



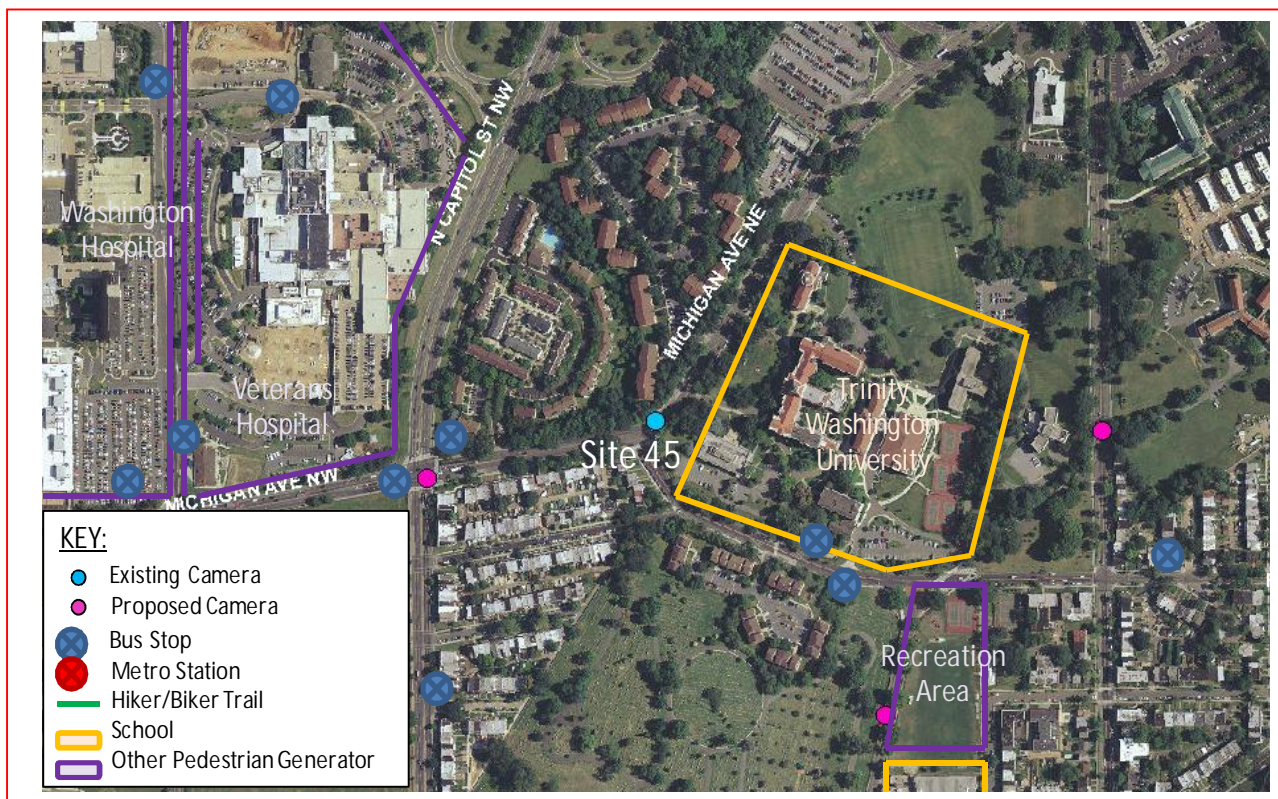
District Department of Transportation

Speed Limit and Safety Nexus Studies for Automated Enforcement Locations in the District of Columbia

100 Block Michigan Avenue NE W/B

Study Area and Location

District	PSA	Ward	ANC	Phase	Description
5	405	5	5C	Existing	100 Block Michigan Avenue Northeast Westbound



The existing speed camera is located in Ward 5 in the 100 Block of Michigan Avenue Northeast in the westbound direction. Michigan Avenue runs between Franklin Street Northeast to the west and Eastern Avenue Northeast to the west. The posted speed limit is 25 MPH. The speed camera was installed on July 2005.

