OREGON Transportation Safety Action Plan 2016

OREGON.GOV

Oregon Department of Transportation

THANK YOU TO SAFETY PARTNERS

Developing the Oregon TSAP would not have been possible without the significant efforts of committed safety practitioners throughout the state. Primarily, the many years of leadership provided by the Oregon Transportation Safety Committee (OTSC) make it possible for this plan to continue to become a stronger multidisciplinary plan focused on saving lives and eliminating serious injuries for all travelers on Oregon's transportation system. In addition, the TSAP Policy Advisory Committee (PAC) gave many hours of hard work and consideration to the development of the plan; the ODOT Transportation Safety Action Plan Project Coordination Team (PCT) carefully reviewed all aspects of the plan striving to achieve a plan that is meaningful and implementable; and partner agencies in Oregon, and public and private stakeholders from many different organizations and interests provided input at public meetings and via online interactive tools. Appendix A provides a list of the members of the OTSC, PAC, and PCT.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS

- TSAP: Transportation Safety Action Plan
- FHWA: Federal Highway Administration
- Etc....

Executive Summary


SLOW
EXIT 2A
8 Canyon Rd.
10 Beaverton-
Hillsdale Hwy.
EXIT ONLY
EXIT 2B
Allen Blvd.
1 MILE

1 CALL TO ACTION


ROAD
ORK
HEAD

3 TRANSPORTATION SAFETY TRENDS

TRANSPORTATION SAFETY TRENDS

The TSAP was developed using the best available safety data to identify critical transportation safety issues and safety improvement opportunities for all public roads in Oregon. The contents of the TSAP are primarily derived from an analysis of 2009-2013 Oregon crash data, which describes trends related to crash types, crash severity, crash demographics and contributing factors at the statewide and ODOT regional level. The results of this analysis are described in this chapter.

While the results of this crash analysis are important indicators of transportation safety opportunities, it is important to recognize data limitations. Specific challenges in Oregon include:

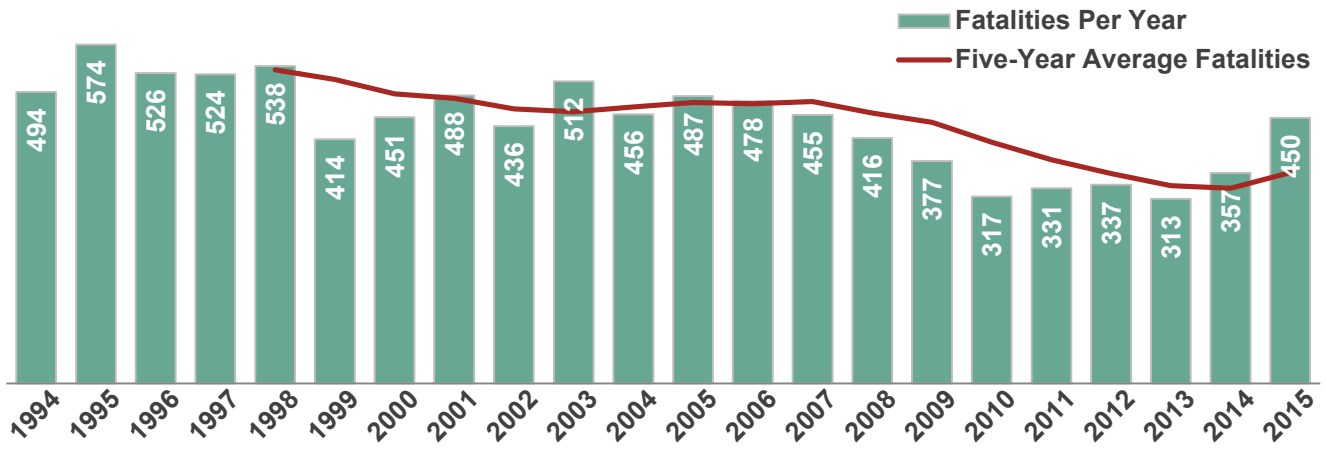
- Oregon is a self-reporting state, which means that only those crashes involving a personal injury are required to receive a law enforcement officer-completed crash report. Therefore, there are a relatively small number of Property Damage Only (PDO) crashes in the Oregon state crash database (compared to other states in the U.S.). The problem of under-reported crashes can skew the results of crash data analysis.
- In 2011 the State of Oregon made a change to reporting in the Crash Analysis & Reporting (CAR) system that affected the overall crash database, resulting in a higher number of reported crashes. The higher numbers result from a change to an internal departmental process that added previously unavailable, non-fatal crash reports to the annual data file. The result of this change is a false perception that the number of Property Damage Only and Injury crashes increased by 15 percent in Oregon, when in fact that did not occur.

While crash data serves as the primary data source for the development of the TSAP, input from committees, stakeholders, and the public were also considered during the planning process.

CRASH HISTORY AND TRENDS

Figure 3.1 shows the number of transportation fatalities in Oregon from 1994 through 2015. In 1994 approximately 500 people died on Oregon's transportation system. Fatalities peaked in 1995 at 574 and was the lowest in 2013 at 313 people. There was an overall downward trend in fatalities through 2013; however there has been a recent increasing trend that needs to be a focus of this plan. To account for fluctuations in crashes, the chart also shows the rolling five-year average number of crashes from 1998 through 2015. Between 1994 and 1998, on average there were 531 fatalities per year on the transportation system, and between 2011 and 2015 there were on average 358 fatalities per year.

Figure 3-1. Oregon Transportation Fatalities, 1994-2015



Recent fatalities and serious injuries were studied in this plan using crash data from 2009 through 2013, which was the most recent data at the time the project analyses were conducted. In addition, 2014 or 2015 data were used in a few cases, as this data became available during the course of the plan's development. Statewide 2014 and 2015 fatality data and VMT estimates were used to develop fatality performance measures, and 2014 data was used to develop the serious injury and nonmotorized fatalities and serious injuries performance measures. See chapter 7 for more information regarding the development of performance measures.

In the five-year period from 2009 to 2013, 1,675 people were killed and 7,191 were seriously injured in Oregon in more than 230,000 reported roadway crashes.[1] Transportation fatalities and serious injuries occur in every region of Oregon, for all system users, and on all types of streets and highways.

FROM 2009 TO 2013

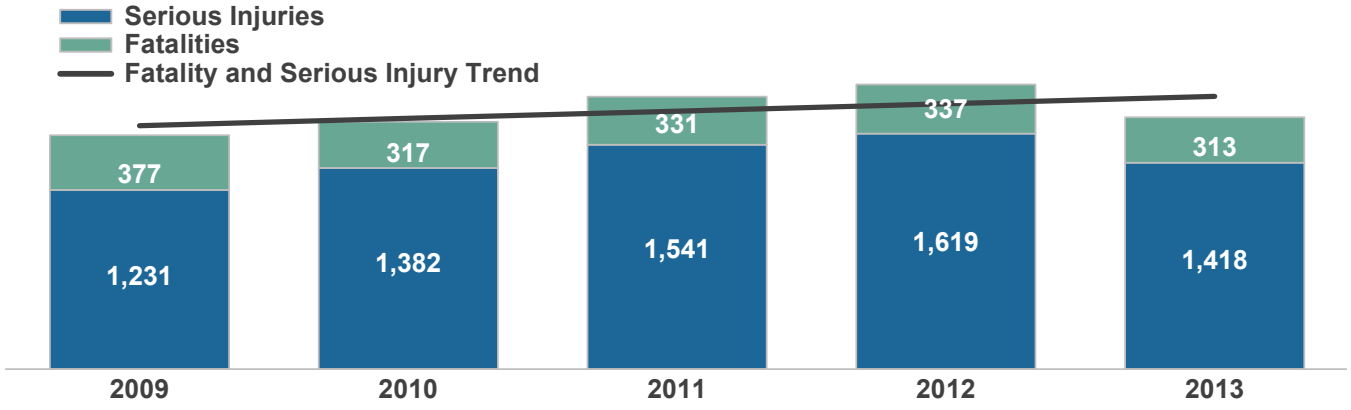
- 1,675 people were killed traveling in Oregon
- 7,191 people were seriously injured while traveling in Oregon
- More than 230,000 crashes occurred

Safety professionals study statewide crash data and regional details to understand the history of crashes and use that information to improve roadway safety. Though the locations, types, and attributes[2] of past crashes are not perfect predictors of the future, they provide important clues to help engineers and other professionals identify safety needs, select targeted treatments, and evaluate the effectiveness of strategies. Answering the question, "what does the crash data tell us?" is an important first step toward developing and implementing an effective TSAP.

