



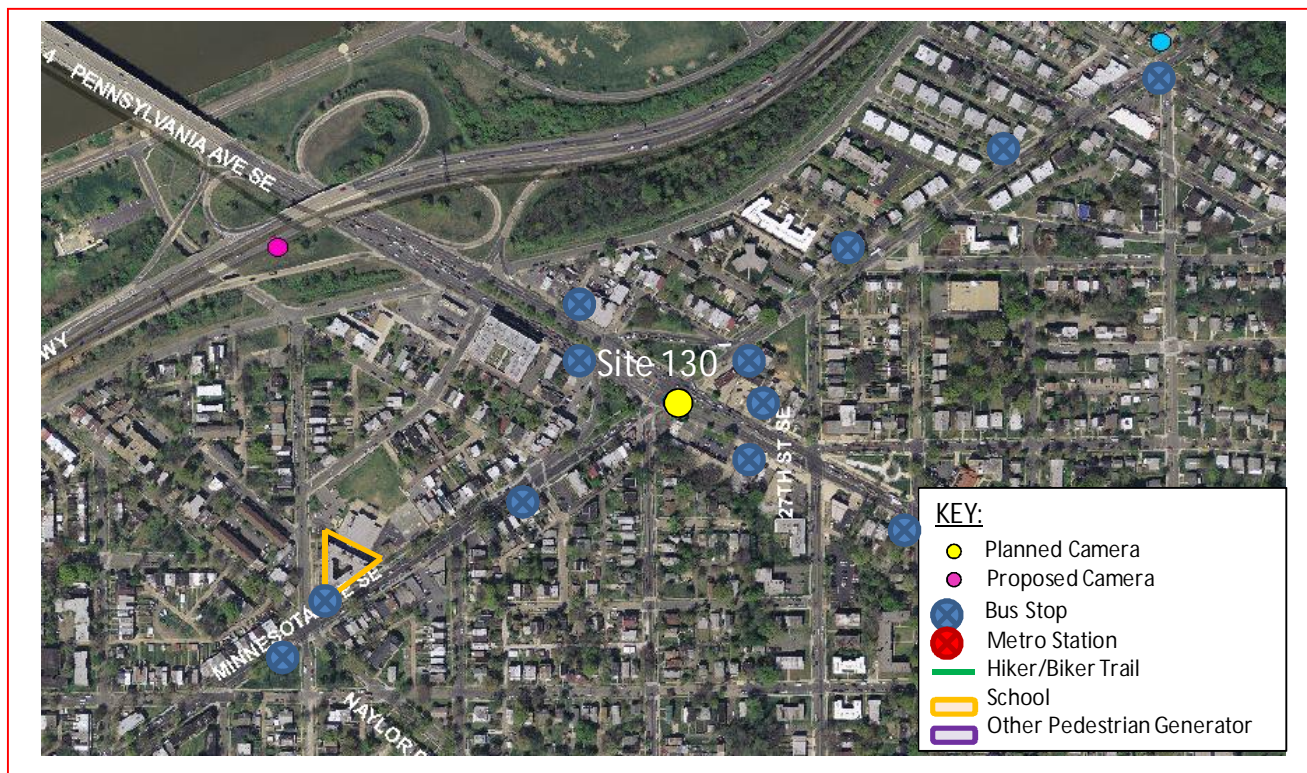
District Department of Transportation

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

Pennsylvania Avenue at Minnesota Avenue SE

Study Area and Location

District	PSA	Ward	ANC	Phase	Description
6	605/607	7 & 8	7A/8A	Planned	Pennsylvania Avenue Westbound at Minnesota Avenue Southeast



This *planned* speed camera is located in Wards 7 & 8 at the intersection of Pennsylvania Avenue Southeast and Minnesota Avenue Southeast. Pennsylvania Avenue Southeast runs from Independence Avenue Southeast to the west to Southern Avenue Southeast to the east. The posted speed limit is 30 MPH.

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District Department of Transportation

Pennsylvania Avenue at Minnesota Avenue SE

Field Assessment Summary

Pennsylvania Avenue Southeast is assumed to run in an east-west direction and is classified as a Principal Arterial. Pennsylvania Avenue Southeast has four through lanes in the westbound direction and three lanes in the eastbound direction with a grassy median. Minnesota Avenue Southeast is a one-way northbound street with a two left turns with a shared through and a shared through right turn lane. The existing speed camera is located on the center grass median in the westbound direction. This site has the following characteristics:

- The site is in a commercial area with retail and local businesses along Pennsylvania Avenue.
- There are single family homes, and apartment buildings in the area.
- There is one school in the area: Orr Elementary School.
- The site is at an existing signalized intersection with pedestrian indications, ramps and hatched crosswalks.
- There are concrete sidewalks and no on-street parking on both sides of the street.
- There are multiple bus stops along Pennsylvania Avenue Southeast.
- The drainage structure is curb-and-gutter with fair pavement condition.



