

# Target Zero

## South Carolina's Strategic Highway Safety Plan



2015-2018



March 10, 2015

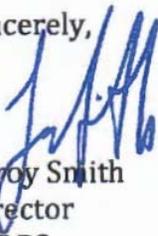
Dear Highway Safety Partner:

The South Carolina Department of Public Safety (SCDPS) and the South Carolina Department of Transportation (SCDOT) are pleased to present you with South Carolina's Strategic Highway Safety Plan (SHSP). The Plan, entitled Target Zero, is indicative of the state's commitment to eliminating traffic fatalities and reducing severe injuries over time. The Target Zero plan is also an outstanding example of collaborative effort involving discussion and input among a variety of highway safety stakeholders in our great state. This collaboration involved consultation with the appropriate federal partners and state agency heads, as well as representatives of the South Carolina Highway Patrol, the South Carolina State Transport Police, local law enforcement agencies, and those involved in highway safety education and engineering efforts. Additional collegial and collaborative input was received in the context of SCDOT and SCDPS staff participating in a series of public information meetings that included representatives and officials of regional and metropolitan planning organizations; major modes of transportation; railroad-highway grade crossing safety; non-motorized users; county transportation; and other Federal, State, tribal, and local safety organizations.

The SHSP continues to address key emphasis areas and contains data-driven, evidence-based recommendations for appropriate strategies and countermeasures with a view toward eliminating fatalities and reducing severe injuries on South Carolina's roads. Strategies were explored from the perspective of the 4 "E's" of highway safety: Engineering, Enforcement, Education, and Emergency Medical Services. Performance measures and goals were established, as well as processes for evaluating progress toward meeting these goals. The plan covers a four-year period, from 2015 to 2018, and will be evaluated on an annual basis. Implementation planning for strategies and countermeasures proposed in the SHSP will be ongoing as appropriate resources are identified.

Please join with us in celebrating the completion of this collaborative effort and the ongoing implementation of strategies that will move us closer to Target Zero.

Sincerely,



Leroy Smith  
Director  
SCDPS



Janet P. Oakley  
Secretary  
SCDOT

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## **Executive Summary**

South Carolina's Strategic Highway Safety Plan, or SHSP, is a statewide, comprehensive safety plan that provides a coordinated framework toward eliminating deaths and reducing severe injuries on South Carolina's public roads. This coordination requires combining and sharing resources and focusing efforts on areas with the greatest potential for improvement. The SHSP strategically establishes statewide priorities and identifies critical emphasis areas which were identified through detailed analysis of statewide crash data. The development of the SHSP was also performed in consultation with federal, state, local, and private-sector safety stakeholders. The strategies developed involve the 4 Es of safety (i.e., Engineering, Enforcement, Education, and Emergency Medical Services).

In 2011, the Director of the SC Department of Public Safety (SCDPS), who also serves as the Governor's Representative for Highway Safety in South Carolina, announced the Agency's goal of zero traffic-related deaths for the State. This goal, also strongly supported by the South Carolina Department of Transportation (SCDOT) and the South Carolina Department of Motor Vehicles, became the starting point for the State's update of the SHSP, entitled Target Zero.

The Emphasis Areas presented in this updated SHSP were identified using a data-driven process consisting of extensive analysis of fatal and severe injury collision data from 2008 to 2012. This analysis revealed the following areas to be addressed in the updated SHSP: Roadway Departure, Unrestrained Motor Vehicle Occupants, Speed-Related, Vulnerable Roadway Users (Motorcyclists, Pedestrians, Moped Operators, and Bicyclists), Intersection and Other High Risk Roadway Locations (Work Zones and Railroad Crossings), Impaired Driving, Age-Related (Young Drivers: 19-24 years of age and Older Drivers: 65 or more years of age), Commercial Motor Vehicles/Heavy Trucks, and Safety Data Collection, Access, and Analysis.

As mentioned previously, this update is the product of a multi-Agency Steering Committee comprised of members from the Education, Enforcement, and Engineering sectors. While agreeing to utilize a data-driven approach to identify the nine Emphasis Areas, priority categories may have differed among the Agencies, due to their respective overall missions. For the SCDPS, the focus is centered around enforcement and education. While SCDOT is focused on engineering solutions to eliminate the number of roadway fatalities and reducing severe injuries. In order to achieve the goal of zero traffic fatalities, reductions in the number of fatal and severe injury collisions must be achieved in each of these priority Emphasis Areas.

## Introduction and Background

### 2007 Strategic Highway Safety Plan

In 2007, the Strategic Highway Safety Plan (SHSP) entitled The Roadmap to Safety was developed in compliance with federal law under the Safe, Accountable, Flexible, and Efficient Transportation Equity Act – A Legacy for Users (SAFETEA-LU). South Carolina’s 2007 SHSP was developed cooperatively among the South Carolina Department of Transportation (SCDOT), the South Carolina Department of Public Safety (SCDPS) and the Federal Highway Administration (FHWA) along with other safety stakeholders. The Roadmap was designed to focus resources and align partnerships toward a common goal: reducing fatalities and injuries<sup>1</sup>.

The 2007 SHSP identified 5 major emphasis areas:

1. Serious Crash Types
2. High-Risk Drivers
3. Special Vehicles
4. Vulnerable Roadway Users
5. Management Information & Exchange

For this most recent update, the SHSP Steering Committee utilized a data driven process to identify the emphasis areas based on thorough analysis of fatal and severe injury collision data.

### Evaluation

Through collaborative efforts among partner Agencies, the State has seen significant progress since the 2007 SHSP was implemented. The state of South Carolina has seen significant positive reductions in a variety of traffic safety categories since 2008. The state has seen an overall reduction of 6.3% in the number of fatalities, from 921 in 2008 to 863 in 2012 (see Table 1). However, the most recent three years of this time frame, 2010-2012, displayed an increase in the total number of fatalities (+19 in 2011; and +35 in 2012). Despite an initial increase in the number of unrestrained occupant fatalities from 2006 to

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<sup>1</sup> The 2007 SHSP addressed fatalities and all injuries, whereas the 2014 revision will focus on fatalities and severe injuries.

2007, corresponding with an increase in the number of overall fatalities, the number of unrestrained occupant fatalities has steadily declined until 2012 (-31 in 2009; -68 in 2010; and -55 in 2011). Unfortunately the number of unrestrained motor vehicle occupants increased to 328 in 2012. The overall reduction resulted in 20.4% fewer such deaths in 2012 than in 2006. Safety belt usage rates increased from 79.5% in 2008 to 90.5% in 2012.

Table 1. SC Fatalities and Restraint Use, 2008-2012.

Year	Fatalities	Unrestrained MV Occupant Fatalities	Seatbelt Usage Rate
2008	921	412	79.5%
2009	894	381	81.5%
2010	809	313	85.4%
2011	828	258	86.0%
2012	863	328	90.5%

The 2007 SHSP identified Data Management Information and Exchange as an Emphasis Area and strategies were outlined to improve the collection of safety data. One such strategy was to continue the development and deployment of an electronic collision reporting system. This system, known as the South Carolina Collision and Ticket Tracking System (SCCATTS), has grown exponentially in its development and implementation since 2007. Starting in 2010, the electronic collision report form component of SCCATTS was deployed to the South Carolina Highway Patrol (with 100% compliance by January 2012) and has since been adopted by 54 local law enforcement agencies. Current estimates indicate approximately 70% of collision report forms are being sent to SCDPS electronically. One of the many benefits of SCCATTS has been the decrease in the number of days for processing of a collision report and consequentially, the more timely availability of the crash data in the state collision file, from 35 or more days in 2010 to 5 days in 2012.

Additionally, the use of mapping software integrated within the electronic reporting hardware has allowed for more accurate reporting of collision locations. Proper identification of where a collision occurred is of the utmost importance to SCDOT for planning purposes.

The State of South Carolina has been committed to reducing the occurrence of alcohol-impaired driving and the resulting traffic crashes, injuries, and fatalities. Though the state has experienced significant reduction in alcohol-impaired driving traffic fatalities in recent

years, the most recent FARS data provided by the National Highway Traffic Safety Administration (NHTSA) indicates that 348 people died on South Carolina roadways in 2012 as a result of alcohol-impaired driving collisions (see Figure 1 below). The number of alcohol-impaired driving fatalities declined steadily through 2011, a reduction of 91 deaths from 2008, but then increased in 2012 (+39), for a net decline of 52 deaths.

### Alcohol-Impaired Driving Fatalities 2008-2012

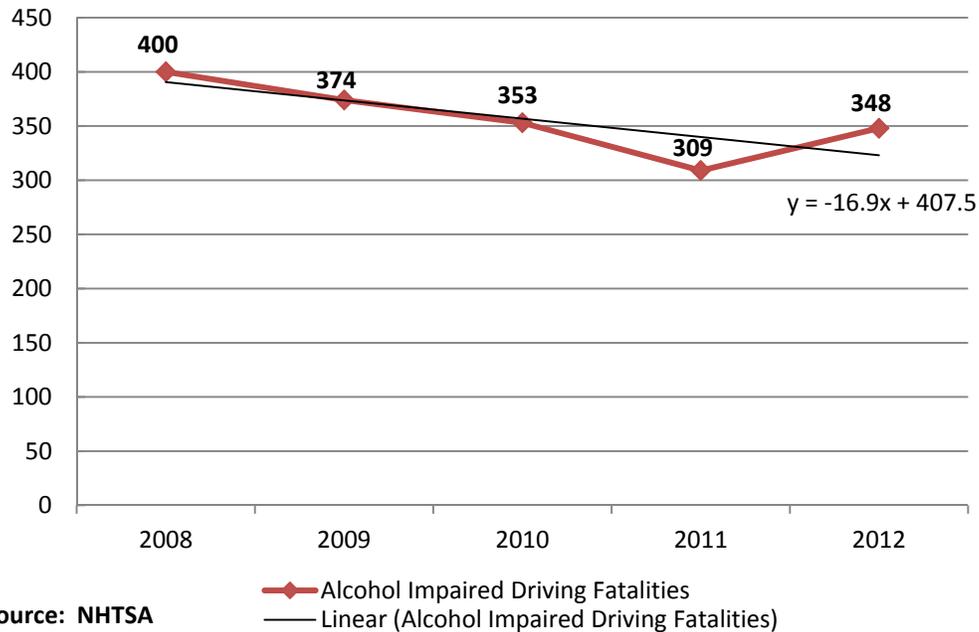


Figure 1.

Speed-related deaths declined from 2008 to 2011 (-13 in 2009; -49 in 2010; and -10 in 2011). Despite an increase of 38 fatalities in this category from 2011 to 2012, the state experienced almost 10% fewer such deaths in 2012 than in 2008.

Speed-Related Fatalities  
2008-2012

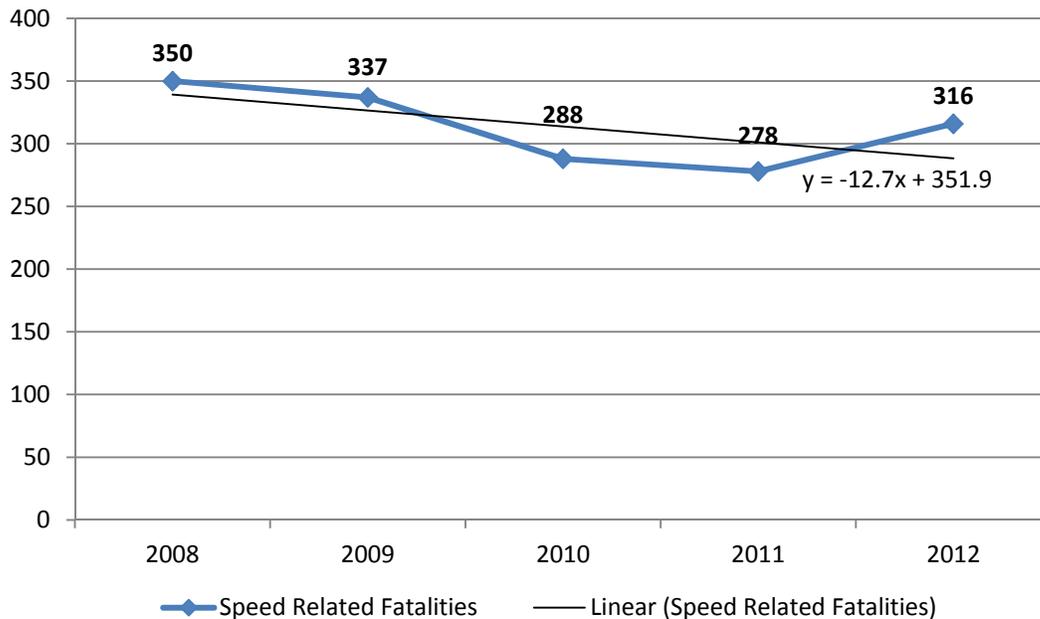


Figure 2.

Source: NHTSA

Highway safety engineering improvements targeted at high-crash intersections and roadway corridors produced positive results after the implementation of the 2007 SHSP. SCDOT implemented a number of low-cost intersection improvements in the state, such as signing, pavement markings, LED signals, and retro-reflective back plates on traffic signal heads. Countermeasures such as realignments, turn lanes, and roundabouts were also used at high-crash intersections. Safety measures added to many high-crash roadway corridors throughout the state were designed to prevent or reduce the severity of roadway departure collisions. These measures included median cables, rumble strips, shoulder widening/paving, safety edge, high-friction pavement, and open-graded friction course treatment. Post-project data analysis performed by SCDOT demonstrated a significant reduction in the number of crashes at locations in which engineering solutions were applied. These improvements are further demonstrated in Figures 3 and 4.

Intersection-Related Fatal and Severe Injury Collisions  
2008-2012

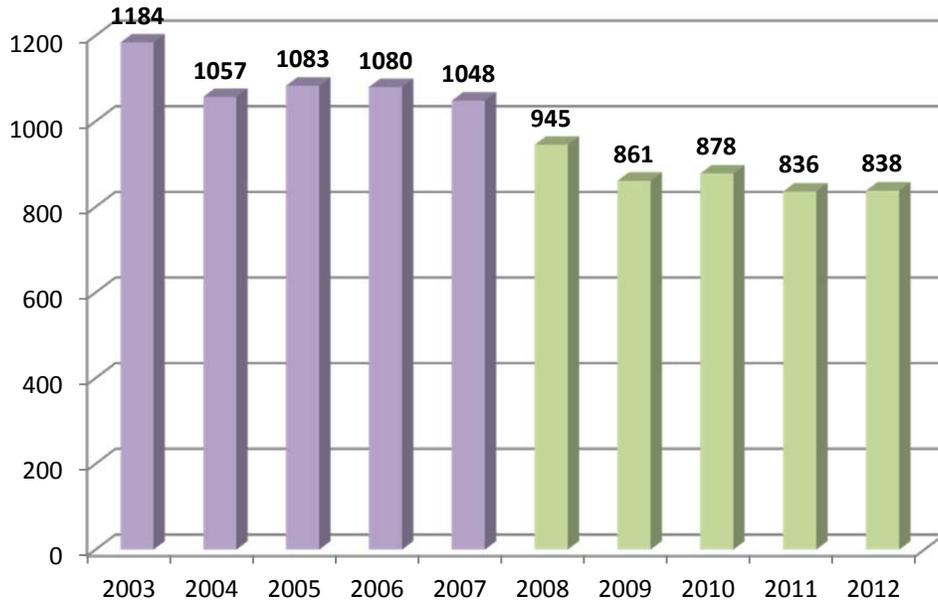


Figure 3.

Roadway Departure Fatal and Severe Injury Collisions  
2008-2012

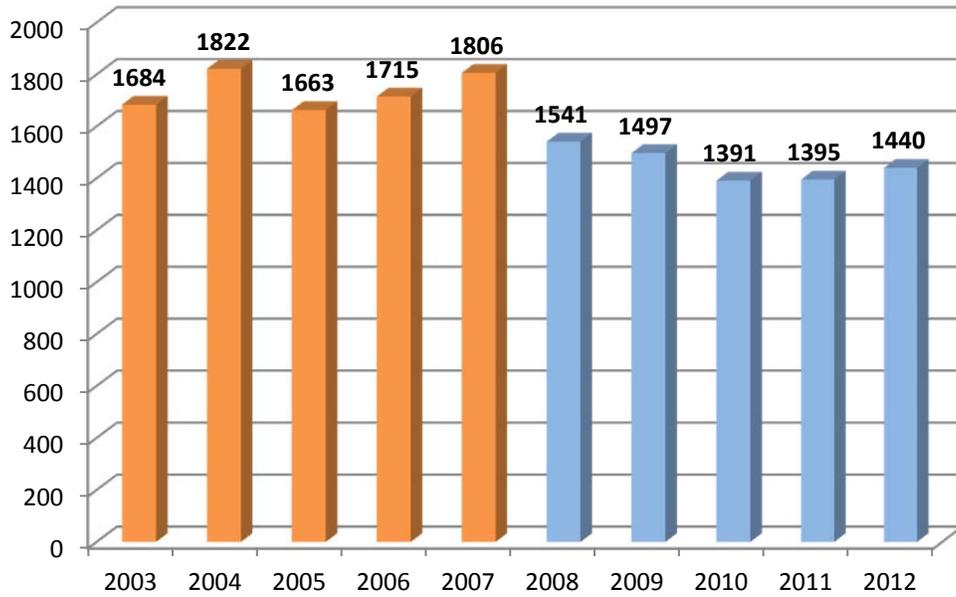


Figure 4.

Due to the number of work zone-related crashes that occurred on SC roadways, most with a contributing factor of driving too fast for conditions, SCDOT formed a partnership with the SCDPS to create the Safety Improvement Team (SIT) in 2006, which has continued. The partnership called for 24 troopers from the Highway Patrol to work full-time on work zone enforcement. From 2003 to 2007, work zone fatal and severe injury crashes declined from 81 in 2003 to 18 in 2007 (Figure 5). Work zone fatal and severe injury crashes decreased again in 2008 (-4) before increasing to 43 in 2012. Despite this most recent increase, the number of work zone crashes has been cut almost in half since 2003.

**Work Zone Related Collisions**  
*2008-2012*

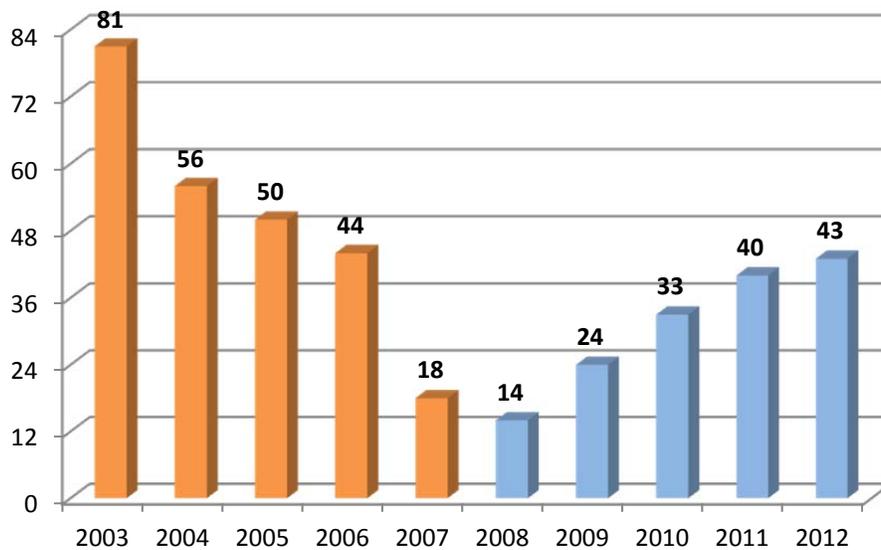


Figure 5.

Though the state has experienced the positive gains outlined above, there is still much work to be done to improve highway safety in the state and to continue to drive down traffic collisions, injuries, and deaths on the state’s roadways.

## **Target Zero: South Carolina's Strategic Highway Safety Plan**

The strong commitment of the Secretary of South Carolina's Department of Transportation and the South Carolina Governor's Highway Safety Representative, who serves as the Director of the SC Department of Public Safety (DPS), has resulted in the state's adoption of Target Zero as the State's main goal in addressing traffic-related deaths. Thus, the State is gearing its highway safety efforts toward eliminating traffic fatalities rather than merely reducing them. The SCDPS's website underwent many updates following the State's adoption of the Target Zero initiative to highlight the Agency's mission and provide information for the public to view. The website can be viewed online.

During the last decade, many states have adopted a variety of enforcement, engineering, and educational strategies with a view toward eliminating traffic fatalities on their respective roadways. This is a radical departure from the traditional goal-setting approaches adopted by states in efforts to simply reduce traffic fatalities. Though obviously not achievable overnight, the goal of zero traffic fatalities is a noble goal for which our state strives and one *we can all live with*.

### **Moving Ahead for Progress in the 21<sup>st</sup> Century**

The current federal transportation act, Moving Ahead for Progress in the 21st Century (MAP-21), established a new requirement for all states to update their respective Strategic Highway Safety Plans (SHSP) in order to continue to qualify for receipt of Highway Safety Improvement Program (HSIP) funds. Fortunately, South Carolina was already in the process of planning for an update prior to the passage of MAP-21, including hiring an SHSP Manager and relocating the management of the SHSP to the Office of Highway Safety and Justice Programs (OHSJP), a division of the SCDPS.

### **High-Risk Rural Roads**

MAP-21 redefined and created a Special Rule for High-Risk Rural Roads (HRRR). Prior to MAP-21, the Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users (SAFETEA-LU) provided a \$90 million annual set-aside from the Highway Safety Improvement Program (HSIP) for HRRR. MAP-21 legislation does not set aside funds for a high-risk rural roads program. However, the Special Rule requires states that experience an increase in fatality rates on rural roads to obligate a specified amount of HSIP funding on HRRRs.

Annually, the HRRR rates will be calculated by the Federal Highway Administration. If the Special Rule applies, states are required to obligate funds on those specific roads. Under South Carolina's High-Risk Rural Road Program, high-risk roads are defined as those roadways that are functionally classified as rural major collectors, rural minor collectors, or rural local roads with a fatality and incapacitating injury crash rate statistically above the statewide average for those functional classes of roadways.

### **Special Rule on Older Drivers and Pedestrians**

When determining if the Special Rule applies in a state, the state should consider older drivers and pedestrians collectively. If the rate of traffic fatalities and serious injuries for drivers and pedestrians 65 years of age or older in the state increases during the most recent 2-year period, then the Older Drivers Special Rule would apply.

### The SHSP Update Approach

The Federal government recommends that states update their SHSPs every five years, and South Carolina has joined a number of other states in updating its plan and including a major data analysis review. This review is performed to identify areas in which there are opportunities to make improvements for continuing progress in enhancing safety, eliminating fatalities, and reducing severe injuries in the state. The process used to update South Carolina's plan included several important steps:

- Create a position within the Office of Highway Safety and Justice Programs (OHSJP) for a dedicated Strategic Highway Safety Plan Manager;
- Establish a Steering Committee to provide the overall leadership for the plan and its implementation;
- Perform data analysis and identify emphasis areas with the greatest potential for improvement;
- Examine literature on countermeasure effectiveness;
- Add new countermeasures and strategies and remove others where appropriate;
- Ensure compliance with Federal SHSP guidelines (e.g., MAP-21); Present draft plan to Agency leadership;
- Present a draft SHSP to stakeholders and incorporate their input;
- Develop and present the final updated plan to the Steering Committee;
- Develop and present an annual Implementation Plan for approval by Steering Committee and Agency leaders; and
- Develop a process to evaluate the SHSP.

To keep South Carolina moving forward with improving highway safety, the SHSP update process involved the following activities:

- Form an organizational structure for the SHSP and collaborate with partner agencies to gain their input into and support for the SHSP;
- Hold planning meetings with the SHSP Steering Committee; and
- Reach consensus on the vision, mission, goals, emphasis areas, and strategies.

In addition to the activities mentioned above, part of the update process included a public outreach component. This was done by presenting a draft of the updated SHSP in conjunction with public information meetings held throughout the state by SCDOT while presenting its long range multi-modal plan. The Communications Division of SCDOT disseminated a press release announcing that public comment was being sought on both the long range plan and the SHSP. Direct notifications were sent to the following:

- Metropolitan Planning Organizations;
- Council of Governments (hard copies of the SHSP were also made available at local COG offices);
- SCDOT district offices;
- Various transportation providers, including rail & bus companies;
- Environmental groups;
- County associations;
- Bicycle and pedestrian groups;
- Transit agencies;
- County officials;
- State and federal Native American Tribes;
- Minority contractors;
- Hispanic groups;
- SC Municipal Association
- SC Association of Counties;
- State Chamber of Commerce;
- County Community Coordinators (including Neighborhood & Homeowner Associations);
- Minority outreach organizations; and
- Radio and print affiliates.

Members of the SHSP Steering Committee along with the SHSP Manager attended these meetings, setting up a display table and inviting members of the community to join in the discussion of the state's SHSP.

Efforts were also made to reach local law enforcement agencies and emergency response service providers.

The Plan's Steering Committee used a data-driven approach to identify emphasis areas for the updated SHSP. As seen in Figure 6 and Table 2 on the next page, data analysis revealed priority traffic safety areas accounting for 90% of the total fatal and severe injury collisions from 2008 to 2012. While crash causation factors are often interrelated, the critical areas to target are evident. For example, roadway-departure crashes, which represent the leading crash type, may include inappropriate speed, unrestrained occupants, and a distracted driver. However, there are specific countermeasures that can be implemented with the goal of reducing the number of vehicles leaving the roadway.

The second-leading crash type involved unrestrained motor vehicle occupants, representing almost 41% of the total fatal and severe injury crashes during this time period. Age- and Speed-Related Collisions, Vulnerable Roadway Users (Motorcyclists, Pedestrians, Bicyclists, and Moped Operators), Intersection-Related Collisions, Driving Under the Influence of Alcohol and/or Drugs, and Commercial Motor Vehicles and Other Heavy Trucks composed the remaining fatal and severe injury crash types from 2008 to 2012.

## SHSP Emphasis Areas Based on Fatal and Severe Injury Crashes, 2008-2012

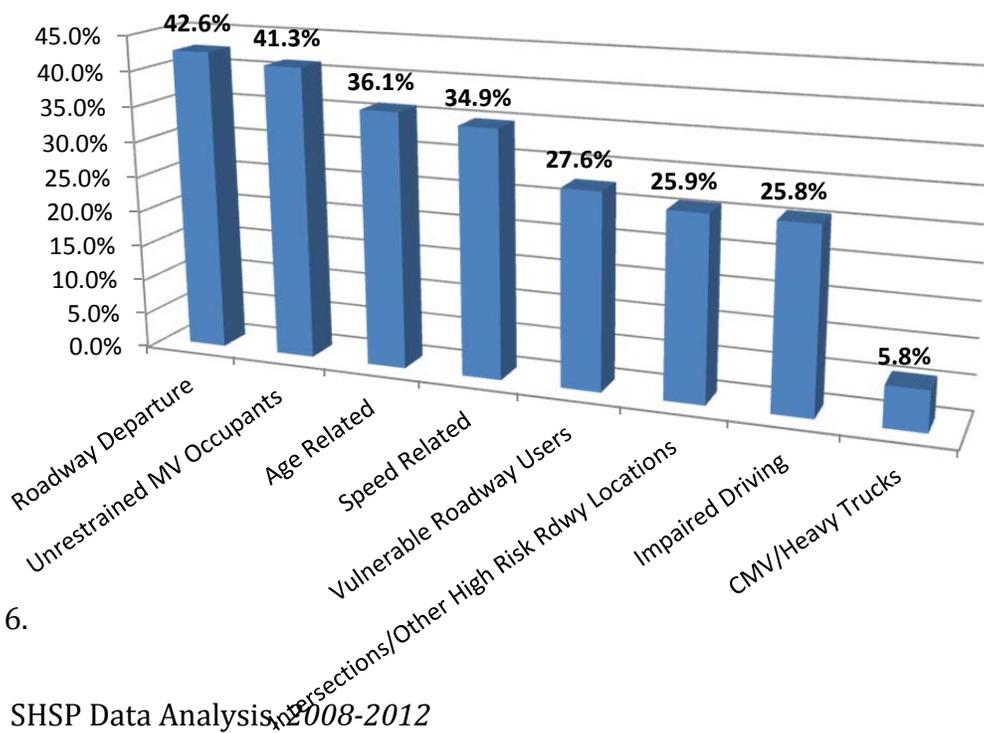


Figure 6.

Table 2. SHSP Data Analysis, 2008-2012

South Carolina 2008-2012	Fatalities		Severe Injuries		Fatal & Severe Injury Collisions	
	# of People	% of Total	# of People	% of Total	# of Collisions	% of Total
<b>Roadway Departure</b>	<b>2,133</b>	<b>49.4%</b>	<b>6,437</b>	<b>37.9%</b>	<b>7,454</b>	<b>42.6%</b>
<b>Unrestrained MV Occupants*</b>	<b>1,723</b>	<b>55.5%</b>	<b>3,469</b>	<b>26.6%</b>	<b>5,179</b>	<b>41.3%</b>
<b>Age Related</b>	<b>1,808</b>	<b>41.9%</b>	<b>6,537</b>	<b>38.5%</b>	<b>6,314</b>	<b>36.1%</b>
Young Drivers	1,208	28.0%	4,849	28.5%	4,163	23.8%
Older Drivers	600	13.9%	1,688	9.9%	2,151	12.3%
<b>Speed Related</b>	<b>1,684</b>	<b>39.0%</b>	<b>5,775</b>	<b>34.0%</b>	<b>6,102</b>	<b>34.9%</b>
<b>Vulnerable Roadway Users</b>	<b>1,198</b>	<b>27.8%</b>	<b>4,104</b>	<b>24.2%</b>	<b>4,833</b>	<b>27.6%</b>
Motorcyclists	497	11.5%	2,060	12.1%	2,407	13.8%
Pedestrians	515	11.9%	1,073	6.3%	1,288	7.4%
Moped Operators	115	2.7%	618	3.6%	715	4.1%
Bicyclists	71	1.6%	353	2.1%	423	2.4%
<b>Intersections &amp; Other High Risk Roadway Locations</b>	<b>890</b>	<b>20.6%</b>	<b>7,819</b>	<b>46.0%</b>	<b>4,539</b>	<b>25.9%</b>
Intersection	830	19.2%	7,629	44.9%	4,358	24.9%
Work Zone	43	1.0%	158	0.9%	154	0.9%
Railroad Crossing	17	0.4%	32	0.2%	27	0.2%
<b>Impaired Driving</b>	<b>1,794</b>	<b>41.6%</b>	<b>3,759</b>	<b>22.1%</b>	<b>4,521</b>	<b>25.8%</b>
<b>CMV/Heavy Trucks</b>	<b>426</b>	<b>9.9%</b>	<b>818</b>	<b>4.8%</b>	<b>1,011</b>	<b>5.8%</b>
<b>Total**</b>	<b>4,315</b>		<b>16,986</b>		<b>17,503</b>	

\*Number and percent based on occupants who had access to restraints.

\*\*More than one factor is commonly involved in fatal and severe injury collisions. Therefore, each fatality and severe injury tallied in "Total" may be represented in multiple factors in the table.

slight changes in terminology. Based on an extensive review of the collision data, the SHSP Steering Committee selected the following emphasis areas:

- Roadway Departure;
- Unrestrained Motor Vehicle Occupants;
- Age-Related;
- Speed-Related;
- Vulnerable Roadway Users;
- Intersection and Other High-Risk Roadway Locations;
- Impaired Driving;
- Commercial Motor Vehicles/Heavy Trucks.

Data analysis revealed a large percentage of driver impairment in fatal and severe injury collisions in the State. Therefore, in a departure from the 2007 SHSP, the updated SHSP examined impaired driving as its own emphasis area.

