



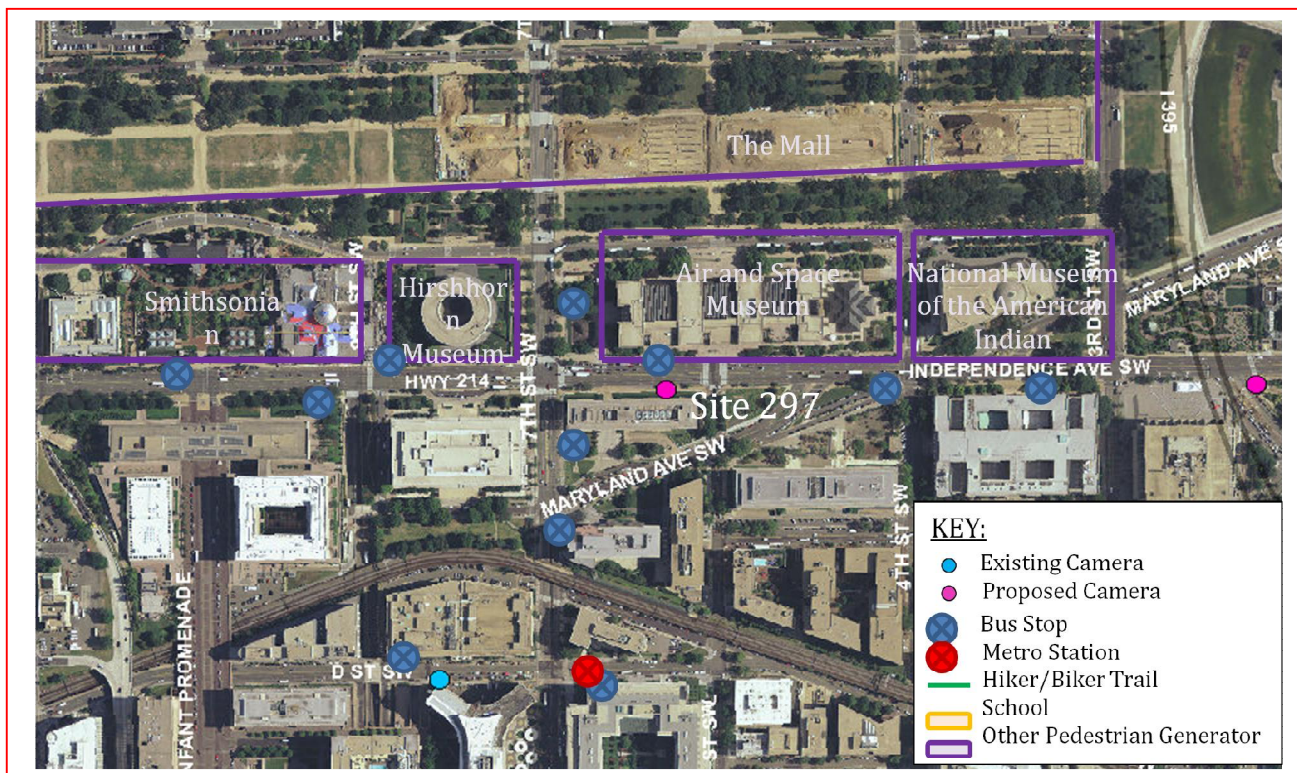
District Department of Transportation

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

### Independence Avenue at 6th Street SW

#### Study Area and Location

District	PSA	Ward	ANC	Phase	Description
1	105	2&6	2C/6D	Proposed	Independence Avenue Eastbound at 6 <sup>th</sup> Street Southwest



This *proposed* speed camera will be located in Wards 2 and 6 at the intersection of Independence Avenue and 6<sup>th</sup> Street Southwest in the eastbound direction. Independence Avenue Southwest runs between Ohio Drive Southwest to the west and South Capitol Street Southeast to the east, where it continues as Independence Avenue SE until it meets East Capitol Street. The posted speed limit is 25 MPH.

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## Independence Avenue at 6th Street SW

### Field Assessment Summary

Independence Avenue SW is assumed to run in the east-west direction, and is classified as Principal Arterial. Independence Avenue SW has four lanes in each direction. 6<sup>th</sup> Street Southwest has two lanes in each direction. This site has the following characteristics:

- The Smithsonian Castle, Hirshhorn Museum, Air and Space Museum, National Museum of the American Indian and other government buildings and tourist attractions are in the area.
- There is roadwork on the south side of Independence Avenue.
- There is sidewalk on all sides of the intersection and crosswalks at all three legs as well.
- There is a traffic signal with pedestrian signals at the intersection.
- There is on-street parking on both sides of 6<sup>th</sup> Street and the north side of Independence Avenue.
- There is a bus stop and bay on the eastbound side of the west leg, and several bus stops in the area. The Smithsonian Metrorail Station is also in the area.



