



District Department of Transportation

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

North Capitol at Michigan Avenue NW

Study Area and Location

District	PSA	Ward	ANC	Phase	Description
5	405	5	5C	Proposed	North Capitol Street Southbound at Michigan Avenue Northwest



This *proposed* speed camera will be located in Ward 5 at the intersection of North Capitol Street and Michigan Avenue Northwest in the southbound direction. North Capitol Street runs between Eastern Avenue Northwest to the north and D Street Northeast to the south. The posted speed limit is 35 MPH.

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District Department of Transportation

North Capitol at Michigan Avenue NW

Field Assessment Summary

North Capitol Street is assumed to run in the north-south direction, and is classified as a principal arterial. North Capitol Street has two through lanes and one through and right lane in each direction. Michigan Avenue has one through lane and one shared through/right lane in each direction as well as a left turn lane in the westbound direction. This site has the following characteristics:

- This site is located in a residential area with houses in the southeast corner.
- There is construction on the southbound side of the north leg and on the west leg of the intersection.
- There is sidewalk on both sides of the east, west, and south legs and the east side of the north leg and a grassy median on the north leg and a concrete median on the south leg of the intersection.
- The intersection has a traffic signal and crosswalks with pedestrian signals.
- There is on-street parking on both sides of the east leg.
- There is one school in the area: Trinity Washington University.
- Washington Hospital and Veterans Hospital are also in the area.
- Edgewood Playground is nearby.
- There are bus stops on Michigan Avenue in the northeast, southeast, and southwest corners, as well as others in the surrounding area. Northbound buses on North Capitol Street turn right onto Michigan Avenue.



Looking Northbound

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District Department of Transportation

North Capitol at Michigan Avenue NW



Looking Southbound

Speed Data Analysis

Posted Speed Limit (MPH)	35
Mean Speed (MPH)	19
85th Percentile Speed (MPH)	27
10 MPH Pace Speed (MPH)	20-29
ADT	18,100

Both the mean speed and the 85th percentile speed are lower than the posted speed limit at this location. The 85th percentile speed is 8 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 67 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 (25 crashes), Side Swipe (12 crashes), and Left Turn (9 crashes). Furthermore, this site experienced a high frequency (26 crashes) of injury-related crashes.

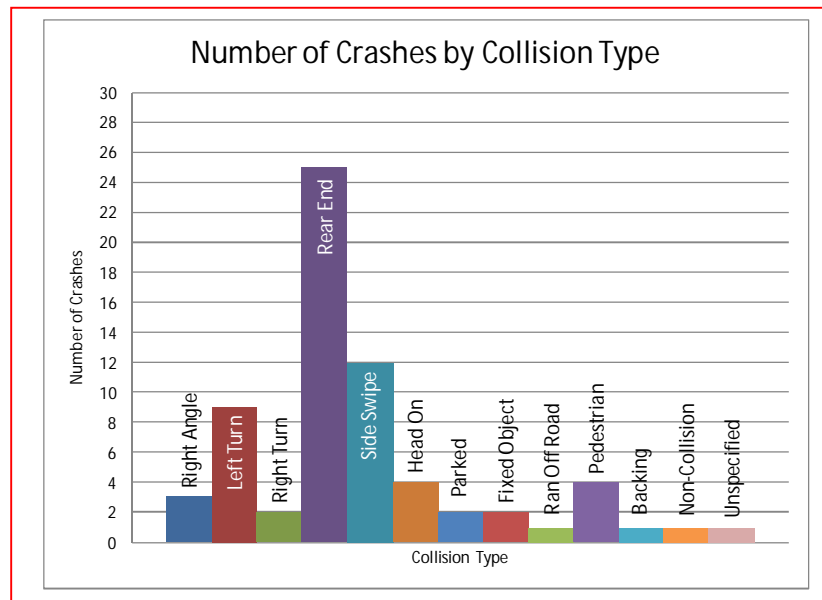
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District Department of Transportation

North Capitol at Michigan Avenue NW

Severity			Weather			Surface condition			Light Condition		
Total	67										
Fatal	0	0.0%	Clear	45	67.2%	Dry	46	68.7%	Day	36	53.7%
Injury	26	38.8%	Rain	19	28.4%	Wet	19	28.4%	Night	26	38.8%
Truck	7	10.4%	Snow	0	0.0%	Snow/Ice	0	0.0%			
Taxi	4	6.0%									



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.

