

# Wyoming

## Strategic Highway Safety Plan

### 2017



# Acknowledgements

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This plan was created through the efforts of members of the Wyoming Highway Safety Management System (SMS) Committee.

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# HIGHWAY SAFETY



## PROGRAM



U.S. Department of Transportation  
Federal Highway Administration



FMCSA

Federal Motor Carrier Safety Administration



WHP

Wyoming Highway Patrol



Adopted: July 10, 2017

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# Introduction and Background



Numerous state, federal, and local agencies strive to reduce critical crashes, which are defined as crashes in which an incapacitating injury or fatality occurs. The SHSP will be the guiding hand in Wyoming's effort to achieve the national goal of "Towards Zero Deaths" and to ensure that motorists, pedestrians, and bicyclists using the roadways in the state are safe and arrive at their destinations.

A Strategic Highway Safety Plan (SHSP) is a major component and requirement of both the Highway Safety Improvement Program (HSIP) (23 U.S.C. § 148) and the Highway Safety Plan (HSP) submittal. It is a safety plan compiled by a statewide coordinated effort and provides a cohesive and comprehensive framework intended to reduce critical crashes on Wyoming roadways. The SHSP identifies Wyoming's key safety needs and guides investment decisions to choose the most effective strategies and countermeasures focused on saving lives and preventing injuries.

6 On December 4, 2015, President Obama signed the Fixing America's Surface Transportation (FAST) Act into law—the first federal law in over a decade to provide long-term funding certainty for surface transportation infrastructure planning and investment. The FAST Act authorizes funding in federal fiscal years 2016 through 2020 for highways; highway safety and motor vehicle safety; public transportation; motor carrier safety; hazardous materials safety; rail; and research, technology, and statistics programs. The FAST Act allows states and local governments to advance critical transportation projects with the confidence that federal funding will be available.

The Wyoming Department of Transportation, along with a committee of local, state, Federal, and private-sector allies, has developed the SHSP. This plan was implemented in 2008 and has been updated as needed. This 2017 update will continue to focus on data-driven strategies that take a multi-year comprehensive approach to establish state-wide goals, emphasis areas, and objectives to collectively address Wyoming's traffic safety challenges.



## **Plan Purpose**

The purpose of this SHSP is to steer the state of Wyoming “Towards Zero Deaths.” All travelers in Wyoming, whether they drive, ride, walk, or ride a bike should safely arrive at their destinations. The Wyoming SHSP strives to work towards this goal.

This plan is written to actively guide the strategies the state will take to achieve the goal of zero traffic fatalities. State and local agencies, counties, private-sector and non-profit organizations, corporations, residents, and visitors to Wyoming all benefit from a safe and efficient roadway system.

## **Plan Development**

There are four main processes forming a cycle related to the SHSP: coordination, implementation, evaluation, and revision. The process is vital to reducing critical crashes in Wyoming.

### **Coordination**

WYDOT has created partnerships and shares responsibility in meeting the goal of reducing all crashes, but especially critical crashes. Cooperation and communication between key local, state, and federal agencies, as well as our safety advocates and safety organizations, is paramount to facilitate the implementation and deployment of the strategies with the highest pay off in terms of reducing critical crashes.

### **Implementation**

The Strategic Highway Safety Plan is a collective effort of transportation agencies, highway safety advocates, and safety partners throughout the state. The SMS committee supports the SHSP and encourages safety partners to focus their safety activities and programs to support the safety goals in the most efficient manner possible.

### **Evaluation**

The effectiveness of the strategies developed from the guidance in the SHSP will be evaluated through performance measures and program review activities. The success of the SHSP will be judged based on the key performance measure of reducing the number of annual critical crashes.

### **Revision**

Upon evaluation and review, the SHSP guidance will be revised as necessary to meet the challenges presented by an ever-changing Wyoming transportation system.





## Performance Based Approach

States are required to establish a performance-based approach regarding highway safety. The SHSP is a key component to this approach. The Wyoming SHSP will continue to support performance-based goals consistent with the safety performance measures established by the Federal Highway Administration (FHWA) and by the National Highway Traffic Safety Administration (NHTSA) in accordance with 23 U.S.C. 150. Wyoming is required to set annual targets for safety performance measures to carry out the HSIP and the HSP. The SHSP goals are independent of the HSIP and HSP targets.

The SHSP is an ambitious, multi-year document. A "Towards Zero Deaths" goal is an example.

## The Key Factors of Highway Safety Practices

### Enforcement

The SHSP will help drive enforcement strategies to ensure that Wyoming motorists, pedestrians, and bicyclists can enjoy a safe experience on roadways. Strategies, such as targeted DUI, safety equipment use, and speeding enforcement can be implemented based on the recommendations of the SHSP

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### Engineering

The SHSP can be instrumental in guiding engineering practices to reduce critical crashes on Wyoming roadways. Treatments such as rumble strips, animal overpasses, enhanced signage, delineation enhancements, enhanced pavement markings, and guard rails are driven by the data collected and are implemented in accordance with the SHSP's guidance.

### Education

Campaigns to educate the traveling public are driven by the SHSP to determine the best use of limited Highway Safety funding and resources. Educational efforts with the highest returns on investment can be identified and pursued by evaluating data.

### **Emergency Medical Services (EMS)**

Better correlation between crash data and EMS data is essential to quantifying the costs of critical crashes to the health care system and the economy. The SHSP will help support improvements in the quality of EMS in Wyoming.

### **Everything Else**

Pedestrian and bicycle advocacy groups, the Department of Health, safety organizations, Wyoming employers, commercial motor carriers, and the Wyoming Department of Workforce Services are a few of the non-typical highway safety partners the SHSP strives to include.

## **Plan Process Description**

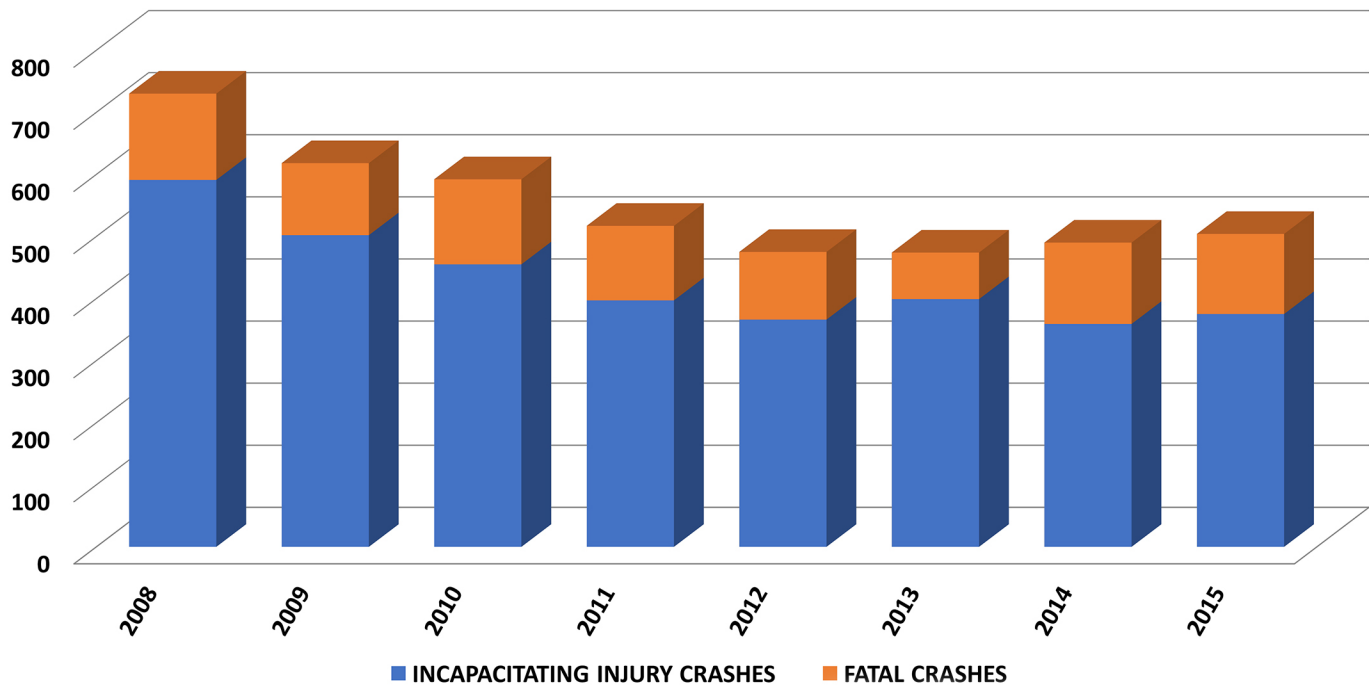
WYDOT will consult regularly with its safety partners and seek their input before proceeding with any updates regarding the SHSP. All safety partners will have the opportunity to participate in revising the SHSP.

The Wyoming Department of Transportation will align long term plans of the SHSP with the most immediate goals of the HSIP and HSP. The SHSP will guide some of the processes of the HSIP and the HSP.

Emphasis and focus areas for the SHSP are identified by the Safety Management System (SMS) committee. The Wyoming SMS committee will meet, discuss, and approve all updates and revisions to be considered. The SHSP's data-driven approach will analyze trends in traffic safety and will identify the most effective actions to reduce critical crashes on Wyoming roadways.

The following chart outlines the trend in critical crashes in Wyoming. A major overhaul for the Wyoming crash form was completed in 2008. The revision to the crash form facilitated a sweeping change in the way crash data was collected.

**Critical Motor Vehicle Crashes in Wyoming 2008 through 2015**





# Highway Safety Outcome Roadmap

The next two pages provide a roadmap designed to define the connection between the strategies and the potential outcomes that can reduce Wyoming's critical crashes.

