Turning Movement Counts

PHILIP HABIB & ASSOCIATE
226, W. 26th St. 9FL
New York, NY 10001
(212)929-5656

(1A)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

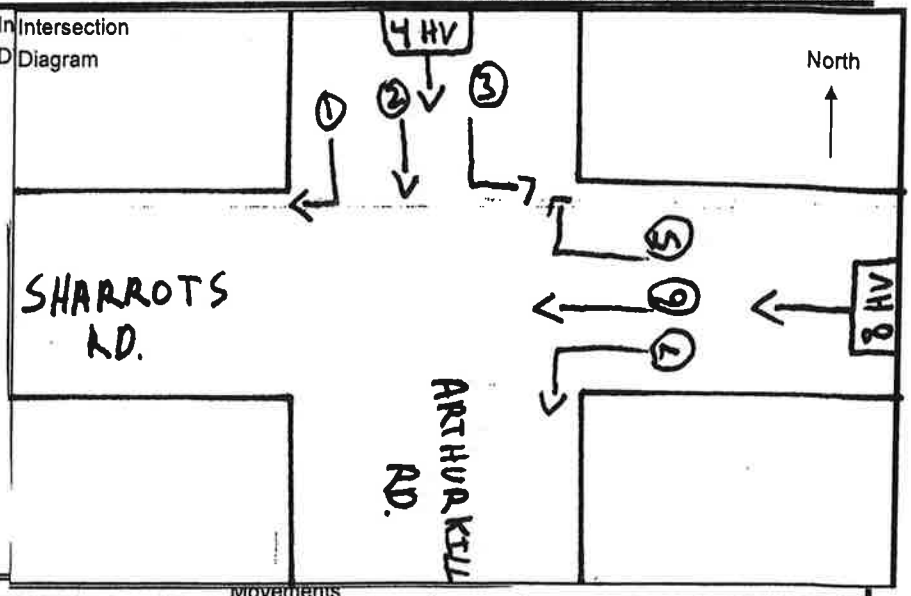
Date: 06/08/11

Period: AM

Weather Conditions: sunny - 91°F

Surveyor's Name: Tetiana Benedittska

Intersection Diagram



Time			Movements 1	2	3	4	5	6	7	8	9	10	11	12
7:30	to	7:45	4	26	7	10	11	6	11	3				
7:45	to	8:00	3	20	4	4	10	1	13	—				
8:00	to	8:15	6	33	3	7	5	1	14	—				
8:15	to	8:30	7	29	3	4	5	2	13	—				
8:30	to	8:45	5	27	4	5	6	1	11	1				
8:45	to	9:00	6	28	3	4	5	2	11	3				
9:00	to	9:15	6	27	4	3	9	2	5	—				
9:15	to	9:30	5	26	7	4	8	3	12	2				
Peak Hour														

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(1A)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121a

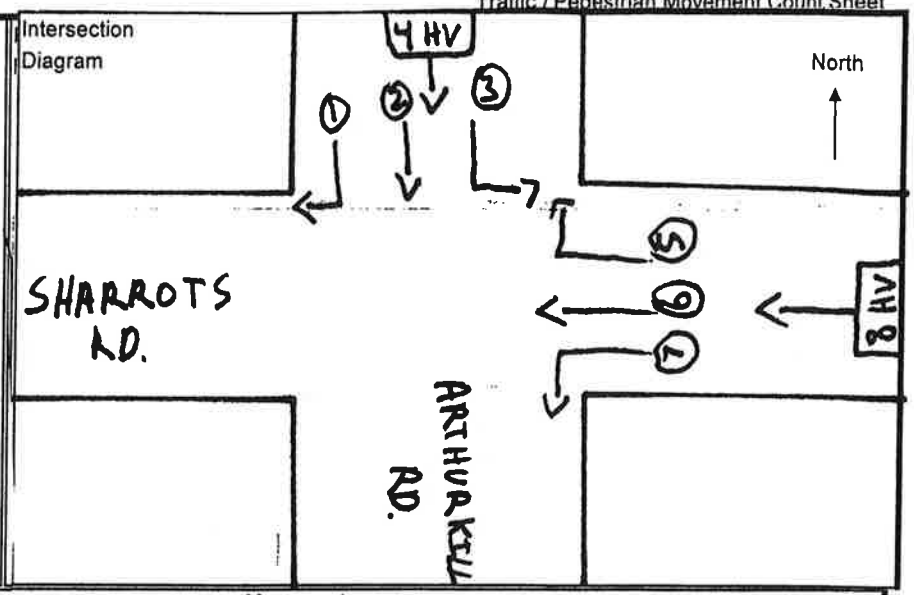
Date: 06/08/11

Period: MD

Weather Conditions: sunny t-91°F

Surveyor's Name: Tetiana Benedyńska

Intersection Diagram



Time			Movements											
			1	2	3	4	5	6	7	8	9	10	11	12
11:30	to	11:45	3	20	—	5	3	1	11	—				
11:45	to	12:00	3	28	2	2	11	3	8	1				
12:00	to	12:15	2	30	3	6	4	4	8	—				
12:15	to	12:30	4	34	5	10	3	2	8	2				
12:30	to	12:45	4	35	6	6	8	4	6	—				
12:45	to	13:00	6	27	8	8	6	6	4	4				
13:00	to	13:15	6	38	3	7	6	1	4	—				
13:15	to	13:30	5	36	8	5	8	3	11	—				
Peak Hour														

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(1A)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121a

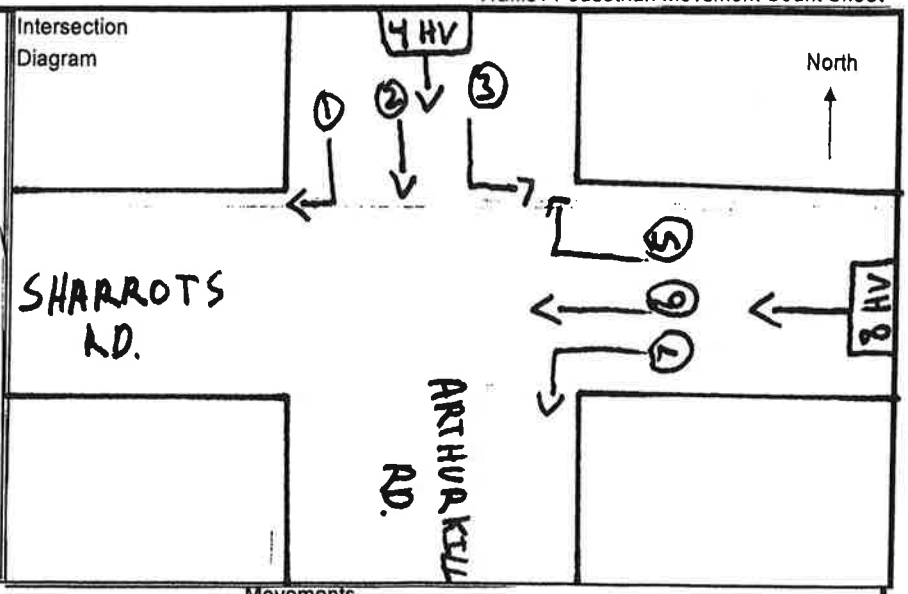
Date: 06/08/11

Period: PM

Weather Conditions: sunny-97°F

Surveyor's Name: Tatiana Benedyteka

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
16:30 to 16:45	4	35	7	4	8	1	11	1				
16:45 to 17:00	2	32	4	8	8	5	8	—				
17:00 to 17:15	8	41	19	6	5	3	9	—				
17:15 to 17:30	6	37	5	3	9	5	8	—				
17:30 to 17:45	1	45	7	6	8	2	15	—				
17:45 to 18:00	—	40	11	4	5	—	12	—				
18:00 to 18:15	2	24	6	4	9	2	12	—				
18:15 to 18:30	1	19	6	4	3	3	5	1				
Peak Hour												

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(1A)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121A

Date: June. 04. 2011

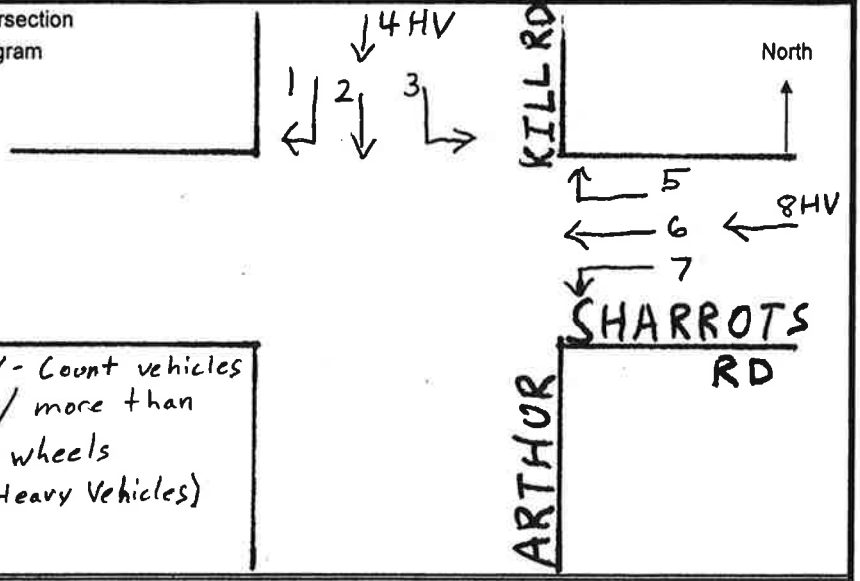
Period: PM

toll: 8.00
mileage: 98ml

Weather Conditions: fine

Surveyor's Name: Alexander Pushkin

Intersection Diagram



HV - Count vehicles w/ more than 4 wheels (Heavy Vehicles)

Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
3:00 to 3:15	5	40	6	-	6	2	8	-				
3:15 to 3:30	6	45	8	1	8	3	8	-				
30 to 3:45	2	39	6	-	10	3	16	-				
3:45 to 4:00	3	35	5	4	7	3	14	-				
4:00 to 4:15	6	29	6	4	9	3	8	-				
4:15 to 4:30	3	34	6	1	7	5	6	-				
4:30 to 4:45	6	36	6	1	3	-	6	-				
4:45 to 5:00	3	30	6	2	9	2	17	-				
5:00 to 5:15	2	32	3	2	12	3	15	-				
5:15 to 5:30	2	22	6	1	2	2	9	-				
5:30 to 5:45	3	25	2	1	8	2	7	1				
5:45 to 6:00	2	27	3	1	3	1	4	-				
Peak Hour												

toll: #8.00
mileage: 98 ml

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(1B)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1053 DRIVED — 112m

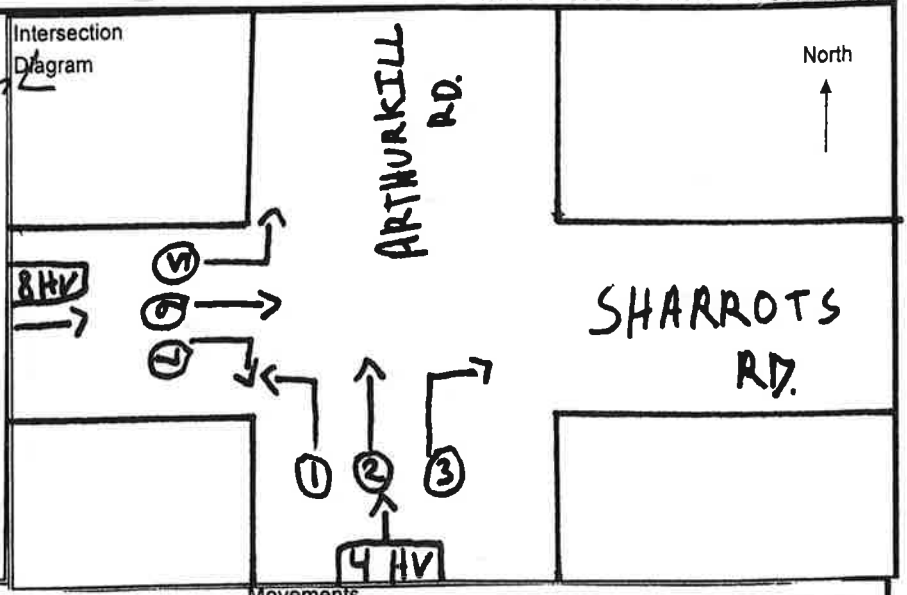
Date: 06/08/11

Period: AM

Weather Conditions: Sunny

Surveyor's Name: Liudmila LAMAKINA

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
7:30 to 7:45	4	24	6	8	2	2	3	4				
7:45 to 8:00	5	26	8	11	1	2	2	5				
8:00 to 8:15	2	27	11	13	3	2	2	4				
8:15 to 8:30	4	17	4	8	1	1	2	2				
8:30 to 8:45	5	26	4	3	1	2	2	1				
8:45 to 9:00	5	24	6	3	3	2	1	—				
9:00 to 9:15	6	33	7	8	2	—	4	—				
9:15 to 9:30	4	30	8	3	5	1	—	1				
Peak Hour												

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(1B)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121a

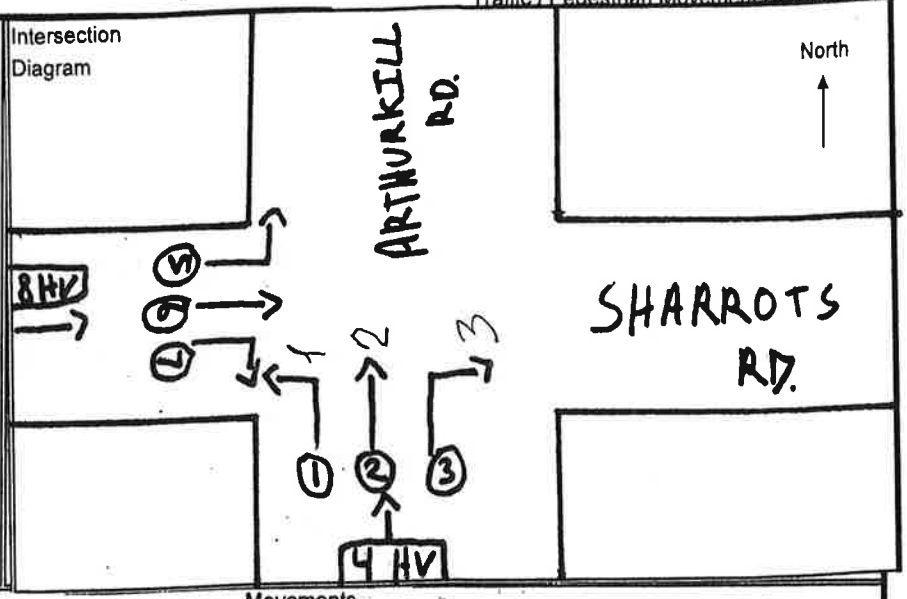
Date: 06/08/11

Period: MD

Weather Conditions: Sunny

Surveyor's Name: Lioudmila LAMAKINA

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
11:30 to 11:45	2	25	8	5	4	1	1	—				
11:45 to 12:00	3	28	8	4	2	2	7	—				
12:00 to 12:15	7	35	7	4	8	4	8	—				
12:15 to 12:30	4	25	10	2	3	3	6	—				
12:30 to 12:45	6	35	4	2	6	3	5	—				
12:45 to 13:00	2	29	6	5	5	6	5	—				
13:00 to 13:15	4	24	2	8	4	4	5	—				
13:15 to 13:30	3	24	12	6	5	4	1	1				
Peak Hour												

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1B

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121a

Date: 06/08/11

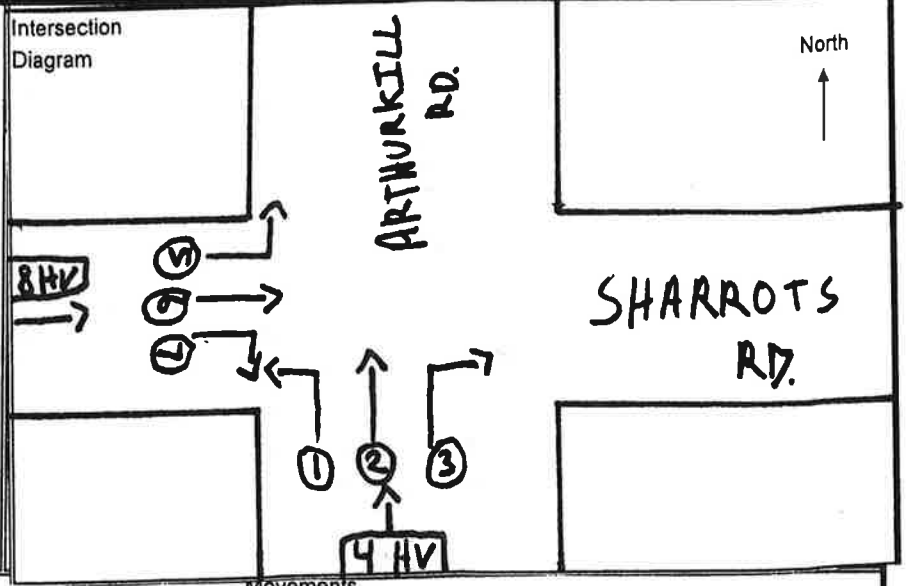
Period: PM

Weather Conditions: Sunny

Lioudmila

Surveyor's Name: LAMAKINA

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
16:30 to 16:45	2	35	2	1	3	3	2	—				
16:45 to 17:00	3	31	14	4	4	2	5	—				
17:00 to 17:15	3	26	13	2	11	3	2	—				
17:15 to 17:30	2	28	10	2	7	6	5	—				
17:30 to 17:45	1	31	12	2	7	4	3	1				
17:45 to 18:00	3	36	11	4	7	4	3	—				
18:00 to 18:15	5	26	10	1	8	2	6	—				
18:15 to 18:30	7	23	9	1	5	3	6	—				
Peak Hour												

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(1B)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121A

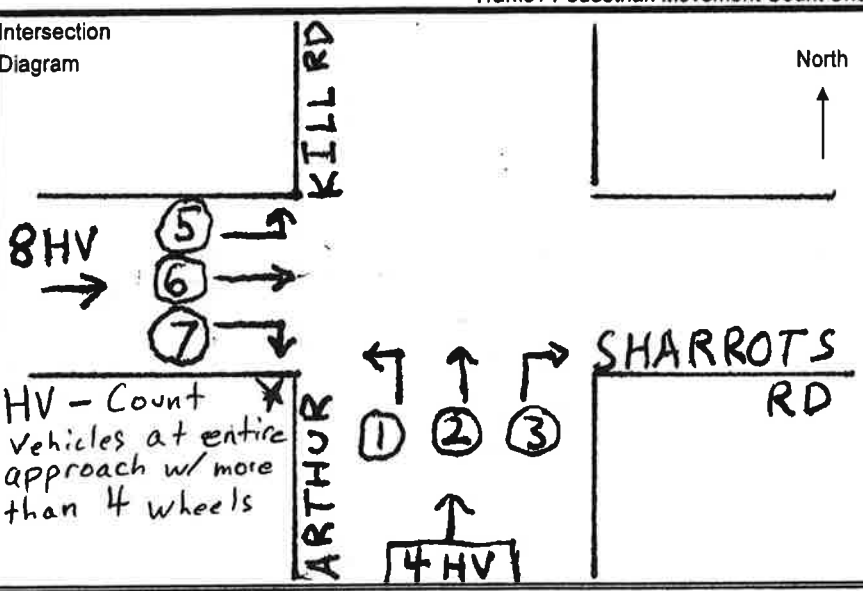
Date: 06.04.11

Period: 3 PM 6

Weather Conditions: cloudy

Surveyor's Name: Natalie Bielfeld

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
3:00 to 3:15	3	22	7	–	5	4	8					
3:15 to 3:30	4	28	9	1	4	7	7					
30 to 3:45	2	30	6	3	11	18	14					
3:45 to 4:00	–	43	9	–	7	4	2					
4:00 to 4:15	2	28	9	2	1	2	2					
4:15 to 4:30	2	33	12	2	3	3	1					
4:30 to 4:45	4	26	4	–	1	2	5					
4:45 to 5:00	3	24	7	–	3	2	3					
5:00 to 5:15	2	28	10	2	2	2	4					
5:15 to 5:30	3	23	4	–	2	3	2					
5:30 to 5:45	1	31	4	1	3	1	5					
5:45 to 6:00	1	22	2	1	4	3	3					
Peak Hour												

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(2)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

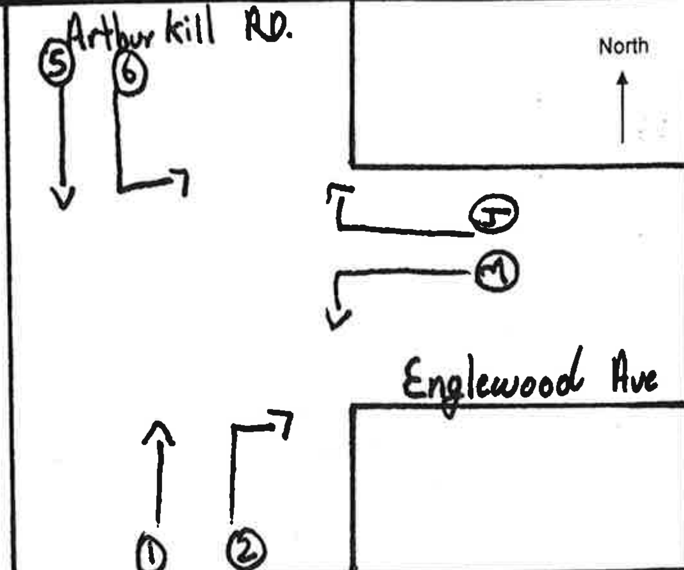
Date: 06/08/2011

Period: AM

Weather Conditions:

Surveyor's Name: Fleischer Khamidullaiev

Intersection Diagram



Time			Movements 1	2	3	4	5	6	7	8	9	10	11	12
7:30	to	7:45	36	5	2	9	30	4						
7:45	to	8:00	46	2	4	3	34	4						
8:00	to	8:15	52	7	2	3	43	3						
8:15	to	8:30	57	4	1	3	44	5						
8:30	to	8:45	40	6	2	6	33	3						
8:45	to	9:00	31	3	2	3	34	1						
9:00	to	9:15	48	9	5	2	42	5						
9:15	to	9:30	43	3	1	4	34	2						
Peak Hour														

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New York, NY 10001
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(2)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121a

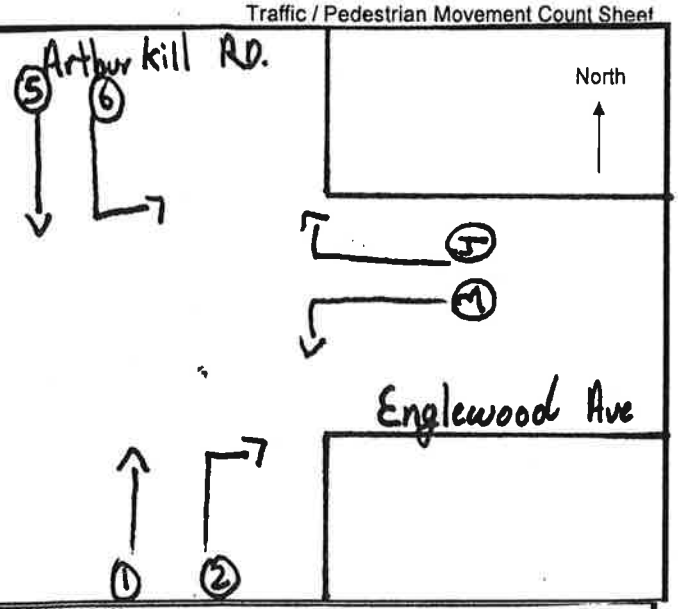
Date: 06/08/2021

Period: MD

Weather Conditions: Shower

Surveyor's Name: Khamid Ahmed

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
11:30 to 11:45	45	8	4	4	36	4						
11:45 to 12:00	47	4	-	4	39	4						
12:00 to 12:15	41	3	5	4	56	5						
12:15 to 12:30	33	2	4	3	48	4						
12:30 to 12:45	47	8	5	4	53	6						
12:45 to 13:00	36	4	6	3	40	3						
13:00 to 13:15	31	3	7	4	52	8						
13:15 to 13:30	32	5	4	7	48	4						
Peak Hour												

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(2)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121a

Date: 06/08/2011

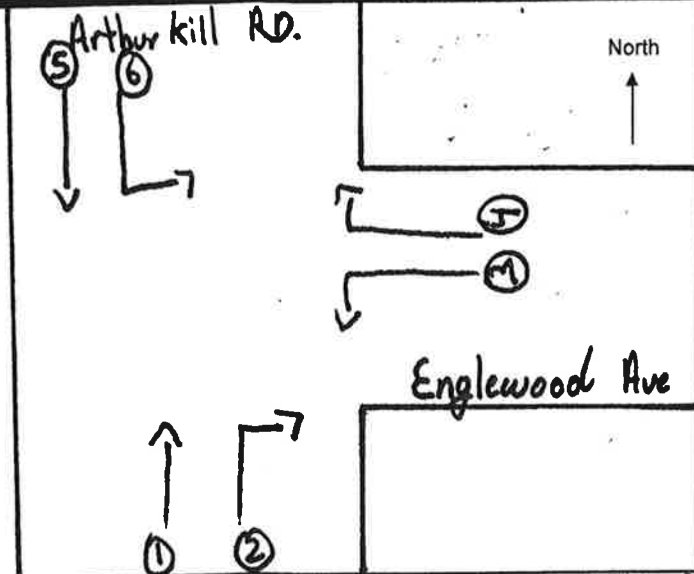
Period: PM

Weather Conditions:

Blischke
Khamidullaev

Surveyor's Name:

Intersection Diagram



Time			Movements											
			1	2	3	4	5	6	7	8	9	10	11	12
16:30	to	16:45	37	8	4	5	64	9						
16:45	to	17:00	32	1	8	7	60	3						
17:00	to	17:15	31	6	11	8	71	4						
17:15	to	17:30	36	5	8	2	56	3						
17:30	to	17:45	30	2	3	11	62	1						
17:45	to	18:00	38	4	5	4	52	5						
18:00	to	18:15	31	1	4	3	41	1						
18:15	to	18:30	34	1	4	3	33	6						
Peak Hour														

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(2)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121A

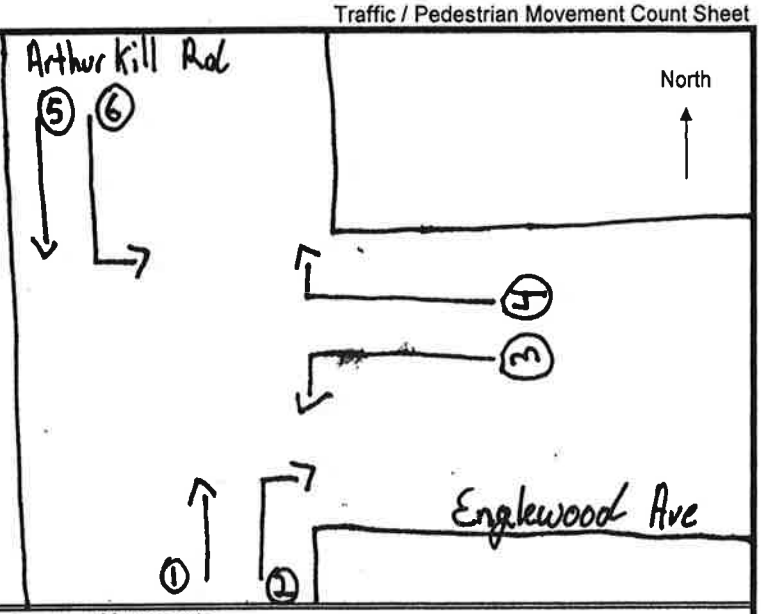
Date: 6-4-11

Period: PM

Weather Conditions:

Surveyor's Name: Angelina Astashova

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
3:00 to 3:15	29	3	2	1	57	6						
3:15 to 3:30	31	3	3	1	61	6						
30 to 3:45	34	5	3	4	57	5						
3:45 to 4:00	37	4	2	6	39	2						
4:00 to 4:15	30	1	1	3	40	2						
4:15 to 4:30	34	–	2	3	37	2						
4:30 to 4:45	28	2	1	5	49	1						
4:45 to 5:00	30	1	2	1	44	–						
5:00 to 5:15	31	3	–	1	40	2						
5:15 to 5:30	27	1	5	–	28	2						
5:30 to 5:45	29	–	–	1	35	2						
5:45 to 6:00	25	–	1	1	34	1						
Peak Hour												

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New York, NY 10001
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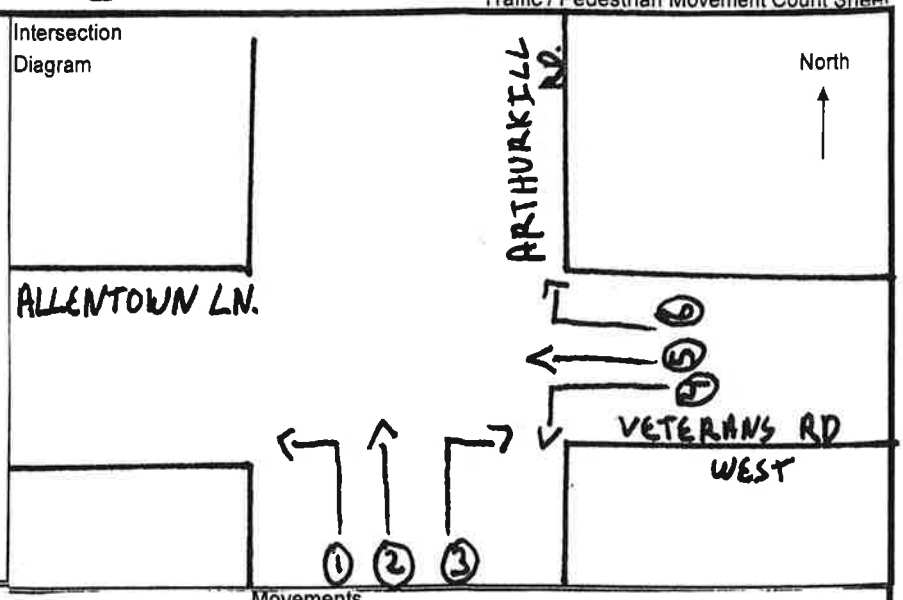
(3A)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

Intersection Diagram



Date: 06/07/11

Period: 7 30 AM 9 30

Weather Conditions:

Surveyor's Name: Tina Sickler

Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
7:30 to 7:45	0	26	51	26	2	26						
7:45 to 8:00	0	31	59	40	1	40						
8:00 to 8:15	0	41	64	20	3	31						
8:15 to 8:30	0	34	57	20	0	28						
8:30 to 8:45	0	28	58	26	2	41						
8:45 to 9:00	0	29	54	34	2	31						
9:00 to 9:15	1	17	38	22	1	22						
9:15 to 9:30	0	26	50	36	0	43						
Peak Hour												

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(3A)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121a

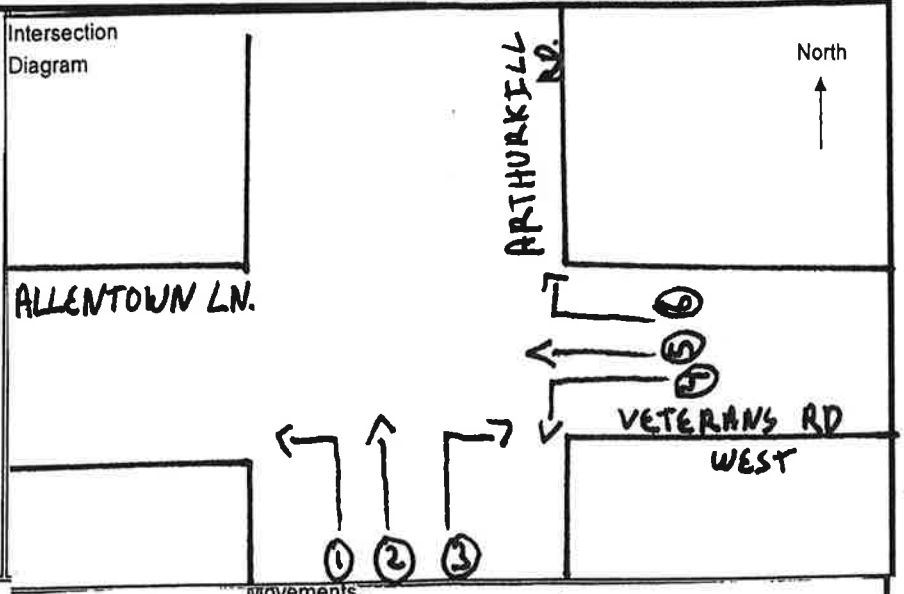
Date: 06/07/11

Period: 11 30 MD 1 30

Weather Conditions:

Surveyor's Name: Irina Sichkar

Intersection Diagram



Movements

Time	1	2	3	4	5	6	7	8	9	10	11	12
11:30 to 11:45	0	30	55	30	0	30						
11:45 to 12:00	0	22	47	42	0	25						
12:00 to 12:15	1	42	43	38	0	23						
12:15 to 12:30	0	29	50	33	0	29						
12:30 to 12:45	0	31	56	33	6	32						
12:45 to 13:00	0	29	56	26	2	35						
13:00 to 13:15	0	35	43	31	2	33						
13:15 to 13:30	0	31	38	33	1	31						
Peak Hour												

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3A

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121a

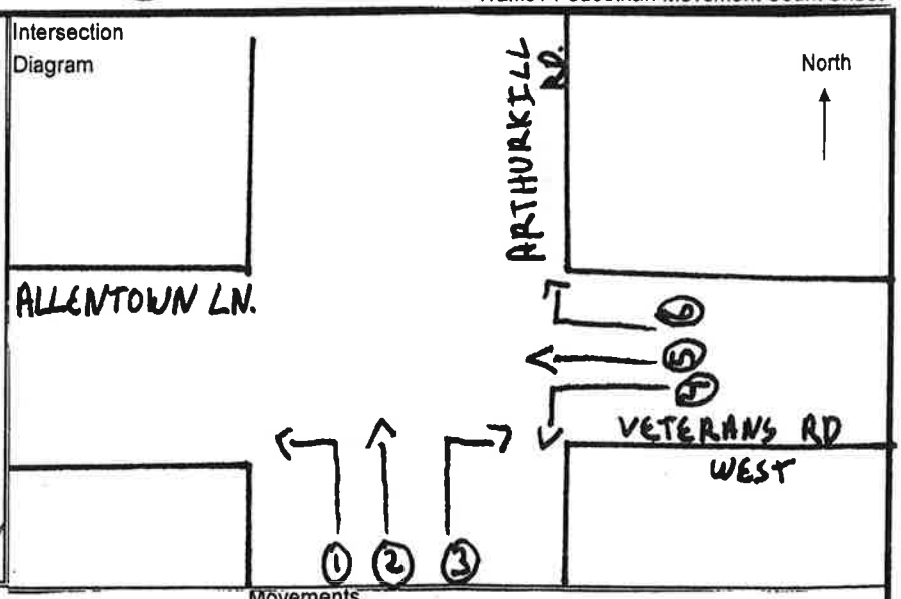
Date: 06/07/11

Period: 16 30 PM 18 30

Weather Conditions:

Surveyor's Name: Inna Sichkar

Intersection Diagram



Movements

Time	1	2	3	4	5	6	7	8	9	10	11	12
16:30 to 16:45	0	31	48	46	1	25						
16:45 to 17:00	1	27	62	45	3	31						
17:00 to 17:15	0	26	52	51	4	25						
17:15 to 17:30	0	17	72	41	1	26						
17:30 to 17:45	0	22	51	55	0	45						
17:45 to 18:00	1	35	51	56	0	35						
18:00 to 18:15	0	35	55	34	1	42						
18:15 to 18:30	0	36	46	50	2	34						
Peak Hour												

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3A

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121A

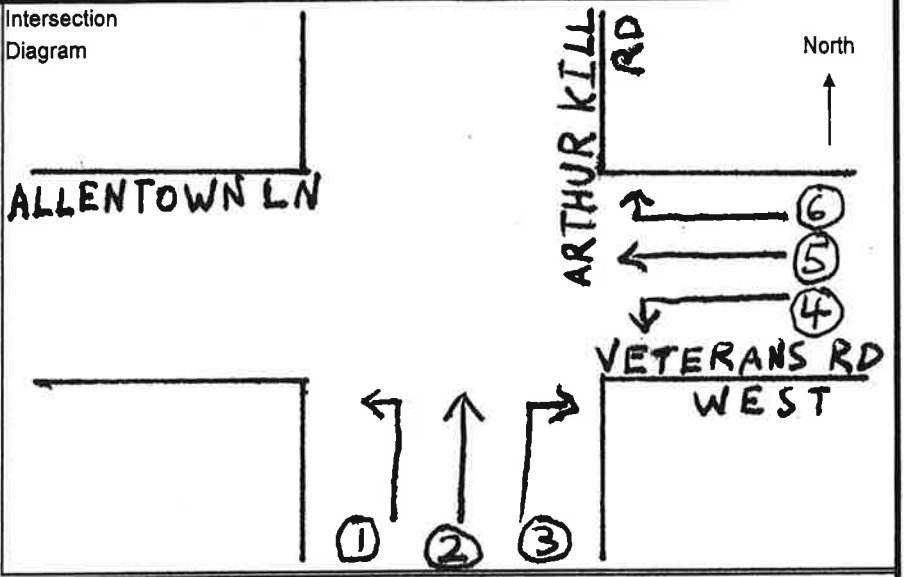
Date: 06/04/11

Period: 3 PM 6

Weather Conditions:

Surveyor's Name: Inna Sichkar

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
3:00 to 3:15	0	22	73	46	6	23						
3:15 to 3:30	0	18	61	48	0	24						
30 to 3:45	1	22	52	60	3	39						
3:45 to 4:00	0	31	62	44	0	32						
4:00 to 4:15	2	28	53	44	3	18						
4:15 to 4:30	0	28	54	36	2	19						
4:30 to 4:45	1	29	63	32	0	20						
4:45 to 5:00	1	27	62	48	3	17						
5:00 to 5:15	0	24	64	35	4	16						
5:15 to 5:30	0	28	59	43	1	18						
5:30 to 5:45	1	19	42	25	0	26						
5:45 to 6:00	0	19	43	48	1	17						
Peak Hour												

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3B

Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

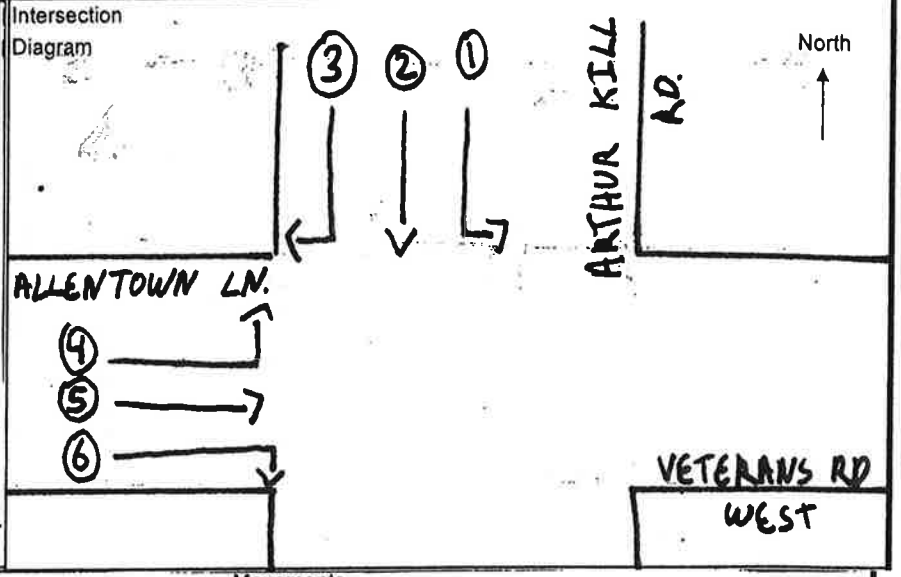
Date: 06/07/11

Period: AM

Weather Conditions:

Surveyor's Name: Lyudmila Kacher

Intersection Diagram



Time			Movements 1	2	3	4	5	6	7	8	9	10	11	12
7:30	to	7:45	11	33	0	1	2	0						
7:45	to	8:00	14	40	0	0	0	1						
8:00	to	8:15	8	40	0	1	1	0						
8:15	to	8:30	21	33	0	0	1	0						
8:30	to	8:45	20	27	0	0	0	0						
8:45	to	9:00	14	39	0	2	0	1						
9:00	to	9:15	18	45	0	1	2	1						
9:15	to	9:30	14	23	0	1	1	0						
Peak Hour														

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(5b)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121a

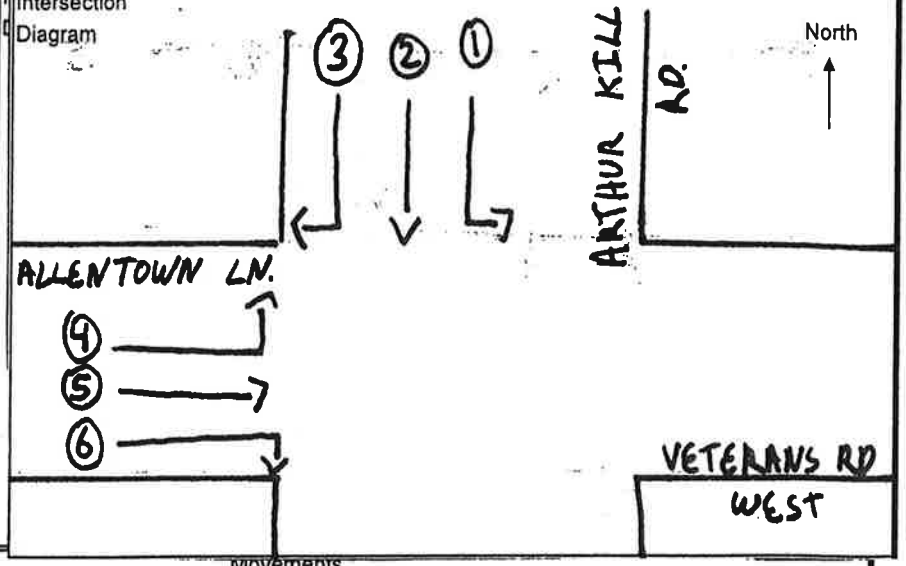
Date: 06/07/11

Period: MD

Weather Conditions: Lyudmila

Surveyor's Name: Kacher

Intersection Diagram



Time			Movements 1	2	3	4	5	6	7	8	9	10	11	12
11:30	to	11:45	26	45	1	0	0	0						
11:45	to	12:00	32	49	0	0	0	0						
12:00	to	12:15	21	47	0	0	0	1						
12:15	to	12:30	20	47	0	0	1	0						
12:30	to	12:45	32	38	0	0	0	3						
12:45	to	13:00	25	46	1	1	1	2						
13:00	to	13:15	27	56	0	0	1	2						
13:15	to	13:30	28	48	1	0	2	1						
Peak Hour														

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3B

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121a

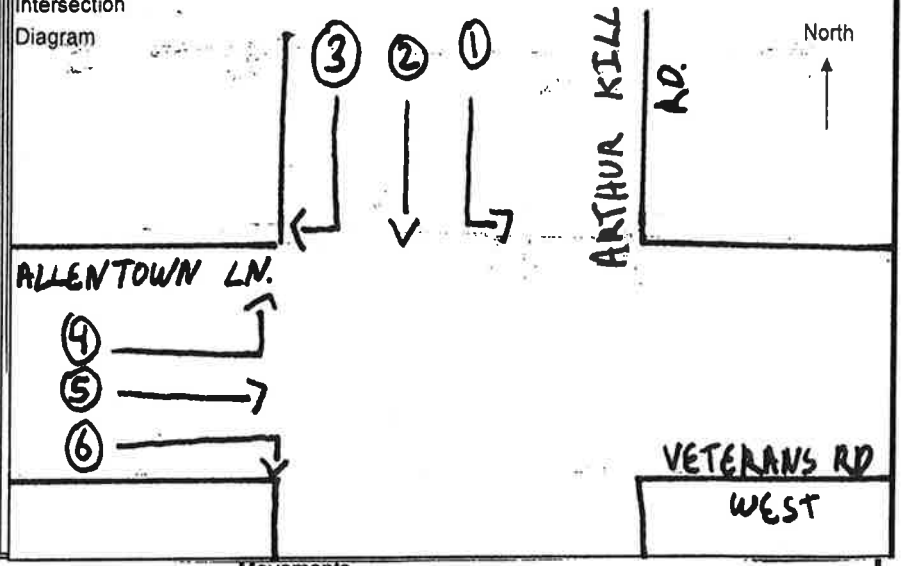
Date: 06/07/11

Period: PM

Weather Conditions:

Surveyor's Name: Lyudmila Kacher

Intersection Diagram



Time			Movements 1	2	3	4	5	6	7	8	9	10	11	12
16:30	to	16:45	40	58	0	0	0	1						
16:45	to	17:00	33	54	1	0	0	2						
17:00	to	17:15	46	65	0	0	0	1						
17:15	to	17:30	21	53	0	1	4	0						
17:30	to	17:45	24	56	1	0	0	0						
17:45	to	18:00	34	43	0	0	1	1						
18:00	to	18:15	29	41	0	0	2	1						
18:15	to	18:30	23	44	1	0	1	1						
Peak Hour														

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(3B)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121A

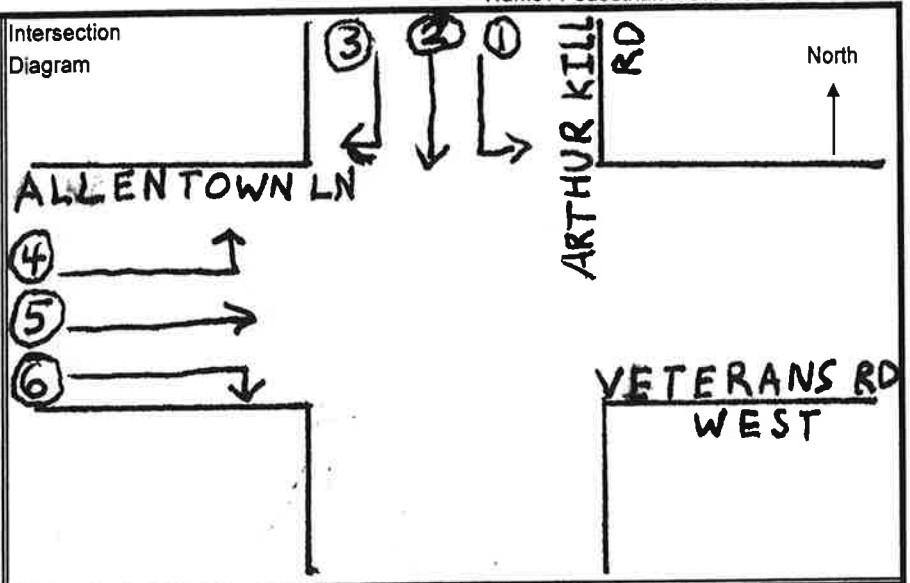
Date: 06/04/11

Period: PM

Weather Conditions:

Surveyor's Name: dyudmila kacher

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
3:00 to 3:15	26	34	0	0	2	0						
3:15 to 3:30	32	39	0	0	2	0						
30 to 3:45	25	35	0	0	3	1						
3:45 to 4:00	22	43	0	0	1	0						
4:00 to 4:15	23	40	0	0	0	1						
4:15 to 4:30	17	41	0	0	4	2						
4:30 to 4:45	16	44	0	0	2	0						
4:45 to 5:00	16	36	1	1	1	2						
5:00 to 5:15	18	36	0	0	1	3						
5:15 to 5:30	15	35	2	0	1	2						
5:30 to 5:45	14	33	1	1	0	1						
5:45 to 6:00	13	38	0	1	2	6						
Peak Hour												

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(4)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

Driver – 92nd

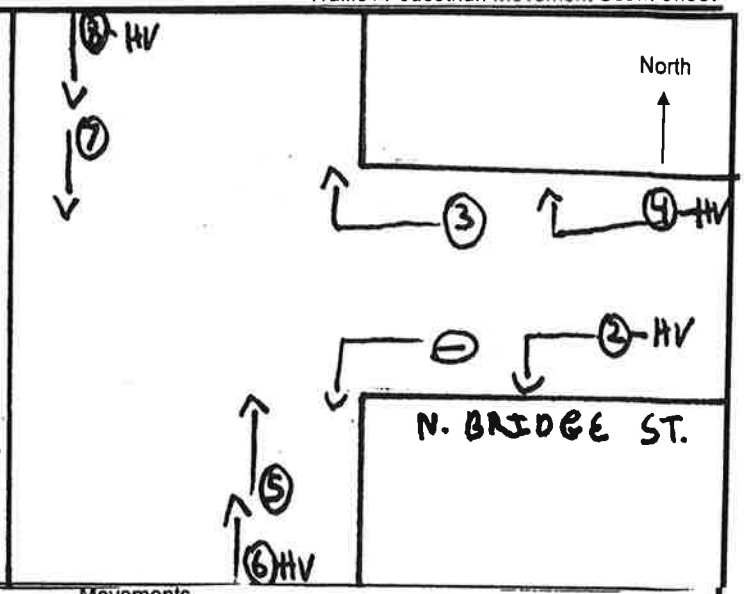
Date: 06/07/11

Period: AM

Weather Conditions: sunny / cloudmile

Surveyor's Name: LAMARINO

Intersection Diagram



Time			Movements 1	2	3	4	5	6	7	8	9	10	11	12
7:30	to	7:45	65	6	1	–	41	4	29	19				
7:45	to	8:00	83	2	–	1	61	4	57	13				
8:00	to	8:15	69	5	2	–	87	11	48	5				
8:15	to	8:30	58	4	1	–	87	6	57	4				
8:30	to	8:45	55	8	–	–	59	10	38	8				
8:45	to	9:00	64	3	2	–	69	6	51	13				
9:00	to	9:15	63	11	1	–	47	8	58	9				
9:15	to	9:30	65	5	2	1	66	4	57	3				
Peak Hour														

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(4)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121a

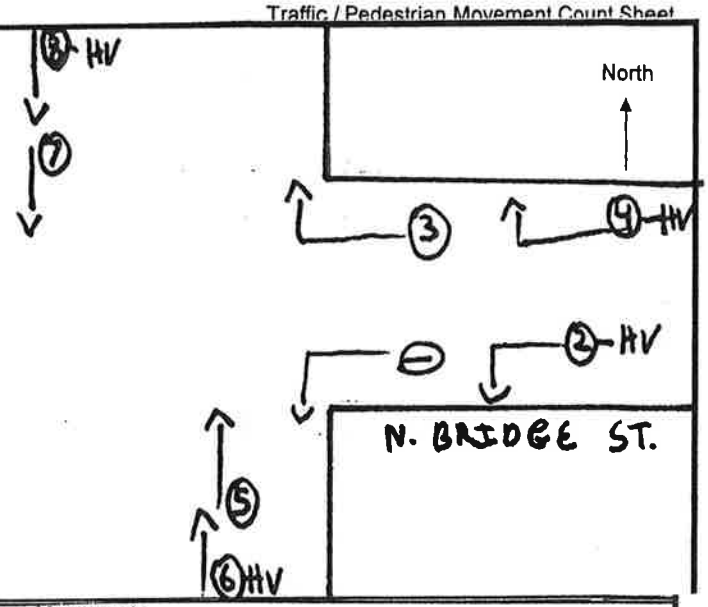
Date: 06/07/11

Period: MD

Weather Conditions: sunny

Surveyor's Name: Lioudmila LAMAKINA

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
11:30 to 11:45	64	4	1	—	74	10	66	12				
11:45 to 12:00	71	1	2	2	52	9	76	13				
12:00 to 12:15	71	6	—	1	58	10	73	10				
12:15 to 12:30	77	6	1	—	74	9	73	10				
12:30 to 12:45	61	2	1	—	74	7	67	3				
12:45 to 13:00	63	3	1	1	80	6	69	10				
13:00 to 13:15	53	2	1	1	63	4	68	7				
13:15 to 13:30	71	3	1	1	63	4	80	7				
Peak Hour												

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Traffic / Pedestrian Movement Count Sheet

Project No.: 1121a

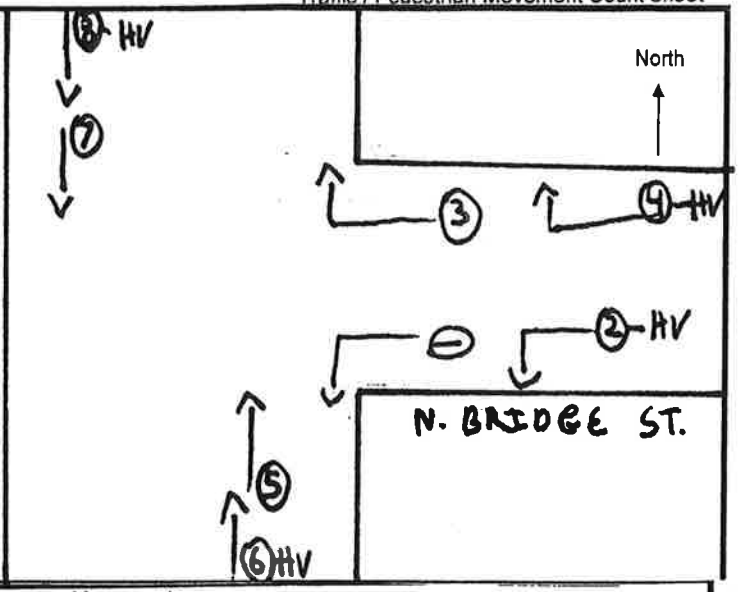
Date: 06/07/11

Period: PM

Weather Conditions: sunny

Surveyor's Name: Lioudmila LAMAKINA

Intersection Diagram



Time			Movements 1	2	3	4	5	6	7	8	9	10	11	12
16:30	to	16:45	110	2	4	–	71	3	82	13				
16:45	to	17:00	114	1	1	–	66	5	84	7				
17:00	to	17:15	111	3	2	–	67	9	100	18				
17:15	to	17:30	145	–	–	–	84	2	73	7				
17:30	to	17:45	120	3	1	–	66	2	93	6				
17:45	to	18:00	107	2	1	1	81	1	85	12				
18:00	to	18:15	133	–	–	–	84	2	70	3				
18:15	to	18:30	113	1	1	–	77	4	84	5				
Peak Hour														

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(4)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121A

Date: 06/04/11

Driver - 92 nL

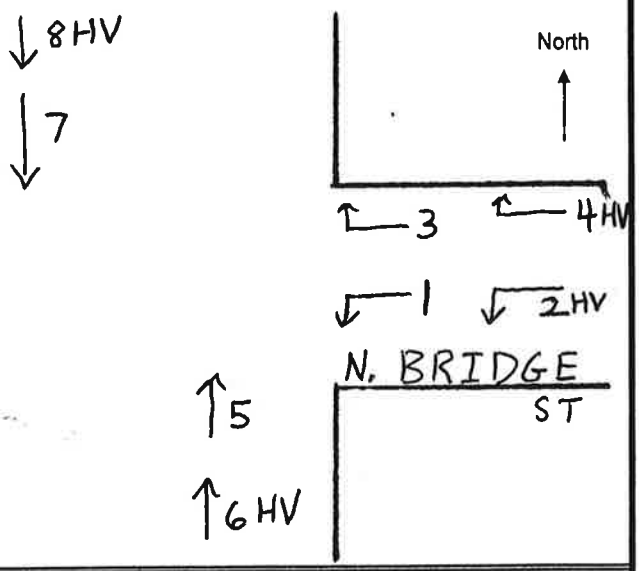
Period: PM

Weather Conditions: cloudy

Surveyor's Name: Lioudmila LAMAKINA

Intersection Diagram

HV - Count vehicles w/ More than 4 wheels



Time	Movements 1	2 HV	3	4 HV	5	6 HV	7	8 HV	9	10	11	12
3:00 to 3:15	62	3	1	–	64	3	57	2				
3:15 to 3:30	68	2	1	–	63	2	56	3				
30 to 3:45	96	2	3	–	54	4	86	2				
3:45 to 4:00	118	1	–	–	66	6	67	4				
4:00 to 4:15	106	1	2	–	66	1	64	3				
4:15 to 4:30	80	–	2	–	64	2	73	4				
4:30 to 4:45	78	1	–	1	68	2	59	3				
4:45 to 5:00	98	2	1	–	76	4	71	1				
5:00 to 5:15	102	2	2	2	73	3	64	–				
5:15 to 5:30	83	2	1	1	76	4	86	2				
5:30 to 5:45	77	1	3	–	49	3	74	2				
5:45 to 6:00	75	1	1	–	53	2	72	2				
Peak Hour												

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Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

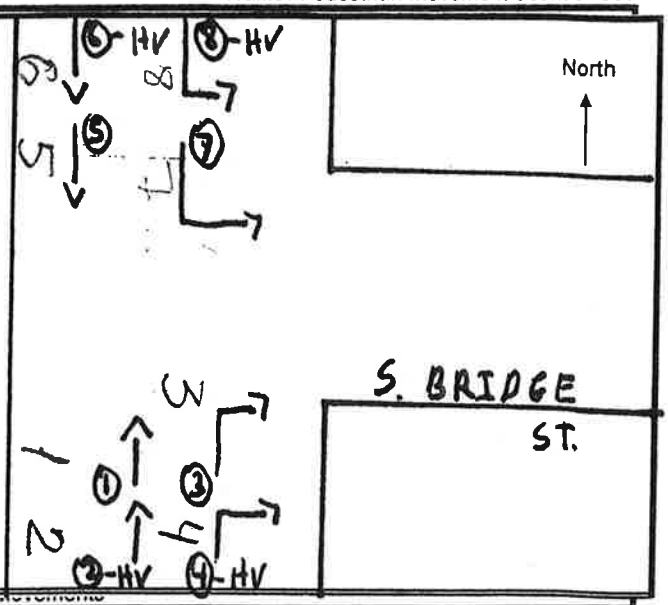
Date: 06/07/11

Period: AM

Weather Conditions: sunny

Surveyor's Name: Tetiana Beneditska

Intersection Diagram



Time	1	2	3	4	5	6	7	8	9	10	11	12
7:30 to 7:45	52	4	59	5	52	17	42	8				8
7:45 to 8:00	60	5	61	6	106	9	34	6				
8:00 to 8:15	87	9	66	2	90	7	27	3				
8:15 to 8:30	84	6	60	5	84	3	31	5				
8:30 to 8:45	58	11	45	2	68	9	24	7				
8:45 to 9:00	74	7	34	3	85	9	29	7				
9:00 to 9:15	47	8	24	2	88	14	31	6				
9:15 to 9:30	68	4	38	2	95	2	26	7				
Peak Hour												

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Traffic / Pedestrian Movement Count Sheet

Project No.: 1121a

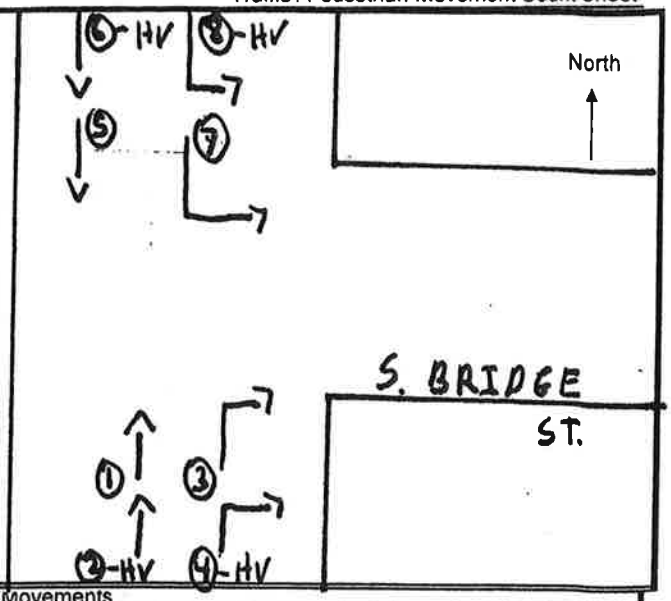
Date: 06/07/11

Period: MD

Weather Conditions: Sunny

Surveyor's Name: Tetiana Bereōlitska

Intersection Diagram



Movements

Time	1	2	3	4	5	6	7	8	9	10	11	12
11:30 to 11:45	71	10	40	5	103	9	26	8				
11:45 to 12:00	53	9	28	—	114	8	30	5				
12:00 to 12:15	70	10	56	3	99	10	45	5				
12:15 to 12:30	69	9	45	1	112	10	33	6				
12:30 to 12:45	69	6	38	2	105	2	23	2				
12:45 to 13:00	77	7	50	4	101	5	30	8				
13:00 to 13:15	64	3	27	2	102	3	29	6				
13:15 to 13:30	66	3	30	—	107	5	43	5				
Peak Hour												

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(5)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121a

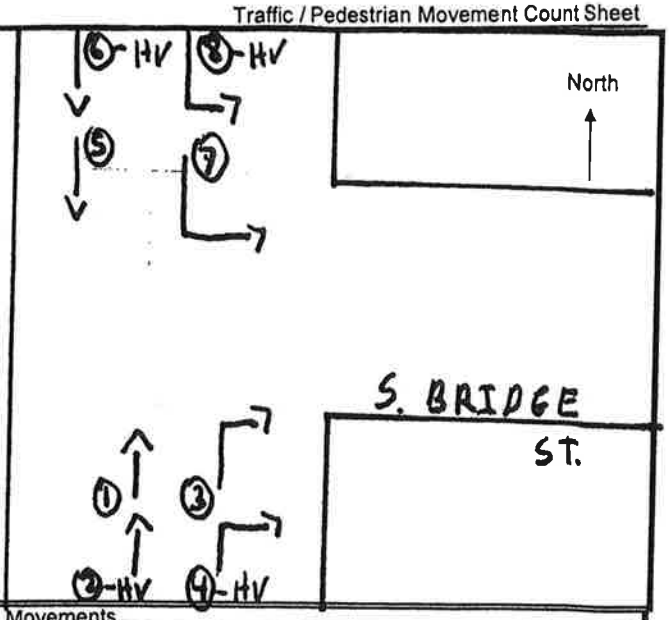
Date: 06/07/11

Period: PM

Weather Conditions: sunny

Surveyor's Name: Tetiana Benedikska

Intersection Diagram



Time			Movements 1	2	3	4	5	6	7	8	9	10	11	12
16:30	to	16:45	63	3	53	—	123	4	56	11				
16:45	to	17:00	72	5	35	—	127	5	50	3				
17:00	to	17:15	65	8	50	1	129	7	48	13				
17:15	to	17:30	81	3	41	1	182	7	34	—				
17:30	to	17:45	56	2	42	2	186	2	27	7				
17:45	to	18:00	82	1	51	2	153	8	36	6				
18:00	to	18:15	85	2	61	—	172	2	28	1				
18:15	to	18:30	81	3	63	—	173	5	19	1				
Peak Hour														

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Traffic / Pedestrian Movement Count Sheet

Project No.: 1121A

Date: 06/04/11

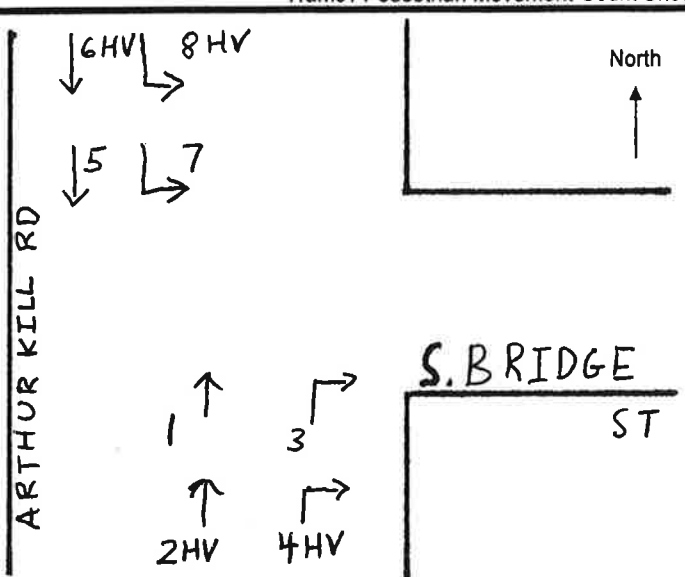
Period: PM

Weather Conditions: cloudy

Surveyor's Name: Tetiana Beneditska

Intersection Diagram

HV - Count vehicles w/ more than 4 wheels (Heavy Vehicles)



Time	Movements 1	2 HV	3	4 HV	5	6 HV	7	8 HV	9	10	11	12
3:00 to 3:15	64	3	31	1	61	2	26	2				
3:15 to 3:30	60	1	34	2	58	2	27	2				
30 to 3:45	55	1	41	1	85	2	32	2				
3:45 to 4:00	70	2	50	—	67	1	48	1				
4:00 to 4:15	69	1	48	1	72	3	36	2				
4:15 to 4:30	71	2	51	1	73	4	30	3				
4:30 to 4:45	68	2	43	—	60	3	24	3				
4:45 to 5:00	76	4	49	—	71	1	18	2				
5:00 to 5:15	70	—	46	—	64	—	38	—				
5:15 to 5:30	73	4	38	1	84	2	30	2				
5:30 to 5:45	42	3	36	—	68	2	18	2				
5:45 to 6:00	49	1	28	2	72	2	16	1				
Peak Hour												

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(6)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

Date: 06.07.11

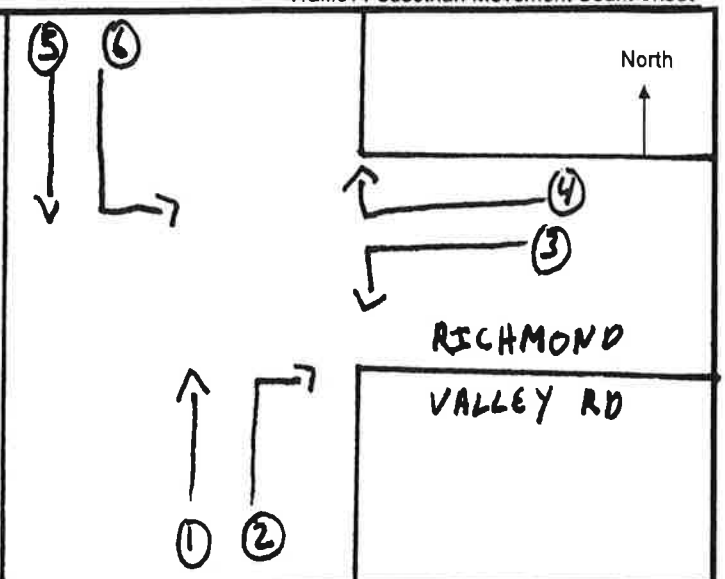
Period: AM

tolls: #9.00

Weather Conditions: mileage: 104mi.

Surveyor's Name: Alexander Pushkin

Intersection Diagram



Time			Movements 1	2	3	4	5	6	7	8	9	10	11	12
7:30	to	7:45	143	11	15	24	80	18						
7:45	to	8:00	140	15	19	31	94	20						
8:00	to	8:15	147	19	11	36	78	18						
8:15	to	8:30	128	21	11	30	48	16						
8:30	to	8:45	108	10	12	31	63	15						
8:45	to	9:00	94	15	20	28	70	28						
9:00	to	9:15	68	17	12	27	57	21						
9:15	to	9:30	83	14	21	34	65	14						
Peak Hour														

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Traffic / Pedestrian Movement Count Sheet

Project No.: 1121a

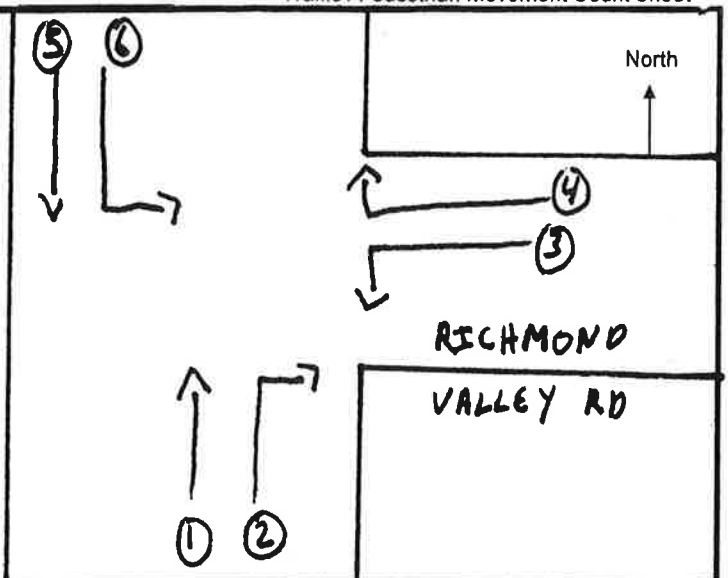
Date: 06.07.11

Period: MD

Weather Conditions: Fine

Surveyor's Name: Alexander Pushkin

Intersection Diagram



Time			Movements 1	2	3	4	5	6	7	8	9	10	11	12
11:30	to	11:45	86	16	20	37	79	15						
11:45	to	12:00	67	16	15	35	99	22						
12:00	to	12:15	88	18	16	39	73	25						
12:15	to	12:30	94	13	22	30	93	26						
12:30	to	12:45	95	18	24	41	78	24						
12:45	to	13:00	106	13	22	47	79	29						
13:00	to	13:15	96	12	17	35	76	32						
13:15	to	13:30	72	12	13	30	78	23						
Peak Hour														

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Traffic / Pedestrian Movement Count Sheet

Project No.: 1121a

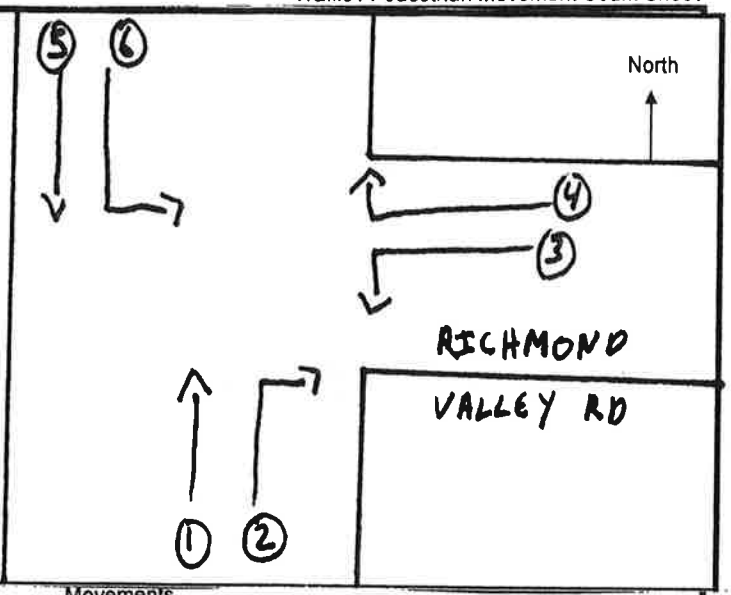
Date: 06.07.11

Period: PM

Weather Conditions:

Surveyor's Name: Alexander Pushkin

Intersection Diagram



Time			Movements 1	2	3	4	5	6	7	8	9	10	11	12
16:30	to	16:45	87	20	32	33	107	25						
16:45	to	17:00	107	20	31	35	110	30						
17:00	to	17:15	90	24	30	36	138	19						
17:15	to	17:30	98	16	25	29	132	31						
17:30	to	17:45	99	28	26	26	155	25						
17:45	to	18:00	110	20	37	35	142	22						
18:00	to	18:15	121	28	30	22	148	28						
18:15	to	18:30	94	24	30	29	123	24						
Peak Hour														

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Traffic / Pedestrian Movement Count Sheet

Project No.: 1121A

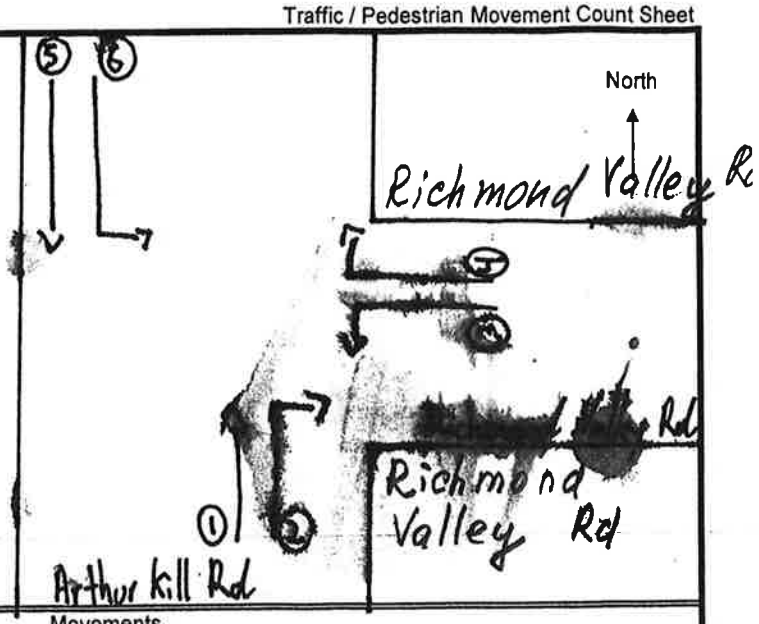
Date: 6-4-2011

Period: PM

Weather Conditions:

Surveyor's Name: Victor Koulakov

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
3:00 to 3:15	78	13	17	28	101	21						
3:15 to 3:30	80	11	10	23	91	25						
30 to 3:45	90	7	13	36	124	32						
3:45 to 4:00	110	18	21	28	119	17						
4:00 to 4:15	87	19	18	43	122	19						
4:15 to 4:30	77	20	25	37	120	23						
4:30 to 4:45	92	13	15	25	92	22						
4:45 to 5:00	96	15	23	27	116	28						
5:00 to 5:15	105	18	23	22	103	27						
5:15 to 5:30	101	18	26	24	100	18						
5:30 to 5:45	87	20	23	16	97	21						
5:45 to 6:00	89	12	21	26	90	24						
Peak Hour												

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Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

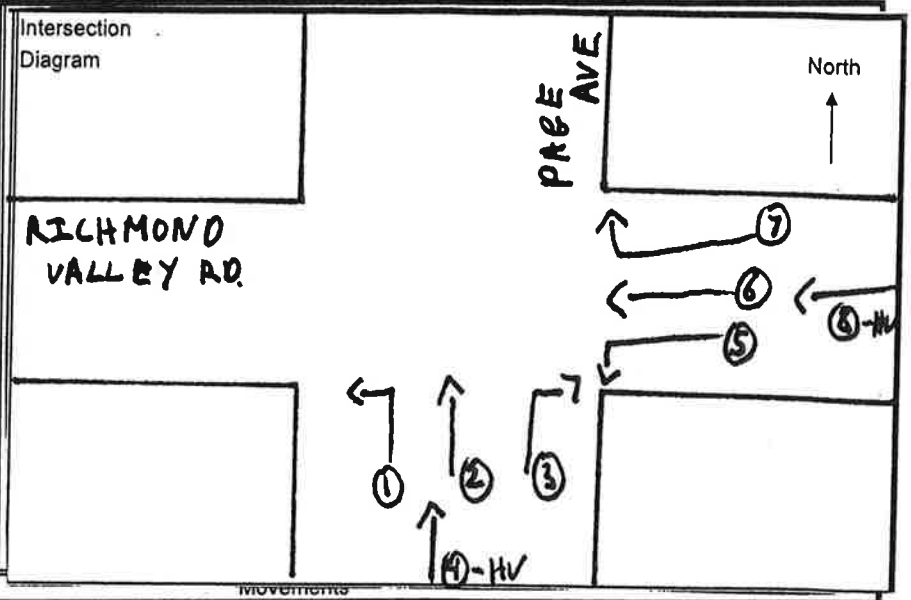
Date: 6-7-11

Period: AM

Weather Conditions:

Surveyor's Name: Denis Volchanskiy

Intersection Diagram



Movements

Time	1	2	3	4	5	6	7	8	9	10	11	12
7:30 to 7:45	18	72	1	7	8	9	14	4				
7:45 to 8:00	27	101	2	4	15	6	10	0				
8:00 to 8:15	10	73	1	3	17	3	12	0				
8:15 to 8:30	15	87	2	7	16	2	13	0				
8:30 to 8:45	11	74	0	4	15	4	11	0				
8:45 to 9:00	13	61	0	3	12	1	14	0				
9:00 to 9:15	21	52	1	4	17	8	10	1				
9:15 to 9:30	26	57	0	4	14	4	7	0				
Peak Hour												

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(7A)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121a

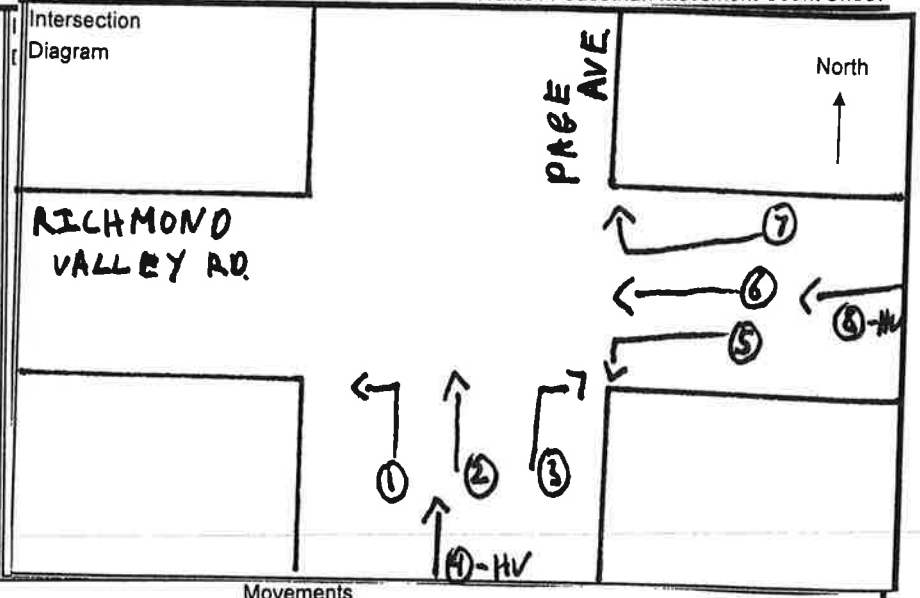
Date:

Period: MD

Weather Conditions:

Surveyor's Name:

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
11:30 to 11:45	15	92	4	6	13	9	14	1				
11:45 to 12:00	12	100	4	4	29	5	9	1				
12:00 to 12:15	15	113	7	4	36	4	11	1				
12:15 to 12:30	21	109	4	3	28	8	15	0				
12:30 to 12:45	22	111	6	4	24	4	11	1				
12:45 to 13:00	27	82	5	3	23	7	17	0				
13:00 to 13:15	20	91	6	2	18	5	12	1				
13:15 to 13:30	16	93	1	0	21	6	14	0				
Peak Hour												

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7A

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121a

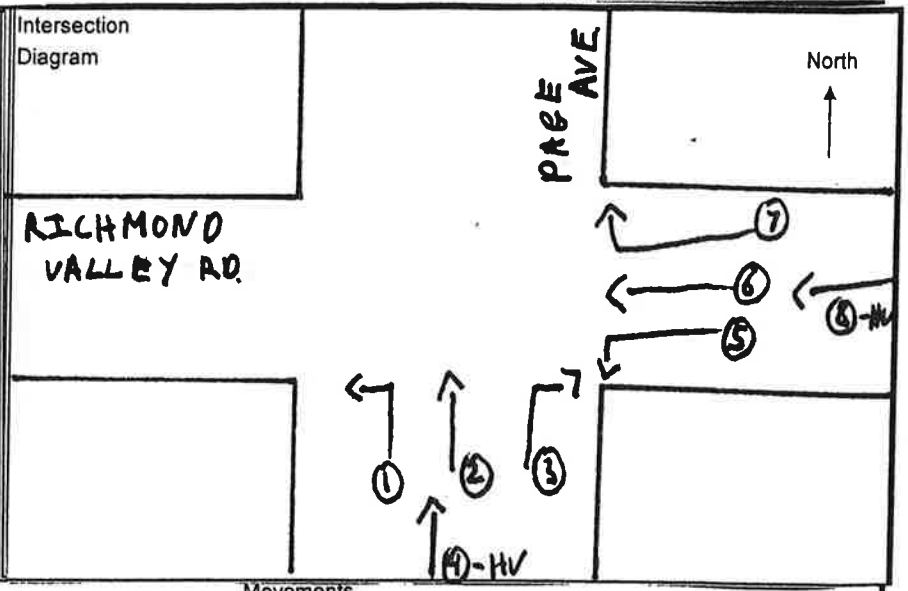
Date:

Period: PM

Weather Conditions:

Surveyor's Name:

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
16:30 to 16:45	19	121	3	1	21	10	23	0				
16:45 to 17:00	24	124	6	1	16	11	29	0				
17:00 to 17:15	18	119	3	2	33	13	39	0				
17:15 to 17:30	25	125	4	2	30	13	36	0				
17:30 to 17:45	24	106	5	1	24	14	23	0				
17:45 to 18:00	28	123	5	1	18	12	22	1				
18:00 to 18:15	22	139	7	2	9	18	23	0				
18:15 to 18:30	20	121	5	1	10	14	21	0				
Peak Hour												

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7A

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121A

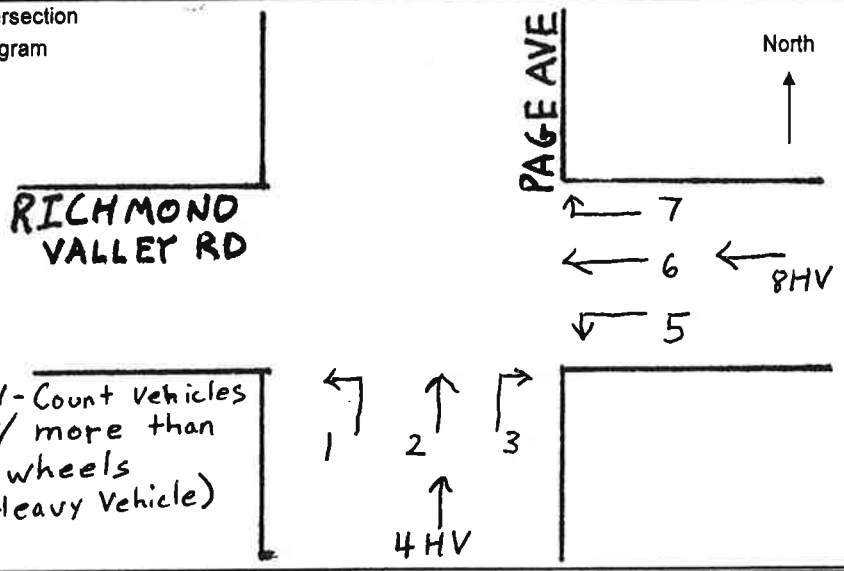
Date: 06-04-2011

Period: PM

Weather Conditions:

Surveyor's Name: Driver: 60ML, $13 toll
Oleg Volchanskiy

Intersection Diagram



Time	Movements 1	2	3	4 HV	5	6	7	8 HV	9	10	11	12
3:00 to 3:15	18	140	5	3	8	6	4	0				
3:15 to 3:30	15	135	3	3	10	8	4	0				
30 to 3:45	23	138	6	1	3	10	5	0				
3:45 to 4:00	20	128	5	1	7	9	8	0				
4:00 to 4:15	26	155	3	4	7	18	7	0				
4:15 to 4:30	21	164	2	4	7	8	4	1				
4:30 to 4:45	18	156	7	1	8	8	3	0				
4:45 to 5:00	26	171	2	1	5	9	8	0				
5:00 to 5:15	19	151	3	1	6	8	10	0				
5:15 to 5:30	21	157	6	3	8	16	9	0				
5:30 to 5:45	15	154	4	0	6	3	6	0				
5:45 to 6:00	23	167	3	0	4	15	11	0				
Peak Hour												

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(7B)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

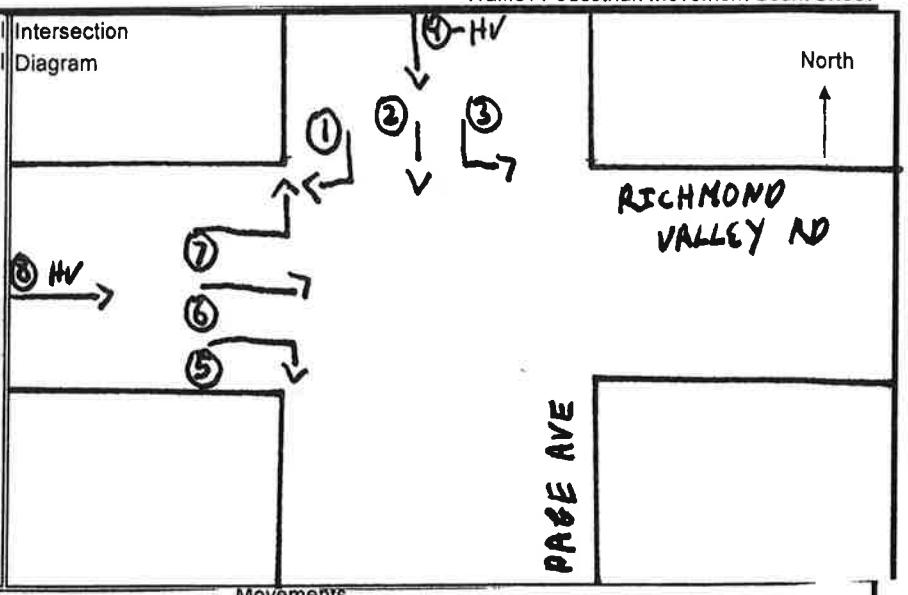
Date: 06-07-2011

Period: AM

Weather Conditions:

Surveyor's Name: Driver Tag $13.0 ; 65.ML
Oleg Volchanskiy

Intersection Diagram



Movements

Time	1	2	3	4	5	6	7	8	9	10	11	12
7:30 to 7:45	12	111	4	5	0	13	3	0				
7:45 to 8:00	22	193	1	8	6	8	4	0				
8:00 to 8:15	28	172	1	6	5	12	3	0				
8:15 to 8:30	29	188	9	9	8	10	3	0				
8:30 to 8:45	23	151	10	6	5	15	5	1				
8:45 to 9:00	24	143	4	5	2	13	9	0				
9:00 to 9:15	22	128	2	9	4	10	5	0				
9:15 to 9:30	22	136	2	9	5	13	6	0				
Peak Hour												

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(76)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121a

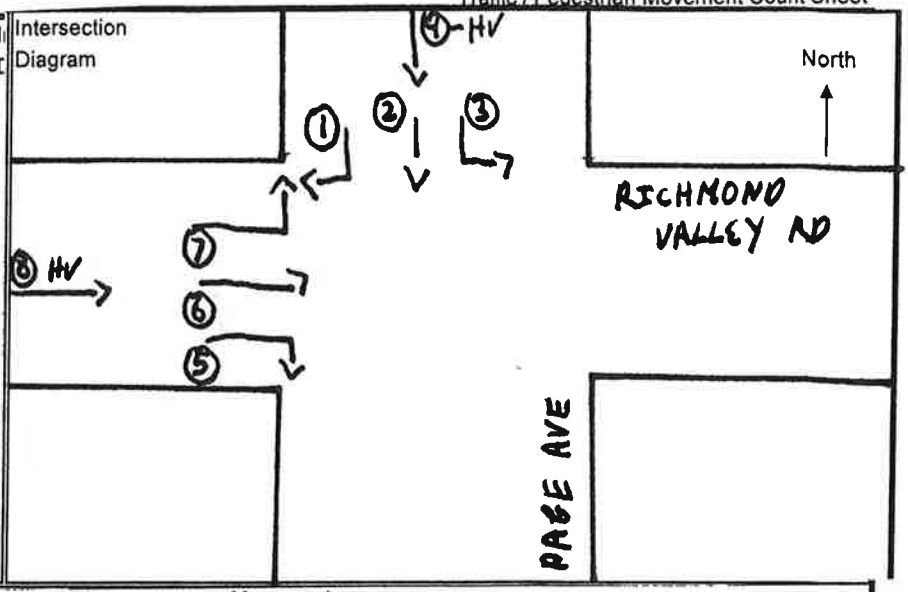
Date:

Period: MD

Weather Conditions:

Surveyor's Name:

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
11:30 to 11:45	24	163	5	6	6	8	9	0				
11:45 to 12:00	20	154	6	9	12	17	6	1				
12:00 to 12:15	33	156	4	10	16	11	9	1				
12:15 to 12:30	30	157	2	8	8	13	7	0				
12:30 to 12:45	39	152	7	5	6	11	9	2				
12:45 to 13:00	24	151	5	7	13	11	10	2				
13:00 to 13:15	33	136	11	3	5	4	4	0				
13:15 to 13:30	30	161	3	6	12	6	11	0				
Peak Hour												

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1B

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121a

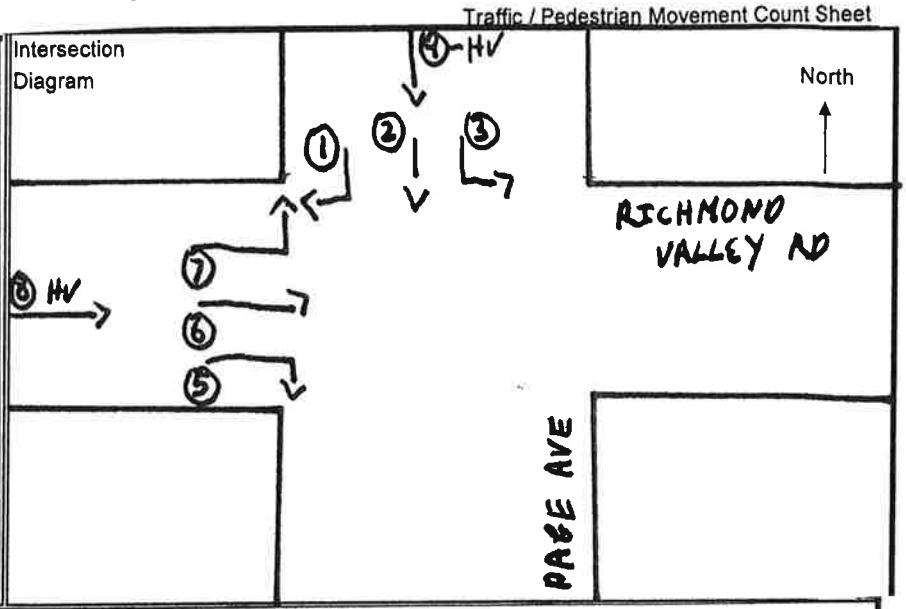
Date:

Period: PM

Weather Conditions:

Surveyor's Name:

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
16:30 to 16:45	36	142	6	1	11	22	4	0				
16:45 to 17:00	42	157	4	4	6	17	3	0				
17:00 to 17:15	37	144	2	3	8	20	8	1				
17:15 to 17:30	25	136	3	2	12	18	5	0				
17:30 to 17:45	32	157	2	2	4	11	9	0				
17:45 to 18:00	30	131	5	6	8	20	10	0				
18:00 to 18:15	20	154	3	7	5	13	4	0				
18:15 to 18:30	27	121	6	3	8	10	11	0				
Peak Hour												

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7B

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121A

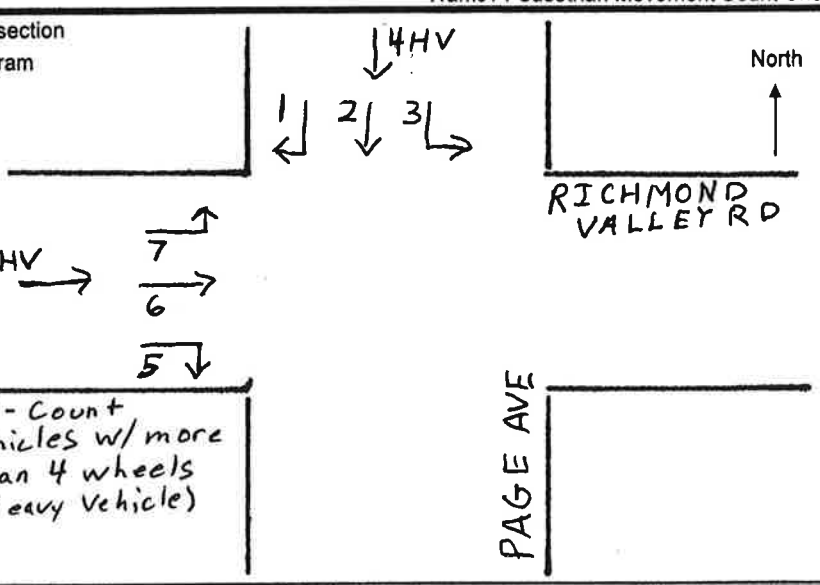
Date: 6-4-2011

Period: PM

Weather Conditions:

Surveyor's Name: Denis Volchanskiy

Intersection Diagram



Time	Movements 1	2	3	4 HV	5	6	7	8 HV	9	10	11	12
3:00 to 3:15	17	109	2	0	24	11	13	0				
3:15 to 3:30	15	104	1	0	25	9	14	0				
3:30 to 3:45	20	116	4	1	28	3	24	0				
3:45 to 4:00	18	128	5	4	16	10	16	0				
4:00 to 4:15	23	118	2	0	28	12	26	0				
4:15 to 4:30	21	124	1	0	22	8	12	0				
4:30 to 4:45	21	122	6	0	24	5	10	0				
4:45 to 5:00	20	121	4	0	22	5	12	0				
5:00 to 5:15	26	116	3	0	24	5	20	0				
5:15 to 5:30	24	120	6	0	19	2	9	0				
5:30 to 5:45	16	99	5	0	28	5	11	1				
5:45 to 6:00	22	114	5	0	15	6	21	0				
Peak Hour												

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Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

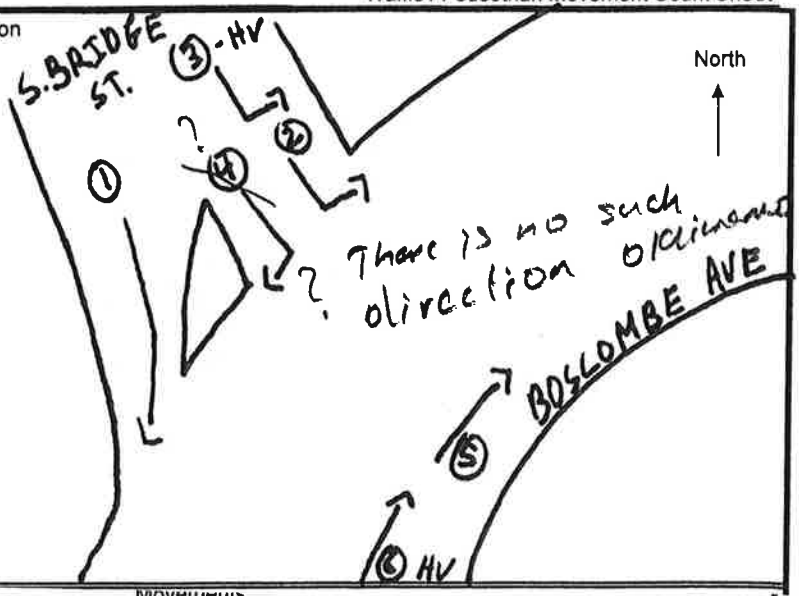
Date: June 7, 2011

Period: AM

Weather Conditions:

Surveyor's Name: Olga Klimenko

Intersection Diagram



Movements

Time	1	2	3	4	5	6	7	8	9	10	11	12
7:30 to 7:45	14	87	2	0	113	1						
7:45 to 8:00	27	83	2	–	163	1						
8:00 to 8:15	9	80	1	–	149	3						
8:15 to 8:30	12	78	3	–	177	2						
8:30 to 8:45	8	66	3	–	156	2						
8:45 to 9:00	16	63	–	–	148	1						
9:00 to 9:15	16	55	3	–	137	3						
9:15 to 9:30	14	63	2	–	122	3						
Peak Hour												

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(8)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121a

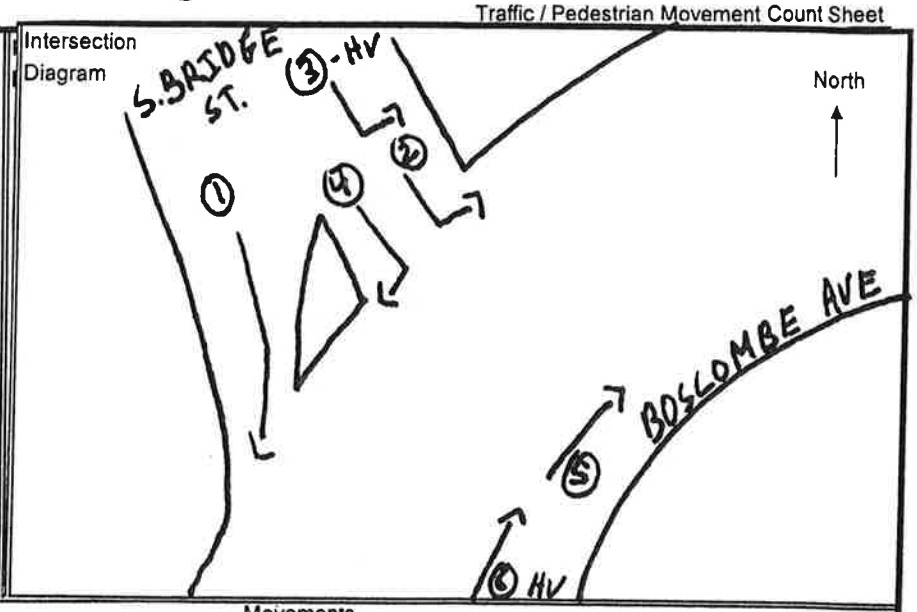
Date:

Period: MD

Weather Conditions:

Surveyor's Name: Olga Klimenko

Intersection Diagram



Time			Movements 1	2	3	4	5	6	7	8	9	10	11	12
11:30	to	11:45	24	55	1	–	135	3						
11:45	to	12:00	28	49	3	–	167	2						
12:00	to	12:15	21	74	1	–	160	2						
12:15	to	12:30	20	69	1	–	154	2						
12:30	to	12:45	25	64	1	–	172	–						
12:45	to	13:00	18	53	4	–	129	1						
13:00	to	13:15	25	61	3	–	151	1						
13:15	to	13:30	20	59	–	–	174	2						
Peak Hour														

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(8)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121a

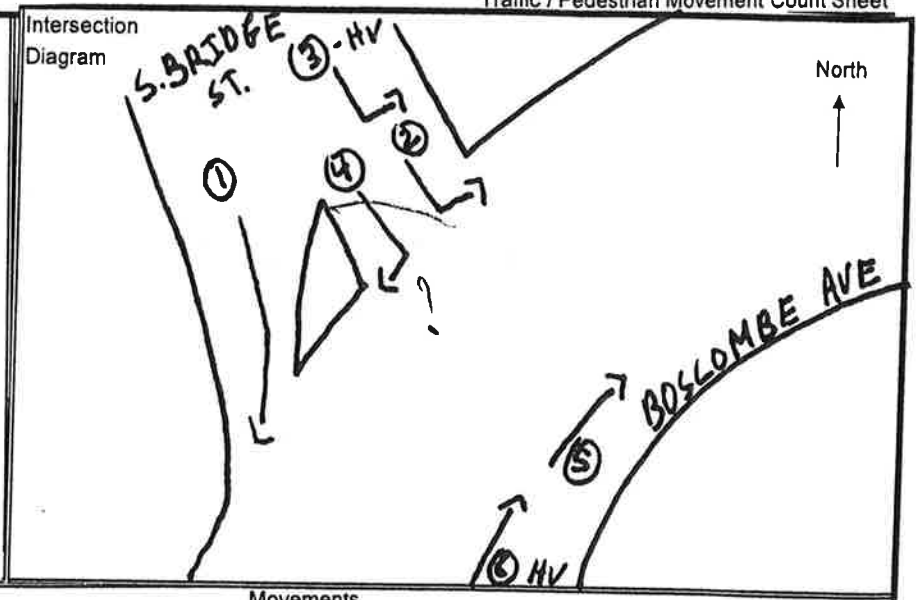
Date:

Period: PM

Weather Conditions:

Surveyor's Name: Olga Klimenko

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
16:30 to 16:45	19	83	1	—	129	—						
16:45 to 17:00	29	95	—	—	172	2						
17:00 to 17:15	18	95	1	—	152	—						
17:15 to 17:30	12	81	—	—	136	1						
17:30 to 17:45	13	84	—	—	145	—						
17:45 to 18:00	13	87	—	—	132	—						
18:00 to 18:15	21	91	—	—	149	2						
18:15 to 18:30	12	111	1	—	139	2						
Peak Hour												

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(8)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121A

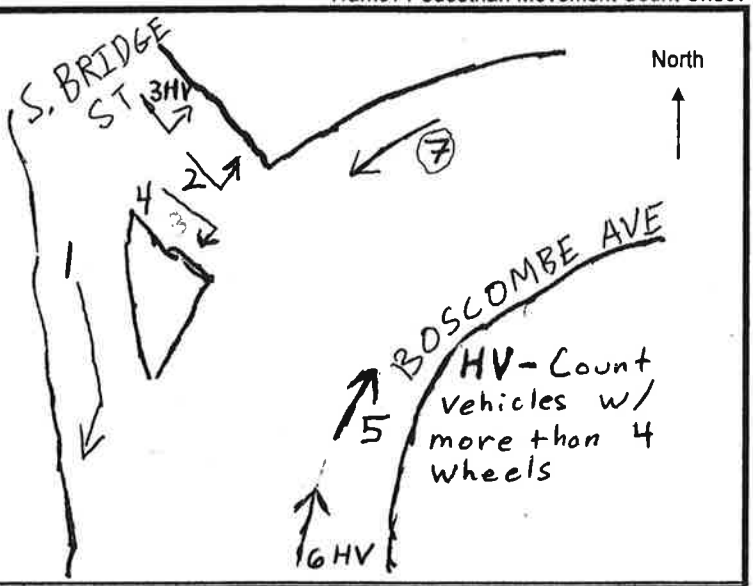
Date: 6, 04 - 2011

Period: 3 PM 6

Weather Conditions:

Surveyor's Name: Mikhail Reznik

Intersection Diagram



Time	Movements 1	2	3 HV	4	5	6 HV	7	8	9	10	11	12
3:00 to 3:15	11	60	2	—	158	1	110					
3:15 to 3:30	12	61	3	—	166	—	111					
30 to 3:45	14	70	3	—	158	1	117					
3:45 to 4:00	11	87	2	1	144	—	125					
4:00 to 4:15	13	74	—	2	143	1	116					
4:15 to 4:30	11	69	3	—	170	3	138					
4:30 to 4:45	20	60	—	1	149	1	135					
4:45 to 5:00	11	54	—	1	142	—	108					
5:00 to 5:15	17	83	—	—	169	—	124					
5:15 to 5:30	10	60	1	—	145	2	135					
5:30 to 5:45	11	57	—	—	159	—	106					
5:45 to 6:00	12	61	—	—	149	—	116					
Peak Hour												

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(9H)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

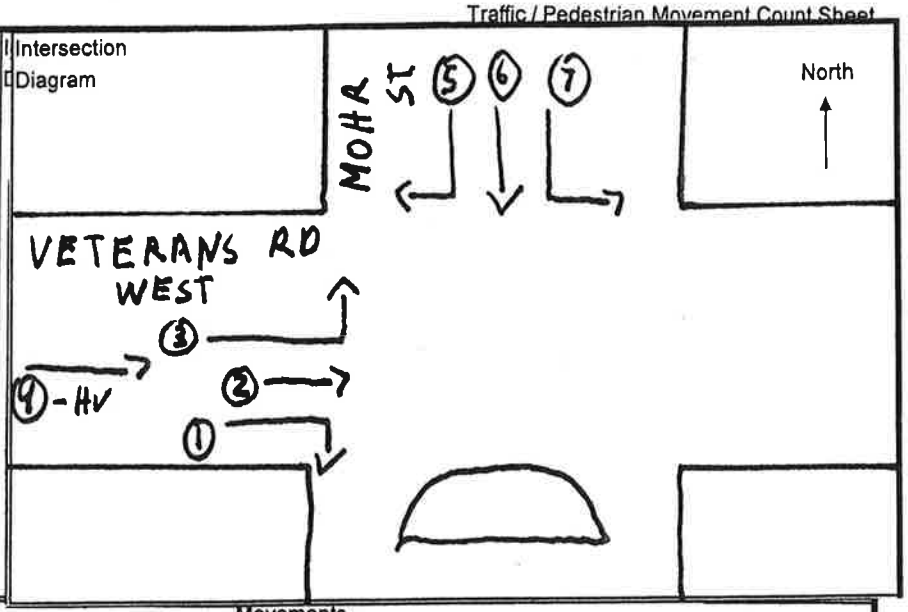
Date: 06/07/11

Period: AM

Weather Conditions:

Surveyor's Name: Leonid Gurevich

Intersection Diagram



Time			Movements 1	2	3	4	5	6	7	8	9	10	11	12
7:30	to	7:45	27	16	9	2	2	1	—					
7:45	to	8:00	32	28	12	4	4	4	—					
8:00	to	8:15	35	29	6	1	4	4	1					
8:15	to	8:30	40	21	11	1	7	6	1					
8:30	to	8:45	36	21	15	5	4	4	1			—		
8:45	to	9:00	40	24	14	—	10	8	1					
9:00	to	9:15	28	15	15	—	1	5	1					
9:15	to	9:30	27	19	20	2	2	3	4					
Peak Hour														

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(9A)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121a

Date: 06/07/11

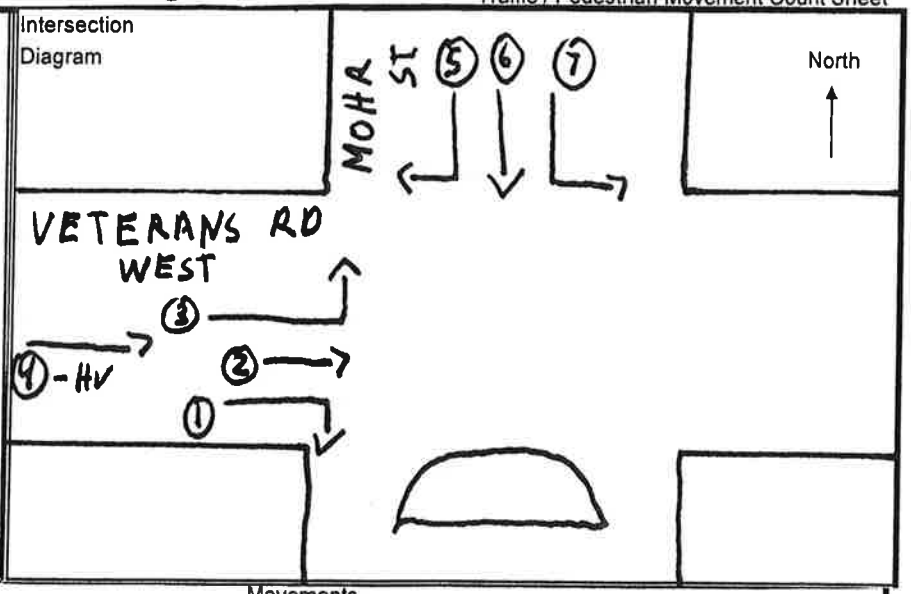
Period: MD

Weather Conditions:

Leonid Gurevich.

Surveyor's Name:

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
11:30 to 11:45	30	31	15	1	16	6	3					
11:45 to 12:00	28	19	19	-	10	6	2					
12:00 to 12:15	22	21	19	2	11	7	1					
12:15 to 12:30	39	31	21	-	8	18	3					
12:30 to 12:45	26	36	25	1	12	10	-					
12:45 to 13:00	38	26	24	-	10	10	3					
13:00 to 13:15	33	19	28	-	8	16	3					
13:15 to 13:30	25	15	22	7	15	14	4					
Peak Hour												

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(9A)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121a

Date: 06/07/11

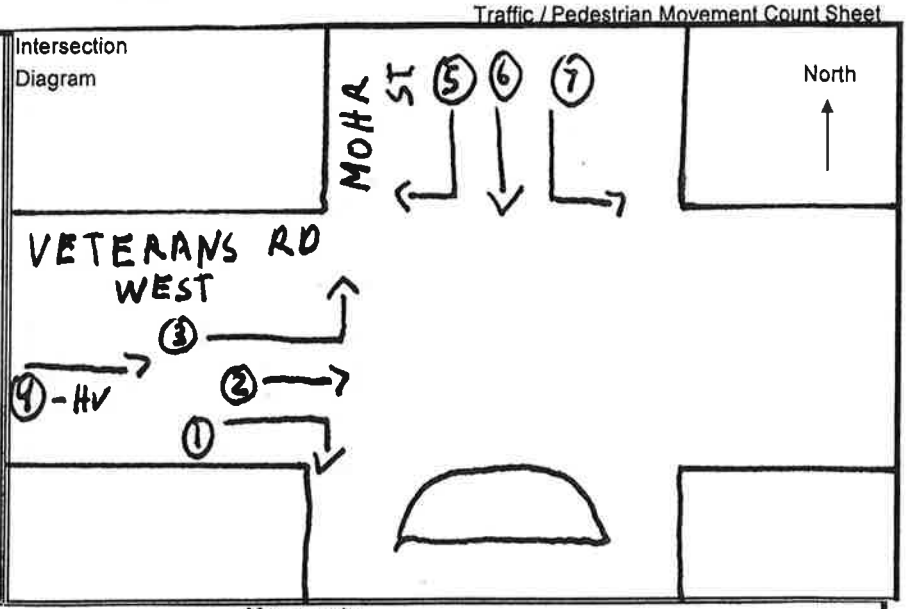
Period: PM

Weather Conditions:

Leonid Gurevich

Surveyor's Name:

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
16:30 to 16:45	48	33	22	1	6	7	2					
16:45 to 17:00	61	28	22	-	12	11	1					
17:00 to 17:15	60	32	27	1	18	14	1					
17:15 to 17:30	36	34	28	-	5	9	1					
17:30 to 17:45	30	27	26	1	13	9	4					
17:45 to 18:00	53	23	20	1	16	9	1					
18:00 to 18:15	33	30	30	3	8	11	2					
18:15 to 18:30	25	18	22	1	9	11	1					
Peak Hour												

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9A

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121A

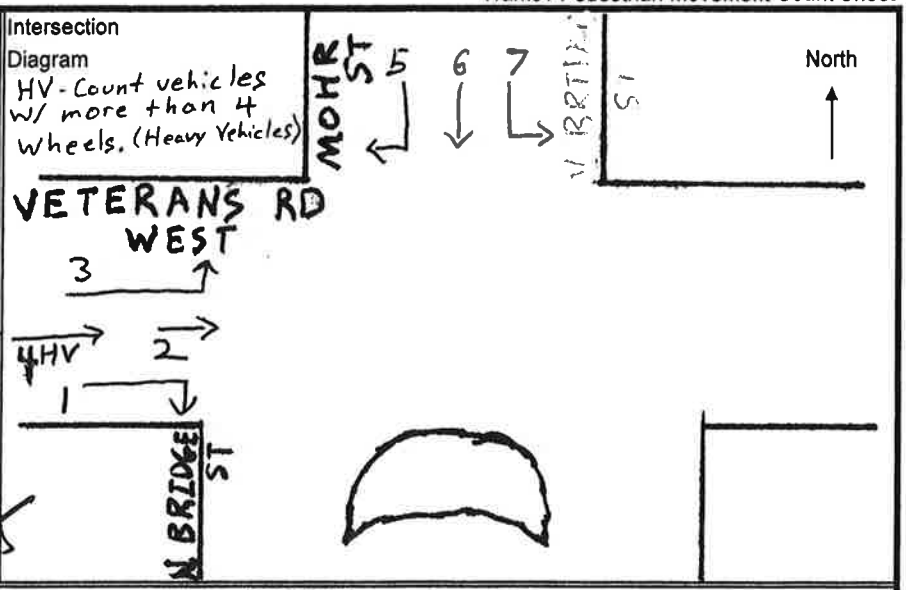
Date: 6-4-2011

Period: PM

Weather Conditions:

Surveyor's Name: Yulia Borodovez
100 Dazzow Pl
Apt 12 D
Brony NY 10475

Intersection Diagram
HV - Count vehicles w/ more than 4 wheels. (Heavy Vehicles)



Time	Movements 1	2	3	4 HV	5	6	7	8	9	10	11	12
3:00 to 3:15	34	30	32	~	5	19	4					
3:15 to 3:30	36	33	34	—	8	20	6					
30 to 3:45	38	20	30	—	12	13	—					
3:45 to 4:00	38	28	18	1	10	28	—					
4:00 to 4:15	42	26	18	—	9	17	4					
4:15 to 4:30	47	29	14	—	9	22	3					
4:30 to 4:45	42	33	25	—	8	22	3					
4:45 to 5:00	31	45	26	-	9	14	5					
5:00 to 5:15	47	27	27	—	5	13	4					
5:15 to 5:30	41	26	21	—	12	10	3					
5:30 to 5:45	28	25	20	—	9	11	2					
5:45 to 6:00	25	13	14	—	9	12	3					
Peak Hour												

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(9b)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

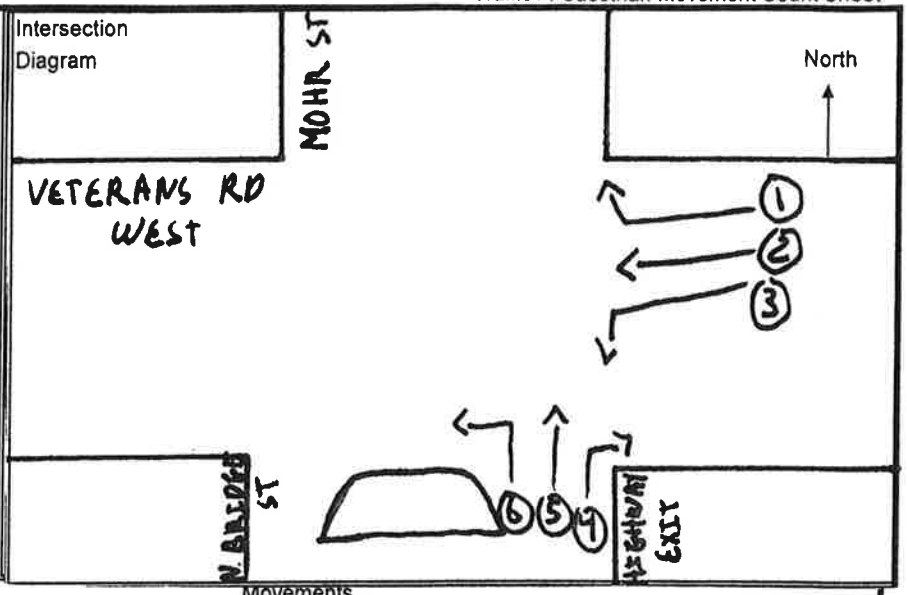
Date: 06/7/11

Period: AM

Weather Conditions: 100 DARROW PLACE APT. 12D BRONX, NY 10475

Surveyor's Name: KUSHNIR SOFIA

Intersection Diagram



Time			Movements 1	2	3	4	5	6	7	8	9	10	11	12
7:30	to	7:45	2	48	45	33	16	20						
7:45	to	8:00	1	54	38	28	7	19						
8:00	to	8:15	2	39	54	41	18	15						
8:15	to	8:30	—	40	47	31	14	16						
8:30	to	8:45	—	42	40	49	21	23						
8:45	to	9:00	—	47	41	17	15	17						
9:00	to	9:15	—	29	36	31	13	20						
9:15	to	9:30	1	63	49	20	23	19						
Peak Hour														

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(96)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121a

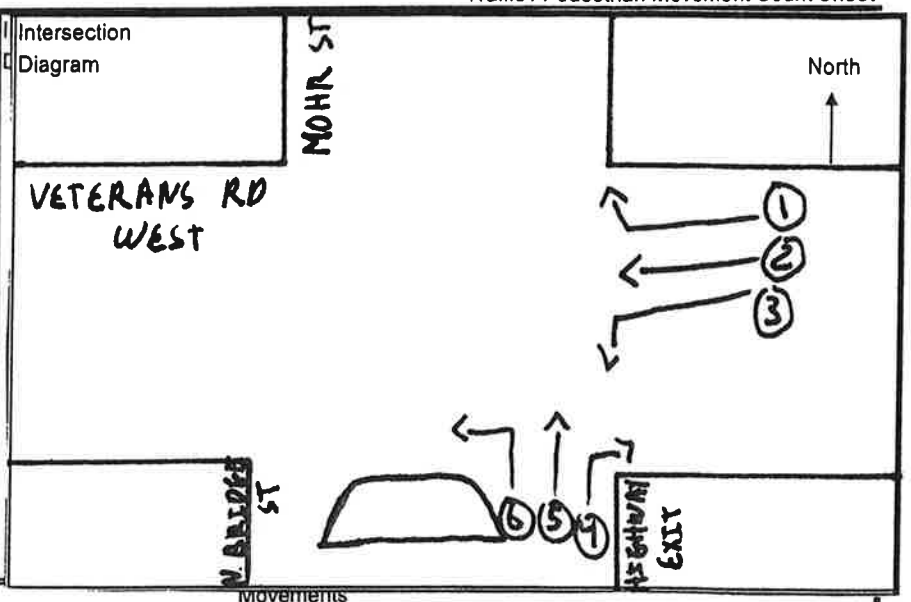
Date: 06/7/11

Period: MD

Weather Conditions:

Surveyor's Name: KUSHNIR SOFIA

Intersection Diagram



Movements

Time	1	2	3	4	5	6	7	8	9	10	11	12
11:30 to 11:45	1	41	41	45	26	11						
11:45 to 12:00	1	45	37	37	29	16						
12:00 to 12:15	2	40	43	36	37	16						
12:15 to 12:30	—	52	39	32	27	9						
12:30 to 12:45	3	49	44	34	22	15						
12:45 to 13:00	3	51	38	43	26	17						
13:00 to 13:15	4	44	35	30	30	19						
13:15 to 13:30	2	41	40	37	33	17						
Peak Hour												

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9B

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121a

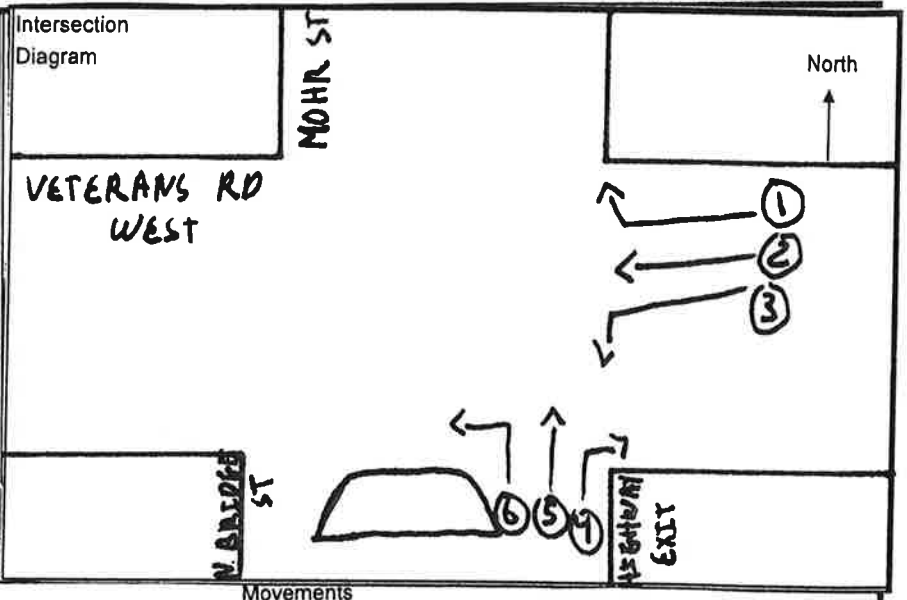
Date: 06/7/11

Period: PM

Weather Conditions:

Surveyor's Name: KUSHNIR SOFIA

Intersection Diagram



Time			Movements 1	2	3	4	5	6	7	8	9	10	11	12
16:30	to	16:45	3	45	60	37	21	17						
16:45	to	17:00	2	66	59	33	21	19						
17:00	to	17:15	2	39	48	32	20	27						
17:15	to	17:30	2	48	60	40	26	24						
17:30	to	17:45	2	60	52	40	15	24						
17:45	to	18:00	0	59	55	44	25	21						
18:00	to	18:15	4	46	43	36	19	22						
18:15	to	18:30	1	42	45	34	24	23						
Peak Hour														

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9B

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121A

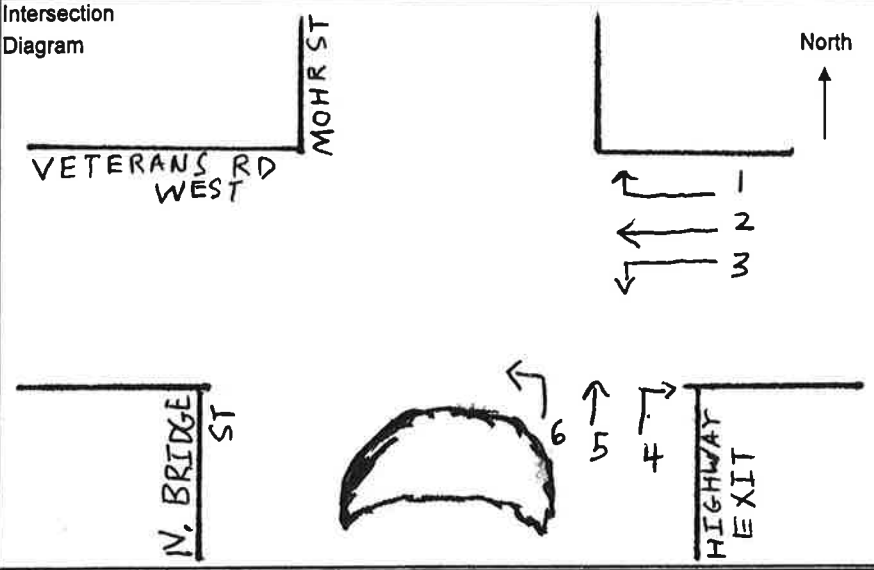
Date: 06/4/11

Period: PM

Weather Conditions: 100 DARROW PL. APT. 12D BRONX, NY 10475

Surveyor's Name: SOFIA KUSHNIR

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
3:00 to 3:15	2	53	46	35	57	21						
3:15 to 3:30	7	56	48	38	55	19						
30 to 3:45	4	54	59	36	42	34						
3:45 to 4:00	1	52	47	37	48	25						
4:00 to 4:15	1	43	45	32	28	15						
4:15 to 4:30	2	38	51	33	35	14						
4:30 to 4:45	3	32	56	33	38	19						
4:45 to 5:00	2	40	52	29	29	15						
5:00 to 5:15	3	43	57	34	31	12						
5:15 to 5:30	1	35	38	29	37	14						
5:30 to 5:45	3	34	36	39	49	10						
5:45 to 6:00	3	34	56	39	36	20						
Peak Hour												

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(10)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

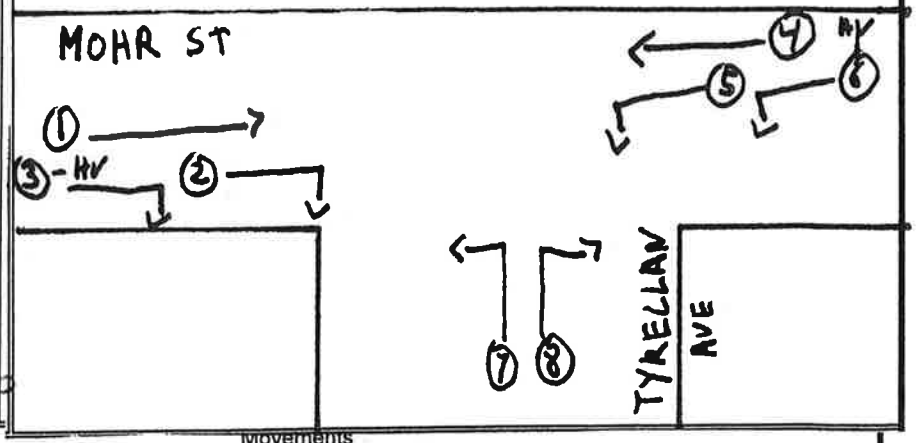
Date: 06/07/11

Period: AM

Weather Conditions:

Surveyor's Name: Mikhael Shapiro

Intersection Diagram



Movements

Time	1	2	3	4	5	6	7	8	9	10	11	12
7:30 to 7:45	8	2	2	-	4	-	1	1				
7:45 to 8:00	5	4	1	-	3	-	-	2				
8:00 to 8:15	3	1	4	13	7	-	5	1				
8:15 to 8:30	6	3	2	6	6	-	2	5				
8:30 to 8:45	11	8	4	5	9	1	2	3				
8:45 to 9:00	11	5	-	15	9	-	1	5				
9:00 to 9:15	11	3	4	7	11	1	2	8				
9:15 to 9:30	16	3	4	16	10	-	-	10				
Peak Hour												

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(10)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121a

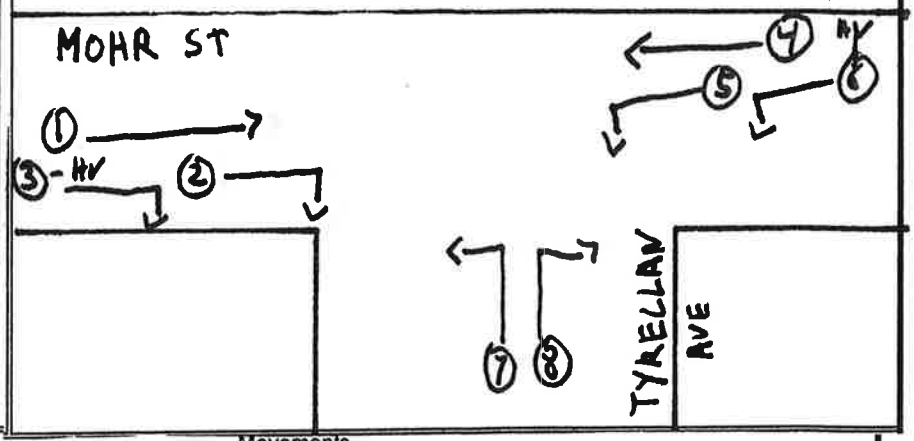
Date: 06/07/11

Period: MD

Weather Conditions:

Surveyor's Name: Michael Shapiro

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
11:30 to 11:45	29	7	1	13	43	–	–	21				
11:45 to 12:00	16	9	3	29	41	2	4	22				
12:00 to 12:15	11	10	6	20	27	3	4	6				
12:15 to 12:30	22	9	3	15	24	–	5	14				
12:30 to 12:45	31	9	3	19	42	–	5	9				
12:45 to 13:00	18	2	8	14	28	–	7	9				
13:00 to 13:15	29	6	4	15	33	2	13	16				
13:15 to 13:30	14	4	3	8	16	–	1	12				
Peak Hour												

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(10)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121a

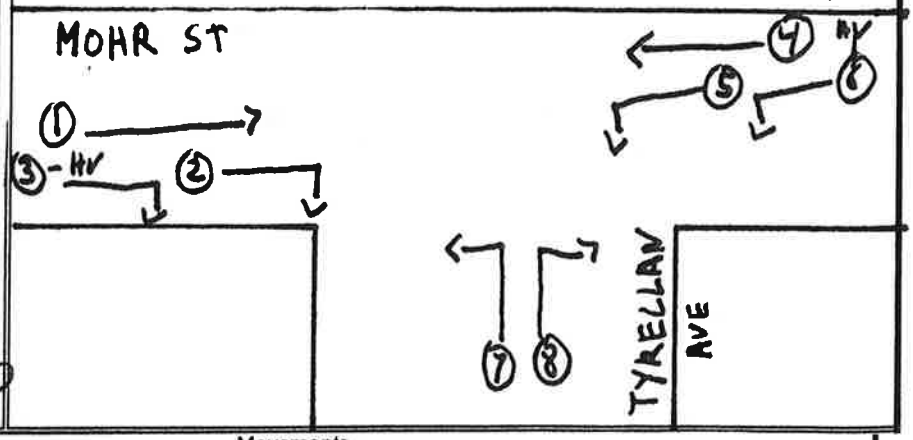
Date: 06/07/11

Period: PM

Weather Conditions:

Surveyor's Name: Michael Shapiro

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
16:30 to 16:45	20	13	6	17	36	–	1	11				
16:45 to 17:00	17	6	2	19	27	–	2	19				
17:00 to 17:15	26	8	3	32	40	–	6	19				
17:15 to 17:30	28	6	2	27	29	–	1	13				
17:30 to 17:45	15	5	1	25	27	–	1	18				
17:45 to 18:00	17	8	2	24	27	–	4	14				
18:00 to 18:15	11	1	–	23	35	–	2	10				
18:15 to 18:30	14	8	2	22	13	–	4	14				
Peak Hour												

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Traffic / Pedestrian Movement Count Sheet

Project No.: 1121A

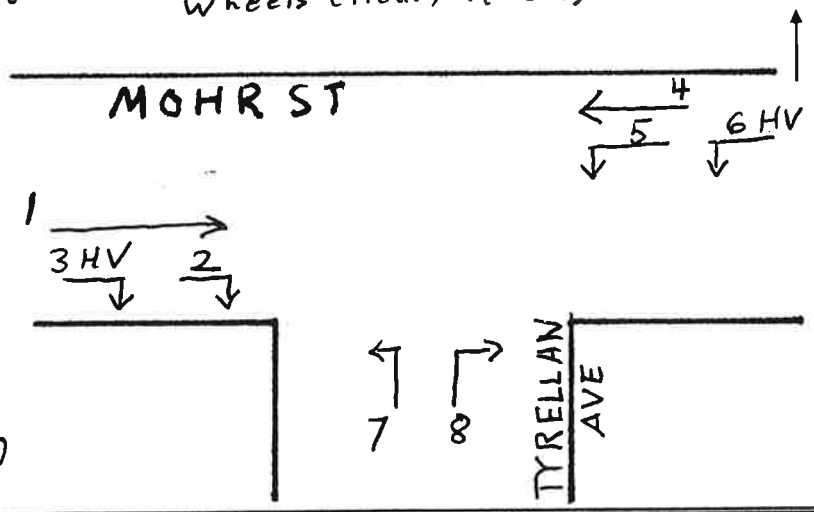
Date: 06/04/11

Period: PM

Weather Conditions:

Surveyor's Name: Michael Shapiro

Intersection Diagram: HV - Count vehicles w/ more than 4 wheels (Heavy Vehicles)



Time	Movements 1	2	3 HV	4	5	6 HV	7	8	9	10	11	12
3:00 to 3:15	15	6	–	27	23	–	3	11				
3:15 to 3:30	22	4	–	25	27	–	2	14				
30 to 3:45	22	3	–	29	23		2	20				
3:45 to 4:00	27	9	–	26	23	–	10	16				
4:00 to 4:15	37	10	–	29	18	–	11	17				
4:15 to 4:30	25	5	–	31	25	–	5	19				
4:30 to 4:45	24	2	–	29	12		3	13				
4:45 to 5:00	24	2	–	22	7		2	22				
5:00 to 5:15	32	2	–	42	10		6	30				
5:15 to 5:30	31	–	–	34	4		2	26				
5:30 to 5:45	34	2	–	33	8		2	24				
5:45 to 6:00	49	–	–	32	7		4	20				
Peak Hour												

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(11a)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

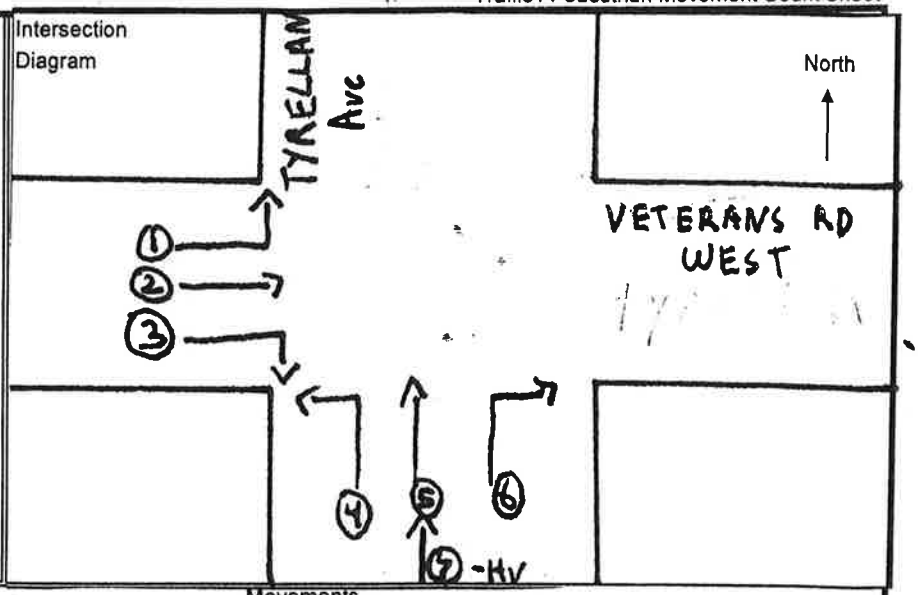
Date: 06.07.11

Period: AM

Weather Conditions:

Surveyor's Name: Dmitriy Koltsev

Intersection Diagram



Time			Movements 1	2	3	4	5	6	7	8	9	10	11	12
7:30	to	7:45	8	10	23	54	10	11	7					
7:45	to	8:00	7	12	21	57	10	9	5					
8:00	to	8:15	5	10	30	42	16	10	7					
8:15	to	8:30	18	6	32	46	19	17	1					
8:30	to	8:45	15	6	50	47	23	10	2					
8:45	to	9:00	2	5	25	42	25	15	4					
9:00	to	9:15	10	4	19	42	26	12	6					
9:15	to	9:30	8	11	25	46	22	7	2					
Peak Hour														

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(11a)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121a

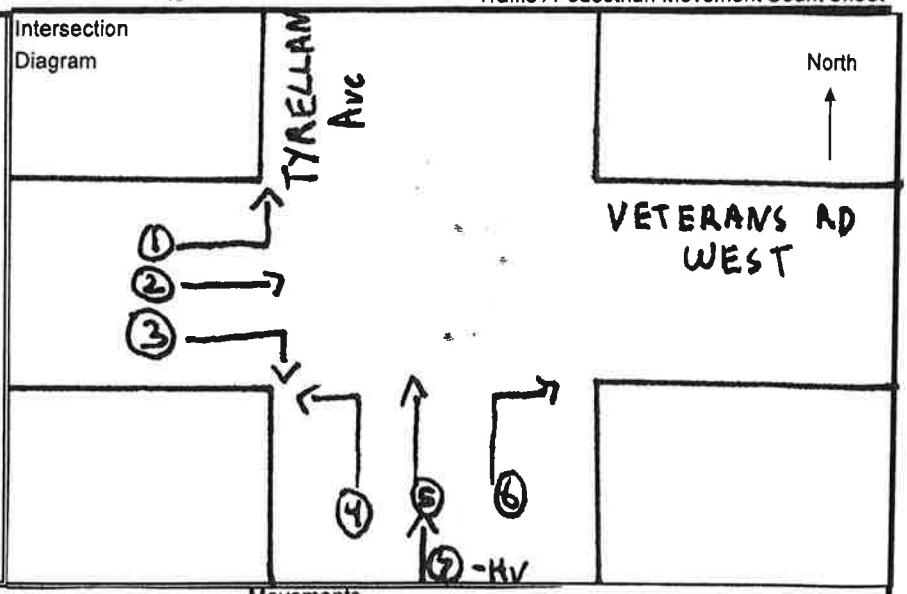
Date: 06.07.11

Period: MD

Weather Conditions:

Surveyor's Name: Dmitriy Kobtsev

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
11:30 to 11:45	10	21	39	35	32	10	3					
11:45 to 12:00	16	20	40	47	31	15	4					
12:00 to 12:15	17	10	50	44	37	19	1					
12:15 to 12:30	19	15	43	39	36	17	4					
12:30 to 12:45	11	17	54	50	28	16	3					
12:45 to 13:00	18	18	65	36	34	11	3					
13:00 to 13:15	15	14	37	35	30	15	1					
13:15 to 13:30	14	21	48	30	37	17	2					
Peak Hour												

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11A

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121a

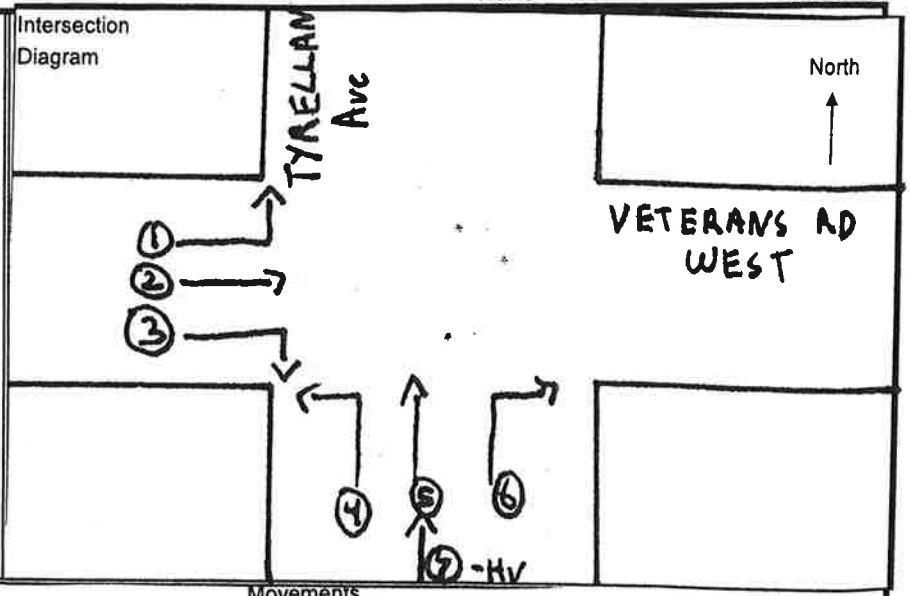
Date: 06.07.11

Period: PM

Weather Conditions:

Surveyor's Name: Dmitriy Kobtsev

Intersection Diagram



Time			Movements 1	2	3	4	5	6	7	8	9	10	11	12
16:30	to	16:45	8	11	46	34	38	16	1					
16:45	to	17:00	9	16	33	46	32	24	2					
17:00	to	17:15	11	18	40	43	24	29	2					
17:15	to	17:30	9	17	43	47	18	17						
17:30	to	17:45	8	20	49	39	34	24	1					
17:45	to	18:00	21	15	45	42	15	17	1					
18:00	to	18:15	6	32	45	46	14	16	2					
18:15	to	18:30	14	17	44	46	28	23						
Peak Hour														

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11A

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121A

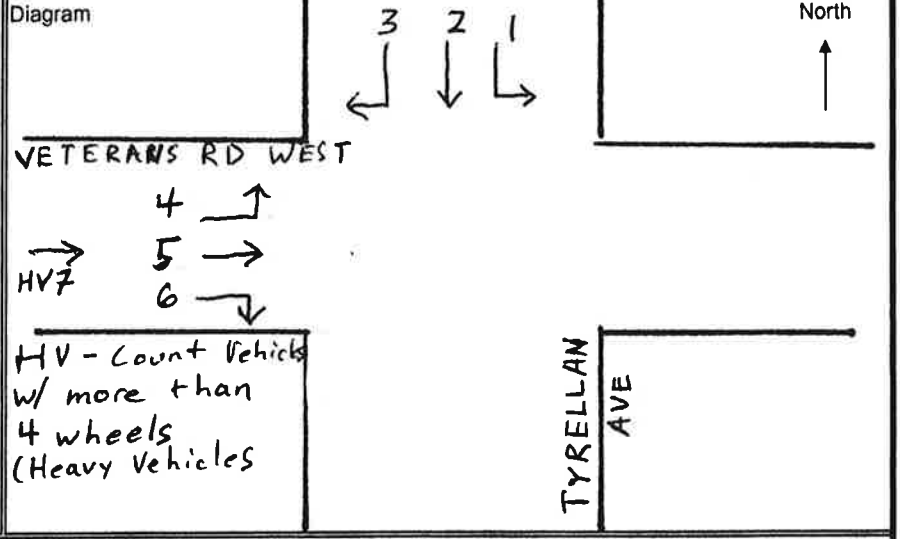
Date: 6-4-2011

Period: PM

Weather Conditions:

Surveyor's Name: Dmitriy Kobtsev

Intersection Diagram



Time	Movements 1	2	3	4	5	6	HV 7	8	9	10	11	12
3:00 to 3:15	9	110	32	18	15	66						
3:15 to 3:30	11	113	30	17	18	48						
3:30 to 3:45	2	118	42	21	16	39						
3:45 to 4:00	8	112	33	17	24	63						
4:00 to 4:15	9	109	36	15	24	49	1					
4:15 to 4:30	15	101	26	13	19	69						
4:30 to 4:45	12	109	34	14	27	57						
4:45 to 5:00	10	102	38	21	29	58						
5:00 to 5:15	4	66	23	9	15	35						
5:15 to 5:30	11	90	32	13	14	46	1					
5:30 to 5:45	6	100	25	13	15	47						
5:45 to 6:00	10	86	28	6	15	45						
Peak Hour												

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(11b)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

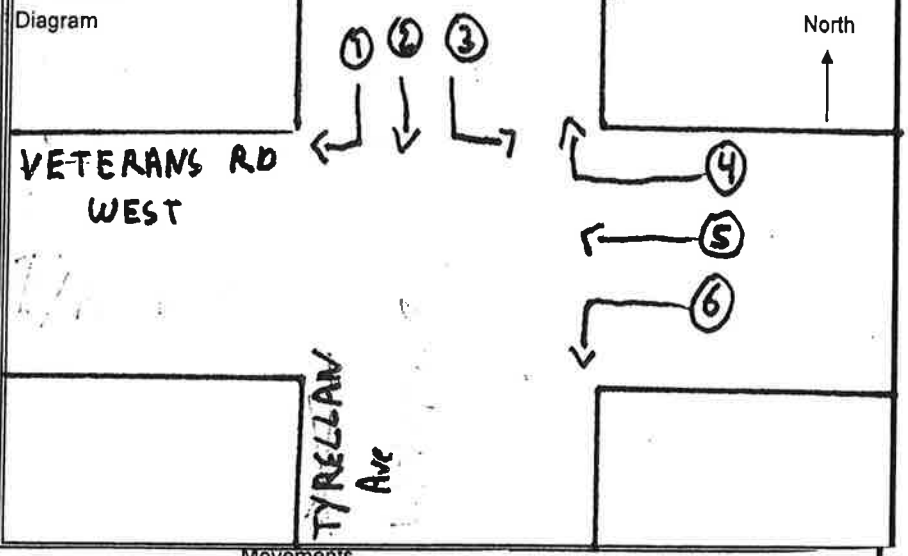
Date: 6/7/11

Period: AM

Weather Conditions:

Surveyor's Name: YELENA KRAVCHIK

Intersection Diagram



Time			Movements 1	2	3	4	5	6	7	8	9	10	11	12
7:30	to	7:45	5	17	2	–	53	17						
7:45	to	8:00	7	17	–	–	75	22						
8:00	to	8:15	16	15	1	1	41	31						
8:15	to	8:30	15	28	2	–	51	37						
8:30	to	8:45	18	43	2	1	61	31						
8:45	to	9:00	13	27	1	3	53	24						
9:00	to	9:15	15	36	6	2	40	25						
9:15	to	9:30	20	32	1	4	44	26						
Peak Hour														

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Traffic / Pedestrian Movement Count Sheet

Project No.: 1121a

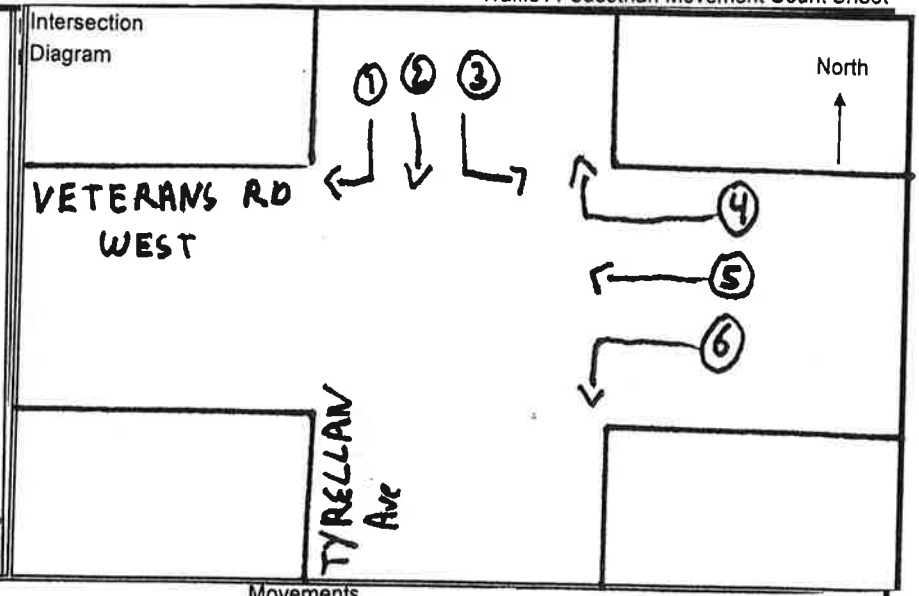
Date: 6/7/11

Period: MD

Weather Conditions:

Surveyor's Name: YELENY KRAVCHIK

Intersection Diagram



Time			Movements 1	2	3	4	5	6	7	8	9	10	11	12
11:30	to	11:45	26	69	2	2	45	16						
11:45	to	12:00	32	71	10	3	64	31						
12:00	to	12:15	43	66	2	2	65	25						
12:15	to	12:30	40	70	6	3	56	23						
12:30	to	12:45	26	81	6	5	50	36						
12:45	to	13:00	25	80	7	2	56	15						
13:00	to	13:15	38	102	4	–	41	26						
13:15	to	13:30	26	71	5	2	47	23						
Peak Hour														

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11B

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121a

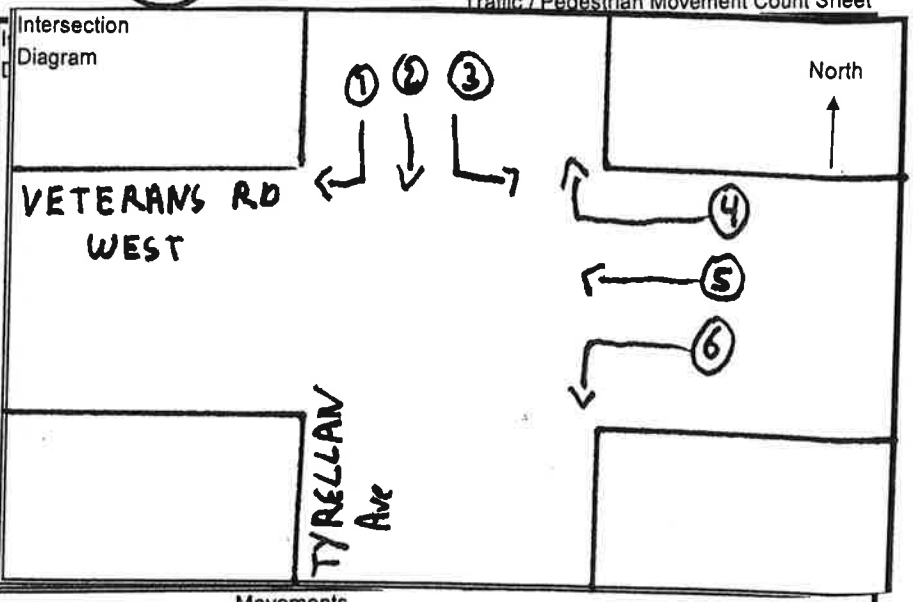
Date: 6/7/11

Period: PM

Weather Conditions:

Surveyor's Name: YELENA KRAVCHIK

Intersection Diagram



Time			Movements 1	2	3	4	5	6	7	8	9	10	11	12
16:30	to	16:45	37	78	7	5	60	22						
16:45	to	17:00	27	44	5	1	74	33						
17:00	to	17:15	34	57	5	4	49	26						
17:15	to	17:30	16	69	7	3	56	23						
17:30	to	17:45	26	70	4	2	68	20						
17:45	to	18:00	21	52	4	2	68	23						
18:00	to	18:15	27	62	6	2	46	20						
18:15	to	18:30	24	42	7	3	48	16						
Peak Hour														

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11B

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121A

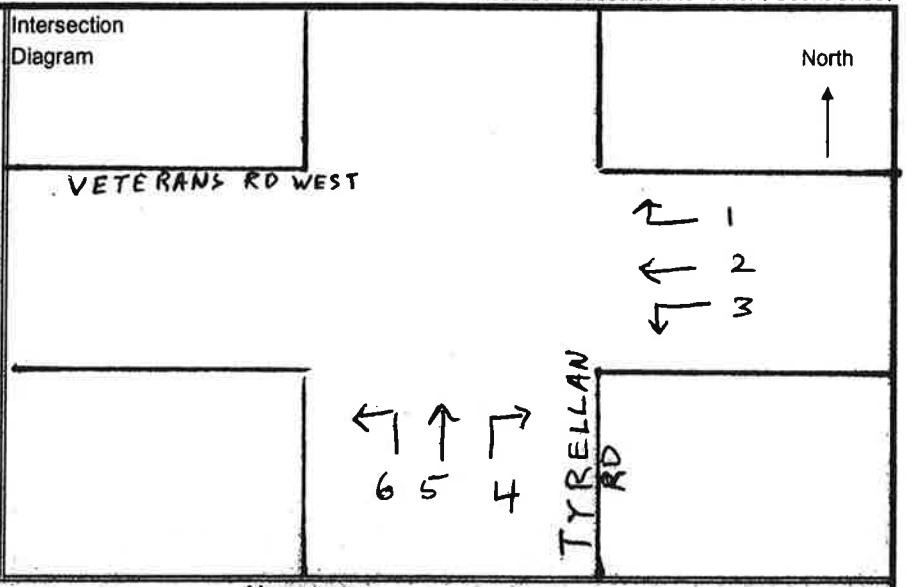
Date: 6/4/2011

Period: PM

Weather Conditions:

Surveyor's Name: YELENA KRAVCHIK

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
3:00 to 3:15	2	61	24	14	37	45						
3:15 to 3:30	4	56	25	18	45	38						
3:30 to 3:45	8	82	36	18	51	76						
3:45 to 4:00	3	53	24	14	30	41						
4:00 to 4:15	5	59	19	16	46	33						
4:15 to 4:30	4	39	25	20	46	41						
4:30 to 4:45	4	46	20	15	37	48						
4:45 to 5:00	2	55	31	18	21	41						
5:00 to 5:15	1	36	24	13	46	42						
5:15 to 5:30	4	51	39	9	31	38						
5:30 to 5:45	3	51	39	18	23	32						
5:45 to 6:00	2	45	37	15	20	30						
Peak Hour												

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Mileage - 44
Passenger - 1

(12-A)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

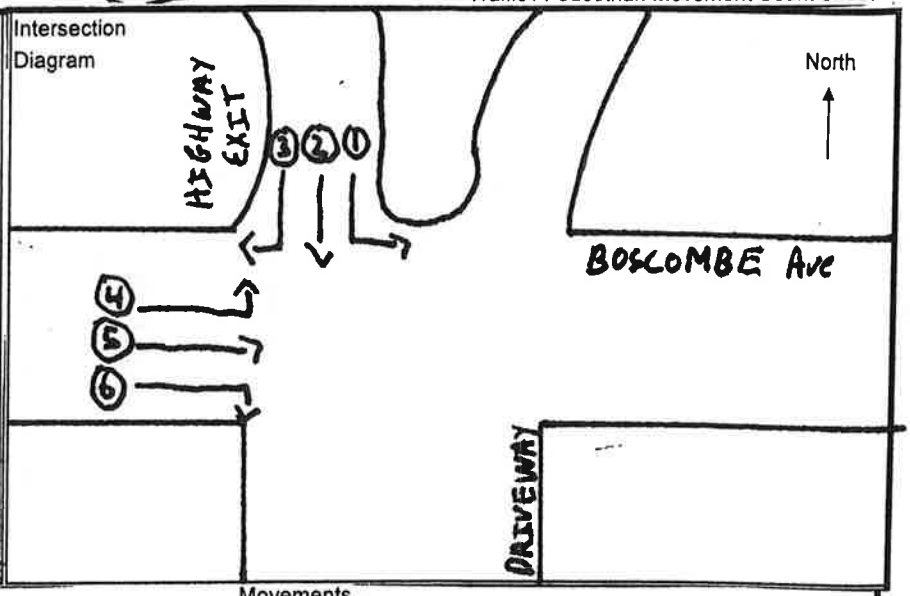
Date: 06/07/11

Period: 7.30 AM 18 30 P.M.