Safety Nexus

This site presents the following safety considerations which may support the 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, including rear end collisions, as well as a high frequency (26 crashes) of injury-related crashes.

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



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North Capitol at Michigan Avenue NW

3. Field Assessment – The following site characteristics suggest a need for a safer travel environment:
 - a. This is a residential area with houses in the southeast corner
 - b. There is construction on the southbound side of the north leg and on the west leg of the intersection.
 - c. There is one school in the area: Trinity Washington University.
 - d. Washington Hospital and Veterans Hospital are also in the area.
 - e. Edgewood Playground is in the area which generates pedestrian and bicycle activity.
 - f. There are several bus stops in the area which generate pedestrian and bicycle activity.
 - g. There is on-street parking on both sides of the east leg of the intersection.

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 and injury-related crashes, the specific site characteristics, and pedestrian generators, there is a nexus between traffic safety and the speed camera at this location.

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SAMMAT ENGINEERING SERVICES, LLC

1515 RISING RIDGE ROAD
MOUNT AIRY, MD 21771

www.sammateng.com

North Capitol SB at Michigan Ave NW Speed

SB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total
11/14/13	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	5	12	98	81	7	0	0	0	0	0	0	0	0	0	203
05:00	19	23	525	226	3	0	0	0	0	0	0	0	0	0	796
06:00	55	69	878	238	7	0	0	0	0	0	0	0	0	0	1247
07:00	83	79	1007	193	2	0	0	0	0	0	0	0	0	0	1364
08:00	88	84	994	241	10	0	0	0	0	0	0	0	0	0	1417
09:00	168	92	609	273	87	52	30	14	2	1	0	0	0	0	1328
10:00	88	64	506	235	69	23	3	0	1	0	0	0	0	0	989
11:00	86	69	488	259	76	13	4	0	0	0	0	0	0	0	995
12 PM	98	67	435	273	84	24	4	8	3	8	11	6	0	0	1021
13:00	152	29	202	271	84	24	10	2	12	29	42	14	2	0	873
14:00	120	36	258	316	94	27	12	5	6	30	54	14	6	1	979
15:00	148	15	231	308	116	31	10	12	11	23	42	33	10	40	1030
16:00	317	17	190	248	63	21	17	11	7	5	5	13	9	37	960
17:00	539	17	72	70	5	4	11	9	2	1	2	2	1	1	736
18:00	537	8	112	72	16	2	4	1	5	4	0	1	2	5	769
19:00	480	9	105	71	9	4	6	4	6	4	1	3	1	5	708
20:00	453	6	113	65	16	5	2	2	2	6	7	6	0	7	690
21:00	390	5	120	76	7	4	0	8	2	5	3	1	1	8	630
22:00	276	6	73	49	9	2	1	3	1	2	1	0	2	4	429
23:00	253	5	37	39	5	3	2	1	0	0	2	0	0	3	350
Total	4355	712	7053	3604	769	239	116	80	60	118	170	93	34	111	17514

SAMMAT ENGINEERING SERVICES, LLC

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MOUNT AIRY, MD 21771

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North Capitol SB at Michigan Ave NW Speed

