FINAL REPORT

TRAFFIC SAFETY STATISTICS REPORT FOR THE DISTRICT OF COLUMBIA (2009-2011)

February 1, 2013

Prepared for:
District Department of Transportation

55 M Street SE
Washington, DC 20003

Prepared by:

Transportation Safety Data Center
2300 6th Street, NW Suite 2121
Washington, DC 20059

Technical Report Documentation Page

1. Report No. **DDOT-PPSA-PM-003**	2. Report Date 02/01/2013
3. Title and Subtitle Traffic Safety Statistics Report for the District of Columbia	4. Contract or Grant No. PO397719
5. Author(s) Dr. Stephen Arhin, P.E., PTOE; Dr. Errol C. Noel, P.E. Mr. James Cheeks	
6. Performing Organization Name and Address Howard University Transportation Safety Data & Research Center 2300 Sixth Street NW, Suite 2121 Washington, DC 20059	7. Type of Report and Period Covered. Highway Traffic Safety Data
8. Sponsoring Agency Name and Address District Department of Transportation 55 M Street, SE Washington, DC 20003	
9. Supplementary Notes	

10. Abstract

This report is a compilation crash statistics and analyses for roadways in the District of Columbia during the period 2009 through 2011. 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.

11. Key Words Crash, Traffic Accident, Statistics, Frequency, Rate, Fatal, Injury, High-Hazard Locations, Rank, Traffic Safety	12. Distribution Statement This document is available through DDOT.

13. Security Classification of this report: Unclassified	14. Security Classification of this page: Unclassified	15. No. of Pages	16. Price N/A

TABLE OF CONTENTS

CHAPTER 1 – INTRODUCTION 1

1.1 Objectives 1
1.2 Report Organization 1

CHAPTER 2 – CRASH ANALYSIS METHODOLOGY 1

2.1 Traffic Crash Statistics 1
2.2 High-Hazard Location Analysis 1
2.2.1 Crash Frequency 2
2.2.2 Crash Rate Method 2
2.2.3 Crash Severity Cost Method 3
2.2.4 Composite Index 3
2.2.5 Delta Change 4

CHAPTER 3 – SUMMARY OF CRASH TRENDS AND FACTS 5

3.1 2011 DC Crash Quick Facts 5
3.2 2009~2011 DC Crashes Trend 6

CHAPTER 4 – CRASH STATISTICS AND TRENDS 9

4.1 Temporal 9
4.1.1 Traffic Crashes and Injuries by Hour of the Day 9
4.1.2 Traffic Crashes by Day of the Week 12
4.1.3 Traffic Crashes by Month 12
4.2 Location 14
4.2.1 Crashes by Quadrant 14
4.2.2 Crashes by Ward 17
4.2.3 Crashes by Police Districts 18
4.2.4 Crashes by Advisory Neighborhood Commissions (ANCs) 20
4.2.5 Crashes by On-Street Location 23
4.2.6 Crashes by Construction Zone 24
4.3 Crash Classification 24
4.3.1 Crash Severity Type 24
4.3.2 Crash Type 25
4.3.3 Hit-and-Run Crashes 27
4.3.4 Crashes by Vehicle Classification 29
4.3.5 Crashes involving Pedestrians 31
4.3.6 Crashes involving Bicyclists 34

4.3.7 Crashes involving Motorcycles 39
4.3.8 Crashes involving DC Properties 42
4.4.1 Drivers by Age 44
4.4.2 Drivers by Gender 46
4.4.3 Drivers by State Issued Driver's License 46
4.4.4 Crashes by Drivers Action 47
4.5 Environmental Conditions 48
4.5.1 Crashes by Roadway Conditions 48
4.5.2 Crashes by Road Surface 49
4.5.3 Crashes by Weather Conditions 50
4.5.4 Crashes by Light Conditions 51
4.5.5 Crashes by Traffic Conditions 53
4.5.6 Crashes by Traffic Control 54
4.5.7 Crashes by Roadway Functional Classification 55
4.6 Contributing Factors 58
4.6.1 Crashes by Primary Crash Contributing Factors 58
4.6.2 Crashes by Speed Violation 59
4.6.2 Alcohol/Drug Related Crashes 59
4.6.4 Crashes by Restraint Use (Seatbelts or Airbags) 63
4.6.5 Crashes by Sobriety 65
4.6.6 Crashes by Drivers or Pedestrians Distractions 66

CHAPTER 5 – HIGH CRASH LOCATIONS 68

5.1 Identification of High Hazard Intersections 68
5.1.1 Ranking of High Hazard Intersections (2009-2011) 68
5.2 High Frequency Crash Intersection by Type 79
5.3 Identification of High Frequency Crash Corridors 80
5.3.1 Summary of Crashes on Corridors 80
5.3.2 High Frequency Crash Corridors by Number of Crashes per Mile 82
5.3.3 Number of Crashes per Intersecting Intersection on Corridors 83

CHAPTER 6: EXPOSURE 86

6.1 Fatality Rate per 100 Million Vehicle Miles Traveled (VMT) 86
6.2 Injury Rate per 100 Million Vehicle Miles Traveled (VMT) 87

CHAPTER 7: APPENDICES 89
7.1 Top 100 Hazard Intersections 89
7.1.1 Rank by Crash Frequency 89
7.1.2 Rank by Crash Rate 96
7.1.3 Rank by Crash Cost 102
7.1.4 Rank by Crash Composite Index 109
7.2 PD-10 Form 116

LIST OF TABLES

Table 3.1: 2011 DC Crash Quick Facts 5
Table 4.1: 2011 Crashes by Hour of the Day 10
Table 4.2: 2011 Crashes by Hour of the Day 12
Table 4.3: 2011 Crashes by Month 13
Table 4.4: 2011 Crashes by Quadrant 14
Table 4.5: Crashes by Ward from 2009-2011 17
Table 4.6: Crashes by Police District 18
Table 4.7: Crashes by ANCs in 2011 20
Table 4.8: 2010 Crashes by On-Street Location 23
Table 4.9: Crashes in Construction Zones for 2009-2011 24
Table 4.10: 2011 Crash Details in Construction Zones 24
Table 4.11: Summary of Crash by Crash Type in 2011 26
Table 4.12: Summary of Crash in 2011 by Vehicle Classification 29
Table 4.13: Pedestrian Involved Crashes by Injury Code 34
Table 4.14: Bicyclist Crashes by Injury Code 35
Table 4.15: Motorcyclists Crashes by Injury Code 42
Table 4.16: Number Crashes by Driver Age and Year 44
Table 4.17: Driver Involvement by State of Permit 47
Table 4.18: Driver Involvement by Driver Action and Year 48
Table 4.19: Summary of Crashes by Road Condition 48
Table 4.20: Summary of Crashes by Roadway Surface (2009-2011) 49
Table 4.21: Summary of Crashes by Weather Condition 50
Table 4.22: Summary of Crashes by Street Lighting 51
Table 4.23 Summary of Crashes by Light Condition 52
Table 4.24: Summary of Crashes by Traffic Condition 53
Table 4.25: Summary of Crashes by Traffic Control 54
Table 4.25: Summary of Crashes by Roadway Functional Classification 55
Table 4.26: Number of Crashes by Contributing Factors 58
Table 4.27: Speed-Related Crashes by Age and Gender for 2011 60
Table 4.28: Alcohol/Drug related Crashes by Hour in 2011 61
Table 4.29: Alcohol/Drug related Crashes by Day of Week in 2011 61
Table 4.30: Alcohol/Drug related Crashes by Day of Week in 2011 62
Table 4.31: Frequency of Injures by Injury Code and Air Bag Restraint 63
Table 4.32: Number of Injures by Injury Code and Seat Belt Restraint 64
Table 4.33: Number of Crashes by Sobriety in 2011 65
Table 4.34: Crashes by Driver or Pedestrian Distraction in 2011 66
Table 5.1: Top 20 Hazardous Intersections by Crash Frequency 69
Table 5.2: Top 20 Hazardous Intersections by Crash Frequency for Three Years 70
Table 5.3: Top 20 Hazardous Intersections by Crash Rate 71
Table 5.4: Top 20 Hazardous Intersections by Crash Rate for Three Years 72
Table 5.5: Top 20 Hazardous Intersections by Crash Severity Cost 73
Table 5.6: Top 20 Hazardous Intersections by Crash Severity Cost for Three Years 74
Table 5.7: Top 20 Hazardous Intersections by Composite Index 75
Table 5.8: Top 20 Hazardous Intersections by Composite Index for Three Years 76

Table 5.9: Top 20 Hazardous Intersections by Crash Type 79
Table 5.10: High Frequency Crash Corridors for Each Year 80
Table 5.11: Summary of High Frequency Crash Corridors (2009~2011) 81
Table 5.12 High Frequency Crash Corridors by Number of Crash 82
Table 5.13: Number of Crashes per Intersecting Intersection on Corridors 83
Table 6.1: Fatality Rate from 2004 through 2011 86
Table 6.2: Injury Rate from 2004 through 2011 88
Table 7.1: Rank by Crash Frequency for Each Year (Rank: 1~33) 89
Table 7.2: Rank by Crash Frequency for Each Year (Rank: 34~66) 90
Table 7.3: Rank by Crash Frequency for Each Year (Rank: 67~100) 91
Table 7.4: Rank by Crash Frequency for Three Years (Rank: 1~33) 92
Table 7.5: Rank by Crash Frequency for Three Years (Rank: 34~66) 93
Table 7.6: Rank by Crash Frequency for Three Years (Rank: 67~100) 94
Table 7.7: Rank by Crash Rate for Each Year (Rank: 1~33) 96
Table 7.8: Rank by Crash Rate for Each Year (Rank: 34~66) 97
Table 7.9: Rank by Crash Rate for Each Year (Rank: 67~100) 98
Table 7.10: Rank by Crash Rate for Three Years (Rank: 1~33) 98
Table 7.11: Rank by Crash Rate for Three Years (Rank: 34~66) 100
Table 7.12: Rank by Crash Rate for Three Years (Rank: 67~100) 101
Table 7.13: Rank by Crash Severity Cost for Each Year (Rank: 1~33) 102
Table 7.14: Rank by Crash Severity Cost for Each Year (Rank: 34~66) 103
Table 7.15: Rank by Crash Severity Cost for Each Year (Rank: 67~100) 104
Table 7.16: Rank by Crash Severity Cost for Three Years (Rank: 1~33) 105
Table 7.17: Rank by Crash Severity Cost for Three Years (Rank: 34~66) 106
Table 7.18: Rank by Crash Severity Cost for Three Years (Rank: 67~100) 107
Table 7.19: Rank by Crash Composite Index for Each Year (Rank: 1~33) 109
Table 7.20: Rank by Crash Composite Index for Each Year (Rank: 34~66) 110
Table 7.21: Rank by Crash Composite Index for Each Year (Rank: 67~100) 111
Table 7.22: Rank by Crash Composite Index for Three Years (Rank: 1~33) 112
Table 7.23: Rank by Crash Composite Index for Three Years (Rank: 34~66) 113
Table 7.24: Rank by Crash Composite Index for Three Years (Rank: 67~100) 114

LIST OF FIGURES

Figure 3.1: 2011 Crash Severity Types 6
Figure 3.2: Traffic Crashes and Injury Crashes by Year 6
Figure 3.3: Number of Fatalities by Year 7
Figure 3.4: Number of Injured Persons by Year 7
Figure 3.5: Number of Disabling Injuries by Year 8
Figure 3.6: Number of Non-Disabling Injuries by Year 8
Figure 4.1: 2011 Total Fatalities by Hour 10
Figure 4.2: 2011 Crashes and Injuries by Hour of Day for Weekdays 11
Figure 4.3: 2011 Crashes and Injuries by Hour of Day for Weekends 11
Figure 4.4: 2011 Crashes and Injuries by Hour of Day for Weekends 12
Figure 4.5: Total Crashes by Month 13
Figure 4.6: Total Crashes by Quadrant 15
Figure 4.7: Crashes, Fatalities, Injuries by Wards 16
Figure 4.8: Total Crashes by Ward 17
Figure 4.9: Total Crashes by Police District 18
Figure 4.10: Crashes, Fatalities, Injuries by Police District 19
Figure 4.11: Crashes, Fatalities, Injuries by Advisory Neighborhood Commissions 22
Figure 4.12: 2011 Crashes by On-Street Location 23
Figure 4.13: 2011 Crash Severity Type 25
Figure 4.14: 2011 Crash by Type 27
Figure 4.15: Hit and Run Crashes in 2011 28
Figure 4.16: Severity of Hit and Run Crashes in 2011 28
Figure 4.17: Three-year Trend of Crashes by Vehicle Type 30
Figure 4.18: Three-year Trend of Fatalities by Vehicle Type 30
Figure 4.19: Three-year Trend of Injuries by Vehicle Type 31
Figure 4.20: Pedestrian Involved Crashes at intersections in 2011 32
Figure 4.21: Three-year Trend of Crashes involving Pedestrians 33
Figure 4.22: Three-year Trend of Crashes involving Pedestrians by Age 33
Figure 4.23: Three-year Trend of Crashes involving Pedestrians by Gender 34
Figure 4.24: Bicycle Involved Crashes at Intersections in 2011 37
Figure 4.25: Three-year Trend of Crashes involving Bicyclists 37
Figure 4.26: Three-year Trend of Crashes involving Bicyclists by Age 37
Figure 4.27: Three-year Trend of Crashes involving Bicyclists by Gender 38
Figure 4.28: Motorcycle Involved Crashes at Intersections in 2011 39
Figure 4.29: Three-year Trend of Crashes involving Motorcyclists 40
Figure 4.30: Three-year Trend of Crashes involving Motorcyclists by Age 40
Figure 4.32: Three-year Trend of Crashes involving DC Properties 43
Figure 4.33: Severity of Crashes involving DC Properties in 2011 43
Figure 4.34: Crashes Drivers by Age for 2009 - 2011 45
Figure 4.35: Injury Type Drivers by Age for 2011 45
Figure 4.36: Crashes by Gender of Drivers for 2009-2011 46
Figure 4.37: Drivers Involved in Crashes by State Issued License for 2009-2011 47
Figure 4.38: Number of Crashes and Injuries by Road Condition 49
Figure 4.39: Number of Crashes and Injuries by Road Surface in 2011 50

Figure 4.40: Number of Crashes and Injuries by Weather 51
Figure 4.41: Number of Crashes and Injuries by Street Lighting 52
Figure 4.42 Number of Crashes and Injuries by Light Condition 53
Figure 4.43: Number of Crashes and Injuries by Traffic Conditions 54
Figure 4.44: Number of Crashes and Injuries by Traffic Control 55
Figure 4.45: Number of Crashes and Injuries by Traffic Control 56
Figure 4.46: Number of Crashes and Injuries by Traffic Control 56
Figure 4.47: Number of Crashes and Injuries by Traffic Control 57
Figure 4.48: Number of Crashes and Injuries per Lane-Mile by Functional Class..... 57
Figure 4.49: Speed-Related Crashes in 2011 59
Figure 4.50: Speed-Related Crashes by Age and Gender for 2011 60
Figure 4.51: Alcohol/Drug-Related Crashes by Age and Gender for 2011 62
Figure 4.52: Crash Severity by Air Bag Restraint in 2011 63
Figure 4.53: Crash Severity by Seatbelt Restraint in 2011 64
Figure 4.54: Crash Severity by Sobriety in 2011 65
Figure 4.55: Crash Severity by Driver/Pedestrian Distraction in 2011 67
Figure 5.1: Top 20 Hazard Intersections By Crash Composite Index 2009-2011..... 77
Figure 5.2: Top 20 Hazard Intersections By Crash Composite Index 2009-2011..... 78
Figure 5.3: High Frequency Crash Corridors for Each Year 81
Figure 5.4: Top 20 Hazard Intersections By Crash Number Index 2009-2011 84
Figure 5.5: Top 20 Hazard Intersections By Crash Number in 2011 85
Figure 6.1: Fatality Rate per 100 Million VMT from 2004 through 2011 87
Figure 6.2: Injury Rate per 100 Million VMT from 2004 through 2011 88

CHAPTER 1 – INTRODUCTION

1.1 Objectives

The objectives of this report are to provide traffic crash statistics of the District of Columbia for the years 2009 through 2011. The compiled information would enable the City to satisfy federal requirements on reporting traffic crashes, and provide a conveniently available resource for identifying safety trends, development of countermeasures, and evaluating the results of highway safety programs, projects, and policies. The traffic crash reports, provided electronically (PD-10) by the Metropolitan Police Department (MPD) of the District of Columbia, were the source of the crash data presented in this document. The crash data was downloaded through secure servers from MPD into DDOT's database and was processed with an Oracle-based application called Traffic Accident Reporting and Analysis System (TARAS).

The data fields in TARAS include crash location, date, time, crash type, crash severity, and environmental conditions. This report presents a summary of all the crash data of TARAS for the years 2009, 2010 and 2011. All the tables and charts that highlight various crash summaries and attributes used in this report were extracted from TARAS. This report 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 developed by Howard University 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 an overview of findings presented in this report. Chapter 2 describes the methodology and analytical methods used for this analysis. In Chapter 3, Quick Crash Facts and Trends, provides a brief summary of traffic crashes in District of Columbia for the period 2009 through 2011.

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 analyzes crash patterns at the high-hazard locations, including intersections and corridors. Chapter 6 presents the exposure information regarding vehicle miles traveled, fatality and injury rates per 100 million vehicle miles traveled, and 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 (2009-2011).

2.1 Traffic Crash Statistics

Descriptive statistics were used to present the basic characteristics of traffic crashes and to identify factors that might have influence in the occurrence of traffic crashes. 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. Factors that contribute to crashes in the District of Columbia are presented in tabulated and graphical forms

2.2 High-Hazard Location Analysis

Frequency and severity of traffic crashes are two critical factors used in identifying of high-hazard locations. Locations with relatively higher crash frequencies are indicators of conditions that contribute to crashes. Severity comprises of the extent of injury or damage sustained by individuals or properties involved in crashes. These two factors allow for 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, which provides 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. The methods used in this report include crash frequency, crash rate, crash severity, and crash trend (delta change). In addition to these methods, a composite index is developed to reflect a combination of the severity and frequency of

traffic crashes at a specific location. Each of these methods has its strengths and shortcomings. The following subsections provide a brief description of these methods.

2.2.1 Crash Frequency

The crash frequency method is used to calculate the number of crashes during a certain time period for each location. The crash frequency of a location is identified based on the total number of crashes. Crash locations are ranked in the decreasing order of frequency, from highest to the lowest frequency. The site with the highest frequency of crashes receives the number one ranking. A list of locations (e.g. intersections) with their respective ranking is generated. This method for 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 present a low to moderate risk for individual road users. By contrast, a low volume location with fewer crashes could present much greater risk.

The 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

The crash rate of an intersection is expressed as the average number of crashes per year divided by the number of millions of vehicles entering the intersection per year. The following equation was used for calculating the intersection crash rate:

[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 the traffic volume (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. The location with the largest crash rate received the top ranking. For locations where their traffic volumes were unknown, their ranking was skipped. The crash rate method has its flaws, since volume is taken into account. The method could calculate comparatively high crash rates for locations with low traffic volume, since the rate of occurrence of one or two crashes is divided by a low traffic volume, resulting in a high crash rate.

2.2.3 Crash Severity Cost Method

The Traffic Crash Reports (or PD-10 forms) consist of data fields with codes that indicate the injury severity for each person involved in a crash. These codes are provided by police officers' observations regarding the injury conditions of the persons involved in a crash. In order to properly assess the severity effect, the type of crash information such as fatality, injury and property damage only (PDO) were utilized as the primary source to determine the severity of a crash. This procedure is intended to avoid inaccuracies in the crash severity data. For instance, the injury conditions of persons involved in a crash may be updated based on information received after the person involved in the crash was sent to hospital.

For the purpose of this report, fatality occurrences were converted to injury in order to mitigate the random chance effect. Additionally, the traffic accident costs were computed for each intersection/location to identify the severity indices, with the higher value of severity index indicating significant levels of incapacitation. Once the severity indices were identified, the crash locations were ranked in descending order based on the severity index.

2.2.4 Composite Index

As mentioned earlier, each of the above methods provide a limited basis for identifying high-hazard locations. The composite index method utilizes severity and frequency of crashes for characterizing the crash condition ~~of~~ at a location. The three

types of rankings (rate, severity, and frequency) are combined to create a composite rank index. From Equation 3 below, the crash rate, crash severity, and crash frequency are combined in the following model for estimating the composite index for crash locations.

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

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 the equation above to produce a 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. 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 is the change in the number of crashes over time, ~~using~~ derived from the slope of a linear regression line. This technique utilizes the computation 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 the positive and negative slope values respectively signifying an increase and decrease in crashes. In addition, the results also indicate whether traffic crashes may increase 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:

[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 2009 through 2011. The data presented also includes a summary of comparative crash statistics from 2009 through 2011.

3.1 2011 DC Crash Quick Facts

Presented in Table 3.1 and Figure 3.1 are respectively the summary of crashes recorded in the DC from 2009 through 2011 and the resulting crash types recorded in 2011 only.

Table 3.1: 2011 DC Crash Quick Facts

Crash	2009	2010	2011
Total Crashes	16,841	17,955	17,951
Fatal Crashes	32	25	27
Injury Crashes	4,676	5,060	5,210
Property Damage Only (PDO) Crashes	12,133	12,870	12,714
Fatalities	33	25	32
Total Non-Fatal Injuries	6,529	7,068	7,335
Disabling Injuries*	347	303	305
Non-Disabling Injuries*	1,270	1,363	1,301
Total Vehicles Involved	32,723	34,705	35,095
Total Persons Involved	35,055	41,892	42,547
Total Pedestrians Involved	657	777	831
Pedestrian Fatalities	16	14	11
Fatalities/100 Million VMT	0.91	0.69	0.89
Injuries/100,000 Population	1088.79	1174.63	1186.90

*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 reduced in 2011 while fatalities increased compared with year 2010. The most frequent crash severity type recorded in 2011 was Property Damage Only (PDO), which represented approximately 71% of all crashes for that year. Crashes resulting in injury represented about 29% of the crashes recorded, while fatalities were 0.2%.

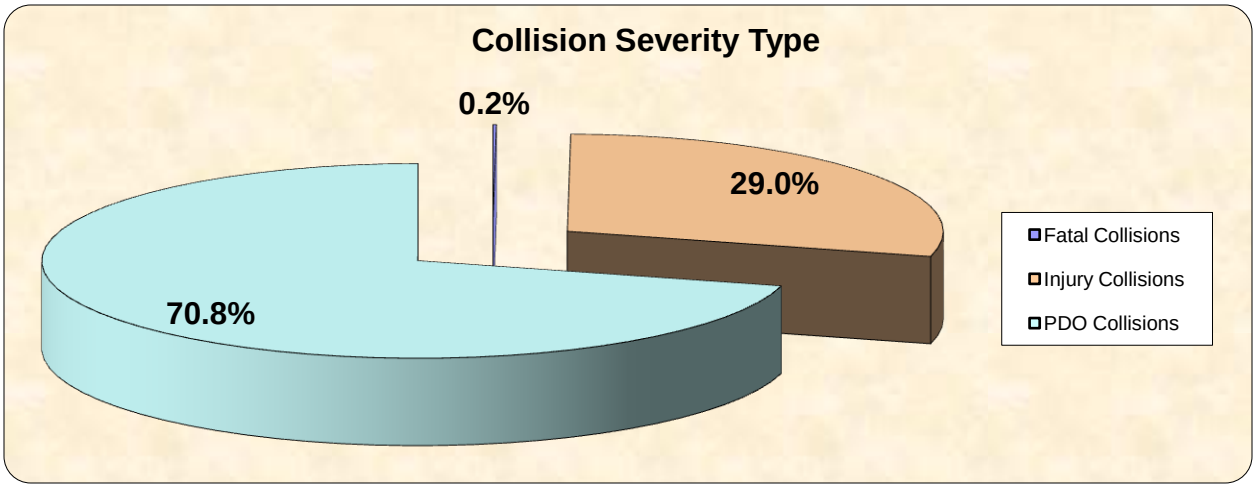


Figure 3.1: 2011 Crash Severity Types

3.2 2001~2011 DC Crashes Trend

Figure 3.2 shows the trends in total crash crashes and those resulting in injuries by year from 2001 through 2011.

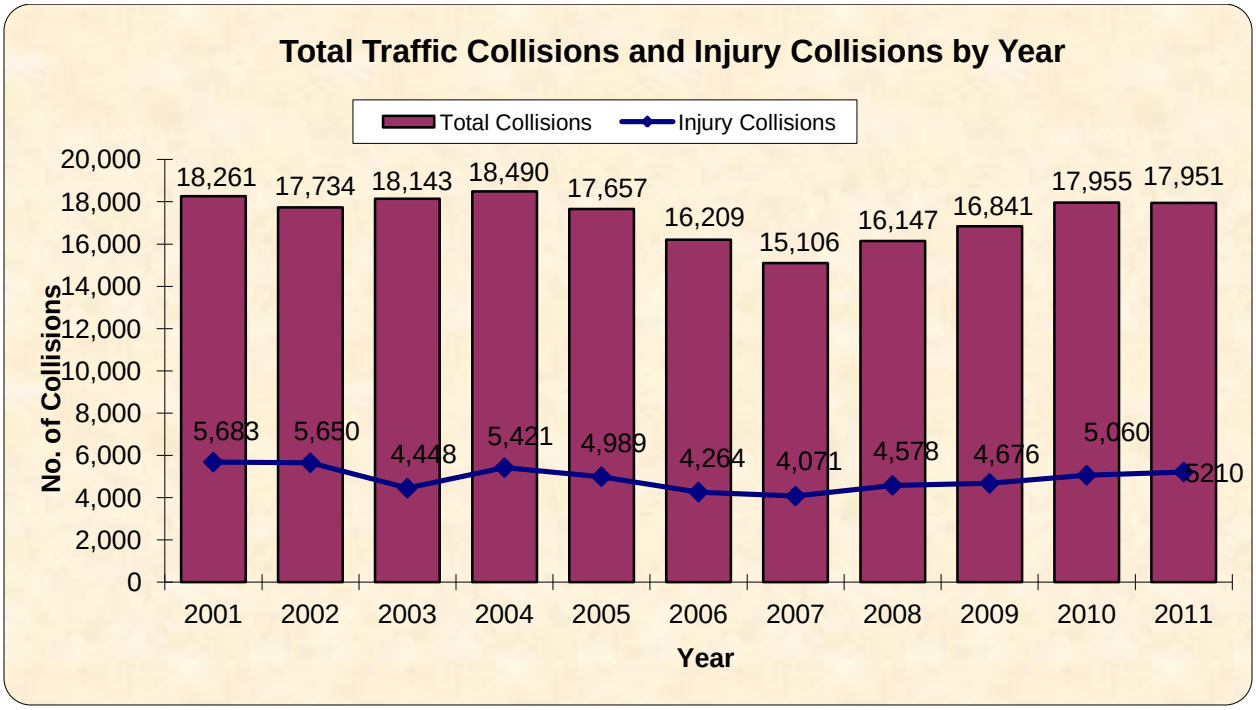


Figure 3.2: Traffic Crashes and Injury Crashes by Year

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

Figure 3.3: Number of Fatalities by Year

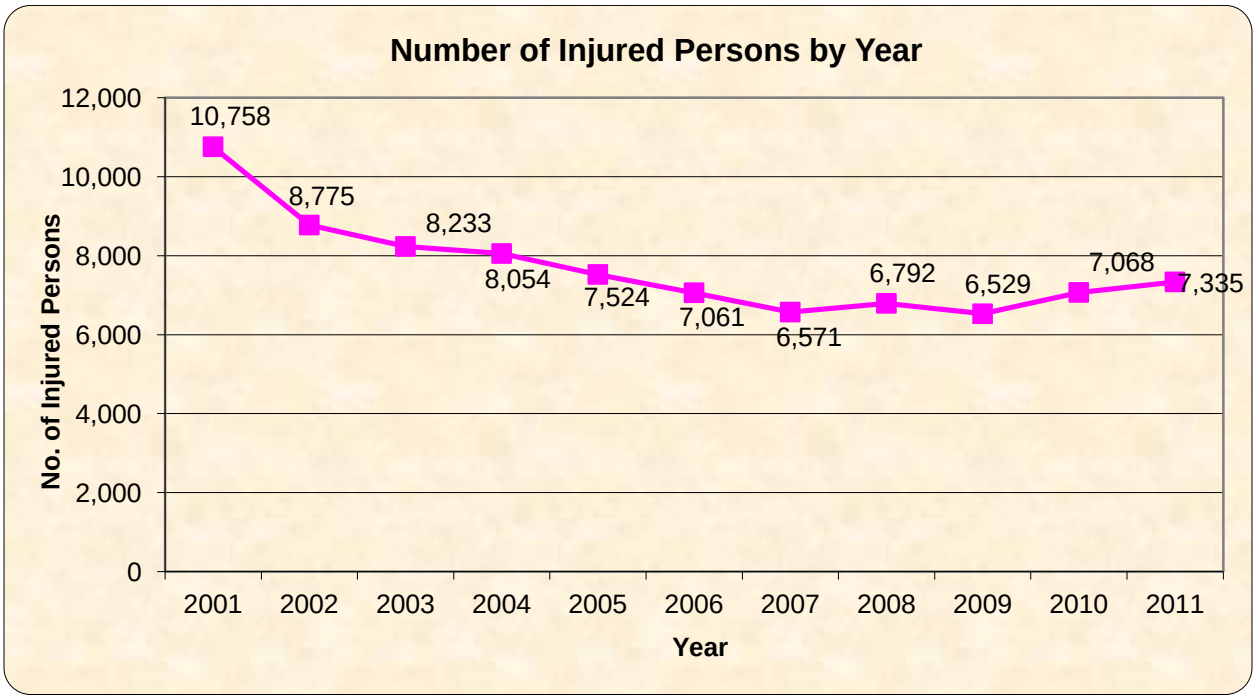


Figure 3.4: Number of Injured Persons by Year

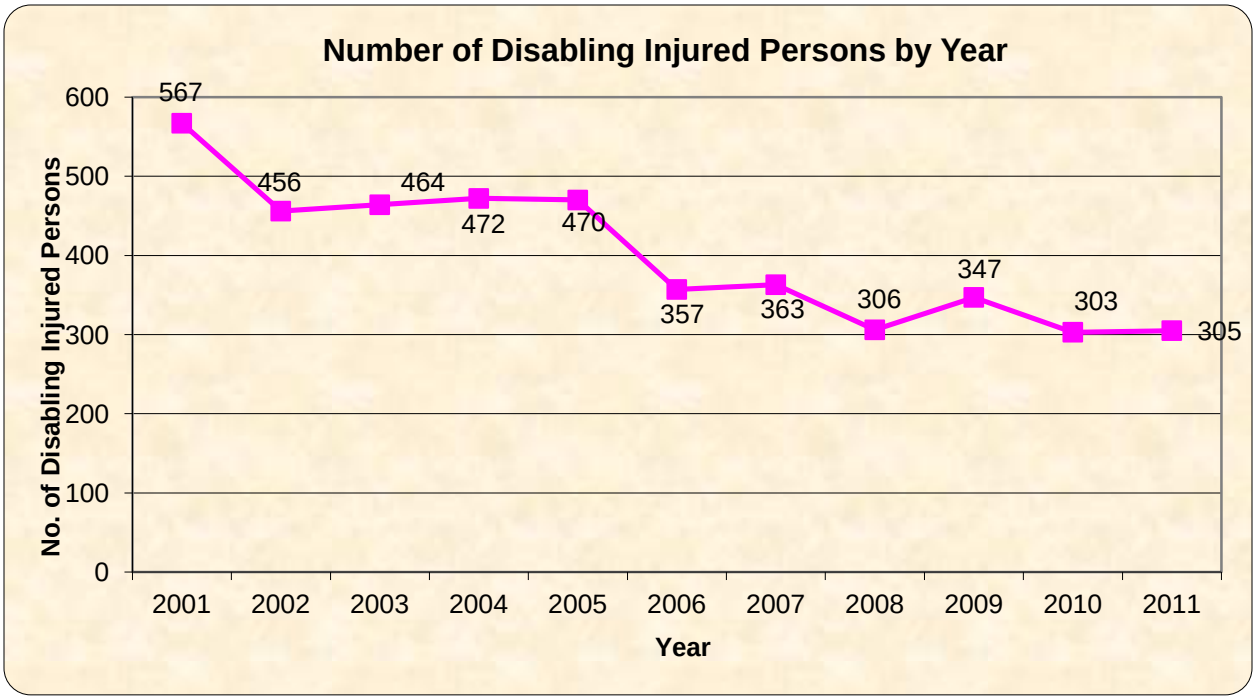


Figure 3.5: Number of Disabling Injuries by Year

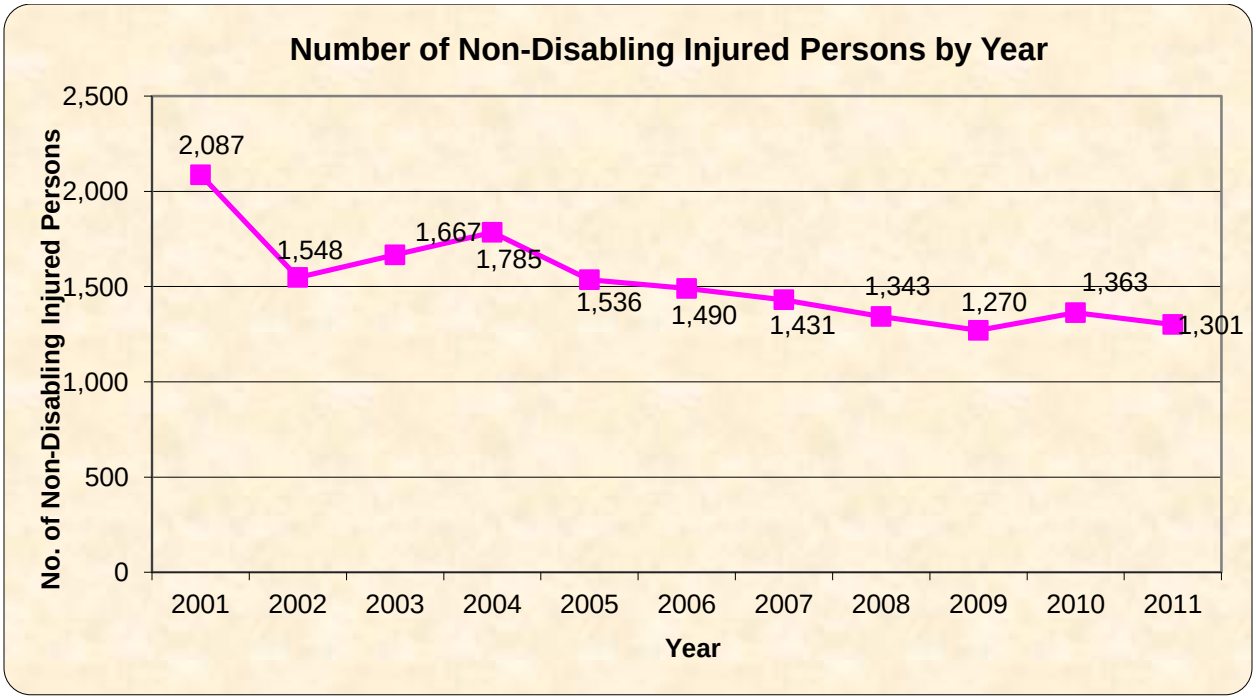


Figure 3.6: Number of Non-Disabling Injuries by Year

CHAPTER 4 – CRASH STATISTICS AND TRENDS

This chapter presents descriptive statistics for traffic crashes in the District of Columbia for the years 2009 through 2011. The main variables used in this analysis include crash location, crash occurrence time, crash type, roadway user and vehicle contributing factors, road conditions and geometric characteristics, etc. The analysis focuses 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

Presented in Table 4.1 is the reported total (weekdays and weekends) traffic crash by hour for 2011. From the table, more motor vehicle crashes were reported between the hours of 2 PM (hour 14) and 6 PM (hour 18), with the highest reported injuries (563) occurring in hour 16 (4 PM).

The total number of fatalities in 2010 recorded by the hour is presented in Figure 4.1. The maximum number of fatalities recorded by the hour was 6, which occurred in hour 4 (4 am).

Table 4.1: 2011 Crashes by Hour of the Day

Hour	Crashes	Fatalities	Injuries
00	450	1	151
01	405	0	137
02	469	3	154
03	532	2	244
04	290	6	113
05	231	2	97
06	364	3	173
07	708	3	334
08	1089	1	476
09	963	0	406
10	810	1	335
11	772	0	283
12	849	0	346
13	907	0	381
14	987	0	451
15	1301	0	532
16	1317	0	563
17	1242	1	466
18	1103	1	451
19	784	1	338
20	660	0	283
21	572	0	243
22	608	4	241
23	538	3	137
Total	**17951**	**32**	**7335**

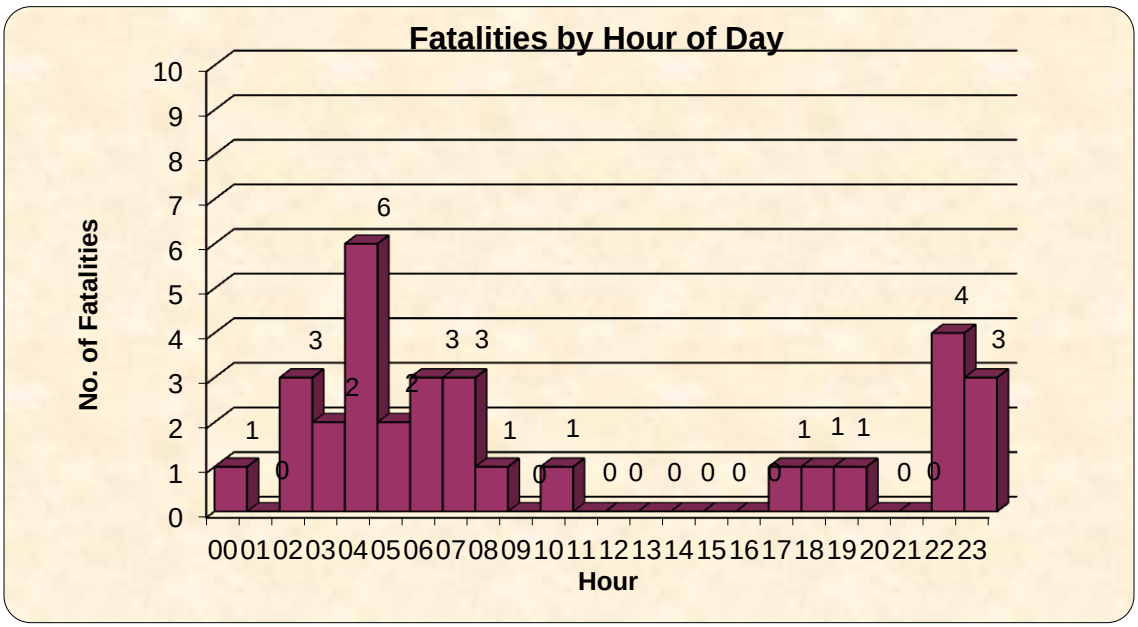


Figure 4.1: 2011 Total Fatalities by Hour

Figures 4.2 and 4.3 respectively show the crashes and injuries by the hour of day for weekdays and weekends. The figures show that the highest crashes in 2010 occurred in between the 15th and 17th hour of the day during weekdays. During the weekends, the highest crashes occurred within the 3rd hour.

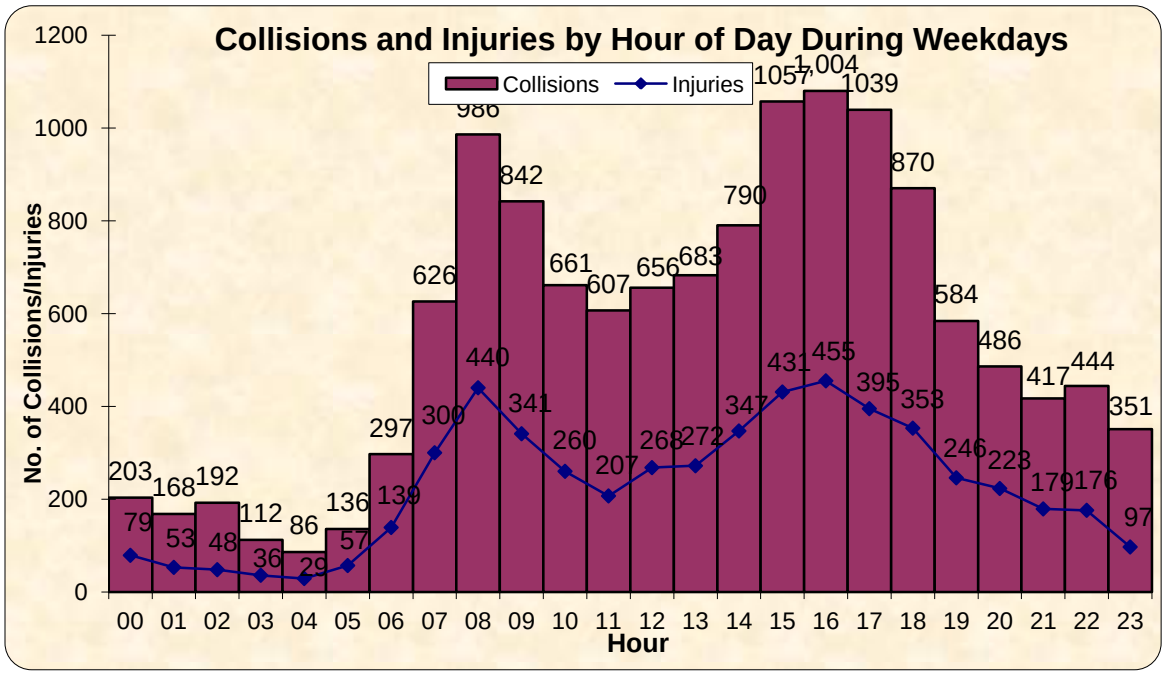


Figure 4.2: 2011 Crashes and Injuries by Hour of Day for Weekdays

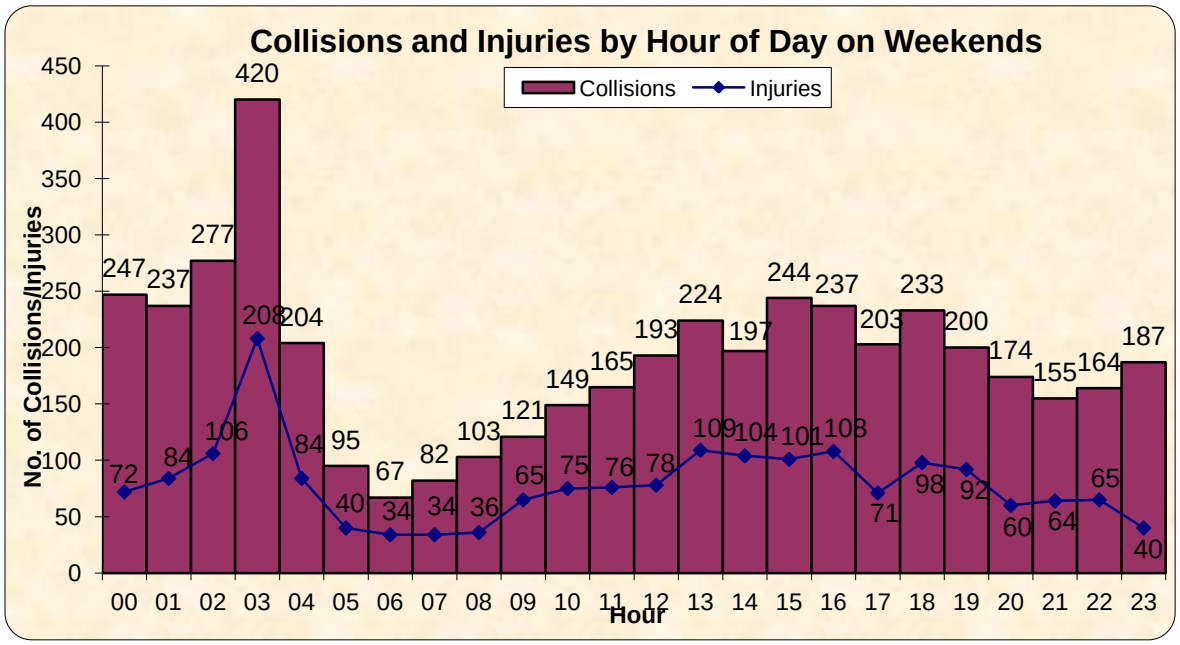


Figure 4.3: 2011 Crashes and Injuries by Hour of Day for Weekends

4.1.2 Traffic Crashes by Day of the Week

Table 4.2 shows the total traffic crashes reported by the day of the week. This is also shown in Figure 4.4.

