Bloomington-Monroe County
Metropolitan Planning Organization

Crash Report -
Calendar Years 2015 through 2019

November 17, 2021

BLOOMINGTON • MONROE COUNTY
mpo

2015-2019 Crash Report

Table of Contents

Figures

Tables

2015-2019 Crash Report

Executive Summary

The Bloomington-Monroe County Metropolitan Planning Organization (BMCMPO) 2015-2019 Crash Report represents a continuation of the MPO's effort to provide an analysis of the crash location causes and trends within Monroe County. This report includes an analysis of crash data from the Indiana State Police (ISP) Department ARIES data portal (https://www.in.gov/isp/3147.htm) for Calendar Years 2015, 2016, 2017, 2018, and 2019.

This crash report prepared by the BMCMPO staff from the ISP crash data provides relevant generalized information for the MPO Citizen's Advisory Committee (CAC), the Technical Advisory Committee (TAC), and the Policy Committee (PC). The crash report shall additionally achieve distribution to local units of government, Indiana University, and the general public through the BMCMPO website hosted by the Bloomington Planning and Transportation Department.

A summary of the specific calendar year crash trends provided below highlight general information on crash data within Monroe County. Detailed tables, charts, and summaries provided in subsequent chapters highlight information on annual and daily observational trends involving total numbers, frequency, and other related characteristics of crashes that occurred within the calendar years of 2015 through 2019.

Introduction

Mobility is a defining aspect of life in the United States and around the world. Transportation infrastructure investments have led to new opportunities for trade, travel, recreation, relocation, and economic growth. The BMCMPO receives approximately $3.7 million per year of federal transportation funding allocated from the Indiana Department of Transportation (INDOT) for local transportation network investments. Despite this continued investment, tangible and intangible costs attributable to motor vehicle crashes undermine the effectiveness of the local transportation system.

The BMCMPO crash reports demonstrate that motor vehicle crashes contribute to be a significant loss of life, property, and productivity in Monroe County. A better understanding of crash trends is attainable through continued efforts in crash reporting and analysis. Targeted infrastructure investments should further improve safety on roads within Monroe County.

The purpose of this Crash Report is twofold. First, the Crash Report provides a consistent and straightforward means to disseminate annual crash data for use by any interested individual or organization. Second, the Crash Report provides another useful tool for civil engineers, transportation planners, and local policy makers when considering both funding and design strategies aimed at reducing the frequency and severity of transportation-related crashes. Specifically, the Indiana Department of Transportation (INDOT) and the BMCMPO require Local Public Agencies (LPAs) to use crash data as part of the Highway Safety Improvement Program (HSIP). This program provides federal funding to target areas with high incidences of crashes. The HSIP primary goal is reducing fatal and incapacitating injury crashes. Furthermore, information found in the Crash Report is used as criteria within the BMCMPO's Complete Streets Policy to guide the MPO in the selection of transportation projects. The implementation of effective mitigation strategies further curtail crashes within Monroe County through annual reporting and analysis.

This Crash Report focuses on a five-year period for Calendar Years 2015, 2016, 2017, 2018, and 2019, with some tables and figures including the Calendar Years 2013 and 2014 to depict a longer time period trend to inform five-year rolling averages. By focusing on a longer time horizon, random variations in annual crashes do not unduly influence the trends reported. For instance, annual variations in crashes, fatalities and incapacitating injuries, and location-specific

crashes can be significant, even though there may not be an actual change in the likelihood of those crashes. By using a five-year analysis window, identified trends are more likely to be meaningful than by using a three-year analysis window like previous reports. The crash data tabulated from 2019 alone provides a snapshot of the most recent year we have data for at the moment. Furthermore, information from this Crash Report will help inform future crash reports.

Methodology and Data Considerations

The data for the Bloomington-Monroe County Crash Report originates from the "Automated Report and Information Exchange System" (ARIES) of the Indiana State Police (https://www.in.gov/isp/3147.htm). This system maintains statewide crash data from law enforcement agency reports dating back to 2003. The Indiana law enforcement report data are organized by collisions, units (vehicles), and individuals. These data elements, related to one another by a common master field (e.g., Master Record Number) offer independent analysis capability. It is possible to retrieve information regarding collisions (e.g., locations and dates of greatest crash frequency), number of vehicles involved, and individuals involved. It is also possible to perform more complex analyses using attributes from each of these entities.

As with any database, the validity of conclusions resulting from the data is contingent upon accurate and complete data entry. Lack of data information from hit-and-run collisions, confusion surrounding alternate names of roads (e.g., Country Club Drive and Winslow Road, SR 46 and 3rd St., and similar road names being used in multiple jurisdictions like 2nd St. or Walnut Ave.), misspelled or mis-entered street names, GPS errors, and incomplete data entry undoubtedly introduce some error into the results of this report. Therefore, results of the Crash Report should not have a rigid interpretation. With that being mentioned, all efforts were made to correct these issues in the raw data before analysis and inclusion in this Crash Report.

The BMCMPO staff corrected obvious data errors to achieve valid results. Consequently, some minor inconsistencies may be evident when comparing crash reports from prior years. For instance, data may be updated from previous years' reports for consistency reasons, if errors were found and need updating, and if new analyses need to be reported for a number of reasons. Therefore, the most recently issued Crash Report reflects the best and most accurate crash information. Regardless of methodological changes and slight differences between reports, the overall findings of this report are consistent with those of past years. The most recent report before this Crash Report was the 2013-2015 Crash Report, so methodologically, the raw data for years 2016-2019 have all been analyzed in the same way, with the year 2015 being updated to reflect the processes of the subsequent years.

Collisions were analyzed using available geographic, road inventory, and traffic count data. Individual crashes were located according to reported geographic coordinates which were available for more than 93% of all records. A crash frequency was determined for each intersection (where enough data was available) by tabulating the total number of crashes that occurred within a maximum of a 250-ft radius of the center of the intersection. Crash rates were determined from available traffic data from the City of Bloomington, the Town of Ellettsville, Monroe County, and the Indiana Department of Transportation using standard adjustments and engineering judgment as necessary.

When reading the Crash Report, it is important to understand the distinction between "crashes" and "individuals." The term "crash" refers to the characteristics of the crash itself under consideration. For example, a "Fatal Injury" column (e.g., "Fatalities and Fatal Crashes by Year, 2015-2019") shows how many crashes resulted in a fatal injury; it would be incorrect, however, to interpret this column as the number of fatalities since more than one fatality can result from a single crash.

2015-2019 Crash Report

Crash Characteristics

This section provides a summary of crash characteristics in Monroe County, including the type and severity of crashes from 2015-2019. These factors reflect trends in the overall safety of the transportation system.

