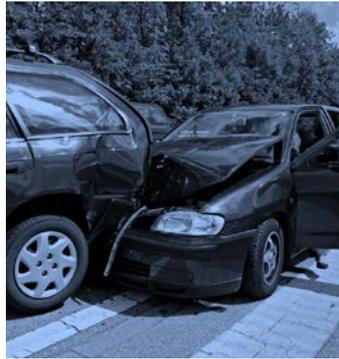


FINAL REPORT

TRAFFIC SAFETY STATISTICS REPORT FOR THE DISTRICT OF COLUMBIA (2011-2013)



Prepared for:



District Department of Transportation

Prepared by:



HOWARD
UNIVERSITY

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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 2011 through 2013. 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

The objective of this report is to provide traffic crash statistics for the District of Columbia for the years 2011 through 2013. The information compiled will enable the City to meet federal requirements on reporting traffic crashes, and provide a resource for identifying safety trends, 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 crash reporting form, which is the main source of the information presented in this report. The crash data was downloaded through secure servers from MPD into DDOT's database and was processed via an Oracle-based application called Traffic Accident Reporting and Analysis System (TARAS).

TARAS contains data fields that include crash location, date, time, crash type, crash severity, and environmental conditions. This report presents a summary of all the crash data for the years 2011, 2012 and 2013 queried in TARAS. The report also provides an insight into the various contributing factors and consequences of all types of vehicle crashes. The results of the analyses presented in this report 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 Data Center for the District Department of Transportation's (DDOT) Traffic Safety and Standards Division, through a project funded by the Federal Highway Administration (FHWA) of the U.S. Department of Transportation and DDOT.

1.2 Report Organization

This report consists of seven chapters. Chapter 1 provides a summary of findings presented in this report. Chapter 2 describes the methodology and analytical methods used for this analysis. Chapter 3, Quick Crash Facts and Trends, provides a brief summary of traffic crashes in District of Columbia for the period 2011 through 2013. Chapter 4 presents general crash statistics of the District of Columbia and contains

statistics on various categories of traffic crashes, including impaired driver involvement, special vehicle (e.g. truck, bus, and motorcycle), and pedestrian involvement. Chapter 5 identifies high-hazard crash locations and patterns at intersections and corridors. Chapter 6 presents the exposure information regarding vehicle miles traveled, fatality and injury rates per 100 million vehicle miles traveled, and finally Chapter 7 (Appendices) 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 methodology for obtaining the general traffic crash statistics and the identification and analysis of high hazard crash locations. Descriptive statistics was used to determine the frequency of occurrence, the rates of crashes, as well as crash trends over three years (2011-2013).

2.1 Traffic Crash Statistics

This report uses basic statistics to present the characteristics of traffic crashes and identifies factors that may have influenced their occurrence. The factors considered include vehicle characteristics, characteristics of involved persons (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 statistics of the factors that contribute to crashes in the District of Columbia are presented in tabulated and graphical forms.

2.2 High-Hazard Location Analysis

The frequency and severity of traffic crashes are two critical factors used in identifying high hazard locations. Typically, a relatively high crash frequency at a location is an indicator of adverse conditions 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. This report takes a macroscopic approach to determine the frequency and severity of traffic crashes, thereby providing a starting point for more elaborate safety studies at identified high-hazard intersections or corridors.

Several methods can be used to identify high hazard 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 the 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 crash frequency of a location is identified based on the total number of crashes. 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 hazard 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 of 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:

$$R = \frac{A \times 1,000,000}{V \times 365} \quad [1]$$

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 of each intersection that experienced crashes was determined. The

intersections were ranked and sorted in descending order of the crash rate. The location with the largest crash rate received the highest ranking. 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 regarding the injury severity for each person involved in a crash. These codes represent police officers' observation(s) of the level of severity experienced by persons involved in a crash, if any. In order to properly assess the extent of a crash, the resultant of the crash such as fatality, injury and property damage only (PDO) were utilized to determine the severity of the crash. This procedure is intended 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 hospital.

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

2.2.4 Composite Crash Index

Each of the methods described thus far provide a limited basis for identifying high-hazard locations. The composite index method utilizes crash rate, severity and frequency to characterize crash conditions at a location. 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 following model in Equation 2 to determine the composite index for crash locations.

$$\text{Composite Crash Index} = 0.25*RF + 0.25*RR + 0.50*RS \quad [2]$$

where:

RF = Rank of crash severity

RR = Rank of crash rate; and

RS = Rank of crash frequency

To determine the high hazard crash locations, a ranked list was prepared for each of the three factors. The three rankings of each site were entered in 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 their composite index. The intersection with the lowest composite index is ranked the highest.

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 calculation of 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. In addition, the results could be used to project the potential of traffic crashes increasing 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 of the delta-change method:

$$\frac{n \sum xy - n \sum x \sum y}{n \sum x^2 - (\sum x)^2} \quad [3]$$

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 2011 through 2013. The data presented also includes a summary of comparative crash statistics from 2011 through 2013.

3.1 2012 DC Crash Quick Facts

Table 3.1 presents the summary of crashes recorded in the DC from 2011 through 2013. The pie chart in Figure 3.1 represents the percentage distribution of collisions by severity for 2013 only.

Table 3.1: DC Crash Quick Facts for 2013

Year	2011	2012	2013
Total Collisions	17,951	18,428	19,456
Fatal Collisions	27	18	29
Injury Collisions	5,210	5,258	5,358
Property Damage Only (PDO) Collisions	12,714	13,152	14,069
Fatalities	32	19	29
Total Non-Fatal Injuries	7,335	7,268	7,505
Disabling Injuries*	305	336	305
Non-Disabling Injuries*	1,301	1,257	1,398
Total Vehicles Involved	35,095	36,446	38,382
Total Persons Involved	42,547	44,121	47,690
Total Pedestrians Involved	831	919	1,038
Pedestrian Fatalities	9	8	12
Fatalities/100 Million VMT	0.89	0.52	0.79
Injuries/100,000 Population	1186.90	1149.41	1160.96

*Note: the increase in the number of reported crashes could be due to improved crash reporting system implemented by MPD and DDOT.

Table 3.1 shows that the total number of crashes recorded increased in 2013 from 2012 while fatalities increased compared to years 2011 and 2012. The most frequent crash severity type recorded in 2013 was Property Damage Only (PDO), which represented approximately 72% (14,069) of all crashes. Injury and fatality crashes represented about 28% (5,358) and 0.1% (29) respectively of the total crashes recorded in 2013.

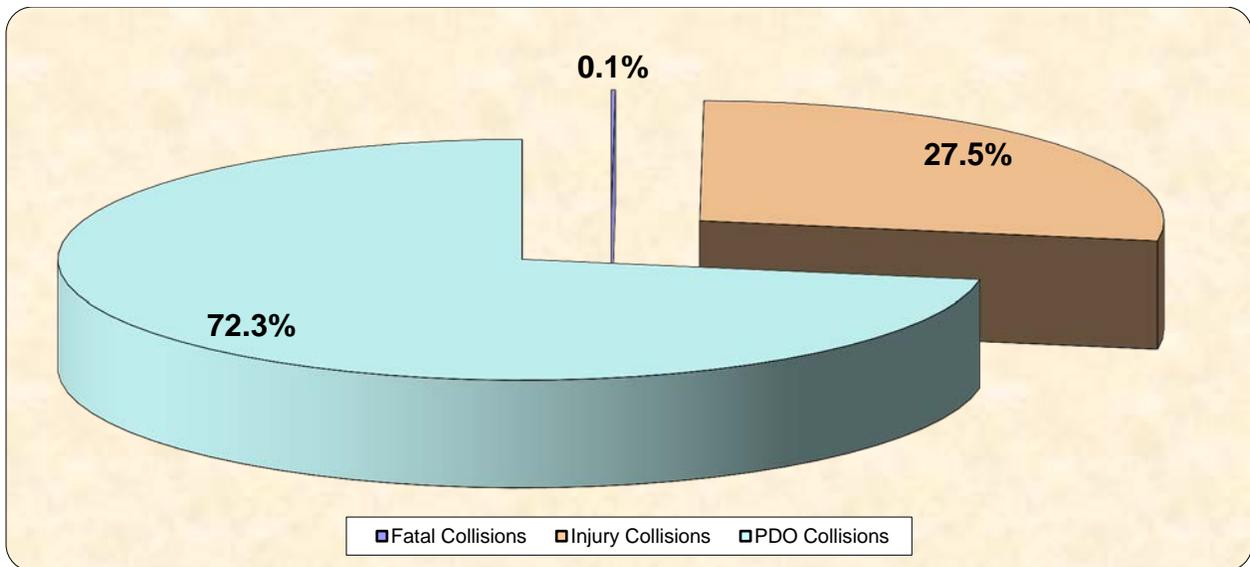


Figure 3.1: Crash Severity Types for 2013

3.2 DC Crashes Trend for 2001 through 2013

Figure 3.2 shows the trends in total crashes and those resulting in injuries by year from 2001 through 2013. The figure shows that there was an increase in crashes in 2013 compared to 2012.

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

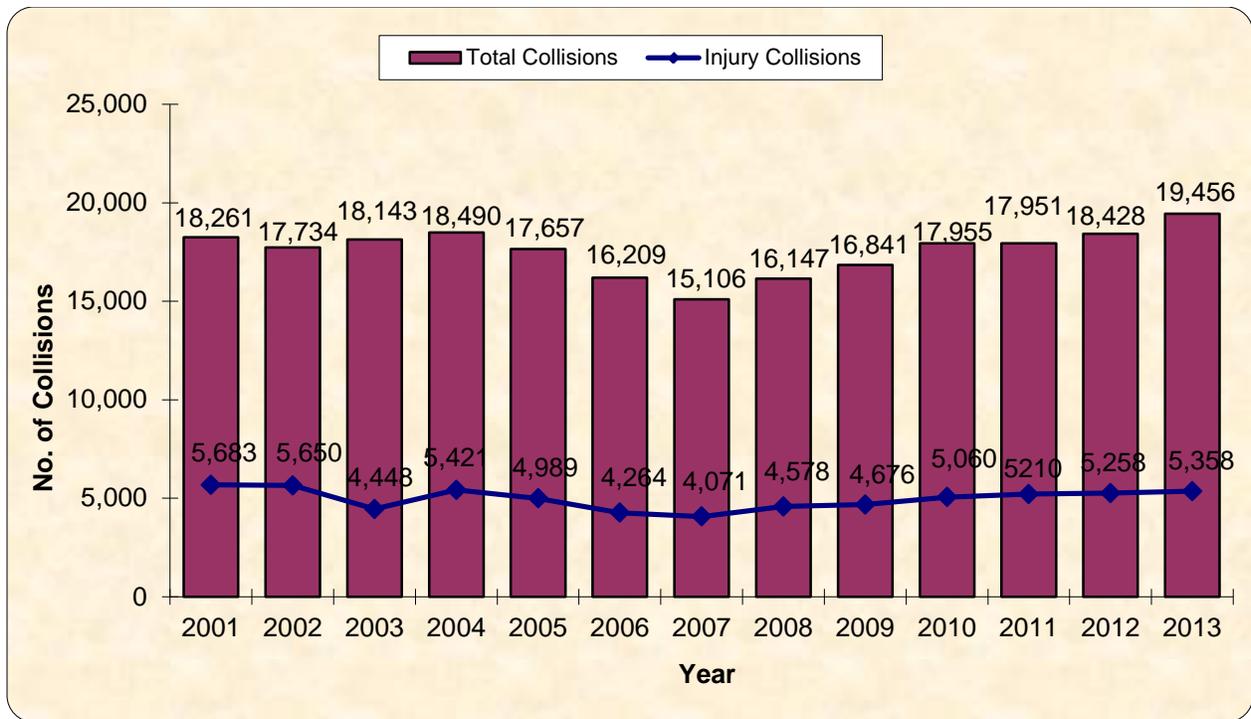


Figure 3.2: Traffic Crashes and Injury Crashes for 2001-2013

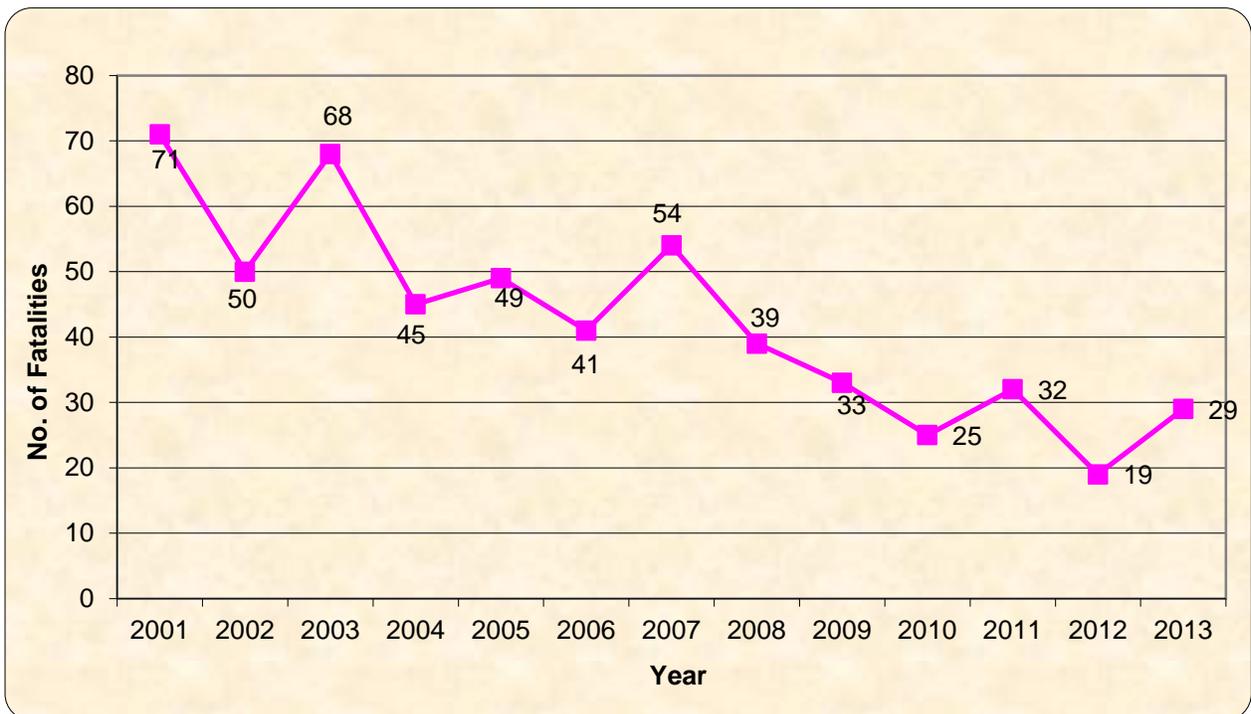


Figure 3.3: Number of Fatalities for 2001-2013

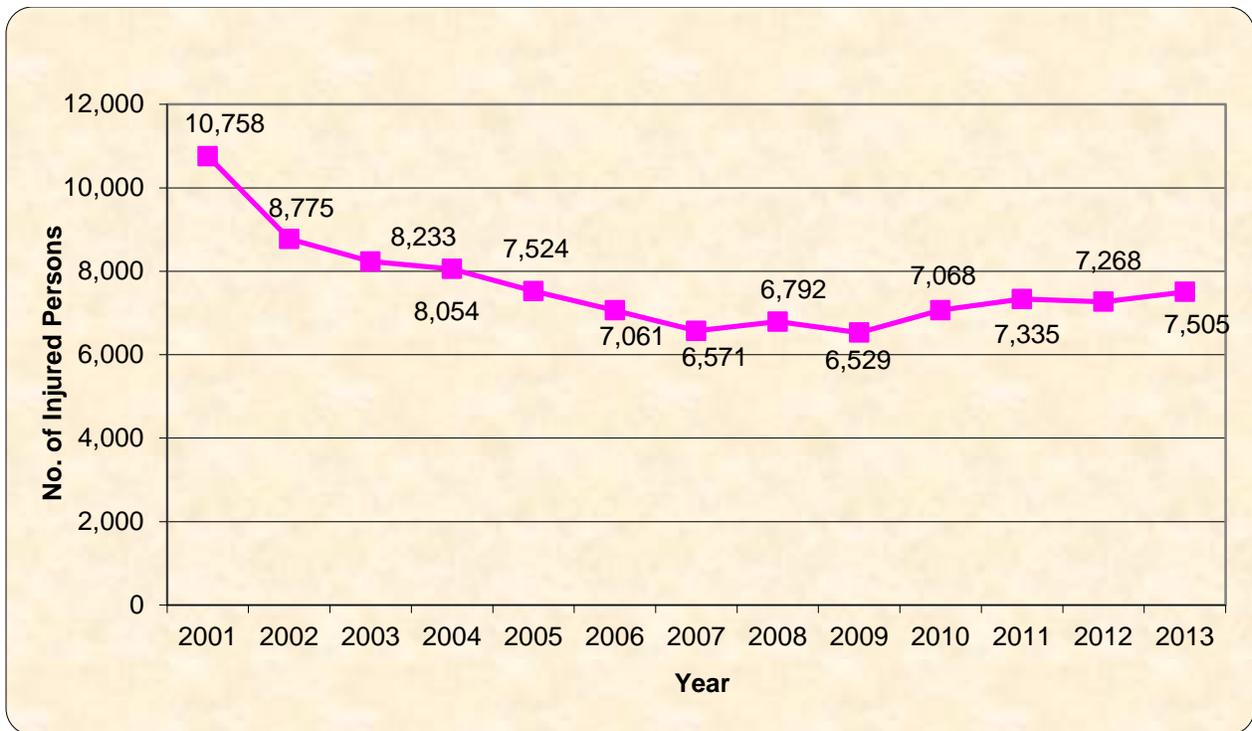


Figure 3.4: Number of Injured Persons for 2001-2013

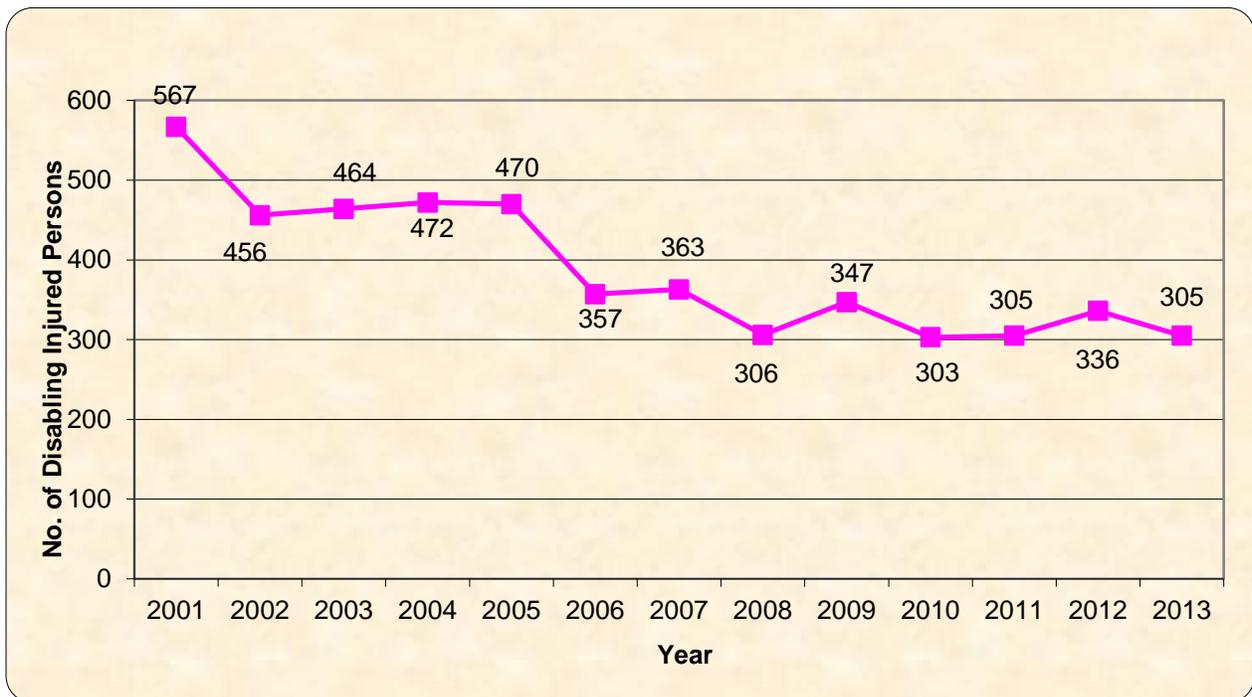


Figure 3.5: Number of Disabling Injuries for 2001-2013

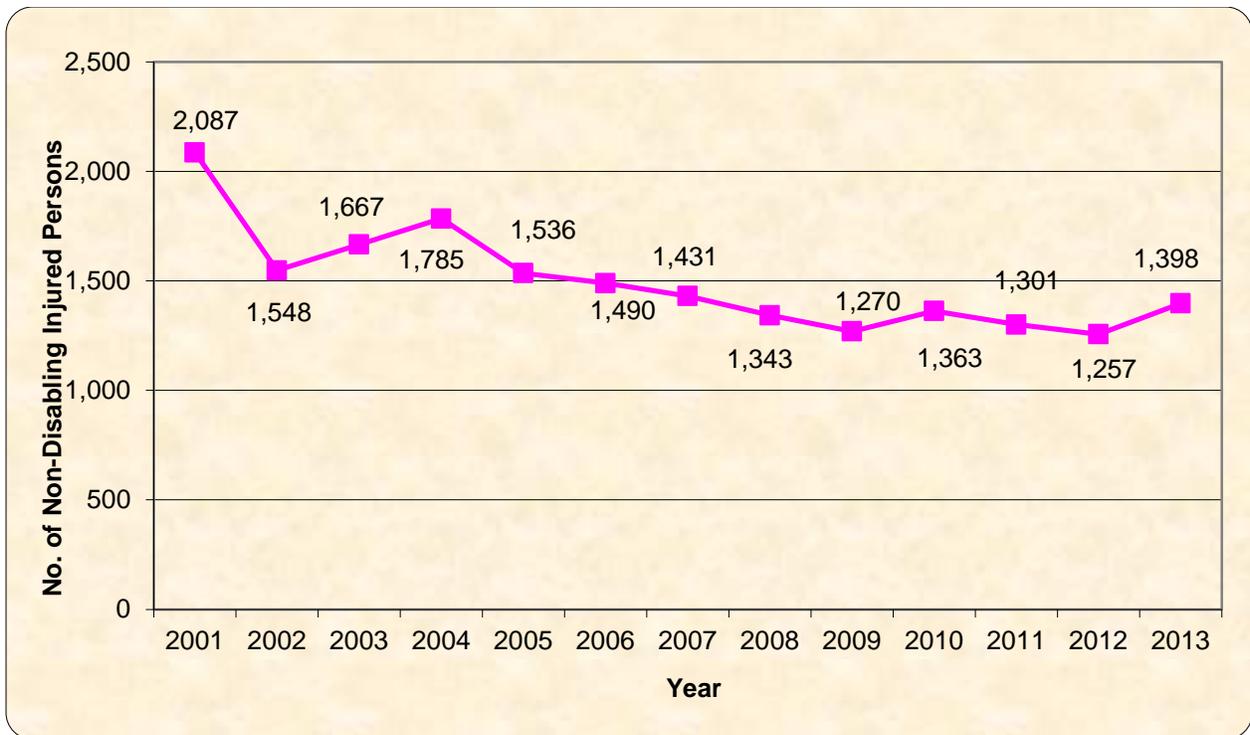


Figure 3.6: Number of Non-Disabling Injuries for 2001-2013

CHAPTER 4 – CRASH STATISTICS AND TRENDS

This chapter presents descriptive statistics for traffic crashes in the District of Columbia from 2011 to 2013. The characteristics used in this analysis include crash location, 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.
- *Alcohol/Drug Involvement*
- *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 2013. 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 reported injuries (578) occurring in hour 16 (4 P.M.). The total number of fatalities in 2013 recorded by the hour is presented in Figure 4.1. The maximum number of fatalities recorded by the hour was 4, which occurred in hours 10 (10 A.M.) and 14 (2 P.M.).

Table 4.1: Crashes by Hour of the Day for 2013

Hour	Collisions	Fatalities	Injuries
00	530	0	185
01	406	2	152
02	453	0	161
03	488	0	195
04	266	2	93
05	214	0	61
06	432	0	200
07	796	2	342
08	1,152	0	438
09	1,099	1	400
10	957	4	333
11	842	0	339
12	994	1	363
13	940	0	426
14	1,060	4	418
15	1,260	2	480
16	1,323	0	578
17	1,384	1	526
18	1,290	1	496
19	845	1	276
20	708	2	287
21	657	1	293
22	718	2	260
23	642	3	203
Total	19,456	29	7,505

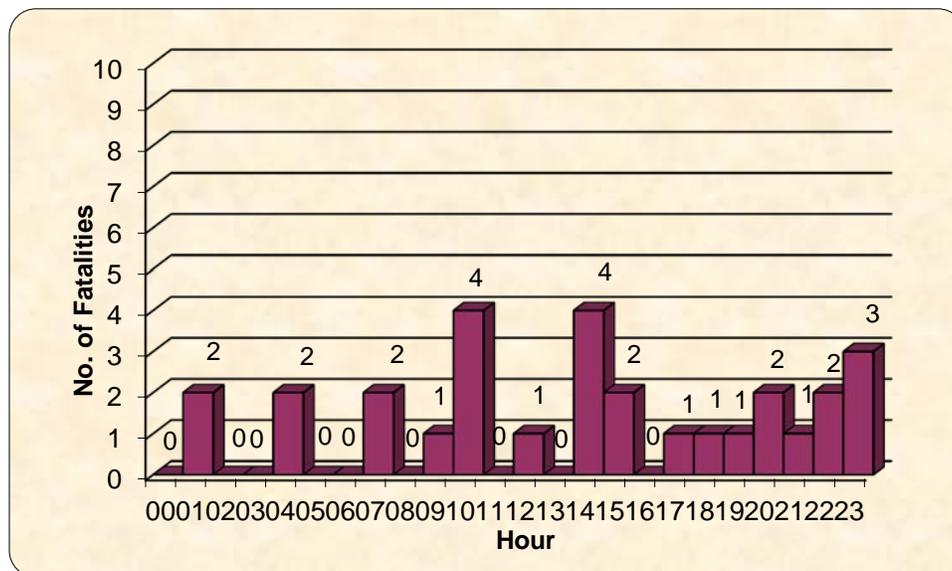


Figure 4.1: Total Fatalities by Hour for 2013

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 2013 was highest during hour 17 (5 P.M.) during weekdays and hour 3 (3 A.M.) during the weekends.

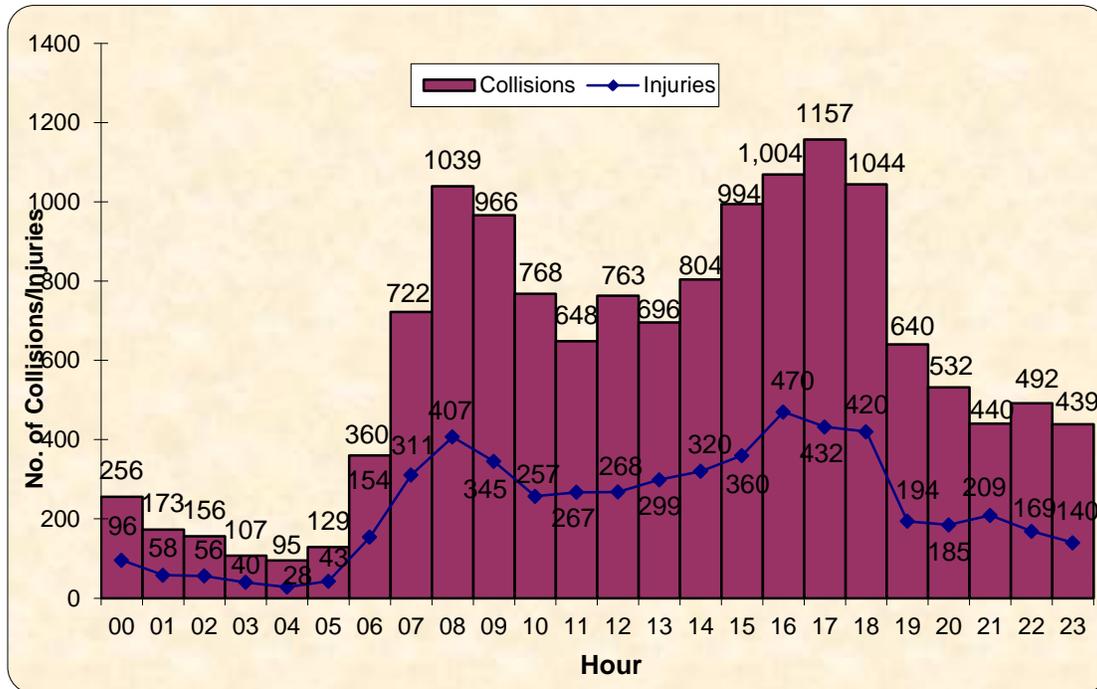


Figure 4.2: Crashes and Injuries by Hour of Day for Weekdays for 2013

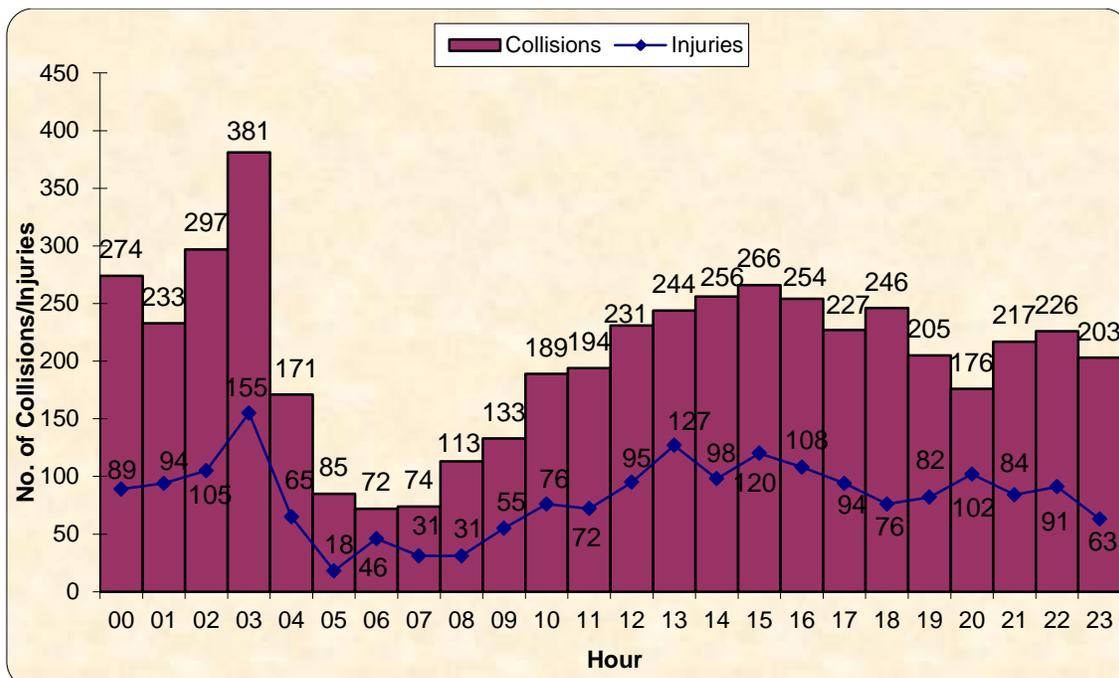


Figure 4.3: Crashes and Injuries by Hour of Day for Weekends for 2013

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 shown in Figure 4.4. From the table and figure, the highest total number of crashes occurred on Friday while the highest number of fatalities was observed on Thursday.

Table 4.2: Crashes by Day of the week for 2013

2013	Collisions	Fatalities	Injuries
Sunday	2,157	3	829
Monday	2,521	4	891
Tuesday	2,870	5	1,126
Wednesday	2,838	5	1,148
Thursday	2,905	6	1,076
Friday	3,355	4	1,287
Saturday	2,810	2	1,148
Total	19,456	29	7,505

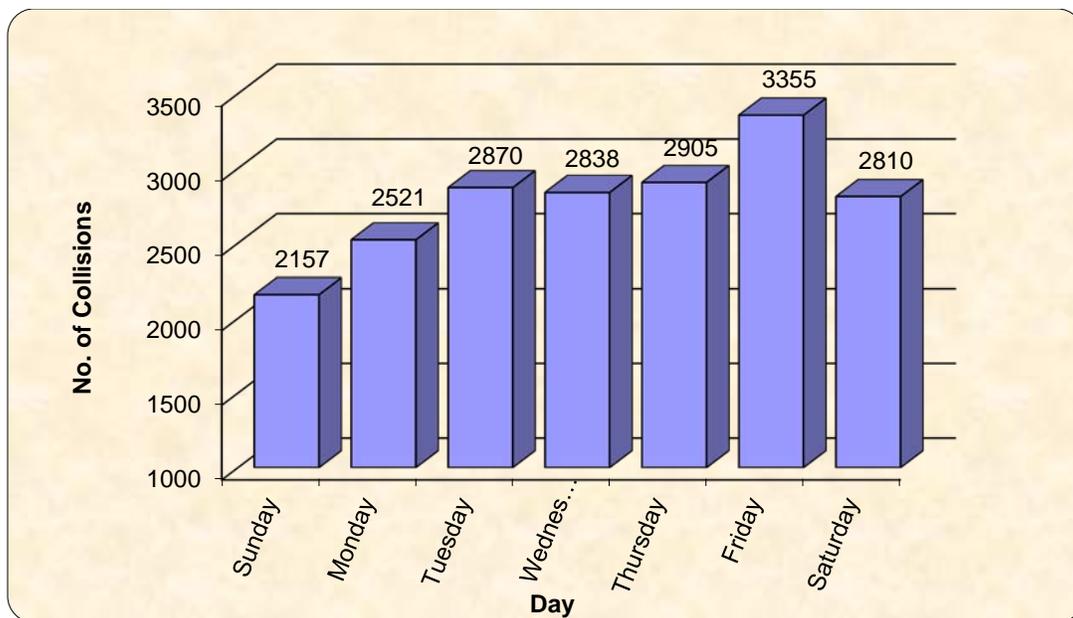


Figure 4.4: Crashes and Injuries by Day of Week for 2013

4.1.3 Traffic Crashes by Month

Table 4.3 and Figure 4.5 respectively show the overall vehicle crashes by month in 2013 and by month for 2011 through 2013. From the table, the highest number of crashes occurred in May while the lowest occurred in February. Overall, the total number of crashes varied from month to month.

Table 4.3: Crashes by Month for 2013

Month	Crashes	Fatalities	Injuries
January	1,496	2	536
February	1,317	3	502
March	1,581	3	603
April	1,767	3	761
May	1,860	6	671
June	1,698	2	718
July	1,739	3	649
August	1,522	1	619
September	1,674	0	668
October	1,710	1	688
November	1,572	3	547
December	1,520	2	543
Total	19,456	29	7,505

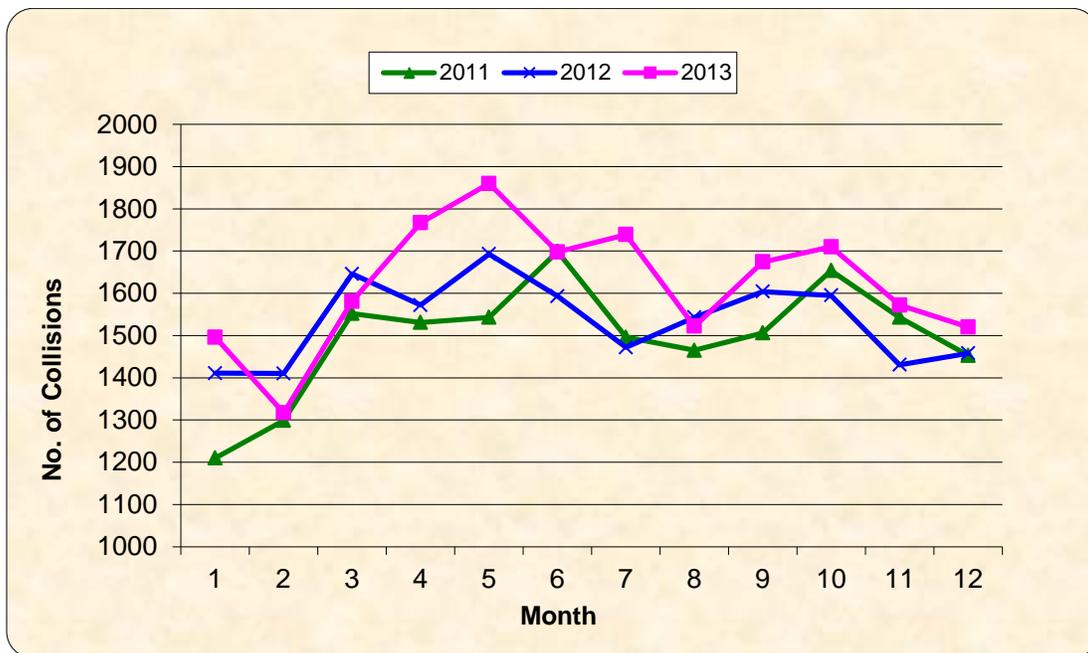


Figure 4.5: Total Crashes by Month for 2011-2013

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 from 2011 through 2013. Since the NW quadrant is the largest coverage area and thus has the highest mileage, most of the reported crashes occur in that quadrant. The GIS map for the crashes by quadrant is presented in Figure 4.7.

Table 4.4: Crashes by Quadrant for 2013

Quadrant	# of Collisions	Fatalities	Injuries
NW	9,612	9	2,984
NE	4,208	8	1,783
SE	3,345	6	1,590
SW	544	1	193
BR	1,257	4	658
Unknown	490	1	297
Total	19,456	29	7,505

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

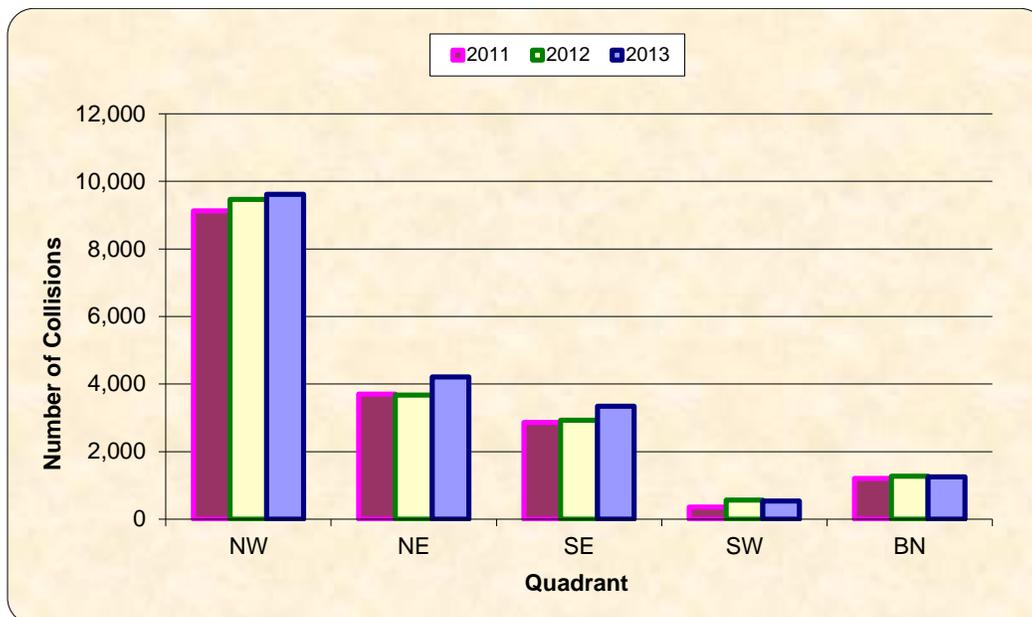


Figure 4.6: Total Crashes by Quadrant for 2011-2013

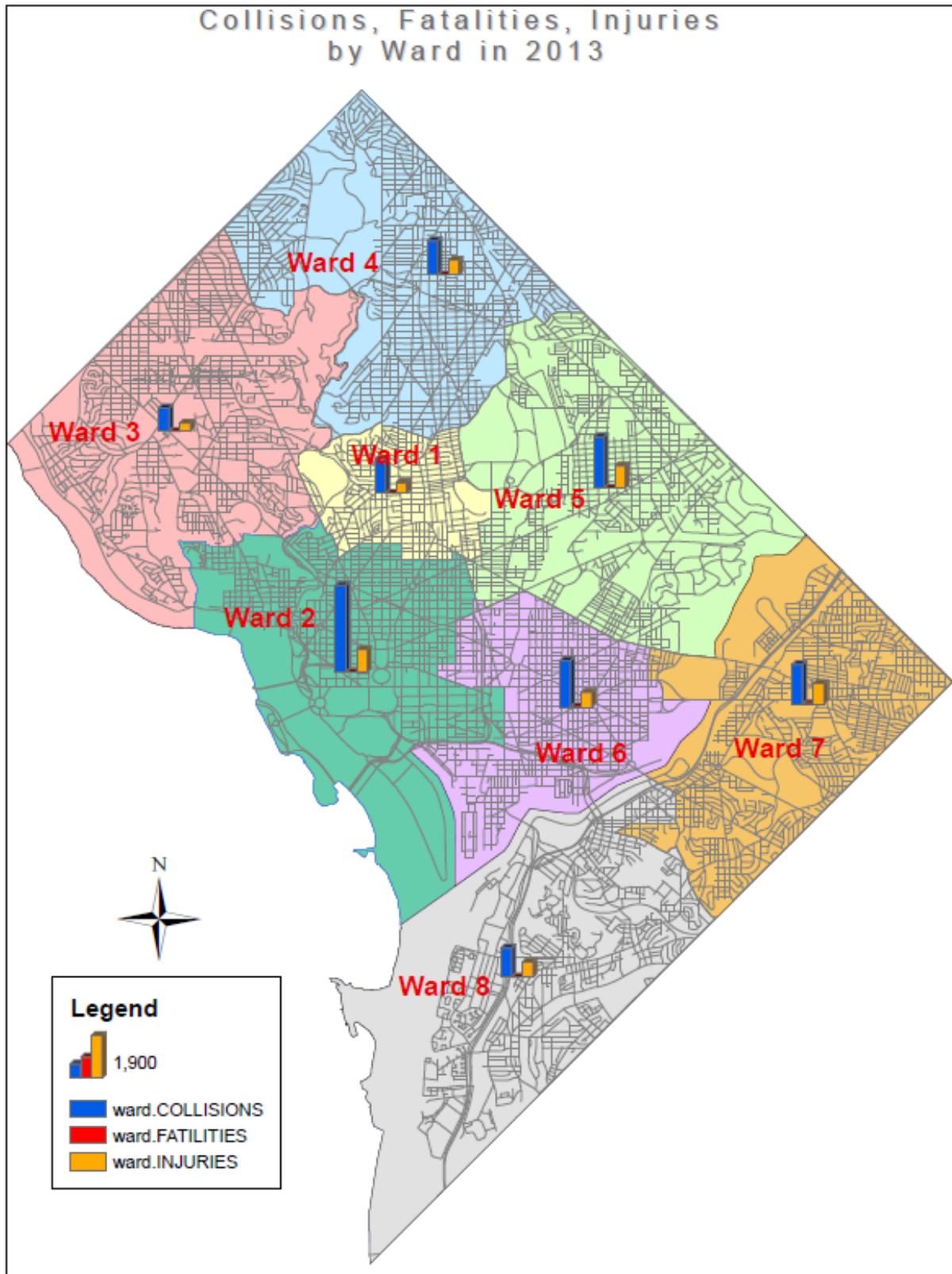


Figure 4.7: Crashes, Fatalities, Injuries by Wards for 2013

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 2011 through 2013. The highest frequency of crashes occurred in Wards 2 and 5. Approximately 42% of all traffic crashes in 2013 occurred in Wards 2, 5 and 6. Wards 2 and 5 experienced the highest frequencies of injury crashes as shown in Table 4.5. The summary also shows that, all the Wards recorded increases (between 1-3%) in the number if crashes from 2012 to 2013with the exception of Ward 3.

Table 4.5: Crashes by Ward from 2011-2013

Ward	2011			2012			2013		
	# of Crashes	Fatalities	Injuries	# of Crashes	Fatalities	Injuries	# of Crashes	Fatalities	Injuries
1	1,461	0	496	1,456	0	479	1,528	4	502
2	3,608	1	1,000	3,807	1	1,035	3,905	3	1,015
3	1,125	2	398	1,119	0	376	1,039	1	362
4	1,426	1	568	1,429	0	658	1,531	0	642
5	2,022	3	1,047	2,061	5	981	2,297	2	987
6	1,776	3	694	2,079	2	730	2,088	5	661
7	1,493	5	802	1,469	3	779	1,773	6	915
8	1,115	5	569	1,122	1	521	1,311	4	675
Border	1,561	2	671	1,655	3	693	1,612	1	587
Unknown	2,364	10	1,090	2,231	4	1,016	2,372	3	1,159
Total	17,951	32	7,335	18,428	19	7,268	19,456	29	7,505

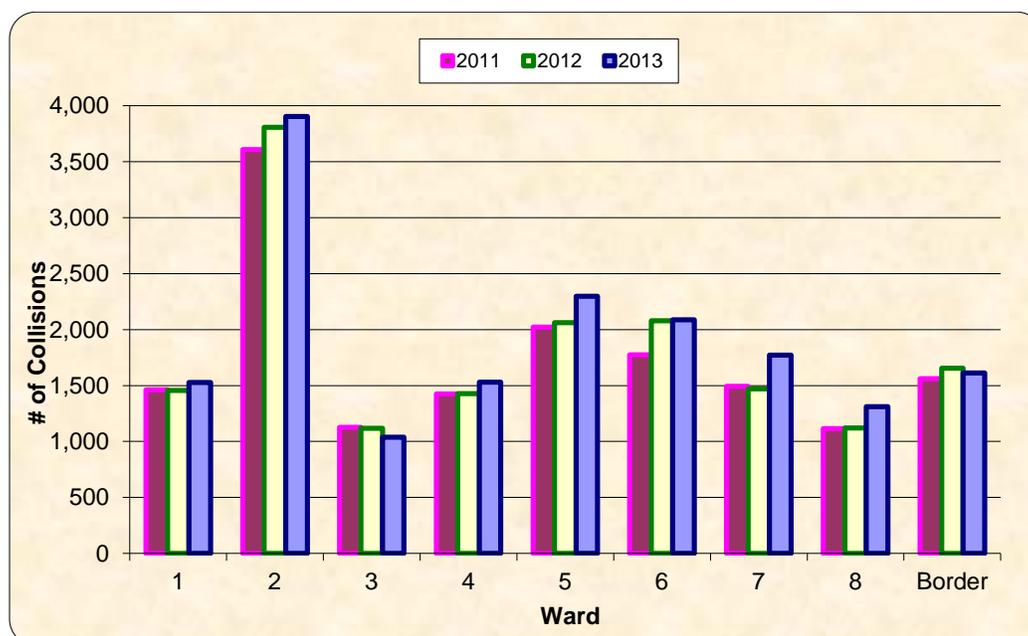


Figure 4.8: Total Crashes by Ward for 2011-2013

4.2.3 Crashes by Police Districts

The crash frequencies by Police Districts from 2011 through 2013 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 22%, during the three year period. There were modest increases in the crash frequencies in some of the Police Districts over the 3-year period. Also, Districts 1 and 2 recorded approximately 42% of the total crashes combined from 2011 through 2013. The GIS map for the crashes by Police District in 2013 is presented in Figure 4.10.

