



District Department of Transportation

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

Michigan Avenue at South Dakota Avenue NE

Study Area and Location

District	PSA	Ward	ANC	Phase	Description
5	503/504	5	5A	Proposed	Michigan Avenue Westbound at South Dakota Avenue Northeast



The *proposed* speed camera will be located in Ward 5 at the intersection of Michigan Avenue and South Dakota Avenue Northeast in the westbound direction. Michigan Avenue runs between Franklin Street Northeast to the east and Eastern Avenue Northeast to the west. The posted speed limit is 25 MPH.

W5 - 526





District Department of Transportation

Michigan Avenue at South Dakota Avenue NE

Field Assessment Summary

Michigan Avenue Northeast is assumed to run an East-West direction and is classified as a minor arterial. Michigan Avenue has a through/right turn lane and a through/left turn lane in each direction. South Dakota Avenue has a through/right turn lane and through/left turn lane in the northbound direction and a through/right turn lane and a through lane in the southbound direction. This site has the following characteristics:

- This is a residential area with houses.
- There is one school in the area: Bunker Hill Elementary School.
- This intersection has a traffic signal with pedestrian signals and crosswalks on all four legs.
- There is an island in the northwest corner creating a free right turn for southbound South Dakota Avenue traffic.
- There is sidewalk on both sides of the street on all four legs.
- There are bus stops southbound on South Dakota Avenue on the north leg, northbound on South Dakota Avenue on the south leg, and in both directions on Michigan Avenue on the west leg.
- There are "Quiet Zone" signs and school signs with flashing signals.



Looking Eastbound

W5 - 527



Michigan Avenue at South Dakota Avenue NE



Looking Southbound

Speed Data Analysis

Posted Speed Limit (MPH)	25
Mean Speed (MPH)	17
85th Percentile Speed (MPH)	25
10 MPH Pace Speed	16-25
ADT	7,307

The mean speed is lower than the posted speed limit by 8 MPH and the 85th percentile speed is the same as the posted speed at this location.

Crash Data Analysis

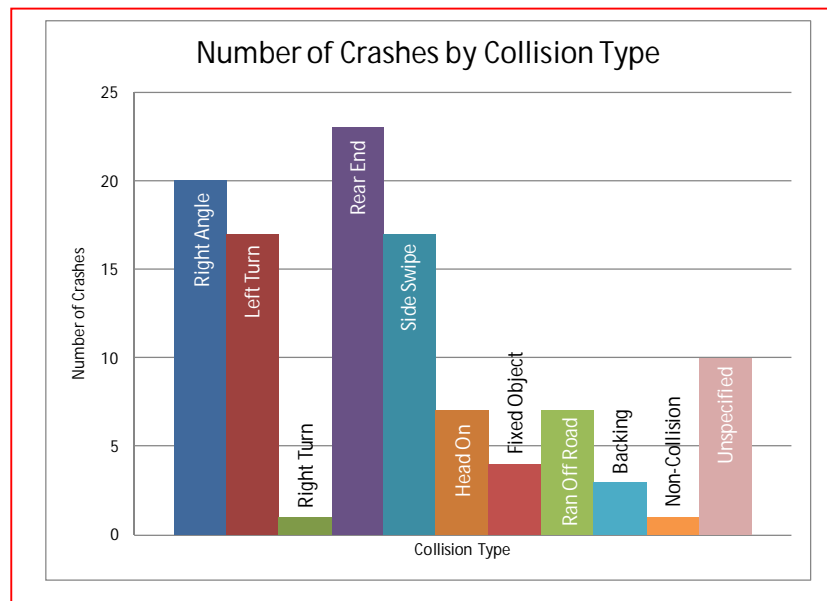
From the Accident Summary Report provided for the dates between January 1, 2010 and December 31, 2012 there were a total of 110 crashes at this location. A breakdown of number of crashes by collision type can be found in the chart on the next page. The most common types of crashes at this location were Rear End (23), Right Angle (20), Left turn (17) and Side Swiped (17). Furthermore, this site experienced a high frequency (51 crashes) of injury-related crashes.



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Michigan Avenue at South Dakota Avenue NE

Severity			Weather			Surface condition			Light Condition		
Total	110										
Fatal	0	0.0%	Clear	78	70.9%	Dry	77	70.0%	Day	79	71.8%
Injury	51	46.4%	Rain	18	16.4%	Wet	23	20.9%	Night	26	23.6%
Truck	9	8.2%	Fog/Mist	4	3.6%	Snow/Ice	4	3.6%			
Taxi	5	4.5%									



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 establish a nexus between traffic safety and the speed camera:

1. Speed Data – The speed data analysis shows travel speeds being lower than or the same as the posted speed limit.

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



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Michigan Avenue at South Dakota Avenue NE

2. Crash Data – There was an elevated number of speed-related crashes at this location, including rear end, right angle, left turn, and side swipe collisions, as well as a high frequency (51 crashes) of injury-related crashes.
3. Field Assessment – The following site characteristics suggest a need for a safer travel environment:
 - a. This is a residential area with houses.
 - b. There is one school in the area: Bunker Hill Elementary School.
 - c. There are multiple bus stops in the area which generate pedestrian activity.