Table 4.2: 2011 Crashes by Hour of the Day

2010	Crashes	Fatalities	Injuries
Sunday	1,961	5	808
Monday	2,346	2	948
Tuesday	2,609	6	1,078
Wednesday	2,724	2	1,151
Thursday	2,744	4	1,088
Friday	2,950	7	1,166
Saturday	2,617	6	1,096
Total	**17,951**	**32**	**7,335**

From the table and figure, the highest total crashes occurred on Friday while the highest fatalities were observed on Saturday.

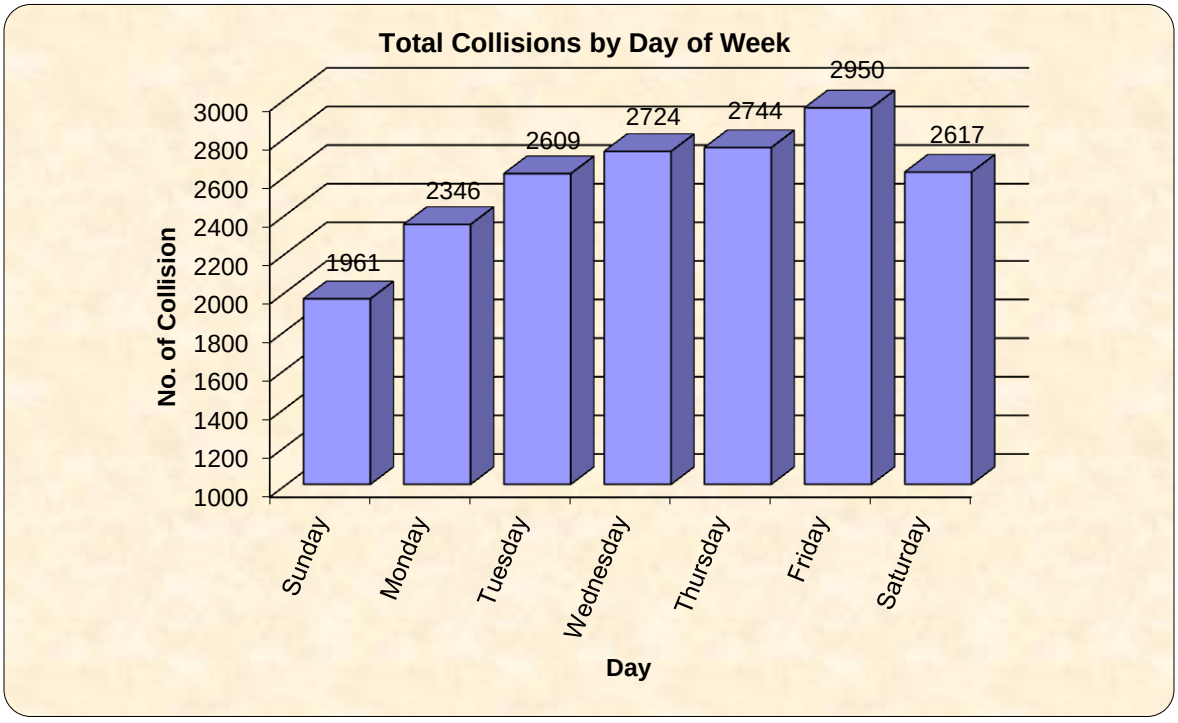


Figure 4.4: 2011 Crashes and Injuries by Hour of Day of Week

4.1.3 Traffic Crashes by Month

Table 4.3 and Figure 4.5 respectively show the overall vehicle crashes by month in 2011 and by month for 2009 through 2011. As shown in the table, the highest number of

crashes occurred between March and June 2011. Overall, the total number of crashes varied from month to month, with the highest and lowest number of vehicle crashes being respectively 1,699 (June) and 1,210 (January).

Table 4.3: 2011 Crashes by Month

Month	Crashes	Fatalities	Injuries
1	1210	3	497
2	1299	4	514
3	1552	5	647
4	1531	1	618
5	1543	3	639
6	1699	3	691
7	1496	4	630
8	1465	4	583
9	1506	2	602
10	1654	3	644
11	1543	0	666
12	1453	0	604
Total	**17,951**	**32**	**7,335**

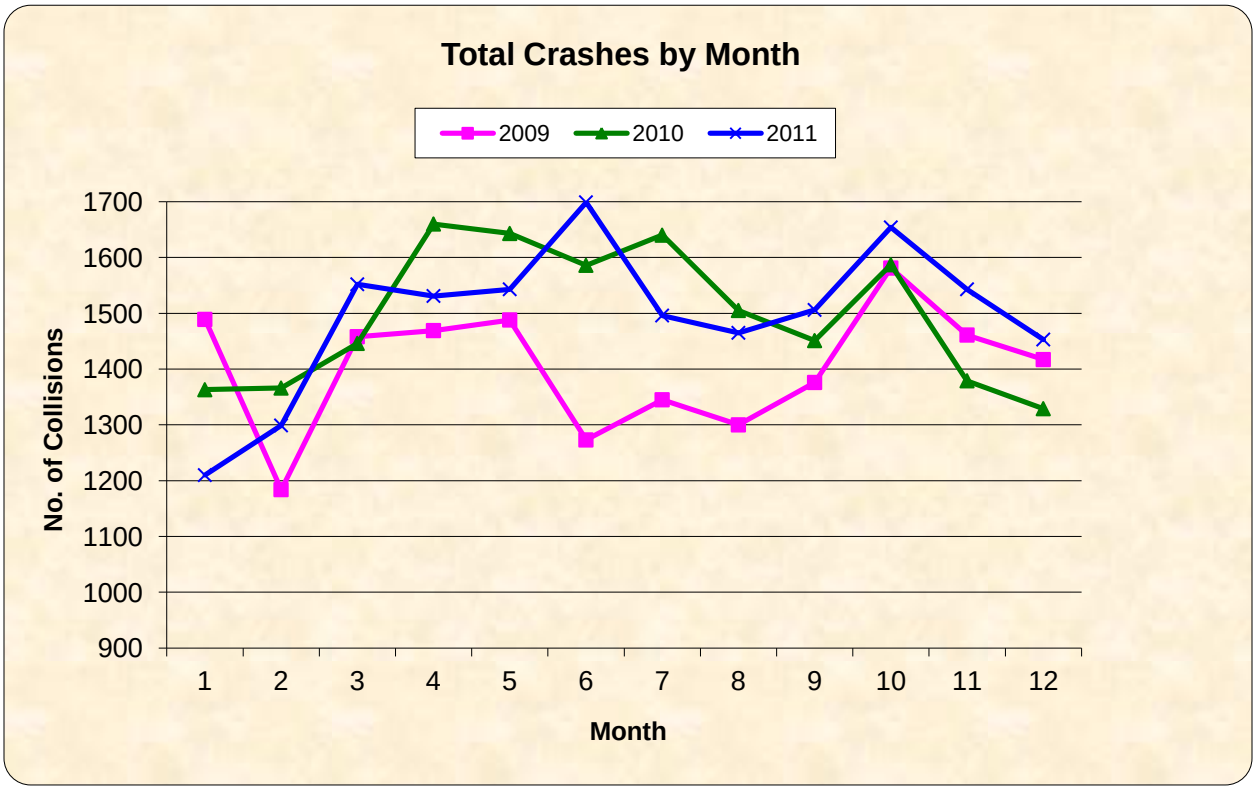


Figure 4.5: Total Crashes by Month

4.2 Location

4.2.1 Crashes by Quadrant

This section presents the frequency of vehicle crashes for each designated quadrant in DC. The summary of the analysis of crashes by each quadrant is presented in Table 4.4. This is also presented in Figure 4.6. From the table and figure, it can be observed that Northwest quadrant recorded highest number of reported motor vehicle crashes from 2009 through 2011, with the total crashes in 2009 observed to be the highest among all the quadrants. Since the NW quadrant has the highest mileage and coverage area, 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: 2011 Crashes by Quadrant

	2009			2010			2011		
Quadrant	No. of Crashes	Fatalities	Injuries	No. of Crashes	Fatalities	Injuries	No. of Crashes	Fatalities	Injuries
NW	8,168	11	2,758	9,204	10	3,021	9,125	7	3,013
NE	3,464	7	1,423	3,606	5	1,652	3,701	6	1,836
SE	2,776	5	1,157	2,953	4	1,322	2,866	8	1,373
SW	547	2	214	551	0	218	360	1	127
BN	1,751	8	929	1,179	3	627	1,207	5	631
Unknown	135	0	48	462	3	228	692	5	355
Total	16,841	33	6,529	17,955	25	7,068	17,951	32	7,335

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

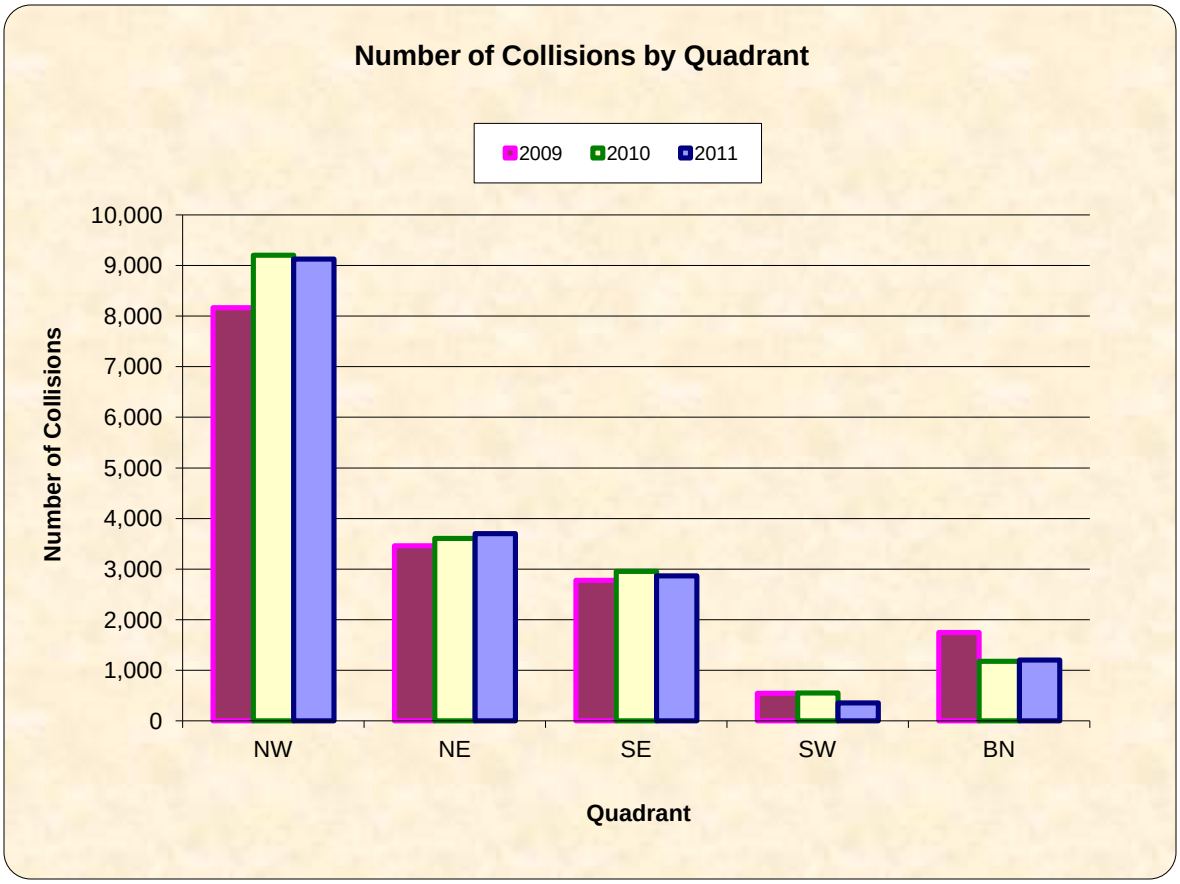


Figure 4.6: Total Crashes by Quadrant

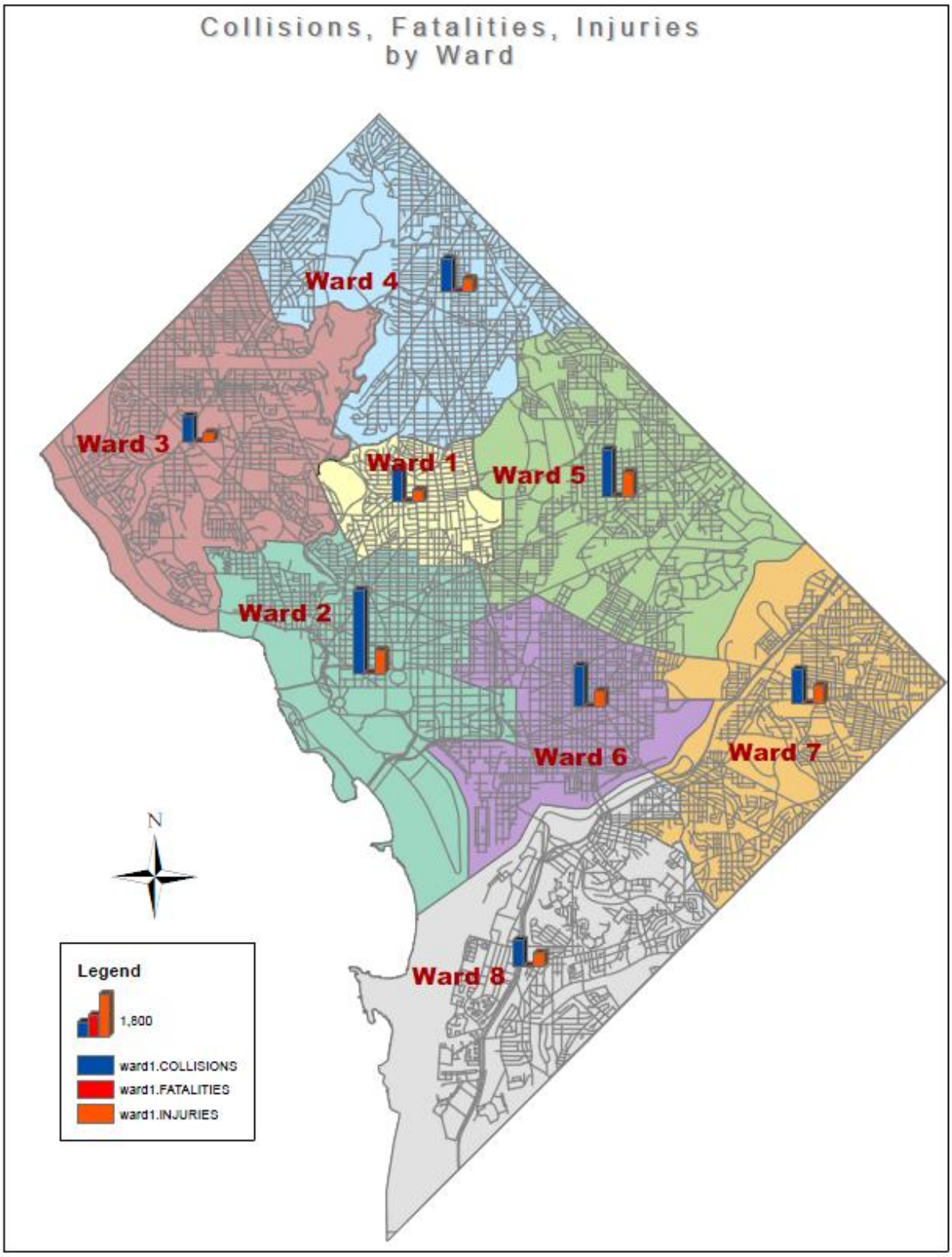


Figure 4.7: Crashes, Fatalities, Injuries by Wards

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 2009 to 2011. The highest frequency of crashes occurred in Wards 2, and 5. Approximately 31% of all traffic crashes in 2011 occurred in Wards 2 and 5. These Wards also experienced the highest frequencies of injury crashes as shown in Table 4.5. Table 4.5 also shows that, with the exception of Ward 2, there was an overall modest decline in crashes in all the Wards from 2010 to 2011.

Table 4.5: Crashes by Ward from 2009-2011

Ward	2009			2010			2011		
	# of Crashes	Fatalities	Injuries	# of Crashes	Fatalities	Injuries	# of Crashes	Fatalities	Injuries
1	1,371	2	435	1,309	0	419	1,461	0	496
2	3,349	3	995	3,657	7	987	3,608	1	1,000
3	1,100	2	387	1,142	0	391	1,125	2	398
4	1,391	4	572	1,466	0	663	1,426	1	568
5	2,120	6	861	1,979	4	886	2,022	3	1,047
6	1,959	2	743	1,815	1	696	1,776	3	694
7	1,698	7	810	1,557	1	814	1,493	5	802
8	1,328	7	567	1,202	3	550	1,115	5	569
Border	1,503	0	687	1,560	3	671	1,561	2	671
Unknown	1022	0	472	2,268	6	991	2,364	10	1,090
Total	16,841	33	6,529	17,955	25	7,068	17,951	32	7,335

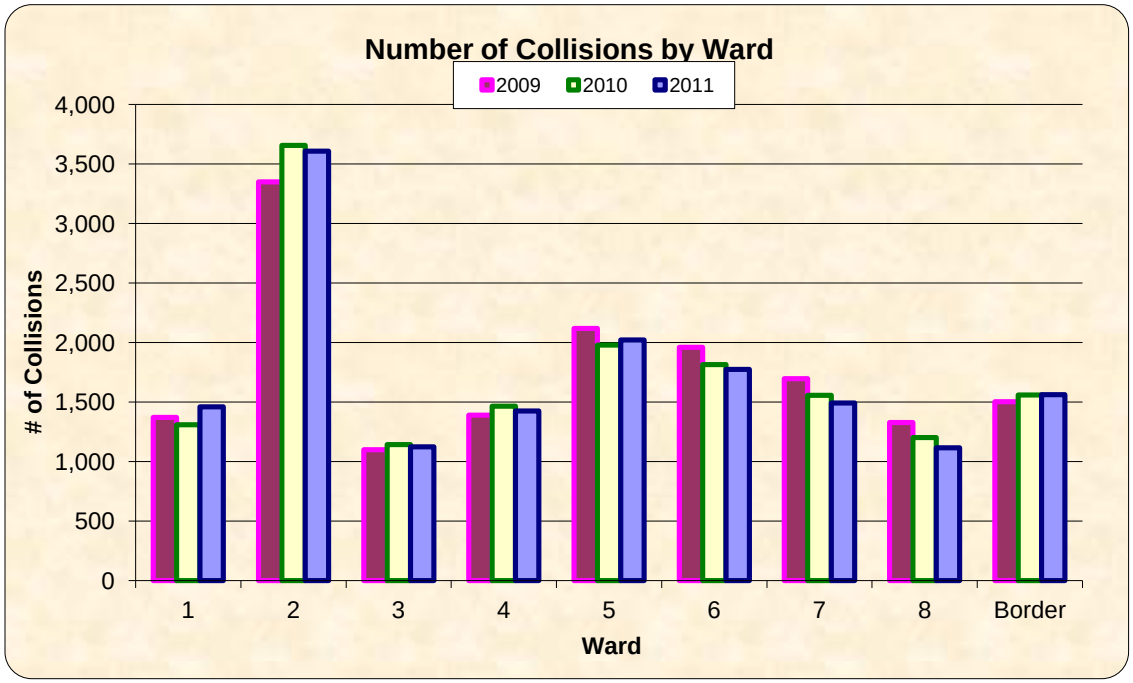


Figure 4.8: Total Crashes by Ward

4.2.3 Crashes by Police Districts

Crash distributions by Police Districts from 2009 through 2011 are shown in Table 4.6 and Figure 4.9. From the table and figure, Police District 1 experienced the highest frequency of crashes; an average of 22.7%, during the three year period. There were modest reductions in the distribution of crashes in some of the Police Districts over the 3-year period. District 1 and 2 experienced approximately 43% of the total crashes in 2011. The GIS map for the crashes by Police District in 2011 is presented in Figure 4.10

Table 4.6: Crashes by Police District

Police District	2009			2010			2011		
	# of Crashes	Fatalities	Injuries	# of Crashes	Fatalities	Injuries	# of Crashes	Fatalities	Injuries
1	3,828	5	1,455	4,135	5	1,555	4,067	8	1,553
2	3,267	3	1009	3,684	6	1,038	3,664	5	1,072
3	2,090	2	692	2,215	0	763	2,302	1	810
4	1,744	5	750	1,860	2	834	1,855	1	789
5	2,242	5	890	2,245	4	1,010	2,296	3	1,182
6	2,126	6	1040	2,061	3	1,062	2,043	6	1,083
7	1,514	7	675	1,584	5	787	1,540	8	823
Unknown	30	0	18	171	0	19	184	0	23
Total	16,841	33	6,529	17,955	25	7,068	17,951	32	7,335

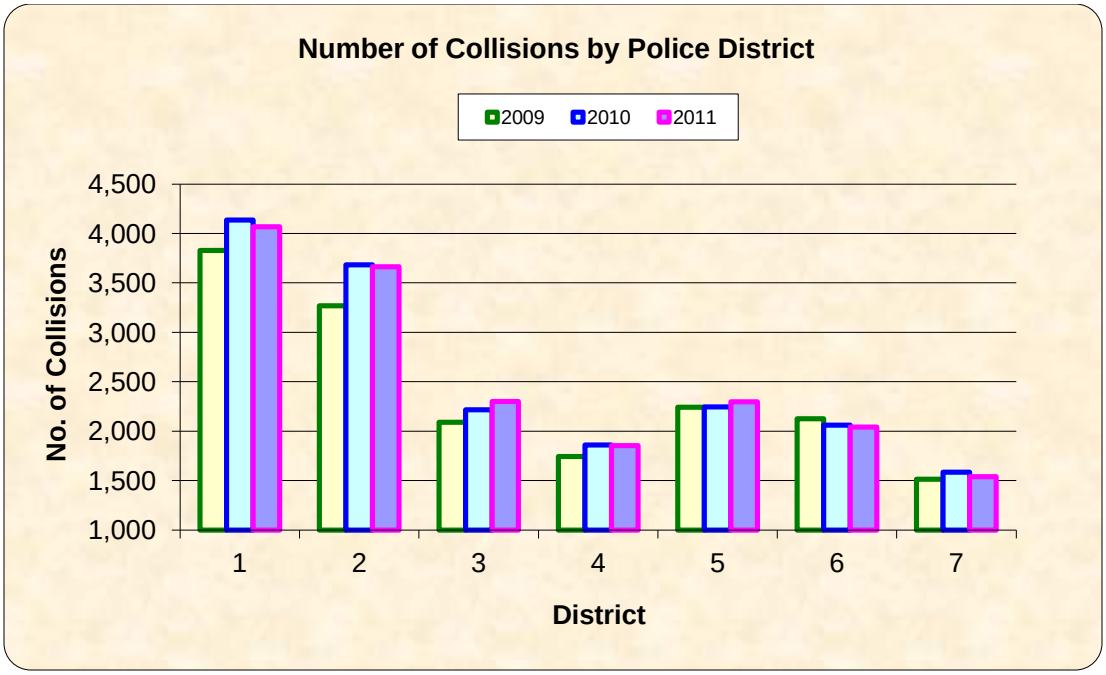


Figure 4.9: Total Crashes by Police District

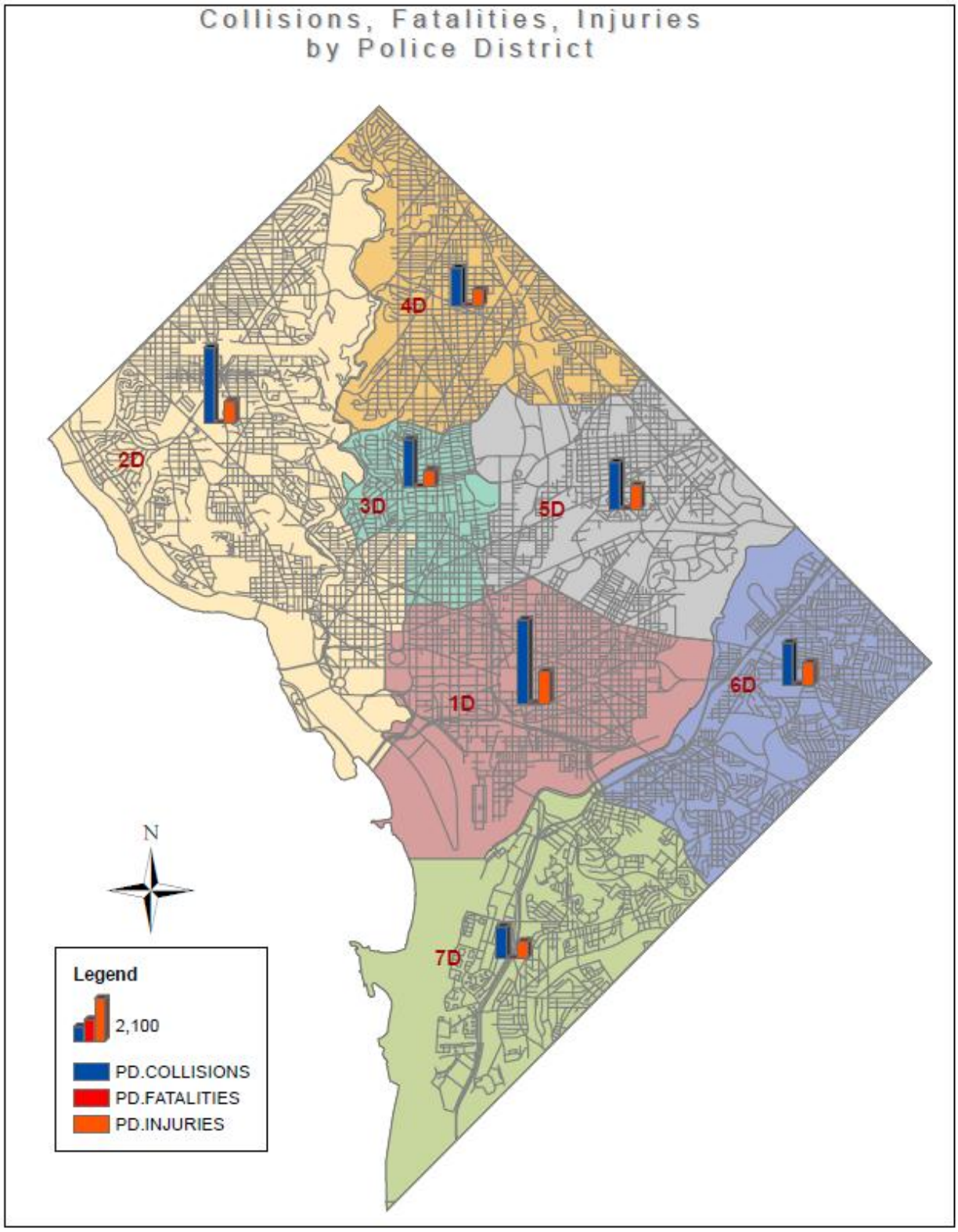


Figure 4.10: Crashes, Fatalities, Injuries by Police District

4.2.4 Crashes by Advisory Neighborhood Commissions (ANCs)

Washington DC comprises 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 2011

ANC	Description	Crashes	Fatalities	Injury
Unknown	Unknown	2364	10	1090
1A	Columbia Heights, Pleasant Plains	407	0	137
1B	Cardozo, Howard University, LeDroit Park, Shaw	618	0	221
1C	Adams Morgan, Kalorama Heights, Lanier Heights, Western U Street	222	0	67
1D	Mount Pleasant	58	0	14
2A	Foggy Bottom, West End	470	0	130
2B	Dupont Circle	799	0	202
2C	Blagden Alley, Chinatown, Logan Circle, Mount Vernon Square, Shaw	396	0	161
2D	Kalorama, Sheridan	59	0	13
2E	Burleith, Georgetown, Hilandale	546	0	117
2F	Logan Circle	757	1	216
3B	Cathedral Heights, Glover Park	64	0	12
3C	Cathedral Heights, Cleveland Park, Massachusetts Heights, McLean Gardens, Woodley Park	333	2	131
3D	American University, Foxhall, Kent, The Palisades, Spring Valley, Wesley Heights	151	0	60
3E	American University Park, Friendship Heights, Tenleytown	139	0	47
3F	Forest Hills, North Cleveland Park, Tenleytown	210	0	73
3G	Chevy Chase	127	0	51
4A	Brightwood, Colonial Village, Crestwood, Shepherd Park, Sixteenth Street Heights	225	1	80
4B	Brightwood, Lamond-Riggs, Manor Park, Riggs Park, South Manor Park, Takoma	364	0	158
4C	Columbia Heights, Crestwood, Petworth, Sixteenth Street Heights	331	0	127
4D	Petworth	140	0	42
5A	Brookland, Fort Lincoln, Michigan Park, North Michigan Park, University Heights, Woodridge	435	0	260
5B	Arboretum, Brentwood, Brookland, Carver, Langdon, Langston, Ivy City, Trinidad	923	1	426
5C	Bloomingdale, Eckington, Edgewood	525	2	270
6A	North Lincoln Park, Rosedale, Stanton Park	286	0	115
6B	Barney Circle, Capitol Hill, Eastern Market	421	2	159
6C	Near Northeast, Penn Quarter, Union Station	742	1	299
6D	Carrollsburg, Fort McNair, Navy Yard, Near Southwest/Southeast, Waterfront	316	0	114
7A	Fort Dupont, Greenway, River Terrace	201	0	105
7B	Fairfax Village, Hillcrest, Penn Branch, Randle Highlands	226	0	99
7C	Burrville, Deanwood, Grant Park, Lincoln Heights	216	0	120
7D	Eastland Gardens, Kenilworth, Kingman Park, Mayfair	326	3	193
7E	Benning Heights, Capitol View, Fort Davis, Marshall Heights	199	2	94
8A	Anacostia, Fairlawn, Fort Stanton, Hillsdale	261	0	122

Table 4.7: Crashes by ANCs in 2011 (Cont'd)

ANC	Description	Crashes	Fatalities	Injury
8B	Garfield Heights, Knox Hill, Shipley Terrace	230	0	92
8C	Barry Farms, Bolling Air Force Base, Congress Heights, St. Elizabeths Hospital	246	3	139
8D	Bellevue, Far Southwest	148	0	72
8E	Congress Heights, Valley Green, Washington Highlands	136	2	80
Border	Border between ANCs	3334	2	1427
Total		17,951	32	7,335

From the summary of the results 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 ANC locations that most frequently reported motor vehicle crashes in 2011. The boundaries between the various ANC borders recorded the highest crash frequencies. Presented in Figure 4.11 is a GIS map for the distribution of 2011 crashes by Advisory Neighborhood Commissions.

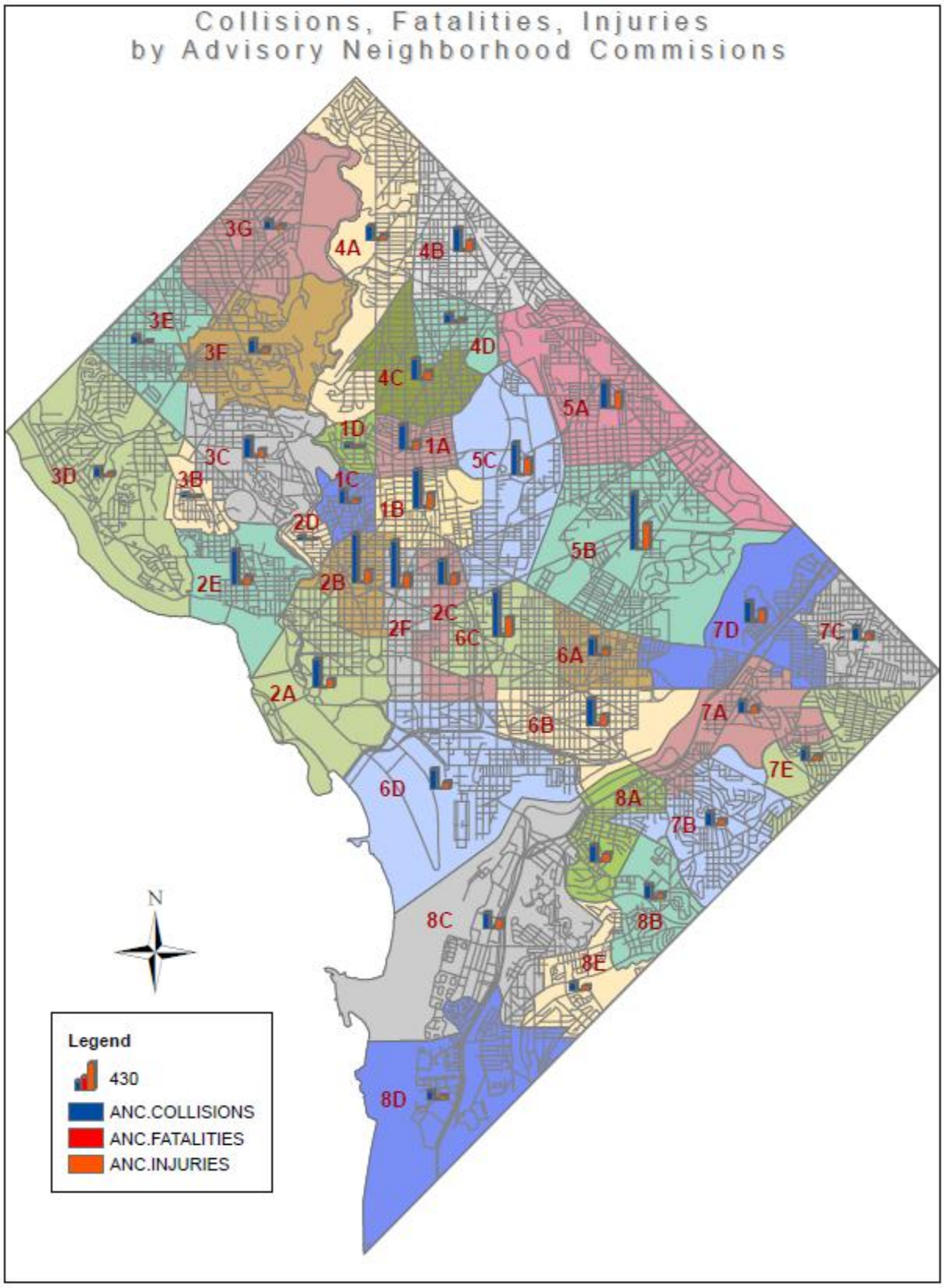


Figure 4.11: Crashes, Fatalities, Injuries by Advisory Neighborhood Commissions

4.2.5 Crashes by On-Street Location

In order to identify contributory factors of a crash, it is necessary to identify crashes that occur at intersections, within close proximity to intersections and elsewhere. The summary of the results of crashes by on-street location is presented in Table 4.8 and Figure 4.12. From results, most of the vehicular crashes occurred within 100 feet of intersections, compared with other on street locations. These crashes comprise of 6,543 (or approximately 36%) of the total motor vehicle crashes observed in 2011. Crashes at intersection followed with 5,516 (or approximately 30%) of the total crashes.

Table 4.8: 2011 Crashes by On-Street Location

On Street	Total crashes	Fatal Crashes	Injury Crashes	PDO Crashes	Fatalities	Injuries
At Intersection	5,516	9	2,180	3,327	9	3,147
Not at Intersection	4,721	15	1,202	3,504	20	1,697
Private Property	329	0	60	269	0	80
Within 100ft of Intersection	6,543	2	1,566	4,975	2	2,147
Unknown/Other	842	1	202	639	1	264
Total	17,951	27	5,210	12,714	32	7,335

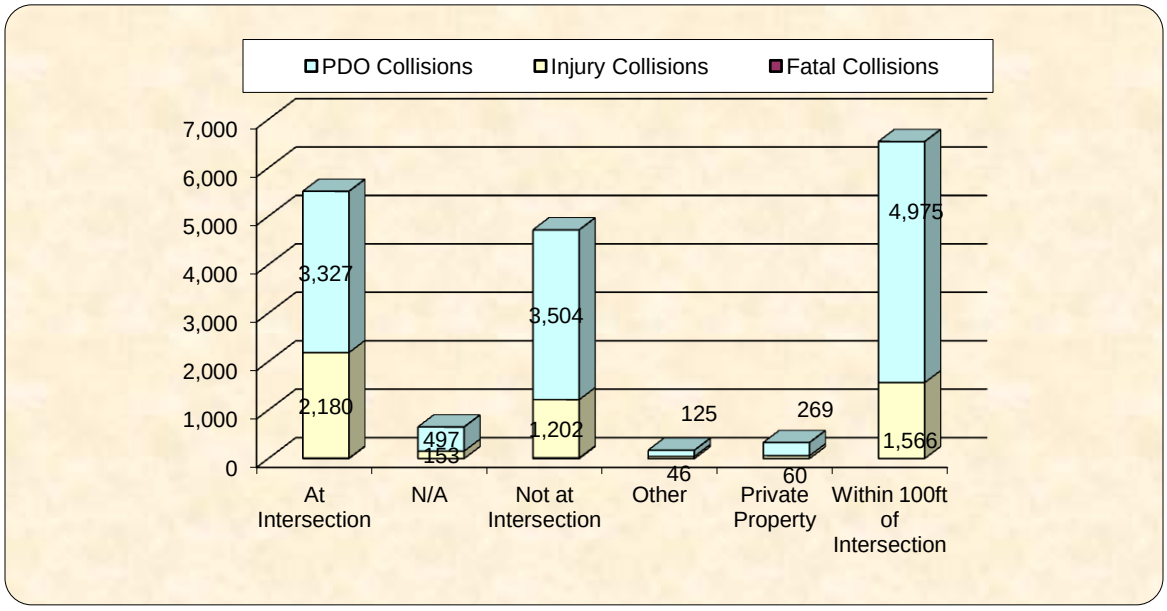


Figure 4.12: 2011 Crashes by On-Street Location

4.2.6 Crashes by Construction Zone

Construction zone safety continues to be a high priority issue 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 those. Table 4.9 shows the 3-year summary of crashes recorded in construction zones while Table 4.10 compares crashes in construction with those in non-construction zones in 2011. From Table 4.9, there has been a steady increase in crashes in construction zones from 2009 to 2011. In addition, as shown in Table 4.10, there were a total of 854 crashes (~5% of the total crashes) which occurred in construction zones resulting in 269 injuries in 2011.

Table 4.9: Crashes in Construction Zones for 2009-2011

Year	2009	2010	2011
Number of Crashes in Construction Zone	702	833	854
Percentage of Crashes in Construction Zone	4.17%	4.64%	4.76%

Table 4.10: 2011 Crash Details in Construction Zones

Location	Total Crashes	Fatal Crashes	Injury Crashes	PDO Crashes	Fatalities	Injuries
Construction Zone	854	0	269	585	0	391
Not In Construction Zone	17,097	27	4,941	12,129	32	6,944
Total	17,951	27	5,210	12,714	32	7,335

4.3 Crash Classification

This section presents crash statistics by vehicle type, road-user characteristics, and factors related to the roadway environment. The detailed crash characteristics and statistics are presented in the Appendices.

4.3.1 Crash Severity Type

Presented in Figure 4.13 is the summary of crashes recorded in the DC in 2011 by resulting crash severity. The classifications are: fatalities, injury and PDOs.

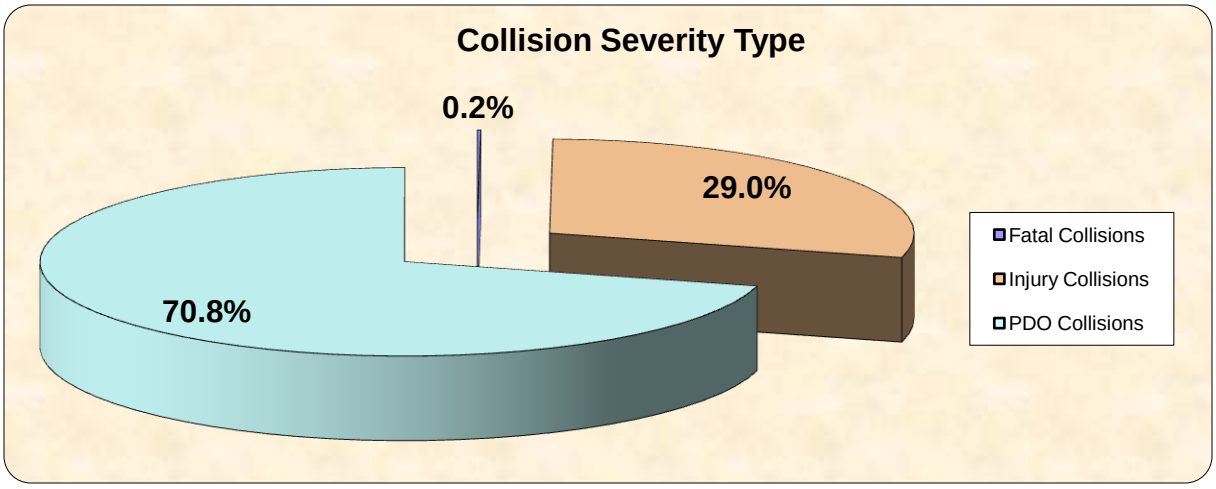


Figure 4.13: 2011 Crashes Severity Type

From Figure 4.13, the most crash severity type recorded in 2011 was Property Damage Only (PDO), which represented approximately 71% of all crashes for 2011. Crashes resulting in injury represented about 29%of the crashes recorded while fatalities were 0.2% of the total crashes in 2011.

4.3.2 Crash Type

Table 4.11 presents the total crashes distributed by crash type while Figure 4.14 shows the crash type from 2009 to 2011. Crash frequencies for the four most frequent types of crashes show a downward trend from 2009 to 2011 in Figure 4.14. From Figure 4.14, side swipe, rear end, right angle, and left turn hit vehicle crashes were the most common crashes during the 3-year duration. Together, they accounted for approximately 66% of the total crashes. In 2011, approximately 28% of the crashes were side swipe crashes, 22% rear-end crashes, and 9% right angle crashes. Approximately 7% of the crashes were left turn hit vehicle accidents.

