

2007 PROBLEM IDENTIFICATION REPORT



Colorado Department of Transportation
Safety and Traffic Engineering Branch

Final Report

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ES

Executive Summary



Section I. Introduction



Section II. Crash Overview and Trends



Section III. Age and Gender of Crash Drivers



Section IV. Occupant Protection



Section V. Impaired Drivers



Section VI. Bicycles and Pedestrians

This Executive Summary presents highlights of the FY 2007 Problem Identification report prepared for CDOT's Safety & Traffic Engineering Branch by the University of Colorado's Dr. Jeffrey Zax and Dr. Naci Mocan, Garner Insight's Jennifer Garner and Glissen, LLC's Glissen Rhode. This report was prepared using CDOT's 2004 crash database and time series data from the Fatality Analysis Reporting System (FARS). The Motor Vehicle Division of the Department of Revenue provided the study team with a database of 2004 drivers.

SELECTED KEY FINDINGS

The following are selected key findings from the analysis of CDOT's 2004 crash database and FARS data. Supporting information for selected findings are included in this Executive Summary.

Exhibit ES.1 details the geographic groupings used in regional analyses. The state's 12 most populous counties were treated as individual regions.

Colorado Crash Trends

In 2004, 667 people died on Colorado's roads and 44,847 people were injured (Exhibit ES.2). Fatal crashes are more likely to be single vehicle crashes than other crash types. About 53% of fatal crashes involved only one vehicle, compared to 31% of injury crashes and 25% of PDOs. Collision with a pedestrian was the first harmful event in 11% of 2004 fatal crashes. About 35% of fatal crashes occur on weekends.

Wheat Ridge has the highest per capita injury and fatal crash rate among the state's largest cities based on where crashes occurred (Exhibit ES.3). This was also the case in 2003. Developing traffic safety programs in Wheat Ridge may help reduce these high rates. Pueblo County and Adams County residents had the highest per capita injury crash rates among the state's counties.

Residents of El Paso County account for 86% of the drivers in fatal crashes that occur in El Paso County (Exhibit ES.4) and 88% of the county's injury crashes. Given that the majority of El Paso County fatal and injury crash drivers live in El Paso County, community-based traffic safety programs should continue to be implemented.

Overall, about 25% of crashes involve an injury. In 2004, 75% of the 2,255 crashes that involved a motorcycle were injury crashes, a much higher rate of injury than traffic crashes overall.

Age and Gender

Men are much more likely than women to be a driver involved in an injury or fatal crash. Overall, 71% of 2004's fatal crash drivers were male. Teen drivers and drivers in their early 20s are two age cohorts with high crash rates. Drivers age 24 and younger have much higher per capita crash rates than older drivers (Exhibit ES.5).

Teens living in Eastern Plains counties are more likely to be drivers in injury and fatal crashes than teens from the greater Denver/Boulder area.

Occupant Protection

In 2004, 79.3% of drivers statewide used a seat belt. This figure rose to 80.3% in 2006. Drivers from the more urban Front Range have consistently higher seat belt use rates over time than drivers from the state's rural counties. Three out of ten drivers on the Eastern Plains do not use seat belts (Exhibit ES.6).

In 2006, non-use of child safety seats for children ages 0 to 4 was 15%. In 2006, non-use of seat belts for juveniles ages 5 to 15 was 30%.

Among large counties, Pueblo and Weld counties had the highest reported seat belt non-use by drivers involved in the most severe crashes. 34% of Eastern Plains residents involved in incapacitating crashes were not using a seat belt at the time of crash, compared to 12% of Arapahoe County residents (Exhibit ES.7).

Impaired Driving

One in ten injury crashes are alcohol-related and 37.2% of fatal crashes are alcohol-related.

9.8% of Littleton's injury crash drivers were impaired, compared to 1.7% in the City of Boulder. (Highest rate vs lowest rate among large cities, see Exhibit ES.8).

Among alcohol-impaired fatal crash drivers, the majority had recorded BAC levels that exceeded 0.10.

Men are significantly more likely than women to be impaired drivers.

One in ten (9.9%) injury crash drivers age 23 were impaired (Exhibit ES.9). Developing a program that specifically and strategically addresses post-college drivers ages 22 to 24 has the potential to reduce impaired driving in Colorado.

Bicycles and Pedestrians

1,522 bicyclists were involved in police-reported crashes in 2004 and 74% of these bicyclists were male (Exhibit ES.10).

1,498 pedestrians were involved in police-reported crashes in 2004 and 59% of these pedestrians were male.

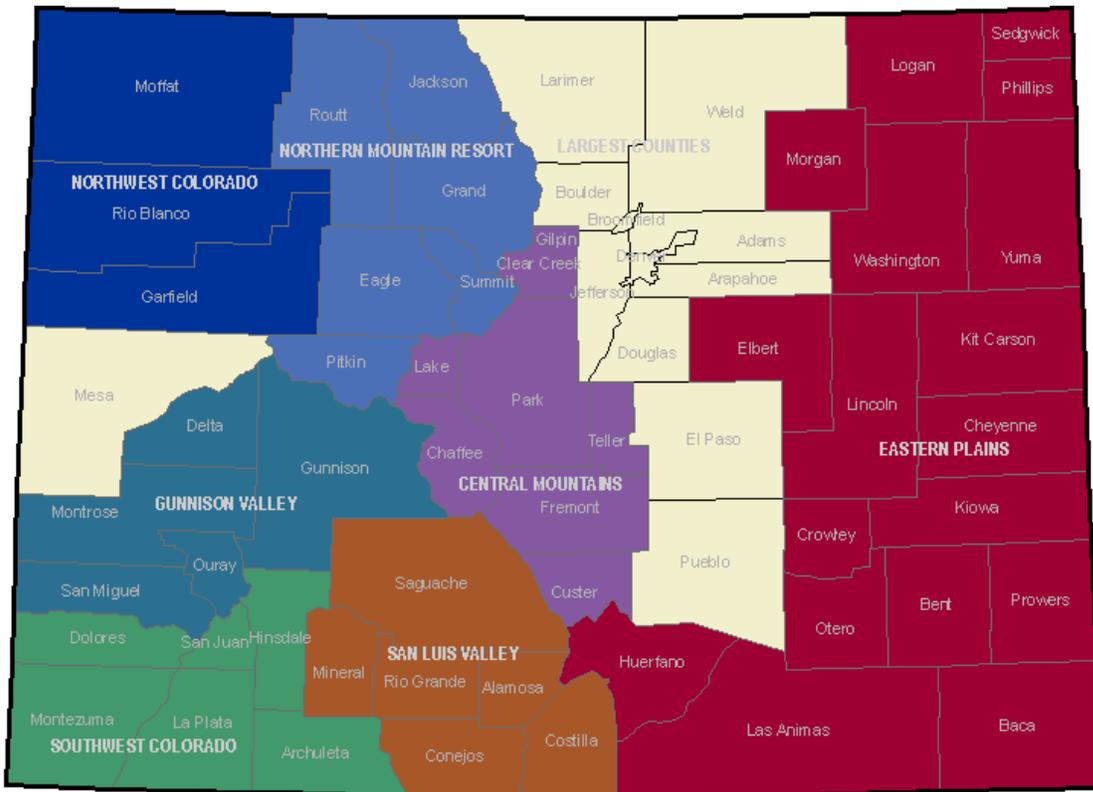
Crossing against the light was the reported cause of nearly 30% of pedestrian-involved injury crashes.

REPORT ORGANIZATION

Section I. Introduction follows this summary. A detailed examination of 2004 crashes is found in Section II, followed by an analysis of age and gender in Section III. Analyses of occupant protection use are presented in Section IV, followed by Section V's examination of impaired driving. Section VI presents data related to bicycle and pedestrian-involved crashes.

ES.1 Colorado Regions

Source: FY 2007 Problem Identification study team.



Geographic groupings were identified in regional analyses.

In 2004, 667 people died on Colorado's roads and 44,847 people were injured.

ES.2 Colorado Crash and Population Trends, 1994-2004

Source: Colorado Department of Revenue — Motor Vehicle Division, CDOT, Colorado Division of Local Governments — Colorado Economic and Demographic Information System, U.S. Department of Transportation, National Highway Safety Administration, Fatality Analysis Reporting System (FARS).

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	% Change 2003-2004	% Change 2000-2004
Total Crashes	94,610	95,778	101,886	107,844	110,866	115,145	121,995	131,020	137,216	126,878	130,724	3.0%	7.2%
Fatal Crashes	523	572	555	534	551	558	613	647	677	570	596	4.6%	-2.8%
Injury Crashes	30,134	30,455	30,263	28,252	31,080	31,406	31,940	34,160	33,944	31,731	31,796	0.2%	-0.5%
PDO Crashes	63,821	67,366	71,069	79,078	79,263	83,175	89,456	92,213	102,598	94,578	98,332	4.0%	9.9%
Fatalities	586	645	617	613	628	626	681	741	743	642	667	3.9%	-2.1%
Injuries	45,862	46,099	45,448	42,878	45,488	46,804	47,387	48,649	51,803	45,167	44,847	-0.7%	-5.4%
Fatalities Per 100 Million VMT	1.73	1.83	1.71	1.62	1.6	1.54	1.63	1.73	1.71	1.48	1.46	-1.6%	-10.7%
Injuries Per 100 Million VMT	135.6	130.7	126.1	113.6	118.1	115.4	114	113.3	119	104.1	97.9	-5.9%	-14.1%
Alcohol-Related Fatal Crashes	243	255	226	208	223	218	234	295	292	233	236	1.3%	0.9%
Alcohol-Related Fatalities	277	295	240	240	244	239	264	337	317	258	265	2.7%	0.4%
Population (Thousands)	3,712	3,811	3,903	3,996	4,103	4,216	4,301	4,437	4,501	4,551	4,653	2.2%	8.2%
VMT (Billions)	33.83	35.27	36.04	37.74	38.52	40.55	41.56	43	43.55	43.4	45.80	5.5%	10.2%
Licensed Drivers (Thousands)	2,733	2,815	2,849	2,996	3,014	3,040	3,113	3,288					
Registered Vehicles (Thousands)	3,619	3,556	3,841	3,961	4,053	4,130		4,006					

ES.3 Crashes Per Capita for Cities with More than 25,000 Population

Source: 2004 CDOT Crash Database.

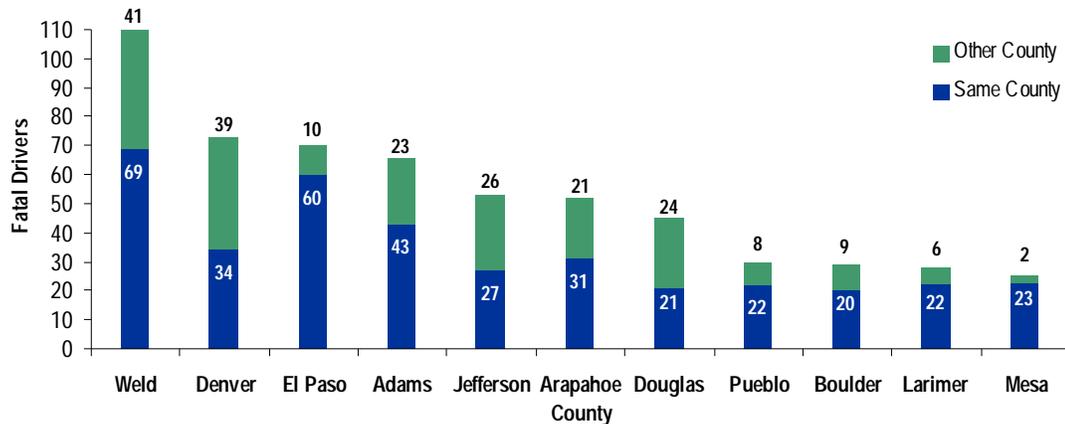
	Population	Total Crashes	Total Crashes per 1,000 Capita	Total Injury and Fatal Crashes	Total Injury and Fatal Crashes Per 1,000 Capita
Arvada	103,004	2,118	20.56	2,490	24.17
Aurora	295,775	7,354	24.86	9,468	32.01
Boulder	97,467	2,827	29.00	3,644	37.39
Brighton	27,131	699	25.76	803	29.60
Broomfield	44,634	1,209	27.09	1,454	32.58
Castle Rock	33,810	543	16.06	653	19.31
Centennial	101,049	1,924	19.04	2,404	23.79
Colorado Springs	380,073	11,767	30.96	14,688	38.65
Commerce City	30,768	842	27.37	1,038	33.74
Denver	568,913	24,304	42.72	29,854	52.48
Englewood	32,491	1,010	31.09	1,236	38.04
Fort Collins	126,903	3,391	26.72	4,174	32.89
Grand Junction	48,141	1,604	33.32	2,091	43.43
Greeley	85,887	1,933	22.51	2,364	27.52
Lakewood	143,611	4,133	28.78	4,877	33.96
Littleton	40,715	1,031	25.32	1,178	28.93
Longmont	80,612	2,170	26.92	2,723	33.78
Loveland	57,485	678	11.79	919	15.99
Northglenn	35,612	903	25.36	1,088	30.55
Parker	37,093	953	25.69	1,066	28.74
Pueblo	104,031	3,321	31.92	4,239	40.75
Thornton	101,763	2,290	22.50	2,757	27.09
Westminster	105,177	2,251	21.40	2,737	26.02
Wheat Ridge	31,869	1,399	43.90	1,803	56.58

Wheat Ridge has the highest per capita injury and fatal crash rate.

86% of El Paso County fatal crash drivers live in El Paso County.

ES.4 Place of Residence of Drivers in Fatal Crashes Occurring in Large Counties

Source: 2004 CDOT Crash Database.

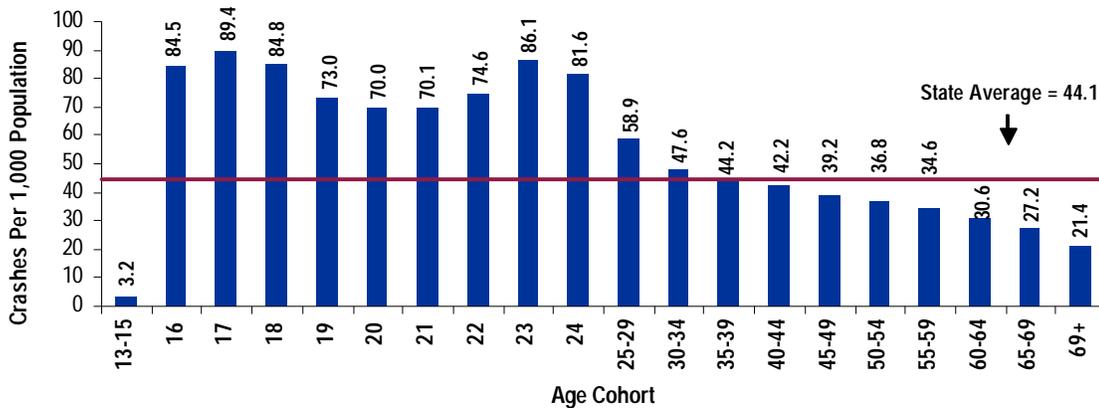


Same County	62.73%	46.58%	85.71%	65.15%	50.94%	59.62%	46.67%	73.33%	68.97%	78.57%	92.00%
Other County	37.27%	53.42%	14.29%	34.85%	49.06%	40.38%	53.33%	26.67%	31.03%	21.43%	8.00%
Total Number	110	73	70	66	53	52	45	30	29	28	25

ES.5

Drivers in All Crashes Per 1,000 Capita by Age

Note: Age was not reported for 42,800 drivers involved in crashes, or 20% of all crash drivers.
Source: 2004 CDOT Crash Database.



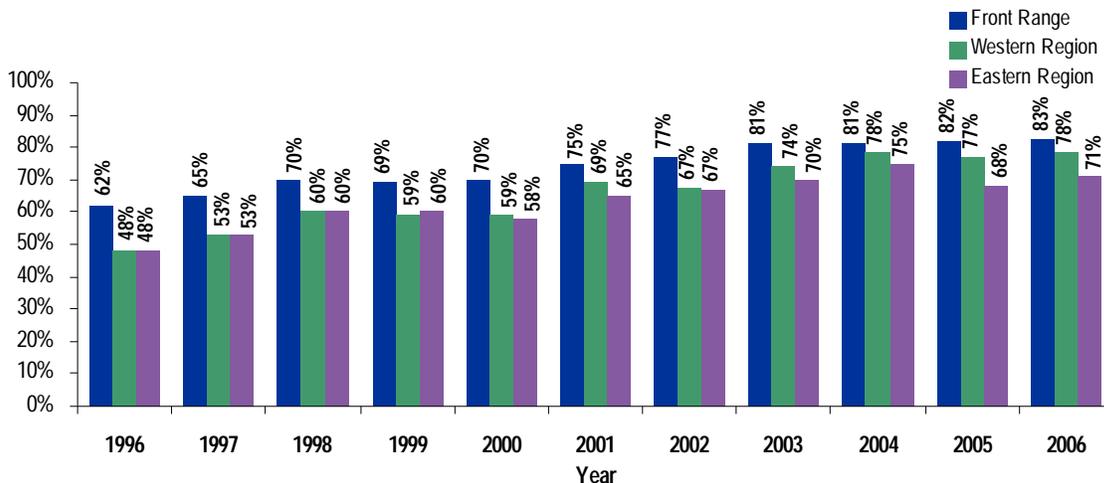
Age Cohort	13-15	16	17	18	19	20	21	22	23	24
Total Drivers	630	5,473	5,862	6,126	5,699	5,386	5,302	4,910	4,957	4,630
Population	196,133	64,736	65,563	72,219	78,019	76,968	75,614	65,824	57,605	56,734
Age Cohort	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	69+
Total Drivers	18,629	17,116	15,291	16,211	14,564	12,108	9,017	5,564	3,553	6,773
Population	316,217	359,421	346,217	383,698	371,849	329,051	260,865	181,813	130,558	316,379

Drivers age 24 and younger have much higher crash rates per capita than older drivers.
Three out of ten drivers on the Eastern Plains do not use seat belts.

ES.6

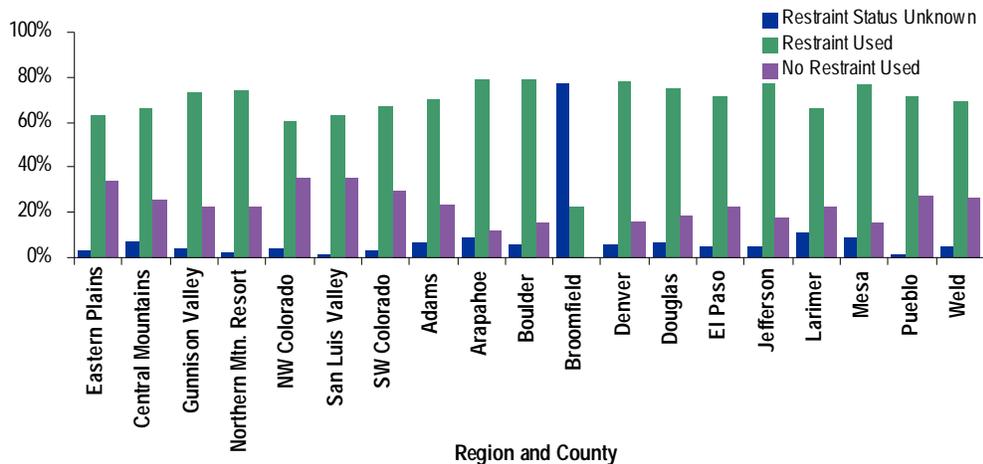
Colorado Regional Seat Belt Use, 1997-2006

Source: Annual Seat Belt Surveys conducted by the CSU Institute of Transportation Management on behalf of CDOT.



ES.7 Restraint Status of Driver in Incapacitating Crashes by Region and County of Residence

Source: 2004 CDOT Crash Database.



Region/County	Eastern Plains	Central Mtns.	Gunnison Valley	Northern Mtn.	NW Colorado	San Luis Valley	SW Colorado	Adams	Arapahoe	Boulder
Restraint Status Unknown	8 3.20%	12 7.40%	5 4.30%	3 2.80%	4 4.20%	1 1.40%	5 2.90%	32 6.13%	58 8.71%	16 5.28%
Restraint Used	157 62.80%	107 66.40%	84 73.00%	78 74.30%	57 60.60%	46 63.00%	116 67.00%	367 70.31%	527 79.13%	240 79.21%
No Restraint Used	85 34.00%	42 26.10%	26 22.60%	24 22.80%	33 35.10%	26 35.60%	52 30.10%	123 23.56%	81 12.16%	47 15.51%
Total	250	161	115	105	94	73	173	522	666	303
Region/County	Broomfield	Denver	Douglas	El Paso	Jefferson	Larimer	Mesa	Pueblo	Weld	
Restraint Status Unknown	34 77.27%	44 5.91%	12 6.12%	25 5.15%	30 4.87%	33 11.19%	17 8.76%	3 1.26%	16 4.72%	
Restraint Used	10 22.73%	580 77.96%	147 75.00%	350 72.16%	476 77.27%	195 66.10%	148 76.29%	171 71.55%	234 69.03%	
No Restraint Used	---	120 16.13%	37 18.88%	110 22.68%	110 17.86%	67 22.71%	29 14.95%	65 27.20%	89 26.25%	
Total	44	744	196	485	616	295	194	239	339	

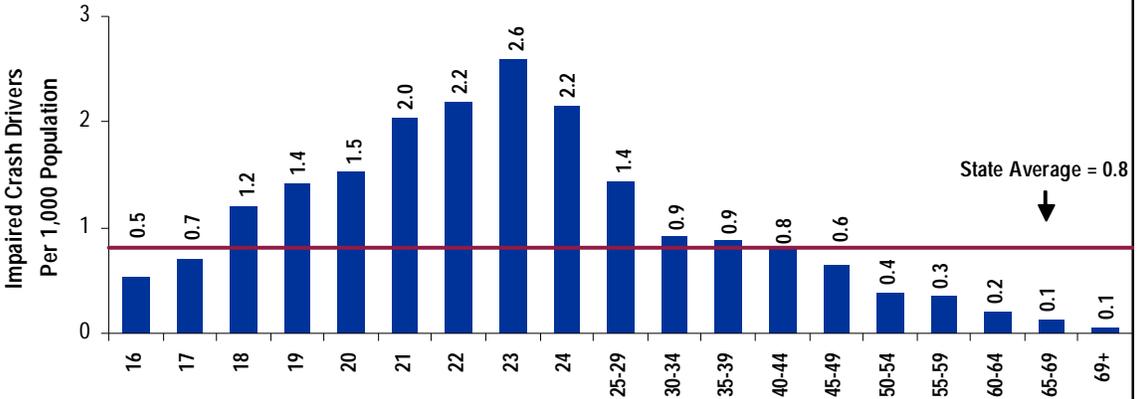
34% of Eastern Plains drivers involved in incapacitating crashes were not using seat belts.
 10% of Littleton's injury crash drivers were impaired.

ES.8 Percent of All Injury Crash Drivers Who Were Impaired in a Large City of Crash, 2004

Source: 2004 CDOT Crash Database.

City	Impairment Suspected	No Impairment Suspected	Total	City	Impairment Suspected	No Impairment Suspected	Total
Arvada	41 6.68%	573 93.32%	614	Grand Junction	30 3.33%	872 96.67%	902
Aurora	174 4.98%	3,323 95.02%	3,497	Greeley	48 7.22%	617 92.78%	665
Boulder	23 1.65%	1,374 98.35%	1,397	Lakewood	68 5.29%	1,218 94.71%	1,286
Brighton	6 3.37%	172 96.63%	178	Littleton	27 9.78%	249 90.22%	276
Broomfield	20 4.46%	428 95.54%	448	Longmont	30 3.05%	952 96.95%	982
Castle Rock	8 4.08%	188 95.92%	196	Loveland	14 4.42%	303 95.58%	317
Centennial	26 3.27%	769 96.73%	795	Northglenn	23 7.42%	287 92.58%	310
Colorado Springs	310 5.87%	4,967 94.13%	5,277	Parker	5 2.48%	197 97.52%	202
Commerce City	20 6.19%	303 93.81%	323	Pueblo	103 6.39%	1,510 93.61%	1,613
Denver	439 4.64%	9,022 95.36%	9,461	Thornton	40 4.88%	780 95.12%	820
Englewood	16 4.00%	384 96.00%	400	Westminster	47 5.04%	885 94.96%	932
Fort Collins	60 4.10%	1,403 95.90%	1,463	Wheat Ridge	34 4.54%	715 95.46%	749

ES.9 Impaired Drivers Injury Crash Involvement per 1,000 Capita by Age, 2004
 Source: 2004 CDOT Crash Database.

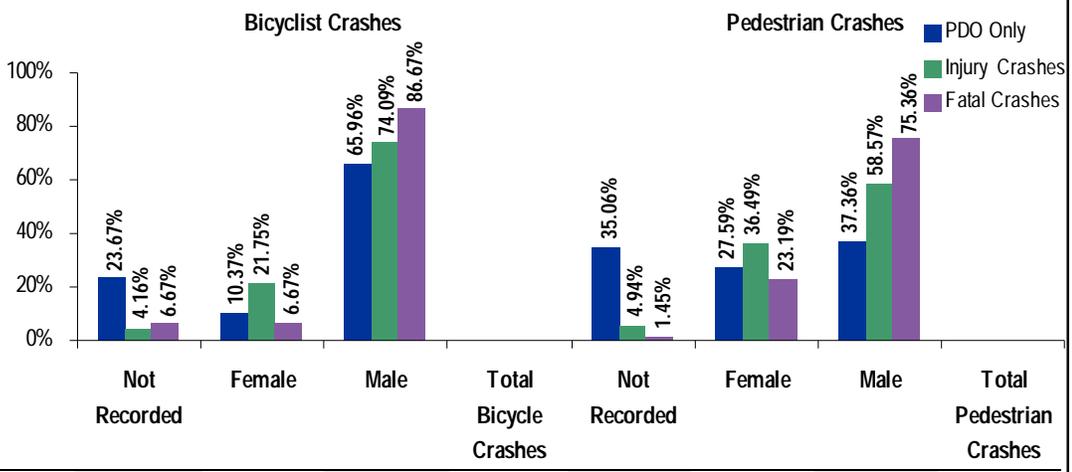


Age Cohort	16	17	18	19	20	21	22	23	24	25-29
Impairment	34	46	86	110	118	154	144	150	122	456
Population	64,736	65,563	72,219	78,019	76,968	75,614	65,824	57,605	56,734	316,217

Age Cohort	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	69+	State
Impairment	329	309	303	237	128	91	36	18	17	2,894
Population	359,421	346,217	383,698	371,849	329,051	260,865	181,813	130,558	316,379	3,609,350

23 year-old drivers have the highest impaired driving injury crash rate.
 Men are much more likely than women to be involved in a bicycle or pedestrian crash.

ES.10 Gender of Bicyclists and Pedestrian Crashes
 Source: 2004 CDOT Crash Database.



	Not Recorded	Female	Male	Total	Not Recorded	Female	Male	Total
PDO Only	89	39	248	376	61	48	65	174
Injury Crashes	47	246	838	1,131	62	458	735	1,255
Fatal Crashes	1	1	13	15	1	16	52	69
Total Crashes	137	286	1,099	1,522	124	522	852	1,498

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A landscape photograph showing rolling hills and a river, overlaid with a blue tint. A white text box is positioned in the center, containing the text 'I Introduction'.

I

Introduction



Introduction

Each year CDOT examines crash records to identify traffic safety problems and opportunities for improving traffic safety in Colorado. CDOT managers in the Safety and Traffic Engineering Branch use the research results to develop traffic safety programs and projects.

The Colorado Department of Transportation (CDOT) retained the University of Colorado to prepare the FY 2007 Problem Identification Report. University of Colorado Professors Dr. Jeffery Zax and Dr. Naci Mocan were assisted in this effort by Jennifer Garner of Garner Insight LLC and Glissen Rhode of Glissen, LLC.

PURPOSE

Each year CDOT examines crash records to identify traffic safety problems and opportunities for improving traffic safety in Colorado. CDOT managers in the Safety and Traffic Engineering Branch use the research results to develop traffic safety programs and projects. The resulting document, the FY 2007 Problem Identification Report, is available on-line at http://www.dot.state.co.us/Traffic_Manuals_Guidelines/Problem_ID_and_Annual_Report.asp.

OBJECTIVE

Examining crash trends and the factors associated with crashes, both behavioral and environmental, aids CDOT program managers in their task to support the Department's safety mission and to achieve the Department's goals and objectives. Findings from the Problem Identification Report are used to support the Safety and Traffic Engineering Branch's strategies to increase traffic safety including prevention, collaboration/partnerships, education and enforcement.

DATA SOURCES

To prepare the FY 2007 Problem Identification Report, the study team relied primarily on the following sources of data: CDOT's 2004 crash database, the Department of Revenue Motor Vehicle Division's database of 2004 licensed drivers and the 2004 Fatality Analysis Reporting System (FARS). Population data were obtained from the Colorado Division of Local Governments and the US Census Bureau.

ANALYSES

This report includes examinations of crash trends, crash locations, the factors contributing to crashes and an analysis of high-risk drivers. High-risk drivers include young drivers, impaired drivers, the 2006 Seat Belt Study conducted on CDOT's behalf by the Institute of Transportation Management and drivers who do not use occupant protection devices. Crashes involving bicycles and pedestrians were also included.

THE CRASH DATA

Accident reports compiled by law enforcement at the time of a crash are the foundation for the Problem Identification Report. These accident reports include information about the crash location, the factors that contributed to the crash, the severity of the crash, and whether or not a driver was impaired at the time of the incident. Driver license records are linked to the crashes. From the driver's license file come demographic data, including gender, age and place of residence.

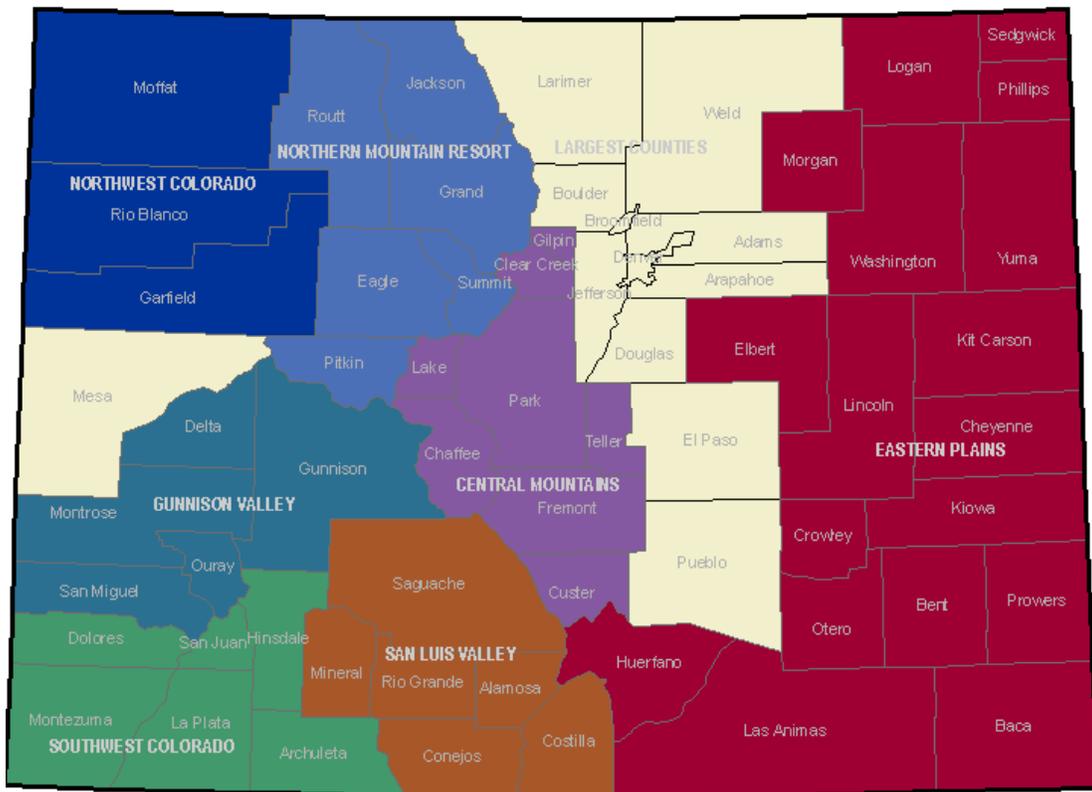
There are some limitations to these data. For property-damage only crashes (PDO Only), it may be the case that the driver's seat belt use (or non-use) is unrecorded. Similarly, the address reported in a driver's license file may be out of date. This report's analyses are designed to minimize these limitations, where possible.

COLORADO REGIONS

Exhibit I.1 details the regional groupings used throughout the report. The state's twelve most populous counties are considered individual regions, while data from smaller counties are grouped together geographically. These particular regional groupings have been employed in the analysis of CDOT's crash data since 2000.

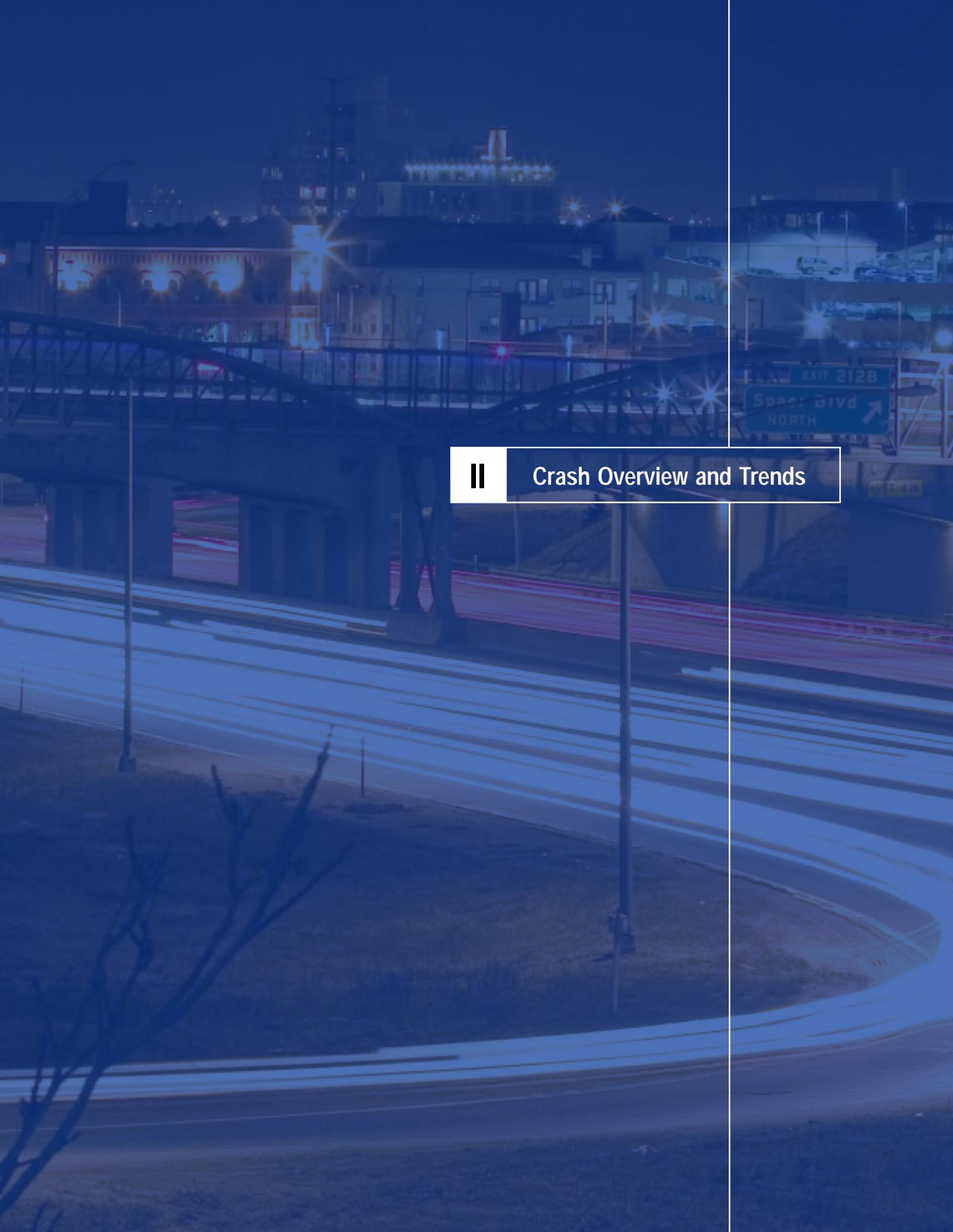
I.1 Colorado Regions

Source: FY 2007 Problem Identification study team.



ACKNOWLEDGMENTS

The study team would like to gratefully acknowledge the leadership of Gabriela Vidal, Henry Sandoval and Rahim Marandi and the invaluable assistance of Dr. Aziz Khan.



II

Crash Overview and Trends



Crash Overview and Trends

This section closely examines the characteristics of Colorado crash trends, with a focus on crash severity.

In 2004, 667 people died on Colorado's roads and 44,847 people were injured.

Fatal crashes are more likely to be single vehicle crashes than other crash types. About 53% of fatal crashes involved only one vehicle, compared to 31% of injury crashes and 25% of PDOs. Collision with a pedestrian was the first harmful event in 11% of 2004 fatal crashes.

Wheat Ridge has the highest per capita injury and fatal crash rate among the state's largest cities based on where crashes occurred.

Pueblo County and Adams County residents had the highest per capita injury crash rates.

75% of motorcycle crashes are injury crashes.

About 35% of fatal crashes occur on weekends.

COLORADO TRAFFIC SAFETY LEGISLATION

Reducing the number of fatalities in traffic crashes, and the associated social and economic losses from these crashes, is at the core of the Colorado Department of Transportation's traffic safety program. In addition to statewide and local enforcement and public information and education projects, CDOT has also supported key traffic safety legislation over the past twenty years. Examples of traffic safety legislative milestones include:

- Child safety seat and seat belt laws (1985, 1987 and 2003);
- Efforts focusing on drinking and driving (e.g., creation of the Law Enforcement Assistance Fund in 1982 and passage of the 0.08 law in 2004); and
- The Graduated Licensing Law for new drivers (1999, 2006).

COLORADO CRASH TRENDS, KEY INDICATORS

Exhibit II.1 presents key indicators of Colorado crash trends from 1994 through 2004. In 2004, 667 people died on Colorado's roads and 44,847 people were injured. From 2003 to 2004, both injury and fatality rates per 100 million Vehicle Miles Traveled (VMT) declined despite growth in both VMT and population.

Exhibits II.2 through II.5 show trends in total crashes, property damage-only (PDO) injury and fatal crashes per 100 million VMT as well as CDOT's projected goals for future crash rate levels. An examination of annual trends reveals that each type of crash rate is decreasing in recent years. Exhibit II.6 presents trend data on fatalities per 100 million VMT, a metric that has declined since 2001 to a rate of 1.26 in 2005.

Exhibit II.7 details the fatal crash rate per 100,000 population by the age of driver. Drivers age 24 had the highest fatal crash involvement rate at 49.4 fatal crashes per 100,000 population.

Exhibit II.8 presents trends in the number of fatal crashes, VMT and the fatal crash rate per 100 million VMT from 1977 through 2004. The time-series data demonstrate that the fatal crash rate has declined significantly over the past three decades.

CRASH SEVERITY

Historically, 25% of all crashes are injury crashes and less than one-half of one percent of crashes are fatal (Exhibit II.9).

In most cases, injury crashes involve a single injury (Exhibit II.10). Exhibit II.11 demonstrates that some crashes in the state's database are mis-categorized. For example, three fatal crashes are listed as injury crashes. This is likely the result of a fatality occurring after the crash record was developed. As CDOT looks to improve its data quality, this is an element that should be considered. It is important to note that only three of 594 crashes are misclassified.

Exhibit II.12 details the number of injury crashes by the number of injuries reported in the crash. Overall, 72% of injury crashes report a single injury. Ninety percent of fatal crashes involve a single fatality (Exhibit II.13). Fifty-three fatal crashes involve two or more fatalities per crash.

Exhibit II.14 details the number of vehicles involved in a crash, by crash severity. About 53% of fatal crashes involved only one vehicle, compared to 31% of injury crashes and 25% of PDOs.

CRASH LOCATION

City, Region, County and Road

Exhibit II.15 presents total and injury/fatal crash rates per capita for the state's largest cities. The cities with the highest per capita injury and fatal crash rates are Wheat Ridge, Denver and Pueblo. The large cities with the lowest injury and fatal crash rates are Loveland, Castle Rock and Centennial.

Exhibit II.16 presents the crash severity distribution for crashes occurring in all Colorado cities that experienced at least ten crashes in 2004.

Exhibit II.17 examines injury and fatal crash rates based on the county in which a crash driver lives (rather than the location of the crash). Pueblo County and Adams County residents had the highest per capita injury crash rates.

For fatal crashes in large counties and outlying regions, Exhibit II.18 details the roadway type on which the fatal crash occurred. In most cases, fatal crashes occur on interstate and other state highways.

For drivers involved in fatal crashes occurring in the largest counties, Exhibit II.19 compares whether the fatal crash drivers were county residents or residents of other counties. For fatal crashes occurring in El Paso County, 86% of the fatal crash drivers live in the County. By comparison, 47% of the drivers in Douglas County fatal crashes live in Douglas County.

For drivers involved in injury crashes, Exhibit II.20 examines whether or not injury crash drivers live in the county where the injury crash occurred.

Exhibit II.21 presents the distribution of injury crash drivers by the large county or region of crash. Nearly one in five 2004 injury crashes occurred within Denver County.

ROADWAY CHARACTERISTICS OF CRASHES

Location Relative to the Roadway

Exhibit II.22 details severity of crash locations relative to the roadway. Most crashes occur on the roadway. However, about 40% of fatal crashes occurred when a vehicle runs off of the roadway to either the left (17%) or the right (23%).

Road Type

Exhibit II.23 presents the type of road on which crashes occurred, by the severity of the crash. About 46% of PDO crashes occurred on city streets, compared to 38% of injury crashes and 16% of fatal crashes.

Road Description

Exhibit II.24 details the road description for crashes by severity. Half of fatal crashes occur near a highway interchange.

Road Contour

The majority of PDO and injury crashes occur on straight on-level roadways (Exhibit II.25).

Road Surface

Crash severity does not vary much by road surface (Exhibit II.26). Nearly 85% of crashes, regardless of severity occur on blacktop.

Road Condition

Nearly 88% of fatal crashes occur on dry roads (Exhibit II.27)

Lighting Condition

Slightly more than 25% of fatal crashes occur on dark, unlighted roadways (Exhibit II.28).

Weather Condition

Most crashes occur under normal weather conditions (Exhibits II.29 and II.30). Sleet/rain/snow account for fewer than 10% of PDO crashes and even fewer injury and fatal crashes.

Vehicle Type

Exhibit II.31 presents the types of vehicles involved in 2004 crashes by crash severity. Nearly 60% of fatal crashes involve a passenger vehicle and nearly 9% involve a motorcycle. In 2004, 89 fatal crashes involved a motorcycle and resulted in 58 motorcyclist fatalities (Exhibit II.32).

Crashes involving a motorcycle are much more severe than a typical crash. As noted previously, 75% of crashes overall are PDO. However, 75% of motorcycle crashes are injury crashes (Exhibit II.33). Few motorcycle crashes result in only property damage.

Exhibit II.34 details the frequency of motorcycle crashes in the state's largest counties and regions. Jefferson County had the highest number of motorcycle crashes and the San Luis Valley had the least. Exhibit II.35 shows the age distribution of motorcyclists involved in 2004 crashes. Nearly 11% of the motorcyclists involved in crashes were ages 24 to 29.