Weather Conditions:

Surveyor's Name: Bogdan Oleksuk

Intersection Diagram



Time			Movements 1	2	3	4	5	6	7	8	9	10	11	12
7:30	to	7:45	21	—	38	152	20	—						
7:45	to	8:00	35	—	49	204	51	1						
8:00	to	8:15	22	—	44	208	58	—						
8:15	to	8:30	18	1	30	205	62	8						
8:30	to	8:45	30	2	31	167	41	6						
8:45	to	9:00	18	2	32	149	63	4						
9:00	to	9:15	15	—	39	122	62	—						
9:15	to	9:30	18	—	46	154	54	1						
Peak Hour														

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(12a)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121a

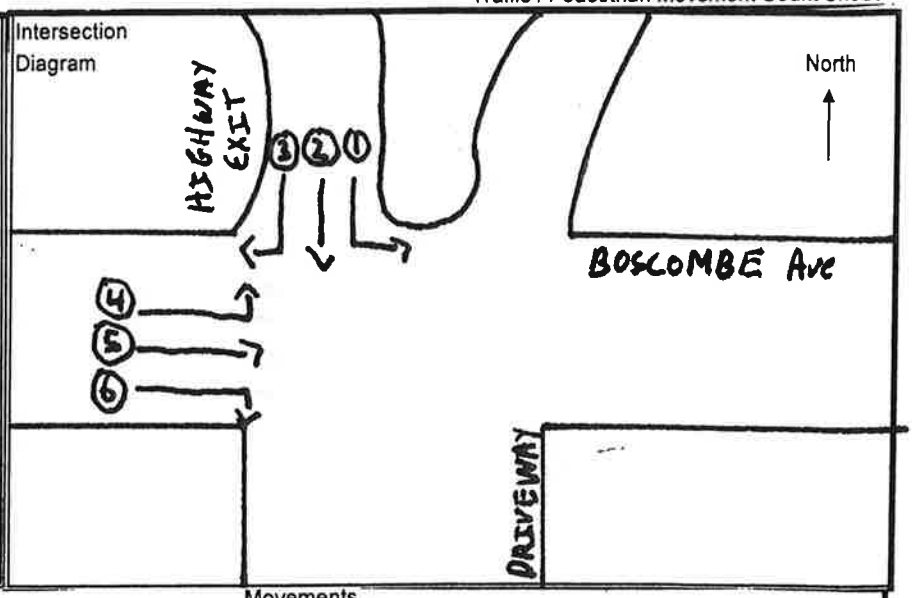
Date: 06/07/11

Period: MD

Weather Conditions:

Surveyor's Name: Bogdan Oleksuk

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
11:30 to 11:45	5	–	22	122	64	2						
11:45 to 12:00	15	–	23	134	87	2						
12:00 to 12:15	16	–	22	150	81	–						
12:15 to 12:30	15	–	23	163	82	1						
12:30 to 12:45	10	–	25	120	88	–						
12:45 to 13:00	7	–	29	150	75	2						
13:00 to 13:15	14	–	26	140	54	1						
13:15 to 13:30	12	–	15	147	74	–						
Peak Hour												

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(12A)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121a

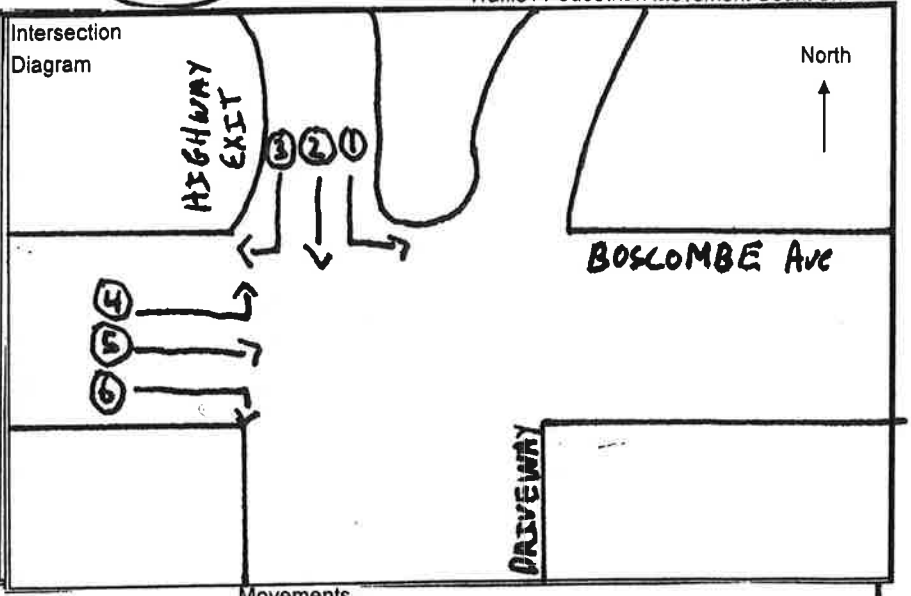
Date: 06/07/11

Period: PM

Weather Conditions:

Surveyor's Name: Bogdan Oleksuk

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
16:30 to 16:45	23	—	51	139	73	1						
16:45 to 17:00	23	—	44	162	68	—						
17:00 to 17:15	14	—	30	193	82	—						
17:15 to 17:30	35	—	50	155	59	—						
17:30 to 17:45	24	—	54	148	74	3						
17:45 to 18:00	17	—	47	158	66	—						
18:00 to 18:15	22	4	53	176	58	—						
18:15 to 18:30	16	—	39	147	65	—						
Peak Hour												

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Toll – $13
Mileage – 43 M

(12A)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121A

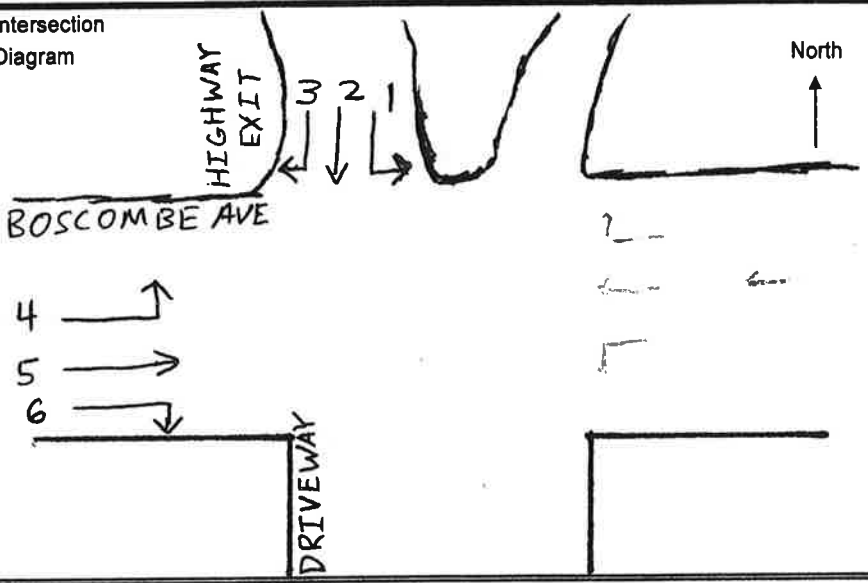
Date: 06/04/11

Period: 3÷6 PM

Weather Conditions:

Surveyor's Name: Bogdan Oleksuk

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
3:00 to 3:15	4	0	25	114	47	—						
3:15 to 3:30	23	—	36	146	72	—						
30 to 3:45	20	—	51	160	97	—						
3:45 to 4:00	23	—	47	178	74	—						
4:00 to 4:15	11	—	50	173	66	—						
4:15 to 4:30	21	—	54	188	66	—						
4:30 to 4:45	24	—	44	156	64	—						
4:45 to 5:00	14	—	52	170	60	—						
5:00 to 5:15	9	—	56	181	58	—						
5:15 to 5:30	18	—	47	156	42	—						
5:30 to 5:45	9	—	27	167	60	—						
5:45 to 6:00	14	—	29	148	41	—						
Peak Hour												

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(126)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

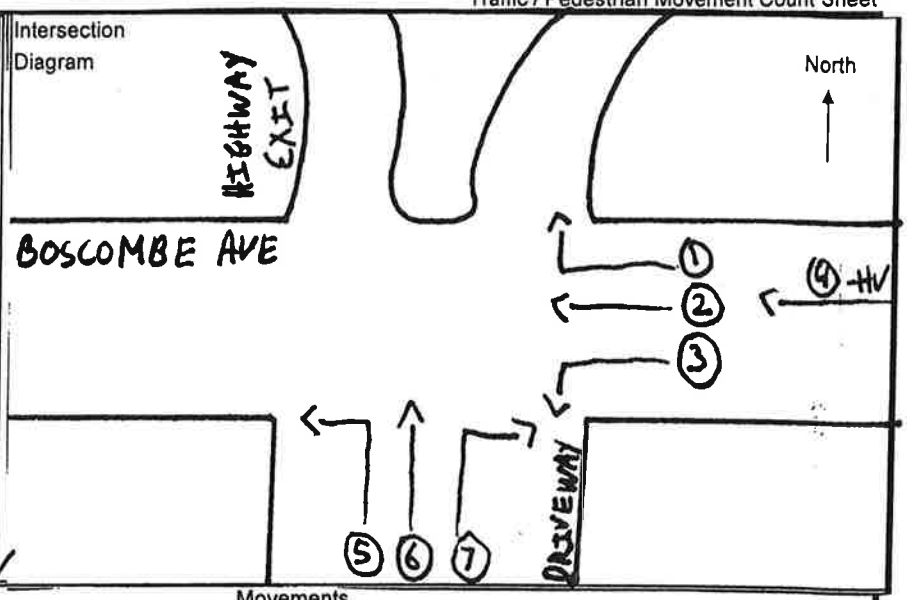
Date:

Period: AM

Weather Conditions:

Surveyor's Name: Victor Koulakov

Intersection Diagram



Time			Movements 1	2	3	4	5	6	7	8	9	10	11	12
7:30	to	7:45	28	27	-	3	-	-	-					
7:45	to	8:00	16	51	-	1	-	-	-					
8:00	to	8:15	33	59	-	4	-	-	-					
8:15	to	8:30	43	57	1	5	1	2	-					
8:30	to	8:45	52	56	3	4	3	9	5					
8:45	to	9:00	44	54	-	-	-	4	1					
9:00	to	9:15	46	40	1	2	-	-	1					
9:15	to	9:30	35	53	-	2	-	-	1					
Peak Hour														

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(126)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121a

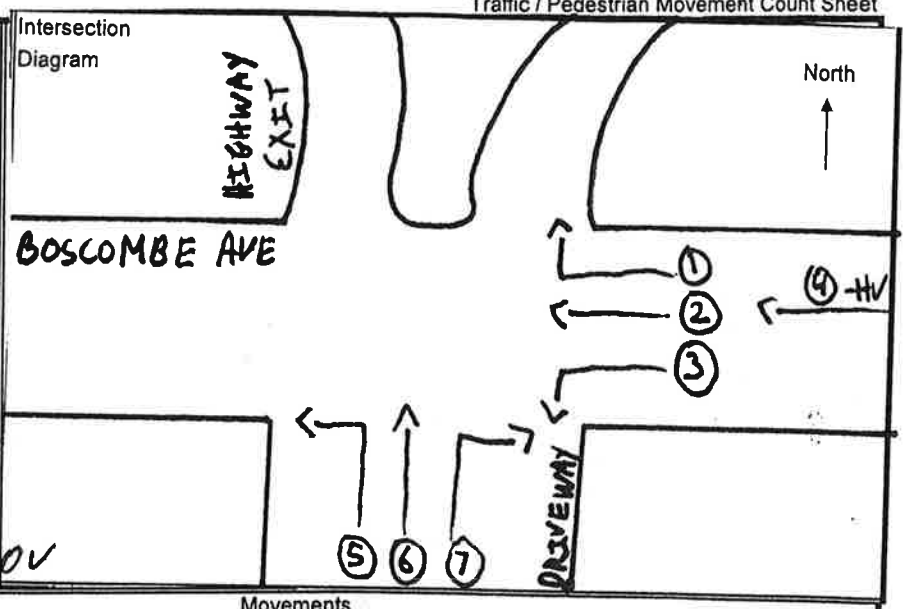
Date:

Period: MD

Weather Conditions:

Surveyor's Name: Victor Koulakov

Intersection Diagram



Time			Movements 1	2	3	4	5	6	7	8	9	10	11	12
11:30	to	11:45	69	75	–	2	–	–	–					
11:45	to	12:00	52	89	–	–	–	–	–					
12:00	to	12:15	80	73	–	–	–	–	–					
12:15	to	12:30	69	68	1	–	–	–	–					
12:30	to	12:45	86	83	–	–	–	–	1					
12:45	to	13:00	98	93	–	1	–	–	–					
13:00	to	13:15	108	58	–	1	–	–	–					
13:15	to	13:30	97	83	–	1	–	–	–					
Peak Hour														

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(12B)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121a

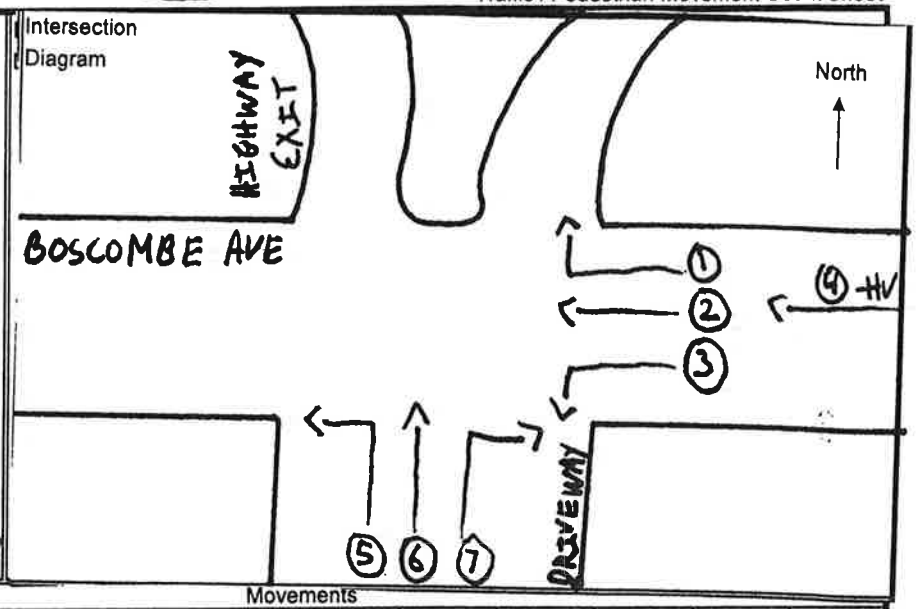
Date:

Period: PM

Weather Conditions:

Surveyor's Name: Victor Koulakov

Intersection Diagram



Time			Movements 1	2	3	4	5	6	7	8	9	10	11	12
16:30	to	16:45	74	85	-	2	-	1	-					
16:45	to	17:00	61	76	-	-	-	-	-					
17:00	to	17:15	80	71	1	1	1	2	1					
17:15	to	17:30	73	70	-	-	-	-	-					
17:30	to	17:45	94	67	-	-	-	1	1					
17:45	to	18:00	82	79	-	1	1	-	-					
18:00	to	18:15	72	73	-	2	-	-	-					
18:15	to	18:30	66	55	-	-	-	-	-					
Peak Hour														

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12 B

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121A

Date: 6/4/11

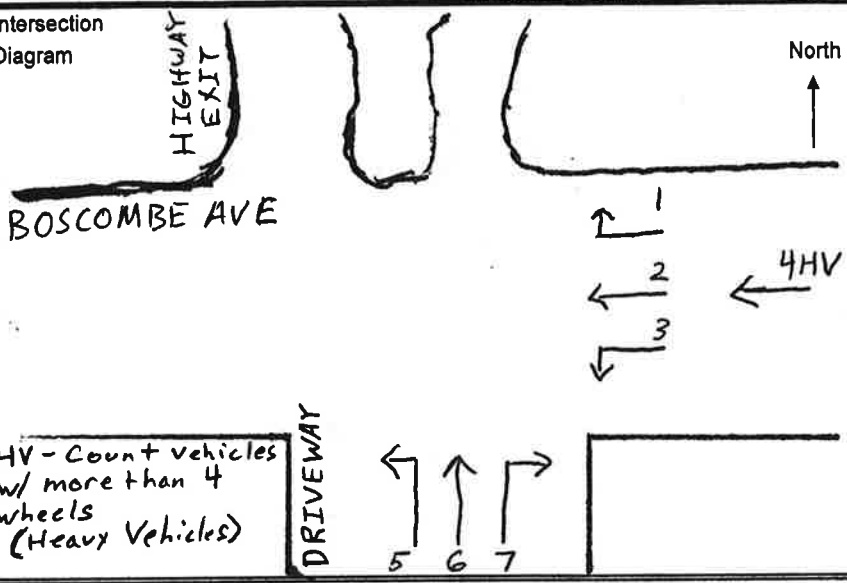
Period: PM

3pm - 6pm

Weather Conditions:

Surveyor's Name: Marianna KRASIL

Intersection Diagram



Time	Movements 1	2	3	4HV	5	6	7	8	9	10	11	12
3:00 to 3:15	128	83	0	0	0	0	0					
3:15 to 3:30	160	117	0	0	0	0	0					
30 to 3:45	165	106	0	0	0	0	0					
3:45 to 4:00	187	127	0	4	0	0	0					
4:00 to 4:15	208	101	0	1	0	0	0					
4:15 to 4:30	191	95	0	2	0	0	0					
4:30 to 4:45	147	99	0	1	0	0	0					
4:45 to 5:00	169	97	0	4	0	0	0					
5:00 to 5:15	113	78	0	2	0	0	0					
5:15 to 5:30	143	127	0	1	0	0	0					
5:30 to 5:45	151	109	0	2	0	0	0					
5:45 to 6:00	110	79	0	1	0	0	0					
Peak Hour												

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(13)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

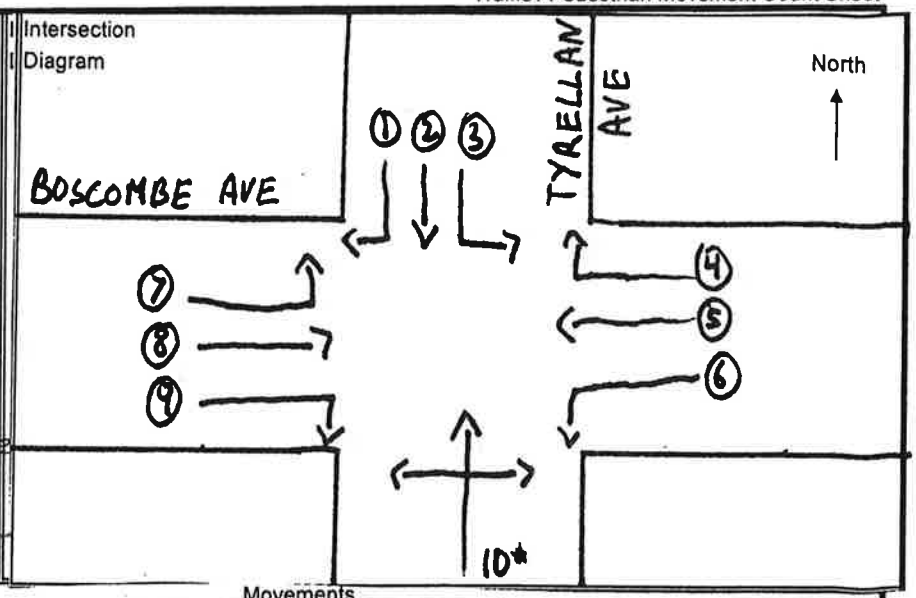
Date: 6/7/11

Period: AM

Weather Conditions: 60 miles $9.60 Ver. Bridge Toll

Surveyor's Name: Igor Slavin - driver

Intersection Diagram



Movements

Time	1	2	3	4	5	6	7	8	9	10	11	12
7:30 to 7:45	59	2	10	4	8	-	52	2	-	-		
7:45 to 8:00	67	4	6	12	2	1	82	8	-	1		
8:00 to 8:15	76	4	12	10	12	-	79	7	-	1		
8:15 to 8:30	88	29	7	13	10	6	87	7	-	11		
8:30 to 8:45	98	16	12	5	8	6	80	5	-	20		
8:45 to 9:00	77	2	14	7	5	1	93	5	-	4		
9:00 to 9:15	78	1	13	7	7	-	84	2	-	1		
9:15 to 9:30	90	1	13	8	7	-	69	5	-	-		
Peak Hour												

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(13)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121a

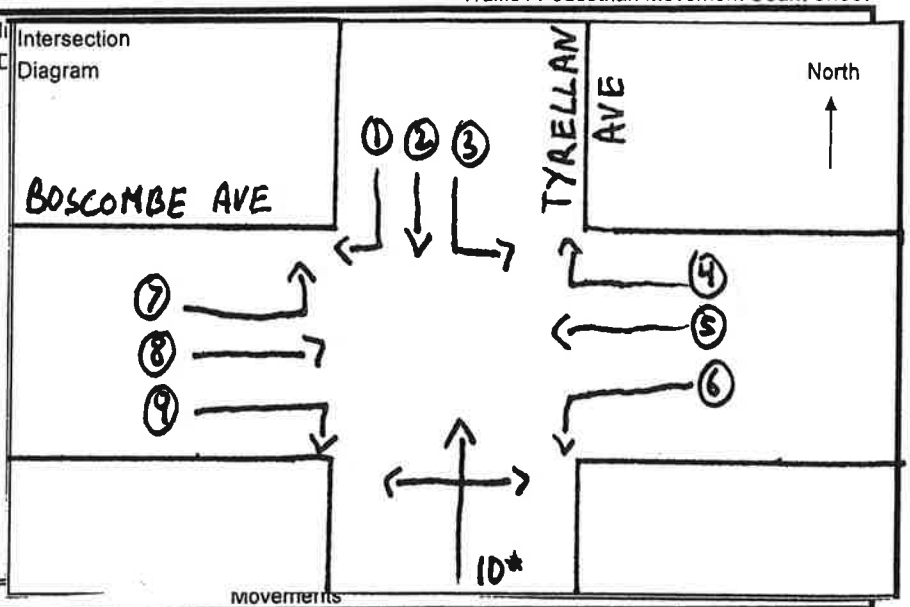
Date: 6/7/11

Period: MD

Weather Conditions:

Surveyor's Name: Igor Slavin

Intersection Diagram



Movements

Time	1	2	3	4	5	6	7	8	9	10	11	12
11:30 to 11:45	142	1	10	17	8	6	71	10	-	1		
11:45 to 12:00	133	1	13	16	1	-	93	10	-	2		
12:00 to 12:15	145	-	11	15	2	-	94	6	-	3		
12:15 to 12:30	155	4	23	9	5	1	90	16	-	2		
12:30 to 12:45	158	1	15	9	3	-	103	7	-	1		
12:45 to 13:00	172	1	18	16	6	1	69	6	-	1		
13:00 to 13:15	172	3	15	12	2	-	72	6	-	1		
13:15 to 13:30	168	-	23	10	6	-	81	9	-	7		
Peak Hour												

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(13)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121a

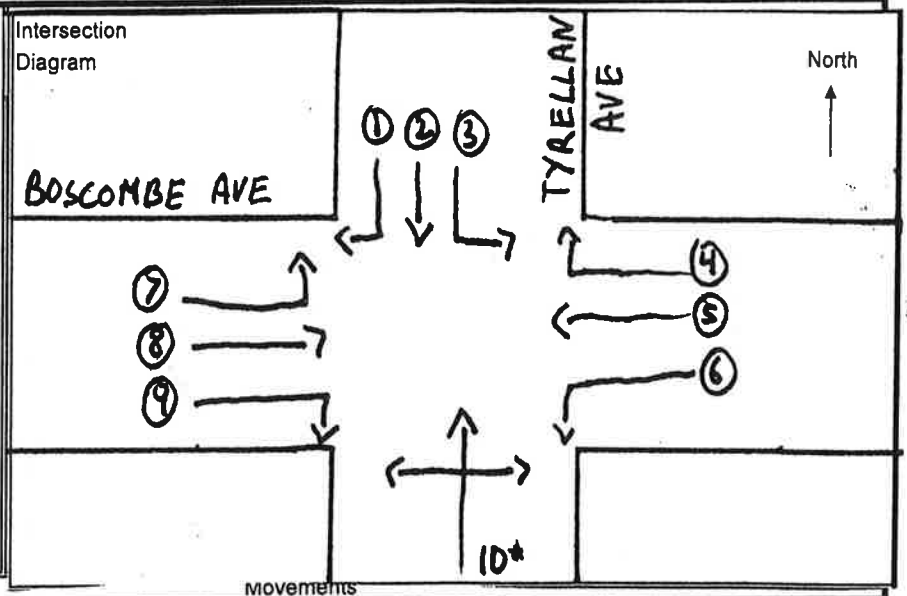
Date: 6/7/11

Period: PM

Weather Conditions:

Surveyor's Name: Igor Slavin

Intersection Diagram



Movements

Time	1	2	3	4	5	6	7	8	9	10	11	12
16:30 to 16:45	158	1	14	9	4	-	85	7	-	5		
16:45 to 17:00	132	1	13	16	3	-	92	9	-	3		
17:00 to 17:15	148	-	6	12	3	-	95	3	-	4		
17:15 to 17:30	135	-	20	7	10	-	83	15	-	-		
17:30 to 17:45	157	-	18	9	2	1	81	7	-	2		
17:45 to 18:00	154	1	12	12	3	-	87	9	-	2		
18:00 to 18:15	156	-	23	13	6	-	85	5	-	3		
18:15 to 18:30	135	1	20	13	6	1	68	6	-	-		
Peak Hour												

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13

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121A

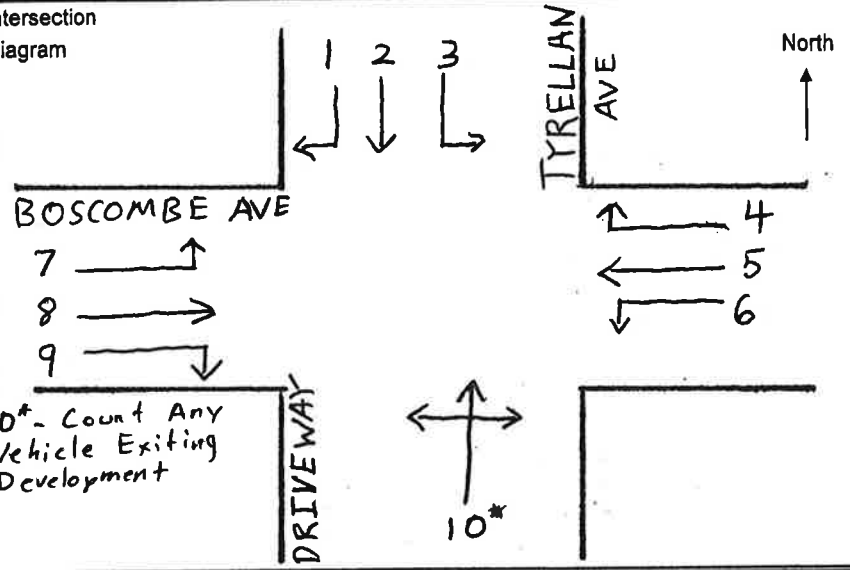
Date: 6-4-2011

Period: PM

Weather Conditions:
50 miles $9.60 Verr. Brige Toll

Surveyor's Name:
Igor Slavin - driver

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10*	11	12
3:00 to 3:15	185	—	12	8	5	—	80	15	—	—		
3:15 to 3:30	186	—	18	11	5	—	78	16	—	—		
30 to 3:45	176	—	23	8	6	—	119	7	—	—		
3:45 to 4:00	231	—	15	18	6	—	84	16	—	—		
4:00 to 4:15	194	—	17	9	5	—	79	7	—	—		
4:15 to 4:30	216	—	12	13	7	—	98	7	—	—		
4:30 to 4:45	192	—	13	11	9	—	85	9	—	—		
4:45 to 5:00	165	—	19	12	11	—	67	13	—	—		
5:00 to 5:15	143	—	19	9	6	—	86	3	—	—		
5:15 to 5:30	164	—	25	11	7	—	65	8	—	—		
5:30 to 5:45	197	—	15	10	9	—	66	8	—	—		
5:45 to 6:00	168	—	14	12	7	—	86	6	—	—		
Peak Hour												

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Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

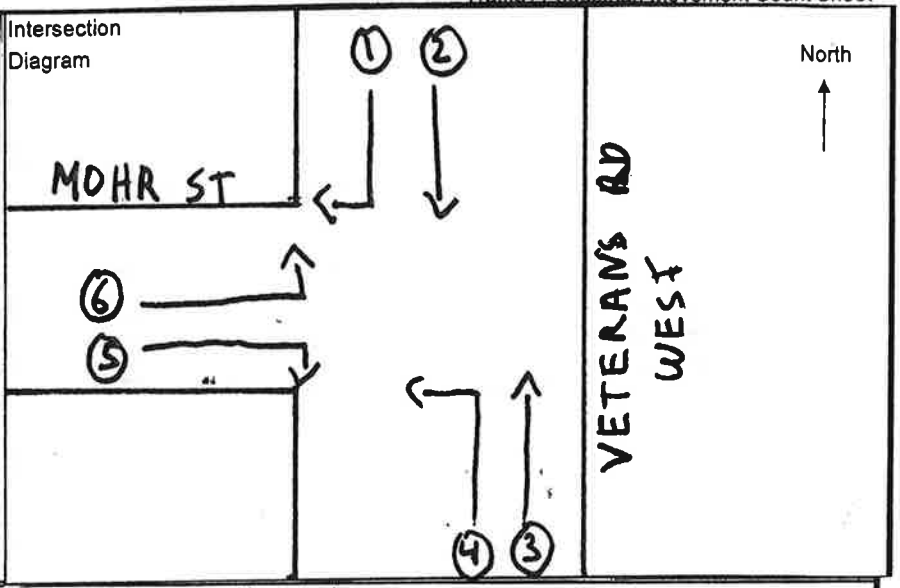
Date: 06/07/11

Period: 7:30 - 9:30 AM

Weather Conditions:

Surveyor's Name: Alex Taft

Intersection Diagram



Time			Movements 1	2	3	4	5	6	7	8	9	10	11	12
7:30	to	7:45	20	93	16	-	-	8						
7:45	to	8:00	30	83	31	-	-	7						
8:00	to	8:15	37	70	20	-	1	11						
8:15	to	8:30	32	103	37	-	-	17						
8:30	to	8:45	53	87	25	3	-	14						
8:45	to	9:00	41	82	25	1	-	8						
9:00	to	9:15	55	62	27	1	2	17						
9:15	to	9:30	73	76	19	-	1	25						
Peak Hour														

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(14)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121a

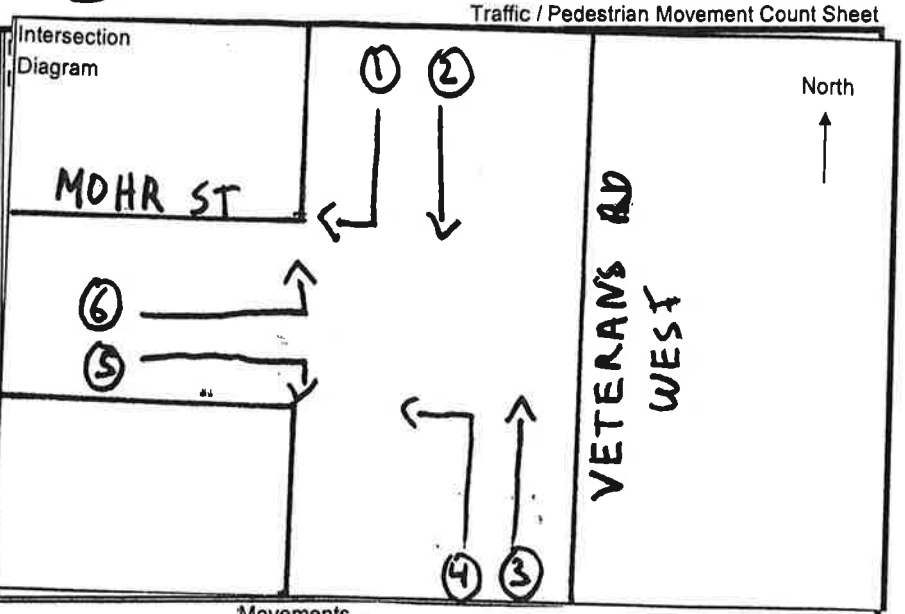
Date: 06/07/11

Period: 11 30 MD 1 30

Weather Conditions:

Surveyor's Name: Alex Taft

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
11:30 to 11:45	77	62	41	1	3	37						
11:45 to 12:00	92	108	46	2	5	32						
12:00 to 12:15	101	99	39	-	5	40						
12:15 to 12:30	105	79	44	1	5	41						
12:30 to 12:45	98	80	41	3	4	36						
12:45 to 13:00	77	75	44	-	2	49						
13:00 to 13:15	74	73	42	2	3	57						
13:15 to 13:30	73	77	45	1	2	42						
Peak Hour												

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(14)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121a

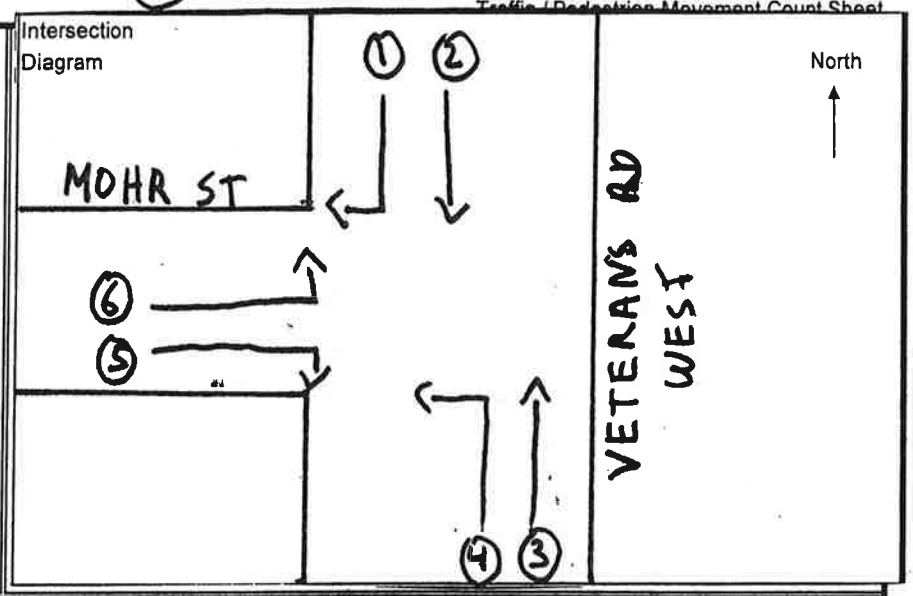
Date: 06/07/11

Period: 4 30 PM - 6 30

Weather Conditions:

Surveyor's Name: Alex Taft

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
16:30 to 16:45	61	52	-	6	34	61						
16:45 to 17:00	80	94	41	-	3	33						
17:00 to 17:15	64	67	56	-	4	35						
17:15 to 17:30	61	91	44	1	3	36						
17:30 to 17:45	67	89	50	-	3	33						
17:45 to 18:00	57	87	41	1	2	32						
18:00 to 18:15	73	76	54	1	4	38						
18:15 to 18:30	67	76	47	-	3	35						
Peak Hour												

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(14)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121A

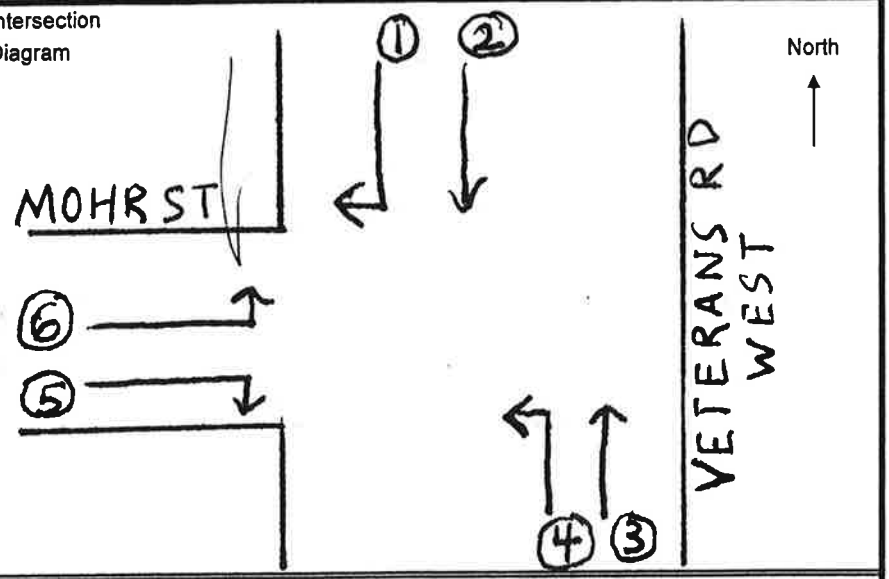
Date: 05/04/11

Period: 3-6 PM

Weather Conditions:

Surveyor's Name: Alex Taft

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
3:00 to 3:15	126	116	42	4	2	22						
3:15 to 3:30	96	79	51	-	5	63						
30 to 3:45	112	107	37	1	6	54						
3:45 to 4:00	124	89	48	-	3	65						
4:00 to 4:15	118	75	45	-	6	66						
4:15 to 4:30	88	73	53	3	14	45						
4:30 to 4:45	87	51	52	1	9	67						
4:45 to 5:00	83	86	46	1	5	47						
5:00 to 5:15	89	70	36	-	1	50						
5:15 to 5:30	79	77	31	-	8	51						
5:30 to 5:45	73	77	36	-	3	43						
5:45 to 6:00	80	77	46	2	9	44						
Peak Hour												

(15)

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Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

Date: 06/28/11

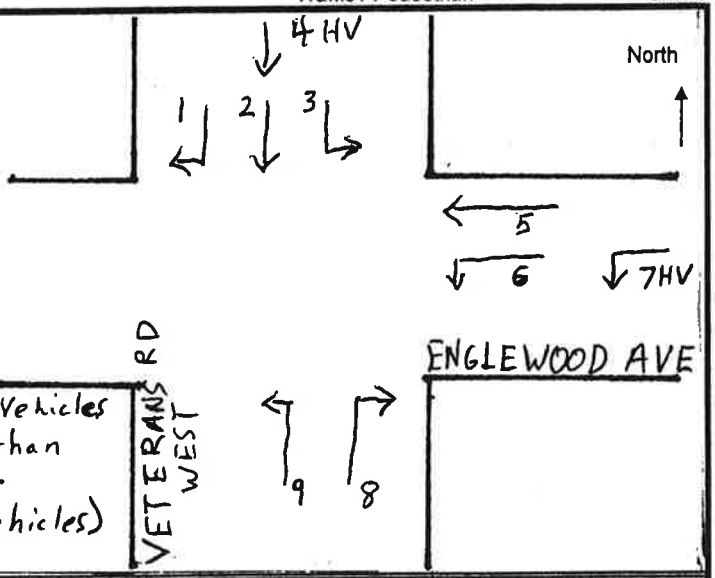
Period: PM

Weather Conditions:

Leonid Gurevich.

Surveyor's Name:

Intersection Diagram



HV - Count Vehicles w/ more than 4 wheels (Heavy Vehicles)

Time			Movements 1	2	3	4	5	6	7	8	9	10	11	12
7:30	to	7:45	–	36	6	1	–	70	Y	15	–			
7:45	to	8:00	–	37	5	–	–	125	6	31	–			
8:00	to	8:15	–	31	5	–	–	60	3	26	–			
8:15	to	8:30	–	41	7	–	–	98	3	42	–			
8:30	to	8:45	–	23	4	–	–	99	4	51	2			
8:45	to	9:00	–	34	3	–	1	118	3	42	1			
9:00	to	9:15	–	29	6	–	1	89	3	52	–			
9:15	to	9:30	–	19	–	2	1	83	Y	37	1			
Peak Hour														

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Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

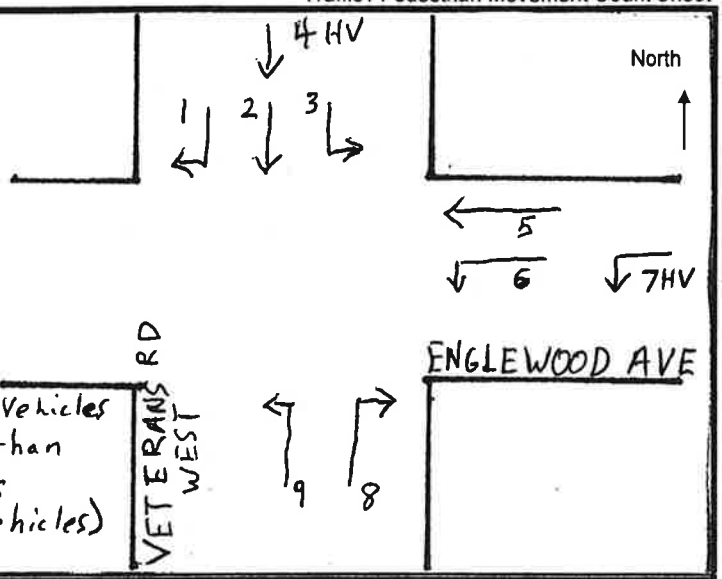
Date: 06/08/11

Period: PM

Weather Conditions:

Surveyor's Name: Leonid Gurevich

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
11:30 to 11:45	—	37	7	—	1	121	4	64	1			
11:45 to 12:00	—	23	8	—	1	102	6	62	—			
12:00 to 12:15	—	27	4	—	—	114	5	78	1			
12:15 to 12:30	—	25	6	1	—	115	—	57	—			
12:30 to 12:45	—	36	10	—	—	125	1	89	—			
12:45 to 13:00		41	1	2	1	118	1	75	—			
13:00 to 13:15		37	2	1	—	100	4	98	—			
13:15 to 13:30		27	5	1	1	100	1	50	—			
Peak Hour												

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(15)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

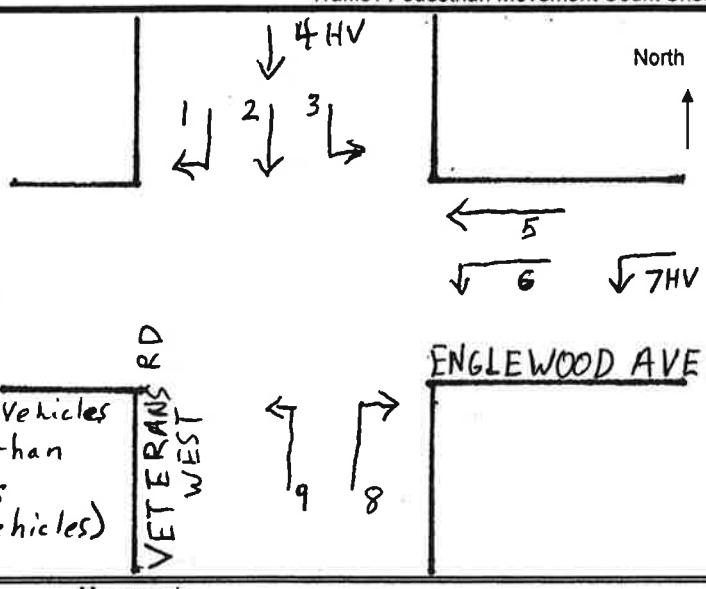
Date: 06/08/11

Period: PM

Weather Conditions:

Surveyor's Name: Leonid Gurevich.

Intersection Diagram



HV - Count Vehicles w/ more than 4 wheels (Heavy Vehicles)

Time			Movements 1	2	3	4	5	6	7	8	9	10	11	12
16:30	to	16:45	–	34	6	1	–	96	3	74	–			
16:45	to	17:00	–	47	8	1	1	123	5	73	–			
17:00	to	17:15	–	36	6	1	–	110	4	89	1			
17:15	to	17:30	–	45	3	–	1	83	3	90	–			
17:30	to	17:45	–	38	6	1	1	114	5	104	1			
17:45	to	18:00	1	34	3	–	–	121	3	80	2			
18:00	to	18:15	–	56	12	–	2	93	4	90	–			
18:15	to	18:30	–	38	5	1	1	114	2	73	–			
Peak Hour														

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(15)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121A

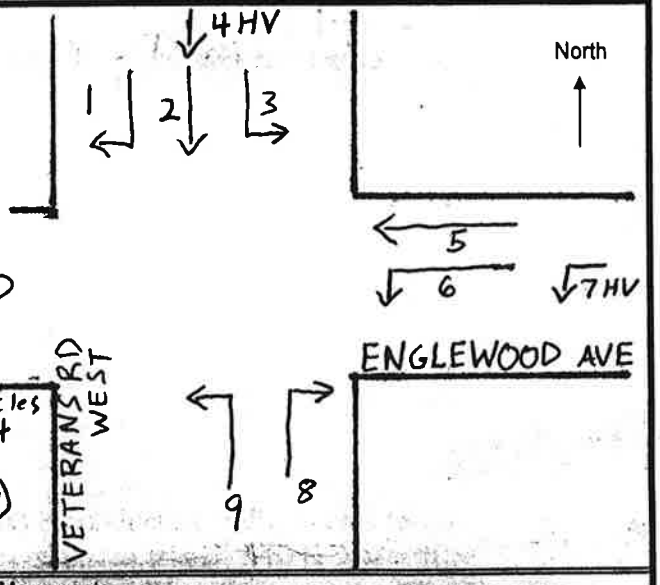
Date: 06.14.2011

Period: PM

Weather Conditions: rain

Surveyor's Name: Alisher Khamidullaiev

Intersection Diagram



HV- Count vehicles w/ more than 4 Wheels (Heavy Vehicles)

Time	Movements 1	2	3	4 HV	5	6	7 HV	8	9	10	11	12
3:00 to 3:15		35	3	1	1	99	2	103				
3:15 to 3:30	–	47	4	3	–	113	1	108	–			
3:30 to 3:45	–	36	8	2	1	118	1	87	1			
3:45 to 4:00	1	29	6	–	1	137	4	107	1			
4:00 to 4:15	–	31	7	1	–	118	4	101	1			
4:15 to 4:30	–	49	2	1	–	116	2	79	1			
4:30 to 4:45	1	45	2	1	–	109	2	77	1			
4:45 to 5:00	–	31	7	1	–	89	3	74	1			
5:00 to 5:15	–	46	13	–	–	118	–	84	1			
5:15 to 5:30	–	39	3	–	1	102	3	107	–			
5:30 to 5:45	1	36	4	–	1	113	–	96	–			
5:45 to 6:00	–	38	–	–	–	113	–	62	3			
Peak Hour												

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(16)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

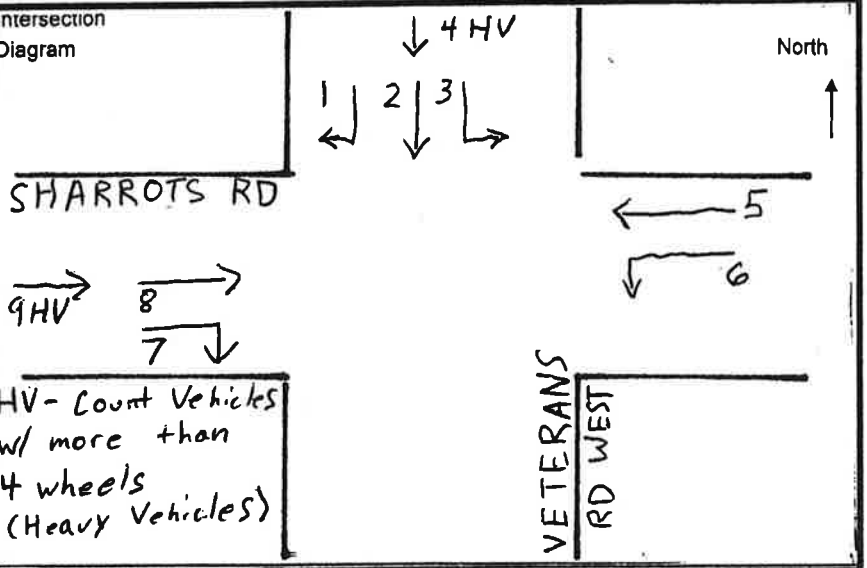
Date:

Period: PM

Weather Conditions:

Surveyor's Name: Andrey Butko

Intersection Diagram



Time			Movements 1	2	3	4	5	6	7	8	9	10	11	12
7:30	to	7:45	9	14	1	0	20	26	1	4	1			
7:45	to	8:00	15	19	0	0	24	21	6	7	1			
8:00	to	8:15	9	11	2	1	18	25	6	3	4			
8:15	to	8:30	7	25	1	0	13	12	5	5	2			
8:30	to	8:45	4	16	2	2	15	12	5	5	1			
8:45	to	9:00	6	15	1	0	19	16	4	8	3			
9:00	to	9:15	11	14	4	2	11	14	5	4	1			
9:15	to	9:30	5	8	0	0	12	11	1	11	3			
Peak Hour														

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(16)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

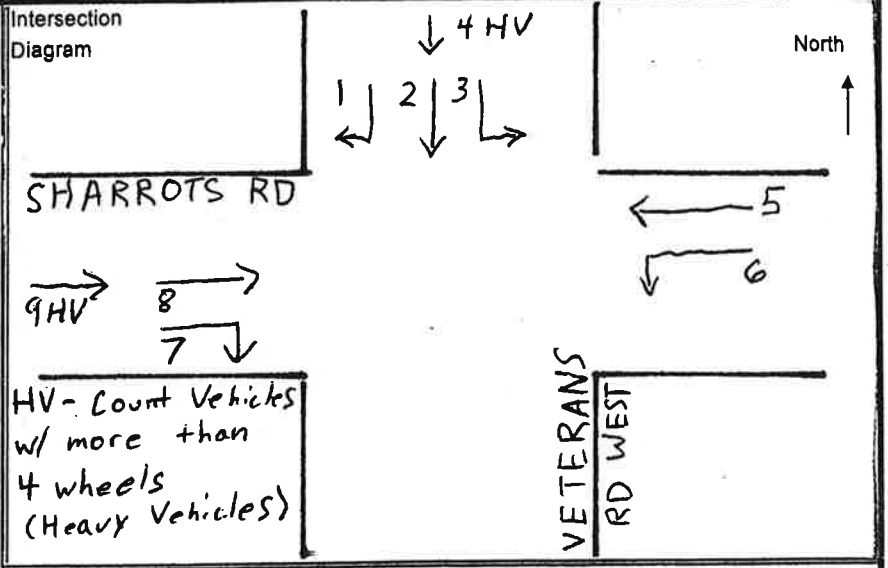
Date:

Period: PM

Weather Conditions:

Surveyor's Name: Andrey Butko

Intersection Diagram



Time			Movements 1	2	3	4	5	6	7	8	9	10	11	12
11:30	to	11:45	4	20	2	0	17	14	5	7	1			
11:45	to	12:00	5	37	4	0	18	22	4	7	0			
12:00	to	12:15	4	16	5	0	14	15	8	8	1			
12:15	to	12:30	4	16	2	0	11	10	8	9	1			
12:30	to	12:45	7	12	2	2	11	18	10	5	0			
12:45	to	13:00	4	27	10	2	14	21	3	8	2			
13:00	to	13:15	5	22	8	0	14	15	6	3	3			
13:15	to	13:30	4	13	0	2	11	9	4	1	0			
Peak Hour														

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Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

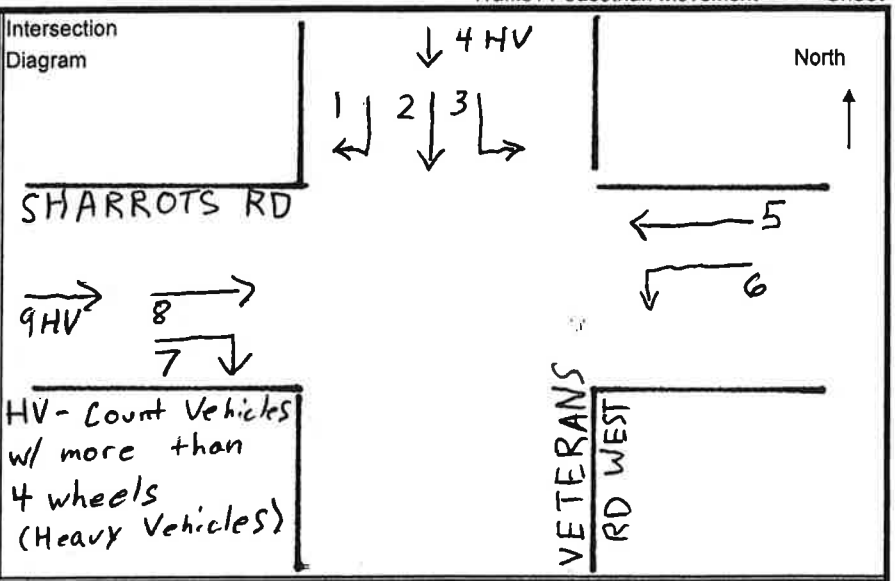
Date:

Period: PM

Weather Conditions:

Surveyor's Name: Andrey Butko

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
16:30 to 16:45	0	10	1	0	5	5	5	8	0			
16:45 to 17:00	6	30	5	1	16	25	5	15	0			
17:00 to 17:15	8	21	4	0	14	18	10	19	1			
17:15 to 17:30	7	17	3	0	19	28	7	13	0			
17:30 to 17:45	4	18	2	1	18	15	11	19	1			
17:45 to 18:00	4	16	3	0	23	12	8	15	0			
18:00 to 18:15	1	28	2	0	9	25	13	18	1			
18:15 to 18:30	3	17	2	1	11	15	9	12	0			
Peak Hour												

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Traffic / Pedestrian Movement Count Sheet

Project No.: 1121A

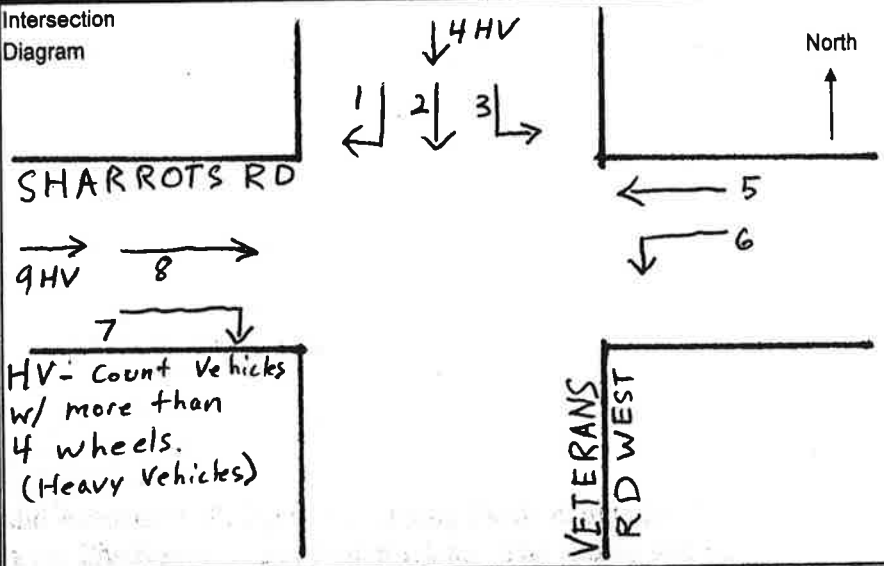
Date: 06-11-11

Period: PM

Weather Conditions: Olds

Surveyor's Name: Driver: Toll $13.0; 65NL Volchansky

Intersection Diagram



Time	Movements 1	2	3	4 HV	5	6	7	8	9HV	10	11	12
3:00 to 3:15	4	19	5	0	8	20	2	5	0			
3:15 to 3:30	5	36	4	1	15	13	2	8	0			
3:30 to 3:45	3	18	3	0	3	20	8	1	1			
3:45 to 4:00	3	20	2	0	8	14	4	8	0			
4:00 to 4:15	3	20	3	0	10	18	6	5	0			
4:15 to 4:30	3	30	6	0	12	19	2	7	0			
4:30 to 4:45	4	22	3	1	11	15	6	6	0			
4:45 to 5:00	3	19	7	0	12	13	6	8	0			
5:00 to 5:15	6	26	6	1	7	20	8	8	0			
5:15 to 5:30	4	24	1	0	10	17	1	12	0			
5:30 to 5:45	3	17	1	0	20	23	4	8	0			
5:45 to 6:00	3	13	2	1	18	14	2	6	0			
Peak Hour												

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Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

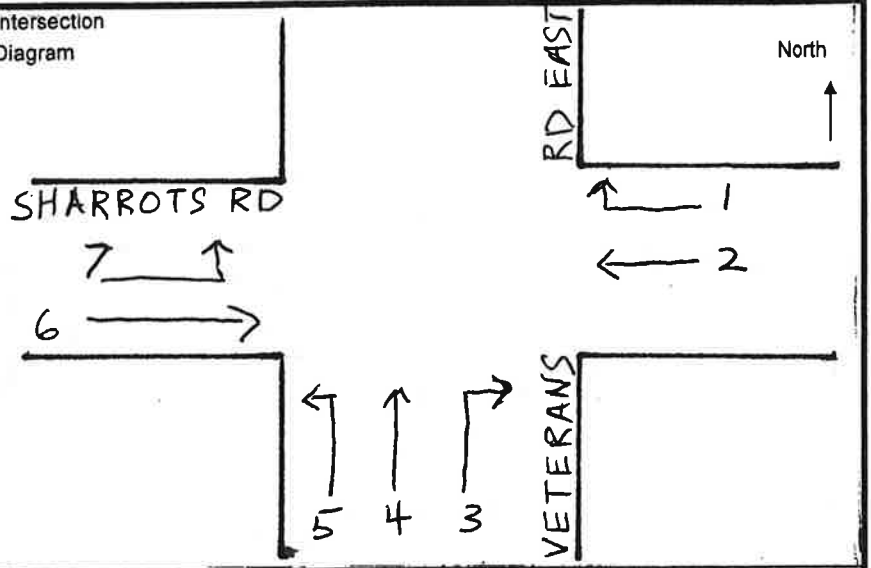
Date:

Period: PM

Weather Conditions:

Surveyor's Name: Denis Volchanskiy

Intersection Diagram



Time			Movements 1	2	3	4	5	6	7	8	9	10	11	12
7:30	to	7:45	4	37	2	5	14	1	4					
7:45	to	8:00	3	25	14	19	18	4	1					
8:00	to	8:15	3	30	15	11	13	6	2					
8:15	to	8:30	2	18	9	12	13	6	1					
8:30	to	8:45	5	17	10	18	11	4	2					
8:45	to	9:00	7	25	4	9	10	8	1					
9:00	to	9:15	4	19	11	6	7	7	2					
9:15	to	9:30	3	23	7	10	6	4	1					
Peak Hour														

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Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

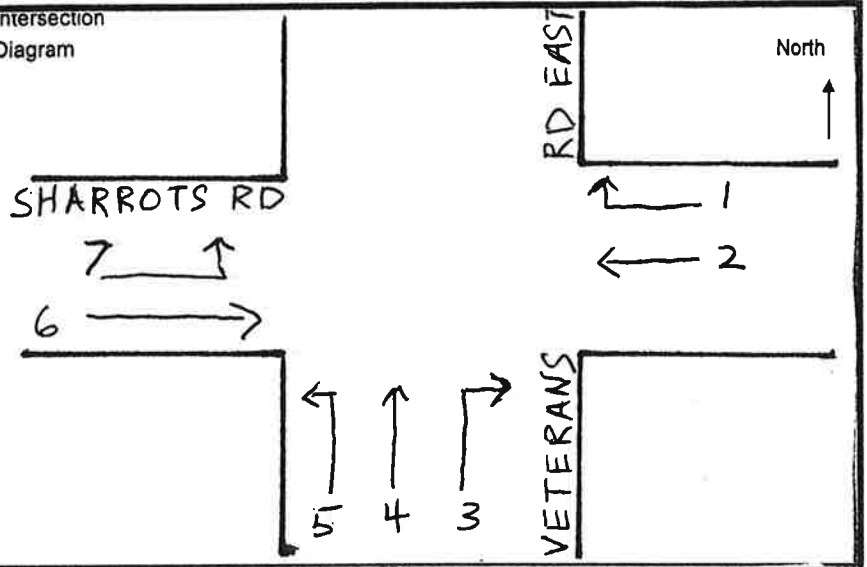
Date:

Period: PM

Weather Conditions:

Surveyor's Name:

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
11:30 to 11:45	2	18	12	13	7	7	2					
11:45 to 12:00	6	21	12	19	9	4	2					
12:00 to 12:15	3	16	15	14	8	7	3					
12:15 to 12:30	5	19	13	13	7	5	4					
12:30 to 12:45	6	16	14	16	8	3	4					
12:45 to 13:00	7	18	16	14	8	4	5					
13:00 to 13:15	4	15	14	12	6	4	3					
13:15 to 13:30	5	16	13	15	7	4	5					
Peak Hour												

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Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

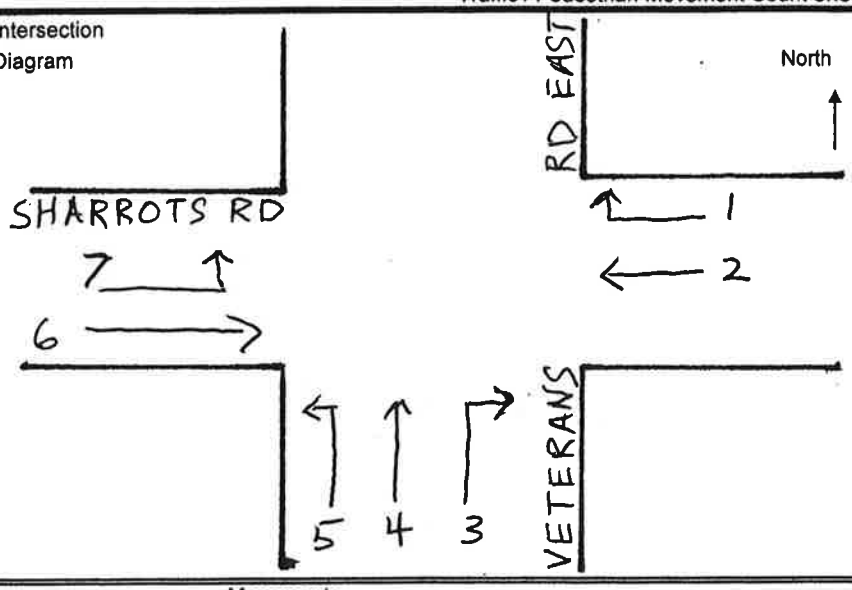
Date:

Period: PM

Weather Conditions:

Surveyor's Name:

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
16:30 to 16:45	8	24	20	15	10	15	4					
16:45 to 17:00	7	25	22	18	13	17	3					
17:00 to 17:15	8	24	24	27	13	16	5					
17:15 to 17:30	6	37	28	19	15	13	4					
17:30 to 17:45	7	31	29	21	14	15	5					
17:45 to 18:00	7	29	28	20	16	13	5					
18:00 to 18:15	8	34	31	20	13	14	6					
18:15 to 18:30	6	30	29	18	12	13	4					
Peak Hour												

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Traffic / Pedestrian Movement Count Sheet

Project No.: 1121A

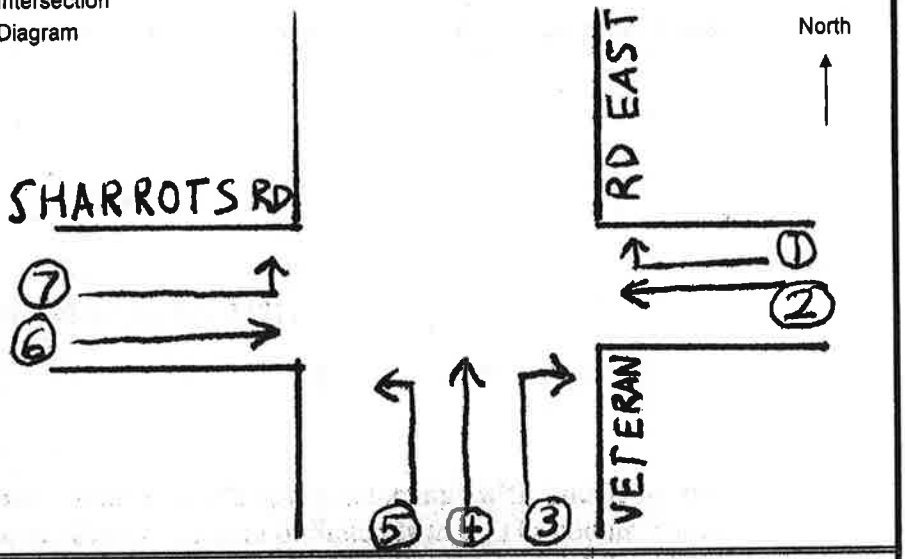
Date:

Period: PM

Weather Conditions:

Surveyor's Name: Denis Volchasky

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
3:00 to 3:15	5	21	18	18	8	12	3					
3:15 to 3:30	7	20	21	20	12	9	4					
:30 to 3:45	6	23	22	21	12	7	4					
3:45 to 4:00	4	16	19	28	7	9	1					
4:00 to 4:15	4	26	28	15	9	5	2					
4:15 to 4:30	5	20	17	20	10	8	3					
4:30 to 4:45	5	20	20	19	8	7	2					
4:45 to 5:00	6	19	14	19	8	8	2					
5:00 to 5:15	5	20	17	18	9	7	2					
5:15 to 5:30	5	19	15	21	8	6	3					
5:30 to 5:45	4	21	19	20	7	7	3					
5:45 to 6:00	4	19	19	20	6	7	3					
Peak Hour												

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Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

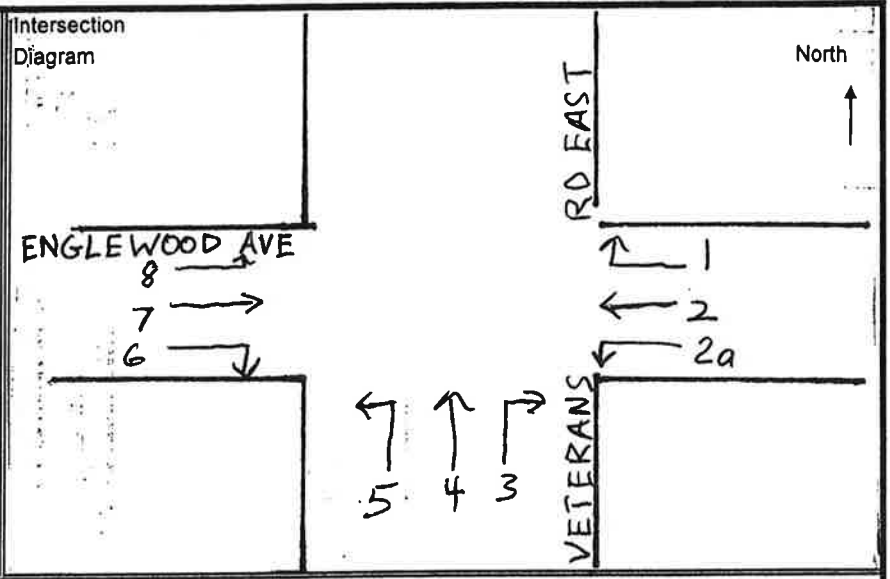
Date: 06-08-11

Period: AM

Weather Conditions:

Surveyor's Name: Driver: Toll $13.0, 70NL
Oleg Volchanskiy

Intersection Diagram



Time			Movements											
			1	2	3	4	5	6	7	8	2a	10	11	12
7:30	to	7:45	2	6	0	16	60	5	8	8	1			
7:45	to	8:00	5	15	1	27	87	5	18	21	3			
8:00	to	8:15	0	8	1	17	73	11	13	23	0			
8:15	to	8:30	0	11	0	17	81	18	15	29	1			
8:30	to	8:45	1	7	0	15	82	17	16	27	0			
8:45	to	9:00	0	9	0	22	118	14	14	13	1			
9:00	to	9:15	1	8	0	11	76	10	25	18	0			
9:15	to	9:30	0	4	0	8	106	13	10	16	0			
Peak Hour														

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(18)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

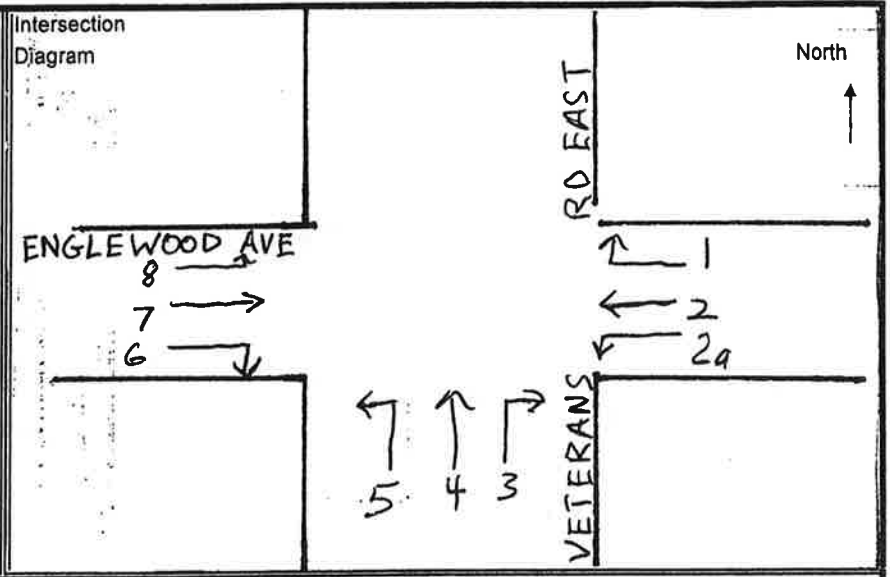
Date:

Period: AM - PM

Weather Conditions:

Surveyor's Name:

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	2 & 2a	10	11	12
11:30 to 11:45	1	0	1	8	98	25	23	31	2			
11:45 to 12:00	3	9	0	16	112	26	20	31	0			
12:00 to 12:15	0	8	1	12	118	22	21	29	0			
12:15 to 12:30	2	7	0	20	125	22	26	20	1			
12:30 to 12:45	3	7	1	21	122	30	24	32	0			
12:45 to 13:00	0	9	0	23	123	31	24	31	1			
13:00 to 13:15	0	10	0	12	92	35	32	49	0			
13:15 to 13:30	2	9	0	23	101	28	19	27	0			
Peak Hour												

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Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

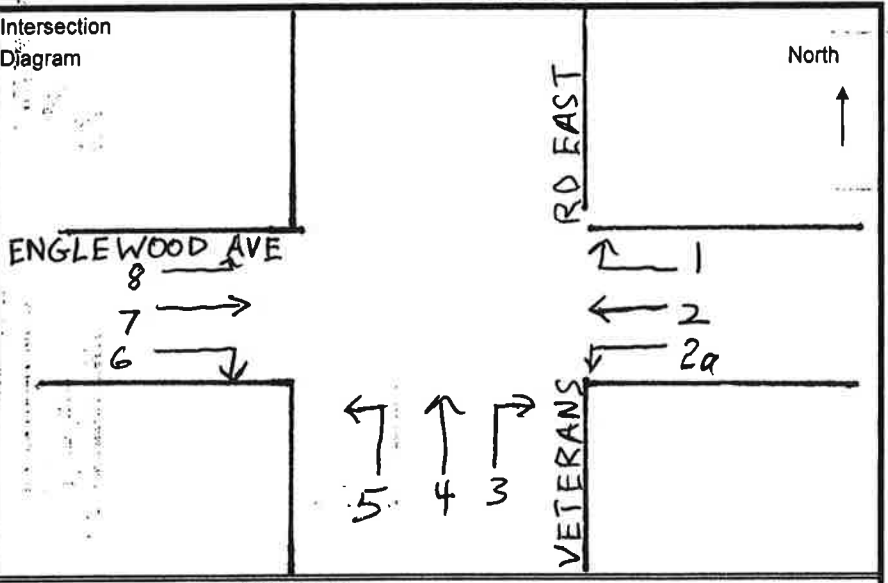
Date:

Period: PM

Weather Conditions:

Surveyor's Name:

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	2a	10	11	12
16:30 to 16:45	2	11	0	20	98	27	37	44	0			
16:45 to 17:00	3	12	0	17	115	33	34	51	0			
17:00 to 17:15	0	10	0	16	95	31	31	41	0			
17:15 to 17:30	3	9	2	24	80	31	28	43	0			
17:30 to 17:45	1	14	0	21	106	33	29	57	1			
17:45 to 18:00	4	9	0	37	98	25	19	35	0			
18:00 to 18:15	1	16	0	16	97	38	23	51	1			
18:15 to 18:30	4	12	1	13	98	26	35	37	0			
Peak Hour												

(18) Alisher Khamidullaiev

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New York, NY 10001
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Traffic / Pedestrian Movement Count Sheet

Project No.: 1121A

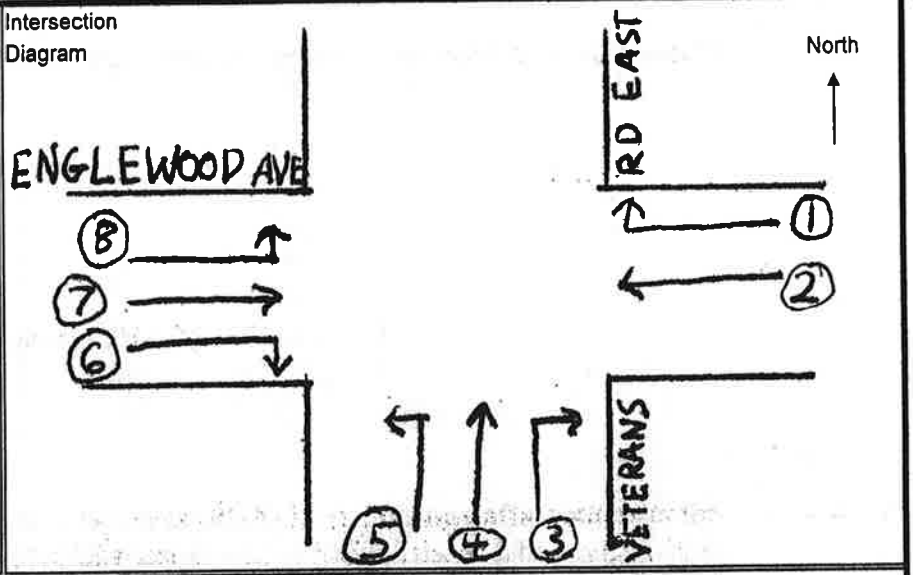
Date: 06.11.2011

Period: PM

Weather Conditions: rain

Surveyor's Name: Alisher Khamidullaiev

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
3:00 to 3:15	1	11	—	5	76	26	30	28				
3:15 to 3:30	2	15	1	21	89	39	37	38				
3:30 to 3:45	4	11	1	10	112	30	27	23				1
3:45 to 4:00	3	15	1	10	123	22	30	41				
4:00 to 4:15	1	16	—	13	101	32	34	51				
4:15 to 4:30	4	6	1	20	105	14	22	27				
4:30 to 4:45	—	9	—	10	84	26	16	34				
4:45 to 5:00	2	20	—	21	116	43	30	40				
5:00 to 5:15	—	10	—	9	85	21	16	33				
5:15 to 5:30	1	13	1	8	90	31	22	40				
5:30 to 5:45	1	14	—	11	96	32	34	35				
5:45 to 6:00	1	8	—	12	102	19	14	27				
Peak Hour												

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Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

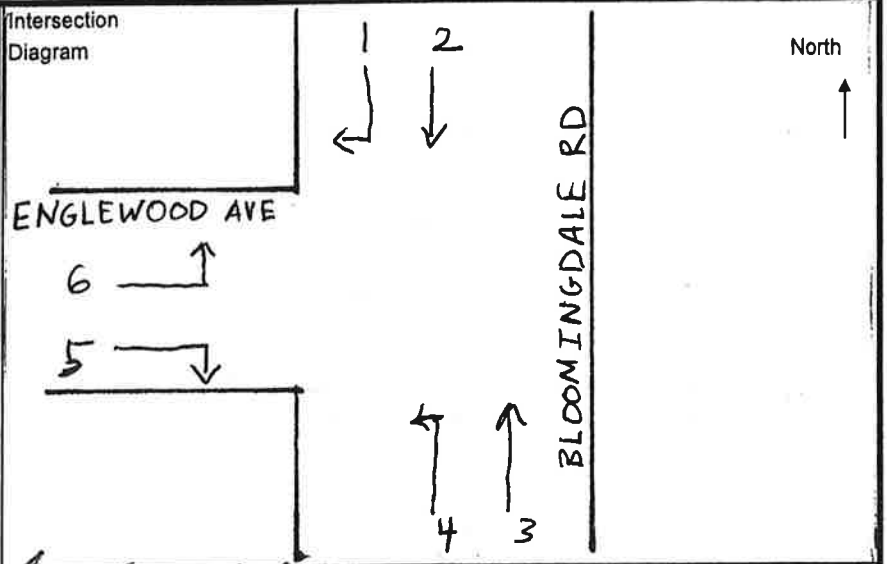
Date: 06/08/11/Wed

Period: 7:30 AM – 9:30 AM

Weather Conditions: Sunny, 75°F

Surveyor's Name: ALEXANDRE BOURDAKOV
DRIVER – 89 mls

Intersection Diagram



$ 13 - sold of VERIZON Movements BRIDGE

Time	1	2	3	4	5	6	7	8	9	10	11	12
7:30 to 7:45	4	105	54	7	11	10						
7:45 to 8:00	9	112	83	4	25	16						
8:00 to 8:15	7	131	89	2	16	15						
8:15 to 8:30	6	117	78	5	12	23						
8:30 to 8:45	7	113	84	5	9	13						
8:45 to 9:00	9	67	68	3	5	10						
9:00 to 9:15	10	83	62	2	5	27						
9:15 to 9:30	5	80	51	1	7	11						
Peak Hour												

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Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

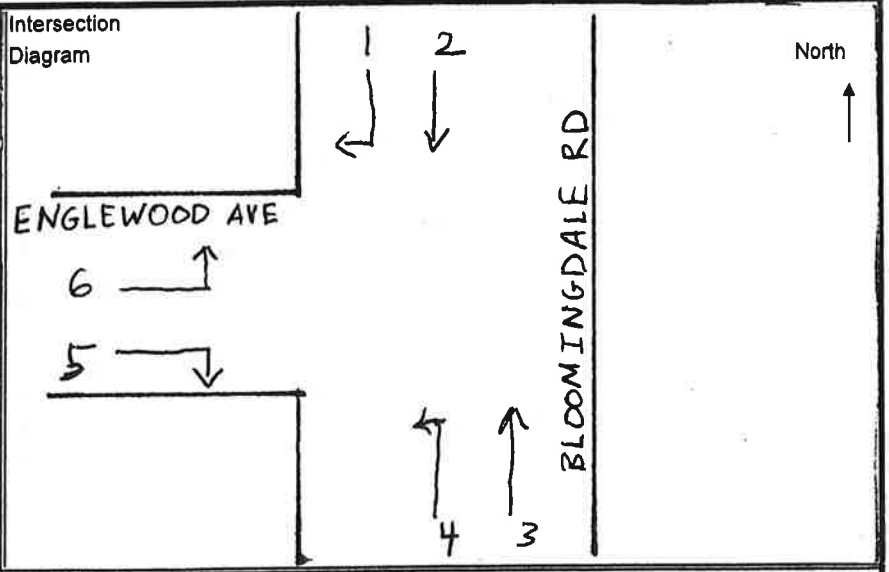
Date: 06/08/11/Wed.

Period: 11:30AM — 13:30PM

Weather Conditions: 85°F, Sunny

Surveyor's Name: ALEXANDRE BOURDAKOV DRIVER

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
11:30 to 11:45	8	67	89	5	11	10						
11:45 to 12:00	5	72	71	5	9	15						
12:00 to 12:15	11	81	68	4	15	12						
12:15 to 12:30	7	69	46	1	5	16						
12:30 to 12:45	12	70	54	3	7	7						
12:45 to 13:00	13	86	73	5	10	16						
13:00 to 13:15	11	72	76	2	6	13						
13:15 to 13:30	7	78	84	3	6	13						
Peak Hour												

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(19)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

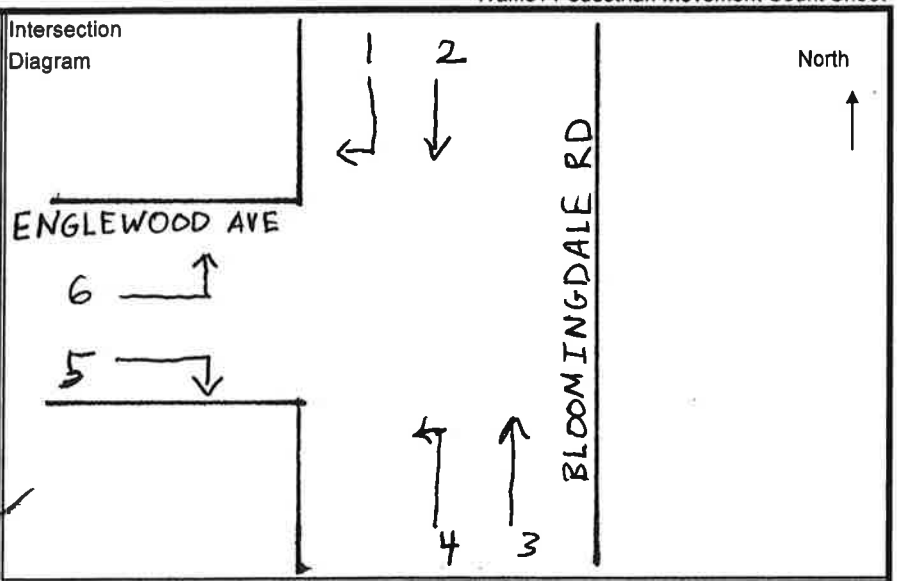
Date: 06/08/11/wen.

Period: 4:30 PM – 6:30 pm

Weather Conditions: Sunny, 99°F.

Surveyor's Name: ALEXANDRE BOURDAKOV / DRIVER

Intersection Diagram



Time			Movements 1	2	3	4	5	6	7	8	9	10	11	12
16:30	to	16:45	8	84	91	5	9	13						
16:45	to	17:00	13	134	123	4	17	29						
17:00	to	17:15	17	108	92	4	9	18						
17:15	to	17:30	8	96	127	5	8	18						
17:30	to	17:45	15	117	101	6	8	19						
17:45	to	18:00	19	106	100	2	9	15						
18:00	to	18:15	15	82	78	2	7	11						
18:15	to	18:30	8	90	104	6	12	16						
Peak Hour														

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(19)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121A

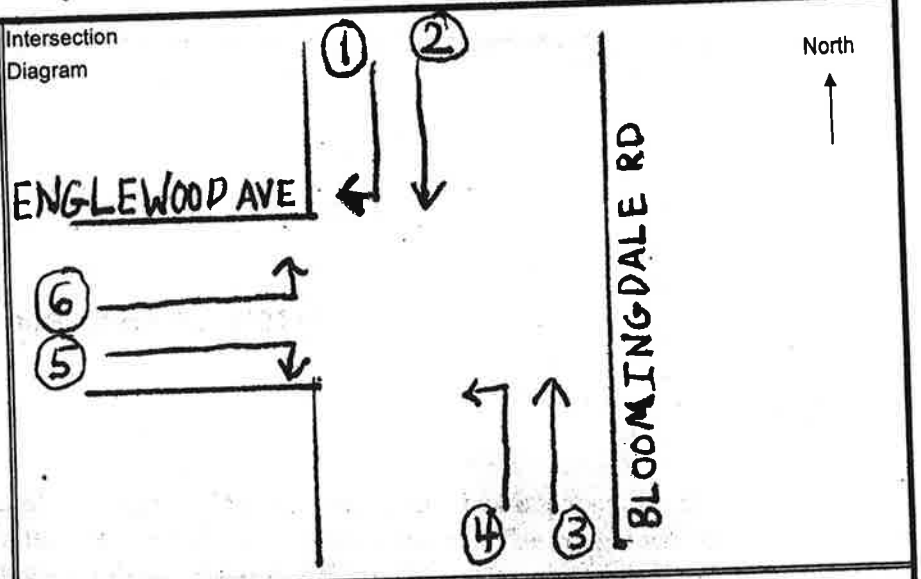
Date: 06/11/11

Period: 3-6 PM

Weather Conditions:

Surveyor's Name: Alex Taft

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
3:00 to 3:15	~~9~~	60	71	~~6~~	~~8~~	20						
3:15 to 3:30	9	56	59	8	9	21						
3:30 to 3:45	9	65	54	2	8	19						
3:45 to 4:00	12	73	74	3	7	22						
4:00 to 4:15	3	69	66	3	6	21						
4:15 to 4:30	7	71	70	2	9	22						
4:30 to 4:45	9	77	50	2	8	15						
4:45 to 5:00	10	50	60	–	6	14						
5:00 to 5:15	13	65	50	5	5	18						
5:15 to 5:30	8	74	61	2	4	13						
5:30 to 5:45	7	74	69	3	10	22						
5:45 to 6:00	10	57	44	5	3	13						
Peak Hour												

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Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

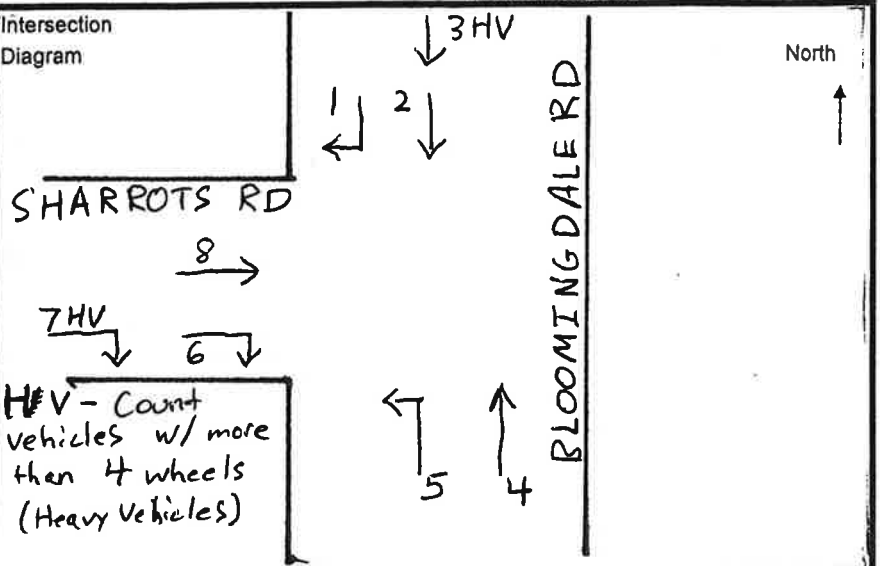
Date: 06/08/11

Period: PM

Weather Conditions:

Surveyor's Name: Liandro Caparato

Intersection Diagram



HEV - Count vehicles w/ more than 4 wheels (Heavy Vehicles)

Time			Movements 1	2	3	4	5	6	7	8	9	10	11	12
7:30	to	7:45	8	32	2	33	9	7	1	8				
7:45	to	8:00	HV 2 / 13	46	10	5 / 52	HV 1 / 20	12	1	10				
8:00	to	8:15	HV 1 / 18	54	6	HV 7 / 46	HV 1 / 7	8	4	12				
8:15	to	8:30	HV2 / 12	63	5	HV 4 / 74	6	16	0	HV5 / 25				
8:30	to	8:45	7	57	7	HV4 / 48	8	12	2	TR 1 / 9				
8:45	to	9:00	20	32	6	6 / 72	4	13	1	TR 1 / 6				
9:00	to	9:15	8	45	6	TR 4 / 15	12	7	0	0				
9:15	to	9:30	TR 3 / 13	46	9	4 TR / 41	TR3 / 10	15	0	TR 1 / 15				
Peak Hour														

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Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

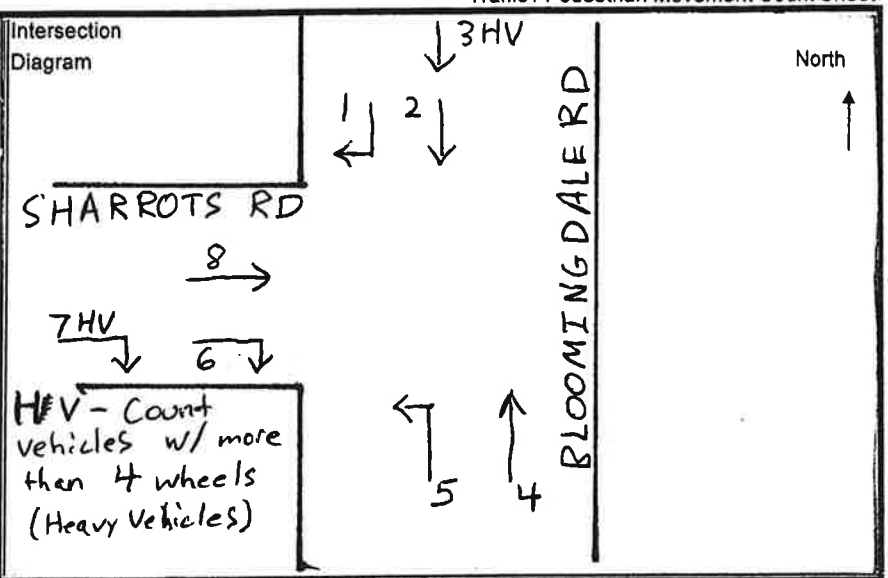
Date: 06/08/11

Period: PM

Weather Conditions:

Surveyor's Name: Liandmila Imparato

Intersection Diagram



Time			1	2	3	4	5	6	7	8	9	10	11	12
			Movements											
11:30	to	11:45	HV 1 / 13	40	4	HV 1 / 41	9	10	1	9				
11:45	to	12:00	13	43	4	52	10	5	0	13				
12:00	to	12:15	HV 1 / 20	39	1	HV 5 / 56	7	7	1	11				
12:15	to	12:30	11	43	1	HV 4 / 47	8	2	1	7			515 / 37 / 505	37 / 16
12:30	to	12:45	HV 2 / 78	48	2	HV 1 / 45	4	5	1	14				13 / 24 / 37
12:45	to	13:00	17	61	3	HV 3 / 51	HV 1 / 6	HV 1 / 7	0	HV 1 / 15				
13:00	to	13:15	HV 1 / 12	38	3	HV 1 / 65	10	9	0	HV 1 / 16				
13:15	to	13:30	10	65	6	HV 3 / 69	HV 2 / 8	8	0	HV 2 / 14				
Peak Hour														

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Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

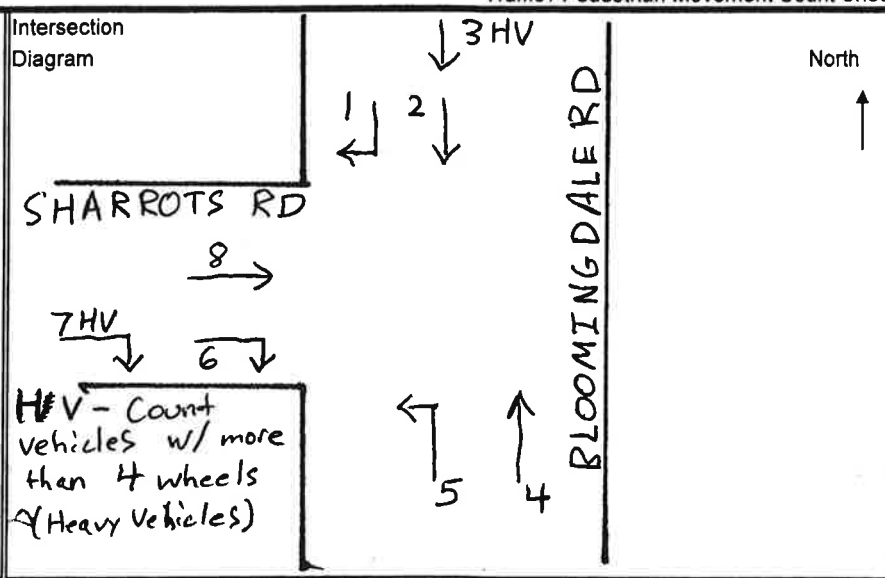
Date: 08 | 2011

Period: PM

Weather Conditions:

Surveyor's Name: Lourdes Iparra

Intersection Diagram



HV - Count vehicles w/ more than 4 wheels (Heavy Vehicles)

			Movements										
Time			1	2	3	4	5	6	7	8	9	10	11	12
16:30	to	16:45	HV 2 27	56	2	HV 3 65	4	5	0	14				
16:45	to	17:00	25	71	2	HV 3 71	3	15	0	27				
17:00	to	17:15	HV 1 14	59	4	HV 3 54	9	10	2	HV 1 24				
17:15	to	17:30	32	67	0	HV 2 86	12	18	0	27				
17:30	to	17:45	HV 1 40	74	2	80	12	9	0	11				
17:45	to	18:00	30	78	3	HV 1 64	4	15	0	22				
18:00	to	18:15	HV 1 43	80	7	81	15	HV 1 19	0	25				
18:15	to	18:30	HV 1 27	76	1	HV 1 81	15	16	0	31				
Peak Hour														

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Traffic / Pedestrian Movement Count Sheet

Project No.: 1121A

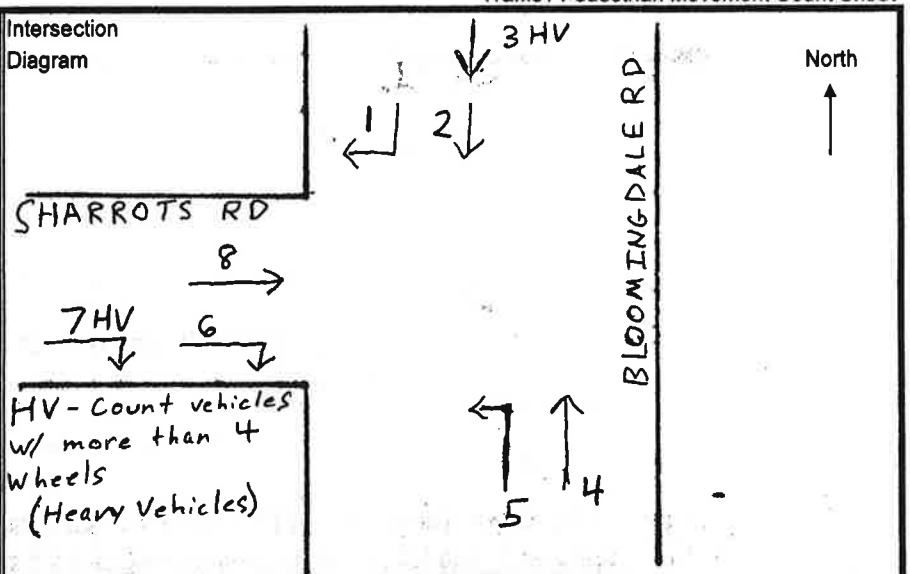
Date: 06/11/2011

Period: PM

Weather Conditions:

Surveyor's Name: Alisher Khamidullaiev

Intersection Diagram



HV - Count vehicles w/ more than 4 wheels (Heavy Vehicles)

Time	Movements 1	2	3 HV	4	5	6	7 HV	8	9	10	11	12
3:00 to 3:15	24	59	–	71	9	8	–	24				
3:15 to 3:30	17	63	2	69	17	12	1	26				
3:30 to 3:45	28	60	1	85	6	11	–	19				
3:45 to 4:00	21	77	1	85	14	15	–	23				
4:00 to 4:15	22	61	–	71	8	6	–	15				
4:15 to 4:30	17	60	2	72	11	17	–	25				
4:30 to 4:45	24	79	2	74	9	13	–	21				
4:45 to 5:00	31	68	2	76	7	18	–	25				
5:00 to 5:15	28	58	2	55	7	12	–	24				
5:15 to 5:30	26	74	–	66	9	11	1	25				
5:30 to 5:45	25	63	3	78	9	12	–	13				
5:45 to 6:00	28	57	2	51	6	14	–	21				
Peak Hour												

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21 A

Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

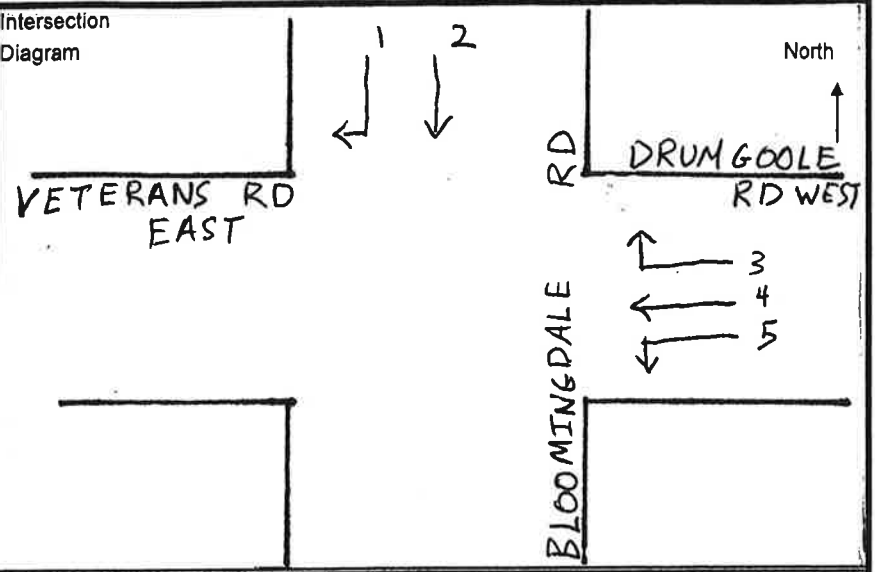
Date: 6.8.11

Period: PM

Weather Conditions:

Surveyor's Name: Dmitriy Kobtsev

Intersection Diagram



Time			Movements 1	2	3	4	5	6	7	8	9	10	11	12
7:30	to	7:45	12	80	20	63	75							
7:45	to	8:00	17	105	19	71	77							
8:00	to	8:15	15	134	22	69	67							
8:15	to	8:30	2	128	23	78	32							
8:30	to	8:45	1	126	20	77	42							
8:45	to	9:00	2	70	26	96	49							
9:00	to	9:15	1	79	25	78	48							
9:15	to	9:30	2	63	11	95	34							
Peak Hour														

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21A

Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

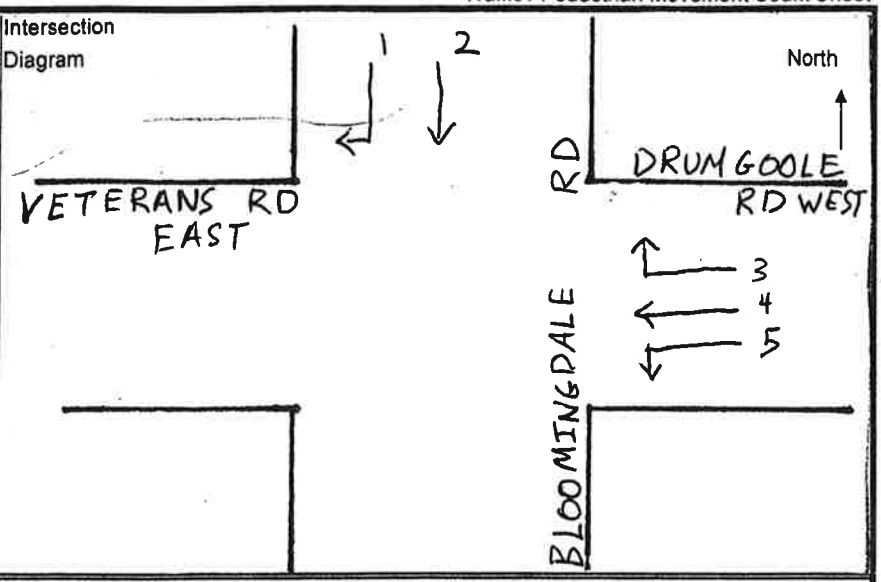
Date: 6.8.11

Period: PM

Weather Conditions:

Surveyor's Name: Dmitriy Kobtsev

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
11:30 to 11:45	8	70	24	82	46							
11:45 to 12:00	8	69	23	88	63							
12:00 to 12:15	2	56	29	109	53							
12:15 to 12:30	9	83	13	101	47							
12:30 to 12:45	4	54	26	101	30							
12:45 to 13:00	4	76	30	90	36							
13:00 to 13:15	6	45	35	94	33							
13:15 to 13:30	4	58	34	95	66							
Peak Hour												

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21 A

Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

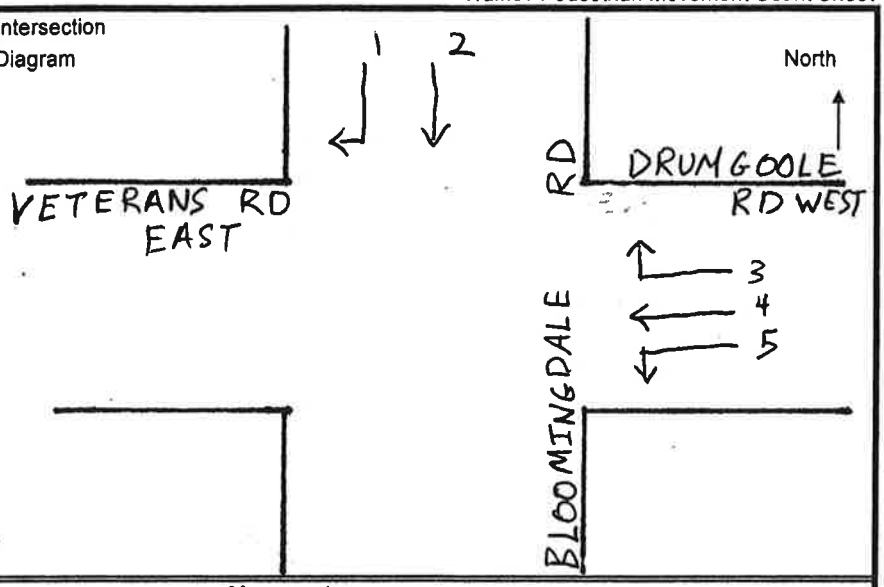
Date: 6.8.11

Period: PM

Weather Conditions:

Surveyor's Name: Dmitriy Kobtsev

Intersection Diagram



Time			Movements 1	2	3	4	5	6	7	8	9	10	11	12
16:30	to	16:45	1	89	32	98	56							
16:45	to	17:00	6	95	45	99	60							
17:00	to	17:15	1	99	46	86	68							
17:15	to	17:30	1	96	62	83	57							
17:30	to	17:45	2	107	44	114	70							
17:45	to	18:00	1	96	41	86	47							
18:00	to	18:15	2	84	57	76	58							
18:15	to	18:30	1	87	50	85	65							
Peak Hour														

21A

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Traffic / Pedestrian Movement Count Sheet

Project No.: 1121A

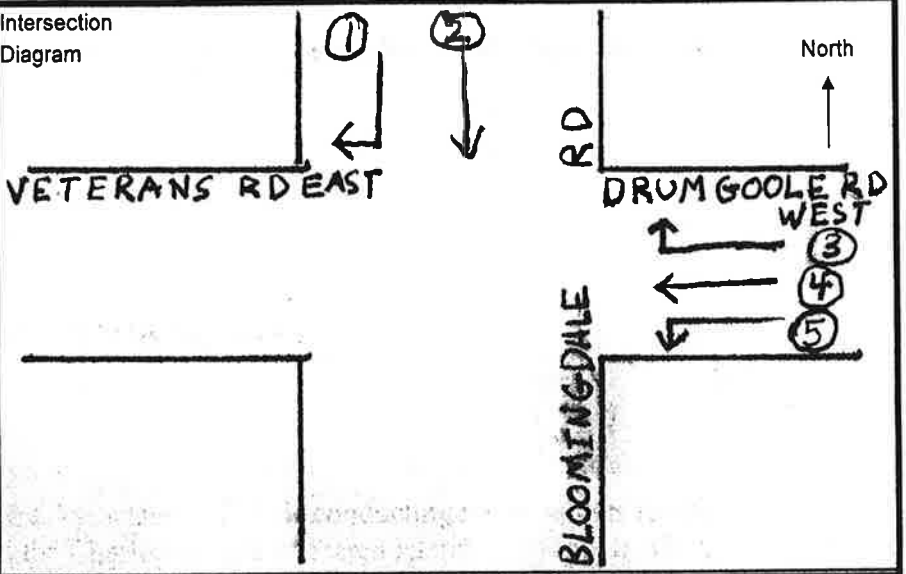
Date: 6/11/11

Period: PM

Weather Conditions:

Surveyor's Name: Igor Slavin

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
3:00 to 3:15	1	70	41	85	50							
3:15 to 3:30	3	72	43	87	52							
:30 to 3:45	4	80	27	107	52							
3:45 to 4:00	2	88	38	107	46							
4:00 to 4:15	4	78	47	103	69							
4:15 to 4:30	3	71	28	92	47							
4:30 to 4:45	1	81	34	101	46							
4:45 to 5:00	3	72	30	85	39							
5:00 to 5:15	2	70	38	85	37							
5:15 to 5:30	6	61	38	82	53							
5:30 to 5:45	3	82	42	81	26							
5:45 to 6:00	3	62	35	102	42							
Peak Hour												

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21B

Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

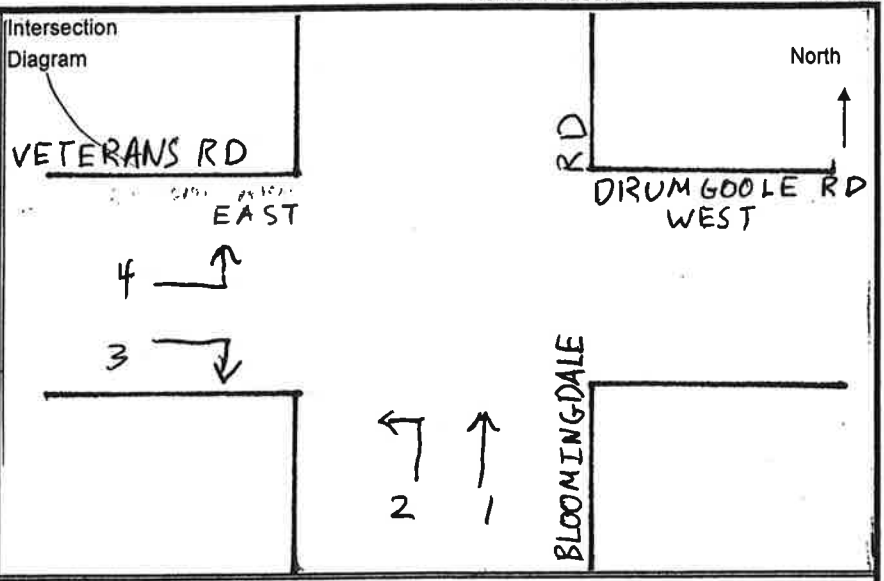
Date: 6/8/2011

Period: PM

Weather Conditions:

Surveyor's Name: YELENA KRAVCHIK

Intersection Diagram



Time			Movements 1	2	3	4	5	6	7	8	9	10	11	12
7:30	to	7:45	41	5	19	—								
7:45	to	8:00	48	7	17	2								
8:00	to	8:15	57	9	13	1								
8:15	to	8:30	58	9	11	2								
8:30	to	8:45	30	7	12	—								
8:45	to	9:00	34	14	18	—								
9:00	to	9:15	32	8	9	—								
9:15	to	9:30	25	7	17	—								
Peak Hour														

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21B

Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

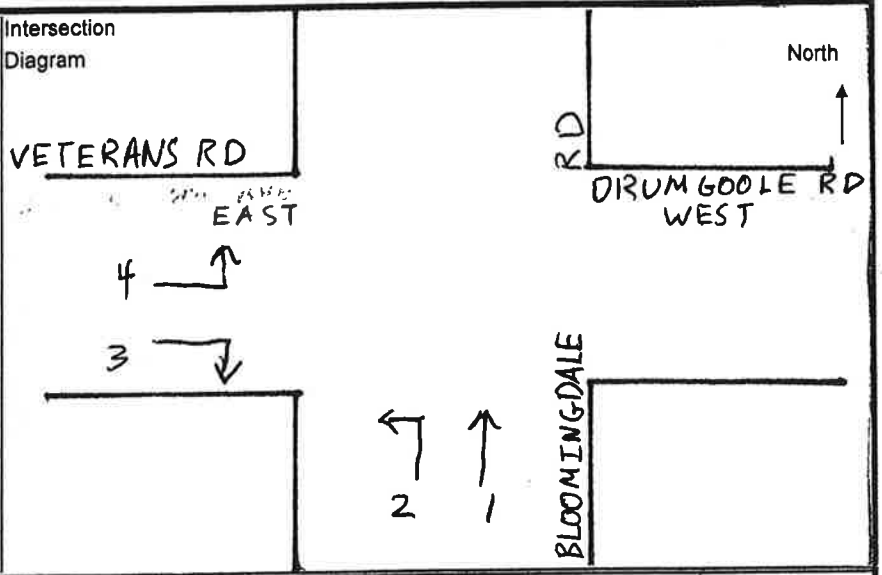
Date: 6/8/2011

Period: PM

Weather Conditions:

Surveyor's Name: YELENA KRAVCHIK

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
11:30 to 11:45	34	18	25	1								
11:45 to 12:00	40	13	19	1								
12:00 to 12:15	42	14	21	—								
12:15 to 12:30	32	13	22	2								
12:30 to 12:45	25	15	31	1								
12:45 to 13:00	30	11	19	2								
13:00 to 13:15	32	15	37	1								
13:15 to 13:30	29	19	12	—								
Peak Hour												

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21B

Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

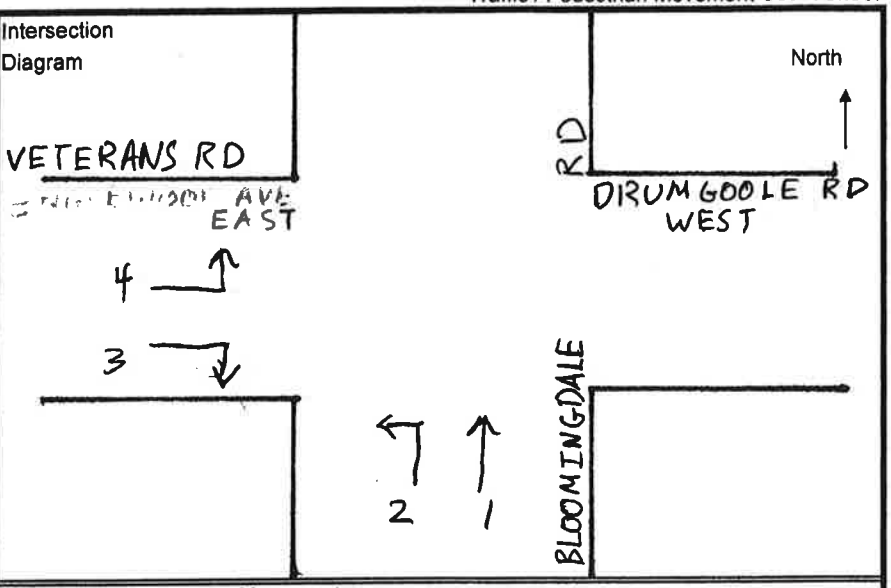
Date: 6/8/2011

Period: PM

Weather Conditions:

Surveyor's Name: ELENA KRAVCHIK

Intersection Diagram



Time			Movements 1	2	3	4	5	6	7	8	9	10	11	12
16:30	to	16:45	55	12	25	–								
16:45	to	17:00	50	13	19	2								
17:00	to	17:15	44	14	28	–								
17:15	to	17:30	48	11	26	2								
17:30	to	17:45	34	11	28	2								
17:45	to	18:00	37	13	28	–								
18:00	to	18:15	32	5	34	1								
18:15	to	18:30	39	13	17	2								
Peak Hour														

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21B

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121A
mileage 25

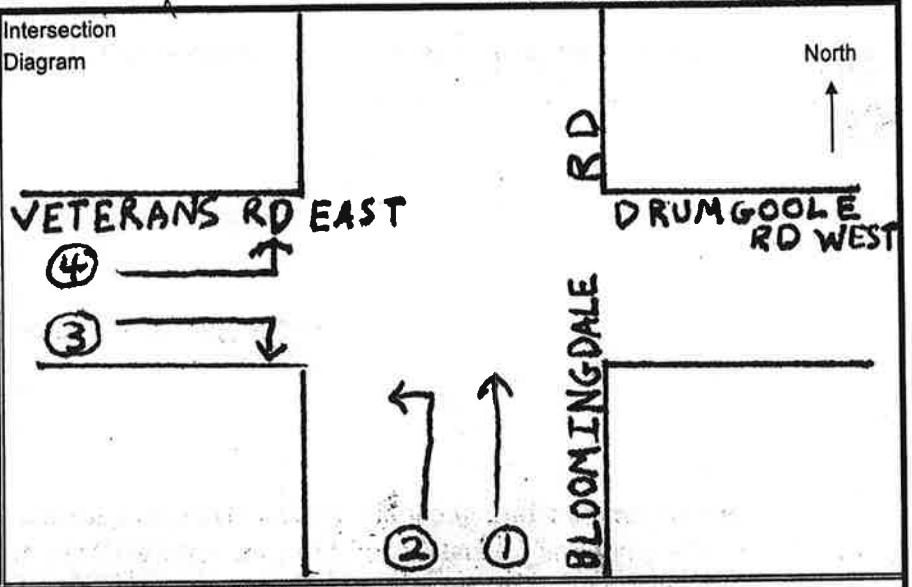
Date: 6/11/11

Period: PM
3pm - 6pm

Weather Conditions:

Surveyor's Name: Marianna Krasik

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
3:00 to 3:15	51	10	37	1								
3:15 to 3:30	43	9	24	3								
3:30 to 3:45	39	12	27	2								
3:45 to 4:00	50	10	21	2								
4:00 to 4:15	45	14	32	4								
4:15 to 4:30	41	15	13	1								
4:30 to 4:45	26	14	29	1								
4:45 to 5:00	38	10	24	3								
5:00 to 5:15	24	10	36	0								
5:15 to 5:30	25	15	39	2								
5:30 to 5:45	38	11	28	0								
5:45 to 6:00	27	10	21	1								
Peak Hour												

22 A

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Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

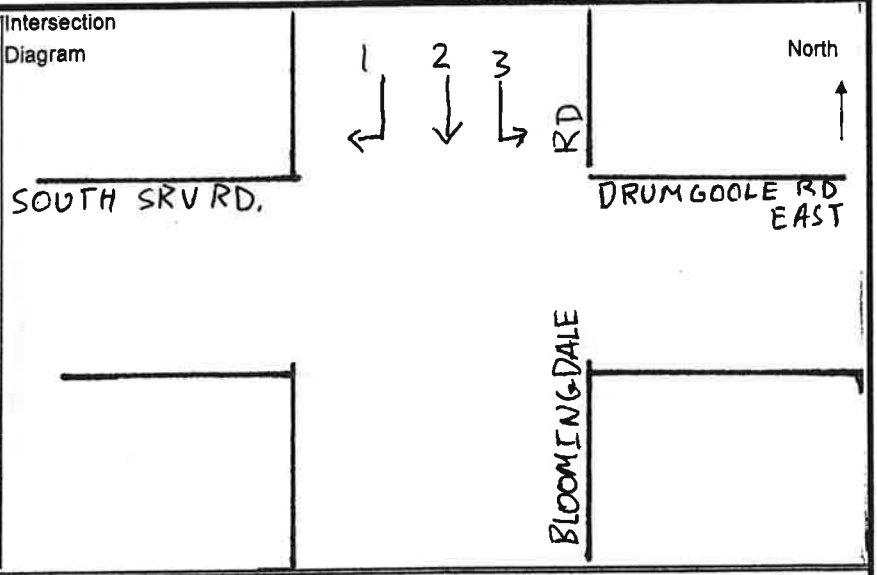
Date: 06/08/11

Period: PM

Weather Conditions:

Surveyor's Name: Grigoriy Gutin

Intersection Diagram



Time			Movements 1	2	3	4	5	6	7	8	9	10	11	12
7:30	to	7:45	6	98	70									
7:45	to	8:00	4	141	56									
8:00	to	8:15	~~12~~	~~148~~	62									
8:15	to	8:30	5	115	60									
8:30	to	8:45	6	90	69									
8:45	to	9:00	7	84	50									
9:00	to	9:15	6	83	51									
9:15	to	9:30	10	59	48									
Peak Hour														

(22A)

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Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

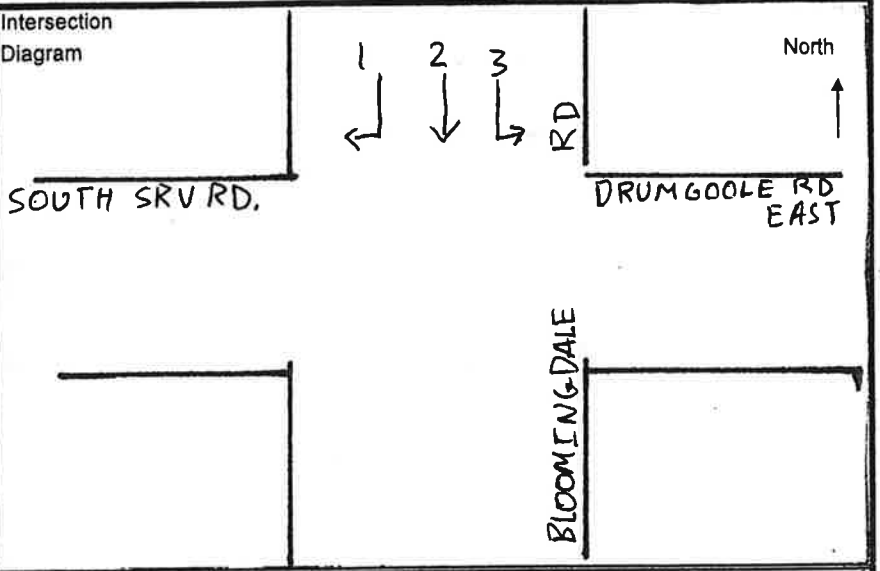
Date: 06/08/11

Period: PM

Weather Conditions:

