

DRAFT



Boulder County Vision Zero Plan



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Introduction

Part One- Traffic Crash Analysis

No loss of life is acceptable.

With that simple premise, Vision Zero requires a “fundamental shift in philosophy and approach to traffic safety” (Moving from Vision to Action, 2017). As part of Boulder County’s 2020 Transportation Master Plan Update, Boulder County established a Vision Zero target to eliminate major injury and fatal traffic crashes in unincorporated Boulder County by 2035. Currently, unincorporated Boulder County sees about 35 major injury and 10 fatal traffic crashes per year. In order to meet our Vision Zero target, Boulder County will need to both understand the problem and chart a course of action; this plan includes a Traffic Crash Analysis and an Action Plan.

Boulder County’s progress towards our Vision Zero target will be tracked in our Crash Analysis, with an update roughly every three years. The report will analyze crashes from the most recent decade of available crash data from CDOT, currently 2009-2018. The scope of this analysis will be largely limited to crashes on roads in Unincorporated Boulder County and the four incorporated towns in western Boulder County: Lyons, Jamestown, Nederland and Ward (collectively, the “Mountain Towns”), including crashes occurring on Colorado Department of Transportation (CDOT) highways, Boulder County roads, and local roads within the Mountain Towns. However, Boulder County is working in close partnership with all our municipalities to advance transportation safety in the County as a whole.

Drawing on the lessons learned and insight from the Crash Analysis, the Action Plan outlines Boulder County’s proposed approach to eliminate major injury and fatal traffic crashes. The Action Plan includes engineering, education, and enforcement recommendations, and outlines the timeline and funding status for these recommendations.

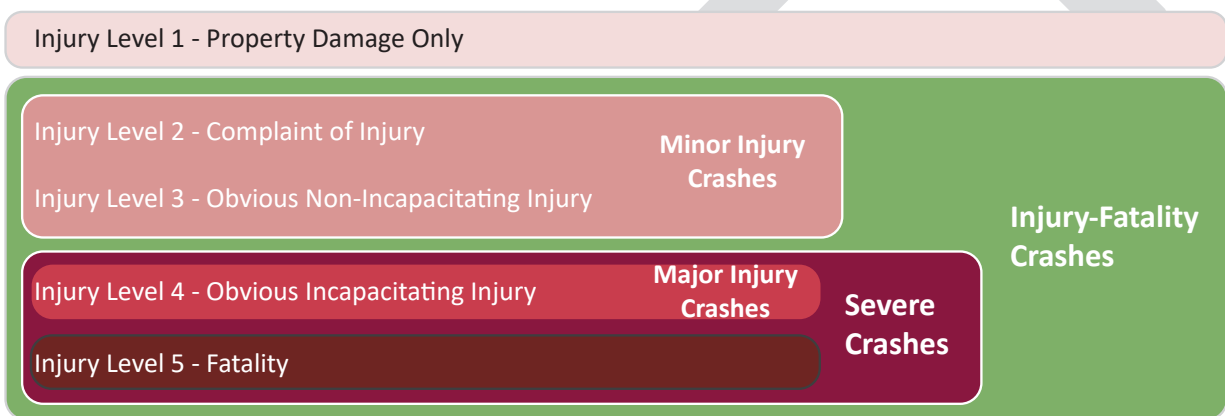
Crash Severity and Terms Used in this Report

As stated in the Scope of This Report, the focus is on injurious and fatality crashes, with a particular emphasis on Severe Crashes.

The crash severity of a crash is determined by law enforcement and recorded as part of the tabular data on the Accident Report Form. There are five levels of crash severity, determined by the most serious injury resulting from a crash:

- Injury Level 1= Property Damage Only
- Injury Level 2= Complaint of Injury
- Injury Level 3= Obvious Non-Incapacitating Injury
- Injury Level 4= Obvious Incapacitating Injury
- Injury Level 5= Fatality

Throughout this report, we will refer to four levels of crash severity:



Highlights from Traffic Crash Data (2009 to 2018), by Chapter

The ten bullet points below highlight the key findings from each chapter, in order, in the Traffic Crash Analysis.

1. The number of crashes (PDO, Injury-Fatality, Fatal) has been flat over the last 10 years, not increasing or decreasing much.
2. Approach turn and broadside crashes at signalized intersections are common crash types at intersections.
3. The greatest number of Severe crashes occurred on state highways, including SH 119 (the Diagonal), US 36 (Jay Rd to Lyons), Peak to Peak, and Boulder Canyon Drive.
4. Just over half of the bicycle and pedestrian crashes occurred at intersections. The most significant bicycle crash trends are a cyclist being hit from behind, broadside, and approach turn crashes.
5. Most motorcycle crashes are single-vehicle crashes on state highways in the mountains.
6. Single-vehicle crashes are concentrated on curves, particularly curves on hills/in the mountains.
7. Impairment related crashes are 8% of all crashes and 32% of all Fatal crashes.
8. Most of the wildlife crashes are on US 36 between Boulder and Lyons and only involve minor injuries.
9. HIN (High Injury Network): 18% of roads, 77% of Severe crashes
10. The biggest Severe crash trends for teenage drivers are single-vehicle crashes, and the time these crashes occur align with afternoon commute times from after school activities.

Valuable Actions

The bullet points below highlight both engineering and programmatic actions that have been implemented to improve safety in Boulder County.

- CDOT conducted a centerline rumble strip study in 2001 on Boulder Canyon Drive after the rumble strips were installed during the 90s. They found decreases in crashes where a vehicle crossed the centerline, proving the rumble strips' effectiveness even as traffic volumes increased on the road.
- Rebuilding Lefthand Canyon post-flood reduced the number of bicycle crashes on the road. From 2009-2013 prior to the flood, 6 Injury-Fatality bicycle crashes took place and only 2 Minor Injury bicycle crashes occurred after the reconstruction project.
- A buffered shoulder, green pavement markings, and skipped striping were installed on Jay Road between 30th Street and N 63rd Street in 2018. From 2009-2018, 10 Injury-Fatality bicycle crashes took place on Jay and only 1 PDO bicycle crash has occurred after the safety improvements were completed.
- Boulder County receives updated crash data from CDOT every three years, but we have a crash analysis team study each fatality soon after they occur to look at immediate and short-term changes that we could implement.

Chapter 1: Boulder County Traffic Crashes Context

All Traffic Crashes in Boulder County, 2009-2018, by Community

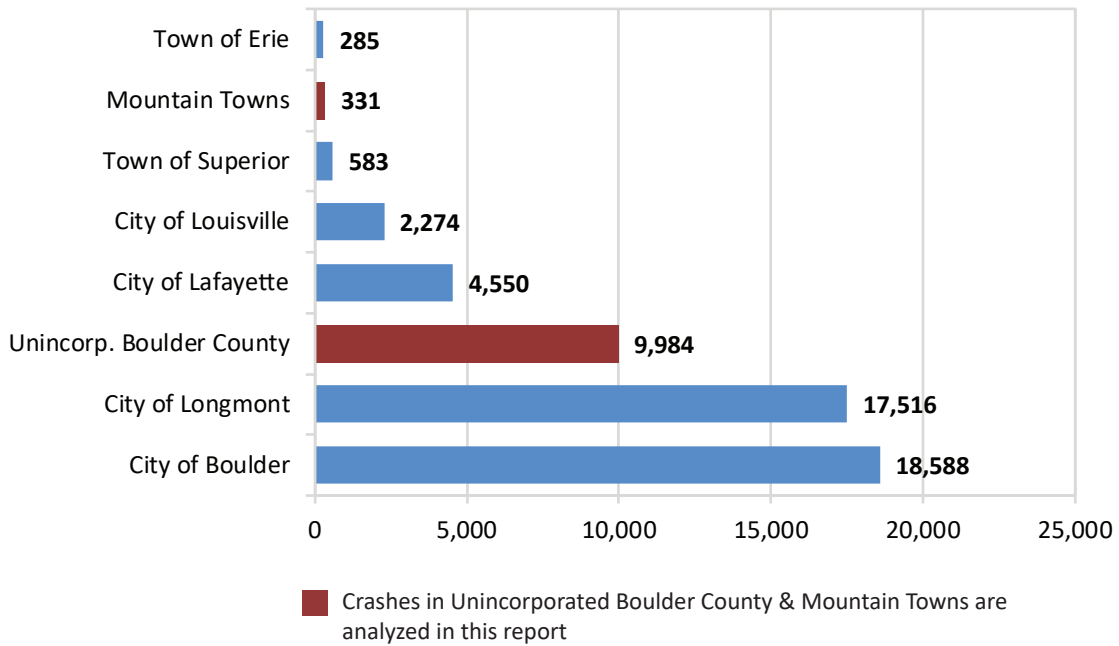


Figure 1.1

From 2009-2018, there were 54,121 crashes within the geographic boundaries of Boulder County. This crash analysis will largely be limited to the 10,315 crashes that occurred in Unincorporated Boulder County and the four Mountain Towns of western Boulder County, with an emphasis on the 3,893 Injury and Fatal Crashes as shown in Figure 1.2, which make up about one third of all crashes in Unincorporated Boulder County and the Mountain Towns.

All Crashes in Unincorporated Boulder County & Mountain Towns, 2009-2018

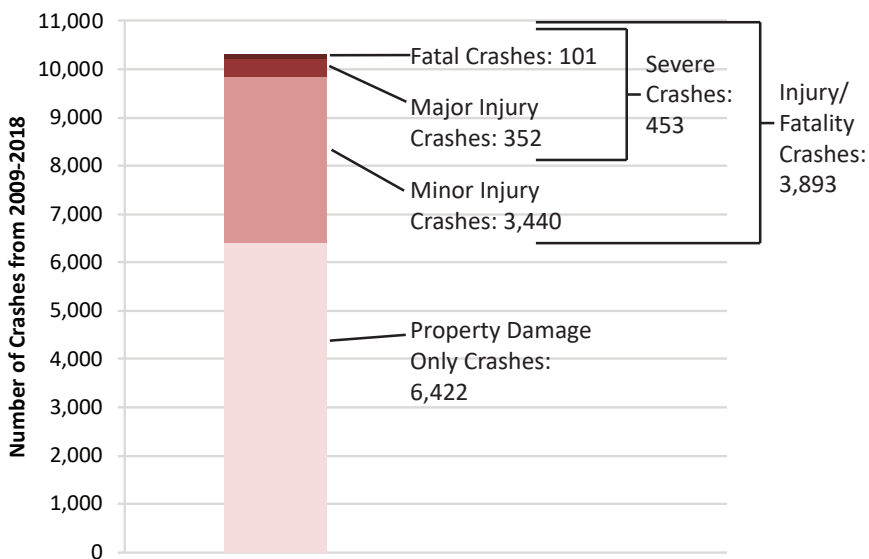


Figure 1.2 shows the severity break down of crashes in unincorporated Boulder County and the Mountain Towns. While Severe Crashes make up a small percentage of all crashes, these result in the most life-changing or life-ending consequences and will receive special emphasis in this report.

Figure 1.2

All Crashes in Unincorporated Boulder County & Mtn. Towns, 2006-2018

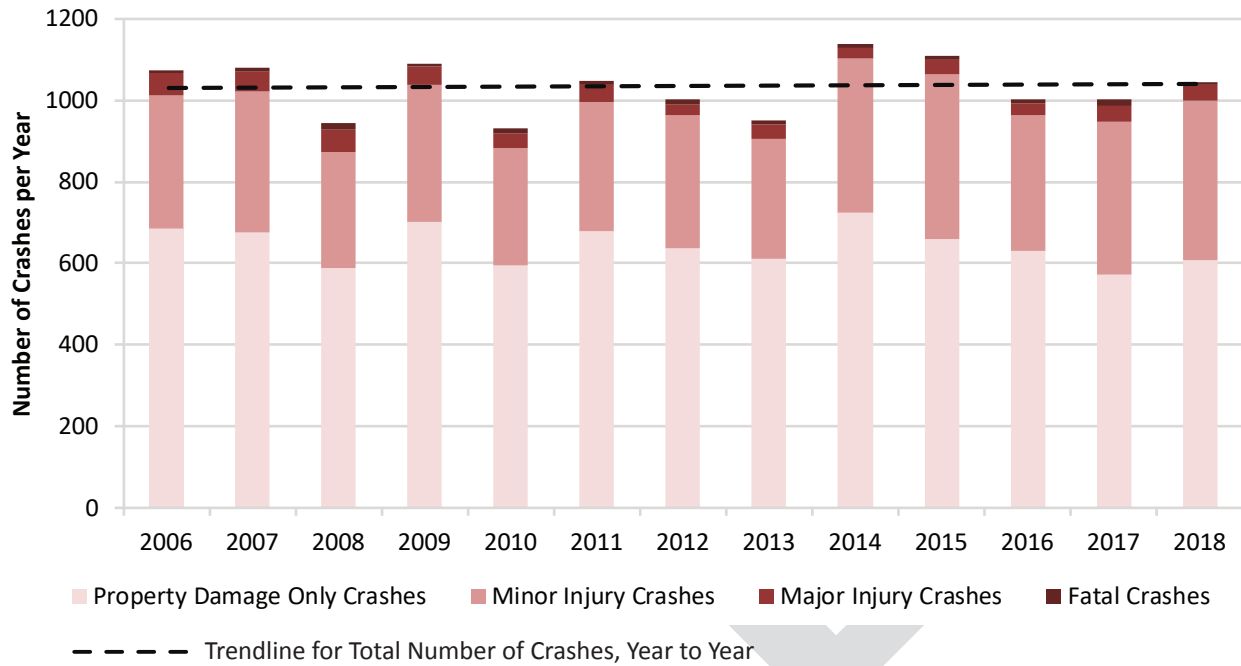


Figure 1.3

Despite some fluctuation year to year, the number of all crashes in Unincorporated Boulder County and the Mountain Towns has been relatively constant over the past 13 years, neither significantly increasing nor decreasing. An average of just under 1,100 crashes occurred per year. From 2006-2018, Injury-Fatality Crashes consistently account for one-third of all crashes, and Severe Crashes represent about 3-5% of all crashes, including an average of 10 fatal crashes per year.

Indexed Crashes, 2006-2018

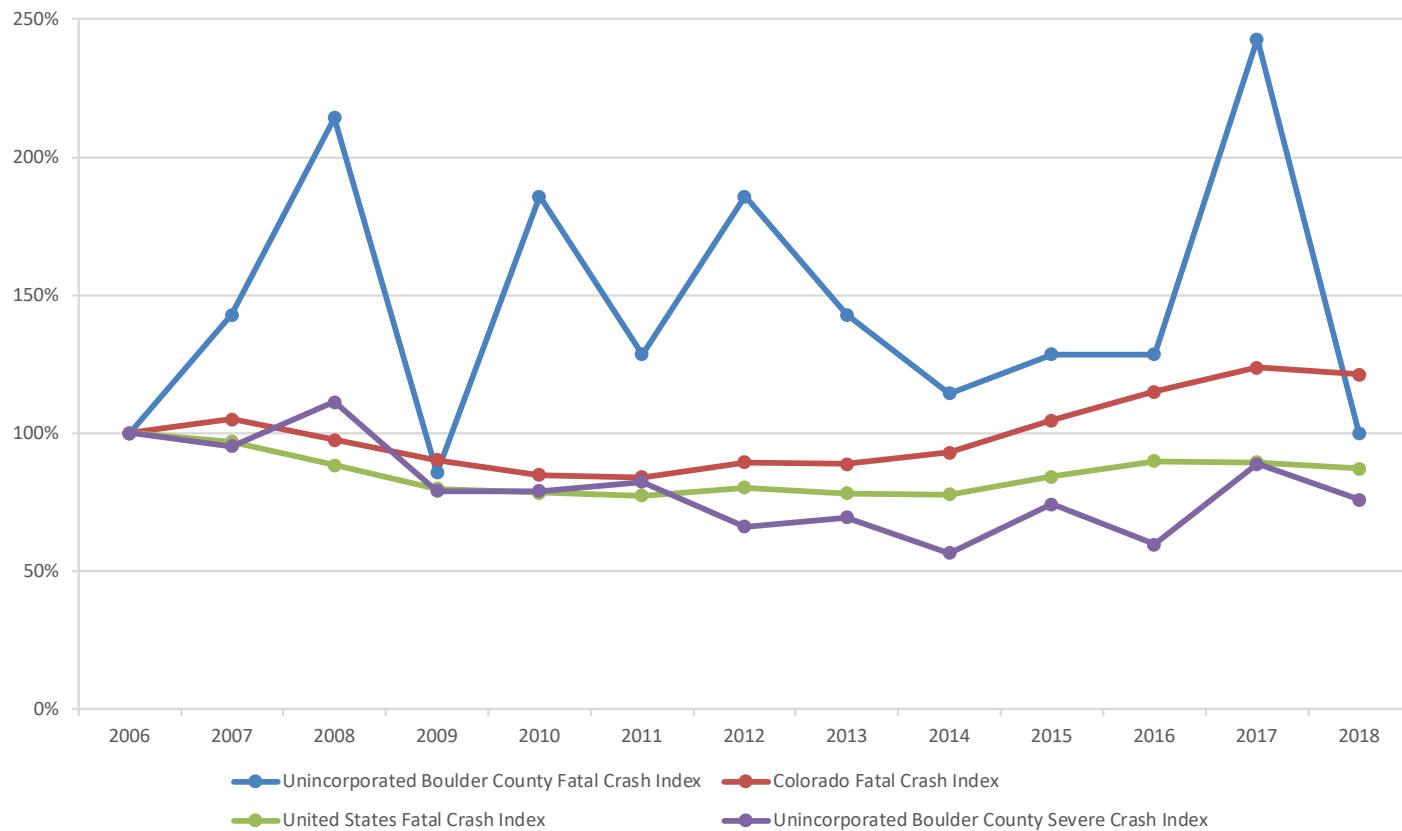


Figure 1.4

In the last five years, the United States and Colorado have both seen an increase in fatal crashes. However, Figure 1.4 shows that Boulder County has seen significant fluctuations in the number of fatal crashes from year to year. The most significant spikes in fatal crashes in Unincorporated Boulder County took place from 2006 to 2008, 2009 to 2010, and from 2016 to 2017.

All Injury-Fatality Crashes in Unincorporated Boulder County & Mountain Towns, 2009-2018, by Severity

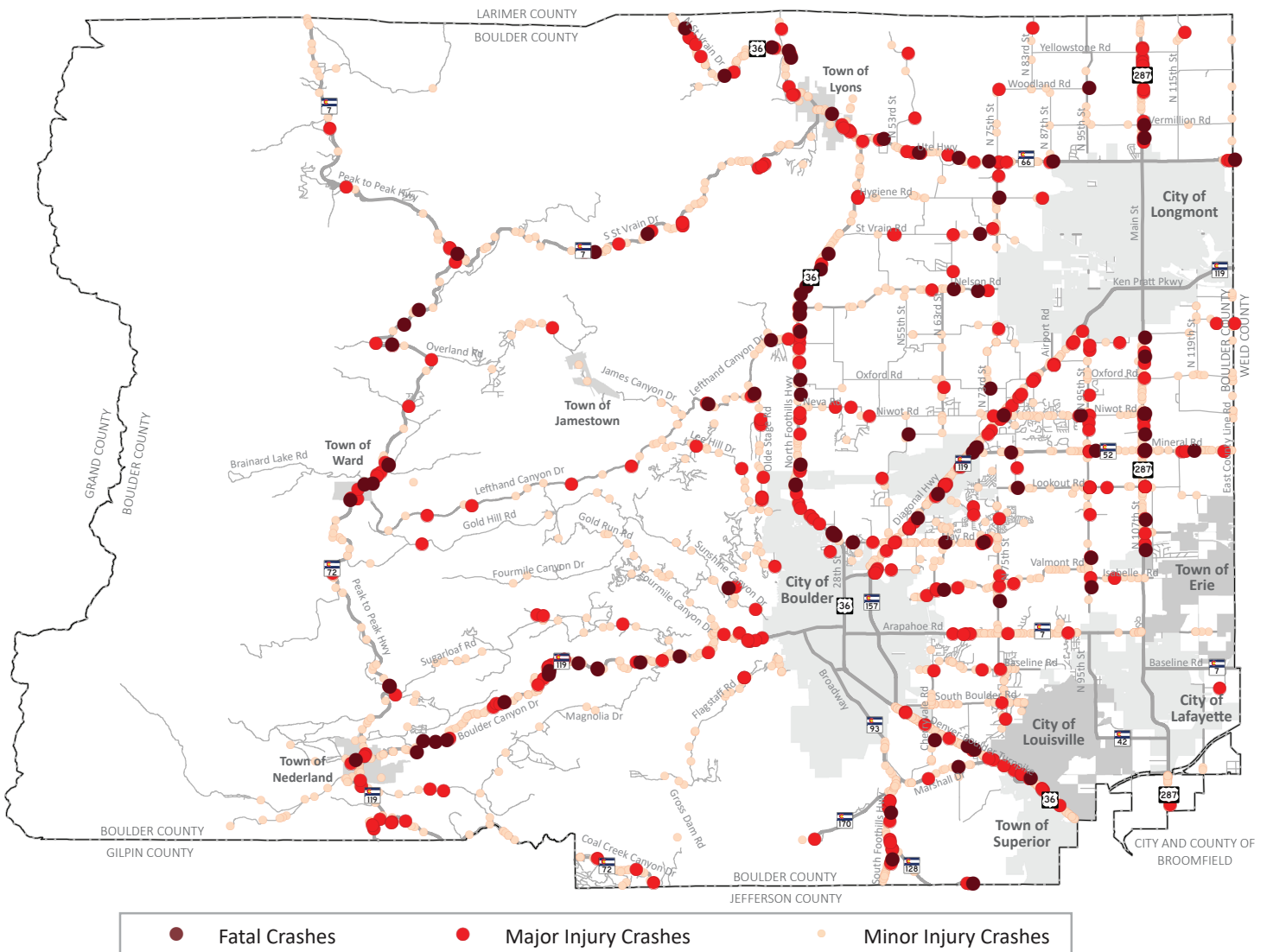


Figure 1.5

Figure 1.5 maps all Injury-Fatality Crashes in Unincorporated Boulder County and the Mountain Towns from 2009-2018 by crash severity. As Figure 1.6 and 1.7 show, while state highways and county arterials represent about one-fourth of the road network (28%), they account for about three-fourths of Severe crashes (79%). Fatalities are even more concentrated on these two road classifications; over 80% of Fatal Crashes occur on CDOT highways (80 of 101 crashes) and of the 21 Fatal Crashes that occur on Boulder County roads, 15 occur on arterial roads.

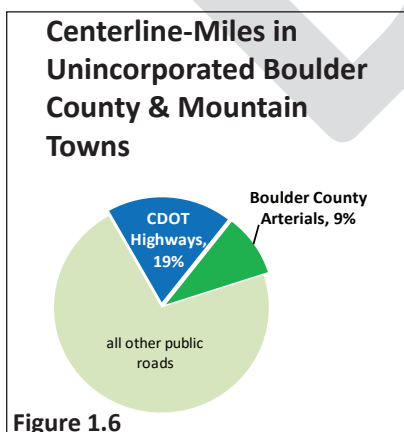


Figure 1.6

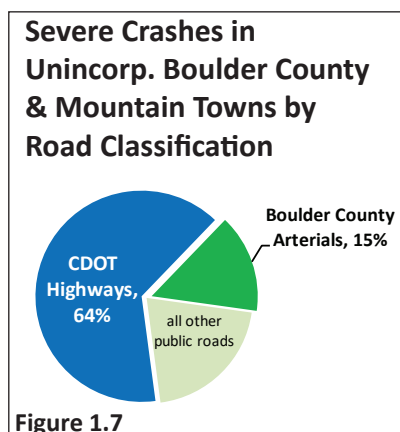


Figure 1.7

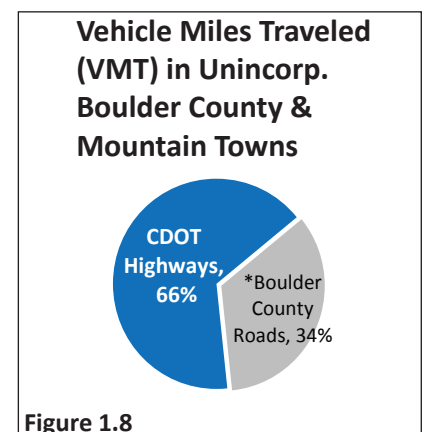


Figure 1.8

Heat Map Showing All Injury-Fatality Crashes in Unincorporated Boulder County & Mountain Towns, 2009-2018

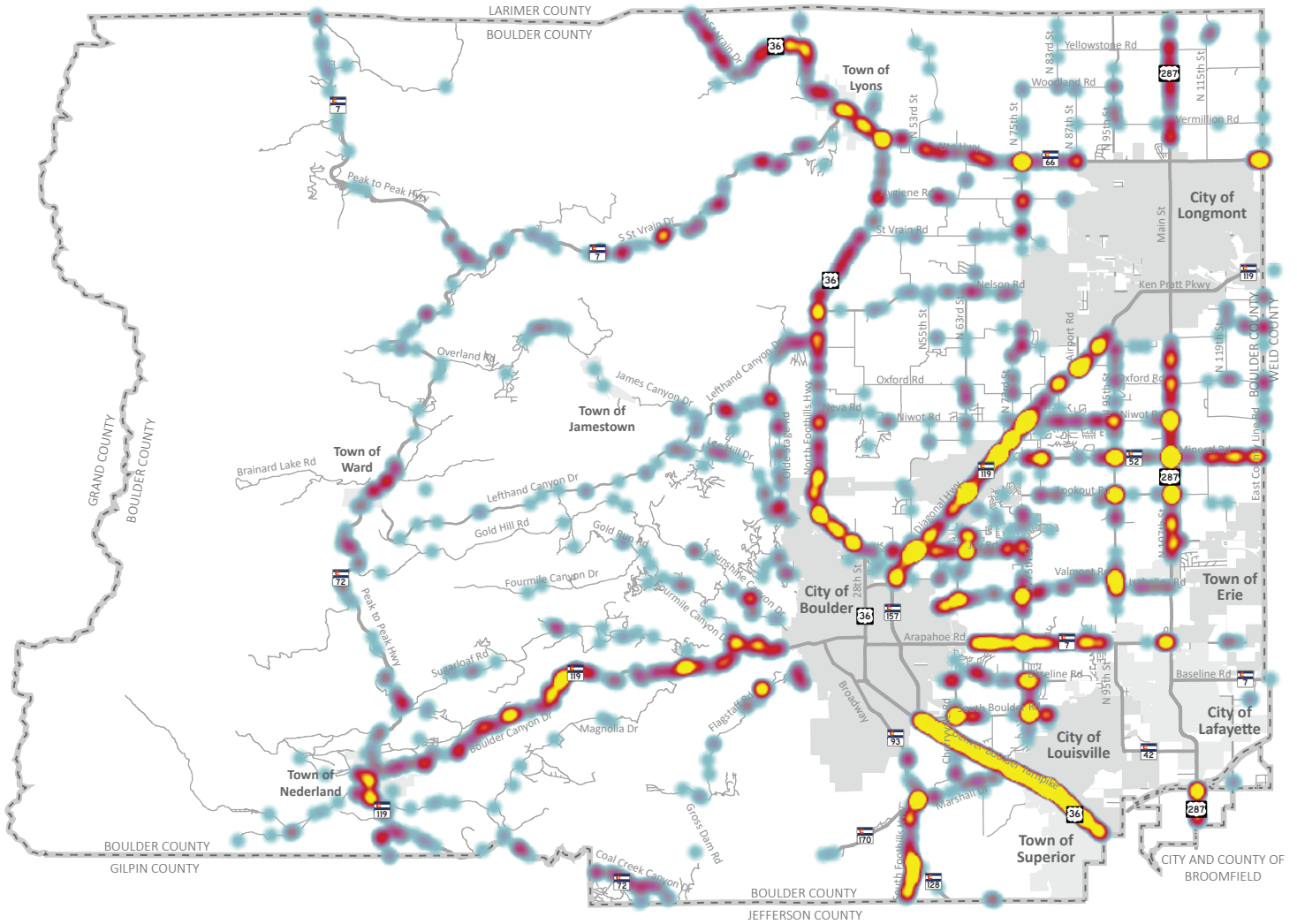
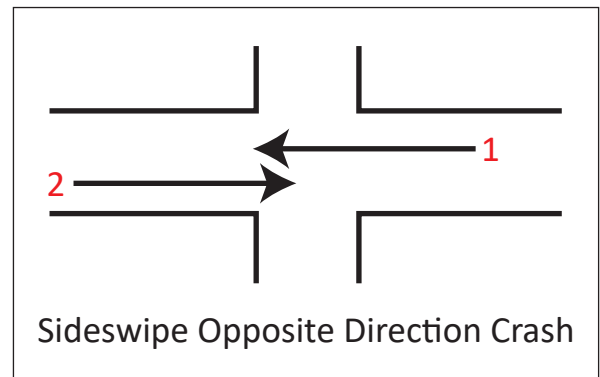
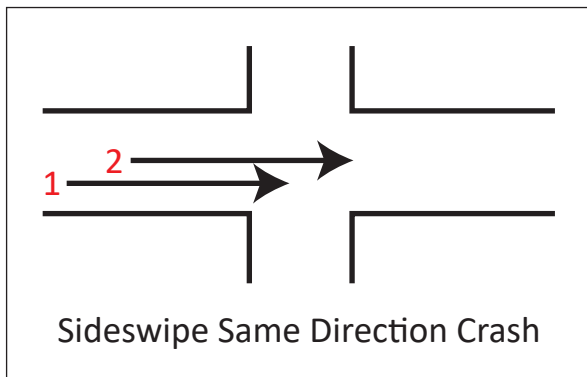
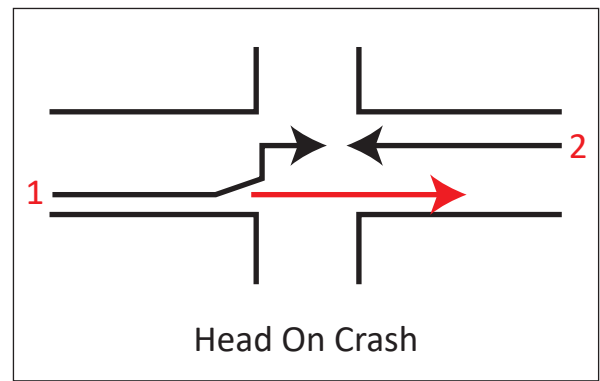
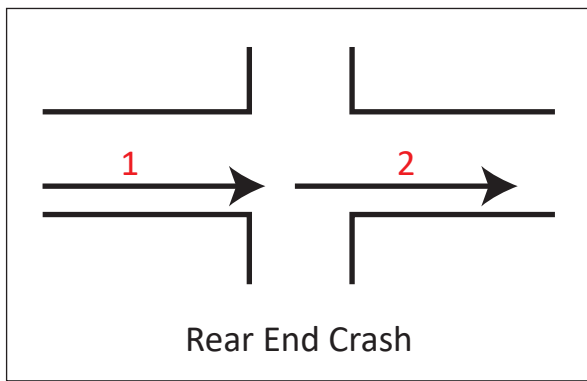
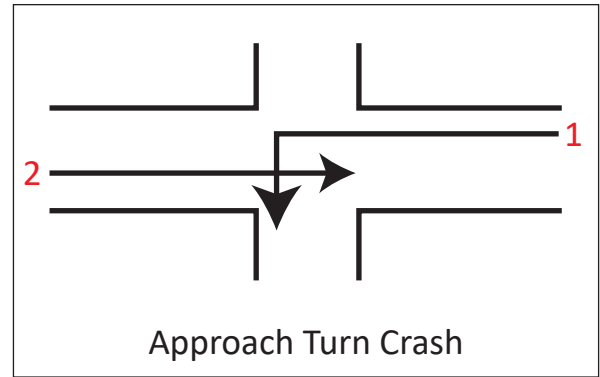
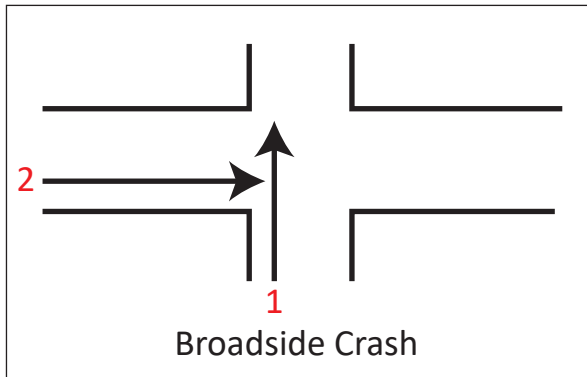


Figure 1.9

Figure 1.9 is a heat map symbolizing all Injury-Fatality Crashes in Unincorporated Boulder County and the four Mountain Towns from 2009-2018. The heat map uses warmer colors (reds and yellows) to show where crash numbers are higher and cooler colors (blues) to show where crash numbers are less concentrated. State highways, in particular, SH 119 (the Diagonal), US 287, US 36, State Highway 7 (Arapahoe Road), and SH 119 (Boulder Canyon Drive), stand out as having the highest number of crashes.

Crash Type Diagrams



1 = At-fault Motorist

2 = Other Motorist(s) Involved in Crash

The diagrams above, from a bird's eye view, illustrate some of the crash types referenced in the analysis.

Severe Crashes in Unincorporated Boulder County & Mountain Towns, 2009-2018, By Crash Type

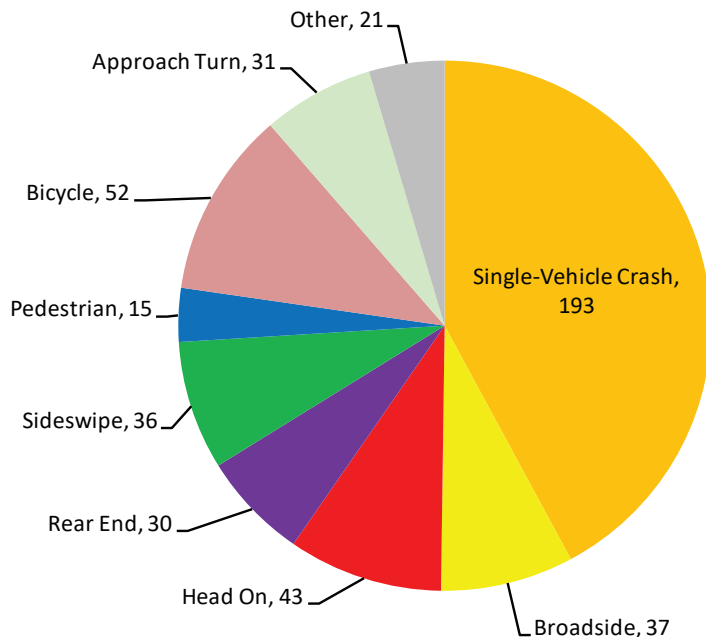


Figure 1.10

Of the 453 Severe crashes that occurred in Unincorporated Boulder County & the Mountain Towns from 2009-2018, nearly half (193) were single-vehicle crashes. 43% of the single-vehicle crashes had no obvious contributing factor, including a dry road condition, no impairment, or lighting.

Injury-Fatality Crashes in Unincorporated Boulder County & Mountain Towns, 2009-2018, By Crash Type

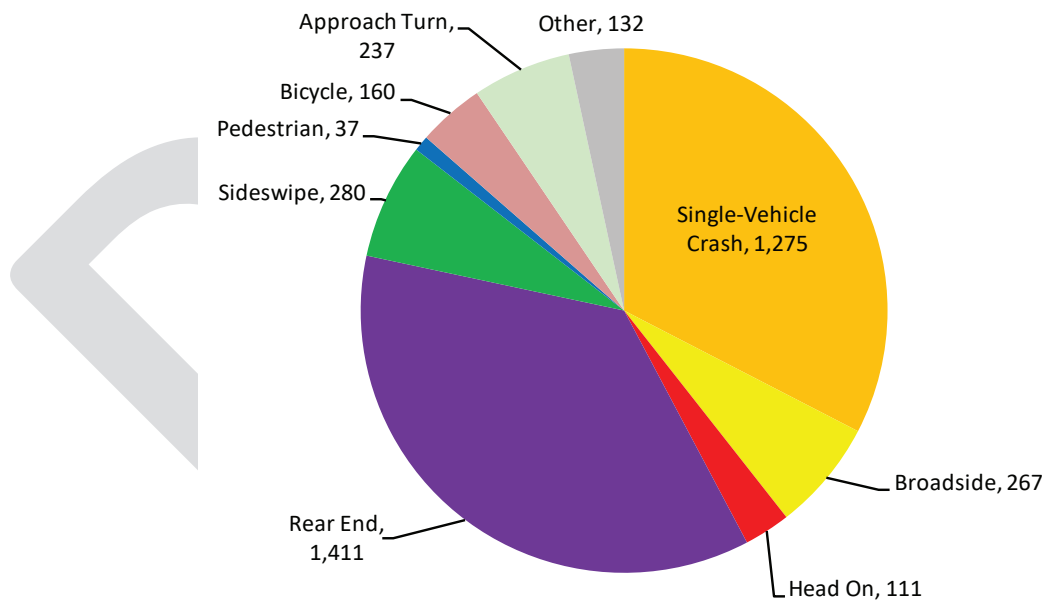


Figure 1.11

About two-thirds of Injury-Fatality crashes are single-vehicle or rear-end crashes (2,686 of 3,910). While rear-end crashes make up a large percentage of Injury-Fatality Crashes, these crashes represent a small percentage of Severe crashes (6%).