Hit-and-Run Fatal Crashes

In 2004, nearly one in twenty (5%) fatal crashes involved a hit-and-run driver (Exhibit II.36).

Vehicle Movement

Exhibit II.37 details the vehicle movement noted at the time of crash for PDO, injury and fatal crashes. In four out of five fatal crashes, a vehicle was going straight.

Vehicle Speed

Exhibits II.38 and II.39 examine fatal and other crashes based on the posted speed limit at the crash location. Exhibit II.40 makes the same comparison based on the reported speed of drivers involved in the crash.

Most Apparent Human Contributing Factor

In most (about 75%) crashes, no apparent contributing factor is noted. Driver inexperience is a factor in fewer than 5% of all crashes (Exhibit II.41).

First Harmful Event

Exhibit II.42 presents the first harmful event recorded for crashes, by severity. Not surprisingly, the greatest proportion of reported first harmful events involve collision with a moving motor vehicle. However, in 11% of fatal crashes the first harmful event was collision with a pedestrian.

Crashes by Time of Year and Day**Month of Year**

Exhibit II.43 presents the distribution of crashes by month of the year. Generally, crashes occur equally across the twelve months of the year. A slightly higher number of fatal crashes occur in July than in other months.

Day of Week

Crashes are evenly distributed across the days of the week, with a slightly greater proportion of fatal crashes occurring on Thursdays and Fridays than other days of the week (Exhibit II.44). About 35% of fatal crashes occur on weekends (Exhibit II.45). Exhibit II.46 details the time of day at which crashes occur. About 25% of all injury crashes occur during afternoon rush hour, from 3:00 to 6:00 p.m.

Driver Outcomes

Exhibit II.47 presents the injury outcomes for all drivers involved in PDO, injury and fatal crashes. Exhibit II.48 details the number of vehicle occupants ejected from their vehicle as a result of a crash.

INTERVENTION ANALYSIS

The intervention analysis models and forecasts fatal crashes, fatalities and alcohol-related fatalities using Structural Time Series methods.

The model developed for the FY 2006 Problem Identification predicted 665 fatalities in 2004, actual 2004 fatalities were 665. The model forecasted fatal crashes with a prediction error of 3.3%. Alcohol-related fatalities were less predictable, as the forecast performed with a 17.7% error.

The FY 2007 Problem Identification model predicts:

- 562 fatal crashes in 2006
- 664 fatalities in 2006
- 239 alcohol-related fatalities in 2006

To request a copy of the Intervention Analysis, including the methodology and parameter estimates, contact Dr. Naci Mocan, nmocan@cudenver.org.

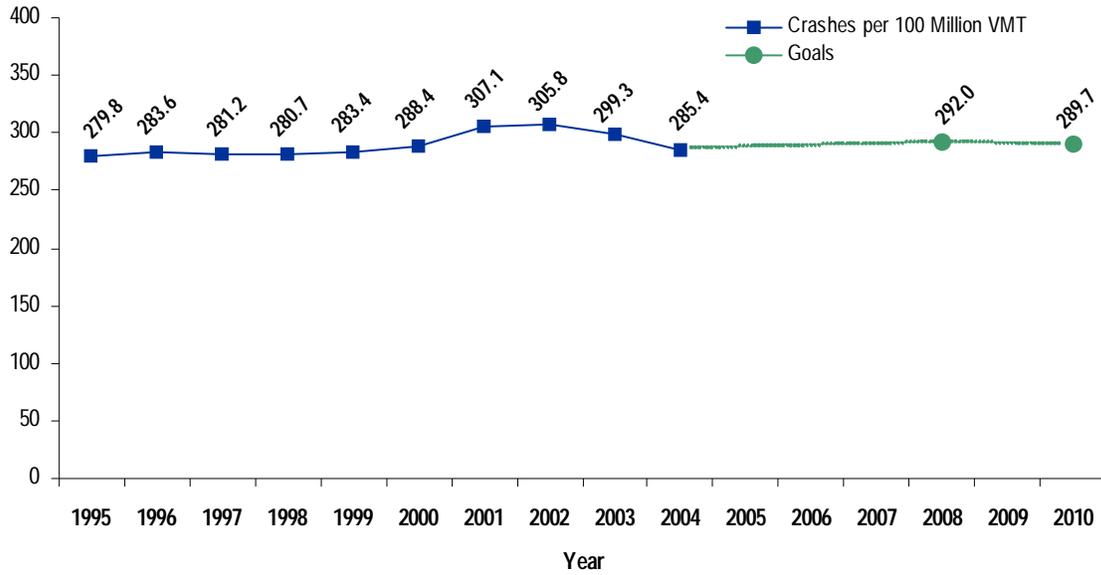
II.1 Colorado Crash and Population Trends, 1994-2004

Source: Colorado Department of Revenue—Motor Vehicle Division, CDOT, Colorado Division of Local Governments—Colorado Economic and Demographic Information System, U.S. Department of Transportation, National Highway Safety Administration, Fatality Analysis Reporting System (FARS).

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	% Change 2003-2004	% Change 2000-2004
Total Crashes	94,610	95,778	101,886	107,844	110,866	115,145	121,995	131,020	137,216	126,878	130,724	3.0%	7.2%
Fatal Crashes	523	572	555	534	551	558	613	647	677	570	596	4.6%	-2.8%
Injury Crashes	30,134	30,455	30,263	28,252	31,080	31,406	31,940	34,160	33,944	31,731	31,796	0.2%	-0.5%
PDO Crashes	63,821	67,366	71,069	79,078	79,263	83,175	89,456	92,213	102,598	94,578	98,332	4.0%	9.9%
Fatalities	586	645	617	613	628	626	681	741	743	642	667	3.9%	-2.1%
Injuries	45,862	46,099	45,448	42,878	45,488	46,804	47,387	48,649	51,803	45,167	44,847	-0.7%	-5.4%
Fatalities Per 100 Million VMT	1.73	1.83	1.71	1.62	1.6	1.54	1.63	1.73	1.71	1.48	1.46	-1.6%	-10.7%
Injuries Per 100 Million VMT	135.6	130.7	126.1	113.6	118.1	115.4	114	113.3	119	104.1	97.9	-5.9%	-14.1%
Alcohol-Related Fatal Crashes	243	255	226	208	223	218	234	295	292	233	236	1.3%	0.9%
Alcohol-Related Fatalities	277	295	240	240	244	239	264	337	317	258	265	2.7%	0.4%
Population (Thousands)	3,712	3,811	3,903	3,996	4,103	4,216	4,301	4,437	4,501	4,551	4,653	2.2%	8.2%
VMT (Billions)	33.83	35.27	36.04	37.74	38.52	40.55	41.56	43	43.55	43.4	45.80	5.5%	10.2%
Licensed Drivers (Thousands)	2,733	2,815	2,849	2,996	3,014	3,040	3,113	3,288					
Registered Vehicles (Thousands)	3,619	3,556	3,841	3,961	4,053	4,130		4,006					

II.2 Total Crashes per 100 Million Vehicle Miles Traveled

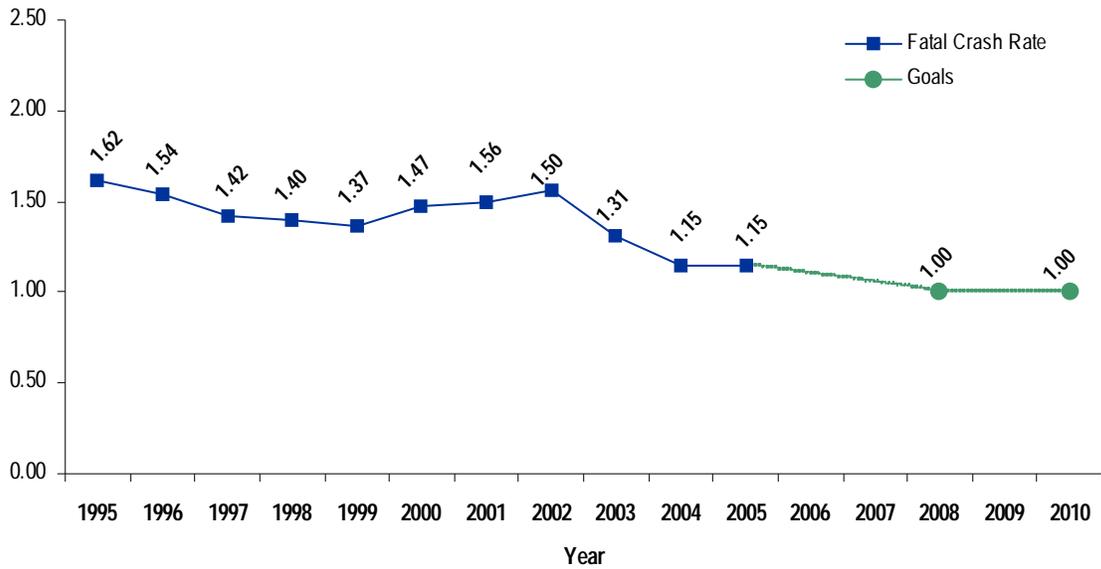
Source: 2004 CDOT Crash Database.



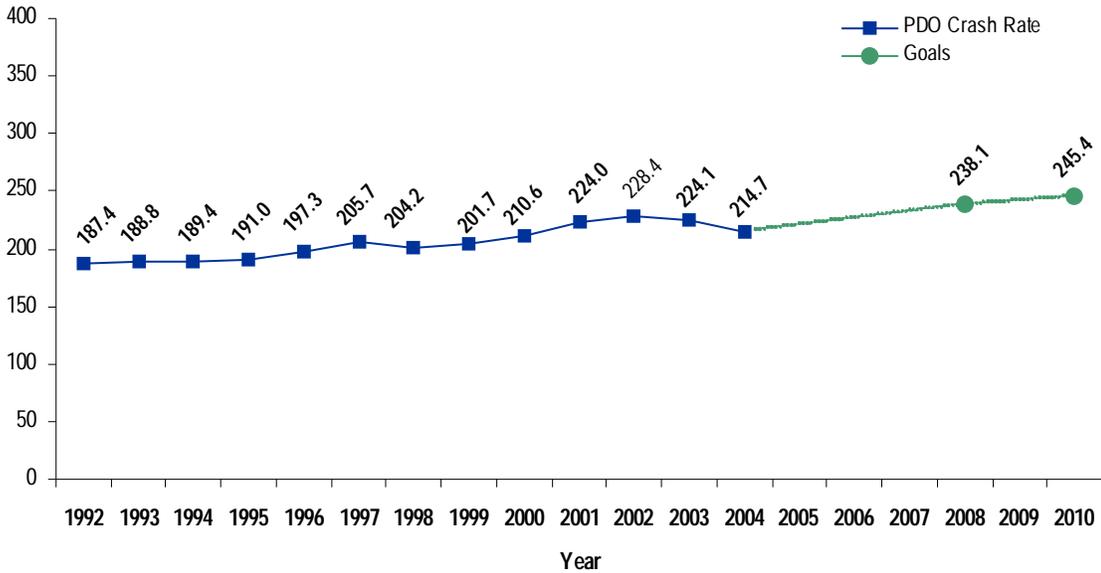
Crashes per 100 Million VMT fell to 285.4.
 Fatal crashes per 100 Million VMT decreased to 1.15.

II.3 Fatal Crashes per 100 Million Vehicle Miles Traveled

Source: 2004 CDOT Crash Database.

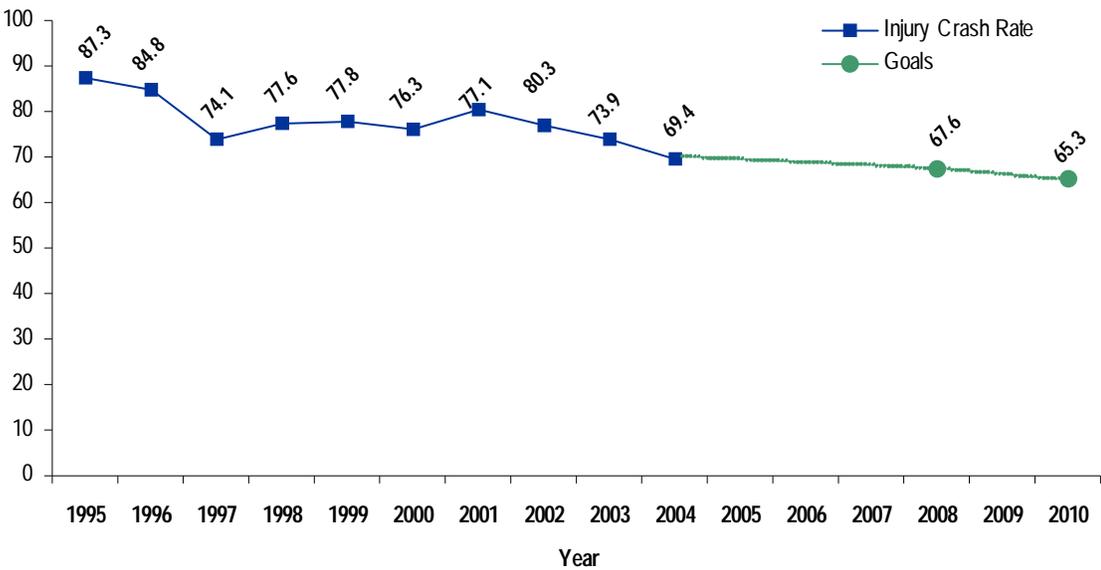


11.4 Property Damage Only Crashes per 100 Million Vehicle Miles Traveled
 Source: 2004 CDOT Crash Database.



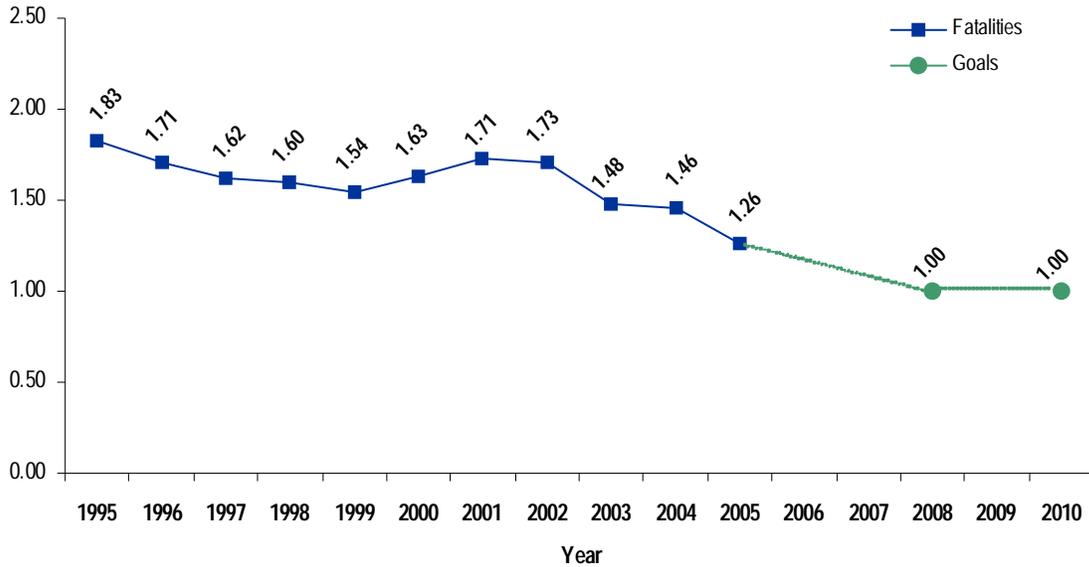
PDO crashes per 100 Million VMT decreased to 214.7.
 Injury crashes per 100 Million VMT declined to 69.4.

11.5 Injury Crashes per 100 Million Vehicle Miles Traveled
 Source: 2004 CDOT Crash Database.



II.6 Fatalities per 100 Million Vehicle Miles Traveled

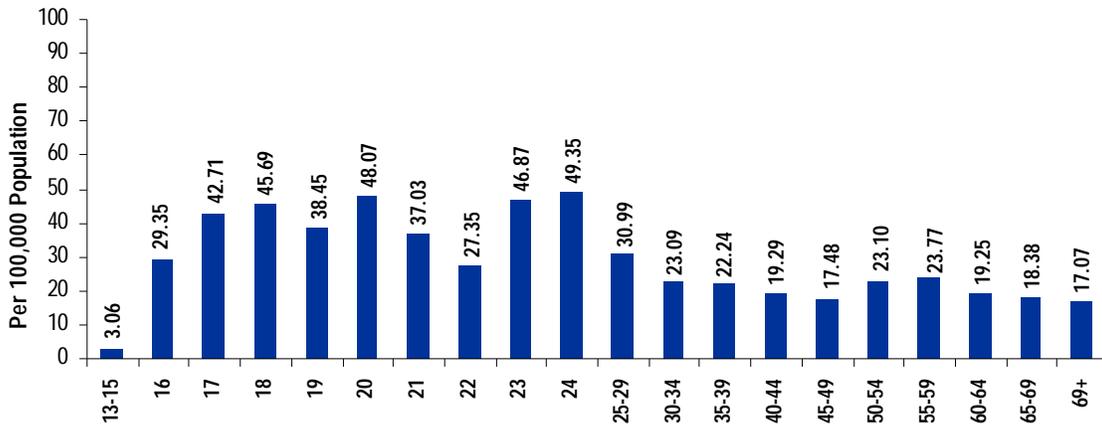
Source: 2004 CDOT Crash Database.



In 2004, there were 1.26 fatalities per 100 Million VMT.
 24 year-old drivers had the highest fatal crash rate per 100,000 population.

II.7 Drivers Involved in Fatal Crashes per 100,000 Population

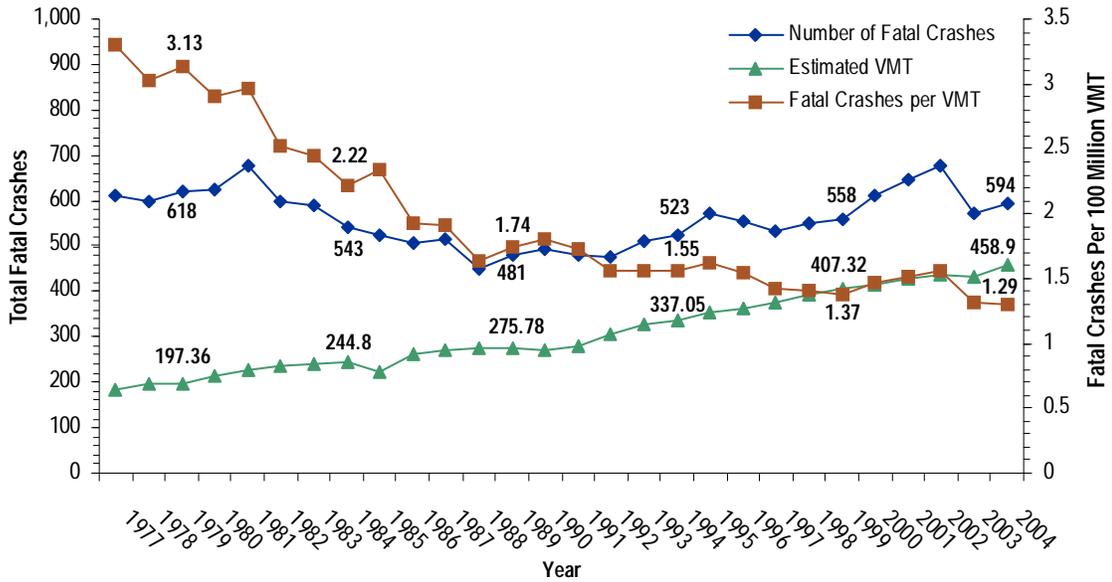
Source: 2004 CDOT Crash Database.



Age Cohort	13-15	16	17	18	19	20	21	22	23	24
Drivers	6	19	28	33	30	37	28	18	27	28
Population	196,133	64,736	65,563	72,219	78,019	76,968	75,614	65,824	57,605	56,734
Age Cohort	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	69+
Drivers	98	83	77	74	65	76	62	35	24	54
Population	316,217	359,421	346,217	383,698	371,849	329,051	260,865	181,813	130,558	316,379

II.8 Fatal Crashes Per 100 Million VMT and Actual Fatal Crashes, 1977-2004

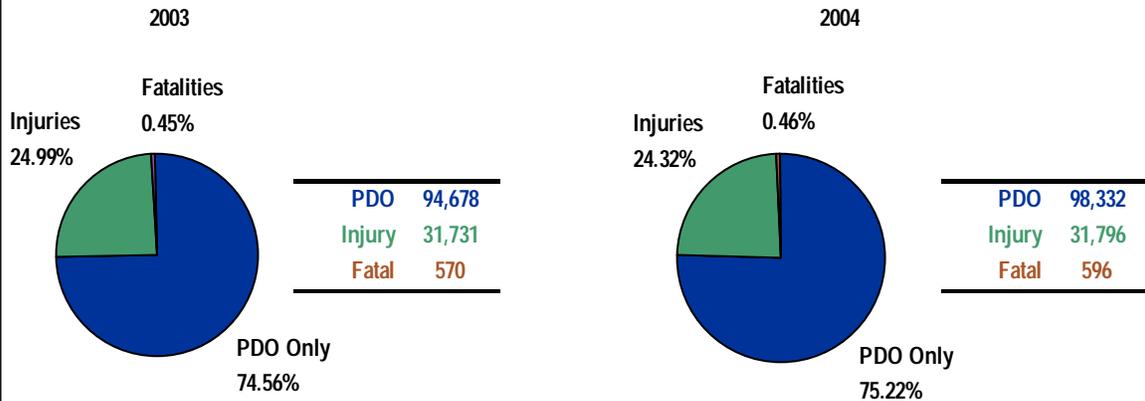
Source: National Highway Transportation Safety Administration, FARS data, 1977-2004.



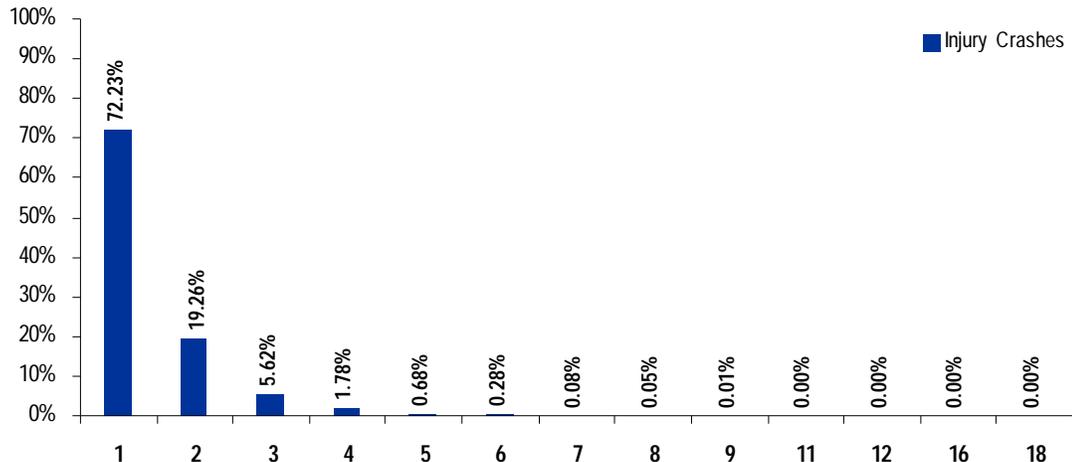
The fatal crash rate has declined significantly since 1977.
25% of all crashes are injury crashes.

II.9 Crashes in Colorado by Severity, 2003 and 2004

Source: 2004 CDOT Crash Database.



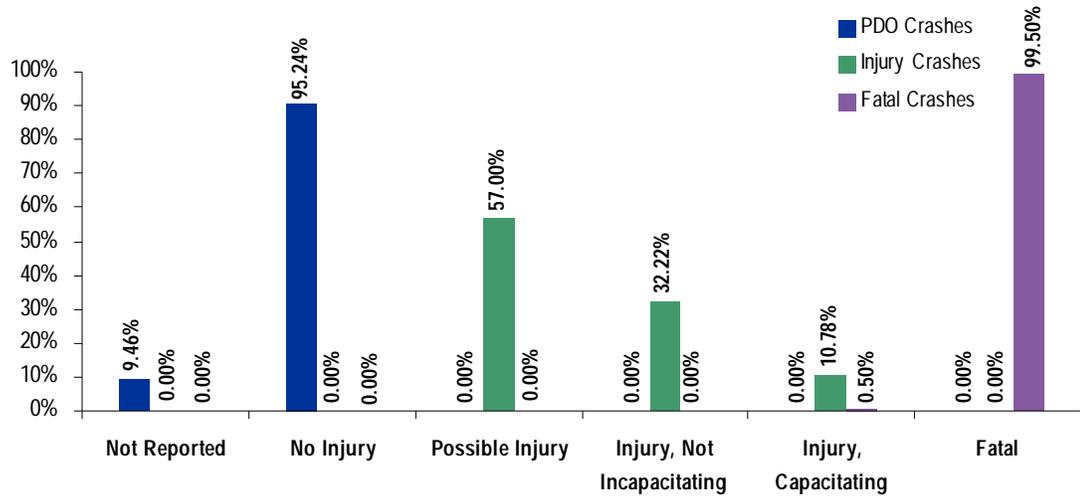
II.10 Number of Injuries Per Crashes
 Source: 2004 CDOT Crash Database.



Injury Crashes	22,965	12,246	5,364	2,264	1,075	540	189	120	27	11	12	16	18
Total Crashes	22,965	6,123	1,788	566	215	90	27	15	3	1	1	1	1

72% of injury crashes involve a single injury.
 57% of injury crashes involve a possible injury.

II.11 Severity of Injury
 Source: 2004 CDOT Crash Database.

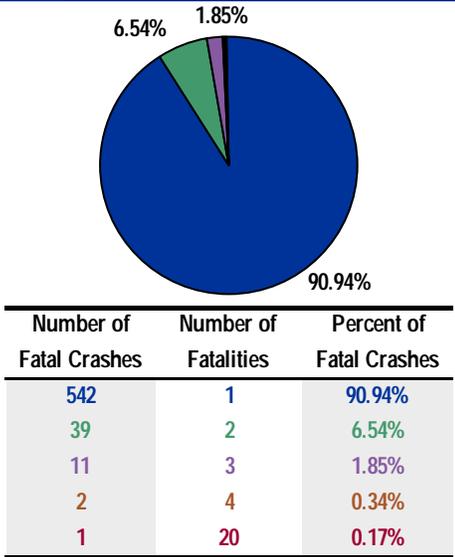


	Not Reported	No Injury	Possible Injury	Injury, Not Incapacitating	Injury, Capacitating	Fatal
PDO Only	9,299	89,031	0	1	0	1
Injury Crashes	1	0	18,123	10,245	3,427	0
Fatal Crashes	0	0	0	0	3	593
Total Crashes	9,300	89,031	18,123	10,246	3,430	594

II.12 Number of Injury Crashes by Injuries
 Source: 2004 CDOT Crash Database.

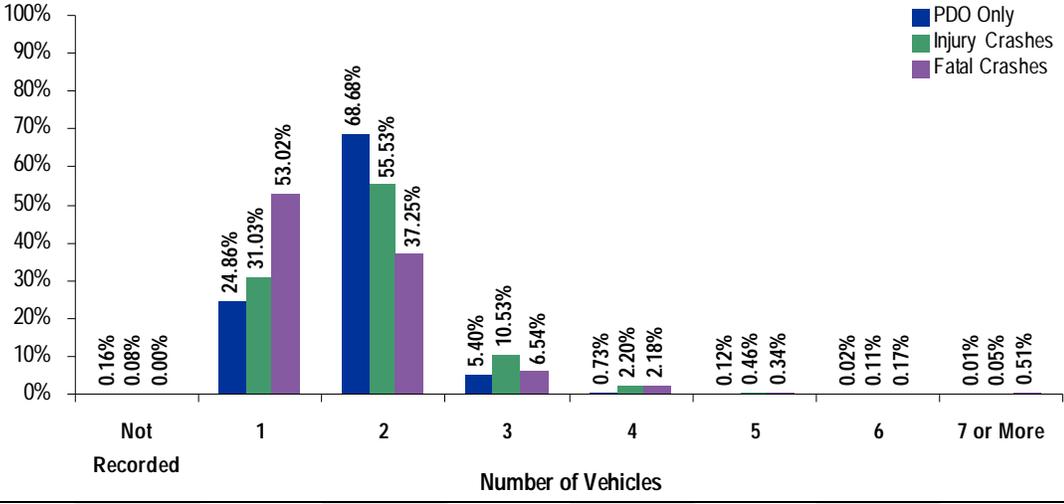
Number of Injury Crashes	Number Injured	Percent Injured
23,104	1	72.23%
6,202	2	19.26%
1,830	3	5.62%
579	4	1.78%
226	5	0.68%
102	6	0.28%
30	7	0.08%
15	8	0.05%
3	9	0.01%
1	11	0%
1	12	0%
1	18	0%
1	22	0%

II.13 Number of Fatal Crashes by Fatalities and Fatalities Per Fatal Crash
 Source: 2004 CDOT Crash Database.



91% of fatal crashes involve a single fatality.
 53% of fatal crashes involve a single vehicle, compared to 31% of injury crashes.

II.14 Number of Vehicles Involved in Crashes
 Source: 2004 CDOT Crash Database.



PDO Only	162	24,441	67,537	5,308	717	120	19	28
Injury Crashes	24	9,865	17,657	3,349	700	147	35	19
Fatal Crashes	0	316	222	39	13	2	1	3
Total Crashes	186	34,622	85,416	8,696	1,430	269	55	50

II.15 Crashes Per Capita for Cities with More than 25,000 Population*Source: 2004 CDOT Crash Database.*

	Population	Total Crashes	Total Crashes per 1,000 Capita	Total Injury and Fatal Crashes	Total Injury and Fatal Crashes Per 1,000 Capita
Arvada	103,004	2,118	20.56	2,490	24.17
Aurora	295,775	7,354	24.86	9,468	32.01
Boulder	97,467	2,827	29.00	3,644	37.39
Brighton	27,131	699	25.76	803	29.60
Broomfield	44,634	1,209	27.09	1,454	32.58
Castle Rock	33,810	543	16.06	653	19.31
Centennial	101,049	1,924	19.04	2,404	23.79
Colorado Springs	380,073	11,767	30.96	14,688	38.65
Commerce City	30,768	842	27.37	1,038	33.74
Denver	568,913	24,304	42.72	29,854	52.48
Englewood	32,491	1,010	31.09	1,236	38.04
Fort Collins	126,903	3,391	26.72	4,174	32.89
Grand Junction	48,141	1,604	33.32	2,091	43.43
Greeley	85,887	1,933	22.51	2,364	27.52
Lakewood	143,611	4,133	28.78	4,877	33.96
Littleton	40,715	1,031	25.32	1,178	28.93
Longmont	80,612	2,170	26.92	2,723	33.78
Loveland	57,485	678	11.79	919	15.99
Northglenn	35,612	903	25.36	1,088	30.55
Parker	37,093	953	25.69	1,066	28.74
Pueblo	104,031	3,321	31.92	4,239	40.75
Thornton	101,763	2,290	22.50	2,757	27.09
Westminster	105,177	2,251	21.40	2,737	26.02
Wheat Ridge	31,869	1,399	43.90	1,803	56.58

Wheat Ridge, Denver and Pueblo have the highest per capita injury/fatal crash rates.
 Loveland, Castle Rock and Centennial have the lowest per capita injury/fatal crash rates.

II.16 Number of Crashes and Severity for Cities with Ten or More Crashes
Source: 2004 CDOT Crash Database.

City by Region	PDO Crashes	Injury Crashes	Fatal Crashes	Total Crashes
Largest Counties				
Denver	77.20%	22.60%	0.20%	24,304
Colorado Springs	75.20%	24.60%	0.20%	11,767
Aurora	71.30%	28.50%	0.30%	7,354
Lakewood	82.00%	17.70%	0.30%	4,133
Fort Collins	76.90%	23.00%	0.10%	3,391
Pueblo	72.40%	27.30%	0.30%	3,321
Boulder	71.10%	28.80%	0.10%	2,827
Thornton	79.60%	20.00%	0.40%	2,290
Westminster	78.40%	21.40%	0.20%	2,251
Longmont	74.50%	25.40%	0.10%	2,170
Arvada	82.40%	17.50%	0.00%	2,118
Greeley	77.70%	21.60%	0.70%	1,933
Centennial	75.10%	24.70%	0.20%	1,924
Grand Junction	69.60%	30.20%	0.10%	1,604
Wheat Ridge	71.10%	28.70%	0.10%	1,399
Broomfield	79.70%	19.90%	0.30%	1,209
Greenwood Village	72.20%	27.80%	0.00%	1,124
Littleton	85.70%	14.20%	0.10%	1,031
Englewood	77.60%	22.10%	0.30%	1,010
Parker	88.10%	11.30%	0.50%	953
Northglenn	79.50%	20.30%	0.20%	903
Commerce City	76.70%	23.20%	0.10%	842
Brighton	85.10%	14.60%	0.30%	699
Loveland	64.50%	35.10%	0.40%	678
Lafayette	79.50%	20.20%	0.40%	560
Castle Rock	79.70%	20.10%	0.20%	543
Sheridan	76.90%	23.10%	0.00%	467
Golden	79.50%	20.50%	0.00%	405
Louisville	80.00%	19.70%	0.30%	365
Evans	79.10%	20.00%	0.90%	350
Cherry Hills Village	79.60%	20.40%	0.00%	275
Glendale	73.80%	26.20%	0.00%	221
Federal Heights	79.70%	20.30%	0.00%	187
Estes Park	85.20%	14.80%	0.00%	176
Windsor	77.20%	22.10%	0.70%	149
Fort Lupton	81.70%	16.90%	1.40%	142
Manitou Springs	85.90%	14.10%	0.00%	135
Fruita	78.80%	19.50%	1.70%	118
Frederick	76.30%	23.70%	0.00%	97
Berthoud	79.80%	20.20%	0.00%	84
Erie	78.10%	21.90%	0.00%	64
Johnstown	75.80%	24.20%	0.00%	62
Edgewater	76.60%	23.40%	0.00%	47

City	PDO Crashes	Injury Crashes	Fatal Crashes	Total Crashes
Lakeside	79.50%	20.50%	0.00%	44
Morrison	67.50%	32.50%	0.00%	40
Milliken	71.10%	28.90%	0.00%	38
Firestone	91.90%	8.10%	0.00%	37
Eaton	81.30%	18.80%	0.00%	32
Platteville	77.40%	22.60%	0.00%	31
Columbine Valley	76.70%	23.30%	0.00%	30
Dacono	82.10%	17.90%	0.00%	28
Lone Tree	77.30%	18.20%	4.50%	22
Superior	86.40%	13.60%	0.00%	22
Palisade	85.00%	15.00%	0.00%	20
Mountain View	78.90%	21.10%	0.00%	19
Bennett	87.50%	12.50%	0.00%	16
Kersey	75.00%	25.00%	0.00%	16
La Salle	50.00%	50.00%	0.00%	14
Wellington	71.40%	28.60%	0.00%	14
Palmer Lake	84.60%	15.40%	0.00%	13
Fountain	66.70%	33.30%	0.00%	12
Lochbuie	70.00%	30.00%	0.00%	10
Central Mountains				
Canon City	81.90%	17.30%	0.80%	381
Woodland Park	80.70%	19.30%	0.00%	161
Salida	80.60%	19.40%	0.00%	93
Black Hawk	80.90%	19.10%	0.00%	47
Florence	90.70%	7.00%	2.30%	43
Cripple Creek	97.20%	2.80%	0.00%	36
Buena Vista	91.40%	8.60%	0.00%	35
Idaho Springs	63.60%	36.40%	0.00%	33
Central City	82.80%	13.80%	3.40%	29
Westcliffe	92.90%	7.10%	0.00%	14
Fairplay	66.70%	33.30%	0.00%	12
Eastern Plains				
Fort Morgan	85.30%	14.70%	0.00%	265
Trinidad	78.60%	20.90%	0.40%	234
Lamar	77.40%	22.60%	0.00%	164
La Junta	86.40%	13.60%	0.00%	147
Sterling	70.30%	28.80%	0.90%	111
Walsenburg	74.50%	25.50%	0.00%	55
Brush	74.00%	26.00%	0.00%	50
Burlington	89.80%	10.20%	0.00%	49
Elizabeth	80.90%	19.10%	0.00%	47
Yuma	87.50%	10.00%	2.50%	40
Limon	87.10%	12.90%	0.00%	31
Wray	92.60%	7.40%	0.00%	27
Holyoke	88.00%	12.00%	0.00%	25
Las Animas	81.00%	19.00%	0.00%	21

City	PDO Crashes	Injury Crashes	Fatal Crashes	Total Crashes
Gunnison Valley				
Montrose	82.00%	18.00%	0.00%	612
Delta	82.10%	16.80%	1.20%	173
Gunnison	87.80%	12.20%	0.00%	123
Telluride	94.50%	5.50%	0.00%	91
Mount Crested Butte	100.00%	0.00%	0.00%	17
Ouray	92.30%	7.70%	0.00%	13
Cedaredge	81.80%	18.20%	0.00%	11
Northern Mountain Resort				
Aspen	92.10%	7.90%	0.00%	445
Steamboat Springs	92.80%	7.20%	0.00%	402
Vail	87.00%	13.00%	0.00%	223
Breckenridge	90.30%	9.70%	0.00%	165
Avon	89.70%	10.30%	0.00%	116
Basalt	93.60%	6.40%	0.00%	94
Snowmass Village	93.40%	6.60%	0.00%	76
Dillon	82.80%	17.20%	0.00%	58
Eagle	96.00%	4.00%	0.00%	50
Winter Park	89.70%	10.30%	0.00%	39
Blue River	81.80%	18.20%	0.00%	22
Fraser	100.00%	0.00%	0.00%	21
Granby	85.70%	14.30%	0.00%	14
Snowmass	84.60%	15.40%	0.00%	13
Frisco	70.00%	30.00%	0.00%	10
Northwest Colorado				
Glennwood Springs	84.00%	16.00%	0.00%	412
Rifle	84.10%	15.90%	0.00%	214
Craig	80.00%	20.00%	0.00%	185
Carbondale	77.10%	22.90%	0.00%	70
Meeker	100.00%	0.00%	0.00%	55
New Castle	90.20%	9.80%	0.00%	41
Silt	85.70%	14.30%	0.00%	35
Parachute	96.70%	3.30%	0.00%	30
Rangely	91.30%	8.70%	0.00%	23
San Luis Valley				
Alamosa	83.90%	16.10%	0.00%	367
Center	92.90%	7.10%	0.00%	28
Del Norte	58.30%	33.30%	8.30%	12
San Luis	100.00%	0.00%	0.00%	12
Southwest Colorado				
Durango	84.30%	15.60%	0.10%	668
Cortez	80.40%	19.60%	0.00%	204
Pagosa Springs	83.30%	16.70%	0.00%	96
Ignacio	75.00%	25.00%	0.00%	40
Bayfield	93.30%	6.70%	0.00%	15
Silverton	91.70%	8.30%	0.00%	12
Dolores	100.00%	0.00%	0.00%	10

II.17 Injury and Fatal Crash rates per 1,000 Population, County of Residence
Source: 2004 CDOT Crash Database.

County by Region	Injury Crash Rate per 1,000 Population	Fatal Crash Rate per 1,000 Population	County	Injury Crash Rate per 1,000 Population	Fatal Crash Rate per 1,000 Population
Largest Counties			Northern Mountain Resort		
Adams	16.71	0.262	Eagle	7.29	0.156
Arapahoe	15.56	0.168	Grand	5.74	0.171
Boulder	14.32	0.121	Jackson	2.27	0
Broomfield	14.76	0.212	Pitkin	5.85	0.139
Denver	16.2	0.161	Routt	6.32	0.222
Douglas	12.14	0.183	Summit	6.71	0.257
El Paso	14.72	0.159	Northwest Colorado		
Jefferson	15.15	0.156	Moffat	13.04	0.185
Larimer	12.56	0.221	Rio Blanco	7.96	0.398
Mesa	14.41	0.269	Garfield	11.52	0.154
Pueblo	17.45	0.279	San Luis Valley		
Weld	14.22	0.464	Alamosa	8.82	0.397
Central Mountains			Conejos	9.4	0.152
Chaffee	7.71	0.205	Costilla	6.13	0
Clear Creek	6.3	0.247	Mineral	2.55	1.276
Custer	5.32	0	Rio Grande	7.67	0.582
Fremont	8.41	0.244	Saguache	11.28	0.195
Gilpin	4.12	0	Southwest Colorado		
Lake	11.89	0.321	Archuleta	8.43	0.104
Park	10.74	0.438	Dolores	4.45	0
Teller	13.28	0.324	Hinsdale	4.36	0
Eastern Plains			La Plata	11.18	0.426
Baca	4.47	1.118	Montezuma	9.92	0.548
Bent	6.01	0.376	San Juan	7.98	0
Cheyenne	5.65	0	<p>Pueblo County and Adams County had the highest per capita injury crash rate among large counties.</p> <p>Among less populated counties, Elbert County on the Eastern Plains had the highest per capita injury crash rate.</p>		
Crowley	6.22	0.201			
Elbert	14.63	0.598			
Huerfano	6.7	0.427			
Kiowa	3.19	0			
Kit Carson	6.35	0.605			
Las Animas	9.25	0.367			
Lincoln	4.02	0			
Logan	7.71	0.447			
Morgan	11.66	0.046			
Otero	6.93	0.318			
Phillips	9.32	0.548			
Prowers	6.72	0.276			
Sedgwick	7	0			
Washington	7.18	0.239			
Yuma	9.82	0.621			
Gunnison Valley					
Delta	8.17	0.24			
Gunnison	6.61	0.335			
Montrose	10.05	0.235			
Ouray	4.88	0			
San Miguel	7.32	0.477			

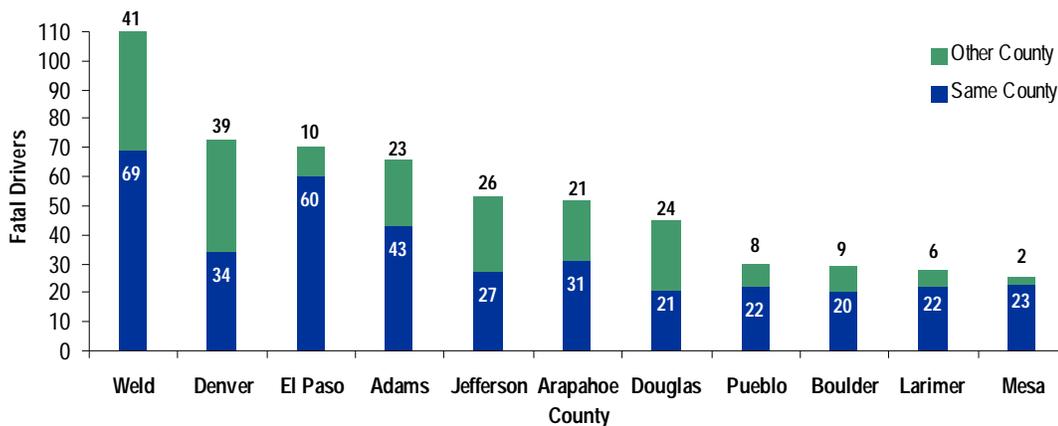
II.18 Location of Fatal Crashes, Large Counties and Regions
Source: 2004 CDOT Crash Database.