Table 4.6: Crashes by Police District for 2011-2013

Police District	2011			2012			2013		
	# of Crashes	Fatalities	Injuries	# of Crashes	Fatalities	Injuries	# of Crashes	Fatalities	Injuries
1	4,067	5	1,553	4,143	4	1,441	4,045	3	1,425
2	3,664	4	1,072	3,709	1	1,080	3,775	5	1,081
3	2,302	1	810	2,252	1	763	2,349	3	724
4	1,855	1	789	2,257	3	1,038	2,418	1	1,010
5	2,296	2	1,182	2,363	4	1,090	2,588	3	1,068
6	2,043	4	1,083	1,962	4	1,048	2,300	5	1,180
7	1,540	7	823	1,576	1	775	1,798	4	972
Un-known	184	0	23	166	1	33	183	5	45
Total	17,951	24	7,335	18,428	19	7,268	19,456	29	7,505

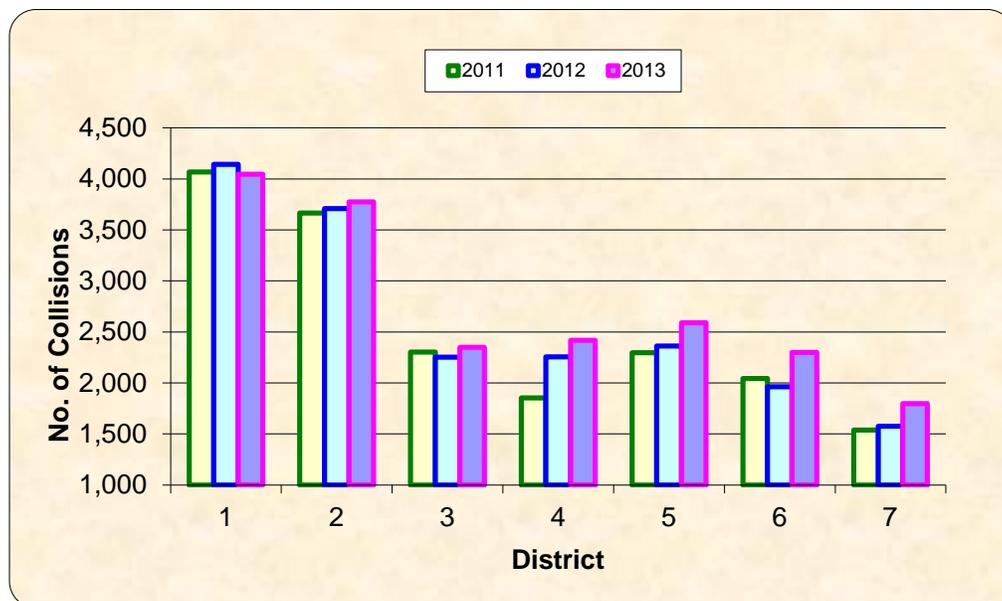


Figure 4.9: Total Crashes by Police District for 2011-2013

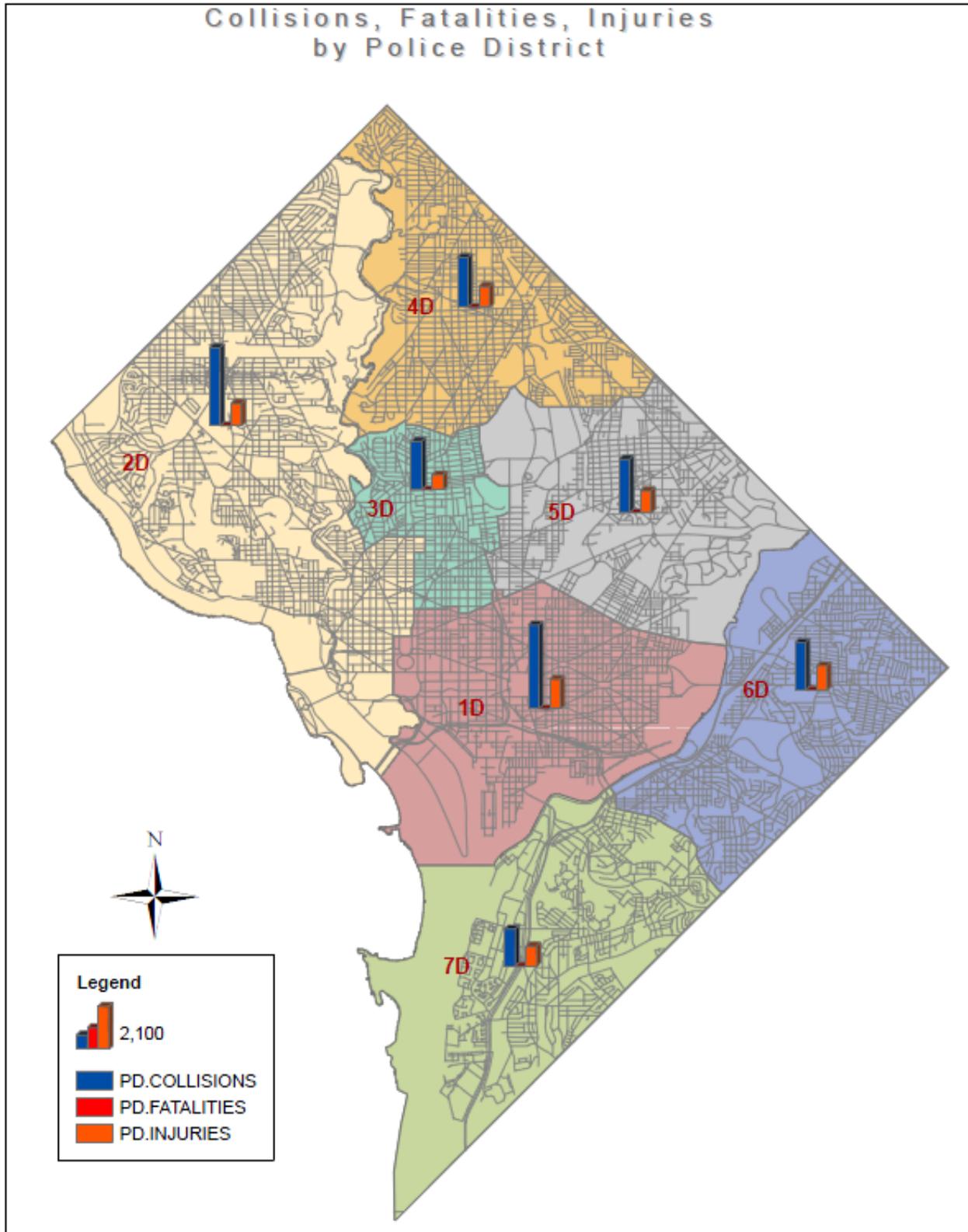


Figure 4.10: Crashes, Fatalities, Injuries by Police District for 2013

4.2.4 Crashes by Advisory Neighborhood Commissions (ANCs)

Washington DC is comprised of 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 2013

ANC	Description	Crashes	Fatalities	Injury
Unknown	Unknown	2,372	3	1159
1A	Columbia Heights, Pleasant Plains	439	1	152
1B	Cardozo, Howard University, LeDroit Park, Shaw	672	3	213
1C	Adams Morgan, Kalorama Heights, Lanier Heights, Western U Street	207	0	40
1D	Mount Pleasant	50	0	18
2A	Foggy Bottom, West End	570	1	135
2B	DuPont Circle	871	2	230
2C	Blagden Alley, Chinatown, Logan Circle, Mount Vernon Square, Shaw	441	0	120
2D	Kalorama, Sheridan	51	0	13
2E	Burleith, Georgetown, Hilandale	517	0	133
2F	Logan Circle	814	0	221
3B	Cathedral Heights, Glover Park	48	0	12
3C	Cathedral Heights, Cleveland Park, Massachusetts Heights, McLean Gardens, Woodley Park	327	1	114
3D	American University, Foxhall, Kent, The Palisades, Spring Valley, Wesley Heights	144	0	53
3E	American University Park, Friendship Heights, Tenleytown	149	0	47
3F	Forest Hills, North Cleveland Park, Tenleytown	180	0	52
3G	Chevy Chase	124	0	47
4A	Brightwood, Colonial Village, Crestwood, Shepherd Park, Sixteenth Street Heights	201	0	63
4B	Brightwood, Lamond-Riggs, Manor Park, Riggs Park, South Manor Park, Takoma	389	0	179
4C	Columbia Heights, Crestwood, Petworth, Sixteenth Street Heights	387	0	169
4D	Petworth	172	0	60
5A	Brookland, Fort Lincoln, Michigan Park, North Michigan Park, University Heights, Woodridge	498	1	261
5B	Arboretum, Brentwood, Brookland, Carver, Langdon, Langston, Ivy City, Trinidad	1,002	1	376
5C	Bloomingdale, Eckington, Edgewood	635	0	276
6A	North Lincoln Park, Rosedale, Stanton Park	314	0	126
6B	Barney Circle, Capitol Hill, Eastern Market	519	1	142
6C	Near Northeast, Penn Quarter, Union Station	832	2	269
6D	Carrollsborg, Fort McNair, Navy Yard, Near Southwest/Southeast, Waterfront	369	2	100
7A	Fort DuPont, Greenway, River Terrace	244	0	105
7B	Fairfax Village, Hillcrest, Penn Branch, Randle Highlands	259	0	127
7C	Burrville, Deanwood, Grant Park, Lincoln Heights	239	1	115
7D	Eastland Gardens, Kenilworth, Kingman Park, Mayfair	420	3	222
7E	Benning Heights, Capitol View, Fort Davis, Marshall Heights	226	0	158
8A	Anacostia, Fairlawn, Fort Stanton, Hillsdale	249	0	100

Table 4.7: Crashes by ANCs in 2013 (Cont'd)

ANC	Description	Crashes	Fatalities	Injury
8B	Garfield Heights, Knox Hill, Shipley Terrace	276	0	104
8C	Barry Farms, Bolling Air Force Base, Congress Heights, St. Elizabeth's Hospital	318	1	182
8D	Bellevue, Far Southwest	198	1	93
8E	Congress Heights, Valley Green, Washington Highlands	138	2	87
Border	Border between ANCs	3,595	3	1432
Total		19,456	29	7,505

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 2013. The border lines between the various ANCs recorded the highest crash frequencies. Presented in Figure 4.11 is a GIS map showing the crash frequency distributions by the ANCs in 2013.

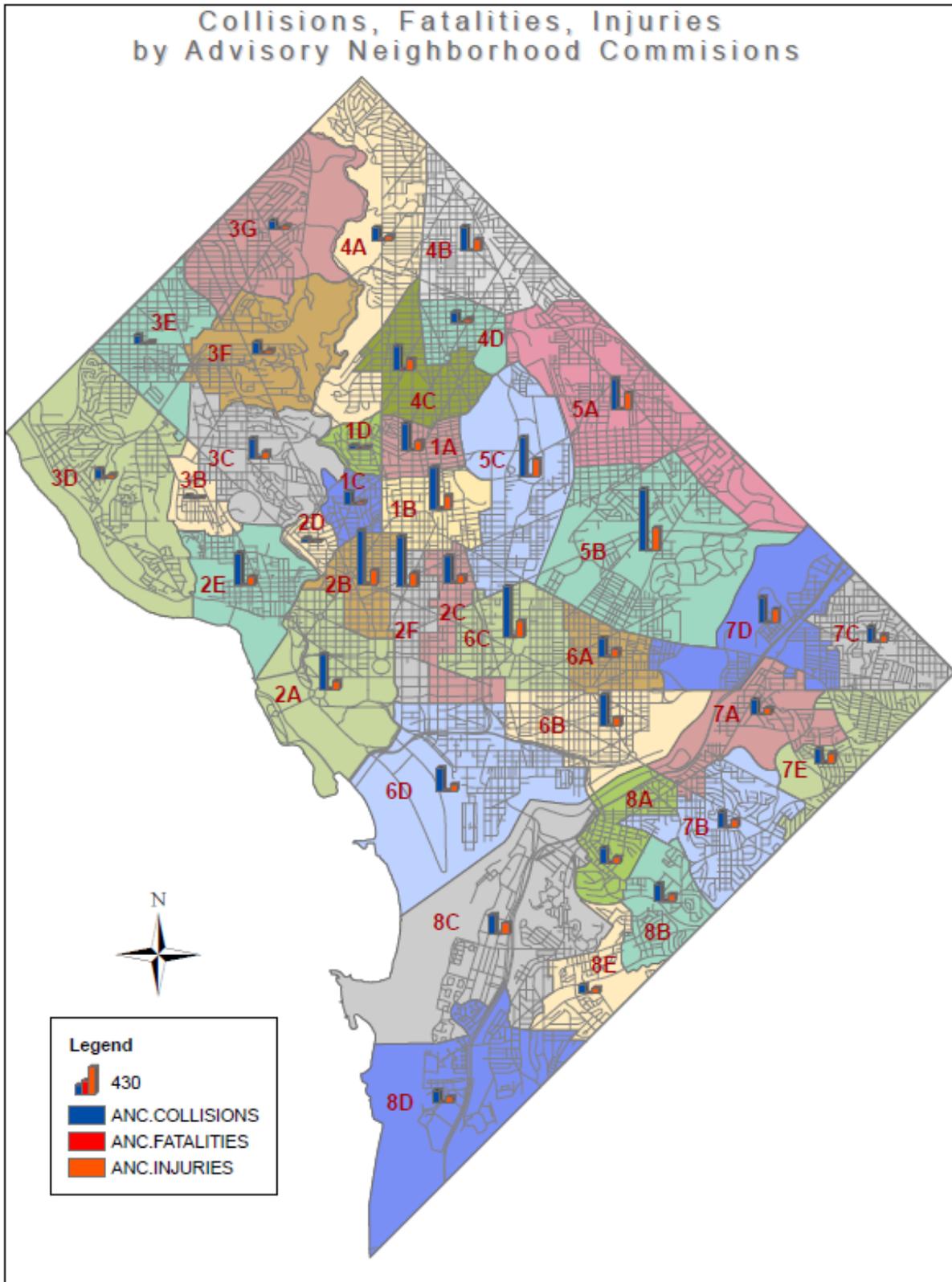


Figure 4.11: Crashes, Fatalities, Injuries by Advisory Neighborhood Commissions for 2013

4.2.5 Crashes by On-Street Location

In order to identify contributory factors of a crash, it is necessary to determine crashes that occur at intersections, within close proximity to intersections and elsewhere. The summary of the crashes by on-street location is presented in Table 4.8 and Figure 4.12. From the results, the majority of the crashes (6,745 or approximately 35% of the total crashes) occurred within 100 feet of intersections in 2013. This is followed by crashes that occurred at intersection, representing approximately 31% (5,933) of the total crashes.

Table 4.8: Crashes by On-Street Location for 2013

On Street	Total collisions	Fatal Collisions	Injury Collisions	PDO Collisions	Fatalities	Injuries
At Intersection	5,933	11	2,179	3,743	11	3,063
N/A	747	1	152	594	1	195
Not at Intersection	5,374	10	1,301	4,063	10	1,876
Other	262	0	86	176	0	128
Private Property	394	0	60	334	0	66
Within 100ft of Intersection	6,745	6	1,580	5,159	6	2,177
Unknown	1	1	0	0	1	0
Total	19,456	29	5,358	14,069	29	7,505

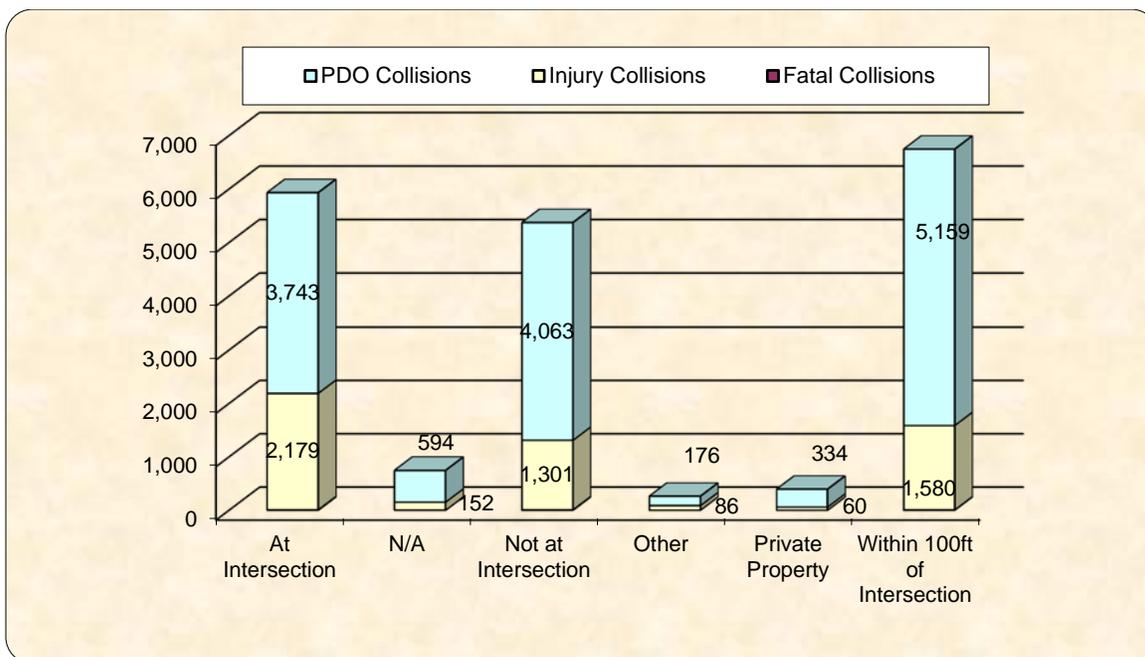


Figure 4.12: Crashes by On-Street Location for 2013

4.2.6 Crashes by Construction Zone

Safety in construction zones continues to be a high priority for traffic engineering professionals and highway agencies. Thus, there is the need to assess crashes in such zones in order to identify mitigation strategies to reduce them. Table 4.9 shows the 3-year summary of crashes recorded in construction zones while Table 4.10 compares crashes in construction zones with those in non-construction zones in 2013. From Table 4.9, there has been a steady decline in the frequency of crashes in construction zones from 2011 to 2013. In Table 4.10, there were a total of 720 crashes (3.7% of the total crashes) which occurred in construction zones resulting in 238 injuries in 2013.

Table 4.9: Crashes in Construction Zones for 2010-2013

Year	2010	2011	2012	2013
Number of Collisions in Construction Zone	833	854	715	720
Percentage of Collisions in Construction Zone	4.64%	4.76%	3.88%	3.70%

Table 4.10: Crash Details in Construction Zones in 2013

Construction Zone	Total Collisions	Fatal Collisions	Injury Collisions	PDO Collisions	Fatalities	Injuries
Construction Zone	720	2	178	540	2	238
Not In Construction Zone	18,736	27	5,180	13,529	27	7,267
Total	19,456	29	5,358	14,069	29	7,505

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 4.13 presents the summary of crashes recorded in the DC in 2013 by crash severity. The classifications are: fatalities, injury and PDOs.

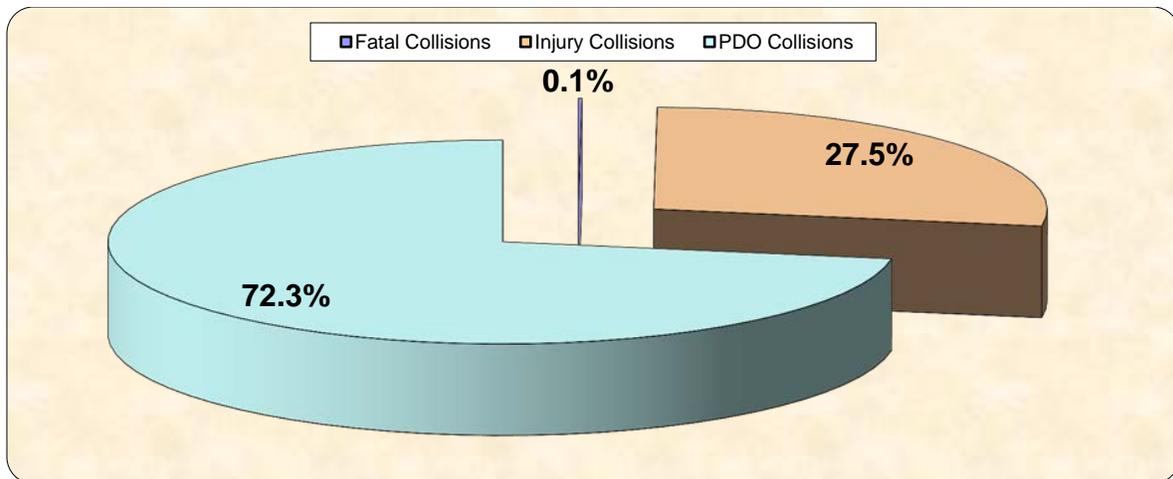


Figure 4.13: Crashes Severity Type in 2013

From Figure 4.13, the most crash severity type recorded in 2013 was Property Damage Only (PDO), which represented approximately 72% of all crashes in 2013. Crashes resulting in injury represented approximately 29% of the crashes recorded while fatalities were 0.1% of the total crashes.

4.3.2 Crash Type

Presented in Table 4.11 is the summary of the total number of crashes distributed by crash type in 2013. Crash frequencies of all the types from 2011 to 2013 are presented in Figure 4.14. From the figure, side swipe, rear end, right-angle, and left-turn hitting vehicle crashes were the most common crashes during the 3-year period. Together, they accounted for approximately 66% of the total crashes in 2013. Approximately 29% of the crashes were side swipe crashes, 23% rear-end crashes, and 7% each for right angle and left turn crashes.

Table 4.11: Summary of Crashes by Type in 2013

Type of Crash	Total Crashes	Fatal Crashes	Injury Crashes	PDO Crashes	Fatalities	Injuries
Backing Hit Moving Veh.	327	0	40	287	0	59
Backing Hit Parked Veh.	573	0	25	548	0	33
Backing Hit Ped.	66	0	59	7	0	61
Fixed Object	806	5	220	581	5	294
Head On	486	0	223	263	0	354
Left Turn Hit Ped.	250	0	225	25	0	239
Left Turn Hit Veh.	1,342	1	404	937	1	592
Non-Collision Accident	94	1	55	38	1	61
Other	676	1	227	448	1	331
Override	18	0	6	12	0	11
Parked Vehicle	1,176	1	100	1,075	1	118
Ran Off Roadway	213	3	90	120	3	122
Rear End	4,488	1	1,659	2,828	1	2,522
Right Angle	1,387	2	550	835	2	848
Right Turn Hit Ped.	105	3	89	13	3	90
Right Turn Hit Veh.	710	0	114	596	0	180
Side Swiped	5,577	1	580	4,996	1	821
Straight Hit Ped.	420	9	374	37	9	400
Underride	8	0	2	6	0	2
Unknown	734	1	316	417	1	367
Total	19,456	29	5,358	14,069	29	7,505

Key: Ped. = Pedestrian; Veh. = Vehicle

4.3.3 Hit-and-Run Crashes

The summary of reported hit-and-run crashes is presented in Figure 4.15. The number of hit and run crashes from 2011 to 2013 showed a 1.2% increase in 2013 from 2012. The percentage of hit and run crashes from 2011 to 2013 shows an increase of nearly 2.7%. Figure 4.16 shows the resulting severity of hit and run crashes in 2013. There were 4 fatalities as a result of hit-and-run crashes in 2013.

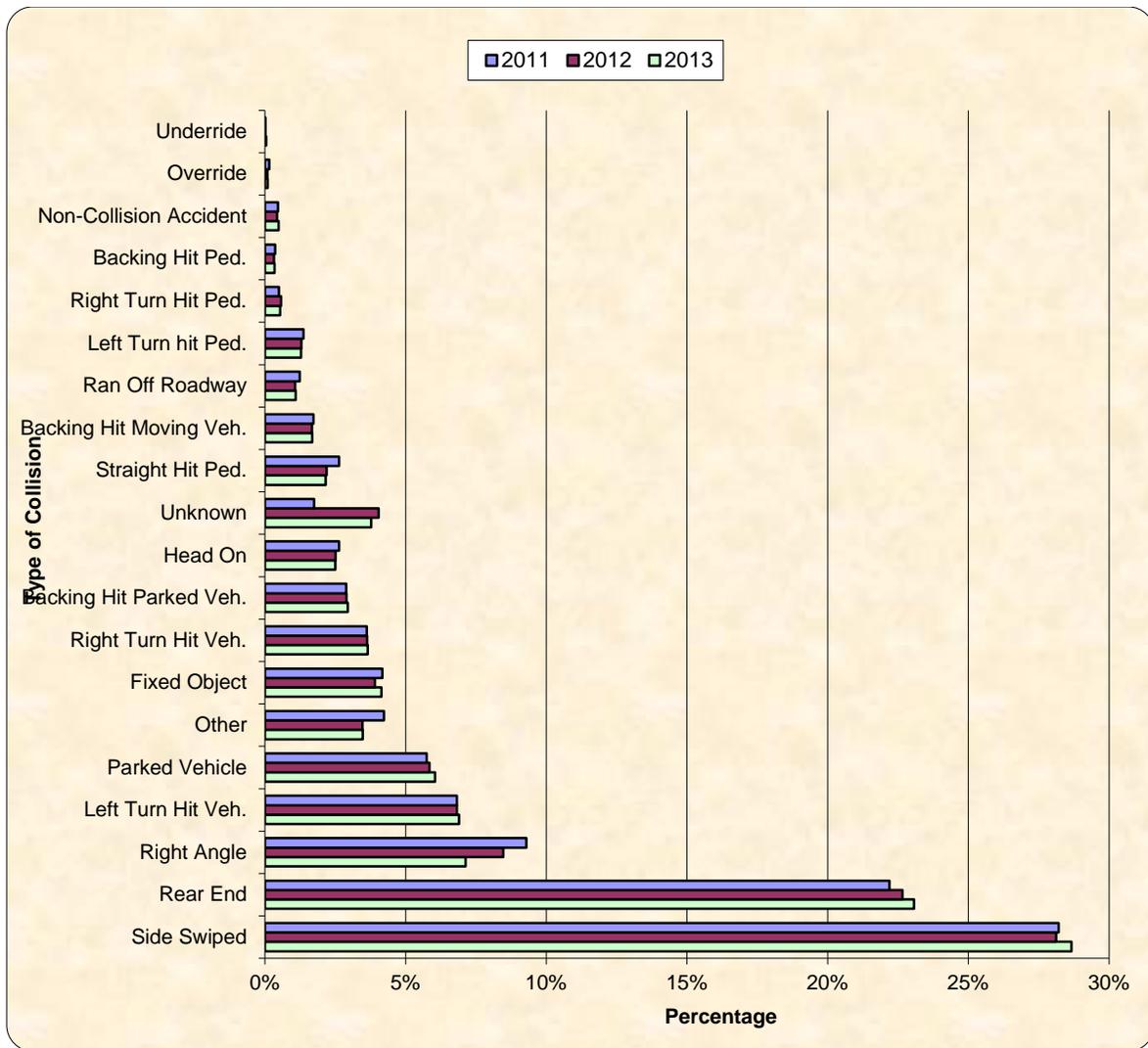


Figure 4.14: Crashes by Type in 2011-2013

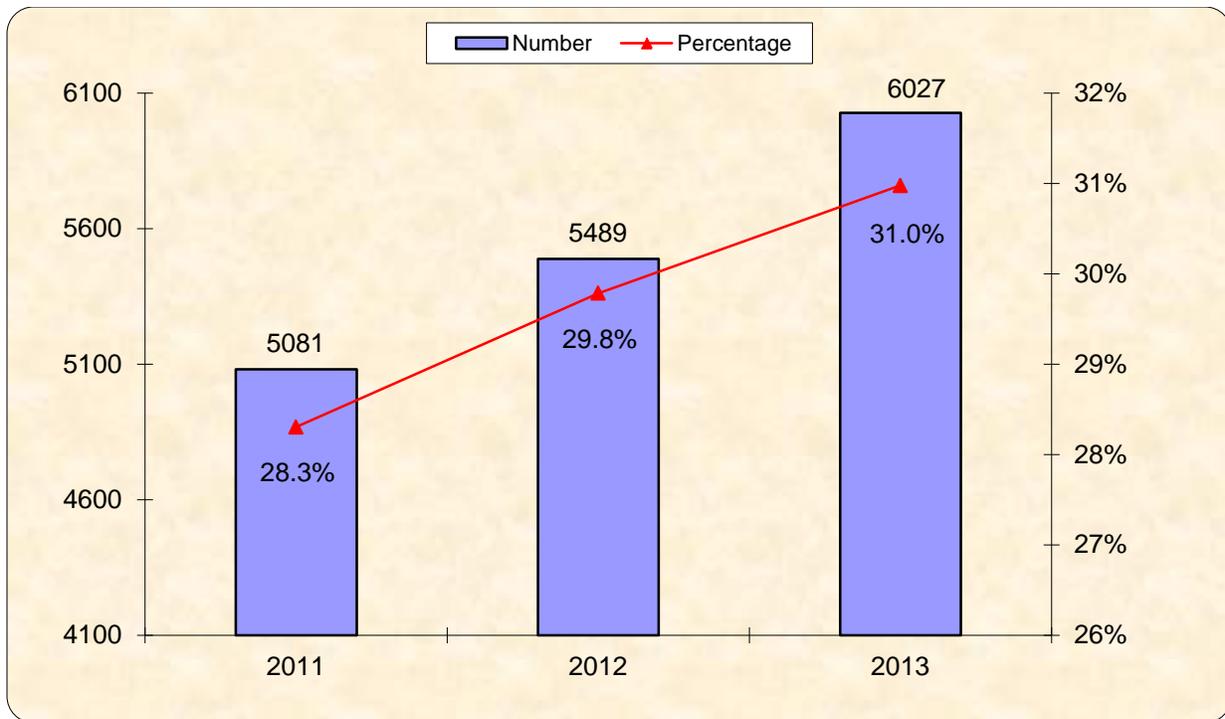


Figure 4.15: Hit and Run Crashes in 2013

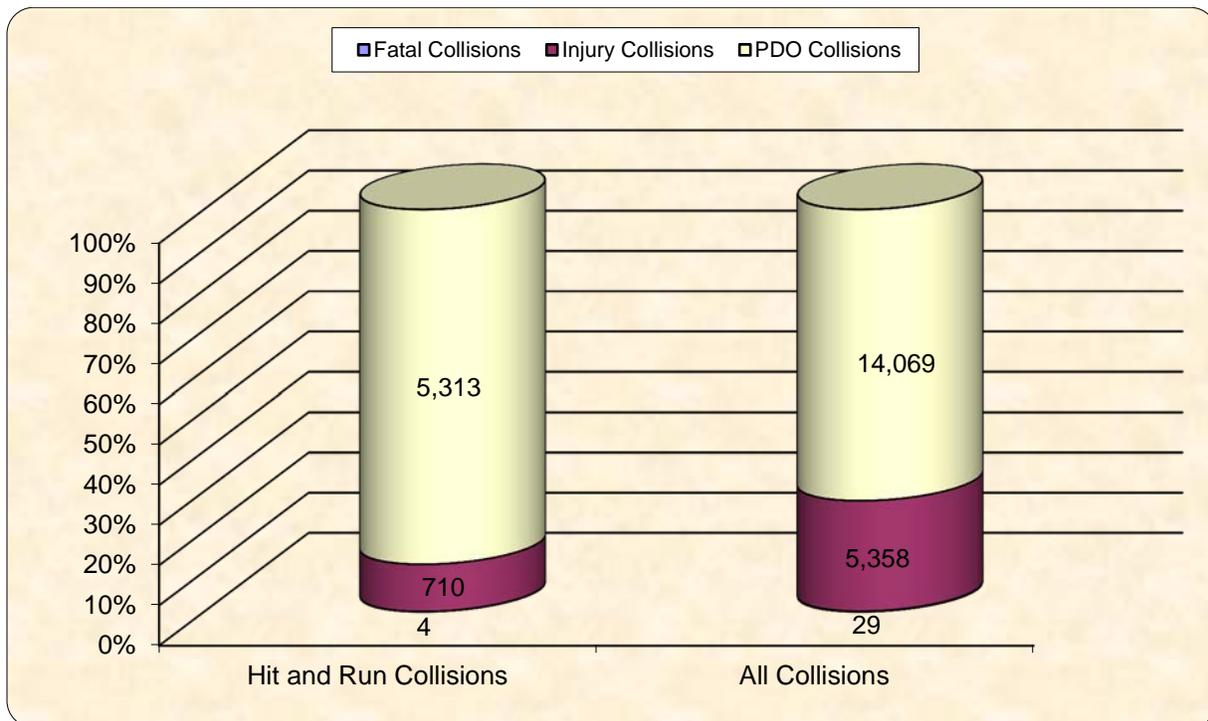


Figure 4.16: Severity of Hit and Run Crashes in 2013

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 2013 is presented in Table 4.12.

Table 4.12: Summary of Crash in 2013 by Vehicle Classification

Vehicle Involved	Crashes	Fatalities	Injuries
Passenger Auto	26,966	30	11,875
Bus	2,164	2	533
Taxi Cab	1,985	0	484
Motorcycle	243	3	163
Bicycle	618	2	511
Truck/Trailer	2,483	7	704

From the table, passenger automobiles were the most involved in crashes followed by trucks and/or trailers. Crashes which resulted in fatalities and injuries were predominantly those involved with passenger cars as well. Overall, crashes involving bicycles and motorcycles represented approximately 2.4% of the total number of crashes in 2013. Presented in Figures 4.17 through 4.19 are the 3-year crash trends by vehicle type and outcomes (injuries and fatalities).

Overall, the trend in reported crashes involving trucks and buses showed a modest increase from 2011 to 2013, while a decrease in crashes involving taxicabs was reported for the same period. Fatalities involving bicycles and trucks/trailers increased from 2012 to 2013 while there was an overall decline in injuries over the same period involving those vehicle classifications.

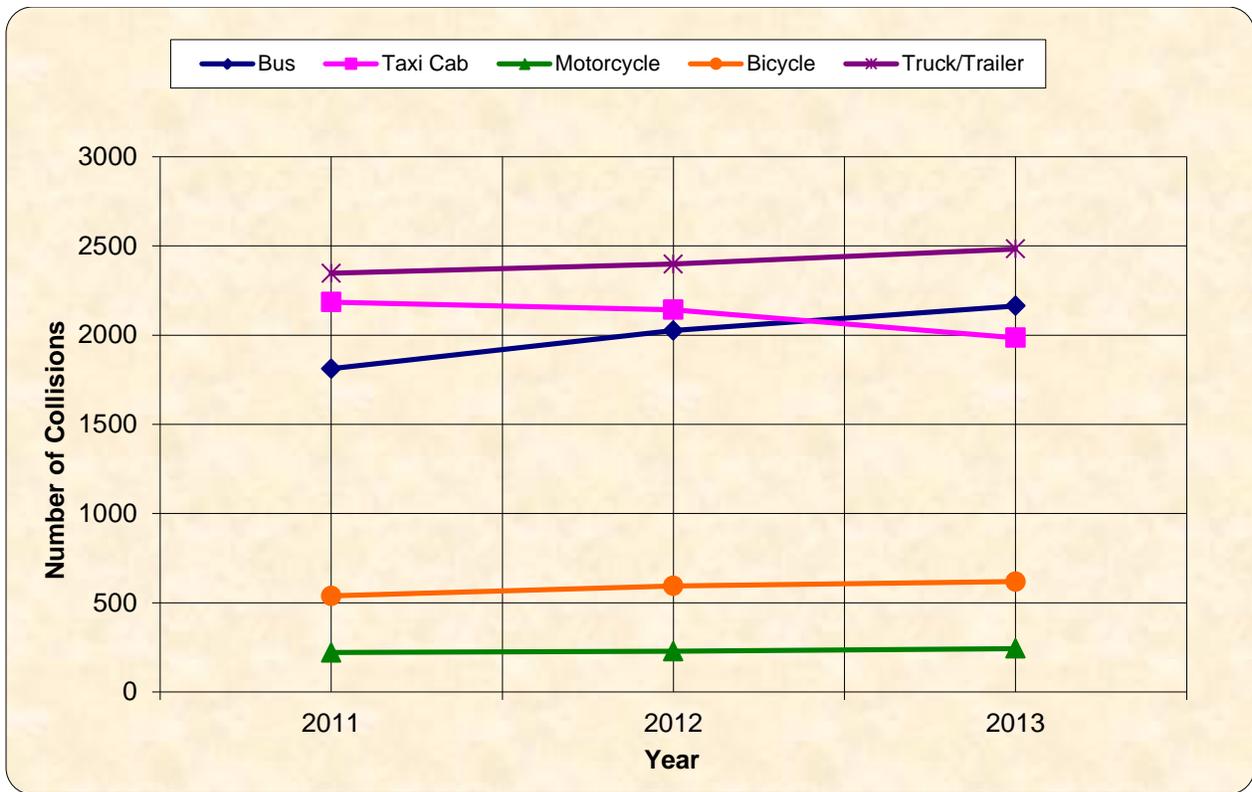


Figure 4.17: Three-year Trend of Crashes by Vehicle Type

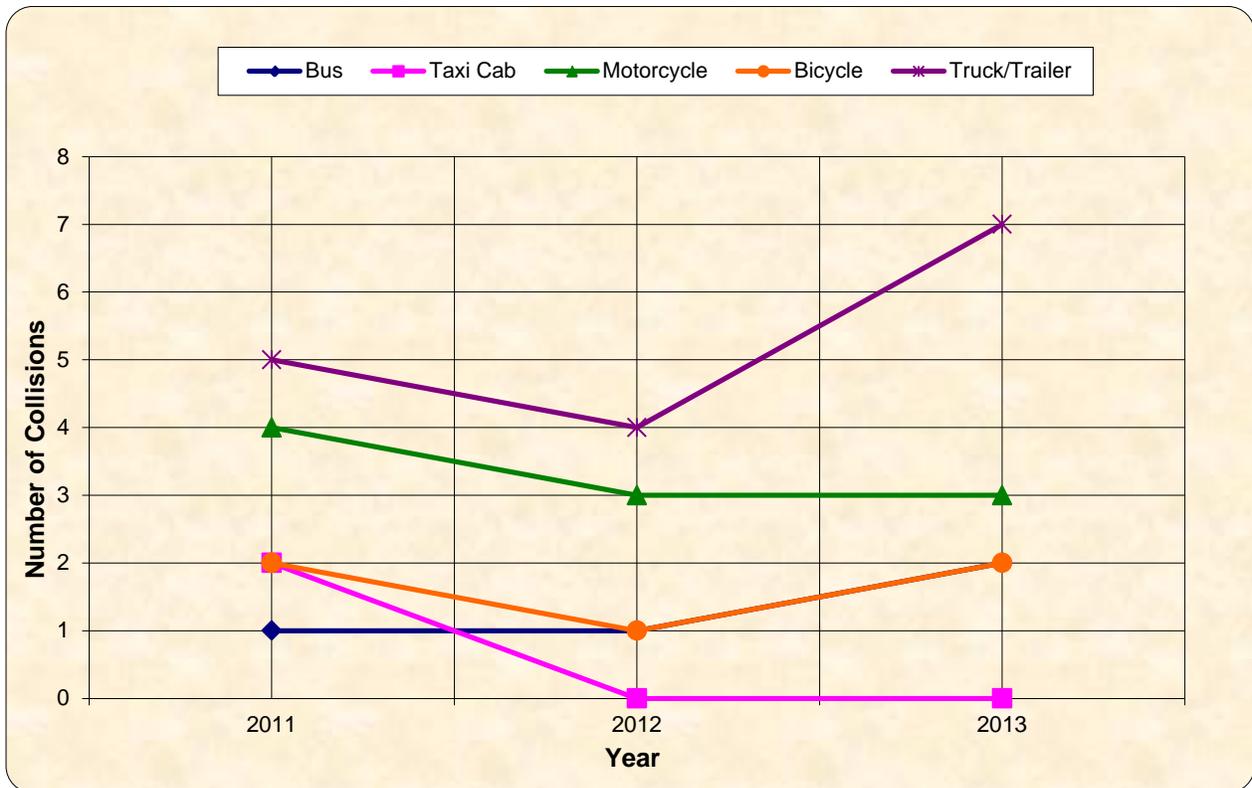


Figure 4.18: Three-year Trend of Fatalities by Vehicle Type

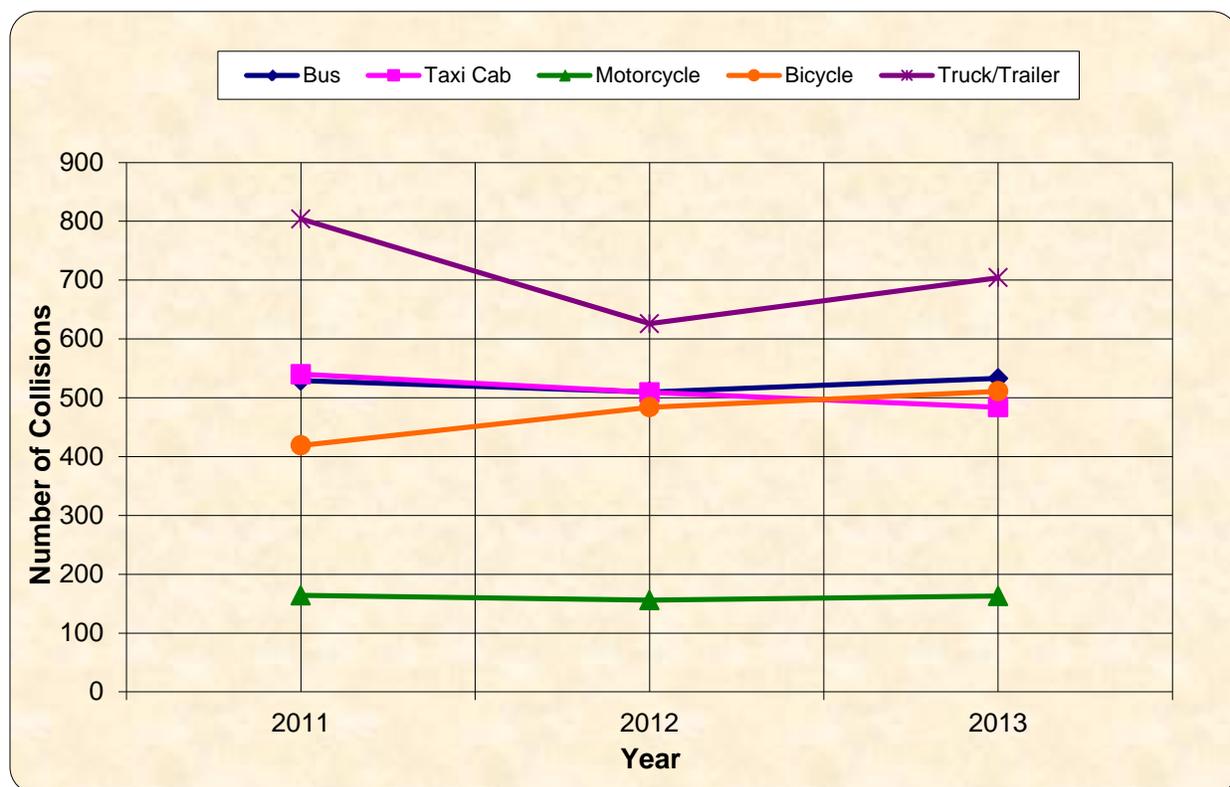


Figure 4.19: Three-year Trend of Injuries by Vehicle Type

4.3.5 Crashes involving Pedestrians

Since approximately 49% of workers in the District either commute by public transportation or walk to work, it is necessary to understand the causes and severity of crashes involving pedestrians. Presented in Figure 4.20 is pedestrian-involved crashes at intersections in 2013. In addition, Figures 4.21 through 4.23 present the summaries of crashes involving pedestrians from 2011 through 2013 classified by age and gender. From the figures, there was an increase in the total number of pedestrian crashes in 2013 compared with those in 2011 and 2012. In addition, the distribution also shows that pedestrians in the age group of 21-30 were the most involved in crashes. Comparing crashes in 2012 to 2013, there was a decrease in crashes involving males and an increase in crashes involving female pedestrians. Presented in Table 4.13 is a summary of injury codes reported by pedestrians in 2013 after being involved in a crash. Approximately 44% of the 955 pedestrians complained but did not have any visible injuries.

