



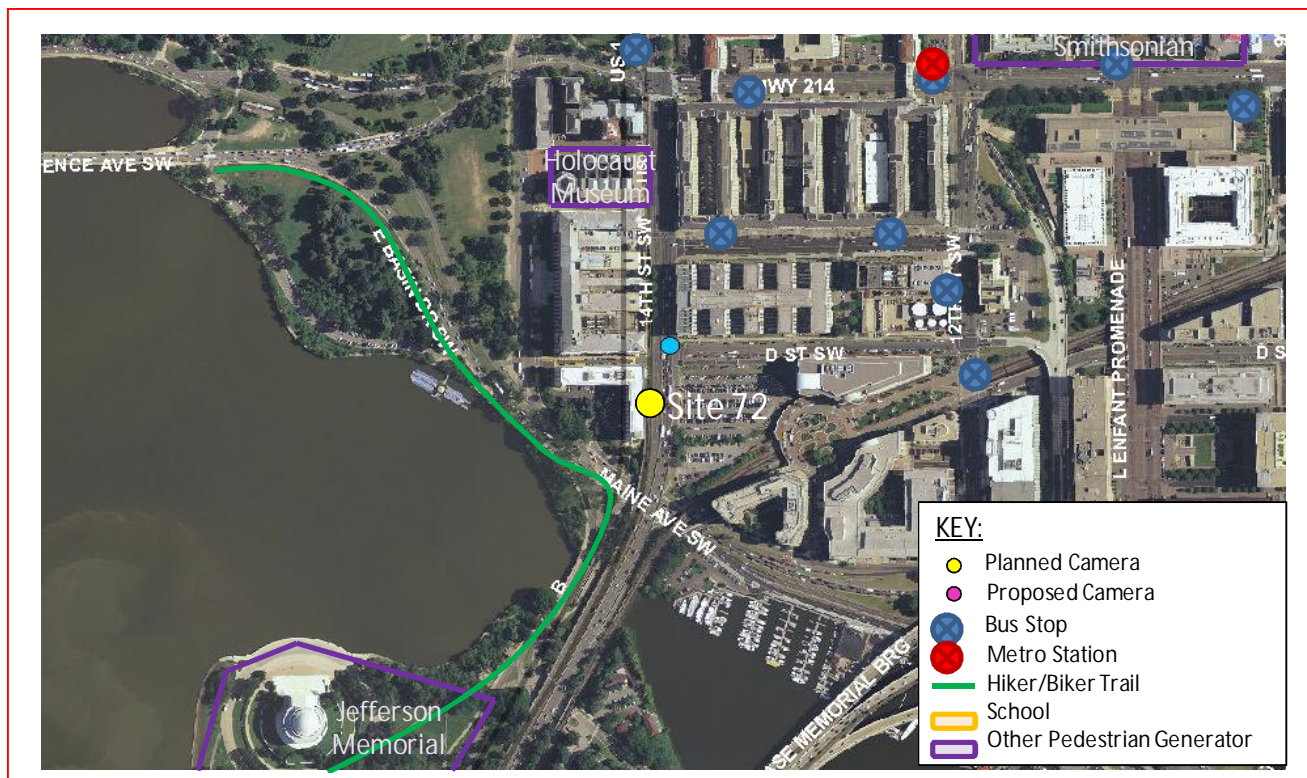
District Department of Transportation

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

14th Street at C Street NW

Study Area and Location

District	PSA	Ward	ANC	Phase	Description
1	105	6	6D	Planned	14 th Street Northbound at C Street Northwest



This *planned* speed camera will be located in Ward 6 at the intersection of 14th Street and C Street Northwest in the northbound direction. 14th Street runs between Eastern Avenue Northwest to the north and Henry G Shirley Memorial Highway (14th Street Bridge) to the south. The posted speed limit is 35 MPH.

W6-171





District Department of Transportation

14th Street at C Street NW

Field Assessment Summary

14th Street is assumed to run in a North-South direction, and is classified as a principal arterial. 14th Street has three through lanes and a right turn lane northbound and two through lanes and a through and left turn lane southbound. C Street has one left turn lane, one left or right turn lane, and one right turn lane westbound.

This site has the following characteristics:

- The road has a concrete median on the north leg and a concrete barrier on the south leg.
- There are sidewalks with curb and gutter on both sides of all three legs of the intersection.
- A traffic signal and crosswalks with pedestrian signals on the north and east legs.
- The pavement is in good condition.
- The Holocaust Museum, Smithsonian Museum, and Jefferson Memorial are in this area.
- There is a bus stop westbound on C Street.
- Rock Creek Park Trails are in the area.
- There are multiple bus stops and the Smithsonian Metrorail Station in the area.



