



**COLORADO**  
Department of Transportation

## Colorado Department of Transportation 2019 Problem Identification Report



# Colorado Department of Transportation

## 2019 Problem Identification Report

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**This report may be downloaded from the internet at:**

<https://www.colorado.gov/pacific/cdphe/motor-vehicle-safety>

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## Report Highlights

- **Motor vehicle crashes** are a leading cause of death in Colorado.
- The number of deaths from motor vehicle crashes Colorado has continued to rise since 2011, resulting in **648 deaths** in 2017.
- **Speeding** was a factor in 35% of all fatalities. In 2017, there were 230 speeding-related motor vehicle fatalities, a nine percent increase from the previous year.
- Among the people who died in a motor vehicle crash, 53% were not wearing a **seat belt**. The number of **unrestrained motor vehicle occupant fatalities** reached 222 deaths in 2017, a 19 percent increase from 2016.
- **Alcohol-impaired drivers** were involved in 27% of all fatalities. In 2017, an estimated 177 motor vehicle deaths resulted from crashes that had an **alcohol-impaired driver**, a nine percent increase from 2016.
- In 2017, there were 103 **motorcyclist fatalities**, an 18% decrease from 2016. Approximately 70% of the motorcyclists who died in 2017 were not wearing a helmet.
- Colorado's **fatalities per vehicle miles traveled (VMT)** increased five percent over the past year and exceeded the United States fatality rate per 100 million VMT (1.21 and 1.16 respectively).
- Fatalities in **urban areas** increased eight percent, from 342 deaths in 2016 to 369 in 2017.
- Fatalities in **rural areas** increased four percent, from 266 deaths in 2016 to 277 in 2017.

## Motor Vehicle Crashes and Fatalities Overview

Table 1 presents an overview of motor vehicle crashes across Colorado, including core performance measures for 2013-2017. One-year and five-year percent changes for each measure are listed in the last two columns. Green font indicates improvement and red font indicates undesired change. The ↑ symbol indicates a percent increase in the number, rate, or percent and the ↓ symbol indicates a percent decrease for the number, rate, or percent.

<b>Table 1. Colorado traffic information and crash outcomes at a glance, 2013-2017</b>							
	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>1-year %Δ</b>	<b>5-year %Δ</b>
Total crashes (n)	108,238	114,752	122,575	121,123	118,842	↓1.9%	↑9.8%
Colorado population (millions)	5.26	5.35	5.46	5.54	5.60	↑1.1%	↑6.5%
Licensed drivers (millions)	3.73	3.79	3.90	3.89	4.00	↑2.8%	↑7.2%
Seat belt use (%)	82.1	82.4	85.2	84.0	83.8	↓0.2%	↑2.1%
<b>Core Performance Measures:</b>							
Fatalities (n)	482	488	547	608	648	↑6.6%	↑34.4%
Serious injuries (n)	3,319	3,224	3,216	2,956	2,884	↓2.4%	↓13.1%
Injuries (n)	12,324	12,570	12,838	11,786	11,668	↓1.0%	↓5.3%
Fatalities (n/100 million vehicle miles traveled)	1.02	1.00	1.08	1.15	1.21	↑5.2%	↑18.6%
Motor vehicle occupant fatalities, unrestrained all seat positions (n)	177	156	188	186	222	↑19.4%	↑25.4%
Fatalities in crashes where driver/motorcycle operator has blood alcohol content ≥0.08* (n)	140	160	152	161	177	↑9.9%	↑22.9%
Speeding-related fatalities (n)	151	168	217	211	230	↑9.0%	↑52.3%
Motorcyclist fatalities (n)	87	94	106	125	103	↓17.6%	↑18.4%
Unhelmeted motorcyclist fatalities (n)	55	61	67	82	72	↓12.2%	↑30.9%
Driver 15-20 years old in fatal crashes (n)	57	73	67	59	91	↑54.2%	↑59.6%
Pedestrian fatalities (n)	50	63	59	79	92	↑16.5%	↑84.0%
Bicyclist fatalities (n)	12	10	13	16	16	0.0%	↑33.3%
Driver 65+ years old in fatal crashes (n)	94	78	100	131	125	↓4.6%	↑33.0%
Distracted drivers in fatal crashes (n)	82	59	67	77	61	↓20.8%	↓25.6%
Fatalities involving driver, motorcycle operator testing positive for drugs	39	52	56	68	93	↑36.8%	↑138.5%

Data sources: Traffic crash reports, Colorado Department of Revenue, Division of Motor Vehicles; Fatality Analysis Reporting System (FARS), National Highway Traffic Safety Administration (NHTSA)

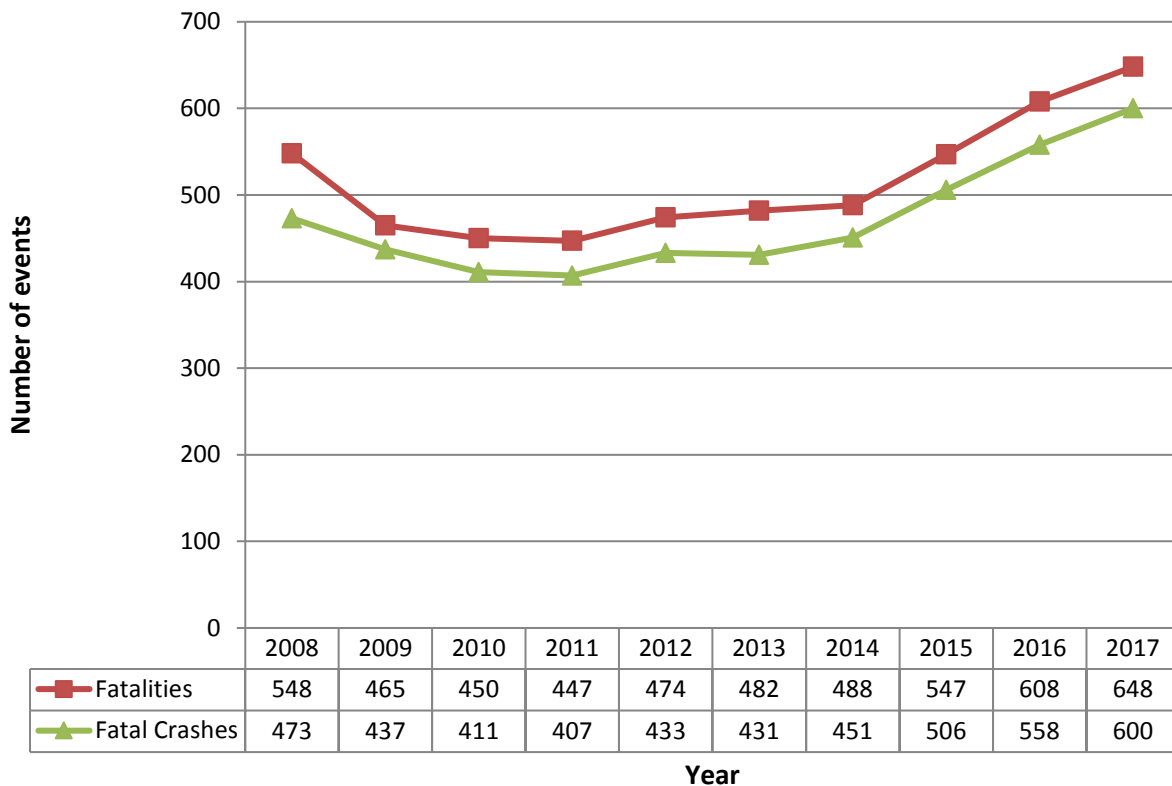
## Fatal Crashes and Fatalities

### Core Performance Measure (C-1): Reduce the number of traffic fatalities.

Between 2016 and 2017, the number of fatal motor vehicle traffic crashes in Colorado increased by 7.5% and the number of traffic fatalities increased by 6.6%. This increase follows an upward trend from the previous six years, after positive declines in fatalities and fatal crashes between 2004 and 2011. Figure 1 shows the number of fatal crashes and fatalities in Colorado from 2008-2017. In contrast, both fatalities and fatal crashes across the nation decreased by less than one percent between 2016 and 2017. Specifically, there were 37,461 deaths in the United States in 2016 and 37,133 in 2017 and 34,439 fatal crashes in 2016 and 34,247 fatal crashes in 2017.<sup>1</sup> In 2017, 562 (93.7%) of the fatal crashes in Colorado resulted in one death in each crash, 30 (5.0%) crashes resulted in two deaths per crash, six (1.0%) crashes resulted in three deaths per crash, and two crashes (0.3%) resulted in four deaths in each crash. As a result, the number of fatalities was greater than the number of fatal crashes.

**C-1 Top Five Counties**  
 El Paso – 77 fatalities  
 Weld – 66 fatalities  
 Adams – 64 fatalities  
 Denver – 49 fatalities  
 Arapahoe – 45 fatalities

Figure 1: Fatal motor vehicle crashes and fatalities in Colorado, 2008-2017

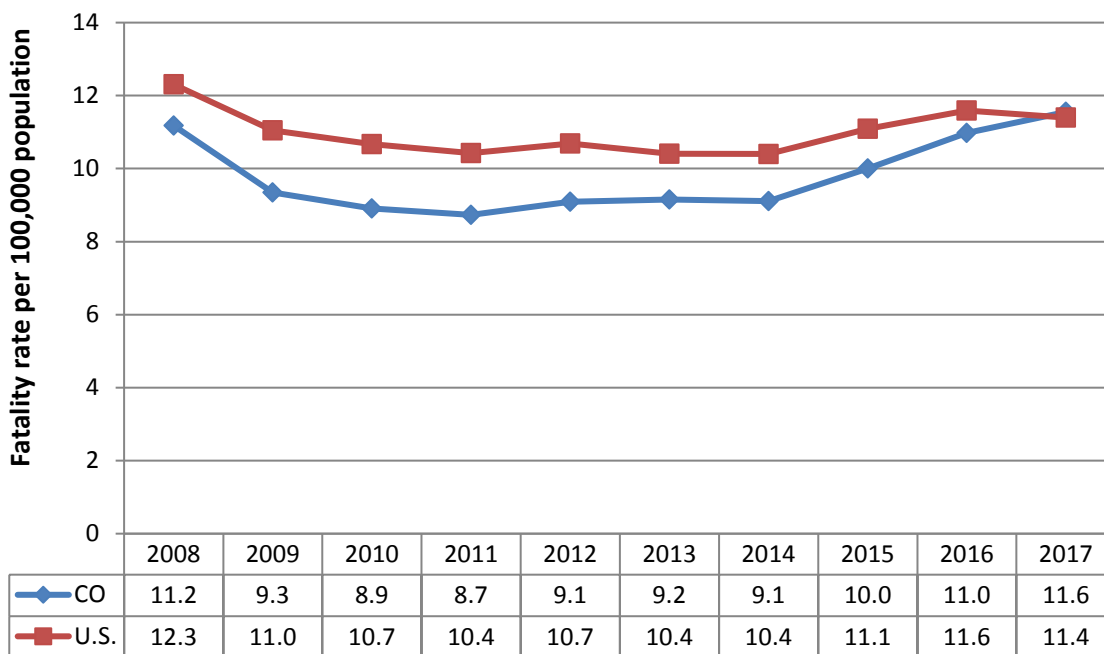


Source: FARS

<sup>1</sup> <http://www-fars.nhtsa.dot.gov/Main/index.aspx> Last accessed January 31, 2018

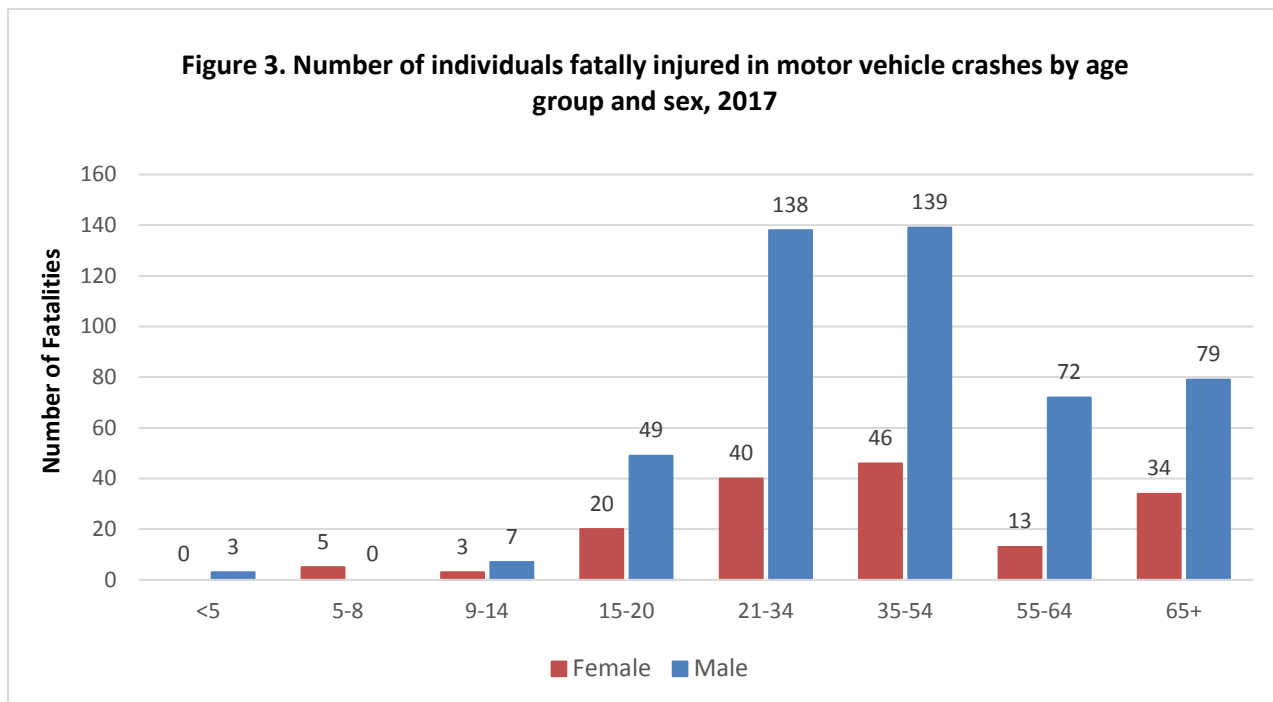
Colorado’s motor vehicle fatality rate increased 5.2% between 2016 and 2017. In 2016, 11 people per 100,000 Colorado residents died in motor vehicle crashes, and in 2017, almost 12 people per 100,000 Colorado residents died. For the first time in more than a decade, the motor vehicle fatality rate in Colorado exceeded the national average during 2017 (Figure 2).

