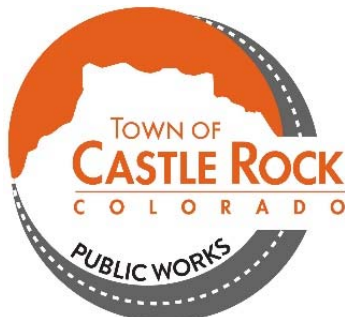
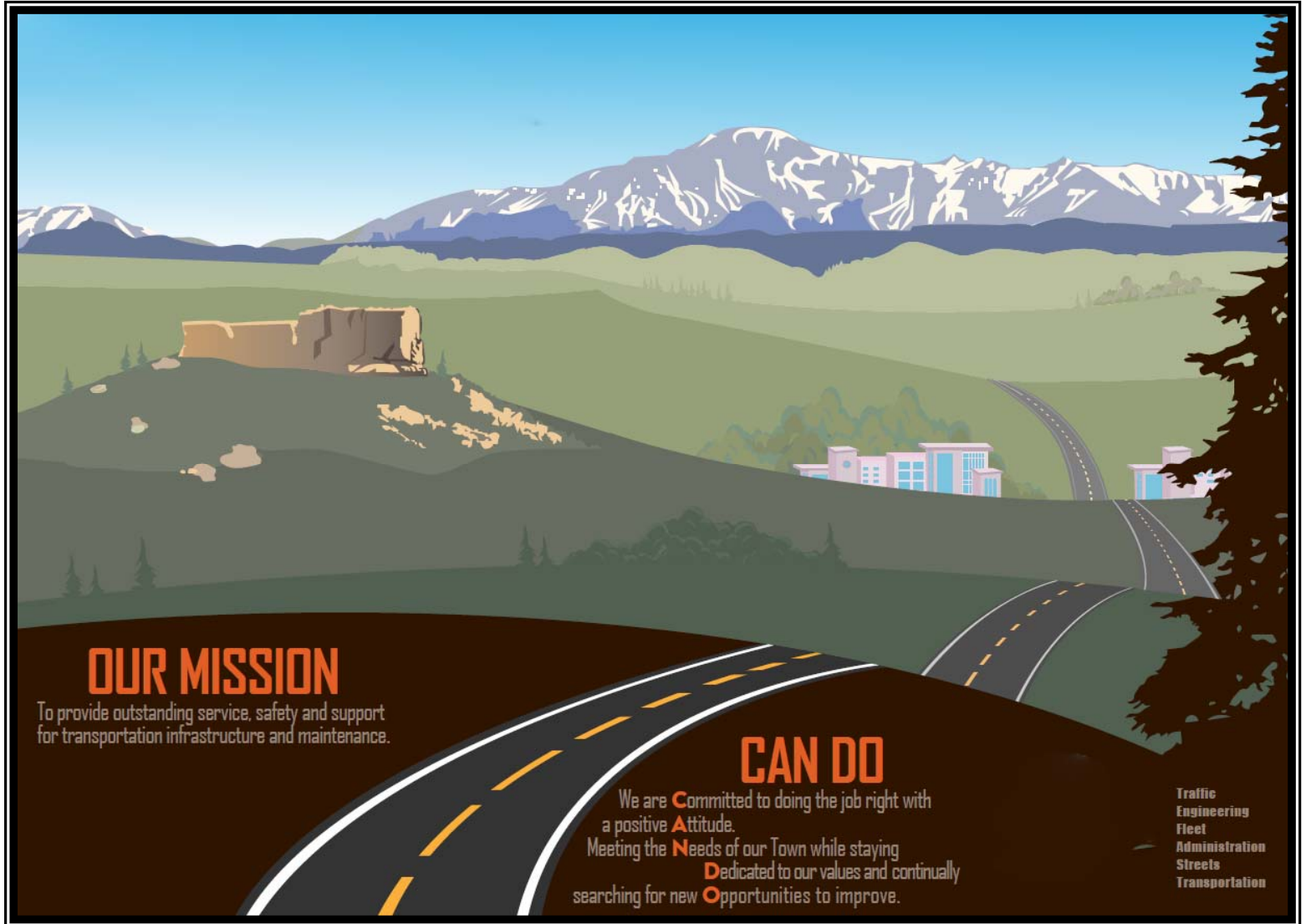


2018 TOWN OF CASTLE ROCK MOTOR VEHICLE CRASH FACTS



**ACCREDITED
AGENCY**

PREPARED BY THE PUBLIC WORKS DEPARTMENT

ACKNOWLEDGEMENTS

This report was assembled from data provided by the Castle Rock Police Department crash report data on public roads for the year 2018. Each crash record, whether completed by a local police officer or a member of the Colorado State Patrol, was sent to Castle Rock and entered into a centralized database maintained by the Public Works Department.

The report itself was created by personnel in the Public Works Department.

For more information, please contact:

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Castle Rock, CO 80104
720-733-2472



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Public Works Department

"Our mission is to provide outstanding service, safety and support for transportation infrastructure and maintenance."

August 5, 2019

It is our pleasure to provide you with the 15th Annual Castle Rock Motor Vehicle Crash Facts Report. The statistics provided will enable emergency services and design engineers alike gain a greater insight into the factors contributing to traffic crashes. This will then help both the Town and the Colorado Department of Transportation identify improvements that may help reduce crashes in a high-hazard areas or intersections.

We will continue to dedicate our time and efforts toward the improvement of safety on our street system.

Sincerely,

A handwritten signature in black ink, appearing to read "Dan Sailer".

Dan Sailer, PE
Interim Public Works Director

A handwritten signature in black ink, appearing to read "Ryan R. Germeroth".

Ryan Germeroth, PE
Transportation Planning and Traffic Engineering Manager

EXECUTIVE SUMMARY

The mission of the Public Works Department is “To provide outstanding service, safety and support for transportation infrastructure and maintenance”. We believe that by analyzing our crash data on a regular basis we can help identify locations where the roadway environment may be a contributing factor to crashes. This information helps us to develop options for improvements and to schedule projects for correction. Since 2004, when Public Works first reported crash statistics, the number of persons injured have generally been declining. The Town’s focus on encouraging intersection treatments such as the use of roundabouts, which have demonstrated an ability to reduce personal injury type such as high speed “T-bone” crashes, is just one example of improvements that have assisted in this area. The number of crashes in 2018 is about the same when compared to 2017. This is a good trend as traffic continues to grow in the Town, as the tendency with growth is for the crash totals to typically increase.

Crashes are the result of many factors. These factors can generally be classified into three main categories: 1) human factors, 2) vehicle factors, and 3) roadway environment. By far, the largest percentage of crashes can be attributed to human factors. These are the factors that drivers can control and are usually the simplest to correct. Basic driver awareness and respect for all users of the Town’s roadways will go the farthest towards reducing the number of crashes. Education, Enforcement and Engineering, the three “E’s”, all play an important role in improving safety. However it will take conscious decisions by drivers to change their behavior in order to make our roadway system safer.

Addressing vehicle factors is the responsibility of everyone who owns and operates a motor vehicle. Regular vehicle inspections along with preventative maintenance procedures will help reduce the chances of a crash occurring as a result of a vehicle malfunction.