Looking Northbound

W6-172



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14th Street at C Street NW



Looking Southbound

Speed Data Analysis

Posted Speed Limit (MPH)	35
Mean Speed (MPH)	23
85th Percentile Speed (MPH)	29
10 MPH Pace Speed	21-30 MPH
ADT	13,595

Both the Mean Speed and 85th Percentile Speed are lower than the posted speed limit at this site. The 85th percentile speed is 6 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 87 crashes at this location. A breakdown of collision type can be found in the chart on the next page. The most common types of collision at this location were Side Swiped (28 crashes), Rear End (27 crashes), Right Angle (6 crashes), and Right Turn (6 crashes). The other collision types had four crashes or less each.

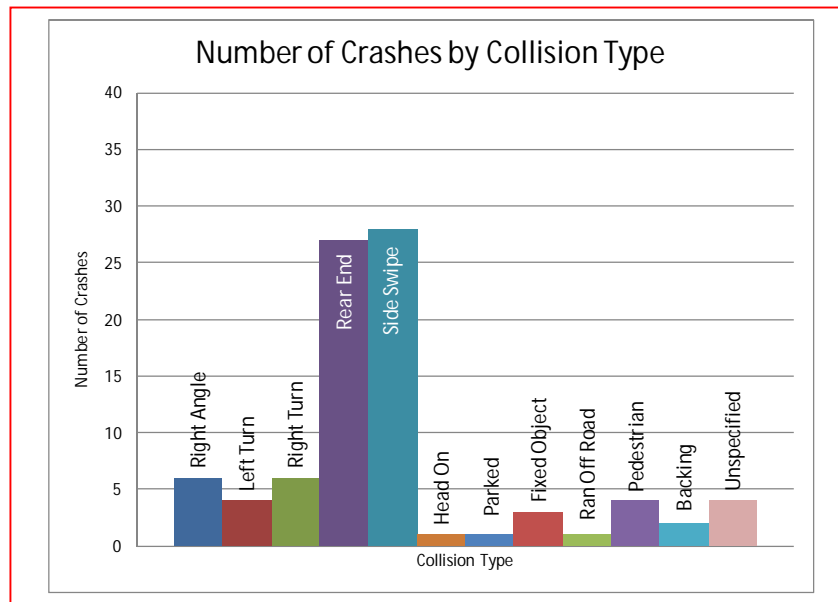
W6-173



District Department of Transportation

14th Street at C Street NW

Severity		Weather			Surface condition			Light Condition		
Total	87									
Fatal	1 1.1%	Clear	66	75.9%	Dry	69	79.3%	Day	69	79.3%
Injury	18 20.7%	Rain	13	14.9%	Wet	14	16.1%	Night	35	40.2%
Taxi	19 21.8%	Snow	1	1.1%	Snow/Ice	1	1.1%			
Bus	13 14.9%									



There was an elevated number of speed related crashes at this location, including rear end and side swipe crashes. The 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 at this site, including Rear End and Sideswipe collisions, as well as a high frequency (18 crashes) of injury related crashes.

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



District Department of Transportation

14th Street at C Street NW

3. Field Assessment – The following site characteristics suggest a need for a safer travel environment:
 - a. The Smithsonian, Holocaust Museum, and Jefferson Memorial are in the area which generate pedestrian and bicycle activity.
 - b. Rock Creek Park Trails are in the area which generate pedestrian and bicycle activity.
 - c. There are multiple bus stops and the Smithsonian Metrorail Station in the area which generate pedestrian activity.

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.

