Priority Level Three: Opposite-Direction Multi-Vehicle Collisions

Review Draft

An opposite-direction multi-vehicle crash typically occurs when one vehicle crosses over a center line or a median and crashes into an approaching vehicle. It can also occur when a vehicle is traveling the wrong way in a traffic lane. Occasionally, a driver's deliberate actions (such as passing on a two-lane road) can cause this type of collision, but more frequently an opposite-direction multi-vehicle collision is caused by a driver's impairment, speed, or distraction. Addressing those behavioral issues will reduce this type of collision.

Between 2006 and 2008, Washington State experienced 629 serious injuries and 226 deaths related to opposite-direction multi-vehicles collisions. This represents 8% of serious injuries and 13% of fatalities during this period.

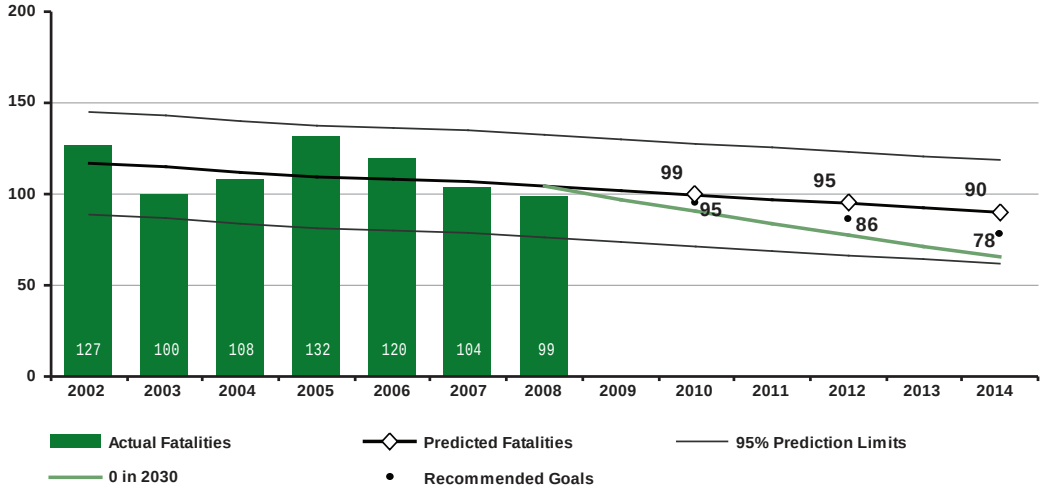
From 2006-2008, speed was a factor for 16% of drivers involved in fatal or serious injury opposite-direction multi-vehicle crashes; impairment was a factor 16% of the time. During the same time period, only 2% of drivers involved in fatal or serious injury opposite-direction multi-vehicle collisions were making an improper passing maneuver.

Engineering strategies can help reduce the likelihood of opposite-direction multi-vehicle fatalities and serious injuries. These include the installation of center line rumble strips on two-lane roadways, the placement of median barriers on divided highways, and the creation of safe passing opportunities where possible on two-lane roadways. Installation of center line rumble strips on Washington state routes has shown a 57% decrease in fatal and serious injury opposite-direction multi-vehicle crashes (an 80% reduction on tangents and 24% reduction on curves).

Why Doesn't Target Zero Focus on Cross-Over Collisions?

Current data collection methods only allow for collection of opposite-direction multi-vehicle crashes, and not for cross-over collisions involving only one vehicle. Improvements planned for future data collection methods will allow for collection of all cross-over collisions in future versions of Target Zero.

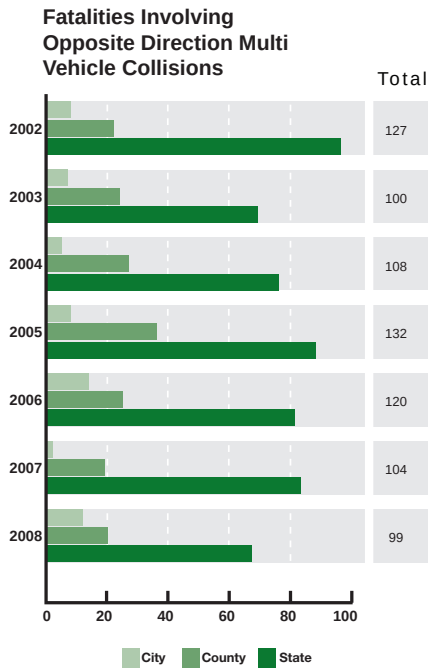
Opposite Direction Multi-vehicle Collision Fatalities: Trends, Forecasts, and Goals