The roadway environment is something that is out of the driver’s control, but it is within the control of the Town, and the Colorado Department of Transportation (CDOT) in the case of the State system. We work to identify locations where roadways themselves could be a contributing factor in a crash and implement treatments to correct these. Public Works uses statistical modeling to identify the locations where corrections to the roadway environment may improve safety. This helps direct limited resources to the locations where the most benefit can be obtained and avoids directing these resources toward locations where problems may not exist.

The information and crash trends that become evident during the preparation of the annual crash report help staff identify needed intersection improvements. For example, in order to help reduce the number of crashes involving left turning vehicles, the left turn signal operations have been changed in the past at locations with a higher than expected total of crashes. The Town has also installed all-way stop control at several unsignalized intersections in recent years where a traffic signal was not needed based on traffic volumes but a broadside collision pattern existed.

The 2018 data does show a few locations with higher numbers of crashes than would be expected to occur at intersections having similar characteristics. Several projects have been identified that will be completed that are expected to help to reduce the number of collisions at the highest crash locations. All of the information gathered by staff will be forwarded along to CDOT for their use at intersections along the State Highway system in Castle Rock.

SECTION 1: 2018 Raw Data Summaries

This section summarizes the raw crash data for 2018 by various categories. The totals include all forms of transportation and include pedestrian, bicycle and motorcycle crashes. The purpose of this is for general public interest as well as for use by other staff departments that may use this information to assist with improving their operations.

Quick Facts

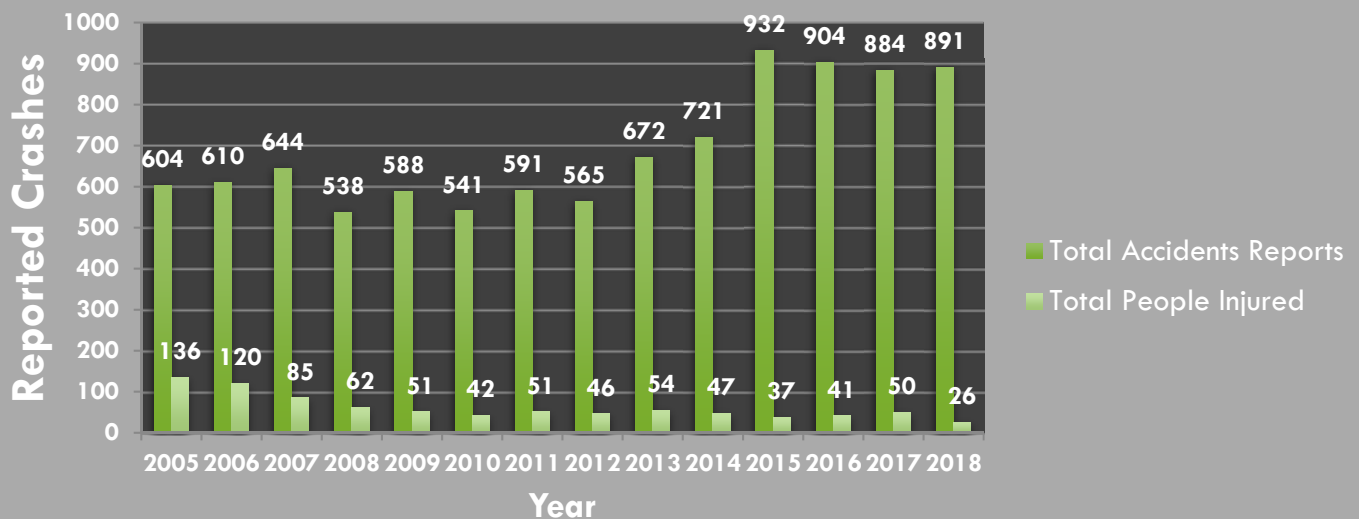
	2018	2017	2016	2015	2014
Total Reported Crashes	891	884	904	932	721
Fatalities	2	1	1	0	1
Total Persons Injured	26	50	41	37	47
Total Injury Incident Crashes	23	41	32	30	38

- ❖ On average, 1.0 traffic crash was reported every 10 hours.
- ❖ Of all the crashes, the most frequent crash types were rear end collisions at 39% of the total, 14% were turning movement collisions, and 14% were for both side swipes.

ANNUAL TRENDS

Over the past five years, the Town has averaged 866 reported crashes per year. In 2018 the number of crashes was 1% higher than in 2017. Although the Town had a few major construction zones in 2018 they did not contribute to any increase with crashes as what was seen in 2015. The following charts provide a summary of the annual trends in recent years.

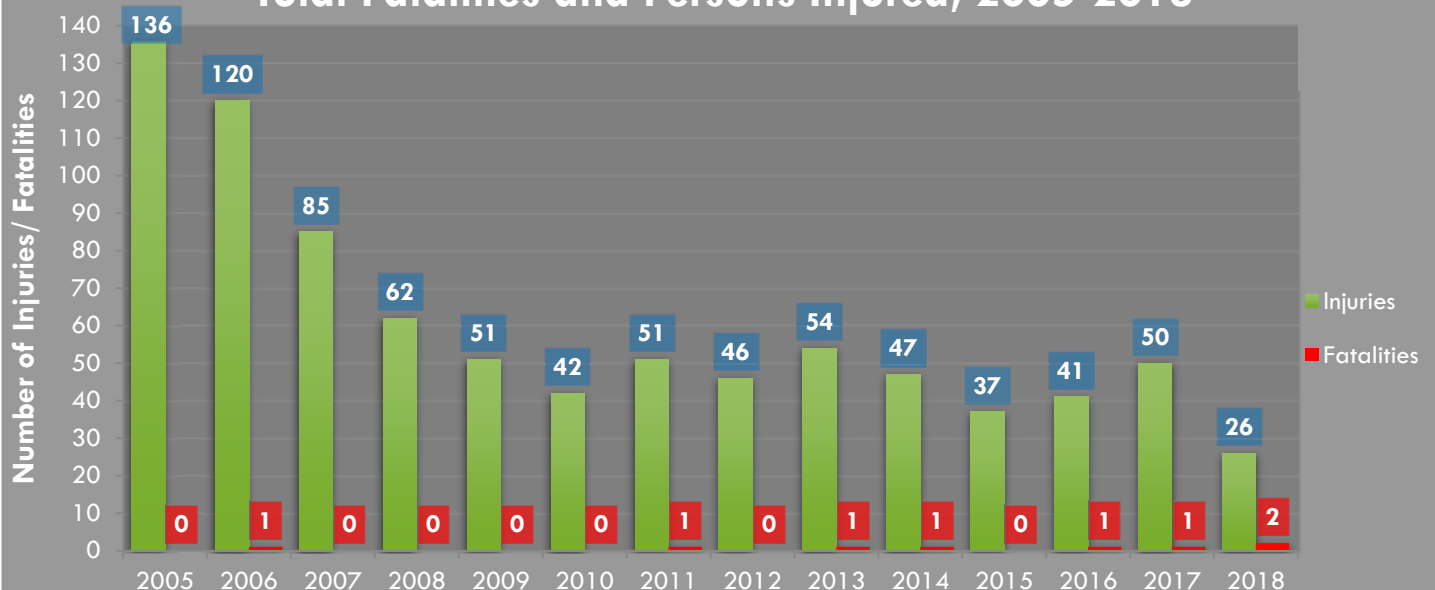
Total Reported Crashes and People Injured