W6-175

SAMMAT ENGINEERING SERVICES, LLC

1515 RISING RIDGE ROAD
MOUNT AIRY, MD 21771

www.sammateng.com

14th St NB at C St SW Speed

NB

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total
11/19/13	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	1	5	10	17	2	0	0	0	0	0	0	0	0	0	35
03:00	1	5	30	29	11	0	0	0	0	0	0	0	0	0	76
04:00	3	4	33	36	14	1	0	0	0	0	0	0	0	0	91
05:00	18	8	58	100	24	3	0	0	0	0	0	0	0	0	211
06:00	29	12	91	150	74	9	0	0	0	0	0	0	0	0	365
07:00	32	9	144	235	90	8	0	0	0	0	0	0	0	0	518
08:00	30	9	155	244	77	14	2	0	0	0	0	0	0	0	531
09:00	34	15	149	231	65	9	1	0	0	0	0	0	0	0	504
10:00	27	6	139	276	86	7	0	0	0	0	0	0	0	0	541
11:00	31	10	194	286	101	11	0	0	0	0	0	0	0	0	633
12 PM	29	16	196	322	96	6	0	0	0	0	0	0	0	0	665
13:00	32	17	165	344	131	10	1	0	0	0	0	0	0	0	700
14:00	72	18	347	438	106	4	1	1	0	0	0	0	0	0	987
15:00	85	32	438	451	97	10	1	0	0	0	0	0	0	0	1114
16:00	108	27	586	512	80	10	0	0	0	0	0	0	0	0	1323
17:00	184	76	526	371	42	4	0	0	0	0	0	0	0	0	1203
18:00	412	87	46	5	0	0	0	0	0	0	0	0	0	0	550
19:00	71	50	432	344	49	3	1	0	0	0	0	0	0	0	950
20:00	35	24	263	229	59	5	0	0	0	0	0	0	0	0	615
21:00	40	19	298	246	54	3	0	0	0	0	0	0	0	0	660
22:00	28	18	175	231	57	6	0	0	0	0	0	0	0	0	515
23:00	23	11	142	150	37	4	0	0	0	0	0	0	0	0	367
Total	1325	478	4617	5247	1352	127	7	1	0	0	0	0	0	0	13154

SAMMAT ENGINEERING SERVICES, LLC

1515 RISING RIDGE ROAD
MOUNT AIRY, MD 21771

www.sammateng.com

14th St NB at C St SW Speed

NB

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total
11/20/13	8	9	94	95	24	6	0	0	0	0	0	0	0	0	236
01:00	3	10	60	53	10	2	0	0	0	0	0	0	0	0	138
02:00	5	3	31	24	4	0	0	0	0	0	0	0	0	0	67
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	16	22	185	172	38	8	0	0	0	0	0	0	0	0	441
Grand Total	1341	500	4802	5419	1390	135	7	1	0	0	0	0	0	0	13595

15th Percentile : 12 MPH
 50th Percentile : 24 MPH
 85th Percentile : 29 MPH
 95th Percentile : 32 MPH

Stats
 Mean Speed(Average) : 23 MPH
 10 MPH Pace Speed : 21-30 MPH
 Number in Pace : 8404
 Percent in Pace : 61.8%
 Number of Vehicles > 35 MPH : 268
 Percent of Vehicles > 35 MPH : 2.0%

SAMMAT ENGINEERING SERVICES, LLC

1515 RISING RIDGE ROAD
MOUNT AIRY, MD 21771

www.sammateng.com

14th St NB at C St SW Volume

Start Time	19-Nov-13		20-Nov-13		21-Nov-13		Daily Average	
	Tue A.M.	P.M.	Wed A.M.	P.M.	Thu A.M.	P.M.	A.M.	P.M.
12:00	*	163	79	*	*	*	79	163
12:15	*	186	64	*	*	*	64	186
12:30	*	154	50	*	*	*	50	154
12:45	*	162	43	*	*	*	43	162
01:00	*	163	31	*	*	*	31	163
01:15	*	183	35	*	*	*	35	183
01:30	*	173	33	*	*	*	33	173
01:45	*	181	39	*	*	*	39	181
02:00	*	228	37	*	*	*	37	228
02:15	*	248	30	*	*	*	30	248
02:30	18	243	*	*	*	*	18	243
02:45	17	268	*	*	*	*	17	268
03:00	13	260	*	*	*	*	13	260
03:15	16	286	*	*	*	*	16	286
03:30	19	273	*	*	*	*	19	273
03:45	28	295	*	*	*	*	28	295
04:00	17	319	*	*	*	*	17	319
04:15	19	338	*	*	*	*	19	338
04:30	26	337	*	*	*	*	26	337
04:45	29	329	*	*	*	*	29	329
05:00	30	314	*	*	*	*	30	314
05:15	51	316	*	*	*	*	51	316
05:30	61	342	*	*	*	*	61	342
05:45	69	231	*	*	*	*	69	231
06:00	82	177	*	*	*	*	82	177
06:15	82	134	*	*	*	*	82	134
06:30	88	105	*	*	*	*	88	105
06:45	113	134	*	*	*	*	113	134
07:00	127	300	*	*	*	*	127	300
07:15	114	266	*	*	*	*	114	266
07:30	133	199	*	*	*	*	133	199
07:45	144	185	*	*	*	*	144	185
08:00	129	142	*	*	*	*	129	142
08:15	139	157	*	*	*	*	139	157
08:30	130	154	*	*	*	*	130	154
08:45	133	162	*	*	*	*	133	162
09:00	119	171	*	*	*	*	119	171
09:15	119	165	*	*	*	*	119	165
09:30	138	186	*	*	*	*	138	186
09:45	128	138	*	*	*	*	128	138
10:00	136	130	*	*	*	*	136	130
10:15	128	116	*	*	*	*	128	116
10:30	139	132	*	*	*	*	139	132
10:45	138	137	*	*	*	*	138	137
11:00	144	117	*	*	*	*	144	117
11:15	141	104	*	*	*	*	141	104
11:30	176	80	*	*	*	*	176	80
11:45	172	66	*	*	*	*	172	66
Total	3505	9649	441	0	0	0	3946	9649
Combined Total	13154		441		0		13595	
Peak	11:00	04:00	12:00				11:00	04:00
Vol.	633	1323	236				633	1323
P.H.F.	0.899	0.979	0.747				0.899	0.979
ADT	ADT 13,595		AADT 13,595					

