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HUTRC Howard University Transportation Research and Data Center

DRAFT REPORT

Traffic Safety Statistics Report for the District of Columbia (2015-2017)

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10. Abstract This report is a compilation crash statistics and analyses for roadways in the District of Columbia during the period 2015 through 2017. The data covers all roadway classifications and is critical for identifying safety problems and trends, as well as for determining the level of success in achieving highway safety goals of the District Department of Transportation. The crash information reported in this document is characterized by location, severity, vehicle type, crash type, time of the crashes, and various environmental conditions. The compilation is done for the City as a whole, by Wards, and Police Districts. The locations with high crash frequency and/or severity in the District of Columbia are clearly identified. The statistics and analysis presented in this report can be used for developing appropriate countermeasures and performance measures. Combined with similar three-year reports, the information in this report facilitates the analysis of the long-term impact of DDOT's highway safety programs and projects.			
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CHAPTER 1 – INTRODUCTION

1.1 Objective

This report presents traffic crash statistics for the District of Columbia from 2015 to 2017. The information presented in this report aims at aiding the District of Columbia to meet its federal requirements on reporting traffic crashes, provide a resource for identifying safety trends, aid in the development of countermeasures, and evaluating the results of highway safety programs, projects, and policies. The District of Columbia Metropolitan Police Department (MPD) records traffic crash information electronically on the PD-10 form, which is the main source of the information presented in this report. The crash data was downloaded from secure servers at MPD into DDOT's database and was analyzed using two Oracle-based applications: Traffic Accident Reporting and Analysis System (TARAS2) and MS2 Crash Statistics module.

TARAS2 and MS2 contain data fields that include crash location, date, time, crash type, crash severity, and environmental conditions. This report presents a summary of all reported crashes in TARAS and MS2 for 2015, 2016 and 2017. The results of the analysis can be used to identify safety problems, develop performance measures, and support development and evaluation of highway and vehicle safety countermeasures.

This report was prepared by the Howard University Transportation Safety Data Center for the District Department of Transportation (DDOT).

1.2 Report Organization

This report is divided into seven chapters. Chapter 1 introduces the objective and organization of this report. Chapter 2 describes the methodology and analytical methods used to obtain the results of the analysis. In Chapter 3, Quick Crash Facts and Trends that provide a brief summary of traffic crashes in District of Columbia for the period 2015 through 2017 are presented. Chapter 4 presents general crash statistics for the District of Columbia and contains statistics on various crash categories, vehicle classifications (e.g., truck, bus, and motorcycle), and pedestrian/ bicycle involvement. Chapter 5 identifies high-hazardous crash locations and patterns at intersections and corridors. Chapter 6 presents exposure information regarding vehicle miles traveled, fatality and injury rates per 100 million vehicle miles traveled, and finally Chapter 7

(Appendix) presents detailed information on the top 100 high crash locations in the District of Columbia.

CHAPTER 2 – CRASH ANALYSIS METHODOLOGY

This section of the report focuses on the methodology used in obtaining the general traffic crash statistics and the determination of high hazardous crash locations. Descriptive statistics was used to determine the frequency of occurrence, the rates of crashes, as well as crash trends over the 3-year period from 2015 to 2017.

2.1 Traffic Crash Statistics

This report presents detailed statistics of the characteristics of traffic crashes and identifies factors that may have influenced their occurrence. The factors considered include vehicle characteristics, characteristics of persons involved (e.g., drivers, passengers, and pedestrians), physical environment (e.g., roadway type, traffic conditions, and weather conditions), and temporal crash characteristics (e.g., year, month, day, and time of day). The frequencies of crashes are summarized for each factor using descriptive statistics. The summary of the factors that contribute to crashes in the District of Columbia are presented in tabulated and graphical forms.

2.2 High-Hazardous Location Analysis

Frequency and severity of traffic crashes are two critical factors used in identifying high hazardous locations. Generally, a relatively high crash frequency at a location is an indicator of potential adverse condition(s) that may contribute to those crashes. Severity is defined as the extent of injury or damage sustained by individuals or properties involved in crashes. These two factors provide a better understanding of the level of susceptibility of the location of crashes. A macroscopic approach was used to determine the frequency and severity of traffic crashes in this report, thereby providing a starting point for more elaborate safety studies at identified high-hazardous intersections or corridors.

Several methods can be used to identify high hazardous locations based on the traffic crash data, exposure and location characteristics. The methods used include crash frequency, crash rate, crash severity, and crash trend (delta change). In addition to these methods, a composite crash index is used, which is a combination of severity and frequency of traffic crashes at a specific

location. Each of these methods has advantages and disadvantages. The following subsections provide a brief description of these methods.

2.2.1 Crash Frequency Method

Crash frequency represents the number of crashes that occurred within a defined time period at each location. The locations/sites are ranked in a decreasing order of frequency, from highest to the lowest. The site with the highest frequency of crashes is ranked highest on the basis of which a list of locations with their respective ranks is generated. This method of identifying high hazardous locations has some limitations, since it does not consider traffic exposure, location characteristics and contributing factors. Locations with high traffic volumes could experience a higher frequency of crashes, but represent a low to moderate risk for road users. In contrast, a low volume location with fewer crashes could present much greater risk to road users.

Crash frequency ranking presents a *preliminary* identification of locations that may be hazardous from a traffic safety perspective, and which should be further examined to determine critical contributing factors.

2.2.2 Crash Rate Method

Crash rate for an intersection is expressed as the average number of crashes per year divided by the volume of traffic entering the intersection per year. The following equation was used to calculate the intersection crash rate:

$$R = \frac{A\ x\ 1{,}000{,}000}{V\ x\ 365} \qquad [1]$$

where:

R = Crash Rate for an intersection (crashes per Million Entering Vehicles [MEV]);

A = Average number of crashes at the intersection per year; and

V = annual average daily traffic volume entering the intersection (vehicles/day)

Compared to the crash frequency method of ranking hazardous locations, the crash rate method is more appropriate since it takes traffic volumes (exposure) into account. In this report, the crash rate for each intersection was computed after which they were ranked and sorted in descending order. The location with the highest crash rate was ranked the highest. For locations where traffic volumes were unavailable, their ranking was skipped. The disadvantage of the crash

rate method is that, comparatively high crash rates could be computed for locations with low traffic volumes, which could lead to erroneous interpretation.

2.2.3 Crash Severity Cost Method

The PD-10s contain data fields with codes for injury severity for each person involved in a crash. These codes represent police officers' observation(s) of the level of injury severity experienced by persons involved in a crash, if any. In order to assess the extent of a crash due to the crash outcomes such as fatality, injury and property damage only (PDO) were utilized. This is intended help to avoid inaccuracies in the crash severity data. For example, the injury condition(s) of person(s) involved in a crash may be updated based on information received after the person(s) involved in the crash is/are sent to the hospital.

The resulting costs of traffic crashes were computed for each location to identify the severity indices, with a higher value of severity index indicating significant level injury or incapacitation. The costs were computed based on published crash cost rates by the Federal Highway Administration. The crash locations were then ranked in descending order based on the crash severity cost.

2.2.4 Composite Crash Index

Each of the methods described thus far provide some basis for identifying high-hazardous locations. However, the composite index method utilizes all of the factors: crash rate, severity and frequency to rank the reported crashes. The three types of rankings (rate, severity, and frequency) are combined to create a composite rank index. The crash rate, crash severity, and crash frequency rankings are combined in the model presented in Equation 2 to determine the composite index for the crashes.

$$\textit{Composite Crash Index (CCI)} = 0.25*RF + 0.25*RR + 0.50*RS \quad [2]$$

where:

RF = Rank of crash frequency

RR = Rank of crash rate; and

RS = Rank of crash severity

To determine the high hazardous crash locations, a ranked list was prepared for each of the three factors. The three rankings of each site were entered into Equation 2 to determine the

crash composite index. The three normalized rank lists are weighted using values of 0.25 for frequency, 0.25 for rate, and 0.5 for severity (as shown in Equation 2). The intersections are then sorted in descending order of the crash composite index. The intersection with the lowest composite index is ranked the highest.

This report also presents the CCI rankings of locations when the weights are changed to the following:

$$\textit{Composite Crash Index (CCI)} = 0.20*RF + 0.20*RR + 0.60*RS \quad [3]$$

where:

RF = Rank of crash frequency

RR = Rank of crash rate; and

RS = Rank of crash severity

2.2.5 Delta Change

The delta-change method presents the change in the number of crashes over time, derived from the slope of a linear regression model. This technique utilizes the slope to determine the increase or decrease of crashes for a study location. In summary, the delta-change method represents the crash trend over a period of time with positive and negative slope values respectively signifying an increase and decrease in crashes. The results could be used to project the potential occurrence of traffic crashes over time, with the higher slope values indicating that the crashes are likely to increase at a higher rate, and vice versa. The following is the equation used for the delta-change method:

$$\frac{n\sum xy - n\sum x\sum y}{n\sum x^2 - (\sum x)^2} \quad [4]$$

where: n = Number of years;

x = Year of study; and

y = Number of crashes at study location in year x.

CHAPTER 3 – SUMMARY OF CRASH TRENDS AND FACTS

This chapter presents an overview of the traffic crash trends in the District of Columbia for the years 2015 through 2017 and includes a summary of comparative crash statistics.

3.1 2017 DC Crash Statistics Quick Facts

Table 3.1 presents a summary of the crashes reported in the DC from 2015 through 2017. The pie chart in Figure 3.1 represents the percentage distribution of collisions by severity for 2017 only.

Table 3.1: DC Crash Quick Facts for 2017

Year	2015	2016	2017
Total Collisions	24,265	26,447	26,459
Fatal Collisions	26	27	31
Injury Collisions	6,215	6,305	6,626
Property Damage Only (PDO) Collisions	18,024	20,115	19,802
Fatalities	26	28	33
Total Non-Fatal Injuries	8,341	8,336	8,798
Disabling Injuries*	326	335	325
Non-Disabling Injuries*	2,191	2,601	2,424
Total Vehicles Involved	46,854	52,226	52,365
Total Persons Involved	60,958	64,819	63,359
Total Pedestrians Involved	1,243	1,091	1,183
Pedestrian Fatalities	15	9	13
Fatalities/100 Million VMT	0.7	0.76	0.89*
Injuries/100,000 Population	1,240.80	1,238.32*	1,267.77*

*Estimated value (37.11 HMVMT; Population of 693,972)

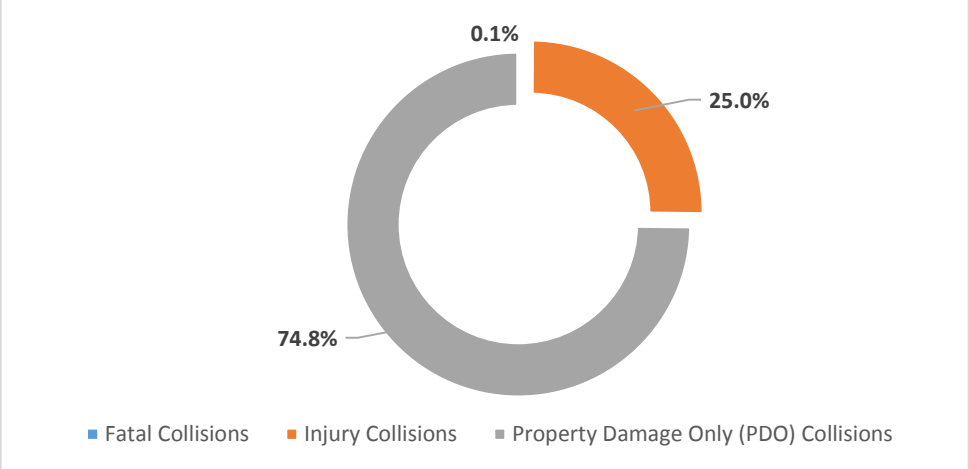

Figure 3.1: Crash Severity Types for 2017

Table 3.1 shows that the total number of fatalities recorded in 2017 increased by approximately 15% from the previous year. The most frequent crash severity type recorded in 2017 was Property Damage Only (PDO), which represented approximately 74.8% (19,802) of all crashes for that year. Injury and fatality collisions respectively represented about 25.0% (6,626) and 0.1% (31) of the total number of crashes recorded in 2017 as shown in Figure 3.1.

3.2 Total Crashes from 2008 through 2017

Figure 3.2 shows the trend in total crashes and corresponding injuries by year from 2008 through 2017. The figure shows that there has been a consistent increase in the total number of reported crashes from 2008 to 2017.

Figure 3.3 shows the number of fatalities by year, while Figure 3.4 presents the number of injured persons recorded by year from 2008 through 2017. The summary of the number of disabling and non-disabling injuries by year are presented in Figures 3.5 and 3.6, respectively.

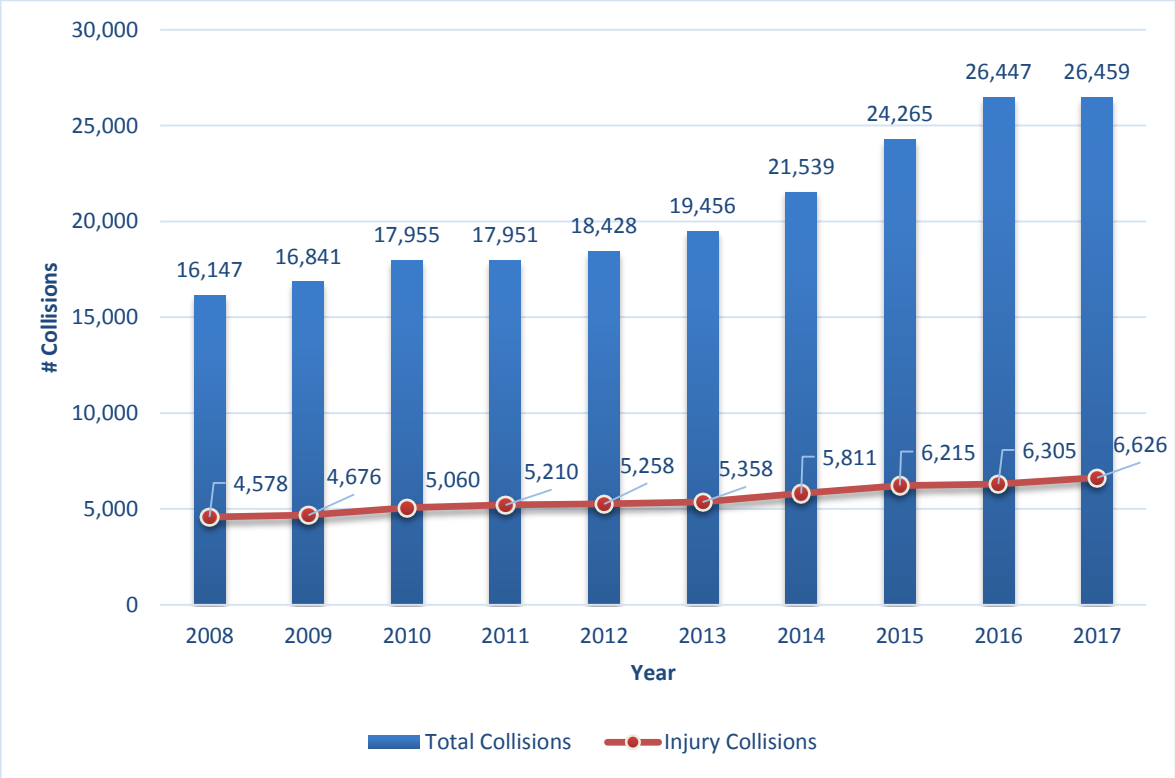

Figure 3.2: Traffic Crashes and Injury Crashes from 2008 through 2017

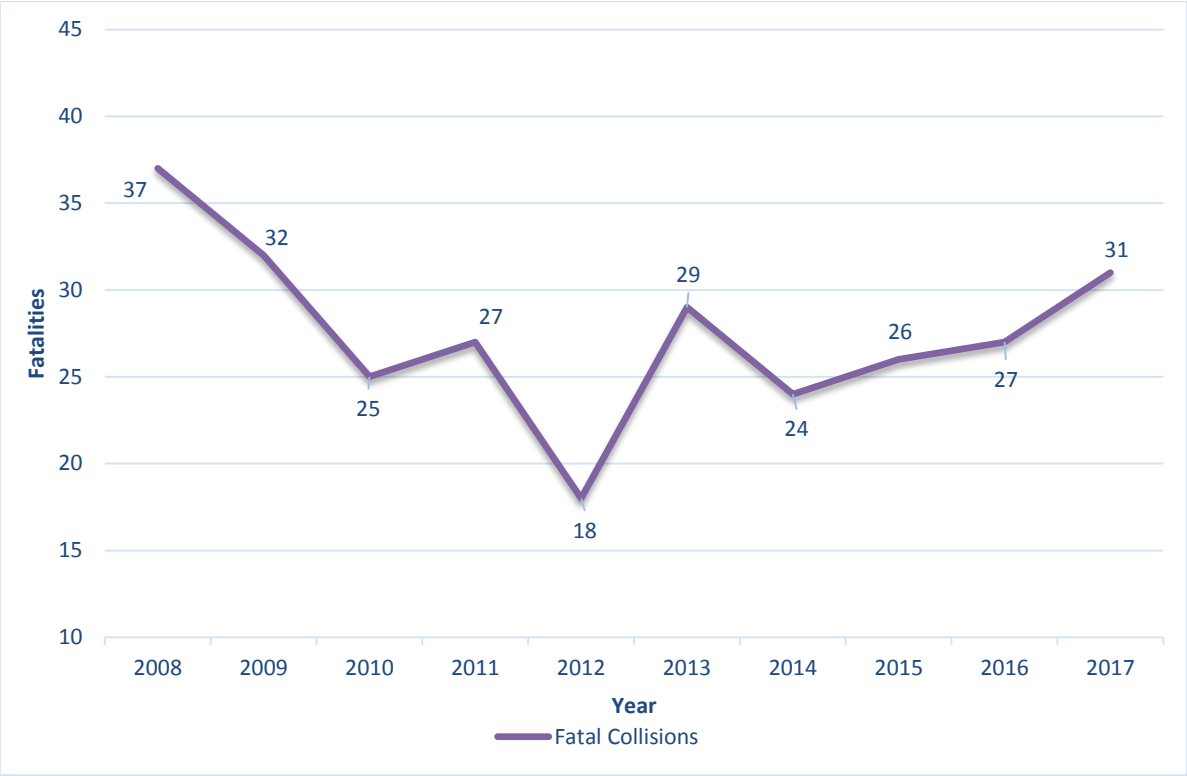

Figure 3.3: Fatalities from 2008 through 2017

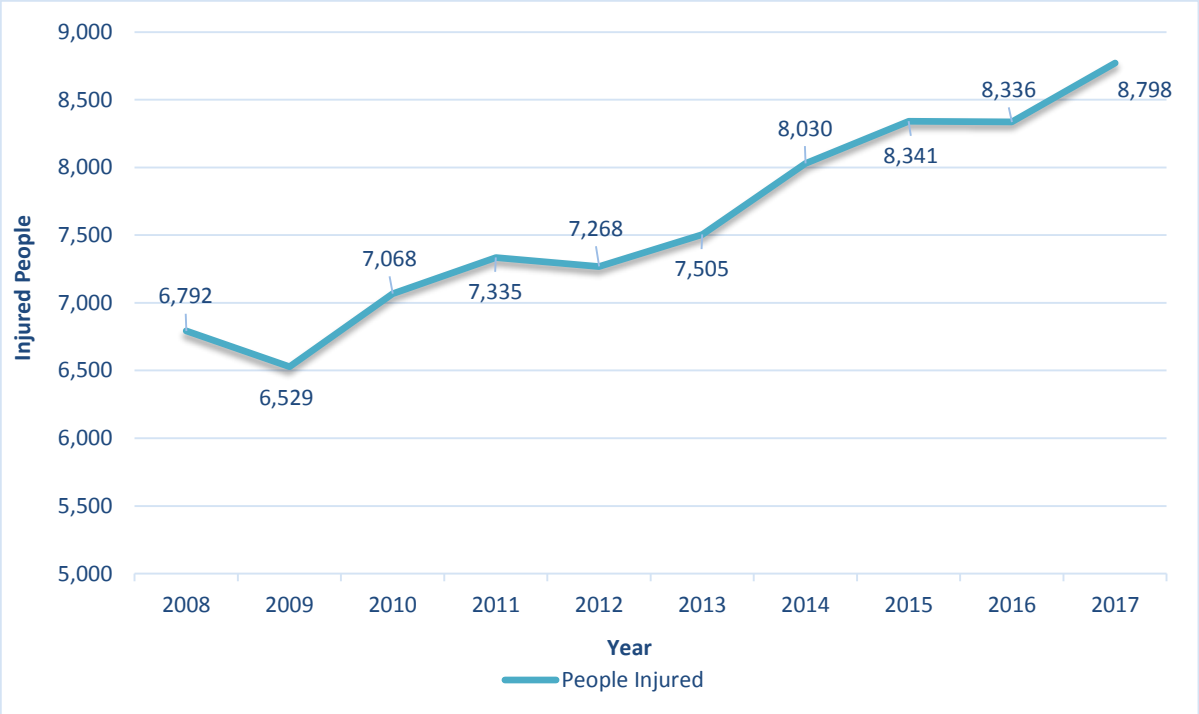

Figure 3.4: Injured People from 2008 through 2017

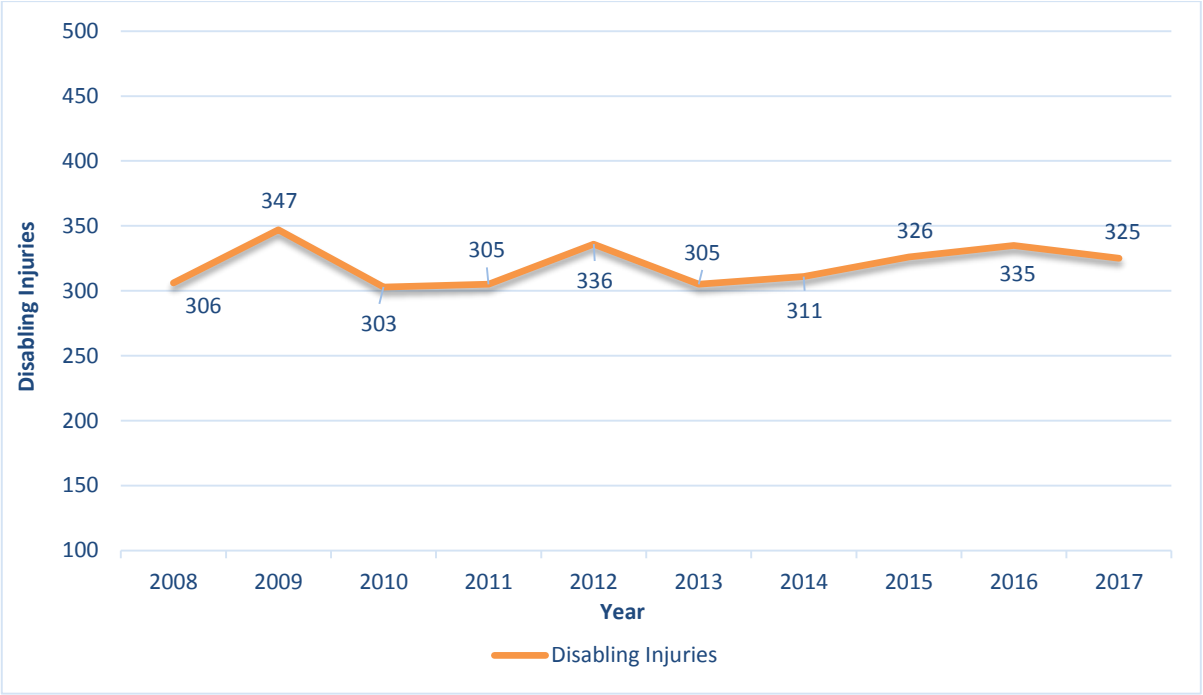

Figure 3.5: Disabling Injuries from 2008 through 2017

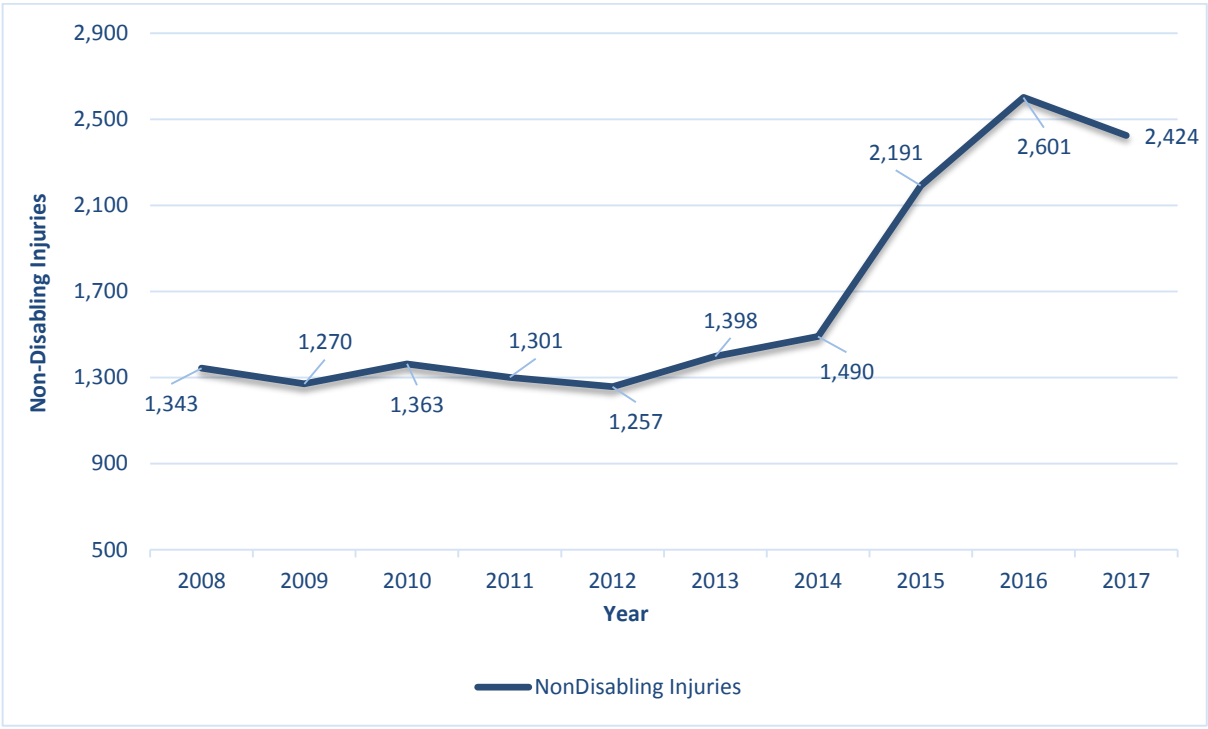

Figure 3.6: Non-Disabling Injuries from 2008 through 2017

From Figure 3.4, it can be observed that the number of injured people increased in 2017 by approximately 6% compared to the previous year. Similarly, the number of fatalities increased by approximately 15% in 2017 compared to 2016 (Figure 3.3).

While there was an increase in the number of number of injured people from 2009 to 2017 (Figure 3.4), there was a decline in the number of disabling and non-disabling injuries from 2016 to 2017 (Figure 3.5).

CHAPTER 4 – CRASH STATISTICS AND TRENDS

This section of the report presents the descriptive statistics for traffic crashes reported in the District of Columbia from 2015 to 2017. Some of the characteristics analyzed include crash occurrence time, crash type, roadway user and vehicle contributing factors, road conditions and geometric characteristics. The analysis focused on following:

- *Temporal*: time of crash occurrence such as year, month, date, time and day of week;
- *Location*: crash location identified by pre-defined areas such as Ward, Quadrant, and Police District
- *Crash Characteristics*: involved roadway users, related vehicle types, and others
- *Crash Severity*: fatal crash, injury crash, or property damage only
- *Environmental Factors*: road condition, light condition, weather condition, etc.
- *Hit and Run*

4.1 Temporal

The tables and figures in this section present the frequencies and distributions of crashes by time of day, day of week, day of month, month and year.

4.1.1 Traffic Crashes and Injuries by Hour of the Day

Table 4.1 presents the frequency of crashes for weekdays and weekends by hour of day for 2017. From the table, the majority of the crashes were reported between the hours of 3 P.M. (hour 15) and 6 P.M. (hour 18), with the highest number of reported injuries (655) occurring in hour 17 (5 P.M.). The total number of fatalities in 2017 recorded by the hour is presented in Figure 4.1. The maximum number of fatalities (5) was recorded during hours 2 (2 A.M.), 3 (3 A.M.), and 18 (6 P.M.).

Table 4.1: Crashes by Hour of the Day in 2017

Hour	Collisions	Fatalities	Injuries
00	672	2	185
01	566	0	177
02	488	5	179
03	507	5	174
04	283	0	76
05	301	1	102
06	579	0	245
07	1,059	0	441
08	1,596	1	602
09	1,405	0	433
10	1,209	1	376
11	1,168	1	373
12	1,256	0	388
13	1,376	0	442
14	1,448	1	525
15	1,775	0	608
16	1,954	0	560
17	1,999	1	658
18	1,776	5	585
19	1,268	1	402
20	972	2	326
21	1,023	1	331
22	951	4	338
23	828	2	272
Total	**26,459**	**33**	**8,798**

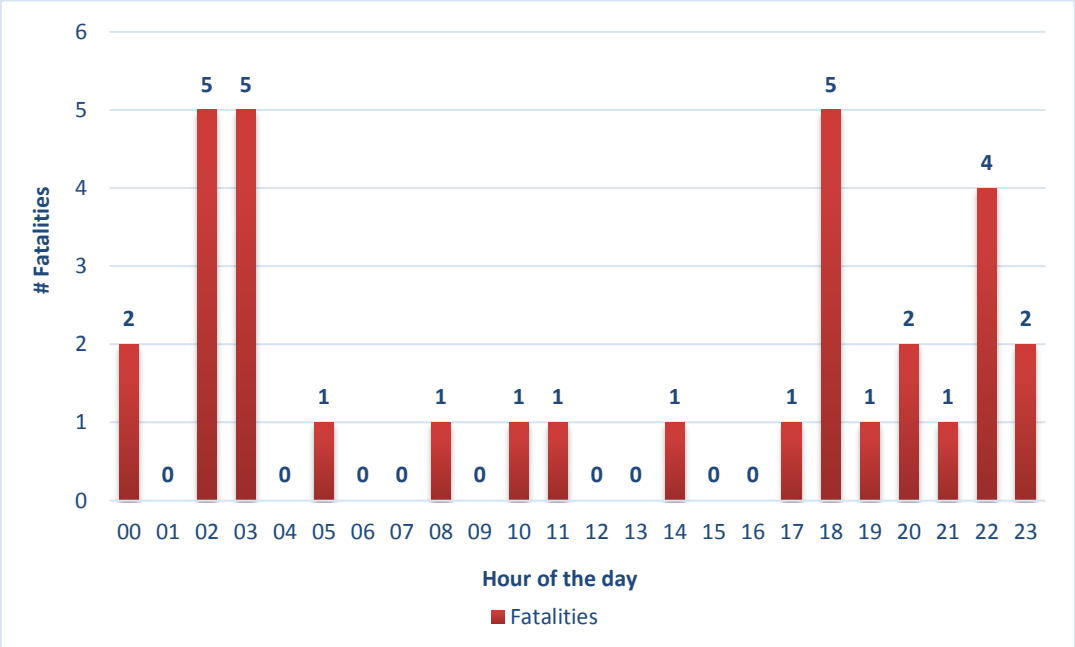

Figure 4.1: Total Fatalities by Hour in 2017

Figures 4.2 and 4.3 show the crashes and injuries by the hour of day for weekdays and weekends respectively. The figures show that the crash frequency in 2017 was highest during hour 17 (5 P.M.) for the weekdays and hour 3 (3 A.M.) for the weekends.

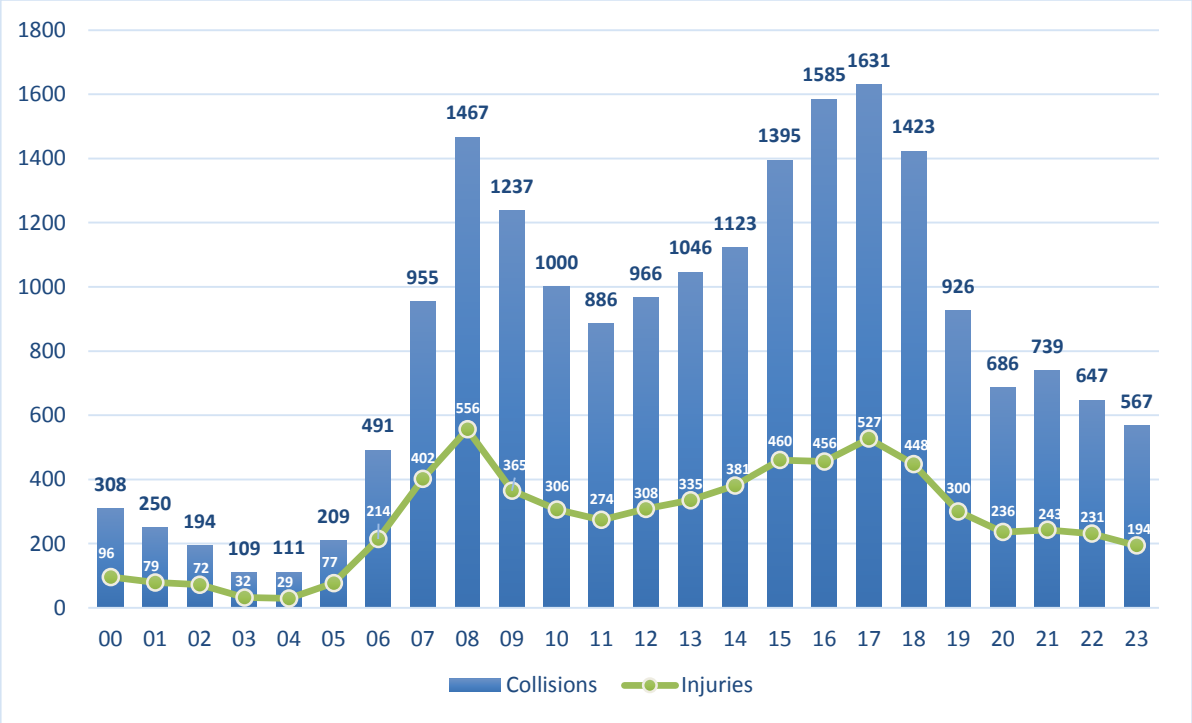

Figure 4.2: Crashes and Injuries by Hour of Day for Weekdays in 2017

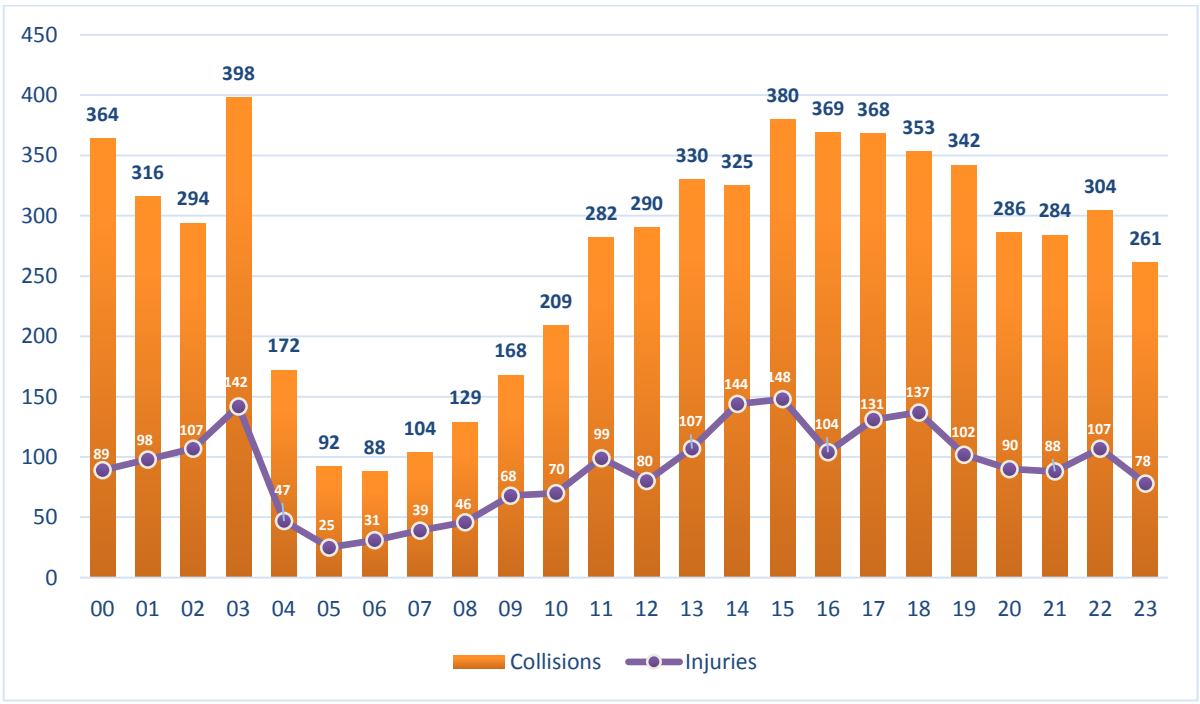

Figure 4.3: Crashes and Injuries by Hour of Day on Weekends in 2017

4.1.2 Traffic Crashes by Day of the Week

Table 4.2 shows the frequencies of crashes reported by the day of the week. This is also presented in Figure 4.4. From the table and figure, the highest number of collisions occurred on Friday while the highest number of fatalities occurred on Saturday. On the other hand, the lowest number of crashes and injuries was observed on Sunday.

Table 4.2: Crashes by Day of the week for 2017

	Collisions	Fatalities	Injuries
Sunday	2,941	7	1,006
Monday	3,463	6	1,190
Tuesday	3,952	1	1,429
Wednesday	4,109	3	1,335
Thursday	4,046	2	1,296
Friday	4,381	4	1,371
Saturday	3,567	10	1,171
Total	**26,459**	**33**	**8,798**

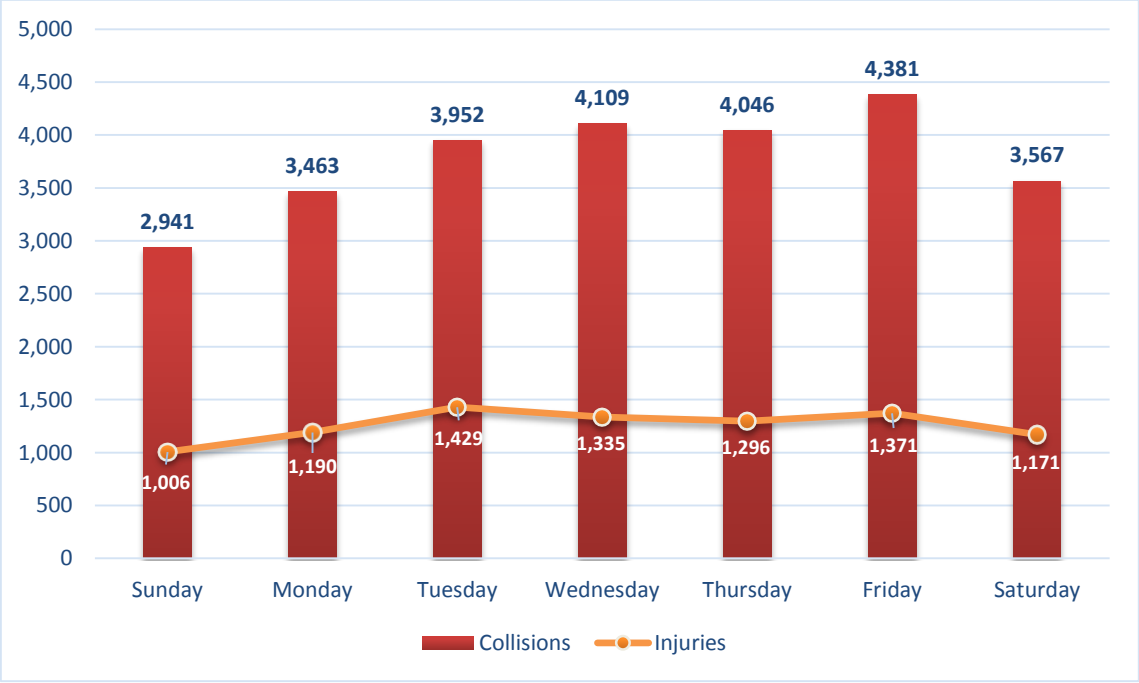

Figure 4.4: Crashes and Injuries by Day of Week in 2017

4.1.3 Traffic Crashes by Month

Table 4.3 and Figure 4.5 respectively show the overall vehicle crashes by month in 2017 and by month for 2015 through 2017. From the table, the highest number of crashes occurred in May while the lowest occurred in February.