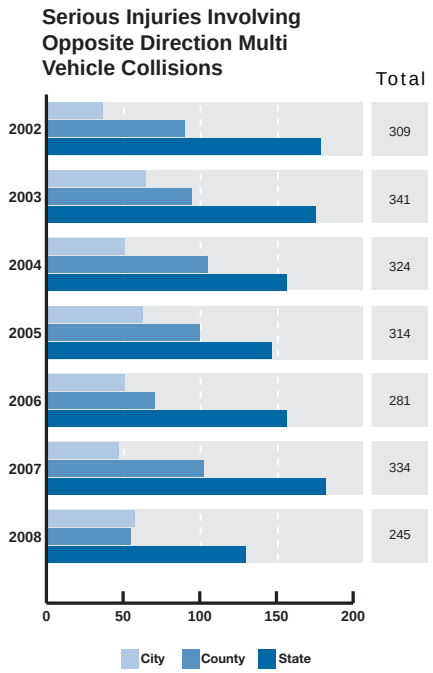
Source: Washington Traffic Safety Commission - Fatality Analysis Recording System

Priority Level Three: Opposite-Direction Multi-Vehicle Collisions

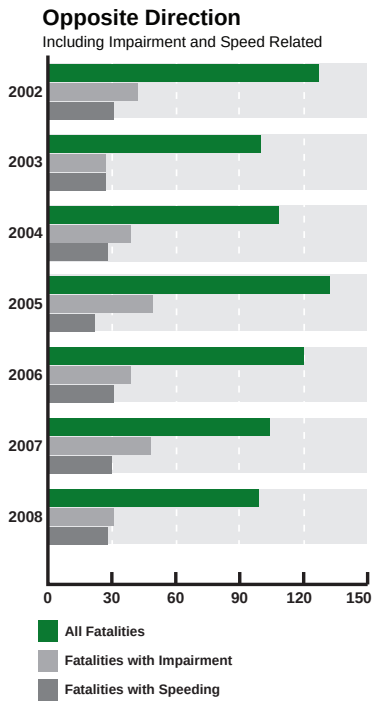
Review Draft



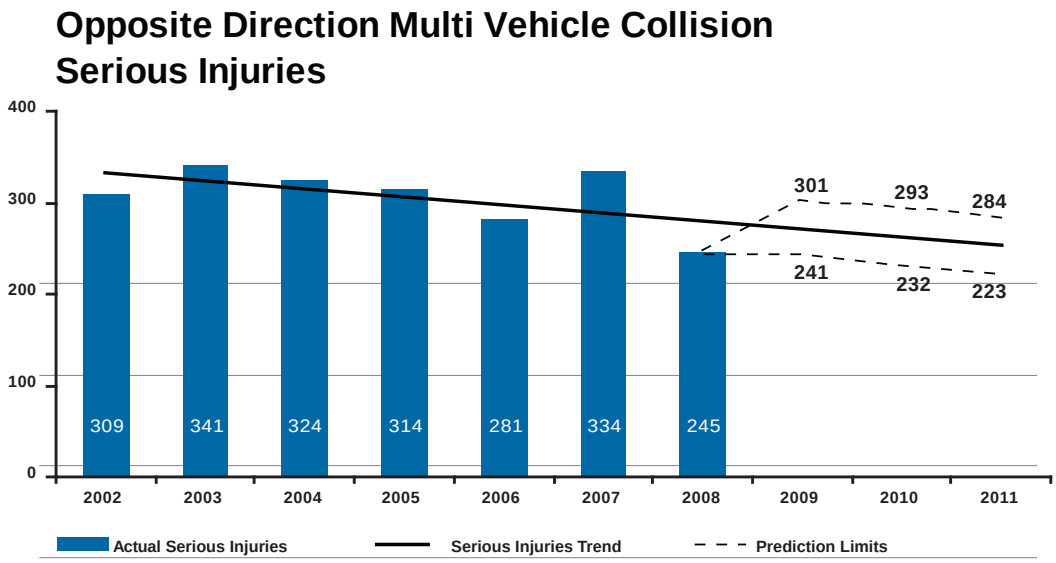
Source: Washington Traffic Safety Commission - Fatality Analysis Recording System



