visibility for all users through pedestrian scale lighting at intersections (E)
	2.4.E5 Accommodate non-motorized users through roundabouts (T)

P=Proven, T=Tried, E=Experimental

Priority Level Two: Traffic Data Systems

Review Draft

Timely, accurate, integrated, and accessible data are the underpinnings of the campaign to reach zero deaths and serious injuries on the state's roadways in 2030. This data serves as the critical link in identifying problems, selecting appropriate countermeasures, and evaluating performance.

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:

-
- Traffic fatalities and serious injuries
- Collisions
- Driver citations, infractions & adjudication
- Drivers & Registered Vehicles
- Commercial motor vehicles
- Injury treatment data from sources such as Emergency Medical Services, Emergency Department, Trauma records, and Hospital inpatient records
- Roadway data such as Traffic Volume, Roadside Features Inventory, Geometrics, etc.
- Location data from Geographic Information Systems (GIS)

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 identify problems and support decisions regarding public and transportation safety. Information derived from these systems is central to enhancing management and accountability in public service by gauging progress toward key measures of performance.

The Washington Traffic Records Committee

The Washington Traffic Records Committee (TRC) is a partnership of state, local, and federal interests from the transportation, law enforcement, criminal justice, and health fields. This statewide stakeholder forum was created to foster collaboration and to facilitate the planning, coordination and implementation of projects to improve the state's traffic records system.

In February, 2009 Washington hosted a NHTSA-sponsored Traffic Records Assessment, its first assessment since the initial 2003 assessment that initiated Washington's multi-year strategic planning effort. The 2009 assessment team essentially affirmed the work the TRC has produced since 2003. The following is an excerpt from the Executive Summary of the 2009 assessment report:

> In 2003 the State's Traffic Records Committee (TRC) had neither the organizational structure nor the governing fundamentals to serve as a well-functioning State TRC. It has since re-constituted itself and has become an essential advisory and oversight body to guide the State's traffic records system development. As stated in a 2005 letter from Governor Chris Gregoire to WTSC Director Lowell Porter, "A well-supported and representative TRC is essential to provide the necessary leadership to coordinate traffic records improvement projects across multiple agencies. This collaborative approach minimizes duplication of work by enabling agencies to leverage one another's efforts in achieving common goals."
>
> Testimony to the level of achievement that is possible when such collaboration becomes a reality is the eTRIP Governance Team. The State TRC formed this impressive and remarkably successful group that operates as a permanent subcommittee under the authority of the TRC, comprised of members representing most of the highway safety and traffic records stakeholder agencies in the State. Its purpose is to provide policy oversight and program direction as well as business and technical leadership in the implementation, maintenance, update, and enhancements of the eTRIP Initiative throughout the State including the SECTOR field data collection application.
>
> *- 2009 Washington State Traffic Records Assessment by NHTSA*

The 2009 assessment report highlighted several of the major accomplishments Washington has made in traffic records improvements, including:

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- Development and implementation of the state's electronic ticketing and collision reporting program, or eTRIP. Electronic tickets, collision reports, and dispositions now make up more than 30% of statewide volume for ticketing and collision reporting.
- Completion of the Electronic County Location Coding project to automate the collection of county road collision location data.
- Development of the state's first Emergency Medical Information System to centrally collect data on first responder call-outs.
- Creation of a seven-county integrated dataset within WA-Trans for more accurate road feature and event location data.
- Establishment of a Data Integration Team to link crash and injury outcome data

In addition, the 2009 assessment provided a number of areas in which further improvements can be made. The TRC is addressing some of those improvements in strategies related to enhanced collision location, data integration and analysis, and performance measurement.

The TRC has used the 2009 assessment as a tool to help evaluate and revise the state's Traffic Records Strategic Plan, which will be finalized in 2010. The new strategic plan aims to create a singular vision for a more innovative, efficient, and integrated system for traffic records in Washington.

Key Traffic Records strategies for the future

A few of the strategies from the table on the following pages:

- Aggressive expansion of SECTOR and the state's infrastructure for electronic ticketing, collision reporting, and dispositions.
- Development of systems to improve location data for traffic-related features and events.

Traffic Record Committee Mission & Goals

Mission

The Washington Traffic Records Committee enhances transportation and public safety through coordinated projects to provide the most timely, accurate, integrated and accessible traffic records data.

Goals

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.

- Development of the state's first central repository for Emergency Department data.
- Revision of the statewide collision report form.
- Development of an automated system to retrieve and disseminate collision reports.
- Integration of injury surveillance and collision data for improved analysis of the human and financial costs of collisions.

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2.5 Strategies to Improve Information and Decision Support Systems	
2.5.A Replace paper-based data collection processes with automated electronic systems.	2.5.A1 Incorporate new features and functional enhancements to the Statewide Electronic Collision & Ticket Online Records (SECTOR) software application (T)
	2.5.A2. Develop and deploy enhancements to the SECTOR application to allow Prosecutors statewide to create, review, amend and electronically file criminal cases with courts. (P)
	2.5.A3.Support the expansion of the eTRIP Initiative, by aggressively expanding use of SECTOR and the state infrastructure for electronic reporting. (P)
	2.5.A4. Develop an in-vehicle incident location tool for use in SECTOR to enhance ticket and collision report location data. (P)
2.5.B. Reduce paper exchanges among traffic records systems and stakeholders.	2.5.B1. Support the eTRIP Initiative, to enhance state and local repositories to more efficiently process and file electronic tickets collision reports, and dispositions. (P)
	2.5.B2. Support the eTRIP Initiative, by leveraging the JINDEX infrastructure to more efficiently disseminate ticket, collision report, and disposition data to state and local users. (P)
	2.5.B3. Design a process for city engineers to electronically access collision reports, code their locations, and automatically submit this information to WSDOT for analysis. (T)
2.5.C. Develop and expand integrated patient care information systems for enhanced injury surveillance.	2.5.C1. Increase EMS reporting by first responders throughout the state to the Washington Emergency Medical Services Information System (WEMSIS). (P)
	2.5.C2. Implement the Coded Emergency Department Data Information System (CEDDS). (P)
	2.5.C3. Expand use of the Electronic Death Registration System (EDRS) to all Washington State counties. (T)
2.5.D. Create a more accurate statewide system for roadway feature and event location.	2.5.D1. Expand Washington's statewide transportation data layer (WA-Trans) to include the entire state. (P)
	2.5.D2. Develop a system at the point-of-entry into the state's collision database (CLAS) to pinpoint more accurate collision location data. (P)
	2.5.D3. Develop a new linear referencing system to maintain geospatial location data and advance overall integration. (T)

continued on next page

Washington Receives National Recognition for SECTOR Program

Washington State developed the Statewide Electronic Collision & Ticket Online Records (SECTOR) program to allow WSP and local law enforcement officers to electronically create tickets and collision reports at the scene of a traffic stop or collision. This makes the reports available instantly for processing and analysis. In August, the National Association of State Chief Information Officers (NASCIO) formally recognized SECTOR's value and innovation by choosing the SECTOR application as a finalist, from among 117 nation-wide applications, for their 2009 Award for Outstanding Achievement in the Field of Information Technology.