Severe Crashes in Unincorporated Boulder County & Mountain Towns, By Crash Type

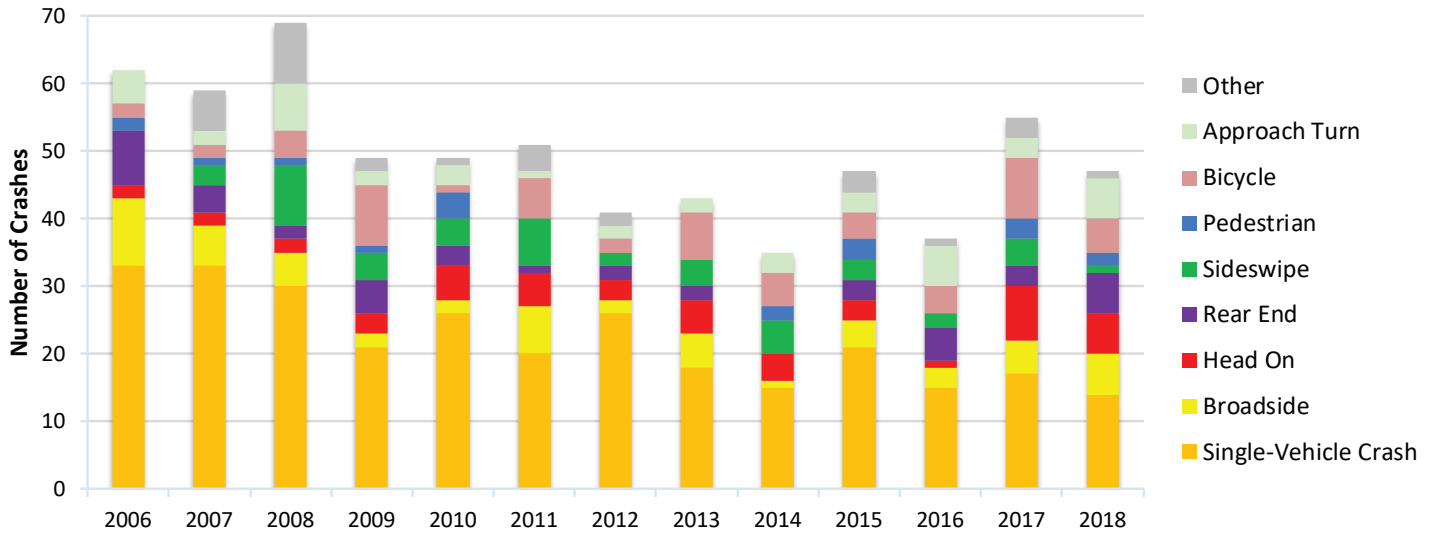


Figure 1.12

Injury and Fatal Crashes in Unincorporated Boulder County & Mountain Towns, By Crash Type

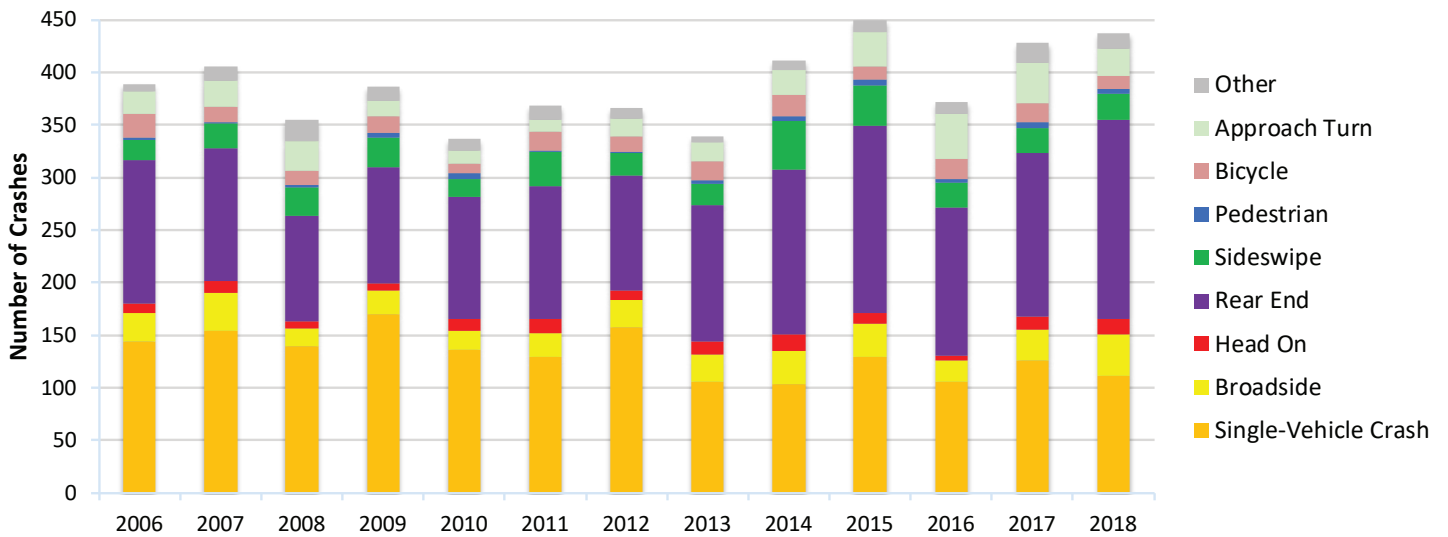


Figure 1.13

Figure 1.12 and 1.13 show that, while the total number of Severe and Injury-Fatality Crashes varies by year, the different crash types have remained at relatively consistent percentages of the whole over time. From 2006-2015, Single-vehicle crashes accounted for about one half of all Severe crashes per year, with the remainder evenly divided amongst a handful of other crash types. However, this pattern changes from 2016-2018, where Single-vehicle crashes only account for about one-third of all crashes per year. Single-vehicle crashes account for about one-third of all Injury-Fatality Crashes in a given year, with rear end collisions a close second, even eclipsing single-vehicle crashes in some years (2014-2018). Rear end crashes appear more frequently in the Injury-Fatality data than in the Severe crash data, so it can be inferred that rear end crashes are mostly minor injury and a small percentage of these result in a major injury or fatality.

Severe Crashes in Unincorporated Boulder County & Mountain Towns by Jurisdiction, 2009-2018

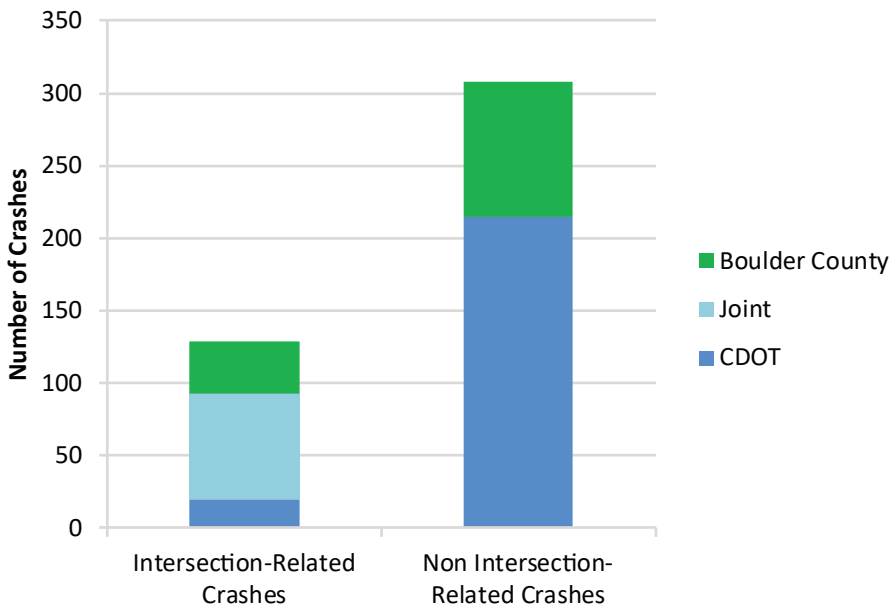


Figure 1.14

In contrast to many urban jurisdictions, most crashes in Unincorporated Boulder County are not intersection related. Figure 1.15 shows that, for all Injury-Fatality crashes, about two-thirds are not intersection-related. Of the non-intersection related crashes, about two-thirds occur on state highways and one-third occur on local Boulder County roads. Just under half of the intersection-related crashes occur at the intersection of a state highway and a local road.

Figure 1.14 shows that these trends hold steady even when the focus is narrowed to Severe Crashes, with the largest notable difference being that an even higher percentage (about three-fourths) of severe crashes are not intersection-related, again, in contrast to urban jurisdictions.

Injury-Fatality Crashes in Unincorporated Boulder County & Mountain Towns by Jurisdiction, 2009-2018

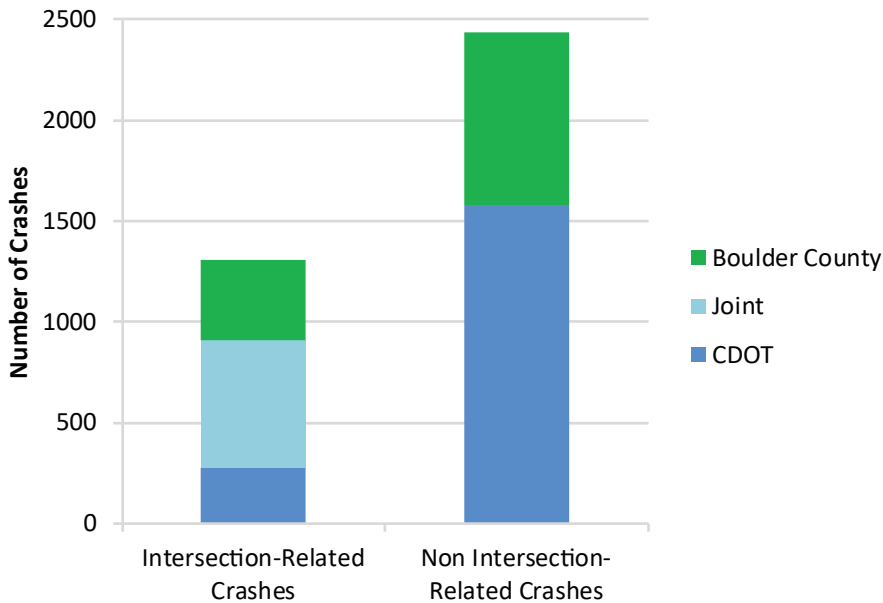


Figure 1.15

While these figures show that a majority of Injury-Fatality and Severe crashes involve state highways, they do not indicate if that is due to state highways having higher crash rates, or simply because there is more traffic on state highways than local roads. For a more detailed discussion of absolute number of crashes versus crash rates, please see Chapter 2: Intersection-related Crashes or Chapter 3: Corridor-related Crashes.

Chapter 2: Intersection-related Crashes

Intersection crashes are overwhelmingly concentrated on the plains in Unincorporated Boulder County. Figure 2.1 (Intersection Crashes in Unincorporated Boulder County & Mountain Towns, 2009-2018, by Severity) maps all intersections with two or more Severe Crashes or 10 or greater Injury-Fatality Crashes. 35 intersections in Boulder County's jurisdiction cleared this threshold of at least 2 Severe Crashes or at least 10 Injury-Fatality Crashes. Three other intersections of interest were added that are not in Boulder County's jurisdiction. Please note that these intersections are marked with italicized, lighter text on the maps and Ranked Intersections chart, and Intersections by Intersection Type chart in Chapter 2.

None of the intersections west of US 36 (Jay Road to Lyons) cleared the threshold. Therefore, the maps in Chapter 2 only show the eastern side of the county and greater emphasis is put on the intersections with the highest numbers of Severe and Injury-Fatality crashes shown on the maps. Figure 2.1 shows that US 287 & State Highway 52 (Mineral Road) and most of the intersections on SH 119 (the Diagonal) have the highest number of intersection-related crashes. Most intersection-related crashes on county arterial roads were Injury-Fatality Crashes.

Figure 2.2 (Intersection Crashes in Unincorporated Boulder County & Mountain Towns, 2009-2018, by Crash Rate), maps all intersections that cleared the threshold by crash rate. US 287 & SH 52 and a number of intersections on the Diagonal have the highest Severe and Injury-Fatality Crash Rates. Lookout Road & N 95th Street and SH 66 & N 75th Street also have noticeably high crash rates. Niwot Road & Quiet Retreat Court stands out as having a high Severe Crash Rate.

Intersection Crashes in Unincorporated Boulder County & Mountain Towns, 2009-2018, by Severity

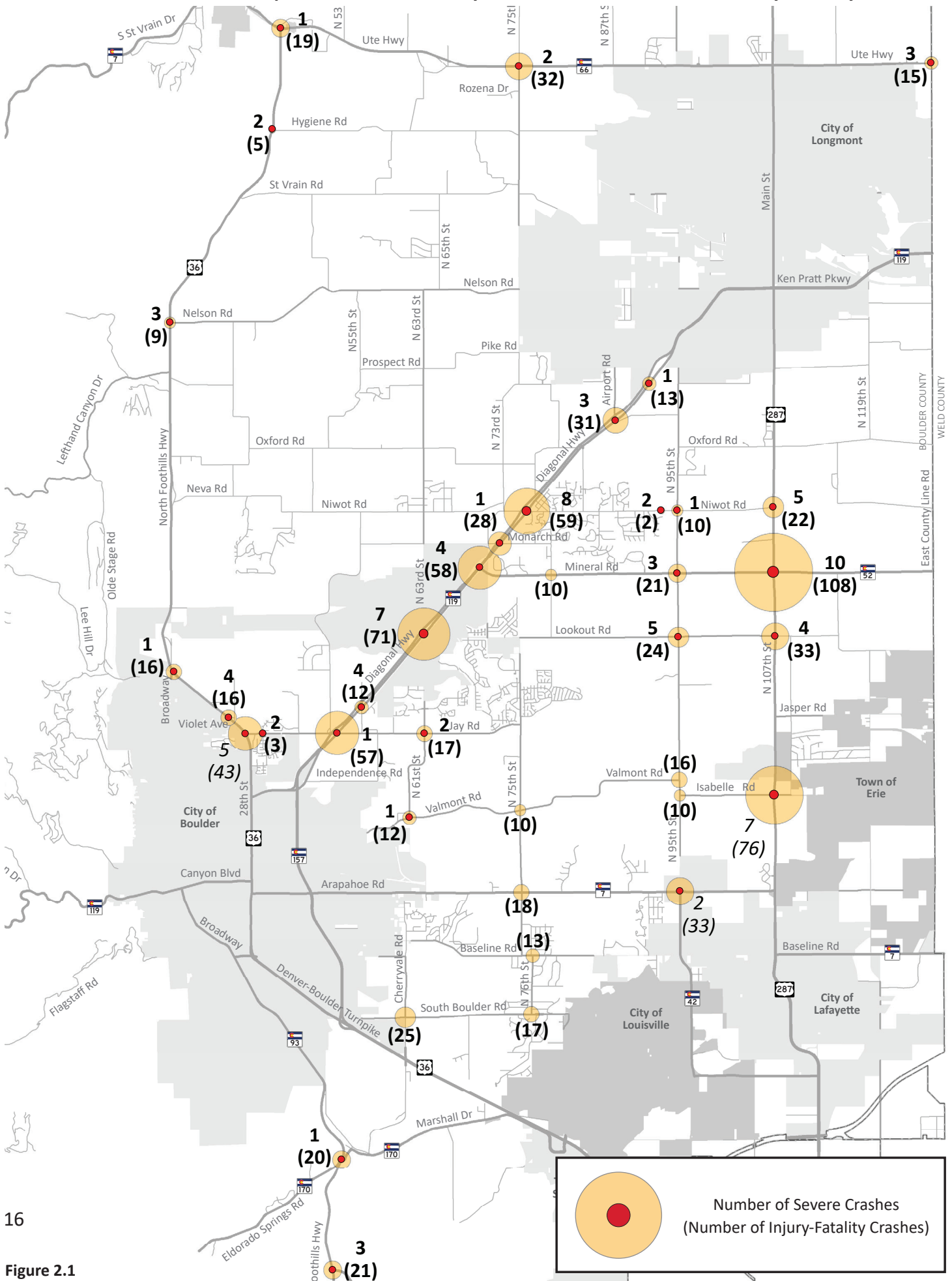


Figure 2.1

Intersection Crashes in Unincorporated Boulder County & Mountain Towns, 2009-2018, by Crash Rate

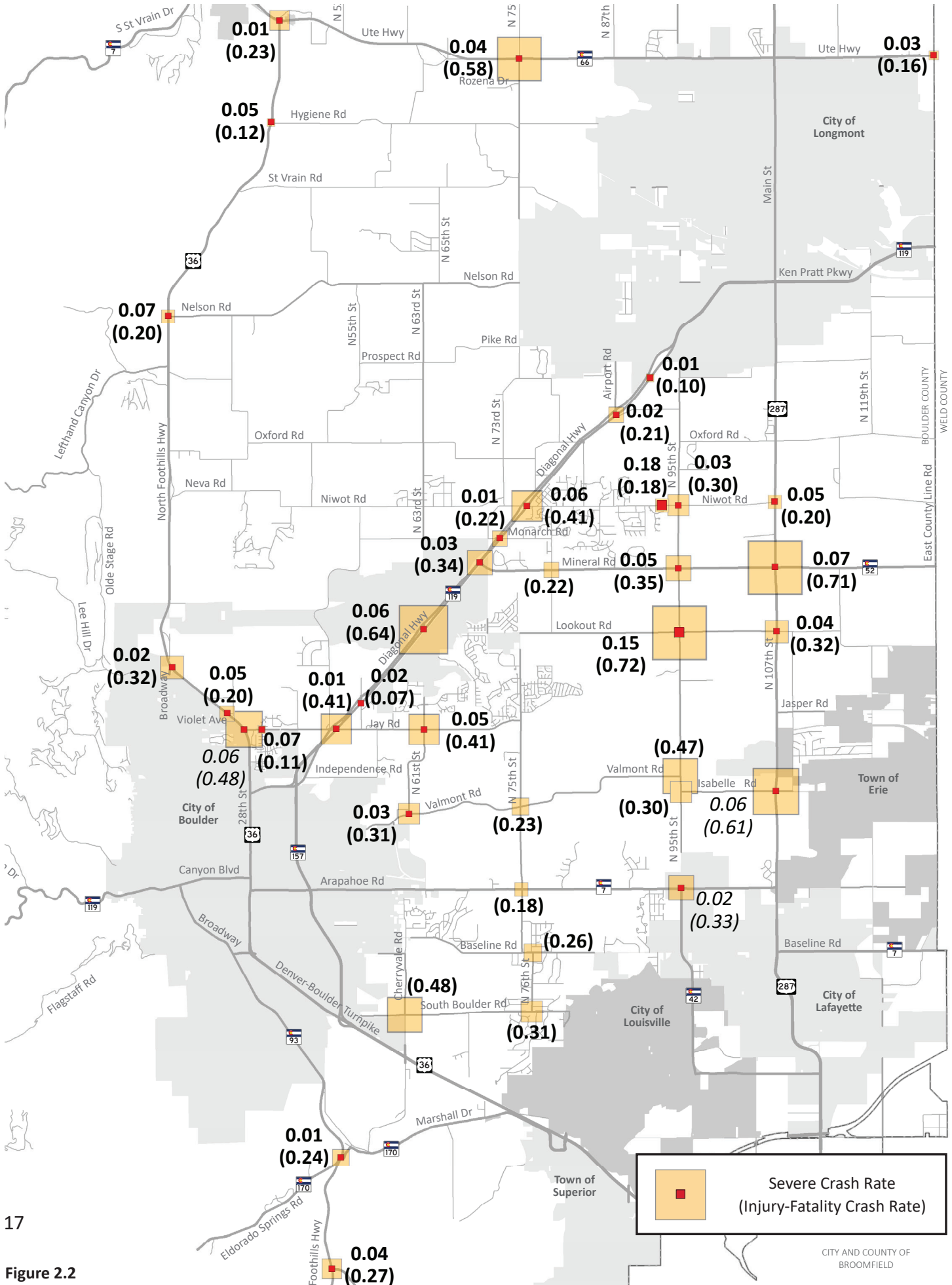


Figure 2.2

Ranked Intersections in Unincorporated Boulder County, 2009-2018

Absolute Number of Severe Crashes

Intersection Name	Severe Crashes		Injury-Fatality Crashes	
	Number of Crashes	Crash Rate (crashes/MEV)	Number of Crashes	Crash Rate (crashes/MEV)
US 287 & SH 52 **	10	0.066	108	0.713
SH 119 & Niwot Rd ***	8	0.056	59	0.414
SH 119 & N 63rd St	7	0.063	71	0.638
<i>US 287 & Isabelle Rd</i>	7	0.056	76	0.611
Lookout Rd & N 95th St *	5	0.151	24	0.723
<i>US 36 & Jay Rd</i>	5	0.056	43	0.485
US 287 & Niwot Rd	5	0.046	22	0.200
SH 119 & SH 52	4	0.024	58	0.342
US 287 & Lookout Rd	4	0.039	33	0.319
US 36 & Violet Ave ***	4	0.051	16	0.204
SH 119 & N 55th St	4	0.024	12	0.071
SH 52 & N 95th St	3	0.050	21	0.347
SH 93 & SH 128	3	0.039	21	0.271
SH 119 & S Airport Rd ***	3	0.021	31	0.213
US 36 & Nelson Rd	3	0.067	9	0.200
East County Line Rd & SH 66 ***	3	0.032	15	0.158
N 75th St & SH 66 ***	2	0.036	32	0.583
N 63rd St & Jay Rd ***	2	0.048	17	0.412
<i>SH 7 & N 95th St</i>	2	0.020	33	0.334
Niwot Rd & Quiet Retreat Ct	2	0.183	2	0.183
US 36 & Hygiene Rd	2	0.048	5	0.119
30th St & Jay Rd ***	2	0.073	3	0.110
SH 119 & Jay Rd ***	1	0.007	57	0.412
US 36 & Broadway	1	0.020	16	0.322
N 95th St & Niwot Rd	1	0.031	10	0.309
N 61st St & Valmont Rd	1	0.026	12	0.309
US 36 & SH 66	1	0.014	19	0.267

Severe Crash Rate

Intersection Name	Severe Crashes		Injury-Fatality Crashes	
	Number of Crashes	Crash Rate (crashes/MEV)	Number of Crashes	Crash Rate (crashes/MEV)
Niwot Rd & Quiet Retreat Ct	2	0.183	2	0.183
Lookout Rd & N 95th St *	5	0.151	24	0.723
30th St & Jay Rd ***	2	0.073	3	0.110
US 36 & Nelson Rd	3	0.067	9	0.200
US 287 & SH 52 **	10	0.066	108	0.713
SH 119 & N 63rd St	7	0.063	71	0.638
SH 119 & Niwot Rd ***	8	0.056	59	0.414
<i>US 287 & Isabelle Rd</i>	7	0.056	76	0.611
<i>US 36 & Jay Rd</i>	5	0.056	43	0.485
US 36 & Violet Ave ***	4	0.051	16	0.204
SH 52 & N 95th St	3	0.050	21	0.347
N 63rd St & Jay Rd ***	2	0.048	17	0.412
US 36 & Hygiene Rd	2	0.048	5	0.119
US 287 & Niwot Rd	5	0.046	22	0.200
US 287 & Lookout Rd	4	0.039	33	0.319
SH 93 & SH 128	3	0.039	21	0.271
N 75th St & SH 66 ***	2	0.036	32	0.583
East County Line Rd & SH 66 ***	3	0.032	15	0.158
N 95th St & Niwot Rd	1	0.031	10	0.309
N 61st St & Valmont Rd	1	0.026	12	0.309
SH 119 & SH 52	4	0.024	58	0.342
SH 119 & N 55th St	4	0.024	12	0.071
SH 119 & S Airport Rd ***	3	0.021	31	0.213
US 36 & Broadway	1	0.020	16	0.322
<i>SH 7 & N 95th St</i>	2	0.020	33	0.334
US 36 & SH 66	1	0.014	19	0.267
SH 170 & SH 93	1	0.012	20	0.239

Absolute Number of Injury-Fatality Crashes

Intersection Name	Severe Crashes		Injury-Fatality Crashes	
	Number of Crashes	Crash Rate (crashes/MEV)	Number of Crashes	Crash Rate (crashes/MEV)
US 287 & SH 52 **	10	0.066	108	0.713
<i>US 287 & Isabelle Rd</i>	7	0.056	76	0.611
SH 119 & N 63rd St	7	0.063	71	0.638
SH 119 & Niwot Rd ***	8	0.056	59	0.414
SH 119 & SH 52	4	0.024	58	0.342
SH 119 & Jay Rd ***	1	0.007	57	0.412
<i>US 36 & Jay Rd</i>	5	0.056	43	0.485
US 287 & Lookout Rd	4	0.039	33	0.319
<i>SH 7 & N 95th St</i>	2	0.020	33	0.334
N 75th St & SH 66 ***	2	0.036	32	0.583
SH 119 & S Airport Rd ***	3	0.021	31	0.213
SH 119 & Monarch Rd	1	0.008	28	0.219
Cherryvale Rd & S Boulder Rd	0	0.000	25	0.481
Lookout Rd & N 95th St *	5	0.151	24	0.723
US 287 & Niwot Rd	5	0.046	22	0.200
SH 52 & N 95th St	3	0.050	21	0.347
SH 93 & SH 128	3	0.039	21	0.271
SH 170 & SH 93	1	0.012	20	0.239
US 36 & SH 66	1	0.014	19	0.267
SH 7 & N 75th St	0	0.000	18	0.181
N 63rd St & Jay Rd ***	2	0.048	17	0.412
76th St & S Boulder Rd	0	0.000	17	0.307
US 36 & Violet Ave ***	4	0.051	16	0.204
US 36 & Broadway	1	0.020	16	0.322
N 95th St & Valmont Rd	0	0.000	16	0.475
East County Line Rd & SH 66 ***	3	0.032	15	0.158
SH 119 & S Fordham St	1	0.008	13	0.103

Injury-Fatality Crash Rate

Intersection Name	Severe Crashes		Injury-Fatality Crashes	
	Number of Crashes	Crash Rate (crashes/MEV)	Number of Crashes	Crash Rate (crashes/MEV)
Lookout Rd & N 95th St *	5	0.151	24	0.723
US 287 & SH 52 **	10	0.066	108	0.713
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<i>US 287 & Isabelle Rd</i>	7	0.056	76	0.611
N 75th St & SH 66 ***	2	0.036	32	0.583
<i>US 36 & Jay Rd</i>	5	0.056	43	0.485
Cherryvale Rd & S Boulder Rd	0	0.000	25	0.481
N 95th St & Valmont Rd	0	0.000	16	0.475
SH 119 & Niwot Rd ***	8	0.056	59	0.414
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N 61st St & Valmont Rd	1	0.026	12	0.309
76th St & S Boulder Rd	0	0.000	17	0.307
Isabelle Rd & N 95th St	0	0.000	10	0.304
SH 93 & SH 128	3	0.039	21	0.271
US 36 & SH 66	1	0.014	19	0.267
76th St & Baseline Rd	0	0.000	13	0.255
SH 170 & SH 93	1	0.012	20	0.239
N 75th St & Valmont Rd	0	0.000	10	0.226
SH 119 & Monarch Rd	1	0.008	28	0.219
SH 52 & N 79th St	0	0.000	10	0.215

*** Improvements completed since 2009

** Improvements currently in progress

* Specific project has been identified

Italicized intersections are of interest, but are not in Boulder County's jurisdiction.

Figure 2.3

Normalizing Intersection and Corridor Data

For intersections and corridors, absolute numbers of crashes were looked at. The intersection and corridor data was also normalized by vehicle traffic volume. To normalize the data, two metrics were used:

Millions of Vehicle-Miles Traveled (mVMT). We used this metric to normalize corridors.

For a corridor, $mVMT = \text{Annual Average Daily Traffic (AADT)} * 365 \text{ (days/year)} * 10 \text{ (years in our analysis)} / 1,000,000$

Since AADTs vary over the length of the corridor and by year, we generally selected a location in the middle of a corridor (where volumes were about average for the corridor), and then averaged traffic counts from three different years (generally, one count from 2009-2011, a second count from 2012-2014, and a third count from 2015-2018).

Million Entering Vehicles (MEV). We used this to normalize intersections.

$MEV = \text{Sum of all approach volumes} * 365 \text{ (days/year)} * 10 \text{ (years in our analysis)} / 1,000,000$

Approach volumes were taken from the AADT of traffic counts, and averaged over time, as described above.

Figure 2.3, on the previous page, sorts all intersections in Unincorporated Boulder County by four different metrics: (clockwise from top left) absolute number of Severe Crashes, Severe Crash Rate, absolute number of Injury-Fatality Crashes, and Injury-Fatality Crash Rate. Comparing the charts to the maps on the previous pages, many intersections that have high absolute numbers of crashes also have high crash rates (which control for intersection volumes). These intersections warrant particular attention. Though, Lookout Road & North 95th Street and Niwot Road & Quiet Retreat Court stand out with high crash rates and low absolute numbers of crashes.

Intersections in Unincorporated Boulder County & Mountain Towns Selected for Further Analysis

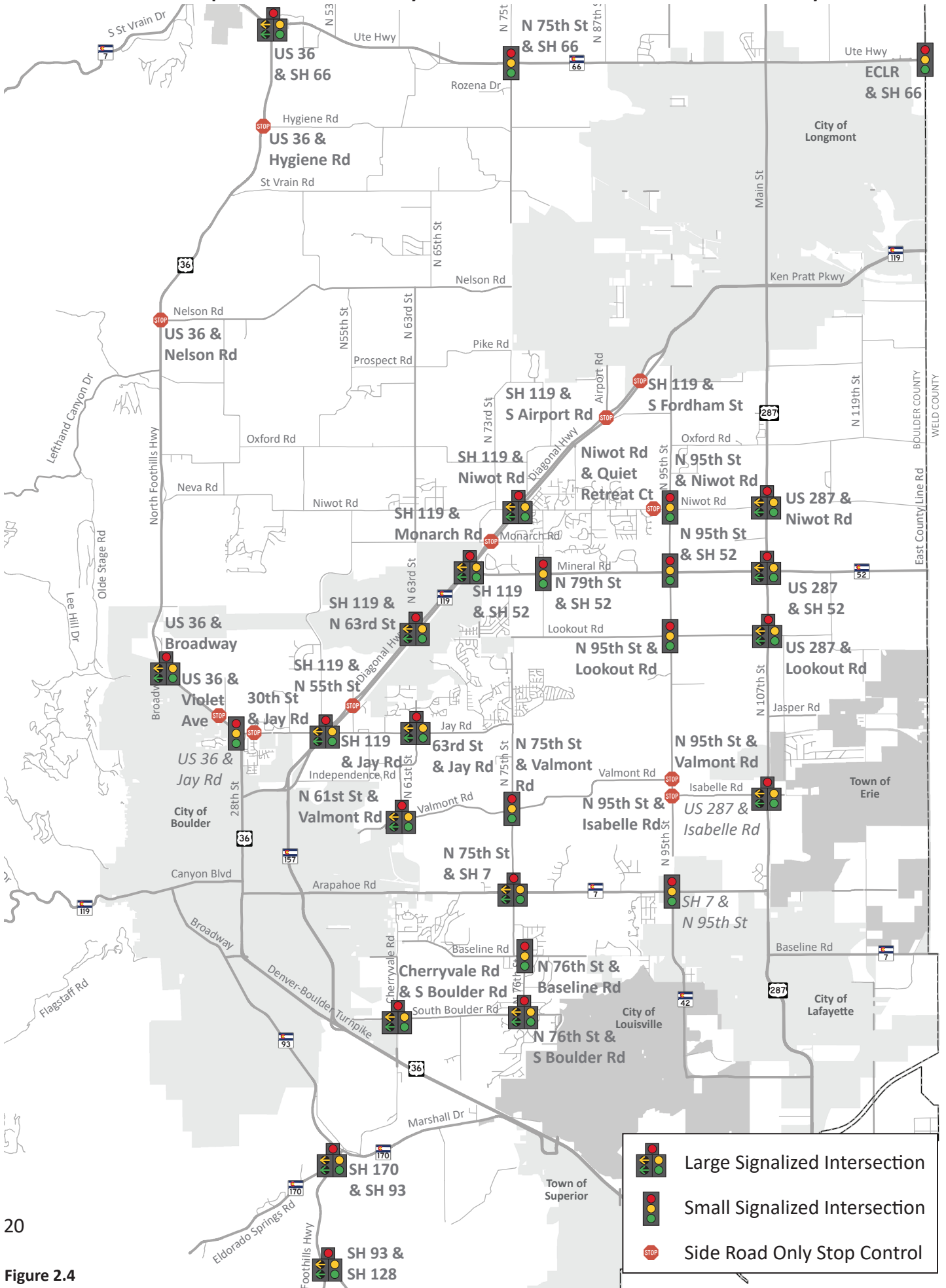


Figure 2.4

Intersections by Intersection Type

Large Signalized Intersection			Small Signalized Intersection			Side Road Only Stop Control		
Intersection		# of Severe Crashes	Intersection		# of Severe Crashes	Intersection		# of Severe Crashes
US 287	& SH 52	10	Lookout Rd	& N 95th St	5	SH 119	& N 55th St	4
SH 119	& Niwot Rd	8	<i>US 36</i>	& <i>Jay Rd</i>	5	US 36	& Violet Ave	4
SH 119	& N 63rd St	7	SH 52	& N 95th St	3	SH 119	& S Airport Rd	3
<i>US 287</i>	& <i>Isabelle Rd</i>	7	East County Line Rd	& SH 66	3	US 36	& Nelson Rd	3
US 287	& Niwot Rd	5	SH 66	& N 75th St	2	Niwot Rd	& Quiet Retreat Ct	2
SH 119	& SH 52	4	<i>SH 7</i>	& <i>N 95th St</i>	2	US 36	& Hygiene Rd	2
US 287	& Lookout Rd	4	N 95th St	& Niwot Rd	1	30th St	& Jay Rd	2
SH 93	& SH 128	3				SH 119	& Monarch Rd	1
Jay Rd	& N 63rd St	2				SH 119	& S Fordham St	1
N 61st St	& Valmont Rd	1						
SH 119	& Jay Rd	1						
SH 170	& SH 93	1						
US 36	& SH 66	1						
28th St	& Broadway	1						
Total		55	Total		21	Total		22

Italicized intersections are of interest, but are not in Boulder County’s jurisdiction.

Figure 2.5

To look for trends in Severe Crash types at intersections, three “types” of intersections were created and every intersection that had at least two Severe Crashes or at least 10 Injury-Fatality Crashes in the 2009-2018 time period was assigned to one of the groups. We took this approach because only a small number of intersections had more than 4 Severe crashes in the 2009-2018 time period, making it very difficult to look at larger patterns in Severe crash type.

Figure 2.4 (map on previous page) shows the geographic distribution of the three intersection types that cleared our threshold. Intersections are All-Way Stop Control if there are stop signs at all approaches, whereas Side Road Only Stop Control intersections do not have stop signs at all directions. Signalized intersections are “Large” if they have more than one general-purpose/through lane on any approach. Signalized intersections are “Small” if there is one general-purpose lane on all approaches. While All-Way Stop Control and Roundabout intersections exist in unincorporated Boulder County and the Mountain Towns, no intersections of either type cleared the threshold for further analysis.

Severe Crashes at High Crash Frequency Intersections, 2009-2018, by Intersection Grouping

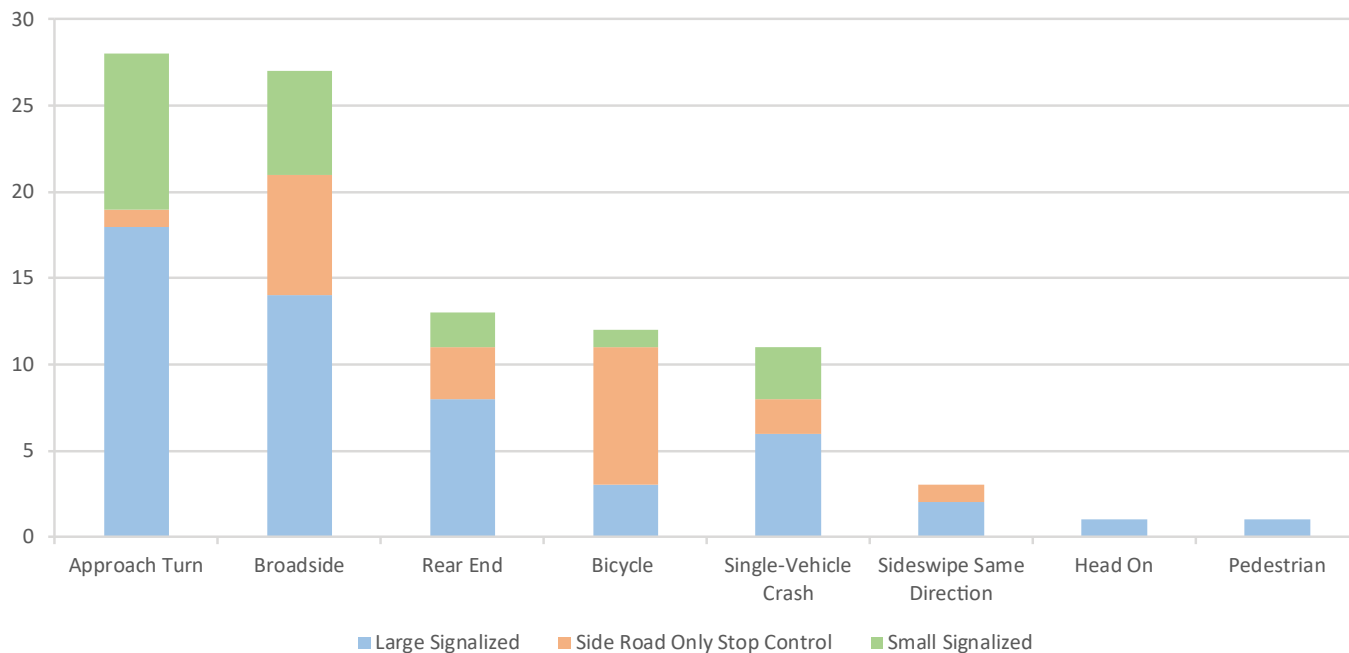


Figure 2.6

Severe Crashes at High Crash Frequency Intersections, 2009-2018, by Crash Type

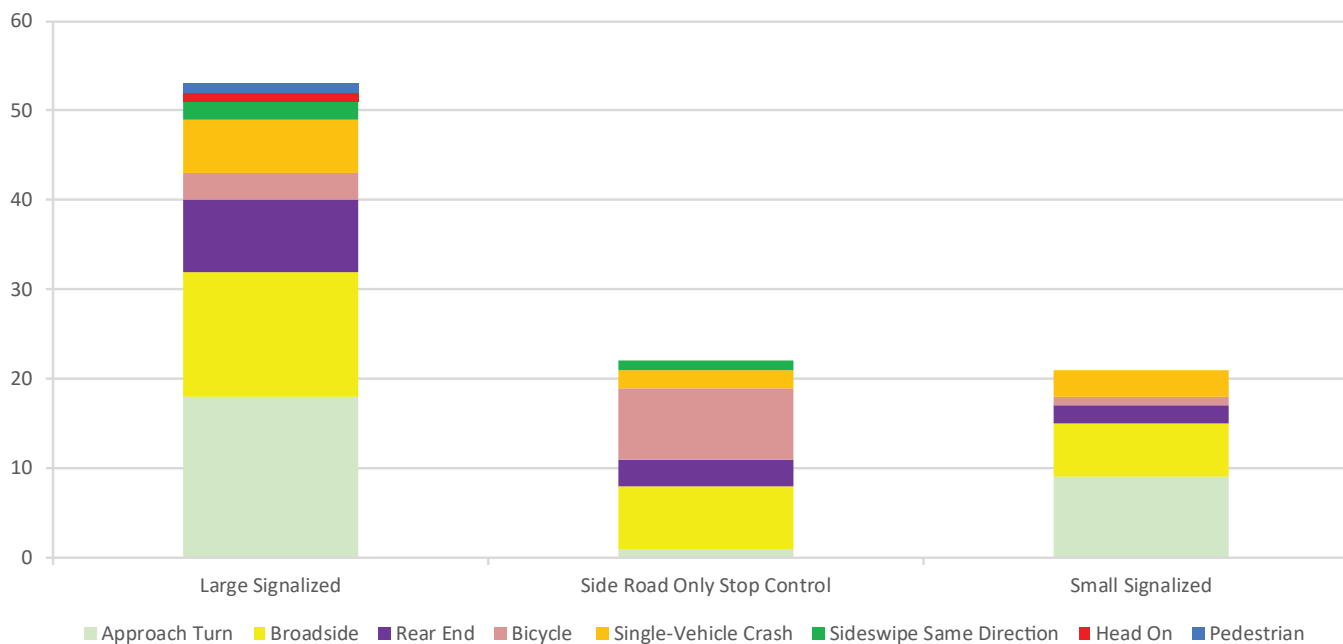


Figure 2.7

Figure 2.6 shows that of our Severe intersection-related crashes, approach turn and broadside crashes are the two most common crash types. For those crashes, a majority of those are found at Large and Small Signalized intersections. Severe bicycle crashes mostly occur at side road only stop control intersections, and the bicycle crashes at this intersection type account for 67% of all the Severe intersection-related bicycle crashes (8 of 12).