Looking across Pennsylvania Avenue



District Department of Transportation

Pennsylvania Avenue at Minnesota Avenue SE



Looking Westbound

Speed Data Analysis

Posted Speed Limit (MPH)	30
Mean Speed (MPH)	13
85th Percentile Speed (MPH)	21
10 MPH Pace Speed	5-14
ADT	13,441

The mean speed and 85th percentile speed are both lower than the posted speed limit at this location. The 85th percentile speed is 9 MPH lower than the posted speed limit 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 154 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 crash at this location were Side Swipe (49 crashes), Rear End (32 crashes), and Right Angle (26 crashes). Furthermore, this site experienced a high frequency (52 crashes) of injury-related crashes.

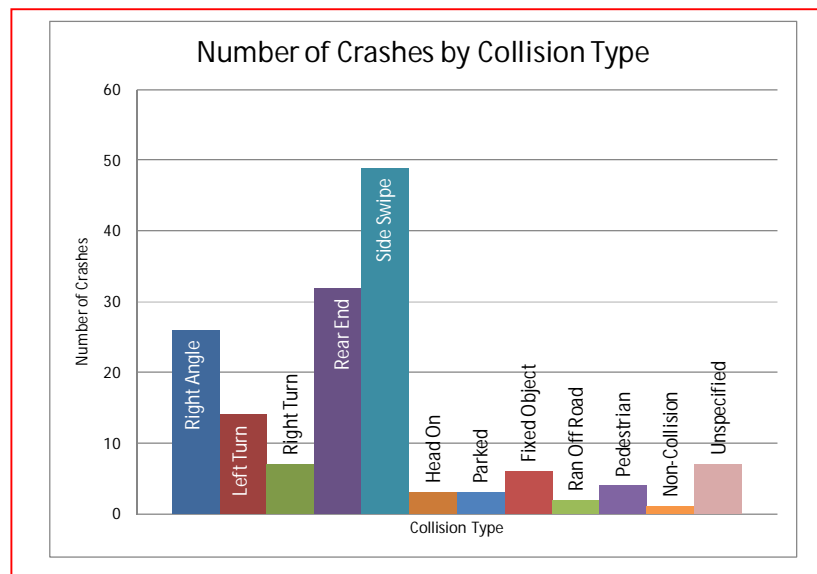
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District Department of Transportation

Pennsylvania Avenue at Minnesota Avenue SE

Severity			Weather			Surface condition			Light Condition		
Total	154										
Fatal	0	0.0%	Clear	131	85.1%	Dry	126	81.8%	Day	89	57.8%
Injury	52	33.8%	Rain	15	9.7%	Wet	22	14.3%	Night	57	37.0%
Truck	28	18.2%	Snow	1	0.6%	Snow/Ice	2	1.3%			
Bus	21	13.6%									



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.

This site is listed as one of the Top 20 Hazardous Intersections by Crash Frequency from 2009 to 2011, according to the report *TRAFFIC SAFETY STATISTICS REPORT FOR THE DISTRICT OF COLUMBIA (2009-2011)*².

Safety Nexus

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

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

² DDOT, *TRAFFIC SAFETY STATISTICS REPORT FOR THE DISTRICT OF COLUMBIA (2009-2011)*, pg.69.



District Department of Transportation

Pennsylvania Avenue at Minnesota Avenue SE

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 collisions, as well as a high frequency (52 crashes) of injury related crashes. This site is listed as one of the Top 20 Hazardous Intersections by Crash Frequency from 2009 to 2011.
3. Field Assessment – The following site characteristics suggest a need for a safer travel environment:
 - a. This is a commercial area with retail and local businesses that generates pedestrian activity.
 - b. There are two schools in the area: Orr Elementary School and St. Francis Xavier School and the Galilee Baptist Church
 - c. The Twining Public Park in the area generates pedestrian and bicycle activities.
 - d. There are multiple bus stops along Pennsylvania Avenue that generates pedestrian activities.