STATEWIDE CRASH HISTORY AND TRENDS

Figure 3.2 illustrates the recent trend of traffic fatalities and serious injuries in Oregon.[3] In the most recent year of the study period, 2013, there were 313 people killed and 1,418 seriously injured. Serious injuries are considered "life altering" for the victim, their loved ones, or both; examples include loss of limbs, paralysis, and disfigurement. In many cases these injuries make it difficult to work, care for family members or pursue other typical daily activities.

Figure 3-2. Fatalities and Serious Injuries, 2009-2013



[1] Crash injury severity is determined by the "KABCO" scale, where K=Killed, A=Serious Injury, B=Minor Injury, C=Possible Injury, and O=Property Damage Only.

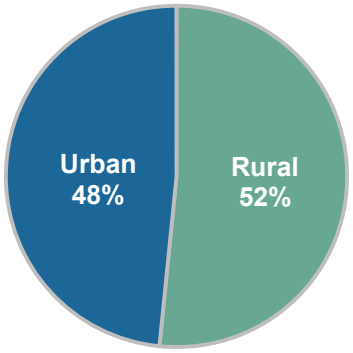
[2] "Attributes" as used in this plan means characteristics of a crash that may be useful for analysis. In some cases they may contribute to a crash occurring or its severity, but that is not required for them to be considered.

[3] In 2011 the State of Oregon made a change to reporting in the Crash Analysis & Reporting (CAR) system that resulted in a higher number of crashes reported for the 2011 data file compared to previous years, resulting from the addition of previously unavailable, non-fatal crash reports. The result of this change is a false perception that the number of non-fatal crashes increased by 15 percent from 2010 to 2011.

Roadway crashes and resulting outcomes are not limited to either urban or rural areas of Oregon. As illustrated in Figure 3.3, fatalities and serious injuries have a nearly equal distribution by location.

Fatal and serious injury crashes also occur on all types of roadways. Roads are classified as follows:

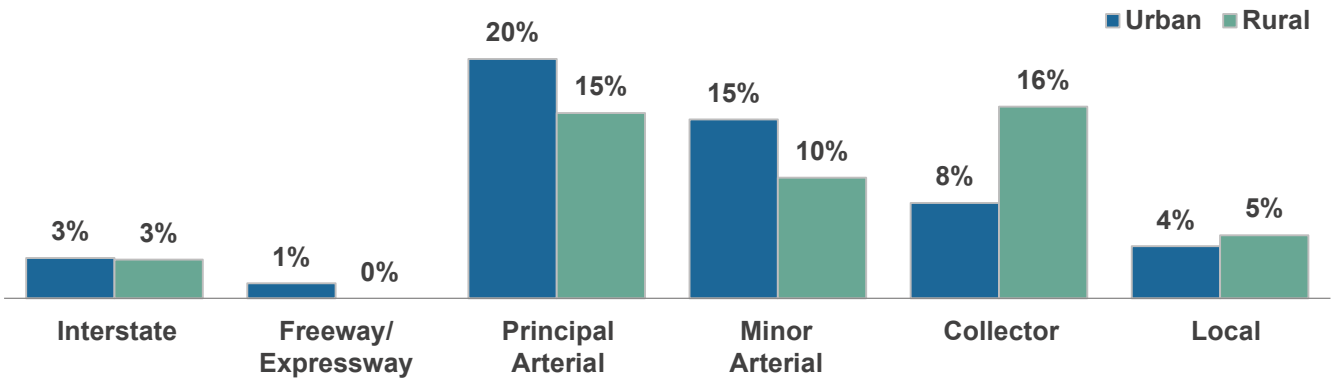
Figure 3-3. Proportion of Fatalities and Serious Injuries by Urban and Rural Area, 2009-2013



- **Interstate.** Highest classification of arterials, designed and constructed with mobility and long-distance travel in mind. Direction lanes, separated by barrier, and ramp-only access.
- **Freeway/Expressway.** Directional travel lanes usually separated by a physical barrier, and access and egress points are limited to on- and off-ramp locations or a very limited number of at-grade intersections.
- **Principal Arterial.** Provides a high degree of mobility through urban and rural areas, and abutting land uses can be served directly.
- **Minor Arterial.** Provides moderate-length trips and offers connectivity to the higher arterial system, providing intra-community continuity.
- **Collector.** Gathers traffic from local road and connects to the arterial network.
- **Local.** Provides direct access to abutting land, and are not intended for long distance travel. Often designed to discourage through traffic.[4]

As shown in Figure 3.4, the distribution of fatal and serious injury crashes by roadway functional classification is not equal. Crashes with serious outcomes are most common on Principal Arterials and Minor Arterials, as well as Rural Collector roads.

Figure 3-4. Proportion of Fatal and Serious Injury Crashes by Roadway Functional Classification, 2009-2013



[4] Highway Functional Classification Concepts, Criteria and Procedures, Federal Highway Administration, Washington, D.C., 2013. https://www.fhwa.dot.gov/planning/processes/statewide/related/highway_functional_classifications/section00.cfm.

STATEWIDE CRASH ATTRIBUTES

One way to study fatal and serious injury crashes is to categorize them by attribute (e.g., age of driver, alcohol involvement, roadway departure). With an understanding of these attributes it is possible to develop plans, policies, and programs to reduce crash frequency and severity. Table 3.1 shows a number of attributes related to fatal and serious injury crashes in Oregon. In some cases the attribute may contribute directly to the crash occurring or to its severity. However, due to limitations of crash data elements (because in most cases the reporting officer was not at the scene when the crash occurred), this analysis only concludes that the category correlates to the crash, not that it was necessarily the cause. The crash attributes shown in this table can also be organized into three categories: Road Users, Behavioral Issues, Roadway Locations. Analysis of these categories follows Table 3.1.

Table 3-1. Fatal and Serious Injury Crashes by Attribute, 2009-2013

Attribute	Fatal and Serious Injury Crashes						Percent Total
	2009	2010	2011	2012	2013	Total	
Roadway or Lane Departure Crashes[a]	747	793	882	879	802	4,103	53.5%
Aggressive Driving Involved[b]	501	548	603	567	548	2,767	36.1%
Intersection Crashes	419	499	575	581	559	2,633	34.4%
Speed-Related Crashes[c]	379	421	453	415	399	2,067	27.0%
Alcohol and/or Other Drugs Involved	288	280	362	403	362	1,695	22.1%
Alcohol Involved (No Drugs)	246	239	316	344	300	1,445	18.9%
Young Drivers - 21-25 Involved	192	250	269	280	257	1,248	16.3%
Young Drivers - 15-20 Involved	209	234	244	235	196	1,118	14.6%
Unrestrained Occupants	203	170	231	225	200	1,029	13.4%
Older Drivers - 65-75 Involved	158	192	199	221	211	981	12.8%
Pedestrian(s) Injured or Killed	128	155	164	174	149	770	10.0%
Unlicensed Drivers Involved	89	85	136	156	137	603	7.9%
Older Drivers - 76 or Older Involved	113	95	128	131	100	567	7.4%
Inattentive Drivers Involved	55	71	79	80	65	350	4.6%
Bicyclists(s) Injured or Killed	66	44	80	79	65	334	4.4%
Commercial Motor Vehicle Involved	49	73	82	53	65	322	4.2%
Work Zone Involved	34	24	25	22	14	119	1.6%
School Bus or School Zone Involved	4	16	6	8	10	44	0.6%

[a] The Roadway or Lane Departure definition excludes intersections, pedestrian-related, and bicycle-related crashes.

[b] Aggressive Driving Involved consists of Too Fast for Conditions, Following Too Closely, and /or Driving in Excess of Posted Speed (note that duplicate crashes are not counted more than once).