	Interstate Highway		Other U.S. and All State Highways		U.S. Frontage Roads and State Highways		Non-municipal County Roads		City Streets		Total
Large Counties											
Adams	9	20.93%	15	34.88%	5	11.63%	14	32.56%	---	---	43
Arapahoe	3	10.00%	14	46.67%	1	3.33%	12	40.00%	---	---	30
Boulder	12	60.00%	4	20.00%	4	20.00%	---	---	---	---	20
Broomfield	3	75.00%	1	25.00%	---	---	---	---	---	---	4
Denver	7	12.28%	26	45.61%	1	1.75%	23	40.35%	---	---	57
Douglas	5	20.83%	12	50.00%	3	12.50%	4	16.67%	---	---	24
El Paso	9	18.00%	11	22.00%	15	30.00%	15	30.00%	---	---	50
Jefferson	2	5.88%	24	70.59%	1	2.94%	4	11.76%	3	8.82%	34
Larimer	1	4.17%	13	54.17%	8	33.33%	2	8.33%	---	---	24
Mesa	4	23.53%	4	23.53%	6	35.29%	3	17.65%	---	---	17
Pueblo	3	13.04%	11	47.83%	6	26.09%	3	13.04%	---	---	23
Weld	11	15.28%	28	38.89%	3	4.17%	19	26.39%	11	15.28%	72
Regions											
Eastern Plains	15	26.32%	28	49.12%	13	22.81%	1	1.75%	---	---	57
Central Mountains	3	8.57%	21	60.00%	1	2.86%	8	22.86%	2	5.71%	35
Gunnison Valley	17	80.95%	4	19.05%	---	---	---	---	---	---	21
Northern Mountain Resort	4	16.00%	16	64.00%	5	20.00%	---	---	---	---	25
Northwest Colorado	9	81.82%	2	18.18%	---	---	---	---	---	---	11
San Luis Valley	14	73.68%	5	26.32%	---	---	---	---	---	---	19
Southwest Colorado	25	83.33%	5	16.67%	---	---	---	---	---	---	30

49% of Eastern Plains fatal crashes occur on other U.S. and all state highways.

In Weld County, 15% of fatal crashes occur on city streets.

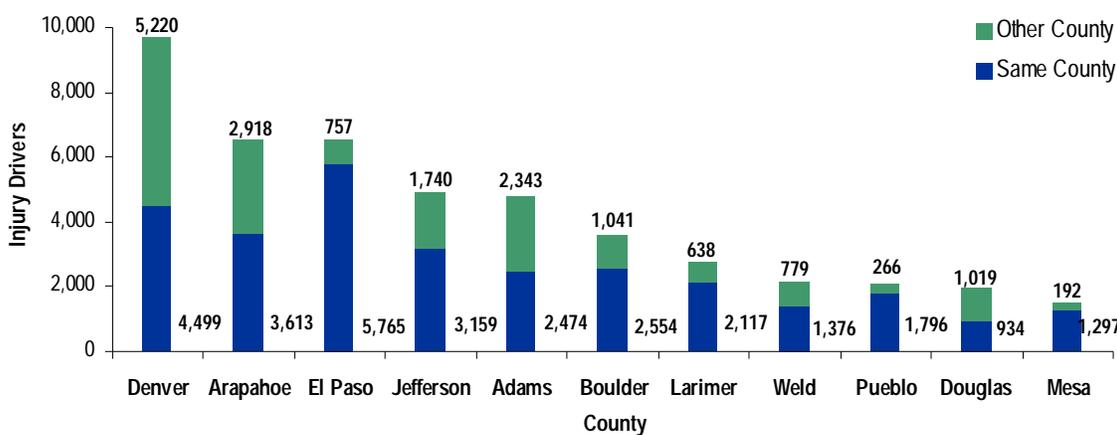
II.19 Place of Residence of Drivers in Fatal Crashes Occurring in Large Counties
 Source: 2004 CDOT Crash Database.



Same County	62.73%	46.58%	85.71%	65.15%	50.94%	59.62%	46.67%	73.33%	68.97%	78.57%	92.00%
Other County	37.27%	53.42%	14.29%	34.85%	49.06%	40.38%	53.33%	26.67%	31.03%	21.43%	8.00%
Total Number	110	73	70	66	53	52	45	30	29	28	25

86% of El Paso County fatal crash drivers live in El Paso County.
 54% of Denver County injury crash drivers live outside of Denver County.

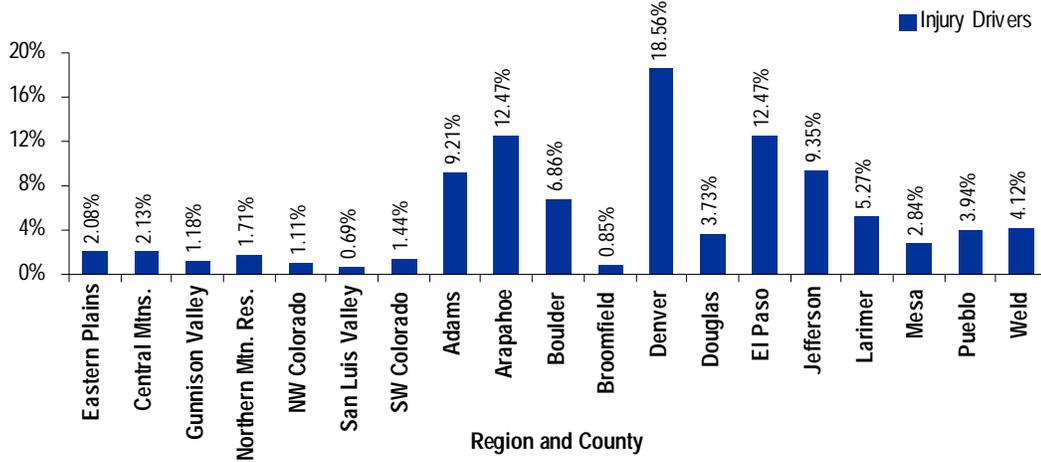
II.20 Place of Residence of Drivers in Injury Crashes Occurring in Large Counties
 Source: 2004 CDOT Crash Database.



Same County	46.29%	55.32%	88.39%	64.48%	51.36%	71.04%	76.84%	63.85%	87.10%	47.82%	87.11%
Other County	53.71%	44.68%	11.61%	35.52%	48.64%	28.96%	23.16%	36.15%	12.90%	52.18%	12.89%
Total Number	9,719	6,531	6,522	4,899	4,817	3,595	2,755	2,155	2,062	1,953	1,489

II.21 Distribution of Drivers Involved in Injury Crashes by County and Region of Crash

Source: 2004 CDOT Crash Database.

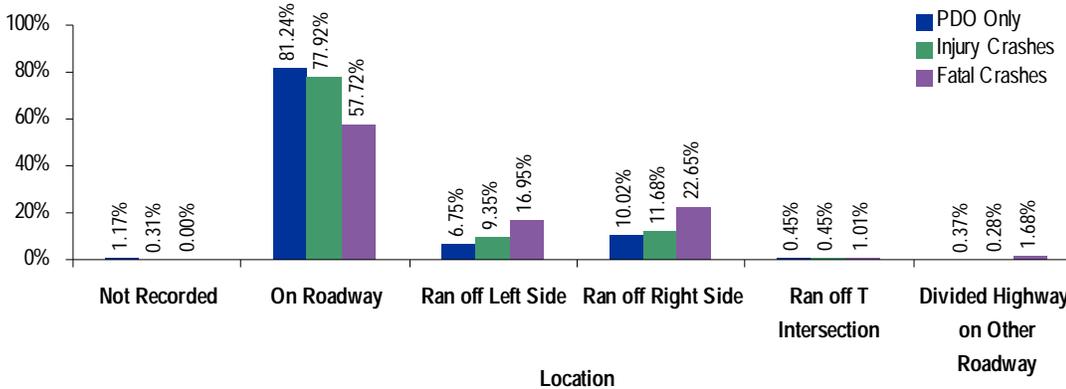


Region/County	Eastern Plains	Central Mtns.	Gunnison Valley	Northern Mtn. Res.	NW Colorado	San Luis Valley	SW Colorado	Adams	Arapahoe	Boulder
Injury Drivers	1,087	1,117	618	895	583	359	754	4,822	6,533	3,595
Region/County	Broomfield	Denver	Douglas	El Paso	Jefferson	Larimer	Mesa	Pueblo	Weld	Total
Injury Drivers	443	9,723	1,955	6,531	4,899	2,759	1,490	2,063	2,158	52,384

19% of the state's injury crashes occur in Denver County.
 23% of fatal crashes occur when a vehicle runs off the roadway to the right side.

II.22 Crash Severity by Location Relative to Roadway

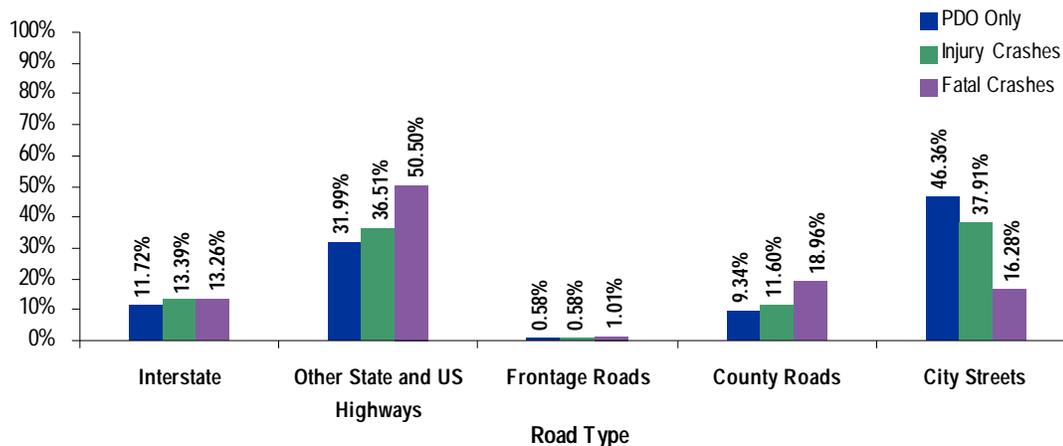
Source: 2004 CDOT Crash Database.



PDO Only	1,151	79,889	6,635	9,857	441	359
Injury Crashes	99	24,777	2,973	3,714	143	90
Fatal Crashes	0	344	101	135	6	10
Total Crashes	1,250	105,010	9,709	13,706	590	459

II.23 Crash Road Type, by Crash Severity

Source: 2004 CDOT Crash Database.

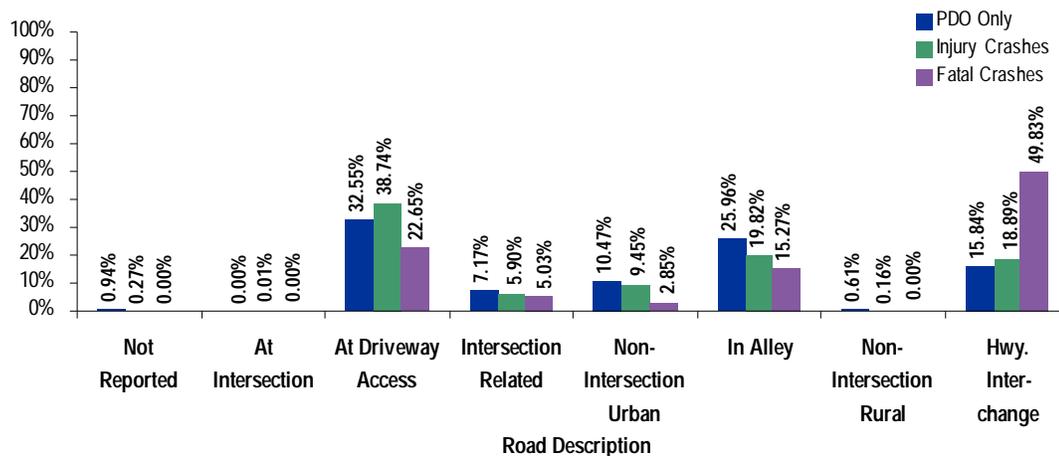


	Interstate	Other State and US Highways	Frontage Roads	County Roads	City Streets
PDO Only	11,525	31,458	572	9,185	45,583
Injury Crashes	4,256	11,610	185	3,689	12,055
Fatal Crashes	79	301	6	113	97
Total Crashes	15,860	43,369	763	12,987	57,735

46% of PDO crashes occur on city streets, compared to 16% of fatal crashes.
 50% of fatal crashes occur near a highway interchange.

II.24 Crash Severity by Road Description

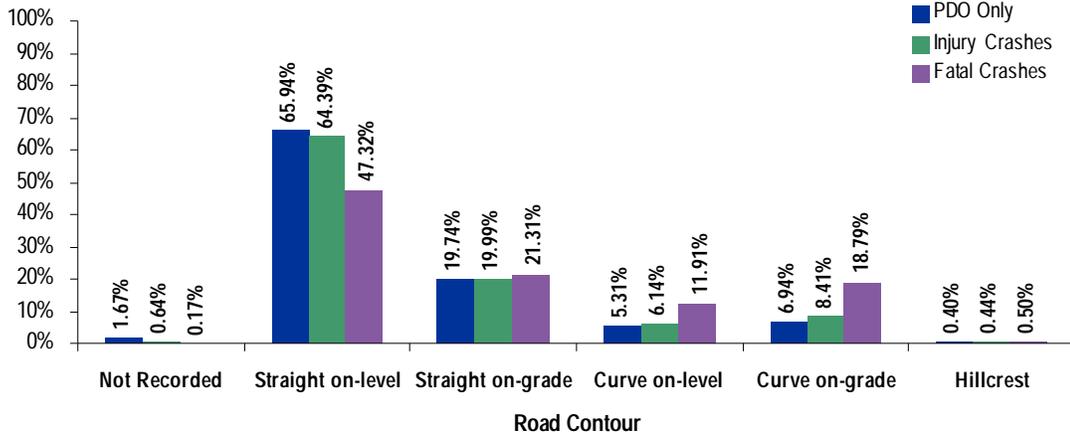
Source: 2004 CDOT Crash Database.



	Not Reported	At Intersection	At Driveway Access	Intersection Related	Non-Urban	In Alley	Non-Rural	Hwy. Interchange
PDO Only	920	0	32,009	7,054	10,299	25,531	600	15,574
Injury Crashes	87	2	12,317	1,876	3,006	6,301	51	6,007
Fatal Crashes	0	0	135	30	17	91	0	297
Total Crashes	1,007	2	44,461	8,960	13,322	31,923	651	21,878

II.25 Crash Severity by Road Contour

Source: 2004 CDOT Crash Database.

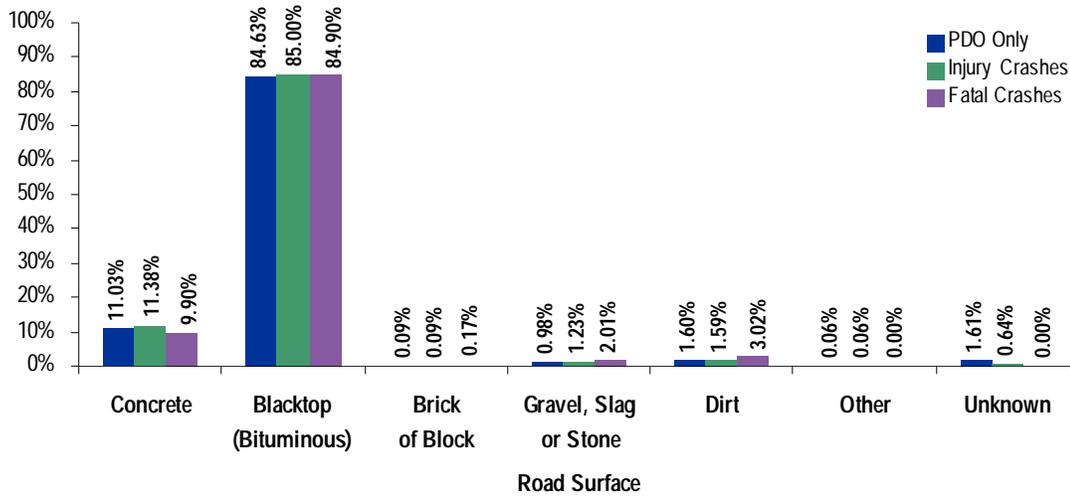


	Not Recorded	Straight on-level	Straight on-grade	Curve on-level	Curve on-grade	Hillcrest
PDO Only	1,641	64,844	19,412	5,217	6,825	393
Injury Crashes	202	20,474	6,355	1,952	2,673	140
Fatal Crashes	1	282	127	71	112	3
Total Crashes	1,844	85,600	25,894	7,240	9,610	536

Most crashes occur on straight on-level road contours.
85% of crashes, regardless of severity, occur on blacktop.

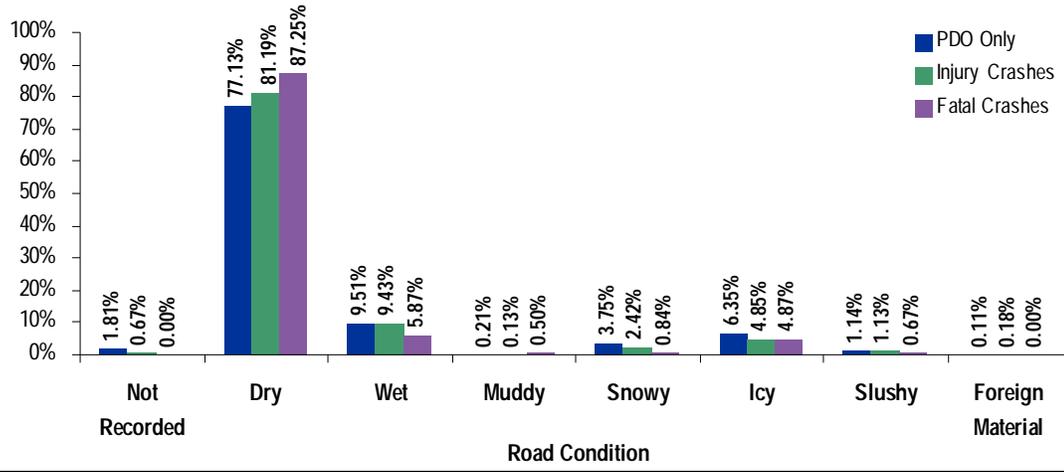
II.26 Crash Severity by Road Surface

Source: 2004 CDOT Crash Database.



	Concrete	Blacktop (Bituminous)	Brick of Block	Gravel, Slag or Stone	Dirt	Other	Unknown
PDO Only	10,845	83,222	89	963	1,573	60	1,580
Injury Crashes	3,618	27,028	30	390	507	18	205
Fatal Crashes	59	506	1	12	18	0	0
Total Crashes	14,522	110,756	120	1,365	2,098	78	1,785

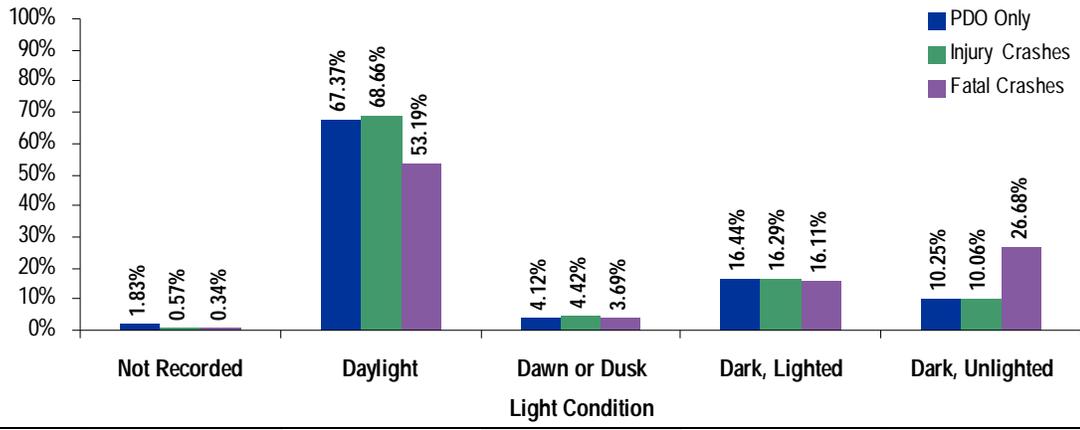
II.27 Crash Severity by Road Condition
 Source: 2004 CDOT Crash Database.



	Not Recorded	Dry	Wet	Muddy	Snowy	Icy	Slushy	Foreign Material
PDO Only	1,776	75,840	9,348	208	3,689	6,242	1,122	107
Injury Crashes	213	25,816	2,998	42	768	1,543	359	57
Fatal Crashes	0	520	35	3	5	29	4	0
Total Crashes	1,988	102,176	12,381	253	4,462	7,814	1,485	164

88% of fatal crashes occur on dry roads.
 27% of fatal crashes occur on dark, unlighted roadways.

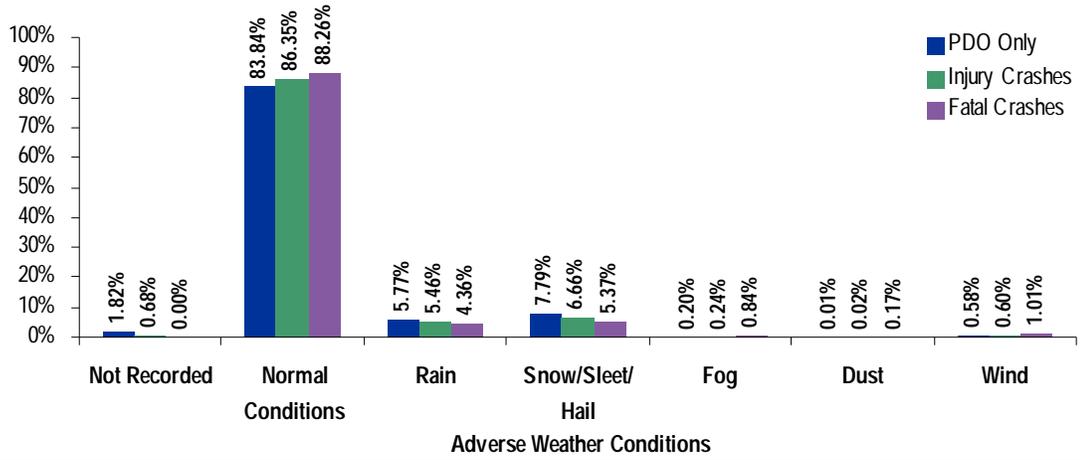
II.28 Crash Severity by Light Conditions
 Source: 2004 CDOT Crash Database.



	Not Recorded	Daylight	Dawn or Dusk	Dark, Lighted	Dark, Unlighted
PDO Only	1,802	66,242	4,051	16,161	10,076
Injury Crashes	182	21,831	1,404	5,179	3,200
Fatal Crashes	2	317	22	96	159
Total Crashes	1,986	88,390	5,477	21,436	13,435

II.29 Crash Severity by Adverse Weather Conditions

Source: 2004 CDOT Crash Database.

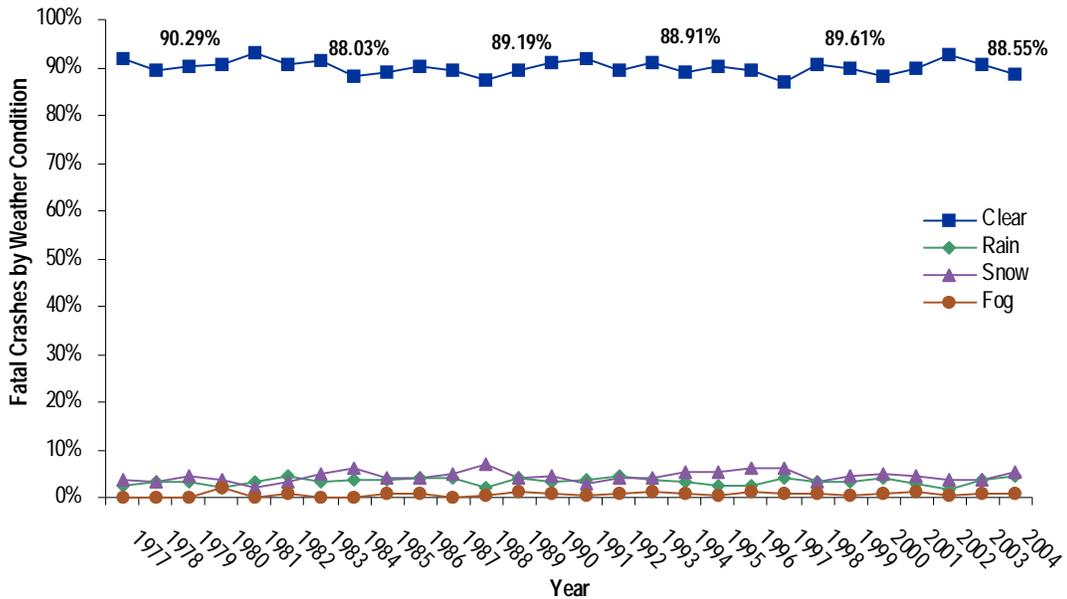


PDO Only	1,786	82,438	5,674	7,660	199	8	567
Injury Crashes	215	27,456	1,737	2,117	76	5	190
Fatal Crashes	0	526	26	32	5	1	6
Total Crashes	2001	110,420	7437	9809	280	14	763

Most crashes occur under normal weather conditions.

II.30 Distribution of Fatal Crashes by Weather Condition, 1977-2004

Source: 2004 CDOT Crash Database.

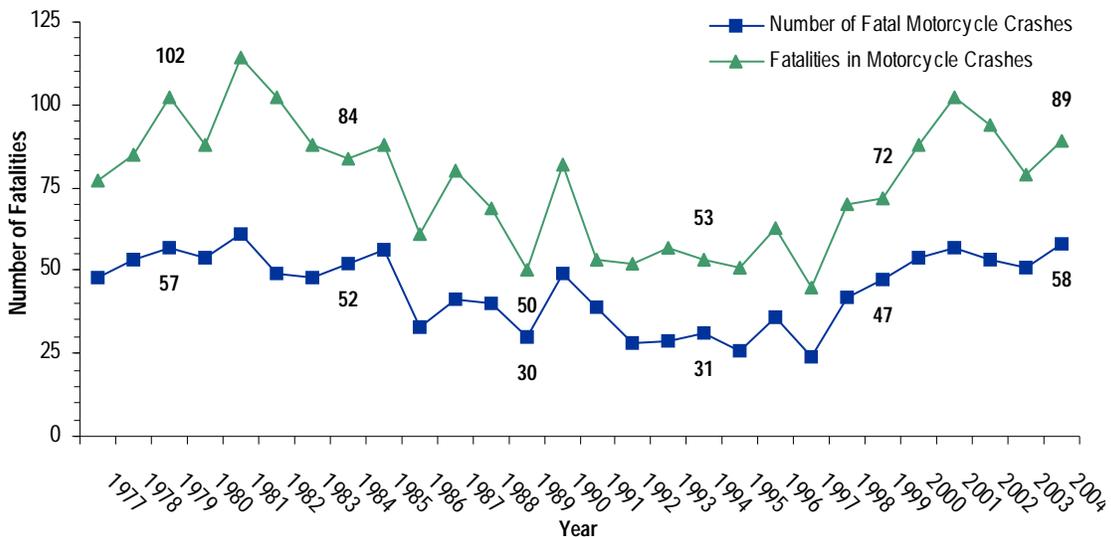


II.31 Vehicles Involved in PDO, Injury and Fatal Crashes
Note: Data listed below the dotted line identifies types of vehicles included in the analysis, but not shown in the graph.
Source: 2004 CDOT Crash Database.

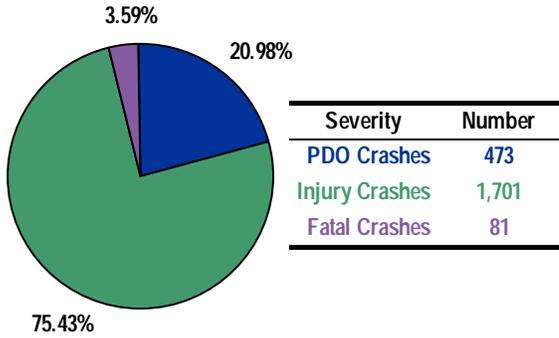
Type of Vehicle	PDO Crashes		Injury Crashes		Fatal Crashes		Total
Not Reported	1.67%	2,560	1.18%	658	0.96%	9	3,227
Passenger Car or Van	73.15%	112,452	74.81%	41,853	59.81%	558	154,863
Pickup Truck, Utility Van	18.53%	28,487	16.72%	9,352	20.26%	189	38,028
Truck, Gross Weight >10,000 or Bus >15 People	3.19%	4,907	2.17%	1,216	6.97%	65	6,188
Motorcycle	0.31%	473	3.04%	1,701	8.68%	81	2,255
Pickup Truck, Utility Van w/ Trailer	0.99%	1,520	0.72%	403	2.25%	21	1,944
Truck, Gross Weight <10,001	1.02%	1,564	0.56%	316	0.54%	5	1,885
Passenger Vehicle with Trailer	0.47%	716	0.38%	213	0.43%	4	933
Non-school Bus, <15 People	0.12%	179	0.06%	35	0.00%	0	214
Motor Home	0.12%	188	0.04%	24	0.00%	0	212
Hit & Run - Unknown	0.11%	165	0.04%	22	0.11%	1	188
Small School Bus, <15 People	0.07%	111	0.04%	20	0.00%	0	131
Farm Equipment	0.01%	21	0.04%	20	0.00%	0	41
Bicycle	0.01%	9	0.06%	32	0.00%	0	41
Motorized Bicycle	0.01%	22	0.01%	6	0.00%	0	28
Other	0.23%	347	0.14%	76	0.00%	0	423

60% of fatal crashes involved a passenger car or van.
 In 2004, 89 people died in 58 fatal motorcycle crashes.

II.32 Number of Fatal Motorcycle Crashes, 1977-2004
Source: 2004 CDOT Crash Database.

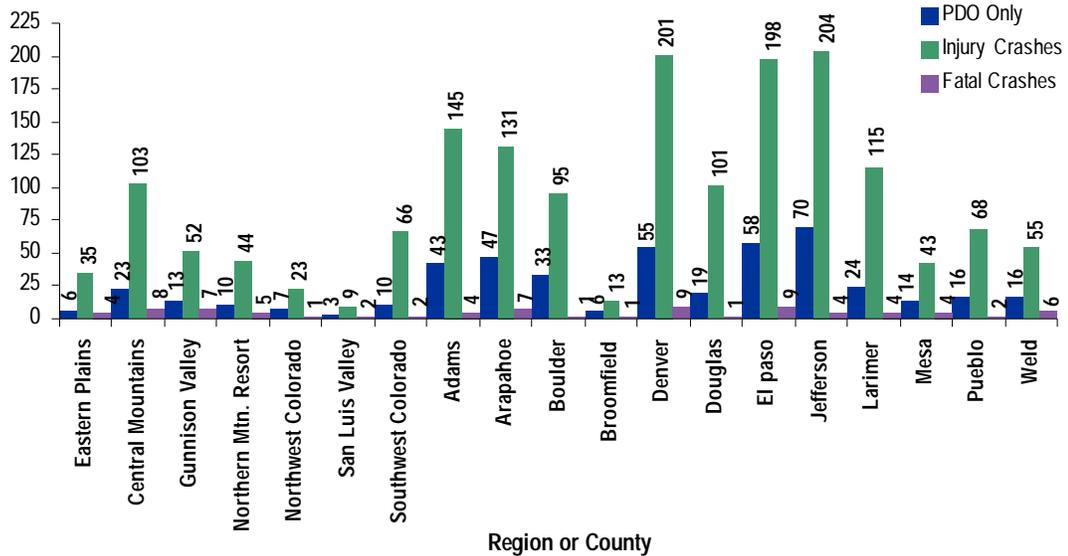


II.33 Motorcyclists Involved in Crashes, by Severity
Source: 2004 CDOT Crash Database.



75% of motorcycle crashes are injury crashes.
 Jefferson County had the highest number of motorcycle injury crashes.

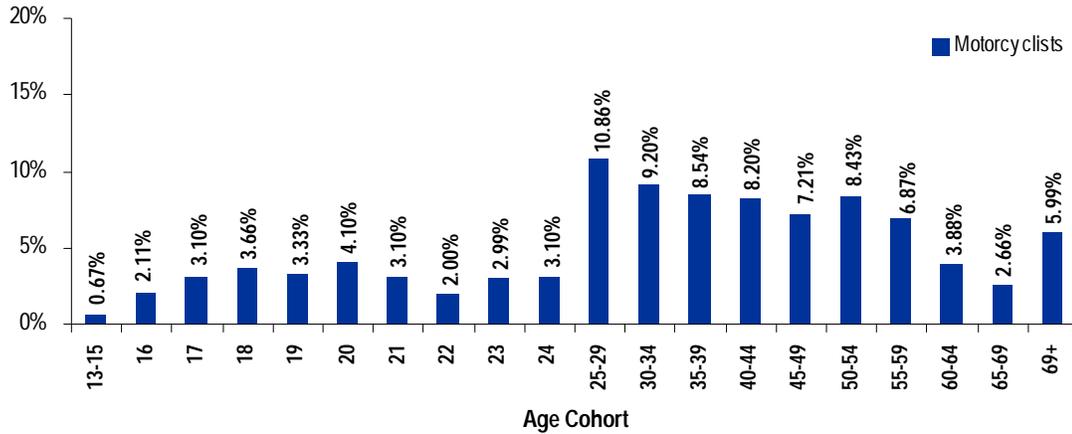
II.34 Motorcyclists Involved in Crashes in the Largest Counties and Regions
Source: 2004 CDOT Crash Database.



Region/County	Eastern Plains	Central Mtns.	Gunnison Valley	Northern Mtn.	Northwest Colorado	San Luis Valley	Southwest Colorado	Adams	Arapahoe	Boulder
Total Crashes	45	134	72	59	31	14	78	192	185	129
Region/County	Broomfield	Denver	Douglas	El paso	Jefferson	Larimer	Mesa	Pueblo	Weld	
Total Crashes	20	265	121	265	278	143	61	86	77	

II.35 Age of Motorcycle Rider Involved in Crashes When Age was Reported

Source: 2004 CDOT Crash Database.

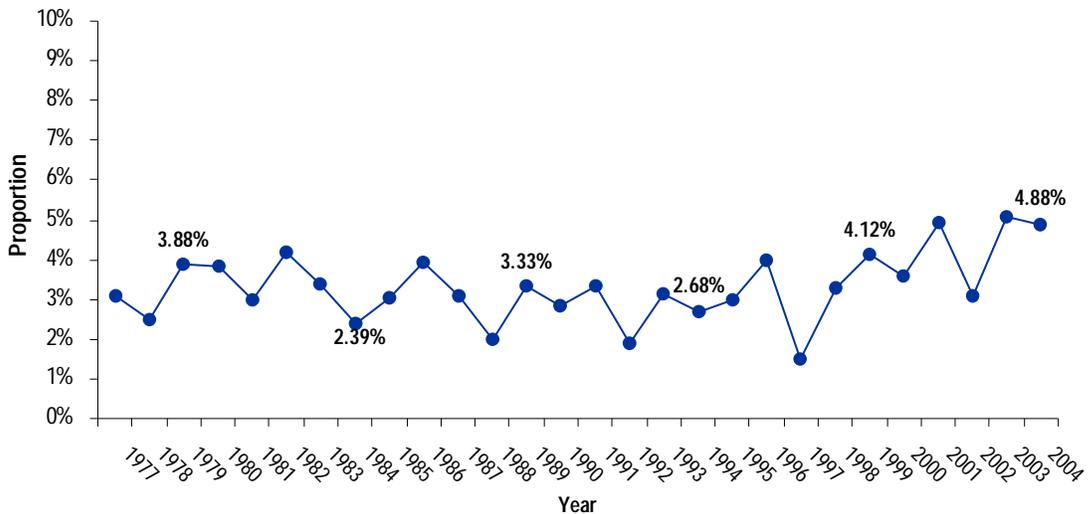


Age Cohort	13-15	16	17	18	19	20	21	22	23	24
Motorcyclists	6	19	28	33	30	37	28	18	27	28
Age Cohort	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	69+
Motorcyclists	98	83	77	74	65	76	62	35	24	54

11% of motorcyclists involved in crashes were ages 25 to 29.
 One in twenty (5%) fatal crashes involved a hit-and-run driver.

II.36 Proportion of Hit-and-Run Crashes in Fatal Crashes, 1977-2004

Source: 2004 CDOT Crash Database.



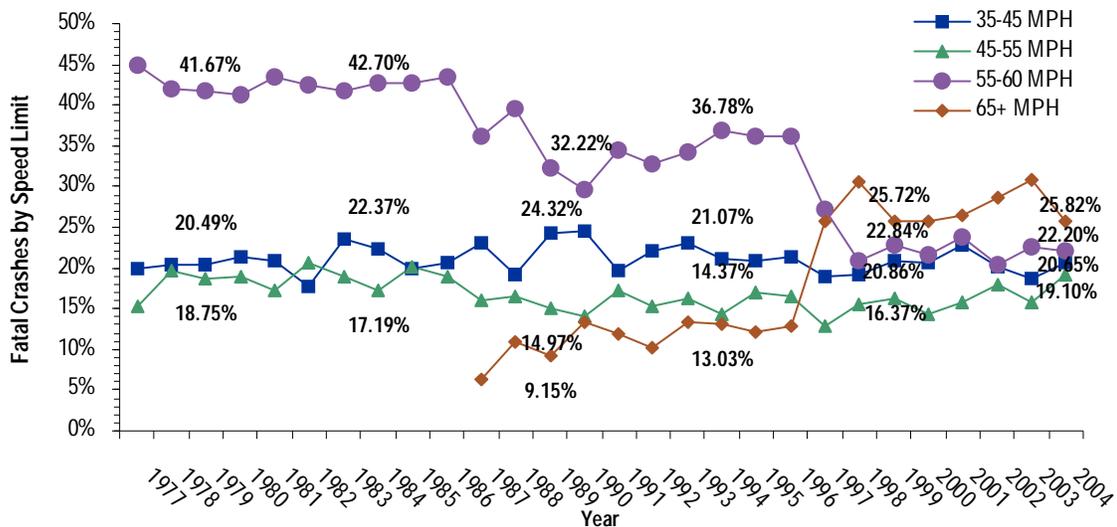
II.37 Crash Severity by Vehicle Movement
 Source: 2004 CDOT Crash Database.

Vehicle Movement	PDO Crashes		Injury Crashes		Fatal Crashes		Total
Not Reported	1.96%	3,020	1.48%	827	0.96%	9	3,856
Going Straight	50.43%	77,516	55.19%	30,877	80.39%	750	109,143
Stopped in Traffic	6.55%	10,067	6.37%	3,563	1.07%	10	13,640
Making Left Turn	15.13%	23,257	16.14%	9,030	2.79%	26	32,313
Slowing	4.49%	6,902	2.76%	1,546	0.54%	5	8,453
Making Right Turn	9.36%	14,391	11.03%	6,171	6.75%	63	20,625
Changing Lanes	0.61%	943	0.43%	240	0.32%	3	1,186
Starting in Traffic	0.66%	1,014	0.56%	315	1.82%	17	1,346
Passing	3.00%	4,605	0.40%	222	0.11%	1	4,828
Avoiding Object in Roadway	0.84%	1,295	0.22%	122	0.00%	0	1,417
Weaving	1.69%	2,595	1.59%	890	0.32%	3	3,488
Making U-turn	0.21%	324	0.13%	71	0.00%	0	395
Backing	2.96%	4,554	1.52%	849	1.39%	13	5,416
Entering/Leaving Parked Position	0.54%	835	0.57%	318	0.64%	6	1,159
Parked	0.26%	395	0.41%	231	1.39%	13	639
Other	1.31%	2,008	1.21%	675	1.50%	14	2,697

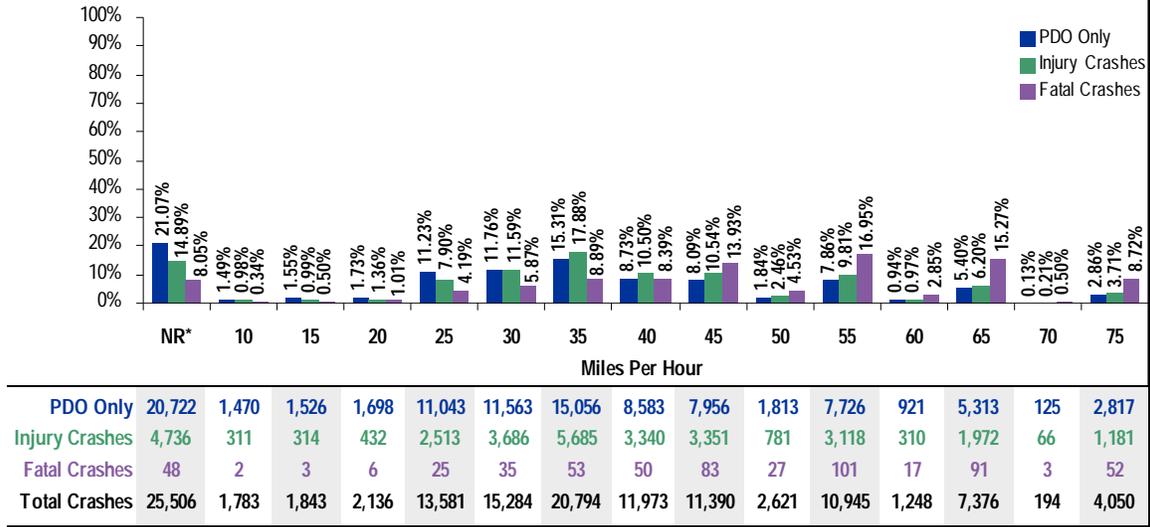
80% of fatal crashes occurred when a vehicle was going straight, compared to 55% of injury crashes.

26% of fatal crashes occurred where the posted speed limit was 65 mph or greater.

II.38 Distribution of Fatal Crashes by Posted Speed Limit, 1977-2004
 Source: 2004 CDOT Crash Database.

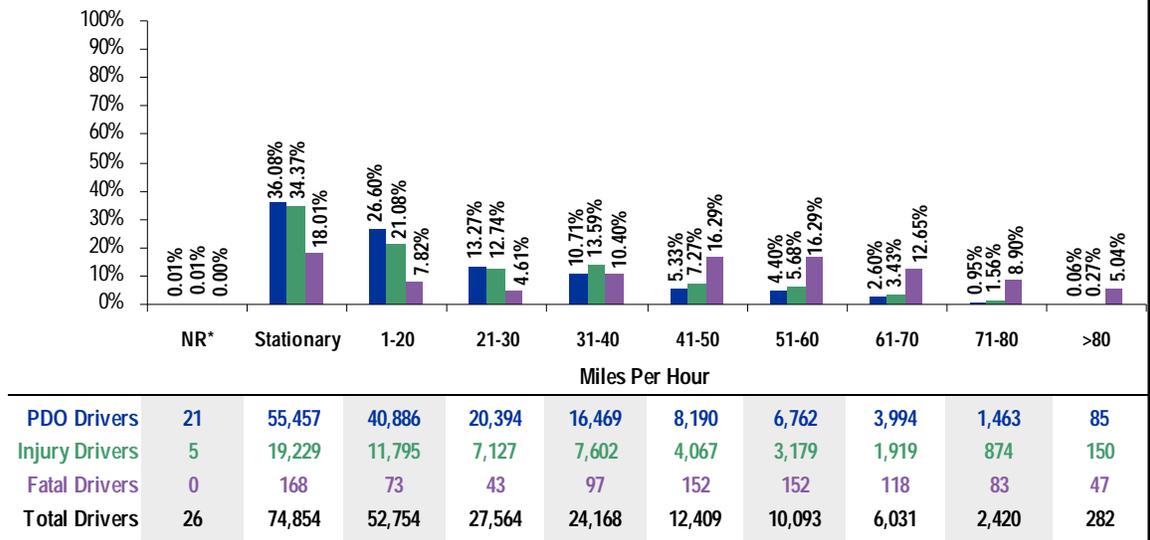


II.39 Crash Severity by Legal Speed Limit (MPH)
 Note: *NR = Not Recorded. Source: 2004 CDOT Crash Database.