**Strategies:** Steps Wyoming can take to reduce critical crashes

Inform court system of safety measures

Understand effectiveness of various approaches/  
treatments

Perform targeted enforcement campaigns

Perform targeted awareness/education campaigns

Incentivize safe driving behavior

Meet requirements to obtain federal funding

Refine the Safety Management System

Collect and share the appropriate vehicle-related  
crash data with FHWA, NHTSA and others

Consider push for vehicle safety requirements/  
inspections

Identify and flag worst safety locations

Identify appropriate safety treatments for worst  
safety locations

Implement pre-STIP project selection tool

Support the programming of optimal safety  
treatments (stand-alone, combined, and systemic)

Enhance enterprise data SPOD (process,  
governance, data sets)

Engage cross-entity (5E) forums to identify safety  
strategies

Implement internal performance measures

**Interim Outcomes:** Short term and long term results Wyoming can see if strategies are implemented

Penalties for drivers exhibiting risky behaviors are effective (both likely and significant)

Benefits for drivers exhibiting safe behaviors are effective (both likely and significant)

Drivers are aware of behavior risks, possible penalties of risky behavior, and potential benefits

Funding sources intact, predictable

Agencies and partners are aligned to achieve aggressive safety goal

Effective use of communication channels

Legal system is aligned on traffic safety

Optimal (highest benefit/cost) safety treatments are identified for worst locations

Appropriate tools to analyze and present information

Access to applicable data (of appropriate quality)

**Interim Outcomes:** Short term and long term results Wyoming can see if strategies are implemented

Drivers internalize the benefits of not engaging in risky behaviors (carrot)

Possible penalties deter drivers from engaging in risky behavior (stick)

Up-to-date, reliable, actionable information available to drivers

Public interest and engagement

Appropriate legal support

Adapted social mores

Vehicles are designed and built safely

Vehicle safety features are maintained

Adequate funding is allocated for safety treatments

Investments are optimized to meet targets

Investments decisions are based on data rather than political pressure

Adequate emergency response capacity is in place at right locations

Performance-based Management

Emergency response dispatch operations are coordinated/integrated

Adequate funding is allocated for weather operations

Maintenance operations anticipate and respond to inclement weather conditions

Drivers follow the speed limit, wear their seatbelt, and drive unimpaired, focused, and alert.

Drivers adapt/avoid driving in response to weather/roadway conditions

Vehicles on the road are safe

Drivers are aware of pedestrians and bicyclists, and share the road safely

Highest benefit-to-cost roadway/roadside safety treatments are in place in the network

Injury surveillance system provides rapid, appropriate emergency response to crash events, and appropriate care to minimize injury severity

Roadway operations minimize the negative impacts of weather, congestion, construction, etc., on traffic safety.

**Impact**

**Reduce the Frequency and Severity of Crashes in Wyoming**

# Wyoming Highway Safety Strategies

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## **Increase Seat Belt Use with Risky Behavior Groups**

The reported seat belt use in motor vehicle crashes in Wyoming for 2015 was 80%. This figure reflects a stable trend over the past 5 years. Counties in Wyoming showed varying seat belt use percentages in motor vehicle crashes. Laramie County has a reported seat belt use of 90% for drivers, the highest rate in the state. Niobrara County had the lowest use in the state for drivers at 57%. For passengers, Goshen County saw the highest reported seat belt use of 87%, whereas Weston County was the lowest at 57%.

A rural population presents challenges to safety on Wyoming's roadways. Many of the highest risk groups for seat belt use are difficult to reach in largely rural Wyoming. Impaired drivers and young adult drivers are two of the groups least likely to wear a seat belt. This plan aims to address this issue and increase seat belt use in Wyoming.

## **Increase Law Enforcement Coordination**

Coordination between highway safety partners is imperative to successfully implementing the strategies in the SHSP. Coordinating with law enforcement is essential since these personnel have unique advantages when it comes to influencing drivers' behaviors. Wyoming's rural nature presents great challenges to law enforcement. Long distances between towns and sparsely spaced law enforcement resources make risky behaviors more tempting to drivers. By coordinating with law enforcement and focusing on the most effective strategies, such as focusing patrol and enforcement efforts in high-risk corridors, for example, Wyoming safety partners will be more effective in reducing critical crashes.

## **Appropriate Infrastructure Improvements (Systemic-HSIP)**

Many options exist when evaluating highway safety improvements. Some are much more effective than others for the return on investments. By evaluating these options, Wyoming will be able to better determine which strategies will prove the most fruitful. With limited resources and projected declining state revenues in the near future, Wyoming must be careful and deliberate when choosing infrastructure improvements.

## **Change Traffic Safety Culture**

By expanding and developing newly focused public education, safety culture surrounding motor vehicles, pedestrians, and bicyclists can be improved. Wyoming drivers involved in crashes in 2015 had a seat belt usage rate of 80%, but 72% of fatal crashes in Wyoming for the same period involved an unbuckled driver or occupant. Fatalities can be avoided by using safety equipment in many cases, and focusing education efforts in this area a strategy that can prove effective. It is the intent of this document to guide these efforts.

## **Substance Abuse/Impaired**

**12** While representing only 4% of total crashes, alcohol-related fatalities account for 35% of all motor vehicle fatalities in Wyoming. The aim of the SHSP is to explore methods to reduce this number. Alcohol accounts for 12% of injury crashes. Without alcohol-related fatalities, there may have been 51 fewer fatalities and 447 fewer injuries on Wyoming roadways in 2015.

## **Improve Roadway Visibility**

Approximately 32% of the motor vehicle crashes in Wyoming in 2015 occurred in the dark. Nearly three-quarters of these were in darkness conditions with no lighting. Given Wyoming's rural nature, this fact is not surprising, but several techniques have proven effective to reduce these numbers. Making marking and signage more visible are two examples of strategies that can be effective if implemented correctly. This plan is, among other things, intended to guide adoption of strategies to increase roadway visibility.



### **Improvement to Areas of Increased Speed Limits**

Many portions of the three interstate highways and many sections of state highways in Wyoming are seeing increased speed limits. Many portions of the interstates have increased from 75 to 80 miles per hour. Additionally, many sections of state highways have been increased from 65 to 70 miles per hour. Excessive speed was reported to be a driver action in approximately 16% of all motor vehicle crashes in Wyoming in 2015.

### **Legal System Aligned on Traffic Safety**

To reduce the number of critical crashes, the legal system must be aligned with highway safety goals. For instance, compelling data shows that primary seatbelt laws reduce critical crashes. Passing and enforcing such laws encourages more people to use their safety equipment. Distracted driving is a growing concern in Wyoming, and there are very few laws and city ordinances regarding driving while distracted. By encouraging the legal system to recognize these dangers, Wyoming can see a reduction in critical crashes. Having the legal system in line with Wyoming's roadway safety initiative has the potential to reduce critical crashes. Many strategies are being implemented nationwide with varying results. Strategies such as increasing education, ignition interlock for DUI offenders, and primary seatbelt laws are showing promising results. Wyoming's goals can never be realized without the assistance of the legal system.

### **Effective Use of Communication Channels**

Emergency responses to crashes in Wyoming can be difficult. Vast distances and a low population density present unique challenges. Wyoming drivers involved in crashes can face long response times. First responders must be able to reach the crash scene as quickly as possible. Weather conditions, road conditions, and distance can affect the time it takes for a response to arrive. Wyoming can experience crashes involving multiple vehicles that close major arteries through the state. Wyoming has experienced many of these because of weather conditions adversely affecting the road conditions. Wyoming does have communication channels in place to mitigate the effects of these conditions. Variable message signs are one example of how information can be relayed to drivers quickly. The use of these systems can always be improved, and this plan aims to explore ways in which communication channels in place can be more effectively used to reduce fatal and critical crashes.

### **Up-to-Date, Reliable, and Actionable Information to Drivers**

Conditions in Wyoming can change at a moment's notice. Relaying this information to drivers is essential. Allowing drivers the information needed to adapt to changing road conditions, anticipate road conditions based on weather, and to plan their trips accordingly can make notable progress towards reducing the number of critical crashes. Relaying this information as quickly as possible to drivers can allow drivers to completely avoid behaviors and conditions that cause critical crashes.



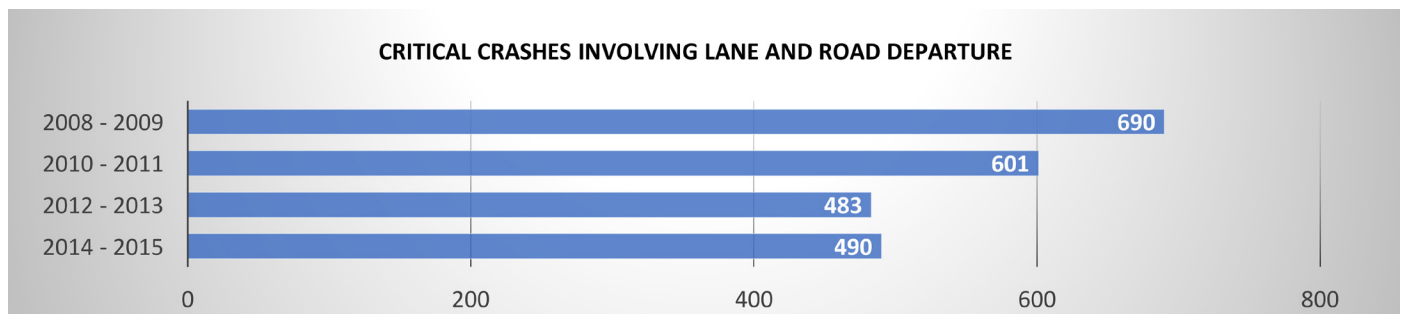
# Emphasis Areas

Emphasis areas have large numbers of critical crashes. These areas take priority when exploring safety treatments. Focus areas have somewhat lower levels of incidence than critical areas. Focus areas are important to address and are still eligible for all programs and funding.

## Lane and Road Departure Crashes

A roadway departure crash includes those in which a vehicle leaves its lane and runs off the road, opposite direction crashes, sideswipe crashes, and head-on crashes.