Surveyor's Name: Grigoriy Gutin

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
11:30 to 11:45	10	88	50									
11:45 to 12:00	10	108	37									
12:00 to 12:15	5	68	50									
12:15 to 12:30	14	87	50									
12:30 to 12:45	4	68	45									
12:45 to 13:00	1	86	49									
13:00 to 13:15	8	82	37									
13:15 to 13:30	8	84	41									
Peak Hour												

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22A

Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

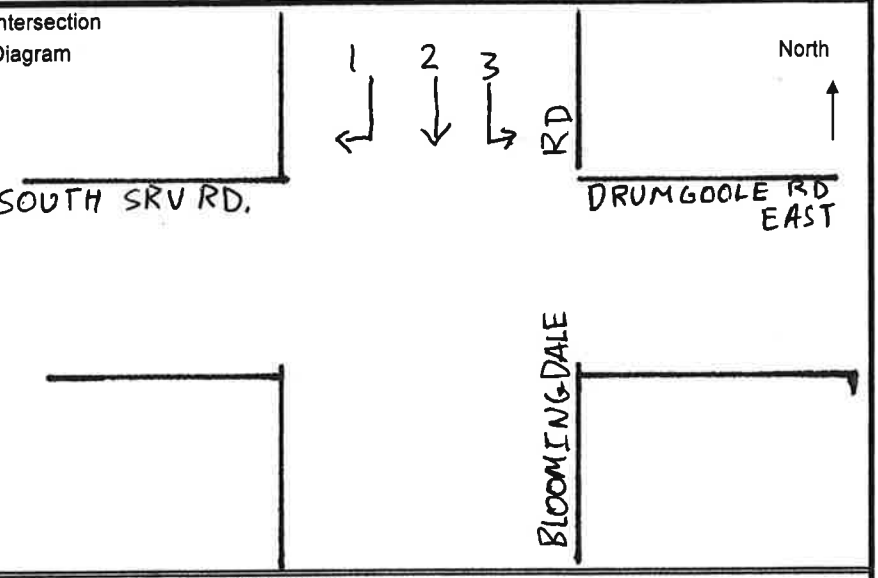
Date: 06/08/11

Period: PM

Weather Conditions:

Surveyor's Name: Grigoriy Gutin

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
16:30 to 16:45	5	108	59									
16:45 to 17:00	9	109	68									
17:00 to 17:15	16	119	67									
17:15 to 17:30	13	93	74									
17:30 to 17:45	12	118	73									
17:45 to 18:00	7	107	59									
18:00 to 18:15	13	93	72									
18:15 to 18:30	17	103	64									
Peak Hour												

22A

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Traffic / Pedestrian Movement Count Sheet

Project No.: 1121A

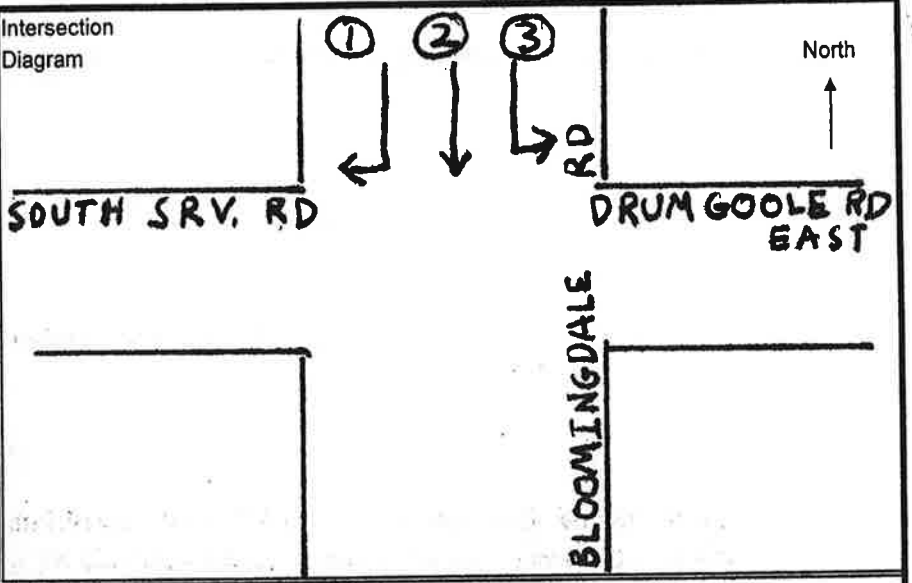
Date: 06/11/11

Period: PM

Weather Conditions: shower/cloudy

Surveyor's Name: Tetiana Benedyuska

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
3:00 to 3:15	10	79	70									
3:15 to 3:30	11	83	73									
:30 to 3:45	8	77	81									
3:45 to 4:00	10	97	51									
4:00 to 4:15	12	96	66									
4:15 to 4:30	8	90	51									
4:30 to 4:45	19	85	49									
4:45 to 5:00	4	68	58									
5:00 to 5:15	6	68	57									
5:15 to 5:30	10	85	67									
5:30 to 5:45	7	66	71									
5:45 to 6:00	8	63	68									
Peak Hour												

22B

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Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

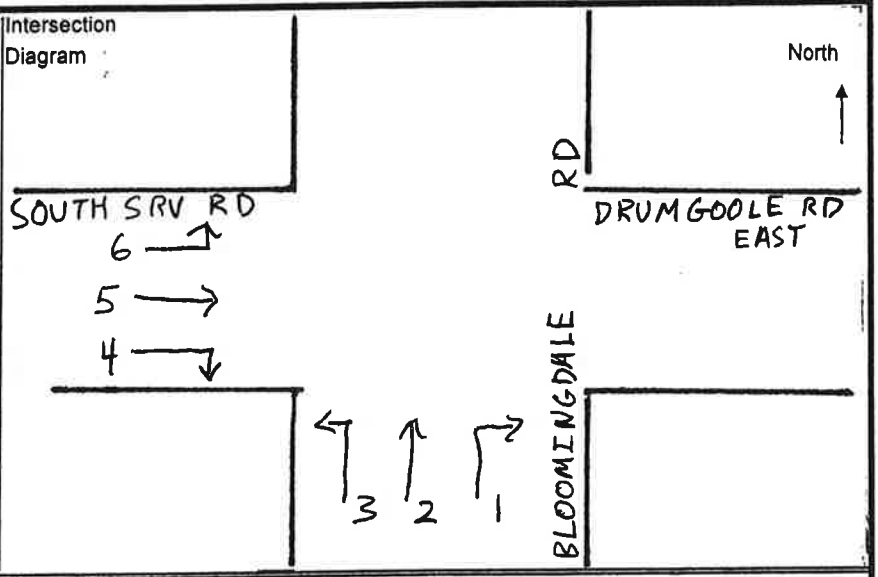
Date: 06.08.11

Period: PM

Weather Conditions:

Surveyor's Name: Valeria Yampolskaya

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
7:30 to 7:45	23	41	-	-	21	3						
7:45 to 8:00	21	48	-	2	14	1						
8:00 to 8:15	23	60	1	2	8	2						
8:15 to 8:30	20	67	2	1	9	4						
8:30 to 8:45	21	35	2	5	11	1						
8:45 to 9:00	17	38	-	2	9	4						
9:00 to 9:15	15	32	1	3	11	2						
9:15 to 9:30	21	33	1	2	8	4						
Peak Hour												

22B

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Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

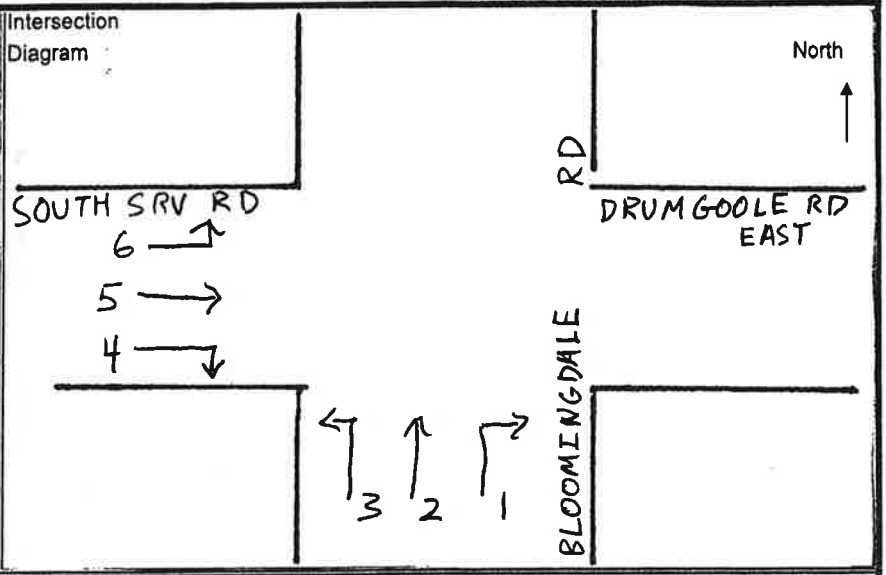
Date: 06.08.11

Period: PM

Weather Conditions:

Surveyor's Name: Valeria Yampolskaya

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
11:30 to 11:45	17	50	1	2	5	4						
11:45 to 12:00	21	46	-	3	3	3						
12:00 to 12:15	26	56	-	2	3	2						
12:15 to 12:30	16	44	2	-	2	2						
12:30 to 12:45	24	43	-	1	2	-						
12:45 to 13:00	17	40	1	-	7	1						
13:00 to 13:15	24	46	-	-	3	1						
13:15 to 13:30	15	49	-	1	8	3						
Peak Hour												

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22B

Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

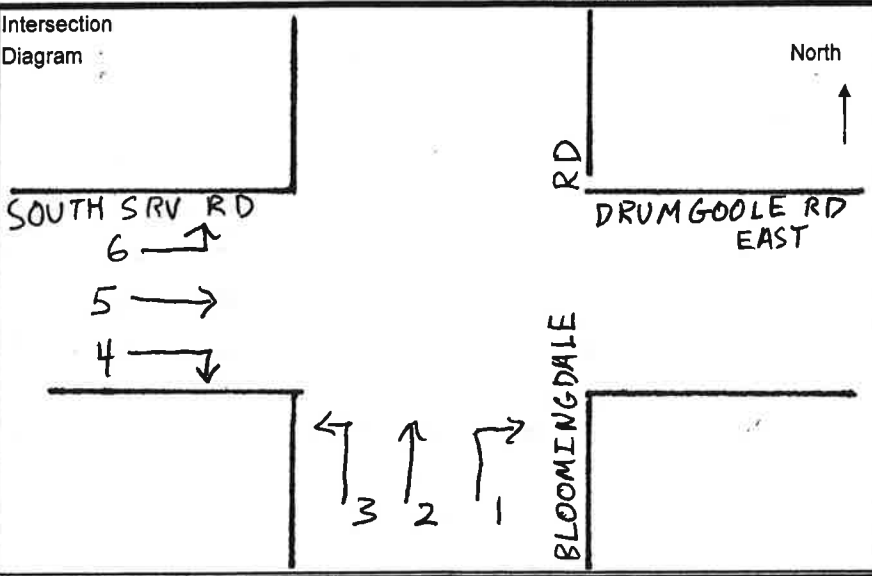
Date: 06.08.11

Period: PM

Weather Conditions:

Surveyor's Name: Valeria Yampolskaya

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
16:30 to 16:45	25	62	1	2	3	5						
16:45 to 17:00	14	57	1	-	8	3						
17:00 to 17:15	21	65	-	2	3	-						
17:15 to 17:30	18	53	1	1	6	2						
17:30 to 17:45	28	46	2	1	3	2						
17:45 to 18:00	30	42	-	1	7	5						
18:00 to 18:15	30	37	2	-	10	4						
18:15 to 18:30	20	53	1	1	11	4						
Peak Hour												

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22B

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121A

Driver – 96mm

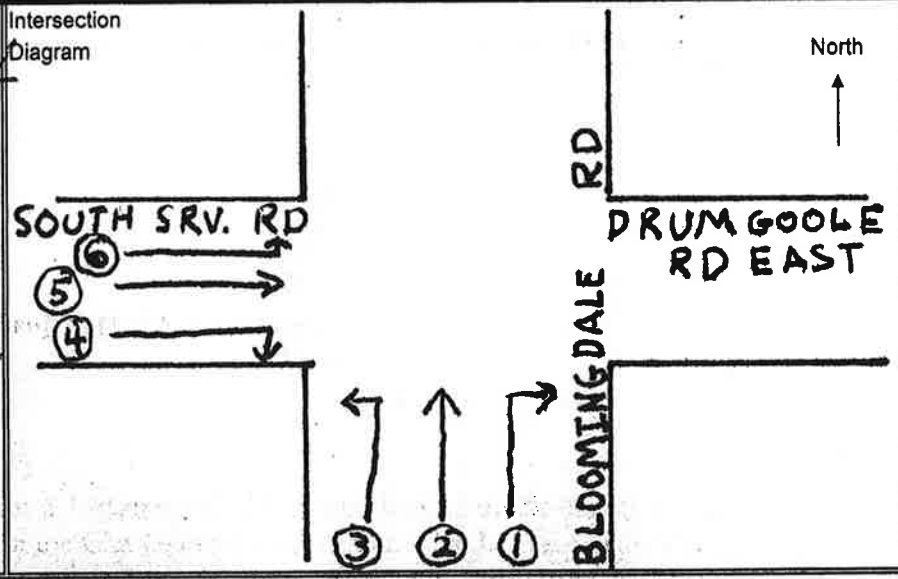
Date: 06/11/11

Period: PM

Weather Conditions: shower / cloudy

Surveyor's Name: Lioudmila LAMAKINA

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
3:00 to 3:15	24	37	1	2	8	7						
3:15 to 3:30	26	34	1	3	7	6						
3:30 to 3:45	22	35	1	2	7	2						
3:45 to 4:00	29	42	–	1	5	8						
4:00 to 4:15	20	37	1	1	9	7						
4:15 to 4:30	20	50	1	–	6	4						
4:30 to 4:45	35	36	1	1	5	3						
4:45 to 5:00	19	39	1	1	4	4						
5:00 to 5:15	22	27	–	–	7	3						
5:15 to 5:30	29	38	–	2	3	6						
5:30 to 5:45	25	40	1	1	7	5						
5:45 to 6:00	24	41	1	2	5	6						
Peak Hour												

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23A

Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

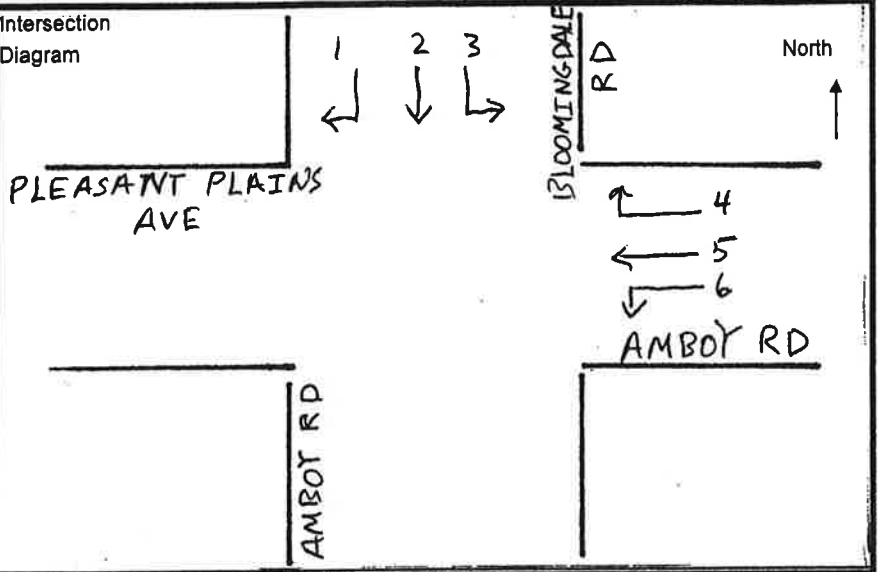
Date: 06/08/11

Period: 7 30 PM 9 30

Weather Conditions:

Surveyor's Name: Inna Sichkar

Intersection Diagram



Time			Movements 1	2	3	4	5	6	7	8	9	10	11	12
7:30	to	7:45	4	70	22	11	0	21						
7:45	to	8:00	2	73	38	14	7	35						
8:00	to	8:15	0	77	56	35	10	47						
8:15	to	8:30	1	63	33	30	1	35						
8:30	to	8:45	0	61	22	20	4	35						
8:45	to	9:00	0	57	15	7	0	43						
9:00	to	9:15	1	51	20	15	0	36						
9:15	to	9:30	0	48	11	13	2	28						
Peak Hour														

23A

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Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

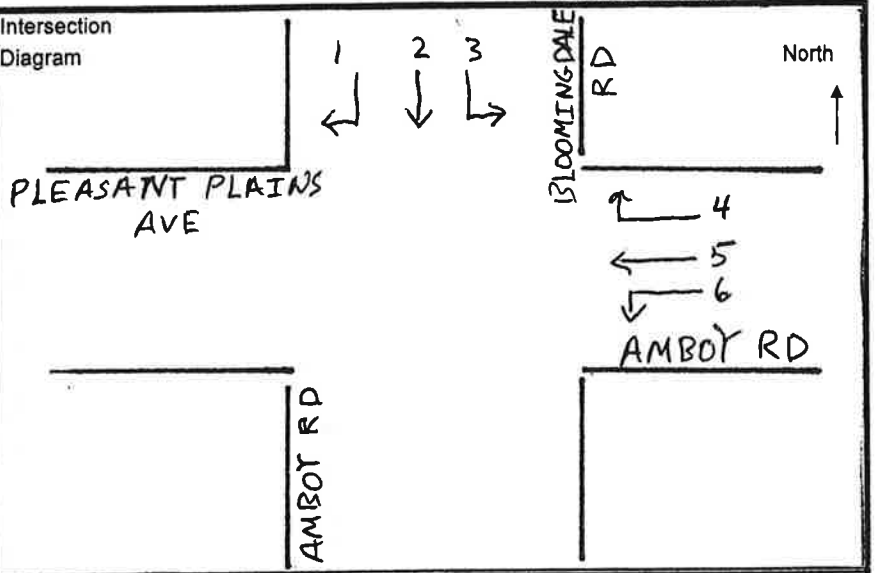
Date: 06/08/11

Period: 11 30 PM / 30

Weather Conditions:

Surveyor's Name: Inna Sirkkat

Intersection Diagram



Time			Movements 1	2	3	4	5	6	7	8	9	10	11	12
11:30	to	11:45	2	55	19	25	4	54						
11:45	to	12:00	0	72	19	17	5	45						
12:00	to	12:15	0	50	11	17	4	47						
12:15	to	12:30	0	60	17	25	5	55						
12:30	to	12:45	1	51	15	17	1	29						
12:45	to	13:00	0	63	22	19	4	50						
13:00	to	13:15	0	56	17	18	2	51						
13:15	to	13:30	1	54	20	22	2	56						
Peak Hour														

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23A

Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

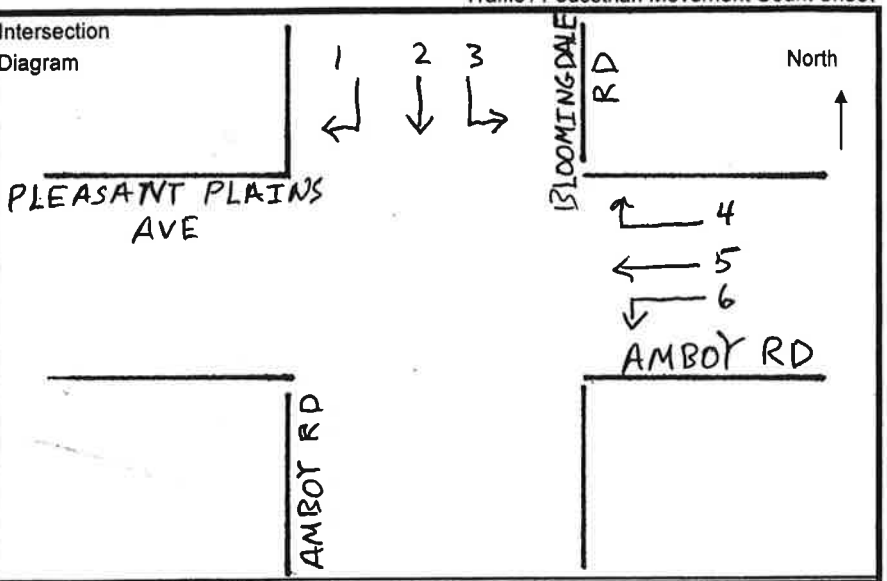
Date: 06/08/11

Period: 16 30 PM 18 30

Weather Conditions:

Surveyor's Name: Inna Sichlar

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
16:30 to 16:45	1	79	20	25	2	53						
16:45 to 17:00	1	77	23	15	1	58						
17:00 to 17:15	0	83	21	28	3	56						
17:15 to 17:30	1	68	15	26	4	45						
17:30 to 17:45	1	89	24	16	3	49						
17:45 to 18:00	0	87	22	15	7	48						
18:00 to 18:15	0	61	21	17	5	54						
18:15 to 18:30	0	85	17	19	2	68						
Peak Hour												

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23 A

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121A

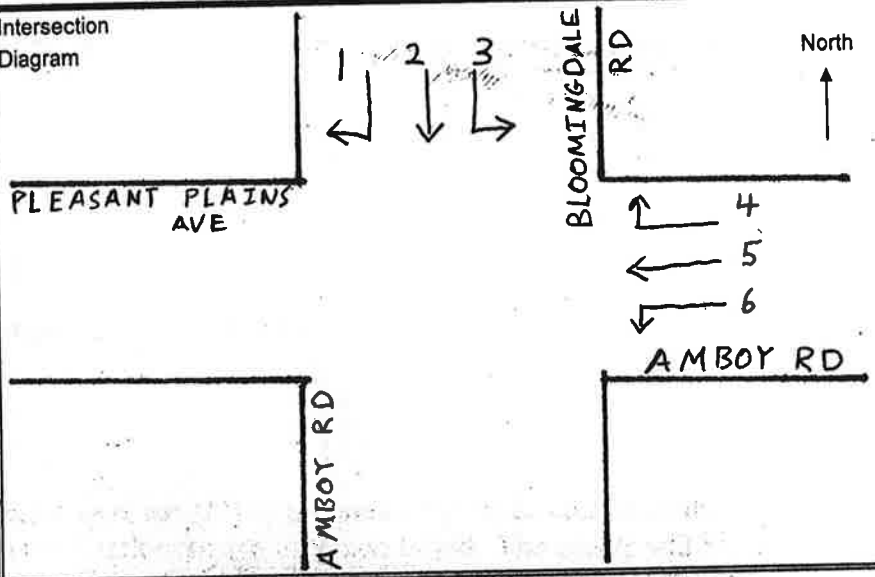
Date: 06/11/11

Period: 3 PM 6

Weather Conditions:

Surveyor's Name: Inna Sichkar

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
3:00 to 3:15	0	57	19	18	6	36						
3:15 to 3:30	0	61	12	11	1	47						
3:30 to 3:45	0	61	19	14	3	52						
3:45 to 4:00	1	74	19	22	1	51						
4:00 to 4:15	2	71	10	21	7	61						
4:15 to 4:30	0	69	17	17	1	45						
4:30 to 4:45	0	62	12	20	3	44						
4:45 to 5:00	1	65	12	14	4	38						
5:00 to 5:15	0	48	20	13	7	51						
5:15 to 5:30	0	61	11	10	3	47						
5:30 to 5:45	2	57	14	21	2	35						
5:45 to 6:00	1	53	11	7	2	41						
Peak Hour												

(23B)

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Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

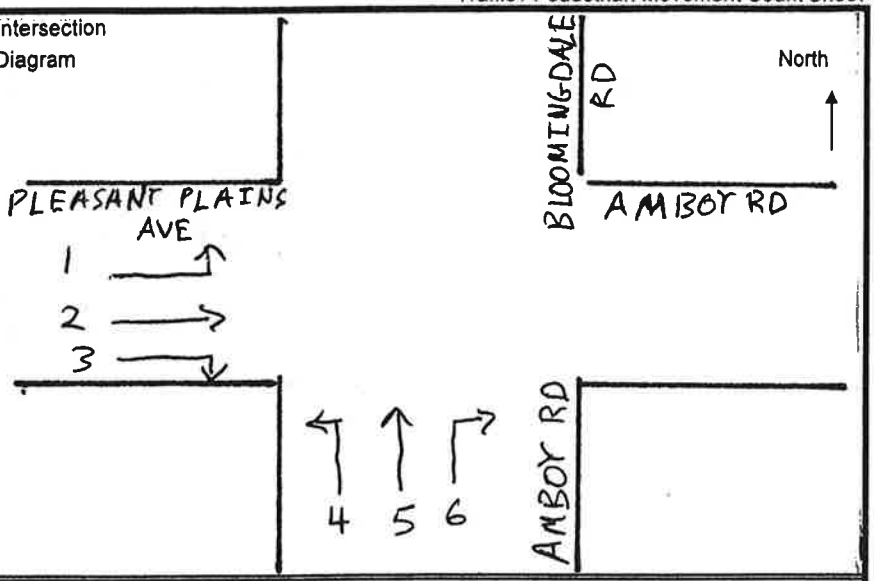
Date: 06/08/11

Period: PM

Weather Conditions:

Surveyor's Name: Lyudmila Rachev

Intersection Diagram



Time			Movements 1	2	3	4	5	6	7	8	9	10	11	12
7:30	to	7:45	3	5	4	1	28	38						
7:45	to	8:00	1	11	5	7	45	25						
8:00	to	8:15	0	8	4	2	48	27						
8:15	to	8:30	3	7	4	2	39	25						
8:30	to	8:45	2	2	0	1	33	40						
8:45	to	9:00	2	2	4	2	30	28						
9:00	to	9:15	1	1	6	1	21	20						
9:15	to	9:30	3	4	3	0	31	34						
Peak Hour														

(23B)

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Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

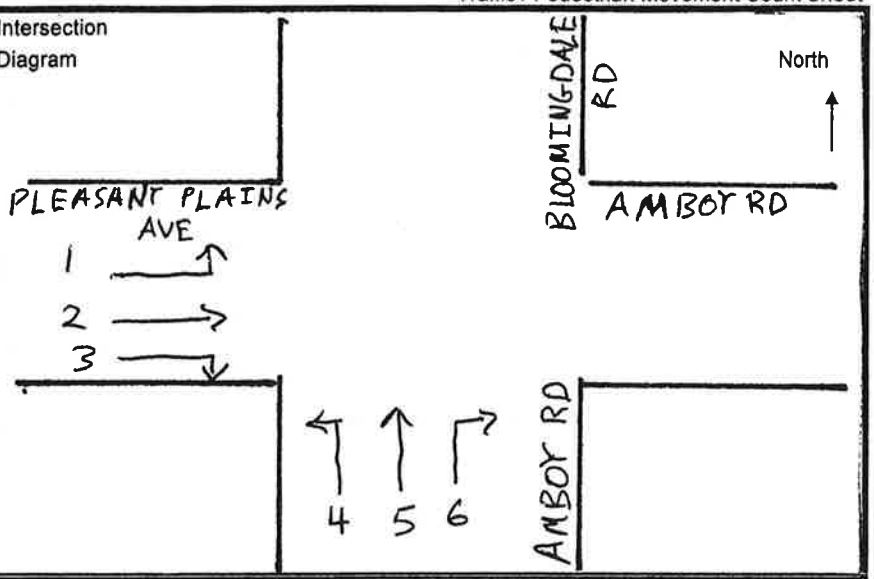
Date: 06/08/11

Period: PM

Weather Conditions:

Surveyor's Name: Lyudmila Kacher

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
11:30 to 11:45	1	2	4	1	33	29						
11:45 to 12:00	1	1	3	2	25	32						
12:00 to 12:15	1	1	5	4	53	38						
12:15 to 12:30	2	1	4	4	37	28						
12:30 to 12:45	1	1	3	1	53	42						
12:45 to 13:00	1	4	4	3	41	33						
13:00 to 13:15	1	1	2	4	47	45						
13:15 to 13:30	1	3	1	2	33	43						
Peak Hour												

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23B

Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

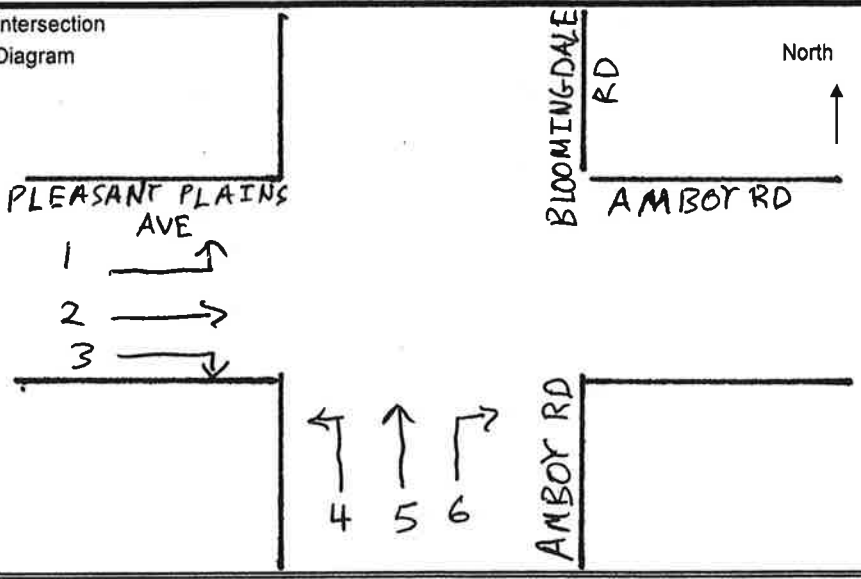
Date: 06/08/11

Period: PM

Weather Conditions:

Surveyor's Name: Kyrdmila Kacher

Intersection Diagram



Time			Movements 1	2	3	4	5	6	7	8	9	10	11	12
16:30	to	16:45	0	1	4	2	57	27						
16:45	to	17:00	2	2	1	5	59	37						
17:00	to	17:15	3	3	8	4	53	40						
17:15	to	17:30	1	4	3	3	62	53						
17:30	to	17:45	1	4	5	7	46	32						
17:45	to	18:00	1	3	3	3	55	36						
18:00	to	18:15	2	1	2	2	46	45						
18:15	to	18:30	1	2	3	4	52	39						
Peak Hour														

23B

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Traffic / Pedestrian Movement Count Sheet

Project No.: 1121A

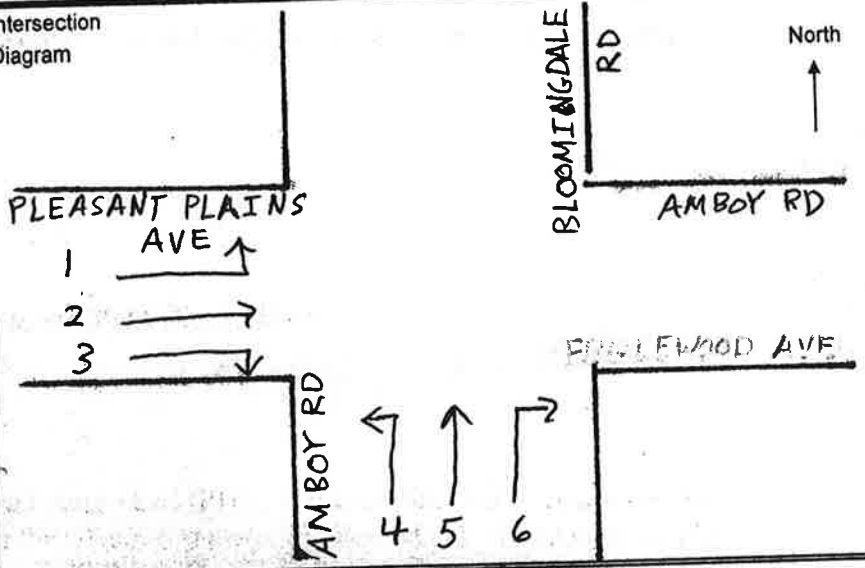
Date: 06/11/11

Period: PM

Weather Conditions:

Surveyor's Name: Lyudmila Kacher

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
3:00 to 3:15	0	5	0	0	48	57						
3:15 to 3:30	2	3	4	5	70	44						
3:30 to 3:45	4	1	2	1	50	55						
3:45 to 4:00	1	2	3	2	59	38						
4:00 to 4:15	0	1	5	4	41	47						
4:15 to 4:30	1	2	5	3	52	43						
4:30 to 4:45	1	2	4	7	39	42						
4:45 to 5:00	0	4	5	5	43	38						
5:00 to 5:15	0	3	5	2	43	35						
5:15 to 5:30	1	4	6	6	42	35						
5:30 to 5:45	0	0	6	2	44	34						
5:45 to 6:00	2	3	5	3	37	29						
Peak Hour												

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23C

Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

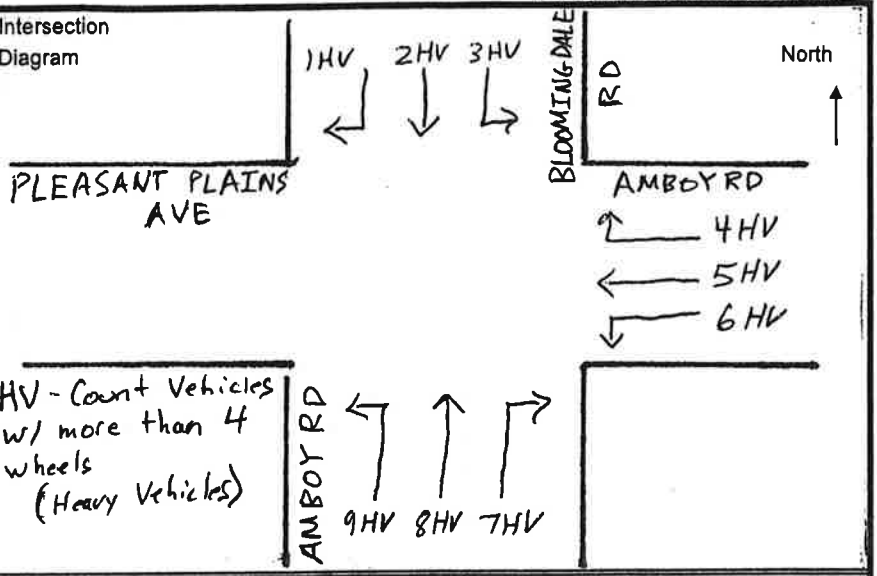
Date: 06/08/11

Period: PM

Weather Conditions:

Surveyor's Name: Michael Shapiro

Intersection Diagram



HV - Count Vehicles w/ more than 4 wheels (Heavy Vehicles)

Time			Movements 1	2	3	4	5	6	7	8	9	10	11	12
7:30	to	7:45	2	3	3	1	1	3	4	5				
7:45	to	8:00		2	2	4	-	1	3	7	1			
8:00	to	8:15	-	1	2	4	-	-	5	3	-			
8:15	to	8:30	-	4	2	2	-	2	-	2				
8:30	to	8:45	-	2	5	-	-	-	2	2				
8:45	to	9:00	1	1	3	3	1	-	2	3				
9:00	to	9:15	-	2	3	2	-	-	5	12				
9:15	to	9:30	-	1	-	2	-	1	4	3				
Peak Hour														

23C

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Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

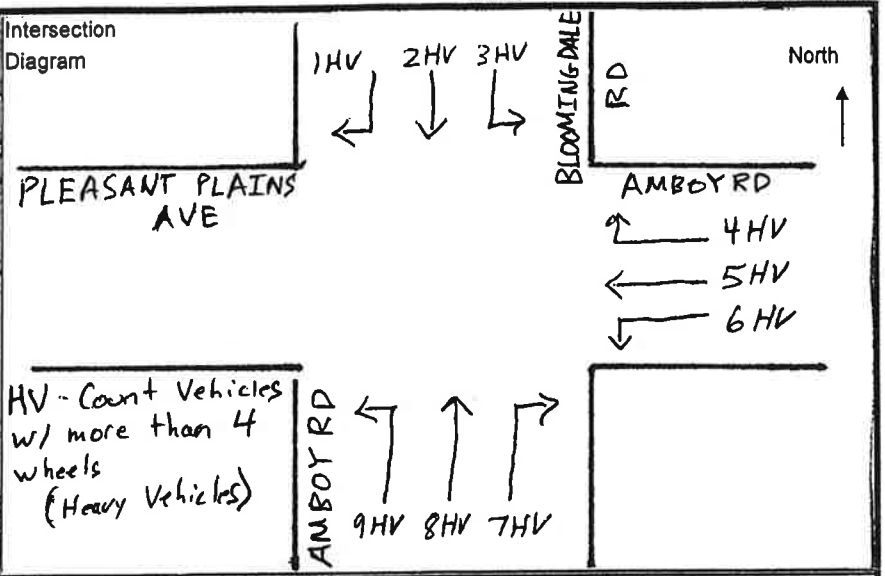
Date: 06/02/11

Period: PM

Weather Conditions:

Surveyor's Name: Michael Shapiro

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
11:30 to 11:45	—	4	2	1	—	1	—	—				
11:45 to 12:00	—	4	2	4	3	—	2	2				
12:00 to 12:15	—	—	1	2	2	—	2	4				
12:15 to 12:30	—	—	2	—	4	1	3	2				
12:30 to 12:45	—	—	2	1	3	—	5	2				
12:45 to 13:00	—	—	—	1	4	1	2	—				
13:00 to 13:15	—	—	—	1	1	—	6	—				
13:15 to 13:30	—	1	—	3	—	—	2	1				
Peak Hour										1		

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(212)929-5656

(23C)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

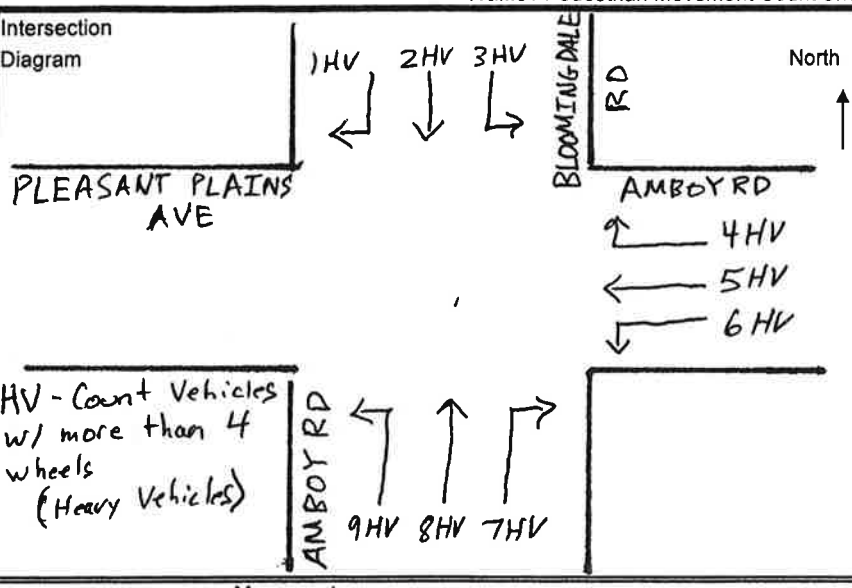
Date: 06/03/11

Period: PM

Weather Conditions:

Surveyor's Name: Michael Shapiro

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
16:30 to 16:45	—	3	—	1	6	—	2	—				
16:45 to 17:00	—	1	1	1	1	—	—	—				
17:00 to 17:15	—	1	1	3	1	—	1	—				
17:15 to 17:30	—	2	—	1	1	—	—	—				
17:30 to 17:45	—	—	—	—	—	1	—	—				
17:45 to 18:00	—	—	3	—	—	1	1	—				
18:00 to 18:15	—	—	1	4	—	—	—	—				
18:15 to 18:30	—	—	1	1	—	—	—	—				
Peak Hour												

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23C

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121A

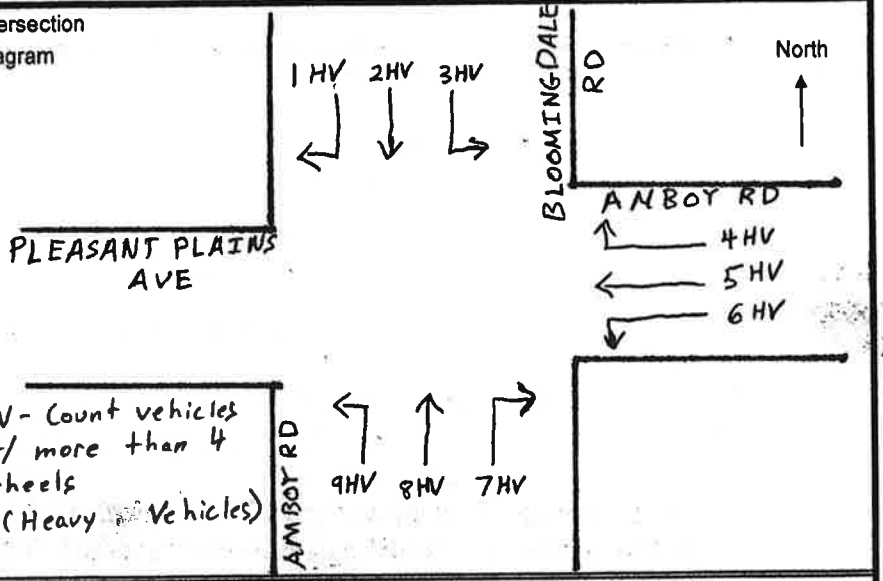
Date: 06/11/11

Period: PM

Weather Conditions: Oliver Michael

Surveyor's Name: Shapiro

Intersection Diagram



HV - Count vehicles w/ more than 4 wheels (Heavy Vehicles)

Time	Movements 1 HV	2 HV	3 HV	4 HV	5 HV	6 HV	7 HV	8 HV	9 HV	10	11	12
3:00 to 3:15	—	—	1	—	—	—	—	—	—			
3:15 to 3:30	—	—	1	1	—	—	—	—	—			
3:30 to 3:45	—	—	1	—	—	—	—	—	—			
3:45 to 4:00	—	—	—	—	—	—	—	—	—			
4:00 to 4:15	—	—	—	1	2	—	—	—	—			
4:15 to 4:30	—	1	—	—	—	—	—	—	—			
4:30 to 4:45	—	2	—	1	—	—	—	—	—			
4:45 to 5:00	—	1	—	1	1				1			
5:00 to 5:15	—	—	—	—	2	—	—	—	—			
5:15 to 5:30	—	—	—	—	1	—	—	—	—			
5:30 to 5:45	—	—	—	—	—	—	—	—	—			
5:45 to 6:00	—	—	—	—	—	—	—	—	—			
Peak Hour												

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24

Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

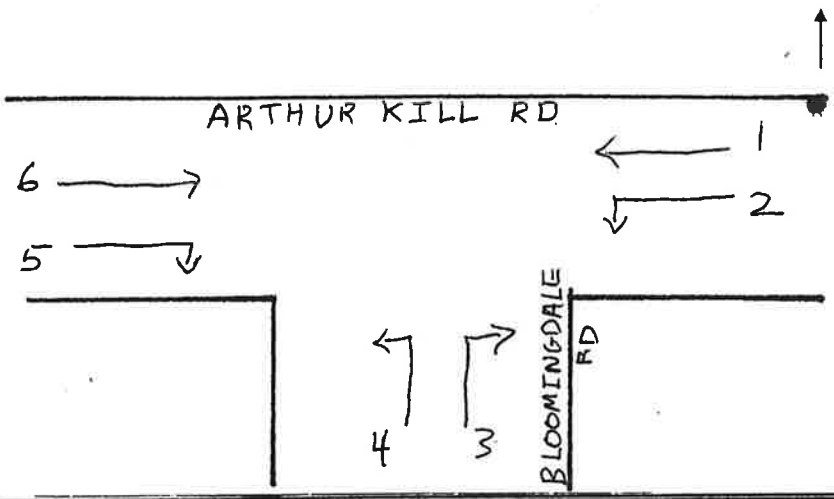
Date: June 8, 2011

Period: PM

Weather Conditions:

Surveyor's Name: Olga Klimenko

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
7:30 to 7:45	35	4	9	62	49	30						
7:45 to 8:00	34	3	11	79	59	32						
8:00 to 8:15	40	7	5	60	51	29						
8:15 to 8:30	36	7	12	54	48	29						
8:30 to 8:45	35	3	16	51	37	32						
8:45 to 9:00	29	11	11	44	39	28						
9:00 to 9:15	24	6	5	53	51	26						
9:15 to 9:30	23	5	10	50	51	27						
Peak Hour												

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(24)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

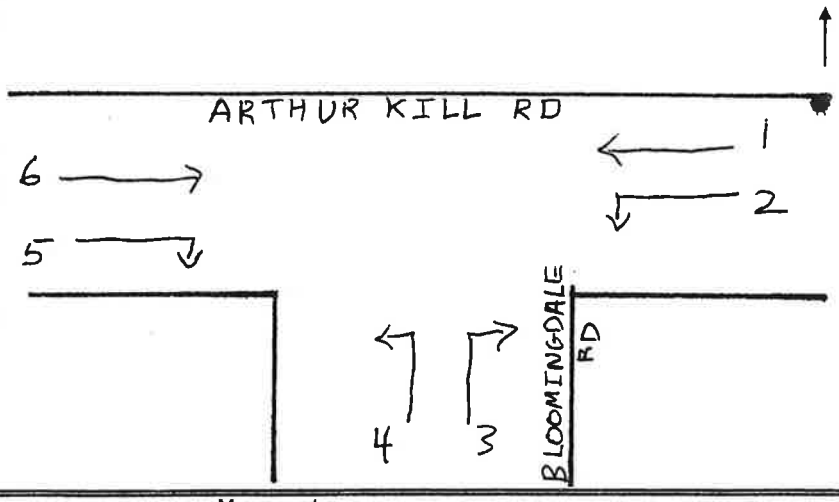
Date:

Period: PM

Weather Conditions:

Surveyor's Name: Olga Klimenno

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
11:30 to 11:45	19	3	9	52	53	25						
11:45 to 12:00	30	7	10	24	48	16						
12:00 to 12:15	36	6	4	36	48	33						
12:15 to 12:30	31	4	7	46	35	29						
12:30 to 12:45	38	5	9	44	48	35						
12:45 to 13:00	36	1	6	52	44	28						
13:00 to 13:15	34	5	4	44	50	36						
13:15 to 13:30	27	3	6	45	42	27						
Peak Hour												

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(24)

Traffic / Pedestrian Movement Count Sheet

Project No.: 1053

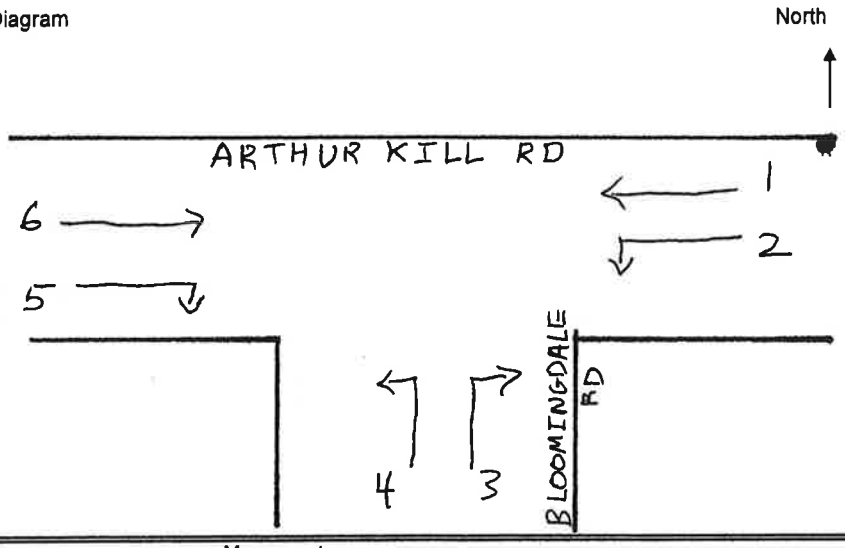
Date:

Period: PM

Weather Conditions:

Surveyor's Name: Olga Klimenko

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
16:30 to 16:45	34	7	6	35	54	38						
16:45 to 17:00	28	5	12	37	50	30						
17:00 to 17:15	40	5	13	47	73	35						
17:15 to 17:30	27	6	2	37	66	19						
17:30 to 17:45	29	7	6	28	57	32						
17:45 to 18:00	35	1	6	22	39	33						
18:00 to 18:15	21	5	6	24	40	30						
18:15 to 18:30	24	5	9	24	51	45						
Peak Hour												

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24

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121A

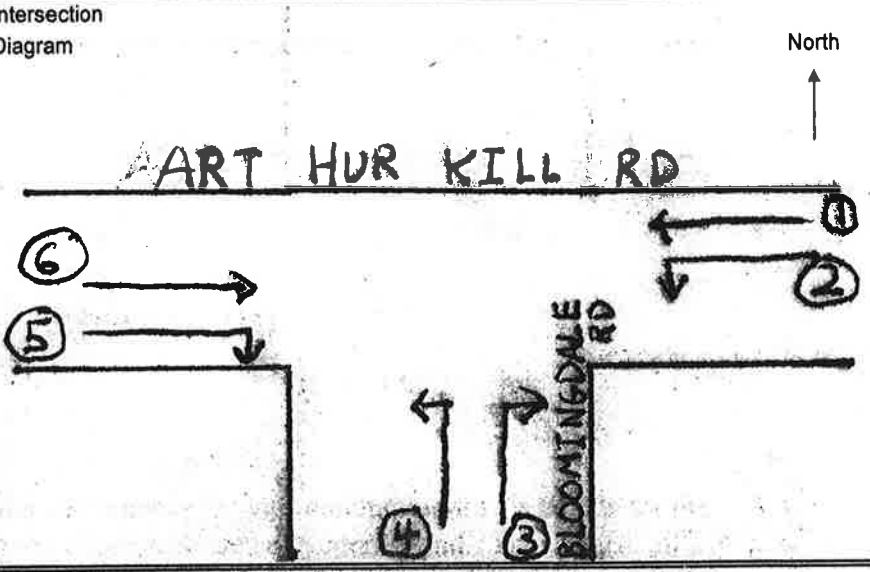
Date: 6.11.11

Period: PM

Weather Conditions:

Surveyor's Name: Dmitriy Kobtsev

Intersection Diagram



Time	Movements 1	2	3	4	5	6	7	8	9	10	11	12
3:00 to 3:15	25	6	4	27	40	32						
3:15 to 3:30	31	5	7	24	42	30						
3:30 to 3:45	28	5	4	29	69	28						
3:45 to 4:00	23	9	4	27	35	20						
4:00 to 4:15	29	6	6	35	38	37						
4:15 to 4:30	20	4	3	31	52	25						
4:30 to 4:45	26	6	9	23	46	33						
4:45 to 5:00	30	12	5	26	32	37						
5:00 to 5:15	23	15	8	32	49	40						
5:15 to 5:30	19	5	3	19	41	21						
5:30 to 5:45	18	6	4	19	36	27						
5:45 to 6:00	20	7	3	23	30	21						
Peak Hour												

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VC 1

Traffic / Pedestrian Movement Count Sheet

Project N 1121A
Location :

Date: 6/7/2011

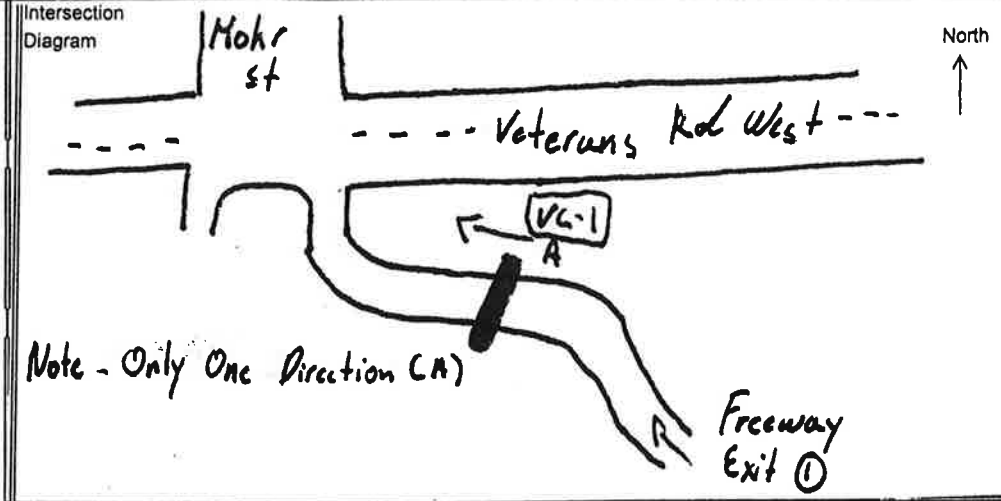
Period: ~~MD~~ AM

Stanislav Filev

Weather Conditions:

Surveyor's Name:

Intersection Diagram



Time			Location/Direction A						Location/Direction B					
			AUTO	LDT	HDT	DT	BUS	SUV	AUTO	LDT	HDT	DT	BUS	SUV
			1	2	3	4	5	6	7	8	9	10	11	12
7:30	to	7:45	91	1	2	1	8	42						
7:45	to	8:00	92	4	1	1	2	38						
8:00	to	8:15	85	7	-	-	12	33						
8:15	to	8:30	73	7	1	1	8	32						
8:30	to	8:45	79	6	1	-	10	28						
8:45	to	9:00	83	5	-	-	5	26						
9:00	to	9:15	78	9	2	-	11	27						
9:15	to	9:30	66	2	1	1	13	21						
Peak Hour														

LDT= Light Duty Trucks (4 Wheels; Commercial Mini Vans; Mini School Buses)
HDT= Heavy Duty Trucks (6 or more Wheels; Walk-In Trucks)
DT= Diesel Trucks (with Vertical Tale Pipe; Tractor-Trailers)

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VC1

Traffic / Pedestrian Movement Count Sheet

Project N 1121A
Location :

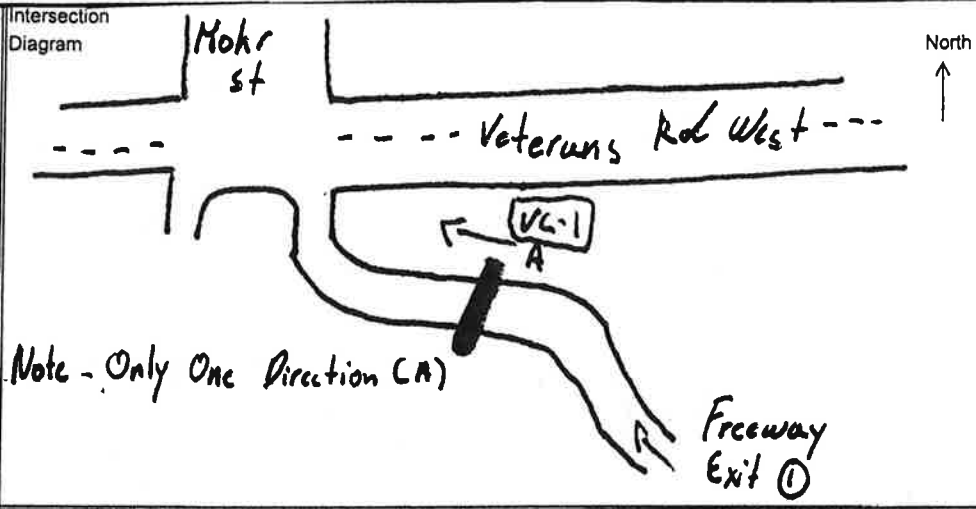
Date: 6/7/2011

Period: MD

Weather Conditions:

Surveyor's Name: Stanislav Filer

Intersection Diagram



Time			Location/Direction A						Location/Direction B					
			AUTO	LDT	HDT	DT	BUS	SUV	AUTO	LDT	HDT	DT	BUS	SUV
			1	2	3	4	5	6	7	8	9	10	11	12
11:30	to	11:45	92	11	2	-	4	26						
11:45	to	12:00	88	6	1	1	4	39						
12:00	to	12:15	105	3	1	2	5	28						
12:15	to	12:30	99	4	4	-	3	23						
12:30	to	12:45	81	1	1	2	1	34						
12:45	to	13:00	82	5	1	2	1	31						
13:00	to	13:15	75	2	-	-	1	40						
13:15	to	13:30	102	3	3	1	1	36						
Peak Hour														

LDT= Light Duty Trucks (4 Wheels; Commercial Mini Vans; Mini School Buses)
HDT= Heavy Duty Trucks (6 or more Wheels; Walk-In Trucks)
DT= Diesel Trucks (with Vertical Tale Pipe; Tractor-Trailers)

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VC1

Traffic / Pedestrian Movement Count Sheet

Project N 1121A
Location :

Date: 6/7/2011

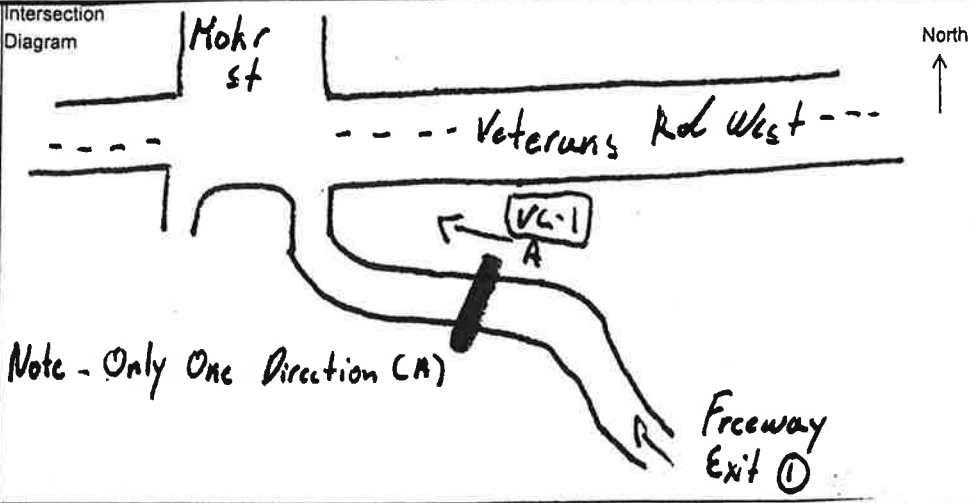
Period: PM

Stanislav Filev

Weather Conditions:

Surveyor's Name:

Intersection Diagram



Time			Location/Direction A AUTO 1	LDT 2	HDT 3	DT 4	BUS 5	SUV 6	Location/Direction B AUTO 7	LDT 8	HDT 9	DT 10	BUS 11	SUV 12
16:30	to	16:45	106	3	3	1	2	36						
16:45	to	17:00	98	1	1	1	1	60						
17:00	to	17:15	115	2	3	1	1	67						
17:15	to	17:30	111	1	1	0	2	58						
17:30	to	17:45	114	3	1	-	3	64						
17:45	to	18:00	115	1	-	5	2	55						
18:00	to	18:15	112	2	-	-	3	54						
18:15	to	18:30	111	2	1	-	2	52						
Hour														

Duty Trucks (4 Wheels; Commercial Mini Vans; Mini School Buses)
Duty Trucks (6 or more Wheels; Walk-In Trucks)
rucks (with Vertical Tale Pipe; Tractor-Trailers)

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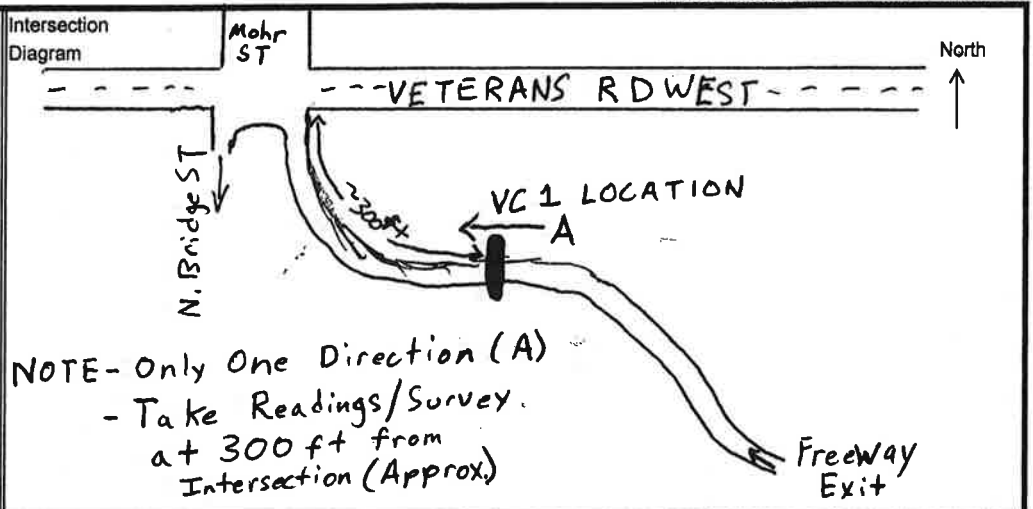
VC 1

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121A
Location: EXIT ONE OFF RICHMOND PKWY
Date: Jun-4-2011
Period:
Weather Conditions:
Surveyor's Name: STANISLAV FILEV

Intersection Diagram



Time	Location/Direction A AUTO 1	LDT 2	HDT 3	DT 4	BUS 5	SUV 6	Location/Direction B AUTO 7	LDT 8	HDT 9	DT 10	BUS 11	SUV 12
3:00 to 3:15	121	2	-	-	2	35						
3:15 to 3:30	112	2	-	-	-	44						
3:30 to 3:45	114	2	-	-	1	81						
3:45 to 4:00	151	2	1	-	-	32						
4:00 to 4:15	114	-	-	-	2	44						
4:15 to 4:30	117	-	-	1	-	27						
4:30 to 4:45	134	2	-	-	-	25						
4:45 to 5:00	122	2	-	-	1	33						
5:00 to 5:15	113	9	-	-	-	28						
5:15 to 5:30	124	2	-	-	2	31						
5:30 to 5:45	123	1	-	-	1	43						
5:45 to 6:00	119	1	-	-	1	45						
Peak Hour												

LDT= Light Duty Trucks (4 Wheels; Commercial Mini Vans; Mini School Buses)
HDT= Heavy Duty Trucks (6 or more Wheels; Walk-In Trucks)
DT= Diesel Trucks (with Vertical Tale Pipe; Tractor-Trailers)

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VC-2

Traffic / Pedestrian Movement Count Sheet

Project N 1121A
Location :

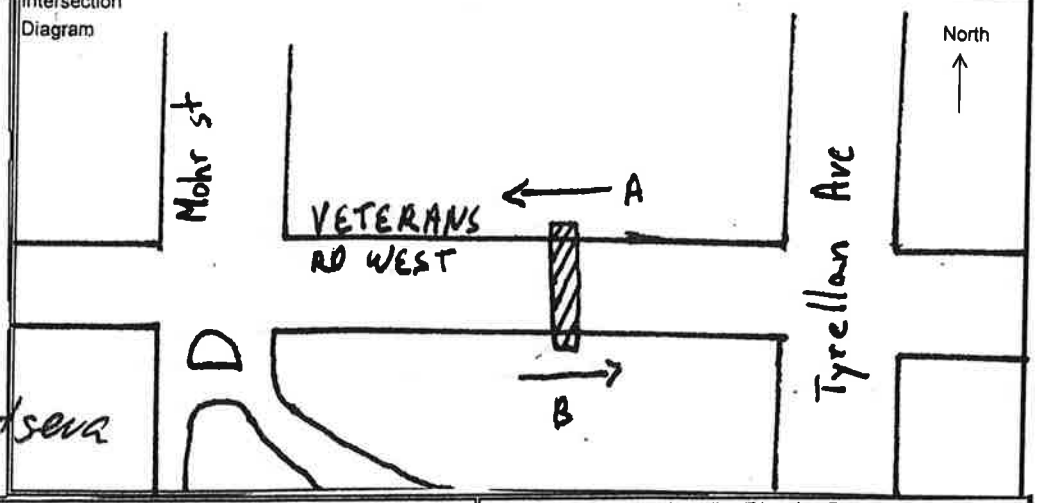
Date:

Period: ~~MID~~ AM

Weather Conditions:

Rafiya Burdan-seva
Surveyor's Name:

Intersection Diagram



Time			Location/Direction A						Location/Direction B					
			AUTO	LDT	HDT	DT	BUS	SUV	AUTO	LDT	HDT	DT	BUS	SUV
			1	2	3	4	5	6	7	8	9	10	11	12
7:30	to	7:45	92	7	1	3	6	4	33	3	1	-	2	1
7:45	to	8:00	106	13	4	2	5	5	48	7	3	2	-	2
8:00	to	8:15	103	7	6	5	3	-	50	9	5	3	1	1
8:15	to	8:30	95	15	2	2	5	-	56	5	1	-	-	-
8:30	to	8:45	107	11	1	3	4	6	59	6	4	1	4	5
8:45	to	9:00	86	10	-	3	2	10	28	7	1	-	-	7
9:00	to	9:15	60	13	7	4	5	15	22	5	2	-	-	13
9:15	to	9:30	74	12	2	3	5	13	29	6	2	-	2	11
Peak Hour														

LDT= Light Duty Trucks (4 Wheels; Commercial Mini Vans; Mini School Buses)
HDT= Heavy Duty Trucks (6 or more Wheels; Walk-In Trucks)
DT= Diesel Trucks (with Vertical Tale Pipe; Tractor-Trailers)

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VC-2

Traffic / Pedestrian Movement Count Sheet

Project N 1121A
Location :

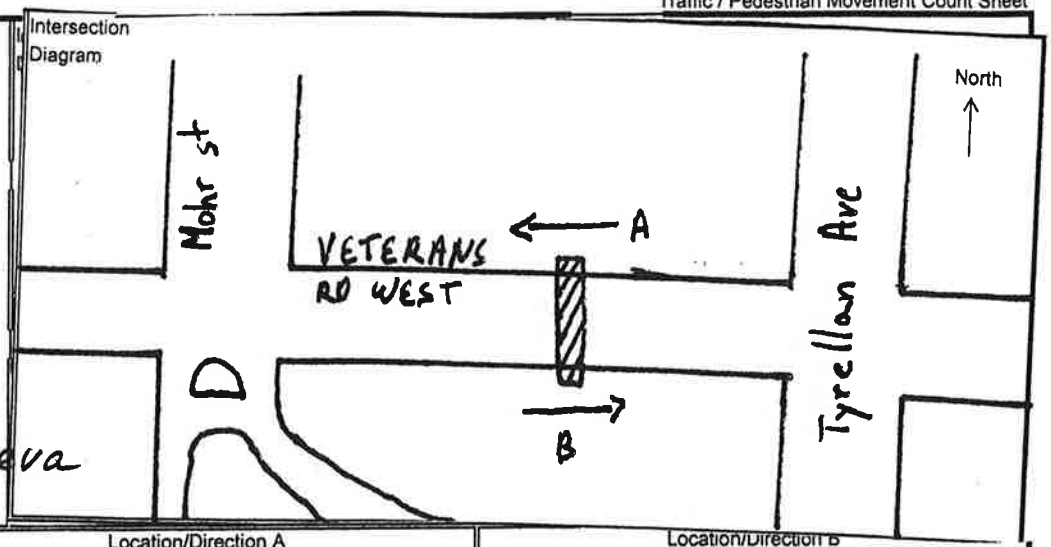
Date:

Period: MD

Weather Conditions:

Rafiya Budantseva
Surveyor's Name:

Intersection Diagram



Time			Location/Direction A AUTO 1	LDT 2	HDT 3	DT 4	BUS 5	SUV 6	Location/Direction B AUTO 7	LDT 8	HDT 9	DT 10	BUS 11	SUV 12
11:30	to	11:45	87	12	2	4	2	6	59	8	1	-	-	3
11:45	to	12:00	113	12	4	1	2	7	59	8	3	1	-	4
12:00	to	12:15	125	13	5	2	3	8	62	9	1	1	-	3
12:15	to	12:30	103	8	7	2	2	9	66	4	1	-	-	5
12:30	to	12:45	109	11	2	1	3	7	78	12	2	-	-	3
12:45	to	13:00	109	10	5	2	1	1	92	6	1	1	-	2
13:00	to	13:15	102	5	2	2	2	2	73	8	1	1	-	1
13:15	to	13:30	96	5	4	3	2	6	74	5	1	1	1	4
Peak Hour														

LDT= Light Duty Trucks (4 Wheels; Commercial Mini Vans; Mini School Buses)
HDT= Heavy Duty Trucks (6 or more Wheels; Walk-in Trucks)
DT= Diesel Trucks (with Vertical Tale Pipe; Tractor-Trailers)

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VC-2

Traffic / Pedestrian Movement Count Sheet

Project N 1121A
Location :

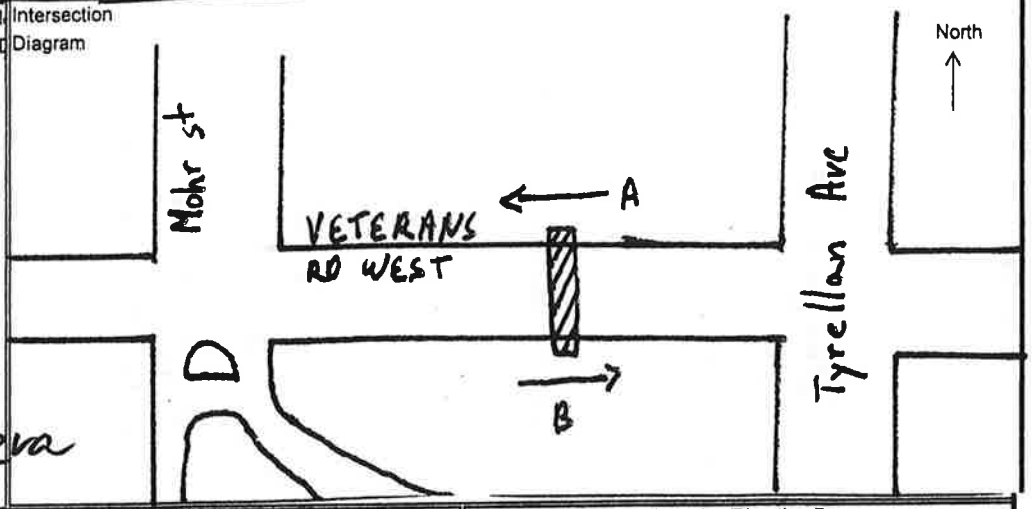
Date:

Period: PM

Weather Conditions:

Rafiya Budantseva
Surveyor's Name:

Intersection Diagram



Time			Location/Direction A AUTO 1	LDT 2	HDT 3	DT 4	BUS 5	SUV 6	Location/Direction B AUTO 7	LDT 8	HDT 9	DT 10	BUS 11	SUV 12
16:30	to	16:45	126	16	3	1	4	1	83	7	2	1	—	—
16:45	to	17:00	97	14	2	1	4	2	52	3	—	—	—	1
17:00	to	17:15	104	4	3	1	5	2	75	6	—	—	—	1
17:15	to	17:30	100	12	—	—	7	4	77	4	—	—	—	—
17:30	to	17:45	125	5	5	1	4	2	70	4	1	—	1	—
17:45	to	18:00	113	7	4	1	4	—	68	5	1	—	1	—
18:00	to	18:15	82	6	—	2	8	1	75	2	2	—	1	—
18:15	to	18:30	91	11	1	—	8	—	69	7	—	—	1	1
Peak Hour														

LDT= Light Duty Trucks (4 Wheels; Commercial Mini Vans; Mini School Buses)
HDT= Heavy Duty Trucks (6 or more Wheels; Walk-In Trucks)
DT= Diesel Trucks (with Vertical Tale Pipe; Tractor-Trailers)

VC 2

PHILIP HABIB & ASSOCIATES
326, W. 26th St. 9FL
New York, NY 10001
(212)929-5656

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121A

Location: VETERANS RD W Between MOHR and TYRELLAN

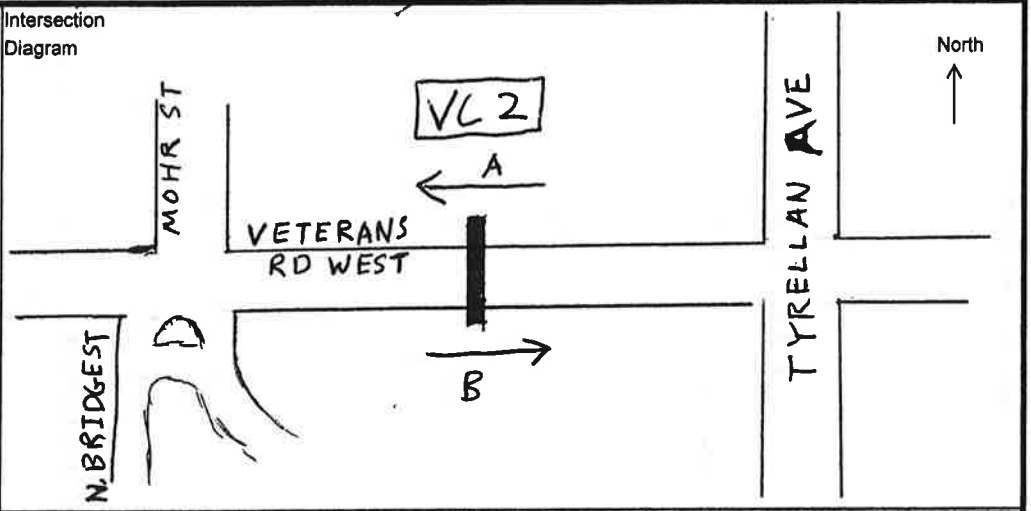
Date: June- 4-2011

Period:

Weather Conditions:

Surveyor's Name:

Intersection Diagram



Time	Location/Direction A						Location/Direction B					
	AUTO	LDT	HDT	DT	BUS	SUV	AUTO	LDT	HDT	DT	BUS	SUV
	1	2	3	4	5	6	7	8	9	10	11	12
3:00 to 3:15	84	5	—	—	—	67	64	7	-	—	—	33
3:15 to 3:30	53	7	1	—	3	48	46	3	+	—	~~5~~	25
3:30 to 3:45	73	13	1	—	3	38	37	7	1	—	~~3~~	26
3:45 to 4:00	57	11	1	—	4	42	47	4	2	—	~~4~~	28
4:00 to 4:15	61	9	1	—	2	37	55	3	+	—	1	22
4:15 to 4:30	55	6	1	1	2	40	51	1	+	1	~~2~~	30
4:30 to 4:45	63	10	—	1	—	37	59	1	—	+	—	43
4:45 to 5:00	37	4	—	1	3	35	26	2	—	—	—	29
5:00 to 5:15	23	1	—	—	—	12	44	2	1	1	2	26
5:15 to 5:30	38	—	1	—	—	26	32	1	1	—	2	23
5:30 to 5:45	43	2	—	—	1	12	41	6	2	—	—	23
5:45 to 6:00	38	2	1	—	—	24	50	9	—	—	2	34
Peak Hour	3:00	3:30	—	—	4:45	3:00	4:30	5:45	-	-	—	4:30

LDT= Light Duty Trucks (4 Wheels; Commercial Mini Vans; Mini School Buses)
HDT= Heavy Duty Trucks (6 or more Wheels; Walk-In Trucks)
DT= Diesel Trucks (with Vertical Tale Pipe; Tractor-Trailers)

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New York, NY 10001
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VC-3

Traffic / Pedestrian Movement Count Sheet

Project N 1121A
Location :

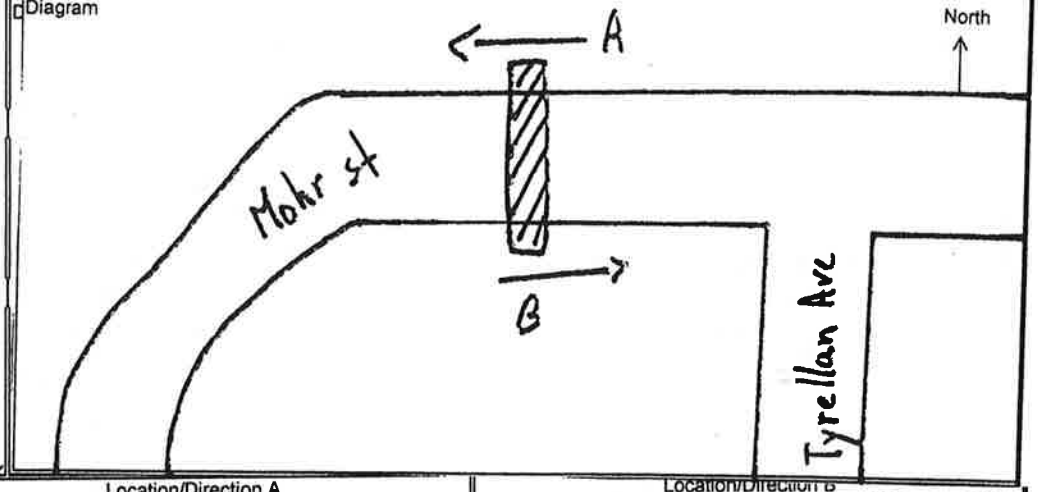
Date: Jun 7 2011

Period: ~~MD~~ AM

Weather Conditions:

Surveyor's Name: Valentyna Yermakova

Intersection Diagram



Time			Location/Direction A AUTO 1	LDT 2	HDT 3	DT 4	BUS 5	SUV 6	Location/Direction B AUTO 7	LDT 8	HDT 9	DT 10	BUS 11	SUV 12
7:30	to	7:45	2	–	–	–	–	–	8	5	1	–	2	2
7:45	to	8:00	13	–	–	–	–	1	9	2	–	–	1	4
8:00	to	8:15	15	2	–	–	–	3	8	1	–	–	3	–
8:15	to	8:30	6	1	–	1	–	1	11	1	–	–	2	2
8:30	to	8:45	7	1	–	–	–	5	19	1	1	–	2	5
8:45	to	9:00	11	2	1	–	–	3	9	1	–	–	–	6
9:00	to	9:15	6	1	1	1	–	2	10	–	–	–	2	2
9:15	to	9:30	13	–	–	–	–	5	17	2	–	–	5	6
Peak Hour														

LDT= Light Duty Trucks (4 Wheels; Commercial Mini Vans; Mini School Buses)
HDT= Heavy Duty Trucks (6 or more Wheels; Walk-In Trucks)
DT= Diesel Trucks (with Vertical Tale Pipe; Tractor-Trailers)

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226, W. 26th St. 9FL
New York, NY 10001
(212)929-5656

VC-3

Traffic / Pedestrian Movement Count Sheet

Project N 1121A
Location :

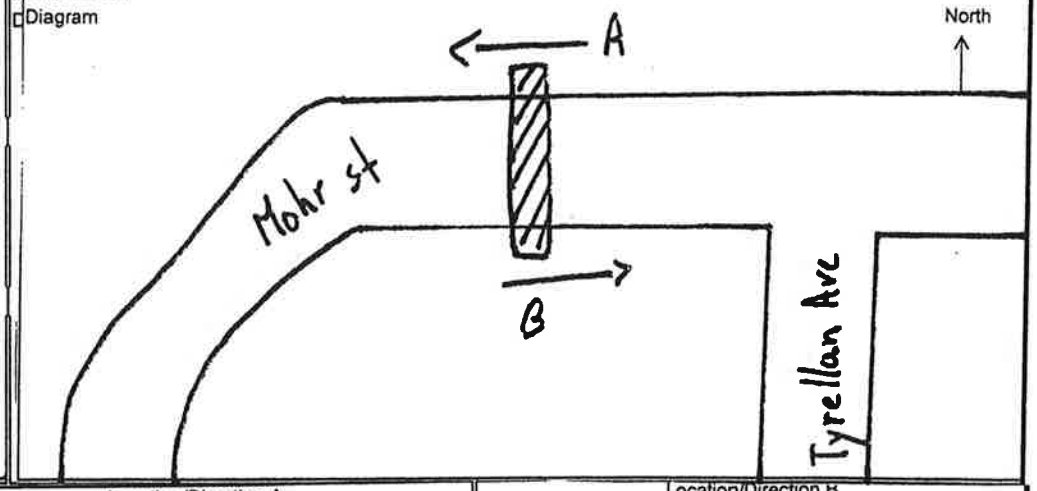
Date: 06/07/2011

Period: MD

Weather Conditions:

Surveyor's Name: Valentyna Yermakova

Intersection Diagram



Time			Location/Direction A AUTO 1	LDT 2	HDT 3	DT 4	BUS 5	SUV 6	Location/Direction B AUTO 7	LDT 8	HDT 9	DT 10	BUS 11	SUV 12
11:30	to	11:45	15	1	–	–	–	7	19	4	–	–	2	5
11:45	to	12:00	21	1	1	–	1	6	34	2	1	–	1	8
12:00	to	12:15	17	3	–	1	–	4	24	3	–	–	1	11
12:15	to	12:30	38	–	–	–	–	6	18	1	–	–	3	8
12:30	to	12:45	25	2	–	–	–	9	18	–	1	1	2	6
12:45	to	13:00	17	–	–	1	–	5	24	2	–	–	1	12
13:00	to	13:15	22	–	2	–	–	9	31	1	1	–	2	10
13:15	to	13:30	26	–	–	–	–	8	25	1	1	–	–	11
Peak Hour														

LDT= Light Duty Trucks (4 Wheels; Commercial Mini Vans; Mini School Buses)
HDT= Heavy Duty Trucks (6 or more Wheels; Walk-In Trucks)
DT= Diesel Trucks (with Vertical Tale Pipe; Tractor-Trailers)

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VC-3

Traffic / Pedestrian Movement Count Sheet

Project N 1121A
Location :

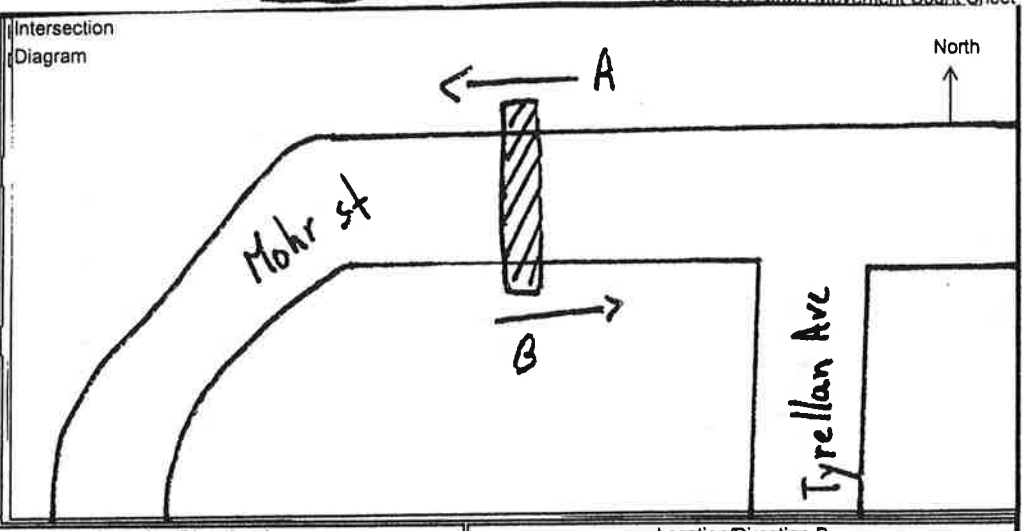
Date: 06/07/11

Period: PM

Weather Conditions:

Surveyor's Name: Valentyna Yermakova

Intersection Diagram



Time			Location/Direction A						Location/Direction B					
			AUTO	LDT	HDT	DT	BUS	SUV	AUTO	LDT	HDT	DT	BUS	SUV
			1	2	3	4	5	6	7	8	9	10	11	12
16:30	to	16:45	24	—	—	—	—	3	20	2	—	—	4	8
16:45	to	17:00	16	6	—	—	—	6	16	—	—	—	2	6
17:00	to	17:15	31	1	—	—	1	6	24	—	—	—	3	10
17:15	to	17:30	20	1	—	—	—	6	23	2	—	—	1	12
17:30	to	17:45	21	—	—	—	—	12	14	—	—	—	1	7
17:45	to	18:00	16	—	—	—	—	8	18	1	—	—	2	9
18:00	to	18:15	21	—	—	—	—	10	17	—	1	—	2	7
18:15	to	18:30	29	—	2	—	—	5	24	2	—	—	3	10
Peak Hour														

LDT= Light Duty Trucks (4 Wheels; Commercial Mini Vans; Mini School Buses)
HDT= Heavy Duty Trucks (6 or more Wheels; Walk-In Trucks)
DT= Diesel Trucks (with Vertical Tale Pipe; Tractor-Trailers)

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VC 3

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121A

Location: MOHR ST between TYRELLAN and VETERANS RD WEST

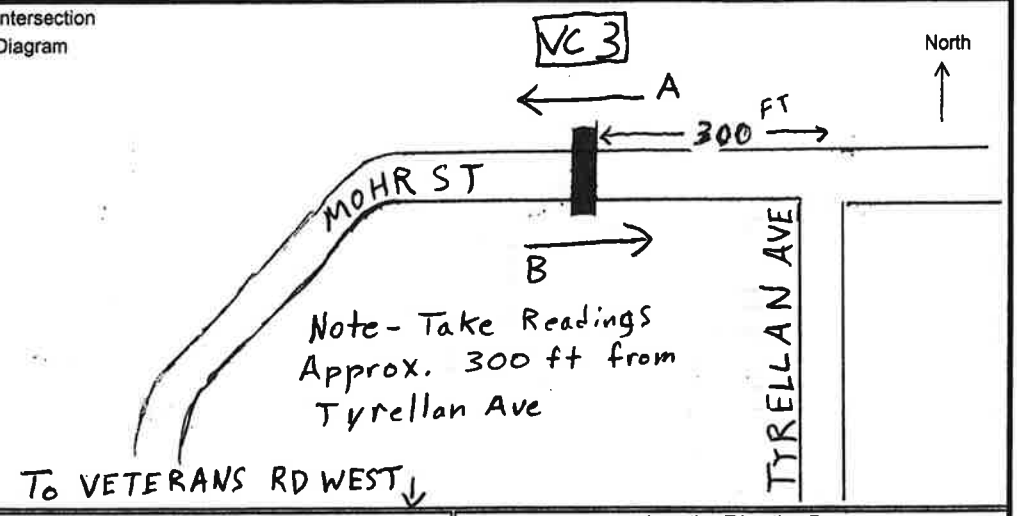
Date: Jun 4 2011

Period:

Weather Conditions:

Surveyor's Name: Valentyna Yermakova

Intersection Diagram



Time	Location/Direction A						Location/Direction B					
	AUTO	LDT	HDT	DT	BUS	SUV	AUTO	LDT	HDT	DT	BUS	SUV
	1	2	3	4	5	6	7	8	9	10	11	12
3:00 to 3:15	36	4	—	—	—	2	56	2	—	—	1	6
3:15 to 3:30	36	2	1	—	—	2	63	1	—	—	2	4
3:30 to 3:45	33	—	—	—	—	2	47	1	1	—	1	2
3:45 to 4:00	52	3	—	—	—	—	51	1	—	—	3	1
4:00 to 4:15	38	2	—	—	—	—	40	—	—	—	1	—
4:15 to 4:30	36	4	—	—	—	1	36	1	—	—	2	3
4:30 to 4:45	27	6	—	—	—	1	43	2	—	—	—	1
4:45 to 5:00	31	1	1	—	—	1	40	—	—	—	2	2
5:00 to 5:15	30	—	—	—	—	—	34	1	—	—	1	4
5:15 to 5:30	21	1	—	—	—	—	33	—	—	—	2	4
5:30 to 5:45	23	—	—	1	—	2	46	1	—	—	1	2
5:45 to 6:00	36	—	—	—	—	2	37	—	—	—	1	3
Peak Hour												

LDT= Light Duty Trucks (4 Wheels; Commercial Mini Vans; Mini School Buses)
HDT= Heavy Duty Trucks (6 or more Wheels; Walk-In Trucks)
DT= Diesel Trucks (with Vertical Tale Pipe; Tractor-Trailers)

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VC 4

Traffic / Pedestrian Movement Count Sheet

Project N 1121A
Location :

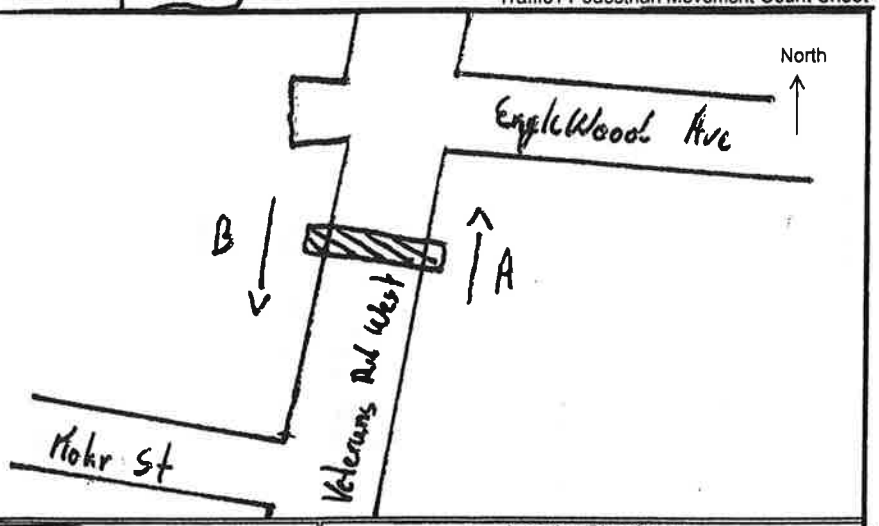
Date: 06/07/2011

Period: ~~MD~~ AM

Weather Conditions:

Surveyor's Name: YURIY MALEV

Intersection Diagram



Time			Location/Direction A AUTO 1	LDT 2	HDT 3	DT 4	BUS 5	SUV 6	Location/Direction B AUTO 7	LDT 8	HDT 9	DT 10	BUS 11	SUV 12
7:30	to	7:45	21	4	–	–	1	1	83	5	3	–	3	14
7:45	to	8:00	25	–	–	–	3	3	96	4	1	–	1	13
8:00	to	8:15	33	1	–	–	–	2	89	2	2	–	3	25
8:15	to	8:30	43	–	–	–	–	4	95	9	2	1	3	16
8:30	to	8:45	36	2	–	1	–	3	118	5	1	–	1	21
8:45	to	9:00	32	4	–	–	–	2	107	2	–	–	1	16
9:00	to	9:15	40	3	–	–	–	4	93	4	3	1	1	16
9:15	to	9:30	31	2	–	1	–	3	121	5	1	–	3	14
Peak Hour														

LDT= Light Duty Trucks (4 Wheels; Commercial Mini Vans; Mini School Buses)
HDT= Heavy Duty Trucks (6 or more Wheels; Walk-In Trucks)
DT= Diesel Trucks (with Vertical Tale Pipe; Tractor-Trailers)

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VC-4

Traffic / Pedestrian Movement Count Sheet

Project N 1121A
Location :

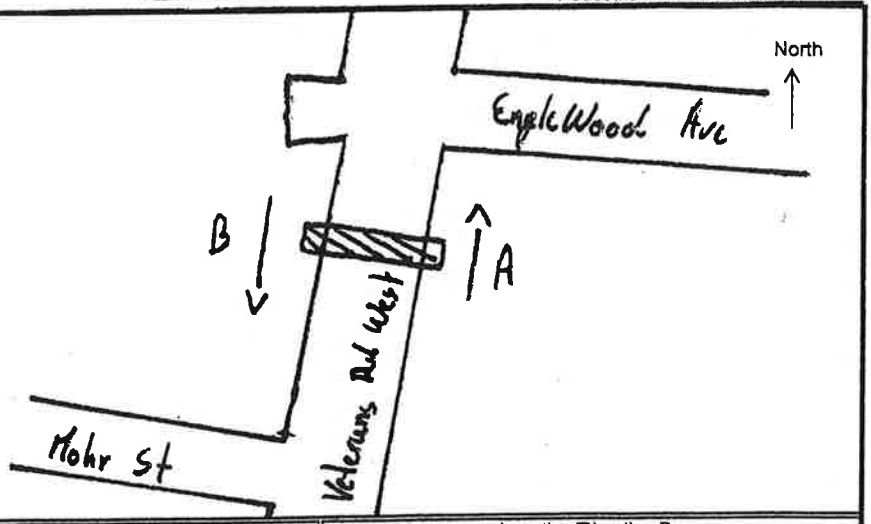
Date: 06/07/2011

Period: MD

Weather Conditions:

Surveyor's Name: YUAN MALEV

Intersection Diagram



Time			Location/Direction A AUTO 1	LDT 2	HDT 3	DT 4	BUS 5	SUV 6	Location/Direction B AUTO 7	LDT 8	HDT 9	DT 10	BUS 11	SUV 12
11:30	to	11:45	62	10	—	—	1	9	120	5	—	—	1	23
11:45	to	12:00	71	2	—	—	1	4	160	5	3	-	2	24
12:00	to	12:15	62	3	—	—	2	4	172	9	2	-	4	17
12:15	to	12:30	77	3	—	—	-	5	146	4	2	-	-	31
12:30	to	12:45	74	3	-	—	—	7	148	9	2	1	1	25
12:45	to	13:00	79	2	-	-	-	3	126	5	—	-	-	15
13:00	to	13:15	86	3	—	—	-	7	122	4	1	-	2	18
13:15	to	13:30	80	4	-	1	1	7	109	6	—	-	1	24
Peak Hour														

LDT= Light Duty Trucks (4 Wheels; Commercial Mini Vans; Mini School Buses)
HDT= Heavy Duty Trucks (6 or more Wheels; Walk-In Trucks)
DT= Diesel Trucks (with Vertical Tale Pipe; Tractor-Trailers)

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VC-4

Traffic / Pedestrian Movement Count Sheet

Project N 1121A
Location :

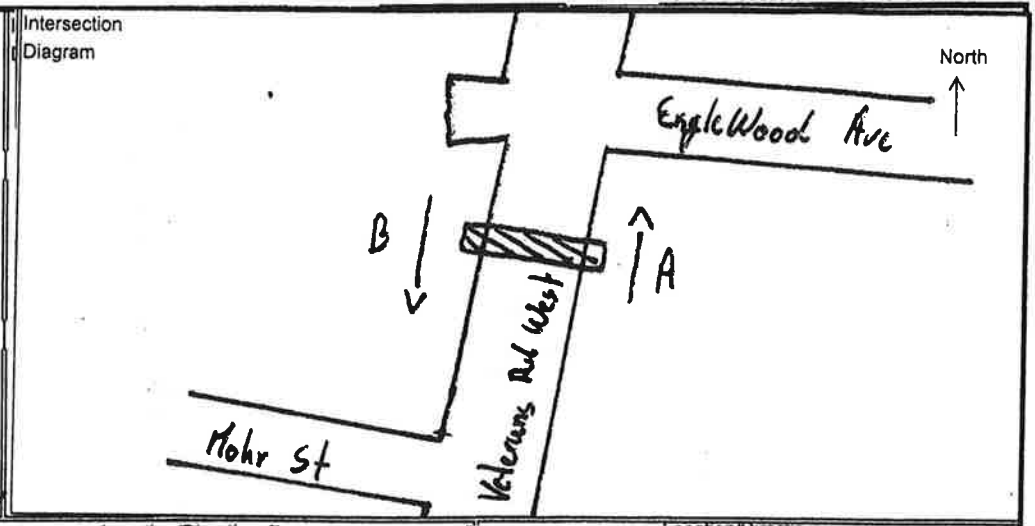
Date: 06/07/2011

Period: PM

Weather Conditions:

Surveyor's Name: Yuriy MALEV

Intersection Diagram



Time			Location/Direction A AUTO 1	LDT 2	HDT 3	DT 4	BUS 5	SUV 6	Location/Direction B AUTO 7	LDT 8	HDT 9	DT 10	BUS 11	SUV 12
16:30	to	16:45	69	1	–	–	–	7	127	4	–	–	2	10
16:45	to	17:00	68	2	–	–	–	11	157	14	–	–	2	14
17:00	to	17:15	74	–	–	–	1	19	117	3	–	1	2	18
17:15	to	17:30	63	–	–	–	–	18	126	5	–	–	3	15
17:30	to	17:45	65	1	–	–	–	11	124	7	1	–	4	12
17:45	to	18:00	62	2	–	–	–	14	135	8	–	–	1	12
18:00	to	18:15	74	4	–	–	1	14	130	2	–	–	7	9
18:15	to	18:30	60	–	–	–	–	15	119	2	–	–	4	11
Peak Hour														

LDT= Light Duty Trucks (4 Wheels; Commercial Mini Vans; Mini School Buses)
HDT= Heavy Duty Trucks (6 or more Wheels; Walk-In Trucks)
DT= Diesel Trucks (with Vertical Tale Pipe; Tractor-Trailers)

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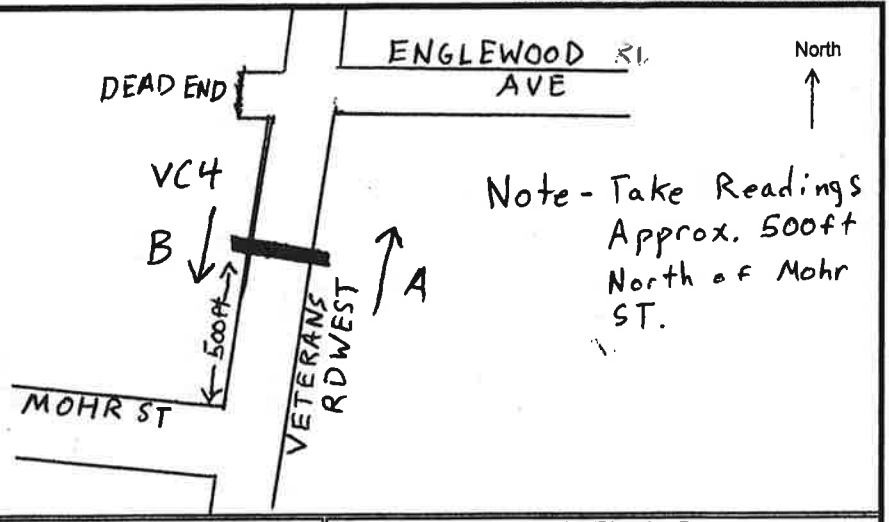
New York, NY 10001
(212)929-5656

VC 4

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121A
Location: VETERANS RDW between MOHR and ENGLEWOOD
Date: Jul, 04, 2011
Period:
Weather Conditions:
Surveyor's Name: YURIY MATLEV

Intersection Diagram



Time	Location/Direction A AUTO 1	LDT 2	HDT 3	DT 4	BUS 5	SUV 6	Location/Direction B AUTO 7	LDT 8	HDT 9	DT 10	BUS 11	SUV 12
3:00 to 3:15	86	–	–	–	–	8	113	4	–	–	–	16
3:15 to 3:30	105	–	–	–	–	5	138	2	–	–	–	32
3:30 to 3:45	93	2	–	–	–	9	150	5	–	–	3	40
3:45 to 4:00	99	–	–	–	–	14	170	7	–	–	1	35
4:00 to 4:15	109	–	–	–	–	16	161	5	–	–	1	30
4:15 to 4:30	102	1	–	–	–	7	132	5	–	–	–	24
4:30 to 4:45	110	2	–	–	–	10	123	8	–	–	–	17
4:45 to 5:00	93	–	–	–	–	9	147	4	–	–	–	28
5:00 to 5:15	91	–	–	–	–	7	139	2	–	–	–	21
5:15 to 5:30	82	–	–	–	–	6	145	4	–	–	–	14
5:30 to 5:45	78	–	–	–	–	6	130	3	–	–	–	27
5:45 to 6:00	80	–	–	–	–	7	122	2	–	–	–	33
Peak Hour												

LDT= Light Duty Trucks (4 Wheels; Commercial Mini Vans; Mini School Buses)
HDT= Heavy Duty Trucks (6 or more Wheels; Walk-In Trucks)
DT= Diesel Trucks (with Vertical Tale Pipe; Tractor-Trailers)

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New York, NY 10001
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VC 5

Traffic / Pedestrian Movement Count Sheet

Project N 1121A
Location :

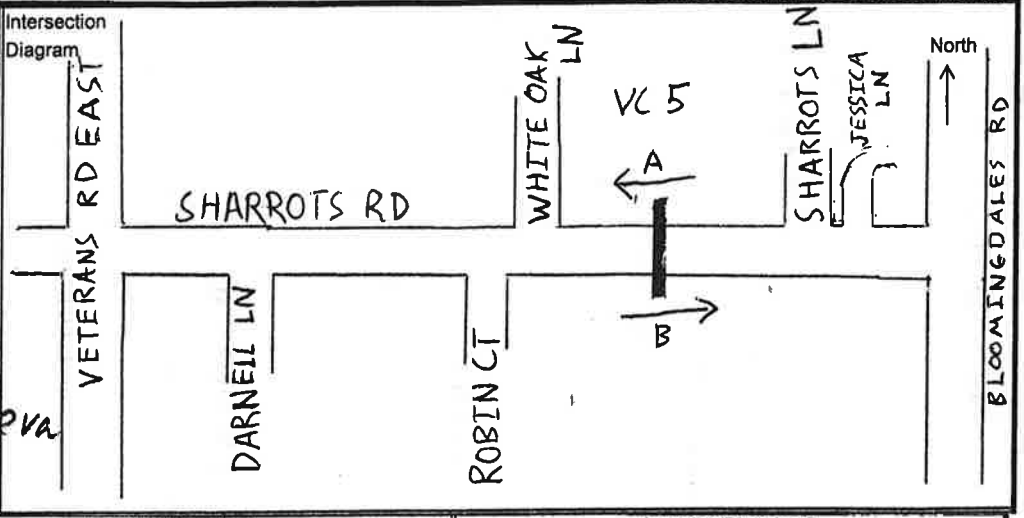
Date:

Period: AM

Weather Conditions: sunney

Surveyor's Name: Rafiya Budantseva

Intersection Diagram



Time			Location/Direction A AUTO 1	LDT 2	HDT 3	DT 4	BUS 5	SUV 6	Location/Direction B AUTO 7	LDT 8	HDT 9	DT 10	BUS 11	SUV 12
7:30	to	7:45	17	2	—	—	2	2	23	4	2	—	1	3
7:45	to	8:00	15	1	1	—	5	1	27	6	2	—	2	4
8:00	to	8:15	20	2	—	—	1	—	20	3	4	—	2	1
8:15	to	8:30	13	3	—	1	2	4	29	3	—	—	1	4
8:30	to	8:45	14	2	2	—	1	—	20	2	1	—	2	1
8:45	to	9:00	24	3	—	—	—	2	15	3	3	—	—	—
9:00	to	9:15	10	3	1	—	—	—	14	2	2	—	—	2
9:15	to	9:30	15	2	3	—	—	1	14	6	1	—	—	2
Peak Hour														

LDT= Light Duty Trucks (4 Wheels; Commercial Mini Vans; Mini School Buses)
HDT= Heavy Duty Trucks (6 or more Wheels; Walk-In Trucks)
DT= Diesel Trucks (with Vertical Tale Pipe; Tractor-Trailers)

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New York, NY 10001
(212)929-5656

VC-5

Traffic / Pedestrian Movement Count Sheet

Project N 1121A
Location :

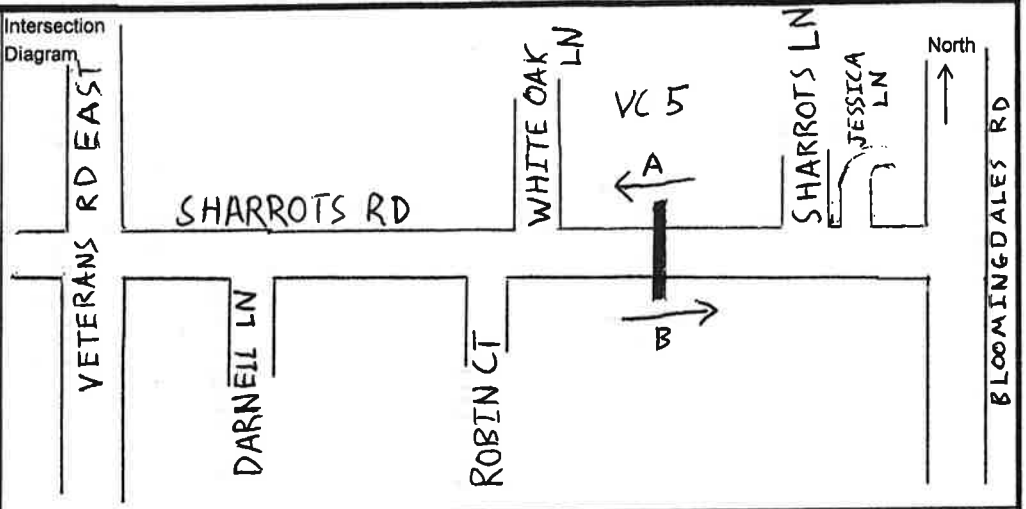
Date:

Period: MD

Weather Conditions: sunny

Rafiya Budantseva
Surveyor's Name:

Intersection Diagram



Time			Location/Direction A						Location/Direction B					
			AUTO	LDT	HDT	DT	BUS	SUV	AUTO	LDT	HDT	DT	BUS	SUV
			1	2	3	4	5	6	7	8	9	10	11	12
11:30	to	11:45	21	-	-	-	-	3	19	3	3	-	-	1
11:45	to	12:00	24	3	-	-	1	-	16	2	1	-	-	1
12:00	to	12:15	14	5	-	-	-	2	18	3	1	1	1	-
12:15	to	12:30	20	2	-	1	-	-	18	-	-	-	-	2
12:30	to	12:45	17	1	1	-	-	2	21	1	-	-	-	3
12:45	to	13:00	14	1	2	-	-	5	17	1	-	1	-	5
13:00	to	13:15	18	3	2	-	-	-	26	1	-	-	1	-
13:15	to	13:30	9	3	-	-	1	2	16	4	1	-	1	1
Peak Hour														

LDT= Light Duty Trucks (4 Wheels; Commercial Mini Vans; Mini School Buses)
HDT= Heavy Duty Trucks (6 or more Wheels; Walk-In Trucks)
DT= Diesel Trucks (with Vertical Tale Pipe; Tractor-Trailers)

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New York, NY 10001
(212)929-5656

VC-5

Traffic / Pedestrian Movement Count Sheet

Project N 1121A
Location :

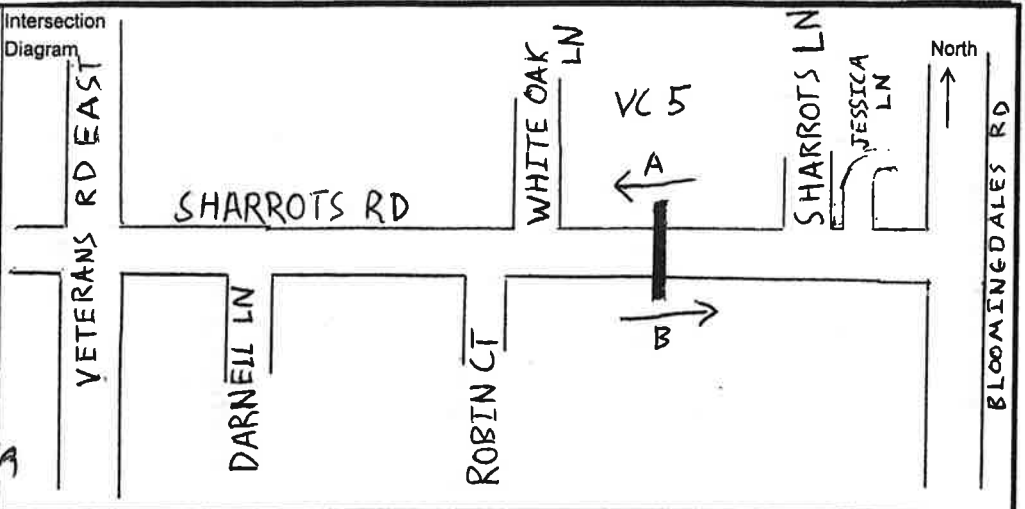
Date:

Period: PM

Weather Conditions:

Surveyor's Name: Rafiya Budantseva

Intersection Diagram



Time			Location/Direction A AUTO 1	LDT 2	HDT 3	DT 4	BUS 5	SUV 6	Location/Direction B AUTO 7	LDT 8	HDT 9	DT 10	BUS 11	SUV 12
16:30	to	16:45	16	3	2	—	—	1	24	2	—	—	—	2
16:45	to	17:00	37	1	—	—	—	9	42	3	—	—	—	9
17:00	to	17:15	24	1	1	—	—	2	32	3	2	—	—	4
17:15	to	17:30	42	5	—	—	1	3	36	1	—	—	—	6
17:30	to	17:45	37	1	4	1	1	5	35	3	—	—	—	8
17:45	to	18:00	19	4	—	—	—	6	24	4	—	—	—	2
18:00	to	18:15	37	1	—	1	—	6	33	1	1	—	—	2
18:15	to	18:30	32	4	3	1	1	5	26	5	—	—	—	1
Peak Hour														

LDT= Light Duty Trucks (4 Wheels; Commercial Mini Vans; Mini School Buses)
HDT= Heavy Duty Trucks (6 or more Wheels; Walk-In Trucks)
DT= Diesel Trucks (with Vertical Tale Pipe; Tractor-Trailers)

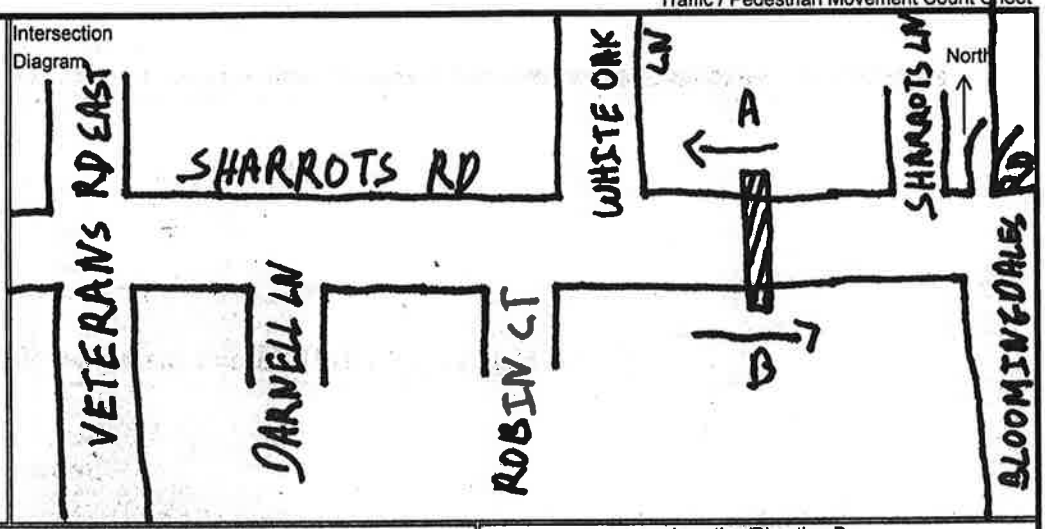
BIB & ASSOCIATES
26th St. 9FL
ork, NY 10001
929-5656

VC-5

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121A
Location :
Date:
Period:
Weather Conditions:
Surveyor's Name: Rafiya Budantseva

Intersection Diagram



Time	Location/Direction A AUTO 1	LDT 2	HDT 3	DT 4	BUS 5	SUV 6	Location/Direction B AUTO 7	LDT 8	HDT 9	DT 10	BUS 11	SUV 12
3:00 to 3:15	27	1	–	–	–	–	29	1	–	–	–	1
3:15 to 3:30	23	2	1	–	–	6	27	3	–	–	–	6
3:30 to 3:45	24	–	2	–	–	7	24	–	–	–	–	2
3:45 to 4:00	23	3	1	–	–	7	27	2	–	–	–	6
4:00 to 4:15	22	2	–	–	–	4	20	1	–	–	–	2
4:15 to 4:30	21	1	–	–	–	2	29	3	–	–	–	3
4:30 to 4:45	25	–	–	–	–	8	24	2	3	–	–	7
4:45 to 5:00	21	2	1	1	–	7	25	2	1	–	–	7
5:00 to 5:15	24	4	1	–	–	3	27	3	–	–	–	5
5:15 to 5:30	22	1	1	–	–	7	18	3	1	–	–	10
5:30 to 5:45	27	1	–	–	–	6	13	2	–	–	–	5
5:45 to 6:00	26	1	–	–	–	7	24	1	–	–	–	5
Peak Hour												

LDT= Light Duty Trucks (4 Wheels; Commercial Mini Vans; Mini School Buses)
HDT= Heavy Duty Trucks (6 or more Wheels; Walk-In Trucks)
DT= Diesel Trucks (with Vertical Tale Pipe; Tractor-Trailers)

PHILIP HABIB & ASSOCIATE
226, W. 26th St. 9FL
New York, NY 10001
(212)929-5656

VC6

Traffic / Pedestrian Movement Count Sheet

Project N 1121A
Location :

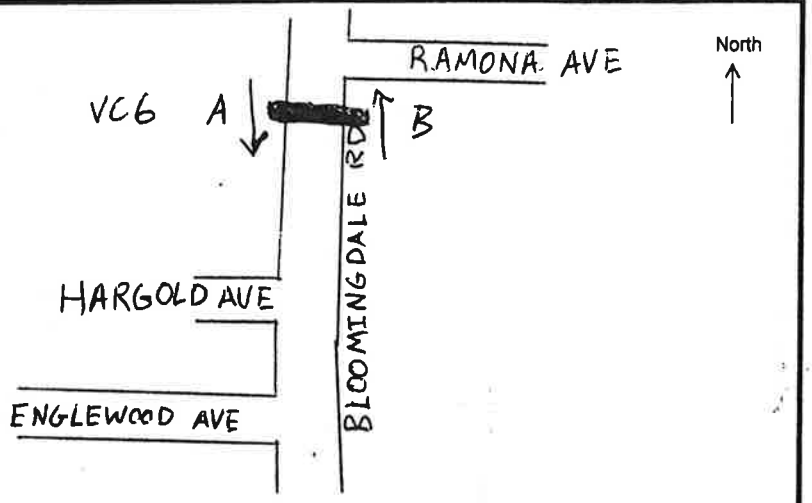
Date:

Period: AM 6/8/11

Weather Conditions: Stanislav Filer

Surveyor's Name:

Intersection Diagram



Time	Location/Direction A AUTO 1	LDT 2	HDT 3	DT 4	BUS 5	SUV 6	Location/Direction B AUTO 7	LDT 8	HDT 9	DT 10	BUS 11	SUV 12
7:30 to 7:45	60	4	2	-	4	16	49	3	-	-	6	9
7:45 to 8:00	63	5	2	-	4	17	51	4	-	-	5	11
8:00 to 8:15	69	7	2	-	5	19	58	5	-	1	6	17
8:15 to 8:30	81	3	1	-	4	11	77	2	1	-	9	12
8:30 to 8:45	56	4	4	-	6	20	53	-	1	-	3	23
8:45 to 9:00	53	2	2	-	7	7	68	2	1	-	1	5
9:00 to 9:15	51	8	-	-	2	8	57	6	-	-	3	7
9:15 to 9:30	61	5	2	-	-	9	50	3	1	-	4	6
Peak Hour												

LDT= Light Duty Trucks (4 Wheels; Commercial Mini Vans; Mini School Buses)
HDT= Heavy Duty Trucks (6 or more Wheels; Walk-In Trucks)
DT= Diesel Trucks (with Vertical Tale Pipe; Tractor-Trailers)

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VC-6

Traffic / Pedestrian Movement Count Sheet

Project N 1121A
Location :

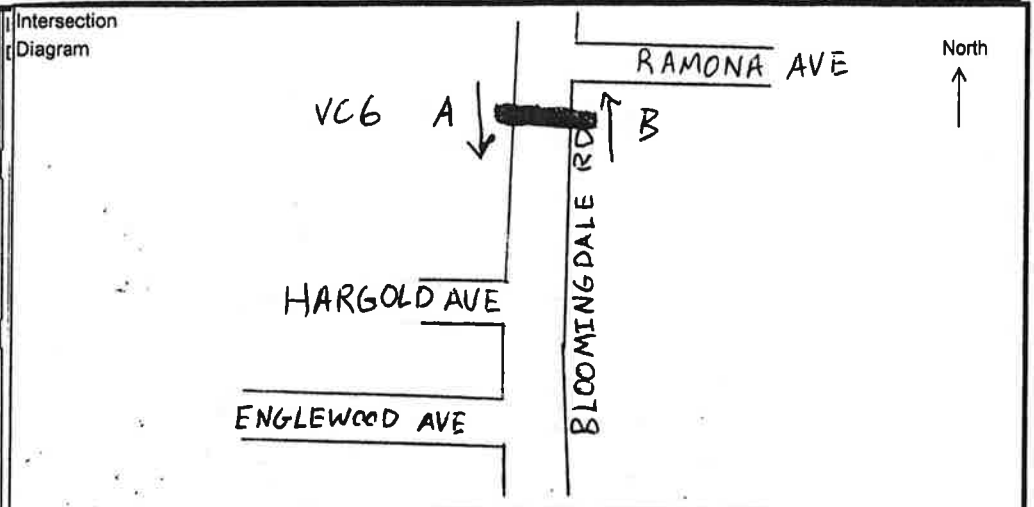
Date:

Period: MD 6/8/11

Weather Conditions: Stanislav Filev

Surveyor's Name:

Intersection Diagram



Time			Location/Direction A AUTO 1	LDT 2	HDT 3	DT 4	BUS 5	SUV 6	Location/Direction B AUTO 7	LDT 8	HDT 9	DT 10	BUS 11	SUV 12
11:30	to	11:45	56	4	1	-	2	5	53	2	-	-	-	13
11:45	to	12:00	54	4	1	-	2	7	68	2	2	-	3	6
12:00	to	12:15	57	1	1	-	2	9	60	4	1	-	2	10
12:15	to	12:30	56	1	-	-	-	10	51	1	1	-	1	11
12:30	to	12:45	59	1	-	-	1	9	52	1	-	-	-	12
12:45	to	13:00	73	3	-	-	1	10	66	3	-	-	1	9
13:00	to	13:15	57	-	1	-	3	10	68	-	-	-	2	17
13:15	to	13:30	75	3	3	-	1	9	67	2	1	-	2	12
Peak Hour														

LDT= Light Duty Trucks (4 Wheels; Commercial Mini Vans; Mini School Buses)
HDT= Heavy Duty Trucks (6 or more Wheels; Walk-In Trucks)
DT= Diesel Trucks (with Vertical Tale Pipe; Tractor-Trailers)

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VC-6

Traffic / Pedestrian Movement Count Sheet

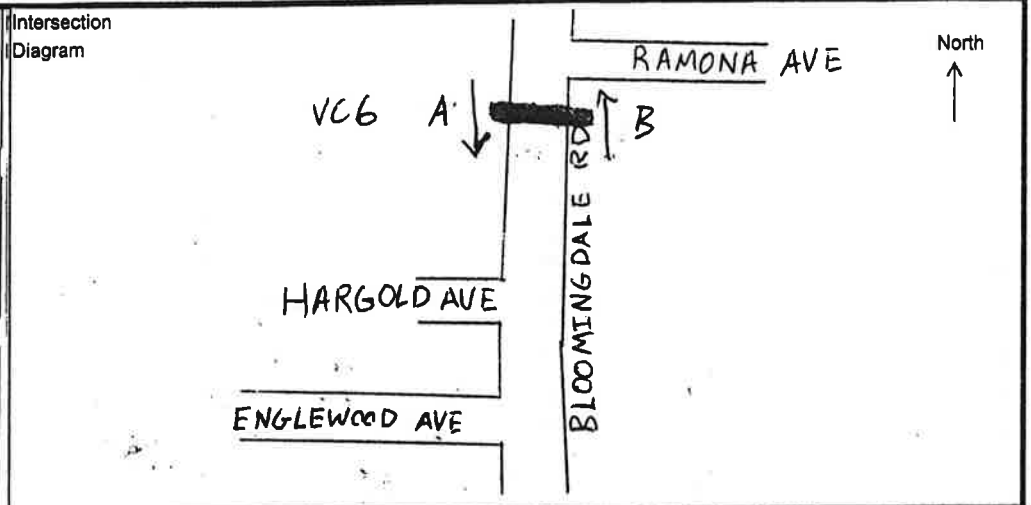
Project N 1121A
Location :

Date: 6/8/11

Period: PM
Stanislav Filer
Weather Conditions:

Surveyor's Name:

Intersection Diagram



Time			Location/Direction A						Location/Direction B					
			AUTO	LDT	HDT	DT	BUS	SUV	AUTO	LDT	HDT	DT	BUS	SUV
			1	2	3	4	5	6	7	8	9	10	11	12
16:30	to	16:45	66	1	1	1	-	15	79	-	2	-	1	12
16:45	to	17:00	97	2	1	-	1	13	73	1	-	-	1	16
17:00	to	17:15	104	2	2	-	2	11	93	3	-	-	-	15
17:15	to	17:30	84	-	-	-	13	13	96	-	-	-	1	11
17:30	to	17:45	113	2	-	-	5	5	82	-	-	-	-	6
17:45	to	18:00	89	-	1	-	1	3	79	3	1	-	-	2
18:00	to	18:15	103	1	-	-	2	2	91	2	-	-	1	1
18:15	to	18:30	91	1	-	-	1	3	88	1	-	-	2	1
Peak Hour														

LDT= Light Duty Trucks (4 Wheels; Commercial Mini Vans; Mini School Buses)
HDT= Heavy Duty Trucks (6 or more Wheels; Walk-In Trucks)
DT= Diesel Trucks (with Vertical Tale Pipe; Tractor-Trailers)

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w York, NY 10001
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VC6

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121A
Location :

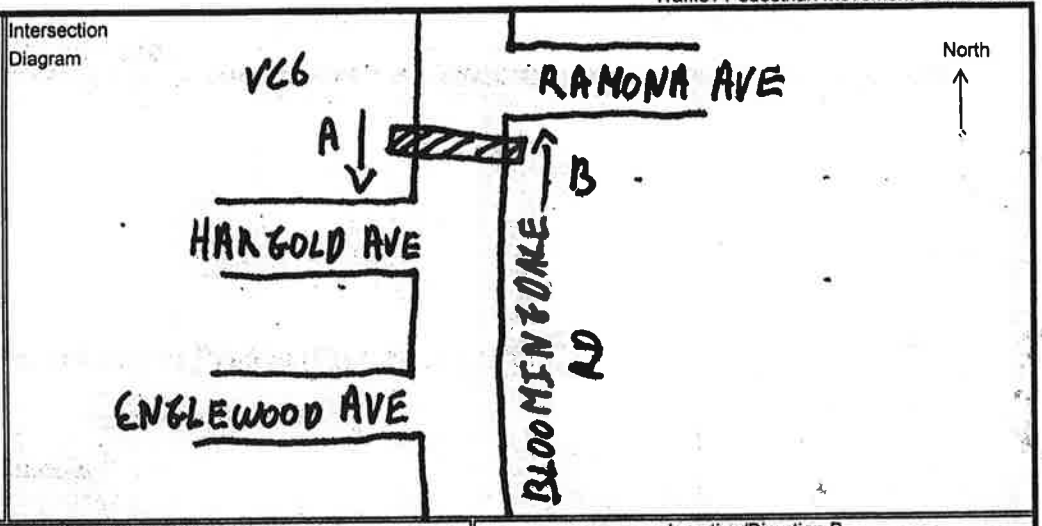
Date: 6/11/2011

Period: STANISLAV FILEV

Weather Conditions:

Surveyor's Name:

Intersection Diagram



Time	Location/Direction A AUTO 1	LDT 2	HDT 3	DT 4	BUS 5	SUV 6	Location/Direction B AUTO 7	LDT 8	HDT 9	DT 10	BUS 11	SUV 12
3:00 to 3:15	55	-	-	-	-	28	74	-	-	-	-	29
3:15 to 3:30	44	-	-	-	-	26	46	-	1	-	-	43
3:30 to 3:45	54	1	-	-	-	20	60	-	1	-	-	17
3:45 to 4:00	52	-	-	-	-	33	53	1	-	-	-	34
4:00 to 4:15	50	1	-	-	-	35	67	-	1	-	-	31
4:15 to 4:30	47	1	-	-	-	26	66	-	-	-	-	27
4:30 to 4:45	48	5	-	-	-	29	47	-	1	-	-	19
4:45 to 5:00	45	-	-	-	-	22	48	2	1	-	-	24
5:00 to 5:15	44	-	1	-	1	31	49	-	-	-	-	18
5:15 to 5:30	50	-	-	-	-	32	51	1	-	-	-	20
5:30 to 5:45	53	1	-	-	-	21	67	1	-	-	-	21
5:45 to 6:00	56	-	-	-	-	24	61	-	-	-	-	23
Peak Hour												

LDT= Light Duty Trucks (4 Wheels; Commercial Mini Vans; Mini School Buses)
HDT= Heavy Duty Trucks (6 or more Wheels; Walk-in Trucks)
DT= Diesel Trucks (with Vertical Tale Pipe; Tractor-Trailers)

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VC7

Traffic / Pedestrian Movement Count Sheet

Project N 1121A
Location :

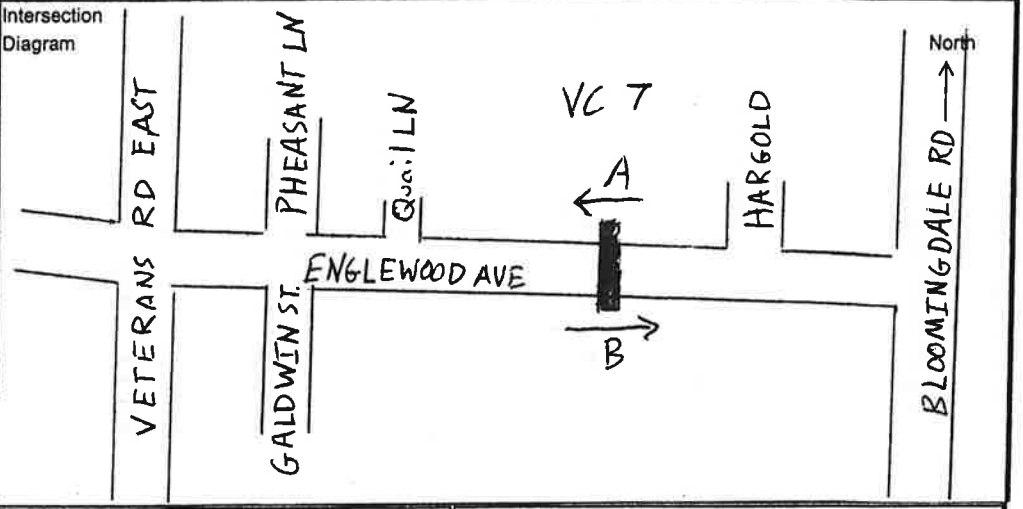
Date: 06/08/11

Period: AM

Weather Conditions: Sunny

Surveyor's Name: Valentyna Yermakova

Intersection Diagram



Time			Location/Direction A						Location/Direction B					
			AUTO	LDT	HDT	DT	BUS	SUV	AUTO	LDT	HDT	DT	BUS	SUV
			1	2	3	4	5	6	7	8	9	10	11	12
7:30	to	7:45	7	1	—	—	—	2	12	1	—	—	—	7
7:45	to	8:00	9	2	—	1	1	2	14	5	—	—	2	10
8:00	to	8:15	7	1	—	—	—	6	17	2	1	—	—	12
8:15	to	8:30	13	—	—	—	—	2	7	1	1	1	—	9
8:30	to	8:45	5	2	—	—	—	6	12	4	—	—	—	7
8:45	to	9:00	5	1	—	—	—	5	5	3	—	—	—	6
9:00	to	9:15	6	1	—	—	—	4	14	2	—	—	—	8
9:15	to	9:30	4	—	—	—	—	2	13	0	1	1	—	5
Peak Hour														

LDT= Light Duty Trucks (4 Wheels; Commercial Mini Vans; Mini School Buses)
HDT= Heavy Duty Trucks (6 or more Wheels; Walk-In Trucks)
DT= Diesel Trucks (with Vertical Tale Pipe; Tractor-Trailers)

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New York, NY 10001
(212)929-5656

VC-7

Traffic / Pedestrian Movement Count Sheet

Project N 1121A
Location :

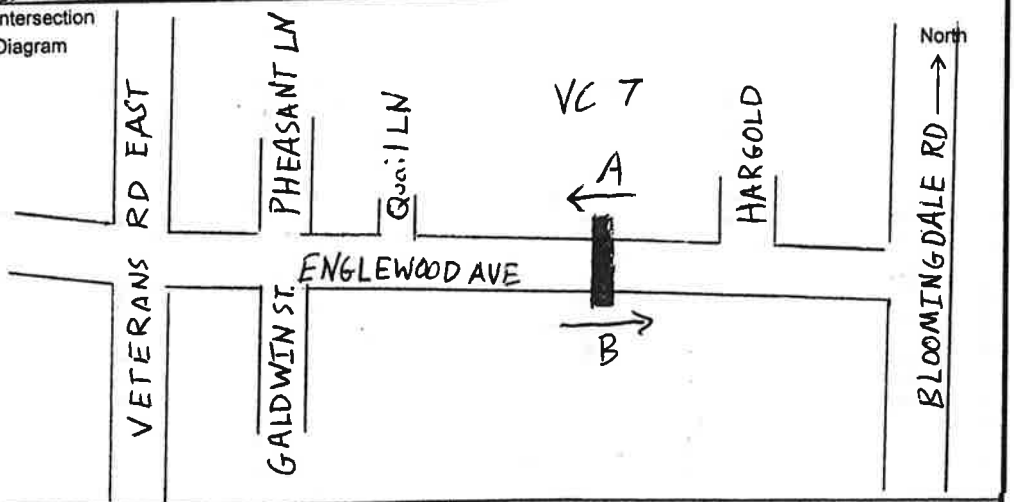
Date: 06/08/11

Period: MD

Weather Conditions:

Surveyor's Name: Valentyna Yermakova

Intersection Diagram



Time			Location/Direction A						Location/Direction B					
			AUTO	LDT	HDT	DT	BUS	SUV	AUTO	LDT	HDT	DT	BUS	SUV
			1	2	3	4	5	6	7	8	9	10	11	12
11:30	to	11:45	8	—	—	—	—	4	17	2	—	—	—	6
11:45	to	12:00	4	—	—	—	—	4	16	—	1	—	—	8
12:00	to	12:15	6	—	1	—	—	4	16	1	—	—	—	4
12:15	to	12:30	6	—	—	—	—	1	14	—	—	—	—	7
12:30	to	12:45	8	—	1	—	—	3	9	1	—	—	—	3
12:45	to	13:00	11	—	—	—	—	3	25	—	—	—	—	4
13:00	to	13:15	7	2	—	—	—	4	17	2	—	—	1	5
13:15	to	13:30	8	1	—	1	—	2	10	1	1	—	—	7
Peak Hour														

LDT= Light Duty Trucks (4 Wheels; Commercial Mini Vans; Mini School Buses)
HDT= Heavy Duty Trucks (6 or more Wheels; Walk-In Trucks)
DT= Diesel Trucks (with Vertical Tale Pipe; Tractor-Trailers)

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New York, NY 10001
(212)929-5656

VC-7

Traffic / Pedestrian Movement Count Sheet

Project N 1121A
Location :

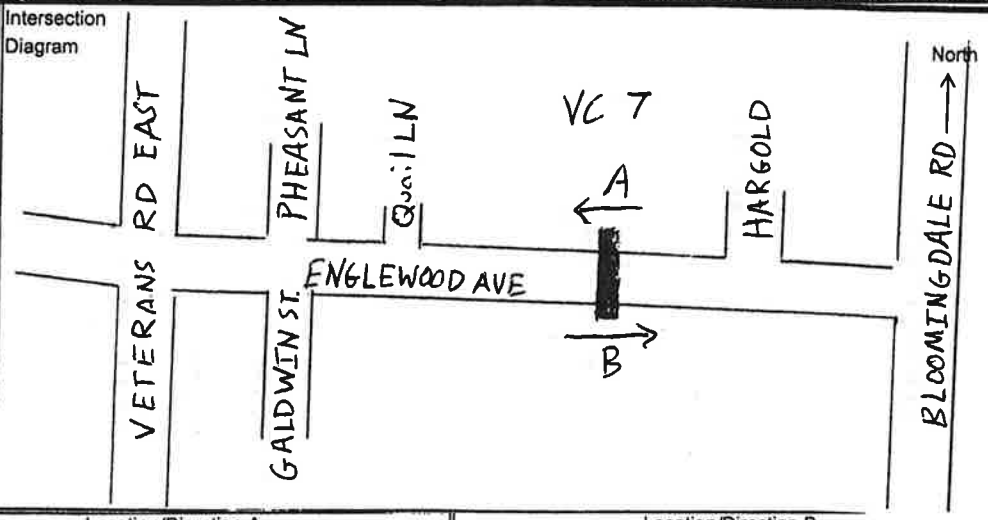
Date: 06/08/11

Period: PM

Weather Conditions:

Surveyor's Name: Valentina Yermakova

Intersection Diagram



Time			Location/Direction A						Location/Direction B					
			AUTO	LDT	HDT	DT	BUS	SUV	AUTO	LDT	HDT	DT	BUS	SUV
			1	2	3	4	5	6	7	8	9	10	11	12
16:30	to	16:45	9	—	—	—	1	5	23	—	2	1	—	8
16:45	to	17:00	10	—	—	—	—	4	19	1	—	—	—	13
17:00	to	17:15	13	3	—	—	—	3	17	3	1	—	—	11
17:15	to	17:30	12	—	—	—	—	4	15	1	—	—	—	7
17:30	to	17:45	10	—	—	—	—	8	17	2	—	—	—	6
17:45	to	18:00	8	—	—	—	—	6	10	2	—	1	—	6
18:00	to	18:15	12	1	—	—	—	8	11	2	1	—	—	9
18:15	to	18:30	11	—	—	—	—	3	16	3	—	—	1	11
Peak Hour														

LDT= Light Duty Trucks (4 Wheels; Commercial Mini Vans; Mini School Buses)
HDT= Heavy Duty Trucks (6 or more Wheels; Walk-In Trucks)
DT= Diesel Trucks (with Vertical Tale Pipe; Tractor-Trailers)

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VC7

Traffic / Pedestrian Movement Count Sheet

Project No.: 1121A
Location :

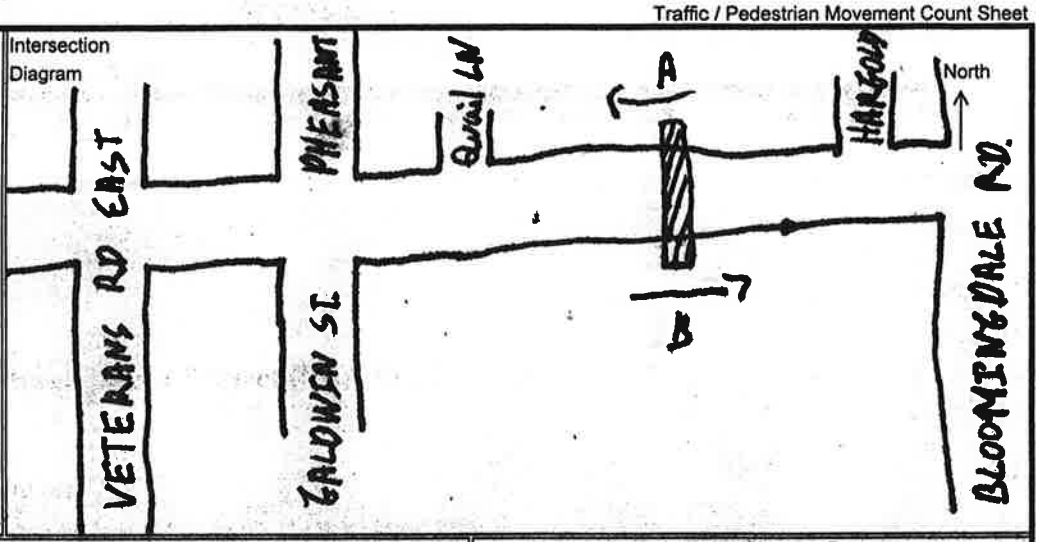
Date: 06/11/11

Period:

Weather Conditions: rain !