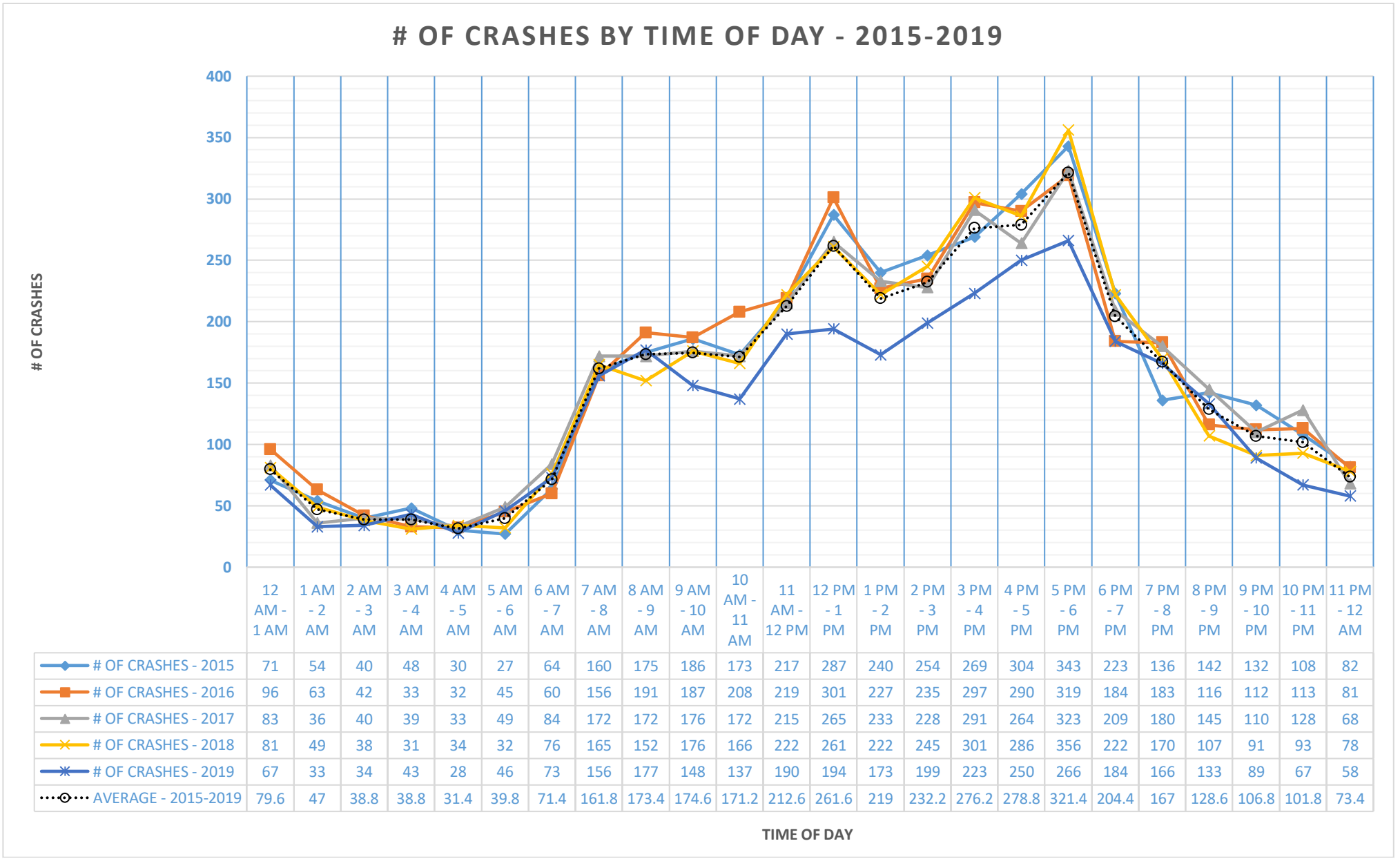
A further breakdown of the Calendar Year 2015-2019 crash totals provides insights into trends involving pedestrians, bicyclists, buses, mopeds/motorcycles, scooters, and crashes that resulted in fatalities. Over the course of the five years analyzed, there were **forty-three (43)** fatal crashes resulting in **forty-eight (48)** fatalities (Figure 9), slightly fewer than the **fifty (50)** fatalities reported from 2014 to 2018.

The time distribution of crashes (Figure 1) continues to follow a predictable pattern correlating with peak hour and off-peak hour traffic volumes. The greatest number of crashes occurred during weekday rush hours between 4:00 P.M. and 6:00 P.M., with an average slightly greater than one (1) crash per hour for the entire county. There is also a peak from 12:00 P.M. to 1:00 P.M on weekdays. The weekend also follows a similar pattern in terms of frequency of crashes, but the crash rate has a more even distribution through the day and early evening hours. Between the hours of 7:00 PM and 4:00 AM, the weekend experiences a higher crash frequency compared with weekdays. Friday continued to have the highest number of crashes overall, while Sunday had the lowest number of crashes.

State and federal designated highway routes are prominently featured in the list of the highest crash frequency intersections or the total number of crashes over a given time period. Higher traffic volumes on these roads are undeniably the primary factor. INDOT jurisdictional intersections at SR 37 and 3rd Street, SR 45/46 and 10th Street, and SR 37 and Bloomfield Road are consistently high frequency crash locations. These intersections therefore warrant constant monitoring as do several local jurisdictional intersections that exhibit consistently high crash frequencies.

The leading cause of crashes during the Calendar Year 2015-2019 study period was once again a "**failure to yield right of way**" with **3,593** incidents (Table 5). A typical leading cause of this includes **"following too closely"** with **3,464** incidents, and **"ran off road right"** with **1,500** incidents. Most "unsafe backing" incidents have been omitted in this report due to them not occurring in the public right-of-way, such as within private parking lots or driveways, although several of these incidents still occur within the public right-of-way and are counted in this report. Many causes of these crashes are addressable through education efforts as well as through selective physical improvements. "Running off the right side of the road" and "speeding in adverse weather" additionally present opportunities for physical safety improvements, such as guard rails, rumble strips, and interactive signage. These types of improvements warrant further exploration for crash reductions; however they are designed to decrease the amount of crashes resulting in injuries and fatalities.

Crashes involving pedestrians and bicyclists are considerably important within the BMCMPO's Metropolitan Planning Area given a relatively high number of urbanized area non-motorized trips, the vulnerability to injury of individuals using these modes, and the BMCMPO's goals for increasing walking and bicycling modal shares. Compared to other types of crashes, those involving pedestrians and bicyclists are much more likely to result in a fatality or an incapacitating injury. Reducing the frequency and severity of these crashes is therefore a priority and will be addressed in a future report.



	12 AM - 1 AM	1 AM - 2 AM	2 AM - 3 AM	3 AM - 4 AM	4 AM - 5 AM	5 AM - 6 AM	6 AM - 7 AM	7 AM - 8 AM	8 AM - 9 AM	9 AM - 10 AM	10 AM - 11 AM	11 AM - 12 PM	12 PM - 1 PM	1 PM - 2 PM	2 PM - 3 PM	3 PM - 4 PM	4 PM - 5 PM	5 PM - 6 PM	6 PM - 7 PM	7 PM - 8 PM	8 PM - 9 PM	9 PM - 10 PM	10 PM - 11 PM	11 PM - 12 AM
# OF CRASHES - 2015	71	54	40	48	30	27	64	160	175	186	173	217	287	240	254	269	304	343	223	136	142	132	108	82
# OF CRASHES - 2016	96	63	42	33	32	45	60	156	191	187	208	219	301	227	235	297	290	319	184	183	116	112	113	81
# OF CRASHES - 2017	83	36	40	39	33	49	84	172	172	176	172	215	265	233	228	291	264	323	209	180	145	110	128	68
# OF CRASHES - 2018	81	49	38	31	34	32	76	165	152	176	166	222	261	222	245	301	286	356	222	170	107	91	93	78
# OF CRASHES - 2019	67	33	34	43	28	46	73	156	177	148	137	190	194	173	199	223	250	266	184	166	133	89	67	58
AVERAGE - 2015-2019	79.6	47	38.8	38.8	31.4	39.8	71.4	161.8	173.4	174.6	171.2	212.6	261.6	219	232.2	276.2	278.8	321.4	204.4	167	128.6	106.8	101.8	73.4