Although the speed data analysis showed the mean and 85th percentile speeds to be lower than or the same as 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.

W5 - 530

SAMMAT ENGINEERING SERVICES, LLC

1515 RISING RIDGE ROAD
MOUNT AIRY, MD 21771

www.sammateng.com

Michigan Ave WB at South Dakota Ave NE 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	
11/17/13	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
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	8	47	67	19	0	0	0	0	0	0	0	0	0	0	141
23:00	10	31	39	15	0	0	0	0	0	0	0	0	0	0	95
Total	18	78	106	34	0	0	0	0	0	0	0	0	0	0	236

SAMMAT ENGINEERING SERVICES, LLC

1515 RISING RIDGE ROAD
MOUNT AIRY, MD 21771

www.sammateng.com

Michigan Ave WB at South Dakota Ave NE 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	Total
11/18/13	4	11	32	8	0	0	0	0	0	0	0	0	0	0	55
01:00	0	10	17	5	2	0	0	0	0	0	0	0	0	0	34
02:00	2	6	12	4	0	0	0	0	0	0	0	0	0	0	24
03:00	3	9	24	5	0	0	0	0	0	0	0	0	0	0	41
04:00	3	29	51	17	2	0	0	0	0	0	0	0	0	0	102
05:00	78	80	73	44	10	3	1	0	0	0	0	0	0	0	289
06:00	189	87	78	69	34	0	0	0	0	0	0	0	0	0	457
07:00	237	176	115	44	14	0	0	0	0	0	0	0	0	0	586
08:00	288	129	105	63	13	0	0	0	0	0	0	0	0	0	598
09:00	192	102	76	88	19	0	0	0	0	0	0	0	0	0	477
10:00	102	115	119	72	16	2	0	0	0	0	0	0	0	0	426
11:00	87	93	125	64	8	1	0	0	0	0	0	0	0	0	378
12 PM	92	88	124	71	9	1	0	0	0	0	0	0	0	0	385
13:00	86	61	122	82	17	1	0	0	0	0	0	0	0	0	369
14:00	62	84	161	109	25	1	0	0	0	0	0	0	0	0	442
15:00	37	71	168	110	27	2	0	0	0	0	0	0	0	0	415
16:00	56	74	163	116	12	1	0	0	0	0	0	0	0	0	422
17:00	44	73	190	137	17	1	0	0	0	0	0	0	0	0	462
18:00	42	87	150	73	20	1	0	0	0	0	0	0	0	0	373
19:00	77	97	83	34	4	0	0	0	0	0	0	0	0	0	295
20:00	45	95	84	25	1	0	0	0	0	0	0	0	0	0	250
21:00	25	78	66	22	0	0	0	0	0	0	0	0	0	0	191
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	1751	1655	2138	1262	250	14	1	0	0	0	0	0	0	0	7071
Grand Total	1769	1733	2244	1296	250	14	1	0	0	0	0	0	0	0	7307

15th Percentile : 7 MPH
 50th Percentile : 17 MPH
 85th Percentile : 25 MPH
 95th Percentile : 29 MPH

Stats
 Mean Speed(Average) : 17 MPH
 10 MPH Pace Speed : 16-25 MPH
 Number in Pace : 2946
 Percent in Pace : 40.3%
 Number of Vehicles > 25 MPH : 1276
 Percent of Vehicles > 25 MPH : 17.5%

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Michigan Ave WB at South Dakota Ave NE Volume

