



2018 TRAFFIC SAFETY REPORT



LARIMER COUNTY
ENGINEERING DEPARTMENT



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Introduction

This report covers the unincorporated roadways in Larimer County that the County has responsibility to maintain. Unincorporated Larimer County has nearly 890 miles of roadways - 105 miles in subdivisions, 82 in urban areas surrounding communities, and 703 in rural portions of the county.

Larimer County strives to make roadways as safe as possible. The Traffic Safety Program Goal is to **reduce the number and severity of crashes on our roadways.**



2017 Colorado Deaths

Caused by...

Cardiovascular Disease¹
9,661

Influenza & Pneumonia¹
576

Motor Vehicle Crash¹
672

**All Larimer County Roadway
Fatalities, 2017²**
37

**Unincorporated Larimer County
Roadway Fatalities, 2018**
3

Sources:

¹www.colorado.gov/pacific/coepbt/death-data-statistics

²www.larimer.org/coroner/annual-reports

Crashes are categorized into three classes by severity: Property Damage Only (PDO), Injury, and Fatal. A property damage only crash indicates that no one was injured or killed in the crash. In an injury crash at least one person was injured in the crash but no one was killed. In a fatal crash at least one person lost their life although there may also have been injuries sustained by other persons.

Property damage only crashes were up nearly 18% over 2017. Injury crashes were up slightly in 2018 compared to 2017. However, fatal crashes decreased to the lowest level since 2012, contrary to state and national trends. Larimer County saw 3 fatal crashes resulting in 3 fatalities in 2018.

Crashes and crash severity are often influenced by the choices people make. Examples of these choices include speeding, distracted driving, driving under the influence of alcohol or drugs, and seat belt or helmet use.

This report summarizes crashes in unincorporated Larimer County by a variety of factors that are focused on areas of interest and identification of trends to be addressed through safety improvements and education.

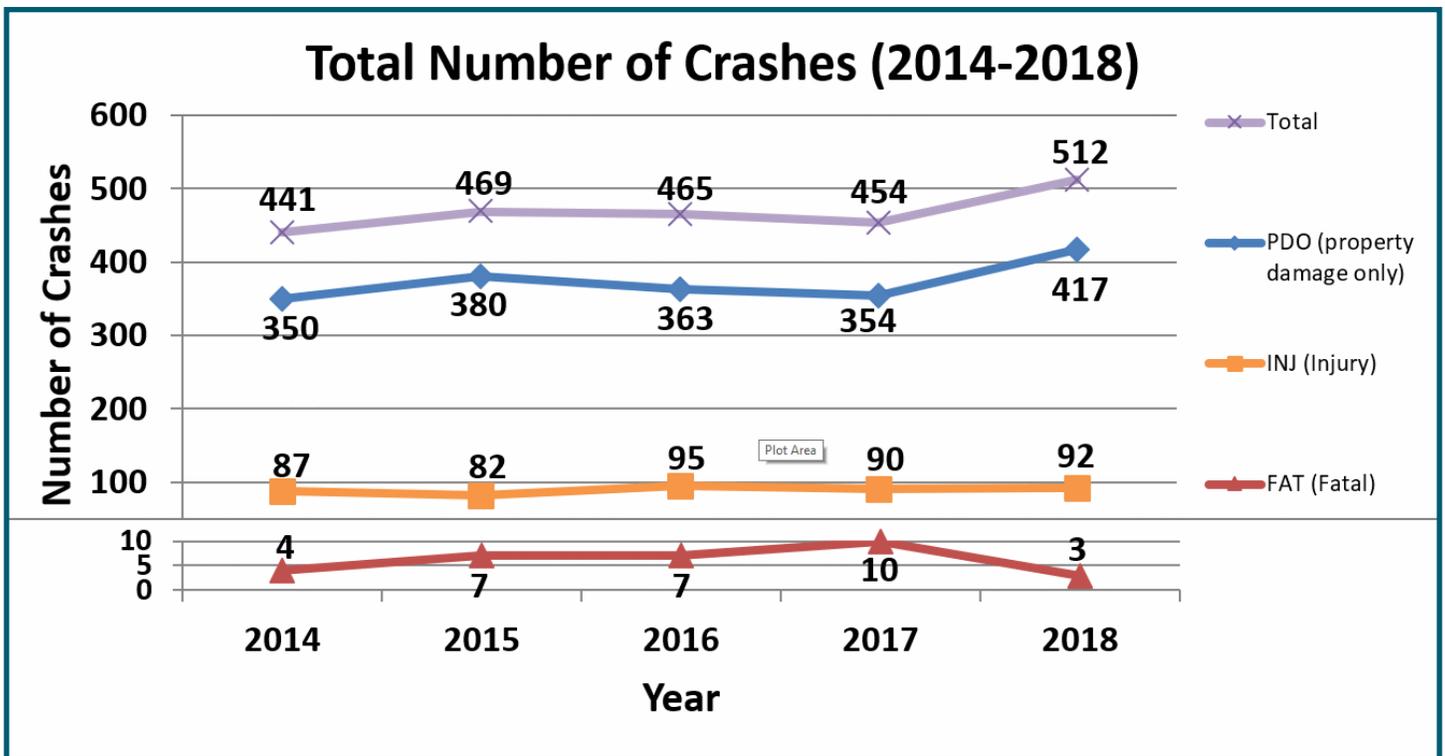
2018 CRASH TRENDS

There were an average of 468 crashes on unincorporated roads in Larimer County between 2014 and 2018. In 2018, **total crashes increased** by about **9%** compared to the **5 year average** and **crashes increased** by about **13%** compared to 2017. This is a sharp increase from the generally steady number of crashes in the previous four years.

Fatal crashes on unincorporated roads in Larimer County dropped to 3 in 2018, offsetting a spike seen in 2017 when there were 10 fatal crashes with 11 fatalities.

Serious crashes (fatal and injury crashes) decreased 5% compared to 2017 and matches the five year average.

There is generally a correlation between an increase in Vehicle Miles Traveled (VMT) and the number of crashes. Approximately 344 million miles were traveled on Larimer County roads in 2018 compared to 2017, a 3.5% increase. The 3.5% increase in miles traveled exceeds the 1.2% growth in the population of Larimer County as estimated by the Colorado Department of Local Affairs.