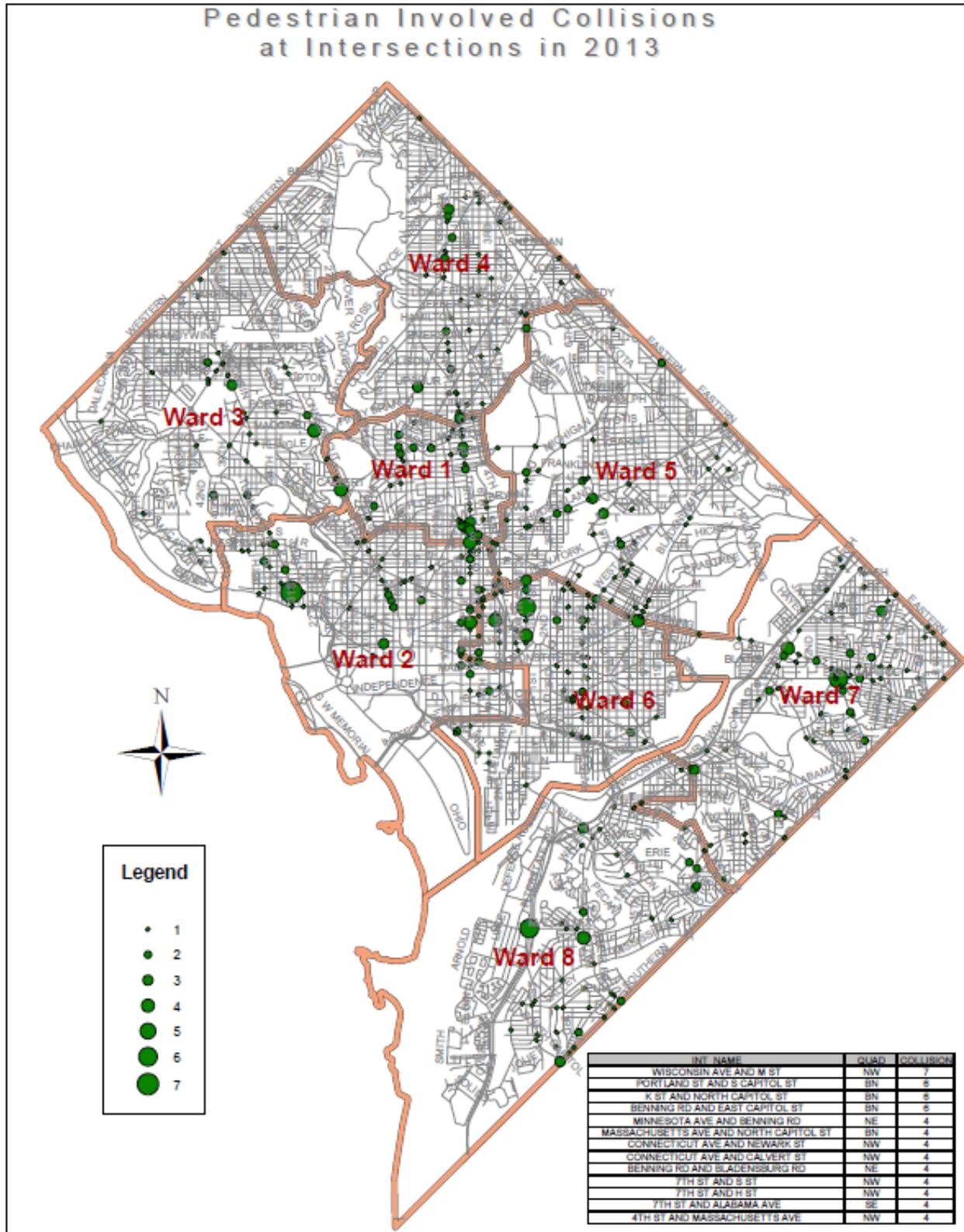


Figure 4.20: Pedestrian Involved Crashes at Intersections in 2013

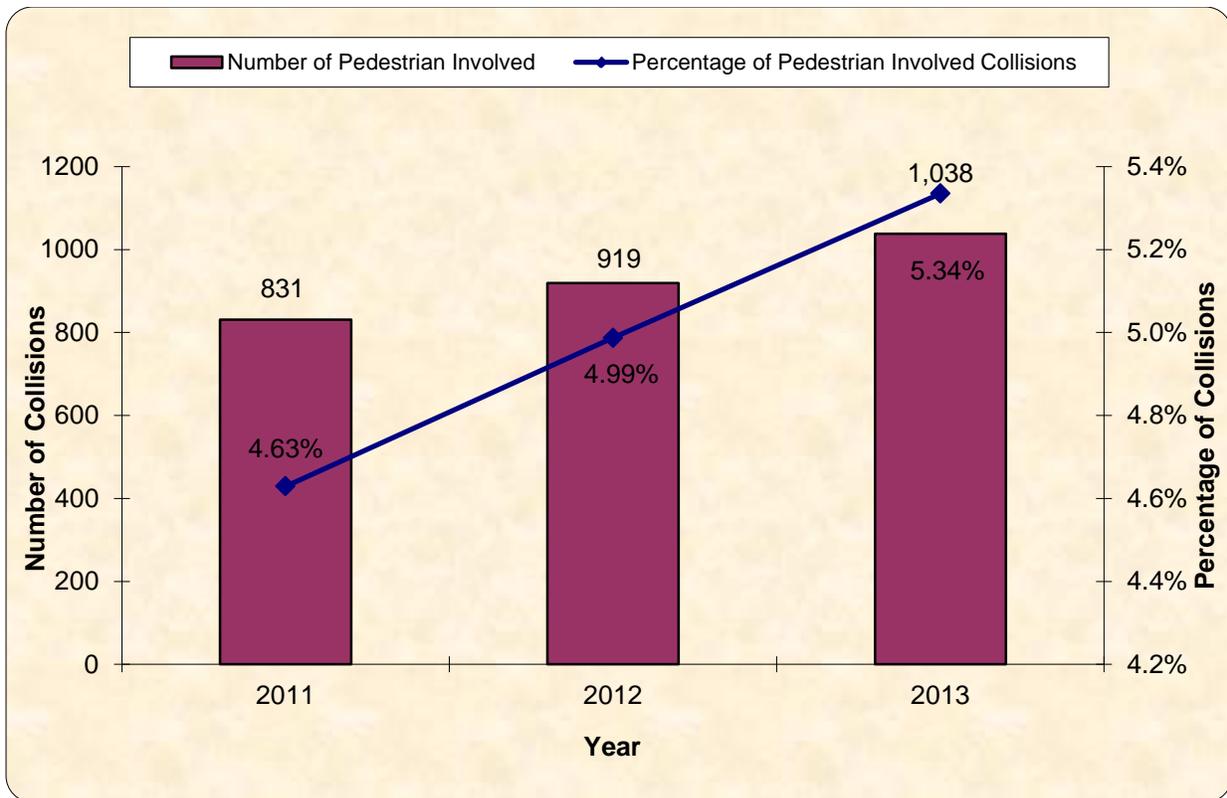


Figure 4.21: Three-year Trend of Crashes involving Pedestrians

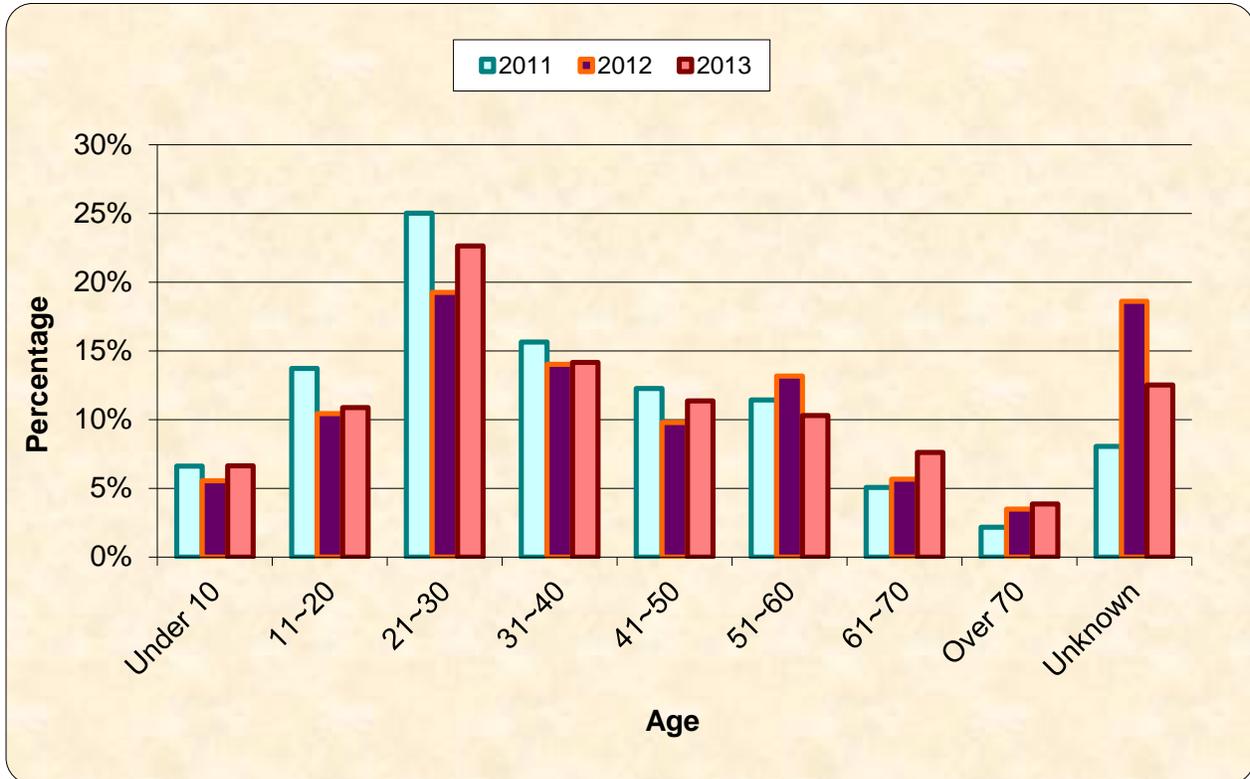


Figure 4.22: Three-year Trend of Crashes involving Pedestrians by Age

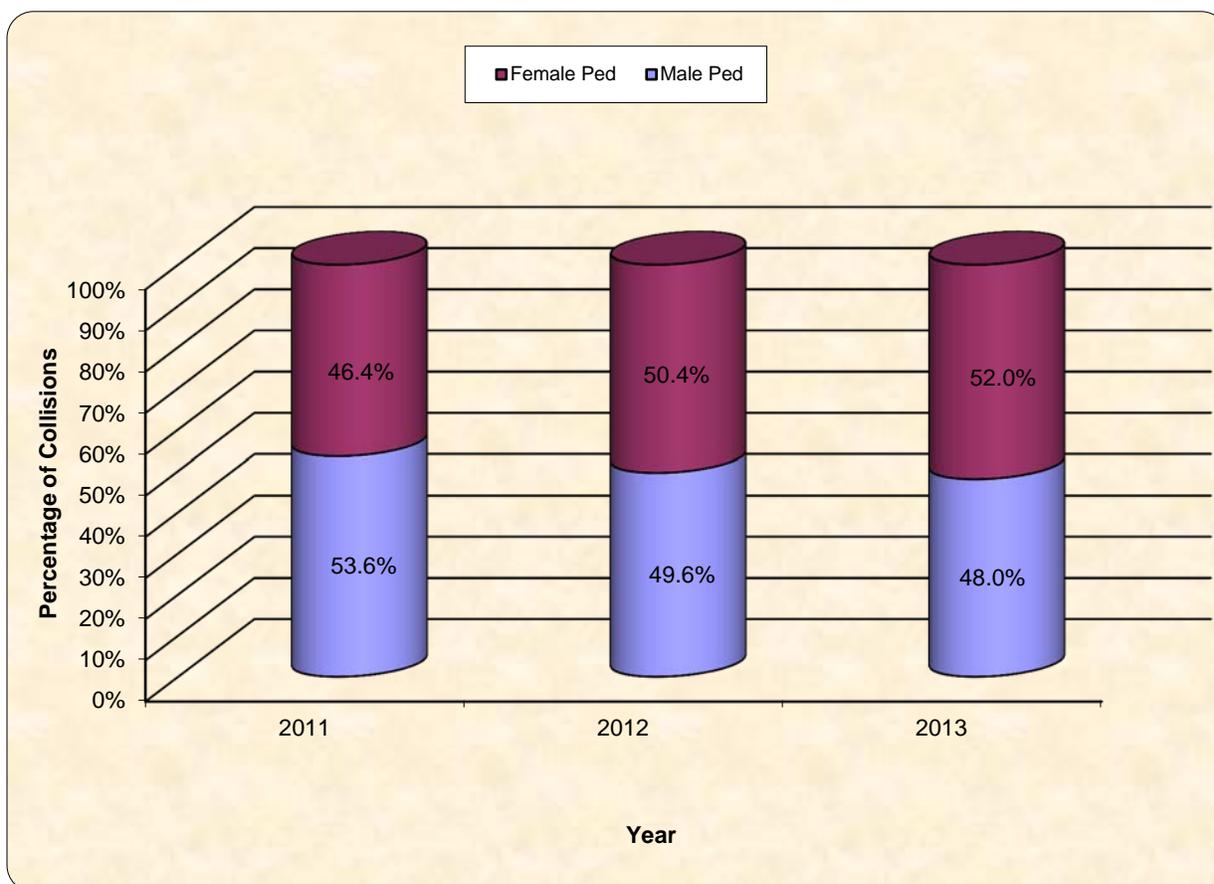


Figure 4.23: Three-year Trend of Crashes involving Pedestrians by Gender

Table 4.13: Pedestrian Involved Crashes by Injury Type in 2013

Injury Code	Frequency
Complaint but not visible	420
Disabling	74
Fatalities	12
Non-Disabling	239
No Injury	129
Unknown	23
Other	58
Total	955

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 4.24 through 4.27 present the summaries of crashes involving bicyclists from 2011 through 2013 in terms of total crashes, by age

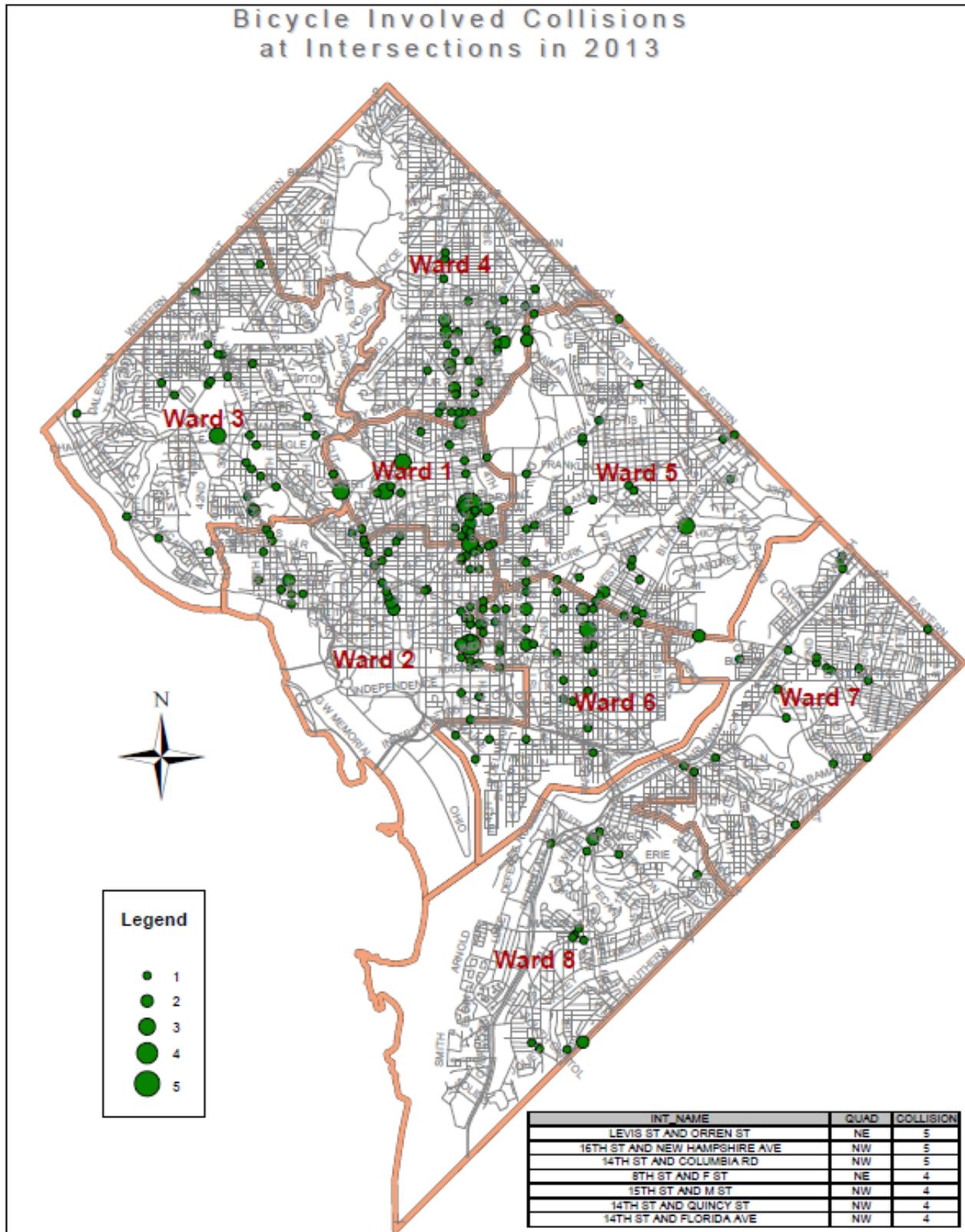


Figure 4.24: Crashes Involving Bicycles at Intersections in 2013

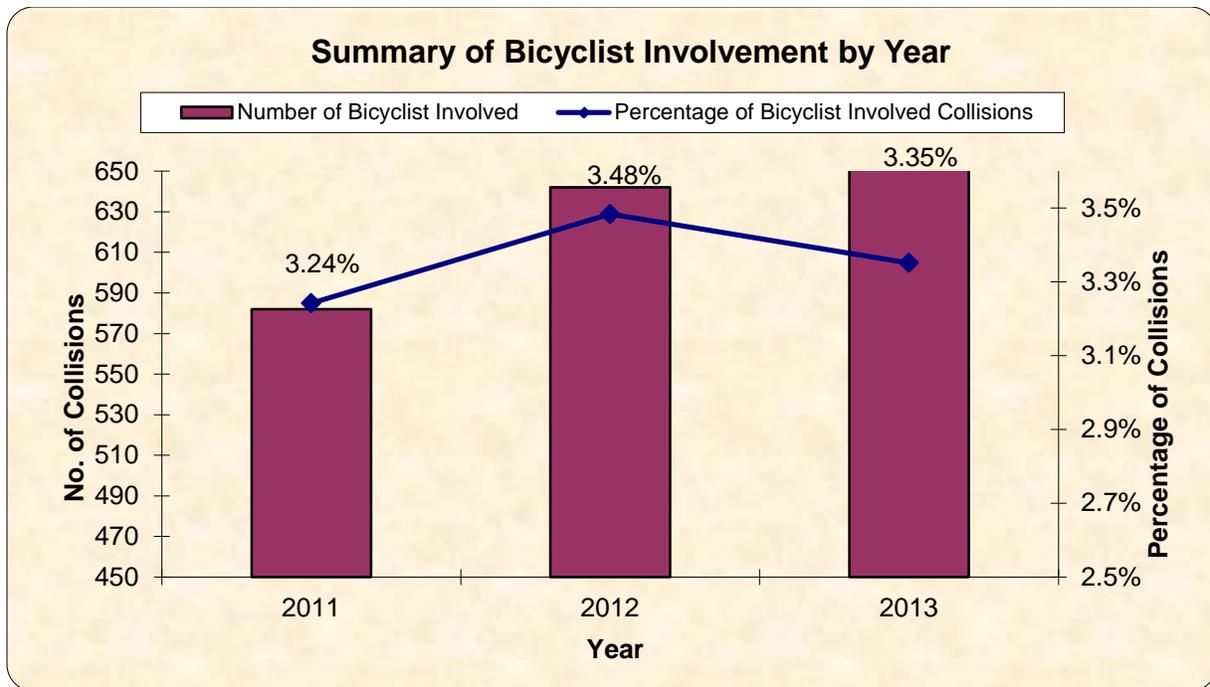


Figure 4.25: Three-year Trend of Crashes involving Bicyclists

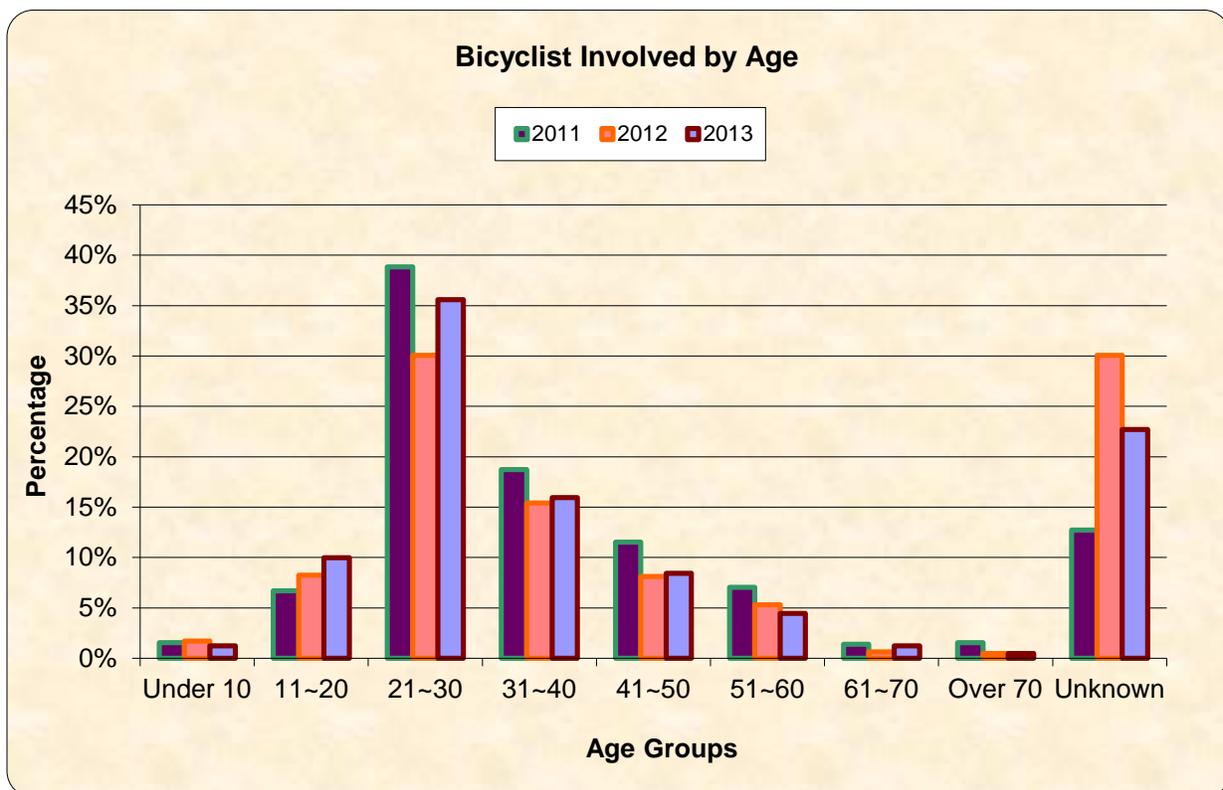


Figure 4.26: Three-year Trend of Crashes involving Bicyclists by Age

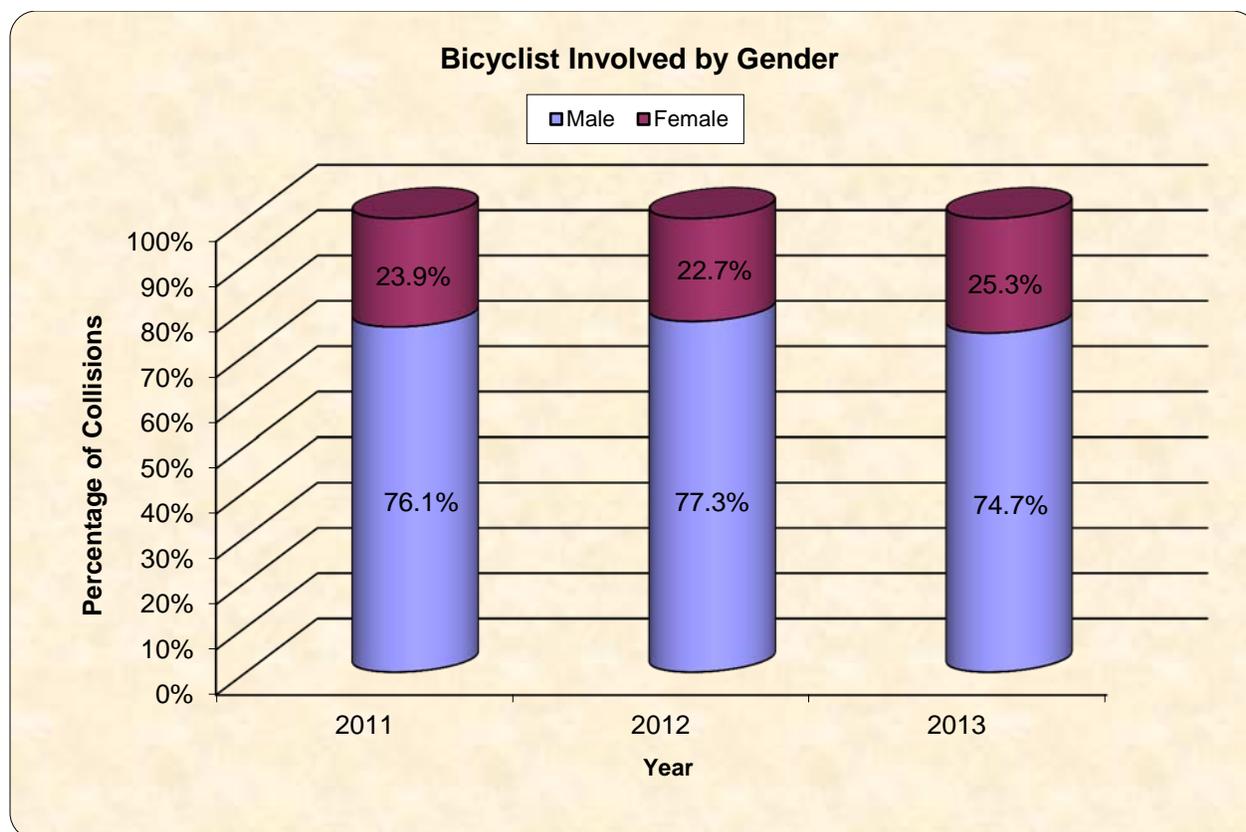


Figure 4.27: Three-year Trend of Crashes involving Bicyclists by Gender

and by gender. Crashes involving bicyclists ranged from 582 to 652 during the 3-year period. From the figures, there was a significant increase in the total number of crashes in 2013 compared with those in 2011 and 2012. In addition, the distribution also shows that bicyclists in the age group of 21-30 were the most involved in crashes. Compared to 2012 bicycle-crashes, there was an increase in crashes in 2013 involving female bicyclists with a decrease in crashes involving male bicyclists. Figure 4.24 shows the GIS map for bicycle crashes at intersections in 2013.

Presented in Table 4.14 is a summary of injury codes reported by bicyclists in 2012 after being involved in a crash. The majority of the pedestrians complained as a result of the accident but did not have disabling nor visible injuries.

Table 4.14: Bicycle Crashes by Injury Code in 2013

Injury Code	Number
Complaint but not visible	175
Disabling	34
Fatal	2
Non-Disabling	232
None	117
Other	44
Unknown	24
Total	628

4.3.6 Crashes involving Motorcycles

The summaries of crashes involving motorcycles from 2011 through 2013 are presented in Figures 4.29 through 4.31. The summaries are presented in terms of total number of crashes, crashes by age and crashes by gender. From the figures, there was an increase in the total number of crashes in 2013 compared with those in 2012 and 2011. In addition, the distribution also shows that motorcyclists in the age group of 21-30 and 31-40 were the most involved in crashes. Compared with 2012 crashes, there was an increase in crashes involving females while a decline in the percentage of crashes involving male motorcyclists was reported in 2013.

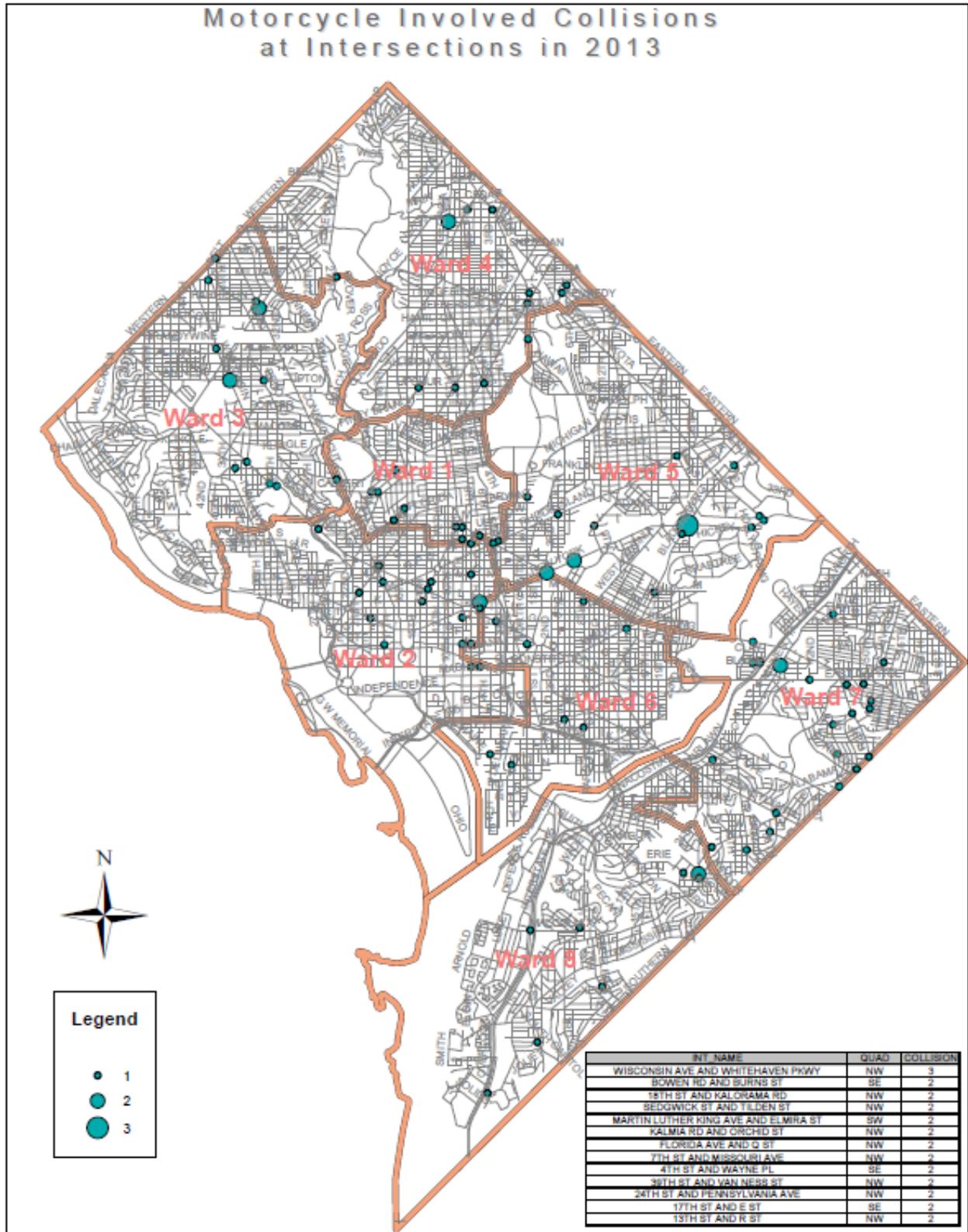


Figure 4.28: Motorcycle Involved Crashes at Intersections in 2013

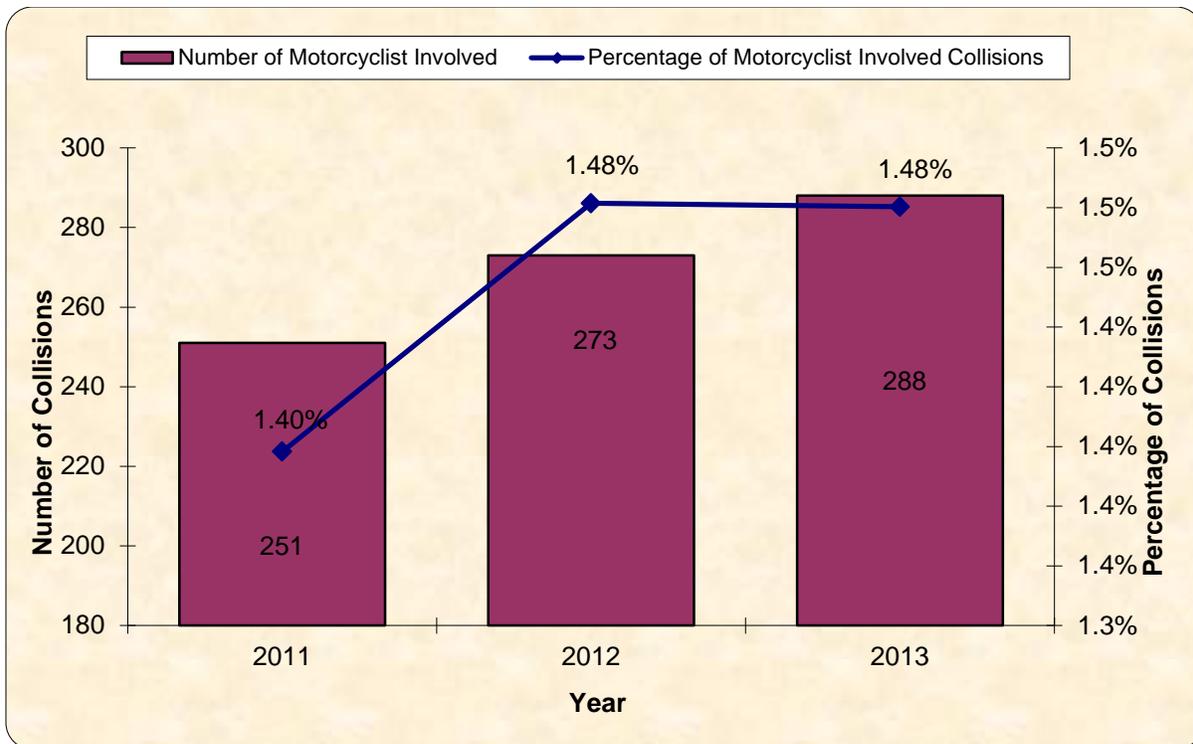


Figure 4.29: Three-year Trend of Crashes involving Motorcyclists

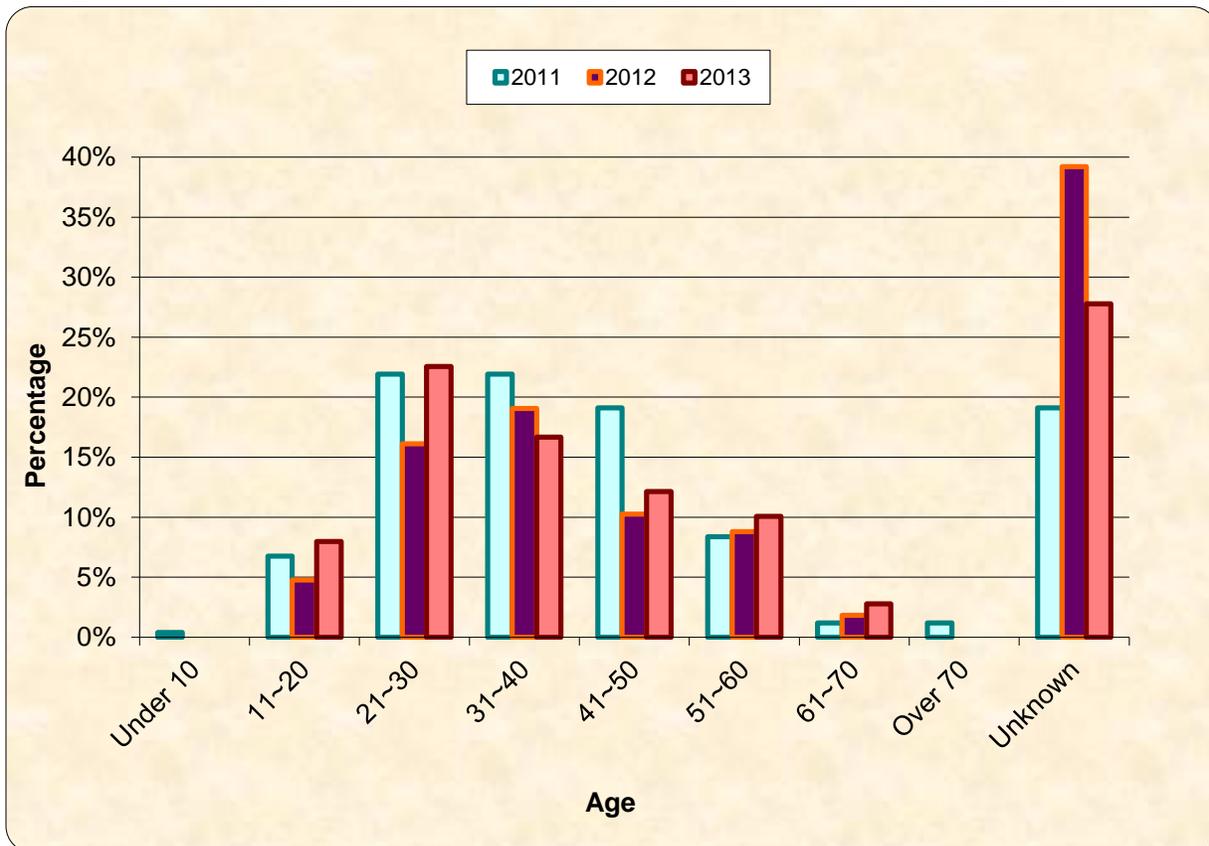


Figure 4.30: Three-year Trend of Crashes involving Motorcyclists by Age

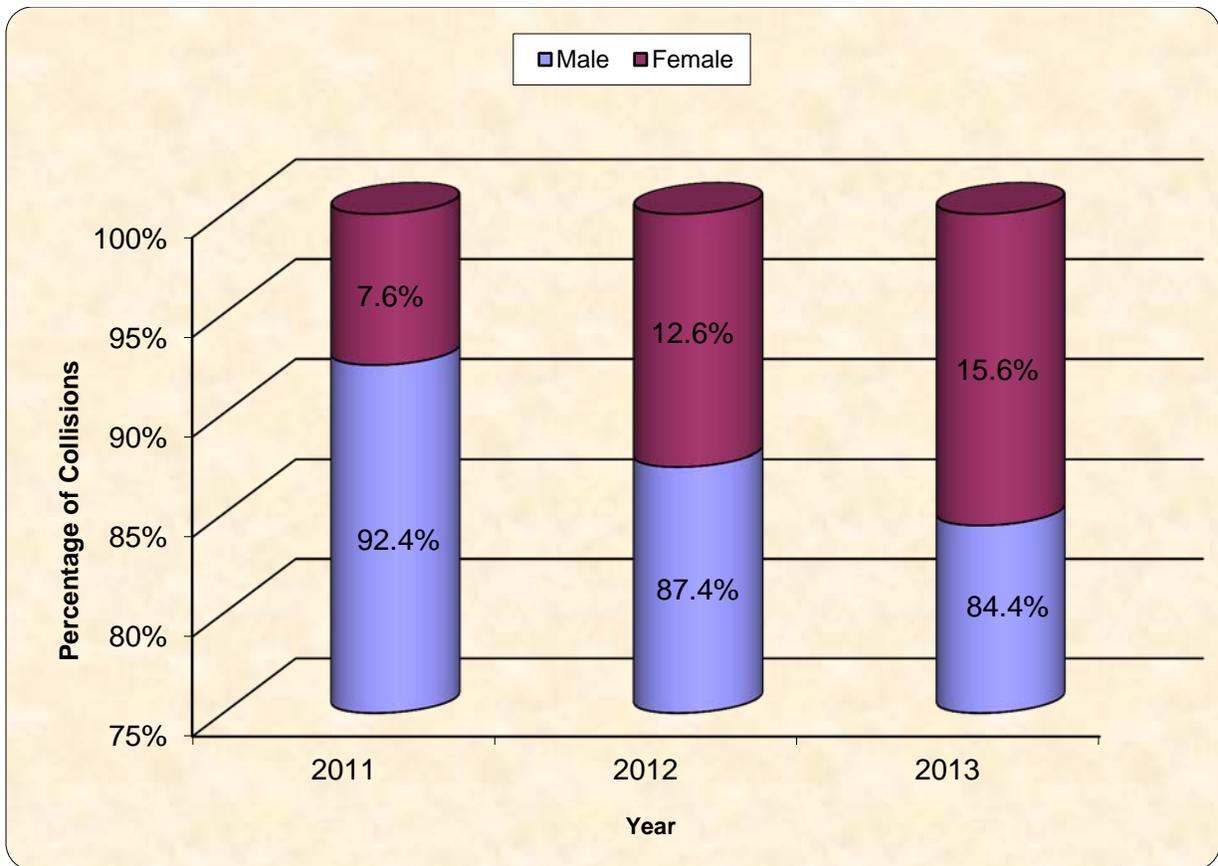


Figure 4.31: Three-year Trend of Crashes involving Motorcyclists by Gender

Presented in Table 4.15 is a summary of injury codes reported by motorcyclists in 2013 after being involved in a crash. The majority of the motorcyclists (80) sustained non-disabling injuries.

Table 4.15: Motorcyclists Crashes by Injury Code in 2013

Injury Code	Frequency
Complaint but not visible	43
Disabling	39
Fatal	4
Non-Disabling	80
None	75
Other	12
Unknown	27
Total	280

4.3.7 Crashes involving DC Properties

Figures 4.32 and 4.33 respectively present the summaries of crashes involving DC properties for 2011 through 2013 and the severity of those crashes. From the figures, there was a decrease in the percentage of crashes in 2013 compared with the crashes involving DC properties in 2012. In addition, the distribution in Figure 4.33 shows that crashes involving DC properties resulted in about 1% of the PDO crashes in 2013.

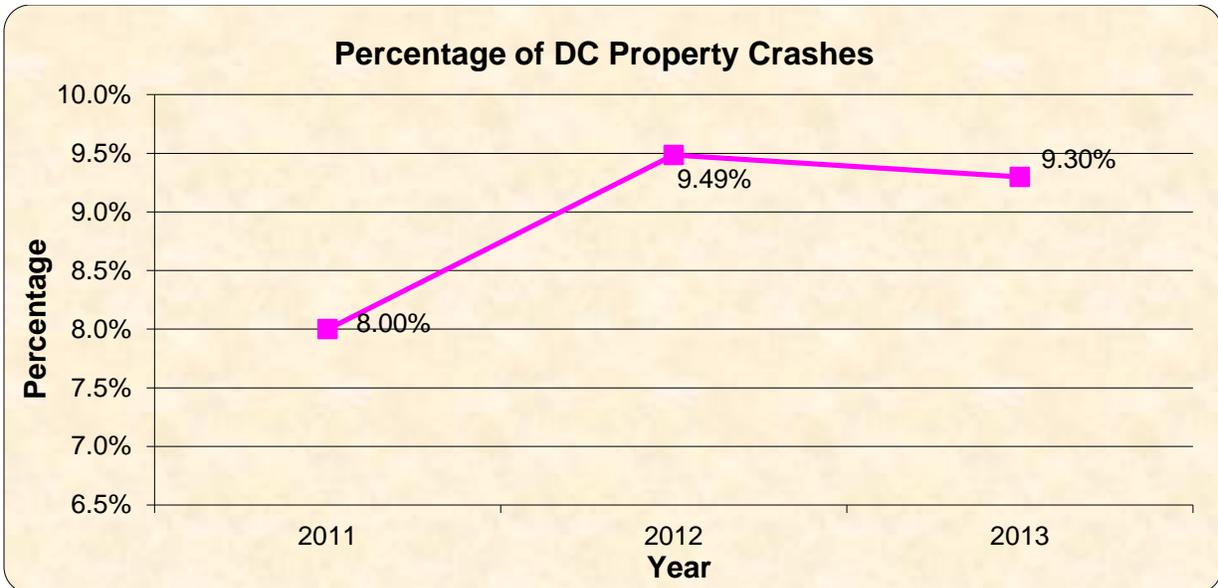


Figure 4.32: Three-year Trend of Crashes involving DC Properties

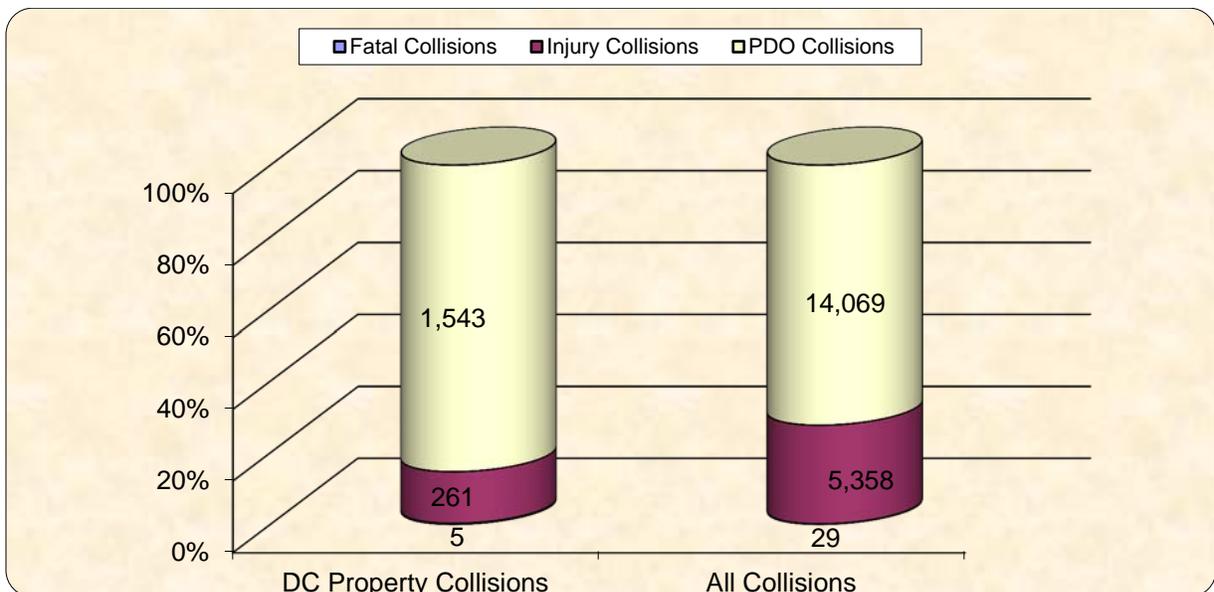


Figure 4.33: Crashes involving DC Properties in 2013

4.4 Drivers

4.4.1 Drivers by Age

Crashes by age groups of drivers' 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 4.16 and Figure 4.34, it can be observed that crashes involving the age group of 26-30 were the most predominant in 2013 followed by the age group 31-35. The data showed that the age group of approximately 33% of those involved in crashes in 2013 was not recorded or were unknown.

Figure 4.35 presents the types of injuries sustained of the drivers by the age in 2013. The majority of the drivers did not report any type of injury after a crash.