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

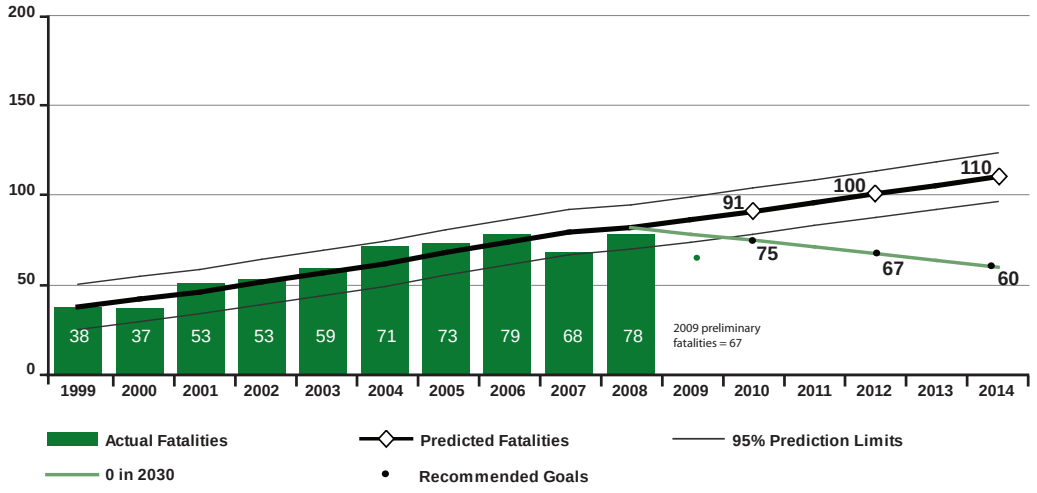
[1]Years are calendar years, January through December.

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

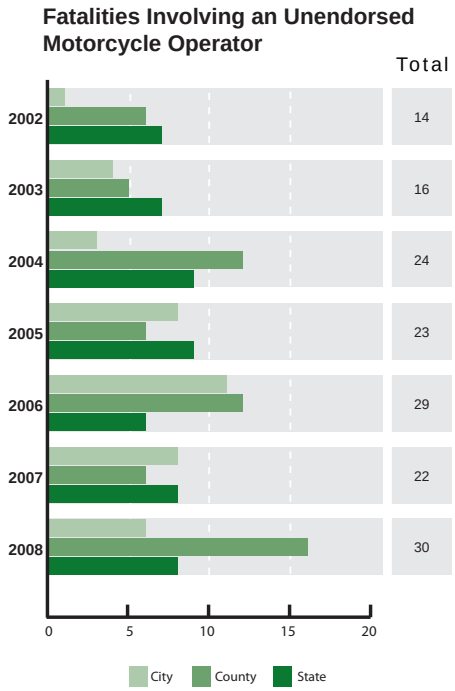
Source: Washington Traffic Safety Commission - Fatality Analysis Recording System

Review Draft

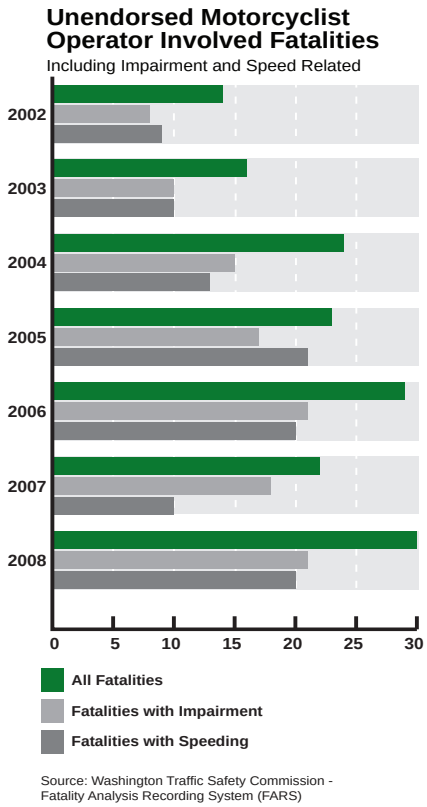
are inattention or failure to yield. About half (52.9%) of vehicle drivers involved in motorcycle-vehicle fatal crashes were found to have committed driver errors that lead to the collision; 72.1% of the motorcycle operators involved were found to have committed errors leading to the collision (in many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

