



District Department of Transportation

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

Canal Road 0.3 from Arizona Avenue

Study Area and Location

District	PSA	Ward	ANC	Phase	Description
2	205	3	3D	Proposed	Canal Road Northwest 0.3 Miles South of Arizona Avenue Northbound



This *proposed* speed camera will be located in Ward 3 on Canal Road Northwest 0.3 miles south of Arizona Avenue in the northbound direction. Canal Road runs from Chain Bridge Road Northwest in the north to Whitehurst Freeway Northwest in the south. The posted speed limit is 40 MPH.

W3 - 531





District Department of Transportation

Canal Road 0.3 from Arizona Avenue

Field Assessment Summary

Canal road is assumed to run in the North-South direction and is classified as a principal arterial. Canal Road has one travel lane in each direction. This site has the following characteristics:

- There is guardrail on both sides of the road. The existing pavement is in good condition.
- There are multiple bike trails in the area including one that runs parallel 100 ft from Canal Road.
- The Chesapeake and Ohio Canal National Historic Park on is located to the west.



Northbound

W3 - 532



District Department of Transportation

Canal Road 0.3 from Arizona Avenue



Southbound

Speed Data Analysis

	NB	SB
Posted Speed Limit (MPH)	40	40
Mean Speed (MPH)	36	23
85th Percentile Speed (MPH)	65	26
10 MPH Pace Speed	4-13	20-29
ADT	21,744	

The Mean Speed is 4 MPH lower than the posted speed limit, and the 85th percentile speed is 25 MPH higher than the posted speed limit at this location. This speed differential is greater in the northbound direction than in the southbound direction. This is due to is an existing speed camera present in the southbound direction which contributes to travel speeds being lower than the posted speed limit (26 MPH 85th percentile speed vs. 40 MPH speed limit). Thus, the difference "The difference in speeds between the two directions of travel can be attributable to the presence of the speed camera in the southbound direction, and lack of speed camera in the northbound direction."

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 38 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 (20

W3 - 533

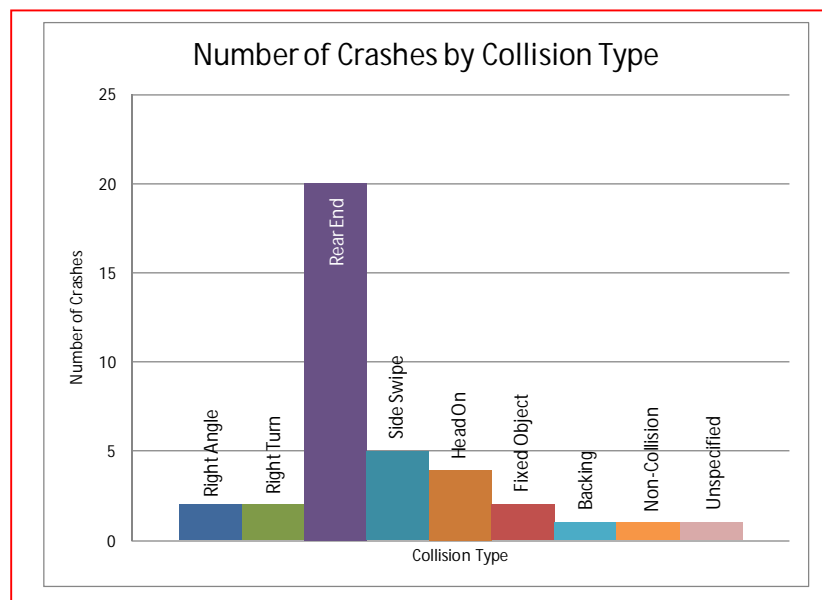


District Department of Transportation

Canal Road 0.3 from Arizona Avenue

crashes), Side Swipe (5 crashes), Head On (4 crashes). The other collision types had two crashes or less each. Furthermore, this site experienced a high frequency (14 crashes) of injury-related crashes.

Severity			Weather			Surface condition			Light Condition		
Total	38										
Fatal	0	0.0%	Clear	35	92.1%	Dry	33	86.8%	Day	29	76.3%
Injury	14	36.8%	Rain	2	5.3%	Wet	3	7.9%	Night	7	18.4%
Taxi	1	2.6%	Snow	0	0.0%	Snow/Ice	1	2.6%			
Bus	0	0.0%									



Safety Nexus

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

1. Speed Data – The 85th percentile speed is much higher than the posted speed limit at this location.
2. Crash Data – There was an elevated number of speed-related crashes at this location, including Rear End collisions, as well as a high frequency (14 crashes) of injury-related crashes
3. Field Assessment – The following site characteristics suggest a need for a safer travel environment:
 - a. Several bike trails are in the area which generates pedestrian activity.