Table 4.3: Crashes by Month in 2017

Month	Collisions	Fatalities	Injuries
January	2,093	5	684
February	1,850	1	562
March	2,328	2	702
April	2,357	2	821
May	2,460	3	818
June	2,295	5	778
July	2,232	1	719
August	2,102	4	715
September	2,277	1	827
October	2,280	5	792
November	2,140	1	721
December	2,045	3	659
Total	**26,459**	**33**	**8,798**

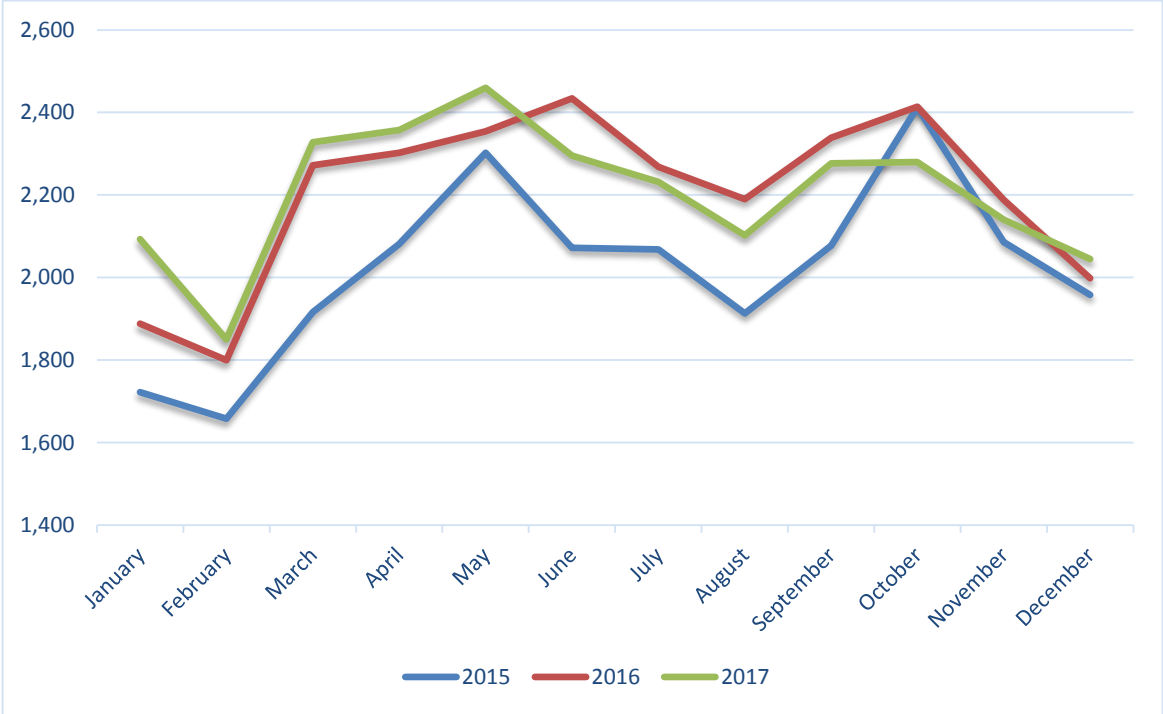

Figure 4.5: Total Crashes by Month for 2015-2017

4.2 Location

4.2.1 Crashes by Quadrant

This section presents the frequency of crashes reported in each quadrant in DC. The summary of the crashes by each quadrant is presented in Table 4.4 and shown in Figure 4.6. From the table and figure, it can be observed that the Northwest (NW) quadrant recorded the highest

number of reported crashes in 2017. Since the NW quadrant is the largest coverage area and the highest mileage, most of the reported crashes occurred in that quadrant. The GIS map for the crashes by quadrant is presented in Figure 4.7.

Table 4.4: Crashes by Quadrant in 2017

	Collisions	Fatalities	Injuries
NW	11,838	10	3,362
NE	6,071	14	2,206
SE	4,852	6	1,748
SW	753	1	245
BN	1,635	1	704
Unknown	1,310	1	533
Total	**26,459**	**33**	**8,798**

Note: NW=Northwest, NE=Northeast, SE=Southeast, SW=Southwest, BN=Border

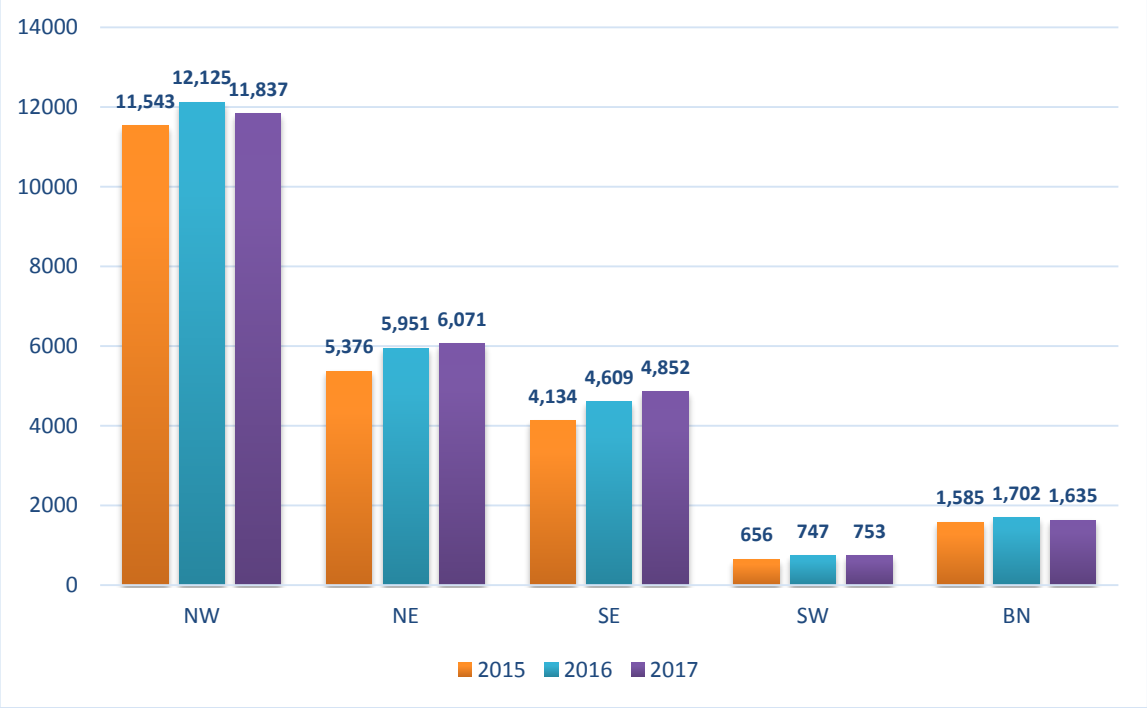

Figure 4.6: Total Crashes by Quadrant for 2015-2017

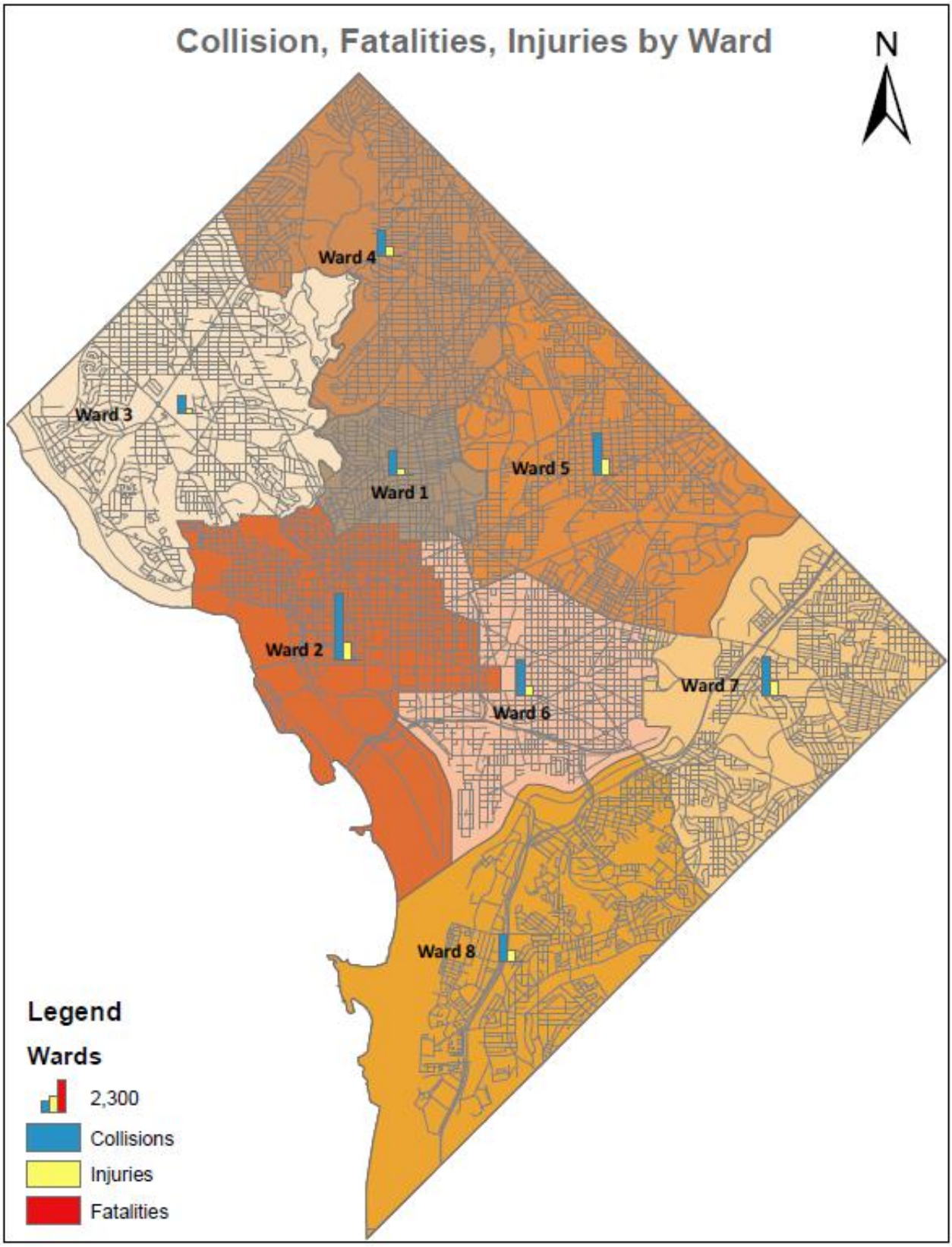

Figure 4.7: Crashes, Fatalities, Injuries by Wards for 2017

4.2.2 Crashes by Ward

The frequency and distribution of crashes by Ward are presented in Table 4.5 and Figure 4.7 for 2015 through 2017. The highest crash frequency occurred in Ward 2, representing approximately 17% of all traffic crashes in 2017, followed by Ward 5 with approximately 11% of the total crashes. Wards 2, 5 and 7 are those with the highest frequencies of injury crashes as presented in Table 4.5.

Table 4.5: Crashes by Ward from 2015-2017

Ward	2015			2016			2017		
	Collisions	Fatalities	Injuries	Collisions	Fatalities	Injuries	Collisions	Fatalities	Injuries
1	1,600	0	457	1,775	2	446	1,692	2	456
2	4,311	2	1053	4,587	3	1,104	4,519	3	1,143
3	1,238	2	378	1,168	0	315	1,250	0	365
4	1,729	2	698	1,709	1	610	1,824	2	688
5	2,686	5	1,126	2,923	2	1,034	3,004	9	1,126
6	2,214	1	743	2,495	0	707	2,497	1	754
7	2,230	3	944	2,406	4	876	2,685	3	1,004
8	1,729	4	648	1,854	5	603	1,963	3	726
Border	1,939	0	664	2,071	2	659	2,139	4	759
Unknown	4,589	7	1,630	5,459	8	1,982	4,886	6	1,777
Total	**24,265**	**26**	**8,341**	**26,447**	**27**	**8,336**	**26,459**	**33**	**8,798**

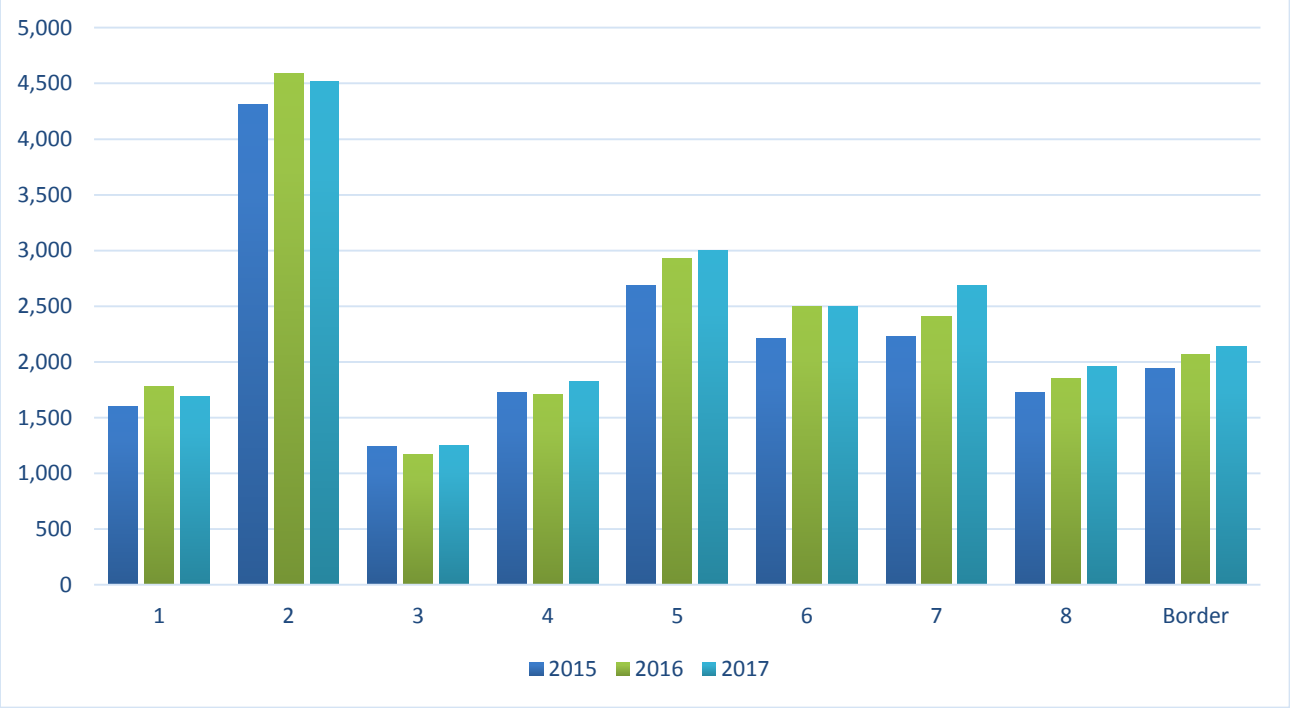

Figure 4.8: Total Crashes by Ward for 2015-2017

4.2.3 Crashes by Police Districts

The crash frequencies by Police Districts from 2015 through 2017 are shown in Table 4.6 and depicted in Figure 4.9. From the table and figure, Police District 1 recorded the highest frequency of crashes; an average of 21%, during the three year period. There were modest increases in the crash frequencies in some of the Police Districts over the 3-year period. The GIS map for the crashes by Police District in 2017 is presented in Figure 4.10.

Table 4.6: Crashes by Police District for 2015-2017

Police District	2015			2016			2017		
	Collisions	Fatalities	Injuries	Collisions	Fatalities	Injuries	Collisions	Fatalities	Injuries
1	4,904	1	1,697	5,402	2	1,659	5,525	2	1,834
2	4,668	1	1,179	4,677	4	1,097	4,717	2	1,170
3	2,768	0	776	2,961	3	754	2,758	3	756
4	2,905	2	1,132	2,867	3	1,036	2,947	3	1,109
5	3,376	3	1,264	3,671	1	1,243	3,779	13	1,353
6	3,109	1	1,296	3,239	6	1,229	3,637	4	1,386
7	2,403	2	955	2,626	8	973	2,865	5	1,114
Unknown	132	16	42	1,004	0	345	231	1	76
Total	**24,265**	**26**	**8,341**	**26,447**	**27**	**8,336**	**26,459**	**33**	**8,798**

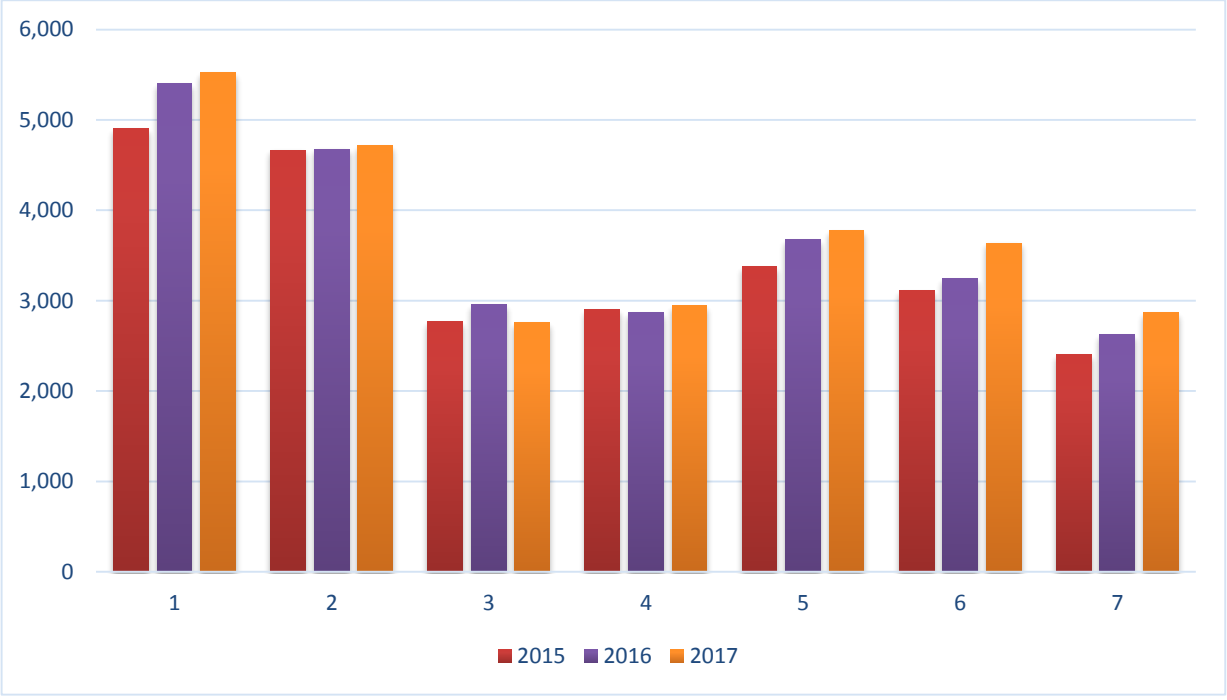

Figure 4.9: Total Crashes by Police District for 2015-2017

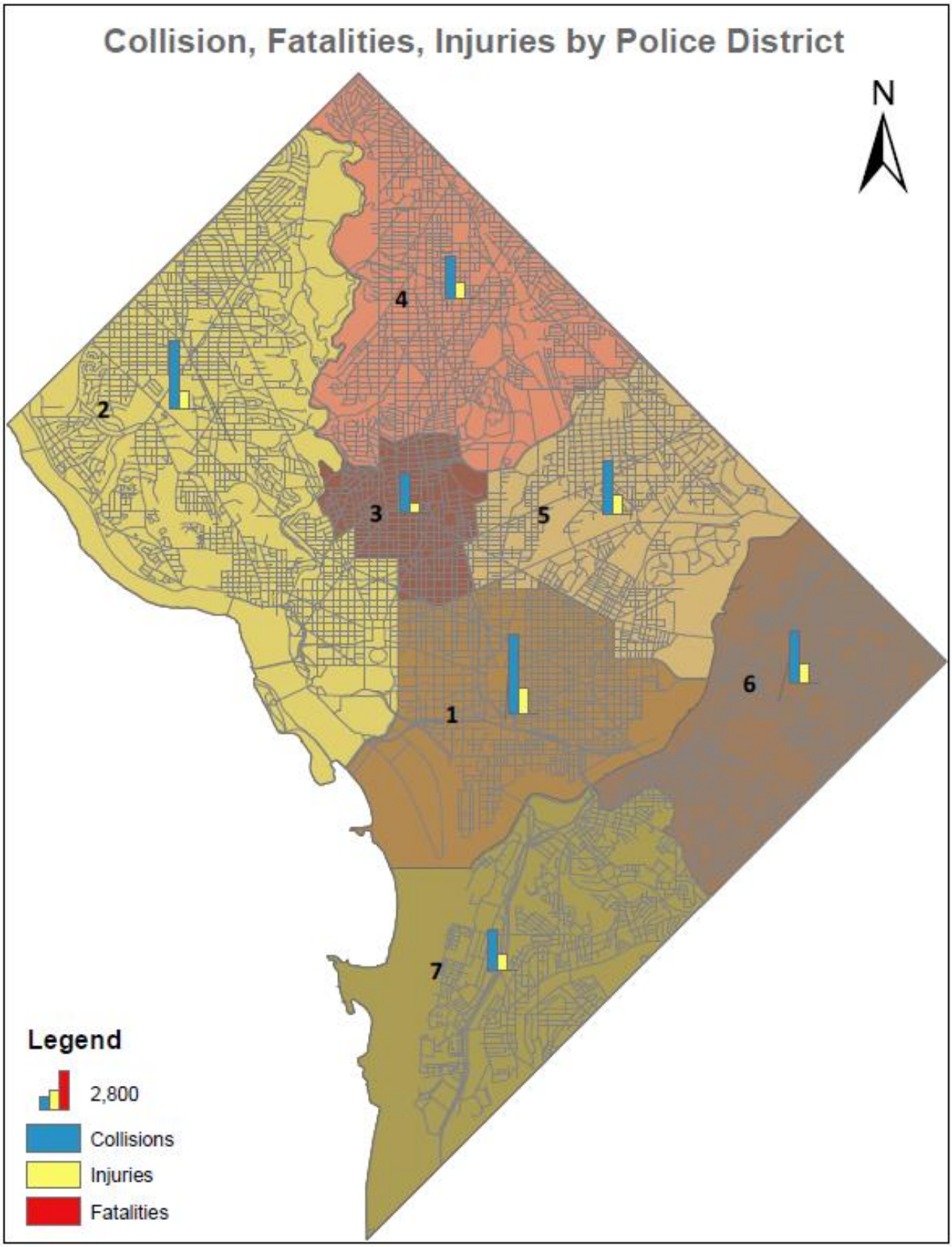

Figure 4.10: Crashes, Fatalities, Injuries by Police District for 2017

4.2.4 Crashes by Advisory Neighborhood Commissions (ANCs)

Washington, DC has 37 Advisory Neighborhood Commissions (ANCs). The summary of the crash statistics for each ANC is presented in Table 4.7.

Table 4.7: Crashes by ANCs in 2017

ANC	Description	Crashes	Fatalities	Injuries
Unknown	Unknown	4,886	6	1,777
1A	Columbia Heights, Pleasant Plains	405	0	132
1B	Cardozo, Howard University, LeDroit Park, Shaw	854	2	200
1C	Adams Morgan, Kalorama Heights, Lanier Heights, Western U Street	194	0	43
1D	Mount Pleasant	50	0	7
2A	Foggy Bottom, West End	658	0	148
2B	DuPont Circle	1,006	2	245
2C	Blagden Alley, Chinatown, Logan Circle, Mount Vernon Square, Shaw	548	0	163
2D	Kalorama, Sheridan	69	0	13
2E	Burleith, Georgetown, Hilandale	515	0	109
2F	Logan Circle	861	1	238
3B	Cathedral Heights, Glover Park	65	0	12
3C	Cathedral Heights, Cleveland Park, Massachusetts Heights, McLean Gardens, Woodley Park	432	0	116
3D	American University, Foxhall, Kent, The Palisades, Spring Valley, Wesley Heights	163	0	48
3E	American University Park, Friendship Heights, Tenleytown	130	0	34
3F	Forest Hills, North Cleveland Park, Tenleytown	251	0	76
3G	Chevy Chase	144	0	55
4A	Brightwood, Colonial Village, Crestwood, Shepherd Park, Sixteenth Street Heights	250	0	95
4B	Brightwood, Lamond-Riggs, Manor Park, Riggs Park, South Manor Park, Takoma	443	1	179
4C	Columbia Heights, Crestwood, Petworth, Sixteenth Street Heights	438	1	169
4D	Petworth	188	0	68
5A	Brookland, Fort Lincoln, Michigan Park, North Michigan Park, University Heights, Woodridge	557	1	263
5B	Arboretum, Brentwood, Brookland, Carver, Langdon, Langston, Ivy City, Trinidad	1,544	5	515
5C	Bloomingdale, Eckington, Edgewood	733	3	272
6A	North Lincoln Park, Rosedale, Stanton Park	428	1	118
6B	Barney Circle, Capitol Hill, Eastern Market	563	0	160
6C	Near Northeast, Penn Quarter, Union Station	1,084	0	310
6D	Carrollsburg, Fort McNair, Navy Yard, Near Southwest/Southeast, Waterfront	395	0	130
7A	Fort DuPont, Greenway, River Terrace	468	0	160
7B	Fairfax Village, Hillcrest, Penn Branch, Randle Highlands	352	2	125
7C	Burrville, Deanwood, Grant Park, Lincoln Heights	373	1	106
7D	Eastland Gardens, Kenilworth, Kingman Park, Mayfair	655	0	274
7E	Benning Heights, Capitol View, Fort Davis, Marshall Heights	440	0	160
8A	Anacostia, Fairlawn, Fort Stanton, Hillsdale	436	0	135
8B	Garfield Heights, Knox Hill, Shipley Terrace	467	1	174
8C	Barry Farms, Bolling Air Force Base, Congress Heights, St. Elizabeth's Hospital	397	0	160
8D	Bellevue, Far Southwest	237	2	86
8E	Congress Heights, Valley Green, Washington Highlands	250	0	94
Border	Border between ANCs	4,530	4	1,628
Total		**26,459**	**33**	**8,797**

From the summary presented in Table 4.7, ANC 5B (Arboretum, Brentwood, Brookland, Carver, Langdon, Langston, Ivy City, Trinidad) and 6C (Near Northeast, Penn Quarter, Union

Station) were the top two ANCs that had the highest crash frequencies in 2017. The border lines between the various ANCs recorded the highest crash frequencies representing approximately 17% of the total number of crashes. Presented in Figure 4.11 is a GIS map showing the crash frequency distributions by the ANCs in 2017.

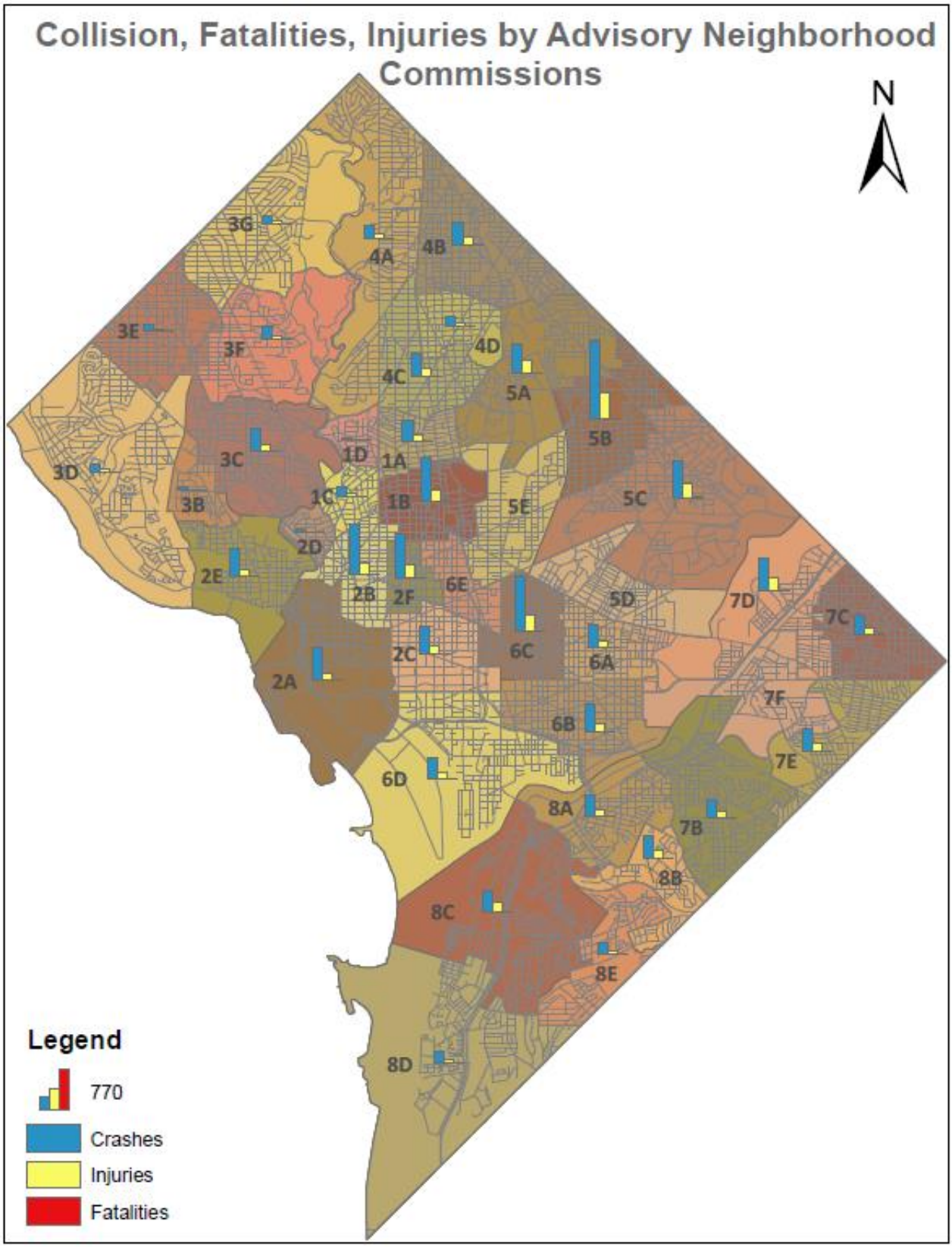

Figure 4.11: Crashes, Fatalities, Injuries by Advisory Neighborhood Commissions for 2017

4.2.5 Crashes in Construction Zones

Safety in construction zones continues to be a high priority for traffic engineering professionals and highway agencies. As a result, there is the need to assess crashes in such zones in order to identify potential mitigation strategies for those areas. Table 4.8 shows the 3-year summary of crashes recorded in construction zones. From Table 4.9, there has been a steady decline in the frequency of crashes in construction zones from 2014 to 2017.

Table 4.8: Crashes in Construction Zones for 2014-2017

Year	2014	2015	2016	2017
Number of Collisions in Construction Zone	643	517	241	190
Percentage of Collisions in Construction Zone	2.99%	2.40%	0.91%	0.72%

4.3 Crash Classification

This section presents crash statistics by vehicle type, road-user characteristics, and factors related to the roadway environment.

4.3.1 Crash Severity Type

Figure 4.11 presents the summary of crashes recorded in the DC in 2017 by crash severity. The classifications are: fatalities, injury and PDOs.

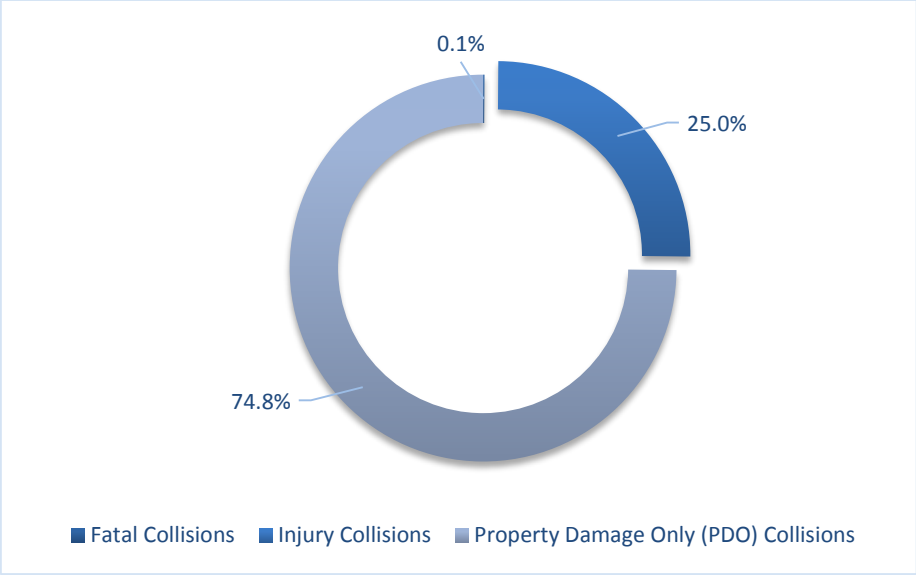

Figure 4.11: Crashes Severity Type in 2017

From Figure 4.11, the most crash severity type recorded was Property Damage Only (PDO), which represented approximately 75% of all crashes in 2017. Injury-related crashes represented

approximately 25% of the crashes recorded while fatalities represent 0.1% of the total number of crashes.

4.3.2 Crash Type

Table 4.9 and Figure 4.12 present the summary of the total number of crashes distributed by crash type in 2017. From the table, sideswipe and rear end crashes were the most common crashes in 2017. Together, they accounted for approximately 49% of the total number of crashes in 2017.

Table 4.9: Summary of Crashes by Type in 2017

Type of Crash	Total Crashes	Fatal Crashes	Injury Crashes	PDO Crashes	Fatalities	Injuries
Angle	2,926	3	1,084	1,839	3	1,483
Head On	2,013	5	830	1,178	5	1,082
Front to Rear	7,190	2	2,135	5,053	2	2,918
Rear to Front	1,304	0	157	1,147	0	206
Rear to Rear	228	1	26	201	1	33
Rear to Side	423	0	71	352	0	77
Sideswipe, Opposite Direction	844	0	127	717	0	199
Sideswipe, Same Direction	6,599	0	712	5,887	0	859
Other	1,927	7	837	1,083	7	1,115
Unknown	3,005	13	647	2,345	15	826
Total	**26,459**	**31**	**6,626**	**19,802**	**33**	**8,798**

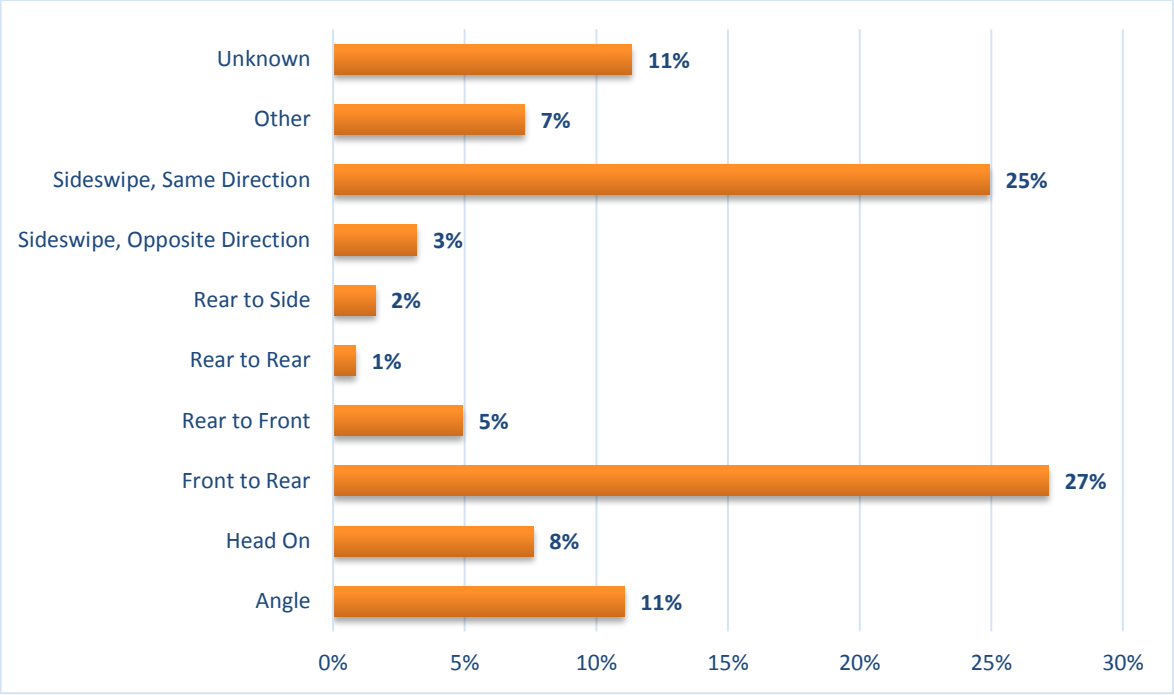

Figure 4.12: Crashes by Type in 2017

4.3.3 Hit-and-Run Crashes

The summary of reported hit-and-run crashes is presented in Figure 4.13. Hit and run crashes showed an increase of approximately 5% from 2016 to 2017. Figure 4.14 shows the resulting severity of hit and run crashes in 2017. In all, hit-and-run crashes resulted in 2 fatalities in 2017.

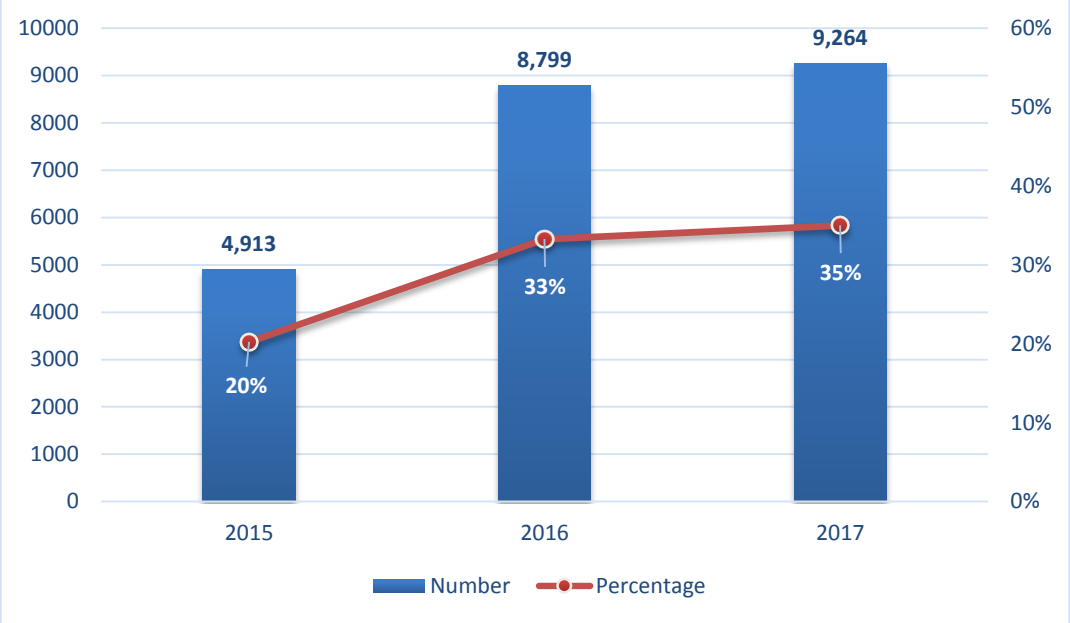

Figure 4.13: Hit and Run Crashes in 2017

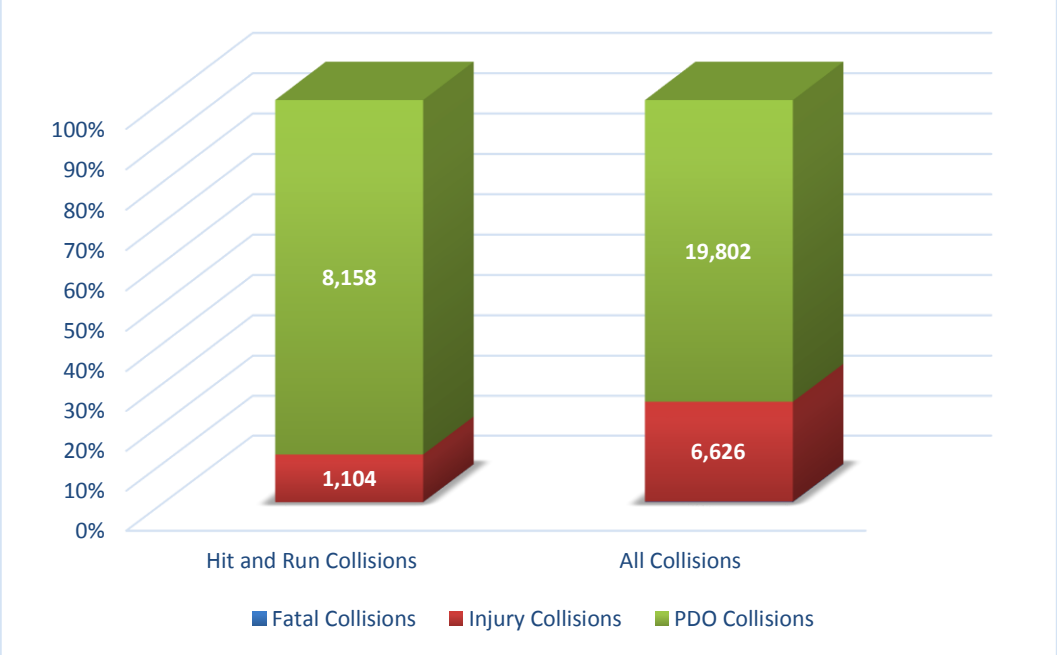

Figure 4.14: Severity of Hit and Run Crashes in 2017

4.3.4 Crashes by Vehicle Classification

Crashes involving buses, trucks, motorcycles, and bicycles are also of special interest. Crashes involving these special vehicles often pose increased risk of serious or fatal injuries. The summary of crash frequencies by vehicle classification in 2017 is presented in Table 4.10.