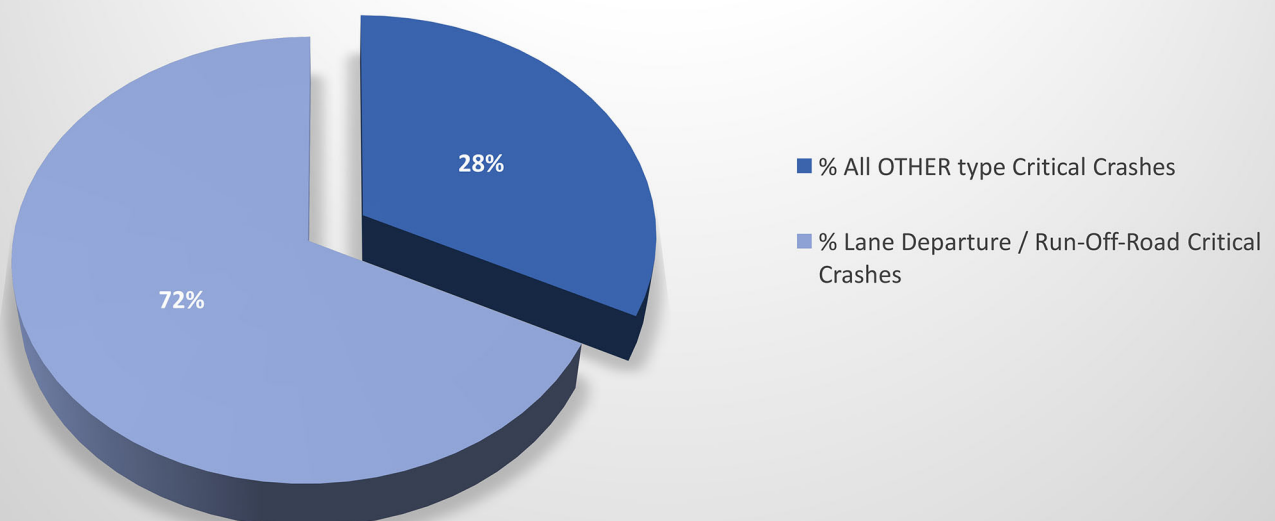
### Challenge



In Wyoming for 2014 and 2015, 72% percent of all critical crashes were associated with lane and road departure crashes. These crashes resulted from driver fatigue, impaired driving, speeding, and distracted driving. While the crash begins with driver error, reductions can often be made by improved delineation, tactile reminders, and a forgiving roadside treatment.

### Key Strategies

#### Lane Departure/Run-Off-Road in Critical Crashes 2014 - 2015







## Strategies:

### Enforcement

- Align legislative action with safety goals
- Provide accurate information to lawmakers
- Increase law enforcement's ability to perform targeted enforcement in areas with high rates of critical crashes

### Engineering

- Install rumble strips or stripes
- Add and improve shoulders
- Eliminate edge drop-offs
- Expand and maintain roadway visibility
- Install technology to keep drivers informed of conditions ahead

### Education

- Increase education about the dangers of distracted driving and driving under the influence among roadway users
- Increase awareness of road conditions as they change
- Increase awareness of changing weather conditions as they change

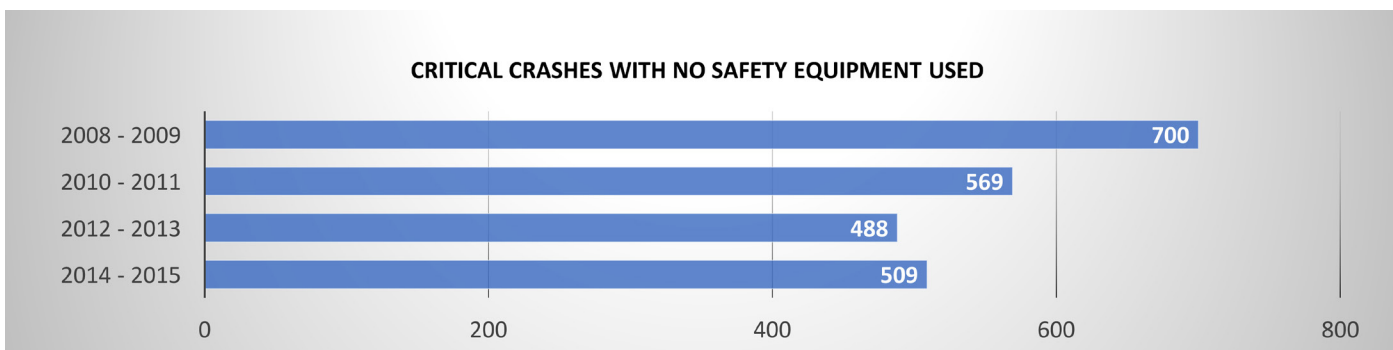
### Emergency Medical Services

- Develop a system to share crash and injury data between highway safety and healthcare entities
- Support the improvement of emergency response times

## Use of Safety Restraints

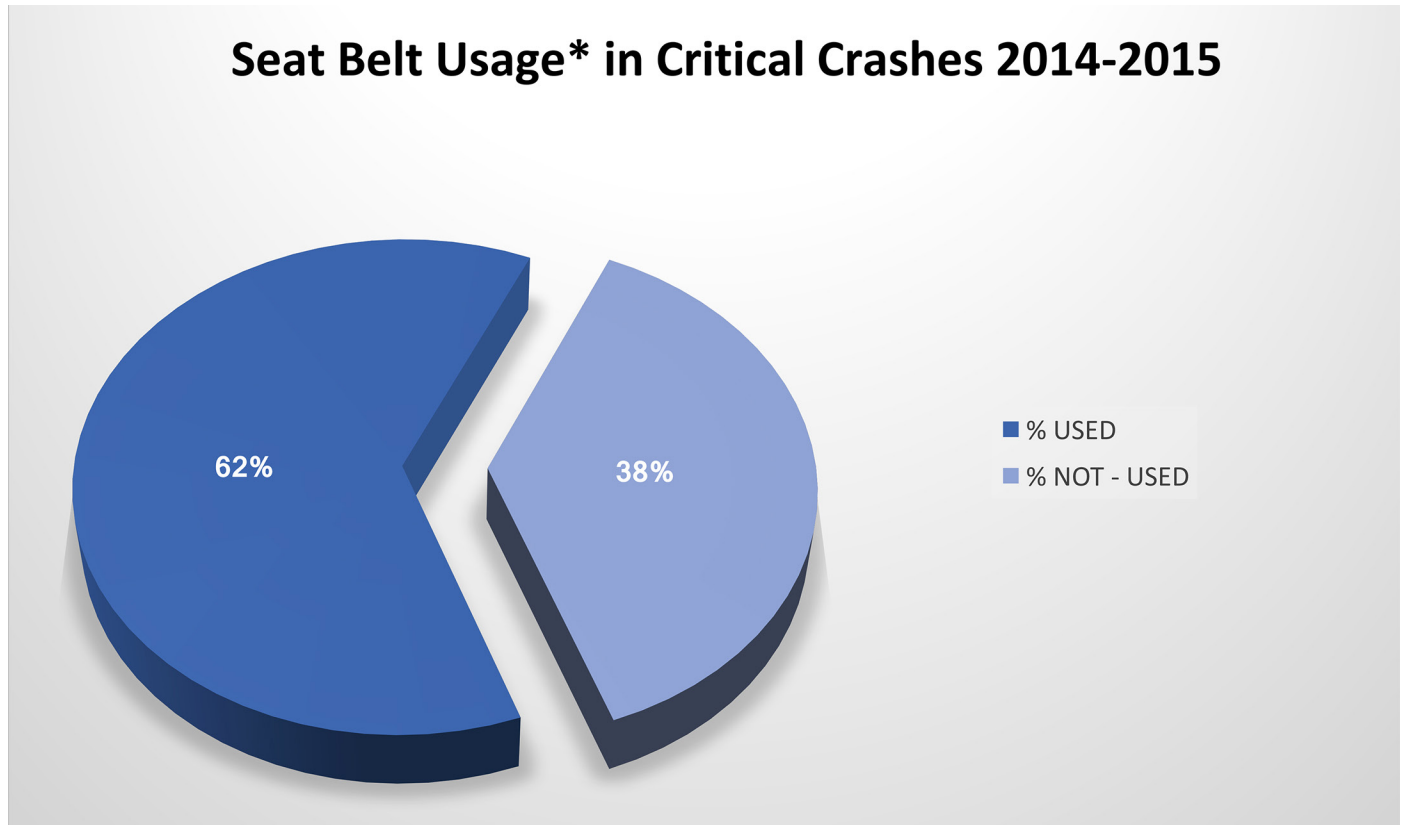
Seat Belt use is rising in Wyoming, but additional efforts are needed to persuade drivers and passengers to use them. Safety restraints are the best way for users of the roadway system to protect themselves and their families from the poor decisions and actions of other drivers.

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## Challenge

In 2014, the observed seat belt use in the state was 79.2%. However, 38% percent of the critical crashes in 2014 and 2015 involved a person not wearing a seat belt. Some 56% (163 out of 290) of fatalities on Wyoming roadways involved a seatbelt not being used.