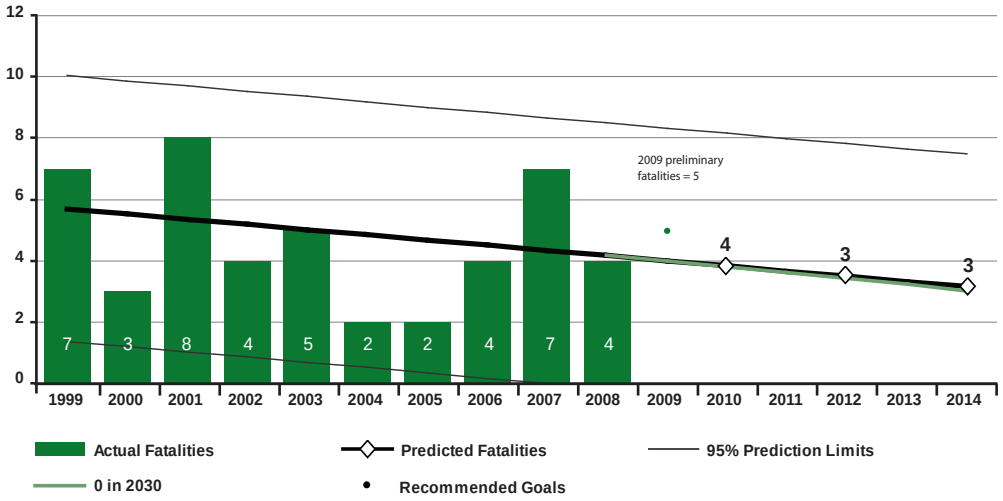
Another recent change that affects riders is the helmet law passed in 2009. That law requires riders to wear helmets that meet federal standards (FMVSS 218). Those standards include thick foam padding, a secure chin strap, a manufacturers label on the inside of the helmet, and a permanent, legible USDOT 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

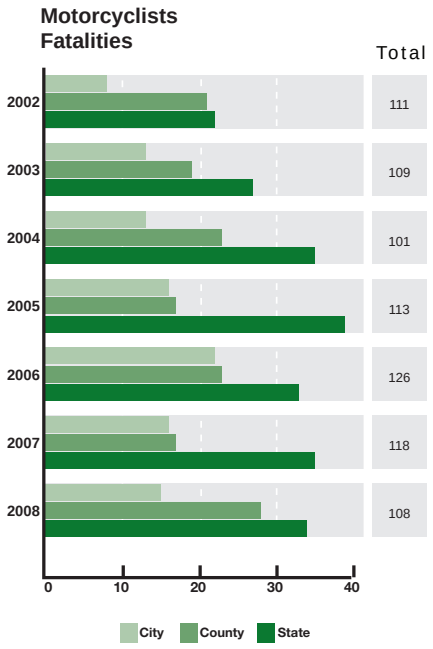
Unhelmeted Motorcyclist Fatalities: Trends, Forecasts, and Goals



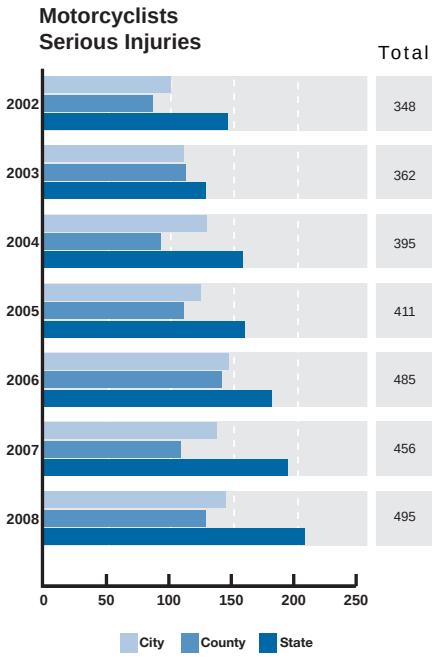
Source: Washington Traffic Safety Commission - Fatality Analysis Recording System