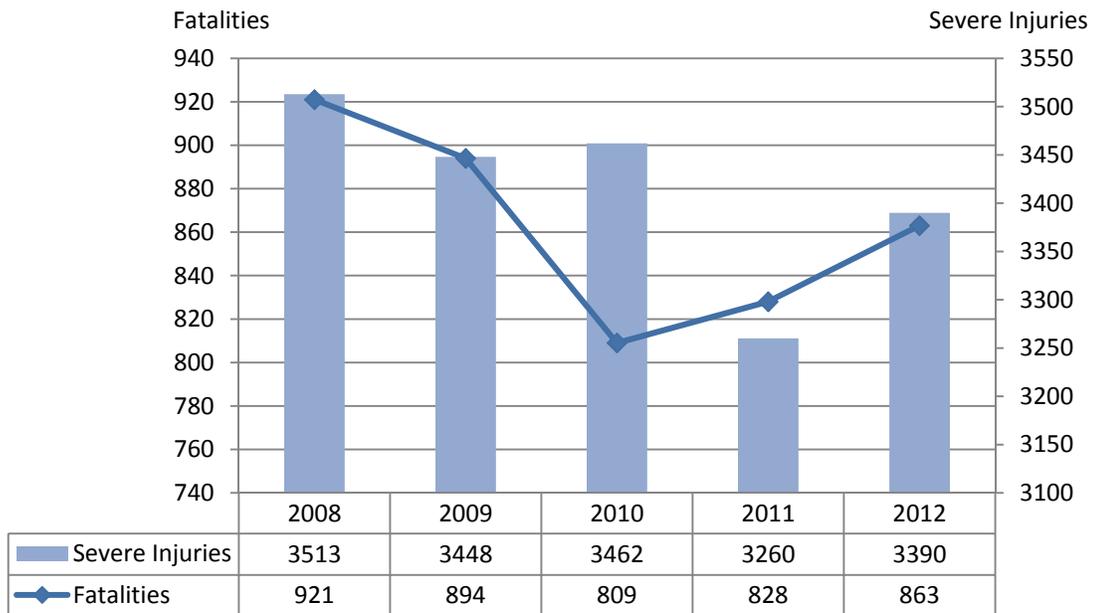
The Steering Committee also agreed that distracted or inattentive drivers should be addressed in the updated SHSP. Data analysis revealed a great deal of overlap among many of the identified Emphasis Areas and the same was seen for the contributing factor of driver distraction or inattention. More detailed analysis of driver distraction and strategies used to address this issue will be addressed later in this document.

Because of the great importance safety planners and engineers in the State place on data analysis and data-driven approaches to eliminating fatalities and reducing severe injuries, the Committee added a final emphasis area:

- Safety Data Collection, Access, and Analysis.

Figure 7 below displays the number of fatalities and severe injuries sustained by persons involved in motor vehicle collisions in South Carolina from 2008 to 2012. Despite a significant reduction in fatalities from 2008 to 2012 (6.3%), the most recent two years (2011 and 2012) show a 2.3% and 4.2% increase from the previous year, respectively. Severe injuries decreased in 2011, compared to 2010, by 5.8% before increasing slightly in 2012 by 4%.

SC Fatalities and Severe Injuries  
2008-2012



Source: State Collision Master File

Figure 7.

## Coordination with Other Highway Safety Plans

Integration of the SHSP with other transportation planning and programming activities is a key step in the effectiveness of any SHSP implementation plan. Leveraging resources and aligning statewide priorities and goals can provide a blueprint for action that key agencies and stakeholders can use to implement strategies for reducing fatalities and serious injuries in the State.

In an effort to coordinate the SHSP with the state's Highway Safety Plan (HSP), key staff from the State's Highway Safety Office have been actively involved in many of the SHSP planning meetings. Similar data analysis performed by the SHSP Manager for the purpose of identifying the Emphasis Areas for the updated SHSP were also utilized in the setting of performance measures and targets for the FFY14 HSP. The State views the coordination of the SHSP with the HSP and other highway safety plans as an effort to build a unified, statewide approach to improving highway safety.

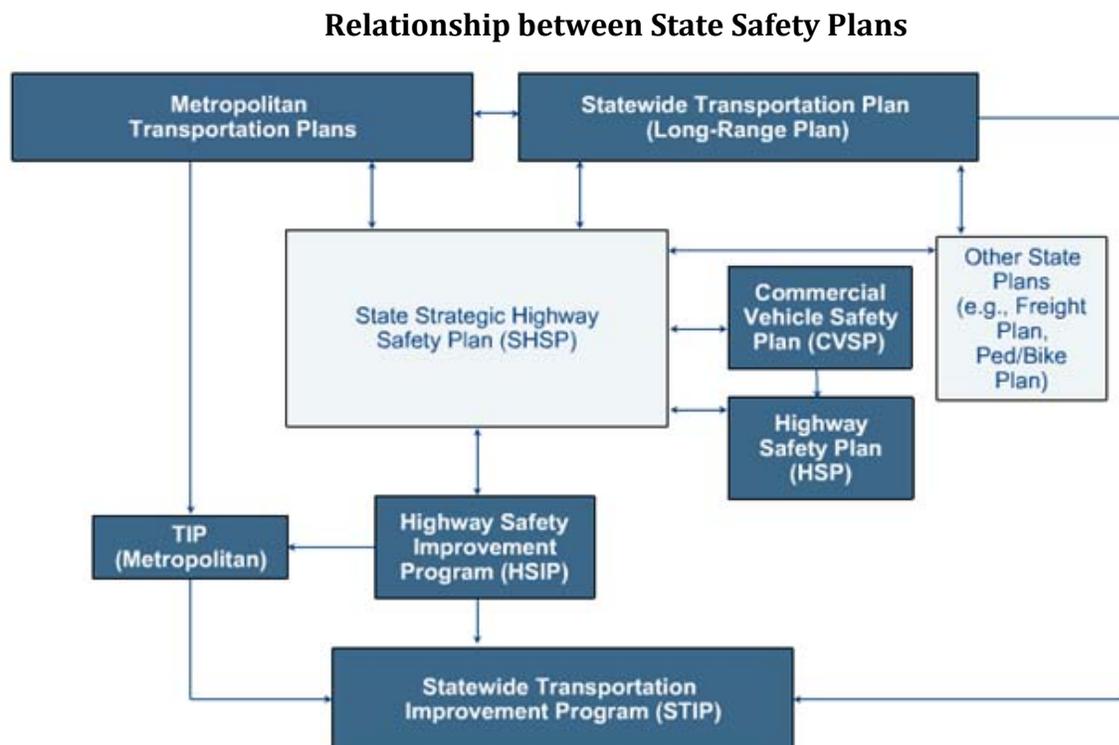


Figure 8.

The performance measures that are common to South Carolina's SHSP, HSP, and the state's Highway Safety Improvement Program (HSIP) are the number of fatalities and severe injuries as well as the fatality rate (number of traffic fatalities per 100 million vehicle miles traveled). The SHSP and HSIP also incorporate the serious injury rate, while the HSP does not. The Federal Highway Administration (FHWA) and the South Carolina Department of Transportation (SCDOT) are responsible for the development of the HSIP. The SCDPS, SCDOT, FHWA, and other local, state, and federal agencies and safety advocates collaborated on the creation of the Strategic Highway Safety Plan (SHSP). The state's Highway Safety Plan, though developed by the OHSJP, reflects multiple partnerships among a variety of federal, state, and local agencies. The number of traffic fatalities, severe injuries, and the traffic fatality and severe-injury rate performance measures are mutually identified in each plan (SHSP, HSIP, and HSP) with evidence-based targets within emphasis areas that were developed through extensive data analysis.

SC's Commercial Vehicle Safety Plan (CVSP) outlines the State's commercial motor vehicle safety objectives, strategies, activities, and performance measures. The CVSP aims to reduce the number and severity of crashes and hazardous materials incidents involving commercial motor vehicles (CMV). Through consistent, uniform, and effective CMV safety programs, the CVSP addresses some of the behavioral safety elements in the SHSP, such as aggressive and distracted driving.

### SCDOT Transportation Plans

The SC Department of Transportation is responsible for many plans, including metropolitan and statewide transportation plans and short- and long-range plans that are consistent with the SHSP's goal of reducing crashes. In addition, the metropolitan and statewide transportation plans include sections on safety, inclusive of projects and/or strategies from the SHSP.

Improving the safety of the transportation system is one of the planning factors that federal legislation explicitly requires to be considered in the transportation planning process. Short- and long-range plans have a safety element as part of the plan, and when projects and strategies are evaluated for possible inclusion in the metropolitan transportation plan and the TIP, safety is a factor in the projects' rankings, in accordance with State law.

The statewide transportation planning process is a forum to facilitate transportation decision-making. States are required to conduct continuing, comprehensive, and collaborative intermodal statewide transportation planning that facilitates the efficient

movement of people and goods in all areas of the state, including metropolitan areas. The South Carolina Statewide Comprehensive Multimodal Transportation Plan provides a comprehensive analysis of transportation needs through the year 2040. In addition, the plan includes specific modal elements, such as the Interstate Plan, Strategic Corridors Network Plan, Freight Plan, Rail Plan, Public Transit Plan, and the Human Services Coordination Plans.

The South Carolina Statewide Transportation Improvement Program (STIP) is the state's six-year transportation improvement program for all projects or program areas receiving federal funding, including bridge replacements, safety, roadway resurfacing, interstate maintenance and upgrades, primary and secondary road system upgrades, federal lands projects, transportation alternatives, congestion mitigation and air quality, and public transportation. The STIP covers all federally funded improvements for which funding has been approved and that are expected to be undertaken during the upcoming six-year period.

Metropolitan transportation planning is the process of examining travel and transportation issues and needs in metropolitan areas. In metropolitan areas with populations over 50,000, the responsibility for transportation planning lies with designated Metropolitan Planning Organizations (MPO). An MPO is a transportation policy-making organization made up of representatives from local government and transportation authorities. The role of the MPO includes establishing a local forum for transportation decision making; evaluating transportation alternatives; developing and updating a long-range transportation plan; developing a Transportation Improvement Program (TIP); and getting the public involved.

## Performance Period

While Strategic Highway Safety Plans are designed to be multi-year planning documents, certain performance period goals were established in this update for the total number of fatalities, total number of severe injuries, the fatality rate, and the severe injury rate, as well as similar goals for each emphasis area. Each update of the state’s SHSP will provide interim goals in order to measure progress towards the long-term goal of zero traffic fatalities and a significant reduction in the number of severe injuries.

Figure 9 below depicts the five-year rolling average for the number of traffic fatalities since 2001. The performance period for the 2015-2018 SHSP establishes a goal of 575 traffic fatalities by the end of 2018, an annual reduction of 48 fatalities. The figure below also includes a trend line based on the five-year rolling average of traffic fatalities since 2001. The performance gap, shaded in light blue, demonstrates the data range for between the expected decline (based in historical trend analysis) and the decline necessary to achieve 575 fatalities by the end of 2018.

Targets set in other State safety plans, such as the HSIP and the HSP, will most likely fall between the linear trendline and the Target Zero trendline (see Figure 9), based on available resources, funds, and legislation, etc.

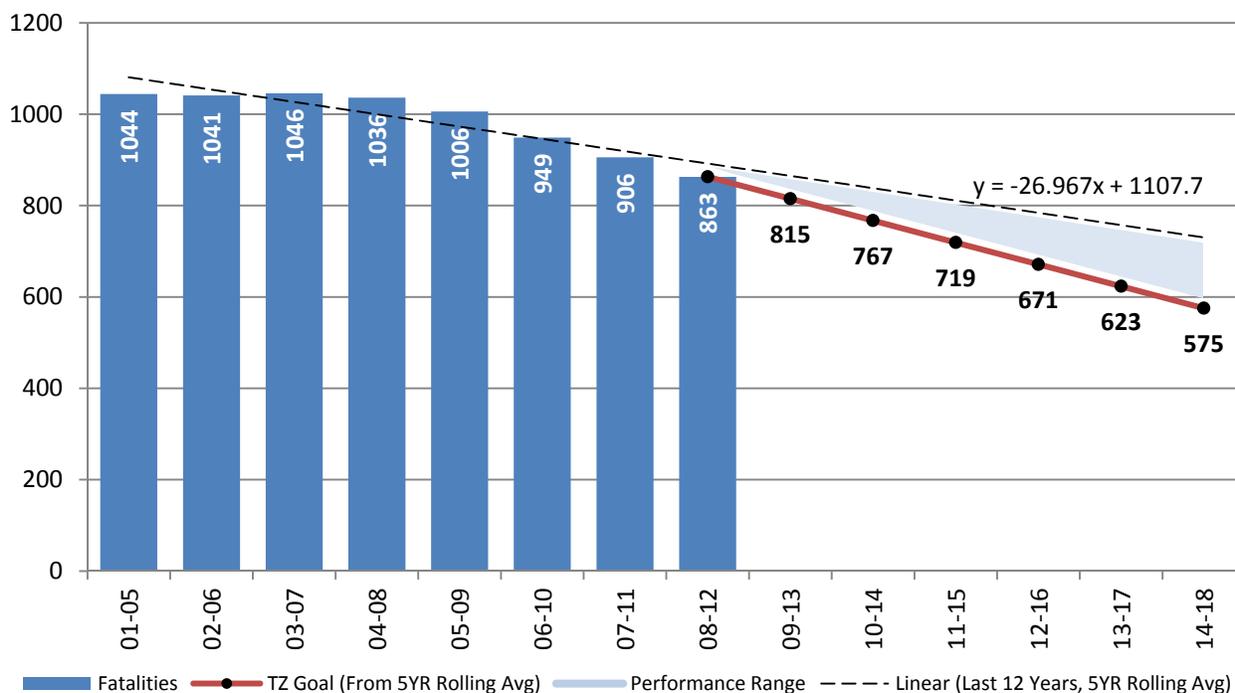


Figure 9.

The performance period goal for the number of severe injuries is shown below in Figure 10.

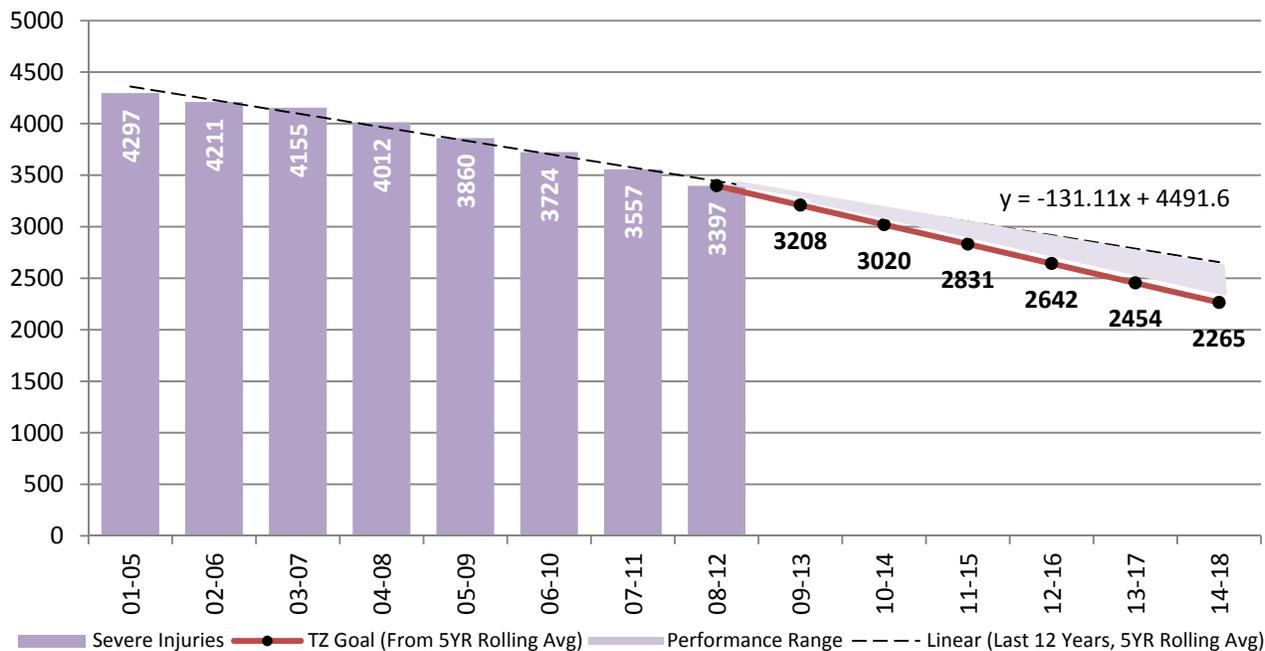


Figure 10.

Figure 11 depicts the trend analysis for the fatality rate (number of fatalities per 100 million vehicle miles traveled).

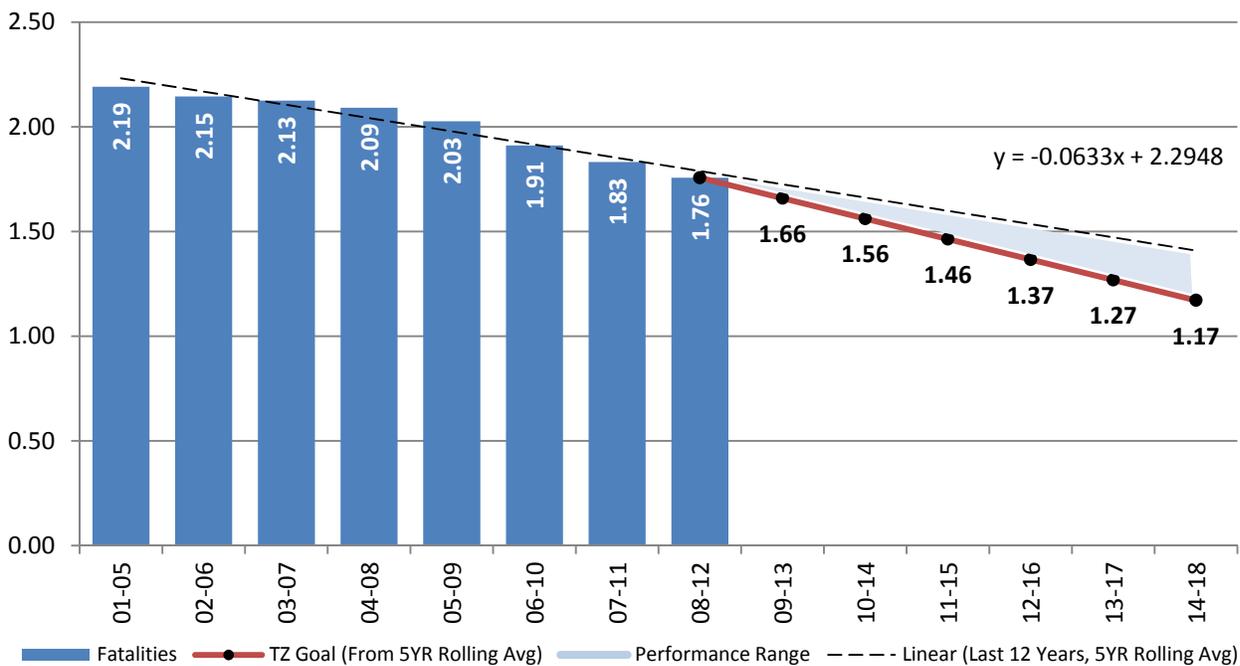


Figure 11.

Figure 12 depicts the trend analysis for the severe injury rate (number of severe injuries per 100 million vehicle miles traveled).

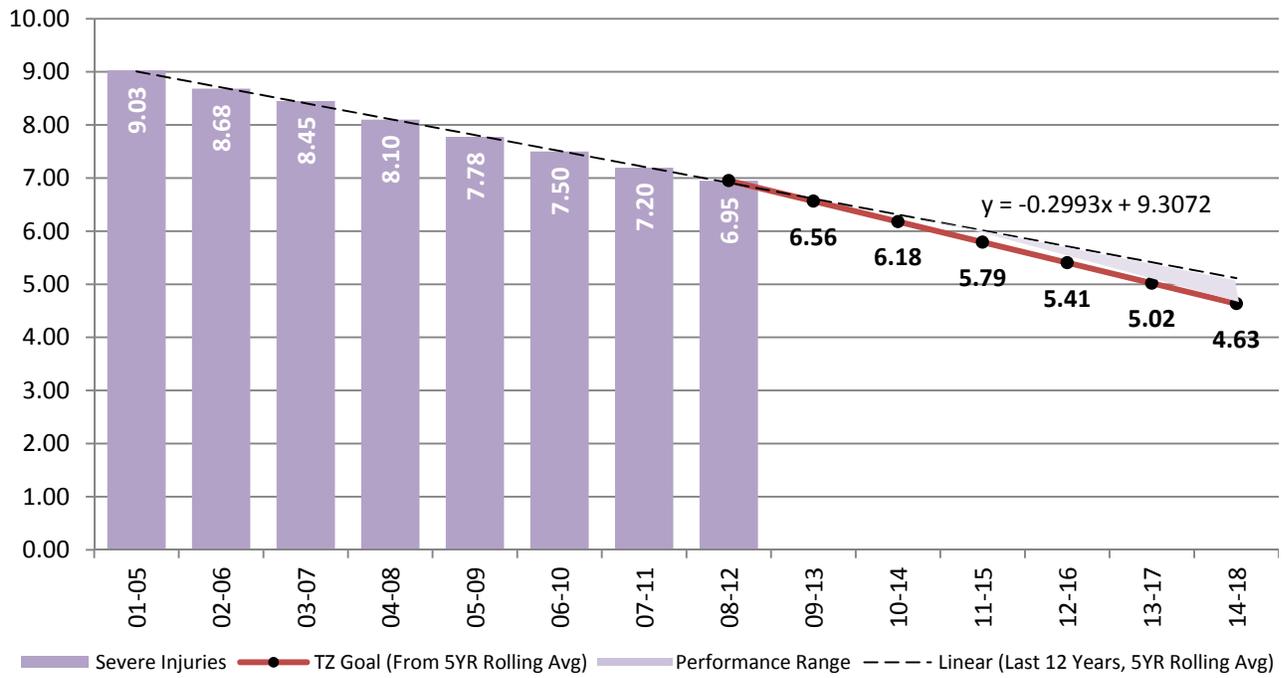


Figure 12.

## **Emphasis Area: Roadway Departure**

### **Overview**

Roadway departure collisions involve vehicles leaving the travel lane and encroaching into the opposite lanes or onto the shoulder and roadside environment. The result of this maneuver is that the vehicle hits an oncoming vehicle or fixed object(s) such as trees, poles, bridge walls, piers, or columns, embankments, or guardrails. Some of the top contributing factors for roadway departure fatal- or severe- injury collisions include driver distraction or inattention, excessive speed, driving under the influence, and driving on the wrong side or the wrong way on a road.

Maintaining a proper clear zone is the first priority for engineering improvements. Clear zones allow enough area for drivers to recover when departing from the travel lane. Additional improvements, such as installing edge line and centerline rumble strips, improving shoulders, and removing or shielding hazards may prevent roadway departure collisions or lessen their severity.

### **Our Challenge**

Roadway departure collisions accounted for approximately 43% of all fatal and severe injury collisions in South Carolina from 2008-2012, resulting in more than 2,100 fatalities and 6,400 severely injured persons (Figure 13). Nearly one in two roadway deaths and one in three severe injuries occurred in a roadway departure collision. While the number of severe injuries sustained in these types of collisions decreased 9.9% from 2008 to 2012, the number of fatalities declined at a slower rate, a 7.5% reduction.

Roadway Departure Fatalities and Severe Injuries  
2008-2012

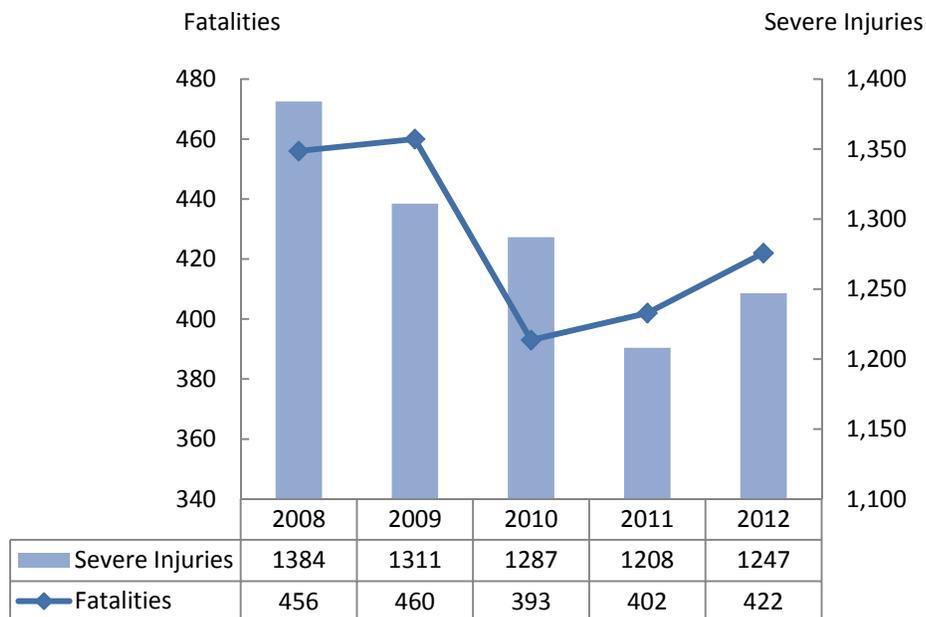


Figure 13.

As seen in Figure 14 below, more than half of the roadway departure collisions occurred on rural roads (59%), compared to 26% that occurred on urban roads.

Roadway Departure Fatalities and Severe Injuries  
By Federal Route Classification, 2008-2012

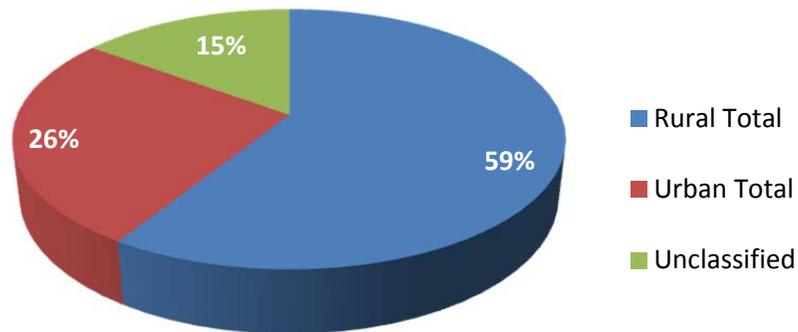


Figure 14.

When a vehicle is involved in a roadway departure, a sequence of events occurred prior to that vehicle leaving the roadway. Figure 15 below represents the top events, or actions, made by a vehicle after it departed the roadway. A collision with a fixed object far exceeds any other event, at 63% of the total fatal and severe injury collisions.

Roadway Departure Fatal and Severe Injury Collisions  
By Top Events, 2008-2012

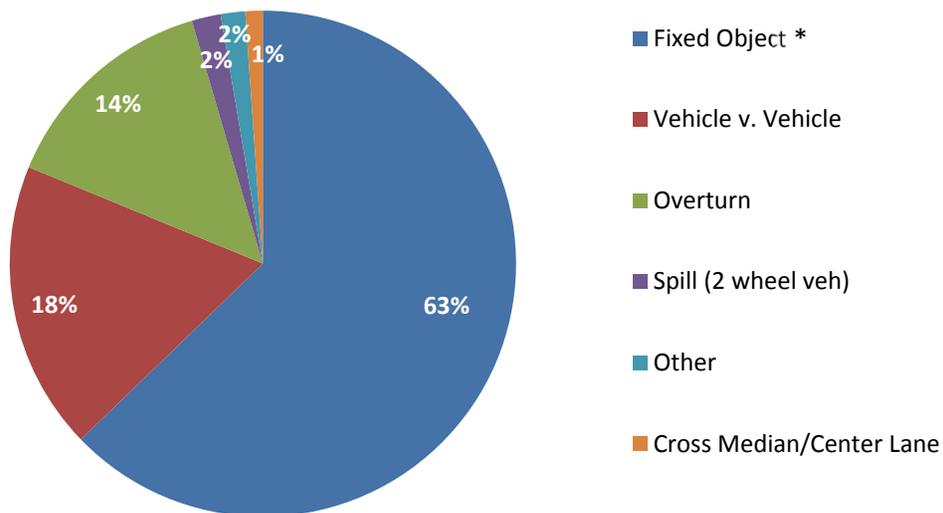


Figure 15.

\*see Figure 16 for breakout.

Fixed objects include items such as trees, ditches, fences, bridge rails, guardrails, and curbs. From 2008 to 2012, hitting trees accounted for *nearly 40%* of all fatal and severe injury collisions that involved hitting fixed objects (Figure 16).

Roadway Departure Fatal and Severe Injury Collisions  
 Hitting a Fixed Object, 2008-2012

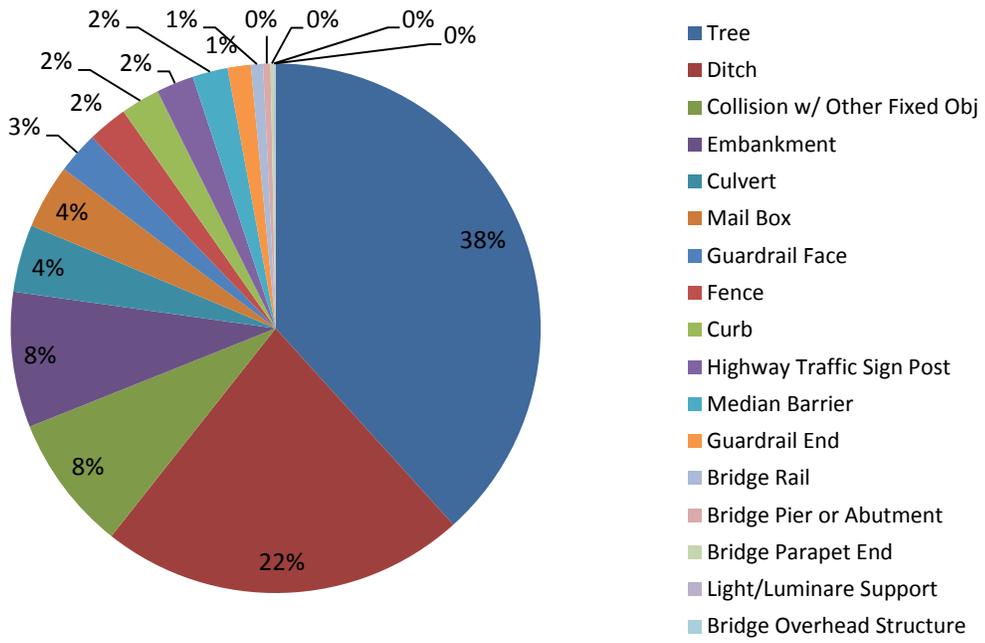


Figure 16.

## Our Goal

### Roadway Departure Fatalities, 2001-2018

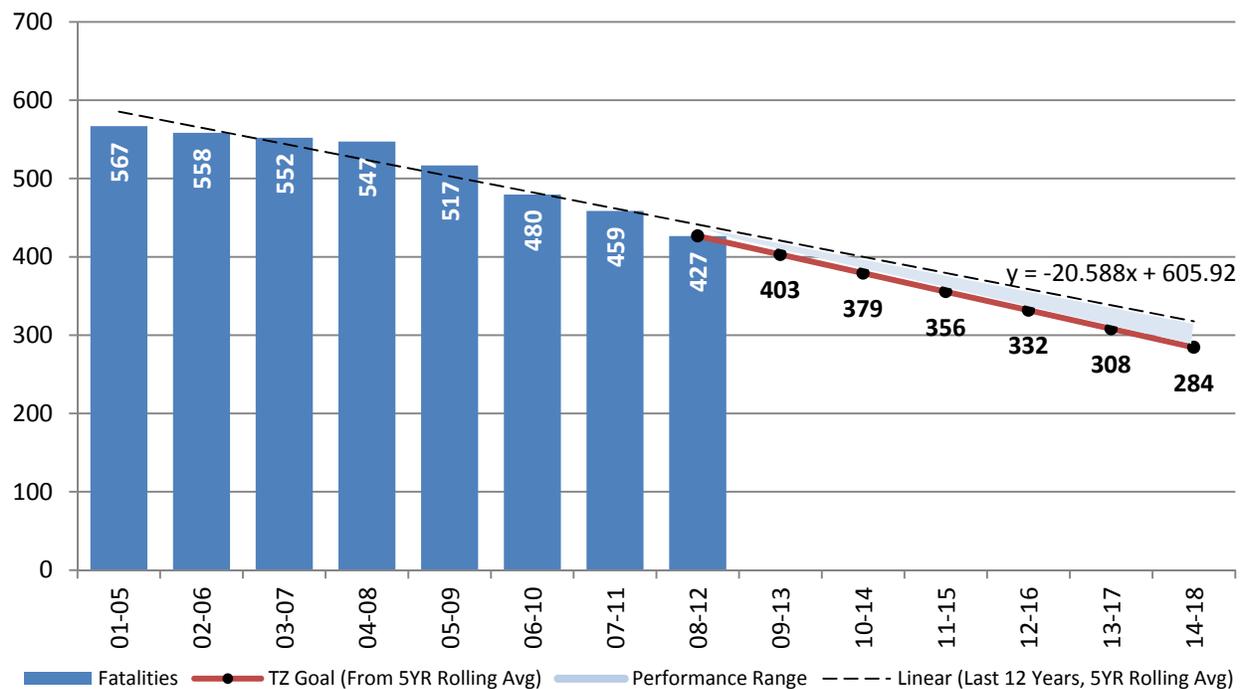


Figure 17. In order to meet the Target Zero benchmark of 284 roadway departure fatalities by 2018, fatalities must be reduced by an average of 24 per year.