Table 4.11: Summary of Crashes by Type in 2011

Type of Crash	Total crashes	Fatal Crashes	Injury Crashes	PDO Crashes	Fatalities	Injuries
Backing Hit Moving Veh.	309	0	35	274	0	53
Backing Hit Parked Veh.	519	0	20	499	0	24
Backing Hit Ped.	66	0	57	9	0	75
Fixed Object	749	2	182	565	2	215
Head On	472	2	211	259	3	368
Left Turn Hit Ped.	247	2	219	26	2	236
Left Turn Hit Veh.	1225	0	422	803	0	665
Non-Crash Accident	82	0	45	37	0	49
Other	760	0	271	489	0	357
Override	27	0	5	22	0	6
Parked Vehicle	1032	0	94	938	0	110
Ran Off Roadway	223	2	82	139	5	109
Rear End	3984	3	1544	2437	3	2322
Right Angle	1667	4	766	897	5	1171
Right Turn Hit Ped.	88	0	68	20	0	69
Right Turn Hit Veh.	650	0	134	516	0	184
Side Swiped	5064	2	582	4480	2	803
Straight Hit Ped.	473	9	410	54	9	434
Underride	1	1	0	0	1	0
Unknown	313	0	63	250	0	85
Total	17,951	27	5,210	12,714	32	7,335

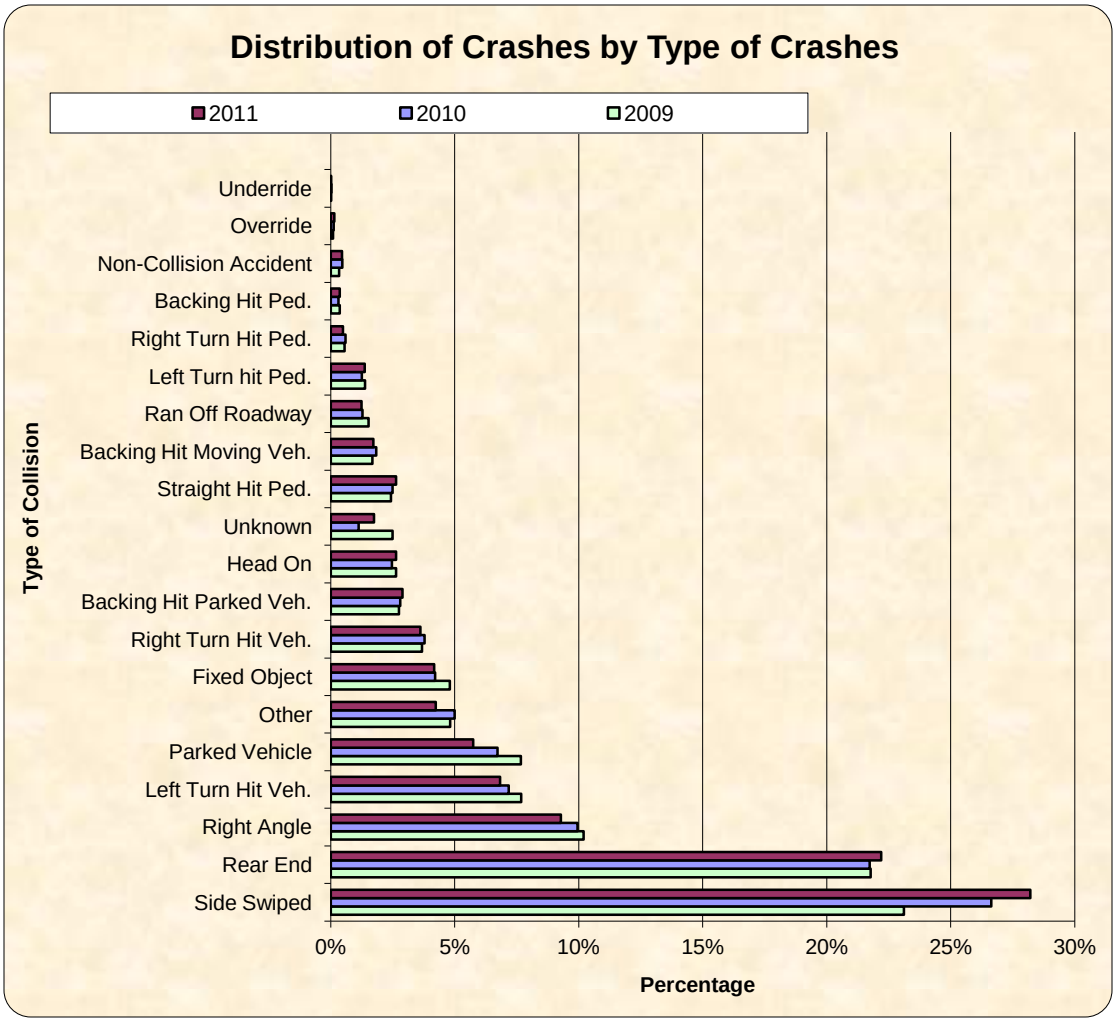


Figure 4.14: 2011 Crashes by Type

4.3.3 Hit-and-Run Crashes

The summary of reported hit-and-run incidents is presented in Figure 4.15. The number of hit and run crashes from 2009 to 2011 showed a 1.1% increase in 2011 from 2010. Comparing those crashes in 2009 with those in 2011, the percentage of hit and run crashes showed an increase of nearly 1%. Figure 4.16 shows the resulting severity of hit and run crashes, compared with all crashes in 2011.

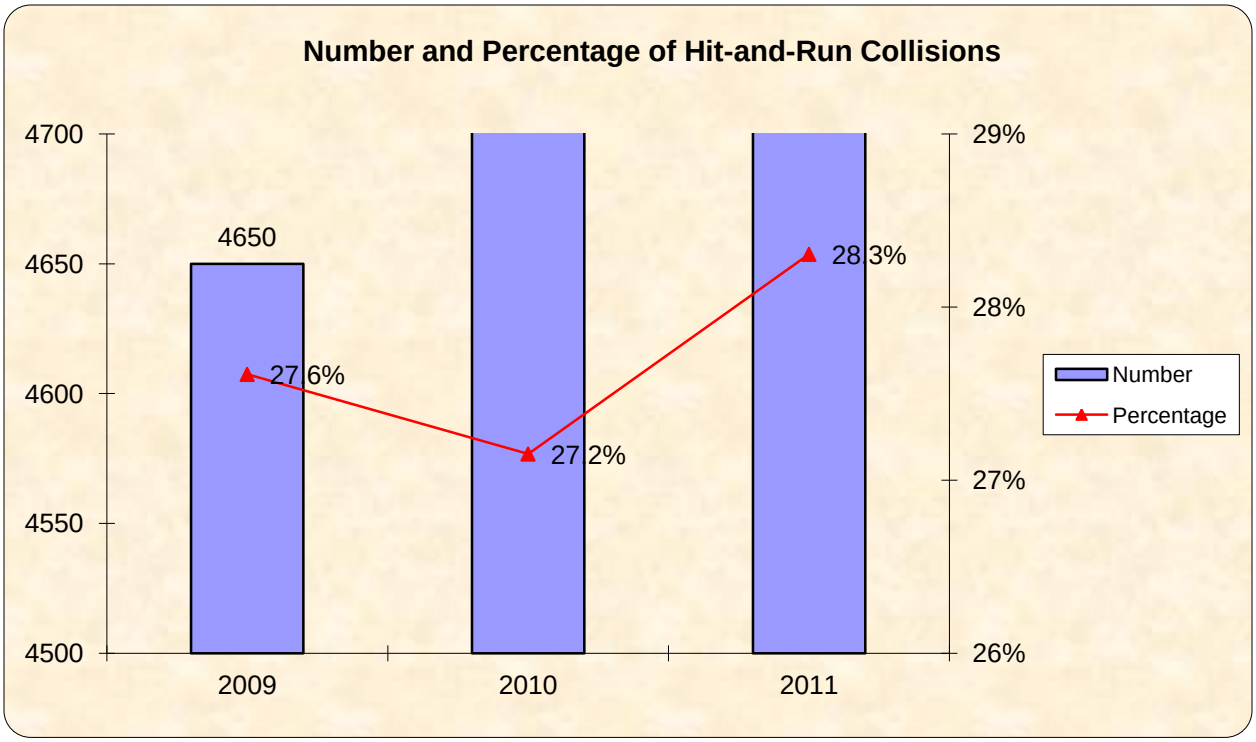


Figure 4.15: Hit and Run Crashes in 2011

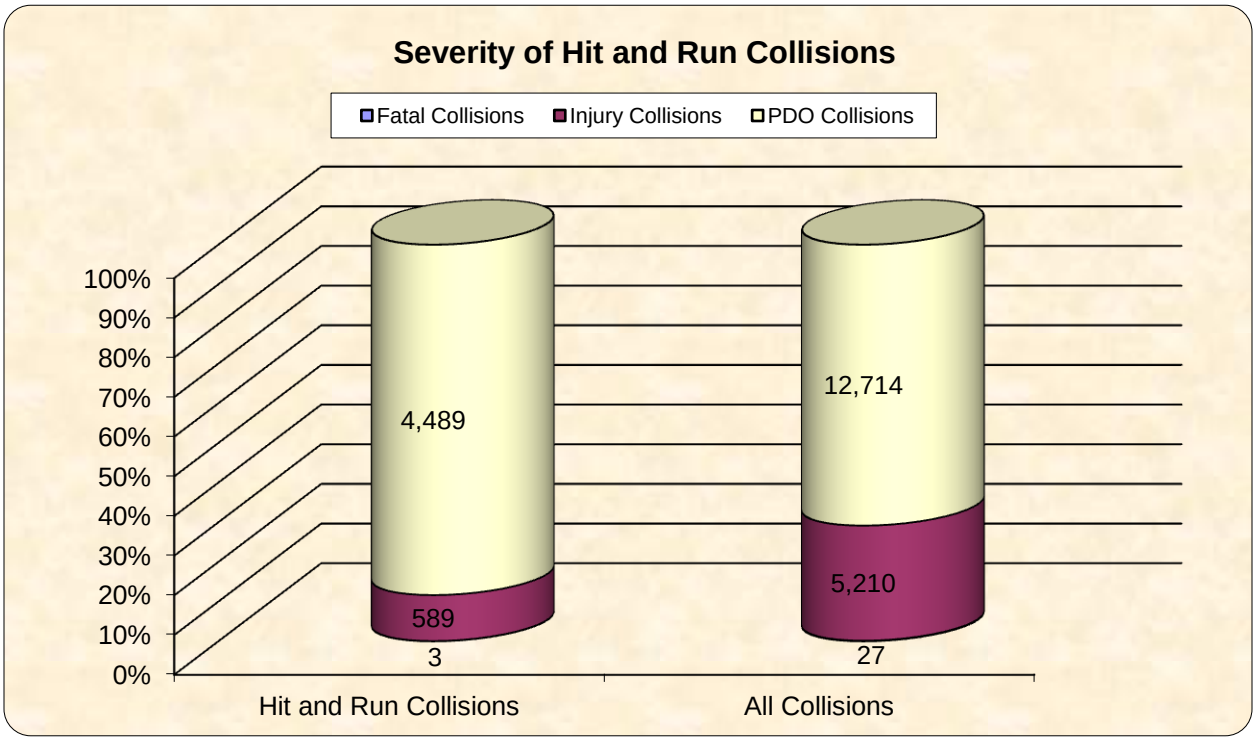


Figure 4.16: Severity of Hit and Run Crashes in 2011

4.3.4 Crashes by Vehicle Classification

Crash involvement for buses, trucks, motorcycles, and bicycles are of special interest in this section. Crashes involving these special vehicles often pose increased risk of serious or fatal injuries. The summary of crash frequencies by vehicle type for 2011 is presented in Table 4.12.

Table 4.12: Summary of Crash in 2011 by Vehicle Classification

Vehicle Involved	Crashes	Fatalities	Injuries
Passenger Auto	24,372	34	11,320
Bus	1,811	1	529
Taxi Cab	2,185	2	540
Motorcycle	221	4	164
Bicycle	538	2	419
Truck/Trailer	2,346	5	804

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 truck and bicycles each represented approximately 7% of the classification of crashes in 2011. Presented in Figures 4.17 through 4.19 are the 3-year trends in the crash summaries for total crashes by vehicle type and outcomes (injuries and fatalities).

Overall, the trend in reported crashes involving the various types of vehicles over the three-year period showed a modest decline in 2011, with crashes resulting in fatalities involving motorcycles, buses and taxi cabs showing an increase in 2011.

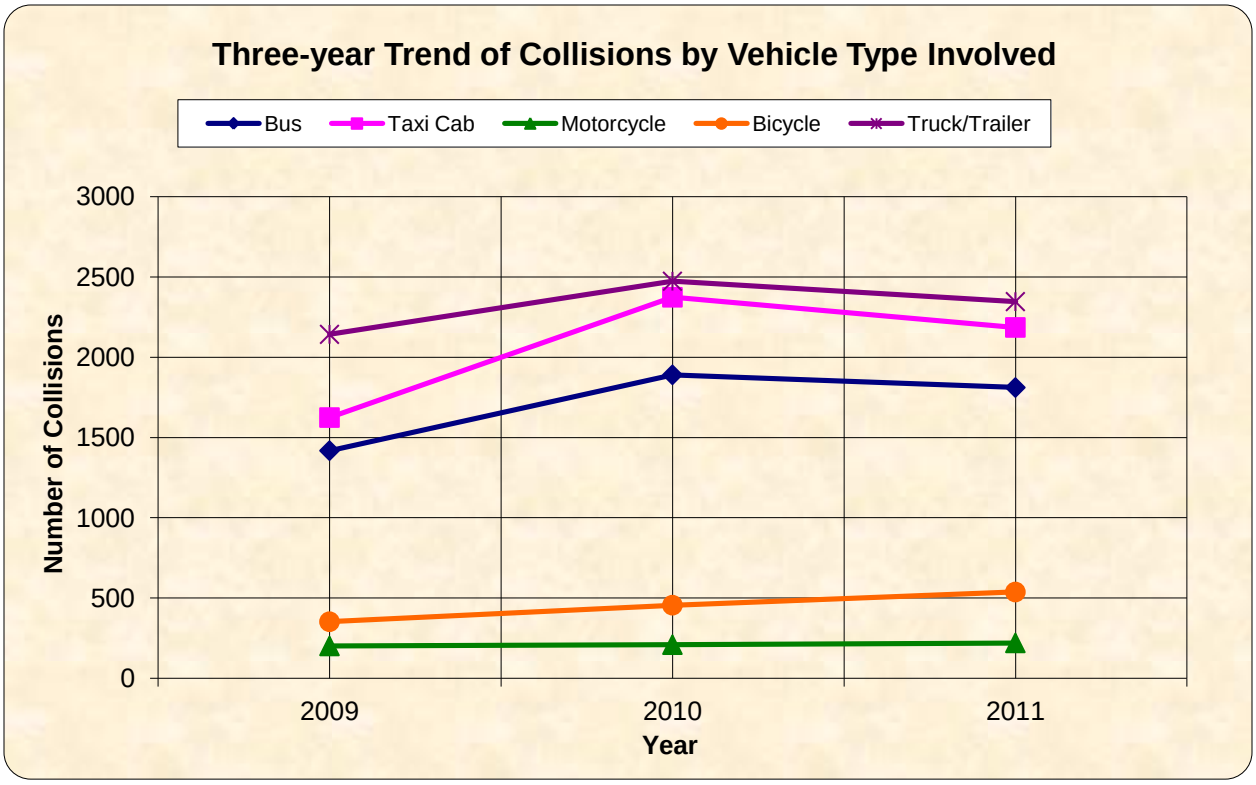


Figure 4.17: Three-year Trend of Crashes by Vehicle Type

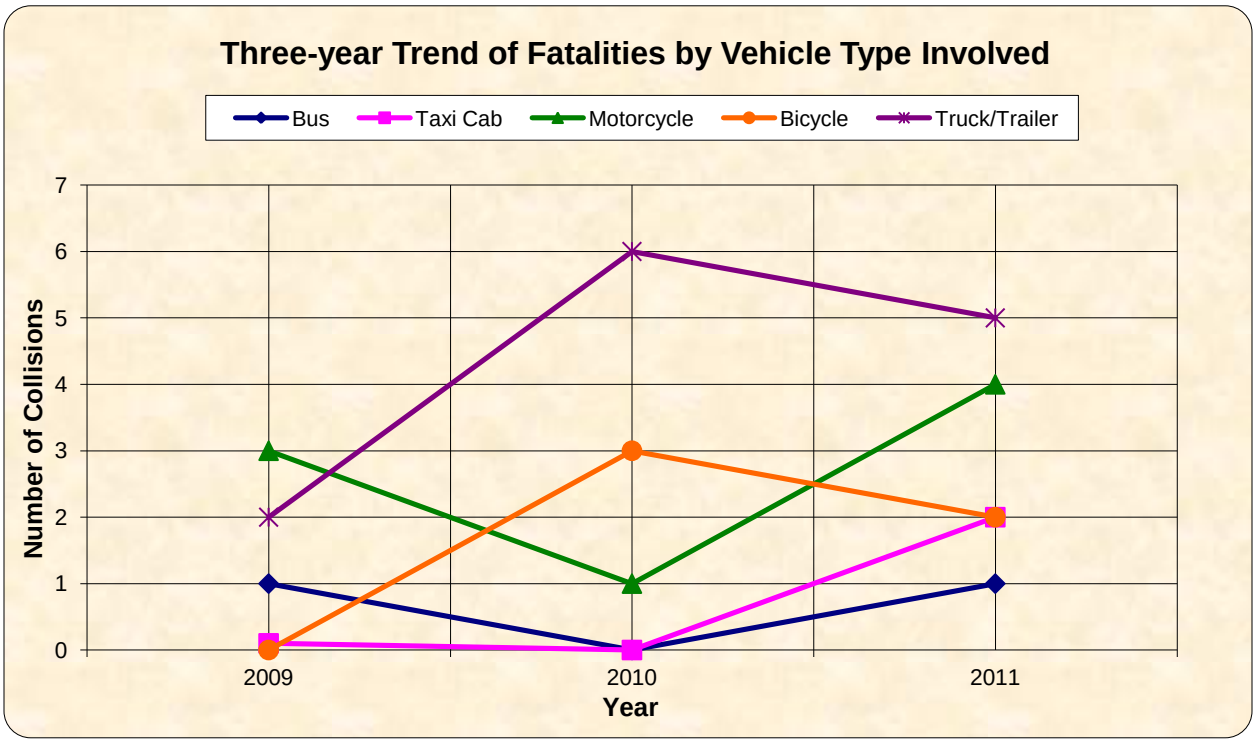


Figure 4.18: Three-year Trend of Fatalities by Vehicle Type

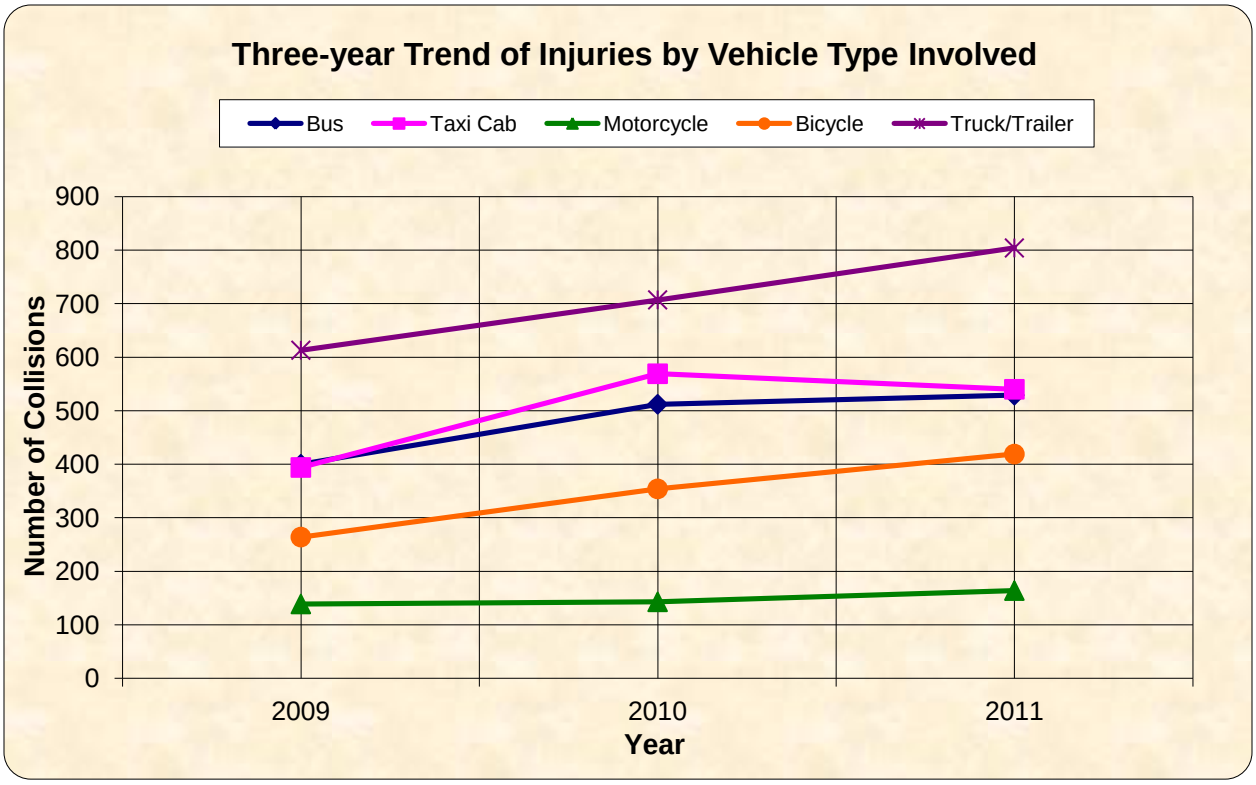


Figure 4.19: Three-year Trend of Injuries by Vehicle Type

4.3.5 Crashes involving Pedestrians

With approximately 50% of workers in the District either commuting by public transportation or walking to work, it is necessary to understand the causes and severity of crashes involving pedestrians. Figures 4.21 through 4.23 present the summaries of crashes involving pedestrians with the following details for pedestrians from 2009 through 2011: total crashes, by age and by gender. From the figures, there was an increase in the total number of pedestrian crashes in 2011 compared with those in 2009 and 2010. In addition, the distribution also shows that pedestrians in the age group of 21-30 were the most involved in crashes. Compared with 2009 and 2010 crashes, there was an increase in crashes involving males while a decrease in crashes involving female pedestrians was reported in 2011. Presented in Table 4.13 is a summary of injury codes reported by pedestrians in 2011 after being involved in a crash. The majority of the pedestrians complained as a result of the accident but did not have any visible injuries. Presented in Figure 4.20 is Pedestrian Involved Collisions at intersections in 2011.

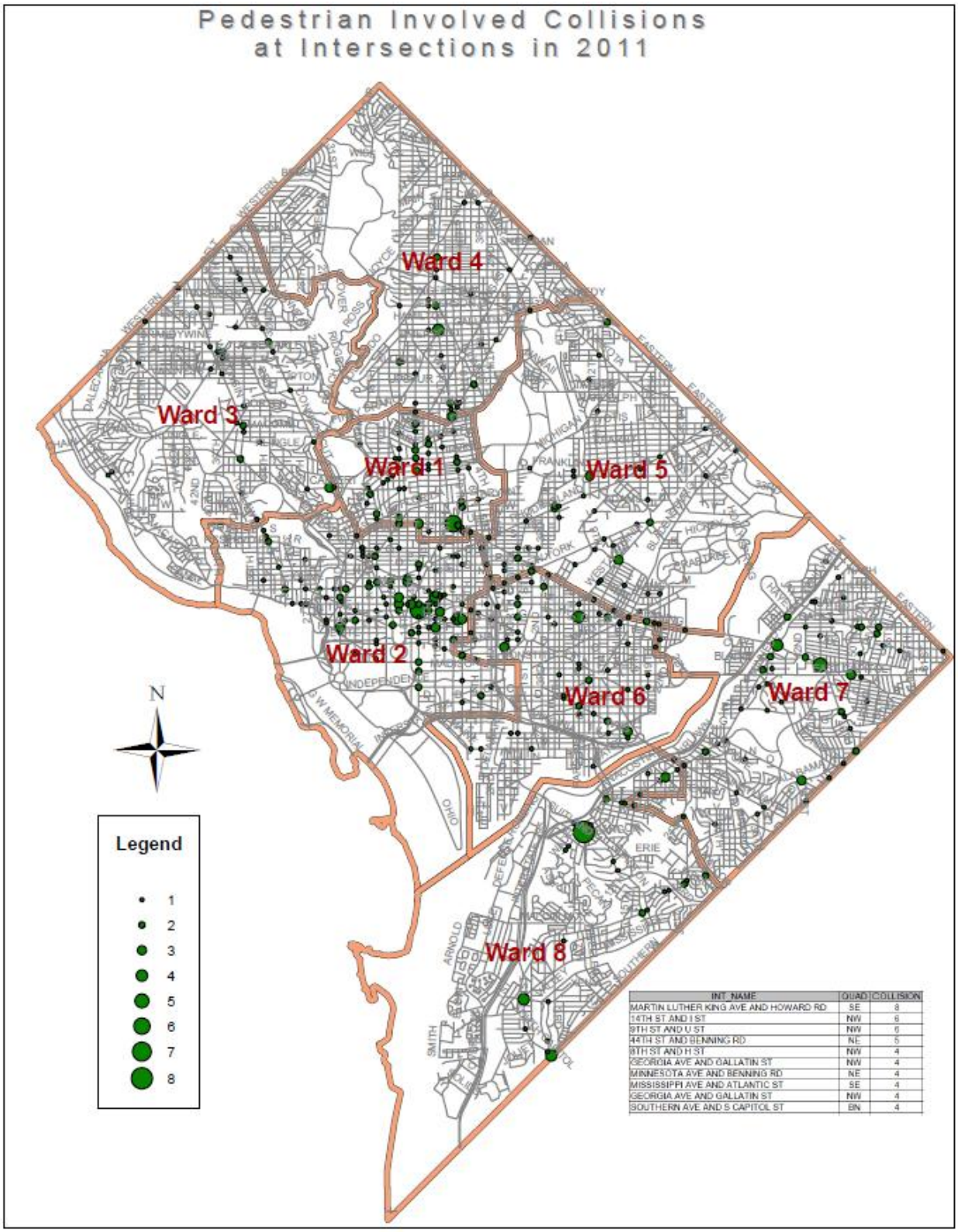


Figure 4.20: Pedestrian Involved Crashes at Intersections in 2011

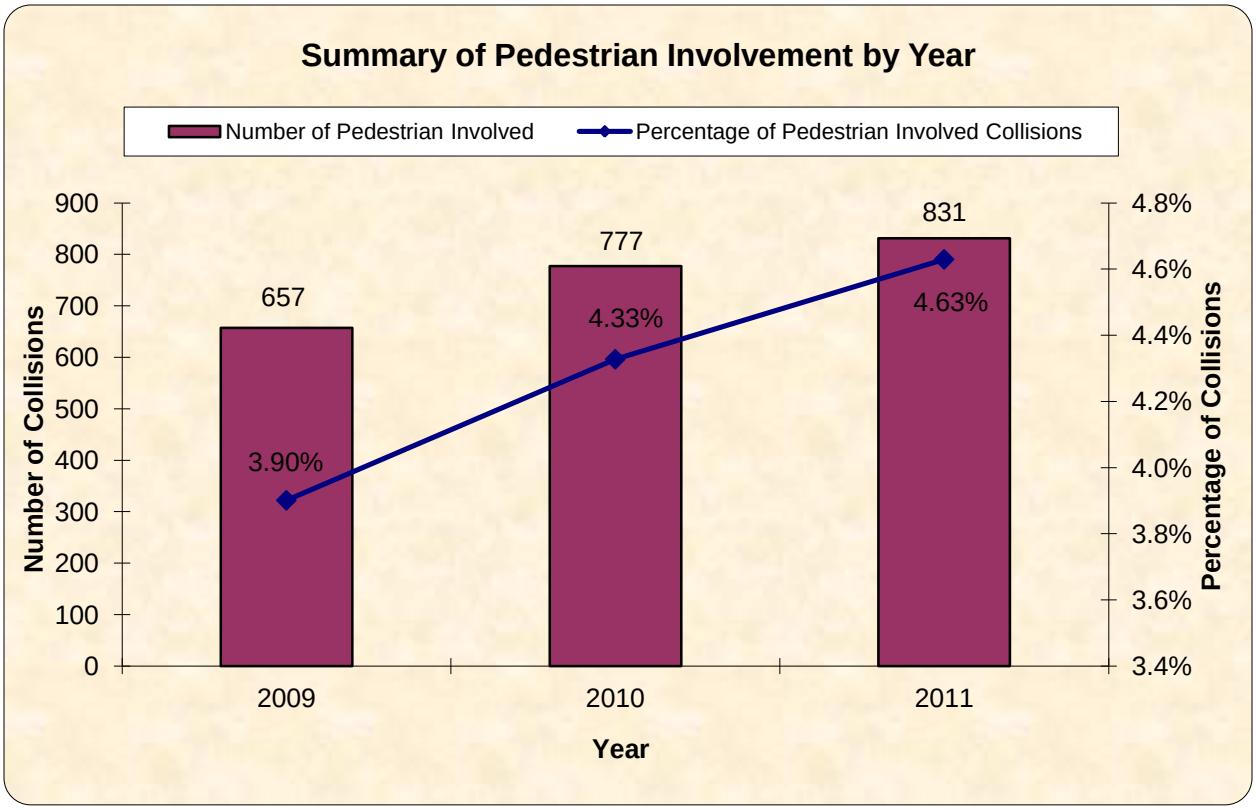


Figure 4.21: Three-year Trend of Crashes involving Pedestrians

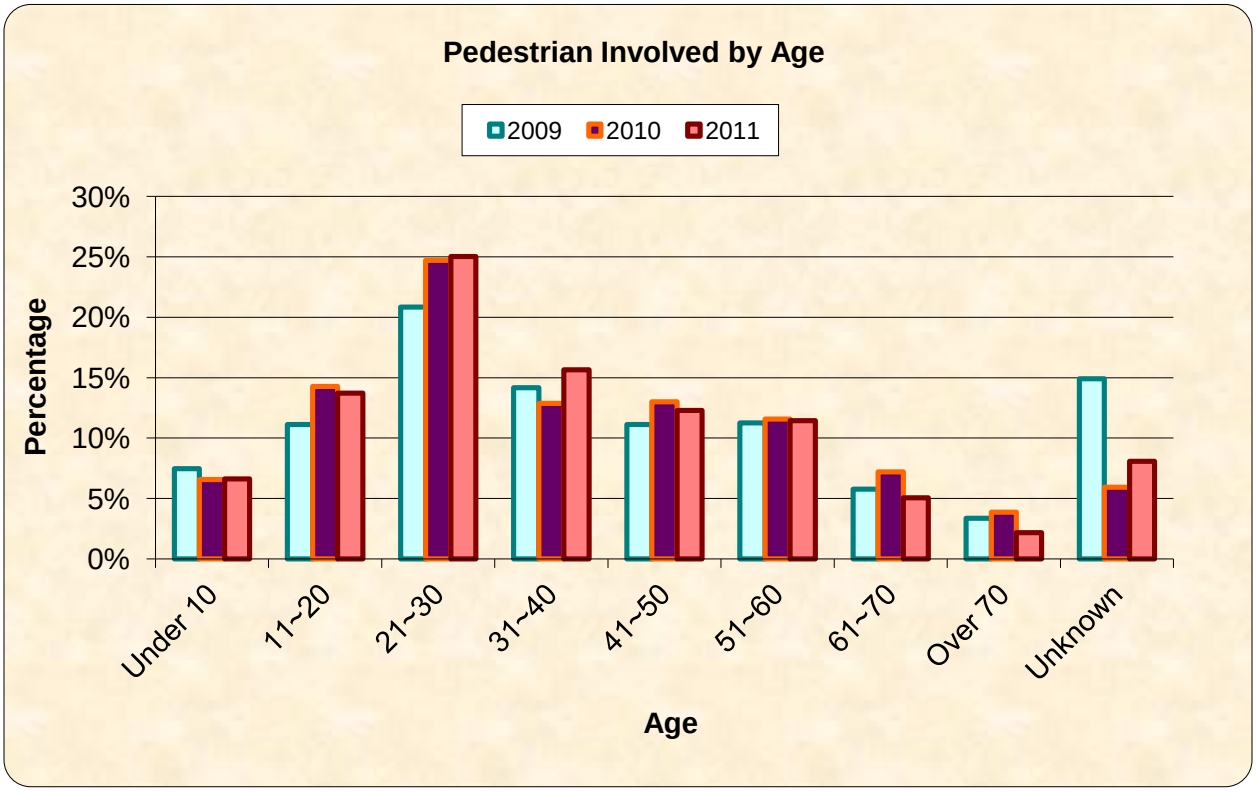


Figure 4.22: Three-year Trend of Crashes involving Pedestrians by Age

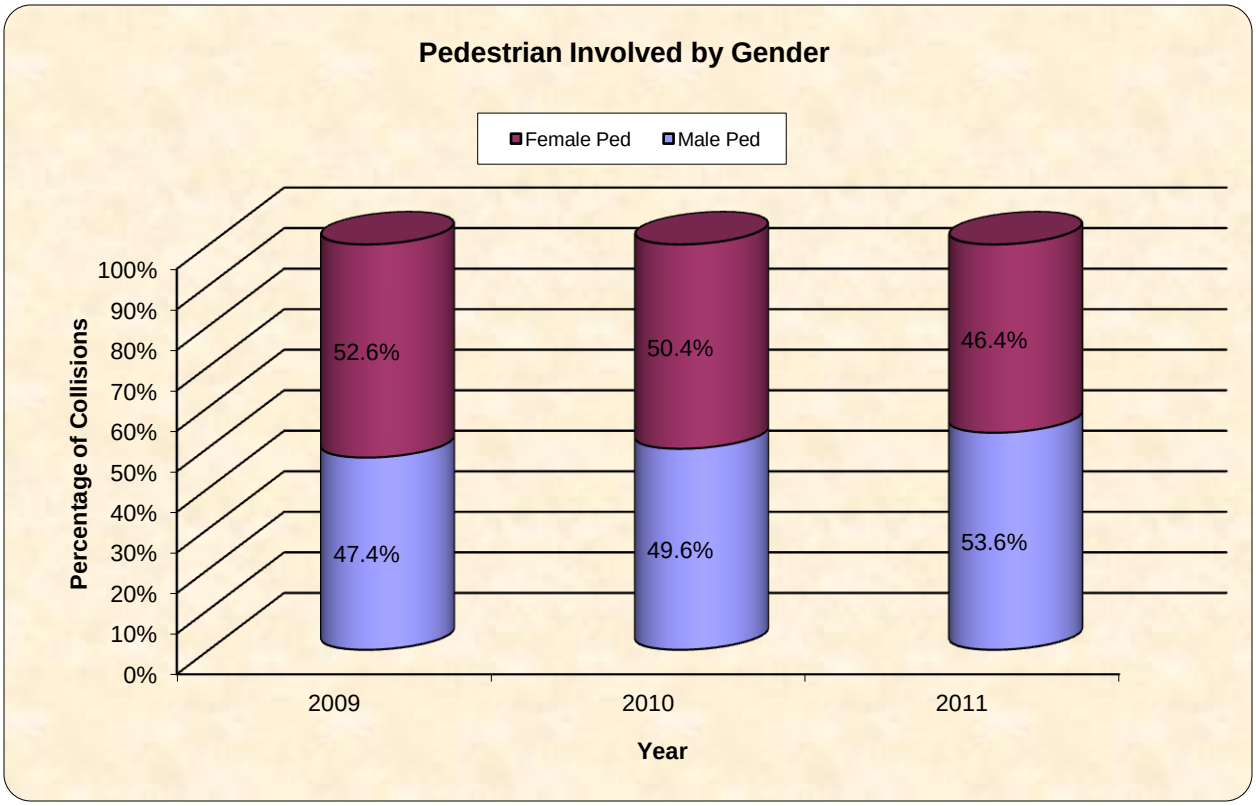


Figure 4.23: Three-year Trend of Crashes involving Pedestrians by Gender

Table 4.13: 2011 Pedestrian Involved Crashes by Injury Type

Injury Code	Frequency
Complaint but not visible	348
Disabling	84
Fatalities	11
Non-Disabling	181
None	89
Unknown	118
Total	831

4.3.6 Crashes involving Bicyclists

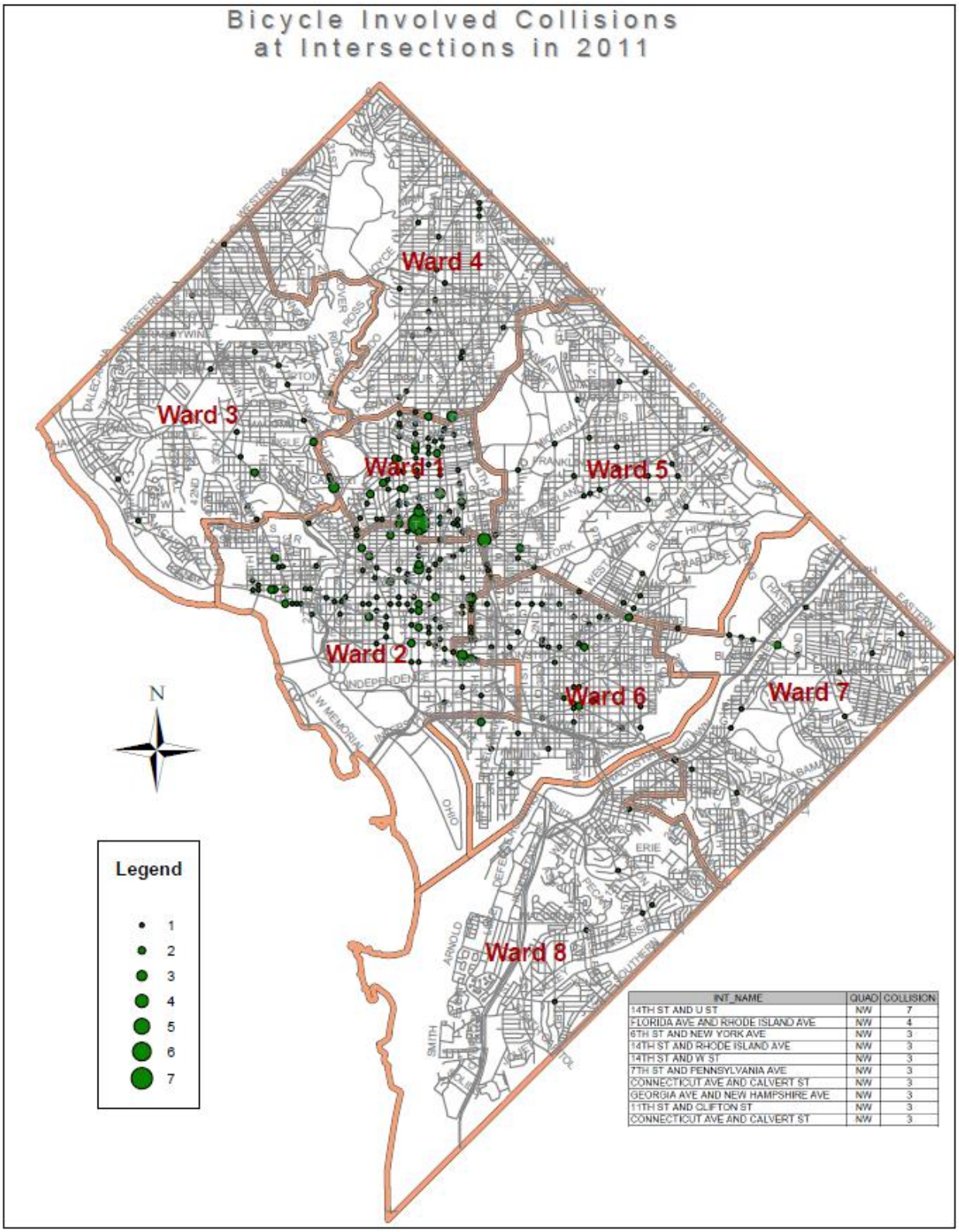
Statistics show that approximately 2.0% of workers in the District bike to work. Thus, it is pertinent to determine the crashes involving bicyclists. Figures 4.24 through 4.27 present the summaries of crashes involving pedestrians with the following details for bicyclists from 2009 through 2011: total crashes, by age and by gender. Crashes involving bicyclists ranged from 312 to 582 for the three–year duration. From the

figures, there was an increase in the total number of crashes in 2011 compared with those in 2009 and 2010. In addition, the distribution also shows that pedestrians in the age group of 21-30 were the most involved in crashes. Compared with 2009 and 2010 crashes, there was a decline in crashes involving males while an increase in crashes involving female bicyclists was reported in 2011. Figure 4.24 shows the GIS map for Bicycle crashes at intersection in 2011.

Presented in Table 4.14 is a summary of injury codes reported by pedestrians in 2011 after being involved in a crash. The majority of the pedestrians complained as a result of the accident but did not have any visible injuries.