Fatal crashes: 3 crashes (3 fatalities) **Decreased 70%** from 2017

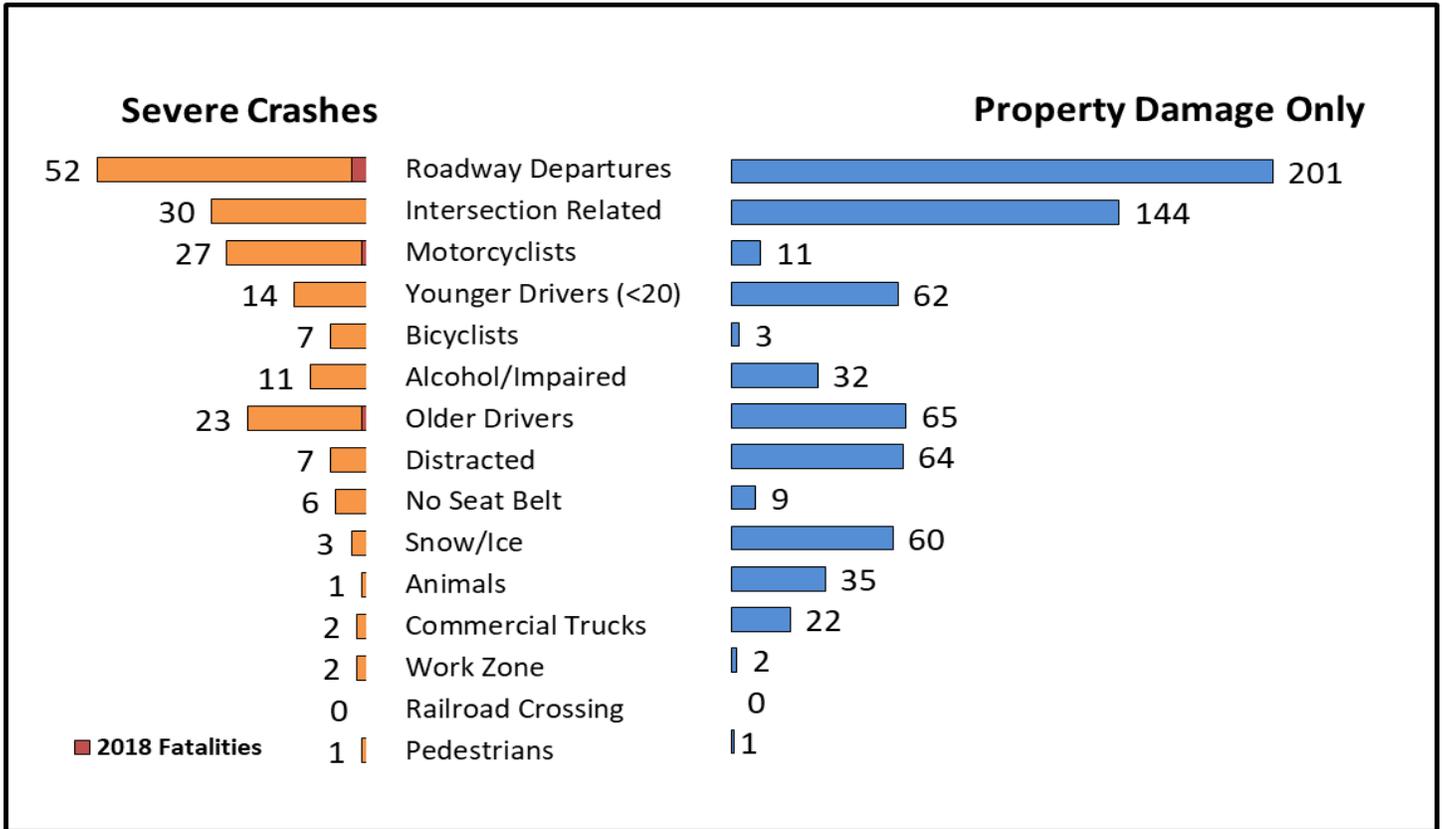
Injury crashes: **Increased by 2.2%**

Property Damage Only: **Increased by 17.8%**

Overall Crashes

This Traffic Safety Annual Report summarizes the general trends in roadway safety, analyzes specific areas of interest, and monitors ongoing traffic safety efforts in the County. Crash data are obtained directly from Colorado State Patrol crash reports.

The chart below shows the number of crashes in 2018 relative to a variety of factors. Crashes may be listed in more than one category. The table below shows the trends in each category.



Compared to 2017:

Roadway Departure crashes continue to be the most common in Larimer County increasing by 9%.

Driving Under the Influence (DUI) crashes are down 12%.

Distracted driving crashes are down 3%.

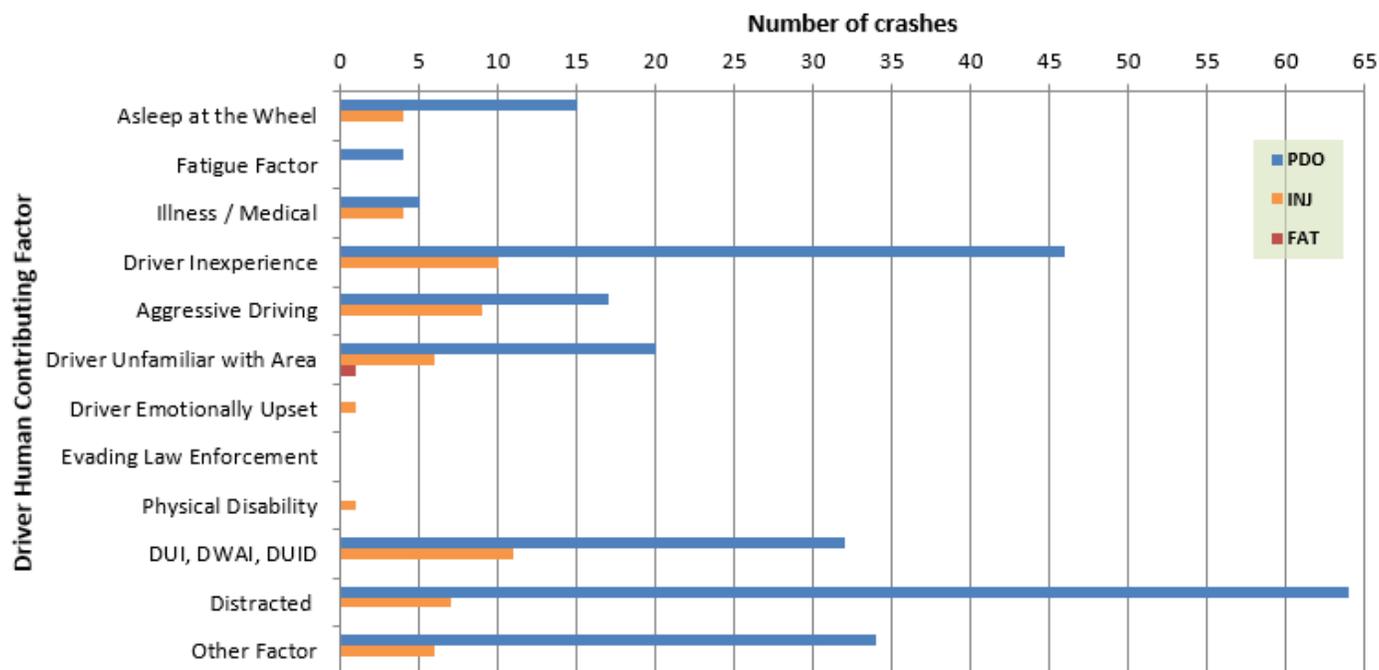
Crashes involving **motorcycles** decreased 28% following several years of increased crashes.

There were 4 **Work Zone** related crashes and 2 **Pedestrian** involved crashes in 2018.

Crash Characteristics	% Change between 2017 and 2018	2018 Total Crashes
Roadway Departures	9%	253
Intersection Related	2%	174
Motorcyclists	-28%	38
Younger Drivers	-14%	76
Bicyclists	11%	10
Alcohol/Impaired	-12%	43
Older Drivers	73%	88
Distracted	-3%	71
No Seat Belt	-56%	15
Snow/Ice	54%	63
Animals	-8%	36
Commercial Trucks	41%	24
Work Zone	100%	4
Railroad Crossing	0%	0
Pedestrians	100%	2

Overall Crashes (continued)

2018 Crashes with a Human Contributing Factor (By Crash Severity)



Out of 297 crashes with Human Contributing Factors, 1 was fatal and 59 had injuries. The five leading causes of injury or death are:

- Driving Under the Influence (11)
- Drivers Inexperience (10)
- Aggressive driving (9)
- Distracted (7)
- Driver unfamiliar with area (7)