P=Proven, T=Tried, E=Experimental

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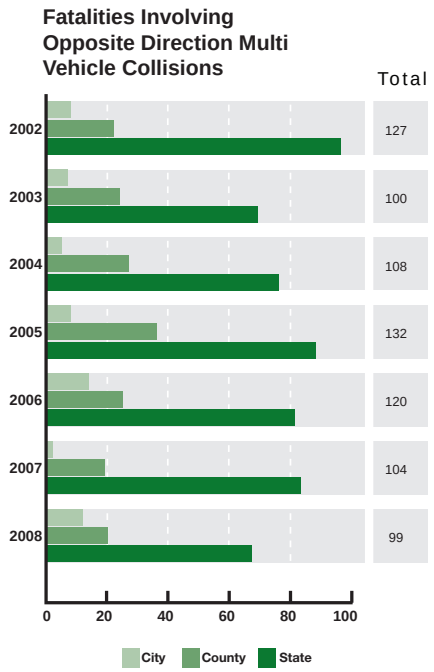
2.5 Strategies to Improve Information and Decision Support Systems, continued	
2.5.E. Improve the accuracy, timeliness, completeness, and accessibility of statewide collision data.	2.5.E1. Acquire or develop a collision analysis software application to provide to state and local transportation safety officials for in-depth analysis. (T)
	2.5.E2. Improve collision data processing efficiencies at the Dept. of Licensing. (T)
	2.5.E3. Revise the Police Traffic Collision Report (PTCR) and accompanying data systems for statewide release in 2012. (P)
	2.5.E4. Create a collision investigation training DVD to improve on-scene data collection practices. (T)
	2.5.E5. Develop an electronic system to more efficiently retrieve and disseminate collision reports to authorized recipients. (P)
	2.5.E6. Develop and make available a data dictionary for the Collision Location & Analysis System (CLAS). (P)
	2.5.E7. Ensure the availability of timely collision data to support customer needs for analysis and performance measurement of safety projects, programs, and Target Zero strategies. (P)
	2.5.E8. Work with Tribal Governments to obtain reservation road maps so WSDOT can provide tribes with collision data specifically for the reservation. (P)
	2.5.E9. Encourage tribal law enforcement to submit collision reports to the state (P)
2.5.F. Enhance the structure and activities of the Traffic Records Committee.	2.5.F1. Support training opportunities in traffic records for transportation and safety professionals. (T)
	2.5.F2. Develop a meaningful and valid set of system-level performance measures to identify problems, develop solutions, and monitor system improvements (P)
2.5.G. Enhance data integration and accessibility for analysis among traffic records components	2.5.G1. Conduct an injury and collision data integration proof of concept. (T)
	2.5.G2. Promote use and expand capabilities of the WSDOT GIS Workbench. (P)
	2.5.G3. Develop methods for FARS analysts to electronically access EMS and Trauma Registry data for FARS cases. (T)
	2.5.G4. Develop a Judicial Information System (JIS) DataMart for improved access and analysis of citation and adjudication data. (P)
2.5.H Develop and enhance safety data analysis evaluation methods	2.5.H1 Develop coordinated and consistent analytic approaches to analyzing safety data
	2.5.H2 Improve and support statistical analysis skills of agency data analysts
	2.5.H3 Develop project scoping safety teams that use a quantitative approach to evaluating projects for educational, engineering, enforcement, and EMS improvements.

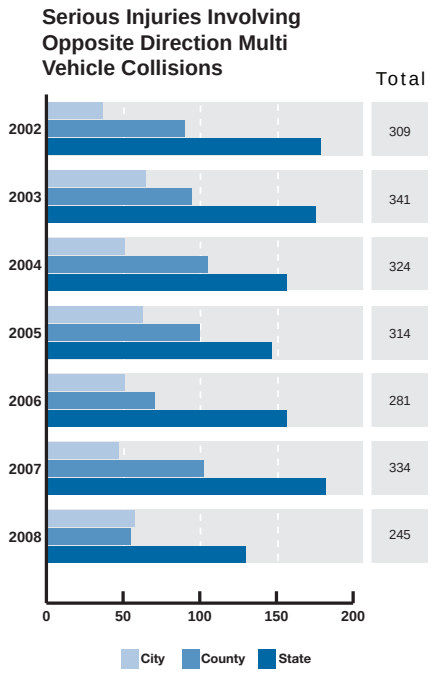
P=Proven, T=Tried, E=Experimental

Priority Level Three: Opposite-Direction Multi-Vehicle Collisions

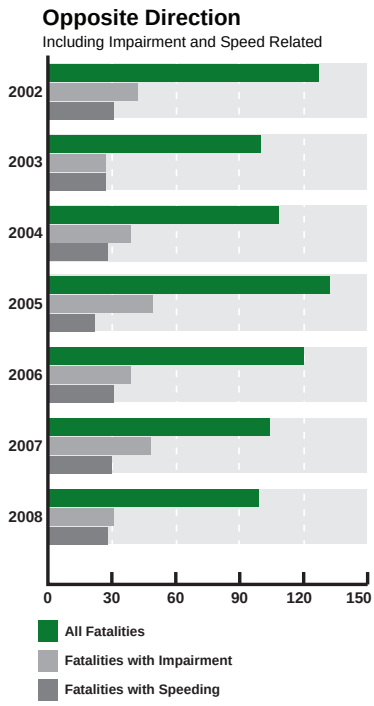
Review Draft



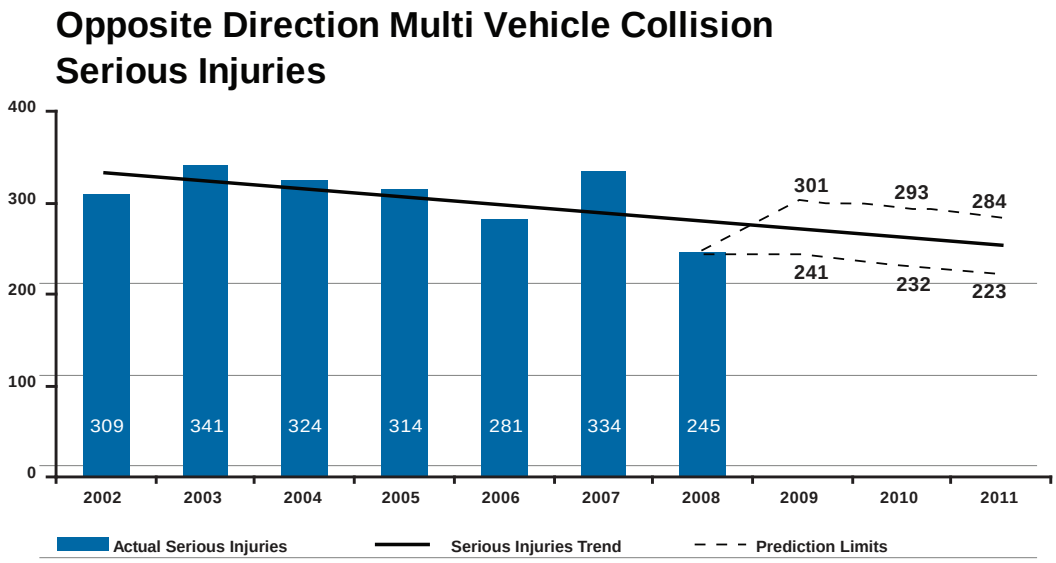
Source: Washington Traffic Safety Commission - Fatality Analysis Recording System



Source: WSDOT Collision Database



Source: Washington Traffic Safety Commission - Fatality Analysis Recording System (FARS)



Source: WSDOT Collision Database

Review Draft

3.1 Strategies to Reduce Opposite Direction Multi-Vehicle Collisions

3.1.A. Reduce Head-On Crashes	3.1.A1. Implement centerline treatments such as rumble strips to reduce head-on crashes on all two lane highways where possible (P)
	3.1.A2. Provide safe passing opportunities on two-lane rural highways by constructing passing lanes where cost effective. (T)
	3.1.A3. Install appropriate median barrier on highways with narrow medians (P)
	3.1.A4. Add raised medians or other access control on multi lane arterials. (P)
	3.1.A5. Improve maintenance practices in regard to snow and ice control.

P=Proven, T=Tried, E=Experimental

Priority Level Three: Motorcyclists

Review Draft

In recent years, motorcycle rider fatalities have risen steadily in Washington State, mirroring a national trend. Rider deaths totaled 73 in 2005 and rose to 78 in 2008, one of the worst years in the state since reinstatement of the comprehensive helmet law in 1990. This upward trend is in clear opposition to the overall decline in all other vehicle fatalities occurring both in Washington and nationally.

In 2006, Governor Gregoire asked the Governor's Task Force on Motorcycle Safety, including the Washington State Patrol, Washington Traffic Safety Commission, and the Department of Licensing, to study the rise in motorcycle fatalities, and set a goal of reducing those fatalities by ten riders per year.

Data from the Department of Licensing shows that motorcycle registrations increased 132% between 1999 and 2008. During the same period, motorcycle fatalities increased over 100%. The data shows that the number of registered riders is moderately outpacing the number of motorcycle fatalities.