### Roadway Departure Severe Injuries, 2001-2018

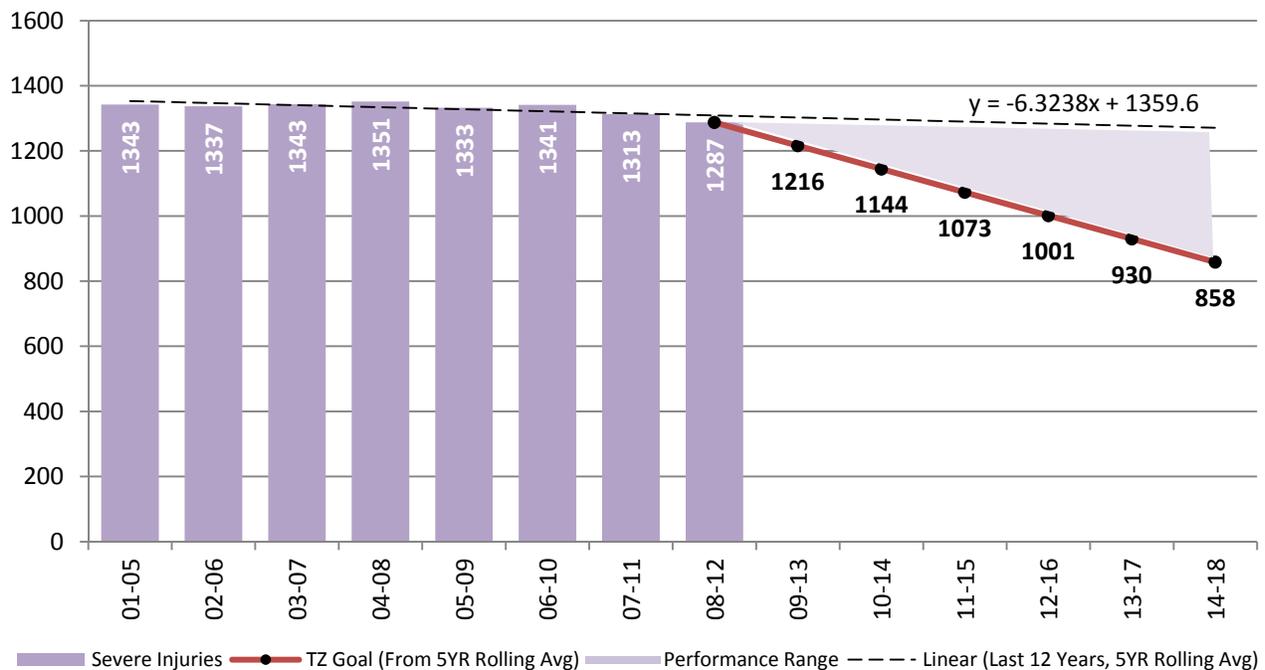


Figure 18. In order to reach the Target Zero benchmark of 858 roadway departure severe injuries by 2018, severe injuries must be reduced by an average of 72 per year.

Roadway Departure-Related Collision Objectives & Strategies		
Objectives (What)	Strategies (How)	Implementation Area(s)
1. Minimize the adverse consequences of leaving the roadway by improving the roadside.	1.1 Provide proper clear zone.	Engineering
	1.2 Improve median cross-slope and/or install barriers where left side roadway departure crashes occur.	Engineering
2. Reduce the likelihood of vehicles leaving the travel lane(s) at high-crash/risk locations by improving the roadway.	2.1 Deploy centerline and edge line rumble strips in accordance with SCDOT policy.	Engineering
	2.2 Maintain shoulders to reduce debris and edge drop-offs; use safety edge (i.e., pavement edge taper); identify opportunities to upgrade or improve shoulders to provide additional recovery area for vehicles that leave the roadway.	Engineering
	2.3 Expand the use of and maintain existing roadway delineation and visibility features, which include geometric alignment pavement markings, raised markers, signs, and other devices.	Engineering
3. Reduce the number of crashes involving impaired and/or speeding drivers.	3.1 Perform targeted enforcement with an emphasis on speed and DUI on roads with a high percentage of roadway departure crashes.	Enforcement
	3.2 Utilize Law Enforcement Networks to conduct briefings with local law enforcement agencies with high-risk rural roads in their jurisdictions.	Enforcement
4. Educate roadway users to understand the contributing factors in roadway departure crashes.	4.1 Educate roadway users on proper recovery once a vehicle leaves the roadway; utilize media, community resource officers, websites, etc., to increase awareness of the dynamics of roadway departure crashes to the public.	Education

Roadway Departure-Related Collision Objectives & Strategies		
Objectives (What)	Strategies (How)	Implementation Area(s)
4. Educate roadway users to understand the contributing factors in roadway departure crashes.	4.2 Work collaboratively with partner agencies and others to integrate new content into the driver education curriculum and the driver manual.	Education
	4.3 Raise awareness about the dynamics of texting and other distractions while driving by sharing effective messages with all safety partners.	Education
5. Improve incident response.	5.1 Improve emergency response times to rural crash locations.	Emergency Response
	5.2 Work with state and local fire, EMS, law enforcement, and incident response personnel to identify opportunities for reducing secondary crashes through coordinated incident response.	Education, Engineering, Emergency Response

## **Emphasis Area: Unrestrained Motor Vehicle Occupants**

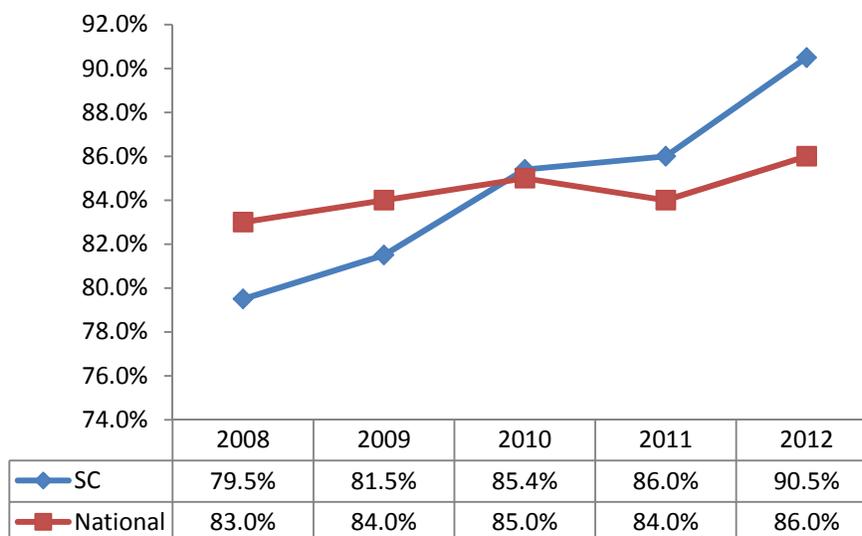
### **Overview**

The combination of air bags and lap and shoulder safety belts offers the most effective safety protection available for passenger vehicle occupants. Research has found that lap/shoulder seat belts, when used, reduce the risk of moderate-to-critical injury by 50 percent. This percentage is even higher for occupants of light trucks with a 60% reduction in the risk of fatal injury and 65% in moderate-to-critical injury.<sup>2</sup>

While nationwide seat belt use was at a record high of 86% in 2012, 52 percent of fatally injured motor vehicle occupants nationwide whose restraint use was known were unrestrained at the time of the crash. NHTSA estimates that seat belts saved 11,949 lives for occupants age 5 and older in 2011; however, if all passenger vehicle occupants age 5 and older had worn seat belts, an additional 3,384 lives could have been saved.<sup>3</sup>

The State of South Carolina has seen a steady increase in statewide safety belt use rates since the passage and enactment of a primary safety belt law, from 69.7% in 2005 to 90.5% in 2012. South Carolina's observed seat belt usage rate was lower than the national rate for 2008 and 2009, but edged slightly higher in 2010 and 2011, and by 2012 was 4.5 percentage points higher than the national average rate. As seen in Figure 19 below, observed seat belt use rates in South Carolina ranged from 79.5% (2008) to 90.5% in 2012. South Carolina survey results, certified by NHTSA, indicated an increase in the observed seatbelt use rate in 2013 to a historic high of 91.7%. The national rate during the 2008-2011 time period ranged from a low of 83% in 2008 to a high of 86% in 2012.

**Observed Seat Belt Use  
2008-2012**



<sup>2</sup> NHTSA Traffic Safety Facts, 2011 Data, Occupant Protection, DOT HS 811 729, June 2013, p. 4.

<sup>3</sup> NHTSA Traffic Safety Facts, 2011 Data, Occupant Protection, DOT HS 811 729, June 2013, p. 1.

Figure 19.

## Our Challenge

Unrestrained motor vehicle occupants killed on South Carolina roads from 2008 to 2012 totaled 1,723, just over 50% of the total number of occupant fatalities. There were 3,469 unbelted vehicle occupants severely injured during the same time period (see Figure 20).

Unrestrained Motor Vehicle Occupant Fatalities and Severe Injuries  
2008-2012

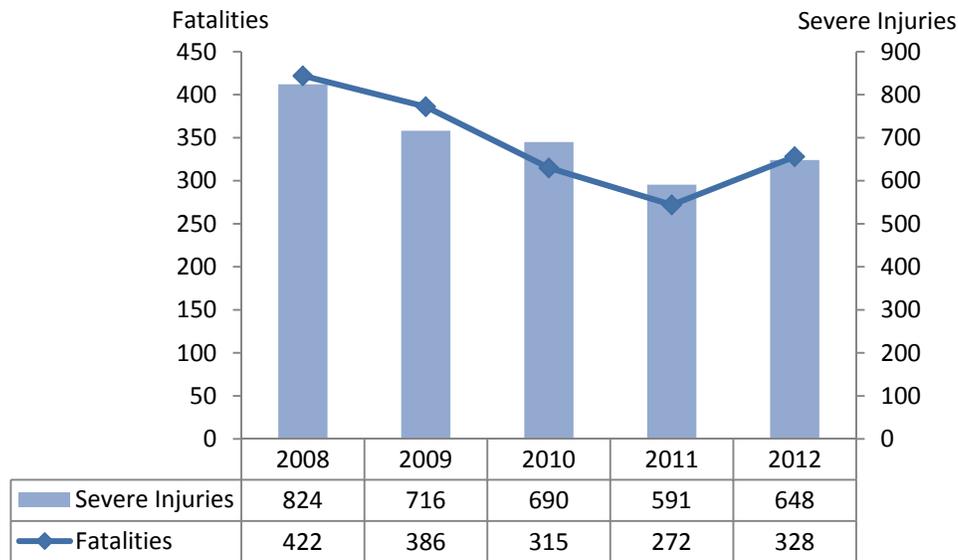


Figure 20.

Unrestrained Motor Vehicle Occupant Fatalities and Severe Injuries  
By Age and Gender, 2008-2012

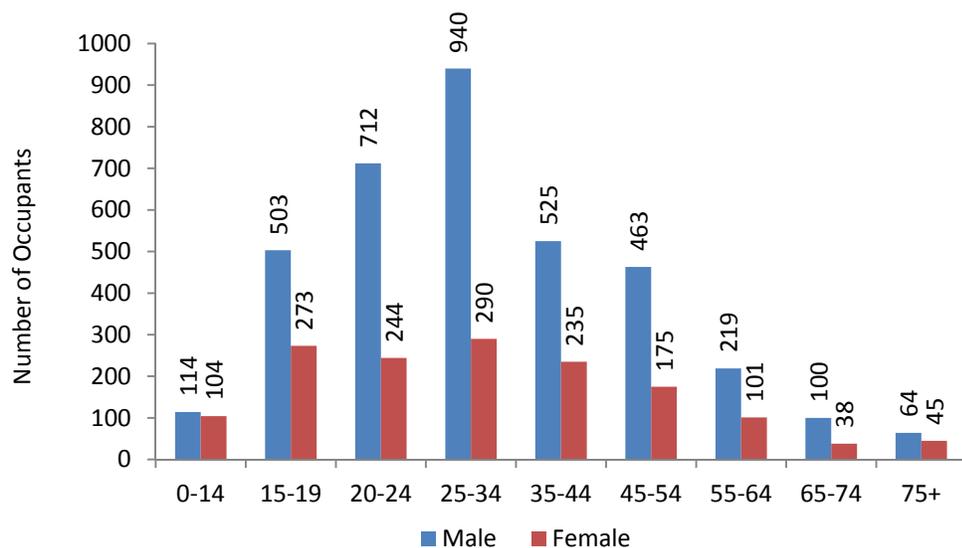


Figure 21.

Rear seat occupants were unrestrained in more than half of the fatal and severe injury collisions from 2008 to 2012, while drivers were unrestrained 32.9% of the time, only slightly higher than front seat passengers at 32.4%.

**Unrestrained Motor Vehicle Occupant Fatalities and Severe Injuries  
By Seating Location, 2008-2012**

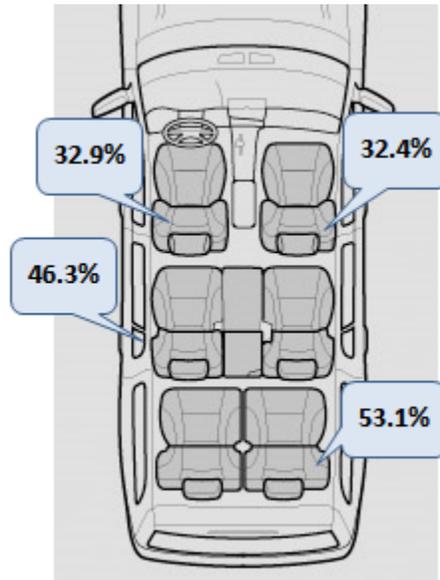


Figure 22.

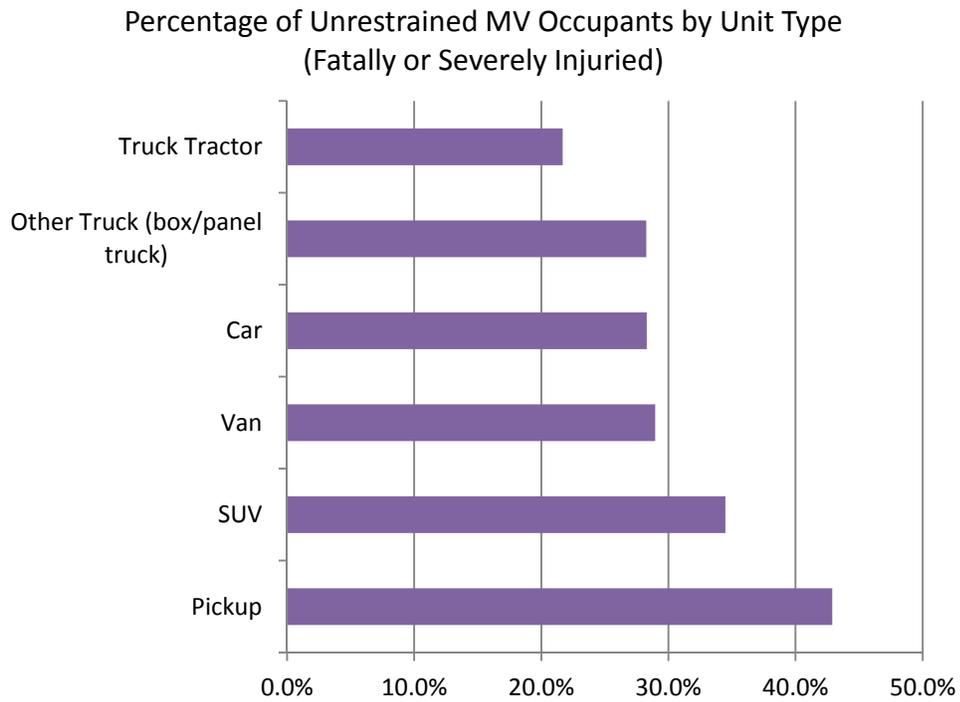
Pickup truck drivers involved in fatal and severe injury crashes were found to be least likely of all drivers to wear a lap/shoulder belt. Truck tractor drivers involved in fatal and severe injury collisions were unrestrained in 23% of the collisions, significantly lower than the state average of 55.5% (see Figure 23).

As seen in Table 3 below, a greater percentage of motor vehicle occupants who died in traffic collisions were unrestrained compared to those severely injured. On average, 55.5% of persons fatally injured in traffic collisions who had access to restraints were unbelted. Far fewer occupants who suffered severe injuries were unbelted, at 26.6%.

Table 3. Unrestrained Motor Vehicle Occupants

Year	Fatalities	Severe Injuries
2008	62.3%	30.4%
2009	56.5%	26.2%
2010	52.8%	25.8%
2011	47.7%	24.1%
2012	56.9%	26.4%
Average	55.5%	26.6%

Unrestrained Motor Vehicle Occupant Fatalities and Severe Injuries  
By Unit Type, 2008-2012



Note: Percent unrestrained in each unit, therefore percentages will total more than 100%.

Figure 23.

## Our Goal

### Unrestrained Motor Vehicle Occupant Fatalities, 2001-2018

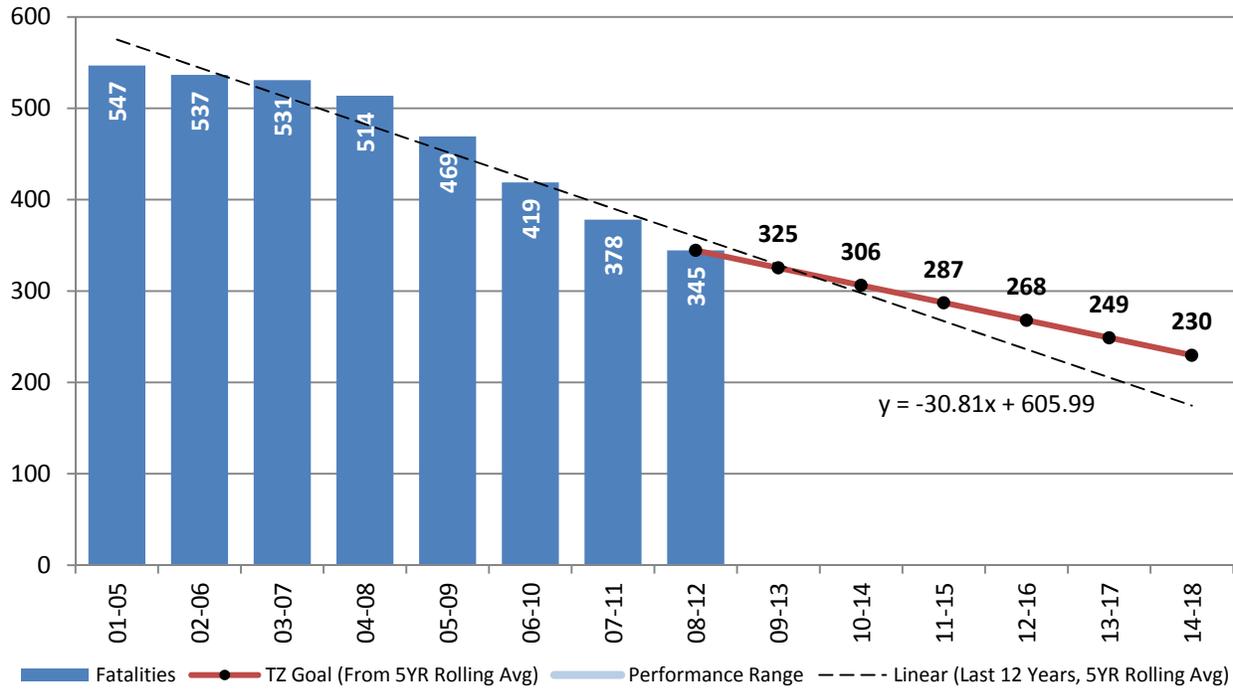


Figure 24. In order to reach the Target Zero benchmark of 230 unrestrained occupant fatalities by 2018, unrestrained occupant fatalities must be reduced by an average of 19 per year.

### Unrestrained Motor Vehicle Occupant Severe Injuries, 2001-2018

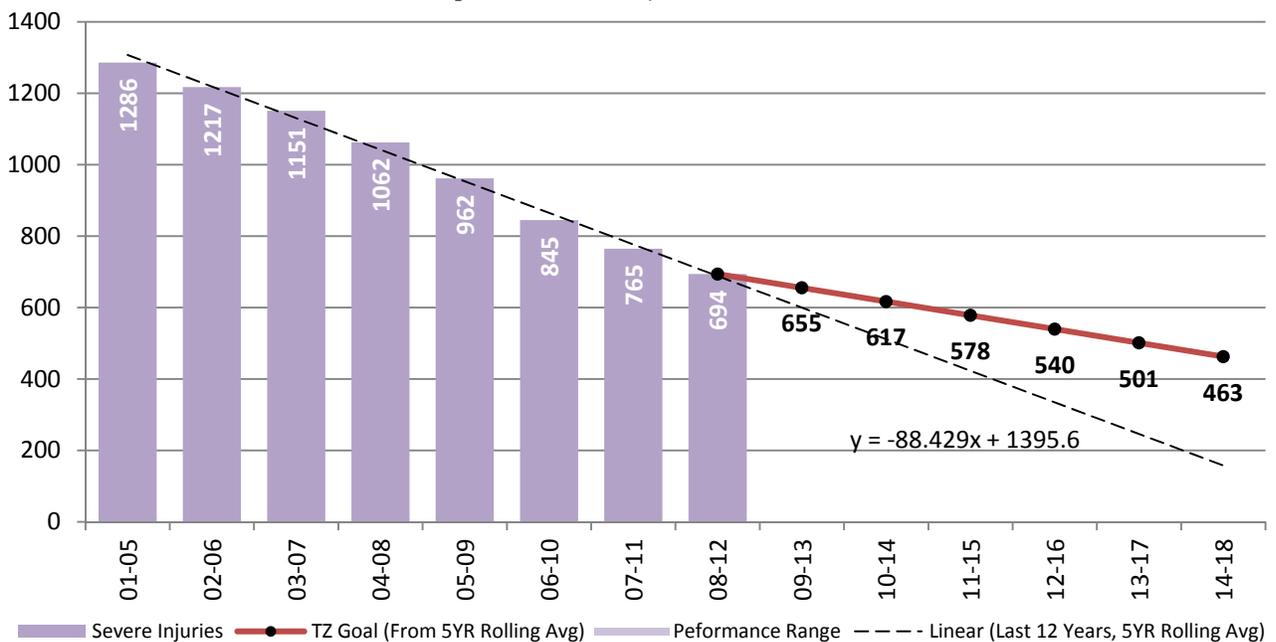


Figure 25. In order to reach the Target Zero benchmark of 463 unrestrained occupant severe injuries by 2018, severe injuries must be reduced by an average of 39 per year.

Unrestrained Motor Vehicle Occupant-Related Collision Objectives & Strategies		
Objectives (What)	Strategies (How)	Implementation Area(s)
1. Educate the public on the importance of using safety belts.	1.1 Use variable message boards and signs during stepped-up occupant protection enforcement campaigns (e.g., <i>Buckle Up, South Carolina</i> ).	Engineering, Education
	1.2 Identify high-risk population groups or vehicle types to develop an educational campaign about the risks of not wearing safety belts.	Education
2. Conduct high-visibility safety belt enforcement campaigns to maximize restraint use.	2.1 Continue and enhance high-visibility campaigns.	Enforcement, Education
	2.2 Encourage law enforcement to conduct occupant protection enforcement activities at identified high-crash locations and times, including nighttime safety belt enforcement.	Enforcement
	2.3 Continue to support national, regional, and state occupant protection enforcement and public information and education campaigns (e.g., <i>Buckle Up, South Carolina</i> , Child Passenger Safety Week, etc.).	Enforcement, Emergency Response
3. Improve child occupant protection through education, outreach, and enforcement.	3.1 Continue to provide community locations for instruction in proper child restraint use, including both public safety agencies and health care providers.	Education
	3.2 Increase the number of child passenger safety fitting stations and certified technicians. Publicize child restraint inspection events statewide.	Education

## **Emphasis Area: Age-Related**

### **Young (15-24) Drivers**

#### **Overview**

Motor vehicle crashes are the leading cause of death for young people ages 15-24 in South Carolina. Drivers in this age group have the highest crash rate and the highest rates of speeding, impaired driving, and distracted driving of any driver age group in the state. Although making up only 14.9% of licensed South Carolina drivers, young drivers were involved in 22.9% of fatal and severe injury crashes from 2008 to 2012.

From 2008 to 2012, 21% of all traffic fatalities involved a young driver aged 15-24. In that same time frame, young drivers were involved in 23% of all severe injury collisions.

#### **Percentage of Drivers Involved in Fatal/Severe Injury Crashes Compared to Percentage of Licensed Drivers**

*By Age Group, 2008-2012*

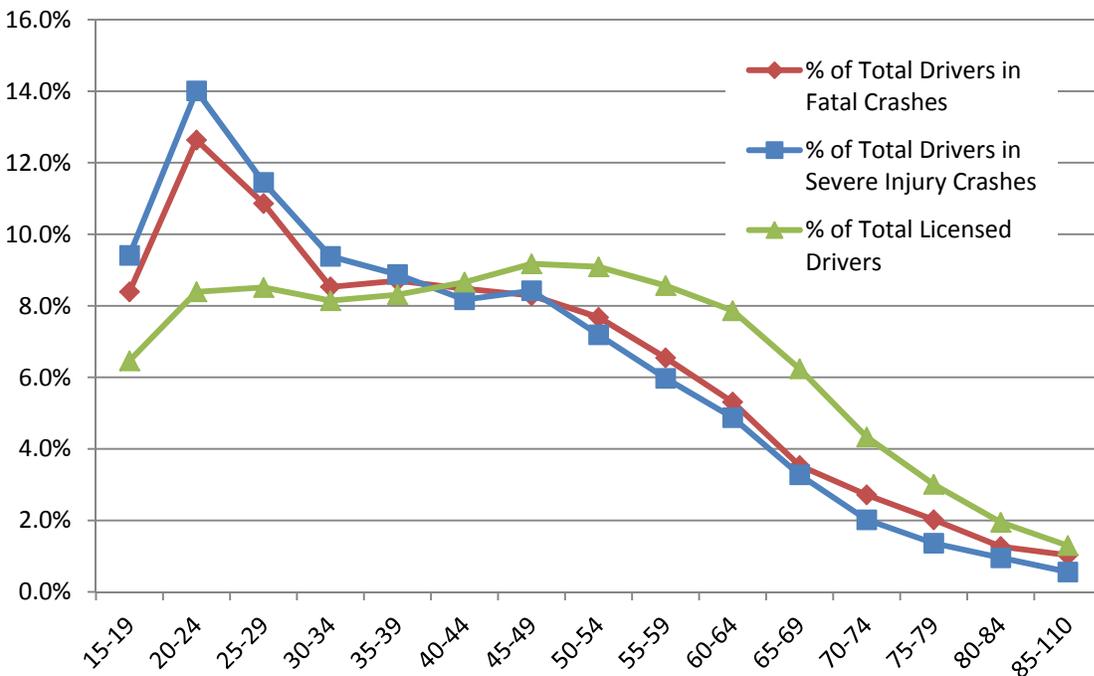


Figure 26.

Table 4. Drivers Involved in Fatal and Severe Injury Collisions  
*By Age Group and License, 2008-2012*

Age Group	# Drivers in Fatal Crashes	% of Total Drivers in Fatal Crashes	# Drivers in Severe Injury Crashes	% of Total Drivers in Severe Injury Crashes	Licensed Drivers	% of Total Licensed Drivers
15-19	482	8.4%	1,948	9.4%	1,085,043	6.5%
20-24	726	12.6%	2,900	14.0%	1,409,076	8.4%
25-29	624	10.9%	2,370	11.5%	1,429,461	8.5%

### **Our Challenge**

Drivers aged 15-24 were involved in 27% of fatal speed-related collisions, compared to 17.5% of 30-39 year olds. Drivers aged 15-24 accounted for 23.5% of all drivers in driving under the influence of alcohol and/or drugs (DUI) fatal collisions. Additional analysis of drivers involved in fatal DUI-related crashes revealed an alarming statistic: 7.6% of drivers in these crashes were aged 15-19, ages at which it is illegal for them to possess or consume alcohol.

## Our Goal

### Young Driver Fatalities, 2001-2018

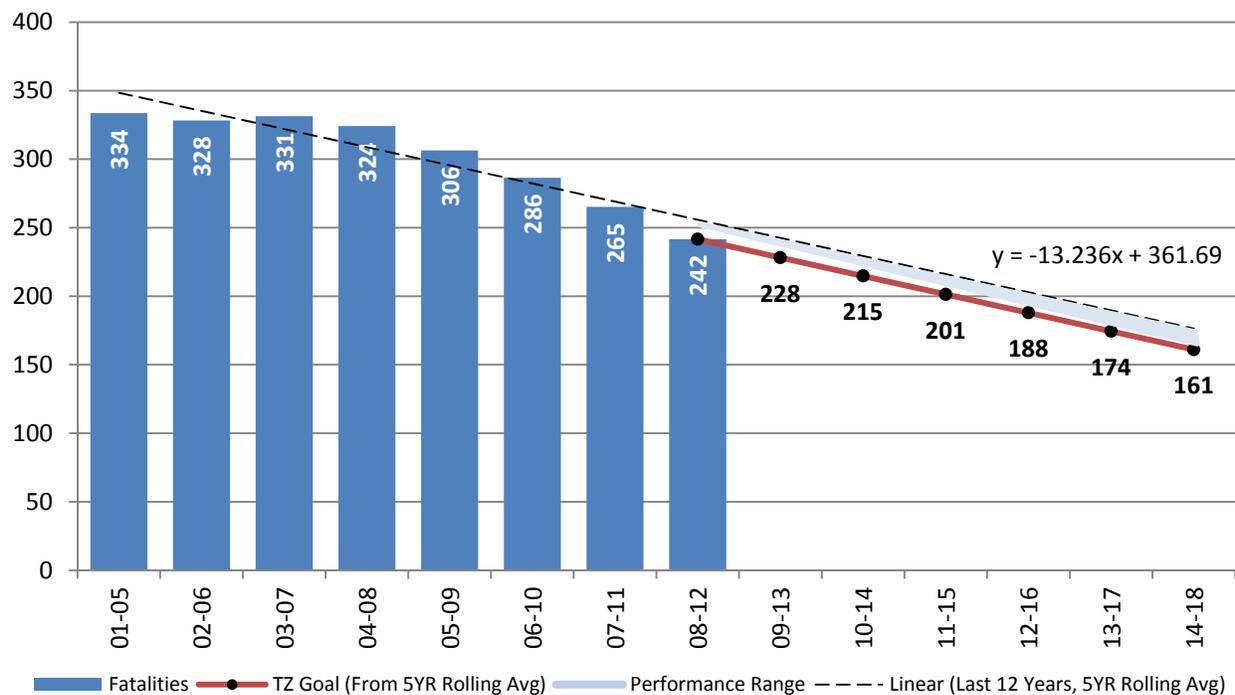


Figure 27. In order to reach the Target Zero benchmark of 161 young driver involved fatalities by 2018, fatalities must be reduced by an average of 14 per year.