Table 4.10: Summary of Crash in 2017 by Vehicle Classification

Vehicle Type	Crashes	Fatalities	Injuries
Ambulance	203	0	49
Bus	1,460	1	287
Fire Engine	111	0	11
Light Truck	607	0	142
Moped	151	1	104
Motorcycle	219	3	152
Other	3,891	3	967
Passenger Auto	24,297	27	8,253
Police	964	0	217
Taxi Cab	1,584	0	330
Truck/Trailer	506	1	84
Unknown	203	0	49

*Bicycles are not considered in the "Vehicle Classification" field after 08/23/2015

From the table, passenger automobiles were the vehicle type most involved in crashes followed by buses and taxi cabs. Crashes that resulted in fatalities and injuries were predominantly those involved with passenger cars as well. Overall, crashes involving motorcycles represented approximately 1% of the total number of crashes in 2017. Presented in Figures 4.15 through 4.17 are the 4-year crash trends by vehicle type and outcomes (injuries and fatalities).

Overall, the trend in reported crashes involving passenger autos showed an increase from 2016 to 2017. On the other hand, crashes involving buses experienced a continuous decrease since 2015. There was a significant increase of approximately 50% in fatalities involving passenger vehicles from 2016 to 2017.

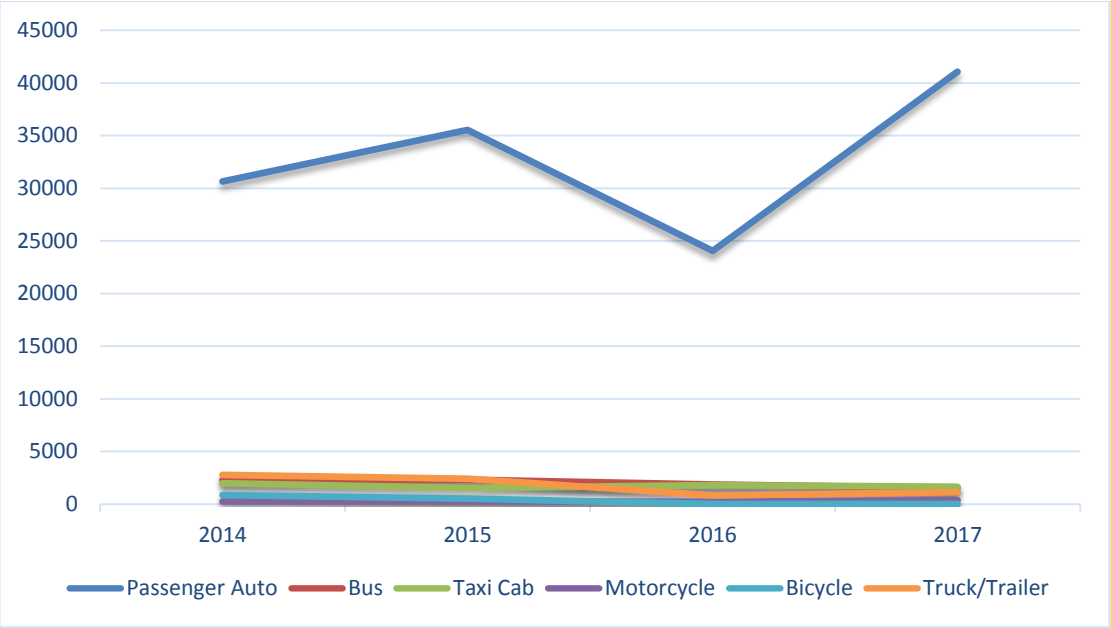

Figure 4.15: Four-year Trend of Crashes by Vehicle Type from 2014-2017

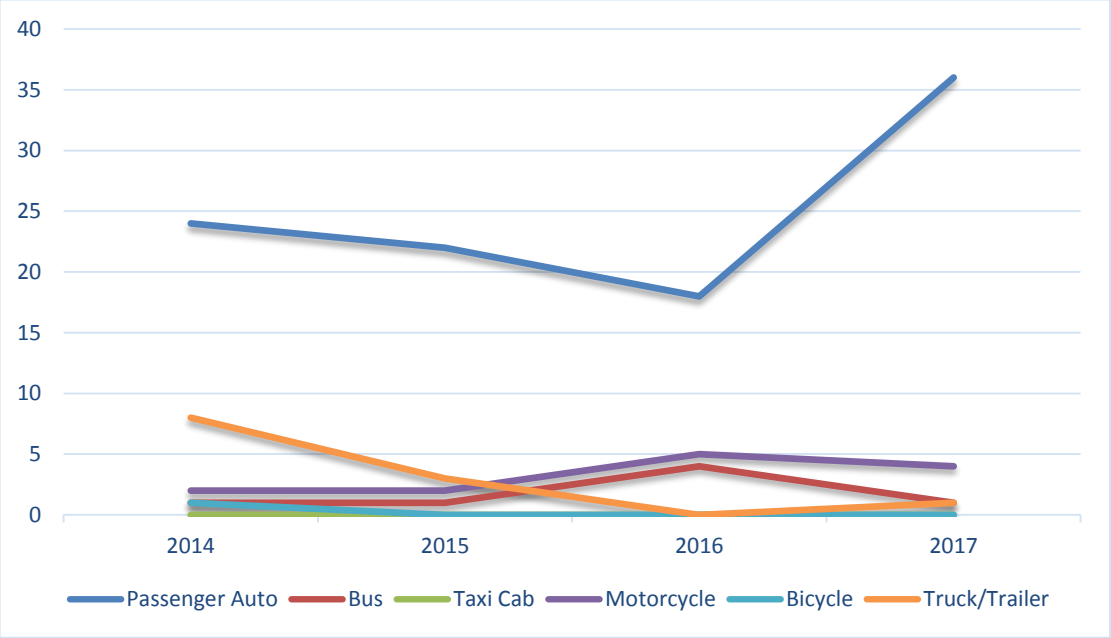

Figure 4.16: Four-year Trend of Fatalities by Vehicle Type from 2014-2017

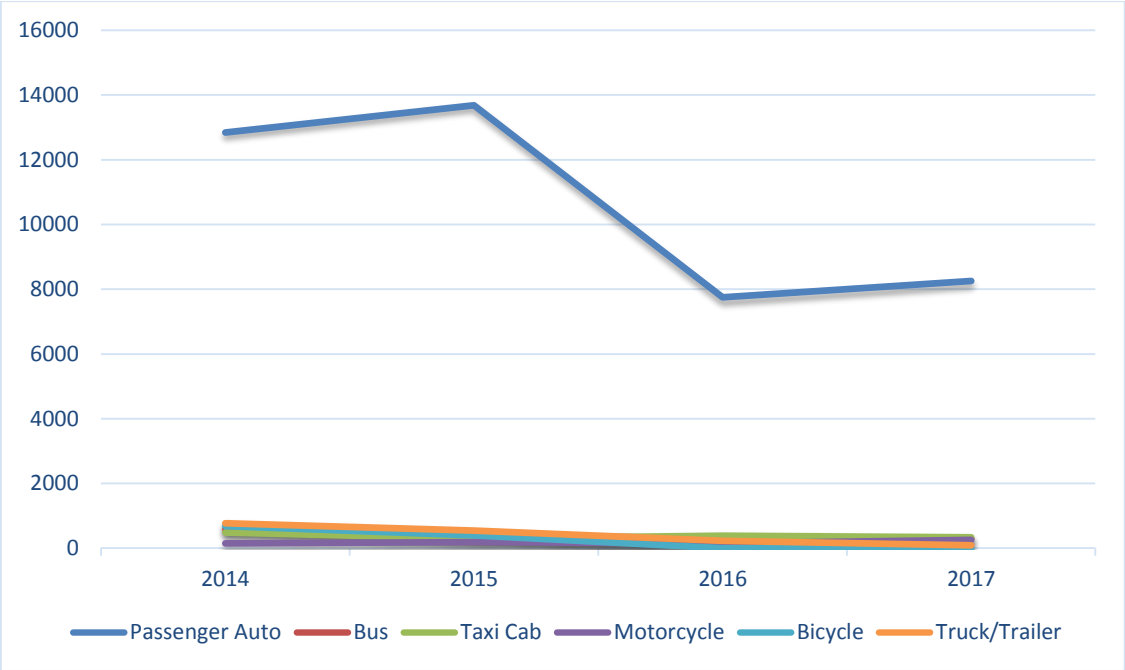

Figure 4.17: Four-year Trend of Injuries by Vehicle Type from 2014-2017

4.3.5 Crashes involving Pedestrians

Since a substantial number of residents and workers in the District (and immediate surrounding areas) either commute by public transportation or walk to work, it is necessary to understand the causes and severity of crashes involving pedestrians. Presented in Figures 4.18 through 4.20 are the summaries of crashes involving pedestrians from 2015 through 2017 classified by age and gender. From the figures, there has been an increase in the total number of pedestrian-related crashes in 2017 compared to the previous years. In addition, the distribution also shows that pedestrians in the age group of 21-30 were the most involved in crashes. Comparing reported crashes in 2016 to 2017, there was an increase for those involving female pedestrians. On the other hand, there was a decrease in crashes involving male pedestrians. Presented in Table 4.11 is a summary of injury codes reported by pedestrians in 2017 after being involved in a crash. Approximately 39% of the 1,183 pedestrians complained but did not sustain any visible or noticeable injuries. Lastly, Figure 4.21 shows the pedestrian-involved crashes at intersections in 2017.

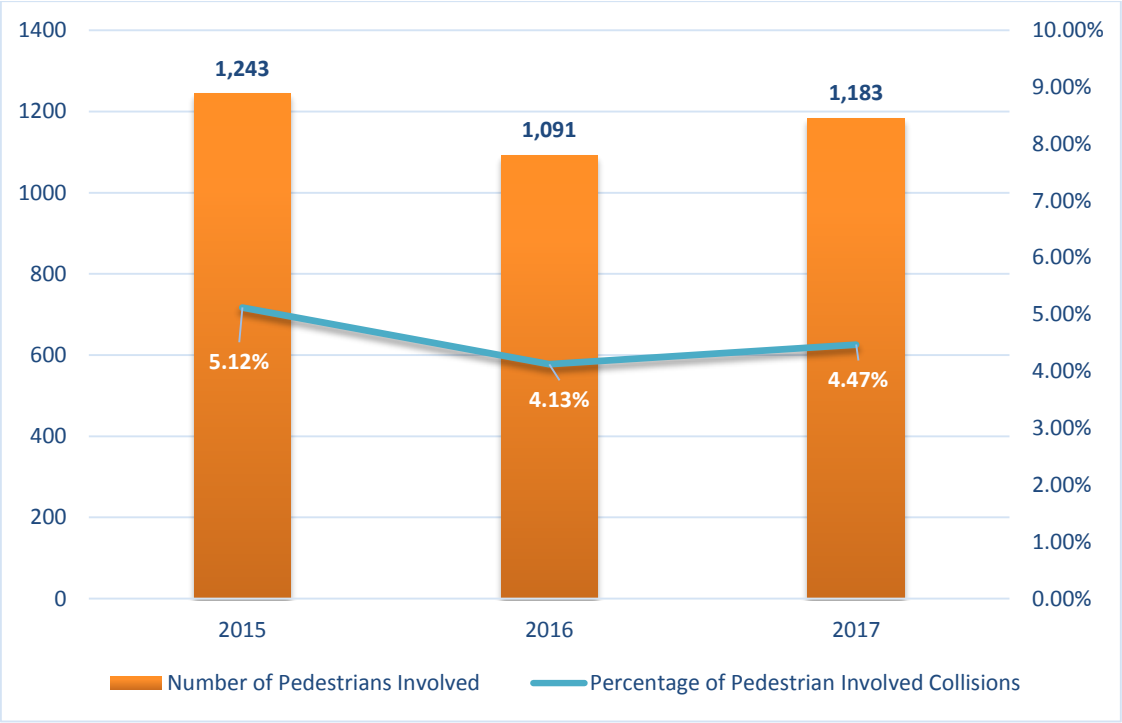

Figure 4.18: Three-year Trend of Crashes involving Pedestrians from 2015-2017

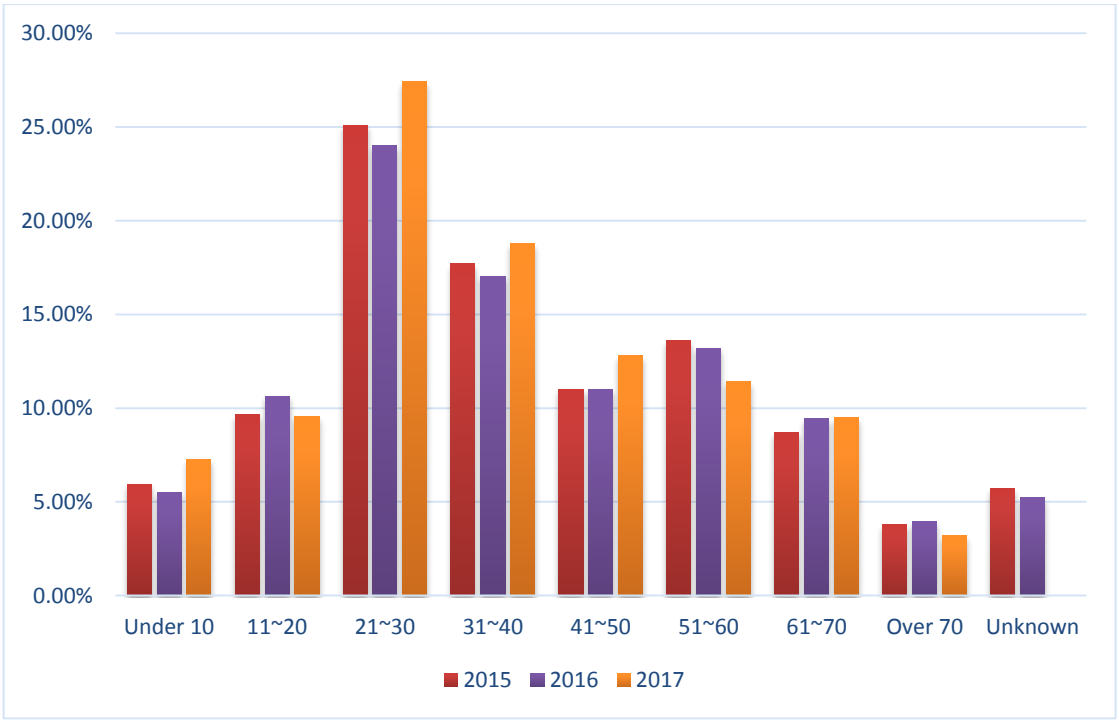

Figure 4.19: Three-year Trend of Crashes involving Pedestrians by Age from 2015-2017

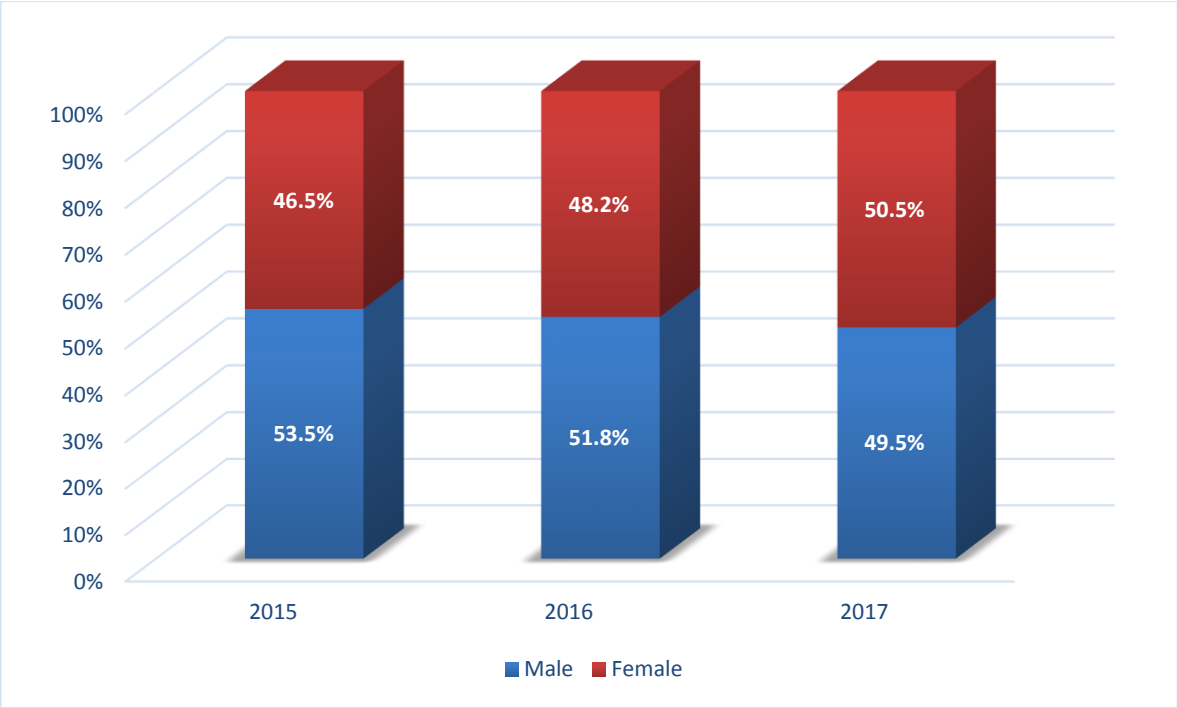

Figure 4.20: Three-year Trend of Crashes involving Pedestrians by Gender from 2015-2017

Table 4.10: Pedestrian Involved Crashes by Injury Type in 2017

Injury Code	Frequency
Complaint but not visible	455
Disabling	71
Fatalities	13
Non-Disabling	169
No Injury	395
Unknown	22
Other	58
Total	**1,183**

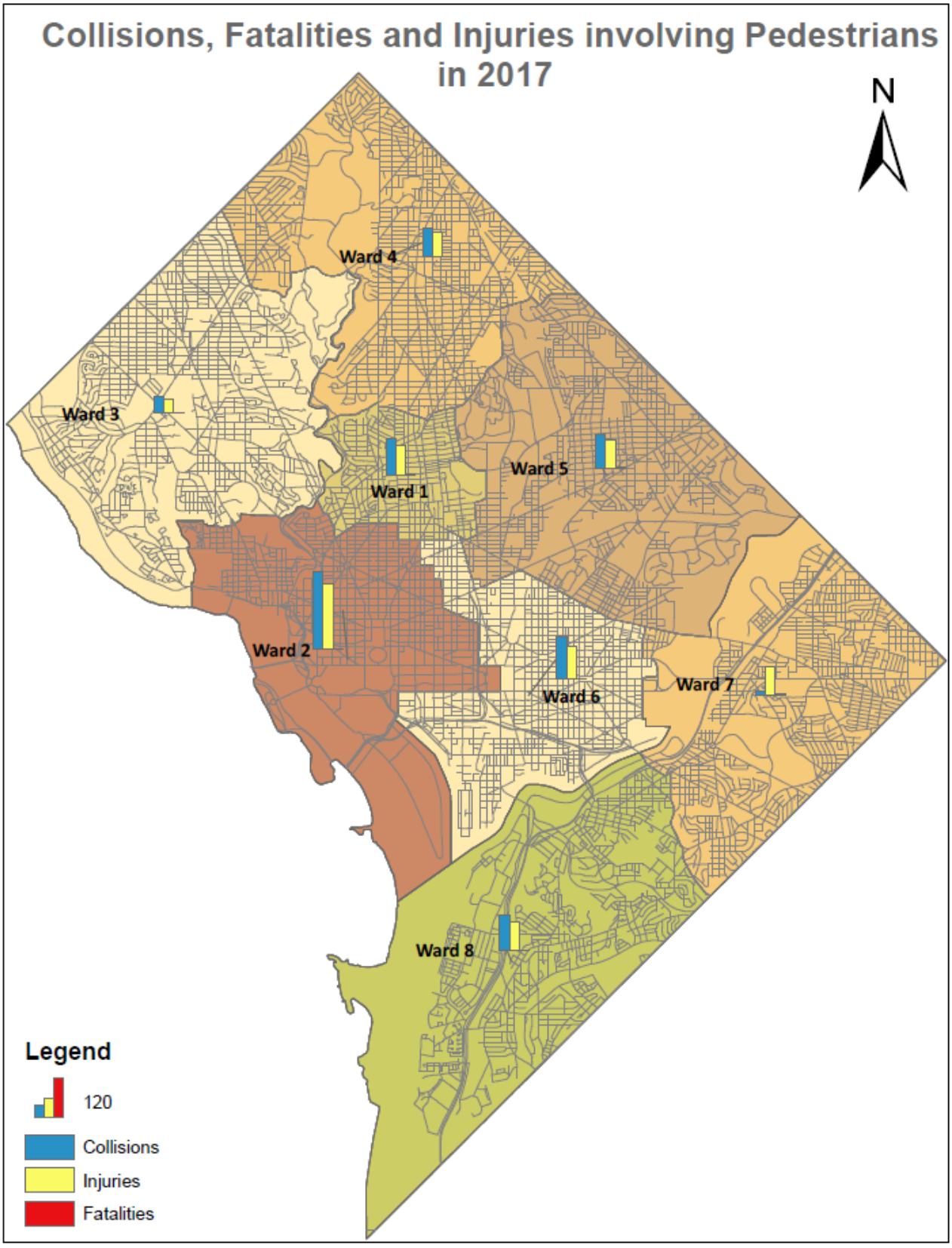

Figure 4.21: Pedestrian Involved Crashes at Intersections in 2017

4.3.6 Crashes involving Bicyclists

With the increasing use of bicycles in the District of Columbia, it is pertinent to determine crashes involving bicyclists. Figures 4.22 through 4.24 present the summaries of crashes involving bicyclists from 2015 through 2017 in terms of total crashes, by age and gender.

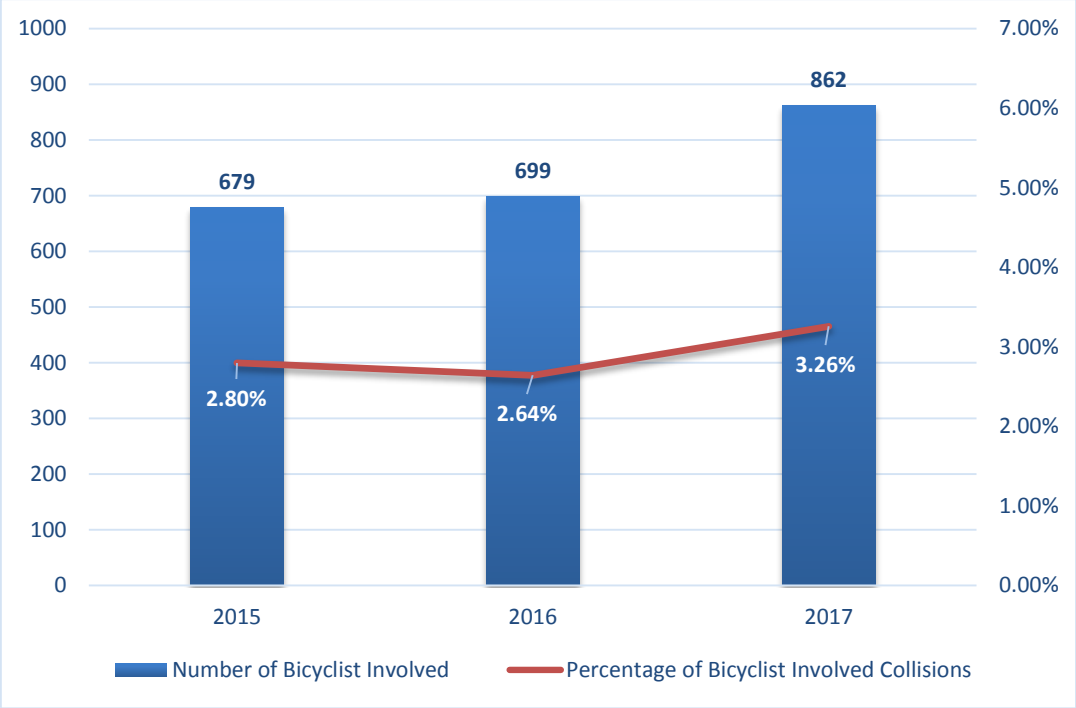

Figure 4.22: Three-year Trend of Crashes involving Bicyclists from 2015-2017

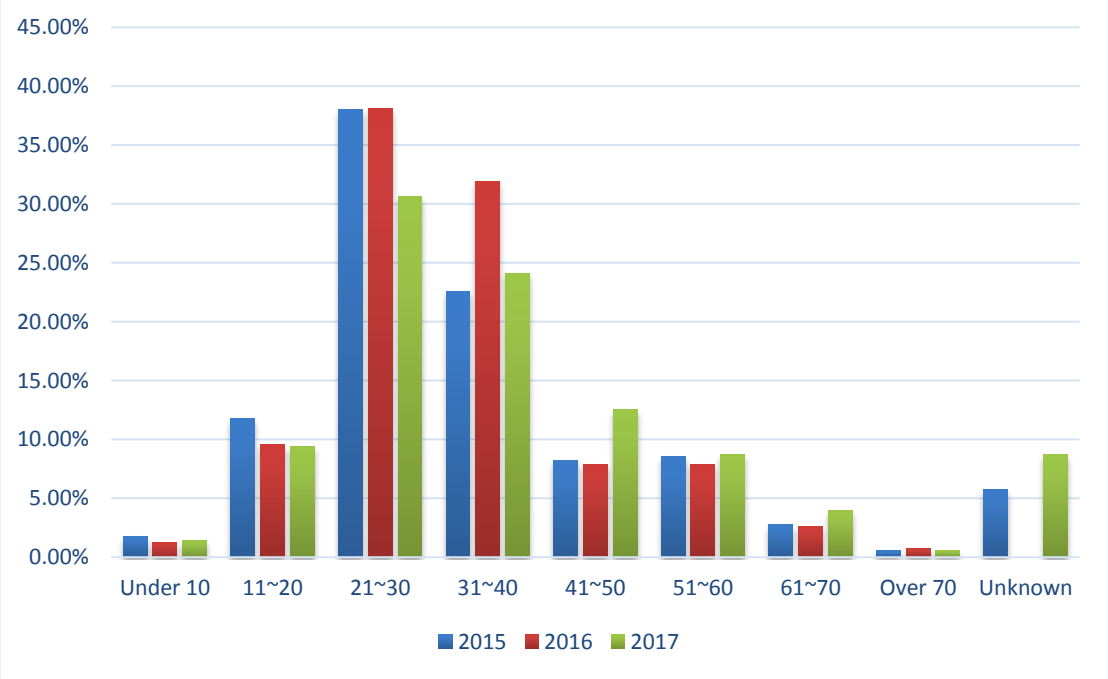

Figure 4.23: Three-year Trend of Crashes involving Bicyclists by Age from 2015-2017

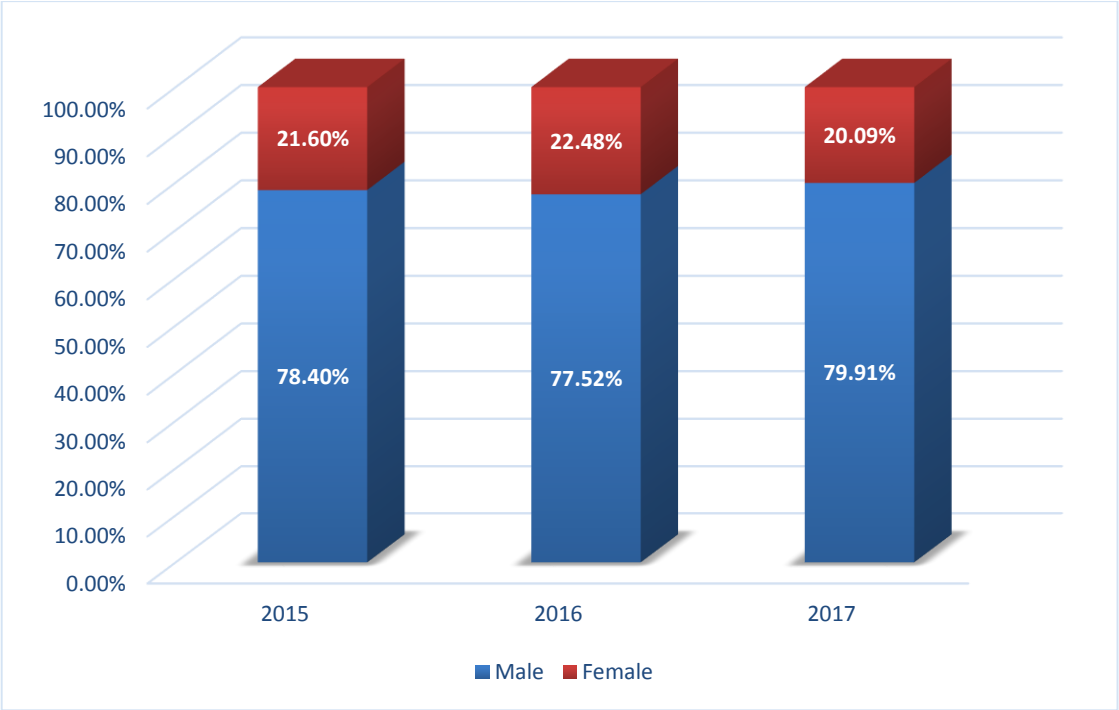

Figure 4.24: Three-year Trend of Crashes involving Bicyclists by Gender from 2015-2017

From the figures, there was a significant increase in the total number of crashes involving bicyclists in 2017 compared with those in 2016. In addition, the distribution shows that bicyclists in the age group of 21-30 were the most involved in crashes. Compared to the reported 2015 bicycle crashes, there was a modest increase in 2017 involving male bicyclists while the number of female bicyclists involved reduced. Figure 4.25 shows the GIS map for bicycle crashes at intersections in 2017.

Presented in Table 4.11 is a summary of injury types reported by bicyclists in 2017 after being involved in a crash. The majority of the bicyclists or persons involved complained as a result of the accident but did not have disabling nor visible injuries.

Table 4.11: Bicycle Crashes by Injury Type in 2017

Injury Code	Frequency
Complaint but not visible	213
Disabling	37
Fatalities	2
Non-Disabling	339
No Injury	202
Unknown	60
Other	9
Total	**862**

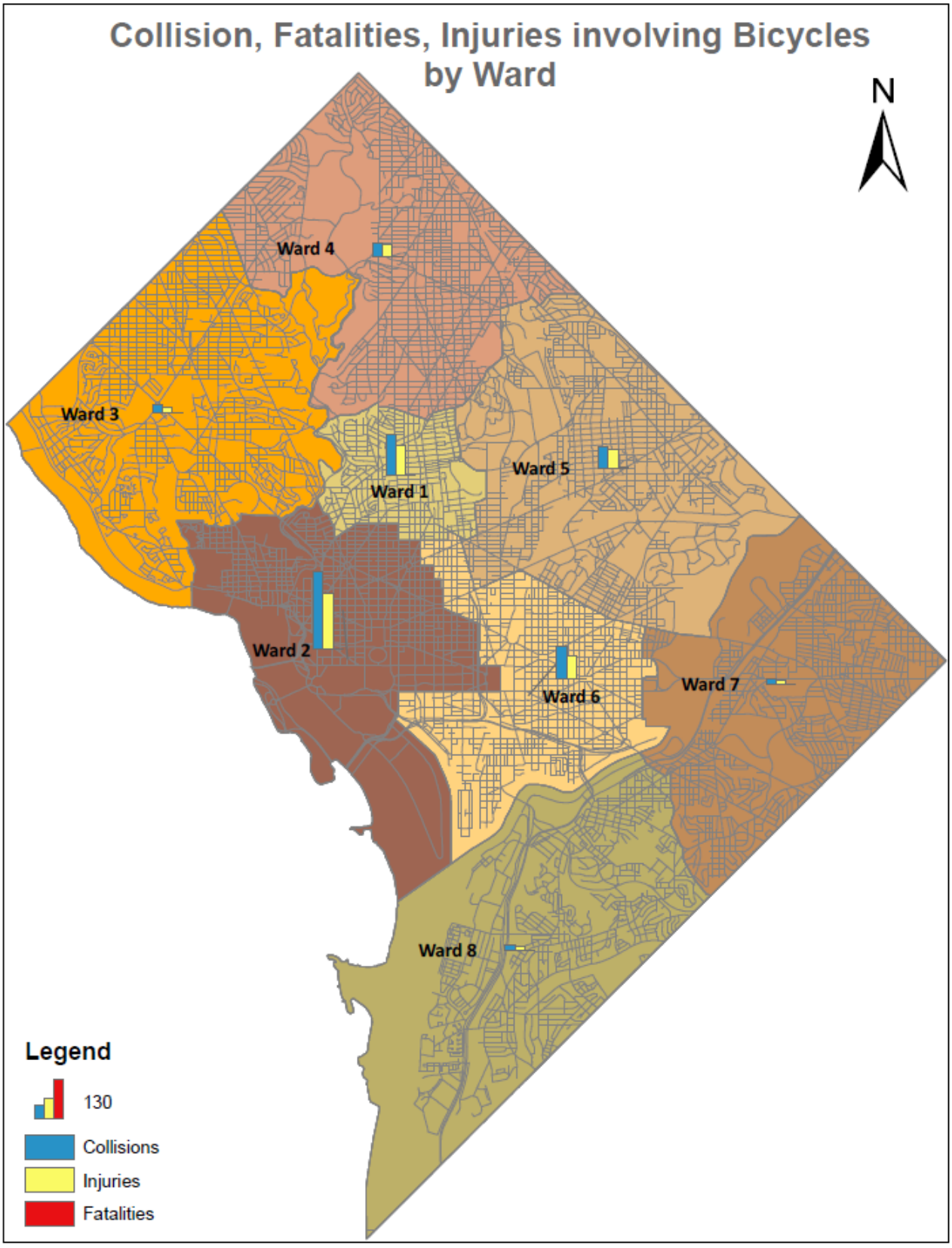

Figure 4.25: Crashes Involving Bicycles at Intersections in 2017

4.3.7 Crashes involving Motorcycles

The summaries of crashes involving motorcycles from 2015 through 2017 are presented in Figures 4.26 through 4.28. The summaries are presented in terms of total number of crashes, crashes by age and crashes by gender. From the figures, a decrease is observed from 2015 through 2017 of approximately 9% in the total number of crashes in 2017 compared to those in 2016. In addition, the distribution also shows that motorcyclists in the age group of 21-30 were the most involved in crashes. Compared to 2016, there was an increase of approximately 2.2% in motorcycle-related crashes involved females in 2017.

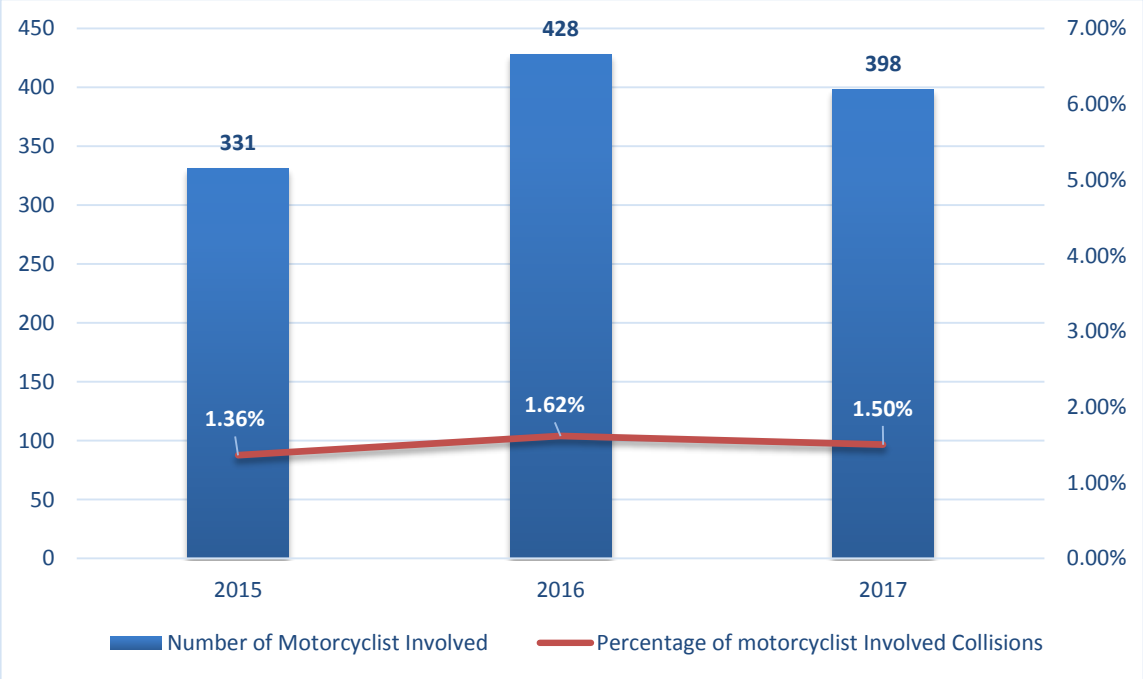

Figure 4.26: Three-year Trend of Crashes involving Motorcyclists from 2015-2017

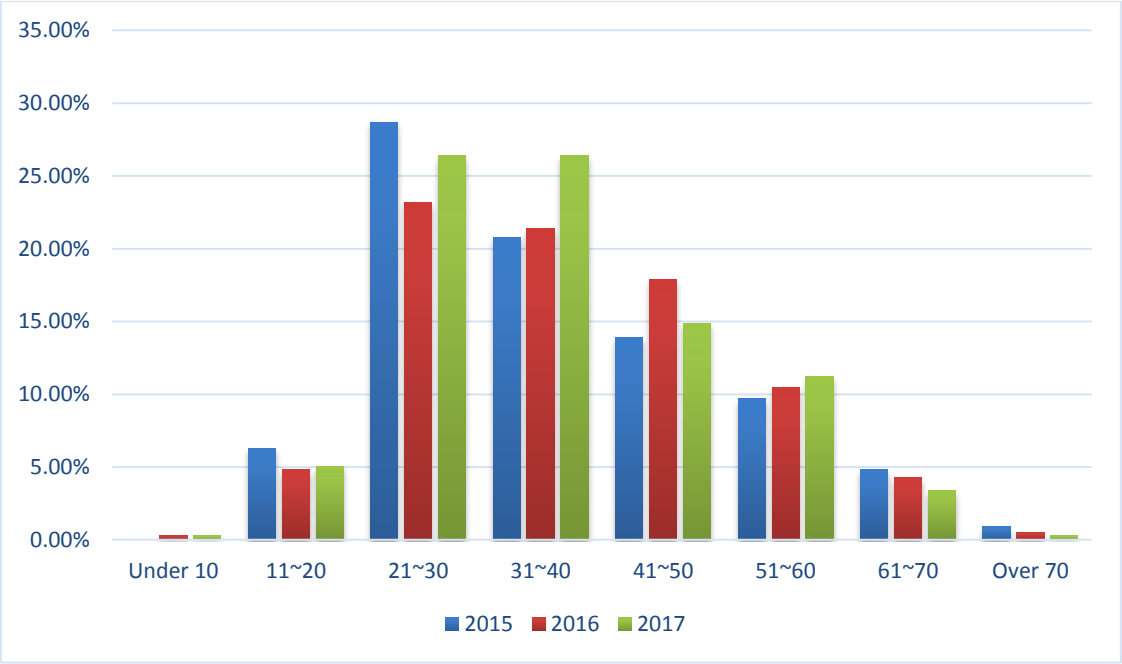

Figure 4.27: Three-year Trend of Crashes involving Motorcyclists by Age from 2015-2017

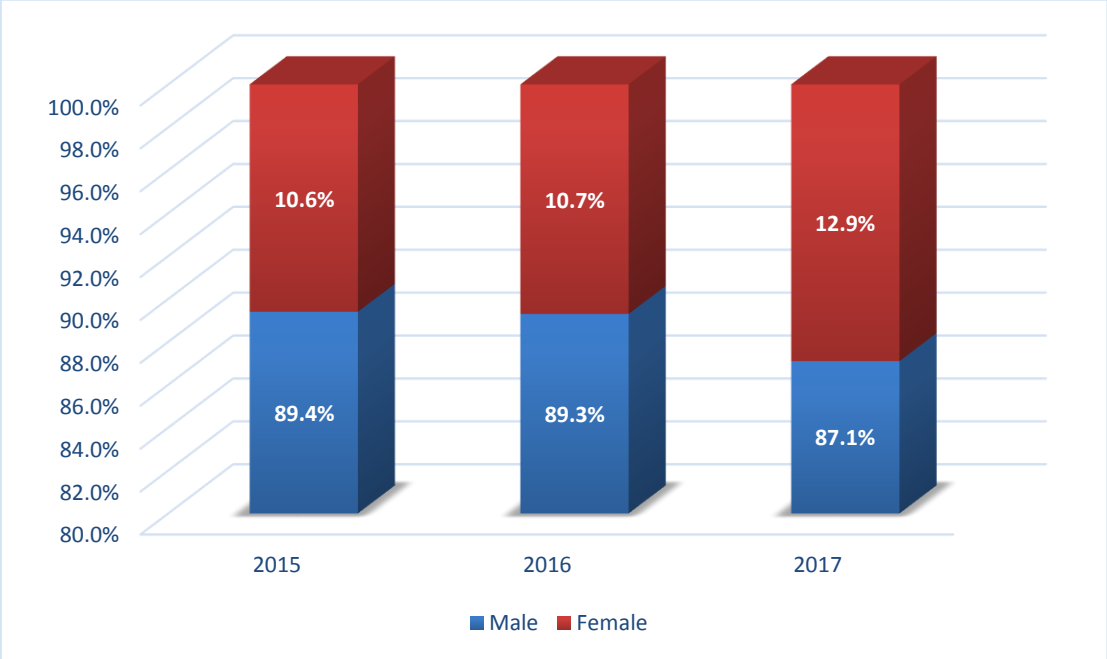

Figure 4.28: Three-year Trend of Crashes involving Motorcyclists by Gender from 2015-2017

Presented in Table 4.12 is a summary of injury types reported by motorcyclists in 2017 after being involved in a crash. The majority of the motorcyclists (representing 127 out of 398 or ~32%) sustained non-disabling injuries.