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, the proximity of schools to the site, and other 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

Pennsylvania Ave WB at Minnesota Ave SE Speed

WB															
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
11/24/13	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
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	43	64	99	59	42	12	1	0	0	0	0	0	0	0	320
Total	43	64	99	59	42	12	1	0	0	0	0	0	0	0	320

SAMMAT ENGINEERING SERVICES, LLC

1515 RISING RIDGE ROAD
MOUNT AIRY, MD 21771

www.sammateng.com

Pennsylvania Ave WB at Minnesota Ave SE 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
11/25/13	26	47	77	49	17	3	1	1	0	0	0	0	0	0	221
01:00	13	24	45	14	11	0	0	0	0	0	0	0	0	0	107
02:00	9	20	35	18	8	7	3	0	0	0	0	0	0	0	100
03:00	25	23	56	27	16	7	7	0	0	0	0	0	0	0	161
04:00	63	72	67	53	37	13	5	3	0	0	0	0	0	0	313
05:00	289	131	143	97	58	20	2	0	0	0	0	0	0	0	740
06:00	463	128	145	102	47	11	1	0	0	0	0	0	0	0	897
07:00	422	153	105	71	10	2	0	0	0	0	0	0	0	0	763
08:00	441	185	163	55	22	4	1	0	0	0	0	0	0	0	871
09:00	474	175	142	85	51	9	0	0	0	0	0	0	0	0	936
10:00	392	143	68	33	9	1	0	0	0	0	0	0	0	0	646
11:00	365	153	74	27	14	2	1	0	0	0	0	0	0	0	636
12 PM	377	120	93	29	15	0	0	0	0	0	0	0	0	0	634
13:00	422	187	129	60	12	1	0	0	0	0	0	0	0	0	811
14:00	436	121	56	18	11	0	0	0	0	0	0	0	0	0	642
15:00	398	85	47	14	9	1	0	0	0	0	0	0	0	0	554
16:00	410	83	32	18	1	0	0	0	0	0	0	0	0	0	544
17:00	422	107	53	20	6	0	0	0	0	0	0	0	0	0	608
18:00	380	139	73	24	5	0	0	0	0	0	0	0	0	0	621
19:00	329	163	96	45	11	0	0	0	0	0	0	0	0	0	644
20:00	270	156	107	37	16	2	0	0	0	0	0	0	0	0	588
21:00	244	149	107	39	12	2	0	0	0	0	0	0	0	0	553
22:00	212	151	96	55	16	1	0	0	0	0	0	0	0	0	531
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	6882	2715	2009	990	414	86	21	4	0	0	0	0	0	0	13121
Grand Total	6925	2779	2108	1049	456	98	22	4	0	0	0	0	0	0	13441

15th Percentile : 5 MPH
 50th Percentile : 11 MPH
 85th Percentile : 21 MPH
 95th Percentile : 27 MPH

Stats
 Mean Speed(Average) : 13 MPH
 10 MPH Pace Speed : 5-14 MPH
 Number in Pace : 7304
 Percent in Pace : 54.3%
 Number of Vehicles > 30 MPH : 430
 Percent of Vehicles > 30 MPH : 3.2%

SAMMAT ENGINEERING SERVICES, LLC

1515 RISING RIDGE ROAD
MOUNT AIRY, MD 21771

www.sammateng.com

Pennsylvania Ave WB at Minnesota Ave SE Volume

Start Time	Sun	24-Nov-13	Mon	25-Nov-13	Tue	26-Nov-13	Daily Average	
	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
12:00	*	*	82	165	*	*	82	165
12:15	*	*	54	143	*	*	54	143
12:30	*	*	43	203	*	*	43	203
12:45	*	*	42	123	*	*	42	123
01:00	*	*	26	216	*	*	26	216
01:15	*	*	28	220	*	*	28	220
01:30	*	*	33	193	*	*	33	193
01:45	*	*	20	182	*	*	20	182
02:00	*	*	20	159	*	*	20	159
02:15	*	*	26	182	*	*	26	182
02:30	*	*	27	173	*	*	27	173
02:45	*	*	27	128	*	*	27	128
03:00	*	*	28	143	*	*	28	143
03:15	*	*	24	117	*	*	24	117
03:30	*	*	56	156	*	*	56	156
03:45	*	*	53	138	*	*	53	138
04:00	*	*	52	145	*	*	52	145
04:15	*	*	63	139	*	*	63	139
04:30	*	*	88	110	*	*	88	110
04:45	*	*	110	150	*	*	110	150
05:00	*	*	153	176	*	*	153	176
05:15	*	*	189	154	*	*	189	154
05:30	*	*	185	156	*	*	185	156
05:45	*	*	213	122	*	*	213	122
06:00	*	*	215	158	*	*	215	158
06:15	*	*	229	162	*	*	229	162
06:30	*	*	214	158	*	*	214	158
06:45	*	*	239	143	*	*	239	143
07:00	*	*	224	166	*	*	224	166
07:15	*	*	178	155	*	*	178	155
07:30	*	*	167	155	*	*	167	155
07:45	*	*	194	168	*	*	194	168
08:00	*	*	212	149	*	*	212	149
08:15	*	*	230	160	*	*	230	160
08:30	*	*	209	145	*	*	209	145
08:45	*	*	220	134	*	*	220	134
09:00	*	*	238	131	*	*	238	131
09:15	*	*	232	140	*	*	232	140
09:30	*	*	228	152	*	*	228	152
09:45	*	*	238	130	*	*	238	130
10:00	*	*	139	142	*	*	139	142
10:15	*	*	155	125	*	*	155	125
10:30	*	*	187	150	*	*	187	150
10:45	*	*	165	114	*	*	165	114
11:00	*	80	161	*	*	*	161	80
11:15	*	86	122	*	*	*	122	86
11:30	*	93	187	*	*	*	187	93
11:45	*	61	166	*	*	*	166	61
Total	0	320	6391	6730	0	0	6391	7050
Combined Total	320		13121		0		13441	
Peak	11:00		09:00	01:00			09:00	01:00
Vol.	320		936	811			936	811
P.H.F.	0.860		0.983	0.922			0.983	0.922
ADT	ADT 13,441		AADT 13,441					