Figure 2.7 shows that for both Large and Small Signalized intersections, the most common crash types are approach turn and broadside crashes, and these crashes represent more than half of the crash types at both of those intersection types (47 of 74 total). Bicycle crashes are the most common crash types at Side Road Only Stop Control intersections, representing 36% of the crashes at this intersection type (8 of 22).

Intersection-Related Crashes in Unincorporated Boulder County and Mountain Towns, 2009-2018, by Crash Type

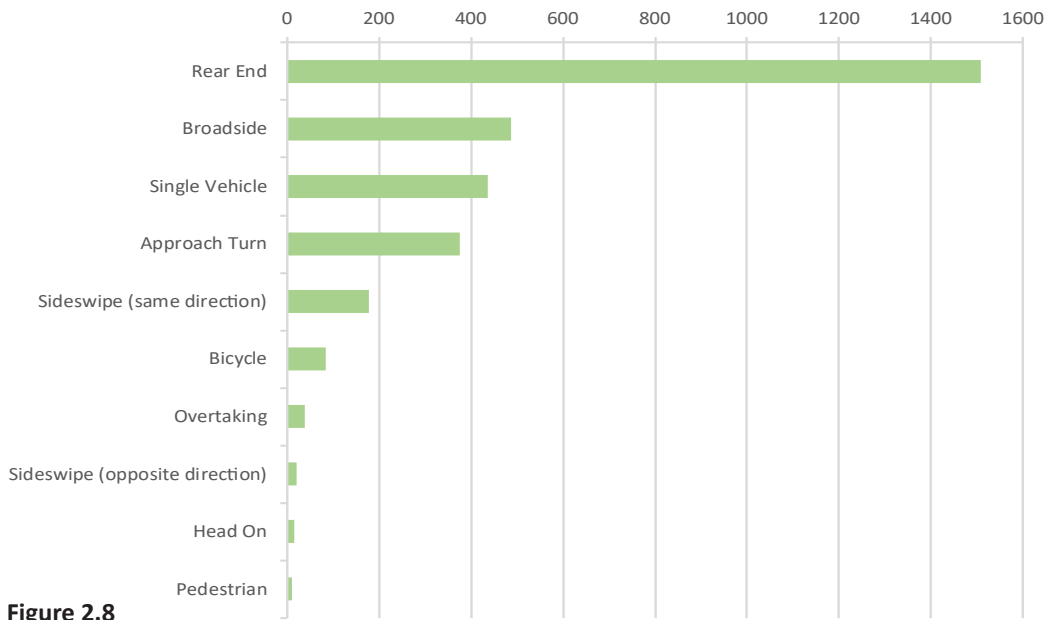


Figure 2.8

Intersection-Related Crashes in Unincorporated Boulder County and Mountain Towns, 2009-2018, by Severity Broken Down in Percentages

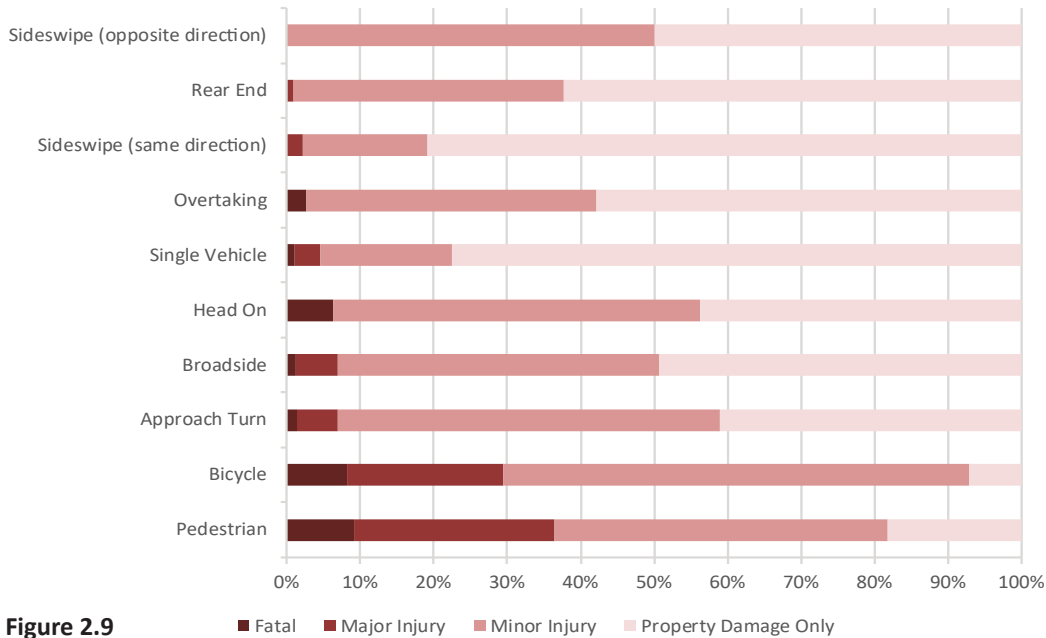


Figure 2.9

Figure 2.8 shows all intersection-related crashes in Unincorporated Boulder County and the four Mountain Towns by crash type. Notably, rear end crashes are the most common crash type at intersections. Rear end crashes account for about half of all intersection-related crashes (1,509 of 3,157). When a cyclist is rear ended, this is documented as a bicycle crash so it is included in the bicycle crash tally, not the rear end tally.

Figure 2.9 shows the percentage of each crash type that is Property Damage Only, Major Injury, Minor Injury, and Fatal. While rear end crashes are the most common intersection-related crash type, they are among the least likely to result in a Major injury or fatality, with only 13 of these being Severe crashes. While pedestrian crashes are the least common intersection-related crash type, they are the most likely to result in a Major injury or fatality. 36% of the intersection-related pedestrian crashes (4 of 11) are Severe crashes. Bicycle crashes have the highest percentage of Minor Injury Intersection-Related Crashes (64%).

All Injury-Fatality Crashes in on US 287 in Boulder County, 2009-2018, by Severity

Corridor Spotlight:
US 287
(N 107th Street)

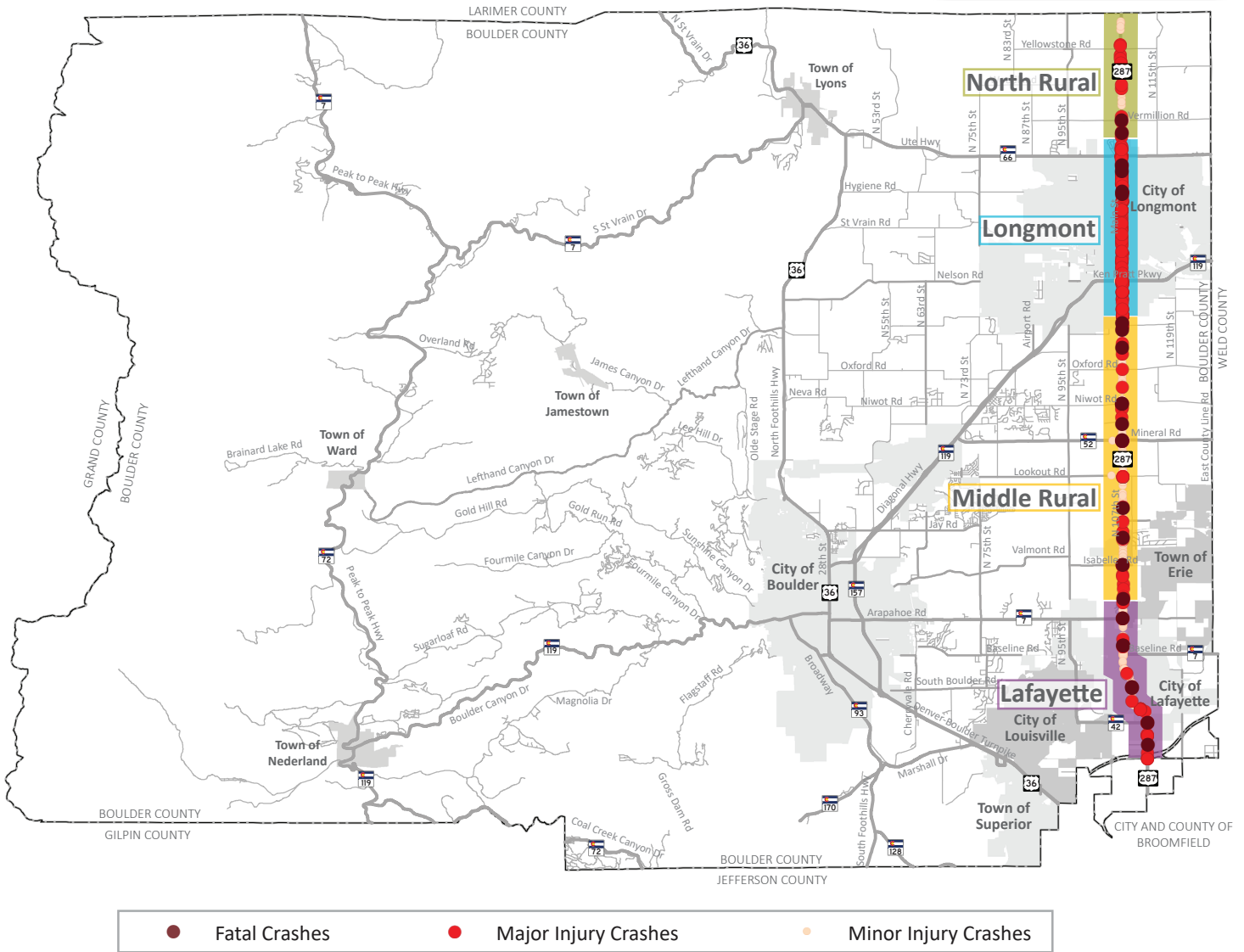


Figure CS.1

Figure CS.1 shows all Injury-Fatality Crashes on US 287 in Boulder County from 2009-2018. The corridor was divided into four sections, including North Rural, Longmont, Middle Rural, and Lafayette, based on land use and city jurisdiction. The map illustrates that a little over half of the Major injury crashes occurred on the Longmont section (158 of 240 total), where 58% of all crashes on the corridor are concentrated. The Middle Rural section has a plurality of crashes, with the greatest number of Fatal crashes (11 of 25 total) on US 287 from 2009-2018.

**Intersection-Related Crashes on US 287, North Rural Section, 2009-2018,
by Severity**

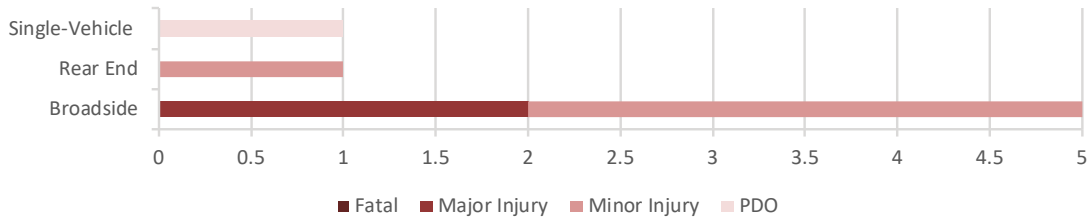


Figure CS.2

**Non Intersection-Related Crashes on US 287, North Rural Section,
2009-2018, by Severity**

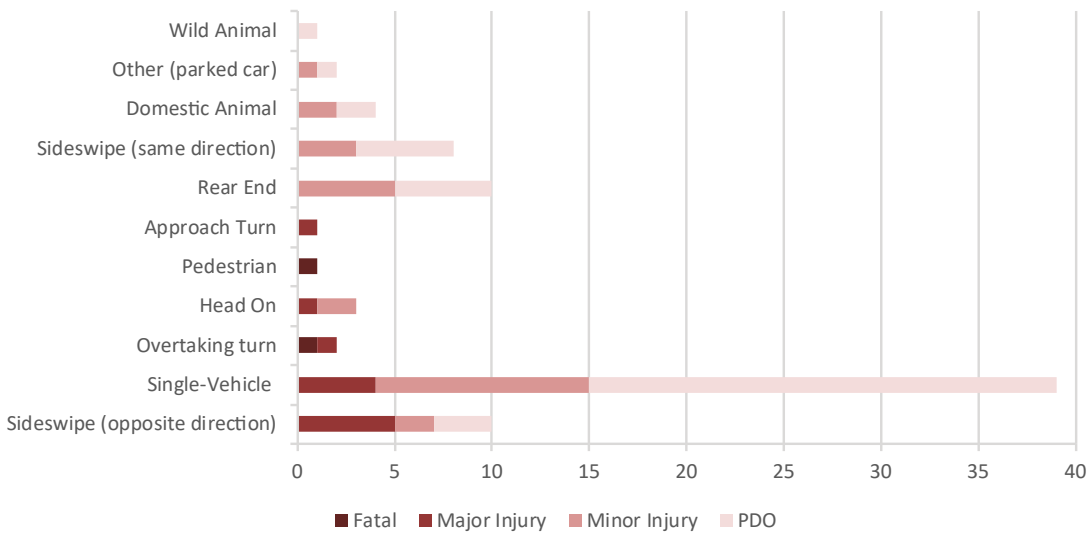


Figure CS.3

Figures CS.2 and CS.3 break down both intersection-related and non-intersection-related crashes by severity level on the North Rural section of US 287. The total number of crashes on this section of US 287 is much lower than on the other sections of the corridor (88 of 6,417 total crashes). No Fatal Intersection-Related Crashes occurred on this section of 287. Broadside crashes are the most common intersection-related crash type on the North Rural section, whereas sideswipe opposite direction and single-vehicle crashes are the most common non intersection-related crashes.

Intersection-Related Crashes on US 287 in Longmont, 2009-2018, by Severity

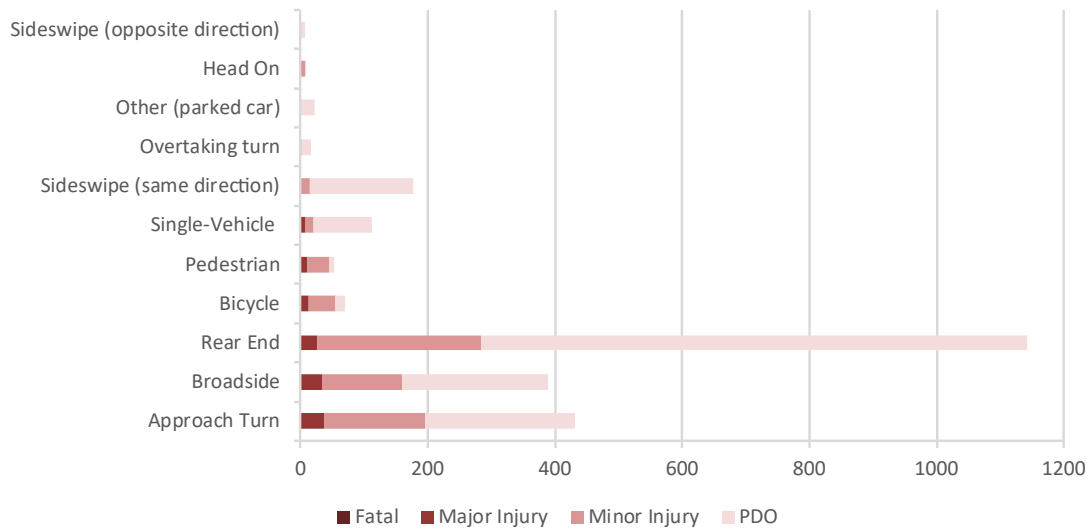


Figure CS.4

Non Intersection-Related Crashes on US 287 in Longmont, 2009-2018, by Severity

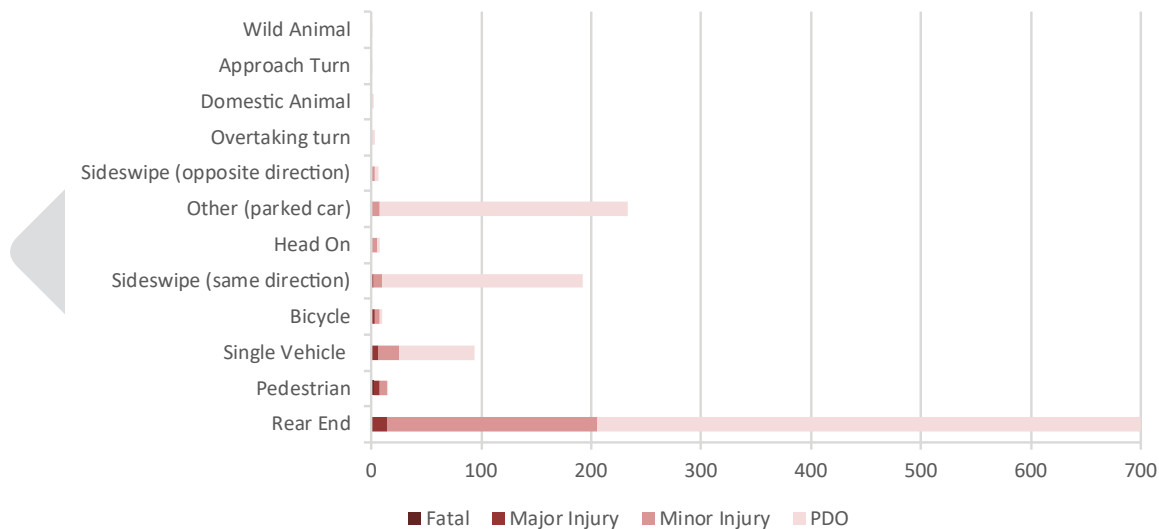


Figure CS.5

Figures CS.4 and CS.5 break down all intersection-related and non-intersection-related crashes in Longmont on US 287. The crash numbers are much higher on this stretch of US 287, where more than half of all crashes on 287 occurred. Rear end crashes account for the largest majority of both intersection and non-intersection-related crashes, though only 4% were Fatal or Major Injury Crashes. Approach turn and broadside crashes accounted for 55% of all Fatal and Major Injury intersection-related crashes (71 of 128) in Longmont.

Intersection-Related Crashes on US 287, Middle Rural Section, 2009-2018, by Severity

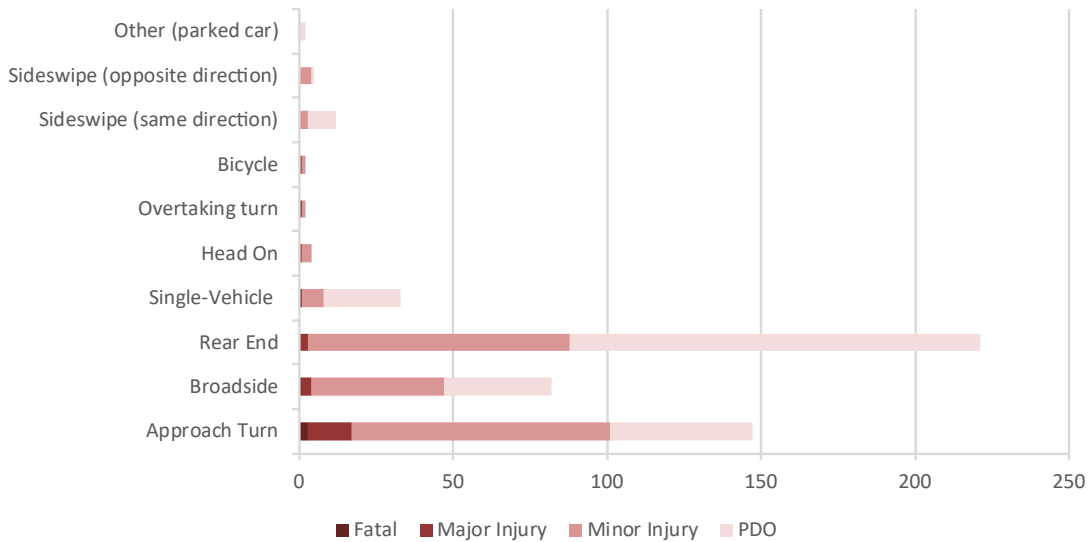


Figure CS.6

Non Intersection-Related Crashes on US 287, Middle Rural Section, 2009-2018, by Severity

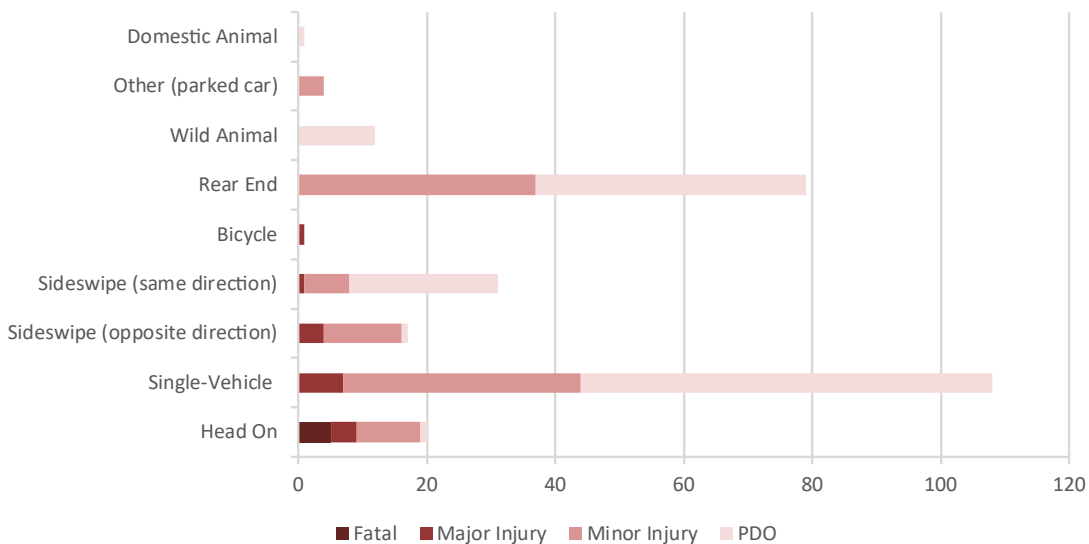


Figure CS.7

On the Middle Rural stretch of US 287, approach turn and broadside crashes are the most common Severe intersection-related crash types that occurred. These two crash types account for 75% of all Fatal and Major Injury intersection-related Crashes (21 of 28) on this part of 287. Head on and single-vehicle crashes account for 73% of all non-intersection-related crashes (16 of 22) here.

**Intersection-Related Crashes on US 287 in Lafayette, 2009-2018,
by Severity**

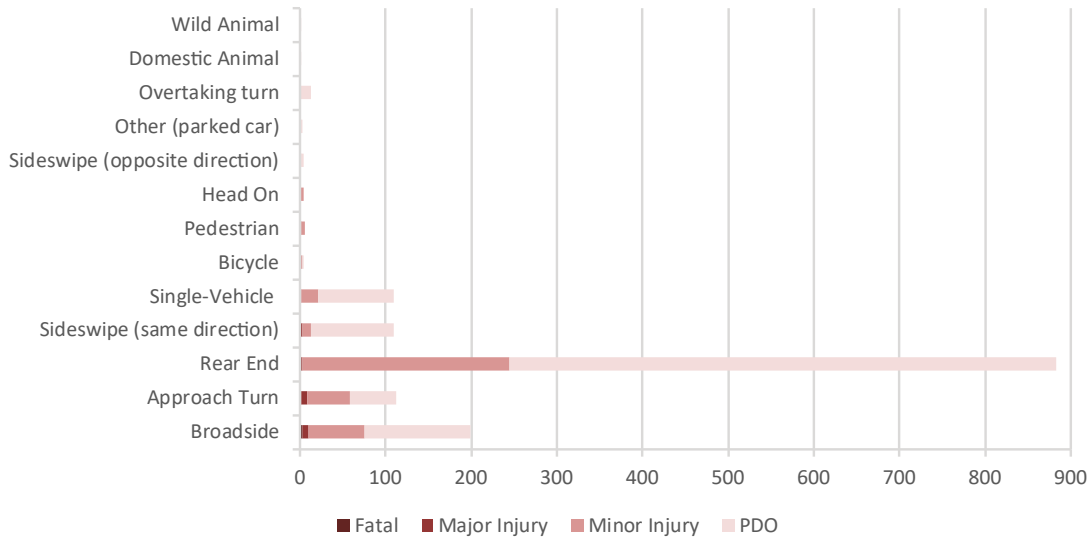


Figure CS.8

**Non Intersection-Related Crashes on US 287 in Lafayette, 2009-2018,
by Severity**

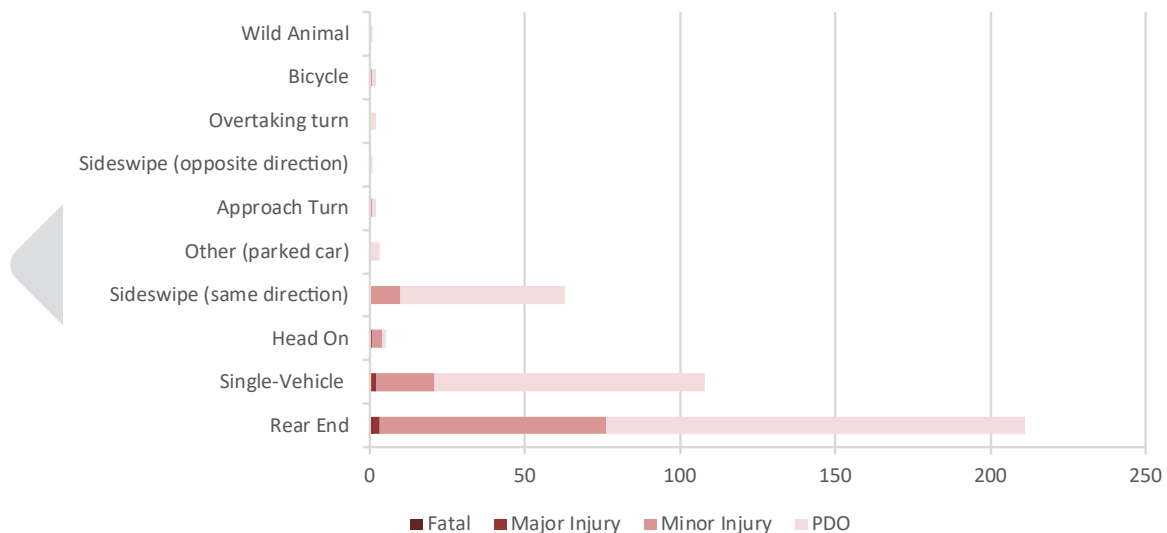


Figure CS.9

Lastly, the intersection-related trends on the Lafayette section of US 287 are similar to trends in both Longmont and on the Middle Rural section. Broadside and approach turn crashes comprise of 63% of all intersection-related crashes (19 of 30) in Lafayette. Rear end and single-vehicle crashes rank the highest when looking at the non-intersection-related crashes, though only 5 of these are Fatal or Major Injury.

Chapter 3: Corridor-related Crashes

Severe Crashes in Unincorporated Boulder County & Mountain Towns, 2009-2018, by Corridor

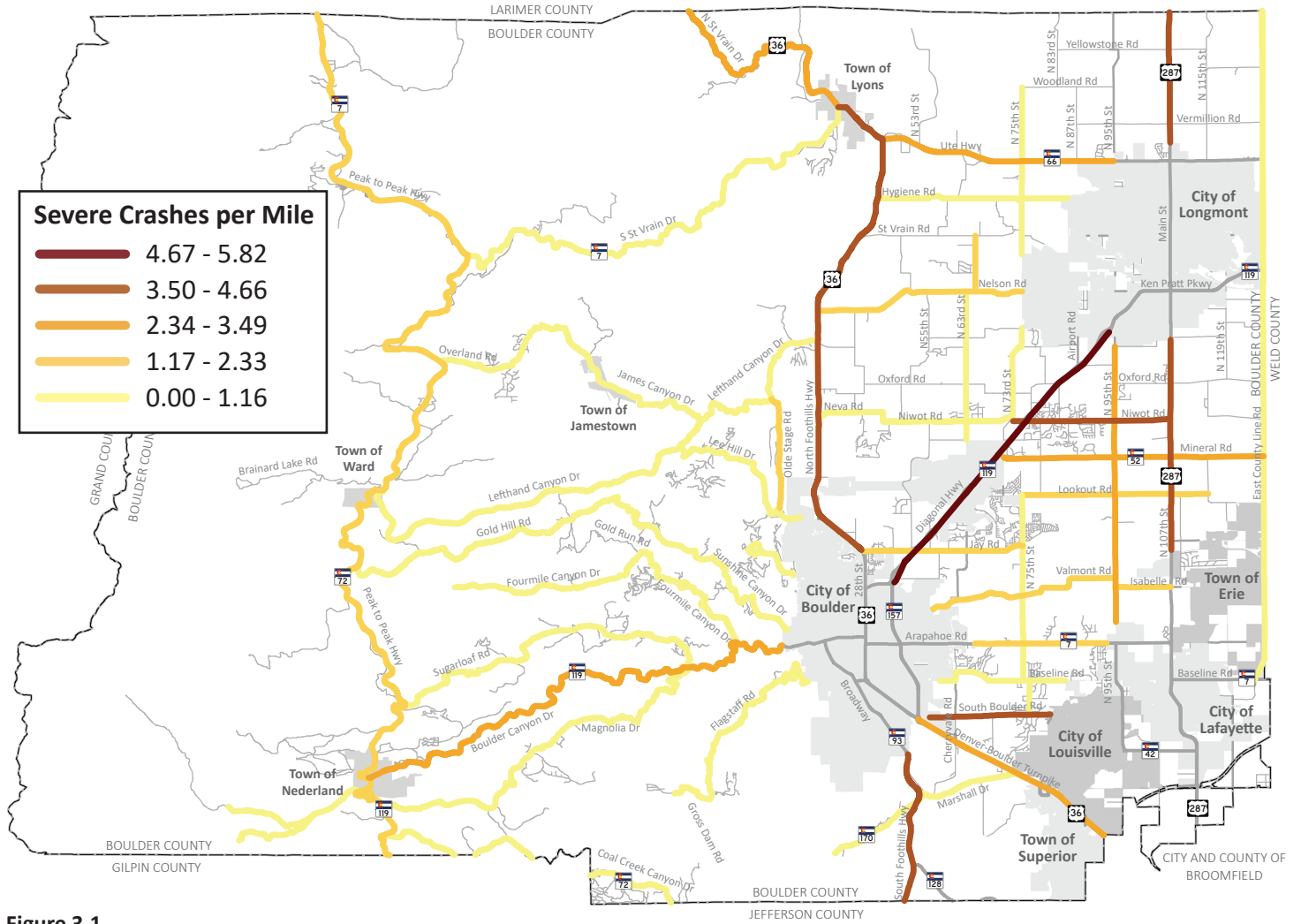


Figure 3.1

Figure 3.1 shows that state highways in the plains have the highest number of Severe Crashes per mile: SH 119 (The Diagonal), US 287, US 36 (North Foothills Highway), and SH 93. The map has normalized the corridors by corridor length in miles and does not take vehicle volumes on the different corridors into account. Figure 3.2 lists the corridors by the absolute number of Severe crashes per corridor. If a crash occurs at the intersection of two corridors, the crash is added to each corridor’s total.

Absolute Number of Severe Crashes by Corridor, 2009-2018

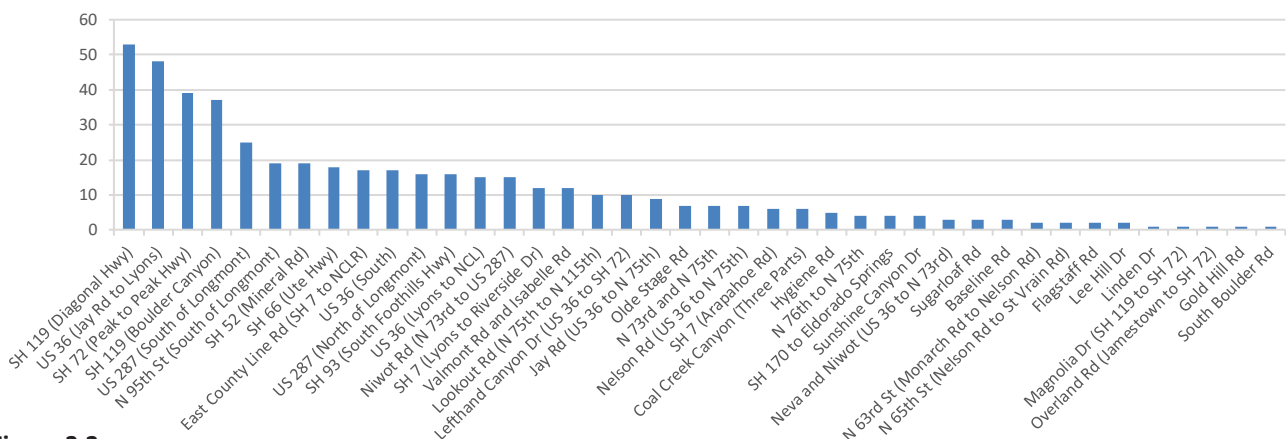


Figure 3.2

Crashes in Unincorporated Boulder County & Mountain Towns, 2009-2018, by Corridor

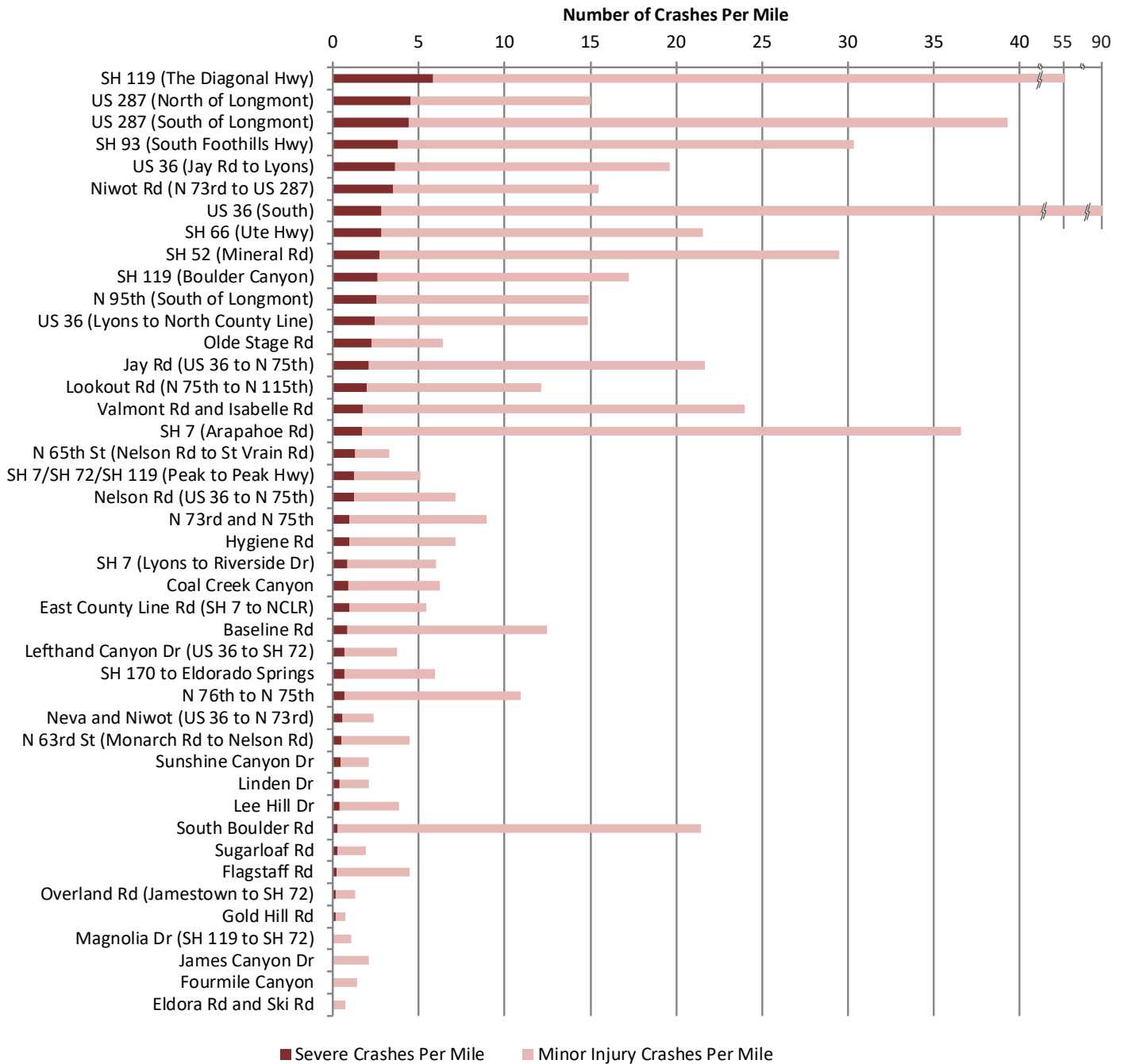


Figure 3.3

Figure 3.3 sorts the corridors by number of Severe Crashes per mile. The top five corridors account for about one third (158 of 453) of Severe Crashes in Unincorporated Boulder County and the Mountain Towns from 2009-2018. There is a strong correlation between Severe Crashes per mile and Minor Injury Crashes per mile; most corridors that have a high number of Severe Crashes also have a high number of Minor Injury Crashes. Note that Severe crashes + Minor Injury Crashes combine to equal Injury-Fatality Crashes. There are a few notable exceptions. US 287 north of Longmont has a high number of Severe Crashes per mile, but a low number of Minor Injury Crashes per mile, indicating that when a crash does occur on this corridor, there is a much higher likelihood that it will be a Severe crash than on other corridors. South Boulder Road and SH 7 (Arapahoe Road) have relatively high numbers of Minor Injury Crashes per mile, but low numbers of Severe Crashes per mile.