Table 4.12: Motorcyclists Crashes by Injury Type in 2017

Injury Code	Frequency
Complaint but not visible	69
Disabling	36
Fatalities	4
Non-Disabling	127
No Injury	118
Unknown	41
Other	3
Total	**398**

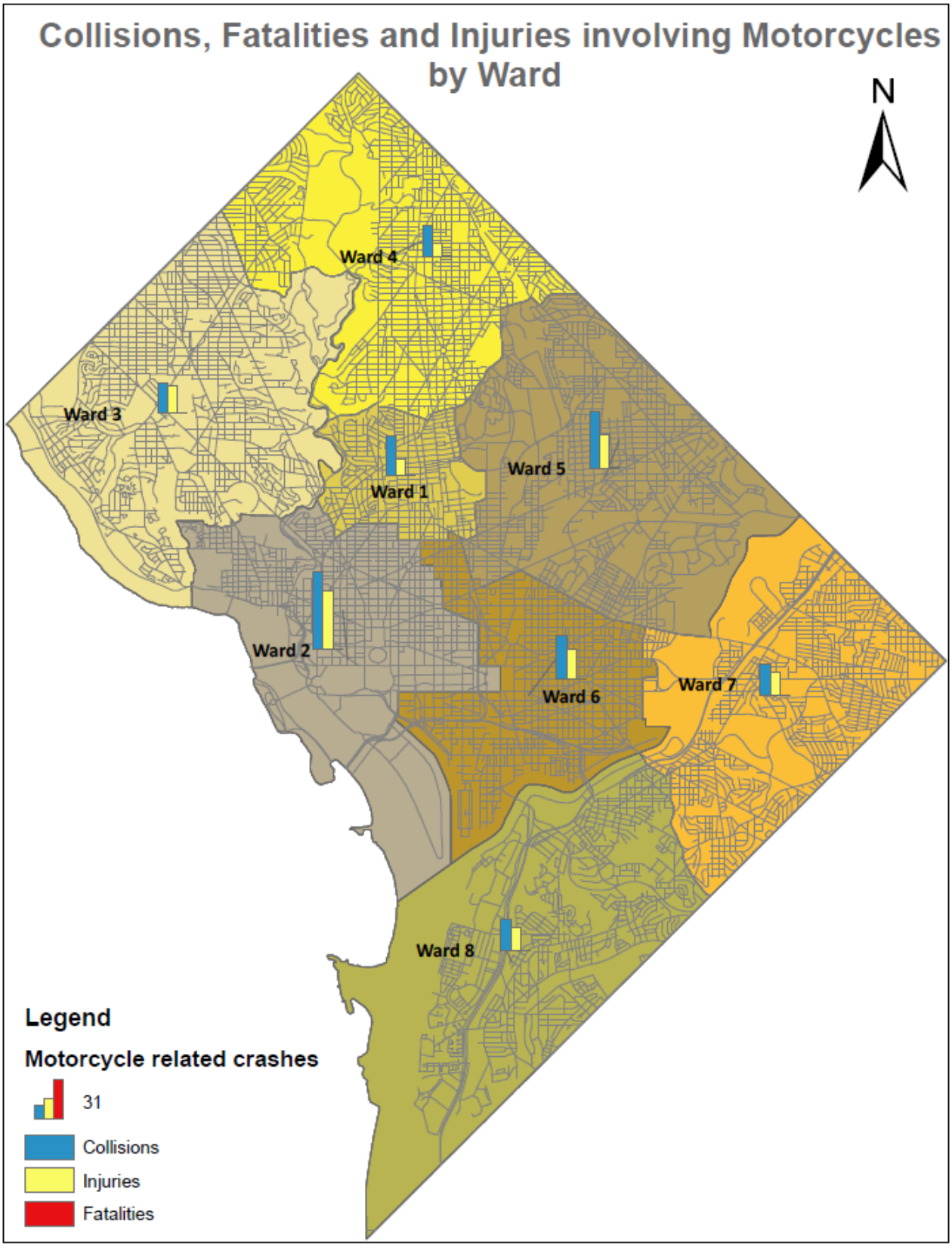

Figure 4.29: Motorcycle Involved Crashes at Intersections in 2017

4.4 Drivers

4.4.1 Drivers by Age

Crashes by driver age group continue to be important information for government agencies and local authorities to determine the appropriate crash prevention and mitigation strategies. From the summaries presented in Table 4.13 and Figure 4.30, it can be observed that crashes involving the age group of 26-30 were the most predominant in 2017 followed by the 31-35 age group. The data shows that the age groups of approximately 22% of those involved in crashes in 2017 were not recorded or were unknown.

Figure 4.31 presents the types of injuries sustained of the drivers by age group in 2017. The majority of the drivers did not report any type of injury after a crash.

Table 4.13: Number Crashes by Age and Year of Drivers from 2015 to 2017

Age Group	# Crashes			Percentage		
	2015	2016	2017	2015	2016	2017
16~20	809	722	658	2.00%	1.70%	1.41%
21~25	3,719	3,703	3,767	9.00%	8.90%	8.09%
26~30	4,918	5,316	5,285	11.90%	12.40%	11.35%
31~35	4,419	4,879	4,802	10.70%	11.70%	10.31%
36~40	3,796	4,295	4,259	9.20%	10.30%	9.15%
41~45	3,465	3,718	3,582	8.40%	8.90%	7.69%
46~50	3,329	3,631	3,513	8.00%	8.70%	7.54%
51~55	3,214	3,385	3,382	7.80%	8.10%	7.26%
56~60	2,479	2,830	2,820	6.00%	6.80%	6.06%
61~65	1,664	1,940	1,860	4.00%	4.60%	3.99%
66~70	1,006	1,220	1,227	2.40%	2.90%	2.63%
71~75	530	620	619	1.30%	1.50%	1.33%
Over 75	569	568	544	1.40%	1.30%	1.17%
Unknown	7,513	9,944	10,252	18.10%	12.30%	22.01%
Total	**41,430**	**46,771**	**46,570**	**100.00%**	**100.00%**	**100.00%**

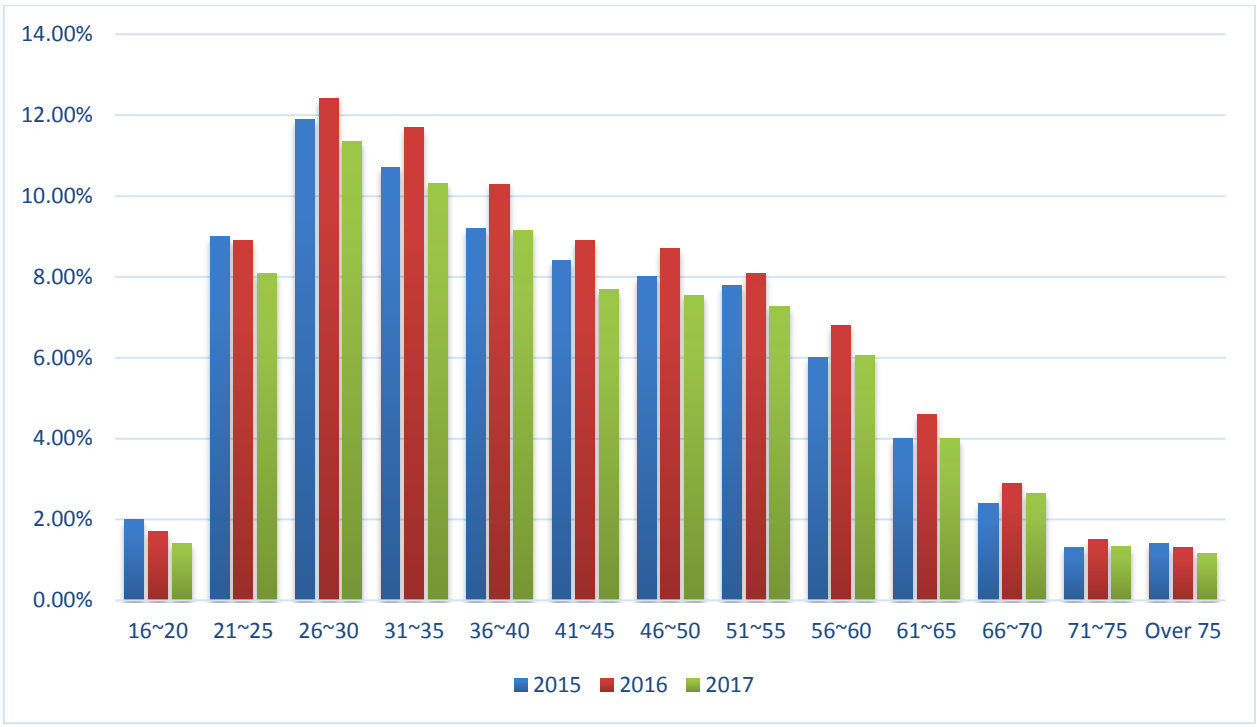

Figure 4.30: Crashes Drivers by Age from 2015 to 2017

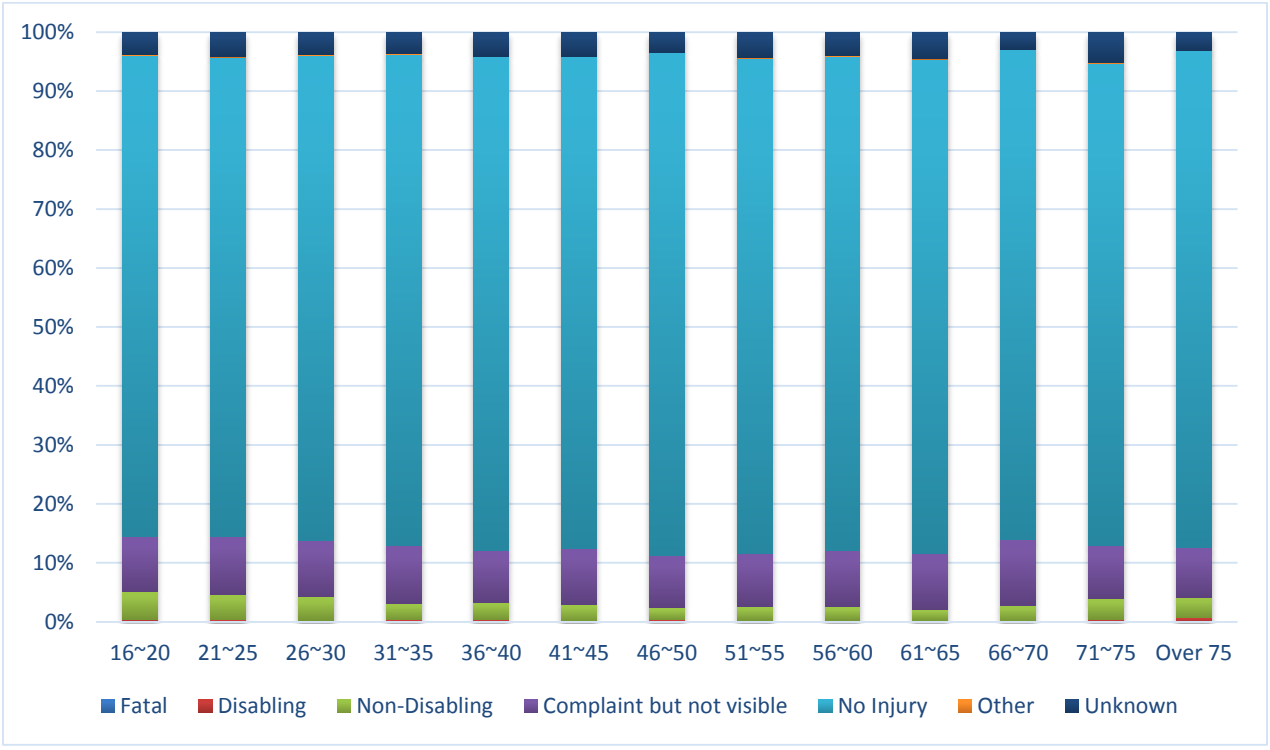

Figure 4.31: Injury Type Drivers by Age in 2017

4.4.2 Drivers by Gender

The summary of crashes recorded by the gender of drivers involved is presented in Figure 4.32. The figure shows that there was an increase of approximately 3% in the percentage of crashes involving female drivers.

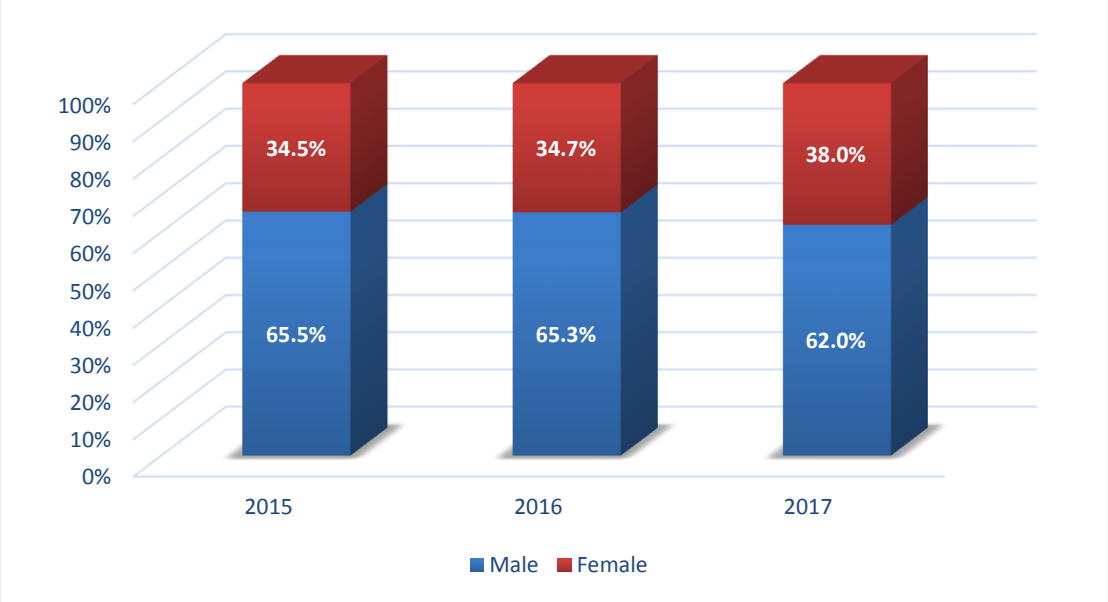

Figure 4.32: Crashes by Gender of Drivers from 2015 to 2017

4.4.3 Drivers by State Issued Driver's License

Since a substantial number of people who work in DC commute from the outer suburbs in neighboring states such as Maryland and Virginia, it is pertinent to determine the distribution of motor vehicle crashes based on drivers' state-issued licenses. The summary of the statistics for drivers' licenses are presented in Table 4.14 and Figure 4.33. From the table and figure, the majority of crashes (~21%) involved MD drivers, followed by 20% from DC, and 9% from Virginia. The remainder were from other states or unknown.

Table 4.14: Driver Involvement by State of Permit from 2015 in 2017

State	# Collisions			Percentage		
	2015	2016	2017	2015	2016	2017
DC	9,685	11,171	9,504	23%	23%	20%
MD	7,834	11,483	9903	19%	25%	21%
VA	3,340	4,628	4,118	8%	9%	9%
Other	14,498	2,123	1,744	35%	4%	4%
Unknown	6,073	17,366	21,301	15%	38%	46%
Total	**41,430**	**46,771**	**46,570**	**100%**	**100%**	**100%**

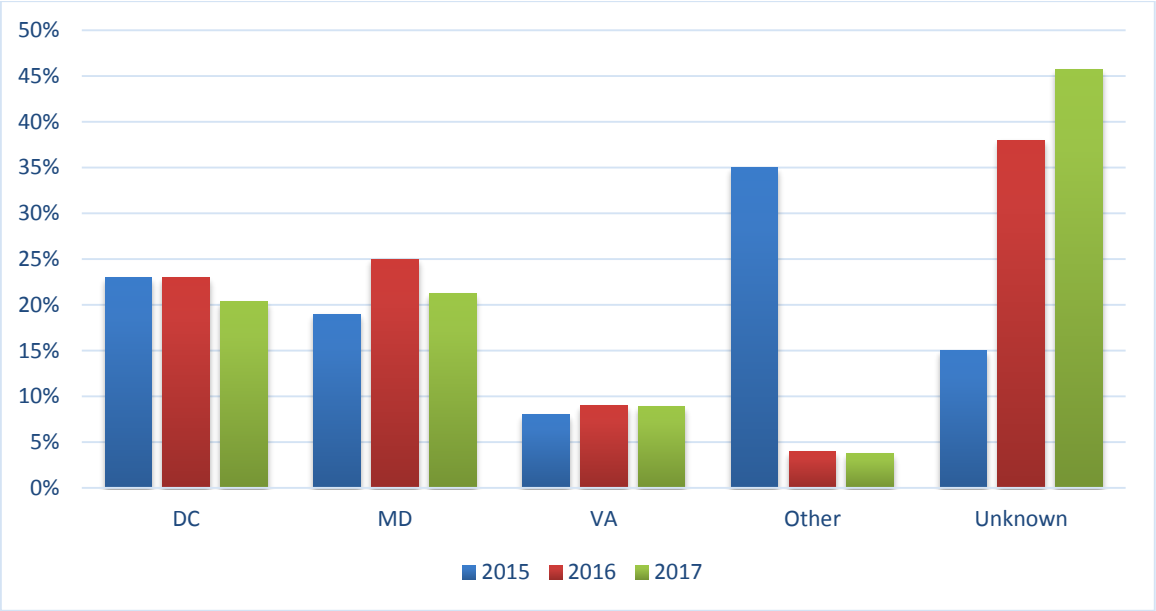

Figure 4.33: Drivers Involved in Crashes by State Issued License for 2015-2017

4.4.4 Crashes by Drivers' Action

The top three drivers' actions that were responsible for crashes in 2017 were: Going Straight, Changing Lanes and Turning Left which represent respectively (approximately) 54%, 10% and 9% of the total crashes as presented in Table 4.15.

Table 4.15: Driver Involvement by Driver Action and Year for 2015-2017

Drivers Action	2015	2016	2017
Going Straight	5,430	12,535	13,846
Turning Left	2,363	2,227	2,383
Changing Lanes	2,063	2,678	2,549
Turning Right	1,485	1,270	1,263
Backing	1,274	1,489	1,432
Entering/Leaving Parked Position	418	1,228	1,219
Slowing/Stopping	275	334	266
Making U-turn	369	474	419
Parked	975	432	508
Overtaking/Passing	538	767	718
Stop/Stand Traffic Lane	2,080	490	519
Negotiating A Curve	-	417	393
Total	**17,270**	**24,341**	**25,515**

4.5 Environmental Conditions

4.5.1 Crashes by Roadway Conditions

The summary of crashes by roadway conditions are presented in Table 4.16 and Figure 4.34. The highest crashes occurred on roads under dry weather conditions from 2015 through

2017. The results also show that approximately 83% of the total motor vehicle crashes in 2017 occurred on dry road surface conditions.

Crashes occurring under wet roadway conditions were observed to be second highes, with 1,043 (or approximately 12%) being reported in 2017.

Table 4.16: Summary of Crashes by Roadway Conditions for 2015-2017

Roadway Condition	2015			2016			2017		
	Collisions	Fatalities	Injuries	Collisions	Fatalities	Injuries	Collisions	Fatalities	Injuries
Dry	19,221	21	6,821	21,586	22	6,997	21,505	28	7,300
Ice	190	0	42	244	0	64	121	1	44
Other	101	0	30	107	0	36	82	0	44
Repairing	26	1	9	0	0	0	0	0	0
Sand	22	0	5	33	0	14	32	0	12
Slush	103	0	31	85	0	13	17	0	8
Snow	264	0	60	162	0	17	63	0	18
Standing Water	63	0	19	98	0	26	78	0	31
Unknown	916	3	141	1,018	2	160	1,518	3	298
Wet	3,359	1	1,183	3,114	4	1,009	3,043	1	1,043
Total	**24,265**	**26**	**8,341**	**26,447**	**28**	**8,336**	**26,459**	**33**	**8,798**

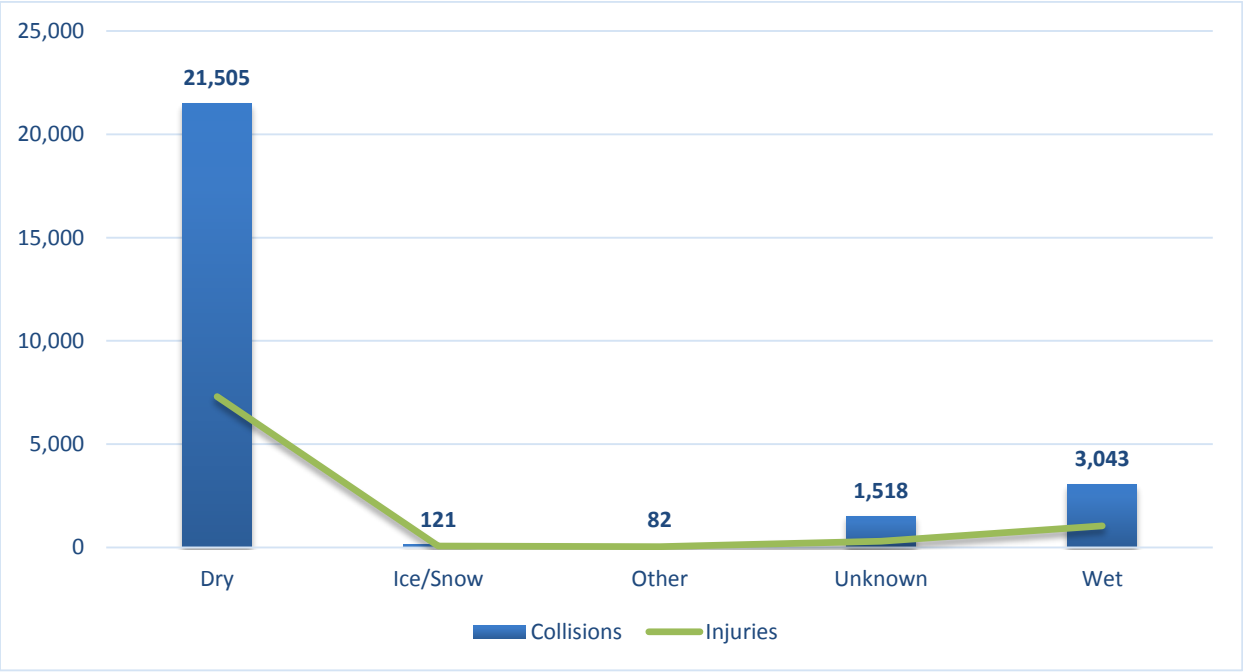

Figure 4.34: Number of Crashes and Injuries by Road Condition in 2017

4.5.2 Crashes by Weather Conditions

Adverse weather conditions may contribute to crashes. The summary of weather-related crashes by severity type are presented in Table 4.17 and Figure 4.35.

Table 4.17: Summary of Crashes by Weather Condition for 2015-2017

Weather	2015			2016			2017		
	Collisions	Fatalities	Injuries	Collisions	Fatalities	Injuries	Collisions	Fatalities	Injuries
Clear	17,259	19	6,055	17,608	21	5,591	17,428	21	5,794
Fog/Mist	282	0	92	280	2	100	266	0	93
Rain	2,254	1	769	1,821	2	603	1,822	2	616
Sleet	48	0	24	12	0	3	6	0	1
Snow	411	0	110	228	0	45	151	1	40
Other	1,215	1	396	1,947	0	589	2,052	0	663
Unknown	2,796	5	895	4,551	3	1,405	4,734	9	1,591
Total	**24,265**	**26**	**8,341**	**26,447**	**28**	**8,336**	**26,459**	**33**	**8,798**

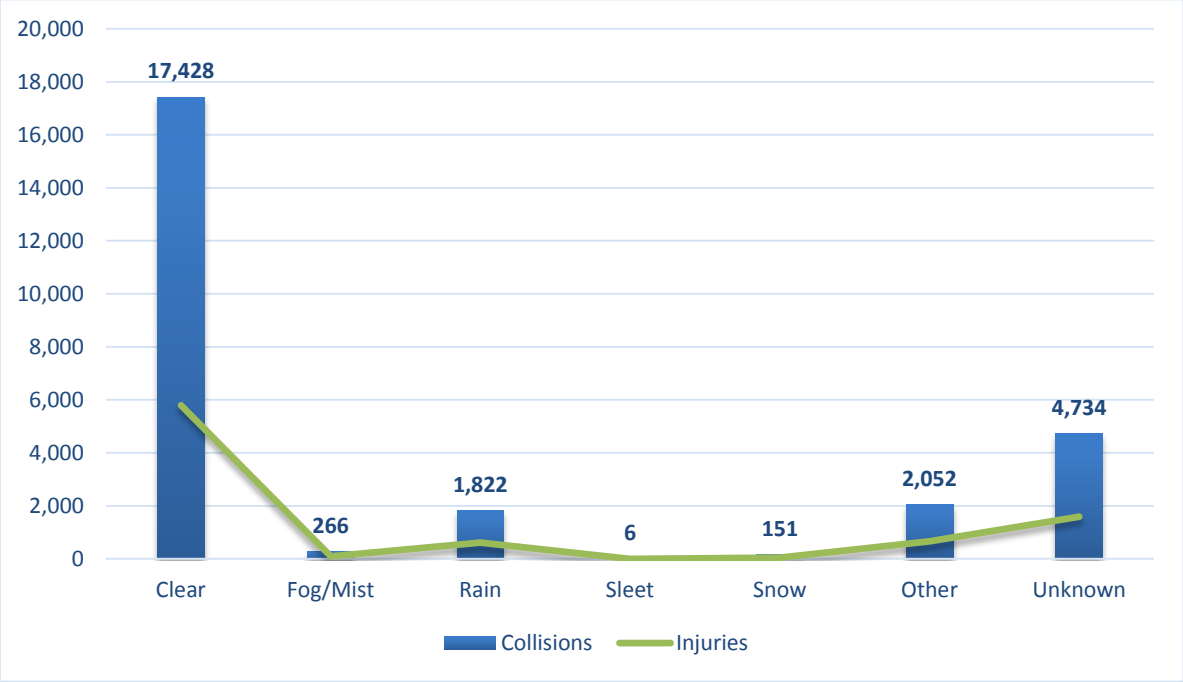

Figure 4.35: Number of Crashes and Injuries by Weather in 2017

From the summary, it can be observed that the majority of the crashes occurred under clear weather conditions which represent approximately 66% (or 17,428) of the total crashes in 2017. This is followed by crashes occurring during rainy conditions, representing approximately 7% (or 1,822) of the total crashes in 2017.

4.5.3 Crashes by Light Conditions

Street illumination is another crash contributing factor, especially at night. As shown in the summaries in Table 4.18 and Figure 4.36, the majority of the reported crashes occurred on roadways where the streetlights were off. These crashes occurred under such conditions in approximately 57% (15,070) of the total reported crashes in 2017. Approximately 33% (8,802) of

the total reported motor vehicle crashes in 2017 occurred on roadways when street illumination was on.

Table 4.18: Summary of Crashes by Street Lighting for 2015-2017

Street Lightning	2015			2016			2017		
	Collisions	Fatalities	Injuries	Collisions	Fatalities	Injuries	Collisions	Fatalities	Injuries
Street Lights On	7,983	14	2,760	8,811	22	2,850	8,802	22	3,022
Street Lights Off	12,929	6	4,564	15,451	4	5,012	15,070	7	5,129
Defective	16	0	6	21	0	10	18	0	6
Unknown	1,786	3	392	1,908	2	393	2,305	2	566
Other	181	0	73	256	0	71	264	1	75
None	1,370	3	546	0	0	0	0	1	0
Total	**24,265**	**26**	**8,341**	**26,447**	**28**	**8,336**	**26,459**	**33**	**8,798**

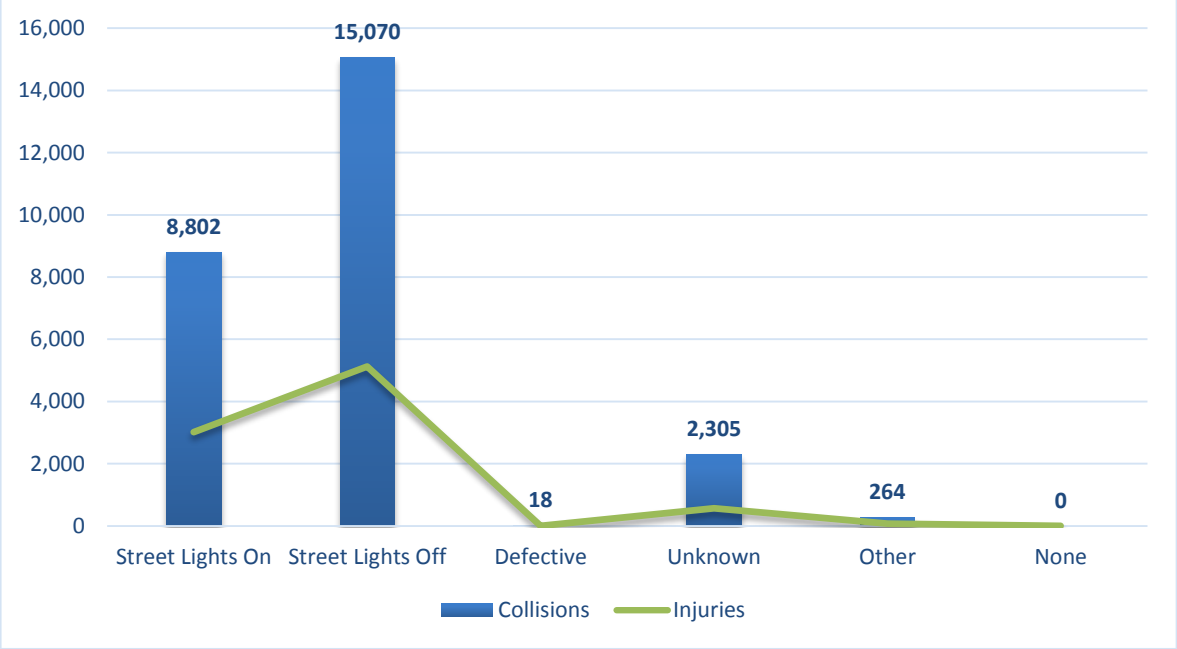

Figure 4.36: Number of Crashes and Injuries by Street Lighting in 2017

Furthermore, as shown in Table 4.19 and Figure 4.37, the majority of the crashes occurred during daylight conditions. This consisted of approximately 62% (16,508) of the total reported motor vehicle crashes in 2017. Approximately 31% (8,142) of the total reported crashes occurred in the dark in 2017.

Table 4.19 Summary of Crashes by Light Condition for 2015-2017

Light Condition	2015			2016			2017		
	Collisions	Fatalities	Injuries	Collisions	Fatalities	Injuries	Collisions	Fatalities	Injuries
Dark	7,584	13	2,616	8,194	22	2,600	8,142	23	2,764
Dawn/Dusk	622	2	232	817	0	280	782	0	292
Daylight	14,800	8	5,244	16,511	5	5,332	16,508	7	5,612
Unknown	1,259	3	249	925	1	124	1,027	3	130
Total	**24,265**	**26**	**8,341**	**26,447**	**28**	**8,336**	**26,459**	**33**	**8,798**

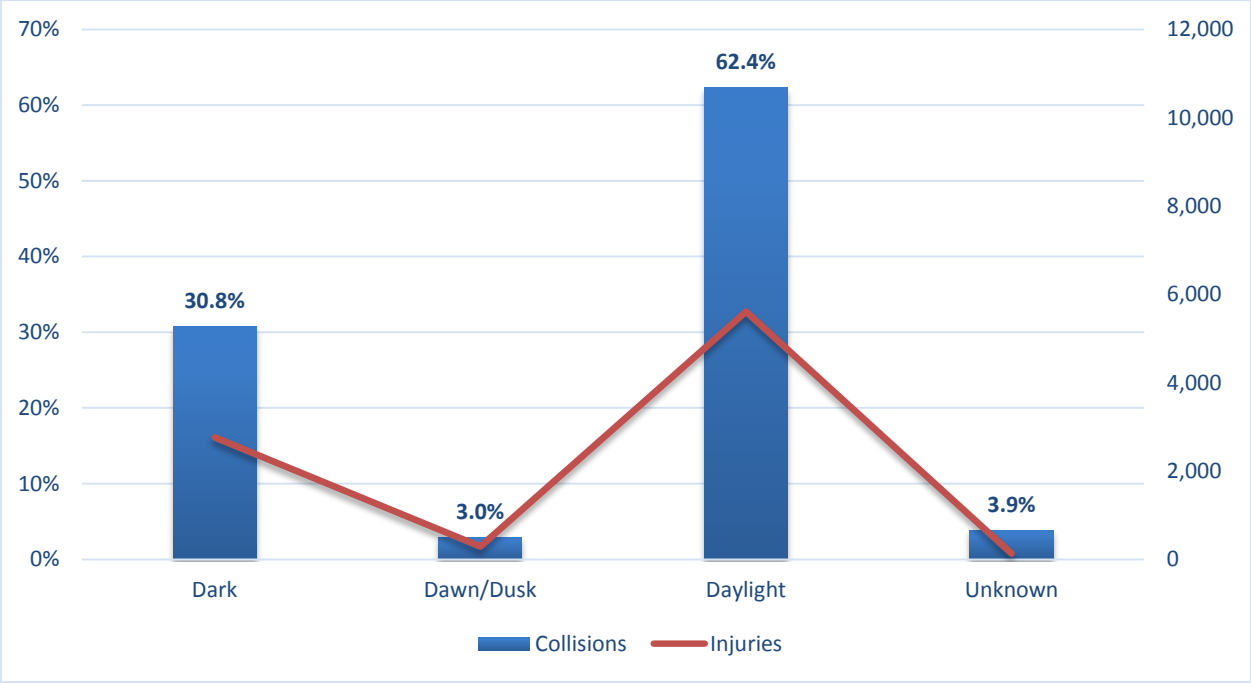

Figure 4.37: Number of Crashes and Injuries by Light Condition in 2017

4.5.4 Crashes by Traffic Conditions

Traffic exposure is a new data field that was included in the new traffic crash reports (PD-10 forms) to obtain approximate traffic volume conditions at the time of crash. This information was based on police officer's subjective observation of the traffic conditions. The summary of this is presented in Table 4.20 as well as in Figure 4.38. The results show that approximately 33% of the total reported crashes in 2017 occurred under medium (8,605) traffic conditions with approximately 30% under light (8,026) traffic conditions.

Table 4.20: Summary of Crashes by Traffic Conditions in 2015-2017

Traffic Condition	2015			2016			2017		
	Collisions	Fatalities	Injuries	Collisions	Fatalities	Injuries	Collisions	Fatalities	Injuries
Heavy	4,441	3	1,258	4,823	0	1,257	4,545	1	1,688
Medium	8,069	6	2,303	9,077	6	2,426	8,605	6	3,186
Light	7,455	12	1,828	8,266	20	1,869	8,026	21	2,562
Other	194	1	27	0	0	0	0	0	0
Unknown	4,106	4	799	4,281	2	753	5,283	5	1362
Total	**24,265**	**26**	**6,215**	**26,447**	**28**	**6,305**	**26,459**	**33**	**8,798**

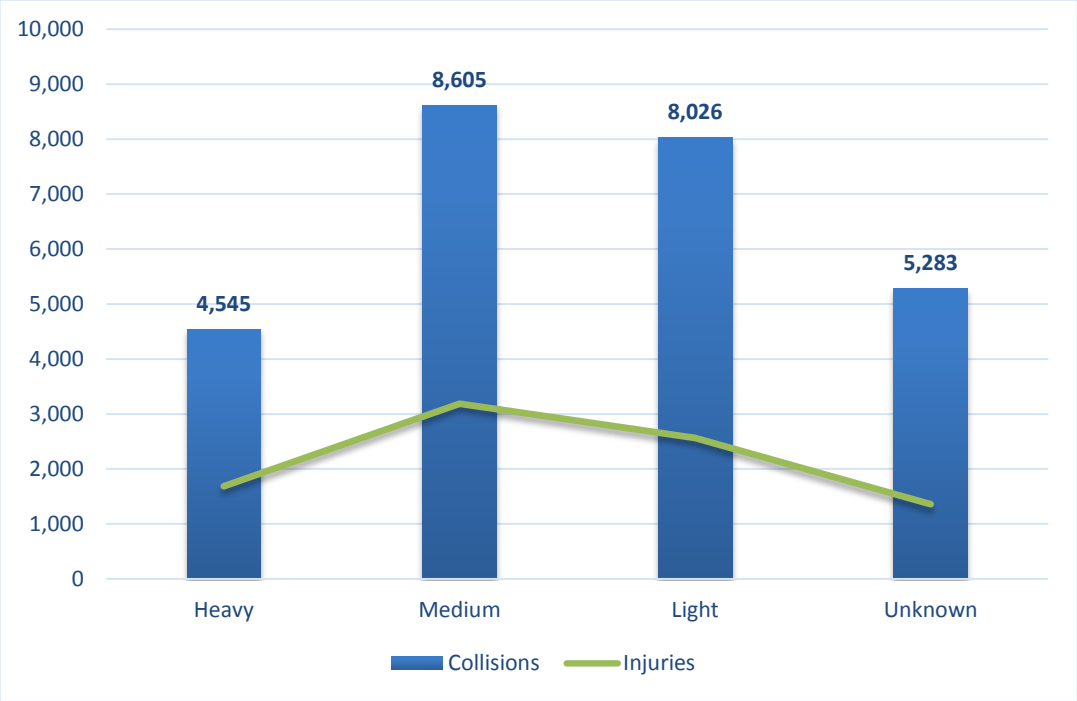

Figure 4.38: Number of Crashes and Injuries by Traffic Conditions in 2017

4.5.5 Crashes by Traffic Control

Traffic control devices serve as an important vehicular and pedestrian guidance to ensure the safety of general public. The summary of crashes by the presence and type of traffic control device is presented in Table 4.21 and graphically in Figure 4.39 for 2017. From the results, approximately 28% of crashes occurred at or close to a signalized intersection. The majority of the crashes (54%) occurred at locations where there is no traffic control.

Table 4.21: Summary of Crashes by Traffic Control in 2015-2017

Traffic Controls	2015			2016			2017		
	Collisions	Fatalities	Injuries	Collisions	Fatalities	Injuries	Collisions	Fatalities	Injuries
Signal	5,423	4	2,212	7,500	6	2,810	7,491	8	2,959
None	7,506	10	2,229	14,224	19	3,921	14,311	20	4,090
Stop Sign	1,137	0	483	1,670	0	708	1,743	1	766
Other	9,068	9	3,091	2,211	1	707	816	1	827
Unknown	1,131	3	326	842	2	190	2098	3	156
Total	**24,265**	**26**	**8,341**	**26,447**	**28**	**8,336**	**26,459**	**33**	**8,798**

* "Other" includes yield, flashing, turn restricted and officer.
* "None" includes mid-block crashes.