## Key Strategies

### Enforcement

- Aggressively enforce the occupant protection component of current laws
- Aggressively enforce child safety laws
- Encourage law enforcement to enact “zero-tolerance” when enforcing the occupant protection laws

### Engineering

- Increase the use of available technologies to encourage the use of safety restraints

### Education

- Educate parents, caregivers, and grandparents about proper selection and installation of child safety and booster seats
- Encourage law enforcement agencies to certify more officers as child passenger safety technicians
- Continue to educate the general public and target groups (e.g., young drivers) about the importance of occupant protection
- Continue to educate the public about child safety laws

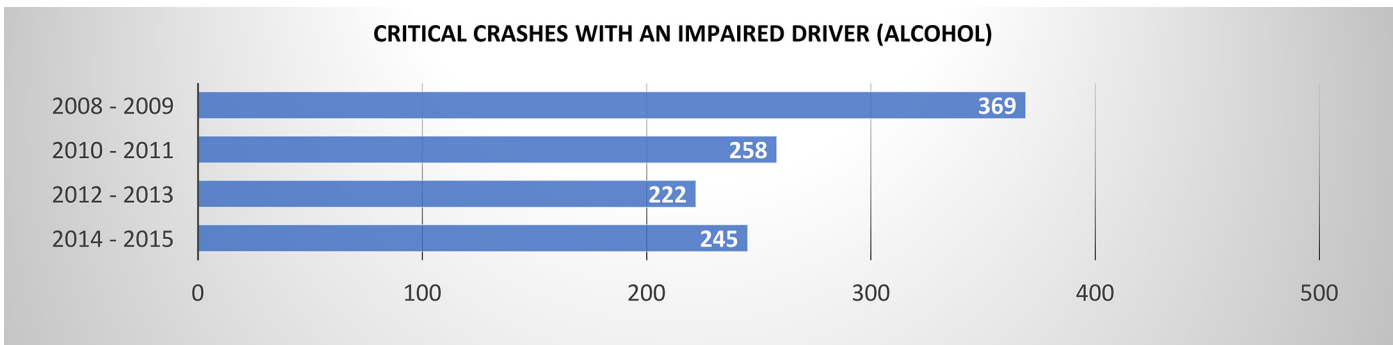
### Everything Else

- Enact a primary safety belt law
- Expand the number of local primary safety belt ordinances

\*Reflects properly used seatbelts. Based on the investigating officer's indication of seatbelt use on the crash form. Data includes drivers and passengers only and excludes the following vehicle types: motorcycles designed as either on or off-road, farm equipment, construction equipment, snowmobile, ATV, MPV, motorized skateboard/scooter, and pedestrian vehicles.

## Impaired Driving

Impaired driving includes alcohol, illegal drugs, and prescription medications used by drivers. In Wyoming, sobriety checkpoints are illegal under the interpretation of the Roadblock statute (WY Stat § 7-17-102). This adds additional pressure on law enforcement to detect impaired drivers as they are driving. Additionally, ignition interlock devices are not mandatory for an offender unless the offender has multiple convictions or has had a blood alcohol concentration of 0.15 or greater.

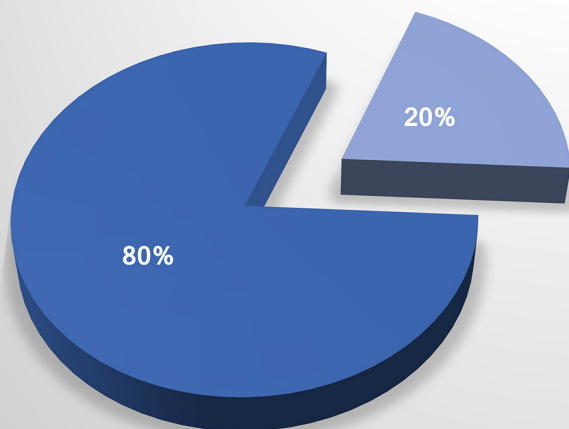


### Challenge

For 2014 and 2015, 20% of critical crashes involved alcohol. A total of 38% percent of the fatal crashes in 2014 and 2015 involved alcohol. Alcohol-related fatalities account for 35% of all motor vehicle fatalities in Wyoming. Alcohol also accounts for 12% of all critical injuries in motor vehicle crashes in Wyoming. Alcohol was involved in 51 fatalities and 447 serious injury crashes.



### Alcohol Involved in Critical Crashes 2014-2015



- % of Critical Crashes of NON-Drinking Drivers
- % of Critical Crashes of DRINKING Drivers





## Key Strategies

### Education

- Educate roadway users, business owners, and alcohol servers on the dangers of substance-impaired driving
- Educate roadway users on the dangers of driving while under the influence of drugs
- Continue programs targeted at target groups (e.g., young drivers) to educate on the dangers of impaired driving (i.e., Alive at 25)
- Continue to encourage law enforcement agencies to keep training officers about the dangers of impaired driving and the latest detection methods aimed at stopping impaired driving

### Enforcement

- Encourage multi-agency initiatives and task forces to identify effective areas for targeted DWUI enforcement
- Continue addressing enforcement options for marijuana coming into Wyoming from neighboring states

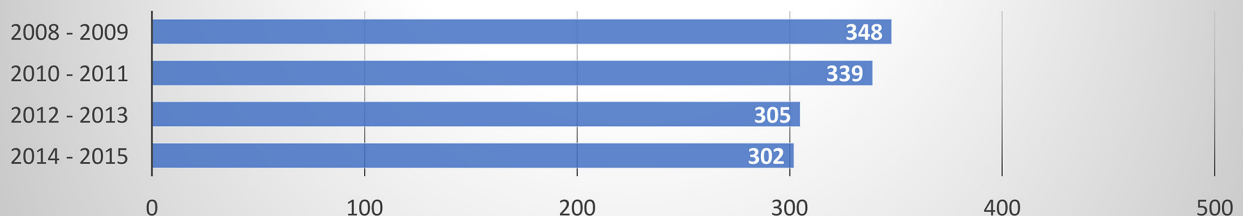
### Everything Else

- Continue to advocate for harsher penalties for impaired driving
- Advocate for tougher immediate sanctions for drivers who drive while impaired (i.e., ignition interlock devices)

## Speeding or Too Fast For Conditions

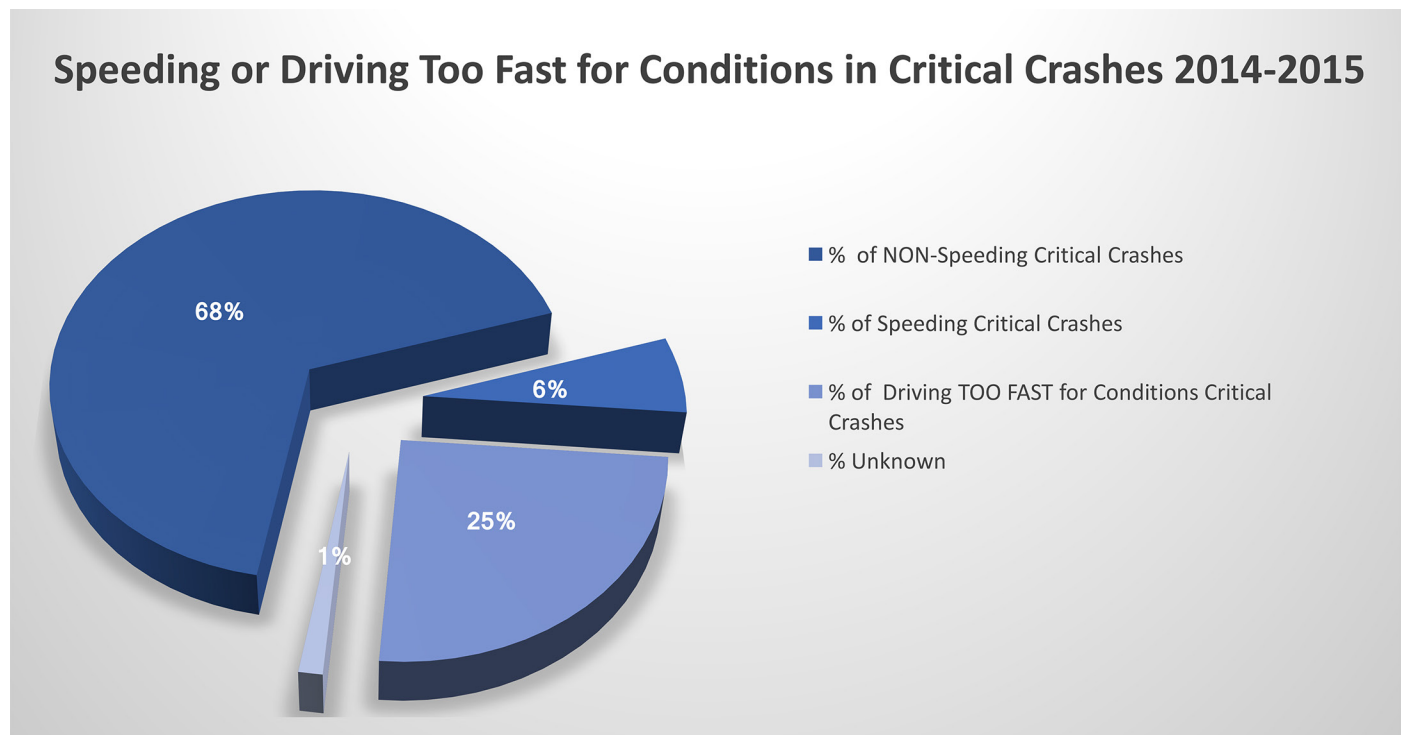
Speeding and traveling too fast for road conditions are behavioral problems that can be decreased by law enforcement and education efforts. Engineering factors also need to be considered when addressing speeding. Wyoming has recently begun increasing many speed limits throughout the state, allowing drivers to travel even faster on Wyoming roadways.

**SPEEDING OR TRAVELING TOO FAST FOR CONDITIONS IN CRITICAL CRASHES**



## Challenge

Speeding can be considered in two ways: (1) exceeding the posted speed limit and (2) traveling too fast for roadway conditions. Both Speeding at 6% and Traveling Too Fast at 25% have been identified as components of critical crashes that occurred in 2014 and 2015. This is a total of 31% of critical crashes with speed as a factor.