Looking Eastbound

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## Independence Avenue at 6th Street SW

### Speed Data Analysis

Posted Speed Limit (MPH)	25
Mean Speed (MPH)	10
85th Percentile Speed (MPH)	14
10 MPH Pace Speed	5-14
ADT	11,142

Both the mean speed and the 85<sup>th</sup> percentile speed are lower than the posted speed limit. The 85<sup>th</sup> percentile speed is 11 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 69 crashes at this location. A breakdown of number of crashes by collision type can be found in the chart on this page. The most common types of collision at this location were Side Swipe (20 crashes), Right Angle (16 crashes), Rear End (13 crashes), and Left Turn (9 crashes). The other collision types had 4 crashes or less each. There was one (1) crash where vehicular speeding was the contributing factor. Furthermore, the site experienced a high frequency (23 crashes) of injury-related crashes.

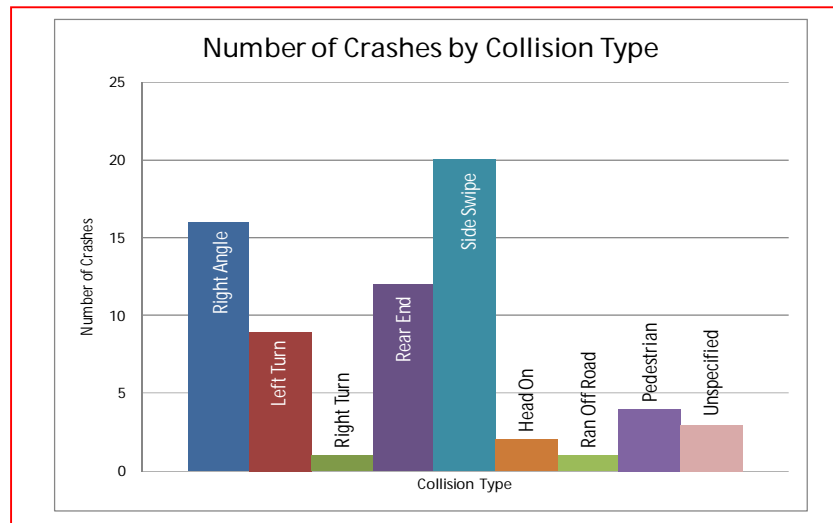
Severity			Weather			Surface condition			Light Condition		
Total	69										
Fatal	0	0.0%	Clear	55	79.7%	Dry	57	82.6%	Day	54	78.3%
Injury	23	33.3%	Rain	8	11.6%	Wet	10	14.5%	Night	12	17.4%
Taxi	19	27.5%	Snow	0	0.0%	Snow/Ice	0	0.0%			
Bus	14	20.3%									





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## Independence Avenue at 6th Street SW



There were an elevated number of speed-related crashes at this location, including 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”<sup>1</sup> as two errors leading to 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 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 were an elevated number of speed-related crashes at this location, including side swipe crashes, as well as a high frequency (23 crashes) of injury-related crashes.
3. Field Assessment – The following site characteristics suggest a need for a safer travel environment:
  - a. The Smithsonian Castle, Hirshhorn Museum, Air and Space Museum, National Museum of the American Indian and other government buildings and tourist attractions are in the area which generate pedestrian and bicycle activity.
  - b. There are several bus stops and one Metrorail station in the area which generate pedestrian activity.
  - c. There is on-street parking on both sides of 6<sup>th</sup> St and the north side of Independence Ave.

<sup>1</sup> AASHTO Highway Safety Manual, 1<sup>st</sup> Edition, 2010; Volume 1, page 2-13



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## Independence Avenue at 6th Street SW

Although the speed data analysis showed the mean and 85th percentile speeds to be lower than the posted speed limit, this was due to the nature of the construction work zone in the area and the lower travel speeds in a work zone environment. However, due to the elevated number of speed-related 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](http://www.sammateng.com)