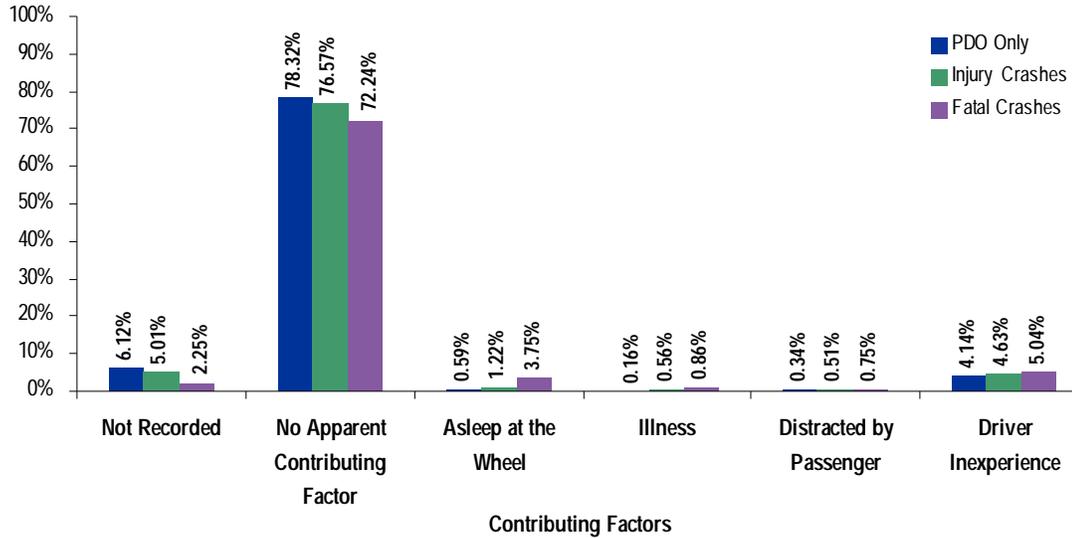
While fatal crashes occur at all speeds, 17% occur where the legal speed limit is 55 mph. In 16% of fatal crashes, the driver's reported speed was 51 to 60 mph.

II.40 Crash Driver's Reported Speed at Time of Crash, by Severity
 Note: *NR = Not Recorded. Source: 2004 CDOT Crash Database.

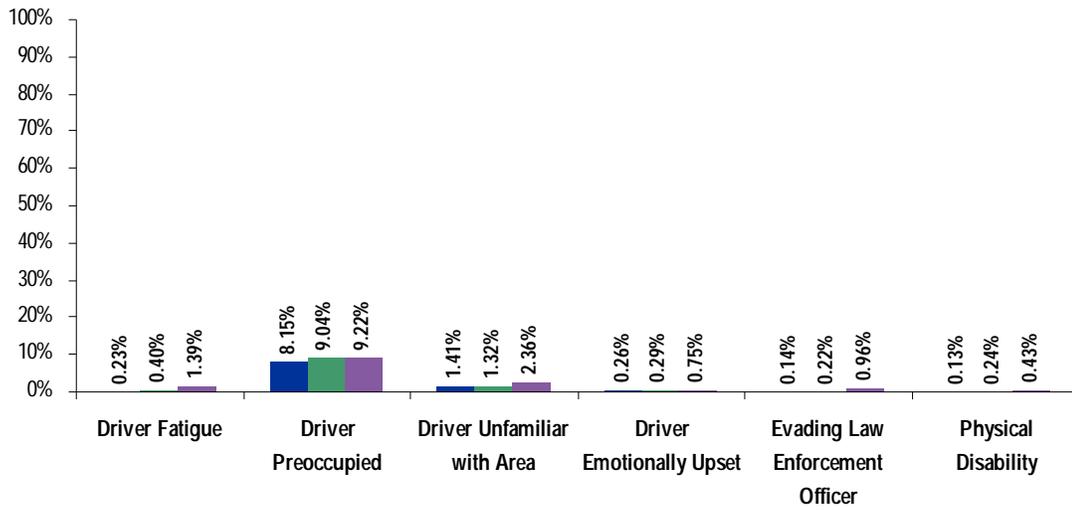


II.41 Crash Severity by Contributing Factors

Source: 2004 CDOT Crash Database.



	Not Recorded	No Apparent Contributing Factor	Asleep at the Wheel	Illness	Distracted by Passenger	Driver Inexperience
PDO Only	9,407	120,394	901	248	526	6,366
Injury Drivers	2,801	42,836	683	315	285	2,589
Fatal Drivers	21	674	35	8	7	47
Total Drivers	12,229	163,904	1,619	571	818	9,002

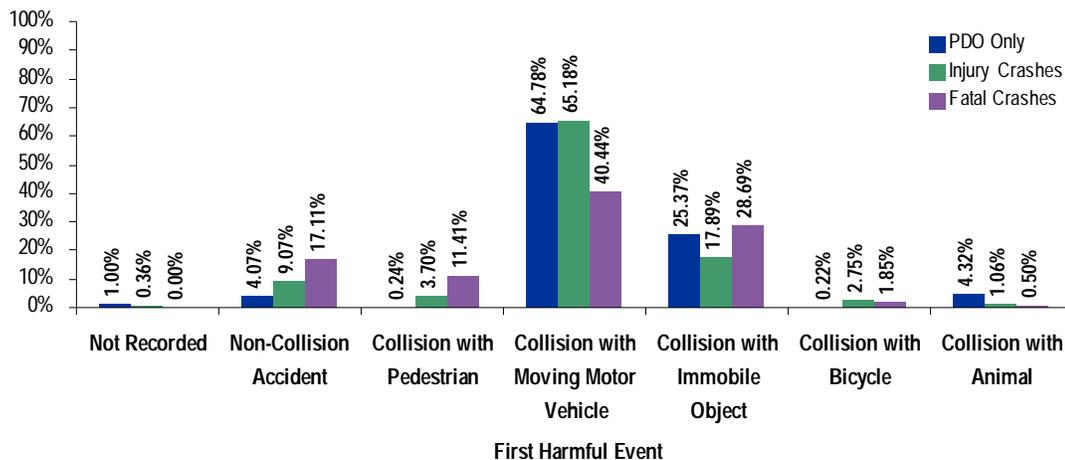


	Driver Fatigue	Driver Preoccupied	Driver Unfamiliar with Area	Driver Emotionally Upset	Evading Law Enforcement Officer	Physical Disability
PDO Only	356	12,534	2,167	400	222	200
Injury Crashes	224	5,058	737	164	121	134
Fatal Crashes	13	86	22	7	9	4
Total Crashes	593	17,678	2,926	571	352	338

The majority of crashes do not cite an apparent contributing factor.

II.42 "First Harmful Event" for Fatal Crashes

Source: 2004 CDOT Crash Database.



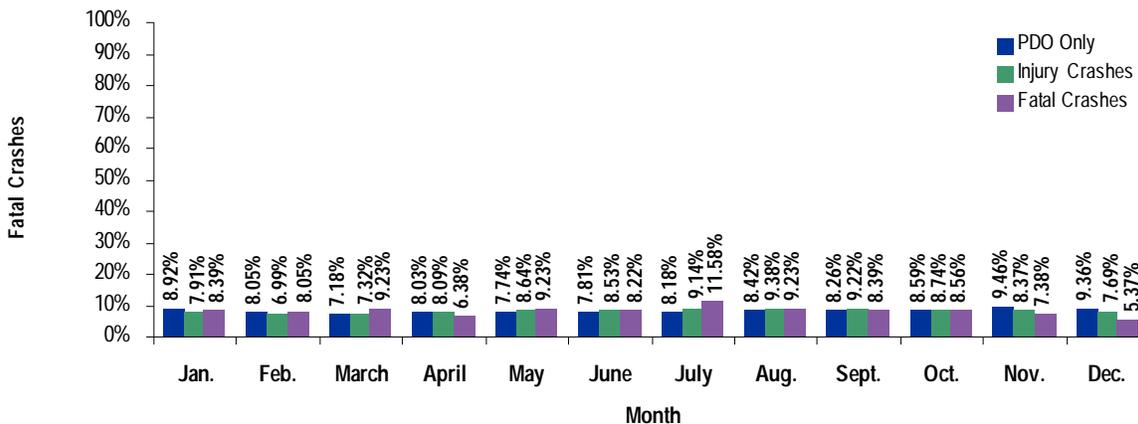
	Not Recorded	Non-Collision Accident	Collision with Pedestrian	Collision with Moving Motor Vehicle	Collision with Immobile Object	Collision with Bicycle	Collision with Animal
PDO Only	979	3,998	239	63,699	24,947	218	4,252
Injury Crashes	115	2,885	1,176	20,724	5,687	873	336
Fatal Crashes	0	102	68	241	171	11	3
Total Crashes	1,094	6,985	1,483	84,664	30,805	1,102	4,591

29% of fatal crashes involve collision with an immobile object.

In general, crashes are distributed equally each month, with a slightly higher proportion of fatal crashes occurring in July.

II.43 PDO, Injury and Fatal Crashes in Colorado by Month

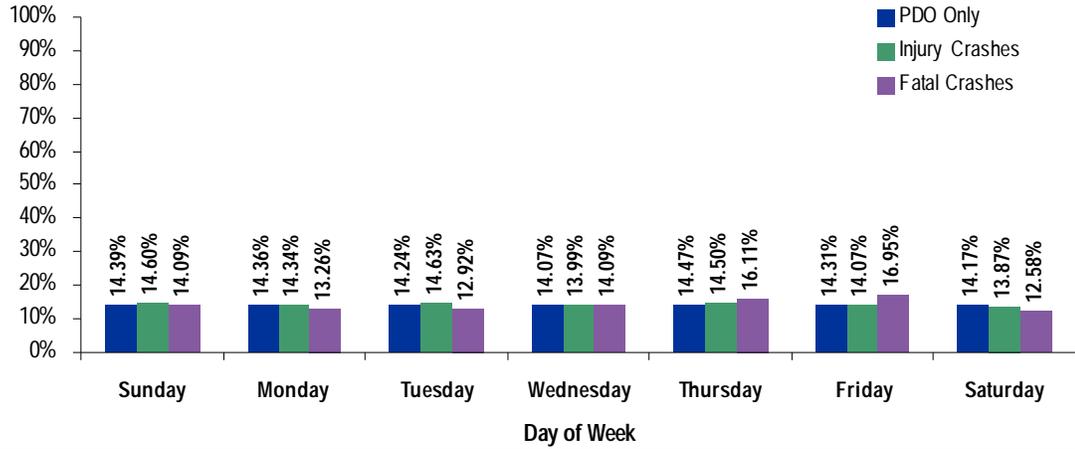
Source: 2004 CDOT Crash Database.



	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
PDO Only	8,774	7,916	7,061	7,895	7,608	7,680	8,039	8,279	8,122	8,450	9,306	9,201
Injury Crashes	2,514	2,224	2,326	2,571	2,747	2,711	2,906	2,982	2,931	2,779	2,661	2,444
Fatal Crashes	50	48	55	38	55	49	69	55	50	51	44	32
Total Crashes	11,338	10,188	9,442	10,504	10,410	10,440	11,014	11,316	11,103	11,280	12,011	11,677

II.44 Drivers Involved in PDO, Injury and Fatal Crashes by Day of Week

Source: 2004 CDOT Crash Database.

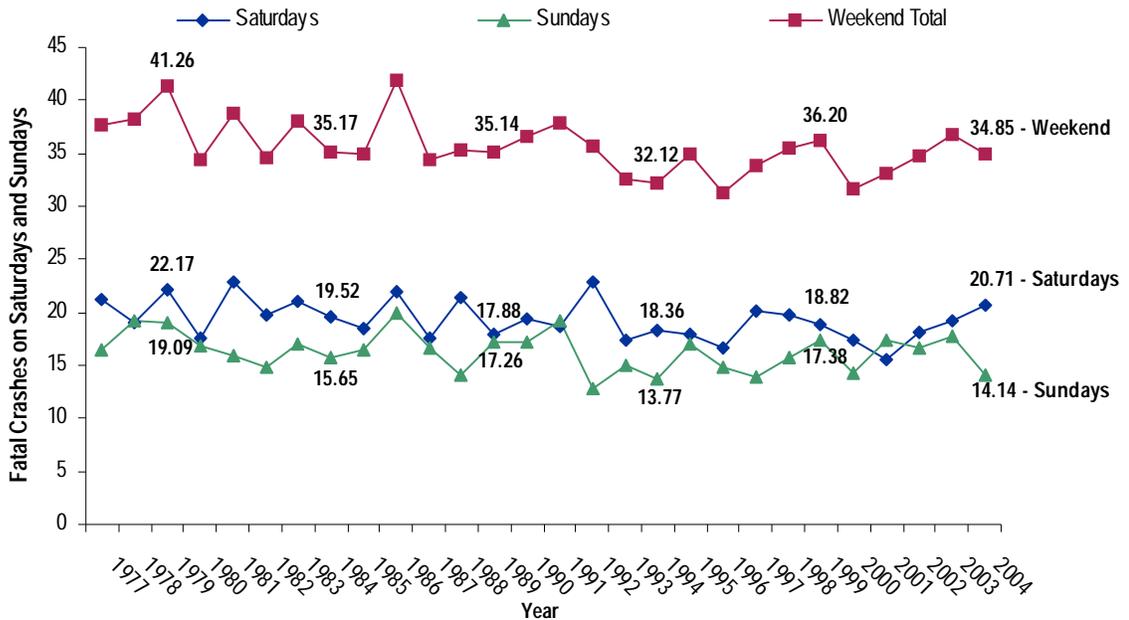


PDO Only	14,146	14,117	14,004	13,831	14,228	14,069	13,937
Injury Crashes	4,643	4,560	4,651	4,448	4,609	4,475	4,410
Fatal Crashes	84	79	77	84	96	101	75
Total Crashes	18,873	18,756	18,732	18,363	18,933	18,645	18,422

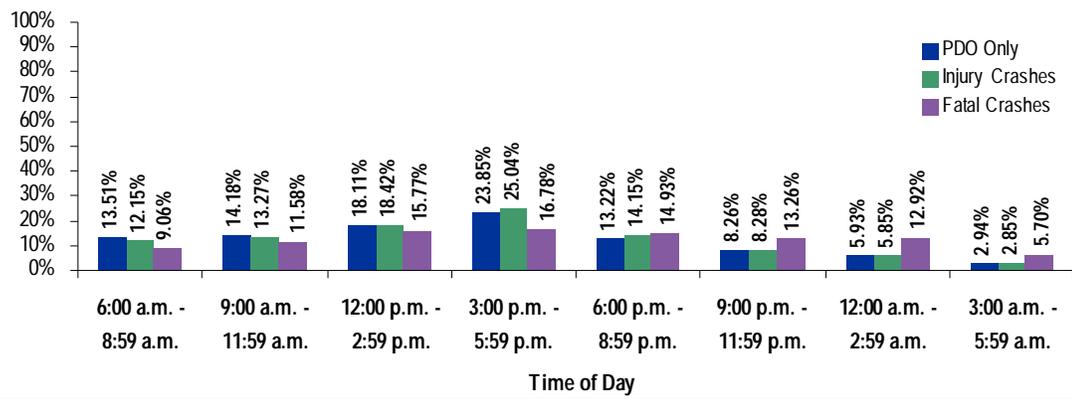
A slightly greater proportion of fatal crashes occur on Thursday and Friday.
35% of fatal crashes occur on weekends.

II.45 Proportion of Fatal Crashes on Saturdays and Sundays, 1977-2004

Source: National Highway Transportation Safety Administration, FARS Data, 1977-2004.



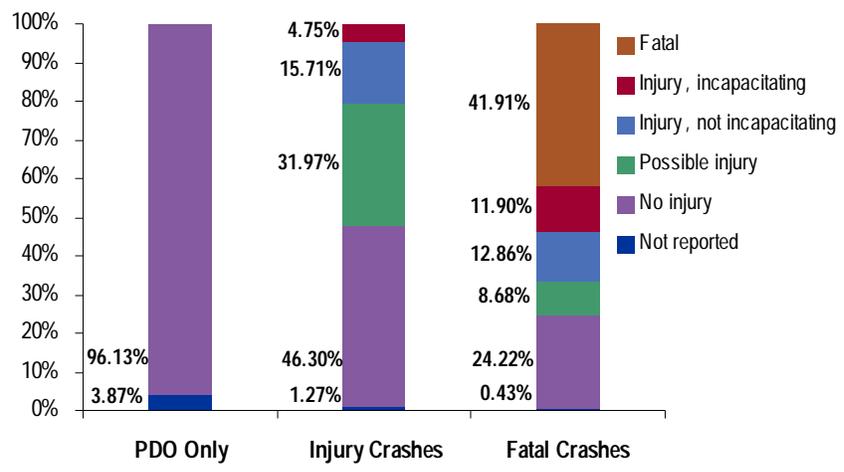
II.46 Drivers Involved in PDO, Injury and Fatal Crashes by Time of Day
 Source: 2004 CDOT Crash Database.



	6:00 a.m. - 8:59 a.m.	9:00 a.m. - 11:59 a.m.	12:00 p.m. - 2:59 p.m.	3:00 p.m. - 5:59 p.m.	6:00 p.m. - 8:59 p.m.	9:00 p.m. - 11:59 p.m.	12:00 a.m. - 2:59 a.m.	3:00 a.m. - 5:59 a.m.
PDO Only	13,282	13,945	17,806	23,453	12,996	8,121	5,833	2,895
Injury Crashes	3,864	4,218	5,856	7,963	4,498	2,633	1,859	905
Fatal Crashes	54	69	94	100	89	79	77	34
Total Crashes	17,200	18,232	23,756	31,516	17,583	10,833	7,769	3,834

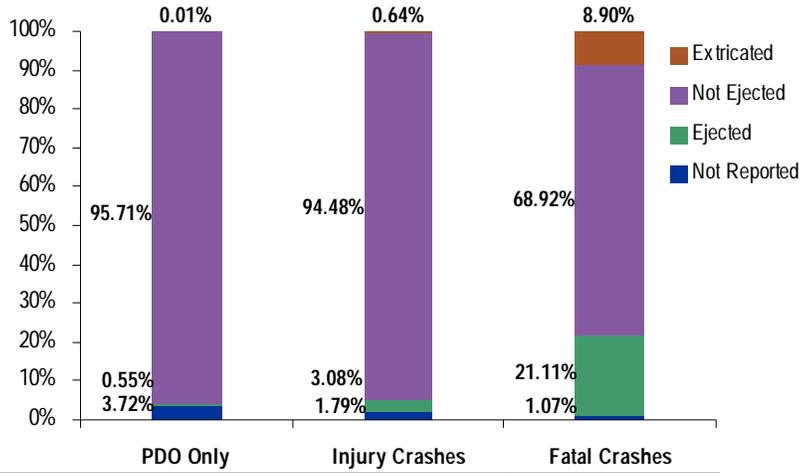
25% of injury crashes occur during afternoon rush hour.

II.47 Crash Driver Outcomes by Crash Severity
 Source: 2004 CDOT Crash Database.



	PDO Only	Injury Crashes	Fatal Crashes
Not reported	5,954	708	4
No injury	147,766	25,905	226
Possible injury	0	17,886	81
Injury, not incapacitating	1	8,791	120
Injury, incapacitating	0	2,657	111
Fatal	0	0	391
Total Drivers	153,721	55,947	933

II.48 Ejection Status of Occupants
Source: 2004 CDOT Crash Database.



	PDO Only	Injury Crashes	Fatal Crashes
Not Reported	5,721	1,001	10
Ejected	846	1,725	197
Not Ejected	147,132	52,861	643
Extricated	22	360	83
Total drivers	153,721	55,947	933

21% of fatal crash occupants were ejected from a vehicle.



Age and Gender of Crash Drivers



Age and Gender of Crash Drivers

This section explores the relative roles of age and gender in 2004 Colorado crashes. Men are much more likely than women do be a driver involved in an injury or fatal crash. Teen drivers and drivers in their early 20s are two age cohorts with high crash rates. Additional items of note are as follows.

- 71% of fatal crash drivers are male.
- Drivers age 24 and younger have much higher per capita crash rates than older drivers.
- Teens living in Eastern Plains counties are more likely to be drivers in injury and fatal crashes than teens from the greater Denver/Boulder area.

COLORADO DRIVER OVERVIEW, BASELINE AND TRENDS

This section explores the relative roles of age and gender in 2004 Colorado crashes.

CRASH INVOLVEMENT BY AGE

Exhibit III.1 presents crash rates by age per 1,000 population. Statewide, the per capita crash involvement rate was 44 crashes per 1,000 population. As in recent years, teen drivers and drivers in their early to mid-20s had the highest per capita crash rates. It is important to note that age was not reported for 20% of drivers involved in crashes in 2004.

Exhibit III.2 examines per capita crash rates by age and the severity of a crash. Drivers age 24 and younger had much higher per capita injury crash rates than older drivers.

Exhibit III.3 presents the crash severity distribution for drivers in individual age cohorts. For most age groups, about 70% of crashes were property damage-only crashes.

A crash involvement index is calculated in Exhibit III.4 for age cohorts by the severity of the crash. Compared to the state average (1.0), several age cohorts are over-involved in crashes than would be expected given their proportion of the state's population. For example, 24 year-old drivers were involved in twice as many fatal crashes than expected.

CRASH INVOLVEMENT BY AGE AND GENDER

In 2004, women ages 13 and older comprised 48% of Colorado's population. If gender was unrelated to the probability of crash involvement, we would expect women to be a driver in approximately 48% of crashes, regardless of severity. The data in Exhibit III.5 demonstrate that men are over-represented as drivers in crashes, particularly in fatal crashes. Although men are 52% of Colorado's driving age population, they accounted for 71% of the drivers in fatal crashes.

Exhibit III.6 presents the gender distribution by age for PDO crashes. For 16 year-olds involved in PDO crashes, the gender split nearly matches population totals (47% female and 53% male). As drivers age, the role of men in PDO crashes increases and women's involvement falls to approximately 40% of drivers in PDO crashes.

The gender of drivers involved in injury crashes matches statewide gender statistics more closely than in PDO crashes, particularly for drivers age 18 and younger (Exhibit III.7).

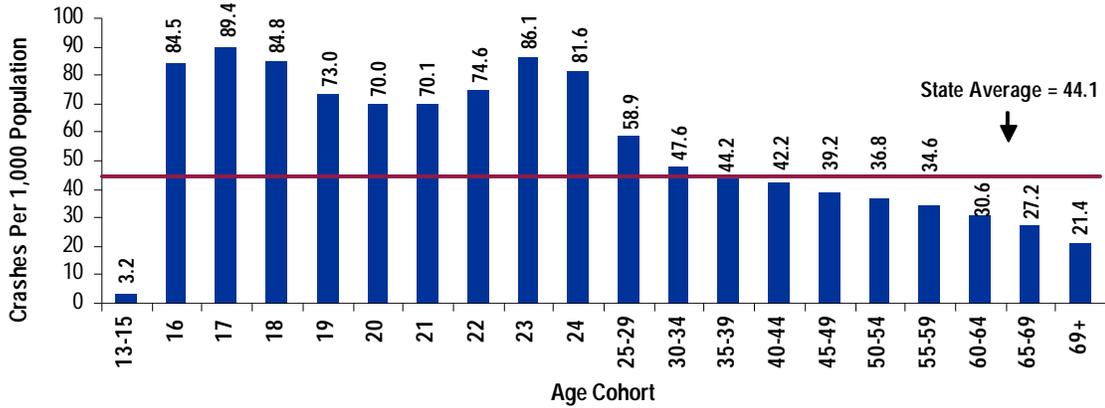
A striking gender difference is evident when fatal crashes are examined by age (Exhibit III.8). For example, 86% of the 21 year-olds involved in fatal crashes were male.

RESIDENCE OF CRASH DRIVER BY AGE AND GENDER

Exhibit III.9 presents the gender of injury and fatal crash drivers based on their county of residence.

Exhibit III.10 presents the age of injury and fatal crash drivers based on their county of residents. Teen drivers (age 17 and younger) from Eastern Plains counties (see the Section I. Introduction for a map listing Eastern Plains counties) comprise a greater proportion of injury and fatal crash drivers than other counties.

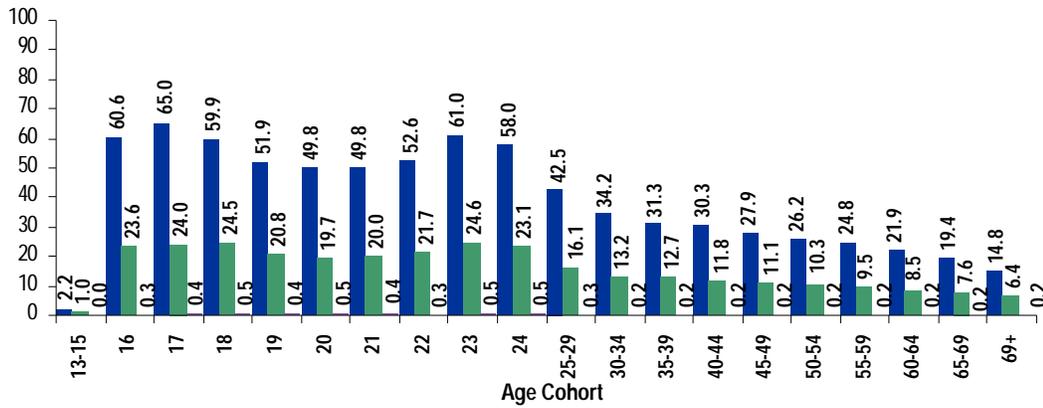
III.1 Drivers in All Crashes Per 1,000 Capita by Age
 Note: Age was not reported for 42,800 drivers involved in crashes, or 20% of all crash drivers.
 Source: 2004 CDOT Crash Database.



Age Cohort	13-15	16	17	18	19	20	21	22	23	24
Total Drivers	630	5,473	5,862	6,126	5,699	5,386	5,302	4,910	4,957	4,630
Population	196,133	64,736	65,563	72,219	78,019	76,968	75,614	65,824	57,605	56,734
Age Cohort	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	69+
Total Drivers	18,629	17,116	15,291	16,211	14,564	12,108	9,017	5,564	3,553	6,773
Population	316,217	359,421	346,217	383,698	371,849	329,051	260,865	181,813	130,558	316,379

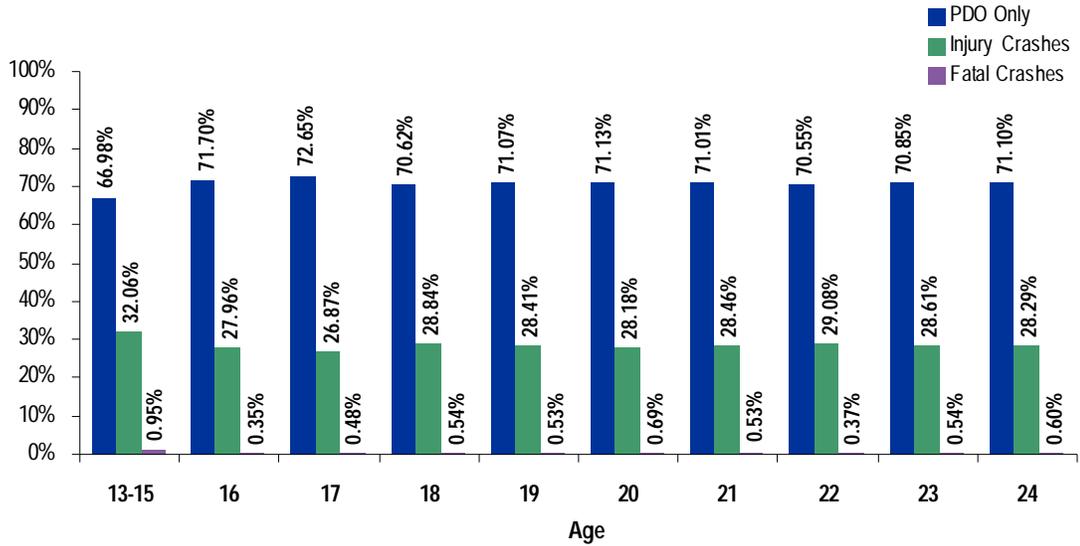
Teens and 23 and 24 year-old drivers have the highest crash rates.
 Drivers age 24 and younger have much higher crash rates than older drivers.

III.2 Crash Severity Per 1,000 population, by Age Cohort
 Note: 34,013 PDO crash drivers, 8,756 injury crash drivers, and 31 fatal crash drivers were unknown.
 Source: 2004 CDOT Crash Database.

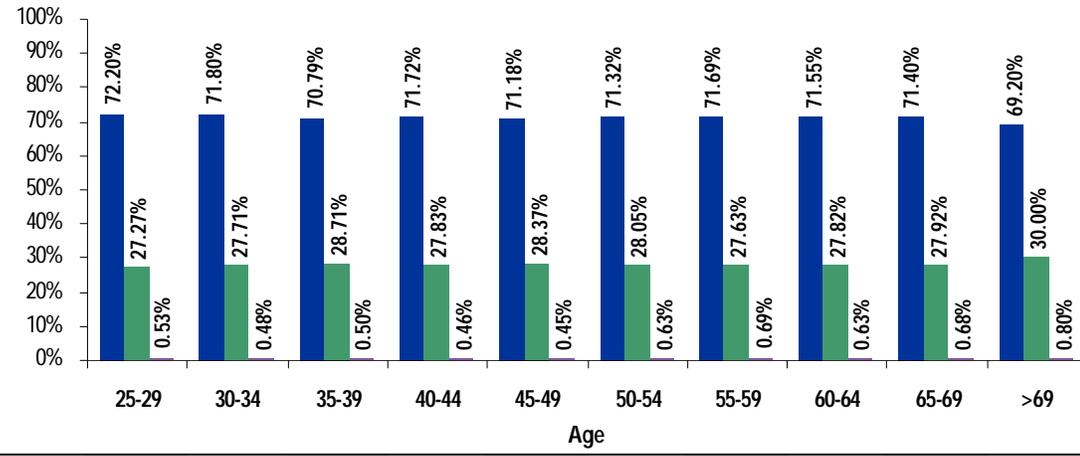


Age Cohort	13-15	16	17	18	19	20	21	22	23	24
PDO Crashes	422	3,924	4,259	4,326	4,050	3,831	3,765	3,464	3,512	3,292
Injury Crashes	202	1,530	1,575	1,767	1,619	1,518	1,509	1,428	1,418	1,310
Fatal Crashes	6	19	28	33	30	37	28	18	27	28
Total Population	196,133	64,736	65,563	72,219	78,019	76,968	75,614	65,824	57,605	56,734
Age Cohort	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	69+
PDO Crashes	13,451	12,290	10,824	11,626	10,367	8,636	6,464	3,981	2,537	4,687
Injury Crashes	5,080	4,743	4,390	4,511	4,132	3,396	2,491	1,548	992	2,032
Fatal Crashes	98	83	77	74	65	76	62	35	24	54
Total Population	316,217	359,421	346,217	383,698	371,849	329,051	260,865	181,813	130,558	316,379

III.3 Distribution of Crash Severity by Driver Age
 Note: 34,013 PDO crash drivers, 8,756 injury crash drivers, and 31 fatal crash drivers were unknown.
 Source: 2004 CDOT Crash Database.



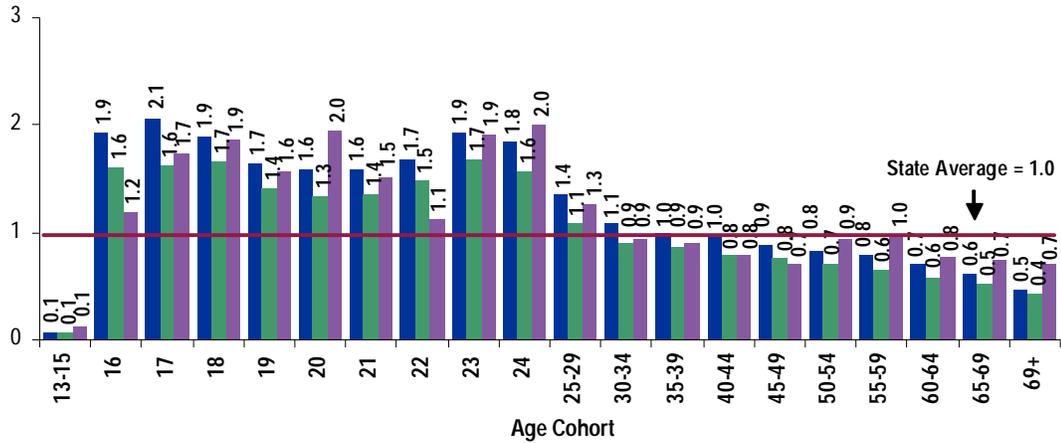
	13-15	16	17	18	19	20	21	22	23	24
PDO Crashes	422	3,924	4,259	4,326	4,050	3,831	3,765	3,464	3,512	3,292
Injury Crashes	202	1,530	1,575	1,767	1,619	1,518	1,509	1,428	1,418	1,310
Fatal Crashes	6	19	28	33	30	37	28	18	27	28
Total Crashes	630	5,473	5,862	6,126	5,699	5,386	5,302	4,910	4,957	4,630



	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	>69
PDO Crashes	13,451	12,290	10,824	11,626	10,367	8,636	6,464	3,981	2,537	4,687
Injury Crashes	5,080	4,743	4,390	4,511	4,132	3,396	2,491	1,548	992	2,032
Fatal Crashes	98	83	77	74	65	76	62	35	24	54
Total Crashes	18,629	17,116	15,291	16,211	14,564	12,108	9,017	5,564	3,553	6,773

For most age groups, about 70% of all crashes are PDO crashes.

III.4 Colorado Crash Involvement Index by Crash Severity and Age
 Note: Age was not reported for 42,800 drivers involved in crashes, or 20% of all crash drivers.
 Source: 2004 CDOT Crash Database.

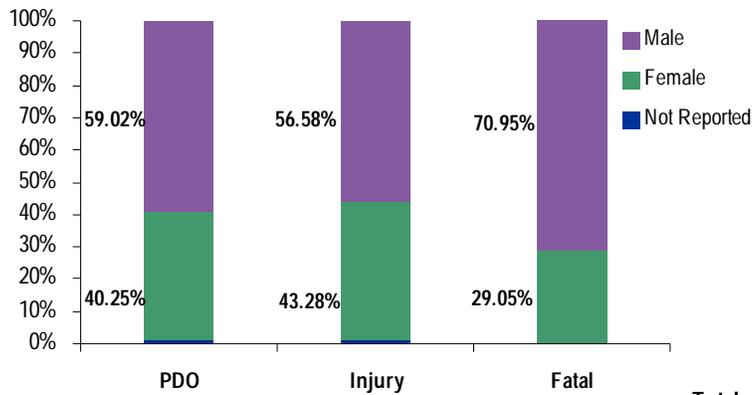


Age Cohort	13-15	16	17	18	19	20	21	22	23	24
PDO Drivers	422	3,924	4,259	4,326	4,050	3,831	3,765	3,464	3,512	3,292
Injury Drivers	202	1,530	1,575	1,767	1,619	1,518	1,509	1,428	1,418	1,310
Fatal Drivers	6	19	28	33	30	37	28	18	27	28
Population	196,133	64,736	65,563	72,219	78,019	76,968	75,614	65,824	57,605	56,734

Age Cohort	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	69+
PDO Drivers	13,451	12,290	10,824	11,626	10,367	8,636	6,464	3,981	2,537	4,687
Injury Drivers	5,080	4,743	4,390	4,511	4,132	3,396	2,491	1,548	992	2,032
Fatal Drivers	98	83	77	74	65	76	62	35	24	54
Population	316,217	359,421	346,217	383,698	371,849	329,051	260,865	181,813	130,558	316,379

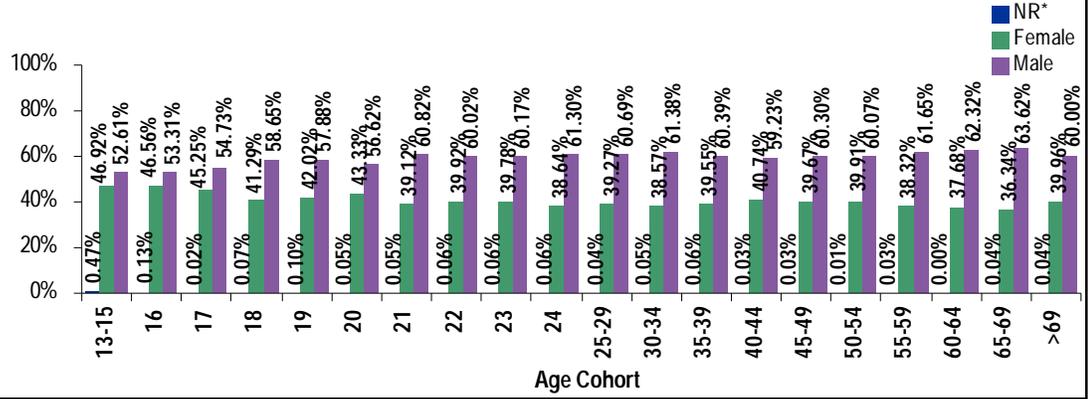
24 year-old drivers were involved in twice as many crashes than expected.
 71% of fatal crash drivers are men.

III.5 Sex of Driver by Severity of Crash
 Source: 2004 CDOT Crash Database.



	Not Reported	Female	Male	Total
Not Reported	0.13%	203	0.14%	76
Female	40.25%	61,867	43.28%	24,214
Male	59.02%	91,651	56.58%	31,657
Total				
	0	0	0	279
	29.05%	271	70.95%	662
		86,352		123,970

III.6 Drivers Involved in PDO Crashes by Age and Gender
 Note: Of the 119,708 total drivers, 55 were not reported, 47,996 were female and 71,657 were male.
 Source: 2004 CDOT Crash Database.

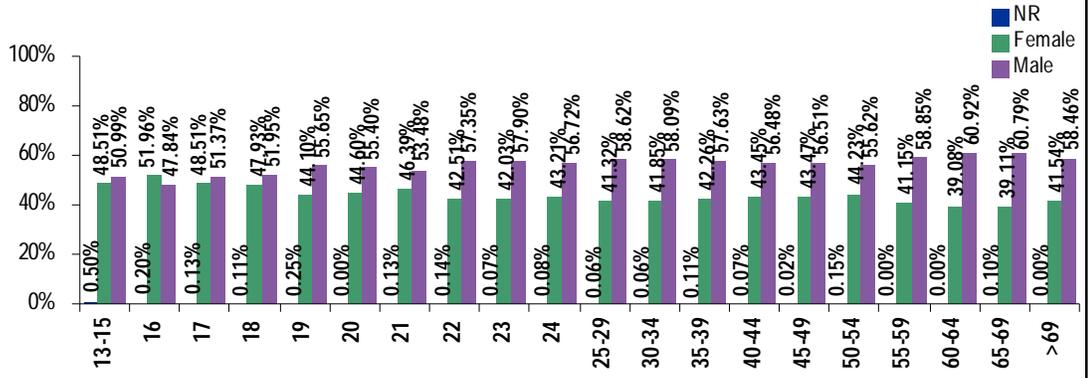


Age Cohort	13-15	16	17	18	19	20	21	22	23	24
Not Reported	2	5	1	3	4	2	2	2	2	2
Female Drivers	198	1,827	1,927	1,786	1,702	1,660	1,473	1,383	1,397	1,272
Male Drivers	222	2,092	2,331	2,537	2,344	2,169	2,290	2,079	2,113	2,018
Total Drivers	422	3,924	4,259	4,326	4,050	3,831	3,765	3,464	3,512	3,292

Age Cohort	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	>69
Not Reported	5	6	6	4	3	1	2	0	1	2
Female Drivers	5,282	4,740	4,281	4,736	4,113	3,447	2,477	1,500	922	1,873
Male Drivers	8,164	7,544	6,537	6,886	6,251	5,188	3,985	2,481	1,614	2,812
Total Drivers	13,451	12,290	10,824	11,626	10,367	8,636	6,464	3,981	2,537	4,687

As drivers age, men are more likely than women to be PDO crash drivers.
 Among 24 year-old injury crash drivers, 43% are women.

III.7 Drivers Involved in Injury Crashes by Age and Gender
 Note: Of the 47,191 injury drivers, 39 drivers were not reported, 20,423 were female and 26,729 were male.
 Source: 2004 CDOT Crash Database.



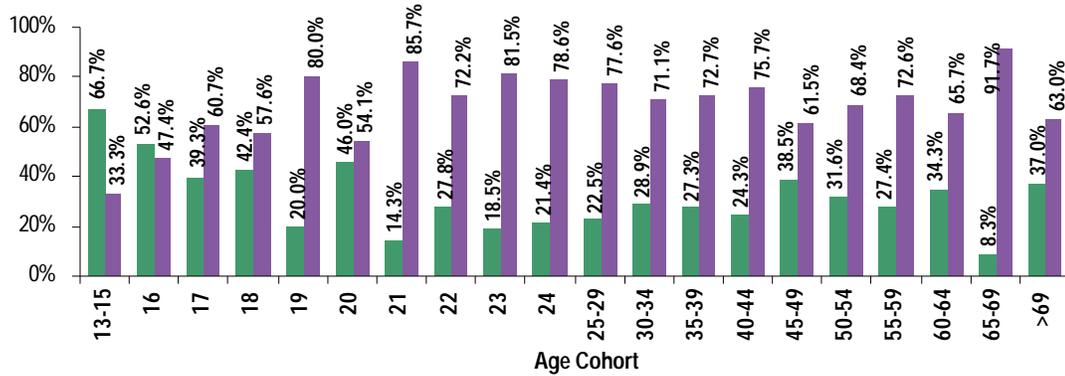
Age Cohort	13-15	16	17	18	19	20	21	22	23	24
Not Reported	1	3	2	2	4	0	2	2	1	1
Female Drivers	98	795	764	847	714	677	700	607	596	566
Male Drivers	103	732	809	918	901	841	807	819	821	743
Total Drivers	202	1,530	1,575	1,767	1,619	1,518	1,509	1,428	1,418	1,310

Age Cohort	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	>69
Not Reported	3	3	5	3	1	5	0	0	1	0
Female Drivers	2,099	1,985	1,855	1,960	1,796	1,502	1,025	605	388	844
Male Drivers	2,978	2,755	2,530	2,548	2,335	1,889	1,466	943	603	1,188
Total Drivers	5,080	4,743	4,390	4,511	4,132	3,396	2,491	1,548	992	2,032

III.8 Drivers Involved in Fatal Crashes by Age and Gender

Note: Of the 902 fatal drivers, 267 were female and 635 were male.

Source: 2004 CDOT Crash Database.



Age Cohort	13-15	16	17	18	19	20	21	22	23	24
Female Drivers	4	10	11	14	6	17	4	5	5	6
Male Drivers	2	9	17	19	24	20	24	13	22	22
Total Drivers	6	19	28	33	30	37	28	18	27	28

Age Cohort	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	>69
Female Drivers	22	24	21	18	25	24	17	12	2	20
Male Drivers	76	59	56	56	40	52	45	23	22	34
Total Drivers	98	83	77	74	65	76	62	35	24	54

86% of 21 year-old fatal crash drivers are male.

62% of Broomfield's injury and fatal crash drivers are male, compared to 52% in Boulder.

III.9 Resident Drivers Involved in Injury and Fatal Crashes in Colorado Counties by Gender

Source: 2004 CDOT Crash Database.