Table 4.14: 2011 Bicycle Crashes by Injury Code

Injury Code	Number
Complaint but not visible	174
Disabling	30
Fatal	2
Non-Disabling	208
None	97
Other	36
Unknown	35
Total	582



INT_NAME	QUAD	COLLISION
14TH ST AND U ST	NW	7
FLORIDA AVE AND RHODE ISLAND AVE	NW	4
6TH ST AND NEW YORK AVE	NW	3
14TH ST AND RHODE ISLAND AVE	NW	3
14TH ST AND W ST	NW	3
7TH ST AND PENNSYLVANIA AVE	NW	3
CONNECTICUT AVE AND CALVERT ST	NW	3
GEORGIA AVE AND NEW HAMPSHIRE AVE	NW	3
11TH ST AND CLIFTON ST	NW	3
CONNECTICUT AVE AND CALVERT ST	NW	3

Figure 4.24: Crashes Involving Bicycles at Intersections in 2011

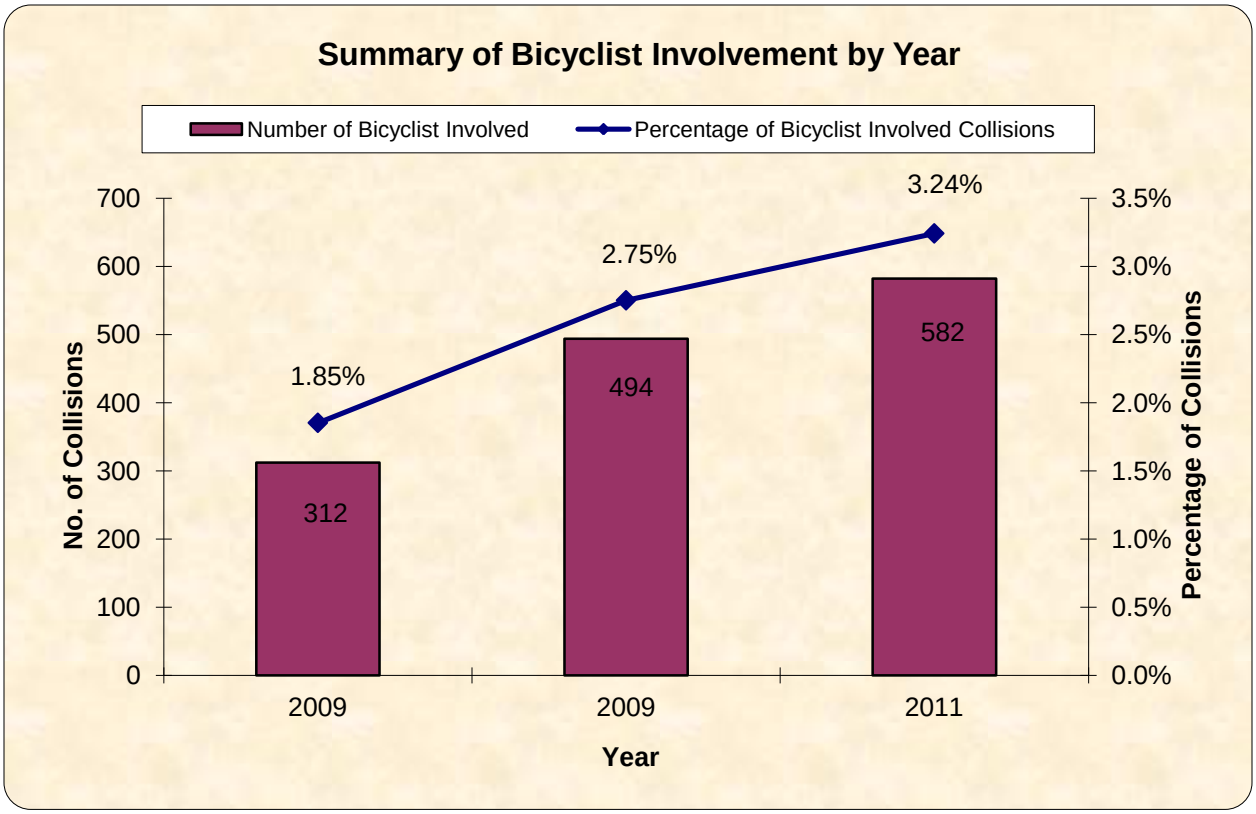


Figure 4.25: Three-year Trend of Crashes involving Bicyclists

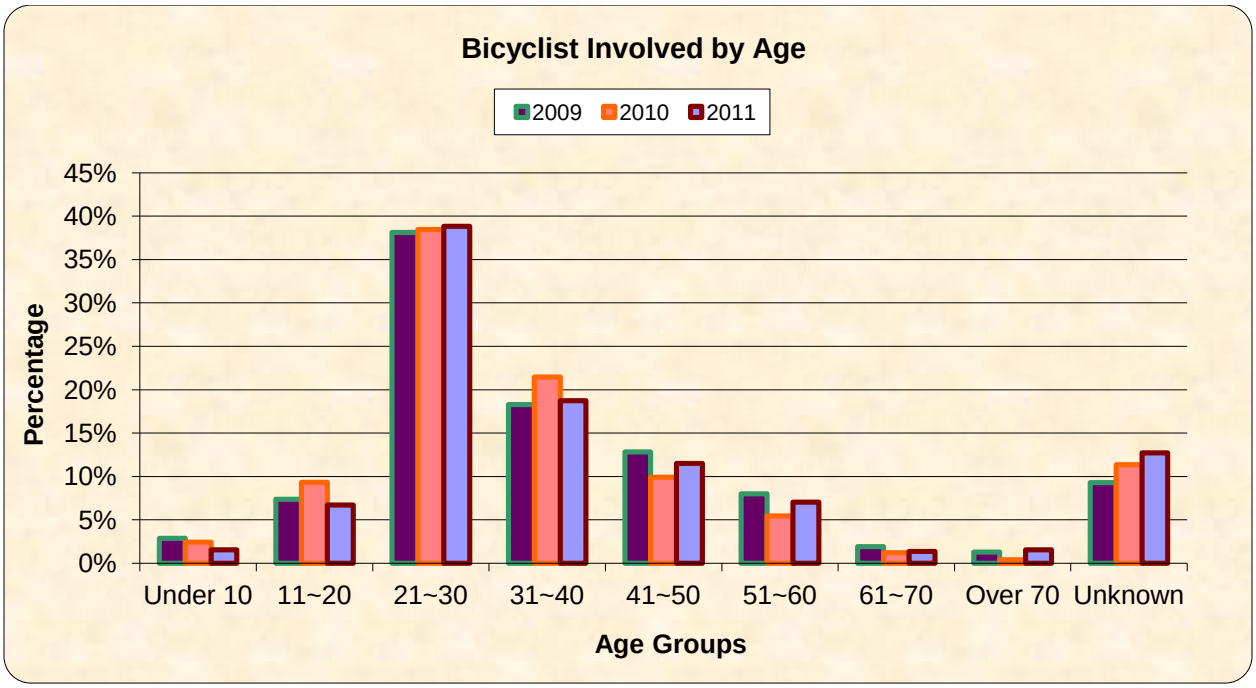


Figure 4.26: Three-year Trend of Crashes involving Bicyclists by Age

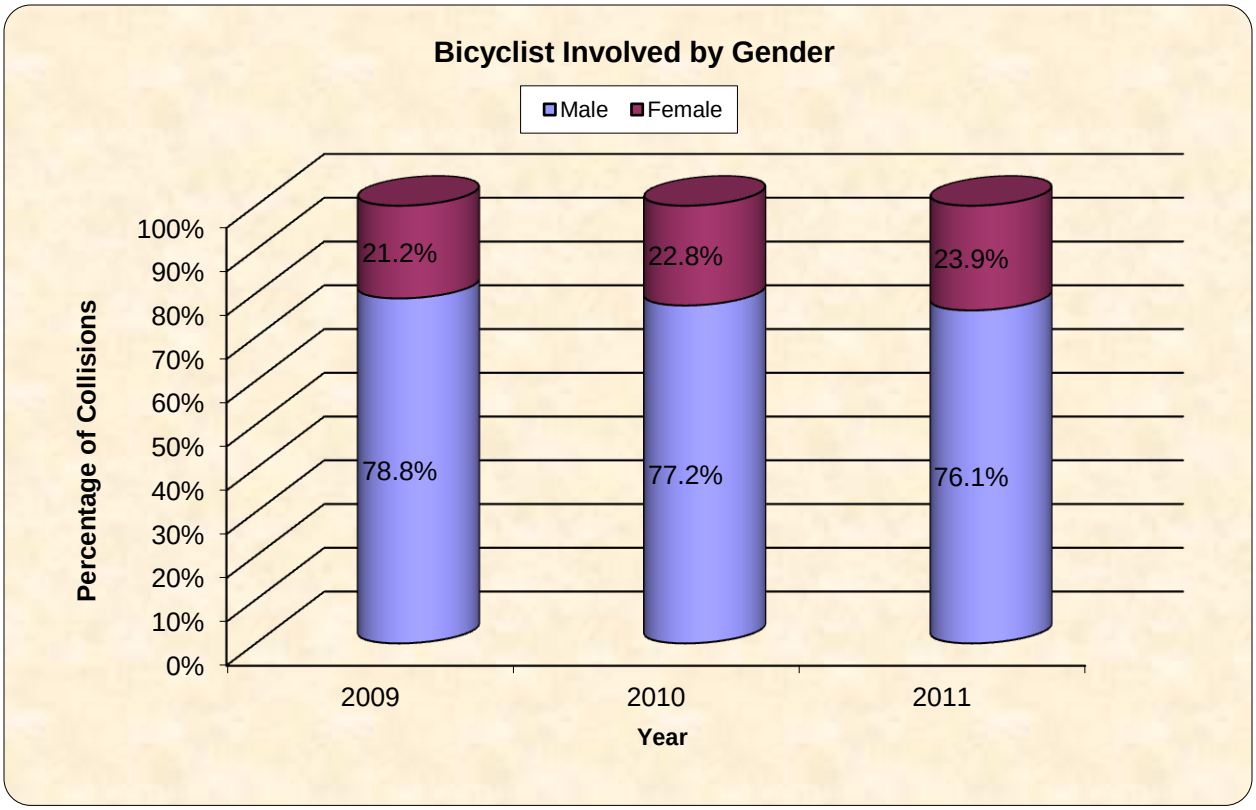


Figure 4.27: Three-year Trend of Crashes involving Bicyclists by Gender

4.3.7 Crashes involving Motorcycles

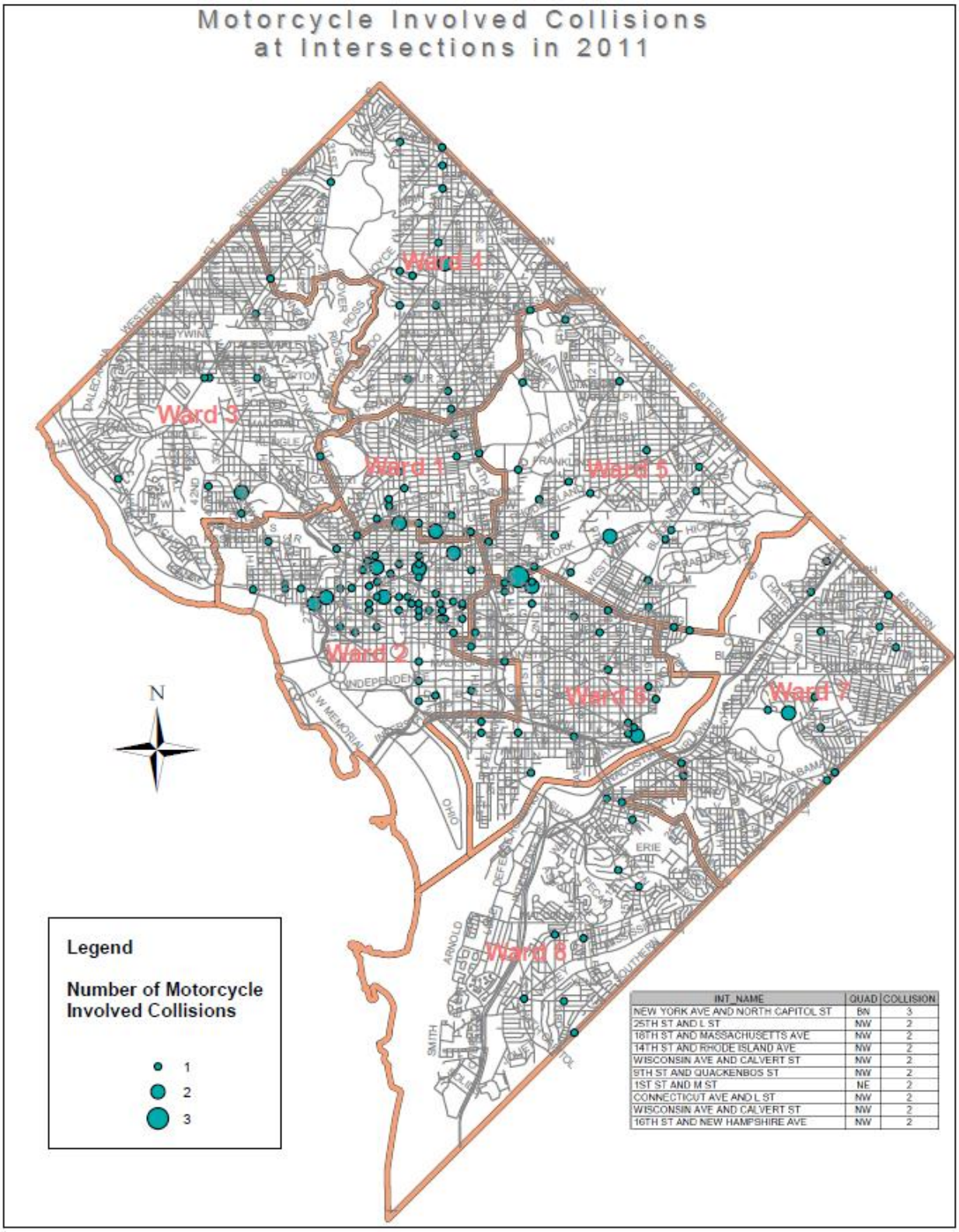


Figure 4.28: Motorcycle Involved Crashes at Intersections in 2011

Figures 4.29 through 4.31 present the summaries of crashes involving motorcycles with the following details from 2009 through 2011: total crashes, by age and by gender.

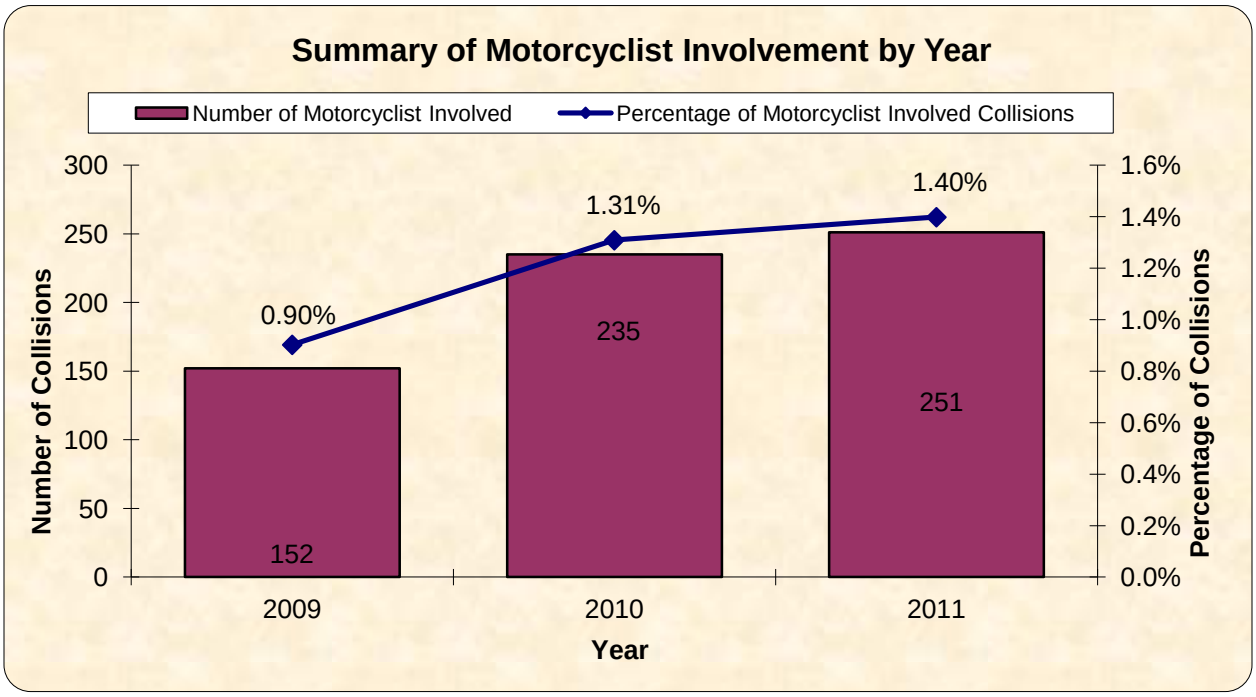


Figure 4.29: Three-year Trend of Crashes involving Motorcyclists

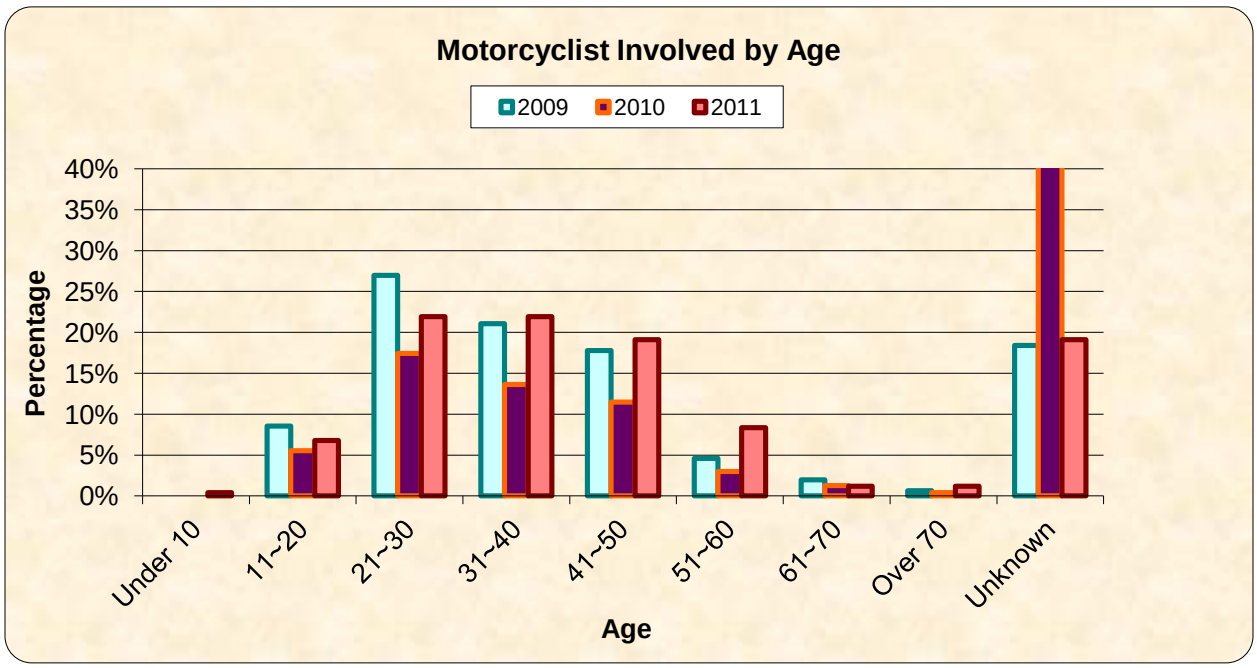
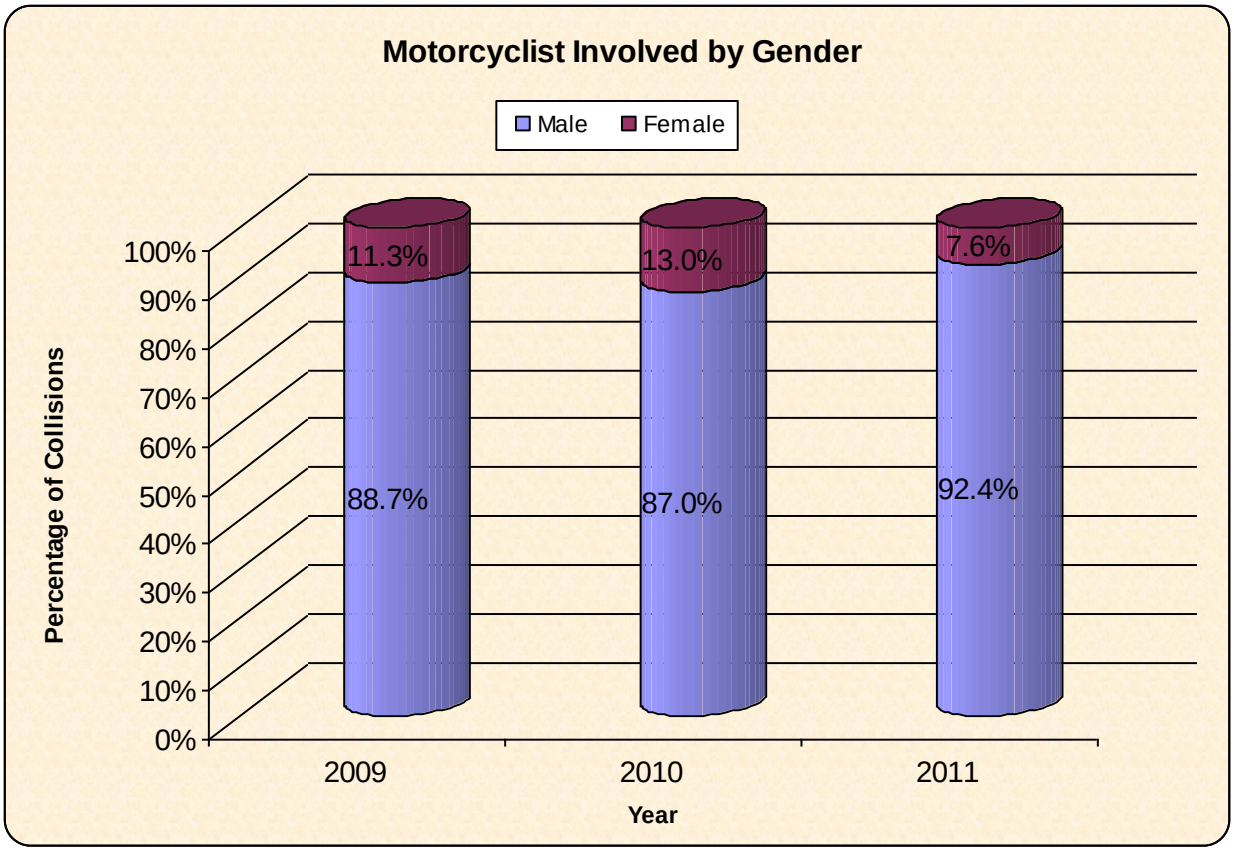


Figure 4.30: Three-year Trend of Crashes involving Motorcyclists by Age



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

From the figures, there was an increase in the total number of crashes in 2011 compared with those in 2009 and 2010. In addition, the distribution also shows that pedestrians in the age group of 21-30 were the most involved in crashes. Compared with 2008 and 2009 crashes, there was a decline in crashes involving males while an increase in the percentage of crashes involving female bicyclists was reported in 2010.

Presented in Table 4.15 is a summary of injury codes reported by motorcyclists in 2010 after being involved in a crash. The majority of the motorcyclists (81) sustained non-disabling injuries.

Table 4.15: Motorcyclists Crashes by Injury Code

Injury Code	Frequency
Complaint but not visible	52
Disabling	25
Fatal	4
Non-Disabling	81
None	46
Other	7
Unknown	36
Total	251

4.3.8 Crashes involving DC Properties

Figures 4.32 and 4.33 respectively present the summaries of crashes involving DC properties for 2009 through 2011 and the severity of crashes involving DC properties. From the figures, there was an increase in the percentage of crashes in 2011 compared with the crashes in 2010. In addition, the distribution in Figure 4.33 shows that crashes involving DC properties resulted in less than 1% of the PDO crashes in 2011.

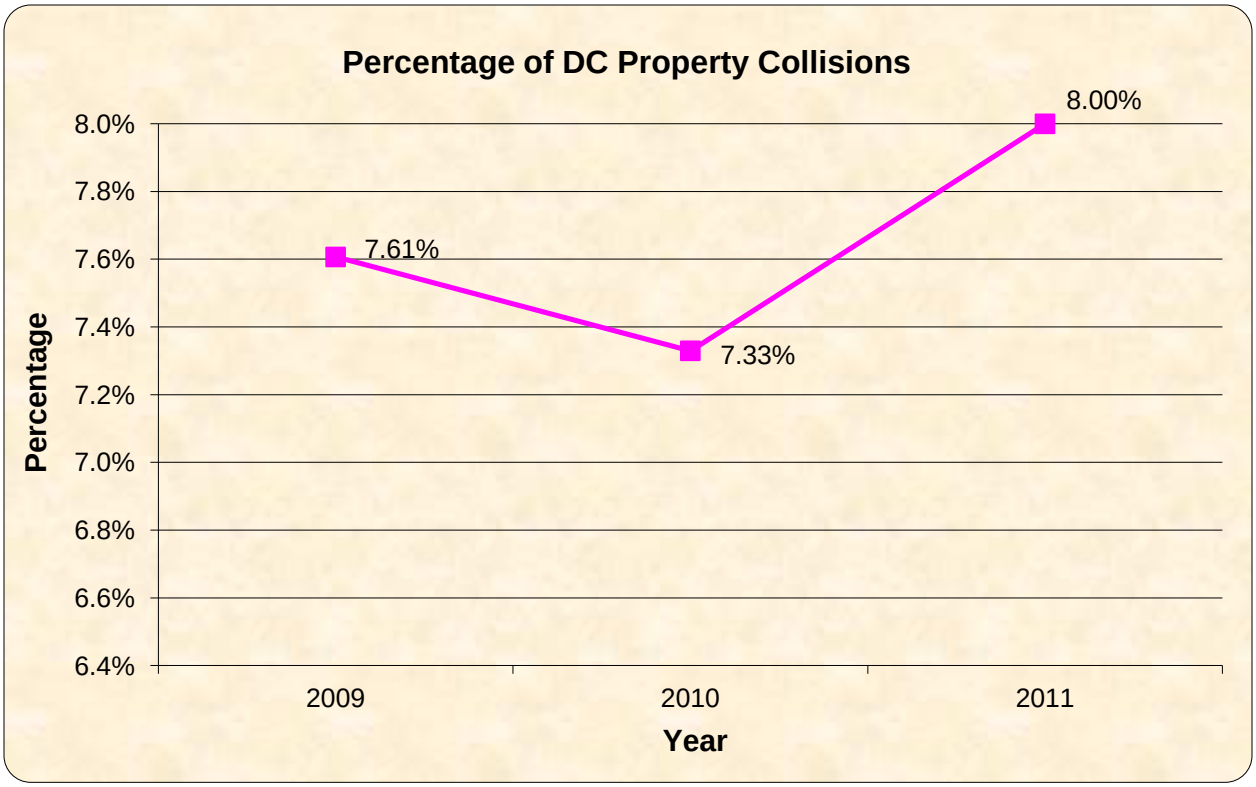


Figure 4.32: Three-year Trend of Crashes involving DC Properties

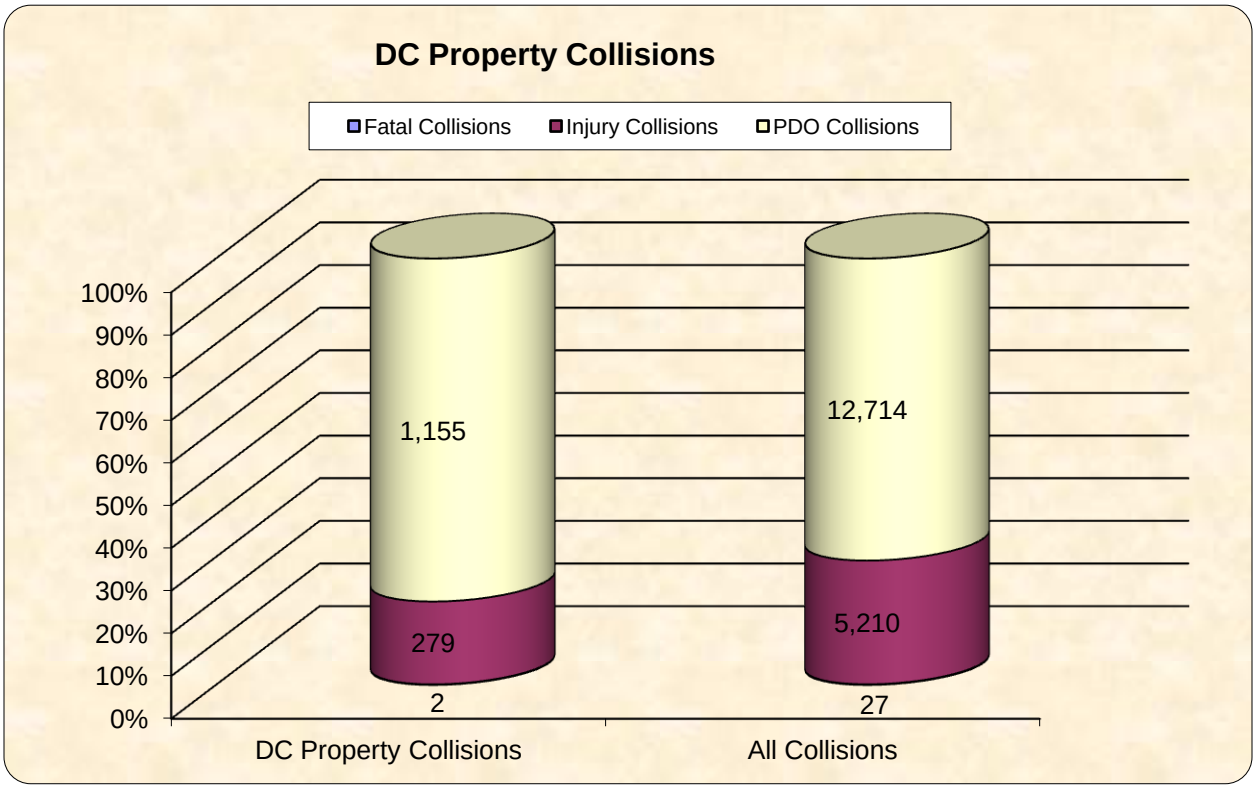


Figure 4.33: Crashes involving DC Properties in 2011

4.4 Drivers

4.4.1 Drivers by Age

The age groups of drivers' involved in crashes continue to be important information for government agencies and local authorities to determine the appropriate crash prevention mitigation strategies. Based on 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 found to be highest in 2011 followed by the age group 31-35. The data showed that the age group of approximately 23% of those involved in crashes was not recorded or were unknown.

Figure 4.35 presents the types of injuries sustained by the age of the drivers in 2011. 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

Age Group	No. of Crashes			Percentage		
	2009	2010	2011	2009	2010	2011
16~20	859	761	715	3.6%	2.6%	2.4%
21~25	2,438	2,683	2,629	10.1%	9.2%	9.0%
26~30	2,768	3,236	2,993	11.5%	11.1%	10.2%
31~35	2,299	2,859	2,759	9.5%	9.8%	9.4%
36~40	2,311	2,728	2,540	9.6%	9.3%	8.7%
41~45	2,096	2,617	2,406	8.7%	9.0%	8.2%
46~50	2,099	2,580	2,347	8.7%	8.8%	8.0%
51~55	1,663	2,168	2,016	6.9%	7.4%	6.9%
56~60	1,301	1,628	1,503	5.4%	5.6%	5.1%
61~65	811	1,093	1,036	3.4%	3.7%	3.5%
66~70	468	623	559	1.9%	2.1%	1.9%
71~75	247	339	317	1.0%	1.2%	1.1%
Over 75	622	1,075	841	2.6%	3.7%	2.9%
Unknown	4,139	4,787	6,600	17.2%	16.4%	22.6%
Total	24,121	29,177	29,261	100.0%	100.0%	100.0%

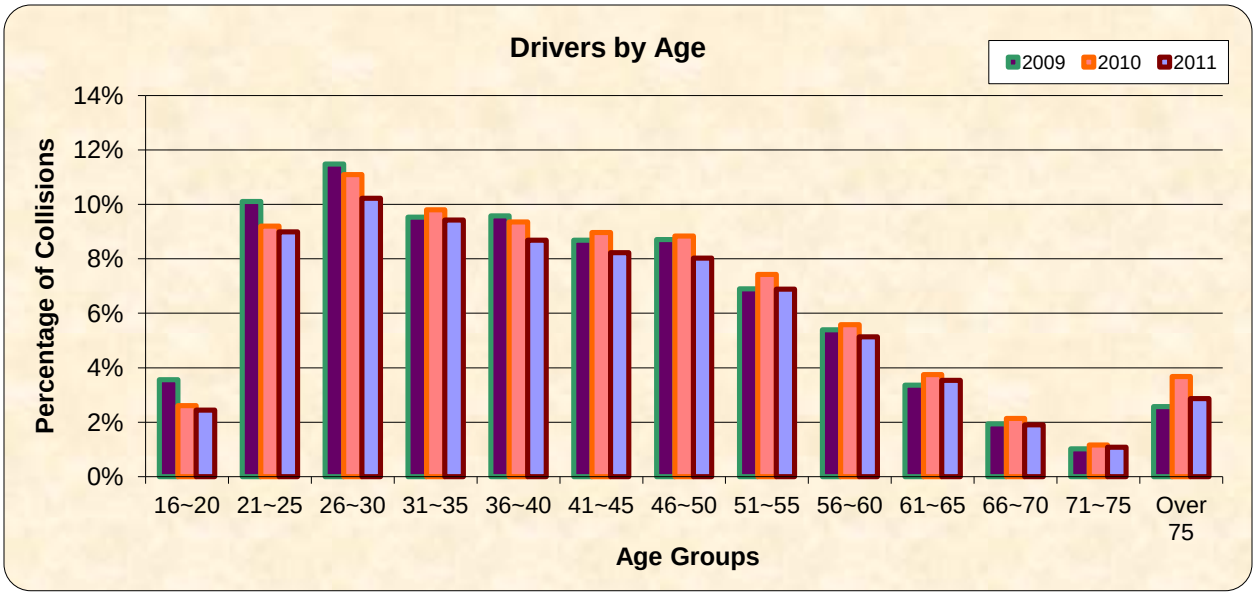


Figure 4.34: Crashes Drivers by Age for 2009 - 2011

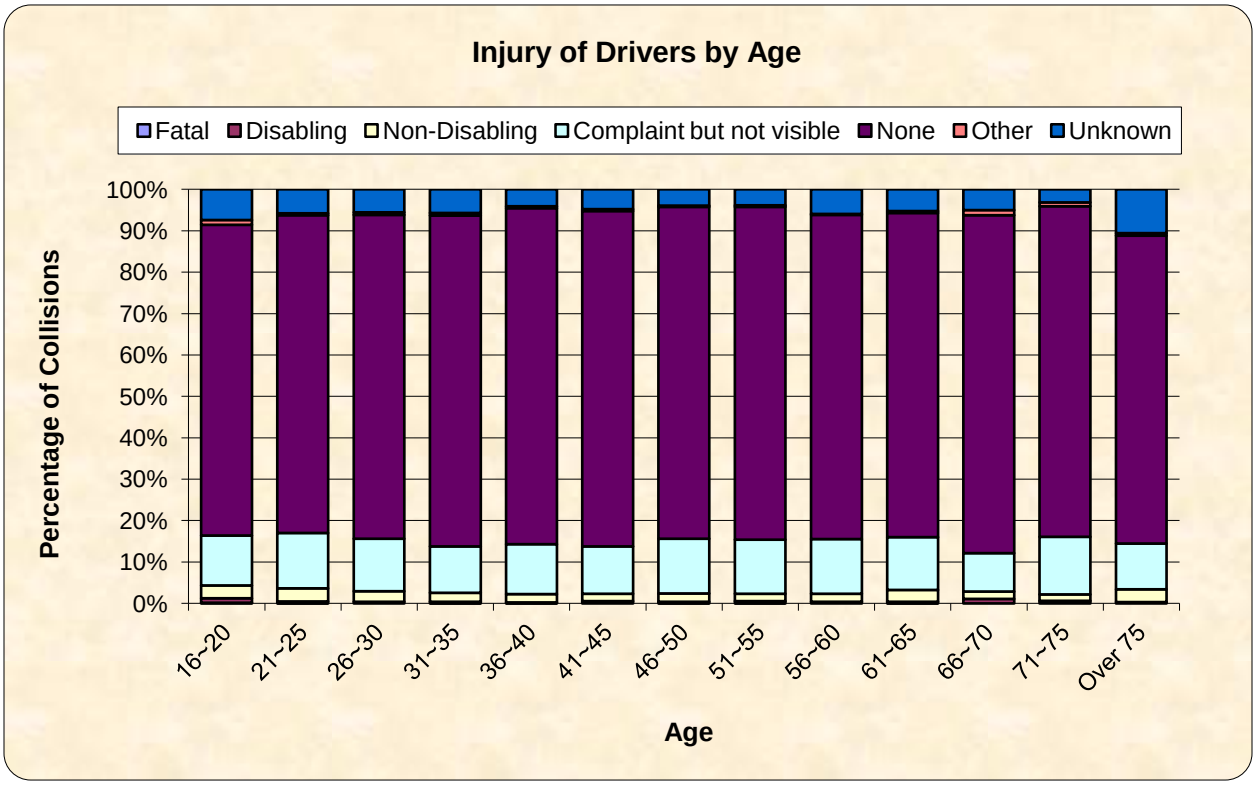


Figure 4.35: Injury Type Drivers by Age for 2011

4.4.2 Drivers by Gender

Figure 4.36 presents the summary of crashes recorded by the gender of drivers. The figure shows that there was a modest increase in the percentage of crashes for male drivers, while a modest decrease was also recorded for female drivers in from 2010 to 2011

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 of interest 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%) were involved with MD drivers, followed by those from Washington DC (~36%) and 14% of the drivers classified to be from Virginia. The remainder is from other states or unknown.

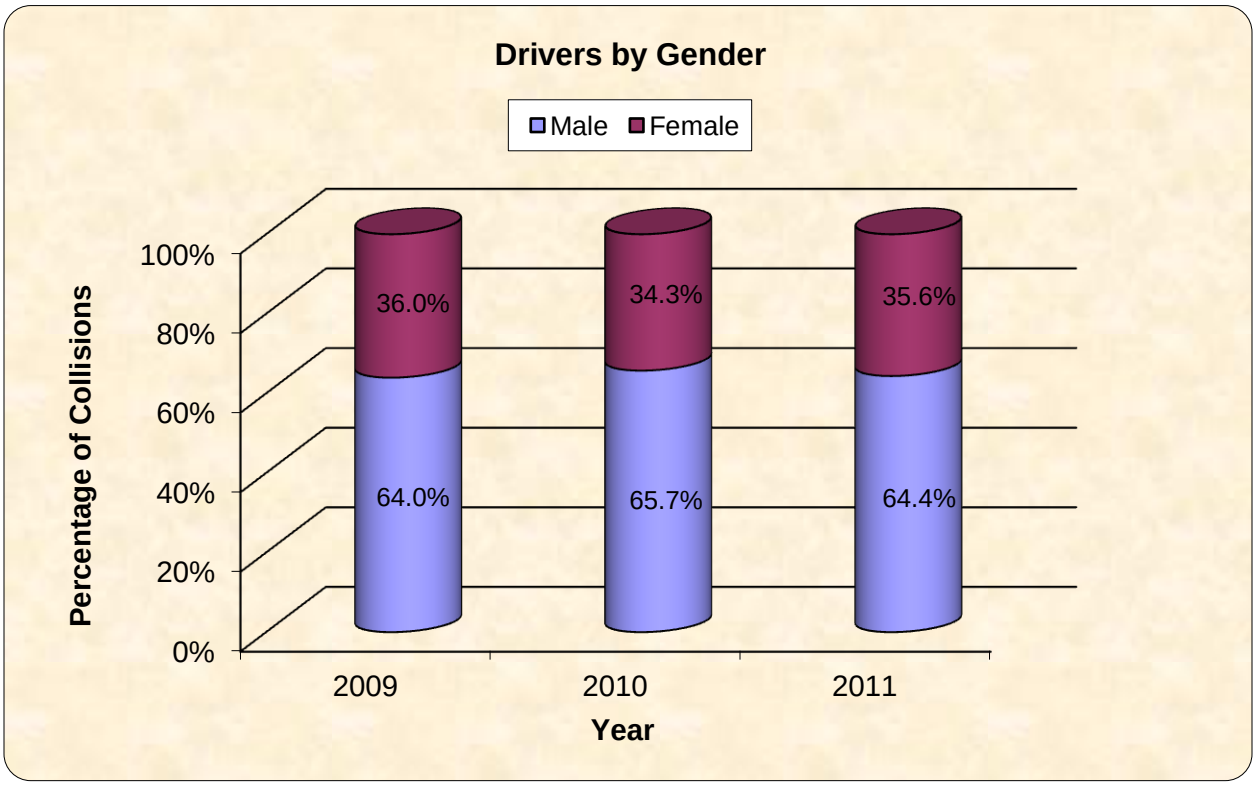


Figure 4.36: Crashes by Gender of Drivers for 2009-2011

Table 4.17 Driver Involvement by State of Permit

State	No. of Crashes			Percentage		
	2009	2010	2011	2009	2010	2011
DC	9,004	9,556	10,423	37.3%	32.8%	35.6%
MD	9,478	10,853	10,923	39.3%	37.2%	37.3%
VA	3,440	4,024	4,129	14.3%	13.8%	14.1%
Other	1,642	2,386	2,598	6.8%	8.2%	8.9%
Unknown	557	2,358	1,188	2.3%	8.1%	4.1%
Total	24,121	29,177	29,261	100.0%	100.0%	100.0%

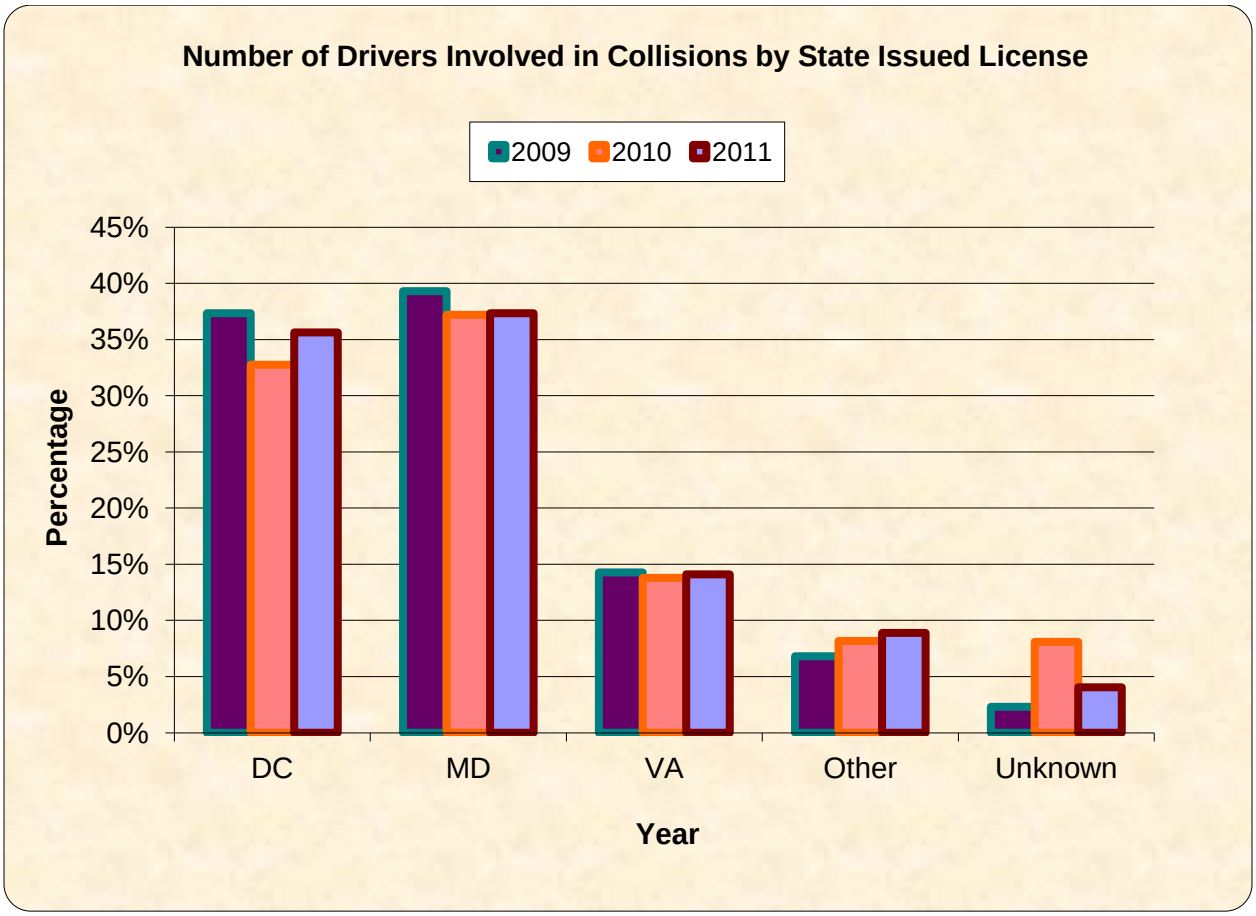


Figure 4.37: Drivers Involved in Crashes by State Issued License for 2009-2011

4.4.4 Crashes by Drivers Action

The top three drivers' actions that are responsible for crashes in 2011 are: Going Straight, Turning Left and Changing Lanes which represent respectively 36%, 9% and

6% of the total as presented in Table 4.18. This is consistent with the reported actions by drivers in 2009 and 2011.

Table 4.18: Driver Involvement by Driver Action and Year

Drivers Action	2009	2010	2011
Going Straight	6,394	6,156	6,467
Turning Left	1,656	1,483	1,608
Changing Lanes	1,009	1,050	1,084
Turning Right	858	820	818
Backing	822	718	754
Entering/Leaving Parked Position	380	364	379
Slowing/Stopping	351	372	367
Merging	284	265	210
Making U-turn	267	227	255
Parked	263	247	271
Overtaking	238	212	202
Stop/Stand Traffic Lane	231	217	233
Ran Off Road	218	150	149
Avoiding	152	126	117
Total	13,123	12,407	12,914

4.5 Environmental Conditions

4.5.1 Crashes by Roadway Conditions

From Table 4.19 and Figure 4.38, the highest crashes occurred on roads with dry conditions from 2009 through 2011. The results also show that approximately 81% of the total motor vehicle crashes in 2011 occurred on roadways where the road surface was dry. Crashes occurring during wet roadway conditions was observed to be second highest; with about 2,400 (or approximately 13%).