W5 - 1





District Department of Transportation

100 Block Michigan Avenue NE W/B

Field Assessment Summary

Michigan Avenue Northeast is assumed to run an East-West direction and is classified as a minor arterial. Michigan Avenue has two travel lanes in each direction. This site has the following characteristics:

- This site is located in a residential area with on-street parking in both directions.
- There is sidewalk with curb and gutter on both sides of the roadway.
- The existing pavement is in good condition.
- There is an unmarked pedestrian crossing at this location.
- There are several bus routes along this roadway.
- There is one school located in the area: Trinity Washington University.
- There are several other pedestrian generators in the area: Washington Hospital, Veteran's Hospital, and Edgewood Playground.



Looking Westbound



District Department of Transportation

100 Block Michigan Avenue NE W/B



Looking Westbound

Speed Data Analysis

Posted Speed Limit (MPH)	25
Mean Speed (MPH)	18
85th Percentile Speed (MPH)	23
10 MPH Pace Speed	15-24
ADT	5,679

Both the mean speed and the 85th percentile speed are lower than the posted speed limit. The 85th percentile speed is 2 MPH lower than the posted speed limit.

Crash Data Analysis

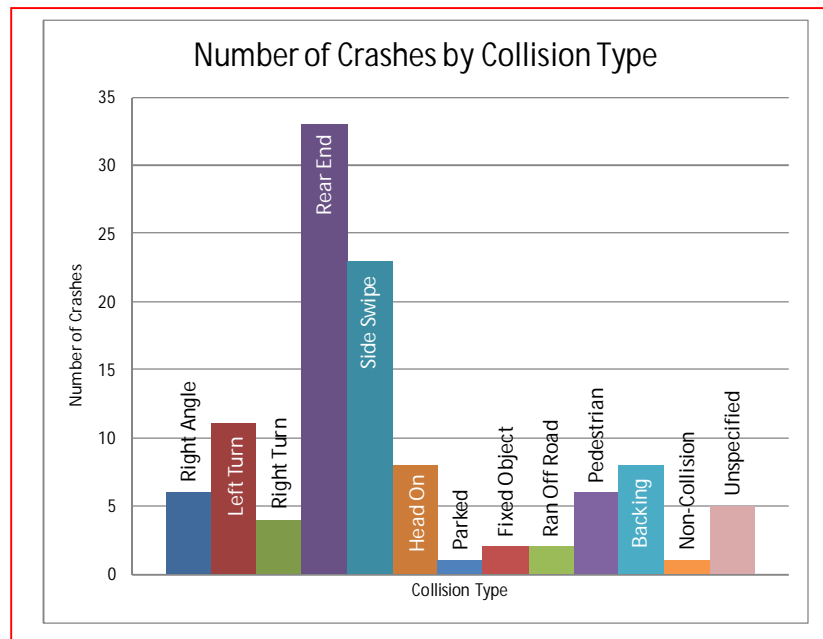
From the Accident Summary Report provided for the dates between January 1, 2010 and December 31, 2012, there were a total of 110 crashes at this location. A breakdown of number of crashes by collision type can be found in the chart on the next page. The most common types of collision at this location were Rear End (33 crashes), Side Swipe (23 crashes), Left Turn (11), Head On (8), and Backing (8). The other collision types had six crashes or less.



District Department of Transportation

100 Block Michigan Avenue NE W/B

Severity			Weather			Surface condition			Light Condition		
Total	110										
Fatal	0	0.0%	Clear	92	83.6%	Dry	93	84.5%	Day	66	60.0%
Injury	39	35.5%	Rain	13	11.8%	Wet	14	12.7%	Night	36	32.7%
Bus	12	10.9%	Snow	2	1.8%	Snow/Ice	1	0.9%			
Taxi	7	6.4%									



There were an elevated number of speed-related crashes at this location, including rear end and side swipe crashes. The AASHTO Highway Safety Manual lists “assuming the lead driver will go through a green or yellow light, but the lead driver stops” and “changing lanes to avoid a slowing or stopped vehicle”¹ as two errors leading to rear-end and sideswipe crashes. Both of these errors can be decreased with a decrease in travel speed.