	Female		Male		Not Reported		Total Number
	Number	Percent	Number	Percent	Number	Percent	
Largest Counties							
Denver	3,139	42.29%	4,269	57.51%	15	0.20%	7,423
Jefferson	2,977	44.54%	3,698	55.33%	9	0.13%	6,684
Arapahoe	3,019	45.45%	3,616	54.44%	7	0.11%	6,642
El Paso	2,929	44.70%	3,621	55.27%	2	0.03%	6,552
Adams	2,183	42.10%	2,996	57.78%	6	0.12%	5,185
Boulder	1,657	48.00%	1,792	51.91%	3	0.09%	3,452
Larimer	1,285	45.42%	1,540	54.44%	4	0.14%	2,829
Weld	1,011	40.93%	1,455	58.91%	4	0.16%	2,470
Pueblo	954	44.15%	1,206	55.81%	1	0.05%	2,161
Douglas	988	45.95%	1,159	53.91%	3	0.14%	2,150
Mesa	703	45.95%	826	53.99%	1	0.07%	1,530
Broomfield	189	38.18%	306	61.82%	0	0.00%	495
Central Mountains							
Fremont	143	40.28%	212	59.72%	0	0.00%	355
Teller	119	47.22%	133	52.78%	0	0.00%	252
Park	61	43.57%	79	56.43%	0	0.00%	140
Chaffee	44	37.93%	72	62.07%	0	0.00%	116
Lake	29	38.16%	47	61.84%	0	0.00%	76
Clear Creek	21	39.62%	32	60.38%	0	0.00%	53
Custer	7	38.89%	11	61.11%	0	0.00%	18
Gilpin	4	23.53%	13	76.47%	0	0.00%	17

	Female		Male		Not Reported		Total Number
	Number	Percent	Number	Percent	Number	Percent	
Eastern Plains							
Elbert	126	45.00%	153	54.64%	1	0.36%	280
Morgan	110	43.31%	144	56.69%	0	0.00%	254
Logan	65	45.45%	78	54.55%	0	0.00%	143
Las Animas	66	50.38%	64	48.85%	1	0.76%	131
Otero	45	39.47%	69	60.53%	0	0.00%	114
Yuma	36	42.86%	48	57.14%	0	0.00%	84
Prowers	34	44.74%	42	55.26%	0	0.00%	76
Huerfano	22	44.00%	28	56.00%	0	0.00%	50
Kit Carson	20	43.48%	26	56.52%	0	0.00%	46
Phillips	17	47.22%	19	52.78%	0	0.00%	36
Bent	7	20.59%	26	76.47%	1	2.94%	34
Crowley	15	46.88%	17	53.13%	0	0.00%	32
Washington	15	48.39%	16	51.61%	0	0.00%	31
Lincoln	11	52.38%	10	47.62%	0	0.00%	21
Baca	6	30.00%	14	70.00%	0	0.00%	20
Sedgwick	7	43.75%	9	56.25%	0	0.00%	16
Cheyenne	2	20.00%	8	80.00%	0	0.00%	10
Kiowa	3	75.00%	1	25.00%	0	0.00%	4
Gunnison Valley							
Montrose	133	43.46%	173	56.54%	0	0.00%	306
Delta	80	38.10%	130	61.90%	0	0.00%	210
Gunnison	31	37.35%	52	62.65%	0	0.00%	83
San Miguel	13	26.53%	36	73.47%	0	0.00%	49
Ouray	9	52.94%	8	47.06%	0	0.00%	17
Northern Mtn. Resort							
Eagle	108	37.76%	178	62.24%	0	0.00%	286
Summit	63	38.65%	100	61.35%	0	0.00%	163
Routt	52	44.07%	66	55.93%	0	0.00%	118
Pitkin	37	43.02%	49	56.98%	0	0.00%	86
Grand	2	50.00%	2	50.00%	0	0.00%	4
Jackson	0	0.00%	3	100.00%	0	0.00%	3
Northwest Colorado							
Garfield	188	41.32%	267	58.68%	0	0.00%	455
Moffat	64	44.76%	78	54.55%	1	0.70%	143
Rio Blanco	14	33.33%	28	66.67%	0	0.00%	42
San Luis Valley							
Alamosa	47	40.52%	69	59.48%	0	0.00%	116
Rio Grande	37	43.53%	48	56.47%	0	0.00%	85
Conejos	29	46.03%	34	53.97%	0	0.00%	63
Saguache	26	44.07%	33	55.93%	0	0.00%	59
Costilla	7	36.84%	12	63.16%	0	0.00%	19
Mineral	3	100.00%	0	0.00%	0	0.00%	3
Southwest Colorado							
La Plata	199	42.98%	263	56.80%	1	0.22%	463
Montezuma	84	40.00%	126	60.00%	0	0.00%	210
Archuleta	40	48.78%	42	51.22%	0	0.00%	82
Dolores	2	28.57%	5	71.43%	0	0.00%	7
San Juan	1	25.00%	3	75.00%	0	0.00%	4
Hinsdale	1	33.33%	2	66.67%	0	0.00%	3
Total	23,374		29,710		60		53,144

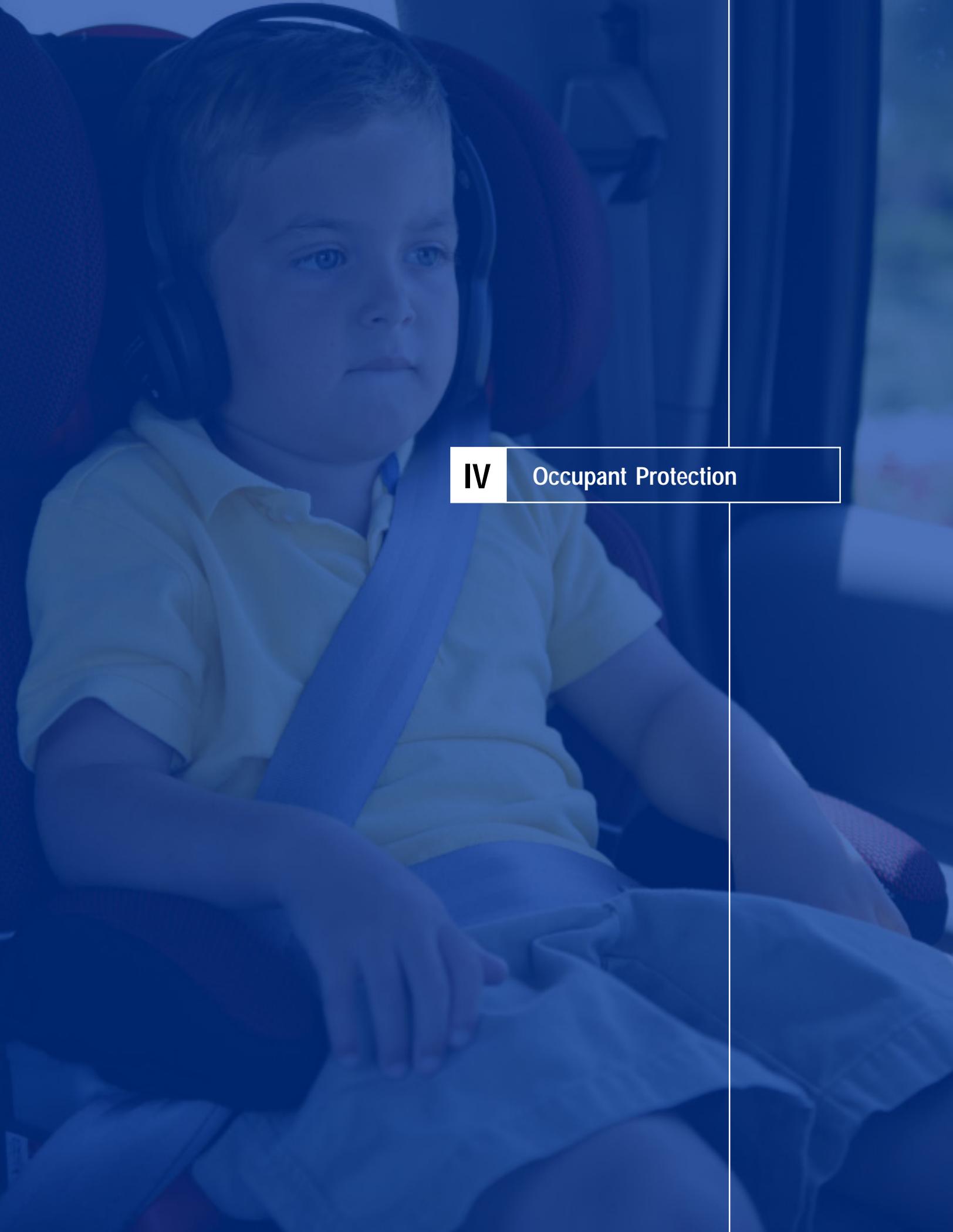
III.10 Resident Drivers Involved in Injury and Fatal Crashes by Age
Source: 2004 CDOT Crash Database.

County	<17 Years		17-21Years		22-24 Years		25-54 Years		55-64 Years		> 65 Years		Total
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
Largest Counties													
Denver	100	1.35%	2,734	36.83%	572	7.71%	3,269	44.04%	389	5.24%	359	4.84%	7,423
Jefferson	203	3.04%	2,019	30.21%	434	6.49%	3,119	46.66%	523	7.82%	386	5.77%	6,684
Arapahoe	178	2.68%	2,560	38.54%	457	6.88%	2,762	41.58%	420	6.32%	265	3.99%	6,642
El Paso	202	3.08%	1,594	24.33%	591	9.02%	3,284	50.12%	513	7.83%	368	5.62%	6,552
Adams	137	2.64%	1,631	31.46%	444	8.56%	2,478	47.79%	316	6.09%	179	3.45%	5,185
Boulder	112	3.24%	1,052	30.48%	257	7.44%	1,622	46.99%	254	7.36%	155	4.49%	3,452
Larimer	108	3.82%	807	28.53%	233	8.24%	1,306	46.16%	200	7.07%	175	6.19%	2,829
Weld	91	3.68%	783	31.70%	179	7.25%	1,179	47.73%	147	5.95%	91	3.68%	2,470
Pueblo	88	4.07%	530	24.53%	166	7.68%	985	45.58%	198	9.16%	194	8.98%	2,161
Douglas	101	4.70%	551	25.63%	106	4.93%	1,166	54.23%	159	7.40%	67	3.12%	2,150
Mesa	92	6.01%	374	24.44%	101	6.60%	666	43.53%	139	9.08%	158	10.33%	1,530
Broomfield	14	2.83%	138	27.88%	36	7.27%	258	52.12%	27	5.45%	22	4.44%	495
Central Mountains													
Fremont	8	2.25%	117	32.96%	28	7.89%	145	40.85%	38	10.70%	19	5.35%	355
Teller	10	3.97%	47	18.65%	8	3.17%	154	61.11%	23	9.13%	10	3.97%	252
Park	4	2.86%	29	20.71%	3	2.14%	77	55.00%	18	12.86%	9	6.43%	140
Chaffee	8	6.90%	21	18.10%	9	7.76%	50	43.10%	11	9.48%	17	14.66%	116
Lake	3	3.95%	13	17.11%	6	7.89%	47	61.84%	4	5.26%	3	3.95%	76
Clear Creek	1	1.89%	11	20.75%	3	5.66%	33	62.26%	1	1.89%	4	7.55%	53
Custer	2	11.11%	5	27.78%	0	0.00%	8	44.44%	1	5.56%	2	11.11%	18
Gilpin	0	0.00%	3	17.65%	3	17.65%	8	47.06%	1	5.88%	2	11.76%	17
Eastern Plains													
Elbert	20	7.14%	73	26.07%	12	4.29%	141	50.36%	17	6.07%	17	6.07%	280
Morgan	23	9.06%	56	22.05%	17	6.69%	122	48.03%	16	6.30%	20	7.87%	254
Logan	8	5.59%	33	23.08%	12	8.39%	62	43.36%	9	6.29%	19	13.29%	143
Las Animas	6	4.58%	27	20.61%	3	2.29%	70	53.44%	13	9.92%	12	9.16%	131
Otero	4	3.51%	32	28.07%	11	9.65%	50	43.86%	6	5.26%	11	9.65%	114
Yuma	7	8.33%	17	20.24%	4	4.76%	38	45.24%	8	9.52%	10	11.90%	84
Prowers	4	5.26%	20	26.32%	5	6.58%	34	44.74%	5	6.58%	8	10.53%	76
Huerfano	1	2.00%	12	24.00%	3	6.00%	25	50.00%	3	6.00%	6	12.00%	50
Kit Carson	4	8.70%	15	32.61%	8	17.39%	14	30.43%	1	2.17%	4	8.70%	46
Phillips	3	8.33%	7	19.44%	0	0.00%	20	55.56%	3	8.33%	3	8.33%	36
Bent	3	8.82%	11	32.35%	2	5.88%	12	35.29%	4	11.76%	2	5.88%	34
Crowley	1	3.13%	5	15.63%	2	6.25%	17	53.13%	2	6.25%	5	15.63%	32
Washington	1	3.23%	11	35.48%	1	3.23%	14	45.16%	1	3.23%	3	9.68%	31
Lincoln	0	0.00%	3	14.29%	1	4.76%	10	47.62%	3	14.29%	4	19.05%	21
Baca	2	10.00%	7	35.00%	1	5.00%	8	40.00%	2	10.00%	0	0.00%	20
Sedgwick	2	12.50%	4	25.00%	3	18.75%	4	25.00%	0	0.00%	3	18.75%	16
Cheyenne	2	20.00%	2	20.00%	0	0.00%	3	30.00%	2	20.00%	1	10.00%	10
Kiowa	0	0.00%	2	50.00%	0	0.00%	2	50.00%	0	0.00%	0	0.00%	4
Gunnison Valley													
Montrose	11	3.59%	60	19.61%	20	6.54%	148	48.37%	23	7.52%	44	14.38%	306
Delta	12	5.71%	58	27.62%	10	4.76%	91	43.33%	18	8.57%	21	10.00%	210

County	<17 Years		17-21Years		22-24 Years		25-54 Years		55-64 Years		> 65 Years		Total
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
Gunnison	5	6.02%	23	27.71%	12	14.46%	34	40.96%	6	7.23%	3	3.61%	83
San Miguel	0	0.00%	9	18.37%	3	6.12%	34	69.39%	3	6.12%	0	0.00%	49
Ouray	0	0.00%	2	11.76%	0	0.00%	12	70.59%	2	11.76%	1	5.88%	17
Northern Mountain Resort													
Eagle	10	3.50%	50	17.48%	19	6.64%	178	62.24%	21	7.34%	8	2.80%	286
Summit	7	4.29%	34	20.86%	15	9.20%	92	56.44%	11	6.75%	4	2.45%	163
Routt	7	5.93%	33	27.97%	10	8.47%	62	52.54%	3	2.54%	3	2.54%	118
Pitkin	7	8.14%	30	34.88%	3	3.49%	38	44.19%	4	4.65%	4	4.65%	86
Grand	2	3.08%	13	20.00%	2	3.08%	38	58.46%	8	12.31%	2	3.08%	65
Grand	2	3.08%	13	20.00%	2	3.08%	38	58.46%	8	12.31%	2	3.08%	65
Jackson	0	0.00%	1	33.33%	2	66.67%	0	0.00%	0	0.00%	0	0.00%	3
Northwest Colorado													
Garfield	16	3.52%	119	26.15%	34	7.47%	245	53.85%	27	5.93%	14	3.08%	455
Moffat	4	2.80%	34	23.78%	13	9.09%	76	53.15%	13	9.09%	3	2.10%	143
Rio Blanco	3	7.14%	9	21.43%	3	7.14%	18	42.86%	5	11.90%	4	9.52%	42
San Luis Valley													
Alamosa	7	6.03%	19	16.38%	15	12.93%	59	50.86%	10	8.62%	6	5.17%	116
Rio Grande	4	4.71%	22	25.88%	6	7.06%	41	48.24%	6	7.06%	6	7.06%	85
Conejos	6	9.52%	13	20.63%	3	4.76%	29	46.03%	8	12.70%	4	6%	63
Saguache	2	3.39%	12	20.34%	4	6.78%	30	50.85%	7	11.86%	4	6.78%	59
Costilla	2	10.53%	1	5.26%	0	0.00%	11	57.89%	2	10.53%	3	15.79%	19
Mineral	0	0.00%	0	0.00%	0	0.00%	2	66.67%	0	0.00%	1	33.33%	3
Southwest Colorado													
La Plata	24	5.18%	103	22.25%	35	7.56%	227	49.03%	38	8.21%	36	7.78%	463
Montezuma	14	6.67%	51	24.29%	10	4.76%	90	42.86%	22	10.48%	23	10.95%	210
Archuleta	5	6.10%	12	14.63%	5	6.10%	39	47.56%	13	15.85%	8	9.76%	82
Dolores	1	14.29%	0	0.00%	1	14.29%	2	28.57%	2	28.57%	1	14.29%	7
San Juan	0	0.00%	0	0.00%	1	25.00%	1	25.00%	2	50.00%	0	0.00%	4
Hinsdale	0	0.00%	2	66.67%	0	0.00%	1	33.33%	0	0.00%	0	0.00%	3
Total	1,702		16,071		3,947		24,870		3,735		2,819		53,144

Teen drivers from Eastern Plains counties comprise a greater proportion of injury and fatal crash drivers than in other regions of the state.

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IV Occupant Protection



Occupant Protection

This section examines survey and crash data related to occupant protection use. Drivers from the more urban Front Range have consistently higher seat belt use rates over time than drivers from the state's rural counties.

- 34% of Eastern Plains residents involved in incapacitating crashes were not using a seat belt at the time of crash, compared to 12% of Arapahoe County residents.
- Among large counties, Pueblo and Weld counties had the highest reported seat belt non-use by drivers involved in the most severe crashes (27 and 26 respectively) that occurred in these counties.
- In 2006, 30% of juveniles ages 5 to 15 were improperly restrained (2006 Juvenile Observational Seat Belt Survey).
- Three out of ten drivers on the Eastern Plains do not use seat belts.
- In 2006, 15% of children ages 0 to 4 were improperly restrained (2006 Juvenile Observational Seat Belt Survey).

OCCUPANT PROTECTION OVERVIEW, BASELINES AND TRENDS

This section presents data related to Colorado drivers' use of occupant protection. In many cases, analyses of occupant protection focus on the most severe crashes, those with an apparent, incapacitating or fatal injury, because it is the study team's belief that these more severe crashes have the most accurate occupant protection data. In addition to occupant protection use reported in crashes, this section also presents results from CDOT's statewide observational seat belt survey.

ADULT OCCUPANT PROTECTION

Statewide seat belt use rose to a new high of 80.3% in 2006 (Exhibit IV.1). Seat belt use increased at a slower rate from 2004 to 2006 than in prior years. This may suggest that new strategies are needed to reach those drivers who continue to resist wearing a seat belt.

Drivers on Colorado's Eastern Plains continue to be less likely than other drivers statewide to use seat belts (Exhibit IV.2). In 2006, drivers on the Eastern Plains were 17% less likely than Front Range drivers to use seat belts. Since 2003, drivers in the Western Region have increased their seat belt use and have begun to close the gap on the Front Range.

Exhibit IV.3 presents reported occupant protection use for PDO, injury and fatal crashes. Occupants in fatal crashes had the lowest observed seat belt use—one in three occupants of fatal crashes were not wearing a seat belt. Exhibit IV.3 demonstrates that 62% of drivers involved in fatal crashes use seat belts.

CHILD OCCUPANT PROTECTION

Exhibits IV.4 and IV.5 present the results of CDOT's annual observational survey of child and juvenile restraint use. In 2006, about 15% of children ages 0 to 4 were improperly restrained (Exhibit IV.4).

OCCUPANT PROTECTION BY LOCATION OF CRASH

Exhibit IV.6 presents the reported seat belt use of drivers involved in incapacitating (serious) crashes that occurred in the state's largest cities. Centennial (84%), Littleton (81%) and Longmont (80%) had the highest reported seat belt use. Drivers involved in serious crashes in Lakewood (69%), Ft. Collins (66%) and Loveland (65%) had the lowest reported seat belt use rates.

Exhibit IV.7 shows the reported seat belt use by drivers involved in serious crashes that occurred in the state's largest counties. Boulder (79%) and Arapahoe (79%) counties had the highest reported seat belt use. Larimer (66%) and Weld (69%) counties had the lowest.

OCCUPANT PROTECTION BY GENDER AND AGE

Among those drivers in incapacitating injury crashes who were not wearing a seat belt, 77% were men (Exhibit IV.8).

Exhibit IV.9 presents the distribution by age of all drivers in incapacitating injury crashes who were not using a seat belt at the time of crash. Drivers ages 25 to 29 had the greatest proportion of unbelted drivers (12%).

OCCUPANT PROTECTION BY DRIVER IMPAIRMENT

Drivers suspected of being impaired were less likely than non-impaired drivers to use seat belts (Exhibit IV.10) when involved in an incapacitating crash.

OCCUPANT PROTECTION BY DRIVER COUNTY OF RESIDENCE

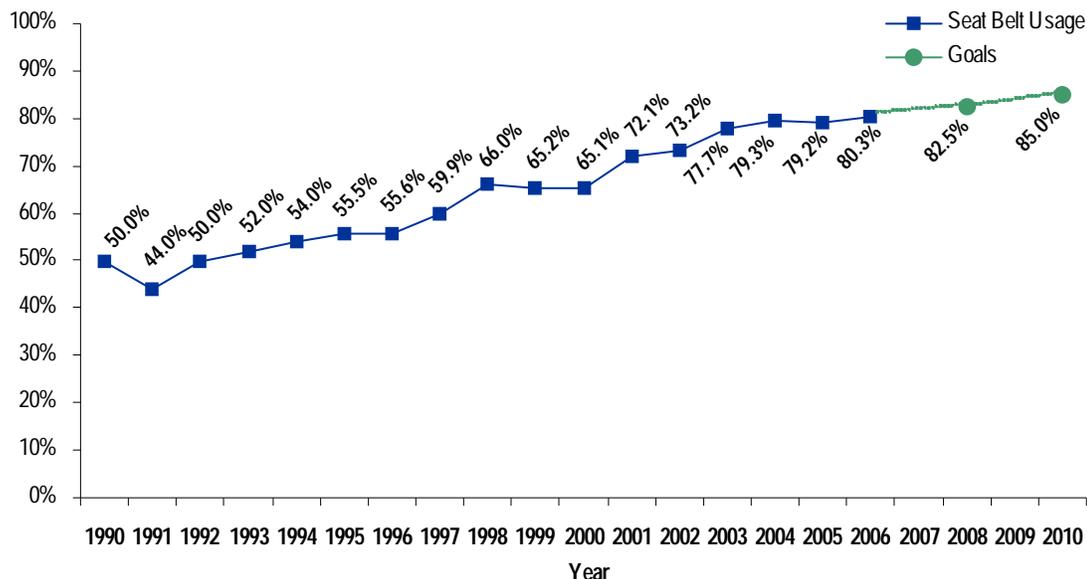
Exhibit IV.11 examines seat belt use by the county of driver residence for those drivers involved in incapacitating crashes. Not surprisingly, residents of the state's more rural areas were much less likely than urban residents to use seat belts at the time of a serious crash. For example, 34% of Eastern Plains residents involved in incapacitating crashes were not wearing a seat belt, compared to 12% of Arapahoe County residents.

USE OF HELMETS IN MOTORCYCLE CRASHES

Exhibits IV.12 and IV.13 examine use of helmets in fatal crashes as reported by FARS. In 2004, 76% of motorcycle riders and passengers were not wearing a helmet at the time of the crash (Exhibit IV.12). In 2004, 99% of the riders and passengers not wearing a helmet died.

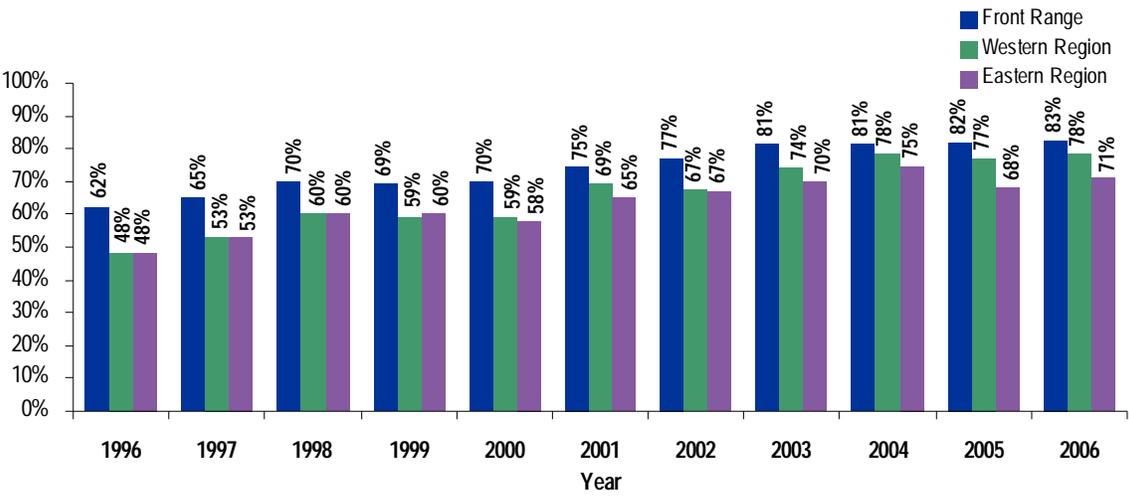
IV.1 Overall Seat Belt Use Rate, Current and Projected, 1990-2006

Source: 2006 Seat Belt Study conducted by the Institute of Transportation Management, Colorado State University. Projections from CDOT Safety & Engineering Branch, Integrated Safety Plan.



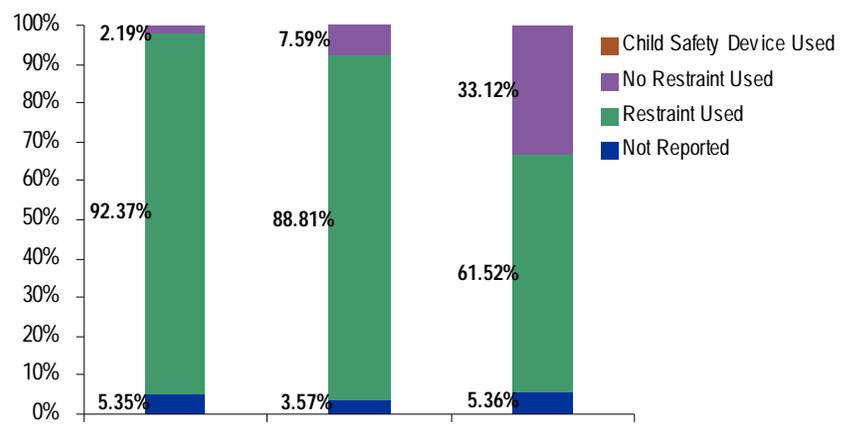
Statewide seat belt use rose to 80.3% in 2006.

IV.2 Colorado Regional Seat Belt Use, 1997-2006
 Source: Annual Seat Belt Surveys conducted by the CSU Institute of Transportation Management on behalf of CDOT.



Seat belt use on the Eastern Plains is consistently lower than other regions.
 62% of fatal crash drivers use seat belts.

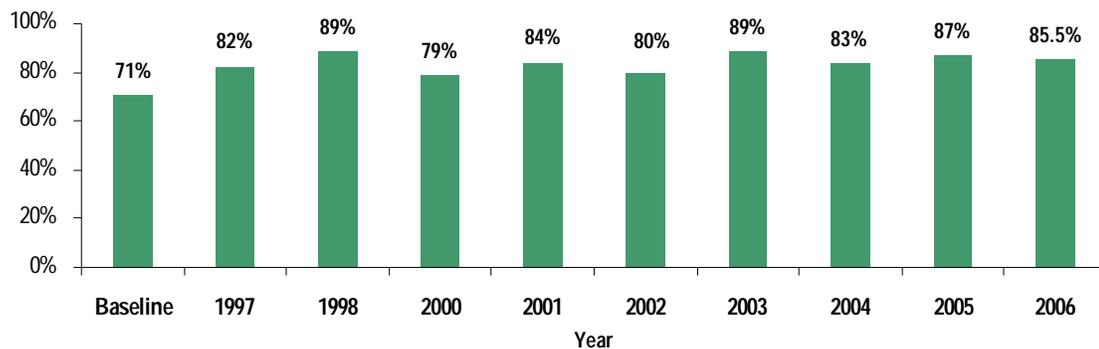
IV.3 Occupant Protection Use by Drivers in Crashes
 Source: 2004 CDOT Crash Database.



	PDO Crashes	Injury Crashes	Fatal Crashes	Total
Not Reported	5.35% 8,221	3.57% 1,996	5.36% 50	10,267
Restraint Used	92.37% 141,985	88.81% 49,688	61.52% 574	192,247
No Restraint Used	2.19% 3,362	7.59% 4,248	33.12% 309	7,919
Child Safety Device Used	0.10% 153	0.03% 15	0.00% 0	168

IV.4 Colorado Car Seat Use of Children Age 0 to 4, 1997-2006

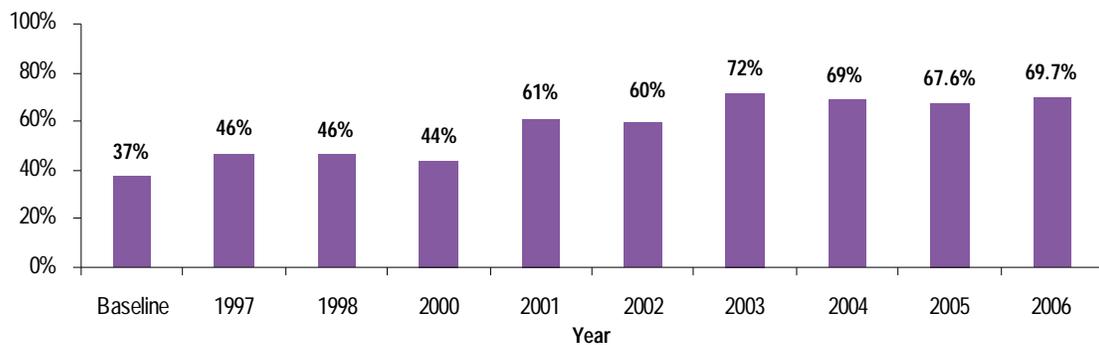
*Note: A Child/Juvenile seat belt study was not conducted in 1999. Children are between the ages of 0 and 4 years of age.
Source: 2006 Seat Belt Study conducted by the Institute of Transportation Management, Colorado State University.*



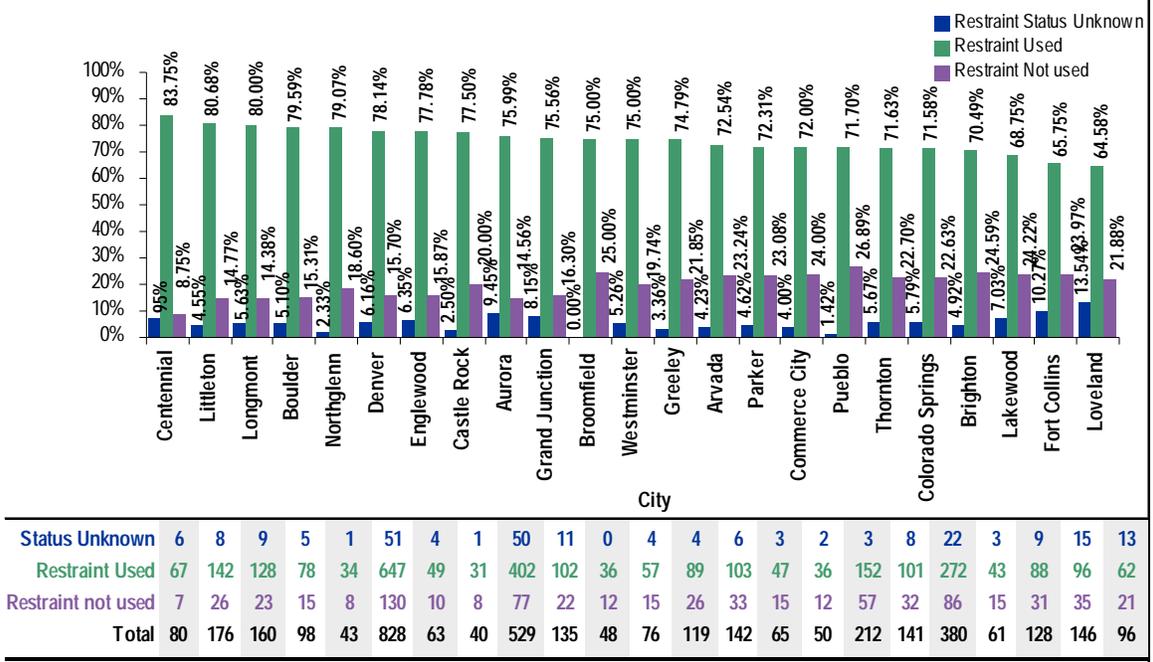
15% of children ages 0 to 4 were improperly restrained in 2006.
30% of children ages 5 to 15 were not wearing seat belts in 2006.

IV.5 Colorado Seat Belt Use by Children Ages 5 to 15, 1997-2006

*Note: A Child/Juvenile seat belt study was not conducted in 1999. Children are between the ages of 5 and 15 years of age.
Source: 2006 Seat Belt Study conducted by the Institute of Transportation Management, Colorado State University.*



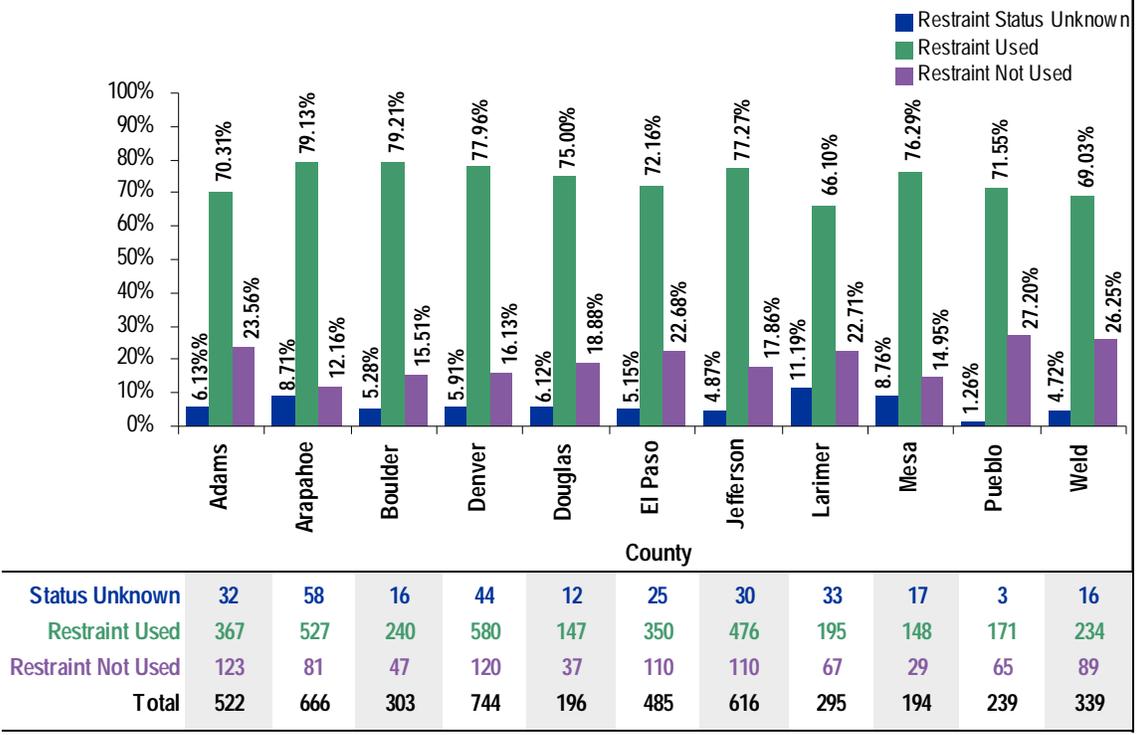
IV.6 Driver Protection of All Drivers in Incapacitating Injury Crashes, by Large City of Crash, 2004
 Source: 2004 CDOT Crash Database.



Lakewood, Ft. Collins and Loveland crash drivers had the lowest rates of seat belt use.

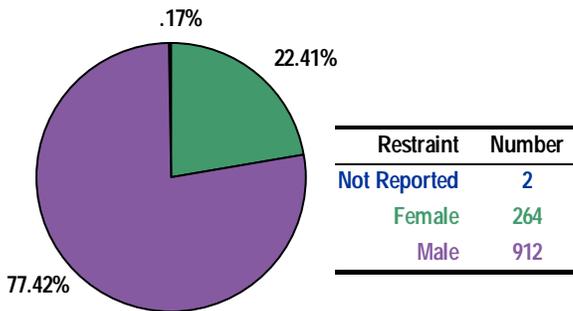
Larimer and Weld counties had the lowest rates of seat belt use among drivers in serious crashes.

IV.7 Driver Protection in Incapacitating Injury Crashes, by Large County of Crash, 2004
 Source: 2004 CDOT Crash Database.



IV.8 Incapacitating Injury Crashes of Drivers not Wearing Seat Belts by Gender

Source: 2004 CDOT Crash Database.



77% of unbelted drivers in serious crashes were men.

12% of unbelted drivers in serious crashes were ages 25 to 29.

Impaired drivers are less likely than sober drivers to use seat belts.

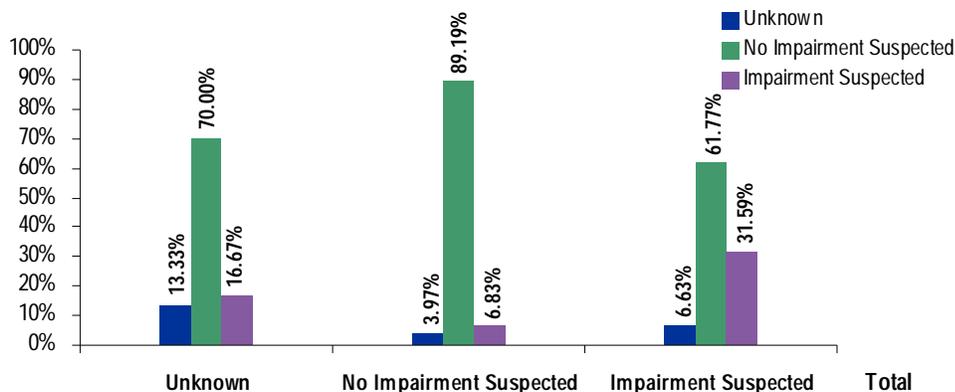
IV.9 Incapacitating Injury Crashes of Drivers not Wearing Seat Belts by Age

Source: 2004 CDOT Crash Database.



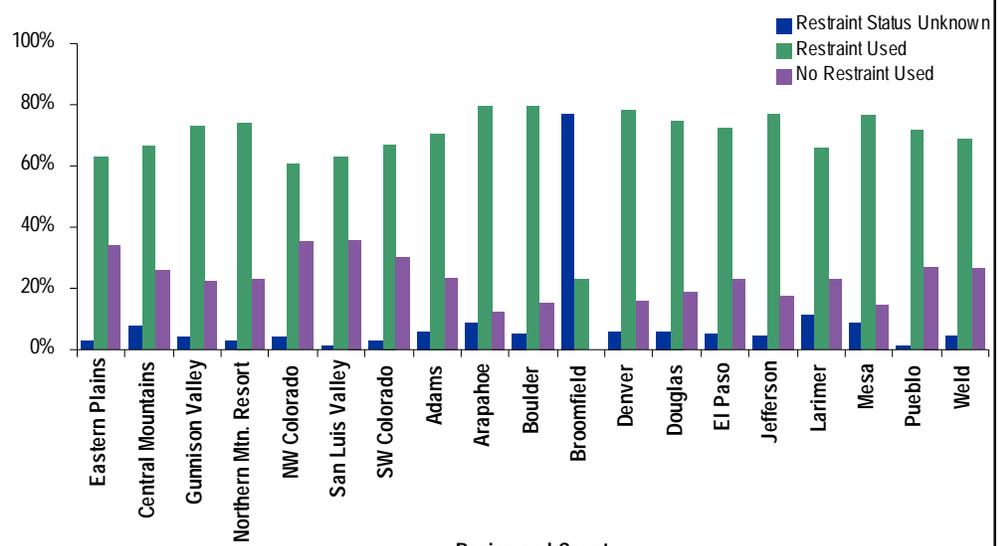
IV.10 Restraint Status of Incapacitating Injury Crashes by Impairment, 2004

Source: 2004 CDOT Crash Database.



	Unknown	No Impairment Suspected	Impairment Suspected	Total
Impairment Unknown	48	182	89	319
Restraint Used	252	4,085	829	5,166
No Restraint Used	60	313	424	797
Total Drivers	360	4,580	1,342	6,282

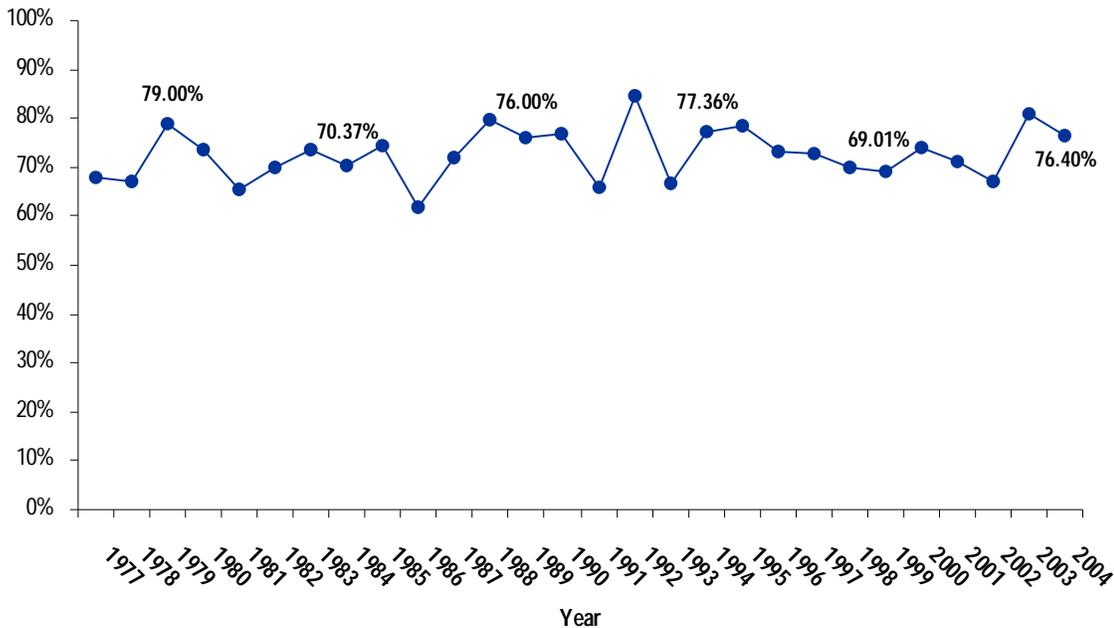
IV.11 Restraint Status of Driver in Incapacitating Crashes by Region and County of Residence
 Source: 2004 CDOT Crash Database.