Severe Crash Rate in Unincorporated Boulder County & Mountain Towns, 2009-2018, by Corridor

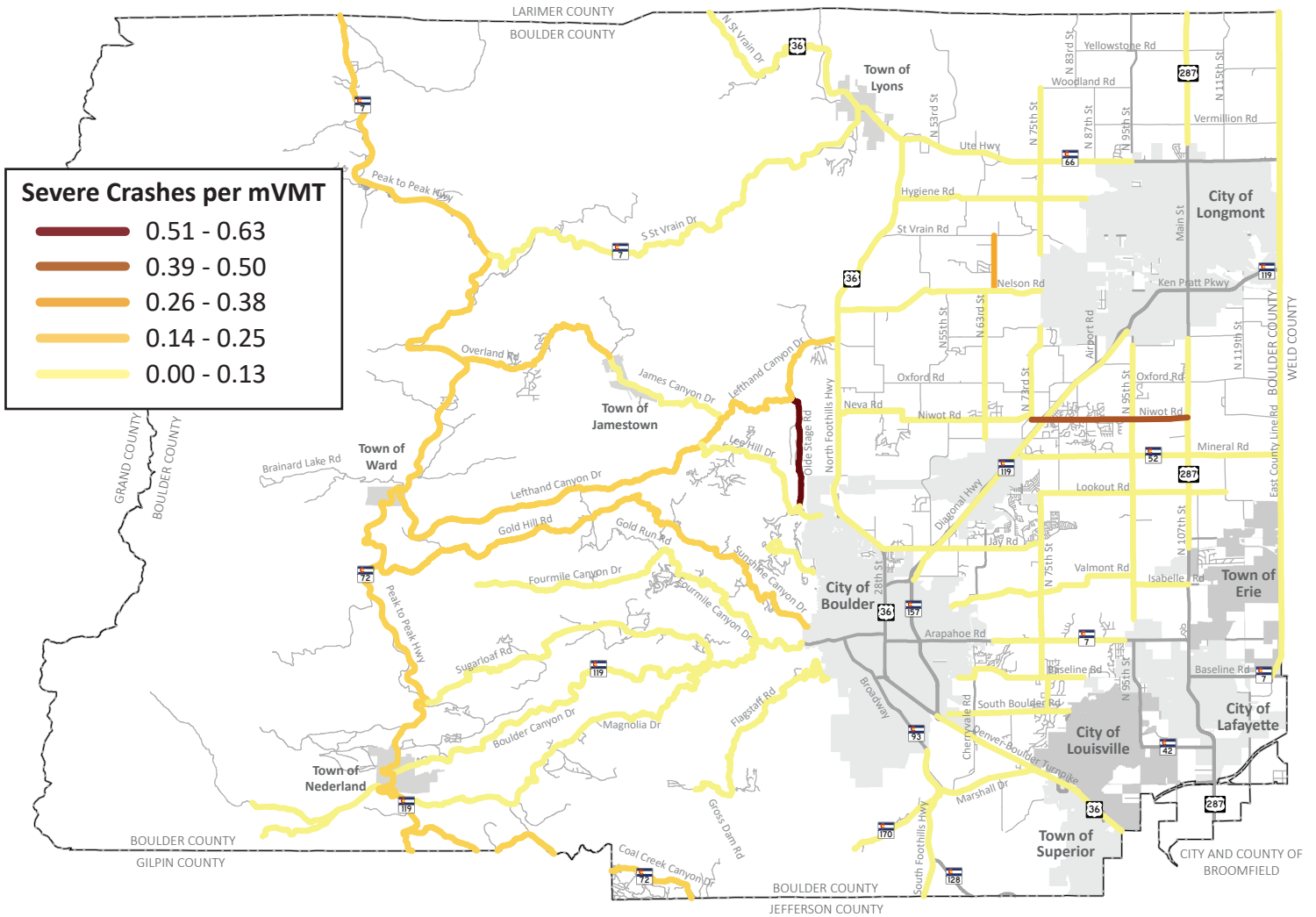


Figure 3.4

Figure 3.4 shows the corridors normalized by volume (million Vehicle Miles Traveled, or mVMT). On roads with relatively little traffic, such as many Boulder County mountain roads, even a small number of Severe crashes stand out. Some of the corridors, including Olde Stage Road and Niwot Road, draw great attention when looking at the map because of Severe and Fatal crashes that occurred at intersecting roads with these corridors. Olde Stage Road's Severe crash rate does not reflect the corridor as a whole and it simply shows up like this because of the intersection-related crashes at Lefthand Canyon Drive and Lee Hill Drive. As well, the intersections on Niwot Road, specifically SH 119 & Niwot Rd and US 287 & Niwot Rd, both contribute to the corridor's high number of Severe crashes per mVMT.

Crash Rates in Unincorporated Boulder County & Mountain Towns, 2009-2018, by Corridor

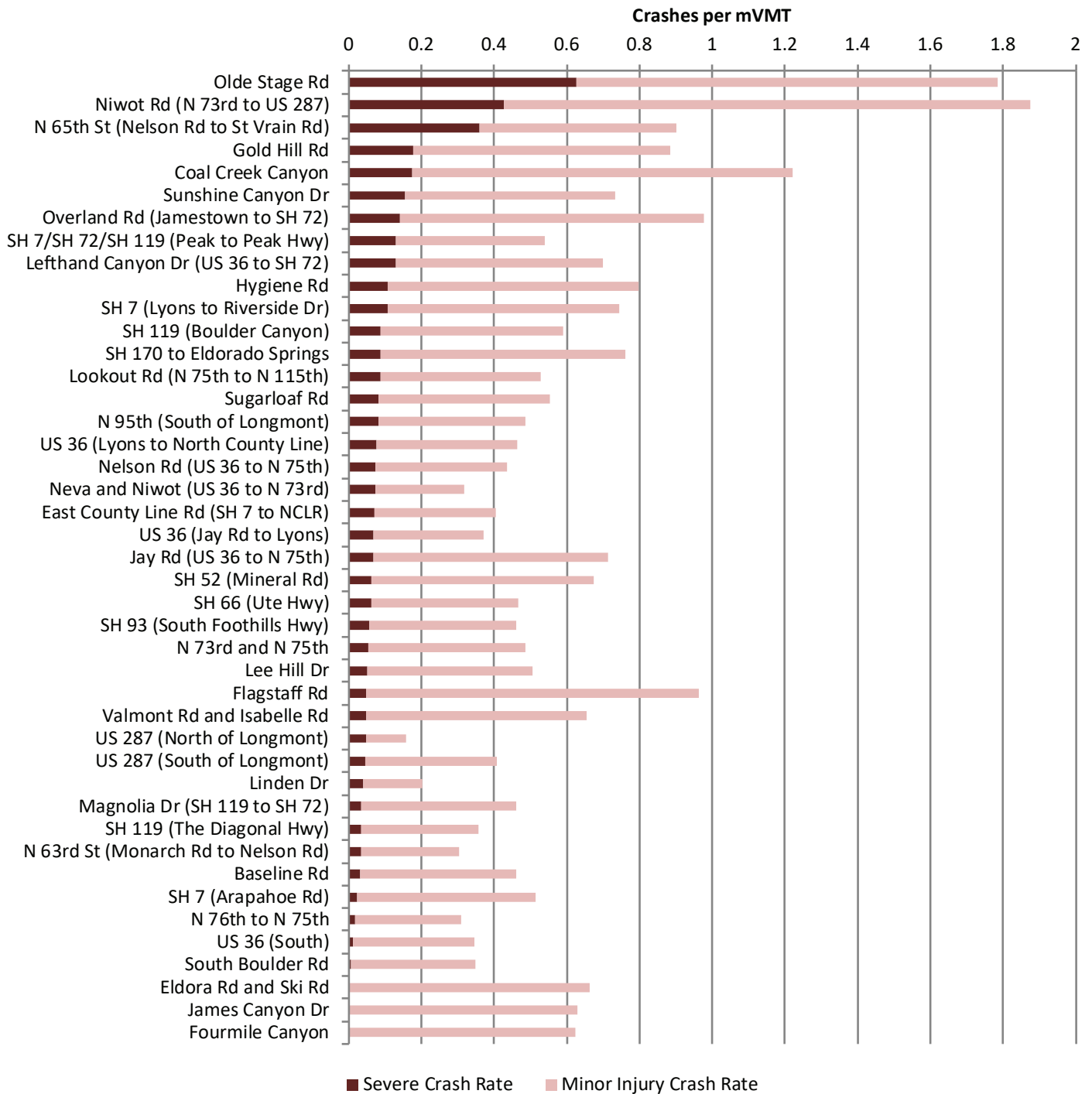


Figure 3.5

The Minor Injury Crash data largely confirms the Severe Crash data; corridors with high Severe Crash rates largely also have high Minor Injury Crash rates. Olde Stage Road, Niwot Road, North 65th Street, and Gold Hill Road all have particularly high crash rates, while also having short corridor lengths in miles.

Severe Head On/Sideswipe Opposite Direction Crashes in Unincorporated Boulder County & Mountain Towns, 2009-2018, by Corridor

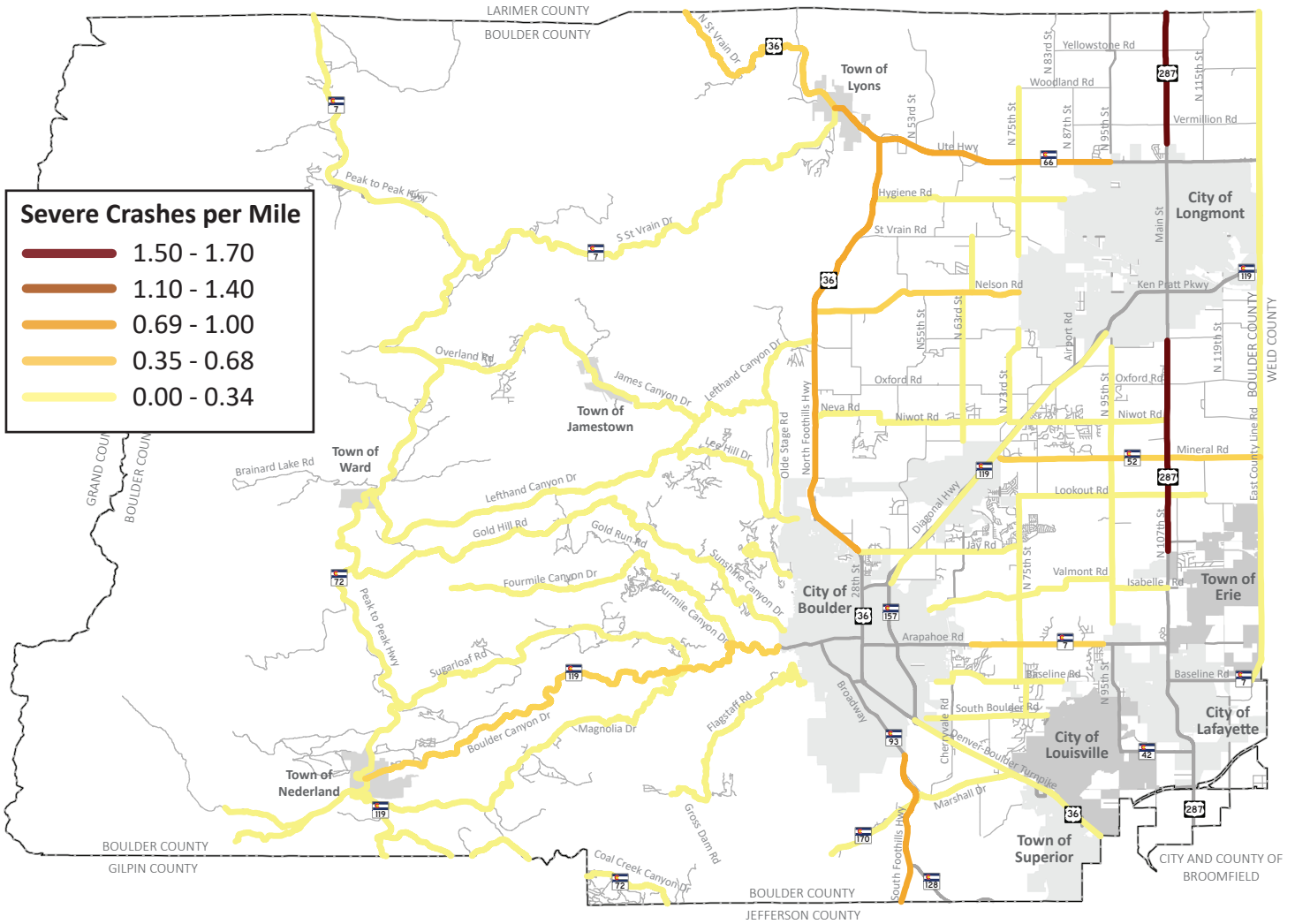
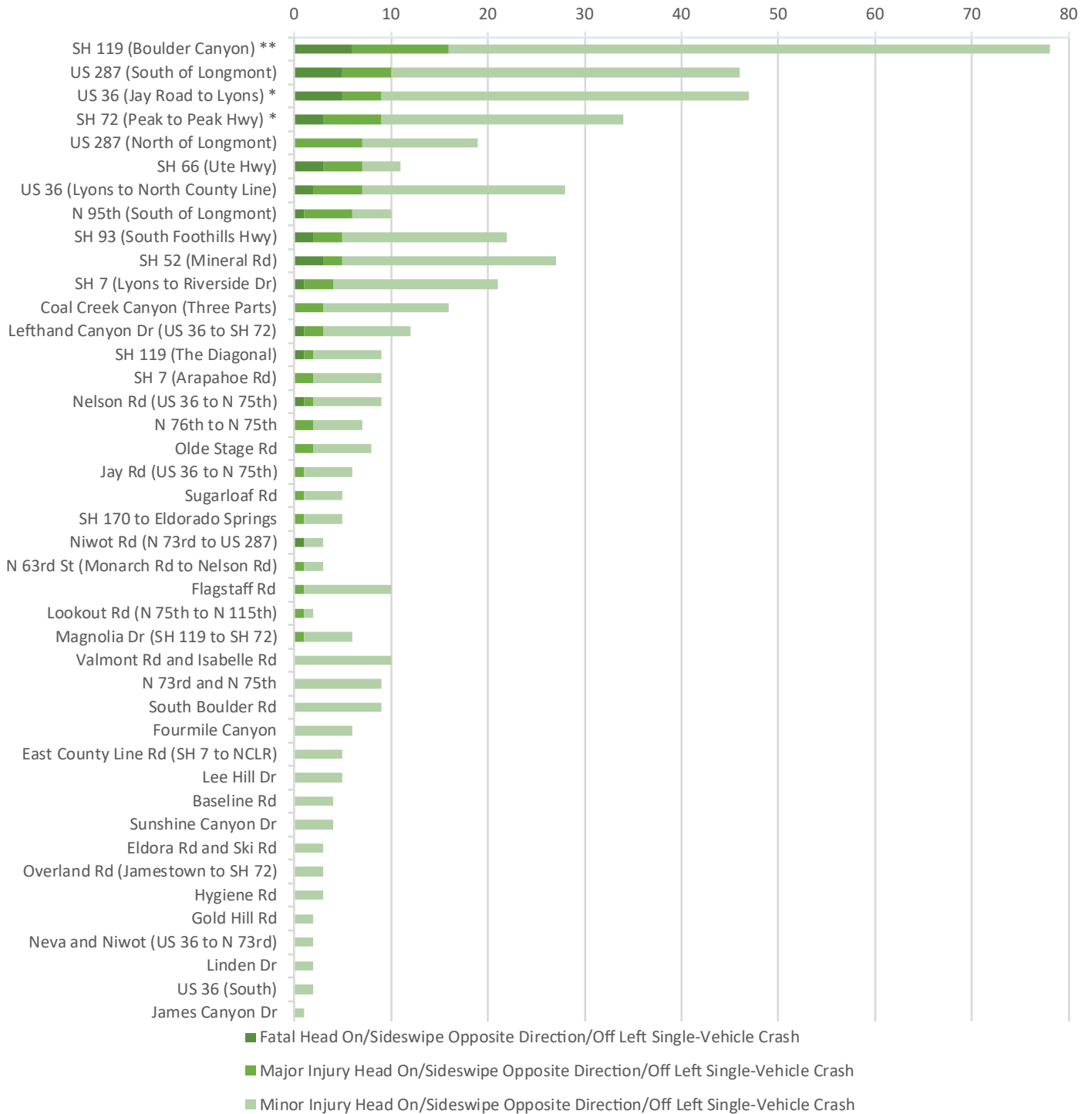


Figure 3.6

Figure 3.6 shows that the state highways in the plains have the highest number of Severe Head On/Sideswipe Opposite Direction Crashes per mile: US 287, US 36 (North Foothills Highway), SH 66 (Ute Highway), and SH 93. The map has normalized the corridors by corridor length in miles. US 287 has the highest number of Severe Head On/Sideswipe Opposite Direction Crashes per mile, indicating that these crash types are more likely to occur on this corridor than the others in unincorporated Boulder County, and result in a major injury or fatality.

Head On/Sideswipe Opposite Direction/Off Left Single-Vehicle Crashes by Corridor in Unincorporated Boulder County and Mountain Towns, 2009-2018



** Centerline rumble strips installed by CDOT prior to 2009

* Centerline rumble strips installed by CDOT after 2009

Figure 3.7

Figure 3.7 shows all head on/sideswipe opposite direction/off left single-vehicle crashes by corridor in Unincorporated Boulder County and Mountain Towns from 2009 to 2018. The top five corridors account for more than half (36 of 67) of all Fatal and Major Injury head on/sideswipe opposite direction/off left single-vehicle crashes. Most of the corridors with high numbers of Severe Crashes also have high numbers of Minor Injury Crashes, with the exception of US 287 (North of Longmont), State Highway 66, and North 95th Street (South of Longmont).

Severe Head on/Sideswipe Opposite Direction Crash Rate in Unincorporated Boulder County & Mountain Towns, 2009-2018, by Corridor

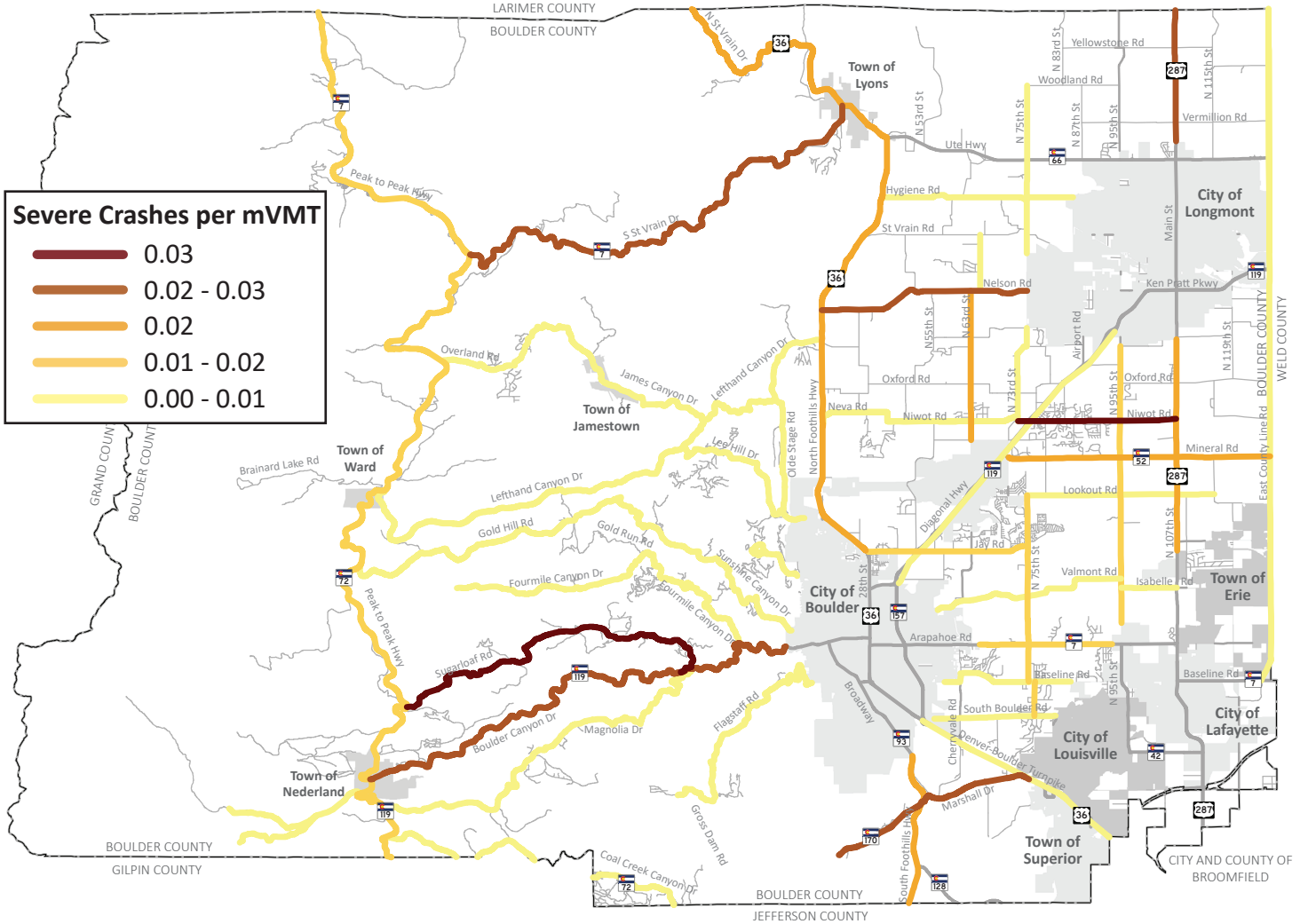
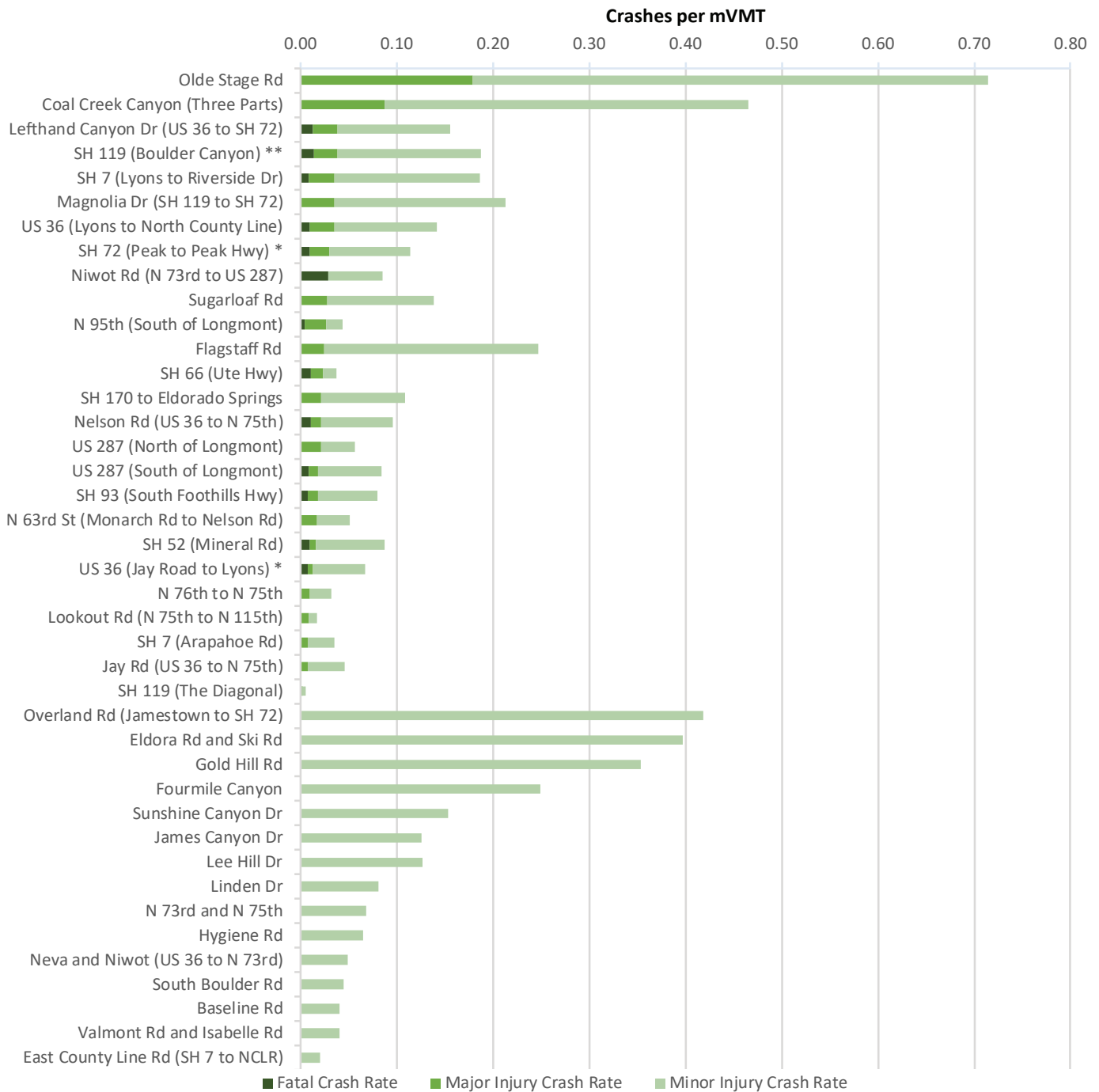


Figure 3.8

Figure 3.8 shows the corridors normalized by volume (mVMT). Similar to all Severe Crashes per mVMT in unincorporated Boulder County and the Mountain Towns from 2009 to 2018, roads with relatively low traffic volumes stand out. Sugarloaf Road and Niwot Road, which both have little traffic volumes, appear to have the greatest number of Severe head on/sideswipe opposite direction crash rates from 2009 to 2018. The corridors stand out so prominently with high Severe crashes per mVMT because of crashes that occurred at intersecting roads, which affected the corridor's total number of Severe crashes.

Head On/Sideswipe Opposite Direction/Off Left Single-Vehicle Crash Rates in Unincorporated Boulder County & Mountain Towns, 2009-2018, by Corridor



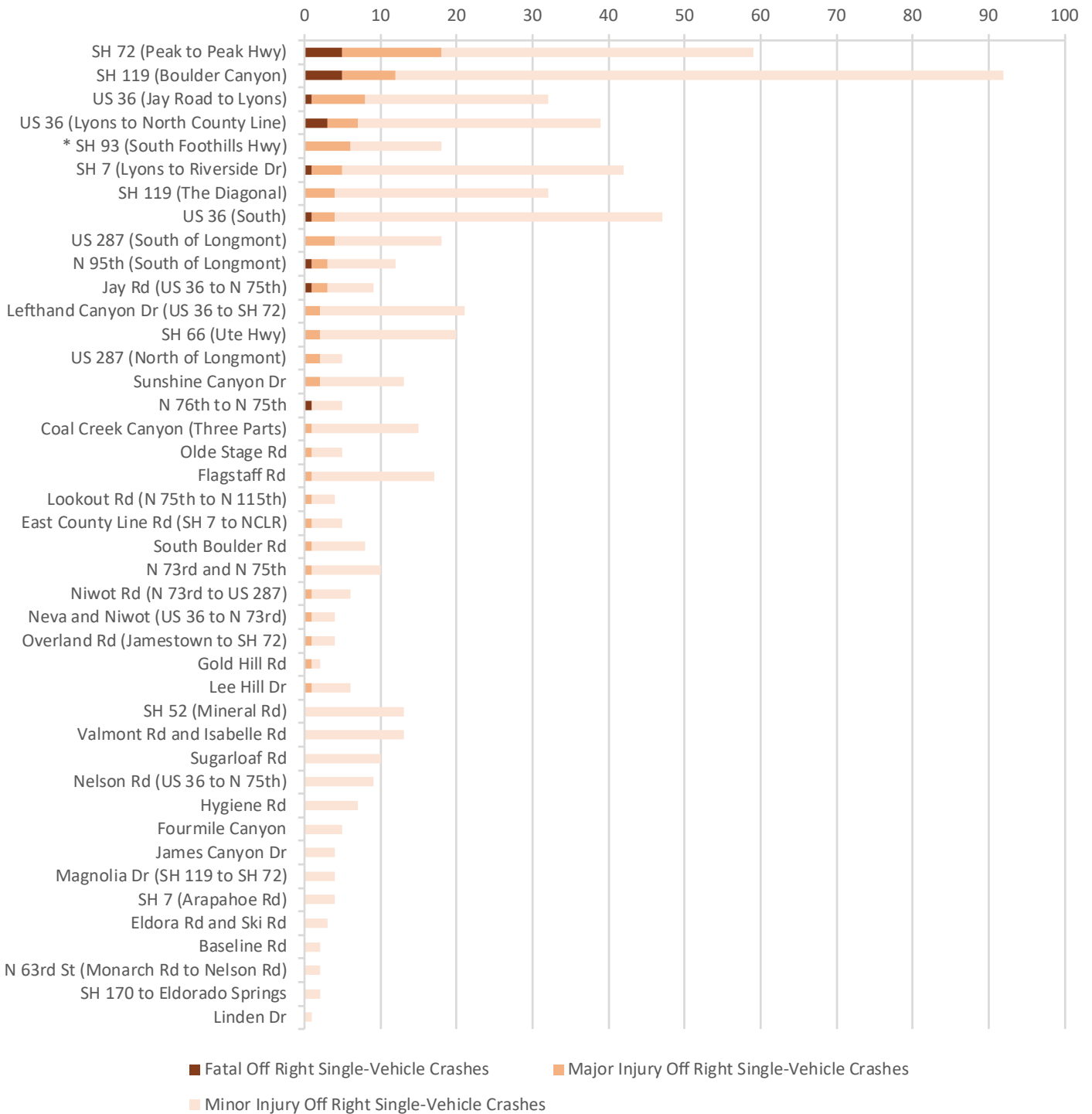
** Centerline rumble strips installed by CDOT prior to 2009

* Centerline rumble strips installed by CDOT after 2009

Figure 3.9

Figure 3.9 is displaying all head on/sideswipe opposite direction/off left single-vehicle crash rates in unincorporated Boulder County and Mountain Towns from 2009 to 2018 by corridor. Roads with relatively low traffic volumes, including Olde Stage Road, Coal Creek Canyon, and Lefthand Canyon Drive, have the highest crash rates. The corridors stand out as having the highest crash rates because they have some of the lowest traffic volumes in unincorporated Boulder County and Severe intersection-related crashes associated with them.

Off Right Single-Vehicle Crashes by Corridor in Unincorporated Boulder County and Mountain Towns, 2009-2018



* Edgeline rumble strips installed by CDOT after 2009

Figure 3.10 is displaying all off right single-vehicle crashes in unincorporated Boulder County and Mountain Towns from 2009 to 2018 by corridor. The top five corridors account for more than half (51 of 95) of all Fatal and Major Injury off right single-vehicle crashes.

Chapter 4: Crashes involving Bicyclists & Pedestrians

Bicyclists and Pedestrians are particularly vulnerable roadway users; when a pedestrian is struck by a vehicle, the pedestrian’s chance of survival is almost entirely dependent on the speed at which the vehicle was travelling.

Speeds are generally higher in Unincorporated Boulder County than in urban areas; the rural character of the road network means there are long straight sections of road with little roadside friction to slow down traffic, which is particularly true on state highways where speed limits are generally 55-65 mph.

It is nearly impossible to say if pedestrians are over or under-represented in crash data, as no comprehensive data for pedestrian travel exists in Unincorporated Boulder County. However, pedestrians accounted for 1% of Injury-Fatality Crashes but 6% of fatalities, suggesting that when pedestrians are hit, they are much more likely to be killed than other roadway users. Figure 4.3 shows that the greater a speed a vehicle is traveling at, the more likely a pedestrian will be killed.

Injury-Fatality bicycle and pedestrian crashes are more likely than Injury-Fatality Crashes overall to occur at intersections and driveways (55% compared to 37%).

79% of cyclists injured in bicycle crashes are male, and they have an average age of 43.

Bicycle and Pedestrian Crash Totals for Unincorporated Boulder County & Mountain Towns, 2009-2018

	Bicycle	Pedestrian
Fatal Crashes	10	6
+ Major Injury Crashes	42	9
+ Minor Injury Crashes	108	24
= Injury-Fatality Crashes	160	39

Figure 4.1

Intersection-related Bicycle & Pedestrian Injury-Fatality Crashes Compared to all Intersection-related Injury-Fatality Crashes

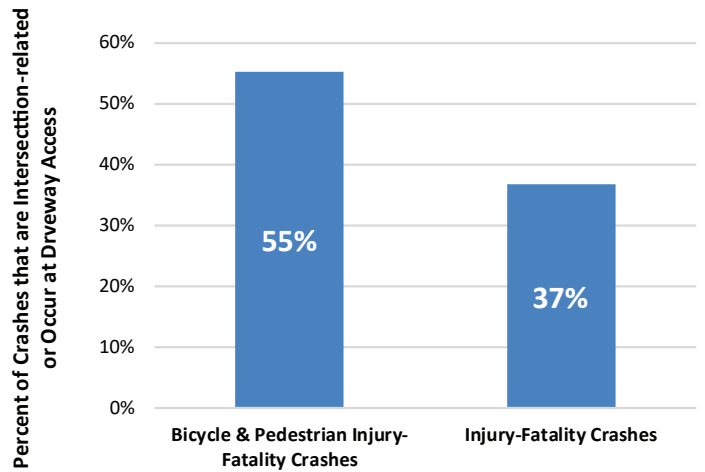


Figure 4.2

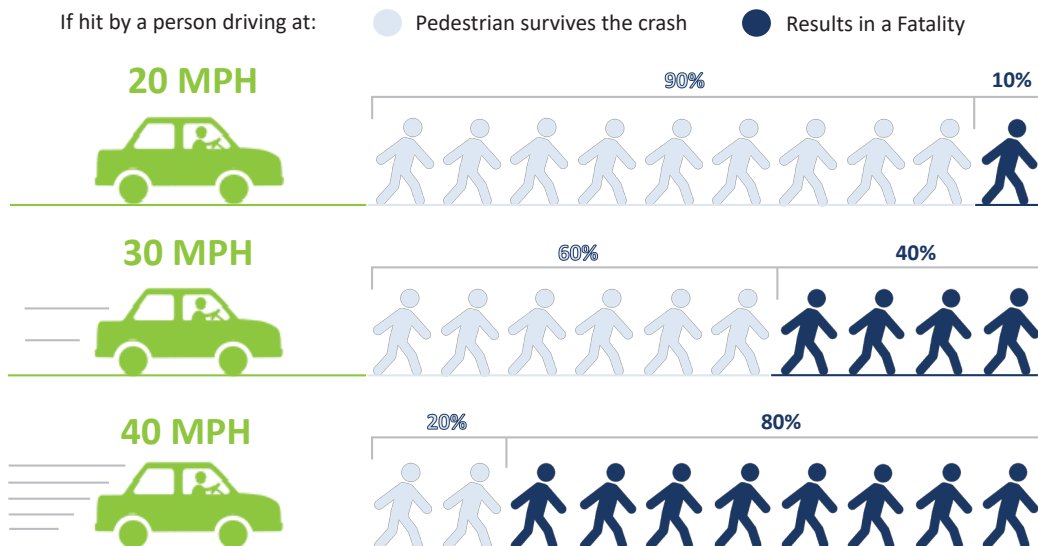


Figure 4.3

Source: Institute of Transportation Engineers

Severe Bicycle Crashes in Unincorporated Boulder County & Mountain Towns, 2009-2018, by Type

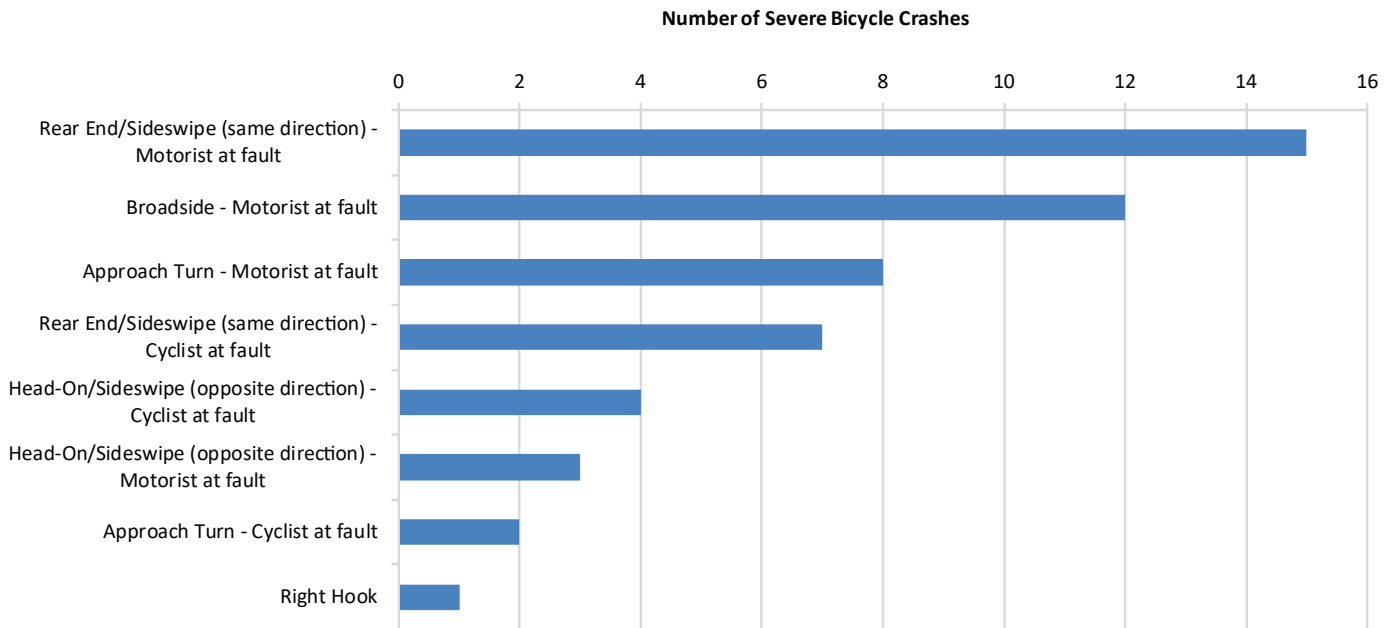


Figure 4.4

Minor Injury Bicycle Crashes in Unincorporated Boulder County & Mountain Towns, 2009-2018, by Type

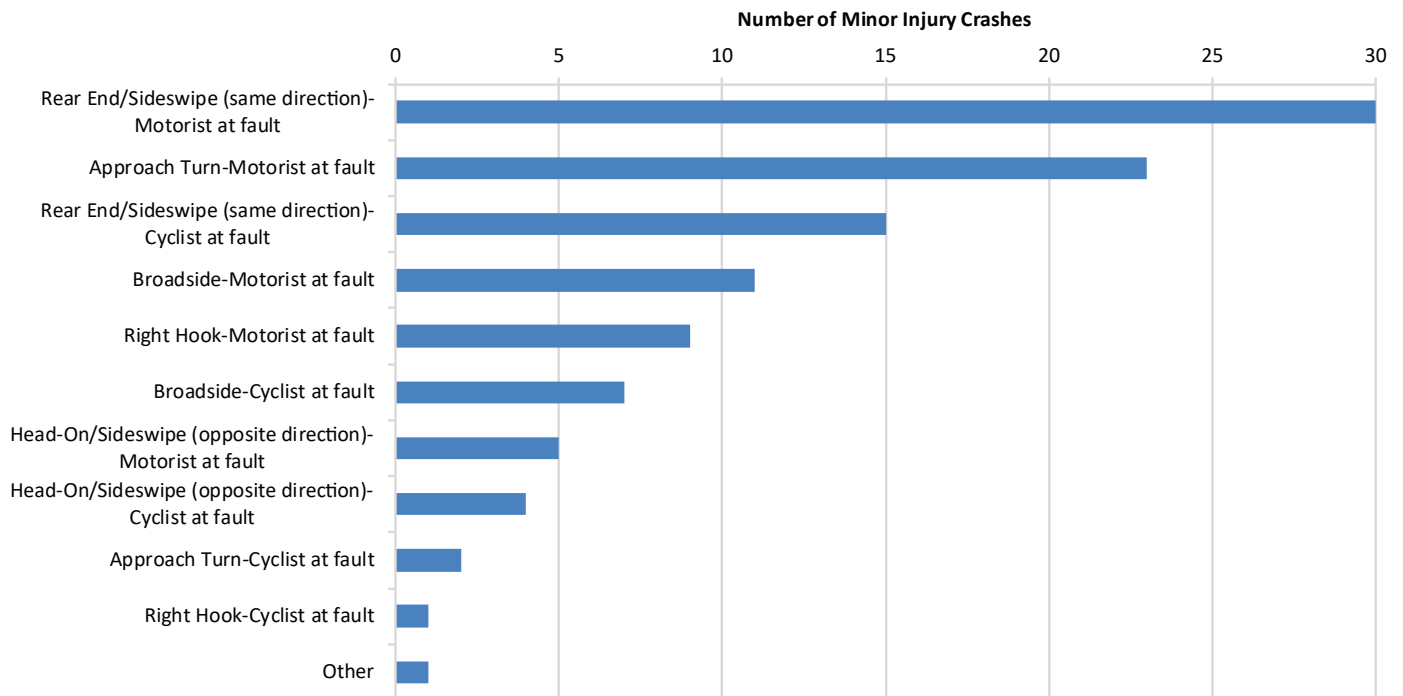


Figure 4.5

Figure 4.4 shows that the two most common types of Severe Bicycle Crashes are for a cyclist to be struck from behind, commonly known as a rear end crash and for a motorist to impact a cyclist directly from the side, commonly known as a “T-bone” crash.