Figure 1: Number of Crashes by Time of Day in Monroe County - 2015-2019

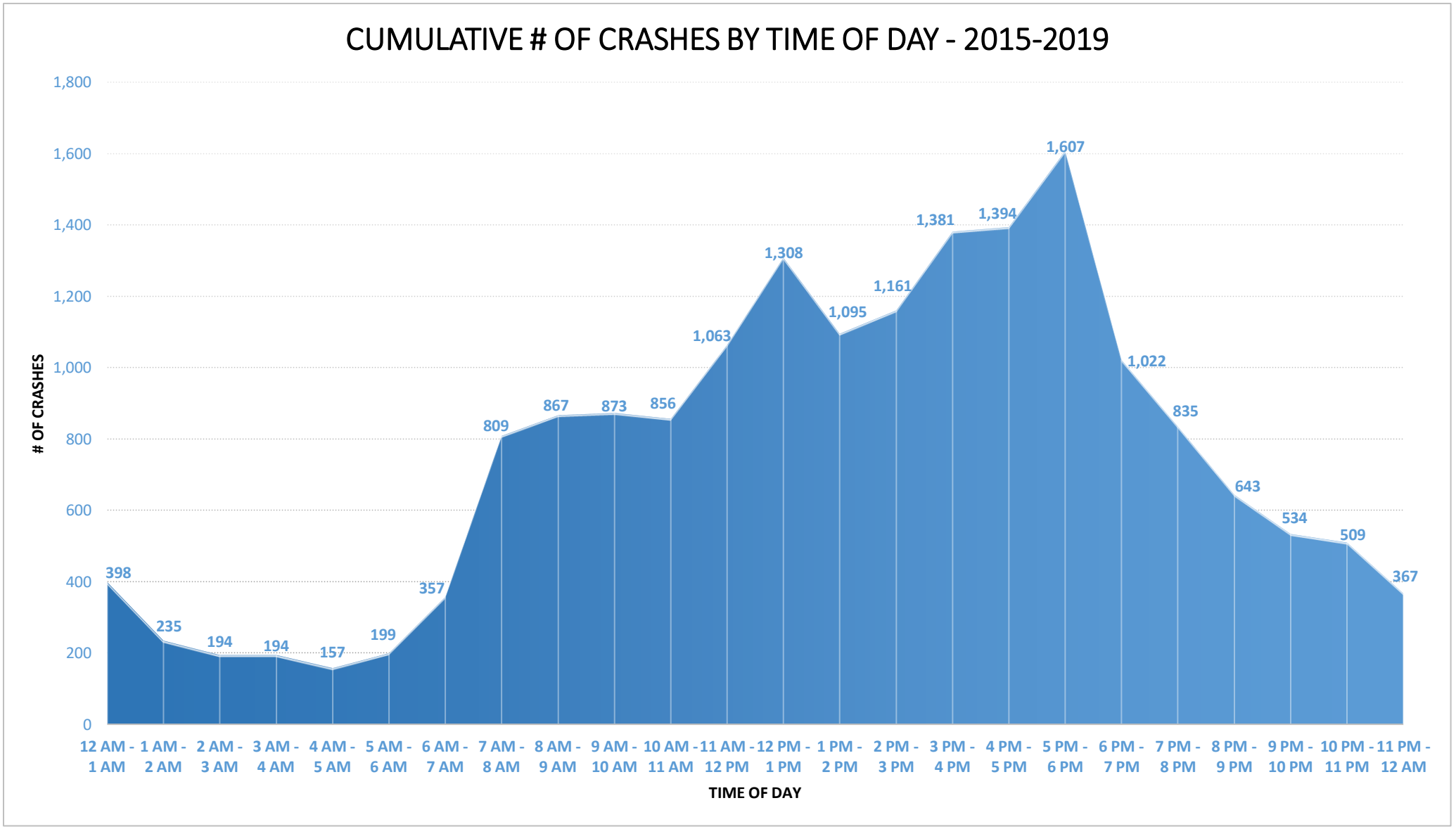
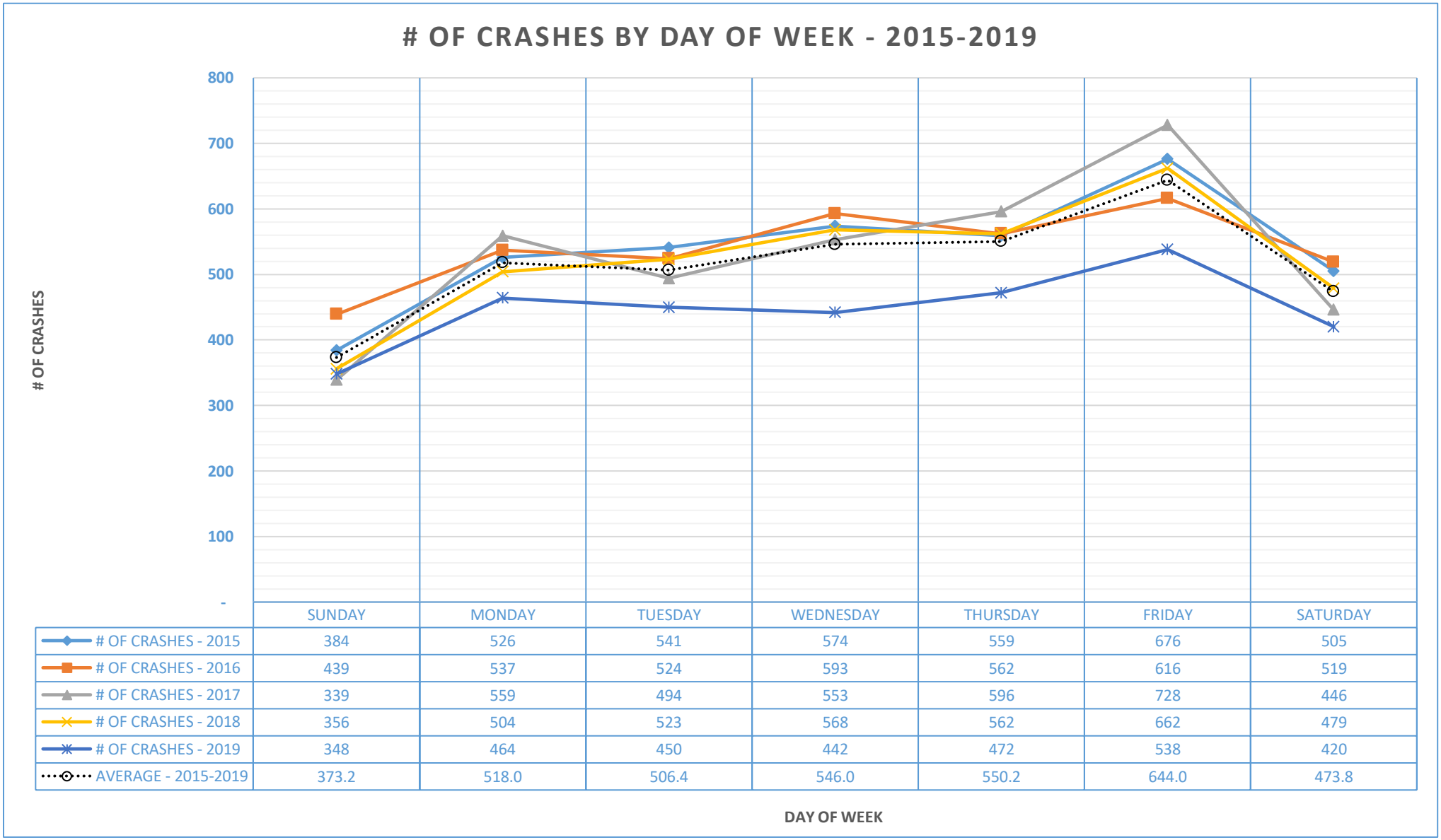


Figure 2: Cumulative Number of Crashes by Time of Day in Monroe County - 2015-2019



	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
# OF CRASHES - 2015	384	526	541	574	559	676	505
# OF CRASHES - 2016	439	537	524	593	562	616	519
# OF CRASHES - 2017	339	559	494	553	596	728	446
# OF CRASHES - 2018	356	504	523	568	562	662	479
# OF CRASHES - 2019	348	464	450	442	472	538	420
AVERAGE - 2015-2019	373.2	518.0	506.4	546.0	550.2	644.0	473.8