Between 2006 and 2008, a total of 225 motorcyclists (217 operators and 8 passengers) lost their lives on Washington roads. Of these motorcyclist fatalities, 58.3% involved impairment on the part of the motorcycle operator or the driver of the other vehicle. The second most common factor contributing to motorcyclist fatalities is speeding (51.1%). Almost one-third (29.8%) of fatalities involved both impaired and speeding.

Washington State Motorcycle Fatalities vs. Registrations, 1999 and 2008[1]

	1999[1]	2008[1]	% increase
Motorcycle Registrations	97,990	227,371	132%
Motorcycle Fatalities	38	78	105%

Source: FARS

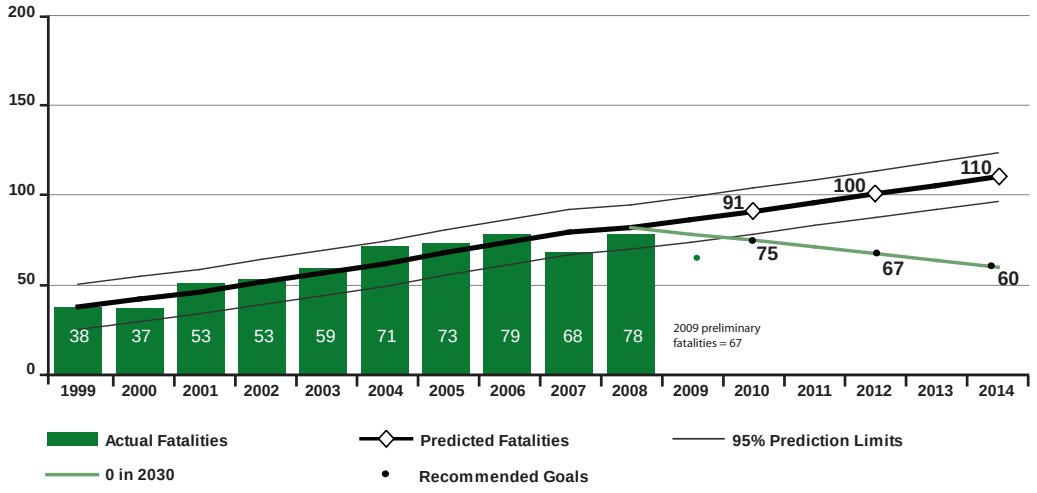
[1]Years are calendar years, January through December.

In recent years, motorcycle rider fatalities have risen steadily in Washington State, mirroring a national trend.

Between 2006 and 2008, 116 of the 231 (50.2%) motorcycle operators involved in a fatal crash were impaired by alcohol and/or other drugs. Of these 116 impaired motorcycle operators, 46.6% were impaired by drugs only, 31.9% were impaired by alcohol only, and 21.6% impaired by both alcohol and other drugs. Cannabinoids are the most common class of drugs paired with alcohol among motorcycle operators involved in fatal crashes.

Motorcycle fatalities involve collisions with other vehicles a little over half the time (55.8%). In motorcycle-vehicle fatal crashes from 2003-2007, the most common vehicle driver errors reported

Motorcyclist Fatalities: Trends, Forecasts, and Goals



Note: In this definition, "Motorcycle" includes Body Types 80, 82, 83

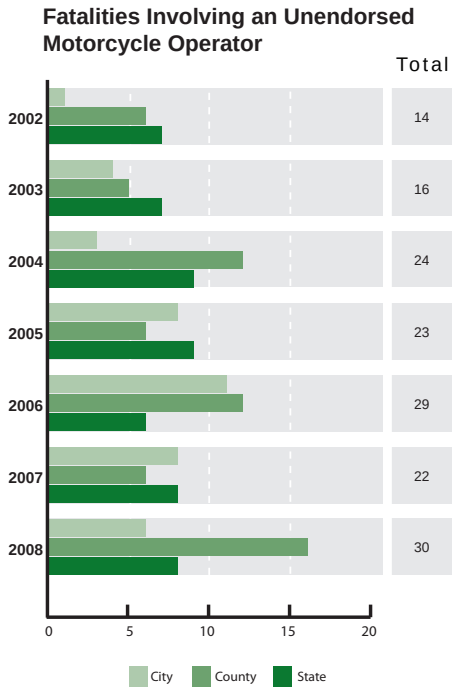
Source: Washington Traffic Safety Commission - Fatality Analysis Recording System

Review Draft

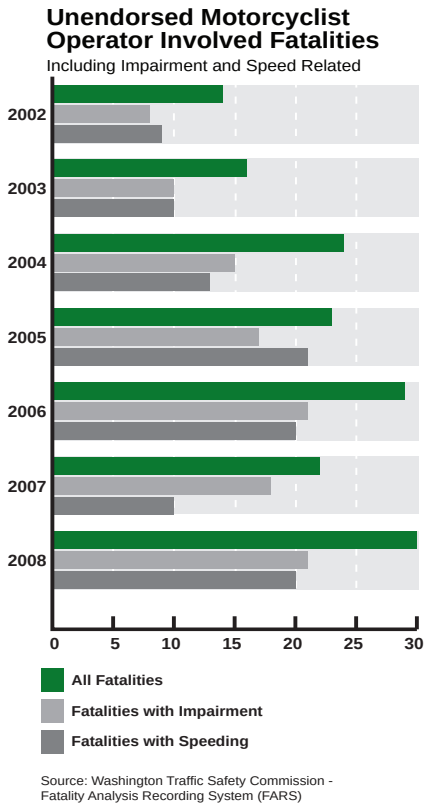
are inattention or failure to yield. About half (52.9%) of vehicle drivers involved in motorcycle-vehicle fatal crashes were found to have committed driver errors that lead to the collision; 72.1% of the motorcycle operators involved were found to have committed errors leading to the collision (in many cases, both parties committed errors).

Between 2006 and 2008, most rider fatalities occurred on state highways (45.3%), while 30.2% occurred on county roads and 23.5% on city streets. The remainder occured on other types of roads. The remainder occurred on privately owned or other types of roads.

Spring and summer months are the main months for motorcycle fatalities, when motorcyclists are likely riding more often due to favorable weather and longer daylight hours; 78.9% of fatalities occur between April and September every year. Over 90% of riders killed are male.



Source: Washington Traffic Safety Commission - Fatality Analysis Recording System



Source: Washington Traffic Safety Commission - Fatality Analysis Recording System (FARS)

Age does play a role in motorcycle crashes. In fact, younger riders aged 35 and under are involved in 46% of fatal motorcycle collisions, but hold only 20% of motorcycle registrations in the state. However, this does not take into account a potential difference in the number of miles each age group rides, since no data currently exists in our state on motorcycle VMT by age. If younger riders travel more miles, they have a higher likelihood of a collision.

Laws affecting motorcycle riders

Under Washington law, motorcycle riders need a special endorsement on their drivers' licenses. The endorsement can be obtained by testing or by taking a training class. In order to encourage rider training, Washington State passed a law in

Background on Motorcyle Fatality Rates

Vehicle-miles-traveled (VMT) for motorcycles is not currently available in the State of Washington, so it is not possible to create a fatalities per motorcycle VMT rate. Therefore the baseline for the motorcycle riding population is the number of registered motorcycles. This data is reliable, readily available from the Department of Licensing, and accurately depicts the popularity of motorcycle riding within the state. In addition, this measure segregates motorcycles by type (2-wheel, 3-wheel, etc), and excludes non-licensable motorcycles (such as dirt bikes).

Washington intends to have motorcycle VMT data in future updates of *Target Zero*.

Review Draft

2007 that allows law enforcement to impound motorcycles of those riders who do not have the special motorcycle endorsement. Between 2006 and 2008, 35% of motorcyclists involved in fatal crashes were unendorsed.