## Independence Ave EB at 6th St SW Speed

EB

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
11/19/13	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	6	7	0	0	0	0	0	0	0	0	0	0	0	0	13
03:00	5	11	0	1	0	0	0	0	0	0	0	0	0	0	17
04:00	13	21	4	0	0	0	0	0	0	0	0	0	0	0	38
05:00	80	109	42	1	2	0	0	0	0	0	0	0	0	0	234
06:00	222	204	73	6	2	0	0	0	0	0	0	0	0	0	507
07:00	332	231	70	4	1	0	0	0	0	0	0	0	0	0	638
08:00	509	116	21	0	0	0	0	0	0	0	0	0	0	0	646
09:00	622	112	7	1	0	0	0	0	0	0	0	0	0	0	742
10:00	482	58	4	0	0	0	0	0	0	0	0	0	0	0	544
11:00	529	29	3	1	0	0	0	0	0	0	0	0	0	0	562
12 PM	539	55	5	1	0	0	0	0	0	0	0	0	0	0	600
13:00	524	67	11	0	0	0	0	0	0	0	0	0	0	0	602
14:00	539	71	5	0	0	0	0	0	0	0	0	0	0	0	615
15:00	645	92	7	1	0	0	0	0	0	0	0	0	0	0	745
16:00	752	71	8	0	0	0	0	0	0	0	0	0	0	0	831
17:00	822	51	2	0	1	0	0	0	0	0	0	0	0	0	876
18:00	736	87	9	2	0	0	0	0	0	0	0	0	0	0	834
19:00	540	37	0	1	0	0	0	0	0	0	0	0	0	0	578
20:00	311	24	0	0	0	0	0	0	0	0	0	0	0	0	335
21:00	257	67	3	1	0	0	0	0	0	0	0	0	0	0	328
22:00	150	79	12	12	22	8	0	1	0	0	0	0	0	0	284
23:00	158	2	8	35	47	17	1	1	1	0	0	0	0	0	270
Total	8773	1601	294	67	75	25	1	2	1	0	0	0	0	0	10839

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## Independence Ave EB at 6th St SW Speed

EB

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total
11/20/13	67	1	4	15	37	20	3	1	0	0	0	0	0	0	148
01:00	80	0	7	18	33	11	5	1	0	0	0	0	0	0	155
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	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	147	1	11	33	70	31	8	2	0	0	0	0	0	0	303
Grand Total	8920	1602	305	100	145	56	9	4	1	0	0	0	0	0	11142

15th Percentile : 4 MPH  
 50th Percentile : 8 MPH  
 85th Percentile : 14 MPH  
 95th Percentile : 19 MPH

Stats  
 Mean Speed(Average) : 10 MPH  
 10 MPH Pace Speed : 5-14 MPH  
 Number in Pace : 7842  
 Percent in Pace : 70.4%  
 Number of Vehicles > 25 MPH : 198  
 Percent of Vehicles > 25 MPH : 1.8%

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## Independence Ave EB at 6th St SW Volume

Start Time	Tue 19-Nov-13		Wed 20-Nov-13		Thu 21-Nov-13		Daily Average	
	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
12:00	*	149	37	*	*	*	37	149
12:15	*	147	43	*	*	*	43	147
12:30	*	156	40	*	*	*	40	156
12:45	*	148	28	*	*	*	28	148
01:00	*	155	49	*	*	*	49	155
01:15	*	127	44	*	*	*	44	127
01:30	*	144	28	*	*	*	28	144
01:45	*	176	34	*	*	*	34	176
02:00	5	130	*	*	*	*	5	130
02:15	3	119	*	*	*	*	3	119
02:30	2	164	*	*	*	*	2	164
02:45	3	202	*	*	*	*	3	202
03:00	4	178	*	*	*	*	4	178
03:15	3	207	*	*	*	*	3	207
03:30	6	188	*	*	*	*	6	188
03:45	4	172	*	*	*	*	4	172
04:00	4	194	*	*	*	*	4	194
04:15	10	219	*	*	*	*	10	219
04:30	13	215	*	*	*	*	13	215
04:45	11	203	*	*	*	*	11	203
05:00	32	243	*	*	*	*	32	243
05:15	51	236	*	*	*	*	51	236
05:30	72	191	*	*	*	*	72	191
05:45	79	206	*	*	*	*	79	206
06:00	101	194	*	*	*	*	101	194
06:15	118	226	*	*	*	*	118	226
06:30	128	216	*	*	*	*	128	216
06:45	160	198	*	*	*	*	160	198
07:00	165	174	*	*	*	*	165	174
07:15	187	152	*	*	*	*	187	152
07:30	129	143	*	*	*	*	129	143
07:45	157	109	*	*	*	*	157	109
08:00	151	86	*	*	*	*	151	86
08:15	192	85	*	*	*	*	192	85
08:30	142	92	*	*	*	*	142	92
08:45	161	72	*	*	*	*	161	72
09:00	206	96	*	*	*	*	206	96
09:15	186	91	*	*	*	*	186	91
09:30	157	71	*	*	*	*	157	71
09:45	193	70	*	*	*	*	193	70
10:00	135	82	*	*	*	*	135	82
10:15	139	62	*	*	*	*	139	62
10:30	143	68	*	*	*	*	143	68
10:45	127	72	*	*	*	*	127	72
11:00	122	91	*	*	*	*	122	91
11:15	142	70	*	*	*	*	142	70
11:30	139	52	*	*	*	*	139	52
11:45	159	57	*	*	*	*	159	57
<b>Total</b>	<b>3941</b>	<b>6898</b>	<b>303</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4244</b>	<b>6898</b>
<b>Combined Total</b>	<b>10839</b>		<b>303</b>		<b>0</b>		<b>11142</b>	
Peak	09:00	04:30	00:30				09:00	04:30
Vol.	742	897	161				742	897
P.H.F.	0.900	0.923	0.821				0.900	0.923
ADT	ADT 11,142		AADT 11,142					