Surveyor's Name: Valentyna Yermakova

Intersection Diagram



Time	Location/Direction A AUTO 1	LDT 2	HDT 3	DT 4	BUS 5	SUV 6	Location/Direction B AUTO 7	LDT 8	HDT 9	DT 10	BUS 11	SUV 12
3:00 to 3:15	4	1	–	–	–	2	11	2	–	–	–	9
3:15 to 3:30	10	1	–	–	–	4	20	1	–	–	–	9
3:30 to 3:45	7	1	–	–	–	2	17	1	–	–	–	8
3:45 to 4:00	13	1	–	–	–	3	14	1	–	–	–	14
4:00 to 4:15	4	1	–	–	–	3	14	1	1	–	–	14
4:15 to 4:30	4	–	–	–	–	3	15	2	–	–	–	13
4:30 to 4:45	7	–	–	–	–	4	16	–	–	–	–	7
4:45 to 5:00	6	–	–	–	–	7	14	–	–	–	–	6
5:00 to 5:15	9	–	–	–	–	6	8	–	–	–	–	10
5:15 to 5:30	12	–	–	–	–	3	8	–	1	–	–	4
5:30 to 5:45	7	–	–	–	–	1	24	–	–	–	–	9
5:45 to 6:00	7	–	1	–	–	1	8	–	–	–	–	3
Peak Hour												

LDT= Light Duty Trucks (4 Wheels; Commercial Mini Vans; Mini School Buses)
HDT= Heavy Duty Trucks (6 or more Wheels; Walk-In Trucks)
DT= Diesel Trucks (with Vertical Tale Pipe; Tractor-Trailers)

Automatic Traffic Recorder Counts

	1					2				
Charleston ATR June 2011	**Arthur Kill Rd NB South of Sharrots Rd** Tues	Wed	Thur	AVG		**Arthur Kill Rd SB North of Sharrots Rd** Tues	Wed	Thur	AVG	
AM										
6:30 - 6:45	39	48	51	46		31	30	31	31	
6:45 - 7:00	32	39	40	37		45	50	33	43	
7:00 - 7:15	40	46	40	42		33	47	42	41	
7:15 - 7:30	57	44	50	50	175	49	53	49	50	164
7:30 - 7:45	53	45	58	52	181	61	51	50	54	188
7:45 - 8:00	61	64	60	62	206	46	56	44	49	194
8:00 - 8:15	52	72	48	57	221	51	49	49	50	203
8:15 - 8:30	44	47	41	44	215	50	43	34	42	195
8:30 - 8:45	55	53	29	46	209	39	42	39	40	181
8:45 - 9:00	53	50	33	45	192	47	64	55	55	187
9:00 - 9:15	46	59	53	53	188	57	52	57	55	193
9:15 - 9:30	36	45	45	42	186	37	46	43	42	193
Peak Hour Total	**204**	**222**	**151**		**192**	**187**	**198**	**177**		**187**
PHF	**0.93**	**0.77**	**0.79**		**0.83**	**0.92**	**0.77**	**0.80**		**0.83**
MD										
11:00 - 11:15	46	53	58	52		58	63	47	56	
11:15 - 11:30	47	63	43	51		59	48	64	57	
11:30 - 11:45	59	67	36	54		51	46	58	52	
11:45 - 12:00	41	51	63	52	209	76	44	82	67	232
12:00 - 12:15	68	60	72	67	223	57	51	61	56	232
12:15 - 12:30	64	59	48	57	229	63	56	59	59	235
12:30 - 12:45	59	58	55	57	233	56	60	69	62	245
12:45 - 1:00	82	44	52	59	240	64	51	52	56	233
1:00 - 1:15	54	43	47	48	222	61	64	64	63	240
1:15 - 1:30	58	50	49	52	217	62	53	65	60	240
1:30 - 1:45	58	45	43	49	208	41	62	72	58	237
1:45 - 2:00	36	54	54	48	197	45	52	70	56	237
2:00 - 2:15	58	56	63	59	208	64	46	66	59	233
2:15 - 2:30	58	59	52	56	212	73	65	66	68	241
2:30 - 2:45	62	67	69	66	229	77	50	62	63	245
2:45 - 3:00	57	52	68	59	240	79	64	77	73	263
Peak Hour Total	**273**	**221**	**227**		**240**	**240**	**218**	**241**		**233**
PHF	**0.83**	**0.92**	**0.79**		**0.85**	**0.94**	**0.91**	**0.87**		**0.91**
PM										
4:00 - 4:15	80	78	66	75		65	105	63	78	
4:15 - 4:30	55	62	67	61		68	71	73	71	
4:30 - 4:45	59	59	60	59		57	59	68	61	
4:45 - 5:00	60	89	74	74	270	68	58	59	62	271
5:00 - 5:15	62	98	66	75	270	78	89	73	80	274
5:15 - 5:30	45	76	45	55	264	44	61	66	57	260
5:30 - 5:45	50	92	54	65	270	46	58	66	57	255
5:45 - 6:00	67	85	65	72	268	66	68	60	65	258
6:00 - 6:15	73	73	68	71	264	54	33	41	43	221
6:15 - 6:30	61	77	61	66	275	36	40	39	38	202
6:30 - 6:45	52	56	53	54	264	56	48	47	50	196
6:45 - 7:00	39	62	53	51	243	32	41	41	38	169
Peak Hour Total	**224**	**351**	**230**		**268**	**234**	**276**	**265**		**258**
PHF	**0.84**	**0.90**	**0.87**		**0.87**	**0.75**	**0.78**	**0.91**		**0.81**

	1				2			
Charleston ATR June 2011	**Arthur Kill Rd NB** **South of Sharrots Rd**				**Arthur Kill Rd SB** **North of Sharrots Rd**			
	Sat 1	Sat 2	AVG		Sat 1	Sat 2	AVG	
SMD								
12:00 - 12:15	55	48	52		54	45	50	
12:15 - 12:30	67	43	55		47	56	52	
12:30 - 12:45	58	50	54		57	47	52	
12:45 - 1:00	60	45	53	213	66	59	63	216
1:00 - 1:15	64	50	57	219	59	50	55	221
1:15 - 1:30	65	59	62	226	65	74	70	239
1:30 - 1:45	56	59	58	229	60	60	60	247
1:45 - 2:00	55	47	51	228	62	55	59	243
2:00 - 2:15	54	38	46	217	56	49	53	241
2:15 - 2:30	54	52	53	208	48	40	44	215
2:30 - 2:45	33	47	40	190	55	62	59	214
2:45 - 3:00	46	47	47	186	44	41	43	198
3:00 - 3:15	43	37	40	180	63	39	51	196
3:15 - 3:30	40	35	38	164	52	42	47	199
3:30 - 3:45	48	39	44	168	44	38	41	182
3:45 - 4:00	51	51	51	172	52	48	50	189
4:00 - 4:15	44	41	43	175	45	48	47	185
4:15 - 4:30	44	38	41	178	41	29	35	173
4:30 - 4:45	36	35	36	170	56	44	50	182
4:45 - 5:00	33	48	41	160	39	49	44	176
5:00 - 5:15	43	51	47	164	39	42	41	170
5:15 - 5:30	35	33	34	157	29	29	29	164
5:30 - 5:45	33	40	37	158	30	28	29	143
5:45 - 6:00	24	29	27	144	33	51	42	141
Peak Hour Total	**245**	**213**		**229**	**250**	**243**		**247**
PHF	**0.94**	**0.90**		**0.92**	**0.95**	**0.82**		**0.88**

	3					4				
Charleston ATR June 2011	**Arthur Kill Rd NB** **South of S Bridge St** Tues	Wed	Thur	AVG		**Arthur Kill Rd SB** **North of N Bridge St** Tues	Wed	Thur	AVG	
AM										
6:30 - 6:45	113	108	91	104		46	51	34	44	
6:45 - 7:00	86	93	112	97		50	43	49	47	
7:00 - 7:15	110	122	118	117		60	61	41	54	
7:15 - 7:30	153	136	140	143	461	53	64	60	59	204
7:30 - 7:45	162	147	125	145	501	71	65	57	64	225
7:45 - 8:00	172	172	177	174	578	81	83	48	71	248
8:00 - 8:15	186	186	146	173	634	59	58	58	58	252
8:15 - 8:30	164	167	143	158	649	56	49	51	52	245
8:30 - 8:45	145	146	140	144	648	56	68	60	61	242
8:45 - 9:00	126	132	83	114	588	78	69	61	69	241
9:00 - 9:15	99	142	123	121	537	73	77	76	75	258
9:15 - 9:30	130	124	134	129	508	58	65	68	64	270
Peak Hour Total	**621**	**631**	**512**		**588**	**249**	**244**	**230**		**241**
PHF	**0.83**	**0.85**	**0.88**		**0.85**	**0.80**	**0.88**	**0.94**		**0.87**
MD										
11:00 - 11:15	129	126	132	129		93	74	80	82	
11:15 - 11:30	145	123	102	123		74	81	83	79	
11:30 - 11:45	140	127	84	117		78	93	82	84	
11:45 - 12:00	109	130	146	128	498	95	90	105	97	343
12:00 - 12:15	164	140	130	145	513	87	64	80	//	337
12:15 - 12:30	142	103	130	125	515	83	108	88	93	351
12:30 - 12:45	153	127	138	139	537	76	84	99	86	353
12:45 - 1:00	159	143	118	140	549	79	78	74	77	333
1:00 - 1:15	97	135	125	119	523	87	83	72	81	337
1:15 - 1:30	118	115	129	121	519	92	74	91	86	330
1:30 - 1:45	116	128	118	121	500	78	87	80	82	325
1:45 - 2:00	99	119	124	114	474	86	87	83	85	333
2:00 - 2:15	146	116	116	126	481	77	89	61	76	328
2:15 - 2:30	118	132	139	130	490	84	103	89	92	335
2:30 - 2:45	178	169	164	170	540	97	75	89	87	340
2:45 - 3:00	139	144	143	142	568	79	78	88	82	336
Peak Hour Total	**618**	**513**	**516**		**549**	**325**	**334**	**341**		**333**
PHF	**0.94**	**0.90**	**0.93**		**0.92**	**0.93**	**0.77**	**0.86**		**0.86**
PM										
4:00 - 4:15	187	197	166	183		100	138	114	117	
4:15 - 4:30	148	172	141	154		101	117	114	111	
4:30 - 4:45	140	171	156	156		101	108	102	104	
4:45 - 5:00	142	132	138	137	630	106	106	121	111	443
5:00 - 5:15	148	154	161	154	601	133	114	128	125	450
5:15 - 5:30	157	158	163	159	607	94	104	88	95	435
5:30 - 5:45	141	134	154	143	594	108	113	111	111	442
5:45 - 6:00	174	162	142	159	616	113	92	92	99	430
6:00 - 6:15	179	184	189	184	646	79	85	90	85	390
6:15 - 6:30	159	140	134	144	631	96	94	88	93	387
6:30 - 6:45	148	139	170	152	640	94	94	85	91	367
6:45 - 7:00	172	166	157	165	646	87	93	93	91	359
Peak Hour Total	**620**	**608**	**620**		**616**	**448**	**423**	**419**		**430**
PHF	**0.89**	**0.94**	**0.95**		**0.93**	**0.84**	**0.93**	**0.82**		**0.86**

	3				4			
Charleston ATR June 2011	**Arthur Kill Rd NB** **South of S Bridge St** Sat 1	Sat 2	AVG		**Arthur Kill Rd SB** **North of N Bridge St** Sat 1	Sat 2	AVG	
SMD								
12:00 - 12:15	152	160	156		104	100	102	
12:15 - 12:30	169	177	173		96	97	97	
12:30 - 12:45	173	146	160		115	99	107	
12:45 - 1:00	206	172	189	678	115	98	107	412
1:00 - 1:15	180	163	172	693	94	113	104	414
1:15 - 1:30	185	148	167	687	121	115	118	435
1:30 - 1:45	157	167	162	689	122	89	106	434
1:45 - 2:00	159	172	166	666	84	112	98	425
2:00 - 2:15	161	157	159	653	96	94	95	417
2:15 - 2:30	156	147	152	638	87	80	84	382
2:30 - 2:45	136	137	137	613	83	76	80	356
2:45 - 3:00	129	149	139	586	77	89	83	341
3:00 - 3:15	169	121	145	572	77	53	65	311
3:15 - 3:30	132	117	125	545	87	36	62	289
3:30 - 3:45	146	143	145	553	98	43	71	280
3:45 - 4:00	166	163	165	579	84	40	62	259
4:00 - 4:15	163	161	162	596	84	47	66	260
4:15 - 4:30	140	159	150	621	81	60	71	269
4:30 - 4:45	164	141	153	629	77	61	69	267
4:45 - 5:00	164	115	140	604	82	56	69	274
5:00 - 5:15	169	113	141	583	67	58	63	271
5:15 - 5:30	153	186	170	603	88	62	75	276
5:30 - 5:45	121	133	127	577	58	60	59	266
5:45 - 6:00	107	129	118	556	86	75	81	277
Peak Hour Total	**728**	**650**		**689**	**452**	**415**		**434**
PHF	**0.88**	**0.94**		**0.91**	**0.93**	**0.90**		**0.91**

	5					6				
Charleston ATR June 2011	**Boscombe Ave WB East of Korean War Vet HW Ramp**					**Boscombe Ave EB West of Korean War Vet HW Ramp**				
	Tues	Wed	Thur	AVG		Tues	Wed	Thur	AVG	
AM										
6:30 - 6:45	34	33	38	35		166	178	161	168	
6:45 - 7:00	40	50	48	46		180	178	171	176	
7:00 - 7:15	58	58	65	60		181	194	181	185	
7:15 - 7:30	58	73	63	65	206	212	220	221	218	748
7:30 - 7:45	75	78	72	75	246	228	218	214	220	799
7:45 - 8:00	80	89	83	84	284	260	275	210	248	871
8:00 - 8:15	104	75	60	80	303	278	246	207	244	930
8:15 - 8:30	110	99	95	101	340	288	276	221	262	974
8:30 - 8:45	126	91	108	108	373	225	228	222	225	979
8:45 - 9:00	88	93	91	91	380	232	226	190	216	946
9:00 - 9:15	91	118	105	105	405	190	206	207	201	904
9:15 - 9:30	98	89	78	88	392	212	189	196	199	841
Peak Hour Total	**428**	**358**	**354**		**380**	**1023**	**976**	**840**		**946**
PHF	**0.85**	**0.90**	**0.82**		**0.86**	**0.89**	**0.88**	**0.95**		**0.91**
MD										
11:00 - 11:15	187	138	134	153		220	201	218	213	
11:15 - 11:30	158	126	128	137		218	205	52	158	
11:30 - 11:45	160	135	146	147		216	202	216	211	
11:45 - 12:00	141	129	154	141	579	219	221	242	227	810
12:00 - 12:15	159	147	155	154	579	245	246	239	243	840
12:15 - 12:30	164	171	187	174	616	266	186	213	222	904
12:30 - 12:45	178	188	170	179	648	228	238	223	230	922
12:45 - 1:00	190	160	184	178	684	222	200	215	212	907
1:00 - 1:15	184	162	169	172	702	214	218	212	215	878
1:15 - 1:30	177	165	165	169	697	245	228	206	226	883
1:30 - 1:45	172	179	152	168	686	213	219	209	214	867
1:45 - 2:00	168	152	156	159	667	232	203	221	219	873
2:00 - 2:15	160	193	147	167	662	206	229	206	214	872
2:15 - 2:30	172	158	173	168	661	233	226	240	233	879
2:30 - 2:45	154	144	146	148	641	277	263	297	279	944
2:45 - 3:00	141	145	136	141	623	213	255	214	227	953
Peak Hour Total	**691**	**666**	**696**		**684**	**961**	**870**	**890**		**907**
PHF	**0.91**	**0.89**	**0.93**		**0.91**	**0.90**	**0.88**	**0.93**		**0.91**
PM										
4:00 - 4:15	169	184	165	173		294	270	260	275	
4:15 - 4:30	170	152	158	160		238	248	236	241	
4:30 - 4:45	180	180	129	163		231	252	216	233	
4:45 - 5:00	137	163	157	152	648	239	241	218	233	981
5:00 - 5:15	154	165	140	153	628	281	256	228	255	961
5:15 - 5:30	150	152	147	150	618	236	238	253	242	963
5:30 - 5:45	167	170	154	164	619	246	213	218	226	956
5:45 - 6:00	171	162	143	159	625	223	210	235	223	946
6:00 - 6:15	154	153	150	152	624	247	273	245	255	946
6:15 - 6:30	139	170	145	151	626	233	249	257	246	950
6:30 - 6:45	140	160	146	149	611	208	226	216	217	941
6:45 - 7:00	156	153	169	159	612	213	229	220	221	939
Peak Hour Total	**642**	**649**	**584**		**625**	**986**	**917**	**934**		**946**
PHF	**0.94**	**0.95**	**0.95**		**0.95**	**0.88**	**0.90**	**0.92**		**0.90**

	5				6			
Charleston ATR June 2011	**Boscombe Ave WB East of Korean War Vet HW Ramp**				**Boscombe Ave EB West of Korean War Vet HW Ramp**			
	Sat 1	Sat 2	AVG		Sat 1	Sat 2	AVG	
SMD								
12:00 - 12:15	202	188	195		257	251	254	
12:15 - 12:30	201	202	202		271	241	256	
12:30 - 12:45	198	178	188		269	273	271	
12:45 - 1:00	225	207	216	801	264	272	268	1049
1:00 - 1:15	191	190	191	796	303	267	285	1080
1:15 - 1:30	213	221	217	812	278	276	277	1101
1:30 - 1:45	223	209	216	840	290	260	275	1105
1:45 - 2:00	186	205	196	819	294	313	304	1141
2:00 - 2:15	202	206	204	833	259	302	281	1136
2:15 - 2:30	223	185	204	820	271	241	256	1115
2:30 - 2:45	194	208	201	805	230	244	237	1077
2:45 - 3:00	206	187	197	806	247	247	247	1021
3:00 - 3:15	229	178	204	805	246	199	223	963
3:15 - 3:30	206	181	194	795	222	269	246	952
3:30 - 3:45	191	173	182	776	260	229	245	960
3:45 - 4:00	237	193	215	794	255	263	259	972
4:00 - 4:15	206	188	197	788	249	239	244	993
4:15 - 4:30	218	173	196	790	262	243	253	1000
4:30 - 4:45	207	176	192	799	232	228	230	986
4:45 - 5:00	196	165	181	765	226	231	229	955
5:00 - 5:15	153	171	162	730	261	212	237	948
5:15 - 5:30	185	158	172	706	213	253	233	928
5:30 - 5:45	215	158	187	701	227	237	232	930
5:45 - 6:00	184	151	168	688	223	203	213	915
Peak Hour Total	**852**	**827**		**840**	**1135**	**1075**		**1105**
PHF	**0.95**	**0.94**		**0.94**	**0.94**	**0.97**		**0.96**

Charleston ATR June 2011	Veterans Rd West EB * West of N Bridge St					Veterans Rd West WB * East of N Bridge St				
	Tues	Wed	Thur	AVG		Tues	Wed	Thur	AVG	
AM										
6:30 - 6:45	39	56	39	45		52	52	42	49	
6:45 - 7:00	36	41	44	40		73	49	75	66	
7:00 - 7:15	68	72	57	66		53	79	69	67	
7:15 - 7:30	63	92	71	75	226	78	101	75	85	266
7:30 - 7:45	73	61	57	64	245	143	108	90	114	331
7:45 - 8:00	102	85	76	88	292	134	194	133	154	419
8:00 - 8:15	86	102	72	87	313	114	162	127	134	486
8:15 - 8:30	90	87	75	84	322	108	191	111	137	538
8:30 - 8:45	94	73	83	83	342	91	189	174	151	576
8:45 - 9:00	67	70	77	71	325	113	95	174	127	550
9:00 - 9:15	62	78	71	70	309	80	181	198	153	568
9:15 - 9:30	71	77	75	74	299	115	168	193	159	590
Peak Hour Total	**337**	**332**	**307**		**325**	**426**	**637**	**586**		**550**
PHF	**0.90**	**0.81**	**0.92**		**0.88**	**0.93**	**0.83**	**0.84**		**0.87**
MD										
11:00 - 11:15	70	85	85	80		160	125	199	161	
11:15 - 11:30	90	71	65	75		157	185	232	191	
11:30 - 11:45	85	84	60	76		126	163	169	153	
11:45 - 12:00	90	83	82	85	317	132	185	192	170	675
12:00 - 12:15	68	81	86	78	315	150	145	186	160	674
12:15 - 12:30	80	83	65	76	316	150	183	156	163	646
12:30 - 12:45	104	76	80	87	326	148	200	191	180	673
12:45 - 1:00	92	103	69	88	329	166	157	164	162	665
1:00 - 1:15	84	75	76	78	329	111	170	196	159	664
1:15 - 1:30	74	67	67	69	322	126	142	158	142	643
1:30 - 1:45	97	82	63	81	316	158	159	182	166	630
1:45 - 2:00	73	71	74	73	301	153	145	157	152	619
2:00 - 2:15	93	79	69	80	303	138	193	188	173	633
2:15 - 2:30	82	89	85	85	319	148	160	157	155	646
2:30 - 2:45	118	82	76	92	330	199	162	184	182	661
2:45 - 3:00	90	80	75	82	339	162	224	148	178	688
Peak Hour Total	**344**	**343**	**300**		**329**	**614**	**685**	**697**		**665**
PHF	**0.83**	**0.83**	**0.87**		**0.84**	**0.92**	**0.86**	**0.91**		**0.90**
PM										
4:00 - 4:15	124	100	114	113		118	178	120	139	
4:15 - 4:30	104	119	91	105		135	136	104	125	
4:30 - 4:45	110	132	107	116		147	115	116	126	
4:45 - 5:00	106	111	103	107	440	245	125	131	167	557
5:00 - 5:15	112	121	135	123	450	195	103	161	153	571
5:15 - 5:30	111	116	119	115	461	117	102	239	153	599
5:30 - 5:45	85	110	101	99	443	130	137	256	174	647
5:45 - 6:00	105	95	87	96	432	124	118	250	164	644
6:00 - 6:15	98	118	91	102	412	111	141	231	161	652
6:15 - 6:30	72	89	91	84	381	108	119	196	141	640
6:30 - 6:45	78	81	81	80	362	112	100	198	137	603
6:45 - 7:00	93	84	74	84	350	120	145	191	152	591
Peak Hour Total	**413**	**442**	**442**		**432**	**566**	**460**	**906**		**644**
PHF	**0.92**	**0.91**	**0.82**		**0.88**	**0.73**	**0.84**	**0.88**		**0.82**

*Note - Median ATR value for MD peak (343)was used in balancing network to avoid a dramatic reduction of manual traffic counts

*Note - Median ATR value for PM peak (566) was usedin balancing network to avoid a dramatic increase of manual traffic counts

	7				8			
Charleston ATR June 2011	**Veterans Rd West EB West of N Bridge St**				**Veterans Rd West WB East of N Bridge St**			
	Sat 1	Sat 2	AVG		Sat 1	Sat 2	AVG	
SMD								
12:00 - 12:15	113	111	112		105	199	152	
12:15 - 12:30	120	120	120		130	220	175	
12:30 - 12:45	123	81	102		113	213	163	
12:45 - 1:00	105	110	108	442	145	214	180	670
1:00 - 1:15	127	107	117	447	117	208	163	680
1:15 - 1:30	133	108	121	447	140	190	165	670
1:30 - 1:45	111	94	103	448	233	141	187	694
1:45 - 2:00	99	105	102	442	197	154	176	690
2:00 - 2:15	128	102	115	440	139	139	139	667
2:15 - 2:30	102	102	102	422	115	151	133	635
2:30 - 2:45	98	99	99	418	107	128	118	565
2:45 - 3:00	94	119	107	422	125	125	125	515
3:00 - 3:15	138	109	124	431	113	91	102	478
3:15 - 3:30	120	84	102	431	108	108	108	453
3:30 - 3:45	103	91	97	429	146	131	139	474
3:45 - 4:00	105	101	103	426	123	107	115	464
4:00 - 4:15	100	122	111	413	139	107	123	485
4:15 - 4:30	96	108	102	413	93	132	113	489
4:30 - 4:45	131	91	111	427	99	151	125	476
4:45 - 5:00	110	86	98	422	104	144	124	485
5:00 - 5:15	111	102	107	418	94	138	116	478
5:15 - 5:30	104	109	107	422	95	124	110	475
5:30 - 5:45	81	81	81	392	77	88	83	432
5:45 - 6:00	70	68	69	363	101	107	104	412
Peak Hour Total	**476**	**419**		**448**	**635**	**753**		**694**
PHF	**0.89**	**0.95**		**0.92**	**0.68**	**0.88**		**0.78**

	9					10				
Charleston ATR June 2011	**Korean War Vet HW WB Off-Ramp South of Veterans Rd West**					**Tyrellan Ave NB South of Veterans Rd West**				
	Tues	Wed	Thur	AVG		Tues	Wed	Thur	AVG	
AM										
6:30 - 6:45	94	83	91	89		32	45	43	40	
6:45 - 7:00	105	113	112	110		49	42	46	46	
7:00 - 7:15	94	75	87	85		43	46	55	48	
7:15 - 7:30	112	114	113	113	398	56	64	61	60	194
7:30 - 7:45	162	148	118	143	451	56	63	53	57	211
7:45 - 8:00	139	156	170	155	496	89	86	67	81	246
8:00 - 8:15	153	153	128	145	555	84	86	59	76	275
8:15 - 8:30	134	139	146	140	582	88	106	68	87	302
8:30 - 8:45	156	130	144	143	583	81	80	82	81	325
8:45 - 9:00	124	142	138	135	562	93	74	71	79	324
9:00 - 9:15	142	139	151	144	562	87	72	86	82	329
9:15 - 9:30	139	152	146	146	568	78	82	84	81	323
Peak Hour Total	**567**	**564**	**556**		**562**	**346**	**346**	**280**		**324**
PHF	**0.91**	**0.92**	**0.95**		**0.93**	**0.93**	**0.82**	**0.85**		**0.87**
MD										
11:00 - 11:15	138	121	139	133		103	89	97	96	
11:15 - 11:30	148	144	163	152		90	96	98	95	
11:30 - 11:45	158	169	136	154		100	86	113	100	
11:45 - 12:00	179	157	159	165	604	106	90	114	103	394
12:00 - 12:15	164	151	166	160	631	109	106	132	116	413
12:15 - 12:30	155	137	142	145	624	94	105	102	100	419
12:30 - 12:45	139	148	164	150	620	109	128	112	116	436
12:45 - 1:00	142	143	135	140	595	90	86	103	93	425
1:00 - 1:15	131	135	142	136	571	93	96	91	93	403
1:15 - 1:30	156	133	143	144	570	95	93	85	91	394
1:30 - 1:45	148	152	141	147	567	104	101	85	97	374
1:45 - 2:00	145	187	146	159	586	98	82	90	90	371
2:00 - 2:15	166	190	137	164	615	83	76	93	84	362
2:15 - 2:30	144	155	154	151	622	110	97	89	99	369
2:30 - 2:45	169	200	159	176	651	108	99	110	106	378
2:45 - 3:00	166	223	193	194	685	96	111	92	100	388
Peak Hour Total	**600**	**579**	**607**		**595**	**402**	**425**	**449**		**425**
PHF	**0.91**	**0.96**	**0.91**		**0.93**	**0.92**	**0.83**	**0.85**		**0.87**
PM										
4:00 - 4:15	210	232	208	217		111	113	91	105	
4:15 - 4:30	175	200	177	184		120	101	86	102	
4:30 - 4:45	182	210	184	192		96	88	71	85	
4:45 - 5:00	189	229	127	182	774	103	115	83	100	393
5:00 - 5:15	204	197	187	196	754	108	93	104	102	389
5:15 - 5:30	201	222	202	208	778	90	98	105	98	385
5:30 - 5:45	194	189	210	198	784	99	96	83	93	392
5:45 - 6:00	209	246	213	223	825	103	78	95	92	384
6:00 - 6:15	181	202	206	196	825	98	103	95	99	381
6:15 - 6:30	181	238	199	206	823	93	89	105	96	379
6:30 - 6:45	215	265	209	230	855	74	75	89	79	366
6:45 - 7:00	194	208	209	204	836	83	88	75	82	356
Peak Hour Total	**808**	**854**	**812**		**825**	**400**	**365**	**387**		**384**
PHF	**0.97**	**0.87**	**0.95**		**0.93**	**0.93**	**0.93**	**0.92**		**0.93**

	9				10			
Charleston ATR June 2011	**Korean War Vet HW WB Off-Ramp** **South of Veterans Rd West**				**Tyrellan Ave NB** **South of Veterans Rd West**			
	Sat 1	Sat 2	AVG		Sat 1	Sat 2	AVG	
SMD								
12:00 - 12:15	177	159	168		119	106	113	
12:15 - 12:30	174	176	175		131	98	115	
12:30 - 12:45	190	155	173		121	127	124	
12:45 - 1:00	176	176	176	692	119	122	121	472
1:00 - 1:15	144	197	171	694	128	130	129	488
1:15 - 1:30	193	164	179	698	117	143	130	504
1:30 - 1:45	192	167	180	705	119	105	112	492
1:45 - 2:00	189	152	171	699	115	122	119	490
2:00 - 2:15	151	151	151	680	129	158	144	504
2:15 - 2:30	184	149	167	668	115	118	117	491
2:30 - 2:45	166	164	165	653	108	118	113	492
2:45 - 3:00	164	167	166	648	122	97	110	483
3:00 - 3:15	176	156	166	663	100	79	90	429
3:15 - 3:30	187	160	174	670	103	117	110	422
3:30 - 3:45	221	155	188	693	126	102	114	423
3:45 - 4:00	213	167	190	718	100	109	105	418
4:00 - 4:15	165	173	169	721	91	101	96	425
4:15 - 4:30	166	189	178	725	104	108	106	421
4:30 - 4:45	178	171	175	711	103	96	100	406
4:45 - 5:00	173	154	164	685	82	104	93	395
5:00 - 5:15	146	136	141	657	97	94	96	394
5:15 - 5:30	165	134	150	629	74	98	86	374
5:30 - 5:45	174	134	154	608	71	83	77	352
5:45 - 6:00	194	150	172	617	102	87	95	353
Peak Hour Total	**705**	**704**		**705**	**483**	**500**		**492**
PHF	**0.91**	**0.89**		**0.90**	**0.94**	**0.87**		**0.91**

	11*					12				
Charleston ATR June 2011	**Tyrellan Ave SB** **North of Veterans Rd West**					**Mohr Rd WB (In)** **East of Tyrellan Ave**				
	Tues	Wed	Thur	AVG		Tues	Wed	Thur	AVG	
AM										
6:30 - 6:45	16	22	19	19		8	14	16	13	
6:45 - 7:00	14	21	24	20		14	21	22	19	
7:00 - 7:15	33	36	30	33		17	19	19	18	
7:15 - 7:30	19	24	22	22	93	21	23	13	19	69
7:30 - 7:45	25	27	33	28	103	15	21	22	19	76
7:45 - 8:00	19	22	31	24	107	29	36	33	33	89
8:00 - 8:15	26	32	40	33	107	42	41	36	40	111
8:15 - 8:30	49	45	49	48	133	33	45	32	37	128
8:30 - 8:45	42	52	60	51	156	48	50	37	45	154
8:45 - 9:00	60	65	69	65	196	42	68	56	55	177
9:00 - 9:15	63	70	48	60	224	54	55	55	55	192
9:15 - 9:30	66	81	74	74	250	75	52	54	60	215
Peak Hour Total	**177**	**194**	**218**		**196**	**165**	**204**	**161**		**177**
PHF	**0.74**	**0.75**	**0.79**		**0.76**	**0.86**	**0.75**	**0.72**		**0.78**
MD										
11:00 - 11:15	96	87	93	92		69	83	66	73	
11:15 - 11:30	105	88	116	103		88	63	70	74	
11:30 - 11:45	104	112	131	116		78	67	76	74	
11:45 - 12:00	105	119	157	127	438	81	72	81	78	298
12:00 - 12:15	125	139	124	129	475	110	86	82	93	318
12:15 - 12:30	145	138	150	144	516	97	66	68	77	321
12:30 - 12:45	112	100	132	115	515	108	88	68	88	336
12:45 - 1:00	126	130	141	132	521	73	92	80	82	339
1:00 - 1:15	139	138	136	138	529	75	78	52	68	315
1:15 - 1:30	126	150	122	133	517	74	79	66	73	311
1:30 - 1:45	151	129	107	129	532	71	67	55	64	287
1:45 - 2:00	137	115	111	121	520	67	56	57	60	266
2:00 - 2:15	130	142	121	131	514	71	69	80	73	271
2:15 - 2:30	123	102	102	109	490	59	45	67	57	255
2:30 - 2:45	112	120	105	112	473	61	67	67	65	255
2:45 - 3:00	114	126	103	114	467	76	55	54	62	257
Peak Hour Total	**508**	**507**	**547**		**521**	**388**	**332**	**298**		**339**
PHF	**0.88**	**0.91**	**0.91**		**0.90**	**0.88**	**0.90**	**0.91**		**0.90**
PM										
4:00 - 4:15	124	141	108	124		76	72	66	71	
4:15 - 4:30	112	137	113	121		53	74	58	62	
4:30 - 4:45	113	133	111	119		58	67	67	64	
4:45 - 5:00	113	134	132	126	490	80	79	71	77	274
5:00 - 5:15	97	99	122	106	472	67	83	62	71	273
5:15 - 5:30	93	106	117	105	457	63	72	65	67	278
5:30 - 5:45	107	108	109	108	446	64	64	55	61	275
5:45 - 6:00	91	113	120	108	427	62	61	66	63	261
6:00 - 6:15	87	110	124	107	428	70	60	66	65	256
6:15 - 6:30	94	93	101	96	419	69	57	56	61	250
6:30 - 6:45	91	709	77	292	603	69	70	60	66	255
6:45 - 7:00	92	79	86	86	581	74	74	56	68	260
Peak Hour Total	**388**	**426**	**468**		**427**	**256**	**280**	**248**		**261**
PHF	**0.91**	**0.94**	**0.96**		**0.94**	**0.96**	**0.84**	**0.94**		**0.91**

*Note - ATR Data lost from 6/7 -6/10, Weekday data based on 6/14 - 6/16

	11				12			
Charleston ATR June 2011	**Tyrellan Ave SB North of Veterans Rd West**				**Mohr Rd WB (In) East of Tyrellan Ave**			
	Sat 1	Sat 2	AVG		Sat 1	Sat 2	AVG	
SMD								
12:00 - 12:15	175	145	160		106	109	108	
12:15 - 12:30	166	159	163		121	108	115	
12:30 - 12:45	174	184	179		97	121	109	
12:45 - 1:00	179	159	169	671	119	128	124	455
1:00 - 1:15	157	153	155	666	98	110	104	451
1:15 - 1:30	179	187	183	686	105	104	105	441
1:30 - 1:45	177	171	174	681	116	116	116	448
1:45 - 2:00	172	155	164	676	125	94	110	434
2:00 - 2:15	171	162	167	687	131	97	114	444
2:15 - 2:30	187	195	191	695	99	96	98	437
2:30 - 2:45	154	162	158	679	109	96	103	424
2:45 - 3:00	172	141	157	672	97	98	98	412
3:00 - 3:15	183	145	164	670	109	74	92	389
3:15 - 3:30	183	142	163	641	87	74	81	372
3:30 - 3:45	191	131	161	644	111	78	95	364
3:45 - 4:00	184	149	167	654	121	83	102	369
4:00 - 4:15	179	155	167	657	113	80	97	374
4:15 - 4:30	163	126	145	639	96	77	87	380
4:30 - 4:45	178	134	156	634	87	71	79	364
4:45 - 5:00	164	151	158	625	88	66	77	339
5:00 - 5:15	123	122	123	581	89	84	87	329
5:15 - 5:30	160	124	142	578	75	67	71	314
5:30 - 5:45	159	122	141	563	76	73	75	309
5:45 - 6:00	134	112	123	528	88	78	83	315
Peak Hour Total	**692**	**670**		**681**	**438**	**458**		**448**
PHF	**0.97**	**0.90**		**0.93**	**0.92**	**0.89**		**0.91**

	13					14				
Charleston ATR June 2011	**Mohr Rd EB (Out) East of Tyrellan Ave**					**Veterans Rd NB South of Englewood Ave**				
	Tues	Wed	Thur	AVG		Tues	Wed	Thur	AVG	
AM										
6:30 - 6:45	5	2	0	2		9	5	7	7	
6:45 - 7:00	3	6	4	4		5	10	9	8	
7:00 - 7:15	5	4	7	5		4	13	20	12	
7:15 - 7:30	9	16	13	13	25	3	34	16	18	45
7:30 - 7:45	10	11	14	12	34	12	20	27	20	58
7:45 - 8:00	6	15	11	11	40	9	42	25	25	75
8:00 - 8:15	11	11	11	11	46	8	44	23	25	88
8:15 - 8:30	15	17	17	16	50	23	53	33	36	106
8:30 - 8:45	14	29	16	20	58	26	55	35	39	125
8:45 - 9:00	16	19	15	17	64	32	38	27	32	132
9:00 - 9:15	23	31	17	24	76	35	51	36	41	148
9:15 - 9:30	26	22	22	23	83	47	42	48	46	157
Peak Hour Total	**56**	**76**	**59**		**64**	**89**	**190**	**118**		**132**
PHF	**0.88**	**0.66**	**0.87**		**0.80**	**0.70**	**0.86**	**0.84**		**0.80**
MD										
11:00 - 11:15	71	37	44	51		108	64	77	83	
11:15 - 11:30	33	44	31	36		72	66	58	65	
11:30 - 11:45	41	48	37	42		85	73	68	75	
11:45 - 12:00	37	39	29	35	164	78	75	62	72	295
12:00 - 12:15	44	28	40	37	150	72	67	79	73	285
12:15 - 12:30	38	32	39	36	151	85	55	79	73	293
12:30 - 12:45	44	42	40	42	151	78	69	74	74	291
12:45 - 1:00	49	48	34	44	159	87	85	68	80	299
1:00 - 1:15	60	53	55	56	178	94	102	78	91	318
1:15 - 1:30	50	29	47	42	184	101	64	88	84	329
1:30 - 1:45	50	59	33	47	189	89	99	57	82	337
1:45 - 2:00	47	50	43	47	192	81	75	80	79	336
2:00 - 2:15	48	54	32	45	181	74	82	64	73	318
2:15 - 2:30	39	43	44	42	181	76	78	69	74	308
2:30 - 2:45	48	36	49	44	178	75	83	90	83	309
2:45 - 3:00	45	40	33	39	170	72	92	56	73	304
Peak Hour Total	**175**	**150**	**153**		**159**	**322**	**276**	**300**		**299**
PHF	**0.89**	**0.78**	**0.96**		**0.88**	**0.93**	**0.81**	**0.95**		**0.90**
PM										
4:00 - 4:15	34	40	43	39		84	86	87	86	
4:15 - 4:30	52	36	46	45		107	82	81	90	
4:30 - 4:45	39	55	39	44		77	96	84	86	
4:45 - 5:00	33	39	40	37	165	78	95	81	85	346
5:00 - 5:15	40	52	44	45	172	96	106	88	97	357
5:15 - 5:30	39	46	29	38	165	84	99	76	86	353
5:30 - 5:45	36	51	32	40	160	78	107	74	86	354
5:45 - 6:00	35	44	27	35	158	78	79	65	74	343
6:00 - 6:15	41	41	44	42	155	92	99	87	93	339
6:15 - 6:30	40	33	29	34	151	82	80	69	77	330
6:30 - 6:45	32	39	32	34	146	64	72	80	72	316
6:45 - 7:00	47	37	27	37	147	99	83	101	94	336
Peak Hour Total	**150**	**193**	**132**		**158**	**336**	**391**	**303**		**343**
PHF	**0.94**	**0.93**	**0.75**		**0.87**	**0.88**	**0.91**	**0.86**		**0.88**

	13				14			
Charleston ATR June 2011	**Mohr Rd EB (Out)** **East of Tyrellan Ave**				**Veterans Rd NB** **South of Englewood Ave**			
	Sat 1	Sat 2	AVG		Sat 1	Sat 2	AVG	
SMD								
12:00 - 12:15	74	61	68		110	84	97	
12:15 - 12:30	70	52	61		106	105	106	
12:30 - 12:45	59	57	58		98	101	100	
12:45 - 1:00	75	63	69	256	114	107	111	413
1:00 - 1:15	58	63	61	249	110	101	106	421
1:15 - 1:30	74	86	80	268	110	136	123	439
1:30 - 1:45	68	58	63	273	93	103	98	437
1:45 - 2:00	61	65	63	267	99	114	107	433
2:00 - 2:15	76	67	72	278	128	132	130	458
2:15 - 2:30	83	69	76	274	118	112	115	450
2:30 - 2:45	62	50	56	267	93	100	97	448
2:45 - 3:00	64	55	60	263	102	92	97	439
3:00 - 3:15	65	62	64	255	97	103	100	409
3:15 - 3:30	63	58	61	240	109	107	108	402
3:30 - 3:45	66	55	61	244	91	82	87	392
3:45 - 4:00	66	49	58	242	111	93	102	397
4:00 - 4:15	76	62	69	248	117	107	112	409
4:15 - 4:30	63	44	54	241	110	74	92	393
4:30 - 4:45	78	39	59	239	119	86	103	409
4:45 - 5:00	66	43	55	236	102	75	89	395
5:00 - 5:15	54	40	47	214	89	79	84	367
5:15 - 5:30	62	54	58	218	83	96	90	365
5:30 - 5:45	51	56	54	213	80	97	89	351
5:45 - 6:00	57	40	49	207	84	69	77	339
Peak Hour Total	**275**	**270**		**273**	**427**	**447**		**437**
PHF	**0.92**	**0.78**		**0.85**	**0.94**	**0.82**		**0.88**

	15					16				
Charleston	**Veterans Rd SB**					**Sharrots Rd EB**				
ATR June 2011	**North of Englewood Ave**					**West of NB West Shore Parkway Service Rd**				
	Tues	Wed	Thur	AVG		Tues	Wed	Thur	AVG	
AM										
6:30 - 6:45	16	15	8	13		13	12	9	11	
6:45 - 7:00	15	8	17	13		12	10	12	11	
7:00 - 7:15	26	26	22	25		21	20	16	19	
7:15 - 7:30	27	38	21	29	80	12	11	6	10	51
7:30 - 7:45	41	37	17	32	98	18	8	24	17	57
7:45 - 8:00	45	50	22	39	124	22	16	11	16	62
8:00 - 8:15	51	39	28	39	139	15	15	20	17	59
8:15 - 8:30	41	48	31	40	150	13	14	9	12	62
8:30 - 8:45	38	32	37	36	154	20	12	15	16	61
8:45 - 9:00	36	33	28	32	147	19	18	15	17	62
9:00 - 9:15	30	37	29	32	140	15	11	12	13	58
9:15 - 9:30	37	24	37	33	133	2	17	8	9	55
Peak Hour Total	**166**	**152**	**124**		**147**	**67**	**59**	**59**		**62**
PHF	**0.81**	**0.79**	**0.84**		**0.81**	**0.84**	**0.82**	**0.74**		**0.80**
MD										
11:00 - 11:15	44	34	41	40		14	27	12	18	
11:15 - 11:30	42	40	38	40		21	13	12	15	
11:30 - 11:45	51	39	37	42		20	17	14	17	
11:45 - 12:00	46	49	48	48	170	27	13	15	18	68
12:00 - 12:15	63	33	40	45	175	28	18	18	21	72
12:15 - 12:30	46	33	42	40	176	23	20	15	19	76
12:30 - 12:45	37	44	34	38	172	23	18	15	19	78
12:45 - 1:00	34	53	38	42	166	22	14	13	16	76
1:00 - 1:15	45	45	40	43	164	26	11	28	22	76
1:15 - 1:30	57	39	42	46	169	27	20	20	22	79
1:30 - 1:45	38	44	34	39	170	22	17	17	19	79
1:45 - 2:00	40	41	38	40	168	13	13	19	15	78
2:00 - 2:15	51	42	39	44	168	21	27	15	21	77
2:15 - 2:30	42	33	39	38	160	28	17	16	20	75
2:30 - 2:45	35	45	22	34	156	17	14	18	16	73
2:45 - 3:00	42	43	43	43	159	32	18	22	24	82
Peak Hour Total	**180**	**163**	**154**		**166**	**96**	**70**	**61**		**76**
PHF	**0.71**	**0.77**	**0.92**		**0.80**	**0.86**	**0.88**	**0.85**		**0.86**
PM										
4:00 - 4:15	48	65	54	56		42	60	39	47	
4:15 - 4:30	35	50	49	45		29	31	22	27	
4:30 - 4:45	52	49	45	49		42	27	33	34	
4:45 - 5:00	55	54	46	52	201	27	23	26	25	134
5:00 - 5:15	43	54	46	48	193	37	38	33	36	123
5:15 - 5:30	46	51	48	48	196	24	23	25	24	119
5:30 - 5:45	50	53	54	52	200	26	36	35	32	118
5:45 - 6:00	46	39	45	43	192	22	27	25	25	117
6:00 - 6:15	46	62	62	57	201	31	38	37	35	116
6:15 - 6:30	47	45	58	50	202	30	26	30	29	121
6:30 - 6:45	46	45	42	44	194	14	21	17	17	106
6:45 - 7:00	47	41	33	40	191	23	17	25	22	103
Peak Hour Total	**185**	**197**	**193**		**192**	**109**	**124**	**118**		**117**
PHF	**0.93**	**0.91**	**0.89**		**0.91**	**0.74**	**0.82**	**0.84**		**0.80**

	15				16			
Charleston	**Veterans Rd SB**				**Sharrots Rd EB**			
ATR June 2011	**North of Englewood Ave**				**West of NB West Shore Parkway Service Rd**			
	Sat 1	Sat 2	AVG		Sat 1	Sat 2	AVG	
SMD								
12:00 - 12:15	60	68	64		17	14	16	
12:15 - 12:30	67	52	60		14	24	19	
12:30 - 12:45	69	64	67		26	30	28	
12:45 - 1:00	50	69	60	250	19	24	22	84
1:00 - 1:15	61	69	65	251	16	19	18	86
1:15 - 1:30	65	56	61	252	27	8	18	85
1:30 - 1:45	53	56	55	240	31	21	26	83
1:45 - 2:00	61	62	62	242	17	20	19	80
2:00 - 2:15	55	50	53	229	30	24	27	89
2:15 - 2:30	47	71	59	228	21	13	17	89
2:30 - 2:45	52	33	43	216	45	44	45	107
2:45 - 3:00	59	58	59	213	23	15	19	108
3:00 - 3:15	48	39	44	204	12	20	16	97
3:15 - 3:30	61	54	58	202	8	14	11	91
3:30 - 3:45	52	45	49	208	17	8	13	59
3:45 - 4:00	67	38	53	202	21	17	19	59
4:00 - 4:15	50	49	50	208	21	15	18	61
4:15 - 4:30	52	47	50	200	19	10	15	64
4:30 - 4:45	51	50	51	202	24	15	20	71
4:45 - 5:00	42	37	40	189	18	19	19	71
5:00 - 5:15	36	57	47	186	18	19	19	71
5:15 - 5:30	37	41	39	176	21	13	17	74
5:30 - 5:45	35	44	40	165	13	9	11	65
5:45 - 6:00	41	37	39	164	15	12	14	60
Peak Hour Total	**229**	**250**		**240**	**93**	**72**		**83**
PHF	**0.88**	**0.91**		**0.89**	**0.75**	**0.75**		**0.75**

Charleston ATR June 2011	17 Sharrots Rd WB East of NB West Shore Parkway Service Rd					18 Bloomingdale Rd NB South of Sharrots Rd				
	Tues	Wed	Thur	AVG		Tues	Wed	Thur	AVG	
AM										
6:30 - 6:45	13	11	4	9		60	60	37	52	
6:45 - 7:00	11	11	15	12		65	69	64	66	
7:00 - 7:15	21	18	14	18		72	62	48	61	
7:15 - 7:30	22	19	15	19	58	71	67	66	68	247
7:30 - 7:45	35	38	18	30	79	83	83	77	81	276
7:45 - 8:00	32	26	17	25	92	102	106	68	92	302
8:00 - 8:15	30	30	17	26	100	107	99	70	92	333
8:15 - 8:30	28	17	18	21	102	92	107	87	95	360
8:30 - 8:45	14	21	24	20	91	81	95	81	86	365
8:45 - 9:00	24	34	21	26	93	76	89	82	82	355
9:00 - 9:15	24	23	21	23	90	92	80	85	86	349
9:15 - 9:30	17	18	19	18	87	64	62	72	66	320
Peak Hour Total	**96**	**102**	**80**		**93**	**356**	**390**	**320**		**355**
PHF	**0.80**	**0.75**	**0.83**		**0.79**	**0.83**	**0.91**	**0.92**		**0.89**
MD										
11:00 - 11:15	15	13	23	17		78	75	82	78	
11:15 - 11:30	20	23	16	20		82	75	62	73	
11:30 - 11:45	52	19	24	32		87	69	73	76	
11:45 - 12:00	31	35	31	32	101	70	88	94	84	312
12:00 - 12:15	36	19	26	27	111	94	77	89	87	320
12:15 - 12:30	28	21	14	21	112	71	72	71	71	318
12:30 - 12:45	25	26	20	24	104	104	49	77	77	319
12:45 - 1:00	17	32	23	24	96	89	83	84	85	320
1:00 - 1:15	17	22	23	21	89	78	82	80	80	313
1:15 - 1:30	22	18	23	21	89	70	83	76	76	318
1:30 - 1:45	18	20	9	16	81	86	74	83	81	323
1:45 - 2:00	22	19	27	23	80	83	103	71	86	323
2:00 - 2:15	27	19	20	22	81	72	77	66	72	315
2:15 - 2:30	25	19	23	22	83	116	90	94	100	338
2:30 - 2:45	21	26	29	25	92	104	113	67	95	352
2:45 - 3:00	16	20	22	19	89	86	104	79	90	356
Peak Hour Total	**106**	**98**	**83**		**96**	**358**	**281**	**321**		**320**
PHF	**0.74**	**0.77**	**0.80**		**0.77**	**0.86**	**0.85**	**0.90**		**0.87**
PM										
4:00 - 4:15	40	27	19	29		112	91	83	95	
4:15 - 4:30	28	39	33	33		110	93	94	99	
4:30 - 4:45	29	26	20	25		115	91	101	102	
4:45 - 5:00	28	34	20	27	114	99	125	79	101	398
5:00 - 5:15	32	35	27	31	117	113	99	114	109	411
5:15 - 5:30	26	42	26	31	115	94	115	97	102	414
5:30 - 5:45	24	30	22	25	115	105	92	92	96	408
5:45 - 6:00	0	21	27	16	104	96	82	127	102	409
6:00 - 6:15	0	36	28	21	94	95	107	91	98	398
6:15 - 6:30	0	27	21	16	79	88	110	98	99	394
6:30 - 6:45	0	20	23	14	68	83	93	94	90	388
6:45 - 7:00	0	27	41	23	74	103	80	86	90	376
Peak Hour Total	**82**	**128**	**102**		**104**	**408**	**388**	**430**		**409**
PHF	**0.64**	**0.76**	**0.94**		**0.78**	**0.90**	**0.84**	**0.85**		**0.86**

	17				18			
Charleston	**Sharrots Rd WB**				**Bloomingdale Rd NB**			
ATR June 2011	**East of NB West Shore Parkway Service Rd**				**South of Sharrots Rd**			
	Sat 1	Sat 2	AVG		Sat 1	Sat 2	AVG	
SMD								
12:00 - 12:15	35	34	35		115	106	111	
12:15 - 12:30	38	19	29		105	97	101	
12:30 - 12:45	24	34	29		94	85	90	
12:45 - 1:00	25	26	26	118	113	92	103	404
1:00 - 1:15	34	33	34	117	103	89	96	389
1:15 - 1:30	29	23	26	114	104	108	106	394
1:30 - 1:45	30	35	33	118	106	103	105	409
1:45 - 2:00	36	31	34	126	112	75	94	400
2:00 - 2:15	28	26	27	119	93	97	95	399
2:15 - 2:30	22	43	33	126	102	114	108	401
2:30 - 2:45	34	32	33	126	102	64	83	380
2:45 - 3:00	30	21	26	118	80	72	76	362
3:00 - 3:15	32	24	28	119	97	87	92	359
3:15 - 3:30	32	29	31	117	89	97	93	344
3:30 - 3:45	41	30	36	120	87	92	90	351
3:45 - 4:00	35	24	30	124	102	99	101	375
4:00 - 4:15	38	32	35	131	91	97	94	377
4:15 - 4:30	26	26	26	126	104	69	87	371
4:30 - 4:45	33	29	31	122	96	73	85	366
4:45 - 5:00	27	28	28	120	96	91	94	359
5:00 - 5:15	25	29	27	112	82	62	72	337
5:15 - 5:30	17	20	19	104	89	74	82	332
5:30 - 5:45	22	26	24	97	93	82	88	335
5:45 - 6:00	25	26	26	95	65	58	62	303
Peak Hour Total	**118**	**117**		**118**	**426**	**392**		**409**
PHF	**0.87**	**0.84**		**0.85**	**0.94**	**0.91**		**0.92**

Charleston ATR June 2011	Bloomingdale Rd SB North of Sharrots Rd					Bloomingdale Rd SB North of Amboy Ave				
	Tues	Wed	Thur	AVG		Tues	Wed	Thur	AVG	
AM										
6:30 - 6:45	48	44	32	41		42	32	38	37	
6:45 - 7:00	54	49	42	48		58	44	40	47	
7:00 - 7:15	62	59	43	55		64	70	47	60	
7:15 - 7:30	86	73	54	71	215	86	70	55	70	215
7:30 - 7:45	100	84	71	85	259	122	102	91	105	283
7:45 - 8:00	98	80	78	85	296	145	119	89	118	353
8:00 - 8:15	100	102	75	92	334	152	146	104	134	427
8:15 - 8:30	104	92	67	88	350	103	113	80	99	455
8:30 - 8:45	73	84	62	73	338	90	92	67	83	433
8:45 - 9:00	75	76	84	78	331	81	91	90	87	403
9:00 - 9:15	68	76	74	73	312	82	83	76	80	349
9:15 - 9:30	64	68	59	64	288	60	62	76	66	317
Peak Hour Total	**352**	**354**	**288**		**331**	**426**	**442**	**341**		**403**
PHF	**0.85**	**0.87**	**0.86**		**0.86**	**0.70**	**0.76**	**0.82**		**0.76**
MD										
11:00 - 11:15	97	69	73	80		96	87	79	87	
11:15 - 11:30	86	84	79	83		104	82	82	89	
11:30 - 11:45	82	69	78	76		90	83	97	90	
11:45 - 12:00	85	74	83	81	320	104	101	110	105	372
12:00 - 12:15	84	73	87	81	321	111	76	93	93	378
12:15 - 12:30	83	73	72	76	314	106	101	87	98	386
12:30 - 12:45	77	69	80	75	313	95	73	82	83	380
12:45 - 1:00	82	85	71	79	312	77	99	94	90	365
1:00 - 1:15	84	68	88	80	311	90	90	73	84	356
1:15 - 1:30	83	74	84	80	315	81	91	73	82	339
1:30 - 1:45	77	105	78	87	326	72	126	814	337	593
1:45 - 2:00	82	87	84	84	331	79	102	90	90	594
2:00 - 2:15	91	97	67	85	336	75	125	94	98	607
2:15 - 2:30	97	84	80	87	343	88	109	87	95	620
2:30 - 2:45	110	114	106	110	366	100	101	87	96	379
2:45 - 3:00	107	119	92	106	388	87	120	74	94	382
Peak Hour Total	**326**	**300**	**310**		**312**	**389**	**349**	**356**		**365**
PHF	**0.97**	**0.88**	**0.89**		**0.91**	**0.88**	**0.86**	**0.95**		**0.90**
PM										
4:00 - 4:15	106	136	101	114		96	108	102	102	
4:15 - 4:30	110	116	115	114		86	101	101	96	
4:30 - 4:45	115	86	80	94		112	107	80	100	
4:45 - 5:00	118	133	96	116	437	106	120	110	112	410
5:00 - 5:15	111	118	99	109	432	114	135	89	113	420
5:15 - 5:30	117	117	87	107	426	101	100	85	95	420
5:30 - 5:45	99	113	130	114	446	83	144	95	107	427
5:45 - 6:00	113	111	131	118	449	103	134	115	117	433
6:00 - 6:15	119	126	123	123	462	85	99	102	95	415
6:15 - 6:30	108	116	97	107	462	128	125	101	118	438
6:30 - 6:45	103	107	101	104	452	99	101	101	100	431
6:45 - 7:00	100	102	100	101	434	91	137	110	113	426
Peak Hour Total	**440**	**459**	**447**		**449**	**401**	**513**	**384**		**433**
PHF	**0.94**	**0.97**	**0.85**		**0.92**	**0.88**	**0.89**	**0.83**		**0.87**

Charleston ATR June 2011	19 Bloomingdale Rd SB North of Sharrots Rd				20 Bloomingdale Rd SB North of Amboy Ave			
	Sat 1	Sat 2	AVG		Sat 1	Sat 2	AVG	
SMD								
12:00 - 12:15	112		112		128	84	106	
12:15 - 12:30	124		124		141	77	109	
12:30 - 12:45	123		123		121	92	107	
12:45 - 1:00	114		114	473	105	97	101	423
1:00 - 1:15	117		117	478	103	113	108	425
1:15 - 1:30	89		89	443	108	89	99	414
1:30 - 1:45	106		106	426	118	95	107	414
1:45 - 2:00	116		116	428	115	108	112	425
2:00 - 2:15	114		114	425	131	96	114	430
2:15 - 2:30	111		111	447	113	85	99	431
2:30 - 2:45	121		121	462	126	94	110	434
2:45 - 3:00	92		92	438	101	114	108	430
3:00 - 3:15	123		123	447	99	83	91	408
3:15 - 3:30	90	67	79	415	105	78	92	400
3:30 - 3:45	110	88	99	393	85	84	85	375
3:45 - 4:00	114	91	103	403	98	92	95	362
4:00 - 4:15	122	95	109	389	106	85	96	367
4:15 - 4:30	82	75	79	389	109	91	100	375
4:30 - 4:45	104	99	102	391	112	80	96	387
4:45 - 5:00	98	83	91	379	112	80	96	388
5:00 - 5:15	98	93	96	366	117	73	95	387
5:15 - 5:30	84	93	89	376	84	73	79	366
5:30 - 5:45	81	93	87	362	73	78	76	345
5:45 - 6:00	94	91	92.5	364	102	71	87	336
Peak Hour Total	**426**	**0**		**426**	**434**	**394**		**414**
PHF	**0.91**	**-**		**0.91**	**0.92**	**0.87**		**0.90**

	21					22				
Charleston ATR June 2011	**Bloomingdale Rd NB South of Amboy Ave** Tues	Wed	Thur	AVG		**Amboy Rd WB East of Bloomingdale Rd** Tues	Wed	Thur	AVG	
AM										
6:30 - 6:45	44	24	27	32		13	19	13	15	
6:45 - 7:00	38	47	30	38		18	22	15	18	
7:00 - 7:15	56	52	41	50		39	36	27	34	
7:15 - 7:30	61	59	44	55	174	36	38	33	36	103
7:30 - 7:45	100	86	61	82	225	48	35	46	43	131
7:45 - 8:00	72	94	79	82	268	55	68	51	58	171
8:00 - 8:15	85	78	54	72	291	88	94	51	78	214
8:15 - 8:30	98	78	60	79	315	80	80	54	71	250
8:30 - 8:45	68	84	59	70	303	65	59	55	60	267
8:45 - 9:00	69	65	58	64	285	72	63	55	63	272
9:00 - 9:15	71	49	64	61	274	61	53	64	59	254
9:15 - 9:30	63	76	58	66	261	49	56	55	53	236
Peak Hour Total	**320**	**305**	**231**		**285**	**305**	**296**	**215**		**272**
PHF	**0.82**	**0.91**	**0.96**		**0.90**	**0.87**	**0.79**	**0.98**		**0.88**
MD										
11:00 - 11:15	77	93	85	85		85	85	90	87	
11:15 - 11:30	89	61	75	75		82	71	83	79	
11:30 - 11:45	107	64	105	92		121	94	95	103	
11:45 - 12:00	104	87	86	92	344	102	78	95	92	360
12:00 - 12:15	91	92	89	91	350	117	82	86	95	369
12:15 - 12:30	118	69	90	92	367	110	88	109	102	392
12:30 - 12:45	116	111	98	108	384	95	57	95	82	371
12:45 - 1:00	106	83	99	96	387	87	102	78	89	369
1:00 - 1:15	101	103	77	94	390	78	87	88	84	358
1:15 - 1:30	93	86	86	88	386	62	110	87	86	342
1:30 - 1:45	102	108	84	98	376	62	85	84	77	337
1:45 - 2:00	104	99	76	93	373	86	108	70	88	336
2:00 - 2:15	80	77	88	82	361	99	108	95	101	352
2:15 - 2:30	102	88	97	96	368	104	139	109	117	383
2:30 - 2:45	111	137	98	115	386	88	130	110	109	415
2:45 - 3:00	96	109	81	95	388	125	159	100	128	455
Peak Hour Total	**431**	**355**	**376**		**387**	**409**	**329**	**368**		**369**
PHF	**0.91**	**0.80**	**0.95**		**0.89**	**0.87**	**0.81**	**0.84**		**0.84**
PM										
4:00 - 4:15	109	114	101	108		119	143	123	128	
4:15 - 4:30	89	98	104	97		96	106	79	94	
4:30 - 4:45	86	105	102	98		88	124	94	102	
4:45 - 5:00	106	102	92	100	403	102	123	93	106	430
5:00 - 5:15	101	99	100	100	395	97	119	72	96	398
5:15 - 5:30	120	105	99	108	406	106	119	88	104	408
5:30 - 5:45	115	94	113	107	415	91	92	71	85	391
5:45 - 6:00	107	97	95	100	415	78	99	100	92	377
6:00 - 6:15	94	90	129	104	419	90	97	86	91	372
6:15 - 6:30	99	86	91	92	403	84	96	76	85	353
6:30 - 6:45	95	71	87	84	380	68	96	101	88	357
6:45 - 7:00	102	90	116	103	383	97	82	90	90	354
Peak Hour Total	**443**	**395**	**407**		**415**	**372**	**429**	**331**		**377**
PHF	**0.92**	**0.94**	**0.90**		**0.92**	**0.88**	**0.90**	**0.83**		**0.87**

	21				22			
Charleston ATR June 2011	**Bloomingdale Rd NB South of Amboy Ave**				**Amboy Rd WB East of Bloomingdale Rd**			
	Sat 1	Sat 2	AVG		Sat 1	Sat 2	AVG	
SMD								
12:00 - 12:15	117	117	117		103	109	106	
12:15 - 12:30	135	103	119		73	109	91	
12:30 - 12:45	129	103	116		104	116	110	
12:45 - 1:00	136	110	123	475	90	92	91	398
1:00 - 1:15	127	126	127	485	106	103	105	397
1:15 - 1:30	120	100	110	476	96	84	90	396
1:30 - 1:45	120	124	122	482	113	92	103	388
1:45 - 2:00	125	107	116	475	102	95	99	396
2:00 - 2:15	117	113	115	463	77	81	79	370
2:15 - 2:30	130	120	125	478	87	84	86	366
2:30 - 2:45	127	110	119	475	85	84	85	348
2:45 - 3:00	114	110	112	471	83	58	71	320
3:00 - 3:15	108	107	108	463	79	49	64	305
3:15 - 3:30	109	120	115	453	80	43	62	281
3:30 - 3:45	107	106	107	441	89	42	66	262
3:45 - 4:00	114	105	110	438	91	71	81	272
4:00 - 4:15	109	105	107	438	77	83	80	288
4:15 - 4:30	120	92	106	429	89	61	75	302
4:30 - 4:45	113	89	101	424	82	65	74	310
4:45 - 5:00	97	93	95	409	86	53	70	298
5:00 - 5:15	87	79	83	385	80	75	78	296
5:15 - 5:30	94	89	92	371	68	60	64	285
5:30 - 5:45	90	90	90	360	72	60	66	277
5:45 - 6:00	100	73	87	351	65	55	60	268
Peak Hour Total	**503**	**460**		**482**	**405**	**371**		**388**
PHF	**0.92**	**0.91**		**0.92**	**0.90**	**0.90**		**0.90**

	23					24				
Charleston ATR June 2011	**Page Ave NB *** **South of Richmond Valley Rd** Tues	Wed	Thur	AVG		**Page Ave SB** **North of Richmond Valley Rd** Tues	Wed	Thur	AVG	
AM										
6:30 - 6:45	98	111	108	106		45	56	58	53	
6:45 - 7:00	105	120	112	112		75	74	72	74	
7:00 - 7:15	127	113	116	119		86	69	79	78	
7:15 - 7:30	134	144	143	140	477	78	87	103	89	294
7:30 - 7:45	142	165	149	152	523	109	97	120	109	350
7:45 - 8:00	189	200	157	182	593	142	151	114	136	412
8:00 - 8:15	225	202	146	191	665	117	106	96	106	440
8:15 - 8:30	226	210	156	197	722	92	124	83	100	450
8:30 - 8:45	182	183	159	175	745	100	94	124	106	448
8:45 - 9:00	185	167	142	165	728	105	90	87	94	406
9:00 - 9:15	154	160	169	161	698	98	125	102	108	408
9:15 - 9:30	166	143	144	151	651	106	113	96	105	413
Peak Hour Total	**818**	**762**	**603**		**728**	**414**	**414**	**390**		**406**
PHF	**0.90**	**0.91**	**0.95**		**0.92**	**0.88**	**0.83**	**0.79**		**0.84**
MD										
11:00 - 11:15	150	138	150	146		138	124	108	123	
11:15 - 11:30	172	140	171	161		122	88	99	103	
11:30 - 11:45	185	150	176	170		128	120	145	131	
11:45 - 12:00	207	158	202	189	666	131	135	144	137	494
12:00 - 12:15	204	176	201	194	714	120	109	126	118	489
12:15 - 12:30	194	159	160	171	724	128	140	139	136	522
12:30 - 12:45	199	191	167	186	739	136	134	162	144	535
12:45 - 1:00	176	160	178	171	722	162	143	159	155	553
1:00 - 1:15	164	181	150	165	693	128	150	152	143	578
1:15 - 1:30	181	162	158	167	689	118	138	142	133	575
1:30 - 1:45	163	169	167	166	670	133	150	110	131	562
1:45 - 2:00	158	153	179	163	662	116	137	126	126	533
2:00 - 2:15	165	165	165	165	662	138	157	130	142	532
2:15 - 2:30	180	154	176	170	665	148	144	140	144	543
2:30 - 2:45	179	193	237	203	701	112	125	126	121	533
2:45 - 3:00	183	201	140	175	713	122	144	127	131	538
Peak Hour Total	**773**	**686**	**706**		**722**	**546**	**526**	**586**		**553**
PHF	**0.95**	**0.90**	**0.88**		**0.91**	**0.84**	**0.92**	**0.90**		**0.89**
PM										
4:00 - 4:15	196	180	165	180		126	175	145	149	
4:15 - 4:30	159	178	151	163		166	170	138	158	
4:30 - 4:45	165	178	150	164		185	172	135	164	
4:45 - 5:00	197	181	161	180	687	184	197	150	177	648
5:00 - 5:15	177	179	170	175	682	141	153	159	151	650
5:15 - 5:30	148	169	175	164	683	142	151	156	150	642
5:30 - 5:45	190	146	153	163	682	141	128	154	141	619
5:45 - 6:00	155	147	177	160	662	165	184	190	180	621
6:00 - 6:15	176	181	194	184	670	179	168	165	171	641
6:15 - 6:30	166	164	178	169	676	135	180	166	160	652
6:30 - 6:45	139	148	145	144	657	152	171	182	168	679
6:45 - 7:00	160	153	166	160	657	148	165	188	167	666
Peak Hour Total	**670**	**641**	**675**		**662**	**589**	**616**	**659**		**621**
PHF	**0.88**	**0.90**	**0.95**		**0.91**	**0.89**	**0.84**	**0.87**		**0.87**

*Note - Median ATR value for AM peak (762) was used in balancing network to avoid a dramatic reduction of manual traffic counts

	23				24			
Charleston	**Page Ave NB**				**Page Ave SB**			
ATR June 2011	**South of Richmond Valley Rd**				**North of Richmond Valley Rd**			
	Sat 1	Sat 2	AVG		Sat 1	Sat 2	AVG	
SMD								
12:00 - 12:15	190	209	200		150	157	154	
12:15 - 12:30	220	188	204		173	167	170	
12:30 - 12:45	239	215	227		147	175	161	
12:45 - 1:00	284	219	252	882	177	160	169	653
1:00 - 1:15	286	222	254	937	134	139	137	636
1:15 - 1:30	194	221	208	940	157	160	159	625
1:30 - 1:45	238	186	212	925	159	162	161	624
1:45 - 2:00	221	249	235	909	152	150	151	607
2:00 - 2:15	202	209	206	860	148	165	157	627
2:15 - 2:30	208	190	199	852	153	128	141	609
2:30 - 2:45	175	180	178	817	164	153	159	607
2:45 - 3:00	197	197	197	779	138	150	144	600
3:00 - 3:15	181	162	172	745	137	135	136	579
3:15 - 3:30	164	190	177	723	150	145	148	586
3:30 - 3:45	168	180	174	720	149	160	155	582
3:45 - 4:00	157	160	159	681	167	155	161	599
4:00 - 4:15	171	162	167	676	145	153	149	612
4:15 - 4:30	190	162	176	675	152	140	146	611
4:30 - 4:45	165	153	159	660	148	145	147	603
4:45 - 5:00	166	171	169	670	147	139	143	585
5:00 - 5:15	157	163	160	664	148	129	139	574
5:15 - 5:30	176	176	176	664	160	136	148	576
5:30 - 5:45	164	138	151	656	123	135	129	559
5:45 - 6:00	170	125	148	635	146	123	135	550
Peak Hour Total	**1002**	**848**		**925**	**627**	**621**		**624**
PHF	**0.88**	**0.95**		**0.92**	**0.89**	**0.96**		**0.92**

Charleston ATR June 2011	Peak Hour Totals for All Intersections AVG	
AM		
6:30 - 6:45	635	
6:45 - 7:00	777	
7:00 - 7:15	872	
7:15 - 7:30	2511	4795
7:30 - 7:45	2861	7021
7:45 - 8:00	3244	9488
8:00 - 8:15	3519	12134
8:15 - 8:30	3639	13262
8:30 - 8:45	3622	14023
8:45 - 9:00	3495	14274
9:00 - 9:15	3469	14225
9:15 - 9:30	3388	13974
Peak Hour Total		**14274**
PHF		**0.98**
MD		
11:00 - 11:15	1505	
11:15 - 11:30	1496	
11:30 - 11:45	1561	
11:45 - 12:00	4107	8669
12:00 - 12:15	4189	11353
12:15 - 12:30	4202	14059
12:30 - 12:45	4288	16787
12:45 - 1:00	4209	16888
1:00 - 1:15	4235	16935
1:15 - 1:30	4159	16891
1:30 - 1:45	4229	16832
1:45 - 2:00	4144	16767
2:00 - 2:15	4158	16689
2:15 - 2:30	4172	16703
2:30 - 2:45	4320	16794
2:45 - 3:00	4371	17022
Peak Hour Total		**16888**
PHF		**0.98**
PM		
4:00 - 4:15	1903	
4:15 - 4:30	1663	
4:30 - 4:45	1659	
4:45 - 5:00	4712	9936
5:00 - 5:15	4746	12779
5:15 - 5:30	4749	15865
5:30 - 5:45	4715	18922
5:45 - 6:00	4678	18888
6:00 - 6:15	4652	18795
6:15 - 6:30	4622	18668
6:30 - 6:45	4498	18451
6:45 - 7:00	4545	18318
Peak Hour Total		**18795**
PHF		**0.99**

Charleston ATR June 2011	Peak Hour Totals for All Intersections	
	AVG	
SMD		
12:00 - 12:15	1515	
12:15 - 12:30	1562	
12:30 - 12:45	1522	
12:45 - 1:00	4814	9412
1:00 - 1:15	4836	12733
1:15 - 1:30	4900	16071
1:30 - 1:45	4861	19410
1:45 - 2:00	4784	19380
2:00 - 2:15	4744	19289
2:15 - 2:30	4672	19061
2:30 - 2:45	4476	18676
2:45 - 3:00	4344	18236
3:00 - 3:15	4165	17657
3:15 - 3:30	4095	17079
3:30 - 3:45	4144	16747
3:45 - 4:00	4158	16561
4:00 - 4:15	4150	16545
4:15 - 4:30	4116	16566
4:30 - 4:45	4138	16560
4:45 - 5:00	4044	16446
5:00 - 5:15	3924	16221
5:15 - 5:30	3895	16000
5:30 - 5:45	3765	15627
5:45 - 6:00	3746.5	15330
Peak Hour Total		**19410**
PHF		**0.99**

Geometry

PHILIP HABIB & ASSOCIATES 226, W. 26th Street, 9th Floor, New York, NY 10001 Phone:(212)929-5656

Physical Inventory Sheet

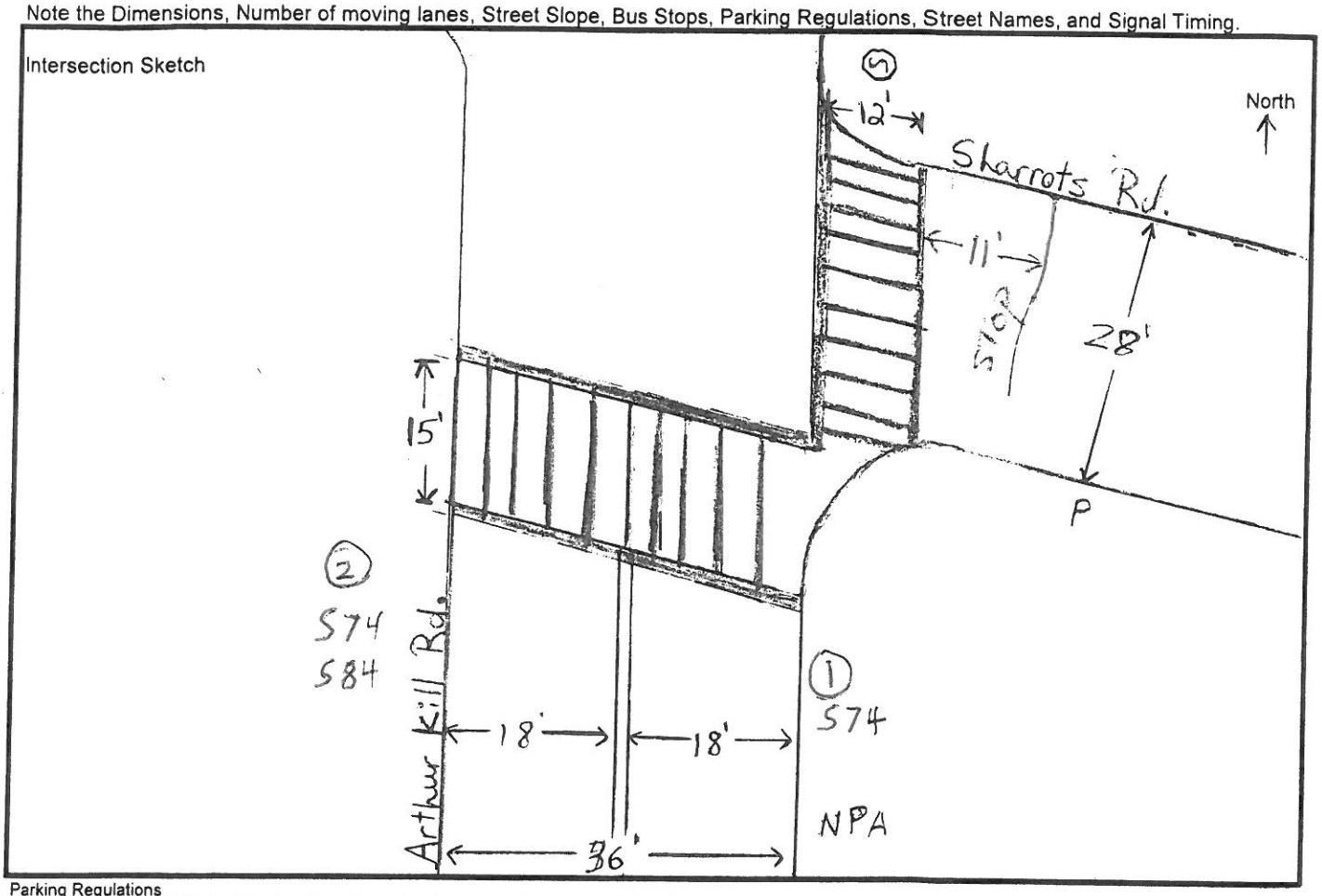
Project: Charleston Project #: 1121A

Location: Sharrots Road and Arthur Kill Road

Date: ..... Weather: ..... Surveyor: .....

Note the Dimensions, Number of moving lanes, Street Slope, Bus Stops, Parking Regulations, Street Names, and Signal Timing.

Intersection Sketch



Parking Regulations

(1) NB Appr. S74 stop (bus) No standing	( )
(2) SB Appr. S74, S84 bus stop	( )
(P) No regs	( )
( )	( )
( )	( )
( )	( )

Signal Timing

Approach	Phasing Diagram	Green Time(Sec.) AM/MD/PM/Sat. MD	Y+AR

Cycle Length

AM	MD
PM	Sat. MD

Pedestrian Button

Y	N

Signal Type

P	A

PHILIP HABIB & ASSOCIATES 226, W. 26th Street, 9th Floor, New York, NY 10001 Phone:(212)929-5656

Physical Inventory Sheet

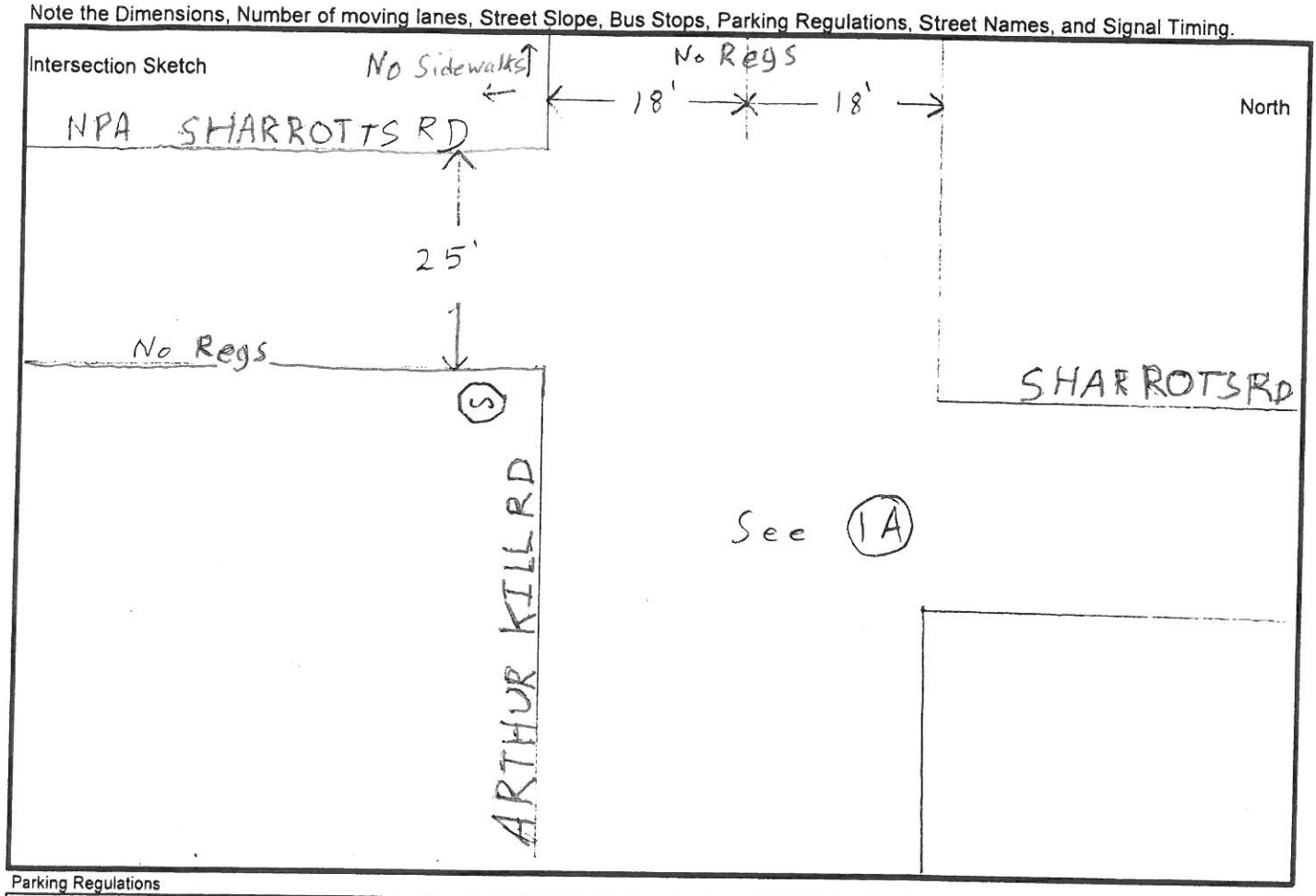
Project: Charleston Project #: 112.A

Location: Sharrotts Rd + Arthur Kill Rd

Date: ..... Weather: ..... Surveyor: .....

Note the Dimensions, Number of moving lanes, Street Slope, Bus Stops, Parking Regulations, Street Names, and Signal Timing.

Intersection Sketch



Parking Regulations

( )	( )
( )	( )
( )	( )
( )	( )
( )	( )
( )	( )

Signal Timing

Approach	Phasing Diagram	Green Time(Sec.) AM/MD/PM/Sat. MD	Y+AR

Cycle Length

AM	MD
PM	Sat. MD

Pedestrian Button

Y	N

Signal Type

P	A

PHILIP HABIB & ASSOCIATES 226, W. 26th Street, 9th Floor, New York, NY 10001 Phone:(212)929-5656

Physical Inventory Sheet

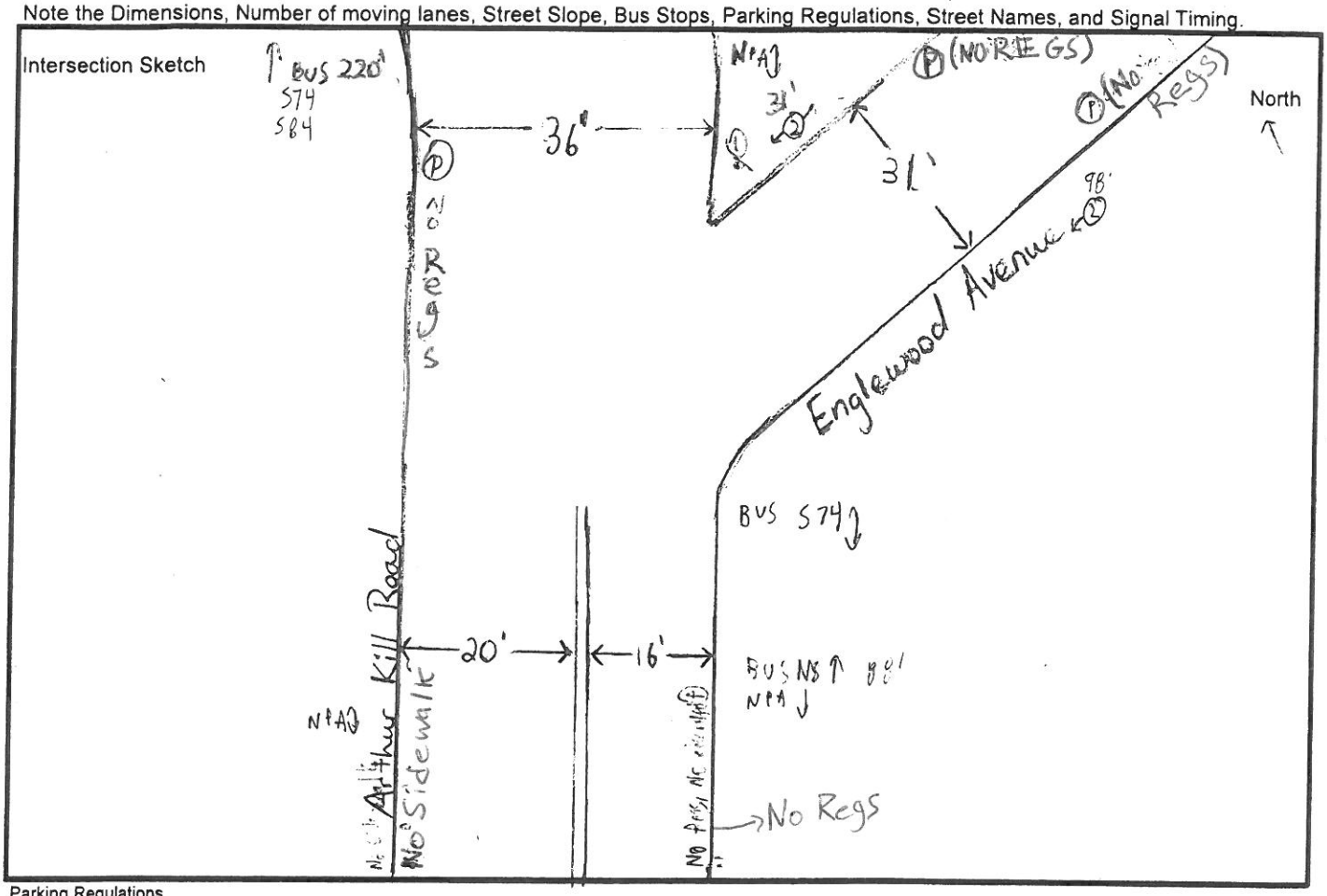
Project: Charleston Project #: 1121A

Location: Arthur Kill Road and Englewood Avenue

Date: ..... Weather: ..... Surveyor: .....

Note the Dimensions, Number of moving lanes, Street Slope, Bus Stops, Parking Regulations, Street Names, and Signal Timing.

Intersection Sketch



Parking Regulations

(1) STOP	( )
(2) NPSA-SP M-F	( )
( )	( )
( )	( )
( )	( )
( )	( )

Signal Timing

Approach	Phasing Diagram	Green Time(Sec.) AM/MD/PM/Sat. MD	Y+AR

Cycle Length

AM	MD
PM	Sat. MD

Pedestrian Button

Y	N

Signal Type

P	A

PHILIP HABIB & ASSOCIATES 226, W. 26th Street, 9th Floor, New York, NY 10001 Phone:(212)929-5656

Physical Inventory Sheet

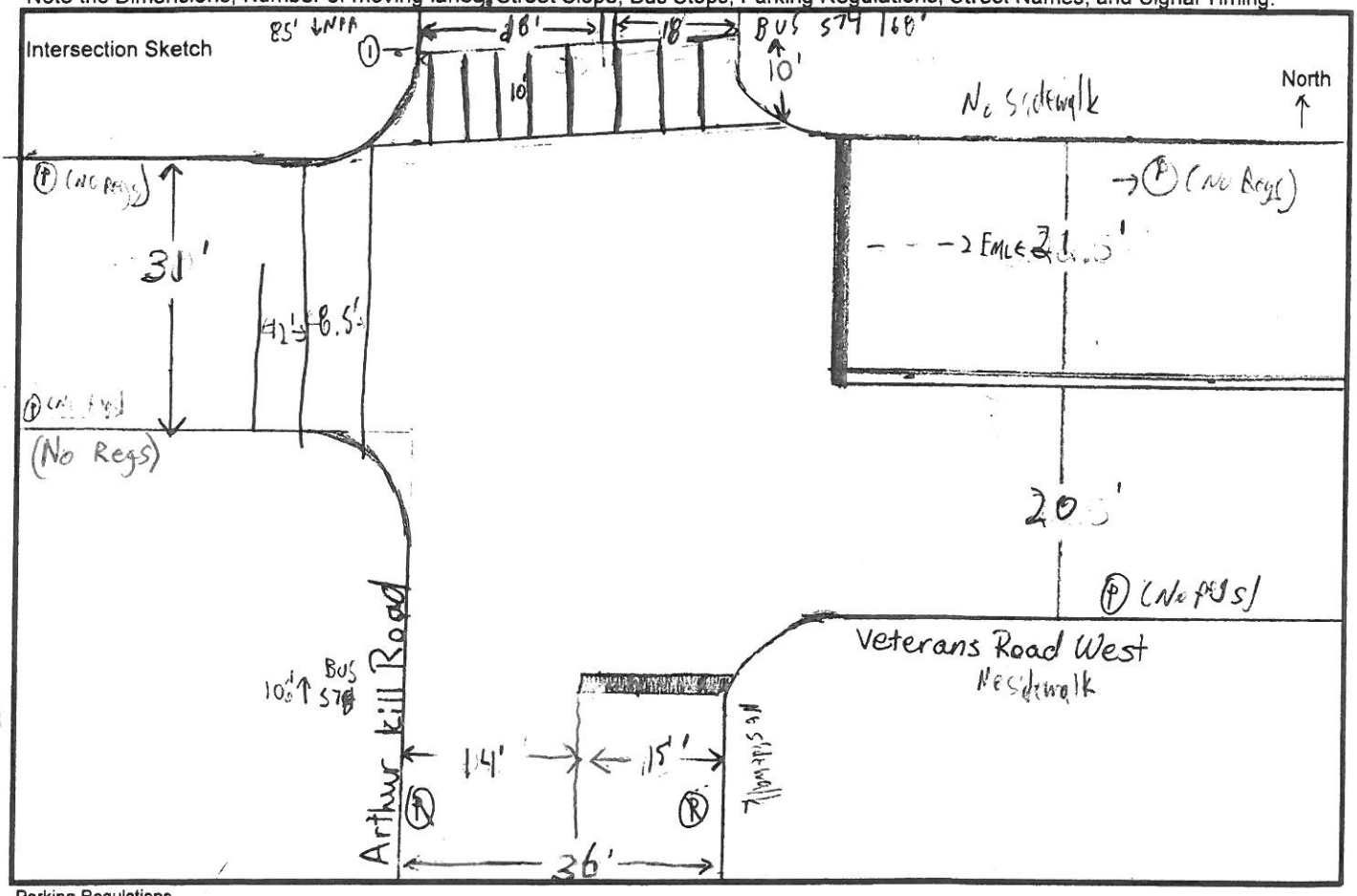
Project: Charleston Project #: 1121.A

Location: Arthur Kill Road and Veterans Road West

Date: Weather: Surveyor:

Note the Dimensions, Number of moving lanes, Street Slope, Bus Stops, Parking Regulations, Street Names, and Signal Timing.

Intersection Sketch



Parking Regulations

(1) AFTER STOP RIGHT TURN PERMITTED ON RED	( )
( )	( )
( )	( )
( )	( )
( )	( )
( )	( )

Signal Timing

Approach	Phasing Diagram	Green Time(Sec.) AM/MD/PM/Sat. MD	Y+AR

Cycle Length

AM	MD
PM	Sat. MD

Pedestrian Button

Y	N

Signal Type

P	A

PHILIP HABIB & ASSOCIATES 226, W. 26th Street, 9th Floor, New York, NY 10001 Phone:(212)929-5656

Physical Inventory Sheet

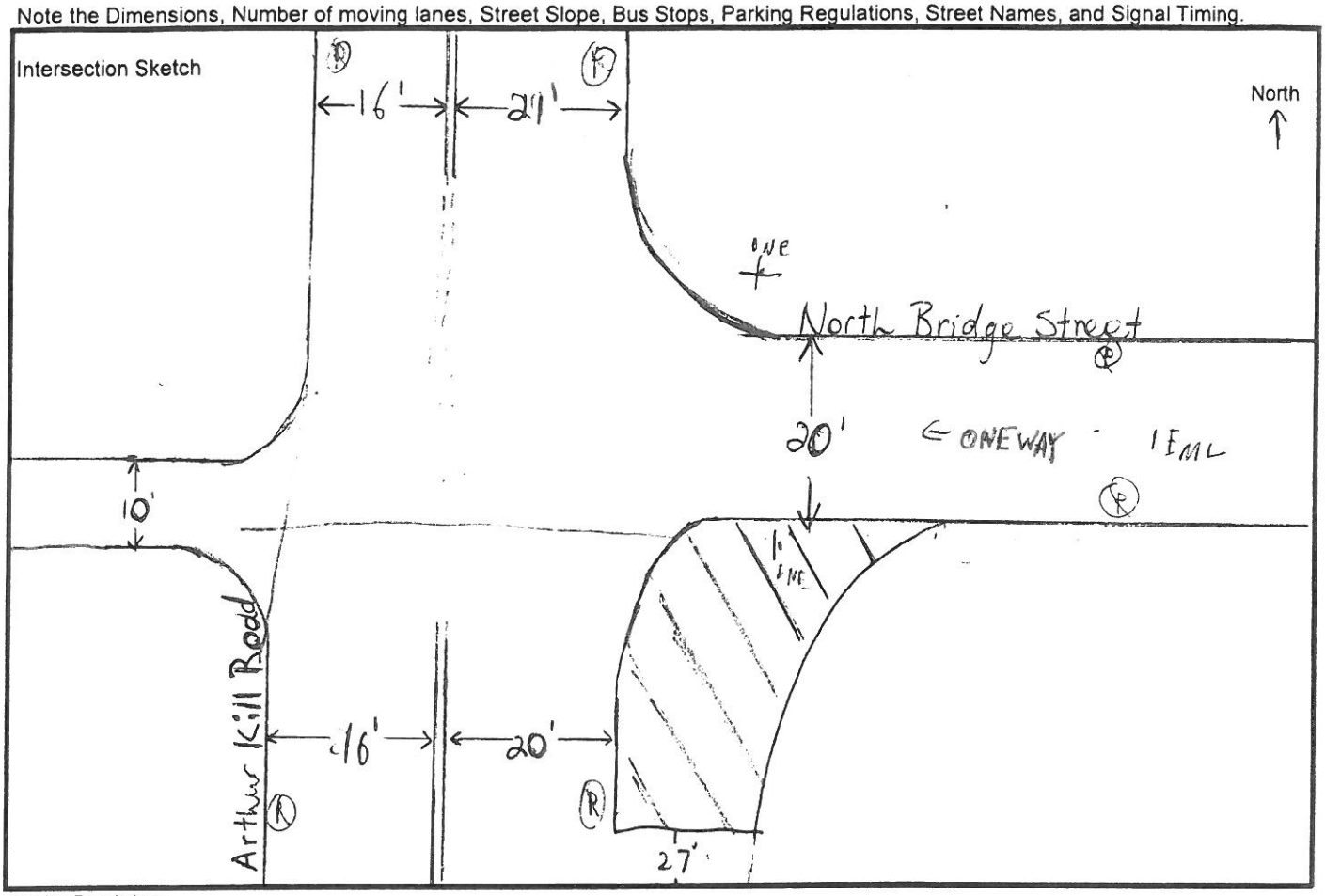
Project: Charleston Project #: 1121A

Location: Arthur Kill Road and North Bridge Street

Date: ..... Weather: ..... Surveyor: .....

Note the Dimensions, Number of moving lanes, Street Slope, Bus Stops, Parking Regulations, Street Names, and Signal Timing.

Intersection Sketch



Parking Regulations

( )	( )
( )	( )
( )	( )
( )	( )
( )	( )
( )	( )

Signal Timing

Approach	Phasing Diagram	Green Time(Sec.) AM/MD/PM/Sat. MD	Y+AR

Cycle Length

AM	MD
PM	Sat. MD

Pedestrian Button

Y	N

Signal Type

P	A

PHILIP HABIB & ASSOCIATES 226, W. 26th Street, 9th Floor, New York, NY 10001 Phone:(212)929-5656

Physical Inventory Sheet

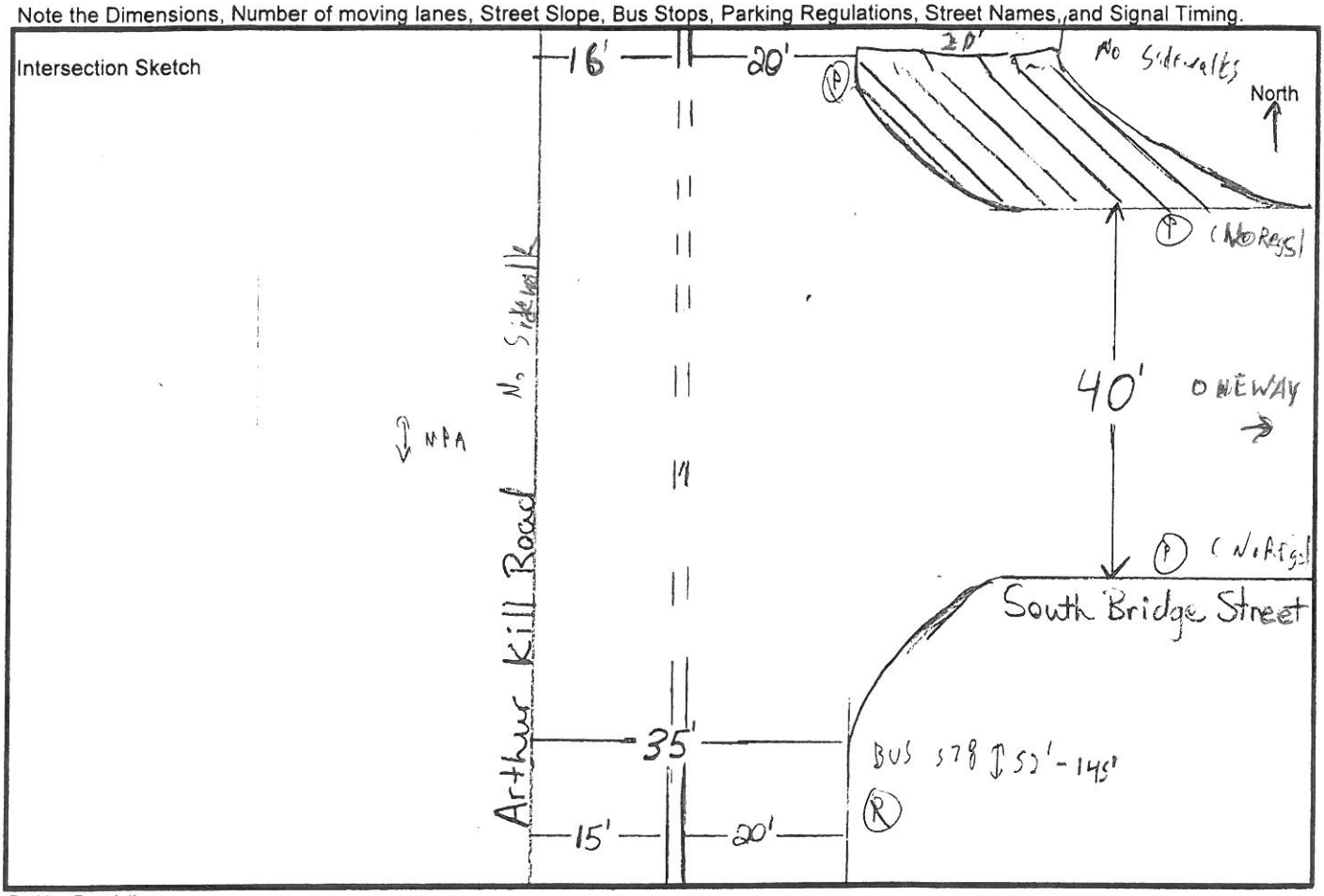
Project: Charleston Project #: 1121A

Location: Arthur kill Road and South Bridge Street

Date: ..... Weather: ..... Surveyor: .....

Note the Dimensions, Number of moving lanes, Street Slope, Bus Stops, Parking Regulations, Street Names, and Signal Timing.

Intersection Sketch



Parking Regulations

( )	( )
( )	( )
( )	( )
( )	( )
( )	( )
( )	( )

Signal Timing

Approach	Phasing Diagram	Green Time(Sec.) AM/MD/PM/Sat. MD	Y+AR

Cycle Length

AM	MD
PM	Sat. MD

Pedestrian Button

Y	N

Signal Type

P	A

PHILIP HABIB & ASSOCIATES 226, W. 26th Street, 9th Floor, New York, NY 10001 Phone:(212)929-5656

Physical Inventory Sheet

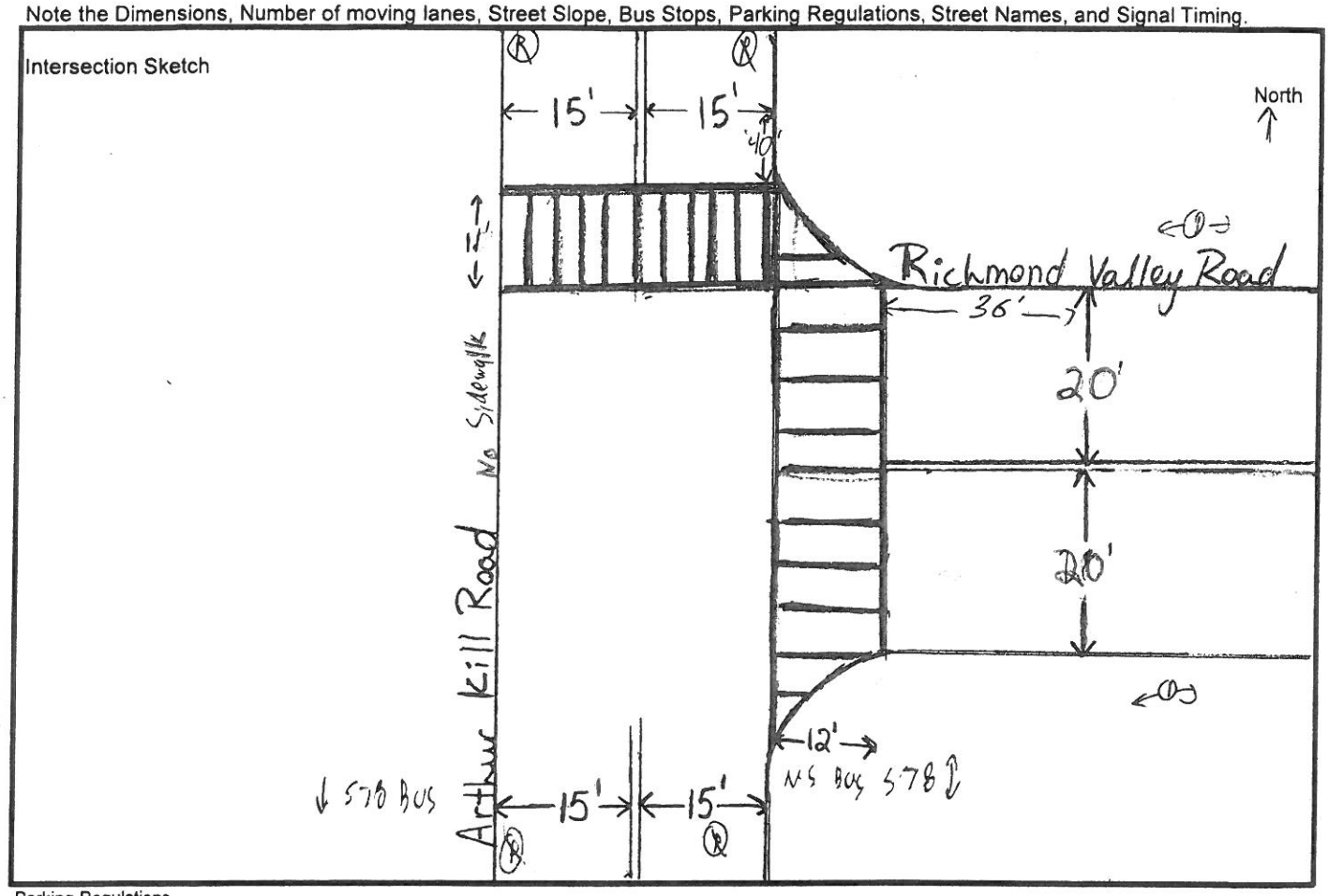
Project: Charleston Project #: 1121A

Location: Arthur kill Road and Richmond Valley Road

Date: ..... Weather: ..... Surveyor: .....

Note the Dimensions, Number of moving lanes, Street Slope, Bus Stops, Parking Regulations, Street Names, and Signal Timing.

Intersection Sketch



Parking Regulations

(1) NIGHT REG NS 10P-6A INCL SUN	( )
( )	( )
( )	( )
( )	( )
( )	( )
( )	( )

Signal Timing

Approach	Phasing Diagram	Green Time(Sec.) AM/MD/PM/Sat. MD	Y+AR

Cycle Length

AM	MD
PM	Sat. MD

Pedestrian Button

Y	N

Signal Type

P	A

PHILIP HABIB & ASSOCIATES 226, W. 26th Street, 9th Floor, New York, NY 10001 Phone:(212)929-5656

Physical Inventory Sheet

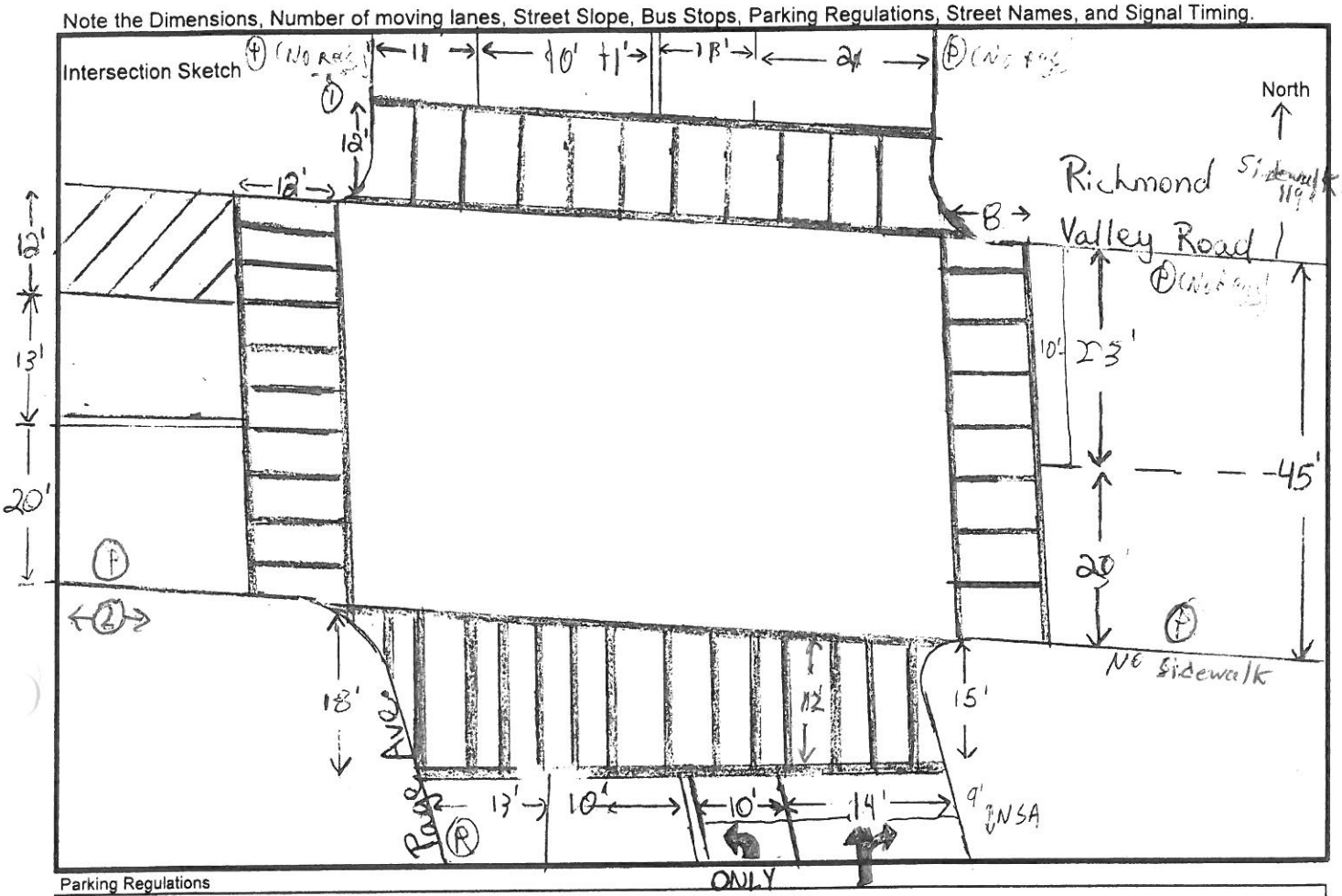
Project: Charleston Project #: NSIA

Location: Richmond Valley Road and Page Avenue

Date: ..... Weather: ..... Surveyor: .....

Note the Dimensions, Number of moving lanes, Street Slope, Bus Stops, Parking Regulations, Street Names, and Signal Timing.

Intersection Sketch



Parking Regulations

(1) AFTER STOP RT PERM ON RED	( )
(2) NS 10P-6A	( )
( )	( )
( )	( )
( )	( )
( )	( )

Signal Timing

Approach	Phasing Diagram	Green Time(Sec.) AM/MD/PM/Sat. MD	Y+AR

Cycle Length

AM	MD
PM	Sat. MD

Pedestrian Button

Y	N

Signal Type

P	A

PHILIP HABIB & ASSOCIATES 226, W. 26th Street, 9th Floor, New York, NY 10001 Phone:(212)929-5656

Physical Inventory Sheet

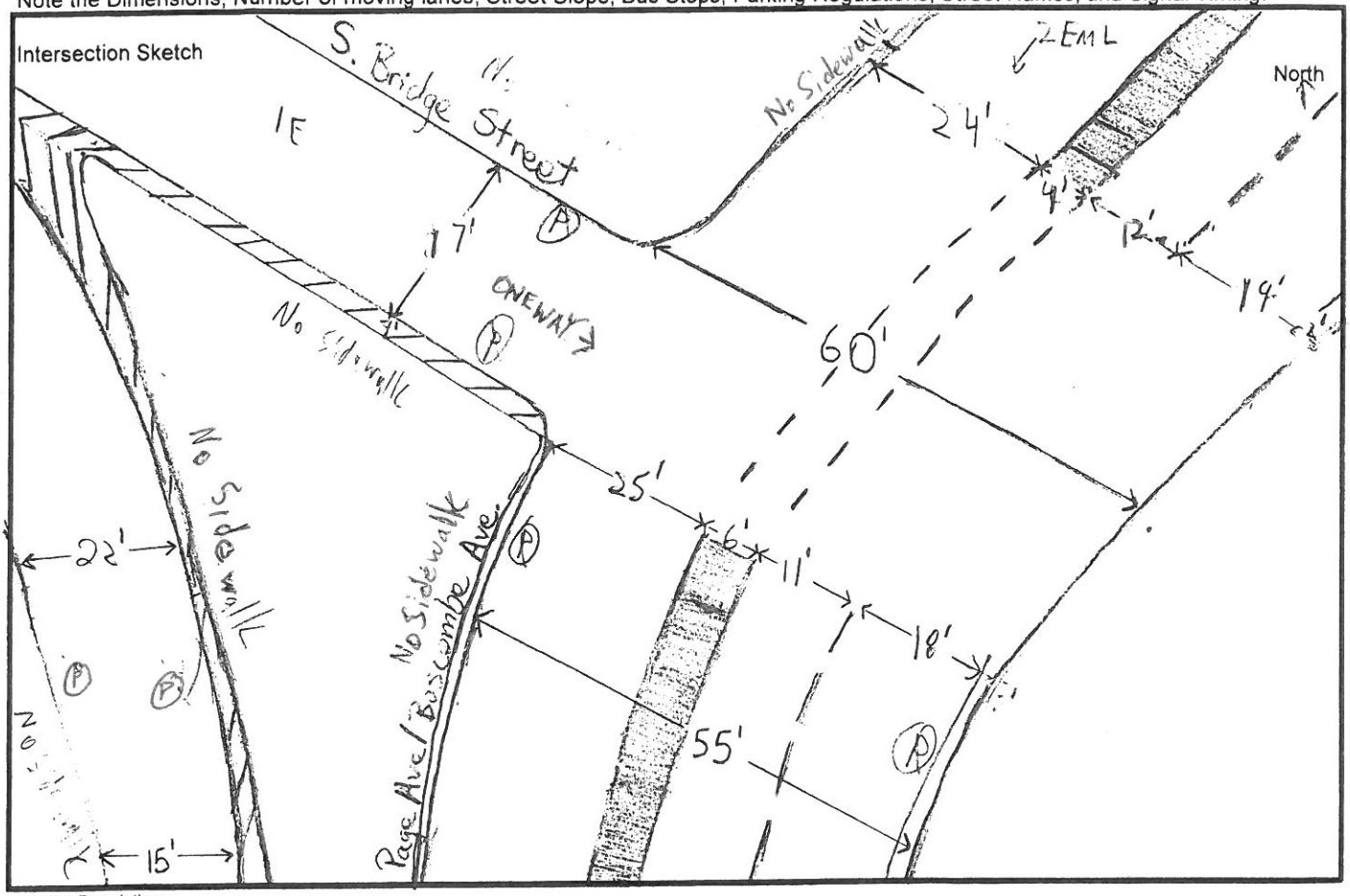
Project: Charleston Project #: 1191A

Location: Page Avenue/Bascombe Avenue and S. Bridge Street

Date: ..... Weather: ..... Surveyor: .....

Note the Dimensions, Number of moving lanes, Street Slope, Bus Stops, Parking Regulations, Street Names, and Signal Timing.

Intersection Sketch



Parking Regulations

( )	( )
( )	( )
( )	( )
( )	( )
( )	( )
( )	( )

Signal Timing

Approach	Phasing Diagram	Green Time(Sec.) AM/MD/PM/Sat. MD	Y+AR

Cycle Length

AM	MD
PM	Sat. MD

Pedestrian Button

Y	N

Signal Type

P	A

PHILIP HABIB & ASSOCIATES 226, W. 26th Street, 9th Floor, New York, NY 10001 Phone:(212)929-5656

Physical Inventory Sheet

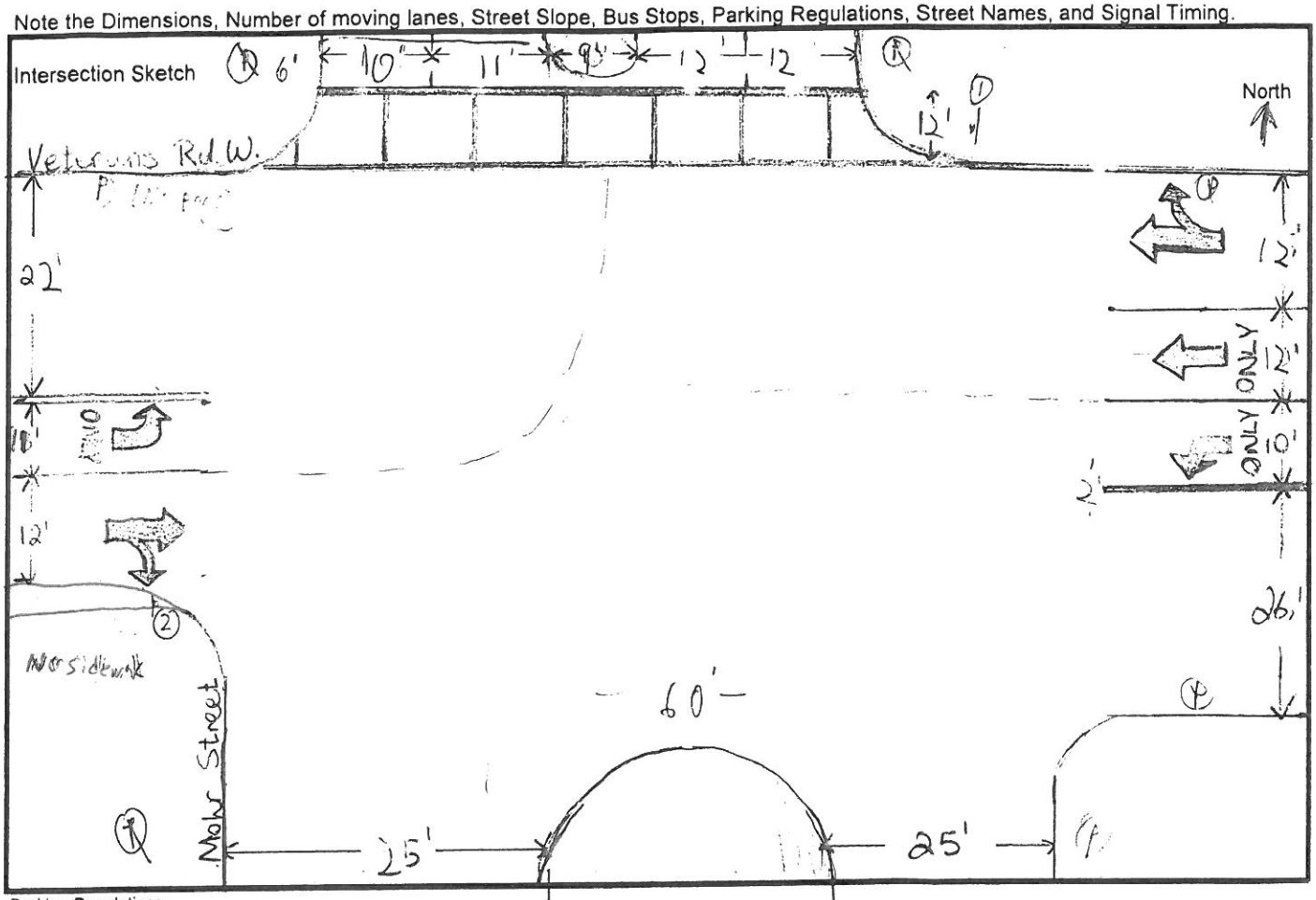
Project: Charleston Project #: 1121A

Location: Veterans Road W. and Mohr Street

Date: Weather: Surveyor:

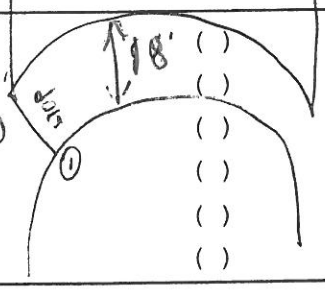
Note the Dimensions, Number of moving lanes, Street Slope, Bus Stops, Parking Regulations, Street Names, and Signal Timing.

Intersection Sketch



Parking Regulations

(1) STOP
(2) AFTER STOP RT PERMITTED ON RED
( )
( )
( )
( )



Signal Timing

Approach	Phasing Diagram	Green Time(Sec.) AM/MD/PM/Sat. MD	Y+AR

Cycle Length

AM	MD
PM	Sat. MD

Pedestrian Button

Y	N

Signal Type

P	A

PHILIP HABIB & ASSOCIATES 226, W. 26th Street, 9th Floor, New York, NY 10001 Phone:(212)929-5656

Physical Inventory Sheet

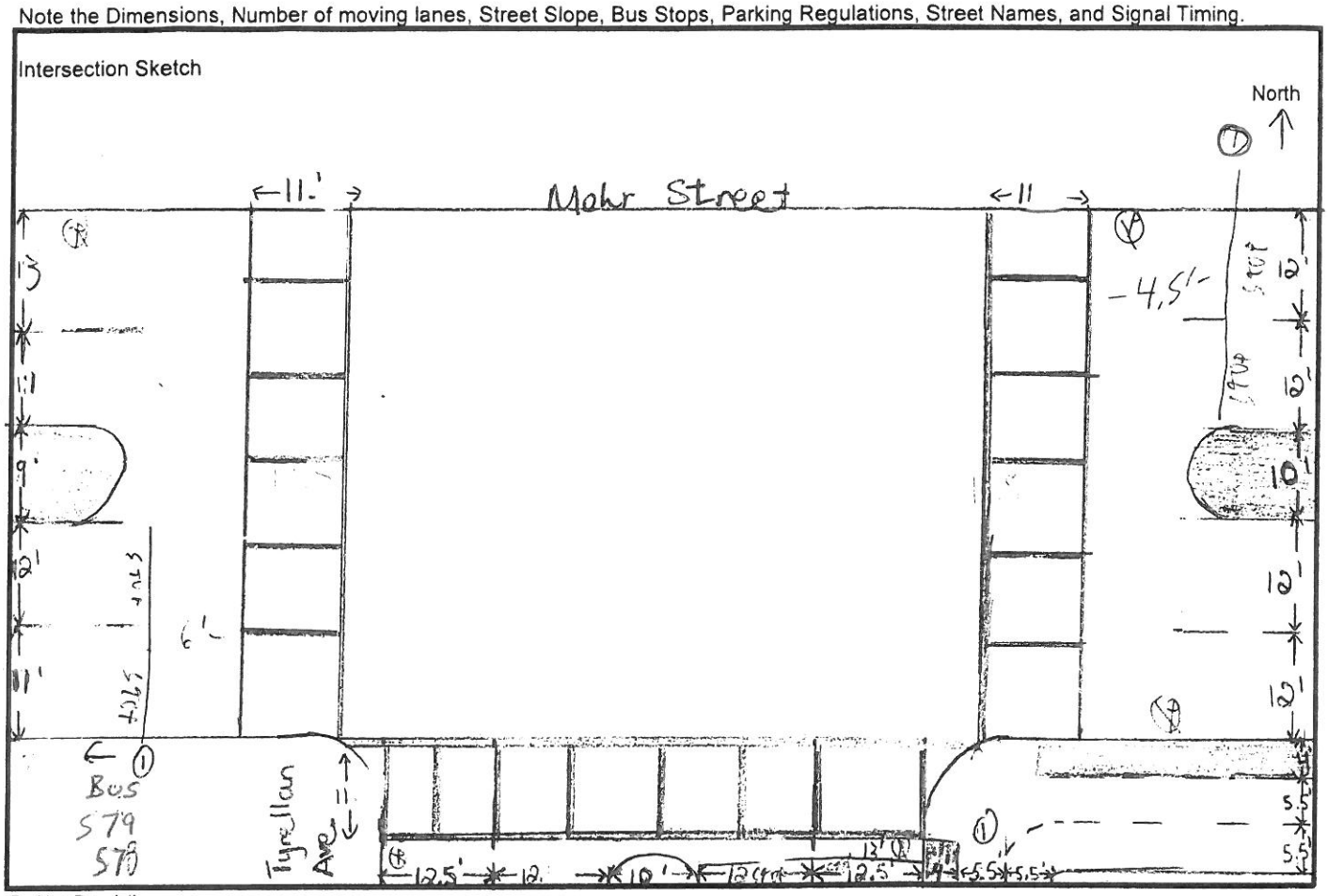
Project: Charleston Project #: 1121.A

Location: Mohr Street and Tyrellan Avenue

Date: ..... Weather: ..... Surveyor: .....

Note the Dimensions, Number of moving lanes, Street Slope, Bus Stops, Parking Regulations, Street Names, and Signal Timing.

Intersection Sketch



Parking Regulations

(1) Stop 117'	( )
( )	( )
( )	( )
( )	( )
( )	( )
( )	( )

Signal Timing

Approach	Phasing Diagram	Green Time(Sec.) AM/MD/PM/Sat. MD	Y+AR

Cycle Length

AM	MD
PM	Sat. MD

Pedestrian Button

Y	N

Signal Type

P	A

PHILIP HABIB & ASSOCIATES 226, W. 26th Street, 9th Floor, New York, NY 10001 Phone:(212)929-5656

Physical Inventory Sheet

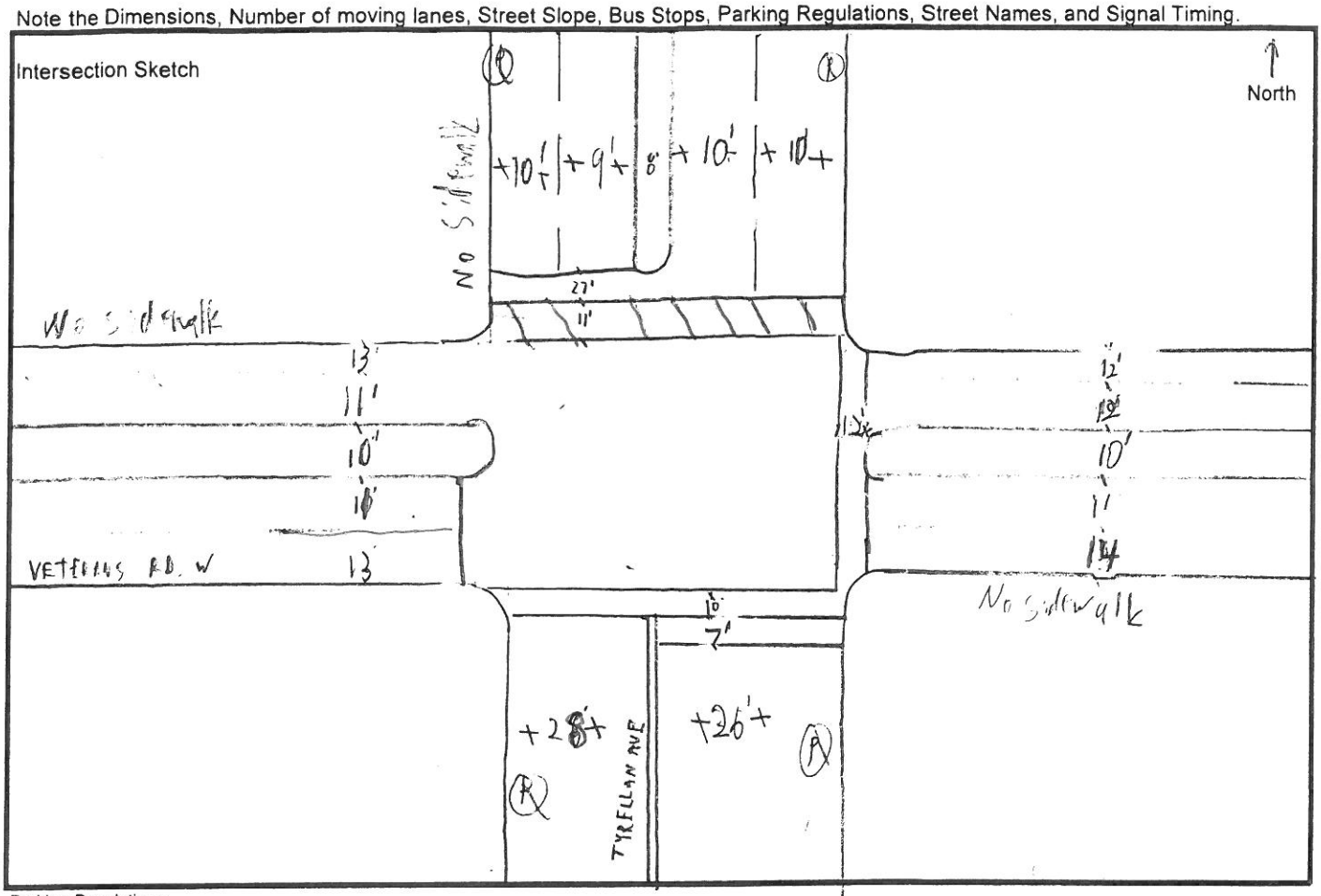
Project: Charleston Project #: 11.31.A

Location: Veterans Rd. W @ Tyrellan Ave

Date: ..... Weather: ..... Surveyor: .....

Note the Dimensions, Number of moving lanes, Street Slope, Bus Stops, Parking Regulations, Street Names, and Signal Timing.

Intersection Sketch



Parking Regulations

( )	(No observed parking) (No Regs)	( )	
( )		( )	
( )		( )	
( )		( )	
( )		( )	
( )		( )	

Signal Timing

Approach	Phasing Diagram	Green Time(Sec.) AM/MD/PM/Sat. MD	Y+AR

Cycle Length

AM	MD
PM	Sat. MD

Pedestrian Button

Y	N

Signal Type

P	A

PHILIP HABIB & ASSOCIATES 226, W. 26th Street, 9th Floor, New York, NY 10001 Phone:(212)929-5656

Physical Inventory Sheet

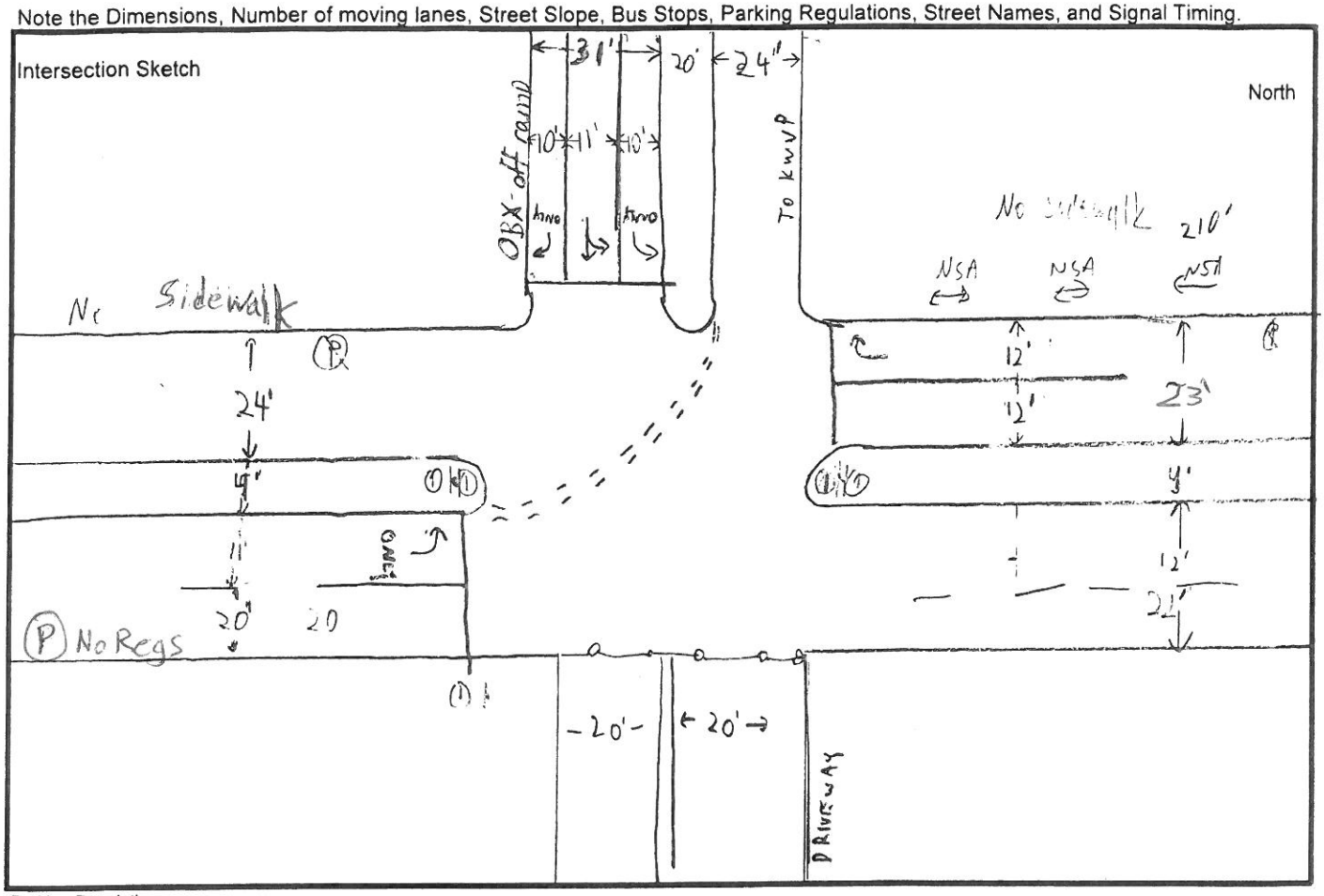
Project: Charleston Project #: 11314

Location: Boscombe Ave @ Outerbridge Crossing Off-Ramp

Date: Weather: Surveyor:

Note the Dimensions, Number of moving lanes, Street Slope, Bus Stops, Parking Regulations, Street Names, and Signal Timing.

Intersection Sketch



Parking Regulations

( ) No Regs, no obstruct parking	( )
( ) NO U TURN	( )
(2) AFTER STOP RT PERMITTED ON RED	( )
( )	( )
( )	( )
( )	( )

Signal Timing

Approach	Phasing Diagram	Green Time(Sec.) AM/MD/PM/Sat. MD	Y+AR

Cycle Length

AM	MD
PM	Sat. MD

Pedestrian Button

Y	N

Signal Type

P	A

PHILIP HABIB & ASSOCIATES 226, W. 26th Street, 9th Floor, New York, NY 10001 Phone:(212)929-5656

Physical Inventory Sheet

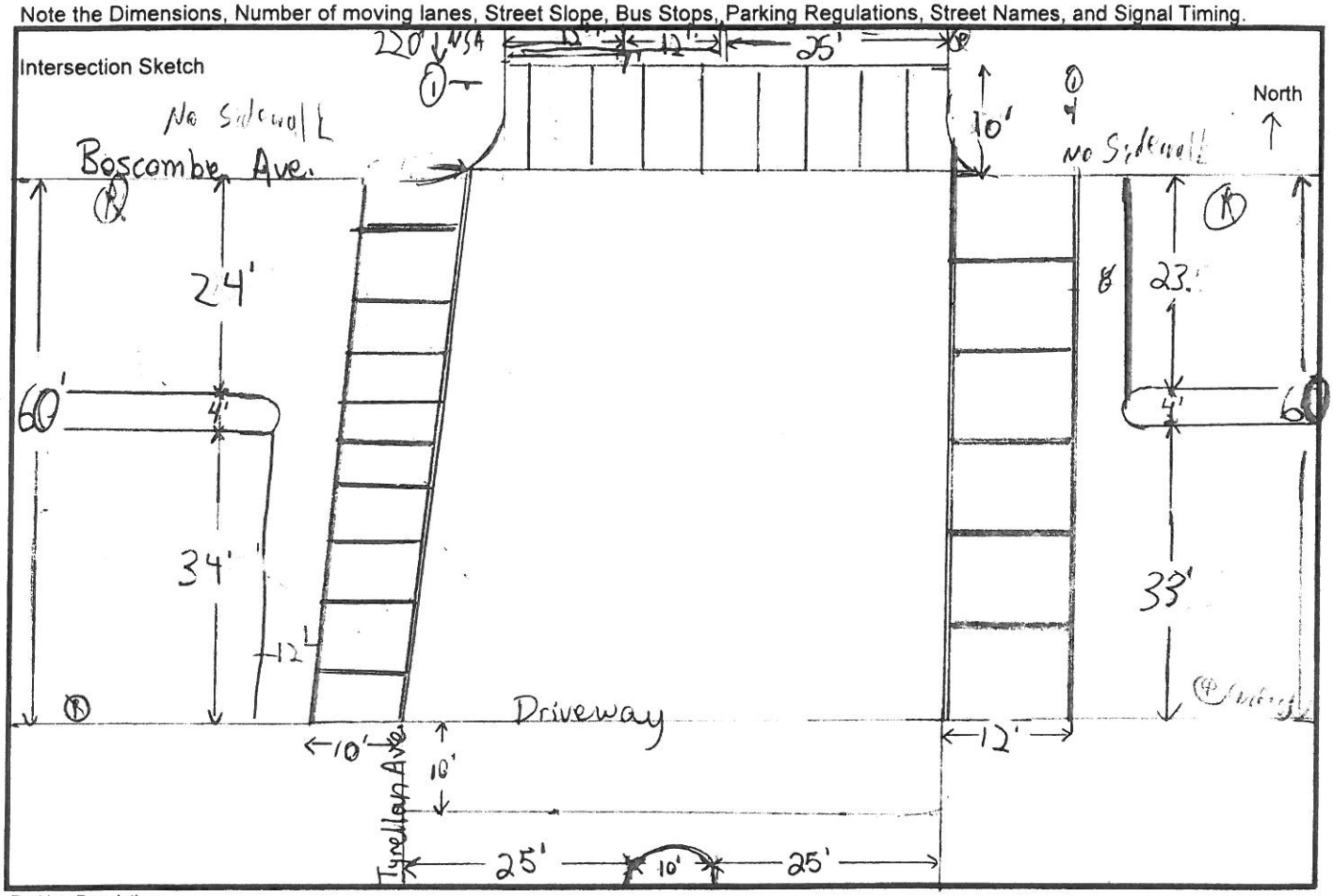
Project: Charleston Project #: 1121A

Location: Boscombe Ave. and Tyrellan Ave.