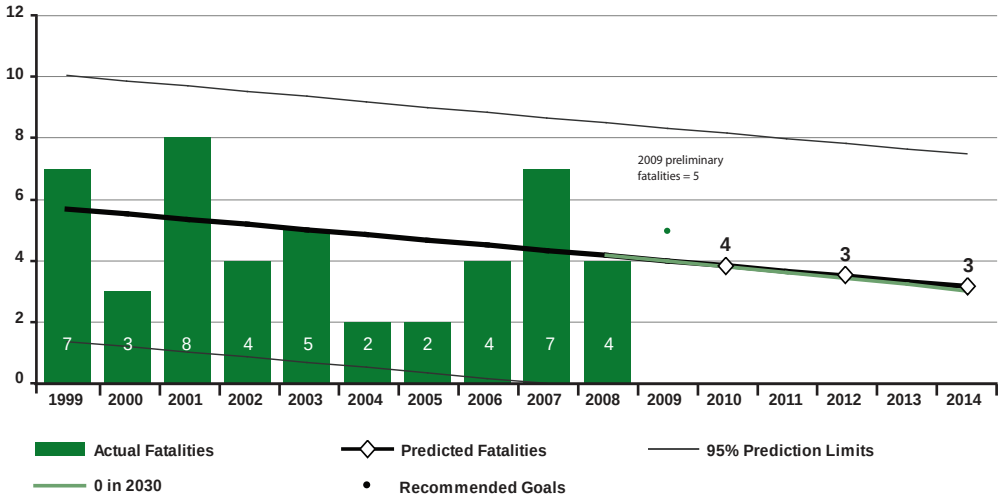
Another recent change that affects riders is the helmet law passed in 2009. That law requires riders to wear helmets that meet federal standards (FMVSS 218). Those standards include thick foam padding, a secure chin strap, a manufacturers label on the inside of the helmet, and a permanent, legible USDOT sticker on the outside rear of the helmet. Unhelmeted riders are a small number of motorcyclist fatalities every year, but they do occur.

The Motorcycle Task Force

The Governor's Task Force on Motorcycle Safety was formed in 2006. The Task Force consisted of a diverse group of stakeholders including the Traffic Safety Commission, the State Patrol, the Department of Licensing, motorcyclist rights groups, and industry representatives. The Task Force's goal was to identify and analyze the factors related to motorcycle collisions, and to provide recommendations for countermeasures likely to reduce fatalities and serious injuries.

The Task Force studied ten years' of motorcycle crash data and concluded that while there are multiple contributions to motorcycle crashes that result in fatalities or serious injuries, it appears that the most important factors are within the control of the rider. Efforts to reduce fatalities and serious injuries should focus on rider skill and behavior. The Task Force published its recommendations to reduce fatalities and serious injuries by improving rider behavior and skills through three areas: training, public awareness, and accountability. A full copy of the report is available at www.dol.wa.gov/about/reports/mototaskforce.pdf

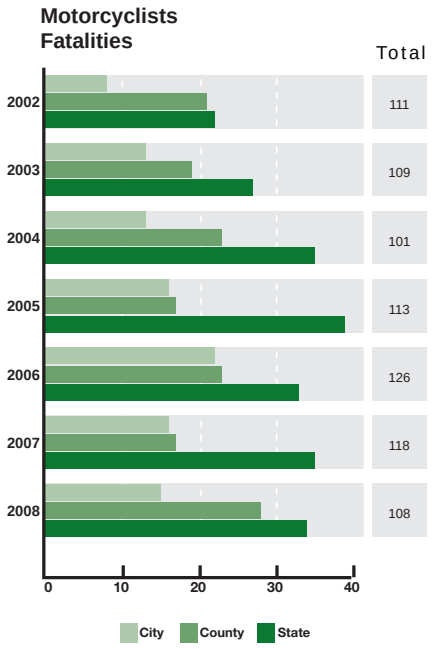
Unhelmeted Motorcyclist Fatalities: Trends, Forecasts, and Goals



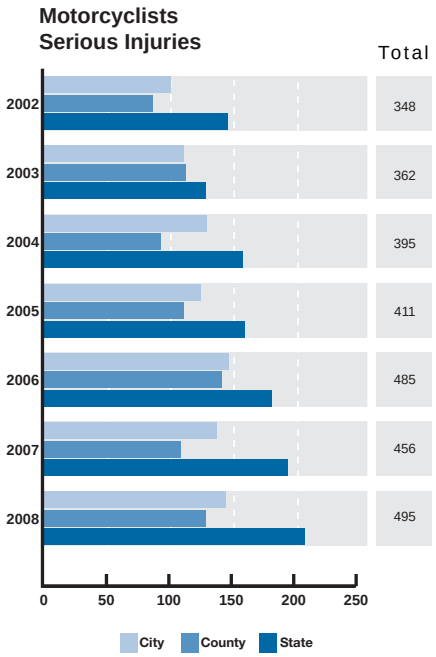
Source: Washington Traffic Safety Commission - Fatality Analysis Recording System

Priority Level Three: Motorcyclists

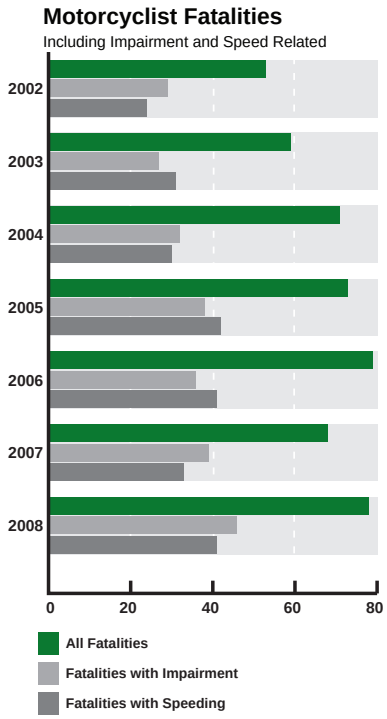
Review Draft



Source: Washington Traffic Safety Commission - Fatality Analysis Recording System

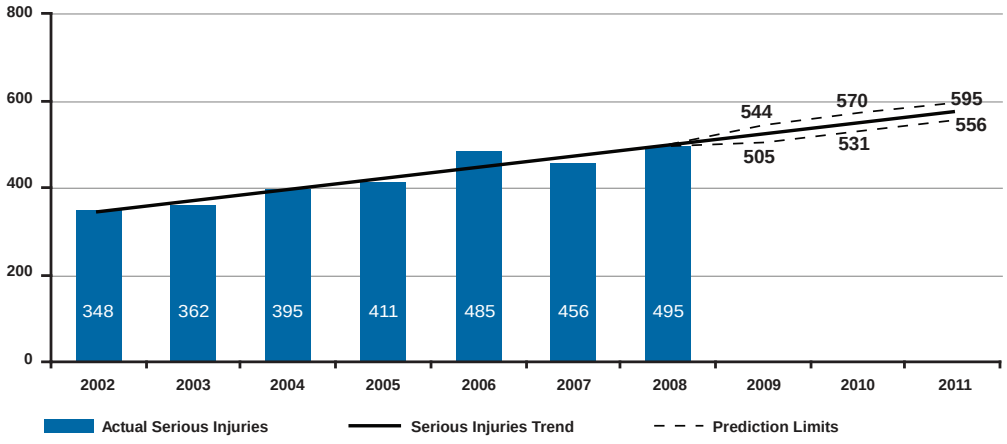


Note: In this definition, "Motorcycle" includes Body Types 80, 82, 83
Source: WSDOT Collision Database



Source: Washington Traffic Safety Commission - Fatality Analysis Recording System (FARS)

Motorcyclist Serious Injuries: Trends and Forecasts



Note: In this definition, "Motorcycle" includes Body Types 80, 82, 83

Source: WSDOT Collision Database

Review Draft

3.2 Strategies to Reduce Collisions Involving Motorcycles	
3.2.A. Reduce numbers of untrained riders.	3.2.A1. Management review of class distribution. (T)
	3.2.A2. Increase number of classes. (E)
	3.2.A3. Provide tuition incentives for completion of training. (E)
3.2.B. Reduce numbers of impaired, unskilled, and unsafe riders.	3.2.B1. WTSC public safety campaign/partnership. (T)
	3.2.B2 Use motorcycle helmet violation trend data to inform enforcement efforts.
	3.2.B3 Promote self-policing within the motorcycle community – operators help other operators make good decisions.
3.2.C. Reduce numbers of non-endorsed riders.	3.2.C1. Clarify impoundment policy. (T)
	3.2.C2. Dealership cooperation. (E)
	3.2.C3. WTSC public safety campaign/partnership. (T)
	3.2.C4. Continue to increase field training. (T)
3.2.D. Increase driver awareness. Increase rider safety awareness.	3.2.D3. Use owner's bike in training courses. (E)
3.2.E. Improve enforcement.	3.2.E1. Support specialized law enforcement training in motorcycle DUI detection and motorcycle crash investigation.
	3.2.E2. Increase use of WSP aviation for enforcement
3.2.F Continue convening DOL's Motorcycle Advisory Committee	

P=Proven, T=Tried, E=Experimental

Priority Level Three: Pedestrian

Review Draft

Walking is a critical component of the transportation system, and keeping pedestrians safe is a priority. Almost all Washingtonians are pedestrians at one time or another—going to school or work, running errands, recreating, and connecting with transit or other services. Walking can improve the quality of life by reducing traffic congestion, improving personal health, and reducing pollutants into the environment. For some without access to vehicles, particularly children and older citizens, walking is a necessity.