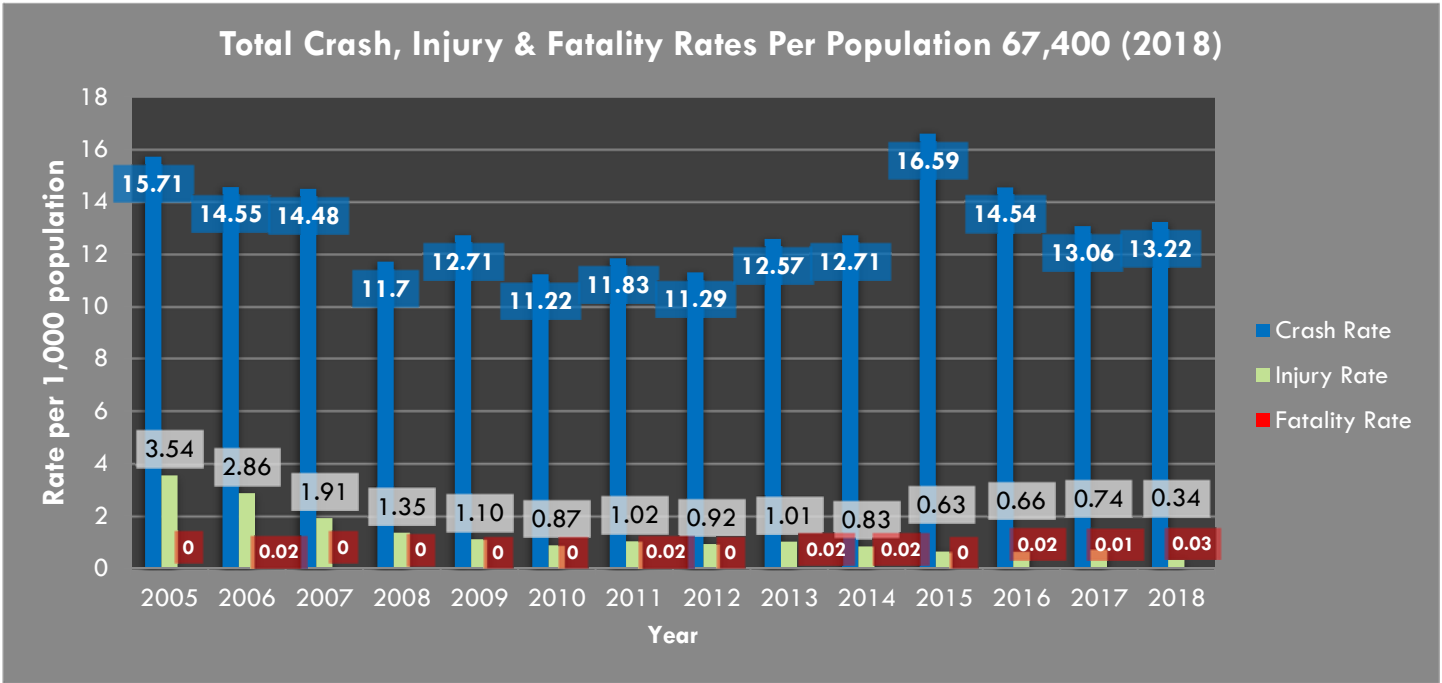


The number of people injured in 2018 crashes decreased by 48% from 2017's total of people injured. (*the method of reporting injured persons changed statewide in July 2007). In 2018, there were 20 crashes where one person was injured and 3 crashes where 2 people were injured. For the year, 2018 there were two fatalities recorded.

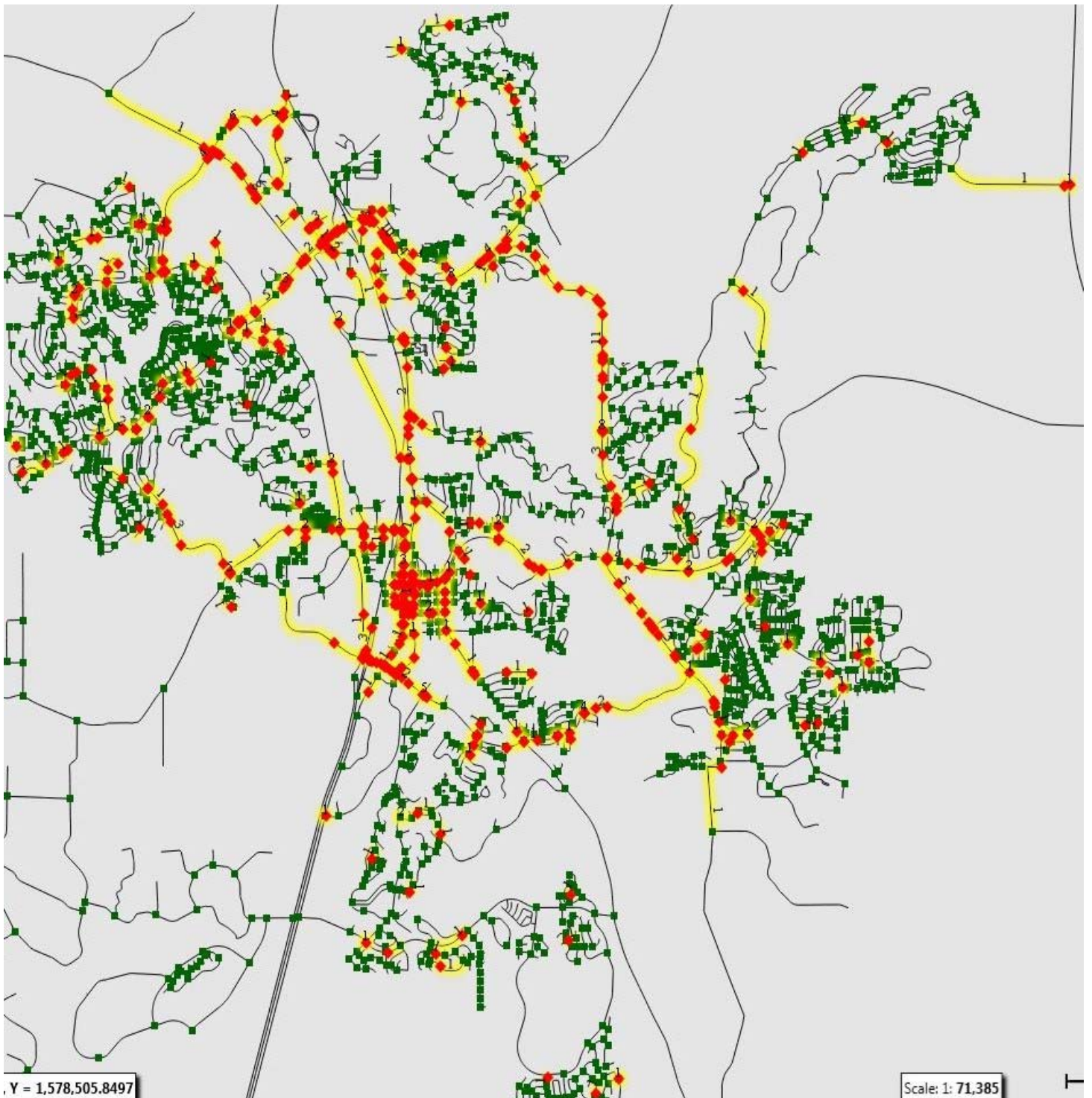
The two collisions that were recorded were the result of collisions where a thru vehicle hit a left turning vehicle. One crash occurred in March 2018 and the other in December 2018. In the March collision, one driver was distracted and ran a red light, hitting the left turning vehicle. In the December collision, the left turner failed to yield and turned out in from of the on-coming through vehicle. Neither of these crashes indicate a pattern in need of correction.