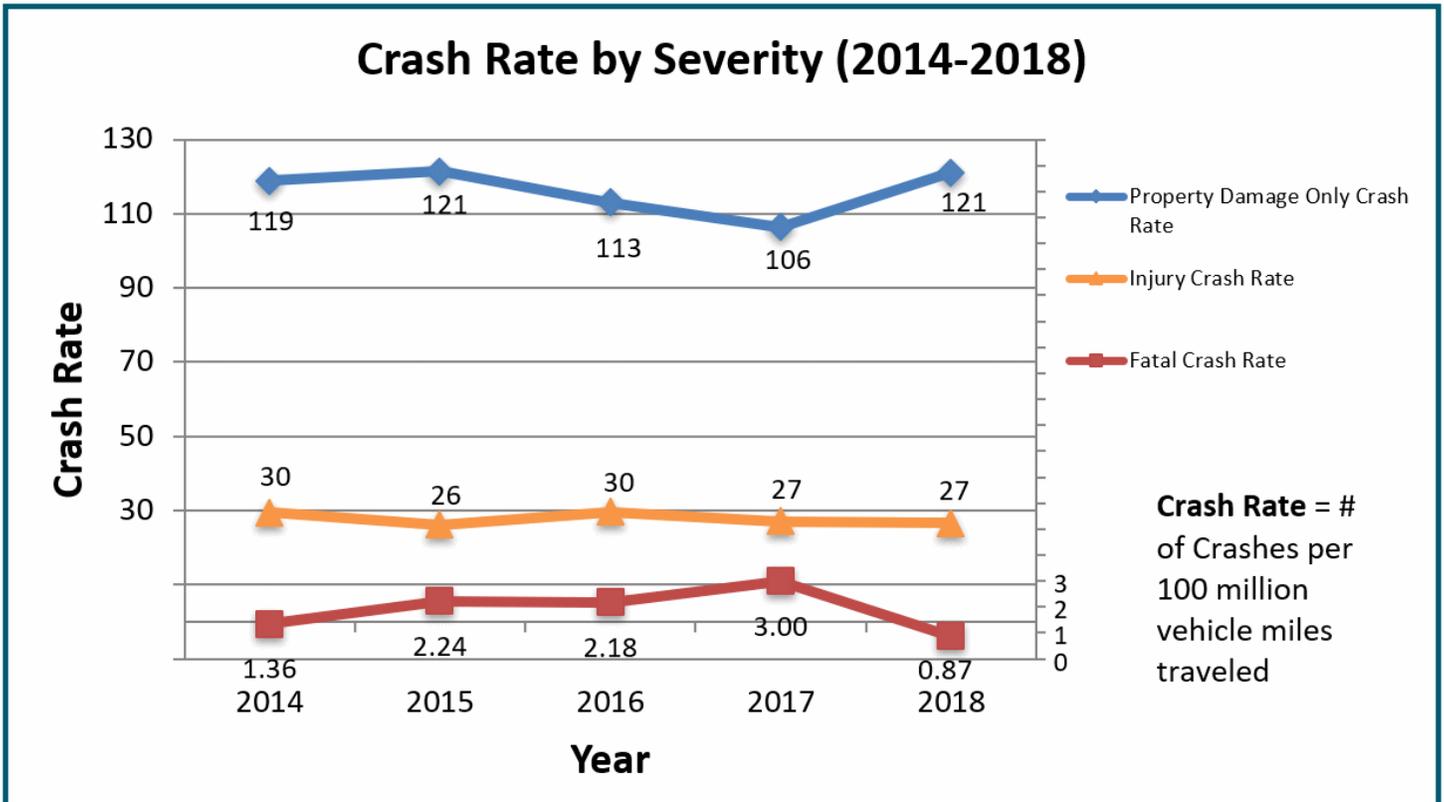
Driving is about human interaction with the vehicle, the natural elements and with other drivers on the roads.

In 2018, **65%** of all crashes in unincorporated Larimer County had a human contributing factor.

Crash Rates

To account for varying amounts of traffic, a measure of crash *RATE* is used in addition to crash *NUMBERS*. A crash rate is expressed in the number of crashes per 100 million vehicles miles traveled.

This graphic shows the crash rate by severity and indicates the property damage only crash rate **increased 14%**, while the injury crash rate was **unchanged** compared to 2017. The fatal crash rate **decreased 71%** over the previous year.



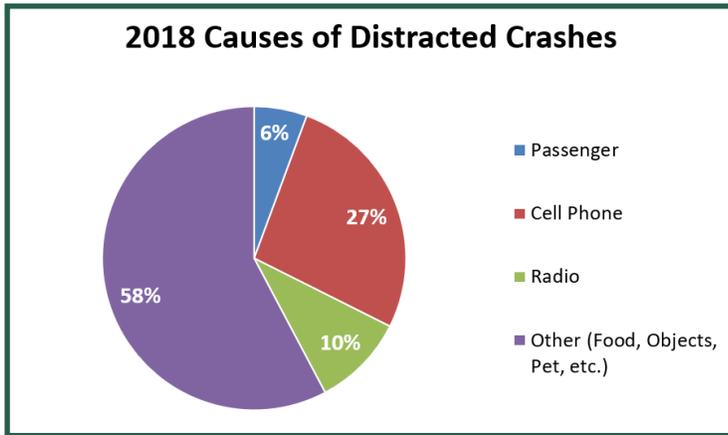
The Colorado Problem Identification Report, Colorado Department of Transportation, Fiscal Year 2018, shows the average 5 year (2012-2016) statewide injury crash rate per 100 million VMT is 20.3 while Larimer County (2014-2018) is 28.0.

Crash rates on the unincorporated County road system are higher than the Colorado rates. Several factors contribute to these elevated rates including higher speeds, sharp curves, narrow shoulders, and no medians.

Crashes Caused By Distracted Drivers

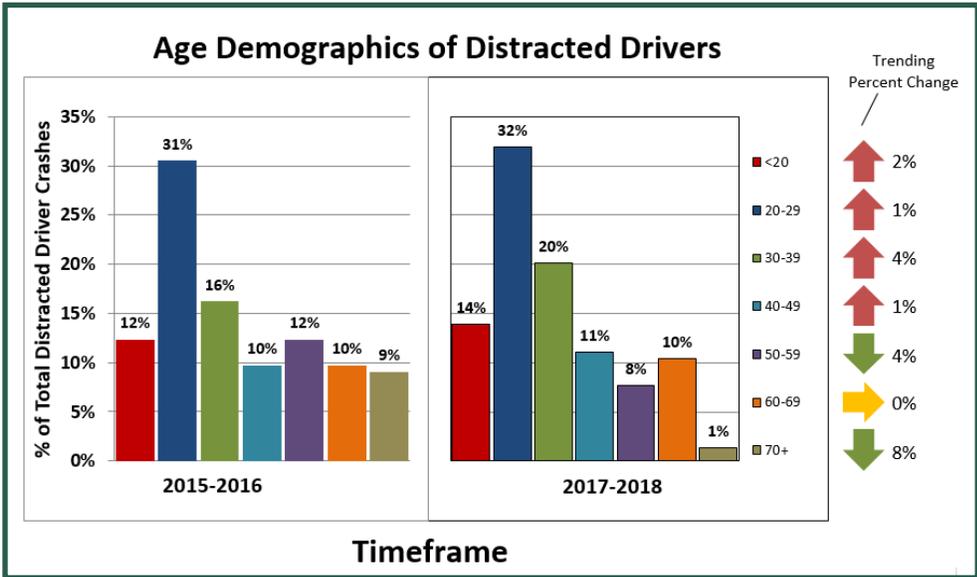
Distracted Drivers accounted for 71 crashes (12.5% of total crashes) in 2018; 7 of the 71 (9.8%) were injury crashes with 0 fatalities. The demographic committing the most offenses continues to be

20-29 year olds at 33.8%.

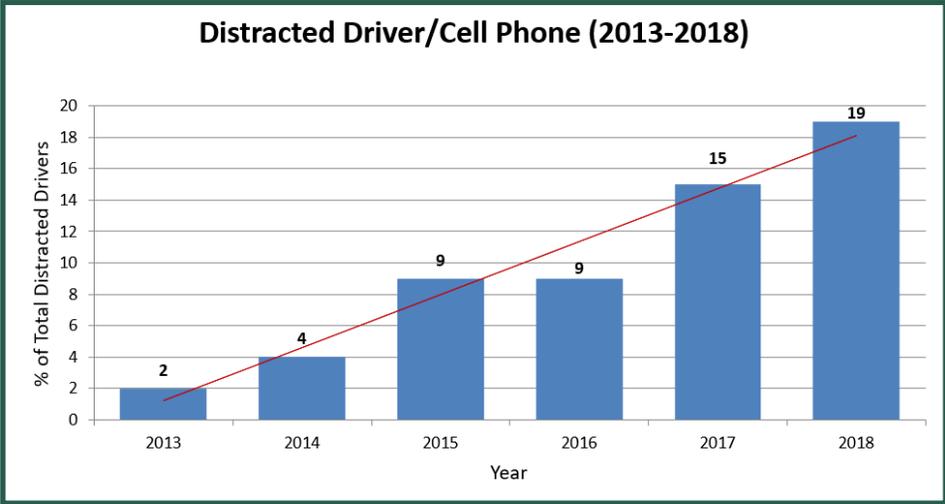


Nationally, **3,166** people died from crashes caused by distracted driving in 2017.