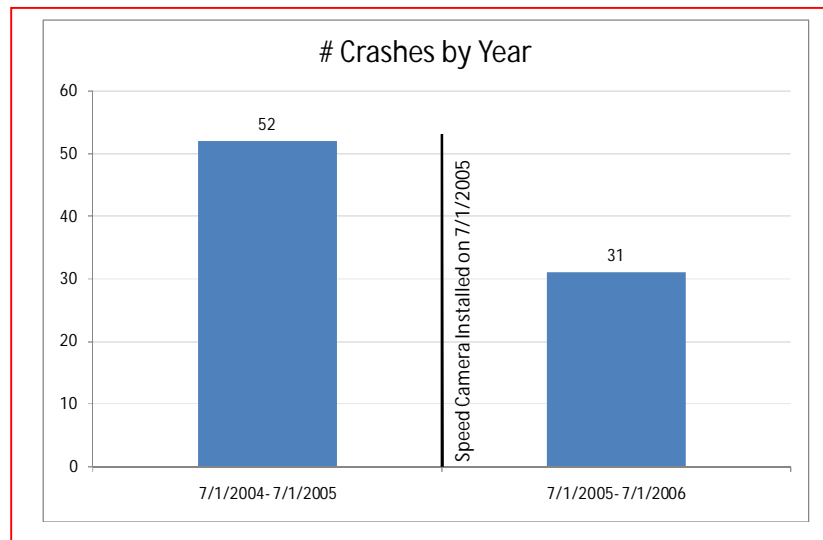
The speed camera was installed on 7-1-2005. The graph on the next page shows the number of crashes in the years prior to the speed camera’s installation (52 crashes) and the one year after the speed camera’s installation (31 crashes).

¹ AASHTO Highway Safety Manual, 1st Edition, 2010; Volume 1, page 2-13



District Department of Transportation

100 Block Michigan Avenue NE W/B



This site is located within a half mile radius of one of the top five percent high accident locations in the District from 2010 to 2012: Michigan Avenue NE at First Street NW. ²

Safety Nexus

This site presents the following safety considerations which may establish a nexus between the speed camera and traffic safety.

1. Speed Data – The speed data analysis shows travel speeds being lower than the posted speed limit.
2. Crash Data – There was an elevated number of speed related crashes at this location, including rear end and side swipe type crashes. The number of crashes at this location decreased by a significant amount after the installation of the speed camera.
3. Field Assessment – The following site characteristics suggest a need for a safer travel environment:
 - a. This site is located in a residential area with apartments on both sides.
 - b. There is one school in the area: Trinity Washington University.
 - c. There are several other pedestrian generators in the area: Washington Hospital, Veteran's Hospital, and Edgewood Playground.
 - d. There is on-street parking at this location.
 - e. There are multiple bus stops in the area which generate pedestrian activity.

² DDOT, *Top 5% High Accident Locations Map for 2010-2012*



District Department of Transportation

100 Block Michigan Avenue NE W/B

Although the speed data analysis showed the mean and 85th percentile speeds to be lower than the posted speed limit, due to the elevated number of speed-related crashes, the specific site characteristics and pedestrian generators, there is a nexus between traffic safety and the speed camera at this location.

SAMMAT ENGINEERING SERVICES, LLC

1515 RISING RIDGE ROAD
MOUNT AIRY, MD 21771

www.sammateng.com

100 block of Michigan Ave NE WB Speed

WB	1	16	21	26	31	36	41	46	51	56	61	66	71	76	Total
Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	
11/10/13	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	4	20	38	8	0	0	0	0	0	0	0	0	0	0	70
Total	4	20	38	8	0	0	0	0	0	0	0	0	0	0	70