Table 4.16: Number Crashes by Age and Year of Drivers for 2011-2013

Age Group	No. of Crashes			Percentage		
	2011	2012	2013	2011	2012	2013
16~20	715	448	576	2.4%	1.5%	1.8%
21~25	2,629	1,842	2,485	9.0%	6.2%	7.6%
26~30	2,993	2,329	2,997	10.2%	7.8%	9.1%
31~35	2,759	2,158	2,870	9.4%	7.3%	8.7%
36~40	2,540	1,909	2,433	8.7%	6.4%	7.4%
41~45	2,406	1,909	2,568	8.2%	6.4%	7.8%
46~50	2,347	1,751	2,216	8.0%	5.9%	6.7%
51~55	2,016	1,513	2,068	6.9%	5.1%	6.3%
56~60	1,503	1,221	1,529	5.1%	4.1%	4.7%
61~65	1,036	834	1,093	3.5%	2.8%	3.3%
66~70	559	489	592	1.9%	1.6%	1.8%
71~75	317	248	309	1.1%	0.8%	0.9%
Over 75	841	302	364	2.9%	1.0%	1.1%
Unknown	6,600	12,772	10,738	22.6%	43.0%	32.7%
Total	29,261	29,725	32,838	100.0%	100.0%	100.0%

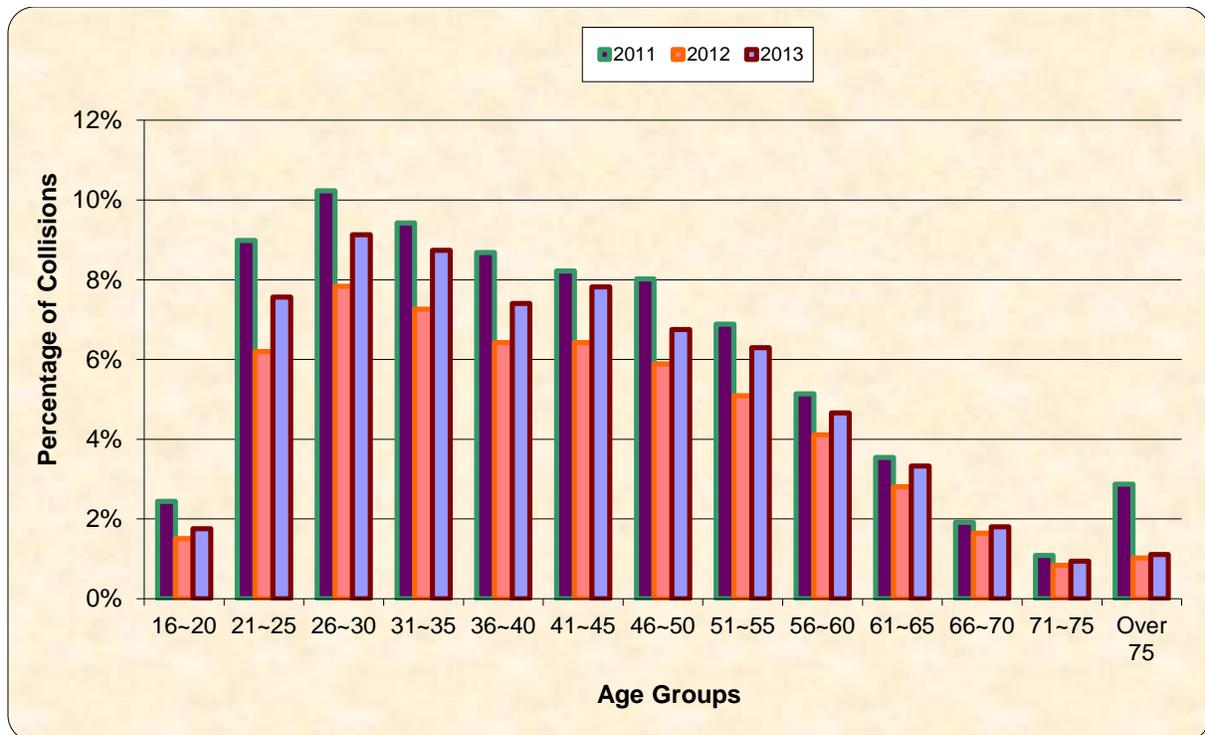


Figure 4.34: Crashes Drivers by Age for 2011-2013

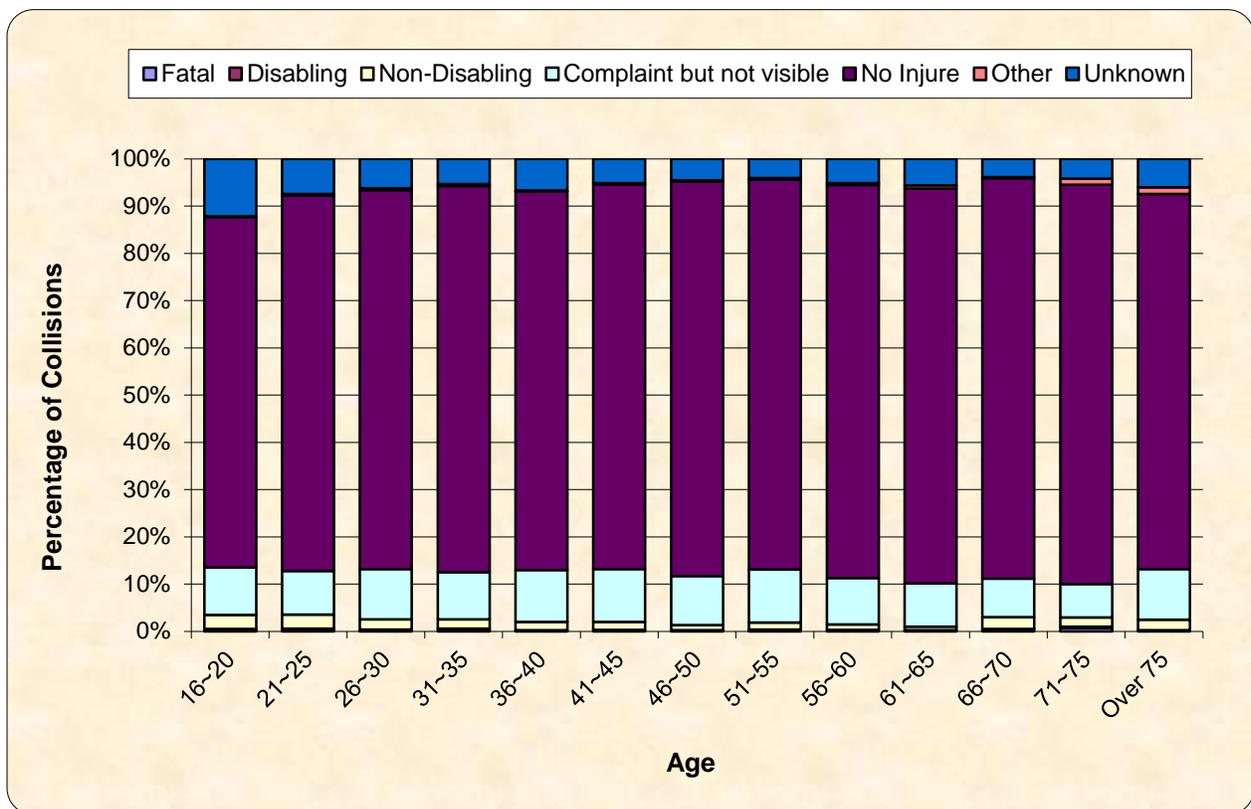


Figure 4.35: Injury Type Drivers by Age for 2013

4.4.2 Drivers by Gender

The summary of crashes recorded by the gender of drivers involved is presented in Figure 4.36. The figure shows that there was a modest decrease (0.9%) in the percentage of crashes for male drivers, while an increase of 0.9% was also recorded for female drivers in from 2012 to 2013.

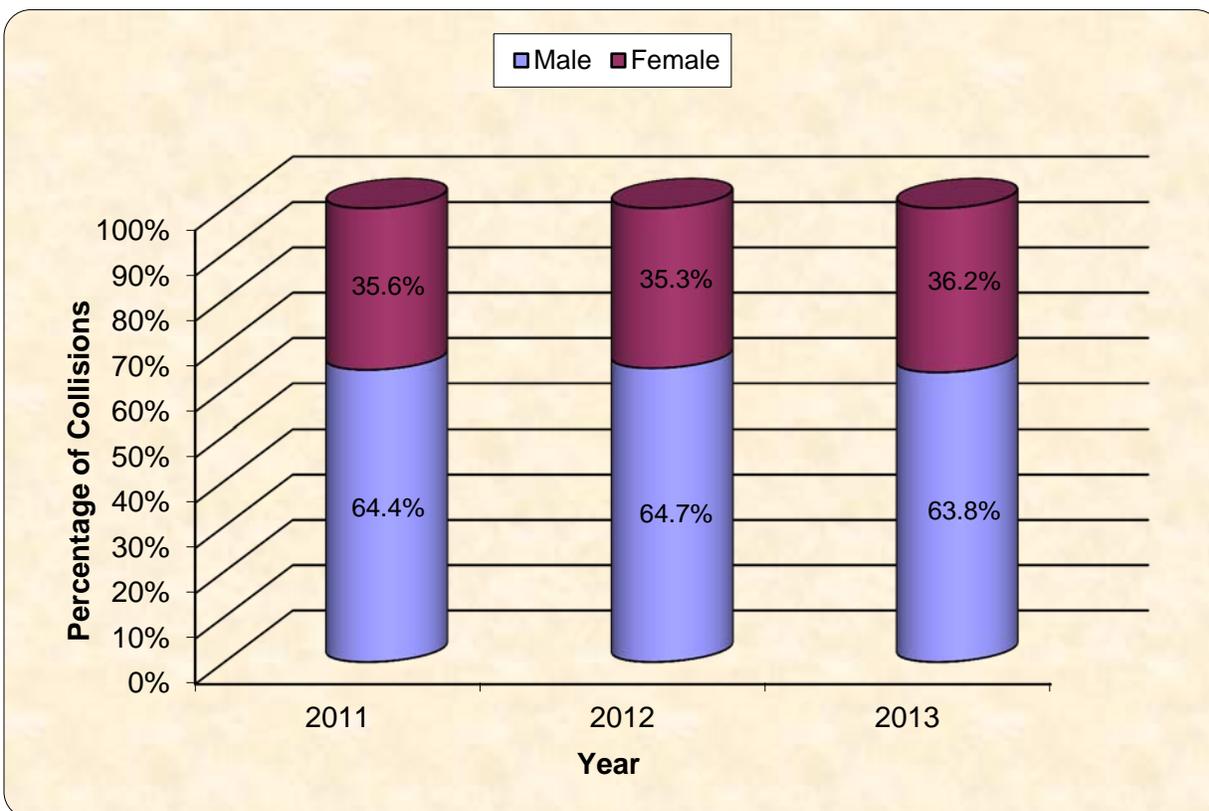


Figure 4.36: Crashes by Gender of Drivers for 2011-2013

4.4.3 Drivers by State Issued Driver's License

As most commuters to DC live in Washington's outer suburbs or 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 4.17 and Figure 4.37. From the table and figure, the majority of crashes (~37%) involved DC drivers in 2013, followed by 31.5% from Maryland and 12.7% from Virginia. The remainder were from other states or unknown.

Table 4.17: Driver Involvement by State of Permit for 2011-2013

State	No. of Collisions			Percentage		
	2011	2012	2013	2011	2012	2013
DC	10,423	11,988	11,988	35.6%	40.3%	36.5%
MD	10,923	10,340	10,340	37.3%	34.8%	31.5%
VA	4,129	4,168	4,168	14.1%	14.0%	12.7%
Other	2,598	2,545	3,755	8.9%	8.6%	11.4%
Unknown	1,188	684	2,587	4.1%	2.3%	7.9%
Total	29,261	29,725	32,838	100.0%	100.0%	100.0%

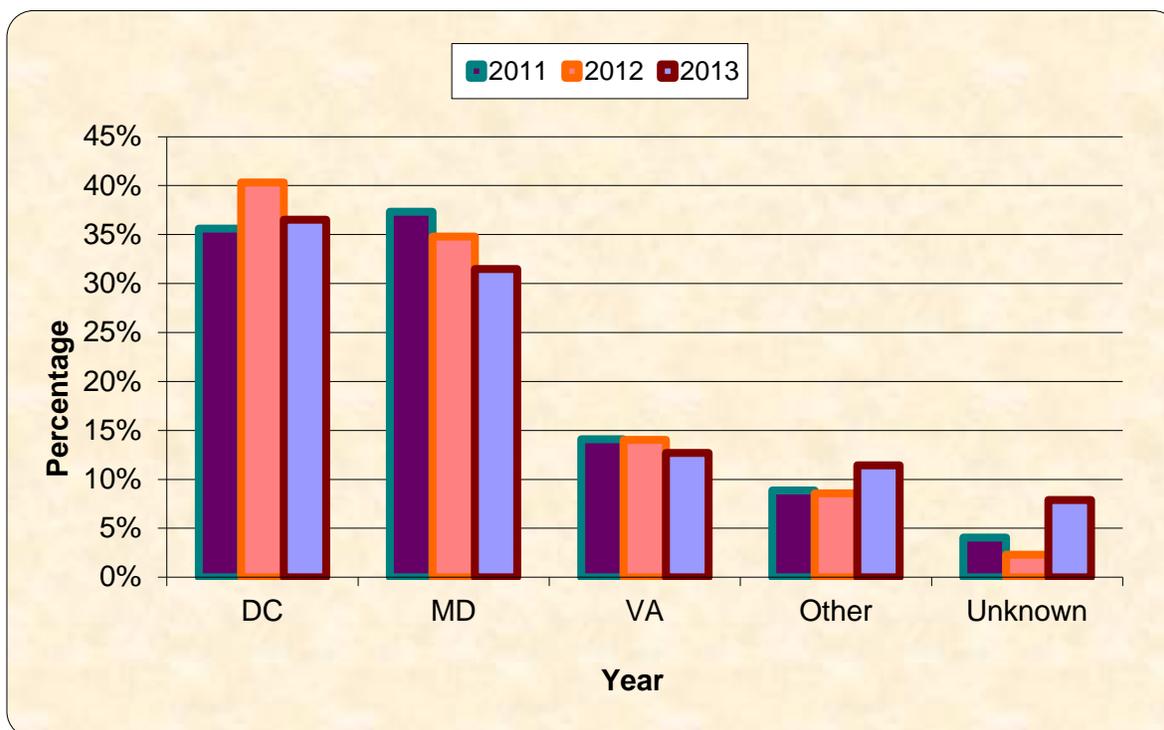


Figure 4.37: Drivers Involved in Crashes by State Issued License for 2011-2013

4.4.4 Crashes by Drivers Action

The top three drivers' actions that are responsible for crashes in 2013 were: going straight, turning left and changing which represent respectively (approximately) 49%, 11% and 8% of the total crashes as presented in Table 4.18. This is consistent with the reported actions by drivers in 2011 through 2013.

Table 4.18: Driver Involvement by Driver Action and Year for 2011-2013

Drivers Action	2011	2012	2013
Going Straight	6,467	6,546	7,458
Turning Left	1,608	1,610	1,730
Changing Lanes	1,084	1,115	1,277
Turning Right	818	991	1,038
Backing	754	793	924
Entering/Leaving Parked Position	379	466	498
Slowing/Stopping	367	308	317
Merging	210	295	384
Making U-turn	255	233	268
Parked	271	290	377
Overtaking	202	158	235
Stop/Stand Traffic Lane	233	279	359
Ran Off Road	149	131	204
Avoiding	117	91	90
Total	12,914	13,306	15,159

4.5 Environmental Conditions

4.5.1 Crashes by Roadway Conditions

The summary of crashes by roadway conditions are presented in Table 4.19 and Figure 4.38. The highest crashes occurred on roads with dry conditions from 2011 through 2013. The results also show that approximately 80% of the total motor vehicle crashes in 2013 occurred on roadways where the road surface was dry. These crashes resulted in 24 fatalities and 6,141 injuries in 2013.

Crashes occurring during wet roadway conditions were observed to be second highest; with 2,625 (or approximately 12%) being reported in 2013. There were 2 fatalities and 1,054 injuries as a result of crashes during wet roadway conditions.

Table 4.19: Summary of Crashes by Roadway Conditions for 2011-2013

Road Condition	2011			2012			2013		
	Collisions	Fatality	Injury	Collisions	Fatality	Injury	Collisions	Fatality	Injury
Unknown	312	1	101	499	1	203	408	1	139
Dry	14,463	17	6,030	15,127	16	6,007	15,649	24	6,141
Ice	67	2	30	31	0	5	31	0	26
Ice/Snow	0	0	0	0	0	0	0	0	0
Other	26	0	7	24	0	5	42	0	9
Repairing	85	0	39	75	0	24	55	1	20
Sand..	13	0	3	11	0	8	18	0	9
Slush	52	0	24	15	0	4	20	0	4
Snow	82	0	27	56	0	15	61	1	29
Standing Water	20	0	3	8	0	2	7	0	1
Unknown	391	0	56	469	0	71	540	0	73
Wet	2,440	4	1,015	2,113	2	924	2,625	2	1,054

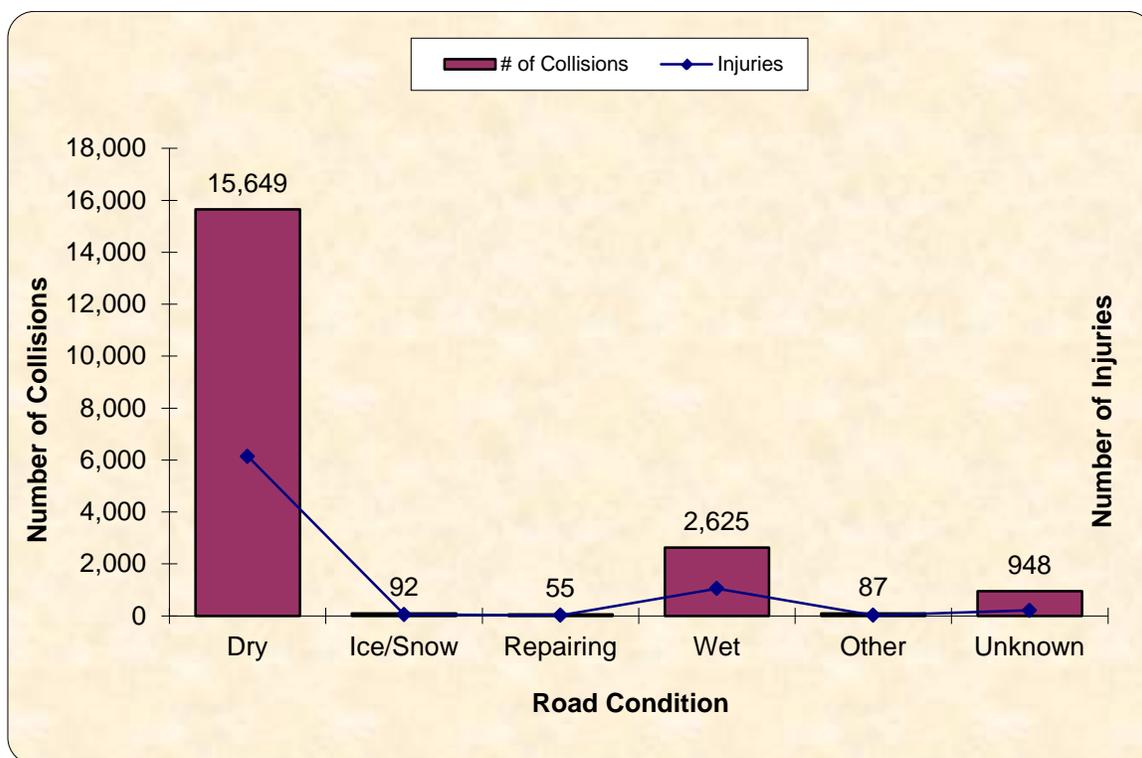


Figure 4.38: Number of Crashes and Injuries by Road Condition

4.5.2 Crashes by Road Surface

The summaries presented in Table 4.20 and Figure 4.39 show that crashes occurred most frequently on asphalt and concrete roadways from 2011 through 2013. The summary also show that approximately 88% (16,013) of the total crashes occurred

on asphalt roadways in 2013. This is followed by crashes on concrete surface, which represent approximately 8% (or 1,511) of the total reported motor vehicle crashes in 2013.

Table 4.20: Summary of Crashes by Roadway Surface for 2011-2013

Road Surface	2011			2012			2013		
	Collisions	Fatality	Injury	Collisions	Fatality	Injury	Collisions	Fatality	Injury
Asphalt	16,013	18	6,570	16,118	16	6,356	17,067	26	6,647
Brick	48	1	12	25	0	6	33	0	7
Concrete	1,463	5	612	1,425	2	548	1,511	2	561
Dirt	10	0	1	8	0	3	9	0	0
Gravel	27	0	11	13	0	5	20	0	6
Other	38	0	19	13	0	4	29	0	10
Unknown	352	0	110	826	1	346	787	1	274
Total	17,951	24	7,335	18,428	19	7,268	19,456	29	7,505

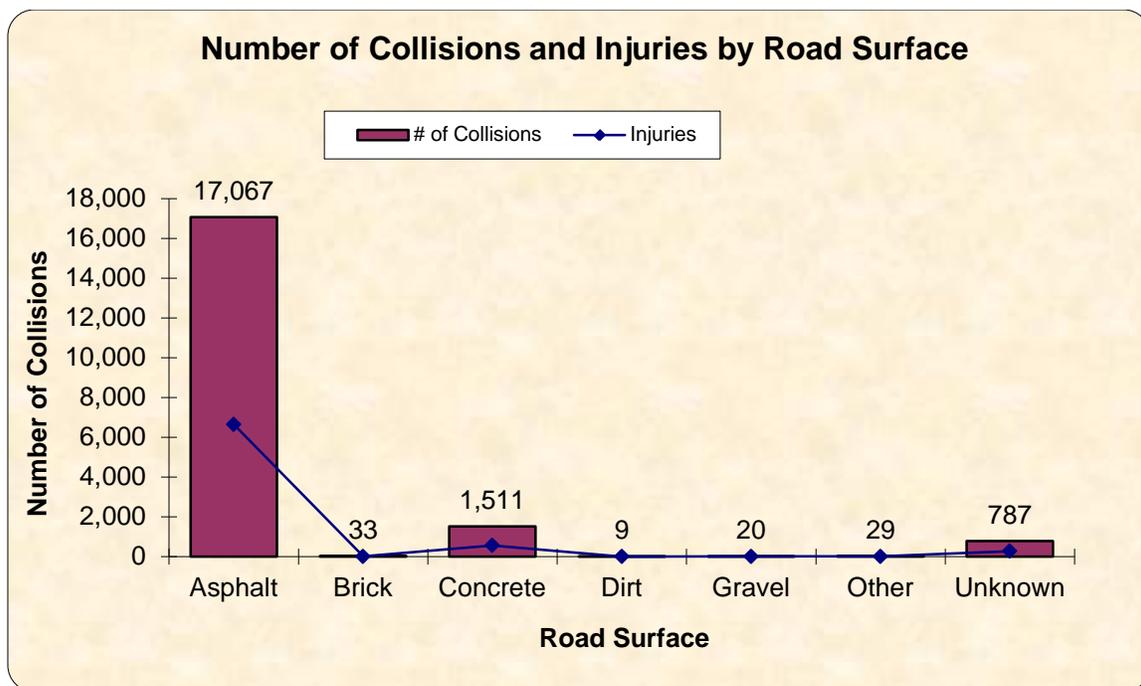


Figure 4.39: Number of Crashes and Injuries by Road Surface in 2013

4.5.3 Crashes by Weather Conditions

Adverse weather conditions may contribute to motor vehicle crashes. The summary weather-related of crashes by severity type are presented in Table 4.21 and Figure 4.40 show.

Table 4.21: Summary of Crashes by Weather Condition for 2011-2013

Weather	2011			2012			2013		
	Collisions	Fatality	Injury	Collisions	Fatality	Injury	Collisions	Fatality	Injury
Clear	14,576	20	6,063	14,963	16	5,927	15,567	23	6,135
Fog/Mist	159	0	66	200	0	91	263	2	92
Rain	2,015	4	827	1,697	1	740	2,032	1	829
Sleet	41	0	11	14	0	3	27	0	8
Snow	159	0	60	107	0	36	152	0	64
Other	291	0	136	272	0	113	260	0	104
Unknown	710	0	172	1,175	2	358	1,155	3	273
Total	17,951	24	7,335	18,428	19	7,268	19,456	29	7,505
Clear	14,576	20	6,063	14,963	16	5,927	15,567	23	6,135
Fog/Mist	159	0	66	200	0	91	263	2	92

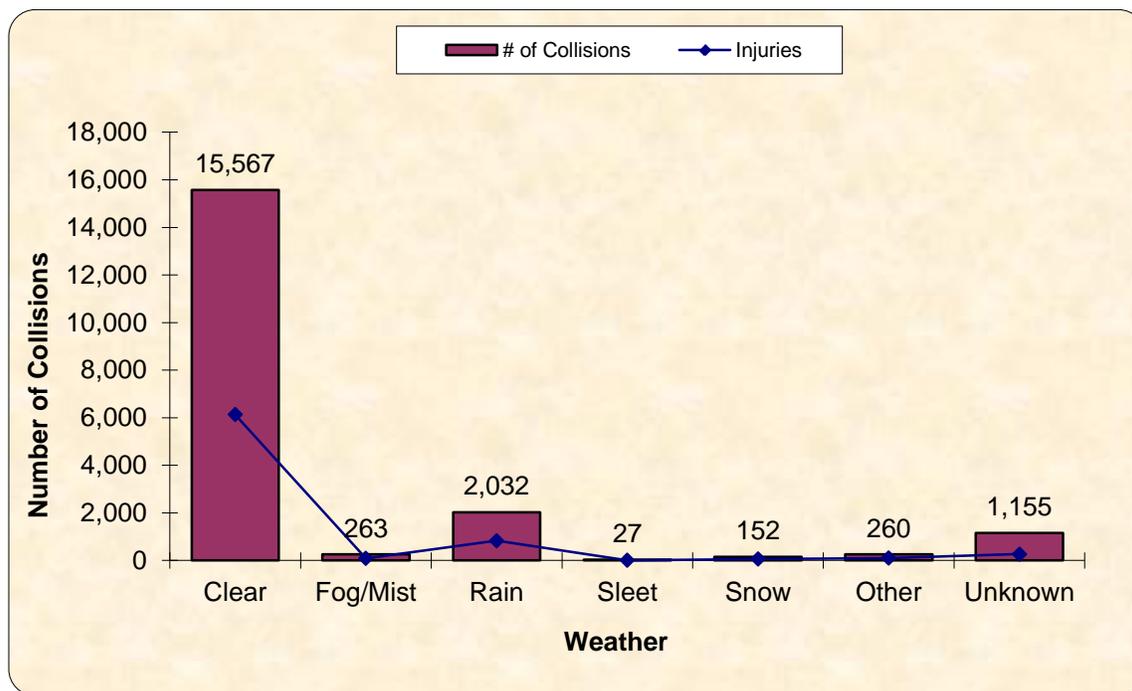


Figure 4.40: Number of Crashes and Injuries by Weather in 2013

From the summary, it can be observed that the majority of the crashes occurred under clear weather conditions which represent approximately 80% (or 15,567) of the

total crashes in 2013. This is followed by crashes occurring during rainy conditions, representing approximately 10% (or 2,032) of the total crashes in 2013.

4.5.4 Crashes by Light Conditions

Street illumination is another crash contributing factor, especially at night. As shown in the summaries in Table 4.22 and Figure 4.41, the majority of the reported crashes occurred on roadways where the streetlights were off. These crashes occurred under such conditions in approximately 52% (10,199) of the total reported crashes in 2013. Approximately 31% (6,028) of the total reported motor vehicle crashes in 2013 occurred on roadways when street illumination was present.

Table 4.22: Summary of Crashes by Street Lighting for 2011-2013

Street Lighting	2011			2012			2013		
	Collisions	Fatality	Injuries	Collisions	Fatality	Injuries	Collisions	Fatality	Injuries
Street Lights On	6,028	19	2,433	6,053	8	2,408	6,362	12	2,489
Street Lights Off	10,199	3	4,374	10,099	9	4,128	10,488	14	4,159
Defective	11	0	1	16	0	5	15	0	8
Unknown	972	2	212	1,397	1	371	1,434	1	331
None	741	0	315	863	1	356	1,157	2	518
Total	17,951	24	7,335	18,428	19	7,268	19,456	29	7,505

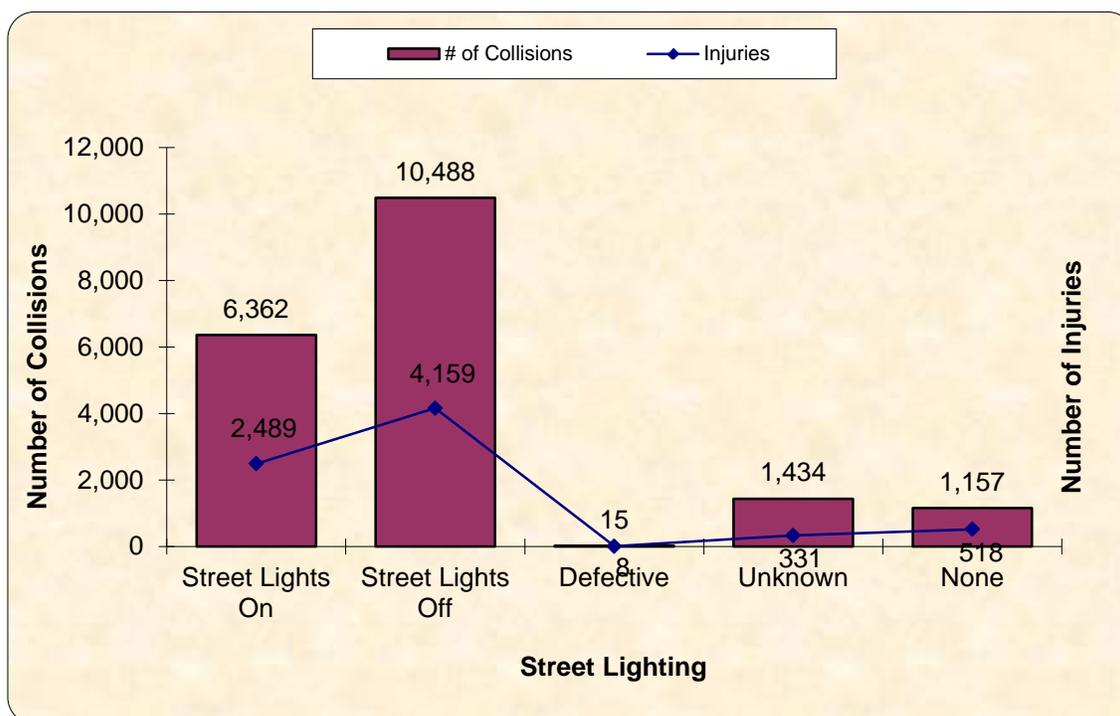


Figure 4.41: Number of Crashes and Injuries by Street Lighting

Furthermore, as shown in Table 4.23 and Figure 4.42, the majority of the crashes occurred during daylight conditions. This consisted of approximately 61% (11,922) of the total reported motor vehicle crashes in 2013. Approximately 31% (6,043) of the total reported crashes occurred in the dark which resulted in 13 fatalities and 2,346 injuries in 2013.

Table 4.23 Summary of Crashes by Light Condition for 2011-2013

Light Condition	2011			2012			2013		
	Collisions	Fatality	Injury	Collisions	Fatality	Injury	Collisions	Fatality	Injury
Dark	5,636	18	2,214	5,730	7	2,310	6,043	13	2,346
Dawn/Dusk	446	3	223	424	1	170	437	0	172
Daylight	11,151	3	4,772	11,209	10	4,500	11,922	15	4,759
Unknown	718	0	126	1,065	1	288	1,054	1	228
Total	17,951	39	6,792	18,428	19	7,268	19,456	29	7,505

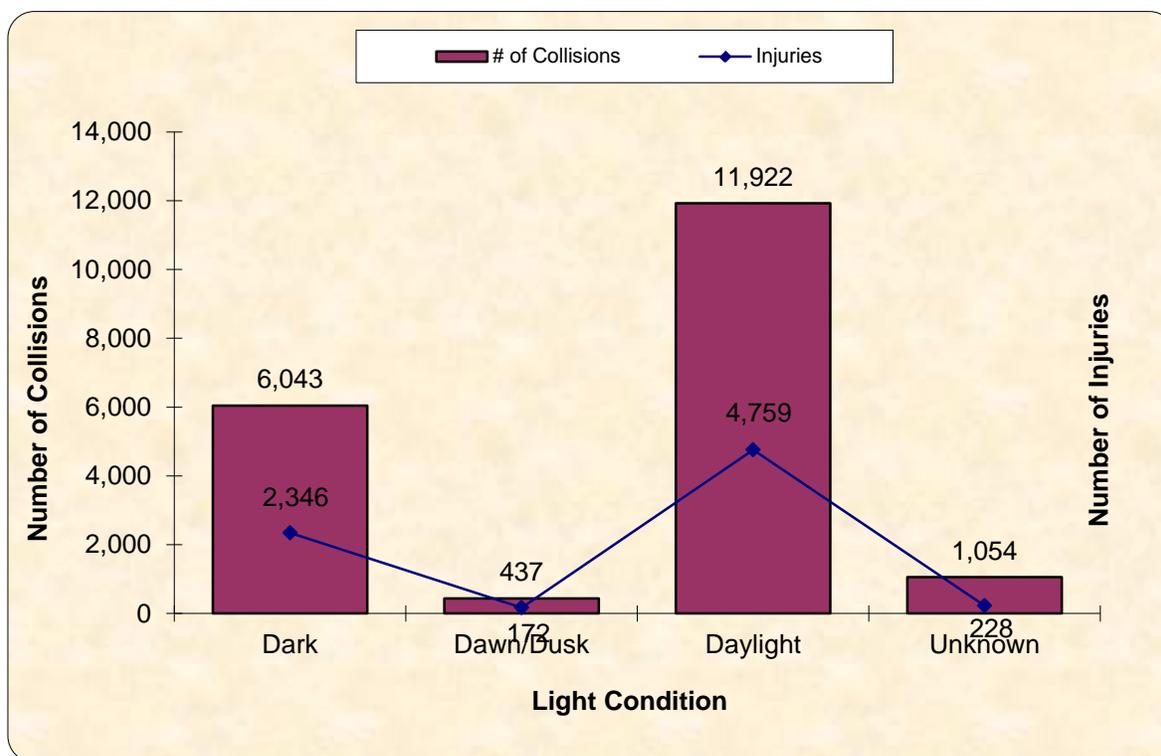


Figure 4.42: Number of Crashes and Injuries by Light Condition in 2013

4.5.5 Crashes by Traffic Conditions

Traffic exposure is another new data field that was appended on 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 observation of the traffic conditions. The summary of this is presented in Table 4.24 as well as in Figure 4.43. The results show that approximately 33% of the total reported crashes in 2013 occurred in medium (6,464) with approximately 30% under light (5,801) traffic conditions.

Table 4.24: Summary of Crashes by Traffic Condition in 2011-2013

Traffic Condition	2011			2012			2013		
	Collisions	Fatalities	Injuries	Collisions	Fatalities	Injuries	Collisions	Fatalities	Injuries
Heavy	3,378	0	1,555	3,289	3	1,410	3,345	1	1,497
Medium	6,049	5	2,859	5,873	5	2,621	6,464	7	2,755
Light	5,538	17	2,042	5,512	7	2,096	5,801	16	2,165
Other	283	1	44	268	0	64	272	0	42
Unknown	2,703	1	835	3,486	4	1,077	3,574	5	1,046
Total	17,951	24	7,335	18,428	19	7,268	19,456	29	7,505

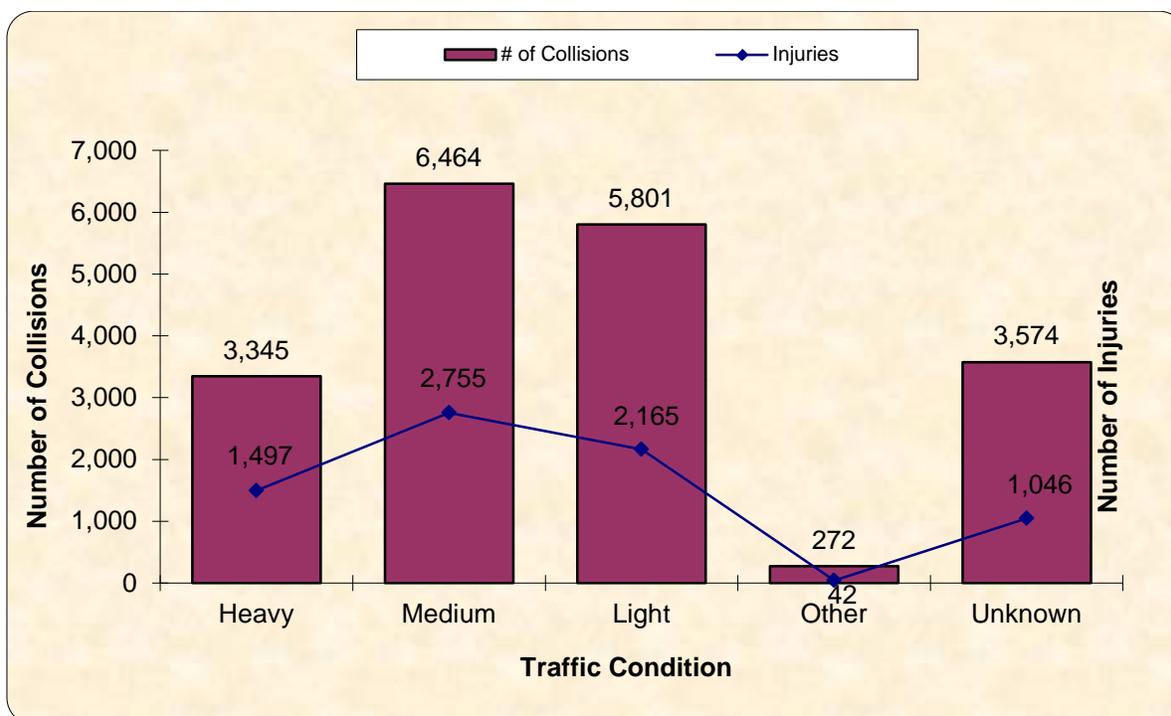


Figure 4.43: Number of Crashes and Injuries by Traffic Conditions in 2013

4.5.6 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 4.25 and graphically in Figure 4.44 for 2013. From the results, approximately 37% of crashes occurred at or close to a signalized intersection. The majority of the crashes (48%) occurred at locations where there is no traffic control.

Table 4.25: Summary of Crashes by Traffic Control in 2011-2013

Traffic Controls	2011			2012			2013		
	Collisions	Fatality	Injury	Collisions	Fatality	Injury	Collisions	Fatality	Injury
Signal	6,995	3	3,329	7,065	6	3,285	7,227	13	3,159
None	8,348	16	2,848	8,719	9	2,814	9,392	13	3,175
Stop Sign	1,493	0	735	1,382	1	680	1,505	1	698
Other	578	5	286	462	2	216	493	1	244
Unknown	537	0	137	800	1	273	839	1	229
Total	17,951	24	7,335	18,428	19	7,268	19,456	29	7,505

* "Other" includes yield, flashing, turn restricted and officer.

* "None" includes mid-block crashes.

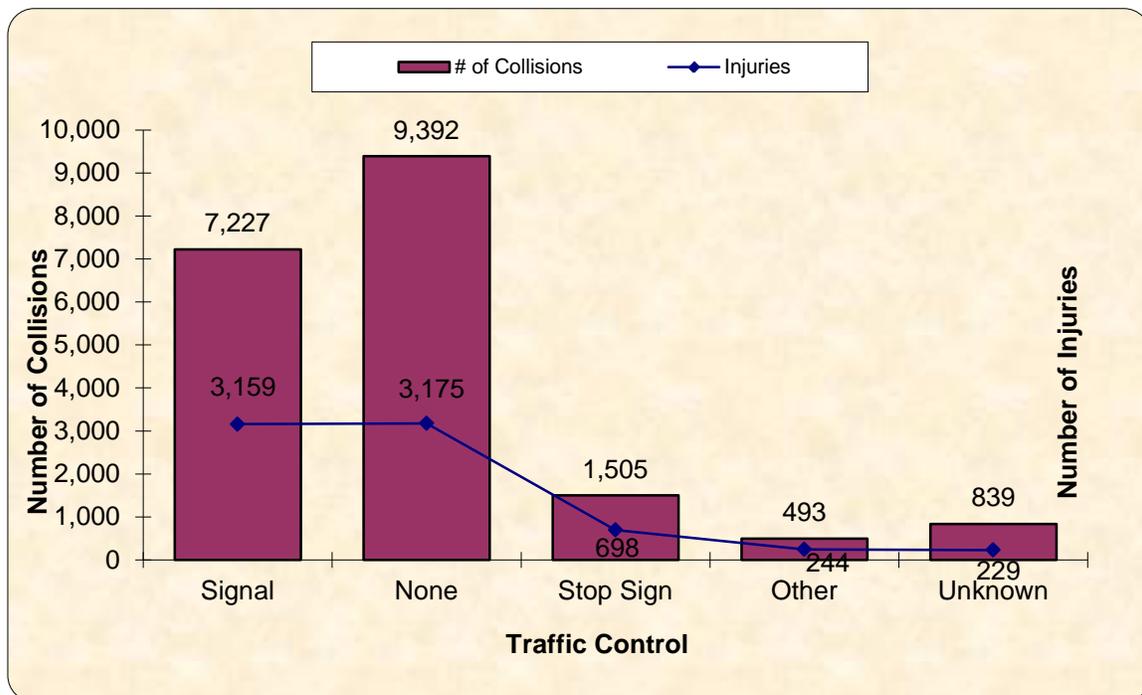


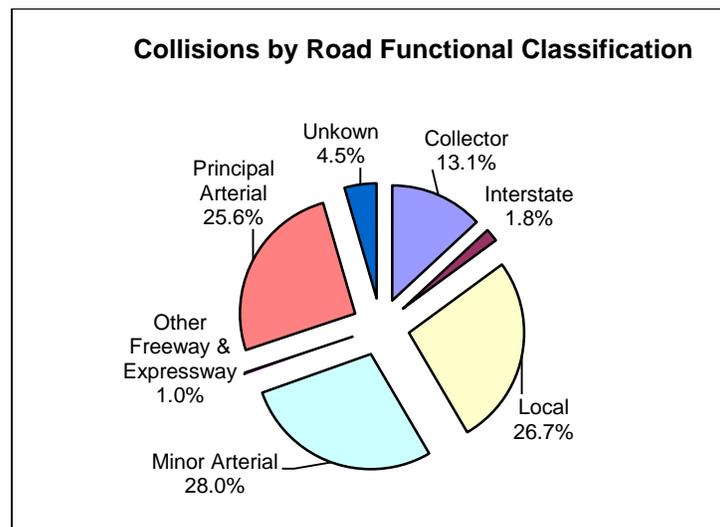
Figure 4.44: Number of Crashes and Injuries by Traffic Control

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 4.26 and Figure 4.45, the number of injuries for all roadway functional systems from 2012 to 2013 showed an increasing trend.

Table 4.26: Summary of Crashes by Roadway Functional Classification from 2011-2013

Road Func. Classification	2011			2012			2013		
	Collisions	Fatalities	Injuries	Collisions	Fatalities	Injuries	Collisions	Fatalities	Injuries
Collector	2,077	3	800	2,328	1	907	2,545	4	961
Interstate	279	1	161	324	0	164	355	0	179
Local	4,484	7	1,367	4,819	5	1,519	5,186	7	1,621
Minor Arterial	5,023	7	2,312	5,109	7	2,269	5,447	7	2,289
Other Freeway & Expressway	85	0	53	87	0	61	60	2	46
Principal Arterial	4,962	7	2141	4,945	4	1,932	4,989	7	1,926
Unknown	1,041	7	501	816	2	416	874	2	483
Total	17,951	32	7,335	18,428	19	7,268	19,456	29	7,505



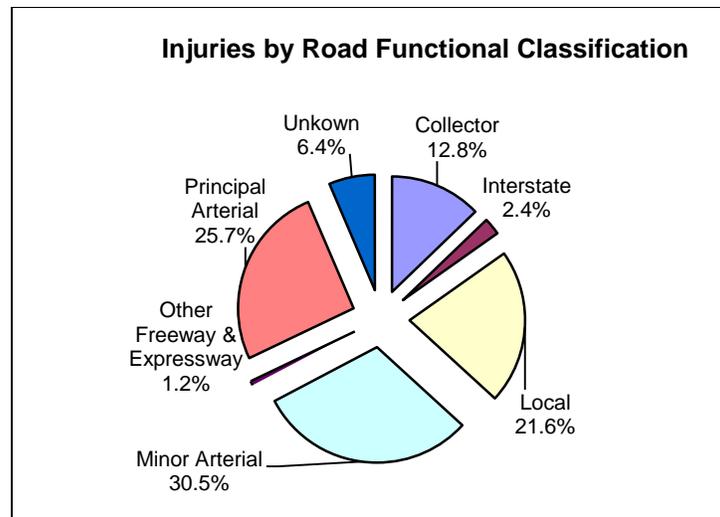


Figure 4.45: Crashes and Injuries by Functional Classification

Figures 4.46 and 4.47 respectively present the frequency of speed-related crashes and injuries on all functional classifications from 2011 through 2013.

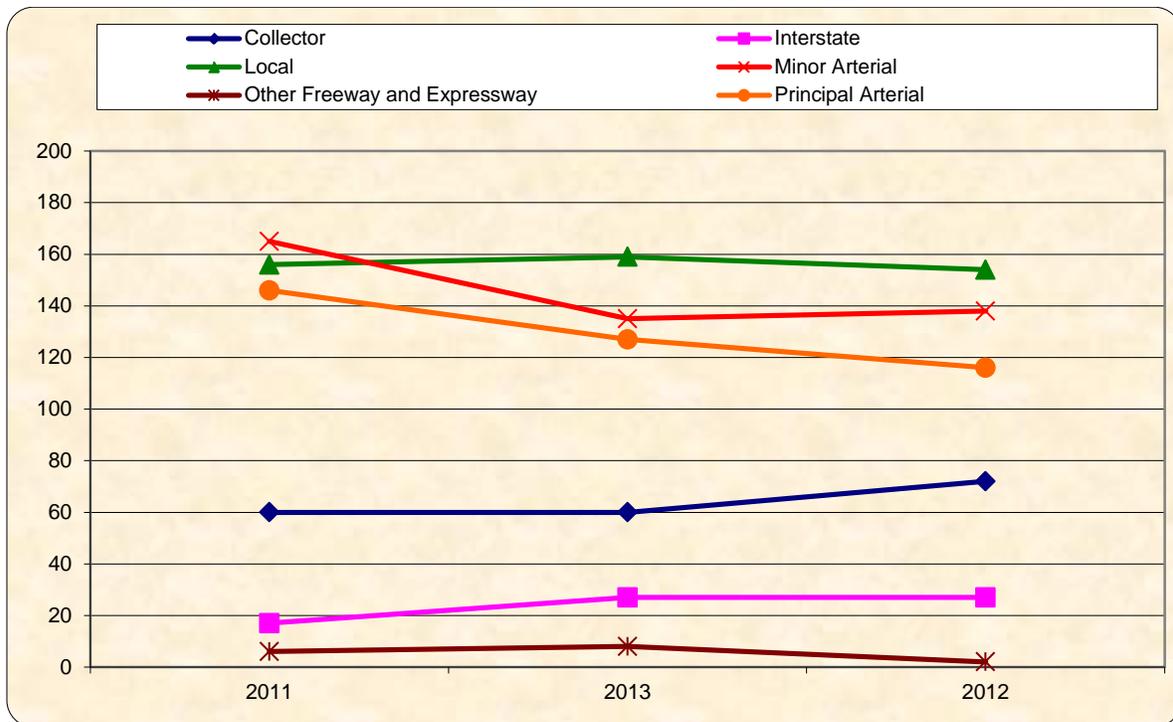


Figure 4.46: Number of Speed-Related Crashes by Roadway Functional Classification

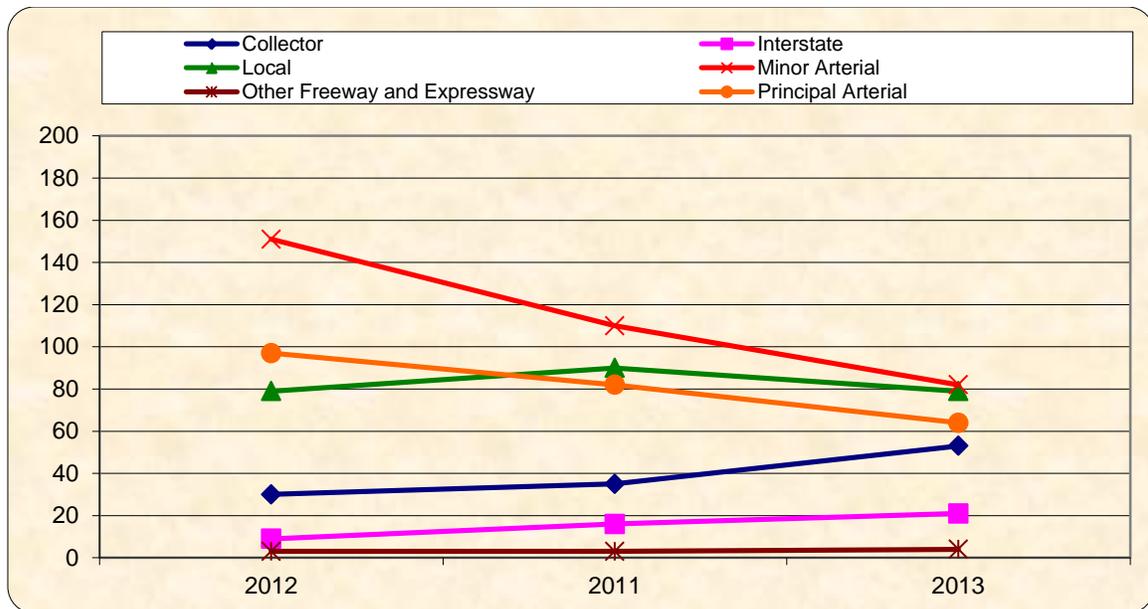


Figure 4.47: Number of Speed-Related Injuries by Roadway Functional Classification

In addition, Figure 4.48 shows a number of crashes and injuries per Lane-Mile by roadway functional classifications in 2013. The highest number of crashes and injuries per lane-mile was reported on principal arterials.