### Young Driver Severe Injuries, 2001-2018

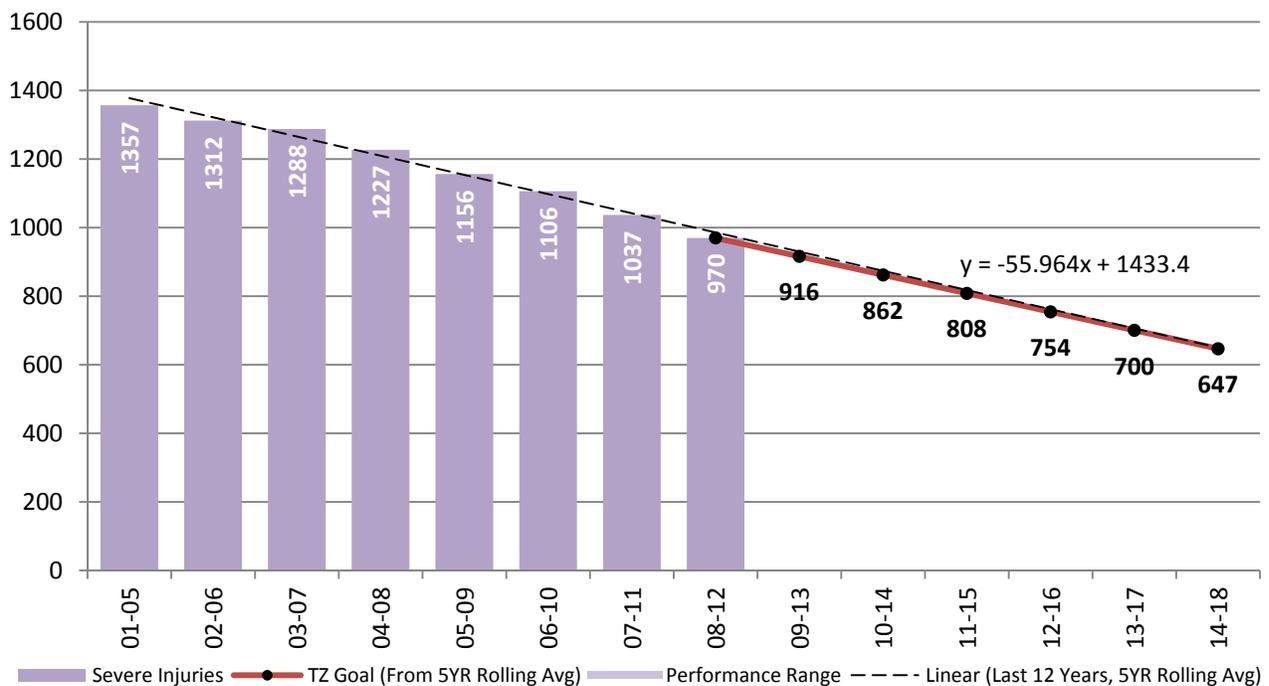


Figure 28. In order to reach the Target Zero benchmark of 647 young driver involved severe injuries by 2018, severe injuries must be reduced by an average of 54 per year.

Young Driver-Involved Collision Objectives & Strategies		
Objectives (What)	Strategies (How)	Implementation Area(s)
1. Increase awareness of young driver risk behaviors.	1.1 Develop educational campaign to help parents understand driving risk behaviors of young drivers.	Education
	1.2 Implement social hosting campaign.	Education
	1.3 Publicize results of underage enforcement operations as a deterrent.	Education
	1.4 Target enforcement efforts of zero-tolerance policies for underage impaired driving and alcohol/drug possession in identified high risk/crash areas and/or events.	Enforcement
	1.5 Continue the educational campaign designed for high school students and their parents.	Education
	1.6 Continue to support young driver safety initiatives such as the Alive @ 25 program.	Education
2. Foster compliance with the State's Graduated Drivers Licensing (GDL) Laws.	2.1 Equip officers with information that will allow them to enforce the state's GDL laws in the context of regular and stepped-up enforcement checkpoints.	Enforcement
3. Reduce crashes along routes used by young drivers to get to school.	3.1 Review driving routes to schools to identify high crash corridors.	Engineering
	3.2 Develop and implement a program to reduce roadway departure and intersection crashes along identified corridors.	Engineering

## Older Drivers

### Overview

Although age itself does not determine driving capabilities, older drivers can experience declines in their sensory, cognitive, or physical functioning, which could negatively impact their driving and may increase their risk of involvement in traffic collisions. In South Carolina, from 2008 to 2012, older drivers (defined as 65 or more years of age) were involved in 13.9% of all traffic fatalities.

Older Driver-Involved Fatalities and Severe Injuries  
2008-2012

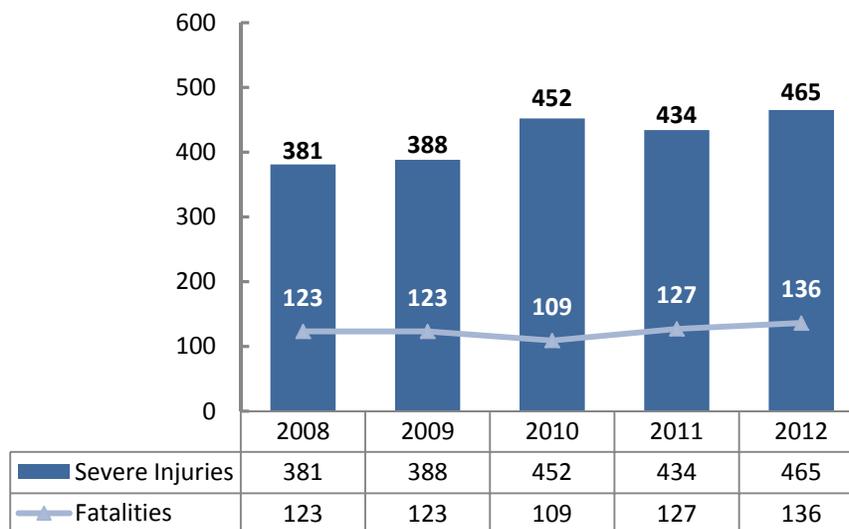


Figure 29.

Percentage of Drivers Involved in Fatal/Severe Injury Crashes Compared to Percentage of Licensed Drivers  
By Age Group, 2008-2012

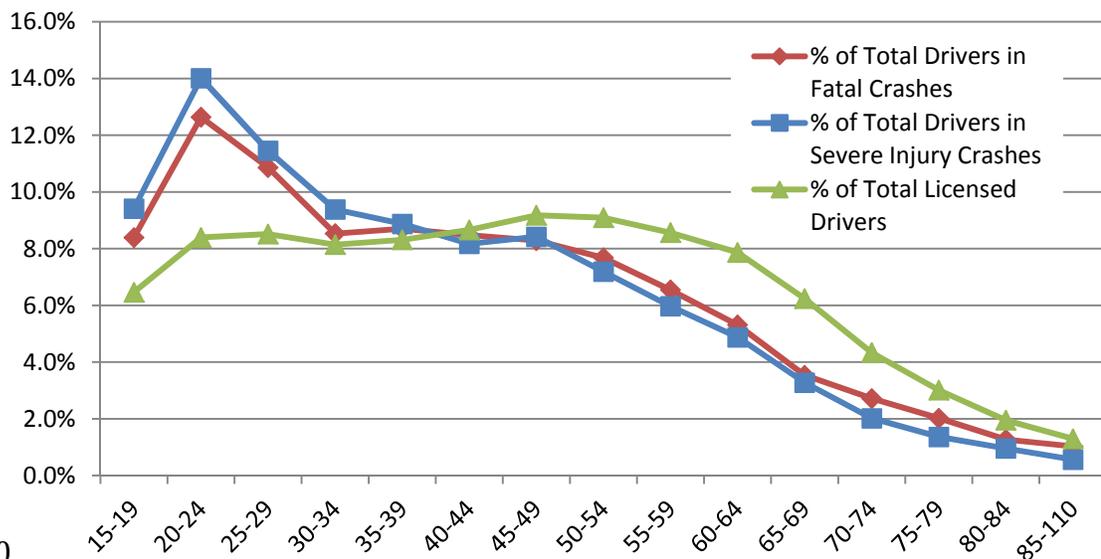


Figure 30.

## Our Challenge

Drivers aged 65 and older were involved in 10.5% of fatal collisions and 8.3% of severe injury collisions. While the involvement of older drivers in these collisions is less than their representation in the general driving population, older drivers are more likely to suffer severe injury or death when involved in a traffic collision.

Table 6. Drivers Involved in Fatal and Severe Injury Collisions  
By Age Group and Licensed Drivers, 2008-2012

Age Group	Number of Drivers in Fatal Crashes	Percentage of Total Drivers in Fatal Crashes	Number of Drivers in Severe Injury Crashes	Percentage of Total Drivers in Severe Injury Crashes	Number of Licensed Drivers	Percentage of Total Licensed Drivers
65-69	203	3.5%	678	3.3%	1,047,373	6.2%
70-74	156	2.7%	418	2.0%	727,575	4.3%
75-79	116	2.0%	282	1.4%	505,187	3.0%
80-84	73	1.3%	198	1.0%	327,173	1.9%
85-110	59	1.0%	116	0.6%	217,530	1.3%
Total	607	10.5%	1,692	8.3%	2,824,838	16.7%

Drivers aged 65 or older are more likely than their younger counterparts to be involved in fatal or severe injury collisions that occur at intersections, 40.2% versus 26.4%. Table 7 below depicts the differences in junction type associated with fatal and severe injury collisions in the two age groups.

Table 7. Fatal and Severe Injury Collisions  
By Junction Type and Age Group, 2008-2012

Junction Type	>65	<=65
Non-Junction	48.3%	64.5%
Intersection	40.2%	26.4%
Driveway	8.6%	6.4%
Other	2.8%	2.7%

## Our Goal

### Older Driver Fatalities, 2001-2018

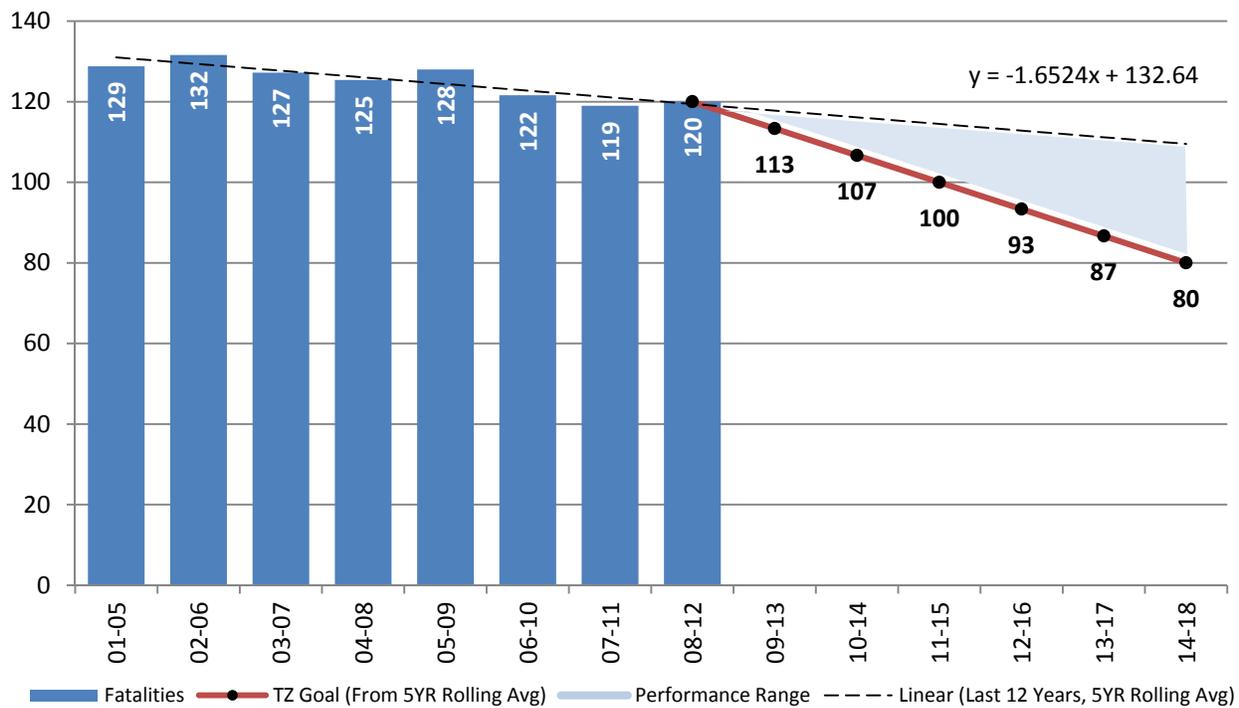


Figure 31. In order to reach the Target Zero benchmark of 80 older driver involved fatalities by 2018, fatalities must be reduced by an average of 7 per year.

### Older Driver Severe Injuries, 2001-2018

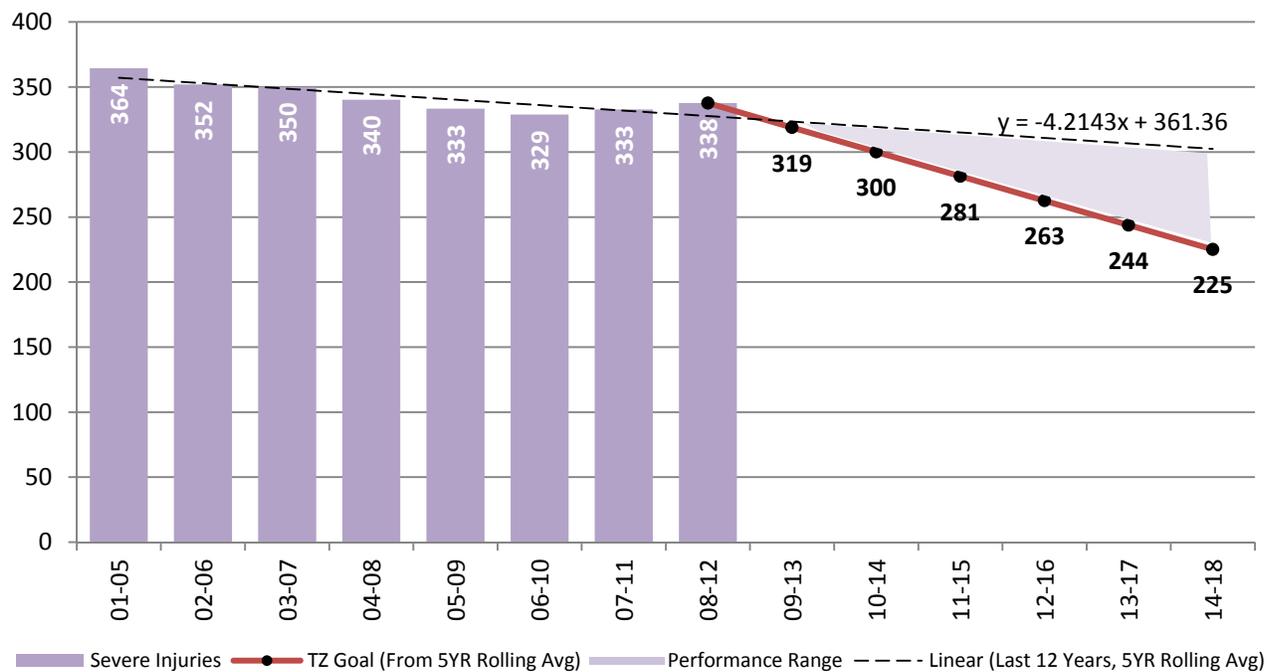


Figure 32. In order to reach the Target Zero benchmark of 225 older driver involved severe injuries by 2018, severe injuries must be reduced by an average of 19 per year.

Older Driver-Involved Collision Objectives & Strategies		
Objectives (What)	Strategies (How)	Implementation Area(s)
1. Identify older drivers at an elevated risk.	1.1 Research additional procedures for screening drivers' abilities and skills.	Public Policy
	1.2 Provide training to law enforcement and medical professionals for recognizing physical and cognitive deficiencies affecting safe driving in older drivers, including submitting reevaluation referrals to the DMV.	Enforcement, Public Policy, Education
	1.3 Research Model Driver Screening and Evaluation Program Guidelines for Motor Vehicle Administrators for screening and evaluating older drivers' physical and cognitive abilities and skills.	Public Policy, Education
2. Plan for an aging population.	2.1 Establish a broad-based coalition to plan for addressing older adults' transportation needs.	Education
3. Improve the roadway and driving environment to better accommodate older drivers' special needs.	3.1 Consider increasing size and letter height on roadway signs.	Engineering
	3.2 Provide more protected left-turn signal phases at high-volume intersections, where supported by collision data.	Engineering
	3.3 Consider lighting and other engineering countermeasures at intersections, horizontal curves, and railroad grade crossings where supported by collision data.	Engineering
4. Improve the driving competency of older adults in the general driving population.	4.1 Provide education and training opportunities to the general older driver population.	Education

## **Emphasis Area: Speed-Related**

### **Overview**

In this document, speed-related collisions are defined as those in which a contributing factor to the collision was either exceeding the posted speed limit or driving too fast for conditions or when a driver was charged for a speed-related offense. Speed-related actions or violations are the fourth most common contributing factor in fatal and severe injury collisions, following roadway departure, unrestrained motor vehicle occupants, and age-related factors. From 2008 to 2012, speeding-related actions or violations were involved in nearly 40% of fatalities and 34% of severe injuries. This figure has been trending down until 2012 when the number of persons killed in speed-related collisions increased (+50). Effective countermeasures for reducing speed-related collisions include education, enforcement, and engineering strategies.

As seen in Table 8 below, speeding-related actions are more often attributed to “Driving Too Fast For Conditions” than “Exceeded the Authorized Speed Limit”. Approximately 75% of the total number of speed-related collisions indicated a contributing factor of driving too fast for conditions, compared to 18% for exceeding the speed limit. The remaining collisions were attributed to a speeding related charge (7%). Driving too fast for conditions is not always tied to road or weather conditions; more often than not, the aforementioned contributing factor is used to describe circumstances in which a driver collided with another vehicle that was stopped or slowing in traffic.

Table 8. Speeding-Related Fatal and Severe Injury Collisions  
*By Speed Action Type, 2008-2012*

Collision Type	Driving too Fast for Conditions	Exceeded Speed Limit
Fatal	1,029	469
Severe Injury	3,498	631
Total	4,527	1,100

Speed-Related Fatalities and Severe Injuries  
2008-2012

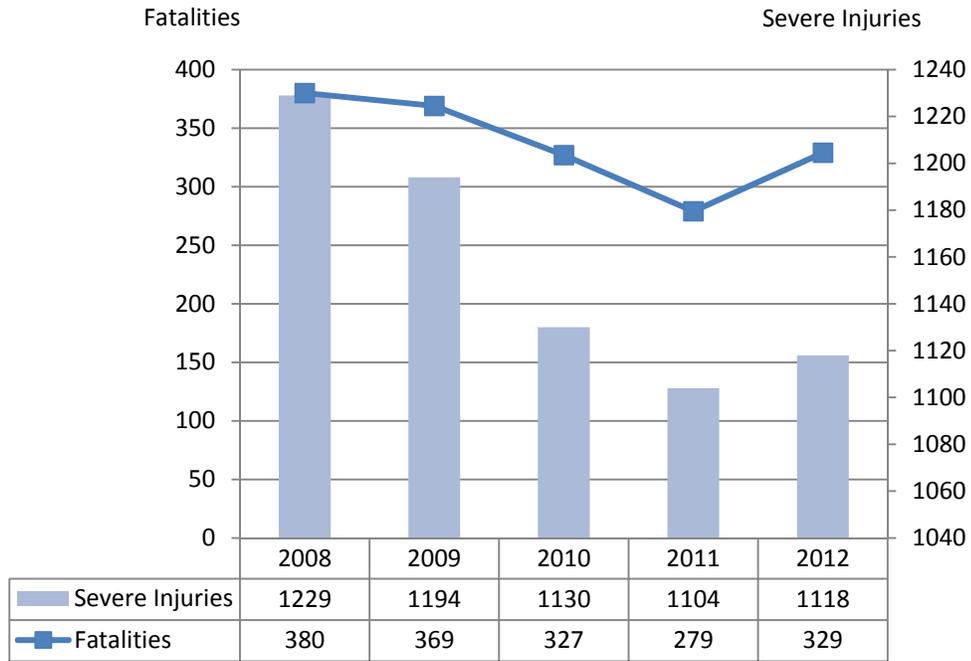


Figure 33.

**Our Challenge**

While the number of speed-related fatal and severe injury collisions decreased in South Carolina from 2008 to 2011, and at a greater percent change than the total number of fatal and severe injury collisions, there was a slight increase in the 2012 data. In 2012, 1,218 fatal and severe injury collisions were attributed to speed-related actions taken by drivers. That figure represents an increase (6.5%) over the previous year, when there were 1,144 speed-related collisions in the state. The overall percent reduction in the number of speed-related fatal and severe injury collisions from 2008 to 2012 was 7.9%.

Table 9. Speed-Related Fatal and Severe Injury Collisions

Year	2008	2009	2010	2011	2012	% Change '11-'12	% Change '08-'12
Collisions	1,322	1,244	1,174	1,144	1,218	6.5%	-7.9%

A review of the 2008-2012 fatal and severe injury speed-related collisions shows these collisions occurring primarily on secondary (40.8%) and primary (39%) roadways, with only a small percentage of collisions occurring on interstates (11.6%).

Table 10. Speed-Related Fatal and Severe Injury Collisions  
By Route Category, 2008-2012.

Route Category	Year					Total	Percent of Total
	2008	2009	2010	2011	2012		
Interstate	114	130	111	133	139	627	11.6%
US Primary	199	205	195	191	212	1002	18.5%
SC Primary	248	212	239	211	197	1107	20.5%
Secondary	511	476	418	374	429	2208	40.8%
County	110	91	67	97	103	468	8.6%
Total	1182	1114	1030	1006	1080	5412	

Almost three-fourths of the total number of drivers involved in speed-related fatal and severe injury collisions were males, while only a quarter were female. Males aged 20-24 represented the age group with the highest number of registered drivers (9.1%) and accounted for the highest number of drivers involved in speed-related collisions (11.3%).

Table 11. Speed-Related Fatal and Severe Injury Collisions by Driver Age and Gender.

Driver Age	Female	Speed %	Total %	Male	Speed %	Total %
Unknown*	0	0.0%	0.0%	3	0.2%	0.1%
<15	1	0.1%	0.0%	1	0.1%	0.1%
15-19	42	2.3%	2.1%	183	10.2%	6.3%
<b>20-24</b>	60	3.3%	3.5%	<b>202</b>	<b>11.3%</b>	<b>9.1%</b>
25-29	52	2.9%	2.9%	171	9.5%	8.0%
30-34	41	2.3%	2.2%	123	6.9%	6.3%
35-39	32	1.8%	1.9%	118	6.6%	6.7%
40-44	54	3.0%	2.4%	108	6.0%	6.0%
45-49	30	1.7%	2.2%	115	6.4%	6.1%
50-54	35	2.0%	1.9%	92	5.1%	5.8%
55-59	15	0.8%	1.4%	75	4.2%	5.1%
60-64	15	0.8%	1.6%	57	3.2%	3.7%
65-69	12	0.7%	1.0%	32	1.8%	2.5%
70-74	12	0.7%	1.0%	24	1.3%	1.7%
75-79	15	0.8%	0.8%	6	0.3%	1.2%
80-84	2	0.1%	0.4%	13	0.7%	0.9%
85-110	2	0.1%	0.4%	11	0.6%	0.6%
Total	420	23.4%	25.8%	1334	74.4%	70.3%

\*Includes Drivers involved in hit and run collisions.

## Our Goal

### Speed-Related Fatalities, 2001-2018

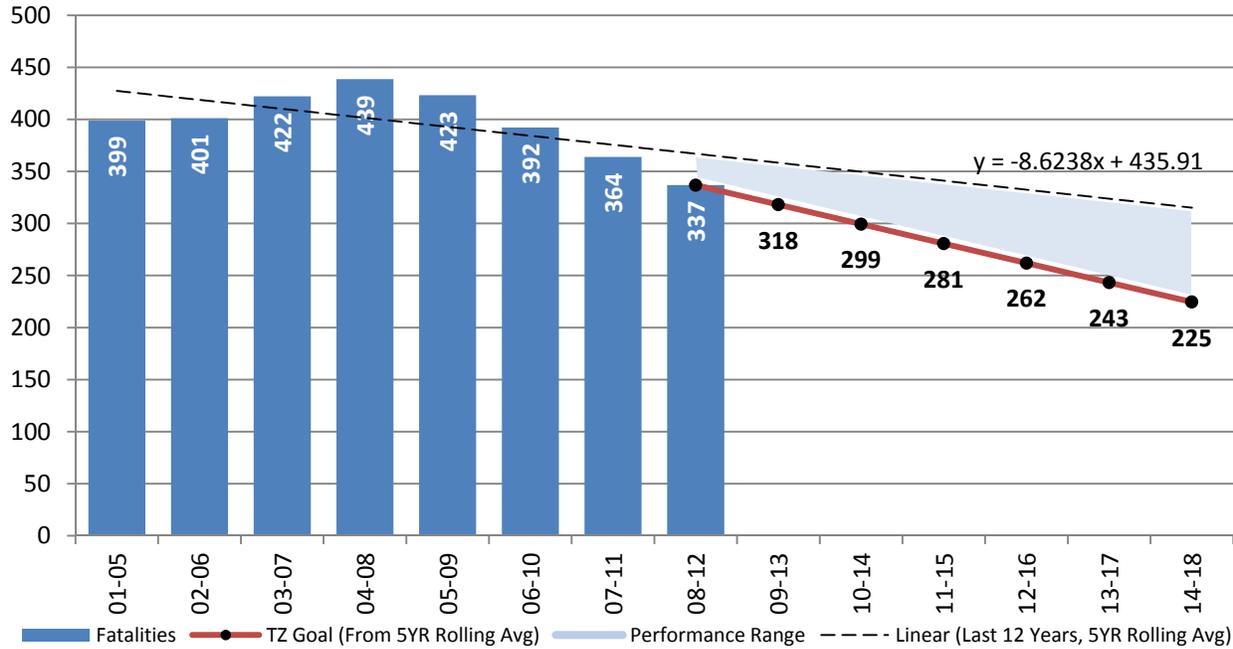


Figure 34. In order to reach the Target Zero benchmark of 225 speed-related fatalities by 2018, fatalities must be reduced by an average of 19 per year.

### Speed-Related Severe Injuries, 2001-2018

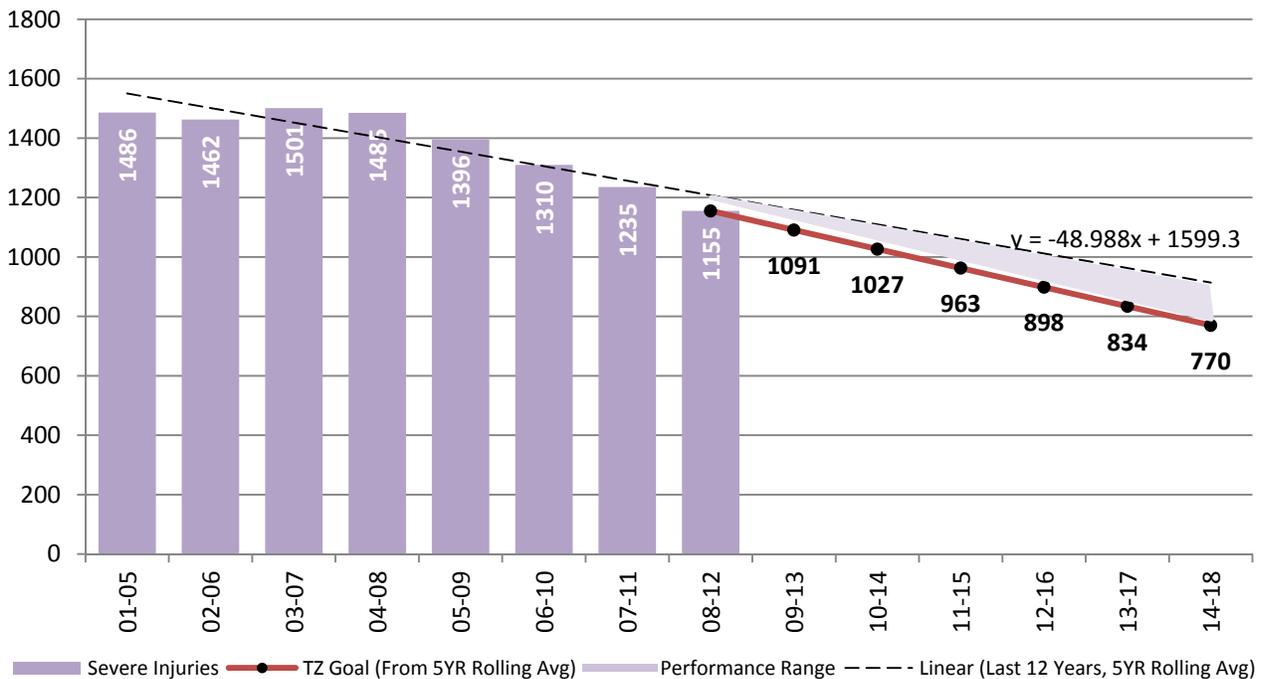


Figure 35. In order to reach the Target Zero benchmark of 770 speed-related severe injuries by 2018, severe injuries must be reduced by an average of 64 per year.

Speed-Related Collision Objectives & Strategies		
Objectives (What)	Strategies (How)	Implementation Area(s)
1. Reduce speeding through enforcement activities.	1.1 Conduct high-visibility enforcement efforts at locations where speeding-related crashes are more prevalent.	Enforcement
	1.2 Ensure that law enforcement officers have appropriate equipment for speeding enforcement.	Enforcement
	1.3 Research the benefits and challenges of automated speed enforcement; present findings to leadership for their consideration.	Enforcement, Legislative, Engineering
2. Use engineering measures to effectively manage speed.	2.1 Set speed limits which account for roadway design, traffic, and environment, including traffic volume, modal mixed-use, and local and regional function.	Engineering
	2.2 Use traffic-calming and other design factors to influence driver speed.	Engineering
	2.3 Design and maintain speed limit signs and ensure that warning signs are visible and installed at appropriate intervals.	Engineering
	2.4 Implement timed and coordinated traffic signals to improve traffic flow, reduce red-light running, and manage speeds.	Engineering
	2.5 Set consistent speed limits based on existing operation, considering road design, traffic flows, traffic mix, and other environmental factors.	Engineering
3. Increase public awareness of risk of driving at unsafe speeds.	3.1 Develop public education materials communicating specific concerns related to speeding.	Education
	3.2 Develop public education campaign designed to widely distribute information related to the dangers of speeding.	Education
4. Build partnerships to increase support for speed-reducing measures.	4.1 Expand corridor safety model to high-crash locations where data suggests a high rate of speeding-related fatal or severe injury crashes.	Leadership, Education, Engineering, Enforcement

**Emphasis Area: Vulnerable Roadway Users - Motorcyclists**

**Overview**

Motorcycle safety is an issue that remains of great concern in the state of South Carolina. State data indicates that 110 motorcyclists died on South Carolina roadways in 2012. In South Carolina, the motorcycle percentage of total traffic-related deaths decreased from 12.4% in 2008 to 9.8% in 2009, but then increased each year thereafter to its highest level of 14.3% in 2012. The percentage of deaths in 2012 that were motorcyclists (14.3%) represents a 27.4% increase from the prior four-year average. In our state, motorcycles make up 3% of registered vehicles, but motorcyclists account for nearly 12% of the traffic fatalities. Data analysis of motorcycle-involved fatal and severe injury collisions revealed impairment and speeding to have been major contributing factors to the collisions and a majority of motorcyclist fatality victims were male.

**Motorcyclist Fatalities and Severe Injuries  
2008-2012**

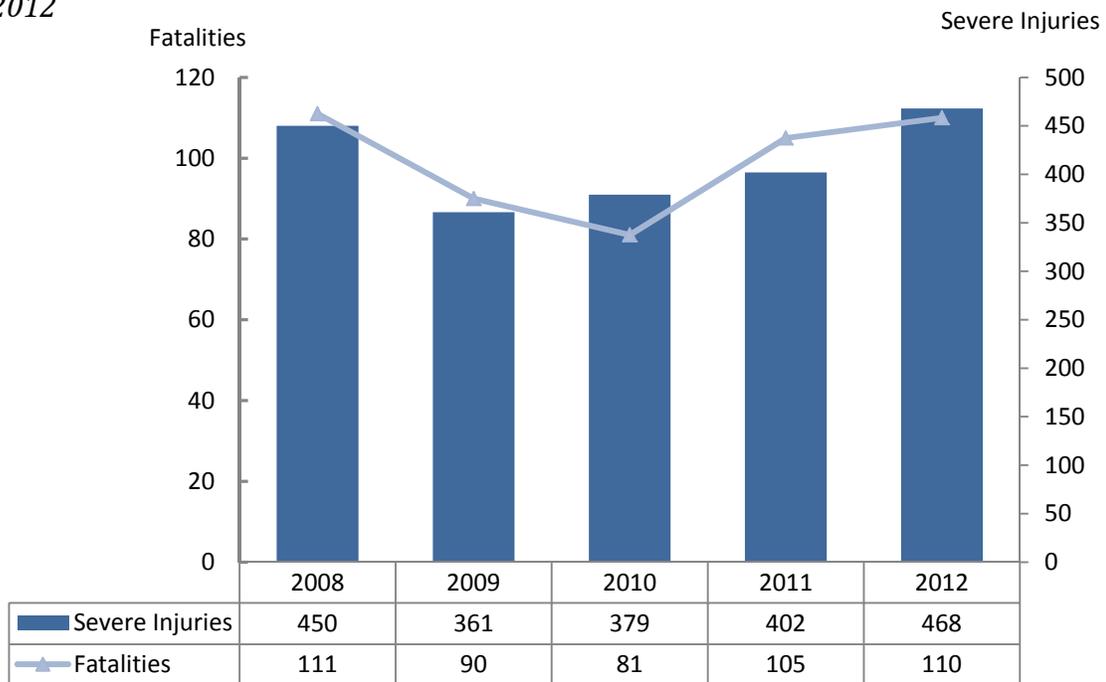


Figure 36.