W3 - 534



District Department of Transportation

Canal Road 0.3 from Arizona Avenue

Due to the speed data analysis, 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.

W3 - 535

SAMMAT ENGINEERING SERVICES, LLC

1515 RISING RIDGE ROAD
MOUNT AIRY, MD 21771

www.sammateng.com

Canal Rd NW .3 m S/O Arizona Ave Speed

NB

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
11/07/13	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	13	0	0	0	0	1	0	0	0	0	0	0	1	3	18
05:00	43	1	0	0	1	0	2	0	0	1	1	0	4	9	62
06:00	18	0	0	0	0	0	0	0	0	0	0	0	0	0	18
07:00	26	0	0	0	0	0	0	0	0	0	0	0	0	0	26
08:00	17	0	0	0	0	0	0	0	0	0	0	0	0	0	17
09:00	16	1	0	0	0	0	0	0	0	0	0	0	0	0	17
10:00	104	3	0	0	0	0	1	7	11	9	12	11	12	45	215
11:00	131	0	0	1	5	2	4	6	18	23	38	31	24	102	385
12 PM	99	0	0	0	0	1	9	22	36	28	47	57	48	170	517
13:00	75	0	2	1	7	8	30	24	47	40	52	73	55	189	603
14:00	315	104	80	56	32	13	8	8	15	18	21	23	24	123	840
15:00	109	0	1	0	2	4	4	5	19	53	58	104	118	1020	1497
16:00	140	9	3	8	18	26	23	47	65	77	100	106	122	917	1661
17:00	192	18	27	58	81	81	82	106	94	89	93	74	78	382	1455
18:00	95	1	0	6	4	3	23	37	51	76	123	114	135	791	1459
19:00	406	77	12	3	6	8	21	19	28	43	35	29	19	51	757
20:00	92	38	3	0	0	2	17	28	46	75	67	76	55	153	652
21:00	13	0	0	0	0	7	38	52	56	73	76	74	72	143	604
22:00	12	0	0	0	0	5	14	41	52	81	69	84	51	159	568
23:00	5	0	0	0	0	4	6	8	7	8	18	33	27	132	248
Total	1921	252	128	133	156	165	282	410	545	694	810	889	845	4389	11619

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NB

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
11/08/13	1	0	0	0	0	0	0	0	1	5	10	16	13	76	122
01:00	3	0	0	0	0	2	0	0	3	4	3	2	9	47	73
02:00	7	0	0	0	0	1	0	2	4	2	0	4	3	66	89
03:00	7	0	0	0	0	0	0	0	0	1	2	3	2	11	26
04:00	8	0	0	0	0	0	0	0	0	0	0	0	2	3	13
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	26	0	0	0	0	3	0	2	8	12	15	25	29	203	323

Grand Total	1947	252	128	133	156	168	282	412	553	706	825	914	874	4592	11942
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15th Percentile : 6 MPH
50th Percentile : 36 MPH
85th Percentile : 65 MPH
95th Percentile : 70 MPH

Stats
Mean Speed(Average) : 36 MPH
10 MPH Pace Speed : 4-13 MPH
Number in Pace : 2453
Percent in Pace : 33.4%
Number of Vehicles > 40 MPH : 3557
Percent of Vehicles > 40 MPH : 48.4%

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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
11/07/13	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	8	7	55	31	0	0	0	0	0	0	0	0	0	0	101
05:00	7	8	495	157	0	0	0	0	0	0	0	0	0	0	667
06:00	22	13	731	471	1	0	0	0	0	0	0	0	0	0	1238
07:00	31	15	1213	323	2	0	0	0	0	0	0	0	0	0	1584
08:00	34	30	1058	473	1	0	0	0	0	0	0	0	0	0	1596
09:00	16	2	954	366	3	0	0	0	0	0	0	0	0	0	1341
10:00	24	24	510	70	0	0	0	0	0	0	0	0	0	0	628
11:00	29	26	414	49	0	0	0	0	0	0	0	0	0	0	518
12 PM	20	32	356	43	0	0	0	0	0	0	0	0	0	0	451
13:00	28	5	353	53	0	0	0	0	0	0	0	0	0	0	439
14:00	37	4	132	18	0	0	0	0	0	0	0	0	0	0	191
15:00	16	0	0	0	0	0	0	0	0	0	0	0	0	0	16
16:00	21	0	0	0	0	0	0	0	0	0	0	0	0	0	21
17:00	20	0	0	0	0	0	0	0	0	0	0	0	0	0	20
18:00	7	0	0	0	0	0	0	0	0	0	0	0	0	0	7
19:00	46	5	88	6	0	0	0	0	0	0	0	0	0	0	145
20:00	17	4	157	28	0	0	0	0	0	0	0	0	0	0	206
21:00	15	6	140	38	0	0	0	0	0	0	0	1	0	0	200
22:00	9	2	115	38	0	0	0	0	0	0	0	0	0	0	164
23:00	4	0	65	23	3	0	0	0	0	0	0	0	0	0	95
Total	411	183	6836	2187	10	0	0	0	0	0	0	1	0	0	9628