		Region and County									
		Eastern Plains	Central Mtns.	Gunnison Valley	Northern Mtn.	NW Colorado	San Luis Valley	SW Colorado	Adams	Arapahoe	Boulder
Restraint Status Unknown	8	12	5	3	4	1	5	32	58	16	
	3.20%	7.40%	4.30%	2.80%	4.20%	1.40%	2.90%	6.13%	8.71%	5.28%	
Restraint Used	157	107	84	78	57	46	116	367	527	240	
	62.80%	66.40%	73.00%	74.30%	60.60%	63.00%	67.00%	70.31%	79.13%	79.21%	
No Restraint Used	85	42	26	24	33	26	52	123	81	47	
	34.00%	26.10%	22.60%	22.80%	35.10%	35.60%	30.10%	23.56%	12.16%	15.51%	
Total	250	161	115	105	94	73	173	522	666	303	
		Broomfield	Denver	Douglas	El Paso	Jefferson	Larimer	Mesa	Pueblo	Weld	
Restraint Status Unknown	34	44	12	25	30	33	17	3	16		
	77.27%	5.91%	6.12%	5.15%	4.87%	11.19%	8.76%	1.26%	4.72%		
Restraint Used	10	580	147	350	476	195	148	171	234		
	22.73%	77.96%	75.00%	72.16%	77.27%	66.10%	76.29%	71.55%	69.03%		
No Restraint Used	---	120	37	110	110	67	29	65	89		
	---	16.13%	18.88%	22.68%	17.86%	22.71%	14.95%	27.20%	26.25%		
Total	44	744	196	485	616	295	194	239	339		

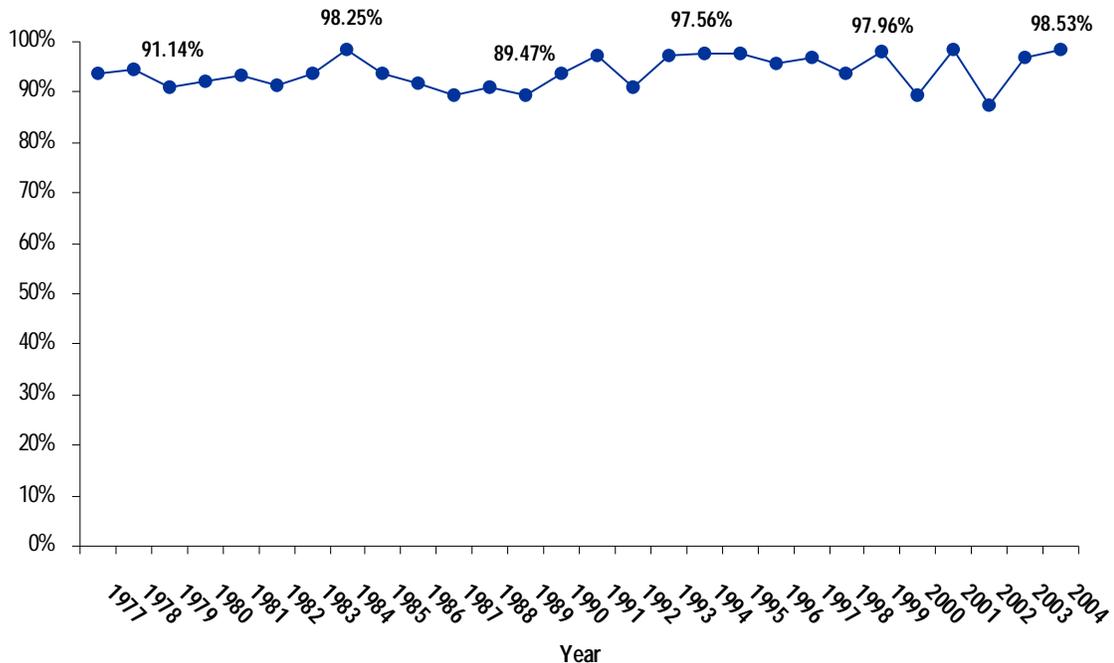
Rural drivers are less likely to use seat belts. For example, 34% of Eastern Plains serious crash drivers did not use seat belts, compared to only 12% of Arapahoe County drivers.

IV.12 Fatal Motorcycle Crashes, Proportion of Motorcyclists and Occupants Not Wearing a Helmet
 Source: National Highway Transportation Safety Administration, FARS data, 1977-2004.



76% of motorcycle riders in fatal crashes did not wear a helmet.
 99% of riders and passengers not wearing a helmet in a fatal crash died.

IV.13 Proportion of Motorcyclists and Occupants Not Wearing a Helmet that Were Injured
 Source: National Highway Transportation Safety Administration, FARS data, 1977-2004.





V

Impaired Drivers



Impaired Drivers

This section examines the role of driver impairment in crashes, with an emphasis on fatal crashes.

- One in ten injury crashes are alcohol-related and 37.2% of fatal crashes are alcohol-related.
- 9.8% of Littleton's injury crash drivers were impaired, compared to 1.7% in the City of Boulder. (Highest rate vs lowest rate among large cities).
- Among alcohol-impaired fatal crash drivers, the majority had recorded BAC levels that exceeded 0.10.
- Men are 39% more likely than women to be impaired, fatal crash drivers.
- One in ten (9.9%) injury crash drivers age 23 were impaired.
- Developing a program that specifically and strategically addresses post-college drivers ages 22 to 24 has the potential to reduce impaired driving in Colorado.

IMPAIRED DRIVER OVERVIEW, BASELINES AND TRENDS

This section examines the role of driver impairment in Colorado crashes using both the Fatality Analysis Reporting System (FARS) and CDOIT crash data.

ALCOHOL-RELATED FATAL CRASH TRENDS

Exhibit V.1 presents the ten-year trend in alcohol-related fatal crashes as reported by FARS. In 2004, 37.2% of all fatal crashes were alcohol-related and this proportion increased in 2005 to 38.1%. Exhibit V.2 shows fatal and alcohol-related fatal crash trends. In 2004, 216 of the 594 fatal crashes were alcohol-related.

For those fatal crash drivers who were impaired, Exhibit V.3 demonstrates the source of impairment that a driver tested positive for, whether alcohol or drugs. About 4% of adult fatal crash drivers were under the influence of drugs and no alcohol.

ALCOHOL-RELATED CRASHES

Exhibit V.4 compares the suspected rate of impaired driving by crash severity. In 2004, a driver was suspected of impairment in 10% of 3,303 injury crashes and in 4.7% of PDO crashes.

IMPAIRED DRIVERS BY CRASH LOCATION AND DRIVER RESIDENCE

Exhibit V.5 displays the role of impaired drivers involved in injury crashes by the large city where the crash occurred. Littleton (9.8%), Northglenn (7.4%) and Greeley (7.2%) had the highest percentages of suspected impaired drivers in injury crashes among the state's largest cities. Fewer than 4% of the injury crash drivers in Boulder, Brighton, Centennial, Grand Junction, Longmont and Parker were suspected of impaired driving. In 2004, the city of Boulder had the lowest rate of impaired injury crash drivers (1.7%).

Exhibit V.6 shows the source of impairment for resident drivers involved in injury and fatal crashes by the driver's county of residence. For example, 5.75% or 142 of Weld County residents involved in an injury or fatal crash were suspected of alcohol-impairment and 0.40% or 10 drivers were suspected of impairment by illegal drugs.

In Denver, El Paso, Adams and Jefferson counties more than 300 injury crash drivers were impaired (Exhibit V.7).

Exhibit V.8 presents the proportion of drivers who were suspected of impairment for each category of crash severity for the largest counties. In Weld County, 8% of all injury crash drivers were impaired, compared to 7.55% in Pueblo County and 6.35% in Adams County. Boulder County had the smallest proportion of impaired injury crash drivers at 3.91%.

BLOOD-ALCOHOL CONTENT (BAC)

The FARS data allow a thorough examination of the relative BAC of drivers involved in fatal crashes. The BAC series of exhibits explores BAC over time, by gender of driver and age of driver. Each are discussed in turn.

Exhibit V.9 presents the rate of impaired drivers, by BAC, over time. Each series of data essentially peels away a BAC level to expose the size of the remaining levels. What this exhibit reveals is that significantly more impaired drivers involved in fatal crashes have BAC levels that exceed 0.10 than those with recorded BAC levels greater than 0.0 but less than 0.10.

Exhibit V.10 presents a similar BAC exploration, but it focuses exclusively on those fatal crash drivers age 21 or older.

Exhibit V.11 compares the BAC of male and female fatal crash drivers. Although a smaller proportion of female fatal crash drivers are impaired, the BAC comparison demonstrates that regardless of gender, the greatest proportion of impaired fatal crash drivers have a BAC of 0.10 or greater. A side-by-side comparison of 2004 impaired fatal crash drivers by gender further makes this point (Exhibit V.12).

Exhibit V.13 presents the BAC trends for juvenile (teen) fatal crash drivers and all drivers age 21 and younger, over time. For those impaired juvenile fatal crash drivers, the reported BAC is 0.10 or lower. A side-by-side comparison of 2004 juvenile and underage impaired fatal crash drivers by gender further emphasizes this difference in BAC level (Exhibit V.14).

Exhibit V.15 shows the distribution of individual BAC readings as a proportion of all fatal crash drivers in 2004. (Not shown is the 63.8% of fatal crash drivers who were not impaired.)

GENDER AND AGE OF IMPAIRED DRIVERS

Exhibit V.16 presents alcohol-impairment trends, by gender, of fatal crash drivers. In 1983, 62% of the men involved in fatal crashes were alcohol-impaired, compared to 43.2% in 2004. Of the women involved in fatal crashes in 2004, 31% were alcohol-impaired. Exhibit V.17 examines the proportion of male and female fatal crash drivers who tested positive for alcohol or drugs as a percentage of all drivers.

Exhibit V.18 shows the proportion of impaired drivers, by age, involved in fatal crashes. For example, among fatal crash drivers between the ages of 25 and 29, 69% had positive BAC levels.

Exhibit V.19 presents the distribution of fatal crash drivers by age side-by-side with the age distribution of impaired fatal crash drivers. For example, drivers ages 30 to 34 represent 9% of all fatal crash drivers, but drivers in this age cohort represent 16.5% of all impaired fatal crash drivers.

Exhibit V.20 demonstrates that men are more likely than women to be an impaired driver, regardless of severity of crash or the source of impairment. For example, 6.7% of male injury crash drivers were alcohol-impaired, compared to 2.5% of women.

Exhibit V.21 calculates an impaired driving index by age of driver to assess whether or not an age cohort is over or under-represented in impaired driving crashes. For example, 2.9% of all injury crash drivers were age 23. If impaired driving were unrelated to age, we would expect that 23 year olds would be 2.9% of all impaired injury crash drivers. However, impaired driving is correlated with age. The index presented in Exhibit V.21 demonstrates the level of over-involvement that 23 year olds have as impaired drivers. In 2004, 23 year olds were impaired drivers at a rate that was 2.25 times higher than would be expected given their overall involvement in injury crashes.

Drivers age 23, 22, 24 and 21 are much more likely to be impaired drivers than drivers of any other age cohort.

Exhibit V.22 calculates an impaired driving rate per capita for various age cohorts. In 2004, 2.6 23 year olds per 1,000 23 year olds in the state were an impaired driver in an injury crash. Drivers between the ages of 22 and 24 had the highest rate of impaired driving per capita.

The source of driver impairment, by age, for injury crash drivers is shown in Exhibit V.23. The suspicion of impairment and its source vary by age. Alcohol is the most prevalent source of impairment. Among 23 year old impaired crash drivers, 9.9% were suspected of alcohol impairment, compared to 2.2% of 17 year olds and 3.2% of injury crash drivers ages 50 to 54.

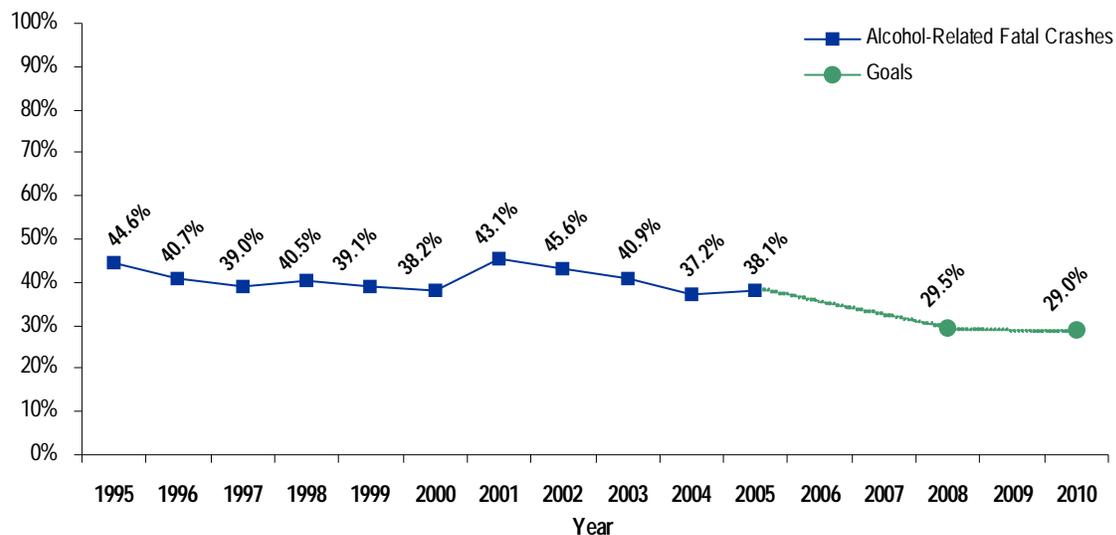
Exhibit V.24 demonstrates that both alcohol and drugs are significant sources of impairment for teenage drivers. Of all of the teenage drivers involved in fatal crashes, 31% tested positive for alcohol, but 46% tested positive for alcohol or drugs.

VEHICLE TYPE AND IMPAIRED DRIVING

Exhibit V.25 shows the vehicle type of suspected impaired drivers involved in fatal and injury crashes. Overall, 10.6% of motorcycles involved in injury crashes had an impaired rider, compared to 5.6% of passenger vehicle drivers and 7.3% of pick-up truck drivers. Among the vehicles driven by impaired drivers (3,127 vehicles), 71.5% were passenger vehicles, 21.7% were pickup trucks and 5.6% were motorcycles.

V.1 Alcohol-Related Fatal Crashes as a Percentage of all Fatal Crashes, 1995-2005

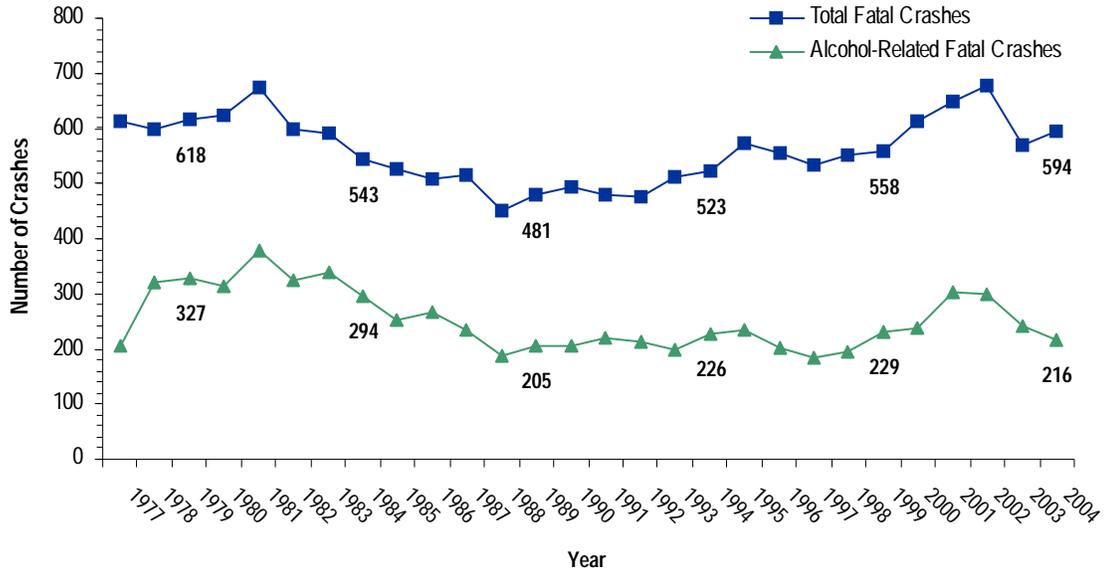
Source: 2004 CDOT Crash Database.



Alcohol-related fatal crashes increased from 2004 to 2005.

V.2 Total Fatal Crashes and Alcohol-Related Crashes, 1977-2004

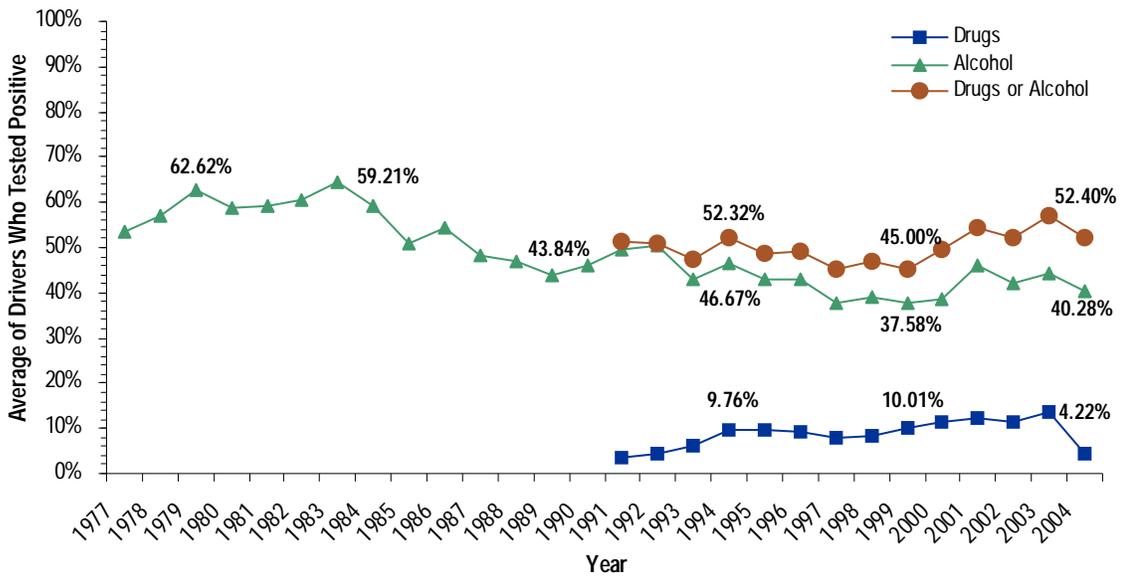
Source: National Highway Transportation Safety Administration, FARS data, 1977-2004.



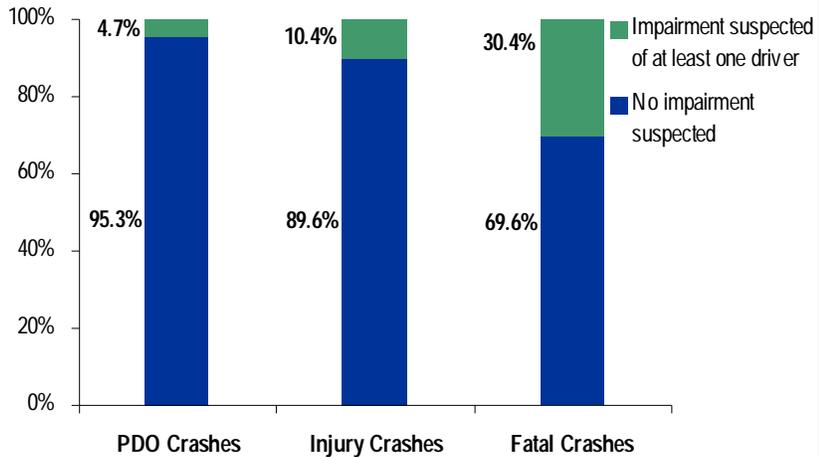
216 of the 594 fatal crashes in 2004 were alcohol-related.
4% of fatal crash drivers tested positive for drugs only.

V.3 Adult Drivers Who Tested Positive for (i) Drugs, (ii) Alcohol and (iii) Drugs or Alcohol as a Percentage of All Adult Drivers Involved in a Fatal Crash, 1977-2004

Source: National Highway Transportation Safety Administration, FARS data, 1977-2004.



V.4 Impairment by Severity, 2004
 Source: 2004 CDOT Crash Database.



	PDO Crashes	Injury Crashes	Fatal Crashes
No impairment suspected	93,732	28,493	415
Impairment suspected of at least one driver	4,600	3,303	181
Total	98,332	31,796	596

10% of injury crash drivers and 30% of fatal crash drivers were suspected of impairment. Littleton, Northglenn and Greeley had the highest proportion of impaired injury crash drivers.

V.5 Percent of All Injury Crash Drivers Who Were Impaired by Large City of Crash, 2004
 Source: 2004 CDOT Crash Database.

City	Impairment Suspected		No Impairment Suspected		Total	City	Impairment Suspected		No Impairment Suspected		Total
	Count	Percentage	Count	Percentage			Count	Percentage	Count	Percentage	
Arvada	41	6.68%	573	93.32%	614	Grand Junction	30	3.33%	872	96.67%	902
Aurora	174	4.98%	3,323	95.02%	3,497	Greeley	48	7.22%	617	92.78%	665
Boulder	23	1.65%	1,374	98.35%	1,397	Lakewood	68	5.29%	1,218	94.71%	1,286
Brighton	6	3.37%	172	96.63%	178	Littleton	27	9.78%	249	90.22%	276
Broomfield	20	4.46%	428	95.54%	448	Longmont	30	3.05%	952	96.95%	982
Castle Rock	8	4.08%	188	95.92%	196	Loveland	14	4.42%	303	95.58%	317
Centennial	26	3.27%	769	96.73%	795	Northglenn	23	7.42%	287	92.58%	310
Colorado Springs	310	5.87%	4,967	94.13%	5,277	Parker	5	2.48%	197	97.52%	202
Commerce City	20	6.19%	303	93.81%	323	Pueblo	103	6.39%	1,510	93.61%	1,613
Denver	439	4.64%	9,022	95.36%	9,461	Thornton	40	4.88%	780	95.12%	820
Englewood	16	4.00%	384	96.00%	400	Westminster	47	5.04%	885	94.96%	932
Fort Collins	60	4.10%	1,403	95.90%	1,463	Wheat Ridge	34	4.54%	715	95.46%	749

V.6

Resident Drivers Involved in Injury and Fatal Crashes, by Condition of Driver

Source: 2004 CDOT Crash Database.

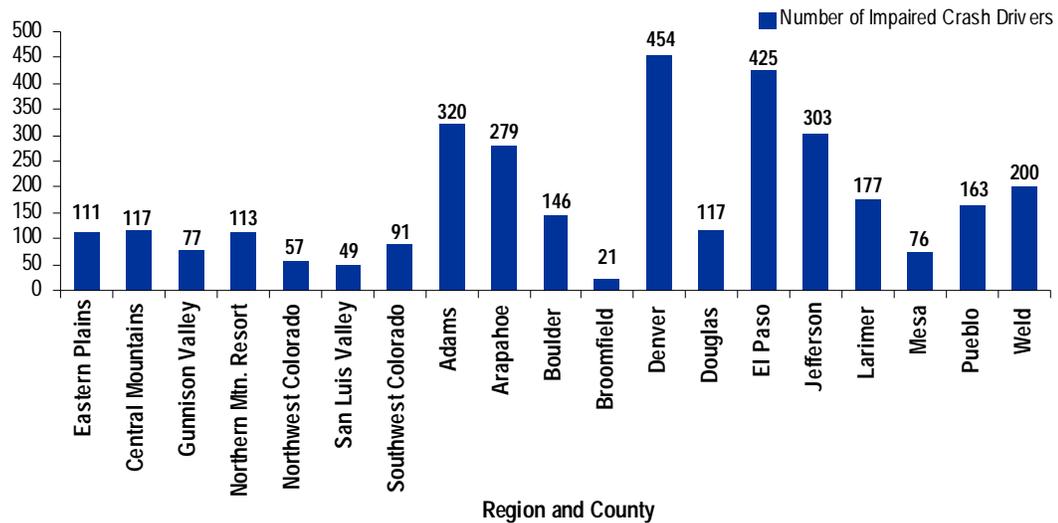
	No Impairment Suspected		Alcohol		RX Drugs or Medication				Alcohol and Drugs		Impairment Not Known/Assessed		Total
Largest Counties													
Denver	6,497	87.53%	380	5.12%	13	0.18%	12	0.16%	24	0.32%	497	6.70%	7,423
Jefferson	5,999	89.75%	305	4.56%	13	0.19%	6	0.09%	13	0.19%	348	5.21%	6,684
Arapahoe	5,811	87.49%	229	3.45%	16	0.24%	10	0.15%	11	0.17%	565	8.51%	6,642
El Paso	5,997	91.53%	360	5.49%	12	0.18%	17	0.26%	21	0.32%	145	2.21%	6,552
Adams	4,601	88.74%	246	4.74%	10	0.19%	16	0.31%	13	0.25%	299	5.77%	5,185
Boulder	3,083	89.31%	151	4.37%	4	0.12%	6	0.17%	9	0.26%	199	5.76%	3,452
Larimer	2,476	87.52%	129	4.56%	7	0.25%	6	0.21%	5	0.18%	206	7.28%	2,829
Weld	2,177	88.14%	142	5.75%	7	0.28%	10	0.40%	4	0.16%	130	5.26%	2,470
Pueblo	1,899	87.88%	134	6.20%	8	0.37%	11	0.51%	15	0.69%	94	4.35%	2,161
Douglas	1,961	91.21%	73	3.40%	5	0.23%	7	0.33%	5	0.23%	99	4.60%	2,150
Mesa	1,398	91.37%	60	3.92%	3	0.20%	3	0.20%	4	0.26%	62	4.05%	1,530
Broomfield	458	92.53%	18	3.64%	0	0.00%	0	0.00%	2	0.40%	17	3.43%	495
Central Mountains													
Fremont	310	87.32%	22	6.20%	2	0.56%	2	0.56%	1	0.28%	18	5.07%	355
Teller	233	92.46%	12	4.76%	1	0.40%	0	0.00%	0	0.00%	6	2.38%	252
Park	122	87.14%	12	8.57%	0	0.00%	0	0.00%	0	0.00%	6	4.29%	140
Chaffee	99	85.34%	7	6.03%	1	0.86%	1	0.86%	1	0.86%	7	6.03%	116
Lake	66	86.84%	3	3.95%	1	1.32%	0	0.00%	1	1.32%	5	6.58%	76
Clear Creek	47	88.68%	3	5.66%	1	1.89%	0	0.00%	0	0.00%	2	3.77%	53
Custer	16	88.89%	1	5.56%	0	0.00%	0	0.00%	0	0.00%	1	5.56%	18
Gilpin	13	76.47%	3	17.65%	0	0.00%	0	0.00%	0	0.00%	1	5.88%	17
Eastern Plains													
Elbert	251	89.64%	14	5.00%	0	0.00%	0	0.00%	1	0.36%	14	5.00%	280
Morgan	219	86.22%	22	8.66%	0	0.00%	1	0.39%	1	0.39%	11	4.33%	254
Logan	127	88.81%	10	6.99%	1	0.70%	1	0.70%	1	0.70%	3	2.10%	143
Las Animas	115	87.79%	10	7.63%	0	0.00%	0	0.00%	1	0.76%	5	3.82%	131
Otero	97	85.09%	7	6.14%	0	0.00%	1	0.88%	0	0.00%	9	7.89%	114
Yuma	67	79.76%	6	7.14%	0	0.00%	0	0.00%	0	0.00%	11	13.10%	84
Prowers	65	85.53%	7	9.21%	0	0.00%	0	0.00%	0	0.00%	4	5.26%	76
Huerfano	39	78.00%	4	8.00%	0	0.00%	0	0.00%	0	0.00%	7	14.00%	50
Kit Carson	41	89.13%	4	8.70%	0	0.00%	0	0.00%	0	0.00%	1	2.17%	46
Phillips	36	100%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	36
Bent	29	85.29%	4	11.76%	1	2.94%	0	0.00%	0	0.00%	0	0.00%	34
Crowley	26	81.25%	1	3.13%	0	0.00%	1	3.13%	0	0.00%	4	12.50%	32
Washington	24	77.42%	4	12.90%	0	0.00%	0	0.00%	0	0.00%	3	9.68%	31
Lincoln	20	95.24%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	4.76%	21

	No Impairment Suspected		RX Drugs or Medication				Impairment Not Known/Assessed				Total		
			Alcohol		Illegal Drugs	Alcohol and Drug							
Baca	18	90.00%	2	10.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	20
Cheyenne	8	80.00%	2	20.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	10
Sedgwick	14	87.50%	1	6.25%	0	0.00%	0	0.00%	0	0.00%	1	6.25%	16
Kiowa	4	100%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	4
Gunnison Valley													
Montrose	249	81.37%	16	5.23%	0	0.00%	0	0.00%	2	0.65%	39	12.75%	306
Delta	179	85.24%	20	9.52%	1	0.48%	1	0.48%	1	0.48%	8	3.81%	210
Gunnison	70	84.34%	7	8.43%	0	0.00%	1	1.20%	1	1.20%	4	4.82%	83
San Miguel	40	81.63%	4	8.16%	1	2.04%	0	0.00%	1	2.04%	3	6.12%	49
Ouray	16	94.12%	1	5.88%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	17
Northern Mountain Resort													
Eagle	247	86.36%	24	8.39%	1	0.35%	0	0.00%	0	0.00%	14	4.90%	286
Summit	138	84.66%	9	5.52%	0	0.00%	0	0.00%	0	0.00%	16	9.82%	163
Routt	100	84.75%	7	5.93%	0	0.00%	0	0.00%	2	1.69%	9	7.63%	118
Pitkin	72	83.72%	6	6.98%	0	0.00%	2	2.33%	1	1.16%	5	5.81%	86
Grand	58	89.23%	5	7.69%	1	1.54%	0	0.00%	0	0.00%	1	1.54%	65
Jackson	2	66.67%	1	33.33%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	3
Nothwest Colorado													
Garfield	392	86.15%	31	6.81%	1	0.22%	3	0.66%	3	0.66%	25	5.49%	455
Moffat	132	92.31%	2	1.40%	0	0.00%	0	0.00%	2	1.40%	7	4.90%	143
Rio Blanco	32	76.19%	4	9.52%	0	0.00%	1	2.38%	0	0.00%	5	11.90%	42
San Luis Valley													
Alamosa	106	91.38%	6	5.17%	0	0.00%	1	0.86%	0	0.00%	3	2.59%	116
Rio Grande	74	87.06%	5	5.88%	0	0.00%	0	0.00%	1	1.18%	5	5.88%	85
Conejos	55	87.30%	7	11.11%	0	0.00%	0	0.00%	0	0.00%	1	1.59%	63
Saguache	51	86.44%	7	11.86%	0	0.00%	0	0.00%	0	0.00%	1	1.69%	59
Costilla	18	94.74%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	1	5.26%	19
Mineral	1	33.33%	0	0.00%	2	66.67%	0	0.00%	0	0.00%	0	0.00%	3
Southwest Colorado													
La Plata	385	83.15%	34	7.34%	2	0.43%	1	0.22%	2	0.43%	39	8.42%	463
Montezuma	178	84.76%	20	9.52%	1	0.48%	1	0.48%	0	0.00%	10	4.76%	210
Archuleta	61	74.39%	8	9.76%	1	1.22%	1	1.22%	0	0.00%	11	13.41%	82
Dolores	6	85.71%	1	14.29%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	7
San Juan	2	50.00%	2	50.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	4
Hinsdale	1	33.33%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	2	66.67%	3
Total	47,128		2,615		117		123		149		2,990		53,122

6% of Weld County residents involved in an injury or fatal crash were suspected of alcohol-impairment.

V.7 Number of All Crash Drivers Who Were Impaired by County and Region of Crash, 2004

Source: 2004 CDOT Crash Database.



Region/County	Eastern Plains	Central Mtns.	Gunnison Valley	Northern Mtn.	NW Colorado	San Luis Valley	SW Colorado	Adams	Arapahoe	Boulder
Total	1,418	1,290	704	1,170	665	450	955	4,882	6,142	3,558
Region/County	Broomfield	Denver	Douglas	El Paso	Jefferson	Larimer	Mesa	Pueblo	Weld	
Total	457	9,533	2,069	6,817	4,880	2,772	1,543	2,069	2,318	

In Denver and El Paso counties more than 400 crash drivers were impaired.
31% of Pueblo's fatal crash drivers were impaired.

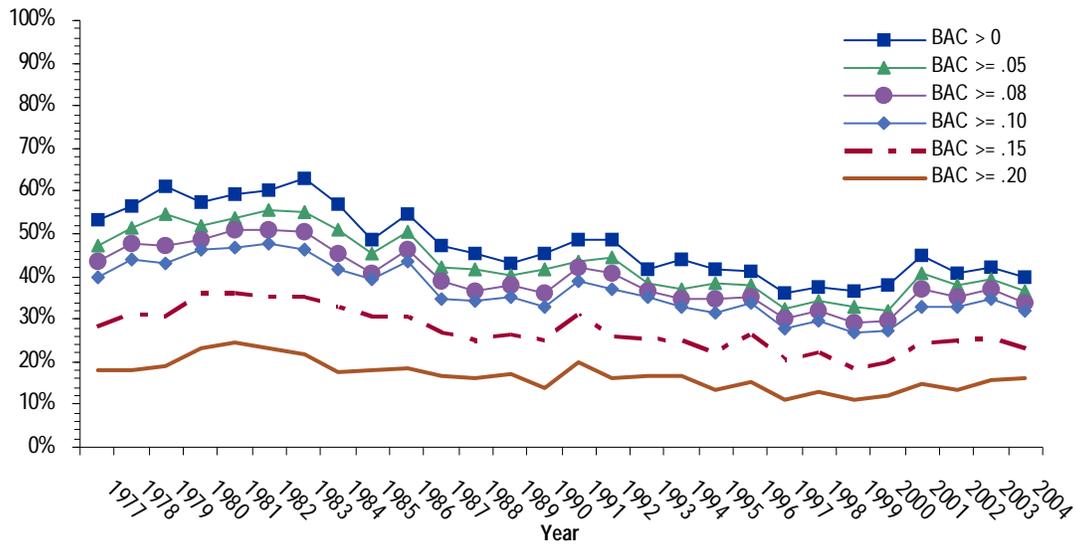
V.8 Impaired Drivers by Large County of Crash, 2004

Note: The percentages reported in the table show the proportion of crash drivers who were impaired in a particular severity category. For example, 3.4% of all Adams County PDO drivers were impaired and 6.35% of all Adams County injury crash drivers were impaired and 21.21% of all Adams County fatal crash drivers were impaired.

Source: 2004 CDOT Crash Database.

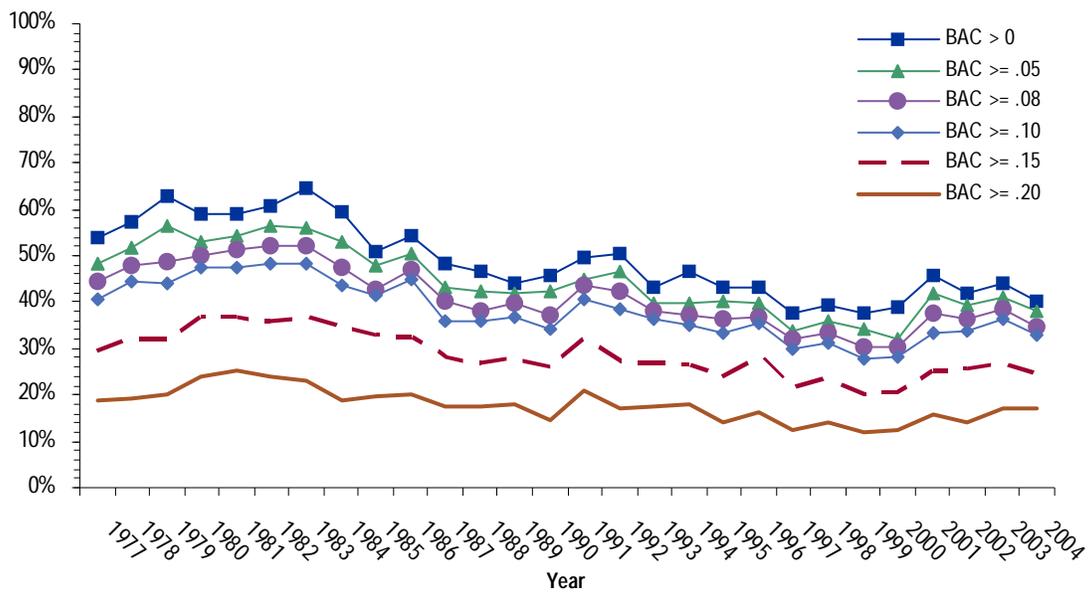
	PDO Crashes		Injury Crashes		Fatal Crashes	
Adams	444	3.40%	306	6.35%	14	21.21%
Arapahoe	467	3.10%	274	4.49%	5	11.11%
Boulder	235	2.87%	138	3.91%	8	25.81%
Denver	500	1.84%	439	4.64%	15	20.83%
Douglas	129	2.03%	112	5.53%	5	11.36%
El Paso	628	3.61%	405	6.01%	20	25.97%
Jefferson	481	3.24%	292	6.05%	11	21.57%
Larimer	255	3.67%	171	6.24%	6	18.18%
Mesa	79	2.58%	73	4.81%	3	11.54%
Pueblo	180	4.00%	154	7.55%	9	31.03%
Weld	196	4.03%	177	8.04%	23	19.66%

V.9 Rate of Drinking Drivers Among All Fatal Drivers by BAC Over Time, 1977-2004
 Source: National Highway Transportation Safety Administration, FARS data, 1977-2004.

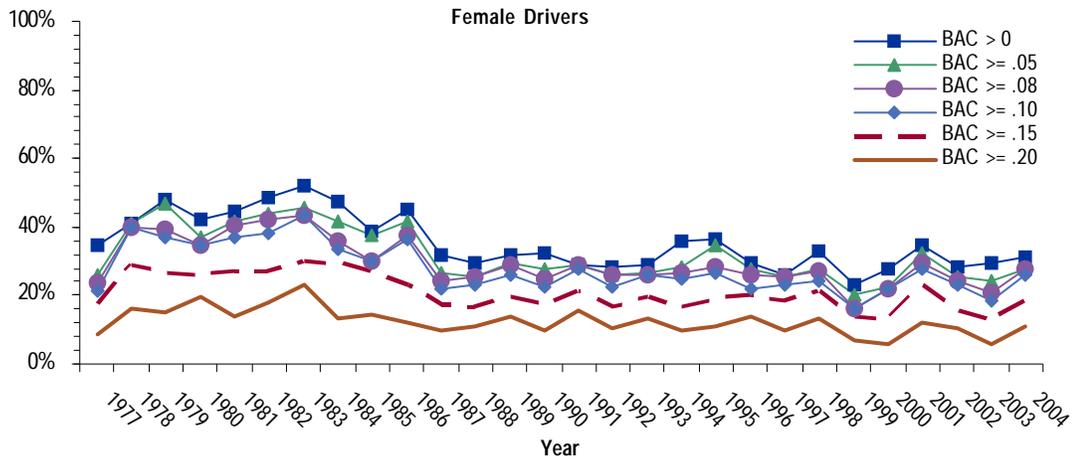
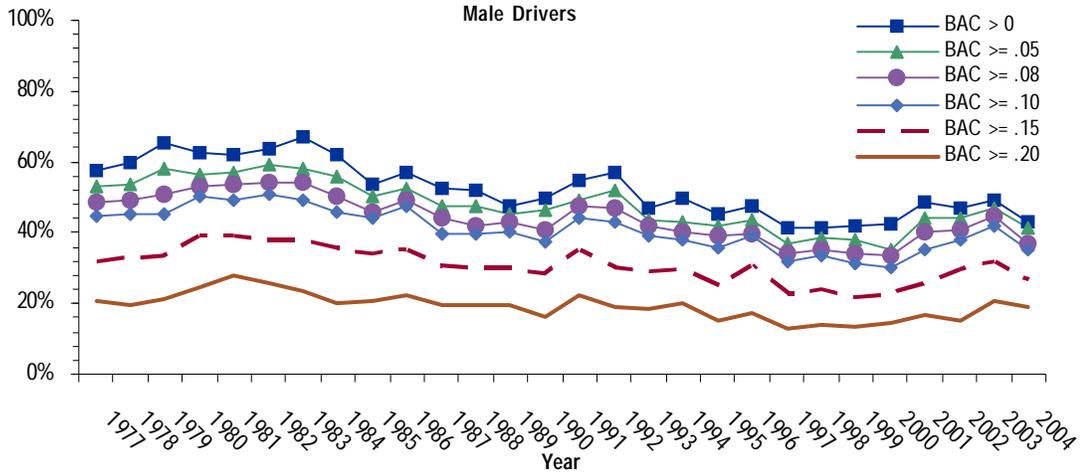


These exhibits reveal that fatal drivers with BAC's that exceed 0.10 outnumber those with lower BAC levels.

V.10 Rate of Drinking Adult Drivers Among Adult Fatal Drivers by BAC Over Time, 1977-2004
 Source: National Highway Transportation Safety Administration, FARS data, 1977-2004.

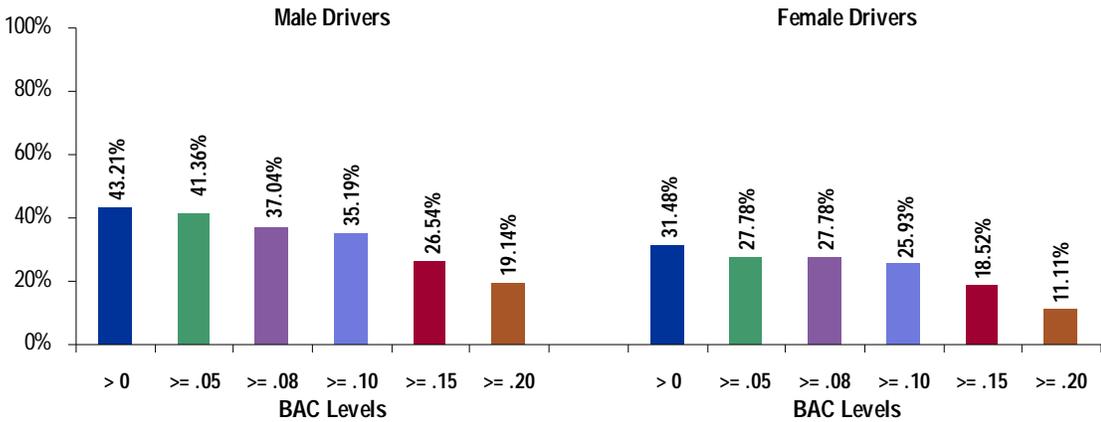


V.11 Rate of Drinking Drivers Among Fatal Drivers by BAC Over Time, by Gender, 1977-2004
 Source: National Highway Transportation Safety Administration, FARS data, 1977-2004.