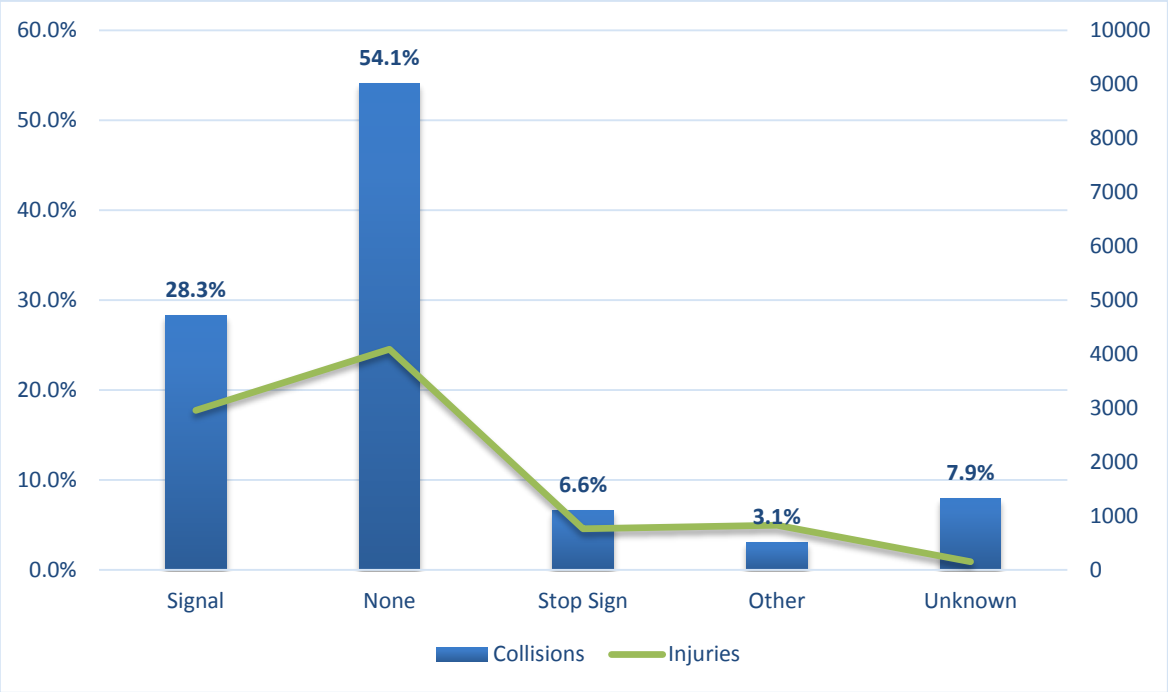

Figure 4.39: Number of Crashes and Injuries by Traffic Control in 2017

4.5.7 Crashes by Roadway Functional Classification

It is important to assess the relationship between roadway functional classifications and vehicle crashes. Speed-related injuries by roadway functional classification are also presented in this section. As shown in Table 4.22 and Figure 4.40, the number of injuries for all roadway functional systems from 2015 to 2017 showed, for the most part, an increasing trend.

Table 4.22: Summary of Crashes by Roadway Functional Classification from 2015-2017

Road Functional Classification	2015			2016			2017		
	Collisions	Fatalities	Injuries	Collisions	Fatalities	Injuries	Collisions	Fatalities	Injuries
Collector	2,696	3	894	2,967	1	885	3,018	3	946
Interstate	299	0	146	1,337	2	650	1,288	0	542
Local	5,890	3	1,698	6,536	4	1,574	6,496	7	1,693
Minor Arterial	6,386	9	2,384	7,605	13	2,568	7,550	9	2,732
Other Freeway & Expressway	79	2	46	74	1	44	84	0	47
Principal Arterial	5,960	7	2,060	6957	6	2,232	7113	12	2,511
Unknown	2,955	2	1,113	971	1	383	910	2	327
Total	**24,265**	**26**	**8,341**	**26,447**	**28**	**8,336**	**26,459**	**33**	**8,798**

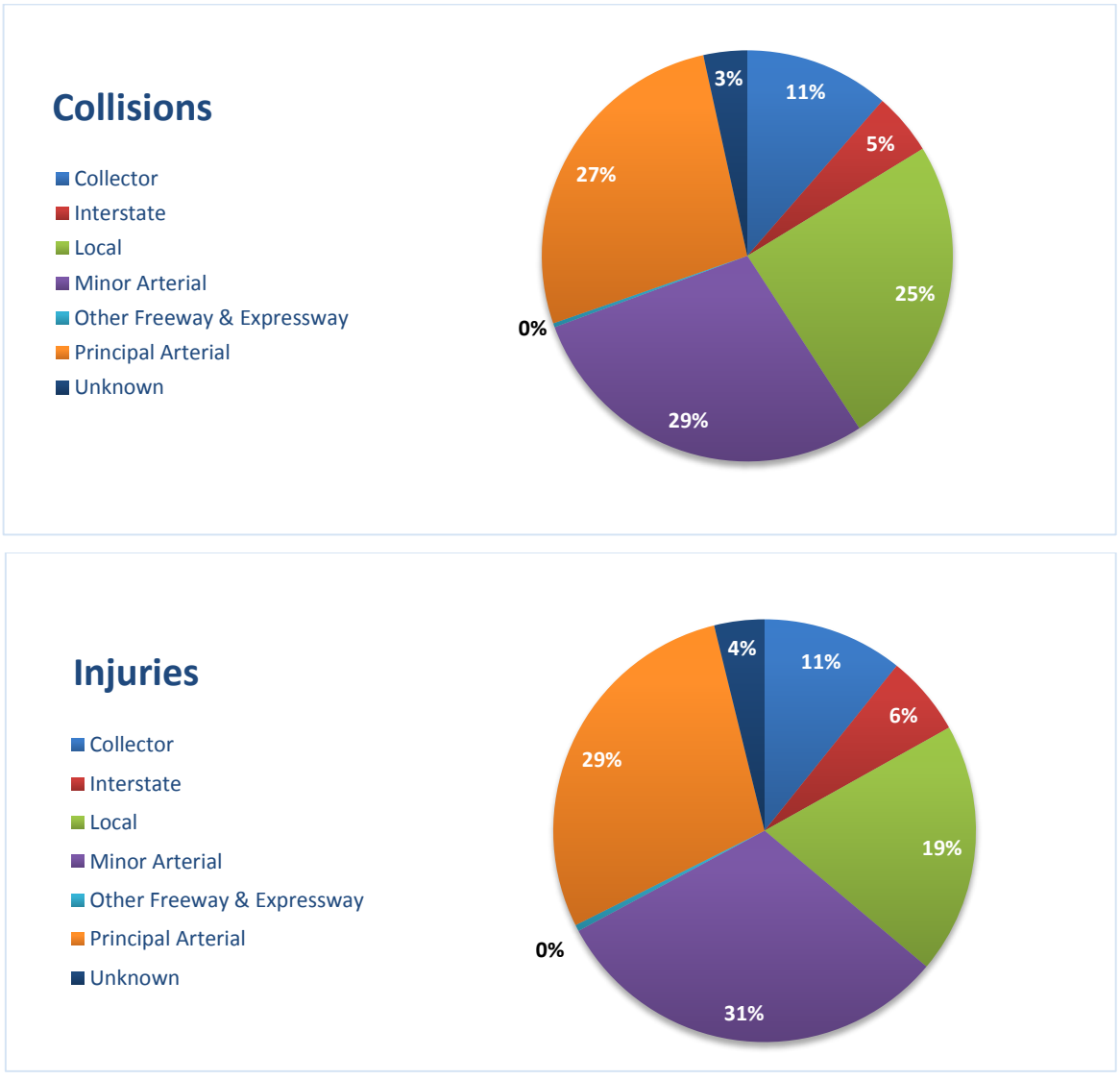

Figure 4.40: Crashes and Injuries by Functional Classification in 2017

Figures 4.41 and 4.42 respectively present the frequency of speed-related crashes and injuries on all functional classifications from 2015 to 2017.

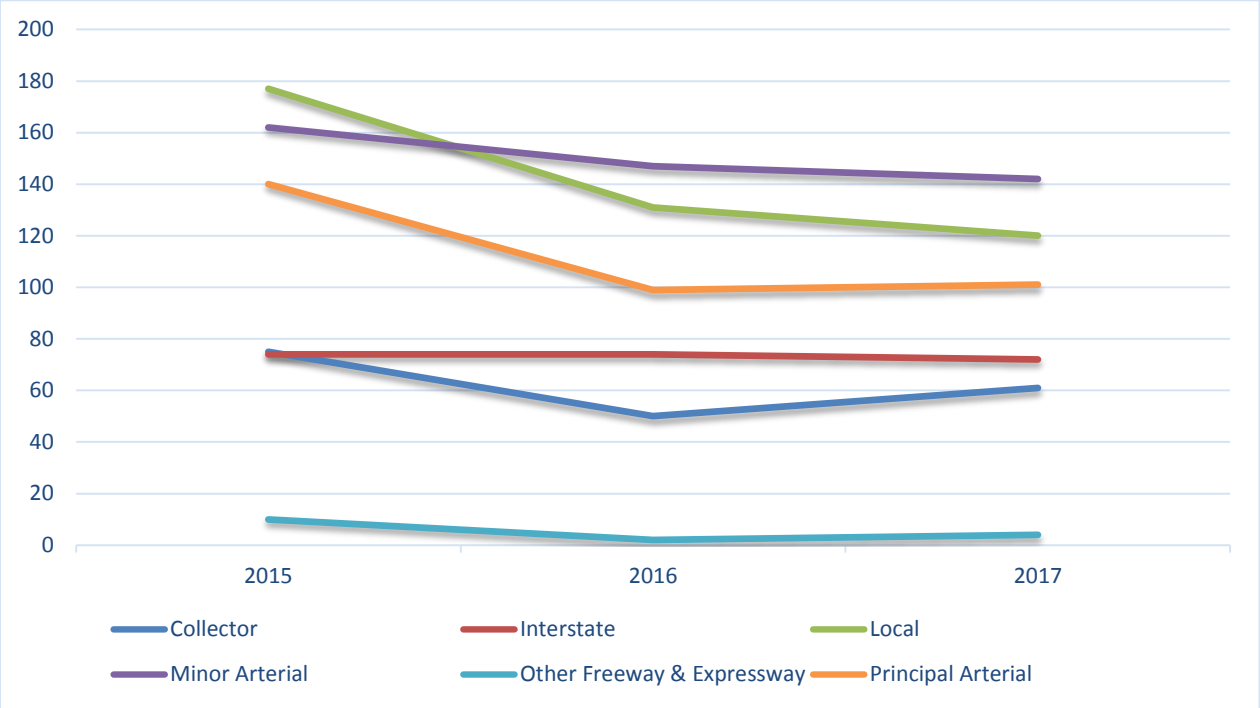

Figure 4.41: Number of Speed-Related Crashes by Roadway Functional Classification from 2015-2017

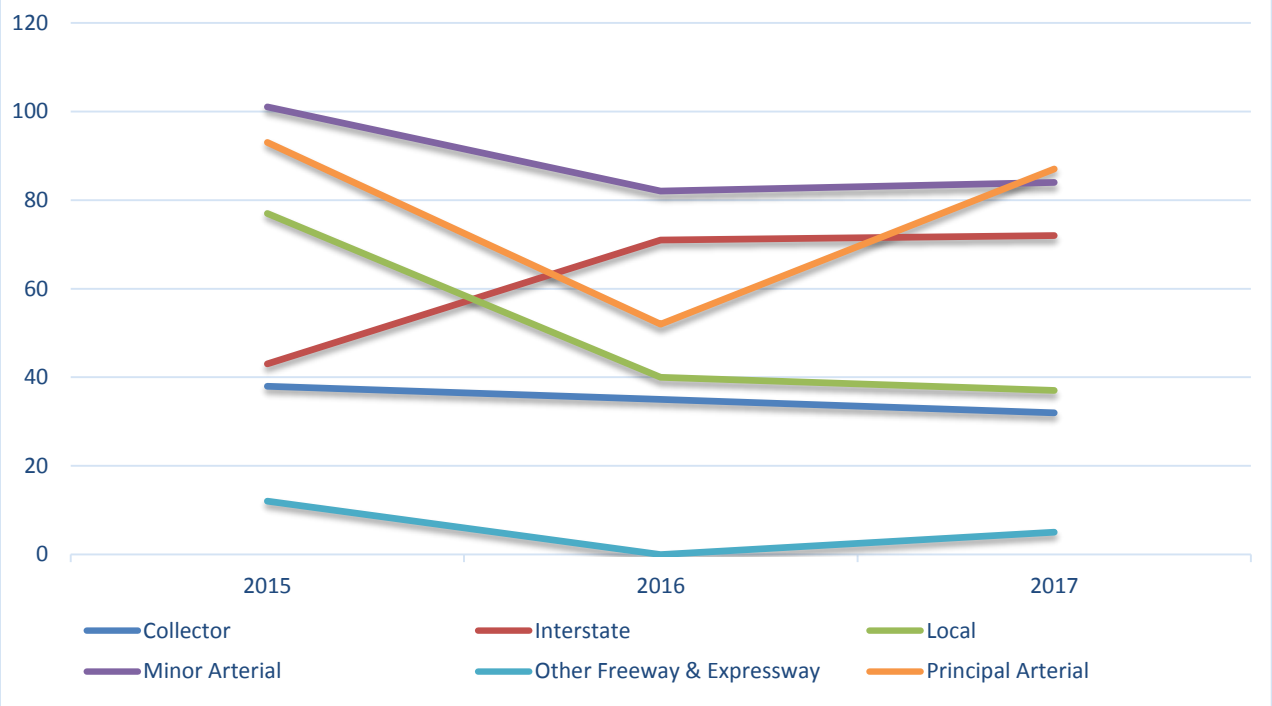

Figure 4.42: Number of Speed-Related Injuries by Roadway Functional Classification from 2015-2017

4.6 Contributing Factors

4.6.1 Crashes by Primary Crash Contributing Factors

Table 4.23 presents the summary of all reported contributing factors for the crashes in DC from 2015 through 2017. With the exception of "No violation" and "Other", the prominent contributing factors for crashes reported in 2017 included *"failed to yield right-of-way", "following-too-close"*, and "*failed to keep in proper lane*".

Table 4.23: Number of Crashes by Contributing Factors in 2015-2017

Drivers Action	2015	2016	2017
No Violation	20,682	18,638	17,611
Other	4,496	3,898	3,414
Driver Inattention	2,643	0	0
Following too Close	1,855	2,122	2,046
Changing Lanes W/O Caution	1,145	0	0
Failed To Yield Right-of-way	848	2,442	2,490
Speed	697	536	536
Improper Backing	679	912	829
Improper Passing	662	622	598
Failed To Keep In Proper Lane	651	2,086	2,018
Auto/Ped. Right of Way	557	0	0
Improper Turn	350	970	843
Red Light Violation	345	344	341
Other Distraction	260	0	0
Alcohol/Drug Influence	246	0	0
Stop Sign	179	104	130
Wrong Way/Side of Street	136	121	117
Pedestrian Violation	134	0	0
Open Door to Traffic	120	0	0
Diregarded Marking/Signing	115	299	276
Road Defects	78	0	0
Driver Vision Obstructed	77	0	0
Defective Brakes, Lights, etc.	48	0	0
Cell Phone/Other Electronic Device	30	0	0
Yield Sign	21	0	0
Right Turn on Red	13	0	0
Fail to Set Parking Brake	11	0	0
Flashing/Directional Light	8	0	0
Total	**37,086**	**33,094**	**31,249**

4.6.2 Speed-Related Crashes

Speeding is one of the most common contributing factors of traffic crashes. The summary of crashes related to speeding is presented in Figure 4.44. Approximately, 2% of the reported crashes were speed-related, which represents a decrease compared to the same in 2016.

Table 4.24 and Figure 4.45 are the summaries of speed-related crashes by age and gender. From the table and figure, male drivers between 26 and 30 years old were reported as the group with the highest incidence of speed-related crashes.

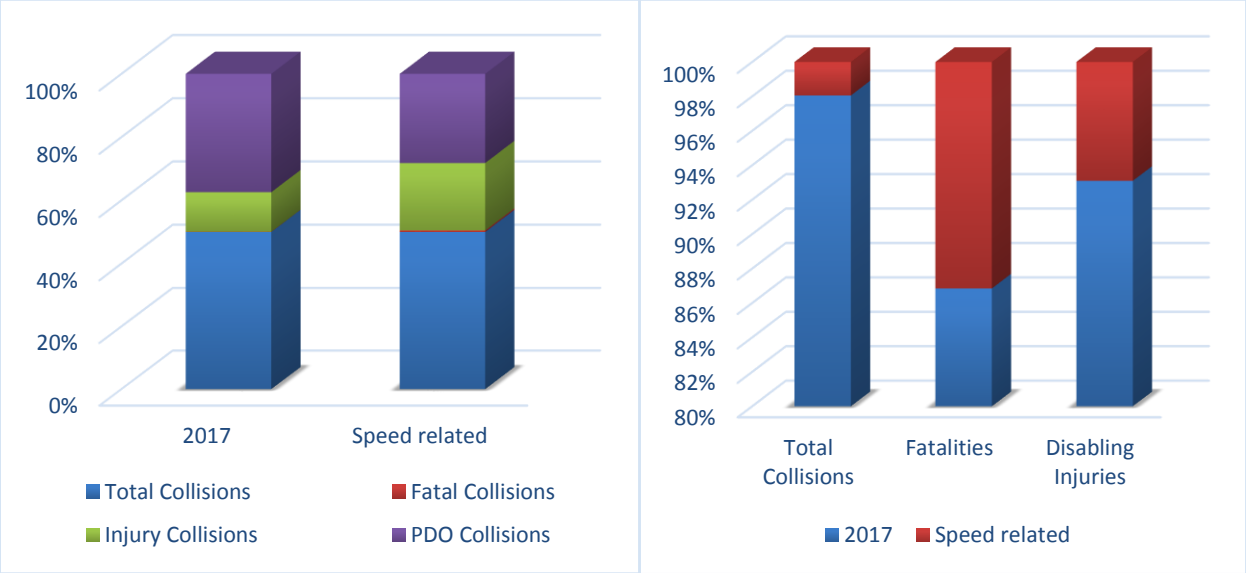

Figure 4.44: Speed-Related Crashes in 2017

Table 4.24: Speed-Related Crashes by Age and Gender for 2017

Age Group	Female	Male	Unknown	Total
16~20	5	15	0	20
21~25	22	50	0	72
26~30	13	65	0	78
31~35	12	45	0	57
36~40	12	27	0	39
41~45	5	19	0	24
46~50	5	19	0	24
51~55	2	23	0	25
56~60	3	10	0	13
61~65	2	6	0	8
66~70	3	1	0	4
71~75	0	2	0	2
Over 75	2	1	1	4
Unknown	16	76	74	166
Total	**102**	**359**	**75**	**536**

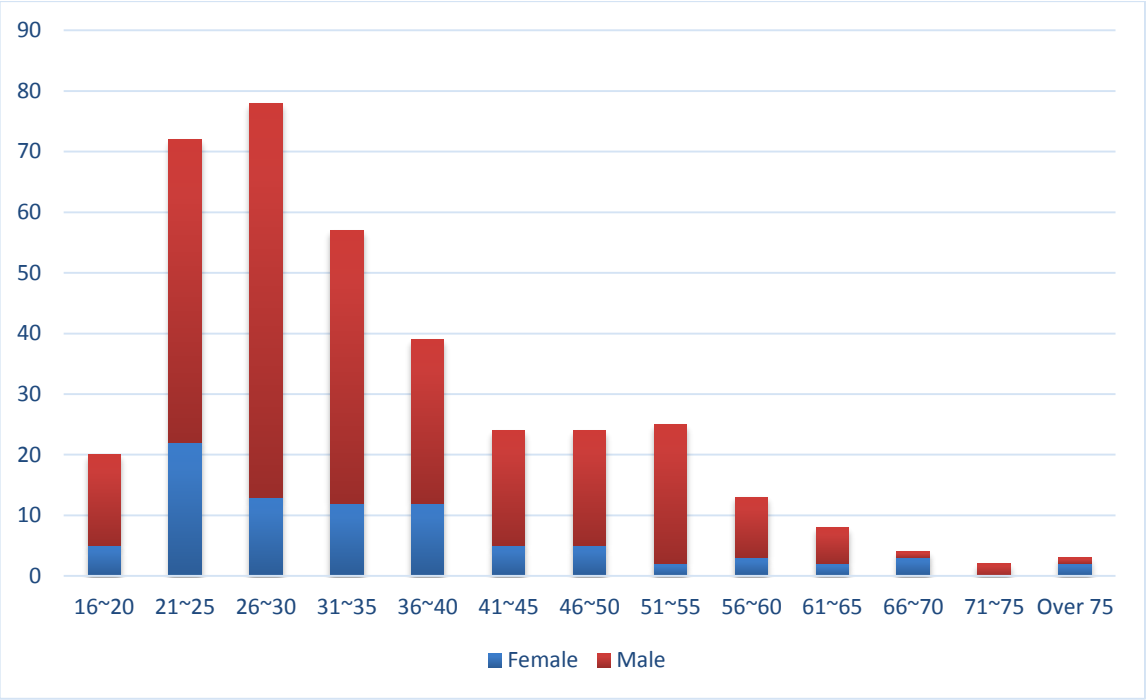

Figure 4.45: Speed-Related Crashes by Age and Gender in 2017

4.6.3 Crashes by Restraint Use (Seatbelts or Airbags)

Restraint devices such as seatbelt and airbag usage have a significant influence on the resulting severity of injury during a crash, based on several research studies. Table 4.25 and Figure 4.46 present the summary of crashes related to the airbag restraint. The results show that approximately 65% (41,109) of the injuries in 2017 were reported as a result of airbag failing to deploy. The majority of injuries involved vehicles with installed airbags.

Table 4.25: Frequency of Injures by Injury Code and Airbag Restraint in 2017

Airbag	Fatal	Disabling	Non-Disabling	Complaint but not visible	Other	None	Unknown	Total
Airbag Deployed	9	76	559	1,008	26	2,628	313	4,619
Airbag Failed	2	84	806	3558	29	34,159	2,471	41,109
N/A	4	47	292	635	6	7,615	707	9,306
Unknown	18	118	767	747	31	3,891	2,753	8,325
Total	**33**	**325**	**2,424**	**5,948**	**92**	**48,293**	**6,244**	**63,359**

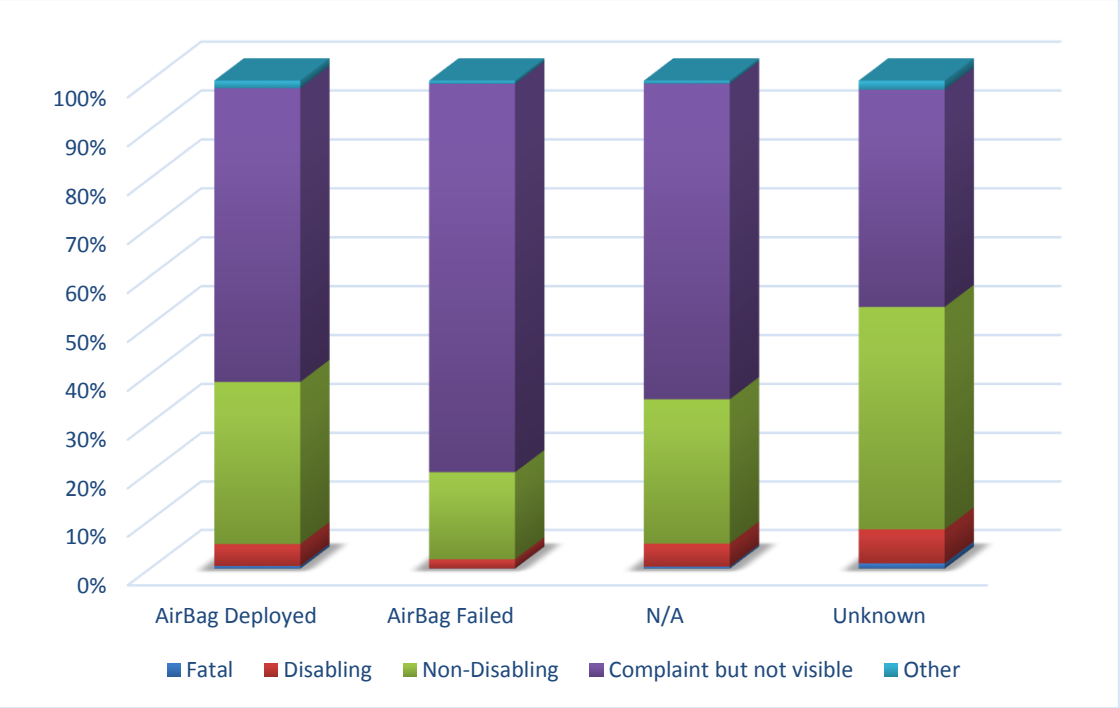

Figure 4.46: Crash Severity by Airbag Restraint in 2017

The use of seatbelts is another important safety restraint device. The analysis focused on its usage to examine the correlation of severity of motor vehicle crashes and its usage. The results are presented on Table 4.26 and Figure 4.47. The results show that in 2017, approximately 74% (23,142) of drivers or passengers involved in crashes used their seatbelts. Approximately 60% (38,246) of drivers or passengers involved in crashes were reported with unknown seatbelt usage.

Table 4.26: Number of Injuries by Injury Code and Seatbelt Restraint in 2017

Seatbelt	Fatal	Disabling	Non-Disabling	Complaint but not visible	Other	None	Unknown	Total
Child Restraint	0	1	21	38	0	659	50	769
Fastened	5	67	725	2,601	23	18,782	939	23,142
Helmet	3	13	93	61	1	167	18	356
Not Fastened	0	0	0	0	0	0	0	0
Other	4	9	43	96	3	639	48	846
Use Unknown	21	235	1,538	3,152	65	28,046	5,189	38,246
Total	**33**	**325**	**2,420**	**5,948**	**92**	**48,293**	**6,244**	**63,359**

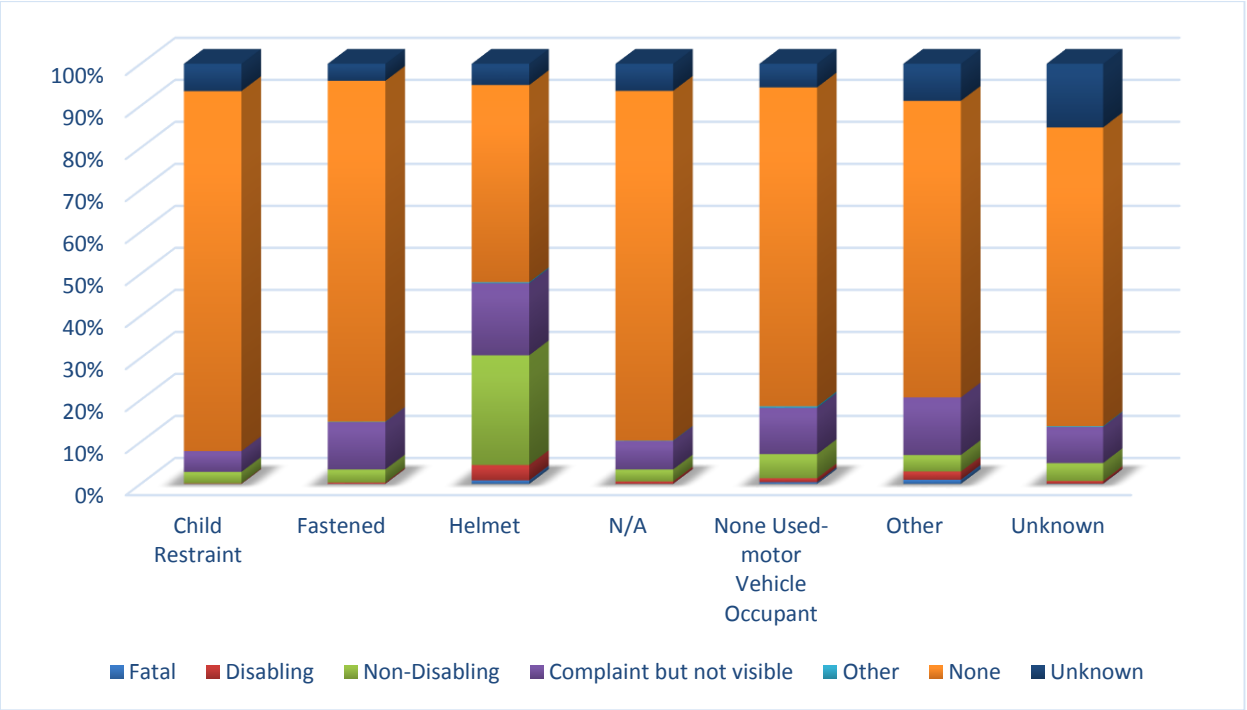

Figure 4.47: Crash Severity by Seatbelt Restraint in 2017

CHAPTER 5 – HIGH CRASH LOCATIONS

High-hazardous traffic safety locations can be identified at specific intersections, line segments (e.g., street corridors), and areas (e.g., Wards). Methods used to identify these high-hazardous traffic locations were presented in Chapter 2. This section focuses on the identification of high-hazardous intersections and corridors.

5.1 Identification of High Hazardous Intersections

Five ranking methods were used to identify high-hazardous intersections in the following order: crash rate, crash severity, crash frequency, crash severity cost and composite index (which is calculated based on the combination of previous three ranking). To rank high hazardous intersections based on the three-year crash data, each intersection is given a rank based on its calculated values. The first ranking is based on the crash rate followed by crash severity index, crash frequency and finally, by composite index. The highest hazardous intersections are those with the lowest composite index.

5.1.1 Ranking of High Hazardous Intersections (2015-2017)

The top 20 high hazardous locations based on each individual ranking for Crash Rate, Crash Cost, Crash Frequency, delta method and Composite Index as well as for the 3-year duration are presented in Tables 5.1 through 5.8 and Figures 5.1 and 5.2. The complete list of the top 100 high frequency crash locations is presented in the Appendix.

The crash occurrences for various intersections from 2015 through 2017 were compiled and arranged in order of magnitude to identify the high frequency crash location rankings. From Table 5.1, the intersection of New York Avenue and Bladensburg Road (NE) ranked the highest from 2015 to 2017. Also, the intersection of 1st Street and New York Avenue, NE ranked the second highest in 2017.

Table 5.1: Top 20 Hazardous Intersections by Crash Frequency in 2015-2017

INTERSECTION NAME	Quad	2015		2016		2017	
		Freq	Rank	Freq	Rank	Freq	Rank
NEW YORK AVE AND BLADENSBURG RD	NE	129	1	140	1	130	1
1ST ST AND NEW YORK AVE	NE	48	11	83	3	99	2
FAIRLAWN AVE AND PENNSYLVANIA AVE	SE	39	24	58	7	97	3
14TH ST AND U ST	NW	76	4	73	5	74	4
1ST ST AND UNION STATION PLAZA	NE	84	2	76	4	68	5
MINNESOTA AVE AND BENNING RD	NE	77	3	91	2	63	6
NEW YORK AVE AND NORTH CAPITOL ST	BN	72	5	57	8	62	7
FIRTH STERLING AVE AND HOWARD RD	SE	24	79	49	9	61	8
MONTANA AVE AND NEW YORK AVE	NE	22	99	36	30	52	9
9TH ST AND MASSACHUSETTS AVE	NW	44	16	45	15	47	10
MINNESOTA AVE AND PENNSYLVANIA AVE	SE	33	34	36	30	45	11
NEW YORK AVE AND SOUTH DAKOTA AVE	NE	47	12	46	13	45	11
36TH ST AND BENNING RD	NE	23	88	40	22	44	13
17TH ST AND BLADENSBURG RD	NE	32	39	20	147	44	13
13TH ST AND U ST	NW	28	54	44	16	44	13
16TH ST AND NEW YORK AVE	NE	27	61	30	54	43	16
MINNESOTA AVE AND NANNIE HELEN BURROUGHS AVE	NE	35	28	27	73	43	16
PENNSYLVANIA AVE AND PROUT ST	SE	15	247	32	47	42	18
7TH ST AND FLORIDA AVE	NW	47	12	47	11	42	18
14TH ST AND CONSTITUTION AVE	NW	33	34	39	23	42	18
BENNING RD AND BLADENSBURG RD	NE	40	23	47	11	42	18

Table 5.2: Top 20 Hazardous Intersections by Crash Frequency for 3-Year Periods

INTERSECTION NAME	Quad	2014-2016		2015-2017	
		Freq	Rank	Freq	Rank
NEW YORK AVE AND BLADENSBURG RD	NE	388	1	399	1
MINNESOTA AVE AND BENNING RD	NE	218	3	231	2
1ST ST AND NEW YORK AVE	NE	180	6	230	3
1ST ST AND UNION STATION PLAZA	NE	227	2	228	4
14TH ST AND U ST	NW	209	4	223	5
FAIRLAWN AVE AND PENNSYLVANIA AVE	SE	141	12	194	6
NEW YORK AVE AND NORTH CAPITOL ST	BN	197	5	191	7
WISCONSIN AVE AND M ST	NW	166	7	155	8
NEW YORK AVE AND SOUTH DAKOTA AVE	NE	146	10	138	9
9TH ST AND MASSACHUSETTS AVE	NW	128	14	136	10
7TH ST AND FLORIDA AVE	NW	145	11	136	10
1ST ST AND NEW YORK AVE	NW	118	19	135	12
FIRTH STERLING AVE AND HOWARD RD	SE	97	34	134	13
MONTANA AVE AND NEW YORK AVE	NE	148	9	131	14
FLORIDA AVE AND NEW YORK AVE	NE	150	8	129	15
BENNING RD AND BLADENSBURG RD	NE	125	16	129	15
KENILWORTH AVE AND EAST CAPITOL ST	BN	117	20	120	17
13TH ST AND U ST	NW	109	24	116	18
MINNESOTA AVE AND PENNSYLVANIA AVE	SE	124	17	114	19
14TH ST AND CONSTITUTION AVE	NW	102	30	114	19
RHODE ISLAND AVE AND NORTH CAPITOL ST	BN	123	18	114	19

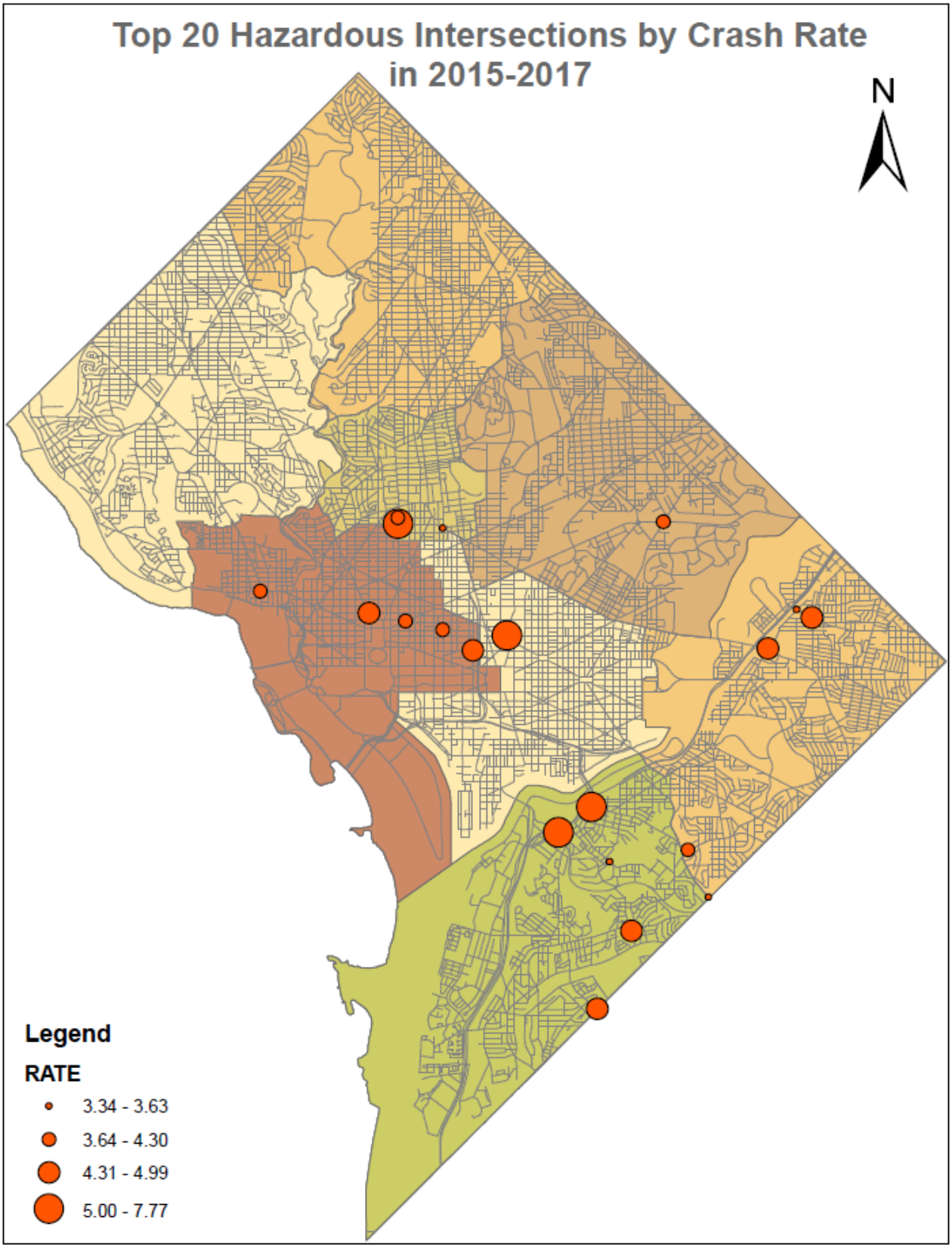

Figure 5.1: Top 20 Hazardous Intersections by Crash Rate in 2015-2017

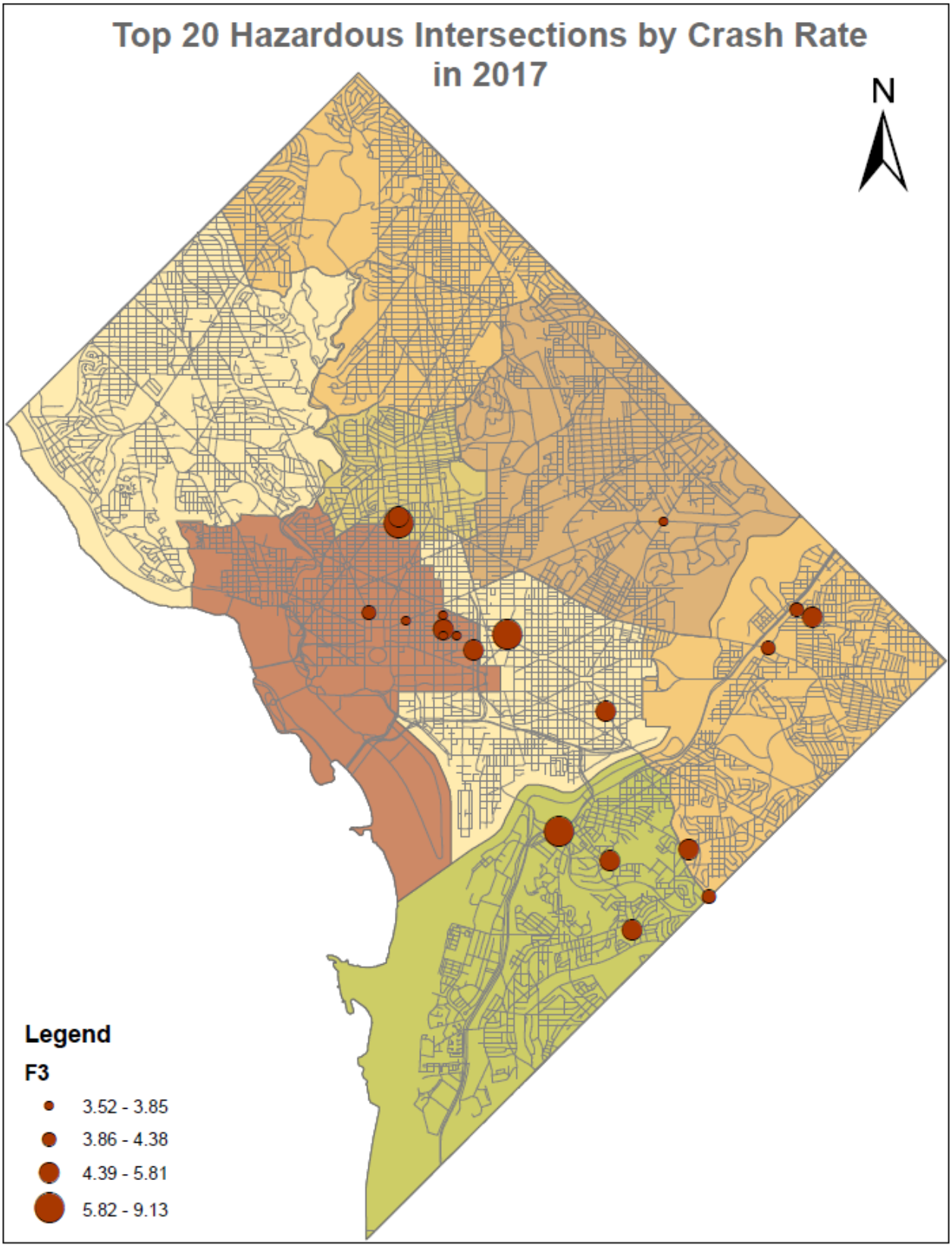

Figure 5.2: Top 20 Hazardous Intersections by Crash Rate in 2017

Based on the crash rate calculations, which took into consideration the traffic volumes for each intersection, the summary in Table 5.3 shows that the intersection of Firth Sterling Avenue and Howard Road SE was ranked the highest in 2017. The intersection of 14th Street and U Street, NW was ranked second highest based on the crash rate ranking presented in Table 5.3. These crash rates were calculated based on the methodology discussed in Chapter 2.