Total Fatalities and Persons Injured, 2005-2018





2018 Crash Location Map



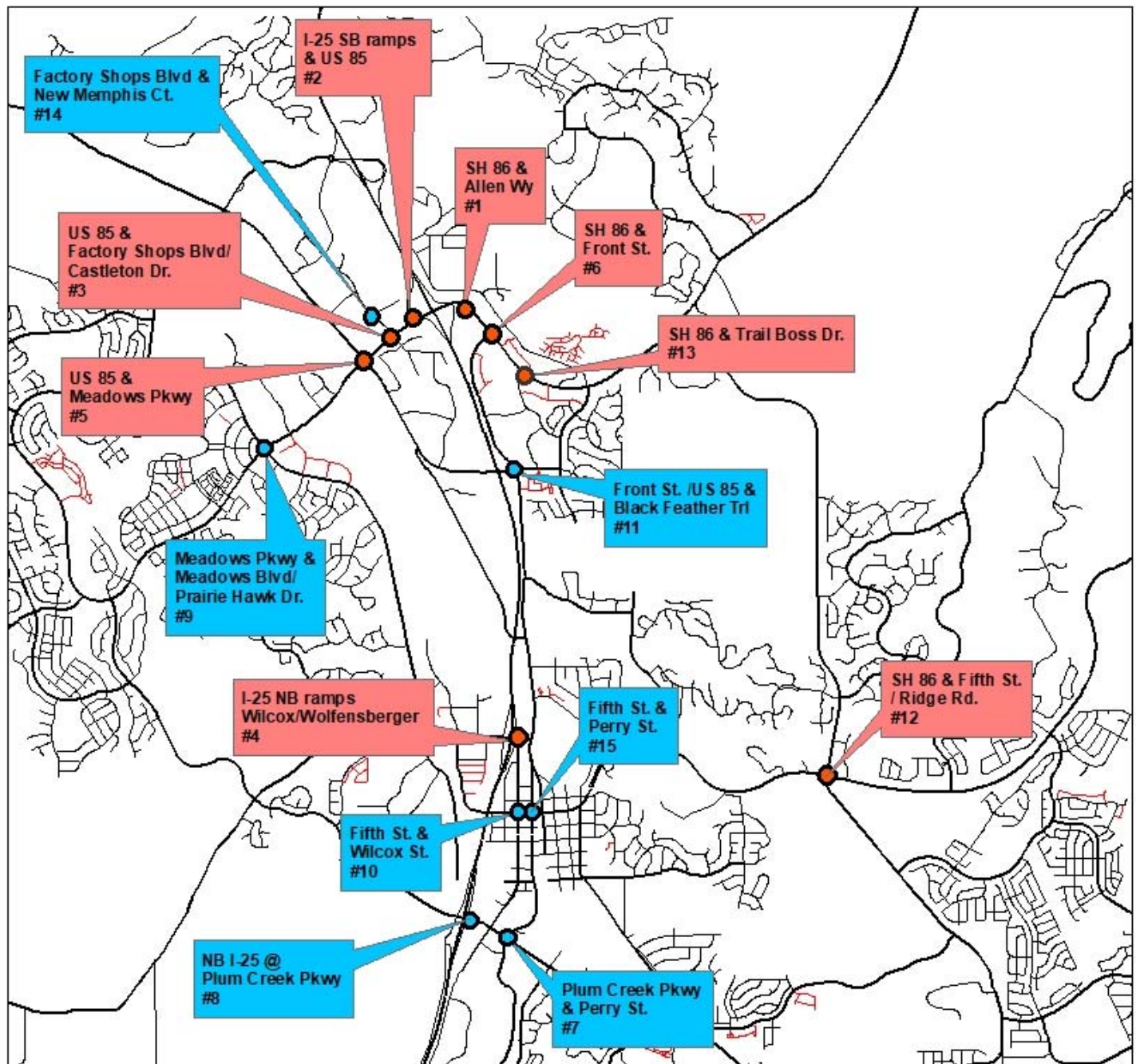
This map shows the crash locations in 2018 throughout the Town, crashes are identified by the red dots and intersections are identified by green dots. The yellow highlight are road segments with crashes on them. Many of these locations had several crashes reported. The arterial and

collector streets have the highest incident of crashes, which is expected considering that they also have the highest traffic volumes.

HIGHEST CRASH RATES BY LOCATION (SIGNALIZED INTERSECTIONS)

Intersections	Number of Crashes (2013-2017)	Average Volume through Intersection	Crash Rate (MEV)	Rank (2018)/(2017)
SH 86 @ Allen Wy	199	54,661	1.99	1/1
SB I-25 & US 85	150	51,990	1.58	2/4
US 85 @ Factory Shops Blvd/ Castleton Dr.	177	67,175	1.44	3/2
NB I-25 @ Wilcox St.	61	24,510	1.36	4/6
US 85 @ Meadows Pkwy	111	47,390	1.28	5/3
SH 86 @ Front St.	109	47,515	1.26	6/5
Plum Creek Pkwy @ Perry St.	77	34,025	1.24	7/8
NB I-25 @ Plum Creek Pkwy	64	32,563	1.08	8/19
Meadows Pkwy @ Meadows Blvd/ Prairie Hawk Dr.	67	34,355	1.07	9/7
Fifth @ Wilcox St.	41	23,095	0.97	10/9
Front St. @ Blackfeather	47	26,825	0.96	11/13
SH 86 @ Fifth / Ridge	52	31,919	0.89	12/15
SH 86 @ Trail Boss Dr.	60	37,190	0.88	13/11
Factory Shops Blvd @ New Memphis	50	32,935	0.83	14/10
Fifth @ Perry St.	34	22,823	0.82	15/12

15 Highest Accident Rate Locations



**CDOT
Controlled
Intersections**



**Town
Controlled
Intersections**



SECTION 2: Public Works Statistical Analysis

This section of the report summarizes the statistical review of the 2018 raw data. The purpose of this is to provide an initial “screen” to identify the intersections that are producing crash numbers that exceed the number that may be expected to occur when compared to similar intersections sharing similar characteristics in Colorado. Since crashes are “expected” to occur, it’s important to determine which locations are experiencing crashes at a higher rate than should be expected.

ROAD & INTERSECTION SAFETY

One important goal from this crash data is to identify locations where the road environment may be a contributing factor to crashes. This is possible through statistical analysis. The goal in this regard is to identify locations where roadways or traffic control devices could be a contributing factor and implement treatments to correct these.