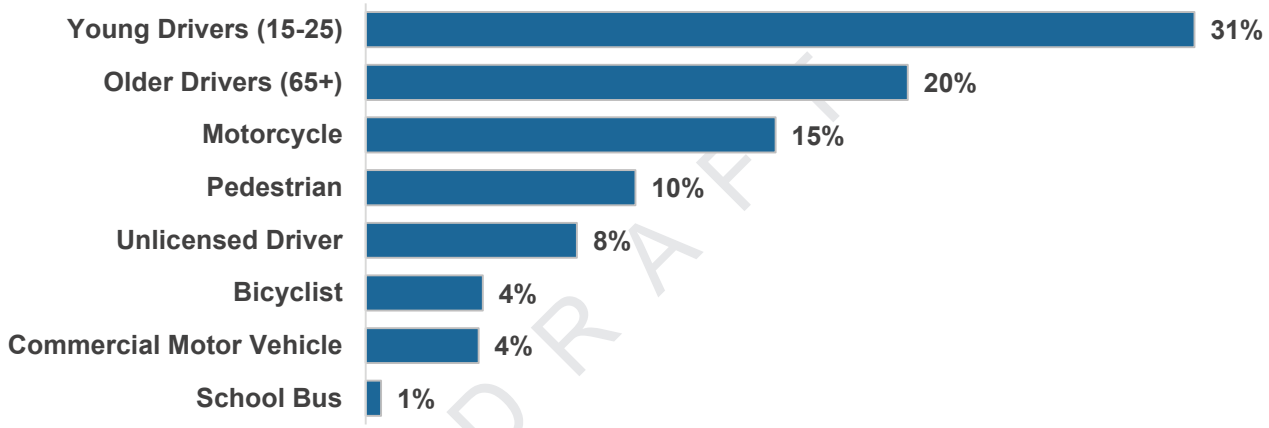
[c] Speed-related Crashes consists of Too Fast for Conditions and/or Driving in Excess of Posted Speed (note that duplicate crashes are not counted more than once)

The attributes listed in Table 3.1 are not mutually exclusive, so they cannot be summed to calculate a total number. For example, in many cases roadway or lane departure crashes are also speed-related, so those two attributes can be correlated to a single crash, but they will show up twice in the table.

Road Users

Road users are illustrated in Figure 3.5, and they range from typical motor vehicle drivers to non-motorized road users and those operating special vehicles (e.g., school buses, commercial motor vehicles). Young drivers (age 15-25) are involved in the highest proportion of fatal and serious injury crashes, followed by older drivers (age 65+) and motorcyclists.[5] Regarding age groups, young drivers and older drivers are a consideration because they are typically overrepresented in traffic crashes compared to middle-age motorists (age 26-64).

Figure 3-5. Proportion of Fatal and Serious Injury Crashes by Involved Road User, 2009-2013



Note: Young drivers age 15 to 20 account for 15 percent of fatal and serious injury crashes, while those 21 to 25 account for 16 percent.

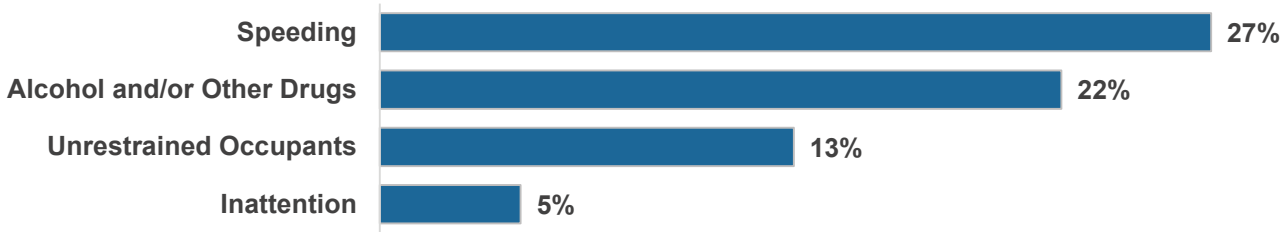
Behavioral Issues

Behavioral issues (e.g. speeding, impaired driving, and distracted driving) have a significant effect on the frequency and severity of roadway crashes. In fact, more than 90 percent of all crashes involve human error.[6] Some of these crash attributes are choices a motorist makes before getting behind the wheel (e.g., drinking alcohol). Others are actions taken during a trip that affect the road users and others (e.g., speeding, not wearing a safety belt). As shown in Figure 3.6, speeding is the most common behavioral issue associated with fatal and serious injury crashes in Oregon, followed by alcohol-involved drivers. Note that although inattention shows up as a lower percentage in this figure, the actual occurrence of this attribute could be higher. It can be difficult for law enforcement officers to accurately identify inattention, as it often must be self-reported.

[5] Note that some road user attributes are not mutually exclusive. For example, some motorcycle riders are also young drivers.

[6] K. Rumar. "The Role of Perceptual and Cognitive Filters in Observed Behavior," Human Behavior in Traffic Safety, eds. L. Evans and R. Schwing, Plenum Press, 1985.

Figure 3-6. Proportion of Fatal and Serious Injury Crashes by Behavioral Issue, 2009-2013



Roadway Locations

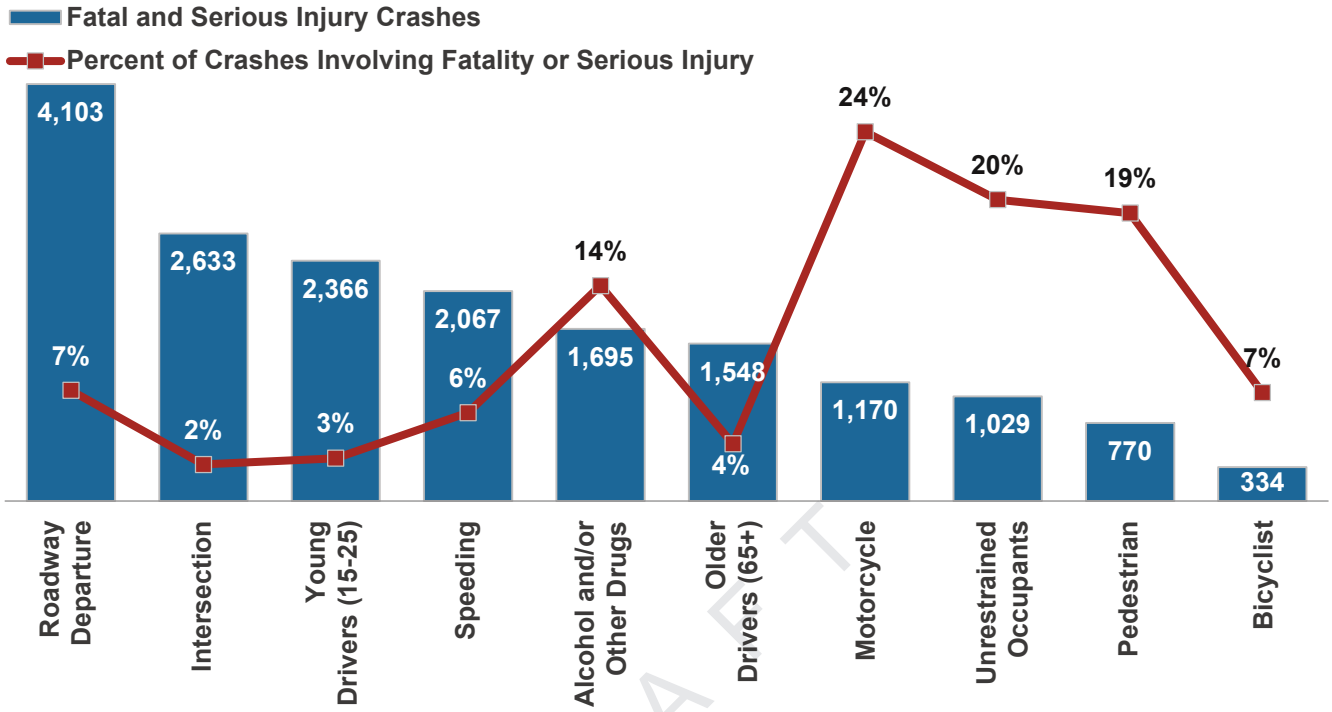
Roadway locations are important because they can point safety engineers to spots experiencing crashes and to roadway elements that may contribute to increased risk for crashes. The roadway (or off roadway) locations of fatal or serious injury crashes include roadway or lane departure locations, intersections, work zones, and school zones. Figure 3.7 shows that more than half of fatal and serious injury crashes in Oregon occur as a result of a vehicle departing its proper lane. Crashes at intersections also account for a large number of fatalities and serious injuries. Approximately one out of three fatal and serious injury crashes from 2009 to 2013 occurred at an intersection.