DC Department of Transportation - Traffic Accident Reporting and Analysis System

## Accident Summary Report (R-8)

**Corridor:** INDEPENDENCE AVE,SE,SW From FOURTH ST,SW TO SEVENTH ST,SW

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

**Prepared By:** Rahul Jain

**Prepared Date:** 9/15/2013

Total Number of Accident:	69	<b>Collision Type</b>	<b>#ACC</b>	<b>%</b>	<b>Collision Type</b>	<b>#ACC</b>	<b>%</b>
Total Number of Fatalities:	0	Right Angle:	16	23.2%	Fixed Object:	0	0.0%
Total Number of Injuries:	26	Left Turn:	9	13.0%	Ran Off Road:	1	1.4%
Total Number of Disabling Injuries:	3	Right Turn:	1	1.4%	Ped. Involved:	4	5.8%
Total Number of NonDisabling Injuries:	7	Rear End:	13	18.8%	Backing:	0	0.0%
Total Number of Pedestrians Involved:	4	Side Swiped:	20	29.0%	Non Collision:	0	0.0%
Total Number of Bicycles Involved:	5	Head On:	2	2.9%	Under/Over Ride:	0	0.0%
Total Number of Motorcycles Involved:	1	Parked:	0	0.0%	Unspecified:	3	4.3%
<b>Time of Day</b>				<b>#ACC</b>	<b>%</b>	<b>Day of week</b>	
07:30 ~ 09:30:				9	13.0%	Sunday:	
09:30 ~ 11:30:				8	11.6%	Monday:	
11:30 ~ 13:30:				5	7.2%	Tuesday:	
13:30 ~ 16:00:				13	18.8%	Wednesday:	
16:00 ~ 18:30:				15	21.7%	Thursday:	
18:30 ~ 07:30:				19	27.5%	Friday:	
Unspecified:				0	0.0%	Saturday:	
<b>Weather Condition</b>				<b>#ACC</b>	<b>%</b>	<b>Surface Condition</b>	
Clear:				55	79.7%	Dry:	
Rain:				8	11.6%	Wet:	
Snow:				0	0.0%	Snow/Ice:	
Sleet/Hail:				0	0.0%	Slush:	
Fog/Mist:				2	2.9%	Water/Sand:	
Crosswind/Blowing Sand:				0	0.0%	Repairing:	
Unspecified:				4	5.8%	Unspecified:	
<b>Type of Vehicle</b>				<b>#VEH</b>	<b>%</b>	<b>Accident Severity Type</b>	
Passenger Car:				81	62.8%	Fatal Collision:	
Bus:				14	10.9%	Injury Collision:	
Truck:				5	3.9%	PDO Collision:	
Taxi:				19	14.7%	<b>Light Condition</b>	
Minivan:				0	0.0%	Daylight:	
Police/Emergency Vehicle:				1	0.8%	Dawn/Dusk:	
Motorcycle/Moped:				2	1.6%	Dark(Lighted):	
Bicycle:				5	3.9%	Dark(Not Lighted):	
Fixed Object:				0	0.0%	Dark(Unknown Lighting):	
Unspecified:				2	1.6%	Unspecified:	
<b>Contributing Factor</b>				<b>#VEH</b>	<b>%</b>	<b>Pedestrian Actions</b>	
Driver: Speed:				1	0.8%	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:				38	29.5%	In Unmarked Crosswalk:	
Vehicle:				0	0.0%	Not in Crosswalk:	
Roadway:				0	0.0%	From Between Parked Cars:	
Unspecified:				90	69.8%	Unspecified:	

32 Records are not approved as of 9/15/2013 8:29:41 PM