The definition of the safety of a road section or intersection used by the Transportation Planning and Traffic Engineering Division is the number of crashes expected to occur at these locations during a specified period as compared to what actually has occurred. Because there are factors that are not related to the physical roadway environment that contribute to crashes, road sections and intersections are expected to have crashes occur. Since what is ‘expected’ is not certain, safety can only be estimated, and estimation is in degrees of precision. The precision of an estimate is usually expressed by its standard deviation.

For practical reasons Traffic Engineering is interested in the safety of a road section or intersection that seems to have too many crashes. If the estimation of safety is based only on crash counts or crash rates, the estimate would be biased. The existence of this ‘regression-to-mean’ bias has been long recognized given that crash rates at a given location tend to fluctuate from one year to the next due to multiple variables. If not accounted for, regression-to-mean bias is known to produce inflated estimates of countermeasure effectiveness so it is important to review several years’ worth of data to account for statistical anomalies.

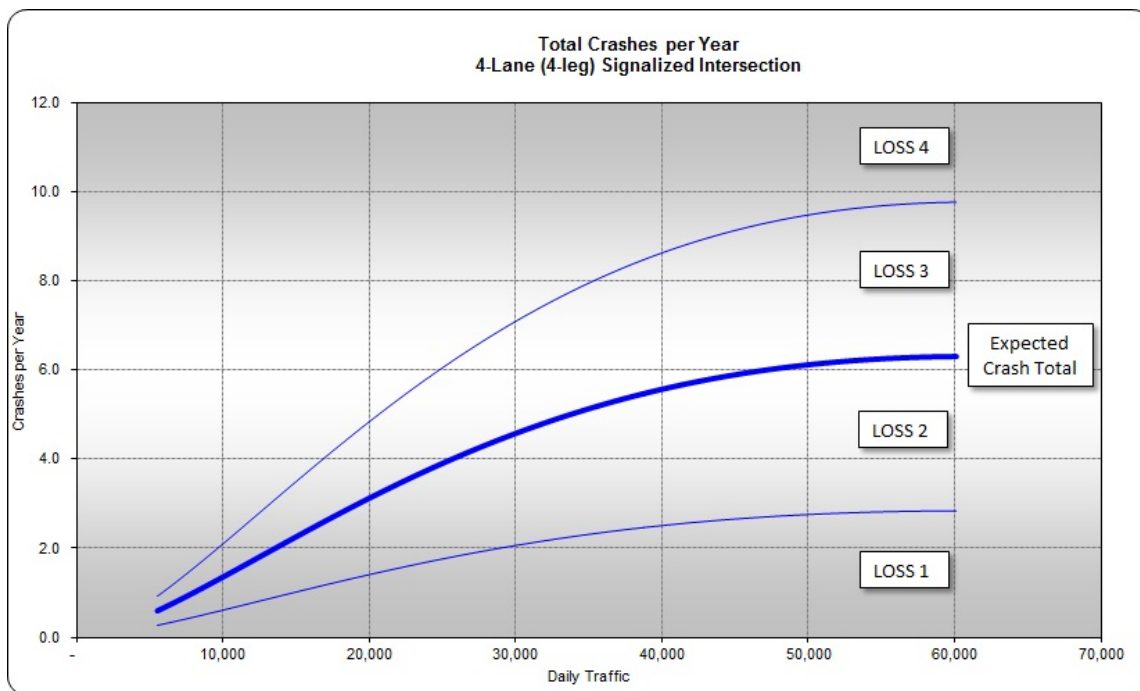
In light of this, the magnitude of safety problems at intersections can be assessed through the use of Safety Performance Functions (SPF). The SPF reflects the complex relationship between exposure (measured in daily traffic) and the crash count for an intersection measured in crashes per year. The SPF models provide an estimate of the normal or expected crash frequency and severity for a range of ADT among similar facilities. The Colorado Department of Transportation (CDOT) has calibrated several different Safety Performance Functions based on actual crash data collected at intersections throughout the State.

All of the dataset preparation was performed using the Town’s crash databases. Crash history for each intersection was prepared using the most recent five years of available crash data. Average Daily Traffic (ADT) for each intersection approach (major street and minor street) over the five years was entered into the same dataset.

Development of the SPF lends itself well to the conceptual formulation of the Levels of Service of Safety (LOSS). The concept of level of service uses quantitative measures that characterize safety of an intersection in reference to its expected performance. If the level of safety predicted by the SPF will represent a normal or expected number of crashes at a specific level of ADT, then the degree of deviation from the norm can be stratified to represent specific levels of safety.

- LOSS-I – Indicates low potential for crash reduction
- LOSS-II – Indicates better than expected safety performance
- LOSS-III – Indicates less than expected safety performance
- LOSS-IV – Indicates high potential for crash reduction

Gradual change in the degree of deviation of the LOSS boundary line from the fitted model mean reflects the observed increase of variability in crashes as ADT increases. LOSS reflects how the intersection is performing in regard to its expected crash frequency at a specific level of ADT (major street and minor street). It only provides a crash frequency comparison with the expected norm. It does not, however, provide any information related to the nature of the safety problem itself. If a safety problem is present, LOSS will only describe its magnitude from the frequency standpoint. The nature of the problem is determined through diagnostic analysis using direct diagnostics and pattern recognition techniques and will be discussed later in this report. The following provides an example of a SPF for a 4-lane signalized intersection as well as the corresponding LOSS categories.



SIGNALIZED INTERSECTIONS WITH THE HIGHEST CRASH RATES

The following tables summarize the 2018 highest crash rate locations. This table provides the actual crash total, the statistically expected crash total as well as the Level of Service of Safety and corresponding safety performance. This table is sorted by LOSS and the observed average crash totals per year.

Intersections	Expected Crash History (Crashes / Year)	Observed Crash History (Crashes / Year)	Level of Service of Safety	Safety Performance
SH 86 @ Allen Wy	18.6	39.8	4	High potential for reduction
SB I-25 @ US 85	18.5	30	4	High potential for reduction
SH 86 @ Front St.	15.3	21.8	4	High potential for reduction
NB I-25 @ Wilcox St.	5.5	12.2	4	High potential for reduction
Front St. @ Blackfeather	7.1	9.4	4	High potential for reduction
Fifth @ Wilcox St.	5.7	8.2	4	High potential for reduction
US 85 @ Factory Shops Blvd/ Castleton Dr.	30.2	35.4	3	Worse than expected
US 85 @ Meadows Pkwy	18.8	22.2	3	Worse than expected
Plum Creek Pkwy @ Perry St.	11.8	15.4	3	Worse than expected
Meadows Pkwy @ Meadows Blvd/ Prairie Hawk Dr.	11.9	13.4	3	Worse than expected
NB I-25 @ Plum Creek Pkwy	8.7	12.8	3	Worse than expected
SH 86 @ Trail Boss Dr.	10.5	12	3	Worse than expected
Fifth @ Perry St.	6.1	6.8	3	Worse than expected

As can be seen in this table there are a total of thirteen intersections that have an observed crash total that is higher than what would be expected at other similar intersections in Colorado. The next section provides a summary of the crash types to focus on potential areas for improvement to the roadway environment.