Creating livable communities that increase the safety of walking for all citizens is becoming increasingly important. Making transportation investments which reduce pedestrian deaths and injuries, while making walking comfortable and convenient, will be key to achieving these communities.

Pedestrian Fatalities

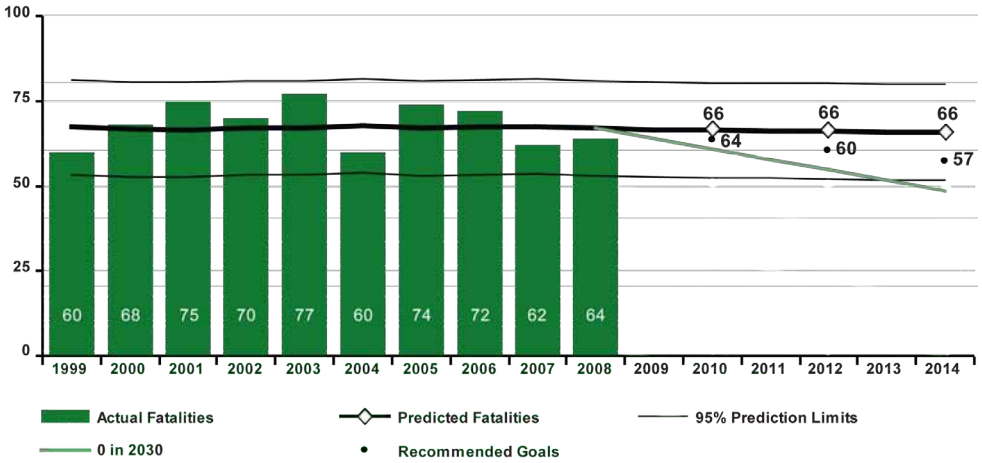
In Washington State there were a total of 682 fatal pedestrian collisions between 1999 and 2008, accounting for 11% of all traffic deaths. Sixty-four pedestrians were killed in 2008, up slightly from 62 in 2007, yet still lower than the 10-year average of 68 fatalities. Based on jurisdiction, 41.8% of pedestrian deaths occurred on city streets, 38.4% on state roads, and 19.4% on county roads. The number of pedestrian fatalities has generally trended downward over the years due to an overall decrease in walking, yet the fatality rate remains high in many urban areas and for specific segments of the population.

Certain parts of the population are more vulnerable to pedestrian fatalities. From 1999 to 2008, more than 70% of pedestrian fatalities occurred in urban areas, while 21% were rural[1]. The elderly are disproportionately represented and have been identified as at-risk populations for pedestrian-involved fatal collisions.

Currently, adults age 65 and older in Washington represent 12% of the population, yet they make up approximately one-fourth of the state's pedestrian deaths. Older adults often walk more, as indicated by the National Institute of Aging, which also reports that more than one in five adults age 65 and older do not drive. This segment of the population is growing both nationally and within our state. By 2020, over one and a half million people in Washington State will be 65 or older – almost twice the number of people in that age group today. Addressing issues that imperil older pedestrians is crucial to reducing our state's traffic fatality rate.

Although they are low in pedestrian fatalities based on population rate, children are also considered a vulnerable pedestrian population. In Washington, pedestrian injuries remain the third leading cause of injury deaths for children ages one to 16, according to the Department of Health. Children are often on foot because it is their only independent means of transportation. Typically, children under the age of 13 cannot accurately determine the speed of an approaching vehicle, a limitation which makes them more vulnerable to being hit than other age groups.

Pedestrian Fatalities: Trends, Forecasts, and Goals



Source: Washington Traffic Safety Commission - Fatality Analysis Recording System

[1] The remaining 9.4% had an unknown roadway classification.

Review Draft

Impairment and Speed as Factors in Pedestrian Fatalities

Roughly half of the pedestrian fatalities that occurred between 1999 and 2008 involved alcohol or other drugs, either on the part of the pedestrian or driver. In 39% of the cases, the pedestrian was impaired; in 4% of the cases, the driver was impaired; and in 5% of the cases, both driver and pedestrian were impaired. The remaining 53% of fatalities involved no impairment on the part of either the pedestrian or the driver.[1] Of the pedestrian fatalities occurring between midnight and 6 am, over two-thirds involved alcohol or drug impairment.

Speed is also a major factor contributing to the severity of pedestrian-vehicle crashes. Studies have shown that a small increase in speed has a large effect on pedestrian fatality risk. Anderson et al. (1997) estimated the probability of a pedestrian being fatally injured at various impact speeds as a function of injury severity scores. One in ten (10%) pedestrians struck by a vehicle traveling 23 mph is likely to be fatally injured. About six out of 10 (58%) of pedestrians struck by a vehicle traveling 28 mph would be fatally injured – nearly a six-fold increase in fatality risk resulting from only a five-mph increase in vehicle speed. Speeding was a factor in 8.4% (28 of 332) of pedestrian deaths between 2004 and 2008.

Addressing Pedestrian Safety in Target Zero

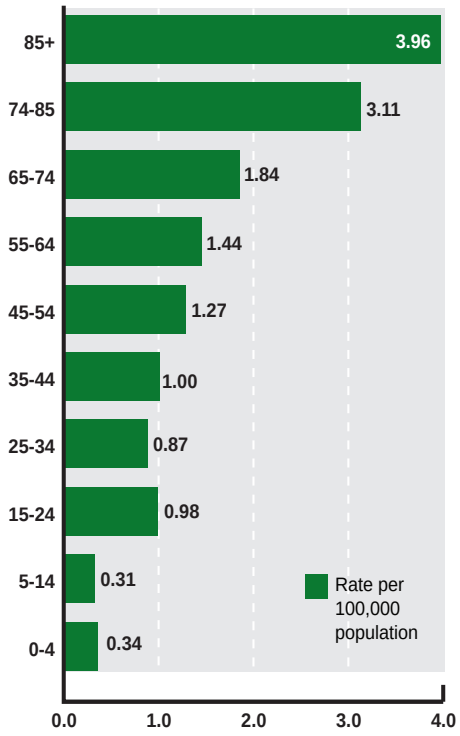
Pedestrian safety strategies focus on three of the four "E's": Education, Enforcement, and Engineering (EMS strategies are generally applicable across all types of collisions, both pedestrian and motor-vehicle-related, and can be found on page XX). Some of these strategies include:

- Education approaches targeting both pedestrians and motorists focus on impairment, school zone safety, and reflective apparel, among other items.
- Enforcement efforts addressing driver and walker behavior in crosswalks and school zones.
- Engineering solutions focusing on roadway improvements such as better lighting, traffic calming features, and "refuge" islands for pedestrians in the median.

[1] Numbers do not add up to 100% due to rounding.