Source: United States Department of Transportation - National Highway Traffic Safety Administration



Cell phone use has been steadily growing over the past 6 years. 2018 was no exception - 19 accidents compared to 15 in 2017.

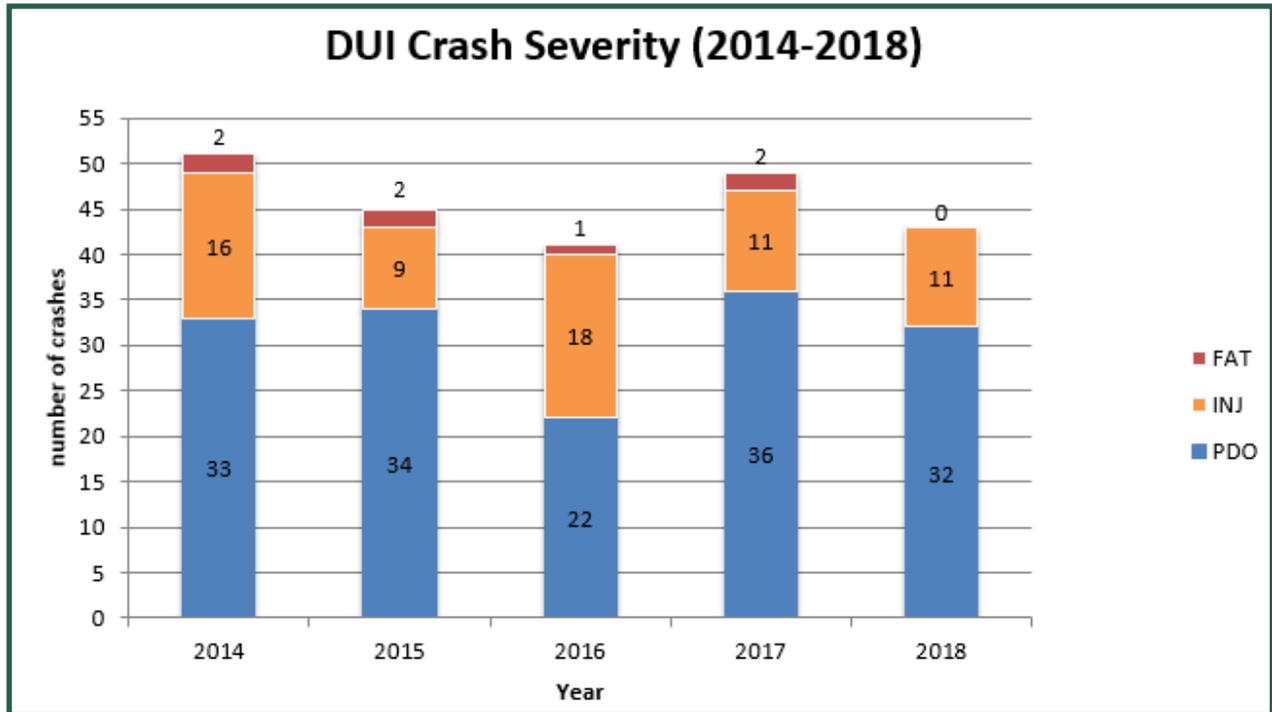


Crashes Caused By Impaired Drivers

In 2018, **43 crashes (7.6% of total crashes)** were the result of **Impaired Driving** which is down from 2017 with 49 crashes (9.7% of total crashes). **11 of the 43 crashes (26% of DUI crashes)** resulted in **injuries** with **0 fatalities**.

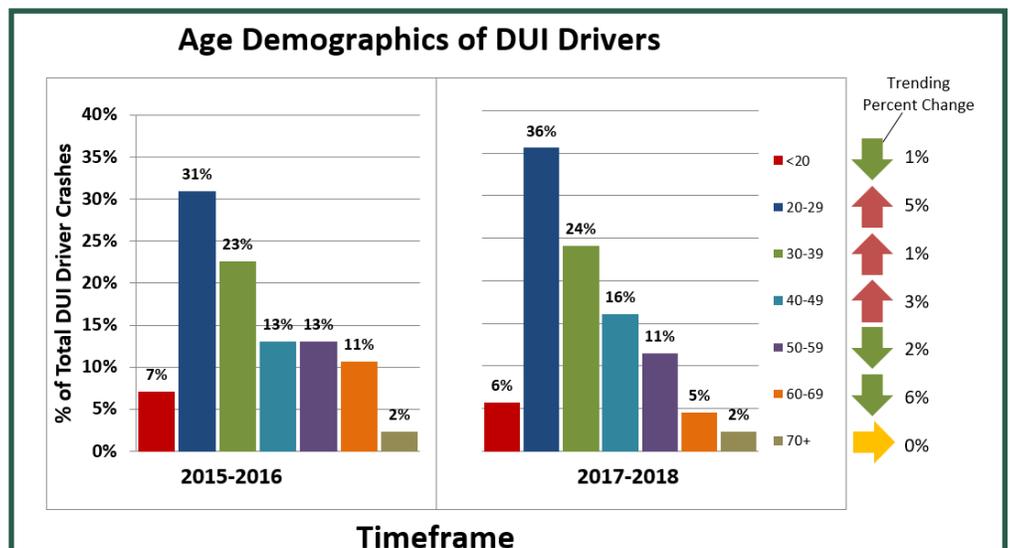
Nationally, **10,874** people died from Drunk Driving Crashes in 2017.

Source: United States Department of Transportation -National Highway Traffic Safety Administration



The **20-29 Age Demographic** has the highest DUI offenders at **35%** for 2018 and continue to have the highest growth rate over the last 2 years at **5%**.

DUI by gender and age 2014-2018 data		
<20	17	8%
20-29	78	35%
30-39	53	23%
40-49	32	14%
50-59	27	12%
60-69	13	6%
70+	6	3%
Total	226	
male	165	70%
female	59	25%
unknwn	13	5%



Serious Crash Review

A serious crash is defined as a crash resulting in injury or death. There were **97 serious crashes** on the unincorporated County road system in 2018 resulting in **ninety-four injuries**, down from one hundred and nineteen in 2017 and **three fatalities**, down from eleven in 2017. Using these data, the following generalities or trends have been noted.

Details of the fatal crashes occurring in 2018 are presented in Appendix A.



Overturn

48%



Inattentive to Driving

18%



DUI

10%

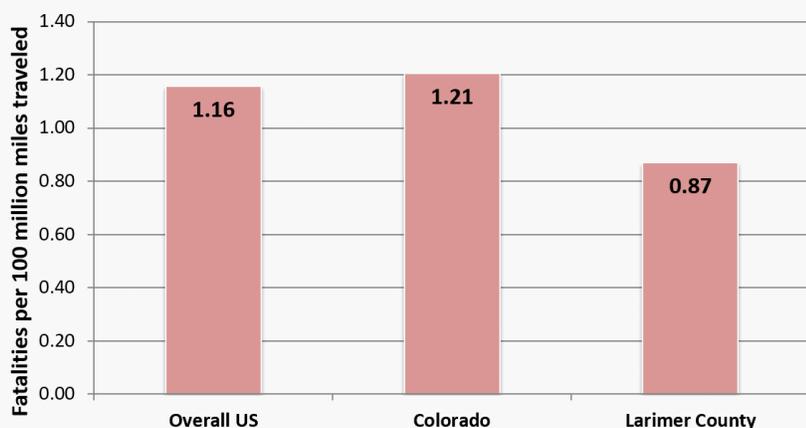


Motorcycles

26%

Overturning was the most harmful event in 48% of serious crashes while 53% of serious crashes involved **roadway departure**.