Table 4.19 Summary of Crashes by Road Condition

Road Condition	2009			2010			2011		
	No. of Crashes	Fatalities	Injuries	No. of Crashes	Fatalities	Injuries	No. of Crashes	Fatalities	Injuries
Dry	12,641	30	5,020	14,607	20	5,945	14,463	25	6,030
Ice/Snow	311	0	75	525	1	118	149	2	57
Repairing	75	0	22	71	0	20	85	0	39
Wet	2,961	3	1,199	2,000	3	806	2,440	4	1,015
Other	140	0	50	201	0	82	111	0	37
Unknown	713	0	163	551	1	97	703	1	157
Total	16,841	33	6,529	17,955	25	7,068	17,951	32	7,335

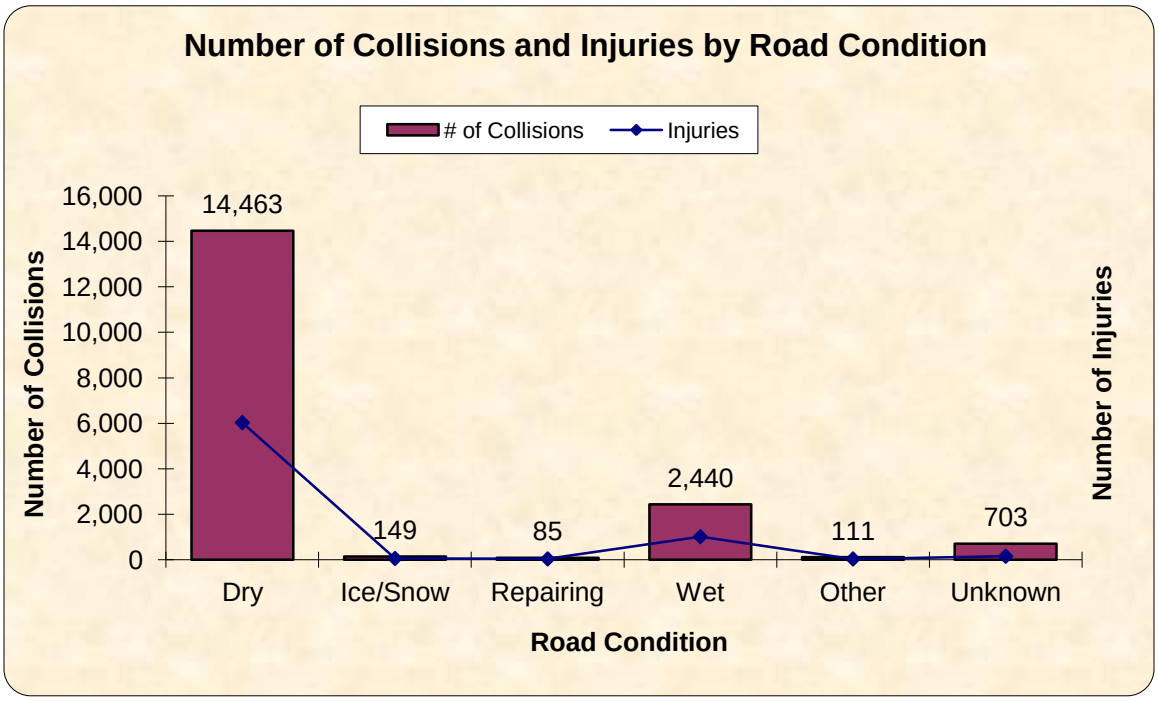


Figure 4.38: Number of Crashes and Injuries by Road Condition

4.5.2 Crashes by Road Surface

From the summaries presented in Table 4.20 and Figure 4.39, crashes occurred most frequently on asphalt and concrete roadways from 2009 through 2011. The results also show that approximately 90% (16,013) of the total crashes occurred on asphalt roadways in 2011. This is followed by crashes on concrete surface, which constitute approximately 8% (or 1,463) of the total reported motor vehicle crashes in 2011.

Table 4.20 Summary of Crashes by Roadway Surface (2009-2011)

Roadway Surface	2009			2010			2011		
	No. of Crashes	Fatalities	Injuries	No. of Crashes	Fatalities	Injuries	No. of Crashes	Fatalities	Injuries
Asphalt	14,982	29	5,853	16,246	22	6,492	16,013	25	6,570
Brick	34	0	7	41	0	12	48	1	12
Concrete	1,376	3	522	1,398	1	494	1,463	6	612
Dirt	19	1	3	14	0	2	10	0	1
Gravel	28	0	7	28	1	7	27	0	11
Other	35	0	7	43	0	13	38	0	19
Unknown	367	0	130	185	1	48	352	0	110
Total	16,841	33	6,529	17,955	25	7,068	17,951	32	7,335

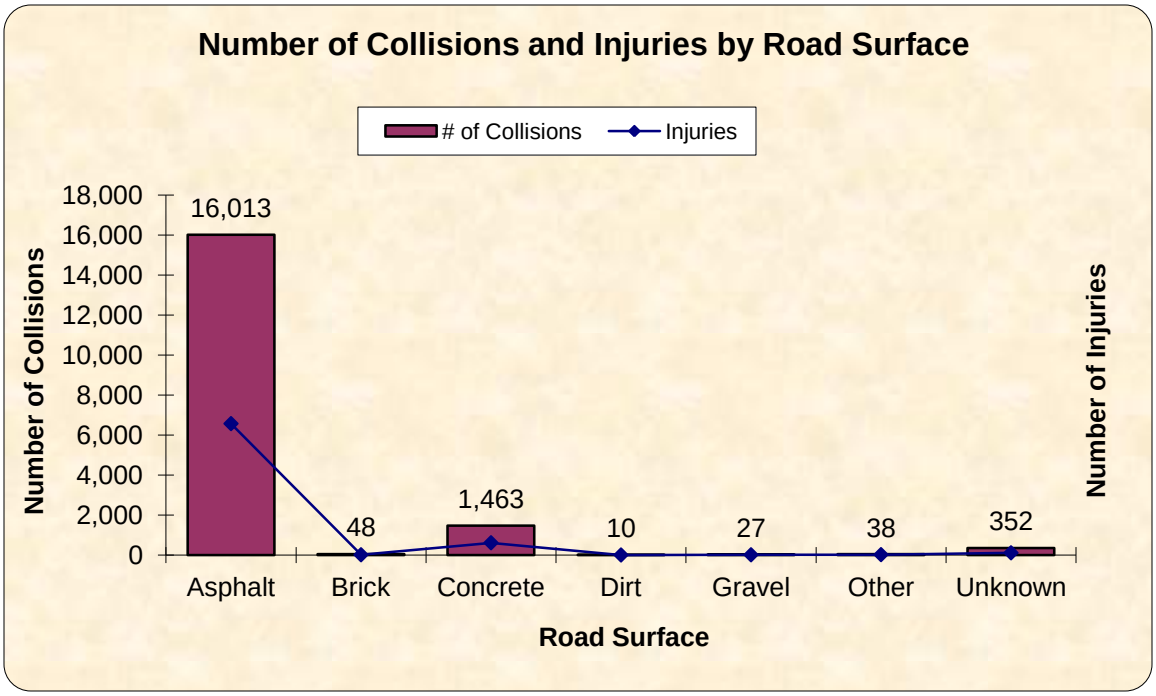


Figure 4.39: Number of Crashes and Injuries by Road Surface in 2011

4.5.3 Crashes by Weather Conditions

Adverse weather conditions contribute to motor vehicle crashes. Table 4.21 and Figure 4.40 show the summary of crashes which are weather-related by severity type. From the results, it can be observed that majority of the crashes occurred under clear weather conditions which represent approximately 81% (or 14,576) of the total motor vehicle crashes in 2011. This is followed by crashes occurring during rainy conditions, representing approximately 11% (or 2,015) of the total crashes in 2011.

Table 4.21 Summary of Crashes by Weather Condition

Weather Condition	2009			2010			2011		
	No. of Crashes	Fatalities	Injuries	No. of Crashes	Fatalities	Injuries	No. of Crashes	Fatalities	Injuries
Clear	12,763	32	5,079	14,971	21	6,053	14,576	28	6,063
Fog/Mist	281	0	130	104	0	41	159	0	66
Rain	2,383	1	947	1,561	3	652	2,015	4	827
Sleet	56	0	18	7	0	1	41	0	11
Snow	317	0	82	480	0	120	159	0	60
Other	302	0	110	340	0	120	291	0	136
Unknown	739	0	163	492	1	81	710	0	172
Total	16,841	33	6,529	17,955	25	7,068	17,951	32	7,335

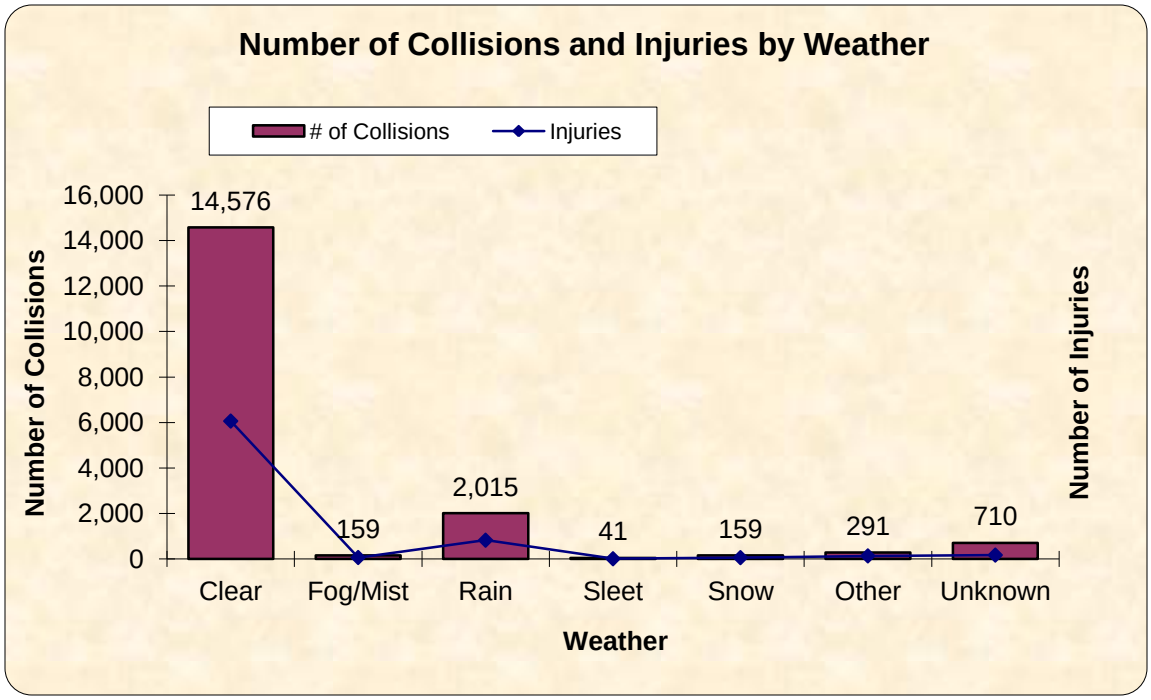


Figure 4.40: Number of Crashes and Injuries by Weather

4.5.4 Crashes by Light Conditions

Street illumination is another crash contributing factor for motor vehicle, especially during the 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 noted to be off. These crashes occurred under such conditions in approximately 57% of the total reported crashes in 2011. Approximately 34% (6,028) of the total reported motor vehicle crashes in 2011 occurred on roadways when street illumination was present.

Table 4.22: Summary of Crashes by Street Lighting

Street Lighting	2009			2010			2011		
	No. of Crashes	Fatalities	Injuries	No. of Crashes	Fatalities	Injuries	No. of Crashes	Fatalities	Injuries
Street Lights On	5,757	19	2,165	5,792	12	2,266	6,028	25	2,433
Street Lights Off	9,351	13	3,807	10,572	11	4,332	10,199	5	4,374
Defective	31	0	9	21	0	6	11	0	1
Unknown	991	1	235	827	1	133	972	2	212
Total	711	0	313	743	1	331	17,951	0	315

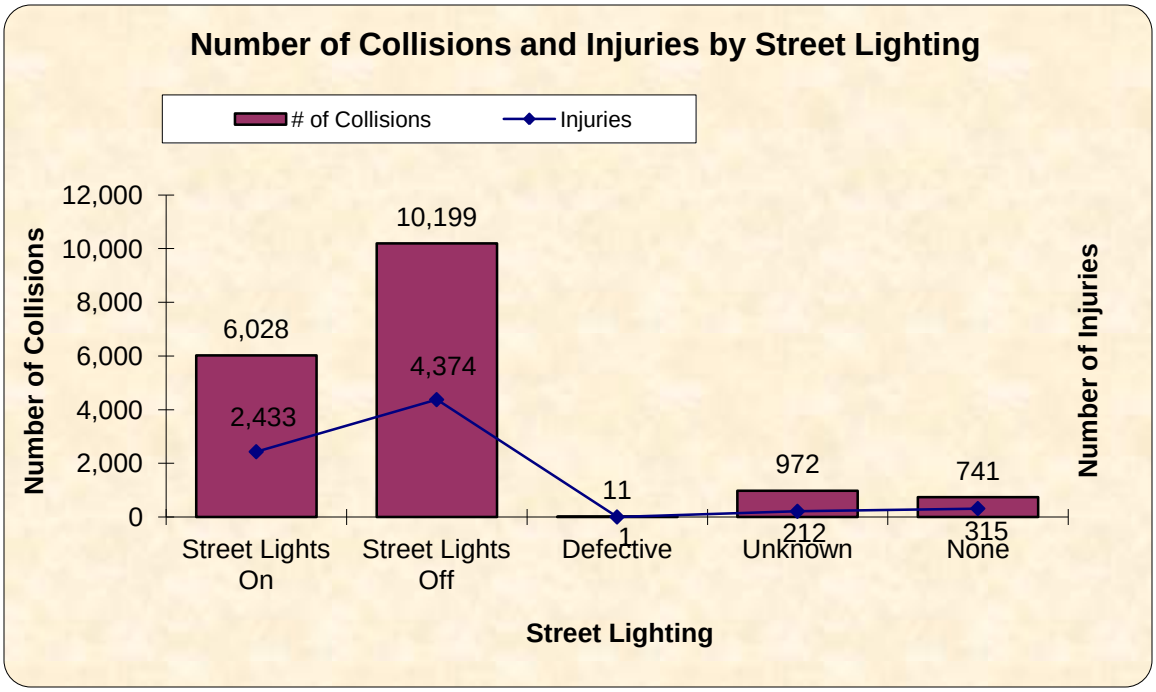


Figure 4.41: Number of Crashes and Injuries by Street Lighting

Furthermore, as shown in Table 4.23 and Figure 4.42, the majority of the crashes occurred during daylight conditions. This consisted of approximately 62% (11,151) of the total reported motor vehicle crashes in 2011. About 31% (5,636) of the total reported crashes occurred in the dark which resulted in 24 fatalities and 2,214 injuries in 2011.

Table 4.23 Summary of Crashes by Light Condition

Light Condition	2009			2010			2011		
	No. of Crashes	Fatalities	Injuries	No. of Crashes	Fatalities	Injuries	No. of Crashes	Fatalities	Injuries
Dark	5,270	18	2,200	5,415	13	2,064	5,636	24	2,214
Dawn/Dusk	576	0	251	490	2	221	446	3	223
Daylight	9,747	10	4,226	11,483	9	4,710	11,151	5	4,772
Unknown	554	11	115	567	1	73	718	0	126
Total	16,147	39	6,792	17,955	25	7,068	17,951	32	7,335

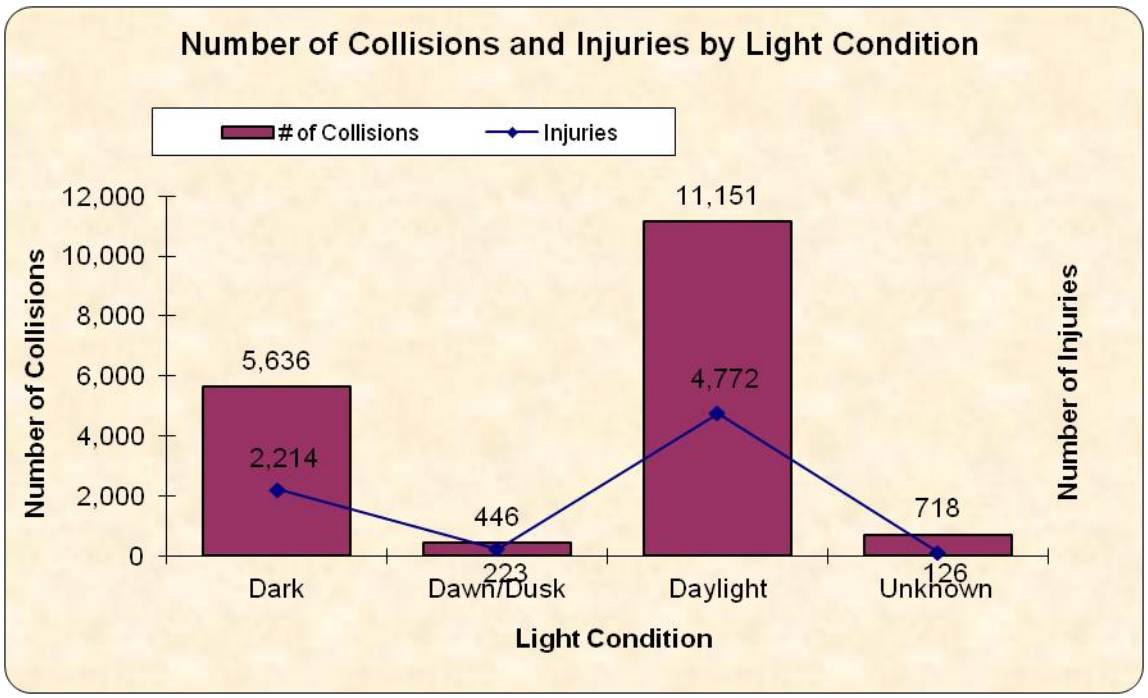


Figure 4.42: Number of Crashes and Injuries by Light Condition

4.5.5 Crashes by Traffic Conditions

Traffic condition is another new data field that was appended on the new traffic crash reports (PD-10 forms) to obtain the 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. From the results, approximately 34% of the total reported crashes in 2011 occurred in medium (6,049) with approximately 31% under light (5,538) traffic conditions.

Table 4.24: Summary of Crashes by Traffic Condition

Traffic Condition	2009			2010			2011		
	No. of Crashes	Fatalities	Injuries	No. of Crashes	Fatalities	Injuries	No. of Crashes	Fatalities	Injuries
Heavy	2,991	1	1,289	3,453	0	1,510	3,378	1	1,555
Medium	5,779	8	2,534	6,173	4	2,784	6,049	11	2,859
Light	5,435	22	1,976	5,833	16	2,134	5,538	18	2,042
Other	245	0	42	303	1	49	283	1	44
Unknown	2,391	2	688	2,193	4	591	2,703	1	835
Total	16,841	33	6,529	17,955	25	7,068	17,951	32	7,335

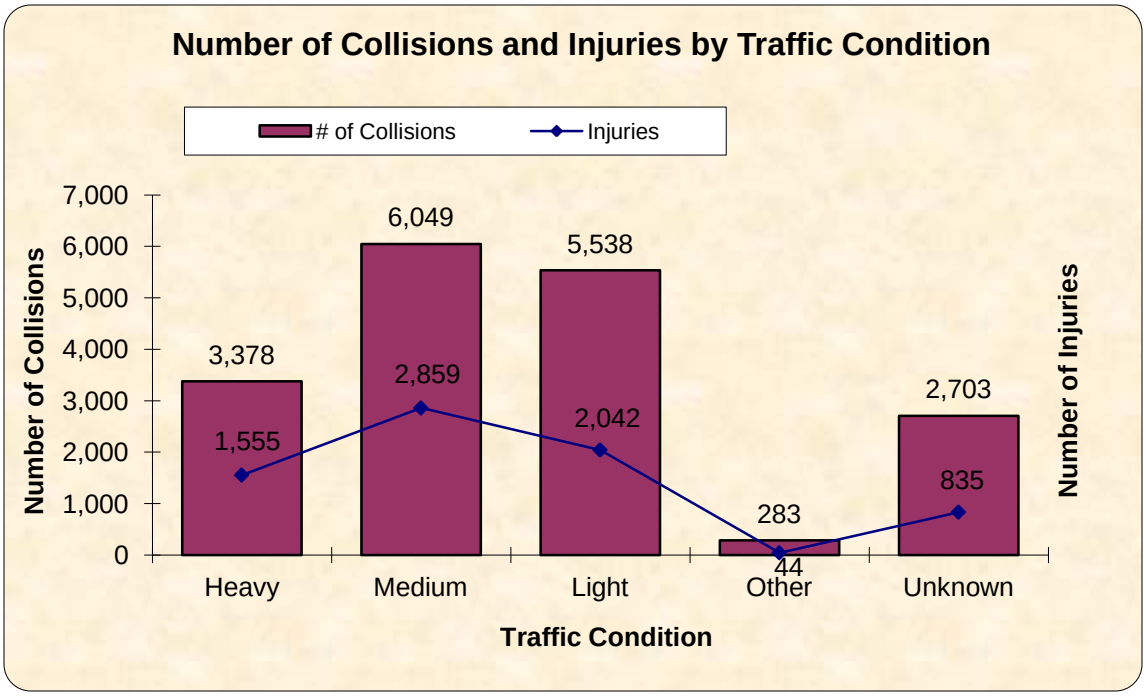


Figure 4.43: Number of Crashes and Injuries by Traffic Conditions

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 2011. From the results, approximately 39% of crashes occurred at or close to a signalized intersection. The majority of the crashes (47%) occurred at locations where there is no traffic control.

Table 4.25: Summary of Crashes by Traffic Control

Traffic Control	2009			2010			2011		
	No. of Crashes	Fatalities	Injuries	No. of Crashes	Fatalities	Injuries	No. of Crashes	Fatalities	Injuries
Signal	6,559	13	2,976	7,249	10	3,302	6,995	8	3,329
None	7,545	19	2,423	8,045	12	2,625	8,348	18	2,848
Stop Sign	1,578	0	742	1,685	1	822	1,493	1	735
Other	505	1	202	548	1	230	578	5	286
Unknown	654	0	186	428	1	89	537	0	137
Total	16,841	33	6,529	17,955	25	7,068	17,951	32	7,335

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

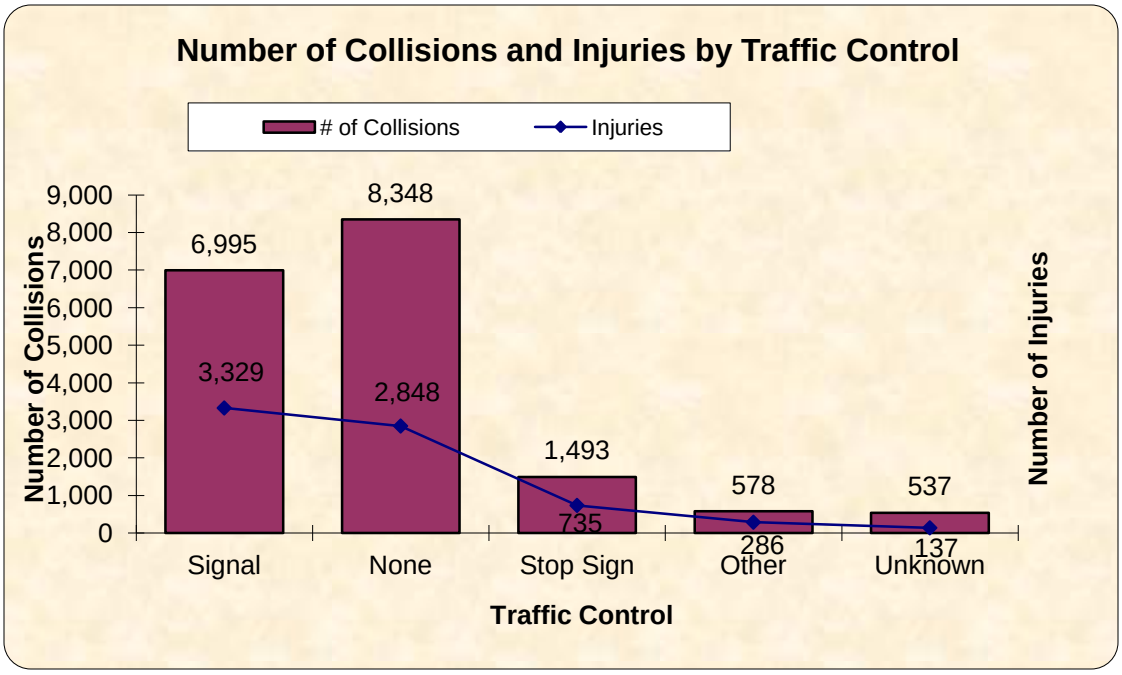


Figure 4.44: Number of Crashes and Injuries by Traffic Control

4.5.7 Crashes by Roadway Functional Classification

It is important to assess the inter-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 4.25 and Figure 4.45, the number of injuries for all roadway functional systems from 2009 through 2011 showed an increasing trend from 2009 to 2011, with the exception of collector roads and Other Freeways where decreases were reported.

Table 4.25: Summary of Crashes by Roadway Functional Classification

Functional Classification	2009			2010			2011		
	# of Crashes	Fatalities	Injuries	# of Crashes	Fatalities	Injuries	# of Crashes	Fatalities	Injuries
Collector	2,200	2	801	2069	5	783	2077	3	800
Interstate	589	1	326	666	3	337	279	1	161
Local	4,169	5	1,137	4543	4	1346	4484	7	1367
Minor Arterial	4,644	10	2,042	5088	6	2226	5023	7	2312
Other Freeway & Expressway	160	3	80	79	0	67	85	0	53
Principal Arterial	4,770	12	2,004	5145	7	2142	4962	7	2141
Unkown	309	0	139	365	0	167	1041	7	501
Total	16,841	33	6,529	17955	25	7068	17951	32	7335

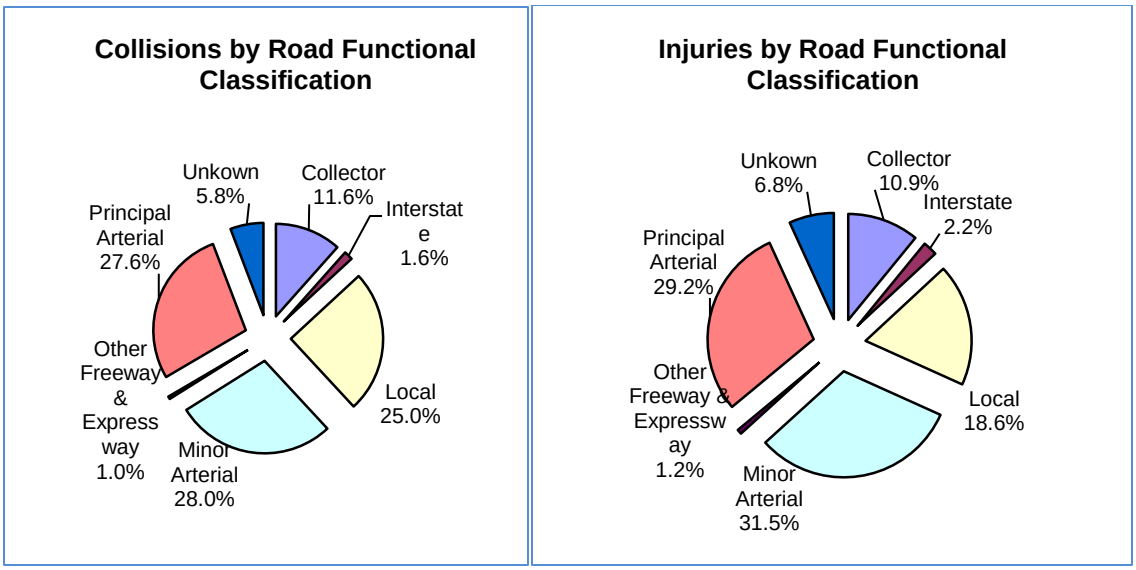


Figure 4.45: Crashes and Injuries by Functional Classification

Figures 4.46 and 4.47 respectively present the frequency of speed-related crashes and injuries on all functional classifications from 2009 through 2011. The general trend shows a reduction in speed-related crashes on all reported functional classifications.

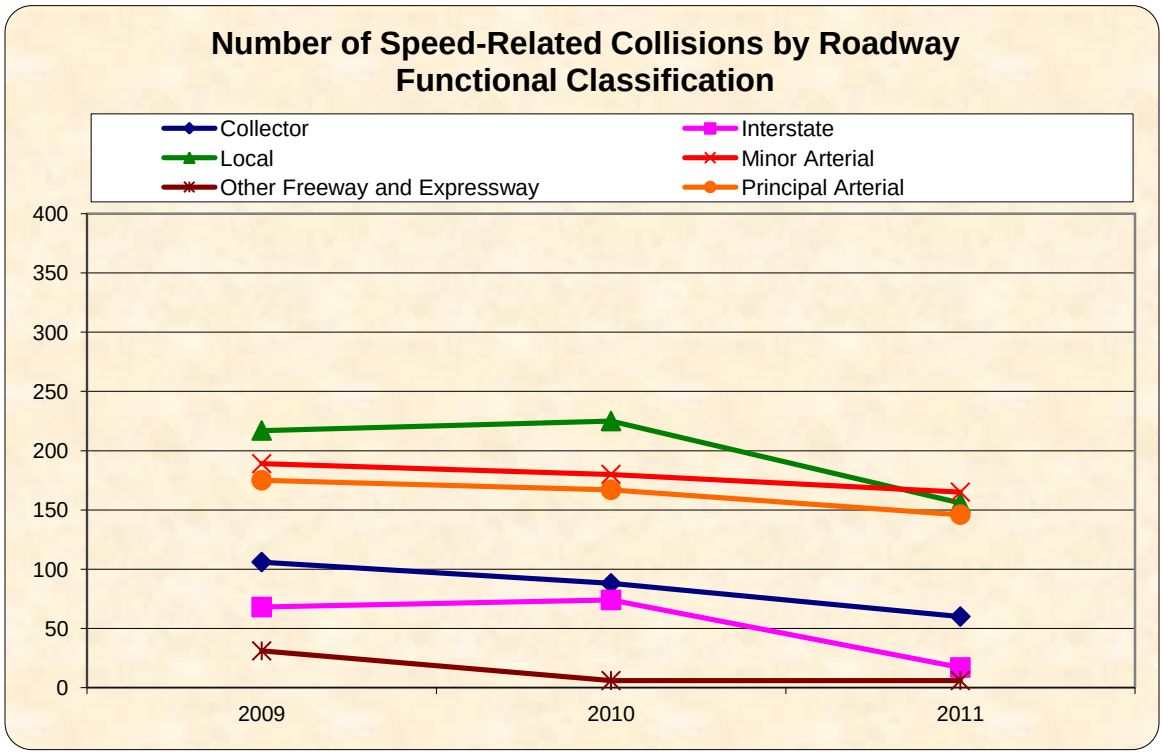


Figure 4.46: Number of Speed-Related Crashed by Roadway Functional Classification

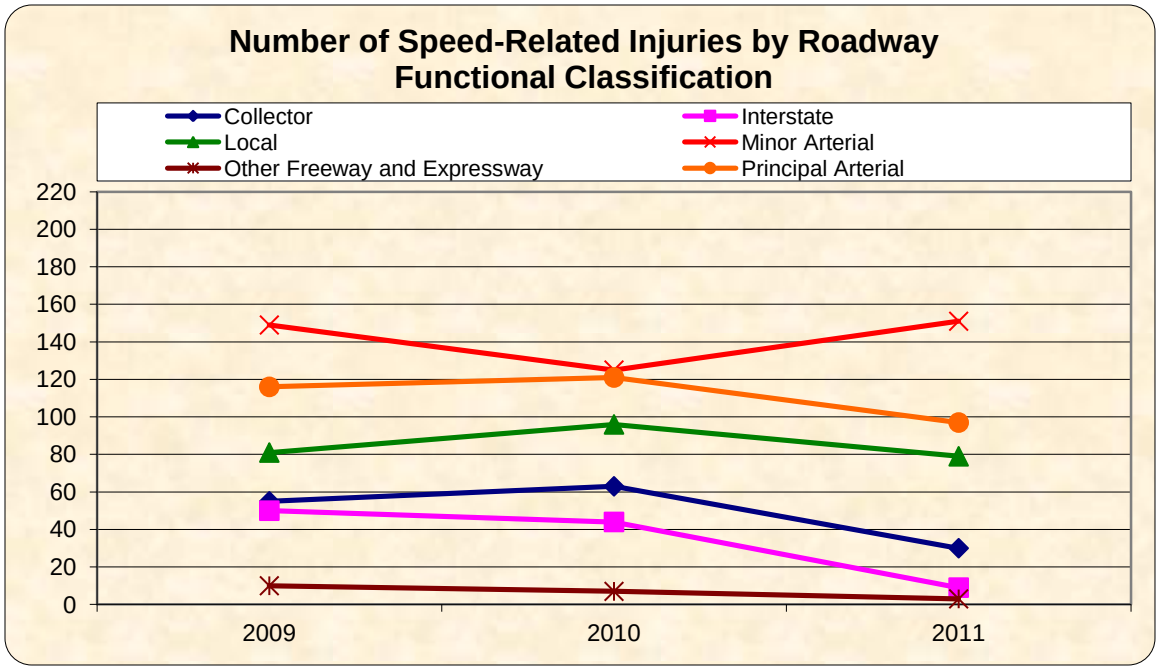


Figure 4.47: Number of Speed-Related Injuries by Roadway Functional Classification

Figure 4.48 shows number of crashes and injuries per Lane-Mile by roadway functional

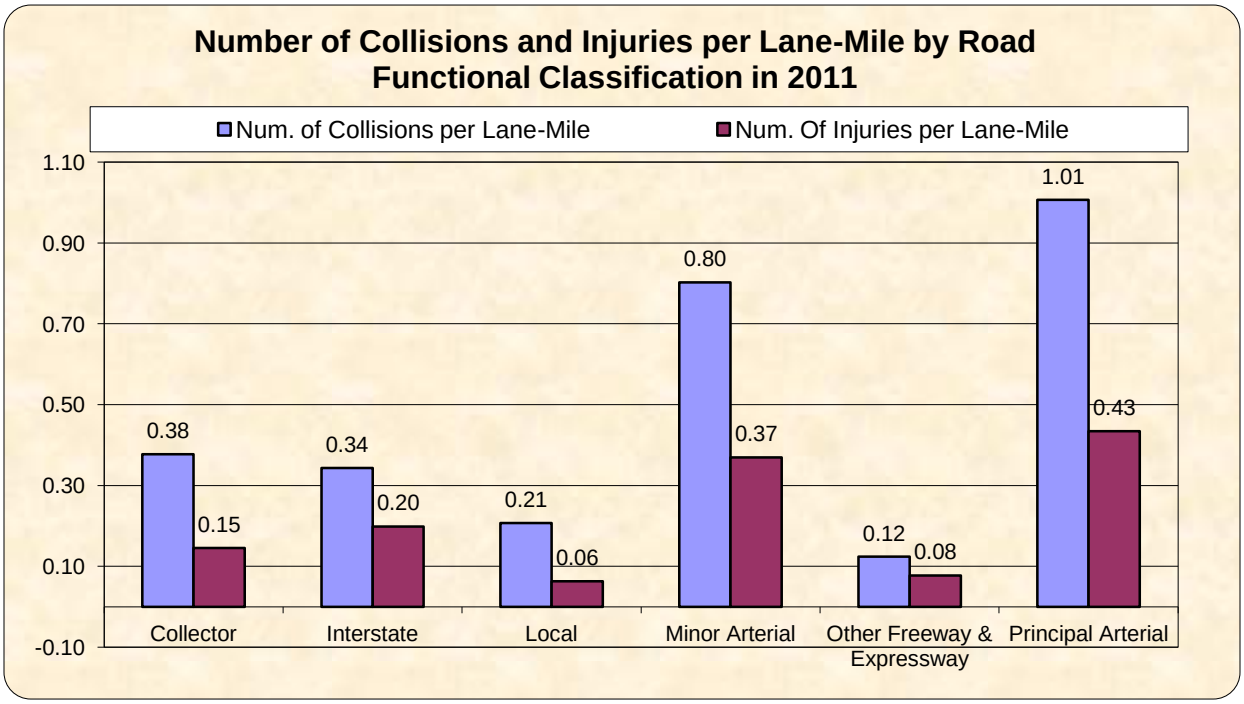


Figure 4.48: Number of Crashes and Injuries per Lane-Mile by Functional Classification

classifications in 2011. The highest number of crashes and injuries per lane-mile was reported on the group of principal arterial.

4.6 Contributing Factors

4.6.1 Crashes by Primary Crash Contributing Factors

Table 4.26 presents the summary of all reported contributing factors of crashes in DC from 2009 through 2011. With the exception of "No violation" and "Other", the prominent contributing factors of crashes reported in 2011 included driver inattention, following too closely, and changing lanes without caution.

Table 4.26: Number of Crashes by Contributing Factors

Contributing Factor	2009	2010	2011
No Violation	14827	16893	16864
Other	3556	3882	3794
Driver Inattention	2488	2579	2686
Auto/Ped. Right of Way	992	1044	1026
Following too Closely	1245	1303	1283
Changing Lanes W/O Caution	1051	1251	1222
Speed	815	786	637
Improper Backing	428	472	509
Improper Passing	376	404	397
Alcohol/Drug Influence	390	362	379
Red Light Violation*	453	491	405
Stop Sign	227	166	160
Pedestrian Violation	201	240	213
Other Distraction	196	185	200
Open Door to Traffic	158	208	186
Wrong Way/Side of the Street	130	109	136
Driver Vision Obstructed	112	133	94
Defective Brakes, Lights, etc.	74	77	69
Flashing/Directional Light	28	17	6
Yield Sign	37	32	29
Cell Phone/Other Electronic Device*	70	61	54
Right Turn on Red	26	11	13
Fail to Set Parking Brake	22	20	15
Road Defects	92	123	67
Total	27994	30849	30444

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. From the results, approximately 3.5% of the crashes were speed related, which resulted in 37.5% of the total fatalities and 9.8% disabling injuries in 2011. In addition, the figure shows that of the total reported crashes that resulted in a disabling injury, about 10% were attributed to speeding.

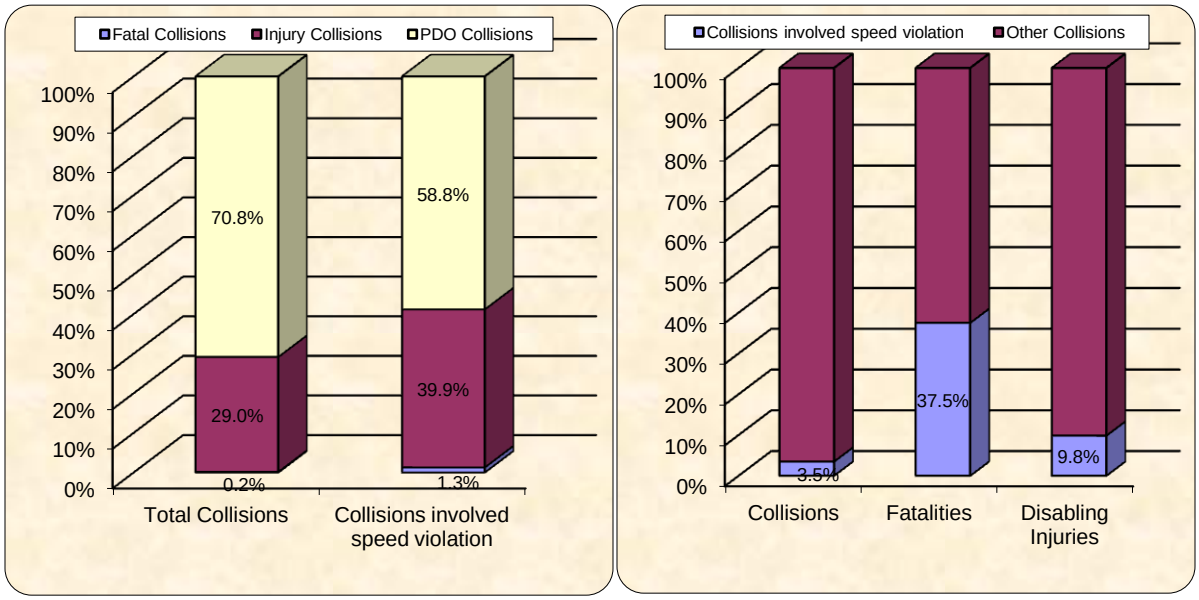


Figure 4.49: Speed-Related Crashes in 2011

Presented in Table 4.27 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.

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 4.28 and Table 4.29, more alcohol/drug-related crashes were reported during the night and weekend.

Table 4.27: Speed-Related Crashes by Age and Gender for 2010

Age Group	Female	Male	Unknown	Total
16-20	10	36	0	46
21-25	26	74	0	100
26-30	22	51	0	73
31-35	14	47	1	62
36-40	9	24	0	33
41-45	12	28	0	40
46-50	11	32	0	43
51-55	6	26	0	32
56-60	6	8	0	14
61-65	1	10	0	11
66-70	3	6	0	9
71-75	3	4	0	7
Over 75	1	7	0	8
unknown	6	52	101	159
Total	130	405	102	637

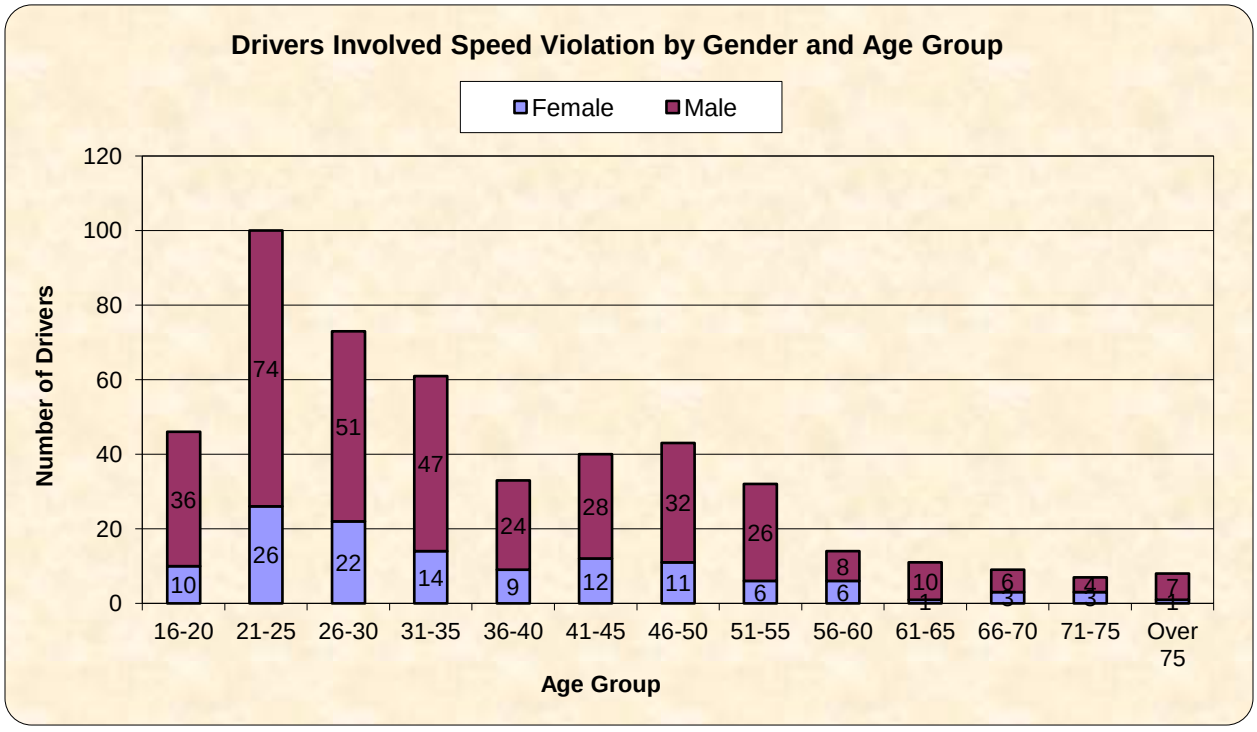


Figure 4.50: Speed-Related Crashes by Age and Gender for 2011

Table 4.28: Alcohol/Drug related Crashes by Hour in 2011

Hour	Number of Alcohol Related Crashes
00	31
01	33
02	59
03	52
04	19
05	3
06	4
07	1
09	1
11	3
12	2
13	2
14	7
15	6
16	12
17	17
18	16
19	13
20	19
21	23
22	20
23	25
Total	368

Table 4.29: Alcohol/Drug related Crashes by Day of Week in 2011

Day of Week	Number of Alcohol Related Crashes
Monday	21
Tuesday	27
Wednesday	25
Thursday	41
Friday	61
Saturday	118
Sunday	75
Total	368

Presented in Table 4.30 and Figure 4.51 are the summaries of alcohol/drug-related crashes by gender. From the summaries young drivers and male drivers were reported as highest group of drivers involved in alcohol/drug violations.