**Figure 2: Motor vehicle fatality rate per 100,000 population in Colorado and the United States, 2008-2017**



Source: FARS, DOLA and US Census Bureau

Figure 3 depicts the age and sex of the people who died as a result of a motor vehicle crash during 2017. The 35-54 age group had highest number of fatalities in 2017. More males were fatally injured in motor vehicle crashes than females during 2017. Table 2 shows the rate of fatalities by age and sex. Approximately three males died in a crash for every one female who died in a motor vehicle crash.



Source: FARS

<i>Age Group</i>	<i>Male</i>	<i>Female</i>	<i>Rate for age group</i>
<5	1.8	0.0	<b>0.9</b>
5-8	0.0	3.7	<b>1.8</b>
9-14	3.1	1.4	<b>2.3</b>
15-20	21.2	9.2	<b>15.4</b>
21-34	23.0	7.1	<b>15.3</b>
35-54	18.7	6.3	<b>12.6</b>
55-64	20.9	3.6	<b>12.1</b>
65+	22.4	8.1	<b>14.6</b>
<b>All Ages</b>	<b>17.3</b>	<b>5.7</b>	<b>11.6</b>

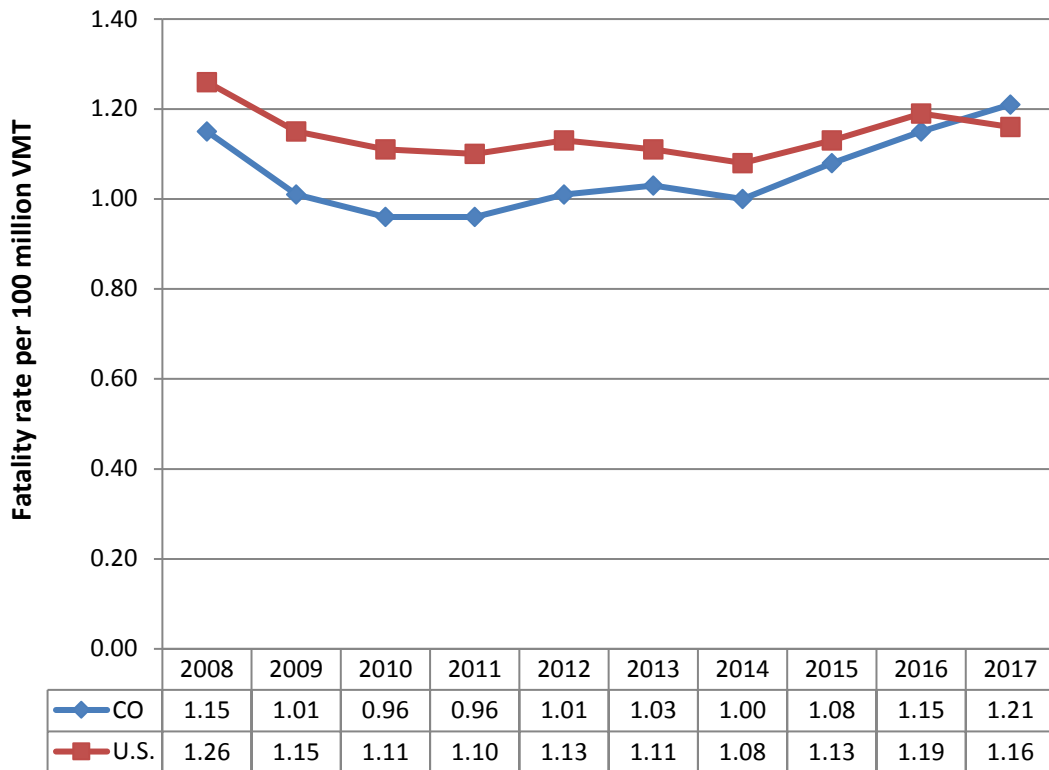
Source: FARS



## Core Performance Measure (C-3): Reduce the number of fatalities per Vehicle Miles Traveled (VMT)

For data users to better understand the observed trends in the number of fatalities (Figure 1) and fatality rate per 100,000 population (Figure 2) over time, it is helpful to look at other factors that may account for the increase in motor vehicle fatalities such as vehicle miles traveled (VMT). This approach takes into account changes in the population, as well as changes in fuel prices, driving habits and distances driven. The fatality rate is calculated by dividing the number of fatalities by the number of vehicle miles traveled (VMT). Fatalities per 100 million VMT can be compared over time and between different geographic areas. Colorado’s 2017 Integrated Safety Plan goal is to reduce the fatality rate per VMT to 0.99 per 100 million in 2017. Figure 4 shows the rate of fatalities per 100 million VMT for Colorado and the United States. The fatality rate increased over the past four years and exceeded the United States’ average fatality rate in 2017.

**Figure 4: Fatalities per 100 million vehicle miles traveled (VMT) in Colorado and in the United States, 2008-2017**



Source: FARS and USDOT FHWA

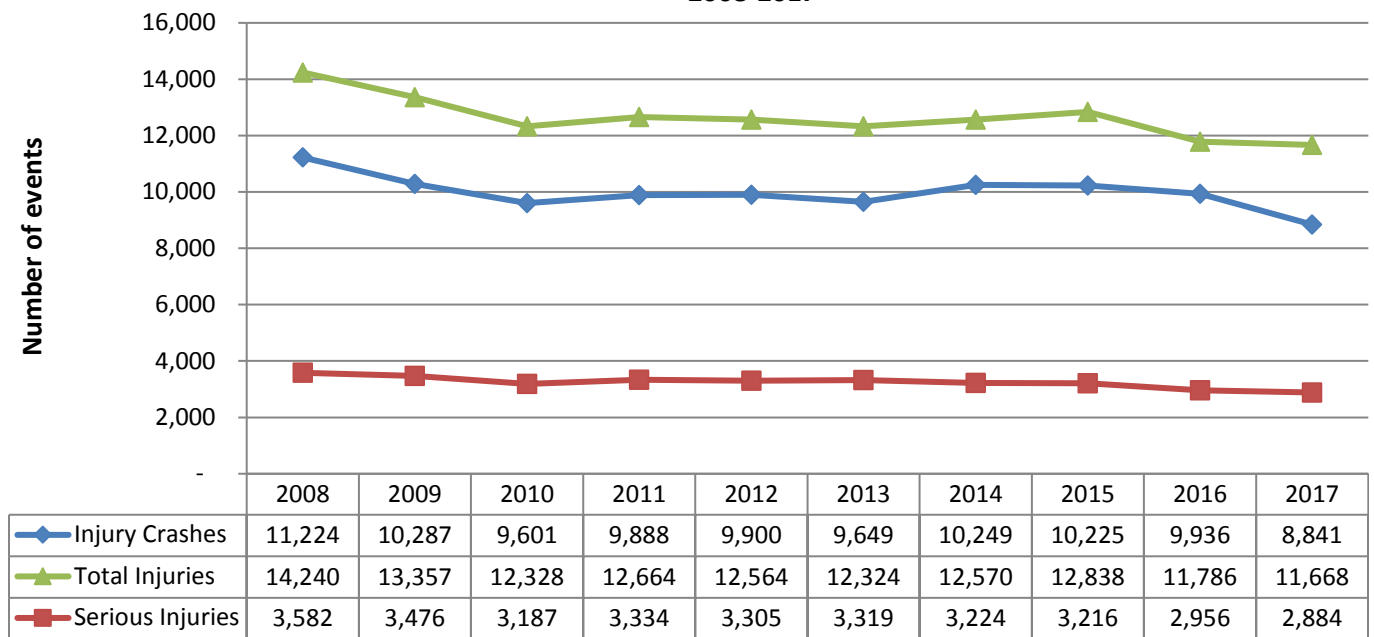
## Injury Crashes and Injuries

### Core Performance Measure (C-2): Reduce the number of serious injuries in traffic crashes

The number of crashes resulting in injuries decreased over the past 10 years (Figure 5). In this report, injury includes two types of injuries: “evident non-incapacitating” or “evident incapacitating”. “Evident incapacitating injury” is also called “serious injury” and includes any injury, other than a fatal injury, that prevents the injured person from walking, driving, or normally continuing the activities previously capable of performing prior to being injured. The number of people injured and seriously injured also decreased over the same time period. One-quarter of injured people sustained a serious injury (24.7%) in 2017.

**C-2 Top Five Counties**  
 Denver – 478 serious injuries  
 Arapahoe – 364 serious injuries  
 Adams – 316 serious injuries  
 Boulder – 230 serious injuries  
 Jefferson – 225 serious injuries

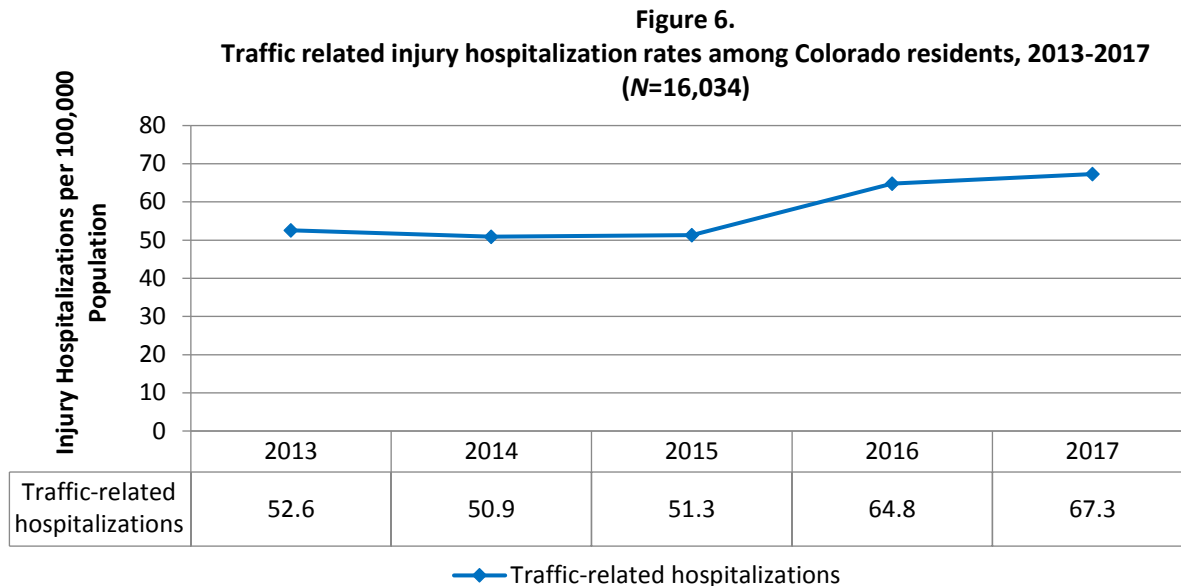
**Figure 5: Motor vehicle injury crashes, injuries and serious injuries in Colorado, 2008-2017**



Source: Crash Reports, DOR

## Injury Hospitalizations

The age-adjusted rate of hospitalizations for Colorado residents injured in motor vehicle crashes increased by 28% from 2013-2017 (Figure 6). The motor vehicle crashes occurred in traffic or on public roadways, and the hospitalizations occurred in non-federal, acute care hospitals in Colorado.

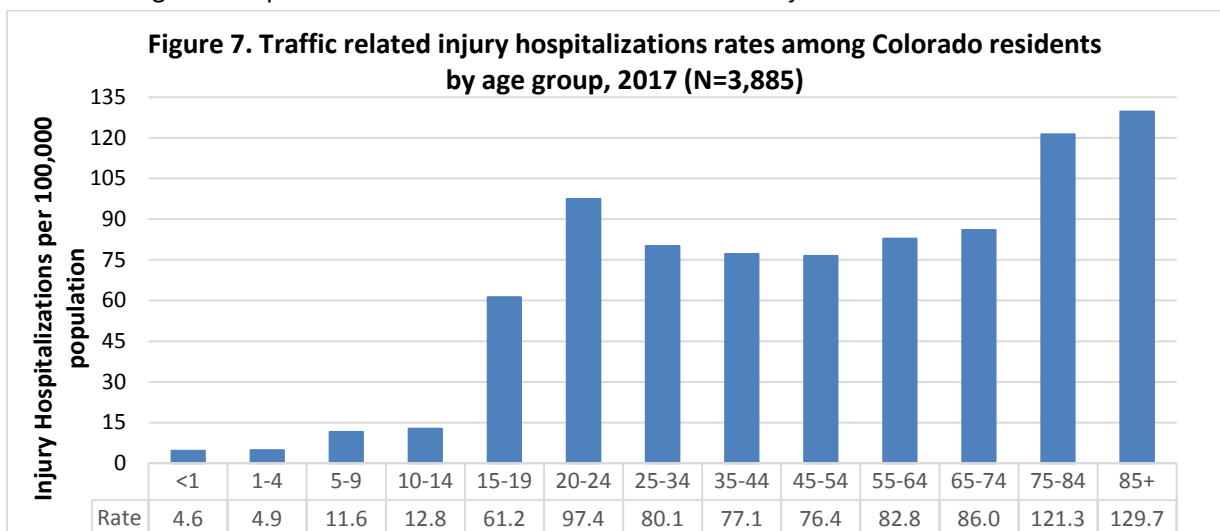


Source: Colorado Hospital Association, Hospital Discharge

\*Note: View the rates with caution. Nationally and in Colorado, the coding of hospitalizations changed beginning October 1, 2015.