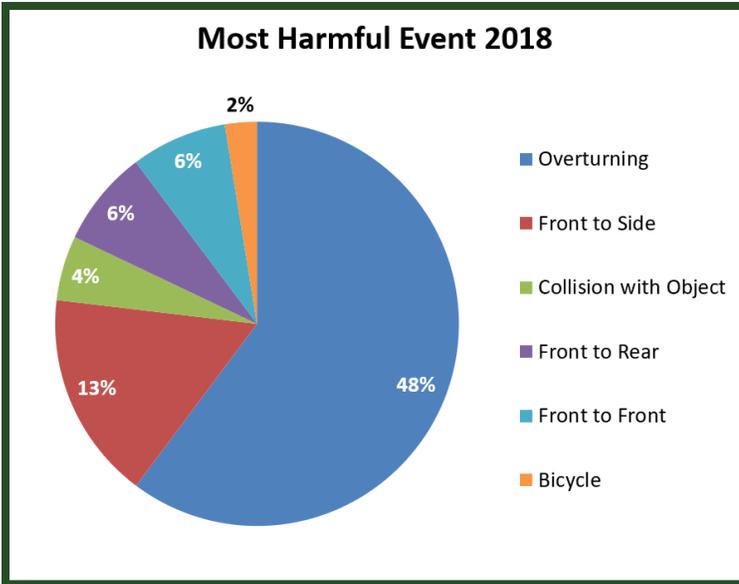
Comparison of Overall Fatality Rates



In 2018 serious crashes made up 19% of all reported crashes in unincorporated Larimer County.

Sources: US - National Highway Traffic Safety Administration (2017)
 Colorado - Federal Highway Administration, Office of Highway Policy Information, Traffic Volume Trends (Jan 2017 - Dec 2018); CDOT 2017 Fatalities by Region (2017)
 Larimer County - County records (2018)

Serious Crash Review (continued)

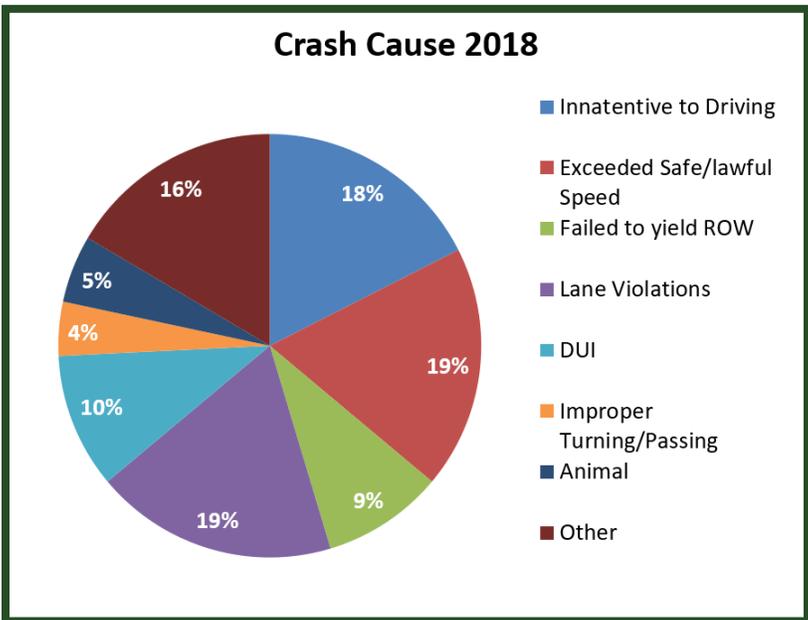
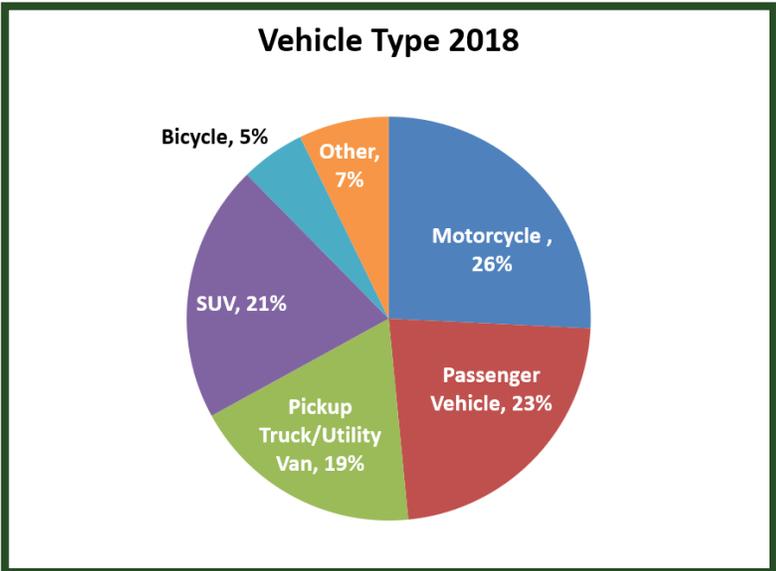


In 2018 the national use rate of seat belts was 89.6%. Nationally 47% of passenger vehicle occupants killed in 2017 were unrestrained.

Source: www.nhtsa.gov/risky-driving/seat-belts

Motorcycles were involved in 26% of all serious crashes in Larimer County for 2018. Motorcycles are only 2.6% of registered vehicles in the State of Colorado.

Source: www.colorado.gov/pacific/dmv/registration



For US fatal crashes in 2015, about 80 percent of passenger vehicle occupants who were totally ejected from the vehicle were killed.

Source: www.nhtsa.gov/risky-driving/seat-belts

Roadway Departure Crashes

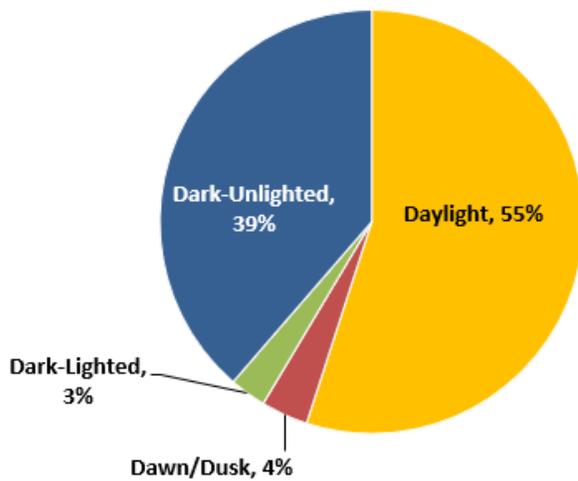
Two-lane rural roads are the most dangerous part of the road system. In 2018, **45%** of all crashes involved a vehicle leaving the roadway (roadway departure crash). Here's what we know about those crashes:

Road Condition: 72% of the crashes occurred on dry roads

Light Condition: 55% occurred during daylight hours



2018 Road Departure Light Condition



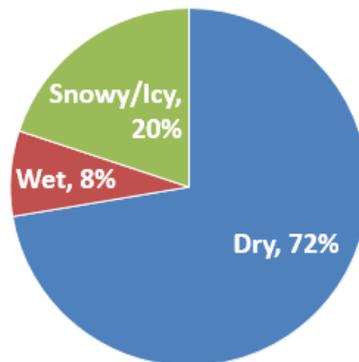
11% of all roadway departure crashes in 2018 were DUI related.

56% of all roadway departure crashes in 2018 were reported to be on straight sections of roadway. 29% were reported to be on curvilinear sections of road with a grade.

According to the 2018 data, 43% of roadway departure crashes occurred at curves in the roadway, either level or on a grade. Larimer County is in the process of reviewing all horizontal curves and turns on the Larimer County road system. Safe advisory speeds are being reviewed and adjusted. Locations that would benefit from additional signing are being upgraded with additional chevron or large arrow warning signs at the curve locations.