PLANNED MITIGATION MEASURES (SIGNALIZED INTERSECTIONS)

The crash history from January 2014 to December 2018 was reviewed for each of the twelve intersections with a LOSS rating of 3 or higher. The following tables summarize the crash type(s) at each intersection that was higher than would be expected for a similar four or six lane signalized intersection in Colorado.

Intersections	Crash Type(s) in Need of Correction	Mitigation Measures
SH 86 @ Allen Wy	Rear end, Sideswipe	Review the red / yellow clearance intervals at the intersection. New turn lanes are set to be constructed in 2019 as part of a capital improvement project.
SB I-25 & US 85	Rear end, Sideswipe	Review the red / yellow clearance intervals at the intersection.
US 85 @ Factory Shops Blvd/ Castleton Dr.	Rear end, Sideswipe	Review the red / yellow clearance intervals at the intersection.
NB I-25 @ Wilcox St.	Approach Turn (EB lefts & WB thrus)	Evaluate for flashing yellow arrow left turn phase. Assess possibility of a roundabout at this location.
US 85 @ Meadows Pkwy	Rear end	Review the red / yellow clearance intervals at the intersection
SH 86 @ Front St.	Rear end, Approach turn (EB left & WB thrus)	Review the red / yellow clearance intervals at the intersection. Evaluate for flashing yellow arrow left turn phase.
Plum Creek Pkwy @ Perry St.	Rear end, Curb	Review the red / yellow clearance intervals at the intersection. No correctable pattern for curb crashes.
NB I-25 @ Plum Creek Pkwy	Overtaking turn	Enhancements were made in August 2018 that appear to have reduced crash experience. Continue to monitor but no further mitigation recommended at this time.
Meadows Pkwy @ Meadows Blvd/ Prairie Hawk Dr.	Rear end, Curb	Review the red / yellow clearance intervals at the intersection. No correctable pattern for curb crashes.
Fifth @ Wilcox St.	Rear end, Sideswipe	Review the red / yellow clearance intervals at the intersection.

Front St. @ Blackfeather	Rear end	Review the red / yellow clearance intervals at the intersection.
SH 86 @ Trail Boss Dr.	Approach turn (EB lefts & WB thrus)	Evaluate for flashing yellow arrow left turn phase.
Fifth @ Perry St.	Broadside	Review visibility of traffic signal heads in WB approach

As can be seen in this table, primarily rear end collisions, sideswipe collisions and approach turn collisions (a crash where a left turning vehicle turns out in front of an opposing through vehicle) are the crash types that are occurring at a rate that is more frequent than expected. By nature, traffic signals tend to cause an increase in rear end collisions so they cannot be eliminated entirely. However, certain measures such as improved signal timing can help to reduce the number of rear end collisions by reducing congestion. One pattern of concern that carried from 2017 into 2018 was a continued increase in collisions at the Plum Creek Pkwy and northbound I-25 on-ramp. The crash pattern is associated with the active traffic management system (ATM) that went into operation January 2017. A project was completed in August 2018 that appears to have addressed the pattern but staff will continue to watch operations at this location. Town staff will work to implement the other measures not yet complete in the table above over the remainder of 2018 and early 2019.

REVIEW OF CRASH HISTORY AT UNSIGNALIZED INTERSECTIONS

While fewer crashes occur at the stop controlled and other unsignalized intersections in Town (i.e. roundabouts) it is still important to review the crash patterns at these locations. The crash frequency history from January 2014 to December 2018 was reviewed for each of the top eleven unsignalized intersections in Town. The following table summarize the crash type(s) at each intersection that was higher than would be expected for a similar stop controlled intersection in Colorado. If a correctable crash pattern was identified, a potential mitigation measure has also been included.

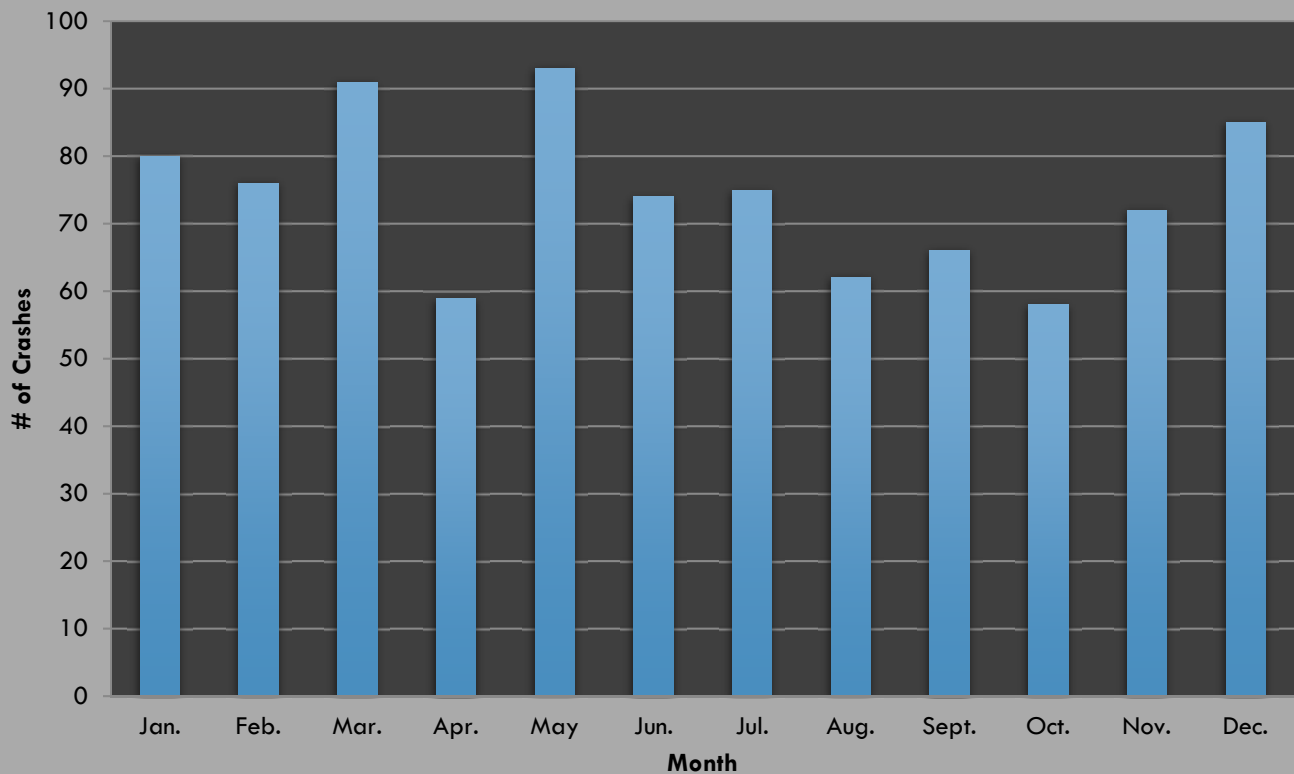
Intersections	Number of Crashes (2014-2018)	Crash Type(s) in Need of Correction	Mitigation Measures
Castleton Dr @ Genoa Wy	22	Broadside	Review intersection for traffic control change
Ridge Rd @ Enderud Blvd	22	None	None needed
Front St @ Milestone Ln	18	Broadside	Review sight distance at intersection
Fifth St @ Front St	17	Broadside	Review sight distance at intersection for SB to EB left turn
Front St @ Oakwood Dr	15	Broadside	Review sight distance at intersection
Coachline Rd @ Foothills Dr	11	None	All-way stop installed in 2016. Historic pattern corrected.
Perry St @ Sixth St	11	None	None needed
Perry St @ Third St	11	None	None needed
Founders Pkwy @ Crimson Sky Dr	11	None	None needed
Fifth St @ Valley Dr	11	None	None needed

As can be seen in this table, broadside collisions is the crash type in need of correction at most of these intersections. These crashes typically occurred when the driver on the side street misjudged the available gap in traffic and was struck by a vehicle on the main street. To address this pattern, all-way stops were installed late in 2016 at two of the intersections on the list and the 2018 data has confirmed that the broadside crash pattern has been addressed. Town staff will work to implement the other measures not yet complete in the table above over the remainder of 2019 and early 2020.