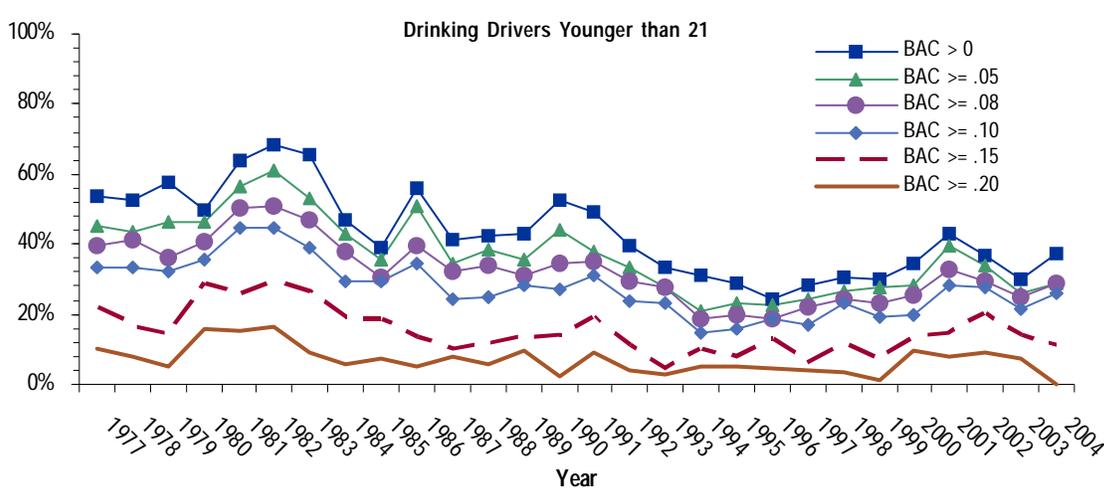
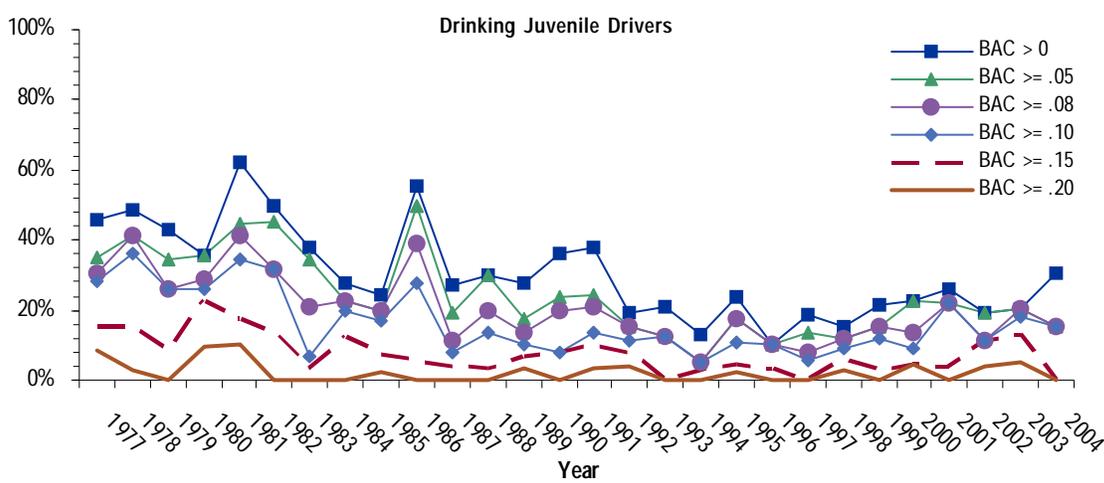


Regardless of gender, the greatest proportion of impaired fatal crash drivers have BAC levels that exceed 0.10.

V.12 Rate of Drinking Drivers Among Fatal Drivers by BAC and Gender, 2004
 Source: National Highway Transportation Safety Administration, FARS data, 1977-2004.

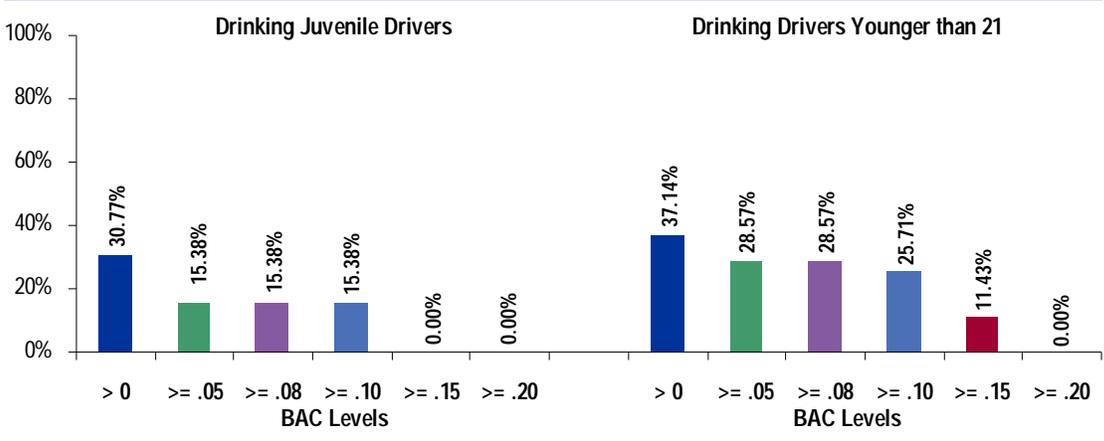


V.13 Rate of Drinking Drivers Among Fatal Drivers by BAC Over Time, by Age, 1977-2004
 Source: National Highway Transportation Safety Administration, FARS data, 1977-2004.

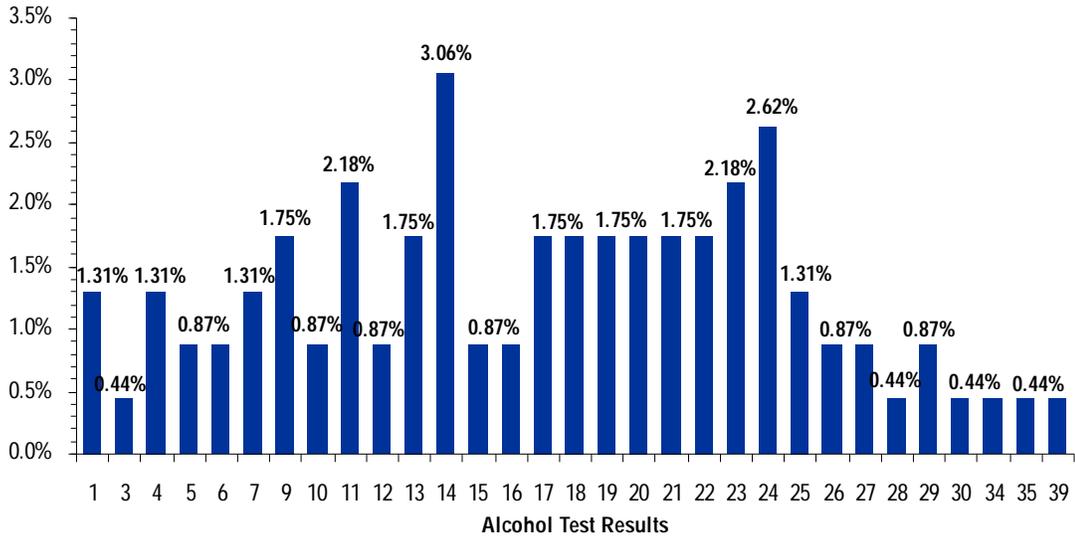


The BAC level of impaired juvenile fatal crash drivers is lower than adult BAC levels.

V.14 Rate of Drinking Drivers Among Fatal Drivers by BAC and Age, 2004
 Source: National Highway Transportation Safety Administration, FARS data, 1977-2004.

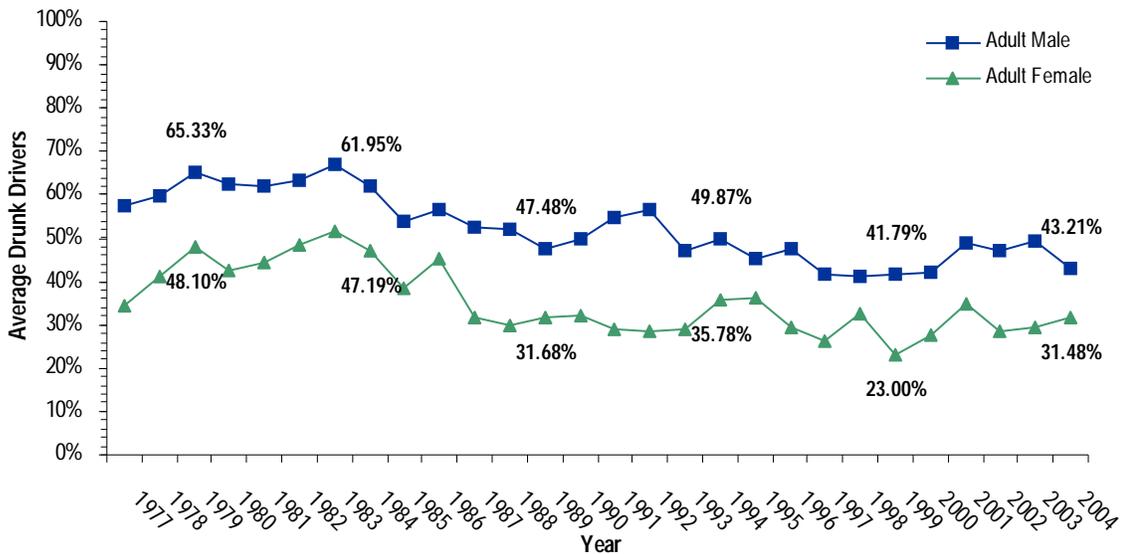


V.15 Distribution of BAC within Drivers of Fatal Crashes, 2004
 Source: National Highway Transportation Safety Administration, FARS data, 1977-2004.

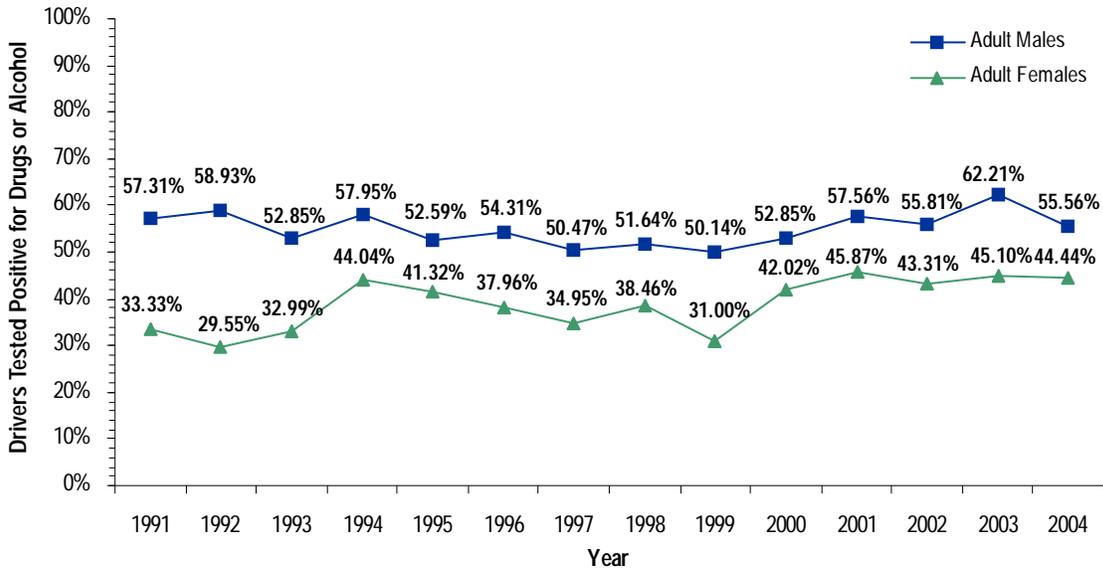


3% of fatal crash drivers had a BAC of 0.14.
 In 1983, 62% of male fatal crash drivers were impaired, compared to 43% in 2004.

V.16 Adult Male and Female Drinking Drivers as a Percentage of all Male Drivers and Female Drivers Involved in a Fatal Crash, 1977-2004
 Source: National Highway Transportation Safety Administration, FARS data, 1977-2004.

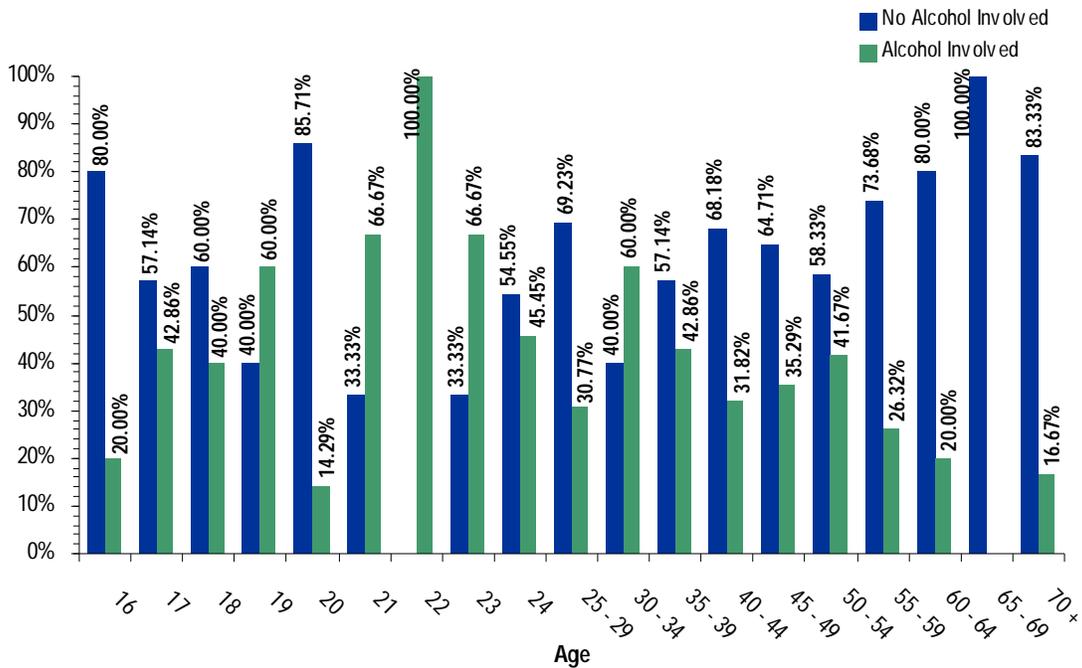


V.17 Adult Male Drivers Testing Positive for Alcohol or Drugs as a Percentage of All Male Drivers and Female Drivers Testing Positive for Alcohol or Drugs as a Percentage of All Female Drivers, by Fatal Crash, 1991-2004
 Source: National Highway Transportation Safety Administration, FARS data, 1977-2004.

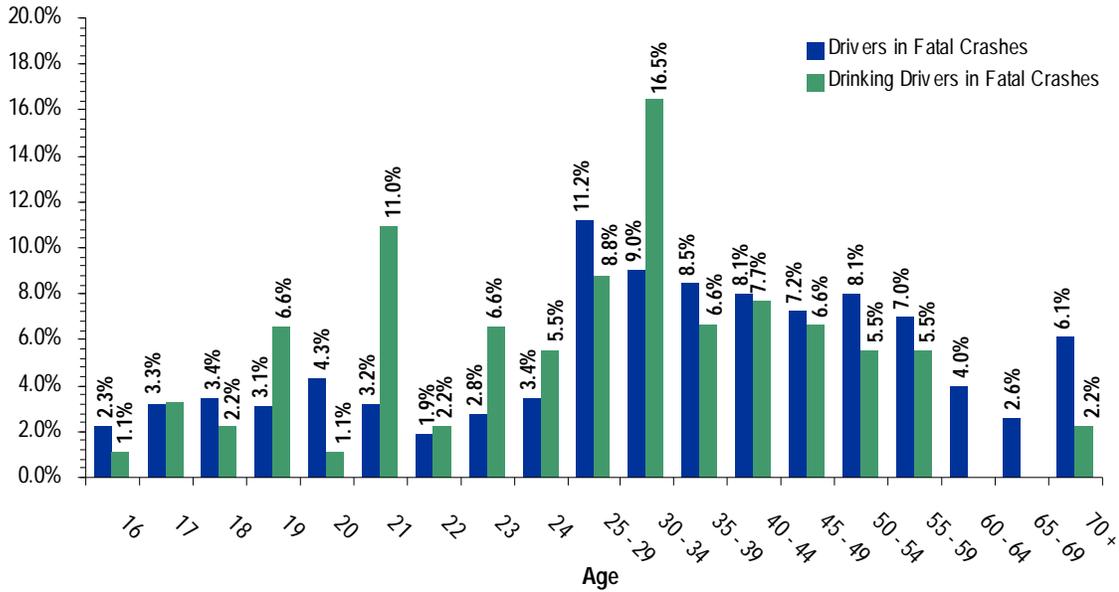


In 2004, 56% of male fatal crash drivers tested positive for alcohol or drugs.
 69% of fatal crash drivers ages 25 to 29 had positive BAC levels.

V.18 Distribution of Alcohol Consuming and Non-consuming Fatal Drivers in Each Age Group, 2004
 Source: National Highway Transportation Safety Administration, FARS data, 1977-2004.



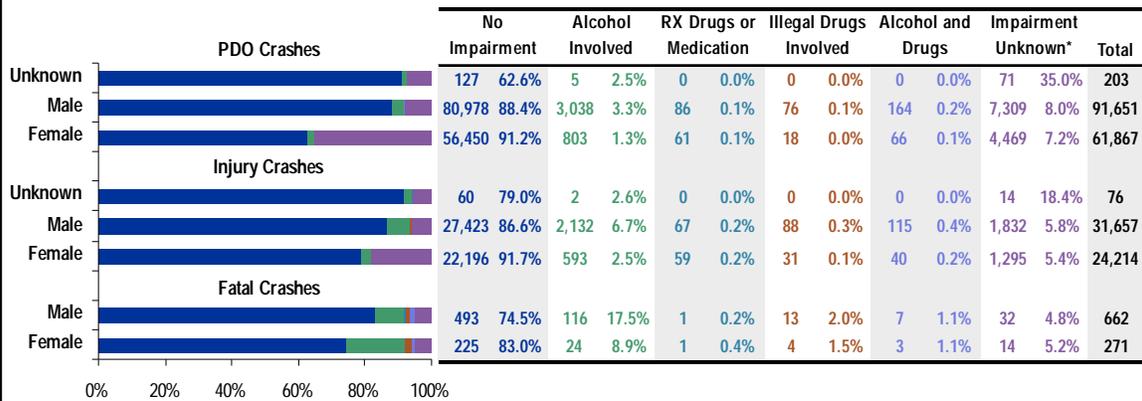
V.19 Age Distribution of Drivers and Drinking Drivers in Fatal Crashes by Age
 Source: National Highway Transportation Safety Administration, FARS data, 1977-2004.



Drivers age 30 to 34 are 9% of all fatal crash drivers, and are 17% of all impaired fatal crash drivers.

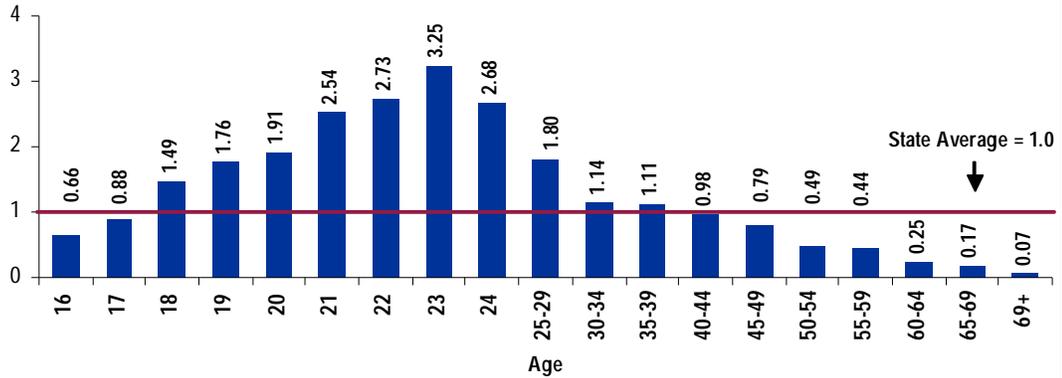
Men are much more likely than women to be impaired.

V.20 Source of Impairment by Gender and Crash Severity
 Source: 2004 CDOT Crash Database.



V.21 Impaired Driver Injury Crash Rate Index by Age

Source: 2004 CDOT Crash Database.



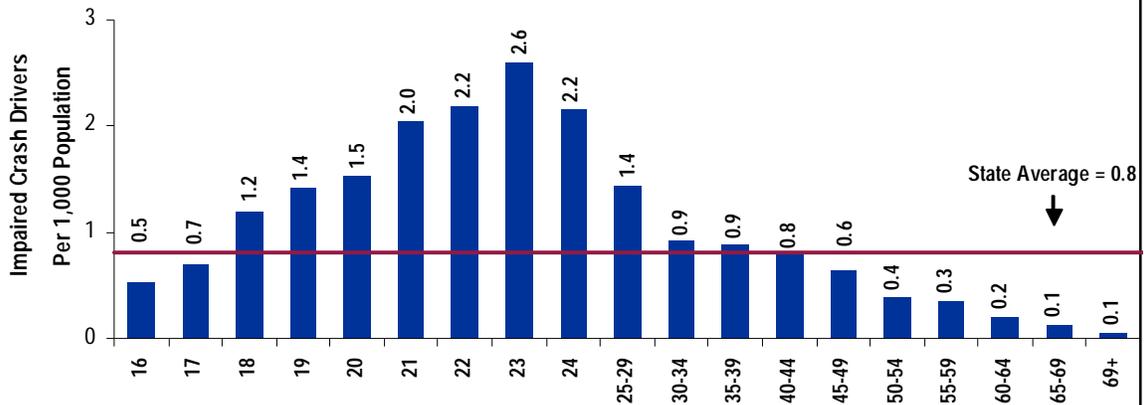
Age	16	17	18	19	20	21	22	23	24	25-29
Impairment	34	46	86	110	118	154	144	150	122	456
Total Drivers	1,448	1,493	1,672	1,522	1,432	1,430	1,359	1,327	1,247	4,802
Age	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	69+	State
Impairment	329	309	303	237	128	91	36	18	17	2,894
Total Drivers	4,518	4,137	4,310	3,921	3,235	2,388	1,472	945	1,956	44,804

The likelihood of impaired driving is correlated with age. Drivers under age 30 are much more likely to be impaired crash drivers than older drivers.

23 year-old drivers have the highest impaired driving crash rate per capita.

V.22 Impaired Drivers Injury Crash Involvement per 1,000 Capita by Age

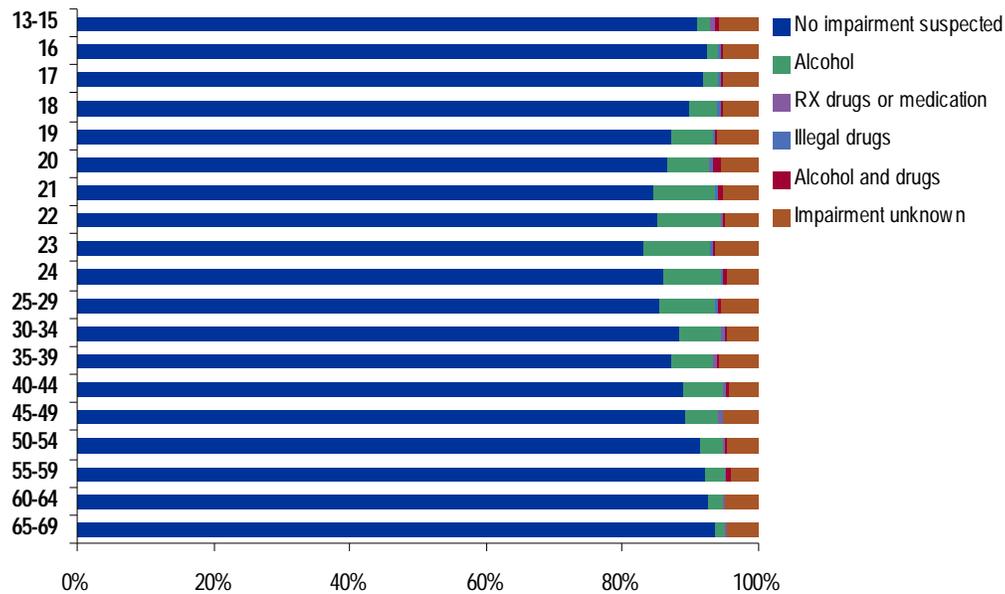
Source: 2004 CDOT Crash Database.



Age Cohort	16	17	18	19	20	21	22	23	24	25-29
Impairment	34	46	86	110	118	154	144	150	122	456
Population	64,736	65,563	72,219	78,019	76,968	75,614	65,824	57,605	56,734	316,217
Age Cohort	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	69+	State
Impairment	329	309	303	237	128	91	36	18	17	2,894
Population	359,421	346,217	383,698	371,849	329,051	260,865	181,813	130,558	316,379	3,609,350

V.23 Source of Known or Suspected Driver Impairment by Driver Age, 2004 Injury Crash Drivers

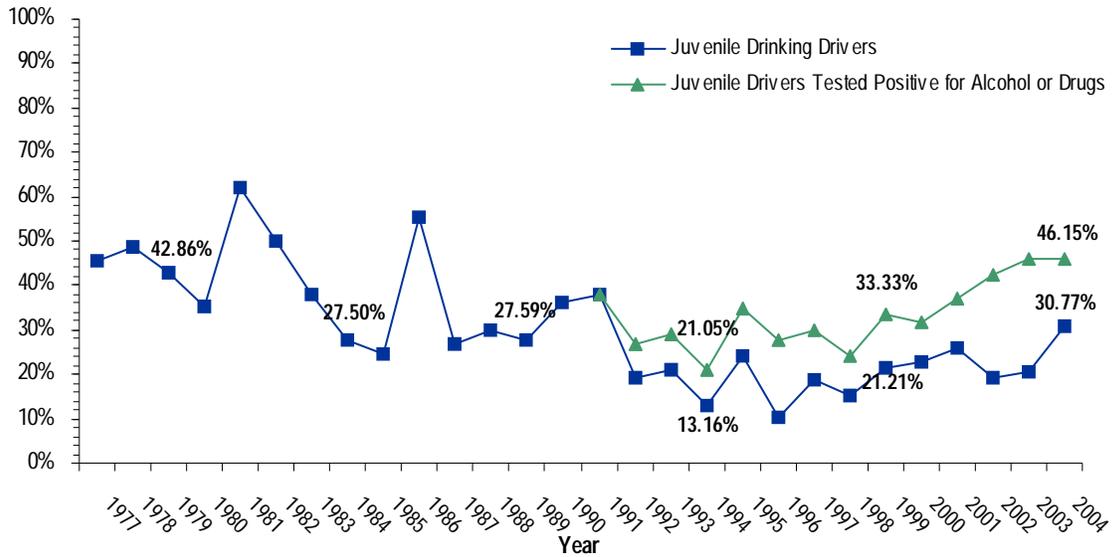
Source: 2004 CDOT Crash Database.



Age	No Impairment Suspected		Alcohol		RX Drugs or Medication		Illegal Drugs		Alcohol and Drugs		Impairment Unknown		Total
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	
13-15	184	91.1%	4	2.0%	1	0.5%	0	0.0%	1	0.5%	12	5.9%	202
16	1,414	92.4%	25	1.6%	1	0.1%	7	0.5%	1	0.1%	82	5.4%	1,530
17	1,447	91.9%	35	2.2%	1	0.1%	7	0.4%	3	0.2%	82	5.2%	1,575
18	1,586	89.8%	75	4.2%	0	0.0%	8	0.5%	3	0.2%	95	5.4%	1,767
19	1,412	87.2%	99	6.1%	1	0.1%	5	0.3%	5	0.3%	97	6.0%	1,619
20	1,314	86.6%	95	6.3%	2	0.1%	7	0.5%	14	0.9%	86	5.7%	1,518
21	1,276	84.6%	135	9.0%	1	0.1%	7	0.5%	11	0.7%	79	5.2%	1,509
22	1,215	85.1%	135	9.5%	2	0.1%	0	0.0%	7	0.5%	69	4.8%	1,428
23	1,177	83.0%	140	9.9%	3	0.2%	2	0.1%	5	0.4%	91	6.4%	1,418
24	1,125	85.9%	113	8.6%	1	0.1%	2	0.2%	6	0.5%	63	4.8%	1,310
25-29	4,346	85.6%	401	7.9%	13	0.3%	20	0.4%	22	0.4%	278	5.5%	5,080
30-34	4,189	88.3%	291	6.1%	15	0.3%	12	0.3%	11	0.2%	225	4.7%	4,743
35-39	3,828	87.2%	268	6.1%	19	0.4%	7	0.2%	15	0.3%	253	5.8%	4,390
40-44	4,007	88.8%	264	5.9%	10	0.2%	14	0.3%	15	0.3%	201	4.5%	4,511
45-49	3,684	89.2%	206	5.0%	16	0.4%	5	0.1%	10	0.2%	211	5.1%	4,132
50-54	3,107	91.5%	109	3.2%	8	0.2%	4	0.1%	7	0.2%	161	4.7%	3,396
55-59	2,297	92.2%	69	2.8%	11	0.4%	1	0.0%	10	0.4%	103	4.1%	2,491
60-64	1,436	92.8%	30	1.9%	5	0.3%	0	0.0%	1	0.1%	76	4.9%	1,548
65-69	927	93.5%	15	1.5%	3	0.3%	0	0.0%	0	0.0%	47	4.7%	992
69+	1,939	95.4%	12	0.6%	4	0.2%	1	0.1%	0	0.0%	76	3.7%	2,032

As shown above, the majority of injury crash drivers were not impaired by drugs or alcohol.

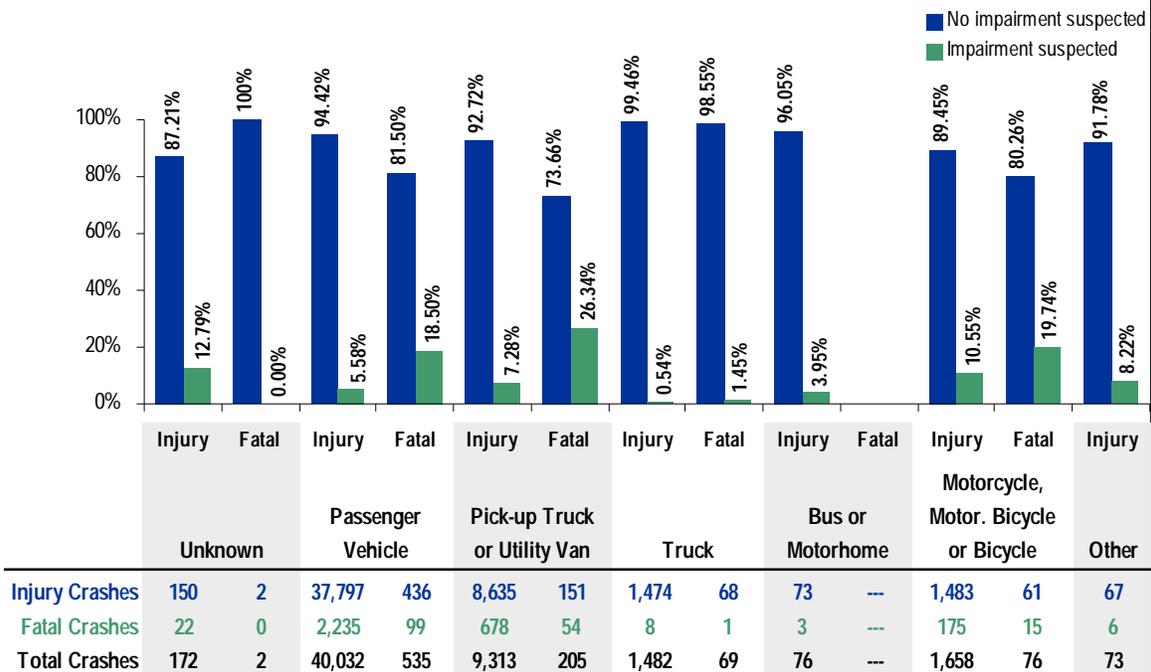
V.24 Juvenile Drinking Drivers and Juvenile Drivers Who Tested Positive for Alcohol and Drugs as a Percentage of All Juvenile Drivers Involved in a Fatal Crash, 1977-2004
 Source: National Highway Transportation Safety Administration, FARS data, 1977-2004.



31% of teen fatal crash drivers tested positive for alcohol and 46% tested positive for drugs or alcohol.

11% of motorcycles involved in an injury crash had an impaired rider.

V.25 Vehicle Type of Suspected Impaired Drivers Involved in Fatal and Injury Crashes
 Source: 2004 CDOT Crash Database.



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VI Bicycles and Pedestrians



Bicycles and Pedestrians

Data on bicycle and pedestrian-involved crashes are presented in this section. These crashes occur statewide and involve bicyclists and pedestrians of all ages. No particular age group is significantly more likely than another to be involved as a bicyclist or a pedestrian in a crash.

1,522 bicyclists were involved in police-reported crashes in 2004.

1,498 pedestrians were involved in police-reported crashes in 2004.

CRASHES INVOLVING BICYCLISTS AND PEDESTRIANS

This section explores the characteristics of crashes that involved bicyclists or pedestrians.

GENDER AND AGE OF BICYCLISTS AND PEDESTRIANS

Exhibits VI.1 through VI.3 present the age and gender of bicyclists and pedestrians involved in crashes in 2004.

Bicyclists involved in crashes tend to be male (Exhibit VI.1), regardless of the severity of the crash. Pedestrian crashes are more gender balanced. For example, 74% of the bicyclists involved in injury crashes were male, while males were 59% of the pedestrians involved in injury crashes.

Exhibit VI.2 presents the age distribution of bicyclists involved in PDO, injury and fatal bicycle-involved crashes and Exhibit VI.3 presents the age distribution of pedestrians involved in crashes. Bicyclists and pedestrians of all ages are involved in crashes. Adult bicyclists and adult pedestrians comprise the vast majority of bicyclists and pedestrians involved in fatal crashes. Children and teens may be less likely than adults to bicycle frequently on roadways, possibly lowering their risk of fatal crash involvement.

MONTH AND DAY OF WEEK

Exhibits VI.4 and VI.5 examine the month in which bicycle and pedestrian crashes occurred, by the severity of the crash. Bicycle crashes occur year-round, with the greatest proportion of crashes occurring in the summer months. Not surprisingly, July, August and September saw the greatest number of bicycle crashes and the fewest were reported in January (Exhibit VI.4). Pedestrian crashes tend to be more evenly distributed throughout the year than bicycle crashes. The greatest number of pedestrian-involved crashes occurred in January and the least occurred in June (Exhibit VI.5).

The frequency of bicycle-involved crashes varied by day of week from a low of 195 bicycle crashes on Fridays to a high of 239 on Mondays (Exhibit VI.6). Pedestrian-involved crashes ranged from a low of 198 on Tuesdays to a high of 230 on Wednesdays (Exhibit VI.7).

ROAD CONDITIONS AND CHARACTERISTICS

Road Surface Conditions

The majority of bicycle-involved crashes occurred on dry roads (Exhibit VI.8). The same is true for pedestrian-involved crashes (Exhibit VI.9).

Road Contour

The majority of bicycle and pedestrian crashes occur on straight on-level roadways (Exhibit VI.10).

Light Conditions

Exhibits VI.11 and VI.12 examine the light conditions for bicycle and pedestrian crashes. The majority of bicycle-involved injury crashes (84%) occurred in daylight. About 40% of PDO and injury pedestrian-involved crashes occurred in the evenings, a greater proportion than bicycle crashes.

Crash Location Relative to the Roadway

Exhibits VI.13 and VI.14 present the position of the crash relative to the roadway. About 95% of bicycle injury crashes occurred on the roadway and 93% of pedestrian injury crashes occurred on the roadway.

Weather

The weather conditions reported at the time of bicycle and pedestrian involved crashes are presented in Exhibits VI.15 and VI.16. About 94% of injury crashes involving bicyclists occurred in normal weather conditions. Slightly more than 88% of pedestrian injury crashes occurred in normal weather conditions.

Road Description

Exhibits VI.17 and VI.18 present the description of roadways at the location of bicycle and pedestrian crashes. Nearly 60% of bicycle injury crashes occurred at intersections and almost 13% occurred at urban non-intersections (Exhibit VI.17). About 43% of pedestrian-involved injury crashes were reported at intersections and 34% happened at urban non-intersections.

Road Surface

The vast majority of bicycle and pedestrian-involved injury crashes occurred on blacktop (Exhibits VI.19 and VI.20).

Pedestrian Action at Time of Crash

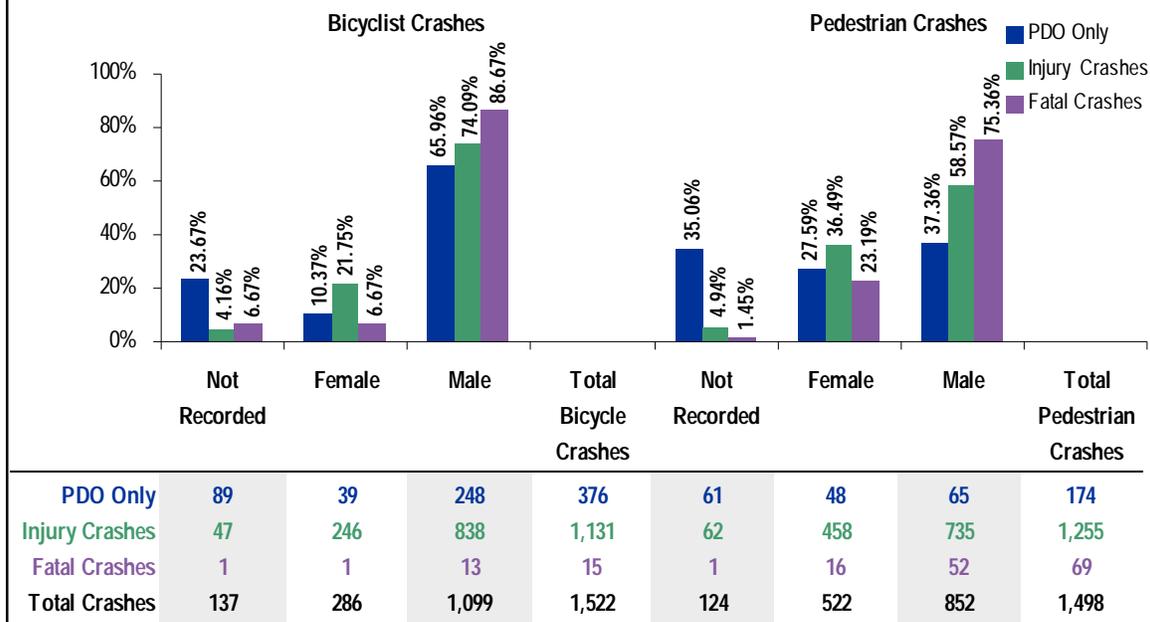
Among the pedestrian actions detailed, crossing against the light was the reported cause of nearly 30% of pedestrian-involved injury crashes (Exhibit VI.21).

Location of Crash

Exhibit VI.22 details the county and region of crash for all bicycle and pedestrian crashes in 2004 that occurred in the state's less populous counties. This data is reported for the state's large counties in Exhibit VI.23 and the state's largest cities in Exhibit VI.24.

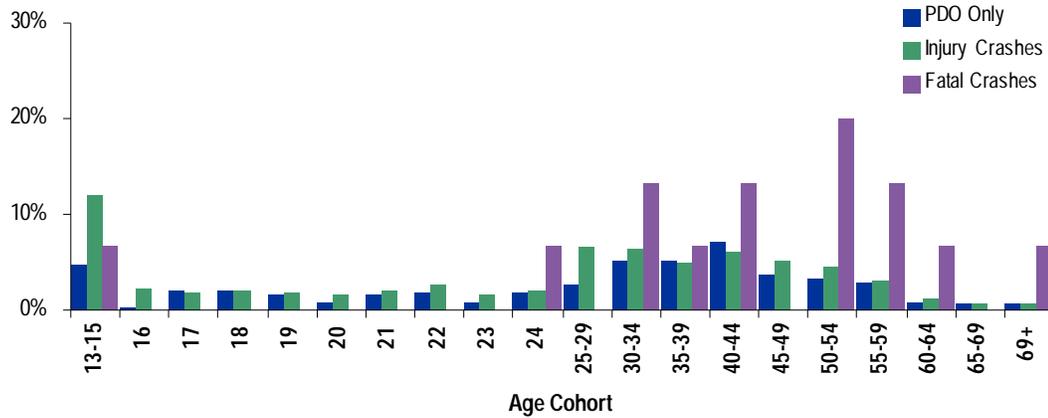
VI.1 Gender of Bicyclists and Pedestrian Crashes

Source: 2004 CDOT Crash Database.



74% of bicyclists involved in crashes are male.

VI.2 Severity of Bicyclist Crashes by Age
 Note: Age not reported for total bicyclist crashes is 540, with 190 PDO crashes, 349 injury crashes, and 1 fatal crash.
 Source: 2004 CDOT Crash Database.

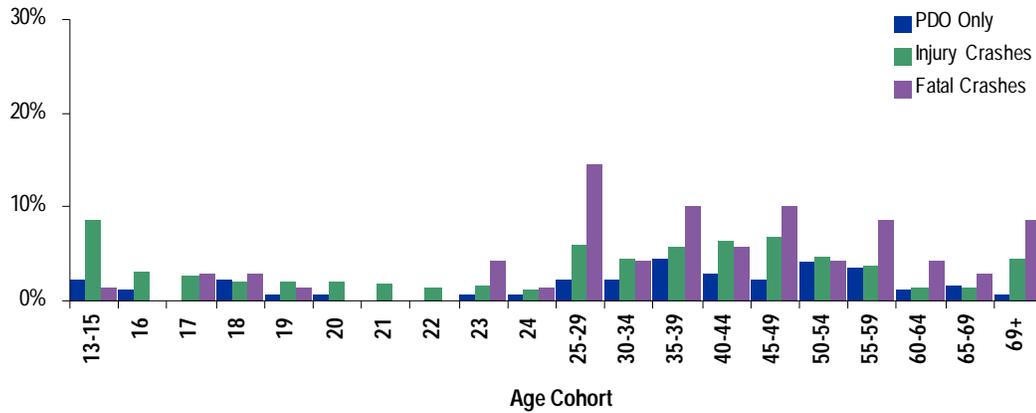


		Age Cohort									
Age Cohort	13-15	16	17	18	19	20	21	22	23	24	
PDO Crashes	18 4.79%	1 0.27%	8 2.13%	8 2.13%	6 1.60%	3 0.80%	6 1.60%	7 1.86%	3 0.80%	7 1.86%	
Injury Crashes	135 11.94%	26 2.30%	21 1.86%	24 2.12%	21 1.86%	19 1.68%	24 2.12%	31 2.74%	18 1.59%	22 1.95%	
Fatal Crashes	1 6.67%	0	0	0	0	0	0	0	0	1 6.67%	
Total Population	154	27	29	32	27	22	30	38	21	30	
Age Cohort	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	69+	
PDO Crashes	10 2.66%	19 5.05%	19 5.05%	27 7.18%	14 3.72%	12 3.19%	11 2.93%	3 0.80%	2 0.53%	2 0.53%	
Injury Crashes	74 6.54%	72 6.37%	55 4.86%	69 6.10%	57 5.04%	51 4.51%	34 3.01%	13 1.15%	8 0.71%	8 0.71%	
Fatal Crashes	0	2 13.33%	1 6.67%	2 13.33%	0	3 20.00%	2 13.33%	1 6.67%	0	1 6.67%	
Total Population	84	93	75	98	71	66	47	17	10	11	

Adult bicyclists comprise the majority of bicyclists involved in fatal crashes.