## Key Strategies

### Enforcement

- Increase targeted enforcement on high-incident corridors
- Increase the use of visible enforcement programs
- Encourage the continued use of speed monitoring systems

### Engineering

- Expand the use of variable messaging signs and variable speed limits in areas with high levels of incidents
- Expand communication with drivers to alert them of changing road or weather conditions
- Identify appropriate speed limits for local roads

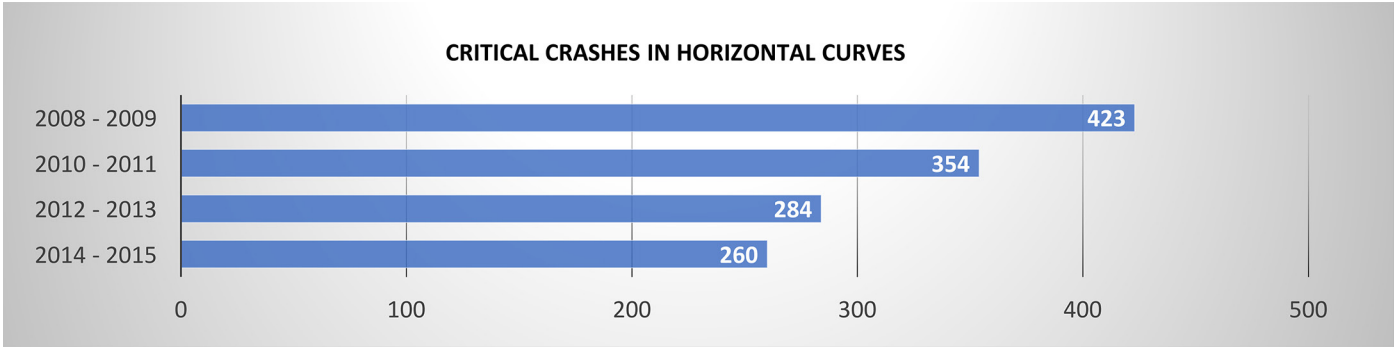
### Education

- Continue to make drivers aware of the dangers of reckless driving and the dangers of speeding
- Educate drivers and riders about the challenges of operating motor vehicles in adverse weather conditions
- Educate drivers and riders on the dangers of aggressive driving



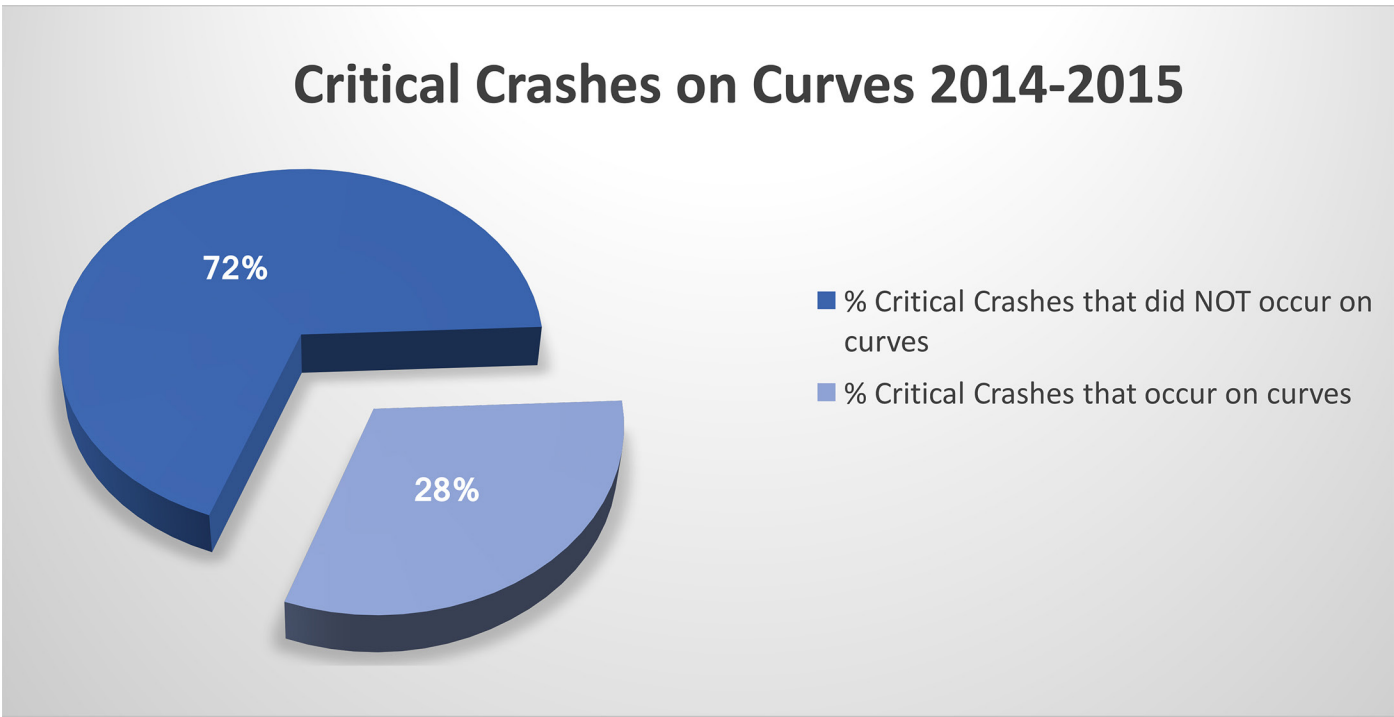
# Curve Crashes

Curves are a horizontal geometric feature of all roadways. Proper attention to the factors involved with crashes occurring on curves can point to potential benefits of various remedy options.



## Challenge

Critical crashes happen more frequently on some curves than others (see appendix, page 33), and especially more than on straight highway sections. These crashes are not just happening on sharp or deficient curves, but are also occurring on curves that meet most if not all current design standards. Contributing factors to the severity of these crashes can include other emphasis areas such as lane departure, speed, or impaired driving.





## Key Strategies

### Enforcement

- Increase targeted enforcement on high-incident corridors

### Engineering

- Install centerline and edge line rumble strips/stripes
- Upgrade and improve shoulder treatments
- Expand and maintain roadway visibility features (e.g., pavement markings and curve signs)
- Increase roadway lighting
- Remove fixed objects hindering visibility when possible
- Appropriate roadway surface friction treatments

### Education

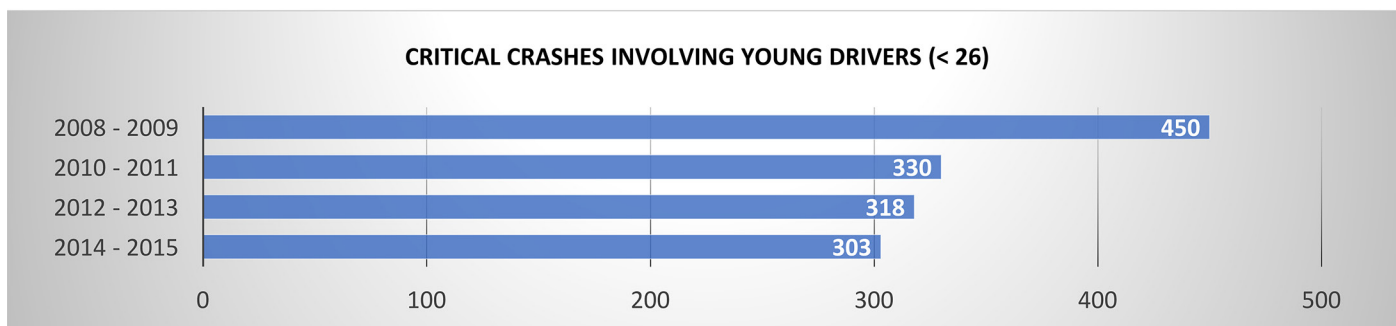
- Train and educate roadway users to properly negotiate curves
- Use media to educate roadway users about potential dangers associated with curves

### EMS

- Improve emergency response time in rural areas through better planning and communication

## Young Drivers

Properly training and educating young drivers about driving and roadways will reduce critical crashes within the state.



## Challenge

Critical crashes occur more frequently with younger drivers. Factors contributing to the severity of these crashes may include other emphasis areas such as lane departure, speed, not using restraints, or impaired driving.

## Key Strategies

### Enforcement

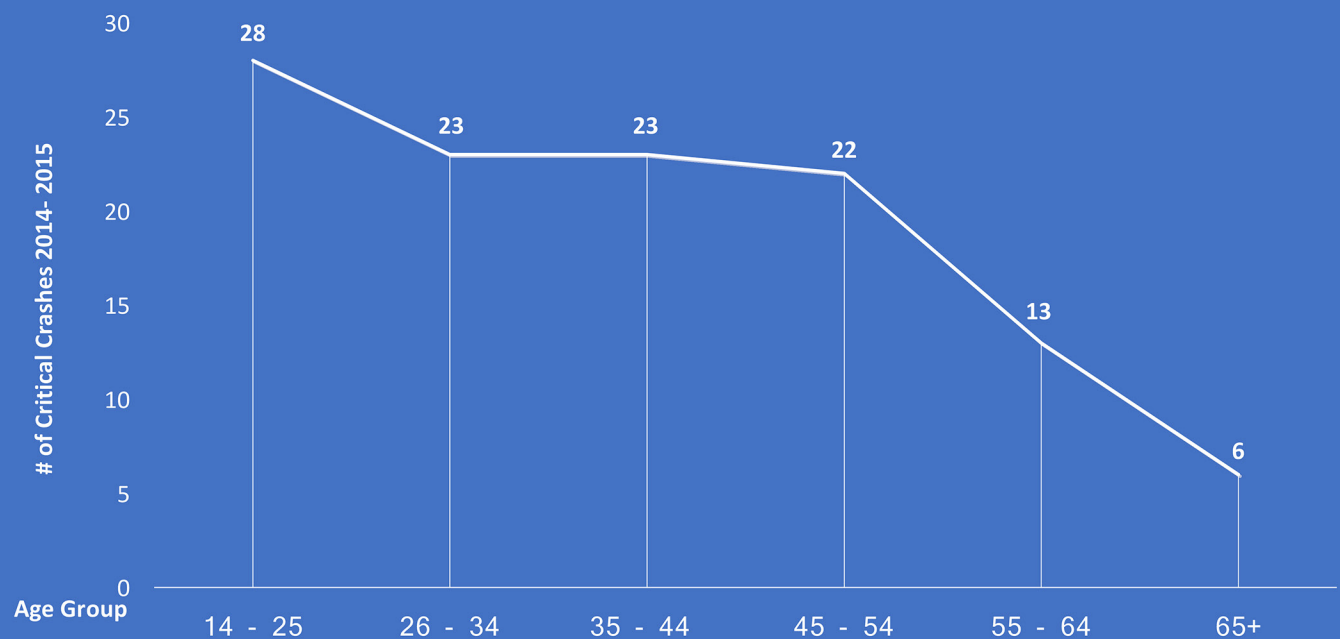
- Expand enforcement strategies focusing on young drivers
- Encourage anti-texting initiatives
- Encourage strict enforcement of laws focusing on young drivers, including:
  - Graduated Driver's License
  - Seatbelt laws
  - Distracted driving laws and ordinances
  - Cell phone ordinances
  - Passenger restrictions

### Education

- Educate young driver on all aspects of safe driving
- Encourage parents to consider purchasing safer vehicles for their young drivers
- Make parents aware of in-vehicle monitoring devices
- Encourage open communication between parents and young drivers about the dangers of risky driving behaviors



NUMBER OF CRITICAL CRASHES PER 10,000 DRIVERS





# Focus Areas



Focus areas are important to address in achieving the goal of “Towards Zero Deaths” but are areas of concern with smaller levels of incidence than emphasis areas.