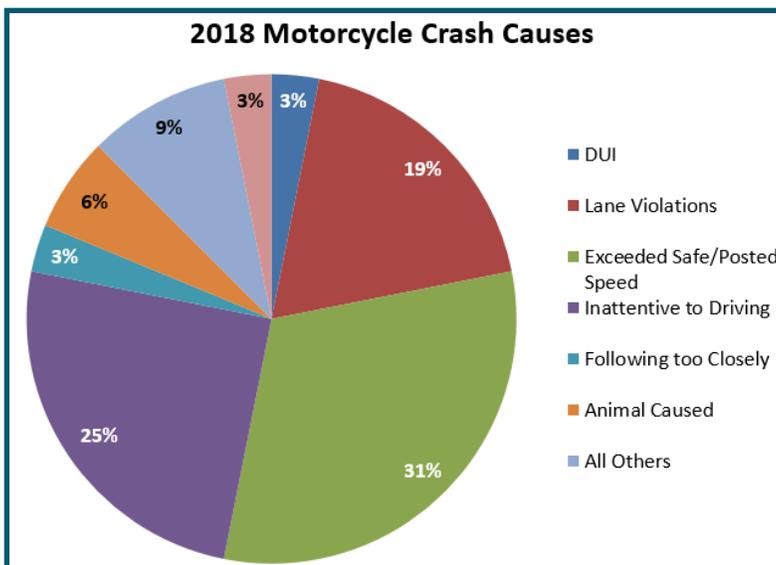
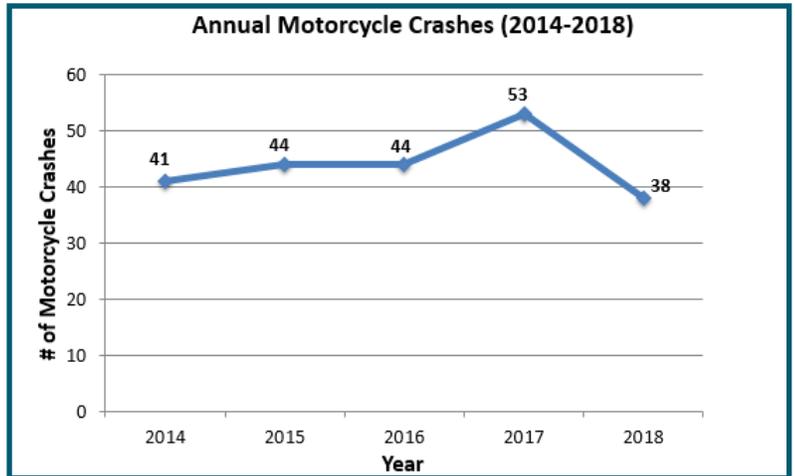


2018 Road Departure Road Condition



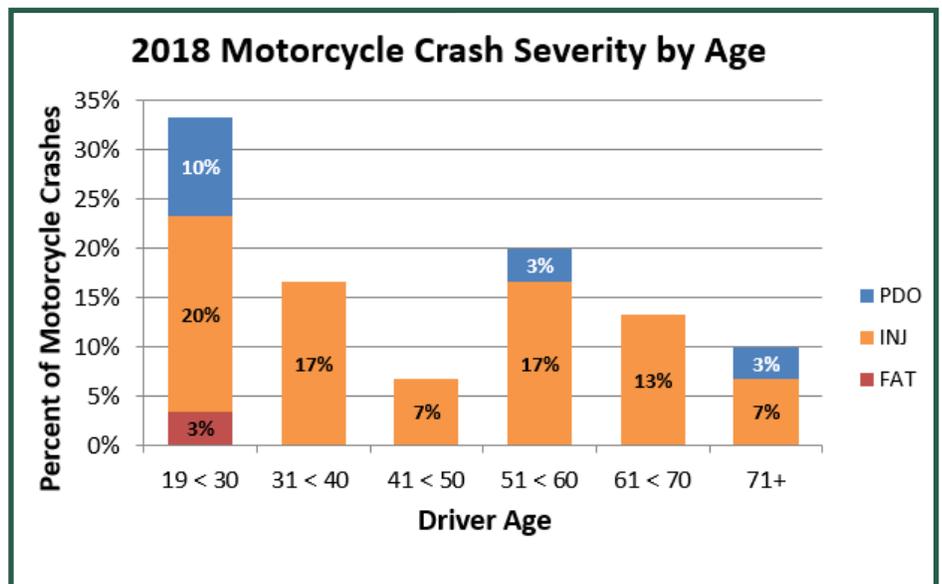
Motorcycles Crashes

Motorcycles were involved in **38 accidents (6.7% of total accidents)** in 2018, down from 53 accidents (12% of total accidents) in 2017. However, the chance of injury or death is disproportionately higher. In 2018, **71% of motorcycle crashes resulted in injury or death compared to 19% in other vehicles.**



The majority of motorcycle crashes are caused by Inattentive Driving, Speed, or Lane Violations, accounting for 75% between these three causes.

In 2018, **84%** of the reported motorcycle crashes listed the motorcyclist as the cause of the accident.



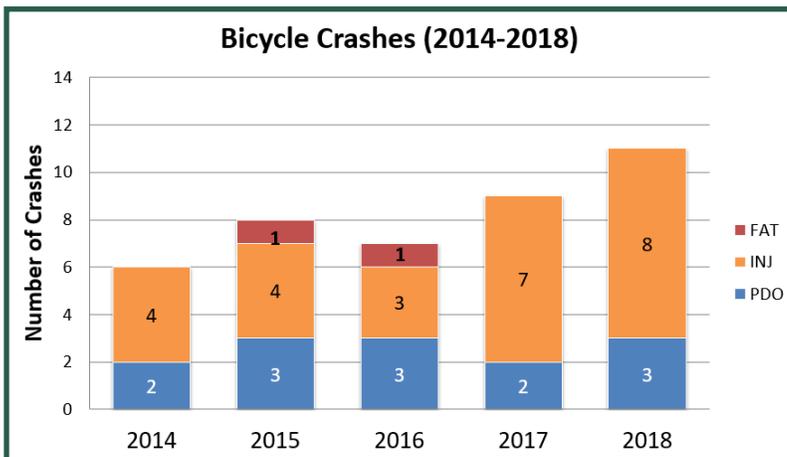
Bicycle and Pedestrian Crashes

Bicycle Crashes

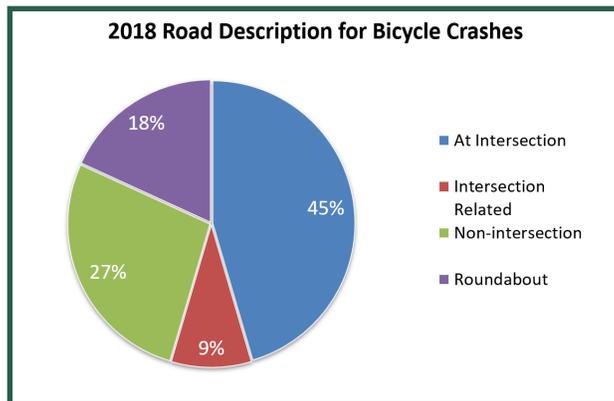
Bicycling is a popular activity in Larimer County whether riding for commuting or pleasure. Fort Collins is listed as the 11th highest city in the nation for bicycle commuters at 5.3%¹. Many of the cities and towns actively promote bicycling and many special events are requested and held on county roads in the summertime.

11 crashes in 2018 involved a bicycle, in 5 of those the bicyclist was reported at-fault.

¹Source: *The League of American Bicyclists - Analysis of bicycle commuting in American Cities Report*

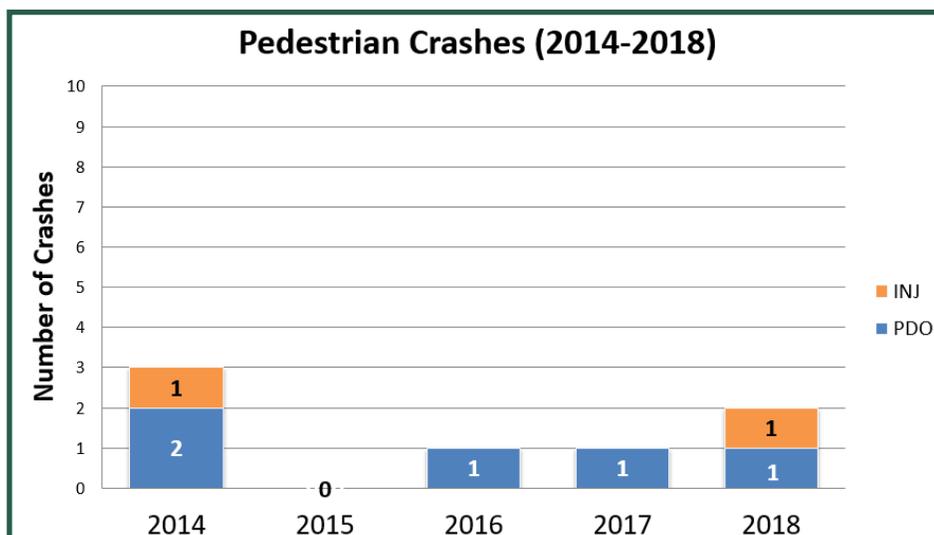


72% of bicycle crashes in 2018 were at or related to an intersection or roundabout.