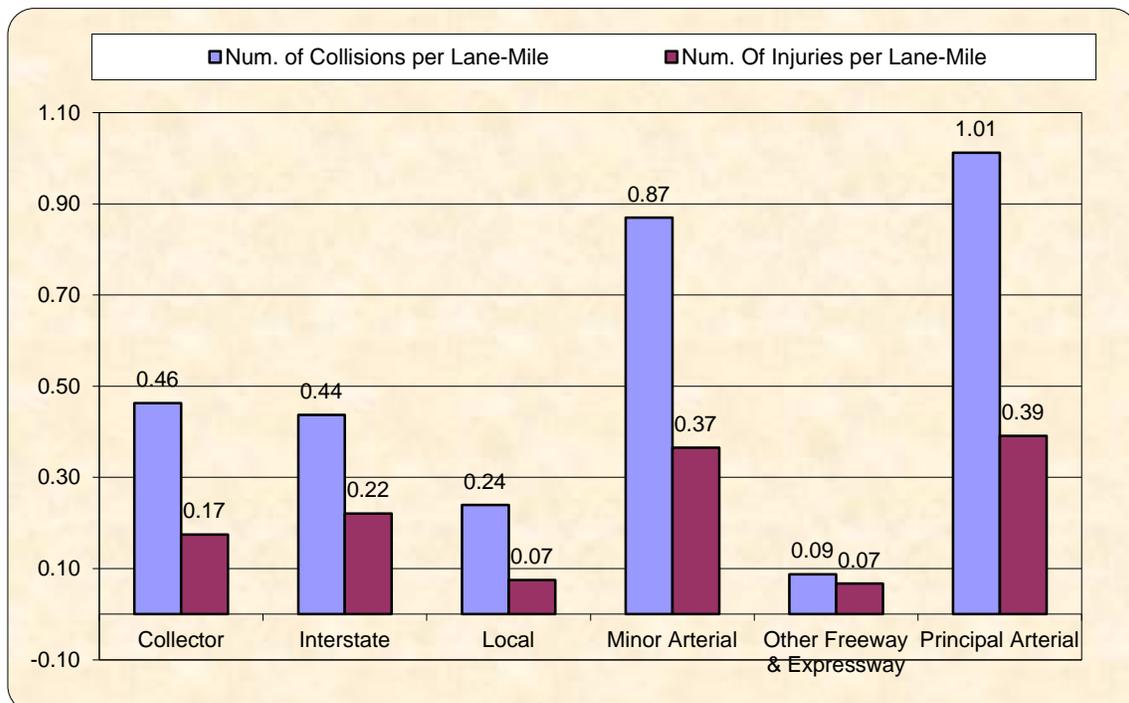


Figure 4.48: Number of Crashes and Injuries per Lane-Mile by Functional Classification in 2013

4.6 Contributing Factors

4.6.1 Crashes by Primary Crash Contributing Factors

Table 4.27 presents the summary of all reported contributing factors of crashes in DC from 2011 through 2013. With the exception of “No violation” and “Other”, the prominent contributing factors of crashes reported in 2013 included driver inattention, followed closely by changing lanes without caution.

4.6.2 Crashes by Speed Violation

Speeding is known to contribute to the severity of a crash. The summary of crashes related to speeding is presented in Figure 4.49. Only 3% of the crashes were speed-related, which resulted in 10.3% of the total fatalities and 8.5% disabling injuries in 2013. This represents a reduction compared to the statistics in 2012.

Table 4.27: Number of Crashes by Contributing Factors in 2011-2013

Contributing Factor	2011	2012	2013
No Violation	16,864	17,287	18,876
Other	3,794	3,469	3,863
Driver Inattention	2,686	2,999	3,100
Following too Close	1,283	1,324	1,396
Changing Lanes W/O Caution	1,222	1,277	1,437
Auto/Ped. Right of Way	1,026	951	979
Speed	637	582	592
Red Light Violation	405	378	375
Improper Backing	509	490	516
Improper Passing	397	381	482
Alcohol/Drug Influence	379	351	437
Pedestrian Violation	213	167	234
Open Door to Traffic	186	184	224
Other Distraction	200	242	261
Stop Sign	160	135	162
Driver Vision Obstructed	94	79	83
Road Defects	67	49	56
Wrong Way/Side of Street	136	152	126
Defective Brakes, Lights, etc.	69	70	69
Cell Phone/Other Electronic Device	54	44	48
Yield Sign	29	18	20
Fail to Set Parking Brake	15	21	19
Flashing/Directional Light	6	5	11
Right Turn on Red	13	15	19
Total	30,444	30,670	33,385

Presented in Table 4.28 and Figure 4.50 are the speed-related crashes by age and gender. From the table and figure, young male drivers were reported as highest group of drivers involved in speed-related crashes.

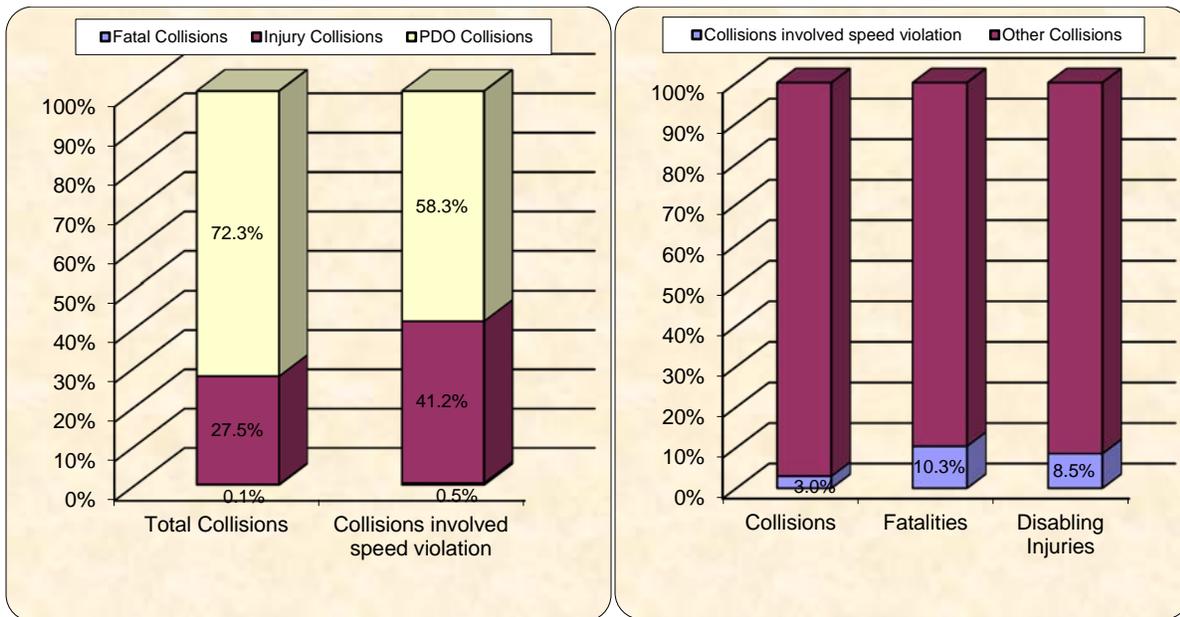


Figure 4.49: Speed-Related Crashes in 2013

Table 4.28: Speed-Related Crashes by Age and Gender for 2013

Age Group	Female	Male	Unknown	Total
16-20	9	30	0	39
21-25	24	71	0	95
26-30	27	55	0	82
31-35	19	52	0	71
36-40	13	27	0	40
41-45	5	24	0	29
46-50	7	20	1	28
51-55	3	16	0	19
56-60	3	16	0	19
61-65	5	6	0	11
66-70	2	8	0	10
71-75	2	2	0	4
Over 75	0	6	0	6
unknown	12	44	83	139
Total	131	377	84	592

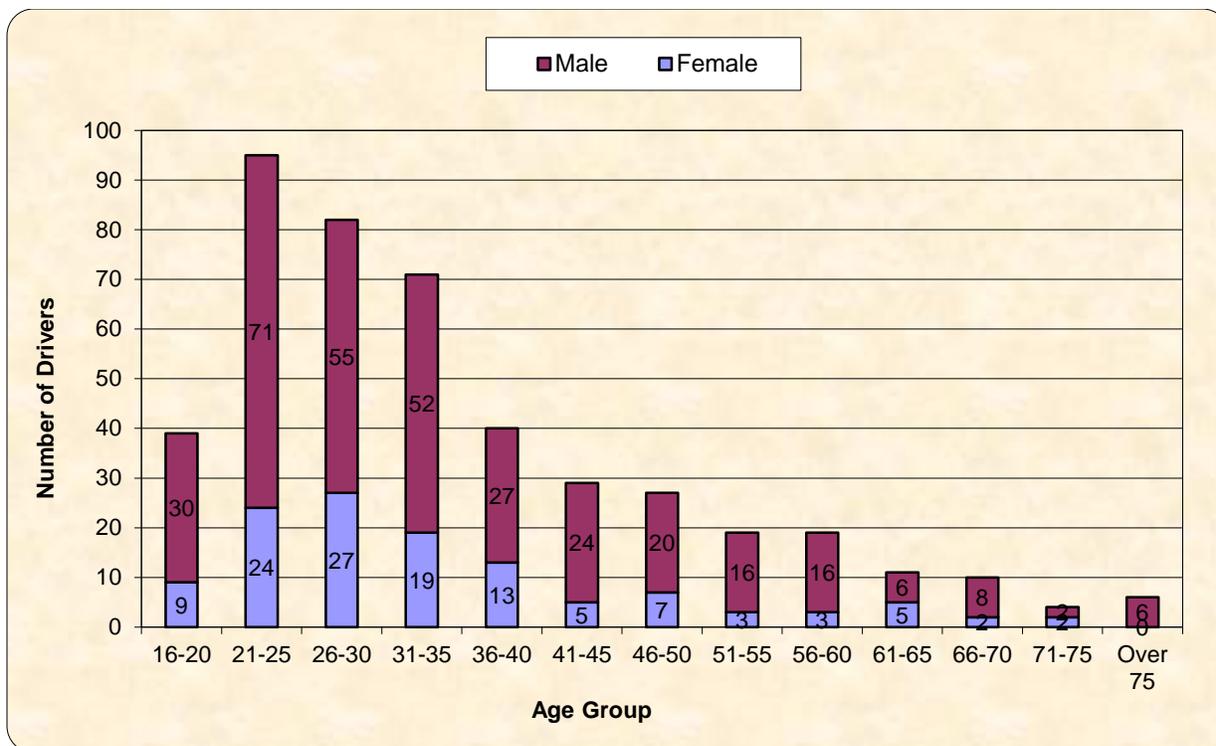


Figure 4.50: Speed-Related Crashes by Age and Gender

4.6.2 Alcohol/Drug Related Crashes

The use of alcohol and drugs has been noted to be one of the most significant contributory factors in the cause of crashes. As shown in the summaries in Table 4.29 and Table 4.30, more alcohol/drug-related crashes were reported during the night and on Sundays.

Table 4.29: Alcohol/Drug related Crashes by Day of Week in 2013

Day of Week	Number of Alcohol-Related Collisions
Monday	97
Tuesday	34
Wednesday	37
Thursday	41
Friday	48
Saturday	66
Sunday	107
Total	430

Table 4.30: Alcohol/Drug related Crashes by Hour in 2013

Hour	Number of Alcohol-Related Collisions
00	39
01	34
02	45
03	41
04	26
05	4
06	2
07	1
08	1
09	1
10	2
11	2
12	2
13	7
14	7
15	10
16	13
17	21
18	28
19	22
20	27
21	25
22	42
23	28
Total	430

Presented in Table 4.31 and Figure 4.51 are the summaries of alcohol/drug-related crashes by gender. From the summaries young male drivers were reported as highest group involved in alcohol/drug violations.

Table 4.31: Alcohol/Drug related Crashes by Gender and Age in 2013

Age Group	Female	Male	Unknown	Total
16-20	4	2	0	6
21-25	30	33	0	63
26-30	15	58	1	74
31-35	21	54	0	75
36-40	13	45	0	58
41-45	13	30	0	43
46-50	7	23	0	30
51-55	5	24	0	29
56-60	5	8	0	13
61-65	3	10	0	13
66-70	1	8	0	9
71-75	0	2	0	2
Over 75	0	1	0	1
unknown	3	9	9	21
Total	120	307	10	437

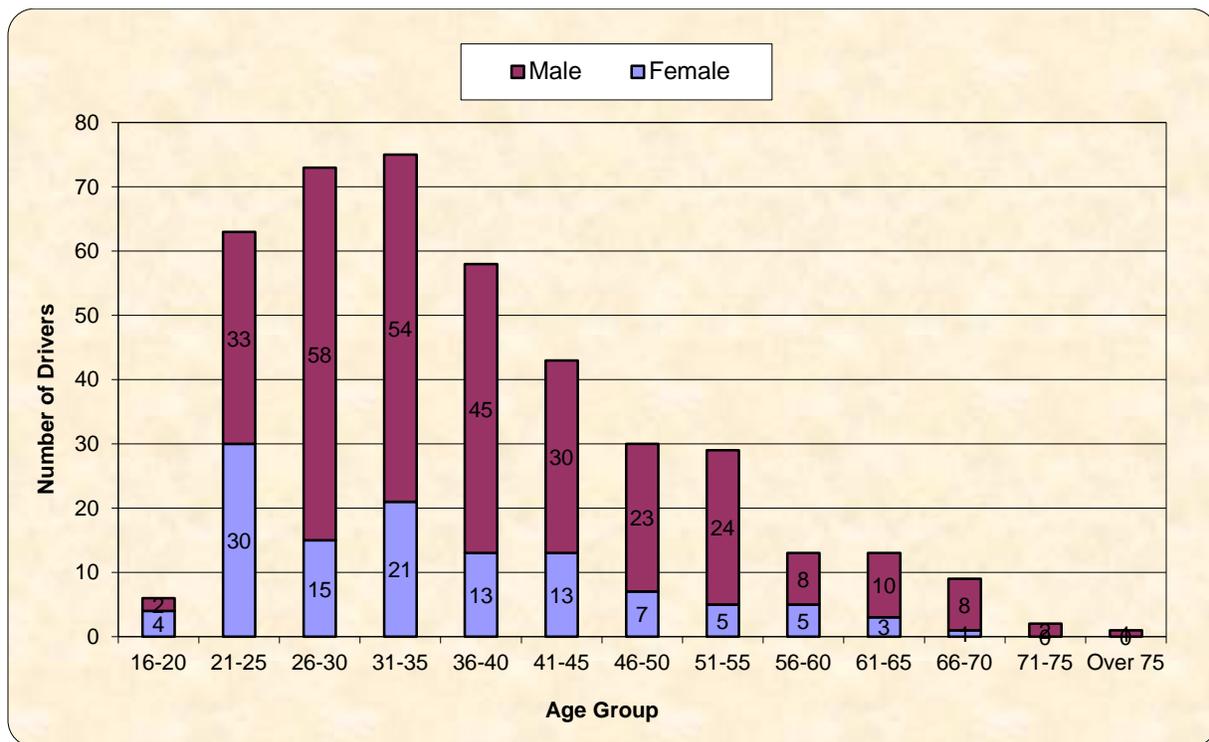


Figure 4.51: Alcohol/Drug-Related Crashes by Age and Gender

4.6.4 Crashes by Restraint Use (Seatbelts or Airbags)

From research studies, restraint devices such as seatbelts and airbags usage have a significant influence on the severity of injury during a crash. Table 4.32 and Figure 4.52 present the summary of crashes related to the airbag restraint. The results show that approximately 2% (681) of crashes in 2013 were reported as a result of air bag failing to deploy. The majority of injuries involved vehicles with installed air bags.

Table 4.32: Frequency of Injures by Injury Code and Air Bag Restraint in 2013

Air Bag	Fatal	Disabling	Non-Disabling	Complaint but not visible	None	Other	Unknown	Total
Airbag Deployed	6	44	255	529	1,052	35	196	2,117
Airbag Installed	1	29	175	1,610	13,793	34	810	16,452
Airbag Failed	0	8	13	72	545	3	40	681
Other	0	0	0	8	48	3	5	64
Side-Impact Airbags	1	1	2	16	46	0	3	69
Use Unknown	1	19	83	655	7,878	37	4,782	13,455
Total	9	101	528	2,890	23,362	112	5,836	32,838

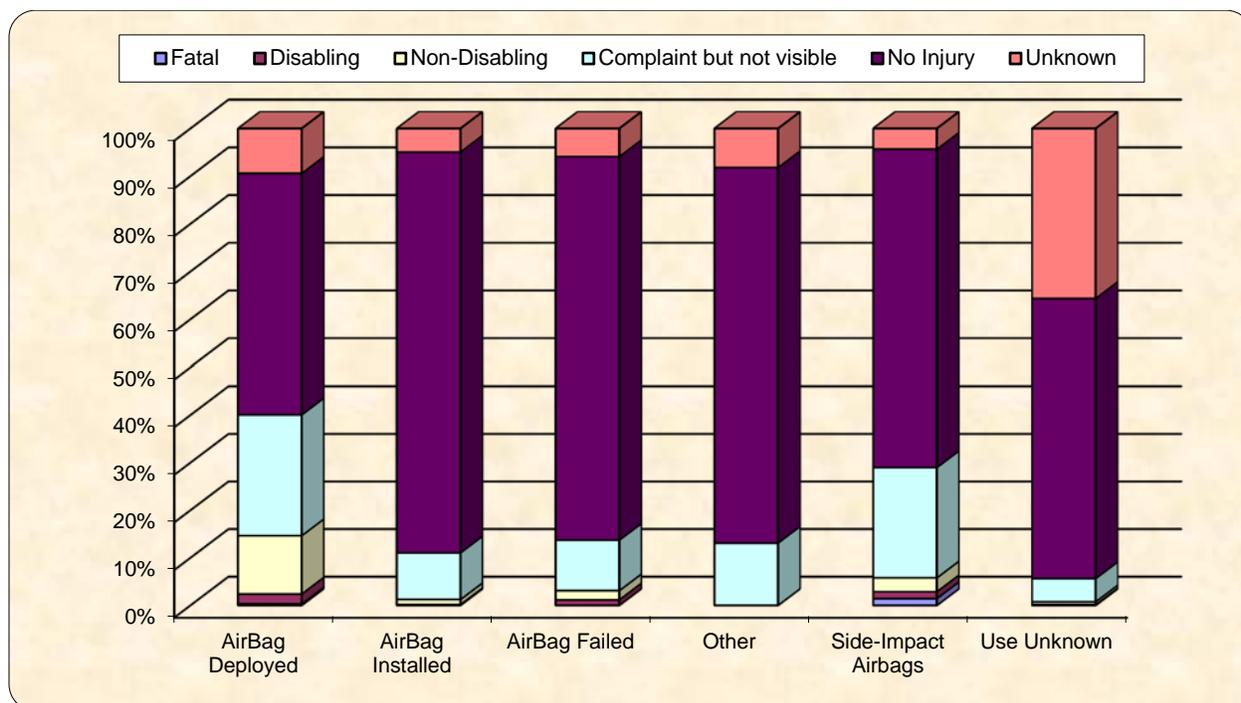


Figure 4.52: Crash Severity by Air Bag Restraint in 2013

The use of seat belts 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 4.33 and Figure 4.53. The results show that in 2013, approximately 41% (13,491) of drivers or passengers involved in crashes used their seat belts. Approximately 57% (18,784) of drivers or passengers involved in crashes were reported with unknown seat belt usage. Overall, only a small fraction (or approximately 1%) of drivers or passengers were reported with seat belt not installed or fastened.

Table 4.33: Number of Injures by Injury Code and Seat Belt Restraint in 2013

Seat Belt	Fatal	Disabling	Non-Disabling	Complaint but not visible	No Injury	Other	Unknown	Total
Belt Failed	0	0	1	16	118	0	11	146
Child Restraint	0	0	0	0	2	0	0	2
Fastened	4	46	284	1,579	11,025	44	509	13,491
Helmet	0	2	10	9	8	3	9	41
Not Fastened	3	5	15	34	199	2	21	279
Not Installed	0	3	2	11	34	0	10	60
Other	1	0	0	3	15	7	9	35
Use Unknown	1	45	216	1,238	11,961	56	5,267	18,784
Total	9	101	528	2,890	23,362	112	5,836	32,838

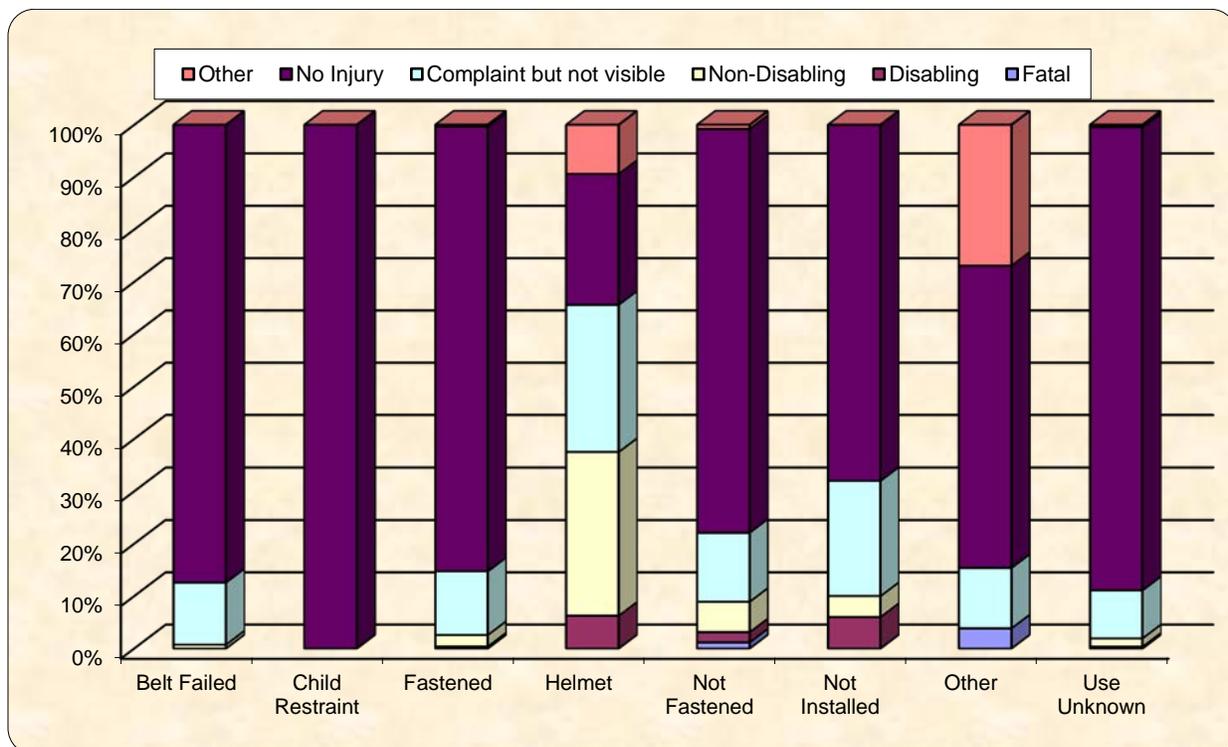


Figure 4.53: Crash Severity by Seatbelt Restraint in 2013

4.6.5 Crashes by Sobriety

Table 4.33 and Figure 4.54 present the summary of crashes based on driver sobriety. From the results, 20,108 (or approximately 61%) of drivers or passengers involved in a crash in 2013 were sober (or “had not been drinking”), whereas 11,802 (or approximately 36%) of drivers’ impairment status were unknown. Overall, only a small fraction of drivers (or passengers) were reported as driving while intoxicated (DWI) or driving while ability impaired (DWAI).

Table 4.34 Number of Crashes by Sobriety in 2013

Type	Fatal	Disabling	Non-Disabling	Complaint but not visible	No Injury	Other	Unknown	Total
Ability Impaired	0	0	11	14	165	3	16	209
Had been drinking and obviously drunk	0	1	16	13	230	6	25	291
Had not been drinking	0	59	332	2,117	16,780	56	764	20,108
Not Impaired	0	1	6	9	102	1	4	123
Other	0	2	12	15	133	13	130	305
Unknown	9	38	151	722	5,952	33	4,897	11,802
Total	9	101	528	2,890	23,362	112	5,836	32,838

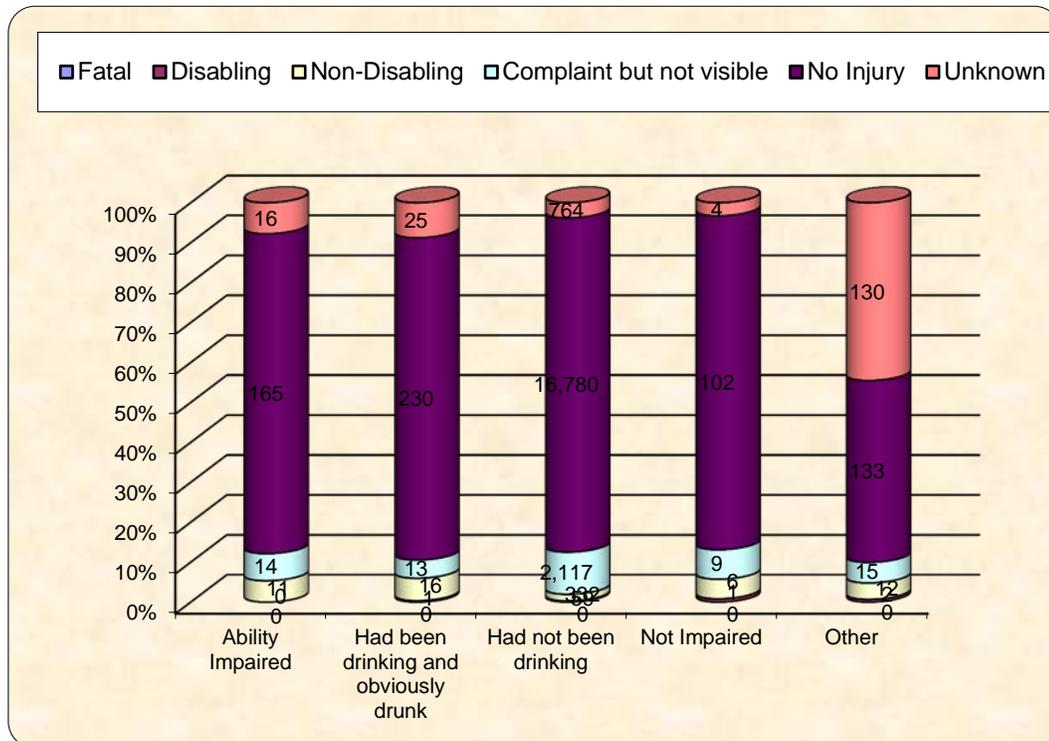


Figure 4.54: Crash Severity by Sobriety in 2013

4.6.6 Crashes by Driver or Pedestrian Distractions

Research has shown that driver or pedestrian distraction is one of the causes of vehicle crashes. The summary of crashes related to driver or pedestrian distraction in 2013 is presented in Table 4.35 and Figure 4.55. From the summary, the most prominent distraction was the use of cell phones, although the highest cause of distraction-related crash was listed as unknown.

Table 4.35: Crashes by Driver or Pedestrian Distraction in 2013

Distraction	Fatal Collisions	Injury Collisions	PDO Collisions	Total by Distraction
Cell Phone (hand held)	0	49	93	142
Cell phone (hands-free)	0	13	17	30
Distracted by passenger(s)	0	27	61	88
Eating	0	3	7	10
Interacting w/Pets	0	3	5	8
Interacting w/unsecured cargo	0	6	13	19
Other	2	655	1054	1,711
Personal Grooming	0	0	3	3
Reading	0	4	6	10
Using personal communication technologies	1	14	27	42
Writing	0	0	4	4
Total	3	774	1290	2067

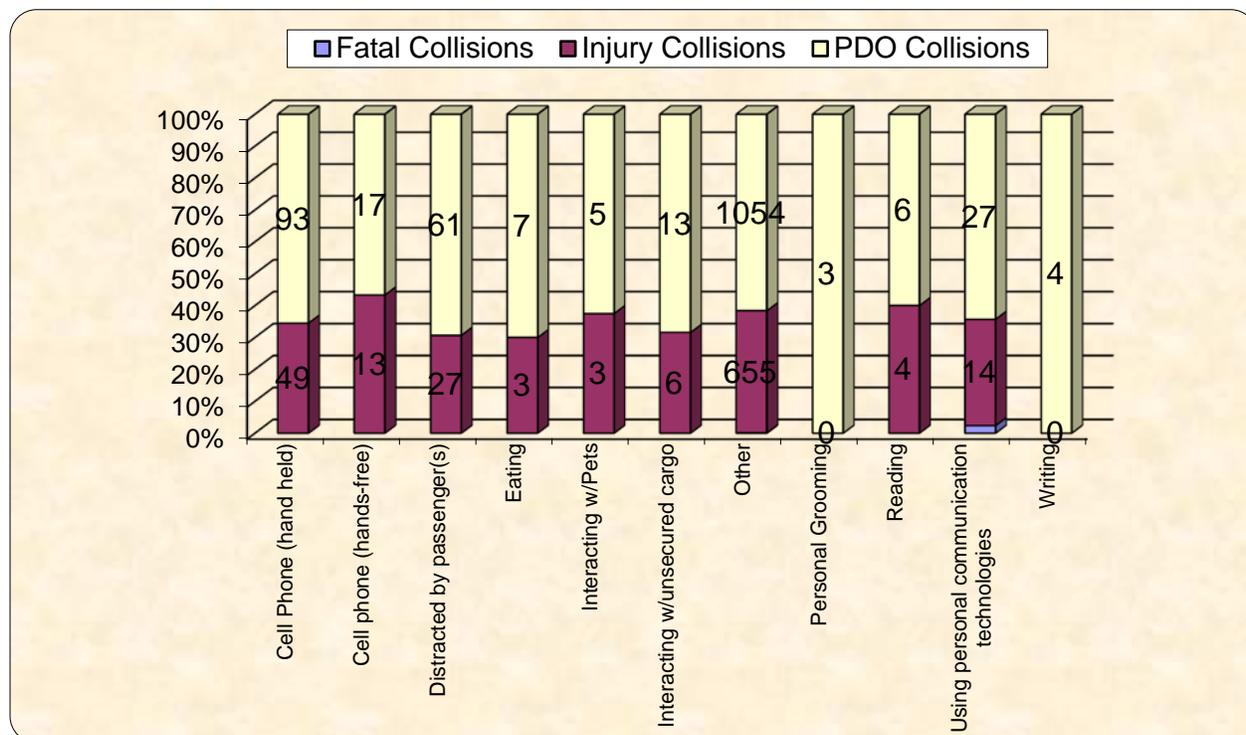


Figure 4.55: Crash Severity by Driver/Pedestrian Distraction in 2013

CHAPTER 5 – HIGH CRASH LOCATIONS

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

5.1 Identification of High Hazard Intersections

The five ranks by crash rate, crash severity, crash frequency, crash severity cost and composite index (which is calculated based on the combination of previous three ranking), were used to identify high-hazard intersections. To rank high hazard 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. The second ranking is based on the value of crash severity index. The third ranking is according to the number of crashes, or frequency. Finally, intersections are then sorted by composite index to complete the final ranking of the high hazard intersections. The highest hazard intersections are those with the lowest composite index.

5.1.1 Ranking of High Hazard Intersections (2011-2013)

The top 20 high hazard 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 2011 through 2013 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 in 2011 and 2013. The intersection of New York Avenue and North Capitol Street (BN) was determined to rank the highest in 2013 and among the top three in 2011 and 2012. Overall, the intersection of New York Avenue and Bladensburg Road (NE) was found to be the most hazardous intersection in the District from 2011 and 2013 based on crash frequencies.

Table 5.1: Top 20 Hazardous Intersections by Crash Frequency in 2011-2013

INTERSECTION NAME	Quad	2011		2012		2013	
		Freq	Rank	Freq	Rank	Freq	Rank
NEW YORK AVE AND BLADENSBURG RD	NE	70	1	76	2	80	1
WISCONSIN AVE AND M ST	NW	62	3	55	6	68	2
NEW YORK AVE AND NORTH CAPITOL ST	BN	66	2	78	1	62	3
FAIRLAWN AVE AND PENNSYLVANIA AVE	SE	40	14	47	7	59	4
FLORIDA AVE AND NEW YORK AVE	NE	48	8	56	5	56	5
MINNESOTA AVE AND BENNING RD	NE	45	9	59	4	55	6
H ST AND NORTH CAPITOL ST	BN	39	16	36	17	53	7
14TH ST AND U ST	NW	60	4	63	3	50	8
MINNESOTA AVE AND PENNSYLVANIA AVE	SE	39	16	46	9	48	9
FIRTH STERLING AVE AND SUITLAND PKWY	SE	33	23	41	11	42	10
STANTON RD AND SUITLAND PKWY	SE	42	10	47	7	42	10
1ST ST AND UNION STATION PLAZA	NE	36	19	19	93	39	12
NORTH CAPITOL ST AND RIGGS RD	BN	33	23	27	39	38	13
7TH ST AND FLORIDA AVE	NW	41	12	42	10	38	13
14TH ST AND K ST	NW	50	7	40	12	37	15
1ST ST AND NEW YORK AVE	NE	41	12	33	21	36	16
MONTANA AVE AND NEW YORK AVE	NE	57	5	39	13	36	16
13TH ST AND U ST	NW	27	38	28	34	35	18
9TH ST AND U ST	NW	20	76	30	28	34	19
14TH ST AND PENNSYLVANIA AVE	NW	27	38	33	21	34	19

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

INTERSECTION NAME	Quad	2010-2012		2011-2013	
		Freq	Rank	Freq	Rank
NEW YORK AVE AND BLADENSBURG RD	NE	226	1	226	1
NEW YORK AVE AND NORTH CAPITOL ST	BN	205	2	206	2
WISCONSIN AVE AND M ST	NW	169	3	185	3
14TH ST AND U ST	NW	166	4	173	4
FLORIDA AVE AND NEW YORK AVE	NE	150	5	160	5
MINNESOTA AVE AND BENNING RD	NE	134	8	159	6
FAIRLAWN AVE AND PENNSYLVANIA AVE	SE	107	15	146	7
MINNESOTA AVE AND PENNSYLVANIA AVE	SE	123	10	133	8
MONTANA AVE AND NEW YORK AVE	NE	140	6	132	9
STANTON RD AND SUITLAND PKWY	SE	121	11	131	10
H ST AND NORTH CAPITOL ST	BN	100	17	128	11
14TH ST AND K ST	NW	136	7	127	12
7TH ST AND FLORIDA AVE	NW	109	14	121	13
FIRTH STERLING AVE AND SUITLAND PKWY	SE	102	16	116	14
7TH ST AND H ST	NW	114	12	110	15
1ST ST AND NEW YORK AVE	NE	93	25	110	15
KENILWORTH AVE AND BENNING RD	NE	129	9	104	17
1ST ST AND NEW YORK AVE	NW	96	21	100	18
I ST AND S CAPITOL ST	BN	100	17	99	19
NORTH CAPITOL ST AND RIGGS RD	BN	85	35	98	20

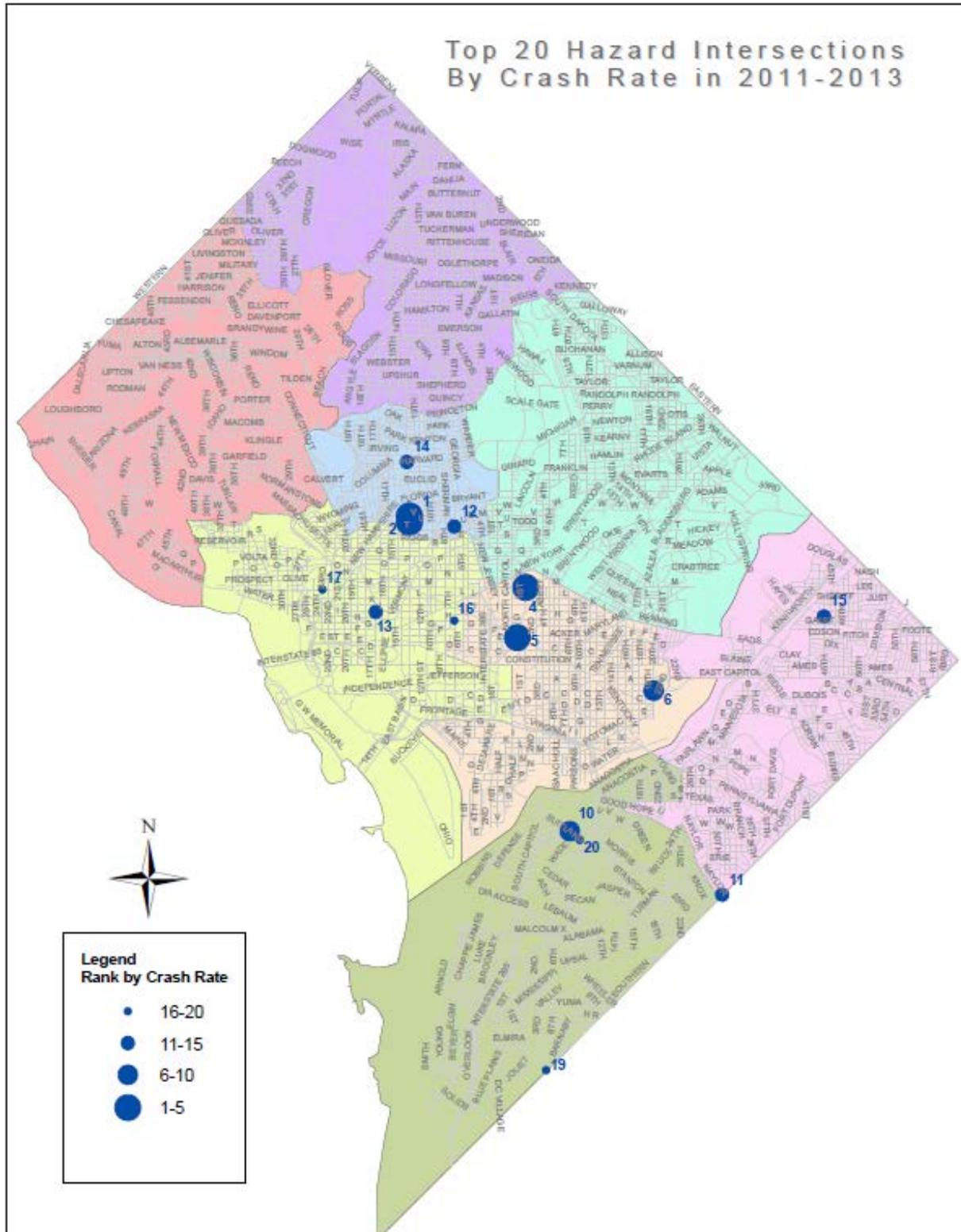


Figure 5.1: Top 20 Hazard Intersections by Crash Rate in 2011-2013

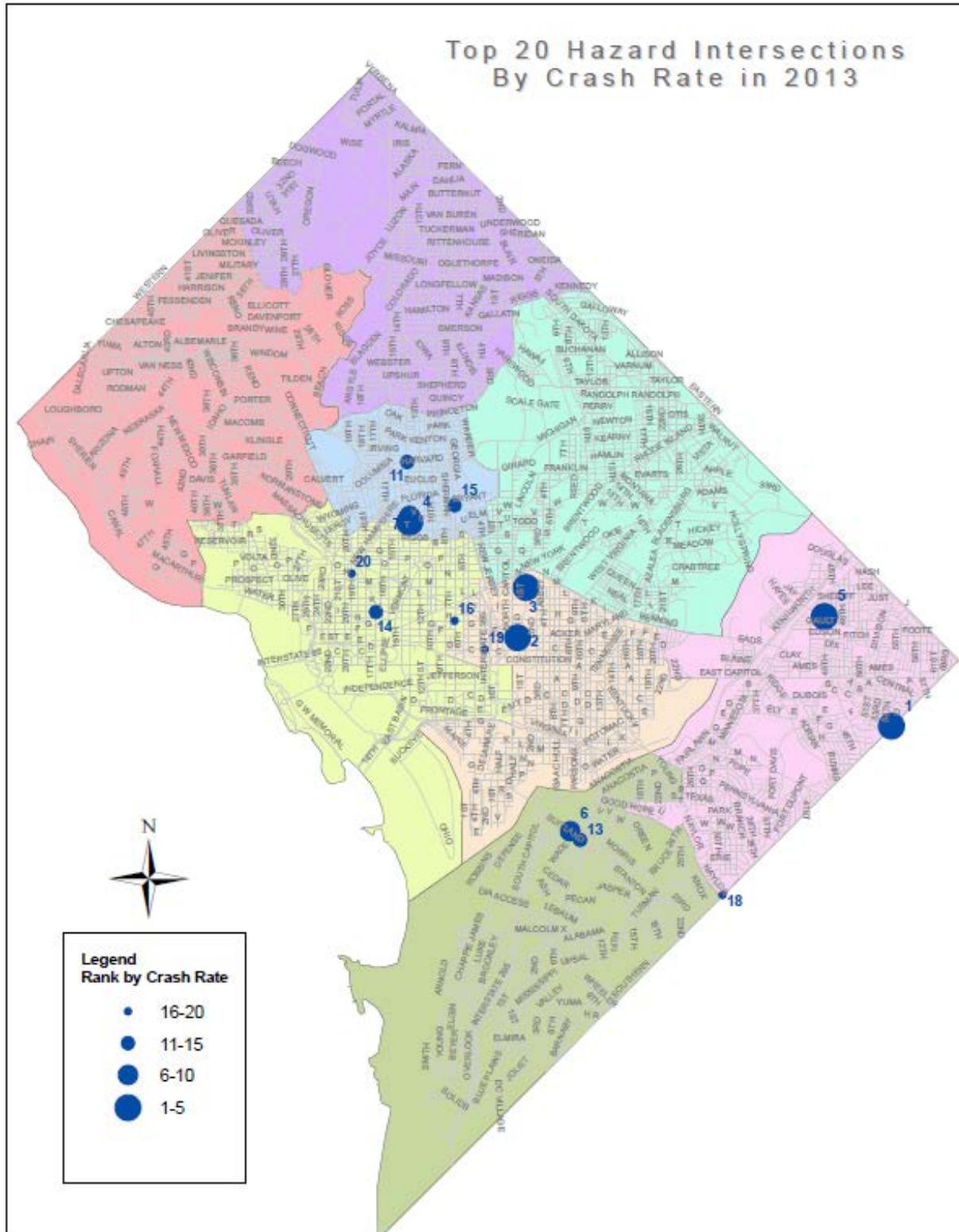


Figure 5.2: Top 20 Hazard Intersections by Crash Rate in 2013

Based on the crash rate calculations, which took into consideration the traffic volumes for each intersection, the summary in Table 5.3 shows that intersections of Southern Avenue and Fitch Street SE, and 1st Street and Union Station Plaza NE were ranked the highest. The intersection of 1st and M Street NE was ranked third highest based on crash rate ranking in Table 5.3. Meanwhile, 14th Street and U Street (NW) was ranked the highest among all intersections as shown in Table 5.4. These crash rates were calculated based on the methodology discussed in Chapter 2.

Table 5.3: Top 20 Hazardous Intersections by Crash Rate in 2011-2013

INTERSECTION NAME	Quad	2011		2012		2013	
		Rate	Rank	Rate	Rank	Rate	Rank
SOUTHERN AVE AND FITCH ST	SE	0.49813	680	0.99626	343	5.47945	1
1ST ST AND UNION STATION PLAZA	NE	1.94234	77	3.98691	5	5.31589	2
1ST ST AND M ST	NE	3.51891	8	3.26756	12	5.02702	3
14TH ST AND U ST	NW	5.93137	1	4.70743	3	4.98988	4
44TH ST AND NANNIE HELEN BURROUGHS AVE	NE	2.16813	56	2.16813	61	4.73046	5
FIRTH STERLING AVE AND HOWARD RD	SE	2.5451	33	2.84452	23	4.34164	6
14TH ST AND V ST	NW	2.95461	17	5.64061	1	4.29761	7
SOUTHERN AVE AND WHEELER RD	SE	2.25802	52	2.55908	36	4.06443	8
14TH ST AND IRVING ST	NW	3.11762	14	3.11762	15	3.96788	9
WISCONSIN AVE AND M ST	NW	4.03981	3	4.99467	2	3.5991	10
14TH ST AND COLUMBIA RD	NW	2.818	22	2.818	26	3.5486	11
MINNESOTA AVE AND BENNING RD	NE	3.73311	4	3.48002	8	3.54329	12
MARTIN LUTHER KING AVE AND HOWARD RD	SE	3.12368	13	2.08245	68	3.51414	13
17TH ST AND I ST	NW	3.46196	9	1.91005	85	3.46196	14
GEORGIA AVE AND BRYANT ST	NW	1.54153	134	3.22321	13	3.36335	15
7TH ST AND H ST	NW	2.65611	28	2.95123	19	3.34473	16
MARTIN LUTHER KING AVE AND GOOD HOPE RD	SE	1.78194	91	2.00468	72	3.34113	17
SOUTHERN AVE AND NAYLOR RD	SE	4.10959	2	2.46575	46	3.28767	18
3RD ST AND D ST	NW	1.63788	111	2.68017	31	3.27576	19
20TH ST AND NEW HAMPSHIRE AVE	NW	0.88856	379	0.88856	410	3.25805	20

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

INTERSECTION NAME	Quad	2010-2012		2011-2013	
		RATE	RANK	RATE	RANK
14TH ST AND U ST	NW	5.42924	1	5.20956	1
14TH ST AND V ST	NW	3.40227	5	4.29761	2
WISCONSIN AVE AND M ST	NW	4.52948	2	4.23568	3
1ST ST AND M ST	NE	2.84864	12	3.93783	4
1ST ST AND UNION STATION PLAZA	NE	3.20316	8	3.74838	5
19TH ST AND INDEPENDENCE AVE	SE	3.75761	3	3.71005	6
MINNESOTA AVE AND BENNING RD	NE	3.35348	6	3.58548	7
14TH ST AND IRVING ST	NW	3.08613	9	3.40104	8
SAVANNAH ST AND STANTON RD	SE	2.60926	21	3.32088	9
FIRTH STERLING AVE AND HOWARD RD	SE	2.69481	18	3.29366	10
SOUTHERN AVE AND NAYLOR RD	SE	2.73973	16	3.28767	11
7TH ST AND FLORIDA AVE	NW	3.23106	7	3.17765	12
17TH ST AND I ST	NW	2.78549	13	3.10383	13
14TH ST AND COLUMBIA RD	NW	2.43531	28	3.06154	14
44TH ST AND NANNIE HELEN BURROUGHS AVE	NE	2.43093	29	3.02224	15
7TH ST AND H ST	NW	3.60706	4	3.01681	16
24TH ST AND M ST	NW	2.49066	25	2.98879	17
SOUTHERN AVE AND WHEELER RD	SE	2.70962	17	2.96051	18
SOUTHERN AVE AND S CAPITOL ST	BN	3.00768	10	2.953	19
MARTIN LUTHER KING AVE AND HOWARD RD	SE	2.21261	42	2.90676	20

Table 5.5 shows that the intersections of Firth Sterling Avenue and Suitland Parkway (SE), and New York Avenue and Bladensburg Avenue (NE) were ranked the highest based on the crash cost computations index for each individual year. When the three-year crash costs were taken into consideration (Table 5.6), the same intersections ranked the highest.