SAMMAT ENGINEERING SERVICES, LLC

1515 RISING RIDGE ROAD
MOUNT AIRY, MD 21771

www.sammateng.com

100 block of Michigan Ave NE WB Speed

WB

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total
11/11/13	0	15	29	10	0	0	0	0	0	0	0	0	0	0	54
01:00	0	4	17	5	0	0	0	0	0	0	0	0	0	0	26
02:00	0	9	13	4	0	0	0	0	0	0	0	0	0	0	26
03:00	0	13	22	12	0	0	0	0	0	0	0	0	0	0	47
04:00	9	26	61	22	1	0	0	0	0	0	0	0	0	0	119
05:00	20	76	152	23	3	0	0	0	0	0	0	0	0	0	274
06:00	21	82	167	33	1	0	0	0	0	0	0	0	0	0	304
07:00	37	139	203	16	0	0	0	0	0	0	0	0	0	0	395
08:00	21	133	154	11	0	0	0	0	0	0	0	0	0	0	319
09:00	16	126	129	13	1	0	0	0	0	0	0	0	0	0	285
10:00	27	148	121	9	0	0	0	0	0	0	0	0	0	0	305
11:00	21	127	159	18	0	0	0	0	0	0	0	0	0	0	325
12 PM	22	165	116	8	0	0	0	0	0	0	0	0	0	0	311
13:00	35	162	140	10	0	0	0	0	0	0	0	0	0	0	347
14:00	30	166	146	8	0	0	0	0	0	0	0	0	0	0	350
15:00	27	141	176	13	0	0	0	0	0	0	0	0	0	0	357
16:00	30	197	135	7	0	0	0	0	0	0	0	0	0	0	369
17:00	41	199	135	13	1	0	0	0	0	0	0	0	0	0	389
18:00	22	123	129	14	0	0	0	0	0	0	0	0	0	0	288
19:00	14	136	81	5	0	0	0	0	0	0	0	0	0	0	236
20:00	17	107	91	8	0	0	0	0	0	0	0	0	0	0	223
21:00	5	49	76	14	0	0	0	0	0	0	0	0	0	0	144
22:00	7	36	63	8	2	0	0	0	0	0	0	0	0	0	116
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	422	2379	2515	284	9	0	0	0	0	0	0	0	0	0	5609
Grand Total	426	2399	2553	292	9	0	0	0	0	0	0	0	0	0	5679

15th Percentile : 11 MPH
 50th Percentile : 18 MPH
 85th Percentile : 23 MPH
 95th Percentile : 25 MPH

Stats
 Mean Speed(Average) : 18 MPH
 10 MPH Pace Speed : 15-24 MPH
 Number in Pace : 3614
 Percent in Pace : 63.6%
 Number of Vehicles > 25 MPH : 450
 Percent of Vehicles > 25 MPH : 7.9%

SAMMAT ENGINEERING SERVICES, LLC

1515 RISING RIDGE ROAD
MOUNT AIRY, MD 21771

www.sammateng.com

100 block of Michigan Ave NE WB Volume

Start Time	Sun	10-Nov-13	Mon	11-Nov-13	Tue	12-Nov-13	Daily Average	
	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
12:00	*	*	18	69	*	*	18	69
12:15	*	*	14	85	*	*	14	85
12:30	*	*	14	74	*	*	14	74
12:45	*	*	8	83	*	*	8	83
01:00	*	*	5	89	*	*	5	89
01:15	*	*	6	80	*	*	6	80
01:30	*	*	8	97	*	*	8	97
01:45	*	*	7	81	*	*	7	81
02:00	*	*	6	91	*	*	6	91
02:15	*	*	13	78	*	*	13	78
02:30	*	*	3	106	*	*	3	106
02:45	*	*	4	75	*	*	4	75
03:00	*	*	6	99	*	*	6	99
03:15	*	*	12	82	*	*	12	82
03:30	*	*	7	86	*	*	7	86
03:45	*	*	22	90	*	*	22	90
04:00	*	*	19	91	*	*	19	91
04:15	*	*	26	110	*	*	26	110
04:30	*	*	27	74	*	*	27	74
04:45	*	*	47	94	*	*	47	94
05:00	*	*	41	101	*	*	41	101
05:15	*	*	75	101	*	*	75	101
05:30	*	*	73	85	*	*	73	85
05:45	*	*	85	102	*	*	85	102
06:00	*	*	77	70	*	*	77	70
06:15	*	*	75	76	*	*	75	76
06:30	*	*	71	66	*	*	71	66
06:45	*	*	81	76	*	*	81	76
07:00	*	*	92	69	*	*	92	69
07:15	*	*	99	57	*	*	99	57
07:30	*	*	97	53	*	*	97	53
07:45	*	*	107	57	*	*	107	57
08:00	*	*	88	50	*	*	88	50
08:15	*	*	86	57	*	*	86	57
08:30	*	*	70	63	*	*	70	63
08:45	*	*	75	53	*	*	75	53
09:00	*	*	67	35	*	*	67	35
09:15	*	*	77	29	*	*	77	29
09:30	*	*	72	40	*	*	72	40
09:45	*	*	69	40	*	*	69	40
10:00	*	*	84	34	*	*	84	34
10:15	*	*	64	38	*	*	64	38
10:30	*	*	76	20	*	*	76	20
10:45	*	*	81	24	*	*	81	24
11:00	*	15	67	*	*	*	67	15
11:15	*	18	87	*	*	*	87	18
11:30	*	16	84	*	*	*	84	16
11:45	*	21	87	*	*	*	87	21
Total	0	70	2479	3130	0	0	2479	3200
Combined Total	70		5609		0		5679	
Peak	11:00		07:00	05:00			07:00	05:00
Vol.	70		395	389			395	389
P.H.F.	0.833		0.923	0.953			0.923	0.953
ADT	ADT 5,679		AADT 5,679					