Figure 3-7. Proportion of Fatal and Serious Injury Crashes by Location Type, 2009-2013

Most Common Statewide Crash Attributes

The crash attributes were also considered on a statewide basis. Figure 3.8 illustrates the number of fatal and serious injury crashes that include each attribute, and also the percentage of all reported Oregon crashes (i.e., all severities) by attribute that resulted in a fatality or serious injury. For example, motorcycles were involved in 1,170 fatal and serious injury crashes during the study period, while 24 percent of all reported motorcycle-involved crashes included at least one fatality or serious injury.

Figure 3-8. Fatal and Serious Injury Crashes by Most Common Attributes, 2009-2013



Note: Young drivers age 15 to 20 account for 1,118 fatal and serious injury crashes, while those 21 to 25 account for 1,248.

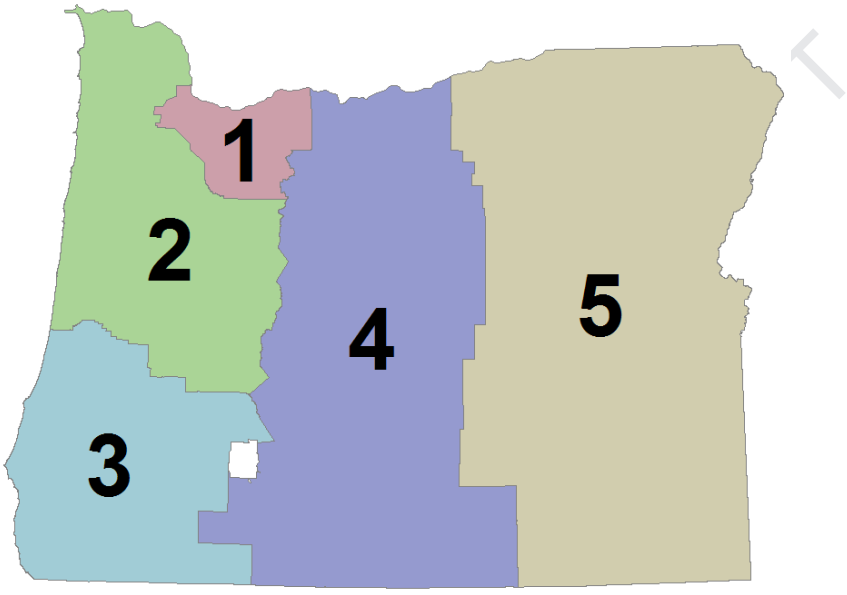
Note that these categories are not mutually exclusive, as a single crash can include more than one attribute. For example, a number of alcohol-involved crashes also include unrestrained occupants, so a single crash may show up in both bars in Figure 3.8.

REGIONAL CRASH ATTRIBUTES

ODOT divides the state into five regions (Figure 3.9):

- **Region 1:** Portland Metro (Clackamas, Hood River, Multnomah and Washington Counties).
- **Region 2:** Willamette Valley, North and Mid- Coast (Clatsop, Columbia, Tillamook, Yamhill, Polk, Marion, Lincoln, Linn, Benton and Lane Counties).
- **Region 3:** Southern Oregon and South Coast (Douglas, Curry, Coos, Josephine and Jackson Counties).
- **Region 4:** Central Oregon (Wasco, Sherman, Gilliam, Jefferson, Wheeler, Crook, Deschutes, Lake and Klamath counties).
- **Region 5:** Eastern Oregon (Morrow, Umatilla, Union, Wallowa, Baker, Grant, Harney and Malheur Counties).

Figure 3-9. Oregon DOT Regions

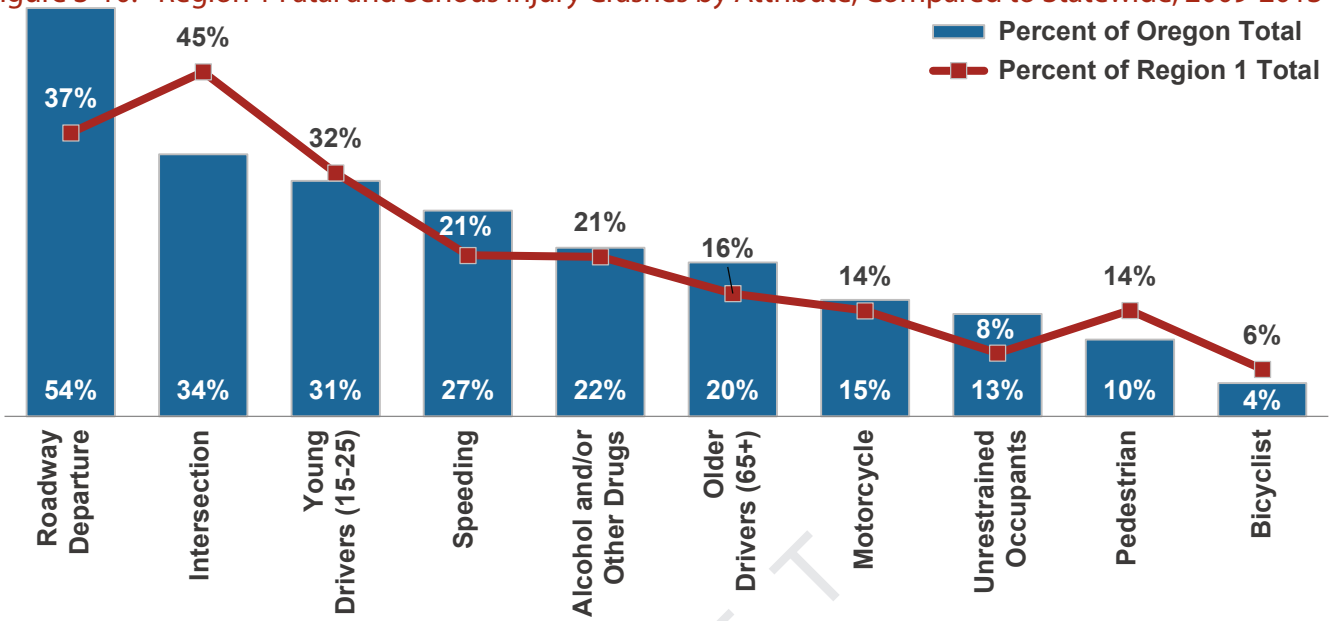


Source: Oregon DOT, http://www.oregon.gov/ODOT/PublishingImages/regions.gif.

Each of ODOT's five regions has a slightly different distribution of its most common crash attributes as compared to the statewide numbers. Figures 3.10 through 3.14 show each region's fatal and serious injury crash attributes compared to Oregon overall.