Table 4.30: Alcohol/Drug related Crashes by Gender and Age in 2011

Age Group	Female	Male	Unknown	Total
16-20	2	4	0	6
21-25	13	38	0	51
26-30	21	49	0	70
31-35	18	47	0	65
36-40	7	37	0	44
41-45	3	28	1	32
46-50	6	25	0	31
51-55	8	20	0	28
56-60	3	9	0	12
61-65	0	11	0	11
66-70	1	1	0	2
71-75	2	1	0	3
Over 75	0	0	0	0
unknown	3	8	20	31
Total	87	278	21	386

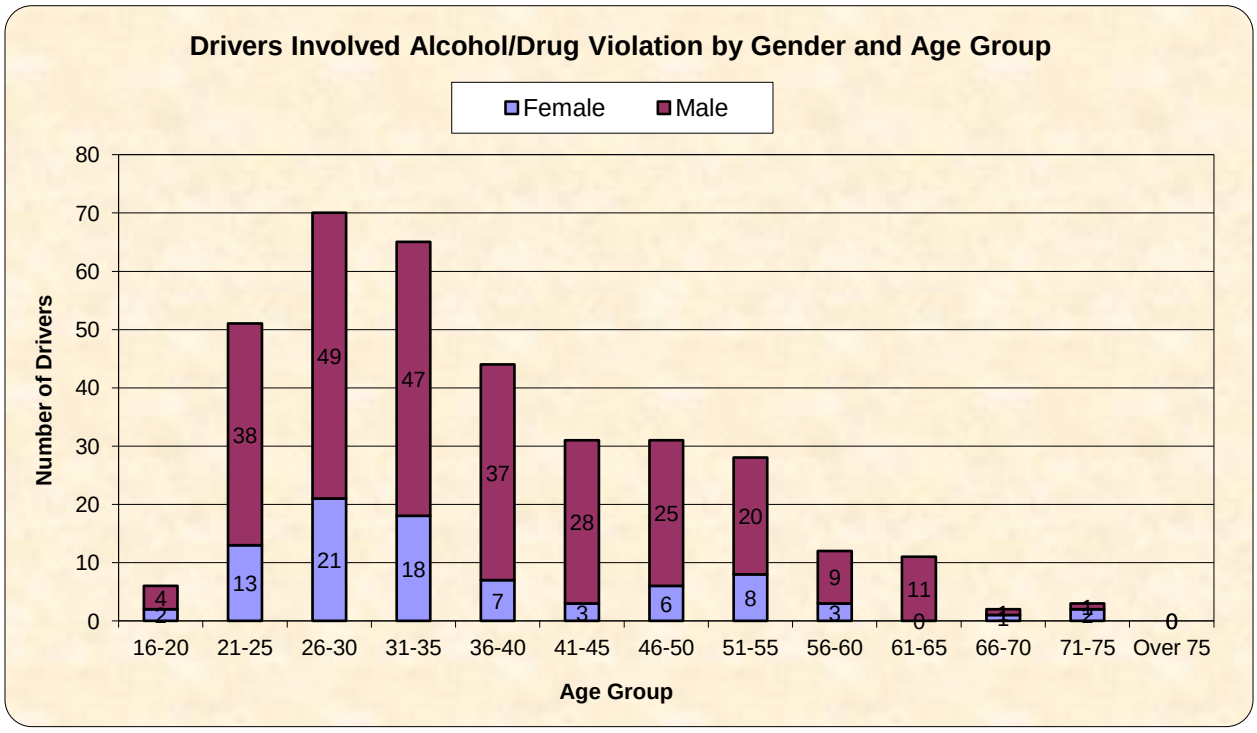


Figure 4.51: Alcohol/Drug-Related Crashes by Age and Gender for 2011

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. The summary of crashes related to the airbag restraint is presented in Table 4.31 and Figure 4.52. The results show that approximately 2% (617) of crashes in 2011 were reported as a result of air bag failing to deploy. The majority of injuries involved vehicles with installed air bags.

Table 4.31: Frequency of Injures by Injury Code and Air Bag Restraint

Air Bag	Fatal	Disabling	Non-Disabling	Complaint but not visible	None	Other	Unknown	Total
Airbag Deployed	3	44	229	546	930	38	147	1,937
Airbag Installed	5	41	197	1,780	13,121	51	776	15,971
Airbag Failed	0	0	15	98	468	4	32	617
Other	0	2	4	9	66	3	7	91
Side-Impact Airbags	0	1	4	18	35	1	1	60
Use Unknown	3	20	120	622	5,504	36	4,280	10,585
Total	11	108	569	3,073	20,124	133	5,243	29,261

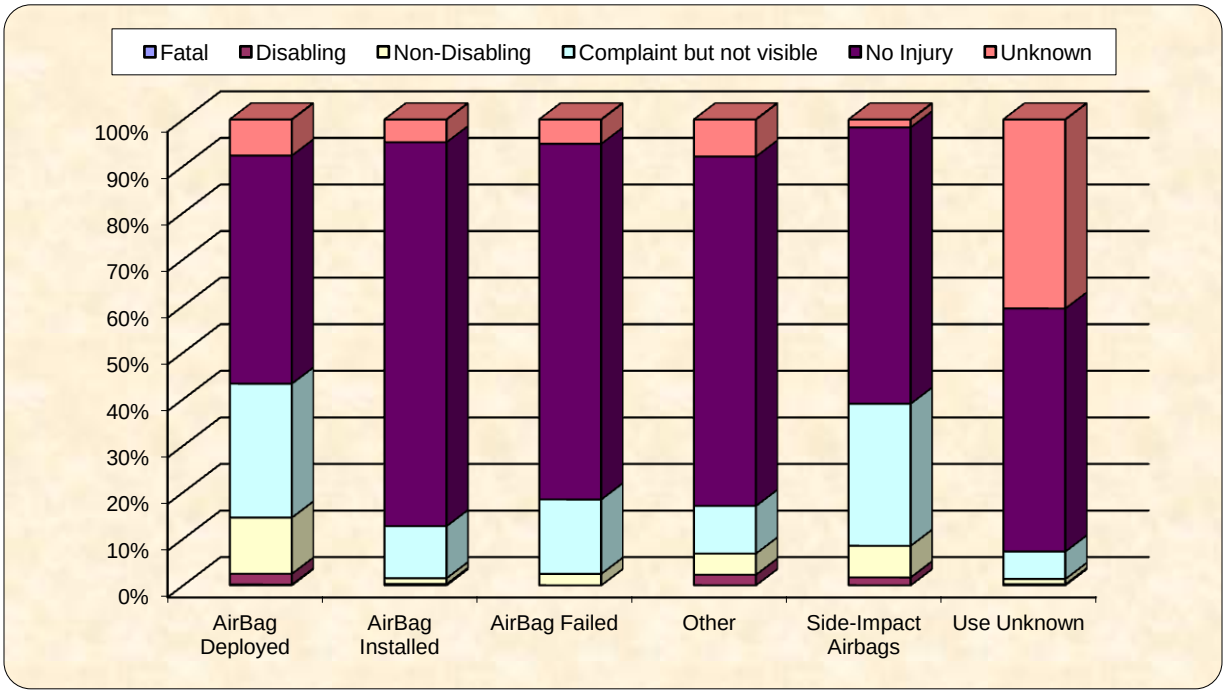


Figure 4.52: Crash Severity by Air Bag Restraint in 2011

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 4.32 and Figure 4.53. The results show that approximately 46% (13,582) of drivers or passengers involved in crashes used their seat belts in 2011. Approximately 52% (15,145) 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 4.32 Number of Injures by Injury Code and Seat Belt Restraint

Seat Belt	Fatal	Disabling	Non-Disabling	Complaint but not visible	None	Other	Unknown	Total
Belt Failed	0	0	2	16	100	1	11	130
Child Restraint	0	0	0	1	4	0	1	6
Fastened	4	54	297	1,848	10,889	63	427	13,582
Helmet	0	2	14	6	3	0	1	26
Not Fastened	3	6	13	31	190	2	23	268
Not Installed	0	3	6	8	39	0	7	63
Other	0	0	1	6	25	1	8	41
Use Unknown	4	43	236	1,157	8,874	66	4,765	15,145
Total	11	108	569	3,073	20,124	133	5,243	29,261

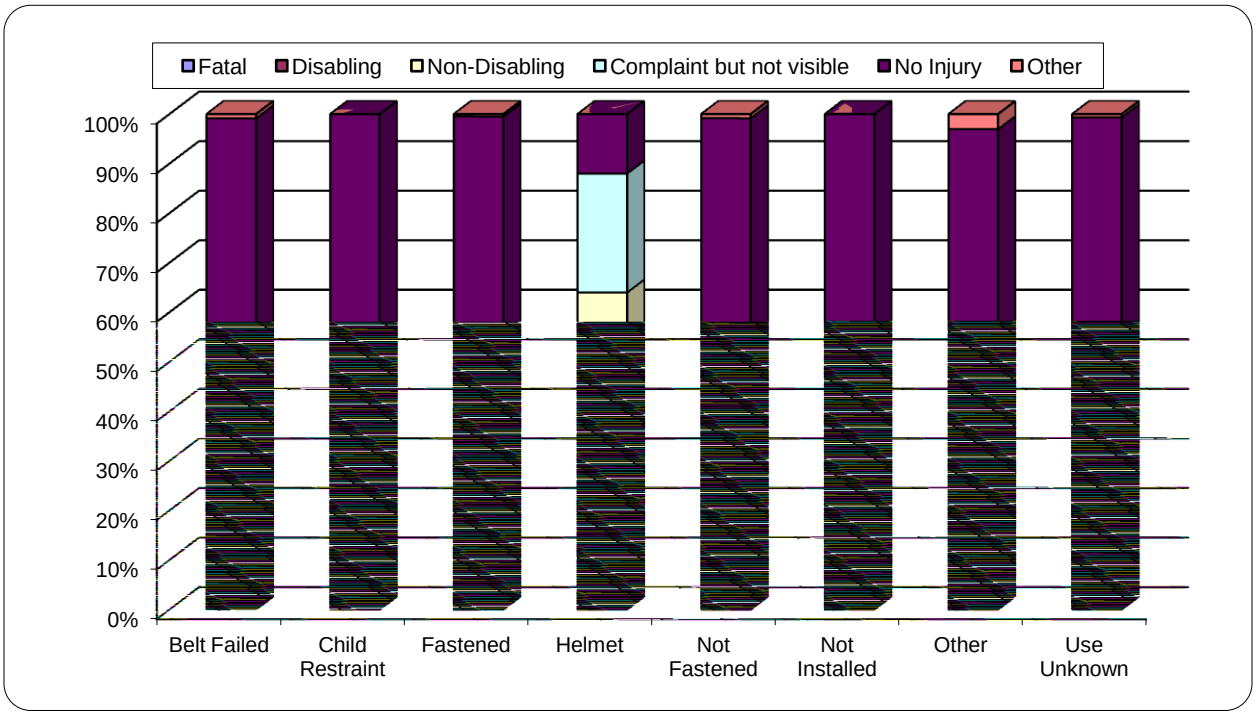


Figure 4.53: Crash Severity by Seatbelt Restraint in 2011

5.2 High Frequency Crash Intersection by Type

In order to determine the crash pattern for each of the identified top 20 high frequency crash locations, the crash types for the locations were further analyzed. From Table 5.9, rear end crash 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

Type of Crash	Backing	Fixed Object	Head On	Left Turn	Non-Crash	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	6	13	3	17	0	6	2	4	93	20	13	65	1	1	2	246
NEW YORK AVE AND NORTH CAPITOL ST,BN	6	4	3	17	0	4	7	2	34	22	6	69	7	0	2	183
14TH ST AND U ST,NW	12	1	3	14	1	7	14	0	21	6	5	59	4	2	0	149
WISCONSIN AVE AND M ST,NW	12	0	0	19	0	9	5	0	27	3	22	46	4	0	1	148
FLORIDA AVE AND NEW YORK AVE,NE	5	5	1	10	1	6	1	0	63	8	5	32	2	1	3	143
KENILWORTH AVE AND BENNING RD,NE	0	8	4	3	1	3	1	6	72	2	0	35	1	0	2	138
14TH ST AND K ST,NW	5	0	1	13	0	8	5	0	26	13	15	44	3	0	1	134
MONTANA AVE AND NEW YORK AVE,NE	3	1	2	8	0	4	1	1	46	16	5	34	2	0	1	124
FIRTH STERLING AVE AND SUITLAND PKWY,SE	2	9	7	48	0	3	0	2	35	5	1	9	2	0	0	123
MINNESOTA AVE AND BENNING RD,NE	6	7	0	14	0	2	1	1	24	11	7	38	9	0	3	123
MINNESOTA AVE AND PENNSYLVANIA AVE,SE	2	6	0	15	0	5	4	0	22	21	5	36	2	0	2	120
STANTON RD AND SUITLAND PKWY,SE	0	6	0	1	1	4	2	7	56	4	2	22	3	1	2	111
NEW JERSEY AVE AND NEW YORK AVE,NW	1	1	1	6	0	9	0	0	25	39	4	15	4	0	2	107
BENNING RD AND EAST CAPITOL ST,BN	6	4	1	6	1	3	1	0	28	12	7	29	6	0	1	105
PENNSYLVANIA AVE AND ANACOSTIA FRWY,SE	0	15	1	0	2	1	0	3	50	3	0	25	0	0	1	101
7TH ST AND FLORIDA AVE,NW	1	2	1	11	0	2	6	0	35	10	5	22	2	0	1	98

Table 5.9: Top 20 Hazardous Intersections by Crash Type (Cont'd)

Type of Crash	Backing	Fixed Object	Head On	Left Turn	Non-Crash	Other	Parked Vehicle	Ran Off Roadway	Rear End	Right Angle	Right Turn	Side Swiped	Straight	Override	Unknown	Total Crash
I ST AND S CAPITOL ST,BN	4	4	1	9	0	3	1	0	29	20	2	19	0	0	4	96
KENILWORTH AVE AND EAST CAPITOL ST,BN	1	13	5	1	0	3	0	5	41	0	1	25	1	0	0	96
14TH ST AND CONSTITUTION AVE, NW	1	1	0	8	0	3	2	1	35	15	6	23	0	0	1	96
18TH ST AND ADAMS MILL RD, NW	2	1	0	6	1	7	20	0	8	9	6	36	1	0	2	99
TOTAL	83	104	35	229	8	88	57	32	775	233	119	683	54	5	31	2536

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.

Table 5.10: High Frequency Crash Corridors for Each Year

Corridor	2009			2010			2011		
	No. of Crashes	Fatalities	Injuries	No. of Crashes	Fatalities	Injuries	No. of Crashes	Fatalities	Injuries
PENNSYLVANIA AVE	635	1	241	723	0	271	730	0	270
NEW YORK AVE	654	3	325	684	2	310	715	0	292
GEORGIA AVE	578	1	250	560	0	261	568	0	236
NORTH CAPITOL ST	534	0	256	519	1	257	559	1	268
CONNECTICUT AVE	459	1	163	577	1	200	513	1	174
SIXTEENTH ST	448	2	174	538	0	206	521	1	212
WISCONSIN AVE	435	1	158	505	2	133	480	0	128
FLORIDA AVE	422	0	185	458	1	202	449	2	197
RHODE ISLAND AVE	377	1	165	430	0	195	421	0	262
BENNING RD	424	0	201	357	0	235	369	2	240
SOUTHERN AVE	344	3	228	299	1	195	305	3	205
BLADENSBURG RD	248	0	83	214	0	101	234	0	121
CONSTITUTION AVE	213	1	98	219	1	92	184	0	58
NEW JERSEY AVE	160	1	92	170	0	111	135	0	75

Presented in Figure 5.3 and Table 5.11 are respectively the summary of the types of crashes reported for the top 20 corridors and the average crashed per mile and intersection along the corridors.

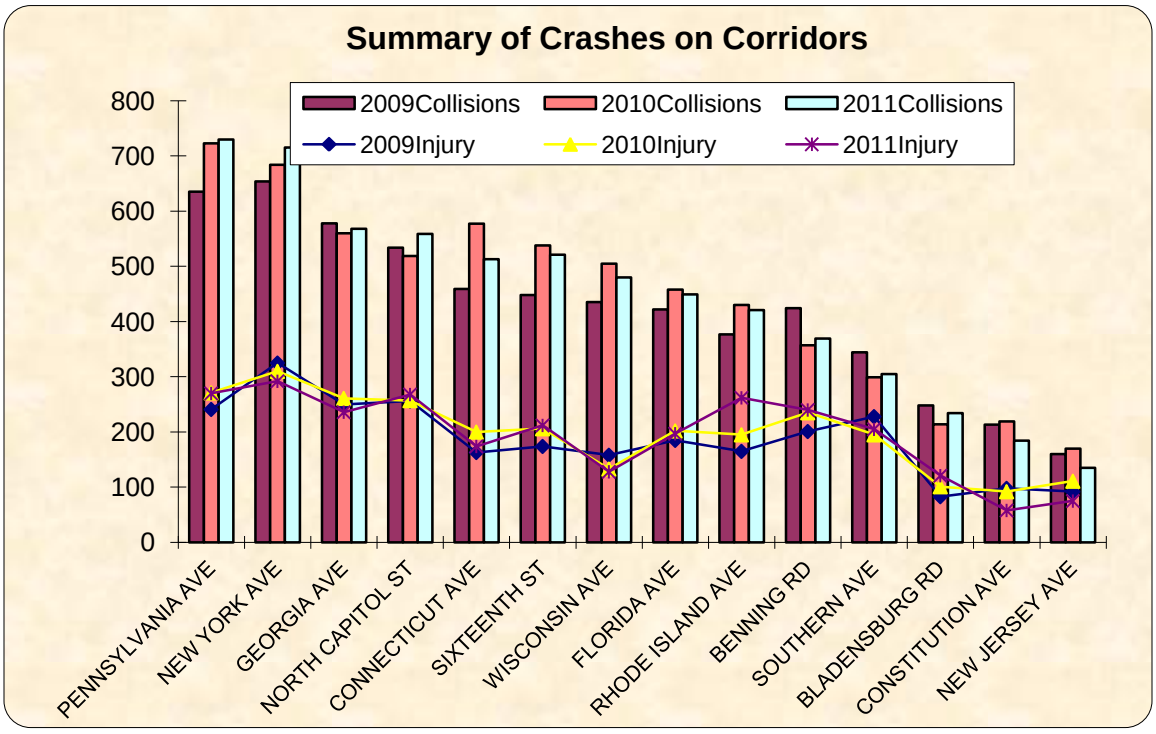


Figure 5.3: High Frequency Crash Corridors for Each Year

Table 5.11: Summary of High Frequency Crash Corridors (2009~2011)

Corridor	Length(miles)	No. of Intersections	No. of Crashes	Average Crashes per Mile	Average Crashes per Intersection
PENNSYLVANIA AVE	5.48	89	2088	381.02	23.46
NEW YORK AVE	5.08	46	2053	404.13	44.63
GEORGIA AVE	4.76	65	1706	358.40	26.25
NORTH CAPITOL ST	3.85	73	1612	418.70	22.08
CONNECTICUT AVE	5.01	73	1549	309.18	21.22
SIXTEENTH ST	6.39	89	1507	235.84	16.93
WISCONSIN AVE	4.87	65	1420	291.58	21.85
FLORIDA AVE	5.46	80	1329	243.41	16.61
RHODE ISLAND AVE	4.56	49	1228	269.30	25.06
BENNING RD	3.39	45	1150	339.23	25.56
SOUTHERN AVE	5.4	122	948	175.56	7.77
BLADENSBURG RD	2.65	45	696	262.64	15.47
CONSTITUTION AVE	3.9	52	616	157.95	11.85
NEW JERSEY AVE	2.79	38	465	166.67	12.24

5.3.2 High Frequency Crash Corridors by Number of Crashes per Mile

Presented in Table 5.12 is the summary of the average number of crashes per mile on each corridor is presented for 2009 through 2011. From the results, Pennsylvania Avenue, New York Avenue, and Georgia Avenue are the three highest ranked corridors from 2009 through 2011 on the basis of number of crashes per mile. Figure 5.4 and Figure 5.5 shows the GIS maps for the top 20 hazard intersection by crash frequency index 2009-2011 and the top 20 hazard intersection by crash frequency index for only 2011 respectively.

Table 5.12 High Frequency Crash Corridors by Number of Crash Occurrences per Mile

Average Crashes per Mile	2009	2010	2011
PENNSYLVANIA AVE	115.88	131.93	133.21
NEW YORK AVE	128.74	134.65	140.75
GEORGIA AVE	121.43	117.65	119.33
NORTH CAPITOL ST	138.70	134.81	145.19
CONNECTICUT AVE	91.62	115.17	102.40
SIXTEENTH ST	70.11	84.19	81.53
WISCONSIN AVE	89.32	103.70	98.56
FLORIDA AVE	77.29	83.88	82.23
RHODE ISLAND AVE	82.68	94.30	92.32
BENNING RD	125.07	105.31	108.85
SOUTHERN AVE	63.70	55.37	56.48
BLADENSBURG RD	93.58	80.75	88.30
CONSTITUTION AVE	54.62	56.15	47.18
NEW JERSEY AVE	57.35	60.93	48.39

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 Intersecting Intersection on Corridors

Average Crashes per Intersection	2009	2010	2011
PENNSYLVANIA AVE	7.13	8.12	8.20
NEW YORK AVE	14.22	14.87	15.54
GEORGIA AVE	8.89	8.62	8.74
NORTH CAPITOL ST	7.32	7.11	7.66
CONNECTICUT AVE	6.29	7.90	7.03
SIXTEENTH ST	5.03	6.04	5.85
WISCONSIN AVE	6.69	7.77	7.38
FLORIDA AVE	5.28	5.73	5.61
RHODE ISLAND AVE	7.69	8.78	8.59
BENNING RD	9.42	7.93	8.20
SOUTHERN AVE	2.82	2.45	2.50
BLADENSBURG RD	5.51	4.76	5.20
CONSTITUTION AVE	4.10	4.21	3.54
NEW JERSEY AVE	4.21	4.47	3.55

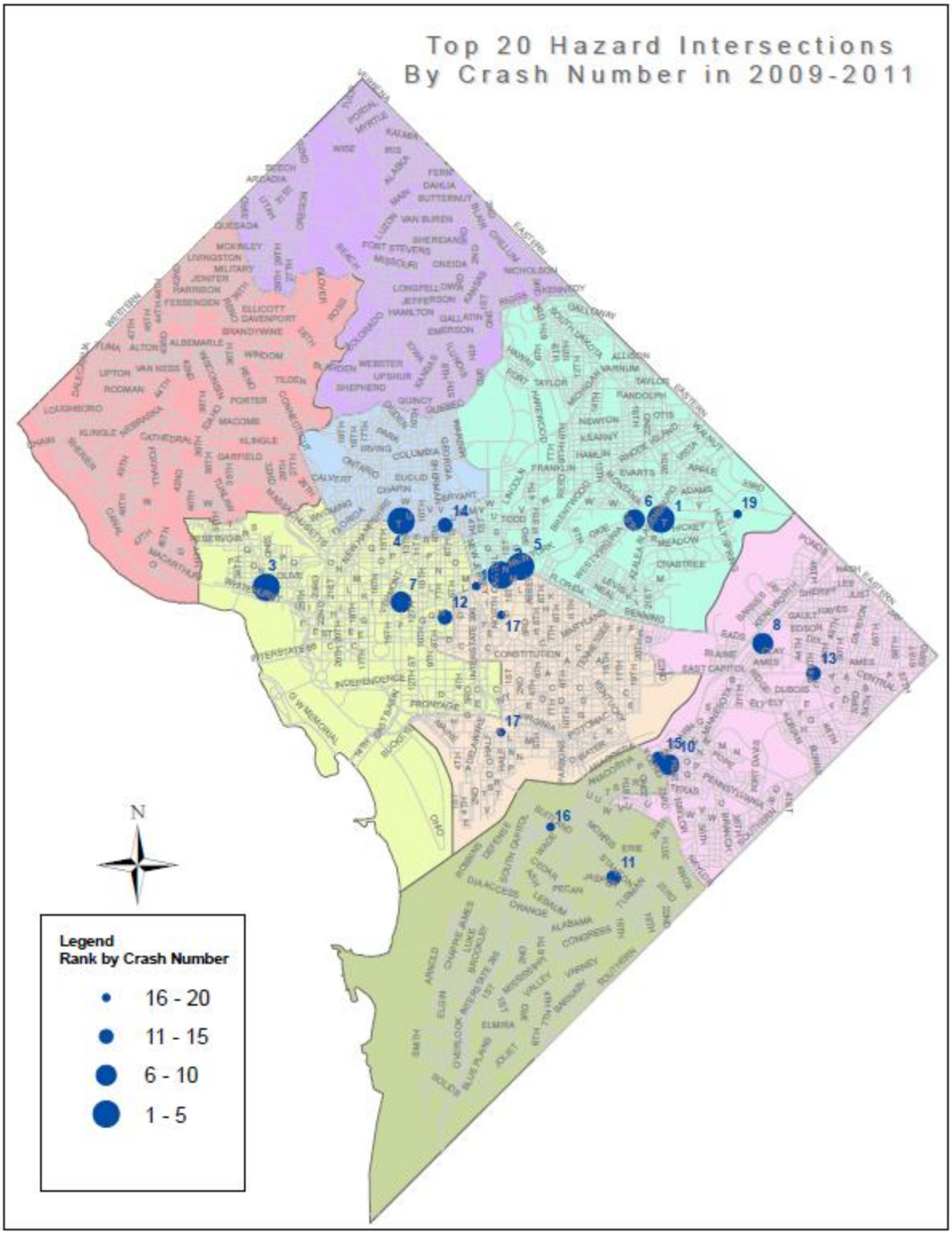


Figure 5.4: Top 20 Hazard Intersections by Crash Frequency Index 2009-2011

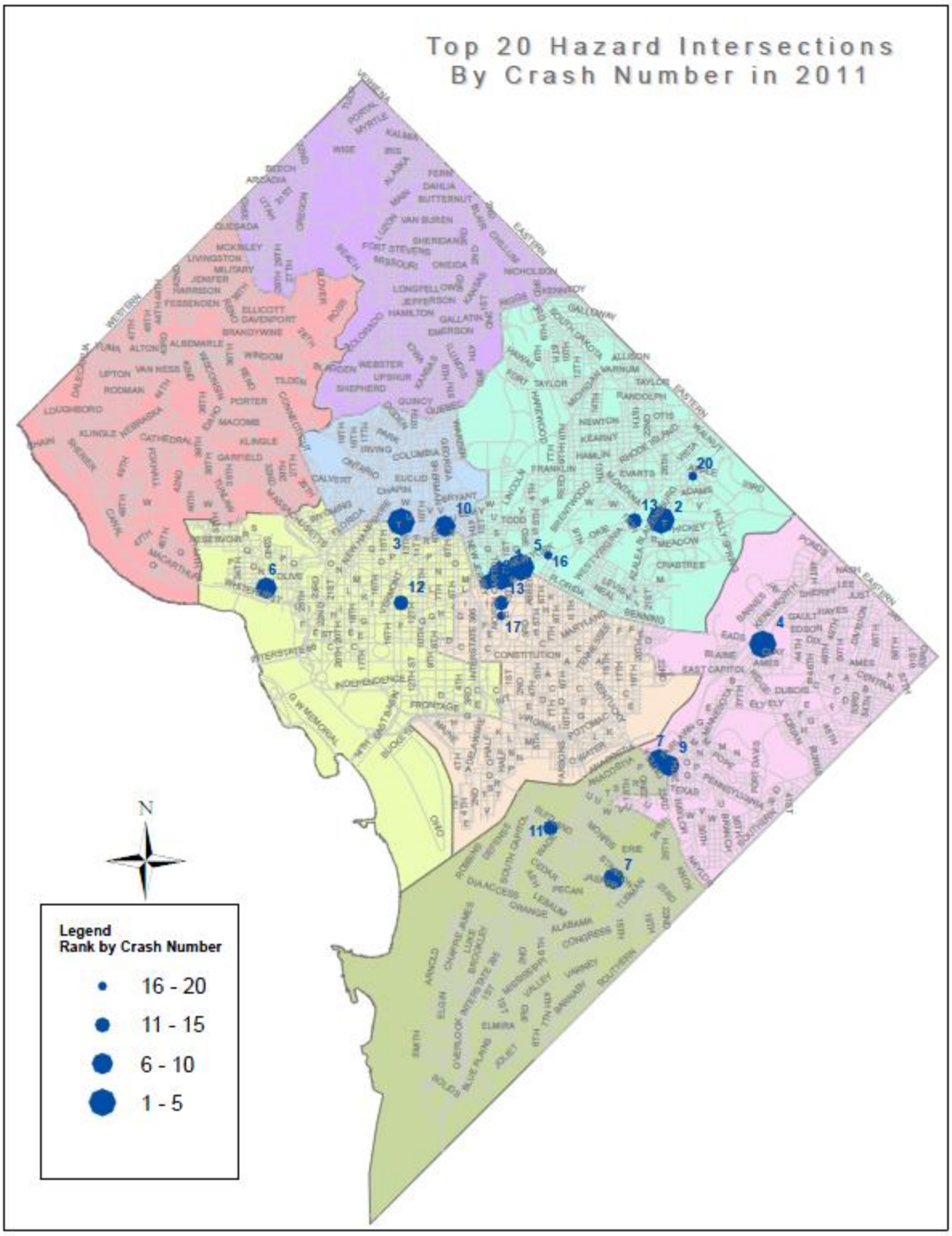


Figure 5.5: Top 20 Hazard Intersections by Crash Frequency in 2011

CHAPTER 6: EXPOSURE

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

Using the exposure data, the fatality rate per 100 million vehicle miles traveled (VMT) information was computed based on data extracted 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 that of other states.

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 2004 to 2011 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 2004 through 2011

Year		Fatalities	Total Vehicle Miles Traveled (Millions)	Fatalities Per 100 Million Vehicle Miles Traveled	Total Population	Fatalities Per 100,000 Population
2004	**Dist of Columbia**	45	3,742	1.20	579,521	7.77
	US	42,836	2,964,788	1.44	292,892,127	14.63
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	33,808	2,979,321	1.13	307,006,550	11.01
2010	**Dist of Columbia**	25	3,614	0.69	601,723	4.15
	US	32,885	2,999,821	1.10	308,745,538	10.65
2011	**Dist of Columbia**	32	3,614	0.89	617,996	5.18
	US	32,310	2,964,121	1.09	314,168,000	10.28

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

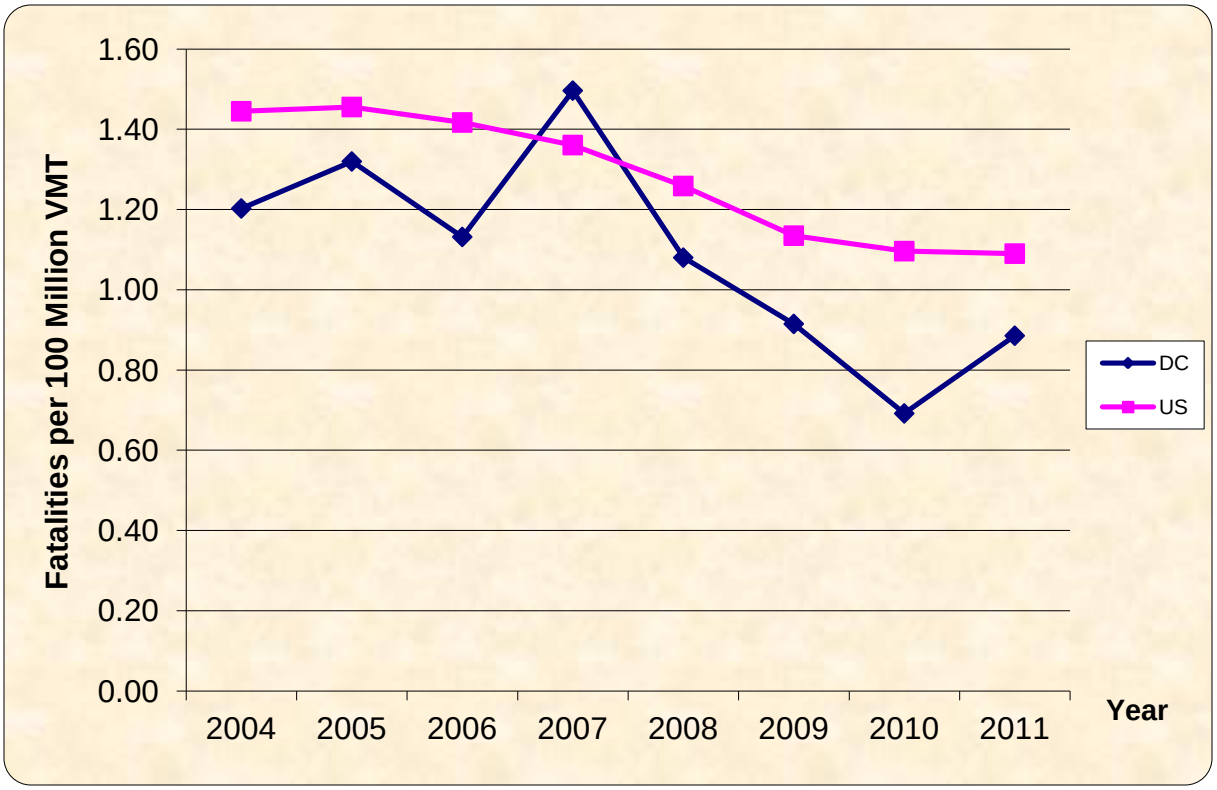


Figure 6.1: Fatality Rate per 100 Million VMT from 2004 through 2011

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

The injury rate per 100 million vehicle miles traveled (VMT) information from 2004 through 2011 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 of the District from 2004 to 2011 is considerably higher than the national values.

Table 6.2: Injury Rate from 2004 through 2011

Year		Fatalities	Total Vehicle Miles Traveled (Millions)	Injuries Per 100 Million Vehicle Miles Traveled	Total Population	Injuries Per 100,000 Population
2004	Dist of Columbia	8,054	3,742	215.23	579,521	1389.77
	US	2,788,000	2,964,788	94.04	292,892,127	951.89
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	*2,239,074*	2,964,121	*75.54*	314,168,000	712.70

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.

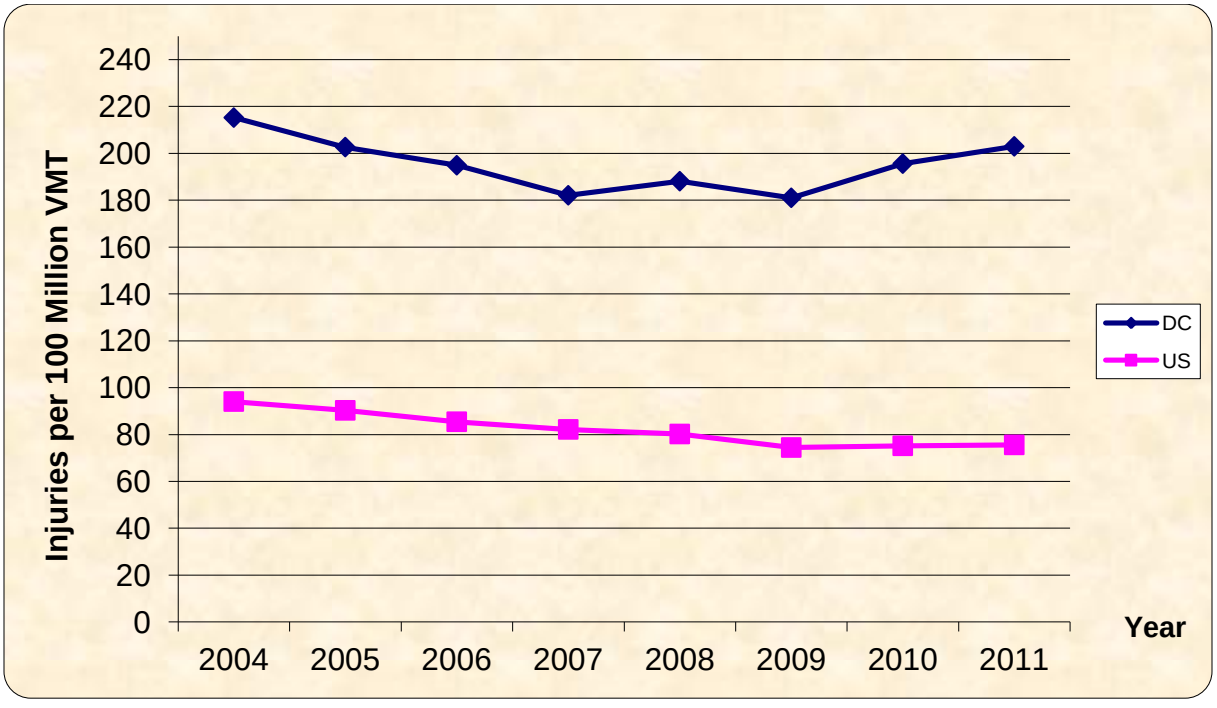


Figure 6.2: Injury Rate per 100 Million VMT from 2004 through 2011

CHAPTER 7: APPENDICES

7.1 Top 100 Hazard Intersections

7.1.1 Rank by Crash Frequency

Table 7.1 Rank by Crash Frequency for Each Year (Rank: 1~33)

INTERSECTION NAME	QUAD	2009		2010		2011	
		NUM. CRASH	RANK	NUM. CRASH	RANK	NUM. CRASH	RANK
NEW YORK AVE AND NORTH CAPITOL ST	BN	61	2	66	2	78	1
NEW YORK AVE AND BLADENSBURG RD	NE	80	1	70	1	76	2
14TH ST AND U ST	NW	43	9	60	4	63	3
MINNESOTA AVE AND BENNING RD	NE	30	27	45	9	59	4
FLORIDA AVE AND NEW YORK AVE	NE	46	5	48	8	56	5
WISCONSIN AVE AND M ST	NW	52	4	62	3	55	6
STANTON RD AND SUITLAND PKWY	SE	32	21	42	10	47	7
FAIRLAWN AVE AND PENNSYLVANIA AVE	SE	20	79	40	14	47	7
MINNESOTA AVE AND PENNSYLVANIA AVE	SE	38	11	39	16	46	9
7TH ST AND FLORIDA AVE	NW	26	42	41	12	42	10
FIRTH STERLING AVE AND SUITLAND PKWY	SE	28	34	33	23	41	11
14TH ST AND K ST	NW	46	5	50	7	40	12
1ST ST AND NEW YORK AVE	NW	26	42	31	26	39	13
MONTANA AVE AND NEW YORK AVE	NE	44	7	57	5	39	13
K ST AND NORTH CAPITOL ST	BN	28	34	23	55	39	13
4TH ST AND NEW YORK AVE	NE	22	65	16	132	38	16
H ST AND NORTH CAPITOL ST	BN	25	49	39	16	36	17
M ST AND NORTH CAPITOL ST	BN	30	27	21	71	36	17
KENILWORTH AVE AND BENNING RD	NE	54	3	40	14	35	19
SOUTH DAKOTA AVE AND BLADENSBURG RD	NE	22	65	19	84	34	20
1ST ST AND NEW YORK AVE	NE	19	88	41	12	33	21
14TH ST AND IRVING ST	NW	30	27	32	25	33	21
14TH ST AND PENNSYLVANIA AVE	NW			27	38	33	21
I ST AND S CAPITOL ST	BN	32	21	36	19	32	24
BENNING RD AND EAST CAPITOL ST	BN	44	7	38	18	31	25
NEW YORK AVE AND SOUTH DAKOTA AVE	NE	32	21	36	19	31	25
14TH ST AND CONSTITUTION AVE	NW	32	21	23	55	31	25
NEW HAMPSHIRE AVE AND NORTH CAPITOL ST	BN	25	49	27	38	30	28
9TH ST AND U ST	NW	10	308	20	76	30	28
16TH ST AND K ST	NW	18	100	31	26	29	30
17TH ST AND I ST	NW	28	34	25	47	29	30
14TH ST AND I ST	NW	21	72	25	47	29	30
BENNING RD AND BLADENSBURG RD	NE	29	33	30	31	29	30

Table 7.2 Rank by Crash Frequency for Each Year (Rank: 34~66)

INTERSECTION NAME	QUAD	2009		2010		2011	
		NUM. CRASH	RANK	NUM. CRASH	RANK	NUM. CRASH	RANK
33RD ST AND M ST	NW	16	128	27	38	28	34
2ND ST AND H ST	NW	17	111	19	84	28	34
BRANCH AVE AND PENNSYLVANIA AVE	SE	35	17	31	26	28	34
4TH ST AND NEW YORK AVE	NW	24	55	28	34	28	34
13TH ST AND U ST	NW	31	26	27	38	28	34
7TH ST AND H ST	NW	34	19	53	6	27	39
18TH ST AND ADAMS MILL RD	NW	36	15	29	33	27	39
EASTERN AVE AND COLESVILLE RD	NW	10	308	30	31	27	39
14TH ST AND COLUMBIA RD	NW	26	42	16	132	27	39
NORTH CAPITOL ST AND RIGGS RD	BN	25	49	33	23	27	39
6TH ST AND NEW YORK AVE	NW	25	49	24	49	26	44
17TH ST AND BLADENSBURG RD	NE	24	55	31	26	26	44
WEST VIRGINIA AVE AND MOUNT OLIVET RD	NE	18	100	14	178	26	44
14TH ST AND RHODE ISLAND AVE	NW	21	72	20	76	26	44
NEW JERSEY AVE AND NEW YORK AVE	NW	37	13	36	19	26	44
19TH ST AND L ST	NW	16	128	16	132	26	44
31ST ST AND M ST	NW	36	15	31	26	26	44
19TH ST AND INDEPENDENCE AVE	SE	30	27	23	55	25	51
ALABAMA AVE AND STANTON RD	SE	19	88	8	470	25	51
14TH ST AND PARK RD	NW	18	100	23	55	25	51
MICHIGAN AVE AND NORTH CAPITOL ST	BN	35	17	23	55	25	51
KENILWORTH AVE AND EAST CAPITOL ST	BN	37	13	28	34	25	51
19TH ST AND M ST	NW	18	100	21	71	25	51
15TH ST AND K ST	NW	34	19	17	109	25	51
BRENTWOOD PKWY AND MOUNT OLIVET RD	NE	14	174	6	676	24	58
MARTIN LUTHER KING AVE AND HOWARD RD	SE	23	61	11	299	24	58
PENNSYLVANIA AVE AND ANACOSTIA FRWY	SE	42	10	22	63	24	58
14TH ST AND P ST	NW	16	128	17	109	24	58
34TH ST AND M ST	NW			15	155	24	58
13TH ST AND SOUTHERN AVE	SE	26	42	14	178	23	63
24TH ST AND M ST	NW	17	111	9	404	23	63
13TH ST AND K ST	NW	13	196	26	45	23	63
CONNECTICUT AVE AND DUPONT CIR	NW	5	805	14	178	23	63

Table 7.3 Rank by Crash Frequency for Each Year (Rank: 67~100)