Date: ..... Weather: ..... Surveyor: .....

Note the Dimensions, Number of moving lanes, Street Slope, Bus Stops, Parking Regulations, Street Names, and Signal Timing.

Intersection Sketch



Parking Regulations

(P) - no regs, observed parking	( )
(1) AFTER STOP RIGHT TURN PERMITTED ON RED	( )
( )	( )
( )	( )
( )	( )
( )	( )

Signal Timing

Approach	Phasing Diagram	Green Time(Sec.) AM/MD/PM/Sat. MD	Y+AR

Cycle Length

AM	MD
PM	Sat. MD

Pedestrian Button

Y	N

Signal Type

P	A

PHILIP HABIB & ASSOCIATES 226, W. 26th Street, 9th Floor, New York, NY 10001 Phone:(212)929-5656

Physical Inventory Sheet

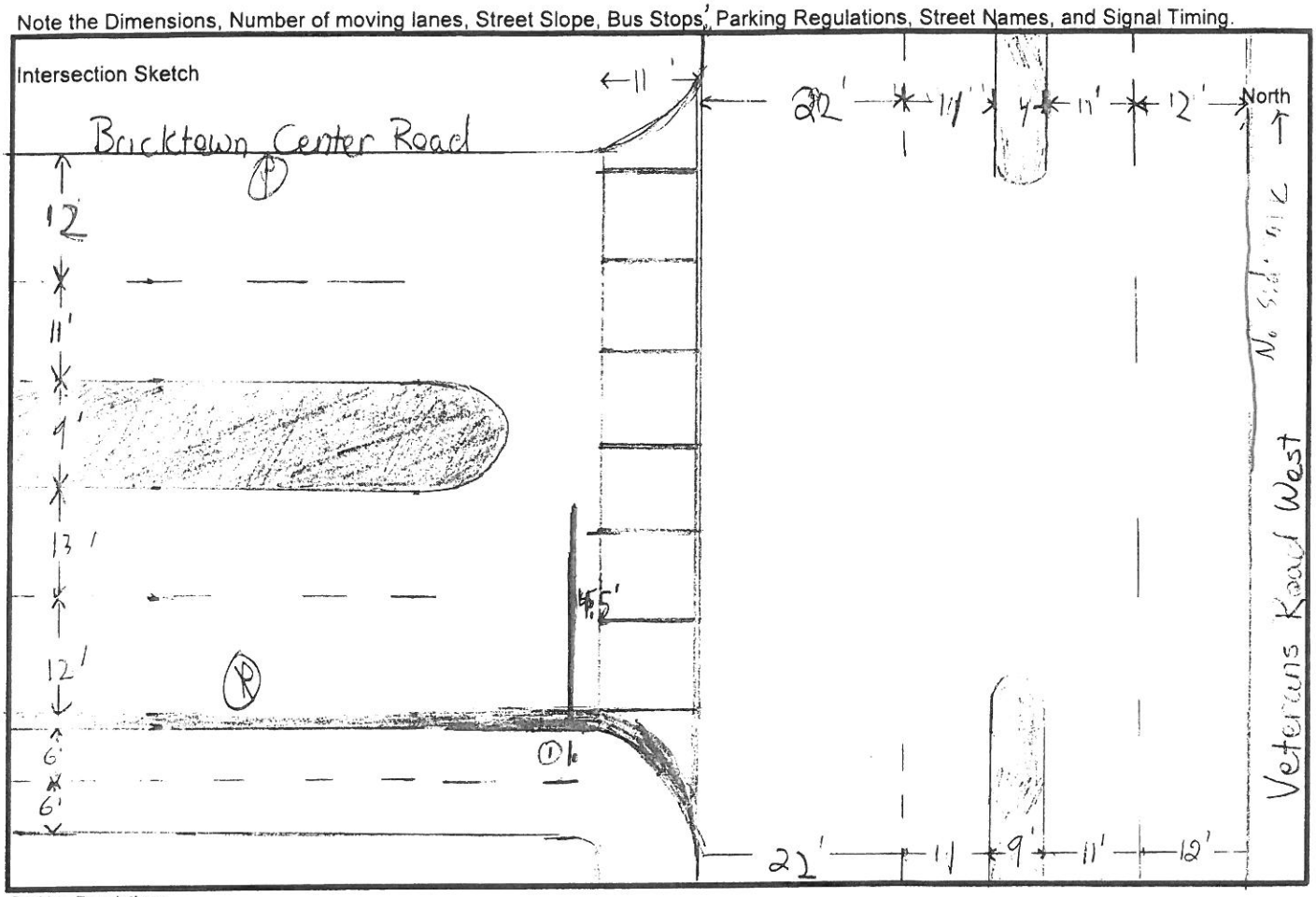
Project: Charleston Project #: 1181A

Location: Veterans Road West and Bricktown Center Road

Date: ..... Weather: ..... Surveyor: .....

Note the Dimensions, Number of moving lanes, Street Slope, Bus Stops, Parking Regulations, Street Names, and Signal Timing.

Intersection Sketch



Parking Regulations

(1) AFTER STOP RIGHT TURN PERMITTED	( )
( ) NO REGS, NO OBSERVED PARKING	( )
( )	( )
( )	( )
( )	( )
( )	( )

Signal Timing

Approach	Phasing Diagram	Green Time(Sec.) AM/MD/PM/Sat. MD	Y+AR

Cycle Length

AM	MD
PM	Sat. MD

Pedestrian Button

Y	N

Signal Type

P	A

PHILIP HABIB & ASSOCIATES 226, W. 26th Street, 9th Floor, New York, NY 10001 Phone:(212)929-5656

Physical Inventory Sheet

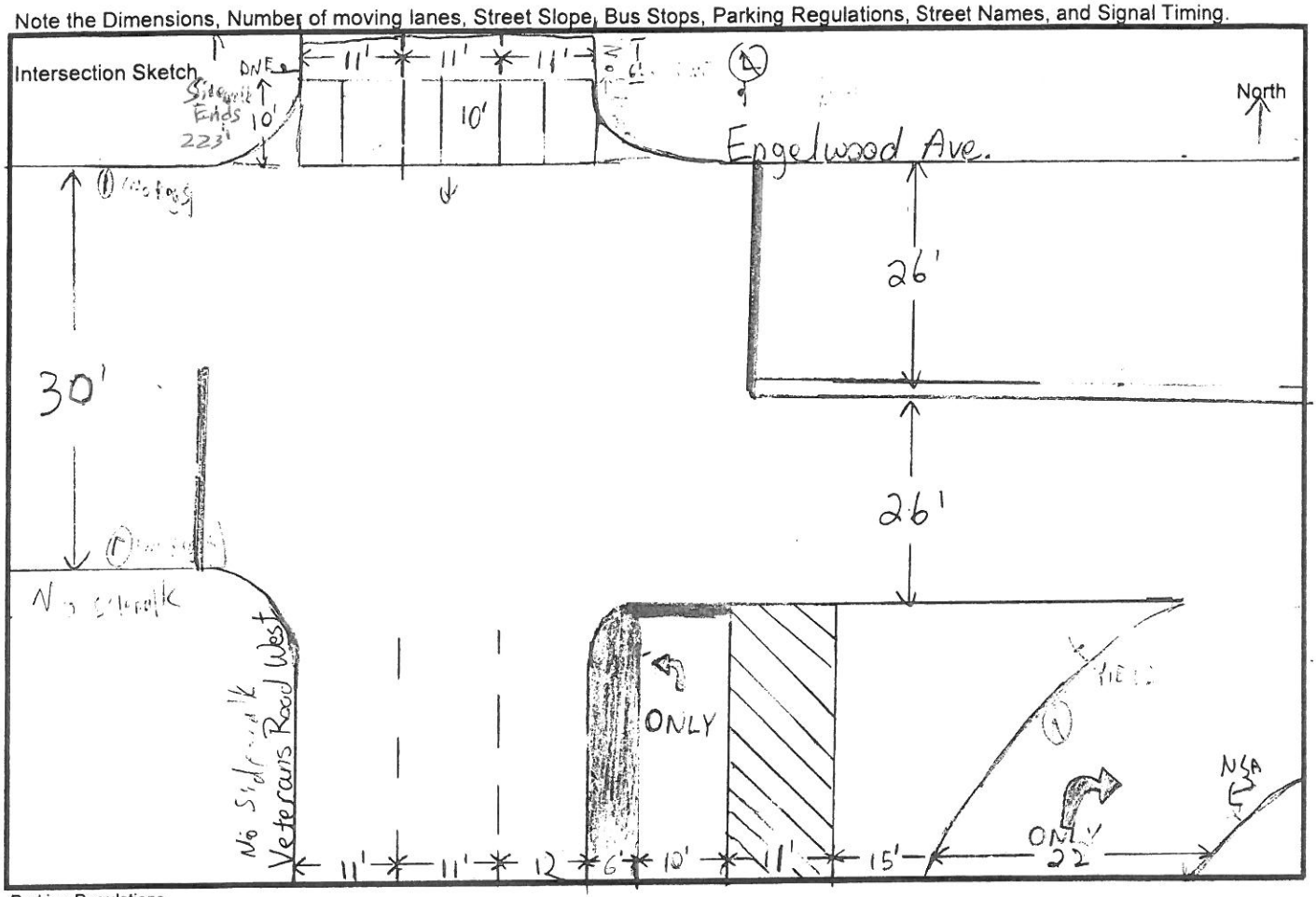
Project: Charleston Project #: 1121A

Location: Veterans Road West and Engelwood Avenue

Date: ..... Weather: ..... Surveyor: .....

Note the Dimensions, Number of moving lanes, Street Slope, Bus Stops, Parking Regulations, Street Names, and Signal Timing.

Intersection Sketch



Parking Regulations

( )	( )
( )	( )
( )	( )
( )	( )
( )	( )
( )	( )

Signal Timing

Approach	Phasing Diagram	Green Time(Sec.) AM/MD/PM/Sat. MD	Y+AR

Cycle Length

AM	MD
PM	Sat. MD

Pedestrian Button

Y	N

Signal Type

P	A

PHILIP HABIB & ASSOCIATES 226, W. 26th Street, 9th Floor, New York, NY 10001 Phone:(212)929-5656

Physical Inventory Sheet

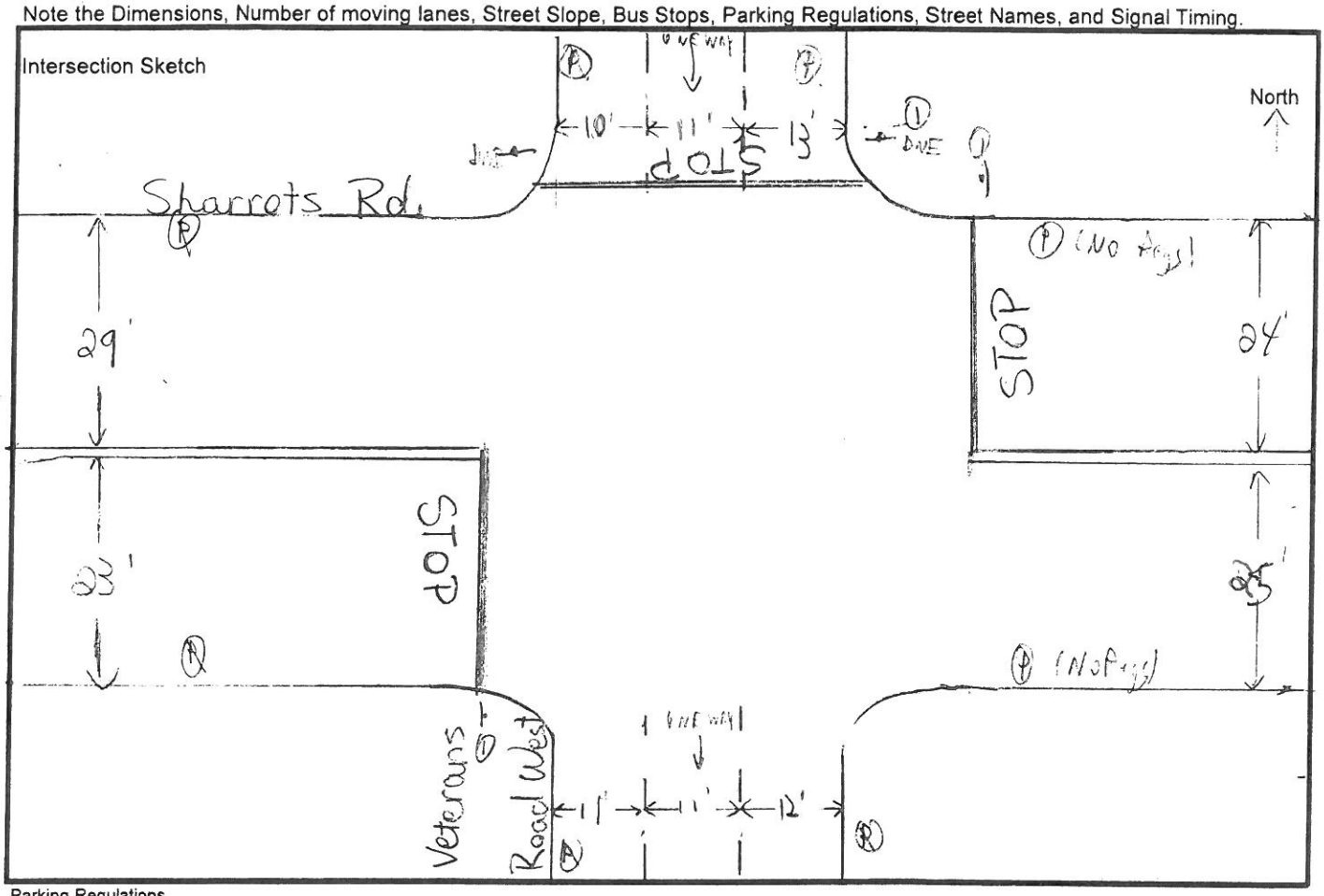
Project: Charleston Project #: 1121A

Location: Veterans Road West and Sharrots Road

Date: ..... Weather: ..... Surveyor: .....

Note the Dimensions, Number of moving lanes, Street Slope, Bus Stops, Parking Regulations, Street Names, and Signal Timing.

Intersection Sketch



Parking Regulations

(1) STOP ALL WAY	( )
( )	( )
( )	( )
( )	( )
( )	( )
( )	( )

Signal Timing

Approach	Phasing Diagram	Green Time(Sec.) AM/MD/PM/Sat. MD	Y+AR

Cycle Length

AM	MD
PM	Sat. MD

Pedestrian Button

Y	N

Signal Type

P	A

PHILIP HABIB & ASSOCIATES 226, W. 26th Street, 9th Floor, New York, NY 10001 Phone:(212)929-5656

Physical Inventory Sheet

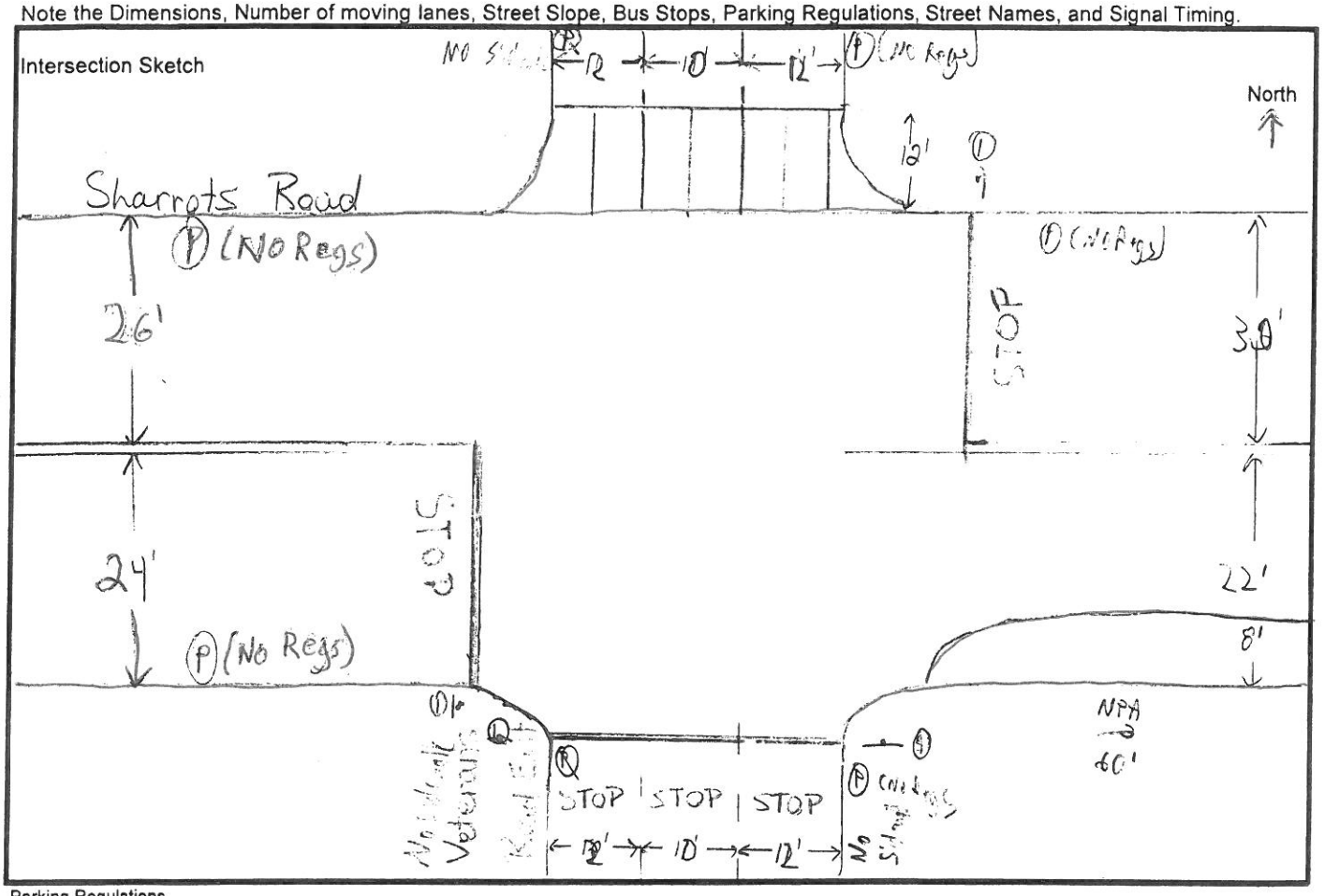
Project: Charleston Project #: 11014

Location: Veterans Road East at Sharrotts Road

Date: Weather: Surveyor:

Note the Dimensions, Number of moving lanes, Street Slope, Bus Stops, Parking Regulations, Street Names, and Signal Timing.

Intersection Sketch



Parking Regulations

( ) STOP ALL WAY	( )
( )	( )
( )	( )
( )	( )
( )	( )
( )	( )

Signal Timing

Approach	Phasing Diagram	Green Time(Sec.) AM/MD/PM/Sat. MD	Y+AR

Cycle Length

AM	MD
PM	Sat. MD

Pedestrian Button

Y	N

Signal Type

P	A

PHILIP HABIB & ASSOCIATES 226, W. 26th Street, 9th Floor, New York, NY 10001 Phone:(212)929-5656

Physical Inventory Sheet

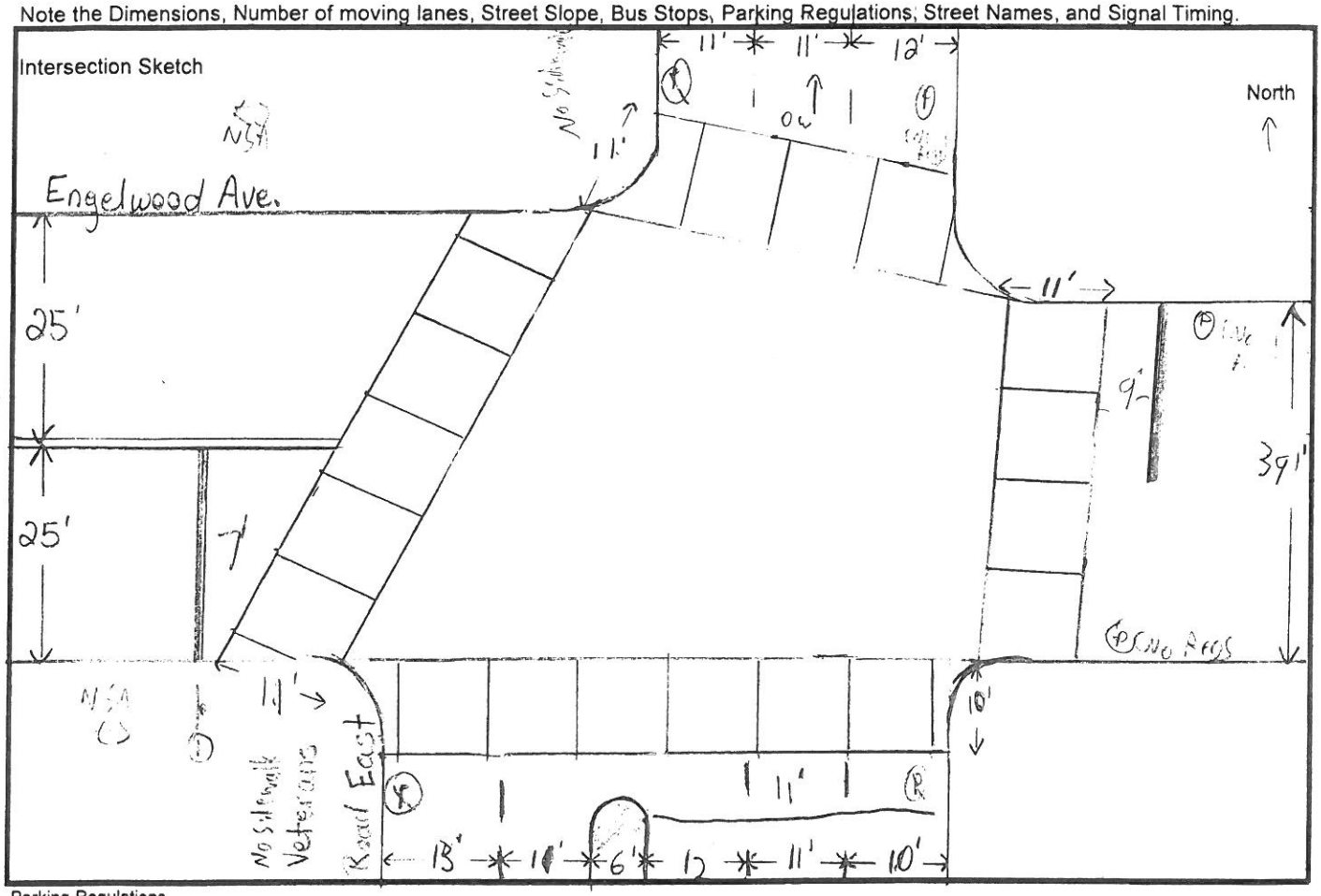
Project: Charleston Project #: 11213

Location: Veterans Road East and Engelwood Avenue

Date: ..... Weather: ..... Surveyor: .....

Note the Dimensions, Number of moving lanes, Street Slope, Bus Stops, Parking Regulations, Street Names, and Signal Timing.

Intersection Sketch



Parking Regulations

(1) AFTER STOP RT PERMITTED ON RED	( )
( )	( )
( )	( )
( )	( )
( )	( )
( )	( )

Signal Timing

Approach	Phasing Diagram	Green Time(Sec.) AM/MD/PM/Sat. MD	Y+AR

Cycle Length

AM	MD
PM	Sat. MD

Pedestrian Button

Y	N

Signal Type

P	A

PHILIP HABIB & ASSOCIATES 226, W. 26th Street, 9th Floor, New York, NY 10001 Phone:(212)929-5656

Physical Inventory Sheet

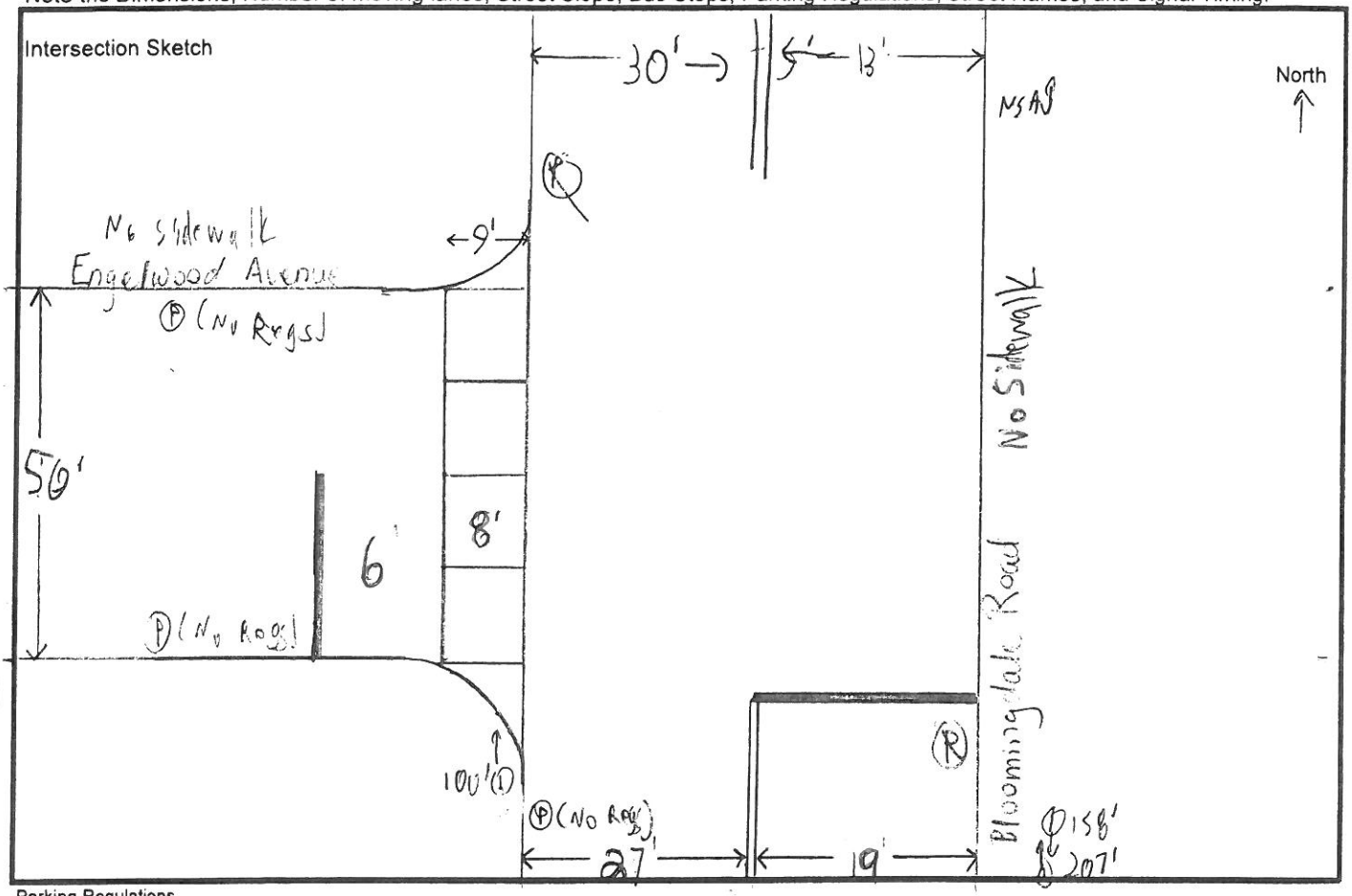
Project: Charleston Project #: 1121A

Location: Bloomingdale Road and Engelwood Avenue

Date: Weather: Surveyor:

Note the Dimensions, Number of moving lanes, Street Slope, Bus Stops, Parking Regulations, Street Names, and Signal Timing.

Intersection Sketch



Parking Regulations

(1) NS M-F Bus 855 X2	( )
( )	( )
( )	( )
( )	( )
( )	( )
( )	( )

Signal Timing

Approach	Phasing Diagram	Green Time(Sec.) AM/MD/PM/Sat. MD	Y+AR

Cycle Length

AM	MD
PM	Sat. MD

Pedestrian Button

Y	N

Signal Type

P	A

PHILIP HABIB & ASSOCIATES 226, W. 26th Street, 9th Floor, New York, NY 10001 Phone:(212)929-5656

Physical Inventory Sheet

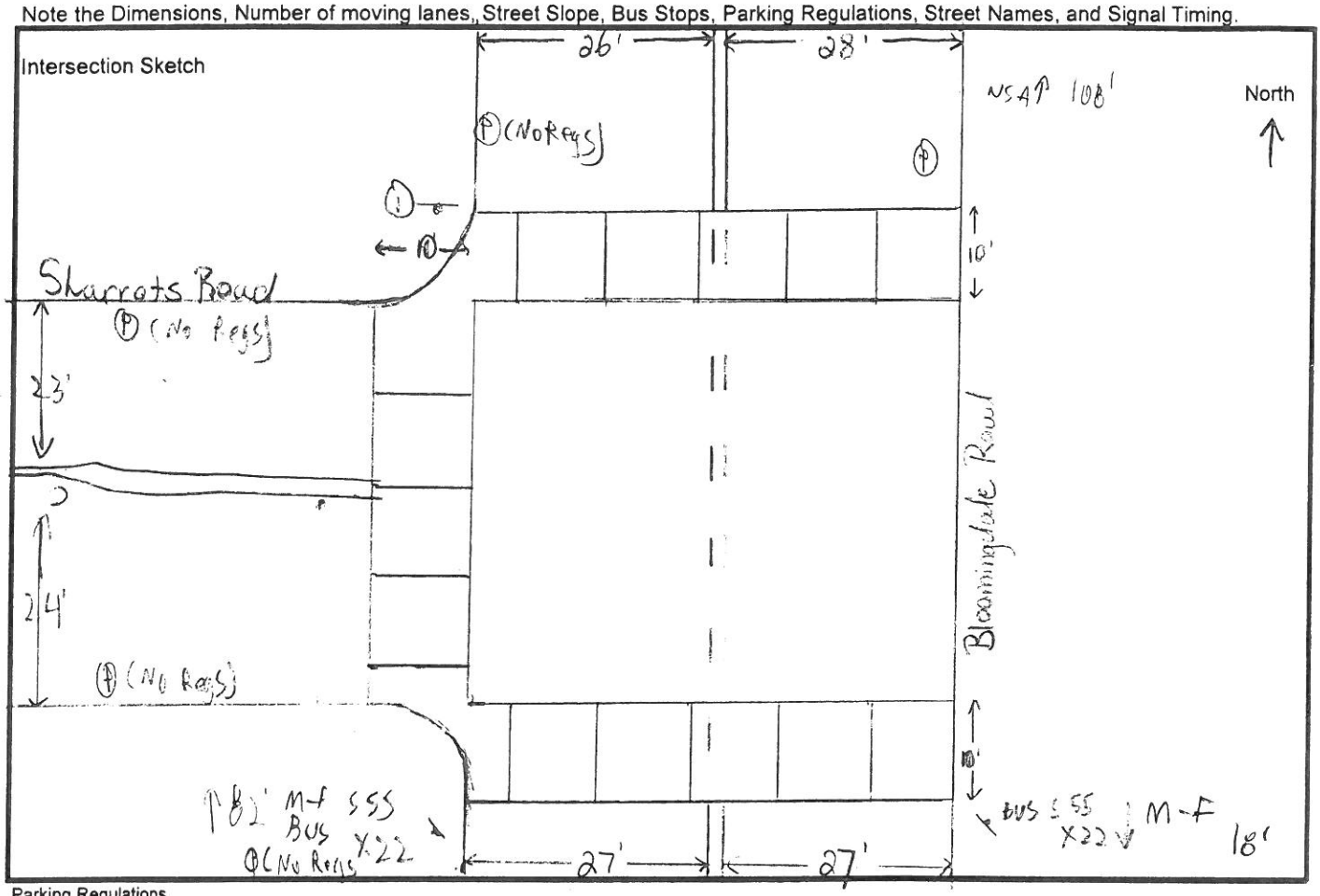
Project: Charleston Project #: 11.21.A

Location: Bloomingdale Road and Sharrots Road

Date: ..... Weather: ..... Surveyor: .....

Note the Dimensions, Number of moving lanes, Street Slope, Bus Stops, Parking Regulations, Street Names, and Signal Timing.

Intersection Sketch



Parking Regulations

(1) AFTER STOP AT PERMITTED ON RED	( )
( )	( )
( )	( )
( )	( )
( )	( )
( )	( )

Signal Timing

Approach	Phasing Diagram	Green Time(Sec.) AM/MD/PM/Sat. MD	Y+AR

Cycle Length

AM	MD
PM	Sat. MD

Pedestrian Button

Y	N

Signal Type

P	A

PHILIP HABIB & ASSOCIATES 226, W. 26th Street, 9th Floor, New York, NY 10001 Phone:(212)929-5656

Physical Inventory Sheet

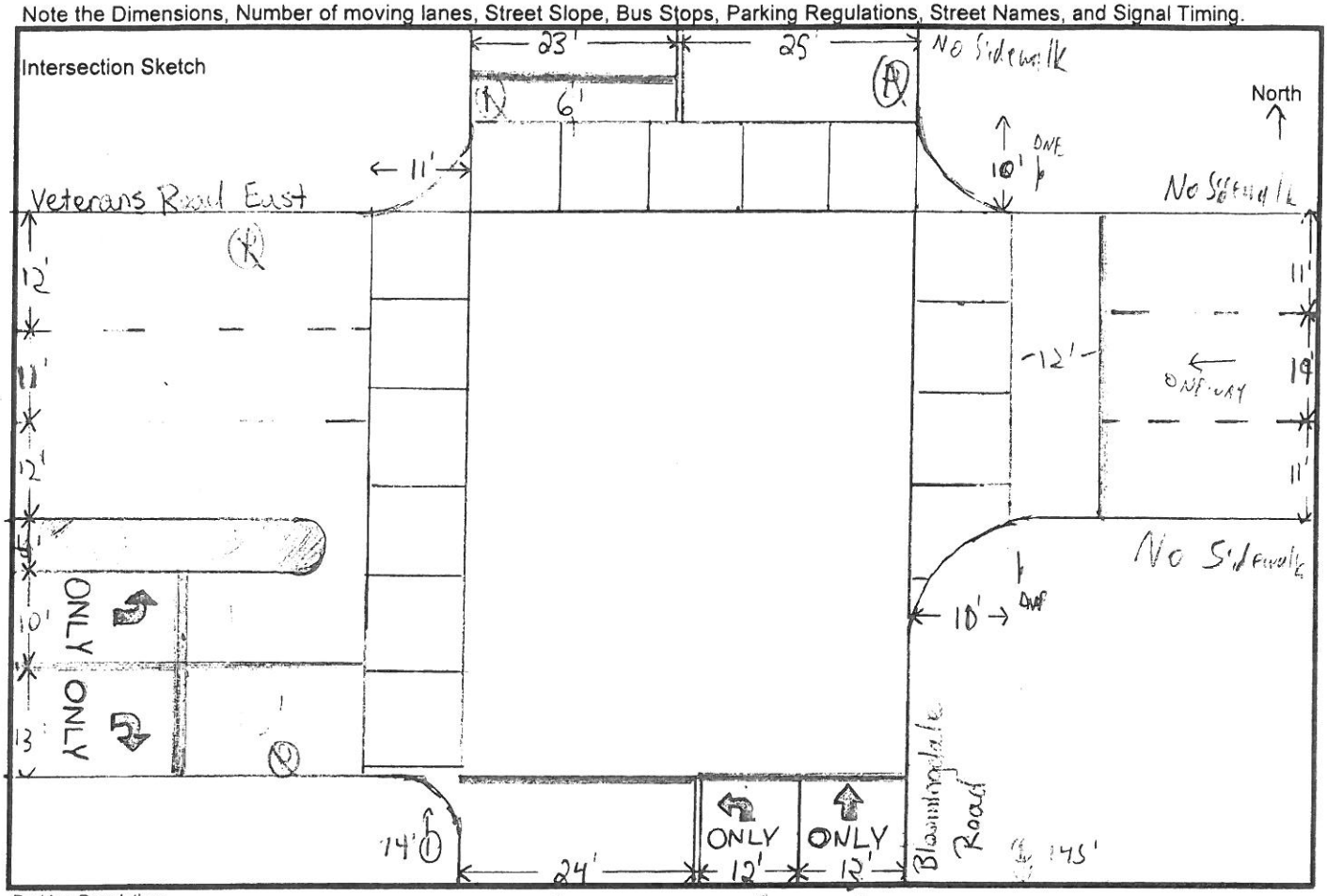
Project: Charleston Project #: 1112

Location: Veterans Road East and Bloomingdale Road

Date: Weather: Surveyor:

Note the Dimensions, Number of moving lanes, Street Slope, Bus Stops, Parking Regulations, Street Names, and Signal Timing.

Intersection Sketch



Parking Regulations

( )	( )
( )	( )
( )	( )
( )	( )
( )	( )
( )	( )

Signal Timing

Approach	Phasing Diagram	Green Time(Sec.) AM/MD/PM/Sat. MD	Y+AR

Cycle Length

AM	MD
PM	Sat. MD

Pedestrian Button

Y	N

Signal Type

P	A

PHILIP HABIB & ASSOCIATES 226, W. 26th Street, 9th Floor, New York, NY 10001 Phone:(212)929-5656

Physical Inventory Sheet

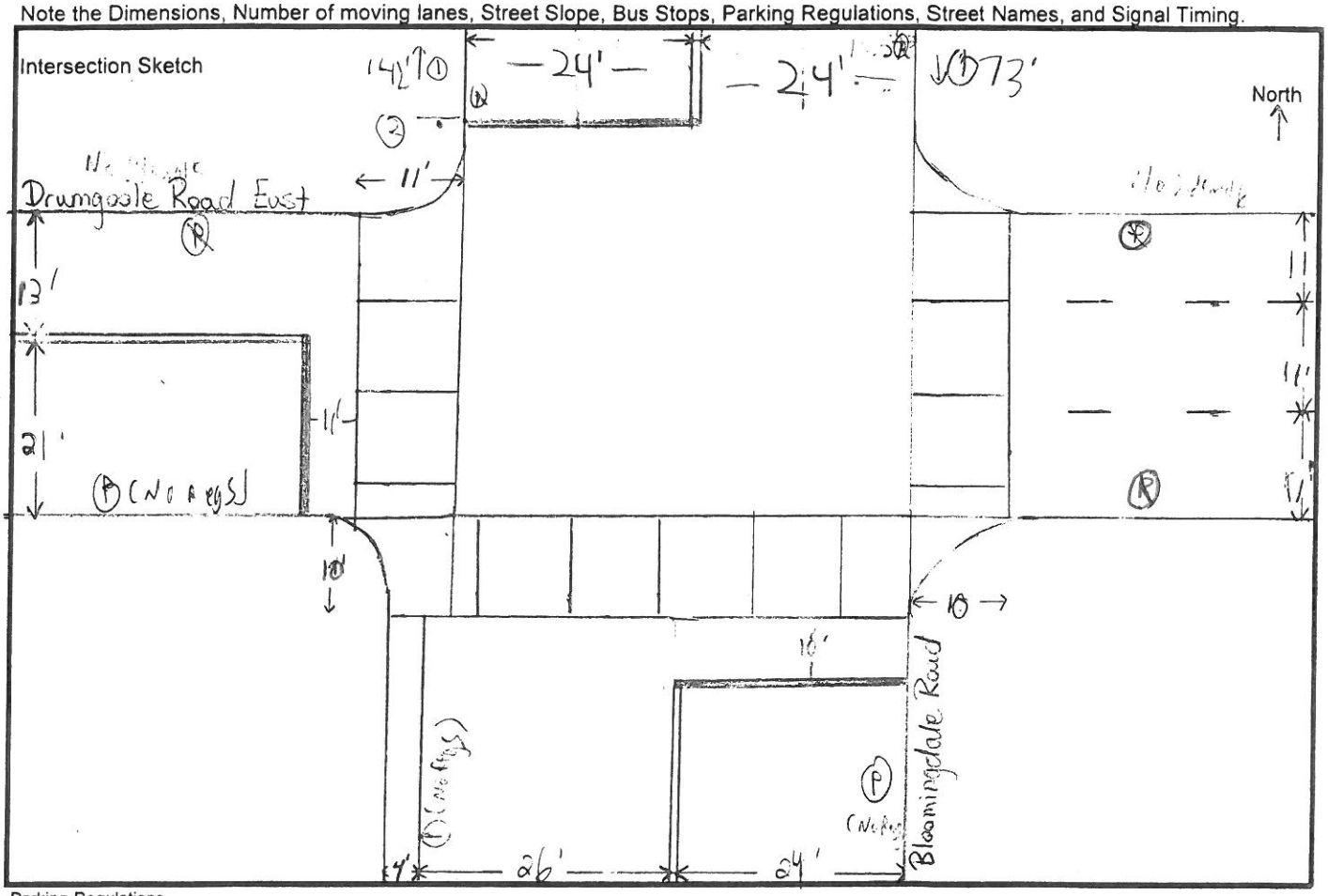
Project: Charleston Project #: 1121.1

Location: Bloomingdale Road and Drumgoole Road East

Date: Weather: Surveyor:

Note the Dimensions, Number of moving lanes, Street Slope, Bus Stops, Parking Regulations, Street Names, and Signal Timing.

Intersection Sketch



Parking Regulations

(1) No Bus M-F 8:55 x 22	( )
(2) AFTER STOP RIGHT TURN PERMITTED ON RED EXCEPT 8 A-M	( )
( )	( ) SCHOOL DAYS
( )	( )
( )	( )

Signal Timing

Approach	Phasing Diagram	Green Time(Sec.) AM/MD/PM/Sat. MD	Y+AR

Cycle Length

AM	MD
PM	Sat. MD

Pedestrian Button

Y	N

Signal Type

P	A

PHILIP HABIB & ASSOCIATES 226, W. 26th Street, 9th Floor, New York, NY 10001 Phone:(212)929-5656

Physical Inventory Sheet

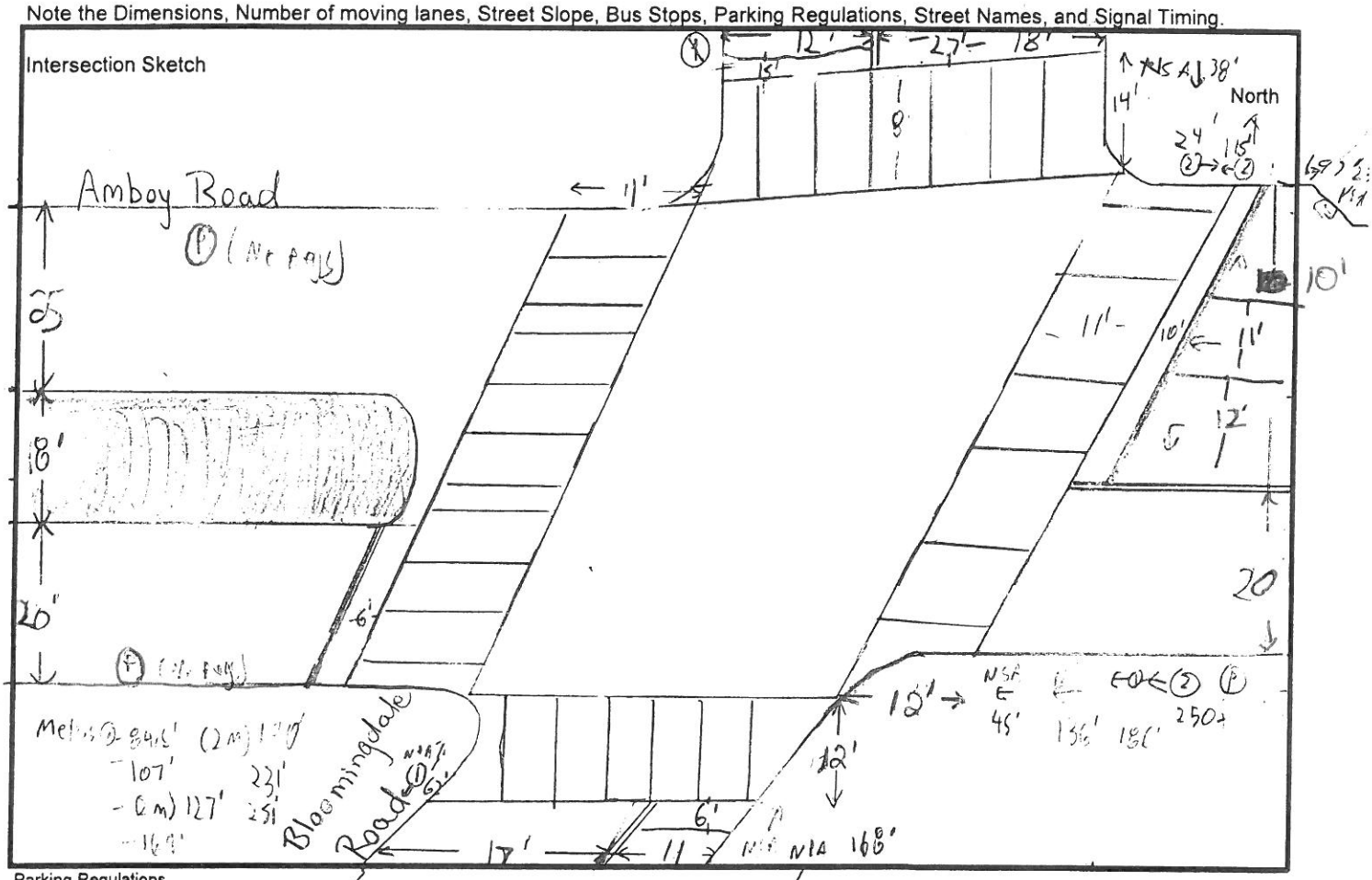
Project: Charleston Project #: 1121A

Location: Bloomingdale Road and Amboy Road

Date: Weather: Surveyor:

Note the Dimensions, Number of moving lanes, Street Slope, Bus Stops, Parking Regulations, Street Names, and Signal Timing.

Intersection Sketch



Parking Regulations

(1) 2 NR (P) 8A-7P Fr Sun	( )
(2) NS 6A-7P M-F Bus Stop	( )
( )	( )
( )	( )
( )	( )
( ) 4 NSA (1) 255'	( )

Signal Timing

Approach	Phasing Diagram	Green Time(Sec.) AM/MD/PM/Sat. MD	Y+AR

Cycle Length

AM	MD
PM	Sat. MD

Pedestrian Button

Y	N

Signal Type

P	A

PHILIP HABIB & ASSOCIATES 226, W. 26th Street, 9th Floor, New York, NY 10001 Phone:(212)929-5656

Physical Inventory Sheet

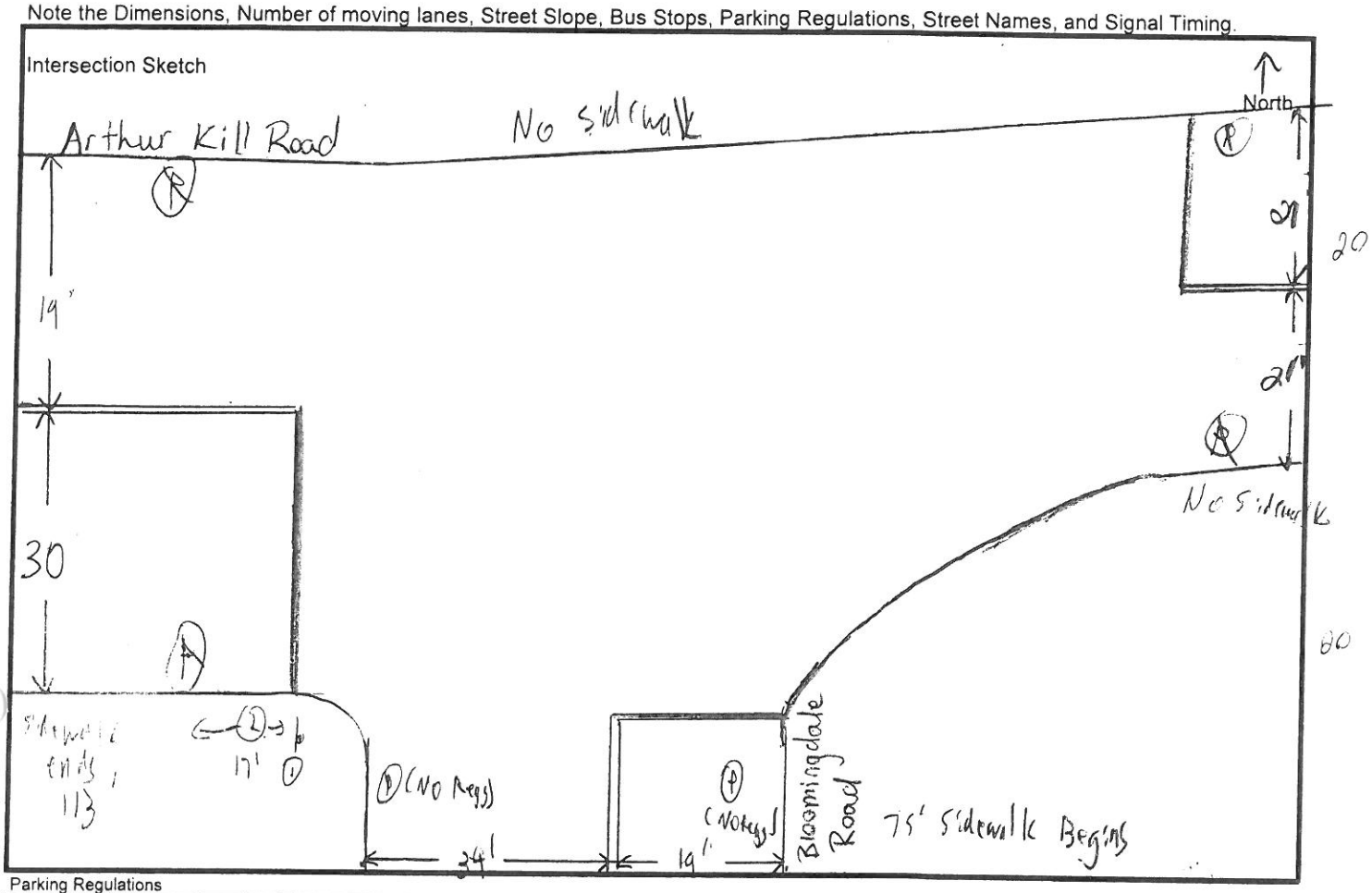
Project: Charleston Project #: 1181 A

Location: Bloomingdale Road and Arthur kill Road

Date: ..... Weather: ..... Surveyor: .....

Note the Dimensions, Number of moving lanes, Street Slope, Bus Stops, Parking Regulations, Street Names, and Signal Timing.

Intersection Sketch



Parking Regulations

(1) AFTER STOP RT PERMITTED ON RED	( )
(2.) NS BUS S55 S 74	( )
( )	( )
( )	( )
( )	( )
( )	( )

Signal Timing

Approach	Phasing Diagram	Green Time(Sec.) AM/MD/PM/Sat. MD	Y+AR

Cycle Length

AM	MD
PM	Sat. MD

Pedestrian Button

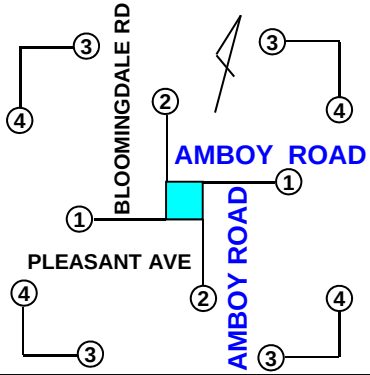
Y	N

Signal Type

P	A

Signal Timing

	1	2	3	4	5	6	7	8	9	10	11	12
	R	R	DW	DW								
	A	A	WK	WK								
	G	G										
Phase A	G	R	WK	DW								
SPARE	G	R	WK	DW								
PED CL	G	R	FLDW	DW								
VEH CL	A	R	DW	DW								
VEH CL	R	R	DW	DW								
Phase B	R	G	DW	WK								
SPARE	R	G	DW	WK								
SPARE	R	G	DW	WK								
PED CL	R	G	DW	FLDW								
PED CL	R	G	DW	DW								
VEH CL	R	A	DW	DW								
VEH CL	R	R	DW	DW								



6:00 – 9:45 MON-FRI	9:45 – 15:45 19:30 – 6:00 MON-FRI Weekend -AAT	15:45 – 19:30 MON-FRI	
90 SEC CYCLE	90 SEC CYCLE	90 SEC CYCLE	
28	28	28	
2	2	2	
10	10	10	
3	3	3	
2	2	2	
21	21	21	
2	2	2	
2	2	2	
13	13	13	
2	2	2	
3	3	3	
2	2	2	
OFFSET			
82	0	73	

DATE	BY	REVISIONS
01/07	YL	INSTALL ADDITIONAL PEDESTRIAN SIGNALS
08/06	YL	REVISE “FLDW”

NOTES: **NON - ACTUATED**

ASTC – 6 Type Controller

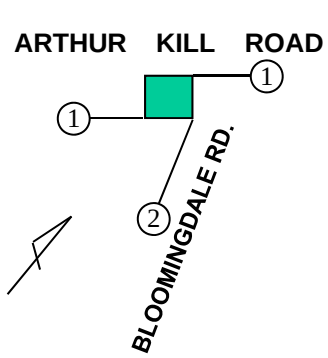
CITY OF NEW YORK
BUREAU OF TRAFFIC OPERATIONS
34-02 Queens Blvd, Long Island City, NY 11101

AMBOY ROAD @ BLOOMINGDALE ROAD

Prep. Y. Lak Date 02-19-04
Appr. _____ Date _____

Dwg No.
LB 1057a R

	1	2	3	4	5	6	7	8	9	10	11	12
	R	R										
	A	A										
	G	G										
Phase A	G	R										
SPARE	G	R										
SPARE	G	R										
VEH CL	A	R										
VEH CL	R	R										
Phase B	R	G										
SPARE	R	G										
SPARE	R	G										
SPARE	R	G										
SPARE	R	G										
VEH CL	R	A										
VEH CL	R	R										



AT ALL TIMES			
90 SEC CYCLE			
23			
2			
20			
3			
2			
22			
2			
2			
7			
2			
3			
2			
OFFSET			
00			

DATE	BY	REVISIONS

NOTES: **NON - ACTUATED**

ASTC – 6 Type Controller

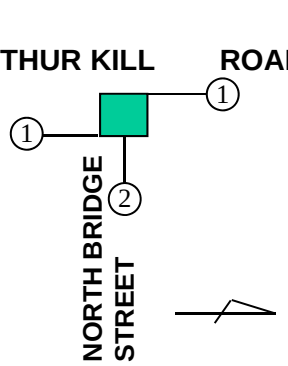
CITY OF NEW YORK
BUREAU OF TRAFFIC OPERATIONS
34-02 Queens Blvd, Long Island City, NY 11101

ARTHUR KILL ROAD @ BLOOMINGDALE ROAD

Prep. Y. Lak Date 08-28-04
Appr. _____ Date _____

Dwg No.
LB 13117 R

	1	2	3	4	5	6	7	8	9	10	11	12
	R	R										
	A	A										
	G	G										
Phase A	G	R										
SPARE	G	R										
SPARE	G	R										
VEH CL	A	R										
VEH CL	R	R										
Phase B	R	G										
SPARE	R	G										
SPARE	R	G										
SPARE	R	G										
SPARE	R	G										
VEH CL	R	A										
VEH CL	R	R										



AT ALL TIMES			
60 SEC CYCLE			
18			
2			
10			
3			
2			
9			
2			
2			
5			
2			
3			
2			
OFFSET			
35			

09/06	YL	CHANGE OFFSET
DATE	BY	REVISIONS

NOTES: **NON - ACTUATED**

ASTC – 6 Type Controller

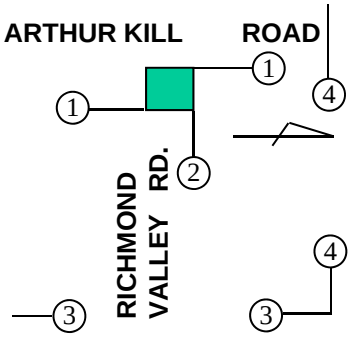
CITY OF NEW YORK
BUREAU OF TRAFFIC OPERATIONS
34-02 Queens Blvd, Long Island City, NY 11101

ARTHUR KILL ROAD @ NORTH BRIDGE STREET

Prep. Y. Lak Date 02-13-06
Appr. _____ Date _____

Dwg No.
LB 14215 R

	1	2	3	4	5	6	7	8	9	10	11	12	AT ALL TIMES			
	R	R	DW	DW												
	A	A	WK	WK												
	G	G											60			
													SEC			
													CYCLE			
Phase A	G	R	WK	DW									22			
SPARE	G	R	WK	DW									2			
PED CL	G	R	FLDW	DW									10			
VEH CL	A	R	DW	DW									3			
VEH CL	R	R	DW	DW									2			
Phase B	R	G	DW	WK									4			
SPARE	R	G	DW	WK									2			
SPARE	R	G	DW	WK									2			
PED CL	R	G	DW	FLDW									6			
PED CL	R	G	DW	DW									2			
VEH CL	R	A	DW	DW									3			
VEH CL	R	R	DW	DW									2			
													OFFSET			
													00			



05/05	YL	CYCLE LENGTH CHANGED
DATE	BY	REVISIONS

NOTES: **NON - ACTUATED**

ASTC – 6 Type Controller

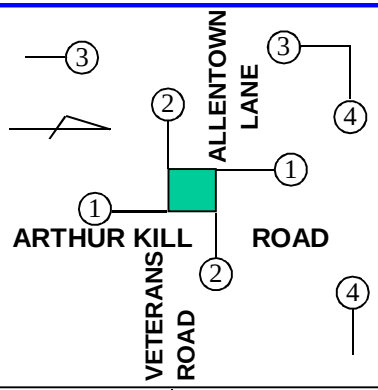
CITY OF NEW YORK
BUREAU OF TRAFFIC OPERATIONS
34-02 Queens Blvd, Long Island City, NY 11101

ARTHUR KILL ROAD @ RICHMOND VALLEY ROAD

Prep. Y. Lak Date 05-09-05
Appr. _____ Date _____

Dwg No.
LB 140832 R

	1	2	3	4	5	6	7	8	9	10	11	12
	R	R	DW	DW								
	A	A	WK	WK								
	G	G										
Phase A	G	R	WK	DW								
SPARE	G	R	WK	DW								
PED CL	G	R	FLDW	DW								
VEH CL	A	R	DW	DW								
VEH CL	R	R	DW	DW								
Phase B	R	G	DW	WK								
SPARE	R	G	DW	WK								
SPARE	R	G	DW	WK								
PED CL	R	G	DW	FLDW								
PED CL	R	G	DW	DW								
VEH CL	R	A	DW	DW								
VEH CL	R	R	DW	DW								



AT ALL TIMES			
60 SEC CYCLE			
13			
2			
10			
3			
2			
11			
2			
2			
8			
2			
3			
2			
OFFSET			
00			

DATE	BY	REVISIONS

NOTES: **NON - ACTUATED**

ASTC – 6 Type Controller

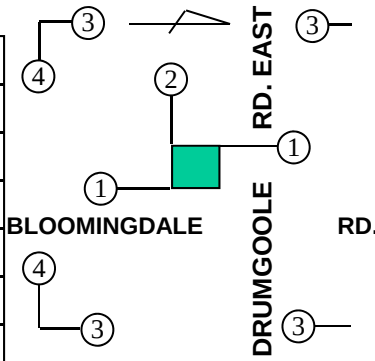
CITY OF NEW YORK
BUREAU OF TRAFFIC OPERATIONS
34-02 Queens Blvd, Long Island City, NY 11101

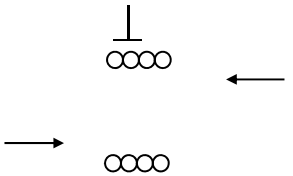
ARTHUR KILL ROAD @ VETERANS ROAD WEST & ALLENTOWN LANE

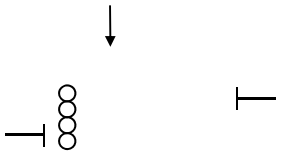
Prep. Y. Lak Date 05-20-05
Appr. _____ Date _____

Dwg No.
LB 14093 R

	1	2	3	4	5	6	7	8	9	10	11	12	AT ALL TIMES			
	R	R	DW	DW												
	A	A	WK	WK												
	G	G														
Phase A	G	R	WK	DW									22			
SPARE	G	R	WK	DW									2			
PED CL	G	R	FLDW	DW									9			
VEH CL	A	R	DW	DW									3			
VEH CL	R	R	DW	DW									2			
Phase B	R	G	DW	WK									4			
SPARE	R	G	DW	WK									2			
SPARE	R	G	DW	WK									2			
PED CL	R	G	DW	FLDW									7			
PED CL	R	G	DW	DW									2			
VEH CL	R	A	DW	DW									3			
VEH CL	R	R	DW	DW									2			
													OFFSET			
													00			







DATE	BY	REVISIONS

NOTES: **NON - ACTUATED**

ASTC – 6 Type Controller

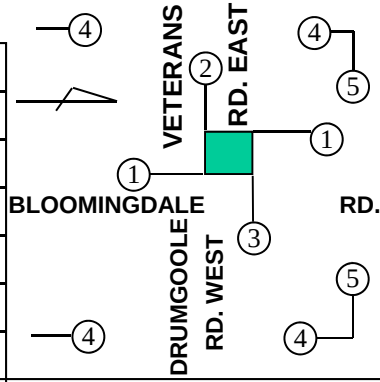
CITY OF NEW YORK
BUREAU OF TRAFFIC OPERATIONS
34-02 Queens Blvd, Long Island City, NY 11101

BLOOMINGDALE ROAD @ DRUMGOOLE ROAD EAST

Prep. Y. Lak Date 01-19-05
Appr. _____ Date _____

Dwg No.
LB 14027 R

	1	2	3	4	5	6	7	8	9	10	11	12
	R	R	R	DW	DW							
	A	A	A	WK	WK							
	G	G	G									
Phase A	G	R	R	WK	DW							
SPARE	G	R	R	WK	DW							
PED CL	G	R	R	FLDW	DW							
VEH CL	A	R	R	DW	DW							
VEH CL	R	R	R	DW	DW							
Phase B	R	G	R	DW	DW							
VEH CL	R	A	R	DW	DW							
VEH CL	R	R	R	DW	DW							
Phase C	R	R	G	DW	WK							
PED CL	R	R	G	DW	FLDW							
VEH CL	R	R	A	DW	DW							
VEH CL	R	R	R	DW	DW							



AT ALL TIMES			
60 SEC CYCLE			
5			
2			
13			
3			
2			
8			
3			
2			
6			
11			
3			
2			
OFFSET			
00			

DATE	BY	REVISIONS

NOTES: **SEMI – ACTUATED (**PHASE B ONLY)

ASTC – 6 Type Controller

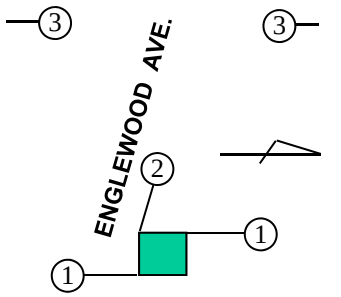
CITY OF NEW YORK
BUREAU OF TRAFFIC OPERATIONS
34-02 Queens Blvd, Long Island City, NY 11101

BLOOMINGDALE ROAD @ DRUMGOOLE ROAD WEST & VETERANS RD. EAST

Prep. Y. Lak Date 01-24-05
Appr. _____ Date _____

Dwg No. LB 12830 R

	1	2	3	4	5	6	7	8	9	10	11	12
	R	R	DW									
	A	A	WK									
	G	G										
Phase A	G	R	WK									
SPARE	G	R	WK									
PED CL	G	R	FLDW									
VEH CL	A	R	DW									
VEH CL	R	R	DW									
Phase B	R	G	DW									
SPARE	R	G	DW									
SPARE	R	G	DW									
SPARE	R	G	DW									
SPARE	R	G	DW									
VEH CL	R	A	DW									
VEH CL	R	R	DW									



AT ALL TIMES
60 SEC CYCLE
22
2
10
3
2
4
2
2
6
2
3
2
OFFSET
0

DATE	BY	REVISIONS

NOTES: **NON - ACTUATED**

ASTC – 6 Type Controller

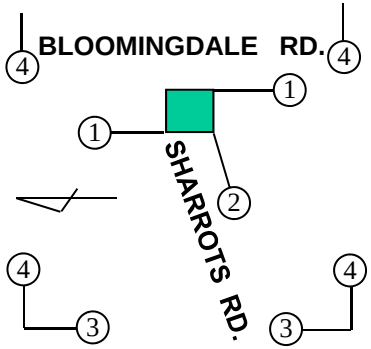
CITY OF NEW YORK
BUREAU OF TRAFFIC OPERATIONS
34-02 Queens Blvd, Long Island City, NY 11101

BLOOMINGDALE ROAD @ ENGLEWOOD AVENUE

Prep. Y. Lak Date 01-22-05
Appr. _____ Date _____

Dwg No.
LB 14139 R

	1	2	3	4	5	6	7	8	9	10	11	12	AT ALL TIMES			
	R	R	DW	DW												
	A	A	WK	WK												
	G	G											60 SEC CYCLE			
Phase A	G	R	WK	DW									16			
SPARE	G	R	WK	DW									2			
PED CL	G	R	FLDW	DW									12			
VEH CL	A	R	DW	DW									3			
VEH CL	R	R	DW	DW									2			
Phase B	R	G	DW	WK									4			
SPARE	R	G	DW	WK									2			
SPARE	R	G	DW	WK									2			
PED CL	R	G	DW	FLDW									10			
PED CL	R	G	DW	DW									2			
VEH CL	R	A	DW	DW									3			
VEH CL	R	R	DW	DW									2			
													OFFSET			
													0			



DATE	BY	REVISIONS

NOTES: **SEMI - ACTUATED**

ASTC – 6 Type Controller

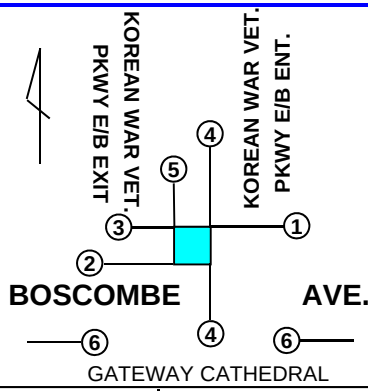
CITY OF NEW YORK
BUREAU OF TRAFFIC OPERATIONS
34-02 Queens Blvd, Long Island City, NY 11101

BLOOMINGDALE ROAD @ SHARROTTS ROAD

Prep. Y. Lak Date 09-04-04
Appr. _____ Date _____

Dwg No.
LB 12820 R

	1	2	3	4	5	6	7	8	9	10	11	12
	R	R	R	R	R	DW						
	A	A	A	A	A	WK						
	G	G	G	G	G							
			← A		A →							
			← G		G →							
Phase A	G	G	G	R	R	WK						
SPARE	G	G	G	R	R	WK						
PED CL	G	G	G	R	R	**FLDW**						
VEH CL	A	A	A	R	R	DW						
VEH CL	R	R	R	R	R	DW						
Phase B	R	R	R	G	G	DW						
SPARE	R	R	R	G	G	DW						
VEH CL	R	R	R	A	A	DW						
VEH CL	R	R	R	R	R	DW						
Phase C	R	G	G / G ←	R	R / G →	DW						
VEH CL	R	G	G / A ←	R	R / A →	DW						
VEH CL	R	G	G	R	R	DW						



ALL OTHER TIMES	16:00 – 19:30 MON - FRI	15:00 – 19:30 SATURDAY	
90 SEC CYCLE	90 SEC CYCLE	90 SEC CYCLE	
10	16	16	
2	2	2	
10	10	10	
3	3	3	
2	2	2	
14	12	12	
2	2	2	
3	3	3	
2	2	2	
37	33	33	
3	3	3	
2	2	2	
OFFSET			
58	58	58	

09/10	YL	MODIFY TIMING FOR AM AND PM
DATE	BY	REVISIONS

NOTES: **NON - ACTUATED**

ASTC – 6 Type Controller

PC = 3.0 ft/sec

CABINET ADDRESS: 7421

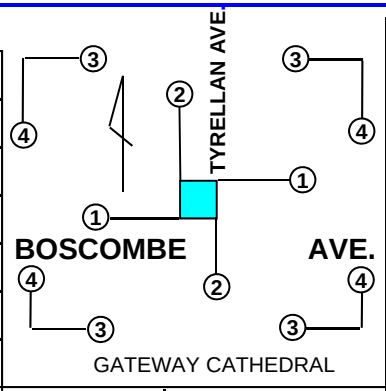
CITY OF NEW YORK
BUREAU OF TRAFFIC OPERATIONS
34-02 Queens Blvd, Long Island City, NY 11101

BOSCOMBE AVENUE @
KOREAN WAR VETERANS PKWY E/B ENT/EXIT

Prep. Y. Lak Date 09-21-10
Appr. _____ Date _____

Dwg No.
LB 13223 R

	1	2	3	4	5	6	7	8	9	10	11	12
	R	R	DW	DW								
	A	A	WK	WK								
	G	G										
Phase A	G	R	WK	DW								
SPARE	G	R	WK	DW								
PED CL	G	R	FLDW	DW								
VEH CL	A	R	DW	DW								
VEH CL	R	R	DW	DW								
Phase B	R	G	DW	WK								
SPARE	R	G	DW	WK								
SPARE	R	G	DW	WK								
PED CL	R	G	DW	FLDW								
PED CL	R	G	DW	DW								
VEH CL	R	A	DW	DW								
VEH CL	R	R	DW	DW								



AAT			
90 SEC CYCLE			
31			
2			
12			
3			
2			
17			
2			
2			
12			
2			
3			
2			
OFFSET			
0			

DATE	BY	REVISIONS
12/05	YL	CHANGED CYCLE LENGTH FROM 60 SEC TO 90 SEC

NOTES: **NON - ACTUATED**

ASTC – 6 Type Controller

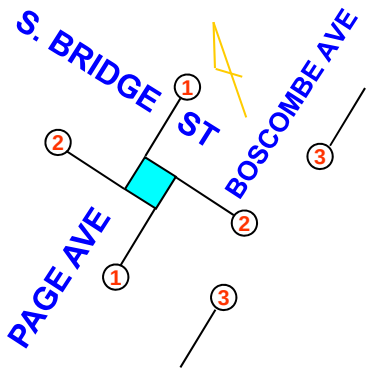
CITY OF NEW YORK
BUREAU OF TRAFFIC OPERATIONS
34-02 Queens Blvd, Long Island City, NY 11101

BOSCOMBE AVENUE @ TYRELLAN AVENUE

Prep. Y. Lak Date 09-23-05
Appr. _____ Date _____

Dwg No. LB 14140R

	1	2	3	4	5	6	7	8	9	10	11	12	AAT			
	R	R	DW													
	A	A	WK													
	G	G											90 SEC CYCLE			
Phase A	G	R	WK										38			
SPARE	G	R	WK										2			
PED CL	G	R	FLDW										10			
VEH CL	A	R	DW										3			
VEH CL	R	R	DW										2			
Phase B	R	G	DW										17			
SPARE	R	G	DW										2			
SPARE	R	G	DW										2			
PED CL	R	G	DW										7			
PED CL	R	G	DW										2			
VEH CL	R	A	DW										3			
VEH CL	R	R	DW										2			
													OFFSET			
													0			



DATE	BY	REVISIONS
12/05	YL	CHANGED CYCLE LENGTH FROM 60 SEC TO 90 SEC

NOTES: **NON - ACTUATED**

ASTC – 6 Type Controller

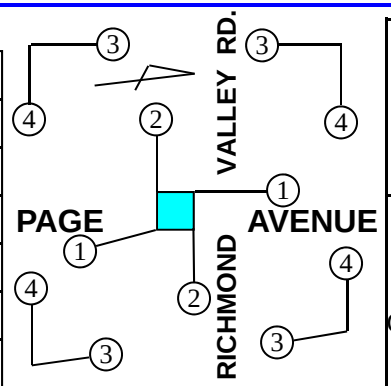
CITY OF NEW YORK
BUREAU OF TRAFFIC OPERATIONS
34-02 Queens Blvd, Long Island City, NY 11101

PAGE AVENUE @ BOSCOMBE AVE & SOUTH BRIDGE STREET

Prep. N.Ibrahim Date 10-09-04
Appr. _____ Date _____

Dwg No. LB

	1	2	3	4	5	6	7	8	9	10	11	12	AAT
	R	R	DW	DW									
	A	A	WK	WK									
	G	G											90 SEC CYCLE
Phase A	G	R	WK	DW									35
SPARE	G	R	WK	DW									2
PED CL	G	R	FLDW	DW									12
VEH CL	A	R	DW	DW									3
VEH CL	R	R	DW	DW									2
Phase B	R	G	DW	WK									10
SPARE	R	G	DW	WK									2
SPARE	R	G	DW	WK									2
PED CL	R	G	DW	FLDW									15
PED CL	R	G	DW	DW									2
VEH CL	R	A	DW	DW									3
VEH CL	R	R	DW	DW									2
													OFFSET
													0



DATE	BY	REVISIONS
04/07	YL	MODIFY PHASING
04/07	YL	CHANGE TO FIXED TIME OPERATION

NOTES: **NON - ACTUATED**

ASTC – 6 Type Controller

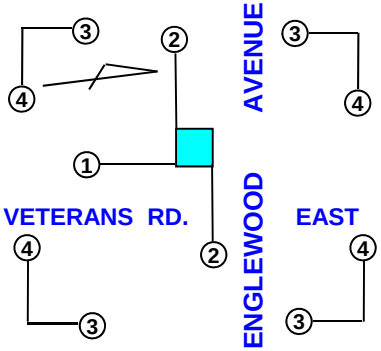
CITY OF NEW YORK
BUREAU OF TRAFFIC OPERATIONS
34-02 Queens Blvd, Long Island City, NY 11101

PAGE AVENUE @ RICHMOND VALLEY ROAD

Prep. Y. Lak Date 04-12-07
Appr. _____ Date _____

Dwg No. LB 12008R

	1	2	3	4	5	6	7	8	9	10	11	12
	R	R	DW	DW								
	A	A	WK	WK								
	G	G										
Phase A	G	R	WK	DW								
SPARE	G	R	WK	DW								
PED CL	G	R	FLDW	DW								
VEH CL	A	R	DW	DW								
VEH CL	R	R	DW	DW								
Phase B	R	G	DW	WK								
SPARE	R	G	DW	WK								
SPARE	R	G	DW	WK								
PED CL	R	G	DW	FLDW								
PED CL	R	G	DW	DW								
VEH CL	R	A	DW	DW								
VEH CL	R	R	DW	DW								



AAT			
60 SEC CYCLE			
15			
2			
12			
3			
2			
3			
2			
2			
12			
2			
3			
2			
OFFSET			
0			

DATE	BY	REVISIONS

NOTES: **NON - ACTUATED**

ASTC – 6 Type Controller

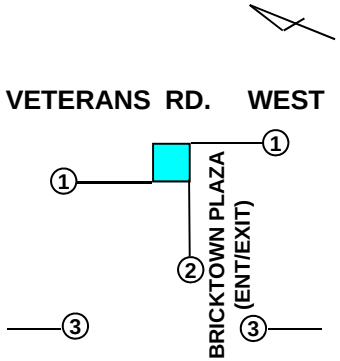
CITY OF NEW YORK
BUREAU OF TRAFFIC OPERATIONS
34-02 Queens Blvd, Long Island City, NY 11101

VETERANS ROAD EAST @ ENGLEWOOD AVENUE

Prep. Y. Lak Date 11-02-06
Appr. _____ Date _____

Dwg No. LB 14141R

	1	2	3	4	5	6	7	8	9	10	11	12
	R	R	DW									
	A	A	WK									
	G	G										
Phase A	G	R	WK									
SPARE	G	R	WK									
PED CL	G	R	FLDW									
VEH CL	A	R	DW									
VEH CL	R	R	DW									
Phase B	R	G	DW									
SPARE	R	G	DW									
SPARE	R	G	DW									
SPARE	R	G	DW									
SPARE	R	G	DW									
VEH CL	R	A	DW									
VEH CL	R	R	DW									



AAT			
60 SEC CYCLE			
5			
2			
24			
3			
2			
11			
2			
2			
2			
2			
3			
2			
OFFSET			
0			

DATE	BY	REVISIONS

NOTES: **NON - ACTUATED**

ASTC – 6 Type Controller

(PC: 3.0 Ft/Sec)

CABINET ADDRESS 744E

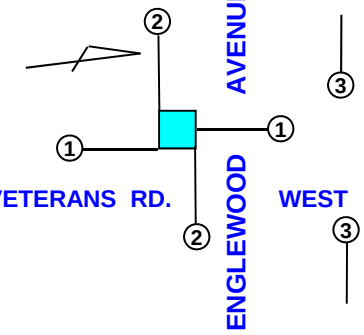
CITY OF NEW YORK
BUREAU OF TRAFFIC OPERATIONS
34-02 Queens Blvd, Long Island City, NY 11101

VETERANS ROAD WEST @ BRICKTOWN PLAZA (ENT/EXIT) (1600' EAST OF TYRELLAN AVENUE)

Prep. T. Manina Date 05-19-10
Appr. _____ Date _____

Dwg No.
LB R

	1	2	3	4	5	6	7	8	9	10	11	12
	R	R	DW									
	A	A	WK									
	G	G										
Phase A	G	R	DW									
SPARE	G	R	DW									
PED CL	G	R	DW									
VEH CL	A	R	DW									
VEH CL	R	R	DW									
Phase B	R	G	WK									
SPARE	R	G	WK									
SPARE	R	G	WK									
PED CL	R	G	FLDW									
PED CL	R	G	DW									
VEH CL	R	A	DW									
VEH CL	R	R	DW									



AAT			
60 SEC CYCLE			
11			
2			
12			
3			
2			
7			
2			
2			
12			
2			
3			
2			
OFFSET			
0			

DATE	BY	REVISIONS

NOTES: **NON - ACTUATED**

ASTC – 6 Type Controller

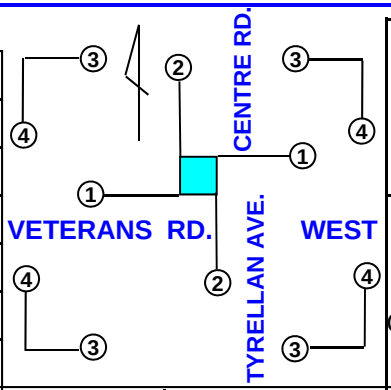
CITY OF NEW YORK
BUREAU OF TRAFFIC OPERATIONS
34-02 Queens Blvd, Long Island City, NY 11101

VETERANS ROAD WEST @ ENGLEWOOD AVENUE

Prep. Y. Lak Date 09-16-05
Appr. _____ Date _____

Dwg No.
LB 14138R

	1	2	3	4	5	6	7	8	9	10	11	12
	R	R	DW	DW								
	A	A	WK	WK								
	G	G										
Phase A	G	R	WK	DW								
SPARE	G	R	WK	DW								
PED CL	G	R	FLDW	DW								
VEH CL	A	R	DW	DW								
VEH CL	R	R	DW	DW								
Phase B	R	G	DW	WK								
SPARE	R	G	DW	WK								
SPARE	R	G	DW	WK								
PED CL	R	G	DW	FLDW								
PED CL	R	G	DW	DW								
VEH CL	R	A	DW	DW								
VEH CL	R	R	DW	DW								



AAT			
90 SEC CYCLE			
26			
2			
12			
3			
2			
22			
2			
2			
12			
2			
3			
2			
OFFSET			
0			

01/06	YL	CHANGED CYCLE LENGTH FROM 60 SEC TO 90 SEC.
DATE	BY	REVISIONS

NOTES: **NON - ACTUATED**

ASTC – 6 Type Controller

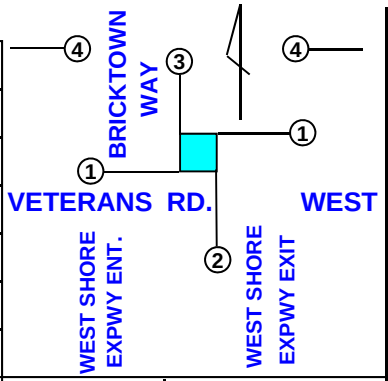
CITY OF NEW YORK
BUREAU OF TRAFFIC OPERATIONS
34-02 Queens Blvd, Long Island City, NY 11101

VETERANS ROAD WEST @ TYRELLAN AVENUE & CENTRE ROAD

Prep. Y. Lak Date 09-19-05
Appr. _____ Date _____

Dwg No. LB 14137R

	1	2	3	4	5	6	7	8	9	10	11	12
	R	R	R	DW								
	A	A	A	WK								
	G	G	G									
Phase A	G	R	R	WK								
SPARE	G	R	R	WK								
PED CL	G	R	R	FLDW								
VEH CL	A	R	R	DW								
VEH CL	R	R	R	DW								
Phase B	R	G	R	DW								
SPARE	R	G	R	DW								
VEH CL	R	A	R	DW								
VEH CL	R	R	R	DW								
Phase C	R	R	G	DW								
VEH CL	R	R	A	DW								
VEH CL	R	R	R	DW								



AOT			
90 SEC CYCLE			
14			
2			
14			
3			
2			
23			
2			
3			
2			
20			
3			
2			
OFFSET			
0			

01/09	YL	CHANGE TIMING
DATE	BY	REVISIONS

NOTES: **NON - ACTUATED**

ASTC – 6 Type Controller

CABINET ADDRESS 742D

CITY OF NEW YORK
BUREAU OF TRAFFIC OPERATIONS
34-02 Queens Blvd, Long Island City, NY 11101

VETERANS ROAD WEST @

WEST SHORE EXPWY ENT/EXIT & BRICKTOWN WAY

Prep. Y. Lak Date 10-06-05
Appr. _____ Date _____

Dwg No.
LB 14136R

Existing 2011

Weekday

AM

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*AS*
Agency/Co.	*Philip Habib & Associates*
Date Performed	*8/03/2011*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*Sharrotts Rd & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2011 Existing Conditions*

Project Description *1121A - Charleston*

East/West Street: *Sharrotts Road* North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*25*	*129*	*38*	*27*	*124*	*36*
Peak-Hour Factor, PHF	*0.83*	*0.83*	*0.83*	*0.83*	*0.83*	*0.83*
Hourly Flow Rate, HFR (veh/h)	*30*	*155*	*45*	*32*	*149*	*43*
Percent Heavy Vehicles	*20*	--	--	*13*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*8*	*7*	*7*	*56*	*9*	*26*
Peak-Hour Factor, PHF	*0.79*	*0.79*	*0.79*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*10*	*8*	*8*	*58*	*9*	*27*
Percent Heavy Vehicles	*32*	*32*	*32*	*5*	*5*	*5*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (veh/h)	*30*	*32*		*94*			*26*	
C (m) (veh/h)	*1281*	*1309*		*528*			*481*	
v/c	*0.02*	*0.02*		*0.18*			*0.05*	
95% queue length	*0.07*	*0.08*		*0.64*			*0.17*	
Control Delay (s/veh)	*7.9*	*7.8*		*13.3*			*12.9*	
LOS	*A*	*A*		*B*			*B*	
Approach Delay (s/veh)	--	--	*13.3*			*12.9*		
Approach LOS	--	--	*B*			*B*		

HCS+™ Version 5.4

Generated: 4/10/2013 10:54 AM

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*AS*
Agency/Co.	*Philip Habib & Associates*
Date Performed	*8/03/2011*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*Englewood Ave & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2011 Existing Conditions*

Project Description *1121A - Charleston*

East/West Street: *Englewood Avenue* North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*177*	*30*	*19*	*168*	
Peak-Hour Factor, PHF	*1.00*	*0.83*	*0.83*	*0.83*	*0.83*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*213*	*36*	*22*	*202*	*0*
Percent Heavy Vehicles	*0*	--	--	*11*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*7*		*15*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.69*	*1.00*	*0.69*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*10*	*0*	*21*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (veh/h)		*22*		*31*				
C (m) (veh/h)		*1266*		*700*				
v/c		*0.02*		*0.04*				
95% queue length		*0.05*		*0.14*				
Control Delay (s/veh)		*7.9*		*10.4*				
LOS		*A*		*B*				
Approach Delay (s/veh)	--	--	*10.4*					
Approach LOS	--	--	*B*					

HCS+™ Version 5.4 Generated: 4/10/2013 10:57 AM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*Veterans Rd W & Arthur Kill Rd*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*7/28/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*			*LT*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*3*	*6*	*1*	*136*	*32*	*244*	*0*	*132*	*256*	*63*	*104*	*8*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*7*	*7*	*7*	*11*	*11*	*11*	*11*	*11*	*11*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.87*	*0.87*	*0.87*	*0.85*	*0.85*	*0.85*	*0.87*	*0.87*	*0.87*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*			*0.940*	*0.940*		*0.887*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*15.5*			*11.0*	*10.0*		*15.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*			*0*	*0*		*4*			*3*	
Min. Time for Pedestrians, G_p	*11.5*			*13.5*			*15.2*			*12.1*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*11*			*193*	*280*		*456*			*201*	
Lane Group Capacity, c		*721*			*545*	*514*		*703*			*519*	
v/c Ratio, X		*0.02*			*0.35*	*0.54*		*0.65*			*0.39*	
Total Green Ratio, g/C		*0.42*			*0.42*	*0.42*		*0.42*			*0.42*	
Uniform Delay, d_1		*10.3*			*12.0*	*13.2*		*14.0*			*12.2*	
Progression Factor, PF		*1.000*			*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*	*0.50*		*0.50*			*0.50*	
Incremental Delay, d_2		*0.0*			*1.7*	*3.9*		*4.1*			*2.2*	

Initial Queue Delay, d_3		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Control Delay		*10.3*			*13.7*	*17.1*		*18.1*			*14.3*	
Lane Group LOS		*B*			*B*	*B*		*B*			*B*	
Approach Delay	*10.3*			*15.7*			*18.1*			*14.3*		
Approach LOS	*B*			*B*			*B*			*B*		
Intersection Delay	*16.4*			X_C = *0.60*			Intersection LOS			*B*		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*No Bridge St & Arthur Kill Rd*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/03/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*			*1*	
Lane Group					*LR*			*T*			*T*	
Volume, V (vph)				*246*		*5*		*383*			*241*	
% Heavy Vehicles, %HV				*8*		*8*		*11*			*15*	
Peak-Hour Factor, PHF				*0.88*		*0.88*		*0.85*			*0.87*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*			*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.893*			*0.886*			*0.754*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	
Lane Width					*16.0*			*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B					*0*			*0*			*3*	
Min. Time for Pedestrians, G_p	*13.5*			*13.8*			*3.2*			*3.2*		

Phasing	WB Only	02	03	04	Thru Only	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*286*			*451*			*277*	
Lane Group Capacity, c					*632*			*970*			*925*	
v/c Ratio, X					*0.45*			*0.46*			*0.30*	
Total Green Ratio, g/C					*0.33*			*0.50*			*0.50*	
Uniform Delay, d_1					*15.7*			*9.8*			*8.8*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*2.1*			*1.4*			*0.6*	
Initial Queue Delay, d_3					*0.0*			*0.0*			*0.0*	

Control Delay					17.8			11.2			9.4	
Lane Group LOS					B			B			A	
Approach Delay				17.8			11.2			9.4		
Approach LOS				B			B			A		
Intersection Delay	12.6			X_C = 0.46			Intersection LOS			B		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*AS*
Agency/Co.	*Philip Habib & Associates*
Date Performed	*7/28/2011*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*So Bridge St & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2011 Existing Conditions*

Project Description *1121A - Charleston*

East/West Street: *South Bridge Street* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*383*	*205*	*111*	*376*	
Peak-Hour Factor, PHF	*1.00*	*0.85*	*0.85*	*0.87*	*0.87*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*450*	*241*	*127*	*432*	*0*
Percent Heavy Vehicles	*0*	--	--	*20*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration						

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*						
v (veh/h)		*127*						
C (m) (veh/h)		*825*						
v/c		*0.15*						
95% queue length		*0.54*						
Control Delay (s/veh)		*10.2*						
LOS		*B*						
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*Rch Valley Rd & Arthur Kill Rd*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*7/28/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*	*0*	*0*	*1*	
Lane Group					*LR*			*TR*			*LT*	
Volume, V (vph)				*54*		*125*		*463*	*65*	*77*	*299*	
% Heavy Vehicles, %HV				*3*		*3*		*11*	*11*	*9*	*9*	
Peak-Hour Factor, PHF				*0.93*		*0.93*		*0.85*	*0.85*	*0.87*	*0.87*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*	*P*	*P*	*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.980*			*0.769*			*0.842*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width					*12.0*			*15.0*			*15.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B					*0*			*4*			*3*	
Min. Time for Pedestrians, G_p	*11.8*			*11.8*			*14.1*			*3.2*		

Phasing	WB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*192*			*621*			*433*	
Lane Group Capacity, c					*384*			*1032*			*839*	
v/c Ratio, X					*0.50*			*0.60*			*0.52*	
Total Green Ratio, g/C					*0.27*			*0.57*			*0.57*	
Uniform Delay, d_1					*18.6*			*8.5*			*8.0*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*4.5*			*2.0*			*1.9*	
Initial Queue Delay, d_3					*0.0*			*0.0*			*0.0*	

Control Delay					23.1			10.6			9.9	
Lane Group LOS					C			B			A	
Approach Delay				23.1			10.6			9.9		
Approach LOS				C			B			A		
Intersection Delay	12.3			X_C = 0.57			Intersection LOS			B		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*Richmond Valley Rd & Page Ave*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/03/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*0*	*1*	*1*	*0*	*0*	*2*	*0*
Lane Group		*LTR*			*LTR*		*L*	*TR*			*LTR*	
Volume, V (vph)	*60*	*21*	*61*	*20*	*107*	*15*	*48*	*610*	*104*	*49*	*333*	*24*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*1*	*1*	*1*	*3*	*3*	*3*	*9*	*9*	*9*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.94*	*0.94*	*0.94*	*0.92*	*0.92*	*0.92*	*0.84*	*0.84*	*0.84*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.810*			*1.000*		*0.649*	*0.649*			*0.986*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*6*
Lane Width		*16.0*			*15.0*		*10.0*	*14.0*			*10.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*
Parking Maneuvers, N_m						*5*						*5*
Buses Stopping, N_B		*0*			*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*16.6*			*21.5*			*16.3*			*21.2*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *31.0*	G =	G =	G =	G = *49.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*158*			*151*		*52*	*776*			*475*	
Lane Group Capacity, c		*569*			*585*		*436*	*1048*			*1108*	
v/c Ratio, X		*0.28*			*0.26*		*0.12*	*0.74*			*0.43*	
Total Green Ratio, g/C		*0.34*			*0.34*		*0.54*	*0.54*			*0.54*	
Uniform Delay, d_1		*21.4*			*21.2*		*10.0*	*15.6*			*12.2*	
Progression Factor, PF		*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2		*1.0*			*1.1*		*0.4*	*3.1*			*1.2*	

Initial Queue Delay, d_3		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay		*22.4*			*22.3*		*10.3*	*18.7*			*13.4*	
Lane Group LOS		*C*			*C*		*B*	*B*			*B*	
Approach Delay	*22.4*			*22.3*			*18.2*			*13.4*		
Approach LOS	*C*			*C*			*B*			*B*		
Intersection Delay	*17.6*			X_C *= 0.56*			Intersection LOS			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*AS*
Agency/Co.	*Philip Habib & Associates*
Date Performed	*8/03/2011*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*S Bridge St RT & Page Ave*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2011 Existing Conditions*

Project Description *1121A - Charleston*

East/West Street: *South Bridge Street Right Turn* | North/South Street: *Page Avenue*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*351*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.84*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*417*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*2*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*55*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.70*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*78*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*60*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								*R*
v (veh/h)								*78*
C (m) (veh/h)								*706*
v/c								*0.11*
95% queue length								*0.37*
Control Delay (s/veh)								*10.7*
LOS								*B*
Approach Delay (s/veh)	--	--				*10.7*		
Approach LOS	--	--				*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*S Br St & Page Ave/Boscome Ave*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/03/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*							*2*			*2*	
Lane Group	*L*							*T*			*T*	
Volume, V (vph)	*261*							*685*			*351*	
% Heavy Vehicles, %HV	*2*							*1*			*3*	
Peak-Hour Factor, PHF	*0.90*							*0.91*			*0.84*	
Pretimed (P) or Actuated (A)	*P*							*P*			*P*	
Start-up Lost Time, l_1	*2.0*							*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*							*2.0*			*2.0*	
Arrival Type, AT	*3*							*3*			*3*	
Unit Extension, UE	*3.0*							*3.0*			*3.0*	
Filtering/Metering, I	*1.000*							*0.665*			*0.986*	
Initial Unmet Demand, Q_b	*0.0*							*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*		*0*	*0*		*0*	*0*	
Lane Width	*16.0*							*14.5*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*							*0*			*0*	
Min. Time for Pedestrians, G_p	*3.2*			*20.1*			*3.2*			*3.2*		

Phasing	EB Only	02	03	04	Thru Only	06	07	08
Timing	G = *30.0*	G =	G =	G =	G = *50.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*290*							*753*			*418*	
Lane Group Capacity, c	*669*							*2156*			*1951*	
v/c Ratio, X	*0.43*							*0.35*			*0.21*	
Total Green Ratio, g/C	*0.33*							*0.56*			*0.56*	
Uniform Delay, d_1	*23.4*							*11.0*			*10.1*	
Progression Factor, PF	*1.000*							*1.000*			*1.000*	
Delay Calibration, k	*0.50*							*0.50*			*0.50*	
Incremental Delay, d_2	*2.0*							*0.3*			*0.2*	
Initial Queue Delay, d_3	*0.0*							*0.0*			*0.0*	

Control Delay	*25.4*							*11.3*			*10.3*	
Lane Group LOS	*C*							*B*			*B*	
Approach Delay	*25.4*						*11.3*			*10.3*		
Approach LOS	*C*						*B*			*B*		
Intersection Delay	*13.8*			X_C = *0.38*			Intersection LOS			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*AS*
Agency/Co.	*Philip Habib & Associates*
Date Performed	*8/03/2011*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*KWVP WB OR UT & No Bridge St*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2011 Existing Conditions*

Project Description *1121A - Charleston*

East/West Street: *KWVP WB Off-Ramp U-Turn* | North/South Street: *North Bridge Street*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*357*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.95*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*375*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*1*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*264*		
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.90*	*0.93*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*283*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*60*	*8*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*0*
Configuration				*L*		

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration			*L*					
v (veh/h)			*283*					
C (m) (veh/h)			*615*					
v/c			*0.46*					
95% queue length			*2.42*					
Control Delay (s/veh)			*15.7*					
LOS			*C*					
Approach Delay (s/veh)	--	--	*15.7*					
Approach LOS	--	--	*C*					

HCS+™ Version 5.4

Generated: 4/10/2013 11:04 AM

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*AS*	Intersection	*Veterans Rd W & Mohr St/KWVP*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/03/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8 - 9 AM Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*	*0*	*1*	*2*	*0*	*0*	*2*	*0*	*1*	*1*	*0*
Lane Group	*L*	*TR*		*L*	*TR*			*LTR*		*L*	*TR*	
Volume, V (vph)	*46*	*128*	*151*	*186*	*316*	*48*	*71*	*114*	*113*	*4*	*20*	*25*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*8*	*8*	*8*	*8*	*8*	*8*	*3*	*3*	*3*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.87*	*0.87*	*0.87*	*0.93*	*0.93*	*0.93*	*0.67*	*0.67*	*0.67*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*		*2.0*	*2.0*			*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e	*2.0*	*2.0*		*2.0*	*2.0*			*2.0*		*2.0*	*2.0*	
Arrival Type, AT	*3*	*3*		*3*	*3*			*3*		*3*	*3*	
Unit Extension, UE	*3.0*	*3.0*		*3.0*	*3.0*			*3.0*		*3.0*	*3.0*	
Filtering/Metering, I	*0.780*	*0.780*		*0.979*	*0.979*			*1.000*		*0.991*	*0.991*	
Initial Unmet Demand, Q_b	*0.0*	*0.0*		*0.0*	*0.0*			*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*38*	*0*	*0*	*4*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*11.0*	*12.0*		*10.0*	*12.0*			*12.5*		*11.0*	*10.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*		*0*	*0*			*0*		*0*	*0*	
Min. Time for Pedestrians, G_p	*34.6*			*18.6*			*20.3*			*16.1*		

Phasing	EW Perm	02	03	04	NB Only	SB Only	07	08
Timing	G = *30.0*	G =	G =	G =	G = *25.0*	G = *20.0*	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y = *5*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*52*	*273*		*214*	*414*			*321*		*6*	*67*	
Lane Group Capacity, c	*273*	*577*		*262*	*1096*			*882*		*376*	*351*	
v/c Ratio, X	*0.19*	*0.47*		*0.82*	*0.38*			*0.36*		*0.02*	*0.19*	
Total Green Ratio, g/C	*0.33*	*0.33*		*0.33*	*0.33*			*0.28*		*0.22*	*0.22*	
Uniform Delay, d_1	*21.4*	*23.7*		*27.5*	*22.9*			*26.1*		*27.3*	*28.4*	
Progression Factor, PF	*1.000*	*1.000*		*1.000*	*1.000*			*1.000*		*1.000*	*1.000*	
Delay Calibration, k	*0.50*	*0.50*		*0.50*	*0.50*			*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2	*1.2*	*2.2*		*23.4*	*1.0*			*1.2*		*0.1*	*1.2*	

Initial Queue Delay, d_3	*0.0*	*0.0*		*0.0*	*0.0*			*0.0*		*0.0*	*0.0*	
Control Delay	*22.6*	*25.9*		*50.8*	*23.9*			*27.3*		*27.4*	*29.6*	
Lane Group LOS	*C*	*C*		*D*	*C*			*C*		*C*	*C*	
Approach Delay	*25.4*			*33.1*			*27.3*			*29.4*		
Approach LOS	*C*			*C*			*C*			*C*		
Intersection Delay	*29.6*			X_C *= 0.50*			Intersection LOS			*C*		

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*AS*
Agency/Co.	*Philip Habib & Associates*
Date Performed	*8/03/2011*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*Mohr Street & Tyrellan Avenue*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2011 Existing COnditions*

Project ID *1121A - Charleston*

East/West Street: *Mohr Street* North/South Street: *Tyrellan Avenue*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*44*	*17*	*31*	*39*	*0*
%Thrus Left Lane	*50*			*50*		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*10*	*0*	*20*	*0*	*0*	*0*
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*T*	*TR*	*LT*	*T*	*L*	*R*		
PHF	*0.80*	*0.80*	*0.78*	*0.78*	*0.86*	*0.86*		
Flow Rate (veh/h)	*27*	*48*	*63*	*25*	*11*	*23*		
% Heavy Vehicles	*21*	*21*	*1*	*1*	*5*	*5*		
No. Lanes	*2*		*2*		*2*		*0*	
Geometry Group	*5*		*5*		*1*			
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	*0.0*	*0.0*	*0.6*	*0.0*	*1.0*	*0.0*		
Prop. Right-Turns	*0.0*	*0.4*	*0.0*	*0.0*	*0.0*	*1.0*		
Prop. Heavy Vehicle	*0.2*	*0.2*	*0.0*	*0.0*	*0.0*	*0.0*		
hLT-adj	*0.5*	*0.5*	*0.5*	*0.5*	*0.2*	*0.2*		
hRT-adj	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.6*	*-0.6*		
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*		
hadj, computed	*0.4*	*0.1*	*0.3*	*0.0*	*0.3*	*-0.5*		

Departure Headway and Service Time

hd, initial value (s)	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*		
x, initial	*0.02*	*0.04*	*0.06*	*0.02*	*0.01*	*0.02*		
hd, final value (s)	*4.99*	*4.69*	*4.95*	*4.64*	*4.56*	*3.77*		
x, final value	*0.04*	*0.06*	*0.09*	*0.03*	*0.01*	*0.02*		
Move-up time, m (s)	*2.3*		*2.3*		*2.0*			
Service Time, t_s (s)	*2.7*	*2.4*	*2.7*	*2.3*	*2.6*	*1.8*		

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*277*	*298*	*313*	*275*	*261*	*273*		
Delay (s/veh)	*7.89*	*7.70*	*8.12*	*7.50*	*7.63*	*6.86*		
LOS	*A*	*A*	*A*	*A*	*A*	*A*		
Approach: Delay (s/veh)	*7.77*		*7.95*		*7.11*			
LOS	*A*		*A*		*A*			
Intersection Delay (s/veh)	*7.73*							
Intersection LOS	*A*							

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*Veterans Rd W & Tyrellan Ave*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/03/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*
Lane Group		*LTR*			*LTR*		*DefL*	*TR*			*LTR*	
Volume, V (vph)	*50*	*23*	*172*	*97*	*243*	*6*	*212*	*69*	*43*	*10*	*91*	*95*
% Heavy Vehicles, %HV	*8*	*8*	*8*	*3*	*3*	*3*	*4*	*4*	*4*	*8*	*8*	*8*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.87*	*0.87*	*0.87*	*0.87*	*0.87*	*0.87*	*0.76*	*0.76*	*0.76*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.916*			*0.953*		*1.000*	*1.000*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*			*12.0*		*13.0*	*13.0*			*9.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*			*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*18.6*			*16.6*			*20.1*			*19.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*278*			*397*		*244*	*128*			*258*	
Lane Group Capacity, c		*1079*			*1202*		*497*	*791*			*1192*	
v/c Ratio, X		*0.26*			*0.33*		*0.49*	*0.16*			*0.22*	
Total Green Ratio, g/C		*0.44*			*0.44*		*0.44*	*0.44*			*0.44*	
Uniform Delay, d_1		*15.7*			*16.3*		*17.8*	*15.0*			*15.4*	
Progression Factor, PF		*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2		*0.5*			*0.7*		*3.4*	*0.4*			*0.4*	

Initial Queue Delay, d_3		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay		*16.2*			*17.0*		*21.2*	*15.4*			*15.8*	
Lane Group LOS		*B*			*B*		*C*	*B*			*B*	
Approach Delay	*16.2*			*17.0*			*19.2*			*15.8*		
Approach LOS	*B*			*B*			*B*			*B*		
Intersection Delay	*17.2*			X_C *= 0.41*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	AS	Intersection	Boscombe Ave & OBX Off-Ramp
Agency or Co.	Philip Habib & Associates	Area Type	All other areas
Date Performed	8/03/2010	Jurisdiction	Staten Island, NY
Time Period	Weekday 8-9 AM Peak Period	Analysis Year	2011 Existing Conditions
		Project ID	1121A - Charleston

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	1	1	0	0	1	1	0	1	0	1	1	1
Lane Group	L	TR			LT	R		LTR		L	LT	R
Volume, V (vph)	729	199	18	4	214	162	4	15	6	88	5	133
% Heavy Vehicles, %HV	1	1	1	3	3	3	1	1	1	2	2	2
Peak-Hour Factor, PHF	0.91	0.91	0.91	0.86	0.86	0.86	0.37	0.37	0.37	0.87	0.87	0.87
Pretimed (P) or Actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up Lost Time, l_1	2.0	2.0			2.0	2.0		2.0		2.0	2.0	2.0
Extension of Effective Green, e	2.0	2.0			2.0	2.0		2.0		2.0	2.0	2.0
Arrival Type, AT	3	3			3	3		3		3	3	3
Unit Extension, UE	3.0	3.0			3.0	3.0		3.0		3.0	3.0	3.0
Filtering/Metering, I	0.603	0.603			0.932	0.932		1.000		1.000	1.000	1.000
Initial Unmet Demand, Q_b	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Ped / Bike / RTOR Volumes	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	11.0	12.0			12.0	12.0		16.0		10.0	11.0	10.0
Parking / Grade / Parking	N	0	Y	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N_m			5									
Buses Stopping, N_B	0	0			0	0		0		0	0	0
Min. Time for Pedestrians, G_p	14.6			24.6			20.9			20.1		

Phasing	EB Only	EW Perm	03	04	NS Perm	06	07	08
Timing	G = 37.0	G = 22.0	G =	G =	G = 16.0	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	801	239			254	188		68		101	6	153
Lane Group Capacity, c	903	1156			448	383		354		226	320	952
v/c Ratio, X	0.89	0.21			0.57	0.49		0.19		0.45	0.02	0.16
Total Green Ratio, g/C	0.71	0.71			0.24	0.24		0.18		0.18	0.18	0.64
Uniform Delay, d_1	12.2	4.4			29.8	29.2		31.5		33.0	30.5	6.3
Progression Factor, PF	1.000	1.000			1.000	1.000		1.000		1.000	1.000	1.000
Delay Calibration, k	0.50	0.50			0.50	0.50		0.50		0.50	0.50	0.50
Incremental Delay, d_2	8.1	0.2			4.8	4.1		1.2		6.3	0.1	0.4

Initial Queue Delay, d_3	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Control Delay	20.3	4.6			34.6	33.3		32.7		39.3	30.6	6.7
Lane Group LOS	C	A			C	C		C		D	C	A
Approach Delay	16.7			34.1			32.7			19.9		
Approach LOS	B			C			C			B		
Intersection Delay	22.0			X_C = 0.71			Intersection LOS			C		

 HCS+™ Version 5.4 Generated: 4/10/2013 11:05 AM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*Boscombe Ave & Tyrellan Ave*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/03/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Hour*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*1*	*1*
Lane Group	*DefL*	*TR*			*LTR*			*LTR*			*LT*	*R*
Volume, V (vph)	*269*	*24*	*0*	*13*	*63*	*35*	*6*	*20*	*10*	*14*	*35*	*311*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*3*	*3*	*3*	*1*	*1*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.91*	*0.91*	*0.91*	*0.72*	*0.72*	*0.72*	*0.45*	*0.45*	*0.45*	*0.76*	*0.76*	*0.76*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*			*2.0*			*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*			*2.0*			*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*			*3*			*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*			*3.0*			*3.0*	*3.0*
Filtering/Metering, I	*0.970*	*0.970*			*1.000*			*1.000*			*0.974*	*0.974*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*			*0.0*			*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*9*	*0*	*0*	*0*	*0*	*0*	*155*
Lane Width	*16.0*	*16.0*			*11.5*			*12.0*			*12.0*	*12.0*
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*			*0*			*0*			*0*	*0*
Min. Time for Pedestrians, G_p	*20.3*			*17.5*			*20.3*			*20.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*296*	*26*			*141*			*79*			*64*	*205*
Lane Group Capacity, c	*707*	*1066*			*1545*			*1232*			*676*	*616*
v/c Ratio, X	*0.42*	*0.02*			*0.09*			*0.06*			*0.09*	*0.33*
Total Green Ratio, g/C	*0.50*	*0.50*			*0.50*			*0.39*			*0.39*	*0.39*
Uniform Delay, d_1	*14.2*	*11.4*			*11.8*			*17.2*			*17.4*	*19.3*
Progression Factor, PF	*1.000*	*1.000*			*1.000*			*1.000*			*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*			*0.50*			*0.50*	*0.50*
Incremental Delay, d_2	*1.8*	*0.0*			*0.1*			*0.1*			*0.3*	*1.4*

Initial Queue Delay, d_3	*0.0*	*0.0*			*0.0*			*0.0*			*0.0*	*0.0*
Control Delay	*16.0*	*11.4*			*11.9*			*17.3*			*17.7*	*20.7*
Lane Group LOS	*B*	*B*			*B*			*B*			*B*	*C*
Approach Delay	*15.6*			*11.9*			*17.3*			*20.0*		
Approach LOS	*B*			*B*			*B*			*C*		
Intersection Delay	*16.6*			X_C *= 0.38*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*AS*	Intersection	*Bricktown Ctr Rd @ Vets Rd W*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/03/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*				*0*	*2*			*2*	*0*
Lane Group	*L*		*R*					*LT*			*TR*	
Volume, V (vph)	*60*		*4*				*4*	*72*			*173*	*342*
% Heavy Vehicles, %HV	*11*		*11*				*2*	*2*			*1*	*1*
Peak-Hour Factor, PHF	*0.80*		*0.80*				*0.80*	*0.80*			*0.81*	*0.81*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*					*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*					*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*					*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*					*3.0*			*3.0*	
Filtering/Metering, I	*0.995*		*0.995*					*1.000*			*0.752*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*					*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*4*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width	*13.0*		*12.0*					*11.5*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*					*0*			*0*	
Min. Time for Pedestrians, G_p	*21.8*			*20.3*			*3.2*			*19.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *19.0*	G =	G =	G =	G = *31.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*75*		*0*					*95*			*636*	
Lane Group Capacity, c	*532*		*461*					*1679*			*1888*	
v/c Ratio, X	*0.14*		*0.00*					*0.06*			*0.34*	
Total Green Ratio, g/C	*0.32*		*0.32*					*0.52*			*0.52*	
Uniform Delay, d_1	*14.7*		*14.0*					*7.2*			*8.5*	
Progression Factor, PF	*1.000*		*1.000*					*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*					*0.50*			*0.50*	
Incremental Delay, d_2	*0.6*		*0.0*					*0.1*			*0.4*	
Initial Queue Delay, d_3	*0.0*		*0.0*					*0.0*			*0.0*	

Control Delay	15.2		14.0					7.3			8.8	
Lane Group LOS	B		B					A			A	
Approach Delay	15.2						7.3			8.8		
Approach LOS	B						A			A		
Intersection Delay	9.3			X_C = 0.26			Intersection LOS			A		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*AS*
Agency/Co.	*Philip Habib & Associates*
Date Performed	*8/03/2011*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*Englewood Ave & Vets Rd W RT*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2011 Existing Conditions*

Project Description *1121A - Charleston*

East/West Street: *Englewood Avenue* | North/South Street: *Veterans Rd W Right Turn Bay*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*23*				
Peak-Hour Factor, PHF	*1.00*	*0.82*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*28*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*T*				
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*129*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.78*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*165*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*1*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					*R*			
v (veh/h)					*165*			
C (m) (veh/h)					*1050*			
v/c					*0.16*			
95% queue length					*0.56*			
Control Delay (s/veh)					*9.1*			
LOS					*A*			
Approach Delay (s/veh)	--	--	*9.1*					
Approach LOS	--	--	*A*					

HCS+™ Version 5.4

Generated: 4/10/2013 11:07 AM

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*AS*	Intersection	*Englewood Ave @ Veterans Rd W*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/03/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*1*	*1*		*1*			*0*	*3*	*0*
Lane Group		*TR*		*L*	*LT*		*L*				*LTR*	
Volume, V (vph)		*1*	*0*	*390*	*1*		*3*			*22*	*125*	*0*
% Heavy Vehicles, %HV		*2*	*2*	*3*	*3*		*1*			*1*	*1*	*1*
Peak-Hour Factor, PHF		*0.25*	*0.25*	*0.79*	*0.79*		*0.80*			*0.81*	*0.81*	*0.81*
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*			*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Arrival Type, AT		*3*		*3*	*3*		*3*				*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*		*3.0*				*3.0*	
Filtering/Metering, I		*1.000*		*0.981*	*0.981*		*0.998*				*1.000*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*12.0*		*13.0*	*13.0*		*10.0*				*11.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*		*0*	*0*		*0*				*0*	
Min. Time for Pedestrians, G_p	*31.2*			*3.2*			*18.1*			*11.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*4*		*247*	*248*		*4*				*181*	
Lane Group Capacity, c		*776*		*600*	*576*		*463*				*2049*	
v/c Ratio, X		*0.01*		*0.41*	*0.43*		*0.01*				*0.09*	
Total Green Ratio, g/C		*0.42*		*0.42*	*0.42*		*0.42*				*0.42*	
Uniform Delay, d_1		*10.2*		*12.3*	*12.4*		*10.2*				*10.6*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*		*1.000*				*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*		*0.50*				*0.50*	
Incremental Delay, d_2		*0.0*		*2.0*	*2.3*		*0.0*				*0.1*	

Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Control Delay		*10.2*		*14.4*	*14.7*		*10.3*				*10.7*	
Lane Group LOS		*B*		*B*	*B*		*B*				*B*	
Approach Delay	*10.2*			*14.6*			*10.3*			*10.7*		
Approach LOS	*B*			*B*			*B*			*B*		
Intersection Delay	*13.5*			X_C *= 0.26*			Intersection LOS			*B*		

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*AS*
Agency/Co.	*Philip Habib & Associates*
Date Performed	*7/28/2011*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*Sharrotts Rd & Veterans Rd W*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2011 Existing Conditions*

Project ID *1121A - Charleston*

East/West Street: *Sharrotts Road* North/South Street: *Veterans Road West*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*52*	*20*	*65*	*65*	*0*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*0*	*10*	*62*	*26*
%Thrus Left Lane				*50*		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*TR*		*LT*				*LT*	*TR*
PHF	*0.80*		*0.79*				*0.81*	*0.81*
Flow Rate (veh/h)	*88*		*164*				*50*	70
% Heavy Vehicles	*24*		*5*				*3*	*3*
No. Lanes	*1*		*1*		*0*		*2*	
Geometry Group	*2*		*2*				*1*	
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	*0.0*		*0.5*				*0.2*	*0.0*
Prop. Right-Turns	*0.3*		*0.0*				*0.0*	*0.5*
Prop. Heavy Vehicle	*0.2*		*0.0*				*0.0*	*0.0*
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*			*0.2*	*0.2*
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*			*-0.6*	*-0.6*
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*			*1.7*	*1.7*
hadj, computed	*0.2*		*0.2*				*0.1*	*-0.2*

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value (s)	*3.20*		*3.20*				*3.20*	*3.20*
x, initial	*0.08*		*0.15*				*0.04*	*0.06*
hd, final value (s)	*4.60*		*4.46*				*4.59*	*4.27*
x, final value	*0.11*		*0.20*				*0.06*	*0.08*
Move-up time, m (s)	*2.0*		*2.0*				*2.0*	
Service Time, t_s (s)	*2.6*		*2.5*				*2.6*	*2.3*

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*338*		*414*				*300*	*320*
Delay (s/veh)	*8.18*		*8.59*				*7.90*	*7.65*
LOS	*A*		*A*				*A*	*A*
Approach: Delay (s/veh)	*8.18*		*8.59*				*7.76*	
LOS	*A*		*A*				*A*	
Intersection Delay (s/veh)	*8.22*							
Intersection LOS	*A*							

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*AS*
Agency/Co.	*Philip Habib & Associates*
Date Performed	*7/28/2011*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*Sharrotts Rd @ Veterans Rd E*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2011 Existing Conditions*

Project ID *1121A - Charleston*

East/West Street: *Sharrotts Road* North/South Street: *Veterans Road East*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*6*	*56*	*0*	*0*	*76*	*54*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*54*	*49*	*38*	*0*	*0*	*0*
%Thrus Left Lane	*50*					

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*LT*		*TR*		*LT*	*TR*		
PHF	*0.80*		*0.79*		*0.87*	*0.87*		
Flow Rate (veh/h)	*76*		*164*		*89*	*71*		
% Heavy Vehicles	*17*		*7*		*1*	*1*		
No. Lanes	*1*		*1*		*2*		*0*	
Geometry Group	*2*		*2*		*1*			
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	*0.1*		*0.0*		*0.7*	*0.0*		
Prop. Right-Turns	*0.0*		*0.4*		*0.0*	*0.6*		
Prop. Heavy Vehicle	*0.2*		*0.1*		*0.0*	*0.0*		
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*		
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*		
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*		
hadj, computed	*0.3*		*-0.1*		*0.2*	*-0.3*		

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value (s)	*3.20*		*3.20*		*3.20*	*3.20*		
x, initial	*0.07*		*0.15*		*0.08*	*0.06*		
hd, final value (s)	*4.74*		*4.22*		*4.61*	*4.10*		
x, final value	*0.10*		*0.19*		*0.11*	*0.08*		
Move-up time, m (s)	*2.0*		*2.0*		*2.0*			
Service Time, t_s (s)	*2.7*		*2.2*		*2.6*	*2.1*		

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*326*		*414*		*339*	*321*		
Delay (s/veh)	*8.26*		*8.21*		*8.20*	*7.46*		
LOS	*A*		*A*		*A*	*A*		
Approach: Delay (s/veh)	*8.26*		*8.21*		*7.87*			
LOS	*A*		*A*		*A*			
Intersection Delay (s/veh)	*8.09*							
Intersection LOS	*A*							

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*Englewood Ave @ Vets Rd E*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/03/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*3*	*0*			
Lane Group		*LT*	*R*		*LTR*			*LTR*				
Volume, V (vph)	*69*	*41*	*42*	*6*	*37*	*1*	*354*	*71*	*1*			
% Heavy Vehicles, %HV	*3*	*3*	*3*	*1*	*1*	*1*	*3*	*3*	*3*			
Peak-Hour Factor, PHF	*0.79*	*0.79*	*0.79*	*0.79*	*0.79*	*0.79*	*0.76*	*0.76*	*0.76*			
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*			
Start-up Lost Time, l_1		*2.0*	*2.0*		*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*	*2.0*		*2.0*			*2.0*				
Arrival Type, AT		*3*	*3*		*3*			*3*				
Unit Extension, UE		*3.0*	*3.0*		*3.0*			*3.0*				
Filtering/Metering, I		*0.999*	*0.999*		*0.998*			*0.978*				
Initial Unmet Demand, Q_b		*0.0*	*0.0*		*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*21*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width		*13.0*	*12.0*		*11.5*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B		*0*	*0*		*0*			*0*				
Min. Time for Pedestrians, G_p	*21.2*			*12.9*			*14.3*			*17.5*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *21.0*	G =	G =	G =	G = *29.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*139*	*27*		*56*			*560*				
Lane Group Capacity, c		*533*	*549*		*546*			*2253*				
v/c Ratio, X		*0.26*	*0.05*		*0.10*			*0.25*				
Total Green Ratio, g/C		*0.35*	*0.35*		*0.35*			*0.48*				
Uniform Delay, d_1		*13.9*	*12.9*		*13.1*			*9.1*				
Progression Factor, PF		*1.000*	*1.000*		*1.000*			*1.000*				
Delay Calibration, k		*0.50*	*0.50*		*0.50*			*0.50*				
Incremental Delay, d_2		*1.2*	*0.2*		*0.4*			*0.3*				

Initial Queue Delay, d_3		*0.0*	*0.0*		*0.0*			*0.0*				
Control Delay		*15.1*	*13.1*		*13.5*			*9.4*				
Lane Group LOS		*B*	*B*		*B*			*A*				
Approach Delay	*14.8*			*13.5*			*9.4*					
Approach LOS	*B*			*B*			*A*					
Intersection Delay	*10.8*			X_C = *0.25*			Intersection LOS			*B*		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*Englewood Av & Bloomingdale Rd*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*7/28/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*24*		*17*				*15*	*319*			*29*	*439*
% Heavy Vehicles, %HV	*1*		*1*				*7*	*7*			*9*	*9*
Peak-Hour Factor, PHF	*0.74*		*0.74*				*0.89*	*0.89*			*0.86*	*0.86*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.997*						*0.936*			*0.808*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*16.0*						*14.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B		*0*						*7*			*2*	
Min. Time for Pedestrians, G_p	*14.9*			*15.5*			*3.2*			*17.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*55*						*375*			*544*	
Lane Group Capacity, c		*456*						*1014*			*970*	
v/c Ratio, X		*0.12*						*0.37*			*0.56*	
Total Green Ratio, g/C		*0.27*						*0.57*			*0.57*	
Uniform Delay, d_1		*16.7*						*7.1*			*8.3*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*0.5*						*1.0*			*1.9*	
Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	

Control Delay		17.2						8.1			10.2	
Lane Group LOS		B						A			B	
Approach Delay	17.2						8.1			10.2		
Approach LOS	B						A			B		
Intersection Delay	9.8			X_C = 0.42			Intersection LOS			A		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*Sharrotts Rd & Bloomingdale Rd*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*7/28/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*45*		*49*				*28*	*327*			*266*	*65*
% Heavy Vehicles, %HV	*14*		*14*				*8*	*8*			*11*	*11*
Peak-Hour Factor, PHF	*0.80*		*0.80*				*0.89*	*0.89*			*0.86*	*0.86*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.982*						*0.866*			*0.927*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*17*
Lane Width		*16.0*						*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*7*			*2*	
Min. Time for Pedestrians, G_p	*18.6*			*18.6*			*3.2*			*16.6*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*117*						*398*			*365*	
Lane Group Capacity, c		*500*						*811*			*943*	
v/c Ratio, X		*0.23*						*0.49*			*0.39*	
Total Green Ratio, g/C		*0.33*						*0.50*			*0.50*	
Uniform Delay, d_1		*14.5*						*9.9*			*9.3*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*1.1*						*1.8*			*1.1*	
Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	

Control Delay		*15.5*						*11.8*			*10.4*	
Lane Group LOS		*B*						*B*			*B*	
Approach Delay	*15.5*						*11.8*			*10.4*		
Approach LOS	*B*						*B*			*B*		
Intersection Delay	*11.7*			X_C = *0.39*			Intersection LOS			*B*		

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*AS*	Intersection	*Vets Rd E & Bloomingdale Rd*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*7/28/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*	*0*	*3*	*0*	*1*	*1*			*1*	*0*
Lane Group	*L*		*R*		*LTR*		*L*	*T*			*TR*	
Volume, V (vph)	*3*		*54*	*218*	*367*	*152*	*39*	*179*			*436*	*20*
% Heavy Vehicles, %HV	*3*		*3*	*3*	*3*	*3*	*7*	*7*			*7*	*7*
Peak-Hour Factor, PHF	*0.79*		*0.79*	*0.88*	*0.88*	*0.88*	*0.90*	*0.90*			*0.76*	*0.76*
Pretimed (P) or Actuated (A)	*P*		*P*	*P*	*P*	*P*	*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*		*3*		*3*	*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*		*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I	*0.974*		*0.974*		*0.725*		*0.946*	*0.946*			*0.293*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Lane Width	*10.0*		*13.0*		*11.0*		*12.0*	*12.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*		*0*		*0*	*7*			*2*	
Min. Time for Pedestrians, G_p	*17.2*			*16.9*			*3.2*			*20.9*		

Phasing	EB Only	WB Only	03	04	NS Perm	06	07	08
Timing	G = *8.0*	G = *17.0*	G =	G =	G = *20.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*4*		*68*		*838*		*43*	*199*			*600*	
Lane Group Capacity, c	*218*		*216*		*1314*		*120*	*575*			*662*	
v/c Ratio, X	*0.02*		*0.31*		*0.64*		*0.36*	*0.35*			*0.91*	
Total Green Ratio, g/C	*0.13*		*0.13*		*0.28*		*0.33*	*0.33*			*0.33*	
Uniform Delay, d_1	*22.6*		*23.5*		*18.8*		*15.1*	*15.1*			*19.1*	
Progression Factor, PF	*1.000*		*1.000*		*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*		*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2	*0.2*		*3.7*		*1.7*		*7.7*	*1.6*			*6.7*	

Initial Queue Delay, d_3	0.0		0.0		0.0		0.0	0.0			0.0	
Control Delay	22.7		27.2		20.5		22.9	16.6			25.8	
Lane Group LOS	C		C		C		C	B			C	
Approach Delay	27.0			20.5			17.7			25.8		
Approach LOS	C			C			B			C		
Intersection Delay	22.2			X_C = 0.70			Intersection LOS			C		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*AS*	Intersection	*S Service Rd & Bloomingdale Rd*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*7/28/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*				*0*	*1*	*0*	*1*	*1*	*0*
Lane Group		*LTR*						*LTR*		*L*	*TR*	
Volume, V (vph)	*11*	*36*	*10*				*5*	*207*	*81*	*241*	*437*	*30*
% Heavy Vehicles, %HV	*3*	*3*	*3*				*7*	*7*	*7*	*7*	*7*	*7*
Peak-Hour Factor, PHF	*0.85*	*0.85*	*0.85*				*0.90*	*0.90*	*0.90*	*0.80*	*0.80*	*0.80*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*				*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*		*2.0*	*2.0*	
Arrival Type, AT		*3*						*3*		*3*	*3*	
Unit Extension, UE		*3.0*						*3.0*		*3.0*	*3.0*	
Filtering/Metering, I		*1.000*						*0.941*		*0.518*	*0.518*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*13.0*						*16.0*		*12.0*	*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*7*		*0*	*2*	
Min. Time for Pedestrians, G_p	*17.5*			*16.9*			*12.6*			*12.9*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *17.0*	G =	G =	G =	G = *33.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*67*						*326*		*301*	*583*	
Lane Group Capacity, c		*457*						*899*		*565*	*960*	
v/c Ratio, X		*0.15*						*0.36*		*0.53*	*0.61*	
Total Green Ratio, g/C		*0.28*						*0.55*		*0.55*	*0.55*	
Uniform Delay, d_1		*16.1*						*7.6*		*8.6*	*9.1*	
Progression Factor, PF		*1.000*						*1.000*		*1.000*	*1.000*	
Delay Calibration, k		*0.50*						*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2		*0.7*						*1.1*		*1.9*	*1.5*	

Initial Queue Delay, d_3		*0.0*						*0.0*		*0.0*	*0.0*	
Control Delay		*16.8*						*8.7*		*10.5*	*10.6*	
Lane Group LOS		*B*						*A*		*B*	*B*	
Approach Delay	*16.8*						*8.7*			*10.6*		
Approach LOS	*B*						*A*			*B*		
Intersection Delay	*10.4*			X_C = *0.45*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*Amboy Rd & Bloomingdale Ave*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*7/28/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*1*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*		*L*	*T*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*7*	*19*	*12*	*160*	*15*	*97*	*9*	*154*	*122*	*129*	*266*	*8*
% Heavy Vehicles, %HV	*3*	*3*	*3*	*5*	*5*	*5*	*7*	*7*	*7*	*7*	*7*	*7*
Peak-Hour Factor, PHF	*0.68*	*0.68*	*0.68*	*0.88*	*0.88*	*0.88*	*0.90*	*0.90*	*0.90*	*0.76*	*0.76*	*0.76*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*		*3*	*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*		*0.966*	*0.966*	*0.966*		*0.850*			*0.090*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*50*	*0*	*0*	*0*	*0*	*0*	*50*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*		*12.0*	*11.0*	*11.0*		*11.0*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*2*		*0*	*0*	*2*		*0*			*0*	
Min. Time for Pedestrians, G_p	*11.5*			*11.8*			*18.9*			*18.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*56*		*182*	*17*	*110*		*317*			*531*	
Lane Group Capacity, c		*651*		*549*	*777*	*574*		*689*			*566*	
v/c Ratio, X		*0.09*		*0.33*	*0.02*	*0.19*		*0.46*			*0.94*	
Total Green Ratio, g/C		*0.44*		*0.44*	*0.44*	*0.44*		*0.44*			*0.44*	
Uniform Delay, d_1		*14.4*		*16.3*	*14.0*	*15.2*		*17.5*			*23.8*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*	*0.50*		*0.50*			*0.50*	
Incremental Delay, d_2		*0.3*		*1.6*	*0.1*	*0.7*		*1.9*			*3.8*	

Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Control Delay		*14.7*		*17.9*	*14.1*	*15.9*		*19.3*			*27.6*	
Lane Group LOS		*B*		*B*	*B*	*B*		*B*			*C*	
Approach Delay	*14.7*			*16.9*			*19.3*			*27.6*		
Approach LOS	*B*			*B*			*B*			*C*		
Intersection Delay	*22.1*			X_C = *0.63*			Intersection LOS			*C*		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*Arthur Kill Rd & Bloomingdl Rd*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*7/28/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*0*	*1*		*0*		*0*			
Lane Group		*TR*			*LT*			*LR*				
Volume, V (vph)		*118*	*175*	*28*	*140*		*209*		*44*			
% Heavy Vehicles, %HV		*10*	*10*	*13*	*13*		*9*		*9*			
Peak-Hour Factor, PHF		*0.92*	*0.92*	*0.89*	*0.89*		*0.94*		*0.94*			
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*		*P*			
Start-up Lost Time, l_1		*2.0*			*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*			*2.0*			*2.0*				
Arrival Type, AT		*3*			*3*			*3*				
Unit Extension, UE		*3.0*			*3.0*			*3.0*				
Filtering/Metering, I		*0.964*			*0.986*			*0.858*				
Initial Unmet Demand, Q_b		*0.0*			*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*44*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	
Lane Width		*16.0*			*16.0*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m									*5*			
Buses Stopping, N_B		*5*			*0*			*0*				
Min. Time for Pedestrians, G_p	*18.3*			*3.2*			*15.2*			*17.2*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*270*			*188*			*269*				
Lane Group Capacity, c		*891*			*881*			*538*				
v/c Ratio, X		*0.30*			*0.21*			*0.50*				
Total Green Ratio, g/C		*0.50*			*0.50*			*0.39*				
Uniform Delay, d_1		*13.3*			*12.6*			*20.9*				
Progression Factor, PF		*1.000*			*1.000*			*1.000*				
Delay Calibration, k		*0.50*			*0.50*			*0.50*				
Incremental Delay, d_2		*0.8*			*0.5*			*2.8*				
Initial Queue Delay, d_3		*0.0*			*0.0*			*0.0*				

Control Delay		14.1			13.1			23.7				
Lane Group LOS		B			B			C				
Approach Delay	14.1			13.1			23.7					
Approach LOS	B			B			C					
Intersection Delay	17.4			X_C = 0.39			Intersection LOS			B		

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Weekday

Midday

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*AS*
Agency/Co.	*Philip Habib & Associates*
Date Performed	*8/03/2011*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*Sharrotts Rd & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2011 Existing Conditions*

Project Description *1121A - Charleston*

East/West Street: *Sharrotts Road* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*34*	*176*	*30*	*30*	*182*	*21*
Peak-Hour Factor, PHF	*0.85*	*0.85*	*0.85*	*0.91*	*0.91*	*0.91*
Hourly Flow Rate, HFR (veh/h)	*39*	*207*	*35*	*32*	*199*	*23*
Percent Heavy Vehicles	*8*	--	--	*18*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*22*	*16*	*36*	*28*	*18*	*23*
Peak-Hour Factor, PHF	*0.78*	*0.78*	*0.78*	*0.88*	*0.88*	*0.88*
Hourly Flow Rate, HFR (veh/h)	*28*	*20*	*46*	*31*	*20*	*26*
Percent Heavy Vehicles	*1*	*1*	*1*	*10*	*10*	*10*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (veh/h)	*39*	*32*		*77*			*94*	
C (m) (veh/h)	*1312*	*1236*		*439*			*514*	
v/c	*0.03*	*0.03*		*0.18*			*0.18*	
95% queue length	*0.09*	*0.08*		*0.63*			*0.66*	
Control Delay (s/veh)	*7.8*	*8.0*		*14.9*			*13.6*	
LOS	*A*	*A*		*B*			*B*	
Approach Delay (s/veh)	--	--	*14.9*			*13.6*		
Approach LOS	--	--	*B*			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*AS*
Agency/Co.	*Philip Habib & Associates*
Date Performed	*7/28/2011*
Analysis Time Period	*Weekday 12-1 MD Peak Period*

Site Information

Intersection	*Englewood Ave & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2011 Existing Conditions*

Project Description *1121A - Charleston*

East/West Street: *Englewood Avenue* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*226*	*17*	*18*	*228*	
Peak-Hour Factor, PHF	*1.00*	*0.85*	*0.85*	*0.91*	*0.91*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*265*	*19*	*19*	*250*	*0*
Percent Heavy Vehicles	*0*	--	--	*15*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*41*		*14*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.94*	*1.00*	*0.94*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*43*	*0*	*14*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (veh/h)		*19*		*57*				
C (m) (veh/h)		*1207*		*533*				
v/c		*0.02*		*0.11*				
95% queue length		*0.05*		*0.36*				
Control Delay (s/veh)		*8.0*		*12.6*				
LOS		*A*		*B*				
Approach Delay (s/veh)	--	--	*12.6*					
Approach LOS	--	--	*B*					

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*Veterans Rd W & Arthur Kill Rd*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/03/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*			*LT*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*1*	*16*	*6*	*172*	*22*	*338*	*1*	*124*	*214*	*113*	*155*	*1*
% Heavy Vehicles, %HV	*4*	*4*	*4*	*6*	*6*	*6*	*11*	*11*	*11*	*7*	*7*	*7*
Peak-Hour Factor, PHF	*0.84*	*0.84*	*0.84*	*0.90*	*0.90*	*0.90*	*0.92*	*0.92*	*0.92*	*0.86*	*0.86*	*0.86*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*			*0.887*	*0.887*		*0.931*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*15.5*			*11.0*	*10.0*		*15.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*			*0*	*0*		*3*			*4*	
Min. Time for Pedestrians, G_p	*11.5*			*13.5*			*15.2*			*12.1*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*27*			*215*	*376*		*369*			*312*	
Lane Group Capacity, c		*713*			*527*	*518*		*709*			*575*	
v/c Ratio, X		*0.04*			*0.41*	*0.73*		*0.52*			*0.54*	
Total Green Ratio, g/C		*0.42*			*0.42*	*0.42*		*0.42*			*0.42*	
Uniform Delay, d_1		*10.4*			*12.3*	*14.6*		*13.0*			*13.2*	
Progression Factor, PF		*1.000*			*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*	*0.50*		*0.50*			*0.50*	
Incremental Delay, d_2		*0.1*			*2.1*	*7.7*		*2.5*			*3.6*	

Initial Queue Delay, d_3		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Control Delay		*10.5*			*14.4*	*22.3*		*15.6*			*16.8*	
Lane Group LOS		*B*			*B*	*C*		*B*			*B*	
Approach Delay	*10.5*			*19.4*			*15.6*			*16.8*		
Approach LOS	*B*			*B*			*B*			*B*		
Intersection Delay	*17.5*			X_C = *0.63*			Intersection LOS			*B*		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*No Bridge St & Arthur Kill Rd*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/03/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*			*1*	
Lane Group					*LR*			*T*			*T*	
Volume, V (vph)				*325*		*3*		*336*			*333*	
% Heavy Vehicles, %HV				*6*		*6*		*11*			*12*	
Peak-Hour Factor, PHF				*0.88*		*0.88*		*0.92*			*0.86*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*			*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.858*			*0.858*			*0.567*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	
Lane Width					*16.0*			*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B					*0*			*0*			*4*	
Min. Time for Pedestrians, G_p	*13.5*			*13.8*			*3.2*			*3.2*		

Phasing	WB Only	02	03	04	Thru Only	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*372*			*365*			*387*	
Lane Group Capacity, c					*644*			*970*			*946*	
v/c Ratio, X					*0.58*			*0.38*			*0.41*	
Total Green Ratio, g/C					*0.33*			*0.50*			*0.50*	
Uniform Delay, d_1					*16.5*			*9.2*			*9.4*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*3.2*			*1.0*			*0.7*	
Initial Queue Delay, d_3					*0.0*			*0.0*			*0.0*	