Table 5.3: Top 20 Hazardous Intersections by Crash Rate in 2015-2017

INTERSECTION NAME	Quad	2015		2016		2017	
		Rate	Rank	Rate	Rank	Rate	Rank
FIRTH STERLING AVE AND HOWARD RD	SE	3.593	15	7.336	2	9.132	1
14TH ST AND U ST	NW	7.155	3	6.873	4	6.967	2
1ST ST AND UNION STATION PLAZA	NE	8.587	2	7.769	1	6.952	3
7TH ST AND G ST	NW	3.348	22	3.171	38	5.814	4
44TH ST AND NANNIE HELEN BURROUGHS AVE	NE	3.154	28	6.110	6	5.716	5
SAVANNAH ST AND STANTON RD	SE	1.423	240	7.116	3	5.693	6
14TH ST AND V ST	NW	2.686	46	4.566	11	5.641	7
ALABAMA AVE AND GOOD HOPE RD	SE	3.704	12	3.087	41	5.248	8
3RD ST AND D ST	NW	4.765	7	3.723	24	5.063	9
14TH ST AND D ST	SE	1.868	127	1.868	148	4.981	10
MORRIS RD AND POMEROY RD	SE	0.818	517	4.907	10	4.907	11
SOUTHERN AVE AND NAYLOR RD	SE	2.466	50	3.288	34	4.384	12
17TH ST AND I ST	NW	5.133	5	3.700	25	4.298	13
MINNESOTA AVE AND NANNIE HELEN BURROUGHS AVE	NE	3.341	23	2.577	60	4.105	14
MINNESOTA AVE AND BENNING RD	NE	4.872	6	5.758	7	3.986	15
NEW YORK AVE AND BLADENSBURG RD	NE	3.817	10	4.142	14	3.846	16
7TH ST AND I ST	NW	1.309	281	4.253	13	3.762	17
7TH ST AND F ST	NW	3.073	30	2.390	76	3.755	18
5TH ST AND F ST	NW	0	1131	2.143	105	3.673	19
NEW YORK AVE AND H ST	NW	2.178	77	5.697	8	3.519	20

Table 5.5 shows that the intersection of New York Ave and Bladensburg Road NE ranked the highest based on the crash severity cost for each individual year. When the three-year crash costs were taken into consideration (Table 5.6), the same intersection ranked the highest.

Table 5.4: Top 20 Hazardous Intersections by Crash Rate for 3-Year Periods

INTERSECTION NAME	Quad	2014-2016		2015-2017	
		Rate	Rank	Rate	Rank
1ST ST AND UNION STATION PLAZA	NE	7.735	1	7.769	1
14TH ST AND U ST	NW	6.559	3	6.998	2
FIRTH STERLING AVE AND HOWARD RD	SE	4.841	4	6.687	3
MARTIN LUTHER KING AVE AND GOOD HOPE RD	SE	6.757	2	6.014	4
44TH ST AND NANNIE HELEN BURROUGHS AVE	NE	4.665	6	4.993	5
MINNESOTA AVE AND BENNING RD	NE	4.598	7	4.872	6
SAVANNAH ST AND STANTON RD	SE	2.847	32	4.744	7
3RD ST AND D ST	NW	3.623	13	4.517	8
SOUTHERN AVE AND WHEELER RD	SE	4.717	5	4.466	9
17TH ST AND I ST	NW	4.496	8	4.377	10
14TH ST AND V ST	NW	3.581	15	4.298	11
7TH ST AND G ST	NW	3.759	12	4.111	12
ALABAMA AVE AND GOOD HOPE RD	SE	3.190	25	4.013	13
NEW YORK AVE AND BLADENSBURG RD	NE	3.827	11	3.935	14
NEW YORK AVE AND H ST	NW	3.575	16	3.798	15
WISCONSIN AVE AND M ST	NW	4.064	9	3.795	16
7TH ST AND FLORIDA AVE	NW	3.872	10	3.632	17
MORRIS RD AND POMEROY RD	SE	2.181	72	3.544	18
SOUTHERN AVE AND NAYLOR RD	SE	3.196	23	3.379	19
MINNESOTA AVE AND NANNIE HELEN BURROUGHS AVE	NE	3.023	27	3.341	20

Table 5.5: Top 20 Hazardous Intersections by Crash Severity Cost for 2015-2017

INTERSECTION NAME	Quad	2015		2016		2017	
		Cost	Rank	Cost	Rank	Cost	Rank
NEW YORK AVE AND BLADENSBURG RD	NE	1553	1	1275	1	1307	1
FAIRLAWN AVE AND PENNSYLVANIA AVE	SE	503	18	602	8	1203	2
1ST ST AND NEW YORK AVE	NE	443	21	750	3	983	3
NEW YORK AVE AND NORTH CAPITOL ST	BN	819	3	585	9	746	4
FIRTH STERLING AVE AND HOWARD RD	SE	240	112	609	7	713	5
1ST ST AND UNION STATION PLAZA	NE	653	7	630	5	684	6
14TH ST AND U ST	NW	782	5	668	4	660	7
MINNESOTA AVE AND BENNING RD	NE	803	4	1028	2	653	8
NEW YORK AVE AND SOUTH DAKOTA AVE	NE	525	15	503	10	603	9
MONTANA AVE AND NEW YORK AVE	NE	218	140	383	43	540	10
16TH ST AND NEW YORK AVE	NE	362	39	398	36	534	11
36TH ST AND BENNING RD	NE	509	17	428	23	518	12
1ST ST AND NEW YORK AVE	NW	663	6	473	14	489	13
MINNESOTA AVE AND PENNSYLVANIA AVE	SE	368	38	390	40	480	14
17TH ST AND BLADENSBURG RD	NE	315	58	234	123	480	14
4TH ST AND MICHIGAN AVE	NE	279	79	330	53	479	16
9TH ST AND MASSACHUSETTS AVE	NW	398	31	405	33	467	17
14TH ST AND CONSTITUTION AVE	NW	339	48	429	21	459	18
4TH ST AND NEW YORK AVE	NE	285	71	438	20	452	19
36TH PL AND NEW YORK AVE	NE	173	240	135	363	447	20

Table 5.6: Top 20 Hazardous Intersections by Crash Severity Cost for 3-Year Periods

INTERSECTION NAME	Quad	2014-2016		2015-2017	
		Cost	Rank	Cost	Rank
NEW YORK AVE AND BLADENSBURG RD	NE	4180	1	4135	1
MINNESOTA AVE AND BENNING RD	NE	2576	2	2483	2
FAIRLAWN AVE AND PENNSYLVANIA AVE	SE	1593	10	2307	3
1ST ST AND NEW YORK AVE	NE	1658	8	2175	4
NEW YORK AVE AND NORTH CAPITOL ST	BN	2154	3	2150	5
14TH ST AND U ST	NW	1997	5	2109	6
1ST ST AND UNION STATION PLAZA	NE	1830	6	1967	7
NEW YORK AVE AND SOUTH DAKOTA AVE	NE	1674	7	1631	8
1ST ST AND NEW YORK AVE	NW	1368	18	1625	9
FIRTH STERLING AVE AND SUITLAND PKWY	SE	2005	4	1576	10
FIRTH STERLING AVE AND HOWARD RD	SE	1142	28	1562	11
WISCONSIN AVE AND M ST	NW	1577	13	1502	12
36TH ST AND BENNING RD	NE	1154	26	1454	13
7TH ST AND FLORIDA AVE	NW	1584	12	1403	14
KENILWORTH AVE AND EAST CAPITOL ST	BN	1457	16	1382	15
MONTANA AVE AND NEW YORK AVE	NE	1590	11	1343	16
RHODE ISLAND AVE AND NORTH CAPITOL ST	BN	1554	14	1320	17
16TH ST AND NEW YORK AVE	NE	999	41	1293	18
MINNESOTA AVE AND AMES ST	NE	1220	24	1293	18
9TH ST AND MASSACHUSETTS AVE	NW	1155	25	1269	20

In order to examine the effect of the various rankings, the crash composite index (CCI, Equation 2) methodology was employed to identify the characteristics of intersections or corridors. Based on the results presented in Table 5.7, it was determined that the intersection of New York Avenue and Bladensburg Road (NE) ranked the highest using the composite index method. When the three-year crash composite index ranking was taken into consideration as shown in Table 5.8, New York Avenue and Bladensburg Road (NE) and Firth Sterling Avenue and Howard Road (SE) were the top two most hazardous intersections. The GIS maps for the top 20 hazardous intersections by crash cost from 2015 through 2017 and the top 20 hazardous intersection by crash cost in 2017 are respectively presented in Figures 5.3 and 5.4 respectively. Figures 5.5 and 5.6 present the top 20 hazardous intersections by crash composite index from 2015 to 2017 and the top 20 hazardous intersection by crash composite index in 2017 respectively.

The results of the CCI ranking using the new equation for 2015-2017 is presented in Chapter 7.

Table 5.7: Top 20 Hazardous Intersections by Composite Index for 2015-2017

INTERSECTION NAME	Quad	2015		2016		2017	
		Comp	Rank	Comp	Rank	Comp	Rank
NEW YORK AVE AND BLADENSBURG RD	NE	3.25	1	4.25	3	4.75	1
FIRTH STERLING AVE AND HOWARD RD	SE	79.5	46	6.25	5	4.75	1
1ST ST AND UNION STATION PLAZA	NE	4.5	4	3.75	2	5	3
14TH ST AND U ST	NW	4.25	2	4.25	3	5	3
MINNESOTA AVE AND BENNING RD	NE	4.25	2	3.25	1	9.25	5
9TH ST AND MASSACHUSETTS AVE	NW	26	13	29	11	16.75	6
MINNESOTA AVE AND NANNIE HELEN BURROUGHS AVE	NE	25.25	12	91.75	53	21.5	7
17TH ST AND BLADENSBURG RD	NE	67.25	40	186.25	112	24	8
ALABAMA AVE AND GOOD HOPE RD	SE	50.25	26	88.5	49	28	9
13TH ST AND U ST	NW	88	48	29.5	14	29.25	10
7TH ST AND FLORIDA AVE	NW	11.75	5	16	7	30	11
IRVING ST AND KENYON ST	NW	143.5	100	49.25	23	32	12
44TH ST AND NANNIE HELEN BURROUGHS AVE	NE	155.25	106	31.25	15	34	13
17TH ST AND I ST	NW	24	11	49	21	34.5	14
MONTANA AVE AND NEW YORK AVE	NE	218.5	157	96.5	56	35.5	15
3RD ST AND D ST	NW	47	23	70.5	31	38.25	16
14TH ST AND IRVING ST	NW	26.75	14	52.5	25	41	17
WISCONSIN AVE AND M ST	NW	12	6	7.5	6	41.75	18
7TH ST AND G ST	NW	162	111	221	145	43.5	19
13TH ST AND H ST	NE	309.25	224	140.25	85	46.25	20

Table 5.8: Top 20 Hazardous Intersections by Composite Index for 3-Year Periods

INTERSECTION NAME	Quad	2014-2016		2015-2017	
		Cost	Rank	Cost	Rank
MINNESOTA AVE AND BENNING RD	NE	3.5	1	3	1
NEW YORK AVE AND BLADENSBURG RD	NE	3.5	1	4.25	2
1ST ST AND UNION STATION PLAZA	NE	3.75	3	4.75	3
14TH ST AND U ST	NW	4.25	4	4.75	3
FIRTH STERLING AVE AND HOWARD RD	SE	23.5	9	9.5	5
WISCONSIN AVE AND M ST	NW	10.5	5	12	6
7TH ST AND FLORIDA AVE	NW	11.25	6	13.75	7
9TH ST AND MASSACHUSETTS AVE	NW	22.5	8	18.25	8
9TH ST AND U ST	NW	30.5	14	25.75	9
MINNESOTA AVE AND NANNIE HELEN BURROUGHS	NE	33	17	29.25	10
17TH ST AND I ST	NW	25	10	30.25	11
FIRTH STERLING AVE AND SUITLAND PKWY	SE	18.5	7	31.5	12
14TH ST AND IRVING ST	NW	26.25	13	32.25	13
SOUTHERN AVE AND WHEELER RD	SE	25	10	33.25	14
13TH ST AND U ST	NW	33.5	18	36	15
1ST ST AND FLORIDA AVE	NE	53.75	29	40.25	16
1ST ST AND NEW YORK AVE	NW	60.75	35	41	17
7TH ST AND H ST	NW	36.5	20	42.5	18
3RD ST AND D ST	NW	67.75	40	43.5	19
ALABAMA AVE AND GOOD HOPE RD	SE	67.75	40	43.75	20

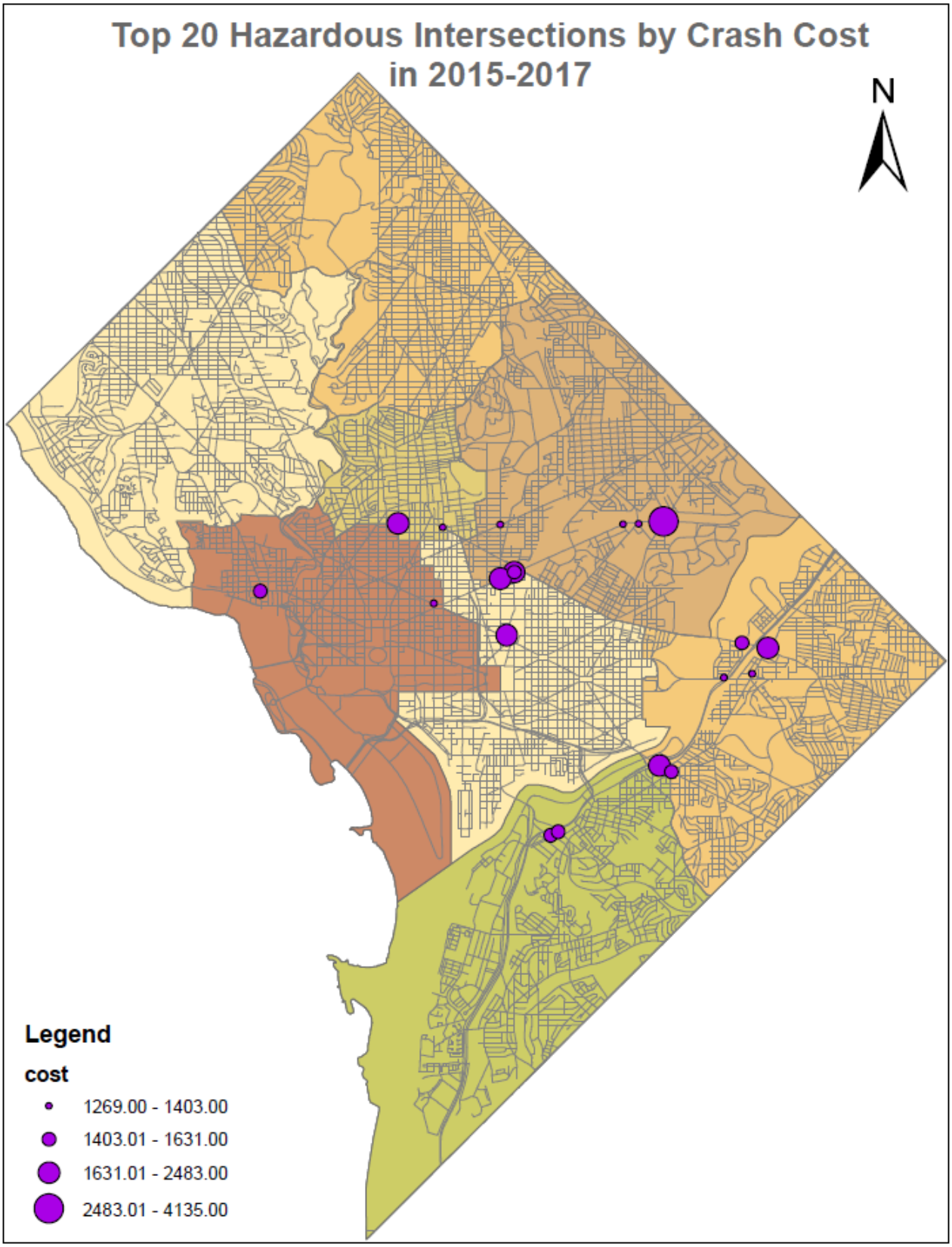

Figure 5.3: Top 20 Hazardous Intersections by Crash Cost in 2015-2017

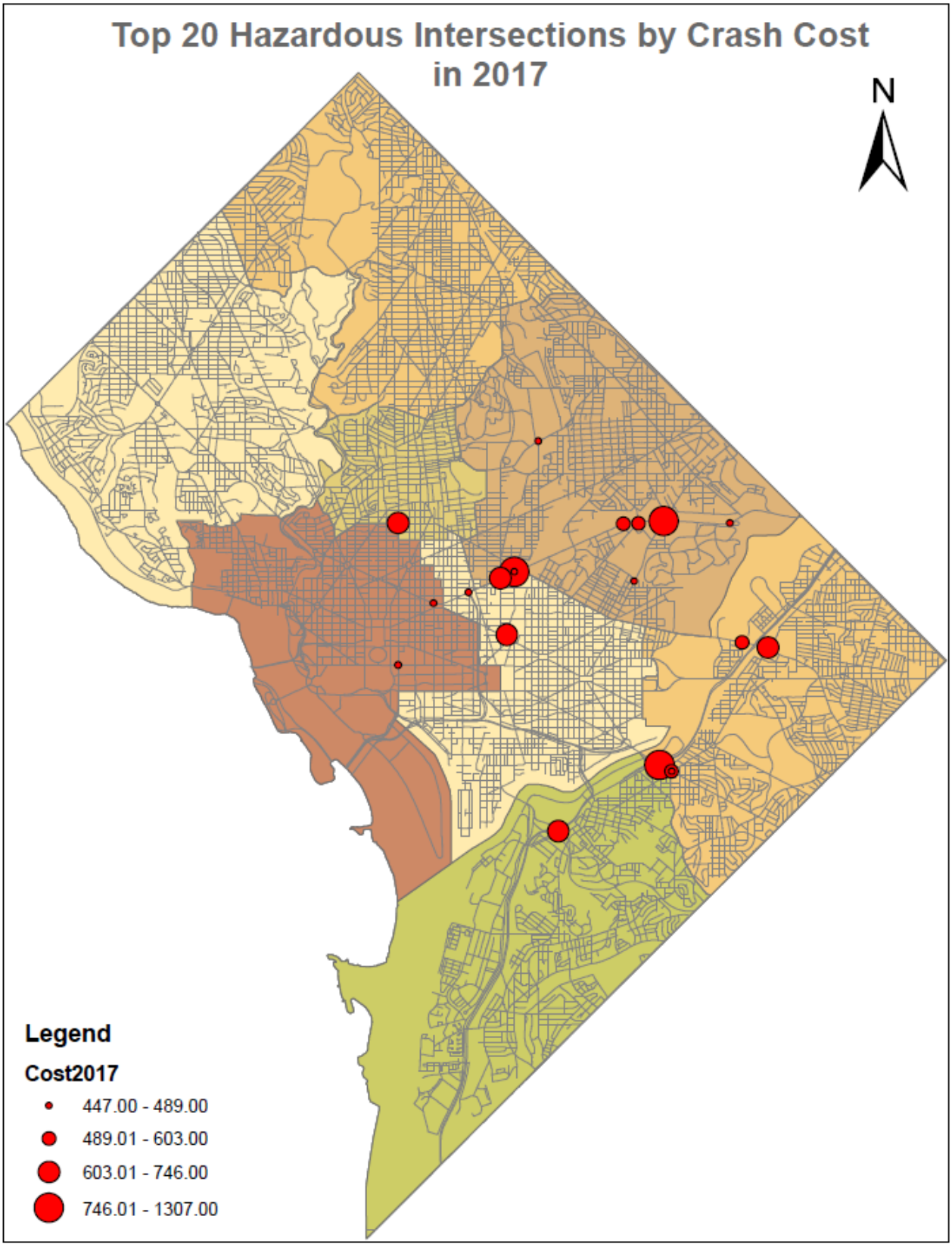

Figure 5.4: Top 20 Hazardous Intersections by Crash Cost in 2017

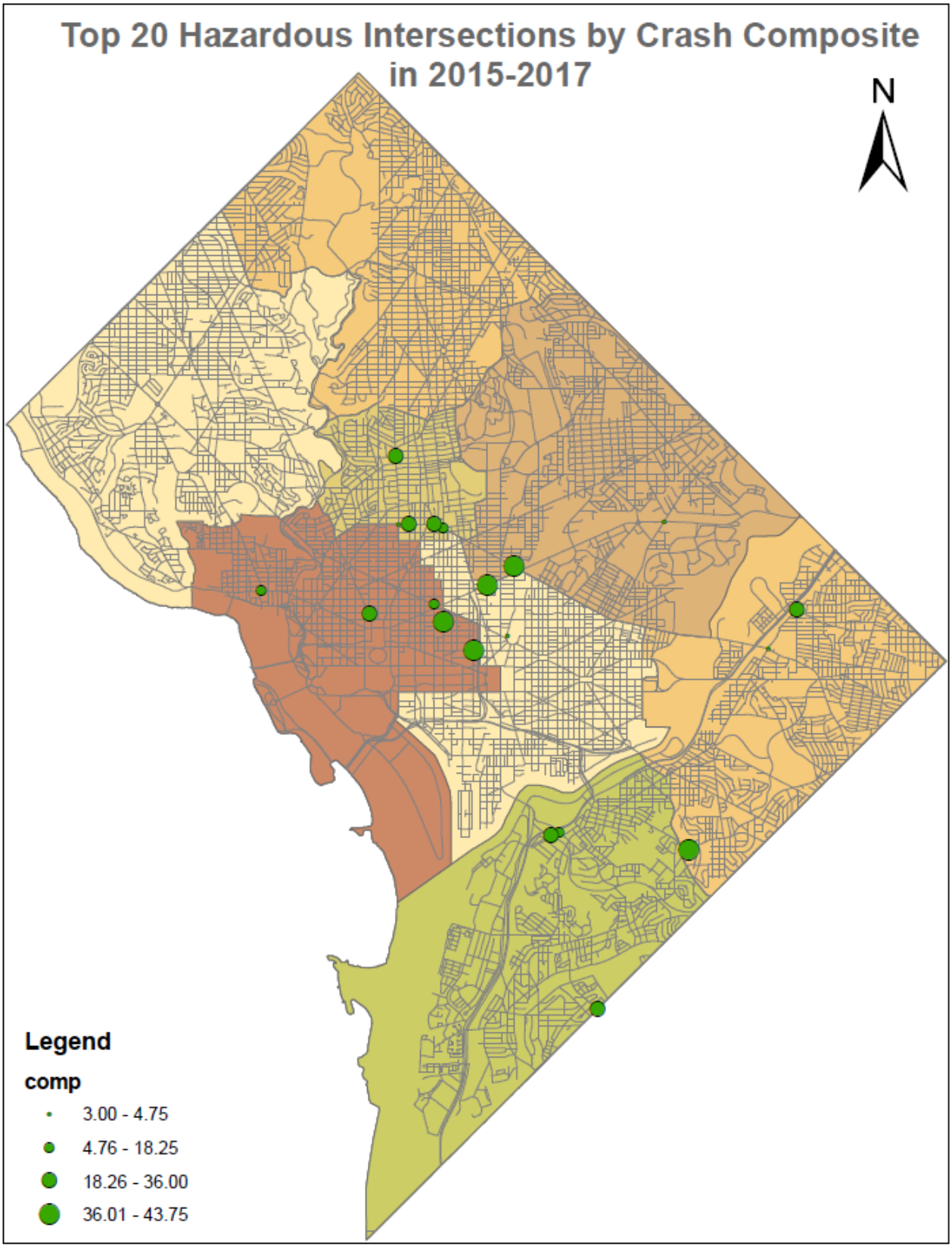

Figure 5.5: Top 20 Hazardous Intersections by Crash Composite Index 2015-2017

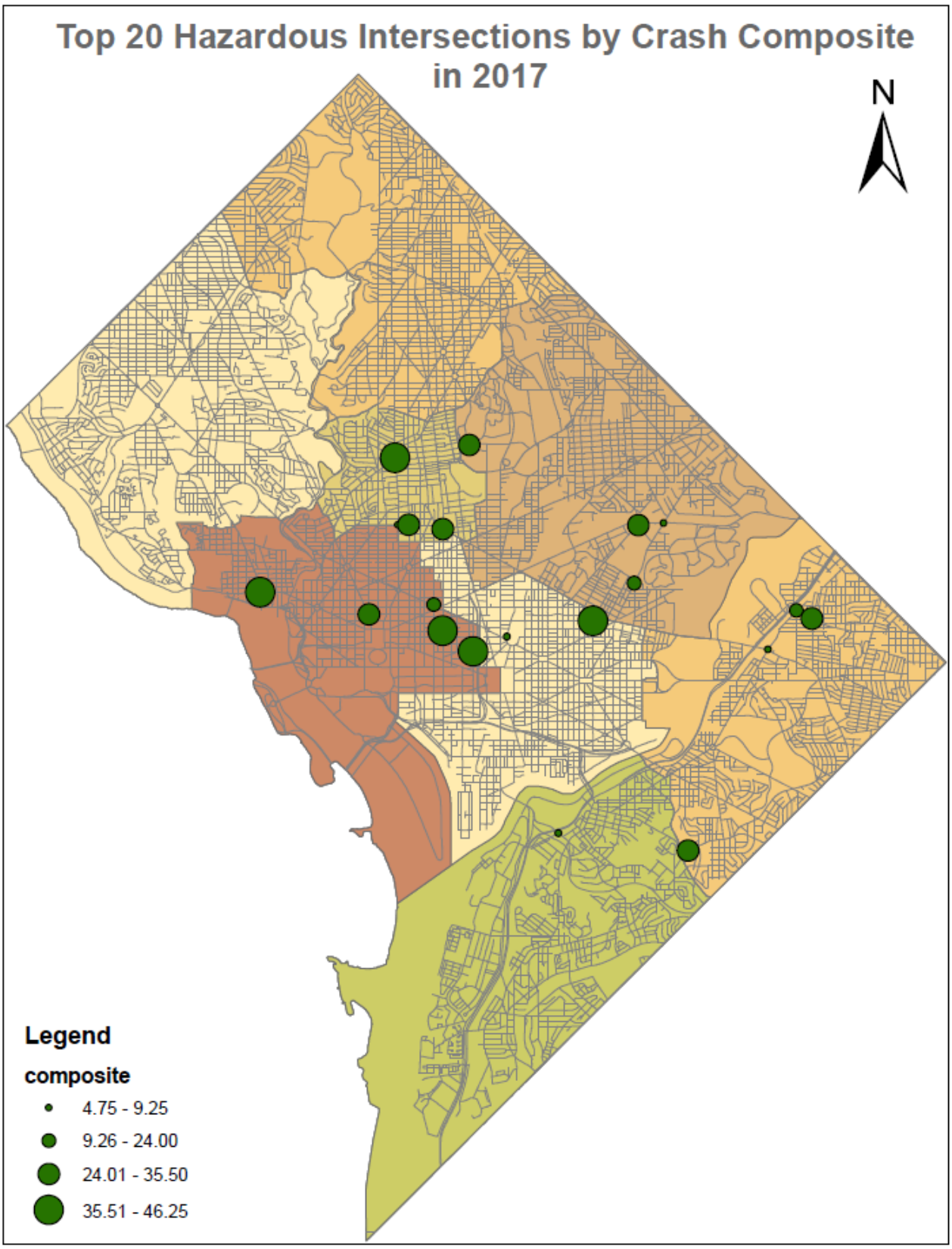

Figure 5.6: Top 20 Hazardous Intersections by Crash Composite Index for 2017

5.2 High Frequency Crash Intersection by Type

In order to determine the crash patterns at each of the identified top 20 high frequency crash locations, the crash types for those locations were further analyzed and are presented in Table 5.9. From the table, in 2017, side swipe was the leading crash type for most of the high frequency crash locations, whereas parked-vehicle and unknown crashes were the second and third most frequently reported crashes for the top 20 high frequency crash locations.

Table 5.9: Top 20 Hazardous Intersections by Crash Type in 2017

Type of Collision	Angle	Front To Front	Front To Rear	Rear to Front	Rear To Rear	Rear To Side	Sideswipe, Opposite Direction	Sideswipe, Same Direction	Other	Unknown	TotalCrash
NEW YORK AVE AND BLADENSBURG RD,NE	18	10	47	5	1	2	1	27	9	10	130
1ST ST AND NEW YORK AVE,NE	9	6	28	3	1	4	2	30	6	10	99
FAIRLAWN AVE AND PENNSYLVANIA AVE,SE	6	7	45	2	0	2	0	25	2	8	97
14TH ST AND U ST,NW	5	3	18	5	2	1	4	24	7	5	74
1ST ST AND UNION STATION PLAZA,NE	7	1	16	3	0	2	0	29	6	4	68
MINNESOTA AVE AND BENNING RD,NE	4	4	23	1	1	2	1	16	5	6	63
NEW YORK AVE AND NORTH CAPITOL ST,BN	11	5	14	0	0	0	3	26	1	2	62
FIRTH STERLING AVE AND HOWARD RD,SE	2	7	18	1	0	0	2	17	6	8	61
MONTANA AVE AND NEW YORK AVE,NE	2	2	25	3	2	1	1	12	1	3	52
9TH ST AND MASSACHUSETTS AVE,NW	3	3	10	1	0	1	1	19	4	5	47
MINNESOTA AVE AND PENNSYLVANIA AVE,SE	3	4	18	2	1	0	0	7	5	5	45
NEW YORK AVE AND SOUTH DAKOTA AVE,NE	1	0	22	0	0	0	0	10	1	11	45
36TH ST AND BENNING RD,NE	4	2	18	2	0	1	0	8	4	5	44
13TH ST AND U ST,NW	4	4	13	3	0	2	0	15	1	2	44
17TH ST AND BLADENSBURG RD,NE	4	1	14	0	0	0	0	13	1	11	44
MINNESOTA AVE AND NANNIE HELEN BURROUGHS AVE,NE	4	2	16	4	1	1	1	8	1	5	43
16TH ST AND NEW YORK AVE,NE	10	1	17	1	0	0	0	4	3	7	43
14TH ST AND CONSTITUTION AVE,NW	4	3	12	1	0	0	2	15	1	4	42
BENNING RD AND BLADENSBURG RD,NE	1	4	9	0	0	2	1	15	3	7	42
PENNSYLVANIA AVE AND PROUT ST,SE	2	3	21	1	0	0	0	7	4	4	42

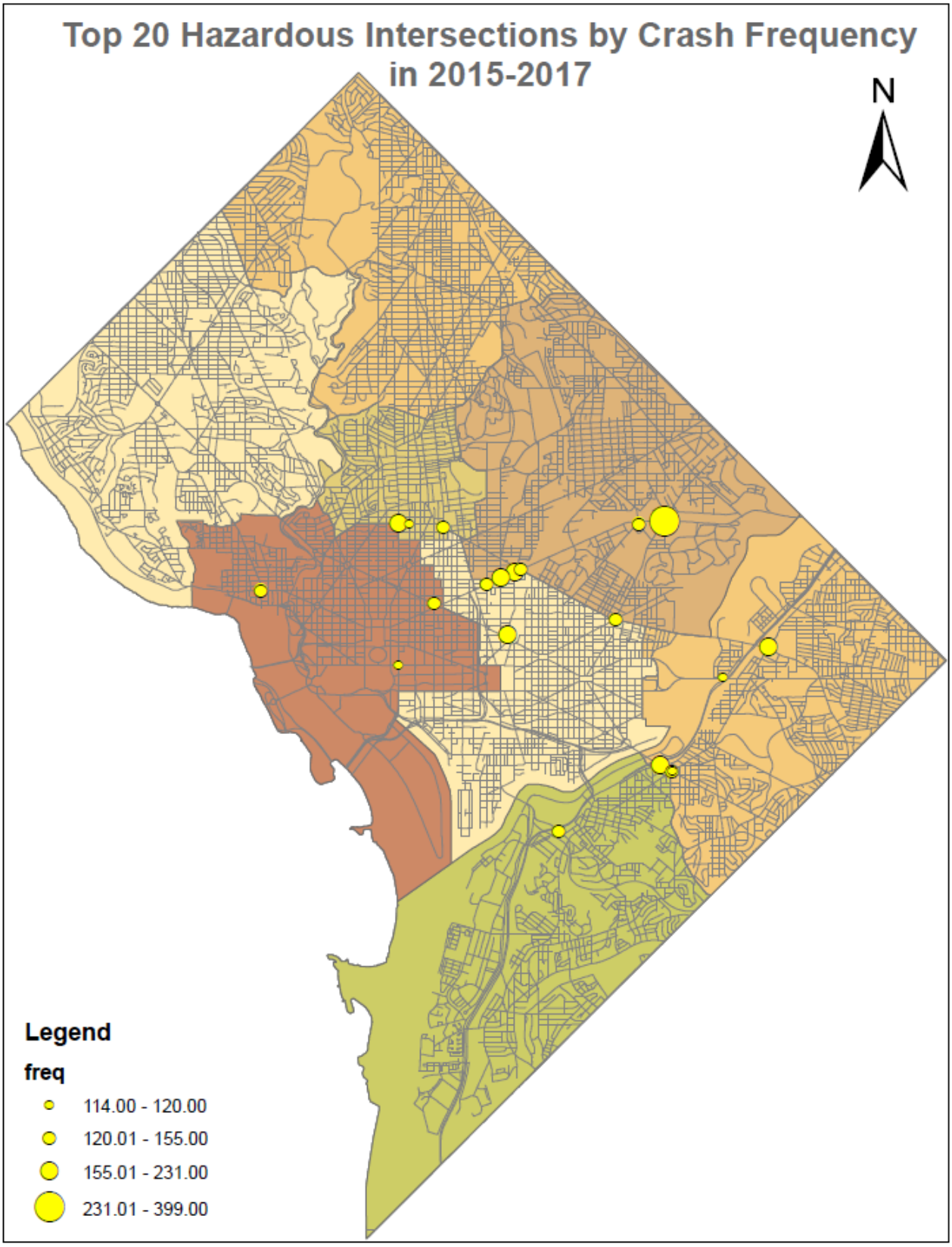

Figure 5.8: Top 20 Hazardous Intersections by Crash Frequency Index in 2015-2017

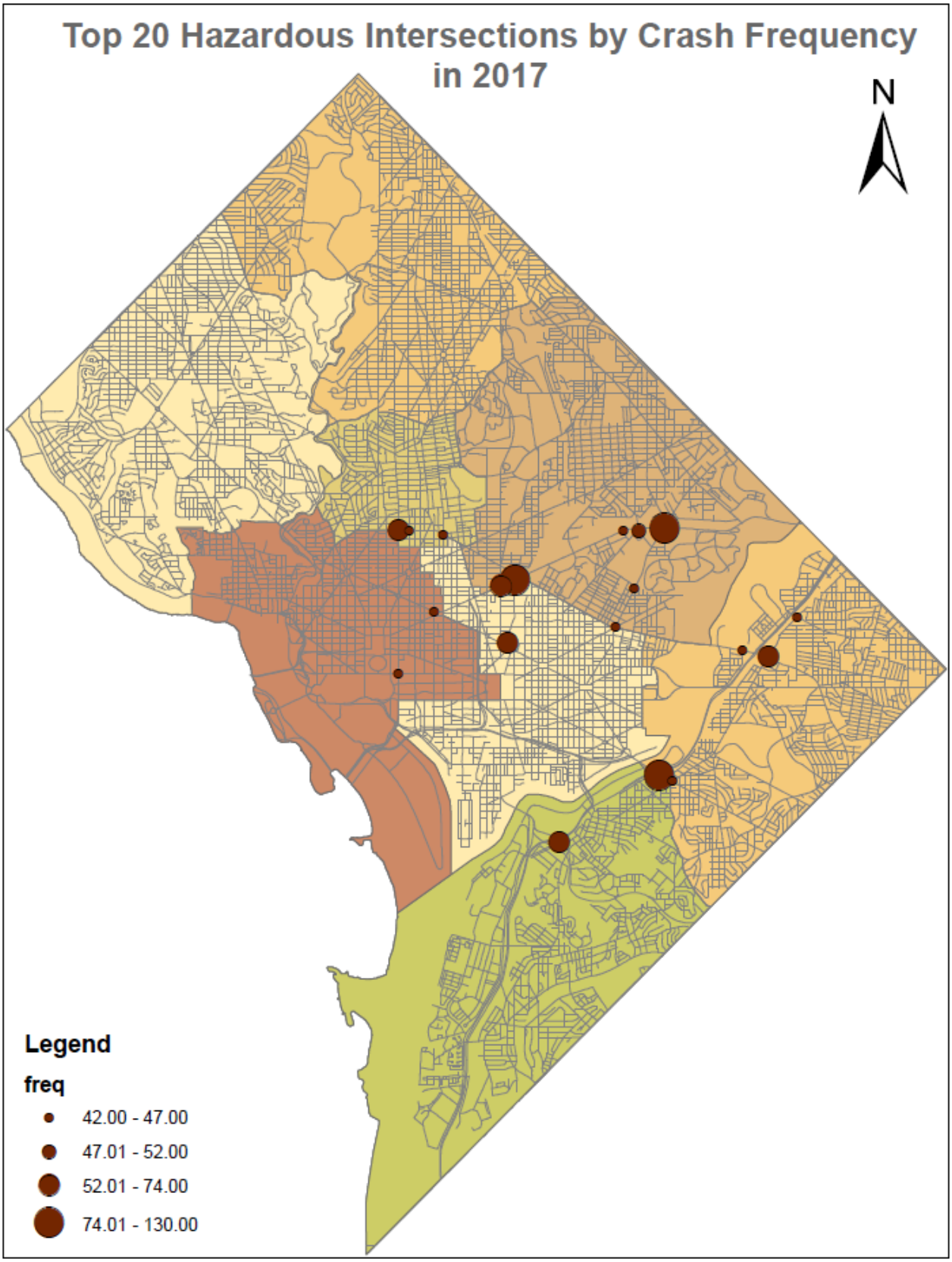

Figure 5.9: Top 20 Hazardous Intersections by Crash Frequency in 2017

CHAPTER 6: EXPOSURE

6.1 Fatality Rate per 100 Million Vehicle Miles Traveled (VMT)

Using the exposure data, the fatality rates per 100 million vehicle miles traveled (VMT) were computed based on data obtained from the National Highway Traffic Safety Administration's (NHTSA) database. This was used to examine and compare the motor vehicle crash fatality rate in Washington, DC with the national rate from 2009 to 2017.

The results are presented in Table 6.1. From the table and figure, it can be determined that the fatalities per 100 million VMT of the District from 2009 to 2017 were substantially lower than the national rate.

Table 6.1: Fatality Rate from 2009 through 2017

Year/State		Fatalities	Total Vehicle Miles Traveled (Millions)	Fatalities Per 100 Million Vehicle Miles Traveled	Total Population	Fatalities Per 100,000 Population
2009	Dist of Columbia	33	3,607	0.91	599,657	5.50
	US	33,883	2,979,321	1.14	307,006,550	11.04
2010	Dist of Columbia	25	3,614	0.69	601,723	4.15
	US	32,999	2,999,821	1.10	308,745,538	10.69
2011	Dist of Columbia	32	3,614	0.89	617,996	5.18
	US	32,367	2,964,121	1.09	314,168,000	10.30
2012	Dist of Columbia	19	3,629	0.52	632,323	3.00
	US	33,561	2,957,394	1.13	313,914,040	10.69
2013	Dist of Columbia	29	3,651	0.79	646,449	4.49
	US	32,719	2,972,287	1.10	315,091,138	10.38
2014	Dist of Columbia	26	3,699	0.70	658,893	3.95
	US	32,675	3,015,620	1.08	320,282,544	10.28
2015	Dist of Columbia	26	3,720	0.70	672,228	3.87
	US	38,300	3,147,848	1.15	321,773,631	11.06
2016	Dist of Columbia	27	3,553	0.76	681,170	3.96
	US	37,461	3,217,956	1.18	323,127,513	11.59
2017	Dist of Columbia	33	3,711		693,972	
	US	37,150		1.17	324,549,998*	

Data was obtained from the NHTSA except for the fatalities data for the District of Columbia.
*Estimated values

6.2 Injury Rate per 100 Million Vehicle Miles Traveled (VMT)

The injury rate per 100 million vehicle miles traveled (VMT) information from 2008 to 2016 was also obtained from NHTSA to examine and compare the injury rate of motor vehicle crashes in Washington, DC to the national rate. The summarized results are presented in Table 6.2 and Figure 6.2. The results show that the number of injuries per 100 million VMT in the District from 2009 to 2017 area considerably higher than the national values.