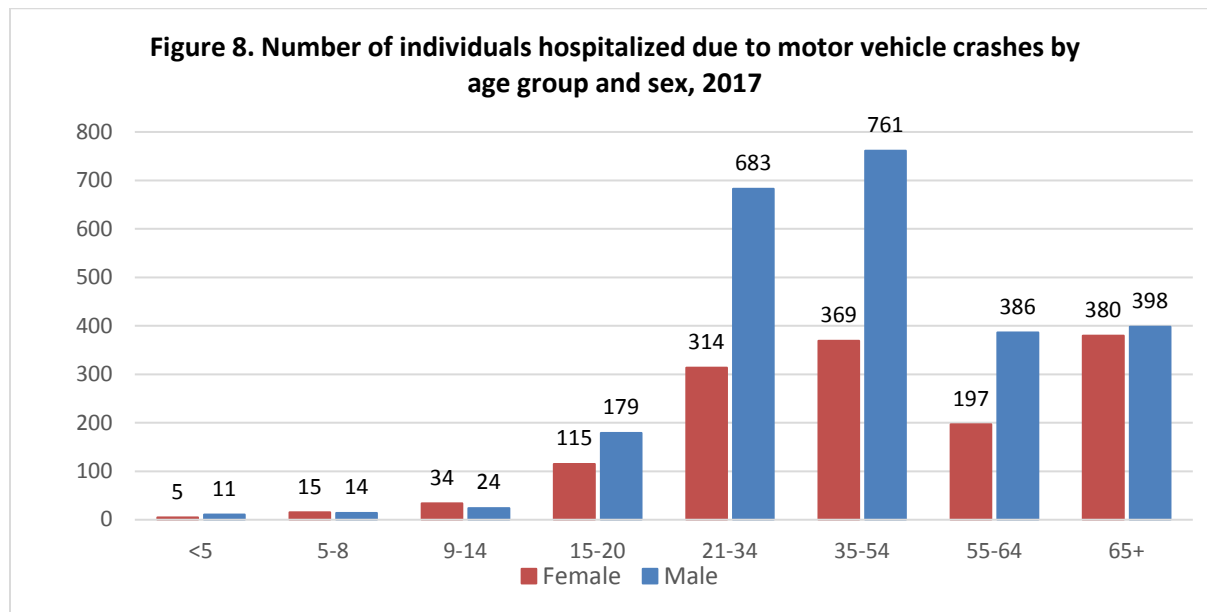
2015 was calculated using the last quarter of 2014 and the first three quarters of 2015 in order to use the same coding system. In 2016 and 2017, the rates were calculated using the new coding of hospitalizations.

In 2017, there were 3,885 hospitalizations among Colorado residents injured from motor vehicles crashes in traffic or on public roads (Figure 7). The age-specific hospitalization rate for Colorado residents sustaining injuries in motor vehicle crashes varied by age. People ages 20-24 years old and adults 75 years and older exhibited the highest hospitalization rates related to motor vehicle injuries.



Source: Colorado Hospital Association, Hospital Discharge

Figure 8 shows the number of individuals hospitalized from motor vehicle crashes in Colorado during 2017, including the number of males and females within each age group. The 21-34 and 35-54 age groups had the greatest numbers of people hospitalized from motor vehicle crashes. Across all age groups, a greater number of males than females in each age group were hospitalized with the exception of the 5-8 year and 9-14 age groups. Males accounted for almost two-thirds of those hospitalized from crashes during 2017.



Source: Colorado Hospital Association, Hospital Discharge

Table 3 shows the hospitalization rate per 100,000 population by age group and sex. The 65 and older age group had the highest rate of hospitalizations per 100,000 persons. Males aged 21-34 had the highest rates of hospitalizations from motor vehicle crashes for every 100,000 persons, compared to the other groups.

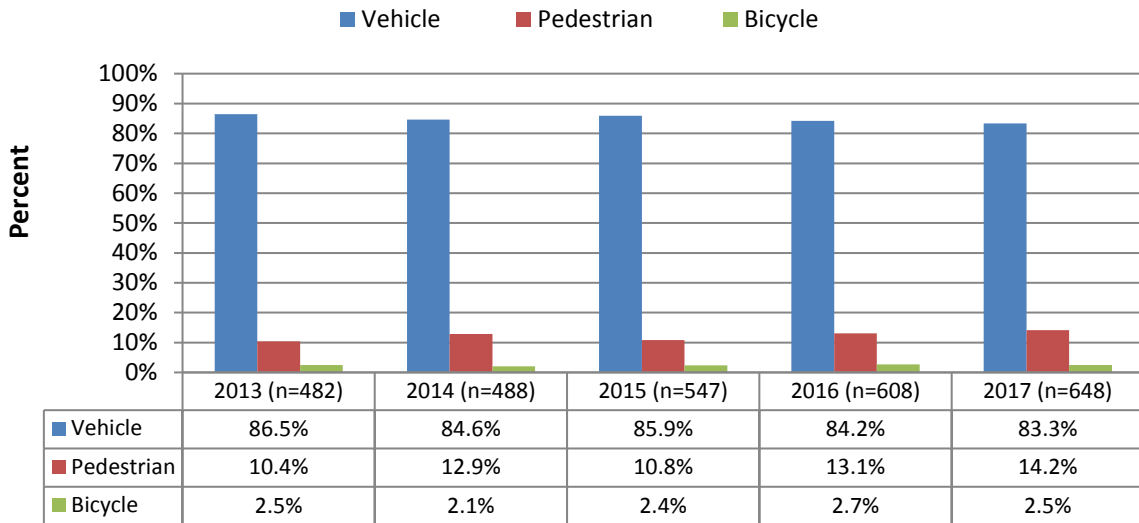
<b>Age Group</b>	<b>Male</b>	<b>Female</b>	<b>Crude Rate for age group*</b>
<5	6.4	3.1	<b>4.8</b>
5-8	10.0	11.2	<b>10.6</b>
9-14	10.7	15.8	<b>13.2</b>
15-20	77.4	53.1	<b>65.6</b>
21-34	113.6	55.7	<b>85.6</b>
35-54	102.4	50.6	<b>76.8</b>
55-64	112.2	54.7	<b>82.8</b>
65+	112.7	90.6	<b>100.7</b>
All Ages	87.5	51.0	<b>69.3</b>

Source: Colorado Hospital Association, Hospital Discharge

## Mode of Transportation

In Colorado, persons driving or riding motorized vehicles made up 85% of the motor vehicle-related fatalities between 2013 and 2017 (Figure 9). Pedestrians accounted for 12% of motor vehicle fatalities, while bicyclists comprised two percent over the five-year period. The percentage of pedestrian fatalities increased over the five year period.

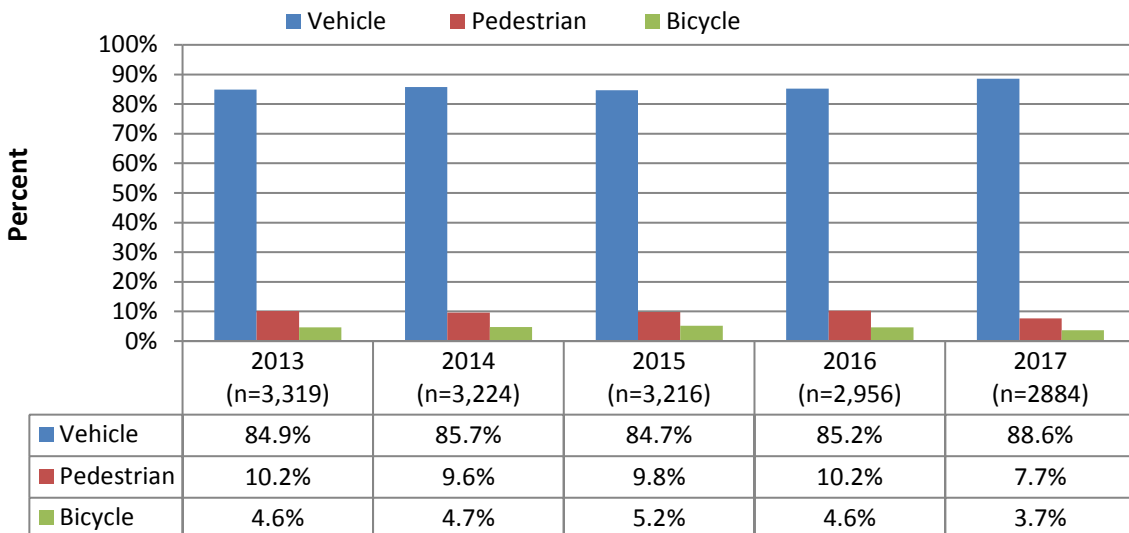
**Figure 9: Motor vehicle fatalities by mode of transportation in Colorado, 2013-2017**



Source: FARS

The mode of transportation when serious motor vehicle injuries occurred remained relatively stable during 2013-2017 (Figure 10). On average, 86% of people seriously injured in a motor vehicle crash were riding motorized vehicles, pedestrians comprised 10%, and bicyclists made up five percent.

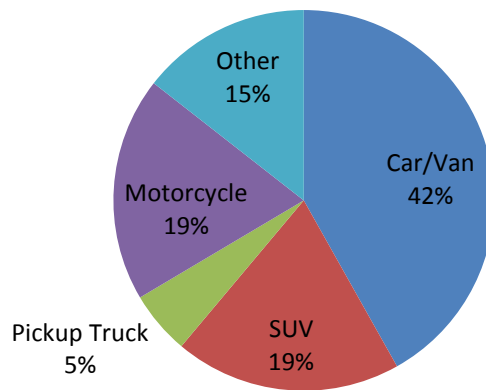
**Figure 10: Motor vehicle serious injuries by mode of transportation, Colorado, 2013-2017**



Source: Crash reports, DOR

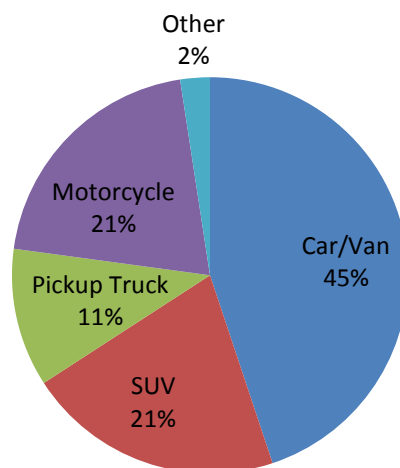
As shown previously in Figure 9 and Figure 10 above, persons riding motorized vehicle accounted for the majority of motor vehicle-related fatalities and serious injuries. A motorized vehicle can be a car/van, motorcycle, pickup truck, SUV, or other type of vehicle (i.e. large truck, motor home, bus, all-terrain vehicle, snowmobile, and farm or construction equipment other than truck, or vehicle unknown because it was a hit and run). Figure 11 below shows the type of motor vehicle individuals were using when fatally injured. Among the fatally injured, almost half (42%) of the individuals fatally injured were riding in a car/van, 19% were riding in a SUV, and 19% for riding a motorcycle. Of those who were seriously injured, almost half (45%) were riding in a car/van, 21% riding in an SUV, and 21% riding a motorcycle (Figure 12).

**Figure 11: Type of motor vehicle individuals were riding in when fatally injured, Colorado, 2017**



Source: FARS Data

**Figure 12: Type of motor vehicle individuals were riding in when seriously injured, Colorado, 2017**

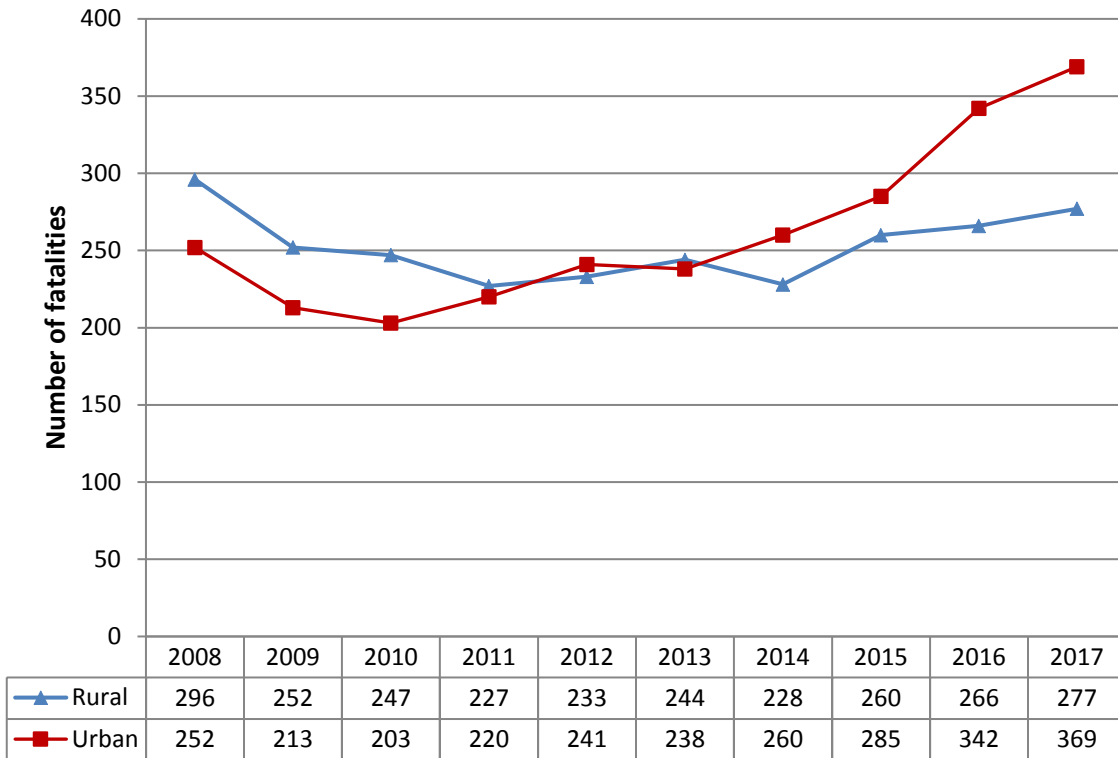


Source: Crash reports, DOR

## Urban versus Rural Fatalities

Figure 13 displays the number of motor vehicle fatalities that occurred in urban or rural areas. While more motor vehicle fatalities occurred in rural areas during 2008-2011, more fatalities occurred in urban areas during 2014-2017.

**Figure 13. Fatalities from motor vehicle crashes in urban and rural areas in Colorado, 2008-2017**



Source: FARS

## Occupant Protection

### Core Performance Measure (C-4): Reduce the number of unrestrained passenger vehicle occupant fatalities, all seat positions.

In 2017, there were 222 unrestrained passenger vehicle occupant fatalities, a 19% increase from 2016 (Figure 14). Between 2013 and 2017, there was a 25% increase in unrestrained passenger fatalities. In 2017, these 222 unrestrained fatalities represented 54% of the 410 passenger vehicle occupant fatalities (Table 4).