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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
11/08/13	1	0	27	21	0	0	0	0	0	0	0	0	0	0	49
01:00	1	0	8	6	0	0	0	0	0	0	0	0	0	0	15
02:00	2	1	7	8	0	0	0	0	0	0	0	0	0	0	18
03:00	1	0	35	13	0	0	0	0	0	0	0	0	0	0	49
04:00	0	1	30	12	0	0	0	0	0	0	0	0	0	0	43
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	5	2	107	60	0	0	0	0	0	0	0	0	0	0	174
Grand Total	416	185	6943	2247	10	0	0	0	0	0	0	1	0	0	9802

15th Percentile : 19 MPH
50th Percentile : 22 MPH
85th Percentile : 26 MPH
95th Percentile : 29 MPH

Stats
Mean Speed(Average) : 23 MPH
10 MPH Pace Speed : 20-29 MPH
Number in Pace : 8068
Percent in Pace : 82.3%
Number of Vehicles > 40 MPH : 1
Percent of Vehicles > 40 MPH : 0.0%

SAMMAT ENGINEERING SERVICES, LLC

1515 RISING RIDGE ROAD
MOUNT AIRY, MD 21771

www.sammateng.com

Canal Rd NW .3 m S/O Arizona Ave Volume

Start Time	07-Nov-13 Thu	NB		SB		Combined		08-Nov- Fri	NB		SB		Combined	
		A.M.	P.M.	A.M.	P.M.	A.M.	P.M.		A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
12:00		*	106	*	119	*	225		46	*	19	*	65	*
12:15		*	112	*	110	*	222		27	*	9	*	36	*
12:30		*	157	*	114	*	271		26	*	11	*	37	*
12:45		*	142	*	108	*	250		23	*	10	*	33	*
01:00		*	119	*	111	*	230		10	*	3	*	13	*
01:15		*	155	*	102	*	257		16	*	4	*	20	*
01:30		*	168	*	117	*	285		26	*	3	*	29	*
01:45		*	161	*	109	*	270		21	*	5	*	26	*
02:00		*	214	*	85	*	299		25	*	2	*	27	*
02:15		*	178	*	67	*	245		19	*	5	*	24	*
02:30		*	195	*	31	*	226		17	*	6	*	23	*
02:45		*	253	*	8	*	261		28	*	5	*	33	*
03:00		*	343	*	2	*	345		12	*	6	*	18	*
03:15		*	349	*	4	*	353		3	*	11	*	14	*
03:30		*	403	*	5	*	408		6	*	14	*	20	*
03:45		*	402	*	5	*	407		5	*	18	*	23	*
04:00		*	407	*	9	*	416		8	*	24	*	32	*
04:15		*	413	*	3	*	416		5	*	19	*	24	*
04:30	7		418	25	3	32	421		*	*	*	*	*	*
04:45	11		423	76	6	87	429		*	*	*	*	*	*
05:00	16		405	116	5	132	410		*	*	*	*	*	*
05:15	17		319	166	7	183	326		*	*	*	*	*	*
05:30	12		364	194	3	206	367		*	*	*	*	*	*
05:45	17		367	191	5	208	372		*	*	*	*	*	*
06:00	2		380	235	1	237	381		*	*	*	*	*	*
06:15	4		384	308	1	312	385		*	*	*	*	*	*
06:30	4		369	338	2	342	371		*	*	*	*	*	*
06:45	8		326	357	3	365	329		*	*	*	*	*	*
07:00	7		262	395	10	402	272		*	*	*	*	*	*
07:15	3		169	420	45	423	214		*	*	*	*	*	*
07:30	11		194	367	46	378	240		*	*	*	*	*	*
07:45	5		132	402	44	407	176		*	*	*	*	*	*
08:00	4		182	375	57	379	239		*	*	*	*	*	*
08:15	4		171	432	38	436	209		*	*	*	*	*	*
08:30	4		138	431	53	435	191		*	*	*	*	*	*
08:45	5		161	358	58	363	219		*	*	*	*	*	*
09:00	5		157	402	55	407	212		*	*	*	*	*	*
09:15	7		168	365	46	372	214		*	*	*	*	*	*
09:30	4		148	327	51	331	199		*	*	*	*	*	*
09:45	1		131	247	48	248	179		*	*	*	*	*	*
10:00	10		174	209	43	219	217		*	*	*	*	*	*
10:15	64		177	154	41	218	218		*	*	*	*	*	*
10:30	64		134	139	41	203	175		*	*	*	*	*	*
10:45	77		83	126	39	203	122		*	*	*	*	*	*
11:00	82		74	137	28	219	102		*	*	*	*	*	*
11:15	111		57	133	23	244	80		*	*	*	*	*	*
11:30	95		64	121	17	216	81		*	*	*	*	*	*
11:45	97		53	127	27	224	80		*	*	*	*	*	*
Total		758	10861	7673	1955	8431	12816		323	0	174	0	497	0
Day Total		11619		9628		21247			323		174		497	
% Total		3.6%	51.1%	36.1%	9.2%				65.0%	0.0%	35.0%	0.0%		
Peak		11:00	04:00	07:45	12:00	07:45	04:00		12:00		03:30		12:00	
Vol.		385	1661	1640	451	1657	1682		122		75		171	
P.H.F.		0.867	0.982	0.949	0.947	0.950	0.980		0.663		0.781		0.658	
ADT		ADT 21,744		AADT 21,744										