Control Delay					19.7			10.2			10.2	
Lane Group LOS					B			B			B	
Approach Delay				19.7			10.2			10.2		
Approach LOS				B			B			B		
Intersection Delay	13.3			X_C = 0.48			Intersection LOS			B		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*AS*
Agency/Co.	*Philip Habib & Associates*
Date Performed	*8/03/2011*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*So Bridge St & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2011 Existing Conditions*

Project Description *1121A - Charleston*

East/West Street: *South Bridge Street* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*336*	*213*	*131*	*527*	
Peak-Hour Factor, PHF	*1.00*	*0.92*	*0.92*	*0.86*	*0.86*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*365*	*231*	*152*	*612*	*0*
Percent Heavy Vehicles	*0*	--	--	*16*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration						

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*						
v (veh/h)		*152*						
C (m) (veh/h)		*915*						
v/c		*0.17*						
95% queue length		*0.59*						
Control Delay (s/veh)		*9.7*						
LOS		*A*						
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*Rch Valley Rd & Arthur Kill Rd*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*7/28/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*	*0*	*0*	*1*	
Lane Group					*LR*			*TR*			*LT*	
Volume, V (vph)				*84*		*157*		*392*	*62*	*134*	*393*	
% Heavy Vehicles, %HV				*3*		*3*		*8*	*8*	*6*	*6*	
Peak-Hour Factor, PHF				*0.87*		*0.87*		*0.92*	*0.92*	*0.86*	*0.86*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*	*P*	*P*	*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.944*			*0.880*			*0.500*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width					*12.0*			*15.0*			*15.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B					*0*			*4*			*4*	
Min. Time for Pedestrians, G_p	*11.8*			*11.8*			*14.1*			*3.2*		

Phasing	WB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*277*			*493*			*613*	
Lane Group Capacity, c					*386*			*1059*			*771*	
v/c Ratio, X					*0.72*			*0.47*			*0.80*	
Total Green Ratio, g/C					*0.27*			*0.57*			*0.57*	
Uniform Delay, d_1					*20.0*			*7.7*			*10.3*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*10.3*			*1.3*			*4.3*	
Initial Queue Delay, d_3					*0.0*			*0.0*			*0.0*	

Control Delay					30.3			8.9			14.6	
Lane Group LOS					C			A			B	
Approach Delay				30.3			8.9			14.6		
Approach LOS				C			A			B		
Intersection Delay	15.7			X_C = 0.77			Intersection LOS			B		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*Richmond Valley Rd & Page Ave*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/03/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*0*	*1*	*1*	*0*	*0*	*2*	*0*
Lane Group		*LTR*			*LTR*		*L*	*TR*			*LTR*	
Volume, V (vph)	*91*	*41*	*64*	*35*	*115*	*33*	*73*	*523*	*126*	*85*	*415*	*53*
% Heavy Vehicles, %HV	*3*	*3*	*3*	*2*	*2*	*2*	*2*	*2*	*2*	*6*	*6*	*6*
Peak-Hour Factor, PHF	*0.86*	*0.86*	*0.86*	*0.92*	*0.92*	*0.92*	*0.91*	*0.91*	*0.91*	*0.89*	*0.89*	*0.89*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.649*			*1.000*		*0.732*	*0.732*			*0.973*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*14*
Lane Width		*16.0*			*15.0*		*10.0*	*14.0*			*10.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*
Parking Maneuvers, N_m						*5*						*5*
Buses Stopping, N_B		*0*			*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*16.6*			*21.5*			*16.3*			*21.2*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *31.0*	G =	G =	G =	G = *49.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*228*			*199*		*80*	*713*			*606*	
Lane Group Capacity, c		*521*			*548*		*370*	*1050*			*1037*	
v/c Ratio, X		*0.44*			*0.36*		*0.22*	*0.68*			*0.58*	
Total Green Ratio, g/C		*0.34*			*0.34*		*0.54*	*0.54*			*0.54*	
Uniform Delay, d_1		*22.8*			*22.1*		*10.6*	*14.8*			*13.7*	
Progression Factor, PF		*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2		*1.7*			*1.9*		*1.0*	*2.6*			*2.3*	

Initial Queue Delay, d_3		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay		*24.5*			*24.0*		*11.6*	*17.4*			*16.0*	
Lane Group LOS		*C*			*C*		*B*	*B*			*B*	
Approach Delay	*24.5*			*24.0*			*16.8*			*16.0*		
Approach LOS	*C*			*C*			*B*			*B*		
Intersection Delay	*18.3*			X_C *= 0.59*			Intersection LOS			*B*		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*AS*
Agency/Co.	*Philip Habib & Associates*
Date Performed	*8/03/2011*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*S Bridge St RT & Page Ave*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2011 Existing Conditions*

Project Description *1121A - Charleston*

East/West Street: *South Bridge Street Right Turn* | North/South Street: *Page Avenue*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*469*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.89*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*526*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*2*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*84*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.84*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*100*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*29*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								*R*
v (veh/h)								*100*
C (m) (veh/h)								*715*
v/c								*0.14*
95% queue length								*0.48*
Control Delay (s/veh)								*10.9*
LOS								*B*
Approach Delay (s/veh)	--	--				*10.9*		
Approach LOS	--	--				*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*S Br St & Page Ave/Boscome Ave*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/03/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*							*2*			*2*	
Lane Group	*L*							*T*			*T*	
Volume, V (vph)	*260*							*647*			*469*	
% Heavy Vehicles, %HV	*3*							*2*			*3*	
Peak-Hour Factor, PHF	*0.88*							*0.91*			*0.89*	
Pretimed (P) or Actuated (A)	*P*							*P*			*P*	
Start-up Lost Time, l_1	*2.0*							*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*							*2.0*			*2.0*	
Arrival Type, AT	*3*							*3*			*3*	
Unit Extension, UE	*3.0*							*3.0*			*3.0*	
Filtering/Metering, I	*1.000*							*0.738*			*0.973*	
Initial Unmet Demand, Q_b	*0.0*							*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*		*0*	*0*		*0*	*0*	
Lane Width	*16.0*							*14.5*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*							*0*			*0*	
Min. Time for Pedestrians, G_p	*3.2*			*20.1*			*3.2*			*3.2*		

Phasing	EB Only	02	03	04	Thru Only	06	07	08
Timing	G = *30.0*	G =	G =	G =	G = *50.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*295*							*711*			*527*	
Lane Group Capacity, c	*662*							*2134*			*1951*	
v/c Ratio, X	*0.45*							*0.33*			*0.27*	
Total Green Ratio, g/C	*0.33*							*0.56*			*0.56*	
Uniform Delay, d_1	*23.5*							*10.9*			*10.5*	
Progression Factor, PF	*1.000*							*1.000*			*1.000*	
Delay Calibration, k	*0.50*							*0.50*			*0.50*	
Incremental Delay, d_2	*2.2*							*0.3*			*0.3*	
Initial Queue Delay, d_3	*0.0*							*0.0*			*0.0*	

Control Delay	25.7							11.2			10.8	
Lane Group LOS	C							B			B	
Approach Delay	25.7						11.2			10.8		
Approach LOS	C						B			B		
Intersection Delay	13.8			X_C = 0.38			Intersection LOS			B		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*AS*
Agency/Co.	*Philip Habib & Associates*
Date Performed	*8/03/2011*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*KWVP WB OR UT & No Bridge St*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2011 Existing Conditions*

Project Description *1121A - Charleston*

East/West Street: *KWVP WB Off-Ramp U-Turn* North/South Street: *North Bridge Street*

Intersection Orientation: *North-South* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*338*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.87*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*388*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*1*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*166*		
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.90*	*0.93*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*178*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*60*	*4*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*0*
Configuration				*L*		

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration			*L*					
v (veh/h)			*178*					
C (m) (veh/h)			*612*					
v/c			*0.29*					
95% queue length			*1.20*					
Control Delay (s/veh)			*13.3*					
LOS			*B*					
Approach Delay (s/veh)	--	--	*13.3*					
Approach LOS	--	--	*B*					

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	AS	Intersection	Veterans Rd W & Mohr St/KWVP
Agency or Co.	Philip Habib & Associates	Area Type	All other areas
Date Performed	8/03/2011	Jurisdiction	Staten Island, NY
Time Period	Weekday 12-1 PM MD Peak Period	Analysis Year	2011 Existing Conditions
		Project ID	1121A - Charleston

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	1	1	0	1	2	0	0	2	0	1	1	0
Lane Group	L	TR		L	TR			LTR		L	TR	
Volume, V (vph)	87	131	125	175	438	52	57	112	260	45	38	37
% Heavy Vehicles, %HV	1	1	1	6	6	6	4	4	4	2	2	2
Peak-Hour Factor, PHF	0.84	0.84	0.84	0.90	0.90	0.90	0.93	0.93	0.93	0.80	0.80	0.80
Pretimed (P) or Actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up Lost Time, l_1	2.0	2.0		2.0	2.0			2.0		2.0	2.0	
Extension of Effective Green, e	2.0	2.0		2.0	2.0			2.0		2.0	2.0	
Arrival Type, AT	3	3		3	3			3		3	3	
Unit Extension, UE	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Filtering/Metering, I	0.856	0.856		0.927	0.927			1.000		0.985	0.985	
Initial Unmet Demand, Q_b	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Ped / Bike / RTOR Volumes	0	0	32	0	0	13	0	0	0	0	0	0
Lane Width	11.0	12.0		10.0	12.0			12.5		11.0	10.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0		0	0			0		0	0	
Min. Time for Pedestrians, G_p	34.6			18.6			20.3			16.1		

Phasing	EW Perm	02	03	04	NB Only	SB Only	07	08
Timing	G = 30.0	G =	G =	G =	G = 25.0	G = 20.0	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y = 5	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	104	267		194	530			461		56	93	
Lane Group Capacity, c	221	588		271	1124			887		380	358	
v/c Ratio, X	0.47	0.45		0.72	0.47			0.52		0.15	0.26	
Total Green Ratio, g/C	0.33	0.33		0.33	0.33			0.28		0.22	0.22	
Uniform Delay, d_1	23.7	23.6		26.3	23.7			27.4		28.1	28.9	
Progression Factor, PF	1.000	1.000		1.000	1.000			1.000		1.000	1.000	
Delay Calibration, k	0.50	0.50		0.50	0.50			0.50		0.50	0.50	
Incremental Delay, d_2	6.0	2.2		14.0	1.3			2.2		0.8	1.7	

Initial Queue Delay, d_3	*0.0*	*0.0*		*0.0*	*0.0*			*0.0*		*0.0*	*0.0*	
Control Delay	*29.8*	*25.7*		*40.3*	*25.0*			*29.6*		*28.9*	*30.6*	
Lane Group LOS	*C*	*C*		*D*	*C*			*C*		*C*	*C*	
Approach Delay	*26.9*			*29.1*			*29.6*			*30.0*		
Approach LOS	*C*			*C*			*C*			*C*		
Intersection Delay	*28.8*			X_C *= 0.53*			Intersection LOS			*C*		

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*AS*
Agency/Co.	*Philip Habib & Associates*
Date Performed	*8/03/2011*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*Mohr Street & Tyrellan Avenue*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2011 Existing COnditions*

Project ID *1121A - Charleston*

East/West Street: *Mohr Street* North/South Street: *Tyrellan Avenue*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*82*	*30*	*121*	*86*	*0*
%Thrus Left Lane	*50*			*50*		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*34*	*0*	*38*	*0*	*0*	*0*
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*T*	*TR*	*LT*	*T*	*L*	*R*		
PHF	*0.88*	*0.88*	*0.90*	*0.90*	*0.78*	*0.78*		
Flow Rate (veh/h)	*46*	*80*	*181*	*47*	*43*	*48*		
% Heavy Vehicles	*42*	*42*	*4*	*4*	*3*	*3*		
No. Lanes	*2*		*2*		*2*		*0*	
Geometry Group	*5*		*5*		*1*			
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	*0.0*	*0.0*	*0.7*	*0.0*	*1.0*	*0.0*		
Prop. Right-Turns	*0.0*	*0.4*	*0.0*	*0.0*	*0.0*	*1.0*		
Prop. Heavy Vehicle	*0.4*	*0.4*	*0.0*	*0.0*	*0.0*	*0.0*		
hLT-adj	*0.5*	*0.5*	*0.5*	*0.5*	*0.2*	*0.2*		
hRT-adj	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.6*	*-0.6*		
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*		
hadj, computed	*0.7*	*0.4*	*0.4*	*0.1*	*0.3*	*-0.5*		

Departure Headway and Service Time

hd, initial value (s)	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*		
x, initial	*0.04*	*0.07*	*0.16*	*0.04*	*0.04*	*0.04*		
hd, final value (s)	*5.64*	*5.34*	*5.28*	*4.90*	*5.02*	*4.22*		
x, final value	*0.07*	*0.12*	*0.27*	*0.06*	*0.06*	*0.06*		
Move-up time, m (s)	*2.3*		*2.3*		*2.0*			
Service Time, t_s (s)	*3.3*	*3.0*	*3.0*	*2.6*	*3.0*	*2.2*		

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*296*	*330*	*431*	*297*	*293*	*298*		
Delay (s/veh)	*8.77*	*8.76*	*9.87*	*7.94*	*8.33*	*7.47*		
LOS	*A*	*A*	*A*	*A*	*A*	*A*		
Approach: Delay (s/veh)	*8.76*		*9.47*		*7.88*			
LOS	*A*		*A*		*A*			
Intersection Delay (s/veh)	*8.94*							
Intersection LOS	*A*							

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*Veterans Rd W & Tyrellan Ave*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/03/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*
Lane Group		*LTR*			*LTR*		*DefL*	*TR*			*LTR*	
Volume, V (vph)	*58*	*83*	*295*	*101*	*238*	*17*	*217*	*145*	*63*	*21*	*290*	*210*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*3*	*3*	*3*	*3*	*3*	*3*	*12*	*12*	*12*
Peak-Hour Factor, PHF	*0.84*	*0.84*	*0.84*	*0.90*	*0.90*	*0.90*	*0.87*	*0.87*	*0.87*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.889*			*0.932*		*1.000*	*1.000*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*			*12.0*		*13.0*	*13.0*			*9.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*			*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*18.6*			*16.6*			*20.1*			*19.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*519*			*395*		*249*	*239*			*578*	
Lane Group Capacity, c		*1188*			*1052*		*321*	*809*			*1159*	
v/c Ratio, X		*0.44*			*0.38*		*0.78*	*0.30*			*0.50*	
Total Green Ratio, g/C		*0.44*			*0.44*		*0.44*	*0.44*			*0.44*	
Uniform Delay, d_1		*17.2*			*16.7*		*21.2*	*16.0*			*17.8*	
Progression Factor, PF		*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2		*1.0*			*1.0*		*16.6*	*0.9*			*1.5*	

Initial Queue Delay, d_3		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay		*18.3*			*17.6*		*37.8*	*16.9*			*19.4*	
Lane Group LOS		*B*			*B*		*D*	*B*			*B*	
Approach Delay	*18.3*			*17.6*			*27.6*			*19.4*		
Approach LOS	*B*			*B*			*C*			*B*		
Intersection Delay	*20.8*			X_C *= 0.61*			Intersection LOS			*C*		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	AS	Intersection	Boscombe Ave & OBX Off-Ramp
Agency or Co.	Philip Habib & Associates	Area Type	All other areas
Date Performed	08/03/2010	Jurisdiction	Staten Island, NY
Time Period	Weekday 12-1 PM MD Peak Period	Analysis Year	2011 Existing Conditions
		Project ID	1121A - Charleston

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	1	1	0	0	1	1	0	1	0	1	1	1
Lane Group	L	TR			LT	R		LTR		L	LT	R
Volume, V (vph)	583	321	3	1	350	333	0	0	1	69	0	119
% Heavy Vehicles, %HV	2	2	2	3	3	3	0	0	1	2	2	2
Peak-Hour Factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.25	0.25	0.25	0.97	0.97	0.97
Pretimed (P) or Actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up Lost Time, l_1	2.0	2.0			2.0	2.0		2.0		2.0	2.0	2.0
Extension of Effective Green, e	2.0	2.0			2.0	2.0		2.0		2.0	2.0	2.0
Arrival Type, AT	3	3			3	3		3		3	3	3
Unit Extension, UE	3.0	3.0			3.0	3.0		3.0		3.0	3.0	3.0
Filtering/Metering, I	0.735	0.735			0.546	0.546		1.000		1.000	1.000	1.000
Initial Unmet Demand, Q_b	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Ped / Bike / RTOR Volumes	0	0	0	0	0	85	0	0	0	0	0	0
Lane Width	11.0	12.0			12.0	12.0		16.0		10.0	11.0	10.0
Parking / Grade / Parking	N	0	Y	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N_m			5									
Buses Stopping, N_B	0	0			0	0		0		0	0	0
Min. Time for Pedestrians, G_p	14.6			24.6			20.9			20.1		

Phasing	EB Only	EW Perm	03	04	NS Perm	06	07	08
Timing	G = 37.0	G = 22.0	G =	G =	G = 16.0	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	641	356			386	273		4		71	0	123
Lane Group Capacity, c	793	1158			451	383		328		233	320	952
v/c Ratio, X	0.81	0.31			0.86	0.71		0.01		0.30	0.00	0.13
Total Green Ratio, g/C	0.71	0.71			0.24	0.24		0.18		0.18	0.18	0.64
Uniform Delay, d_1	16.8	4.8			32.5	31.1		30.5		32.2	30.4	6.2
Progression Factor, PF	1.000	1.000			1.000	1.000		1.000		1.000	1.000	1.000
Delay Calibration, k	0.50	0.50			0.50	0.50		0.50		0.50	0.50	0.50
Incremental Delay, d_2	6.5	0.5			11.1	6.1		0.1		3.3	0.0	0.3

Initial Queue Delay, d_3	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Control Delay	23.3	5.3			43.5	37.2		30.6		35.5	30.4	6.5
Lane Group LOS	C	A			D	D		C		D	C	A
Approach Delay	16.9			40.9			30.6			17.1		
Approach LOS	B			D			C			B		
Intersection Delay	25.5			X_C = 0.77			Intersection LOS			C		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*Boscombe Ave & Tyrellan Ave*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/03/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Hour*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*1*	*1*
Lane Group	*DefL*	*TR*			*LTR*		*DefL*	*TR*			*LT*	*R*
Volume, V (vph)	*356*	*35*	*0*	*2*	*60*	*66*	*4*	*3*	*0*	*60*	*6*	*620*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*3*	*3*	*3*	*1*	*1*	*1*	*6*	*6*	*6*
Peak-Hour Factor, PHF	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*	*0.58*	*0.58*	*0.58*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*		*3*	*3*			*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	*3.0*
Filtering/Metering, I	*0.962*	*0.962*			*1.000*		*1.000*	*1.000*			*0.889*	*0.889*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*17*	*0*	*0*	*0*	*0*	*0*	*310*
Lane Width	*16.0*	*16.0*			*11.5*		*12.0*	*12.0*			*12.0*	*12.0*
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*			*0*		*0*	*0*			*0*	*0*
Min. Time for Pedestrians, G_p	*20.3*			*17.5*			*20.3*			*20.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*391*	*38*			*122*		*7*	*5*			*74*	*344*
Lane Group Capacity, c	*713*	*1056*			*1538*		*518*	*732*			*542*	*593*
v/c Ratio, X	*0.55*	*0.04*			*0.08*		*0.01*	*0.01*			*0.14*	*0.58*
Total Green Ratio, g/C	*0.50*	*0.50*			*0.50*		*0.39*	*0.39*			*0.39*	*0.39*
Uniform Delay, d_1	*15.5*	*11.5*			*11.7*		*16.9*	*16.9*			*17.7*	*21.7*
Progression Factor, PF	*1.000*	*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	*0.50*
Incremental Delay, d_2	*2.9*	*0.1*			*0.1*		*0.0*	*0.0*			*0.5*	*3.7*

Initial Queue Delay, d_3	0.0	0.0			0.0		0.0	0.0			0.0	0.0
Control Delay	18.4	11.5			11.8		16.9	16.9			18.2	25.4
Lane Group LOS	B	B			B		B	B			B	C
Approach Delay	17.8			11.8			16.9			24.1		
Approach LOS	B			B			B			C		
Intersection Delay	19.7			X_C = 0.56			Intersection LOS			B		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*AS*	Intersection	*Bricktown Ctr Rd @ Vets Rd W*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/03/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*				*0*	*2*			*2*	*0*
Lane Group	*L*		*R*					*LT*			*TR*	
Volume, V (vph)	*136*		*23*				*4*	*163*			*333*	*335*
% Heavy Vehicles, %HV	*10*		*10*				*4*	*4*			*2*	*2*
Peak-Hour Factor, PHF	*0.88*		*0.88*				*0.90*	*0.90*			*0.80*	*0.80*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*					*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*					*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*					*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*					*3.0*			*3.0*	
Filtering/Metering, I	*0.975*		*0.975*					*0.998*			*0.686*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*					*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*6*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width	*13.0*		*12.0*					*11.5*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*					*0*			*0*	
Min. Time for Pedestrians, G_p	*21.8*			*20.3*			*3.2*			*19.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *19.0*	G =	G =	G =	G = *31.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*155*		*19*					*185*			*835*	
Lane Group Capacity, c	*537*		*465*					*1665*			*1920*	
v/c Ratio, X	*0.29*		*0.04*					*0.11*			*0.43*	
Total Green Ratio, g/C	*0.32*		*0.32*					*0.52*			*0.52*	
Uniform Delay, d_1	*15.4*		*14.2*					*7.4*			*9.0*	
Progression Factor, PF	*1.000*		*1.000*					*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*					*0.50*			*0.50*	
Incremental Delay, d_2	*1.3*		*0.2*					*0.1*			*0.5*	
Initial Queue Delay, d_3	*0.0*		*0.0*					*0.0*			*0.0*	

Control Delay	*16.7*		*14.4*					*7.6*			*9.5*	
Lane Group LOS	*B*		*B*					*A*			*A*	
Approach Delay	*16.5*						*7.6*			*9.5*		
Approach LOS	*B*						*A*			*A*		
Intersection Delay	*10.2*			X_C = *0.38*			Intersection LOS			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*AS*
Agency/Co.	*Philip Habib & Associates*
Date Performed	*8/03/2011*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*Englewood Ave & Vets Rd W RT*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2011 Existing Conditions*

Project Description *1121A - Charleston*

East/West Street: *Englewood Avenue* | North/South Street: *Veterans Rd W Right Turn Bay*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*22*				
Peak-Hour Factor, PHF	*1.00*	*0.55*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*39*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*T*				
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*298*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.90*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*331*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*1*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					*R*			
v (veh/h)					*331*			
C (m) (veh/h)					*1035*			
v/c					*0.32*			
95% queue length					*1.39*			
Control Delay (s/veh)					*10.1*			
LOS					*B*			
Approach Delay (s/veh)	--	--	*10.1*					
Approach LOS	--	--	*B*					

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*Englewood Ave @ Veterans Rd W*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/03/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*1*	*1*		*1*			*0*	*3*	*0*
Lane Group		*TR*		*L*	*LT*		*L*				*LTR*	
Volume, V (vph)		*1*	*0*	*523*	*1*		*1*			*21*	*145*	*0*
% Heavy Vehicles, %HV		*1*	*1*	*1*	*1*		*1*			*2*	*2*	*2*
Peak-Hour Factor, PHF		*0.25*	*0.25*	*0.95*	*0.95*		*0.90*			*0.80*	*0.80*	*0.80*
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*			*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Arrival Type, AT		*3*		*3*	*3*		*3*				*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*		*3.0*				*3.0*	
Filtering/Metering, I		*1.000*		*0.983*	*0.983*		*0.989*				*1.000*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*12.0*		*13.0*	*13.0*		*10.0*				*11.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*		*0*	*0*		*0*				*0*	
Min. Time for Pedestrians, G_p	*31.2*			*3.2*			*18.1*			*11.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*4*		*276*	*276*		*1*				*207*	
Lane Group Capacity, c		*784*		*612*	*587*		*451*				*2031*	
v/c Ratio, X		*0.01*		*0.45*	*0.47*		*0.00*				*0.10*	
Total Green Ratio, g/C		*0.42*		*0.42*	*0.42*		*0.42*				*0.42*	
Uniform Delay, d_1		*10.2*		*12.6*	*12.7*		*10.2*				*10.7*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*		*1.000*				*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*		*0.50*				*0.50*	
Incremental Delay, d_2		*0.0*		*2.4*	*2.6*		*0.0*				*0.1*	

Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Control Delay		*10.2*		*14.9*	*15.3*		*10.2*				*10.8*	
Lane Group LOS		*B*		*B*	*B*		*B*				*B*	
Approach Delay	*10.2*			*15.1*			*10.2*			*10.8*		
Approach LOS	*B*			*B*			*B*			*B*		
Intersection Delay	*13.9*			X_C *= 0.29*			Intersection LOS			*B*		

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*AS*
Agency/Co.	*Philip Habib & Associates*
Date Performed	*8/03/2011*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*Sharrotts Rd & Veterans Rd W*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2011 Existing Conditions*

Project ID *1121A - Charleston*

East/West Street: *Sharrotts Road* North/South Street: *Veterans Road West*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*47*	*29*	*64*	*50*	*0*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*0*	*29*	*73*	*19*
%Thrus Left Lane				*50*		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*TR*		*LT*				*LT*	*TR*
PHF	*0.86*		*0.77*				*0.80*	*0.80*
Flow Rate (veh/h)	*87*		*147*				*80*	69
% Heavy Vehicles	*17*		*4*				*1*	*1*
No. Lanes	*1*		*1*		*0*		*2*	
Geometry Group	*2*		*2*				*1*	
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	*0.0*		*0.6*				*0.4*	*0.0*
Prop. Right-Turns	*0.4*		*0.0*				*0.0*	*0.3*
Prop. Heavy Vehicle	*0.2*		*0.0*				*0.0*	*0.0*
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*			*0.2*	*0.2*
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*			*-0.6*	*-0.6*
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*			*1.7*	*1.7*
hadj, computed	*0.1*		*0.2*				*0.1*	*-0.2*

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value (s)	*3.20*		*3.20*				*3.20*	*3.20*
x, initial	*0.08*		*0.13*				*0.07*	*0.06*
hd, final value (s)	*4.46*		*4.51*				*4.56*	*4.26*
x, final value	*0.11*		*0.18*				*0.10*	*0.08*
Move-up time, m (s)	*2.0*		*2.0*				*2.0*	
Service Time, t_s (s)	*2.5*		*2.5*				*2.6*	*2.3*

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*337*		*397*				*330*	*319*
Delay (s/veh)	*8.00*		*8.53*				*8.07*	*7.64*
LOS	*A*		*A*				*A*	*A*
Approach: Delay (s/veh)	*8.00*		*8.53*				*7.87*	
LOS	*A*		*A*				*A*	
Intersection Delay (s/veh)	*8.15*							
Intersection LOS	*A*							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*AS*
Agency/Co.	*Philip Habib & Associates*
Date Performed	*8/03/2011*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*Sharrotts Rd @ Veterans Rd E*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2011 Existing Conditions*

Project ID *1121A - Charleston*

East/West Street: *Sharrotts Road* North/South Street: *Veterans Road East*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*37*	*39*	*0*	*0*	*75*	*21*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*39*	*59*	*63*	*0*	*0*	*0*
%Thrus Left Lane	*50*					

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*LT*		*TR*		*LT*	*TR*		
PHF	*0.86*		*0.77*		*0.88*	*0.88*		
Flow Rate (veh/h)	*88*		*124*		*76*	*105*		
% Heavy Vehicles	*11*		*5*		*1*	*1*		
No. Lanes	*1*		*1*		*2*		*0*	
Geometry Group	*2*		*2*		*1*			
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	*0.5*		*0.0*		*0.6*	*0.0*		
Prop. Right-Turns	*0.0*		*0.2*		*0.0*	*0.7*		
Prop. Heavy Vehicle	*0.1*		*0.0*		*0.0*	*0.0*		
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*		
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*		
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*		
hadj, computed	*0.3*		*-0.0*		*0.1*	*-0.4*		

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value (s)	*3.20*		*3.20*		*3.20*	*3.20*		
x, initial	*0.08*		*0.11*		*0.07*	*0.09*		
hd, final value (s)	*4.71*		*4.34*		*4.53*	*4.01*		
x, final value	*0.12*		*0.15*		*0.10*	*0.12*		
Move-up time, m (s)	*2.0*		*2.0*		*2.0*			
Service Time, t_s (s)	*2.7*		*2.3*		*2.5*	*2.0*		

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*338*		*374*		*326*	*355*		
Delay (s/veh)	*8.32*		*8.11*		*8.01*	*7.54*		
LOS	*A*		*A*		*A*	*A*		
Approach: Delay (s/veh)	*8.32*		*8.11*		*7.74*			
LOS	*A*		*A*		*A*			
Intersection Delay (s/veh)	*7.98*							
Intersection LOS	*A*							

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*Englewood Ave @ Vets Rd E*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/03/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*3*	*0*			
Lane Group		*LT*	*R*		*LTR*			*LTR*				
Volume, V (vph)	*120*	*95*	*105*	*2*	*36*	*5*	*488*	*36*	*2*			
% Heavy Vehicles, %HV	*1*	*1*	*1*	*5*	*5*	*5*	*1*	*1*	*1*			
Peak-Hour Factor, PHF	*0.91*	*0.91*	*0.91*	*0.95*	*0.95*	*0.95*	*0.97*	*0.97*	*0.97*			
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*			
Start-up Lost Time, l_1		*2.0*	*2.0*		*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*	*2.0*		*2.0*			*2.0*				
Arrival Type, AT		*3*	*3*		*3*			*3*				
Unit Extension, UE		*3.0*	*3.0*		*3.0*			*3.0*				
Filtering/Metering, I		*0.999*	*0.999*		*0.999*			*0.980*				
Initial Unmet Demand, Q_b		*0.0*	*0.0*		*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*52*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width		*13.0*	*12.0*		*11.5*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B		*0*	*0*		*0*			*0*				
Min. Time for Pedestrians, G_p	*21.2*			*12.9*			*14.3*			*17.5*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *21.0*	G =	G =	G =	G = *29.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*236*	*58*		*45*			*542*				
Lane Group Capacity, c		*546*	*560*		*531*			*2287*				
v/c Ratio, X		*0.43*	*0.10*		*0.08*			*0.24*				
Total Green Ratio, g/C		*0.35*	*0.35*		*0.35*			*0.48*				
Uniform Delay, d_1		*14.9*	*13.2*		*13.1*			*9.0*				
Progression Factor, PF		*1.000*	*1.000*		*1.000*			*1.000*				
Delay Calibration, k		*0.50*	*0.50*		*0.50*			*0.50*				
Incremental Delay, d_2		*2.5*	*0.4*		*0.3*			*0.2*				

Initial Queue Delay, d_3		*0.0*	*0.0*		*0.0*			*0.0*				
Control Delay		*17.4*	*13.5*		*13.4*			*9.3*				
Lane Group LOS		*B*	*B*		*B*			*A*				
Approach Delay	*16.6*			*13.4*			*9.3*					
Approach LOS	*B*			*B*			*A*					
Intersection Delay	*12.0*			X_C = *0.32*			Intersection LOS			*B*		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*Englewood Av & Bloomingdale Rd*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/03/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*60*		*37*				*13*	*260*			*306*	*30*
% Heavy Vehicles, %HV	*1*		*1*				*2*	*2*			*2*	*2*
Peak-Hour Factor, PHF	*0.81*		*0.81*				*0.87*	*0.87*			*0.91*	*0.91*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.975*						*0.967*			*0.961*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*16.0*						*14.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B		*0*						*2*			*2*	
Min. Time for Pedestrians, G_p	*14.9*			*15.5*			*3.2*			*17.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*120*						*314*			*369*	
Lane Group Capacity, c		*458*						*1094*			*1172*	
v/c Ratio, X		*0.26*						*0.29*			*0.31*	
Total Green Ratio, g/C		*0.27*						*0.57*			*0.57*	
Uniform Delay, d_1		*17.3*						*6.7*			*6.9*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*1.4*						*0.6*			*0.7*	
Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	

Control Delay		18.7						7.4			7.5	
Lane Group LOS		B						A			A	
Approach Delay	18.7						7.4			7.5		
Approach LOS	B						A			A		
Intersection Delay	9.1			X_C = 0.30			Intersection LOS			A		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*Sharrotts Rd & Bloomingdale Rd*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/03/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*52*		*50*				*41*	*279*			*257*	*55*
% Heavy Vehicles, %HV	*4*		*4*				*2*	*2*			*1*	*1*
Peak-Hour Factor, PHF	*0.86*		*0.86*				*0.87*	*0.87*			*0.91*	*0.91*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.986*						*0.905*			*0.957*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*14*
Lane Width		*16.0*						*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*2*			*2*	
Min. Time for Pedestrians, G_p	*18.6*			*18.6*			*3.2*			*16.6*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*118*						*368*			*327*	
Lane Group Capacity, c		*550*						*849*			*1038*	
v/c Ratio, X		*0.21*						*0.43*			*0.32*	
Total Green Ratio, g/C		*0.33*						*0.50*			*0.50*	
Uniform Delay, d_1		*14.4*						*9.6*			*8.9*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*0.9*						*1.5*			*0.8*	
Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	

Control Delay		15.2						11.0			9.7	
Lane Group LOS		B						B			A	
Approach Delay	15.2						11.0			9.7		
Approach LOS	B						B			A		
Intersection Delay	11.1			X_C = 0.35			Intersection LOS			B		

 HCS+™ Version 5.4 Generated: 4/10/2013 11:22 AM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*Vets Rd E & Bloomingdale Rd*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/03/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*	*0*	*3*	*0*	*1*	*1*			*1*	*0*
Lane Group	*L*		*R*		*LTR*		*L*	*T*			*TR*	
Volume, V (vph)	*9*		*98*	*186*	*437*	*118*	*59*	*146*			*313*	*30*
% Heavy Vehicles, %HV	*1*		*1*	*2*	*2*	*2*	*6*	*6*			*2*	*2*
Peak-Hour Factor, PHF	*0.77*		*0.77*	*0.87*	*0.87*	*0.87*	*0.89*	*0.89*			*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*		*P*	*P*	*P*	*P*	*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*		*3*		*3*	*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*		*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I	*0.830*		*0.830*		*0.725*		*0.937*	*0.937*			*0.817*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Lane Width	*10.0*		*13.0*		*11.0*		*12.0*	*12.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*		*0*		*0*	*2*			*2*	
Min. Time for Pedestrians, G_p	*17.2*			*16.9*			*3.2*			*20.9*		

Phasing	EB Only	WB Only	03	04	NS Perm	06	07	08
Timing	G = *8.0*	G = *17.0*	G =	G =	G = *20.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*12*		*127*		*852*		*66*	*164*			*381*	
Lane Group Capacity, c	*222*		*220*		*1340*		*190*	*593*			*690*	
v/c Ratio, X	*0.05*		*0.58*		*0.64*		*0.35*	*0.28*			*0.55*	
Total Green Ratio, g/C	*0.13*		*0.13*		*0.28*		*0.33*	*0.33*			*0.33*	
Uniform Delay, d_1	*22.7*		*24.4*		*18.8*		*15.1*	*14.7*			*16.3*	
Progression Factor, PF	*1.000*		*1.000*		*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*		*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2	*0.4*		*8.9*		*1.7*		*4.7*	*1.1*			*2.6*	

Initial Queue Delay, d_3	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay	*23.1*		*33.3*		*20.5*		*19.7*	*15.8*			*18.9*	
Lane Group LOS	*C*		*C*		*C*		*B*	*B*			*B*	
Approach Delay	*32.4*			*20.5*			*16.9*			*18.9*		
Approach LOS	*C*			*C*			*B*			*B*		
Intersection Delay	*20.6*			X_C *= 0.59*			Intersection LOS			*C*		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*AS*	Intersection	*S Service Rd & Bloomingdale Rd*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/03/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*				*0*	*1*	*0*	*1*	*1*	*0*
Lane Group		*LTR*						*LTR*		*L*	*TR*	
Volume, V (vph)	*5*	*14*	*7*				*6*	*200*	*105*	*213*	*358*	*26*
% Heavy Vehicles, %HV	*2*	*2*	*2*				*6*	*6*	*6*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.63*	*0.63*	*0.63*				*0.89*	*0.89*	*0.89*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*				*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*		*2.0*	*2.0*	
Arrival Type, AT		*3*						*3*		*3*	*3*	
Unit Extension, UE		*3.0*						*3.0*		*3.0*	*3.0*	
Filtering/Metering, I		*1.000*						*0.932*		*0.785*	*0.785*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*13.0*						*16.0*		*12.0*	*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*2*		*0*	*2*	
Min. Time for Pedestrians, G_p	*17.5*			*16.9*			*12.6*			*12.9*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *17.0*	G =	G =	G =	G = *33.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*41*						*350*		*237*	*427*	
Lane Group Capacity, c		*456*						*919*		*579*	*1016*	
v/c Ratio, X		*0.09*						*0.38*		*0.41*	*0.42*	
Total Green Ratio, g/C		*0.28*						*0.55*		*0.55*	*0.55*	
Uniform Delay, d_1		*15.8*						*7.7*		*7.8*	*7.9*	
Progression Factor, PF		*1.000*						*1.000*		*1.000*	*1.000*	
Delay Calibration, k		*0.50*						*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2		*0.4*						*1.1*		*1.7*	*1.0*	

Initial Queue Delay, d_3		*0.0*						*0.0*		*0.0*	*0.0*	
Control Delay		*16.2*						*8.8*		*9.5*	*8.9*	
Lane Group LOS		*B*						*A*		*A*	*A*	
Approach Delay	*16.2*						*8.8*			*9.1*		
Approach LOS	*B*						*A*			*A*		
Intersection Delay	*9.3*			X_C = *0.31*			Intersection LOS			*A*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*Amboy Rd & Bloomingdale Ave*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/03/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*1*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*		*L*	*T*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*5*	*7*	*16*	*247*	*24*	*98*	*20*	*208*	*159*	*84*	*263*	*18*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*7*	*7*	*7*	*6*	*6*	*6*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.78*	*0.78*	*0.78*	*0.84*	*0.84*	*0.84*	*0.89*	*0.89*	*0.89*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*		*3*	*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*		*0.830*	*0.830*	*0.830*		*0.650*			*0.650*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*50*	*0*	*0*	*0*	*0*	*0*	*50*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*		*12.0*	*11.0*	*11.0*		*11.0*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*2*		*0*	*0*	*2*		*0*			*0*	
Min. Time for Pedestrians, G_p	*11.5*			*11.8*			*18.9*			*18.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*36*		*294*	*29*	*117*		*435*			*405*	
Lane Group Capacity, c		*627*		*548*	*763*	*563*		*689*			*644*	
v/c Ratio, X		*0.06*		*0.54*	*0.04*	*0.21*		*0.63*			*0.63*	
Total Green Ratio, g/C		*0.44*		*0.44*	*0.44*	*0.44*		*0.44*			*0.44*	
Uniform Delay, d_1		*14.3*		*18.2*	*14.1*	*15.3*		*19.3*			*19.3*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*	*0.50*		*0.50*			*0.50*	
Incremental Delay, d_2		*0.2*		*3.1*	*0.1*	*0.7*		*2.9*			*3.0*	

Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Control Delay		*14.4*		*21.3*	*14.2*	*16.0*		*22.2*			*22.3*	
Lane Group LOS		*B*		*C*	*B*	*B*		*C*			*C*	
Approach Delay	*14.4*			*19.5*			*22.2*			*22.3*		
Approach LOS	*B*			*B*			*C*			*C*		
Intersection Delay	*21.1*			X_C = *0.58*			Intersection LOS			*C*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*Arthur Kill Rd & Bloomingdl Rd*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/03/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*0*	*1*		*0*		*0*			
Lane Group		*TR*			*LT*			*LR*				
Volume, V (vph)		*125*	*175*	*16*	*141*		*178*		*26*			
% Heavy Vehicles, %HV		*8*	*8*	*16*	*16*		*2*		*2*			
Peak-Hour Factor, PHF		*0.90*	*0.90*	*0.91*	*0.91*		*0.88*		*0.88*			
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*		*P*			
Start-up Lost Time, l_1		*2.0*			*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*			*2.0*			*2.0*				
Arrival Type, AT		*3*			*3*			*3*				
Unit Extension, UE		*3.0*			*3.0*			*3.0*				
Filtering/Metering, I		*0.961*			*0.989*			*0.922*				
Initial Unmet Demand, Q_b		*0.0*			*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*44*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	
Lane Width		*16.0*			*16.0*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m									*5*			
Buses Stopping, N_B		*5*			*0*			*0*				
Min. Time for Pedestrians, G_p	*18.3*			*3.2*			*15.2*			*17.2*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*285*			*173*			*232*				
Lane Group Capacity, c		*910*			*889*			*577*				
v/c Ratio, X		*0.31*			*0.19*			*0.40*				
Total Green Ratio, g/C		*0.50*			*0.50*			*0.39*				
Uniform Delay, d_1		*13.3*			*12.5*			*19.9*				
Progression Factor, PF		*1.000*			*1.000*			*1.000*				
Delay Calibration, k		*0.50*			*0.50*			*0.50*				
Incremental Delay, d_2		*0.9*			*0.5*			*1.9*				
Initial Queue Delay, d_3		*0.0*			*0.0*			*0.0*				

Control Delay		14.2			12.9			21.8				
Lane Group LOS		B			B			C				
Approach Delay	14.2			12.9			21.8					
Approach LOS	B			B			C					
Intersection Delay	16.5			X_C = 0.35			Intersection LOS			B		

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Weekday

PM

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*AS*
Agency/Co.	*Philip Habib & Associates*
Date Performed	*8/03/2011*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*Sharrotts Rd & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2011 Existing Conditions*

Project Description *1121A - Charleston*

East/West Street: *Sharrotts Road* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*27*	*181*	*60*	*54*	*178*	*26*
Peak-Hour Factor, PHF	*0.87*	*0.87*	*0.87*	*0.81*	*0.81*	*0.81*
Hourly Flow Rate, HFR (veh/h)	*31*	*208*	*68*	*66*	*219*	*32*
Percent Heavy Vehicles	*6*	--	--	*9*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*32*	*17*	*27*	*49*	*16*	*32*
Peak-Hour Factor, PHF	*0.86*	*0.86*	*0.86*	*0.81*	*0.81*	*0.81*
Hourly Flow Rate, HFR (veh/h)	*37*	*19*	*31*	*60*	*19*	*39*
Percent Heavy Vehicles	*2*	*2*	*2*	*1*	*1*	*1*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (veh/h)	*31*	*66*		*118*			*87*	
C (m) (veh/h)	*1291*	*1248*		*392*			*397*	
v/c	*0.02*	*0.05*		*0.30*			*0.22*	
95% queue length	*0.07*	*0.17*		*1.25*			*0.82*	
Control Delay (s/veh)	*7.9*	*8.0*		*18.1*			*16.6*	
LOS	*A*	*A*		*C*			*C*	
Approach Delay (s/veh)	--	--	*18.1*			*16.6*		
Approach LOS	--	--	*C*			*C*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*AS*
Agency/Co.	*Philip Habib & Associates*
Date Performed	*8/03/2011*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*Englewood Ave & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2011 Existing Conditions*

Project Description *1121A - Charleston*

East/West Street: *Englewood Avenue* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*243*	*17*	*13*	*241*	
Peak-Hour Factor, PHF	*1.00*	*0.87*	*0.87*	*0.81*	*0.81*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*279*	*19*	*16*	*297*	*0*
Percent Heavy Vehicles	*0*	--	--	*7*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*27*		*25*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.68*	*1.00*	*0.68*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*39*	*0*	*36*
Percent Heavy Vehicles	*0*	*0*	*0*	*7*	*0*	*7*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (veh/h)		*16*		*75*				
C (m) (veh/h)		*1235*		*545*				
v/c		*0.01*		*0.14*				
95% queue length		*0.04*		*0.47*				
Control Delay (s/veh)		*8.0*		*12.7*				
LOS		*A*		*B*				
Approach Delay (s/veh)	--	--	*12.7*					
Approach LOS	--	--	*B*					

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*Veterans Rd W & Arthur Kill Rd*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/04/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*			*LT*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*1*	*10*	*2*	*211*	*19*	*218*	*4*	*122*	*262*	*160*	*217*	*1*
% Heavy Vehicles, %HV	*3*	*3*	*3*	*5*	*5*	*5*	*5*	*5*	*5*	*7*	*7*	*7*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.82*	*0.82*	*0.82*	*0.93*	*0.93*	*0.93*	*0.86*	*0.86*	*0.86*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*			*0.933*	*0.933*		*0.919*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*15.5*			*11.0*	*10.0*		*15.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*			*0*	*0*		*3*			*2*	
Min. Time for Pedestrians, G_p	*11.5*			*13.5*			*15.2*			*12.1*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*14*			*280*	*266*		*417*			*439*	
Lane Group Capacity, c		*726*			*535*	*523*		*742*			*516*	
v/c Ratio, X		*0.02*			*0.52*	*0.51*		*0.56*			*0.85*	
Total Green Ratio, g/C		*0.42*			*0.42*	*0.42*		*0.42*			*0.42*	
Uniform Delay, d_1		*10.3*			*13.1*	*13.0*		*13.3*			*15.8*	
Progression Factor, PF		*1.000*			*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*	*0.50*		*0.50*			*0.50*	
Incremental Delay, d_2		*0.0*			*3.4*	*3.3*		*2.8*			*16.1*	

Initial Queue Delay, d_3		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Control Delay		*10.3*			*16.4*	*16.2*		*16.1*			*31.9*	
Lane Group LOS		*B*			*B*	*B*		*B*			*C*	
Approach Delay	*10.3*			*16.3*			*16.1*			*31.9*		
Approach LOS	*B*			*B*			*B*			*C*		
Intersection Delay	*21.0*			X_C *= 0.69*			Intersection LOS			*C*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*No Bridge St & Arthur Kill Rd*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/04/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*			*1*	
Lane Group					*LR*			*T*			*T*	
Volume, V (vph)				*483*		*4*		*384*			*430*	
% Heavy Vehicles, %HV				*2*		*2*		*5*			*12*	
Peak-Hour Factor, PHF				*0.84*		*0.84*		*0.93*			*0.86*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*			*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.373*			*0.921*			*0.340*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	
Lane Width					*16.0*			*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B					*0*			*0*			*2*	
Min. Time for Pedestrians, G_p	*13.5*			*13.8*			*3.2*			*3.2*		

Phasing	WB Only	02	03	04	Thru Only	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*580*			*413*			*500*	
Lane Group Capacity, c					*670*			*1026*			*954*	
v/c Ratio, X					*0.87*			*0.40*			*0.52*	
Total Green Ratio, g/C					*0.33*			*0.50*			*0.50*	
Uniform Delay, d_1					*18.7*			*9.4*			*10.2*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*5.9*			*1.1*			*0.7*	
Initial Queue Delay, d_3					*0.0*			*0.0*			*0.0*	

Control Delay					*24.6*			*10.5*			*10.9*	
Lane Group LOS					*C*			*B*			*B*	
Approach Delay				*24.6*			*10.5*			*10.9*		
Approach LOS				*C*			*B*			*B*		
Intersection Delay	*16.1*			X_C = *0.66*			Intersection LOS			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*AS*
Agency/Co.	*Philip Habib & Associates*
Date Performed	*8/03/2011*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*So Bridge St & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2011 Existing Conditions*

Project Description *1121A - Charleston*

East/West Street: *South Bridge Street* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*384*	*232*	*175*	*738*	
Peak-Hour Factor, PHF	*1.00*	*0.93*	*0.93*	*0.86*	*0.86*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*412*	*249*	*203*	*858*	*0*
Percent Heavy Vehicles	*0*	--	--	*18*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration						

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*						
v (veh/h)		*203*						
C (m) (veh/h)		*856*						
v/c		*0.24*						
95% queue length		*0.92*						
Control Delay (s/veh)		*10.5*						
LOS		*B*						
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*Rch Valley Rd & Arthur Kill Rd*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/04/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*	*0*	*0*	*1*	
Lane Group					*LR*			*TR*			*LT*	
Volume, V (vph)				*116*		*126*		*490*	*88*	*97*	*641*	
% Heavy Vehicles, %HV				*1*		*1*		*4*	*4*	*6*	*6*	
Peak-Hour Factor, PHF				*0.84*		*0.84*		*0.93*	*0.93*	*0.86*	*0.86*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*	*P*	*P*	*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.901*			*0.798*			*0.114*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width					*12.0*			*15.0*			*15.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B					*0*			*4*			*2*	
Min. Time for Pedestrians, G_p	*11.8*			*11.8*			*14.1*			*3.2*		

Phasing	WB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*288*			*622*			*858*	
Lane Group Capacity, c					*398*			*1098*			*870*	
v/c Ratio, X					*0.72*			*0.57*			*0.99*	
Total Green Ratio, g/C					*0.27*			*0.57*			*0.57*	
Uniform Delay, d_1					*20.0*			*8.3*			*12.8*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*9.9*			*1.7*			*7.6*	
Initial Queue Delay, d_3					*0.0*			*0.0*			*0.0*	

Control Delay					29.9			10.0			20.4	
Lane Group LOS					C			A			C	
Approach Delay				29.9			10.0			20.4		
Approach LOS				C			A			C		
Intersection Delay	18.3			X_C = 0.90			Intersection LOS			B		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*Richmond Valley Rd & Page Ave*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/04/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*0*	*1*	*1*	*0*	*0*	*2*	*0*
Lane Group		*LTR*			*LTR*		*L*	*TR*			*LTR*	
Volume, V (vph)	*61*	*30*	*94*	*32*	*155*	*32*	*50*	*512*	*100*	*96*	*488*	*37*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.81*	*0.81*	*0.81*	*0.91*	*0.91*	*0.91*	*0.87*	*0.87*	*0.87*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.503*			*1.000*		*0.773*	*0.773*			*0.957*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*10*
Lane Width		*16.0*			*15.0*		*10.0*	*14.0*			*10.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*
Parking Maneuvers, N_m						*5*						*5*
Buses Stopping, N_B		*0*			*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*16.6*			*21.5*			*16.3*			*21.2*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *31.0*	G =	G =	G =	G = *49.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*210*			*271*		*55*	*673*			*702*	
Lane Group Capacity, c		*555*			*568*		*327*	*1065*			*1085*	
v/c Ratio, X		*0.38*			*0.48*		*0.17*	*0.63*			*0.65*	
Total Green Ratio, g/C		*0.34*			*0.34*		*0.54*	*0.54*			*0.54*	
Uniform Delay, d_1		*22.2*			*23.1*		*10.3*	*14.2*			*14.4*	
Progression Factor, PF		*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2		*1.0*			*2.9*		*0.9*	*2.2*			*2.9*	

Initial Queue Delay, d_3		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay		*23.2*			*26.0*		*11.1*	*16.5*			*17.3*	
Lane Group LOS		*C*			*C*		*B*	*B*			*B*	
Approach Delay	*23.2*			*26.0*			*16.0*			*17.3*		
Approach LOS	*C*			*C*			*B*			*B*		
Intersection Delay	*18.7*			X_C *= 0.58*			Intersection LOS			*B*		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*AS*
Agency/Co.	*Philip Habib & Associates*
Date Performed	*8/03/2011*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*S Bridge St RT & Page Ave*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2011 Existing Conditions*

Project Description *1121A - Charleston*

East/West Street: *South Bridge Street Right Turn* | North/South Street: *Page Avenue*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*555*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.87*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*637*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*2*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*66*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.78*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*84*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*55*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								*R*
v (veh/h)								*84*
C (m) (veh/h)								*615*
v/c								*0.14*
95% queue length								*0.47*
Control Delay (s/veh)								*11.8*
LOS								*B*
Approach Delay (s/veh)	--	--				*11.8*		
Approach LOS	--	--				*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*S Br St & Page Ave/Boscome Ave*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/04/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*							*2*			*2*	
Lane Group	*L*							*T*			*T*	
Volume, V (vph)	*341*							*605*			*555*	
% Heavy Vehicles, %HV	*1*							*1*			*1*	
Peak-Hour Factor, PHF	*0.91*							*0.90*			*0.87*	
Pretimed (P) or Actuated (A)	*P*							*P*			*P*	
Start-up Lost Time, l_1	*2.0*							*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*							*2.0*			*2.0*	
Arrival Type, AT	*3*							*3*			*3*	
Unit Extension, UE	*3.0*							*3.0*			*3.0*	
Filtering/Metering, I	*1.000*							*0.773*			*0.957*	
Initial Unmet Demand, Q_b	*0.0*							*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*		*0*	*0*		*0*	*0*	
Lane Width	*16.0*							*14.5*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*							*0*			*0*	
Min. Time for Pedestrians, G_p	*3.2*			*20.1*			*3.2*			*3.2*		

Phasing	EB Only	02	03	04	Thru Only	06	07	08
Timing	G = *30.0*	G =	G =	G =	G = *50.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*375*							*672*			*638*	
Lane Group Capacity, c	*675*							*2156*			*1990*	
v/c Ratio, X	*0.56*							*0.31*			*0.32*	
Total Green Ratio, g/C	*0.33*							*0.56*			*0.56*	
Uniform Delay, d_1	*24.5*							*10.8*			*10.8*	
Progression Factor, PF	*1.000*							*1.000*			*1.000*	
Delay Calibration, k	*0.50*							*0.50*			*0.50*	
Incremental Delay, d_2	*3.3*							*0.3*			*0.4*	
Initial Queue Delay, d_3	*0.0*							*0.0*			*0.0*	

Control Delay	27.8							11.0			11.2	
Lane Group LOS	C							B			B	
Approach Delay	27.8						11.0			11.2		
Approach LOS	C						B			B		
Intersection Delay	14.8			X_C = 0.41			Intersection LOS			B		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*AS*
Agency/Co.	*Philip Habib & Associates*
Date Performed	*8/03/2011*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*KWVP WB OR UT & No Bridge St*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2011 Existing Conditions*

Project Description *1121A - Charleston*

East/West Street: *KWVP WB Off-Ramp U-Turn* North/South Street: *North Bridge Street*

Intersection Orientation: *North-South* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*445*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.89*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*500*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*1*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*432*		
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.90*	*0.93*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*464*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*60*	*3*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*0*
Configuration				*L*		

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration			*L*					
v (veh/h)			*464*					
C (m) (veh/h)			*529*					
v/c			*0.88*					
95% queue length			*9.74*					
Control Delay (s/veh)			*42.9*					
LOS			*E*					
Approach Delay (s/veh)	--	--	*42.9*					
Approach LOS	--	--	*E*					

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*AS*	Intersection	*Veterans Rd W & Mohr St/KWVP*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/04/2011*	Jurisdiction	*Sat Flow Rate WB-L = 2000*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*	*0*	*1*	*2*	*0*	*0*	*2*	*0*	*1*	*1*	*0*
Lane Group	*L*	*TR*		*L*	*TR*			*LTR*		*L*	*TR*	
Volume, V (vph)	*101*	*152*	*179*	*225*	*300*	*41*	*96*	*86*	*211*	*43*	*41*	*52*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*7*	*7*	*7*	*3*	*3*	*3*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.90*	*0.82*	*0.82*	*0.93*	*0.93*	*0.93*	*0.76*	*0.76*	*0.76*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*		*2.0*	*2.0*			*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e	*2.0*	*2.0*		*3.0*	*3.0*			*2.0*		*2.0*	*2.0*	
Arrival Type, AT	*3*	*3*		*3*	*3*			*3*		*3*	*3*	
Unit Extension, UE	*3.0*	*3.0*		*3.0*	*3.0*			*3.0*		*3.0*	*3.0*	
Filtering/Metering, I	*0.701*	*0.701*		*0.949*	*0.949*			*1.000*		*0.970*	*0.970*	
Initial Unmet Demand, Q_b	*0.0*	*0.0*		*0.0*	*0.0*			*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*45*	*0*	*0*	*11*	*0*	*0*	*25*	*0*	*0*	*25*
Lane Width	*11.0*	*12.0*		*10.0*	*12.0*			*12.5*		*11.0*	*10.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*		*0*	*0*			*0*		*0*	*0*	
Min. Time for Pedestrians, G_p	*34.6*			*18.6*			*20.3*			*16.1*		

Phasing	EW Perm	02	03	04	NB Only	SB Only	07	08
Timing	G = *30.0*	G =	G =	G =	G = *25.0*	G = *20.0*	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y = *5*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*115*	*325*		*250*	*403*			*395*		*57*	*90*	
Lane Group Capacity, c	*283*	*583*		*246*	*1148*			*905*		*384*	*367*	
v/c Ratio, X	*0.41*	*0.56*		*1.02*	*0.35*			*0.44*		*0.15*	*0.25*	
Total Green Ratio, g/C	*0.33*	*0.33*		*0.34*	*0.34*			*0.28*		*0.22*	*0.22*	
Uniform Delay, d_1	*23.1*	*24.6*		*29.5*	*22.0*			*26.7*		*28.2*	*28.8*	
Progression Factor, PF	*1.000*	*1.000*		*1.000*	*1.000*			*1.000*		*1.000*	*1.000*	
Delay Calibration, k	*0.50*	*0.50*		*0.50*	*0.50*			*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2	*3.0*	*2.7*		*60.1*	*0.8*			*1.5*		*0.8*	*1.5*	

Initial Queue Delay, d_3	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Control Delay	26.2	27.3		89.6	22.8			28.2		28.9	30.3	
Lane Group LOS	C	C		F	C			C		C	C	
Approach Delay	27.0			48.4			28.2			29.8		
Approach LOS	C			D			C			C		
Intersection Delay	36.1			X_C = 0.62			Intersection LOS			D		

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*AS*
Agency/Co.	*Philip Habib & Associates*
Date Performed	*8/03/2011*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*Mohr Street & Tyrellan Avenue*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2011 Existing COnditions*

Project ID *1121A - Charleston*

East/West Street: *Mohr Street* North/South Street: *Tyrellan Avenue*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*94*	*27*	*137*	*124*	*0*
%Thrus Left Lane	*50*			*50*		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*12*	*0*	*64*	*0*	*0*	*0*
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*T*	*TR*	*LT*	*T*	*L*	*R*		
PHF	*0.87*	*0.87*	*0.91*	*0.91*	*0.76*	*0.76*		
Flow Rate (veh/h)	*54*	*85*	*218*	*68*	*15*	*84*		
% Heavy Vehicles	*7*	*7*	*1*	*1*	*1*	*1*		
No. Lanes	*2*		*2*		*2*		*0*	
Geometry Group	*5*		*5*		*1*			
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	*0.0*	*0.0*	*0.7*	*0.0*	*1.0*	*0.0*		
Prop. Right-Turns	*0.0*	*0.4*	*0.0*	*0.0*	*0.0*	*1.0*		
Prop. Heavy Vehicle	*0.1*	*0.1*	*0.0*	*0.0*	*0.0*	*0.0*		
hLT-adj	*0.5*	*0.5*	*0.5*	*0.5*	*0.2*	*0.2*		
hRT-adj	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.6*	*-0.6*		
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*		
hadj, computed	*0.1*	*-0.1*	*0.4*	*0.0*	*0.2*	*-0.6*		

Departure Headway and Service Time

hd, initial value (s)	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*		
x, initial	*0.05*	*0.08*	*0.19*	*0.06*	*0.01*	*0.07*		
hd, final value (s)	*5.10*	*4.85*	*5.21*	*4.87*	*5.10*	*4.30*		
x, final value	*0.08*	*0.11*	*0.32*	*0.09*	*0.02*	*0.10*		
Move-up time, m (s)	*2.3*		*2.3*		*2.0*			
Service Time, t_s (s)	*2.8*	*2.5*	*2.9*	*2.6*	*3.1*	*2.3*		

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*304*	*335*	*468*	*318*	*265*	*334*		
Delay (s/veh)	*8.23*	*8.17*	*10.30*	*8.06*	*8.21*	*7.78*		
LOS	*A*	*A*	*B*	*A*	*A*	*A*		
Approach: Delay (s/veh)	*8.20*		*9.76*		*7.84*			
LOS	*A*		*A*		*A*			
Intersection Delay (s/veh)	*8.98*							
Intersection LOS	*A*							

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*AS*	Intersection	*Veterans Rd W & Tyrellan Ave*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/04/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*
Lane Group		*LTR*			*LTR*		*DefL*	*TR*			*LTR*	
Volume, V (vph)	*49*	*94*	*263*	*92*	*257*	*9*	*194*	*95*	*95*	*20*	*292*	*115*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*2*	*2*	*2*	*1*	*1*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.82*	*0.82*	*0.82*	*0.93*	*0.93*	*0.93*	*0.94*	*0.94*	*0.94*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.884*			*0.927*		*1.000*	*1.000*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*			*12.0*		*13.0*	*13.0*			*9.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*			*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*18.6*			*16.6*			*20.1*			*19.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*462*			*436*		*209*	*204*			*454*	
Lane Group Capacity, c		*1207*			*1121*		*396*	*799*			*1300*	
v/c Ratio, X		*0.38*			*0.39*		*0.53*	*0.26*			*0.35*	
Total Green Ratio, g/C		*0.44*			*0.44*		*0.44*	*0.44*			*0.44*	
Uniform Delay, d_1		*16.7*			*16.8*		*18.1*	*15.7*			*16.4*	
Progression Factor, PF		*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2		*0.8*			*0.9*		*5.0*	*0.8*			*0.7*	

Initial Queue Delay, d_3		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay		*17.6*			*17.7*		*23.1*	*16.4*			*17.2*	
Lane Group LOS		*B*			*B*		*C*	*B*			*B*	
Approach Delay	*17.6*			*17.7*			*19.8*			*17.2*		
Approach LOS	*B*			*B*			*B*			*B*		
Intersection Delay	*18.0*			X_C *= 0.46*			Intersection LOS			*B*		

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*AS*	Intersection	*Boscombe Ave & OBX Off-Ramp*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*08/04/2010*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*1*	*1*	*1*
Lane Group	*L*	*TR*			*LT*	*R*		*LTR*		*L*	*LT*	*R*
Volume, V (vph)	*659*	*283*	*4*	*3*	*293*	*329*	*2*	*3*	*2*	*90*	*0*	*260*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.95*	*0.95*	*0.95*	*0.44*	*0.44*	*0.44*	*0.80*	*0.80*	*0.80*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*	*3*		*3*		*3*	*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*	*3.0*		*3.0*		*3.0*	*3.0*	*3.0*
Filtering/Metering, I	*0.687*	*0.687*			*0.650*	*0.650*		*1.000*		*1.000*	*1.000*	*1.000*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*	*0.0*		*0.0*		*0.0*	*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*11.0*	*12.0*			*12.0*	*12.0*		*16.0*		*10.0*	*11.0*	*10.0*
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B	*0*	*0*			*0*	*0*		*0*		*0*	*0*	*0*
Min. Time for Pedestrians, G_p	*14.6*			*24.6*			*20.9*			*20.1*		

Phasing	EB Only	EW Perm	03	04	NS Perm	06	07	08
Timing	G = *33.0*	G = *28.0*	G =	G =	G = *14.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*732*	*318*			*311*	*346*		*17*		*112*	*0*	*325*
Lane Group Capacity, c	*865*	*1205*			*584*	*497*		*148*		*204*	*283*	*862*
v/c Ratio, X	*0.85*	*0.26*			*0.53*	*0.70*		*0.11*		*0.55*	*0.00*	*0.38*
Total Green Ratio, g/C	*0.73*	*0.73*			*0.31*	*0.31*		*0.16*		*0.16*	*0.16*	*0.58*
Uniform Delay, d_1	*10.6*	*4.0*			*25.6*	*27.3*		*32.7*		*35.1*	*32.1*	*10.3*
Progression Factor, PF	*1.000*	*1.000*			*1.000*	*1.000*		*1.000*		*1.000*	*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*	*0.50*		*0.50*		*0.50*	*0.50*	*0.50*
Incremental Delay, d_2	*7.1*	*0.4*			*2.3*	*5.2*		*1.6*		*10.2*	*0.0*	*1.3*

Initial Queue Delay, d_3	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Control Delay	17.8	4.3			27.9	32.5		34.2		45.3	32.1	11.5
Lane Group LOS	B	A			C	C		C		D	C	B
Approach Delay	13.7			30.3			34.2			20.2		
Approach LOS	B			C			C			C		
Intersection Delay	20.2			X_C = 0.80			Intersection LOS			C		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*Boscombe Ave & Tyrellan Ave*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/04/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Hour*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*1*	*1*
Lane Group	*DefL*	*TR*			*LTR*			*LTR*			*LT*	*R*
Volume, V (vph)	*341*	*34*	*0*	*1*	*34*	*40*	*3*	*3*	*2*	*58*	*1*	*588*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.95*	*0.95*	*0.95*	*0.50*	*0.50*	*0.50*	*0.94*	*0.94*	*0.94*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*			*2.0*			*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*			*2.0*			*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*			*3*			*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*			*3.0*			*3.0*	*3.0*
Filtering/Metering, I	*0.952*	*0.952*			*1.000*			*1.000*			*0.937*	*0.937*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*			*0.0*			*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*10*	*0*	*0*	*0*	*0*	*0*	*294*
Lane Width	*16.0*	*16.0*			*11.5*			*12.0*			*12.0*	*12.0*
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*			*0*			*0*			*0*	*0*
Min. Time for Pedestrians, G_p	*20.3*			*17.5*			*20.3*			*20.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*379*	*38*			*69*			*16*			*63*	*313*
Lane Group Capacity, c	*757*	*1066*			*1563*			*1220*			*552*	*616*
v/c Ratio, X	*0.50*	*0.04*			*0.04*			*0.01*			*0.11*	*0.51*
Total Green Ratio, g/C	*0.50*	*0.50*			*0.50*			*0.39*			*0.39*	*0.39*
Uniform Delay, d_1	*15.0*	*11.5*			*11.5*			*16.9*			*17.6*	*20.9*
Progression Factor, PF	*1.000*	*1.000*			*1.000*			*1.000*			*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*			*0.50*			*0.50*	*0.50*
Incremental Delay, d_2	*2.2*	*0.1*			*0.1*			*0.0*			*0.4*	*2.8*

Initial Queue Delay, d_3	*0.0*	*0.0*			*0.0*			*0.0*			*0.0*	*0.0*
Control Delay	*17.3*	*11.5*			*11.6*			*16.9*			*18.0*	*23.7*
Lane Group LOS	*B*	*B*			*B*			*B*			*B*	*C*
Approach Delay	*16.7*			*11.6*			*16.9*			*22.8*		
Approach LOS	*B*			*B*			*B*			*C*		
Intersection Delay	*18.9*			X_C *= 0.50*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*AS*	Intersection	*Bricktown Ctr Rd @ Vets Rd W*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/04/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*				*0*	*2*			*2*	*0*
Lane Group	*L*		*R*					*LT*			*TR*	
Volume, V (vph)	*136*		*22*				*2*	*207*			*336*	*259*
% Heavy Vehicles, %HV	*8*		*8*				*1*	*1*			*2*	*2*
Peak-Hour Factor, PHF	*0.87*		*0.87*				*0.88*	*0.88*			*0.91*	*0.91*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*					*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*					*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*					*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*					*3.0*			*3.0*	
Filtering/Metering, I	*0.974*		*0.974*					*0.995*			*0.791*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*					*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*6*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width	*13.0*		*12.0*					*11.5*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*					*0*			*0*	
Min. Time for Pedestrians, G_p	*21.8*			*20.3*			*3.2*			*19.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *19.0*	G =	G =	G =	G = *31.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*156*		*18*					*237*			*654*	
Lane Group Capacity, c	*547*		*473*					*1732*			*1941*	
v/c Ratio, X	*0.29*		*0.04*					*0.14*			*0.34*	
Total Green Ratio, g/C	*0.32*		*0.32*					*0.52*			*0.52*	
Uniform Delay, d_1	*15.4*		*14.2*					*7.5*			*8.5*	
Progression Factor, PF	*1.000*		*1.000*					*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*					*0.50*			*0.50*	
Incremental Delay, d_2	*1.3*		*0.1*					*0.2*			*0.4*	
Initial Queue Delay, d_3	*0.0*		*0.0*					*0.0*			*0.0*	

Control Delay	*16.7*		*14.3*					*7.7*			*8.9*	
Lane Group LOS	*B*		*B*					*A*			*A*	
Approach Delay	*16.4*						*7.7*			*8.9*		
Approach LOS	*B*						*A*			*A*		
Intersection Delay	*9.8*			X_C = *0.32*			Intersection LOS			*A*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*AS*
Agency/Co.	*Philip Habib & Associates*
Date Performed	*8/03/2011*
Analysis Time Period	

Site Information

Intersection	*Englewood Ave & Vets Rd W RT*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2011 Existing Conditions*

Project Description *1121A - Charleston*

East/West Street: *Englewood Avenue* | North/South Street: *Veterans Rd W Right Turn Bay*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*22*				
Peak-Hour Factor, PHF	*1.00*	*0.71*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*30*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*T*				
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*329*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.88*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*373*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*1*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					*R*			
v (veh/h)					*373*			
C (m) (veh/h)					*1047*			
v/c					*0.36*			
95% queue length					*1.63*			
Control Delay (s/veh)					*10.3*			
LOS					*B*			
Approach Delay (s/veh)	--	--	*10.3*					
Approach LOS	--	--	*B*					

HCS+™ Version 5.4

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*Englewood Ave @ Veterans Rd W*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/04/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*1*	*1*		*1*			*0*	*3*	*0*
Lane Group		*TR*		*L*	*LT*		*L*				*LTR*	
Volume, V (vph)		*1*	*0*	*428*	*2*		*4*			*21*	*167*	*4*
% Heavy Vehicles, %HV		*1*	*1*	*3*	*3*		*1*			*1*	*1*	*1*
Peak-Hour Factor, PHF		*0.25*	*0.25*	*0.89*	*0.89*		*0.88*			*0.91*	*0.91*	*0.91*
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*			*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Arrival Type, AT		*3*		*3*	*3*		*3*				*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*		*3.0*				*3.0*	
Filtering/Metering, I		*1.000*		*0.983*	*0.983*		*0.988*				*1.000*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*12.0*		*13.0*	*13.0*		*10.0*				*11.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*		*0*	*0*		*0*				*0*	
Min. Time for Pedestrians, G_p	*31.2*			*3.2*			*18.1*			*11.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*4*		*241*	*242*		*5*				*211*	
Lane Group Capacity, c		*784*		*600*	*576*		*449*				*2047*	
v/c Ratio, X		*0.01*		*0.40*	*0.42*		*0.01*				*0.10*	
Total Green Ratio, g/C		*0.42*		*0.42*	*0.42*		*0.42*				*0.42*	
Uniform Delay, d_1		*10.2*		*12.3*	*12.4*		*10.3*				*10.7*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*		*1.000*				*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*		*0.50*				*0.50*	
Incremental Delay, d_2		*0.0*		*2.0*	*2.2*		*0.0*				*0.1*	

Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Control Delay		*10.2*		*14.2*	*14.6*		*10.3*				*10.8*	
Lane Group LOS		*B*		*B*	*B*		*B*				*B*	
Approach Delay	*10.2*			*14.4*			*10.3*			*10.8*		
Approach LOS	*B*			*B*			*B*			*B*		
Intersection Delay	*13.3*			X_C *= 0.26*			Intersection LOS			*B*		

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*AS*
Agency/Co.	*Philip Habib & Associates*
Date Performed	*8/03/2011*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*Sharrotts Rd & Veterans Rd W*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2011 Existing Conditions*

Project ID *1121A - Charleston*

East/West Street: *Sharrotts Road* North/South Street: *Veterans Road West*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*95*	*36*	*73*	*74*	*0*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*0*	*22*	*83*	*23*
%Thrus Left Lane				*50*		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*TR*		*LT*				*LT*	*TR*
PHF	*0.80*		*0.78*				*0.91*	*0.91*
Flow Rate (veh/h)	*162*		*187*				*69*	71
% Heavy Vehicles	*2*		*3*				*1*	*1*
No. Lanes	*1*		*1*		*0*		*2*	
Geometry Group	*2*		*2*				*1*	
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	*0.0*		*0.5*				*0.3*	*0.0*
Prop. Right-Turns	*0.3*		*0.0*				*0.0*	*0.4*
Prop. Heavy Vehicle	*0.0*		*0.0*				*0.0*	*0.0*
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*			*0.2*	*0.2*
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*			*-0.6*	*-0.6*
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*			*1.7*	*1.7*
hadj, computed	*-0.1*		*0.2*				*0.1*	*-0.2*

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value (s)	*3.20*		*3.20*				*3.20*	*3.20*
x, initial	*0.14*		*0.17*				*0.06*	*0.06*
hd, final value (s)	*4.31*		*4.56*				*4.79*	*4.50*
x, final value	*0.19*		*0.24*				*0.09*	*0.09*
Move-up time, m (s)	*2.0*		*2.0*				*2.0*	
Service Time, t_s (s)	*2.3*		*2.6*				*2.8*	*2.5*

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*412*		*437*				*319*	*321*
Delay (s/veh)	*8.35*		*8.96*				*8.27*	*7.94*
LOS	*A*		*A*				*A*	*A*
Approach: Delay (s/veh)	*8.35*		*8.96*				*8.10*	
LOS	*A*		*A*				*A*	
Intersection Delay (s/veh)	*8.51*							
Intersection LOS	*A*							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*AS*
Agency/Co.	*Philip Habib & Associates*
Date Performed	*8/03/2011*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*Sharrotts Rd @ Veterans Rd E*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2011 Existing Conditions*

Project ID *1121A - Charleston*

East/West Street: *Sharrotts Road* | North/South Street: *Veterans Road East*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*36*	*81*	*0*	*0*	*86*	*18*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*61*	*93*	*111*	*0*	*0*	*0*
%Thrus Left Lane	*50*					

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*LT*		*TR*		*LT*	*TR*		
PHF	*0.80*		*0.78*		*0.99*	*0.99*		
Flow Rate (veh/h)	*145*		*133*		*107*	*159*		
% Heavy Vehicles	*2*		*5*		*1*	*1*		
No. Lanes	*1*		*1*		*2*		*0*	
Geometry Group	*2*		*2*		*1*			
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	*0.3*		*0.0*		*0.6*	*0.0*		
Prop. Right-Turns	*0.0*		*0.2*		*0.0*	*0.7*		
Prop. Heavy Vehicle	*0.0*		*0.0*		*0.0*	*0.0*		
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*		
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*		
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*		
hadj, computed	*0.1*		*-0.0*		*0.1*	*-0.4*		

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value (s)	*3.20*		*3.20*		*3.20*	*3.20*		
x, initial	*0.13*		*0.12*		*0.10*	*0.14*		
hd, final value (s)	*4.73*		*4.63*		*4.71*	*4.17*		
x, final value	*0.19*		*0.17*		*0.14*	*0.18*		
Move-up time, m (s)	*2.0*		*2.0*		*2.0*			
Service Time, t_s (s)	*2.7*		*2.6*		*2.7*	*2.2*		

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*395*		*383*		*357*	*409*		
Delay (s/veh)	*8.84*		*8.59*		*8.47*	*8.10*		
LOS	*A*		*A*		*A*	*A*		
Approach: Delay (s/veh)	*8.84*		*8.59*		*8.25*			
LOS	*A*		*A*		*A*			
Intersection Delay (s/veh)	*8.49*							
Intersection LOS	*A*							

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*Englewood Ave @ Vets Rd E*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/04/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*3*	*0*			
Lane Group		*LT*	*R*		*LTR*			*LTR*				
Volume, V (vph)	*159*	*95*	*107*	*7*	*44*	*8*	*386*	*98*	*2*			
% Heavy Vehicles, %HV	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*			
Peak-Hour Factor, PHF	*0.85*	*0.85*	*0.85*	*0.87*	*0.87*	*0.87*	*0.89*	*0.89*	*0.89*			
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*			
Start-up Lost Time, l_1		*2.0*	*2.0*		*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*	*2.0*		*2.0*			*2.0*				
Arrival Type, AT		*3*	*3*		*3*			*3*				
Unit Extension, UE		*3.0*	*3.0*		*3.0*			*3.0*				
Filtering/Metering, I		*0.999*	*0.999*		*0.996*			*0.980*				
Initial Unmet Demand, Q_b		*0.0*	*0.0*		*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*53*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width		*13.0*	*12.0*		*11.5*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B		*0*	*0*		*0*			*0*				
Min. Time for Pedestrians, G_p	*21.2*			*12.9*			*14.3*			*17.5*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *21.0*	G =	G =	G =	G = *29.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*299*	*64*		*68*			*546*				
Lane Group Capacity, c		*524*	*560*		*534*			*2302*				
v/c Ratio, X		*0.57*	*0.11*		*0.13*			*0.24*				
Total Green Ratio, g/C		*0.35*	*0.35*		*0.35*			*0.48*				
Uniform Delay, d_1		*15.8*	*13.2*		*13.3*			*9.0*				
Progression Factor, PF		*1.000*	*1.000*		*1.000*			*1.000*				
Delay Calibration, k		*0.50*	*0.50*		*0.50*			*0.50*				
Incremental Delay, d_2		*4.5*	*0.4*		*0.5*			*0.2*				

Initial Queue Delay, d_3		*0.0*	*0.0*		*0.0*			*0.0*				
Control Delay		*20.3*	*13.6*		*13.8*			*9.3*				
Lane Group LOS		*C*	*B*		*B*			*A*				
Approach Delay	*19.1*			*13.8*			*9.3*					
Approach LOS	*B*			*B*			*A*					
Intersection Delay	*13.2*			X_C = *0.38*			Intersection LOS			*B*		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*Englewood Av & Bloomingdale Rd*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/04/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*65*		*32*				*17*	*426*			*427*	*42*
% Heavy Vehicles, %HV	*3*		*3*				*1*	*1*			*4*	*4*
Peak-Hour Factor, PHF	*0.96*		*0.96*				*0.86*	*0.86*			*0.92*	*0.92*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.984*						*0.880*			*0.893*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*16.0*						*14.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B		*0*						*2*			*7*	
Min. Time for Pedestrians, G_p	*14.9*			*15.5*			*3.2*			*17.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*101*						*515*			*510*	
Lane Group Capacity, c		*451*						*1100*			*1127*	
v/c Ratio, X		*0.22*						*0.47*			*0.45*	
Total Green Ratio, g/C		*0.27*						*0.57*			*0.57*	
Uniform Delay, d_1		*17.2*						*7.7*			*7.6*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*1.1*						*1.3*			*1.2*	
Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	

Control Delay		*18.3*						*8.9*			*8.7*	
Lane Group LOS		*B*						*A*			*A*	
Approach Delay	*18.3*						*8.9*			*8.7*		
Approach LOS	*B*						*A*			*A*		
Intersection Delay	*9.7*			X_C = *0.39*			Intersection LOS			*A*		

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*AS*	Intersection	*Sharrotts Rd & Bloomingdale Rd*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/04/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*112*		*80*				*21*	*388*			*366*	*83*
% Heavy Vehicles, %HV	*1*		*1*				*1*	*1*			*3*	*3*
Peak-Hour Factor, PHF	*0.80*		*0.80*				*0.86*	*0.86*			*0.92*	*0.92*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.911*						*0.834*			*0.880*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*21*
Lane Width		*16.0*						*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*2*			*7*	
Min. Time for Pedestrians, G_p	*18.6*			*18.6*			*3.2*			*16.6*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*240*						*475*			*465*	
Lane Group Capacity, c		*570*						*896*			*997*	
v/c Ratio, X		*0.42*						*0.53*			*0.47*	
Total Green Ratio, g/C		*0.33*						*0.50*			*0.50*	
Uniform Delay, d_1		*15.5*						*10.2*			*9.8*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*2.1*						*1.9*			*1.4*	
Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	

Control Delay		17.6						12.1			11.2	
Lane Group LOS		B						B			B	
Approach Delay	17.6						12.1			11.2		
Approach LOS	B						B			B		
Intersection Delay	12.8			X_C = 0.49			Intersection LOS			B		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*AS*	Intersection	*Vets Rd E & Bloomingdale Rd*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/04/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*	*0*	*3*	*0*	*1*	*1*			*1*	*0*
Lane Group	*L*		*R*		*LTR*		*L*	*T*			*TR*	
Volume, V (vph)	*4*		*110*	*242*	*432*	*256*	*49*	*183*			*454*	*5*
% Heavy Vehicles, %HV	*1*		*1*	*1*	*1*	*1*	*2*	*2*			*4*	*4*
Peak-Hour Factor, PHF	*0.95*		*0.95*	*0.88*	*0.88*	*0.88*	*0.92*	*0.92*			*0.87*	*0.87*
Pretimed (P) or Actuated (A)	*P*		*P*	*P*	*P*	*P*	*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*		*3*		*3*	*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*		*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I	*0.848*		*0.848*		*0.500*		*0.930*	*0.930*			*0.865*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Lane Width	*10.0*		*13.0*		*11.0*		*12.0*	*12.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*		*0*		*0*	*2*			*7*	
Min. Time for Pedestrians, G_p	*17.2*			*16.9*			*3.2*			*20.9*		

Phasing	EB Only	WB Only	03	04	NS Perm	06	07	08
Timing	G = *8.0*	G = *17.0*	G =	G =	G = *20.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*4*		*116*		*1057*		*53*	*199*			*528*	
Lane Group Capacity, c	*222*		*220*		*1328*		*124*	*616*			*670*	
v/c Ratio, X	*0.02*		*0.53*		*0.80*		*0.43*	*0.32*			*0.79*	
Total Green Ratio, g/C	*0.13*		*0.13*		*0.28*		*0.33*	*0.33*			*0.33*	
Uniform Delay, d_1	*22.6*		*24.2*		*19.9*		*15.5*	*14.9*			*18.1*	
Progression Factor, PF	*1.000*		*1.000*		*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*		*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2	*0.1*		*7.5*		*2.6*		*9.7*	*1.3*			*8.0*	

Initial Queue Delay, d_3	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay	*22.7*		*31.7*		*22.5*		*25.3*	*16.2*			*26.1*	
Lane Group LOS	*C*		*C*		*C*		*C*	*B*			*C*	
Approach Delay	*31.4*				*22.5*			*18.1*			*26.1*	
Approach LOS	*C*				*C*			*B*			*C*	
Intersection Delay	*23.4*				X_C *= 0.74*			Intersection LOS			*C*	

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*AS*	Intersection	*S Service Rd & Bloomingdale Rd*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/04/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*				*0*	*1*	*0*	*1*	*1*	*0*
Lane Group		*LTR*						*LTR*		*L*	*TR*	
Volume, V (vph)	*9*	*19*	*6*				*8*	*223*	*113*	*296*	*462*	*48*
% Heavy Vehicles, %HV	*2*	*2*	*2*				*2*	*2*	*2*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.63*	*0.63*	*0.63*				*0.92*	*0.92*	*0.92*	*0.93*	*0.93*	*0.93*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*				*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*		*2.0*	*2.0*	
Arrival Type, AT		*3*						*3*		*3*	*3*	
Unit Extension, UE		*3.0*						*3.0*		*3.0*	*3.0*	
Filtering/Metering, I		*1.000*						*0.922*		*0.564*	*0.564*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*12*
Lane Width		*13.0*						*16.0*		*12.0*	*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*2*		*0*	*7*	
Min. Time for Pedestrians, G_p	*17.5*			*16.9*			*12.6*			*12.9*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *17.0*	G =	G =	G =	G = *33.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*54*						*374*		*318*	*536*	
Lane Group Capacity, c		*459*						*952*		*556*	*985*	
v/c Ratio, X		*0.12*						*0.39*		*0.57*	*0.54*	
Total Green Ratio, g/C		*0.28*						*0.55*		*0.55*	*0.55*	
Uniform Delay, d_1		*15.9*						*7.7*		*8.9*	*8.7*	
Progression Factor, PF		*1.000*						*1.000*		*1.000*	*1.000*	
Delay Calibration, k		*0.50*						*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2		*0.5*						*1.1*		*2.4*	*1.2*	

Initial Queue Delay, d_3		0.0						0.0		0.0	0.0	
Control Delay		16.5						8.9		11.3	9.9	
Lane Group LOS		B						A		B	A	
Approach Delay	16.5						8.9			10.4		
Approach LOS	B						A			B		
Intersection Delay	10.2			X_C = 0.42			Intersection LOS			B		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*Amboy Rd & Bloomingdale Ave*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/04/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*1*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*		*L*	*T*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*6*	*12*	*19*	*248*	*27*	*102*	*17*	*236*	*162*	*87*	*347*	*48*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*3*	*3*	*3*	*1*	*1*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.70*	*0.70*	*0.70*	*0.87*	*0.87*	*0.87*	*0.92*	*0.92*	*0.92*	*0.87*	*0.87*	*0.87*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*		*3*	*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*		*0.905*	*0.905*	*0.905*		*0.663*			*0.229*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*50*	*0*	*0*	*0*	*0*	*0*	*50*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*		*12.0*	*11.0*	*11.0*		*11.0*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*2*		*0*	*0*	*2*		*0*			*0*	
Min. Time for Pedestrians, G_p	*11.5*			*11.8*			*18.9*			*18.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*53*		*285*	*31*	*117*		*451*			*554*	
Lane Group Capacity, c		*633*		*561*	*792*	*585*		*728*			*656*	
v/c Ratio, X		*0.08*		*0.51*	*0.04*	*0.20*		*0.62*			*0.84*	
Total Green Ratio, g/C		*0.44*		*0.44*	*0.44*	*0.44*		*0.44*			*0.44*	
Uniform Delay, d_1		*14.4*		*17.9*	*14.1*	*15.2*		*19.2*			*22.2*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*	*0.50*		*0.50*			*0.50*	
Incremental Delay, d_2		*0.3*		*3.0*	*0.1*	*0.7*		*2.6*			*3.3*	

Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Control Delay		*14.7*		*20.9*	*14.2*	*15.9*		*21.8*			*25.5*	
Lane Group LOS		*B*		*C*	*B*	*B*		*C*			*C*	
Approach Delay	*14.7*			*19.1*			*21.8*			*25.5*		
Approach LOS	*B*			*B*			*C*			*C*		
Intersection Delay	*22.1*			X_C = *0.68*			Intersection LOS			*C*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*Arthur Kill Rd & Bloomingdl Rd*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/04/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*0*	*1*		*0*		*0*			
Lane Group		*TR*			*LT*			*LR*				
Volume, V (vph)		*119*	*235*	*19*	*131*		*134*		*27*			
% Heavy Vehicles, %HV		*5*	*5*	*8*	*8*		*1*		*1*			
Peak-Hour Factor, PHF		*0.82*	*0.82*	*0.83*	*0.83*		*0.67*		*0.67*			
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*		*P*			
Start-up Lost Time, l_1		*2.0*			*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*			*2.0*			*2.0*				
Arrival Type, AT		*3*			*3*			*3*				
Unit Extension, UE		*3.0*			*3.0*			*3.0*				
Filtering/Metering, I		*0.927*			*0.989*			*0.917*				
Initial Unmet Demand, Q_b		*0.0*			*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*59*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	
Lane Width		*16.0*			*16.0*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m									*5*			
Buses Stopping, N_B		*5*			*0*			*0*				
Min. Time for Pedestrians, G_p	*18.3*			*3.2*			*15.2*			*17.2*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*360*			*181*			*240*				
Lane Group Capacity, c		*924*			*934*			*581*				
v/c Ratio, X		*0.39*			*0.19*			*0.41*				
Total Green Ratio, g/C		*0.50*			*0.50*			*0.39*				
Uniform Delay, d_1		*14.0*			*12.5*			*20.0*				
Progression Factor, PF		*1.000*			*1.000*			*1.000*				
Delay Calibration, k		*0.50*			*0.50*			*0.50*				
Incremental Delay, d_2		*1.1*			*0.5*			*2.0*				
Initial Queue Delay, d_3		*0.0*			*0.0*			*0.0*				

Control Delay		15.1			12.9			22.0				
Lane Group LOS		B			B			C				
Approach Delay	15.1			12.9			22.0					
Approach LOS	B			B			C					
Intersection Delay	16.7			X_C = 0.40			Intersection LOS			B		

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Saturday

Midday

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*AS*
Agency/Co.	*Philip Habib & Associates*
Date Performed	*8/04/2011*
Analysis Time Period	*Saturday 12:45-1:45 Peak Pd*

Site Information

Intersection	*Sharrotts Rd & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2011 Existing Conditions*

Project Description *1121A - Charleston*

East/West Street: *Sharrotts Road* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*11*	*176*	*42*	*27*	*194*	*26*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.88*	*0.88*	*0.88*
Hourly Flow Rate, HFR (veh/h)	*11*	*191*	*45*	*30*	*220*	*29*
Percent Heavy Vehicles	*3*	--	--	*5*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*25*	*31*	*22*	*51*	*16*	*38*
Peak-Hour Factor, PHF	*0.40*	*0.40*	*0.40*	*0.78*	*0.78*	*0.78*
Hourly Flow Rate, HFR (veh/h)	*62*	*77*	*54*	*65*	*20*	*48*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (veh/h)	*11*	*30*		*133*			*193*	
C (m) (veh/h)	*1311*	*1314*		*439*			*475*	
v/c	*0.01*	*0.02*		*0.30*			*0.41*	
95% queue length	*0.03*	*0.07*		*1.26*			*1.95*	
Control Delay (s/veh)	*7.8*	*7.8*		*16.7*			*17.7*	
LOS	*A*	*A*		*C*			*C*	
Approach Delay (s/veh)	--	--	*16.7*			*17.7*		
Approach LOS	--	--	*C*			*C*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*AS*
Agency/Co.	*Philip Habib & Associates*
Date Performed	*8/04/2011*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*Englewood Ave & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2011 Existing Conditions*

Project Description *1121A - Charleston*

East/West Street: *Englewood Avenue* North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*211*	*12*	*15*	*252*	
Peak-Hour Factor, PHF	*1.00*	*0.92*	*0.92*	*0.88*	*0.88*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*229*	*13*	*17*	*286*	*0*
Percent Heavy Vehicles	*0*	--	--	*5*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*9*		*18*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.75*	*1.00*	*0.75*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*12*	*0*	*24*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (veh/h)		*17*		*36*				
C (m) (veh/h)		*1307*		*657*				
v/c		*0.01*		*0.05*				
95% queue length		*0.04*		*0.17*				
Control Delay (s/veh)		*7.8*		*10.8*				
LOS		*A*		*B*				
Approach Delay (s/veh)	--	--	*10.8*					
Approach LOS	--	--	*B*					

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*Veterans Rd W & Arthur Kill Rd*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/04/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*			*LT*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*0*	*9*	*5*	*246*	*25*	*320*	*5*	*145*	*313*	*126*	*183*	*0*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*2*	*2*	*2*	*5*	*5*	*5*	*3*	*3*	*3*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*			*0.849*	*0.849*		*0.861*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*15.5*			*11.0*	*10.0*		*15.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*			*0*	*0*		*2*			*2*	
Min. Time for Pedestrians, G_p	*11.5*			*13.5*			*15.2*			*12.1*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*15*			*294*	*348*		*508*			*339*	
Lane Group Capacity, c		*724*			*551*	*539*		*745*			*512*	
v/c Ratio, X		*0.02*			*0.53*	*0.65*		*0.68*			*0.66*	
Total Green Ratio, g/C		*0.42*			*0.42*	*0.42*		*0.42*			*0.42*	
Uniform Delay, d_1		*10.3*			*13.1*	*14.0*		*14.3*			*14.1*	
Progression Factor, PF		*1.000*			*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*	*0.50*		*0.50*			*0.50*	
Incremental Delay, d_2		*0.1*			*3.1*	*5.0*		*4.3*			*6.6*	

Initial Queue Delay, d_3		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Control Delay		*10.3*			*16.3*	*19.0*		*18.6*			*20.7*	
Lane Group LOS		*B*			*B*	*B*		*B*			*C*	
Approach Delay	*10.3*			*17.7*			*18.6*			*20.7*		
Approach LOS	*B*			*B*			*B*			*C*		
Intersection Delay	*18.6*			X_C = *0.66*			Intersection LOS			*B*		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*No Bridge St & Arthur Kill Rd*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/04/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*			*1*	
Lane Group					*LR*			*T*			*T*	
Volume, V (vph)				*461*		*8*		*455*			*434*	
% Heavy Vehicles, %HV				*1*		*1*		*5*			*4*	
Peak-Hour Factor, PHF				*0.86*		*0.86*		*0.91*			*0.91*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*			*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.483*			*0.865*			*0.367*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	
Lane Width					*16.0*			*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B					*0*			*0*			*2*	
Min. Time for Pedestrians, G_p	*13.5*			*13.8*			*3.2*			*3.2*		

Phasing	WB Only	02	03	04	Thru Only	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*545*			*500*			*477*	
Lane Group Capacity, c					*676*			*1026*			*1027*	
v/c Ratio, X					*0.81*			*0.49*			*0.46*	
Total Green Ratio, g/C					*0.33*			*0.50*			*0.50*	
Uniform Delay, d_1					*18.2*			*9.9*			*9.8*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*5.1*			*1.4*			*0.6*	
Initial Queue Delay, d_3					*0.0*			*0.0*			*0.0*	

Control Delay					*23.3*			*11.3*			*10.3*	
Lane Group LOS					*C*			*B*			*B*	
Approach Delay				*23.3*			*11.3*			*10.3*		
Approach LOS				*C*			*B*			*B*		
Intersection Delay	*15.3*			X_C = *0.62*			Intersection LOS			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*AS*
Agency/Co.	*Philip Habib & Associates*
Date Performed	*8/04/2011*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*So Bridge St & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2011 Existing Conditions*

Project Description *1121A - Charleston*

East/West Street: *South Bridge Street* North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*455*	*234*	*168*	*727*	
Peak-Hour Factor, PHF	*1.00*	*0.91*	*0.91*	*0.91*	*0.91*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*499*	*257*	*184*	*798*	*0*
Percent Heavy Vehicles	*0*	--	--	*6*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration						

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*						
v (veh/h)		*184*						
C (m) (veh/h)		*837*						
v/c		*0.22*						
95% queue length		*0.84*						
Control Delay (s/veh)		*10.5*						
LOS		*B*						
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*Rch Valley Rd & Arthur Kill Rd*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/04/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:15-1:45 PM Peak Pd*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*	*0*	*0*	*1*	
Lane Group					*LR*			*TR*			*LT*	
Volume, V (vph)				*89*		*166*		*523*	*74*	*105*	*622*	
% Heavy Vehicles, %HV				*1*		*1*		*2*	*2*	*2*	*2*	
Peak-Hour Factor, PHF				*0.89*		*0.89*		*0.91*	*0.91*	*0.91*	*0.91*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*	*P*	*P*	*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.940*			*0.789*			*0.272*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width					*12.0*			*15.0*			*15.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B					*0*			*2*			*2*	
Min. Time for Pedestrians, G_p	*11.8*			*11.8*			*14.1*			*3.2*		

Phasing	WB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*287*			*656*			*799*	
Lane Group Capacity, c					*394*			*1133*			*866*	
v/c Ratio, X					*0.73*			*0.58*			*0.92*	
Total Green Ratio, g/C					*0.27*			*0.57*			*0.57*	
Uniform Delay, d_1					*20.0*			*8.4*			*11.8*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*10.6*			*1.7*			*5.8*	
Initial Queue Delay, d_3					*0.0*			*0.0*			*0.0*	

Control Delay					*30.6*			*10.1*			*17.6*	
Lane Group LOS					*C*			*B*			*B*	
Approach Delay				*30.6*			*10.1*			*17.6*		
Approach LOS				*C*			*B*			*B*		
Intersection Delay	*16.9*			X_C = *0.86*			Intersection LOS			*B*		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*Richmond Valley Rd & Page Ave*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/04/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*0*	*1*	*1*	*0*	*0*	*2*	*0*
Lane Group		*LTR*			*LTR*		*L*	*TR*			*LTR*	
Volume, V (vph)	*65*	*31*	*83*	*28*	*53*	*21*	*122*	*670*	*133*	*14*	*530*	*80*
% Heavy Vehicles, %HV	*0*	*0*	*0*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.78*	*0.78*	*0.78*	*0.73*	*0.73*	*0.73*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.533*			*1.000*		*0.561*	*0.561*			*0.957*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*20*
Lane Width		*16.0*			*15.0*		*10.0*	*14.0*			*10.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*
Parking Maneuvers, N_m						*5*						*5*
Buses Stopping, N_B		*0*			*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*16.6*			*21.5*			*16.3*			*21.2*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *31.0*	G =	G =	G =	G = *49.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*229*			*140*		*133*	*873*			*656*	
Lane Group Capacity, c		*585*			*532*		*348*	*1065*			*1483*	
v/c Ratio, X		*0.39*			*0.26*		*0.38*	*0.82*			*0.44*	
Total Green Ratio, g/C		*0.34*			*0.34*		*0.54*	*0.54*			*0.54*	
Uniform Delay, d_1		*22.4*			*21.3*		*11.8*	*16.9*			*12.3*	
Progression Factor, PF		*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2		*1.1*			*1.2*		*1.8*	*4.1*			*0.9*	

Initial Queue Delay, d_3		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay		*23.4*			*22.5*		*13.6*	*21.0*			*13.2*	
Lane Group LOS		*C*			*C*		*B*	*C*			*B*	
Approach Delay	*23.4*			*22.5*			*20.0*			*13.2*		
Approach LOS	*C*			*C*			*B*			*B*		
Intersection Delay	*18.4*			X_C = *0.65*			Intersection LOS			*B*		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*AS*
Agency/Co.	*Philip Habib & Associates*
Date Performed	*8/04/2011*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*S Bridge St RT & Page Ave*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2011 Existing Conditions*

Project Description *1121A - Charleston*

East/West Street: *South Bridge Street Right Turn* | North/South Street: *Page Avenue*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*571*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.92*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*620*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*2*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*53*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.88*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*60*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*5*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								*R*
v (veh/h)								*60*
C (m) (veh/h)								*723*
v/c								*0.08*
95% queue length								*0.27*
Control Delay (s/veh)								*10.4*
LOS								*B*
Approach Delay (s/veh)	--	--				*10.4*		
Approach LOS	--	--				*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*S Br St & Page Ave/Boscome Ave*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/04/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*							*2*			*2*	
Lane Group	*L*							*T*			*T*	
Volume, V (vph)	*349*							*756*			*571*	
% Heavy Vehicles, %HV	*2*							*2*			*3*	
Peak-Hour Factor, PHF	*0.86*							*0.96*			*0.92*	
Pretimed (P) or Actuated (A)	*P*							*P*			*P*	
Start-up Lost Time, l_1	*2.0*							*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*							*2.0*			*2.0*	
Arrival Type, AT	*3*							*3*			*3*	
Unit Extension, UE	*3.0*							*3.0*			*3.0*	
Filtering/Metering, I	*1.000*							*0.567*			*0.957*	
Initial Unmet Demand, Q_b	*0.0*							*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*		*0*	*0*		*0*	*0*	
Lane Width	*16.0*							*14.5*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*							*0*			*0*	
Min. Time for Pedestrians, G_p	*3.2*			*20.1*			*3.2*			*3.2*		

Phasing	EB Only	02	03	04	Thru Only	06	07	08
Timing	G = *30.0*	G =	G =	G =	G = *50.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*406*							*788*			*621*	
Lane Group Capacity, c	*669*							*2134*			*1951*	
v/c Ratio, X	*0.61*							*0.37*			*0.32*	
Total Green Ratio, g/C	*0.33*							*0.56*			*0.56*	
Uniform Delay, d_1	*25.1*							*11.2*			*10.8*	
Progression Factor, PF	*1.000*							*1.000*			*1.000*	
Delay Calibration, k	*0.50*							*0.50*			*0.50*	
Incremental Delay, d_2	*4.1*							*0.3*			*0.4*	
Initial Queue Delay, d_3	*0.0*							*0.0*			*0.0*	

Control Delay	29.1							11.5			11.2	
Lane Group LOS	C							B			B	
Approach Delay	29.1						11.5			11.2		
Approach LOS	C						B			B		
Intersection Delay	15.3			X_C = 0.46			Intersection LOS			B		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*AS*
Agency/Co.	*Philip Habib & Associates*
Date Performed	*8/04/2011*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*KWVP WB OR UT & No Bridge St*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2011 Existing Conditions*

Project Description *1121A - Charleston*

East/West Street: *KWVP WB Off-Ramp U-Turn* North/South Street: *North Bridge Street*

Intersection Orientation: *North-South* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*528*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.93*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*567*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*1*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*207*		
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.90*	*0.90*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*230*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*60*	*1*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*0*
Configuration				*L*		

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration			*L*					
v (veh/h)			*230*					
C (m) (veh/h)			*487*					
v/c			*0.47*					
95% queue length			*2.49*					
Control Delay (s/veh)			*18.8*					
LOS			*C*					
Approach Delay (s/veh)	--	--	*18.8*					
Approach LOS	--	--	*C*					

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*Veterans Rd W & Mohr St/KWVP*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/04/2011*	Jurisdiction	*Sat Flow Rate WB-L =2050*
Time Period	*Saturday 12:45-1:45 PM MD Peak*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*	*0*	*1*	*2*	*0*	*0*	*2*	*0*	*1*	*1*	*0*
Lane Group	*L*	*TR*		*L*	*TR*			*LTR*		*L*	*TR*	
Volume, V (vph)	*92*	*166*	*190*	*246*	*404*	*44*	*101*	*176*	*221*	*41*	*92*	*86*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*3*	*3*	*3*	*1*	*1*	*1*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.93*	*0.93*	*0.93*	*0.94*	*0.78*	*0.78*	*0.90*	*0.90*	*0.90*	*0.84*	*0.84*	*0.84*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*		*2.0*	*2.0*			*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e	*2.0*	*2.0*		*3.0*	*3.0*			*2.0*		*2.0*	*2.0*	
Arrival Type, AT	*3*	*3*		*3*	*3*			*3*		*3*	*3*	
Unit Extension, UE	*3.0*	*3.0*		*3.0*	*3.0*			*3.0*		*3.0*	*3.0*	
Filtering/Metering, I	*0.700*	*0.700*		*0.903*	*0.903*			*1.000*		*0.855*	*0.855*	
Initial Unmet Demand, Q_b	*0.0*	*0.0*		*0.0*	*0.0*			*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*48*	*0*	*0*	*11*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*11.0*	*12.0*		*10.0*	*12.0*			*12.5*		*11.0*	*10.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*		*0*	*0*			*0*		*0*	*0*	
Min. Time for Pedestrians, G_p	*34.6*			*18.6*			*20.3*			*16.1*		

Phasing	EW Perm	02	03	04	NB Only	SB Only	07	08
Timing	G = *30.0*	G =	G =	G =	G = *25.0*	G = *20.0*	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y = *5*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*99*	*331*		*262*	*560*			*554*		*49*	*212*	
Lane Group Capacity, c	*210*	*584*		*249*	*1196*			*935*		*384*	*362*	
v/c Ratio, X	*0.47*	*0.57*		*1.05*	*0.47*			*0.59*		*0.13*	*0.59*	
Total Green Ratio, g/C	*0.33*	*0.33*		*0.34*	*0.34*			*0.28*		*0.22*	*0.22*	
Uniform Delay, d_1	*23.7*	*24.7*		*29.5*	*23.1*			*28.1*		*28.0*	*31.3*	
Progression Factor, PF	*1.000*	*1.000*		*1.000*	*1.000*			*1.000*		*1.000*	*1.000*	
Delay Calibration, k	*0.50*	*0.50*		*0.50*	*0.50*			*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2	*5.2*	*2.8*		*68.6*	*1.2*			*2.8*		*0.6*	*5.8*	

Initial Queue Delay, d_3	*0.0*	*0.0*		*0.0*	*0.0*			*0.0*		*0.0*	*0.0*	
Control Delay	*29.0*	*27.4*		*98.1*	*24.2*			*30.9*		*28.6*	*37.1*	
Lane Group LOS	*C*	*C*		*F*	*C*			*C*		*C*	*D*	
Approach Delay	*27.8*			*47.8*			*30.9*			*35.5*		
Approach LOS	*C*			*D*			*C*			*D*		
Intersection Delay	*37.5*			X_C *= 0.78*			Intersection LOS			*D*		

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*AS*
Agency/Co.	*Philip Habib & Associates*
Date Performed	*8/04/2011*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*Mohr Street & Tyrellan Avenue*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2011 Existing COnditions*

Project ID *1121A - Charleston*

East/West Street: *Mohr Street* | North/South Street: *Tyrellan Avenue*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*185*	*31*	*103*	*166*	*0*
%Thrus Left Lane	*50*			*50*		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*53*	*0*	*88*	*0*	*0*	*0*
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*T*	*TR*	*LT*	*T*	*L*	*R*		
PHF	*0.85*	*0.85*	*0.91*	*0.91*	*0.89*	*0.89*		
Flow Rate (veh/h)	*108*	*145*	*204*	*91*	*59*	*98*		
% Heavy Vehicles	*0*	*0*	*0*	*1*	*1*	*1*		
No. Lanes	*2*		*2*		*2*		*0*	
Geometry Group	*5*		*5*		*1*			
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	*0.0*	*0.0*	*0.6*	*0.0*	*1.0*	*0.0*		
Prop. Right-Turns	*0.0*	*0.2*	*0.0*	*0.0*	*0.0*	*1.0*		
Prop. Heavy Vehicle	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*		
hLT-adj	*0.5*	*0.5*	*0.5*	*0.5*	*0.2*	*0.2*		
hRT-adj	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.6*	*-0.6*		
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*		
hadj, computed	*0.0*	*-0.2*	*0.3*	*0.0*	*0.2*	*-0.6*		

Departure Headway and Service Time

hd, initial value (s)	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*		
x, initial	*0.10*	*0.13*	*0.18*	*0.08*	*0.05*	*0.09*		
hd, final value (s)	*5.19*	*5.02*	*5.42*	*5.16*	*5.36*	*4.56*		
x, final value	*0.16*	*0.20*	*0.31*	*0.13*	*0.09*	*0.12*		
Move-up time, m (s)	*2.3*		*2.3*		*2.0*			
Service Time, t_s (s)	*2.9*	*2.7*	*3.1*	*2.9*	*3.4*	*2.6*		

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*358*	*395*	*454*	*341*	*309*	*348*		
Delay (s/veh)	*8.85*	*8.99*	*10.50*	*8.63*	*8.88*	*8.21*		
LOS	*A*	*A*	*B*	*A*	*A*	*A*		
Approach: Delay (s/veh)	*8.93*		*9.92*		*8.46*			
LOS	*A*		*A*		*A*			
Intersection Delay (s/veh)	*9.24*							
Intersection LOS	*A*							

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*AS*	Intersection	*Veterans Rd W & Tyrellan Ave*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/04/2011*	Jurisdiction	*SFR NB-DefL = 2050*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*
Lane Group		*LTR*			*LTR*		*DefL*	*TR*			*LTR*	
Volume, V (vph)	*76*	*98*	*254*	*120*	*318*	*23*	*220*	*192*	*80*	*24*	*501*	*156*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*1*	*1*	*1*	*1*	*1*	*1*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.78*	*0.78*	*0.78*	*0.94*	*0.91*	*0.91*	*0.93*	*0.93*	*0.93*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.830*			*0.865*		*1.000*	*1.000*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*			*12.0*		*13.0*	*13.0*			*9.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*			*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*18.6*			*16.6*			*20.1*			*19.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*466*			*591*		*234*	*299*			*733*	
Lane Group Capacity, c		*1069*			*1090*		*273*	*826*			*1332*	
v/c Ratio, X		*0.44*			*0.54*		*0.86*	*0.36*			*0.55*	
Total Green Ratio, g/C		*0.44*			*0.44*		*0.44*	*0.44*			*0.44*	
Uniform Delay, d_1		*17.2*			*18.3*		*22.4*	*16.6*			*18.4*	
Progression Factor, PF		*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2		*1.1*			*1.7*		*27.7*	*1.2*			*1.6*	

Initial Queue Delay, d_3		0.0			0.0		0.0	0.0			0.0	
Control Delay		18.3			20.0		50.1	17.8			20.0	
Lane Group LOS		B			B		D	B			C	
Approach Delay	18.3			20.0			32.0			20.0		
Approach LOS	B			B			C			C		
Intersection Delay	22.4			X_C = 0.70			Intersection LOS			C		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*Boscombe Ave & OBX Off-Ramp*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*08/04/2010*	Jurisdiction	*Sat Flw Rate EB-L = 2100*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*			*1*	*1*				*2*		*1*
Lane Group	*L*	*T*			*T*	*R*				*L*		*R*
Volume, V (vph)	*776*	*329*			*378*	*462*				*152*		*193*
% Heavy Vehicles, %HV	*1*	*1*			*1*	*1*				*1*		*1*
Peak-Hour Factor, PHF	*0.97*	*0.96*			*0.94*	*0.97*				*0.92*		*0.92*
Pretimed (P) or Actuated (A)	*P*	*P*			*P*	*P*				*P*		*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*	*2.0*				*2.0*		*2.0*
Extension of Effective Green, e	*3.0*	*2.0*			*2.0*	*2.0*				*2.0*		*2.0*
Arrival Type, AT	*3*	*3*			*3*	*3*				*3*		*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*	*3.0*				*3.0*		*3.0*
Filtering/Metering, I	*0.508*	*0.508*			*0.176*	*0.176*				*1.000*		*1.000*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*	*0.0*				*0.0*		*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*119*	*0*	*0*		*0*	*0*	*0*
Lane Width	*11.0*	*12.0*			*12.0*	*12.0*				*10.0*		*10.0*
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B	*0*	*0*			*0*	*0*				*0*		*0*
Min. Time for Pedestrians, G_p	*14.6*			*24.6*			*3.2*			*20.1*		

Phasing	EB Only	EW Perm	03	04	SB Only	06	07	08
Timing	G = *37.0*	G = *22.0*	G =	G =	G = *16.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*800*	*343*			*402*	*354*				*165*		*210*
Lane Group Capacity, c	*895*	*1170*			*460*	*391*				*576*		*962*
v/c Ratio, X	*0.89*	*0.29*			*0.87*	*0.91*				*0.29*		*0.22*
Total Green Ratio, g/C	*0.72*	*0.71*			*0.24*	*0.24*				*0.18*		*0.64*
Uniform Delay, d_1	*18.9*	*4.7*			*32.7*	*33.0*				*32.1*		*6.6*
Progression Factor, PF	*1.000*	*1.000*			*1.000*	*1.000*				*1.000*		*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*	*0.50*				*0.50*		*0.50*
Incremental Delay, d_2	*7.4*	*0.3*			*4.4*	*6.7*				*1.2*		*0.5*
Initial Queue Delay, d_3	*0.0*	*0.0*			*0.0*	*0.0*				*0.0*		*0.0*

Control Delay	26.3	5.1			37.1	39.7				33.3		7.1
Lane Group LOS	C	A			D	D				C		A
Approach Delay	19.9			38.3						18.7		
Approach LOS	B			D						B		
Intersection Delay	25.8			X_C = 0.82			Intersection LOS			C		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*Boscombe Ave & Tyrellan Ave*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/04/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*1*	*1*
Lane Group	*DefL*	*TR*			*LTR*			*LTR*			*LT*	*R*
Volume, V (vph)	*438*	*43*	*0*	*0*	*43*	*54*	*0*	*0*	*1*	*78*	*0*	*797*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.96*	*0.96*	*0.96*	*0.91*	*0.91*	*0.91*	*0.90*	*0.90*	*0.90*	*0.93*	*0.93*	*0.93*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*			*2.0*			*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*			*2.0*			*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*			*3*			*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*			*3.0*			*3.0*	*3.0*
Filtering/Metering, I	*0.967*	*0.967*			*1.000*			*1.000*			*0.855*	*0.855*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*			*0.0*			*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*14*	*0*	*0*	*0*	*0*	*0*	*398*
Lane Width	*16.0*	*16.0*			*11.5*			*12.0*			*12.0*	*12.0*
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*			*0*			*0*			*0*	*0*
Min. Time for Pedestrians, G_p	*20.3*			*17.5*			*20.3*			*20.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*456*	*45*			*91*			*1*			*84*	*429*
Lane Group Capacity, c	*741*	*1066*			*1634*			*1184*			*548*	*622*
v/c Ratio, X	*0.62*	*0.04*			*0.06*			*0.00*			*0.15*	*0.69*
Total Green Ratio, g/C	*0.50*	*0.50*			*0.50*			*0.39*			*0.39*	*0.39*
Uniform Delay, d_1	*16.3*	*11.5*			*11.6*			*16.8*			*17.9*	*23.0*
Progression Factor, PF	*1.000*	*1.000*			*1.000*			*1.000*			*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*			*0.50*			*0.50*	*0.50*
Incremental Delay, d_2	*3.7*	*0.1*			*0.1*			*0.0*			*0.5*	*5.3*

Initial Queue Delay, d_3	*0.0*	*0.0*			*0.0*			*0.0*			*0.0*	*0.0*
Control Delay	*19.9*	*11.6*			*11.6*			*16.8*			*18.4*	*28.3*
Lane Group LOS	*B*	*B*			*B*			*B*			*B*	*C*
Approach Delay	*19.2*			*11.6*			*16.8*			*26.6*		
Approach LOS	*B*			*B*			*B*			*C*		
Intersection Delay	*22.0*			X_C *= 0.65*			Intersection LOS			*C*		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*AS*	Intersection	*Bricktown Ctr Rd @ Vets Rd W*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/04/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*				*0*	*2*			*2*	*0*
Lane Group	*L*		*R*					*LT*			*TR*	
Volume, V (vph)	*240*		*33*				*5*	*197*			*428*	*443*
% Heavy Vehicles, %HV	*3*		*3*				*1*	*1*			*1*	*1*
Peak-Hour Factor, PHF	*0.85*		*0.85*				*0.88*	*0.88*			*0.89*	*0.89*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*					*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*					*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*					*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*					*3.0*			*3.0*	
Filtering/Metering, I	*0.892*		*0.892*					*0.995*			*0.487*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*					*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*9*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width	*13.0*		*12.0*					*11.5*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*					*0*			*0*	
Min. Time for Pedestrians, G_p	*21.8*			*20.3*			*3.2*			*19.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *19.0*	G =	G =	G =	G = *31.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*282*		*28*					*230*			*979*	
Lane Group Capacity, c	*573*		*497*					*1699*			*1937*	
v/c Ratio, X	*0.49*		*0.06*					*0.14*			*0.51*	
Total Green Ratio, g/C	*0.32*		*0.32*					*0.52*			*0.52*	
Uniform Delay, d_1	*16.6*		*14.3*					*7.5*			*9.5*	
Progression Factor, PF	*1.000*		*1.000*					*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*					*0.50*			*0.50*	
Incremental Delay, d_2	*2.7*		*0.2*					*0.2*			*0.5*	
Initial Queue Delay, d_3	*0.0*		*0.0*					*0.0*			*0.0*	

Control Delay	*19.3*		*14.5*					*7.7*			*9.9*	
Lane Group LOS	*B*		*B*					*A*			*A*	
Approach Delay	*18.8*						*7.7*			*9.9*		
Approach LOS	*B*						*A*			*A*		
Intersection Delay	*11.4*			X_C = *0.50*			Intersection LOS			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*AS*
Agency/Co.	*Philip Habib & Associates*
Date Performed	*8/04/2011*
Analysis Time Period	*Saturday 12-1*

Site Information

Intersection	*Englewood Ave & Vets Rd W RT*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2011 Existing Conditions*

Project Description *1121A - Charleston*

East/West Street: *Englewood Avenue* | North/South Street: *Veterans Rd W Right Turn Bay*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*27*				
Peak-Hour Factor, PHF	*1.00*	*0.69*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*39*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*T*				
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*432*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.88*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*490*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					*R*			
v (veh/h)					*490*			
C (m) (veh/h)					*1038*			
v/c					*0.47*			
95% queue length					*2.58*			
Control Delay (s/veh)					*11.5*			
LOS					*B*			
Approach Delay (s/veh)	--	--	*11.5*					
Approach LOS	--	--	*B*					

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*Englewood Ave @ Veterans Rd W*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/04/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*1*	*1*		*1*			*0*	*3*	*0*
Lane Group		*TR*		*L*	*LT*		*L*				*LTR*	
Volume, V (vph)		*1*	*0*	*658*	*2*		*5*			*26*	*213*	*1*
% Heavy Vehicles, %HV		*1*	*1*	*2*	*2*		*0*			*2*	*2*	*2*
Peak-Hour Factor, PHF		*0.25*	*0.25*	*0.91*	*0.91*		*0.88*			*0.89*	*0.89*	*0.89*
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*			*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Arrival Type, AT		*3*		*3*	*3*		*3*				*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*		*3.0*				*3.0*	
Filtering/Metering, I		*1.000*		*0.971*	*0.971*		*0.951*				*1.000*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*12.0*		*13.0*	*13.0*		*10.0*				*11.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*		*0*	*0*		*0*				*0*	
Min. Time for Pedestrians, G_p	*31.2*			*3.2*			*18.1*			*11.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*4*		*542*	*183*		*6*				*269*	
Lane Group Capacity, c		*784*		*606*	*583*		*428*				*2032*	
v/c Ratio, X		*0.01*		*0.89*	*0.31*		*0.01*				*0.13*	
Total Green Ratio, g/C		*0.42*		*0.42*	*0.42*		*0.42*				*0.42*	
Uniform Delay, d_1		*10.2*		*16.3*	*11.7*		*10.3*				*10.8*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*		*1.000*				*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*		*0.50*				*0.50*	
Incremental Delay, d_2		*0.0*		*17.8*	*1.4*		*0.1*				*0.1*	

Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Control Delay		*10.2*		*34.0*	*13.1*		*10.3*				*10.9*	
Lane Group LOS		*B*		*C*	*B*		*B*				*B*	
Approach Delay	*10.2*			*28.8*			*10.3*			*10.9*		
Approach LOS	*B*			*C*			*B*			*B*		
Intersection Delay	*23.8*			X_C *= 0.51*			Intersection LOS			*C*		

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*AS*
Agency/Co.	*Philip Habib & Associates*
Date Performed	*8/04/2011*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*Sharrotts Rd & Veterans Rd W*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2011 Existing Conditions*

Project ID *1121A - Charleston*

East/West Street: *Sharrotts Road* | North/South Street: *Veterans Road West*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*67*	*33*	*96*	*49*	*0*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*0*	*16*	*111*	*21*
%Thrus Left Lane				*50*		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*TR*		*LT*				*LT*	*TR*
PHF	*0.75*		*0.85*				*0.89*	*0.89*
Flow Rate (veh/h)	*133*		*169*				*78*	*85*
% Heavy Vehicles	*2*		*4*				*0*	*0*
No. Lanes	*1*		*1*		*0*		*2*	
Geometry Group	*2*		*2*				*1*	
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	*0.0*		*0.7*				*0.2*	*0.0*
Prop. Right-Turns	*0.3*		*0.0*				*0.0*	*0.3*
Prop. Heavy Vehicle	*0.0*		*0.0*				*0.0*	*0.0*
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*			*0.2*	*0.2*
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*			*-0.6*	*-0.6*
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*			*1.7*	*1.7*
hadj, computed	*-0.2*		*0.2*				*0.0*	*-0.2*

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value (s)	*3.20*		*3.20*				*3.20*	*3.20*
x, initial	*0.12*		*0.15*				*0.07*	*0.08*
hd, final value (s)	*4.31*		*4.62*				*4.64*	*4.44*
x, final value	*0.16*		*0.22*				*0.10*	*0.10*
Move-up time, m (s)	*2.0*		*2.0*				*2.0*	
Service Time, t_s (s)	*2.3*		*2.6*				*2.6*	*2.4*

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*383*		*419*				*328*	*335*
Delay (s/veh)	*8.12*		*8.89*				*8.16*	*7.96*
LOS	*A*		*A*				*A*	*A*
Approach: Delay (s/veh)	*8.12*		*8.89*				*8.05*	
LOS	*A*		*A*				*A*	
Intersection Delay (s/veh)	*8.38*							
Intersection LOS	*A*							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*AS*
Agency/Co.	*Philip Habib & Associates*
Date Performed	*8/04/2011*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*Sharrotts Rd @ Veterans Rd E*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2011 Existing Conditions*

Project ID *1121A - Charleston*

East/West Street: *Sharrotts Road* | North/South Street: *Veterans Road East*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*24*	*59*	*0*	*0*	*96*	*22*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*49*	*99*	*102*	*0*	*0*	*0*
%Thrus Left Lane	*50*					

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*LT*		*TR*		*LT*	*TR*		
PHF	*0.75*		*0.85*		*0.95*	*0.95*		
Flow Rate (veh/h)	*110*		*137*		*102*	*159*		
% Heavy Vehicles	*2*		*2*		*1*	*1*		
No. Lanes	*1*		*1*		*2*		*0*	
Geometry Group	*2*		*2*		*1*			
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	*0.3*		*0.0*		*0.5*	*0.0*		
Prop. Right-Turns	*0.0*		*0.2*		*0.0*	*0.7*		
Prop. Heavy Vehicle	*0.0*		*0.0*		*0.0*	*0.0*		
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*		
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*		
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*		
hadj, computed	*0.1*		*-0.1*		*0.1*	*-0.4*		

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value (s)	*3.20*		*3.20*		*3.20*	*3.20*		
x, initial	*0.10*		*0.12*		*0.09*	*0.14*		
hd, final value (s)	*4.71*		*4.51*		*4.61*	*4.10*		
x, final value	*0.14*		*0.17*		*0.13*	*0.18*		
Move-up time, m (s)	*2.0*		*2.0*		*2.0*			
Service Time, t_s (s)	*2.7*		*2.5*		*2.6*	*2.1*		

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*360*		*387*		*352*	*409*		
Delay (s/veh)	*8.50*		*8.45*		*8.30*	*8.01*		
LOS	*A*		*A*		*A*	*A*		
Approach: Delay (s/veh)	*8.50*		*8.45*		*8.12*			
LOS	*A*		*A*		*A*			
Intersection Delay (s/veh)	*8.29*							
Intersection LOS	*A*							

HCS+™ Version 5.4 Generated: 4/10/2013 11:39 AM

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*AS*	Intersection	*Englewood Ave @ Vets Rd E*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/04/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*3*	*0*			
Lane Group		*LT*	*R*		*LTR*			*LTR*				
Volume, V (vph)	*175*	*152*	*132*	*0*	*59*	*14*	*601*	*61*	*3*			
% Heavy Vehicles, %HV	*1*	*1*	*1*	*0*	*0*	*0*	*2*	*2*	*2*			
Peak-Hour Factor, PHF	*0.75*	*0.75*	*0.75*	*0.83*	*0.83*	*0.83*	*0.93*	*0.93*	*0.93*			
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*			
Start-up Lost Time, l_1		*2.0*	*2.0*		*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*	*2.0*		*2.0*			*2.0*				
Arrival Type, AT		*3*	*3*		*3*			*3*				
Unit Extension, UE		*3.0*	*3.0*		*3.0*			*3.0*				
Filtering/Metering, I		*0.997*	*0.997*		*0.993*			*0.967*				
Initial Unmet Demand, Q_b		*0.0*	*0.0*		*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*66*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width		*13.0*	*12.0*		*11.5*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B		*0*	*0*		*0*			*0*				
Min. Time for Pedestrians, G_p	*21.2*			*12.9*			*14.3*			*17.5*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *21.0*	G =	G =	G =	G = *29.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*436*	*88*		*88*			*715*				
Lane Group Capacity, c		*534*	*560*		*557*			*2267*				
v/c Ratio, X		*0.82*	*0.16*		*0.16*			*0.32*				
Total Green Ratio, g/C		*0.35*	*0.35*		*0.35*			*0.48*				
Uniform Delay, d_1		*17.7*	*13.4*		*13.4*			*9.4*				
Progression Factor, PF		*1.000*	*1.000*		*1.000*			*1.000*				
Delay Calibration, k		*0.50*	*0.50*		*0.50*			*0.50*				
Incremental Delay, d_2		*12.9*	*0.6*		*0.6*			*0.4*				

Initial Queue Delay, d_3		*0.0*	*0.0*		*0.0*			*0.0*				
Control Delay		*30.7*	*14.0*		*14.0*			*9.8*				
Lane Group LOS		*C*	*B*		*B*			*A*				
Approach Delay	*27.9*			*14.0*			*9.8*					
Approach LOS	*C*			*B*			*A*					
Intersection Delay	*17.2*			X_C = *0.53*			Intersection LOS			*B*		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*Englewood Av & Bloomingdale Rd*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/04/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*103*		*52*				*16*	*366*			*344*	*57*
% Heavy Vehicles, %HV	*1*		*1*				*1*	*1*			*1*	*1*
Peak-Hour Factor, PHF	*0.92*		*0.92*				*0.92*	*0.92*			*0.91*	*0.91*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.937*						*0.937*			*0.937*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*16.0*						*14.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B		*0*						*0*			*0*	
Min. Time for Pedestrians, G_p	*14.9*			*15.5*			*3.2*			*17.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*169*						*415*			*441*	
Lane Group Capacity, c		*459*						*1113*			*1185*	
v/c Ratio, X		*0.37*						*0.37*			*0.37*	
Total Green Ratio, g/C		*0.27*						*0.57*			*0.57*	
Uniform Delay, d_1		*17.9*						*7.1*			*7.1*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*2.1*						*0.9*			*0.8*	
Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	

Control Delay		20.0						8.0			8.0	
Lane Group LOS		C						A			A	
Approach Delay	20.0						8.0			8.0		
Approach LOS	C						A			A		
Intersection Delay	10.0			X_C = 0.37			Intersection LOS			A		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*Sharrotts Rd & Bloomingdale Rd*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/04/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*99*		*62*				*40*	*369*			*348*	*78*
% Heavy Vehicles, %HV	*1*		*1*				*1*	*1*			*1*	*1*
Peak-Hour Factor, PHF	*0.75*		*0.75*				*0.92*	*0.92*			*0.91*	*0.91*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.932*						*0.850*			*0.905*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*20*
Lane Width		*16.0*						*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*0*			*0*	
Min. Time for Pedestrians, G_p	*18.6*			*18.6*			*3.2*			*16.6*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*215*						*444*			*446*	
Lane Group Capacity, c		*572*						*869*			*1046*	
v/c Ratio, X		*0.38*						*0.51*			*0.43*	
Total Green Ratio, g/C		*0.33*						*0.50*			*0.50*	
Uniform Delay, d_1		*15.2*						*10.1*			*9.5*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*1.8*						*1.8*			*1.2*	
Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	

Control Delay		17.0						11.9			10.7	
Lane Group LOS		B						B			B	
Approach Delay	17.0						11.9			10.7		
Approach LOS	B						B			B		
Intersection Delay	12.4			X_C = 0.46			Intersection LOS			B		

 HCS+™ Version 5.4 Generated: 4/10/2013 11:40 AM

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*AS*	Intersection	*Vets Rd E & Bloomingdale Rd*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/04/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*	*0*	*3*	*0*	*1*	*1*			*1*	*0*
Lane Group	*L*		*R*		*LTR*		*L*	*T*			*TR*	
Volume, V (vph)	*18*		*114*	*258*	*573*	*161*	*76*	*203*			*380*	*16*
% Heavy Vehicles, %HV	*1*		*1*	*2*	*2*	*2*	*2*	*2*			*1*	*1*
Peak-Hour Factor, PHF	*0.71*		*0.71*	*0.87*	*0.87*	*0.87*	*0.92*	*0.92*			*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*		*P*	*P*	*P*	*P*	*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*		*3*		*3*	*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*		*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I	*0.717*		*0.717*		*0.483*		*0.917*	*0.917*			*0.747*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Lane Width	*10.0*		*13.0*		*11.0*		*12.0*	*12.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*		*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*17.2*			*16.9*			*3.2*			*20.9*		

Phasing	EB Only	WB Only	03	04	NS Perm	06	07	08
Timing	G = *8.0*	G = *17.0*	G =	G =	G = *20.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*25*		*161*		*1141*		*83*	*221*			*440*	
Lane Group Capacity, c	*222*		*220*		*1338*		*163*	*621*			*707*	
v/c Ratio, X	*0.11*		*0.73*		*0.85*		*0.51*	*0.36*			*0.62*	
Total Green Ratio, g/C	*0.13*		*0.13*		*0.28*		*0.33*	*0.33*			*0.33*	
Uniform Delay, d_1	*22.9*		*25.0*		*20.3*		*16.1*	*15.1*			*16.8*	
Progression Factor, PF	*1.000*		*1.000*		*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*		*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2	*0.7*		*14.3*		*3.6*		*10.0*	*1.5*			*3.1*	

Initial Queue Delay, d_3	0.0		0.0		0.0		0.0	0.0			0.0	
Control Delay	23.6		39.3		23.9		26.1	16.6			19.9	
Lane Group LOS	C		D		C		C	B			B	
Approach Delay	37.2				23.9			19.2			19.9	
Approach LOS	D				C			B			B	
Intersection Delay	23.5				X_C = 0.73			Intersection LOS			C	

 HCS+™ Version 5.4 Generated: 4/10/2013 11:41 AM

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*AS*	Intersection	*S Service Rd & Bloomingdale Rd*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/04/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*				*0*	*1*	*0*	*1*	*1*	*0*
Lane Group		*LTR*						*LTR*		*L*	*TR*	
Volume, V (vph)	*29*	*31*	*5*				*3*	*250*	*137*	*293*	*415*	*44*
% Heavy Vehicles, %HV	*2*	*2*	*2*				*2*	*2*	*2*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.76*	*0.76*	*0.76*				*0.92*	*0.92*	*0.92*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*				*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*		*2.0*	*2.0*	
Arrival Type, AT		*3*						*3*		*3*	*3*	
Unit Extension, UE		*3.0*						*3.0*		*3.0*	*3.0*	
Filtering/Metering, I		*1.000*						*0.899*		*0.644*	*0.644*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*11*
Lane Width		*13.0*						*16.0*		*12.0*	*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*0*		*0*	*0*	
Min. Time for Pedestrians, G_p	*17.5*			*16.9*			*12.6*			*12.9*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *17.0*	G =	G =	G =	G = *33.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*86*						*424*		*326*	*498*	
Lane Group Capacity, c		*462*						*966*		*525*	*1023*	
v/c Ratio, X		*0.19*						*0.44*		*0.62*	*0.49*	
Total Green Ratio, g/C		*0.28*						*0.55*		*0.55*	*0.55*	
Uniform Delay, d_1		*16.3*						*8.0*		*9.2*	*8.3*	
Progression Factor, PF		*1.000*						*1.000*		*1.000*	*1.000*	
Delay Calibration, k		*0.50*						*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2		*0.9*						*1.3*		*3.5*	*1.1*	

Initial Queue Delay, d_3		*0.0*						*0.0*		*0.0*	*0.0*	
Control Delay		*17.2*						*9.3*		*12.8*	*9.4*	
Lane Group LOS		*B*						*A*		*B*	*A*	
Approach Delay	*17.2*						*9.3*			*10.7*		
Approach LOS	*B*						*A*			*B*		
Intersection Delay	*10.7*			X_C = *0.47*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*Amboy Rd & Bloomingdale Ave*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/04/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*1*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*		*L*	*T*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*7*	*7*	*17*	*273*	*17*	*98*	*12*	*245*	*225*	*80*	*327*	*7*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*1*	*1*	*1*	*0*	*0*	*0*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.84*	*0.84*	*0.84*	*0.90*	*0.90*	*0.90*	*0.92*	*0.92*	*0.92*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*		*3*	*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*		*0.887*	*0.887*	*0.887*		*0.516*			*0.500*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*50*	*0*	*0*	*0*	*0*	*0*	*50*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*		*12.0*	*11.0*	*11.0*		*11.0*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*		*0*	*0*	*0*		*0*			*0*	
Min. Time for Pedestrians, G_p	*11.5*			*11.8*			*18.9*			*18.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*36*		*303*	*19*	*109*		*524*			*460*	
Lane Group Capacity, c		*630*		*581*	*808*	*601*		*735*			*642*	
v/c Ratio, X		*0.06*		*0.52*	*0.02*	*0.18*		*0.71*			*0.72*	
Total Green Ratio, g/C		*0.44*		*0.44*	*0.44*	*0.44*		*0.44*			*0.44*	
Uniform Delay, d_1		*14.3*		*18.1*	*14.0*	*15.1*		*20.3*			*20.4*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*	*0.50*		*0.50*			*0.50*	
Incremental Delay, d_2		*0.2*		*3.0*	*0.0*	*0.6*		*3.1*			*3.4*	

Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Control Delay		*14.4*		*21.0*	*14.1*	*15.7*		*23.4*			*23.8*	
Lane Group LOS		*B*		*C*	*B*	*B*		*C*			*C*	
Approach Delay	*14.4*			*19.4*			*23.4*			*23.8*		
Approach LOS	*B*			*B*			*C*			*C*		
Intersection Delay	*22.1*			X_C = *0.62*			Intersection LOS			*C*		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*AS*	Intersection	*Arthur Kill Rd & Bloomingdl Rd*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*8/04/2011*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2011 Existing Conditions*
		Project ID	*1121A - Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*0*	*1*		*0*		*0*			
Lane Group		*TR*			*LT*			*LR*				
Volume, V (vph)		*127*	*223*	*28*	*115*		*141*		*20*			
% Heavy Vehicles, %HV		*2*	*2*	*4*	*4*		*1*		*1*			
Peak-Hour Factor, PHF		*0.78*	*0.78*	*0.89*	*0.89*		*0.85*		*0.85*			
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*		*P*			
Start-up Lost Time, l_1		*2.0*			*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*			*2.0*			*2.0*				
Arrival Type, AT		*3*			*3*			*3*				
Unit Extension, UE		*3.0*			*3.0*			*3.0*				
Filtering/Metering, I		*0.927*			*0.992*			*0.953*				
Initial Unmet Demand, Q_b		*0.0*			*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*56*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	
Lane Width		*16.0*			*16.0*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m									*5*			
Buses Stopping, N_B		*2*			*0*			*0*				
Min. Time for Pedestrians, G_p	*18.3*			*3.2*			*15.2*			*17.2*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*377*			*160*			*190*				
Lane Group Capacity, c		*967*			*927*			*583*				
v/c Ratio, X		*0.39*			*0.17*			*0.33*				
Total Green Ratio, g/C		*0.50*			*0.50*			*0.39*				
Uniform Delay, d_1		*14.0*			*12.3*			*19.2*				
Progression Factor, PF		*1.000*			*1.000*			*1.000*				
Delay Calibration, k		*0.50*			*0.50*			*0.50*				
Incremental Delay, d_2		*1.1*			*0.4*			*1.4*				
Initial Queue Delay, d_3		*0.0*			*0.0*			*0.0*				

Control Delay		15.1			12.7			20.7				
Lane Group LOS		B			B			C				
Approach Delay	15.1			12.7			20.7					
Approach LOS	B			B			C					
Intersection Delay	16.0			X_C = 0.36			Intersection LOS			B		

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No-Action

2015

Weekday

AM

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*Sharrotts Rd & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 No-Action Conditions*

Project Description *Charlestone EIS*

East/West Street: *Sharrotts Road* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*35*	*196*	*35*	*31*	*205*	*22*
Peak-Hour Factor, PHF	*0.85*	*0.85*	*0.85*	*0.91*	*0.91*	*0.91*
Hourly Flow Rate, HFR (veh/h)	*41*	*230*	*41*	*34*	*225*	*24*
Percent Heavy Vehicles	*8*	--	--	*18*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*23*	*17*	*37*	*34*	*19*	*24*
Peak-Hour Factor, PHF	*0.78*	*0.78*	*0.78*	*0.88*	*0.88*	*0.88*
Hourly Flow Rate, HFR (veh/h)	*29*	*21*	*47*	*38*	*21*	*27*
Percent Heavy Vehicles	*1*	*1*	*1*	*10*	*10*	*10*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (veh/h)	*41*	*34*		*86*			*97*	
C (m) (veh/h)	*1282*	*1205*		*393*			*473*	
v/c	*0.03*	*0.03*		*0.22*			*0.21*	
95% queue length	*0.10*	*0.09*		*0.82*			*0.76*	
Control Delay (s/veh)	*7.9*	*8.1*		*16.7*			*14.6*	
LOS	*A*	*A*		*C*			*B*	
Approach Delay (s/veh)	--	--	*16.7*			*14.6*		
Approach LOS	--	--	*C*			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Weekday 12-1 MD Peak Period*