Priority Level Three: Motorcyclists

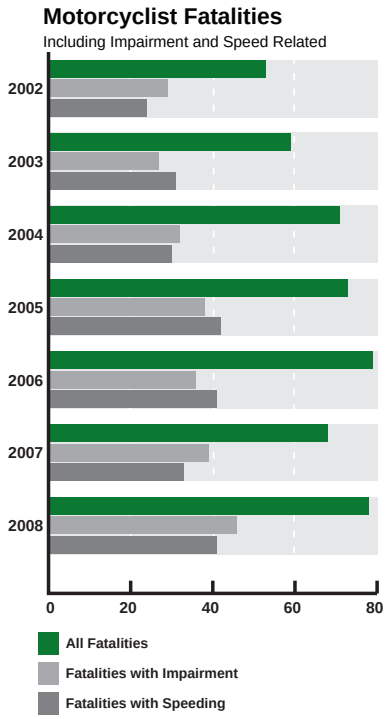
Review Draft



Source: Washington Traffic Safety Commission - Fatality Analysis Recording System

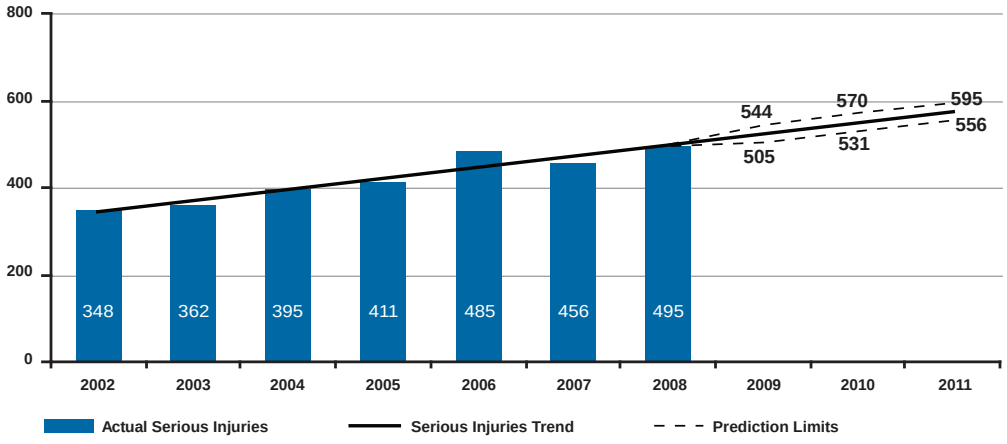


Note: In this definition, "Motorcycle" includes Body Types 80, 82, 83
Source: WSDOT Collision Database



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

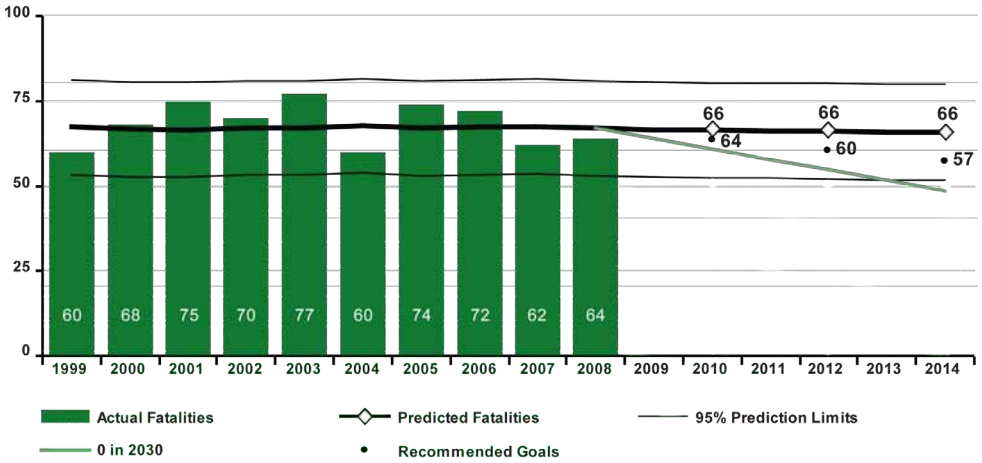
In Washington State there were a total of 682 fatal pedestrian collisions between 1999 and 2008, accounting for 11% of all traffic deaths. Sixty-four pedestrians were killed in 2008, up slightly from 62 in 2007, yet still lower than the 10-year average of 68 fatalities. Based on jurisdiction, 41.8% of 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