<b>C-4 Top Five Counties</b>	
El Paso	– 33 fatalities
Weld	– 25 fatalities
Adams	– 18 fatalities
Pueblo	– 15 fatalities
Arapahoe	– 12 fatalities

**Figure 14: Unrestrained passenger vehicle occupant fatalities in Colorado, all seat positions, 2013-2017**

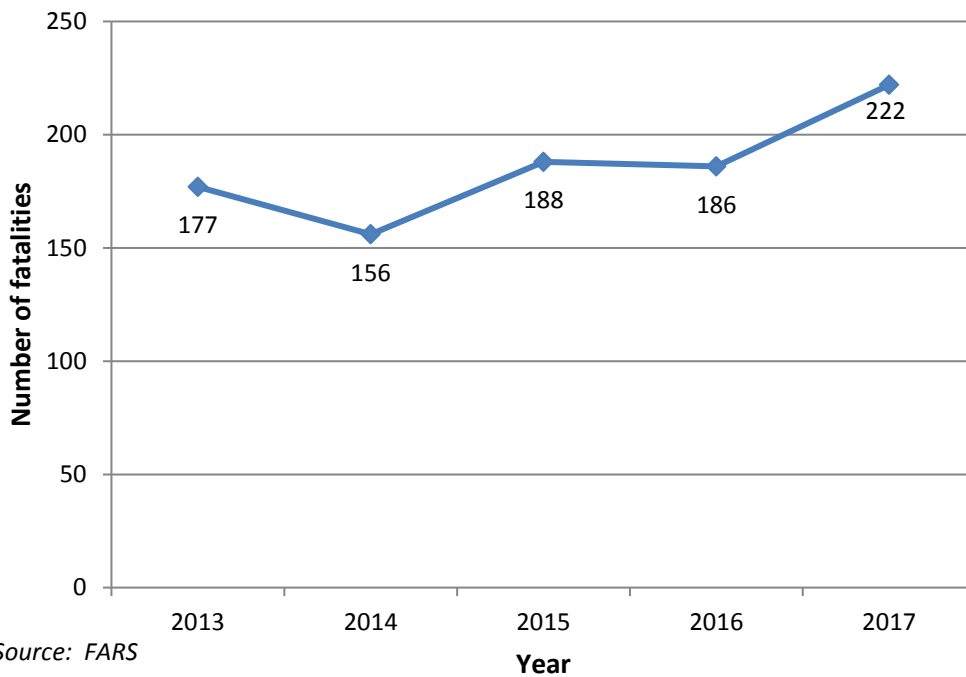


Table 4 shows the number of unrestrained fatalities in Colorado by age and sex for the years 2016 and 2017. More than half of the motor vehicle occupant fatalities were unrestrained for both years (51% in 2016 and 54% in 2017). In 2017, both the number and percentage of unrestrained fatalities were higher compared to 2016. The 15-20 age group had the highest percentage of unrestrained occupants die in a motor vehicle crash in 2017. In addition, more males were unrestrained and died than females.



**Table 4. Unrestrained motor vehicle occupant fatalities by age and sex, Colorado, 2016 & 2017**

Age Group	Sex	2016	2017
0-4	Male	1	0
	Female	0	0
	<b>Total</b>	<b>1/3 (33.3%)</b>	<b>0/2 (0.0%)</b>
5-8	Male	0	0
	Female	2	2
	<b>Total</b>	<b>2/4 (50.0%)</b>	<b>2/4 (50.0%)</b>
9-14	Male	4	3
	Female	4	1
	<b>Total</b>	<b>8/9 (88.9%)</b>	<b>4/6 (66.7%)</b>
15-20	Male	16	23
	Female	11	14
	<b>Total</b>	<b>26/40 (65.0%)</b>	<b>37/54 (68.5%)</b>
21-34	Male	43	56
	Female	21	23
	<b>Total</b>	<b>64/109 (58.7%)</b>	<b>79/124(63.7%)</b>
35-54	Male	32	43
	Female	10	10
	<b>Total</b>	<b>42/77 (54.5%)</b>	<b>53/101 (52.5%)</b>
55-64	Male	18	18
	Female	6	3
	<b>Total</b>	<b>24/49 (49.0%)</b>	<b>21/41 (51.2%)</b>
65+	Male	10	20
	Female	8	6
	<b>Total</b>	<b>18/71 (25.4%)</b>	<b>26/78 (33.3%)</b>
<b>All Ages</b>	Male	124	163
	Female	62	59
	<b>%crashes</b>	<b>186/362 (51.4%)</b>	<b>222/410 (54.1%)</b>

Source: FARS

# Seat Belt Compliance

## Behavioral Performance Measure (B-1): Increase the observed seat belt use for passenger vehicles.

A major initiative of the Office of Transportation Safety (OTS) is to increase seat belt use. Each year, OTS funds an observational survey of occupant protection use statewide. Figure 15 shows the steady increase in seat belt use from 2008-2017. Beginning in 2012, the survey methodology changed to include observation of seat belt use in commercial vehicles 10,000 pounds and under. In 2017, Colorado’s seat belt use rate was 84% and remains lower than the national rate of 90%.

Historically, fewer occupants in light trucks wear seat belts compared to occupants in other passenger vehicles. In 2008, 70% of light truck occupants wore seat belts. Over the past 10 years, this increased to almost 77% (a 10% increase). Despite this improvement, light truck occupants still lag behind other motor vehicle occupants (84% overall seat belt use).

**Countermeasures that Work**  
Increase seat belt use:

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**Targeting Adults:**  
Seat Belt Use Laws

- State primary enforcement belt use laws
- Local primary enforcement belt use laws
- Increased belt use law penalties

Seat Belt Law Enforcement

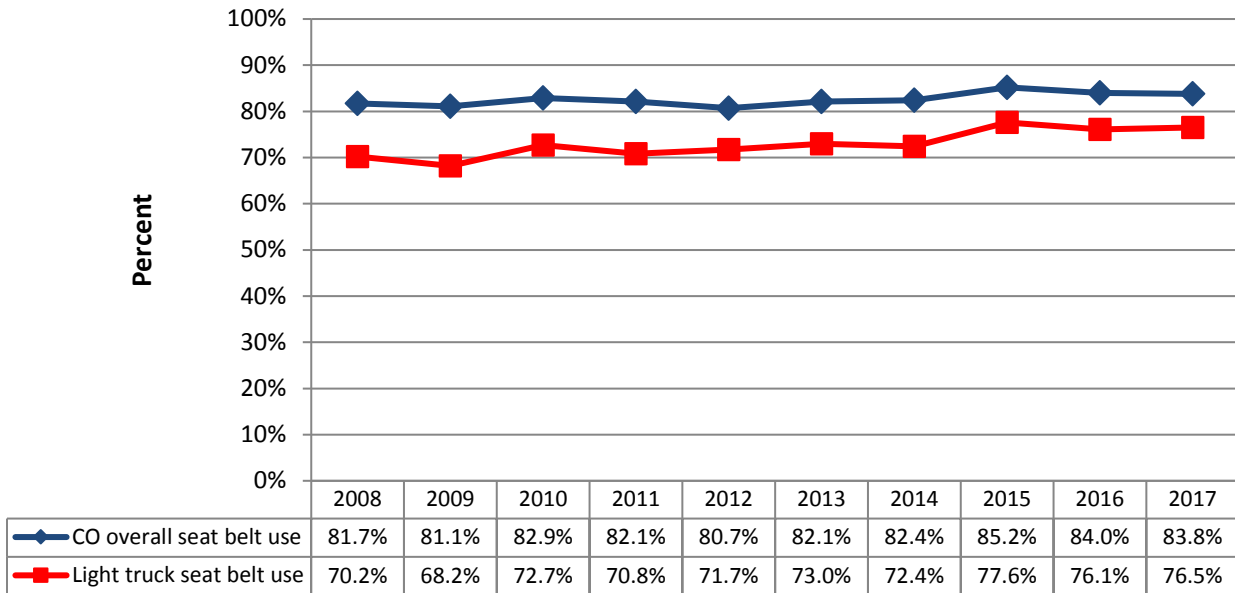
- Short high-visibility belt law enforcement
- Combined enforcement, nighttime
- Sustained enforcement

Communications & Outreach

- Supporting enforcement
- Strategies for low-belt-use groups

*Listed have a 3-5 star effectiveness rating. For all countermeasures, visit <http://www.nhtsa.gov/staticfiles/nti/pdf/812202-CountermeasuresThatWork8th.pdf>*

**Figure 15. Statewide overall and light truck seat belt use in Colorado, 2008-2017**



Source: Institute of Transportation Management at CSU

## Impaired Driving

**Core Performance Measure (C-5): Reduce the number of fatalities in crashes involving a driver or motorcycle operator with Blood Alcohol Content (BAC) of  $\geq 0.08$ .**

Information regarding driving while impaired in Colorado is complex. In fatal crashes, the standard procedure is to test the person who died for alcohol and/or drugs. The law requires an arrested driver take a chemical test of their breath or blood, if the law enforcement officer has probable cause to believe that the driver's impairment is from alcohol or another impairing substance.

The drivers can refuse to take the test and have driver's license consequences for refusal. Despite best efforts of law enforcement, some crash records lack test results. In non-fatal crashes, the law enforcement officer's opinion of alcohol/drug involvement is the only data available on crash reports. To remedy missing test results on BAC, the National Highway Traffic Safety Administration (NHTSA) uses methods to impute missing BAC values. Imputation is a process of replacing missing data with a probable value based on other available data.

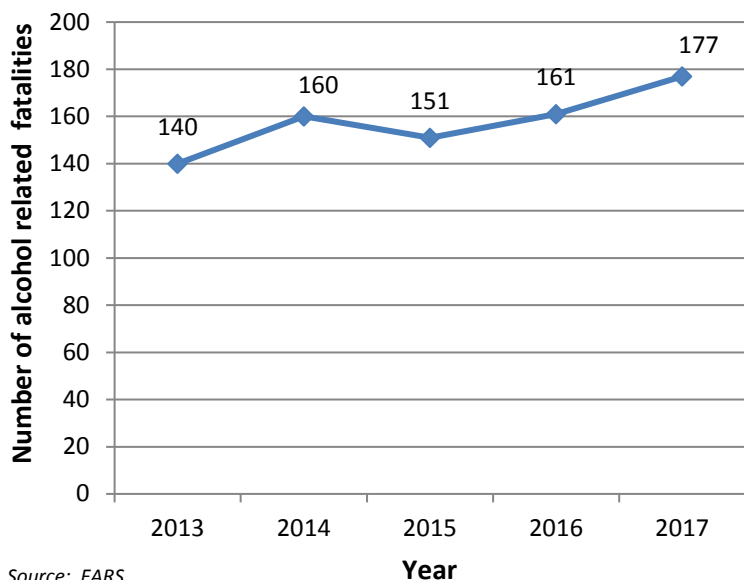
### C-5 Top Five Counties

El Paso – 23 fatalities  
Adams – 21 fatalities  
Denver – 19 fatalities  
Arapahoe – 17 fatalities  
Jefferson – 14 fatalities



The alcohol-related performance measure in Figure 16 is NHTSA's imputed measure. The number of fatalities involving an alcohol-impaired driver has increased over the past five years (Figure 16).

**Figure 16: Fatalities in Colorado motor vehicle crashes involving a driver or motorcycle operator with a BAC  $\geq$  0.08, 2013-2017**



### Countermeasures that Work

To reduce alcohol- and drug-impaired driving:

#### Deterrence

##### 1) Laws

- Administrative license revocation/suspension
- Open containers
- High-BAC sanctions
- BAC test refusal penalties
- Alcohol-impaired driving law review

##### 2) Enforcement

- Publicized sobriety checkpoints
- High visibility saturation patrols
- Preliminary breath test devices
- Passive alcohol sensors
- Integrated enforcement

##### 3) Prosecution and Adjudication

- DWI Courts
- Limits on diversion and plea agreements
- Court monitoring

##### 4) DWI offender treatment, monitoring, control

- Alcohol problem assessment, treatment
- Alcohol ignition interlocks
- Vehicle and license plate sanctions
- DWI offender monitoring
- Lower BAC limit for repeat offenders

#### Prevention, intervention, communications & outreach

- Alcohol screening and brief intervention
- Mass-media campaigns

#### Underage drinking & alcohol-impaired driving

- Minimum drinking age 21 laws
- Zero-tolerance law enforcement
- Alcohol vendor compliance checks
- Other minimum legal drinking age 21 law enforcement

#### Drugged Driving

- Enforcement of drug-impaired driving

Listed have a 3-5 star effectiveness rating. For all countermeasures, visit

<http://www.nhtsa.gov/staticfiles/nti/pdf/812202-CountermeasuresThatWork&th.pdf>

A blood alcohol content (BAC) of 0.08 grams of alcohol per deciliter of blood increases crash risk exponentially and therefore is the state and federal standard for legal intoxication. Table 5 shows the number of drivers with a blood alcohol content greater than or equal to 0.08 and who were involved in a fatal crash in 2016 and 2017. The 21-34 age group and males had the highest number and percentage of drivers with a BAC at or above legal intoxication and involved in a fatal crash. During 2017, there were 940 drivers involved in a fatal crash in Colorado. While the percentage of alcohol-intoxicated drivers involved in a fatal crash (14%) remained the same in 2016 and 2017, the number of alcohol-intoxicated drivers involved in a fatal crash and total drivers involved in a fatal crash increased in 2017, compared to 2016.