Pedestrian Fatalities

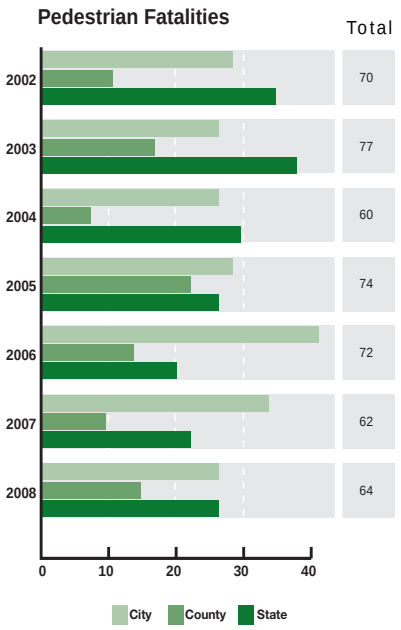
By Age Range, 1999-2008



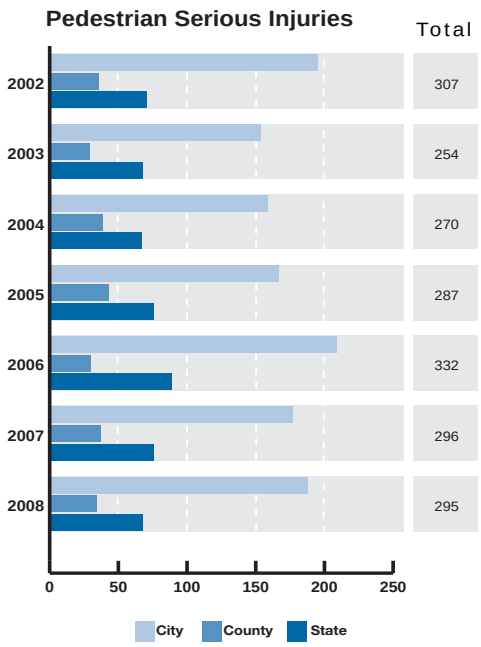
Source: Washington Traffic Safety Commission - Fatality Analysis Recording System (FARS)

Priority Level Three: Pedestrian

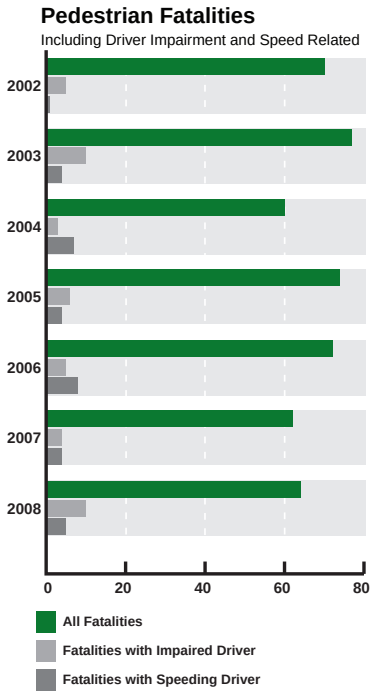
Review Draft



Source: Washington Traffic Safety Commission - Fatality Analysis Recording System

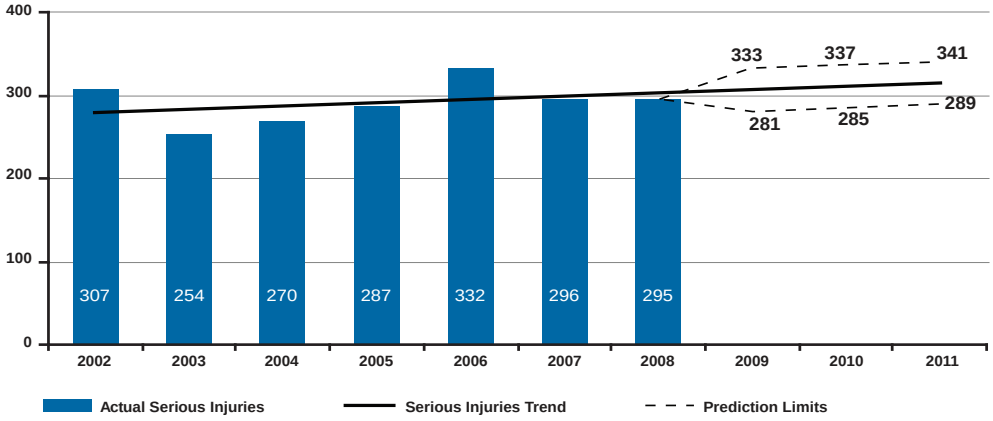


Source: WSDOT Collision Database



Source: Washington Traffic Safety Commission - Fatality Analysis Recording System (FARS)

Pedestrian Serious Injuries: Trends and Forecasts



Source: WSDOT Collision Database

Review Draft

3.3 Strategies to Reduce Collisions Involving Pedestrians	
3.3.A. Improve Pedestrian and Motorist Safety Awareness and Behavior	3.3.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. • Utilize community traffic safety task forces to address pedestrian safety issues. (P) • 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, multilane arterials. • Promote use of reflective apparel • Ensure that transportation agencies are following national guidelines on the use of reflective markings and sign materials
	3.3.A2. Expand enforcement campaigns. (P) • Expand cross walk enforcement and education for both vehicles and pedestrians. • Improve academy and in-service pedestrian safety education for law enforcement officers at State, tribal, and local levels, including pedestrian collision investigation training. • Encourage mobile camera enforcement in school zone • Continue Targeted Crosswalk Enforcement (P)
3.3.B. Improve Pedestrian Facilities.	3.3.B1. Update existing and develop design guidance for the for the safe accommodation of pedestrians. (P)
	3.3.B2. Develop programs to improve pedestrian safety accommodations at intersections and interchanges. (P)
	3.3.B3. Implement pedestrian safety programs targeting pedestrian crash concerns in major urbanized areas and select rural areas with the construction of additional pedestrian facilities. (P) • Provide safer crossings by installing refuge islands, lighting, pedestrian lead interval at signals and shortening of crossing distances. . • Reduce pedestrian exposure to vehicular traffic. • Improve sight distances and/or visibility between motor vehicles and pedestrians; move the stop bar farther back. • Reduce vehicle speeds through traffic calming features in urban centers where appropriate
	3.3.B4. Maintain lights that increase pedestrian lighting
3.3.C Improve safety for children walking to school.	3.3.C1 Maintain dedicated school zone safety funding and encourage enforcement of school zone traffic laws. (P)
	3.3.C2 Continue WSDOT's safe routes to school grant opportunities. (P)
	3.3.C3 Install computer controlled and timed school zone flashing lights at K-12 schools where appropriate. (P)
3.3.D. Improve Data and Performance Measurers	3.3.D1. Inventory existing pedestrian infrastructure and identify deficiencies. (P)

P=Proven, T=Tried, E=Experimental

Priority Level Three: Heavy Trucks

Review Draft

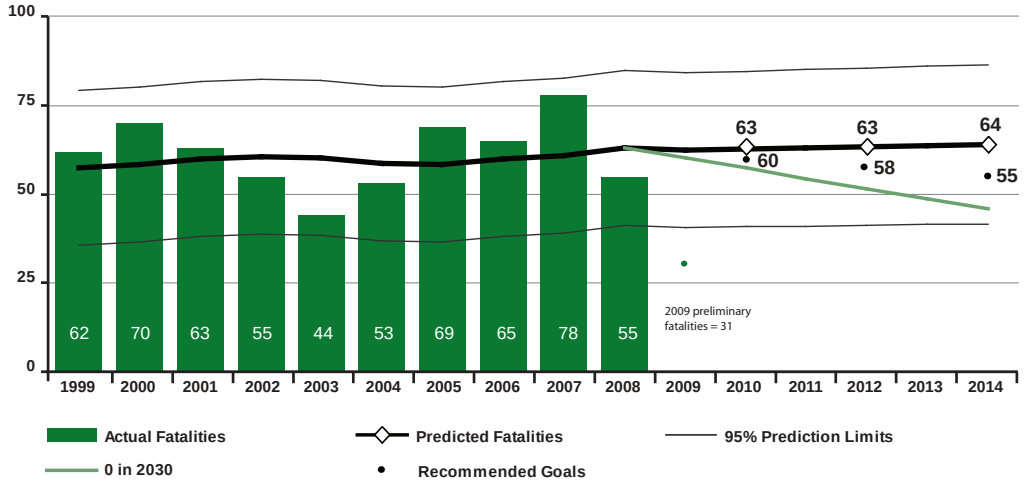
Between 2006 and 2008, collisions involving heavy trucks[1] killed 198 people on Washington's roadways, an average of 66 fatalities per year. Likewise, another 384 people were seriously injured in Washington heavy truck-involved (HTI) crashes during this time, an average of 128 per year. Because of the large weight disparity between trucks weighing over 10,000 pounds (many can reach weights of up to 100,000 lbs when fully loaded) and most passenger vehicles, any crash involving a heavy truck is more likely to involve fatalities. One piece of evidence to support this assertion is the finding that heavy trucks are over-represented in Washington fatal crashes. For example, WSDOT data for 2006 shows that while heavy trucks were involved in only 5% of all minor-injury collisions, they were involved in over 13% of all fatal crashes that year.