DC Department of Transportation - Traffic Accident Reporting and Analysis System

Accident Summary Report (R-8)

Corridor: MICHIGAN AVE,NW,NE From NORTH CAPITOL ST,BN TO IRVING ST,NE

Time Period Covered: From 01/01/2010 To 12/31/2012

Prepared By: Rahul Jain

Prepared Date: 9/17/2013

		Collision Type	#ACC	%	Collision Type	#ACC	%
Total Number of Accident:	110	Right Angle:	6	5.5%	Fixed Object:	2	1.8%
Total Number of Fatalities:	0	Left Turn:	11	10.0%	Ran Off Road:	2	1.8%
Total Number of Injuries:	59	Right Turn:	4	3.6%	Ped. Involved:	6	5.5%
Total Number of Disabling Injuries:	6	Rear End:	33	30.0%	Backing:	8	7.3%
Total Number of NonDisabling Injuries:	7	Side Swiped:	23	20.9%	Non Collision:	1	0.9%
Total Number of Pedestrians Involved:	6	Head On:	8	7.3%	Under/Over Ride:	0	0.0%
Total Number of Bicycles Involved:	2	Parked:	1	0.9%	Unspecified:	5	4.5%
Total Number of Motorcycles Involved:	1						

Time of Day	#ACC	%	Day o fweek	#ACC	%
07:30 ~ 09:30:	7	6.4%	Sunday:	7	6.4%
09:30 ~ 11:30:	10	9.1%	Monday:	22	20.0%
11:30 ~ 13:30:	16	14.5%	Tuesday:	21	19.1%
13:30 ~ 16:00:	18	16.4%	Wednesday:	19	17.3%
16:00 ~18:30:	15	13.6%	Thursday:	11	10.0%
18:30 ~ 07:30:	44	40.0%	Friday:	19	17.3%
Unspecified:	0	0.0%	Saturday:	11	10.0%

Weather Condition	#ACC	%	Surface Condition	#ACC	%
Clear:	92	83.6%	Dry:	93	84.5%
Rain:	13	11.8%	Wet:	14	12.7%
Snow:	2	1.8%	Snow/Ice:	1	0.9%
Sleet/Hail:	0	0.0%	Slush:	0	0.0%
Fog/Mist:	0	0.0%	Water/Sand:	0	0.0%
Crosswind/Blowing Sand:	0	0.0%	Repairing:	0	0.0%
Unspecified:	3	2.7%	Unspecified:	2	1.8%

Type of Vehicle	#VEH	%	Accident Severity Type	#ACC	%
Passenger Car:	174	82.1%	Fatal Collision:	0	0.0%
Bus:	12	5.7%	Injury Collision:	39	35.5%
Truck:	5	2.4%	PDO Collision:	71	64.5%
Taxi:	7	3.3%			
Minivan:	0	0.0%	Light Condition	#ACC	%
Police/Emergency Vehicle:	1	0.5%	Daylight:	66	60.0%
Motorcycle/Moped:	1	0.5%	Dawn/Dusk:	2	1.8%
Bicycle:	2	0.9%	Dark(Lighted):	36	32.7%
Fixed Object:	0	0.0%	Dark(Not Lighted):	0	0.0%
Unspecified:	10	4.7%	Dark(Unknown Lighting):	0	0.0%
			Unspecified:	6	5.5%