## Intersections

Intersections are potential areas for increased crashes involving motor vehicles, pedestrians, and bicyclists. Higher visibility, more controlled intersections, and further safety education programs can reduce the number of critical crashes at intersections in Wyoming.

**CRITICAL CRASHES IN URBAN INTERSECTIONS**

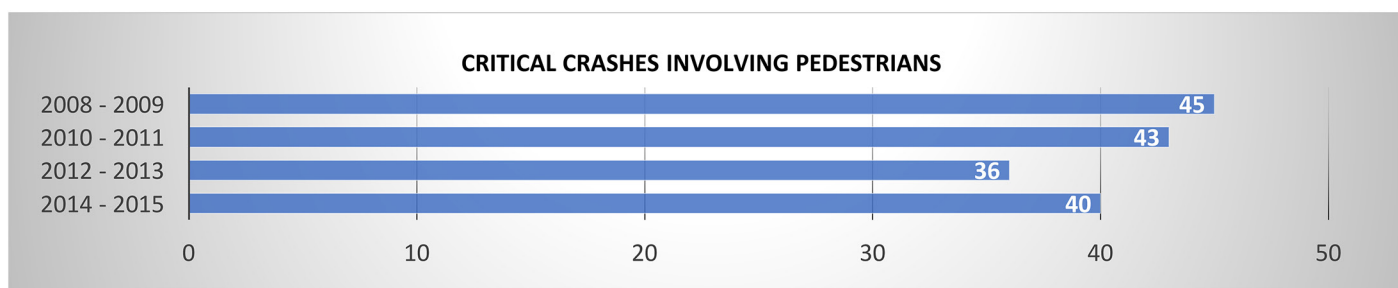
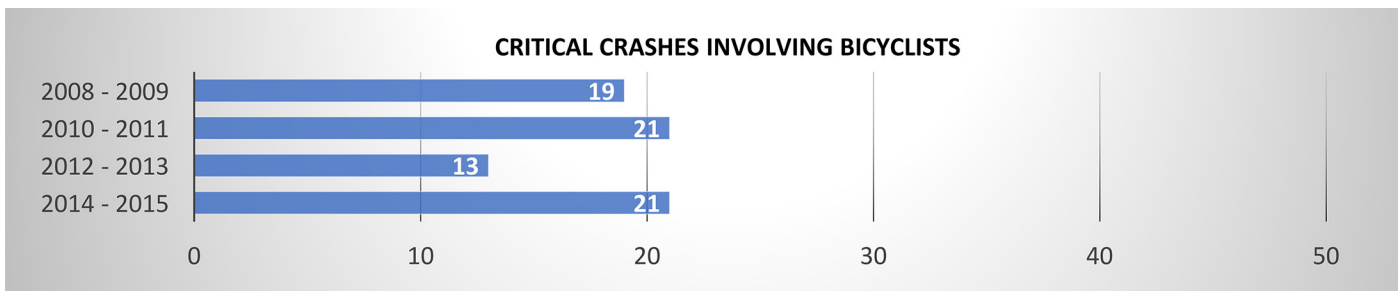


**CRITICAL CRASHES IN RURAL INTERSECTIONS**



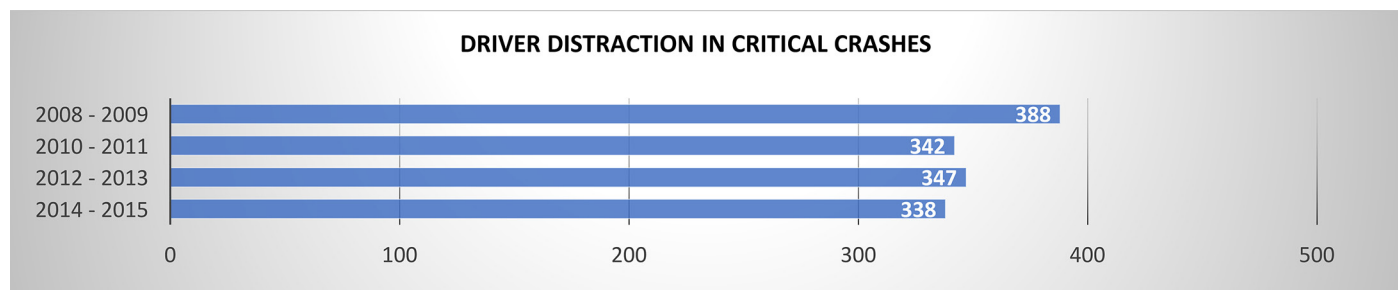
## Bicycle and Pedestrian

Wyoming is a popular destination for bicyclists from around the world. Many bicyclists choose to use Wyoming roadways in their pursuits. Drivers and cyclists are equally responsible for safety on the road. In areas with narrow shoulders, for example, danger increases when a bicycle is traveling much more slowly than a motor vehicle. Additionally, the nature of bicycles makes a critical injury more likely. In Wyoming, all collisions between motor vehicles and pedestrians or bicyclists are considered injury crashes. The Wyoming Department of Transportation Highway Safety Office has established the guideline that a complaint of pain constitutes a possible injury; therefore, all pedestrian- and bicycle-involved motor vehicle crashes will be injury crashes.



## Distracted Driving

Distracted driving is a serious concern nationwide. Unfortunately, it is believed that this is also an underreported factor in critical motor vehicle crashes. The need to address distracted driving is becoming greater. The SHSP aims to explore ways in which distracted driving related injuries can be reduced.

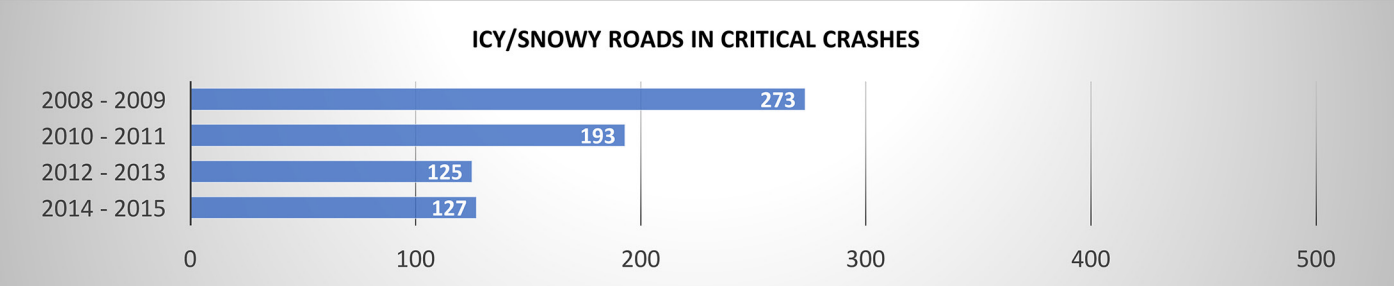






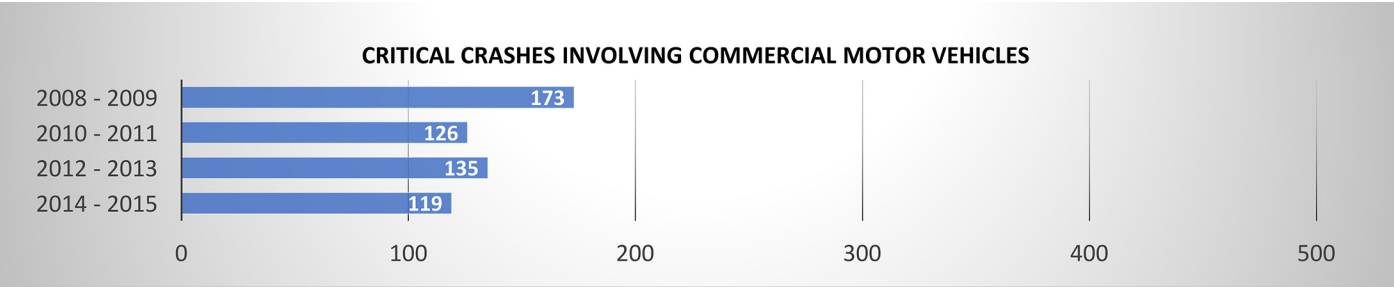
## Icy/Snowy Roads

Adverse weather in Wyoming is inevitable. Informing drivers of the ever-changing road conditions is crucial to providing motorists with the most current information for decision making. Wyoming has addressed many of these challenges with improvements such as variable message signs and variable speed limits, among others. There is always room to improve the safety of Wyoming roadways during times of adverse weather. The SHSP aims to address these challenges.



## Commercial Motor Vehicles

Commercial motor vehicles are commonplace on Wyoming roadways. Interstate 80 through Wyoming is one of the busiest commercial vehicle corridors in the United States. This fact, combined with the varied terrain and challenging weather condition present in Wyoming, means that commercial motor vehicles such as tractor-trailer combinations can present a challenge to Wyoming motorists. Windy conditions can topple light trucks, and mountain passes can reduce truck speeds to a crawl. Wyoming is always exploring new ways to ensure commerce can move freely within and through the state while maintaining a safe environment for Wyoming motorists. Some of these efforts include Commercial Vehicle Safety Alliance (CVSA) training for port-of-entry personnel, a Mobile Enforcement and Education Team (MEET) to perform compliance inspections around the state, and education campaigns to raise awareness of the roadway difficulties and hazards commercial motor vehicles pose.