Site Information

Intersection	*Englewood Ave & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*252*	*18*	*19*	*258*	
Peak-Hour Factor, PHF	*1.00*	*0.85*	*0.85*	*0.91*	*0.91*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*296*	*21*	*20*	*283*	*0*
Percent Heavy Vehicles	*0*	--	--	*15*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*43*		*15*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.94*	*1.00*	*0.94*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*45*	*0*	*15*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (veh/h)		*20*		*60*				
C (m) (veh/h)		*1173*		*490*				
v/c		*0.02*		*0.12*				
95% queue length		*0.05*		*0.42*				
Control Delay (s/veh)		*8.1*		*13.4*				
LOS		*A*		*B*				
Approach Delay (s/veh)	--	--	*13.4*					
Approach LOS	--	--	*B*					

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*			*LT*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*1*	*17*	*6*	*206*	*23*	*358*	*1*	*140*	*228*	*126*	*174*	*1*
% Heavy Vehicles, %HV	*4*	*4*	*4*	*6*	*6*	*6*	*11*	*11*	*11*	*7*	*7*	*7*
Peak-Hour Factor, PHF	*0.84*	*0.84*	*0.84*	*0.90*	*0.90*	*0.90*	*0.92*	*0.92*	*0.92*	*0.86*	*0.86*	*0.86*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*			*0.887*	*0.887*		*0.931*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*15.5*			*11.0*	*10.0*		*15.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*			*0*	*0*		*3*			*4*	
Min. Time for Pedestrians, G_p	*11.5*			*13.5*			*15.2*			*12.1*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*28*			*255*	*398*		*401*			*350*	
Lane Group Capacity, c		*714*			*525*	*518*		*710*			*538*	
v/c Ratio, X		*0.04*			*0.49*	*0.77*		*0.56*			*0.65*	
Total Green Ratio, g/C		*0.42*			*0.42*	*0.42*		*0.42*			*0.42*	
Uniform Delay, d_1		*10.4*			*12.8*	*15.0*		*13.3*			*14.0*	
Progression Factor, PF		*1.000*			*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*	*0.50*		*0.50*			*0.50*	
Incremental Delay, d_2		*0.1*			*2.8*	*9.4*		*3.0*			*6.0*	

Initial Queue Delay, d_3		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Control Delay		*10.5*			*15.6*	*24.4*		*16.4*			*20.0*	
Lane Group LOS		*B*			*B*	*C*		*B*			*C*	
Approach Delay	*10.5*			*21.0*			*16.4*			*20.0*		
Approach LOS	*B*			*C*			*B*			*C*		
Intersection Delay	*19.2*			X_C = *0.71*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*No Bridge St & Arthur Kill Rd*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*			*1*	
Lane Group					*LR*			*T*			*T*	
Volume, V (vph)				*347*		*3*		*365*			*387*	
% Heavy Vehicles, %HV				*6*		*6*		*11*			*12*	
Peak-Hour Factor, PHF				*0.88*		*0.88*		*0.92*			*0.86*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*			*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.858*			*0.858*			*0.567*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	
Lane Width					*16.0*			*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B					*0*			*0*			*4*	
Min. Time for Pedestrians, G_p	*13.5*			*13.8*			*3.2*			*3.2*		

Phasing	WB Only	02	03	04	Thru Only	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*397*			*397*			*450*	
Lane Group Capacity, c					*644*			*970*			*946*	
v/c Ratio, X					*0.62*			*0.41*			*0.48*	
Total Green Ratio, g/C					*0.33*			*0.50*			*0.50*	
Uniform Delay, d_1					*16.8*			*9.4*			*9.8*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*3.8*			*1.1*			*1.0*	
Initial Queue Delay, d_3					*0.0*			*0.0*			*0.0*	

Control Delay					*20.6*			*10.5*			*10.8*	
Lane Group LOS					*C*			*B*			*B*	
Approach Delay				*20.6*			*10.5*			*10.8*		
Approach LOS				*C*			*B*			*B*		
Intersection Delay	*13.8*			X_C = *0.53*			Intersection LOS			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*So Bridge St & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *South Bridge Street* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*365*	*234*	*136*	*596*	
Peak-Hour Factor, PHF	*1.00*	*0.92*	*0.92*	*0.86*	*0.86*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*396*	*254*	*158*	*693*	*0*
Percent Heavy Vehicles	*0*	--	--	*16*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration						

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*						
v (veh/h)		*158*						
C (m) (veh/h)		*873*						
v/c		*0.18*						
95% queue length		*0.66*						
Control Delay (s/veh)		*10.0*						
LOS		*B*						
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Rch Valley Rd & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*	*0*	*0*	*1*	
Lane Group					*LR*			*TR*			*LT*	
Volume, V (vph)				*97*		*178*		*410*	*77*	*169*	*410*	
% Heavy Vehicles, %HV				*3*		*3*		*8*	*8*	*6*	*6*	
Peak-Hour Factor, PHF				*0.87*		*0.87*		*0.92*	*0.92*	*0.86*	*0.86*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*	*P*	*P*	*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.944*			*0.880*			*0.500*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width					*12.0*			*15.0*			*15.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B					*0*			*4*			*4*	
Min. Time for Pedestrians, G_p	*11.8*			*11.8*			*14.1*			*3.2*		

Phasing	WB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*316*			*530*			*674*	
Lane Group Capacity, c					*386*			*1056*			*670*	
v/c Ratio, X					*0.82*			*0.50*			*1.01*	
Total Green Ratio, g/C					*0.27*			*0.57*			*0.57*	
Uniform Delay, d_1					*20.6*			*7.9*			*13.0*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*16.5*			*1.5*			*26.0*	
Initial Queue Delay, d_3					*0.0*			*0.0*			*0.0*	

Control Delay					*37.2*			*9.4*			*39.0*	
Lane Group LOS					*D*			*A*			*D*	
Approach Delay				*37.2*			*9.4*			*39.0*		
Approach LOS				*D*			*A*			*D*		
Intersection Delay	*28.3*			X_C = *0.95*			Intersection LOS			*C*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Richmond Valley Rd & Page Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*0*	*1*	*1*	*0*	*0*	*2*	*0*
Lane Group		*LTR*			*LTR*		*L*	*TR*			*LTR*	
Volume, V (vph)	*141*	*63*	*73*	*36*	*172*	*43*	*83*	*551*	*131*	*95*	*438*	*67*
% Heavy Vehicles, %HV	*3*	*3*	*3*	*2*	*2*	*2*	*2*	*2*	*2*	*6*	*6*	*6*
Peak-Hour Factor, PHF	*0.86*	*0.86*	*0.86*	*0.92*	*0.92*	*0.92*	*0.91*	*0.91*	*0.91*	*0.89*	*0.89*	*0.89*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.649*			*1.000*		*0.732*	*0.732*			*0.973*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*14*
Lane Width		*16.0*			*15.0*		*10.0*	*14.0*			*10.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*
Parking Maneuvers, N_m						*5*						*5*
Buses Stopping, N_B		*0*			*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*16.6*			*21.5*			*16.3*			*21.2*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *31.0*	G =	G =	G =	G = *49.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*322*			*273*		*91*	*749*			*659*	
Lane Group Capacity, c		*439*			*556*		*344*	*1051*			*977*	
v/c Ratio, X		*0.73*			*0.49*		*0.26*	*0.71*			*0.67*	
Total Green Ratio, g/C		*0.34*			*0.34*		*0.54*	*0.54*			*0.54*	
Uniform Delay, d_1		*25.9*			*23.3*		*10.9*	*15.3*			*14.8*	
Progression Factor, PF		*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2		*6.9*			*3.1*		*1.4*	*3.0*			*3.6*	

Initial Queue Delay, d_3		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay		*32.8*			*26.4*		*12.3*	*18.3*			*18.4*	
Lane Group LOS		*C*			*C*		*B*	*B*			*B*	
Approach Delay	*32.8*			*26.4*			*17.6*			*18.4*		
Approach LOS	*C*			*C*			*B*			*B*		
Intersection Delay	*21.3*			X_C *= 0.72*			Intersection LOS			*C*		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*S Bridge St RT & Page Ave*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *South Bridge Street Right Turn* | North/South Street: *Page Avenue*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*512*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.89*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*575*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*2*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*87*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.84*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*103*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*29*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								*R*
v (veh/h)								*103*
C (m) (veh/h)								*691*
v/c								*0.15*
95% queue length								*0.52*
Control Delay (s/veh)								*11.1*
LOS								*B*
Approach Delay (s/veh)	--	--				*11.1*		
Approach LOS	--	--				*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*S Br St & Page Ave/Boscome Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*							*2*			*2*	
Lane Group	*L*							*T*			*T*	
Volume, V (vph)	*283*							*735*			*512*	
% Heavy Vehicles, %HV	*3*							*2*			*3*	
Peak-Hour Factor, PHF	*0.88*							*0.91*			*0.89*	
Pretimed (P) or Actuated (A)	*P*							*P*			*P*	
Start-up Lost Time, l_1	*2.0*							*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*							*2.0*			*2.0*	
Arrival Type, AT	*3*							*3*			*3*	
Unit Extension, UE	*3.0*							*3.0*			*3.0*	
Filtering/Metering, I	*1.000*							*0.738*			*0.973*	
Initial Unmet Demand, Q_b	*0.0*							*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*		*0*	*0*		*0*	*0*	
Lane Width	*16.0*							*14.5*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*							*0*			*0*	
Min. Time for Pedestrians, G_p	*3.2*			*20.1*			*3.2*			*3.2*		

Phasing	EB Only	02	03	04	Thru Only	06	07	08
Timing	G = *30.0*	G =	G =	G =	G = *50.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*322*							*808*			*575*	
Lane Group Capacity, c	*662*							*2134*			*1951*	
v/c Ratio, X	*0.49*							*0.38*			*0.29*	
Total Green Ratio, g/C	*0.33*							*0.56*			*0.56*	
Uniform Delay, d_1	*23.9*							*11.3*			*10.6*	
Progression Factor, PF	*1.000*							*1.000*			*1.000*	
Delay Calibration, k	*0.50*							*0.50*			*0.50*	
Incremental Delay, d_2	*2.5*							*0.4*			*0.4*	
Initial Queue Delay, d_3	*0.0*							*0.0*			*0.0*	

Control Delay	26.4							11.6			11.0	
Lane Group LOS	C							B			B	
Approach Delay	26.4						11.6			11.0		
Approach LOS	C						B			B		
Intersection Delay	14.2			X_C = 0.42			Intersection LOS			B		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/25/2012*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*KWVP WB OR UT & No Bridge St*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *KWVP WB Off-Ramp U-Turn* | North/South Street: *North Bridge Street*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*362*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.87*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*416*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*1*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*182*		
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.90*	*0.93*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*195*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*60*	*4*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*0*
Configuration				*L*		

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration			*L*					
v (veh/h)			*195*					
C (m) (veh/h)			*589*					
v/c			*0.33*					
95% queue length			*1.44*					
Control Delay (s/veh)			*14.1*					
LOS			*B*					
Approach Delay (s/veh)	--	--	*14.1*					
Approach LOS	--	--	*B*					

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Bricktow/KWVP*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*	*0*	*1*	*2*	*0*	*0*	*2*	*0*	*1*	*1*	*0*
Lane Group	*L*	*TR*		*L*	*TR*			*LTR*		*L*	*TR*	
Volume, V (vph)	*91*	*144*	*135*	*187*	*462*	*54*	*86*	*117*	*305*	*47*	*40*	*39*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*6*	*6*	*6*	*4*	*4*	*4*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.84*	*0.84*	*0.84*	*0.90*	*0.90*	*0.90*	*0.93*	*0.93*	*0.93*	*0.80*	*0.80*	*0.80*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*		*2.0*	*2.0*			*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e	*2.0*	*2.0*		*2.0*	*2.0*			*2.0*		*2.0*	*2.0*	
Arrival Type, AT	*3*	*3*		*3*	*3*			*3*		*3*	*3*	
Unit Extension, UE	*3.0*	*3.0*		*3.0*	*3.0*			*3.0*		*3.0*	*3.0*	
Filtering/Metering, I	*0.856*	*0.856*		*0.927*	*0.927*			*1.000*		*0.985*	*0.985*	
Initial Unmet Demand, Q_b	*0.0*	*0.0*		*0.0*	*0.0*			*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*32*	*0*	*0*	*13*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*11.0*	*12.0*		*10.0*	*12.0*			*12.5*		*11.0*	*10.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*		*0*	*0*			*0*		*0*	*0*	
Min. Time for Pedestrians, G_p	*34.6*			*18.6*			*20.3*			*16.1*		

Phasing	EW Perm	02	03	04	NB Only	SB Only	07	08
Timing	G = *30.0*	G =	G =	G =	G = *25.0*	G = *20.0*	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y = *5*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*108*	*294*		*208*	*559*			*546*		*59*	*99*	
Lane Group Capacity, c	*209*	*588*		*251*	*1124*			*886*		*380*	*358*	
v/c Ratio, X	*0.52*	*0.50*		*0.83*	*0.50*			*0.62*		*0.16*	*0.28*	
Total Green Ratio, g/C	*0.33*	*0.33*		*0.33*	*0.33*			*0.28*		*0.22*	*0.22*	
Uniform Delay, d_1	*24.2*	*24.0*		*27.6*	*24.0*			*28.3*		*28.2*	*29.0*	
Progression Factor, PF	*1.000*	*1.000*		*1.000*	*1.000*			*1.000*		*1.000*	*1.000*	
Delay Calibration, k	*0.50*	*0.50*		*0.50*	*0.50*			*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2	*7.6*	*2.6*		*24.4*	*1.5*			*3.2*		*0.9*	*1.9*	

Initial Queue Delay, d_3	*0.0*	*0.0*		*0.0*	*0.0*			*0.0*		*0.0*	*0.0*	
Control Delay	*31.8*	*26.6*		*52.1*	*25.4*			*31.5*		*29.1*	*30.9*	
Lane Group LOS	*C*	*C*		*D*	*C*			*C*		*C*	*C*	
Approach Delay	*28.0*			*32.7*			*31.5*			*30.2*		
Approach LOS	*C*			*C*			*C*			*C*		
Intersection Delay	*31.1*			X_C *= 0.61*			Intersection LOS			*C*		

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/25/2012*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*Bricktown Way/Tyrellan Avenue*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 No-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Bricktown Way* | North/South Street: *Tyrellan Avenue*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*85*	*31*	*126*	*89*	*0*
%Thrus Left Lane	*50*			*50*		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*39*	*0*	*40*	*0*	*0*	*0*
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*T*	*TR*	*LT*	*T*	*L*	*R*		
PHF	*0.88*	*0.88*	*0.90*	*0.90*	*0.78*	*0.78*		
Flow Rate (veh/h)	*47*	*83*	*188*	*50*	*50*	*51*		
% Heavy Vehicles	*42*	*42*	*4*	*4*	*3*	*3*		
No. Lanes	*2*		*2*		*2*		*0*	
Geometry Group	*5*		*5*		*1*			
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	*0.0*	*0.0*	*0.7*	*0.0*	*1.0*	*0.0*		
Prop. Right-Turns	*0.0*	*0.4*	*0.0*	*0.0*	*0.0*	*1.0*		
Prop. Heavy Vehicle	*0.4*	*0.4*	*0.0*	*0.0*	*0.0*	*0.0*		
hLT-adj	*0.5*	*0.5*	*0.5*	*0.5*	*0.2*	*0.2*		
hRT-adj	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.6*	*-0.6*		
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*		
hadj, computed	*0.7*	*0.4*	*0.4*	*0.1*	*0.3*	*-0.5*		

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value (s)	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*		
x, initial	*0.04*	*0.07*	*0.17*	*0.04*	*0.04*	*0.05*		
hd, final value (s)	*5.68*	*5.38*	*5.31*	*4.94*	*5.05*	*4.25*		
x, final value	*0.07*	*0.12*	*0.28*	*0.07*	*0.07*	*0.06*		
Move-up time, m (s)	*2.3*		*2.3*		*2.0*			
Service Time, t_s (s)	*3.4*	*3.1*	*3.0*	*2.6*	*3.1*	*2.3*		

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*297*	*333*	*438*	*300*	*300*	*301*		
Delay (s/veh)	*8.83*	*8.84*	*10.04*	*8.00*	*8.43*	*7.53*		
LOS	*A*	*A*	*B*	*A*	*A*	*A*		
Approach: Delay (s/veh)	*8.84*		*9.61*		*7.97*			
LOS	*A*		*A*		*A*			
Intersection Delay (s/veh)	*9.04*							
Intersection LOS	*A*							

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/25/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*
Lane Group		*LTR*			*LTR*		*DefL*	*TR*			*LTR*	
Volume, V (vph)	*60*	*101*	*307*	*130*	*266*	*18*	*226*	*151*	*86*	*22*	*302*	*219*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*3*	*3*	*3*	*3*	*3*	*3*	*12*	*12*	*12*
Peak-Hour Factor, PHF	*0.84*	*0.84*	*0.84*	*0.90*	*0.90*	*0.90*	*0.87*	*0.87*	*0.87*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.889*			*0.932*		*1.000*	*1.000*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*			*12.0*		*13.0*	*13.0*			*9.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*			*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*18.6*			*16.6*			*20.1*			*19.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*556*			*460*		*260*	*273*			*603*	
Lane Group Capacity, c		*1177*			*980*		*308*	*801*			*1156*	
v/c Ratio, X		*0.47*			*0.47*		*0.84*	*0.34*			*0.52*	
Total Green Ratio, g/C		*0.44*			*0.44*		*0.44*	*0.44*			*0.44*	
Uniform Delay, d_1		*17.6*			*17.6*		*22.2*	*16.4*			*18.1*	
Progression Factor, PF		*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2		*1.2*			*1.5*		*23.7*	*1.2*			*1.7*	

Initial Queue Delay, d_3		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay		*18.8*			*19.1*		*45.9*	*17.5*			*19.8*	
Lane Group LOS		*B*			*B*		*D*	*B*			*B*	
Approach Delay	*18.8*			*19.1*			*31.4*			*19.8*		
Approach LOS	*B*			*B*			*C*			*B*		
Intersection Delay	*22.2*			X_C *= 0.66*			Intersection LOS			*C*		

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	KM	Intersection	Boscombe Ave & OBX Off-Ramp
Agency or Co.	AECOM	Area Type	All other areas
Date Performed	10/24/2012	Jurisdiction	Staten Island, NY
Time Period	Weekday 12-1 PM MD Peak Period	Analysis Year	2015 No-Action Conditions
		Project ID	Charleston EIS

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	1	1	0	0	1	1	0	1	0	1	1	1
Lane Group	L	TR			LT	R		LTR		L	LT	R
Volume, V (vph)	658	357	3	1	382	375	0	0	1	78	0	130
% Heavy Vehicles, %HV	2	2	2	3	3	3	0	0	1	2	2	2
Peak-Hour Factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.25	0.25	0.25	0.97	0.97	0.97
Pretimed (P) or Actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up Lost Time, l_1	2.0	2.0			2.0	2.0		2.0		2.0	2.0	2.0
Extension of Effective Green, e	2.0	2.0			2.0	2.0		2.0		2.0	2.0	2.0
Arrival Type, AT	3	3			3	3		3		3	3	3
Unit Extension, UE	3.0	3.0			3.0	3.0		3.0		3.0	3.0	3.0
Filtering/Metering, I	0.735	0.735			0.546	0.546		1.000		1.000	1.000	1.000
Initial Unmet Demand, Q_b	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Ped / Bike / RTOR Volumes	0	0	0	0	0	85	0	0	0	0	0	0
Lane Width	11.0	12.0			12.0	12.0		16.0		10.0	11.0	10.0
Parking / Grade / Parking	N	0	Y	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N_m			5									
Buses Stopping, N_B	0	0			0	0		0		0	0	0
Min. Time for Pedestrians, G_p	14.6			24.6			20.9			20.1		

Phasing	EB Only	EW Perm	03	04	NS Perm	06	07	08
Timing	G = 37.0	G = 22.0	G =	G =	G = 16.0	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	723	395			421	319		4		80	0	134
Lane Group Capacity, c	783	1158			451	383		328		233	320	952
v/c Ratio, X	0.92	0.34			0.93	0.83		0.01		0.34	0.00	0.14
Total Green Ratio, g/C	0.71	0.71			0.24	0.24		0.18		0.18	0.18	0.64
Uniform Delay, d_1	19.9	5.0			33.3	32.3		30.5		32.4	30.4	6.3
Progression Factor, PF	1.000	1.000			1.000	1.000		1.000		1.000	1.000	1.000
Delay Calibration, k	0.50	0.50			0.50	0.50		0.50		0.50	0.50	0.50
Incremental Delay, d_2	14.4	0.6			18.8	11.1		0.1		4.0	0.0	0.3

Initial Queue Delay, d_3	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Control Delay	34.3	5.5			52.1	43.4		30.6		36.4	30.4	6.6
Lane Group LOS	C	A			D	D		C		D	C	A
Approach Delay	24.1			48.3			30.6			17.7		
Approach LOS	C			D			C			B		
Intersection Delay	32.1			X_C = 0.84			Intersection LOS			C		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Boscombe Ave & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Hour*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*1*	*1*
Lane Group	*DefL*	*TR*			*LTR*		*DefL*	*TR*			*LT*	*R*
Volume, V (vph)	*398*	*36*	*0*	*2*	*62*	*69*	*4*	*3*	*0*	*62*	*6*	*691*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*3*	*3*	*3*	*1*	*1*	*1*	*6*	*6*	*6*
Peak-Hour Factor, PHF	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*	*0.58*	*0.58*	*0.58*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*		*3*	*3*			*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	*3.0*
Filtering/Metering, I	*0.962*	*0.962*			*1.000*		*1.000*	*1.000*			*0.889*	*0.889*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*17*	*0*	*0*	*0*	*0*	*0*	*310*
Lane Width	*16.0*	*16.0*			*11.5*		*12.0*	*12.0*			*12.0*	*12.0*
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*			*0*		*0*	*0*			*0*	*0*
Min. Time for Pedestrians, G_p	*20.3*			*17.5*			*20.3*			*20.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*437*	*40*			*127*		*7*	*5*			*76*	*423*
Lane Group Capacity, c	*709*	*1056*			*1536*		*518*	*732*			*541*	*593*
v/c Ratio, X	*0.62*	*0.04*			*0.08*		*0.01*	*0.01*			*0.14*	*0.71*
Total Green Ratio, g/C	*0.50*	*0.50*			*0.50*		*0.39*	*0.39*			*0.39*	*0.39*
Uniform Delay, d_1	*16.3*	*11.5*			*11.7*		*16.9*	*16.9*			*17.8*	*23.3*
Progression Factor, PF	*1.000*	*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	*0.50*
Incremental Delay, d_2	*3.8*	*0.1*			*0.1*		*0.0*	*0.0*			*0.5*	*6.4*

Initial Queue Delay, d_3	*0.0*	*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	*0.0*
Control Delay	*20.1*	*11.5*			*11.8*		*16.9*	*16.9*			*18.3*	*29.7*
Lane Group LOS	*C*	*B*			*B*		*B*	*B*			*B*	*C*
Approach Delay	*19.4*				*11.8*		*16.9*				*27.9*	
Approach LOS	*B*				*B*		*B*				*C*	
Intersection Delay	*22.3*				X_C *= 0.66*		Intersection LOS				*C*	

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Bricktown Ctr Rd @ Vets Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*				*0*	*2*			*2*	*0*
Lane Group	*L*		*R*					*LT*			*TR*	
Volume, V (vph)	*142*		*24*				*4*	*205*			*390*	*349*
% Heavy Vehicles, %HV	*10*		*10*				*4*	*4*			*2*	*2*
Peak-Hour Factor, PHF	*0.88*		*0.88*				*0.90*	*0.90*			*0.80*	*0.80*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*					*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*					*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*					*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*					*3.0*			*3.0*	
Filtering/Metering, I	*0.975*		*0.975*					*0.998*			*0.686*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*					*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*6*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width	*13.0*		*12.0*					*11.5*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*					*0*			*0*	
Min. Time for Pedestrians, G_p	*21.8*			*20.3*			*3.2*			*19.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *19.0*	G =	G =	G =	G = *31.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*161*		*20*					*232*			*923*	
Lane Group Capacity, c	*537*		*465*					*1667*			*1930*	
v/c Ratio, X	*0.30*		*0.04*					*0.14*			*0.48*	
Total Green Ratio, g/C	*0.32*		*0.32*					*0.52*			*0.52*	
Uniform Delay, d_1	*15.5*		*14.2*					*7.6*			*9.3*	
Progression Factor, PF	*1.000*		*1.000*					*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*					*0.50*			*0.50*	
Incremental Delay, d_2	*1.4*		*0.2*					*0.2*			*0.6*	
Initial Queue Delay, d_3	*0.0*		*0.0*					*0.0*			*0.0*	

Control Delay	*16.9*		*14.4*					*7.7*			*9.9*	
Lane Group LOS	*B*		*B*					*A*			*A*	
Approach Delay	*16.6*						*7.7*			*9.9*		
Approach LOS	*B*						*A*			*A*		
Intersection Delay	*10.4*			X_C = *0.41*			Intersection LOS			*B*		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*Englewood Ave & Vets Rd W RT*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* | North/South Street: *Veterans Rd W Right Turn Bay*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*23*				
Peak-Hour Factor, PHF	*1.00*	*0.55*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*41*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*T*				
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*345*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.90*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*383*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*1*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					*R*			
v (veh/h)					*383*			
C (m) (veh/h)					*1033*			
v/c					*0.37*			
95% queue length					*1.73*			
Control Delay (s/veh)					*10.5*			
LOS					*B*			
Approach Delay (s/veh)	--	--	*10.5*					
Approach LOS	--	--	*B*					

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Ave @ Veterans Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*1*	*1*		*1*			*0*	*3*	*0*
Lane Group		*TR*		*L*	*LT*		*L*				*LTR*	
Volume, V (vph)		*1*	*0*	*544*	*1*		*1*			*22*	*194*	*0*
% Heavy Vehicles, %HV		*1*	*1*	*1*	*1*		*1*			*2*	*2*	*2*
Peak-Hour Factor, PHF		*0.25*	*0.25*	*0.95*	*0.95*		*0.90*			*0.80*	*0.80*	*0.80*
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*			*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Arrival Type, AT		*3*		*3*	*3*		*3*				*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*		*3.0*				*3.0*	
Filtering/Metering, I		*1.000*		*0.983*	*0.983*		*0.989*				*1.000*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*12.0*		*13.0*	*13.0*		*10.0*				*11.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*		*0*	*0*		*0*				*0*	
Min. Time for Pedestrians, G_p	*31.2*			*3.2*			*18.1*			*11.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*4*		*287*	*287*		*1*				*269*	
Lane Group Capacity, c		*784*		*612*	*587*		*424*				*2033*	
v/c Ratio, X		*0.01*		*0.47*	*0.49*		*0.00*				*0.13*	
Total Green Ratio, g/C		*0.42*		*0.42*	*0.42*		*0.42*				*0.42*	
Uniform Delay, d_1		*10.2*		*12.7*	*12.8*		*10.2*				*10.8*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*		*1.000*				*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*		*0.50*				*0.50*	
Incremental Delay, d_2		*0.0*		*2.5*	*2.8*		*0.0*				*0.1*	

Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Control Delay		*10.2*		*15.2*	*15.7*		*10.2*				*10.9*	
Lane Group LOS		*B*		*B*	*B*		*B*				*B*	
Approach Delay	*10.2*			*15.4*			*10.2*			*10.9*		
Approach LOS	*B*			*B*			*B*			*B*		
Intersection Delay	*14.0*			X_C *= 0.31*			Intersection LOS			*B*		

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*Sharrotts Rd & Veterans Rd W*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 No-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Sharrotts Road* | North/South Street: *Veterans Road West*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*53*	*30*	*110*	*57*	*0*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*0*	*30*	*76*	*20*
%Thrus Left Lane				*50*		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*TR*		*LT*				*LT*	*TR*
PHF	*0.86*		*0.77*				*0.80*	*0.80*
Flow Rate (veh/h)	*95*		*216*				*84*	71
% Heavy Vehicles	*17*		*4*				*1*	*1*
No. Lanes	*1*		*1*		*0*		*2*	
Geometry Group	*2*		*2*				*1*	
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	*0.0*		*0.7*				*0.4*	*0.0*
Prop. Right-Turns	*0.4*		*0.0*				*0.0*	*0.3*
Prop. Heavy Vehicle	*0.2*		*0.0*				*0.0*	*0.0*
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*			*0.2*	*0.2*
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*			*-0.6*	*-0.6*
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*			*1.7*	*1.7*
hadj, computed	*0.1*		*0.2*				*0.1*	*-0.2*

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value (s)	*3.20*		*3.20*				*3.20*	*3.20*
x, initial	*0.08*		*0.19*				*0.07*	*0.06*
hd, final value (s)	*4.59*		*4.57*				*4.74*	*4.45*
x, final value	*0.12*		*0.27*				*0.11*	*0.09*
Move-up time, m (s)	*2.0*		*2.0*				*2.0*	
Service Time, t_s (s)	*2.6*		*2.6*				*2.7*	*2.5*

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*345*		*466*				*334*	*321*
Delay (s/veh)	*8.22*		*9.29*				*8.33*	*7.88*
LOS	*A*		*A*				*A*	*A*
Approach: Delay (s/veh)	*8.22*		*9.29*				*8.13*	
LOS	*A*		*A*				*A*	
Intersection Delay (s/veh)	*8.68*							
Intersection LOS	*A*							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*Sharrotts Rd @ Veterans Rd E*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 No-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Sharrotts Road* | North/South Street: *Veterans Road East*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*39*	*45*	*0*	*0*	*126*	*22*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*41*	*61*	*86*	*0*	*0*	*0*
%Thrus Left Lane	*50*					

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*LT*		*TR*		*LT*	*TR*		
PHF	*0.86*		*0.77*		*0.88*	*0.88*		
Flow Rate (veh/h)	*97*		*191*		*80*	*132*		
% Heavy Vehicles	*11*		*5*		*1*	*1*		
No. Lanes	*1*		*1*		*2*		*0*	
Geometry Group	*2*		*2*		*1*			
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	*0.5*		*0.0*		*0.6*	*0.0*		
Prop. Right-Turns	*0.0*		*0.1*		*0.0*	*0.7*		
Prop. Heavy Vehicle	*0.1*		*0.0*		*0.0*	*0.0*		
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*		
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*		
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*		
hadj, computed	*0.3*		*-0.0*		*0.1*	*-0.4*		

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value (s)	*3.20*		*3.20*		*3.20*	*3.20*		
x, initial	*0.09*		*0.17*		*0.07*	*0.12*		
hd, final value (s)	*4.87*		*4.48*		*4.72*	*4.16*		
x, final value	*0.13*		*0.24*		*0.10*	*0.15*		
Move-up time, m (s)	*2.0*		*2.0*		*2.0*			
Service Time, t_s (s)	*2.9*		*2.5*		*2.7*	*2.2*		

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*347*		*441*		*330*	*382*		
Delay (s/veh)	*8.60*		*8.87*		*8.27*	*7.91*		
LOS	*A*		*A*		*A*	*A*		
Approach: Delay (s/veh)	*8.60*		*8.87*		*8.05*			
LOS	*A*		*A*		*A*			
Intersection Delay (s/veh)	*8.47*							
Intersection LOS	*A*							

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Englewood Ave @ Vets Rd E*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*3*	*0*			
Lane Group		*LT*	*R*		*LTR*			*LTR*				
Volume, V (vph)	*145*	*114*	*109*	*2*	*37*	*5*	*508*	*37*	*2*			
% Heavy Vehicles, %HV	*1*	*1*	*1*	*5*	*5*	*5*	*1*	*1*	*1*			
Peak-Hour Factor, PHF	*0.91*	*0.91*	*0.91*	*0.95*	*0.95*	*0.95*	*0.97*	*0.97*	*0.97*			
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*			
Start-up Lost Time, l_1		*2.0*	*2.0*		*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*	*2.0*		*2.0*			*2.0*				
Arrival Type, AT		*3*	*3*		*3*			*3*				
Unit Extension, UE		*3.0*	*3.0*		*3.0*			*3.0*				
Filtering/Metering, I		*0.999*	*0.999*		*0.999*			*0.980*				
Initial Unmet Demand, Q_b		*0.0*	*0.0*		*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*52*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width		*13.0*	*12.0*		*11.5*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B		*0*	*0*		*0*			*0*				
Min. Time for Pedestrians, G_p	*21.2*			*12.9*			*14.3*			*17.5*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *21.0*	G =	G =	G =	G = *29.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*284*	*63*		*46*			*564*				
Lane Group Capacity, c		*545*	*560*		*531*			*2287*				
v/c Ratio, X		*0.52*	*0.11*		*0.09*			*0.25*				
Total Green Ratio, g/C		*0.35*	*0.35*		*0.35*			*0.48*				
Uniform Delay, d_1		*15.5*	*13.2*		*13.1*			*9.1*				
Progression Factor, PF		*1.000*	*1.000*		*1.000*			*1.000*				
Delay Calibration, k		*0.50*	*0.50*		*0.50*			*0.50*				
Incremental Delay, d_2		*3.5*	*0.4*		*0.3*			*0.3*				

Initial Queue Delay, d_3		*0.0*	*0.0*		*0.0*			*0.0*				
Control Delay		*19.0*	*13.6*		*13.4*			*9.3*				
Lane Group LOS		*B*	*B*		*B*			*A*				
Approach Delay	*18.0*			*13.4*			*9.3*					
Approach LOS	*B*			*B*			*A*					
Intersection Delay	*12.7*			X_C = *0.36*			Intersection LOS			*B*		

 HCS+™ Version 5.4 Generated: 4/10/2013 1:07 PM

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Englewood Av & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*77*		*39*				*14*	*283*			*333*	*31*
% Heavy Vehicles, %HV	*1*		*1*				*2*	*2*			*2*	*2*
Peak-Hour Factor, PHF	*0.81*		*0.81*				*0.87*	*0.87*			*0.91*	*0.91*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.975*						*0.967*			*0.961*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*16.0*						*14.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B		*0*						*2*			*2*	
Min. Time for Pedestrians, G_p	*14.9*			*15.5*			*3.2*			*17.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*143*						*341*			*400*	
Lane Group Capacity, c		*460*						*1092*			*1173*	
v/c Ratio, X		*0.31*						*0.31*			*0.34*	
Total Green Ratio, g/C		*0.27*						*0.57*			*0.57*	
Uniform Delay, d_1		*17.6*						*6.8*			*7.0*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*1.7*						*0.7*			*0.8*	
Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	

Control Delay		*19.3*						*7.6*			*7.7*	
Lane Group LOS		*B*						*A*			*A*	
Approach Delay	*19.3*						*7.6*			*7.7*		
Approach LOS	*B*						*A*			*A*		
Intersection Delay	*9.5*			X_C = *0.33*			Intersection LOS			*A*		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Sharrotts Rd & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*78*		*52*				*43*	*317*			*282*	*105*
% Heavy Vehicles, %HV	*4*		*4*				*2*	*2*			*1*	*1*
Peak-Hour Factor, PHF	*0.86*		*0.86*				*0.87*	*0.87*			*0.91*	*0.91*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.986*						*0.905*			*0.957*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*14*
Lane Width		*16.0*						*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*2*			*2*	
Min. Time for Pedestrians, G_p	*18.6*			*18.6*			*3.2*			*16.6*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*151*						*413*			*410*	
Lane Group Capacity, c		*555*						*843*			*1023*	
v/c Ratio, X		*0.27*						*0.49*			*0.40*	
Total Green Ratio, g/C		*0.33*						*0.50*			*0.50*	
Uniform Delay, d_1		*14.7*						*9.9*			*9.4*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*1.2*						*1.8*			*1.1*	
Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	

Control Delay		*15.9*						*11.8*			*10.5*	
Lane Group LOS		*B*						*B*			*B*	
Approach Delay	*15.9*						*11.8*			*10.5*		
Approach LOS	*B*						*B*			*B*		
Intersection Delay	*11.9*			X_C = *0.40*			Intersection LOS			*B*		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Vets Rd E & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*	*0*	*3*	*0*	*1*	*1*			*1*	*0*
Lane Group	*L*		*R*		*LTR*		*L*	*T*			*TR*	
Volume, V (vph)	*9*		*102*	*222*	*455*	*123*	*61*	*164*			*341*	*31*
% Heavy Vehicles, %HV	*1*		*1*	*2*	*2*	*2*	*6*	*6*			*2*	*2*
Peak-Hour Factor, PHF	*0.77*		*0.77*	*0.87*	*0.87*	*0.87*	*0.89*	*0.89*			*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*		*P*	*P*	*P*	*P*	*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*		*3*		*3*	*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*		*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I	*0.830*		*0.830*		*0.725*		*0.937*	*0.937*			*0.817*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Lane Width	*10.0*		*13.0*		*11.0*		*12.0*	*12.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*		*0*		*0*	*2*			*2*	
Min. Time for Pedestrians, G_p	*17.2*			*16.9*			*3.2*			*20.9*		

Phasing	EB Only	WB Only	03	04	NS Perm	06	07	08
Timing	G = *8.0*	G = *17.0*	G =	G =	G = *20.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*12*		*132*		*919*		*69*	*184*			*413*	
Lane Group Capacity, c	*222*		*220*		*1339*		*171*	*593*			*690*	
v/c Ratio, X	*0.05*		*0.60*		*0.69*		*0.40*	*0.31*			*0.60*	
Total Green Ratio, g/C	*0.13*		*0.13*		*0.28*		*0.33*	*0.33*			*0.33*	
Uniform Delay, d_1	*22.7*		*24.5*		*19.1*		*15.4*	*14.9*			*16.7*	
Progression Factor, PF	*1.000*		*1.000*		*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*		*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2	*0.4*		*9.7*		*2.1*		*6.5*	*1.3*			*3.1*	

Initial Queue Delay, d_3	0.0		0.0		0.0		0.0	0.0			0.0	
Control Delay	23.1		34.2		21.2		21.9	16.1			19.8	
Lane Group LOS	C		C		C		C	B			B	
Approach Delay	33.2			21.2			17.7			19.8		
Approach LOS	C			C			B			B		
Intersection Delay	21.4			X_C = 0.63			Intersection LOS			C		

 HCS+™ Version 5.4 Generated: 4/10/2013 1:08 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*S Service Rd & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*				*0*	*1*	*0*	*1*	*1*	*0*
Lane Group		*LTR*						*LTR*		*L*	*TR*	
Volume, V (vph)	*5*	*15*	*7*				*6*	*220*	*109*	*222*	*415*	*27*
% Heavy Vehicles, %HV	*2*	*2*	*2*				*6*	*6*	*6*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.63*	*0.63*	*0.63*				*0.89*	*0.89*	*0.89*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*				*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*		*2.0*	*2.0*	
Arrival Type, AT		*3*						*3*		*3*	*3*	
Unit Extension, UE		*3.0*						*3.0*		*3.0*	*3.0*	
Filtering/Metering, I		*1.000*						*0.932*		*0.785*	*0.785*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*13.0*						*16.0*		*12.0*	*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*2*		*0*	*2*	
Min. Time for Pedestrians, G_p	*17.5*			*16.9*			*12.6*			*12.9*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *17.0*	G =	G =	G =	G = *33.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*43*						*376*		*247*	*491*	
Lane Group Capacity, c		*456*						*920*		*560*	*1017*	
v/c Ratio, X		*0.09*						*0.41*		*0.44*	*0.48*	
Total Green Ratio, g/C		*0.28*						*0.55*		*0.55*	*0.55*	
Uniform Delay, d_1		*15.8*						*7.8*		*8.0*	*8.3*	
Progression Factor, PF		*1.000*						*1.000*		*1.000*	*1.000*	
Delay Calibration, k		*0.50*						*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2		*0.4*						*1.3*		*2.0*	*1.3*	

Initial Queue Delay, d_3		*0.0*						*0.0*		*0.0*	*0.0*	
Control Delay		*16.2*						*9.1*		*10.0*	*9.6*	
Lane Group LOS		*B*						*A*		*A*	*A*	
Approach Delay	*16.2*						*9.1*			*9.7*		
Approach LOS	*B*						*A*			*A*		
Intersection Delay	*9.7*			X_C = *0.35*			Intersection LOS			*A*		

 HCS+™ Version 5.4 Generated: 4/10/2013 1:09 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Amboy Rd & Bloomingdale Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*1*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*		*L*	*T*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*5*	*7*	*17*	*257*	*25*	*102*	*21*	*228*	*165*	*87*	*316*	*19*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*7*	*7*	*7*	*6*	*6*	*6*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.78*	*0.78*	*0.78*	*0.84*	*0.84*	*0.84*	*0.89*	*0.89*	*0.89*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*		*3*	*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*		*0.830*	*0.830*	*0.830*		*0.650*			*0.650*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*50*	*0*	*0*	*0*	*0*	*0*	*50*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*		*12.0*	*11.0*	*11.0*		*11.0*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*2*		*0*	*0*	*2*		*0*			*0*	
Min. Time for Pedestrians, G_p	*11.5*			*11.8*			*18.9*			*18.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*37*		*306*	*30*	*121*		*465*			*469*	
Lane Group Capacity, c		*626*		*548*	*763*	*563*		*688*			*642*	
v/c Ratio, X		*0.06*		*0.56*	*0.04*	*0.21*		*0.68*			*0.73*	
Total Green Ratio, g/C		*0.44*		*0.44*	*0.44*	*0.44*		*0.44*			*0.44*	
Uniform Delay, d_1		*14.3*		*18.5*	*14.1*	*15.4*		*19.9*			*20.6*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*	*0.50*		*0.50*			*0.50*	
Incremental Delay, d_2		*0.2*		*3.4*	*0.1*	*0.7*		*3.5*			*4.8*	

Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Control Delay		*14.4*		*21.9*	*14.2*	*16.1*		*23.3*			*25.3*	
Lane Group LOS		*B*		*C*	*B*	*B*		*C*			*C*	
Approach Delay	*14.4*			*19.8*			*23.3*			*25.3*		
Approach LOS	*B*			*B*			*C*			*C*		
Intersection Delay	*22.6*			X_C *= 0.64*			Intersection LOS			*C*		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Arthur Kill Rd & Bloomingdl Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*0*	*1*		*0*		*0*			
Lane Group		*TR*			*LT*			*LR*				
Volume, V (vph)		*143*	*182*	*55*	*163*		*185*		*57*			
% Heavy Vehicles, %HV		*8*	*8*	*16*	*16*		*2*		*2*			
Peak-Hour Factor, PHF		*0.90*	*0.90*	*0.91*	*0.91*		*0.88*		*0.88*			
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*		*P*			
Start-up Lost Time, l_1		*2.0*			*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*			*2.0*			*2.0*				
Arrival Type, AT		*3*			*3*			*3*				
Unit Extension, UE		*3.0*			*3.0*			*3.0*				
Filtering/Metering, I		*0.961*			*0.989*			*0.922*				
Initial Unmet Demand, Q_b		*0.0*			*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*44*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	
Lane Width		*16.0*			*16.0*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m									*5*			
Buses Stopping, N_B		*5*			*0*			*0*				
Min. Time for Pedestrians, G_p	*18.3*			*3.2*			*15.2*			*17.2*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*312*			*239*			*275*				
Lane Group Capacity, c		*913*			*794*			*571*				
v/c Ratio, X		*0.34*			*0.30*			*0.48*				
Total Green Ratio, g/C		*0.50*			*0.50*			*0.39*				
Uniform Delay, d_1		*13.6*			*13.2*			*20.7*				
Progression Factor, PF		*1.000*			*1.000*			*1.000*				
Delay Calibration, k		*0.50*			*0.50*			*0.50*				
Incremental Delay, d_2		*1.0*			*1.0*			*2.7*				
Initial Queue Delay, d_3		*0.0*			*0.0*			*0.0*				

Control Delay		14.5			14.2			23.3				
Lane Group LOS		B			B			C				
Approach Delay	14.5			14.2			23.3					
Approach LOS	B			B			C					
Intersection Delay	17.4			X_C = 0.40			Intersection LOS			B		

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Weekday

Midday

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*Sharrotts Rd & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 No-Action Conditions*

Project Description *Charlestone EIS*

East/West Street: *Sharrotts Road* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*35*	*196*	*35*	*31*	*205*	*22*
Peak-Hour Factor, PHF	*0.85*	*0.85*	*0.85*	*0.91*	*0.91*	*0.91*
Hourly Flow Rate, HFR (veh/h)	*41*	*230*	*41*	*34*	*225*	*24*
Percent Heavy Vehicles	*8*	--	--	*18*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*23*	*17*	*37*	*34*	*19*	*24*
Peak-Hour Factor, PHF	*0.78*	*0.78*	*0.78*	*0.88*	*0.88*	*0.88*
Hourly Flow Rate, HFR (veh/h)	*29*	*21*	*47*	*38*	*21*	*27*
Percent Heavy Vehicles	*1*	*1*	*1*	*10*	*10*	*10*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (veh/h)	*41*	*34*		*86*			*97*	
C (m) (veh/h)	*1282*	*1205*		*393*			*473*	
v/c	*0.03*	*0.03*		*0.22*			*0.21*	
95% queue length	*0.10*	*0.09*		*0.82*			*0.76*	
Control Delay (s/veh)	*7.9*	*8.1*		*16.7*			*14.6*	
LOS	*A*	*A*		*C*			*B*	
Approach Delay (s/veh)	--	--	*16.7*			*14.6*		
Approach LOS	--	--	*C*			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Weekday 12-1 MD Peak Period*

Site Information

Intersection	*Englewood Ave & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*252*	*18*	*19*	*258*	
Peak-Hour Factor, PHF	*1.00*	*0.85*	*0.85*	*0.91*	*0.91*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*296*	*21*	*20*	*283*	*0*
Percent Heavy Vehicles	*0*	--	--	*15*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*43*		*15*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.94*	*1.00*	*0.94*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*45*	*0*	*15*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (veh/h)		*20*		*60*				
C (m) (veh/h)		*1173*		*490*				
v/c		*0.02*		*0.12*				
95% queue length		*0.05*		*0.42*				
Control Delay (s/veh)		*8.1*		*13.4*				
LOS		*A*		*B*				
Approach Delay (s/veh)	--	--	*13.4*					
Approach LOS	--	--	*B*					

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*			*LT*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*1*	*17*	*6*	*206*	*23*	*358*	*1*	*140*	*228*	*126*	*174*	*1*
% Heavy Vehicles, %HV	*4*	*4*	*4*	*6*	*6*	*6*	*11*	*11*	*11*	*7*	*7*	*7*
Peak-Hour Factor, PHF	*0.84*	*0.84*	*0.84*	*0.90*	*0.90*	*0.90*	*0.92*	*0.92*	*0.92*	*0.86*	*0.86*	*0.86*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*			*0.887*	*0.887*		*0.931*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*15.5*			*11.0*	*10.0*		*15.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*			*0*	*0*		*3*			*4*	
Min. Time for Pedestrians, G_p	*11.5*			*13.5*			*15.2*			*12.1*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*28*			*255*	*398*		*401*			*350*	
Lane Group Capacity, c		*714*			*525*	*518*		*710*			*538*	
v/c Ratio, X		*0.04*			*0.49*	*0.77*		*0.56*			*0.65*	
Total Green Ratio, g/C		*0.42*			*0.42*	*0.42*		*0.42*			*0.42*	
Uniform Delay, d_1		*10.4*			*12.8*	*15.0*		*13.3*			*14.0*	
Progression Factor, PF		*1.000*			*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*	*0.50*		*0.50*			*0.50*	
Incremental Delay, d_2		*0.1*			*2.8*	*9.4*		*3.0*			*6.0*	

Initial Queue Delay, d_3		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Control Delay		*10.5*			*15.6*	*24.4*		*16.4*			*20.0*	
Lane Group LOS		*B*			*B*	*C*		*B*			*C*	
Approach Delay	*10.5*			*21.0*			*16.4*			*20.0*		
Approach LOS	*B*			*C*			*B*			*C*		
Intersection Delay	*19.2*			X_C = *0.71*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*No Bridge St & Arthur Kill Rd*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*			*1*	
Lane Group					*LR*			*T*			*T*	
Volume, V (vph)				*347*		*3*		*365*			*387*	
% Heavy Vehicles, %HV				*6*		*6*		*11*			*12*	
Peak-Hour Factor, PHF				*0.88*		*0.88*		*0.92*			*0.86*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*			*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.858*			*0.858*			*0.567*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	
Lane Width					*16.0*			*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B					*0*			*0*			*4*	
Min. Time for Pedestrians, G_p	*13.5*			*13.8*			*3.2*			*3.2*		

Phasing	WB Only	02	03	04	Thru Only	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*397*			*397*			*450*	
Lane Group Capacity, c					*644*			*970*			*946*	
v/c Ratio, X					*0.62*			*0.41*			*0.48*	
Total Green Ratio, g/C					*0.33*			*0.50*			*0.50*	
Uniform Delay, d_1					*16.8*			*9.4*			*9.8*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*3.8*			*1.1*			*1.0*	
Initial Queue Delay, d_3					*0.0*			*0.0*			*0.0*	

Control Delay					*20.6*			*10.5*			*10.8*	
Lane Group LOS					*C*			*B*			*B*	
Approach Delay				*20.6*			*10.5*			*10.8*		
Approach LOS				*C*			*B*			*B*		
Intersection Delay	*13.8*			X_C = *0.53*			Intersection LOS			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*So Bridge St & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *South Bridge Street* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*365*	*234*	*136*	*596*	
Peak-Hour Factor, PHF	*1.00*	*0.92*	*0.92*	*0.86*	*0.86*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*396*	*254*	*158*	*693*	*0*
Percent Heavy Vehicles	*0*	--	--	*16*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration						

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*						
v (veh/h)		*158*						
C (m) (veh/h)		*873*						
v/c		*0.18*						
95% queue length		*0.66*						
Control Delay (s/veh)		*10.0*						
LOS		*B*						
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Rch Valley Rd & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*	*0*	*0*	*1*	
Lane Group					*LR*			*TR*			*LT*	
Volume, V (vph)				*97*		*178*		*410*	*77*	*169*	*410*	
% Heavy Vehicles, %HV				*3*		*3*		*8*	*8*	*6*	*6*	
Peak-Hour Factor, PHF				*0.87*		*0.87*		*0.92*	*0.92*	*0.86*	*0.86*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*	*P*	*P*	*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.944*			*0.880*			*0.500*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width					*12.0*			*15.0*			*15.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B					*0*			*4*			*4*	
Min. Time for Pedestrians, G_p	*11.8*			*11.8*			*14.1*			*3.2*		

Phasing	WB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*316*			*530*			*674*	
Lane Group Capacity, c					*386*			*1056*			*670*	
v/c Ratio, X					*0.82*			*0.50*			*1.01*	
Total Green Ratio, g/C					*0.27*			*0.57*			*0.57*	
Uniform Delay, d_1					*20.6*			*7.9*			*13.0*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*16.5*			*1.5*			*26.0*	
Initial Queue Delay, d_3					*0.0*			*0.0*			*0.0*	

Control Delay					*37.2*			*9.4*			*39.0*	
Lane Group LOS					*D*			*A*			*D*	
Approach Delay				*37.2*			*9.4*			*39.0*		
Approach LOS				*D*			*A*			*D*		
Intersection Delay	*28.3*			X_C = *0.95*			Intersection LOS			*C*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Richmond Valley Rd & Page Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*0*	*1*	*1*	*0*	*0*	*2*	*0*
Lane Group		*LTR*			*LTR*		*L*	*TR*			*LTR*	
Volume, V (vph)	*141*	*63*	*73*	*36*	*172*	*43*	*83*	*551*	*131*	*95*	*438*	*67*
% Heavy Vehicles, %HV	*3*	*3*	*3*	*2*	*2*	*2*	*2*	*2*	*2*	*6*	*6*	*6*
Peak-Hour Factor, PHF	*0.86*	*0.86*	*0.86*	*0.92*	*0.92*	*0.92*	*0.91*	*0.91*	*0.91*	*0.89*	*0.89*	*0.89*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.649*			*1.000*		*0.732*	*0.732*			*0.973*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*14*
Lane Width		*16.0*			*15.0*		*10.0*	*14.0*			*10.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*
Parking Maneuvers, N_m						*5*						*5*
Buses Stopping, N_B		*0*			*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*16.6*			*21.5*			*16.3*			*21.2*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *31.0*	G =	G =	G =	G = *49.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*322*			*273*		*91*	*749*			*659*	
Lane Group Capacity, c		*439*			*556*		*344*	*1051*			*977*	
v/c Ratio, X		*0.73*			*0.49*		*0.26*	*0.71*			*0.67*	
Total Green Ratio, g/C		*0.34*			*0.34*		*0.54*	*0.54*			*0.54*	
Uniform Delay, d_1		*25.9*			*23.3*		*10.9*	*15.3*			*14.8*	
Progression Factor, PF		*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2		*6.9*			*3.1*		*1.4*	*3.0*			*3.6*	

Initial Queue Delay, d_3		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay		*32.8*			*26.4*		*12.3*	*18.3*			*18.4*	
Lane Group LOS		*C*			*C*		*B*	*B*			*B*	
Approach Delay	*32.8*			*26.4*			*17.6*			*18.4*		
Approach LOS	*C*			*C*			*B*			*B*		
Intersection Delay	*21.3*			X_C *= 0.72*			Intersection LOS			*C*		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*S Bridge St RT & Page Ave*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *South Bridge Street Right Turn* | North/South Street: *Page Avenue*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*512*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.89*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*575*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*2*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*87*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.84*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*103*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*29*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								*R*
v (veh/h)								*103*
C (m) (veh/h)								*691*
v/c								*0.15*
95% queue length								*0.52*
Control Delay (s/veh)								*11.1*
LOS								*B*
Approach Delay (s/veh)	--	--				*11.1*		
Approach LOS	--	--				*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*S Br St & Page Ave/Boscome Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*							*2*			*2*	
Lane Group	*L*							*T*			*T*	
Volume, V (vph)	*283*							*735*			*512*	
% Heavy Vehicles, %HV	*3*							*2*			*3*	
Peak-Hour Factor, PHF	*0.88*							*0.91*			*0.89*	
Pretimed (P) or Actuated (A)	*P*							*P*			*P*	
Start-up Lost Time, l_1	*2.0*							*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*							*2.0*			*2.0*	
Arrival Type, AT	*3*							*3*			*3*	
Unit Extension, UE	*3.0*							*3.0*			*3.0*	
Filtering/Metering, I	*1.000*							*0.738*			*0.973*	
Initial Unmet Demand, Q_b	*0.0*							*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*		*0*	*0*		*0*	*0*	
Lane Width	*16.0*							*14.5*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*							*0*			*0*	
Min. Time for Pedestrians, G_p	*3.2*			*20.1*			*3.2*			*3.2*		

Phasing	EB Only	02	03	04	Thru Only	06	07	08
Timing	G = *30.0*	G =	G =	G =	G = *50.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*322*							*808*			*575*	
Lane Group Capacity, c	*662*							*2134*			*1951*	
v/c Ratio, X	*0.49*							*0.38*			*0.29*	
Total Green Ratio, g/C	*0.33*							*0.56*			*0.56*	
Uniform Delay, d_1	*23.9*							*11.3*			*10.6*	
Progression Factor, PF	*1.000*							*1.000*			*1.000*	
Delay Calibration, k	*0.50*							*0.50*			*0.50*	
Incremental Delay, d_2	*2.5*							*0.4*			*0.4*	
Initial Queue Delay, d_3	*0.0*							*0.0*			*0.0*	

Control Delay	26.4							11.6			11.0	
Lane Group LOS	C							B			B	
Approach Delay	26.4						11.6			11.0		
Approach LOS	C						B			B		
Intersection Delay	14.2			X_C = 0.42			Intersection LOS			B		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/25/2012*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*KWVP WB OR UT & No Bridge St*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *KWVP WB Off-Ramp U-Turn* | North/South Street: *North Bridge Street*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*362*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.87*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*416*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*1*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*182*		
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.90*	*0.93*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*195*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*60*	*4*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*0*
Configuration				*L*		

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration			*L*					
v (veh/h)			*195*					
C (m) (veh/h)			*589*					
v/c			*0.33*					
95% queue length			*1.44*					
Control Delay (s/veh)			*14.1*					
LOS			*B*					
Approach Delay (s/veh)	--	--	*14.1*					
Approach LOS	--	--	*B*					

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Bricktow/KWVP*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*	*0*	*1*	*2*	*0*	*0*	*2*	*0*	*1*	*1*	*0*
Lane Group	*L*	*TR*		*L*	*TR*			*LTR*		*L*	*TR*	
Volume, V (vph)	*91*	*144*	*135*	*187*	*462*	*54*	*86*	*117*	*305*	*47*	*40*	*39*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*6*	*6*	*6*	*4*	*4*	*4*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.84*	*0.84*	*0.84*	*0.90*	*0.90*	*0.90*	*0.93*	*0.93*	*0.93*	*0.80*	*0.80*	*0.80*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*		*2.0*	*2.0*			*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e	*2.0*	*2.0*		*2.0*	*2.0*			*2.0*		*2.0*	*2.0*	
Arrival Type, AT	*3*	*3*		*3*	*3*			*3*		*3*	*3*	
Unit Extension, UE	*3.0*	*3.0*		*3.0*	*3.0*			*3.0*		*3.0*	*3.0*	
Filtering/Metering, I	*0.856*	*0.856*		*0.927*	*0.927*			*1.000*		*0.985*	*0.985*	
Initial Unmet Demand, Q_b	*0.0*	*0.0*		*0.0*	*0.0*			*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*32*	*0*	*0*	*13*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*11.0*	*12.0*		*10.0*	*12.0*			*12.5*		*11.0*	*10.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*		*0*	*0*			*0*		*0*	*0*	
Min. Time for Pedestrians, G_p	*34.6*			*18.6*			*20.3*			*16.1*		

Phasing	EW Perm	02	03	04	NB Only	SB Only	07	08
Timing	G = *30.0*	G =	G =	G =	G = *25.0*	G = *20.0*	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y = *5*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*108*	*294*		*208*	*559*			*546*		*59*	*99*	
Lane Group Capacity, c	*209*	*588*		*251*	*1124*			*886*		*380*	*358*	
v/c Ratio, X	*0.52*	*0.50*		*0.83*	*0.50*			*0.62*		*0.16*	*0.28*	
Total Green Ratio, g/C	*0.33*	*0.33*		*0.33*	*0.33*			*0.28*		*0.22*	*0.22*	
Uniform Delay, d_1	*24.2*	*24.0*		*27.6*	*24.0*			*28.3*		*28.2*	*29.0*	
Progression Factor, PF	*1.000*	*1.000*		*1.000*	*1.000*			*1.000*		*1.000*	*1.000*	
Delay Calibration, k	*0.50*	*0.50*		*0.50*	*0.50*			*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2	*7.6*	*2.6*		*24.4*	*1.5*			*3.2*		*0.9*	*1.9*	

Initial Queue Delay, d_3	*0.0*	*0.0*		*0.0*	*0.0*			*0.0*		*0.0*	*0.0*	
Control Delay	*31.8*	*26.6*		*52.1*	*25.4*			*31.5*		*29.1*	*30.9*	
Lane Group LOS	*C*	*C*		*D*	*C*			*C*		*C*	*C*	
Approach Delay	*28.0*			*32.7*			*31.5*			*30.2*		
Approach LOS	*C*			*C*			*C*			*C*		
Intersection Delay	*31.1*			X_C *= 0.61*			Intersection LOS			*C*		

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/25/2012*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*Bricktown Way/Tyrellan Avenue*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 No-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Bricktown Way* | North/South Street: *Tyrellan Avenue*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*85*	*31*	*126*	*89*	*0*
%Thrus Left Lane	*50*			*50*		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*39*	*0*	*40*	*0*	*0*	*0*
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*T*	*TR*	*LT*	*T*	*L*	*R*		
PHF	*0.88*	*0.88*	*0.90*	*0.90*	*0.78*	*0.78*		
Flow Rate (veh/h)	*47*	*83*	*188*	*50*	*50*	*51*		
% Heavy Vehicles	*42*	*42*	*4*	*4*	*3*	*3*		
No. Lanes	*2*		*2*		*2*		*0*	
Geometry Group	*5*		*5*		*1*			
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	*0.0*	*0.0*	*0.7*	*0.0*	*1.0*	*0.0*		
Prop. Right-Turns	*0.0*	*0.4*	*0.0*	*0.0*	*0.0*	*1.0*		
Prop. Heavy Vehicle	*0.4*	*0.4*	*0.0*	*0.0*	*0.0*	*0.0*		
hLT-adj	*0.5*	*0.5*	*0.5*	*0.5*	*0.2*	*0.2*		
hRT-adj	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.6*	*-0.6*		
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*		
hadj, computed	*0.7*	*0.4*	*0.4*	*0.1*	*0.3*	*-0.5*		

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value (s)	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*		
x, initial	*0.04*	*0.07*	*0.17*	*0.04*	*0.04*	*0.05*		
hd, final value (s)	*5.68*	*5.38*	*5.31*	*4.94*	*5.05*	*4.25*		
x, final value	*0.07*	*0.12*	*0.28*	*0.07*	*0.07*	*0.06*		
Move-up time, m (s)	*2.3*		*2.3*		*2.0*			
Service Time, t_s (s)	*3.4*	*3.1*	*3.0*	*2.6*	*3.1*	*2.3*		

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*297*	*333*	*438*	*300*	*300*	*301*		
Delay (s/veh)	*8.83*	*8.84*	*10.04*	*8.00*	*8.43*	*7.53*		
LOS	*A*	*A*	*B*	*A*	*A*	*A*		
Approach: Delay (s/veh)	*8.84*		*9.61*		*7.97*			
LOS	*A*		*A*		*A*			
Intersection Delay (s/veh)	*9.04*							
Intersection LOS	*A*							

 HCS+™ Version 5.4 Generated: 4/10/2013 11:59 AM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/25/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*
Lane Group		*LTR*			*LTR*		*DefL*	*TR*			*LTR*	
Volume, V (vph)	*60*	*101*	*307*	*130*	*266*	*18*	*226*	*151*	*86*	*22*	*302*	*219*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*3*	*3*	*3*	*3*	*3*	*3*	*12*	*12*	*12*
Peak-Hour Factor, PHF	*0.84*	*0.84*	*0.84*	*0.90*	*0.90*	*0.90*	*0.87*	*0.87*	*0.87*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.889*			*0.932*		*1.000*	*1.000*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*			*12.0*		*13.0*	*13.0*			*9.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*			*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*18.6*			*16.6*			*20.1*			*19.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*556*			*460*		*260*	*273*			*603*	
Lane Group Capacity, c		*1177*			*980*		*308*	*801*			*1156*	
v/c Ratio, X		*0.47*			*0.47*		*0.84*	*0.34*			*0.52*	
Total Green Ratio, g/C		*0.44*			*0.44*		*0.44*	*0.44*			*0.44*	
Uniform Delay, d_1		*17.6*			*17.6*		*22.2*	*16.4*			*18.1*	
Progression Factor, PF		*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2		*1.2*			*1.5*		*23.7*	*1.2*			*1.7*	

Initial Queue Delay, d_3		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay		*18.8*			*19.1*		*45.9*	*17.5*			*19.8*	
Lane Group LOS		*B*			*B*		*D*	*B*			*B*	
Approach Delay	*18.8*			*19.1*			*31.4*			*19.8*		
Approach LOS	*B*			*B*			*C*			*B*		
Intersection Delay	*22.2*			X_C *= 0.66*			Intersection LOS			*C*		

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	KM	Intersection	Boscombe Ave & OBX Off-Ramp
Agency or Co.	AECOM	Area Type	All other areas
Date Performed	10/24/2012	Jurisdiction	Staten Island, NY
Time Period	Weekday 12-1 PM MD Peak Period	Analysis Year	2015 No-Action Conditions
		Project ID	Charleston EIS

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	1	1	0	0	1	1	0	1	0	1	1	1
Lane Group	L	TR			LT	R		LTR		L	LT	R
Volume, V (vph)	658	357	3	1	382	375	0	0	1	78	0	130
% Heavy Vehicles, %HV	2	2	2	3	3	3	0	0	1	2	2	2
Peak-Hour Factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.25	0.25	0.25	0.97	0.97	0.97
Pretimed (P) or Actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up Lost Time, l_1	2.0	2.0			2.0	2.0		2.0		2.0	2.0	2.0
Extension of Effective Green, e	2.0	2.0			2.0	2.0		2.0		2.0	2.0	2.0
Arrival Type, AT	3	3			3	3		3		3	3	3
Unit Extension, UE	3.0	3.0			3.0	3.0		3.0		3.0	3.0	3.0
Filtering/Metering, I	0.735	0.735			0.546	0.546		1.000		1.000	1.000	1.000
Initial Unmet Demand, Q_b	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Ped / Bike / RTOR Volumes	0	0	0	0	0	85	0	0	0	0	0	0
Lane Width	11.0	12.0			12.0	12.0		16.0		10.0	11.0	10.0
Parking / Grade / Parking	N	0	Y	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N_m			5									
Buses Stopping, N_B	0	0			0	0		0		0	0	0
Min. Time for Pedestrians, G_p	14.6			24.6			20.9			20.1		

Phasing	EB Only	EW Perm	03	04	NS Perm	06	07	08
Timing	G = 37.0	G = 22.0	G =	G =	G = 16.0	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	723	395			421	319		4		80	0	134
Lane Group Capacity, c	783	1158			451	383		328		233	320	952
v/c Ratio, X	0.92	0.34			0.93	0.83		0.01		0.34	0.00	0.14
Total Green Ratio, g/C	0.71	0.71			0.24	0.24		0.18		0.18	0.18	0.64
Uniform Delay, d_1	19.9	5.0			33.3	32.3		30.5		32.4	30.4	6.3
Progression Factor, PF	1.000	1.000			1.000	1.000		1.000		1.000	1.000	1.000
Delay Calibration, k	0.50	0.50			0.50	0.50		0.50		0.50	0.50	0.50
Incremental Delay, d_2	14.4	0.6			18.8	11.1		0.1		4.0	0.0	0.3

Initial Queue Delay, d_3	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Control Delay	34.3	5.5			52.1	43.4		30.6		36.4	30.4	6.6
Lane Group LOS	C	A			D	D		C		D	C	A
Approach Delay	24.1			48.3			30.6			17.7		
Approach LOS	C			D			C			B		
Intersection Delay	32.1			X_C = 0.84			Intersection LOS			C		

 HCS+™ Version 5.4 Generated: 4/10/2013 1:04 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Boscombe Ave & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Hour*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*1*	*1*
Lane Group	*DefL*	*TR*			*LTR*		*DefL*	*TR*			*LT*	*R*
Volume, V (vph)	*398*	*36*	*0*	*2*	*62*	*69*	*4*	*3*	*0*	*62*	*6*	*691*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*3*	*3*	*3*	*1*	*1*	*1*	*6*	*6*	*6*
Peak-Hour Factor, PHF	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*	*0.58*	*0.58*	*0.58*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*		*3*	*3*			*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	*3.0*
Filtering/Metering, I	*0.962*	*0.962*			*1.000*		*1.000*	*1.000*			*0.889*	*0.889*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*17*	*0*	*0*	*0*	*0*	*0*	*310*
Lane Width	*16.0*	*16.0*			*11.5*		*12.0*	*12.0*			*12.0*	*12.0*
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*			*0*		*0*	*0*			*0*	*0*
Min. Time for Pedestrians, G_p	*20.3*			*17.5*			*20.3*			*20.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*437*	*40*			*127*		*7*	*5*			*76*	*423*
Lane Group Capacity, c	*709*	*1056*			*1536*		*518*	*732*			*541*	*593*
v/c Ratio, X	*0.62*	*0.04*			*0.08*		*0.01*	*0.01*			*0.14*	*0.71*
Total Green Ratio, g/C	*0.50*	*0.50*			*0.50*		*0.39*	*0.39*			*0.39*	*0.39*
Uniform Delay, d_1	*16.3*	*11.5*			*11.7*		*16.9*	*16.9*			*17.8*	*23.3*
Progression Factor, PF	*1.000*	*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	*0.50*
Incremental Delay, d_2	*3.8*	*0.1*			*0.1*		*0.0*	*0.0*			*0.5*	*6.4*

Initial Queue Delay, d_3	*0.0*	*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	*0.0*
Control Delay	*20.1*	*11.5*			*11.8*		*16.9*	*16.9*			*18.3*	*29.7*
Lane Group LOS	*C*	*B*			*B*		*B*	*B*			*B*	*C*
Approach Delay	*19.4*				*11.8*		*16.9*				*27.9*	
Approach LOS	*B*				*B*		*B*				*C*	
Intersection Delay	*22.3*				X_C *= 0.66*		Intersection LOS				*C*	

 HCS+™ Version 5.4 Generated: 4/10/2013 1:04 PM

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Bricktown Ctr Rd @ Vets Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*				*0*	*2*			*2*	*0*
Lane Group	*L*		*R*					*LT*			*TR*	
Volume, V (vph)	*142*		*24*				*4*	*205*			*390*	*349*
% Heavy Vehicles, %HV	*10*		*10*				*4*	*4*			*2*	*2*
Peak-Hour Factor, PHF	*0.88*		*0.88*				*0.90*	*0.90*			*0.80*	*0.80*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*					*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*					*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*					*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*					*3.0*			*3.0*	
Filtering/Metering, I	*0.975*		*0.975*					*0.998*			*0.686*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*					*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*6*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width	*13.0*		*12.0*					*11.5*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*					*0*			*0*	
Min. Time for Pedestrians, G_p	*21.8*			*20.3*			*3.2*			*19.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *19.0*	G =	G =	G =	G = *31.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*161*		*20*					*232*			*923*	
Lane Group Capacity, c	*537*		*465*					*1667*			*1930*	
v/c Ratio, X	*0.30*		*0.04*					*0.14*			*0.48*	
Total Green Ratio, g/C	*0.32*		*0.32*					*0.52*			*0.52*	
Uniform Delay, d_1	*15.5*		*14.2*					*7.6*			*9.3*	
Progression Factor, PF	*1.000*		*1.000*					*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*					*0.50*			*0.50*	
Incremental Delay, d_2	*1.4*		*0.2*					*0.2*			*0.6*	
Initial Queue Delay, d_3	*0.0*		*0.0*					*0.0*			*0.0*	

Control Delay	*16.9*		*14.4*					*7.7*			*9.9*	
Lane Group LOS	*B*		*B*					*A*			*A*	
Approach Delay	*16.6*						*7.7*			*9.9*		
Approach LOS	*B*						*A*			*A*		
Intersection Delay	*10.4*			X_C = *0.41*			Intersection LOS			*B*		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*Englewood Ave & Vets Rd W RT*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* | North/South Street: *Veterans Rd W Right Turn Bay*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*23*				
Peak-Hour Factor, PHF	*1.00*	*0.55*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*41*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*T*				
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*345*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.90*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*383*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*1*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					*R*			
v (veh/h)					*383*			
C (m) (veh/h)					*1033*			
v/c					*0.37*			
95% queue length					*1.73*			
Control Delay (s/veh)					*10.5*			
LOS					*B*			
Approach Delay (s/veh)	--	--	*10.5*					
Approach LOS	--	--	*B*					

HCS+™ Version 5.4

Generated: 4/10/2013 1:06 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Ave @ Veterans Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*1*	*1*		*1*			*0*	*3*	*0*
Lane Group		*TR*		*L*	*LT*		*L*				*LTR*	
Volume, V (vph)		*1*	*0*	*544*	*1*		*1*			*22*	*194*	*0*
% Heavy Vehicles, %HV		*1*	*1*	*1*	*1*		*1*			*2*	*2*	*2*
Peak-Hour Factor, PHF		*0.25*	*0.25*	*0.95*	*0.95*		*0.90*			*0.80*	*0.80*	*0.80*
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*			*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Arrival Type, AT		*3*		*3*	*3*		*3*				*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*		*3.0*				*3.0*	
Filtering/Metering, I		*1.000*		*0.983*	*0.983*		*0.989*				*1.000*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*12.0*		*13.0*	*13.0*		*10.0*				*11.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*		*0*	*0*		*0*				*0*	
Min. Time for Pedestrians, G_p	*31.2*			*3.2*			*18.1*			*11.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*4*		*287*	*287*		*1*				*269*	
Lane Group Capacity, c		*784*		*612*	*587*		*424*				*2033*	
v/c Ratio, X		*0.01*		*0.47*	*0.49*		*0.00*				*0.13*	
Total Green Ratio, g/C		*0.42*		*0.42*	*0.42*		*0.42*				*0.42*	
Uniform Delay, d_1		*10.2*		*12.7*	*12.8*		*10.2*				*10.8*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*		*1.000*				*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*		*0.50*				*0.50*	
Incremental Delay, d_2		*0.0*		*2.5*	*2.8*		*0.0*				*0.1*	

Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Control Delay		*10.2*		*15.2*	*15.7*		*10.2*				*10.9*	
Lane Group LOS		*B*		*B*	*B*		*B*				*B*	
Approach Delay	*10.2*			*15.4*			*10.2*			*10.9*		
Approach LOS	*B*			*B*			*B*			*B*		
Intersection Delay	*14.0*			X_C *= 0.31*			Intersection LOS			*B*		

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*Sharrotts Rd & Veterans Rd W*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 No-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Sharrotts Road* | North/South Street: *Veterans Road West*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*53*	*30*	*110*	*57*	*0*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*0*	*30*	*76*	*20*
%Thrus Left Lane				*50*		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*TR*		*LT*				*LT*	*TR*
PHF	*0.86*		*0.77*				*0.80*	*0.80*
Flow Rate (veh/h)	*95*		*216*				*84*	71
% Heavy Vehicles	*17*		*4*				*1*	*1*
No. Lanes	*1*		*1*		*0*		*2*	
Geometry Group	*2*		*2*				*1*	
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	*0.0*		*0.7*				*0.4*	*0.0*
Prop. Right-Turns	*0.4*		*0.0*				*0.0*	*0.3*
Prop. Heavy Vehicle	*0.2*		*0.0*				*0.0*	*0.0*
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*			*0.2*	*0.2*
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*			*-0.6*	*-0.6*
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*			*1.7*	*1.7*
hadj, computed	*0.1*		*0.2*				*0.1*	*-0.2*

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value (s)	*3.20*		*3.20*				*3.20*	*3.20*
x, initial	*0.08*		*0.19*				*0.07*	*0.06*
hd, final value (s)	*4.59*		*4.57*				*4.74*	*4.45*
x, final value	*0.12*		*0.27*				*0.11*	*0.09*
Move-up time, m (s)	*2.0*		*2.0*				*2.0*	
Service Time, t_s (s)	*2.6*		*2.6*				*2.7*	*2.5*

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*345*		*466*				*334*	*321*
Delay (s/veh)	*8.22*		*9.29*				*8.33*	*7.88*
LOS	*A*		*A*				*A*	*A*
Approach: Delay (s/veh)	*8.22*		*9.29*				*8.13*	
LOS	*A*		*A*				*A*	
Intersection Delay (s/veh)	*8.68*							
Intersection LOS	*A*							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*Sharrotts Rd @ Veterans Rd E*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 No-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Sharrotts Road* | North/South Street: *Veterans Road East*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*39*	*45*	*0*	*0*	*126*	*22*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*41*	*61*	*86*	*0*	*0*	*0*
%Thrus Left Lane	*50*					

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*LT*		*TR*		*LT*	*TR*		
PHF	*0.86*		*0.77*		*0.88*	*0.88*		
Flow Rate (veh/h)	*97*		*191*		*80*	*132*		
% Heavy Vehicles	*11*		*5*		*1*	*1*		
No. Lanes	*1*		*1*		*2*		*0*	
Geometry Group	*2*		*2*		*1*			
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	*0.5*		*0.0*		*0.6*	*0.0*		
Prop. Right-Turns	*0.0*		*0.1*		*0.0*	*0.7*		
Prop. Heavy Vehicle	*0.1*		*0.0*		*0.0*	*0.0*		
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*		
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*		
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*		
hadj, computed	*0.3*		*-0.0*		*0.1*	*-0.4*		

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value (s)	*3.20*		*3.20*		*3.20*	*3.20*		
x, initial	*0.09*		*0.17*		*0.07*	*0.12*		
hd, final value (s)	*4.87*		*4.48*		*4.72*	*4.16*		
x, final value	*0.13*		*0.24*		*0.10*	*0.15*		
Move-up time, m (s)	*2.0*		*2.0*		*2.0*			
Service Time, t_s (s)	*2.9*		*2.5*		*2.7*	*2.2*		

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*347*		*441*		*330*	*382*		
Delay (s/veh)	*8.60*		*8.87*		*8.27*	*7.91*		
LOS	*A*		*A*		*A*	*A*		
Approach: Delay (s/veh)	*8.60*		*8.87*		*8.05*			
LOS	*A*		*A*		*A*			
Intersection Delay (s/veh)	*8.47*							
Intersection LOS	*A*							

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Englewood Ave @ Vets Rd E*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*3*	*0*			
Lane Group		*LT*	*R*		*LTR*			*LTR*				
Volume, V (vph)	*145*	*114*	*109*	*2*	*37*	*5*	*508*	*37*	*2*			
% Heavy Vehicles, %HV	*1*	*1*	*1*	*5*	*5*	*5*	*1*	*1*	*1*			
Peak-Hour Factor, PHF	*0.91*	*0.91*	*0.91*	*0.95*	*0.95*	*0.95*	*0.97*	*0.97*	*0.97*			
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*			
Start-up Lost Time, l_1		*2.0*	*2.0*		*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*	*2.0*		*2.0*			*2.0*				
Arrival Type, AT		*3*	*3*		*3*			*3*				
Unit Extension, UE		*3.0*	*3.0*		*3.0*			*3.0*				
Filtering/Metering, I		*0.999*	*0.999*		*0.999*			*0.980*				
Initial Unmet Demand, Q_b		*0.0*	*0.0*		*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*52*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width		*13.0*	*12.0*		*11.5*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B		*0*	*0*		*0*			*0*				
Min. Time for Pedestrians, G_p	*21.2*			*12.9*			*14.3*			*17.5*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *21.0*	G =	G =	G =	G = *29.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*284*	*63*		*46*			*564*				
Lane Group Capacity, c		*545*	*560*		*531*			*2287*				
v/c Ratio, X		*0.52*	*0.11*		*0.09*			*0.25*				
Total Green Ratio, g/C		*0.35*	*0.35*		*0.35*			*0.48*				
Uniform Delay, d_1		*15.5*	*13.2*		*13.1*			*9.1*				
Progression Factor, PF		*1.000*	*1.000*		*1.000*			*1.000*				
Delay Calibration, k		*0.50*	*0.50*		*0.50*			*0.50*				
Incremental Delay, d_2		*3.5*	*0.4*		*0.3*			*0.3*				

Initial Queue Delay, d_3		*0.0*	*0.0*		*0.0*			*0.0*				
Control Delay		*19.0*	*13.6*		*13.4*			*9.3*				
Lane Group LOS		*B*	*B*		*B*			*A*				
Approach Delay	*18.0*			*13.4*			*9.3*					
Approach LOS	*B*			*B*			*A*					
Intersection Delay	*12.7*			X_C = *0.36*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Englewood Av & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*77*		*39*				*14*	*283*			*333*	*31*
% Heavy Vehicles, %HV	*1*		*1*				*2*	*2*			*2*	*2*
Peak-Hour Factor, PHF	*0.81*		*0.81*				*0.87*	*0.87*			*0.91*	*0.91*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.975*						*0.967*			*0.961*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*16.0*						*14.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B		*0*						*2*			*2*	
Min. Time for Pedestrians, G_p	*14.9*			*15.5*			*3.2*			*17.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*143*						*341*			*400*	
Lane Group Capacity, c		*460*						*1092*			*1173*	
v/c Ratio, X		*0.31*						*0.31*			*0.34*	
Total Green Ratio, g/C		*0.27*						*0.57*			*0.57*	
Uniform Delay, d_1		*17.6*						*6.8*			*7.0*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*1.7*						*0.7*			*0.8*	
Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	

Control Delay		*19.3*						*7.6*			*7.7*	
Lane Group LOS		*B*						*A*			*A*	
Approach Delay	*19.3*						*7.6*			*7.7*		
Approach LOS	*B*						*A*			*A*		
Intersection Delay	*9.5*			X_C = *0.33*			Intersection LOS			*A*		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Sharrotts Rd & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*78*		*52*				*43*	*317*			*282*	*105*
% Heavy Vehicles, %HV	*4*		*4*				*2*	*2*			*1*	*1*
Peak-Hour Factor, PHF	*0.86*		*0.86*				*0.87*	*0.87*			*0.91*	*0.91*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.986*						*0.905*			*0.957*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*14*
Lane Width		*16.0*						*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*2*			*2*	
Min. Time for Pedestrians, G_p	*18.6*			*18.6*			*3.2*			*16.6*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*151*						*413*			*410*	
Lane Group Capacity, c		*555*						*843*			*1023*	
v/c Ratio, X		*0.27*						*0.49*			*0.40*	
Total Green Ratio, g/C		*0.33*						*0.50*			*0.50*	
Uniform Delay, d_1		*14.7*						*9.9*			*9.4*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*1.2*						*1.8*			*1.1*	
Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	

Control Delay		*15.9*						*11.8*			*10.5*	
Lane Group LOS		*B*						*B*			*B*	
Approach Delay	*15.9*						*11.8*			*10.5*		
Approach LOS	*B*						*B*			*B*		
Intersection Delay	*11.9*			X_C = *0.40*			Intersection LOS			*B*		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Vets Rd E & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*	*0*	*3*	*0*	*1*	*1*			*1*	*0*
Lane Group	*L*		*R*		*LTR*		*L*	*T*			*TR*	
Volume, V (vph)	*9*		*102*	*222*	*455*	*123*	*61*	*164*			*341*	*31*
% Heavy Vehicles, %HV	*1*		*1*	*2*	*2*	*2*	*6*	*6*			*2*	*2*
Peak-Hour Factor, PHF	*0.77*		*0.77*	*0.87*	*0.87*	*0.87*	*0.89*	*0.89*			*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*		*P*	*P*	*P*	*P*	*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*		*3*		*3*	*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*		*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I	*0.830*		*0.830*		*0.725*		*0.937*	*0.937*			*0.817*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Lane Width	*10.0*		*13.0*		*11.0*		*12.0*	*12.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*		*0*		*0*	*2*			*2*	
Min. Time for Pedestrians, G_p	*17.2*			*16.9*			*3.2*			*20.9*		

Phasing	EB Only	WB Only	03	04	NS Perm	06	07	08
Timing	G = *8.0*	G = *17.0*	G =	G =	G = *20.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*12*		*132*		*919*		*69*	*184*			*413*	
Lane Group Capacity, c	*222*		*220*		*1339*		*171*	*593*			*690*	
v/c Ratio, X	*0.05*		*0.60*		*0.69*		*0.40*	*0.31*			*0.60*	
Total Green Ratio, g/C	*0.13*		*0.13*		*0.28*		*0.33*	*0.33*			*0.33*	
Uniform Delay, d_1	*22.7*		*24.5*		*19.1*		*15.4*	*14.9*			*16.7*	
Progression Factor, PF	*1.000*		*1.000*		*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*		*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2	*0.4*		*9.7*		*2.1*		*6.5*	*1.3*			*3.1*	

Initial Queue Delay, d_3	0.0		0.0		0.0		0.0	0.0			0.0	
Control Delay	23.1		34.2		21.2		21.9	16.1			19.8	
Lane Group LOS	C		C		C		C	B			B	
Approach Delay	33.2			21.2			17.7			19.8		
Approach LOS	C			C			B			B		
Intersection Delay	21.4			X_C = 0.63			Intersection LOS			C		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*S Service Rd & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*				*0*	*1*	*0*	*1*	*1*	*0*
Lane Group		*LTR*						*LTR*		*L*	*TR*	
Volume, V (vph)	*5*	*15*	*7*				*6*	*220*	*109*	*222*	*415*	*27*
% Heavy Vehicles, %HV	*2*	*2*	*2*				*6*	*6*	*6*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.63*	*0.63*	*0.63*				*0.89*	*0.89*	*0.89*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*				*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*		*2.0*	*2.0*	
Arrival Type, AT		*3*						*3*		*3*	*3*	
Unit Extension, UE		*3.0*						*3.0*		*3.0*	*3.0*	
Filtering/Metering, I		*1.000*						*0.932*		*0.785*	*0.785*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*13.0*						*16.0*		*12.0*	*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*2*		*0*	*2*	
Min. Time for Pedestrians, G_p	*17.5*			*16.9*			*12.6*			*12.9*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *17.0*	G =	G =	G =	G = *33.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*43*						*376*		*247*	*491*	
Lane Group Capacity, c		*456*						*920*		*560*	*1017*	
v/c Ratio, X		*0.09*						*0.41*		*0.44*	*0.48*	
Total Green Ratio, g/C		*0.28*						*0.55*		*0.55*	*0.55*	
Uniform Delay, d_1		*15.8*						*7.8*		*8.0*	*8.3*	
Progression Factor, PF		*1.000*						*1.000*		*1.000*	*1.000*	
Delay Calibration, k		*0.50*						*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2		*0.4*						*1.3*		*2.0*	*1.3*	

Initial Queue Delay, d_3		*0.0*						*0.0*		*0.0*	*0.0*	
Control Delay		*16.2*						*9.1*		*10.0*	*9.6*	
Lane Group LOS		*B*						*A*		*A*	*A*	
Approach Delay	*16.2*						*9.1*			*9.7*		
Approach LOS	*B*						*A*			*A*		
Intersection Delay	*9.7*			X_C = *0.35*			Intersection LOS			*A*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Amboy Rd & Bloomingdale Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*1*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*		*L*	*T*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*5*	*7*	*17*	*257*	*25*	*102*	*21*	*228*	*165*	*87*	*316*	*19*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*7*	*7*	*7*	*6*	*6*	*6*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.78*	*0.78*	*0.78*	*0.84*	*0.84*	*0.84*	*0.89*	*0.89*	*0.89*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*		*3*	*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*		*0.830*	*0.830*	*0.830*		*0.650*			*0.650*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*50*	*0*	*0*	*0*	*0*	*0*	*50*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*		*12.0*	*11.0*	*11.0*		*11.0*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*2*		*0*	*0*	*2*		*0*			*0*	
Min. Time for Pedestrians, G_p	*11.5*			*11.8*			*18.9*			*18.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*37*		*306*	*30*	*121*		*465*			*469*	
Lane Group Capacity, c		*626*		*548*	*763*	*563*		*688*			*642*	
v/c Ratio, X		*0.06*		*0.56*	*0.04*	*0.21*		*0.68*			*0.73*	
Total Green Ratio, g/C		*0.44*		*0.44*	*0.44*	*0.44*		*0.44*			*0.44*	
Uniform Delay, d_1		*14.3*		*18.5*	*14.1*	*15.4*		*19.9*			*20.6*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*	*0.50*		*0.50*			*0.50*	
Incremental Delay, d_2		*0.2*		*3.4*	*0.1*	*0.7*		*3.5*			*4.8*	

Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Control Delay		*14.4*		*21.9*	*14.2*	*16.1*		*23.3*			*25.3*	
Lane Group LOS		*B*		*C*	*B*	*B*		*C*			*C*	
Approach Delay	*14.4*			*19.8*			*23.3*			*25.3*		
Approach LOS	*B*			*B*			*C*			*C*		
Intersection Delay	*22.6*			X_C *= 0.64*			Intersection LOS			*C*		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Arthur Kill Rd & Bloomingdl Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*0*	*1*		*0*		*0*			
Lane Group		*TR*			*LT*			*LR*				
Volume, V (vph)		*143*	*182*	*55*	*163*		*185*		*57*			
% Heavy Vehicles, %HV		*8*	*8*	*16*	*16*		*2*		*2*			
Peak-Hour Factor, PHF		*0.90*	*0.90*	*0.91*	*0.91*		*0.88*		*0.88*			
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*		*P*			
Start-up Lost Time, l_1		*2.0*			*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*			*2.0*			*2.0*				
Arrival Type, AT		*3*			*3*			*3*				
Unit Extension, UE		*3.0*			*3.0*			*3.0*				
Filtering/Metering, I		*0.961*			*0.989*			*0.922*				
Initial Unmet Demand, Q_b		*0.0*			*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*44*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	
Lane Width		*16.0*			*16.0*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m									*5*			
Buses Stopping, N_B		*5*			*0*			*0*				
Min. Time for Pedestrians, G_p	*18.3*			*3.2*			*15.2*			*17.2*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*312*			*239*			*275*				
Lane Group Capacity, c		*913*			*794*			*571*				
v/c Ratio, X		*0.34*			*0.30*			*0.48*				
Total Green Ratio, g/C		*0.50*			*0.50*			*0.39*				
Uniform Delay, d_1		*13.6*			*13.2*			*20.7*				
Progression Factor, PF		*1.000*			*1.000*			*1.000*				
Delay Calibration, k		*0.50*			*0.50*			*0.50*				
Incremental Delay, d_2		*1.0*			*1.0*			*2.7*				
Initial Queue Delay, d_3		*0.0*			*0.0*			*0.0*				

Control Delay		14.5			14.2			23.3				
Lane Group LOS		B			B			C				
Approach Delay	14.5			14.2			23.3					
Approach LOS	B			B			C					
Intersection Delay	17.4			X_C = 0.40			Intersection LOS			B		

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Weekday

PM

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*Sharrotts Rd & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Sharrotts Road* North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*28*	*200*	*66*	*56*	*198*	*27*
Peak-Hour Factor, PHF	*0.87*	*0.87*	*0.87*	*0.81*	*0.81*	*0.81*
Hourly Flow Rate, HFR (veh/h)	*32*	*229*	*75*	*69*	*244*	*33*
Percent Heavy Vehicles	*6*	--	--	*9*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*33*	*18*	*28*	*55*	*17*	*33*
Peak-Hour Factor, PHF	*0.86*	*0.86*	*0.86*	*0.81*	*0.81*	*0.81*
Hourly Flow Rate, HFR (veh/h)	*38*	*20*	*32*	*67*	*20*	*40*
Percent Heavy Vehicles	*2*	*2*	*2*	*1*	*1*	*1*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (veh/h)	*32*	*69*		*127*			*90*	
C (m) (veh/h)	*1263*	*1218*		*354*			*363*	
v/c	*0.03*	*0.06*		*0.36*			*0.25*	
95% queue length	*0.08*	*0.18*		*1.59*			*0.96*	
Control Delay (s/veh)	*7.9*	*8.1*		*20.8*			*18.2*	
LOS	*A*	*A*		*C*			*C*	
Approach Delay (s/veh)	--	--	*20.8*			*18.2*		
Approach LOS	--	--	*C*			*C*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*Englewood Ave & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*269*	*18*	*14*	*268*	
Peak-Hour Factor, PHF	*1.00*	*0.87*	*0.87*	*0.81*	*0.81*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*309*	*20*	*17*	*330*	*0*
Percent Heavy Vehicles	*0*	--	--	*7*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*28*		*26*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.68*	*1.00*	*0.68*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*41*	*0*	*38*
Percent Heavy Vehicles	*0*	*0*	*0*	*7*	*0*	*7*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (veh/h)		*17*		*79*				
C (m) (veh/h)		*1203*		*507*				
v/c		*0.01*		*0.16*				
95% queue length		*0.04*		*0.55*				
Control Delay (s/veh)		*8.0*		*13.4*				
LOS		*A*		*B*				
Approach Delay (s/veh)	--	--	*13.4*					
Approach LOS	--	--	*B*					

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*			*LT*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*1*	*10*	*2*	*236*	*20*	*234*	*4*	*136*	*277*	*174*	*236*	*1*
% Heavy Vehicles, %HV	*3*	*3*	*3*	*5*	*5*	*5*	*5*	*5*	*5*	*7*	*7*	*7*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.82*	*0.82*	*0.82*	*0.93*	*0.93*	*0.93*	*0.86*	*0.86*	*0.86*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*			*0.933*	*0.933*		*0.919*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*15.5*			*11.0*	*10.0*		*15.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*			*0*	*0*		*3*			*2*	
Min. Time for Pedestrians, G_p	*11.5*			*13.5*			*15.2*			*12.1*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*14*			*312*	*285*		*448*			*477*	
Lane Group Capacity, c		*725*			*534*	*523*		*743*			*497*	
v/c Ratio, X		*0.02*			*0.58*	*0.54*		*0.60*			*0.96*	
Total Green Ratio, g/C		*0.42*			*0.42*	*0.42*		*0.42*			*0.42*	
Uniform Delay, d_1		*10.3*			*13.5*	*13.2*		*13.6*			*17.0*	
Progression Factor, PF		*1.000*			*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*	*0.50*		*0.50*			*0.50*	
Incremental Delay, d_2		*0.0*			*4.3*	*3.8*		*3.3*			*31.5*	

Initial Queue Delay, d_3		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Control Delay		*10.3*			*17.8*	*17.0*		*17.0*			*48.5*	
Lane Group LOS		*B*			*B*	*B*		*B*			*D*	
Approach Delay	*10.3*			*17.4*			*17.0*			*48.5*		
Approach LOS	*B*			*B*			*B*			*D*		
Intersection Delay	*26.9*			X_C = *0.77*			Intersection LOS			*C*		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*No Bridge St & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*			*1*	
Lane Group					*LR*			*T*			*T*	
Volume, V (vph)				*511*		*4*		*413*			*473*	
% Heavy Vehicles, %HV				*2*		*2*		*5*			*12*	
Peak-Hour Factor, PHF				*0.84*		*0.84*		*0.93*			*0.86*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*			*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.373*			*0.921*			*0.340*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	
Lane Width					*16.0*			*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B					*0*			*0*			*2*	
Min. Time for Pedestrians, G_p	*13.5*			*13.8*			*3.2*			*3.2*		

Phasing	WB Only	02	03	04	Thru Only	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*613*			*444*			*550*	
Lane Group Capacity, c					*670*			*1026*			*954*	
v/c Ratio, X					*0.91*			*0.43*			*0.58*	
Total Green Ratio, g/C					*0.33*			*0.50*			*0.50*	
Uniform Delay, d_1					*19.2*			*9.6*			*10.5*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*8.8*			*1.2*			*0.9*	
Initial Queue Delay, d_3					*0.0*			*0.0*			*0.0*	

Control Delay					28.0			10.8			11.4	
Lane Group LOS					C			B			B	
Approach Delay				28.0			10.8			11.4		
Approach LOS				C			B			B		
Intersection Delay	17.5			X_C = 0.71			Intersection LOS			B		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*So Bridge St & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *South Bridge Street* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*413*	*254*	*182*	*802*	
Peak-Hour Factor, PHF	*1.00*	*0.93*	*0.93*	*0.86*	*0.86*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*444*	*273*	*211*	*932*	*0*
Percent Heavy Vehicles	*0*	--	--	*18*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration						

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*						
v (veh/h)		*211*						
C (m) (veh/h)		*815*						
v/c		*0.26*						
95% queue length		*1.03*						
Control Delay (s/veh)		*11.0*						
LOS		*B*						
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Rch Valley Rd & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*	*0*	*0*	*1*	
Lane Group					*LR*			*TR*			*LT*	
Volume, V (vph)				*130*		*142*		*512*	*101*	*118*	*669*	
% Heavy Vehicles, %HV				*1*		*1*		*4*	*4*	*6*	*6*	
Peak-Hour Factor, PHF				*0.84*		*0.84*		*0.93*	*0.93*	*0.86*	*0.86*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*	*P*	*P*	*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.901*			*0.798*			*0.114*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width					*12.0*			*15.0*			*15.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B					*0*			*4*			*2*	
Min. Time for Pedestrians, G_p	*11.8*			*11.8*			*14.1*			*3.2*		

Phasing	WB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*324*			*660*			*915*	
Lane Group Capacity, c					*398*			*1095*			*784*	
v/c Ratio, X					*0.81*			*0.60*			*1.17*	
Total Green Ratio, g/C					*0.27*			*0.57*			*0.57*	
Uniform Delay, d_1					*20.6*			*8.6*			*13.0*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*15.1*			*2.0*			*77.0*	
Initial Queue Delay, d_3					*0.0*			*0.0*			*0.0*	

Control Delay					*35.7*			*10.5*			*90.0*	
Lane Group LOS					*D*			*B*			*F*	
Approach Delay				*35.7*			*10.5*			*90.0*		
Approach LOS				*D*			*B*			*F*		
Intersection Delay	*53.1*			X_C = *1.05*			Intersection LOS			*D*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Richmond Valley Rd & Page Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*0*	*1*	*1*	*0*	*0*	*2*	*0*
Lane Group		*LTR*			*LTR*		*L*	*TR*			*LTR*	
Volume, V (vph)	*94*	*44*	*102*	*33*	*188*	*42*	*56*	*540*	*104*	*108*	*514*	*49*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.81*	*0.81*	*0.81*	*0.91*	*0.91*	*0.91*	*0.87*	*0.87*	*0.87*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.503*			*1.000*		*0.773*	*0.773*			*0.957*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*10*
Lane Width		*16.0*			*15.0*		*10.0*	*14.0*			*10.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*
Parking Maneuvers, N_m						*5*						*5*
Buses Stopping, N_B		*0*			*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*16.6*			*21.5*			*16.3*			*21.2*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *31.0*	G =	G =	G =	G = *49.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*273*			*325*		*62*	*707*			*760*	
Lane Group Capacity, c		*464*			*568*		*301*	*1066*			*1021*	
v/c Ratio, X		*0.59*			*0.57*		*0.21*	*0.66*			*0.74*	
Total Green Ratio, g/C		*0.34*			*0.34*		*0.54*	*0.54*			*0.54*	
Uniform Delay, d_1		*24.3*			*24.1*		*10.5*	*14.6*			*15.7*	
Progression Factor, PF		*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2		*2.7*			*4.1*		*1.2*	*2.5*			*4.7*	

Initial Queue Delay, d_3		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay		*27.0*			*28.2*		*11.7*	*17.1*			*20.4*	
Lane Group LOS		*C*			*C*		*B*	*B*			*C*	
Approach Delay	*27.0*			*28.2*			*16.7*			*20.4*		
Approach LOS	*C*			*C*			*B*			*C*		
Intersection Delay	*21.1*			X_C *= 0.68*			Intersection LOS			*C*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*S Bridge St RT & Page Ave*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 N0-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *South Bridge Street Right Turn* | North/South Street: *Page Avenue*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*601*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.87*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*690*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*2*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*69*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.78*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*88*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*55*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								*R*
v (veh/h)								*88*
C (m) (veh/h)								*593*
v/c								*0.15*
95% queue length								*0.52*
Control Delay (s/veh)								*12.1*
LOS								*B*
Approach Delay (s/veh)	--	--				*12.1*		
Approach LOS	--	--				*B*		

HCS+™ Version 5.4

Generated: 4/10/2013 1:24 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*S Br St & Page Ave/Boscome Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*							*2*			*2*	
Lane Group	*L*							*T*			*T*	
Volume, V (vph)	*368*							*676*			*601*	
% Heavy Vehicles, %HV	*1*							*1*			*1*	
Peak-Hour Factor, PHF	*0.91*							*0.90*			*0.87*	
Pretimed (P) or Actuated (A)	*P*							*P*			*P*	
Start-up Lost Time, l_1	*2.0*							*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*							*2.0*			*2.0*	
Arrival Type, AT	*3*							*3*			*3*	
Unit Extension, UE	*3.0*							*3.0*			*3.0*	
Filtering/Metering, I	*1.000*							*0.773*			*0.957*	
Initial Unmet Demand, Q_b	*0.0*							*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*		*0*	*0*		*0*	*0*	
Lane Width	*16.0*							*14.5*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*							*0*			*0*	
Min. Time for Pedestrians, G_p	*3.2*			*20.1*			*3.2*			*3.2*		

Phasing	EB Only	02	03	04	Thru Only	06	07	08
Timing	G = *30.0*	G =	G =	G =	G = *50.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*404*							*751*			*691*	
Lane Group Capacity, c	*675*							*2156*			*1990*	
v/c Ratio, X	*0.60*							*0.35*			*0.35*	
Total Green Ratio, g/C	*0.33*							*0.56*			*0.56*	
Uniform Delay, d_1	*25.0*							*11.0*			*11.0*	
Progression Factor, PF	*1.000*							*1.000*			*1.000*	
Delay Calibration, k	*0.50*							*0.50*			*0.50*	
Incremental Delay, d_2	*3.9*							*0.3*			*0.5*	
Initial Queue Delay, d_3	*0.0*							*0.0*			*0.0*	

Control Delay	*28.9*							*11.4*			*11.5*	
Lane Group LOS	*C*							*B*			*B*	
Approach Delay	*28.9*						*11.4*			*11.5*		
Approach LOS	*C*						*B*			*B*		
Intersection Delay	*15.2*			X_C = *0.44*			Intersection LOS			*B*		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*KWVP WB OR UT & No Bridge St*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *KWVP WB Off-Ramp U-Turn* | North/South Street: *North Bridge Street*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*472*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.89*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*530*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*1*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*458*		
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.90*	*0.93*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*492*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*60*	*3*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*0*
Configuration				*L*		

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration			*L*					
v (veh/h)			*492*					
C (m) (veh/h)			*508*					
v/c			*0.97*					
95% queue length			*12.62*					
Control Delay (s/veh)			*61.0*					
LOS			*F*					
Approach Delay (s/veh)	--	--	*61.0*					
Approach LOS	--	--	*F*					

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Bricktown/KWVP*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Sat Flow Rate WB-L = 1950*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*	*0*	*1*	*2*	*0*	*0*	*2*	*0*	*1*	*1*	*0*
Lane Group	*L*	*TR*		*L*	*TR*			*LTR*		*L*	*TR*	
Volume, V (vph)	*105*	*166*	*190*	*239*	*319*	*43*	*116*	*89*	*253*	*45*	*43*	*54*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*7*	*7*	*7*	*3*	*3*	*3*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.90*	*0.82*	*0.82*	*0.93*	*0.93*	*0.93*	*0.76*	*0.76*	*0.76*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*		*2.0*	*2.0*			*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e	*2.0*	*2.0*		*3.0*	*3.0*			*2.0*		*2.0*	*2.0*	
Arrival Type, AT	*3*	*3*		*3*	*3*			*3*		*3*	*3*	
Unit Extension, UE	*3.0*	*3.0*		*3.0*	*3.0*			*3.0*		*3.0*	*3.0*	
Filtering/Metering, I	*0.701*	*0.701*		*0.949*	*0.949*			*1.000*		*0.970*	*0.970*	
Initial Unmet Demand, Q_b	*0.0*	*0.0*		*0.0*	*0.0*			*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*45*	*0*	*0*	*11*	*0*	*0*	*25*	*0*	*0*	*25*
Lane Width	*11.0*	*12.0*		*10.0*	*12.0*			*12.5*		*11.0*	*10.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*		*0*	*0*			*0*		*0*	*0*	
Min. Time for Pedestrians, G_p	*34.6*			*18.6*			*20.3*			*16.1*		

Phasing	EW Perm	02	03	04	NB Only	SB Only	07	08
Timing	G = *30.0*	G =	G =	G =	G = *25.0*	G = *20.0*	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y = *5*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*119*	*354*		*266*	*428*			*466*		*59*	*95*	
Lane Group Capacity, c	*270*	*583*		*240*	*1149*			*902*		*384*	*367*	
v/c Ratio, X	*0.44*	*0.61*		*1.11*	*0.37*			*0.52*		*0.15*	*0.26*	
Total Green Ratio, g/C	*0.33*	*0.33*		*0.34*	*0.34*			*0.28*		*0.22*	*0.22*	
Uniform Delay, d_1	*23.4*	*25.1*		*29.5*	*22.2*			*27.4*		*28.2*	*28.9*	
Progression Factor, PF	*1.000*	*1.000*		*1.000*	*1.000*			*1.000*		*1.000*	*1.000*	
Delay Calibration, k	*0.50*	*0.50*		*0.50*	*0.50*			*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2	*3.6*	*3.3*		*88.7*	*0.9*			*2.1*		*0.8*	*1.7*	

Initial Queue Delay, d_3	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Control Delay	27.1	28.4		118.2	23.1			29.5		29.0	30.5	
Lane Group LOS	C	C		F	C			C		C	C	
Approach Delay	28.0			59.5			29.5			30.0		
Approach LOS	C			E			C			C		
Intersection Delay	40.8			X_C = 0.69			Intersection LOS			D		

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*Bricktown Way/Tyrellan Avenue*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 No-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Bricktown Way* | North/South Street: *Tyrellan Avenue*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*98*	*28*	*143*	*129*	*0*
%Thrus Left Lane	*50*			*50*		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*12*	*0*	*67*	*0*	*0*	*0*
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*T*	*TR*	*LT*	*T*	*L*	*R*		
PHF	*0.87*	*0.87*	*0.91*	*0.91*	*0.76*	*0.76*		
Flow Rate (veh/h)	*56*	*88*	*227*	*71*	*15*	*88*		
% Heavy Vehicles	*7*	*7*	*1*	*1*	*1*	*1*		
No. Lanes	*2*		*2*		*2*		*0*	
Geometry Group	*5*		*5*		*1*			
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	*0.0*	*0.0*	*0.7*	*0.0*	*1.0*	*0.0*		
Prop. Right-Turns	*0.0*	*0.4*	*0.0*	*0.0*	*0.0*	*1.0*		
Prop. Heavy Vehicle	*0.1*	*0.1*	*0.0*	*0.0*	*0.0*	*0.0*		
hLT-adj	*0.5*	*0.5*	*0.5*	*0.5*	*0.2*	*0.2*		
hRT-adj	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.6*	*-0.6*		
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*		
hadj, computed	*0.1*	*-0.1*	*0.4*	*0.0*	*0.2*	*-0.6*		

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value (s)	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*		
x, initial	*0.05*	*0.08*	*0.20*	*0.06*	*0.01*	*0.08*		
hd, final value (s)	*5.13*	*4.87*	*5.23*	*4.88*	*5.13*	*4.34*		
x, final value	*0.08*	*0.12*	*0.33*	*0.10*	*0.02*	*0.11*		
Move-up time, m (s)	*2.3*		*2.3*		*2.0*			
Service Time, t_s (s)	*2.8*	*2.6*	*2.9*	*2.6*	*3.1*	*2.3*		

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*306*	*338*	*477*	*321*	*265*	*338*		
Delay (s/veh)	*8.27*	*8.23*	*10.48*	*8.10*	*8.25*	*7.85*		
LOS	*A*	*A*	*B*	*A*	*A*	*A*		
Approach: Delay (s/veh)	*8.25*		*9.92*		*7.91*			
LOS	*A*		*A*		*A*			
Intersection Delay (s/veh)	*9.10*							
Intersection LOS	*A*							

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*
Lane Group		*LTR*			*LTR*		*DefL*	*TR*			*LTR*	
Volume, V (vph)	*51*	*114*	*274*	*120*	*284*	*9*	*202*	*99*	*121*	*21*	*304*	*120*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*2*	*2*	*2*	*1*	*1*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.82*	*0.82*	*0.82*	*0.93*	*0.93*	*0.93*	*0.94*	*0.94*	*0.94*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.884*			*0.927*		*1.000*	*1.000*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*			*12.0*		*13.0*	*13.0*			*9.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*			*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*18.6*			*16.6*			*20.1*			*19.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*499*			*503*		*217*	*236*			*473*	
Lane Group Capacity, c		*1198*			*1042*		*385*	*792*			*1296*	
v/c Ratio, X		*0.42*			*0.48*		*0.56*	*0.30*			*0.36*	
Total Green Ratio, g/C		*0.44*			*0.44*		*0.44*	*0.44*			*0.44*	
Uniform Delay, d_1		*17.0*			*17.7*		*18.5*	*16.0*			*16.6*	
Progression Factor, PF		*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2		*0.9*			*1.5*		*5.9*	*1.0*			*0.8*	

Initial Queue Delay, d_3		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay		*18.0*			*19.2*		*24.4*	*17.0*			*17.4*	
Lane Group LOS		*B*			*B*		*C*	*B*			*B*	
Approach Delay	*18.0*			*19.2*			*20.5*			*17.4*		
Approach LOS	*B*			*B*			*C*			*B*		
Intersection Delay	*18.7*			X_C = *0.52*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Boscombe Ave & OBX Off-Ramp*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*1*	*1*	*1*
Lane Group	*L*	*TR*			*LT*	*R*		*LTR*		*L*	*LT*	*R*
Volume, V (vph)	*723*	*316*	*4*	*3*	*325*	*371*	*2*	*3*	*2*	*99*	*0*	*275*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.95*	*0.95*	*0.95*	*0.44*	*0.44*	*0.44*	*0.80*	*0.80*	*0.80*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*	*3*		*3*		*3*	*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*	*3.0*		*3.0*		*3.0*	*3.0*	*3.0*
Filtering/Metering, I	*0.687*	*0.687*			*0.650*	*0.650*		*1.000*		*1.000*	*1.000*	*1.000*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*	*0.0*		*0.0*		*0.0*	*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*11.0*	*12.0*			*12.0*	*12.0*		*16.0*		*10.0*	*11.0*	*10.0*
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B	*0*	*0*			*0*	*0*		*0*		*0*	*0*	*0*
Min. Time for Pedestrians, G_p	*14.6*			*24.6*			*20.9*			*20.1*		

Phasing	EB Only	EW Perm	03	04	NS Perm	06	07	08
Timing	G = *33.0*	G = *28.0*	G =	G =	G = *14.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*803*	*355*			*345*	*391*		*17*		*124*	*0*	*344*
Lane Group Capacity, c	*839*	*1205*			*584*	*497*		*148*		*204*	*283*	*862*
v/c Ratio, X	*0.96*	*0.29*			*0.59*	*0.79*		*0.11*		*0.61*	*0.00*	*0.40*
Total Green Ratio, g/C	*0.73*	*0.73*			*0.31*	*0.31*		*0.16*		*0.16*	*0.16*	*0.58*
Uniform Delay, d_1	*15.2*	*4.1*			*26.2*	*28.3*		*32.7*		*35.4*	*32.1*	*10.4*
Progression Factor, PF	*1.000*	*1.000*			*1.000*	*1.000*		*1.000*		*1.000*	*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*	*0.50*		*0.50*		*0.50*	*0.50*	*0.50*
Incremental Delay, d_2	*17.3*	*0.4*			*2.8*	*8.0*		*1.6*		*12.8*	*0.0*	*1.4*

Initial Queue Delay, d_3	*0.0*	*0.0*			*0.0*	*0.0*		*0.0*		*0.0*	*0.0*	*0.0*
Control Delay	*32.5*	*4.5*			*29.0*	*36.3*		*34.2*		*48.2*	*32.1*	*11.8*
Lane Group LOS	*C*	*A*			*C*	*D*		*C*		*D*	*C*	*B*
Approach Delay	*23.9*			*32.9*			*34.2*			*21.4*		
Approach LOS	*C*			*C*			*C*			*C*		
Intersection Delay	*26.3*			X_C *= 0.86*			Intersection LOS			*C*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Boscombe Ave & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Hour*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*1*	*1*
Lane Group	*DefL*	*TR*			*LTR*			*LTR*			*LT*	*R*
Volume, V (vph)	*382*	*35*	*0*	*1*	*35*	*42*	*3*	*3*	*2*	*60*	*1*	*661*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.95*	*0.95*	*0.95*	*0.50*	*0.50*	*0.50*	*0.94*	*0.94*	*0.94*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*			*2.0*			*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*			*2.0*			*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*			*3*			*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*			*3.0*			*3.0*	*3.0*
Filtering/Metering, I	*0.952*	*0.952*			*1.000*			*1.000*			*0.937*	*0.937*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*			*0.0*			*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*10*	*0*	*0*	*0*	*0*	*0*	*294*
Lane Width	*16.0*	*16.0*			*11.5*			*12.0*			*12.0*	*12.0*
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*			*0*			*0*			*0*	*0*
Min. Time for Pedestrians, G_p	*20.3*			*17.5*			*20.3*			*20.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*424*	*39*			*72*			*16*			*65*	*390*
Lane Group Capacity, c	*755*	*1066*			*1561*			*1220*			*550*	*616*
v/c Ratio, X	*0.56*	*0.04*			*0.05*			*0.01*			*0.12*	*0.63*
Total Green Ratio, g/C	*0.50*	*0.50*			*0.50*			*0.39*			*0.39*	*0.39*
Uniform Delay, d_1	*15.6*	*11.5*			*11.5*			*16.9*			*17.6*	*22.3*
Progression Factor, PF	*1.000*	*1.000*			*1.000*			*1.000*			*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*			*0.50*			*0.50*	*0.50*
Incremental Delay, d_2	*2.9*	*0.1*			*0.1*			*0.0*			*0.4*	*4.6*

Initial Queue Delay, d_3	*0.0*	*0.0*			*0.0*			*0.0*			*0.0*	*0.0*
Control Delay	*18.5*	*11.5*			*11.6*			*16.9*			*18.0*	*26.9*
Lane Group LOS	*B*	*B*			*B*			*B*			*B*	*C*
Approach Delay	*17.9*			*11.6*			*16.9*			*25.6*		
Approach LOS	*B*			*B*			*B*			*C*		
Intersection Delay	*20.9*			X_C *= 0.59*			Intersection LOS			*C*		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Bricktown Ctr Rd @ Vets Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*				*0*	*2*			*2*	*0*
Lane Group	*L*		*R*					*LT*			*TR*	
Volume, V (vph)	*142*		*23*				*2*	*252*			*391*	*270*
% Heavy Vehicles, %HV	*8*		*8*				*1*	*1*			*2*	*2*
Peak-Hour Factor, PHF	*0.87*		*0.87*				*0.88*	*0.88*			*0.91*	*0.91*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*					*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*					*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*					*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*					*3.0*			*3.0*	
Filtering/Metering, I	*0.974*		*0.974*					*0.995*			*0.791*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*					*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*6*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width	*13.0*		*12.0*					*11.5*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*					*0*			*0*	
Min. Time for Pedestrians, G_p	*21.8*			*20.3*			*3.2*			*19.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *19.0*	G =	G =	G =	G = *31.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*163*		*20*					*288*			*727*	
Lane Group Capacity, c	*547*		*473*					*1732*			*1949*	
v/c Ratio, X	*0.30*		*0.04*					*0.17*			*0.37*	
Total Green Ratio, g/C	*0.32*		*0.32*					*0.52*			*0.52*	
Uniform Delay, d_1	*15.5*		*14.2*					*7.7*			*8.7*	
Progression Factor, PF	*1.000*		*1.000*					*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*					*0.50*			*0.50*	
Incremental Delay, d_2	*1.4*		*0.2*					*0.2*			*0.4*	
Initial Queue Delay, d_3	*0.0*		*0.0*					*0.0*			*0.0*	

Control Delay	*16.8*		*14.4*					*7.9*			*9.1*	
Lane Group LOS	*B*		*B*					*A*			*A*	
Approach Delay	*16.6*			*7.9*			*9.1*					
Approach LOS	*B*			*A*			*A*					
Intersection Delay	*10.0*			X_C = *0.34*			Intersection LOS			*A*		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*Englewood Ave & Vets Rd W RT*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* | North/South Street: *Veterans Rd W Right Turn Bay*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*23*				
Peak-Hour Factor, PHF	*1.00*	*0.71*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*32*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*T*				
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*390*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.88*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*443*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*1*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					*R*			
v (veh/h)					*443*			
C (m) (veh/h)					*1045*			
v/c					*0.42*			
95% queue length					*2.15*			
Control Delay (s/veh)					*11.0*			
LOS					*B*			
Approach Delay (s/veh)	--	--	*11.0*					
Approach LOS	--	--	*B*					

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Ave @ Veterans Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*1*	*1*		*1*			*0*	*3*	*0*
Lane Group		*TR*		*L*	*LT*		*L*				*LTR*	
Volume, V (vph)		*1*	*0*	*445*	*2*		*4*			*22*	*215*	*4*
% Heavy Vehicles, %HV		*1*	*1*	*3*	*3*		*1*			*1*	*1*	*1*
Peak-Hour Factor, PHF		*0.25*	*0.25*	*0.89*	*0.89*		*0.88*			*0.91*	*0.91*	*0.91*
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*			*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Arrival Type, AT		*3*		*3*	*3*		*3*				*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*		*3.0*				*3.0*	
Filtering/Metering, I		*1.000*		*0.983*	*0.983*		*0.988*				*1.000*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*12.0*		*13.0*	*13.0*		*10.0*				*11.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*		*0*	*0*		*0*				*0*	
Min. Time for Pedestrians, G_p	*31.2*			*3.2*			*18.1*			*11.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*4*		*250*	*252*		*5*				*264*	
Lane Group Capacity, c		*784*		*600*	*576*		*426*				*2050*	
v/c Ratio, X		*0.01*		*0.42*	*0.44*		*0.01*				*0.13*	
Total Green Ratio, g/C		*0.42*		*0.42*	*0.42*		*0.42*				*0.42*	
Uniform Delay, d_1		*10.2*		*12.4*	*12.5*		*10.3*				*10.8*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*		*1.000*				*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*		*0.50*				*0.50*	
Incremental Delay, d_2		*0.0*		*2.1*	*2.4*		*0.0*				*0.1*	

Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Control Delay		*10.2*		*14.4*	*14.9*		*10.3*				*10.9*	
Lane Group LOS		*B*		*B*	*B*		*B*				*B*	
Approach Delay	*10.2*			*14.6*			*10.3*			*10.9*		
Approach LOS	*B*			*B*			*B*			*B*		
Intersection Delay	*13.3*			X_C *= 0.28*			Intersection LOS			*B*		

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*Sharrotts Rd & Veterans Rd W*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 No-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Sharrotts Road* | North/South Street: *Veterans Road West*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*103*	*37*	*117*	*81*	*0*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*0*	*23*	*86*	*24*
%Thrus Left Lane				*50*		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*TR*		*LT*				*LT*	*TR*
PHF	*0.80*		*0.78*				*0.91*	*0.91*
Flow Rate (veh/h)	*174*		*253*				*72*	*73*
% Heavy Vehicles	*2*		*3*				*1*	*1*
No. Lanes	*1*		*1*		*0*		*2*	
Geometry Group	*2*		*2*				*1*	
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	*0.0*		*0.6*				*0.3*	*0.0*
Prop. Right-Turns	*0.3*		*0.0*				*0.0*	*0.4*
Prop. Heavy Vehicle	*0.0*		*0.0*				*0.0*	*0.0*
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*			*0.2*	*0.2*
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*			*-0.6*	*-0.6*
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*			*1.7*	*1.7*
hadj, computed	*-0.1*		*0.2*				*0.1*	*-0.2*

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value (s)	*3.20*		*3.20*				*3.20*	*3.20*
x, initial	*0.15*		*0.22*				*0.06*	*0.06*
hd, final value (s)	*4.42*		*4.62*				*4.98*	*4.69*
x, final value	*0.21*		*0.32*				*0.10*	*0.10*
Move-up time, m (s)	*2.0*		*2.0*				*2.0*	
Service Time, t_s (s)	*2.4*		*2.6*				*3.0*	*2.7*

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*424*		*503*				*322*	*323*
Delay (s/veh)	*8.62*		*9.82*				*8.53*	*8.18*
LOS	*A*		*A*				*A*	*A*
Approach: Delay (s/veh)	*8.62*		*9.82*				*8.35*	
LOS	*A*		*A*				*A*	
Intersection Delay (s/veh)	*9.09*							
Intersection LOS	*A*							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*Sharrotts Rd @ Veterans Rd E*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 No-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Sharrotts Road* | North/South Street: *Veterans Road East*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*37*	*88*	*0*	*0*	*135*	*19*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*63*	*97*	*138*	*0*	*0*	*0*
%Thrus Left Lane	*50*					

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*LT*		*TR*		*LT*	*TR*		
PHF	*0.80*		*0.78*		*0.99*	*0.99*		
Flow Rate (veh/h)	*155*		*197*		*111*	*188*		
% Heavy Vehicles	*2*		*5*		*1*	*1*		
No. Lanes	*1*		*1*		*2*		*0*	
Geometry Group	*2*		*2*		*1*			
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	*0.3*		*0.0*		*0.6*	*0.0*		
Prop. Right-Turns	*0.0*		*0.1*		*0.0*	*0.7*		
Prop. Heavy Vehicle	*0.0*		*0.0*		*0.0*	*0.0*		
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*		
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*		
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*		
hadj, computed	*0.1*		*0.0*		*0.1*	*-0.4*		

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value (s)	*3.20*		*3.20*		*3.20*	*3.20*		
x, initial	*0.14*		*0.18*		*0.10*	*0.17*		
hd, final value (s)	*4.91*		*4.78*		*4.90*	*4.34*		
x, final value	*0.21*		*0.26*		*0.15*	*0.23*		
Move-up time, m (s)	*2.0*		*2.0*		*2.0*			
Service Time, t_s (s)	*2.9*		*2.8*		*2.9*	*2.3*		

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*405*		*447*		*361*	*438*		
Delay (s/veh)	*9.22*		*9.46*		*8.77*	*8.61*		
LOS	*A*		*A*		*A*	*A*		
Approach: Delay (s/veh)	*9.22*		*9.46*		*8.67*			
LOS	*A*		*A*		*A*			
Intersection Delay (s/veh)	*9.04*							
Intersection LOS	*A*							

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Ave @ Vets Rd E*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*3*	*0*			
Lane Group		*LT*	*R*		*LTR*			*LTR*				
Volume, V (vph)	*187*	*115*	*111*	*7*	*46*	*8*	*402*	*102*	*2*			
% Heavy Vehicles, %HV	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*			
Peak-Hour Factor, PHF	*0.85*	*0.85*	*0.85*	*0.87*	*0.87*	*0.87*	*0.89*	*0.89*	*0.89*			
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*			
Start-up Lost Time, l_1		*2.0*	*2.0*		*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*	*2.0*		*2.0*			*2.0*				
Arrival Type, AT		*3*	*3*		*3*			*3*				
Unit Extension, UE		*3.0*	*3.0*		*3.0*			*3.0*				
Filtering/Metering, I		*0.999*	*0.999*		*0.996*			*0.980*				
Initial Unmet Demand, Q_b		*0.0*	*0.0*		*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*53*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width		*13.0*	*12.0*		*11.5*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B		*0*	*0*		*0*			*0*				
Min. Time for Pedestrians, G_p	*21.2*			*12.9*			*14.3*			*17.5*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *21.0*	G =	G =	G =	G = *29.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*355*	*68*		*70*			*569*				
Lane Group Capacity, c		*524*	*560*		*533*			*2302*				
v/c Ratio, X		*0.68*	*0.12*		*0.13*			*0.25*				
Total Green Ratio, g/C		*0.35*	*0.35*		*0.35*			*0.48*				
Uniform Delay, d_1		*16.6*	*13.2*		*13.3*			*9.1*				
Progression Factor, PF		*1.000*	*1.000*		*1.000*			*1.000*				
Delay Calibration, k		*0.50*	*0.50*		*0.50*			*0.50*				
Incremental Delay, d_2		*6.9*	*0.4*		*0.5*			*0.3*				

Initial Queue Delay, d_3		*0.0*	*0.0*		*0.0*			*0.0*				
Control Delay		*23.5*	*13.7*		*13.8*			*9.3*				
Lane Group LOS		*C*	*B*		*B*			*A*				
Approach Delay	*21.9*			*13.8*			*9.3*					
Approach LOS	*C*			*B*			*A*					
Intersection Delay	*14.6*			X_C = *0.43*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Englewood Av & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*84*		*33*				*18*	*451*			*451*	*44*
% Heavy Vehicles, %HV	*3*		*3*				*1*	*1*			*4*	*4*
Peak-Hour Factor, PHF	*0.96*		*0.96*				*0.86*	*0.86*			*0.92*	*0.92*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.984*						*0.880*			*0.893*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*16.0*						*14.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B		*0*						*2*			*7*	
Min. Time for Pedestrians, G_p	*14.9*			*15.5*			*3.2*			*17.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*122*						*545*			*538*	
Lane Group Capacity, c		*453*						*1099*			*1127*	
v/c Ratio, X		*0.27*						*0.50*			*0.48*	
Total Green Ratio, g/C		*0.27*						*0.57*			*0.57*	
Uniform Delay, d_1		*17.4*						*7.8*			*7.7*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*1.4*						*1.4*			*1.3*	
Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	

Control Delay		18.8						9.2			9.0	
Lane Group LOS		B						A			A	
Approach Delay	18.8						9.2			9.0		
Approach LOS	B						A			A		
Intersection Delay	10.1			X_C = 0.42			Intersection LOS			B		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Sharrotts Rd & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*143*		*83*				*22*	*427*			*388*	*135*
% Heavy Vehicles, %HV	*1*		*1*				*1*	*1*			*3*	*3*
Peak-Hour Factor, PHF	*0.80*		*0.80*				*0.86*	*0.86*			*0.92*	*0.92*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.911*						*0.834*			*0.880*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*21*
Lane Width		*16.0*						*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*2*			*7*	
Min. Time for Pedestrians, G_p	*18.6*			*18.6*			*3.2*			*16.6*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*283*						*523*			*546*	
Lane Group Capacity, c		*573*						*891*			*985*	
v/c Ratio, X		*0.49*						*0.59*			*0.55*	
Total Green Ratio, g/C		*0.33*						*0.50*			*0.50*	
Uniform Delay, d_1		*16.0*						*10.6*			*10.4*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*2.8*						*2.4*			*2.0*	
Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	

Control Delay		18.7						13.0			12.4	
Lane Group LOS		B						B			B	
Approach Delay	18.7						13.0			12.4		
Approach LOS	B						B			B		
Intersection Delay	13.9			X_C = 0.55			Intersection LOS			B		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Vets Rd E & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*	*0*	*3*	*0*	*1*	*1*			*1*	*0*
Lane Group	*L*		*R*		*LTR*		*L*	*T*			*TR*	
Volume, V (vph)	*4*		*114*	*266*	*450*	*266*	*51*	*198*			*479*	*5*
% Heavy Vehicles, %HV	*1*		*1*	*1*	*1*	*1*	*2*	*2*			*4*	*4*
Peak-Hour Factor, PHF	*0.95*		*0.95*	*0.88*	*0.88*	*0.88*	*0.92*	*0.92*			*0.87*	*0.87*
Pretimed (P) or Actuated (A)	*P*		*P*	*P*	*P*	*P*	*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*		*3*		*3*	*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*		*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I	*0.848*		*0.848*		*0.500*		*0.930*	*0.930*			*0.865*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Lane Width	*10.0*		*13.0*		*11.0*		*12.0*	*12.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*		*0*		*0*	*2*			*7*	
Min. Time for Pedestrians, G_p	*17.2*			*16.9*			*3.2*			*20.9*		

Phasing	EB Only	WB Only	03	04	NS Perm	06	07	08
Timing	G = *8.0*	G = *17.0*	G =	G =	G = *20.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*4*		*120*		*1115*		*55*	*215*			*557*	
Lane Group Capacity, c	*222*		*220*		*1329*		*124*	*616*			*670*	
v/c Ratio, X	*0.02*		*0.55*		*0.84*		*0.44*	*0.35*			*0.83*	
Total Green Ratio, g/C	*0.13*		*0.13*		*0.28*		*0.33*	*0.33*			*0.33*	
Uniform Delay, d_1	*22.6*		*24.3*		*20.2*		*15.6*	*15.1*			*18.4*	
Progression Factor, PF	*1.000*		*1.000*		*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*		*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2	*0.1*		*8.0*		*3.4*		*10.3*	*1.4*			*10.1*	

Initial Queue Delay, d_3	0.0		0.0		0.0		0.0	0.0			0.0	
Control Delay	22.7		32.3		23.6		26.0	16.5			28.6	
Lane Group LOS	C		C		C		C	B			C	
Approach Delay	32.0			23.6			18.5			28.6		
Approach LOS	C			C			B			C		
Intersection Delay	24.8			X_C = 0.78			Intersection LOS			C		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*S Service Rd & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*				*0*	*1*	*0*	*1*	*1*	*0*
Lane Group		*LTR*						*LTR*		*L*	*TR*	
Volume, V (vph)	*9*	*20*	*6*				*8*	*240*	*118*	*308*	*502*	*50*
% Heavy Vehicles, %HV	*2*	*2*	*2*				*2*	*2*	*2*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.63*	*0.63*	*0.63*				*0.92*	*0.92*	*0.92*	*0.93*	*0.93*	*0.93*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*				*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*		*2.0*	*2.0*	
Arrival Type, AT		*3*						*3*		*3*	*3*	
Unit Extension, UE		*3.0*						*3.0*		*3.0*	*3.0*	
Filtering/Metering, I		*1.000*						*0.922*		*0.564*	*0.564*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*12*
Lane Width		*13.0*						*16.0*		*12.0*	*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*2*		*0*	*7*	
Min. Time for Pedestrians, G_p	*17.5*			*16.9*			*12.6*			*12.9*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *17.0*	G =	G =	G =	G = *33.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*56*						*398*		*331*	*581*	
Lane Group Capacity, c		*460*						*953*		*538*	*985*	
v/c Ratio, X		*0.12*						*0.42*		*0.62*	*0.59*	
Total Green Ratio, g/C		*0.28*						*0.55*		*0.55*	*0.55*	
Uniform Delay, d_1		*16.0*						*7.9*		*9.2*	*9.0*	
Progression Factor, PF		*1.000*						*1.000*		*1.000*	*1.000*	
Delay Calibration, k		*0.50*						*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2		*0.5*						*1.2*		*3.0*	*1.5*	

Initial Queue Delay, d_3		*0.0*						*0.0*		*0.0*	*0.0*	
Control Delay		*16.5*						*9.1*		*12.1*	*10.5*	
Lane Group LOS		*B*						*A*		*B*	*B*	
Approach Delay	*16.5*						*9.1*			*11.1*		
Approach LOS	*B*						*A*			*B*		
Intersection Delay	*10.7*			X_C = *0.45*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Amboy Rd & Bloomingdale Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*1*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*		*L*	*T*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*6*	*12*	*20*	*258*	*28*	*106*	*18*	*254*	*169*	*91*	*382*	*9*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*3*	*3*	*3*	*1*	*1*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.70*	*0.70*	*0.70*	*0.87*	*0.87*	*0.87*	*0.92*	*0.92*	*0.92*	*0.87*	*0.87*	*0.87*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*		*3*	*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*		*0.905*	*0.905*	*0.905*		*0.663*			*0.229*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*50*	*0*	*0*	*0*	*0*	*0*	*50*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*		*12.0*	*11.0*	*11.0*		*11.0*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*2*		*0*	*0*	*2*		*0*			*0*	
Min. Time for Pedestrians, G_p	*11.5*			*11.8*			*18.9*			*18.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*55*		*297*	*32*	*122*		*480*			*554*	
Lane Group Capacity, c		*632*		*560*	*792*	*585*		*727*			*640*	
v/c Ratio, X		*0.09*		*0.53*	*0.04*	*0.21*		*0.66*			*0.87*	
Total Green Ratio, g/C		*0.44*		*0.44*	*0.44*	*0.44*		*0.44*			*0.44*	
Uniform Delay, d_1		*14.4*		*18.2*	*14.1*	*15.3*		*19.7*			*22.6*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*	*0.50*		*0.50*			*0.50*	
Incremental Delay, d_2		*0.3*		*3.2*	*0.1*	*0.7*		*3.1*			*3.9*	

Initial Queue Delay, d_3		0.0		0.0	0.0	0.0		0.0			0.0	
Control Delay		14.7		21.4	14.2	16.0		22.8			26.5	
Lane Group LOS		B		C	B	B		C			C	
Approach Delay	14.7			19.4			22.8			26.5		
Approach LOS	B			B			C			C		
Intersection Delay	22.8			X_C = 0.70			Intersection LOS			C		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Arthur Kill Rd & Bloomingdl Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*0*	*1*		*0*		*0*			
Lane Group		*TR*			*LT*			*LR*				
Volume, V (vph)		*136*	*245*	*49*	*149*		*139*		*55*			
% Heavy Vehicles, %HV		*5*	*5*	*8*	*8*		*1*		*1*			
Peak-Hour Factor, PHF		*0.82*	*0.82*	*0.83*	*0.83*		*0.67*		*0.67*			
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*		*P*			
Start-up Lost Time, l_1		*2.0*			*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*			*2.0*			*2.0*				
Arrival Type, AT		*3*			*3*			*3*				
Unit Extension, UE		*3.0*			*3.0*			*3.0*				
Filtering/Metering, I		*0.927*			*0.989*			*0.917*				
Initial Unmet Demand, Q_b		*0.0*			*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*59*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	
Lane Width		*16.0*			*16.0*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m									*5*			
Buses Stopping, N_B		*5*			*0*			*0*				
Min. Time for Pedestrians, G_p	*18.3*			*3.2*			*15.2*			*17.2*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*393*			*239*			*289*				
Lane Group Capacity, c		*927*			*836*			*574*				
v/c Ratio, X		*0.42*			*0.29*			*0.50*				
Total Green Ratio, g/C		*0.50*			*0.50*			*0.39*				
Uniform Delay, d_1		*14.3*			*13.1*			*20.9*				
Progression Factor, PF		*1.000*			*1.000*			*1.000*				
Delay Calibration, k		*0.50*			*0.50*			*0.50*				
Incremental Delay, d_2		*1.3*			*0.9*			*2.9*				
Initial Queue Delay, d_3		*0.0*			*0.0*			*0.0*				

Control Delay		15.6			14.0			23.8				
Lane Group LOS		B			B			C				
Approach Delay	15.6			14.0			23.8					
Approach LOS	B			B			C					
Intersection Delay	17.7			X_C = 0.46			Intersection LOS			B		

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Saturday

Midday

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Saturday 12:45-1:45 Peak Pd*

Site Information

Intersection	*Sharrotts Rd & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Sharrotts Road* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*11*	*198*	*49*	*28*	*220*	*27*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.88*	*0.88*	*0.88*
Hourly Flow Rate, HFR (veh/h)	*11*	*215*	*53*	*31*	*250*	*30*
Percent Heavy Vehicles	*3*	--	--	*5*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*26*	*32*	*23*	*60*	*17*	*40*
Peak-Hour Factor, PHF	*0.40*	*0.40*	*0.40*	*0.78*	*0.78*	*0.78*
Hourly Flow Rate, HFR (veh/h)	*64*	*79*	*57*	*76*	*21*	*51*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (veh/h)	*11*	*31*		*148*			*200*	
C (m) (veh/h)	*1277*	*1278*		*390*			*436*	
v/c	*0.01*	*0.02*		*0.38*			*0.46*	
95% queue length	*0.03*	*0.07*		*1.74*			*2.35*	
Control Delay (s/veh)	*7.8*	*7.9*		*19.8*			*20.1*	
LOS	*A*	*A*		*C*			*C*	
Approach Delay (s/veh)	--	--	*19.8*			*20.1*		
Approach LOS	--	--	*C*			*C*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*Englewood Ave & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*240*	*12*	*16*	*287*	
Peak-Hour Factor, PHF	*1.00*	*0.92*	*0.92*	*0.88*	*0.88*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*260*	*13*	*18*	*326*	*0*
Percent Heavy Vehicles	*0*	--	--	*5*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*9*		*19*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.75*	*1.00*	*0.75*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*12*	*0*	*25*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (veh/h)		*18*		*37*				
C (m) (veh/h)		*1273*		*619*				
v/c		*0.01*		*0.06*				
95% queue length		*0.04*		*0.19*				
Control Delay (s/veh)		*7.9*		*11.2*				
LOS		*A*		*B*				
Approach Delay (s/veh)	--	--	*11.2*					
Approach LOS	--	--	*B*					