<b>Table 5: Drivers with a blood alcohol content <math>\geq</math> 0.08 in fatal crashes in Colorado, by impaired driver age and sex</b>			
<b>Age Group</b>	<b>Sex</b>	<b>2016</b>	<b>2017</b>
<b>Driver</b>			
15-20	Male	5	6
	Female	2	1
	<b>Total</b>	<b>5/59 (8.5%)</b>	<b>7/91 (8.5%)</b>
21-34	Male	46	61
	Female	14	5
	<b>Total</b>	<b>60/296 (20.3%)</b>	<b>66/290 (22.8%)</b>
35-54	Male	38	32
	Female	3	7
	<b>Total</b>	<b>41/258 (15.9%)</b>	<b>39/309 (12.6%)</b>
55-64	Male	8	15
	Female	1	1
	<b>Total</b>	<b>9/123 (7.3%)</b>	<b>16/110 (14.5%)</b>
65+	Male	4	3
	Female	0	0
	<b>Total</b>	<b>4/131 (3.1%)</b>	<b>3/125 (2.4%)</b>
<b>All Ages</b>	Male	101	117
	Female	20	14
	<b>Total*</b>	<b>121/880 (13.8%)</b>	<b>131/940 (13.9%)</b>

Source: FARS

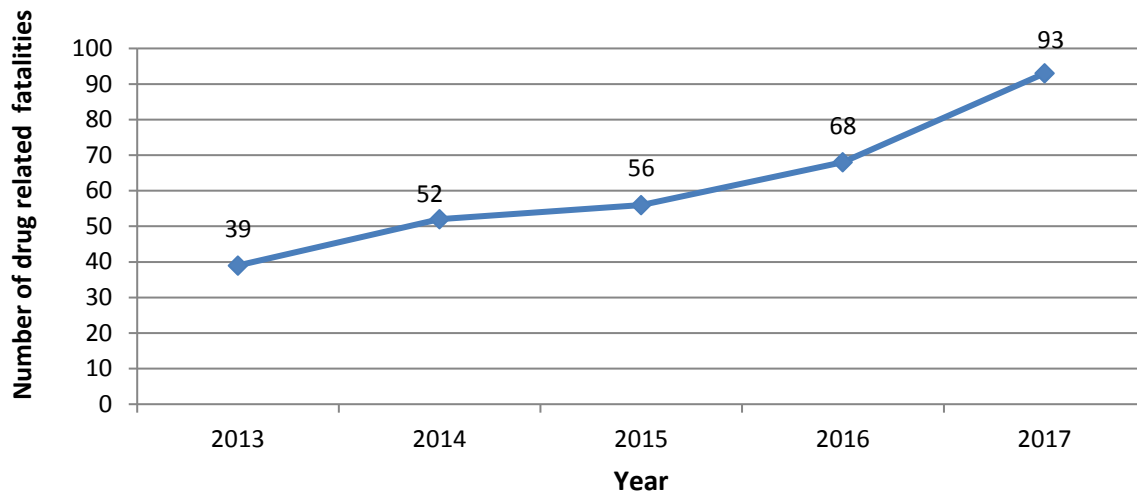
\*Total number of alcohol-impaired drivers/total number of drivers in fatal crashes = percentage of impaired drivers in fatal crashes

**Core Performance Measure (C-14): Reduce the number of drivers or motorcycle operators involved in fatal crashes testing positive for drugs.**

Prescription drugs, over-the-counter drugs, and illegal drugs can affect a person’s ability to drive. Taking legal drugs, illegal drugs, alone or in combination with alcohol can cause impairment. An impaired driver puts the driver, passengers, and other road users at risk. <sup>2</sup> Figure 17 shows the trend of motor vehicle fatalities involving a driver under the influence of drugs. The trend has increased over the past five years.

**C-14 Top Five Counties**  
Weld– 15 fatalities  
Adams – 9 fatalities  
Arapahoe – 8 fatalities  
El Paso – 8 fatalities  
Baca – 4 fatalities

**Figure 17: Fatalities in Colorado motor vehicle crashes involving a driver or motorcycle operator testing positive for drugs, 2013-2017**



Source: FARS

<sup>2</sup> Berning, A., Compton, R., & Wochinger, K. (2015, February). Results of the 2013–2014 National Roadside Survey of alcohol and drug use by drivers. (Traffic Safety Facts Research Note. Report No. DOT HS 812 118). Washington, DC: National Highway Traffic Safety Administration.

Table 6 describes drivers who tested positive for drugs and involved in fatal motor vehicle crashes in 2016 and 2017. The percentage of drivers involved in fatal crashes who were impaired by drugs increased from 10% in 2016 to 12% in 2017. Males and the 15-20 year old age group had the highest percentage of drug-impaired drivers in 2016 and in 2017.

<b>Table 6: Drivers testing positive for drugs in fatal crashes in Colorado, by impaired driver age and sex</b>			
<b>Age Group</b>	<b>Sex</b>	<b>2016</b>	<b>2017</b>
<b>Driver</b>			
15-20	Male	9	15
	Female	1	1
	<b>Total</b>	<b>10/59 (16.9%)</b>	<b>16/91 (17.6%)</b>
21-34	Male	33	25
	Female	4	9
	<b>Total</b>	<b>37/296 (12.5%)</b>	<b>34/290 (11.7%)</b>
35-54	Male	18	33
	Female	4	4
	<b>Total</b>	<b>22/258 (8.5%)</b>	<b>37/309 (12.0%)</b>
55-64	Male	13	10
	Female	2	1
	<b>Total</b>	<b>15/123 (12.2%)</b>	<b>11/110 (10.0%)</b>
65+	Male	6	9
	Female	0	4
	<b>Total</b>	<b>6/131 (4.6%)</b>	<b>13/125 (10.4%)</b>
<b>All Ages</b>	Male	79	92
	Female	11	19
	<b>Total*</b>	<b>90/880 (10.2%)</b>	<b>111/940 (11.8%)</b>

Source: FARS

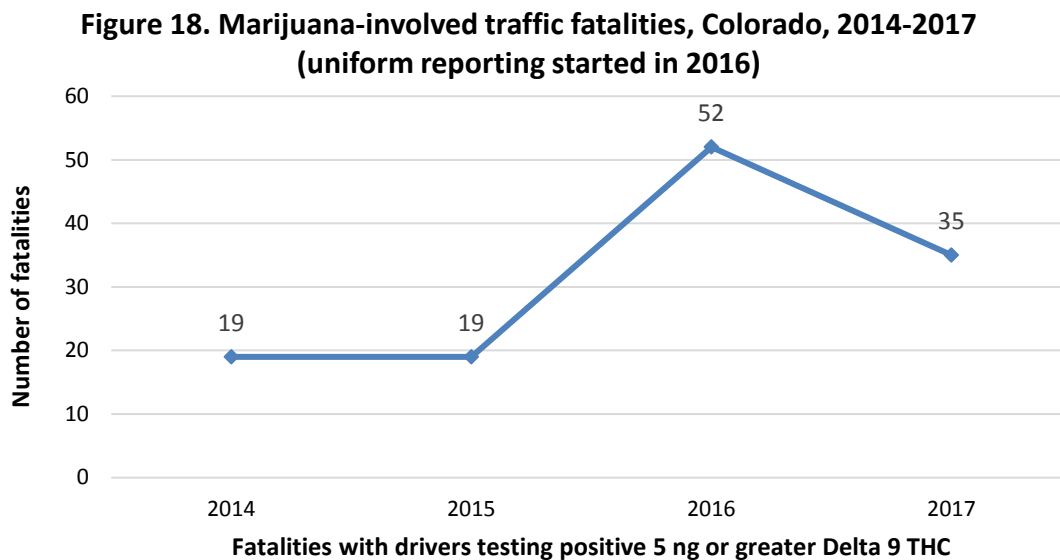
\*Total number of drivers impaired by drugs/total number of drivers in fatal crashes = percentage of impaired drivers in fatal crashes

## Marijuana Impaired Driving

Like alcohol, marijuana has measurable physiological effects that may impair the ability of a person to drive and react quickly in critical situations. National Highway Traffic Safety Administration (NHTSA) studies have shown marijuana impairs crucial abilities needed to drive safely.<sup>3</sup> Impairments include:

- Slowed reaction time.
- Difficulties in road tracking and lane-position variability (inability to stay in the driving lane).
- Decreased divided attention.
- Impaired cognitive performance.
- Impaired executive functions, including route planning, decision-making and risk-taking or a combination.

Colorado law allows prosecution of drivers with at least five nano grams of active tetrahydrocannabinol (THC) in their blood for driving under the influence (DUI). However, there is no roadside device to detect THC, so law enforcement officer, including those trained as drug recognition experts (DREs), base arrests on observed impairment. Under Colorado law, officers can arrest someone who uses marijuana for medicinal purpose for DUI, if officer observes impairment. Figure 18 displays the number of fatalities from motor vehicle crashes where the driver who tested positive with 5 nano grams or greater of Delta 9 THC (the active component in marijuana). Because testing and reporting rates for Delta 9 THC have increased, the cases of drivers testing positive for Delta 9 THC could be the results of improvements to data collection.



Source: Toxicology results, Colorado Department of Transportation

1. Only active forms of THC, such as Delta 9, can cause impairment. Delta 9 level information was not available prior to 2014.
2. Prior to 2016, data collection on Delta 9 was not complete.
3. Because testing and reporting rates for Delta 9 have increased, the cases of drivers testing positive for Delta 9 could be the results of improved data collection.
4. Data includes fatalities where alcohol or other drugs may also be present.
5. In Colorado, there is a "permissible inference" that a person is under the influence of a) cannabis - if their blood contains 5 Nano grams or more of Delta 9-THC per milliliter in whole blood or b) alcohol - if their blood contains .08 grams or more of alcohol per 100 grams in the whole blood.

<sup>3</sup> Compton, R. (2017, July). Marijuana-Impaired Driving - A Report to Congress. (DOT HS 812 440). Washington, DC: National Highway Traffic Safety Administration.



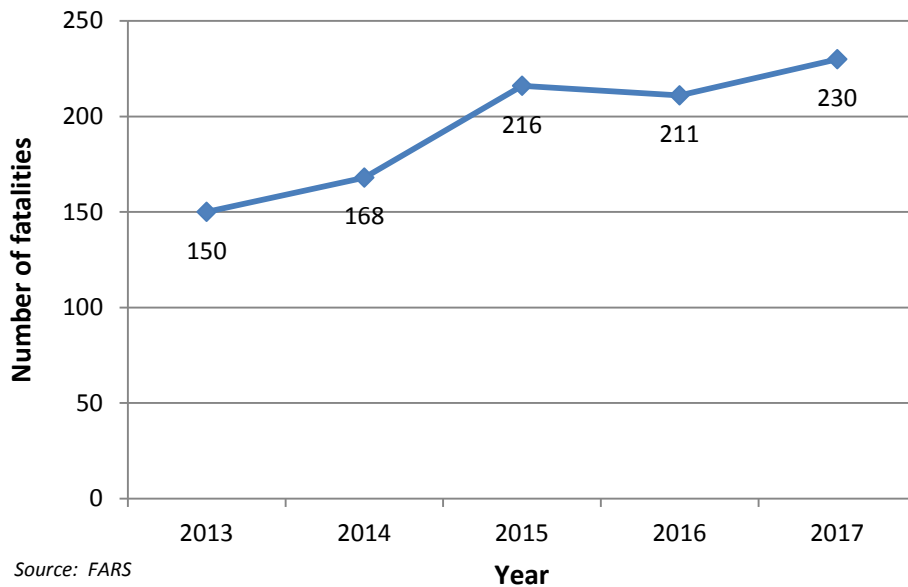
## Speed Enforcement

**Core Performance Measure (C-6): Reduce the number of speeding related fatalities.**

Speeding-related motor vehicle fatalities increased over the past five years with an eight percent increase between 2016 and 2017 (Figure 19). Speeding contributed to 35% of all fatalities in 2017.

**C-6 Top Five Counties**  
 El Paso – 29 fatalities  
 Adams – 20 fatalities  
 Weld – 20 fatalities  
 Jefferson – 18 fatalities  
 Arapahoe – 17 fatalities

**Figure 19: Speeding-related fatalities in Colorado, 2013-2017**



**Countermeasures that Work**

Reduce aggressive driving & speeding:

---

**Laws**

- Speed Limits

**Enforcement**

- Automated enforcement

**Communications & Outreach**

- Public information supporting enforcement

*Listed have a 3-5 star effectiveness rating. For all countermeasures, visit <http://www.nhtsa.gov/staticfiles/nti/pdf/812202-CountermeasuresThatWork&th.pdf>*

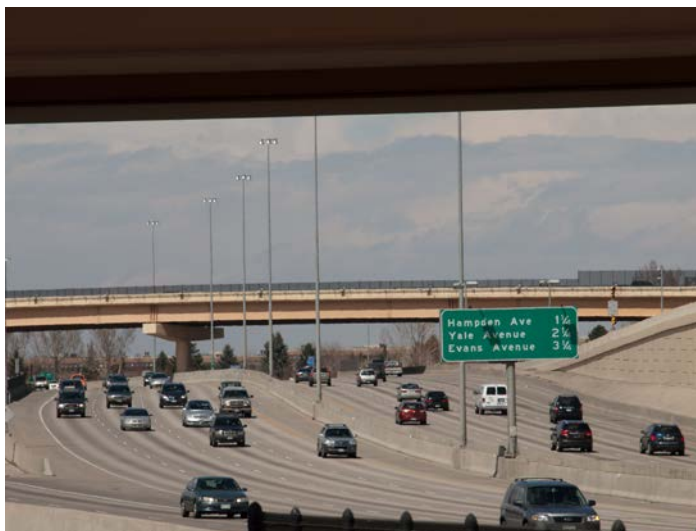


Table 7 describes drivers who received a speeding citation for exceeding the safe or posted speed in fatal crashes in 2016 and 2017. Law enforcement officers indicated that speeding was the driver action, or specific law violation, leading to a crash in 21% of all fatal crashes. Drivers ages 15-20 and male drivers had the highest number and percentage of drivers speeding in fatal crashes in 2016 and in 2017.

<b>Table 7: Drivers who were speeding in fatal crashes in Colorado, by driver age and sex</b>			
<b>Age Group</b>	<b>Sex</b>	<b>2016</b>	<b>2017</b>
<b>Driver</b>			
15-20	Male	18	27
	Female	3	5
	<b>Total</b>	<b>21/59 (35.6%)</b>	<b>32/91 (35.2%)</b>
21-34	Male	66	69
	Female	13	14
	<b>Total</b>	<b>79/296 (26.7%)</b>	<b>83/290 (28.6%)</b>
35-54	Male	43	46
	Female	3	10
	<b>Total</b>	<b>46/258 (17.8%)</b>	<b>56/309 (18.1%)</b>
55-64	Male	16	15
	Female	0	2
	<b>Total</b>	<b>16/123 (13.0%)</b>	<b>17/110 (15.5%)</b>
65+	Male	11	11
	Female	6	2
	<b>Total</b>	<b>17/131 (13.0%)</b>	<b>13/125 (10.4%)</b>
<b>All Ages</b>	Male	155	168
	Female	25	33
	<b>Total</b>	<b>180/880 (20.5%)</b>	<b>201/940 (21.4%)</b>

Source: FARS

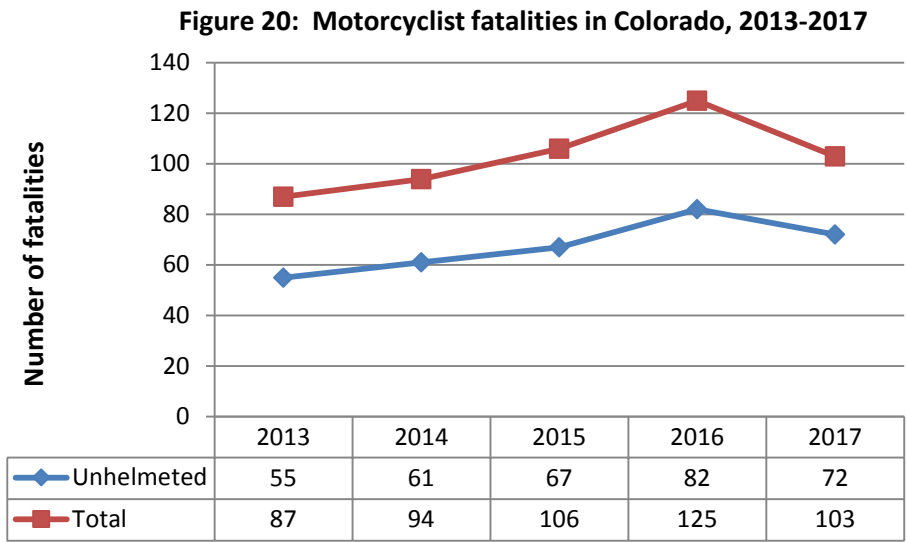
\*Total number of drivers speeding/total number of drivers in fatal crashes = percentage of drivers speeding in fatal crashes

## Motorcycle Safety

### Core Performance Measure (C-7): Reduce the number of motorcyclist fatalities.

Motorcyclist fatalities increased 44% from 2013-2017. Motorcyclist fatalities decreased by 18% from 2016-2017, resulting in 103 motorcyclist fatalities (Figure 20). The 103 motorcyclist fatalities in 2017 accounted for 16% of the total motor vehicle fatalities. From 2013-2017, the percentage of motorcyclists who were not wearing helmets when they died ranged from 63% to 70%.