INTERSECTION NAME	QUAD	2009		2010		2011	
		NUM. CRASH	RANK	NUM. CRASH	RANK	NUM. CRASH	RANK
WISCONSIN AVE AND CALVERT ST	NW	15	147	18	96	22	67
25TH ST AND L ST	NW	15	147	18	96	22	67
CONNECTICUT AVE AND K ST	NW	20	79	17	109	22	67
GEORGIA AVE AND PARK RD	NW	27	40	13	214	22	67
MISSOURI AVE AND NEW HAMPSHIRE AVE	NW	13	196	15	155	22	67
GEORGIA AVE AND MISSOURI AVE	NW	25	49	21	71	22	67
6TH ST AND H ST	NW	14	174	19	84	22	67
7TH ST AND CONSTITUTION AVE	NW	20	79	18	96	22	67
FLORIDA AVE AND NORTH CAPITOL ST	BN	22	65	20	76	21	75
SOUTHERN AVE AND S CAPITOL ST	BN	17	111	14	178	21	75
RHODE ISLAND AVE AND NORTH CAPITOL ST	BN	17	111	23	55	21	75
17TH ST AND K ST	NW			16	132	21	75
GEORGIA AVE AND NEW HAMPSHIRE AVE	NW	17	111	17	109	21	75
GEORGIA AVE AND BARRY PL	NW	21	72	11	299	20	80
POTOMAC AVE AND S CAPITOL ST	BN	16	128	15	155	20	80
9TH ST AND NEW YORK AVE	NW	8	438	14	178	20	80
BRENTWOOD RD AND W ST	NE	13	196	14	178	20	80
WISCONSIN AVE AND R ST	NW	6	657	12	261	20	80
18TH ST AND K ST	NW	19	88	15	155	20	80
PENNSYLVANIA AVE AND SOUTHERN AVE	SE	7	543	14	178	20	80
GOOD HOPE RD AND NAYLOR RD	SE	2	1748	12	261	20	80
30TH ST AND M ST	NW	9	377	14	178	20	80
7TH ST AND NEW YORK AVE	NW	13	196	9	404	20	80
18TH ST AND MASSACHUSETTS AVE	NW	13	196	16	132	20	80
KENILWORTH AVE AND NANNIE HELEN BURROUGHS AVE	NE	32	21	42	10	20	80
12TH ST AND MASSACHUSETTS AVE	NW	15	147	16	132	20	80
FAIRVIEW AVE AND NEW YORK AVE	NE	12	223	17	109	19	93
RHODE ISLAND AVE AND REED ST	NE	19	88	27	38	19	93
15TH ST AND U ST	NW	20	79	16	132	19	93
5TH ST AND RHODE ISLAND AVE	NE	15	147	17	109	19	93
FLORIDA AVE AND RHODE ISLAND AVE	NW	20	79	17	109	19	93
MONTANA AVE AND RHODE ISLAND AVE	NE	9	377	18	96	19	93
NEW YORK AVE AND KENDALL ST	NE	28	34	13	214	19	93
19TH ST AND K ST	NW	16	128	24	49	19	93

Table 7.4 Rank by Crash Frequency for Three Years (Rank: 1~33)

INTERSECTION NAME	QUAD	2008~2010		2009~2011	
		NUM. CRASH	RANK	NUM. CRASH	RANK
NEW YORK AVE AND BLADENSBURG RD	NE	240	1	226	1
NEW YORK AVE AND NORTH CAPITOL ST	BN	171	2	205	2
WISCONSIN AVE AND M ST	NW	155	3	169	3
14TH ST AND U ST	NW	146	4	166	4
FLORIDA AVE AND NEW YORK AVE	NE	135	8	150	5
MONTANA AVE AND NEW YORK AVE	NE	142	7	140	6
14TH ST AND K ST	NW	144	5	136	7
MINNESOTA AVE AND BENNING RD	NE	109	14	134	8
KENILWORTH AVE AND BENNING RD	NE	143	6	129	9
MINNESOTA AVE AND PENNSYLVANIA AVE	SE	113	12	123	10
STANTON RD AND SUITLAND PKWY	SE	106	16	121	11
7TH ST AND H ST	NW	117	9	114	12
BENNING RD AND EAST CAPITOL ST	BN	112	13	113	13
7TH ST AND FLORIDA AVE	NW	97	21	109	14
FAIRLAWN AVE AND PENNSYLVANIA AVE	SE	80	33	107	15
FIRTH STERLING AVE AND SUITLAND PKWY	SE	115	11	102	16
H ST AND NORTH CAPITOL ST	BN	96	23	100	17
I ST AND S CAPITOL ST	BN	100	17	100	17
NEW JERSEY AVE AND NEW YORK AVE	NW	117	9	99	19
NEW YORK AVE AND SOUTH DAKOTA AVE	NE	87	28	99	19
1ST ST AND NEW YORK AVE	NW	83	30	96	21
14TH ST AND IRVING ST	NW	79	35	95	22
KENILWORTH AVE AND NANNIE HELEN BURROUGHS AVE	NE	107	15	94	23
BRANCH AVE AND PENNSYLVANIA AVE	SE	92	25	94	23
1ST ST AND NEW YORK AVE	NE	96	23	93	25
31ST ST AND M ST	NW	99	18	93	25
18TH ST AND ADAMS MILL RD	NW	97	21	92	27
KENILWORTH AVE AND EAST CAPITOL ST	BN	99	18	90	28
K ST AND NORTH CAPITOL ST	BN	74	42	90	28
PENNSYLVANIA AVE AND ANACOSTIA FRWY	SE	99	18	88	30
BENNING RD AND BLADENSBURG RD	NE	80	33	88	30
M ST AND NORTH CAPITOL ST	BN	76	38	87	32
13TH ST AND U ST	NW	82	32	86	33

Table 7.5 Rank by Crash Frequency for Three Years (Rank: 34~66)

INTERSECTION NAME	QUAD	2008~2010		2009~2011	
		NUM. CRASH	RANK	NUM. CRASH	RANK
14TH ST AND CONSTITUTION AVE	NW	88	27	86	33
NORTH CAPITOL ST AND RIGGS RD	BN	89	26	85	35
MICHIGAN AVE AND NORTH CAPITOL ST	BN	76	38	83	36
17TH ST AND I ST	NW	71	47	82	37
NEW HAMPSHIRE AVE AND NORTH CAPITOL ST	BN	78	36	82	37
17TH ST AND BLADENSBURG RD	NE	76	38	81	39
4TH ST AND NEW YORK AVE	NW	72	45	80	40
19TH ST AND INDEPENDENCE AVE	SE	69	48	78	41
16TH ST AND K ST	NW	68	50	78	41
1ST ST AND UNION STATION PLAZA	NE	87	28	77	43
4TH ST AND NEW YORK AVE	NE	38	194	76	44
15TH ST AND K ST	NW	69	48	76	44
6TH ST AND NEW YORK AVE	NW	63	62	75	46
SOUTH DAKOTA AVE AND BLADENSBURG RD	NE	62	65	75	46
14TH ST AND I ST	NW	72	45	75	46
33RD ST AND M ST	NW	59	73	71	49
21ST ST AND K ST	NW	65	56	69	50
14TH ST AND COLUMBIA RD	NW	62	65	69	50
GEORGIA AVE AND MISSOURI AVE	NW	65	56	68	52
16TH ST AND IRVING ST	NW	66	51	67	53
14TH ST AND RHODE ISLAND AVE	NW	66	51	67	53
EASTERN AVE AND COLESVILLE RD	NW	50	111	67	53
9TH ST AND MASSACHUSETTS AVE	NW	77	37	66	56
14TH ST AND PARK RD	NW	73	44	66	56
M ST AND S CAPITOL ST	BN	76	38	66	56
RHODE ISLAND AVE AND REED ST	NE	64	58	65	59
MINNESOTA AVE AND NANNIE HELEN BURROUGHS AVE	NE	61	67	65	59
19TH ST AND M ST	NW	57	81	64	61
2ND ST AND H ST	NW	63	62	64	61
13TH ST AND SOUTHERN AVE	SE	59	73	63	63
FLORIDA AVE AND NORTH CAPITOL ST	BN	63	62	63	63
SOUTHERN AVE AND WHEELER RD	SE	66	51	63	63
GEORGIA AVE AND PARK RD	NW	57	81	62	66

Table 7.6 Rank by Crash Frequency for Three Years (Rank: 67~100)

INTERSECTION NAME	QUAD	2008~2010		2009~2011	
		NUM. CRASH	RANK	NUM. CRASH	RANK
13TH ST AND K ST	NW	57	81	62	66
16TH ST AND NEW YORK AVE	NE	61	67	61	68
RHODE ISLAND AVE AND NORTH CAPITOL ST	BN	61	67	61	68
WISCONSIN AVE AND Q ST	NW	83	30	61	68
NEW YORK AVE AND FENWICK ST	NE	64	58	60	71
16TH ST AND NEW HAMPSHIRE AVE	NW	66	51	60	71
NEW YORK AVE AND KENDALL ST	NE	64	58	60	71
7TH ST AND CONSTITUTION AVE	NW	49	116	60	71
14TH ST AND PENNSYLVANIA AVE	NW	27	371	60	71
SOUTHERN AVE AND BENNING RD	SE	58	77	60	71
9TH ST AND U ST	NW	60	71	60	71
CONNECTICUT AVE AND K ST	NW	74	42	59	78
19TH ST AND K ST	NW	54	93	59	78
19TH ST AND L ST	NW	38	194	58	80
WEST VIRGINIA AVE AND MOUNT OLIVET RD	NE	55	88	58	80
MARTIN LUTHER KING AVE AND HOWARD RD	SE	58	77	58	80
14TH ST AND H ST	NW	50	111	57	83
14TH ST AND P ST	NW	55	88	57	83
FLORIDA AVE AND RHODE ISLAND AVE	NW	59	73	56	85
25TH ST AND L ST	NW	51	107	55	86
GEORGIA AVE AND NEW HAMPSHIRE AVE	NW	50	111	55	86
3RD ST AND FLORIDA AVE	NE	53	101	55	86
EASTERN AVE AND KENILWORTH AVE	NE	58	77	55	86
6TH ST AND H ST	NW	44	147	55	86
WISCONSIN AVE AND CALVERT ST	NW	49	116	55	86
14TH ST AND L ST	NW	60	71	55	86
15TH ST AND U ST	NW	48	125	55	86
18TH ST AND K ST	NW	46	132	54	94
FIRTH STERLING AVE AND HOWARD RD	SE	45	139	53	95
24TH ST AND PENNSYLVANIA AVE	NW	49	116	53	95
20TH ST AND K ST	NW	49	116	53	95
DIVISION AVE AND SHERIFF RD	BN	52	104	52	98
SOUTHERN AVE AND S CAPITOL ST	BN	50	111	52	98
GEORGIA AVE AND BARRY PL	NW	55	88	52	98

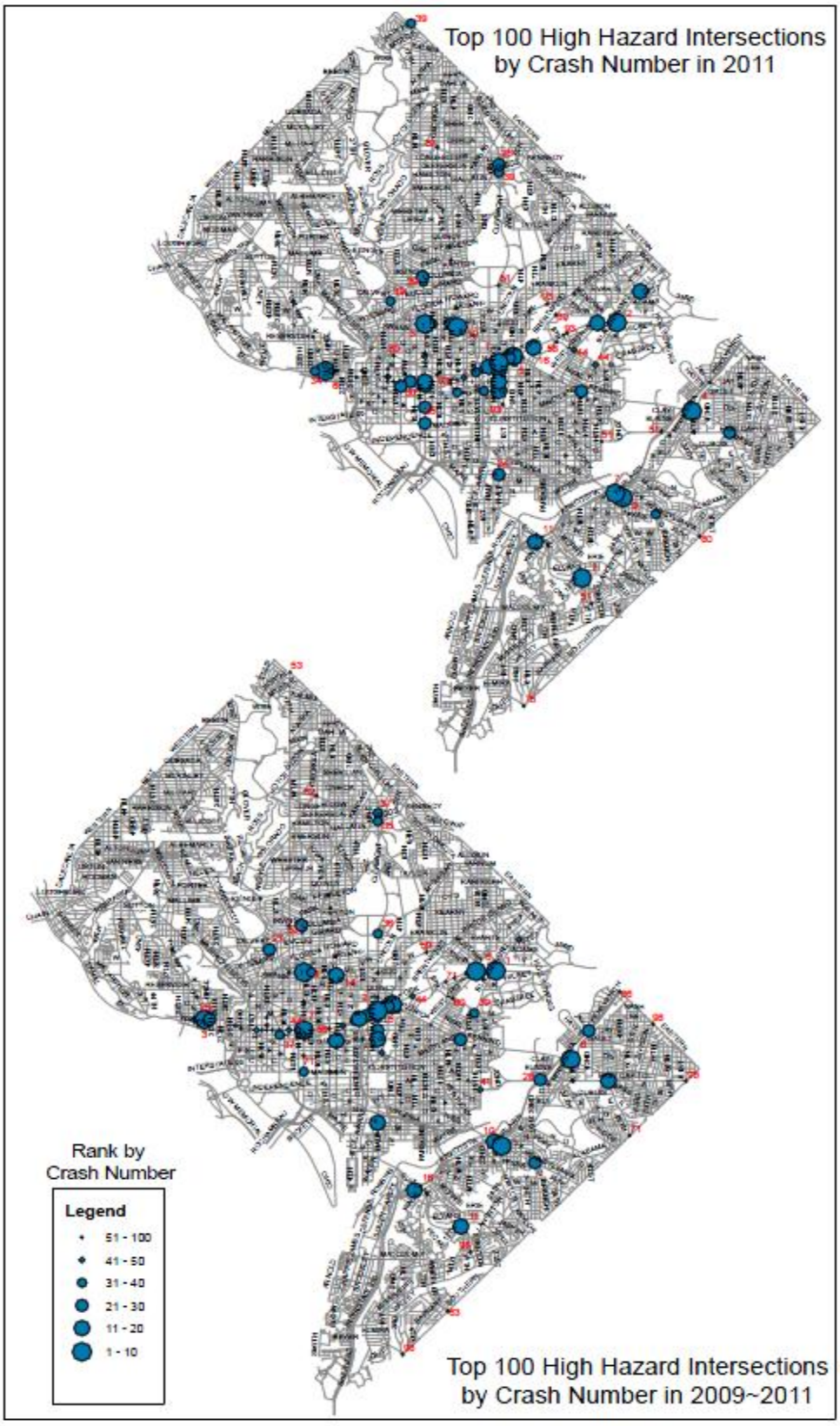


Figure 7.1: Top 100 Hazard Intersections by Crash Number in 2009-2011

7.1.2 Rank by Crash Rate

Table 7.7 Rank by Crash Rate for Each Year (Rank: 1~33)

INTERSECTION NAME	QUAD	2009		2010		2011	
		CRASH RATE	RANK	CRASH RATE	RANK	CRASH RATE	RANK
14TH ST AND U ST	NW	4.04839	3	5.64892	1	5.93137	1
SOUTHERN AVE AND NAYLOR RD	SE	3.83562	6	1.64384	103	4.10959	2
WISCONSIN AVE AND M ST	NW	3.81946	7	4.55397	3	4.03981	3
MINNESOTA AVE AND BENNING RD	NE	1.89819	58	2.84729	18	3.73311	4
4TH ST AND T ST	NE	0.74047	465	2.2214	41	3.70233	5
19TH ST AND INDEPENDENCE AVE	SE	4.28082	1	3.28196	10	3.56735	6
SAVANNAH ST AND STANTON RD	SE	0.71162	488	0.71162	517	3.55809	7
1ST ST AND M ST	NE	0.75405	455	1.75946	82	3.51891	8
17TH ST AND I ST	NW	3.34259	14	2.98445	15	3.46196	9
SOUTHERN AVE AND S CAPITOL ST	BN	2.78894	23	2.29678	35	3.44516	10
7TH ST AND FLORIDA AVE	NW	2.08283	43	3.28447	9	3.36458	11
14TH ST AND W ST	NW	1.31507	153	2.41096	31	3.28767	12
MARTIN LUTHER KING AVE AND HOWARD RD	SE	2.99352	20	1.43169	140	3.12368	13
14TH ST AND IRVING ST	NW	2.8342	21	3.02315	14	3.11762	14
18TH ST AND KALORAMA RD	NW	1.79654	64	3.23377	11	3.05412	15
ALABAMA AVE AND STANTON RD	SE	2.29822	33	0.96767	341	3.02398	16
14TH ST AND V ST	NW	3.76041	8	1.6116	109	2.95461	17
3RD ST AND C ST	NW	0.79031	423	1.31718	170	2.89779	18
14TH ST AND MONROE ST	NW	3.22321	16	1.01785	307	2.88392	19
24TH ST AND M ST	NW	2.11706	41	1.1208	259	2.86426	20
GEORGIA AVE AND PARK RD	NW	3.49752	11	1.68399	99	2.84983	21
14TH ST AND COLUMBIA RD	NW	2.71363	26	1.66993	101	2.818	22
STANTON RD AND SUITLAND PKWY	SE	1.91841	54	2.51791	27	2.81766	23
WEST VIRGINIA AVE AND MOUNT OLIVET RD	NE	1.94537	49	1.51306	124	2.80998	24
10TH ST AND F ST	NW	0.68068	517	1.36135	158	2.72271	25
GEORGIA AVE AND BARRY PL	NW	2.82724	22	1.48093	131	2.69261	26
BRENTWOOD PKWY AND MOUNT OLIVET RD	NE	1.56876	86	0.67233	545	2.6893	27
7TH ST AND H ST	NW	3.34473	13	5.21384	2	2.65611	28
BURNS ST AND RIDGE RD	SE	1.20693	185	0.96554	343	2.65524	29
18TH ST AND ADAMS MILL RD	NW	3.50373	10	2.82245	19	2.6278	30
EASTERN AVE AND RIGGS RD	NE	1.05037	241	1.22544	215	2.62594	31
8TH ST AND H ST	NW	2.09406	42	1.22153	216	2.61757	32
FIRTH STERLING AVE AND HOWARD RD	SE	2.69481	27	2.69481	20	2.5451	33

Table 7.8 Rank by Crash Rate for Each Year (Rank: 34~66)

INTERSECTION NAME	QUAD	2009		2010		2011	
		CRASH RATE	RANK	CRASH RATE	RANK	CRASH RATE	RANK
9TH ST AND U ST	NW	0.84429	382	1.68858	98	2.53287	34
14TH ST AND RHODE ISLAND AVE	NW	2.03301	45	1.9362	64	2.51706	35
14TH ST AND P ST	NW	1.67312	73	1.77768	78	2.50967	36
10TH ST AND MASSACHUSETTS AVE	NW	1.56556	87	0.31311	885	2.50489	37
BRENTWOOD RD AND W ST	NE	1.60434	80	1.72776	91	2.46822	38
33RD ST AND PROSPECT ST	NW	0.8058	408	1.6116	109	2.41741	39
SOUTHERN AVE AND BENNING RD	SE	3.39811	12	2.69017	21	2.40699	40
17TH ST AND U ST	NW	1.56556	87	2.19178	45	2.34834	41
6TH ST AND H ST	NW	1.48956	107	2.02155	58	2.34074	42
19TH ST AND L ST	NW	1.43723	123	1.43723	139	2.3355	43
FIRTH STERLING AVE AND SUITLAND PKWY	SE	1.59154	81	1.87575	69	2.33047	44
WISCONSIN AVE AND N ST	NW	1.93849	52	2.19695	44	2.32618	45
8TH ST AND I ST	SE	1.26449	168	1.26449	196	2.31823	46
WISCONSIN AVE AND R ST	NW	0.68924	512	1.37848	148	2.29746	47
4TH ST AND M ST	NE	1.36986	140	0.45662	754	2.28311	48
ALABAMA AVE AND WHEELER RD	SE	0.81057	401	1.29691	181	2.2696	49
6TH ST AND M ST	NW	2.05994	44	1.44196	137	2.26594	50
33RD ST AND M ST	NW	1.29309	161	2.18208	47	2.2629	51
SOUTHERN AVE AND WHEELER RD	SE	3.91389	4	3.31176	8	2.25802	52
NEW YORK AVE AND BLADENSBURG RD	NE	2.36693	31	2.07107	54	2.24859	53
H ST AND NORTH CAPITOL ST	BN	1.55313	92	2.42289	30	2.23651	54
35TH ST AND N ST	NW	0.44548	731	0.89097	382	2.22742	55
44TH ST AND NANNIE HELEN BURROUGHS AVE	NE	1.18262	193	2.95654	16	2.16813	56
K ST AND NORTH CAPITOL ST	BN	1.55445	91	1.27687	192	2.16513	57
14TH ST AND K ST	NW	2.46147	28	2.67551	24	2.14041	58
WISCONSIN AVE AND CALVERT ST	NW	1.4445	122	1.73339	87	2.11859	59
7TH ST AND S ST	NW	1.05374	236	3.16122	12	2.10748	60
19TH ST AND M ST	NW	1.51042	98	1.76215	81	2.0978	61
19TH ST AND N ST	NW	1.19119	187	2.68017	22	2.08457	62
PENNSYLVANIA AVE AND SOUTHERN AVE	SE	0.7292	475	1.45841	135	2.08344	63
DIVISION AVE AND NANNIE HELEN BURROUGHS AVE	NE	1.2138	184	0.3468	846	2.0808	64
13TH ST AND U ST	NW	2.28311	34	1.98851	60	2.06216	65
5TH ST AND H ST	NW	1.71233	71	1.25571	200	2.05479	66

Table 7.9 Rank by Crash Rate for Each Year (Rank: 67~100)

INTERSECTION NAME	QUAD	2009		2010		2011	
		CRASH RATE	RANK	CRASH RATE	RANK	CRASH RATE	RANK
14TH ST AND I ST	NW	1.48284	108	1.76529	80	2.04773	67
14TH ST AND SPRING RD	NW	3.27131	15	1.84011	73	2.04457	68
3RD ST AND NORTH CAROLINA AVE	SE	0.8058	408	0.8058	444	2.0145	69
ALABAMA AVE AND GOOD HOPE RD	SE	2.77831	25	2.93266	17	2.00656	70
1ST ST AND K ST	NE	1.14155	203	2.28311	37	1.99772	71
15TH ST AND POTOMAC AVE	SE	0.28391	893	0.56782	633	1.98737	72
6TH ST AND F ST	NW	0.44012	738	0.88023	392	1.98052	73
22ND ST AND N ST	NW	0.82274	394	1.31638	172	1.97458	74
11TH ST AND COLUMBIA RD	NW	0.74047	465	0.49364	712	1.97458	74
DIVISION AVE AND SHERIFF RD	BN	3.1461	17	1.70414	96	1.96631	76
1ST ST AND UNION STATION PLAZA	NE	2.24903	37	3.68023	5	1.94234	77
24TH ST AND PENNSYLVANIA AVE	NW	1.40222	132	2.37299	32	1.94154	78
7TH ST AND G ST	NW	2.9952	19	3.52376	6	1.93807	79
SOUTH DAKOTA AVE AND BLADENSBURG RD	NE	1.2505	171	1.07997	273	1.93259	80
NEW YORK AVE AND NORTH CAPITOL ST	BN	1.50426	100	1.62756	105	1.92348	81
15TH ST AND U ST	NW	1.98172	47	1.58537	115	1.88263	82
13TH ST AND K ST	NW	1.05374	236	2.10748	52	1.86431	83
21ST ST AND F ST	NW	1.23829	176	1.23829	209	1.85744	84
33RD ST AND N ST	NW	0.92092	328	0.92092	362	1.84183	85
MINNESOTA AVE AND PENNSYLVANIA AVE	SE	1.5023	101	1.54184	120	1.81858	86
MISSISSIPPI AVE AND SOUTHERN AVE	SE	1.00725	266	1.2087	222	1.81305	87
14TH ST AND HARVARD ST	NW	1.17037	197	1.06397	279	1.80875	88
BRANCH AVE AND PENNSYLVANIA AVE	SE	2.25624	35	1.99839	59	1.805	89
SHERMAN AVE AND EUCLID ST	NW	0.2978	878	1.04229	292	1.78678	90
MARTIN LUTHER KING AVE AND GOOD HOPE RD	SE	3.11839	18	2.6729	25	1.78194	91
4TH ST AND NEW YORK AVE	NW	1.5256	95	1.77987	77	1.77987	92
4TH ST AND NEW YORK AVE	NE	1.02857	252	0.74805	488	1.77661	93
1ST ST AND MICHIGAN AVE	NW	1.08406	222	1.87247	70	1.77392	94
30TH ST AND M ST	NW	0.7954	419	1.2373	210	1.76757	95
FLORIDA AVE AND NEW YORK AVE	NE	1.45193	118	1.51506	123	1.76757	95
12TH ST AND L ST	NW	0.53852	637	0.94241	354	1.75019	97
NEW JERSEY AVE AND E ST	NW	1.74505	67	1.22153	216	1.74505	98
2ND ST AND T ST	NE	0.34901	826	0.69802	528	1.74505	98
6TH ST AND NEW YORK AVE	NW	1.6726	74	1.6057	112	1.73951	100

Table 7.10 Rank by Crash Rate for Three Years (Rank: 1~33)

INTERSECTION NAME	QUAD	2008~2010		2009~2011	
		CRASH RATE	RANK	CRASH RATE	RANK
14TH ST AND U ST	NW	4.5819	1	5.20956	1
WISCONSIN AVE AND M ST	NW	3.79497	3	4.13775	2
7TH ST AND H ST	NW	3.8366	2	3.73823	3
19TH ST AND INDEPENDENCE AVE	SE	3.28196	5	3.71005	4
17TH ST AND I ST	NW	2.82528	12	3.263	5
SOUTHERN AVE AND NAYLOR RD	SE	3.0137	8	3.19635	6
SOUTHERN AVE AND WHEELER RD	SE	3.31176	4	3.16122	7
14TH ST AND IRVING ST	NW	2.4878	23	2.99165	8
18TH ST AND ADAMS MILL RD	NW	3.14687	6	2.98466	9
7TH ST AND FLORIDA AVE	NW	2.59019	20	2.91063	10
SOUTHERN AVE AND S CAPITOL ST	BN	2.73426	15	2.84363	11
SOUTHERN AVE AND BENNING RD	SE	2.73737	14	2.83176	12
MINNESOTA AVE AND BENNING RD	NE	2.29892	29	2.8262	13
7TH ST AND G ST	NW	2.87774	10	2.81901	14
14TH ST AND V ST	NW	2.05927	42	2.77554	15
18TH ST AND KALORAMA RD	NW	2.3355	27	2.69481	16
GEORGIA AVE AND PARK RD	NW	2.46122	25	2.67712	17
FIRTH STERLING AVE AND HOWARD RD	SE	2.24568	33	2.64491	18
1ST ST AND UNION STATION PLAZA	NE	2.96463	9	2.62387	19
EASTERN AVE AND MINNESOTA AVE	NE	2.70002	16	2.59414	20
ALABAMA AVE AND GOOD HOPE RD	SE	2.31526	28	2.57251	21
MARTIN LUTHER KING AVE AND GOOD HOPE RD	SE	2.59866	18	2.52441	22
MARTIN LUTHER KING AVE AND HOWARD RD	SE	2.5163	22	2.5163	23
14TH ST AND K ST	NW	2.56849	21	2.4258	24
STANTON RD AND SUITLAND PKWY	SE	2.11824	40	2.41799	25
14TH ST AND COLUMBIA RD	NW	2.15699	36	2.40052	26
14TH ST AND SPRING RD	NW	2.79425	13	2.38533	27
14TH ST AND MONROE ST	NW	2.1488	38	2.37499	28
14TH ST AND W ST	NW	2.04566	43	2.3379	29
GEORGIA AVE AND BARRY PL	NW	2.46822	24	2.33359	30
DIVISION AVE AND SHERIFF RD	BN	2.27218	30	2.27218	31
NEW YORK AVE AND BLADENSBURG RD	NE	2.36693	26	2.22886	32
4TH ST AND T ST	NE	1.23411	167	2.2214	33

Table 7.11 Rank by Crash Rate for Three Years (Rank: 34~66)

INTERSECTION NAME	QUAD	2008~2010		2009~2011	
		CRASH RATE	RANK	CRASH RATE	RANK
7TH ST AND F ST	NW	2.10529	41	2.16219	34
14TH ST AND RHODE ISLAND AVE	NW	2.12982	39	2.16209	35
WISCONSIN AVE AND N ST	NW	2.15387	37	2.15387	36
13TH ST AND U ST	NW	2.01306	44	2.11126	37
7TH ST AND S ST	NW	1.63915	76	2.10748	38
44TH ST AND NANNIE HELEN BURROUGHS AVE	NE	1.90533	52	2.10243	39
ALABAMA AVE AND STANTON RD	SE	1.65311	73	2.09663	40
WEST VIRGINIA AVE AND MOUNT OLIVET RD	NE	1.98139	46	2.08947	41
WISCONSIN AVE AND Q ST	NW	2.83361	11	2.08253	42
14TH ST AND D ST	SE	2.69822	17	2.07555	43
H ST AND NORTH CAPITOL ST	BN	1.98801	45	2.07084	44
MINNESOTA AVE AND NANNIE HELEN BURROUGHS AVE	NE	1.94104	50	2.06832	45
17TH ST AND U ST	NW	1.56556	90	2.03523	46
24TH ST AND M ST	NW	1.41137	117	2.03404	47
BRANCH AVE AND PENNSYLVANIA AVE	SE	1.9769	48	2.01988	48
1ST ST AND M ST	NE	1.67567	72	2.01081	49
14TH ST AND P ST	NW	1.91711	51	1.98682	50
19TH ST AND N ST	NW	1.58825	84	1.98531	51
8TH ST AND H ST	NW	1.97772	47	1.97772	52
6TH ST AND H ST	NW	1.56049	92	1.95061	53
9TH ST AND F ST	NW	1.84591	57	1.94307	54
14TH ST AND FLORIDA AVE	NW	2.25686	31	1.94195	55
BRENTWOOD RD AND W ST	NE	1.76889	62	1.93344	56
FIRTH STERLING AVE AND SUITLAND PKWY	SE	2.1789	34	1.93259	57
6TH ST AND M ST	NW	1.57929	88	1.92261	58
BENNING RD AND EAST CAPITOL ST	BN	1.90117	54	1.91815	59
33RD ST AND M ST	NW	1.58942	83	1.91269	60
24TH ST AND PENNSYLVANIA AVE	NW	1.76177	63	1.90558	61
3RD ST AND D ST	NW	1.88604	55	1.88604	62
15TH ST AND U ST	NW	1.58537	86	1.81658	63
MONTANA AVE AND NEW YORK AVE	NE	1.84074	58	1.81482	64
1ST ST AND K ST	NE	1.52207	99	1.80746	65
19TH ST AND M ST	NW	1.59433	82	1.79012	66

Table 7.12 Rank by Crash Rate for Three Years (Rank: 67~100)

INTERSECTION NAME	QUAD	2008~2010		2009~2011	
		CRASH RATE	RANK	CRASH RATE	RANK
WISCONSIN AVE AND CALVERT ST	NW	1.57289	89	1.76549	67
14TH ST AND I ST	NW	1.69468	68	1.76529	68
11TH ST AND H ST	NW	1.90406	53	1.76302	69
21ST ST AND MARYLAND AVE	NE	2.25183	32	1.75142	70
19TH ST AND L ST	NW	1.13781	207	1.73666	71
23RD ST AND ALABAMA AVE	SE	1.46902	108	1.71386	72
4TH ST AND NEW YORK AVE	NW	1.5256	97	1.69511	73
9TH ST AND U ST	NW	1.68858	69	1.68858	74
14TH ST AND C ST	NE	3.07723	7	1.68751	75
NEW YORK AVE AND NORTH CAPITOL ST	BN	1.40562	120	1.6851	76
13TH ST AND K ST	NW	1.54008	94	1.67518	77
5TH ST AND H ST	NW	1.71233	65	1.67428	78
6TH ST AND NEW YORK AVE	NW	1.40499	121	1.6726	79
3RD ST AND C ST	NW	1.31718	143	1.66842	80
K ST AND NORTH CAPITOL ST	BN	1.3694	127	1.66549	81
SAVANNAH ST AND STANTON RD	SE	1.18603	178	1.66044	82
BRENTWOOD PKWY AND MOUNT OLIVET RD	NE	1.15789	191	1.64346	83
25TH ST AND M ST	NW	1.44859	111	1.63754	84
EASTERN AVE AND RIGGS RD	NE	1.16708	187	1.63392	85
17TH ST AND BLADENSBURG RD	NE	1.52542	98	1.62577	86
MINNESOTA AVE AND PENNSYLVANIA AVE	SE	1.48912	104	1.62091	87
BENNING RD AND G ST	SE	1.53271	95	1.61786	88
8TH ST AND I ST	SE	1.33474	135	1.61574	89
33RD ST AND PROSPECT ST	NW	0.9401	323	1.6116	90
I ST AND S CAPITOL ST	BN	1.61066	80	1.61066	91
BURNS ST AND RIDGE RD	SE	1.28739	148	1.60924	92
9TH ST AND MASSACHUSETTS AVE	NW	1.87269	56	1.60517	93
21ST ST AND K ST	NW	1.49901	102	1.59126	94
10TH ST AND F ST	NW	1.36135	129	1.58825	95
7TH ST AND I ST	NW	1.79922	60	1.58114	96
TEXAS AVE AND RIDGE RD	SE	1.7064	67	1.58	97
FLORIDA AVE AND NEW YORK AVE	NE	1.42036	115	1.57818	98
1ST ST AND MICHIGAN AVE	NW	1.74107	64	1.57682	99
15TH ST AND E ST	NW	1.97567	49	1.57247	100

7.1.3 Rank by Crash Cost

Table 7.13 Rank by Crash Severity Cost for Each Year (Rank: 1~33)

INTERSECTION NAME	QUAD	2009		2010		2011	
		CRASH COST	RANK	CRASH COST	RANK	CRASH COST	RANK
NEW YORK AVE AND NORTH CAPITOL ST	BN	837	2	1032	1	935	1
NEW YORK AVE AND BLADENSBURG RD	NE	903	1	743	3	917	2
MINNESOTA AVE AND BENNING RD	NE	300	56	645	6	797	3
FIRTH STERLING AVE AND SUITLAND PKWY	SE	545	13	678	4	752	4
14TH ST AND U ST	NW	383	30	639	8	729	5
7TH ST AND FLORIDA AVE	NW	401	26	420	21	719	6
STANTON RD AND SUITLAND PKWY	SE	558	10	786	2	648	7
MINNESOTA AVE AND PENNSYLVANIA AVE	SE	474	16	413	24	555	8
13TH ST AND SOUTHERN AVE	SE	459	17	210	108	545	9
FLORIDA AVE AND NEW YORK AVE	NE	548	12	503	12	533	10
WISCONSIN AVE AND M ST	NW	594	9	564	9	519	11
FAIRLAWN AVE AND PENNSYLVANIA AVE	SE	195	152	383	28	510	12
4TH ST AND NEW YORK AVE	NE	240	98	173	188	504	13
ALABAMA AVE AND STANTON RD	SE	248	92	144	258	447	14
KENILWORTH AVE AND BENNING RD	NE	656	5	503	12	444	15
K ST AND NORTH CAPITOL ST	BN	263	78	218	103	443	16
SOUTH DAKOTA AVE AND BLADENSBURG RD	NE	210	130	195	135	435	17
M ST AND NORTH CAPITOL ST	BN	323	46	270	67	435	17
17TH ST AND BLADENSBURG RD	NE	317	49	405	26	432	19
MONTANA AVE AND NEW YORK AVE	NE	627	6	662	5	428	20
FIRTH STERLING AVE AND S CAPITOL ST	BN	198	140	120	357	421	21
12TH ST AND INDEPENDENCE AVE	SW	174	184	83	617	413	22
BENNING RD AND EAST CAPITOL ST	BN	672	4	497	14	407	23
I ST AND S CAPITOL ST	BN	413	22	474	16	405	24
NEW JERSEY AVE AND NEW YORK AVE	NW	557	11	480	15	398	25
H ST AND NORTH CAPITOL ST	BN	616	7	413	24	398	25
1ST ST AND NEW YORK AVE	NW	428	20	293	53	398	25
PENNSYLVANIA AVE AND SOUTHERN AVE	SE	83	604	158	216	393	28
2ND ST AND H ST	NW	324	44	323	43	383	29
14TH ST AND K ST	NW	383	30	435	19	368	30
BENNING RD AND BLADENSBURG RD	NE	270	71	330	42	360	31
KENILWORTH AVE AND NANNIE HELEN BURROUGHS AVE	NE	353	37	519	10	356	32
PENNSYLVANIA AVE AND BARNEY CIR	SE	30	1486	150	233	350	33

Table 7.14 Rank by Crash Severity Cost for Each Year (Rank: 34~66)

INTERSECTION NAME	QUAD	2009		2010		2011	
		CRASH COST	RANK	CRASH COST	RANK	CRASH COST	RANK
NEW HAMPSHIRE AVE AND NORTH CAPITOL ST	BN	323	46	377	29	347	34
4TH ST AND NEW YORK AVE	NW	263	78	293	53	339	35
3RD ST AND RIGGS RD	NE	98	474	158	216	333	36
EASTERN AVE AND COLESVILLE RD	NW	105	425	308	48	332	37
14TH ST AND CONSTITUTION AVE	NW	399	27	356	34	330	38
WEST VIRGINIA AVE AND MOUNT OLIVET RD	NE	218	122	249	78	330	38
14TH ST AND C ST	SW			128	323	326	40
7TH ST AND CONSTITUTION AVE	NW	257	81	150	233	324	41
KENILWORTH AVE AND EAST CAPITOL ST	BN	711	3	338	38	323	42
NEW YORK AVE AND SOUTH DAKOTA AVE	NE	597	8	504	11	323	42
BRENTWOOD PKWY AND MOUNT OLIVET RD	NE	227	109	60	862	323	42
ALABAMA AVE AND PENNSYLVANIA AVE	SE	167	200	210	108	320	45
DIVISION AVE AND NANNIE HELEN BURROUGHS AVE	NE	68	774	23	1813	318	46
RHODE ISLAND AVE AND NORTH CAPITOL ST	BN	180	176	248	81	317	47
15TH ST AND K ST	NW	392	29	173	188	317	47
4TH ST AND RHODE ISLAND AVE	NE	143	262	173	188	315	49
MARTIN LUTHER KING AVE AND HOWARD RD	SE	369	33	273	63	315	49
GEORGIA AVE AND BARRY PL	NW	333	43	158	216	311	51
DIVISION AVE AND SHERIFF RD	BN	315	51	266	69	311	51
14TH ST AND L ST	NW	182	173	195	135	311	51
17TH ST AND BENNING RD	NE	248	92	218	103	309	54
NEW YORK AVE AND KENDALL ST	NE	270	71	120	357	309	54
9TH ST AND U ST	NW	98	474	225	96	308	56
14TH ST AND PENNSYLVANIA AVE	NW			300	49	308	56
PENNSYLVANIA AVE AND ANACOSTIA FRWY	SE	533	14	272	65	300	58
1ST ST AND NEW YORK AVE	NE	203	138	458	17	300	58
7TH ST AND NEW YORK AVE	NW	167	200	90	564	294	60
CONNECTICUT AVE AND R ST	NW	281	66	189	149	288	61
24TH ST AND PENNSYLVANIA AVE	NW	120	351	225	96	288	61
14TH ST AND IRVING ST	NW	362	35	293	53	285	63
14TH ST AND COLUMBIA RD	NW	233	106	143	275	285	63
BRANCH AVE AND PENNSYLVANIA AVE	SE	300	56	414	23	285	63
53RD ST AND EAST CAPITOL ST	BN	75	687	38	1306	284	66

Table 7.15 Rank by Crash Severity Cost for Each Year (Rank: 67~100)

INTERSECTION NAME	QUAD	2009		2010		2011	
		CRASH COST	RANK	CRASH COST	RANK	CRASH COST	RANK
ANACOSTIA AVE AND BENNING RD	NE	105	425	105	449	281	67
MONTANA AVE AND RHODE ISLAND AVE	NE	105	425	188	154	279	68
34TH ST AND M ST	NW			120	357	279	68
MISSOURI AVE AND NEW HAMPSHIRE AVE	NW	173	187	188	154	278	70
6TH ST AND NEW YORK AVE	NW	225	113	323	43	278	70
WISCONSIN AVE AND R ST	NW	60	843	143	275	272	72
GEORGIA AVE AND NEW HAMPSHIRE AVE	NW	210	130	180	165	272	72
13TH ST AND U ST	NW	270	71	440	18	270	74
MICHIGAN AVE AND NORTH CAPITOL ST	BN	482	15	240	87	270	74
NORTH CAPITOL ST AND RIGGS RD	BN	416	21	416	22	270	74
16TH ST AND K ST	NW	273	69	293	53	270	74
18TH ST AND ADAMS MILL RD	NW	308	53	233	93	270	74
EASTERN AVE AND MEADE ST	NE	53	949	30	1519	267	79
18TH ST AND MASSACHUSETTS AVE	NW	105	425	143	275	264	80
MISSISSIPPI AVE AND S CAPITOL ST	BN	120	351	165	206	263	81
19TH ST AND INDEPENDENCE AVE	SE	300	56	218	103	263	81
14TH ST AND RHODE ISLAND AVE	NW	210	130	203	122	263	81
RHODE ISLAND AVE AND REED ST	NE	180	176	300	49	257	84
EASTERN AVE AND RIGGS RD	NE	53	949	60	862	257	84
SOUTHERN AVE AND BENNING RD	SE	293	60	362	31	255	86
14TH ST AND I ST	NW	173	187	210	108	255	86
14TH ST AND P ST	NW	135	284	180	165	255	86
33RD ST AND M ST	NW	197	144	402	27	255	86
31ST ST AND M ST	NW	408	23	278	60	255	86
25TH ST AND SOUTHERN AVE	SE	68	774	260	74	252	91
CONNECTICUT AVE AND MILITARY RD	NW	158	224	98	496	251	92
17TH ST AND K ST	NW			150	233	249	93
9TH ST AND MASSACHUSETTS AVE	NW	188	163	362	31	249	93
FLORIDA AVE AND NORTH CAPITOL ST	BN	218	122	233	93	248	95
19TH ST AND L ST	NW	135	284	150	233	248	95
14TH ST AND PARK RD	NW	143	262	195	135	248	95
17TH ST AND I ST	NW	240	98	233	93	248	95
2ND ST AND MISSOURI AVE	NW	30	1486	30	1519	245	99
16TH ST AND NEW YORK AVE	NE	249	88	240	87	242	100

Table 7.16 Rank by Crash Severity Cost for Three Years (Rank: 1~33)

INTERSECTION NAME	QUAD	2008~2010		2009~2011	
		CRASH COST	RANK	CRASH COST	RANK
NEW YORK AVE AND NORTH CAPITOL ST	BN	2359	2	2804	1
NEW YORK AVE AND BLADENSBURG RD	NE	2851	1	2562	2
STANTON RD AND SUITLAND PKWY	SE	1781	6	1993	3
FIRTH STERLING AVE AND SUITLAND PKWY	SE	2159	3	1975	4
14TH ST AND U ST	NW	1412	12	1751	5
MINNESOTA AVE AND BENNING RD	NE	1268	19	1742	6
MONTANA AVE AND NEW YORK AVE	NE	1838	4	1716	7
WISCONSIN AVE AND M ST	NW	1550	10	1677	8
KENILWORTH AVE AND BENNING RD	NE	1826	5	1602	9
FLORIDA AVE AND NEW YORK AVE	NE	1668	9	1583	10
BENNING RD AND EAST CAPITOL ST	BN	1484	11	1576	11
7TH ST AND FLORIDA AVE	NW	1190	23	1540	12
MINNESOTA AVE AND PENNSYLVANIA AVE	SE	1232	22	1442	13
NEW JERSEY AVE AND NEW YORK AVE	NW	1722	8	1434	14
H ST AND NORTH CAPITOL ST	BN	1412	12	1426	15
NEW YORK AVE AND SOUTH DAKOTA AVE	NE	1311	16	1424	16
KENILWORTH AVE AND EAST CAPITOL ST	BN	1730	7	1371	17
I ST AND S CAPITOL ST	BN	1308	17	1292	18
7TH ST AND H ST	NW	1302	18	1242	19
KENILWORTH AVE AND NANNIE HELEN BURROUGHS AVE	NE	1368	15	1227	20
13TH ST AND SOUTHERN AVE	SE	941	36	1214	21
14TH ST AND K ST	NW	1374	14	1185	22
17TH ST AND BLADENSBURG RD	NE	1008	31	1154	23
1ST ST AND NEW YORK AVE	NW	1035	30	1118	24
PENNSYLVANIA AVE AND ANACOSTIA FRWY	SE	1239	21	1104	25
NORTH CAPITOL ST AND RIGGS RD	BN	1255	20	1101	26
FAIRLAWN AVE AND PENNSYLVANIA AVE	SE	827	53	1088	27
14TH ST AND CONSTITUTION AVE	NW	1122	24	1085	28
NEW HAMPSHIRE AVE AND NORTH CAPITOL ST	BN	977	34	1046	29
2ND ST AND H ST	NW	1082	27	1029	30
M ST AND NORTH CAPITOL ST	BN	1038	29	1028	31
BRANCH AVE AND PENNSYLVANIA AVE	SE	1113	26	999	32
MICHIGAN AVE AND NORTH CAPITOL ST	BN	924	38	992	33