Pedestrian Crashes

The number of crashes involving pedestrians is low in Larimer County with 7 during the last five years. This reflects the general rural character of Larimer County roads. Locations with significant pedestrian traffic include parks, open spaces, trails, or near city development.



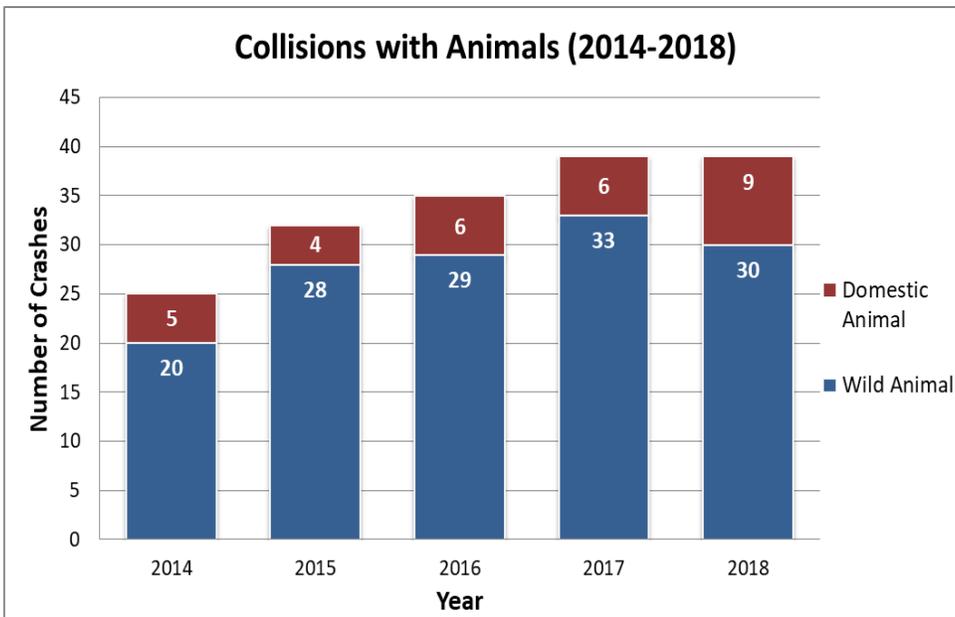
In 2018 there were 2 crashes involving pedestrians. One serious accident was caused by a driver that disobeyed work zone traffic laws by swerving around stopped traffic & hitting a road construction crew member.



Animal Related Crashes



The total number of reported animal collisions in 2018 was 39, the same number of animal crashes as reported in 2017. Again, all but one of the crashes involved large animals, both wild and domestic, that cause more damage and injury. These numbers do not include crashes where an animal was not hit but may have caused the crash.

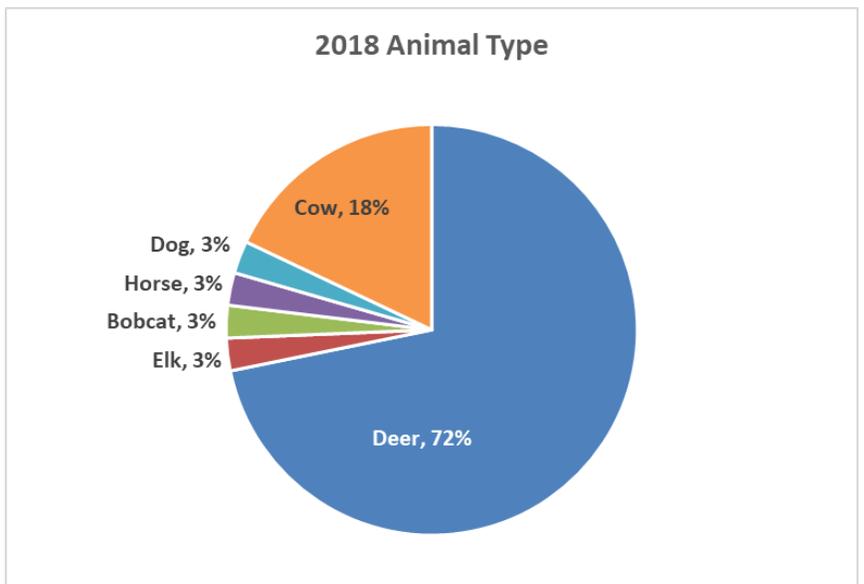


44% of all animal crashes in 2018 occurred during the months of **October** and **November**.

77% of reported animal crashes were with wild animals. 18% of the crashes involved domestic cows.

The most common animal crash was with deer, 72% of all animal crashes

2/3 of all wild animal crashes in 2018 were at dawn, dusk or at night.



Traffic Safety Mitigation

Safety improvements completed on the County Road system during 2018



CR 5 - Rapid Rectangular Flashing Beacon: Due to increasing traffic on County Rd 5 south of SH 392 and the need for pedestrians and bicyclists from the Country Meadows subdivision to access locations east of County Rd 5, rapid rectangular flashing beacons were installed at an existing crosswalk at South Hathaway Ln and County Rd 5. Residents expressed concerns about increasing difficulty in using the crosswalk to cross County Rd 5. The new beacons should draw much more attention from motorists on County Rd 5 to pedestrians attempting to use the crosswalk as well as minimizing disruption to traffic on County Rd 5. As soon as the crosswalk is clear, traffic can continue moving on County Rd 5.



2018 Overlay Program—County Rd 74E and County Rd 17. As part of the 2018 overlay project, additional paved shoulders were added to three sections of road. In addition to receiving a new driving surface, additional paved shoulders were added for vehicles on two sections of County Rd 74E and on County Rd 17 (Shields St) north of US 287. The CR 17 (Shields St) work provides 4 foot paved shoulders from US 287 to CR 54 (Douglas Rd).



CR 8 and CR 23: Advance warning flashers were installed on westbound County Rd 8 and southbound County Rd 23 in advance of the driveway for Berthoud Fire Station No. 2. The driveway is located on the curve from CR 8 to CR 23 and has limited visibility. There have been complaints of near misses involving emergency equipment entering the roadway and vehicle traffic on the

roadway. Solar powered warning flashers were installed on both approaches to the fire department driveway. Fire fighters activate the flashers as they leave the station by use of keychain fobs in their trucks. The lights then flash on CR 8 and CR 23 to warn drivers of the entering emergency vehicles.

2018 Low Cost Safety Improvements

CR 30 eastbound at CR 13 on the side of Donath Lake. There have been a few run off the road crashes at the T-intersection of CR 30 at CR 13. A Stop Ahead Symbol sign and a Large Double Arrow sign were added in an effort to reduce these type of crashes. A thermoplastic Stop Bar was also placed on CR 30.



CR 54G - Curve east of Overland Tr.

This curve has been the site of several run off the road crashes including a fatal crash in 2017. New, brighter advance warning signs in advance of the curve and chevron signs were installed through the curve to provide better guidance to motorists traveling in both directions on CR 54G.

Traffic Safety Mitigation 2019

Low Cost Safety:

- Installation of a rapid rectangular flashing beacon crosswalk location on CR 50E near Lakeview Dr. The crossing will be placed to facilitate pedestrians crossing CR 50E (Country Club Rd) to access recreational facilities at the east side of Long Pond. Country Club Rd has been experiencing increased traffic during the past few years due to new development on the north side of Fort Collins.
- County wide evaluation of all crash data and select locations for individual safety audits. This includes the top 5 worst roadway departure crashes to determine potential mitigation measures and estimated cost.
- Conduct reviews of intersection locations that are experiencing increasing crash numbers to determine measures that may be taken to improve safety at those intersections.