DC Department of Transportation - Traffic Accident Reporting and Analysis System

Accident Summary Report (R-8)

Corridor: PENNSYLVANIA AVE,NW,SE From TWENTY SEVENTH ST,SE TO MINNESOTA AVE,SE

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

Prepared By: Rahul Jain

Prepared Date: 10/8/2013

		Collision Type	#ACC	%	Collision Type	#ACC	%
Total Number of Accident:	154	Right Angle:	26	16.9%	Fixed Object:	6	3.9%
Total Number of Fatalities:	0	Left Turn:	14	9.1%	Ran Off Road:	2	1.3%
Total Number of Injuries:	75	Right Turn:	7	4.5%	Ped. Involved:	4	2.6%
Total Number of Disabling Injuries:	0	Rear End:	32	20.8%	Backing:	0	0.0%
Total Number of NonDisabling Injuries:	20	Side Swiped:	49	31.8%	Non Collision:	1	0.6%
Total Number of Pedestrians Involved:	5	Head On:	3	1.9%	Under/Over Ride:	0	0.0%
Total Number of Bicycles Involved:	1	Parked:	3	1.9%	Unspecified:	7	4.5%
Total Number of Motorcycles Involved:	1						

Time of Day	#ACC	%	Day o fweek	#ACC	%
07:30 ~ 09:30:	19	12.3%	Sunday:	25	16.2%
09:30 ~ 11:30:	14	9.1%	Monday:	15	9.7%
11:30 ~ 13:30:	13	8.4%	Tuesday:	17	11.0%
13:30 ~ 16:00:	21	13.6%	Wednesday:	17	11.0%
16:00 ~18:30:	17	11.0%	Thursday:	24	15.6%
18:30 ~ 07:30:	70	45.5%	Friday:	30	19.5%
Unspecified:	0	0.0%	Saturday:	26	16.9%

Weather Condition	#ACC	%	Surface Condition	#ACC	%
Clear:	131	85.1%	Dry:	126	81.8%
Rain:	15	9.7%	Wet:	22	14.3%
Snow:	1	0.6%	Snow/Ice:	2	1.3%
Sleet/Hail:	0	0.0%	Slush:	0	0.0%
Fog/Mist:	1	0.6%	Water/Sand:	0	0.0%
Crosswind/Blowing Sand:	1	0.6%	Repairing:	3	1.9%
Unspecified:	5	3.2%	Unspecified:	1	0.6%

Type of Vehicle	#VEH	%	Accident Severity Type	#ACC	%
Passenger Car:	226	72.9%	Fatal Collision:	0	0.0%
Bus:	21	6.8%	Injury Collision:	52	33.8%
Truck:	28	9.0%	PDO Collision:	102	66.2%
Taxi:	1	0.3%			
Minivan:	0	0.0%	Light Condition	#ACC	%
Police/Emergency Vehicle:	4	1.3%	Daylight:	89	57.8%
Motorcycle/Moped:	1	0.3%	Dawn/Dusk:	3	1.9%
Bicycle:	1	0.3%	Dark(Lighted):	56	36.4%
Fixed Object:	0	0.0%	Dark(Not Lighted):	1	0.6%
Unspecified:	28	9.0%	Dark(Unknown Lighting):	0	0.0%
			Unspecified:	5	3.2%

Contributing Factor	#VEH	%	Pedestrian Actions	#ACC	%
Driver: Speed:	4	1.3%	In Crosswalk with Signal:	2	50.0%
Driver: Alcohol/Drug:	6	1.9%	In Crosswalk against Signal:	0	0.0%
Driver: Electronic Device:	1	0.3%	In Crosswalk no Signal:	0	0.0%
Driver: Others:	75	24.2%	In Unmarked Crosswalk:	0	0.0%
Vehicle:	1	0.3%	Not in Crosswalk:	1	25.0%
Roadway:	3	1.0%	From Between Parked Cars:	0	0.0%
Unspecified:	220	71.0%	Unspecified:	1	25.0%

102 Records are not approved as of 10/8/2013 3:31:29 PM