Table 5.5: Top 20 Hazardous Intersections by Crash Severity Cost for 2011-2013

INTERSECTION NAME	Quad	2011		2012		2013	
		Cost	Rank	Cost	Rank	Cost	Rank
FIRTH STERLING AVE AND SUITLAND PKWY	SE	752	4	647	5	964	1
NEW YORK AVE AND BLADENSBURG RD	NE	917	2	797	1	840	2
MINNESOTA AVE AND BENNING RD	NE	797	3	617	9	684	3
NEW YORK AVE AND SOUTH DAKOTA AVE	NE	323	42	330	43	600	4
KENILWORTH AVE AND EAST CAPITOL ST	BN	323	42	392	26	566	5
FLORIDA AVE AND NEW YORK AVE	NE	533	10	662	2	557	6
BENNING RD AND EAST CAPITOL ST	BN	407	23	300	57	519	7
SOUTHERN AVE AND WHEELER RD	SE	203	137	233	104	515	8
NEW YORK AVE AND NORTH CAPITOL ST	BN	935	1	662	2	503	9
WISCONSIN AVE AND M ST	NW	519	11	624	8	497	10
STANTON RD AND SUITLAND PKWY	SE	648	7	633	6	488	11
RHODE ISLAND AVE AND NORTH CAPITOL ST	BN	317	47	317	49	488	11
14TH ST AND U ST	NW	729	5	458	16	458	13
FAIRLAWN AVE AND PENNSYLVANIA AVE	SE	510	12	600	11	450	14
1ST ST AND NEW YORK AVE	NE	300	58	407	21	450	14
4TH ST AND NEW YORK AVE	NW	339	35	270	74	444	16
13TH ST AND U ST	NW	270	74	293	61	444	16
I ST AND S CAPITOL ST	BN	405	24	323	47	443	18
1ST ST AND UNION STATION PLAZA	NE	165	202	407	21	420	19
7TH ST AND H ST	NW	233	106	324	46	416	20

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

INTERSECTION NAME	Quad	2010-2012		2011-2013	
		Cost	Rank	Cost	Rank
NEW YORK AVE AND BLADENSBURG RD	NE	2456	2	2553	1
FIRTH STERLING AVE AND SUITLAND PKWY	SE	2076	3	2362	2
NEW YORK AVE AND NORTH CAPITOL ST	BN	2629	1	2099	3
MINNESOTA AVE AND BENNING RD	NE	2058	5	2097	4
7TH ST AND FLORIDA AVE	NW	1766	7	1774	5
STANTON RD AND SUITLAND PKWY	SE	2068	4	1769	6
FLORIDA AVE AND NEW YORK AVE	NE	1697	10	1758	7
WISCONSIN AVE AND M ST	NW	1707	9	1655	8
14TH ST AND U ST	NW	1826	6	1652	9
FAIRLAWN AVE AND PENNSYLVANIA AVE	SE	1493	12	1605	10
MINNESOTA AVE AND PENNSYLVANIA AVE	SE	1568	11	1523	11
MONTANA AVE AND NEW YORK AVE	NE	1742	8	1440	12
H ST AND NORTH CAPITOL ST	BN	1427	13	1374	13
KENILWORTH AVE AND EAST CAPITOL ST	BN	1052	28	1280	14
NEW YORK AVE AND SOUTH DAKOTA AVE	NE	1157	22	1253	15
BENNING RD AND EAST CAPITOL ST	BN	1203	17	1226	16
KENILWORTH AVE AND BENNING RD	NE	1299	14	1187	17
I ST AND S CAPITOL ST	BN	1202	18	1170	18
1ST ST AND NEW YORK AVE	NW	1089	25	1158	19
1ST ST AND NEW YORK AVE	NE	1164	20	1157	20

In order to examine the effect of the various rankings, the composite index methodology was employed to identify the characteristics of intersections or corridors. From the results presented in Table 5.7, it was determined that the intersections of Minnesota Ave and Benning Road (NE) and 14th and U street (NW) ranked the highest using the composite index method. When the three-year composite index ranking was taken into consideration (Table 5.8), Minnesota Ave and Benning Road (NE) and Wisconsin Avenue and M Street (NW) were the top two most hazardous intersections. The GIS maps for the top 20 hazardous intersections by crash cost from 2011 through 2013 and the top 20 hazard intersection by crash cost in 2013 can be found 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 2011 through 2013 and the top 20 hazard intersection by crash composite index in 2013 respectively.

Table 5.7: Top 20 Hazardous Intersections by Composite Index for 2011-2013

INTERSECTION NAME	Quad	2011		2012		2013	
		COMP	RANK	COMP	RANK	COMP	RANK
MINNESOTA AVE AND BENNING RD	NE	3.5	1	8	2	5.25	1
14TH ST AND U ST	NW	3.5	1	10.75	4	8.75	2
WISCONSIN AVE AND M ST	NW	7.75	3	5	1	9.5	3
1ST ST AND UNION STATION PLAZA	NE	143.5	100	14.75	7	11.75	4
NEW YORK AVE AND BLADENSBURG RD	NE	14.75	6	13.25	6	12.25	5
13TH ST AND U ST	NW	61.75	38	43.75	24	17	6
SOUTHERN AVE AND WHEELER RD	SE	120.5	88	92.75	60	18.25	7
14TH ST AND IRVING ST	NW	40.25	18	34.5	16	19.25	8
FIRTH STERLING AVE AND SUITLAND PKWY	SE	15.75	7	17.25	9	20.25	9
BENNING RD AND EAST CAPITOL ST	BN	49	24	80.75	46	20.25	9
7TH ST AND H ST	NW	69.75	45	34	15	20.5	11
STANTON RD AND SUITLAND PKWY	SE	11	5	15.75	8	21	12
7TH ST AND FLORIDA AVE	NW	8.25	4	11	5	21.5	13
4TH ST AND NEW YORK AVE	NW	49	24	79.75	45	25.75	14
9TH ST AND MASSACHUSETTS AVE	NW	111.75	81	124	84	28.25	15
FIRTH STERLING AVE AND HOWARD RD	SE	146.25	101	113.5	77	28.5	16
14TH ST AND COLUMBIA RD	NW	46.75	22	52.75	32	29.25	17
44TH ST AND NANNIE HELEN BURROUGHS AVE	NE	311.75	236	326.5	249	30.25	18
I ST AND S CAPITOL ST	BN	50.5	30	67.75	38	32.25	19
19TH ST AND M ST	NW	88.5	58	88.75	52	33.5	20
MINNESOTA AVE AND BENNING RD	NE	3.5	1	8	2	5.25	1

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

INTERSECTION NAME	Quad	2010-2012		2011-2013	
		COMP	RANK	COMP	RANK
MINNESOTA AVE AND BENNING RD	NE	5.5	2	4.75	1
WISCONSIN AVE AND M ST	NW	5.75	3	5.5	2
14TH ST AND U ST	NW	4.25	1	6.25	3
7TH ST AND FLORIDA AVE	NW	8.5	4	8.5	4
STANTON RD AND SUITLAND PKWY	SE	9.5	5	11.5	5
NEW YORK AVE AND BLADENSBURG RD	NE	11.25	6	11.75	6
FIRTH STERLING AVE AND SUITLAND PKWY	SE	16.5	9	15.5	7
H ST AND NORTH CAPITOL ST	BN	14	7	16	8
1ST ST AND UNION STATION PLAZA	NE	28.25	14	22.75	9
14TH ST AND IRVING ST	NW	29.25	16	24.5	10
7TH ST AND H ST	NW	14.25	8	25	11
FLORIDA AVE AND NEW YORK AVE	NE	28.5	15	25.75	12
13TH ST AND U ST	NW	34	18	27.75	13
NEW YORK AVE AND NORTH CAPITOL ST	BN	22.75	10	28.75	14
9TH ST AND U ST	NW	33.5	17	31.5	15
14TH ST AND K ST	NW	23.75	11	31.75	16
MINNESOTA AVE AND PENNSYLVANIA AVE	SE	26.75	12	33.25	17
14TH ST AND COLUMBIA RD	NW	61	39	34	18
BENNING RD AND EAST CAPITOL ST	BN	37.75	19	35.25	19
4TH ST AND NEW YORK AVE	NW	51.25	27	37	20

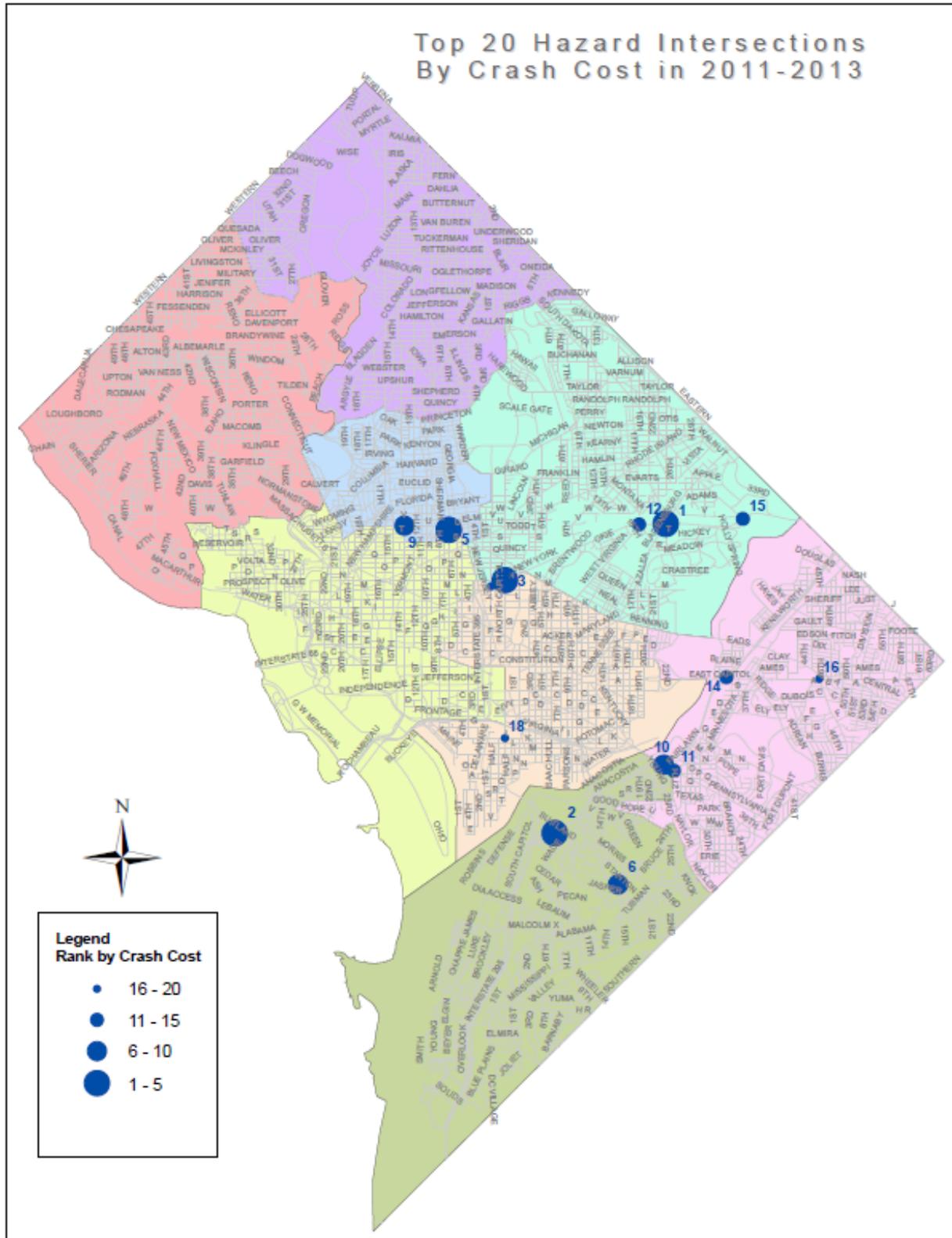


Figure 5.3: Top 20 Hazard Intersections by Crash Cost in 2011-2013

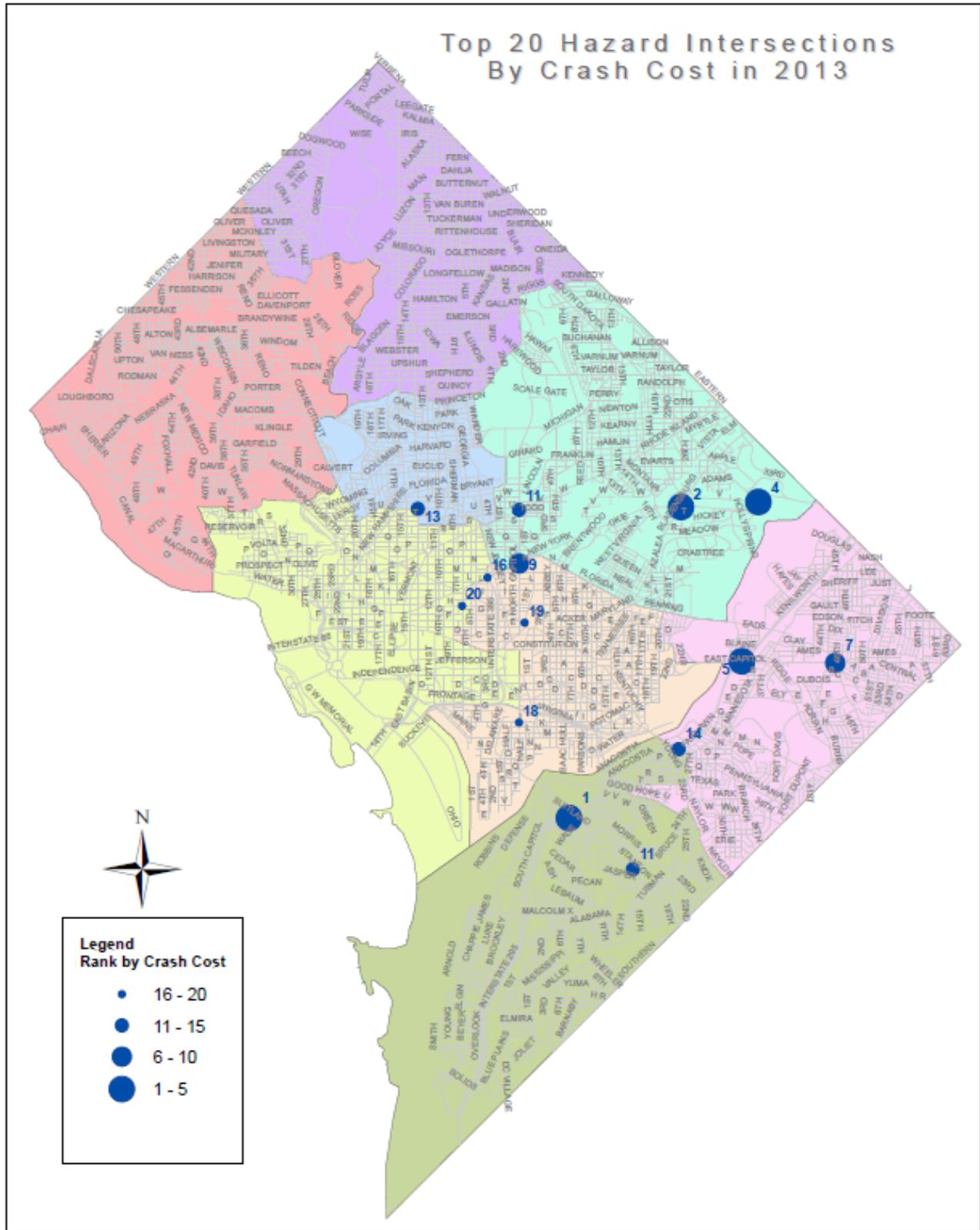


Figure 5.4: Top 20 Hazard Intersections by Crash Cost in 2013

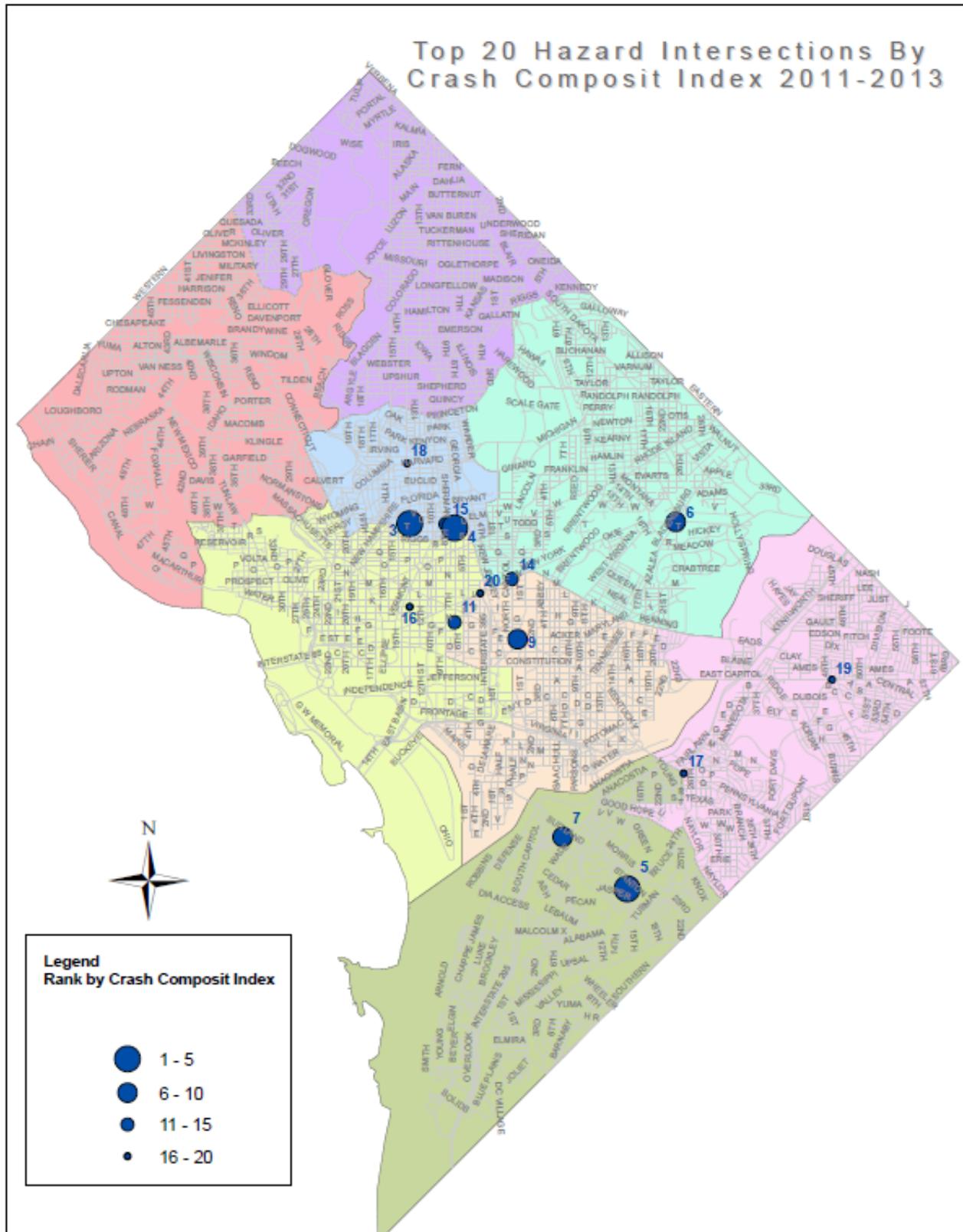


Figure 5.5: Top 20 Hazard Intersections by Crash Composite Index 2011-2013

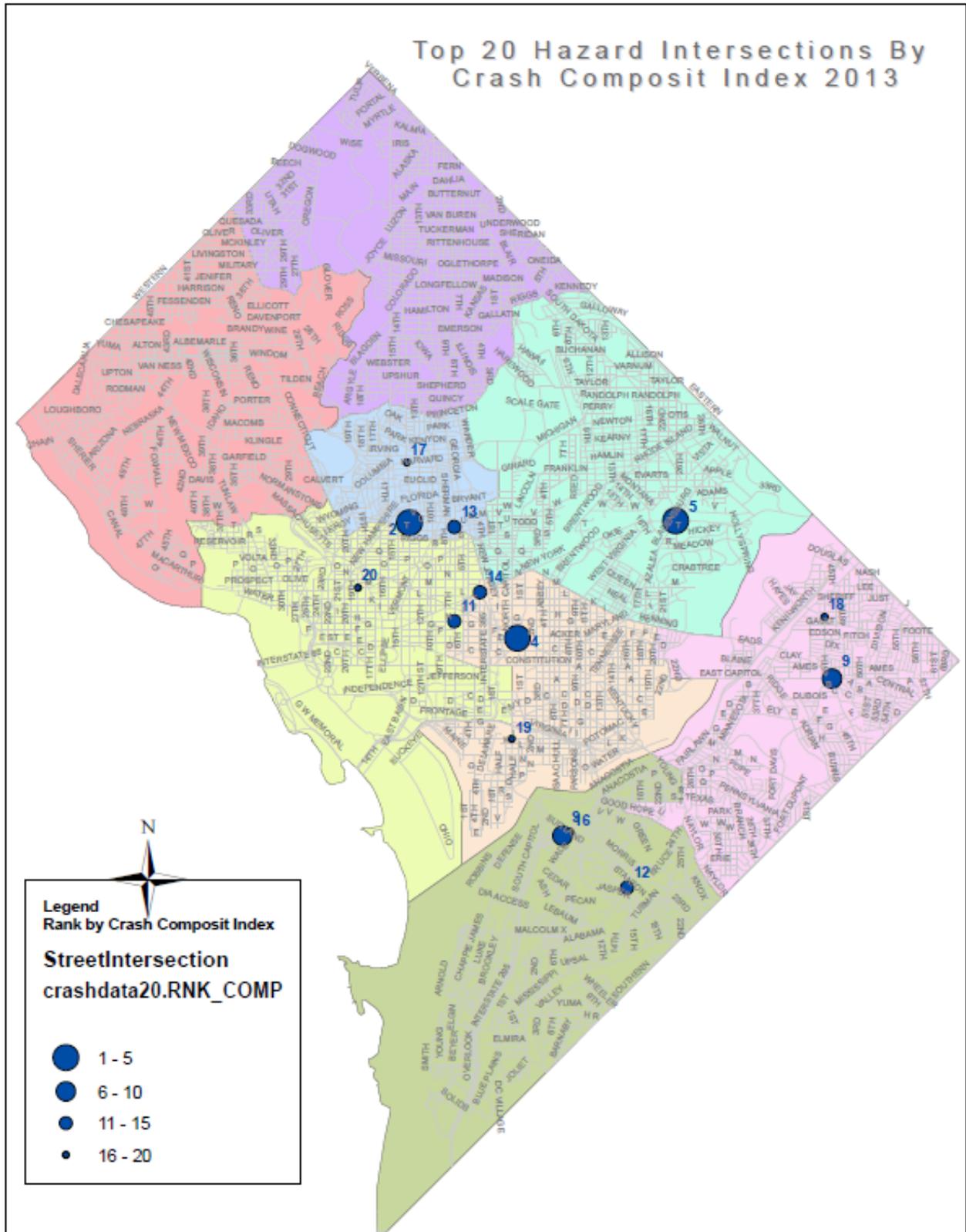


Figure 5.6: Top 20 Hazard Intersections by Crash Composite Index in 2013

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 the locations were further analyzed and presented in Table 5.9. From the table, in 2013, rear end crashes was the leading crash type for most of the high frequency crash locations, whereas side swiped and right-angle 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 2013

Type of Collision	Backing	Fixed Object	Head On	Left Turn	Non-Collision	Other	Parked Vehicle	Ran Off Roadway	Rear End	Right Angle	Right Turn	Side Swiped	Straight	Override	Unknown	Total Crash
NEW YORK AVE AND BLADENSBURG RD,NE	10	11	5	15	1	5	4	3	81	18	13	63	3	1	6	239
NEW YORK AVE AND NORTH CAPITOL ST,BN	4	1	2	16	0	4	3	1	46	15	12	83	1	0	9	197
WISCONSIN AVE AND M ST,NW	15	2	1	16	0	6	1	0	29	3	16	77	6	0	0	172
14TH ST AND U ST,NW	5	6	3	15	1	4	0	1	48	6	13	55	9	0	3	169
FLORIDA AVE AND NEW YORK AVE,NE	3	2	2	14	2	2	2	1	63	6	3	64	1	0	2	167
MINNESOTA AVE AND BENNING RD,NE	11	3	1	14	0	8	8	1	30	11	13	58	4	2	2	166
FAIRLAWN AVE AND PENNSYLVANIA AVE,SE	1	2	1	15	1	3	0	3	60	4	6	44	2	0	3	145
MINNESOTA AVE AND PENNSYLVANIA AVE,SE	3	9	5	2	1	7	2	5	67	4	1	20	2	1	0	129
MONTANA AVE AND NEW YORK AVE,NE	1	3	3	10	0	5	3	2	31	19	7	37	5	0	1	127
STANTON RD AND SUITLAND PKWY,SE	4	2	1	17	0	6	0	0	32	11	15	34	1	0	1	124
H ST AND NORTH CAPITOL ST,BN	1	1	11	37	0	4	0	1	42	8	4	9	1	0	3	122
14TH ST AND K ST,NW	3	2	1	8	0	3	5	0	35	8	10	36	3	0	4	118
7TH ST AND FLORIDA AVE,NW	5	1	2	12	0	6	4	1	16	8	15	40	3	0	4	117
FIRTH STERLING AVE AND SUITLAND PKWY,SE	4	1	2	11	0	1	1	0	31	7	7	44	3	0	5	117
1ST ST AND NEW YORK AVE,NE	0	12	2	0	0	2	1	7	48	3	1	31	1	0	3	111
7TH ST AND H ST,NW	2	2	3	6	0	2	1	0	43	0	9	39	1	0	2	110
KENILWORTH AVE AND BENNING RD,NE	3	2	1	2	0	10	5	0	15	3	1	63	2	1	2	110
1ST ST AND NEW YORK AVE,NW	4	1	4	11	0	2	0	1	33	17	3	31	2	0	1	110
4TH ST AND NEW YORK AVE,NW	12	1	1	7	0	3	6	1	17	3	3	43	5	0	6	108
I ST AND S CAPITOL ST,BN	2	3	1	6	1	4	2	2	42	11	3	27	0	0	2	106

5.3 Identification of High Frequency Crash Corridors

5.3.1 Summary of Crashes on Corridors

From the results presented in Table 5.10, it can be observed that Pennsylvania Avenue, New York Avenue, and Georgia Avenue are the corridors with the highest crash frequencies in the District from 2011 through 2013.

Table 5.10: High Frequency Crash Corridors for 2011-2013

Corridor	2011			2012			2013			Total
	Collisions	Fatalities	Injuries	Collisions	Fatalities	Injuries	Collisions	Fatalities	Injuries	
PENNSYLVANIA AVE	730	0	270	784	0	310	797	0	287	2311
NEW YORK AVE	715	0	292	692	2	341	724	1	270	2131
GEORGIA AVE	568	0	236	622	0	280	619	1	259	1809
NORTH CAPITOL ST	559	1	268	530	0	233	492	0	248	1581
CONNECTICUT AVE	513	1	174	516	1	129	456	1	154	1485
SIXTEENTH ST	521	1	212	533	0	215	534	0	191	1588
WISCONSIN AVE	480	0	128	424	0	111	448	1	126	1352
FLORIDA AVE	449	2	197	454	0	187	476	1	188	1379
RHODE ISLAND AVE	421	0	262	392	1	205	469	0	203	1282
BENNING RD	369	2	240	363	1	212	453	2	245	1185
SOUTHERN AVE	305	3	205	289	1	174	353	1	224	947
BLADENSBURG RD	234	0	121	246	1	98	280	0	111	760
CONSTITUTION AVE	184	0	58	219	1	67	204	1	61	607
NEW JERSEY AVE	135	0	75	150	1	87	146	0	56	431

Presented in Figure 5.7 and Table 5.11 are respectively the summary of the types of crashes reported for the top 20 corridors and the average crashes per mile along the corridors.

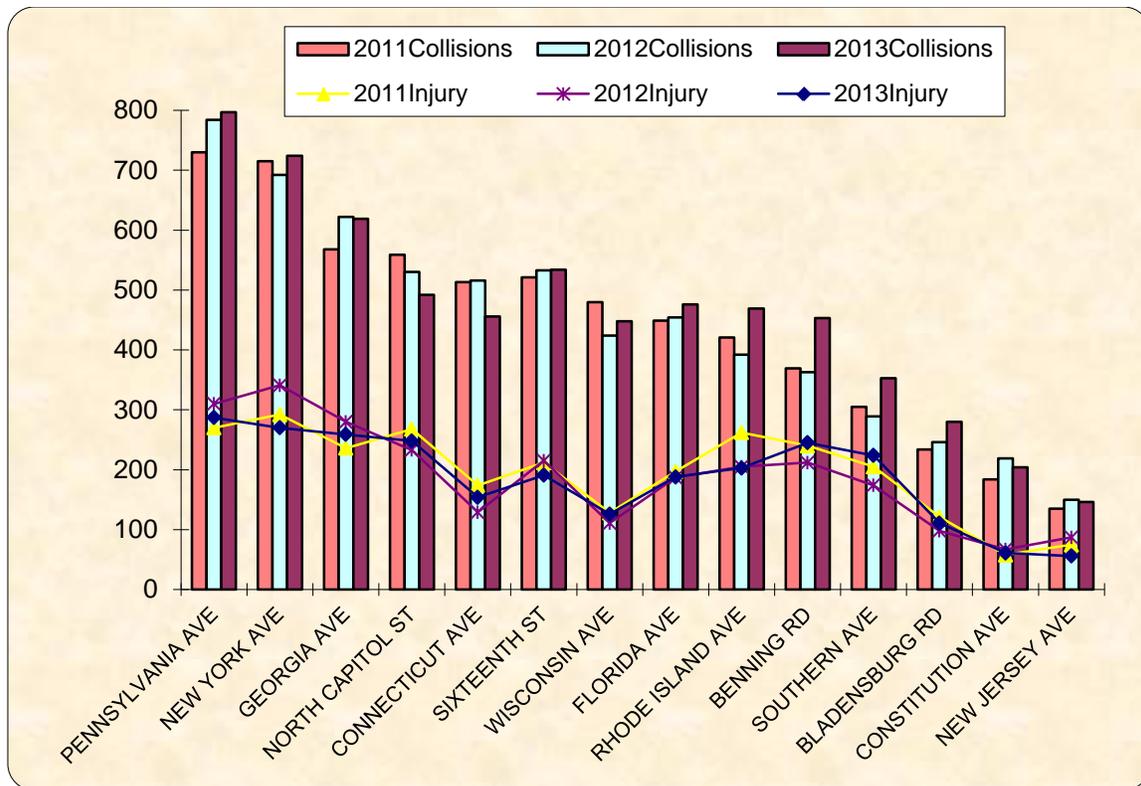


Figure 5.7: High Frequency Crash Corridors for 2011-2013

Table 5.11: Summary of High Frequency Crash Corridors for 2011-2013

Corridor	Length(miles)	No. of Intersections	No. of Crashes	Average Crashes per Mile	Average Crashes per Intersection
PENNSYLVANIA AVE	5.48	89	2311	421.72	25.97
NEW YORK AVE	5.08	46	2131	419.49	46.33
GEORGIA AVE	4.76	65	1809	380.04	27.83
NORTH CAPITOL ST	3.85	73	1581	410.65	21.66
CONNECTICUT AVE	5.01	73	1485	296.41	20.34
SIXTEENTH ST	6.39	89	1588	248.51	17.84
WISCONSIN AVE	4.87	65	1352	277.62	20.80
FLORIDA AVE	5.46	80	1379	252.56	17.24
RHODE ISLAND AVE	4.56	49	1282	281.14	26.16
BENNING RD	3.39	45	1185	349.56	26.33
SOUTHERN AVE	5.4	122	947	175.37	7.76
BLADENSBURG RD	2.65	45	760	286.79	16.89
CONSTITUTION AVE	3.9	52	607	155.64	11.67
NEW JERSEY AVE	2.79	38	431	154.48	11.34

5.3.2 High Frequency Crash Corridors by Number of Crashes per Mile

Table 5.12 presents the summary of the average number of crashes per mile on each corridor is presented for 2011 through 2013. From the results, Pennsylvania Avenue, New York Avenue, and Georgia Avenue are the three highest ranked corridors from 2011 through 2013 based on the number of crashes per mile. Figures 5.8 and 5.9 show the GIS maps for the top 20 hazard intersection by crash frequency index 2011-2013 and the top 20 hazard intersection by crash frequency index for only 2013 respectively.

Table 5.12: High Frequency Crash Corridors by Number of Crash Occurrences per Mile in 2011-2013

Average Crashes per Mile	2011	2012	2013
PENNSYLVANIA AVE	133.21	143.07	145.44
NEW YORK AVE	140.75	136.22	142.52
GEORGIA AVE	119.33	130.67	130.04
NORTH CAPITOL ST	145.19	137.66	127.79
CONNECTICUT AVE	102.40	102.99	91.02
SIXTEENTH ST	81.53	83.41	83.57
WISCONSIN AVE	98.56	87.06	91.99
FLORIDA AVE	82.23	83.15	87.18
RHODE ISLAND AVE	92.32	85.96	102.85
BENNING RD	108.85	107.08	133.63
SOUTHERN AVE	56.48	53.52	65.37
BLADENSBURG RD	88.30	92.83	105.66
CONSTITUTION AVE	47.18	56.15	52.31
NEW JERSEY AVE	48.39	53.76	52.33

5.3.3 Number of Crashes per Intersecting Intersection on Corridors

As shown in Table 5.13, it can be noted that Pennsylvania Avenue, New York Avenue, and Georgia Avenue are the three highest ranked corridors on the basis of crashes per intersecting intersection on corridors.

Table 5.13: Number of Crashes per Intersection on Corridors in 2011 - 2013

Average Crashes per Intersection	2011	2012	2013
PENNSYLVANIA AVE	8.20	8.81	8.96
NEW YORK AVE	15.54	15.04	15.74
GEORGIA AVE	8.74	9.57	9.52
NORTH CAPITOL ST	7.66	7.26	6.74
CONNECTICUT AVE	7.03	7.07	6.25
SIXTEENTH ST	5.85	5.99	6.00
WISCONSIN AVE	7.38	6.52	6.89
FLORIDA AVE	5.61	5.68	5.95
RHODE ISLAND AVE	8.59	8.00	9.57
BENNING RD	8.20	8.07	10.07
SOUTHERN AVE	2.50	2.37	2.89
BLADENSBURG RD	5.20	5.47	6.22
CONSTITUTION AVE	3.54	4.21	3.92
NEW JERSEY AVE	3.55	3.95	3.84

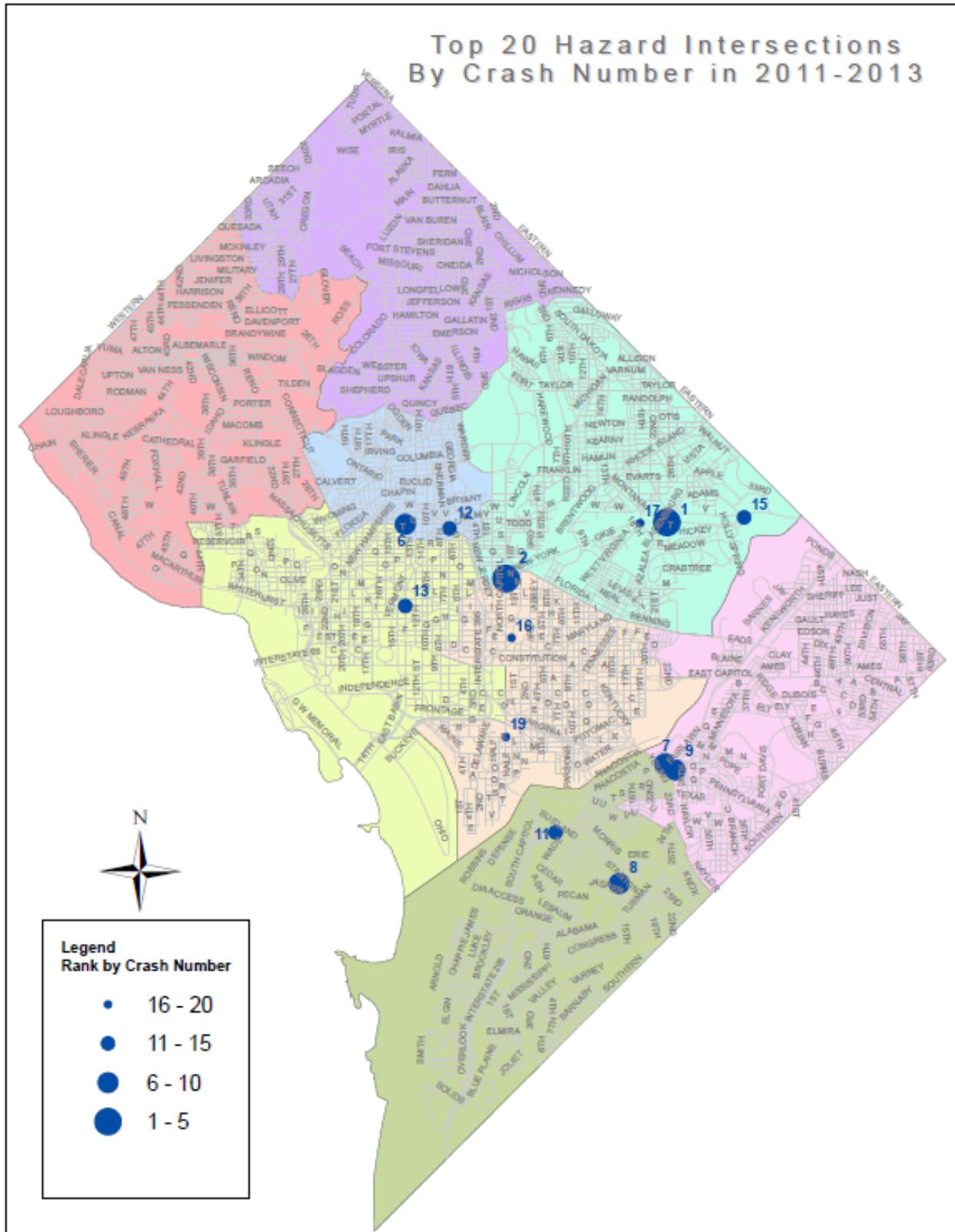


Figure 5.8: Top 20 Hazard Intersections by Crash Frequency Index in 2011-2013

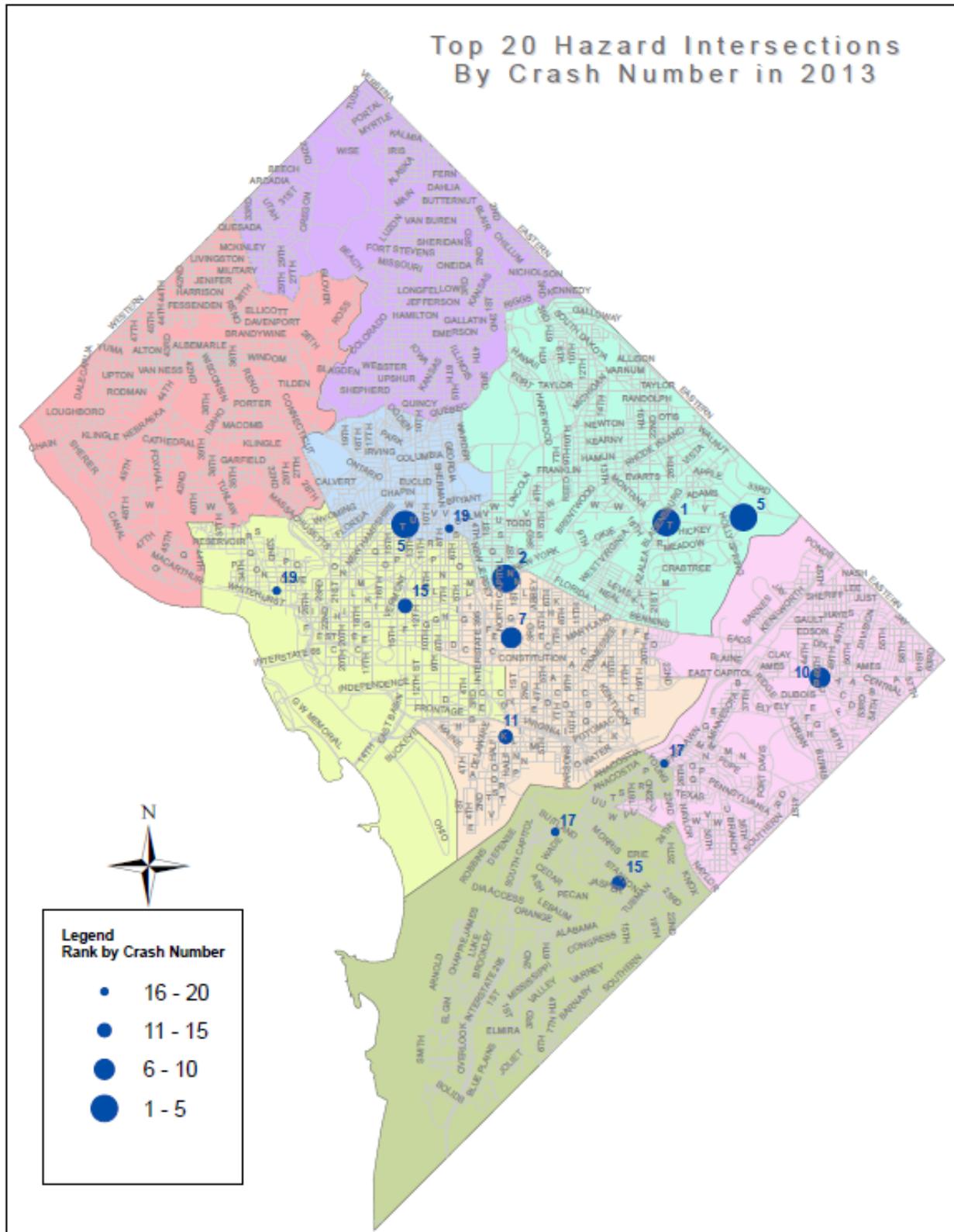


Figure 5.9: Top 20 Hazardous Intersections by Crash Frequency in 2013

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 to the national data.

The results are presented in Table 6.1 and Figure 6.1. From the table and figure, it can be determined that the fatalities per 100 million VMT of the District from 2005 to 2013 were substantially lower than the national level rate except for the year 2007. Overall, the fatalities per 100 million VMT for Washington, DC is relatively lower than the national rate.

Table 6.1: Fatality Rate from 2005 through 2013

Year		Fatalities	Total Vehicle Miles	Fatalities Per 100 Million	Total Population	Fatalities Per 100,000
			Traveled (Millions)	Vehicle Miles Traveled		Population
2005	Dist of Columbia	49	3,713	1.32	582,049	8.42
	US	43,510	2,989,430	1.46	295,753,121	14.71
2006	Dist of Columbia	41	3,623	1.13	583,978	7.02
	US	42,708	3,014,371	1.42	298,593,212	14.30
2007	Dist of Columbia	54	3,609	1.50	586,409	9.21
	US	41,259	3,032,399	1.36	301,579,895	13.68
2008	Dist of Columbia	39	3,611	1.08	590,074	6.61
	US	37,423	2,973,509	1.26	304,374,846	12.30
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

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

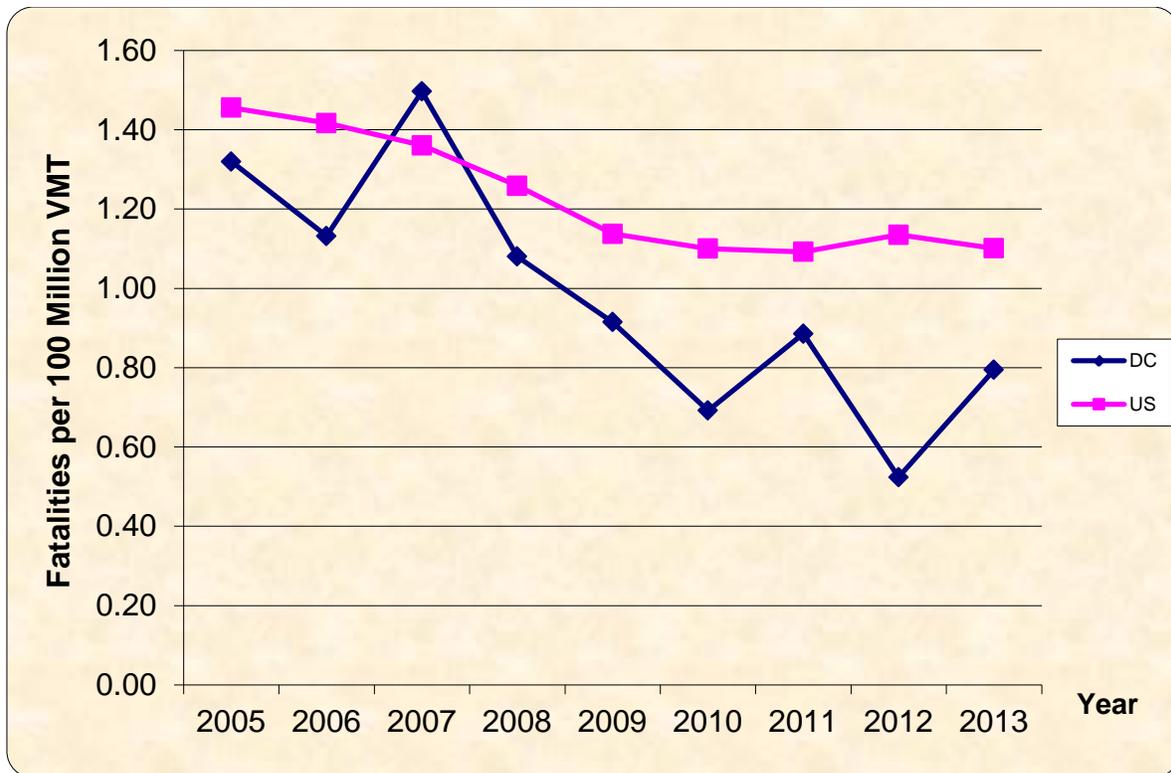


Figure 6.1: Fatality Rate per 100 Million VMT from 2005 through 2013

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

The injury rate per 100 million vehicle miles traveled (VMT) information from 2005 through 2013 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 injuries per 100 million VMT in the District from 2005 to 2013 is considerably higher than the national values.

Table 6.2: Injury Rate from 2005 through 2013

Year		Injuries	Total Vehicle Miles	Injuries Per 100 Million	Total Population	Injuries Per 100,000
			Traveled (Millions)	Vehicle Miles Traveled		Population
2005	Dist of Columbia	7,524	3,713	202.64	582,049	1292.67
	US	2,699,000	2,989,430	90.28	295,753,121	912.59
2006	Dist of Columbia	7,061	3,623	194.89	583,978	1209.12
	US	2,575,000	3,014,371	85.42	298,593,212	862.38
2007	Dist of Columbia	6,571	3,609	182.07	586,409	1120.55
	US	2,491,000	3,032,399	82.15	301,579,895	825.98
2008	Dist of Columbia	6,792	3,611	188.09	590,074	1151.04
	US	2,346,000	2,973,509	78.90	304,374,846	770.76
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	2,979,321	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	632,323	1,149
	US	2,362,000	2,957,394	80	313,914,040	752
2013	Dist of Columbia	7,505	3,651	206	646,449	1,161
	US	2,313,000	2,972,287	78	315,091,138	734

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

*The 2011 VMT data of the country was not available as at the time of preparing this report. The 2010 value was used.