Contributing Factor	#VEH	%	Pedestrian Actions	#ACC	%
Driver: Speed:	5	2.4%	In Crosswalk with Signal:	3	60.0%
Driver: Alcohol/Drug:	1	0.5%	In Crosswalk against Signal:	0	0.0%
Driver: Electronic Device:	0	0.0%	In Crosswalk no Signal:	0	0.0%
Driver: Others:	46	21.7%	In Unmarked Crosswalk:	0	0.0%
Vehicle:	1	0.5%	Not in Crosswalk:	0	0.0%
Roadway:	4	1.9%	From Between Parked Cars:	0	0.0%
Unspecified:	155	73.1%	Unspecified:	2	40.0%

78 Records are not approved as of 9/17/2013 12:42:07 PM

DC Department of Transportation - Traffic Accident Reporting and Analysis System

Accident Summary Report (R-8)

Corridor: MICHIGAN AVE,NW,NE From NORTH CAPITOL ST,BN TO IRVING ST,NE

Time Period Covered: From 01/01/2004 To 12/31/2004

Prepared By: Rahul Jain

Prepared Date: 11/19/2013

Total Number of Accident:	52	Collision Type	#ACC	%	Collision Type	#ACC	%
Total Number of Fatalities:	0	Right Angle:	9	17.3%	Fixed Object:	1	1.9%
Total Number of Injuries:	35	Left Turn:	12	23.1%	Ran Off Road:	0	0.0%
Total Number of Disabling Injuries:	1	Right Turn:	0	0.0%	Ped. Involved:	1	1.9%
Total Number of NonDisabling Injuries:	1	Rear End:	14	26.9%	Backing:	0	0.0%
Total Number of Pedestrians Involved:	0	Side Swiped:	13	25.0%	Non Collision:	0	0.0%
Total Number of Bicycles Involved:	0	Head On:	0	0.0%	Under/Over Ride:	0	0.0%
Total Number of Motorcycles Involved:	0	Parked:	2	3.8%	Unspecified:	0	0.0%
Time of Day				#ACC	%	Day of week	
07:30 ~ 09:30:				10	19.2%	Sunday:	
09:30 ~ 11:30:				3	5.8%	Monday:	
11:30 ~ 13:30:				11	21.2%	Tuesday:	
13:30 ~ 16:00:				7	13.5%	Wednesday:	
16:00 ~ 18:30:				13	25.0%	Thursday:	
18:30 ~ 07:30:				8	15.4%	Friday:	
Unspecified:				0	0.0%	Saturday:	
Weather Condition				#ACC	%	Surface Condition	
Clear:				46	88.5%	Dry:	
Rain:				3	5.8%	Wet:	
Snow:				0	0.0%	Snow/Ice:	
Sleet/Hail:				0	0.0%	Slush:	
Fog/Mist:				0	0.0%	Water/Sand:	
Crosswind/Blowing Sand:				0	0.0%	Repairing:	
Unspecified:				3	5.8%	Unspecified:	
Type of Vehicle				#VEH	%	Accident Severity Type	
Passenger Car:				90	80.4%	Fatal Collision:	
Bus:				2	1.8%	Injury Collision:	
Truck:				6	5.4%	PDO Collision:	
Taxi:				4	3.6%	Light Condition	
Minivan:				0	0.0%	Daylight:	
Police/Emergency Vehicle:				0	0.0%	Dawn/Dusk:	
Motorcycle/Moped:				0	0.0%	Dark(Lighted):	
Bicycle:				0	0.0%	Dark(Not Lighted):	
Fixed Object:				0	0.0%	Dark(Unknown Lighting):	
Unspecified:				10	8.9%	Unspecified:	
Contributing Factor				#VEH	%	Pedestrian Actions	
Driver: Speed:				1	0.9%	In Crosswalk with Signal:	
Driver: Alcohol/Drug:				0	0.0%	In Crosswalk against Signal:	
Driver: Electronic Device:				0	0.0%	In Crosswalk no Signal:	
Driver: Others:				19	17.0%	In Unmarked Crosswalk:	
Vehicle:				0	0.0%	Not in Crosswalk:	
Roadway:				0	0.0%	From Between Parked Cars:	
Unspecified:				92	82.1%	Unspecified:	