- C-7 Top Five Counties**
- Adams – 13 fatalities
  - Denver – 13 fatalities
  - Larimer – 10 fatalities
  - Jefferson – 9 fatalities
  - Weld – 9 fatalities



Source: FARS

- Countermeasures that Work**  
Improve motorcycle safety:
- 
- Motorcycle Helmets**
- Universal coverage State motorcycle helmet use laws
- Alcohol Impairment**
- Alcohol impairment: detection, enforcement, & sanctions
- Listed have a 3-5 star effectiveness rating. For all countermeasures, visit <http://www.nhtsa.gov/staticfiles/nti/pdf/812202-CountermeasuresThatWork8th.pdf>*

### Core Performance Measure (C-8): Reduce the number of unhelmeted motorcyclist fatalities.

Of the 103 motorcyclist fatalities in 2017, 70% did not wear helmets, compared to 66% of the 125 motorcyclist fatalities in 2016 (Table 8).



- C-8 Top Five Counties**
- Adams – 11 fatalities
  - Denver – 8 fatalities
  - Larimer – 8 fatalities
  - Weld – 7 fatalities
  - El Paso – 6 fatalities

Table 8 shows the number of motorcyclists (operators and/or passengers) who died in a motorcycle crash by age, sex, and helmet status in 2016 and 2017. In 2017, 63 (69%) of the 91 male motorcyclist fatalities did not wear a helmet. The 35-54 year old age group had the most motorcyclist fatalities in 2016 and in 2017. However, the 55-64 year old age group had the largest percentage of unhelmeted motorcyclist fatalities in 2017.

<b>Table 8: Motorcyclist fatalities in Colorado, by age and sex</b>					
		<b>2016</b>		<b>2017</b>	
		<b>Motorcyclist Fatalities</b>		<b>Motorcyclist Fatalities</b>	
<b>Age group</b>	<b>Sex</b>	<b>No Helmet</b>	<b>Total</b>	<b>No Helmet</b>	<b>Total</b>
<5	Male	0	0	0	0
	Female	0	0	0	0
	<b>Total</b>	<b>0 (0.0%)</b>	<b>0</b>	<b>0/0 (0.0%)</b>	<b>0</b>
5-8	Male	0	0	0	0
	Female	0	0	0	0
	<b>Total</b>	<b>0 (0.0%)</b>	<b>0</b>	<b>0/0 (0.0%)</b>	<b>0</b>
9-14	Male	0	0	0	1
	Female	0	0	0	0
	<b>Total</b>	<b>0 (0.0%)</b>	<b>0</b>	<b>0/1 (0.0%)</b>	<b>1</b>
15-20	Male	3	5	2	5
	Female	2	3	0	0
	<b>Total</b>	<b>5/8 (62.5%)</b>	<b>8</b>	<b>2/5 (40.0%)</b>	<b>5</b>
21-34	Male	27	41	17	25
	Female	2	5	3	3
	<b>Total</b>	<b>29/46 (63.0%)</b>	<b>46</b>	<b>20/28 (71.4%)</b>	<b>28</b>
35-54	Male	25	31	23	31
	Female	0	3	3	5
	<b>Total</b>	<b>25/34 (73.5%)</b>	<b>34</b>	<b>26/36 (72.2%)</b>	<b>36</b>
55-64	Male	12	17	12	16
	Female	1	5	2	2
	<b>Total</b>	<b>13/22 (59.1%)</b>	<b>22</b>	<b>14/18 (77.8%)</b>	<b>18</b>
65+	Male	10	15	9	13
	Female	0	0	1	2
	<b>Total</b>	<b>10/15 (66.7%)</b>	<b>15</b>	<b>10/15 (66.7%)</b>	<b>15</b>
<b>All Ages</b>	Male	77	109	63	91
	Female	5	16	9	12
	<b>Total</b>	<b>82/125 (65.6%)</b>	<b>125</b>	<b>72/103 (70.0%)</b>	<b>103</b>

Source: FARS

## Young Drivers

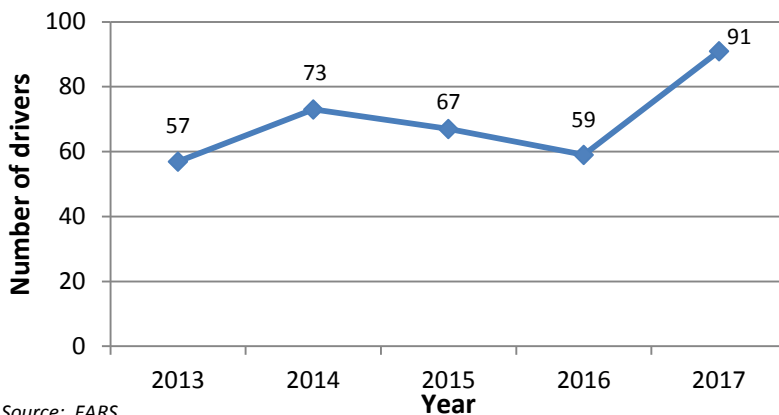
**Core Performance Measure (C-9): Reduce the number of drivers age 20 or younger involved in fatal crashes.**

The number of drivers ages 15-20 involved in a fatal motor vehicle crash increased by 60% from 2013-2017 (Figure 21). Also, between 2013-2017 the number of motor vehicle fatalities among people ages 15-20, regardless of the age of the driver, increased by 25% (Figure 22).

### **C-9 Top Five Counties**

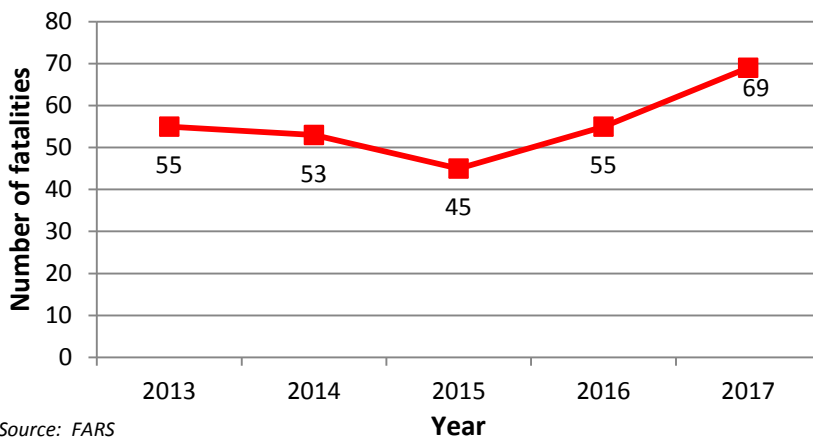
Weld – 15 drivers  
 Adams – 10 drivers  
 Denver – 9 drivers  
 Larimer – 8 drivers  
 Arapahoe – 6 drivers

**Figure 21: Number of drivers aged 15-20 years old involved in a fatal motor vehicle crash, Colorado, 2013-2017**



Source: FARS

**Figure 22: Motor vehicle fatalities in Colorado among persons aged 15-20 years old, 2013-2017**



Source: FARS

### **Countermeasures that Work**

Improve young-driver safety:

#### Graduated Driver Licensing (GDL)

- Learner’s permit length, supervised hours
- Intermediate-nighttime restrictions
- Intermediate- passenger restrictions

#### Traffic Law Enforcement

- Enforcement of GDL & zero-tolerance laws

Listed have a 3-5 star effectiveness rating. For all countermeasures, visit

<http://www.nhtsa.gov/staticfiles/nti/pdf/812202-CountermeasuresThatWork8th.pdf>



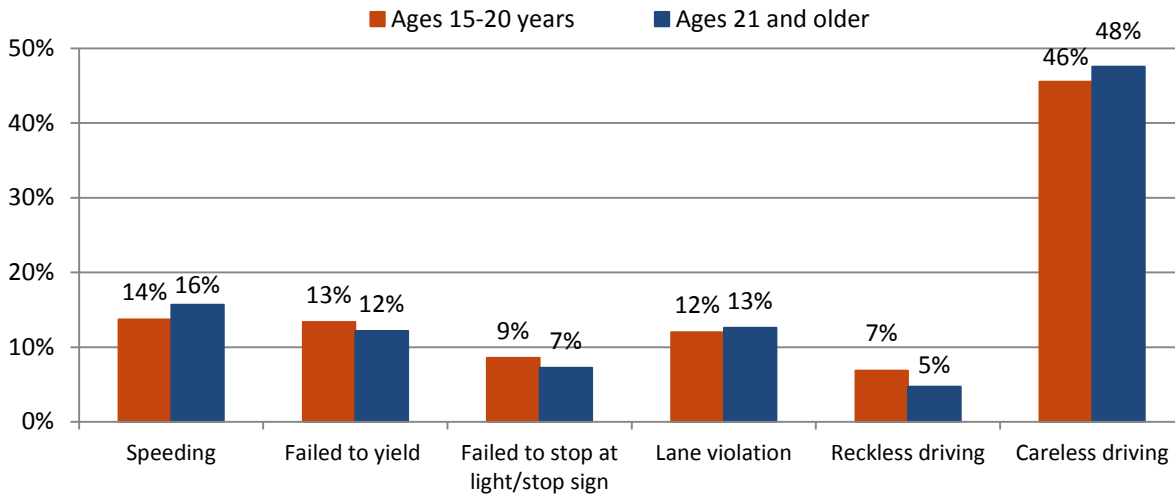
Table 9 compares the number of drivers ages 15-20 involved in a fatal crash for the years 2016 and 2017. Young drivers ages 15-20 accounted for seven percent of the total 880 drivers involved in fatal crashes in 2016 (N=59/880). That percentage increased to 10% in 2017 (N=91/940). More males than females were involved in fatal crashes.

<b>Table 9: Young drivers involved fatal crashes by age and sex of driver</b>			
		<b>2016</b>	<b>2017</b>
<b>Age Group</b>	<b>Sex</b>	<b>Drivers in fatal crashes</b>	<b>Drivers in fatal crashes</b>
15-16	Male	4	10
	Female	3	3
	<b>Total</b>	<b>7</b>	<b>13</b>
17-18	Male	22	28
	Female	8	9
	<b>Total</b>	<b>30</b>	<b>37</b>
19-20	Male	16	33
	Female	6	8
	<b>Total</b>	<b>22</b>	<b>41</b>
<b>Total: 15-20</b>	Male	42	71
	Female	17	20
	<b>Total</b>	<b>59</b>	<b>91</b>

Source: FARS

Figure 23 compares the top driver actions that led to an injury or fatal crash for young drivers (ages 15-20) and drivers ages 21 and older in Colorado in 2017. Careless driving was the top driver action among young drivers in 2017 and in 2016 (not shown). Almost half (46%) of drivers ages 15-20 drove carelessly, which resulted in an injury crash or a fatal crash. Compared to drivers ages 21 or older, young drivers ages 15- 20 had a higher percentage of failing to yield, failing to stop at light/stop sign, and reckless driving, resulting in an injury or fatal crash.

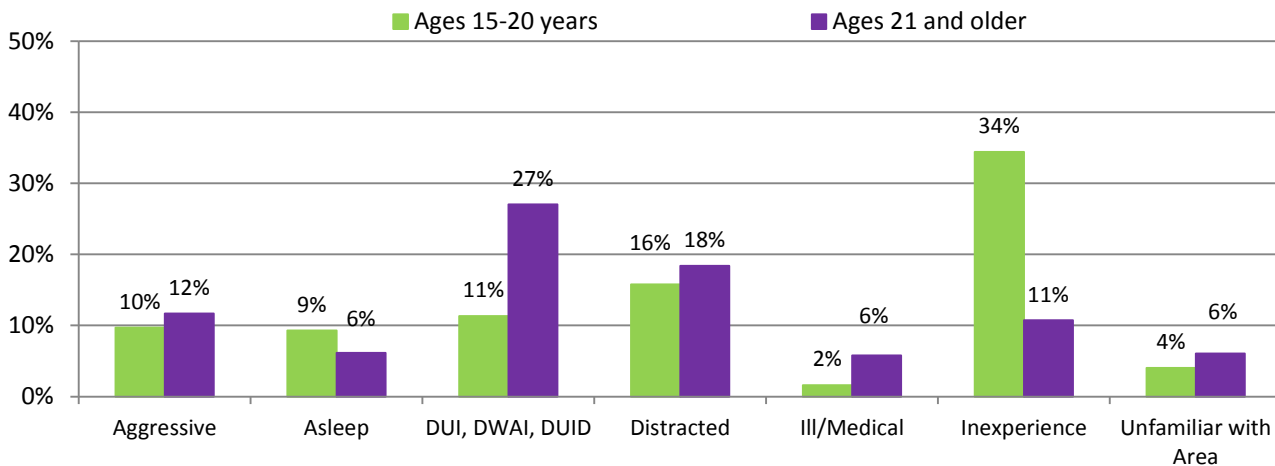
**Figure 23. Top Driver actions associated with the cause of a crash in injury and fatal crashes by young drivers versus other drivers , Colorado 2017**



Source: Crash reports, Colorado Department of Revenue

Law enforcement officers investigating the crash also record the most apparent human contributing factor that contributed to the crash. Figure 24 shows the top contributing factors associated with injury and fatal crashes among young drivers, ages 15 to 20, compared to drivers age 21 or older in 2017. Inexperience was the leading contributing factor in injury/fatal crashes among young drivers.