About 87% of 2006-2008 HTI fatalities were vehicle occupants; the remaining 13% were pedestrians and bicyclists. Occupants of passenger vehicles (automobiles, SUVs, vans, and light trucks) constituted nearly two-thirds (63%) of all HTI fatalities, followed by heavy-truck occupants themselves (17%) and motorcyclists (7%). Passenger vehicle occupants ages 16 through 25 made 15% of all HTI deaths and 23% of all passenger vehicle occupant deaths. Roughly three-fourths (76%) of all HTI fatalities occurred in crashes involving multiple vehicles. Of the 47 deaths (24% of all HTI fatalities) in single-vehicle HTI crashes, 21 (45%) were bicyclists or pedestrians.

More than two-thirds of all HTI fatalities (68%) resulted from crashes on state routes or interstates, and nearly as many (66%) stemmed from crashes occurring between 10 a.m. and 5 p.m. Forty-three percent of HTI crashes leading to fatalities occurred in six west-side counties (King, Snohomish, Pierce, Lewis, Grays Harbor, and Thurston), and another 25% of HTI deaths stemmed from crashes in six east-side counties (Walla Walla, Spokane, Grant, Yakima, Whitman, and Benton). About 43% of HTI fatalities resulted from crashes between the months of June and September.

The leading contributors to HTI fatalities were impaired driving (73 fatalities, 37%), distraction (61 fatalities, 31%), and speeding (42 fatalities, 21%). Drivers of vehicles other than heavy trucks were much more likely to commit serious driving errors leading to these crashes. For instance, these other drivers were about six times more likely to be impaired by either alcohol or drugs, twice as likely to be speeding or driving distracted, and three times as likely to fail to yield

Fatalities Involving Heavy Trucks (GVWR > 10,000 lbs.): Trends, Forecasts, and Goals



Source: Washington Traffic Safety Commission - Fatality Analysis Recording System

[1] "Heavy trucks" are defined in *Target Zero* as all vehicles with a gross vehicle weight of 10,000 pounds or greater.

Review Draft

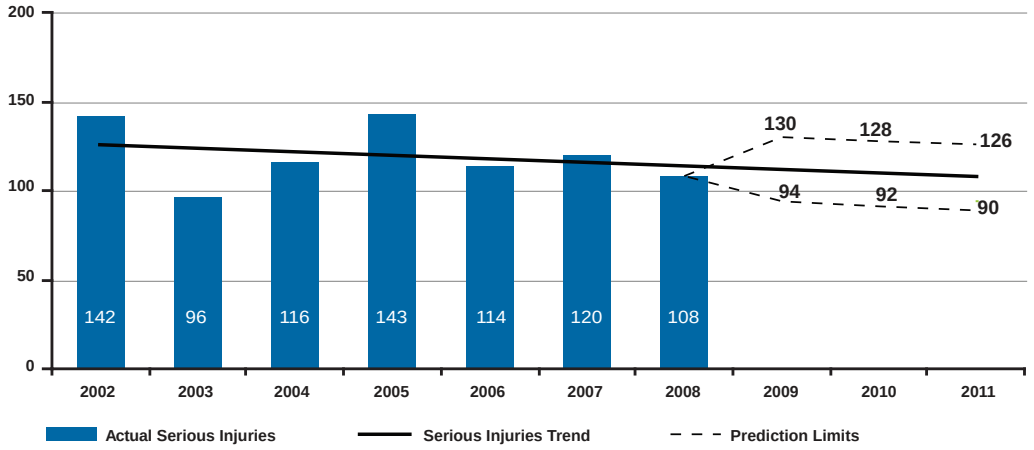
the right-of-way to another vehicle or nonmotorist. Finally, equipment problems also contributed to HIT fatalites: ten of the heavy trucks (5%) and five of the other vehicles (3%) in these crashes had problems with their brakes, lights, or power trains.

In 2005, Washington State initiated the Ticketing Aggressive Cars and Trucks (TACT) project, a program designed to deter the unsafe driving practices of both heavy-truck operators and the other vehicle drivers around them through a combination of public education and targeted enforcement. A research evaluation of TACT found that the project led to a significant reduction in the actual number of unsafe driving behaviors..

Strategies to reduce heavy-truck-involved fatal and serious injuries collisions include the following:

- Focus on improved driving by passenger vehicle drivers near heavy trucks with projects like TACT;
- Reduce the likelihood of distracted and drowsy driving by providing ample safe places for drivers to pull off the road;
- Improve the safety of heavy truck equipment and reduce mechanical defects.

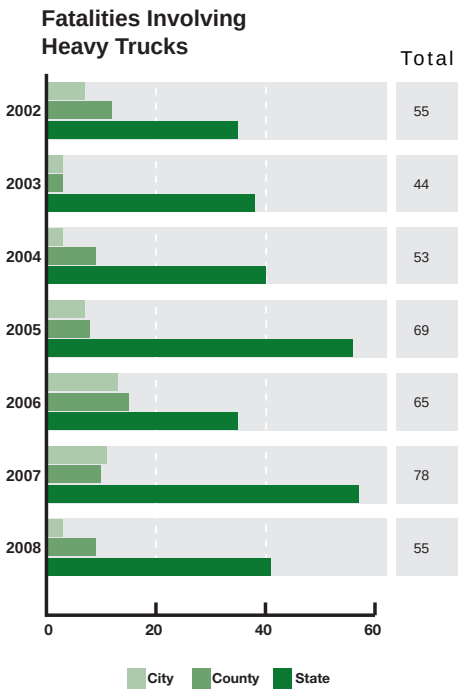
Serious Injuries Involving Heavy Trucks: Trends and Forecasts



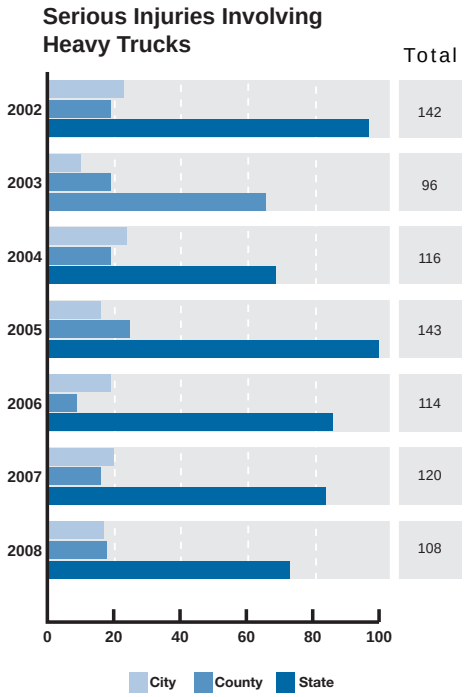
Source: WSDOT Collision Database

Priority Level Three: Heavy Trucks

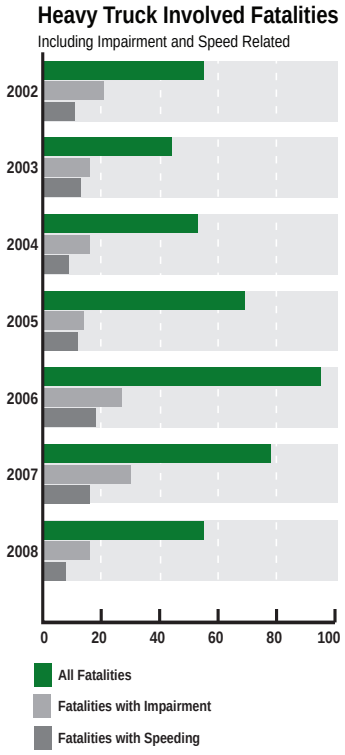
Review Draft



Source: Washington Traffic Safety Commission - Fatality Analysis Recording System