Figure 4.5 shows that the two most frequent types of Minor Injury Bicycle Crashes are rear end crashes, where the motorist was at fault, and for a left turning motorist to turn directly into the path of an oncoming cyclist.

Bicycle and Pedestrian Crashes in Unincorp. Boulder County & Mountain Towns, 2009-2018, by Severity

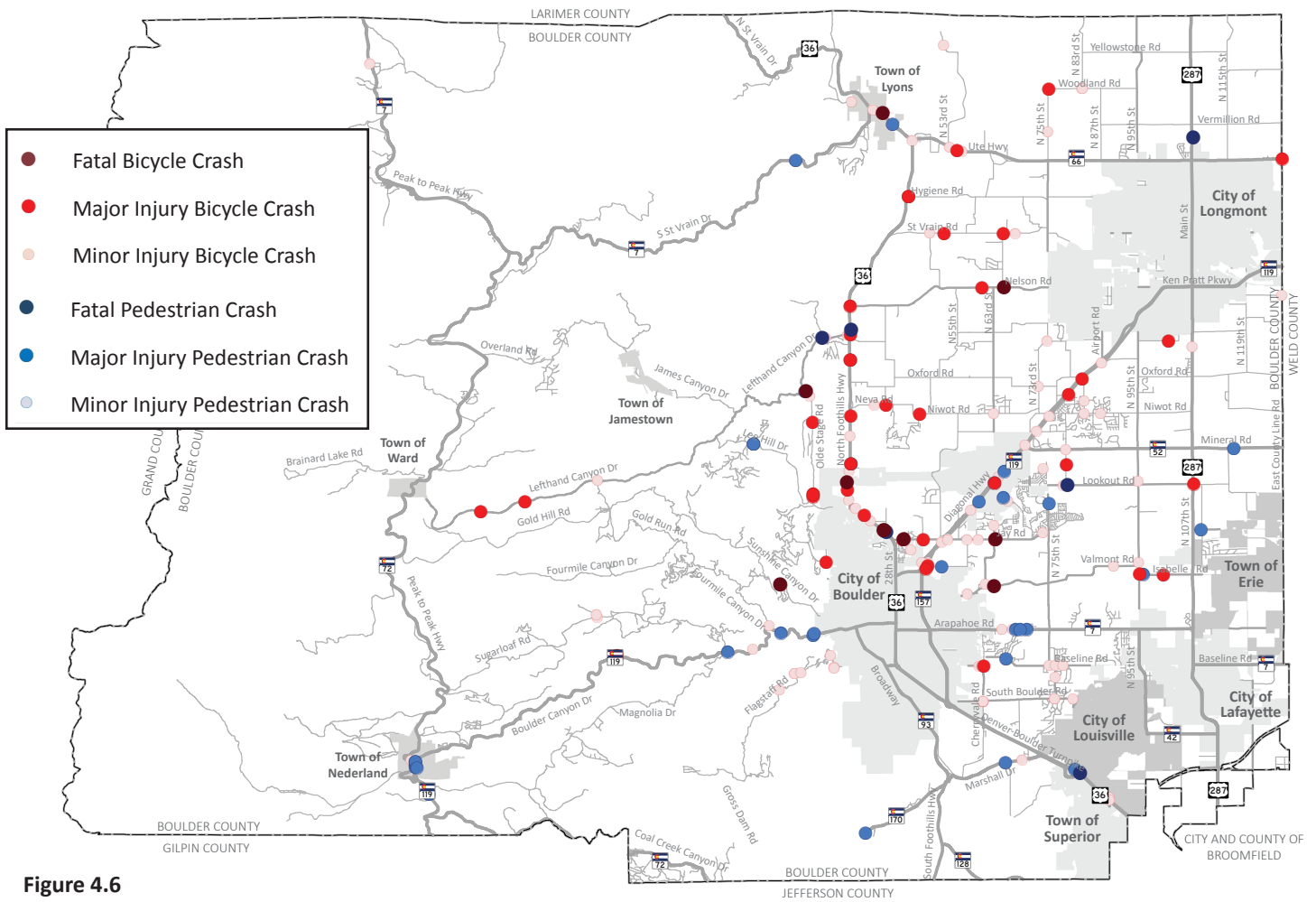


Figure 4.6

Figure 4.6 shows that most bicycle and pedestrian crashes are in the plains, generally in the area between Boulder, Longmont, and Lyons, including the 30% of all Severe Bicycle and Pedestrian Crashes (20 of 67) from 2009 to 2018 that are concentrated on US 36 from Jay Road to Lyons alone. Bicycle and Pedestrian crashes fluctuate a little over time, but typically Unincorporated Boulder County has had an average of 21 Injury-Fatality bicycle and pedestrian crashes per year, with about 7 of these each year being Severe crashes.

Boulder County’s bicycle and pedestrian crash numbers contrast to the state of Colorado; whereas the state sees five times more fatal pedestrian crashes than bicycle crashes, Boulder County sees a higher number of fatal bicycle crashes than fatal pedestrian crashes. In Colorado, bicycle and pedestrian traffic fatalities have remained fairly steady from 2006 to 2015, with the exception of 2012. From 2011, pedestrian fatalities rose from 47 to 78 and bicycle fatalities rose from 8 to 13. Dramatic increases also occurred in the number of pedestrian and bicycle traffic fatalities from 2015 to 2018.

Bicycle and Pedestrian Crashes in Unincorporated Boulder County and Mountain Towns

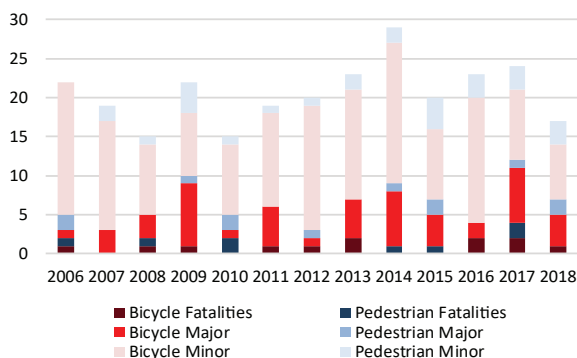


Figure 4.7

Bicycle and Pedestrian Traffic Fatalities in Colorado

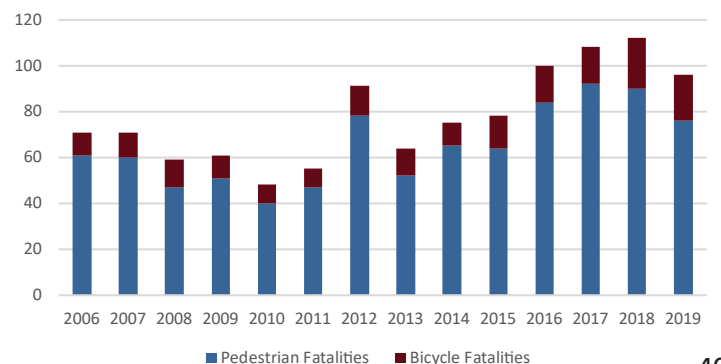
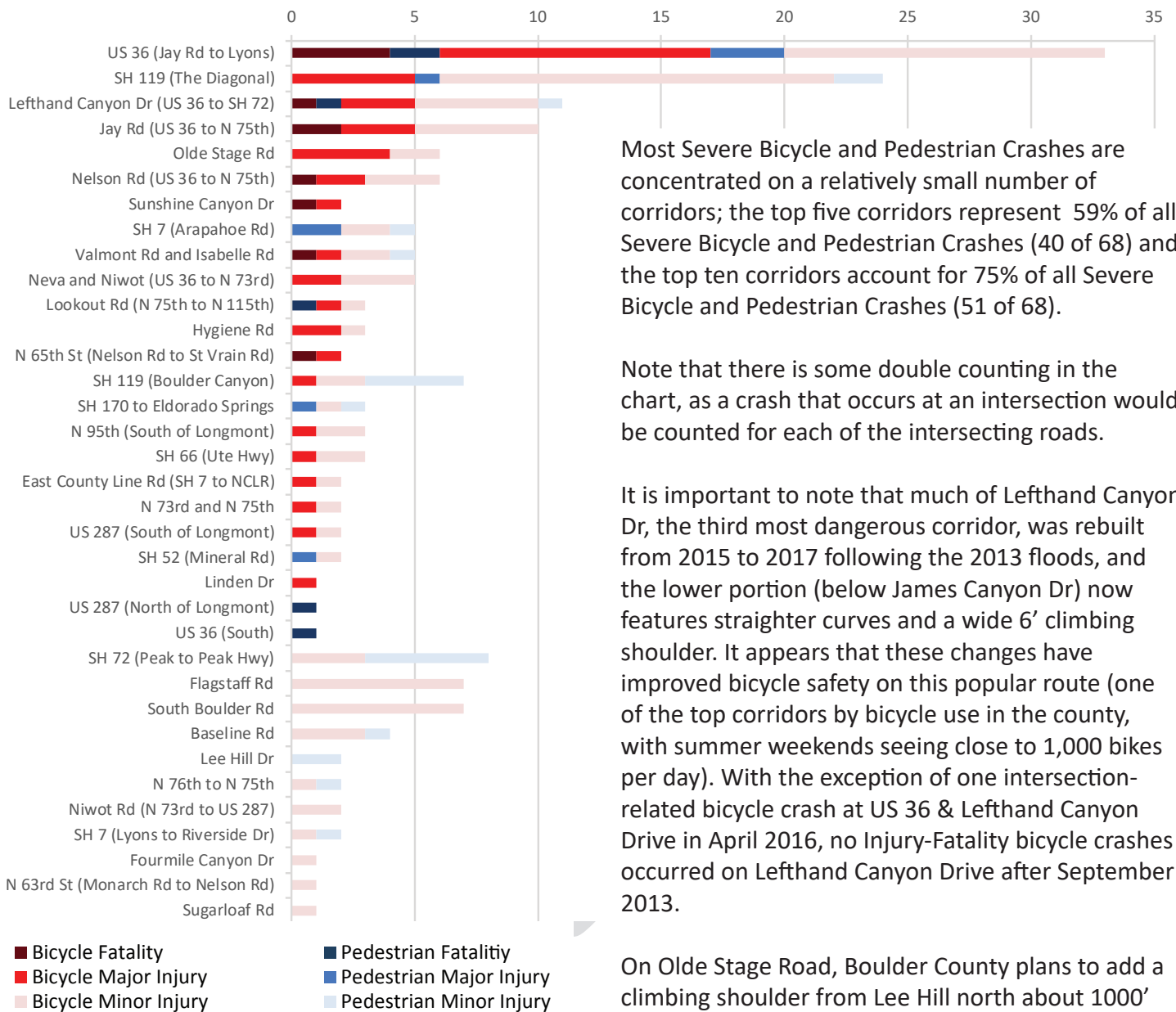


Figure 4.8

Bicycle and Pedestrian Crashes by Corridor in Unincorporated Boulder County and Mountain Towns, 2009-2018



Most Severe Bicycle and Pedestrian Crashes are concentrated on a relatively small number of corridors; the top five corridors represent 59% of all Severe Bicycle and Pedestrian Crashes (40 of 68) and the top ten corridors account for 75% of all Severe Bicycle and Pedestrian Crashes (51 of 68).

Note that there is some double counting in the chart, as a crash that occurs at an intersection would be counted for each of the intersecting roads.

It is important to note that much of Lefthand Canyon Dr, the third most dangerous corridor, was rebuilt from 2015 to 2017 following the 2013 floods, and the lower portion (below James Canyon Dr) now features straighter curves and a wide 6' climbing shoulder. It appears that these changes have improved bicycle safety on this popular route (one of the top corridors by bicycle use in the county, with summer weekends seeing close to 1,000 bikes per day). With the exception of one intersection-related bicycle crash at US 36 & Lefthand Canyon Drive in April 2016, no Injury-Fatality bicycle crashes occurred on Lefthand Canyon Drive after September 2013.

On Olde Stage Road, Boulder County plans to add a climbing shoulder from Lee Hill north about 1000' to provide a dedicated place on the road for slow-moving uphill bicycle traffic. This project is in the conceptual design phase, and will be built in 2022.

Figure 4.9

In 2018, Boulder County constructed three pedestrian refuge islands on Jay Rd between 30th Street and North 47th Street. The County also installed buffered shoulders from 30th Street to 63rd Street and added skipped green pavement markings at the intersections to highlight conflict points between cyclists and turning vehicles.

In 2020, CDOT added skipped striping to the shoulder through the smaller intersections on US 36, from the northern edge of the city of Boulder to Lefthand Canyon Drive, to highlight where bicyclists will be in the intersection. In 2022, CDOT is going to make additional changes to the north intersections from Lefthand Canyon Drive up to State Highway 66 into Lyons by adding more skipped striping.

In 2019, a State Highway 119 Bikeway Feasibility Study for the section between Longmont and Boulder was completed that includes a concept plan for a commuter bikeway and a design memo. The SH 119 Bikeway will be in the CDOT right-of-way, though Boulder County will be leading the design for the project.

Bicycle and Pedestrian-Involved Crash Rates in Unincorporated Boulder County & Mountain Towns, 2009-2018, by Corridor

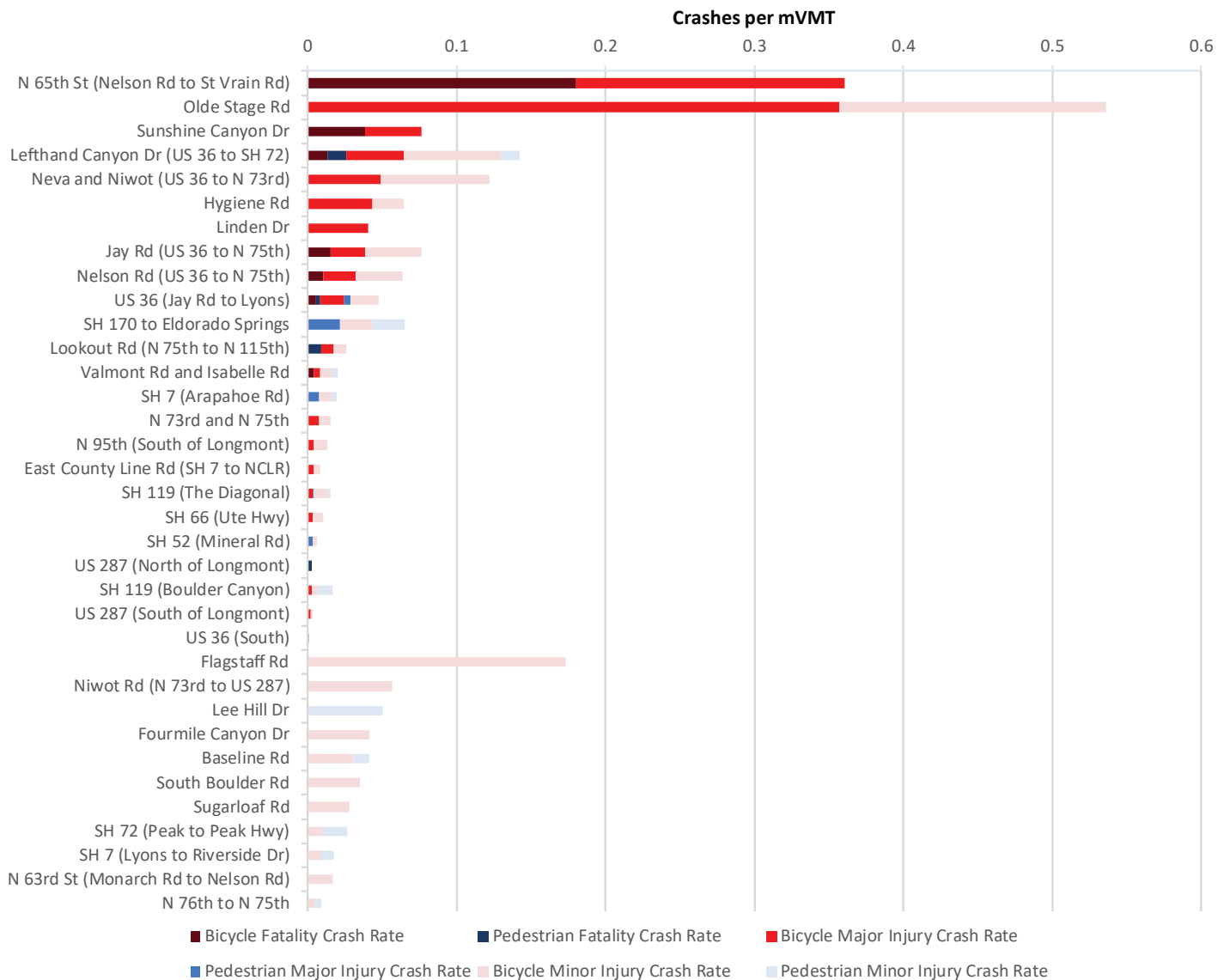


Figure 4.10

Figure 4.10 is displaying the bicyclist and pedestrian-involved crash rates by corridor. Roads with low traffic volumes stand out as having the highest bicyclist and pedestrian-involved crash rates. More specifically, North 65th street, Olde Stage Road, and Sunshine Canyon Drive, which have the highest crash rates, have some of the lowest traffic volumes in unincorporated Boulder County. The corridors appear to have very high crash rates because of Severe crashes that occurred at intersecting roads with the corridors. The Severe crash rates of the highest-ranking corridors on the figure do not reflect the corridors as a whole and simply draw attention because of intersection-related crashes associated with the roads. Lefthand Canyon Drive’s crash rate is entirely attributed to crashes that occurred prior to the flood reconstruction project; since the wider uphill shoulder was constructed no new bicycle or pedestrian crashes have occurred.

Chapter 5: Crashes involving Motorcyclists

Motorcycle Crashes in Unincorporated Boulder County & Mountain Towns, 2009-2018, by Crash Severity

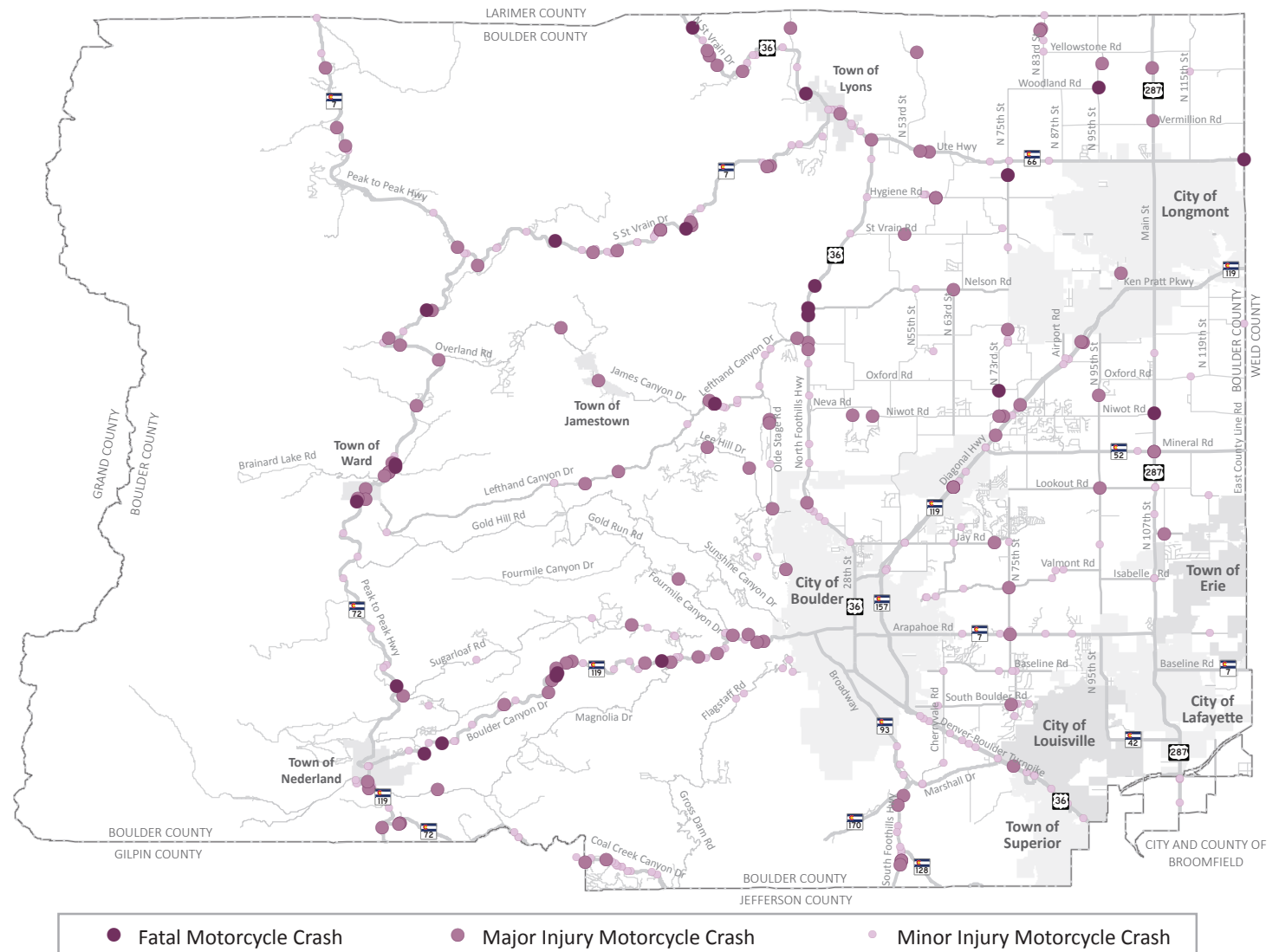


Figure 5.1

Motorcycle Crashes in Unincorporated Boulder County and Mountain Towns

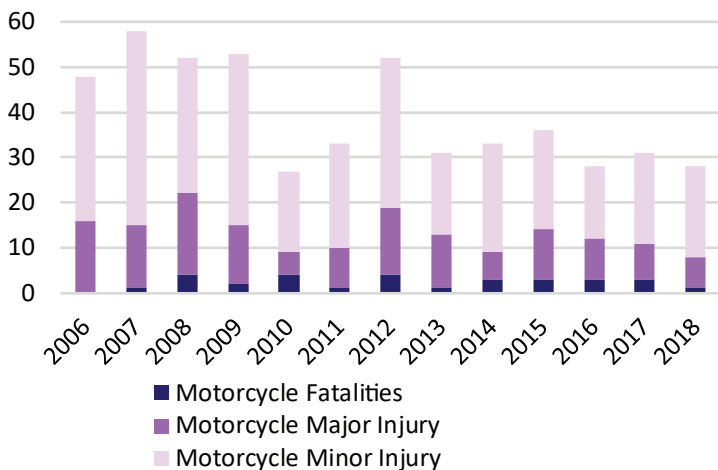


Figure 5.2

In contrast to other crash types for Unincorporated Boulder County, Figure 5.1 shows that 61% of Severe Motorcycle Crashes occur in the mountains (71 of 117), compared to only 26% of all Severe crashes (117 of 453). Motorcycle crashes account for half (71 of 144) of all Severe crashes in the mountains and are concentrated on scenic state highways such as Peak to Peak, Boulder Canyon Drive, South Saint Vrain Drive and US 36 (Lyons to North County Line). Over time, Unincorporated Boulder County has seen a notable decrease in the number of minor injury Motorcycle Crashes, with a small decrease in severe Motorcycle Crashes from 2015 to 2018 as well. From 2006-2009, Injury-Fatality Motorcycle Crashes averaged around 50 per year and from 2010 to 2018 declined to around 30 per year. 66% (226 of 343) of the Injury-Fatality motorcycle crashes from 2009-2018 were single-vehicle crashes. 43

Motorcycle Crashes by Corridor in Unincorporated Boulder County and Mountain Towns, 2009-2018

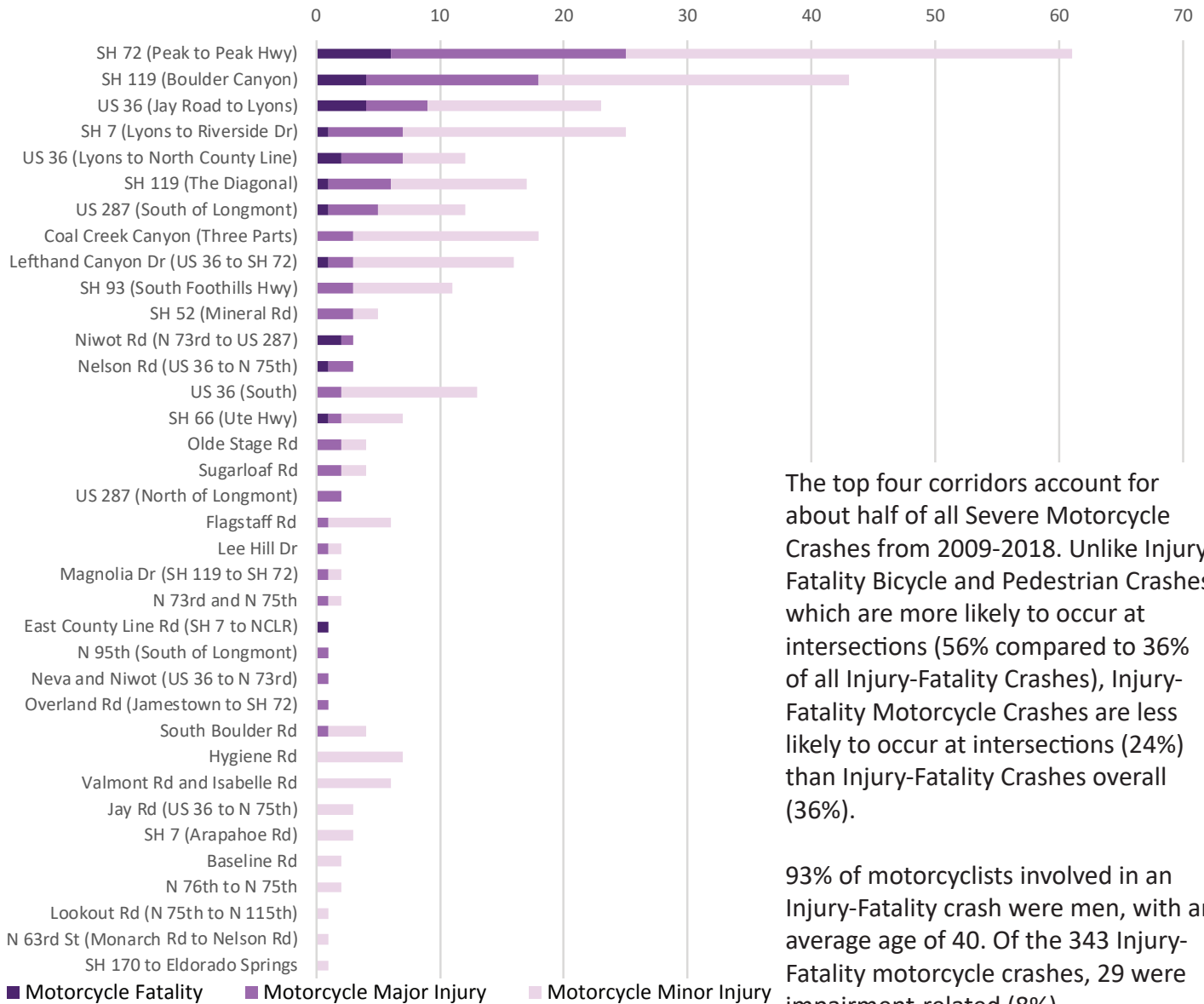


Figure 5.3

The top four corridors account for about half of all Severe Motorcycle Crashes from 2009-2018. Unlike Injury-Fatality Bicycle and Pedestrian Crashes which are more likely to occur at intersections (56% compared to 36% of all Injury-Fatality Crashes), Injury-Fatality Motorcycle Crashes are less likely to occur at intersections (24%) than Injury-Fatality Crashes overall (36%).

93% of motorcyclists involved in an Injury-Fatality crash were men, with an average age of 40. Of the 343 Injury-Fatality motorcycle crashes, 29 were impairment-related (8%).

Severe Motorcycle Crashes in Unincorporated Boulder County & Mountain Towns, 2009-2018, by Type

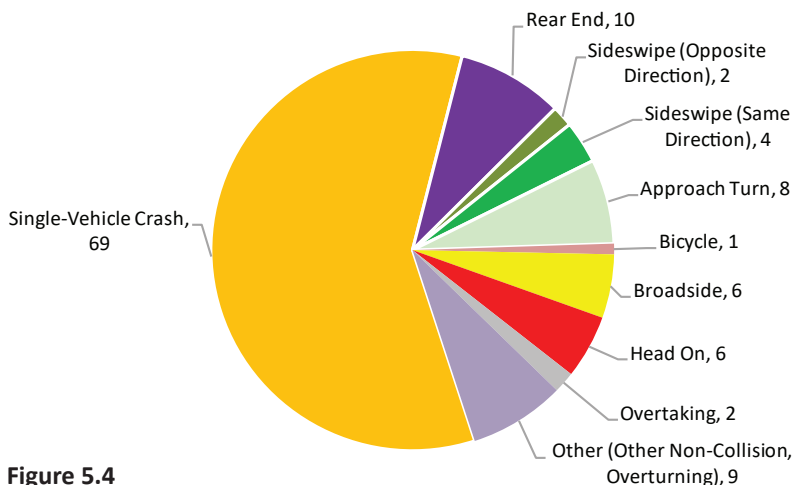


Figure 5.4

Of the 69 Severe Single-Vehicle Motorcycle Crashes, 10 were impairment-related (14%), 7 were wildlife-related (10%), and 1 was weather-related (1%). These are not mutually exclusive and some crashes may have had more than one contributing factor. About half of the motorcyclists involved in Severe Single-Vehicle Crashes (32 of 69) were cited for careless or reckless driving. 51 of the 69 Severe Single-Vehicle Motorcycle Crashes had no obvious contributing factor.

Motorcycle Crashes in Unincorporated Boulder County & Mountain Towns, 2009-2018, by Corridor

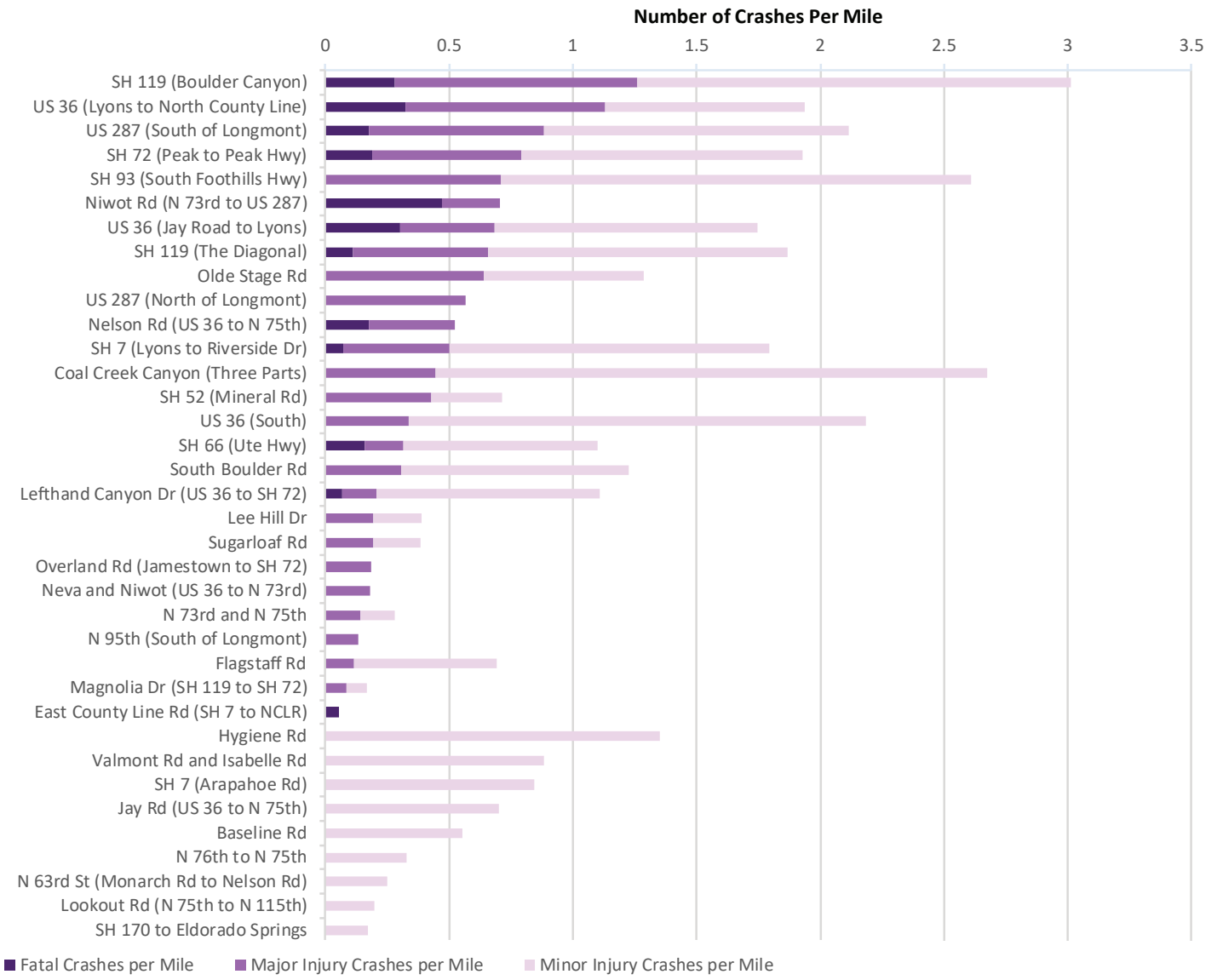


Figure 5.5

Figure 5.5 sorts the corridors by number of Injury-Fatality Crashes per mile. As mentioned previously, the top four corridors represent 52% of all Severe motorcycle crashes (59 of 114 total) in unincorporated Boulder County and the Mountain Towns from 2009 to 2018. Differing from all Severe crashes concentrated on corridors in unincorporated Boulder County and the Mountain Towns, most corridors that have a high number of Severe motorcycle crashes per mile do not also have a high number of Minor Injury crashes per mile. More specifically, US 36 from Jay Road to Lyons, Peak to Peak Highway, Niwot Road, US 287 (North of Longmont), and Nelson Road can confirm this. However, SH 119 (Boulder Canyon Drive) and SH 93 (South Foothills Highway) have both high numbers of Severe and Minor Injury motorcycle crashes per mile.

Percentage of Motorcyclists Wearing Helmet Protection, All Crashes in Unincorporated Boulder County & Mountain Towns, 2009-2018

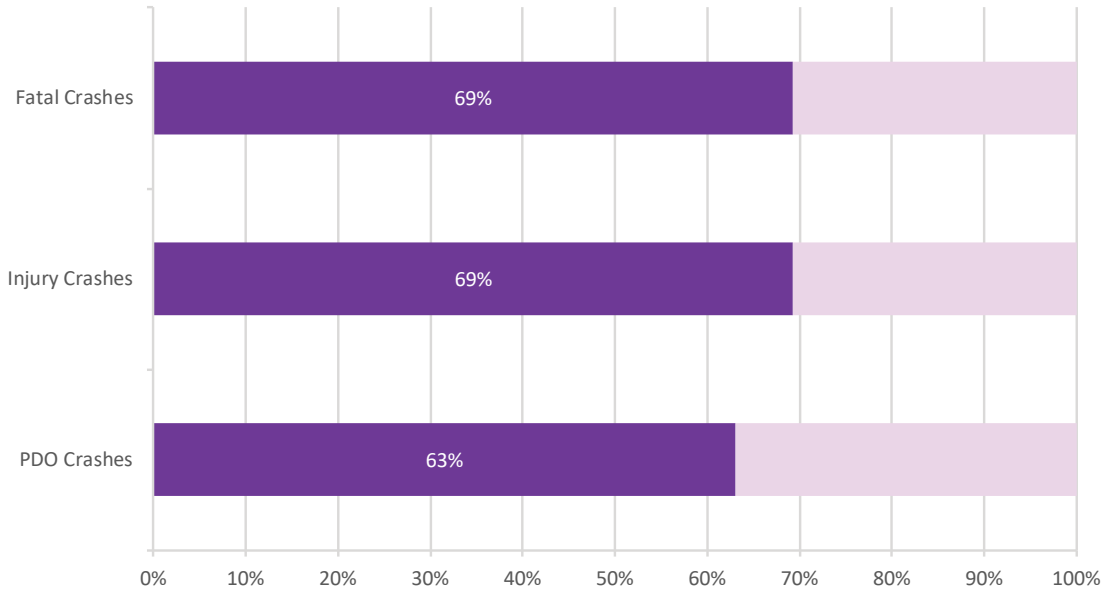


Figure 5.6

Of all the motorcyclists involved in either Fatal or Injury Crashes in Unincorporated Boulder County and the Mountain Towns, 69% of motorcyclists were wearing helmets for protection. Somewhat unexpectedly, only 63% of motorcyclists involved in Property Damage Only Crashes were wearing helmets.

By law, motorcyclists over the age of 18 are not required to wear helmets for protection; however, eye protection is required by law in Colorado for all motorcycle riders. In 2018, motorcyclist fatalities, which typically spike in the summer months, accounted for 16% of all traffic fatalities in Colorado (CDOT Motorcycle Safety).