Figure 3: Number of Crashes by Day of Week in Monroe County - 2015-2019

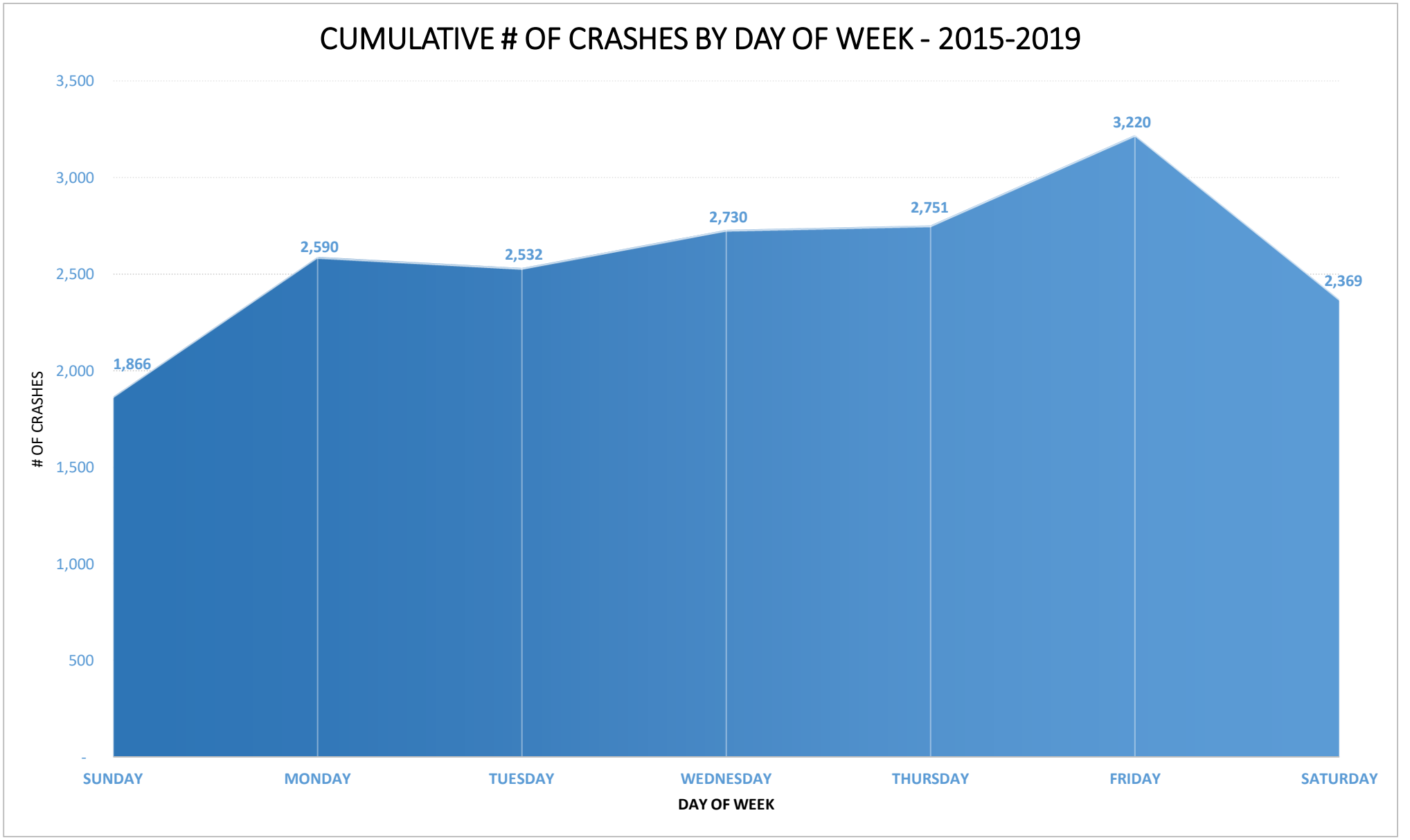
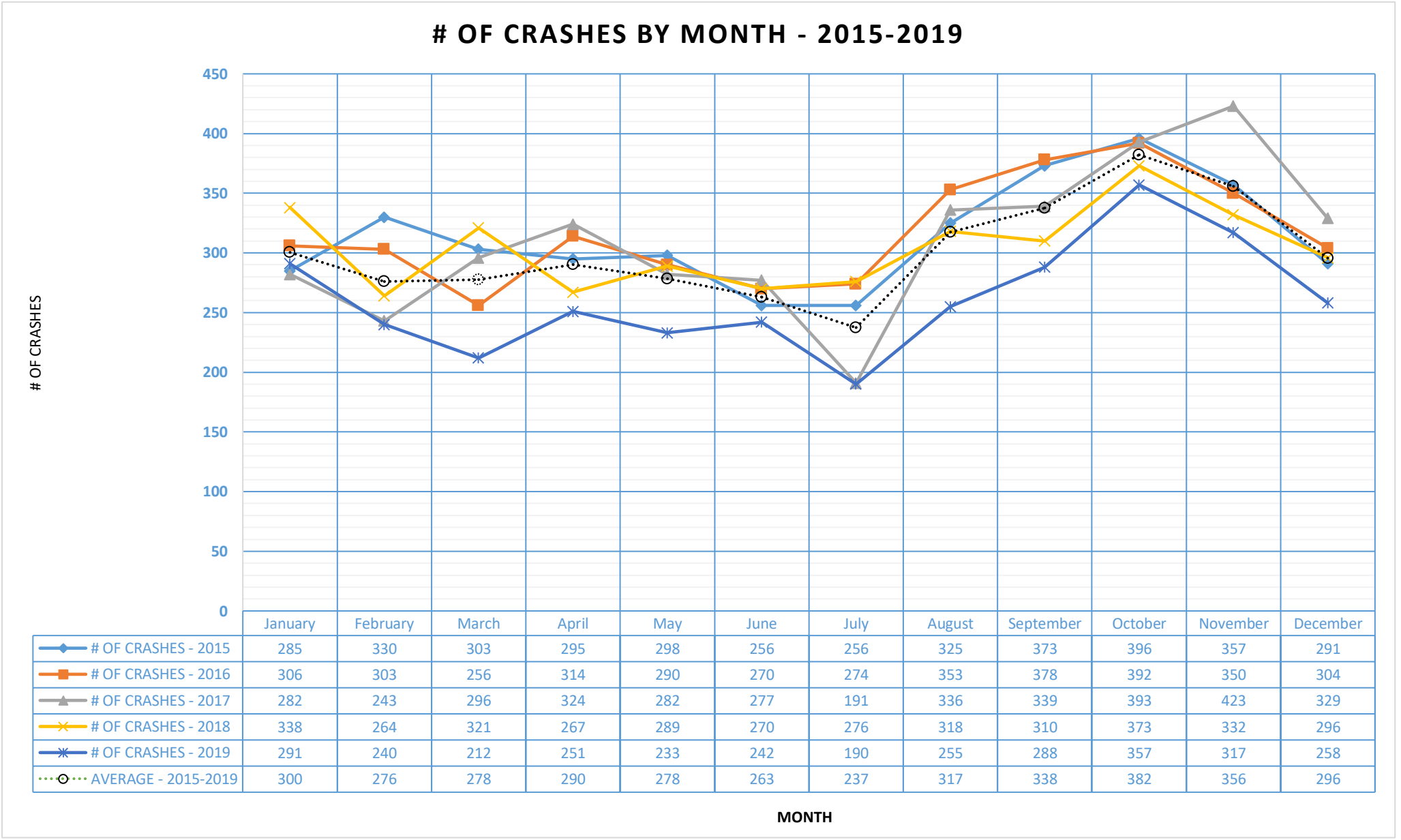


Figure 4: Cumulative Number of Crashes by Day of Week in Monroe County - 2015-2019



	January	February	March	April	May	June	July	August	September	October	November	December
# OF CRASHES - 2015	285	330	303	295	298	256	256	325	373	396	357	291
# OF CRASHES - 2016	306	303	256	314	290	270	274	353	378	392	350	304
# OF CRASHES - 2017	282	243	296	324	282	277	191	336	339	393	423	329
# OF CRASHES - 2018	338	264	321	267	289	270	276	318	310	373	332	296
# OF CRASHES - 2019	291	240	212	251	233	242	190	255	288	357	317	258
AVERAGE - 2015-2019	300	276	278	290	278	263	237	317	338	382	356	296