SB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total
11/15/13	142	5	13	16	1	2	2	2	1	1	3	3	2	2	195
01:00	77	2	13	9	1	1	0	0	0	0	1	1	0	0	105
02:00	55	1	4	5	0	0	0	0	0	0	0	0	0	1	66
03:00	104	1	3	13	3	3	0	1	0	0	2	1	1	4	136
04:00	59	1	11	8	2	0	0	0	2	0	0	0	0	1	84
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	437	10	44	51	7	6	2	3	3	1	6	5	3	8	586
Grand Total	4792	722	7097	3655	776	245	118	83	63	119	176	98	37	119	18100

15th Percentile : 6 MPH
 50th Percentile : 20 MPH
 85th Percentile : 27 MPH
 95th Percentile : 33 MPH

Stats
 Mean Speed(Average) : 19 MPH
 10 MPH Pace Speed : 20-29 MPH
 Number in Pace : 7948
 Percent in Pace : 44.2%
 Number of Vehicles > 35 MPH : 802
 Percent of Vehicles > 35 MPH : 4.5%

SAMMAT ENGINEERING SERVICES, LLC

1515 RISING RIDGE ROAD
MOUNT AIRY, MD 21771

www.sammateng.com

North Capitol SB at Michigan Ave NW Volume

Start Time	Thu 14-Nov-13		Fri 15-Nov-13		Sat 16-Nov-13		Daily Average	
	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
12:00	*	309	67	*	*	*	67	309
12:15	*	259	45	*	*	*	45	259
12:30	*	206	40	*	*	*	40	206
12:45	*	247	43	*	*	*	43	247
01:00	*	212	22	*	*	*	22	212
01:15	*	221	32	*	*	*	32	221
01:30	*	224	26	*	*	*	26	224
01:45	*	216	25	*	*	*	25	216
02:00	*	247	18	*	*	*	18	247
02:15	*	261	13	*	*	*	13	261
02:30	*	220	20	*	*	*	20	220
02:45	*	251	15	*	*	*	15	251
03:00	*	247	23	*	*	*	23	247
03:15	*	252	33	*	*	*	33	252
03:30	*	284	35	*	*	*	35	284
03:45	*	247	45	*	*	*	45	247
04:00	*	254	40	*	*	*	40	254
04:15	*	256	44	*	*	*	44	256
04:30	88	258	*	*	*	*	88	258
04:45	115	192	*	*	*	*	115	192
05:00	135	195	*	*	*	*	135	195
05:15	189	203	*	*	*	*	189	203
05:30	246	173	*	*	*	*	246	173
05:45	226	165	*	*	*	*	226	165
06:00	278	206	*	*	*	*	278	206
06:15	288	197	*	*	*	*	288	197
06:30	319	186	*	*	*	*	319	186
06:45	362	180	*	*	*	*	362	180
07:00	356	203	*	*	*	*	356	203
07:15	325	165	*	*	*	*	325	165
07:30	375	178	*	*	*	*	375	178
07:45	308	162	*	*	*	*	308	162
08:00	363	167	*	*	*	*	363	167
08:15	384	188	*	*	*	*	384	188
08:30	349	157	*	*	*	*	349	157
08:45	321	178	*	*	*	*	321	178
09:00	378	155	*	*	*	*	378	155
09:15	324	173	*	*	*	*	324	173
09:30	328	170	*	*	*	*	328	170
09:45	298	132	*	*	*	*	298	132
10:00	248	114	*	*	*	*	248	114
10:15	236	121	*	*	*	*	236	121
10:30	265	97	*	*	*	*	265	97
10:45	240	97	*	*	*	*	240	97
11:00	251	89	*	*	*	*	251	89
11:15	251	94	*	*	*	*	251	94
11:30	224	85	*	*	*	*	224	85
11:45	269	82	*	*	*	*	269	82
Total	8339	9175	586	0	0	0	8925	9175
Combined Total	17514		586		0		18100	
Peak	08:15	03:30	12:00				08:15	03:30
Vol.	1432	1041	195				1432	1041
P.H.F.	0.932	0.916	0.728				0.932	0.916
ADT	ADT 18,100		AADT 18,100					