Table 6.2: Injury Rate from 2009 to 2017

Year/State		Injuries	Total Vehicle Miles Traveled (Millions)	Injuries Per 100 Million Vehicle Miles Traveled	Total Population	Injuries Per 100,000 Population
2009	Dist of Columbia	6,529	3,607	181.01	599,657	1088.79
	US	2,217,000	2,979,321	74.41	307,006,550	722.13
2010	Dist of Columbia	7,068	3,614	195.57	601,723	1174.63
	US	2,239,074	2,999,821	75.15	308,745,538	725.22
2011	Dist of Columbia	7,335	3,614	202.96	617,996	1186.90
	US	2,217,000	2,964,121	74.79	314,168,000	705.67
2012	Dist of Columbia	7,268	3,629	200.28	632,323	1149.41
	US	2,362,000	2,957,394	79.87	313,914,040	752.44
2013	Dist of Columbia	7,505	3,651	205.56	646,449	1160.96
	US	2,313,000	2,972,287	77.82	315,091,138	734.07
2014	Dist of Columbia	8,030	3,699	217.09	658,893	1218.71
	US	2,338,000	3,015,620	77.53	320,282,544	729.98
2015	Dist of Columbia	8,341	3,720	224.22	672,228	1240.80
	US	2,338,000	3,147,848	74.27	321,773,631	726.60
2016	Dist of Columbia	8,336	3,553	231.23*	681,170	1,262.85*
	US	2,363.00*	3,217,956	74.58*	323,127,513	726.24*
2017	Dist of Columbia	8798	3,711		693972	
	US					

Data was obtained from the NHTSA except for the fatalities data for the District of Columbia. * These are estimated values

CHAPTER 7: APPENDICES

7.1 Top 100 Hazardous Intersections

7.1.1 Rank by Crash Frequency

Table 7.1: Intersection Rank by Crash Frequency for 2015- 2017 (Rank 1~40)

INTERSECTION NAME	Quad	2015		2016		2017	
		Freq	Rank	Freq	Rank	Freq	Rank
NEW YORK AVE AND BLADENSBURG RD	NE	129	1	140	1	130	1
1ST ST AND NEW YORK AVE	NE	48	11	83	3	99	2
FAIRLAWN AVE AND PENNSYLVANIA AVE	SE	39	24	58	7	97	3
14TH ST AND U ST	NW	76	4	73	5	74	4
1ST ST AND UNION STATION PLAZA	NE	84	2	76	4	68	5
MINNESOTA AVE AND BENNING RD	NE	77	3	91	2	63	6
NEW YORK AVE AND NORTH CAPITOL ST	BN	72	5	57	8	62	7
FIRTH STERLING AVE AND HOWARD RD	SE	24	79	49	9	61	8
MONTANA AVE AND NEW YORK AVE	NE	22	99	36	30	52	9
9TH ST AND MASSACHUSETTS AVE	NW	44	16	45	15	47	10
MINNESOTA AVE AND PENNSYLVANIA AVE	SE	33	34	36	30	45	11
NEW YORK AVE AND SOUTH DAKOTA AVE	NE	47	12	46	13	45	11
36TH ST AND BENNING RD	NE	23	88	40	22	44	13
17TH ST AND BLADENSBURG RD	NE	32	39	20	147	44	13
13TH ST AND U ST	NW	28	54	44	16	44	13
16TH ST AND NEW YORK AVE	NE	27	61	30	54	43	16
MINNESOTA AVE AND NANNIE HELEN BURROUGHS AVE	NE	35	28	27	73	43	16
PENNSYLVANIA AVE AND PROUT ST	SE	15	247	32	47	42	18
7TH ST AND FLORIDA AVE	NW	47	12	47	11	42	18
14TH ST AND CONSTITUTION AVE	NW	33	34	39	23	42	18
BENNING RD AND BLADENSBURG RD	NE	40	23	47	11	42	18
CONNECTICUT AVE AND N ST	NW	31	42	24	101	41	22
4TH ST AND NEW YORK AVE	NE	24	79	34	39	40	23
15TH PL AND ALABAMA AVE	SE	18	168	44	16	39	24
3RD ST AND H ST	NW	9	551	14	305	39	24
1ST ST AND NEW YORK AVE	NW	50	9	46	13	39	24
33RD PL AND SOUTH DAKOTA AVE	NE	23	88	25	88	38	27
WISCONSIN AVE AND M ST	NW	56	7	62	6	37	28
17TH ST AND I ST	NW	43	19	31	49	36	29
KENILWORTH AVE AND EAST CAPITOL ST	BN	47	12	37	26	36	29
FOOTE PL AND MINNESOTA AVE	NE	19	146	36	30	36	29
MONTANA AVE AND NEW YORK AVE	NE	52	8	43	18	36	29
16TH ST AND K ST	NW	31	42	33	43	36	29
MONTANA AVE AND EDWIN ST	NE	16	223	31	49	34	34
ALABAMA AVE AND GOOD HOPE RD	SE	24	79	20	147	34	34
1ST ST AND H ST	NW	21	114	42	21	34	34
3RD ST AND D ST	NW	32	39	25	88	34	34
MINNESOTA AVE AND AMES ST	NE	23	88	36	30	34	34
13TH ST AND H ST	NE	14	276	20	147	34	34
14TH ST AND IRVING ST	NW	38	25	35	36	33	40

Table 7.2: Intersection Rank by Crash Frequency for 2015-2017 (Rank: 40~85)

INTERSECTION NAME	Quad	2015		2016		2017	
		Freq	Rank	Freq	Rank	Freq	Rank
IRVING ST AND KENYON ST	NW	19	146	35	36	33	40
14TH ST AND H ST	NE	22	99	28	62	33	40
7TH ST AND G ST	NW	19	146	18	184	33	40
47TH AVE AND EASTERN AVE	NE	12	368	20	147	32	44
13TH ST AND K ST	NW	14	276	27	73	32	44
ELVANS RD AND STANTON RD	SE	17	189	23	110	32	44
MONTANA AVE AND RHODE ISLAND AVE	NE	17	189	22	119	31	47
42ND ST AND KENILWORTH AVE	NE	14	276	29	59	31	47
MINNESOTA AVE AND CLAY PL	NE	12	368	18	184	30	49
9TH ST AND U ST	NW	42	21	39	23	30	49
33RD ST AND M ST	NW	17	189	21	134	30	49
MINNESOTA AVE AND BLAINE ST	NE	20	125	28	62	30	49
31ST ST AND M ST	NW	28	54	43	18	30	49
BRANCH AVE AND PENNSYLVANIA AVE	SE	27	61	28	62	30	49
4TH ST AND NEW YORK AVE	NW	22	99	33	43	29	55
14TH ST AND L ST	NW	26	66	30	54	29	55
12TH ST AND CONSTITUTION AVE	NW	22	99	28	62	29	55
NORTH CAPITOL ST AND RIGGS RD	BN	29	49	19	167	29	55
44TH ST AND NANNIE HELEN BURROUGHS AVE	NE	16	223	31	49	29	55
7TH ST AND H ST	NW	35	28	37	26	29	55
18TH ST AND MASSACHUSETTS AVE	NW	25	70	30	54	29	55
CONNECTICUT AVE AND R ST	NW	25	70	25	88	28	62
STANTON RD AND SUITLAND PKWY	SE	46	15	14	305	28	62
14TH ST AND WALLACH PL	NW	6	907	20	147	28	62
1ST ST AND MICHIGAN AVE	NW	25	70	21	134	28	62
3RD ST AND H ST	NE	12	368	18	184	27	66
1ST ST AND FLORIDA AVE	NE	31	42	38	25	27	66
12TH ST AND INDEPENDENCE AVE	SW	18	168	14	305	27	66
6TH ST AND H ST	NW	23	88	37	26	27	66
GEORGIA AVE AND GERANIUM ST	NW	12	368	6	1025	27	66
14TH ST AND I ST	NW	19	146	22	119	27	66
17TH ST AND K ST	NW	17	189	36	30	27	66
FIRTH STERLING AVE AND SUITLAND PKWY	SE	49	10	33	43	27	66
RHODE ISLAND AVE AND NORTH CAPITOL ST	BN	44	16	43	18	27	66
2ND ST AND INDEPENDENCE AVE	SE	10	469	20	147	27	66
16TH ST AND I ST	NW	24	79	27	73	26	76
14TH ST AND K ST	NW	34	32	48	10	26	76
1ST ST AND INDEPENDENCE AVE	SW	7	764	20	147	26	76
9TH ST AND NEW YORK AVE	NW	34	32	37	26	26	76
19TH ST AND L ST	NW	16	223	23	110	26	76
16TH ST AND NEW HAMPSHIRE AVE	NW	35	28	26	81	26	76
5TH ST AND RHODE ISLAND AVE	NE	25	70	26	81	26	76
CONNECTICUT AVE AND K ST	NW	29	49	18	184	26	76
FLORIDA AVE AND NEW YORK AVE	NE	69	6	34	39	26	76
RHODE ISLAND AVE AND REED ST	NE	28	54	31	49	25	85

Table 7.3: Intersection Rank by Crash Frequency for 2015-2017 (Rank: 85~95)

INTERSECTION NAME	Quad	2015		2016		2017	
		Freq	Rank	Freq	Rank	Freq	Rank
CONNECTICUT AVE AND ORDWAY ST	NW	13	320	17	204	25	85
6TH ST AND FLORIDA AVE	NW	17	189	29	59	25	85
MARTIN LUTHER KING AVE AND HOWARD RD	SE	22	99	27	73	25	85
16TH ST AND L ST	NW	18	168	30	54	25	85
24TH ST AND ALABAMA AVE	SE	14	276	13	343	25	85
30TH ST AND NAYLOR RD	SE	24	79	21	134	25	85
BLADENSBURG RD AND QUEENS CHAPEL RD	NE	21	114	16	234	25	85
17TH ST AND H ST	NW	26	66	23	110	25	85
17TH ST AND PENNSYLVANIA AVE	NW	26	66	27	73	25	85
NEW YORK AVE AND N ST	NW	13	320	22	119	24	95
9TH ST AND PENNSYLVANIA AVE	NW	16	223	29	59	24	95
13TH ST AND BRENTWOOD RD	NE	17	189	18	184	24	95
CONNECTICUT AVE AND YUMA ST	NW	10	469	8	714	24	95
20TH ST AND K ST	NW	16	223	24	101	24	95
GEORGIA AVE AND HOWARD PL	NW	13	320	15	262	24	95

Table 7.4: Intersection Rank by Crash Frequency for 3-Year Periods (Rank: 1~43)

INTERSECTION NAME	Quad	2014-2016		2015-2017	
		Freq	Rank	Freq	Rank
NEW YORK AVE AND BLADENSBURG RD	NE	388	1	399	1
MINNESOTA AVE AND BENNING RD	NE	218	3	231	2
1ST ST AND NEW YORK AVE	NE	180	6	230	3
1ST ST AND UNION STATION PLAZA	NE	227	2	228	4
14TH ST AND U ST	NW	209	4	223	5
FAIRLAWN AVE AND PENNSYLVANIA AVE	SE	141	12	194	6
NEW YORK AVE AND NORTH CAPITOL ST	BN	197	5	191	7
WISCONSIN AVE AND M ST	NW	166	7	155	8
NEW YORK AVE AND SOUTH DAKOTA AVE	NE	146	10	138	9
9TH ST AND MASSACHUSETTS AVE	NW	128	14	136	10
7TH ST AND FLORIDA AVE	NW	145	11	136	10
1ST ST AND NEW YORK AVE	NW	118	19	135	12
FIRTH STERLING AVE AND HOWARD RD	SE	97	34	134	13
MONTANA AVE AND NEW YORK AVE	NE	148	9	131	14
FLORIDA AVE AND NEW YORK AVE	NE	150	8	129	15
BENNING RD AND BLADENSBURG RD	NE	125	16	129	15
KENILWORTH AVE AND EAST CAPITOL ST	BN	117	20	120	17
13TH ST AND U ST	NW	109	24	116	18
MINNESOTA AVE AND PENNSYLVANIA AVE	SE	124	17	114	19
14TH ST AND CONSTITUTION AVE	NW	102	30	114	19
RHODE ISLAND AVE AND NORTH CAPITOL ST	BN	123	18	114	19
9TH ST AND U ST	NW	104	28	111	22
17TH ST AND I ST	NW	113	22	110	23
MONTANA AVE AND NEW YORK AVE	NE	70	84	110	23
FIRTH STERLING AVE AND SUITLAND PKWY	SE	126	15	109	25
14TH ST AND K ST	NW	134	13	108	26
36TH ST AND BENNING RD	NE	84	45	107	27
14TH ST AND IRVING ST	NW	113	22	106	28
MINNESOTA AVE AND NANNIE HELEN	NE	95	35	105	29
15TH PL AND ALABAMA AVE	SE	71	78	101	30
7TH ST AND H ST	NW	103	29	101	30
31ST ST AND M ST	NW	105	25	101	30
16TH ST AND K ST	NW	100	32	100	33
16TH ST AND NEW YORK AVE	NE	82	48	100	33
I ST AND S CAPITOL ST	BN	117	20	100	33
4TH ST AND NEW YORK AVE	NE	85	44	98	36
9TH ST AND NEW YORK AVE	NW	101	31	97	37
1ST ST AND H ST	NW	79	50	97	37
KENILWORTH AVE AND BENNING RD	NE	105	25	96	39
1ST ST AND FLORIDA AVE	NE	84	45	96	39
CONNECTICUT AVE AND N ST	NW	75	62	96	39
17TH ST AND BLADENSBURG RD	NE	69	87	96	39
MINNESOTA AVE AND AMES ST	NE	77	57	93	43

Table 7.5: Intersection Rank by Crash Frequency for 3-Year Periods (Rank: 44~86)

INTERSECTION NAME	Quad	2014-2016		2015-2017	
		Freq	Rank	Freq	Rank
3RD ST AND D ST	NW	73	71	91	44
FOOTE PL AND MINNESOTA AVE	NE	71	79	91	44
PENNSYLVANIA AVE AND PROUT ST	SE	57	133	89	46
SOUTHERN AVE AND WHEELER RD	SE	94	38	89	46
STANTON RD AND SUITLAND PKWY	SE	105	26	88	48
6TH ST AND H ST	NW	77	57	87	49
IRVING ST AND KENYON ST	NW	77	57	87	49
16TH ST AND NEW HAMPSHIRE AVE	NW	88	42	87	49
14TH ST AND COLUMBIA RD	NW	100	33	87	49
33RD PL AND SOUTH DAKOTA AVE	NE	73	71	86	53
14TH ST AND L ST	NW	78	55	85	54
H ST AND NORTH CAPITOL ST	BN	95	36	85	54
BRANCH AVE AND PENNSYLVANIA AVE	SE	79	50	85	54
4TH ST AND NEW YORK AVE	NW	109	24	84	57
RHODE ISLAND AVE AND REED ST	NE	92	39	84	57
18TH ST AND MASSACHUSETTS AVE	NW	75	63	84	57
14TH ST AND H ST	NE	65	102	83	60
MARTIN LUTHER KING AVE AND GOOD HOPE RD	SE	91	40	81	61
MONTANA AVE AND EDWIN ST	NE	62	114	81	61
K ST AND NORTH CAPITOL ST	BN	83	47	81	61
17TH ST AND K ST	NW	64	105	80	64
12TH ST AND CONSTITUTION AVE	NW	74	67	79	65
14TH ST AND RHODE ISLAND AVE	NW	87	43	78	66
CONNECTICUT AVE AND R ST	NW	71	79	78	66
ALABAMA AVE AND GOOD HOPE RD	SE	62	114	78	66
MINNESOTA AVE AND BLAINE ST	NE	56	137	78	66
17TH ST AND PENNSYLVANIA AVE	NW	80	49	78	66
NORTH CAPITOL ST AND RIGGS RD	BN	78	55	77	71
16TH ST AND I ST	NW	67	95	77	71
5TH ST AND RHODE ISLAND AVE	NE	69	88	77	71
14TH ST AND INDEPENDENCE AVE	SW	79	50	76	74
44TH ST AND NANNIE HELEN BURROUGHS AVE	NE	71	79	76	74
NEW YORK AVE AND FENWICK ST	NE	61	120	75	76
MASSACHUSETTS AVE AND NORTH CAPITOL ST	BN	76	61	75	76
13TH ST AND SOUTHERN AVE	SE	72	76	75	76
MARTIN LUTHER KING AVE AND HOWARD RD	SE	76	61	74	79
42ND ST AND KENILWORTH AVE	NE	48	205	74	79
17TH ST AND H ST	NW	64	105	74	79
1ST ST AND MICHIGAN AVE	NW	69	88	74	79
13TH ST AND K ST	NW	60	124	73	83
16TH ST AND L ST	NW	61	120	73	83
CONNECTICUT AVE AND K ST	NW	79	50	73	83
ELVANS RD AND STANTON RD	SE	49	197	72	86

Table 7.6: Intersection Rank by Crash Frequency for 3-Year Periods (Rank: 87~100)

INTERSECTION NAME	Quad	2014-2016		2015-2017	
		Freq	Rank	Freq	Rank
17TH ST AND BENNING RD	NE	72	76	71	87
6TH ST AND FLORIDA AVE	NW	66	98	71	87
15TH ST AND H ST	NW	75	63	71	87
14TH ST AND PARK RD	NW	73	71	70	90
30TH ST AND NAYLOR RD	SE	62	114	70	90
7TH ST AND G ST	NW	64	105	70	90
MONTANA AVE AND RHODE ISLAND AVE	NE	56	137	70	90
15TH ST AND K ST	NW	89	41	70	90
9TH ST AND PENNSYLVANIA AVE	NW	64	105	69	95
33RD ST AND M ST	NW	61	120	68	96
NEW YORK AVE AND H ST	NW	64	105	68	96
14TH ST AND I ST	NW	62	114	68	96
13TH ST AND H ST	NE	55	147	68	96
24TH ST AND M ST	NW	77	57	67	100

7.1.2 Rank by Crash Rate

Table 7.7: Intersection Rank by Crash Rate for 2015-2017 (Rank: 1~44)

INTERSECTION NAME	Quad	2015		2016		2017	
		Rate	Rank	Rate	Rank	Rate	Rank
FIRTH STERLING AVE AND HOWARD RD	SE	3.593	15	7.336	2	9.132	1
14TH ST AND U ST	NW	7.155	3	6.873	4	6.967	2
1ST ST AND UNION STATION PLAZA	NE	8.587	2	7.769	1	6.952	3
7TH ST AND G ST	NW	3.348	22	3.171	38	5.814	4
44TH ST AND NANNIE HELEN BURROUGHS AVE	NE	3.154	28	6.110	6	5.716	5
SAVANNAH ST AND STANTON RD	SE	1.423	240	7.116	3	5.693	6
14TH ST AND V ST	NW	2.686	46	4.566	11	5.641	7
ALABAMA AVE AND GOOD HOPE RD	SE	3.704	12	3.087	41	5.248	8
3RD ST AND D ST	NW	4.765	7	3.722	24	5.063	9
14TH ST AND D ST	SE	1.868	127	1.868	148	4.981	10
MORRIS RD AND POMEROY RD	SE	0.818	517	4.907	10	4.907	11
SOUTHERN AVE AND NAYLOR RD	SE	2.466	50	3.288	34	4.384	12
17TH ST AND I ST	NW	5.133	5	3.701	25	4.298	13
MINNESOTA AVE AND NANNIE HELEN BURROUGHS AVE	NE	3.341	23	2.577	60	4.105	14
MINNESOTA AVE AND BENNING RD	NE	4.872	6	5.758	7	3.986	15
NEW YORK AVE AND BLADENSBURG RD	NE	3.817	10	4.142	14	3.846	16
7TH ST AND I ST	NW	1.309	281	4.253	13	3.762	17
7TH ST AND F ST	NW	3.073	30	2.390	76	3.755	18
5TH ST AND F ST	NW	0.000	1131	2.143	105	3.673	19
NEW YORK AVE AND H ST	NW	2.178	77	5.697	8	3.519	20
13TH ST AND H ST	NE	1.445	231	2.064	118	3.509	21
14TH ST AND H ST	NE	2.327	59	2.962	44	3.491	22
9TH ST AND MASSACHUSETTS AVE	NW	3.210	26	3.283	35	3.429	23
7TH ST AND FLORIDA AVE	NW	3.765	11	3.765	21	3.365	24
MARTIN LUTHER KING AVE AND HOWARD RD	SE	2.863	38	3.514	28	3.254	25
13TH ST AND U ST	NW	2.062	94	3.241	36	3.241	26
9TH ST AND F ST	NW	2.186	76	2.769	53	3.206	27
6TH ST AND G ST	NW	3.198	27	3.411	31	3.198	28
SOUTHERN AVE AND WHEELER RD	SE	5.269	4	4.968	9	3.161	29
14TH ST AND IRVING ST	NW	3.590	16	3.307	32	3.118	30
VERMONT AVE AND V ST	NW	0.000	1131	1.544	223	3.087	31
3RD ST AND H ST	NE	1.359	265	2.038	123	3.057	32
NEW JERSEY AVE AND F ST	NW	1.142	349	1.522	226	3.044	33
1ST ST AND M ST	NE	2.011	101	2.262	91	3.016	34
14TH ST AND MARYLAND AVE	NE	2.364	58	1.504	231	3.008	35
21ST ST AND MARYLAND AVE	NE	0.375	866	3.002	42	3.002	36
24TH ST AND M ST	NW	2.740	43	2.615	58	2.989	37
7TH ST AND S ST	NW	1.405	248	2.459	70	2.986	38
1ST ST AND MARTIN LUTHER KING AVE	SE	0.814	518	3.526	27	2.984	39
10TH ST AND MASSACHUSETTS AVE	NW	2.975	35	1.879	146	2.975	40
NEW JERSEY AVE AND D ST	NW	0.780	545	2.535	62	2.925	41
24TH ST AND L ST	NW	2.220	73	2.358	81	2.913	42
6TH ST AND H ST	NW	2.447	53	3.937	17	2.873	43
7TH ST AND H ST	NW	3.443	20	3.640	26	2.853	44

Table 7.8: Intersection Rank by Crash Rate for 2015-2017 (Rank: 45~90)

INTERSECTION NAME	Quad	2015		2016		2017	
		Rate	Rank	Rate	Rank	Rate	Rank
33RD ST AND PROSPECT ST	NW	1.612	189	0.000	1126	2.820	45
IRVING ST AND KENYON ST	NW	1.599	192	2.946	47	2.778	46
6TH ST AND FLORIDA AVE	NW	1.882	125	3.210	37	2.767	47
44TH ST AND BENNING RD	NE	1.923	116	2.644	56	2.764	48
1ST ST AND MICHIGAN AVE	NW	2.464	51	2.070	116	2.759	49
5TH ST AND D ST	NW	1.918	118	4.110	15	2.740	50
WISCONSIN AVE AND M ST	NW	4.113	9	4.554	12	2.718	51
10TH ST AND NEW YORK AVE	NW	1.162	342	2.130	108	2.711	52
17TH ST AND M ST	NE	0.808	523	1.346	289	2.693	53
MARTIN LUTHER KING AVE AND GOOD HOPE RD	SE	9.132	1	6.237	5	2.673	54
17TH ST AND BLADENSBURG RD	NE	1.927	114	1.204	352	2.649	55
6TH ST AND F ST	NW	1.100	371	2.641	57	2.641	56
13TH ST AND K ST	NW	1.135	352	2.189	98	2.594	57
BRENTWOOD PKWY AND MOUNT OLIVET RD	NE	1.345	267	1.681	179	2.577	58
SOUTHERN AVE AND BENNING RD	SE	3.681	13	3.115	40	2.549	59
9TH ST AND U ST	NW	3.546	17	3.293	33	2.533	60
VERMONT AVE AND U ST	NW	1.857	130	1.327	298	2.521	61
2ND ST AND K ST	NE	1.071	391	3.927	18	2.499	62
GOOD HOPE RD AND NAYLOR RD	SE	0.832	506	1.307	307	2.496	63
13TH ST AND F ST	NW	1.461	226	2.484	66	2.484	64
11TH ST AND K ST	NW	1.312	279	2.477	68	2.477	65
6TH ST AND M ST	NW	2.266	67	2.060	119	2.472	66
8TH ST AND H ST	NW	3.316	24	3.490	29	2.443	67
4TH ST AND ATLANTIC ST	SE	1.331	273	1.553	220	2.440	68
1ST ST AND D ST	NW	0.738	577	4.059	16	2.432	69
11TH ST AND G ST	NW	1.734	161	2.081	114	2.428	70
19TH ST AND INDEPENDENCE AVE	SE	2.997	34	2.140	106	2.426	71
33RD ST AND M ST	NW	1.374	260	1.697	176	2.425	72
3RD ST AND E ST	NW	1.212	319	1.616	199	2.423	73
10TH ST AND F ST	NW	1.021	417	3.744	23	2.382	74
WISCONSIN AVE AND Q ST	NW	1.844	133	1.946	135	2.356	75
6TH ST AND I ST	NW	1.492	215	1.492	236	2.345	76
19TH ST AND L ST	NW	1.437	234	2.066	117	2.336	77
14TH ST AND RHODE ISLAND AVE	NW	2.807	40	2.420	72	2.323	78
1ST ST AND HALLEY PL	SE	2.315	60	0.000	1126	2.315	79
POMEROY RD AND SHERIDAN RD	SE	3.087	29	3.859	19	2.315	79
ROCK CREEK CHURCH RD AND SPRING RD	NW	0.772	548	0.772	567	2.315	79
BLADENSBURG RD AND QUEENS CHAPEL RD	NE	1.944	110	1.481	240	2.314	82
12TH ST AND F ST	NW	1.792	147	1.024	431	2.304	83
1ST ST AND M ST	SE	1.312	278	1.805	161	2.297	84
14TH ST AND COLUMBIA RD	NW	3.027	32	3.757	22	2.296	85
1ST ST AND K ST	NE	1.998	102	2.140	106	2.283	86
ALABAMA AVE AND WHEELER RD	SE	2.107	86	2.594	59	2.270	87
14TH ST AND SPRING RD	NW	3.476	19	1.840	153	2.249	88
7TH ST AND R ST	NW	1.206	322	2.412	73	2.240	89

Table 7.9: Intersection Rank by Crash Rate for 2015-2017 (Rank: 91~100)

INTERSECTION NAME	Quad	2015		2016		2017	
		Rate	Rank	Rate	Rank	Rate	Rank
17TH ST AND PENNSYLVANIA AVE	NW	2.309	61	2.398	74	2.220	90
1ST ST AND EAST CAPITOL ST	BN	0.316	915	1.421	260	2.211	91
MONTANA AVE AND RHODE ISLAND AVE	NE	1.210	320	1.566	216	2.206	92
23RD ST AND ALABAMA AVE	SE	1.763	153	1.175	363	2.204	93
5TH ST AND G ST	NW	0.652	649	1.522	226	2.174	94
5TH ST AND H ST	NW	2.397	56	2.169	99	2.169	95
CONNECTICUT AVE AND R ST	NW	1.927	115	1.927	138	2.158	96
GEORGIA AVE AND BARRY PL	NW	2.154	82	1.212	348	2.154	97
19TH ST AND I ST	NW	1.998	102	2.711	55	2.140	98
13TH ST AND G ST	NW	1.412	246	1.412	265	2.118	99
14TH ST AND S ST	NW	1.494	214	1.868	148	2.117	100

Table 7.10: Intersection Rank by Crash Rate for 3-Year Periods (Rank: 1~43)

INTERSECTION NAME	Quad	2014-2016		2015-2017	
		Rate	Rank	Rate	Rank
1ST ST AND UNION STATION PLAZA	NE	7.735	1	7.769	1
14TH ST AND U ST	NW	6.559	3	6.998	2
FIRTH STERLING AVE AND HOWARD RD	SE	4.841	4	6.687	3
MARTIN LUTHER KING AVE AND GOOD HOPE RD	SE	6.757	2	6.014	4
44TH ST AND NANNIE HELEN BURROUGHS AVE	NE	4.665	6	4.993	5
MINNESOTA AVE AND BENNING RD	NE	4.598	7	4.872	6
SAVANNAH ST AND STANTON RD	SE	2.846	32	4.744	7
3RD ST AND D ST	NW	3.623	13	4.517	8
SOUTHERN AVE AND WHEELER RD	SE	4.717	5	4.466	9
17TH ST AND I ST	NW	4.497	8	4.377	10
14TH ST AND V ST	NW	3.581	15	4.298	11
7TH ST AND G ST	NW	3.759	12	4.111	12
ALABAMA AVE AND GOOD HOPE RD	SE	3.190	25	4.013	13
NEW YORK AVE AND BLADENSBURG RD	NE	3.827	11	3.935	14
NEW YORK AVE AND H ST	NW	3.575	16	3.798	15
WISCONSIN AVE AND M ST	NW	4.064	9	3.795	16
7TH ST AND FLORIDA AVE	NW	3.872	10	3.632	17
MORRIS RD AND POMEROY RD	SE	2.181	72	3.544	18
SOUTHERN AVE AND NAYLOR RD	SE	3.196	23	3.379	19
MINNESOTA AVE AND NANNIE HELEN BURROUGHS	NE	3.023	27	3.341	20
14TH ST AND IRVING ST	NW	3.558	17	3.338	21
7TH ST AND H ST	NW	3.378	19	3.312	22
9TH ST AND MASSACHUSETTS AVE	NW	3.113	26	3.308	23
6TH ST AND G ST	NW	3.198	22	3.269	24
MARTIN LUTHER KING AVE AND HOWARD RD	SE	3.297	20	3.210	25
1ST ST AND MISSISSIPPI AVE	SE	3.620	14	3.126	26
9TH ST AND U ST	NW	2.927	30	3.124	27
SOUTHERN AVE AND BENNING RD	SE	3.209	21	3.115	28
7TH ST AND I ST	NW	2.508	45	3.108	29
POMEROY RD AND SHERIDAN RD	SE	2.830	33	3.087	30
6TH ST AND H ST	NW	2.731	35	3.086	31
8TH ST AND H ST	NW	2.967	29	3.083	32
7TH ST AND F ST	NW	2.560	42	3.073	33
14TH ST AND COLUMBIA RD	NW	3.479	18	3.027	34
14TH ST AND H ST	NE	2.292	59	2.927	35
5TH ST AND D ST	NW	2.922	31	2.922	36
14TH ST AND D ST	SE	1.453	215	2.906	37
13TH ST AND U ST	NW	2.676	36	2.848	38
24TH ST AND M ST	NW	3.196	23	2.781	39
9TH ST AND F ST	NW	2.332	56	2.720	40
6TH ST AND FLORIDA AVE	NW	2.435	49	2.620	41
10TH ST AND MASSACHUSETTS AVE	NW	2.505	46	2.609	42
14TH ST AND SPRING RD	NW	2.522	44	2.522	43

Table 7.11: Intersection Rank by Crash Rate for 3-Year Periods (Rank: 44~87)

INTERSECTION NAME	Quad	2014-2016		2015-2017	
		Rate	Rank	Rate	Rank
19TH ST AND INDEPENDENCE AVE	SE	2.283	60	2.521	44
14TH ST AND RHODE ISLAND AVE	NW	2.807	34	2.517	45
2ND ST AND K ST	NE	2.201	70	2.499	46
24TH ST AND L ST	NW	2.312	58	2.497	47
1ST ST AND FLORIDA AVE	NE	2.179	74	2.491	48
ATLANTIC ST AND BARNABY ST	SE	2.468	47	2.468	49
44TH ST AND BENNING RD	NE	2.203	69	2.443	50
NEW JERSEY AVE AND E ST	NW	2.559	43	2.443	51
1ST ST AND MARTIN LUTHER KING AVE	SE	1.989	93	2.441	52
IRVING ST AND KENYON ST	NW	2.160	76	2.441	53
EASTERN AVE AND MINNESOTA AVE	NE	2.594	41	2.435	54
1ST ST AND MICHIGAN AVE	NW	2.267	61	2.431	55
1ST ST AND M ST	NE	3.016	28	2.430	56
10TH ST AND F ST	NW	2.609	40	2.382	57
13TH ST AND H ST	NE	1.892	102	2.339	58
24TH ST AND PENNSYLVANIA AVE	NW	2.625	39	2.337	59
ALABAMA AVE AND WHEELER RD	SE	2.107	82	2.324	60
17TH ST AND PENNSYLVANIA AVE	NW	2.368	53	2.309	61
23RD ST AND I ST	NW	2.373	52	2.301	62
14TH ST AND MARYLAND AVE	NE	1.719	143	2.292	63
19TH ST AND I ST	NW	2.093	84	2.283	64
7TH ST AND S ST	NW	2.342	54	2.283	64
6TH ST AND M ST	NW	1.854	109	2.266	66
14TH ST AND W ST	NW	2.630	38	2.265	67
5TH ST AND H ST	NW	1.941	97	2.245	68
8TH ST AND D ST	NW	2.232	65	2.232	69
7TH ST AND P ST	NW	1.696	150	2.153	70
3RD ST AND H ST	NE	1.887	103	2.151	71
13TH ST AND F ST	NW	1.753	134	2.143	72
1ST ST AND K ST	NE	2.236	64	2.140	73
6TH ST AND F ST	NW	2.127	79	2.127	74
21ST ST AND MARYLAND AVE	NE	2.252	63	2.127	75
BRENTWOOD RD AND W ST	NE	2.263	62	2.098	76
14TH ST AND P ST	NW	2.231	66	2.091	77
11TH ST AND K ST	NW	1.797	118	2.089	78
11TH ST AND G ST	NW	1.792	121	2.081	79
NEW JERSEY AVE AND D ST	NW	1.755	132	2.080	80
FIRTH STERLING AVE AND SUITLAND PKWY	SE	2.387	51	2.065	81
4TH ST AND D ST	NW	2.330	57	2.050	82
WISCONSIN AVE AND Q ST	NW	1.775	128	2.048	83
9TH ST AND NEW YORK AVE	NW	2.125	80	2.041	84
17TH ST AND K ST	NW	1.624	165	2.029	85
1ST ST AND D ST	NW	2.091	85	2.029	85
3RD ST AND C ST	NW	2.634	37	2.020	87

Table 7.12: Intersection Rank by Crash Rate for 3-Year Periods (Rank: 88~100)

INTERSECTION NAME	Quad	2014-2016		2015-2017	
		Rate	Rank	Rate	Rank
6TH ST AND BRENTWOOD PKWY	NE	1.619	168	2.008	88
CONNECTICUT AVE AND R ST	NW	1.824	111	2.004	89
15TH ST AND H ST	NW	2.114	81	2.001	90
10TH ST AND NEW YORK AVE	NW	1.614	171	2.001	91
24TH ST AND NEW HAMPSHIRE AVE	NW	1.680	155	1.994	92
9TH ST AND I ST	NW	1.993	91	1.993	93
1ST ST AND M ST	NW	1.769	131	1.977	94
9TH ST AND H ST	NW	1.785	123	1.976	95
17TH ST AND L ST	NW	1.793	120	1.975	96
13TH ST AND K ST	NW	1.621	166	1.972	97
5TH ST AND K ST	NW	2.181	72	1.963	98
18TH ST AND MASSACHUSETTS AVE	NW	1.752	135	1.962	99
7TH ST AND R ST	NW	1.895	101	1.953	100

7.1.3 Rank by Crash Cost

Table 7.13: Intersection Rank by Crash Cost for 2015-2017 (Rank: 1~44)

INTERSECTION NAME	Quad	2015		2016		2017	
		Cost	Rank	Cost	Rank	Cost	Rank
NEW YORK AVE AND BLADENSBURG RD	NE	1553	1	1275	1	1307	1
FAIRLAWN AVE AND PENNSYLVANIA AVE	SE	503	18	602	8	1203	2
1ST ST AND NEW YORK AVE	NE	443	21	750	3	983	3
NEW YORK AVE AND NORTH CAPITOL ST	BN	819	3	585	9	746	4
FIRTH STERLING AVE AND HOWARD RD	SE	240	112	609	7	713	5
1ST ST AND UNION STATION PLAZA	NE	653	7	630	5	684	6
14TH ST AND U ST	NW	782	5	668	4	660	7
MINNESOTA AVE AND BENNING RD	NE	803	4	1028	2	653	8
NEW YORK AVE AND SOUTH DAKOTA AVE	NE	525	15	503	10	603	9
MONTANA AVE AND NEW YORK AVE	NE	218	140	383	43	540	10
16TH ST AND NEW YORK AVE	NE	362	39	398	36	534	11
36TH ST AND BENNING RD	NE	509	17	428	23	518	12
1ST ST AND NEW YORK AVE	NW	663	6	473	14	489	13
MINNESOTA AVE AND PENNSYLVANIA AVE	SE	368	38	390	40	480	14
17TH ST AND BLADENSBURG RD	NE	315	58	234	123	480	14
4TH ST AND MICHIGAN AVE	NE	279	79	330	53	479	16
9TH ST AND MASSACHUSETTS AVE	NW	398	31	405	33	467	17
14TH ST AND CONSTITUTION AVE	NW	339	48	429	21	459	18
4TH ST AND NEW YORK AVE	NE	285	71	438	20	452	19
36TH PL AND NEW YORK AVE	NE	173	240	135	363	447	20
IRVING ST AND KENYON ST	NW	233	118	323	57	446	21
MINNESOTA AVE AND AMES ST	NE	354	43	503	10	437	22
CONNECTICUT AVE AND N ST	NW	347	45	270	92	429	23
15TH PL AND ALABAMA AVE	SE	218	140	443	19	428	24
BENNING RD AND BLADENSBURG RD	NE	398	31	428	23	428	24
16TH ST AND K ST	NW	339	48	315	61	423	26
KENILWORTH AVE AND EAST CAPITOL ST	BN	585	10	375	44	422	27
MINNESOTA AVE AND NANNIE HELEN BURROUGHS AVE	NE	420	25	240	117	420	28
33RD PL AND SOUTH DAKOTA AVE	NE	308	63	309	67	420	28
MINNESOTA AVE AND CLAY PL	NE	174	234	210	162	416	30
MONTANA AVE AND RHODE ISLAND AVE	NE	203	167	218	148	414	31
42ND ST AND KENILWORTH AVE	NE	158	287	368	45	413	32
3RD ST AND H ST	NW	75	839	173	232	405	33
47TH AVE AND EASTERN AVE	NE	113	470	233	127	398	34
PENNSYLVANIA AVE AND PROUT ST	SE	143	328	293	76	390	35
ALABAMA AVE AND GOOD HOPE RD	SE	317	55	279	83	390	35
ELVANS RD AND STANTON RD	SE	128	400	338	50	384	37
44TH ST AND NANNIE HELEN BURROUGHS AVE	NE	195	185	399	35	383	38
7TH ST AND FLORIDA AVE	NW	563	12	465	16	375	39
13TH ST AND U ST	NW	248	102	405	33	375	39
6TH ST AND H ST	NW	210	155	315	61	369	41
FOOTE PL AND MINNESOTA AVE	NE	180	219	398	36	368	42
MONTANA AVE AND EDWIN ST	NE	257	95	330	53	368	42
WISCONSIN AVE AND M ST	NW	518	16	624	6	360	44

Table 7.14: Intersection Rank by Crash Cost for 2015-2017 (Rank: 45~86)

INTERSECTION NAME	Quad	2015		2016		2017	
		Cost	Rank	Cost	Rank	Cost	Rank
6TH ST AND FLORIDA AVE	NW	195	185	255	99	354	45
1ST ST AND MICHIGAN AVE	NW	278	81	264	93	354	45
14TH ST AND IRVING ST	NW	384	33	308	71	347	47
17TH ST AND I ST	NW	375	36	315	61	338	48
13TH ST AND K ST	NW	150	307	278	85	338	48
1ST ST AND H ST	NW	242	107	452	17	338	48
MONTANA AVE AND NEW YORK AVE	NE	578	11	428	23	338	48
SOUTHERN AVE AND BONINI RD	SE	98	598	98	626	335	52
MINNESOTA AVE AND GRANT ST	NE	257	95	150	302	333	53
GOOD HOPE RD AND GOOD HOPE CT	SE	98	598	90	698	332	54
3RD ST AND D ST	NW	285	71	278	85	330	55
9TH ST AND NEW YORK AVE	NW	285	71	360	47	324	56
STANTON RD AND SUITLAND PKWY	SE	641	8	219	144	323	57
9TH ST AND CONSTITUTION AVE	NW	98	598	249	105	317	58
44TH ST AND BENNING RD	NE	135	365	218	148	317	58
12TH ST AND INDEPENDENCE AVE	SW	195	185	189	190	315	60
17TH ST AND K ST	NW	204	165	468	15	315	60
9TH ST AND U ST	NW	437	24	414	30	315	60
GEORGIA AVE AND GERANIUM ST	NW	120	438	60	1098	309	63
SOUTHERN AVE AND SOUTHVIEW DR	SE	143	328	293	76	309	63
24TH ST AND ALABAMA AVE	SE	173	240	227	130	308	65
7TH ST AND G ST	NW	173	240	143	331	308	65
13TH ST AND H ST	NE	135	365	218	148	308	65
BRANCH AVE AND PENNSYLVANIA AVE	SE	248	102	278	85	308	65
MINNESOTA AVE AND HUNT PL	NE	173	240	197	174	303	69
GEORGIA AVE AND HOWARD PL	NW	189	196	189	190	302	70
14TH ST AND WALLACH PL	NW	60	1043	210	162	300	71
12TH ST AND CONSTITUTION AVE	NW	240	112	407	32	300	71
3RD ST AND INDEPENDENCE AVE	SW	60	1043	159	264	296	73
14TH ST AND GOOD HOPE RD	SE	195	185	311	66	294	74
MINNESOTA AVE AND BLAINE ST	NE	218	140	225	136	293	75
NORTH CAPITOL ST AND RIGGS RD	BN	300	67	240	117	293	75
FIRTH STERLING AVE AND SUITLAND PKWY	SE	886	2	398	36	293	75
13TH ST AND PENNSYLVANIA AVE	NW	83	752	135	363	287	78
7TH ST AND MASSACHUSETTS AVE	NW	311	60	195	176	287	78
FLORIDA AVE AND NEW YORK AVE	NE	540	14	323	57	287	78
14TH ST AND H ST	NE	218	140	263	95	285	81
33RD ST AND M ST	NW	143	328	173	232	285	81
18TH ST AND MASSACHUSETTS AVE	NW	203	167	263	95	285	81
GEORGIA AVE AND MORTON ST	NW	204	165	98	626	281	84
MARTIN LUTHER KING AVE AND MILWAUKEE PL	SE	45	1319	324	55	279	85
CONNECTICUT AVE AND R ST	NW	285	71	218	148	278	86
14TH ST AND L ST	NW	210	155	332	52	278	86
NEW YORK AVE AND FENWICK ST	NE	218	140	278	85	278	86
RHODE ISLAND AVE AND NORTH CAPITOL ST	BN	555	13	488	12	278	86