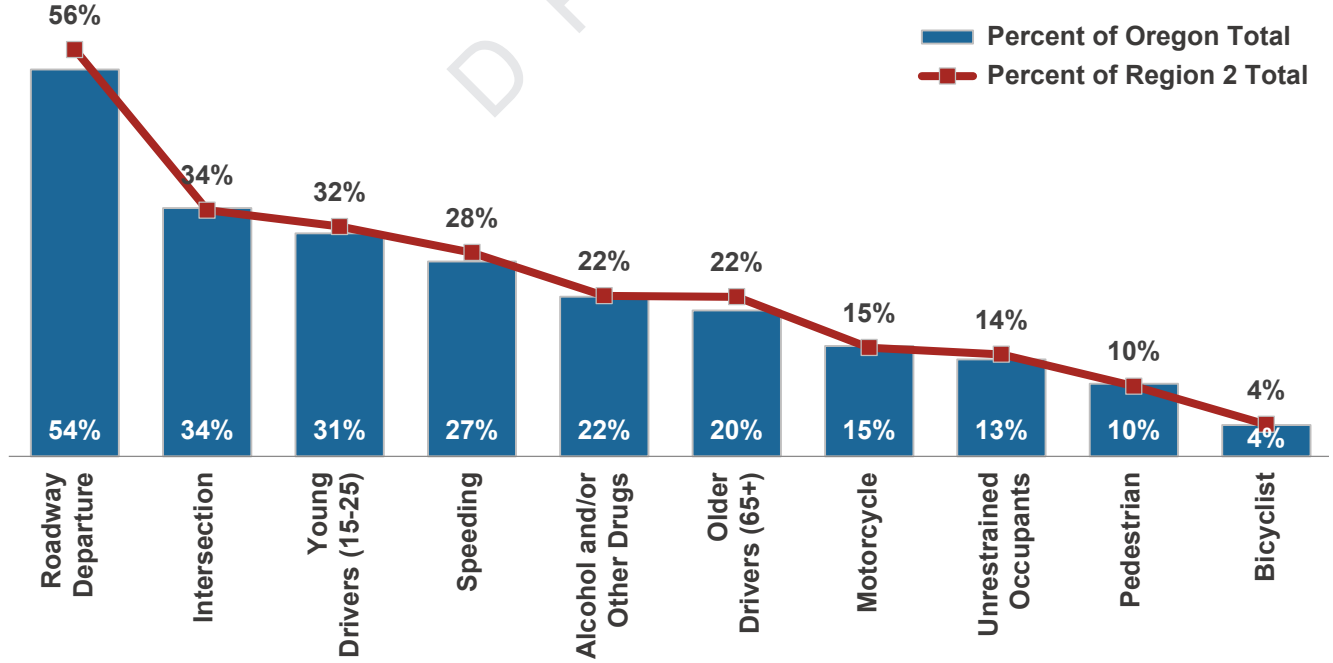
Region 1 (Figure 3.10) does not match the statewide distribution of serious crash attributes. Major differences include additional fatal and serious injury crashes at intersections and a higher proportion involving pedestrians and bicyclists. Region 1 also experienced fewer fatalities and serious injuries related to roadway or lane departure, speed, older drivers, and unrestrained occupants than the statewide average.

Figure 3-10. Region 1 Fatal and Serious Injury Crashes by Attribute, Compared to Statewide, 2009-2013



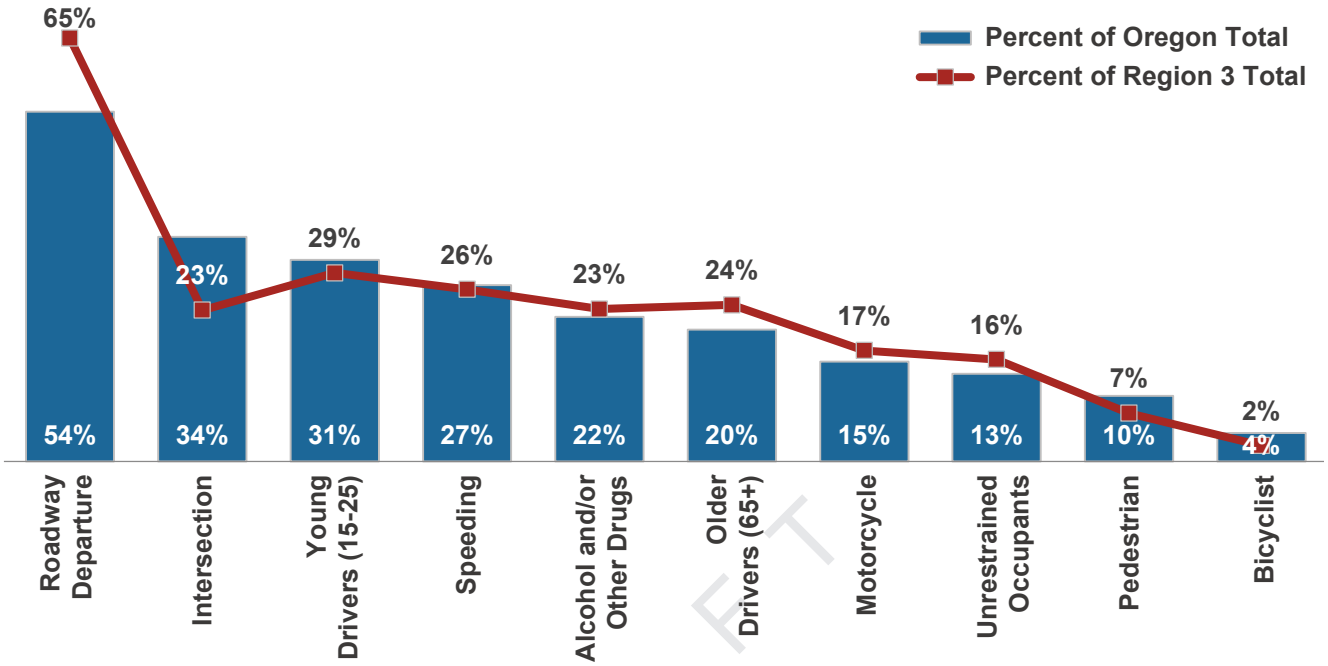
Region 2 (Figure 3.11) is a near-perfect match to the statewide proportions and distribution of the top attribute. The region has a mix of urban and rural transportation needs, similar to the State of Oregon.

Figure 3-11. Region 2 Fatal and Serious Injury Crashes by Attribute, Compared to Statewide, 2009-2013



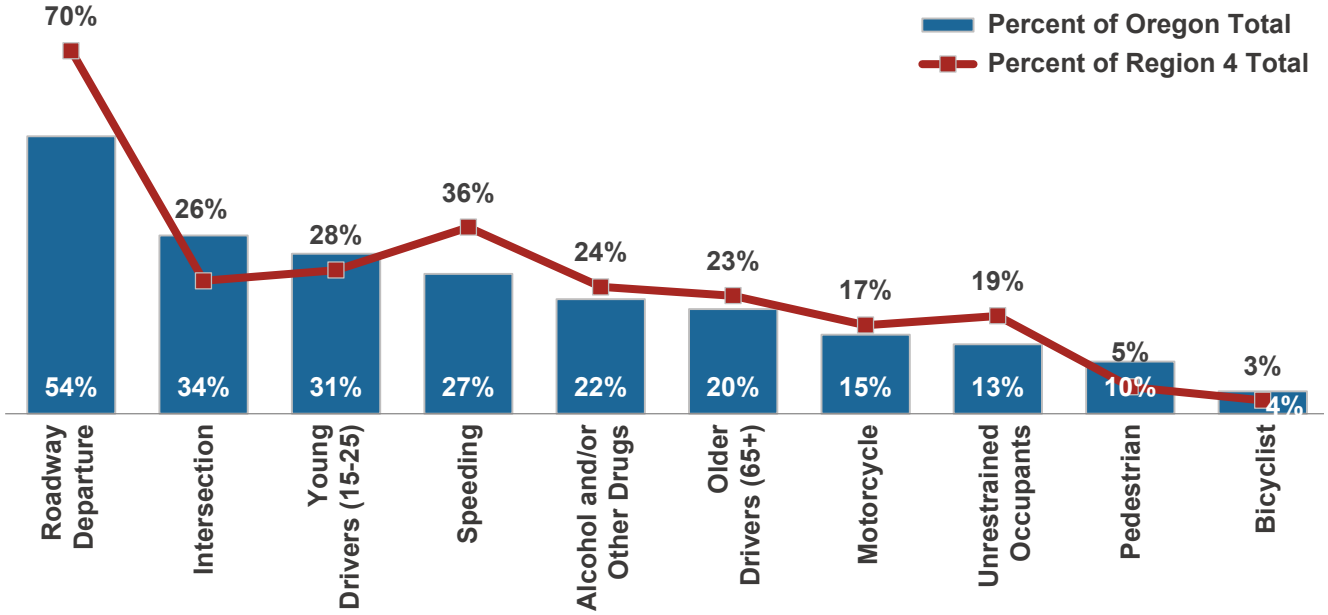
Region 3 (Figure 3.12 has a higher frequency of roadway or lane departure and speed-related fatal and serious injury crashes compared to the statewide average. It also experienced a lower proportion of intersection-related fatal and serious injury crashes than the rest of the state.