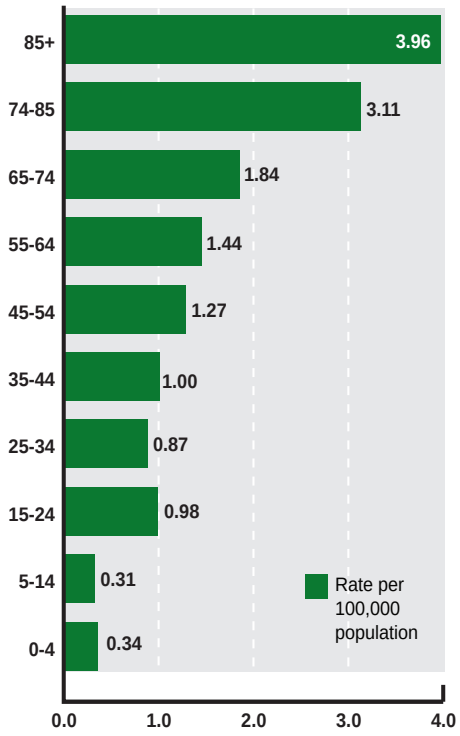
Pedestrian safety strategies focus on three of the four "E's": Education, Enforcement, and Engineering (EMS strategies are generally applicable across all types of collisions, both pedestrian and motor-vehicle-related, and can be found on page XX). Some of these strategies include:

- 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

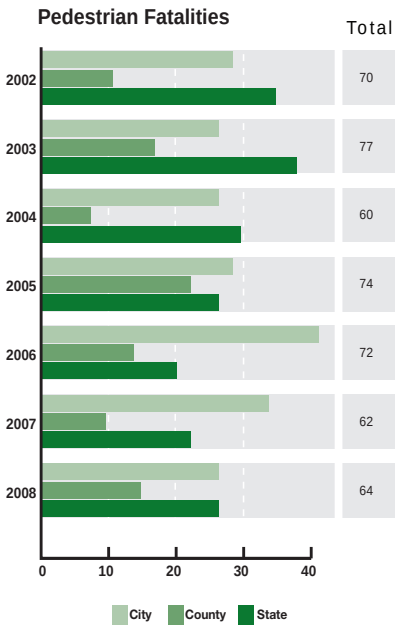
By Age Range, 1999-2008



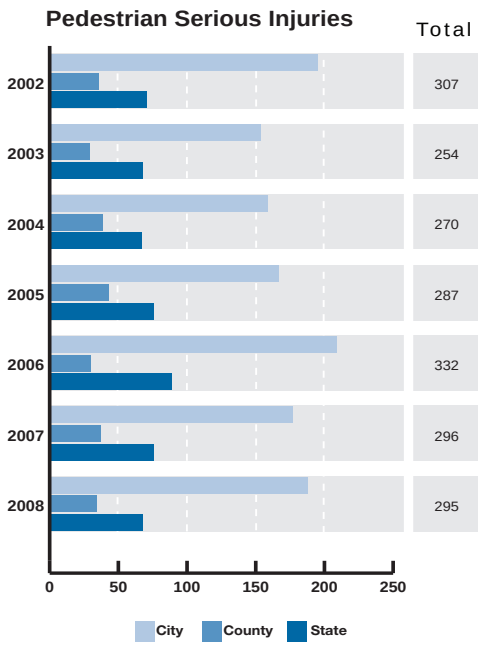
Source: Washington Traffic Safety Commission - Fatality Analysis Recording System (FARS)

Priority Level Three: Pedestrian

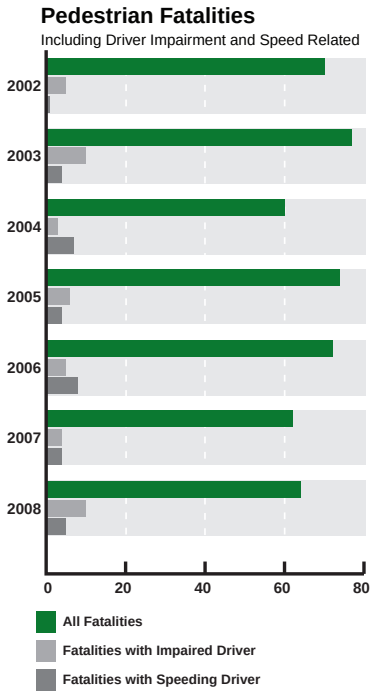
Review Draft



Source: Washington Traffic Safety Commission - Fatality Analysis Recording System