Chapter 6: Single-Vehicle Crashes

All Injury-Fatality Single-Vehicle Crashes in Unincorporated Boulder County & Mountain Towns, 2009-2018, by Crash Severity

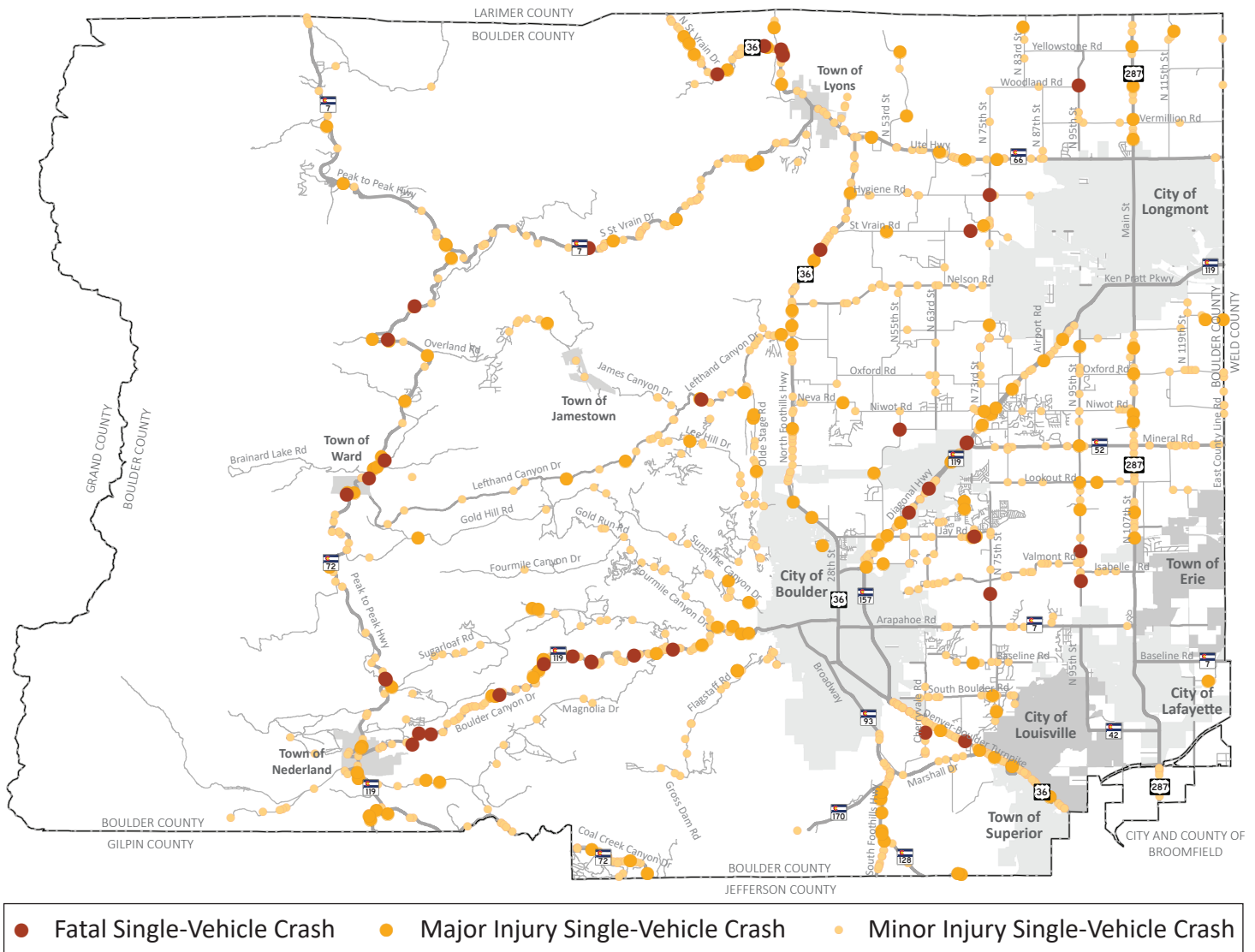
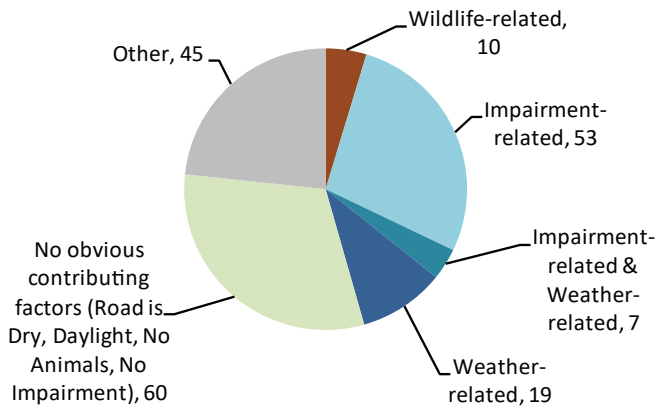


Figure 6.1

Single-Vehicle Crashes accounted for 43% of all Severe Crashes in Unincorporated Boulder County and the Mountain Towns from 2009-2018. 70% (136 out of 193) of the Severe Injury Single-Vehicle Crashes occurred on State Highways.

A few trends emerged when looking at Severe Single-Vehicle Crashes in the mountains, especially on the State Highways that pass through the mountains. 13% of Severe Injury Single-Vehicle Crashes (25 of 193) and about 25% of Fatal Single-Vehicle Crashes (10 of 38) occurred on SH 119 (Boulder Canyon Drive). Motorcyclists were involved in almost half of the Severe (11 of 25) and a quarter of the Fatal (3 of 10) single-vehicle crashes on SH 119 (Boulder Canyon Drive). Overall, 78% of Severe Single-Vehicle Crashes involving a motorcyclist occurred in the mountains, primarily on State Highways. Peak to Peak Highway also had a high number of Severe Single-Vehicle Crashes from 2009-2018. 18% of Fatal Single-Vehicle Crashes (7 of 38) and 10% of Severe Injury Single-Vehicle Crashes (19 of 193) took place on Peak to Peak Scenic Byway. Half of the Fatal Crashes on Peak to Peak were impairment or weather-related and 9 out of the 12 Severe Injury Crashes involved a motorcyclist.

Severe Single-Vehicle Crashes by Contributing Factor



Injury-Fatality Single-Vehicle Crashes by Contributing Factor

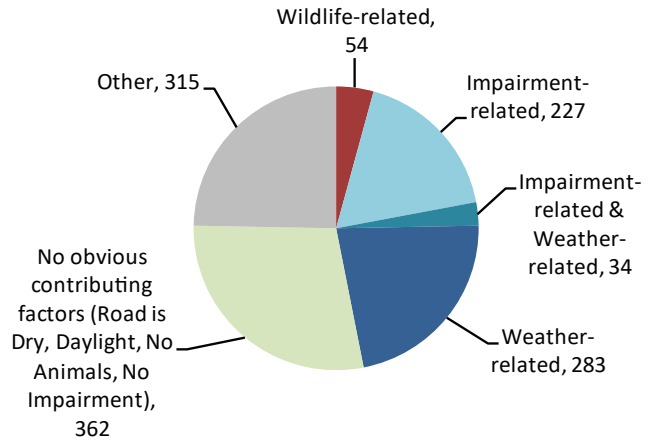


Figure 6.2

Figure 6.3

The pie charts above break down Injury-Fatality and Severe Single-Vehicle Crashes by contributing factor. Again, Single-Vehicle Crashes accounted for 43% of all Severe Crashes (193 of 453) in Unincorporated Boulder County and Mountain Towns from 2009-2018. Of the 193 Severe Single-Vehicle Crashes, 59% (113 of 193) had no obvious contributing factor and were not impairment-related. Of the 1,275 Injury-Fatality Single-Vehicle Crashes that occurred in Unincorporated Boulder County and Mountain Towns, 362 have no obvious contributing factor. While there is information on phone-related distractions in the crash data, this could be a potential contributing factor of the crashes in both the no obvious contributing factor and other categories. The other two frequent contributing factors are weather-related (283 of 1,275) and impairment-related (227 of 1,275).

All Single-Vehicle Crashes in Unincorporated Boulder County and Mountain Towns, 2009-2018, by Severity & Contour of Roadway

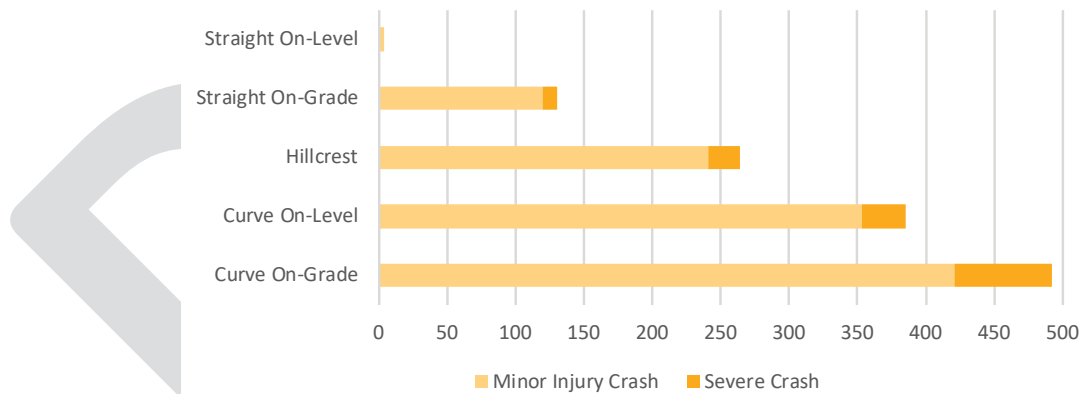


Figure 6.4

Figure 6.4 shows that 69% of Single-Vehicle Crashes (877 of 1,275) occurred at curve-on grade (curve in road and on a hill) or curve on-level (curve in road and flat) sections of roadways, while only 11% of these crashes (134 of 1,275) occurred at straight on-level (straight road and flat) or straight on-grade (straight road and on a hill). Out of these 134 crashes, only 4 took place at straight on-level (straight road and flat). Therefore, hills are generally more dangerous than flat roads, curves are more dangerous than hills and hillcrests, and curves in roads on hills are the most dangerous roadway contours according to the data.

Heat Map Showing All Severe Single-Vehicle Crashes at a Curve On-Grade or Curve On-Level in Unincorporated Boulder County & Mountain Towns, 2009-2018

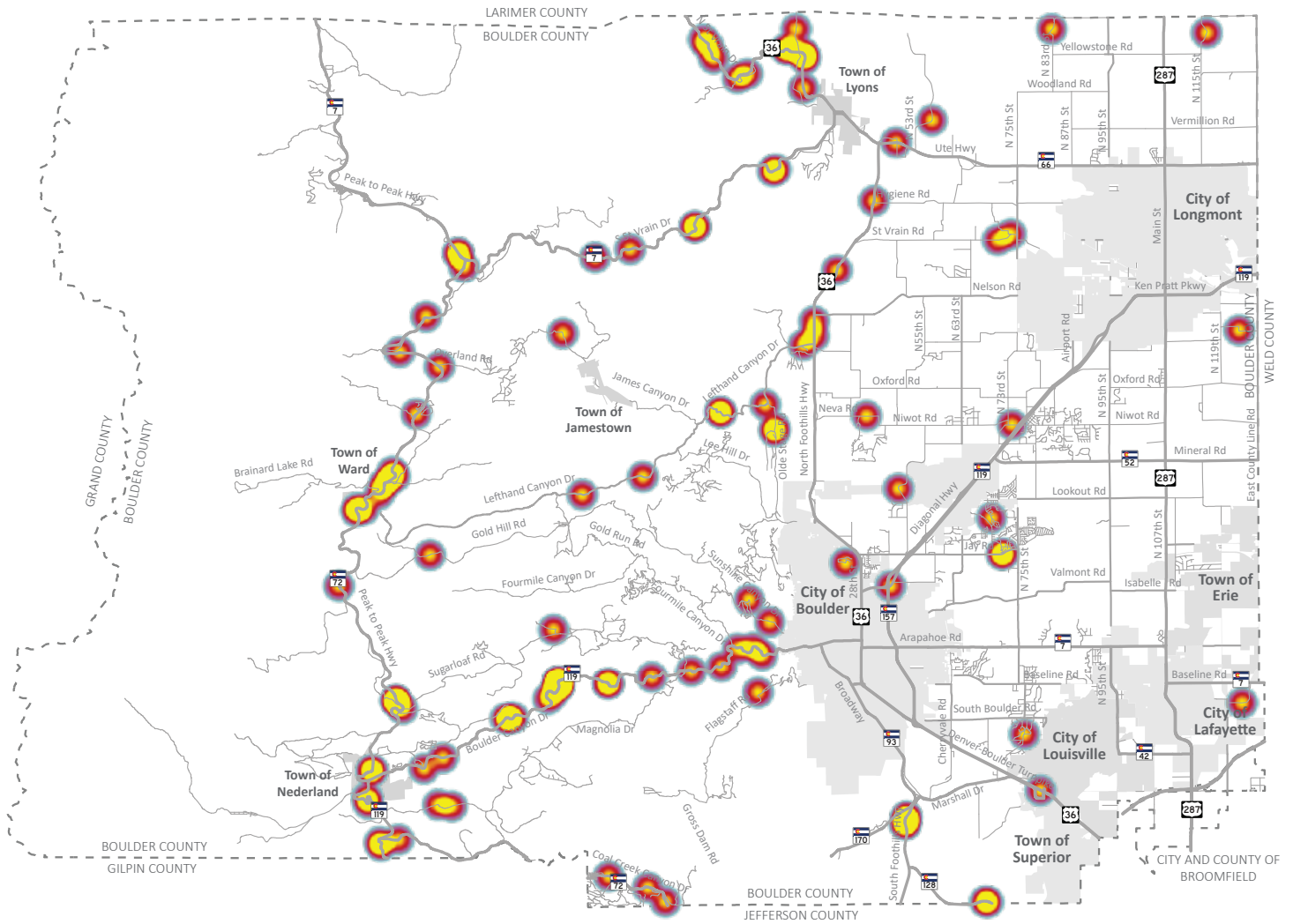


Figure 6.5

Figure 6.5 is a heat map symbolizing all Severe Single-Vehicle Crashes at a Curve On-Grade or Curve On-Level in Unincorporated Boulder County and Mountain Towns from 2009-2018. The heat map uses warmer colors (reds and yellows) to show where crash numbers are higher and cooler colors (blues) to show where crash numbers are less concentrated. Curves on state highways in the mountains, particularly on SH 119 (Boulder Canyon Dr), Peak to Peak Highway, US 36 (N Foothills Highway), and SH 7 (S Saint Vrain Dr), stand out as having the highest number of crashes.

All Injury-Fatality Single-Vehicle Crashes in Unincorporated Boulder County & Mountain Towns, 2009-2018, by Crash Type

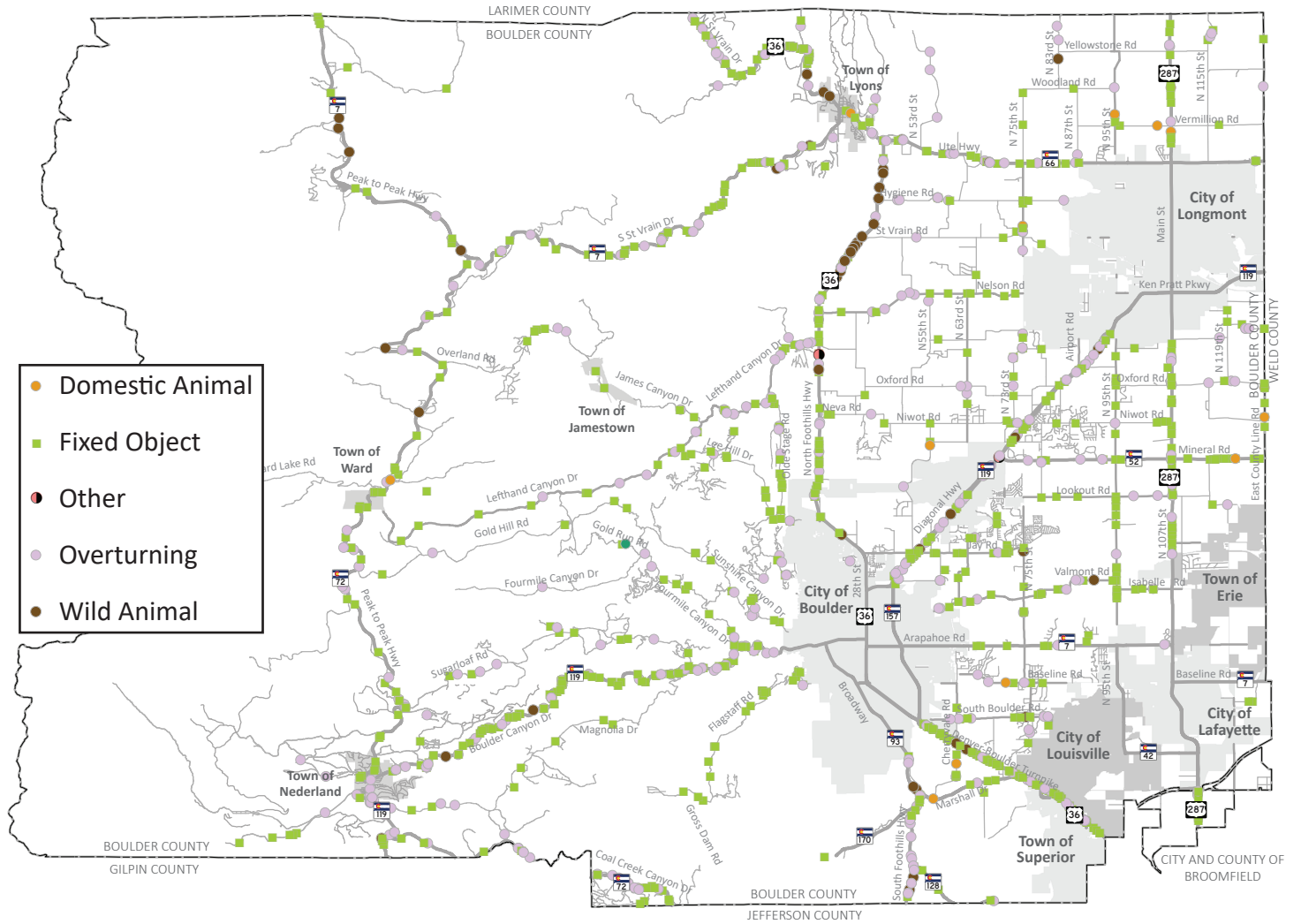


Figure 6.6

Figure 6.6 maps all Injury-Fatality Single-Vehicle Crashes in Unincorporated Boulder County and Mountain Towns from 2009-2018 by crash type. Motorists hitting a fixed object is the most common crash type, accounting for 63% of all Injury-Fatality Single-Vehicle Crashes (798 of 1,275). Wildlife-related crashes are noticeably concentrated on US 36 between Nelson Road and the town of Lyons. 37% of all Injury-Fatality Single-Vehicle Crashes (20 of 54) that are wildlife-related occurred on this section of US 36. 65% of all the Injury-Fatality Single-Vehicle Crashes (827 of 1,275) are concentrated on the State Highways with another 14% on county arterials (179 of 1,275).

Severe Single-Vehicle Fixed Object Crashes, 2009-2018, by Object

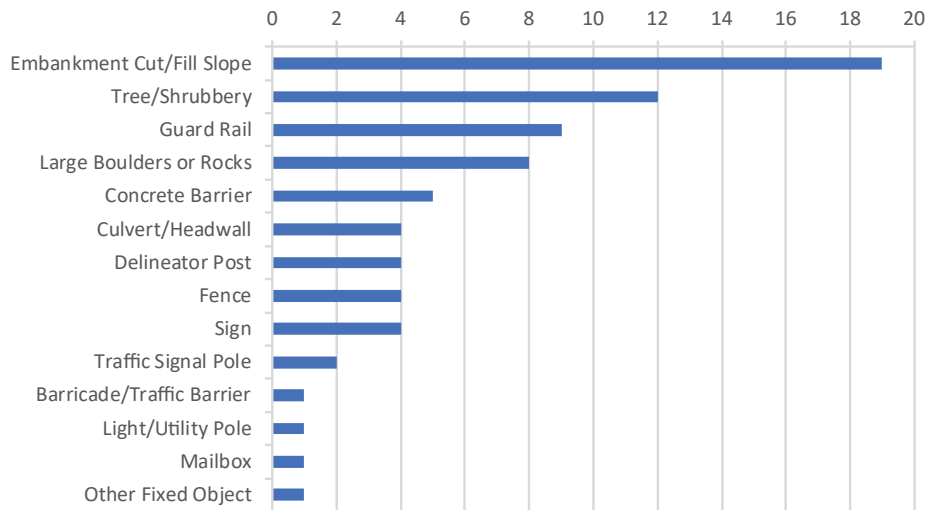


Figure 6.7

Injury-Fatality Single-Vehicle Fixed Object Crashes, 2009-2018, by Object

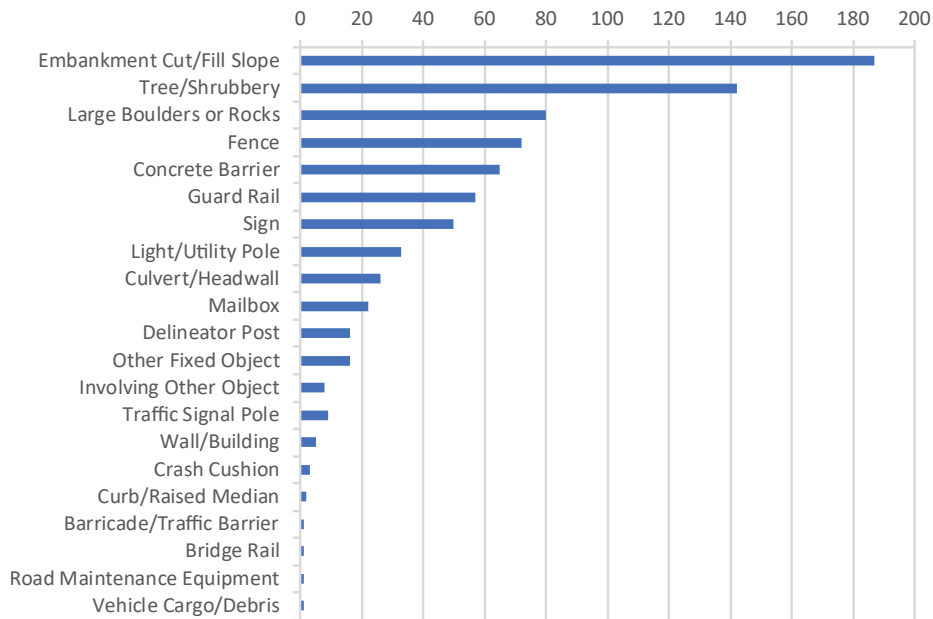


Figure 6.8

The two bar charts break down both Severe and Injury-Fatality Single-Vehicle Fixed Object Crashes by object. Motorists hit embankments most often in both Severe and Injury-Fatality Single-Vehicle Crashes. 25% of Severe-Single Vehicle Fixed Object Crashes (26 of 107) involved an embankment cut/fill slope and 19% of these crashes involved a tree/shrubbery (20 of 107). Guard rails, concrete barriers, and large boulders or rocks were also frequently hit in Single-Vehicle Crashes from 2009-2018.

All Injury-Fatality Single-Vehicle Crashes in Unincorporated Boulder County & Mountain Towns, 2009-2018, where Motorist Exceeds Speed Limit by 10 mph or Greater

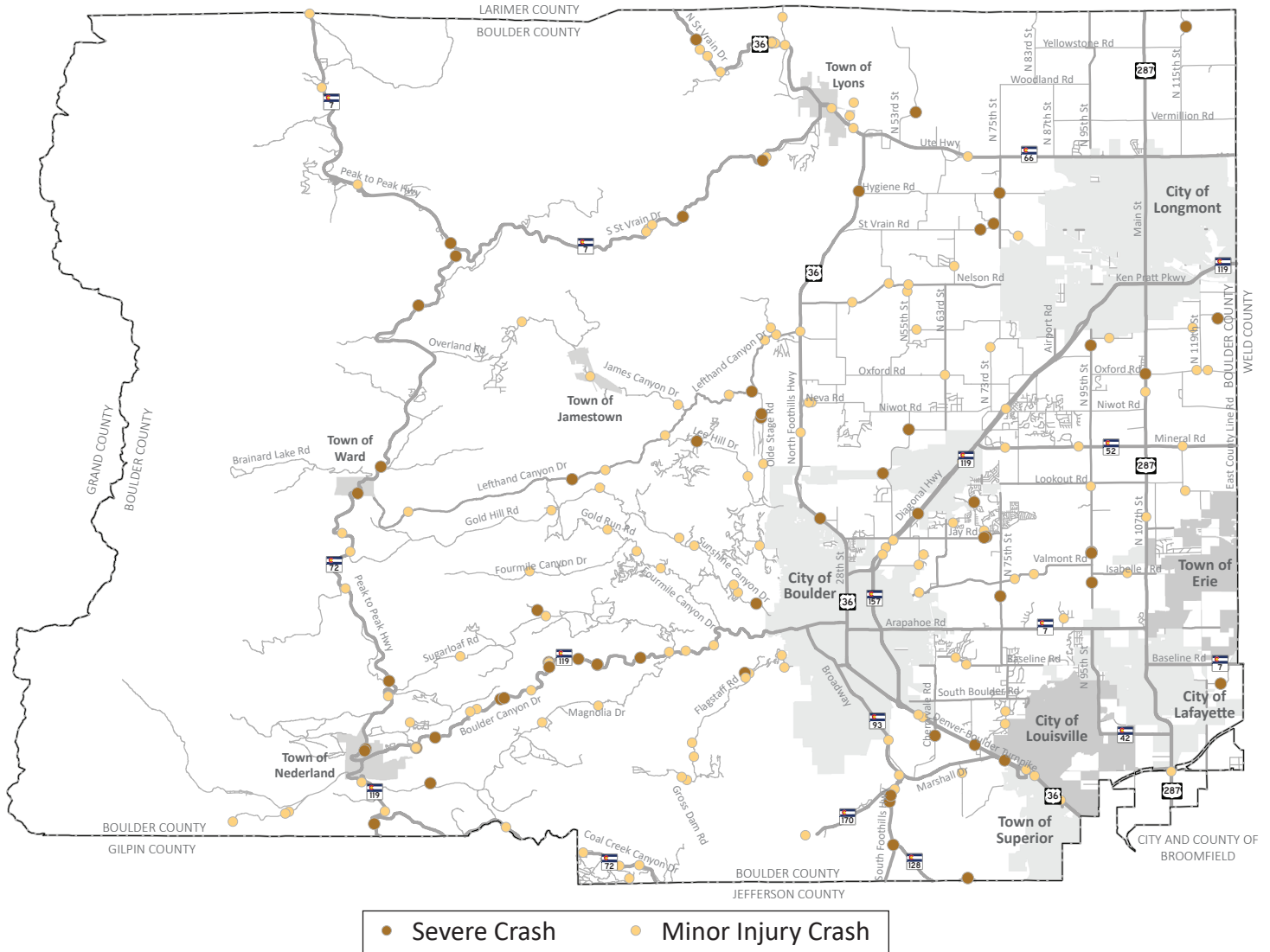


Figure 6.9

Figure 6.9 maps all Injury-Fatality Single-Vehicle Crashes in Unincorporated Boulder County and Mountain Towns where the driver of the vehicle was estimated to have been exceeding the posted speed limit by 10 mph or greater. The map also breaks the crashes down by severity. State Highway 119 (Boulder Canyon Drive) stands out as having the highest number of Severe Crashes where a motorist was going over the speed limit by at least 10 mph. 7 of the 19 Injury-Fatality Crashes on Boulder Canyon Drive were fatal. In January 2018, a Fatal Crash occurred on Boulder Canyon Drive where the driver was going 40 mph over the speed limit and hit a tree. Most of the Severe Crashes are concentrated on State Highways and County arterial roads.

Single-Vehicle Crashes by Corridor in Unincorporated Boulder County and Mountain Towns, 2009-2018

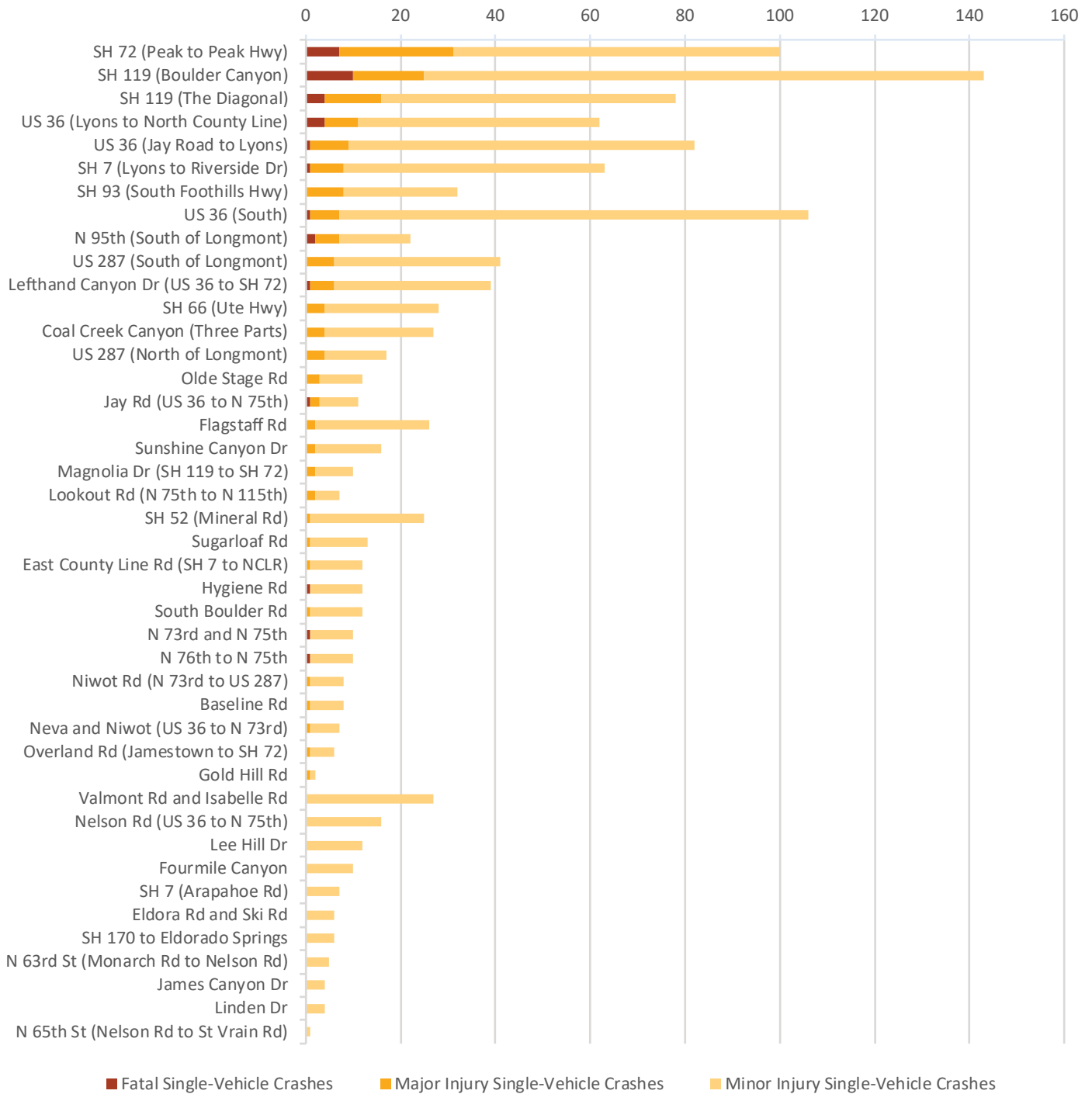


Figure 6.10

Figure 6.10 is displaying the total number of Single-Vehicle Crashes on each corridor. The top 5 corridors account for 53% (92 of 172) of all Severe Single-Vehicle Crashes. Some of the corridors, including Flagstaff Road, SH 52, Valmont Road & Isabelle Road, and Nelson Road have particularly high Minor Injury Single-Vehicle Crash numbers and a very low or nonexistent number of Severe Single-Vehicle Crashes. Figure 6.9 also confirms the initial trend from the Injury-Fatality map (Figure 6.1) in which we see that Peak to Peak Highway and SH 119 (Boulder Canyon), which are both in the mountains, have the highest numbers of Fatal and Major Injury Single-Vehicle Crashes.

Chapter 7: Impairment-related Crashes

Impairment-related Crashes in Unincorporated Boulder County & Mountain Towns, 2009-2018, by Severity

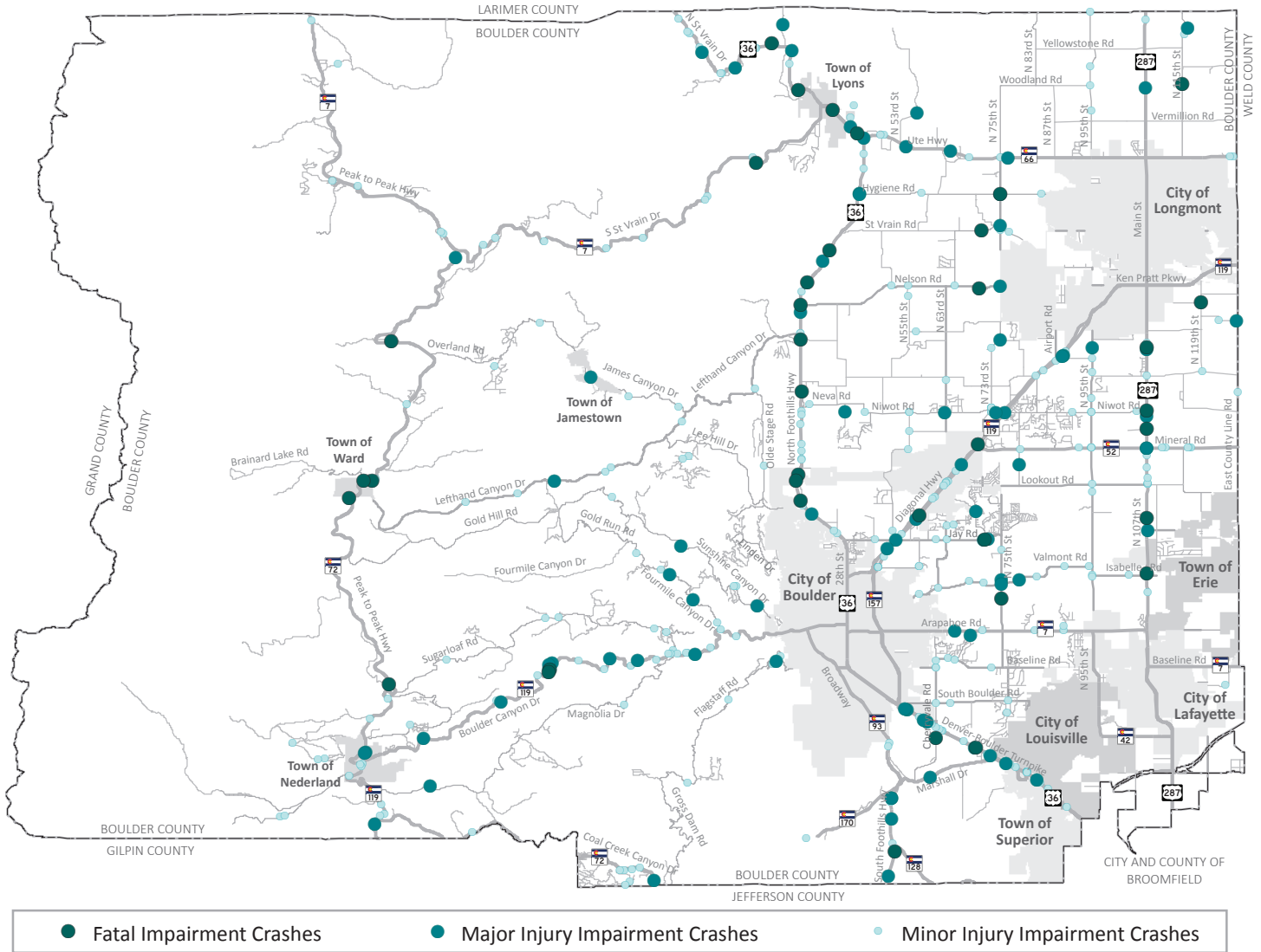


Figure 7.1

Figure 7.1 shows that Impairment-related crashes are concentrated on the state highways and County arterial roads in the plains, along with SH 119 (Boulder Canyon Drive). Impairment means physiological impairment of the brain: alcohol, prescription drugs, or other (illegal) drugs.

Crashes Involving Impaired Persons in Unincorporated Boulder County & Mountain Towns

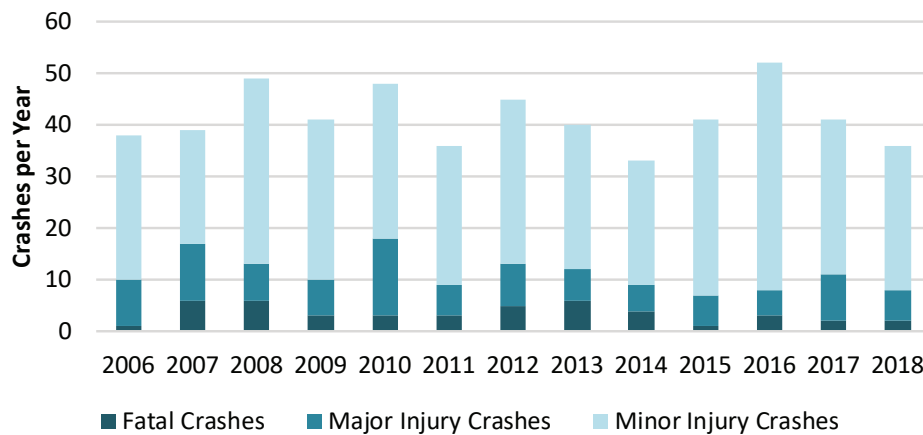


Figure 7.2

Impairment-related crash numbers have fluctuated over time, with no apparent consistent long term trends. Other jurisdictions have seen decreases in impairment-related crashes in recent years due to the advent of Transportation Network Companies (TNCs), such as Uber and Lyft, providing alternate travel options, but their effect on crashes in unincorporated Boulder County is not apparent in our crash data.

Impairment Crashes by Corridor in Unincorporated Boulder County and Mountain Towns, 2009-2018

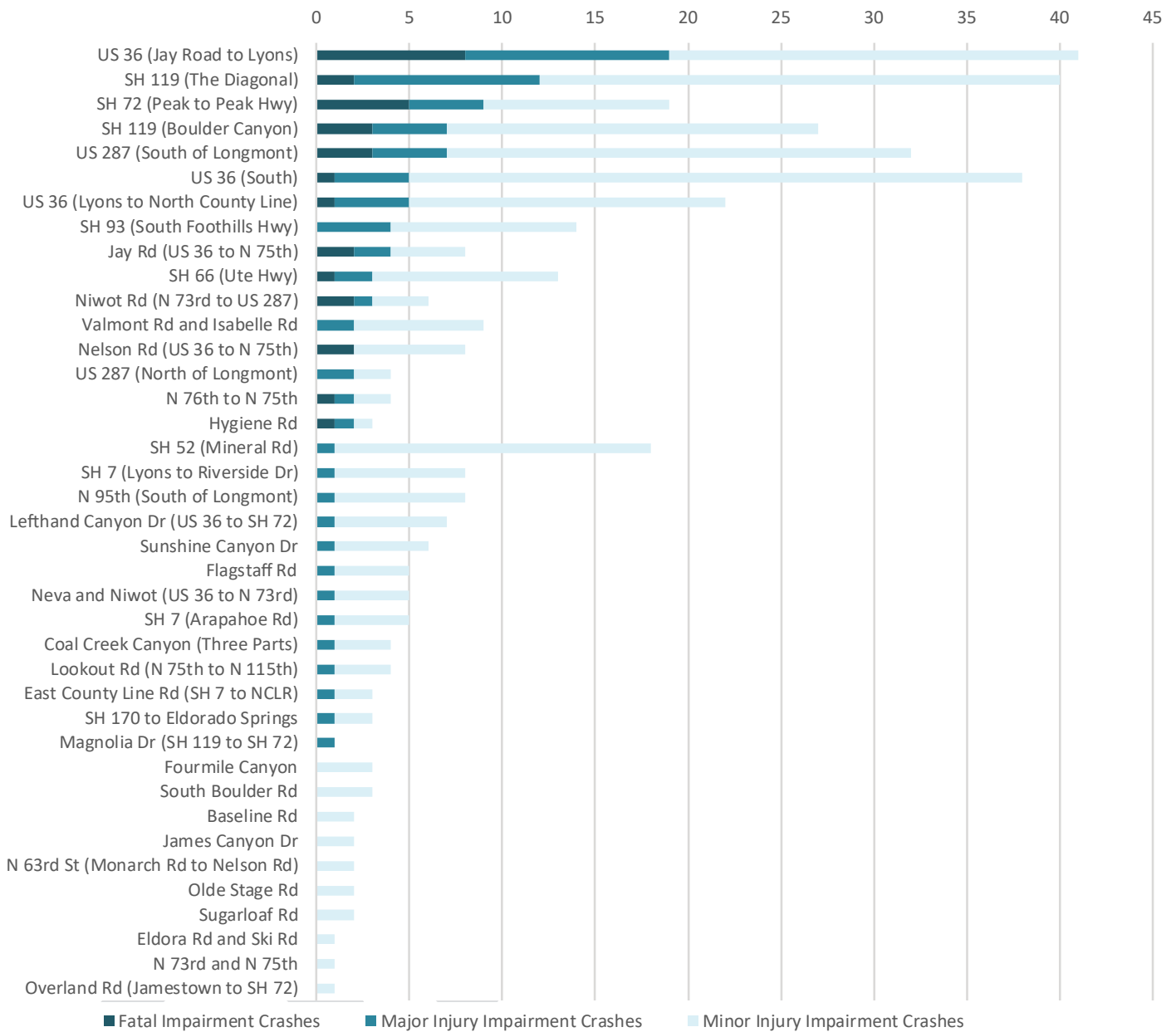


Figure 7.3

Figure 7.3 is showing impairment crashes by corridor, where the top 5 corridors account for 53% of all Severe Impairment Crashes (54 of 101) in Unincorporated Boulder County and the Mountain Towns from 2009-2018. As previously seen in the analysis, most of the corridors with high numbers of Severe Crashes typically also a high number of Minor Injury Crashes.