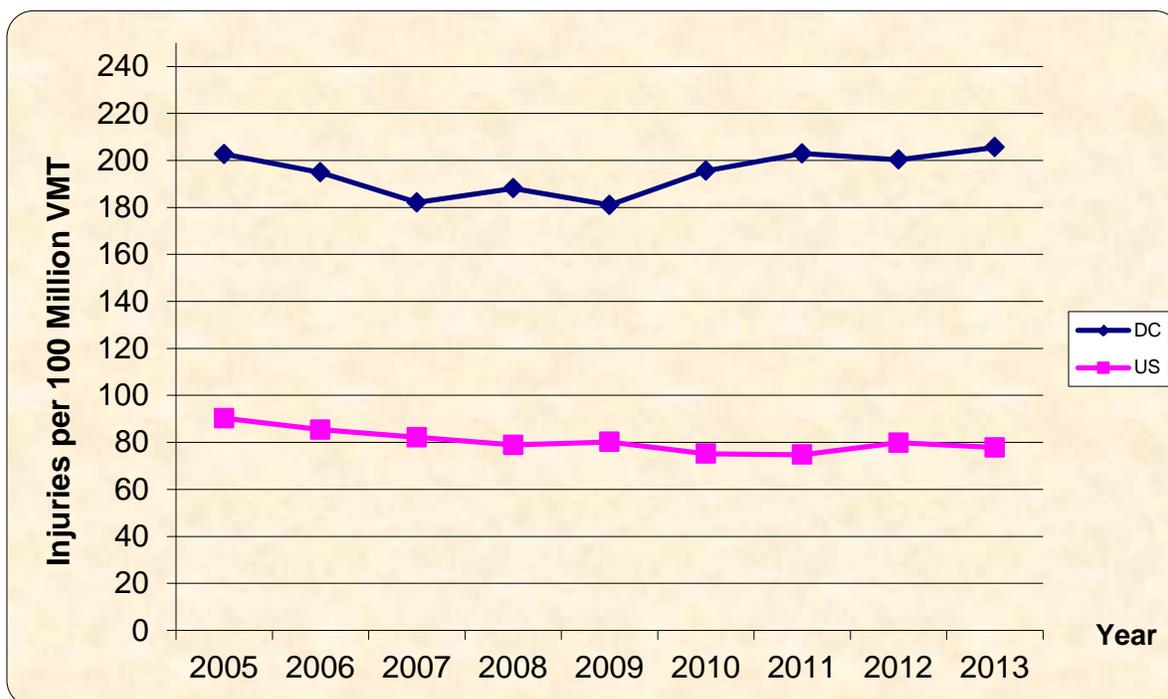


Figure 6.2: Injury Rate per 100 Million VMT from 2005 through 2013

CHAPTER 7: APPENDICES

7.1 Top 100 Hazard Intersections

7.1.1 Rank by Crash Frequency

Table 7.1: Intersection Rank by Crash Frequency for 2011- 2013 (Rank 1~34)

INTERSECTION NAME	Quad	2011		2012		2013	
		Freq	Rank	Freq	Rank	Freq	Rank
NEW YORK AVE AND BLADENSBURG RD	NE	70	1	76	2	80	1
WISCONSIN AVE AND M ST	NW	62	3	55	6	68	2
NEW YORK AVE AND NORTH CAPITOL ST	BN	66	2	78	1	62	3
FAIRLAWN AVE AND PENNSYLVANIA AVE	SE	40	14	47	7	59	4
FLORIDA AVE AND NEW YORK AVE	NE	48	8	56	5	56	5
MINNESOTA AVE AND BENNING RD	NE	45	9	59	4	55	6
H ST AND NORTH CAPITOL ST	BN	39	16	36	17	53	7
14TH ST AND U ST	NW	60	4	63	3	50	8
MINNESOTA AVE AND PENNSYLVANIA AVE	SE	39	16	46	9	48	9
FIRTH STERLING AVE AND SUITLAND PKWY	SE	33	23	41	11	42	10
STANTON RD AND SUITLAND PKWY	SE	42	10	47	7	42	10
1ST ST AND UNION STATION PLAZA	NE	36	19	19	93	39	12
NORTH CAPITOL ST AND RIGGS RD	BN	33	23	27	39	38	13
7TH ST AND FLORIDA AVE	NW	41	12	42	10	38	13
14TH ST AND K ST	NW	50	7	40	12	37	15
1ST ST AND NEW YORK AVE	NE	41	12	33	21	36	16
MONTANA AVE AND NEW YORK AVE	NE	57	5	39	13	36	16
13TH ST AND U ST	NW	27	38	28	34	35	18
9TH ST AND U ST	NW	20	76	30	28	34	19
14TH ST AND PENNSYLVANIA AVE	NW	27	38	33	21	34	19
14TH ST AND IRVING ST	NW	32	25	33	21	33	21
14TH ST AND CONSTITUTION AVE	NW	23	55	31	25	32	22
I ST AND S CAPITOL ST	BN	36	19	32	24	31	23
19TH ST AND INDEPENDENCE AVE	SE	23	55	25	51	31	23
2ND ST AND H ST	NW	19	84	28	34	30	25
1ST ST AND MICHIGAN AVE	NW	19	84	18	104	30	25
1ST ST AND NEW YORK AVE	NW	31	26	39	13	30	25
7TH ST AND H ST	NW	53	6	27	39	30	25
KENILWORTH AVE AND EAST CAPITOL ST	BN	28	34	25	51	30	25
18TH ST AND ADAMS MILL RD	NW	29	33	27	39	29	30
15TH ST AND K ST	NW	17	109	25	51	29	30
KENILWORTH AVE AND BENNING RD	NE	40	14	35	19	29	30
4TH ST AND NEW YORK AVE	NE	16	132	38	16	29	30
14TH ST AND P ST	NW	17	109	24	58	28	34
16TH ST AND NEW HAMPSHIRE AVE	NW	24	49	15	156	28	34

Table 7.2: Intersection Rank by Crash Frequency for 2011-2013 (Rank: 34~74)

INTERSECTION NAME	Quad	2011		2012		2013	
		Freq	Rank	Freq	Rank	Freq	Rank
BENNING RD AND EAST CAPITOL ST	BN	38	18	31	25	28	34
24TH ST AND M ST	NW	9	404	23	63	28	34
14TH ST AND F ST	NW	11	299	16	138	28	34
31ST ST AND M ST	NW	31	26	26	44	28	34
RHODE ISLAND AVE AND REED ST	NE	27	38	19	93	28	34
NEW YORK AVE AND SOUTH DAKOTA AVE	NE	36	19	31	25	27	41
CONNECTICUT AVE AND M ST	NW	17	109	18	104	27	41
FAIRVIEW AVE AND NEW YORK AVE	NE	17	109	19	93	27	41
14TH ST AND COLUMBIA RD	NW	16	132	27	39	27	41
M ST AND NORTH CAPITOL ST	BN	21	71	36	17	27	41
14TH ST AND L ST	NW	22	63	18	104	26	46
4TH ST AND NEW YORK AVE	NW	28	34	28	34	26	46
6TH ST AND NEW YORK AVE	NW	24	49	26	44	26	46
NORTH CAPITOL ST AND P ST	BN	23	55	18	104	26	46
11TH ST AND M ST	SE	6	676	9	398	26	46
BENNING RD AND BLADENSBURG RD	NE	30	31	29	30	26	46
EASTERN AVE AND KENILWORTH AVE	NE	2	1792	8	477	25	52
3RD ST AND NEW YORK AVE	NW	15	155	13	210	25	52
13TH ST AND K ST	NW	26	45	23	63	25	52
11TH ST AND H ST	NW	22	63	13	210	25	52
14TH ST AND I ST	NW	25	47	29	30	25	52
K ST AND NORTH CAPITOL ST	BN	23	55	39	13	25	52
15TH ST AND MASSACHUSETTS AVE	NW	11	299	12	245	25	52
16TH ST AND K ST	NW	31	26	29	30	24	59
SOUTH DAKOTA AVE AND BLADENSBURG RD	NE	19	84	34	20	24	59
14TH ST AND H ST	NE	13	214	13	210	24	59
9TH ST AND NEW YORK AVE	NW	14	178	20	80	24	59
6TH ST AND H ST	NW	19	84	22	67	24	59
7TH ST AND K ST	NW	7	558	14	180	23	64
GEORGIA AVE AND BRYANT ST	NW	8	470	11	283	23	64
1ST ST AND K ST	NE	16	132	14	180	23	64
NORTH CAPITOL ST AND R ST	BN	5	845	8	477	23	64
2ND ST AND MASSACHUSETTS AVE	NW	8	470	14	180	23	64
WEST VIRGINIA AVE AND MOUNT OLIVET RD	NE	14	178	26	44	23	64
RHODE ISLAND AVE AND NORTH CAPITOL ST	BN	23	55	21	75	23	64
13TH ST AND MASSACHUSETTS AVE	NW	13	214	14	180	23	64
M ST AND S CAPITOL ST	BN	23	55	15	156	23	64
17TH ST AND BLADENSBURG RD	NE	31	26	26	44	23	64
4TH ST AND MASSACHUSETTS AVE	NW	14	178	17	122	22	74
14TH ST AND H ST	NW	27	38	19	93	22	74

Table 7.3: Intersection Rank by Crash Frequency for 2011-2013 (Rank: 74~100)

INTERSECTION NAME	Quad	2011		2012		2013	
		Freq	Rank	Freq	Rank	Freq	Rank
NEW HAMPSHIRE AVE AND NORTH CAPITOL ST	BN	27	38	30	28	22	74
9TH ST AND CONSTITUTION AVE	NW	12	261	15	156	22	74
CONNECTICUT AVE AND K ST	NW	17	109	22	67	22	74
NEW JERSEY AVE AND NEW YORK AVE	NW	36	19	26	44	22	74
BRANCH AVE AND PENNSYLVANIA AVE	SE	31	26	28	34	22	74
16TH ST AND FLORIDA AVE	NW	13	214	12	245	22	74
19TH ST AND M ST	NW	21	71	25	51	22	74
14TH ST AND PARK RD	NW	23	55	25	51	21	83
16TH ST AND EUCLID ST	NW	11	299	14	180	21	83
9TH ST AND MASSACHUSETTS AVE	NW	28	34	19	93	21	83
15TH ST AND CONSTITUTION AVE	NW	12	261	10	343	21	83
14TH ST AND V ST	NW	6	676	11	283	21	83
12TH ST AND CONSTITUTION AVE	NW	26	45	16	138	21	83
24TH ST AND PENNSYLVANIA AVE	NW	22	63	18	104	20	89
GEORGIA AVE AND IRVING ST	NW	12	261	18	104	20	89
15TH ST AND H ST	NW	14	178	16	138	20	89
DUPONT CIR AND MASSACHUSETTS AVE	NW	16	132	5	829	20	89
GEORGIA AVE AND MISSOURI AVE	NW	21	71	22	67	20	89
NEBRASKA AVE AND WARD CIR	NW	12	261	18	104	20	89
17TH ST AND PENNSYLVANIA AVE	NW	13	214	18	104	20	89
14TH ST AND THOMAS CIR	NW	7	558	14	180	20	89
12TH ST AND INDEPENDENCE AVE	SW	8	470	11	283	20	89
SOUTHERN AVE AND S CAPITOL ST	BN	14	178	21	75	20	89
38TH ST AND RESERVOIR RD	NW	10	356	9	398	19	99
GEORGIA AVE AND UPSHUR ST	NW	6	676	10	343	19	99
SOUTHERN AVE AND BENNING RD	SE	19	84	17	122	19	99
20TH ST AND IRVING ST	NE	12	261	11	283	19	99
WISCONSIN AVE AND Q ST	NW	11	299	12	245	19	99
FIRTH STERLING AVE AND HOWARD RD	SE	18	96	17	122	19	99
CONNECTICUT AVE AND N ST	NW	22	63	13	210	19	99
GEORGIA AVE AND BARRY PL	NW	11	299	20	80	19	99
24TH ST AND L ST	NW	13	214	9	398	19	99
EASTERN AVE AND COLESVILLE RD	NW	30	31	27	39	19	99

**Table 7.4: Intersection Rank by Crash Frequency for 3-Year Periods
(Rank: 1~32)**

INTERSECTION NAME	Quad	2010-2012		2011-2013	
		Freq	Rank	Freq	Rank
NEW YORK AVE AND BLADENSBURG RD	NE	226	1	226	1
NEW YORK AVE AND NORTH CAPITOL ST	BN	205	2	206	2
WISCONSIN AVE AND M ST	NW	169	3	185	3
14TH ST AND U ST	NW	166	4	173	4
FLORIDA AVE AND NEW YORK AVE	NE	150	5	160	5
MINNESOTA AVE AND BENNING RD	NE	134	8	159	6
FAIRLAWN AVE AND PENNSYLVANIA AVE	SE	107	15	146	7
MINNESOTA AVE AND PENNSYLVANIA AVE	SE	123	10	133	8
MONTANA AVE AND NEW YORK AVE	NE	140	6	132	9
STANTON RD AND SUITLAND PKWY	SE	121	11	131	10
H ST AND NORTH CAPITOL ST	BN	100	17	128	11
14TH ST AND K ST	NW	136	7	127	12
7TH ST AND FLORIDA AVE	NW	109	14	121	13
FIRTH STERLING AVE AND SUITLAND PKWY	SE	102	16	116	14
7TH ST AND H ST	NW	114	12	110	15
1ST ST AND NEW YORK AVE	NE	93	25	110	15
KENILWORTH AVE AND BENNING RD	NE	129	9	104	17
1ST ST AND NEW YORK AVE	NW	96	21	100	18
I ST AND S CAPITOL ST	BN	100	17	99	19
NORTH CAPITOL ST AND RIGGS RD	BN	85	35	98	20
14TH ST AND IRVING ST	NW	95	22	98	20
BENNING RD AND EAST CAPITOL ST	BN	113	13	97	22
NEW YORK AVE AND SOUTH DAKOTA AVE	NE	99	19	94	23
1ST ST AND UNION STATION PLAZA	NE	77	43	94	23
14TH ST AND PENNSYLVANIA AVE	NW	60	71	94	23
13TH ST AND U ST	NW	86	33	90	26
K ST AND NORTH CAPITOL ST	BN	90	28	87	27
14TH ST AND CONSTITUTION AVE	NW	86	33	86	28
18TH ST AND ADAMS MILL RD	NW	92	27	85	29
BENNING RD AND BLADENSBURG RD	NE	88	30	85	29
31ST ST AND M ST	NW	93	25	85	29
NEW JERSEY AVE AND NEW YORK AVE	NW	99	19	84	32
9TH ST AND U ST	NW	60	71	84	32
16TH ST AND K ST	NW	78	41	84	32
M ST AND NORTH CAPITOL ST	BN	87	32	84	32

**Table 7.5: Intersection Rank by Crash Frequency for 3-Year Periods
(Rank: 36~70)**

INTERSECTION NAME	Quad	2010-2012		2011-2013	
		Freq	Rank	Freq	Rank
4TH ST AND NEW YORK AVE	NE	76	44	83	36
KENILWORTH AVE AND EAST CAPITOL ST	BN	90	28	83	36
4TH ST AND NEW YORK AVE	NW	80	40	82	38
BRANCH AVE AND PENNSYLVANIA AVE	SE	94	23	81	39
17TH ST AND BLADENSBURG RD	NE	81	39	80	40
19TH ST AND INDEPENDENCE AVE	SE	78	41	79	41
14TH ST AND I ST	NW	75	46	79	41
NEW HAMPSHIRE AVE AND NORTH CAPITOL ST	BN	82	37	79	41
KENILWORTH AVE AND NANNIE HELEN BURROUGHS AVE	NE	94	23	78	44
SOUTH DAKOTA AVE AND BLADENSBURG RD	NE	75	46	77	45
2ND ST AND H ST	NW	64	61	77	45
6TH ST AND NEW YORK AVE	NW	75	46	76	47
EASTERN AVE AND COLESVILLE RD	NW	67	53	76	47
RHODE ISLAND AVE AND REED ST	NE	65	59	74	49
13TH ST AND K ST	NW	62	66	74	49
15TH ST AND K ST	NW	76	44	71	51
14TH ST AND COLUMBIA RD	NW	69	50	70	52
17TH ST AND I ST	NW	82	37	70	52
33RD ST AND M ST	NW	71	49	69	54
14TH ST AND P ST	NW	57	83	69	54
14TH ST AND PARK RD	NW	66	56	69	54
14TH ST AND H ST	NW	57	83	68	57
19TH ST AND M ST	NW	64	61	68	57
9TH ST AND MASSACHUSETTS AVE	NW	66	56	68	57
NORTH CAPITOL ST AND P ST	BN	52	98	67	60
RHODE ISLAND AVE AND NORTH CAPITOL ST	BN	61	68	67	60
1ST ST AND MICHIGAN AVE	NW	48	123	67	60
16TH ST AND NEW HAMPSHIRE AVE	NW	60	71	67	60
14TH ST AND L ST	NW	55	86	66	64
MICHIGAN AVE AND NORTH CAPITOL ST	BN	83	36	65	65
6TH ST AND H ST	NW	55	86	65	65
GEORGIA AVE AND MISSOURI AVE	NW	68	52	63	67
WEST VIRGINIA AVE AND MOUNT OLIVET RD	NE	58	80	63	67
FAIRVIEW AVE AND NEW YORK AVE	NE	48	123	63	67
12TH ST AND CONSTITUTION AVE	NW	47	131	63	67

**Table 7.6: Intersection Rank by Crash Frequency for 3-Year Periods
(Rank: 71~100)**

INTERSECTION NAME	Quad	2010-2012		2011-2013	
		Freq	Rank	Freq	Rank
MINNESOTA AVE AND NANNIE HELEN BURROUGHS AVE	NE	65	59	62	71
CONNECTICUT AVE AND M ST	NW	47	131	62	71
16TH ST AND IRVING ST	NW	67	53	62	71
M ST AND S CAPITOL ST	BN	66	56	61	74
CONNECTICUT AVE AND K ST	NW	59	78	61	74
14TH ST AND RHODE ISLAND AVE	NW	67	53	60	76
11TH ST AND H ST	NW	50	109	60	76
24TH ST AND M ST	NW	49	116	60	76
24TH ST AND PENNSYLVANIA AVE	NW	53	95	60	76
21ST ST AND K ST	NW	69	50	59	80
16TH ST AND NEW YORK AVE	NE	61	68	58	81
19TH ST AND K ST	NW	59	78	58	81
9TH ST AND NEW YORK AVE	NW	42	166	58	81
14TH ST AND F ST	NW	51	105	55	84
GEORGIA AVE AND NEW HAMPSHIRE AVE	NW	55	86	55	84
FLORIDA AVE AND NORTH CAPITOL ST	BN	63	63	55	84
SOUTHERN AVE AND BENNING RD	SE	60	71	55	84
PENNSYLVANIA AVE AND ANACOSTIA FRWY	SE	88	30	55	84
SOUTHERN AVE AND S CAPITOL ST	BN	52	98	55	84
19TH ST AND L ST	NW	58	80	55	84
34TH ST AND M ST	NW	39	193	55	84
MONTANA AVE AND RHODE ISLAND AVE	NE	46	138	54	92
CONNECTICUT AVE AND N ST	NW	49	116	54	92
WISCONSIN AVE AND CALVERT ST	NW	55	86	54	92
SOUTHERN AVE AND WHEELER RD	SE	63	63	54	92
FIRTH STERLING AVE AND HOWARD RD	SE	53	95	54	92
7TH ST AND CONSTITUTION AVE	NW	60	71	53	97
4TH ST AND MASSACHUSETTS AVE	NW	43	159	53	97
3RD ST AND NEW YORK AVE	NW	43	159	53	97
1ST ST AND K ST	NE	38	205	53	97
MISSOURI AVE AND NEW HAMPSHIRE AVE	NW	50	109	53	97
18TH ST AND K ST	NW	54	94	53	97
15TH ST AND U ST	NW	55	86	53	97
NORTH CAPITOL ST AND P ST	BN	56	85	52	98

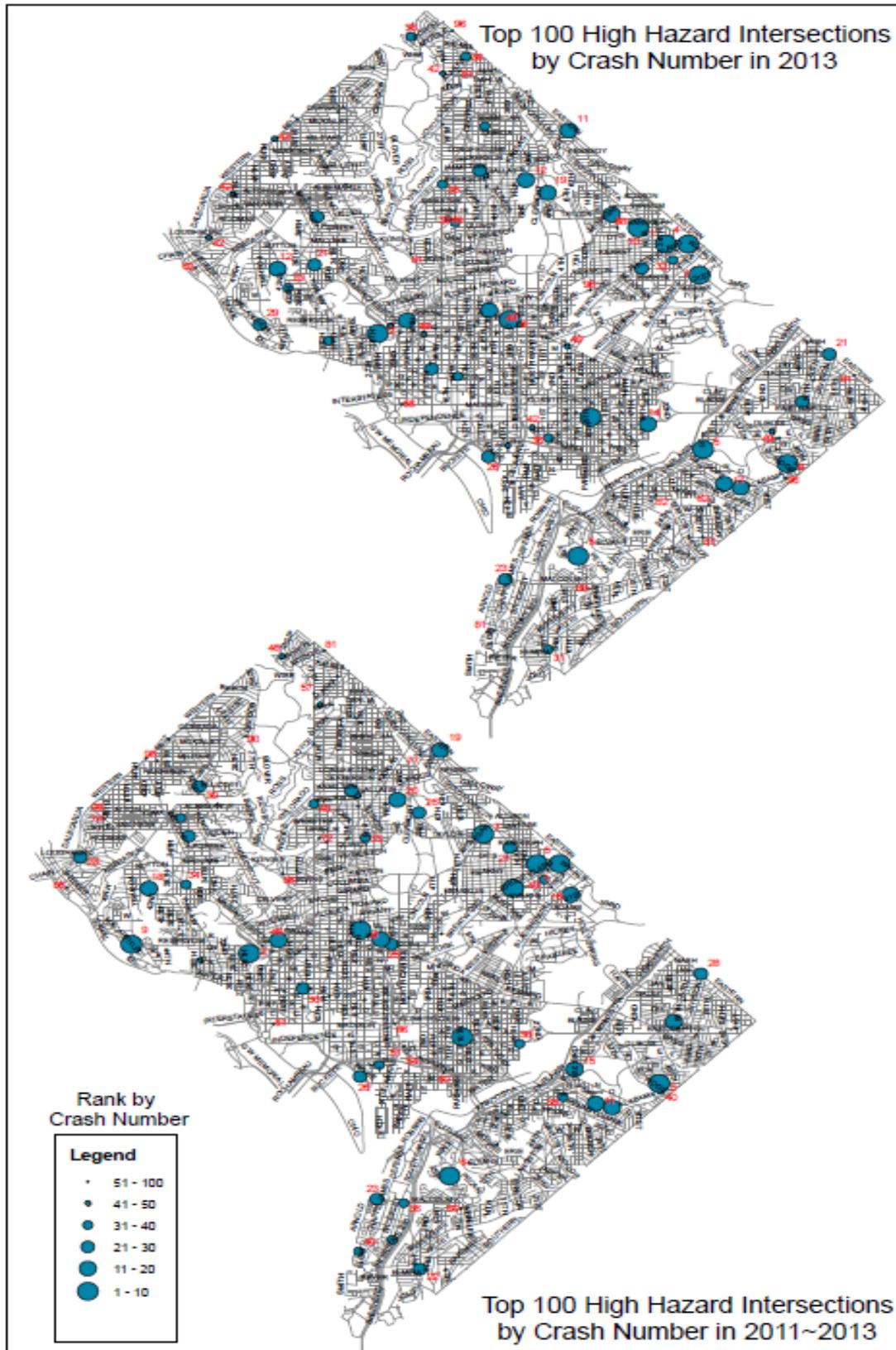


Figure 7.1: Top 100 Hazard Intersections by Crash Number in 2011-2013

7.1.2 Rank by Crash Rate

Table 7.7: Intersection Rank by Crash Rate for 2011-2013 (Rank: 1~35)

INTERSECTION NAME	Quad	2011		2012		2013	
		RATE	RANK	RATE	RANK	RATE	RANK
SOUTHERN AVE AND FITCH ST	SE	0.49813	680	0.99626	343	5.47945	1
1ST ST AND UNION STATION PLAZA	NE	1.94234	77	3.98691	5	5.31589	2
1ST ST AND M ST	NE	3.51891	8	3.26756	12	5.02702	3
14TH ST AND U ST	NW	5.93137	1	4.70743	3	4.98988	4
44TH ST AND NANNIE HELEN BURROUGHS AVE	NE	2.16813	56	2.16813	61	4.73046	5
FIRTH STERLING AVE AND HOWARD RD	SE	2.5451	33	2.84452	23	4.34164	6
14TH ST AND V ST	NW	2.95461	17	5.64061	1	4.29761	7
SOUTHERN AVE AND WHEELER RD	SE	2.25802	52	2.55908	36	4.06443	8
14TH ST AND IRVING ST	NW	3.11762	14	3.11762	15	3.96788	9
WISCONSIN AVE AND M ST	NW	4.03981	3	4.99467	2	3.5991	10
14TH ST AND COLUMBIA RD	NW	2.818	22	2.818	26	3.5486	11
MINNESOTA AVE AND BENNING RD	NE	3.73311	4	3.48002	8	3.54329	12
MARTIN LUTHER KING AVE AND HOWARD RD	SE	3.12368	13	2.08245	68	3.51414	13
17TH ST AND I ST	NW	3.46196	9	1.91005	85	3.46196	14
GEORGIA AVE AND BRYANT ST	NW	1.54153	134	3.22321	13	3.36335	15
7TH ST AND H ST	NW	2.65611	28	2.95123	19	3.34473	16
MARTIN LUTHER KING AVE AND GOOD HOPE RD	SE	1.78194	91	2.00468	72	3.34113	17
SOUTHERN AVE AND NAYLOR RD	SE	4.10959	2	2.46575	46	3.28767	18
3RD ST AND D ST	NW	1.63788	111	2.68017	31	3.27576	19
20TH ST AND NEW HAMPSHIRE AVE	NW	0.88856	379	0.88856	410	3.25805	20
SOUTHERN AVE AND BENNING RD	SE	2.40699	40	2.69017	30	3.25652	21
24TH ST AND PENNSYLVANIA AVE	NW	1.94154	78	2.15726	63	3.2359	22
19TH ST AND INDEPENDENCE AVE	SE	3.56735	6	4.42352	4	3.13927	23
13TH ST AND U ST	NW	2.06216	65	2.5777	35	3.09324	24
7TH ST AND FLORIDA AVE	NW	3.36458	11	3.04414	17	3.04414	25
23RD ST AND I ST	NW	1.07863	279	1.72581	110	3.02017	26
9TH ST AND MASSACHUSETTS AVE	NW	1.38628	168	1.5322	147	2.99145	27
1ST ST AND MICHIGAN AVE	NW	1.77392	94	2.95654	18	2.95654	28
ALABAMA AVE AND GOOD HOPE RD	SE	2.00656	70	2.16091	62	2.93266	29
NEW HAMPSHIRE AVE AND T ST	NW	0.48491	695	0	1112	2.90944	30
7TH ST AND F ST	NW	1.53629	135	2.04839	70	2.90189	31
SAVANNAH ST AND STANTON RD	SE	3.55809	7	3.55809	6	2.84647	32
14TH ST AND FLORIDA AVE	NW	1.4171	161	1.4171	179	2.8342	33
GEORGIA AVE AND BARRY PL	NW	2.69261	26	2.55798	37	2.82724	34
6TH ST AND G ST	NW	1.06604	284	1.91887	84	2.77171	35

Table 7.8: Intersection Rank by Crash Rate for 2011-2013 (Rank: 36~68)

INTERSECTION NAME	Quad	2011		2012		2013	
		RATE	RANK	RATE	RANK	RATE	RANK
14TH ST AND MONROE ST	NW	2.88392	19	2.54464	39	2.71428	36
6TH ST AND M ST	NW	2.26594	50	2.67793	32	2.67793	37
13TH ST AND F ST	NW	1.60731	116	2.19178	60	2.63014	38
24TH ST AND M ST	NW	2.86426	20	3.48692	7	2.61519	39
14TH ST AND RHODE ISLAND AVE	NW	2.51706	35	1.35534	204	2.61387	40
1ST ST AND G ST	NE	0.36288	800	1.81439	96	2.54014	41
19TH ST AND M ST	NW	2.0978	61	1.84606	91	2.51736	42
14TH ST AND D ST	SE	1.24533	216	1.24533	232	2.49066	43
NEW YORK AVE AND BLADENSBURG RD	NE	2.24859	53	2.36693	50	2.45569	44
6TH ST AND H ST	NW	2.34074	42	2.55353	38	2.44713	45
14TH ST AND W ST	NW	3.28767	12	1.53425	146	2.41096	46
STANTON RD AND SUITLAND PKWY	SE	2.81766	23	2.51791	41	2.39801	47
MINNESOTA AVE AND NANNIE HELEN BURROUGHS AVE	NE	1.62283	115	1.62283	131	2.38652	48
9TH ST AND U ST	NW	2.53287	34	2.87059	22	2.36402	49
4TH ST AND NEW YORK AVE	NW	1.77987	92	1.65273	125	2.35197	50
21ST ST AND PENNSYLVANIA AVE	NW	1.39604	166	1.62871	130	2.32673	51
8TH ST AND I ST	SE	2.31823	46	1.68599	118	2.31823	52
33RD ST AND N ST	NW	1.84183	85	1.38137	191	2.30229	53
7TH ST AND I ST	NW	1.47209	149	1.63566	129	2.28992	54
4TH ST AND M ST	NE	2.28311	48	0	1112	2.28311	55
11TH ST AND G ST	NW	1.0404	298	1.5606	142	2.2542	56
BENNING RD AND EAST CAPITOL ST	BN	1.57865	125	1.42588	175	2.24067	57
16TH ST AND M ST	NW	1.4573	153	1.4573	165	2.23453	58
EASTERN AVE AND MINNESOTA AVE	NE	1.58825	124	1.9059	88	2.22355	59
11TH ST AND COLUMBIA RD	NW	1.97458	74	1.23411	233	2.2214	60
4TH ST AND ATLANTIC ST	SE	1.1092	268	0.66552	565	2.2184	61
FIRTH STERLING AVE AND SUITLAND PKWY	SE	2.33047	44	2.38731	49	2.21679	62
6TH ST AND FLORIDA AVE	NW	1.21766	228	1.99253	73	2.21392	63
GEORGIA AVE AND PARK RD	NW	2.84983	21	2.20214	59	2.20214	64
14TH ST AND P ST	NW	2.50967	36	2.92795	20	2.19596	65
TENNESSEE AVE AND D ST	NE					2.19178	66
4TH ST AND I ST	NW	0.21918	985	0.87671	417	2.19178	66
11TH ST AND K ST	NW	1.02011	304	1.4573	165	2.18595	68

Table 7.9: Intersection Rank by Crash Rate for 2011-2013 (Rank: 69~100)

INTERSECTION NAME	Quad	2011		2012		2013	
		RATE	RANK	RATE	RANK	RATE	RANK
H ST AND NORTH CAPITOL ST	BN	2.23651	54	3.29264	9	2.17439	69
21ST ST AND F ST	NW	1.85744	84	0.61915	611	2.16701	70
2ND ST AND K ST	NE	1.60635	117	1.60635	133	2.14181	71
14TH ST AND PARK RD	NW	1.44653	157	1.21508	242	2.14086	72
14TH ST AND K ST	NW	2.14041	58	1.97988	76	2.14041	73
SOUTHERN AVE AND S CAPITOL ST	BN	3.44516	10	3.28111	11	2.13272	74
11TH ST AND U ST	NW	1.17265	240	1.06604	319	2.13208	75
23RD ST AND P ST	NW	1.55345	129	1.97712	77	2.11834	76
7TH ST AND S ST	NW	2.10748	60	2.45873	47	2.10748	77
6TH ST AND S ST	NW	0.90321	368	1.50534	153	2.10748	77
3RD ST AND C ST	NW	2.89779	18	3.16122	14	2.10748	77
ILLINOIS AVE AND KENNEDY ST	NW	1.05374	291	0.52687	688	2.10748	77
8TH ST AND H ST	NW	2.61757	32	2.79208	28	2.09406	81
I ST AND S CAPITOL ST	BN	1.54623	130	1.49791	154	2.07775	82
6TH ST AND E ST	NW	0.64464	549	1.41821	177	2.06285	83
WISCONSIN AVE AND Q ST	NW	1.22904	226	1.94597	81	2.04839	84
14TH ST AND SPRING RD	NW	2.04457	68	2.24903	57	2.04457	85
18TH ST AND I ST	NW	0.68128	520	1.45989	164	2.04385	86
10TH ST AND MASSACHUSETTS AVE	NW	2.50489	37	0.93933	381	2.03523	87
EASTERN AVE AND KALMIA RD	NW	0	1130	0	1112	2.02943	88
14TH ST AND L ST	NW	1.21167	231	1.75019	103	2.01945	89
CONNECTICUT AVE AND R ST	NW	1.31014	188	1.3872	188	2.00374	90
1ST ST AND K ST	NE	1.99772	71	3.28196	10	1.99772	91
GEORGIA AVE AND UPSHUR ST	NW	1.1092	268	2.10748	66	1.99656	92
14TH ST AND I ST	NW	2.04773	67	1.76529	102	1.97712	93
7TH ST AND E ST	NW	0.92676	354	1.27429	227	1.96936	94
12TH ST AND K ST	NW	1.24063	221	1.13724	281	1.96433	95
2ND ST AND FORT TOTTEN DR	NE	1.56556	126	1.17417	262	1.95695	96
17TH ST AND PENNSYLVANIA AVE	NW	1.59854	119	1.77616	100	1.95378	97
24TH ST AND L ST	NW	1.24848	215	2.63569	34	1.94208	98
7TH ST AND G ST	NW	1.93807	79	2.81901	25	1.93807	99
5TH ST AND D ST	NW	1.09589	273	1.09589	296	1.91781	100

Table 7.10: Intersection Rank by Crash Rate for 3-Year Periods (Rank: 1~35)

INTERSECTION NAME	Quad	2010-2012		2011-2013	
		RATE	RANK	RATE	RANK
14TH ST AND U ST	NW	5.42924	1	5.20956	1
14TH ST AND V ST	NW	3.40227	5	4.29761	2
WISCONSIN AVE AND M ST	NW	4.52948	2	4.23568	3
1ST ST AND M ST	NE	2.84864	12	3.93783	4
1ST ST AND UNION STATION PLAZA	NE	3.20316	8	3.74838	5
19TH ST AND INDEPENDENCE AVE	SE	3.75761	3	3.71005	6
MINNESOTA AVE AND BENNING RD	NE	3.35348	6	3.58548	7
14TH ST AND IRVING ST	NW	3.08613	9	3.40104	8
SAVANNAH ST AND STANTON RD	SE	2.60926	21	3.32088	9
FIRTH STERLING AVE AND HOWARD RD	SE	2.69481	18	3.29366	10
SOUTHERN AVE AND NAYLOR RD	SE	2.73973	16	3.28767	11
7TH ST AND FLORIDA AVE	NW	3.23106	7	3.17765	12
17TH ST AND I ST	NW	2.78549	13	3.10383	13
14TH ST AND COLUMBIA RD	NW	2.43531	28	3.06154	14
44TH ST AND NANNIE HELEN BURROUGHS AVE	NE	2.43093	29	3.02224	15
7TH ST AND H ST	NW	3.60706	4	3.01681	16
24TH ST AND M ST	NW	2.49066	25	2.98879	17
SOUTHERN AVE AND WHEELER RD	SE	2.70962	17	2.96051	18
SOUTHERN AVE AND S CAPITOL ST	BN	3.00768	10	2.953	19
MARTIN LUTHER KING AVE AND HOWARD RD	SE	2.21261	42	2.90676	20
SOUTHERN AVE AND BENNING RD	SE	2.59578	22	2.78456	21
3RD ST AND C ST	NW	2.45873	27	2.72216	22
14TH ST AND MONROE ST	NW	2.1488	51	2.71428	23
GEORGIA AVE AND BRYANT ST	NW	1.96195	62	2.70936	24
GEORGIA AVE AND BARRY PL	NW	2.24384	39	2.69261	25
STANTON RD AND SUITLAND PKWY	SE	2.61783	20	2.57786	26
13TH ST AND U ST	NW	2.20946	44	2.5777	27
H ST AND NORTH CAPITOL ST	BN	2.65068	19	2.56785	28
1ST ST AND MICHIGAN AVE	NW	2.20098	45	2.56233	29
9TH ST AND U ST	NW	2.36402	34	2.56102	30
14TH ST AND P ST	NW	2.4051	31	2.54453	31
6TH ST AND M ST	NW	2.12861	52	2.5406	32
3RD ST AND D ST	NW	2.18384	47	2.53127	33
8TH ST AND H ST	NW	2.21039	43	2.50124	34
10TH ST AND F ST	NW	2.38237	32	2.49582	35

Table 7.11: Intersection Rank by Crash Rate for 3-Year Periods (Rank: 36~69)

INTERSECTION NAME	Quad	2010-2012		2011-2013	
		RATE	RANK	RATE	RANK
14TH ST AND W ST	NW	2.41096	30	2.48402	36
18TH ST AND KALORAMA RD	NW	2.93435	11	2.45527	37
6TH ST AND H ST	NW	2.30527	35	2.44713	38
1ST ST AND K ST	NE	2.52093	24	2.4258	39
GEORGIA AVE AND PARK RD	NW	2.24532	38	2.41804	40
MARTIN LUTHER KING AVE AND GOOD HOPE RD	SE	2.15317	50	2.37591	41
24TH ST AND PENNSYLVANIA AVE	NW	2.15726	48	2.37299	42
ALABAMA AVE AND GOOD HOPE RD	SE	2.36671	33	2.36671	43
NEW YORK AVE AND BLADENSBURG RD	NE	2.22886	40	2.35707	44
18TH ST AND ADAMS MILL RD	NW	2.75757	15	2.33582	45
SOUTHERN AVE AND FITCH ST	SE	1.32835	161	2.32462	46
FIRTH STERLING AVE AND SUITLAND PKWY	SE	2.19784	46	2.31153	47
WEST VIRGINIA AVE AND MOUNT OLIVET RD	NE	2.2696	36	2.2696	48
7TH ST AND G ST	NW	2.76028	14	2.23172	49
7TH ST AND S ST	NW	2.57581	23	2.22456	50
8TH ST AND I ST	SE	1.75623	76	2.17773	51
7TH ST AND F ST	NW	2.21909	41	2.16219	52
14TH ST AND RHODE ISLAND AVE	NW	1.9362	63	2.16209	53
19TH ST AND M ST	NW	1.902	64	2.15374	54
13TH ST AND F ST	NW	1.65601	90	2.14307	55
14TH ST AND SPRING RD	NW	2.04457	56	2.11272	56
ALABAMA AVE AND STANTON RD	SE	2.01599	57	2.09663	57
14TH ST AND K ST	NW	2.26527	37	2.0869	58
BRENTWOOD RD AND W ST	NE	1.97458	60	2.01571	59
23RD ST AND I ST	NW	1.47413	124	1.97749	60
4TH ST AND T ST	NE	2.46822	26	1.97458	61
14TH ST AND I ST	NW	1.85944	66	1.95358	62
9TH ST AND MASSACHUSETTS AVE	NW	1.65381	91	1.94566	63
24TH ST AND L ST	NW	1.89584	65	1.94208	64
WISCONSIN AVE AND N ST	NW	2.15387	49	1.93849	65
4TH ST AND NEW YORK AVE	NW	1.73749	81	1.92819	66

Table 7.12: Intersection Rank by Crash Rate for 3-Year Periods (Rank: 70~100)

INTERSECTION NAME	Quad	2010-2012		2011-2013	
		RATE	RANK	RATE	RANK
6TH ST AND G ST	NW	1.6346	98	1.91887	67
6TH ST AND F ST	NW	1.76047	75	1.90717	68
EASTERN AVE AND MINNESOTA AVE	NE	1.85295	68	1.9059	69
11TH ST AND H ST	NW	2.11562	53	1.90406	70
14TH ST AND FLORIDA AVE	NW	1.83698	69	1.88947	71
23RD ST AND P ST	NW	1.69468	86	1.88297	72
MINNESOTA AVE AND NANNIE HELEN BURROUGHS AVE	NE	1.97286	61	1.8774	73
13TH ST AND K ST	NW	1.99941	58	1.86431	74
33RD ST AND N ST	NW	1.38137	144	1.84183	75
10TH ST AND MASSACHUSETTS AVE	NW	1.25245	199	1.82648	76
11TH ST AND COLUMBIA RD	NW	1.23411	207	1.81003	77
6TH ST AND FLORIDA AVE	NW	1.51285	116	1.80803	78
PENNSYLVANIA AVE AND SOUTHERN AVE	SE	1.70148	84	1.80565	79
7TH ST AND I ST	NW	1.79922	71	1.79922	80
14TH ST AND MARYLAND AVE	NE	1.64742	93	1.79067	81
2ND ST AND K ST	NE	1.42787	136	1.78484	82
21ST ST AND PENNSYLVANIA AVE	NW	1.58993	107	1.78383	83
FLORIDA AVE AND NEW YORK AVE	NE	1.6834	89	1.76757	84
19TH ST AND L ST	NW	1.64683	94	1.7666	85
14TH ST AND H ST	NE	1.76302	74	1.76302	86
BRENTWOOD PKWY AND MOUNT OLIVET RD	NE	1.60611	103	1.75552	87
BENNING RD AND EAST CAPITOL ST	BN	1.64655	95	1.7484	88
17TH ST AND PENNSYLVANIA AVE	NW	1.50974	117	1.74656	89
BENNING RD AND G ST	SE	1.57529	110	1.74559	90
WISCONSIN AVE AND Q ST	NW	1.43388	135	1.74113	91
GEORGIA AVE AND UPSHUR ST	NW	1.29407	178	1.73775	92
1ST ST AND MARTIN LUTHER KING AVE	SE	1.44672	133	1.71798	93
16TH ST AND M ST	NW	1.39253	142	1.71638	94
I ST AND S CAPITOL ST	BN	1.59455	105	1.7073	95
9TH ST AND F ST	NW	1.99164	59	1.70018	96
6TH ST AND NEW YORK AVE	NW	1.69491	85	1.69491	97
34TH ST AND WISCONSIN AVE	NW	1.83615	70	1.69119	98
BURNS ST AND RIDGE RD	SE	1.77016	73	1.6897	99
19TH ST AND N ST	NW	2.08457	54	1.68751	100

7.1.3 Rank by Crash Cost

**Table 7.13: Intersection Rank by Crash Severity Cost for 3-Year Periods
(Rank: 1~31)**

INTERSECTION NAME	Quad	2010-2012		2011-2013	
		COST	RANK	COST	RANK
NEW YORK AVE AND BLADENSBURG RD	NE	2456	2	2553	1
FIRTH STERLING AVE AND SUITLAND PKWY	SE	2076	3	2362	2
NEW YORK AVE AND NORTH CAPITOL ST	BN	2629	1	2099	3
MINNESOTA AVE AND BENNING RD	NE	2058	5	2097	4
7TH ST AND FLORIDA AVE	NW	1766	7	1774	5
STANTON RD AND SUITLAND PKWY	SE	2068	4	1769	6
FLORIDA AVE AND NEW YORK AVE	NE	1697	10	1758	7
WISCONSIN AVE AND M ST	NW	1707	9	1655	8
14TH ST AND U ST	NW	1826	6	1652	9
FAIRLAWN AVE AND PENNSYLVANIA AVE	SE	1493	12	1605	10
MINNESOTA AVE AND PENNSYLVANIA AVE	SE	1568	11	1523	11
MONTANA AVE AND NEW YORK AVE	NE	1742	8	1440	12
H ST AND NORTH CAPITOL ST	BN	1427	13	1374	13
KENILWORTH AVE AND EAST CAPITOL ST	BN	1052	28	1280	14
NEW YORK AVE AND SOUTH DAKOTA AVE	NE	1157	22	1253	15
BENNING RD AND EAST CAPITOL ST	BN	1203	17	1226	16
KENILWORTH AVE AND BENNING RD	NE	1299	14	1187	17
I ST AND S CAPITOL ST	BN	1202	18	1170	18
1ST ST AND NEW YORK AVE	NW	1089	25	1158	19
1ST ST AND NEW YORK AVE	NE	1164	20	1157	20
4TH ST AND NEW YORK AVE	NE	969	35	1134	21
RHODE ISLAND AVE AND NORTH CAPITOL ST	BN	881	48	1121	22
NORTH CAPITOL ST AND RIGGS RD	BN	1158	21	1103	23
2ND ST AND H ST	NW	1224	15	1082	24
MICHIGAN AVE AND NORTH CAPITOL ST	BN	1058	27	1081	25
BENNING RD AND BLADENSBURG RD	NE	1061	26	1062	26
4TH ST AND NEW YORK AVE	NW	902	43	1053	27
14TH ST AND K ST	NW	1133	23	1050	28
7TH ST AND H ST	NW	1197	19	1041	29
NEW JERSEY AVE AND NEW YORK AVE	NW	1209	16	1022	30
SOUTHERN AVE AND WHEELER RD	SE	789	61	1011	31

**Table 7.14: Intersection Rank by Crash Severity Cost for 3-Year Periods
(Rank: 32~63)**

INTERSECTION NAME	Quad	2010-2012		2011-2013	
		COST	RANK	COST	RANK
13TH ST AND U ST	NW	1002	33	1007	32
SOUTH DAKOTA AVE AND BLADENSBURG RD	NE	893	44	1005	33
9TH ST AND U ST	NW	977	34	999	34
1ST ST AND UNION STATION PLAZA	NE	926	41	992	35
14TH ST AND IRVING ST	NW	893	44	983	36
RHODE ISLAND AVE AND REED ST	NE	956	38	963	37
K ST AND NORTH CAPITOL ST	BN	915	42	960	38
13TH ST AND SOUTHERN AVE	SE	951	39	951	39
15TH ST AND K ST	NW	873	49	941	40
M ST AND NORTH CAPITOL ST	BN	968	36	938	41
MARTIN LUTHER KING AVE AND HOWARD RD	SE	884	47	933	42
14TH ST AND PENNSYLVANIA AVE	NW	1029	31	933	42
14TH ST AND CONSTITUTION AVE	NW	1031	30	930	44
SOUTHERN AVE AND BENNING RD	SE	965	37	926	45
14TH ST AND COLUMBIA RD	NW	705	82	915	46
17TH ST AND BLADENSBURG RD	NE	1025	32	905	47
16TH ST AND NEW HAMPSHIRE AVE	NW	813	54	899	48
14TH ST AND PARK RD	NW	683	89	894	49
12TH ST AND INDEPENDENCE AVE	SW	752	73	889	50
31ST ST AND M ST	NW	780	66	885	51
ALABAMA AVE AND PENNSYLVANIA AVE	SE	794	58	863	52
1ST ST AND MICHIGAN AVE	NW	773	69	855	53
14TH ST AND L ST	NW	791	60	843	54
19TH ST AND M ST	NW	660	94	836	55
NORTH CAPITOL ST AND P ST	BN	713	77	834	56
PENNSYLVANIA AVE AND SOUTHERN AVE	SE	783	64	828	57
NEW HAMPSHIRE AVE AND NORTH CAPITOL ST	BN	1040	29	828	57
GEORGIA AVE AND BARRY PL	NW	770	70	822	59
FAIRVIEW AVE AND NEW YORK AVE	NE	813	54	821	60
6TH ST AND NEW YORK AVE	NW	893	44	818	61
9TH ST AND MASSACHUSETTS AVE	NW	821	53	812	62
24TH ST AND PENNSYLVANIA AVE	NW	777	68	807	63