Figure 5: Number of Crashes by Month in Monroe County - 2015-2019

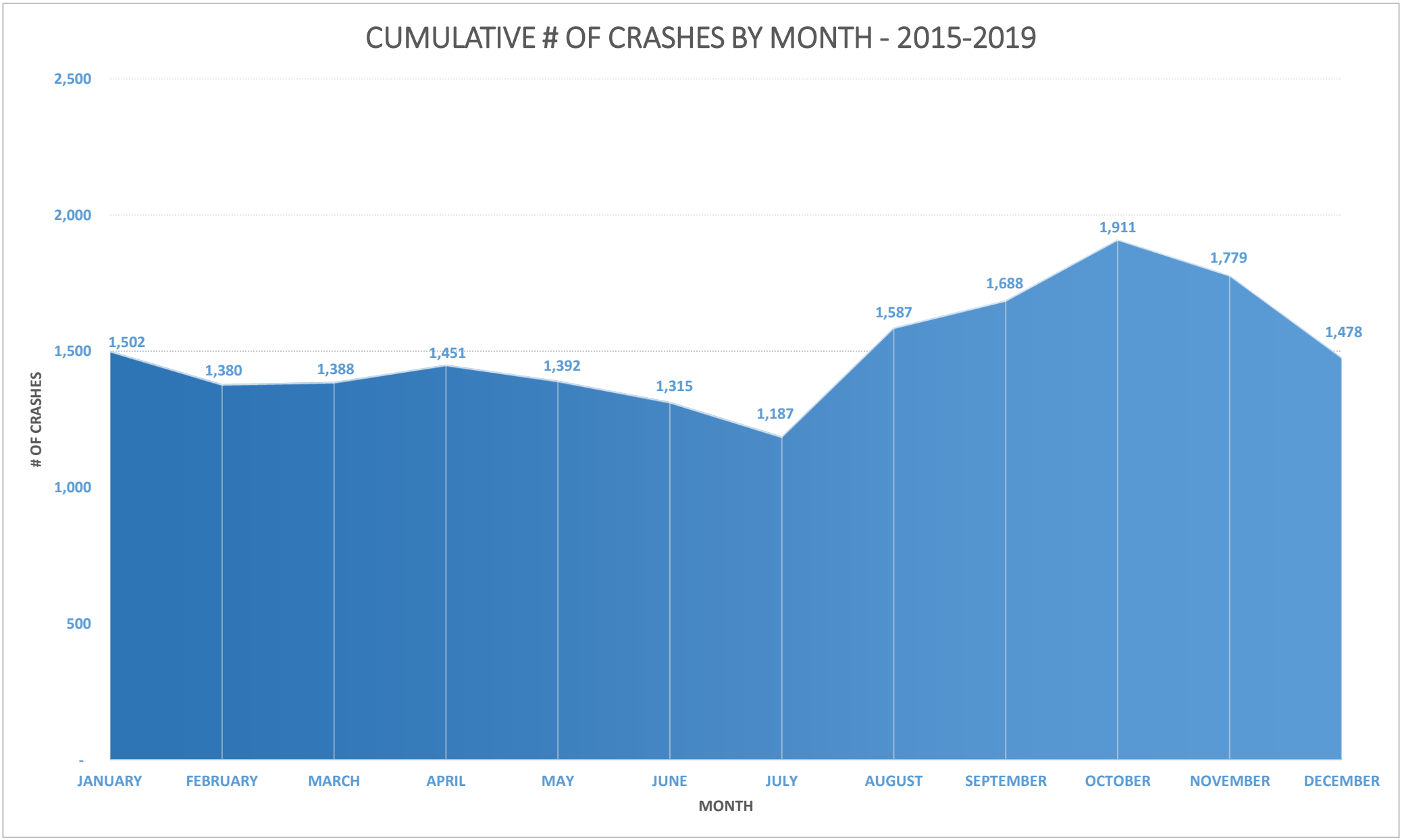


Figure 6: Cumulative Number of Crashes by Month in Monroe County - 2015-2019

2015-2019 Crash Report

Crash Locations

This section addresses the spatial distribution of crashes in Monroe County highlighting locations of high crash frequency and crash rates. This identification process used a stepwise approach: (1) ranking the sum total of all CY 2015-2019 all Monroe County intersection crash locations into the "Top 50 Crash Locations" (Table 1) and (2) adjusting these crash locations with traffic volume data thereby deriving five-year crash rates (Table 2).

The methodology used in this report does not identify locations which have a higher than expected (i.e. statistically significant) crash totals, crash rates, or severity indices. Future crash reports should therefore consider a comparative analysis of intersections with similar operating characteristics. The BMCMPO staff shall additionally explore a network solution for calculating crash rates at lower crash frequency locations.