Crashes involving impaired persons are more likely to have serious consequences including severe injuries or death; Figure 7.4 shows that while impaired persons are involved in only 8% of crashes overall, they are involved in 21% of crashes resulting in major injuries and 32% of crashes resulting in a fatality.

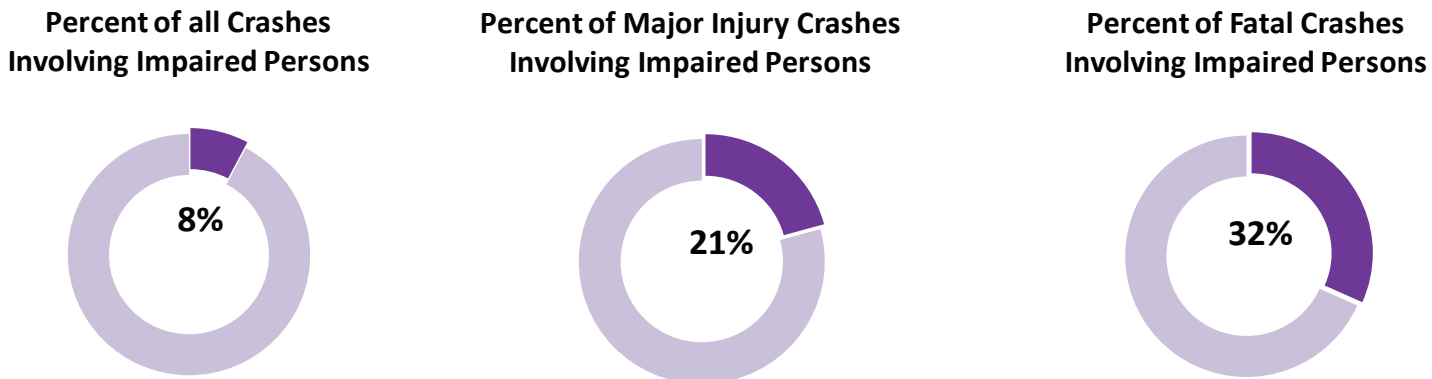


Figure 7.4

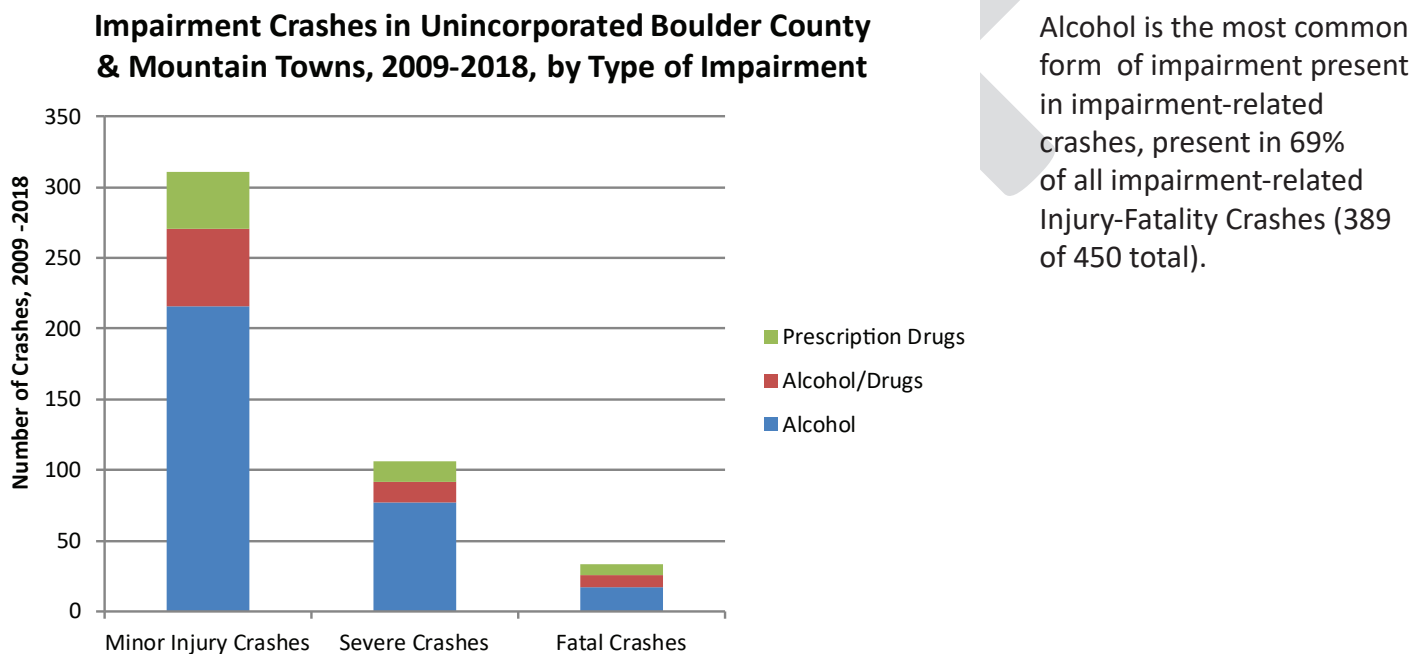


Figure 7.5

The current DR2447 traffic report form Colorado State Patrol and other law enforcement agencies use was created in 2006, when marijuana was illegal. So in the traffic crash data, marijuana is still compiled with “other drugs,” and there is no mention of marijuana as an impairment in any of the approximately 54,000 crashes from 2009-2018. In January 2014, recreational marijuana became legal in Colorado. The new DR3447 crash report form is coming out in 2021, after which marijuana will be able to be tracked separately from “other drugs.”

Severe Impairment-related Crashes & Impairment-related Violations by Time of Day

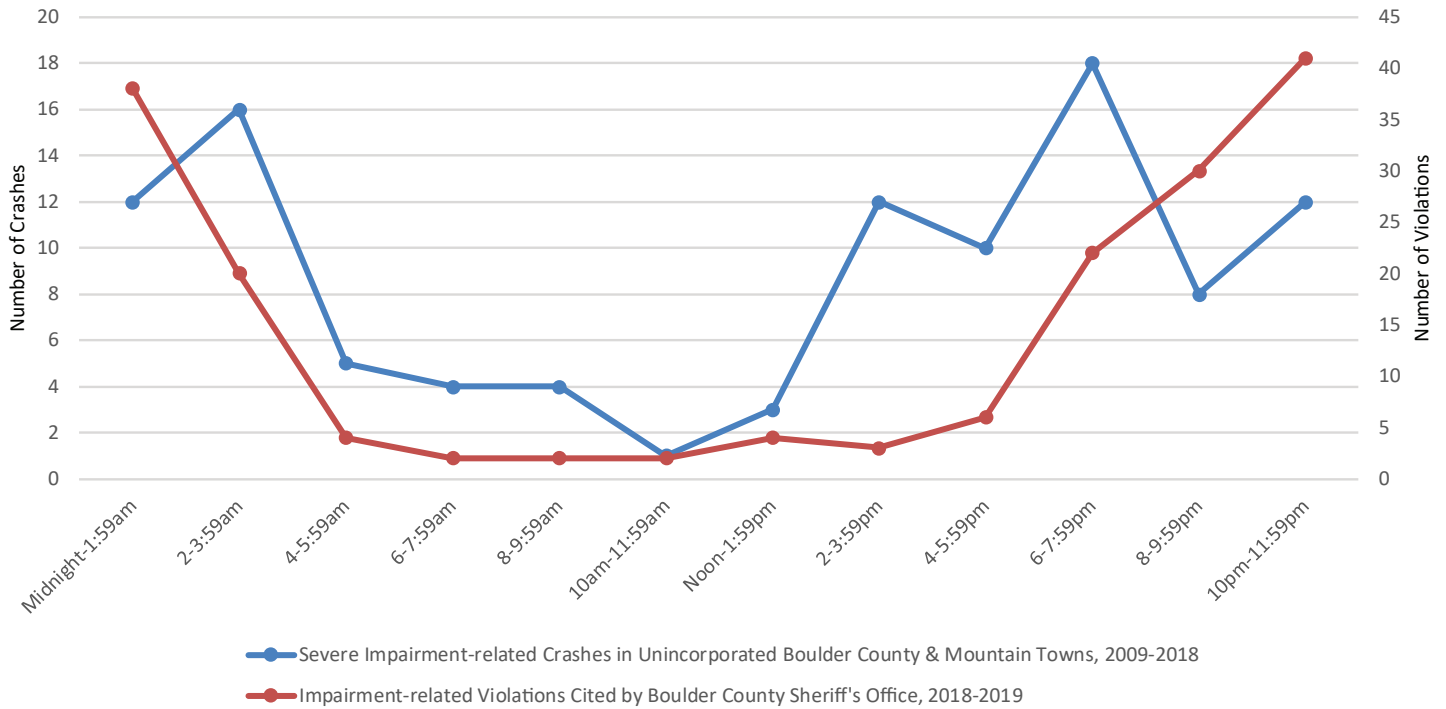
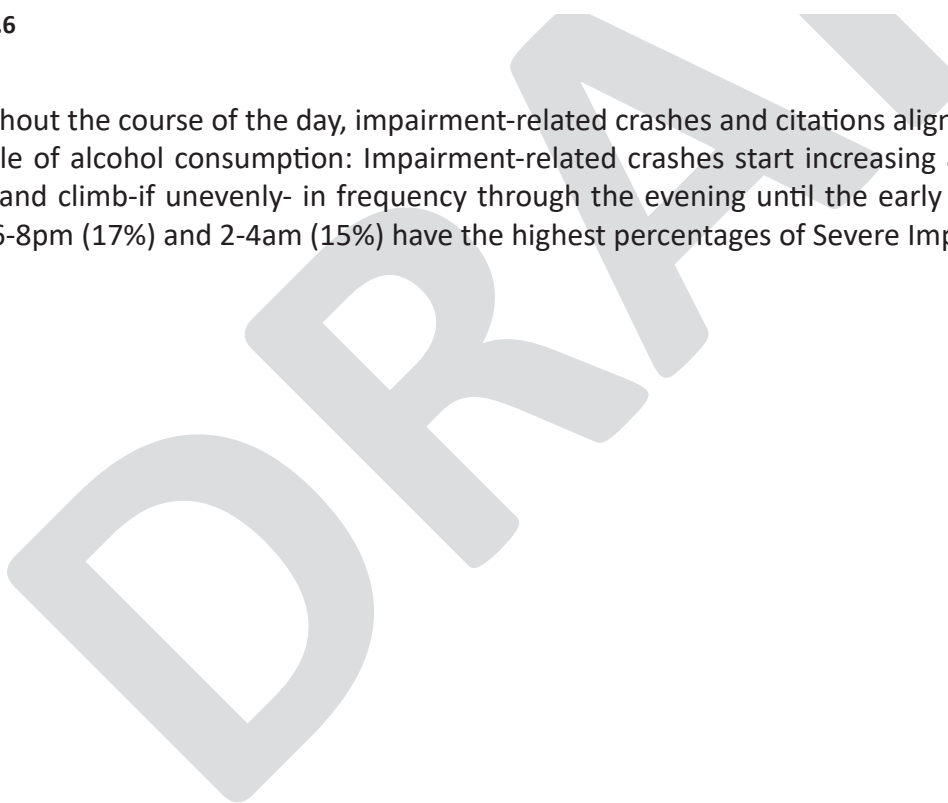


Figure 7.6

Throughout the course of the day, impairment-related crashes and citations align closely with society’s general schedule of alcohol consumption: Impairment-related crashes start increasing around the afternoon “happy hour”, and climb-if unevenly- in frequency through the evening until the early morning when bars close (by 2am). 6-8pm (17%) and 2-4am (15%) have the highest percentages of Severe Impairment-Related Crashes.



Severe Crashes Involving Impaired Persons in Unincorporated Boulder County & Mountain Towns, 2009-2018, by Crash Type

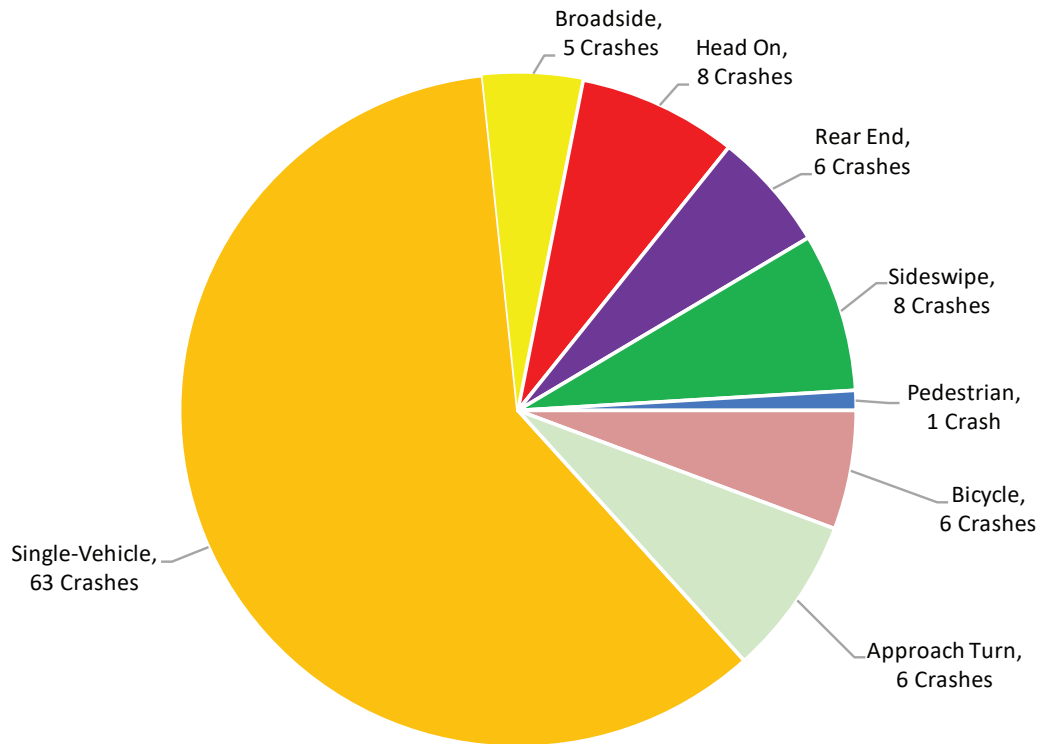


Figure 7.7

Overwhelmingly, impaired drivers in Unincorporated Boulder County who crash lose control of their vehicles and crash without striking another vehicle: 57% of all Severe Impairment-Related Crashes (60 of 105) were single-vehicle crashes. The remaining 43% of Severe Impairment-Related Crashes are roughly split between a handful of other crash types.

Chapter 8: Wildlife-related Crashes

Wildlife Crashes in Unincorporated Boulder County & Mountain Towns, 2009-2018, by Severity

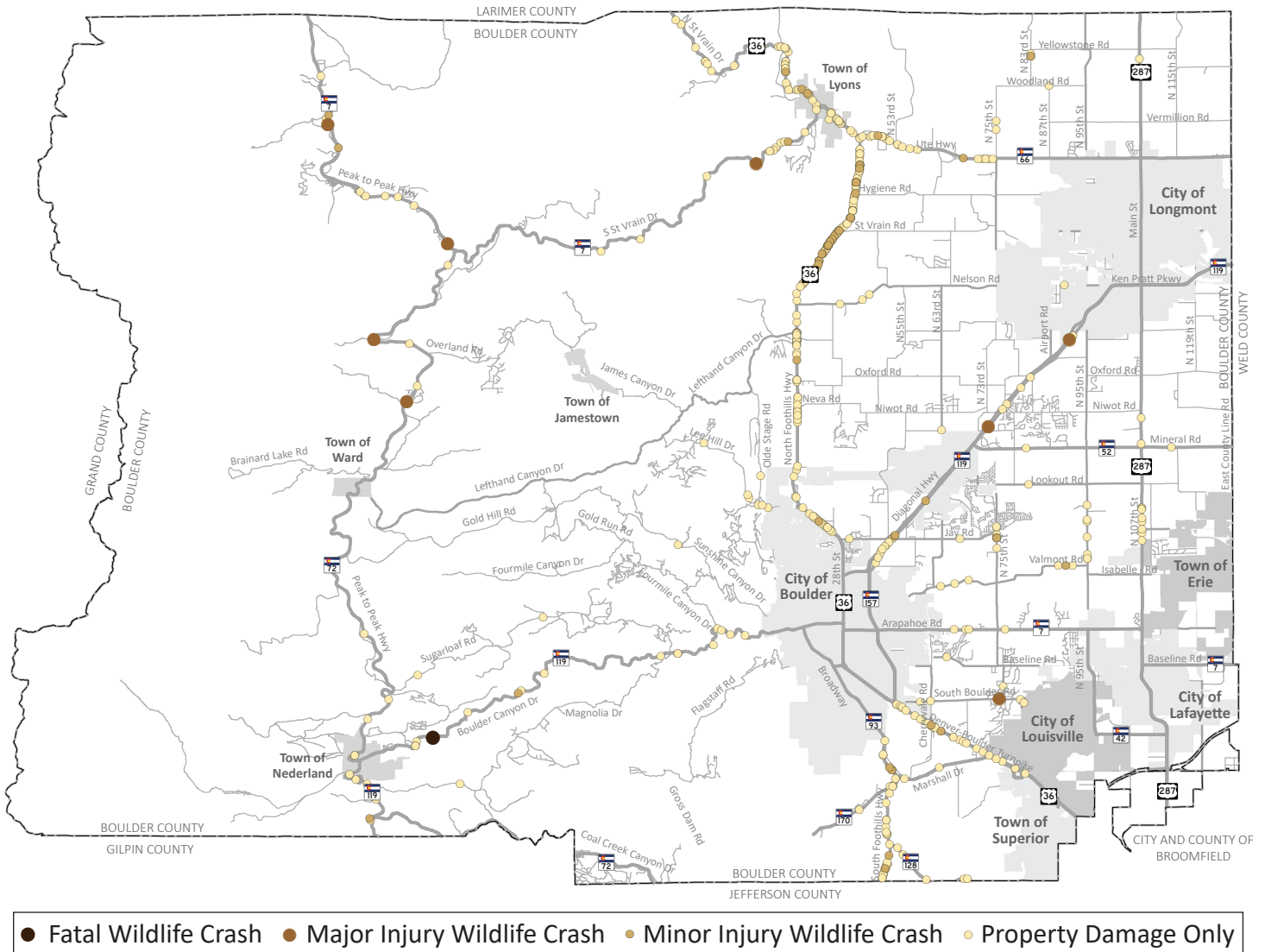


Figure 8.1

Figure 8.1 shows that wildlife-related crashes are primarily concentrated on US 36 in between Nelson Road and State Highway 66. Half of all the minor injury wildlife crashes from 2009 to 2018 in Unincorporated Boulder County are located on US 36 from Jay Road to Lyons. 70% (16 out of the 23) of the wildlife-related crashes on US 36 occurred at nighttime with no street lighting. Though all these crashes are Minor Injury Crashes, this was the only significant trend that emerged from the data when looking at Injury crashes. Half of all the Property Damage Only Crashes (217 of 436) occurred on US 36 from Jay Road to North County Line. A number of the Property Damage Only Crashes are scattered throughout a few other corridors, including State Highway 93, US 36 (South), Peak to Peak Highway, and State Highway 66.

Wildlife Crashes by Corridor in Unincorporated Boulder County and Mountain Towns, 2009-2018

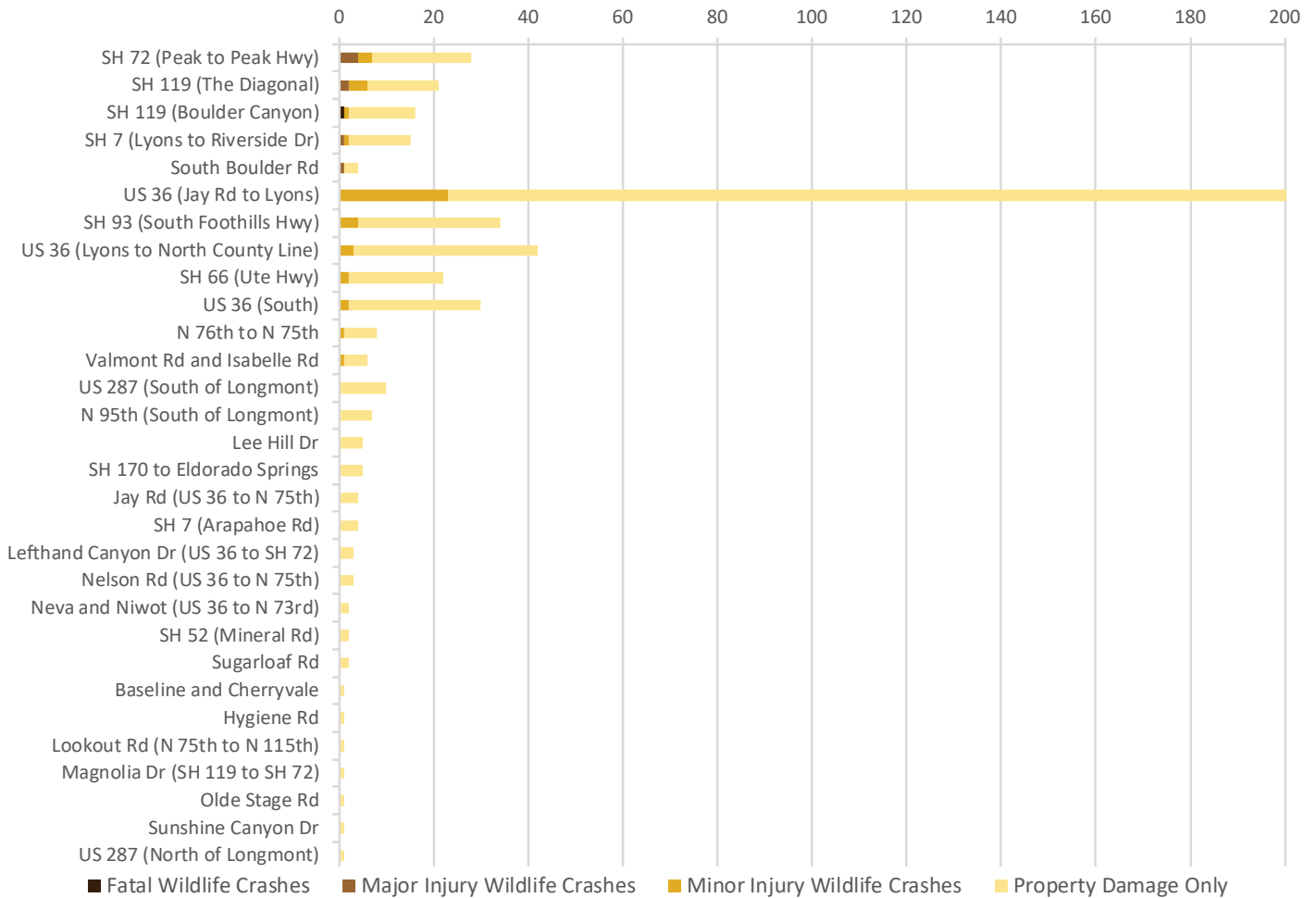


Figure 8.2

No significant trends appeared when looking at Fatal and Major Injury Wildlife Crashes from 2009 to 2018. A small number of these Severe Crashes are dispersed throughout Unincorporated Boulder County. Figure 8.2 shows that half of Major Injury Wildlife Crashes occurred on the Peak to Peak Highway, but these are fairly dispersed between Ward and the Larimer County line. US 36 (Jay Road to Lyons) stands out on Figure 8.2 as having the greatest number of Property Damage Only (PDO) Crashes. When combining the absolute number of PDOs that occurred on US (Jay Road to Lyons) and US 36 (Lyons to North County Line), the crashes account for 50% of all the PDOs.

All Wildlife Crashes in Unincorporated Boulder County & Mountain Towns, 2009-2018, by Animal Hit

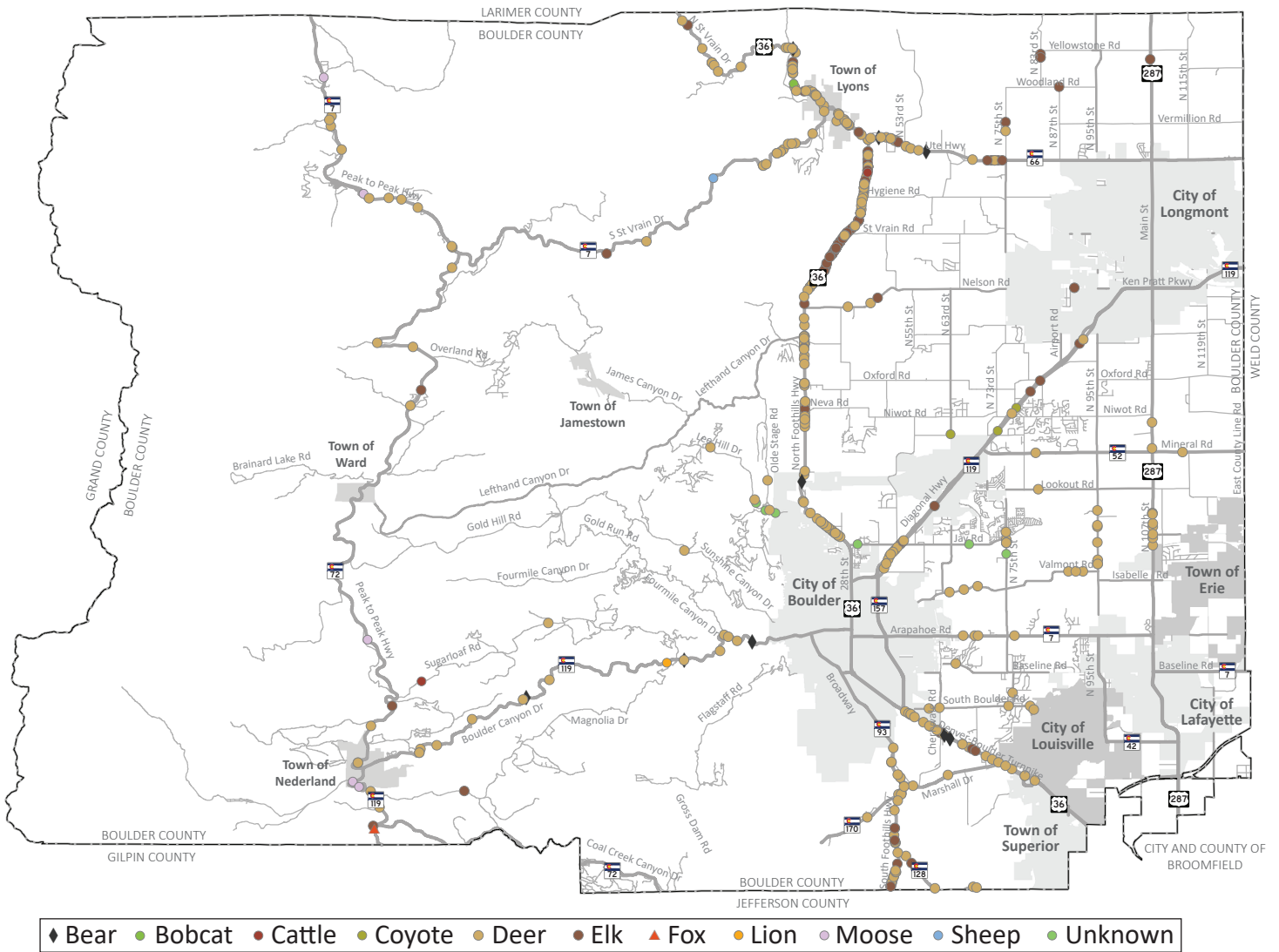


Figure 8.3

Wildlife-related Crashes in Unincorporated Boulder County & Mountain Towns, 2009-2018, by Animal Hit

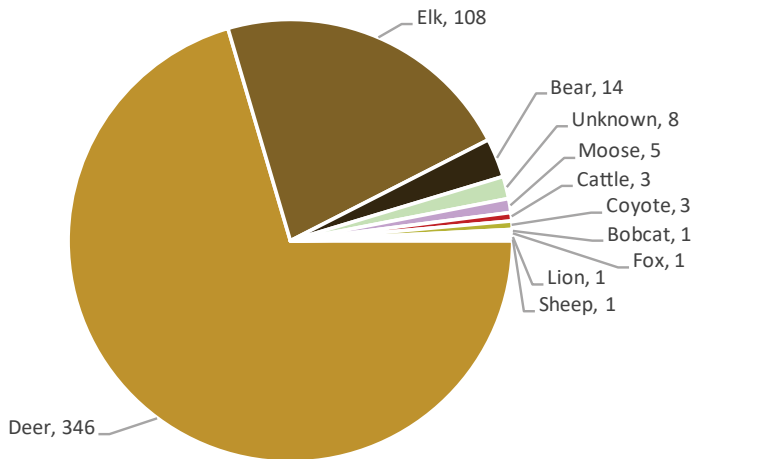


Figure 8.4

Figure 8.3 shows that deer and elk were hit the most in the wildlife-related crashes from 2009 to 2018. A band of brown is apparent on US 36 (Jay Road to Lyons), where 41% of all wildlife-related crashes (201 of 491 total) are located. Figure 8.4 is displaying all wildlife-related crashes in unincorporated Boulder County and the mountain towns, by the wild animal hit in the crash. The figure confirms that deer were hit the most in these crashes, representing 70% of all wildlife-related crashes (346 of 491) from 2009 to 2018. Elk were also commonly hit in wildlife-related crashes, accounting for 22% of all the crashes (108 of 491).

Chapter 9: High Injury Network

High Injury Network in Unincorporated Boulder County & Mountain Towns, 2009-2018

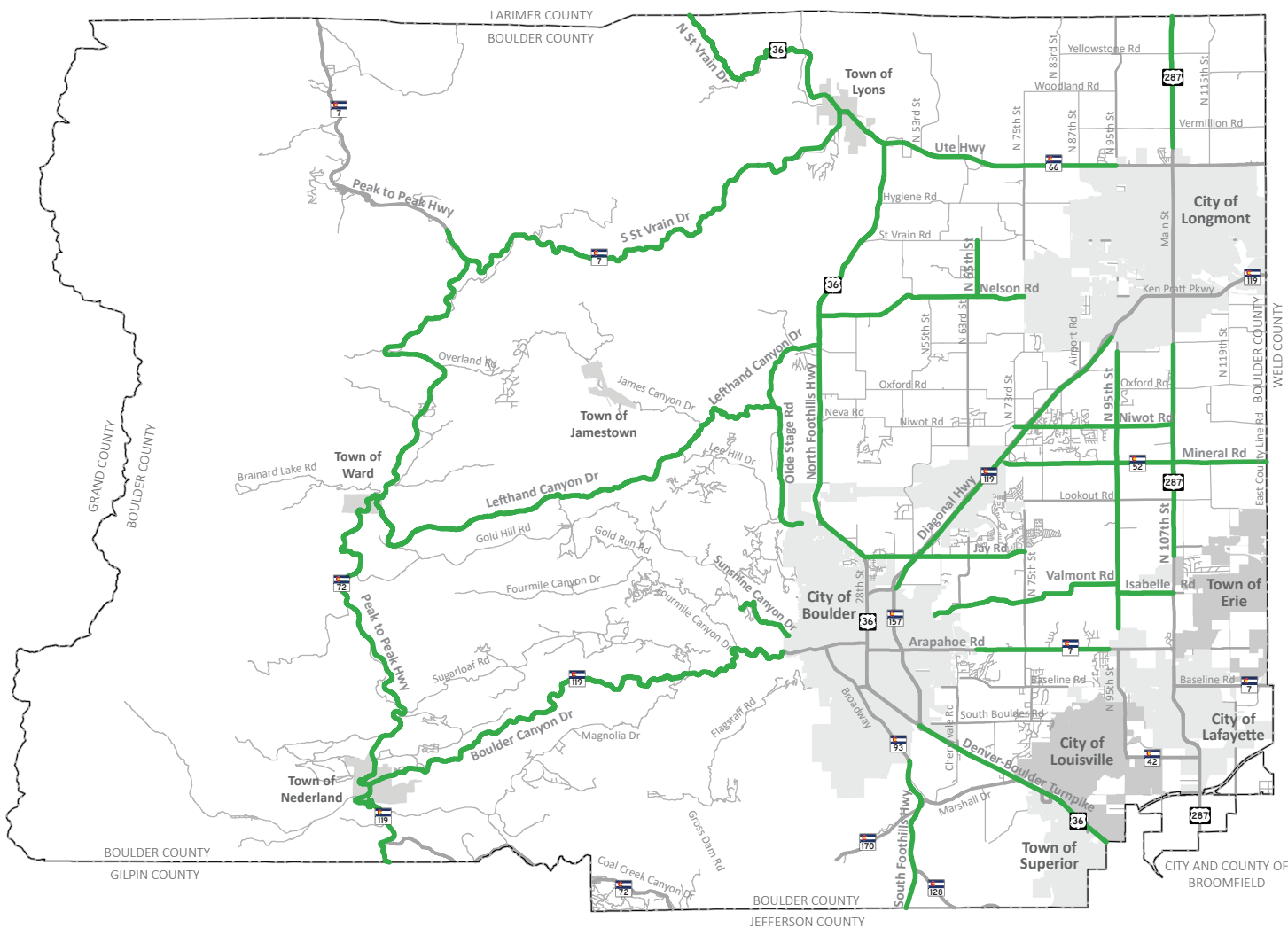


Figure 9.1

Crashes on the High Injury Network in Unincorporated Boulder County and Mountain Towns



Figure 9.2

Boulder County has identified a small subset of roads in unincorporated Boulder County that are responsible for over two-thirds of the Injury-Fatality Crashes and over three-fourths of the Severe Crashes. The identified High Injury Network represents only 18% of the road centerline-miles in unincorporated Boulder County, but 69% of Injury-Fatality Crashes in our road network from 2009-2018, and 77% of Severe Crashes from 2009-2018. Concretating Boulder County’s resources on the High Injury Network will allow the County to focus its resources on locations where the biggest reduction in Severe Crashes can be achieved.

Chapter 10: Other Trends

Crashes in Unincorporated Boulder County and Mountain Towns, 2009-2018,
by Day of the Year

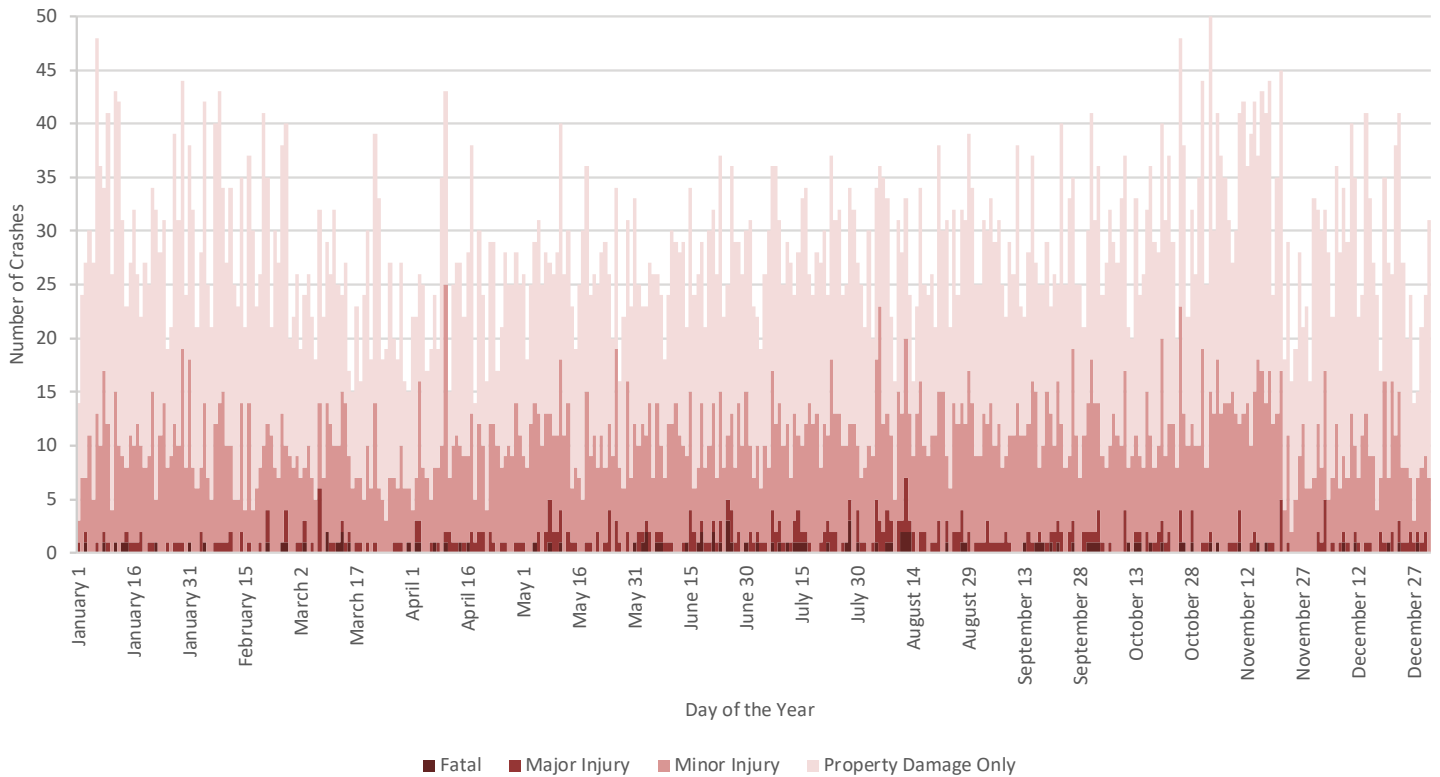


Figure 10.1

Figure 10.1 is displaying all crashes in unincorporated Boulder County and the four Mountain Towns from 2009-2018 by day of the year. While Major Injury and Fatal Crashes (Severe Crashes) appear to spike during the summer months, there is a lower amount of Severe Crashes that occur during the winter months. Property Damage Only Crashes are fairly consistent with upwards and downward spikes, though these crashes are more likely to occur in the winter months. Injury-Fatality Crashes have the most significant spikes from late March to early April, from late July to mid-August, and from late November to early December. With a much smaller sample size, the most noticeable spikes in Severe Crashes took place in early to mid-March, early May, late June, mid-August, and early December, not aligning with any national holidays.