# Local Coordination Efforts

The SHSP can be implemented through existing safety plans, action plans, and the transportation planning process. All local safety partners should implement the SHSP to the extent that each agency or organization is capable. Implementation can occur at all levels of government from state to local to tribal. The SHSP will continue to support and encourage its local partners to address transportation safety issues in their communities in a proactive manner. Cities and counties face diverse transportation safety issues. It is important to note that some rural communities may face issues related to speeding while urban areas may encounter other safety problems such as pedestrian and vehicular conflicts at intersections and school safety zones. Despite these differences, local safety efforts should address the goals and objectives of the SHSP.

Local governments are encouraged to identify high priority transportation safety issues by analyzing crash numbers, types, and severity and to develop countermeasures to address them. Local governments should use existing effective safety programs for rural and urban communities to address their local safety issues. The safety coordination among locals and state and federal partners will improve transportation safety for the driving public in Wyoming. As part of the local coordination effort, WYDOT, and the WY T 2/LTAP center have helped 16 counties implement the Wyoming Rural Road Safety Program (WRRSP).



In addition, 18 counties participated in the two rounds of a statewide sign program. Both programs are data driven and include historical data to select locations for the low-cost safety improvements. The speed limit program has helped multiple counties in establishing speed limits on local roads.

The Cheyenne Metropolitan Planning Organization (MPO) developed a dedicated regional safety plan. The coordination among the various safety partners in the state will continue to ensure that local governments are involved in identifying and implementing safety improvements on local roads.

The Wind River Reservation (WRIR) has benefited from the local safety programs. Several safety studies have been conducted to develop and help implement a strategic highway safety plan. In addition, a safety summit was held on the reservation in 2016.

Such effort should continue to raise awareness for behavioral issues.

## Systemic Treatments

The initiatives and programs contained in this section represent opportunities to improve safety on Wyoming roadways. Many of these programs are new and innovative for the State of Wyoming. These treatments may show only a theoretically favorable benefit to cost based on a system level since the low numbers of crashes sometimes do not lend themselves to spot improvements. Run-off-the-road crashes may provide an example. Calculations indicate that rumble strips show a favorable benefit to cost at a system level, but may not identify spot improvement locations. These projects can receive Highway Safety Improvement dollars based on this system or corridor-level analysis.



# Continuing Highway Safety Areas

Continuing Safety Areas are programs that reflect national or regional goals. Many of these produce critical crashes that are growing in number and warrant additional system-wide attention. Normally these areas are eligible for HSIP only as spot improvements based on crash severity history.

## Work Zone Safety

Work zones extend from the initial warning sign to the end of roadwork sign. A work zone is a temporary roadway environment that poses a risk to utility, construction, and maintenance workers as well as to the motoring public. Work zones also include roadway sections with ongoing, mobile work activity. Such work can alter the drivable area of the roadway. Activities such as striping can be mobile and present another danger to workers and drivers.



## Motorcycle Safety

Motorcycles are a very popular mode of transportation in Wyoming. Regional events such as the Sturgis Rally make certain times of the year more dangerous for motorists and motorcyclists. Wyoming does not have a helmet use law for operators over age 18. Operating over the speed limit, at speeds too fast for conditions, or while impaired are factors in a majority of motorcycle critical crashes.



## Special Vehicles Safety

All-terrain vehicles such as recreational 4-wheelers, off-road motorcycles, and side-by-side utility vehicles are permitted on Wyoming roadways with appropriate registration and safety equipment. Many of these vehicles lack certain equipment, such as DOT-approved tires, and can present a safety hazard on Wyoming roadways. All-terrain vehicles are often driven on city streets and state highways along with normal traffic. These vehicles can be hard to see and are not intended to be operated on-road. Additionally, operators may not be prepared for the unique handling characteristics of these vehicles on paved surfaces.

## Railroad Crossing Safety

According to a United States Department of Transportation report, more than 94 percent of railway crossing incidents are caused by risky driver behavior. From 1980 to 2011, crashes at grade crossings dropped by 82 percent nationally; however, approximately 2,000 incidents still occur annually.

# Highway Safety Enablers

The foundation to set priorities and have the highest likelihood of reducing critical crashes rests on quality data and records processes. While these tools will not reduce crashes directly, they are still strategic as they enable all safety partners to share a common understanding of the problems being faced.

## Safety Management System

WYDOT has rolled out a Safety Management System (SMS) application to assist the various programs and districts within the Department to optimize safety fund use on the state's highways. Locations of safety interest can be ranked and investigated via at-fingertip access to a wide range of information about the locations (traffic volumes, roadway features that exist, and the number and types of crashes that have occurred). An updated version is being developed incorporate state-of-the-practice analytics from the national Highway Safety Manual (HSM) methodology. The SMS application allows Department decision makers to identify the locations that warrant attention, and then to select the most cost effective/benefit-to-cost safety treatments to propose at those locations.

## Traffic Records System

The main sets of data within the Traffic Records system are Crash, Citation and Adjudication, Roadway Features, Driver, Vehicle, and Injury Surveillance. These diverse data sets provide the foundation for safety analyses that helps drive the actions identified in the Strategic Highway Safety Plan. The Wyoming Traffic Records Coordinating Committee coordinates activities among the various departments and traffic safety partners. Over the next few years, special attention is being given to (a) consolidating a Traffic Records Inventory (a resource that identifies what types of traffic records data exists in Wyoming, and whom to contact for more information), (b) adding value to the traffic records by improving the integration between various data sets, and (c) implementing and communicating performance measures to help drive improvements in the traffic records to better support the focus areas in the Strategic Highway Safety Plan.

## Evaluation

The Wyoming SHSP is intended to guide the various safety partners around the state in their pursuit of quality safety programs, projects, and activities. A quality program, project, or activity is considered one that expends resources effectively and efficiently toward the goal of the SHSP to reduce critical crashes.







Wyoming is working to address unique challenges the state faces. One such challenge is the high occurrence of rural crashes. As a rural state, Wyoming recognizes that urban and rural areas have unique challenges and is developing performance targets to address the circumstances of both. Wyoming will report the status of these performance measures to demonstrate the adherence to the following in accordance with 23 U.S.C. 150:

- The condition and performance of the National Highway System in the state;
- The effectiveness of the investment strategy document (SHSP) in the state asset management plan for the National Highway System;
- The progress in achieving performance targets identified.

The State of Wyoming will address highway safety needs by considering enforcement, engineering, education, and EMS in any actions the state undertakes. These factors of safety are to be addressed by committee with each revision to the SHSP document.

The Wyoming SMS Committee will monitor the various statewide efforts by annually reviewing:

### **The Highway Safety Plan (HSP), focus on behavioral activities.**

- The state's Highway Safety Plan (HSP) documents a state's highway safety program that is data-driven in establishing performance targets and selecting the countermeasure strategies and projects to meet performance targets. This document is coordinated with the state strategic highway safety plan as defined in 23 U.S.C. 148(a) that the state submits each fiscal year as its application for highway safety grants. The HSP describes the strategies and projects that the state plans to implement and the resources from all sources it plans to use to achieve its highway safety performance targets.
- State HSP performance targets are identical to the state DOT targets for common performance measures (fatality, fatality rate, and serious injuries) reported in the HSIP annual report, as coordinated through the state SHSP. These performance measures shall be based on a 5-year rolling average calculated by adding the number of fatalities or number of serious injuries as they pertain to the performance measure for the most recent 5 consecutive calendar years ending in the year for which the targets are established. The ARF may be used, but only if final FARS is not yet available. The sum of the fatalities or sum of serious injuries is divided by five and then rounded to the tenth decimal place for fatality or serious injury numbers and rounded to the thousandth decimal place for fatality rates.



## The Highway Safety Improvement Program (HSIP)

- The USDOT used the Moving Ahead for Progress in the 21st Century Act (MAP-21) and the Fixing America's Surface Transportation Act (FAST Act) in developing the rules for reporting on measures that support the goal of improving transportation system safety. The HSIP is a federal-aid highway program for achieving a significant reduction in fatalities and serious injuries on all public roads, including non-state-owned public roads and roads on tribal lands.
  - **The HSP and the HSIP require five performance measures**
    - Number of fatalities,
    - Rate of fatalities,
    - Number of serious injuries,
    - Rate of serious injuries, and
    - Number of non-motorized fatalities and serious injuries.

The SMS Committee recognizes some worthwhile safety projects not be specifically targeted within this plan. The SMS Committee will monitor the direction these safety projects take toward the ultimate goal of reducing critical crashes.

## Crash Data Collection

The data contained within the supporting documentation will be accurate and current at the time of publication. Crash data, along with the eventual inclusion of other data, will be coordinated by WYDOT.

The Highway Safety Program currently collects crash data in electronic form. Almost all agencies submit crash data electronically. All state and local law enforcement agencies in Wyoming use a uniform crash form, and data is consistent throughout the state. Crash data from other sources (e.g., Teton National Park rangers) is collected on the agency's form and transposed to the Wyoming crash form to maintain data uniformity. The quality control process the data undergoes before analysis takes place is rigorous and thorough.

Wyoming is beginning to take a performance-based approach in collecting and analyzing crash data. Performance measures are being explored and implemented to ensure the crash data is recorded and disseminated in the most efficient manner possible. Crash data is being tracked to determine the effectiveness of the plans outlined in the SHSP. Crash statistics for important crash criteria have been identified, and infrastructure enhancements, along with educational initiatives, are being considered in accordance with data analysis.

In conclusion, the goal of the Wyoming SHSP is reducing number of critical crashes on Wyoming roadways. This plan outlines the coordinated efforts of the Wyoming Department of Transportation and safety partners, both statewide and federal.