## Our Challenge

South Carolina law requires helmet use for riders under the age of 21. As shown in Table 11, throughout the five years 2008-2012, 74.2% of South Carolina’s motorcyclists who died were not wearing a helmet. With the exception of the less-than-16 age group, all age groups demonstrated helmet use under 40%.

Table 12. Motorcyclist Fatalities  
By Helmet Usage, 2008-2012

Age Group	Motorcyclists Fatalities	Helmet Not Used		Helmet Used	
		Number	Percent	Number	Percent
<16	3	1	33.3%	2	66.7%
16-20	32	20	62.5%	12	37.5%
21-24	46	30	65.2%	16	34.8%
25-34	106	83	78.3%	23	21.7%
35-44	115	94	81.7%	21	18.3%
45-54	106	84	79.2%	22	20.8%
55-64	57	37	64.9%	20	35.1%
64+	31	19	61.3%	12	38.7%
Unknown	1	1	100.0%	0	0.0%
Total	497	369	74.2%	128	25.8%

As shown in Figure 37, during the five-year period in South Carolina the 34-44 age group made up a plurality of motorcycle fatalities (23.1%), followed by the 25-34 and 45-54 age groups (both 21.3%).

Motorcyclist Fatalities and Severe Injuries  
By Age Group and Injury Severity, 2008-2012

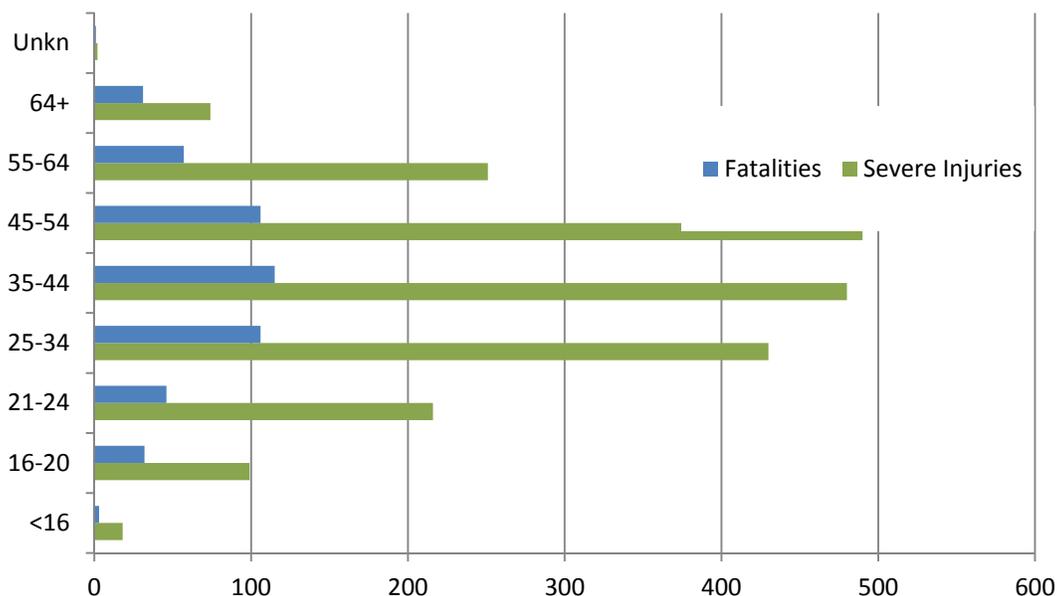


Figure 37.

As seen in Table 13 below, 90% of severely injured and 93% of fatally injured motorcyclists did not have a motorcycle endorsement on their driver's license.

Table 13. Motorcyclist Fatalities and Severe Injuries  
*By License Class, 2008-2012*

Driver License Class	Severe Injury	Fatal
Commercial Driver's License	179	46
Regular Driver's License	1119	294
Non-commercial truck or motor home	19	4
Non-commercial with tow	8	3
Moped	8	2
Motorcycle	201	35
No license/ Other (including MC permit)	526	113
Total	2060	497

## Our Goal

### Motorcyclist Fatalities, 2001-2018

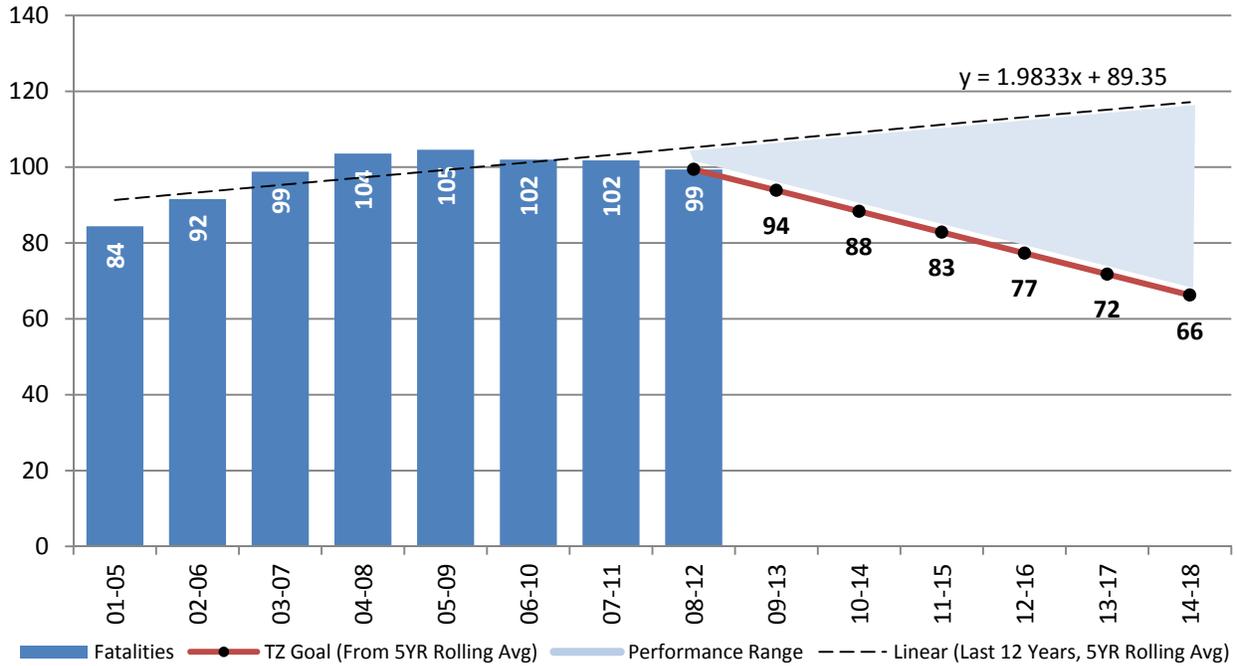


Figure 38. In order to reach the Target Zero benchmark of 66 motorcyclist fatalities by 2018, fatalities must be reduced by an average of 6 per year.

### Motorcyclist Severe Injuries, 2001-2018

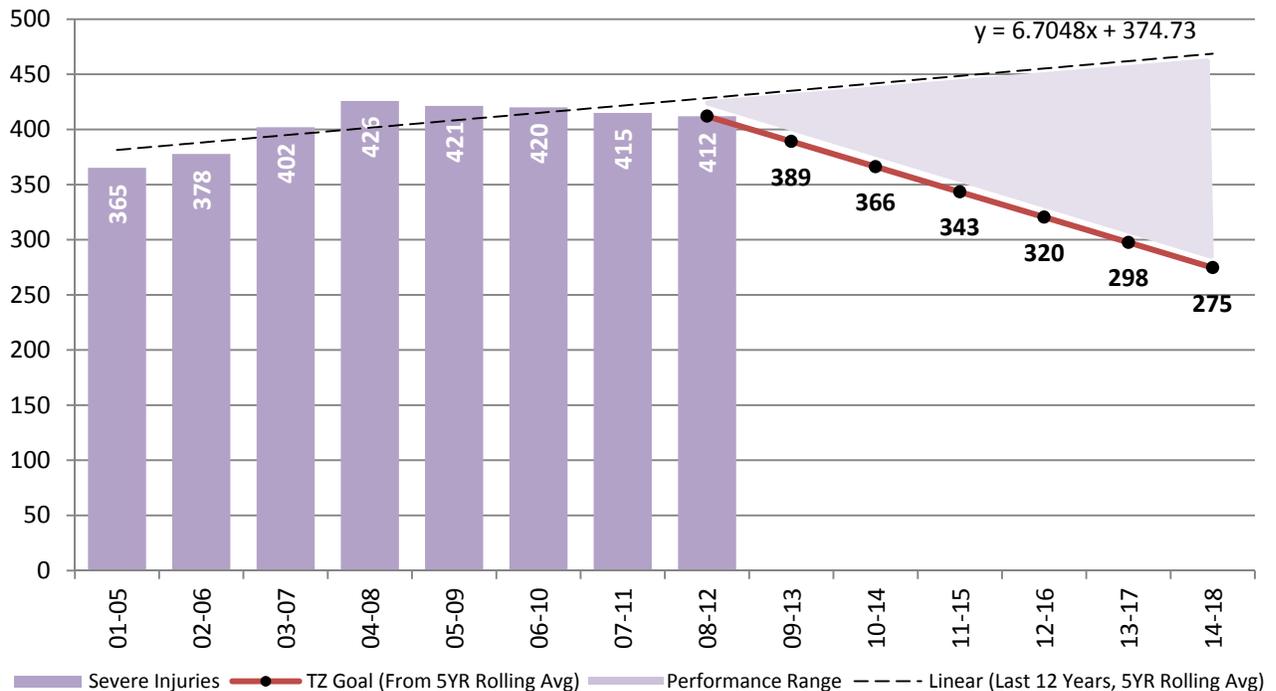


Figure 39. In order to reach the Target Zero benchmark of 275 motorcyclist severe injuries by 2018, severe injuries must be reduced by an average of 23 per year.

### Motorcyclist-Involved Collision Objectives & Strategies

Objectives (What)	Strategies (How)	Implementation Area(s)
1. Educate riders and drivers on motorcycle safety.	1.1 Expand Motorcycle Rider Education Program.	Education
	1.2 Enhance educational efforts during motorcycle rallies.	Education
	1.3 Maintain current motorcycle safety campaigns.	Education
	1.4 Maintain current Motorcycle Safety Task Force to review and implement the most current assessment recommendations.	Education, Public Policy
	1.5 Support legislation requiring satisfactory completion of a certified Motorcycle Rider Education Program prior to licensing.	Public Policy
	1.6 Educate users on the importance of wearing the proper safety gear.	Education
2. Minimize the adverse consequences of leaving the roadway by improving the roadside.	2.1 Provide a proper clear zone. Remove, relocate, shield, or delineate trees and other fixed objects where cost effective.	Engineering
3. Develop enforcement strategy based on top contributing factors to motorcycle-involved collisions.	3.1 Conduct aggressive enforcement; increase enforcement visibility in high-crash/risk areas.	Enforcement
	3.2 Focus enforcement efforts on counties with highest number/rate of motorcyclist fatalities and serious injuries.	Enforcement
4. Review written knowledge test for motor vehicle drivers and motorcycle operators.	4.1 Enhance general road knowledge test to include motorcycle awareness questions.	Education, Public Policy
	4.2 Enhance motorcycle knowledge test to contain more motorcycle-specific questions.	Education, Public Policy

## **Emphasis Area: Vulnerable Roadway Users - Pedestrians**

### **Overview**

Pedestrian fatalities account for, on average, 12% of all traffic-related deaths in South Carolina. South Carolina experienced a high number (271) of pedestrian-involved fatal and severe injury collisions in 2008 (Figure 32). That number decreased by 12.5% the following year (2009). Since 2009, however, the number of pedestrian-involved fatal and severe injury collisions has increased each year, by 5.1% in 2010, 2% in 2011, and 9.1% in 2012.

### **Our Challenge**

In pedestrian-involved fatalities and severe injury collisions, pedestrians were shown as having contributed to the collisions more than 65% of the time (see Table 14). Also, according to state data analysis, alcohol-impairment is high among pedestrians involved in fatal and severe injury collisions and has shown to have contributed to the collision. Pedestrians are often encountered by motorists at night on secondary roads where they are often inconspicuous to the driver due to dark clothing. See Figure 42 for primary contributing factors of pedestrian-involved fatal and severe injury collisions.

**Pedestrian Involved Fatal and Severe Injury Collisions  
2008-2012**

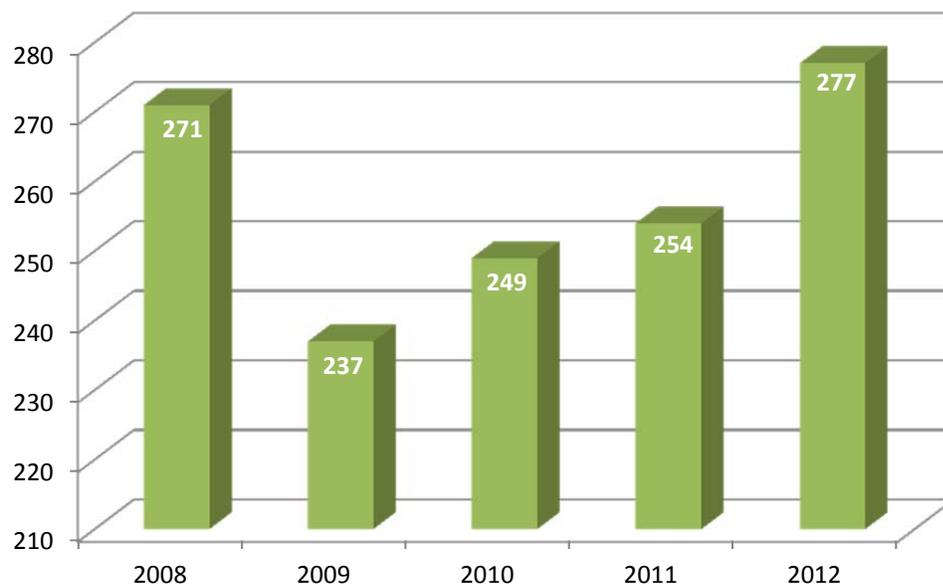


Figure 40.



Table 14. Pedestrian Fatalities and Severe Injury Crashes  
*Where Pedestrian Contributed to the Collision, 2008-2012*

Year	Fatal	Severe Injury
2008	83.0%	57.2%
2009	83.0%	58.9%
2010	85.6%	57.5%
2011	85.1%	64.9%
2012	79.7%	64.7%
Total	83.1%	60.7%

Pedestrian fatalities accounted for nearly 12% of the total traffic fatalities in South Carolina from 2008 to 2012. There was a 23% increase in pedestrian fatalities from 2008 (100) to 2012 (123).

Pedestrian Fatalities  
*2008-2012*

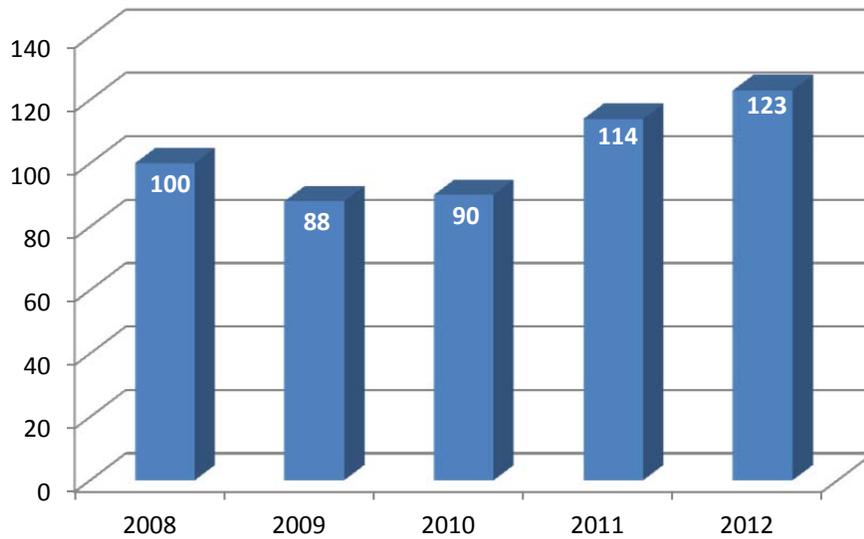


Figure 41.

**Pedestrian Fatalities and Severe Injuries**  
*By Age Group, 2008-2012*

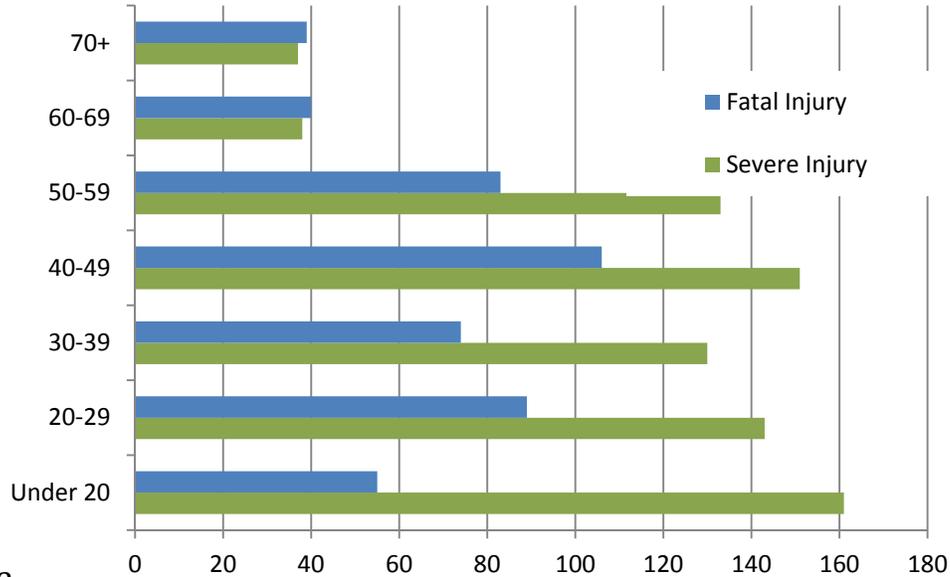


Figure 42.

As seen in Figure 43 below, there were many non-motorist activities that contributed to the pedestrian-involved fatal or severe injury collisions. The behaviors or actions taken by the non-motorist, or pedestrian, accounted for 64.2% of the total primary contributing factors for these collisions.

**Pedestrian Fatalities and Severe Injury Crashes**  
*By Top Contributing Factors, 2008-2012*

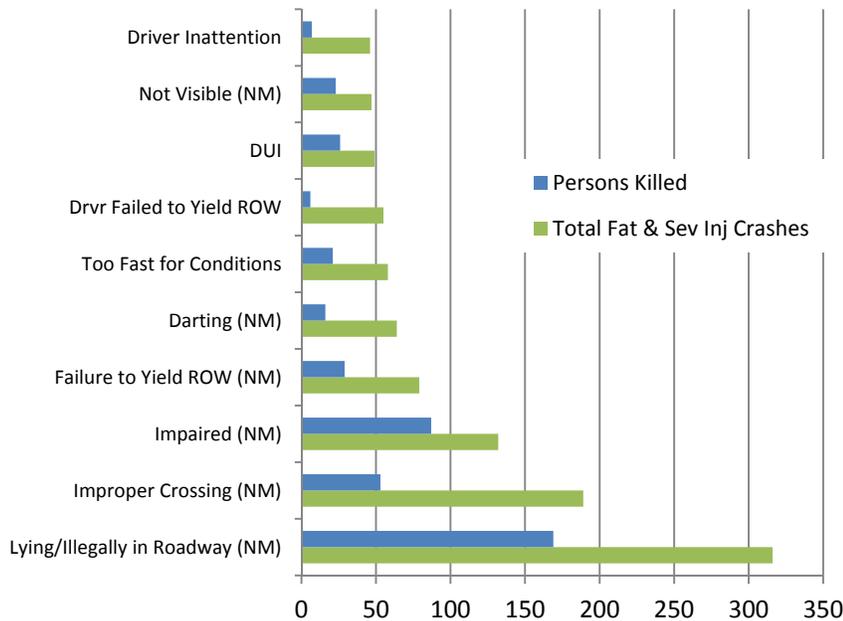


Figure 43.

NM: Non-motorist

## Our Goal

### Pedestrian Fatalities, 2001-2018

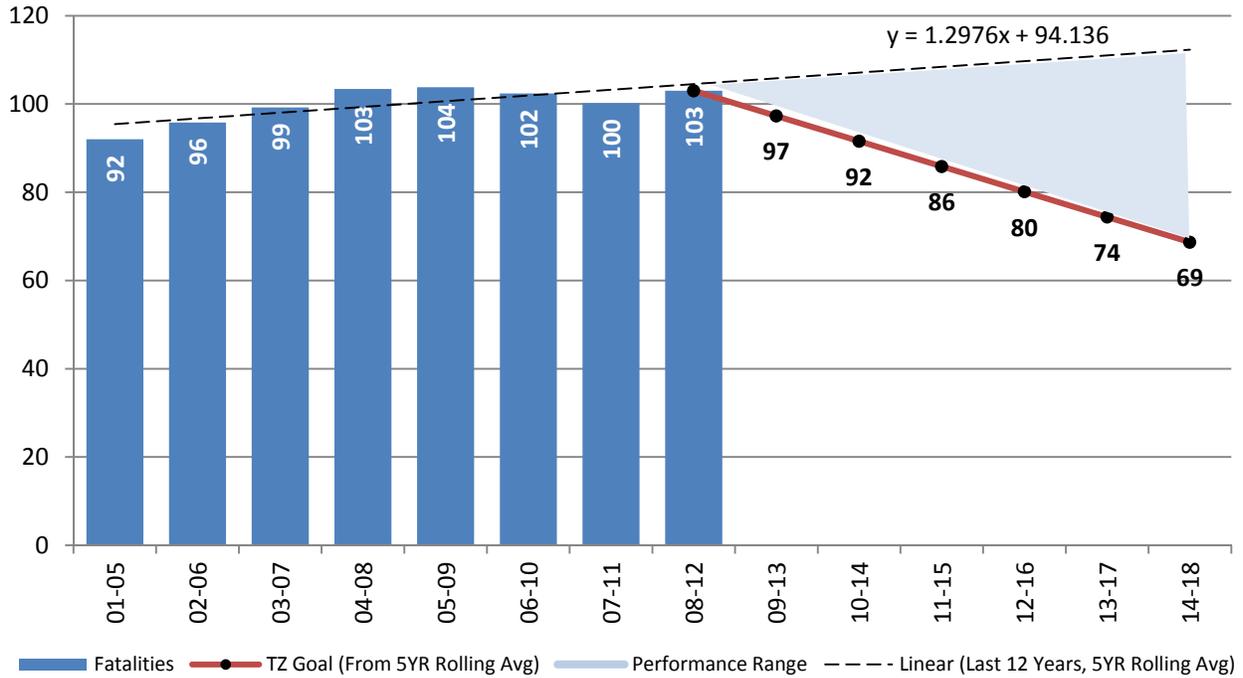


Figure 44. In order to reach the Target Zero benchmark of 69 pedestrian fatalities by 2018, fatalities must be reduced by an average of 6 per year.

### Pedestrian Severe Injuries, 2001-2018

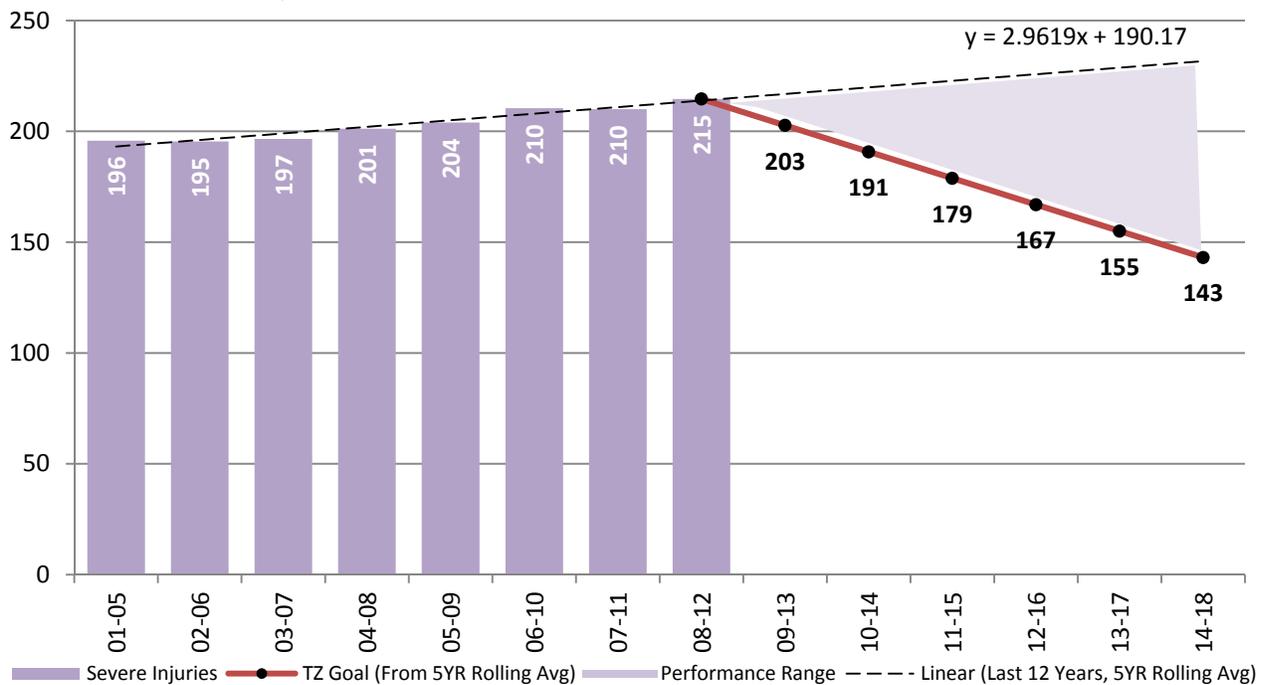


Figure 45. In order to reach the Target Zero benchmark of 143 pedestrian severe injuries by 2018, severe injuries must be reduced by an average of 12 per year.

Pedestrian-Involved Collision Objectives & Strategies		
Objectives (What)	Strategies (How)	Implementation Area(s)
1. Expand and improve pedestrian facilities.	1.1 Install separated paths/sidewalks and other pedestrian-friendly road features along corridors and at intersections where supported by crash analysis.	Engineering
	1.2 Consider pedestrian safety and mobility during the needs assessment of all projects.	Engineering
	1.3 Enhance intersection and roadway design to encourage livable communities.	Engineering
2. Increase enforcement of laws pertaining to pedestrians.	2.1 Implement targeted enforcement campaigns for pedestrians and motorists. Coordinate special enforcement efforts on a local and district level.	Enforcement, Education
	2.2 Educate officers on pedestrian-related laws.	Enforcement, Education
3. Improve pedestrian safety awareness and behaviors.	3.1 Implement an awareness campaign emphasizing the risks to pedestrians on high-volume/speed roadways resulting from disabled vehicle, motorist assistance, crossing multi-lanes, etc.	Education
	3.2 Continue pedestrian safety campaigns which promote the use of reflective apparel among pedestrians (conspicuity enhancement).	Education
	3.3 Continue driver education on pedestrian awareness.	Education
	3.4 Encourage the continued School Audits performed by DHEC and other community stakeholders.	Public Policy
4. Improve likelihood of pedestrian survival.	4.1 Improve response times to rural collision sites.	Emergency Services

## **Emphasis Area: Vulnerable Roadway Users – Moped Operators**

### **Overview**

In South Carolina a moped is defined as a cycle with pedals or without pedals and with a motor of not more than fifty cubic centimeters. Its power will not exceed two brake horsepower, and the motor is not capable of propelling the vehicle at a speed in excess of thirty miles an hour on level ground. Moped operators represented 2.7% of the total traffic fatalities in South Carolina from 2008 to 2012 and 3.6% of the severe injuries.

### **Moped Operator Fatalities and Severe Injuries 2008-2012**

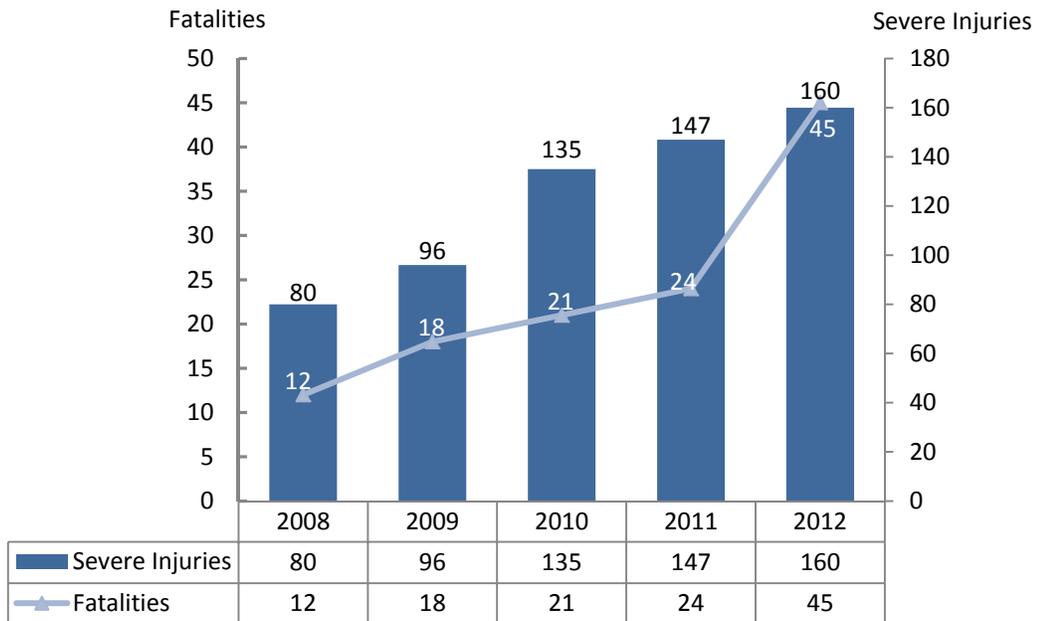


Figure 46.

### **Our Challenge**

The number of fatal and severe injury collisions involving mopeds increased 116% from 2008 (88 collisions) to 2012 (190 collisions). Moped fatalities have almost quadrupled during the same time period, from 12 in 2008 to 45 in 2012.

Nearly half of moped-involved fatal and severe injury collisions occurred on primary roads (46%), more than one-third (38%) occurred on secondary roads, and the remainder occurred on county and interstate roads. More than half of moped-involved fatal and severe injury collisions occurred when lighting conditions were reported as “daylight” on the collision report form.

Moped Operator Fatalities and Severe Injuries  
By Route Category, 2008-2012

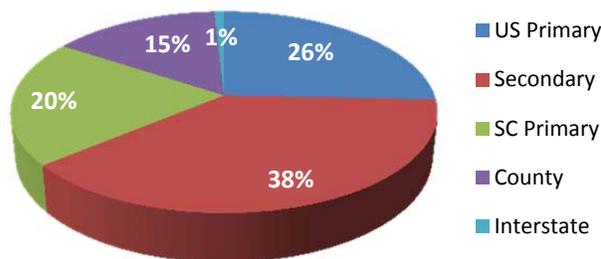


Figure 47.