2018 CRASH DATA TRENDS & METRICS

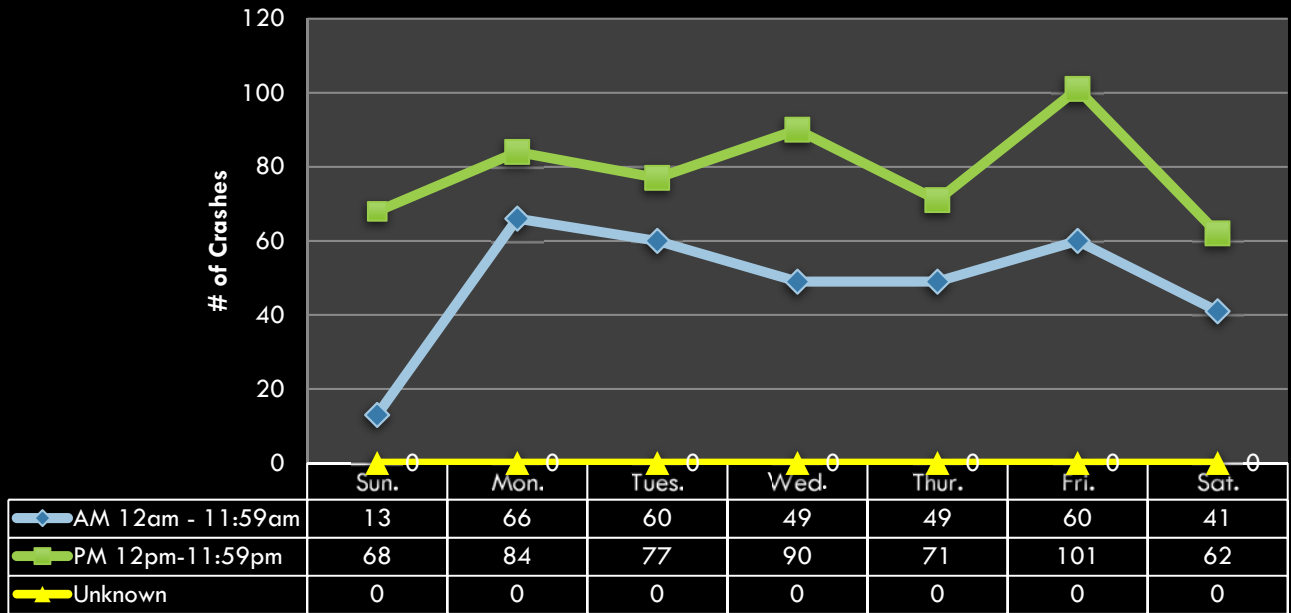
Months	Crashes	%	Fatalities	%
January	80	9%	0	0%
February	76	9%	0	0%
March	91	10%	1	50%
April	59	7%	0	0%
May	93	10%	0	0%
June	74	8%	0	0%
July	75	8%	0	0%
August	62	7%	0	0%
September	66	7%	0	0%
October	58	7%	0	0%
November	72	8%	0	0%
December	85	10%	1	50%
Total	891	100.00%	2	100%

of Crashes per Month



CRASH BREAKDOWN BY WEEKDAY & TIME IN 2018

Crash time and day of week



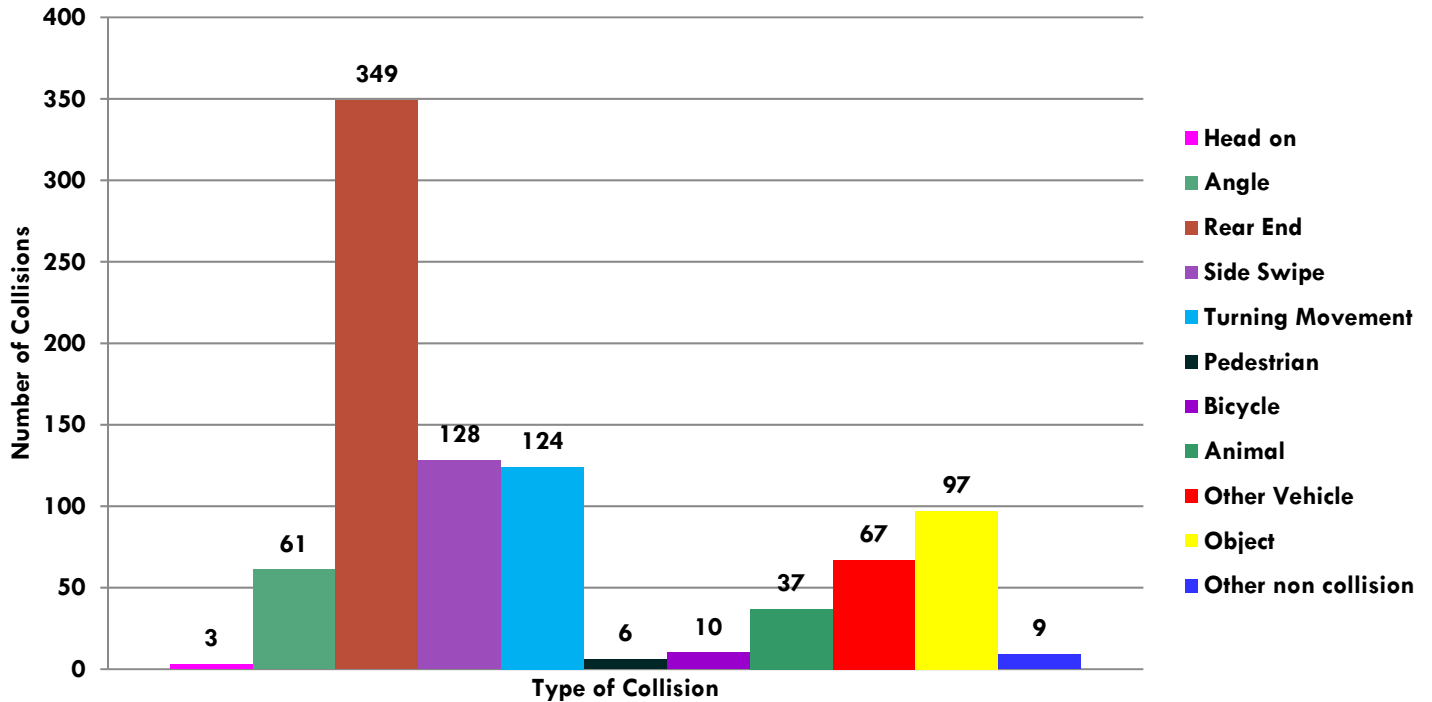
Days of the Week	# of Crashes	%	Injuries	%	Fatalities	%
Sun.	81	9%	6	23%	0	0%
Mon.	150	17%	4	15%	0	0%
Tues.	137	15%	4	15%	0	0%
Wed.	139	16%	0	0%	0	0%
Thur.	120	13%	2	9%	0	0%
Fri.	161	18%	4	15%	2	100%
Sat.	103	12%	6	23%	0	0%
Total	891	100.00%	26	100.00%	2	100%