**Table 7.15: Intersection Rank by Crash Severity Cost for 3-Year Periods
(Rank: 64~100)**

INTERSECTION NAME	Quad	2010-2012		2011-2013	
		COST	RANK	COST	RANK
16TH ST AND K ST	NW	857	50	804	64
14TH ST AND P ST	NW	782	65	797	65
GEORGIA AVE AND NEW HAMPSHIRE AVE	NW	639	103	786	66
KENILWORTH AVE AND NANNIE HELEN BURROUGHS AVE	NE	1115	24	776	67
CONNECTICUT AVE AND K ST	NW	615	114	774	68
ALABAMA AVE AND STANTON RD	SE	779	67	770	69
MISSISSIPPI AVE AND S CAPITOL ST	BN	707	79	759	70
9TH ST AND NEW YORK AVE	NW	555	142	759	70
FLORIDA AVE AND RHODE ISLAND AVE	NW	753	72	746	72
17TH ST AND BENNING RD	NE	714	76	744	73
17TH ST AND I ST	NW	608	120	744	73
18TH ST AND ADAMS MILL RD	NW	810	56	743	75
MASSACHUSETTS AVE AND NORTH CAPITOL ST	BN	528	158	743	75
WEST VIRGINIA AVE AND MOUNT OLIVET RD	NE	842	51	735	77
14TH ST AND I ST	NW	690	85	735	77
19TH ST AND INDEPENDENCE AVE	SE	765	71	735	77
4TH ST AND MASSACHUSETTS AVE	NW	510	169	732	80
MINNESOTA AVE AND NANNIE HELEN BURROUGHS AVE	NE	804	57	728	81
ANACOSTIA AVE AND BENNING RD	NE	528	158	717	82
MALCOLM X AVE AND S CAPITOL ST	BN	647	100	714	83
FIRTH STERLING AVE AND HOWARD RD	SE	540	151	713	84
BRANCH AVE AND PENNSYLVANIA AVE	SE	947	40	713	84
16TH ST AND NEW YORK AVE	NE	662	92	707	86
FIRTH STERLING AVE AND S CAPITOL ST	BN	661	93	706	87
MONTANA AVE AND RHODE ISLAND AVE	NE	684	88	693	88
EASTERN AVE AND KENILWORTH AVE	NE	383	305	692	89
MISSOURI AVE AND NEW HAMPSHIRE AVE	NW	692	84	692	89
11TH ST AND M ST	SE	489	185	692	89
13TH ST AND K ST	NW	789	61	690	92
NEBRASKA AVE AND WARD CIR	NW	656	96	686	93
SOUTHERN AVE AND S CAPITOL ST	BN	708	78	686	93
M ST AND S CAPITOL ST	BN	707	79	684	95
19TH ST AND L ST	NW	579	134	678	96
CONNECTICUT AVE AND R ST	NW	635	106	678	96
GEORGIA AVE AND BRYANT ST	NW	474	200	678	96
15TH ST AND MASSACHUSETTS AVE	NW	587	132	669	99
PENNSYLVANIA AVE AND ANACOSTIA FRWY	SE	707	79	668	100

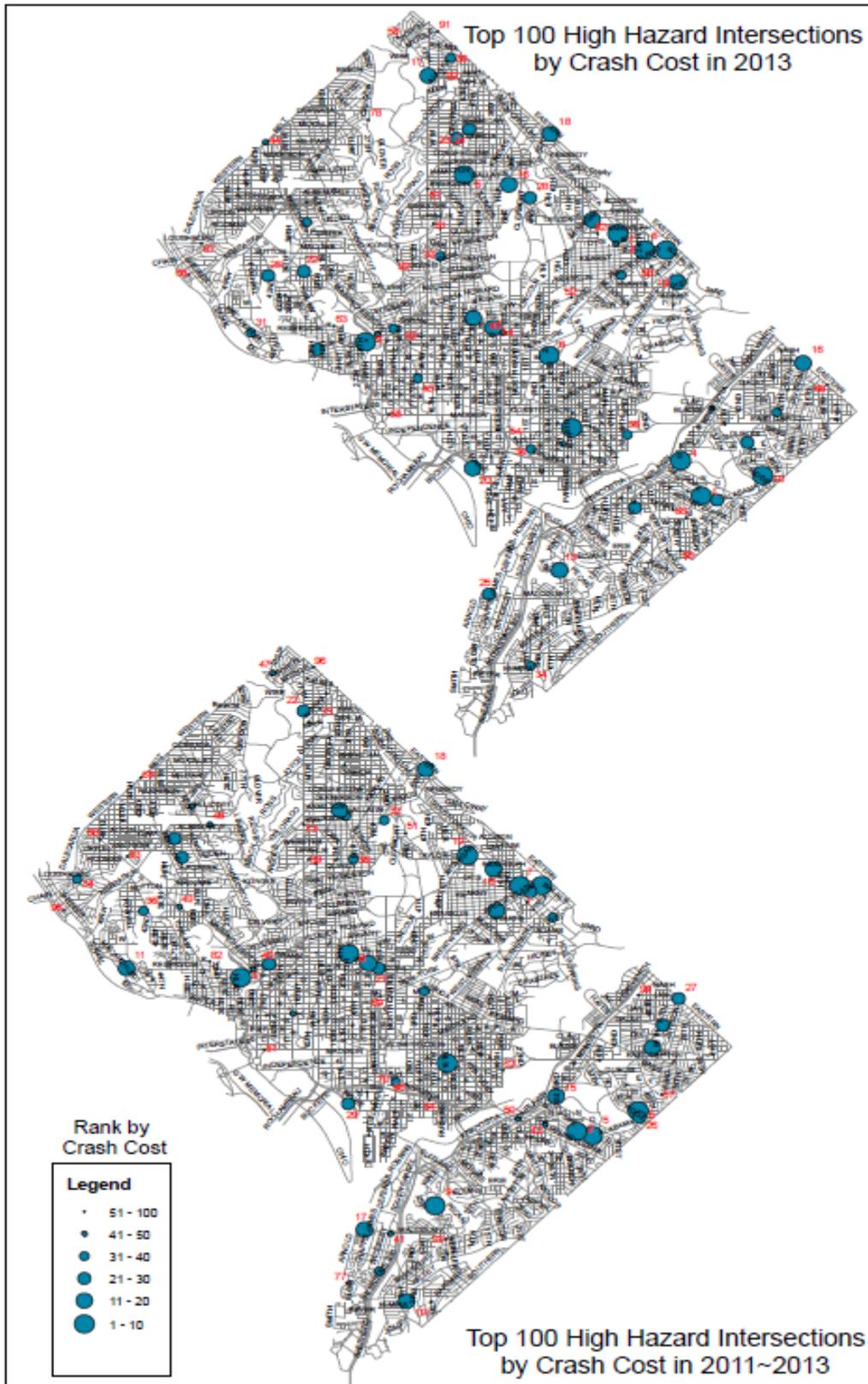


Figure 7.2: Top 100 Hazard Intersections by Crash Cost in 2011-2013

7.1.4 Rank by Crash Composite Index

**Table 7.16: Intersection Rank by Crash Composite Index for 2011-2013
(Rank: 1~35)**

INTERSECTION NAME	Quad	2011		2012		2013	
		COMP	RANK	COMP	RANK	COMP	RANK
MINNESOTA AVE AND BENNING RD	NE	3.5	1	8	2	5.25	1
14TH ST AND U ST	NW	3.5	1	10.75	4	8.75	2
WISCONSIN AVE AND M ST	NW	7.75	3	5	1	9.5	3
1ST ST AND UNION STATION PLAZA	NE	143.5	100	14.75	7	11.75	4
NEW YORK AVE AND BLADENSBURG RD	NE	14.75	6	13.25	6	12.25	5
13TH ST AND U ST	NW	61.75	38	43.75	24	17	6
SOUTHERN AVE AND WHEELER RD	SE	120.5	88	92.75	60	18.25	7
14TH ST AND IRVING ST	NW	40.25	18	34.5	16	19.25	8
FIRTH STERLING AVE AND SUITLAND PKWY	SE	15.75	7	17.25	9	20.25	9
BENNING RD AND EAST CAPITOL ST	BN	49	24	80.75	46	20.25	9
7TH ST AND H ST	NW	69.75	45	34	15	20.5	11
STANTON RD AND SUITLAND PKWY	SE	11	5	15.75	8	21	12
7TH ST AND FLORIDA AVE	NW	8.25	4	11	5	21.5	13
4TH ST AND NEW YORK AVE	NW	49	24	79.75	45	25.75	14
9TH ST AND MASSACHUSETTS AVE	NW	111.75	81	124	84	28.25	15
FIRTH STERLING AVE AND HOWARD RD	SE	146.25	101	113.5	77	28.5	16
14TH ST AND COLUMBIA RD	NW	46.75	22	52.75	32	29.25	17
44TH ST AND NANNIE HELEN BURROUGHS AVE	NE	311.75	236	326.5	249	30.25	18
I ST AND S CAPITOL ST	BN	50.5	30	67.75	38	32.25	19
19TH ST AND M ST	NW	88.5	58	88.75	52	33.5	20
14TH ST AND PARK RD	NW	99.5	68	130.75	90	34.25	21
FLORIDA AVE AND NEW YORK AVE	NE	30	12	27.5	12	34.5	22
17TH ST AND I ST	NW	57.25	35	224	159	38	23
MARTIN LUTHER KING AVE AND HOWARD RD	SE	42.25	19	84.25	50	40	24
H ST AND NORTH CAPITOL ST	BN	30.25	13	8.5	3	41.25	25
14TH ST AND K ST	NW	32.5	14	44.25	25	42	26
1ST ST AND MICHIGAN AVE	NW	141.5	96	25.25	11	44	27
SOUTHERN AVE AND BENNING RD	SE	83.5	54	51.25	30	47.25	28
1ST ST AND M ST	NE	248.5	181	243.5	169	50.75	29
24TH ST AND PENNSYLVANIA AVE	NW	76	51	76	44	51.5	30
NEW YORK AVE AND NORTH CAPITOL ST	BN	21	8	38.75	18	52.5	31
GEORGIA AVE AND BRYANT ST	NW	251.75	185	57.25	33	53.25	32
MINNESOTA AVE AND NANNIE HELEN BURROUGHS AVE	NE	119.75	87	131	91	55	33
3RD ST AND D ST	NW	228	164	95.25	61	59	34
CONNECTICUT AVE AND CALVERT ST	NW	404.75	328	291.75	219	60.75	35

**Table 7.17: Intersection Rank by Crash Composite Index for 2011-2013
(Rank: 36~73)**

INTERSECTION NAME	Qua d	2011		2012		2013	
		COMP	RAN K	COMP	RAN K	COMP	RAN K
9TH ST AND NEW YORK AVE	NW	133.5	91	123.75	82	66	36
9TH ST AND U ST	NW	43.5	21	18.75	10	66.25	37
23RD ST AND I ST	NW	401.5	323	202.25	146	67.5	38
17TH ST AND BLADENSBURG RD	NE	52	31	146.25	102	67.75	39
14TH ST AND RHODE ISLAND AVE	NW	60.25	36	250.75	176	68.25	40
MONTANA AVE AND NEW YORK AVE	NE	48	23	52	31	73.75	41
14TH ST AND L ST	NW	109.25	79	70.25	40	76.25	42
ALABAMA AVE AND PENNSYLVANIA AVE	SE	139.75	95	115	78	76.75	43
NORTH CAPITOL ST AND RIGGS RD	BN	119.25	86	50	28	79.25	44
14TH ST AND I ST	NW	67.25	42	95.5	62	79.75	45
MINNESOTA AVE AND PENNSYLVANIA AVE	SE	27.75	11	30	13	79.75	45
6TH ST AND H ST	NW	95.75	65	95.75	63	82.75	47
1ST ST AND NEW YORK AVE	NW	49	24	82	48	84.75	48
16TH ST AND M ST	NW	169.25	120	153.5	112	86	49
NEW YORK AVE AND SOUTH DAKOTA AVE	NE	175.75	127	206.5	152	87.25	50
NORTH CAPITOL ST AND P ST	BN	200.75	143	128.75	87	87.5	51
CONNECTICUT AVE AND R ST	NW	108	76	191.5	137	90.25	52
6TH ST AND NEW YORK AVE	NW	71	46	68.25	39	91.5	53
11TH ST AND U ST	NW	376.75	298	285	212	91.75	54
GEORGIA AVE AND UPSHUR ST	NW	335.75	253	101.25	68	92.75	55
6TH ST AND FLORIDA AVE	NW	186.75	136	148.25	107	93.75	56
7TH ST AND E ST	NW	341.25	257	347.5	269	94	57
4TH ST AND NEW YORK AVE	NE	33.75	16	88.75	52	94.25	58
CONNECTICUT AVE AND K ST	NW	159.25	111	180	132	95	59
14TH ST AND FLORIDA AVE	NW	447.75	371	296	222	96	60
19TH ST AND L ST	NW	69.25	44	212.75	155	97.25	61
21ST ST AND PENNSYLVANIA AVE	NW	236.25	168	179.75	129	97.75	62
13TH ST AND IRVING ST	NW	424.75	346	224	159	99.5	63
RHODE ISLAND AVE AND NORTH CAPITOL ST	BN	159.5	112	155.75	114	100.75	64
SOUTH DAKOTA AVE AND BLADENSBURG RD	NE	33.5	15	103.25	69	101.75	65
ALABAMA AVE AND BRANCH AVE	SE	142	98	246.75	173	102.25	66
GEORGIA AVE AND BARRY PL	NW	52	31	61.5	34	103	67
7TH ST AND MASSACHUSETTS AVE	NW	404.5	327	223.25	158	106	68

**Table 7.18: Intersection Rank by Crash Composite Index for 2011-2013
(Rank: 69-100)**

INTERSECTION NAME	Quad	2011		2012		2013	
		COMP	RANK	COMP	RANK	COMP	RANK
19TH ST AND INDEPENDENCE AVE	SE	54.75	34	39.75	20	111	69
16TH ST AND NEW HAMPSHIRE AVE	NW	196.5	141	49	27	111.75	70
21ST ST AND K ST	NW	172	122	152.25	110	112.5	71
15TH ST AND K ST	NW	73	49	50	28	113	72
KANSAS AVE AND BLAIR RD	NW	390.75	313	251.5	177	113	72
14TH ST AND P ST	NW	66.5	41	33	14	116.25	74
17TH ST AND PENNSYLVANIA AVE	NW	176.25	128	107.25	71	117	75
K ST AND NORTH CAPITOL ST	BN	25.5	10	104.25	70	117.75	76
13TH ST AND K ST	NW	87	57	82.75	49	118.75	77
16TH ST AND K ST	NW	72.75	48	96.25	64	119.5	78
7TH ST AND PENNSYLVANIA AVE	NW	289.25	212	258	186	123	79
4TH ST AND MASSACHUSETTS AVE	NW	194.5	138	156	115	123.25	80
20TH ST AND K ST	NW	238.75	169	268.75	192	123.75	81
13TH ST AND H ST	NE	148	103	567.25	492	124	82
EASTERN AVE AND NEW HAMPSHIRE AVE	NE	221	158	359.25	277	125.75	83
MICHIGAN AVE AND NORTH CAPITOL ST	BN	114.5	82	162.25	119	126	84
IRVING ST AND KENYON ST	NW	607.5	543	632.75	577	127.25	85
NEW JERSEY AVE AND NEW YORK AVE	NW	96.25	67	141	96	127.5	86
16TH ST AND FLORIDA AVE	NW	299.75	225	92.25	59	127.75	87
30TH ST AND M ST	NW	151.25	105	358	276	129	88
WISCONSIN AVE AND Q ST	NW	300.75	226	92	58	130	89
18TH ST AND MASSACHUSETTS AVE	NW	101.25	70	409.5	327	131.75	90
PENNSYLVANIA AVE AND SOUTHERN AVE	SE	49.75	29	129	89	134.75	91
18TH ST AND L ST	NW	193.25	137	204.25	149	135.5	92
24TH ST AND M ST	NW	106.75	74	62.25	35	135.75	93
GEORGIA AVE AND NEW HAMPSHIRE AVE	NW	93.5	62	179.75	129	136	94
CONNECTICUT AVE AND PORTER ST	NW	266.25	194	382	297	136.5	95
BRENTWOOD RD AND W ST	NE	86	56	213	156	139.75	96
13TH ST AND MASSACHUSETTS AVE	NW	306.25	230	91	57	140.75	97
23RD ST AND P ST	NW	349	263	145	100	141.25	98
BLADENSBURG RD AND QUEENS CHAPEL RD	NE	244.75	179	455.75	382	142.75	99
13TH ST AND F ST	NW	370.75	291	165.75	123	143.75	100

**Table 7.19: Intersection Rank by Crash Composite Index for 3-Year Periods
(Rank: 1~36)**

INTERSECTION NAME	Quad	2010-2012		2011-2013	
		COMP	RANK	COMP	RANK
MINNESOTA AVE AND BENNING RD	NE	5.5	2	4.75	1
WISCONSIN AVE AND M ST	NW	5.75	3	5.5	2
14TH ST AND U ST	NW	4.25	1	6.25	3
7TH ST AND FLORIDA AVE	NW	8.5	4	8.5	4
STANTON RD AND SUITLAND PKWY	SE	9.5	5	11.5	5
NEW YORK AVE AND BLADENSBURG RD	NE	11.25	6	11.75	6
FIRTH STERLING AVE AND SUITLAND PKWY	SE	16.5	9	15.5	7
H ST AND NORTH CAPITOL ST	BN	14	7	16	8
1ST ST AND UNION STATION PLAZA	NE	28.25	14	22.75	9
14TH ST AND IRVING ST	NW	29.25	16	24.5	10
7TH ST AND H ST	NW	14.25	8	25	11
FLORIDA AVE AND NEW YORK AVE	NE	28.5	15	25.75	12
13TH ST AND U ST	NW	34	18	27.75	13
NEW YORK AVE AND NORTH CAPITOL ST	BN	22.75	10	28.75	14
9TH ST AND U ST	NW	33.5	17	31.5	15
14TH ST AND K ST	NW	23.75	11	31.75	16
MINNESOTA AVE AND PENNSYLVANIA AVE	SE	26.75	12	33.25	17
14TH ST AND COLUMBIA RD	NW	61	39	34	18
BENNING RD AND EAST CAPITOL ST	BN	37.75	19	35.25	19
4TH ST AND NEW YORK AVE	NW	51.25	27	37	20
I ST AND S CAPITOL ST	BN	40	21	37.5	21
SOUTHERN AVE AND WHEELER RD	SE	57.75	34	40.25	22
MARTIN LUTHER KING AVE AND HOWARD RD	SE	60.75	37	41.75	23
1ST ST AND MICHIGAN AVE	NW	60.75	37	43.75	24
SOUTHERN AVE AND BENNING RD	SE	45	22	48	25
MONTANA AVE AND NEW YORK AVE	NE	27	13	49	26
17TH ST AND I ST	NW	76.25	53	49.75	27
19TH ST AND INDEPENDENCE AVE	SE	46.5	23	50	28
2ND ST AND H ST	NW	46.5	23	50.5	29
19TH ST AND M ST	NW	77.25	55	52.5	30
4TH ST AND NEW YORK AVE	NE	71.25	48	53	31
14TH ST AND P ST	NW	53.75	31	53.75	32
K ST AND NORTH CAPITOL ST	BN	53.25	30	55	33
GEORGIA AVE AND BARRY PL	NW	72.25	50	55	33
9TH ST AND MASSACHUSETTS AVE	NW	63.5	44	56.25	35
SOUTH DAKOTA AVE AND BLADENSBURG RD	NE	65.5	46	57	36

**Table 7.20: Intersection Rank by Crash Composite Index for 3-Year Periods
(Rank: 37~74)**

INTERSECTION NAME	Quad	2010-2012		2011-2013	
		COMP	RANK	COMP	RANK
24TH ST AND PENNSYLVANIA AVE	NW	65	45	58.5	37
1ST ST AND NEW YORK AVE	NW	59	35	59.25	38
FIRTH STERLING AVE AND HOWARD RD	SE	103	68	61	39
15TH ST AND K ST	NW	72.25	50	61.25	40
14TH ST AND PARK RD	NW	98	65	61.25	40
14TH ST AND I ST	NW	69.25	47	62.5	42
18TH ST AND ADAMS MILL RD	NW	39	20	63	43
14TH ST AND L ST	NW	76.5	54	65.5	44
17TH ST AND BLADENSBURG RD	NE	52	29	66	45
NORTH CAPITOL ST AND RIGGS RD	BN	62.5	42	66.75	46
6TH ST AND NEW YORK AVE	NW	55	32	67	47
WEST VIRGINIA AVE AND MOUNT OLIVET RD	NE	51.25	27	67.75	48
14TH ST AND PENNSYLVANIA AVE	NW	48.25	25	73	49
GEORGIA AVE AND BRYANT ST	NW	159	116	75.5	50
SOUTHERN AVE AND S CAPITOL ST	BN	62.5	42	77.25	51
9TH ST AND NEW YORK AVE	NW	144.25	99	77.5	52
6TH ST AND H ST	NW	87	61	77.5	52
PENNSYLVANIA AVE AND SOUTHERN AVE	SE	83.75	59	77.75	54
ALABAMA AVE AND STANTON RD	SE	75.25	52	78.25	55
MINNESOTA AVE AND NANNIE HELEN BURROUGHS AVE	NE	61.5	41	79	56
13TH ST AND K ST	NW	57.25	33	79.5	57
14TH ST AND RHODE ISLAND AVE	NW	96.75	64	80	58
16TH ST AND K ST	NW	61	39	81	59
24TH ST AND M ST	NW	123.75	90	87	60
ALABAMA AVE AND PENNSYLVANIA AVE	SE	116	79	88.25	61
19TH ST AND L ST	NW	111.5	74	89.5	62
16TH ST AND NEW HAMPSHIRE AVE	NW	78.25	57	89.75	63
BRANCH AVE AND PENNSYLVANIA AVE	SE	49.75	26	90.5	64
3RD ST AND D ST	NW	120.5	84	91.75	65
CONNECTICUT AVE AND R ST	NW	132.75	94	95.75	66
M ST AND NORTH CAPITOL ST	BN	85	60	97.75	67
14TH ST AND F ST	NW	115.25	77	106.75	68
MISSOURI AVE AND NEW HAMPSHIRE AVE	NW	109	71	108.25	69
MICHIGAN AVE AND NORTH CAPITOL ST	BN	111.25	73	108.5	70
6TH ST AND FLORIDA AVE	NW	158.25	114	108.75	71
14TH ST AND CONSTITUTION AVE	NW	101.25	67	109	72
44TH ST AND NANNIE HELEN BURROUGHS AVE	NE	261.25	195	109.75	73

**Table 7.21: Intersection Rank by Crash Composite Index for 3-Year Periods
(Rank: 74~100)**

INTERSECTION NAME	Quad	2010-2012		2011-2013	
		COMP	RANK	COMP	RANK
NEW JERSEY AVE AND NEW YORK AVE	NW	77.25	55	112	74
16TH ST AND M ST	NW	162.25	119	113.25	75
GEORGIA AVE AND NEW HAMPSHIRE AVE	NW	120.75	85	114	76
NORTH CAPITOL ST AND P ST	BN	139.75	96	116.75	77
1ST ST AND K ST	NE	71.75	49	116.75	77
17TH ST AND PENNSYLVANIA AVE	NW	150	106	117	79
CONNECTICUT AVE AND K ST	NW	170.5	125	118.25	80
GEORGIA AVE AND PARK RD	NW	117	80	118.25	80
BRENTWOOD RD AND W ST	NE	120.75	85	120	82
1ST ST AND M ST	NE	286.5	217	121.5	83
21ST ST AND K ST	NW	106.75	70	123.25	84
14TH ST AND MONROE ST	NW	171.5	127	124.25	85
ALABAMA AVE AND GOOD HOPE RD	SE	104.5	69	124.25	85
16TH ST AND FLORIDA AVE	NW	148.75	105	126	87
GEORGIA AVE AND UPSHUR ST	NW	246.75	179	126	87
MISSISSIPPI AVE AND S CAPITOL ST	BN	144.5	100	126.5	89
RHODE ISLAND AVE AND NORTH CAPITOL ST	BN	152.25	108	127	90
WISCONSIN AVE AND Q ST	NW	182.25	139	129.75	91
ALABAMA AVE AND BRANCH AVE	SE	155.5	110	129.75	91
BRENTWOOD PKWY AND MOUNT OLIVET RD	NE	148	103	131.75	93
14TH ST AND H ST	NE	117	80	132	94
7TH ST AND NEW YORK AVE	NW	203.25	148	135.25	95
4TH ST AND MASSACHUSETTS AVE	NW	189	145	135.25	95
13TH ST AND MASSACHUSETTS AVE	NW	158.25	114	135.75	97
NEW HAMPSHIRE AVE AND NORTH CAPITOL ST	BN	87.5	62	137	98
4TH ST AND RHODE ISLAND AVE	NE	115.5	78	137.25	99
23RD ST AND I ST	NW	250.75	180	138.5	100

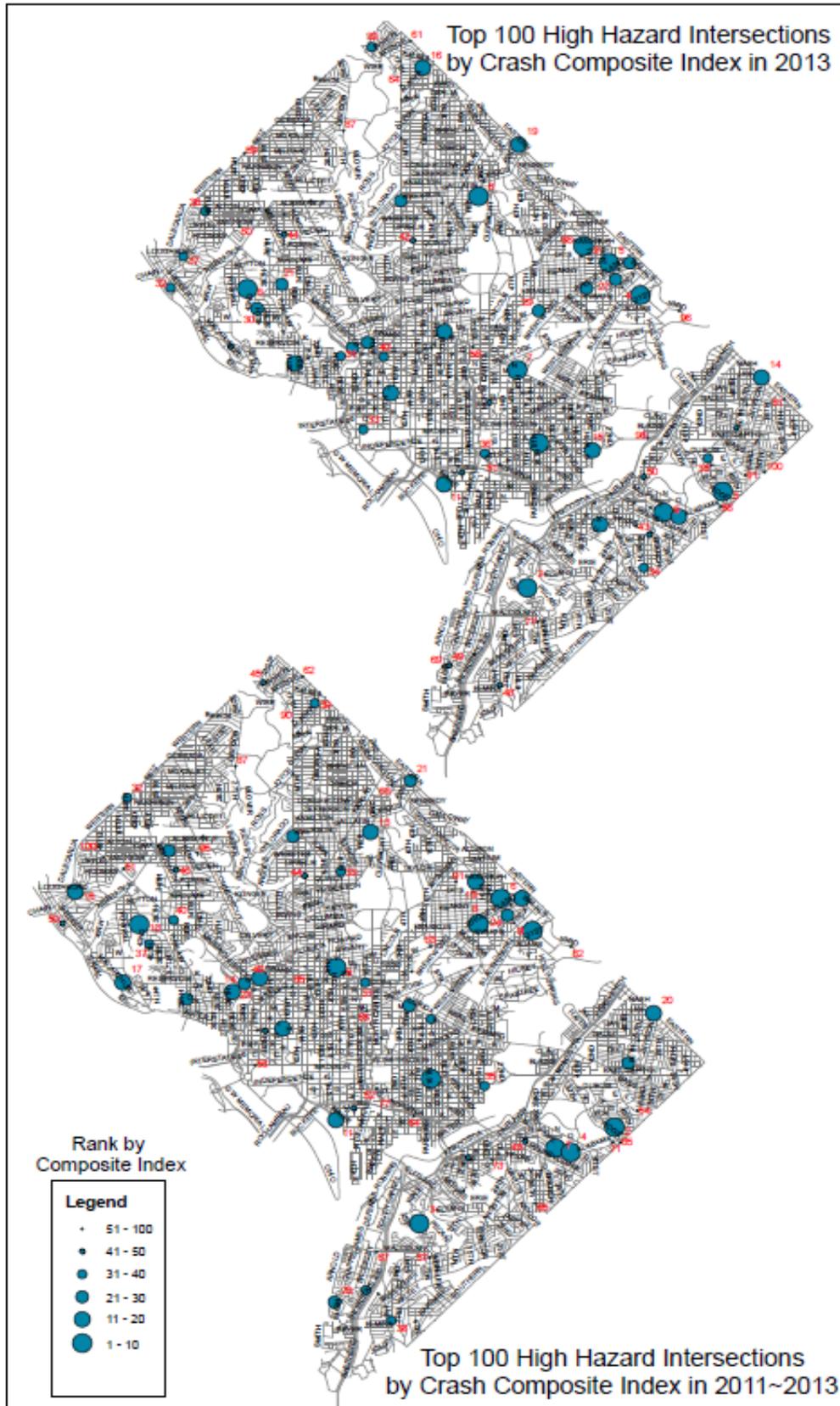


Figure 7.3: Top 100 Hazard Intersections by Crash Composite Index in 2011-2013

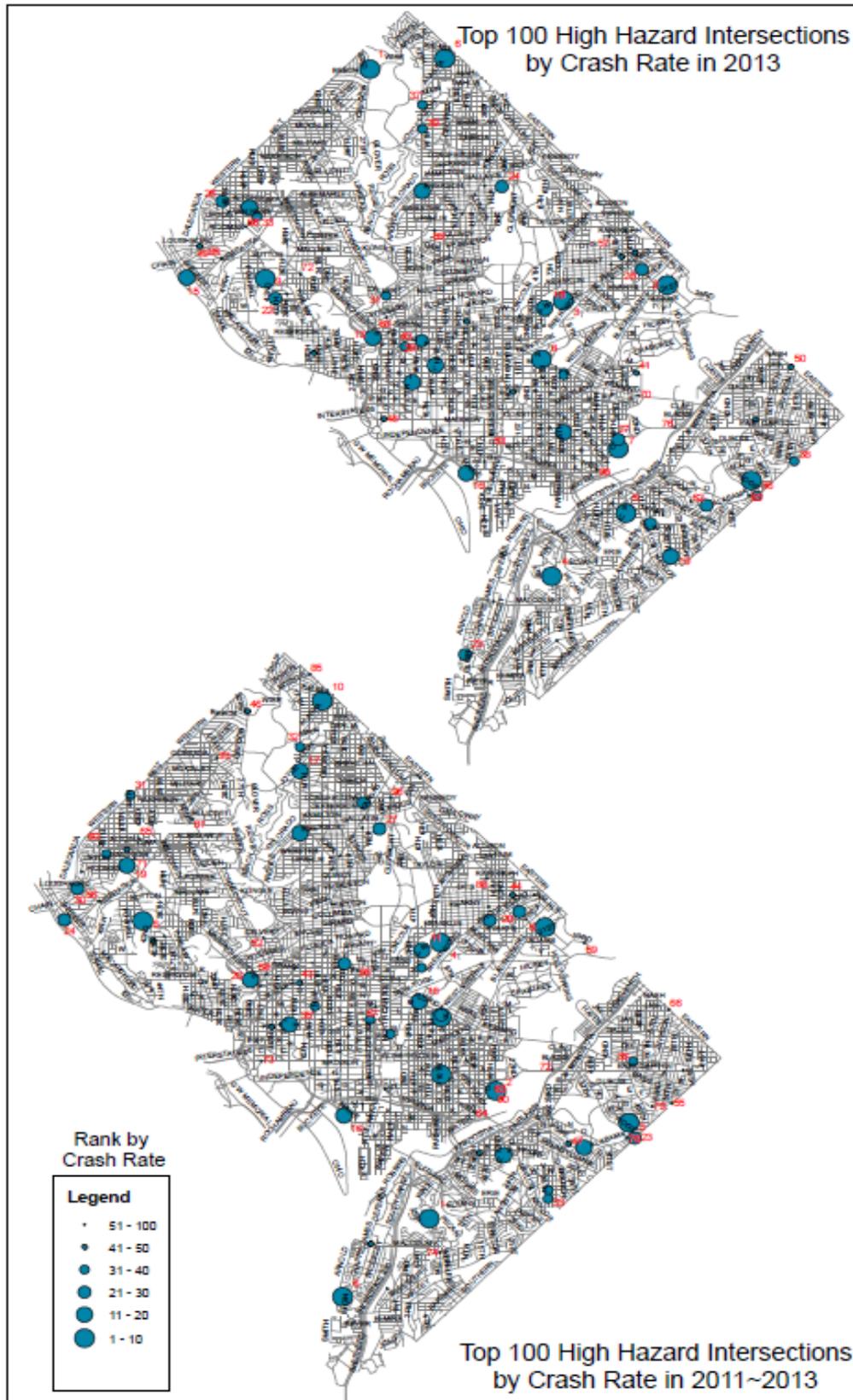


Figure 7.4: Top 100 Hazard Intersections by Crash Rate Index in 2011-2013

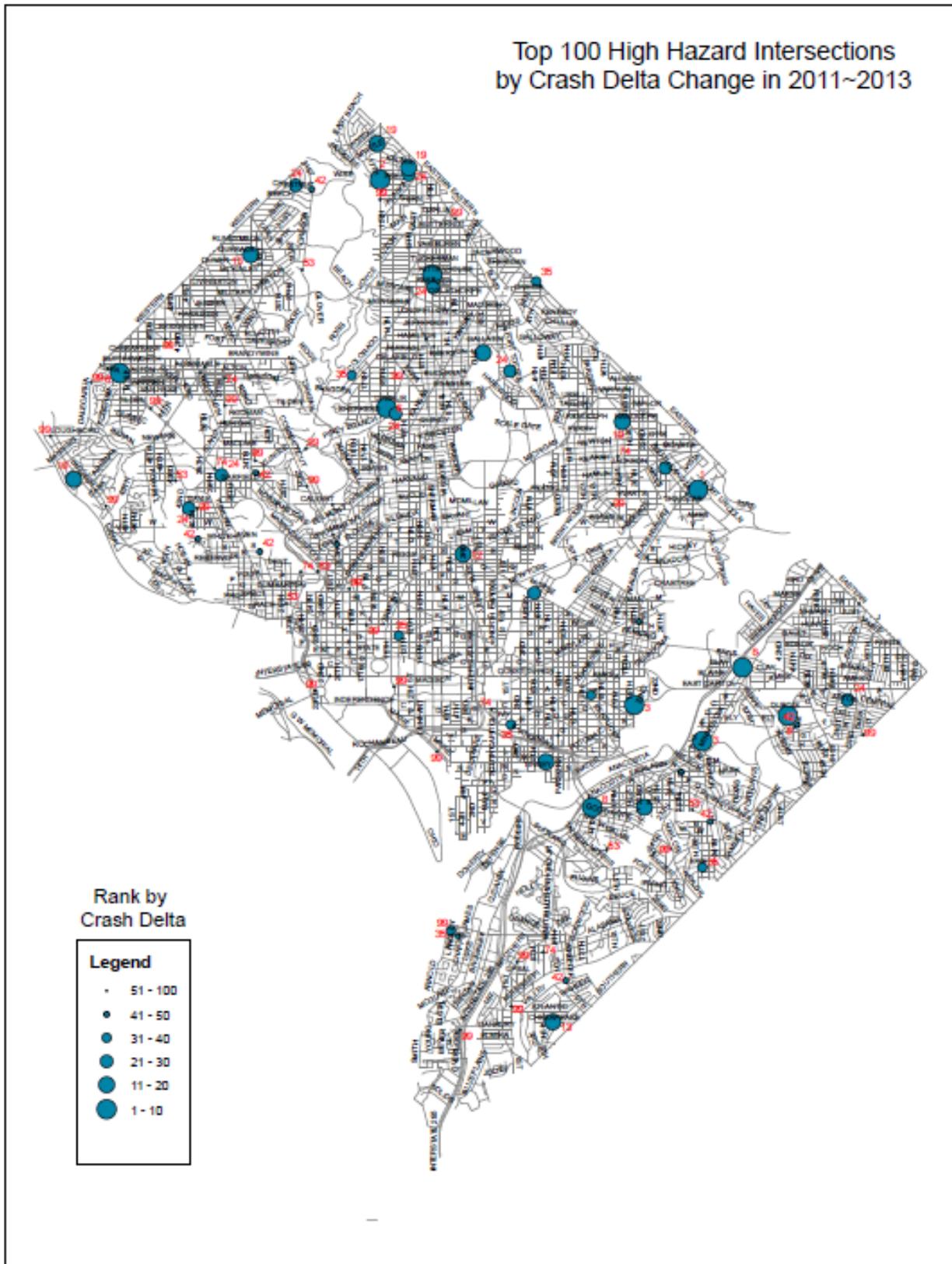


Figure 7.5: Top 100 Hazard Intersections by Crash Rate Index in 2011-2013

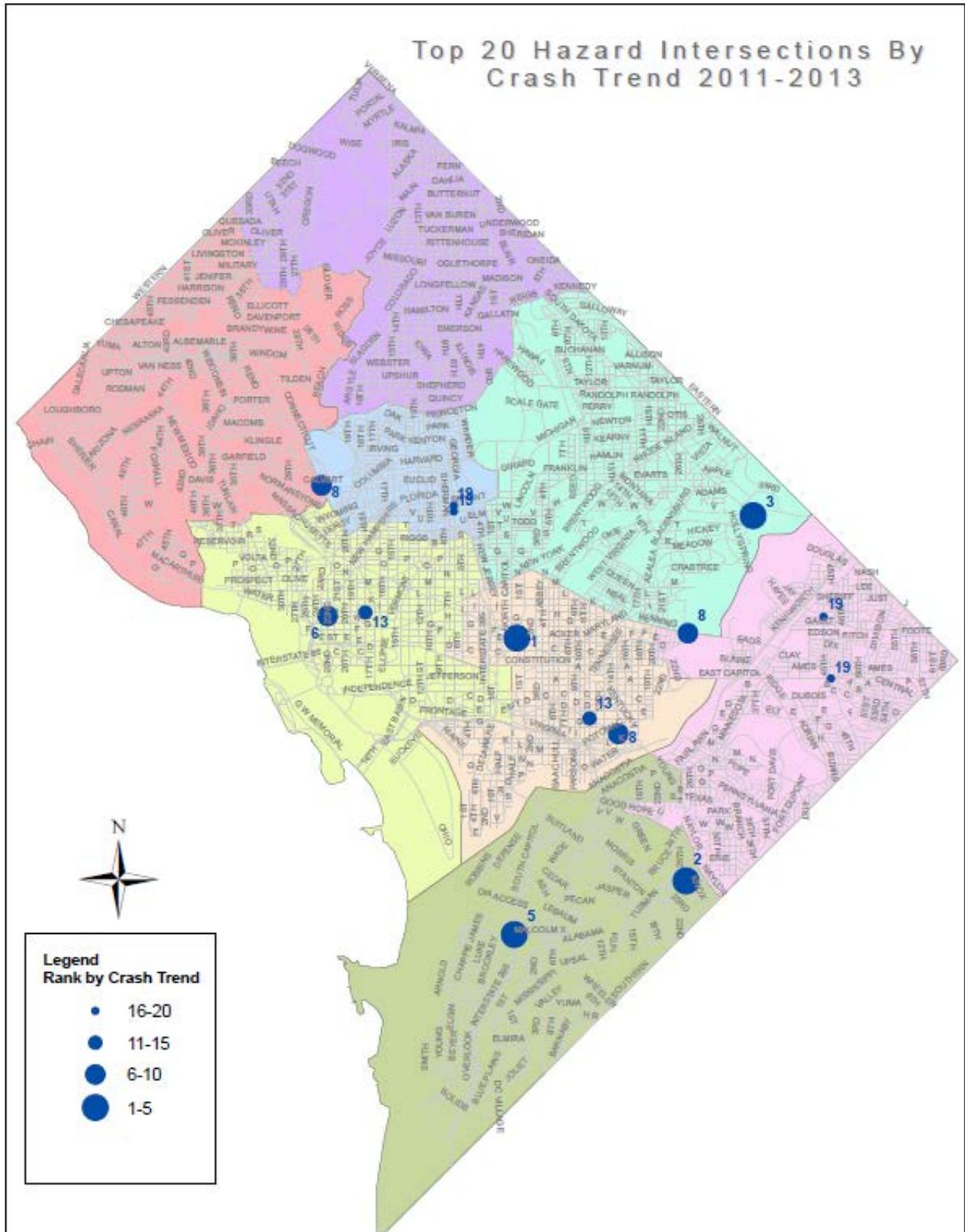


Figure 7.6: Top 20 Hazard Intersections by Crash Trend through 2011-2013

7.2 PD-10 Form



189 (Type of Crash) Record N/A in any field that does not apply to this event. For yes/no questions, circle one.

All dates should be formatted as mm/dd/yyyy

Explain any "other" responses in narrative.

190 (Road Surface)

1 Date of Crash, 2 Time of Crash (Use military), 3 Day of Week, 4 Date of Report, 5 Complaint Number (CCN), 6 UCC Number

191 (Road Type)

7 Type of Crash (Check all that apply), 8 Location (Street/bridge/tunnel name & quadrant), 9 District, 10 PSA

Enter the number of feet, in whatever direction, from the nearest intersection or block (0 feet if at an exact location). On freeways, enter the number of feet from the nearest mile post or PEPCO pole no., etc. Indicate if accident occurred on exit ramp, bridge, tunnel or other. Finally, circle the city quadrant.

192 (Road Condition)

11 Location Type and Name, PEPCO Pole No., Exit Ramp, Bridge, Tunnel, Circle Quadrant: NW SW NE SE

193 (Street Lighting)

12 Construction Zone?, 13 On-Street Location, 14 Off-Street Location, 15 Report taken on scene?

194 (Light Condition)

16 Photos taken?, 16a If yes, # photos, 17 # Vehicles Involved, 18 # Injured Persons, 19a-d # Occupants (Incl. driver), 20 # Fatalities

195 (Weather)

21 OBJECT TYPE, 22 Last Name, 23 Sex, 24 DOB, 25 Street Address, 26 City, State, Zip, 27 Home/Cell Number, 28 Work Number, 29 License Number, 30 State, 31 Class, 32 Ins Exp Date, 33 Driver's Insurance Co. Name, 34 Policy #, 35 Make, 36 Model, 37 Year, 38 Body, 39 Color, 40 Vehicle ID Number (VIN), 41 Tag Number, 42 State, 43 Year, 44 Owner's Last Name, 45 Owner Notified?, 46 Owner's Street Address, 47 City, State, Zip, 48 Owner's Telephone #, 49 Veh. Insurance Co. (if different from #33)

196 (Traffic Condition)

197 (Roadway Type)

198 (Traffic Controls)

199 (Pedestrian Action)

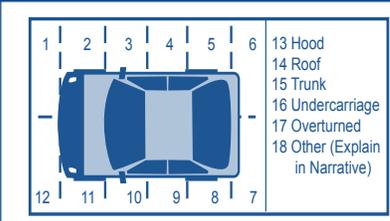
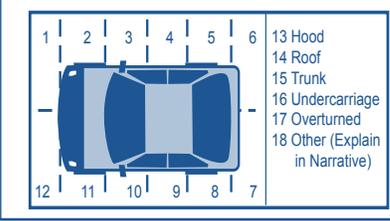
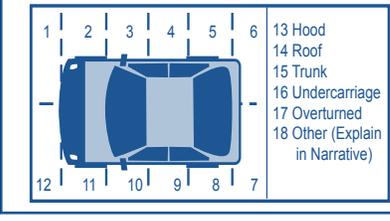
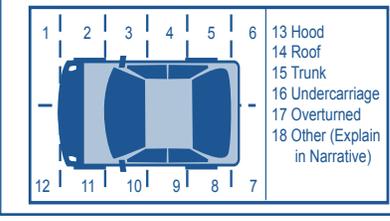
200a-h (Sequence)

50 OBJECT TYPE, 51 Last Name, 52 Sex, 53 DOB, 54 Street Address, 55 City, State, Zip, 56 Home/Cell Number, 57 Work Number, 58 License Number, 59 State, 60 Class, 61 Ins Exp Date, 62 Insurance Co. Name, 63 Policy #, 64 Make, 65 Model, 66 Year, 67 Body, 68 Color, 69 Vehicle ID Number (VIN), 70 Tag Number, 71 State, 72 Year, 73 Owner's Last Name, 74 Owner Notified?, 75 Owner's Street Address, 76 City, State, Zip, 77 Owner's Telephone #, 78 Veh. Insurance Co. (if different from #62)

TRAFFIC CRASH REPORT



POLICE ACTION RELATING TO DRIVERS & PEDESTRIANS		
155a-c Arrest/NOI#	156a-c Primary and Secondary Charges (Report must support charges)	157a-c What Traffic Signs Were Present?
1		
2		
3		

VEHICLE CONDITION	158 STRIKING OBJECT/VEHICLE #1: Direction of Travel and Street Before Crash (must match narrative and diagram) <input type="checkbox"/> 01 N/B <input type="checkbox"/> 02 E/B <input type="checkbox"/> 03 S/B <input type="checkbox"/> 04 W/B <input type="checkbox"/> 97 N/A <input type="checkbox"/> 99 Other _____	160 Skid Marks To Impact: _____ After Impact: _____ <input type="checkbox"/> N/A	161 Circle All Areas With Damage: 	162 Vehicle Was . . . <input type="checkbox"/> 01 Left on Scene <input type="checkbox"/> 02 Towed By: _____ Towed to: _____ Towing Control #: _____ <input type="checkbox"/> 03 Driven Away By: _____ <input type="checkbox"/> 97 N/A <input type="checkbox"/> 99 Other	
	159 Vehicle Disabled? <input type="checkbox"/> Y <input type="checkbox"/> N	163 VEHICLE #2: Direction of Travel and Street Before Crash (must match narrative and diagram) <input type="checkbox"/> 01 N/B <input type="checkbox"/> 02 E/B <input type="checkbox"/> 03 S/B <input type="checkbox"/> 04 W/B <input type="checkbox"/> 97 N/A <input type="checkbox"/> 99 Other _____	165 Skid Marks To Impact: _____ After Impact: _____ <input type="checkbox"/> N/A	166 Circle All Areas With Damage: 	167 Vehicle Was . . . <input type="checkbox"/> 01 Left on Scene <input type="checkbox"/> 02 Towed By: _____ Towed to: _____ Towing Control #: _____ <input type="checkbox"/> 03 Driven Away By: _____ <input type="checkbox"/> 97 N/A <input type="checkbox"/> 99 Other
	164 Vehicle Disabled? <input type="checkbox"/> Y <input type="checkbox"/> N	168 VEHICLE #3: Direction of Travel and Street Before Crash (must match narrative and diagram) <input type="checkbox"/> 01 N/B <input type="checkbox"/> 02 E/B <input type="checkbox"/> 03 S/B <input type="checkbox"/> 04 W/B <input type="checkbox"/> 97 N/A <input type="checkbox"/> 99 Other _____	170 Skid Marks To Impact: _____ After Impact: _____ <input type="checkbox"/> N/A	171 Circle All Areas With Damage: 	172 Vehicle Was . . . <input type="checkbox"/> 01 Left on Scene <input type="checkbox"/> 02 Towed By: _____ Towed to: _____ Towing Control #: _____ <input type="checkbox"/> 03 Driven Away By: _____ <input type="checkbox"/> 97 N/A <input type="checkbox"/> 99 Other
	169 Vehicle Disabled? <input type="checkbox"/> Y <input type="checkbox"/> N	173 VEHICLE #4: Direction of Travel and Street Before Crash (must match narrative and diagram) <input type="checkbox"/> 01 N/B <input type="checkbox"/> 02 E/B <input type="checkbox"/> 03 S/B <input type="checkbox"/> 04 W/B <input type="checkbox"/> 97 N/A <input type="checkbox"/> 99 Other _____	175 Skid Marks To Impact: _____ After Impact: _____ <input type="checkbox"/> N/A	176 Circle All Areas With Damage: 	177 Vehicle Was . . . <input type="checkbox"/> 01 Left on Scene <input type="checkbox"/> 02 Towed By: _____ Towed to: _____ Towing Control #: _____ <input type="checkbox"/> 03 Driven Away By: _____ <input type="checkbox"/> 97 N/A <input type="checkbox"/> 99 Other
174 Vehicle Disabled? <input type="checkbox"/> Y <input type="checkbox"/> N					

	206a-c Driver/ Pedestrian Condition	207a-c Impairment	208a-c Type of Test Conducted	209a-c Blood/ Alcohol Content		210a-d Cell Phone/Other Electronic Device Present (Y/N)?	211a-d Driver/ Pedestrian Distraction	212a-d Primary Contributing Circumstances	213a-d Driver Action	214a-d Vehicle Type: Private	215a-d Vehicle Type: Govt	216a-d Vehicle Type: Comm
Involved Person #1					Vehicle #1							
Involved Person #1					Vehicle #2							
Involved Person #3					Vehicle #3							
Involved Person #3					Vehicle #4							