DC Department of Transportation - Traffic Accident Reporting and Analysis System

Accident Summary Report (R-8)

Corridor: 14TH ST,NW,SW From INDEPENDENCE AVE,SW TO D ST,SW

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

Prepared Date: 10/6/2013

		Collision Type	#ACC	%	Collision Type	#ACC	%
Total Number of Accident:	87	Right Angle:	6	6.9%	Fixed Object:	3	3.4%
Total Number of Fatalities:	1	Left Turn:	4	4.6%	Ran Off Road:	1	1.1%
Total Number of Injuries:	26	Right Turn:	6	6.9%	Ped. Involved:	4	4.6%
Total Number of Disabling Injuries:	1	Rear End:	27	31.0%	Backing:	2	2.3%
Total Number of NonDisabling Injuries:	11	Side Swiped:	28	32.2%	Non Collision:	0	0.0%
Total Number of Pedestrians Involved:	3	Head On:	1	1.1%	Under/Over Ride:	0	0.0%
Total Number of Bicycles Involved:	2	Parked:	1	1.1%	Unspecified:	4	4.6%
Total Number of Motorcycles Involved:	2						

Time of Day	#ACC	%	Day o fweek	#ACC	%
07:30 ~ 09:30:	4	4.6%	Sunday:	11	12.6%
09:30 ~ 11:30:	8	9.2%	Monday:	8	9.2%
11:30 ~ 13:30:	7	8.0%	Tuesday:	13	14.9%
13:30 ~ 16:00:	12	13.8%	Wednesday:	11	12.6%
16:00 ~18:30:	19	21.8%	Thursday:	15	17.2%
18:30 ~ 07:30:	37	42.5%	Friday:	13	14.9%
Unspecified:	0	0.0%	Saturday:	16	18.4%

Weather Condition	#ACC	%	Surface Condition	#ACC	%
Clear:	66	75.9%	Dry:	69	79.3%
Rain:	13	14.9%	Wet:	14	16.1%
Snow:	1	1.1%	Snow/Ice:	1	1.1%
Sleet/Hail:	0	0.0%	Slush:	0	0.0%
Fog/Mist:	3	3.4%	Water/Sand:	0	0.0%
Crosswind/Blowing Sand:	1	1.1%	Repairing:	0	0.0%
Unspecified:	3	3.4%	Unspecified:	3	3.4%

Type of Vehicle	#VEH	%	Accident Severity Type	#ACC	%
Passenger Car:	102	63.4%	Fatal Collision:	1	1.1%
Bus:	13	8.1%	Injury Collision:	18	20.7%
Truck:	12	7.5%	PDO Collision:	68	78.2%
Taxi:	19	11.8%			
Minivan:	0	0.0%	Light Condition	#ACC	%
Police/Emergency Vehicle:	2	1.2%	Daylight:	48	55.2%
Motorcycle/Moped:	2	1.2%	Dawn/Dusk:	2	2.3%
Bicycle:	2	1.2%	Dark(Lighted):	35	40.2%
Fixed Object:	0	0.0%	Dark(Not Lighted):	0	0.0%
Unspecified:	9	5.6%	Dark(Unknown Lighting):	0	0.0%
			Unspecified:	2	2.3%

Contributing Factor	#VEH	%	Pedestrian Actions	#ACC	%
Driver: Speed:	6	3.7%	In Crosswalk with Signal:	1	50.0%
Driver: Alcohol/Drug:	2	1.2%	In Crosswalk against Signal:	0	0.0%
Driver: Electronic Device:	0	0.0%	In Crosswalk no Signal:	0	0.0%
Driver: Others:	35	21.7%	In Unmarked Crosswalk:	0	0.0%
Vehicle:	0	0.0%	Not in Crosswalk:	1	50.0%
Roadway:	1	0.6%	From Between Parked Cars:	0	0.0%
Unspecified:	117	72.7%	Unspecified:	0	0.0%

50 Records are not approved as of 10/6/2013 6:35:51 PM