VI.3 Severity of Pedestrian Crashes by Age

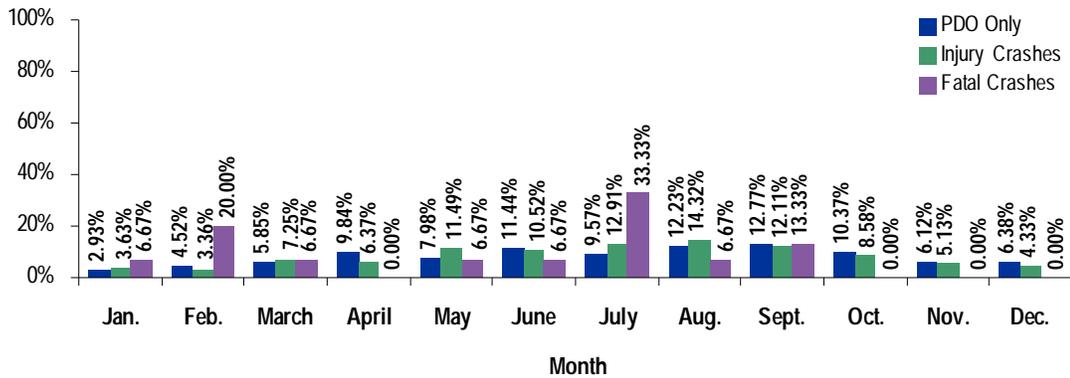
Note: Age not reported for total pedestrian crashes is 475, with 116 PDO crashes, 351 injury crashes, and 8 fatal crash.
Source: 2004 CDOT Crash Database.



Age Cohort	13-15	16	17	18	19	20	21	22	23	24
PDO Crashes	4	2	0	4	1	1	0	0	1	1
	2.30%	1.15%		2.30%	0.57%	0.57%			0.57%	0.57%
Injury Crashes	108	39	33	25	27	26	23	17	21	16
	8.61%	3.11%	2.63%	1.99%	2.15%	2.07%	1.83%	1.35%	1.67%	1.27%
Fatal Crashes	1	0	2	2	1	0	0	0	3	1
	1.45%		2.90%	2.90%	1.45%				4.35%	1.45%
Total Population	113	41	35	31	29	27	23	17	25	18
Age Cohort	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	69+
PDO Crashes	4	4	8	5	4	7	6	2	3	1
	2.30%	2.30%	4.60%	2.87%	2.30%	4.02%	3.45%	1.15%	1.72%	0.57%
Injury Crashes	74	57	72	81	86	60	47	19	17	56
	5.90%	4.54%	5.74%	6.45%	6.85%	4.78%	3.75%	1.51%	1.35%	4.46%
Fatal Crashes	10	3	7	4	7	3	6	3	2	6
	14.49%	4.35%	10.14%	5.80%	10.14%	4.35%	8.70%	4.35%	2.90%	8.70%
Total Population	88	64	87	90	97	70	59	24	22	63

Adult pedestrians comprise the majority of pedestrians involved in fatal crashes.

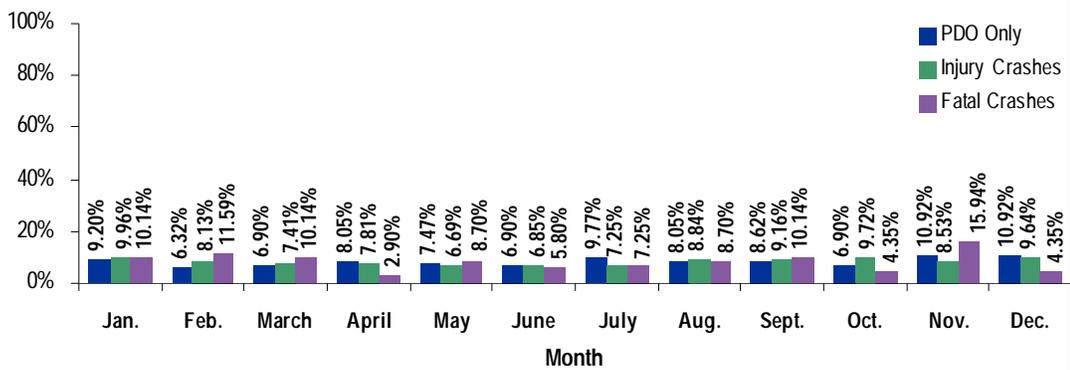
VI.4 Bicyclist Crashes by Month
 Source: 2004 CDOT Crash Database.



	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
PDO Only	11	17	22	37	30	43	36	46	48	39	23	24
Injury Crashes	41	38	82	72	130	119	146	162	137	97	58	49
Fatal Crashes	1	3	1	0	1	1	5	1	2	0	0	0
Total Crashes	53	58	105	109	161	163	187	209	187	136	81	73

July, August and September have the greatest total number of bicycle crashes.
 January 2004 had the greatest number of pedestrian crashes.

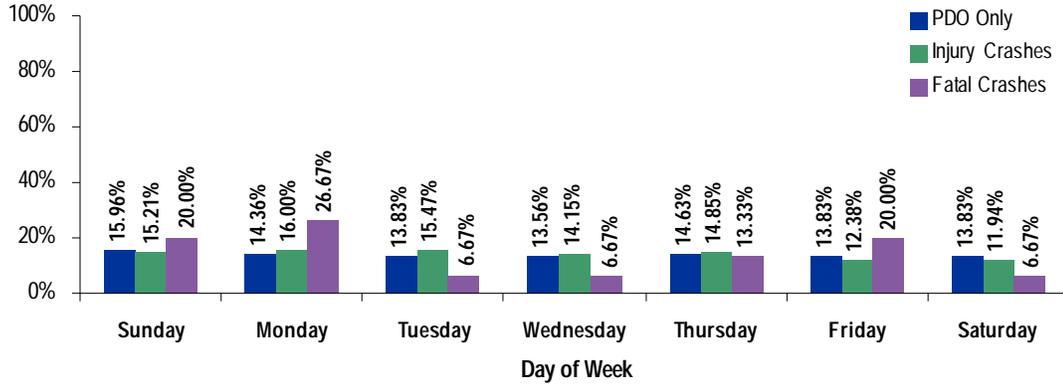
VI.5 Pedestrian Crashes by Month
 Source: 2004 CDOT Crash Database.



	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
PDO Only	16	11	12	14	13	12	17	14	15	12	19	19
Injury Crashes	125	102	93	98	84	86	91	111	115	122	107	121
Fatal Crashes	7	8	7	2	6	4	5	6	7	3	11	3
Total Crashes	148	121	112	114	103	102	113	131	137	137	137	143

VI.6 Bicyclist Crashes by Day of Week

Source: 2004 CDOT Crash Database.

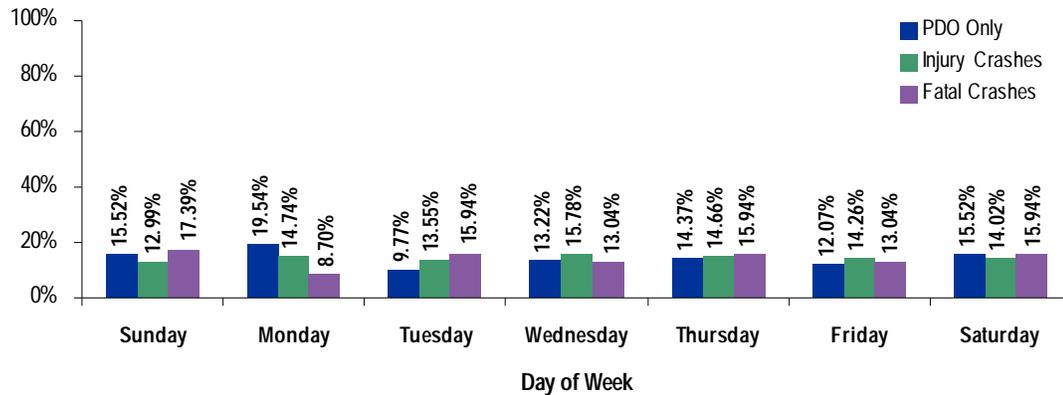


PDO Only	60	54	52	51	55	52	52
Injury Crashes	172	181	175	160	168	140	135
Fatal Crashes	3	4	1	1	2	3	1
Total Crashes	235	239	228	212	225	195	188

Sundays and Mondays have the greatest number of bicycle crashes.
 Wednesdays and Mondays have the greatest number of pedestrian crashes.

VI.7 Pedestrian Crashes by Day of Week

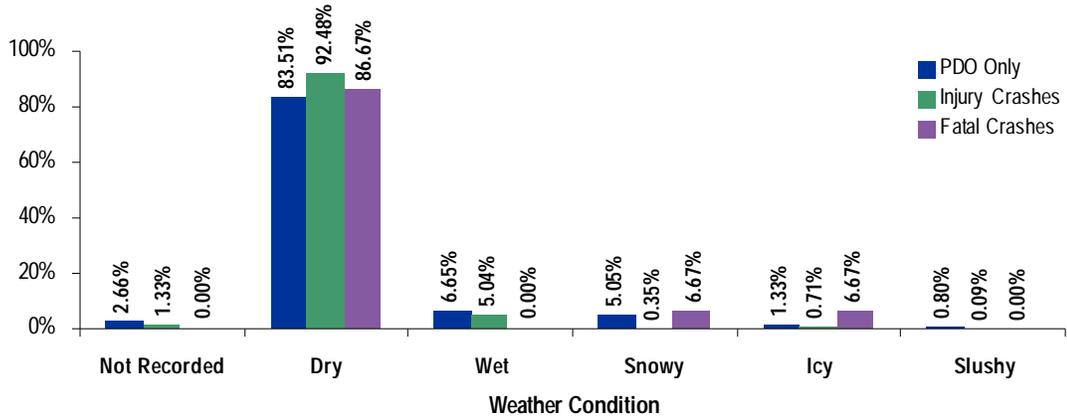
Source: 2004 CDOT Crash Database.



PDO Only	27	34	17	23	25	21	27
Injury Crashes	163	185	170	198	184	179	176
Fatal Crashes	12	6	11	9	11	9	11
Total Crashes	202	225	198	230	220	209	214

VI.8 Bicyclist Crashes by Weather Condition

Source: 2004 CDOT Crash Database.

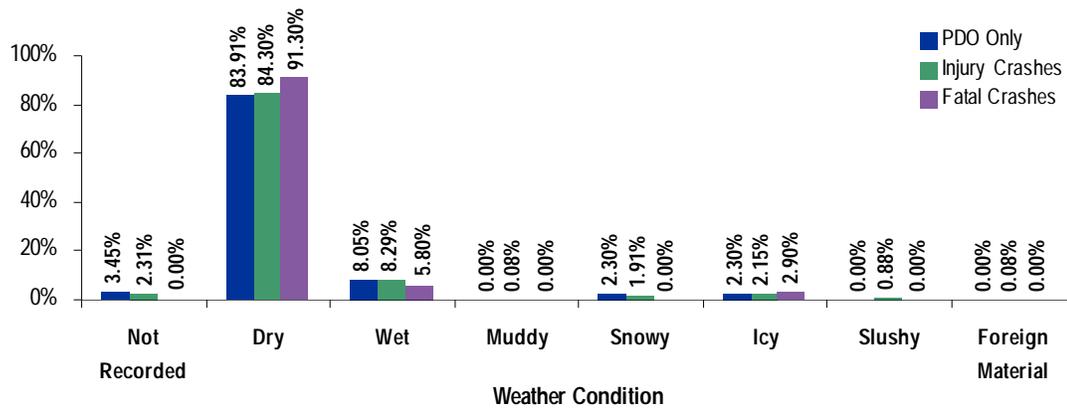


	Not Recorded	Dry	Wet	Snowy	Icy	Slushy
PDO Only	10	314	25	19	5	3
Injury Crashes	15	1,046	57	4	8	1
Fatal Crashes	0	13	0	1	1	0
Total Crashes	25	1,373	82	24	14	4

The majority of bicycle and pedestrian crashes occur during dry weather conditions.

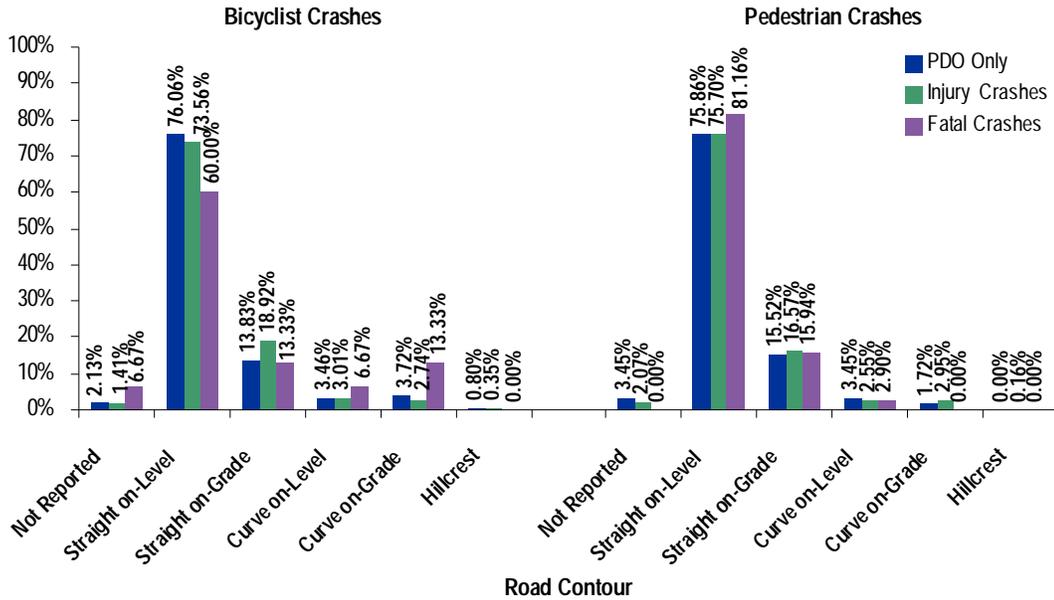
VI.9 Pedestrian Crashes by Weather Condition

Source: 2004 CDOT Crash Database.



	Not Recorded	Dry	Wet	Muddy	Snowy	Icy	Slushy	Foreign Material
PDO Only	6	146	14	0	4	4	0	0
Injury Crashes	29	1,058	104	1	24	27	11	1
Fatal Crashes	0	63	4	0	0	2	0	0
Total Crashes	35	1,267	122	1	28	33	11	1

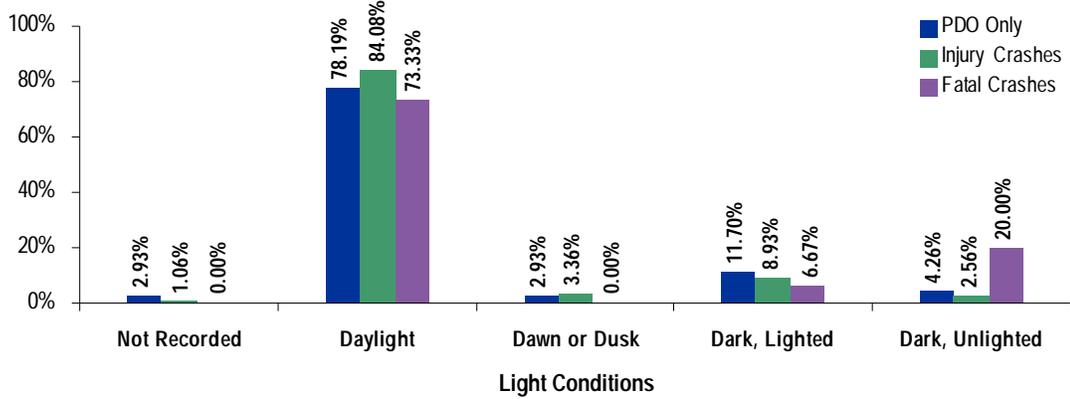
VI.10 Bicyclist and Pedestrian Crashes by Road Contour at Crash Location
 Note: NR* is Not Reported.
 Source: 2004 CDOT Crash Database.



	Bicyclist Crashes						Pedestrian Crashes					
Road Contour	Not Reported	Straight on-Level	Straight on-Grade	Curve on-Level	Curve on-Grade	Hillcrest	Not Reported	Straight on-Level	Straight on-Grade	Curve on-Level	Curve on-Grade	Hillcrest
PDO Only	8	286	52	13	14	3	6	132	27	6	3	0
Injury Crashes	16	832	214	34	31	4	26	950	208	32	37	2
Fatal Crashes	1	9	2	1	2	0	0	56	11	2	0	0
Total Crashes	25	1,127	268	48	47	7	32	1,138	246	40	40	2

The majority of bicycle and pedestrian crashes occur on straight on-level roadways.

VI.11 Bicyclist Crash Severity by Light Conditions
 Source: 2004 CDOT Crash Database.

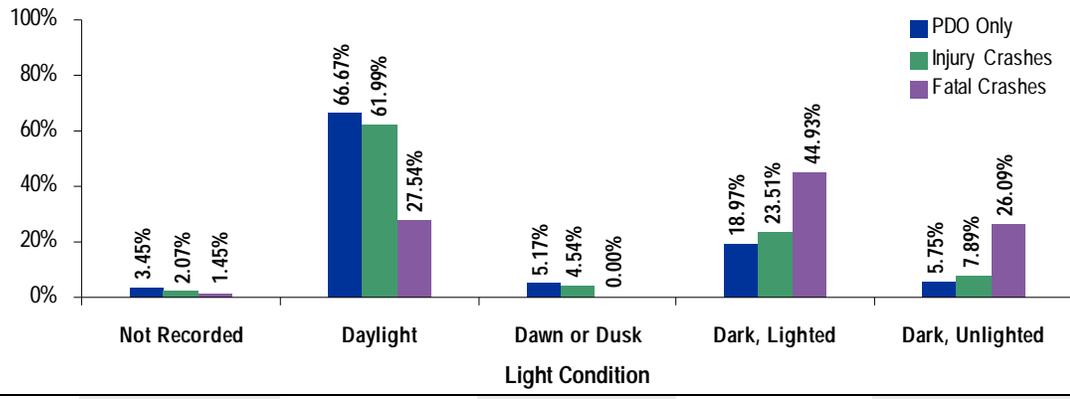


	Not Recorded	Daylight	Dawn or Dusk	Dark, Lighted	Dark, Unlighted
PDO Only	11	294	11	44	16
Injury Crashes	12	951	38	101	29
Fatal Crashes	0	11	0	1	3
Total Crashes	23	1,256	49	146	48

While most fatal bicycle crashes occur in daylight, 20% of fatal bicycle crashes occur in dark, unlighted conditions.

Only 28% of fatal pedestrian crashes occur in daylight.

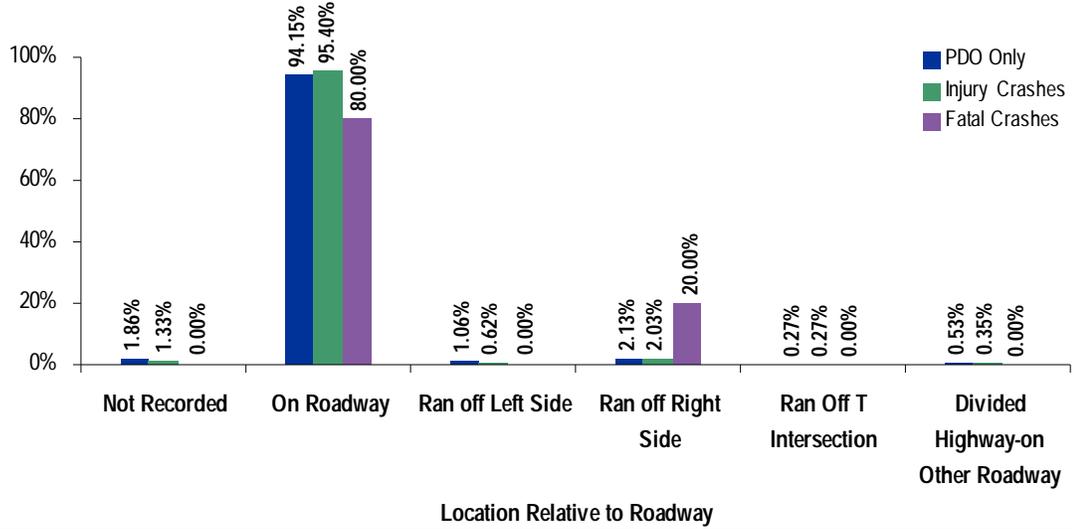
VI.12 Pedestrian Crash Severity by Light Conditions
 Source: 2004 CDOT Crash Database.



	Not Recorded	Daylight	Dawn or Dusk	Dark, Lighted	Dark, Unlighted
PDO Only	6	116	9	33	10
Injury Crashes	26	778	57	295	99
Fatal Crashes	1	19	0	31	18
Total Crashes	33	913	66	359	127

VI.13 Bicyclist Crash Severity by Location Relative to Roadway

Source: 2004 CDOT Crash Database.

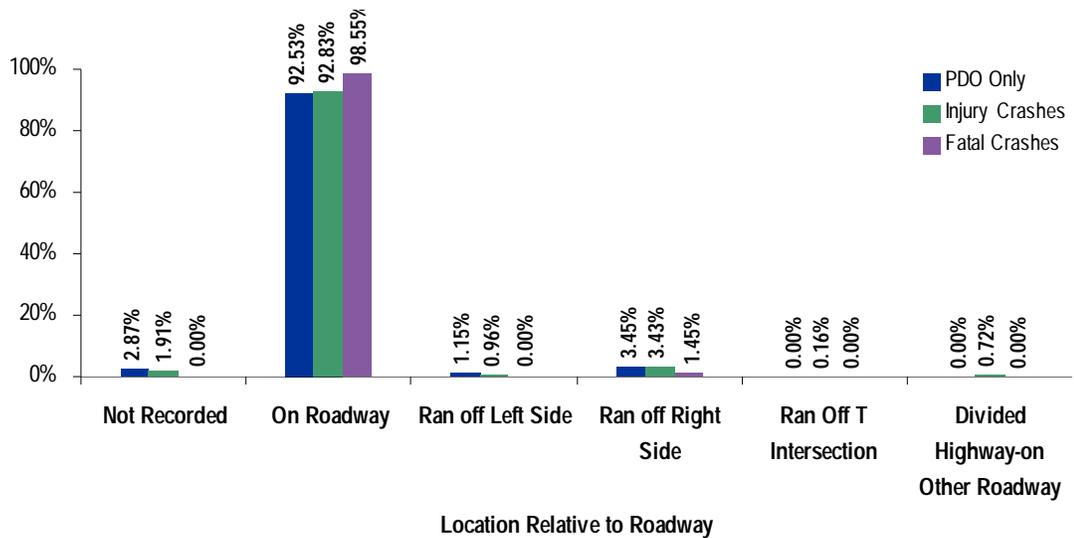


	Not Recorded	On Roadway	Ran off Left Side	Ran off Right Side	Ran Off T Intersection	Divided Highway-on Other Roadway
PDO Only	7	354	4	8	1	2
Injury Crashes	15	1,079	7	23	3	4
Fatal Crashes	0	12	0	3	0	0
Total Crashes	22	1,445	11	34	4	6

80% of fatal bicycle crashes and 99% of fatal pedestrian crashes occur on the roadway.

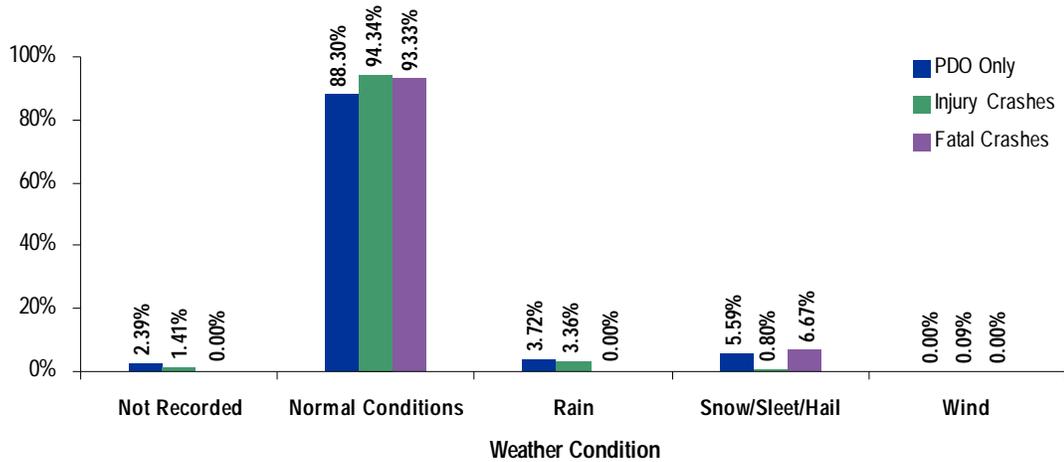
VI.14 Pedestrian Crash Severity by Location Relative to Roadway

Source: 2004 CDOT Crash Database.



	Not Recorded	On Roadway	Ran off Left Side	Ran off Right Side	Ran Off T Intersection	Divided Highway-on Other Roadway
PDO Only	5	161	2	6	0	0
Injury Crashes	24	1,165	12	43	2	9
Fatal Crashes	0	68	0	1	0	0
Total Crashes	29	1,394	14	50	2	9

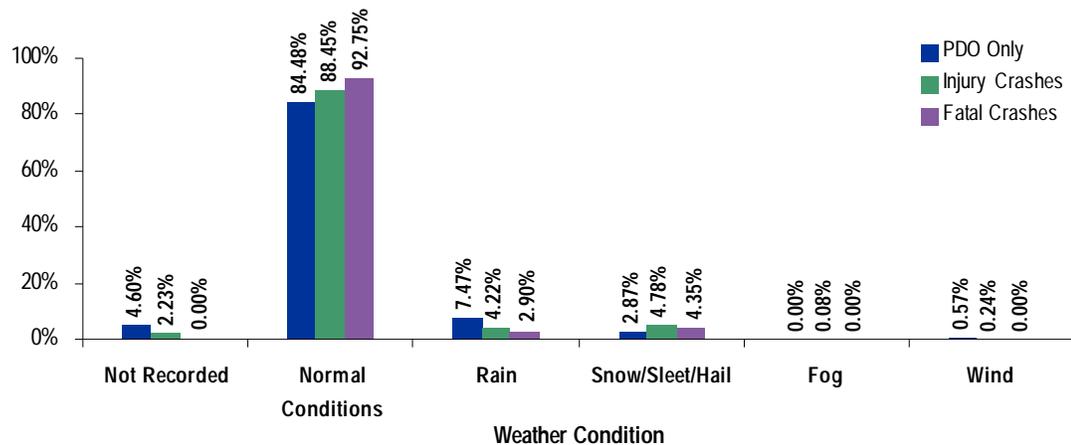
VI.15 Bicyclist Crash Severity by Weather Conditions
 Source: 2004 CDOT Crash Database.



	Weather Condition				
	Not Recorded	Normal Conditions	Rain	Snow/Sleet/Hail	Wind
PDO Only	9	332	14	21	0
Injury Crashes	16	1,067	38	9	1
Fatal Crashes	0	14	0	1	0
Total Crashes	25	1,413	52	31	1

The majority of bicycle and pedestrian crashes occur under normal weather conditions.

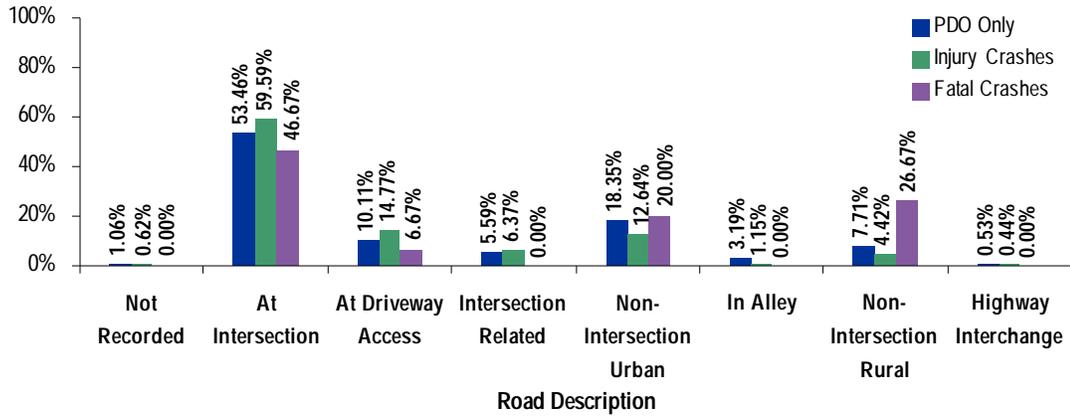
VI.16 Pedestrian Crash Severity by Weather Conditions
 Source: 2004 CDOT Crash Database.



	Weather Condition					
	Not Recorded	Normal Conditions	Rain	Snow/Sleet/Hail	Fog	Wind
PDO Only	8	147	13	5	0	1
Injury Crashes	28	1,110	53	60	1	3
Fatal Crashes	0	64	2	3	0	0
Total Crashes	36	1,321	68	68	1	4

VI.17 Bicyclist Crash Severity by Road Description

Source: 2004 CDOT Crash Database.

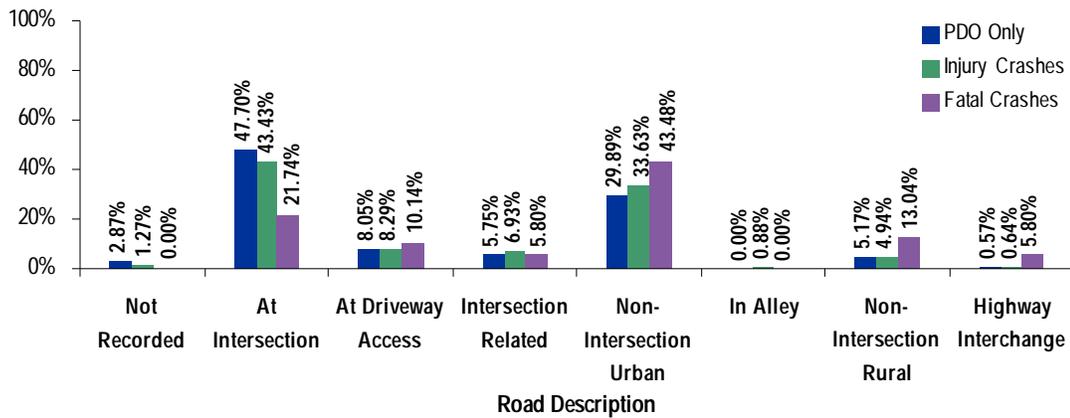


	Not Recorded	At Intersection	At Driveway Access	Intersection Related	Non-Intersection Urban	In Alley	Non-Intersection Rural	Highway Interchange
PDO Only	4	201	38	21	69	12	29	2
Injury Crashes	7	674	167	72	143	13	50	5
Fatal Crashes	0	7	1	0	3	0	4	0
Total Crashes	11	882	206	93	215	25	83	7

47% of fatal bicycle crashes occur at intersections.
22% of fatal pedestrian crashes occur at intersections.

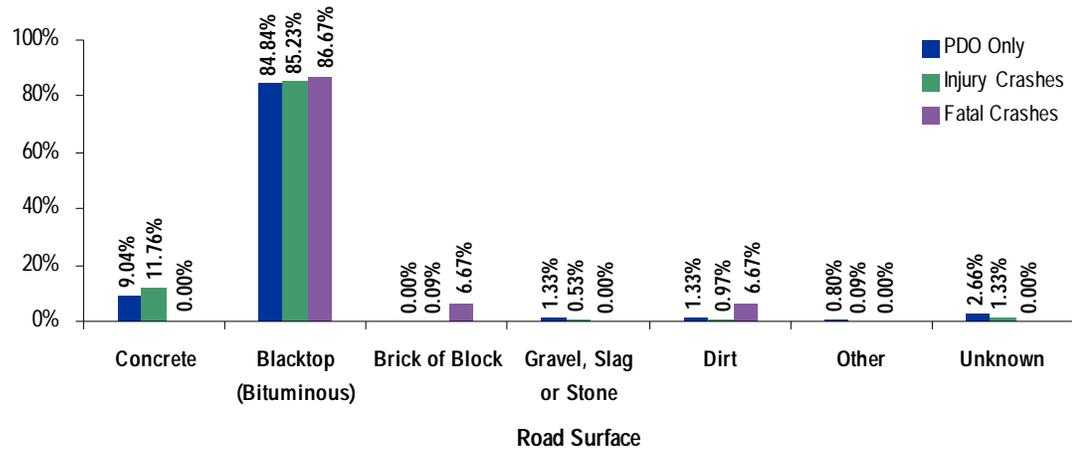
VI.18 Pedestrian Crash Severity by Road Description

Source: 2004 CDOT Crash Database.



	Not Recorded	At Intersection	At Driveway Access	Intersection Related	Non-Intersection Urban	In Alley	Non-Intersection Rural	Highway Interchange
PDO Only	5	83	14	10	52	0	9	1
Injury Crashes	16	545	104	87	422	11	62	8
Fatal Crashes	0	15	7	4	30	0	9	4
Total Crashes	21	643	125	101	504	11	80	13

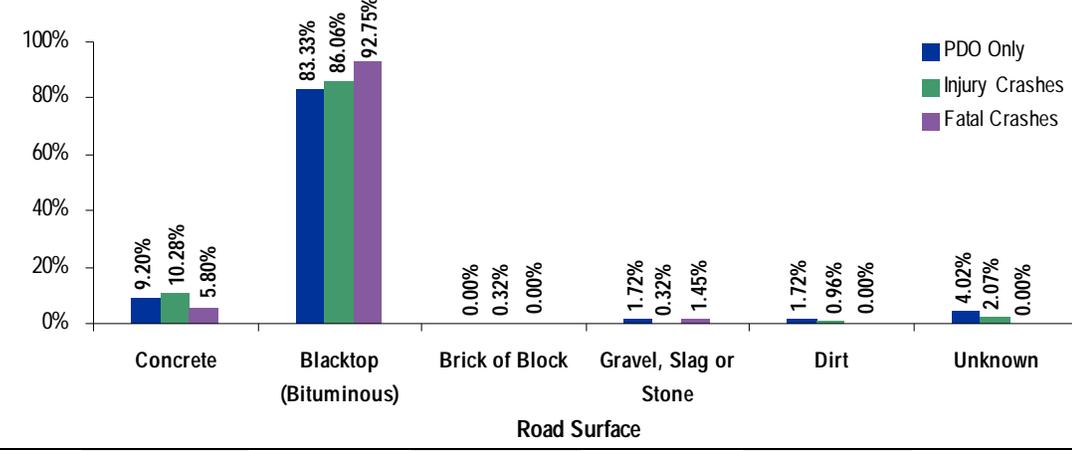
VI.19 Bicyclist Crash Severity by Road Surface
 Source: 2004 CDOT Crash Database.



	Concrete	Blacktop (Bituminous)	Brick of Block	Gravel, Slag or Stone	Dirt	Other	Unknown
PDO Only	34	319	0	5	5	3	10
Injury Crashes	133	964	1	6	11	1	15
Fatal Crashes	0	13	1	0	1	0	0
Total Crashes	167	1,296	2	11	17	4	25

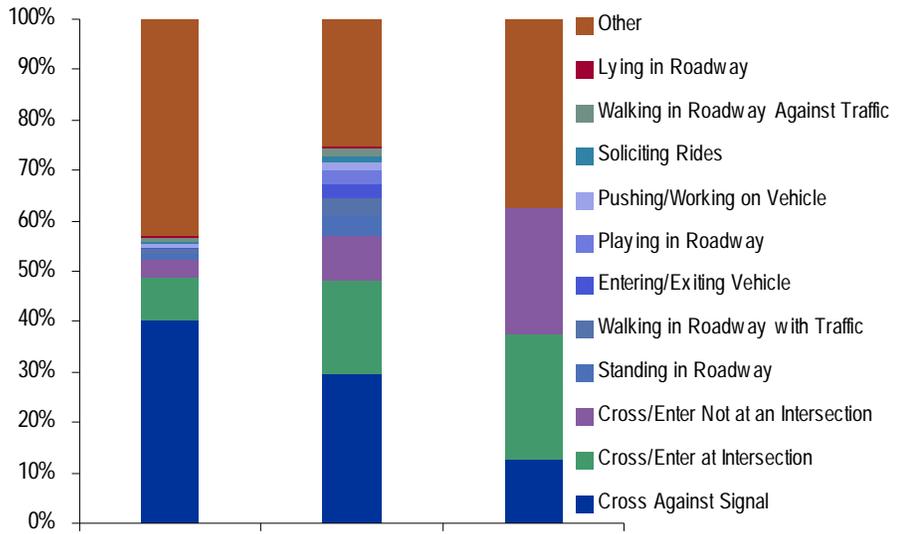
Nearly all bicycle and pedestrian crashes occur on blacktop.

VI.20 Pedestrian Crash Severity by Road Surface
 Source: 2004 CDOT Crash Database.



	Concrete	Blacktop (Bituminous)	Brick of Block	Gravel, Slag or Stone	Dirt	Unknown
PDO Only	16	145	0	3	3	7
Injury Crashes	129	1,080	4	4	12	26
Fatal Crashes	4	64	0	1	0	0
Total Crashes	149	1,289	4	8	15	33

VI.21 Pedestrian Action at Time of Crash, 2004
Source: 2004 CDOT Crash Database.



	PDO	Injury Crashes	Fatal Crashes	Total
Cross Against Signal	40.33% 198	29.61% 90	12.50% 1	289
Cross/Enter at Intersection	8.55% 42	18.42% 56	25.00% 2	100
Cross/Enter Not at an Intersection	3.67% 18	9.21% 28	25.00% 2	48
Standing in Roadway	1.02% 5	3.95% 12	0.00% 0	17
Walking in Roadway with Traffic	0.81% 4	3.29% 10	0.00% 0	14
Entering/Exiting Vehicle	0.20% 1	2.96% 9	0.00% 0	10
Playing in Roadway	0.20% 1	2.63% 8	0.00% 0	9
Pushing/Working on Vehicle	0.61% 3	1.64% 5	0.00% 0	8
Soliciting Rides	0.61% 3	1.32% 4	0.00% 0	7
Walking in Roadway Against Traffic	0.61% 3	1.32% 4	0.00% 0	7
Lying in Roadway	0.41% 2	0.33% 1	0.00% 0	3
Other	42.97% 211	25.33% 77	37.50% 3	291

Crossing against the light is the cause of 30% of pedestrian injury crashes.

VI.22 Bicyclists and Pedestrians Involved in Crashes by Small County and Region of Crash, and Severity

Source: 2004 CDOT Crash Database.

Region	PDO Crashes		Injury Crashes		Fatal Crashes		Total Crashes	
	Bicyclists	Pedestrians	Bicyclists	Pedestrians	Bicyclists	Pedestrians	Bicyclists	Pedestrians
Eastern Plains								
Bent	0	---	1	---	0	---	1	---
Cheyenne	1	---	1	---	0	---	2	---
Elbert	0	0	2	1	0	---	2	1
Huerfano	0	1	3	0	0	---	3	1
Kit Carson	0	0	1	3	0	---	1	3
Las Animas	1	0	2	1	0	---	3	1
Lincoln	0	0	2	2	0	---	2	2
Logan	0	1	5	3	0	---	5	4
Morgan	2	1	6	2	0	---	8	3
Otero	1	0	2	1	0	---	3	1
Phillips	---	0	---	1	---	---	---	1
Prowers	1	0	4	6	0	---	5	6
Yuma	0	---	1	---	1	---	2	---
Total	6	3	30	20	1	---	37	23
Central Mountains								
Chaffee	0	0	2	1	---	0	2	1
Clear Creek	1	0	1	4	---	0	2	4
Fremont	5	1	12	4	---	3	17	8
Gilpin	1	0	0	1	---	0	1	1
Lake	1	0	1	1	---	0	2	1
Park	1	0	0	1	---	0	1	1
Teller	0	1	1	2	---	0	1	3
Total	9	2	17	14	---	3	26	19
Gunnison Valley								
Delta	0	0	5	4	---	---	5	4
Gunnison	3	---	0	---	---	---	3	---
Montrose	4	3	12	14	---	---	16	17
San Miguel	3	0	1	1	---	---	4	1
Total	10	3	18	19	---	---	28	22
Northern Mountain Resort								
Eagle	3	0	2	7	0	---	5	7
Grand	1	0	1	1	0	---	2	1
Jackson	1	---	0	---	0	---	1	---
Pitkin	4	0	3	13	0	---	7	13
Routt	2	3	4	3	0	---	6	6
Summit	2	1	3	5	1	---	6	6
Total	13	4	13	29	1	---	27	33
Northwest Colorado								
Garfield	4	3	6	12	1	---	11	15
Moffat	1	0	7	2	0	---	8	2
Rio Blanco	2	0	0	1	0	---	2	1
Total	7	3	13	15	1	---	21	18
San Luis Valley								
Alamosa	1	3	7	1	0	0	8	4
Costilla	0	1	0	0	1	0	1	1
Rio Grande	---	0	---	0	---	1	---	1
Saguache	0	0	1	1	0	0	1	1
Total	1	4	8	2	1	1	10	7
Southwest Colorado								
Archuleta	1	1	0	2	---	0	1	3
La Plata	5	2	5	4	---	2	10	8
Montezuma	3	1	0	8	---	0	3	9
Total	9	4	5	14	---	2	14	20

VI.23 Bicyclists and Pedestrians Involved in Crashes by County and Region of Crash, and Severity, 2004*Source: 2004 CDOT Crash Database.*

Large Cities	PDO Crashes		Injury Crashes		Fatal Crashes		Total Crashes	
	Bicyclists	Pedestrians	Bicyclists	Pedestrians	Bicyclists	Pedestrians	Bicyclists	Pedestrians
Adams	31	17	93	95	3	7	127	119
Arapahoe	33	28	111	141	---	9	144	178
Boulder	43	6	168	83	2	3	213	92
Broomfield	7	6	11	6	1	---	19	---
Denver	82	47	198	367	2	21	282	435
Douglas	7	2	11	17	---	19	18	---
El Paso	30	11	106	146	1	6	137	163
Jefferson	28	18	95	122	---	7	123	147
Larimer	25	7	110	53	2	2	137	62
Mesa	8	5	44	22	---	2	52	29
Pueblo	12	9	27	52	---	1	39	62
Weld	15	1	53	38	---	5	68	44

VI.24 Bicyclists and Pedestrians Involved in Crashes in Big Cities, by Severity, 2004*Source: 2004 CDOT Crash Database.*

City	PDO Injury		Injury Crashes		Fatal Crashes		Total Crashes	
	Bicycles	Pedestrians	Bicycles	Pedestrians	Bicycles	Pedestrians	Bicycles	Pedestrians
Arvada	6	2	22	26	0	1	28	29
Aurora	17	18	83	106	0	7	100	131
Boulder	21	5	113	53	0	1	134	59
Brighton	6	1	4	2	0	0	10	3
Broomfield	7	0	11	6	1	0	19	6
Castle Rock	2	---	1	---	0	---	3	---
Centennial	5	3	11	10	0	0	16	13
Colorado Spring	24	10	97	133	0	5	121	148
Commerce City	0	2	13	4	1	0	14	6
Denver	82	47	198	367	2	21	282	435
Englewood	4	3	8	18	0	1	12	22
Fort Collins	21	6	84	27	1	1	106	34
Grand Junction	6	1	33	10	0	0	39	11
Greeley	7	0	29	18	0	2	36	20
Lakewood	12	15	28	50	0	5	40	70
Littleton	8	6	3	7	0	0	11	13
Longmont	15	1	28	25	0	0	43	26
Loveland	1	0	21	15	0	0	22	15
Northglenn	2	2	19	12	0	2	21	16
Parker	0	0	1	6	0	0	1	6
Pueblo	8	9	26	50	0	1	34	60
Thornton	5	6	18	18	1	1	24	25
Westminster	1	1	16	18	1	0	18	19
Wheat Ridge	1	0	15	19	0	0	16	19
Total	261	138	882	1,000	7	48	1,150	1,186

Denver had the greatest number of fatal pedestrian crashes (21) among large cities.

Aurora had the second greatest, with 7 fatal pedestrian crashes.

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