**Figure 24. Contributing factors associated with the cause of a crash in injury and fatal crashes by young drivers versus other drivers , Colorado 2017**



Source: Crash reports, Colorado Department of Revenue

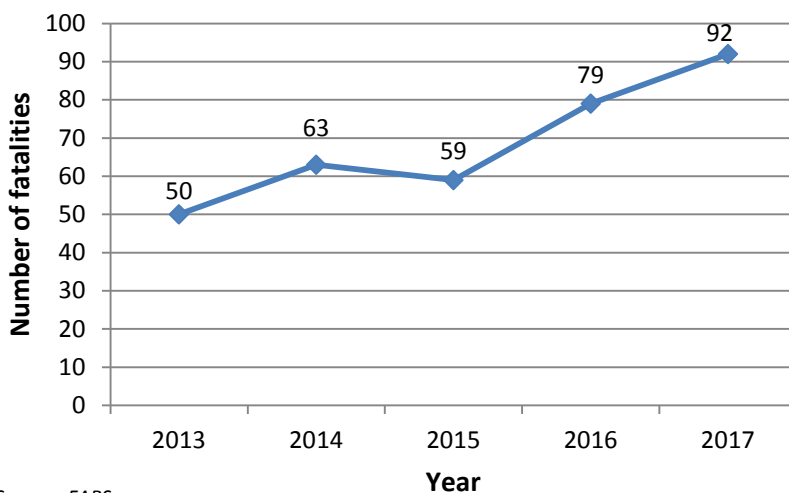


## Pedestrian Safety

### Core Performance Measure (C-10): Reduce the number of pedestrian fatalities.

In 2017, 92 pedestrians died from a motor vehicle collision. The 92 pedestrian fatalities in 2017 accounted for 14% of all 648 motor vehicle fatalities. The pedestrian fatalities increased by 84% from 2013-2017 (Figure 25) and increased 17% from 2016-2017.

Figure 25: Pedestrian fatalities in Colorado, 2013-2017



Source: FARS



### C-10 Top Five Counties

Adams – 16 fatalities  
 El Paso – 14 fatalities  
 Denver – 13 fatalities  
 Arapahoe – 10 fatalities  
 Jefferson – 7 fatalities

### Countermeasures that Work

Improve pedestrian and bicycle safety:

#### Pedestrian

##### School-aged Children

- Elementary-age child pedestrian training

##### All Pedestrians

- Pedestrian safety zones
- Reduce and enforce speed limits
- Conspicuity enhancement
- Targeted enforcement

#### Bicycle

##### Children

- Bicycle helmet laws for children

##### Adult Bicyclists

- Bicycle helmet laws for adults

##### All Bicyclists

- Active lighting and rider conspicuity

Listed have a 3-5 star effectiveness rating. For all countermeasures, visit

<http://www.nhtsa.gov/staticfiles/nti/pdf/812202-CountermeasuresThatWork8th.pdf>



Table 10 shows pedestrian fatalities from motor vehicle crashes for each age and sex group in 2016 and 2017. A “Total” row within each age group shows the total number of fatalities in that age group and the percent of all ages (last row). Most pedestrian fatalities occurred in the 21-34 and 35-54 age groups and among more males than females in 2016 and 2017. In 2017, the 74 males accounted for 80% of the 92 pedestrian fatalities.

<b>Table 10. Pedestrian fatalities by age and sex, Colorado</b>			
<b>Age Group</b>	<b>Sex</b>	<b>2016</b>	<b>2017</b>
0-4	Male	0	1
	Female	0	0
	<b>Total</b>	<b>0</b>	<b>1</b>
5-8	Male	0	0
	Female	0	0
	<b>Total</b>	<b>0</b>	<b>0</b>
9-14	Male	2	2
	Female	0	1
	<b>Total</b>	<b>2</b>	<b>3</b>
15-20	Male	3	5
	Female	3	2
	<b>Total</b>	<b>6</b>	<b>7</b>
21-34	Male	18	16
	Female	4	3
	<b>Total</b>	<b>22</b>	<b>19</b>
35-54	Male	17	25
	Female	7	7
	<b>Total</b>	<b>24</b>	<b>32</b>
55-64	Male	7	14
	Female	4	2
	<b>Total</b>	<b>11</b>	<b>16</b>
65+	Male	8	11
	Female	6	3
	<b>Total</b>	<b>14</b>	<b>14</b>
<b>All Ages</b>	Male	55	74
	Female	24	18
	<b>Total</b>	<b>79/608 (13.0%)</b>	<b>92/648 (14.2%)</b>

Source: FARS

## Bicyclist Safety

### Core Performance Measure (C-11): Reduce the number of bicyclist fatalities

In 2017, 16 bicyclists died from a motor vehicle crash (Figure 26). The number of bicycle fatalities increased 33% over the past five years (2013-2017).

**C-11 Top Counties**  
Boulder – 3 fatalities  
El Paso – 3 fatalities  
Adams – 2 fatalities

Figure 26: Bicyclist fatalities in Colorado, 2013-2017

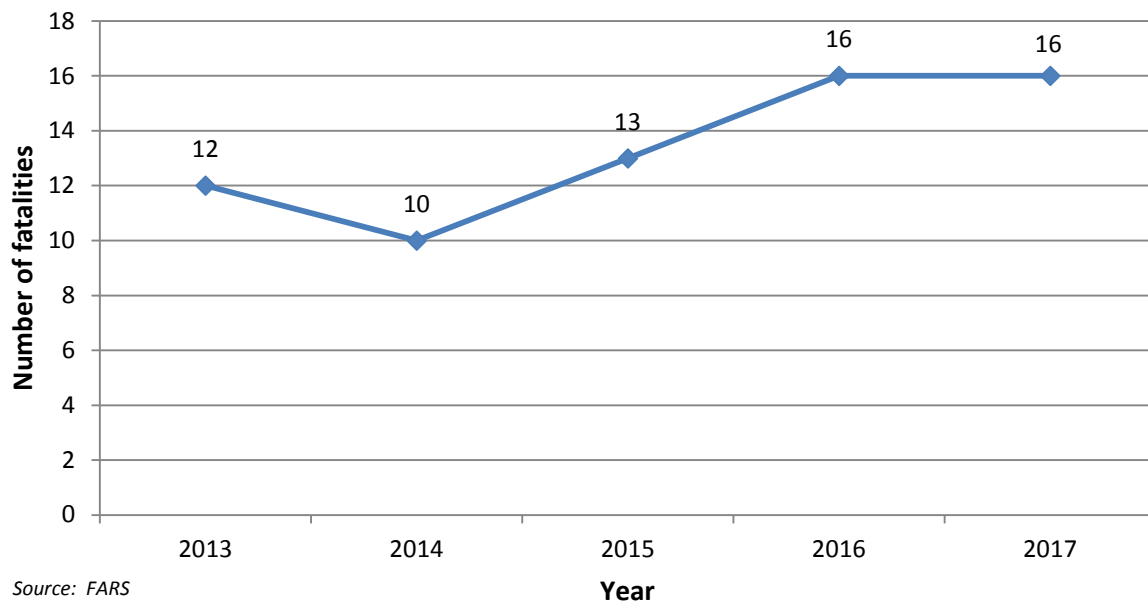


Table 11 shows the number of bicyclist fatalities due to motor vehicle crashes for each age and sex group in 2016 and 2017. Most bicyclist fatalities occurred in the 35-54 and 65 or older age groups in 2017. More male bicyclists died than female bicyclists.

<b>Table 11. Bicyclist fatalities by age and sex, Colorado</b>			
<b>Age Group</b>	<b>Sex</b>	<b>2016</b>	<b>2017</b>
0-4	Male	0	0
	Female	0	0
	<b>Total</b>	<b>0</b>	<b>0</b>
5-8	Male	0	0
	Female	1	1
	<b>Total</b>	<b>1</b>	<b>1</b>
9-14	Male	0	0
	Female	1	0
	<b>Total</b>	<b>1</b>	<b>0</b>
15-20	Male	0	1
	Female	0	0
	<b>Total</b>	<b>0</b>	<b>1</b>
21-34	Male	1	1
	Female	0	1
	<b>Total</b>	<b>1</b>	<b>2</b>
35-54	Male	7	3
	Female	1	3
	<b>Total</b>	<b>8</b>	<b>6</b>
55-64	Male	3	0
	Female	0	2
	<b>Total</b>	<b>3</b>	<b>2</b>
65+	Male	2	4
	Female	0	0
	<b>Total</b>	<b>2</b>	<b>4</b>
<b>All Ages</b>	Male	13	9
	Female	3	7
	<b>Total</b>	<b>16/608 (2.6%)</b>	<b>16/648 (2.5%)</b>

Source: FARS

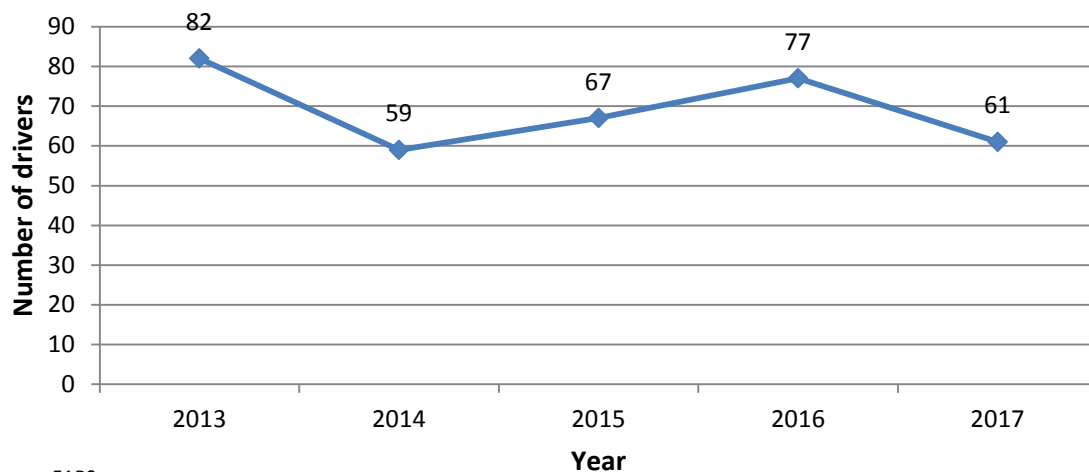
## Distracted Driving

**Core Performance Measure (C-12): Reduce the number distracted drivers involved in fatal crashes**

<b>C-12 Top Five Counties</b>	
Weld	9 drivers
Jackson	7 drivers
Morgan	7 drivers
Adams	5 drivers
Arapahoe, Boulder, Larimer	4 drivers

Drivers who were involved in a fatal crash and were distracted fluctuated from year to year. However, the overall trend showed a 26% decrease between 2013 and 2017 and 21% decrease in 2017, compared to 2016 (Figure 27). In this report, “distracted” means a passenger, animal, cell phone, radio, food or other objects in the motor vehicle diverted the driver’s attention from the road.

**Figure 27: Colorado distracted drivers involved in a fatal crash, Colorado, 2013-2017**



Source: FARS  
Distracted = passenger, cell phone, radio, food, object, animal, etc.



Figure 28 shows the top contributing factors that law enforcement officers noted for motor vehicle crashes resulting in injury or fatality and for crashes resulting in only property damage. Selecting one contributing factor poses a challenge because: 1) a driver’s circumstance and contributing factor may fall into one or more categories; 2) the law enforcement officer may mark ‘Other Factor’ and describe the factor in writing, instead of checking a factor listed on the crash form; and 3) a driver may not fully reveal their behavior and the circumstances at the time of the crash. The ‘distracted’ factor includes a passenger, animal or pets, cell phone, radio, food, or other objects diverting the driver’s attention from the road and from the traffic. In 2017, DUI, DWAI or DUID factors were more common among injury and fatal crashes, compared to property damage only crashes. In contrast, driver distraction occurred in a higher percentage of property damage only crashes, compared to injury or fatal crashes, in 2017.

**Countermeasures that Work**  
Reduce distracted and drowsy driving:

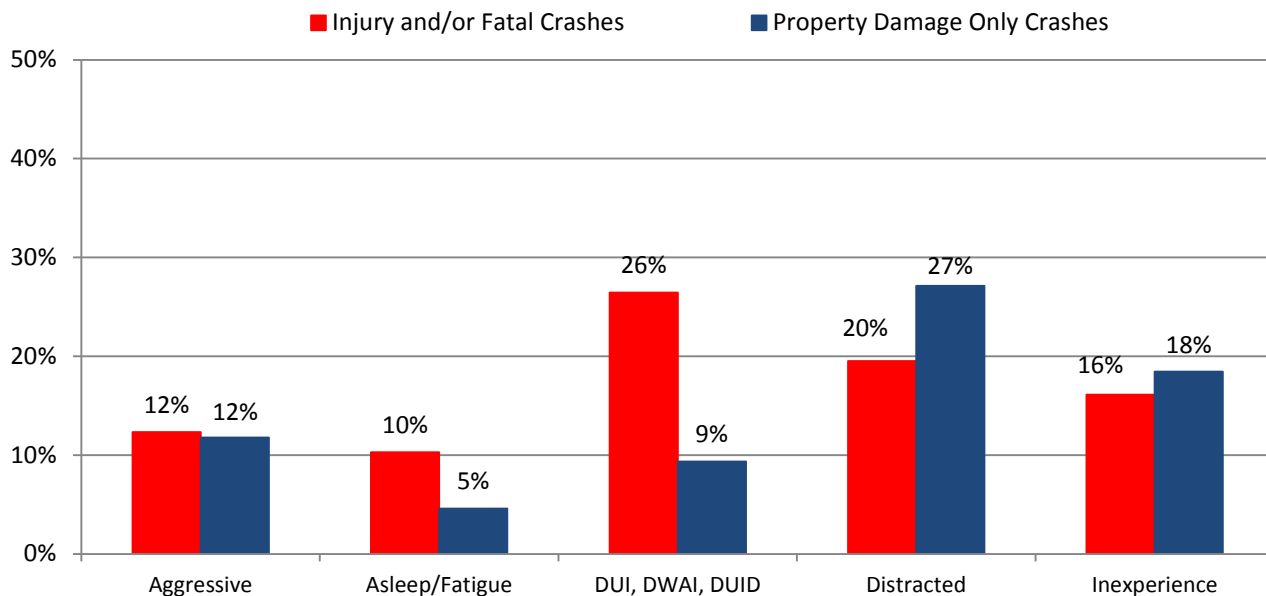
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**Laws and Enforcement**