Figure 3-12. Region 3 Fatal and Serious Injury Crashes by Attribute, Compared to Statewide, 2009-2013



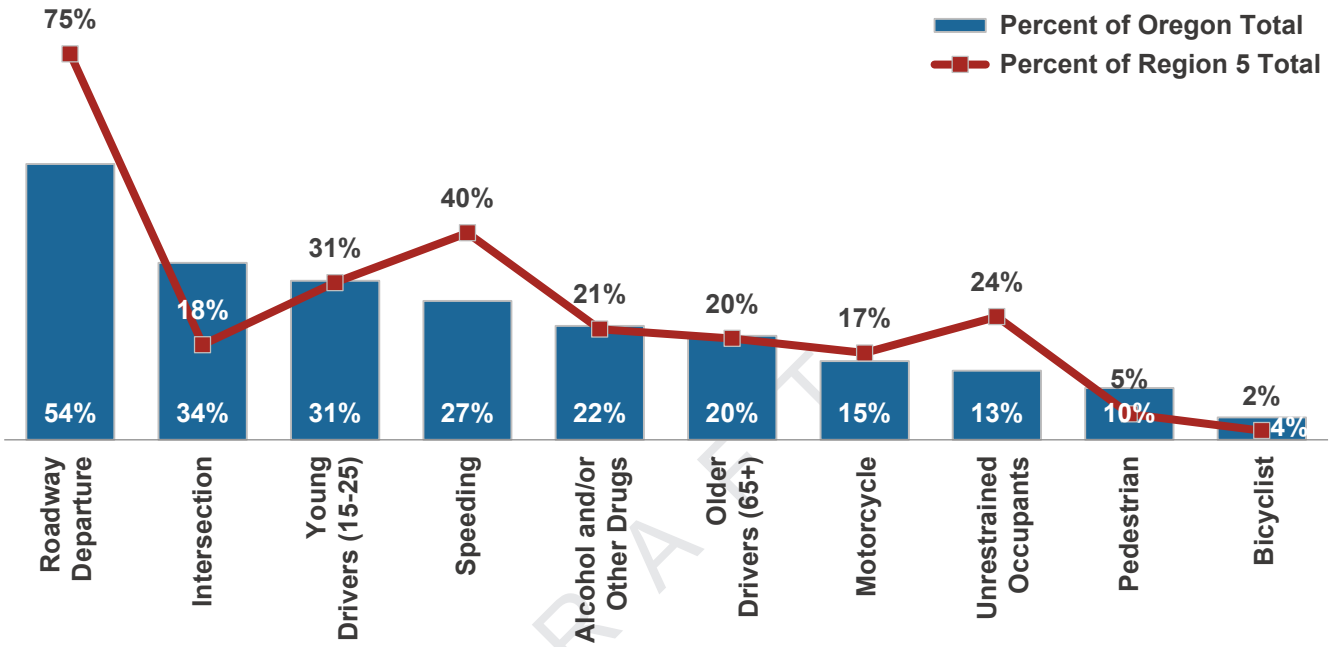
Region 4 (Figure 3.13) has a higher frequency of roadway or lane departure and speed-related fatal and serious injury crashes compared to the statewide average, partially because of its high number of rural road miles. It also has a higher proportion of unrestrained occupants than the state overall.

Figure 3-13. Region 4 Fatal and Serious Injury Crashes by Attribute, Compared to Statewide, 2009-2013



Region 5 (Figure 3.14) is also quite rural, which contributes to its higher frequency of roadway or lane departure and speed-related fatal and serious injury crashes compared to the statewide average. It also experienced a lower proportion of intersection-related and pedestrian-involved fatal and serious injury crashes than the rest of the state.

Figure 3-14. Region 5 Fatal and Serious Injury Crashes by Attribute, Compared to Statewide, 2009-2013



CONCLUSION

From a broad perspective, the 2009-2013 Oregon crash trend analysis shows:

- The number of fatalities and serious injuries are approximately equally distributed in urban (48 percent) and rural areas (52 percent).
- Crashes with fatal or serious injury outcomes are most common on Principal Arterials and Minor Arterials, as well as Rural Collector roads
- Statewide, from 2009-2013:
  - » Roadway or lane departure crashes (54 percent of crashes) were the most common;
  - » Young drivers (15-25) were most frequently (31 percent of crashes) involved; and
  - » Speeding (27 percent of crashes) was the most common behavioral factor.
- While motorcycle crashes are not the most frequent, of all the motorcycle crashes that do occur 24 percent result in a fatality or serious injury. This is the highest severity proportion.
- There are different types, severities and attributes for crashes in the different ODOT Regions of the state:
  - » **Region 1:** Portland Metro (Clackamas, Hood River, Multnomah and Washington Counties) has more intersection crashes, a higher proportion of fatal and serious injury crashes involving pedestrians and bicyclists, and fewer fatalities and serious injuries related to roadway or lane departure, speed, older drivers,

and unrestrained occupants than the statewide average.

- **Region 2:** Willamette Valley, North and Mid- Coast (Clatsop, Columbia, Tillamook, Yamhill, Polk, Marion, Lincoln, Linn, Benton and Lane Counties) essentially matches the statewide average distribution of crashes, due to the urban and rural nature of the region. The most frequent crash type are roadway departure crashes and crashes involving young drivers.
- **Region 3:** Southern Oregon and South Coast (Douglas, Curry, Coos, Josephine and Jackson Counties) experiences more roadway or lane departure and speed-related fatal and serious injury crashes compared to the statewide average, and a lower proportion of intersection-related fatal and serious injury crashes than the rest of the state.
- **Region 4:** Central Oregon (Wasco, Sherman, Gilliam, Jefferson, Wheeler, Crook, Deschutes, Lake and Klamath Counties) also has a higher frequency of roadway or lane departure and speed-related fatal and serious injury crashes, and a higher proportion of unrestrained occupants than the state overall.
- **Region 5:** Eastern Oregon (Morrow, Umatilla, Union, Wallowa, Baker, Grant, Harney and Malheur Counties), also has a higher frequency of roadway or lane departure and speed-related fatal and serious injury crashes and a lower proportion of intersection-related and pedestrian-involved fatal and serious injury crashes than the rest of the state.

It is important to address both infrastructure and human behavior safety issues to meet Oregon's long term vision. Oregon's crash data provides an important starting point toward deciding the distribution of limited resources by region, attribute, and potential countermeasures to address a diversity of safety programs and projects. The data is also critical to inform the selection of emphasis areas, strategies, and actions which provide the framework for lowering fatalities and serious injuries in Oregon and are presented in later chapters.


ODOT
INCIDENT
RESPONSE
SLOW
55

4 SAFETY CHALLENGES AND OPPORTUNITIES

5 VISION, GOALS, POLICIES, AND STRATEGIES

VISION, GOALS, POLICIES, AND STRATEGIES

This portion of the TSAP outlines a strategic framework, including a vision, goals, policies, and strategies, to define what Oregonians wants to achieve in the future for transportation safety. The vision outlines the aspirational, yet achievable, objective of eliminating fatalities and serious injuries by 2035. To make advancements towards the vision, six goal areas provide specificity to ODOT, stakeholder agencies, and the public to focus efforts and resources. Within each goal area, a diverse list of policies and strategies convey the mid and long term opportunities, programs, and activities that have the best chance of improving transportation safety for all modal users. Incorporation of the goals, policies, and strategies into all ODOT and stakeholder plans will help Oregon achieve its vision.

GOAL AREAS

- Improving Safety Culture
- Improving Infrastructure
- Facilitating Healthy and Livable Communities
- Best Available Technologies
- Communicating and Collaborating
- Strategic Investments

VISION

Every day, people arrive safely at their destinations in Oregon, but tragically, fatalities and serious injuries still occur on the Oregon transportation system. Any fatality or life changing injury is a significant loss that can be avoided by implementing state of the art programs, policies and projects related to safety enforcement, engineering, emergency medical services and education. The TSAP lays the foundation to consider and prioritize safety for all modes and all users of our transportation system in order to eliminate all deaths and life changing injuries on the transportation system.

VISION

Oregon envisions no deaths or life-changing injuries on Oregon's transportation system by 2035.