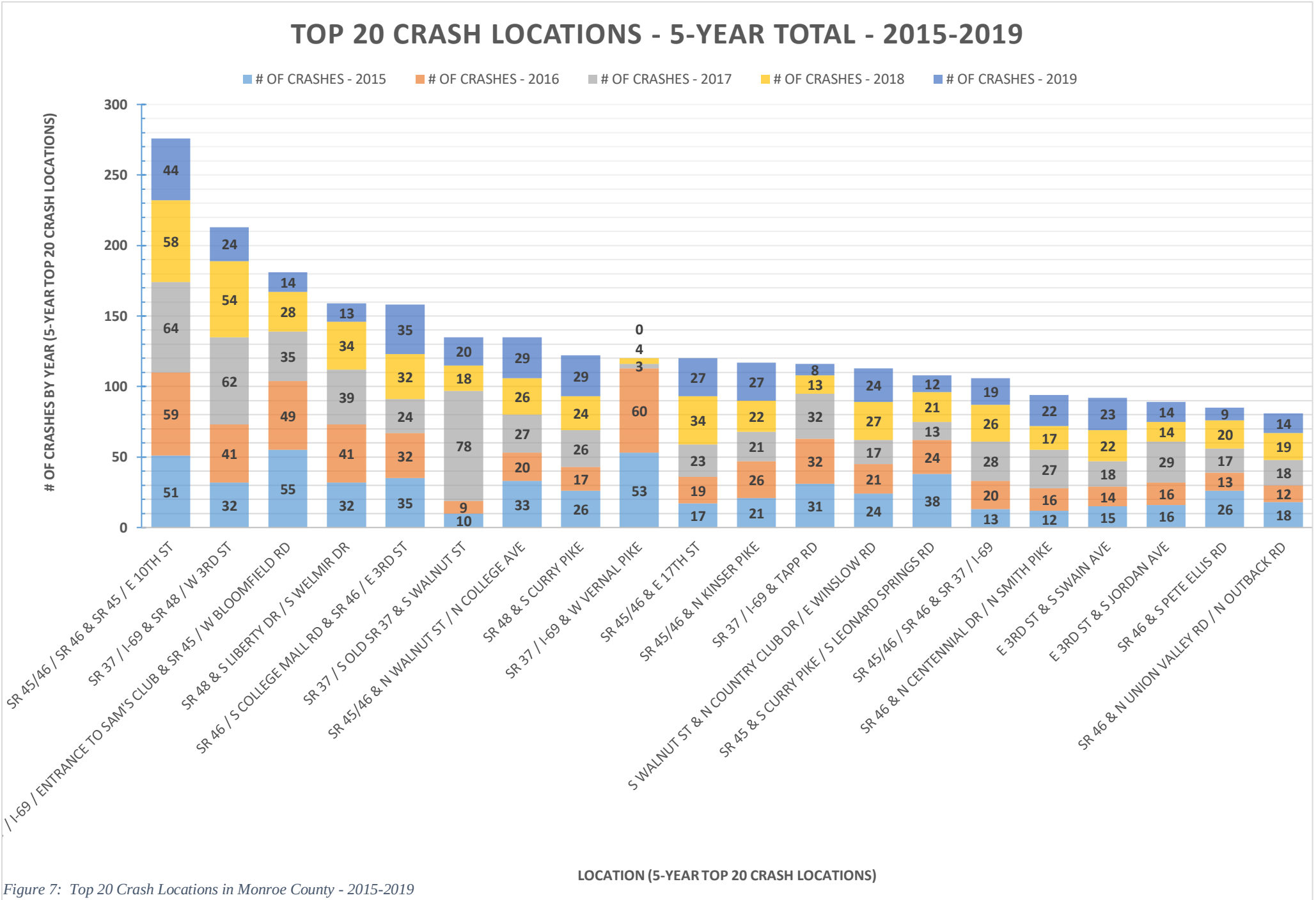


Figure 7: Top 20 Crash Locations in Monroe County - 2015-2019

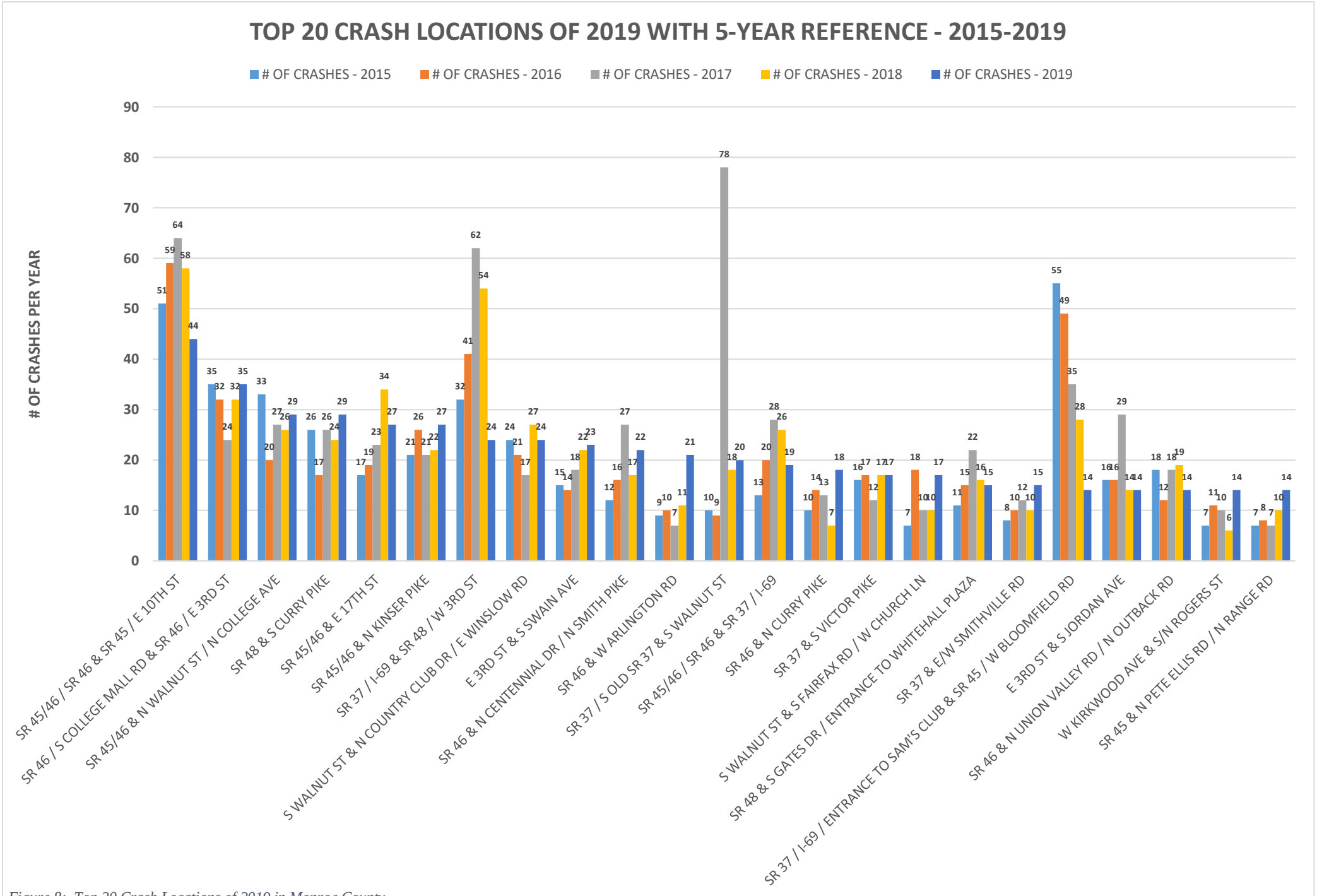


Figure 8: Top 20 Crash Locations of 2019 in Monroe County

2015-2019 Crash Report

Table 1: Top 50 Crashes by Location in Monroe County

TOP 50 CRASHES BY LOCATION (5-YEAR RANKS, AVERAGES, TOTALS, AND PROGRESS)					
Intersection	**INTERSECTION RANK - 2015-2019**	**AVERAGE INTERSECTION RANK - 2015-2019**	**5-YEAR TOTAL # OF CRASHES RANK - 2015-2019**	**5-YEAR AVERAGE # OF CRASHES - 2015-2019**	**5-YEAR TOTAL # OF CRASHES - 2015-2019** (Green = Improving, Red = Worsening)
SR 45/46 / SR 46 & SR 45 / E 10TH ST	1	1.8	1	55.2	276
SR 37 / I-69 & SR 48 / W 3RD ST	2	4.6	2	42.6	213
SR 37 / I-69 / ENTRANCE TO SAM'S CLUB & SR 45 / W BLOOMFIELD RD	4	6.8	3	36.2	181
SR 48 & S LIBERTY DR / S WELMIR DR	6	8.4	4	31.8	159
SR 46 / S COLLEGE MALL RD & SR 46 / E 3RD ST	3	6.0	5	31.6	158
SR 45/46 & N WALNUT ST / N COLLEGE AVE	5	7.6	6	27.0	135
SR 37 / S OLD SR 37 & S WALNUT ST	25	32.4	6	27.0	135
SR 48 & S CURRY PIKE	7	11.0	8	24.4	122
SR 45/46 & E 17TH ST	9	11.8	9	24.0	120
SR 37 / I-69 & W VERNAL PIKE	115	119.4	9	24.0	120
SR 45/46 & N KINSER PIKE	8	11.2	11	23.4	117
SR 37 / I-69 & TAPP RD	16	22.8	12	23.2	116
S WALNUT ST & N COUNTRY CLUB DR / E WINSLOW RD	9	11.8	13	22.6	113
SR 45 & S CURRY PIKE / S LEONARD SPRINGS RD	12	17.0	14	21.6	108
SR 45/46 / SR 46 & SR 37 / I-69	11	15.0	15	21.2	106
SR 46 & N CENTENNIAL DR / N SMITH PIKE	15	22.0	16	18.8	94
E 3RD ST & S SWAIN AVE	13	20.0	17	18.4	92
E 3RD ST & S JORDAN AVE	14	21.8	18	17.8	89
SR 46 & S PETE ELLIS RD	20	27.4	19	17.0	85
SR 46 & N UNION VALLEY RD / N OUTBACK RD	18	24.6	20	16.2	81
SR 37 & S VICTOR PIKE	17	23.4	21	15.8	79
SR 48 & S GATES DR / ENTRANCE TO WHITEHALL PLAZA	21	28.0	21	15.8	79
SR 45 & S LIBERTY DR / S HICKORY LEAF DR	22	30.0	23	15.6	78
S WALNUT ST & E/W GRIMES LN	19	26.8	24	15.0	75

2015-2019 Crash Report

E 10TH ST & N JORDAN AVE	23	30.6	25	14.6	73
S WALNUT ST & E RHORER RD / W GORDON PIKE	31	41.0	26	14.4	72
E 10TH ST & N UNION ST	24	31.6	27	14.0	70
E/W 10TH & N COLLEGE AVE	30	40.8	28	14.0	70
W 2ND ST & S PATTERSON DR	25	32.4	29	13.2	66
N CURRY PIKE & W VERNAL PIKE	27	35.6	30	12.8	64
SR 45/46 & N RANGE RD	28	35.8	30	12.8	64
SR 37 / I-69 & E/W SAMPLE RD	44	52.0	30	12.8	64
SR 46 & N CURRY PIKE	34	43.6	33	12.4	62
S WALNUT ST & S FAIRFAX RD / W CHURCH LN	37	46.4	33	12.4	62
W OLD SR 37 & N WALNUT ST / N SR 37 BUSINESS	29	38.0	33	12.4	62
SR 46 & N HARTSTRAIT RD	32	41.2	36	12.2	61
W 17TH ST & N KINSER PIKE / N MADISON ST	36	45.4	37	11.8	59
SR 46 & W ARLINGTON RD	46	56.2	38	11.6	58
E COVENANTER DR & S COLLEGE MALL RD	33	41.4	38	11.6	58
W 3RD ST & S COLLEGE AVE	45	54.8	40	11.4	57
SR 45/46 & N DUNN ST	35	44.6	40	11.4	57
N/S COLLEGE AVE & W KIRKWOOD AVE	39	47.4	40	11.4	57
SR 46 & N/S SALE ST (2 INTERSECTIONS)	38	46.6	43	11.2	56
SR 37 & E/W DILLMAN RD	49	58.8	43	11.2	56
SR 37 & E/W SMITHVILLE RD	40	49.2	45	11.0	55
E/W 3RD ST & S WALNUT ST	66	78.6	46	10.8	54
W 2ND ST & S COLLEGE AVE	41	50.6	46	10.8	54
E/W 7TH ST & N WALNUT ST	43	51.0	46	10.8	54
W 3RD ST / S ADAMS ST & S PATTERSON DR	42	50.8	49	10.6	53
N/S WALNUT ST & E/W KIRKWOOD AVE	48	58.0	49	10.6	53
SR 46 & KINGSTON DR S	61	73.4	51	9.8	49
E 3RD ST & S HIGHLAND AVE	54	64.4	51	9.8	49
SR 37 & E/W MONROE DAM RD	65	77.6	51	9.8	49

Table 2: Top 50 Crash Locations by Crash Rate in Monroe County - 2015-2019

TOP 50 CRASH LOCATIONS BY CRASH RATE – 5 YEAR AVERAGES AND RANKS – 2015-2019				
INTERSECTION	**JURISDICTION**	**2015-2019 INTERSECTION CRASH RATE (# OF CRASHES / MEV) - AVERAGE**	**INTERSECTION CRASH RATE RANK - 2015-2019**	**AVERAGE INTERSECTION CRASH RATE RANK - 2015-2019**
W OLD SR 37 & N DUNN ST	COB	6.107	1	19.4
E 3RD ST & S SWAIN AVE	COB	5.205	2	1.8
SR 45/46 / SR 46 & SR 45 / E 10TH ST	INDOT	3.526	3	4.4
SR 37 / S OLD SR 37 & S WALNUT ST	INDOT	3.006	4	36.4
W OLD SR 37 & N WALNUT ST / N SR 37 BUSINESS	COB	2.806	5	11.0
SR 446 & S SWARTZ RIDGE RD	INDOT	2.790	6	25.2
S WALNUT ST & S FAIRFAX RD / W CHURCH LN	MC	2.671	7	14.8
SR 48 & W VERNAL PIKE	INDOT	2.608	8	46.6
E 3RD ST & S JORDAN AVE	COB	2.585	9	14.2
E/W 10TH & N COLLEGE AVE	COB	2.413	10	20.0
S FAIRFAX RD & S WALNUT ST PIKE	MC	2.263	11	17.0
W 6TH ST & N COLLEGE AVE	COB	2.149	12	28.0
SR 45/46 & E 17TH ST	INDOT	2.127	13	20.0
S FAIRFAX RD & E SCHACHT RD	MC	2.042	14	26.2
N CURRY PIKE & W VERNAL PIKE	MC	1.990	15	18.8
SR 46 / S COLLEGE MALL RD & SR 46 / E 3RD ST	INDOT	1.962	16	22.0
SR 46 & S PETE ELLIS RD	INDOT	1.954	17	27.0
SR 37 & S VICTOR PIKE	INDOT	1.954	18	21.0
SR 46 & S PARK RIDGE RD	INDOT	1.931	19	27.4
S LIBERTY DR & W CONSTITUTION AVE	COB	1.924	20	25.6
S WALNUT ST & W COUNTRY CLUB DR / E WINSLOW RD	COB	1.914	21	24.2
S HENDERSON ST / S INDIANA AVE & E ATWATER AVE	COB	1.903	22	23.4
E 17TH ST & N JORDAN AVE	COB	1.814	23	27.4