TIMES OF CRASHES

Time	# of Crashes	% of Crashes	# of Fatalities	% of Fatalities
12:00 am	3	0%	0	0%
1:00 am	1	0%	0	0%
2:00 am	5	1%	0	0%
3:00 am	5	1%	0	0%
4:00 am	3	0%	0	0%
5:00 am	5	1%	0	0%
6:00 am	26	3%	1	0%
7:00 am	70	8%	0	0%
8:00 am	65	7%	0	0%
9:00 am	53	6%	0	0%
10:00 am	49	6%	0	0%
11:00 am	53	6%	0	0%
12:00 pm	64	7%	0	0%
1:00 pm	56	6%	1	0.001%
2:00 pm	54	6%	0	0%
3:00 pm	76	9%	0	0%
4:00 pm	64	7%	0	0%
5:00 pm	83	9%	0	0%
6:00 pm	57	6%	0	0%
7:00 pm	30	3%	0	0%
8:00 pm	21	2%	0	0%
9:00 pm	26	3%	0	0%
10:00 pm	15	2%	0	0%
11:00 pm	7	1%	0	0%
Unknown	0	0%	0	0%
TOTAL	891	100.00%	2	0.00%

TYPES OF CRASHES

Collision Type



Vehicle Type	Vehicles Involved in Crashes	% of Vehicles
Auto	682	42%
SUV	581	35%
Pick-up	247	15%
Auto/SUV/ Truck w/ Trailer	15	1%
Truck (over 10,000 lbs.)	39	2%
Motorcycle/Moped	13	1%
Bicycle	7	0%
School Bus/ Bus	2	0%
Hit & Run	46	3%
Other	10	1%
Total	1642	100.00%

CRASH LOCATION

Intersections By Classification	# of Crashes	# of Fatalities	# of Injuries
Arterial/Arterial	317	2	8
Arterial/Collector	135	0	8
Arterial/Local	78	0	2
Collector/Collector	23	0	1
Collector/Local	35	0	1
Local/Local	24	0	0
Total	612	2	20

Segments	# of Crashes	# of Fatalities	# of Injuries
Multi-lane Arterial or Collector	118	0	3
Two-lane Arterial or Collector	87	0	2
Local	74	0	1
Total	279	0	6

CRASH ENVIRONMENT

Traffic Control Device	Crashes	Crashes related to Traffic Control Device	% of Traffic Control Device Crashes
Railroad Device	0	0	0%
ATMS	19	0	0%
Roundabout	5	0	0%
Yield Sign	4	1	0%
Stop Sign	180	5	1%
Traffic Signal	412	19	3%
None	271	0	0%
Total	891	25	4.00%

Weather	Crashes	%
Clear	816	92%
Rain	22	2%
Snow/Sleet	49	6%
Other	4	0%
Total	891	100.00%

Road Conditions	Crashes	%
Dry	768	86%
Wet	54	6%
Icy/Slushy/Snowy	62	7%
Other	7	1%
Total	891	100.00%

Lighting Conditions	Crashes	%
Day	727	82%
Night	164	18%
Total	891	100%

THE DRIVER

Primary Causes of Crashes *	Driver 1	Driver 2	% of Primary Causes D.1 & D.2 (1,652)
Failed to Yield Right of Way	59	2	4%
Careless/Reckless Driving	478	25	30%
Violation of Red Signal	19	0	1%
Violation of Stop Sign	5	0	0%
Unsafe Backing	13	1	1%
Speeding too fast for conditions	10	3	1%
Following too closely	47	3	3%
All Other/ Unknown/ No Cause	260	726	60%
Total	891	760	100.00%

Condition of Drivers *	Driver 1	Driver 2	% of Condition of Drivers D.1 & D.2 (1,652)
No Defect or Unknown	477	738	73%
Other* (includes: aggressive driving, fatigue, distractions, illness)	307	16	20%
Inexperienced Drivers	75	4	5%
Cell Phone	10	2	1%
Drugs or Alcohol Related	22	0	1%
Total	891	760	100.00%

ALCOHOL & DRUG INVOLVEMENT

*Number of Crashes Involving Drivers Influenced by Alcohol or Drugs

Age	All Drivers	Male	Female
<14	0	0	0
15-19	1	1	0
20-24	2	0	2
25-29	4	2	2
30-34	2	2	0
35-39	2	1	1
40-44	4	2	2
45-49	5	1	4
50-54	1	0	1
55-59	0	0	0
60-64	1	1	0
65-69	0	0	0
>70	0	0	0
Total	22	10	12

2% of the total crashes reported in 2018 involved alcohol or drugs.

AGES OF DRIVERS/PEDESTRIANS INVOLVED IN CRASHES OVERALL

- 125/ unknown drivers/pedestrians (gender & age)

Age	% of Total Drivers/Pedestrians			Percent
	Male	Female	Total	
<14	3	1	4	0%
15-19	130	104	234	15%
20-24	88	66	154	10%
25-29	67	57	124	8%
30-34	66	47	113	8%
35-39	64	68	132	9%
40-44	58	80	138	9%
45-49	80	63	143	9%
50-54	69	57	126	8%
55-59	55	46	101	7%
60-64	56	41	97	6%
65-69	31	36	67	5%
>70	41	53	94	6%
Total	808	719	1527	100.00%

DEFINITIONS

The following special terms are used throughout this report, and are provided to clarify the meaning of the data.

1. **Crash (or traffic crash):** An unintended event involving a motor vehicle that causes death, injury, or property damage.
2. **Alcohol Involvement Crash:** Any motor vehicle crash in which a driver, pedestrian, or bicyclist had consumed alcohol.
3. **Fatal Crash:** A traffic crash which involving the death of one or more persons.
4. **Hit-Other-Vehicle:** A type of collision in which the first harmful event involves a collision between two or more vehicles.
5. **Injury Crash:** An crash involving injuries to one or more persons which may or may not require transportation to a medical facility.
6. **Motor Vehicle:** Any motorized (mechanically or electrically powered) vehicle not operated on rails.
7. **Other Non-collision:** An event during an crash sequence which does not involve a collision with another vehicle or object.
8. **Property Damage Crash:** An crash not involving either a fatality of an injury to any party but which does include damage to one or more vehicles.
9. **Rollover:** An crash in which the overturning of a vehicle was the first harmful event.
10. **Type of Crash:** The category which best describes the general type of collision which was the first event.