Achieving this vision by 2035 requires commitment and engagement from a variety of Oregon's agencies and stakeholders. Engineers, law enforcement, emergency medical service providers and educators traditionally play a strong role in advocating for, planning, designing, and implementing transportation safety plans and will continue to do so. However, this plan also includes goals, policies, strategies and actions relevant to public health professionals, the media, private stakeholders, the individual transportation system user, and others. All of these organizations and individuals will be tasked with planning and implementing safe travel options, and traveling responsibly, with the safety of all users in mind.

GOALS

Decision makers are always faced with trade-offs in developing a comprehensive transportation system. There are a large variety of system needs (e.g., mobility, access, reliability, environmental impacts, health impacts, equity, modal options and safety) that need to be balanced and prioritized for a wide variety of contexts. The goals, policies and strategies in the TSAP present a "safety-first" perspective.

There are always tradeoffs. The goals, policies and strategies in this plan are developed and presented from a "safety-first" perspective.

Goal 1: Safety Culture

Background

Developing and sustaining a strong safety culture, where safety is integrated into everyday decision-making, is key to reducing unnecessary deaths and serious injuries related to transportation. Cultural change is not a simple thing – it involves educating all those who participate in developing (planners, designers, engineers, operations and maintenance and staff) and using the transportation system that they have a basic responsibility to consider the safety of themselves and others as part of their job functions and daily activities.

For those who address transportation and/or safety in their jobs, including - the state legislature, ODOT, metropolitan planning organizations, local jurisdictions, emergency responders, law enforcement, health services providers, rail and transit providers, non-profit organizations, industries, and other organizations, cultural shifts will be seen when safety is prioritized as a core value. A strong safety culture means that agency leadership and employees, at all levels, are encouraged and rewarded for prioritizing safety, and identifying safety issues and solutions while carrying out their agency's missions and their individual job responsibilities.

Inspiring a strong safety culture among the public (individual drivers, passengers, bicyclists and pedestrians) can be implemented in a number of ways. Good public information and education on the rules of the road and changes in regulations; broadly available and up-to date driver training; clear communication of the benefits of transportation law enforcement changing social norms to expect slower speeds; respect and responsibility for other users; and community engagement in transportation safety plans and programs; can all contribute to higher awareness of how choices influence the safety of all system users.

Opportunities to address safety culture are different based on the types of decisions being made and on who is making those decisions, but Oregon will achieve shifts on all fronts to elevate awareness of safety issues and identify safety solutions.

Goal 1: Transform public attitudes to recognize all transportation system users have responsibility for other people's safety in addition to their own safety while using the transportation system. Transform organizational transportation safety culture among employees and agency partners (e.g., State Agencies, MPOs, Local Agencies, Oregon Health Authority, stakeholders and public and private employers) to integrate safety considerations into all responsibilities.
■ Policy 1.1 - Communicate proactively with system users about safety culture.
□ *Strategy 1.1.1 – Promote safe travel behavior through educational initiatives, focusing on how system user behavior can contribute to a safer transportation system for all.*
□ *Strategy 1.1.2 – Tailor safety culture marketing and media tools to specific user groups with specific needs (e.g., youth, older travelers, walkers, bikers, minority groups and different income groups).*
□ *Strategy 1.1.3 – Continuously evaluate the effectiveness of policies, programs or projects implemented to improve public understanding of safety culture and changes in positive transportation safety behaviors.*

6 EMPHASIS AREAS

EMPHASIS AREAS

EMPHASIS AREA CONSIDERATIONS

Figure 6-1. Crash Types Ranked by Crash Frequency and Severity, 2009-2013

Figure 6-2. Emphasis Area Evaluation

EMPHASIS AREAS AND ACTIONS

This section describes each EA subcategory and the accompanying actions. Actions are specific programs, policies, and projects for implementing the EAs over the next five years. The actions listed are achievable and, where possible, proven effective. For actions that have not been tested for their effectiveness, they will be evaluated during implementation to understand their contribution to crash reductions. The actions are categorized by the primary EA they address, but many have the potential to contribute to fatality and serious injury reductions across multiple EAs.

While this section focuses on the implementation of safety solutions over the next five years, each EA and action will also contribute to the success of the long term goals, policies, and strategies outlined in Chapter 5.

Emphasis Area: Infrastructure

Intersections

An intersection is a point at which two or more roads intersect. Most intersections are designed to motorized vehicles as well as pedestrians, bicyclists, transit users and freight travel. As such, an inherent concern at intersections is they create conflict points between road users, which can be exacerbated by differences in size and travel speed as well as complexity of the intersection design. Intersection crashes in Oregon are defined as incidents that occur at a signalized or unsignalized intersection in an urban or rural environment.

Problem Overview

Between 2009 and 2013, intersection crashes accounted for 34 percent of all the fatal and serious injury crashes in Oregon and contributed to 335 fatalities and 2,613 serious injuries. Seventy six percent of these crashes occurred in an urban environment and older drivers, aggressive drivers, and younger drivers were disproportionately more involved in intersection crashes.

Figure 6-3. Intersection-Related Fatalities and Serious Injuries by Year, 2009-2013

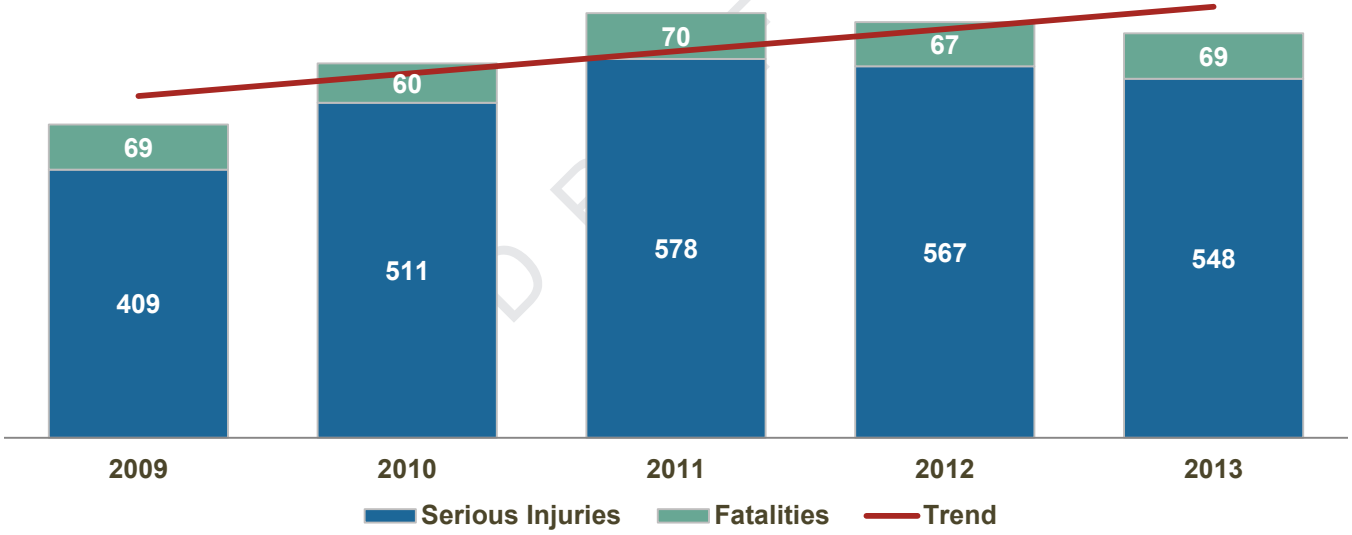
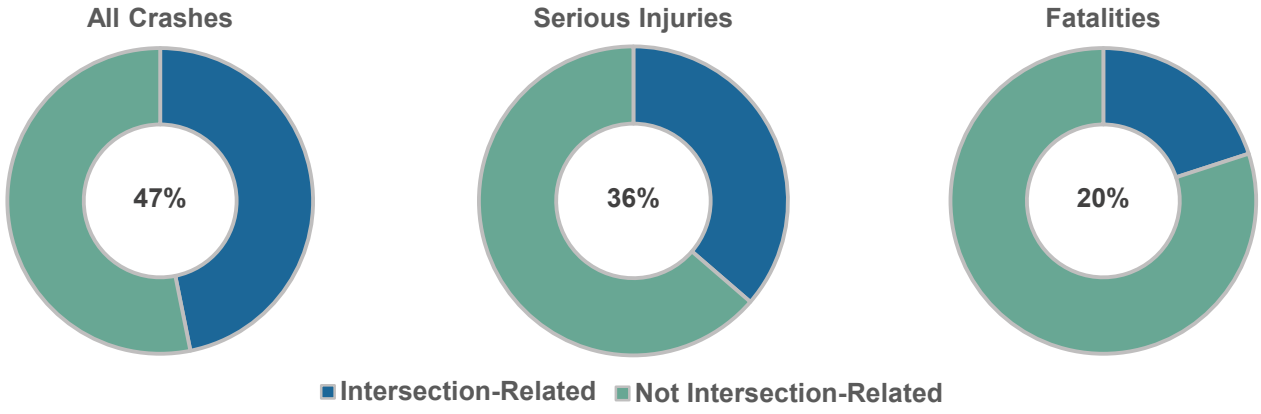