- GDL requirements for beginning drivers
- High visibility cell phone/text messaging enforcement

*Listed have a 3-5 star effectiveness rating. For all countermeasures, visit <http://www.nhtsa.gov/staticfiles/nti/pdf/812202-CountermeasuresThatWork8th.pdf>*

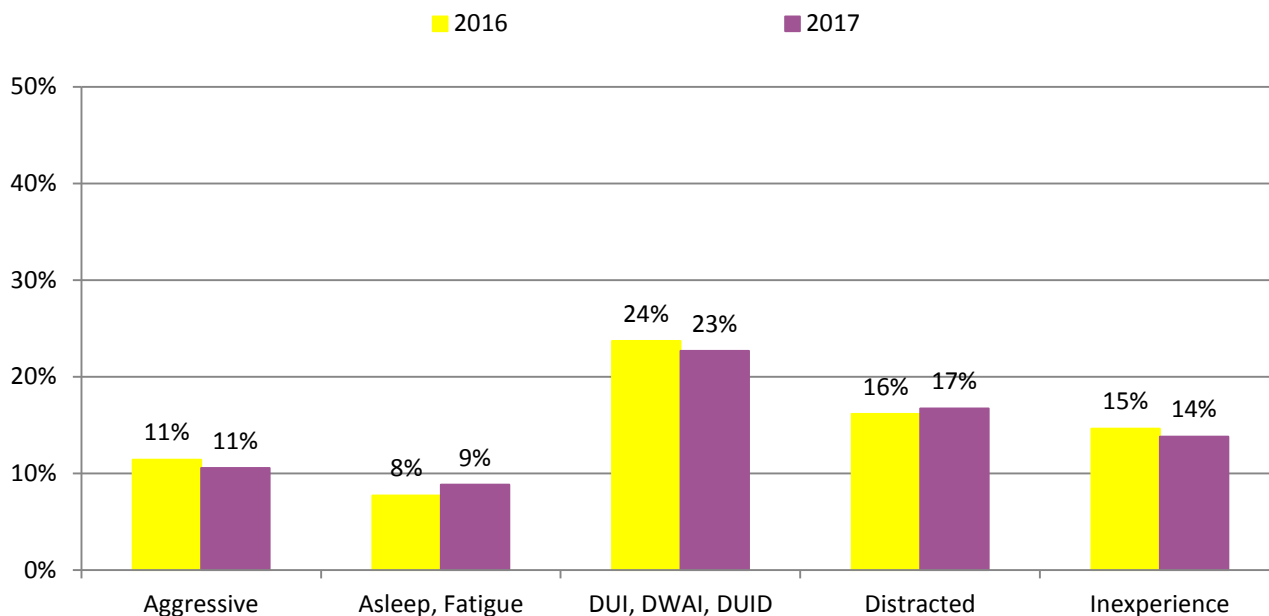
**Figure 28. Top contributing factors associated with cause of motor vehicle crashes by crash type, Colorado 2017**



Source: Crash reports, Colorado Department of Revenue  
Distracted = passenger, cell phone, radio, food, object, animal, etc.

Figure 29 compares the top five types of driver factors noted in injury/fatal crashes in 2016 and in 2017. DUI, DWAI or DUID was the most common driver factor associated with an injury and fatal crash in 2016. The percentage of other top driver factors of aggressive driving, driver fatigue or asleep, driver distraction, and driver inexperience were similar in 2016 and 2017.

**Figure 29. Comparison of driver factors associated with a motor vehicle crash by year of crash: injury and fatal crashes, Colorado 2016 and 2017**



Source: Crash reports, Colorado Department of Revenue  
 Distracted = passenger, cell phone, radio, food, object, animal, etc.



## Older Drivers

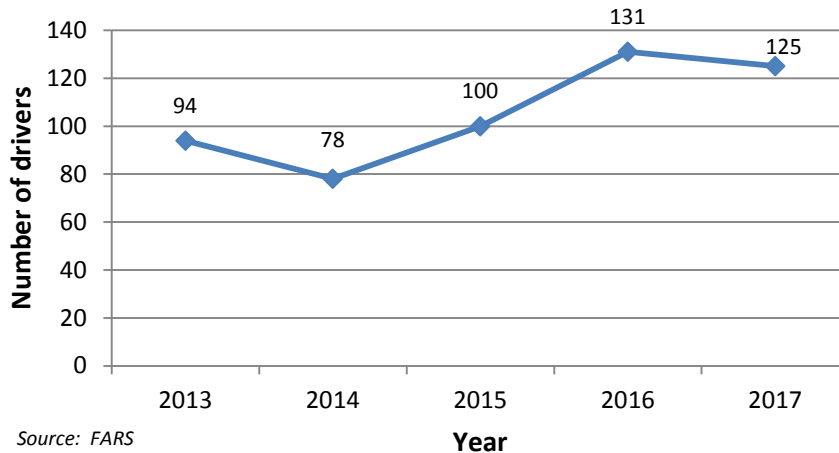
### Core Performance Measure (C-13): Reduce the number of drivers age 65 and older involved in fatal crashes

Between 2013 and 2017, the number of drivers age 65 years or older involved in a fatal motor vehicle crash, though not necessarily at fault for the crash, increased 33% (Figure 30). During this same time period, the number of Coloradans aged 65 and older increased 20% from 644,356 persons in 2013 to 772,793 persons in 2017. In 2017, there were 125 drivers ages 65 or older involved in a fatal motor vehicle crash, a five percent decrease from the 131 older drivers involved in fatal crashes in 2016. .

#### **C-13 Top Five Counties**

El Paso – 12 drivers  
 Weld – 11 drivers  
 Jefferson – 10 drivers  
 Boulder – 9 drivers  
 Adams – 8 drivers

**Figure 30: Number of drivers age 65 years and older involved in a fatal motor vehicle crash, Colorado 2013-2017**



#### **Countermeasures that Work** Improve older driver safety:

##### Licensing

- License screening & testing
- Referring older drivers to DMVs
- License restrictions

##### Traffic Law Enforcement

- Law enforcement roles

Listed have a 3-5 star effectiveness rating. For all countermeasures, visit <http://www.nhtsa.gov/staticfiles/nti/pdf/812202-CountermeasuresThatWork8th.pdf>

Most motor vehicle crashes are preventable and there are known effective prevention strategies. More action is needed to reduce the rising number of fatalities and injuries from motor vehicle crashes. The information provided in this report can help drive efforts at the state and local level to identify modifiable driving behaviors to improve traffic safety. Policy-makers, community organizations, and individuals should use information from this report to identify where and how to focus prevention efforts.



# Data Sources and Acknowledgements

## Data Sources for the FY 2019 Problem Identification Report

### Colorado Performance Measures and Statewide Goals for 2018

This information comes from the 2019 Colorado Integrated Safety Plan by the Colorado Department of Transportation. The 2019 Colorado Integrated Safety Plan includes performance targets that are set for the year 2017.

### Countermeasures That Work

For select performance measures of CDOT, this report summarizes countermeasures that have a 3-5 star effectiveness rating from *Countermeasures That Work: A Highway Safety Countermeasure Guide for State Highway Safety Offices*, Eighth Edition, published in 2015 and available on the website of the Governors Highway Safety Association.

### Crash Reports (Colorado DRIVES)

Colorado Driver License, Record, Identification and Vehicle Enterprise Solution (Colorado DRIVES) provides crash data, defined as an incident where at least one motor vehicle in motion on a traffic way (public road) resulted in an injury or unintentional property damage. This data tracking system originates from the Colorado Department of Revenue.

### Fatality Analysis Reporting System (FARS)

FARS provides data of persons who died within 30 days of the crash, including motorcyclists, motor vehicle drivers, motor vehicle passengers, pedestrians, and bicyclists involved in fatal motor vehicle crashes. FARS SAS data files are obtained from the National Highway Traffic Safety Administration website.

### Hospital Discharge Data

Hospital discharge data provides data where injury was mentioned as a discharge diagnosis in one of the first six diagnoses and the mechanism of injury was motor vehicle, traffic for Colorado residents treated in non-federal acute care hospitals as reported to the Colorado Hospital Association (CHA). National hospital coding rules defines “motor vehicle, traffic” as events involving a motor vehicle that occur entirely or partially on public streets, roadways, and highways. This data source is referenced as “CHA Discharge Data” in figures in this report.

### Population Estimates

State and county population estimates come either from the Colorado Department of Local Affairs (DOLA) through its website or through the Colorado Health Information Dataset website. This data is referenced as DOLA data in the figures of this report. Population estimates for the United States were obtained from the U.S. Census website.



**Restraint Use**

The prevalence of seat belt use, car seat use, and booster seat use come from observational surveys conducted by the Institute of Transportation Management at Colorado State University and posted on the Colorado Department of Transportation website.

**Vehicle Miles Traveled (VMT)**

VMT data come from the Office of Highway Policy Information, Highway Statistics Series at the U.S. Department of Transportation (USDOT) Federal Highway Administration (FHA) and are referenced as “USDOT FHA” in figures in this report.

**Acknowledgements**

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State DRE Coordinator

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TSM&O, Staff Traffic

Colorado state performance measures by county, 2017

Performance Measures	Fatalities	Serious injuries	Occupant fatalities, unrestrained all seat positions	Fatalities in crashes where driver/motorcycle operator has BAC ≥ 0.08	Speeding-related fatalities	Motorcyclist fatalities	Unhelmeted motorcyclist fatalities	Driver under 21 years old in fatal crashes	Pedestrian fatalities
<b>Colorado ISP Target</b>	<b>488</b>	<b>3,201</b>	<b>163</b>	<b>160</b>	<b>162</b>	<b>94</b>	<b>60</b>	<b>74</b>	<b>60</b>
<b>Colorado</b>	<b>648</b>	<b>2,884</b>	<b>222</b>	<b>177</b>	<b>230</b>	<b>103</b>	<b>72</b>	<b>93</b>	<b>92</b>
Adams	64	316	18	21	20	13	11	10	16
Alamosa	2	8	0	0	1	0	0	1	0
Arapahoe	45	364	12	17	17	6	3	6	10
Archuleta	1	16	0	0	1	0	0	0	0
Baca	8	2	1	0	0	0	0	0	0
Bent	2	2	2	1	2	0	0	1	0
Boulder	31	230	6	3	7	5	2	2	2
Broomfield	3	4	2	2	2	1	1	0	0
Chaffee	4	17	2	1	1	0	0	0	1
Cheyenne	0	2	0	0	0	0	0	0	0
Clear Creek	2	21	1	1	0	0	0	0	0
Conejos	2	1	1	1	2	0	0	1	1
Costilla	2	5	1	1	1	0	0	0	0
Crowley	1	4	1	1	0	0	0	0	0
Custer	1	7	1	0	0	0	0	0	0
Delta	6	19	3	2	2	0	0	1	0
Denver	49	478	12	19	15	13	8	9	13
Dolores	0	6	0	0	0	0	0	0	0
Douglas	19	96	7	2	8	5	2	4	0
Eagle	4	32	1	0	2	1	1	1	0
El Paso	77	144	33	23	29	8	6	6	14
Elbert	5	13	2	2	3	0	0	0	0
Fremont	9	24	4	0	1	2	2	1	1
Garfield	21	42	7	6	10	5	5	2	2
Gilpin	0	8	0	0	0	0	0	0	0
Grand	5	23	3	0	3	0	0	0	0
Gunnison	2	10	1	1	0	0	0	0	1
Hinsdale	0	2	0	0	0	0	0	0	0
Huerfano	2	4	0	0	0	0	0	0	1
Jackson	2	5	1	0	0	1	0	0	0
Jefferson	41	225	10	14	18	9	6	5	7
Kiowa	1	4	0	0	1	0	0	0	0

Performance Measures	Fatalities	Serious injuries	Occupant fatalities, unrestrained all seat positions	Fatalities in crashes where driver/motorcycle operator has BAC ≥ 0.08	Speeding-related fatalities	Motorcyclist fatalities	Unhelmeted motorcyclist fatalities	Driver under 21 years old in fatal crashes	Pedestrian fatalities
<b>Colorado ISP Target</b>	<b>488</b>	<b>3,201</b>	<b>163</b>	<b>160</b>	<b>162</b>	<b>94</b>	<b>60</b>	<b>74</b>	<b>60</b>
Kit Carson	4	7	2	1	0	0	0	1	0
La Plata	1	14	0	4	0	0	0	2	0
Lake	11	11	4	0	5	1	0	1	0
Larimer	36	167	12	12	16	10	8	8	6
Las Animas	3	7	1	0	1	1	1	0	0
Lincoln	2	2	1	0	0	0	0	0	0
Logan	4	8	2	1	0	0	0	0	1
Mesa	16	50	1	2	4	2	2	3	2
Mineral	1	5	1	0	0	0	0	1	0
Moffat	0	7	0	0	0	0	0	0	0
Montezuma	4	21	2	2	3	0	0	0	1
Montrose	9	26	3	3	3	1	1	1	2
Morgan	13	15	4	3	3	1	1	2	0
Otero	0	13	0	0	0	0	0	0	0
Ouray	1	7	0	0	0	0	0	0	0
Park	3	21	1	2	1	1	1	0	1
Phillips	0	4	0	0	0	0	0	0	0
Pitkin	1	9	0	1	0	0	0	0	0
Prowers	0	7	0	0	0	0	0	0	0
Pueblo	34	56	15	8	16	7	4	5	2
Rio Blanco	2	7	1	0	1	0	0	1	0
Rio Grande	1	19	0	0	1	0	0	0	0
Routt	5	11	4	1	2	0	0	0	0
Saguache	4	23	2	1	1	0	0	0	1
San Juan	0	3	0	0	0	0	0	0	0
San Miguel	1	6	1	1	0	0	0	0	0
Sedgwick	2	6	1	0	0	0	0	1	0
Summit	4	15	1	3	3	1	0	0	0
Teller	4	13	3	2	1	0	0	0	0
Washington	2	8	1	1	1	0	0	0	0
Weld	66	176	25	13	20	9	7	15	4
Yuma	3	6	2	0	2	0	0	2	0

Data sources: Traffic crash reports, Colorado Department of Revenue, Division of Motor Vehicles; Fatality Analysis Reporting System (FARS), National Highway Traffic Safety Administration (NHTSA)



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