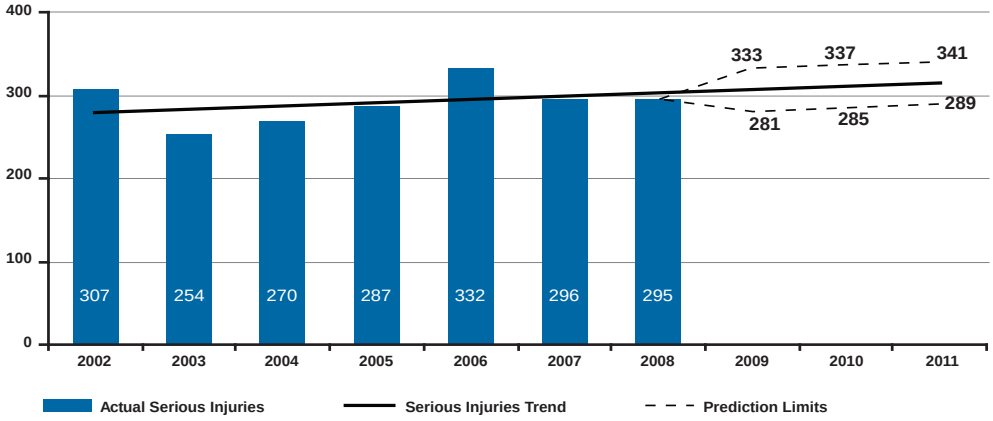


Source: WSDOT Collision Database



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

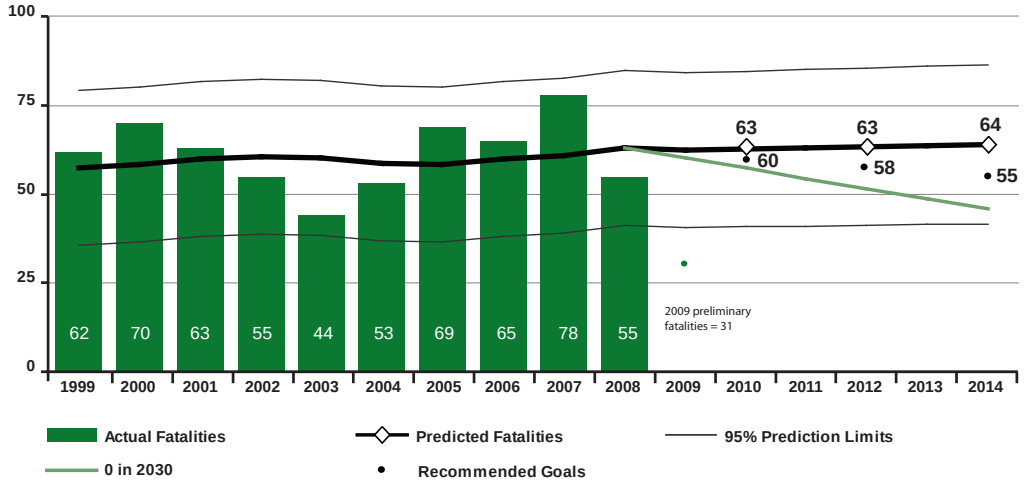
Between 2006 and 2008, collisions involving heavy trucks[1] killed 198 people on Washington's roadways, an average of 66 fatalities per year. Likewise, another 384 people were seriously injured in Washington heavy truck-involved (HTI) crashes during this time, an average of 128 per year. Because of the 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