DC Department of Transportation - Traffic Accident Reporting and Analysis System

Accident Summary Report (R-8)

Corridor: NORTH CAPITOL ST,BN From MICHIGAN AVE,BN TO GIRARD ST,BN

Time Period Covered: From 01/01/2010 To 12/31/2012 **Prepared By:** Rahul Jain

Prepared Date: 9/16/2013

Total Number of Accident:	67	Collision Type	#ACC	%	Collision Type	#ACC	%
Total Number of Fatalities:	0	Right Angle:	3	4.5%	Fixed Object:	2	3.0%
Total Number of Injuries:	38	Left Turn:	9	13.4%	Ran Off Road:	1	1.5%
Total Number of Disabling Injuries:	4	Right Turn:	2	3.0%	Ped. Involved:	4	6.0%
Total Number of NonDisabling Injuries:	4	Rear End:	25	37.3%	Backing:	1	1.5%
Total Number of Pedestrians Involved:	3	Side Swiped:	12	17.9%	Non Collision:	1	1.5%
Total Number of Bicycles Involved:	2	Head On:	4	6.0%	Under/Over Ride:	0	0.0%
Total Number of Motorcycles Involved:	1	Parked:	2	3.0%	Unspecified:	1	1.5%
Time of Day				Day of week			
	#ACC	%			#ACC	%	
07:30 ~ 09:30:	7	10.4%		Sunday:	4	6.0%	
09:30 ~ 11:30:	7	10.4%		Monday:	12	17.9%	
11:30 ~ 13:30:	3	4.5%		Tuesday:	9	13.4%	
13:30 ~ 16:00:	10	14.9%		Wednesday:	16	23.9%	
16:00 ~ 18:30:	13	19.4%		Thursday:	9	13.4%	
18:30 ~ 07:30:	27	40.3%		Friday:	9	13.4%	
Unspecified:	0	0.0%		Saturday:	8	11.9%	
Weather Condition				Surface Condition			
	#ACC	%			#ACC	%	
Clear:	45	67.2%		Dry:	46	68.7%	
Rain:	19	28.4%		Wet:	19	28.4%	
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:	3	4.5%		Unspecified:	2	3.0%	
Type of Vehicle				Accident Severity Type			
	#VEH	%			#ACC	%	
Passenger Car:	106	82.2%		Fatal Collision:	0	0.0%	
Bus:	3	2.3%		Injury Collision:	26	38.8%	
Truck:	7	5.4%		PDO Collision:	41	61.2%	
Taxi:	4	3.1%		Light Condition			
Minivan:	0	0.0%			#ACC	%	
Police/Emergency Vehicle:	1	0.8%		Daylight:	36	53.7%	
Motorcycle/Moped:	2	1.6%		Dawn/Dusk:	1	1.5%	
Bicycle:	2	1.6%		Dark(Lighted):	26	38.8%	
Fixed Object:	0	0.0%		Dark(Not Lighted):	0	0.0%	
Unspecified:	4	3.1%		Dark(Unknown Lighting):	0	0.0%	
				Unspecified:	4	6.0%	
Contributing Factor				Pedestrian Actions			
	#VEH	%			#ACC	%	
Driver: Speed:	4	3.1%		In Crosswalk with Signal:	1	50.0%	
Driver: Alcohol/Drug:	1	0.8%		In Crosswalk against Signal:	0	0.0%	
Driver: Electronic Device:	0	0.0%		In Crosswalk no Signal:	0	0.0%	
Driver: Others:	27	20.9%		In Unmarked Crosswalk:	0	0.0%	
Vehicle:	1	0.8%		Not in Crosswalk:	0	0.0%	
Roadway:	0	0.0%		From Between Parked Cars:	0	0.0%	
Unspecified:	96	74.4%		Unspecified:	1	50.0%	

47 Records are not approved as of 9/16/2013 8:04:22 AM