# Key Terms

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**CMV (Commercial Motor Vehicle)** – A vehicle operating within Wyoming in a commercial capacity with a gross vehicle weight rating (GVWR) of 26,001 pounds or greater is a CMV. Additionally, according to Federal Motor Carrier Safety Regulations §390.5, a vehicle with a GVWR of 10,001 pounds, or greater, used on a highway in interstate commerce is considered a CMV. This designation is applicable to vans, buses, or school buses having occupant capacities of 15 or more passengers, including the driver, and any vehicle required to display a hazardous materials placard under 49 CFR, subtitle B, chapter I, subchapter C.

**Critical Crash** – A crash that results in a serious injury or a fatality.

**Emphasis Area** – An area of focus for critical crash prevention treatments. An emphasis meets the criteria of having been identified as a major area of concern and as a major contributor to critical crashes.

**EMS (Emergency Medical Services)** - A critical component of the emergency and trauma care system that provides response and medical transport to the injured.

**Fatal Crash** – A motor vehicle crash in which the victim must have died within 30 days of the crash and as a result of the crash.

**Fatality** – A person who dies as the result of a traffic crash; the fatality victim(s) must have died within 30 days as a result of injuries sustained in the crash.

**Focus Area** – An area of focus that emphasizes attention critical crash contributors. Focus areas tend to be those with factors that contribute to critical crashes, but at a much smaller rate than emphasis areas.

**High Risk Rural Road** - Any roadway functionally classified as a rural major or minor collector or a rural local road (1) on which the crash rate for fatalities and incapacitating injuries exceeds the statewide average for those functional classes of roadway; or (2) that will probably have increases in traffic volume likely to create a crash rate for fatalities and incapacitating injuries exceeding the statewide average for those functional classes of roadway.

**GDL** – Graduated Driver's License.

**Incapacitating Injury** – Any injury, other than a fatal injury, that prevents the injured person from walking, driving, or normally continuing any activities the person was capable of performing before the injury occurred.

**Occupant** – A driver and/or passenger(s) on or in a motor vehicle.

**Rumble Strip** – Strips that alert drivers by causing a vibration and rumbling sound as their surface is crossed by a tire. This information is transmitted through the vehicle wheels and alerts the driver of the lane departure. Rumble strips are usually applied in the direction of travel along the edge of the outermost lane.

**Rumble Stripe** – is a rumble strip cut into the pavement where the edge line and/or centerline are to be placed. After the rumble strips are ground in, the white or yellow line is marked right over the rumble strips. The advantage is that the edge line or centerline is much more visible in the rain, and the rumble strip provides warning to a motorist who strays from the driving lane.

**Serious Injury** – An injury for which the victim must be transported to the hospital or sustains a permanent, serious injury from the crash.

**Transverse Rumble Strips** – These strips are applied across the direction of travel to warn drivers that they will be required to take action (stop ahead, turn ahead, etc.).

# Appendix - Supporting Data and Information

## Critical Crashes in Wyoming from 2008 to 2015

Critical crashes in Wyoming have been trending downward recently. In 2013, 32% fewer fatalities occurred than in 2012. Unfortunately, however, that drop was negated when 2014 saw a 43% increase from 2013. While 2013 can be seen as an anomaly given the variance from previous years, Wyoming should still explore ways to keep the fatality trend going down.

From 2008 to 2015, Wyoming has seen a 47% decrease in incapacitating injury crashes. Many factors can be attributed to this decline, and the SHSP aims to keep this trend moving downward.

### Alcohol Related Critical Crashes

Driving under the influence of alcohol remains a major cause of motor vehicle fatalities and injuries across the nation. Wyoming is not immune from this situation. Wyoming is constantly exploring ways to reduce alcohol-related crashes.

### Roadway Conditions and Critical Crashes

Road conditions are a major contributing factor in Wyoming's critical crashes. Weather can play a huge role in roadway safety at any given time. Additionally, general roadway conditions are major contributors to overall safety. Sharp curves, unlighted intersections, poor surface conditions, etc., are all factors that contribute to critical crash rates. By identifying and improving dangerous roadway sections, Wyoming can take a proactive approach to addressing roadway sections where critical crashes are more likely to occur.

Weather in Wyoming is often unpredictable, and severe weather can strike with little notice. Many Wyoming roadways are at high elevations and are more susceptible to extreme weather changes. Wyoming has taken many steps to address this challenge. One example is the variable speed limits in place along Interstate 80. This interstate has many high elevation mountain passes where severe weather is commonplace. Interstate 80 in Wyoming has the distinc-

ALCOHOL INVOLVED IN CRITICAL CRASHES BY COLLISION TYPES 2013 – 2015

COLLISION TYPE	ALCOHOL INVOLVED CRASHES	NO ALCOHOL INVOLVED
SINGLE VEHICLE CRASH	99	112
HEAD-ON CRASH	23	47
OTHER	25	178
UNKNOWN	0	0
TOTAL	147	337

ALCOHOL INVOLVED IN CRITICAL CRASHES BY DAY OF WEEK 2013 - 2015

DAY OF WEEK	ALCOHOL INVOLVED CRASHES
MONDAY	73
TUESDAY	80
WEDNESDAY	60
THURSDAY	58
FRIDAY	65
SATURDAY	74
SUNDAY	74

All Road Conditions in Critical Crashes 2013 - 2015

Road Condition	1st Condition	2nd Condition
Dry	1150	758
Wet	70	65
Ice/Frost	178	106
Snow	28	60
Mud/Dirt/Gravel	21	15
Slush	0	4
Oil/Fuel	1	0
Sand on Dry Pavement	1	0
Sand on Icy Road	1	1
Water Standing/Running	4	5
Other	2	0
Unknown	9	2
Total	1465	1016

NOTE: Every crash can have up to two road conditions.



tion of being the highest section of that particular interstate in the US. This situation, combined with the fact that Interstate 80 through Wyoming is one of the busiest commercial corridors in the nation, presents a major challenge to overcome. Speed limits along Interstate 80 can be reduced incrementally as needed to allow for safer travel. The variable speed limits combined with variable message signs alert drivers to conditions ahead. The SHSP aims to continue to identify ways in which weather-related obstacles can be addressed.

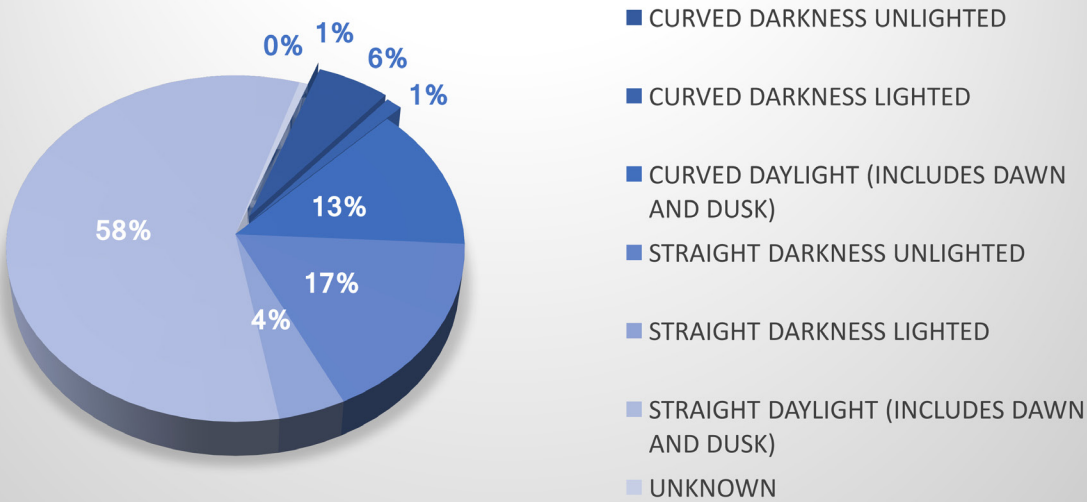
### Crashes and Horizontal Alignment

Horizontal alignment refers to the road’s horizontal curvature. These curves can present a set of special challenges, especially for vehicles with high profiles, such as trucks and SUVs. Because of their higher center of mass, large vehicles are more susceptible to overturning at curves. Research suggests that overturns at curves can occur at speeds only slightly higher than the curve’s design speed. Off-tracking of vehicles (where the vehicle leaves its travel lane) can present dangers to other roadway users as well. Speed significantly influences off-tracking and lane departures at curves.

HORIZONTAL ALIGNMENT IN CRITICAL CRASHES 2013 – 2015	
CURVED DARKNESS UNLIGHTED	129
CURVED DARKNESS LIGHTED	29
CURVED DAYLIGHT (INCLUDES DAWN AND DUSK)	310
STRAIGHT DARKNESS UNLIGHTED	389
STRAIGHT DARKNESS LIGHTED	101
STRAIGHT DAYLIGHT (INCLUDES DAWN AND DUSK)	1329
UNKNOWN	15
TOTAL	2302

The same dangers apply to motorcyclists who enter curves at too-high speeds. A rider entering a curve too fast, in fact, is one of the leading contributors to motorcycle crashes. The acceptable level of comfort in a curve for a motorcyclist can be higher, resulting in a dangerous curve approach, because of the nature of the vehicle, operator inattention, and inexperience.

### HORIZONTAL ALIGNMENT IN CRITICAL CRASHES



## DRIVER AGES INVOLVED IN CRITICAL CRASHES 2015

AGE	CRITICAL INJURIES AND FATALITIES 2015	PERCENT OF TOTAL DRIVING POPULATION 2015	PERCENT OF TOTAL CRITICAL INJURIES/FATALITIES 2015
< 26	159	16.5%	22.2%
26 - 34	141	16.8%	19.7%
35 - 44	111	15.5%	15.5%
45 - 54	113	15.2%	15.8%
55 - 64	122	17.8%	17.0%
65 - 74	49	11.4%	6.8%
75 +	22	6.9%	3.1%
<b>Total</b>	<b>717</b>	<b>100.00%</b>	<b>100.00%</b>

YEAR	INCAPACITATING INJURY CRASHES	FATAL CRASHES	TOTAL CRITICAL CRASHES
2008	591	139	730
2009	502	116	618
2010	455	137	592
2011	397	120	517
2012	366	109	475
2013	399	75	474
2014	359	131	490
2015	375	129	504

## WYOMING CRITICAL CRASHES (2008-2015)