2015-2019 Crash Report

SR 45/46 & N WALNUT ST / N COLLEGE AVE	INDOT	1.747	24	30.6
E 7TH ST & N JORDAN AVE	COB	1.698	25	37.0
E 3RD ST & S FESS AVE	COB	1.678	26	39.2
SR 37 & W DILLMAN RD	INDOT	1.675	27	38.8
E 10TH ST & N JORDAN AVE	COB	1.665	28	33.0
SR 45 & E MARTIN DR	INDOT	1.635	29	46.6
N SMITH PIKE & W WOODYARD RD	MC	1.591	30	41.4
N CURRY PIKE & W WOODYARD RD	MC	1.557	31	36.8
SR 37 & E/W SMITHVILLE RD	INDOT	1.498	32	40.4
S WALNUT ST PIKE & E WINSLOW RD	COB	1.498	33	41.6
N HARTSTRAIT RD & W VERNAL PIKE	MC	1.482	34	47.2
W OLD SR 37 & E BETHEL LN	INDOT	1.448	35	53.0
E RHORER RD & S WALNUT ST PIKE	MC	1.430	36	48.0
E/W 14TH ST & N WALNUT ST	COB	1.419	37	46.6
W 2ND ST & S PATTERSON DR	COB	1.406	38	40.2
SR 46 & N UNION VALLEY RD / N OUTBACK RD	INDOT	1.398	39	41.8
W 4TH ST & S COLLEGE AVE	COB	1.384	40	49.6
W 1ST ST & S COLLEGE AVE	COB	1.380	41	55.2
E 3RD ST & S INDIANA AVE	COB	1.379	42	54.2
E 3RD ST & S WOODLAWN AVE	COB	1.367	43	46.0
E 17H ST & N INDIANA AVE	COB	1.346	44	58.6
W 3RD ST & N KIMBLE DR	COB	1.327	45	50.8
SR 46 & N CURRY PIKE	INDOT	1.324	46	50.8
W 9TH ST & N COLLEGE AVE	COB	1.296	47	55.2
S WALNUT ST & E/W GRIMES LN	COB	1.270	48	48.4
SR 46 & SR 446	INDOT	1.266	49	55.4
E/W 7TH ST & N WALNUT ST	COB	1.253	50	50.4

Crash Factors, Fatalities, and Injuries

This section summarizes the primary crash factors from 2015 to 2019. An understanding of these causes informs infrastructure investments, enforcement activities, and educational efforts. Traffic law enforcement and road design can address unsafe speeds, while guardrail, rumble strips, or safety education can mitigate the tendency of motorists to drive off the road. Similarly, enforcement and education could reduce the number of crashes attributable to alcohol potentially leading to a decrease of weekend/late night hit and run crashes.

Table 5 illustrates all Primary Crash Factors for 2015-2019. "Failure to Yield Right-of-Way" and "Following Too Closely" were both once again the most common causes of crashes from 2015 to 2019 as it was from 2013 to 2015. "Running Off the Road to the Right" and "Animals/Objects in the Roadway" were additional significant crash factors. While "Failing to Yield Right-of-Way" was the most frequent crash cause, "Running off the Road to the Right" was more dangerous based on the percentage of crashes that resulted in fatality or incapacitating injury. Table 4 shows the Primary Crash Factors for 2015-2019 ranked in order of percent of fatalities resulting from the crash. Of the most during the time period, which resulted in 48 fatalities occurring in 43 crashes.

The frequency of crashes ranked by primary factor provides information about which crashes happen most often. The percentage comparison reveals which primary factors for crashes have previously resulted in injury and which are less likely to result in injury. For example, unsafe backing ranked ninth as a primary factor in a crash, but comparing likelihood of injury, 98% of crashes from unsafe backing result in no injury.

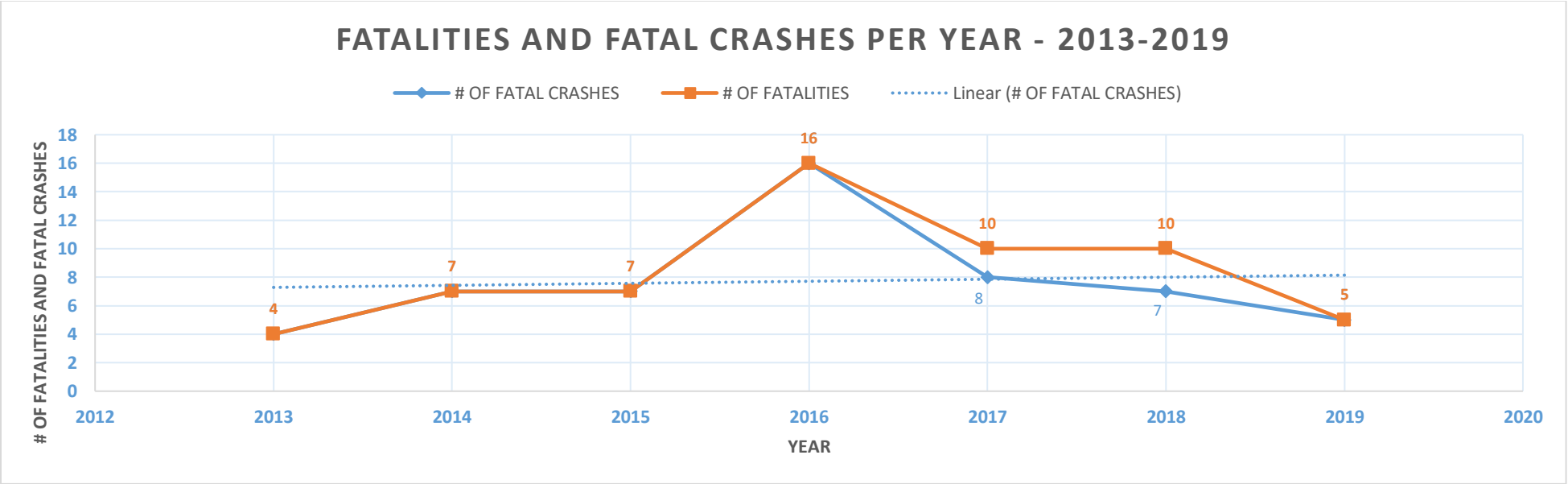


Figure 9: Fatalities and Fatal Crashes per Year - 2013-2019

Table 3: Fatal Crash Primary Factors by Year for Years 2015-2019

FATAL CRASH PRIMARY FACTORS - 2015			
RANK	**PRIMARY FACTOR**	**FATAL INJURY**	**% OF TOTAL**
1	RAN OFF ROAD - RIGHT	4	57%
2	UNSAFE SPEED	1	14%
2	DISREGARD SIGNAL / REG SIGN	1	14%
2	LEFT OF CENTER	1	14%
TOTAL		7	100%

FATAL CRASH PRIMARY FACTORS - 2016			
RANK	**PRIMARY FACTOR**	**FATAL INJURY**	**% OF TOTAL**
1	RAN OFF ROAD - RIGHT	4	25%
1	LEFT OF CENTER	4	25%
3	UNSAFE SPEED	3	19%
4	SPEED TOO FAST - WEATHER CONDITIONS	2	33%
5	DISREGARD SIGNAL / REG SIGN	1	6%
5	PEDESTRIAN ACTION	1	6%
5	FAILURE TO YIELD RIGHT-OF-WAY	1	6%
TOTAL		16	100%

FATAL CRASH PRIMARY FACTORS - 2017			
RANK	**PRIMARY FACTOR**	**FATAL INJURY**	**% OF TOTAL**
1	RAN OFF ROAD - RIGHT	3	30%
1	DRIVER DISTRACTED	3	30%
3	ANIMAL/OBJECT IN ROADWAY	1	10%
3	OVERCORRECTING/OVERSTEERING	1	10%
3	FAILURE TO YIELD RIGHT-OF-WAY	1	10%
3	LEFT OF CENTER	1	10%
TOTAL		10	100%