Moped Collisions  
By Light Condition, 2008-2012

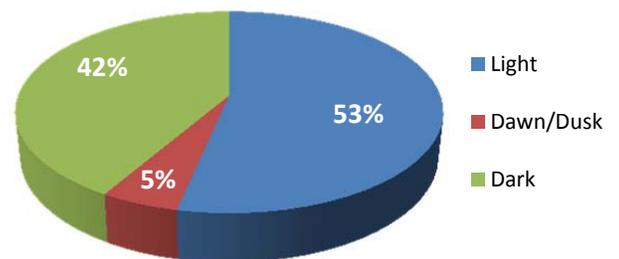


Figure 48.

Figure 49 shows that the age group with the highest number of moped fatalities was 55-59 and 45-49 for severe injuries.

Moped Operator Fatalities and Severe Injuries  
By Age Group, 2008-2012

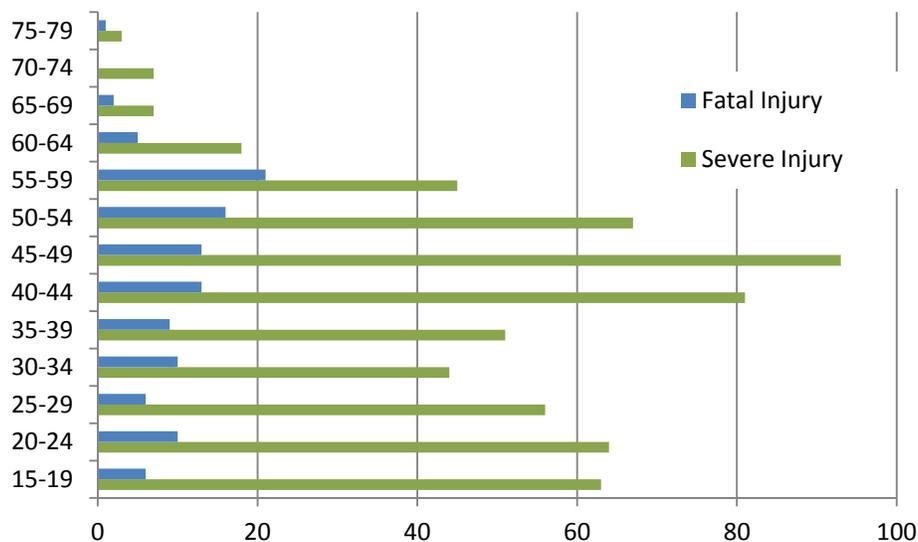


Figure 49.

In fatal collisions involving a moped and at least one other vehicle, moped operators were shown to have contributed to the collision 59% of the time, compared to the other driver at 51%. It is important to note that an officer completing the collision report form can indicate more than one driver contributed to the collision; therefore the percentages presented in the table below should not be added together.

Table 15. Fatal Collisions involving Mopeds and other Vehicles  
*By Who Contributed to the Collision, 2008-2012*

Driver Type	Contributed to Collision*
Moped Drivers	59%
Other Drivers	51%

\*Will total more than 100 because more than one driver can contribute to the collision.

Moped Operator Fatalities and Severe Injury Crashes  
*By Top Contributing Factors, 2008-2012*

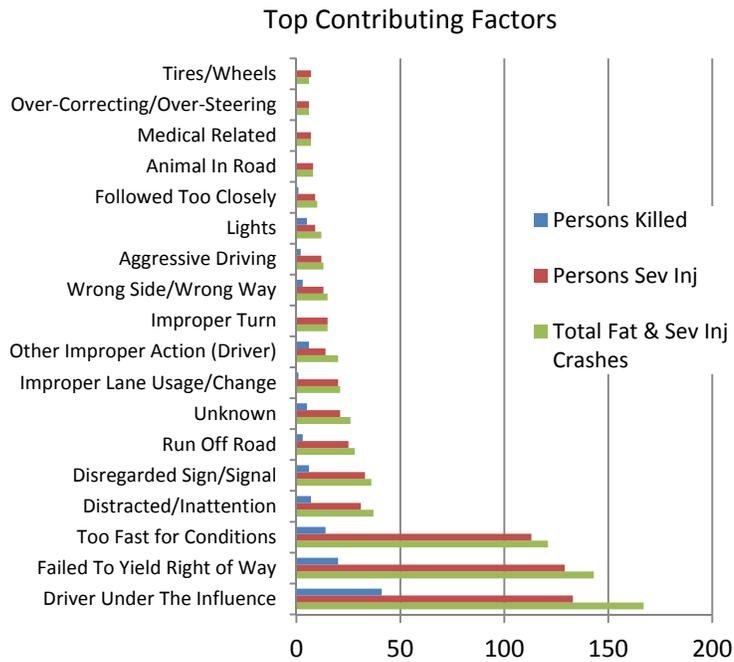


Figure 50.

In South Carolina, to operate a moped on the public highways and streets, the driver must be at least 14 years of age, have a valid driver’s license/motorcycle license, a permit, or a valid moped operator’s license. A person whose driver’s license has been suspended for six months or less is not required to obtain a moped operator’s license or possess a valid driver’s license during the period of suspension when operating a moped.

## Our Goal

### Moped Fatalities, 2001-2018

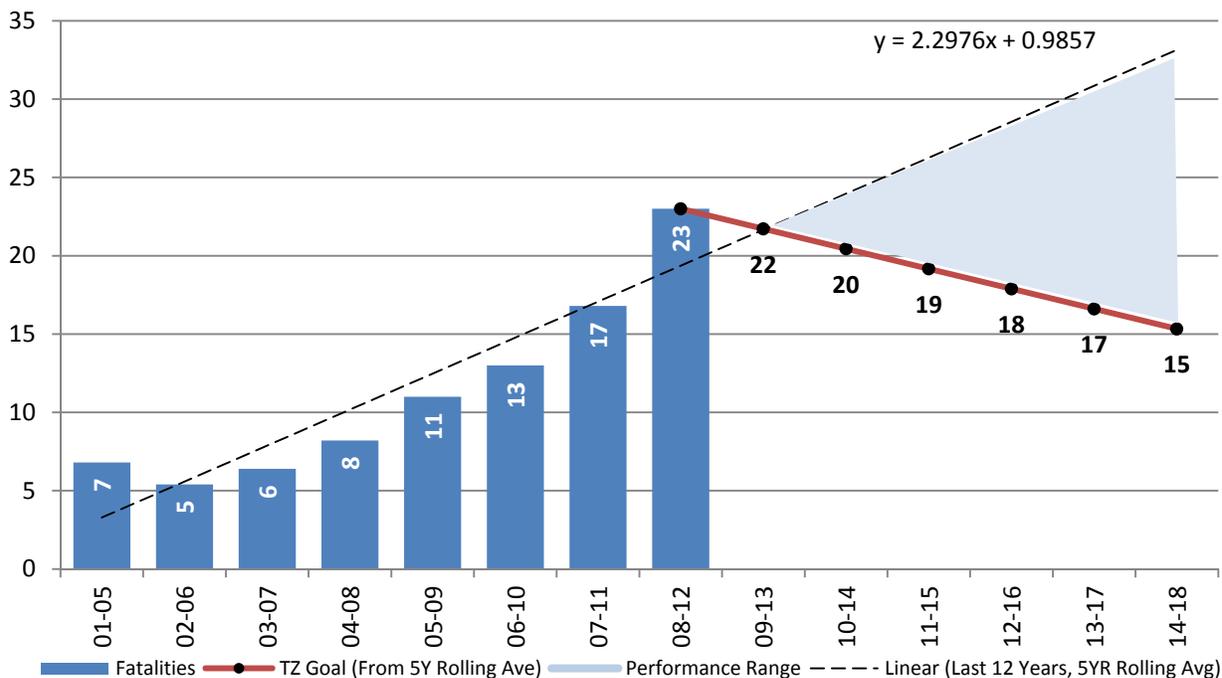


Figure 51. In order to reach the Target Zero benchmark of 15 moped operator fatalities by 2018, fatalities must be reduced by an average of 1 per year.

### Moped Severe Injuries, 2001-2018

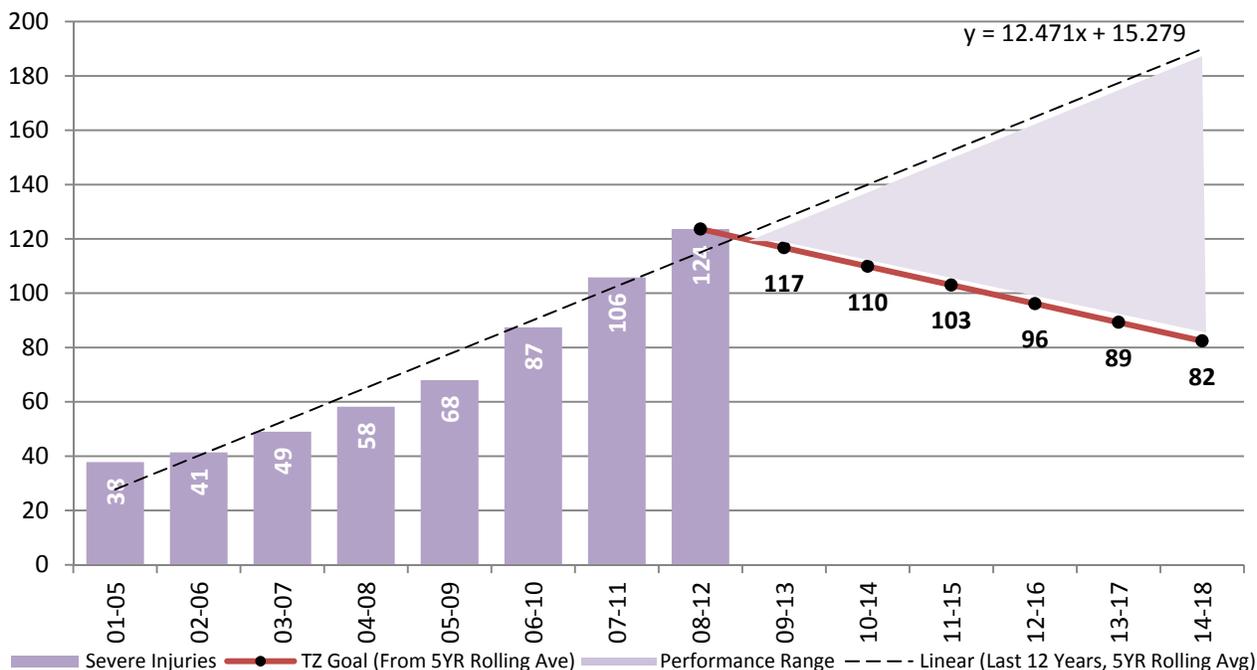


Figure 52. In order to reach the Target Zero benchmark of 82 moped operator severe injuries by 2018, severe injuries must be reduced by an average of 7 per year.

### Moped Operator-Involved Collision Objectives & Strategies

Objectives (What)	Strategies (How)	Implementation Area(s)
1. Enforce moped laws.	1.1 Target enforcement efforts in counties with a high number of moped fatal/severe injury crashes.	Enforcement
2. Increase education.	2.1 Provide training and education for moped operators.	Education
	2.2 Explore possibility of providing education information to moped retail and rental companies.	Education
3. Legislative review.	3.1 Review current legislation and encourage revisions for improvement.	Public Policy

## Emphasis Area: Bicyclists

### Overview

In South Carolina, from 2008 to 2012, there were 71 bicyclist fatalities (1.6% of total traffic deaths) and 353 severely injured bicyclists (2.1% of all traffic-related severe injuries).

### Bicyclist Fatalities and Severe Injuries 2008-2012

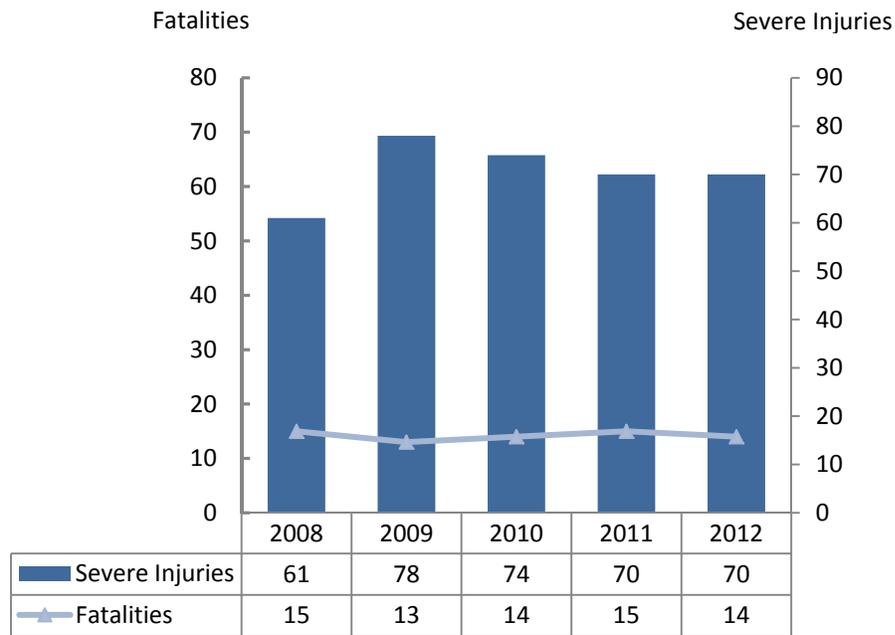


Figure 53.

### Our Challenge

Improper bicyclists' actions account for nearly 30% of the contributing factors in fatal and severe injury collisions in which they were involved.

### Bicyclists Fatalities and Severe Injuries By Route Classification, 2008-2012

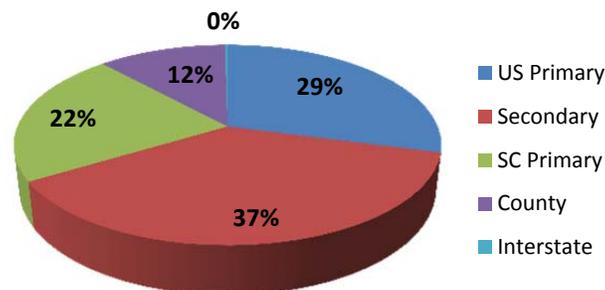


Figure 54.

The figure below illustrates the top contributing factors for bicyclist-involved fatal and severe injury collisions. The actions of a non-motorist, in this case the bicyclist, accounted for almost 30% of the factors that contributed to these collisions. Bicyclist activities include failure to yield right-of-way, inattention, dark clothing, disregard of signs/signals, riding on the wrong side of the road, and being under the influence of alcohol and/or drugs.

**Bicyclist Fatalities and Severe Injury Crashes**  
*By Top Contributing Factors Percent of Total, 2008-2012*

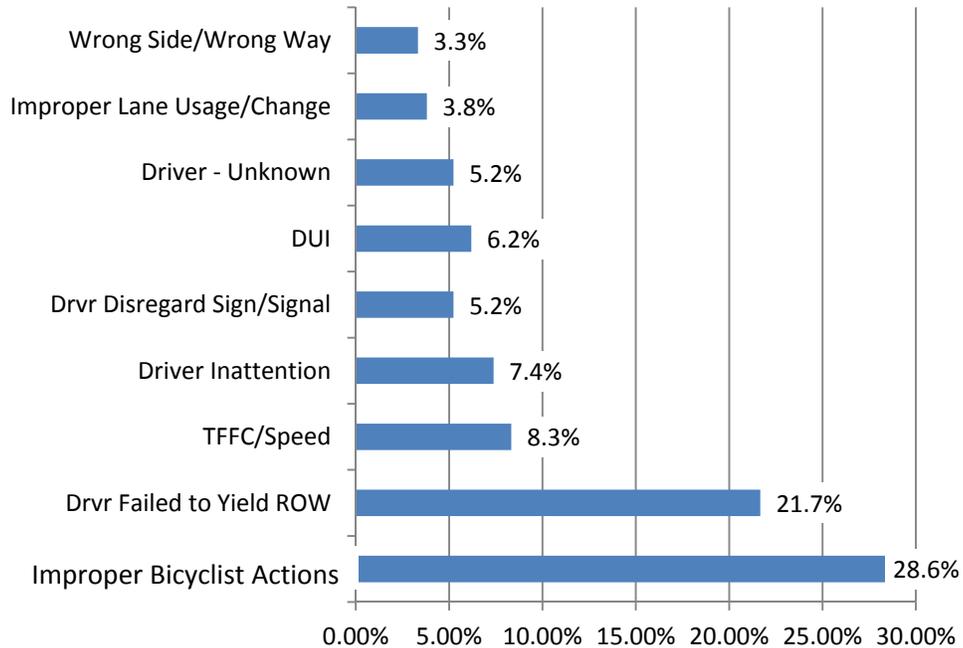


Figure 55.

## Our Goal

### Bicyclist Fatalities, 2001-2018

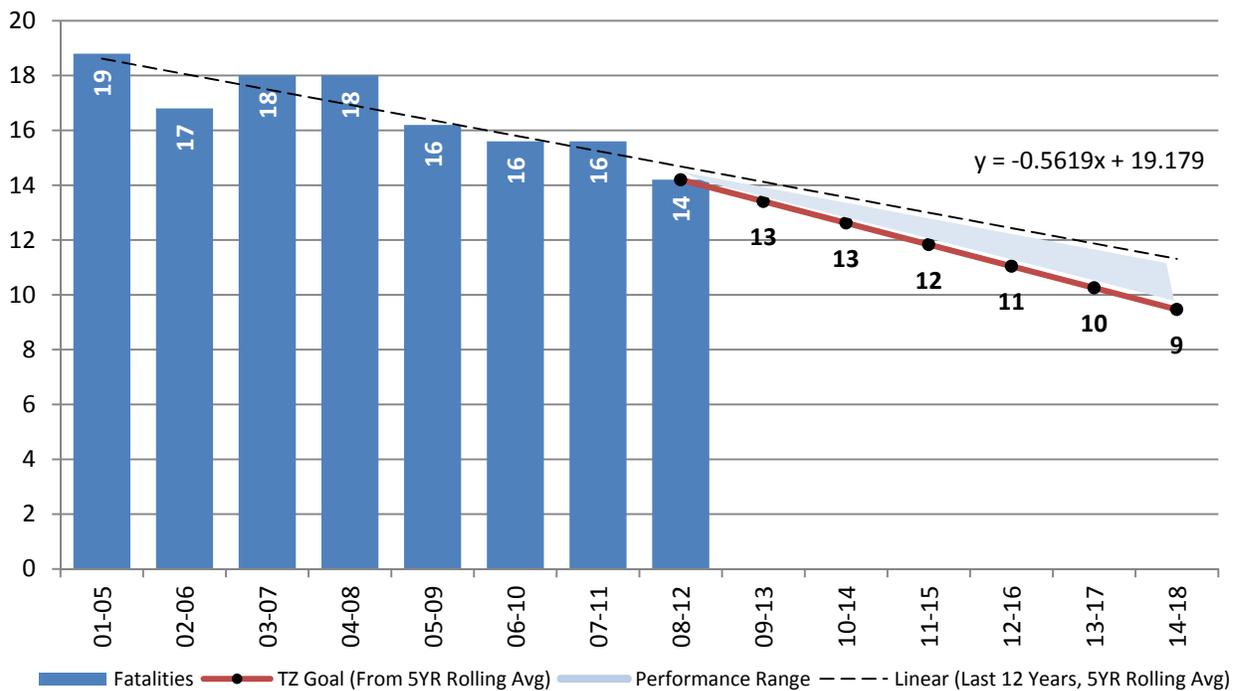


Figure 56. In order to reach the Target Zero benchmark of 9 bicyclist fatalities by 2018, fatalities must be reduced by an average of 1 per year.

### Bicyclist Severe Injuries, 2001-2018

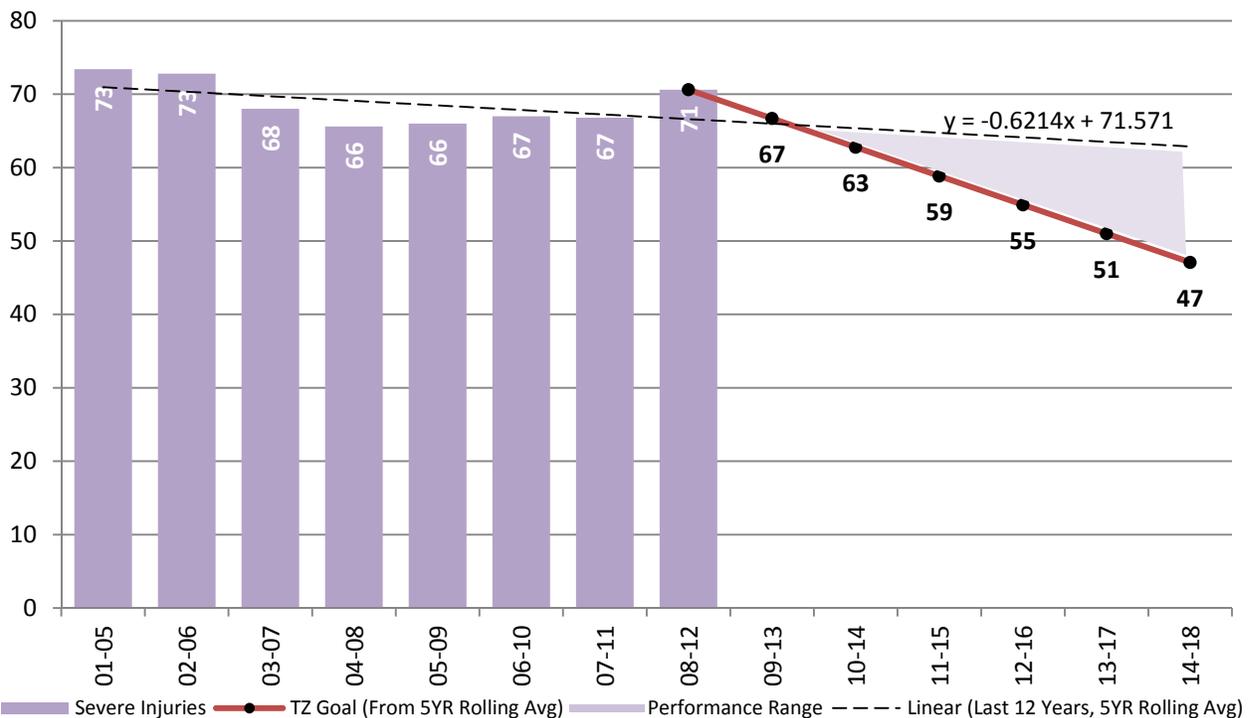


Figure 57. In order to reach the Target Zero benchmark of 47 bicyclist severe injuries by 2018, severe injuries must be reduced by an average of 4 per year.

Bicyclist-Involved Collision Objectives & Strategies		
Objectives (What)	Strategies (How)	Implementation Area(s)
1. Improve bicyclist facilities.	1.1 Consider bicycle accommodations, mobility, and safety needs during the needs assessment of all projects.	Engineering
	1.2 Implement separate paths for bicyclists where supported by crash/safety data.	Engineering
2. Improve bicyclist safety awareness and behavior.	2.1 Increase bicycle safety education programs in elementary schools.	Education
	2.2 Educate roadway users on bicycle visibility, performance, etc.	Education
	2.3 Promote the use of reflective apparel and lights among bicyclists.	Education
	2.4 Educate law enforcement and all road users (including bicyclists) on bicycle laws.	Education
3. Coordinate with local stakeholders to reduce the number and severity of bicycle-involved collisions.	3.1 Identify top counties with bicycle-involved collisions, approach MPOs/COGs to offer statistical assistance, and discuss possible countermeasures.	Education, Engineering
	3.2 Encourage the continued School Audits performed by DHEC and other community stakeholders.	Public Policy

## **Emphasis Area: Intersections and Other High-Risk Roadway Locations**

### **Intersections**

#### **Overview**

Intersections involve two or more roads crossing or merging, thereby creating an opportunity for conflict between two or more vehicles, or between vehicles and pedestrians or other vulnerable roadway users. When vehicles or pedestrians are passing through an intersection by either turning or crossing through, these actions require road users to utilize the same space, which may result in a collision if they arrive at the same time. Research indicates that nationwide, nearly 40 percent of all crashes and 20 percent of fatal crashes are intersection-related. For the purposes of data collection and analysis, intersection-related collisions are defined as those that occurred within 250 feet of the center of an intersection. Safety literature indicates that the two most common crash scenarios at intersections involve left turns and being struck from the rear.

#### **Intersection-Related Fatalities and Severe Injuries 2008-2012**

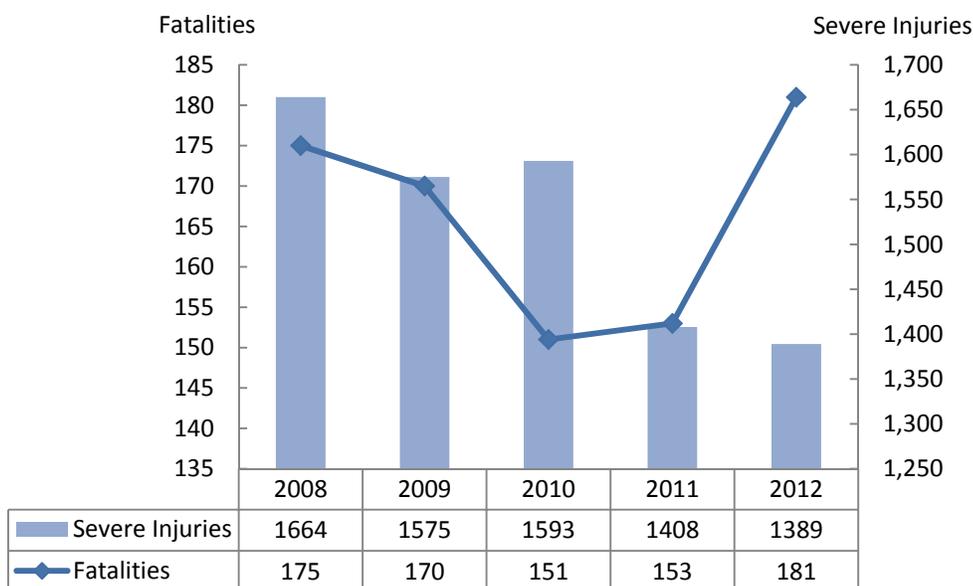


Figure 58.

#### **Our Challenge**

During the five-year period, 2008 to 2012, there were 17,503 fatal or severe injury crashes in South Carolina. Of these, almost one-fourth (24.9%, or 4,358) were intersection-related. The number of persons killed in intersection-related crashes from 2008 - 2012 was 830, an average of 166 deaths annually. Over 7,600 persons were severely injured in these collisions (see Figure 58 above).

As seen in Figure 59 below, the number of intersection-related fatalities declined almost 14% from 2008 to 2010 before increasing 1.3% in 2011 and 18% in 2012 from the previous year.

Intersection-Related Fatalities  
2008-2012



Figure 59.

Over half of the intersection-related fatal and severe injury collisions during the 2008-2012 time period occurred at four-way intersections, the highest category. The second highest category of intersection-related collisions was T-intersections, with 42% of the total number of fatal and severe injury collisions (see Figure 60).

Intersection-Related Fatalities and Severe Injuries  
By Junction Type, 2008-2012

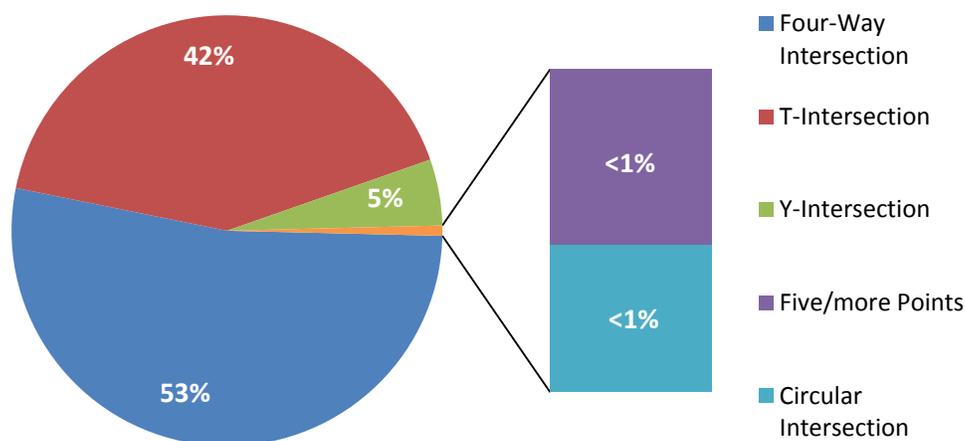


Figure 60.

## Our Goal

### Intersection-Related Fatalities, 2001-2018

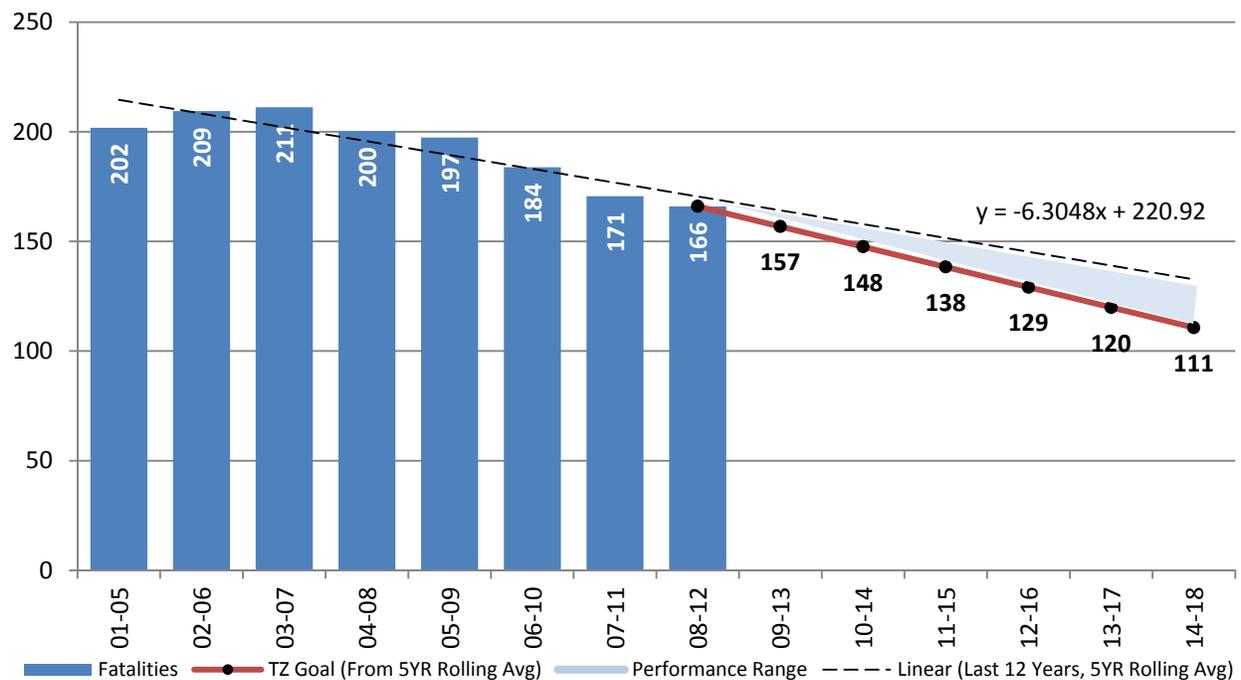


Figure 61. In order to reach the Target Zero benchmark of 111 intersection-related fatalities by 2018, fatalities must be reduced by an average of 9 per year.