Severe Crashes Involving a 15-18 Year Old Motorist in Unincorporated Boulder County & Mountain Towns, 2009-2018

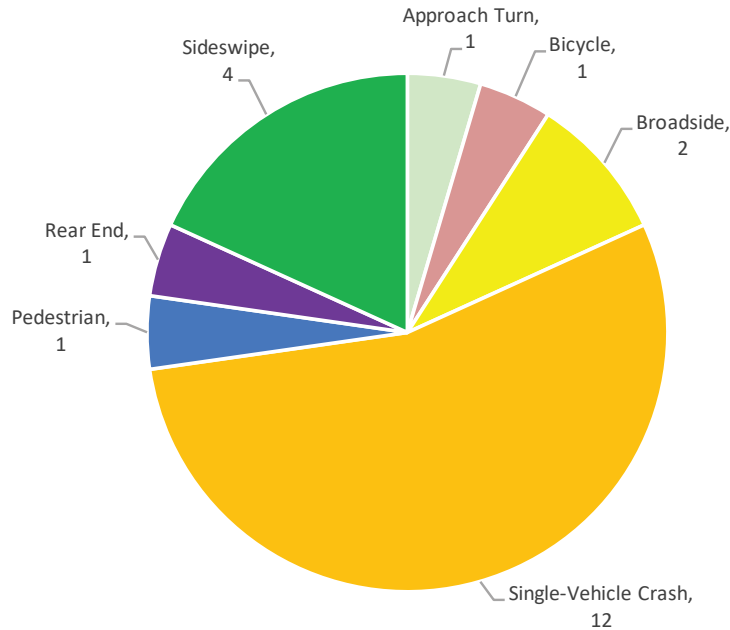


Figure 10.2

Injury-Fatality Crashes Involving a 15-18 Year Old Motorist in Unincorporated Boulder County & Mountain Towns, 2009-2018

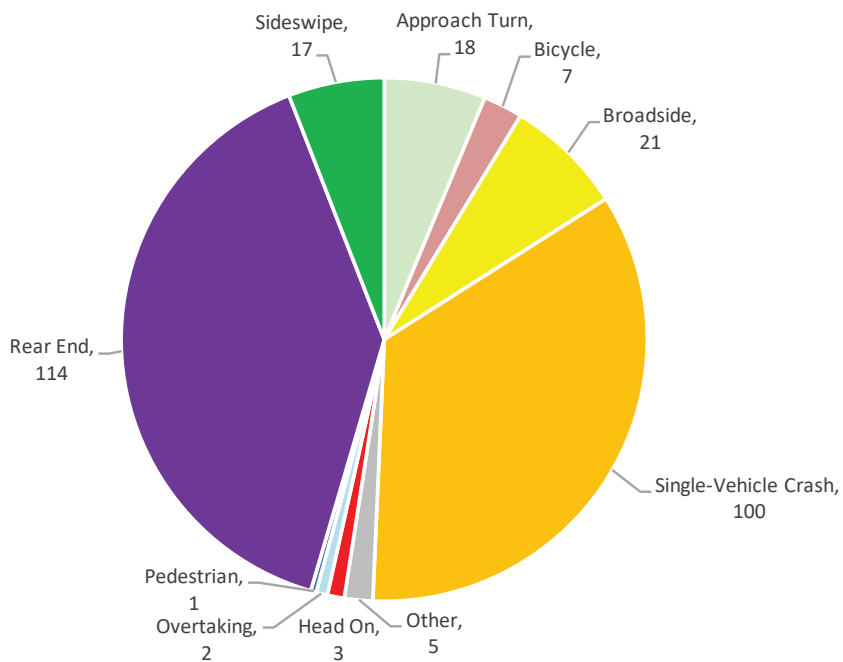


Figure 10.3

The pie charts above break down both Severe and Injury-Fatality Crashes involving a motorist that is 15 to 18 years old. Single-Vehicle crashes occur for 55% of all these crashes (12 of 22). Sideswipe crashes are the next highest Severe Crash type. Similar to all Injury-Fatality Crashes in Unincorporated Boulder County and the Mountain Towns, rear end and single-vehicle crashes together account for three fourths of all the Injury-Fatality Crashes involving a teen driver.

Severe Crashes Involving a 15-18 Year Old Driver in Unincorporated Boulder County & Mountain Towns, 2009-2018, by Time of Day

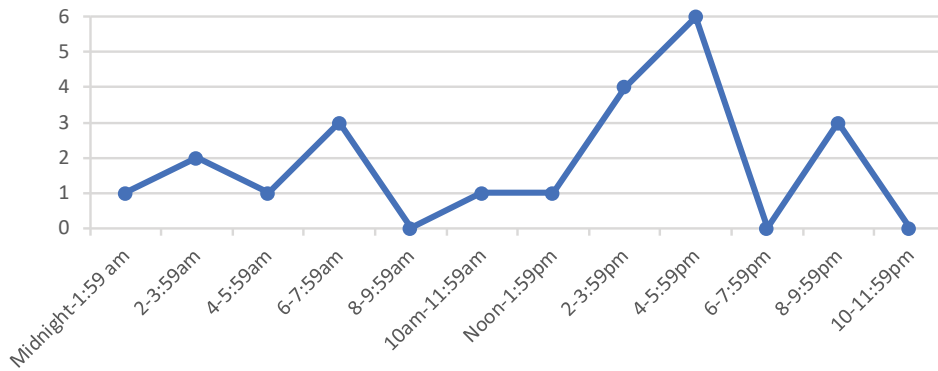


Figure 10.4

Injury-Fatality Crashes Involving a 15-18 Year Old Driver in Unincorporated Boulder County & Mountain Towns, 2009-2018, by Time of Day

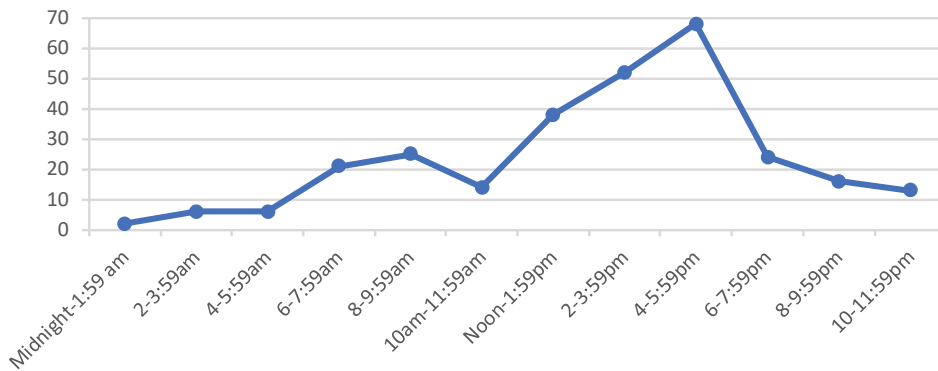


Figure 10.5

Figure 10.4 displays all Severe Crashes involving a 15-18 year old motorist in the unincorporated Boulder County area from 2009 to 2018, by time of day. Throughout the course of the day, the general time Severe crashes occurred align with morning commute times to school and afternoon commute times from after-school activities and extracurriculars. Figure 10.5 displays all Injury-Fatality Crashes involving a 15-18 year old motorist in the unincorporated Boulder County area from 2009 to 2018, by time of day. The time the Injury-Fatality crashes occurred align closely with the Severe crash data shown above. The greatest spike in the crashes took place during afternoon commute times from after-school activities and extracurriculars.

All Injury-Fatality Truck Crashes in Unincorporated Boulder County & Mountain Towns, 2009-2018, by Severity

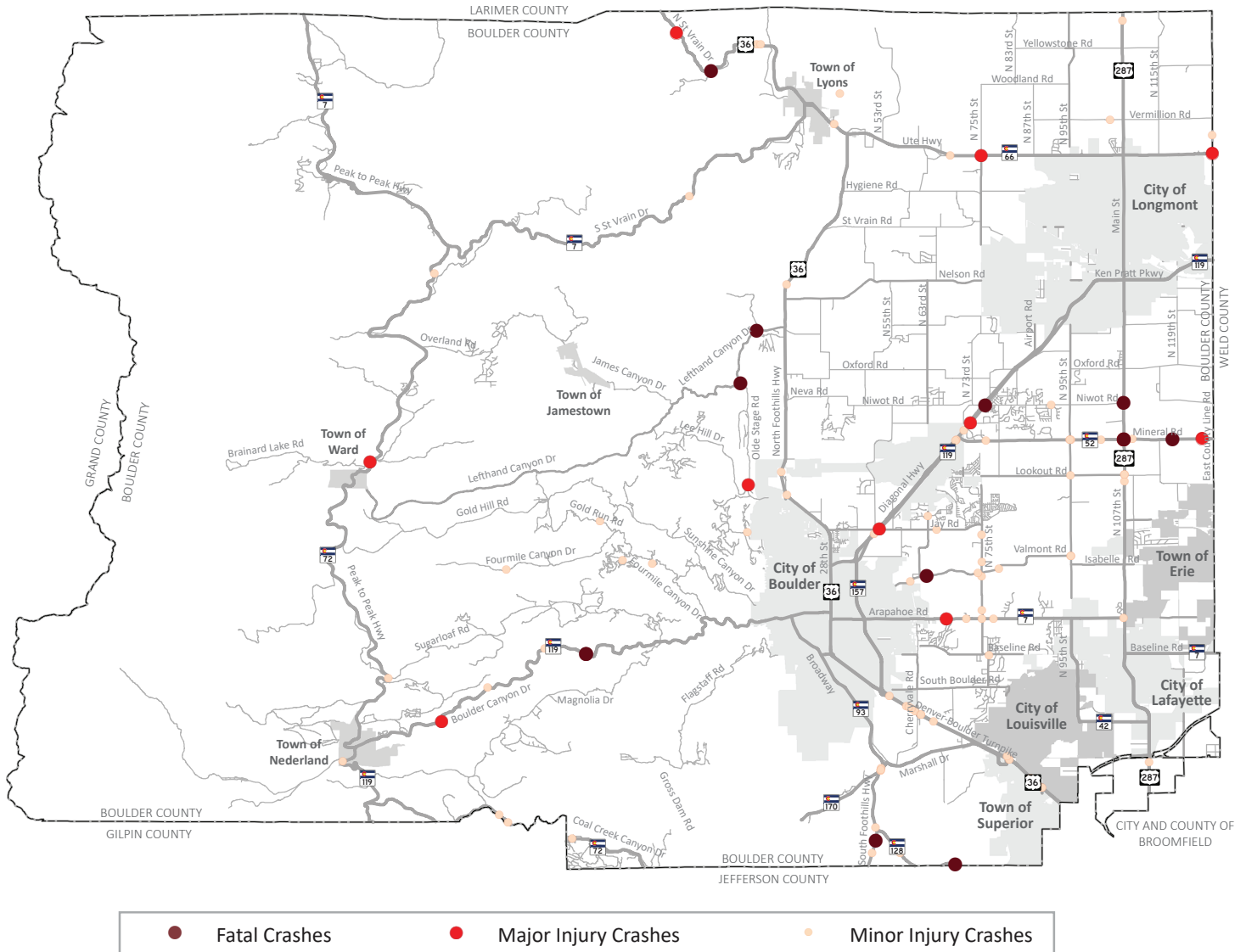


Figure 10.6

Figure 10.6 maps all Injury-Fatality Truck Crashes in Unincorporated Boulder County and the Mountain Towns by crash severity. For these crashes, the truck size is either a vehicle with a gross vehicle weight greater than 10,000 lbs or a bus that can hold greater than 15 people. State Highway 52, State Highway 119 (the Diagonal), US 36 (South), and US 287 all stand out as having the greatest number of truck-involved crashes from 2009-2018. While two fatal truck crashes occurred on Lefthand Canyon, the corridor has no noticeable trend in the crash types. The two fatal truck crashes involved either a pedestrian or a cyclist.

All Injury-Fatality Crashes in Unincorporated Boulder County & Mountain Towns, 2009-2018, by Speed of the At-fault Motorist

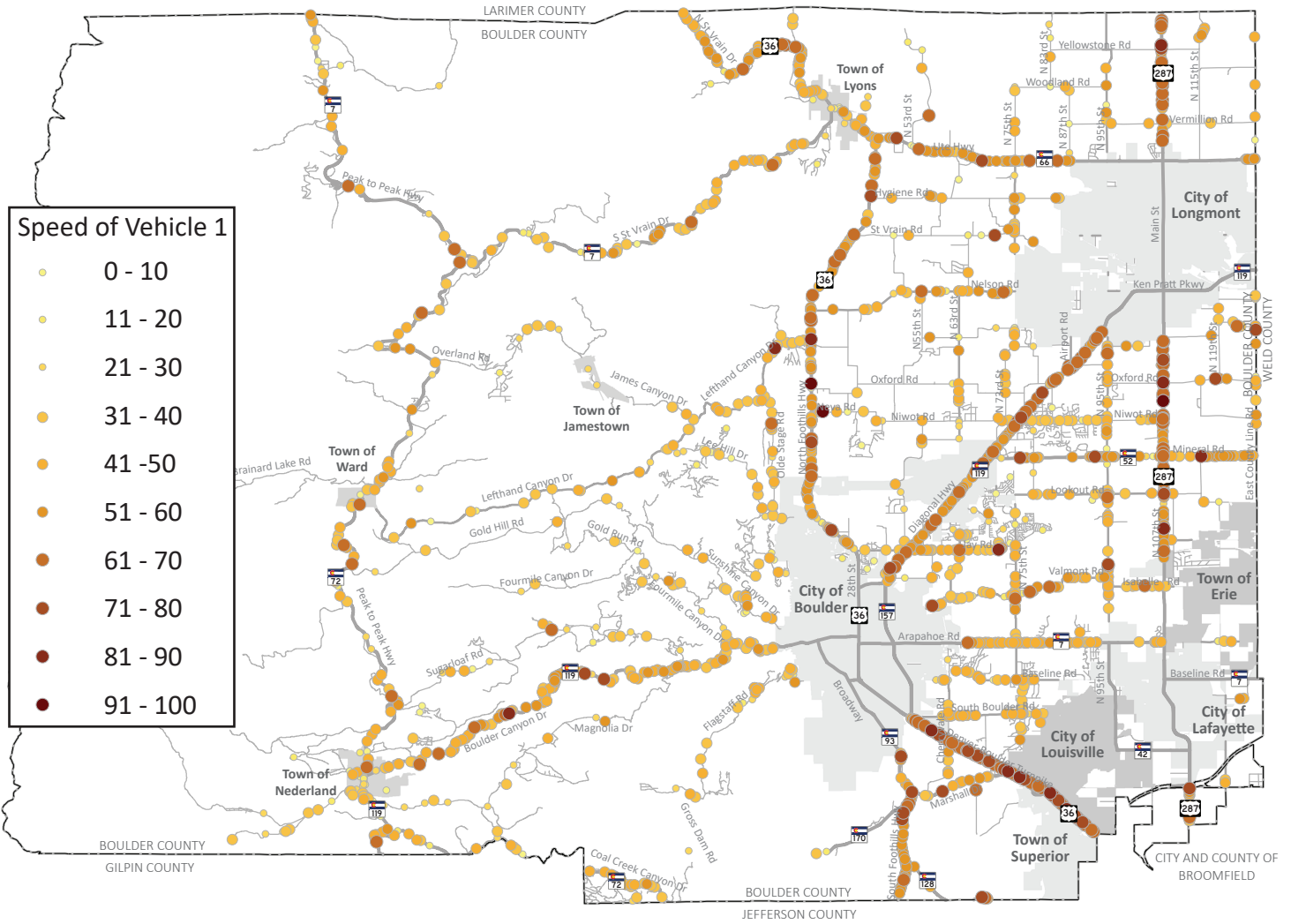


Figure 10.7

Figure 10.7 maps all Injury-Fatality Crashes in Unincorporated Boulder County and Mountain Towns, from 2009-2018, by the speed of the at-fault motorist. A clear trend appears when looking at the State Highways, where speed limits are highest. Motorists' speeds are 85 mph or greater primarily on State Highways (US 36 from Jay Road to Lyons, US 287, SH 52, SH 119, or Boulder Canyon Dr, and US 36 South), though there are a few exceptions to this. In 2011, a Fatal Single-Vehicle Crash occurred on Jay Road where an impaired motorist was driving 90 mph. In 2011, a Minor Injury Single-Vehicle Crash occurred on Lefthand Canyon Drive where the motorist was driving 85 mph and was cited for reckless driving. In 2013, a Minor Injury Single-Vehicle Crash occurred on Neva Road where the motorist exceeded 90 mph and was cited for reckless driving. Almost 30% (27 of 92) of all vehicle 1 at-fault motorists going 70 mph or higher were impairment-related and 2 of the 27 crashes were both impairment and weather-related.

Top 20 Violations Cited by Boulder County Sheriff's Office, 2018-2019

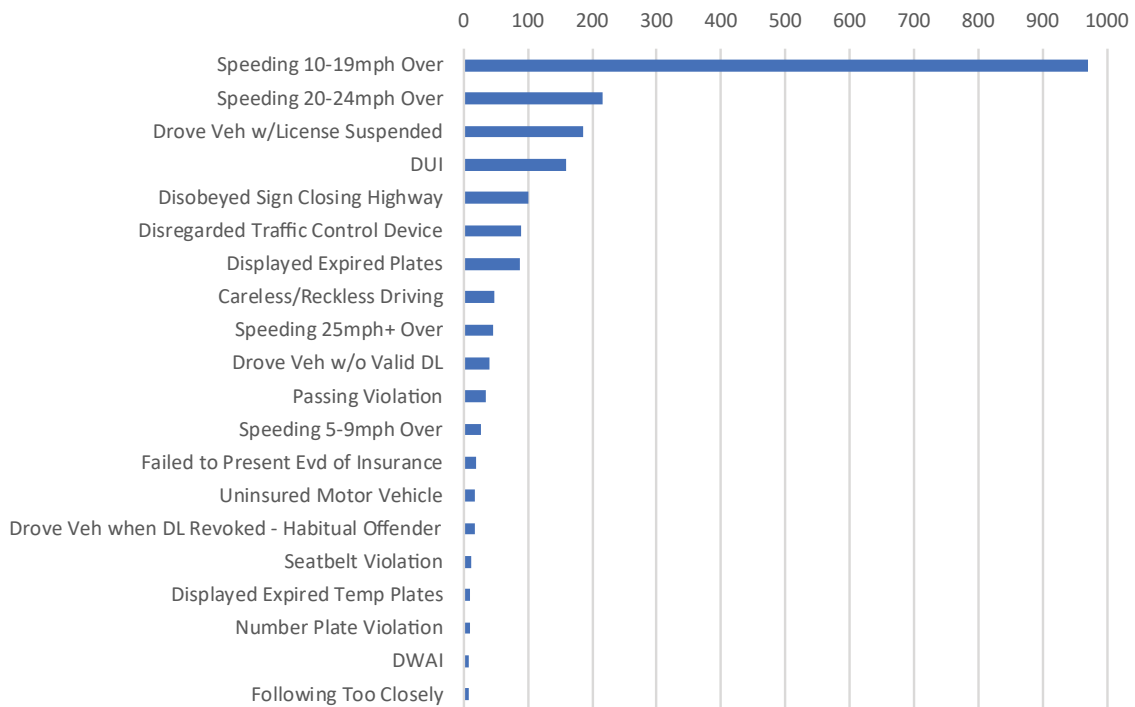


Figure 10.8

Speeding Violations Cited by Boulder County Sheriff's Office, by Time of Day, 2018-2019

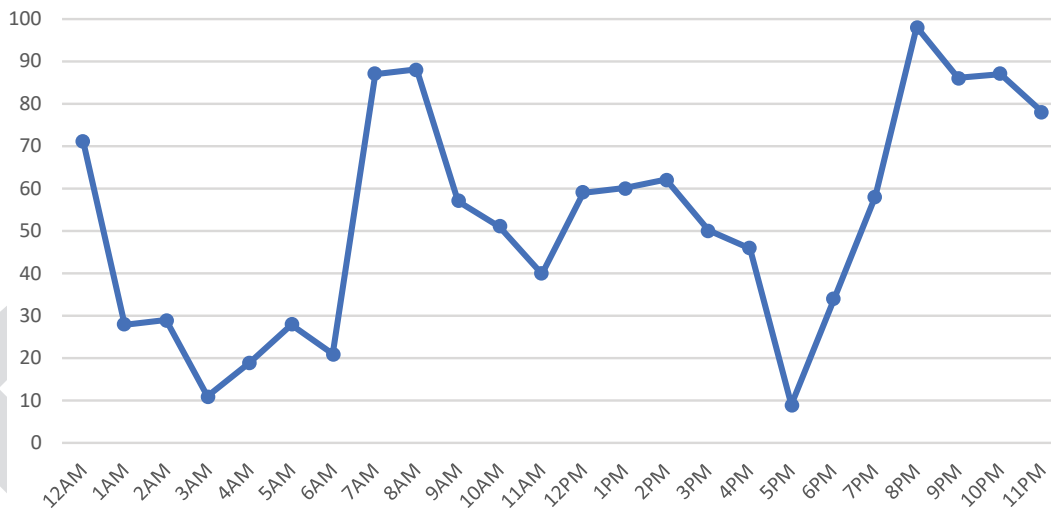


Figure 10.9

Figure 10.8 is displaying the most common violations cited by Boulder County Sheriff's Office (BCSO) from 2018-2019. Speeding 10-19mph and 20-24mph over the posted speed limit are the top 2 violations, accounting for 54% of all the violations cited during this time frame. Driving a vehicle with a license suspension and DUIs also ranked high up on the list of violations. Figure 10.9 breaks down speeding violations cited by BCSO by time of day. The peak times of day when most speeding violations are cited include from 7-8am and from 5pm-10pm. A significant spike in the data occurs from 5pm to 8pm, which could partially align with 'rush hour' traffic.

Chapter 11: 2020 Transportation Master Plan Public Comments

Transportation Master Plan Public Comments Submitted from Online Survey in 2019

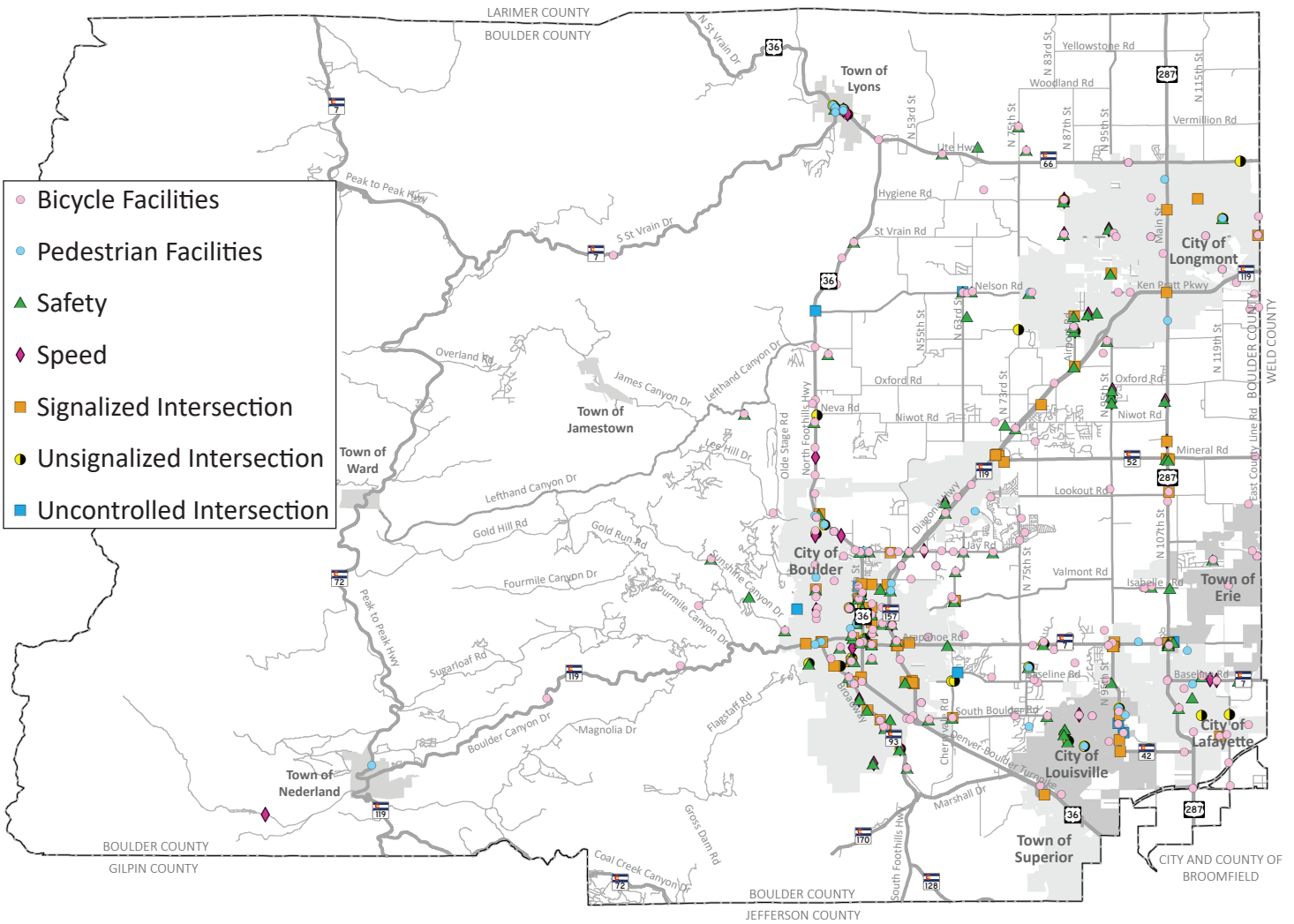


Figure 11.1

Boulder County's Transportation Master Plan Update was heavily informed by the public input gathered through events, open houses, discussions, and online surveys. The primary themes that emerged from the public input included the importance of travel safety and comfort, greenhouse gas emissions reductions, making transit a more convenient and equitable option, and identifying the need for new funding sources.

Figure 11.1 maps the comments submitted by the general public of Boulder County from an online survey. The survey contained an interactive map commenting tool and was made public prior to the development of the most recent Transportation Master Plan (TMP). The survey was distributed in both English and Spanish and included input and feedback from older adults, people with disabilities, and Hispanic or Latinos. The community's submitted comments are helpful in getting a better understanding of how the public interacts with and observes existing transportation infrastructure, traffic calming devices, signage, and pavement markings.

Boulder County 2020 Transportation Master Plan (TMP) Public Comments, by Category

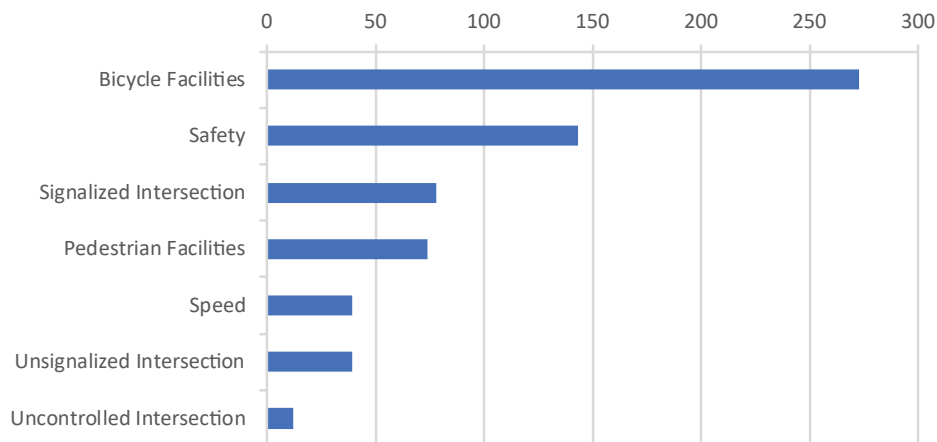


Figure 11.2

The comments that correspond best to our Traffic Crash Analysis include safety related concerns to bicycle and shoulder facilities, intersections, and sidewalk conditions. Many comments reflect the public's safety concerns and observations of conflict between transportation modes and existing infrastructure. Comments are concentrated in the city centers, as well as on US 36 from Jay Road to Lyons, SH 119 (The Diagonal), Jay Road, and Arapahoe Road. These four corridors were all identified by the public as feeling unsafe, in need of changes, or having the potential for safety and infrastructure improvements.

Several comments highlight the need for more separated bicycle facilities, specifically on Jay Road and SH 119 (The Diagonal). State highways and County Roads present numerous challenges related to safety, equity, and accessibility for active transportation users because of high vehicular traffic volume and lack of infrastructure centered around bicyclists, pedestrians, and transit users. Some of the intersections that stand out from the map include US 287 & SH 52 (Mineral Road), SH 52 & SH 119 (The Diagonal), Jay Road & SH 119, and North 61st Street & Valmont Road.

Chapter 12: Public Comments on Part One-Traffic Crash Analysis

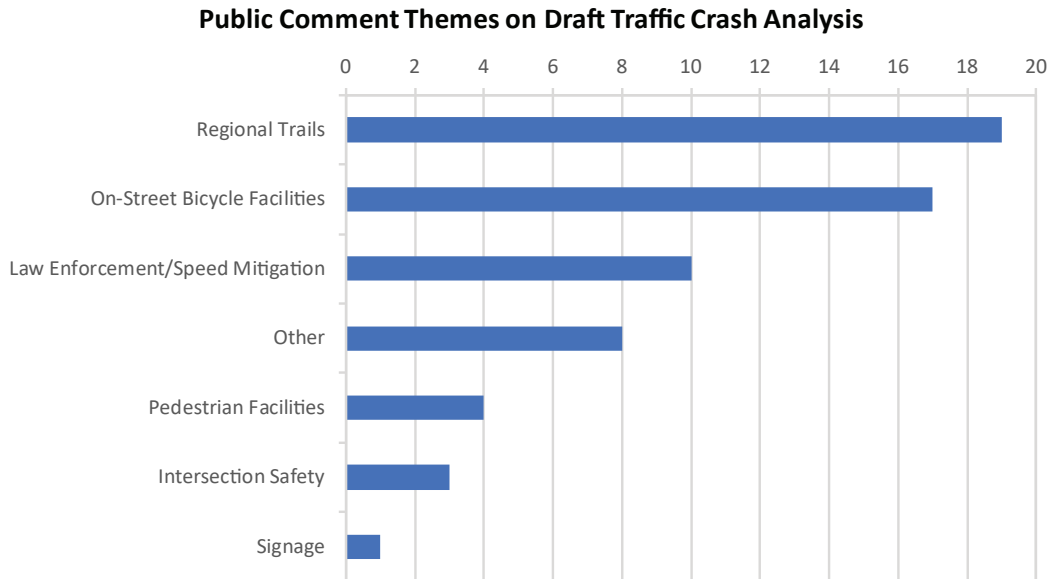


Figure 12.1

Public comments accompanied the development of Boulder County’s Vision Zero Plan. A feedback form was available to the public for two weeks in May 2021 on the Vision Zero website to gather feedback on the draft Traffic Crash Analysis. The most common themes that emerged include regional trails connectivity for cyclists, cyclist and pedestrian safety, speed mitigation strategies, and intersection safety and concerns. Many of the comments included suggested improvements to transportation facilities for cyclists and pedestrians, including identified missing links to trailheads, unsafe conditions on climbing hills on canyon roads, and safety concerns for pedestrians at specific locations. Many comments reflected the need for increased enforcement at traffic signals to improve safety at these major conflict points for all roadway users. The suggested improvements will influence action items in Part Two of the Vision Zero Plan. A total of 62 comments were received on Part One of the Vision Zero Plan.

Below, are some highlights and most frequently spoken comments that were submitted online.

“...It is of concern that the Diagonal Highway shows as a high crash network for cyclists. This should be used to move towards the creation of a separated bikeway...”

“My suggestion for using trails to prevent traffic injuries is to build a connector from...in Lyons to the Hall Ranch Trail system. This would keep bikers off of Highway 7.”

“Getting people out of cars is one of the best ways to promote Vision Zero...”

“Vision Zero needs to include education and support for the justice system on laws...”

“We all greatly appreciate how Lefthand Canyon to Jamestown was improved from the flood, and this is a good model for improving the other canyon roads.”

“Incorporating pedestrian and cycling users in all designs and expanding regional connectivity by bike are important goals.”

Part Two- Action Plan

Work in Progress- Draft to be released Summer 2021

DRAFT

Works Cited

<https://www.codot.gov/safety/traffic-safety/crash-data-management/fatal-crash-data>

<https://www.iihs.org/topics/fatality-statistics/detail/yearly-snapshot>

<https://visionzeronetWORK.org/about/what-is-vision-zero/>

<https://www.codot.gov/safety/traffic-safety/crash-data-management/fatal-crash-data>

<https://www.codot.gov/safety/motorcycle>

<https://www.ite.org/technical-resources/topics/speed-management-for-safety/speed-as-a-safety-problem/>

<https://drcog.org/planning-great-region/transportation-planning/freight-and-goods-movement/multimodal-freight-plan>

<https://www.bouldercounty.org/transportation/plans-and-projects/transportation-master-plan/>

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Appendix

Methodology/ On the Origin of the Data

The crash data used in this analysis was provided by CDOT, in the form of a spreadsheet which includes a record for each traffic crash that occurred within the geographic limits of Boulder County from 2009-2018 (about 54,000 crashes total). In Unincorporated Boulder County, Colorado State Patrol (CSP), not the Boulder County Sheriff's Office, investigates traffic crashes. Since the Boulder County Sheriff's Office provides law enforcement services within the Town of Lyons and the Town of Superior, CSP investigates traffic crashes within these towns as well. CSP compiles traffic crash data from every law enforcement agency in Colorado, and then this data is relayed to the Colorado Department of Revenue (DOR) and stripped of personally identifying information and then passed to CDOT, who cleans it and then makes it available to local agencies on a county by county basis. This process can introduce potential for transposing errors in the data.

Originally, an Accident Report Form contains three different elements: the tabular data (number of vehicles involved, location, crash type, etc.), the narrative (the responding officer's story of how the crash unfolded) and the diagram (an illustrated and labeled diagram of how the crash unfolded). When CDOT provides the data to local agencies as an excel spreadsheet, only the tabular data is provided. When inconsistencies are discovered- for example, the data say a particular crash only involved one vehicle but information about multiple vehicles is provided - it is sometimes difficult to discern which data is correct without the corroborating narrative or diagram. In instances such as this, Boulder County has largely accepted the data as-is for the following reasons: retrieving the narrative and diagram for a crash report is a time-consuming process, and for crashes older than a few years CSP often no longer has the original crash form.

For crashes on state highways, CDOT provides GPS coordinates. Crashes on local streets and roads were geolocated by Boulder County staff. Corrections to location data were made where feasible (for example, the crash was listed as being in Lafayette, but the cross streets of the crash were in Louisville). One challenge that became evident was that municipal boundaries have changed over time, usually as a result of annexations. A common occurrence was that an intersection or a location that was formerly in Unincorporated Boulder County has been annexed into a municipality, and crashes occurred at these locations both before and after the annexation. Since the responsible entity for the such a road or intersection is the municipality where it is currently located, crashes listed in Unincorporated Boulder County that fit this criteria were updated to reflect their current jurisdiction.

In instances where a municipal border runs down the middle of the road, or where a municipal road briefly interrupts an otherwise continuous corridor in Unincorporated Boulder County, Boulder County staff prioritized continuity of corridors over strictly jurisdictional accuracy:

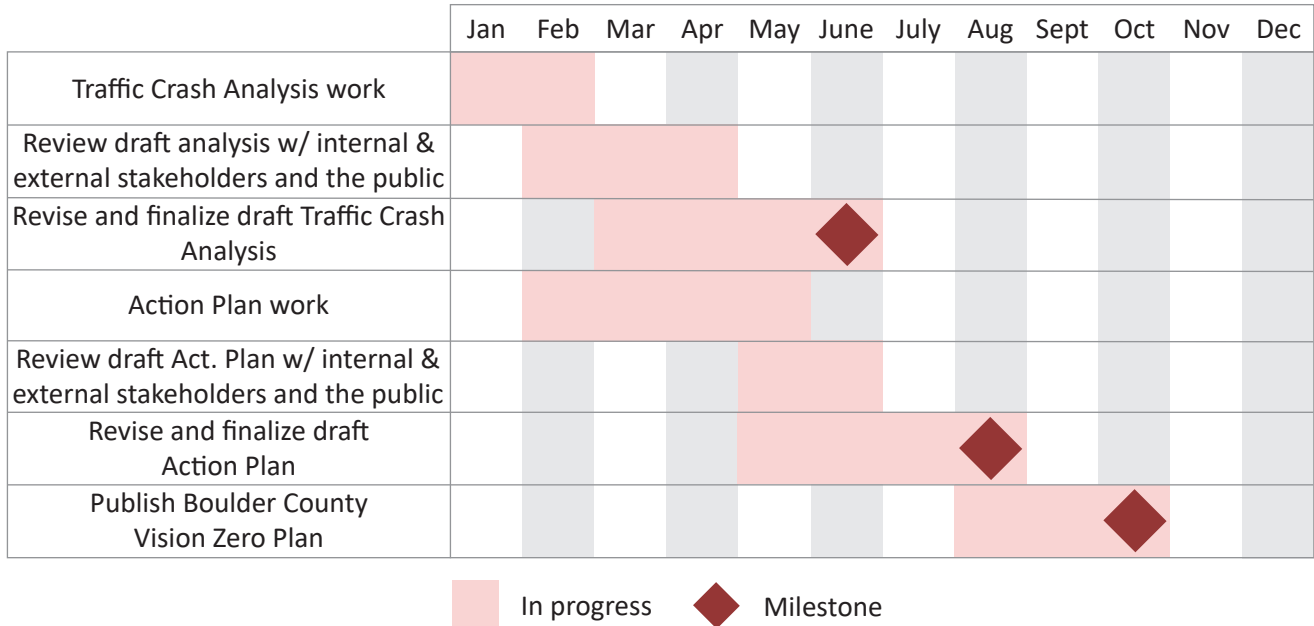
US 36 (North Foothills Hwy): all crashes from just north of Jay Rd & 28th St in Boulder to Lyons were kept as unincorporated, even though 28th St, Violet, Yarmouth, Lee Hill and Broadway are City of Boulder streets.

SH 119 (The Diagonal Hwy): North 63rd Street is included in the crash analysis; even though it is a City of Boulder Street.

SH 66: All crashes west of North 87th Street were included in the crash analysis and all crashes between North 87th Street and Linda Vista Drive were listed as Longmont crashes.

For a complete overview of the corridors analyzed, please refer to the Corridors map in Chapter 3.

Boulder County Vision Zero Work Timeline for 2021



Above, the gantt chart summarizes the process to complete Boulder County’s Vision Zero Plan. The process started with an intensive data cleanup in GIS. After cleaning up the data and the development of the draft Traffic Crash Analysis (Part One), the draft was reviewed with both internal and external stakeholders. The draft Action Plan (Part Two) is a work in progress.