DC Department of Transportation - Traffic Accident Reporting and Analysis System

Accident Summary Report (R-8)

Corridor: CANAL RD,NW From ARIZONA AVE,NW TO RESERVOIR RD,NW

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

Prepared By: Rahul Jain

Prepared Date: 9/15/2013

Total Number of Accident:	38	Collision Type	#ACC	%	Collision Type	#ACC	%
Total Number of Fatalities:	0	Right Angle:	2	5.3%	Fixed Object:	2	5.3%
Total Number of Injuries:	22	Left Turn:	0	0.0%	Ran Off Road:	0	0.0%
Total Number of Disabling Injuries:	1	Right Turn:	2	5.3%	Ped. Involved:	0	0.0%
Total Number of NonDisabling Injuries:	3	Rear End:	20	52.6%	Backing:	1	2.6%
Total Number of Pedestrians Involved:	0	Side Swiped:	5	13.2%	Non Collision:	1	2.6%
Total Number of Bicycles Involved:	0	Head On:	4	10.5%	Under/Over Ride:	0	0.0%
Total Number of Motorcycles Involved:	0	Parked:	0	0.0%	Unspecified:	1	2.6%

Time of Day	#ACC	%	Day o fweek	#ACC	%
07:30 ~ 09:30:	2	5.3%	Sunday:	5	13.2%
09:30 ~ 11:30:	6	15.8%	Monday:	13	34.2%
11:30 ~ 13:30:	6	15.8%	Tuesday:	2	5.3%
13:30 ~ 16:00:	9	23.7%	Wednesday:	3	7.9%
16:00 ~18:30:	6	15.8%	Thursday:	6	15.8%
18:30 ~ 07:30:	9	23.7%	Friday:	6	15.8%
Unspecified:	0	0.0%	Saturday:	3	7.9%

Weather Condition	#ACC	%	Surface Condition	#ACC	%
Clear:	35	92.1%	Dry:	33	86.8%
Rain:	2	5.3%	Wet:	3	7.9%
Snow:	0	0.0%	Snow/Ice:	1	2.6%
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:	1	2.6%	Unspecified:	1	2.6%

Type of Vehicle	#VEH	%	Accident Severity Type	#ACC	%
Passenger Car:	75	91.5%	Fatal Collision:	0	0.0%
Bus:	0	0.0%	Injury Collision:	14	36.8%
Truck:	5	6.1%	PDO Collision:	24	63.2%
Taxi:	1	1.2%			
Minivan:	0	0.0%	Light Condition	#ACC	%
Police/Emergency Vehicle:	1	1.2%	Daylight:	29	76.3%
Motorcycle/Moped:	0	0.0%	Dawn/Dusk:	2	5.3%
Bicycle:	0	0.0%	Dark(Lighted):	7	18.4%
Fixed Object:	0	0.0%	Dark(Not Lighted):	0	0.0%
Unspecified:	0	0.0%	Dark(Unknown Lighting):	0	0.0%
			Unspecified:	0	0.0%

Contributing Factor	#VEH	%	Pedestrian Actions	#ACC	%
Driver: Speed:	1	1.2%	In Crosswalk with Signal:	0	0.0%
Driver: Alcohol/Drug:	1	1.2%	In Crosswalk against Signal:	0	0.0%
Driver: Electronic Device:	0	0.0%	In Crosswalk no Signal:	0	0.0%
Driver: Others:	15	18.3%	In Unmarked Crosswalk:	0	0.0%
Vehicle:	0	0.0%	Not in Crosswalk:	0	0.0%
Roadway:	2	2.4%	From Between Parked Cars:	0	0.0%
Unspecified:	63	76.8%	Unspecified:	0	0.0%

24 Records are not approved as of 9/15/2013 12:13:48 PM