Table 7.17 Rank by Crash Severity Cost for Three Years (Rank: 34~66)

INTERSECTION NAME	QUAD	2008~2010		2009~2011	
		CRASH COST	RANK	CRASH COST	RANK
13TH ST AND U ST	NW	1004	32	980	34
BENNING RD AND BLADENSBURG RD	NE	855	49	960	35
1ST ST AND NEW YORK AVE	NE	1073	28	960	35
MARTIN LUTHER KING AVE AND HOWARD RD	SE	1118	25	957	37
31ST ST AND M ST	NW	986	33	941	38
14TH ST AND IRVING ST	NW	873	46	939	39
BENNING RD AND G ST	SE	911	40	926	40
K ST AND NORTH CAPITOL ST	BN	690	85	923	41
4TH ST AND NEW YORK AVE	NE	413	240	917	42
SOUTHERN AVE AND BENNING RD	SE	864	47	909	43
4TH ST AND NEW YORK AVE	NW	773	68	894	44
DIVISION AVE AND SHERIFF RD	BN	822	55	891	45
15TH ST AND K ST	NW	813	56	881	46
33RD ST AND M ST	NW	788	63	854	47
SOUTHERN AVE AND WHEELER RD	SE	939	37	849	48
SOUTH DAKOTA AVE AND BLADENSBURG RD	NE	630	102	840	49
ALABAMA AVE AND STANTON RD	SE	572	119	839	50
16TH ST AND K ST	NW	899	41	836	51
ALTAMONT PL AND GOOD HOPE RD	SE	830	52	830	52
6TH ST AND NEW YORK AVE	NW	774	66	825	53
18TH ST AND ADAMS MILL RD	NW	833	51	810	54
FLORIDA AVE AND RHODE ISLAND AVE	NW	813	56	806	55
M ST AND S CAPITOL ST	BN	887	44	804	56
MINNESOTA AVE AND NANNIE HELEN BURROUGHS AVE	NE	890	42	804	56
GEORGIA AVE AND BARRY PL	NW	800	58	801	58
9TH ST AND MASSACHUSETTS AVE	NW	849	50	798	59
WEST VIRGINIA AVE AND MOUNT OLIVET RD	NE	914	39	797	60
19TH ST AND INDEPENDENCE AVE	SE	668	94	780	61
17TH ST AND BENNING RD	NE	735	78	774	62
CONNECTICUT AVE AND R ST	NW	537	142	758	63
MALCOLM X AVE AND S CAPITOL ST	BN	858	48	746	64
EASTERN AVE AND COLESVILLE RD	NW	510	161	744	65
RHODE ISLAND AVE AND NORTH CAPITOL ST	BN	953	35	744	65

Table 7.18 Rank by Crash Severity Cost for Three Years (Rank: 67~100)

INTERSECTION NAME	QUAD	2008~2010		2009~2011	
		CRASH COST	RANK	CRASH COST	RANK
FIRTH STERLING AVE AND S CAPITOL ST	BN	528	151	739	67
1ST ST AND UNION STATION PLAZA	NE	888	43	737	68
RHODE ISLAND AVE AND REED ST	NE	720	79	737	68
GEORGIA AVE AND PINEY BRANCH RD	NW	779	65	734	70
7TH ST AND CONSTITUTION AVE	NW	534	143	731	71
16TH ST AND NEW YORK AVE	NE	662	95	731	71
FORT DR AND NORTH CAPITOL ST	BN	691	84	728	73
17TH ST AND I ST	NW	630	102	720	74
GEORGIA AVE AND PARK RD	NW	693	83	716	75
GEORGIA AVE AND MISSOURI AVE	NW	660	96	713	76
20TH ST AND K ST	NW	796	59	710	77
16TH ST AND NEW HAMPSHIRE AVE	NW	714	80	699	78
NEW YORK AVE AND KENDALL ST	NE	645	99	699	78
FLORIDA AVE AND NORTH CAPITOL ST	BN	737	75	698	80
21ST ST AND K ST	NW	737	75	698	80
ALABAMA AVE AND PENNSYLVANIA AVE	SE	602	112	696	82
CONNECTICUT AVE AND K ST	NW	827	53	692	83
13TH ST AND K ST	NW	617	108	692	83
16TH ST AND IRVING ST	NW	744	73	690	85
14TH ST AND L ST	NW	564	126	687	86
EASTERN AVE AND KENILWORTH AVE	NE	746	72	686	87
8TH ST AND H ST	NE	650	98	681	88
12TH ST AND RHODE ISLAND AVE	NE	677	89	677	89
14TH ST AND RHODE ISLAND AVE	NW	623	105	675	90
BRENTWOOD RD AND W ST	NE	713	81	672	91
12TH ST AND INDEPENDENCE AVE	SW	384	269	670	92
GEORGIA AVE AND NEW HAMPSHIRE AVE	NW	570	121	662	93
14TH ST AND COLUMBIA RD	NW	563	127	660	94
SOUTHERN AVE AND EAST CAPITOL ST	BN	789	62	660	94
POTOMAC AVE AND S CAPITOL ST	BN	549	133	654	96
FAIRVIEW AVE AND NEW YORK AVE	NE	611	109	650	97
MICHIGAN AVE AND FRANKLIN ST	NE	513	156	648	98
9TH ST AND CONSTITUTION AVE	NW	768	69	647	99
NEW JERSEY AVE AND RHODE ISLAND AVE	NW	596	114	642	100

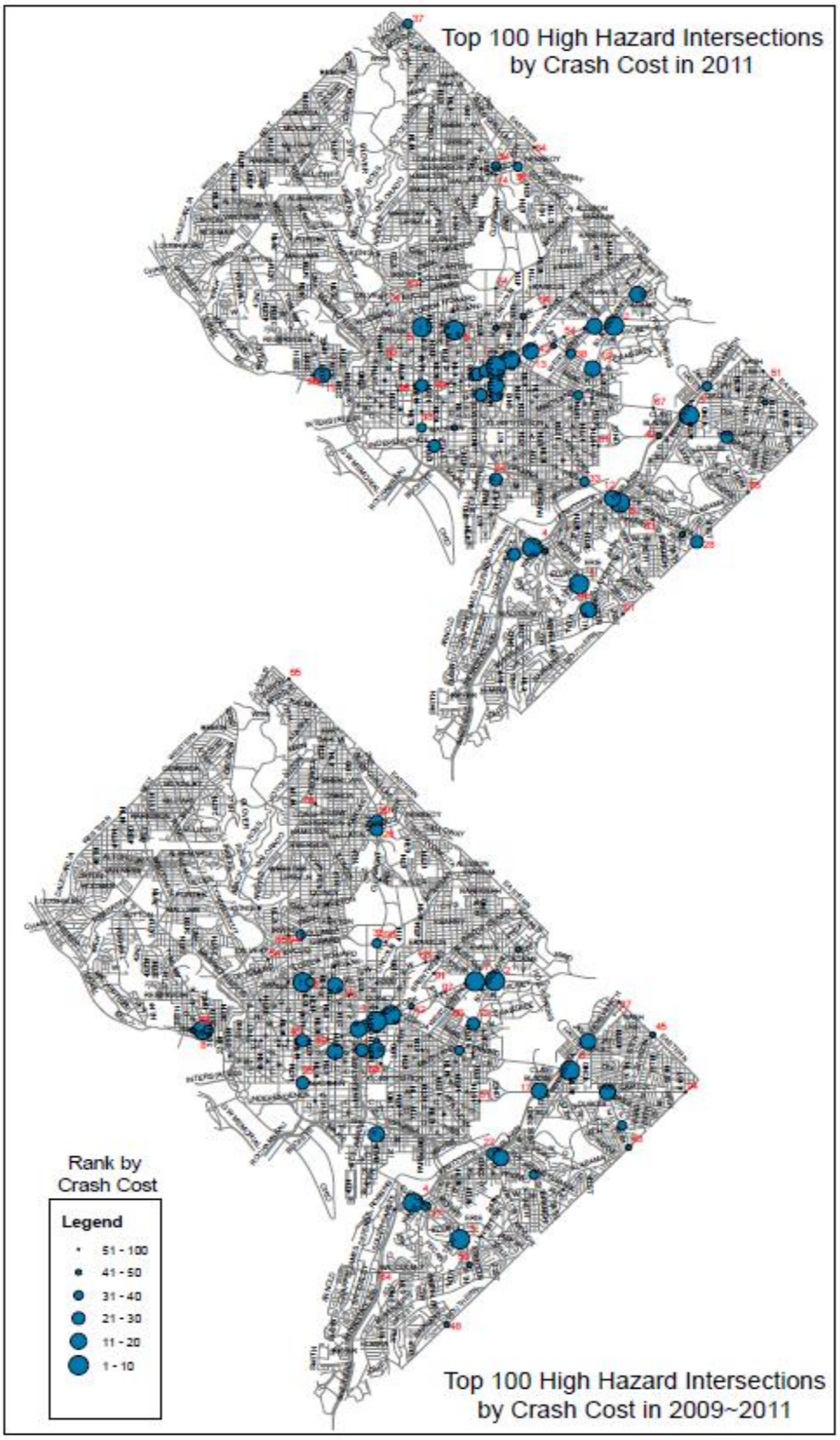


Figure 7.2: Top 100 Hazard Intersections by Crash Cost in 2009-2011

7.1.4 Rank by Crash Composite Index

Table 7.19 Rank by Crash Composite Index for Each Year (Rank: 1~33)

INTERSECTION NAME	QUAD	2009		2010		2011	
		COMP. INDEX	RANK	COMP. INDEX	RANK	COMP. INDEX	RANK
MINNESOTA AVE AND BENNING RD	NE	49.25	33	9.75	4	3.5	1
14TH ST AND U ST	NW	18	4	5.25	1	3.5	1
WISCONSIN AVE AND M ST	NW	7.25	1	6	3	7.75	3
7TH ST AND FLORIDA AVE	NW	34.25	16	15.75	8	8.25	4
STANTON RD AND SUITLAND PKWY	SE	23.75	8	10.25	5	11	5
NEW YORK AVE AND BLADENSBURG RD	NE	8.5	2	15.25	7	14.75	6
FIRTH STERLING AVE AND SUITLAND PKWY	SE	35.25	19	25	12	15.75	7
NEW YORK AVE AND NORTH CAPITOL ST	BN	26.5	10	27.25	13	21	8
ALABAMA AVE AND STANTON RD	SE	76.25	47	331.75	250	23.75	9
K ST AND NORTH CAPITOL ST	BN	70.25	42	113.25	67	25.5	10
MINNESOTA AVE AND PENNSYLVANIA AVE	SE	36	20	46	27	27.75	11
FLORIDA AVE AND NEW YORK AVE	NE	36.75	21	38.75	24	30	12
H ST AND NORTH CAPITOL ST	BN	38.75	23	23.5	10	30.25	13
14TH ST AND K ST	NW	23.25	7	17.25	9	32.5	14
SOUTH DAKOTA AVE AND BLADENSBURG RD	NE	124	87	156.75	110	33.5	15
4TH ST AND NEW YORK AVE	NE	128.25	93	249	186	33.75	16
WEST VIRGINIA AVE AND MOUNT OLIVET RD	NE	98.25	68	114.5	70	36	17
14TH ST AND IRVING ST	NW	29.5	12	36.25	21	40.25	18
MARTIN LUTHER KING AVE AND HOWARD RD	SE	36.75	21	141.25	92	42.25	19
BRENTWOOD PKWY AND MOUNT OLIVET RD	NE	119.5	84	736.25	708	42.25	19
9TH ST AND U ST	NW	409.5	321	91.5	54	43.5	21
14TH ST AND COLUMBIA RD	NW	70	41	195.75	144	46.75	22
MONTANA AVE AND NEW YORK AVE	NE	22.75	6	14.5	6	48	23
1ST ST AND NEW YORK AVE	NW	84	53	86.5	51	49	24
4TH ST AND NEW YORK AVE	NW	76.5	48	54.25	29	49	24
BENNING RD AND EAST CAPITOL ST	BN	13.25	3	27.75	14	49	24
2ND ST AND H ST	NW	110.5	79	101.25	62	49.25	27
M ST AND NORTH CAPITOL ST	BN	74.75	46	152.25	106	49.25	27
PENNSYLVANIA AVE AND SOUTHERN AVE	SE	556.5	475	186.25	135	49.75	29
I ST AND S CAPITOL ST	BN	39.5	25	33.75	18	50.5	30
GEORGIA AVE AND BARRY PL	NW	45	31	215.5	157	52	31
17TH ST AND BLADENSBURG RD	NE	68.5	40	37.25	22	52	31
18TH ST AND ADAMS MILL RD	NW	32.75	14	59.5	32	54.25	33

Table 7.20 Rank by Crash Composite Index for Each Year (Rank: 34~66)

INTERSECTION NAME	QUAD	2009		2010		2011	
		COMP. INDEX	RANK	COMP. INDEX	RANK	COMP. INDEX	RANK
19TH ST AND INDEPENDENCE AVE	SE	35	18	67.75	37	54.75	34
17TH ST AND I ST	NW	61	38	62	34	57.25	35
14TH ST AND RHODE ISLAND AVE	NW	94.25	64	96	60	60.25	36
14TH ST AND PENNSYLVANIA AVE	NW			73	41	60.5	37
13TH ST AND U ST	NW	50.5	34	33.5	17	61.75	38
BRANCH AVE AND PENNSYLVANIA AVE	SE	41	26	32.75	16	62.25	39
33RD ST AND M ST	NW	144.25	107	34.75	19	64.25	40
14TH ST AND P ST	NW	192.25	138	129.25	80	66.5	41
14TH ST AND I ST	NW	138.5	100	85.75	49	67.25	42
WISCONSIN AVE AND R ST	NW	713.75	684	239.75	178	67.75	43
19TH ST AND L ST	NW	204.75	146	184.25	132	69.25	44
7TH ST AND H ST	NW	24.5	9	5.5	2	69.75	45
6TH ST AND NEW YORK AVE	NW	87.25	58	61.75	33	71	46
EASTERN AVE AND COLESVILLE RD	NW	457	367	62	34	71.25	47
16TH ST AND K ST	NW	125.25	89	54.25	29	72.75	48
15TH ST AND K ST	NW	30.75	13	200.75	147	73	49
NEW HAMPSHIRE AVE AND NORTH CAPITOL ST	BN	93.5	62	85.25	48	75.75	50
24TH ST AND PENNSYLVANIA AVE	NW	257.5	187	71.75	40	76	51
MISSOURI AVE AND NEW HAMPSHIRE AVE	NW	216.25	154	181	129	79.75	52
7TH ST AND NEW YORK AVE	NW	211.25	150	511	441	80.75	53
DIVISION AVE AND SHERIFF RD	BN	43.5	30	112	66	83.5	54
SOUTHERN AVE AND BENNING RD	SE	46.75	32	41.75	25	83.5	54
BRENTWOOD RD AND W ST	NE	107	73	148.25	99	86	56
13TH ST AND K ST	NW	250	180	47.25	28	87	57
19TH ST AND M ST	NW	137.5	98	105.5	64	88.5	58
EASTERN AVE AND RIGGS RD	NE	699	667	624.25	559	88.75	59
SOUTHERN AVE AND S CAPITOL ST	BN	94.5	65	169.75	123	89.75	60
7TH ST AND CONSTITUTION AVE	NW	112.25	80	217.75	163	93	61
GEORGIA AVE AND NEW HAMPSHIRE AVE	NW	141.5	102	167.25	121	93.5	62
14TH ST AND MONROE ST	NW	114	82	805.75	811	95.25	63
17TH ST AND K ST	NW			204	148	95.25	63
6TH ST AND H ST	NW	227.25	167	103	63	95.75	65
14TH ST AND CONSTITUTION AVE	NW	72.5	45	143.25	95	95.75	65

Table 7.21 Rank by Crash Composite Index for Each Year (Rank: 67~100)

INTERSECTION NAME	QUAD	2009		2010		2011	
		COMP. INDEX	RANK	COMP. INDEX	RANK	COMP. INDEX	RANK
NEW JERSEY AVE AND NEW YORK AVE	NW	34.25	16	45.75	26	96.25	67
14TH ST AND PARK RD	NW	217	155	122.5	77	99.5	68
DIVISION AVE AND NANNIE HELEN BURROUGHS AVE	NE	568.75	493	1566	1978	100.25	69
18TH ST AND MASSACHUSETTS AVE	NW	345.75	263	234.5	172	101.25	70
MONTANA AVE AND RHODE ISLAND AVE	NE	442.75	352	148.25	99	102.5	71
SOUTHERN AVE AND NAYLOR RD	SE	84	53	625.75	563	104	72
25TH ST AND L ST	NW	177.75	124	183.25	130	104.25	73
24TH ST AND M ST	NW	180	126	548.75	483	106.75	74
5TH ST AND H ST	NW	172	121	286.25	210	107	75
CONNECTICUT AVE AND R ST	NW	92	60	187.5	140	108	76
GEORGIA AVE AND PARK RD	NW	26.75	11	215.75	158	108	76
4TH ST AND RHODE ISLAND AVE	NE	240	172	139.75	89	108.25	78
14TH ST AND L ST	NW	188.5	134	116	72	109.25	79
WISCONSIN AVE AND CALVERT ST	NW	224.25	163	162.25	115	110.5	80
9TH ST AND MASSACHUSETTS AVE	NW	137.75	99	38	23	111.75	81
MICHIGAN AVE AND NORTH CAPITOL ST	BN	32.75	14	131.25	82	114.5	82
3RD ST AND RIGGS RD	NE	399.75	306	244.25	183	115.25	83
17TH ST AND U ST	NW	311.25	235	260.25	195	116.25	84
GEORGIA AVE AND MISSOURI AVE	NW	71.25	43	137	86	117.75	85
NORTH CAPITOL ST AND RIGGS RD	BN	94	63	62.75	36	119.25	86
MINNESOTA AVE AND NANNIE HELEN BURROUGHS AVE	NE	99	69	29.25	15	119.75	87
GEORGIA AVE AND IRVING ST	NW	140	101	330.75	248	120.5	88
SOUTHERN AVE AND WHEELER RD	SE	41.5	27	35.25	20	120.5	88
12TH ST AND MASSACHUSETTS AVE	NW	204.5	145	151.25	105	122.5	90
9TH ST AND NEW YORK AVE	NW	382	286	288.75	213	133.5	91
14TH ST AND W ST	NW	415	328	287	212	134	92
15TH ST AND U ST	NW	96.5	67	178.25	126	135.75	93
4TH ST AND MICHIGAN AVE	NE	289.75	207	562.5	495	138.75	94
ALABAMA AVE AND PENNSYLVANIA AVE	SE	398	304	142	93	139.75	95
1ST ST AND MICHIGAN AVE	NW	212.25	151	90	53	141.5	96
18TH ST AND KALORAMA RD	NW	436.5	346	143.25	95	141.75	97
ALABAMA AVE AND BRANCH AVE	SE	632.75	573	163.75	117	142	98
ALABAMA AVE AND WHEELER RD	SE	723	704	291.75	216	143.25	99
1ST ST AND UNION STATION PLAZA	NE	86.5	56	23.5	10	143.5	100

Table 7.22 Rank by Crash Composite Index for Three Years (Rank: 1~33)

INTERSECTION NAME	QUAD	2008~2010		2009~2011	
		COMP. INDEX	RANK	COMP. INDEX	RANK
14TH ST AND U ST	NW	7.25	2	3.75	1
WISCONSIN AVE AND M ST	NW	6.5	1	5.25	2
MINNESOTA AVE AND BENNING RD	NE	20.25	9	8.25	3
NEW YORK AVE AND BLADENSBURG RD	NE	7.25	2	9.25	4
STANTON RD AND SUITLAND PKWY	SE	17	7	10.5	5
7TH ST AND FLORIDA AVE	NW	21.75	10	12	6
7TH ST AND H ST	NW	11.75	4	13.25	7
14TH ST AND K ST	NW	13.5	6	18.75	8
NEW YORK AVE AND NORTH CAPITOL ST	BN	31.5	16	20	9
FIRTH STERLING AVE AND SUITLAND PKWY	SE	12.75	5	20.25	10
MONTANA AVE AND NEW YORK AVE	NE	18.25	8	21	11
H ST AND NORTH CAPITOL ST	BN	23	12	22.75	12
BENNING RD AND EAST CAPITOL ST	BN	22.25	11	23.5	13
14TH ST AND IRVING ST	NW	37.5	23	27	14
FLORIDA AVE AND NEW YORK AVE	NE	35.25	21	30.75	15
MINNESOTA AVE AND PENNSYLVANIA AVE	SE	40	24	30.75	15
BRANCH AVE AND PENNSYLVANIA AVE	SE	31.25	15	33.75	17
13TH ST AND U ST	NW	35	20	34.5	18
18TH ST AND ADAMS MILL RD	NW	32.25	17	36	19
I ST AND S CAPITOL ST	BN	32.75	19	36	19
SOUTHERN AVE AND WHEELER RD	SE	32.25	17	41.5	21
19TH ST AND INDEPENDENCE AVE	SE	60.25	32	41.75	22
SOUTHERN AVE AND BENNING RD	SE	46.25	26	42.25	23
17TH ST AND BLADENSBURG RD	NE	49.5	28	42.75	24
MARTIN LUTHER KING AVE AND HOWARD RD	SE	37.25	22	44.25	25
17TH ST AND I ST	NW	65.75	35	47.5	26
NEW JERSEY AVE AND NEW YORK AVE	NW	28	13	47.5	26
K ST AND NORTH CAPITOL ST	BN	84.75	54	47.75	28
1ST ST AND UNION STATION PLAZA	NE	30.75	14	49.5	29
4TH ST AND NEW YORK AVE	NW	69.5	38	50.25	30
33RD ST AND M ST	NW	70.5	39	50.75	31
MINNESOTA AVE AND NANNIE HELEN BURROUGHS AVE	NE	50.25	29	54	32
DIVISION AVE AND SHERIFF RD	BN	61	33	54.75	33

Table 7.23 Rank by Crash Composite Index for Three Years (Rank: 34~66)

INTERSECTION NAME	QUAD	2008~2010		2009~2011	
		COMP. INDEX	RANK	COMP. INDEX	RANK
6TH ST AND NEW YORK AVE	NW	78.75	47	57.75	34
GEORGIA AVE AND PARK RD	NW	68	37	58.25	35
1ST ST AND NEW YORK AVE	NW	78.75	47	58.5	36
ALABAMA AVE AND STANTON RD	SE	121.25	85	59.5	37
WEST VIRGINIA AVE AND MOUNT OLIVET RD	NE	53	30	60.25	38
GEORGIA AVE AND BARRY PL	NW	57	31	61	39
15TH ST AND K ST	NW	72.5	43	61.5	40
16TH ST AND K ST	NW	71.75	41	65	41
14TH ST AND COLUMBIA RD	NW	88.75	61	66	42
9TH ST AND MASSACHUSETTS AVE	NW	48.25	27	66.75	43
14TH ST AND RHODE ISLAND AVE	NW	75	44	67	44
SOUTH DAKOTA AVE AND BLADENSBURG RD	NE	113	78	67.75	45
2ND ST AND H ST	NW	66.25	36	67.75	45
MICHIGAN AVE AND NORTH CAPITOL ST	BN	79.75	50	68.75	47
M ST AND NORTH CAPITOL ST	BN	86.75	57	72.25	48
NEW HAMPSHIRE AVE AND NORTH CAPITOL ST	BN	81.5	52	75	49
21ST ST AND K ST	NW	77	45	76	50
13TH ST AND K ST	NW	97.75	67	77.25	51
NORTH CAPITOL ST AND RIGGS RD	BN	63.75	34	78.5	52
14TH ST AND I ST	NW	84.75	54	79	53
4TH ST AND NEW YORK AVE	NE	321	251	81.25	54
16TH ST AND IRVING ST	NW	78.75	47	86.5	55
GEORGIA AVE AND MISSOURI AVE	NW	99.75	70	86.5	55
9TH ST AND U ST	NW	87.5	58	89.25	57
19TH ST AND M ST	NW	105.75	74	89.25	57
SOUTHERN AVE AND S CAPITOL ST	BN	89	63	90.75	59
24TH ST AND PENNSYLVANIA AVE	NW	138.75	97	91	60
BRENTWOOD RD AND W ST	NE	95.5	66	92.25	61
BENNING RD AND G ST	SE	98.5	69	93.25	62
ALABAMA AVE AND GOOD HOPE RD	SE	110.25	76	93.5	63
WISCONSIN AVE AND Q ST	NW	45.25	25	94	64
14TH ST AND CONSTITUTION AVE	NW	88.25	59	94	64
EASTERN AVE AND MINNESOTA AVE	NE	88.75	61	96	66

Table 7.24 Rank by Crash Composite Index for Three Years (Rank: 67~100)

INTERSECTION NAME	QUAD	2008~2010		2009~2011	
		COMP. INDEX	RANK	COMP. INDEX	RANK
14TH ST AND P ST	NW	80.75	51	96.75	67
FIRTH STERLING AVE AND HOWARD RD	SE	116.5	81	99.25	68
EASTERN AVE AND COLESVILLE RD	NW	205.75	151	99.75	69
16TH ST AND NEW HAMPSHIRE AVE	NW	85.5	56	101.25	70
SOUTHERN AVE AND EAST CAPITOL ST	BN	70.5	39	101.75	71
CONNECTICUT AVE AND R ST	NW	182.25	128	102.75	72
7TH ST AND CONSTITUTION AVE	NW	184	130	108.25	73
GEORGIA AVE AND NEW HAMPSHIRE AVE	NW	137	95	108.5	74
14TH ST AND L ST	NW	114	80	109.25	75
3RD ST AND FLORIDA AVE	NE	122	88	109.75	76
15TH ST AND U ST	NW	129.25	93	112.25	77
6TH ST AND H ST	NW	179.75	126	112.25	77
8TH ST AND H ST	NE	109.25	75	112.5	79
19TH ST AND L ST	NW	271.25	208	112.75	80
14TH ST AND PARK RD	NW	77.25	46	112.75	80
BRENTWOOD PKWY AND MOUNT OLIVET RD	NE	234	171	113.5	82
7TH ST AND G ST	NW	148	102	118.25	83
4TH ST AND RHODE ISLAND AVE	NE	90.25	64	118.25	83
KENILWORTH AVE AND BENNING RD	NE	101	71	119.75	85
1ST ST AND MICHIGAN AVE	NW	71.75	41	121	86
MISSOURI AVE AND NEW HAMPSHIRE AVE	NW	162.75	109	122	87
25TH ST AND L ST	NW	144.25	101	123.5	88
14TH ST AND H ST	NW	158.25	108	123.75	89
KENILWORTH AVE AND NANNIE HELEN BURROUGHS AVE	NE	98	68	124.25	90
PENNSYLVANIA AVE AND SOUTHERN AVE	SE	292.75	221	127.25	91
MICHIGAN AVE AND FRANKLIN ST	NE	223	160	130.5	92
FLORIDA AVE AND RHODE ISLAND AVE	NW	121.75	87	132	93
12TH ST AND MASSACHUSETTS AVE	NW	196.5	143	134.25	94
SOUTHERN AVE AND NAYLOR RD	SE	148.75	104	139.75	95
WISCONSIN AVE AND CALVERT ST	NW	171.25	116	141.25	96
14TH ST AND PENNSYLVANIA AVE	NW	493.75	409	141.75	97
GEORGIA AVE AND PINEY BRANCH RD	NW	119	83	142.75	98
14TH ST AND SPRING RD	NW	112.25	77	144	99
19TH ST AND K ST	NW	165.75	112	144.75	100

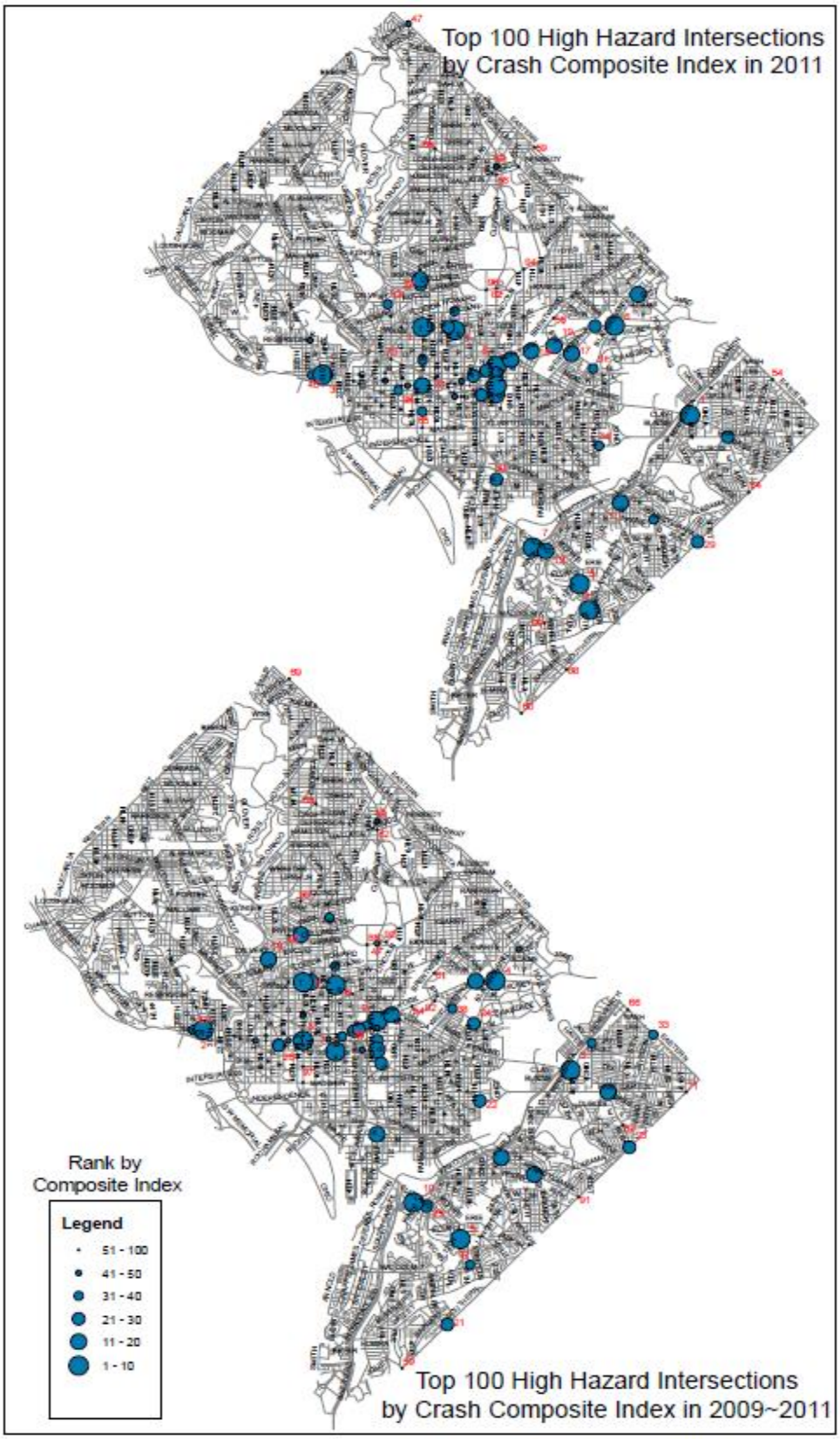


Figure 7.3: Top 100 Hazard Intersections by Crash Composite Index in 2009-2011

7.2 PD-10 Forms

TRAFFIC CRASH REPORT

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)
❑ 01 Fatality ❑ 02 Injury ❑ 03 Property Damage Only ❑ 04 Hit & Run
❑ 05 Pedestrian ❑ 06 D.C. Prop. ❑ 07 Non-Collision ❑ 08 Comm. Veh.
❑ 99 Other

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 feel 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 _____ Feet N S E W from Intersection/Block: _____ Freeway Mile Post: _____

PEPCO Pole No: _____ Exit Ramp: _____ Bridge: _____ Tunnel: _____

Other: _____ **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?
Y N	❑ 01 At Intersection ❑ 02 Within 100' of Intersection ❑ 03 Not at Intersection ❑ 04 Private Property ❑ 97 N/A ❑ 99 Other: _____	❑ 01 Public Space ❑ 02 Private Property ❑ 97 N/A ❑ 99 Other: _____	Y N

194 (Light Condition) ☐☐

16 Photos taken?	16a If yes, # photos	17 # Vehicles Involved	18 # Injured Persons	19a-d # Occupants (Incl. driver)	20 # Fatalities
Y N				Vehicle # 1 _____ 2_____ 3 _____ 4 _____	

195 (Weather) ☐☐

196 (Traffic Condition) ☐☐

197 (Roadway Type) ☐☐

198 (Traffic Controls) ☐☐

199 (Pedestrian Action) ☐☐

200a-h (Sequence) ☐☐ ☐☐ ☐☐ ☐☐ ☐☐ ☐☐ ☐☐ ☐☐

STRIKING OBJECT (TYPE, CONTACT INFO, INSURANCE, ETC.)

21 OBJECT TYPE *(Describe fixed object and damage in narrative)*

❑ 01 Driver ❑ 02 Pedestrian ❑ 03 Bicyclist ❑ 04 Parked Car ❑ 05 Animal
❑ 06 Other Fixed Object ❑ 97 N/A ❑ 99 Other: _____

22 Last Name First Middle	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 First Middle ☐ Same as Operator Info *(skip to next section)*	45 Owner Notified?
	Y N

46 Owner's Street Address	47 City, State, Zip

48 Owner's Telephone #	49 Veh. Insurance Co. (if different from #33)

VEHICLE #2 (TYPE, CONTACT INFO, INSURANCE, ETC.)

50 OBJECT TYPE *(Describe fixed object and damage in narrative)*

❑ 01 Driver ❑ 02 Pedestrian ❑ 03 Bicyclist ❑ 04 Parked Car ❑ 05 Animal
❑ 06 Other Fixed Object ❑ 97 N/A ❑ 99 Other: _____

51 Last Name First Middle	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 First Middle ☐ Same as Operator Info *(skip to next section)*	74 Owner Notified?
	Y N

75 Owner's Street Address	76 City, State, Zip

77 Owner's Telephone #	78 Veh. Insurance Co. (if different from #62)

TRAFFIC CRASH REPORT

200h-p (Sequence)

VEHICLE #3 (TYPE, CONTACT INFO, INSURANCE, ETC.)

79 OBJECT TYPE *(Describe fixed object and damage in narrative)*

❑ 01 Driver ❑ 02 Pedestrian ❑ 03 Bicyclist ❑ 04 Parked Car ❑ 05 Animal
❑ 06 Other Fixed Object ❑ 97 N/A ❑ 99 Other: _____

80 Last Name	First	Middle	81 Sex	82 DOB

83 Street Address	84 City, State, Zip

85 Home/Cell Number	86 Work Number

87 License Number	88 State	89 Class	90 Ins Exp Date

201a-c (Seat Location Code)

91 Driver's Insurance Co. Name	92 Policy #

93 Make	94 Model	95 Year	96 Body	97 Color

98 Vehicle ID Number (VIN)

202a-c (Seat Belt Code)

99 Tag Number	100 State	101 Year

102 Owner's Last Name	First	Middle	103 Owner Notified?
❑ Same as Operator Info *(skip to next section)*			Y N

104 Owner's Street Address	105 City, State, Zip

106 Owner's Telephone #	107 Veh. Insurance Co. (if different from #33)

203a-c (Air Bag Code)

VEHICLE #4 (TYPE, CONTACT INFO, INSURANCE, ETC.)

108 OBJECT TYPE *(Describe fixed object and damage in narrative)*

❑ 01 Driver ❑ 02 Pedestrian ❑ 03 Bicyclist ❑ 04 Parked Car ❑ 05 Animal
❑ 06 Other Fixed Object ❑ 97 N/A ❑ 99 Other: _____

109 Last Name	First	Middle	110 Sex	111 DOB

112 Street Address	113 City, State, Zip

114 Home/Cell Number	115 Work Number

116 License Number	117 State	118 Class	119 Ins Exp Date

120 Insurance Co. Name	121 Policy #

122 Make	123 Model	124 Year	125 Body	126 Color

127 Vehicle ID Number (VIN)

128 Tag Number	129 State	130 Year

131 Owner's Last Name	First	Middle	132 Owner Notified?
❑ Same as Operator Info *(skip to next section)*			Y N

133 Owner's Street Address	134 City, State, Zip

135 Owner's Telephone #	136 Veh. Insurance Co. (if different from #62)

INVOLVED PERSONS: *In the next section, include all operators, passengers and pedestrians involved even if not injured.*

	137a-c Assoc. w/vehicle #	138a-c Last Name, First Name	139a-c Street Address, City, State, Zip	140a-c Home/Cell/ Work #	141a-c Sex	142a-e Age	143a-c Empl. by DC Govt?	144a-c Taken to Hosp?
1							Y N	Y N
2							Y N	Y N
3							Y N	Y N

204a-c (Ejection Code)

INJURED PERSONS

	145a-c Last Name, First Name	146a-c Where Taken (Hospital)	147a-c By Whom (Last Name, First Name)	148a-c Major Crash Notified?	149a-c Teletype Notified?	150a-c Relative Notified? (If Yes, Last & First Name & Relationship)	151a-c Status (Admitted, Released, Unknown)
1				Y N	Y N		
2				Y N	Y N		
3				Y N	Y N		

205a-c (Injury Code)

Non-Involved Witnesses

	152a-c Last Name First Middle	153a-c Street Address, City, State, Zip	154a-c Telephone #
1			
2			
3			

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)

❑ 01 N/B ❑ 02 E/B ❑ 03 S/B
❑ 04 W/B ❑ 97 N/A
❑ 99 Other_____

159 Vehicle Disabled? Y N

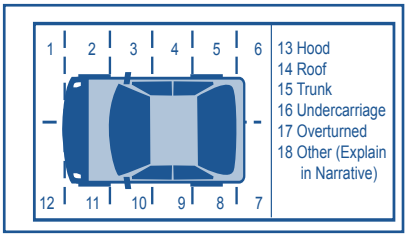
160 Skid Marks

To Impact: _____

After Impact: _____

❑ N/A

161 Circle All Areas With Damage:



162 Vehicle Was . . .

❑ 01 Left on Scene
❑ 02 Towed By: _____
Towed to: _____
Towing Control #:__ _____
❑ 03 Driven Away By: _____
❑ 97 N/A ❑ 99 Other

163 VEHICLE #2: Direction of Travel and Street Before Crash (must match narrative and diagram)

❑ 01 N/B ❑ 02 E/B ❑ 03 S/B
❑ 04 W/B ❑ 97 N/A
❑ 99 Other_____

164 Vehicle Disabled? Y N

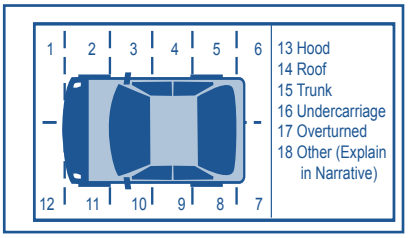
165 Skid Marks

To Impact: _____

After Impact: _____

❑ N/A

166 Circle All Areas With Damage:



167 Vehicle Was . . .

❑ 01 Left on Scene
❑ 02 Towed By: _____
Towed to: _____
Towing Control #:__ _____
❑ 03 Driven Away By: _____
❑ 97 N/A ❑ 99 Other

168 VEHICLE #3: Direction of Travel and Street Before Crash (must match narrative and diagram)

❑ 01 N/B ❑ 02 E/B ❑ 03 S/B
❑ 04 W/B ❑ 97 N/A
❑ 99 Other_____

169 Vehicle Disabled? Y N

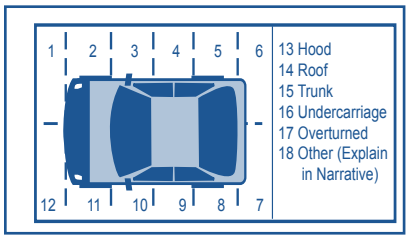
170 Skid Marks

To Impact: _____

After Impact: _____

❑ N/A

171 Circle All Areas With Damage:



172 Vehicle Was . . .

❑ 01 Left on Scene
❑ 02 Towed By: _____
Towed to: _____
Towing Control #:__ _____
❑ 03 Driven Away By: _____
❑ 97 N/A ❑ 99 Other

173 VEHICLE #4: Direction of Travel and Street Before Crash (must match narrative and diagram)

❑ 01 N/B ❑ 02 E/B ❑ 03 S/B
❑ 04 W/B ❑ 97 N/A
❑ 99 Other_____

174 Vehicle Disabled? Y N

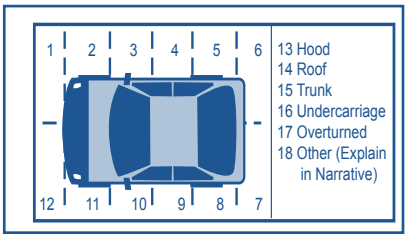
175 Skid Marks

To Impact: _____

After Impact: _____

❑ N/A

176 Circle All Areas With Damage:



177 Vehicle Was . . .

❑ 01 Left on Scene
❑ 02 Towed By: _____
Towed to: _____
Towing Control #:__ _____
❑ 03 Driven Away By: _____
❑ 97 N/A ❑ 99 Other

	206a-c Driver/ Pedestrian Condition	207a-c Impairment	208a-c Type of Test Conducted	209a-c Blood/ Alcohol Content
Involved Person #1				
Involved Person #1				
Involved Person #3				

	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
Vehicle #1							
Vehicle #2							
Vehicle #3							
Vehicle #4							

178 Crash Diagram (Not to Scale) (The diagram must correspond to the narrative. If the report is being taken by an officer after the fact, the diagram shall be completed to show the general area in which the crash occurred. Please indicate freeway access ramps, exit ramps and bridges. Indicate type of fixed object(s), direction, posted speed and vehicles by number indicated in spaces above.)

N

179 Detailed Narrative (Give a concise statement, in your own words, of the facts that are not covered in this report, or to clarify any items that are not satisfactorily explained ("other" answers). If statements are taken, use PD 118 (Defendant/Suspect Statement) or PD 119 (Complainant/Witness Statement). If accident occurred in a construction zone, describe type of construction zone. Wherever possible, list the item number of the corresponding section.

☐ *Narrative Continued on PD 10B Supplemental*

This report is used for statistical analysis of vehicular crashes and the prevention thereof. The data given represents the opinion and conclusions of the reporting officer, based on his/her judgement after considering all the facts disclosed through his/her investigation of this crash.

180 Reporting Member's Name/CAD/Badge #	181 Unit	182 Signature	183 Official's Name/CAD/Badge #	184 Official's Unit

185 Official's Signature	186 Reviewer	187 Distribution	188 Date	Complaint Number (CCN)

Use PD 10B Supplemental for Motor Carrier Vehicle Information and additional space.