Start Time	Sun	17-Nov-13	Mon	18-Nov-13	Tue	19-Nov-13	Daily Average	
	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
12:00	*	*	20	82	*	*	20	82
12:15	*	*	12	103	*	*	12	103
12:30	*	*	11	106	*	*	11	106
12:45	*	*	12	94	*	*	12	94
01:00	*	*	11	94	*	*	11	94
01:15	*	*	6	105	*	*	6	105
01:30	*	*	9	77	*	*	9	77
01:45	*	*	8	93	*	*	8	93
02:00	*	*	7	114	*	*	7	114
02:15	*	*	3	103	*	*	3	103
02:30	*	*	7	110	*	*	7	110
02:45	*	*	7	115	*	*	7	115
03:00	*	*	9	96	*	*	9	96
03:15	*	*	11	106	*	*	11	106
03:30	*	*	8	107	*	*	8	107
03:45	*	*	13	106	*	*	13	106
04:00	*	*	15	113	*	*	15	113
04:15	*	*	23	81	*	*	23	81
04:30	*	*	23	113	*	*	23	113
04:45	*	*	41	115	*	*	41	115
05:00	*	*	48	134	*	*	48	134
05:15	*	*	73	122	*	*	73	122
05:30	*	*	74	107	*	*	74	107
05:45	*	*	94	99	*	*	94	99
06:00	*	*	89	97	*	*	89	97
06:15	*	*	116	89	*	*	116	89
06:30	*	*	133	105	*	*	133	105
06:45	*	*	119	82	*	*	119	82
07:00	*	*	143	78	*	*	143	78
07:15	*	*	152	76	*	*	152	76
07:30	*	*	152	78	*	*	152	78
07:45	*	*	139	63	*	*	139	63
08:00	*	*	137	63	*	*	137	63
08:15	*	*	132	70	*	*	132	70
08:30	*	*	180	52	*	*	180	52
08:45	*	*	149	65	*	*	149	65
09:00	*	*	119	43	*	*	119	43
09:15	*	*	115	55	*	*	115	55
09:30	*	*	118	56	*	*	118	56
09:45	*	*	125	37	*	*	125	37
10:00	*	28	106	*	*	*	106	28
10:15	*	43	114	*	*	*	114	43
10:30	*	32	112	*	*	*	112	32
10:45	*	38	94	*	*	*	94	38
11:00	*	30	95	*	*	*	95	30
11:15	*	25	89	*	*	*	89	25
11:30	*	19	98	*	*	*	98	19
11:45	*	21	96	*	*	*	96	21
Total	0	236	3467	3604	0	0	3467	3840
Combined Total	236		7071		0		7307	
Peak	10:15		08:00	04:30			08:00	04:30
Vol.	143		598	484			598	484
P.H.F.	0.831		0.831	0.903			0.831	0.903
ADT	ADT 7,307		AADT 7,307					

DC Department of Transportation - Traffic Accident Reporting and Analysis System

Accident Summary Report (R-8)

Corridor: MICHIGAN AVE,NW,NE From BUNKER HILL RD,NE TO SOUTH DAKOTA AVE,NE

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

Prepared By: Rahul Jain

Prepared Date: 9/16/2013

Total Number of Accident:	110	Collision Type	#ACC	%	Collision Type	#ACC	%
Total Number of Fatalities:	0	Right Angle:	20	18.2%	Fixed Object:	4	3.6%
Total Number of Injuries:	85	Left Turn:	17	15.5%	Ran Off Road:	7	6.4%
Total Number of Disabling Injuries:	0	Right Turn:	1	0.9%	Ped. Involved:	0	0.0%
Total Number of NonDisabling Injuries:	11	Rear End:	23	20.9%	Backing:	3	2.7%
Total Number of Pedestrians Involved:	0	Side Swiped:	17	15.5%	Non Collision:	1	0.9%
Total Number of Bicycles Involved:	1	Head On:	7	6.4%	Under/Over Ride:	0	0.0%
Total Number of Motorcycles Involved:	1	Parked:	0	0.0%	Unspecified:	10	9.1%
Time of Day				#ACC	%	Day o fweek	
07:30 ~ 09:30:				15	13.6%	Sunday:	
09:30 ~ 11:30:				14	12.7%	Monday:	
11:30 ~ 13:30:				19	17.3%	Tuesday:	
13:30 ~ 16:00:				15	13.6%	Wednesday:	
16:00 ~18:30:				16	14.5%	Thursday:	
18:30 ~ 07:30:				31	28.2%	Friday:	
Unspecified:				0	0.0%	Saturday:	
Weather Condition				#ACC	%	Surface Condition	
Clear:				78	70.9%	Dry:	
Rain:				18	16.4%	Wet:	
Snow:				3	2.7%	Snow/Ice:	
Sleet/Hail:				1	0.9%	Slush:	
Fog/Mist:				4	3.6%	Water/Sand:	
Crosswind/Blowing Sand:				0	0.0%	Repairing:	
Unspecified:				6	5.5%	Unspecified:	
Type of Vehicle				#VEH	%	Accident Severity Type	
Passenger Car:				185	81.9%	Fatal Collision:	
Bus:				5	2.2%	Injury Collision:	
Truck:				9	4.0%	PDO Collision:	
Taxi:				5	2.2%	Light Condition	
Minivan:				0	0.0%	Daylight:	
Police/Emergency Vehicle:				0	0.0%	Dawn/Dusk:	
Motorcycle/Moped:				1	0.4%	Dark(Lighted):	
Bicycle:				1	0.4%	Dark(Not Lighted):	
Fixed Object:				0	0.0%	Dark(Unknown Lighting):	
Unspecified:				20	8.8%	Unspecified:	
Contributing Factor				#VEH	%	Pedestrian Actions	
Driver: Speed:				6	2.7%	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:				47	20.8%	In Unmarked Crosswalk:	
Vehicle:				1	0.4%	Not in Crosswalk:	
Roadway:				3	1.3%	From Between Parked Cars:	
Unspecified:				169	74.8%	Unspecified:	

79 Records are not approved as of 9/16/2013 1:05:31 PM