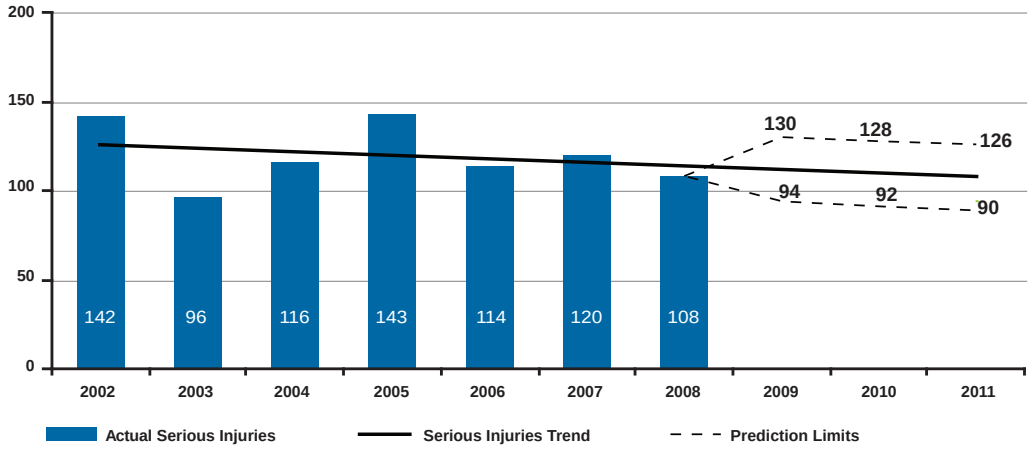
the right-of-way to another vehicle or nonmotorist. Finally, equipment problems also contributed to HIT fatalites: ten of the heavy trucks (5%) and five of the other vehicles (3%) in these crashes had problems with their brakes, lights, or power trains.

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.

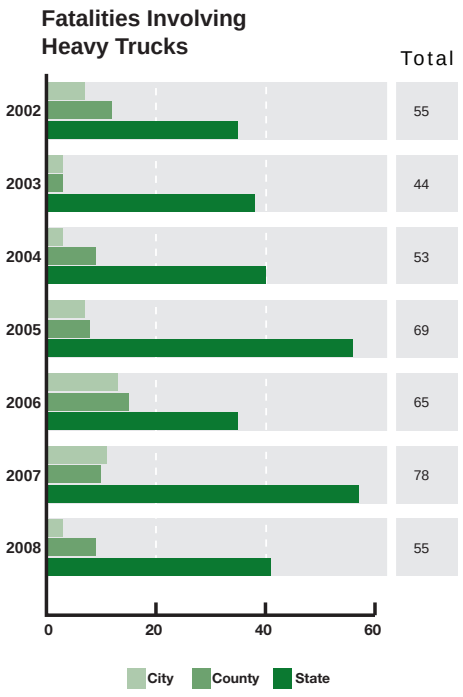
Serious Injuries Involving Heavy Trucks: Trends and Forecasts



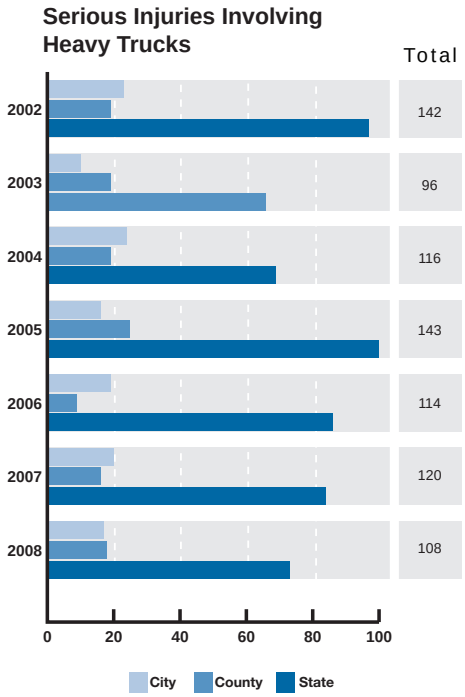
Source: WSDOT Collision Database

Priority Level Three: Heavy Trucks

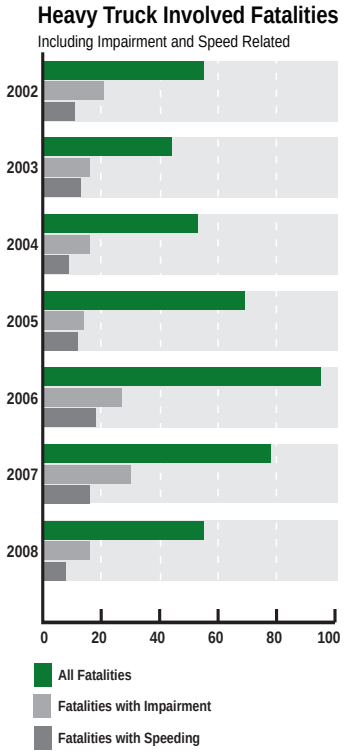
Review Draft



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