### Intersection-Related Severe Injuries, 2001-2018

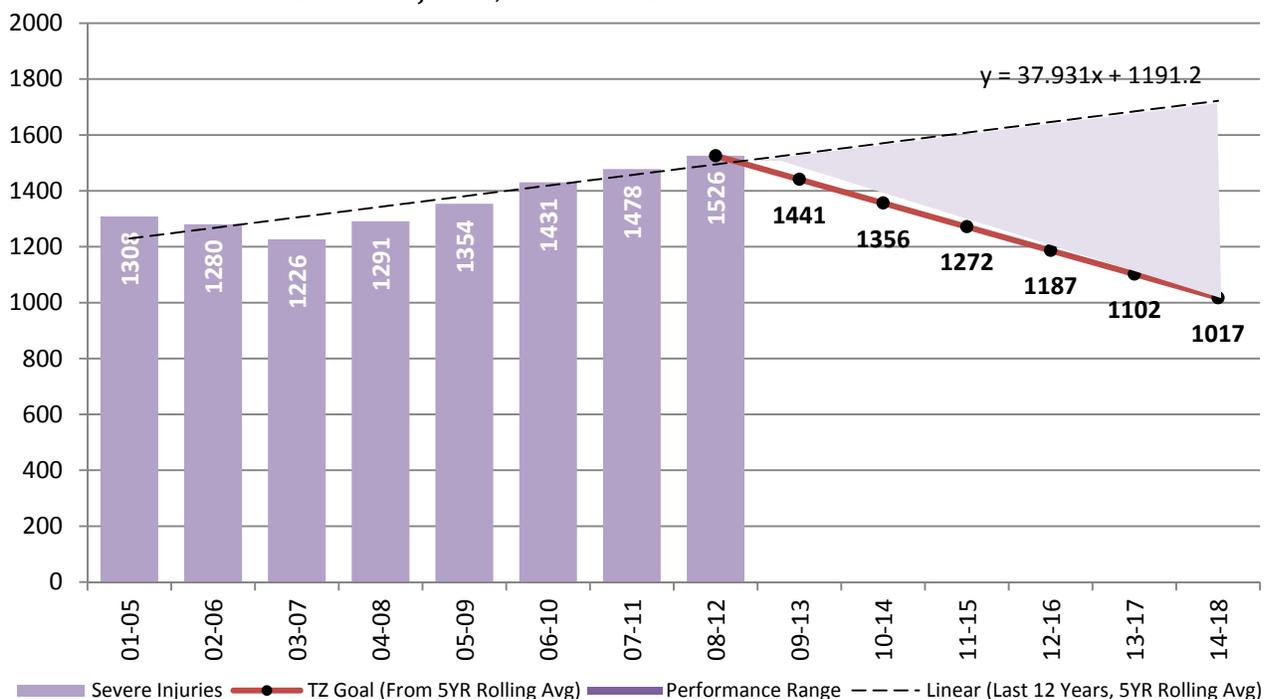


Figure 62. In order to reach the Target Zero benchmark of 1,017 intersection-related severe injuries by 2018, severe injuries must be reduced by an average of 85 per year.

## Intersection-Related Collision Objectives & Strategies

Objectives (What)	Strategies (How)	Implementation Area(s)
1. Reduce the frequency and severity of crashes at intersections by limiting conflicts through geometric design and traffic control.	1.1 Utilize innovative design techniques, such as roundabouts and superstreets, in targeted areas.	Engineering
	1.2 Identify high-crash intersections and evaluate for possible geometric design improvements.	Engineering
	1.3 Improve signing and pavement markings at high risk intersections.	Engineering
	1.4 Install LED signalized heads and reflective back plates.	Engineering
	1.5 Coordinate with local Councils of Government and Metropolitan Planning Organizations to identify areas where improvements can be made to street lighting.	Engineering, Education
2. Reduce the likelihood of intersection-related collisions due to traffic violations.	2.1 Provide targeted enforcement of traffic laws to include speed enforcement, reducing stop sign violations, and red-light running.	Enforcement, Engineering
	2.2 Conduct high-visibility enforcement in and around high-crash intersections.	Enforcement
3. Advise public on intersection safety.	3.1 Educate roadway users on the contributing factors associated with intersection crashes, complying with traffic control devices and providing proper right-of-way to all road users.	Education
	3.2 Provide education on benefits of and instructions on traversing alternative intersections.	Education
4. Support public policy and legislative changes to allow for innovative techniques to reduce traffic violations at intersections.	4.1 Research the benefits and challenges of automated enforcement at signalized intersections, allowing for red-light-running cameras. Present findings to leadership for their consideration.	Legislative, Enforcement, Engineering

## Work Zones

### Overview

A work zone is a temporary roadway environment that can pose a risk to maintenance and construction workers as well as drivers. These areas are identified by warning signs/signals that mark the beginning and ending of the work area. Work zones are most commonly thought of as sections of roadway on which repairs are being performed, but they can also be mobile work activities, involving moving vehicles and workers.

The figure below indicates the number of fatalities and severe injuries that occurred in work zone-related collisions. It is important to note that work zone-related collisions are not singularly identified based on whether workers are present at the time of the crash. An officer completing a collision report may use the existence of signage, lane restrictions or reductions, or the presence of equipment or workers to determine if the site or origination of a collision was within a work zone. Additionally, a collision may have occurred within a work zone but the cause of the collision may be unrelated to any work zone activity or area, as might be the case of a drowsy or distracted driver-related crash.

Work Zone Fatalities and Severe Injuries  
2008-2012

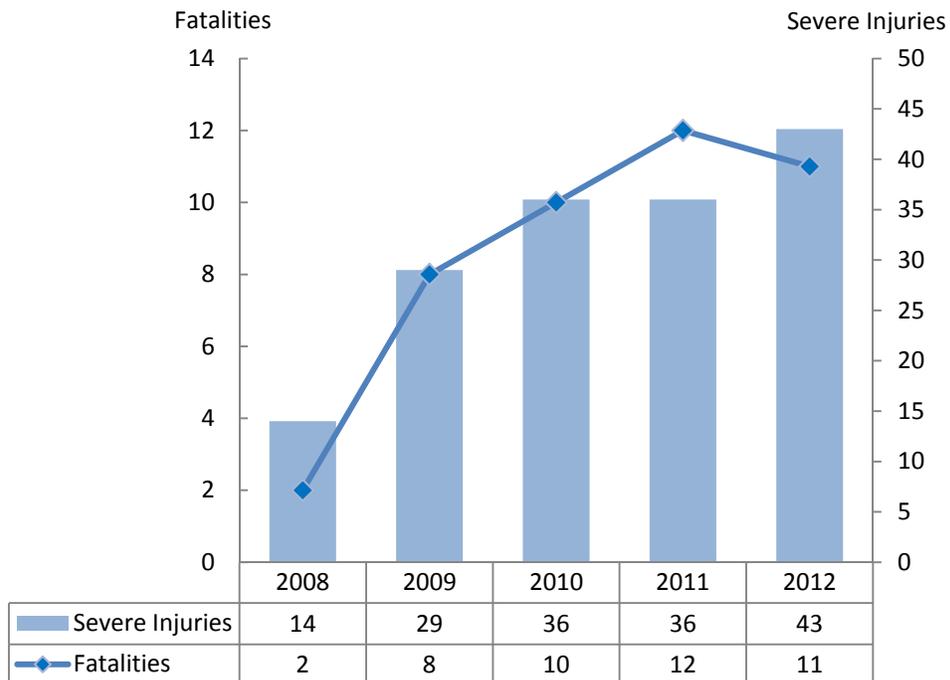


Figure 63.

## Our Challenge

Work zone fatal and severe injury collisions have been trending upward since 2008 when 14 fatal and severe injury crashes resulted in the deaths of 2 persons while severely injuring 14. Most recently, in 2012, there were 43 work zone fatal and severe injury collisions, a 207% increase from 2008 (see Table 17.) The most frequently reported contributing factor in work zone fatal and severe injury collisions is driving too fast for conditions and failure to yield right of way. Charleston, Greenville, and York Counties experienced the highest number of work zone collisions.

Table 17 below represents the number of fatal and severe injury work zone-related collisions from 2008 to 2012. There was a 7.5% increase in the number of these collisions from 2008 to 2012. However, these figures indicate a large decline from 2003 which was prior to the implementation of the Safety Improvement Team (SIT), declining by almost 50% (see Figure 5, page 8 for more information).

Table 17. Work Zone Related Fatal and Severe Injury Collisions.

Year	2008	2009	2010	2011	2012	% Change '11-'12
Fatal Collisions	2	8	7	12	11	-8.3%
Severe Injury Collisions	12	16	26	28	32	+14.3%
Total	14	24	33	40	43	+7.5%

As seen in Table 18 below, work zone activities may be classified into several different types. Shoulder or median work may encompass clearing or shielding roadside hazards to maintain a proper clear zone. Utility or maintenance work such as mowing or painting would be identified in the intermittent or moving work category.

Table 18. Work Zone Related Fatal and Severe Injury Collisions  
By Work Zone Type, 2008-2012

Work Zone Type	Number of Crashes
Shoulder/Median Work	68
Lane Closure	34
Intermittent/Moving Work	24
Other	22
Lane Shift/Cross-Over	4
Unknown	2
<b>Total</b>	<b>154</b>

Work zone-related collisions may occur at any number of locations, as seen in Table 19 (refer to Figure 64 for an illustration of work zone areas). A work zone activity area is one in which work takes place; the advanced warning area tells drivers what to expect ahead; the transition area moves traffic out of its normal path; and the termination area allows traffic to resume normal operation. “Before the first sign” means that the collision occurred just prior to the advanced warning area.

Tables 19. Work Zone Fatal & Severe Injury Collisions  
By Work Zone Location, 2008-2012

Work Zone Location	Number of Crashes
Activity Area	115
Advanced Warning Area	22
Transition Area	9
Before First Sign	5
Termination Area	3
<b>Total</b>	<b>154</b>

### Work Zone Areas



Figure 64.

## Our Goal

### Work Zone Fatalities, 2001-2018

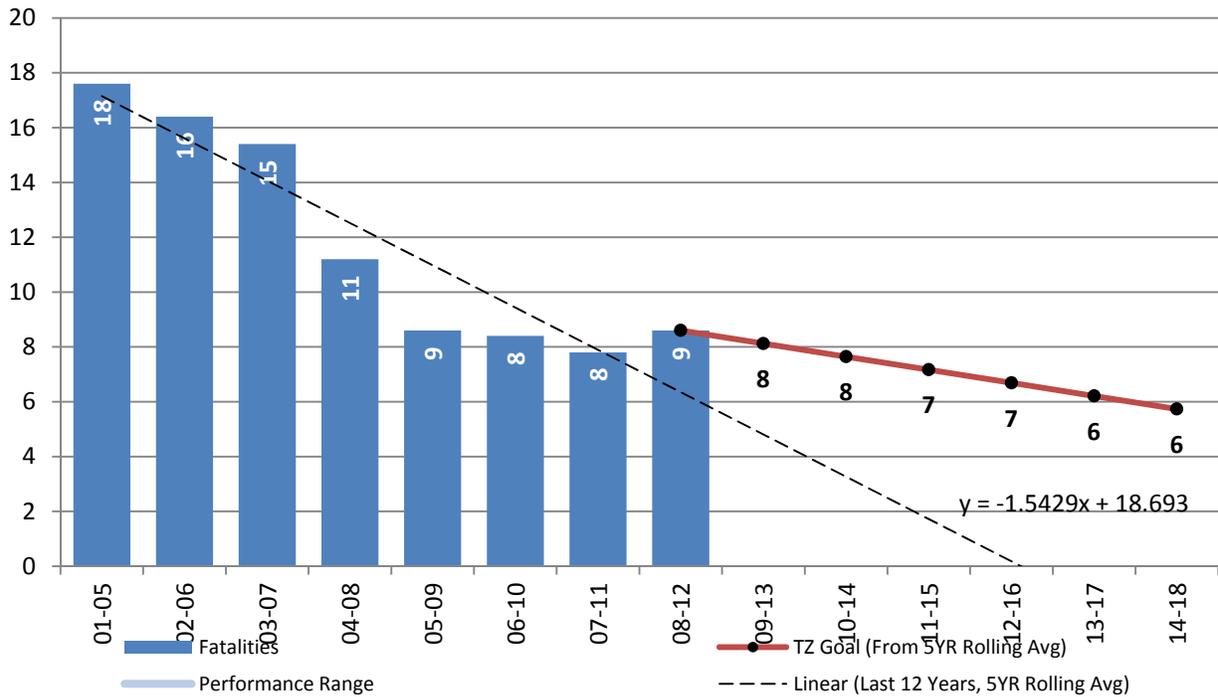


Figure 65. In order to reach the Target Zero benchmark of 6 work zone-related fatalities by 2018, fatalities must be reduced by an average of 1 per year.

### Work Zone Severe Injuries, 2001-2018

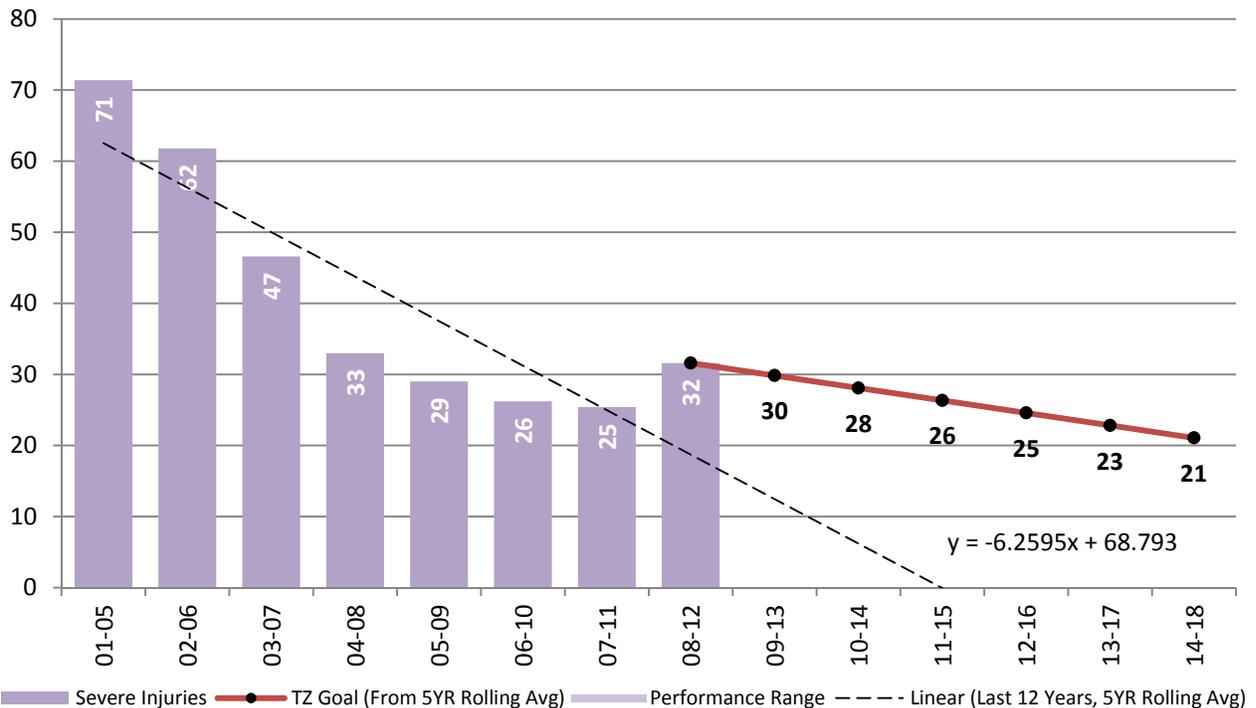


Figure 66. In order to reach the Target Zero benchmark of 21 work zone-related severe injuries by 2018, severe injuries must be reduced by an average of 2 per year.

Work Zone-Related Collision Strategies & Implementation Area(s)		
Objectives (What)	Strategies (How)	Implementation Area(s)
1. Reduce the number and severity of work zone-related collisions.	1.1 Review work zone fatal and severe injury crashes and identify areas for engineering improvements.	Engineering
	1.2 Continue the Safety Improvement Team (SIT) program.	Enforcement, Engineering
2. Improve data collection quality and perform possible revisions to the collision report form.	2.1 Provide training to Law Enforcement on work zone safety and laws.	Enforcement
	2.2 Provide training to Law Enforcement on completing the collision report form (TR-310), properly identifying work zone locations and activity areas.	Enforcement, Engineering
3. Provide public education and information on work zone safety.	3.1 Develop and implement public information campaigns for work zone safety, to include honoring those workers who have lost their lives in work zone-related collisions.	Education, Public Policy
4. Increase likelihood of survival.	4.1 Continue Traffic Incident Management Training for first responders and SCDOT personnel on traffic control in work zones.	Enforcement, Engineering, EMS
	4.2 Ensure that all workers are outfitted with appropriate personal protection equipment (PPE).	Engineering, Enforcement, EMS

## Railroad Crossings

### Overview

In South Carolina, from 2008 to 2012, vehicle-train crashes accounted for 17 fatalities and 32 severe injuries. As a result of the railway crossing inventory performed by the Federal Highway Administration in the 1970s, each state could develop engineering projects with the goal of reducing train-vehicle collisions. The Railroad-Highway Grade Crossing Program was established to address highway-rail grade and crossing safety nationwide. In South Carolina, the program includes approximately 2,600 public crossings. The SC Department of Transportation was charged with inspecting every public crossing for appropriate traffic control.

MAP-21 continued the annual set-aside for elimination of hazards at Railroad-Highway Grade Crossings from the state's HSIP apportionment. Funds are eligible for projects at all public crossings. Fifty percent of the funds must be used for the installation of warning devices at Railroad-Highway Grade Crossings

### Railroad Crossing Fatalities and Severe Injuries 2008-2012

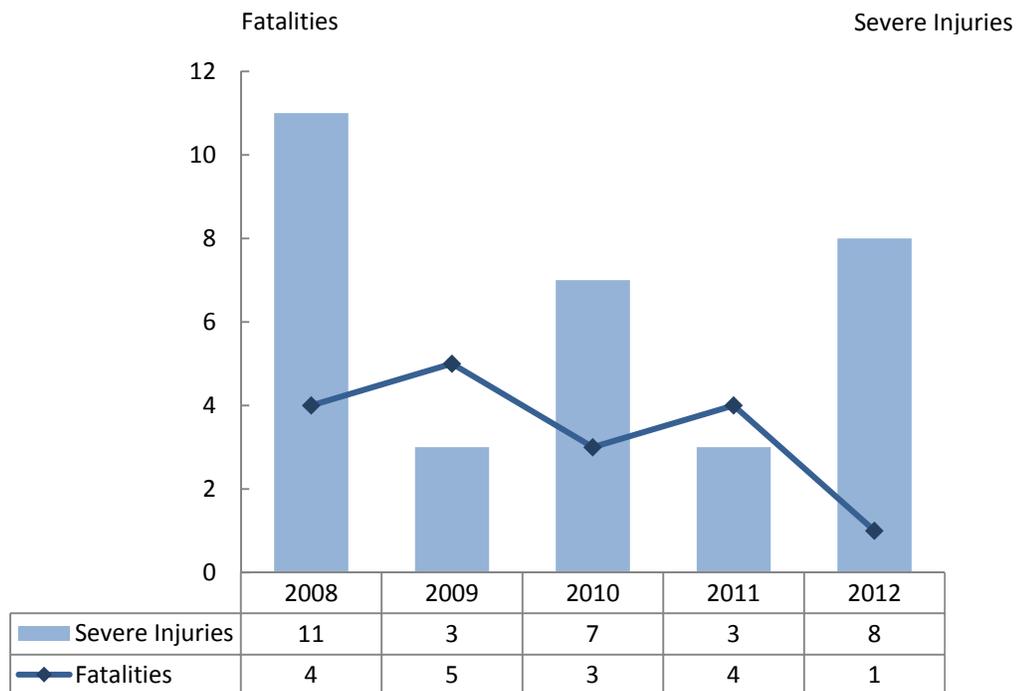


Figure 67.

### Our Challenge

From 2008 to 2012, vehicle-train fatal and severe injury collisions totaled 27. In almost 41% of those collisions, the contributing factor was driver disregarding sign or signals.

## Our Goal

### Railroad Crossing -Related Fatalities, 2001-2018

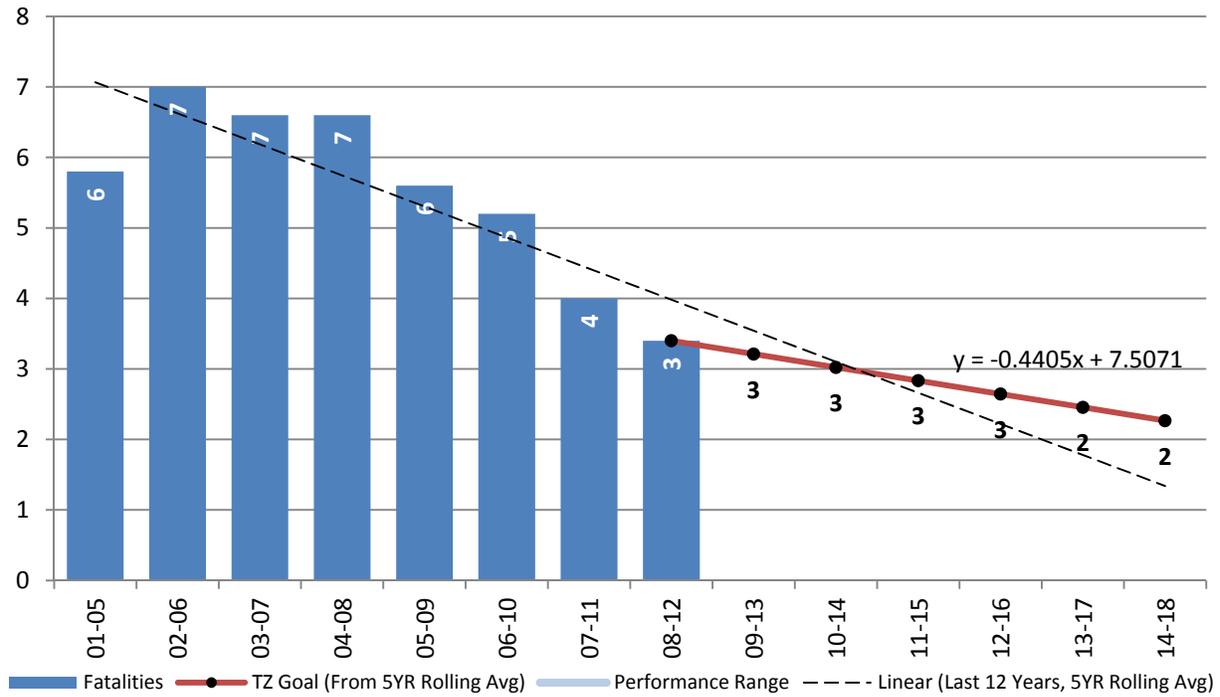


Figure 68. In order to reach the Target Zero benchmark of 2 railroad crossing fatalities by 2018, fatalities must be reduced by an average of 1 per year.

### Railroad Crossing-Related Severe Injuries, 2001-2018

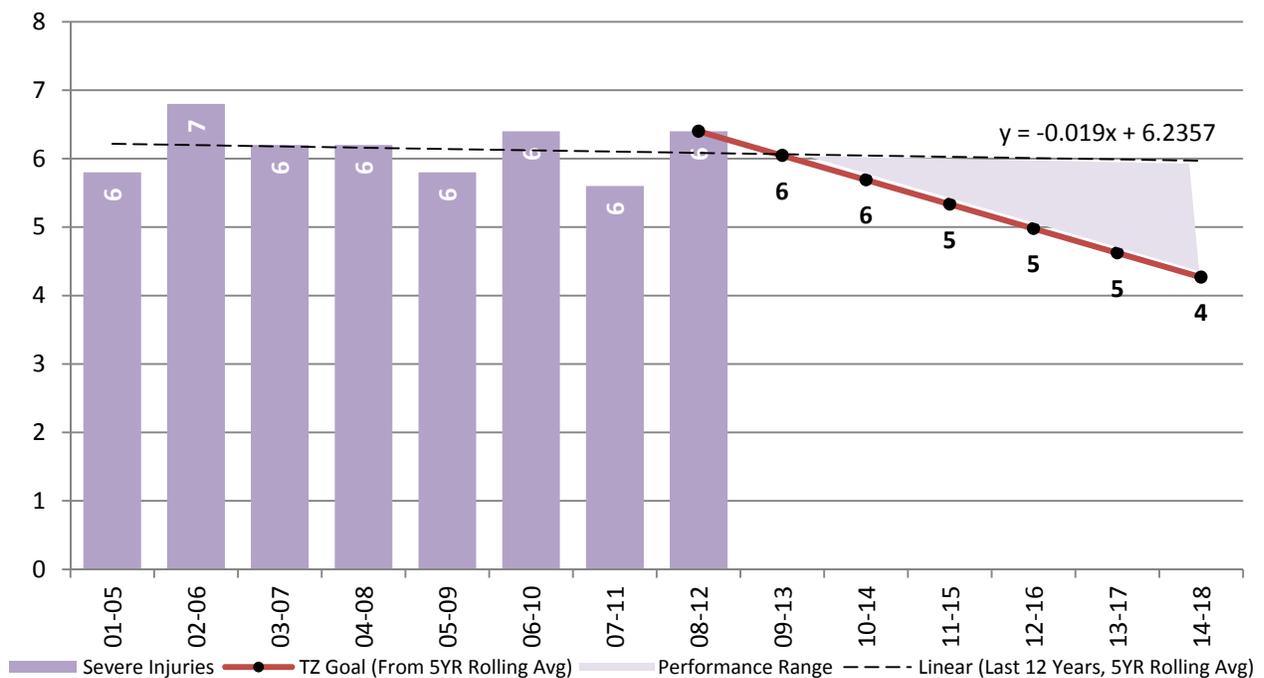


Figure 69. In order to reach the Target Zero benchmark of 4 railroad crossing severe injuries by 2018, severe injuries must be reduced by an average of 1 per year.

Railroad Crossing-Related Collision Strategies & Implementation Area(s)			
Objective	Strategies (How)		Implementation Area(s)
1. Reduce the number and severity of railroad crossing crashes.	1.1	Provide traffic signal interconnection with railroad signals.	Engineering
	1.2	Eliminate and/or consolidate crossings.	Engineering
	1.3	Enhance warning signs/signals at identified railroad crossings.	Engineering
2. Increase public education and awareness of railroad crossing safety.	2.1	Continue coordinated efforts with Operation Lifesaver and coordinate with media to increase public education of railroad crossing safety.	Education, Public Policy
	2.2	Research automated enforcement at railroad crossings.	Education, Public Policy, Enforcement
	2.3	Improve emergency response times in rural locations.	Emergency Response

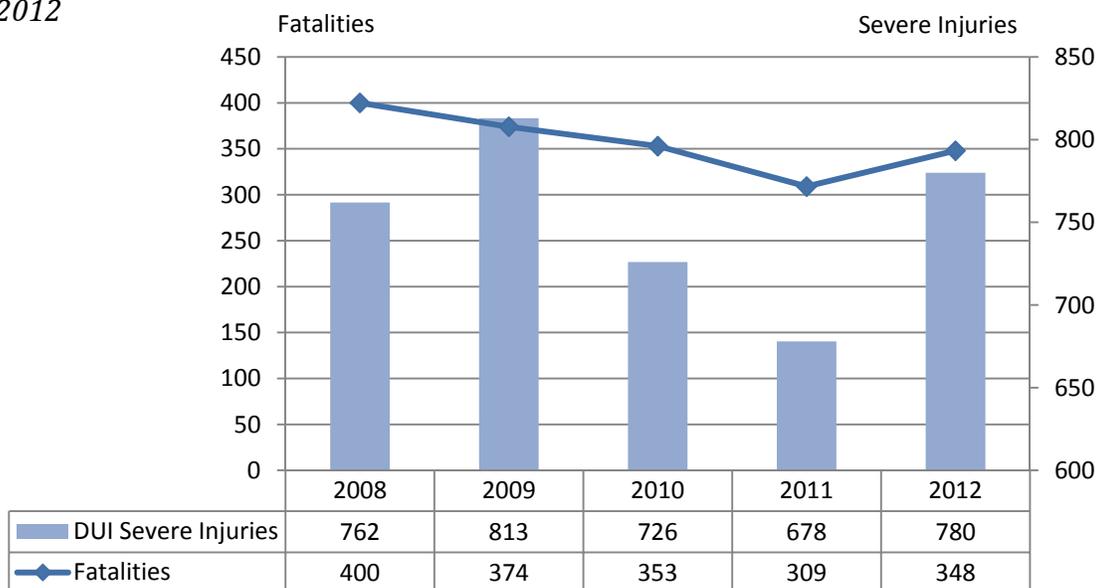
## **Emphasis Area: Impaired Driving**

### **Overview**

From 2008 to 2012 there were 17,503 fatal and severe injury collisions in South Carolina; over one-fourth (25.8%, or 4,521) involved an impaired driver. In 2009, the number of alcohol-impaired driving fatalities decreased to 374, a decline of 6.5%. The number of alcohol-impaired driving fatalities increased in 2012, to 348 fatalities, a 15.9% increase from the previous year (2011). Despite this increase in 2012, the number of alcohol-impaired driving fatalities remains 10.5% less than it was in 2008. The number of alcohol-impaired driving fatalities in 2012 was 3.1% lower than the average of the previous four years (359 from 2008 to 2011). From 2008 to 2012, 1,848 people were killed in alcohol-impaired driving crashes in South Carolina, and 3,759 were severely injured. According to NHTSA, 348 persons died in alcohol-impaired driving collisions during 2012, making up 40.3% of the total number of fatalities for the year. This represents an increase from 2011, when 309 (37.3% of the total) persons were killed in alcohol-impaired driving collisions. Unless otherwise stated, the data presented in this section was obtained from the state traffic collision master file.

Figure 70 illustrates a sustained decrease (21.3%) in the number of fatalities related to impairment from 2008 to 2011. In 2012, the state marked a slight increase in the number of impaired-driver-related fatalities, almost 12.6%, from 2011, but is still almost 13% lower than in 2008.

### **Impaired Driving-Related Fatalities and Severe Injuries 2008-2012**



Source: Injuries, State Collision Master File; Fatalities, NHTSA

Figure 70.

## Our Challenge

South Carolina has one of the highest alcohol-impaired driving fatality rates (per 100 million vehicle miles traveled) in the country. The average rate from 2008 to 2010 for South Carolina was more than twice that of the national average. Males in the 20-29 age group continue to be over-represented in fatal and severe injury impaired driver-related crashes. While it may be plainly evident that the most frequently reported cause of impaired driver-related collisions was driving under the influence, the second- and third-highest contributing factors were speeding and roadway departure. In fact, DUI was the leading cause of roadway departure collisions from 2008 to 2012 (see page 14 for further information on Roadway Departure collisions).

Almost half of the people killed and severely injured in impaired driver-related fatal collisions were aged 15-34. Seven out of ten impaired drivers in fatal crashes were male.

Nineteen counties accounted for almost half (49.2%) of the impaired driving-related fatal and severe injury collisions. Greenville County had the highest percentage of impaired driver-related fatal and severe injury collisions (8.1%), followed by Horry (6.9%), Lexington (6.0%), Richland (5.8%), Spartanburg (5.3%), Anderson (4.8%), and Charleston Counties (4.4%).

Impaired Driving-Related Fatalities and Severe Injuries  
By County, 2008-2012

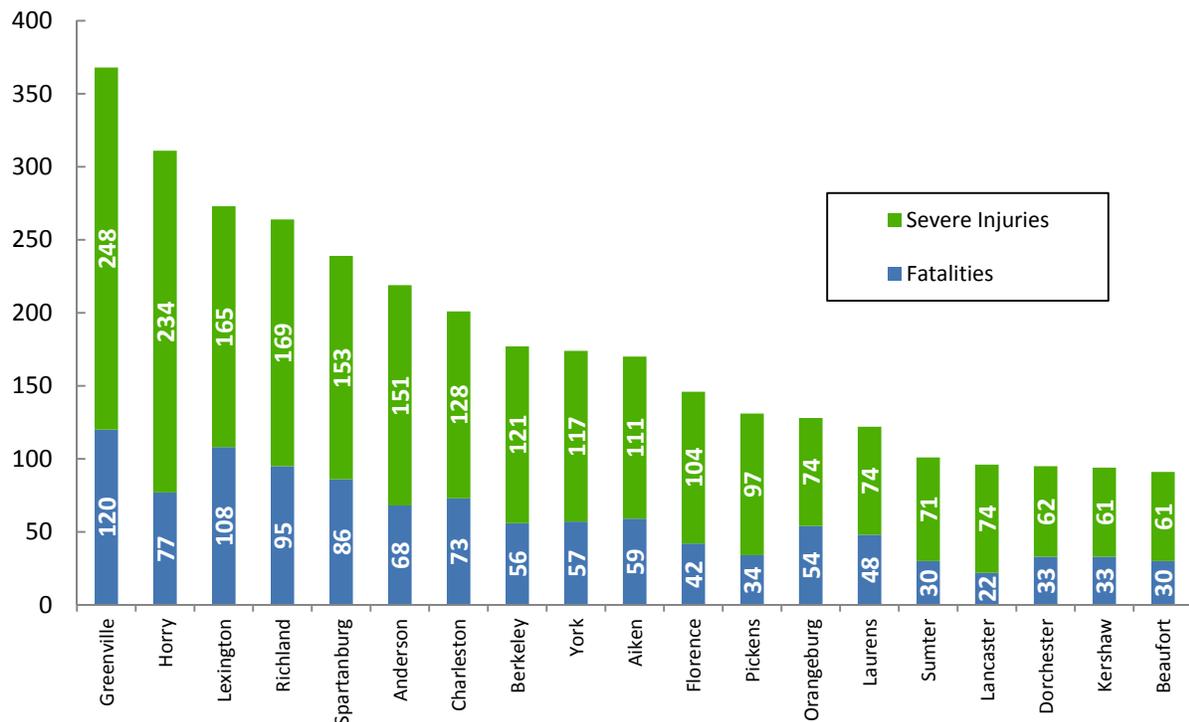


Figure 71.