Source: WSDOT Collision Database



Source: Washington Traffic Safety Commission - Fatality Analysis Recording System (FARS)

Review Draft

3.4 Strategies to Reduce Collisions Involving Heavy Trucks	
3.4.A. Reduce CMV collisions involving passenger vehicles	3.4.A1. 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 heavy truck collisions. (P)
	3.4.A2. Provide education through media ride-a-longs, personal contacts, and letters to complainants to change public perception that heacy-truck-involved collisions are usually caused by the truck.
3.4.B. Reduce collisions caused by fatigue and inattention	3.4.B1. Provide areas for truckers to pull off the road and get required sleep. (T)
	3.4.B2. Increase heavy truck driver compliance with hours of service requirements through education, enforcement, and continued collaboration with industry.
	3.4.B3. Utilize data to identify contributing factors of collisions involving heavy trucks and respond with resource reallocation, enforcement, and education strategies. (E)
3.4.C. Reduce collisions caused by defective equipment	3.4.C1. Provide inspection facilities to identify mechanical deficiencies.
	3.4.C2. Continue to provide officers conducting inspections with initial and on-going training for completing thorough CVSA safety inspections.
	3.4.C3. Enhance existing programs to effectively partner and monitor industry through compliance and education of Washington-based heavy trucking companies regarding federal and state regulations.
	3.4.C4. Utilize data to identify heavy trucking 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.
3.4.D. Reduce collisions in areas with high potential for impacts with barrier.	3.4.D1. Improve barrier designs in such areas. (P)
	3.4.D2. Employ rumble strips in such areas. (P)

P=Proven, T=Tried, E=Experimental

Priority Level Three: Emergency Medical Services

Review Draft

Washington's Emergency Medical Services and Trauma Care (EMSTC) System (or EMS for short) has contributed to a steady decrease in the number of motor vehicle related deaths. First, by providing critical care as soon as possible after an injury, EMS is helping reduce deaths and serious injuries. The minutes directly following a traumatic injury are often critical to saving lives or minimizing the long term effects of injury; timeliness and clinical expertise are critical factors in the success of post trauma care. In addition to the minutes immediately following an injury, a patient's success is dependent on other important facets of trauma care, including prevention activities, hospital care, and rehabilitation resources. Each of these components work together to reduce death and disability of injured people throughout Washington.

Washington's trauma care system strives to assure that the "right" patient arrives at the "right" facility in the "right" amount of time. In a 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. 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 that ensures severely traumatized patients arrive at the most appropriate level of trauma center in the most optimum time span.

In order for the EMS system to continue its successes, we must strive to improve the following: analysis of response time data; communication between response agencies; use of medical dispatch protocols in every EMS dispatch center; and statewide implementation of GPS technology to ensure better response times. The ability to continue to build partnerships and improve data systems are also important to continued success.

Response time Thirty to forty percent of all trauma deaths occur within hours of the injury. Many of these deaths are considered preventable when an effective, organized trauma system exists. It is important to analyze the response times of pre-hospital resources to assess their ability 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 80% percent of all calls. Timely response to trauma scenes equates to faster hospital access for major trauma patients. Therefore, increasing the percentage of response time 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.

Thirty to forty percent of all trauma deaths occur within hours of the injury. Many of these deaths are considered preventable when an effective, organized trauma system exists.

Integrated Interoperable Communications. During any response to a serious injury collision, agencies representing EMS, Fire Service, and Law Enforcement will be engaged. Integrated interoperable communications - the ability to easily and effectively communicate between response agencies - is a challenge and the economic as well as technical barriers to communications must be addressed.

Sophisticated communications systems allowing response personnel to effectively communicate are essential to successful EMS response systems. A comprehensive communications system provides EMS personnel with access to medical direction and additional resources that may be required at a trauma scene. Additionally, an effective communications system allows responding personnel to coordinate scene management activities. The ability to communicate with responding resources, both on the ground and in the air, assures rescuer safety and efficient preparation of the patient for transport. Responding personnel must have the ability to communicate between each other as the scene unfolds.

Review Draft

Medical Dispatch Protocol. The use of medical dispatch protocols is an important part of the EMS response, allowing 9-1-1 dispatchers to provide instructions to citizens who are on-scene at a serious injury collision before the arrival of emergency responders. Currently, communication centers throughout the State vary in the use of medical dispatch protocols. The level of sophistication of these protocols varies from computerized medical dispatch triage protocols to minimal call screening using no formal medical dispatch program. The disparity in the level and use of these essential protocols lends itself to inconsistent deployment of EMS resources, causing these resources to be over- or under-used. The EMS system in the State should pursue use of consistent medical dispatch protocols in every EMS dispatch center.

Global Positioning Satellites. Global Positioning Satellites (GPS) will reduce EMS response times to incident scenes by giving EMS responders the exact location of a motor vehicle collision and the most appropriate and rapid route to the scene. Mobile data terminals included with on-board GPS systems allow dispatchers to provide responding personnel with important information about the incident via computer. While increasingly prevalent in some urban areas of the State, most if not all of the rural areas of the State lack this technology. Use of this technology, statewide, will assure better response times.

Partnership. Washington's EMS system has been built upon broad consensus among a divergent group of health care professionals and industry experts. These groups have continuously worked to address the complex political, economic, logistical, legal and clinical issues associated with trauma care in the State. Addressing the challenges in a collaborative approach will allow the EMS System to continue reducing the number of fatalities and long-term affects of trauma related to motor vehicle crashes.

Data Driven. Developing forward thinking strategies and making decisions based on empirical data is critical to the continued success of the EMS System in Washington. Therefore, any goals and performance measures should incorporate the gathering, analysis and archiving of data related to EMS and Trauma incidents. This evidence based focus will ensure that EMS realizes its full potential and continues to favorably impact the outcomes of injured people in the State.

Review Draft

Strategies to Enhance Emergency Medical Capabilities to Increase Survivability	
3.5.A Reduce injury deaths, Reduce injury hospitalizations	3.5.A1. Ensure all pre-hospital EMS personnel receive adequate trauma training through Ongoing Training and Evaluation Programs (OTEP). (P)
	3.5.A2. Ensure efficient and adequate distribution of Level 1 and Level 2 Designated Trauma Centers. (P) • Increase the number of Level 2 trauma centers in the state, especially in eastern Washington
	3.5.A3. Ensure that all major trauma patients are transported to the highest appropriate level of designated trauma center within a 30 minute transport. (P) • Identify funding strategies that assist air medical services in filling gaps in coverage for emergency air medical response as identified in the state EMS and Trauma System plan.
	3.5.A4. Increase the percentage of EMS on-scene arrival responses that are within State requirements. (P)
	3.5.A5. Ensure adequate and efficient distribution of pre-hospital EMS resources at all levels (aid and ambulance) according to evidence-based EMS and Trauma State and Regional Plans. (P)
	3.5.A6. Promote the use of a computerized system of Emergency Medical Dispatch protocols including pre-arrival instructions in all EMS Communications Centers in Washington State. (P)
	3.5.A7. Ensure that all EMS Communications Personnel are trained in Emergency Medical Dispatch methods to ensure appropriate utilization of available EMS Resources. (P)
	3.5.A8. Encourage use of GPS Technology by EMS agencies throughout the State. Fund GPS units for all 'first responders' (E)
	3.5.A9. Assure that seamless communications capabilities between EMS, Law Enforcement, and Fire Service agencies are achieved through interoperability. (P)
	3.5.A10. Expand the Comprehensive Hospital Abstract Reporting System (CHARS) to include emergency department data to promote assessment of EMS system performance and enhance injury surveillance capabilities. (P)
	3.5.A11 Improve enforcement and public understanding of 'move-over' law

P=Proven, T=Tried, E=Experimental