2019 Safety Projects:

- **Advisory Speed Studies for Horizontal Curves:** Additional signing (chevron signs and large arrow signs) to be placed at turns and curves. The Engineering Department continues to re-evaluate the safe advisory speed on all significant horizontal curves and turns on the Larimer County maintained road system. An on board electronic ball-bank indicator is used while each curve is driven to determine the safe advisory speed. Updated federal guidelines regarding advisory speeds require curves and turns on the county road system be re-evaluated using the new guidelines.
- Two major road construction projects scheduled to start in 2018 should be completed during 2019. County Rd 70 (Owl Canyon Rd) between County Rd 19 and County Rd 15 in northern Larimer County and on County Rd 17 between County Rd 14 and County Rd 16 in southern Larimer County. The County Rd 70 project will re-construct the roadway with a new asphalt surface that will include 6 foot paved shoulders. The additional shoulder width should be safer for vehicles on the roadway and give bicyclists additional room to safely ride next to high speed traffic. The County Rd 17 project will reconstruct the road into a three lane section providing a continuous center turn lane to separate left turning vehicles from the through traffic at intersections and driveway locations. The project will also place 6 foot paved shoulders along the roadway for increased safety for motorists and bicyclists.
- CR 19E (Namaqua Rd) Replacement of the bridge over the Big Thompson River.. The old, narrow structure will be replaced with a new, wider structure with bike lanes and sidewalks for increased safety for pedestrians and bicyclists crossing the river on the new bridge.

Safety Improvement Monitoring and Evaluation

Seven intersections that were experiencing higher numbers of crashes and have had low cost safety improvements implemented were reviewed to see how the improvements are performing.

- ◆ CR 70 (Owl Canyon Rd) and CR 15, north of Waverly
- ◆ CR 23E and CR 4, southwest of Berthoud
- ◆ CR 11C (Airpark Rd) and CR 46E (Lincoln Ave) east of Fort Collins
- ◆ CR 16 and CR 7, southeast of Loveland
- ◆ CR 17 (Shields St) and CR 54 (Douglas Rd) north of Fort Collins.
- ◆ CR 5 and CR 48 (E. Vine Dr) east of Fort Collins
- ◆ CR 8 and CR 21, west of Berthoud.

The locations compare average crashes per year before and after the low cost safety improvements. Overall there have been significant reductions in the number of overall and serious crashes at these locations. The CR 23E and CR 4 intersection shows a 56% increase in severe crashes and will be reviewed again in 2018 for possible additional safety measures.

Average for all Seven Locations:

43% Reduction in All Crashes

31 % Reduction in Severe Crashes

The before and after crash statistics for each location are listed in Appendix B.



Appendix A

2018 Fatal Crash Descriptions/Locations

County Rd 54G: 469 Feet west of Indigo Hills Ln on Jan 1, 2018. An eastbound Volkswagen sedan entered a left curve. The vehicle ran off the right side of the road steered, attempted to correct and rotated in both directions for over 200 feet. The vehicle ran off the road again slid broadside and collided with a traffic sign. The vehicle continued sliding and then began rolling down a steep embankment. The vehicle collided with a power pole and wire fence and continued rolling and collided with bushes and trees coming to rest on it's roof. During the roll, the driver was ejected from the vehicle and came to rest 25 feet from the final vehicle location. Vehicle rolled a total of 3 1/2 times. According to the crash report, safety equipment (seat belt) was not in use. Estimated vehicle speed was 60 MPH in a 35 MPH speed zone. Crash occurred on a dry roadway at 9:30 PM.

County Rd 69: 161 feet south of mile marker 2 on May 20, 2018. A northbound pickup truck ran off the right side of the road and continued down a steep embankment. The pickup travelled approximately 45 feet and then rolled 1 1/2 times eastbound. The pickup then collided with a tree and the driver was ejected. The pickup then continued to roll over an unknown amount of times eastbound. The driver came to rest 93 feet east of the road edge. Estimated vehicle speed was 40 MPH in a 15 MPH speed zone. According to the crash report, safety equipment (seat belt) was not in use. Crash occurred on a non-paved wet roadway at 9:49 PM.

County Rd 23: 305 feet north of mile marker 2 (near Dixon Dam) on June, 13, 2018. A northbound motorcycle failed to negotiate a left hand curve and drove off the right side of the road. The motorcycle collided with a traffic sign and the driver collided with the same sign. The driver was ejected from the vehicle and then collided with a rock formation. The motorcycle continued up the rock formation and then rolled back down overturning. The motorcycle driver died on scene. According to the crash report, a motorcycle helmet was not in use at the time of the crash. Estimated speed of the motorcycle was 90 MPH in a 35 MPH speed zone. Driver action was listed as reckless driving. Most apparent human contributing factor listed as driver unfamiliar with area. The crash occurred on a dry roadway at 11:34 PM.

Appendix B

Monitoring of Low Cost Safety Improvements at Seven Intersections

Segment	Time Frame	Number Crashes Per Year						Date Improved	Notes
		PDO	INJ	FAT	Total Avg	Minor	Severe		
Intersection of CR 70 (Owl Canyon) and CR 15	Type of Improvement	4-way stop with flashing beacons, added signing, and rumble strips						March, 2008	Average of 3 years before improvements and 10 years after
	Before Improvements	1.00	2.00	0.00	3.00	1.00	2.00		
	After Improvements	0.00	0.00	0.00	0.00	0.00	0.00		
	Change	-100%	-100%	0%	-100%	-100%	-100%		
Intersection of CR 23E and CR 4	Type of Improvement	Added pavement markings, cross street warning signs, and speed limit signs						2/5/2010	Average of 5 years before improvements and 8 years after
	Before Improvements	1.20	0.40	0.00	1.60	1.20	0.40		
	After Improvements	0.63	0.63	0.00	1.25	0.63	0.63		
	Change	-48%	56%	0%	-22%	-48%	56%		
Intersection of CR 11C (Airpark) and CR 46E (Lincoln)	Type of Improvement	Relocated signs, upgraded material, added cross street warning signs, pavement markings, and painted minor street centerline						11/19/2010	Average of 4.5 years before improvements and 8 years after
	Before Improvements	4.00	0.67	0.00	4.67	4.00	0.67		
	After Improvements	2.00	0.50	0.00	2.50	2.00	0.50		
	Change	-50%	-25%	0%	-46%	-50%	-25%		
Intersection of CR 16 and CR 7	Type of Improvement	Upgraded sign materials and added stop ahead pavement markings						11/19/2009	Average of 6 year before improvements and 9 years after
	Before Improvements	1.78	0.67	0.00	2.44	1.78	0.67		
	After Improvements	0.89	0.33	0.00	1.22	0.89	0.33		
	Change	-50%	-51%	0%	-50%	-50%	-51%		
Intersection of CR 17 (Shields) and CR 54 (Douglas)	Type of Improvement	Upgrade sign materials and added pavement markings						11/1/2009	Average of 5 years before improvements and 9 years after
	Before Improvements	1.20	0.20	0.00	1.40	1.20	0.20		
	After Improvements	1.00	0.22	0.00	1.22	1.00	0.22		
	Change	-17%	10%	0%	-13%	-17%	10%		
Intersection of CR 5 and CR 48 (Vine)	Type of Improvement	Upgraded sign materials and added stop ahead pavement markings						10/25/2009	Average of 4 years before improvements and 9 years after
	Before Improvements	0.20	0.40	0.00	0.60	0.20	0.40		
	After Improvements	0.22	0.11	0.00	0.33	0.22	0.11		
	Change	10%	-73%	0%	-44%	10%	-73%		

Appendix B (continued)

Monitoring of Low Cost Safety Improvements at Seven Intersections

Segment	Time Frame	Number Crashes Per Year						Date Improved	Notes
		PDO	INJ	FAT	Total Avg	Minor	Severe		
Intersection of CR 21 and CR 8	Type of Improvement	Upgraded sign materials and added stop ahead pavement markings						11/19/2009	Average of 6 years before improvements and 9 years after
	Before Improvements	1.50	1.00	0.00	2.50	1.50	1.00		
	After Improvements	1.11	0.44	0.10	1.78	1.11	0.66		
	Change	-26%	-56%	100%	-29%	-26%	-34%		

Contact Information

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