Table 7.15: Intersection Rank by Crash Cost for 2015-2017 (Rank: 86~99)

INTERSECTION NAME	Quad	2015		2016		2017	
		Cost	Rank	Cost	Rank	Cost	Rank
6TH ST AND SOUTHERN AVE	SE	173	240	195	176	278	86
CONNECTICUT AVE AND SEDGWICK ST	NW	83	752	135	363	278	86
GOOD HOPE RD AND NAYLOR RD	SE	53	1160	335	51	272	92
7TH ST AND H ST	NE	90	669	128	405	272	92
MARTIN LUTHER KING AVE AND HOWARD RD	SE	279	79	390	40	270	94
4TH ST AND NEW YORK AVE	NW	225	126	308	71	270	94
ALABAMA AVE AND STANTON RD	SE	210	155	143	331	264	96
17TH ST AND BRYANT ST	NE	113	470	212	161	264	96
18TH ST AND BENNING RD	NE	173	240	293	76	264	96
14TH ST AND K ST	NW	377	34	428	23	263	99
30TH ST AND NAYLOR RD	SE	416	26	188	200	263	99

Table 7.16: Intersection Rank by Crash Severity Cost for 3-Year Periods (Rank: 1~42)

INTERSECTION NAME	Quad	2014-2016		2015-2017	
		Cost	Rank	Cost	Rank
NEW YORK AVE AND BLADENSBURG RD	NE	4180	1	4135	1
MINNESOTA AVE AND BENNING RD	NE	2576	2	2483	2
FAIRLAWN AVE AND PENNSYLVANIA AVE	SE	1593	10	2307	3
1ST ST AND NEW YORK AVE	NE	1658	8	2175	4
NEW YORK AVE AND NORTH CAPITOL ST	BN	2154	3	2150	5
14TH ST AND U ST	NW	1997	5	2109	6
1ST ST AND UNION STATION PLAZA	NE	1830	6	1967	7
NEW YORK AVE AND SOUTH DAKOTA AVE	NE	1674	7	1631	8
1ST ST AND NEW YORK AVE	NW	1368	18	1625	9
FIRTH STERLING AVE AND SUITLAND PKWY	SE	2005	4	1576	10
FIRTH STERLING AVE AND HOWARD RD	SE	1142	28	1562	11
WISCONSIN AVE AND M ST	NW	1577	13	1502	12
36TH ST AND BENNING RD	NE	1154	26	1454	13
7TH ST AND FLORIDA AVE	NW	1584	12	1403	14
KENILWORTH AVE AND EAST CAPITOL ST	BN	1457	16	1382	15
MONTANA AVE AND NEW YORK AVE	NE	1590	11	1343	16
RHODE ISLAND AVE AND NORTH CAPITOL ST	BN	1554	14	1320	17
16TH ST AND NEW YORK AVE	NE	999	41	1293	18
MINNESOTA AVE AND AMES ST	NE	1220	24	1293	18
9TH ST AND MASSACHUSETTS AVE	NW	1155	25	1269	20
BENNING RD AND BLADENSBURG RD	NE	1238	23	1253	21
MINNESOTA AVE AND PENNSYLVANIA AVE	SE	1487	15	1238	22
14TH ST AND CONSTITUTION AVE	NW	1061	31	1227	23
13TH ST AND SOUTHERN AVE	SE	1150	27	1202	24
STANTON RD AND SUITLAND PKWY	SE	1606	9	1182	25
4TH ST AND NEW YORK AVE	NE	1023	39	1175	26
9TH ST AND U ST	NW	1046	32	1166	27
FLORIDA AVE AND NEW YORK AVE	NE	1425	17	1149	28
MONTANA AVE AND NEW YORK AVE	NE	819	69	1140	29
I ST AND S CAPITOL ST	BN	1367	19	1118	30
KENILWORTH AVE AND BENNING RD	NE	1263	22	1089	31
4TH ST AND MICHIGAN AVE	NE	827	68	1088	32
15TH PL AND ALABAMA AVE	SE	765	79	1088	32
MINNESOTA AVE AND NANNIE HELEN BURROUGHS	NE	1043	35	1080	34
16TH ST AND K ST	NW	1007	40	1077	35
14TH ST AND K ST	NW	1322	20	1067	36
CONNECTICUT AVE AND N ST	NW	789	73	1046	37
1ST ST AND FLORIDA AVE	NE	948	48	1046	37
SOUTHERN AVE AND WHEELER RD	SE	1127	29	1044	39
14TH ST AND IRVING ST	NW	1044	33	1038	40
33RD PL AND SOUTH DAKOTA AVE	NE	926	50	1037	41
1ST ST AND H ST	NW	858	61	1031	42

Table 7.17: Intersection Rank by Crash Severity Cost for 3-Year Periods (Rank: 43~85)

INTERSECTION NAME	Quad	2014-2016		2015-2017	
		Cost	Rank	Cost	Rank
17TH ST AND BLADENSBURG RD	NE	714	96	1029	43
17TH ST AND I ST	NW	1043	35	1028	44
13TH ST AND U ST	NW	1037	37	1028	44
IRVING ST AND KENYON ST	NW	773	78	1001	46
17TH ST AND K ST	NW	777	76	987	47
ALABAMA AVE AND GOOD HOPE RD	SE	828	66	986	48
44TH ST AND NANNIE HELEN BURROUGHS AVE	NE	879	57	977	49
9TH ST AND NEW YORK AVE	NW	900	54	969	50
MONTANA AVE AND EDWIN ST	NE	714	96	954	51
31ST ST AND M ST	NW	984	44	954	51
12TH ST AND CONSTITUTION AVE	NW	864	59	947	53
FOOTE PL AND MINNESOTA AVE	NE	743	85	945	54
MARTIN LUTHER KING AVE AND HOWARD RD	SE	954	46	939	55
42ND ST AND KENILWORTH AVE	NE	578	164	938	56
17TH ST AND BENNING RD	NE	918	51	918	57
1ST ST AND MICHIGAN AVE	NW	782	75	896	58
6TH ST AND H ST	NW	675	106	894	59
7TH ST AND H ST	NW	932	49	894	59
3RD ST AND D ST	NW	720	94	893	61
H ST AND NORTH CAPITOL ST	BN	1080	30	870	62
16TH ST AND NEW HAMPSHIRE AVE	NW	962	45	870	62
30TH ST AND NAYLOR RD	SE	845	63	866	64
6TH ST AND NEW YORK AVE	NW	864	59	851	65
K ST AND NORTH CAPITOL ST	BN	872	58	849	66
ELVANS RD AND STANTON RD	SE	533	198	849	66
5TH ST AND RHODE ISLAND AVE	NE	729	91	842	68
14TH ST AND COLUMBIA RD	NW	990	42	840	69
MONTANA AVE AND RHODE ISLAND AVE	NE	731	89	834	70
BRANCH AVE AND PENNSYLVANIA AVE	SE	911	52	833	71
NORTH CAPITOL ST AND RIGGS RD	BN	902	53	833	71
PENNSYLVANIA AVE AND PROUT ST	SE	579	161	825	73
SOUTHERN AVE AND BENNING RD	SE	818	70	825	73
14TH ST AND L ST	NW	744	84	819	75
RHODE ISLAND AVE AND REED ST	NE	1044	33	818	76
6TH ST AND FLORIDA AVE	NW	729	91	804	77
4TH ST AND NEW YORK AVE	NW	986	43	803	78
14TH ST AND GOOD HOPE RD	SE	633	119	800	79
MINNESOTA AVE AND CLAY PL	NE	609	138	800	79
7TH ST AND MASSACHUSETTS AVE	NW	618	133	792	81
CONNECTICUT AVE AND R ST	NW	705	98	780	82
NEW YORK AVE AND FENWICK ST	NE	593	148	773	83
17TH ST AND L ST	NW	776	77	768	84
14TH ST AND H ST	NE	738	88	765	85
13TH ST AND K ST	NW	623	128	765	85

Table 7.18: Intersection Rank by Crash Severity Cost for 3-Year Periods (Rank: 87~100)

INTERSECTION NAME	Quad	2014-2016		2015-2017	
		Cost	Rank	Cost	Rank
CONNECTICUT AVE AND K ST	NW	827	68	761	87
14TH ST AND RHODE ISLAND AVE	NW	840	64	758	88
36TH PL AND NEW YORK AVE	NE	1023	39	755	89
18TH ST AND MASSACHUSETTS AVE	NW	986	43	750	90
14TH ST AND INDEPENDENCE AVE	SW	812	71	744	91
SOUTHERN AVE AND SOUTHVIEW DR	SE	570	167	744	91
47TH AVE AND EASTERN AVE	NE	729	91	743	93
MINNESOTA AVE AND GRANT ST	NE	512	209	740	94
MINNESOTA AVE AND BLAINE ST	NE	729	91	735	95
9TH ST AND PENNSYLVANIA AVE	NW	746	83	729	96
18TH ST AND BENNING RD	NE	645	115	729	96
36TH ST AND M ST	NW	864	59	722	98
16TH ST AND L ST	NW	570	167	720	99
24TH ST AND PENNSYLVANIA AVE	NW	1584	12	716	100

7.1.4 Rank by Crash Composite Index (CCI)

Table 7.19: Intersection Rank by Crash Composite Index for 2015-2017 (Rank: 1~44)

INTERSECTION NAME	Quad	2015		2016		2017	
		Comp	Rank	Comp	Rank	Comp	Rank
NEW YORK AVE AND BLADENSBURG RD	NE	3.25	1	4.25	3	4.75	1
FIRTH STERLING AVE AND HOWARD RD	SE	79.5	46	6.25	5	4.75	1
1ST ST AND UNION STATION PLAZA	NE	4.5	4	3.75	2	5	3
14TH ST AND U ST	NW	4.25	2	4.25	3	5	3
MINNESOTA AVE AND BENNING RD	NE	4.25	2	3.25	1	9.25	5
9TH ST AND MASSACHUSETTS AVE	NW	26	13	29	11	16.75	6
MINNESOTA AVE AND NANNIE HELEN BURROUGHS AVE	NE	25.25	12	91.75	53	21.5	7
17TH ST AND BLADENSBURG RD	NE	67.25	40	186.25	112	24	8
ALABAMA AVE AND GOOD HOPE RD	SE	50.25	26	88.5	49	28	9
13TH ST AND U ST	NW	88	48	29.5	14	29.25	10
7TH ST AND FLORIDA AVE	NW	11.75	5	16	7	30	11
IRVING ST AND KENYON ST	NW	143.5	100	49.25	23	32	12
44TH ST AND NANNIE HELEN BURROUGHS AVE	NE	155.25	106	31.25	15	34	13
17TH ST AND I ST	NW	24	11	49	21	34.5	14
MONTANA AVE AND NEW YORK AVE	NE	218.5	157	96.5	56	35.5	15
3RD ST AND D ST	NW	47	23	70.5	31	38.25	16
14TH ST AND IRVING ST	NW	26.75	14	52.5	25	41	17
WISCONSIN AVE AND M ST	NW	12	6	7.5	6	41.75	18
7TH ST AND G ST	NW	162	111	221	145	43.5	19
13TH ST AND H ST	NE	309.25	224	140.25	85	46.25	20
6TH ST AND H ST	NW	112.75	69	41.25	18	47.75	21
3RD ST AND H ST	NW	751.75	741	337.75	243	48.75	22
13TH ST AND K ST	NW	310.5	225	85.25	45	49.25	23
16TH ST AND K ST	NW	74.25	44	79	42	49.25	23
MINNESOTA AVE AND PENNSYLVANIA AVE	SE	98.25	56	91.75	53	50	25
MONTANA AVE AND RHODE ISLAND AVE	NE	210.75	147	157.75	91	50.25	26
1ST ST AND MICHIGAN AVE	NW	70.75	42	109	65	50.25	26
4TH ST AND NEW YORK AVE	NE	145.5	101	72	35	51.25	28
6TH ST AND FLORIDA AVE	NW	171	118	73.5	37	55.5	29
14TH ST AND H ST	NE	109.5	67	74	38	56	30
9TH ST AND U ST	NW	21.5	9	29	11	57.25	31
NEW YORK AVE AND NORTH CAPITOL ST	BN	40.25	21	73.25	36	58.25	32
1ST ST AND NEW YORK AVE	NW	31.75	18	49	21	66	33
44TH ST AND BENNING RD	NE	267.25	196	117.75	70	68	34
33RD ST AND M ST	NW	276.25	200	193.5	118	70.75	35
17TH ST AND K ST	NW	201.25	145	28.5	10	73.5	36
14TH ST AND CONSTITUTION AVE	NW	120	74	88.25	48	73.5	36
MARTIN LUTHER KING AVE AND HOWARD RD	SE	73.75	43	45.25	20	74.5	38
BRANCH AVE AND PENNSYLVANIA AVE	SE	105.75	61	98	59	77.25	39
7TH ST AND H ST	NW	52.5	28	36	16	77.75	40
18TH ST AND MASSACHUSETTS AVE	NW	139.75	95	88.75	51	81.75	41
CONNECTICUT AVE AND R ST	NW	81.75	47	130.5	78	82.5	42
3RD ST AND H ST	NE	377.25	303	176.75	103	87	43
14TH ST AND L ST	NW	133	87	70.5	31	88	44

Table 7.20: Intersection Rank by Crash Composite Index for 2015-2017 (Rank: 45~89)

INTERSECTION NAME	Quad	2015		2016		2017	
		Comp	Rank	Comp	Rank	Comp	Rank
STANTON RD AND SUITLAND PKWY	SE	18.25	8	279.25	192	90.5	45
BLADENSBURG RD AND QUEENS CHAPEL RD	NE	133.5	88	206.5	128	94.75	46
MONTANA AVE AND NEW YORK AVE	NE	32.25	19	62	26	95.25	47
GOOD HOPE RD AND NAYLOR RD	SE	897.5	933	216	136	95.25	47
9TH ST AND NEW YORK AVE	NW	64.25	39	50.5	24	95.25	47
4TH ST AND NEW YORK AVE	NW	151	105	74.25	39	97.25	50
19TH ST AND L ST	NW	257.75	189	137.75	82	100.75	51
7TH ST AND I ST	NW	651.75	605	77	40	102.75	52
1ST ST AND FLORIDA AVE	NE	51.25	27	24.25	9	104.25	53
FIRTH STERLING AVE AND SUITLAND PKWY	SE	13.75	7	65.5	28	108	54
BRENTWOOD PKWY AND MOUNT OLIVET RD	NE	428.75	353	210.25	132	109.5	55
14TH ST AND RHODE ISLAND AVE	NW	53.75	29	114	68	111.25	56
12TH ST AND CONSTITUTION AVE	NW	179.75	127	103.25	62	113.5	57
16TH ST AND L ST	NW	241	170	71	33	114.75	58
17TH ST AND PENNSYLVANIA AVE	NW	109.25	66	117.75	70	115.25	59
4TH ST AND MICHIGAN AVE	NE	141.25	98	78.25	41	118.25	60
CONNECTICUT AVE AND YUMA ST	NW	597.5	534	574	503	118.75	61
16TH ST AND NEW HAMPSHIRE AVE	NW	56	32	109	65	119.5	62
16TH ST AND I ST	NW	129.75	83	119.5	73	122.25	63
2ND ST AND INDEPENDENCE AVE	SE	706.25	681	222.75	147	123.5	64
14TH ST AND I ST	NW	213.25	152	192.5	115	125.5	65
11TH ST AND H ST	NE	262.5	191	300	206	126.75	66
7TH ST AND F ST	NW	117	72	276.75	190	127.5	67
14TH ST AND COLUMBIA RD	NW	63.25	37	37.5	17	127.75	68
10TH ST AND MASSACHUSETTS AVE	NW	165.25	113	284.75	195	129.25	69
BENNING RD AND BLADENSBURG RD	NE	140.75	97	118.25	72	130.25	70
VERMONT AVE AND U ST	NW	301.5	215	406.75	319	130.5	71
9TH ST AND PENNSYLVANIA AVE	NW	203.25	146	94.75	55	131.25	72
SOUTHERN AVE AND BENNING RD	SE	41.75	22	98.25	60	132.25	73
17TH ST AND H ST	NW	108.25	65	163	94	133	74
14TH ST AND K ST	NW	60.25	33	29.25	13	133.5	75
NEW YORK AVE AND SOUTH DAKOTA AVE	NE	130.5	85	134.5	81	133.75	76
9TH ST AND CONSTITUTION AVE	NW	601	548	172.5	101	137	77
SOUTHERN AVE AND WHEELER RD	SE	21.5	9	22	8	138.25	78
24TH ST AND PENNSYLVANIA AVE	NW	54.75	31	197	121	139.25	79
ALABAMA AVE AND BRANCH AVE	SE	193.75	139	96.5	56	139.25	79
NORTH CAPITOL ST AND RIGGS RD	BN	133.5	88	246	166	141.75	81
ALABAMA AVE AND STANTON RD	SE	148.5	103	270	183	142.75	82
WISCONSIN AVE AND Q ST	NW	218.75	158	212.5	133	143.25	83
9TH ST AND F ST	NW	187.75	133	220.5	144	143.25	83
15TH ST AND H ST	NW	127.25	81	177.5	105	143.5	85
24TH ST AND M ST	NW	89	50	185	111	148.5	86
1ST ST AND INDEPENDENCE AVE	SW	981.5	1040	229	153	149.5	87
15TH ST AND MASSACHUSETTS AVE	NW	248.75	178	145.5	87	151.5	88
7TH ST AND MASSACHUSETTS AVE	NW	148	102	186.75	113	153.75	89

Table 7.21: Intersection Rank by Crash Composite Index for 2015-2017 (Rank: 90~100)

INTERSECTION NAME	Quad	2015		2016		2017	
		Comp	Rank	Comp	Rank	Comp	Rank
5TH ST AND H ST	NW	162.5	112	182.5	110	154	90
17TH ST AND MASSACHUSETTS AVE	NW	466.25	397	263.5	179	158.5	91
14TH ST AND V ST	NW	548.25	472	204.75	126	158.75	92
7TH ST AND PENNSYLVANIA AVE	NW	271	198	238.5	158	162.5	93
CONNECTICUT AVE AND NEWARK ST	NW	665.5	626	400.5	310	163.75	94
14TH ST AND PARK RD	NW	125.75	80	208.25	129	164.5	95
CONNECTICUT AVE AND COLUMBIA RD	NW	354	281	424.25	340	164.5	95
13TH ST AND L ST	NW	186.25	131	245.75	165	165.25	97
3RD ST AND INDEPENDENCE AVE	SW	1194.5	1334	434.5	346	165.75	98
RHODE ISLAND AVE AND NORTH CAPITOL ST	BN	61	34	66.75	29	168.25	99
K ST AND NORTH CAPITOL ST	BN	61.5	35	146.5	89	169.25	100

Table 7.22: Intersection Rank by Crash Composite Index for 3-Year Periods (Rank: 1~43)

INTERSECTION NAME	Quad	2014-2016		2015-2017	
		Comp	Rank	Comp	Rank
MINNESOTA AVE AND BENNING RD	NE	3.5	1	3	1
NEW YORK AVE AND BLADENSBURG RD	NE	3.5	1	4.25	2
1ST ST AND UNION STATION PLAZA	NE	3.75	3	4.75	3
14TH ST AND U ST	NW	4.25	4	4.75	3
FIRTH STERLING AVE AND HOWARD RD	SE	23.5	9	9.5	5
WISCONSIN AVE AND M ST	NW	10.5	5	12	6
7TH ST AND FLORIDA AVE	NW	11.25	6	13.75	7
9TH ST AND MASSACHUSETTS AVE	NW	22.5	8	18.25	8
9TH ST AND U ST	NW	30.5	14	25.75	9
MINNESOTA AVE AND NANNIE HELEN BURROUGHS	NE	33	17	29.25	10
17TH ST AND I ST	NW	25	10	30.25	11
FIRTH STERLING AVE AND SUITLAND PKWY	SE	18.5	7	31.5	12
14TH ST AND IRVING ST	NW	26.25	13	32.25	13
SOUTHERN AVE AND WHEELER RD	SE	25	10	33.25	14
13TH ST AND U ST	NW	33.5	18	36	15
1ST ST AND FLORIDA AVE	NE	53.75	29	40.25	16
1ST ST AND NEW YORK AVE	NW	60.75	35	41	17
7TH ST AND H ST	NW	36.5	20	42.5	18
3RD ST AND D ST	NW	67.75	40	43.5	19
ALABAMA AVE AND GOOD HOPE RD	SE	67.75	40	43.75	20
44TH ST AND NANNIE HELEN BURROUGHS AVE	NE	49.5	25	44.25	21
IRVING ST AND KENYON ST	NW	72	42	48.5	22
6TH ST AND H ST	NW	75.75	44	49.5	23
MONTANA AVE AND NEW YORK AVE	NE	32.5	16	50	24
NEW YORK AVE AND NORTH CAPITOL ST	BN	44.5	23	50.5	25
14TH ST AND K ST	NW	25.75	12	51.25	26
MARTIN LUTHER KING AVE AND HOWARD RD	SE	43	22	53.5	27
9TH ST AND NEW YORK AVE	NW	54.75	31	55.25	28
16TH ST AND K ST	NW	54.5	30	55.25	28
14TH ST AND COLUMBIA RD	NW	33.5	18	55.25	28
17TH ST AND BLADENSBURG RD	NE	130.75	84	57.75	31
STANTON RD AND SUITLAND PKWY	SE	31.5	15	59	32
17TH ST AND K ST	NW	105.5	64	60.75	33
1ST ST AND MICHIGAN AVE	NW	74.5	43	62.5	34
14TH ST AND H ST	NE	84.25	51	66.25	35
I ST AND S CAPITOL ST	BN	40.5	21	67	36
MINNESOTA AVE AND PENNSYLVANIA AVE	SE	52.75	28	67.5	37
SOUTHERN AVE AND BENNING RD	SE	63.25	37	69.5	38
6TH ST AND FLORIDA AVE	NW	82.25	48	70.5	39
4TH ST AND NEW YORK AVE	NE	97.75	57	71.75	40
14TH ST AND RHODE ISLAND AVE	NW	51.25	27	71.75	40
MARTIN LUTHER KING AVE AND GOOD HOPE RD	SE	49.75	26	73.25	42
16TH ST AND NEW HAMPSHIRE AVE	NW	61.25	36	75.75	43

Table 7.23: Intersection Rank by Crash Composite Index for 3-Year Periods (Rank: 44~85)

INTERSECTION NAME	Quad	2014-2016		2015-2017	
		Comp	Rank	Comp	Rank
RHODE ISLAND AVE AND NORTH CAPITOL ST	BN	64.75	38	77.5	44
14TH ST AND L ST	NW	89.5	52	78.25	45
MONTANA AVE AND NEW YORK AVE	NE	171.75	115	78.25	45
H ST AND NORTH CAPITOL ST	BN	47.75	24	78.75	47
CONNECTICUT AVE AND R ST	NW	96.25	56	79.75	48
BRANCH AVE AND PENNSYLVANIA AVE	SE	75.75	44	80.5	49
FLORIDA AVE AND NEW YORK AVE	NE	56.25	33	80.75	50
18TH ST AND MASSACHUSETTS AVE	NW	98.75	58	84	51
14TH ST AND CONSTITUTION AVE	NW	103.75	63	84.25	52
4TH ST AND NEW YORK AVE	NW	58.5	34	86.5	53
13TH ST AND K ST	NW	136.5	88	87.5	54
4TH ST AND MICHIGAN AVE	NE	103.5	62	89.25	55
24TH ST AND PENNSYLVANIA AVE	NW	76.75	47	91.25	56
17TH ST AND L ST	NW	100.5	60	92.5	57
7TH ST AND G ST	NW	83.75	50	96	58
MONTANA AVE AND RHODE ISLAND AVE	NE	145.5	94	98.25	59
17TH ST AND PENNSYLVANIA AVE	NW	76	46	98.75	60
K ST AND NORTH CAPITOL ST	BN	89.75	53	100.5	61
16TH ST AND L ST	NW	161.5	109	101	62
13TH ST AND H ST	NE	122.75	76	101	62
NEW YORK AVE AND H ST	NW	100.25	59	103.25	64
44TH ST AND BENNING RD	NE	149.5	99	104	65
16TH ST AND I ST	NW	144.5	93	106.25	66
6TH ST AND NEW YORK AVE	NW	91.5	54	110	67
9TH ST AND PENNSYLVANIA AVE	NW	118.5	72	114.5	68
24TH ST AND M ST	NW	55.75	32	115.25	69
ALABAMA AVE AND BRANCH AVE	SE	92	55	115.75	70
12TH ST AND CONSTITUTION AVE	NW	125	80	115.75	70
MASSACHUSETTS AVE AND NORTH CAPITOL ST	BN	108.5	66	118.25	72
17TH ST AND H ST	NW	155	104	119.25	73
BLADENSBURG RD AND QUEENS CHAPEL RD	NE	149.5	99	119.75	74
19TH ST AND L ST	NW	175.25	118	125.75	75
15TH ST AND H ST	NW	102.75	61	126.75	76
BENNING RD AND BLADENSBURG RD	NE	125.75	81	127.25	77
33RD ST AND M ST	NW	172.75	116	129.75	78
NEW YORK AVE AND SOUTH DAKOTA AVE	NE	118.25	71	133.5	79
ALABAMA AVE AND PENNSYLVANIA AVE	SE	83	49	139.25	80
15TH ST AND K ST	NW	66.75	39	140.75	81
7TH ST AND I ST	NW	230.5	171	141	82
7TH ST AND MASSACHUSETTS AVE	NW	195	138	143.5	83
7TH ST AND F ST	NW	199.5	143	144	84
5TH ST AND H ST	NW	206.75	151	144.25	85
23RD ST AND I ST	NW	124.5	79	144.25	85

Table 7.24: Intersection Rank by Crash Composite Index for 3-Year Periods (Rank: 87~100)

INTERSECTION NAME	Quad	2014-2016		2015-2017	
		Comp	Rank	Comp	Rank
14TH ST AND P ST	NW	116.75	69	145	87
9TH ST AND H ST	NW	181	122	146.5	88
18TH ST AND M ST	NW	106.25	65	147	89
17TH ST AND BENNING RD	NE	138	89	147.25	90
14TH ST AND PARK RD	NW	116.5	68	149.5	91
MONTANA AVE AND BLADENSBURG RD	NE	173.75	117	149.75	92
14TH ST AND I ST	NW	176.75	119	151	93
3RD ST AND H ST	NE	188.75	127	151.5	94
ALABAMA AVE AND STANTON RD	SE	117.75	70	154.5	95
6TH ST AND K ST	NW	215.25	156	155	96
15TH ST AND MASSACHUSETTS AVE	NW	119	73	155.75	97
3RD ST AND RIGGS RD	NE	168.5	111	156	98
8TH ST AND H ST	NW	205.25	146	157.75	99
NORTH CAPITOL ST AND RIGGS RD	BN	142	90	158	100

7.1.5 Rank by Crash Composite Index (CCI) – New equation

Table 7.25: Intersection Rank by CCI – new equation for 2017 (Rank: 1~44)

INTERSECTION NAME	Quad	2017	
		Comp	Rank
NEW YORK AVE AND BLADENSBURG RD	NE	4	1
FIRTH STERLING AVE AND HOWARD RD	SE	4.8	2
1ST ST AND UNION STATION PLAZA	NE	5.2	3
14TH ST AND U ST	NW	5.4	4
MINNESOTA AVE AND BENNING RD	NE	9	5
9TH ST AND MASSACHUSETTS AVE	NW	16.8	6
17TH ST AND BLADENSBURG RD	NE	22	7
MINNESOTA AVE AND NANNIE HELEN BURROUGHS AVE	NE	22.8	8
ALABAMA AVE AND GOOD HOPE RD	SE	29.4	9
IRVING ST AND KENYON ST	NW	29.8	10
MONTANA AVE AND NEW YORK AVE	NE	30.4	11
13TH ST AND U ST	NW	31.2	12
7TH ST AND FLORIDA AVE	NW	31.8	13
44TH ST AND NANNIE HELEN BURROUGHS AVE	NE	34.8	14
17TH ST AND I ST	NW	37.2	15
3RD ST AND D ST	NW	41.6	16
WISCONSIN AVE AND M ST	NW	42.2	18
14TH ST AND IRVING ST	NW	42.2	18
MINNESOTA AVE AND PENNSYLVANIA AVE	SE	42.8	19
16TH ST AND K ST	NW	44.6	20
4TH ST AND NEW YORK AVE	NE	44.8	21
3RD ST AND H ST	NW	45.6	22
6TH ST AND H ST	NW	46.4	24
MONTANA AVE AND RHODE ISLAND AVE	NE	46.4	24
NEW YORK AVE AND NORTH CAPITOL ST	BN	47.4	25
7TH ST AND G ST	NW	47.8	26
13TH ST AND K ST	NW	49	27
1ST ST AND MICHIGAN AVE	NW	49.2	28
13TH ST AND H ST	NE	50	29
6TH ST AND FLORIDA AVE	NW	53.4	30
1ST ST AND NEW YORK AVE	NW	55.4	31
9TH ST AND U ST	NW	57.8	32
14TH ST AND H ST	NE	61	33
14TH ST AND CONSTITUTION AVE	NW	62.4	34
44TH ST AND BENNING RD	NE	66	35
17TH ST AND K ST	NW	70.8	36
33RD ST AND M ST	NW	72.8	37
BRANCH AVE AND PENNSYLVANIA AVE	SE	74.8	38
MARTIN LUTHER KING AVE AND HOWARD RD	SE	78.4	39
18TH ST AND MASSACHUSETTS AVE	NW	81.6	40
CONNECTICUT AVE AND R ST	NW	83.2	41
7TH ST AND H ST	NW	83.4	42
STANTON RD AND SUITLAND PKWY	SE	83.8	43
MONTANA AVE AND NEW YORK AVE	NE	85.8	44

Table 7.26: Intersection Rank by CCI – new equation for 2017 (Rank: 45~92)

INTERSECTION NAME	Quad	2015	
		Comp	Rank
9TH ST AND NEW YORK AVE	NW	87.4	45
14TH ST AND L ST	NW	87.6	46
3RD ST AND H ST	NE	94.6	48
GOOD HOPE RD AND NAYLOR RD	SE	94.6	48
4TH ST AND NEW YORK AVE	NW	96.6	49
BLADENSBURG RD AND QUEENS CHAPEL RD	NE	97	50
4TH ST AND MICHIGAN AVE	NE	97.8	51
FIRTH STERLING AVE AND SUITLAND PKWY	SE	101.4	52
12TH ST AND CONSTITUTION AVE	NW	105	53
19TH ST AND L ST	NW	105.6	54
1ST ST AND FLORIDA AVE	NE	108.4	55
NEW YORK AVE AND SOUTH DAKOTA AVE	NE	108.8	56
BENNING RD AND BLADENSBURG RD	NE	109	57
7TH ST AND I ST	NW	110.8	58
BRENTWOOD PKWY AND MOUNT OLIVET RD	NE	114.8	59
16TH ST AND NEW HAMPSHIRE AVE	NW	115.4	61
16TH ST AND L ST	NW	115.4	61
14TH ST AND RHODE ISLAND AVE	NW	116.2	63
17TH ST AND PENNSYLVANIA AVE	NW	120.8	64
9TH ST AND CONSTITUTION AVE	NW	121.2	65
2ND ST AND INDEPENDENCE AVE	SE	122.4	66
11TH ST AND H ST	NE	122.6	67
16TH ST AND I ST	NW	125	68
14TH ST AND K ST	NW	126.6	69
NORTH CAPITOL ST AND RIGGS RD	BN	128.4	70
9TH ST AND PENNSYLVANIA AVE	NW	130	71
14TH ST AND I ST	NW	130.6	72
14TH ST AND COLUMBIA RD	NW	132.4	73
SOUTHERN AVE AND BENNING RD	SE	133	75
VERMONT AVE AND U ST	NW	133	75
ALABAMA AVE AND STANTON RD	SE	133.4	76
10TH ST AND MASSACHUSETTS AVE	NW	133.6	77
24TH ST AND PENNSYLVANIA AVE	NW	134.6	78
17TH ST AND H ST	NW	135	79
7TH ST AND MASSACHUSETTS AVE	NW	138.6	80
7TH ST AND F ST	NW	138.8	81
ALABAMA AVE AND BRANCH AVE	SE	141.6	82
15TH ST AND MASSACHUSETTS AVE	NW	142.4	83
SOUTHERN AVE AND WHEELER RD	SE	149.6	85
15TH ST AND H ST	NW	151.6	87
RHODE ISLAND AVE AND NORTH CAPITOL ST	BN	151.8	88
WISCONSIN AVE AND Q ST	NW	153.6	89
9TH ST AND F ST	NW	156.8	90
17TH ST AND MASSACHUSETTS AVE	NW	157	91
5TH ST AND H ST	NW	157.8	92

Table 7.27: Intersection Rank by CCI – new equation for 2017 (Rank: 93~102)

INTERSECTION NAME	Quad	2015	
		Comp	Rank
13TH ST AND L ST	NW	158.6	93
14TH ST AND PARK RD	NW	161.8	94
3RD ST AND RIGGS RD	NE	162.2	95
27TH ST AND PENNSYLVANIA AVE	SE	162.6	96
7TH ST AND PENNSYLVANIA AVE	NW	164.6	97
24TH ST AND M ST	NW	165	98
K ST AND NORTH CAPITOL ST	BN	165.6	101
I ST AND S CAPITOL ST	BN	166	102

Table 7.28: Intersection Rank by CCI – new equation for a 3-Year Period (Rank: 1~47)

INTERSECTION NAME	Quad	2015-2017	
		Comp	Rank
MINNESOTA AVE AND BENNING RD	NE	2.8	1
NEW YORK AVE AND BLADENSBURG RD	NE	3.6	2
14TH ST AND U ST	NW	5	3
1ST ST AND UNION STATION PLAZA	NE	5.2	4
FIRTH STERLING AVE AND HOWARD RD	SE	9.8	5
WISCONSIN AVE AND M ST	NW	12	6
7TH ST AND FLORIDA AVE	NW	13.8	7
9TH ST AND MASSACHUSETTS AVE	NW	18.6	8
9TH ST AND U ST	NW	26	9
FIRTH STERLING AVE AND SUITLAND PKWY	SE	27.2	10
MINNESOTA AVE AND NANNIE HELEN BURROUGHS	NE	30.2	11
17TH ST AND I ST	NW	33	12
14TH ST AND IRVING ST	NW	33.8	13
SOUTHERN AVE AND WHEELER RD	SE	34.4	14
1ST ST AND NEW YORK AVE	NW	34.6	15
13TH ST AND U ST	NW	37.6	16
1ST ST AND FLORIDA AVE	NE	39.6	17
NEW YORK AVE AND NORTH CAPITOL ST	BN	41.4	18
MONTANA AVE AND NEW YORK AVE	NE	43.2	19
ALABAMA AVE AND GOOD HOPE RD	SE	44.6	20
44TH ST AND NANNIE HELEN BURROUGHS AVE	NE	45.2	21
7TH ST AND H ST	NW	45.8	22
3RD ST AND D ST	NW	47	23
IRVING ST AND KENYON ST	NW	48	24
14TH ST AND K ST	NW	48.2	25
16TH ST AND K ST	NW	51.2	26
6TH ST AND H ST	NW	51.4	27
STANTON RD AND SUITLAND PKWY	SE	52.2	28
MARTIN LUTHER KING AVE AND HOWARD RD	SE	53.8	29
9TH ST AND NEW YORK AVE	NW	54.2	30
17TH ST AND BLADENSBURG RD	NE	54.8	31
17TH ST AND K ST	NW	58	33
14TH ST AND COLUMBIA RD	NW	58	33
MINNESOTA AVE AND PENNSYLVANIA AVE	SE	58.4	34
I ST AND S CAPITOL ST	BN	59.6	35
1ST ST AND MICHIGAN AVE	NW	61.6	36
4TH ST AND NEW YORK AVE	NE	62.6	37
RHODE ISLAND AVE AND NORTH CAPITOL ST	BN	65.4	38
MONTANA AVE AND NEW YORK AVE	NE	68.4	39
14TH ST AND H ST	NE	70	40
SOUTHERN AVE AND BENNING RD	SE	70.2	42
FLORIDA AVE AND NEW YORK AVE	NE	70.2	42
6TH ST AND FLORIDA AVE	NW	71.8	43
14TH ST AND CONSTITUTION AVE	NW	72	44
16TH ST AND NEW HAMPSHIRE AVE	NW	73	45
14TH ST AND RHODE ISLAND AVE	NW	75	46
H ST AND NORTH CAPITOL ST	BN	75.4	47

Table 7.29: Intersection Rank by CCI – new equation for 3-Year Periods (Rank: 48~94)

INTERSECTION NAME	Quad	2015-2017	
		Comp	Rank
14TH ST AND L ST	NW	77.6	48
4TH ST AND MICHIGAN AVE	NE	77.8	49
BRANCH AVE AND PENNSYLVANIA AVE	SE	78.6	50
CONNECTICUT AVE AND R ST	NW	80.2	51
MARTIN LUTHER KING AVE AND GOOD HOPE RD	SE	81.4	52
4TH ST AND NEW YORK AVE	NW	84.8	53
18TH ST AND MASSACHUSETTS AVE	NW	85.2	54
13TH ST AND K ST	NW	87	55
17TH ST AND L ST	NW	90.8	56
MONTANA AVE AND RHODE ISLAND AVE	NE	92.6	57
24TH ST AND PENNSYLVANIA AVE	NW	93	58
K ST AND NORTH CAPITOL ST	BN	93.6	59
16TH ST AND L ST	NW	100.6	60
6TH ST AND NEW YORK AVE	NW	101	61
12TH ST AND CONSTITUTION AVE	NW	103.2	62
7TH ST AND G ST	NW	105	63
13TH ST AND H ST	NE	105.8	65
17TH ST AND PENNSYLVANIA AVE	NW	105.8	65
BENNING RD AND BLADENSBURG RD	NE	106	66
44TH ST AND BENNING RD	NE	107	67
16TH ST AND I ST	NW	108.2	68
NEW YORK AVE AND SOUTH DAKOTA AVE	NE	108.4	69
9TH ST AND PENNSYLVANIA AVE	NW	110.8	70
NEW YORK AVE AND H ST	NW	112.8	71
ALABAMA AVE AND BRANCH AVE	SE	114.4	72
MASSACHUSETTS AVE AND NORTH CAPITOL ST	BN	116.4	73
BLADENSBURG RD AND QUEENS CHAPEL RD	NE	120.8	74
17TH ST AND H ST	NW	121.2	75
24TH ST AND M ST	NW	124.4	76
17TH ST AND BENNING RD	NE	129.2	77
19TH ST AND L ST	NW	130	78
7TH ST AND MASSACHUSETTS AVE	NW	131	79
ALABAMA AVE AND PENNSYLVANIA AVE	SE	131.8	80
33RD ST AND M ST	NW	133.6	81
15TH ST AND H ST	NW	134.4	82
15TH ST AND K ST	NW	135.2	83
NORTH CAPITOL ST AND RIGGS RD	BN	140.6	84
14TH ST AND PARK RD	NW	144.6	85
CONNECTICUT AVE AND K ST	NW	146.2	86
3RD ST AND RIGGS RD	NE	148	87
15TH ST AND MASSACHUSETTS AVE	NW	148.8	88
7TH ST AND I ST	NW	151.2	89
18TH ST AND M ST	NW	151.8	90
7TH ST AND F ST	NW	152	91
ALABAMA AVE AND STANTON RD	SE	152.2	92
5TH ST AND H ST	NW	152.4	93
14TH ST AND P ST	NW	153	94

Table 7.30: Intersection Rank by CCI – new equation for 3-Year Periods (Rank: 95~100

INTERSECTION NAME	Quad	2015-2017	
		Comp	Rank
14TH ST AND I ST	NW	153.8	95
9TH ST AND H ST	NW	154.2	96
14TH ST AND INDEPENDENCE AVE	SW	155.2	97
23RD ST AND I ST	NW	155.6	98
6TH ST AND K ST	NW	156.2	100
2ND ST AND K ST	NE	156.2	100