Figure 6-4. Intersection-Related Crashes as a Percentage of All Crashes, Serious Injuries, and Fatalities



Intersection Actions

Intersection specific actions were developed and are shown Table 6.2. More general infrastructure actions were also developed. The actions Table 6.2 can relate to intersection and roadway departure crash types.

Table 6-1. Intersection Actions

Tier 1		
Action	Implement low cost systemic safety improvements at intersections	
	Co-Benefits:	Motorcycles, Pedestrians, Bicyclists, Older Road Users, Commercial Vehicles,
Tier 2		
Action	Implement intersection design treatments to reduce conflicts between users and improve driver awareness of the approaching intersection and compliance with traffic controls.	
	Co-Benefits	Motorcycles, Pedestrians, Bicyclists, Older Road Users, Commercial Vehicles,
Action	Implement access management on high-volume roads and/or complex intersections to reduce crashes.	
	Co-Benefits:	Motorcycles, Pedestrians, Bicyclists, Older Road Users, Commercial Vehicles,

Table 6-2. Infrastructure Actions (General)

Tier 1		
Action	Implement design treatments to achieve appropriate speeds and manage sight distance consistent with context, users and community goals	
	Co-Benefits:	Speeding, Intersections, Roadway Departure, Motorcycles, Pedestrians, Bicyclists, Older Road Users, Commercial Vehicles,
Tier 2		
Action	Implement targeted infrastructure and striping maintenance programs to address safety issues closely associated with weather, `pavement or striping conditions, or roadway debris that affects bicyclists.	
	Co-Benefits:	Intersections, Roadway Departure, Bicyclists,
Action	Reinforce multimodal safety considerations during local Transportation System Plan (TSP) and other planning efforts to guide project planning, operations, and maintenance for safer transportation facilities.	
	Co-Benefits:	Intersections, Roadway Departure, Pedestrians, Bicyclists, Data,

Roadway Departure

When operating a vehicle, a distraction may arise; it might be necessary to swerve suddenly to avoid another car or object; or an unsafe speed could affect control of the car. All of these impact a driver's ability to stay on the road, possibly resulting in a crash. Roadway departure crashes are defined as non-intersection crashes involving a vehicle departing its lane and running off the road, into a median or into an opposing lane of traffic.

Problem Overview

Between 2009 and 2013 approximately 53 percent of all fatal and serious injury crashes in Oregon included a roadway departure and contributed to 1,188 fatalities and 3,745 serious injuries. Seventy three percent of these crashes were in a rural environment. Additionally, many behavior-related crashes involve the vehicle leaving the lane or entire roadway. For example, lane departure accounts for 44 percent of aggressive driving fatal and serious injuries, 43 percent of speed-related fatal and serious injuries, and 18 percent of impaired driving fatal and serious injuries.

Figure 6-5. Roadway Departure Fatalities and Serious Injuries by Year, 2009-2013

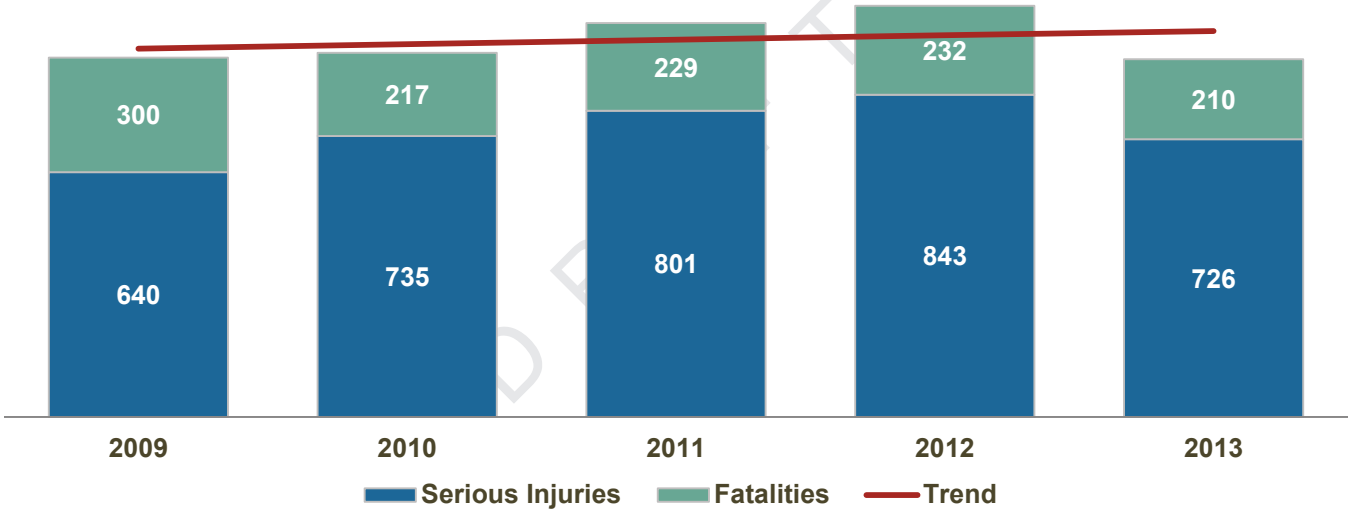
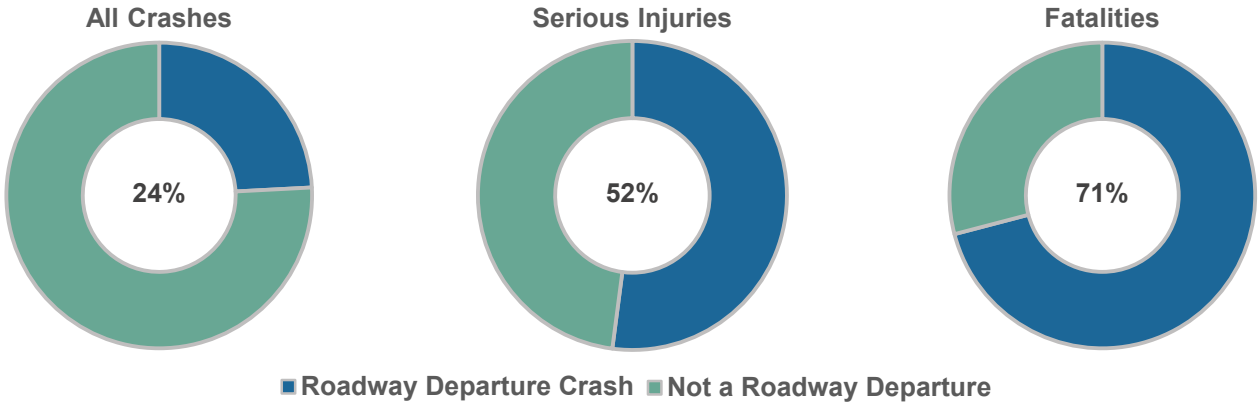


Figure 6-6. Roadway Departure as a Percentage of All Crashes, Serious Injuries, and Fatalities



7 PERFORMANCE MEASURES AND TARGETS

8 IMPLEMENTATION AND EVALUATION


1912

A WHO DEVELOPED THIS PLAN


1912

B TSAP UPDATE PROCESS AND MAP-21 REQUIREMENTS


1912


ROAD
ORK
HEAD
STOP