52 Records are not approved as of 11/19/2013 2:41:45 PM

DC Department of Transportation - Traffic Accident Reporting and Analysis System

Accident Summary Report (R-8)

Corridor: MICHIGAN AVE,NW,NE From NORTH CAPITOL ST,BN TO IRVING ST,NE

Time Period Covered: From 01/01/2006 To 12/31/2006

Prepared By: Rahul Jain

Prepared Date: 11/19/2013

Total Number of Accident:	31	Collision Type	#ACC	%	Collision Type	#ACC	%
Total Number of Fatalities:	0	Right Angle:	4	12.9%	Fixed Object:	0	0.0%
Total Number of Injuries:	15	Left Turn:	3	9.7%	Ran Off Road:	1	3.2%
Total Number of Disabling Injuries:	0	Right Turn:	2	6.5%	Ped. Involved:	0	0.0%
Total Number of NonDisabling Injuries:	4	Rear End:	8	25.8%	Backing:	1	3.2%
Total Number of Pedestrians Involved:	3	Side Swiped:	9	29.0%	Non Collision:	0	0.0%
Total Number of Bicycles Involved:	0	Head On:	1	3.2%	Under/Over Ride:	0	0.0%
Total Number of Motorcycles Involved:	0	Parked:	0	0.0%	Unspecified:	2	6.5%
Time of Day				Day of week			
	#ACC	%			#ACC	%	
07:30 ~ 09:30:	5	16.1%		Sunday:	3	9.7%	
09:30 ~ 11:30:	1	3.2%		Monday:	4	12.9%	
11:30 ~ 13:30:	0	0.0%		Tuesday:	7	22.6%	
13:30 ~ 16:00:	5	16.1%		Wednesday:	5	16.1%	
16:00 ~ 18:30:	9	29.0%		Thursday:	7	22.6%	
18:30 ~ 07:30:	11	35.5%		Friday:	1	3.2%	
Unspecified:	0	0.0%		Saturday:	4	12.9%	
Weather Condition				Surface Condition			
	#ACC	%			#ACC	%	
Clear:	29	93.5%		Dry:	28	90.3%	
Rain:	1	3.2%		Wet:	1	3.2%	
Snow:	0	0.0%		Snow/Ice:	0	0.0%	
Sleet/Hail:	0	0.0%		Slush:	0	0.0%	
Fog/Mist:	0	0.0%		Water/Sand:	0	0.0%	
Crosswind/Blowing Sand:	0	0.0%		Repairing:	0	0.0%	
Unspecified:	1	3.2%		Unspecified:	2	6.5%	
Type of Vehicle				Accident Severity Type			
	#VEH	%			#ACC	%	
Passenger Car:	56	76.7%		Fatal Collision:	0	0.0%	
Bus:	3	4.1%		Injury Collision:	13	41.9%	
Truck:	3	4.1%		PDO Collision:	18	58.1%	
Taxi:	1	1.4%		Light Condition			
Minivan:	0	0.0%			#ACC	%	
Police/Emergency Vehicle:	0	0.0%		Daylight:	20	64.5%	
Motorcycle/Moped:	0	0.0%		Dawn/Dusk:	2	6.5%	
Bicycle:	0	0.0%		Dark(Lighted):	0	0.0%	
Fixed Object:	0	0.0%		Dark(Not Lighted):	0	0.0%	
Unspecified:	10	13.7%		Dark(Unknown Lighting):	7	22.6%	
				Unspecified:	2	6.5%	
Contributing Factor				Pedestrian Actions			
	#VEH	%			#ACC	%	
Driver: Speed:	1	1.4%		In Crosswalk with Signal:	1	50.0%	
Driver: Alcohol/Drug:	0	0.0%		In Crosswalk against Signal:	0	0.0%	
Driver: Electronic Device:	0	0.0%		In Crosswalk no Signal:	0	0.0%	
Driver: Others:	13	17.8%		In Unmarked Crosswalk:	0	0.0%	
Vehicle:	0	0.0%		Not in Crosswalk:	0	0.0%	
Roadway:	3	4.1%		From Between Parked Cars:	0	0.0%	
Unspecified:	56	76.7%		Unspecified:	1	50.0%	

31 Records are not approved as of 11/19/2013 2:40:02 PM