2015-2019 Crash Report

FATAL CRASH PRIMARY FACTORS - 2018			
RANK	**PRIMARY FACTOR**	**FATAL INJURY**	**% OF TOTAL**
1	LEFT OF CENTER	5	50%
2	FAILURE TO YIELD RIGHT-OF-WAY	1	10%
2	IMPROPER LANE USAGE	1	10%
2	UNSAFE BACKING	1	10%
2	ENGINE FAILURE OR DEFECTIVE	1	10%
2	PEDESTRIAN ACTION	1	10%
TOTAL		10	100%

FATAL CRASH PRIMARY FACTORS - 2019			
RANK	**PRIMARY FACTOR**	**FATAL INJURY**	**% OF TOTAL**
1	REAR-END - CAR TO BICYCLIST	1	20%
1	PEDESTRIAN ACTION	1	20%
1	RAN OFF ROAD - RIGHT	1	20%
1	RAN OFF ROAD - LEFT	1	20%
1	DRIVER ILLNESS	1	20%
TOTAL		5	100%

Table 4: Fatal Crash Primary Factors - Cumulative - 2015-2019

FATAL CRASH PRIMARY FACTORS - 2015-2019			
RANK	**PRIMARY FACTOR**	**FATAL INJURY**	**% OF TOTAL**
1	RAN OFF ROAD - RIGHT	12	25%
2	LEFT OF CENTER	11	23%
3	UNSAFE SPEED	4	8%
4	PEDESTRIAN ACTION	3	6%
4	FAILURE TO YIELD RIGHT-OF-WAY	3	6%
4	DRIVER DISTRACTED	3	6%
7	DISREGARD SIGNAL / REG SIGN	2	4%
7	SPEED TOO FAST - WEATHER CONDITIONS	2	4%
9	ANIMAL/OBJECT IN ROADWAY	1	2%
9	OVERCORRECTING/OVERSTEERING	1	2%
9	IMPROPER LANE USAGE	1	2%
9	UNSAFE BACKING	1	2%
9	ENGINE FAILURE OR DEFECTIVE	1	2%
9	REAR-END - CAR TO BICYCLIST	1	2%
9	RAN OFF ROAD - LEFT	1	2%
9	DRIVER ILLNESS	1	2%
TOTAL		**47**	**100%**

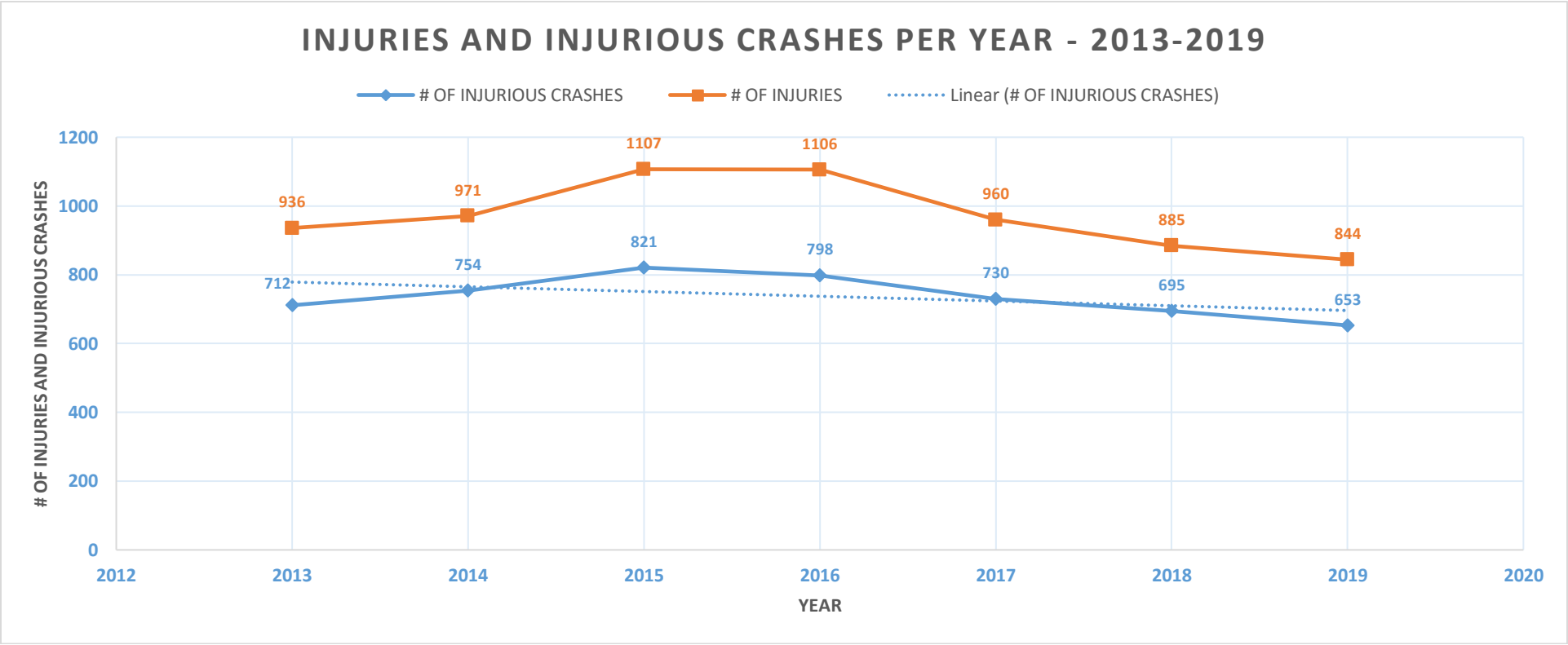


Figure 10: Injuries and Injurious Crashes per Year - 2013-2019

2015-2019 Crash Report

Table 5: Cumulative Number of Crashes by Primary Factor - 2015-2019

# OF CRASHES PER YEAR BY PRIMARY CRASH FACTOR – 2015-2019			
PRIMARY CRASH FACTOR	**5-YEAR TOTAL # OF CRASHES PER PRIMARY FACTOR - 2015-2019**	**5-YEAR AVERAGE # OF CRASHES PRIMARY FACTOR - 2015-2019**	**5-YEAR AVERAGE PRIMARY FACTOR RANK - 2015-2019**
FAILURE TO YIELD RIGHT OF WAY	3,593	1	1.0
FOLLOWING TOO CLOSELY	3,464	2	2.0
RAN OFF ROAD RIGHT	1,500	3	3.0
OTHER (DRIVER)	1,111	4	4.8
ANIMAL/OBJECT IN ROADWAY	979	5	5.2
UNSAFE LANE MOVEMENT	843	6	7.4
IMPROPER TURNING	841	7	7.4
SPEED TOO FAST FOR WEATHER CONDITIONS	763	8	8.0
UNSAFE BACKING	762	9	8.2
DISREGARD SIGNAL/REG SIGN	744	10	7.6
DRIVER DISTRACTED	472	11	12.0
UNSAFE SPEED	467	12	11.8
LEFT OF CENTER	376	13	13.4
UNKNOWN WITH NO OFFICER NARRATIVE	369	14	13.6
IMPROPER LANE USAGE	358	15	14.2
ROADWAY SURFACE CONDITION	210	16	17.0
IMPROPER PASSING	180	17	17.4
OVERCORRECTING/OVERSTEERING	172	18	17.6
OTHER (VEHICLE)	132	19	19.0
BREAK FAILURE OR DEFECTIVE	126	20	19.2
PEDESTRIAN ACTION	96	21	21.4
DRIVER ASLEEP OR FATIGUED	91	22	21.6
OTHER (ENVIRONMENTAL)	88	23	22.2
DRIVER ILLNESS	50	24	24.4
VIEW OBSTRUCTED	48	25	25.2

CELL PHONE USAGE	38	26	26.2
WRONG WAY ON ONE WAY	32	27	27.2
TIRE FAILURE OF DEFECTIVE	27	28	28.0
INSECURE/LEAKY LOAD	17	29	30.2
ACCELERATOR FAILURE OR DEFECTIVE	17	29	30.8
STEERING FAILURE	15	31	30.8
HEADLIGHT DEFECTIVE OR NOT ON	14	32	32.2
ENGINE FAILURE OR DEFECTIVE	13	33	31.4
OBSTRUCTION NOT MARKED	13	33	31.6
HOLES/RUTS IN SURFACE	11	35	32.6
TRAFFIC CONTROL MISSING/INOPERABLE/OBSCURED	8	36	33.8
OVERSIZE/OVERWEIGHT LOAD	7	37	34.4
OTHER LIGHTS DEFECTIVE	4	38	36.2
TOW HITCH FAILURE	3	39	36.6
REAR END - CAR TO BICYCLE	1	40	38.4
RAN OFF ROAD LEFT	1	40	38.4
OTHER TELEMATIC IN USE	1	40	38.0
LANE MARKING OBSCURED	1	40	38.4