## Our Goal

### Impaired Driving-Related Fatalities, 2001-2018

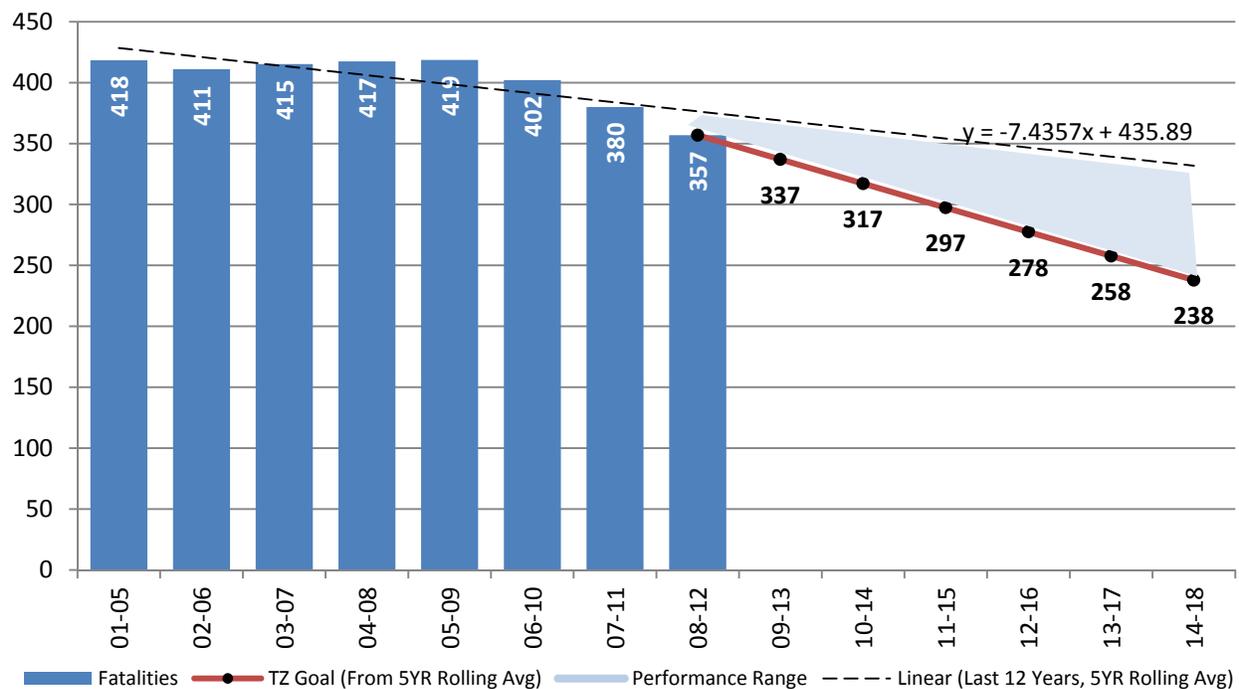


Figure 72. In order to reach the Target Zero benchmark of 238 alcohol impaired driving fatalities by 2018, fatalities must be reduced by an average of 20 per year.

### Impaired Driving-Related Severe Injuries, 2001-2018

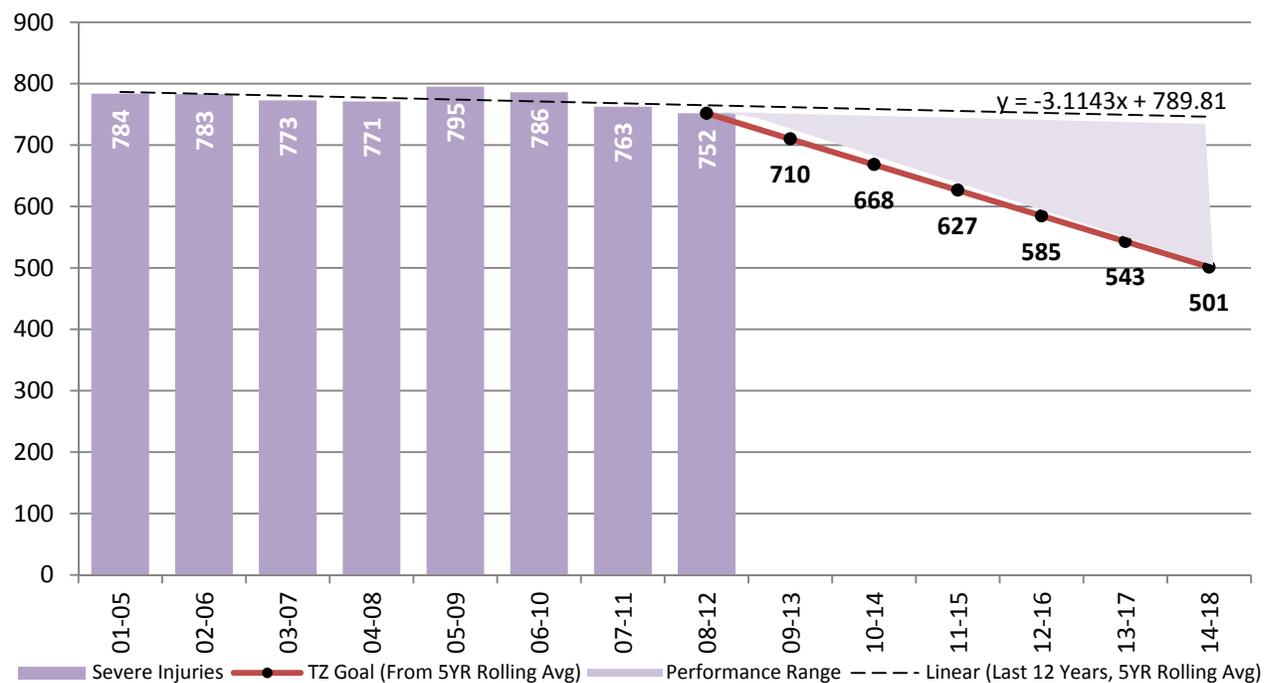


Figure 73. In order to reach the Target Zero benchmark of 501 alcohol and/or drug impaired severe injuries by 2018, severe injuries must be reduced by an average of 42 per year.

Impaired Driving-Related Collision Objectives & Strategies		
Objectives (What)	Strategies (How)	Implementation Area(s)
1. Enforce and educate drivers on DUI laws.	1.1 Increase the number of nighttime public safety checkpoints.	Enforcement
	1.2 Publicize and enforce zero-tolerance laws for drivers under age 21.	Education, Enforcement
	1.3 Utilize variable message boards to publicize campaigns and checkpoints.	Engineering, Education
	1.4 Conduct aggressive/increased enforcement targeting impaired drivers at high-crash/risk areas.	Enforcement
2. Minimize risk of fatalities and severe injuries related to impaired driver collisions.	2.1 Implement roadway departure strategies.	Engineering
	2.2 Develop and implement a corridor safety model in high-crash locations where data suggests a high rate of impaired driving collisions.	Engineering, Enforcement, Education
3. Enhance law enforcement training in alcohol and drug detection.	3.1 Support Drug Recognition Expert (DRE) program.	Education, Enforcement
	3.2 Train all law enforcement officers in Standardized Field Sobriety Tests (SFST).	Education
	3.3 Educate officers to recognize drivers who are required to have an Ignition Interlock Device and verify device and license compliance.	Education, Enforcement
4. Identify and reduce instances of underage drinking and driving.	4.1 Publicize prosecution and/or enforcement activities of the Alcohol Enforcement Teams (AET).	Education, Enforcement
	4.2 Educate parents about the liability of social hosting.	Education
	4.3 Increase enforcement of laws prohibiting alcohol sales to minors.	Enforcement

Impaired Driving-Related Collision Objectives & Strategies		
Objectives (What)	Strategies (How)	Implementation Area(s)
5. Educate drivers on the dangers of drinking and driving.	5.1 Educate drivers on the sanctions of multiple convictions related to impaired driving.	Education
	5.2 Develop and implement statewide alcohol education and enforcement programs.	Education
	5.3 Continue support of national, regional, and state DUI public information and educational campaigns (e.g. <i>Sober or Slammer!</i> ).	Education, Enforcement
6. Support improvement to the judicial/adjudication process of impaired driving cases.	6.1 Continue Traffic Safety Resource Prosecutor program.	Public Policy, Education
	6.2 Research the benefits of establishing a Judicial Outreach Liaison.	Public Policy
	6.3 Establish model DUI court program that can be replicated statewide.	Public Policy
7. Maintain the existence of the Impaired Driving Prevention Council (IDPC) and implement the recommendations from the Impaired Driving Assessment.	7.1 Continue active participation in the IDPC.	Public Policy
	7.2 Review and implement, when possible, the recommendations from the 2013 Impaired Driving Assessment.	Public Policy, Education, Enforcement
	7.3 Implement the most recent state impaired driving plan (approved by the IDPC).	Public Policy
8. Provide timely, accurate, integrated, and accessible data.	8.1 Implement interface with SC Courts to transmit DUI citation data electronically.	Public Policy

## **Emphasis Area: Commercial Motor Vehicles/Heavy Trucks**

### **Overview**

From 2008 to 2012, heavy trucks<sup>4</sup> were involved in 426 (9.9%) of South Carolina's traffic fatalities and 818 (4.8%) of the severe injuries. From 2008 to 2012, heavy truck-involved fatalities fluctuated from a low of 71 in 2010 to a high of 92 in 2011. Serious injuries decreased by 7.1% (155 to 144) from 2008 to 2012. Collisions involving heavy trucks pose a higher risk of death and severe injury, particularly for other involved drivers, mainly due to greater size and weight of the truck vehicles. Heavy trucks are used not only to carrier property but passengers as well and the safety of all persons involved in these collisions needs to be considered. Of the total fatalities resulting from a collision with a heavy truck, 84.4% of the deaths were for non-truck occupants.

### Heavy Truck Fatalities and Severe Injuries 2008-2012

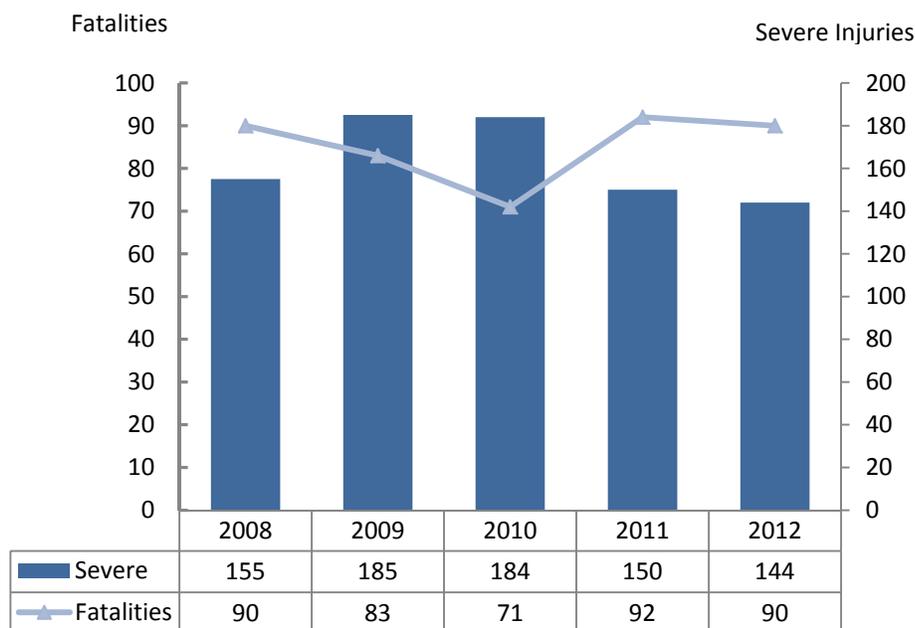


Figure 74.

### **Our Challenge**

More than two-thirds (66.8%) of heavy truck-involved fatal and severe injury collisions stemmed from crashes occurring between 6 a.m. and 6 p.m. and nearly as many occurred on interstates or US routes (59%). Over half of heavy truck involved collisions leading to fatalities occurred in eleven counties (Greenville, Florence, Richland, Orangeburg, Berkeley, Anderson, Jasper, Lexington, Dorchester, Charleston, and Colleton). About 44% of heavy

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<sup>4</sup> Heavy trucks are defined in Target Zero as all vehicles with a gross vehicle weight rate of 10,000 pounds or greater.

truck-involved fatalities resulted from crashes in the months of January, May, March, and November.

The leading contributing factors for heavy truck-involved fatal and severe injury collisions were driving too fast for conditions (248 collisions, 24.4%), failure to yield right of way (187 collisions, 18.5%), and driving under the influence (100 collisions, 9.9%).

**Heavy Truck/CMV Involved Fatal and Severe Injury Collisions  
Top Contributing Factors, 2008-2012**

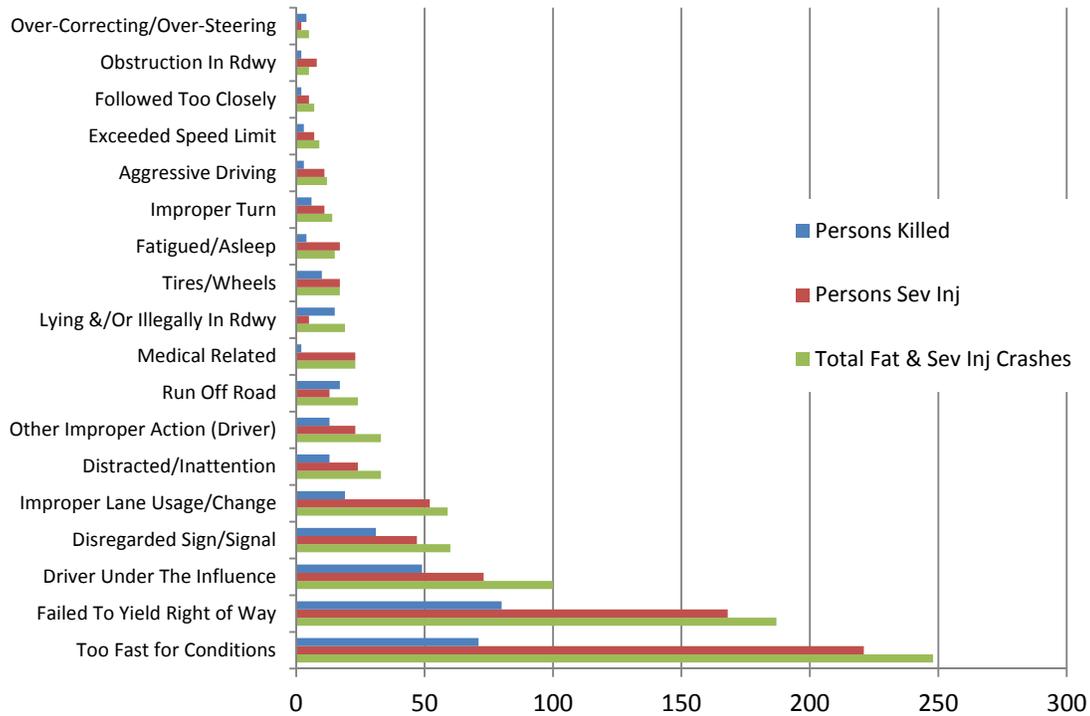


Figure 75.

In fatal collisions involving a heavy truck/CMV and at least one other vehicle, truck drivers were shown to have contributed to the collision 32% of the time, compared to the other driver at 63%. It is important to note that an officer completing the collision report form can indicate more than one driver contributed to the collision; therefore the percentages presented in the table below should not be added together.

Table 20. Fatal Collisions involving Heavy Trucks and other Vehicles  
By Who Contributed to the Collision, 2008-2012

Driver Type	Contributed to Collision*
Truck Drivers	32%
Other Drivers	63%

\*May not total 100% if no driver was indicated as having contributed to the collision.

## Our Goal

### CMV/Heavy Trucks Involved Fatalities, 2001-2018

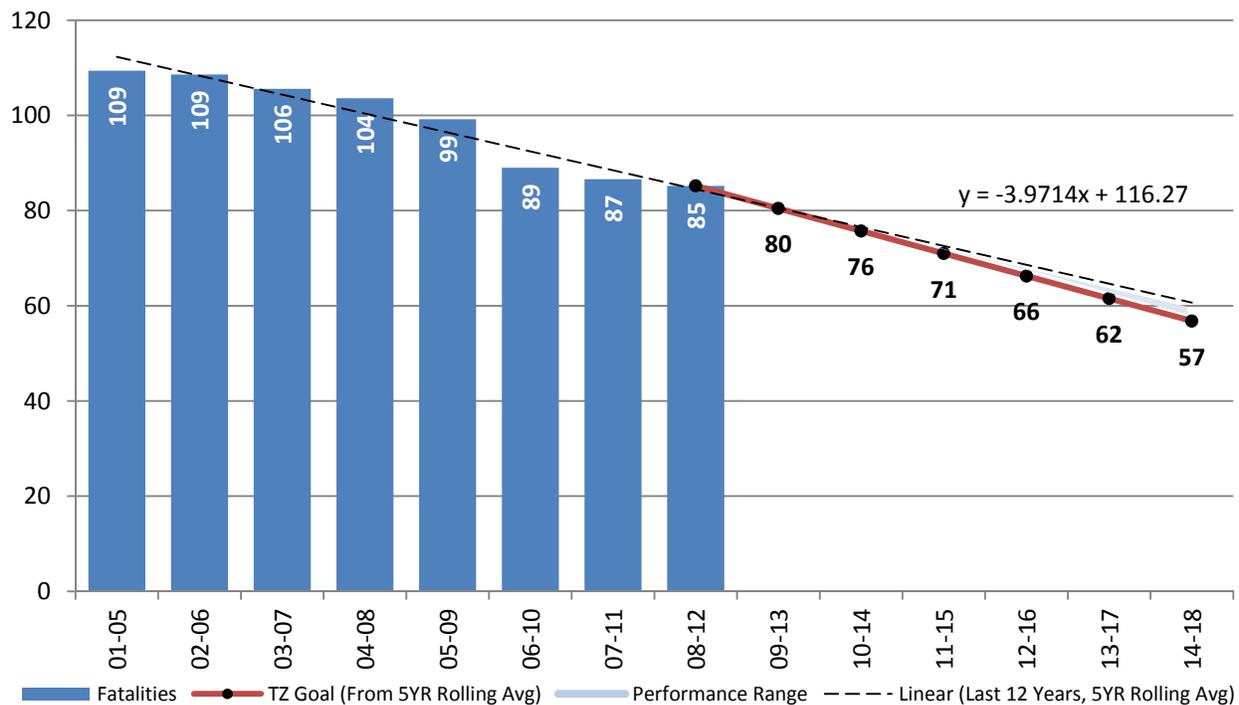


Figure 76. In order to reach the Target Zero benchmark of 57 heavy truck/CMV related fatalities by 2018, fatalities must be reduced by an average of 5 per year.

### CMV/Heavy Trucks Involved Severe Injuries, 2001-2018

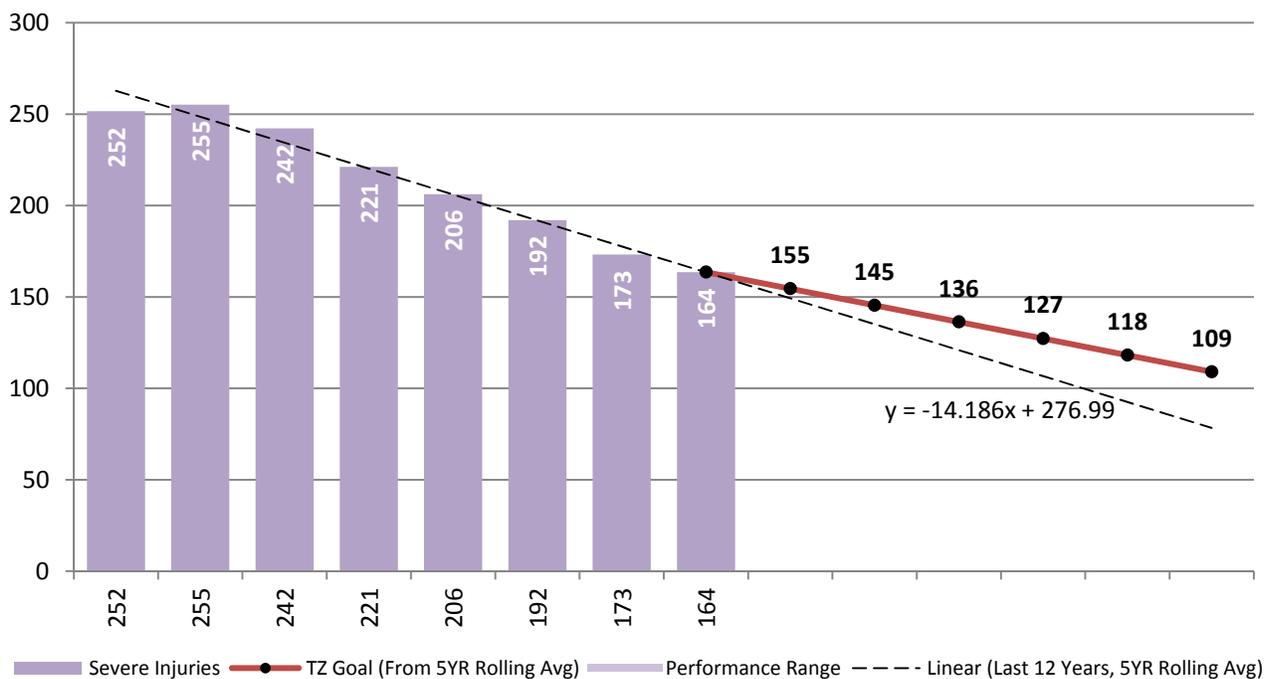


Figure 77. In order to reach the Target Zero benchmark of 109 heavy truck/CMV related severe injuries by 2018, severe injuries must be reduced by an average of 9 per year.

CMV/Heavy Truck-Involved Collision Objectives & Strategies		
Objectives (What)	Strategies (How)	Implementation Area(s)
1. Increase safety through driver and vehicle inspections and enforcement.	1.1 Increase and strengthen commercial vehicle safety and performance inspections, including focus on heavy truck/CMV drivers.	Enforcement
	1.2 Establish CMV compliance checkpoints in areas identified as high risk for collisions involving heavy trucks/CMVs.	Enforcement
	1.3 Implement aggressive identification of carriers with unsafe operating practices (e.g., hours of service, size and weight, drug and alcohol, unqualified drivers, etc.).	Enforcement
	1.4 Increase CMV enforcement contacts targeting the top five collision-causing moving violations.	Enforcement
2. Improve roadway infrastructure to reduce heavy truck/CMV-related collisions.	2.1 Identify high-crash corridors and initiate appropriate engineering countermeasures.	Engineering
3. Enhance driver education related to heavy trucks/CMVs.	3.1 Incorporate <i>Share the Road</i> information into driver materials and print/media outlets.	Education
	3.2 Offer commercial vehicle fatigue management program (e.g., safety breaks).	Education
	3.3 Improve test administration for the CDL.	Public Policy, Education
4. Coordinate with other highway safety plans.	4.1 Coordinate with State Transport Police's Commercial Motor Vehicle Safety Plan.	Enforcement

## **Emphasis Area: Distracted Driving**

### **Overview**

Although the inclusion of distracted driving as an emphasis area in the state's SHSP may not be warranted based on the current reported crash data alone, a decision was made by the state to include it as an emphasis area based on many other factors, including a current review of the national research (as mentioned below), as well as the likelihood that many of the fatal and severe-injury crashes that result from distracted driving are currently underreported in South Carolina.

Driving distracted is engaging in any activity that could divert one's attention from the primary task of driving.<sup>5</sup> This includes general inattentiveness, cell phone use/texting, eating, drinking, attending to objects inside or outside the vehicle, and manipulating vehicle controls. Concerning cell phone use, research has shown that because of the degree of cognitive distraction associated with the use of hand-held devices, the behavior of drivers using them may be equivalent to the behavior of drivers with a 0.08 blood alcohol concentration.<sup>6</sup> Additionally, studies have shown that a driver engaged in cell phone use is four times more likely to be involved in a collision, with no significant safety difference observed between using a hand-held or hands-free device.<sup>7</sup>

The data analysis reflected in this section adheres to the standard definition of distracted driving as just presented. Driver distraction or inattention is listed as a possible contributing factor to a collision on South Carolina's collision report form. Cell phone use and texting<sup>8</sup> are also listed on the report form. All four factors are included in the analysis of distracted driving-related collisions. In South Carolina, distracted driving is a factor in an average of 50 fatal crashes annually, ranging from a high of 60 to a low of 40 crashes.

According to a study published by the National Highway Traffic Safety Administration in 2011, an estimated 3,000 deaths and approximately 400,000 injuries occur annually as a result of distracted driving-related motor vehicle collisions.<sup>9</sup> Results from the National Occupant Protection Use Survey (NOPUS) indicated that the percentage of drivers who were text messaging or manipulating is on the rise, increasing from 0.9 percent in 2010 to 1.3 percent in 2011. The 2011 NOPUS also found that hand-held cell phone use is highest among females and drivers in the 16- to 24-year-old age group. The percentage of drivers

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<sup>5</sup> [Distraction.gov](http://Distraction.gov)

<sup>6</sup> Fatal Distraction? A Comparison of Cell-Phone Driver and the Drunk Driver, Strayer, D.L., Drews, F.A., Crouch, D.J., University of Utah, Department of Psychology.

<sup>7</sup> McEvoy, S.P.; Stevenson, M.R.; McCartt A.T.; Woodward, M.; Haworth, C; Palamara, P.; and Cercarelli, R. 2005. Role of mobile phones in motor vehicle crashes resulting in hospital attendance: a case-crossover study. *British Medical Journal* 331(7514):428; and Redelmeier, D.A. and Tibshirani, R.J. 1997. Association between cellular-telephone call and motor vehicle collisions. *The New England Journal of Medicine* 336:453-58.

<sup>8</sup> Texting was added as a contributing factor to South Carolina's collision report form in 2011.

<sup>9</sup> Traffic Safety Facts (2013, April). Research Note: Distracted Driving 2011 (Report No. DOT HS 811 737) Washington, DC: National Highway Traffic Safety Administration.

observed manipulating hand-held devices in this age group more than doubled from 2010 to 2011 (1.5% to 3.7%).<sup>10</sup>

## **Our Challenge**

Distracted driving as a contributing factor in collisions is difficult to determine, since investigating officers often must rely primarily on self-reporting, and drivers may have a vested interest in not reporting the reality of their own distraction. Witness testimony and evidence indicating distraction can also lead to the determination of driver distraction. Driver distraction is suspected to be underreported in fatal and severe-injury collisions because police investigators frequently have difficulty confirming distraction as a factor.

While cell phone-involved distraction currently receives a lot of attention, it is rarely reported as a contributing factor in collisions when distractions are noted. For instance, during the 2008-2012 time period, only 19 fatality reports noted driver cell phone use as a contributing factor. Texting was added to South Carolina's collision report form in 2011, and only one fatality report in 2012 noted driver texting as a contributing factor. Despite collision data limitations, observational data suggest that distracted driving is increasing<sup>10</sup>.

One of the state's biggest challenges regarding making strides in this emphasis area will be identifying the opportunities to improve the collection and/or reporting of distracted driving-related crashes in the future. This will enable safety experts in South Carolina to be able to not only determine the extent of the distracted driving problem in the state, but also to get a better understanding of the appropriate countermeasures to implement.

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<sup>10</sup> Traffic Safety Facts (2013, April). Research Note: Driver Electronic Device Use in 2011 (Report No. DOT HS 811 719) Washington, DC: National Highway Traffic Safety Administration.

Distracted Driving-Involved Collision Objectives & Strategies		
Objectives (What)	Strategies (How)	Implementation Area(s)
1. Research the distracted driving problem in the state.	1.1 Explore options for measuring statewide cell phone use while driving.	Public Policy, Education
	1.2 Research the possibility of conducting an observational survey to research the occurrence of and types of distracted driving.	Education
	1.3 Revise the collision report form to enhance clarity for officers coding distraction in collision investigations.	Public Policy, Education
	1.4 Encourage law enforcement to thoroughly investigate distraction as a contributing factor during a crash investigation.	Public Policy, Education
2. Improve the collection and reporting of distracted driver involvement in collisions.	2.1 Provide officer training on classifying distracted driving involved collisions.	Education
3. Utilize data collected from citations written for texting offense(s).	3.1 Continue tracking citations written for texting while driving.	Public Policy
	3.2 Identify areas with a high occurrence of texting while driving citations and collisions.	Public Policy, Enforcement
4. Reduce the likelihood of vehicles leaving the travel lane(s) at high-crash/risk locations by improving the roadway.	4.1 Deploy centerline and edge-line rumble strips.	Engineering
	4.2 Maintain shoulders to reduce debris and edge drop-offs; use safety edge (i.e., pavement edge taper). Identify opportunities to provide additional recovery area for vehicles that leave the roadway.	Engineering
	4.3 Expand the use of and maintain existing roadway delineation and visibility features, which include geometric alignment pavement markings, raised markers, signs, and other devices.	Engineering

Distracted Driving-Involved Collision Objectives & Strategies			
Objectives (What)	Strategies (How)		Implementation Area(s)
5. Enhance driver awareness of the risks of distracted driving.	5.1	Develop and implement a statewide distracted driving education campaign with highway safety partners.	Education
	5.2	Add distracted driving information and questions to driver license test and guide.	Education
	5.3	Encourage technology which shuts off communication devices or limits phone use while driving.	Education
	5.4	Encourage large employers to implement employee bans/agreements on cell phone use and other distracted driving behaviors.	Public Policy
6. Research distracted driving laws.	6.1	Classify distracted driving offenses as “moving violations.”	Public Policy, Enforcement
	6.2	Enforce existing statutes to deter distracted driving.	Enforcement

## **Emphasis Area: Safety Data Collection, Access, and Analysis**

### **Overview**

Target Zero is a data-driven approach to eliminating traffic fatalities and reducing severe injuries. Timely, accurate, complete, and accessible data is the foundation for targeting resources and monitoring progress toward zero fatalities and reducing severe injuries. Quality data is essential in the ever-evolving need to study the leading causes of crashes and the evaluation of implemented strategies. The data assists in the identification of proven and targeted countermeasures in areas that will have the greatest impact on achieving our goal.

### **Our Challenge**

In recent years, more data in the arena of traffic safety has been collected than ever before. As the amount of data and the number of sources have grown, data integration has become a new challenge and goal. Data from collisions linked to driver records and adjudicated court records can help make a clearer picture of driving behaviors.

<b>Safety Data Collection, Access, and Analysis Objectives &amp; Strategies</b>		
<b>Objectives (What)</b>	<b>Strategies (How)</b>	<b>Implementation Area(s)</b>
1. Improve data timeliness, accuracy and completeness.	1.1 Continue the rollout phase of the South Carolina Collision and Ticket Tracking System (SCCATTS).	Enforcement, Education, Engineering, EMS
	1.2 Continue a data working group to meet regularly to review traffic records data and discuss areas of improvement.	Enforcement, Education, Engineering
	1.3 Improve location coding for all roads, including those maintained by the county.	Engineering
2. Integrate traffic records data systems.	2.1 Develop and implement electronic interface with SC Courts System.	Enforcement, Education, Engineering
	2.2 Continue regular meetings of the Traffic Records Coordinating Committee and follow the recommendations set forth in the Traffic Records Assessment.	Enforcement, Education, Engineering, EMS
3. Utilize data collected from citations written for texting offense(s).	3.1 Continue tracking citations written for texting while driving.	Public Policy
	3.2 Use DDACTS to identify areas with a high occurrence of texting while driving citations and collisions.	Public Policy, Enforcement