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*			*LT*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*0*	*9*	*5*	*277*	*26*	*342*	*5*	*162*	*330*	*143*	*204*	*0*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*2*	*2*	*2*	*5*	*5*	*5*	*3*	*3*	*3*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*			*0.849*	*0.849*		*0.861*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*15.5*			*11.0*	*10.0*		*15.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*			*0*	*0*		*2*			*2*	
Min. Time for Pedestrians, G_p	*11.5*			*13.5*			*15.2*			*12.1*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*15*			*329*	*372*		*546*			*381*	
Lane Group Capacity, c		*724*			*550*	*539*		*746*			*466*	
v/c Ratio, X		*0.02*			*0.60*	*0.69*		*0.73*			*0.82*	
Total Green Ratio, g/C		*0.42*			*0.42*	*0.42*		*0.42*			*0.42*	
Uniform Delay, d_1		*10.3*			*13.6*	*14.3*		*14.7*			*15.5*	
Progression Factor, PF		*1.000*			*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*	*0.50*		*0.50*			*0.50*	
Incremental Delay, d_2		*0.1*			*4.0*	*6.1*		*5.4*			*14.7*	

Initial Queue Delay, d_3		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Control Delay		*10.3*			*17.6*	*20.4*		*20.1*			*30.2*	
Lane Group LOS		*B*			*B*	*C*		*C*			*C*	
Approach Delay	*10.3*			*19.1*			*20.1*			*30.2*		
Approach LOS	*B*			*B*			*C*			*C*		
Intersection Delay	*21.9*			X_C *= 0.75*			Intersection LOS			*C*		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*No Bridge St & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*			*1*	
Lane Group					*LR*			*T*			*T*	
Volume, V (vph)				*493*		*8*		*488*			*487*	
% Heavy Vehicles, %HV				*1*		*1*		*5*			*4*	
Peak-Hour Factor, PHF				*0.86*		*0.86*		*0.91*			*0.91*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*			*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.483*			*0.865*			*0.367*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	
Lane Width					*16.0*			*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B					*0*			*0*			*2*	
Min. Time for Pedestrians, G_p	*13.5*			*13.8*			*3.2*			*3.2*		

Phasing	WB Only	02	03	04	Thru Only	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*582*			*536*			*535*	
Lane Group Capacity, c					*676*			*1026*			*1027*	
v/c Ratio, X					*0.86*			*0.52*			*0.52*	
Total Green Ratio, g/C					*0.33*			*0.50*			*0.50*	
Uniform Delay, d_1					*18.7*			*10.2*			*10.1*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*7.1*			*1.6*			*0.7*	
Initial Queue Delay, d_3					*0.0*			*0.0*			*0.0*	

Control Delay					25.8			11.8			10.8	
Lane Group LOS					C			B			B	
Approach Delay				25.8			11.8			10.8		
Approach LOS				C			B			B		
Intersection Delay	16.4			X_C = 0.66			Intersection LOS			B		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*So Bridge St & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *South Bridge Street* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*488*	*262*	*175*	*804*	
Peak-Hour Factor, PHF	*1.00*	*0.91*	*0.91*	*0.91*	*0.91*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*536*	*287*	*192*	*883*	*0*
Percent Heavy Vehicles	*0*	--	--	*6*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration						

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*						
v (veh/h)		*192*						
C (m) (veh/h)		*790*						
v/c		*0.24*						
95% queue length		*0.95*						
Control Delay (s/veh)		*11.0*						
LOS		*B*						
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Rch Valley Rd & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:15-1:45 PM Peak Pd*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*	*0*	*0*	*1*	
Lane Group					*LR*			*TR*			*LT*	
Volume, V (vph)				*104*		*186*		*547*	*90*	*130*	*649*	
% Heavy Vehicles, %HV				*1*		*1*		*2*	*2*	*2*	*2*	
Peak-Hour Factor, PHF				*0.89*		*0.89*		*0.91*	*0.91*	*0.91*	*0.91*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*	*P*	*P*	*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.940*			*0.789*			*0.272*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width					*12.0*			*15.0*			*15.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B					*0*			*2*			*2*	
Min. Time for Pedestrians, G_p	*11.8*			*11.8*			*14.1*			*3.2*		

Phasing	WB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*326*			*700*			*856*	
Lane Group Capacity, c					*394*			*1130*			*763*	
v/c Ratio, X					*0.83*			*0.62*			*1.12*	
Total Green Ratio, g/C					*0.27*			*0.57*			*0.57*	
Uniform Delay, d_1					*20.7*			*8.7*			*13.0*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*16.9*			*2.0*			*60.2*	
Initial Queue Delay, d_3					*0.0*			*0.0*			*0.0*	

Control Delay					*37.6*			*10.7*			*73.2*	
Lane Group LOS					*D*			*B*			*E*	
Approach Delay				*37.6*			*10.7*			*73.2*		
Approach LOS				*D*			*B*			*E*		
Intersection Delay	*43.8*			X_C = *1.03*			Intersection LOS			*D*		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Richmond Valley Rd & Page Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*0*	*1*	*1*	*0*	*0*	*2*	*0*
Lane Group		*LTR*			*LTR*		*L*	*TR*			*LTR*	
Volume, V (vph)	*101*	*45*	*91*	*29*	*88*	*35*	*133*	*707*	*138*	*26*	*560*	*96*
% Heavy Vehicles, %HV	*0*	*0*	*0*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.78*	*0.78*	*0.78*	*0.73*	*0.73*	*0.73*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.533*			*1.000*		*0.561*	*0.561*			*0.957*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*20*
Lane Width		*16.0*			*15.0*		*10.0*	*14.0*			*10.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*
Parking Maneuvers, N_m						*5*						*5*
Buses Stopping, N_B		*0*			*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*16.6*			*21.5*			*16.3*			*21.2*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *31.0*	G =	G =	G =	G = *49.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*304*			*209*		*145*	*918*			*720*	
Lane Group Capacity, c		*520*			*544*		*318*	*1065*			*1276*	
v/c Ratio, X		*0.58*			*0.38*		*0.46*	*0.86*			*0.56*	
Total Green Ratio, g/C		*0.34*			*0.34*		*0.54*	*0.54*			*0.54*	
Uniform Delay, d_1		*24.2*			*22.3*		*12.4*	*17.6*			*13.5*	
Progression Factor, PF		*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2		*2.6*			*2.0*		*2.6*	*5.4*			*1.7*	

Initial Queue Delay, d_3		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay		*26.8*			*24.3*		*15.1*	*23.0*			*15.2*	
Lane Group LOS		*C*			*C*		*B*	*C*			*B*	
Approach Delay	*26.8*			*24.3*			*22.0*			*15.2*		
Approach LOS	*C*			*C*			*C*			*B*		
Intersection Delay	*20.7*			X_C *= 0.75*			Intersection LOS			*C*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*S Bridge St RT & Page Ave*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *South Bridge Street Right Turn* | North/South Street: *Page Avenue*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*625*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.92*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*679*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*2*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*55*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.88*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*62*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*5*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								*R*
v (veh/h)								*62*
C (m) (veh/h)								*696*
v/c								*0.09*
95% queue length								*0.29*
Control Delay (s/veh)								*10.7*
LOS								*B*
Approach Delay (s/veh)	--	--				*10.7*		
Approach LOS	--	--				*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*S Br St & Page Ave/Boscome Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*							*2*			*2*	
Lane Group	*L*							*T*			*T*	
Volume, V (vph)	*381*							*843*			*625*	
% Heavy Vehicles, %HV	*2*							*2*			*3*	
Peak-Hour Factor, PHF	*0.86*							*0.96*			*0.92*	
Pretimed (P) or Actuated (A)	*P*							*P*			*P*	
Start-up Lost Time, l_1	*2.0*							*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*							*2.0*			*2.0*	
Arrival Type, AT	*3*							*3*			*3*	
Unit Extension, UE	*3.0*							*3.0*			*3.0*	
Filtering/Metering, I	*1.000*							*0.567*			*0.957*	
Initial Unmet Demand, Q_b	*0.0*							*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*		*0*	*0*		*0*	*0*	
Lane Width	*16.0*							*14.5*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*							*0*			*0*	
Min. Time for Pedestrians, G_p	*3.2*			*20.1*			*3.2*			*3.2*		

Phasing	EB Only	02	03	04	Thru Only	06	07	08
Timing	G = *30.0*	G =	G =	G =	G = *50.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*443*							*878*			*679*	
Lane Group Capacity, c	*669*							*2134*			*1951*	
v/c Ratio, X	*0.66*							*0.41*			*0.35*	
Total Green Ratio, g/C	*0.33*							*0.56*			*0.56*	
Uniform Delay, d_1	*25.7*							*11.5*			*11.0*	
Progression Factor, PF	*1.000*							*1.000*			*1.000*	
Delay Calibration, k	*0.50*							*0.50*			*0.50*	
Incremental Delay, d_2	*5.1*							*0.3*			*0.5*	
Initial Queue Delay, d_3	*0.0*							*0.0*			*0.0*	

Control Delay	*30.8*							*11.9*			*11.5*	
Lane Group LOS	*C*							*B*			*B*	
Approach Delay	*30.8*						*11.9*			*11.5*		
Approach LOS	*C*						*B*			*B*		
Intersection Delay	*15.9*			X_C = *0.51*			Intersection LOS			*B*		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*KWVP WB OR UT & No Bridge St*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *KWVP WB Off-Ramp U-Turn* | North/South Street: *North Bridge Street*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*560*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.93*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*602*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*1*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*228*		
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.90*	*0.90*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*253*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*60*	*1*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*0*
Configuration				*L*		

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration			*L*					
v (veh/h)			*253*					
C (m) (veh/h)			*464*					
v/c			*0.55*					
95% queue length			*3.21*					
Control Delay (s/veh)			*21.7*					
LOS			*C*					
Approach Delay (s/veh)	--	--	*21.7*					
Approach LOS	--	--	*C*					

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	KM	Intersection	Veterans Rd W & Bricktown/KWVP
Agency or Co.	AECOM	Area Type	All other areas
Date Performed	10/24/2012	Jurisdiction	Staten Island
Time Period	Saturday 12:45-1:45 PM MD Peak	Analysis Year	2015 No-Action Conditions
		Project ID	Charleston EIS

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	1	1	0	1	2	0	0	2	0	1	1	0
Lane Group	L	TR		L	TR			LTR		L	TR	
Volume, V (vph)	96	185	202	263	429	46	126	183	280	43	96	89
% Heavy Vehicles, %HV	1	1	1	3	3	3	1	1	1	1	1	1
Peak-Hour Factor, PHF	0.93	0.93	0.93	0.96	0.78	0.78	0.90	0.90	0.90	0.84	0.84	0.84
Pretimed (P) or Actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up Lost Time, l_1	2.0	2.0		2.0	2.0			2.0		2.0	2.0	
Extension of Effective Green, e	2.0	2.0		3.0	3.0			2.0		2.0	2.0	
Arrival Type, AT	3	3		3	3			3		3	3	
Unit Extension, UE	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Filtering/Metering, I	0.700	0.700		0.903	0.903			1.000		0.855	0.855	
Initial Unmet Demand, Q_b	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Ped / Bike / RTOR Volumes	0	0	48	0	0	11	0	0	0	0	0	0
Lane Width	11.0	12.0		10.0	12.0			12.5		11.0	10.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0		0	0			0		0	0	
Min. Time for Pedestrians, G_p	34.6			18.6			20.3			16.1		

Phasing	EW Perm	02	03	04	NB Only	SB Only	07	08
Timing	G = 30.0	G =	G =	G =	G = 25.0	G = 20.0	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y = 5	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	103	365		274	595			654		51	220	
Lane Group Capacity, c	195	584		221	1196			929		384	362	
v/c Ratio, X	0.53	0.63		1.24	0.50			0.70		0.13	0.61	
Total Green Ratio, g/C	0.33	0.33		0.34	0.34			0.28		0.22	0.22	
Uniform Delay, d_1	24.3	25.3		29.5	23.3			29.2		28.1	31.5	
Progression Factor, PF	1.000	1.000		1.000	1.000			1.000		1.000	1.000	
Delay Calibration, k	0.50	0.50		0.50	0.50			0.50		0.50	0.50	
Incremental Delay, d_2	7.0	3.5		137.7	1.3			4.5		0.6	6.4	

Initial Queue Delay, d_3	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Control Delay	31.3	28.8		167.2	24.7			33.6		28.7	37.8	
Lane Group LOS	C	C		F	C			C		C	D	
Approach Delay	29.3			69.6			33.6			36.1		
Approach LOS	C			E			C			D		
Intersection Delay	46.9			X_C = 0.90			Intersection LOS			D		

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*Bricktown Way/Tyrellan Avenue*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 No-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Bricktown Way* | North/South Street: *Tyrellan Avenue*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*193*	*32*	*107*	*173*	*0*
%Thrus Left Lane	*50*			*50*		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*55*	*0*	*92*	*0*	*0*	*0*
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*T*	*TR*	*LT*	*T*	*L*	*R*		
PHF	*0.85*	*0.85*	*0.91*	*0.91*	*0.89*	*0.89*		
Flow Rate (veh/h)	*112*	*151*	*211*	*95*	*61*	*103*		
% Heavy Vehicles	*0*	*0*	*0*	*1*	*1*	*1*		
No. Lanes	*2*		*2*		*2*		*0*	
Geometry Group	*5*		*5*		*1*			
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	*0.0*	*0.0*	*0.6*	*0.0*	*1.0*	*0.0*		
Prop. Right-Turns	*0.0*	*0.2*	*0.0*	*0.0*	*0.0*	*1.0*		
Prop. Heavy Vehicle	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*		
hLT-adj	*0.5*	*0.5*	*0.5*	*0.5*	*0.2*	*0.2*		
hRT-adj	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.6*	*-0.6*		
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*		
hadj, computed	*0.0*	*-0.2*	*0.3*	*0.0*	*0.2*	*-0.6*		

Departure Headway and Service Time

hd, initial value (s)	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*		
x, initial	*0.10*	*0.13*	*0.19*	*0.08*	*0.05*	*0.09*		
hd, final value (s)	*5.23*	*5.06*	*5.45*	*5.19*	*5.41*	*4.61*		
x, final value	*0.16*	*0.21*	*0.32*	*0.14*	*0.09*	*0.13*		
Move-up time, m (s)	*2.3*		*2.3*		*2.0*			
Service Time, t_s (s)	*2.9*	*2.8*	*3.2*	*2.9*	*3.4*	*2.6*		

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*362*	*401*	*461*	*345*	*311*	*353*		
Delay (s/veh)	*8.95*	*9.12*	*10.70*	*8.72*	*8.95*	*8.31*		
LOS	*A*	*A*	*B*	*A*	*A*	*A*		
Approach: Delay (s/veh)	*9.05*		*10.08*		*8.55*			
LOS	*A*		*B*		*A*			
Intersection Delay (s/veh)	*9.37*							
Intersection LOS	*A*							

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*SFR NB-DefL = 2050*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*
Lane Group		*LTR*			*LTR*		*DefL*	*TR*			*LTR*	
Volume, V (vph)	*79*	*123*	*264*	*161*	*357*	*24*	*229*	*200*	*112*	*25*	*521*	*162*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*1*	*1*	*1*	*1*	*1*	*1*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.78*	*0.78*	*0.78*	*0.94*	*0.91*	*0.91*	*0.93*	*0.93*	*0.93*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.830*			*0.865*		*1.000*	*1.000*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*			*12.0*		*13.0*	*13.0*			*9.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*			*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*18.6*			*16.6*			*20.1*			*19.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*507*			*695*		*244*	*343*			*761*	
Lane Group Capacity, c		*1016*			*1040*		*260*	*817*			*1328*	
v/c Ratio, X		*0.50*			*0.67*		*0.94*	*0.42*			*0.57*	
Total Green Ratio, g/C		*0.44*			*0.44*		*0.44*	*0.44*			*0.44*	
Uniform Delay, d_1		*17.8*			*19.8*		*23.8*	*17.1*			*18.6*	
Progression Factor, PF		*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2		*1.5*			*3.0*		*42.0*	*1.6*			*1.8*	

Initial Queue Delay, d_3		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay		*19.3*			*22.7*		*65.8*	*18.7*			*20.4*	
Lane Group LOS		*B*			*C*		*E*	*B*			*C*	
Approach Delay	*19.3*			*22.7*			*38.3*			*20.4*		
Approach LOS	*B*			*C*			*D*			*C*		
Intersection Delay	*24.9*			X_C *= 0.80*			Intersection LOS			*C*		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Boscombe Ave & OBX Off-Ramp*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Sat Flw Rate EB-L = 2100*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*			*1*	*1*				*2*		*1*
Lane Group	*L*	*T*			*T*	*R*				*L*		*R*
Volume, V (vph)	*849*	*375*			*420*	*521*				*166*		*206*
% Heavy Vehicles, %HV	*1*	*1*			*1*	*1*				*1*		*1*
Peak-Hour Factor, PHF	*0.97*	*0.96*			*0.94*	*0.97*				*0.92*		*0.92*
Pretimed (P) or Actuated (A)	*P*	*P*			*P*	*P*				*P*		*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*	*2.0*				*2.0*		*2.0*
Extension of Effective Green, e	*3.0*	*2.0*			*2.0*	*2.0*				*2.0*		*2.0*
Arrival Type, AT	*3*	*3*			*3*	*3*				*3*		*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*	*3.0*				*3.0*		*3.0*
Filtering/Metering, I	*0.508*	*0.508*			*0.176*	*0.176*				*1.000*		*1.000*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*	*0.0*				*0.0*		*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*119*	*0*	*0*		*0*	*0*	*0*
Lane Width	*11.0*	*12.0*			*12.0*	*12.0*				*10.0*		*10.0*
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B	*0*	*0*			*0*	*0*				*0*		*0*
Min. Time for Pedestrians, G_p	*14.6*			*24.6*			*3.2*			*20.1*		

Phasing	EB Only	EW Perm	03	04	SB Only	06	07	08
Timing	G = *37.0*	G = *22.0*	G =	G =	G = *16.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*875*	*391*			*447*	*414*				*180*		*224*
Lane Group Capacity, c	*895*	*1170*			*460*	*391*				*576*		*962*
v/c Ratio, X	*0.98*	*0.33*			*0.97*	*1.06*				*0.31*		*0.23*
Total Green Ratio, g/C	*0.72*	*0.71*			*0.24*	*0.24*				*0.18*		*0.64*
Uniform Delay, d_1	*20.9*	*4.9*			*33.7*	*34.0*				*32.2*		*6.7*
Progression Factor, PF	*1.000*	*1.000*			*1.000*	*1.000*				*1.000*		*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*	*0.50*				*0.50*		*0.50*
Incremental Delay, d_2	*16.8*	*0.4*			*12.1*	*36.9*				*1.4*		*0.6*
Initial Queue Delay, d_3	*0.0*	*0.0*			*0.0*	*0.0*				*0.0*		*0.0*

Control Delay	37.6	5.3			45.8	70.9				33.6		7.3
Lane Group LOS	D	A			D	E				C		A
Approach Delay	27.6			57.9						19.0		
Approach LOS	C			E						B		
Intersection Delay	36.6			X_C = 0.87			Intersection LOS			D		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Boscombe Ave & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*1*	*1*
Lane Group	*DefL*	*TR*			*LTR*			*LTR*			*LT*	*R*
Volume, V (vph)	*497*	*45*	*0*	*0*	*45*	*56*	*0*	*0*	*1*	*81*	*0*	*896*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.96*	*0.96*	*0.96*	*0.91*	*0.91*	*0.91*	*0.90*	*0.90*	*0.90*	*0.93*	*0.93*	*0.93*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*			*2.0*			*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*			*2.0*			*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*			*3*			*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*			*3.0*			*3.0*	*3.0*
Filtering/Metering, I	*0.967*	*0.967*			*1.000*			*1.000*			*0.855*	*0.855*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*			*0.0*			*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*14*	*0*	*0*	*0*	*0*	*0*	*398*
Lane Width	*16.0*	*16.0*			*11.5*			*12.0*			*12.0*	*12.0*
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*			*0*			*0*			*0*	*0*
Min. Time for Pedestrians, G_p	*20.3*			*17.5*			*20.3*			*20.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*518*	*47*			*95*			*1*			*87*	*535*
Lane Group Capacity, c	*738*	*1066*			*1633*			*1184*			*546*	*622*
v/c Ratio, X	*0.70*	*0.04*			*0.06*			*0.00*			*0.16*	*0.86*
Total Green Ratio, g/C	*0.50*	*0.50*			*0.50*			*0.39*			*0.39*	*0.39*
Uniform Delay, d_1	*17.3*	*11.5*			*11.6*			*16.8*			*17.9*	*25.3*
Progression Factor, PF	*1.000*	*1.000*			*1.000*			*1.000*			*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*			*0.50*			*0.50*	*0.50*
Incremental Delay, d_2	*5.3*	*0.1*			*0.1*			*0.0*			*0.5*	*12.7*

Initial Queue Delay, d_3	0.0	0.0			0.0			0.0			0.0	0.0
Control Delay	22.7	11.6			11.7			16.8			18.4	37.9
Lane Group LOS	C	B			B			B			B	D
Approach Delay	21.8			11.7			16.8			35.2		
Approach LOS	C			B			B			D		
Intersection Delay	27.5			X_C = 0.77			Intersection LOS			C		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Bricktown Ctr Rd @ Vets Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*				*0*	*2*			*2*	*0*
Lane Group	*L*		*R*					*LT*			*TR*	
Volume, V (vph)	*250*		*34*				*5*	*256*			*508*	*461*
% Heavy Vehicles, %HV	*3*		*3*				*1*	*1*			*1*	*1*
Peak-Hour Factor, PHF	*0.85*		*0.85*				*0.88*	*0.88*			*0.89*	*0.89*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*					*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*					*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*					*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*					*3.0*			*3.0*	
Filtering/Metering, I	*0.892*		*0.892*					*0.995*			*0.487*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*					*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*9*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width	*13.0*		*12.0*					*11.5*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*					*0*			*0*	
Min. Time for Pedestrians, G_p	*21.8*			*20.3*			*3.2*			*19.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *19.0*	G =	G =	G =	G = *31.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*294*		*29*					*297*			*1089*	
Lane Group Capacity, c	*573*		*497*					*1702*			*1948*	
v/c Ratio, X	*0.51*		*0.06*					*0.17*			*0.56*	
Total Green Ratio, g/C	*0.32*		*0.32*					*0.52*			*0.52*	
Uniform Delay, d_1	*16.7*		*14.3*					*7.7*			*9.9*	
Progression Factor, PF	*1.000*		*1.000*					*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*					*0.50*			*0.50*	
Incremental Delay, d_2	*2.9*		*0.2*					*0.2*			*0.6*	
Initial Queue Delay, d_3	*0.0*		*0.0*					*0.0*			*0.0*	

Control Delay	*19.6*		*14.5*					*7.9*			*10.4*	
Lane Group LOS	*B*		*B*					*A*			*B*	
Approach Delay	*19.2*						*7.9*			*10.4*		
Approach LOS	*B*						*A*			*B*		
Intersection Delay	*11.6*			X_C = *0.54*			Intersection LOS			*B*		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*Englewood Ave & Vets Rd W RT*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* | North/South Street: *Veterans Rd W Right Turn Bay*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*28*				
Peak-Hour Factor, PHF	*1.00*	*0.69*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*40*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*T*				
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*501*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.88*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*569*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					*R*			
v (veh/h)					*569*			
C (m) (veh/h)					*1037*			
v/c					*0.55*			
95% queue length					*3.44*			
Control Delay (s/veh)					*12.6*			
LOS					*B*			
Approach Delay (s/veh)	--	--	*12.6*					
Approach LOS	--	--	*B*					

HCS+™ Version 5.4

Generated: 4/10/2013 1:18 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Ave @ Veterans Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*1*	*1*		*1*			*0*	*3*	*0*
Lane Group		*TR*		*L*	*LT*		*L*				*LTR*	
Volume, V (vph)		*1*	*0*	*685*	*2*		*5*			*27*	*285*	*1*
% Heavy Vehicles, %HV		*1*	*1*	*2*	*2*		*0*			*2*	*2*	*2*
Peak-Hour Factor, PHF		*0.25*	*0.25*	*0.91*	*0.91*		*0.88*			*0.89*	*0.89*	*0.89*
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*			*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Arrival Type, AT		*3*		*3*	*3*		*3*				*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*		*3.0*				*3.0*	
Filtering/Metering, I		*1.000*		*0.971*	*0.971*		*0.951*				*1.000*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*12.0*		*13.0*	*13.0*		*10.0*				*11.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*		*0*	*0*		*0*				*0*	
Min. Time for Pedestrians, G_p	*31.2*			*3.2*			*18.1*			*11.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*4*		*565*	*190*		*6*				*351*	
Lane Group Capacity, c		*784*		*606*	*582*		*394*				*2034*	
v/c Ratio, X		*0.01*		*0.93*	*0.33*		*0.02*				*0.17*	
Total Green Ratio, g/C		*0.42*		*0.42*	*0.42*		*0.42*				*0.42*	
Uniform Delay, d_1		*10.2*		*16.7*	*11.8*		*10.3*				*11.0*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*		*1.000*				*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*		*0.50*				*0.50*	
Incremental Delay, d_2		*0.0*		*22.7*	*1.4*		*0.1*				*0.2*	

Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Control Delay		*10.2*		*39.4*	*13.3*		*10.3*				*11.2*	
Lane Group LOS		*B*		*D*	*B*		*B*				*B*	
Approach Delay	*10.2*			*32.9*			*10.3*			*11.2*		
Approach LOS	*B*			*C*			*B*			*B*		
Intersection Delay	*25.8*			X_C *= 0.55*			Intersection LOS			*C*		

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*Sharrotts Rd & Veterans Rd W*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 No-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Sharrotts Road* | North/South Street: *Veterans Road West*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*75*	*34*	*163*	*58*	*0*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*0*	*17*	*116*	*22*
%Thrus Left Lane				*50*		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*TR*		*LT*				*LT*	*TR*
PHF	*0.75*		*0.85*				*0.89*	*0.89*
Flow Rate (veh/h)	*145*		*259*				*84*	89
% Heavy Vehicles	*2*		*4*				*0*	*0*
No. Lanes	*1*		*1*		*0*		*2*	
Geometry Group	*2*		*2*				*1*	
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	*0.0*		*0.7*				*0.2*	*0.0*
Prop. Right-Turns	*0.3*		*0.0*				*0.0*	*0.3*
Prop. Heavy Vehicle	*0.0*		*0.0*				*0.0*	*0.0*
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*			*0.2*	*0.2*
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*			*-0.6*	*-0.6*
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*			*1.7*	*1.7*
hadj, computed	*-0.2*		*0.2*				*0.0*	*-0.2*

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value (s)	*3.20*		*3.20*				*3.20*	*3.20*
x, initial	*0.13*		*0.23*				*0.07*	*0.08*
hd, final value (s)	*4.48*		*4.70*				*4.90*	*4.69*
x, final value	*0.18*		*0.34*				*0.11*	*0.12*
Move-up time, m (s)	*2.0*		*2.0*				*2.0*	
Service Time, t_s (s)	*2.5*		*2.7*				*2.9*	*2.7*

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*395*		*509*				*334*	*339*
Delay (s/veh)	*8.46*		*10.08*				*8.53*	*8.31*
LOS	*A*		*B*				*A*	*A*
Approach: Delay (s/veh)	*8.46*		*10.08*				*8.42*	
LOS	*A*		*B*				*A*	
Intersection Delay (s/veh)	*9.17*							
Intersection LOS	*A*							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*Sharrotts Rd @ Veterans Rd E*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 No-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Sharrotts Road* | North/South Street: *Veterans Road East*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*25*	*66*	*0*	*0*	*169*	*23*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*51*	*103*	*135*	*0*	*0*	*0*
%Thrus Left Lane	*50*					

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*LT*		*TR*		*LT*	*TR*		
PHF	*0.75*		*0.85*		*0.95*	*0.95*		
Flow Rate (veh/h)	*121*		*225*		*106*	*196*		
% Heavy Vehicles	*2*		*2*		*1*	*1*		
No. Lanes	*1*		*1*		*2*		*0*	
Geometry Group	*2*		*2*		*1*			
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	*0.3*		*0.0*		*0.5*	*0.0*		
Prop. Right-Turns	*0.0*		*0.1*		*0.0*	*0.7*		
Prop. Heavy Vehicle	*0.0*		*0.0*		*0.0*	*0.0*		
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*		
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*		
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*		
hadj, computed	*0.1*		*-0.0*		*0.1*	*-0.4*		

Departure Headway and Service Time

hd, initial value (s)	*3.20*		*3.20*		*3.20*	*3.20*		
x, initial	*0.11*		*0.20*		*0.09*	*0.17*		
hd, final value (s)	*4.94*		*4.68*		*4.87*	*4.33*		
x, final value	*0.17*		*0.29*		*0.14*	*0.24*		
Move-up time, m (s)	*2.0*		*2.0*		*2.0*			
Service Time, t_s (s)	*2.9*		*2.7*		*2.9*	*2.3*		

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*371*		*475*		*356*	*446*		
Delay (s/veh)	*8.92*		*9.61*		*8.68*	*8.66*		
LOS	*A*		*A*		*A*	*A*		
Approach: Delay (s/veh)	*8.92*		*9.61*		*8.67*			
LOS	*A*		*A*		*A*			
Intersection Delay (s/veh)	*9.04*							
Intersection LOS	*A*							

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Ave @ Vets Rd E*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*3*	*0*			
Lane Group		*LT*	*R*		*LTR*			*LTR*				
Volume, V (vph)	*211*	*179*	*137*	*0*	*61*	*15*	*625*	*63*	*3*			
% Heavy Vehicles, %HV	*1*	*1*	*1*	*0*	*0*	*0*	*2*	*2*	*2*			
Peak-Hour Factor, PHF	*0.75*	*0.75*	*0.75*	*0.83*	*0.83*	*0.83*	*0.93*	*0.93*	*0.93*			
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*			
Start-up Lost Time, l_1		*2.0*	*2.0*		*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*	*2.0*		*2.0*			*2.0*				
Arrival Type, AT		*3*	*3*		*3*			*3*				
Unit Extension, UE		*3.0*	*3.0*		*3.0*			*3.0*				
Filtering/Metering, I		*0.997*	*0.997*		*0.993*			*0.967*				
Initial Unmet Demand, Q_b		*0.0*	*0.0*		*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*66*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width		*13.0*	*12.0*		*11.5*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B		*0*	*0*		*0*			*0*				
Min. Time for Pedestrians, G_p	*21.2*			*12.9*			*14.3*			*17.5*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *21.0*	G =	G =	G =	G = *29.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*520*	*95*		*91*			*743*				
Lane Group Capacity, c		*532*	*560*		*557*			*2267*				
v/c Ratio, X		*0.98*	*0.17*		*0.16*			*0.33*				
Total Green Ratio, g/C		*0.35*	*0.35*		*0.35*			*0.48*				
Uniform Delay, d_1		*19.3*	*13.5*		*13.4*			*9.5*				
Progression Factor, PF		*1.000*	*1.000*		*1.000*			*1.000*				
Delay Calibration, k		*0.50*	*0.50*		*0.50*			*0.50*				
Incremental Delay, d_2		*33.8*	*0.7*		*0.6*			*0.4*				

Initial Queue Delay, d_3		0.0	0.0		0.0			0.0				
Control Delay		53.0	14.1		14.1			9.9				
Lane Group LOS		D	B		B			A				
Approach Delay	47.0			14.1			9.9					
Approach LOS	D			B			A					
Intersection Delay	25.9			X_C = 0.60			Intersection LOS			C		

 HCS+™ Version 5.4 Generated: 4/10/2013 1:19 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Av & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*128*		*54*				*17*	*388*			*367*	*59*
% Heavy Vehicles, %HV	*1*		*1*				*1*	*1*			*1*	*1*
Peak-Hour Factor, PHF	*0.92*		*0.92*				*0.92*	*0.92*			*0.91*	*0.91*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.937*						*0.937*			*0.937*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*16.0*						*14.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B		*0*						*0*			*0*	
Min. Time for Pedestrians, G_p	*14.9*			*15.5*			*3.2*			*17.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*198*						*440*			*468*	
Lane Group Capacity, c		*461*						*1111*			*1185*	
v/c Ratio, X		*0.43*						*0.40*			*0.39*	
Total Green Ratio, g/C		*0.27*						*0.57*			*0.57*	
Uniform Delay, d_1		*18.2*						*7.3*			*7.3*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*2.7*						*1.0*			*0.9*	
Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	

Control Delay		20.9						8.3			8.2	
Lane Group LOS		C						A			A	
Approach Delay	20.9						8.3			8.2		
Approach LOS	C						A			A		
Intersection Delay	10.5			X_C = 0.41			Intersection LOS			B		

 HCS+™ Version 5.4 Generated: 4/10/2013 1:19 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Sharrotts Rd & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*138*		*65*				*42*	*412*			*371*	*150*
% Heavy Vehicles, %HV	*1*		*1*				*1*	*1*			*1*	*1*
Peak-Hour Factor, PHF	*0.75*		*0.75*				*0.92*	*0.92*			*0.91*	*0.91*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.932*						*0.850*			*0.905*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*20*
Lane Width		*16.0*						*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*0*			*0*	
Min. Time for Pedestrians, G_p	*18.6*			*18.6*			*3.2*			*16.6*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*271*						*494*			*551*	
Lane Group Capacity, c		*575*						*859*			*1029*	
v/c Ratio, X		*0.47*						*0.58*			*0.54*	
Total Green Ratio, g/C		*0.33*						*0.50*			*0.50*	
Uniform Delay, d_1		*15.8*						*10.5*			*10.2*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*2.6*						*2.4*			*1.8*	
Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	

Control Delay		*18.4*						*12.9*			*12.1*	
Lane Group LOS		*B*						*B*			*B*	
Approach Delay	*18.4*						*12.9*			*12.1*		
Approach LOS	*B*						*B*			*B*		
Intersection Delay	*13.7*			X_C = *0.53*			Intersection LOS			*B*		

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Vets Rd E & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*	*0*	*3*	*0*	*1*	*1*			*1*	*0*
Lane Group	*L*		*R*		*LTR*		*L*	*T*			*TR*	
Volume, V (vph)	*19*		*119*	*285*	*596*	*168*	*79*	*218*			*404*	*17*
% Heavy Vehicles, %HV	*1*		*1*	*2*	*2*	*2*	*2*	*2*			*1*	*1*
Peak-Hour Factor, PHF	*0.71*		*0.71*	*0.87*	*0.87*	*0.87*	*0.92*	*0.92*			*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*		*P*	*P*	*P*	*P*	*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*		*3*		*3*	*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*		*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I	*0.717*		*0.717*		*0.483*		*0.917*	*0.917*			*0.747*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Lane Width	*10.0*		*13.0*		*11.0*		*12.0*	*12.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*		*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*17.2*			*16.9*			*3.2*			*20.9*		

Phasing	EB Only	WB Only	03	04	NS Perm	06	07	08
Timing	G = *8.0*	G = *17.0*	G =	G =	G = *20.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*27*		*168*		*1206*		*86*	*237*			*468*	
Lane Group Capacity, c	*222*		*220*		*1338*		*148*	*621*			*707*	
v/c Ratio, X	*0.12*		*0.76*		*0.90*		*0.58*	*0.38*			*0.66*	
Total Green Ratio, g/C	*0.13*		*0.13*		*0.28*		*0.33*	*0.33*			*0.33*	
Uniform Delay, d_1	*22.9*		*25.1*		*20.7*		*16.5*	*15.3*			*17.1*	
Progression Factor, PF	*1.000*		*1.000*		*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*		*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2	*0.8*		*16.4*		*5.3*		*14.4*	*1.6*			*3.6*	

Initial Queue Delay, d_3	0.0		0.0		0.0		0.0	0.0			0.0	
Control Delay	23.7		41.5		26.0		30.9	16.9			20.7	
Lane Group LOS	C		D		C		C	B			C	
Approach Delay	39.0				26.0		20.6			20.7		
Approach LOS	D				C		C			C		
Intersection Delay	25.2				X_C = 0.77		Intersection LOS			C		

 HCS+™ Version 5.4 Generated: 4/10/2013 1:20 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*S Service Rd & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*				*0*	*1*	*0*	*1*	*1*	*0*
Lane Group		*LTR*						*LTR*		*L*	*TR*	
Volume, V (vph)	*30*	*32*	*5*				*3*	*267*	*143*	*305*	*457*	*46*
% Heavy Vehicles, %HV	*2*	*2*	*2*				*2*	*2*	*2*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.76*	*0.76*	*0.76*				*0.92*	*0.92*	*0.92*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*				*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*		*2.0*	*2.0*	
Arrival Type, AT		*3*						*3*		*3*	*3*	
Unit Extension, UE		*3.0*						*3.0*		*3.0*	*3.0*	
Filtering/Metering, I		*1.000*						*0.899*		*0.644*	*0.644*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*11*
Lane Width		*13.0*						*16.0*		*12.0*	*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*0*		*0*	*0*	
Min. Time for Pedestrians, G_p	*17.5*			*16.9*			*12.6*			*12.9*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *17.0*	G =	G =	G =	G = *33.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*88*						*448*		*339*	*547*	
Lane Group Capacity, c		*462*						*966*		*508*	*1024*	
v/c Ratio, X		*0.19*						*0.46*		*0.67*	*0.53*	
Total Green Ratio, g/C		*0.28*						*0.55*		*0.55*	*0.55*	
Uniform Delay, d_1		*16.3*						*8.2*		*9.6*	*8.6*	
Progression Factor, PF		*1.000*						*1.000*		*1.000*	*1.000*	
Delay Calibration, k		*0.50*						*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2		*0.9*						*1.4*		*4.4*	*1.3*	

Initial Queue Delay, d_3		*0.0*						*0.0*		*0.0*	*0.0*	
Control Delay		*17.2*						*9.6*		*14.0*	*9.9*	
Lane Group LOS		*B*						*A*		*B*	*A*	
Approach Delay	*17.2*						*9.6*			*11.5*		
Approach LOS	*B*						*A*			*B*		
Intersection Delay	*11.2*			X_C = *0.51*			Intersection LOS			*B*		

 HCS+™ Version 5.4 Generated: 4/10/2013 1:20 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Amboy Rd & Bloomingdale Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*1*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*		*L*	*T*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*7*	*7*	*18*	*284*	*18*	*102*	*12*	*262*	*234*	*83*	*365*	*7*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*1*	*1*	*1*	*0*	*0*	*0*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.84*	*0.84*	*0.84*	*0.90*	*0.90*	*0.90*	*0.92*	*0.92*	*0.92*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*		*3*	*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*		*0.887*	*0.887*	*0.887*		*0.516*			*0.500*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*50*	*0*	*0*	*0*	*0*	*0*	*50*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*		*12.0*	*11.0*	*11.0*		*11.0*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*		*0*	*0*	*0*		*0*			*0*	
Min. Time for Pedestrians, G_p	*11.5*			*11.8*			*18.9*			*18.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*37*		*316*	*20*	*113*		*552*			*506*	
Lane Group Capacity, c		*628*		*580*	*808*	*601*		*735*			*635*	
v/c Ratio, X		*0.06*		*0.54*	*0.02*	*0.19*		*0.75*			*0.80*	
Total Green Ratio, g/C		*0.44*		*0.44*	*0.44*	*0.44*		*0.44*			*0.44*	
Uniform Delay, d_1		*14.3*		*18.3*	*14.0*	*15.2*		*20.8*			*21.5*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*	*0.50*		*0.50*			*0.50*	
Incremental Delay, d_2		*0.2*		*3.2*	*0.1*	*0.6*		*3.7*			*5.3*	

Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Control Delay		*14.4*		*21.6*	*14.1*	*15.8*		*24.5*			*26.8*	
Lane Group LOS		*B*		*C*	*B*	*B*		*C*			*C*	
Approach Delay	*14.4*			*19.8*			*24.5*			*26.8*		
Approach LOS	*B*			*B*			*C*			*C*		
Intersection Delay	*23.6*			X_C = *0.67*			Intersection LOS			*C*		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Arthur Kill Rd & Bloomingdl Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2015 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*0*	*1*		*0*		*0*			
Lane Group		*TR*			*LT*			*LR*				
Volume, V (vph)		*147*	*232*	*71*	*138*		*147*		*55*			
% Heavy Vehicles, %HV		*2*	*2*	*4*	*4*		*1*		*1*			
Peak-Hour Factor, PHF		*0.78*	*0.78*	*0.89*	*0.89*		*0.85*		*0.85*			
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*		*P*			
Start-up Lost Time, l_1		*2.0*			*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*			*2.0*			*2.0*				
Arrival Type, AT		*3*			*3*			*3*				
Unit Extension, UE		*3.0*			*3.0*			*3.0*				
Filtering/Metering, I		*0.927*			*0.992*			*0.953*				
Initial Unmet Demand, Q_b		*0.0*			*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*56*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	
Lane Width		*16.0*			*16.0*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m									*5*			
Buses Stopping, N_B		*2*			*0*			*0*				
Min. Time for Pedestrians, G_p	*18.3*			*3.2*			*15.2*			*17.2*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*414*			*235*			*238*				
Lane Group Capacity, c		*970*			*759*			*575*				
v/c Ratio, X		*0.43*			*0.31*			*0.41*				
Total Green Ratio, g/C		*0.50*			*0.50*			*0.39*				
Uniform Delay, d_1		*14.3*			*13.3*			*20.0*				
Progression Factor, PF		*1.000*			*1.000*			*1.000*				
Delay Calibration, k		*0.50*			*0.50*			*0.50*				
Incremental Delay, d_2		*1.3*			*1.1*			*2.1*				
Initial Queue Delay, d_3		*0.0*			*0.0*			*0.0*				

Control Delay		15.6			14.4			22.1				
Lane Group LOS		B			B			C				
Approach Delay	15.6			14.4			22.1					
Approach LOS	B			B			C					
Intersection Delay	17.0			X_C = 0.42			Intersection LOS			B		

No-Action

2020

Weekday

AM

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/28/13*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*Sharrotts Rd & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Sharrotts Road* North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*27*	*152*	*42*	*29*	*155*	*39*
Peak-Hour Factor, PHF	*0.83*	*0.83*	*0.83*	*0.83*	*0.83*	*0.83*
Hourly Flow Rate, HFR (veh/h)	*32*	*183*	*50*	*34*	*186*	*46*
Percent Heavy Vehicles	*20*	--	--	*13*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*9*	*8*	*8*	*62*	*10*	*28*
Peak-Hour Factor, PHF	*0.79*	*0.79*	*0.79*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*11*	*10*	*10*	*65*	*10*	*29*
Percent Heavy Vehicles	*32*	*32*	*32*	*5*	*5*	*5*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (veh/h)	*32*	*34*		*104*			*31*	
C (m) (veh/h)	*1237*	*1272*		*468*			*434*	
v/c	*0.03*	*0.03*		*0.22*			*0.07*	
95% queue length	*0.08*	*0.08*		*0.84*			*0.23*	
Control Delay (s/veh)	*8.0*	*7.9*		*14.9*			*13.9*	
LOS	*A*	*A*		*B*			*B*	
Approach Delay (s/veh)	--	--	*14.9*			*13.9*		
Approach LOS	--	--	*B*			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/28/13*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*Englewood Ave & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*205*	*32*	*20*	*203*	
Peak-Hour Factor, PHF	*1.00*	*0.83*	*0.83*	*0.83*	*0.83*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*246*	*38*	*24*	*244*	*0*
Percent Heavy Vehicles	*0*	--	--	*11*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*8*		*16*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.69*	*1.00*	*0.69*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*11*	*0*	*23*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (veh/h)		*24*		*34*				
C (m) (veh/h)		*1228*		*651*				
v/c		*0.02*		*0.05*				
95% queue length		*0.06*		*0.16*				
Control Delay (s/veh)		*8.0*		*10.8*				
LOS		*A*		*B*				
Approach Delay (s/veh)	--	--	*10.8*					
Approach LOS	--	--	*B*					

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*			*LT*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*3*	*6*	*1*	*167*	*34*	*272*	*0*	*146*	*302*	*85*	*116*	*9*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*7*	*7*	*7*	*11*	*11*	*11*	*11*	*11*	*11*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.87*	*0.87*	*0.87*	*0.85*	*0.85*	*0.85*	*0.87*	*0.87*	*0.87*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*			*0.940*	*0.940*		*0.887*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*15.5*			*11.0*	*10.0*		*15.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*			*0*	*0*		*4*			*3*	
Min. Time for Pedestrians, G_p	*11.5*			*13.5*			*15.2*			*12.1*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*11*			*231*	*313*		*527*			*241*	
Lane Group Capacity, c		*718*			*540*	*514*		*702*			*402*	
v/c Ratio, X		*0.02*			*0.43*	*0.61*		*0.75*			*0.60*	
Total Green Ratio, g/C		*0.42*			*0.42*	*0.42*		*0.42*			*0.42*	
Uniform Delay, d_1		*10.3*			*12.4*	*13.7*		*14.9*			*13.6*	
Progression Factor, PF		*1.000*			*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*	*0.50*		*0.50*			*0.50*	
Incremental Delay, d_2		*0.0*			*2.3*	*5.0*		*6.5*			*6.5*	

Initial Queue Delay, d_3		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Control Delay		*10.3*			*14.7*	*18.7*		*21.3*			*20.1*	
Lane Group LOS		*B*			*B*	*B*		*C*			*C*	
Approach Delay	*10.3*			*17.0*			*21.3*			*20.1*		
Approach LOS	*B*			*B*			*C*			*C*		
Intersection Delay	*19.2*			X_C *= 0.68*			Intersection LOS			*B*		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*No Bridge St & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/28/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*			*1*	
Lane Group					*LR*			*T*			*T*	
Volume, V (vph)				*268*		*5*		*443*			*285*	
% Heavy Vehicles, %HV				*8*		*8*		*11*			*15*	
Peak-Hour Factor, PHF				*0.88*		*0.88*		*0.85*			*0.87*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*			*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.893*			*0.886*			*0.754*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	
Lane Width					*16.0*			*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B					*0*			*0*			*3*	
Min. Time for Pedestrians, G_p	*13.5*			*13.8*			*3.2*			*3.2*		

Phasing	WB Only	02	03	04	Thru Only	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*311*			*521*			*328*	
Lane Group Capacity, c					*632*			*970*			*925*	
v/c Ratio, X					*0.49*			*0.54*			*0.35*	
Total Green Ratio, g/C					*0.33*			*0.50*			*0.50*	
Uniform Delay, d_1					*15.9*			*10.3*			*9.1*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*2.4*			*1.9*			*0.8*	
Initial Queue Delay, d_3					*0.0*			*0.0*			*0.0*	

Control Delay					18.4			12.1			9.9	
Lane Group LOS					B			B			A	
Approach Delay				18.4			12.1			9.9		
Approach LOS				B			B			A		
Intersection Delay	13.2			X_C = 0.52			Intersection LOS			B		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/28/13*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*So Bridge St & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *South Bridge Street* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*443*	*224*	*120*	*433*	
Peak-Hour Factor, PHF	*1.00*	*0.85*	*0.85*	*0.87*	*0.87*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*521*	*263*	*137*	*497*	*0*
Percent Heavy Vehicles	*0*	--	--	*20*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration						

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*						
v (veh/h)		*137*						
C (m) (veh/h)		*760*						
v/c		*0.18*						
95% queue length		*0.65*						
Control Delay (s/veh)		*10.8*						
LOS		*B*						
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Rch Valley Rd & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/28/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*	*0*	*0*	*1*	
Lane Group					*LR*			*TR*			*LT*	
Volume, V (vph)				*62*		*153*		*512*	*74*	*98*	*328*	
% Heavy Vehicles, %HV				*3*		*3*		*11*	*11*	*9*	*9*	
Peak-Hour Factor, PHF				*0.93*		*0.93*		*0.85*	*0.85*	*0.87*	*0.87*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*	*P*	*P*	*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.980*			*0.769*			*0.842*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width					*12.0*			*15.0*			*15.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B					*0*			*4*			*3*	
Min. Time for Pedestrians, G_p	*11.8*			*11.8*			*14.1*			*3.2*		

Phasing	WB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*232*			*689*			*490*	
Lane Group Capacity, c					*383*			*1032*			*722*	
v/c Ratio, X					*0.61*			*0.67*			*0.68*	
Total Green Ratio, g/C					*0.27*			*0.57*			*0.57*	
Uniform Delay, d_1					*19.2*			*9.1*			*9.2*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*6.8*			*2.6*			*4.3*	
Initial Queue Delay, d_3					*0.0*			*0.0*			*0.0*	

Control Delay					*26.1*			*11.7*			*13.5*	
Lane Group LOS					*C*			*B*			*B*	
Approach Delay				*26.1*			*11.7*			*13.5*		
Approach LOS				*C*			*B*			*B*		
Intersection Delay	*14.7*			X_C = *0.66*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Richmond Valley Rd & Page Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*0*	*1*	*1*	*0*	*0*	*2*	*0*
Lane Group		*LTR*			*LTR*		*L*	*TR*			*LTR*	
Volume, V (vph)	*72*	*27*	*73*	*24*	*133*	*46*	*66*	*660*	*112*	*65*	*360*	*29*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*1*	*1*	*1*	*3*	*3*	*3*	*9*	*9*	*9*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.94*	*0.94*	*0.94*	*0.92*	*0.92*	*0.92*	*0.84*	*0.84*	*0.84*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.810*			*1.000*		*0.649*	*0.649*			*0.986*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*6*
Lane Width		*16.0*			*15.0*		*10.0*	*14.0*			*10.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*
Parking Maneuvers, N_m						*5*						*5*
Buses Stopping, N_B		*0*			*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*16.6*			*21.5*			*16.3*			*21.2*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *31.0*	G =	G =	G =	G = *49.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*191*			*216*		*72*	*839*			*533*	
Lane Group Capacity, c		*551*			*575*		*403*	*1048*			*972*	
v/c Ratio, X		*0.35*			*0.38*		*0.18*	*0.80*			*0.55*	
Total Green Ratio, g/C		*0.34*			*0.34*		*0.54*	*0.54*			*0.54*	
Uniform Delay, d_1		*22.0*			*22.2*		*10.3*	*16.6*			*13.3*	
Progression Factor, PF		*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2		*1.4*			*1.9*		*0.6*	*4.3*			*2.2*	

Initial Queue Delay, d_3		0.0			0.0		0.0	0.0			0.0	
Control Delay		23.4			24.1		11.0	20.8			15.5	
Lane Group LOS		C			C		B	C			B	
Approach Delay	23.4			24.1			20.0			15.5		
Approach LOS	C			C			C			B		
Intersection Delay	19.6			X_C = 0.64			Intersection LOS			B		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*S Bridge St RT & Page Ave*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *South Bridge Street Right Turn* | North/South Street: *Page Avenue*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*394*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.84*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*469*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*2*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*59*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.70*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*84*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*60*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								*R*
v (veh/h)								*84*
C (m) (veh/h)								*681*
v/c								*0.12*
95% queue length								*0.42*
Control Delay (s/veh)								*11.0*
LOS								*B*
Approach Delay (s/veh)	--	--				*11.0*		
Approach LOS	--	--				*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*S Br St & Page Ave/Boscome Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 No Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*							*2*			*2*	
Lane Group	*L*							*T*			*T*	
Volume, V (vph)	*284*							*778*			*394*	
% Heavy Vehicles, %HV	*2*							*1*			*3*	
Peak-Hour Factor, PHF	*0.90*							*0.91*			*0.84*	
Pretimed (P) or Actuated (A)	*P*							*P*			*P*	
Start-up Lost Time, l_1	*2.0*							*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*							*2.0*			*2.0*	
Arrival Type, AT	*3*							*3*			*3*	
Unit Extension, UE	*3.0*							*3.0*			*3.0*	
Filtering/Metering, I	*1.000*							*0.665*			*0.986*	
Initial Unmet Demand, Q_b	*0.0*							*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*		*0*	*0*		*0*	*0*	
Lane Width	*16.0*							*14.5*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*							*0*			*0*	
Min. Time for Pedestrians, G_p	*3.2*			*20.1*			*3.2*			*3.2*		

Phasing	EB Only	02	03	04	Thru Only	06	07	08
Timing	G = *30.0*	G =	G =	G =	G = *50.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*316*							*855*			*469*	
Lane Group Capacity, c	*669*							*2156*			*1951*	
v/c Ratio, X	*0.47*							*0.40*			*0.24*	
Total Green Ratio, g/C	*0.33*							*0.56*			*0.56*	
Uniform Delay, d_1	*23.7*							*11.4*			*10.3*	
Progression Factor, PF	*1.000*							*1.000*			*1.000*	
Delay Calibration, k	*0.50*							*0.50*			*0.50*	
Incremental Delay, d_2	*2.4*							*0.4*			*0.3*	
Initial Queue Delay, d_3	*0.0*							*0.0*			*0.0*	

Control Delay	*26.1*							*11.8*			*10.5*	
Lane Group LOS	*C*							*B*			*B*	
Approach Delay	*26.1*						*11.8*			*10.5*		
Approach LOS	*C*						*B*			*B*		
Intersection Delay	*14.2*			X_C = *0.43*			Intersection LOS			*B*		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*KWVP WB OR UT & No Bridge St*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *KWVP WB Off-Ramp U-Turn* | North/South Street: *North Bridge Street*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*394*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.95*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*414*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*1*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*287*		
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.90*	*0.93*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*308*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*60*	*8*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*0*
Configuration				*L*		

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration			*L*					
v (veh/h)			*308*					
C (m) (veh/h)			*583*					
v/c			*0.53*					
95% queue length			*3.08*					
Control Delay (s/veh)			*17.9*					
LOS			*C*					
Approach Delay (s/veh)	--	--	*17.9*					
Approach LOS	--	--	*C*					

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Bricktown/KWVP*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8 - 9 AM Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*	*0*	*1*	*2*	*0*	*0*	*2*	*0*	*1*	*1*	*0*
Lane Group	*L*	*TR*		*L*	*TR*			*LTR*		*L*	*TR*	
Volume, V (vph)	*50*	*141*	*164*	*203*	*343*	*79*	*84*	*230*	*138*	*67*	*27*	*27*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*8*	*8*	*8*	*8*	*8*	*8*	*3*	*3*	*3*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.87*	*0.87*	*0.87*	*0.93*	*0.93*	*0.93*	*0.67*	*0.67*	*0.67*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*		*2.0*	*2.0*			*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e	*2.0*	*2.0*		*2.0*	*2.0*			*2.0*		*2.0*	*2.0*	
Arrival Type, AT	*3*	*3*		*3*	*3*			*3*		*3*	*3*	
Unit Extension, UE	*3.0*	*3.0*		*3.0*	*3.0*			*3.0*		*3.0*	*3.0*	
Filtering/Metering, I	*0.780*	*0.780*		*0.979*	*0.979*			*1.000*		*0.991*	*0.991*	
Initial Unmet Demand, Q_b	*0.0*	*0.0*		*0.0*	*0.0*			*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*38*	*0*	*0*	*4*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*11.0*	*12.0*		*10.0*	*12.0*			*12.5*		*11.0*	*10.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*		*0*	*0*			*0*		*0*	*0*	
Min. Time for Pedestrians, G_p	*34.6*			*18.6*			*20.3*			*16.1*		

Phasing	EW Perm	02	03	04	NB Only	SB Only	07	08
Timing	G = *30.0*	G =	G =	G =	G = *25.0*	G = *20.0*	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y = *5*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*57*	*303*		*233*	*480*			*485*		*100*	*80*	
Lane Group Capacity, c	*241*	*577*		*240*	*1087*			*894*		*376*	*354*	
v/c Ratio, X	*0.24*	*0.53*		*0.97*	*0.44*			*0.54*		*0.27*	*0.23*	
Total Green Ratio, g/C	*0.33*	*0.33*		*0.33*	*0.33*			*0.28*		*0.22*	*0.22*	
Uniform Delay, d_1	*21.7*	*24.2*		*29.6*	*23.5*			*27.6*		*28.9*	*28.7*	
Progression Factor, PF	*1.000*	*1.000*		*1.000*	*1.000*			*1.000*		*1.000*	*1.000*	
Delay Calibration, k	*0.50*	*0.50*		*0.50*	*0.50*			*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2	*1.8*	*2.7*		*50.5*	*1.3*			*2.4*		*1.7*	*1.5*	

Initial Queue Delay, d_3	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Control Delay	23.5	26.9		80.0	24.7			30.0		30.6	30.1	
Lane Group LOS	C	C		F	C			C		C	C	
Approach Delay	26.4			42.8			30.0			30.4		
Approach LOS	C			D			C			C		
Intersection Delay	34.5			X_C = 0.64			Intersection LOS			C		

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*Bricktown Way/Tyrellan Avenue*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 No-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Bricktown Way* | North/South Street: *Tyrellan Avenue*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*64*	*18*	*33*	*75*	*0*
%Thrus Left Lane	*50*			*50*		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*11*	*0*	*22*	*0*	*0*	*0*
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*T*	*TR*	*LT*	*T*	*L*	*R*		
PHF	*0.80*	*0.80*	*0.78*	*0.78*	*0.86*	*0.86*		
Flow Rate (veh/h)	*39*	*61*	*89*	*48*	*12*	*25*		
% Heavy Vehicles	*21*	*21*	*1*	*1*	*5*	*5*		
No. Lanes	*2*		*2*		*2*		*0*	
Geometry Group	*5*		*5*		*1*			
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	*0.0*	*0.0*	*0.5*	*0.0*	*1.0*	*0.0*		
Prop. Right-Turns	*0.0*	*0.4*	*0.0*	*0.0*	*0.0*	*1.0*		
Prop. Heavy Vehicle	*0.2*	*0.2*	*0.0*	*0.0*	*0.0*	*0.0*		
hLT-adj	*0.5*	*0.5*	*0.5*	*0.5*	*0.2*	*0.2*		
hRT-adj	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.6*	*-0.6*		
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*		
hadj, computed	*0.4*	*0.1*	*0.3*	*0.0*	*0.3*	*-0.5*		

Departure Headway and Service Time

hd, initial value (s)	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*		
x, initial	*0.03*	*0.05*	*0.08*	*0.04*	*0.01*	*0.02*		
hd, final value (s)	*5.04*	*4.79*	*4.91*	*4.67*	*4.73*	*3.93*		
x, final value	*0.05*	*0.08*	*0.12*	*0.06*	*0.02*	*0.03*		
Move-up time, m (s)	*2.3*		*2.3*		*2.0*			
Service Time, t_s (s)	*2.7*	*2.5*	*2.6*	*2.4*	*2.7*	*1.9*		

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*289*	*311*	*339*	*298*	*262*	*275*		
Delay (s/veh)	*8.03*	*7.91*	*8.29*	*7.68*	*7.80*	*7.04*		
LOS	*A*	*A*	*A*	*A*	*A*	*A*		
Approach: Delay (s/veh)	*7.96*		*8.08*		*7.29*			
LOS	*A*		*A*		*A*			
Intersection Delay (s/veh)	*7.93*							
Intersection LOS	*A*							

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*
Lane Group		*LTR*			*LTR*		*DefL*	*TR*			*LTR*	
Volume, V (vph)	*54*	*29*	*250*	*115*	*269*	*6*	*256*	*74*	*51*	*11*	*98*	*102*
% Heavy Vehicles, %HV	*8*	*8*	*8*	*3*	*3*	*3*	*4*	*4*	*4*	*8*	*8*	*8*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.87*	*0.87*	*0.87*	*0.87*	*0.87*	*0.87*	*0.76*	*0.76*	*0.76*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.916*			*0.953*		*1.000*	*1.000*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*			*12.0*		*13.0*	*13.0*			*9.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*			*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*18.6*			*16.6*			*20.1*			*19.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*378*			*448*		*294*	*144*			*277*	
Lane Group Capacity, c		*1080*			*1113*		*488*	*788*			*1191*	
v/c Ratio, X		*0.35*			*0.40*		*0.60*	*0.18*			*0.23*	
Total Green Ratio, g/C		*0.44*			*0.44*		*0.44*	*0.44*			*0.44*	
Uniform Delay, d_1		*16.4*			*16.9*		*19.0*	*15.1*			*15.5*	
Progression Factor, PF		*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2		*0.8*			*1.0*		*5.4*	*0.5*			*0.5*	

Initial Queue Delay, d_3		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay		*17.3*			*17.9*		*24.4*	*15.6*			*15.9*	
Lane Group LOS		*B*			*B*		*C*	*B*			*B*	
Approach Delay	*17.3*			*17.9*			*21.5*			*15.9*		
Approach LOS	*B*			*B*			*C*			*B*		
Intersection Delay	*18.4*			X_C *= 0.50*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Boscombe Ave & OBX Off-Ramp*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*1*	*1*	*1*
Lane Group	*L*	*TR*			*LT*	*R*		*LTR*		*L*	*LT*	*R*
Volume, V (vph)	*802*	*241*	*19*	*4*	*275*	*237*	*4*	*16*	*6*	*107*	*5*	*145*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*3*	*3*	*3*	*1*	*1*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.91*	*0.91*	*0.91*	*0.86*	*0.86*	*0.86*	*0.37*	*0.37*	*0.37*	*0.87*	*0.87*	*0.87*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*	*3*		*3*		*3*	*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*	*3.0*		*3.0*		*3.0*	*3.0*	*3.0*
Filtering/Metering, I	*0.603*	*0.603*			*0.932*	*0.932*		*1.000*		*1.000*	*1.000*	*1.000*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*	*0.0*		*0.0*		*0.0*	*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*11.0*	*12.0*			*12.0*	*12.0*		*16.0*		*10.0*	*11.0*	*10.0*
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B	*0*	*0*			*0*	*0*		*0*		*0*	*0*	*0*
Min. Time for Pedestrians, G_p	*14.6*			*24.6*			*20.9*			*20.1*		

Phasing	EB Only	EW Perm	03	04	NS Perm	06	07	08
Timing	G = *37.0*	G = *22.0*	G =	G =	G = *16.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*881*	*286*			*325*	*276*		*70*		*123*	*6*	*167*
Lane Group Capacity, c	*847*	*1158*			*449*	*383*		*355*		*226*	*320*	*952*
v/c Ratio, X	*1.04*	*0.25*			*0.72*	*0.72*		*0.20*		*0.54*	*0.02*	*0.18*
Total Green Ratio, g/C	*0.71*	*0.71*			*0.24*	*0.24*		*0.18*		*0.18*	*0.18*	*0.64*
Uniform Delay, d_1	*18.3*	*4.6*			*31.2*	*31.2*		*31.5*		*33.7*	*30.5*	*6.4*
Progression Factor, PF	*1.000*	*1.000*			*1.000*	*1.000*		*1.000*		*1.000*	*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*	*0.50*		*0.50*		*0.50*	*0.50*	*0.50*
Incremental Delay, d_2	*35.1*	*0.3*			*9.1*	*10.4*		*1.2*		*9.1*	*0.1*	*0.4*

Initial Queue Delay, d_3	*0.0*	*0.0*			*0.0*	*0.0*		*0.0*		*0.0*	*0.0*	*0.0*
Control Delay	*53.5*	*4.9*			*40.3*	*41.6*		*32.8*		*42.8*	*30.6*	*6.8*
Lane Group LOS	*D*	*A*			*D*	*D*		*C*		*D*	*C*	*A*
Approach Delay	*41.6*			*40.9*			*32.8*			*22.2*		
Approach LOS	*D*			*D*			*C*			*C*		
Intersection Delay	*38.4*			X_C *= 0.99*			Intersection LOS			*D*		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	KM	Intersection	Boscombe Ave & Tyrellan Ave
Agency or Co.	AECOM	Area Type	All other areas
Date Performed	10/24/2012	Jurisdiction	Staten Island, NY
Time Period	Weekday 8-9 AM Peak Hour	Analysis Year	2020 No-Action Conditions
		Project ID	Charleston EIS

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	0	2	0	0	2	0	0	2	0	0	1	1
Lane Group	DefL	TR			LTR			LTR			LT	R
Volume, V (vph)	329	26	0	14	68	38	6	22	11	15	38	412
% Heavy Vehicles, %HV	1	1	1	3	3	3	1	1	1	2	2	2
Peak-Hour Factor, PHF	0.91	0.91	0.91	0.72	0.72	0.72	0.45	0.45	0.45	0.76	0.76	0.76
Pretimed (P) or Actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up Lost Time, l_1	2.0	2.0			2.0			2.0			2.0	2.0
Extension of Effective Green, e	2.0	2.0			2.0			2.0			2.0	2.0
Arrival Type, AT	3	3			3			3			3	3
Unit Extension, UE	3.0	3.0			3.0			3.0			3.0	3.0
Filtering/Metering, I	0.970	0.970			1.000			1.000			0.974	0.974
Initial Unmet Demand, Q_b	0.0	0.0			0.0			0.0			0.0	0.0
Ped / Bike / RTOR Volumes	0	0	0	0	0	9	0	0	0	0	0	155
Lane Width	16.0	16.0			11.5			12.0			12.0	12.0
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0			0			0			0	0
Min. Time for Pedestrians, G_p	20.3			17.5			20.3			20.3		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 45.0	G =	G =	G =	G = 35.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	362	29			153			86			70	338
Lane Group Capacity, c	699	1066			1543			1234			673	616
v/c Ratio, X	0.52	0.03			0.10			0.07			0.10	0.55
Total Green Ratio, g/C	0.50	0.50			0.50			0.39			0.39	0.39
Uniform Delay, d_1	15.2	11.4			11.8			17.3			17.5	21.4
Progression Factor, PF	1.000	1.000			1.000			1.000			1.000	1.000
Delay Calibration, k	0.50	0.50			0.50			0.50			0.50	0.50
Incremental Delay, d_2	2.7	0.0			0.1			0.1			0.3	3.4

Initial Queue Delay, d_3	*0.0*	*0.0*			*0.0*			*0.0*			*0.0*	*0.0*
Control Delay	*17.8*	*11.5*			*12.0*			*17.4*			*17.8*	*24.8*
Lane Group LOS	*B*	*B*			*B*			*B*			*B*	*C*
Approach Delay	*17.4*			*12.0*			*17.4*			*23.6*		
Approach LOS	*B*			*B*			*B*			*C*		
Intersection Delay	*19.0*			X_C *= 0.53*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Bricktown Ctr Rd @ Vets Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*				*0*	*2*			*2*	*0*
Lane Group	*L*		*R*					*LT*			*TR*	
Volume, V (vph)	*82*		*4*				*4*	*87*			*386*	*219*
% Heavy Vehicles, %HV	*11*		*11*				*2*	*2*			*1*	*1*
Peak-Hour Factor, PHF	*0.80*		*0.80*				*0.80*	*0.80*			*0.81*	*0.81*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*					*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*					*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*					*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*					*3.0*			*3.0*	
Filtering/Metering, I	*0.995*		*0.995*					*1.000*			*0.752*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*					*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*4*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width	*13.0*		*12.0*					*11.5*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*					*0*			*0*	
Min. Time for Pedestrians, G_p	*21.8*			*20.3*			*3.2*			*19.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *19.0*	G =	G =	G =	G = *31.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*102*		*0*					*114*			*747*	
Lane Group Capacity, c	*532*		*461*					*1679*			*1983*	
v/c Ratio, X	*0.19*		*0.00*					*0.07*			*0.38*	
Total Green Ratio, g/C	*0.32*		*0.32*					*0.52*			*0.52*	
Uniform Delay, d_1	*14.9*		*14.0*					*7.3*			*8.7*	
Progression Factor, PF	*1.000*		*1.000*					*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*					*0.50*			*0.50*	
Incremental Delay, d_2	*0.8*		*0.0*					*0.1*			*0.4*	
Initial Queue Delay, d_3	*0.0*		*0.0*					*0.0*			*0.0*	

Control Delay	*15.7*		*14.0*					*7.3*			*9.1*	
Lane Group LOS	*B*		*B*					*A*			*A*	
Approach Delay	*15.7*						*7.3*			*9.1*		
Approach LOS	*B*						*A*			*A*		
Intersection Delay	*9.6*			X_C = *0.31*			Intersection LOS			*A*		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*Englewood Ave & Vets Rd W RT*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* | North/South Street: *Veterans Rd W Right Turn Bay*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*25*				
Peak-Hour Factor, PHF	*1.00*	*0.82*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*30*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*T*				
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*165*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.78*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*211*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*1*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					*R*			
v (veh/h)					*211*			
C (m) (veh/h)					*1047*			
v/c					*0.20*			
95% queue length					*0.75*			
Control Delay (s/veh)					*9.3*			
LOS					*A*			
Approach Delay (s/veh)	--	--	*9.3*					
Approach LOS	--	--	*A*					

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Ave @ Veterans Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*1*	*1*		*1*			*0*	*3*	*0*
Lane Group		*TR*		*L*	*LT*		*L*				*LTR*	
Volume, V (vph)		*1*	*0*	*420*	*1*		*3*			*24*	*185*	*0*
% Heavy Vehicles, %HV		*2*	*2*	*3*	*3*		*1*			*1*	*1*	*1*
Peak-Hour Factor, PHF		*0.25*	*0.25*	*0.79*	*0.79*		*0.80*			*0.81*	*0.81*	*0.81*
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*			*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Arrival Type, AT		*3*		*3*	*3*		*3*				*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*		*3.0*				*3.0*	
Filtering/Metering, I		*1.000*		*0.981*	*0.981*		*0.998*				*1.000*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*12.0*		*13.0*	*13.0*		*10.0*				*11.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*		*0*	*0*		*0*				*0*	
Min. Time for Pedestrians, G_p	*31.2*			*3.2*			*18.1*			*11.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*4*		*266*	*267*		*4*				*258*	
Lane Group Capacity, c		*776*		*600*	*576*		*428*				*2052*	
v/c Ratio, X		*0.01*		*0.44*	*0.46*		*0.01*				*0.13*	
Total Green Ratio, g/C		*0.42*		*0.42*	*0.42*		*0.42*				*0.42*	
Uniform Delay, d_1		*10.2*		*12.5*	*12.7*		*10.2*				*10.8*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*		*1.000*				*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*		*0.50*				*0.50*	
Incremental Delay, d_2		*0.0*		*2.3*	*2.6*		*0.0*				*0.1*	

Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Control Delay		*10.2*		*14.8*	*15.3*		*10.3*				*10.9*	
Lane Group LOS		*B*		*B*	*B*		*B*				*B*	
Approach Delay	*10.2*			*15.1*			*10.3*			*10.9*		
Approach LOS	*B*			*B*			*B*			*B*		
Intersection Delay	*13.7*			X_C *= 0.29*			Intersection LOS			*B*		

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*Sharrotts Rd & Veterans Rd W*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 No-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Sharrotts Road* | North/South Street: *Veterans Road West*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*57*	*22*	*120*	*72*	*0*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*0*	*11*	*67*	*28*
%Thrus Left Lane				*50*		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*TR*		*LT*				*LT*	*TR*
PHF	*0.80*		*0.79*				*0.81*	*0.81*
Flow Rate (veh/h)	*98*		*242*				*53*	*75*
% Heavy Vehicles	*24*		*5*				*3*	*3*
No. Lanes	*1*		*1*		*0*		*2*	
Geometry Group	*2*		*2*				*1*	
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	*0.0*		*0.6*				*0.2*	*0.0*
Prop. Right-Turns	*0.3*		*0.0*				*0.0*	*0.5*
Prop. Heavy Vehicle	*0.2*		*0.0*				*0.0*	*0.0*
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*			*0.2*	*0.2*
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*			*-0.6*	*-0.6*
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*			*1.7*	*1.7*
hadj, computed	*0.2*		*0.2*				*0.1*	*-0.2*

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value (s)	*3.20*		*3.20*				*3.20*	*3.20*
x, initial	*0.09*		*0.22*				*0.05*	*0.07*
hd, final value (s)	*4.72*		*4.53*				*4.81*	*4.48*
x, final value	*0.13*		*0.30*				*0.07*	*0.09*
Move-up time, m (s)	*2.0*		*2.0*				*2.0*	
Service Time, t_s (s)	*2.7*		*2.5*				*2.8*	*2.5*

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*348*		*492*				*303*	*325*
Delay (s/veh)	*8.41*		*9.49*				*8.17*	*7.95*
LOS	*A*		*A*				*A*	*A*
Approach: Delay (s/veh)	*8.41*		*9.49*				*8.04*	
LOS	*A*		*A*				*A*	
Intersection Delay (s/veh)	*8.87*							
Intersection LOS	*A*							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*Sharrotts Rd @ Veterans Rd E*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 No-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Sharrotts Road* | North/South Street: *Veterans Road East*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*6*	*61*	*0*	*0*	*134*	*18*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*58*	*53*	*46*	*0*	*0*	*0*
%Thrus Left Lane	*50*					

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*LT*		*TR*		*LT*	*TR*		
PHF	*0.80*		*0.79*		*0.87*	*0.87*		
Flow Rate (veh/h)	*83*		*191*		*95*	*83*		
% Heavy Vehicles	*17*		*7*		*1*	*1*		
No. Lanes	*1*		*1*		*2*		*0*	
Geometry Group	*2*		*2*		*1*			
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	*0.1*		*0.0*		*0.7*	*0.0*		
Prop. Right-Turns	*0.0*		*0.1*		*0.0*	*0.6*		
Prop. Heavy Vehicle	*0.2*		*0.1*		*0.0*	*0.0*		
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*		
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*		
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*		
hadj, computed	*0.3*		*0.0*		*0.2*	*-0.4*		

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value (s)	*3.20*		*3.20*		*3.20*	*3.20*		
x, initial	*0.07*		*0.17*		*0.08*	*0.07*		
hd, final value (s)	*4.82*		*4.45*		*4.71*	*4.19*		
x, final value	*0.11*		*0.24*		*0.12*	*0.10*		
Move-up time, m (s)	*2.0*		*2.0*		*2.0*			
Service Time, t_s (s)	*2.8*		*2.5*		*2.7*	*2.2*		

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*333*		*441*		*345*	*333*		
Delay (s/veh)	*8.43*		*8.82*		*8.37*	*7.64*		
LOS	*A*		*A*		*A*	*A*		
Approach: Delay (s/veh)	*8.43*		*8.82*		*8.03*			
LOS	*A*		*A*		*A*			
Intersection Delay (s/veh)	*8.44*							
Intersection LOS	*A*							

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Englewood Ave @ Vets Rd E*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*3*	*0*			
Lane Group		*LT*	*R*		*LTR*			*LTR*				
Volume, V (vph)	*79*	*65*	*45*	*6*	*40*	*1*	*381*	*77*	*1*			
% Heavy Vehicles, %HV	*3*	*3*	*3*	*1*	*1*	*1*	*3*	*3*	*3*			
Peak-Hour Factor, PHF	*0.79*	*0.79*	*0.79*	*0.79*	*0.79*	*0.79*	*0.76*	*0.76*	*0.76*			
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*			
Start-up Lost Time, l_1		*2.0*	*2.0*		*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*	*2.0*		*2.0*			*2.0*				
Arrival Type, AT		*3*	*3*		*3*			*3*				
Unit Extension, UE		*3.0*	*3.0*		*3.0*			*3.0*				
Filtering/Metering, I		*0.999*	*0.999*		*0.998*			*0.978*				
Initial Unmet Demand, Q_b		*0.0*	*0.0*		*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*21*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width		*13.0*	*12.0*		*11.5*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B		*0*	*0*		*0*			*0*				
Min. Time for Pedestrians, G_p	*21.2*			*12.9*			*14.3*			*17.5*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *21.0*	G =	G =	G =	G = *29.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*182*	*30*		*60*			*603*				
Lane Group Capacity, c		*540*	*549*		*546*			*2253*				
v/c Ratio, X		*0.34*	*0.05*		*0.11*			*0.27*				
Total Green Ratio, g/C		*0.35*	*0.35*		*0.35*			*0.48*				
Uniform Delay, d_1		*14.4*	*12.9*		*13.2*			*9.2*				
Progression Factor, PF		*1.000*	*1.000*		*1.000*			*1.000*				
Delay Calibration, k		*0.50*	*0.50*		*0.50*			*0.50*				
Incremental Delay, d_2		*1.7*	*0.2*		*0.4*			*0.3*				

Initial Queue Delay, d_3		*0.0*	*0.0*		*0.0*			*0.0*				
Control Delay		*16.1*	*13.1*		*13.6*			*9.5*				
Lane Group LOS		*B*	*B*		*B*			*A*				
Approach Delay	*15.6*			*13.6*			*9.5*					
Approach LOS	*B*			*B*			*A*					
Intersection Delay	*11.3*			X_C = *0.30*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Englewood Av & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*48*		*18*				*16*	*351*			*478*	*31*
% Heavy Vehicles, %HV	*1*		*1*				*7*	*7*			*9*	*9*
Peak-Hour Factor, PHF	*0.74*		*0.74*				*0.89*	*0.89*			*0.86*	*0.86*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.997*						*0.936*			*0.808*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*16.0*						*14.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B		*0*						*7*			*2*	
Min. Time for Pedestrians, G_p	*14.9*			*15.5*			*3.2*			*17.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*89*						*412*			*592*	
Lane Group Capacity, c		*462*						*1012*			*1102*	
v/c Ratio, X		*0.19*						*0.41*			*0.54*	
Total Green Ratio, g/C		*0.27*						*0.57*			*0.57*	
Uniform Delay, d_1		*17.0*						*7.3*			*8.1*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*0.9*						*1.1*			*1.5*	
Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	

Control Delay		17.9						8.5			9.6	
Lane Group LOS		B						A			A	
Approach Delay	17.9						8.5			9.6		
Approach LOS	B						A			A		
Intersection Delay	9.9			X_C = 0.43			Intersection LOS			A		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Sharrotts Rd & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*56*		*53*				*30*	*379*			*292*	*122*
% Heavy Vehicles, %HV	*14*		*14*				*8*	*8*			*11*	*11*
Peak-Hour Factor, PHF	*0.80*		*0.80*				*0.89*	*0.89*			*0.86*	*0.86*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.982*						*0.866*			*0.927*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*17*
Lane Width		*16.0*						*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*7*			*2*	
Min. Time for Pedestrians, G_p	*18.6*			*18.6*			*3.2*			*16.6*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*136*						*460*			*462*	
Lane Group Capacity, c		*502*						*805*			*928*	
v/c Ratio, X		*0.27*						*0.57*			*0.50*	
Total Green Ratio, g/C		*0.33*						*0.50*			*0.50*	
Uniform Delay, d_1		*14.7*						*10.5*			*10.0*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*1.3*						*2.5*			*1.8*	
Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	

Control Delay		16.0						13.0			11.8	
Lane Group LOS		B						B			B	
Approach Delay	16.0						13.0			11.8		
Approach LOS	B						B			B		
Intersection Delay	12.9			X_C = 0.45			Intersection LOS			B		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Vets Rd E & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*	*0*	*3*	*0*	*1*	*1*			*1*	*0*
Lane Group	*L*		*R*		*LTR*		*L*	*T*			*TR*	
Volume, V (vph)	*3*		*58*	*244*	*395*	*164*	*42*	*200*			*475*	*22*
% Heavy Vehicles, %HV	*3*		*3*	*3*	*3*	*3*	*7*	*7*			*7*	*7*
Peak-Hour Factor, PHF	*0.79*		*0.79*	*0.88*	*0.88*	*0.88*	*0.90*	*0.90*			*0.76*	*0.76*
Pretimed (P) or Actuated (A)	*P*		*P*	*P*	*P*	*P*	*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*		*3*		*3*	*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*		*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I	*0.974*		*0.974*		*0.725*		*0.946*	*0.946*			*0.293*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Lane Width	*10.0*		*13.0*		*11.0*		*12.0*	*12.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*		*0*		*0*	*7*			*2*	
Min. Time for Pedestrians, G_p	*17.2*			*16.9*			*3.2*			*20.9*		

Phasing	EB Only	WB Only	03	04	NS Perm	06	07	08
Timing	G = *8.0*	G = *17.0*	G =	G =	G = *20.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*4*		*73*		*912*		*47*	*222*			*654*	
Lane Group Capacity, c	*218*		*216*		*1314*		*120*	*575*			*661*	
v/c Ratio, X	*0.02*		*0.34*		*0.69*		*0.39*	*0.39*			*0.99*	
Total Green Ratio, g/C	*0.13*		*0.13*		*0.28*		*0.33*	*0.33*			*0.33*	
Uniform Delay, d_1	*22.6*		*23.6*		*19.2*		*15.3*	*15.3*			*19.9*	
Progression Factor, PF	*1.000*		*1.000*		*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*		*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2	*0.2*		*4.1*		*2.2*		*8.8*	*1.9*			*16.6*	

Initial Queue Delay, d_3	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay	*22.7*		*27.7*		*21.4*		*24.2*	*17.2*			*36.5*	
Lane Group LOS	*C*		*C*		*C*		*C*	*B*			*D*	
Approach Delay	*27.4*			*21.4*			*18.4*			*36.5*		
Approach LOS	*C*			*C*			*B*			*D*		
Intersection Delay	*26.4*			X_C *= 0.76*			Intersection LOS			*C*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*S Service Rd & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*				*0*	*1*	*0*	*1*	*1*	*0*
Lane Group		*LTR*						*LTR*		*L*	*TR*	
Volume, V (vph)	*12*	*39*	*11*				*5*	*230*	*98*	*260*	*485*	*32*
% Heavy Vehicles, %HV	*3*	*3*	*3*				*7*	*7*	*7*	*7*	*7*	*7*
Peak-Hour Factor, PHF	*0.85*	*0.85*	*0.85*				*0.90*	*0.90*	*0.90*	*0.80*	*0.80*	*0.80*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*				*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*		*2.0*	*2.0*	
Arrival Type, AT		*3*						*3*		*3*	*3*	
Unit Extension, UE		*3.0*						*3.0*		*3.0*	*3.0*	
Filtering/Metering, I		*1.000*						*0.941*		*0.518*	*0.518*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*13.0*						*16.0*		*12.0*	*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*7*		*0*	*2*	
Min. Time for Pedestrians, G_p	*17.5*			*16.9*			*12.6*			*12.9*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *17.0*	G =	G =	G =	G = *33.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*73*						*371*		*325*	*646*	
Lane Group Capacity, c		*457*						*897*		*532*	*960*	
v/c Ratio, X		*0.16*						*0.41*		*0.61*	*0.67*	
Total Green Ratio, g/C		*0.28*						*0.55*		*0.55*	*0.55*	
Uniform Delay, d_1		*16.1*						*7.9*		*9.1*	*9.6*	
Progression Factor, PF		*1.000*						*1.000*		*1.000*	*1.000*	
Delay Calibration, k		*0.50*						*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2		*0.7*						*1.3*		*2.7*	*2.0*	

Initial Queue Delay, d_3		*0.0*						*0.0*		*0.0*	*0.0*	
Control Delay		*16.9*						*9.2*		*11.9*	*11.6*	
Lane Group LOS		*B*						*A*		*B*	*B*	
Approach Delay	*16.9*						*9.2*			*11.7*		
Approach LOS	*B*						*A*			*B*		
Intersection Delay	*11.3*			X_C = *0.50*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Amboy Rd & Bloomingdale Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*1*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*		*L*	*T*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*8*	*20*	*13*	*172*	*16*	*105*	*10*	*183*	*131*	*139*	*301*	*9*
% Heavy Vehicles, %HV	*3*	*3*	*3*	*5*	*5*	*5*	*7*	*7*	*7*	*7*	*7*	*7*
Peak-Hour Factor, PHF	*0.68*	*0.68*	*0.68*	*0.88*	*0.88*	*0.88*	*0.90*	*0.90*	*0.90*	*0.76*	*0.76*	*0.76*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*		*3*	*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*		*0.966*	*0.966*	*0.966*		*0.850*			*0.090*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*50*	*0*	*0*	*0*	*0*	*0*	*50*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*		*12.0*	*11.0*	*11.0*		*11.0*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*2*		*0*	*0*	*2*		*0*			*0*	
Min. Time for Pedestrians, G_p	*11.5*			*11.8*			*18.9*			*18.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*60*		*195*	*18*	*119*		*360*			*591*	
Lane Group Capacity, c		*648*		*548*	*777*	*574*		*691*			*547*	
v/c Ratio, X		*0.09*		*0.36*	*0.02*	*0.21*		*0.52*			*1.08*	
Total Green Ratio, g/C		*0.44*		*0.44*	*0.44*	*0.44*		*0.44*			*0.44*	
Uniform Delay, d_1		*14.5*		*16.5*	*14.0*	*15.3*		*18.1*			*25.0*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*	*0.50*		*0.50*			*0.50*	
Incremental Delay, d_2		*0.3*		*1.7*	*0.1*	*0.8*		*2.4*			*39.8*	

Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Control Delay		*14.8*		*18.2*	*14.1*	*16.1*		*20.5*			*64.8*	
Lane Group LOS		*B*		*B*	*B*	*B*		*C*			*E*	
Approach Delay	*14.8*			*17.2*			*20.5*			*64.8*		
Approach LOS	*B*			*B*			*C*			*E*		
Intersection Delay	*38.9*			X_C = *0.72*			Intersection LOS			*D*		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Arthur Kill Rd & Bloomingdl Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/28/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*0*	*1*		*0*		*0*			
Lane Group		*TR*			*LT*			*LR*				
Volume, V (vph)		*140*	*189*	*77*	*172*		*225*		*75*			
% Heavy Vehicles, %HV		*10*	*10*	*13*	*13*		*9*		*9*			
Peak-Hour Factor, PHF		*0.92*	*0.92*	*0.89*	*0.89*		*0.94*		*0.94*			
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*		*P*			
Start-up Lost Time, l_1		*2.0*			*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*			*2.0*			*2.0*				
Arrival Type, AT		*3*			*3*			*3*				
Unit Extension, UE		*3.0*			*3.0*			*3.0*				
Filtering/Metering, I		*0.964*			*0.986*			*0.858*				
Initial Unmet Demand, Q_b		*0.0*			*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*44*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	
Lane Width		*16.0*			*16.0*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m									*5*			
Buses Stopping, N_B		*5*			*0*			*0*				
Min. Time for Pedestrians, G_p	*18.3*			*3.2*			*15.2*			*17.2*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*310*			*280*			*319*				
Lane Group Capacity, c		*893*			*769*			*534*				
v/c Ratio, X		*0.35*			*0.36*			*0.60*				
Total Green Ratio, g/C		*0.50*			*0.50*			*0.39*				
Uniform Delay, d_1		*13.6*			*13.8*			*21.9*				
Progression Factor, PF		*1.000*			*1.000*			*1.000*				
Delay Calibration, k		*0.50*			*0.50*			*0.50*				
Incremental Delay, d_2		*1.0*			*1.3*			*4.2*				
Initial Queue Delay, d_3		*0.0*			*0.0*			*0.0*				

Control Delay		14.6			15.1			26.1				
Lane Group LOS		B			B			C				
Approach Delay	14.6			15.1			26.1					
Approach LOS	B			B			C					
Intersection Delay	18.8			X_C = 0.47			Intersection LOS			B		

Weekday

Midday

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*Sharrotts Rd & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 No-Action Conditions*

Project Description *Charlestone EIS*

East/West Street: *Sharrotts Road* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*37*	*215*	*36*	*32*	*227*	*23*
Peak-Hour Factor, PHF	*0.85*	*0.85*	*0.85*	*0.91*	*0.91*	*0.91*
Hourly Flow Rate, HFR (veh/h)	*43*	*252*	*42*	*35*	*249*	*25*
Percent Heavy Vehicles	*8*	--	--	*18*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*24*	*17*	*39*	*35*	*19*	*25*
Peak-Hour Factor, PHF	*0.78*	*0.78*	*0.78*	*0.88*	*0.88*	*0.88*
Hourly Flow Rate, HFR (veh/h)	*30*	*21*	*50*	*39*	*21*	*28*
Percent Heavy Vehicles	*1*	*1*	*1*	*10*	*10*	*10*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (veh/h)	*43*	*35*		*88*			*101*	
C (m) (veh/h)	*1255*	*1182*		*363*			*443*	
v/c	*0.03*	*0.03*		*0.24*			*0.23*	
95% queue length	*0.11*	*0.09*		*0.93*			*0.87*	
Control Delay (s/veh)	*8.0*	*8.1*		*18.1*			*15.5*	
LOS	*A*	*A*		*C*			*C*	
Approach Delay (s/veh)	--	--	*18.1*			*15.5*		
Approach LOS	--	--	*C*			*C*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*Sharrotts Rd & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 No-Action Conditions*

Project Description *Charlestone EIS*

East/West Street: *Sharrotts Road* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*37*	*215*	*36*	*32*	*227*	*23*
Peak-Hour Factor, PHF	*0.85*	*0.85*	*0.85*	*0.91*	*0.91*	*0.91*
Hourly Flow Rate, HFR (veh/h)	*43*	*252*	*42*	*35*	*249*	*25*
Percent Heavy Vehicles	*8*	--	--	*18*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*24*	*17*	*39*	*35*	*19*	*25*
Peak-Hour Factor, PHF	*0.78*	*0.78*	*0.78*	*0.88*	*0.88*	*0.88*
Hourly Flow Rate, HFR (veh/h)	*30*	*21*	*50*	*39*	*21*	*28*
Percent Heavy Vehicles	*1*	*1*	*1*	*10*	*10*	*10*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (veh/h)	*43*	*35*		*88*			*101*	
C (m) (veh/h)	*1255*	*1182*		*363*			*443*	
v/c	*0.03*	*0.03*		*0.24*			*0.23*	
95% queue length	*0.11*	*0.09*		*0.93*			*0.87*	
Control Delay (s/veh)	*8.0*	*8.1*		*18.1*			*15.5*	
LOS	*A*	*A*		*C*			*C*	
Approach Delay (s/veh)	--	--	*18.1*			*15.5*		
Approach LOS	--	--	*C*			*C*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Weekday 12-1 MD Peak Period*

Site Information

Intersection	*Englewood Ave & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*273*	*18*	*19*	*282*	
Peak-Hour Factor, PHF	*1.00*	*0.85*	*0.85*	*0.91*	*0.91*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*321*	*21*	*20*	*309*	*0*
Percent Heavy Vehicles	*0*	--	--	*15*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*44*		*15*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.94*	*1.00*	*0.94*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*46*	*0*	*15*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (veh/h)		*20*		*61*				
C (m) (veh/h)		*1148*		*460*				
v/c		*0.02*		*0.13*				
95% queue length		*0.05*		*0.45*				
Control Delay (s/veh)		*8.2*		*14.0*				
LOS		*A*		*B*				
Approach Delay (s/veh)	--	--	*14.0*					
Approach LOS	--	--	*B*					

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Weekday 12-1 MD Peak Period*

Site Information

Intersection	*Englewood Ave & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*273*	*18*	*19*	*282*	
Peak-Hour Factor, PHF	*1.00*	*0.85*	*0.85*	*0.91*	*0.91*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*321*	*21*	*20*	*309*	*0*
Percent Heavy Vehicles	*0*	--	--	*15*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*44*		*15*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.94*	*1.00*	*0.94*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*46*	*0*	*15*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (veh/h)		*20*		*61*				
C (m) (veh/h)		*1148*		*460*				
v/c		*0.02*		*0.13*				
95% queue length		*0.05*		*0.45*				
Control Delay (s/veh)		*8.2*		*14.0*				
LOS		*A*		*B*				
Approach Delay (s/veh)	--	--	*14.0*					
Approach LOS	--	--	*B*					

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*			*LT*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*1*	*17*	*6*	*232*	*24*	*382*	*1*	*146*	*261*	*144*	*181*	*1*
% Heavy Vehicles, %HV	*4*	*4*	*4*	*6*	*6*	*6*	*11*	*11*	*11*	*7*	*7*	*7*
Peak-Hour Factor, PHF	*0.84*	*0.84*	*0.84*	*0.90*	*0.90*	*0.90*	*0.92*	*0.92*	*0.92*	*0.86*	*0.86*	*0.86*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*			*0.887*	*0.887*		*0.931*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*15.5*			*11.0*	*10.0*		*15.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*			*0*	*0*		*3*			*4*	
Min. Time for Pedestrians, G_p	*11.5*			*13.5*			*15.2*			*12.1*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*28*			*285*	*424*		*444*			*378*	
Lane Group Capacity, c		*713*			*524*	*518*		*708*			*486*	
v/c Ratio, X		*0.04*			*0.54*	*0.82*		*0.63*			*0.78*	
Total Green Ratio, g/C		*0.42*			*0.42*	*0.42*		*0.42*			*0.42*	
Uniform Delay, d_1		*10.4*			*13.2*	*15.5*		*13.8*			*15.1*	
Progression Factor, PF		*1.000*			*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*	*0.50*		*0.50*			*0.50*	
Incremental Delay, d_2		*0.1*			*3.6*	*12.1*		*3.9*			*11.6*	

Initial Queue Delay, d_3		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Control Delay		*10.5*			*16.8*	*27.6*		*17.7*			*26.7*	
Lane Group LOS		*B*			*B*	*C*		*B*			*C*	
Approach Delay	*10.5*			*23.2*			*17.7*			*26.7*		
Approach LOS	*B*			*C*			*B*			*C*		
Intersection Delay	*22.3*			X_C = *0.80*			Intersection LOS			*C*		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*			*LT*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*1*	*17*	*6*	*232*	*24*	*382*	*1*	*146*	*261*	*144*	*181*	*1*
% Heavy Vehicles, %HV	*4*	*4*	*4*	*6*	*6*	*6*	*11*	*11*	*11*	*7*	*7*	*7*
Peak-Hour Factor, PHF	*0.84*	*0.84*	*0.84*	*0.90*	*0.90*	*0.90*	*0.92*	*0.92*	*0.92*	*0.86*	*0.86*	*0.86*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*			*0.887*	*0.887*		*0.931*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*15.5*			*11.0*	*10.0*		*15.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*			*0*	*0*		*3*			*4*	
Min. Time for Pedestrians, G_p	*11.5*			*13.5*			*15.2*			*12.1*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*28*			*285*	*424*		*444*			*378*	
Lane Group Capacity, c		*713*			*524*	*518*		*708*			*486*	
v/c Ratio, X		*0.04*			*0.54*	*0.82*		*0.63*			*0.78*	
Total Green Ratio, g/C		*0.42*			*0.42*	*0.42*		*0.42*			*0.42*	
Uniform Delay, d_1		*10.4*			*13.2*	*15.5*		*13.8*			*15.1*	
Progression Factor, PF		*1.000*			*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*	*0.50*		*0.50*			*0.50*	
Incremental Delay, d_2		*0.1*			*3.6*	*12.1*		*3.9*			*11.6*	

Initial Queue Delay, d_3		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Control Delay		*10.5*			*16.8*	*27.6*		*17.7*			*26.7*	
Lane Group LOS		*B*			*B*	*C*		*B*			*C*	
Approach Delay	*10.5*			*23.2*			*17.7*			*26.7*		
Approach LOS	*B*			*C*			*B*			*C*		
Intersection Delay	*22.3*			X_C = *0.80*			Intersection LOS			*C*		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*No Bridge St & Arthur Kill Rd*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*			*1*	
Lane Group					*LR*			*T*			*T*	
Volume, V (vph)				*359*		*3*		*402*			*420*	
% Heavy Vehicles, %HV				*6*		*6*		*11*			*12*	
Peak-Hour Factor, PHF				*0.88*		*0.88*		*0.92*			*0.86*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*			*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.858*			*0.858*			*0.567*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	
Lane Width					*16.0*			*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B					*0*			*0*			*4*	
Min. Time for Pedestrians, G_p	*13.5*			*13.8*			*3.2*			*3.2*		

Phasing	WB Only	02	03	04	Thru Only	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*411*			*437*			*488*	
Lane Group Capacity, c					*644*			*970*			*946*	
v/c Ratio, X					*0.64*			*0.45*			*0.52*	
Total Green Ratio, g/C					*0.33*			*0.50*			*0.50*	
Uniform Delay, d_1					*16.9*			*9.7*			*10.1*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*4.1*			*1.3*			*1.1*	
Initial Queue Delay, d_3					*0.0*			*0.0*			*0.0*	

Control Delay					*21.1*			*11.0*			*11.3*	
Lane Group LOS					*C*			*B*			*B*	
Approach Delay				*21.1*			*11.0*			*11.3*		
Approach LOS				*C*			*B*			*B*		
Intersection Delay	*14.2*			X_C = *0.56*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*No Bridge St & Arthur Kill Rd*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*			*1*	
Lane Group					*LR*			*T*			*T*	
Volume, V (vph)				*359*		*3*		*402*			*420*	
% Heavy Vehicles, %HV				*6*		*6*		*11*			*12*	
Peak-Hour Factor, PHF				*0.88*		*0.88*		*0.92*			*0.86*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*			*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.858*			*0.858*			*0.567*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	
Lane Width					*16.0*			*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B					*0*			*0*			*4*	
Min. Time for Pedestrians, G_p	*13.5*			*13.8*			*3.2*			*3.2*		

Phasing	WB Only	02	03	04	Thru Only	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*411*			*437*			*488*	
Lane Group Capacity, c					*644*			*970*			*946*	
v/c Ratio, X					*0.64*			*0.45*			*0.52*	
Total Green Ratio, g/C					*0.33*			*0.50*			*0.50*	
Uniform Delay, d_1					*16.9*			*9.7*			*10.1*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*4.1*			*1.3*			*1.1*	
Initial Queue Delay, d_3					*0.0*			*0.0*			*0.0*	

Control Delay					*21.1*			*11.0*			*11.3*	
Lane Group LOS					*C*			*B*			*B*	
Approach Delay				*21.1*			*11.0*			*11.3*		
Approach LOS				*C*			*B*			*B*		
Intersection Delay	*14.2*			X_C = *0.56*			Intersection LOS			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*So Bridge St & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *South Bridge Street* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*402*	*242*	*141*	*637*	
Peak-Hour Factor, PHF	*1.00*	*0.92*	*0.92*	*0.86*	*0.86*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*436*	*263*	*163*	*740*	*0*
Percent Heavy Vehicles	*0*	--	--	*16*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration						

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*						
v (veh/h)		*163*						
C (m) (veh/h)		*836*						
v/c		*0.19*						
95% queue length		*0.72*						
Control Delay (s/veh)		*10.3*						
LOS		*B*						
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

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Generated: 4/10/2013 3:04 PM

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*So Bridge St & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *South Bridge Street* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*402*	*242*	*141*	*637*	
Peak-Hour Factor, PHF	*1.00*	*0.92*	*0.92*	*0.86*	*0.86*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*436*	*263*	*163*	*740*	*0*
Percent Heavy Vehicles	*0*	--	--	*16*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration						

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*						
v (veh/h)		*163*						
C (m) (veh/h)		*836*						
v/c		*0.19*						
95% queue length		*0.72*						
Control Delay (s/veh)		*10.3*						
LOS		*B*						
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Rch Valley Rd & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*	*0*	*0*	*1*	
Lane Group					*LR*			*TR*			*LT*	
Volume, V (vph)				*102*		*197*		*436*	*80*	*185*	*434*	
% Heavy Vehicles, %HV				*3*		*3*		*8*	*8*	*6*	*6*	
Peak-Hour Factor, PHF				*0.87*		*0.87*		*0.92*	*0.92*	*0.86*	*0.86*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*	*P*	*P*	*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.944*			*0.880*			*0.500*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width					*12.0*			*15.0*			*15.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B					*0*			*4*			*4*	
Min. Time for Pedestrians, G_p	*11.8*			*11.8*			*14.1*			*3.2*		

Phasing	WB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*343*			*561*			*720*	
Lane Group Capacity, c					*386*			*1056*			*629*	
v/c Ratio, X					*0.89*			*0.53*			*1.14*	
Total Green Ratio, g/C					*0.27*			*0.57*			*0.57*	
Uniform Delay, d_1					*21.1*			*8.1*			*13.0*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*23.8*			*1.7*			*74.9*	
Initial Queue Delay, d_3					*0.0*			*0.0*			*0.0*	

Control Delay					*45.0*			*9.7*			*87.9*	
Lane Group LOS					*D*			*A*			*F*	
Approach Delay				*45.0*			*9.7*			*87.9*		
Approach LOS				*D*			*A*			*F*		
Intersection Delay	*51.8*			X_C = *1.06*			Intersection LOS			*D*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Rch Valley Rd & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*	*0*	*0*	*1*	
Lane Group					*LR*			*TR*			*LT*	
Volume, V (vph)				*102*		*197*		*436*	*80*	*185*	*434*	
% Heavy Vehicles, %HV				*3*		*3*		*8*	*8*	*6*	*6*	
Peak-Hour Factor, PHF				*0.87*		*0.87*		*0.92*	*0.92*	*0.86*	*0.86*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*	*P*	*P*	*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.944*			*0.880*			*0.500*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width					*12.0*			*15.0*			*15.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B					*0*			*4*			*4*	
Min. Time for Pedestrians, G_p	*11.8*			*11.8*			*14.1*			*3.2*		

Phasing	WB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*343*			*561*			*720*	
Lane Group Capacity, c					*386*			*1056*			*629*	
v/c Ratio, X					*0.89*			*0.53*			*1.14*	
Total Green Ratio, g/C					*0.27*			*0.57*			*0.57*	
Uniform Delay, d_1					*21.1*			*8.1*			*13.0*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*23.8*			*1.7*			*74.9*	
Initial Queue Delay, d_3					*0.0*			*0.0*			*0.0*	

Control Delay					*45.0*			*9.7*			*87.9*	
Lane Group LOS					*D*			*A*			*F*	
Approach Delay				*45.0*			*9.7*			*87.9*		
Approach LOS				*D*			*A*			*F*		
Intersection Delay	*51.8*			X_C = *1.06*			Intersection LOS			*D*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Richmond Valley Rd & Page Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*0*	*1*	*1*	*0*	*0*	*2*	*0*
Lane Group		*LTR*			*LTR*		*L*	*TR*			*LTR*	
Volume, V (vph)	*144*	*65*	*85*	*39*	*177*	*64*	*98*	*571*	*137*	*115*	*453*	*69*
% Heavy Vehicles, %HV	*3*	*3*	*3*	*2*	*2*	*2*	*2*	*2*	*2*	*6*	*6*	*6*
Peak-Hour Factor, PHF	*0.86*	*0.86*	*0.86*	*0.92*	*0.92*	*0.92*	*0.91*	*0.91*	*0.91*	*0.89*	*0.89*	*0.89*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.649*			*1.000*		*0.732*	*0.732*			*0.973*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*14*
Lane Width		*16.0*			*15.0*		*10.0*	*14.0*			*10.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*
Parking Maneuvers, N_m						*5*						*5*
Buses Stopping, N_B		*0*			*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*16.6*			*21.5*			*16.3*			*21.2*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *31.0*	G =	G =	G =	G = *49.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*342*			*304*		*108*	*778*			*700*	
Lane Group Capacity, c		*423*			*550*		*324*	*1050*			*903*	
v/c Ratio, X		*0.81*			*0.55*		*0.33*	*0.74*			*0.78*	
Total Green Ratio, g/C		*0.34*			*0.34*		*0.54*	*0.54*			*0.54*	
Uniform Delay, d_1		*26.8*			*23.9*		*11.4*	*15.7*			*16.2*	
Progression Factor, PF		*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2		*10.4*			*4.0*		*2.0*	*3.5*			*6.3*	

Initial Queue Delay, d_3		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay		*37.2*			*27.9*		*13.4*	*19.1*			*22.5*	
Lane Group LOS		*D*			*C*		*B*	*B*			*C*	
Approach Delay	*37.2*			*27.9*			*18.4*			*22.5*		
Approach LOS	*D*			*C*			*B*			*C*		
Intersection Delay	*23.9*			X_C *= 0.79*			Intersection LOS			*C*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Richmond Valley Rd & Page Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*0*	*1*	*1*	*0*	*0*	*2*	*0*
Lane Group		*LTR*			*LTR*		*L*	*TR*			*LTR*	
Volume, V (vph)	*144*	*65*	*85*	*39*	*177*	*64*	*98*	*571*	*137*	*115*	*453*	*69*
% Heavy Vehicles, %HV	*3*	*3*	*3*	*2*	*2*	*2*	*2*	*2*	*2*	*6*	*6*	*6*
Peak-Hour Factor, PHF	*0.86*	*0.86*	*0.86*	*0.92*	*0.92*	*0.92*	*0.91*	*0.91*	*0.91*	*0.89*	*0.89*	*0.89*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.649*			*1.000*		*0.732*	*0.732*			*0.973*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*14*
Lane Width		*16.0*			*15.0*		*10.0*	*14.0*			*10.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*
Parking Maneuvers, N_m						*5*						*5*
Buses Stopping, N_B		*0*			*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*16.6*			*21.5*			*16.3*			*21.2*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *31.0*	G =	G =	G =	G = *49.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*342*			*304*		*108*	*778*			*700*	
Lane Group Capacity, c		*423*			*550*		*324*	*1050*			*903*	
v/c Ratio, X		*0.81*			*0.55*		*0.33*	*0.74*			*0.78*	
Total Green Ratio, g/C		*0.34*			*0.34*		*0.54*	*0.54*			*0.54*	
Uniform Delay, d_1		*26.8*			*23.9*		*11.4*	*15.7*			*16.2*	
Progression Factor, PF		*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2		*10.4*			*4.0*		*2.0*	*3.5*			*6.3*	

Initial Queue Delay, d_3		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay		*37.2*			*27.9*		*13.4*	*19.1*			*22.5*	
Lane Group LOS		*D*			*C*		*B*	*B*			*C*	
Approach Delay	*37.2*			*27.9*			*18.4*			*22.5*		
Approach LOS	*D*			*C*			*B*			*C*		
Intersection Delay	*23.9*			X_C *= 0.79*			Intersection LOS			*C*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*S Bridge St RT & Page Ave*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *South Bridge Street Right Turn* | North/South Street: *Page Avenue*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*545*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.89*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*612*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*2*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*91*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.84*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*108*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*29*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								*R*
v (veh/h)								*108*
C (m) (veh/h)								*675*
v/c								*0.16*
95% queue length								*0.57*
Control Delay (s/veh)								*11.3*
LOS								*B*
Approach Delay (s/veh)	--	--				*11.3*		
Approach LOS	--	--				*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*S Bridge St RT & Page Ave*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *South Bridge Street Right Turn* | North/South Street: *Page Avenue*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*545*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.89*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*612*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*2*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*91*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.84*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*108*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*29*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								*R*
v (veh/h)								*108*
C (m) (veh/h)								*675*
v/c								*0.16*
95% queue length								*0.57*
Control Delay (s/veh)								*11.3*
LOS								*B*
Approach Delay (s/veh)	--	--				*11.3*		
Approach LOS	--	--				*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*S Br St & Page Ave/Boscome Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*							*2*			*2*	
Lane Group	*L*							*T*			*T*	
Volume, V (vph)	*292*							*778*			*545*	
% Heavy Vehicles, %HV	*3*							*2*			*3*	
Peak-Hour Factor, PHF	*0.88*							*0.91*			*0.89*	
Pretimed (P) or Actuated (A)	*P*							*P*			*P*	
Start-up Lost Time, l_1	*2.0*							*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*							*2.0*			*2.0*	
Arrival Type, AT	*3*							*3*			*3*	
Unit Extension, UE	*3.0*							*3.0*			*3.0*	
Filtering/Metering, I	*1.000*							*0.738*			*0.973*	
Initial Unmet Demand, Q_b	*0.0*							*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*		*0*	*0*		*0*	*0*	
Lane Width	*16.0*							*14.5*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*							*0*			*0*	
Min. Time for Pedestrians, G_p	*3.2*			*20.1*			*3.2*			*3.2*		

Phasing	EB Only	02	03	04	Thru Only	06	07	08
Timing	G = *30.0*	G =	G =	G =	G = *50.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*332*							*855*			*612*	
Lane Group Capacity, c	*662*							*2134*			*1951*	
v/c Ratio, X	*0.50*							*0.40*			*0.31*	
Total Green Ratio, g/C	*0.33*							*0.56*			*0.56*	
Uniform Delay, d_1	*24.0*							*11.4*			*10.8*	
Progression Factor, PF	*1.000*							*1.000*			*1.000*	
Delay Calibration, k	*0.50*							*0.50*			*0.50*	
Incremental Delay, d_2	*2.7*							*0.4*			*0.4*	
Initial Queue Delay, d_3	*0.0*							*0.0*			*0.0*	

Control Delay	26.7							11.8			11.2	
Lane Group LOS	C							B			B	
Approach Delay	26.7						11.8			11.2		
Approach LOS	C						B			B		
Intersection Delay	14.4			X_C = 0.44			Intersection LOS			B		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*S Br St & Page Ave/Boscome Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*							*2*			*2*	
Lane Group	*L*							*T*			*T*	
Volume, V (vph)	*292*							*778*			*545*	
% Heavy Vehicles, %HV	*3*							*2*			*3*	
Peak-Hour Factor, PHF	*0.88*							*0.91*			*0.89*	
Pretimed (P) or Actuated (A)	*P*							*P*			*P*	
Start-up Lost Time, l_1	*2.0*							*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*							*2.0*			*2.0*	
Arrival Type, AT	*3*							*3*			*3*	
Unit Extension, UE	*3.0*							*3.0*			*3.0*	
Filtering/Metering, I	*1.000*							*0.738*			*0.973*	
Initial Unmet Demand, Q_b	*0.0*							*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*		*0*	*0*		*0*	*0*	
Lane Width	*16.0*							*14.5*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*							*0*			*0*	
Min. Time for Pedestrians, G_p	*3.2*			*20.1*			*3.2*			*3.2*		

Phasing	EB Only	02	03	04	Thru Only	06	07	08
Timing	G = *30.0*	G =	G =	G =	G = *50.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*332*							*855*			*612*	
Lane Group Capacity, c	*662*							*2134*			*1951*	
v/c Ratio, X	*0.50*							*0.40*			*0.31*	
Total Green Ratio, g/C	*0.33*							*0.56*			*0.56*	
Uniform Delay, d_1	*24.0*							*11.4*			*10.8*	
Progression Factor, PF	*1.000*							*1.000*			*1.000*	
Delay Calibration, k	*0.50*							*0.50*			*0.50*	
Incremental Delay, d_2	*2.7*							*0.4*			*0.4*	
Initial Queue Delay, d_3	*0.0*							*0.0*			*0.0*	

Control Delay	26.7							11.8			11.2	
Lane Group LOS	C							B			B	
Approach Delay	26.7						11.8			11.2		
Approach LOS	C						B			B		
Intersection Delay	14.4			X_C = 0.44			Intersection LOS			B		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/25/2012*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*KWVP WB OR UT & No Bridge St*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *KWVP WB Off-Ramp U-Turn* | North/South Street: *North Bridge Street*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*383*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.87*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*440*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*1*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*188*		
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.90*	*0.93*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*202*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*60*	*4*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*0*
Configuration				*L*		

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration			*L*					
v (veh/h)			*202*					
C (m) (veh/h)			*571*					
v/c			*0.35*					
95% queue length			*1.59*					
Control Delay (s/veh)			*14.7*					
LOS			*B*					
Approach Delay (s/veh)	--	--	*14.7*					
Approach LOS	--	--	*B*					

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/25/2012*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*KWVP WB OR UT & No Bridge St*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *KWVP WB Off-Ramp U-Turn* | North/South Street: *North Bridge Street*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*383*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.87*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*440*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*1*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*188*		
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.90*	*0.93*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*202*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*60*	*4*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*0*
Configuration				*L*		

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration			*L*					
v (veh/h)			*202*					
C (m) (veh/h)			*571*					
v/c			*0.35*					
95% queue length			*1.59*					
Control Delay (s/veh)			*14.7*					
LOS			*B*					
Approach Delay (s/veh)	--	--	*14.7*					
Approach LOS	--	--	*B*					

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Bricktown/KWVP*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*	*0*	*1*	*2*	*0*	*0*	*2*	*0*	*1*	*1*	*0*
Lane Group	*L*	*TR*		*L*	*TR*			*LTR*		*L*	*TR*	
Volume, V (vph)	*94*	*149*	*140*	*195*	*478*	*83*	*88*	*228*	*316*	*148*	*49*	*40*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*6*	*6*	*6*	*4*	*4*	*4*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.84*	*0.84*	*0.84*	*0.90*	*0.90*	*0.90*	*0.93*	*0.93*	*0.93*	*0.80*	*0.80*	*0.80*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*		*2.0*	*2.0*			*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e	*2.0*	*2.0*		*2.0*	*2.0*			*2.0*		*2.0*	*2.0*	
Arrival Type, AT	*3*	*3*		*3*	*3*			*3*		*3*	*3*	
Unit Extension, UE	*3.0*	*3.0*		*3.0*	*3.0*			*3.0*		*3.0*	*3.0*	
Filtering/Metering, I	*0.856*	*0.856*		*0.927*	*0.927*			*1.000*		*0.985*	*0.985*	
Initial Unmet Demand, Q_b	*0.0*	*0.0*		*0.0*	*0.0*			*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*32*	*0*	*0*	*13*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*11.0*	*12.0*		*10.0*	*12.0*			*12.5*		*11.0*	*10.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*		*0*	*0*			*0*		*0*	*0*	
Min. Time for Pedestrians, G_p	*34.6*			*18.6*			*20.3*			*16.1*		

Phasing	EW Perm	02	03	04	NB Only	SB Only	07	08
Timing	G = *30.0*	G =	G =	G =	G = *25.0*	G = *20.0*	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y = *5*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*112*	*306*		*217*	*609*			*680*		*185*	*111*	
Lane Group Capacity, c	*188*	*587*		*242*	*1116*			*903*		*380*	*360*	
v/c Ratio, X	*0.60*	*0.52*		*0.90*	*0.55*			*0.75*		*0.49*	*0.31*	
Total Green Ratio, g/C	*0.33*	*0.33*		*0.33*	*0.33*			*0.28*		*0.22*	*0.22*	
Uniform Delay, d_1	*25.0*	*24.2*		*28.5*	*24.4*			*29.7*		*30.5*	*29.2*	
Progression Factor, PF	*1.000*	*1.000*		*1.000*	*1.000*			*1.000*		*1.000*	*1.000*	
Delay Calibration, k	*0.50*	*0.50*		*0.50*	*0.50*			*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2	*11.4*	*2.8*		*34.4*	*1.8*			*5.8*		*4.3*	*2.2*	

Initial Queue Delay, d_3	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Control Delay	36.3	27.0		62.9	26.2			35.5		34.9	31.4	
Lane Group LOS	D	C		E	C			D		C	C	
Approach Delay	29.5			35.9			35.5			33.6		
Approach LOS	C			D			D			C		
Intersection Delay	34.2			X_C = 0.74			Intersection LOS			C		

 HCS+™ Version 5.4 Generated: 4/10/2013 3:05 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Bricktown/KWVP*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*	*0*	*1*	*2*	*0*	*0*	*2*	*0*	*1*	*1*	*0*
Lane Group	*L*	*TR*		*L*	*TR*			*LTR*		*L*	*TR*	
Volume, V (vph)	*94*	*149*	*140*	*195*	*478*	*83*	*88*	*228*	*316*	*148*	*49*	*40*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*6*	*6*	*6*	*4*	*4*	*4*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.84*	*0.84*	*0.84*	*0.90*	*0.90*	*0.90*	*0.93*	*0.93*	*0.93*	*0.80*	*0.80*	*0.80*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*		*2.0*	*2.0*			*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e	*2.0*	*2.0*		*2.0*	*2.0*			*2.0*		*2.0*	*2.0*	
Arrival Type, AT	*3*	*3*		*3*	*3*			*3*		*3*	*3*	
Unit Extension, UE	*3.0*	*3.0*		*3.0*	*3.0*			*3.0*		*3.0*	*3.0*	
Filtering/Metering, I	*0.856*	*0.856*		*0.927*	*0.927*			*1.000*		*0.985*	*0.985*	
Initial Unmet Demand, Q_b	*0.0*	*0.0*		*0.0*	*0.0*			*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*32*	*0*	*0*	*13*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*11.0*	*12.0*		*10.0*	*12.0*			*12.5*		*11.0*	*10.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*		*0*	*0*			*0*		*0*	*0*	
Min. Time for Pedestrians, G_p	*34.6*			*18.6*			*20.3*			*16.1*		

Phasing	EW Perm	02	03	04	NB Only	SB Only	07	08
Timing	G = *30.0*	G =	G =	G =	G = *25.0*	G = *20.0*	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y = *5*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*112*	*306*		*217*	*609*			*680*		*185*	*111*	
Lane Group Capacity, c	*188*	*587*		*242*	*1116*			*903*		*380*	*360*	
v/c Ratio, X	*0.60*	*0.52*		*0.90*	*0.55*			*0.75*		*0.49*	*0.31*	
Total Green Ratio, g/C	*0.33*	*0.33*		*0.33*	*0.33*			*0.28*		*0.22*	*0.22*	
Uniform Delay, d_1	*25.0*	*24.2*		*28.5*	*24.4*			*29.7*		*30.5*	*29.2*	
Progression Factor, PF	*1.000*	*1.000*		*1.000*	*1.000*			*1.000*		*1.000*	*1.000*	
Delay Calibration, k	*0.50*	*0.50*		*0.50*	*0.50*			*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2	*11.4*	*2.8*		*34.4*	*1.8*			*5.8*		*4.3*	*2.2*	

Initial Queue Delay, d_3	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Control Delay	36.3	27.0		62.9	26.2			35.5		34.9	31.4	
Lane Group LOS	D	C		E	C			D		C	C	
Approach Delay	29.5			35.9			35.5			33.6		
Approach LOS	C			D			D			C		
Intersection Delay	34.2			X_C = 0.74			Intersection LOS			C		

 HCS+™ Version 5.4 Generated: 4/10/2013 3:05 PM

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/25/2012*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*Bricktown Way/Tyrellan Avenue*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 No-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Bricktown Way* | North/South Street: *Tyrellan Avenue*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*115*	*32*	*130*	*126*	*0*
%Thrus Left Lane	*50*			*50*		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*40*	*0*	*41*	*0*	*0*	*0*
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*T*	*TR*	*LT*	*T*	*L*	*R*		
PHF	*0.88*	*0.88*	*0.90*	*0.90*	*0.78*	*0.78*		
Flow Rate (veh/h)	*64*	*101*	*214*	*70*	*51*	*52*		
% Heavy Vehicles	*42*	*42*	*4*	*4*	*3*	*3*		
No. Lanes	*2*		*2*		*2*		*0*	
Geometry Group	*5*		*5*		*1*			
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	*0.0*	*0.0*	*0.7*	*0.0*	*1.0*	*0.0*		
Prop. Right-Turns	*0.0*	*0.4*	*0.0*	*0.0*	*0.0*	*1.0*		
Prop. Heavy Vehicle	*0.4*	*0.4*	*0.0*	*0.0*	*0.0*	*0.0*		
hLT-adj	*0.5*	*0.5*	*0.5*	*0.5*	*0.2*	*0.2*		
hRT-adj	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.6*	*-0.6*		
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*		
hadj, computed	*0.7*	*0.5*	*0.4*	*0.1*	*0.3*	*-0.5*		

Departure Headway and Service Time

hd, initial value (s)	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*		
x, initial	*0.06*	*0.09*	*0.19*	*0.06*	*0.05*	*0.05*		
hd, final value (s)	*5.74*	*5.49*	*5.33*	*4.99*	*5.23*	*4.43*		
x, final value	*0.10*	*0.15*	*0.32*	*0.10*	*0.07*	*0.06*		
Move-up time, m (s)	*2.3*		*2.3*		*2.0*			
Service Time, t_s (s)	*3.4*	*3.2*	*3.0*	*2.7*	*3.2*	*2.4*		

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*314*	*351*	*464*	*320*	*301*	*302*		
Delay (s/veh)	*9.09*	*9.18*	*10.48*	*8.23*	*8.65*	*7.74*		
LOS	*A*	*A*	*B*	*A*	*A*	*A*		
Approach: Delay (s/veh)	*9.15*		*9.92*		*8.19*			
LOS	*A*		*A*		*A*			
Intersection Delay (s/veh)	*9.37*							
Intersection LOS	*A*							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/25/2012*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*Bricktown Way/Tyrellan Avenue*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 No-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Bricktown Way* | North/South Street: *Tyrellan Avenue*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*115*	*32*	*130*	*126*	*0*
%Thrus Left Lane	*50*			*50*		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*40*	*0*	*41*	*0*	*0*	*0*
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*T*	*TR*	*LT*	*T*	*L*	*R*		
PHF	*0.88*	*0.88*	*0.90*	*0.90*	*0.78*	*0.78*		
Flow Rate (veh/h)	*64*	*101*	*214*	*70*	*51*	*52*		
% Heavy Vehicles	*42*	*42*	*4*	*4*	*3*	*3*		
No. Lanes	*2*		*2*		*2*		*0*	
Geometry Group	*5*		*5*		*1*			
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	*0.0*	*0.0*	*0.7*	*0.0*	*1.0*	*0.0*		
Prop. Right-Turns	*0.0*	*0.4*	*0.0*	*0.0*	*0.0*	*1.0*		
Prop. Heavy Vehicle	*0.4*	*0.4*	*0.0*	*0.0*	*0.0*	*0.0*		
hLT-adj	*0.5*	*0.5*	*0.5*	*0.5*	*0.2*	*0.2*		
hRT-adj	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.6*	*-0.6*		
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*		
hadj, computed	*0.7*	*0.5*	*0.4*	*0.1*	*0.3*	*-0.5*		

Departure Headway and Service Time

hd, initial value (s)	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*		
x, initial	*0.06*	*0.09*	*0.19*	*0.06*	*0.05*	*0.05*		
hd, final value (s)	*5.74*	*5.49*	*5.33*	*4.99*	*5.23*	*4.43*		
x, final value	*0.10*	*0.15*	*0.32*	*0.10*	*0.07*	*0.06*		
Move-up time, m (s)	*2.3*		*2.3*		*2.0*			
Service Time, t_s (s)	*3.4*	*3.2*	*3.0*	*2.7*	*3.2*	*2.4*		

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*314*	*351*	*464*	*320*	*301*	*302*		
Delay (s/veh)	*9.09*	*9.18*	*10.48*	*8.23*	*8.65*	*7.74*		
LOS	*A*	*A*	*B*	*A*	*A*	*A*		
Approach: Delay (s/veh)	*9.15*		*9.92*		*8.19*			
LOS	*A*		*A*		*A*			
Intersection Delay (s/veh)	*9.37*							
Intersection LOS	*A*							

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/25/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*
Lane Group		*LTR*		*DefL*	*TR*		*DefL*	*TR*			*LTR*	
Volume, V (vph)	*62*	*104*	*420*	*134*	*274*	*18*	*261*	*156*	*88*	*23*	*312*	*226*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*3*	*3*	*3*	*3*	*3*	*3*	*12*	*12*	*12*
Peak-Hour Factor, PHF	*0.84*	*0.84*	*0.84*	*0.90*	*0.90*	*0.90*	*0.87*	*0.87*	*0.87*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*		*3*	*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.889*		*0.932*	*0.932*		*1.000*	*1.000*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*		*12.0*	*12.0*		*13.0*	*13.0*			*9.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*		*0*	*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*18.6*			*16.6*			*20.1*			*19.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*698*		*149*	*324*		*300*	*280*			*624*	
Lane Group Capacity, c		*1224*		*256*	*812*		*298*	*801*			*1154*	
v/c Ratio, X		*0.57*		*0.58*	*0.40*		*1.01*	*0.35*			*0.54*	
Total Green Ratio, g/C		*0.44*		*0.44*	*0.44*		*0.44*	*0.44*			*0.44*	
Uniform Delay, d_1		*18.6*		*18.7*	*16.9*		*25.0*	*16.4*			*18.3*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2		*1.7*		*8.7*	*1.4*		*53.8*	*1.2*			*1.8*	

Initial Queue Delay, d_3		0.0		0.0	0.0		0.0	0.0			0.0	
Control Delay		20.3		27.5	18.2		78.8	17.6			20.1	
Lane Group LOS		C		C	B		E	B			C	
Approach Delay	20.3			21.1			49.3			20.1		
Approach LOS	C			C			D			C		
Intersection Delay	27.5			X_C = 0.79			Intersection LOS			C		

 HCS+™ Version 5.4 Generated: 4/10/2013 3:06 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/25/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*
Lane Group		*LTR*		*DefL*	*TR*		*DefL*	*TR*			*LTR*	
Volume, V (vph)	*62*	*104*	*420*	*134*	*274*	*18*	*261*	*156*	*88*	*23*	*312*	*226*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*3*	*3*	*3*	*3*	*3*	*3*	*12*	*12*	*12*
Peak-Hour Factor, PHF	*0.84*	*0.84*	*0.84*	*0.90*	*0.90*	*0.90*	*0.87*	*0.87*	*0.87*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*		*3*	*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.889*		*0.932*	*0.932*		*1.000*	*1.000*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*		*12.0*	*12.0*		*13.0*	*13.0*			*9.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*		*0*	*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*18.6*			*16.6*			*20.1*			*19.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*698*		*149*	*324*		*300*	*280*			*624*	
Lane Group Capacity, c		*1224*		*256*	*812*		*298*	*801*			*1154*	
v/c Ratio, X		*0.57*		*0.58*	*0.40*		*1.01*	*0.35*			*0.54*	
Total Green Ratio, g/C		*0.44*		*0.44*	*0.44*		*0.44*	*0.44*			*0.44*	
Uniform Delay, d_1		*18.6*		*18.7*	*16.9*		*25.0*	*16.4*			*18.3*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2		*1.7*		*8.7*	*1.4*		*53.8*	*1.2*			*1.8*	

Initial Queue Delay, d_3		0.0		0.0	0.0		0.0	0.0			0.0	
Control Delay		20.3		27.5	18.2		78.8	17.6			20.1	
Lane Group LOS		C		C	B		E	B			C	
Approach Delay	20.3			21.1			49.3			20.1		
Approach LOS	C			C			D			C		
Intersection Delay	27.5			X_C = 0.79			Intersection LOS			C		

 HCS+™ Version 5.4 Generated: 4/10/2013 3:06 PM

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Boscombe Ave & OBX Off-Ramp*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*1*	*1*	*1*
Lane Group	*L*	*TR*			*LT*	*R*		*LTR*		*L*	*LT*	*R*
Volume, V (vph)	*681*	*386*	*3*	*1*	*411*	*473*	*0*	*0*	*1*	*90*	*0*	*135*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*3*	*3*	*3*	*0*	*0*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*	*0.25*	*0.25*	*0.25*	*0.97*	*0.97*	*0.97*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*	*3*		*3*		*3*	*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*	*3.0*		*3.0*		*3.0*	*3.0*	*3.0*
Filtering/Metering, I	*0.735*	*0.735*			*0.546*	*0.546*		*1.000*		*1.000*	*1.000*	*1.000*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*	*0.0*		*0.0*		*0.0*	*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*85*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*11.0*	*12.0*			*12.0*	*12.0*		*16.0*		*10.0*	*11.0*	*10.0*
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B	*0*	*0*			*0*	*0*		*0*		*0*	*0*	*0*
Min. Time for Pedestrians, G_p	*14.6*			*24.6*			*20.9*			*20.1*		

Phasing	EB Only	EW Perm	03	04	NS Perm	06	07	08
Timing	G = *37.0*	G = *22.0*	G =	G =	G = *16.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*748*	*427*			*453*	*426*		*4*		*93*	*0*	*139*
Lane Group Capacity, c	*783*	*1158*			*451*	*383*		*328*		*233*	*320*	*952*
v/c Ratio, X	*0.96*	*0.37*			*1.00*	*1.11*		*0.01*		*0.40*	*0.00*	*0.15*
Total Green Ratio, g/C	*0.71*	*0.71*			*0.24*	*0.24*		*0.18*		*0.18*	*0.18*	*0.64*
Uniform Delay, d_1	*20.7*	*5.1*			*34.0*	*34.0*		*30.5*		*32.7*	*30.4*	*6.3*
Progression Factor, PF	*1.000*	*1.000*			*1.000*	*1.000*		*1.000*		*1.000*	*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*	*0.50*		*0.50*		*0.50*	*0.50*	*0.50*
Incremental Delay, d_2	*18.7*	*0.7*			*32.4*	*69.1*		*0.1*		*5.0*	*0.0*	*0.3*

Initial Queue Delay, d_3	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Control Delay	39.4	5.8			66.4	103.1		30.6		37.8	30.4	6.6
Lane Group LOS	D	A			E	F		C		D	C	A
Approach Delay	27.2			84.2			30.6			19.1		
Approach LOS	C			F			C			B		
Intersection Delay	48.3			X_C = 0.90			Intersection LOS			D		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Boscombe Ave & OBX Off-Ramp*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*1*	*1*	*1*
Lane Group	*L*	*TR*			*LT*	*R*		*LTR*		*L*	*LT*	*R*
Volume, V (vph)	*681*	*386*	*3*	*1*	*411*	*473*	*0*	*0*	*1*	*90*	*0*	*135*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*3*	*3*	*3*	*0*	*0*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*	*0.25*	*0.25*	*0.25*	*0.97*	*0.97*	*0.97*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*	*3*		*3*		*3*	*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*	*3.0*		*3.0*		*3.0*	*3.0*	*3.0*
Filtering/Metering, I	*0.735*	*0.735*			*0.546*	*0.546*		*1.000*		*1.000*	*1.000*	*1.000*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*	*0.0*		*0.0*		*0.0*	*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*85*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*11.0*	*12.0*			*12.0*	*12.0*		*16.0*		*10.0*	*11.0*	*10.0*
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B	*0*	*0*			*0*	*0*		*0*		*0*	*0*	*0*
Min. Time for Pedestrians, G_p	*14.6*			*24.6*			*20.9*			*20.1*		

Phasing	EB Only	EW Perm	03	04	NS Perm	06	07	08
Timing	G = *37.0*	G = *22.0*	G =	G =	G = *16.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*748*	*427*			*453*	*426*		*4*		*93*	*0*	*139*
Lane Group Capacity, c	*783*	*1158*			*451*	*383*		*328*		*233*	*320*	*952*
v/c Ratio, X	*0.96*	*0.37*			*1.00*	*1.11*		*0.01*		*0.40*	*0.00*	*0.15*
Total Green Ratio, g/C	*0.71*	*0.71*			*0.24*	*0.24*		*0.18*		*0.18*	*0.18*	*0.64*
Uniform Delay, d_1	*20.7*	*5.1*			*34.0*	*34.0*		*30.5*		*32.7*	*30.4*	*6.3*
Progression Factor, PF	*1.000*	*1.000*			*1.000*	*1.000*		*1.000*		*1.000*	*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*	*0.50*		*0.50*		*0.50*	*0.50*	*0.50*
Incremental Delay, d_2	*18.7*	*0.7*			*32.4*	*69.1*		*0.1*		*5.0*	*0.0*	*0.3*

Initial Queue Delay, d_3	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Control Delay	39.4	5.8			66.4	103.1		30.6		37.8	30.4	6.6
Lane Group LOS	D	A			E	F		C		D	C	A
Approach Delay	27.2			84.2			30.6			19.1		
Approach LOS	C			F			C			B		
Intersection Delay	48.3			X_C = 0.90			Intersection LOS			D		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Boscombe Ave & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Hour*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*1*	*1*
Lane Group	*DefL*	*TR*			*LTR*		*DefL*	*TR*			*LT*	*R*
Volume, V (vph)	*439*	*38*	*0*	*2*	*65*	*71*	*4*	*3*	*0*	*65*	*6*	*816*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*3*	*3*	*3*	*1*	*1*	*1*	*6*	*6*	*6*
Peak-Hour Factor, PHF	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*	*0.58*	*0.58*	*0.58*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*		*3*	*3*			*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	*3.0*
Filtering/Metering, I	*0.962*	*0.962*			*1.000*		*1.000*	*1.000*			*0.889*	*0.889*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*17*	*0*	*0*	*0*	*0*	*0*	*310*
Lane Width	*16.0*	*16.0*			*11.5*		*12.0*	*12.0*			*12.0*	*12.0*
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*			*0*		*0*	*0*			*0*	*0*
Min. Time for Pedestrians, G_p	*20.3*			*17.5*			*20.3*			*20.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*482*	*42*			*132*		*7*	*5*			*79*	*562*
Lane Group Capacity, c	*706*	*1056*			*1537*		*516*	*732*			*538*	*593*
v/c Ratio, X	*0.68*	*0.04*			*0.09*		*0.01*	*0.01*			*0.15*	*0.95*
Total Green Ratio, g/C	*0.50*	*0.50*			*0.50*		*0.39*	*0.39*			*0.39*	*0.39*
Uniform Delay, d_1	*17.1*	*11.5*			*11.8*		*16.9*	*16.9*			*17.8*	*26.6*
Progression Factor, PF	*1.000*	*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	*0.50*
Incremental Delay, d_2	*5.1*	*0.1*			*0.1*		*0.0*	*0.0*			*0.5*	*24.1*

Initial Queue Delay, d_3	*0.0*	*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	*0.0*
Control Delay	*22.2*	*11.5*			*11.9*		*16.9*	*16.9*			*18.3*	*50.8*
Lane Group LOS	*C*	*B*			*B*		*B*	*B*			*B*	*D*
Approach Delay	*21.3*			*11.9*			*16.9*			*46.8*		
Approach LOS	*C*			*B*			*B*			*D*		
Intersection Delay	*32.8*			X_C *= 0.80*			Intersection LOS			*C*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Boscombe Ave & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Hour*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*1*	*1*
Lane Group	*DefL*	*TR*			*LTR*		*DefL*	*TR*			*LT*	*R*
Volume, V (vph)	*439*	*38*	*0*	*2*	*65*	*71*	*4*	*3*	*0*	*65*	*6*	*816*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*3*	*3*	*3*	*1*	*1*	*1*	*6*	*6*	*6*
Peak-Hour Factor, PHF	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*	*0.58*	*0.58*	*0.58*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*		*3*	*3*			*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	*3.0*
Filtering/Metering, I	*0.962*	*0.962*			*1.000*		*1.000*	*1.000*			*0.889*	*0.889*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*17*	*0*	*0*	*0*	*0*	*0*	*310*
Lane Width	*16.0*	*16.0*			*11.5*		*12.0*	*12.0*			*12.0*	*12.0*
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*			*0*		*0*	*0*			*0*	*0*
Min. Time for Pedestrians, G_p	*20.3*			*17.5*			*20.3*			*20.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*482*	*42*			*132*		*7*	*5*			*79*	*562*
Lane Group Capacity, c	*706*	*1056*			*1537*		*516*	*732*			*538*	*593*
v/c Ratio, X	*0.68*	*0.04*			*0.09*		*0.01*	*0.01*			*0.15*	*0.95*
Total Green Ratio, g/C	*0.50*	*0.50*			*0.50*		*0.39*	*0.39*			*0.39*	*0.39*
Uniform Delay, d_1	*17.1*	*11.5*			*11.8*		*16.9*	*16.9*			*17.8*	*26.6*
Progression Factor, PF	*1.000*	*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	*0.50*
Incremental Delay, d_2	*5.1*	*0.1*			*0.1*		*0.0*	*0.0*			*0.5*	*24.1*

Initial Queue Delay, d_3	*0.0*	*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	*0.0*
Control Delay	*22.2*	*11.5*			*11.9*		*16.9*	*16.9*			*18.3*	*50.8*
Lane Group LOS	*C*	*B*			*B*		*B*	*B*			*B*	*D*
Approach Delay	*21.3*			*11.9*			*16.9*			*46.8*		
Approach LOS	*C*			*B*			*B*			*D*		
Intersection Delay	*32.8*			X_C *= 0.80*			Intersection LOS			*C*		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Bricktown Ctr Rd @ Vets Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*				*0*	*2*			*2*	*0*
Lane Group	*L*		*R*					*LT*			*TR*	
Volume, V (vph)	*174*		*25*				*4*	*211*			*402*	*394*
% Heavy Vehicles, %HV	*10*		*10*				*4*	*4*			*2*	*2*
Peak-Hour Factor, PHF	*0.88*		*0.88*				*0.90*	*0.90*			*0.80*	*0.80*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*					*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*					*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*					*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*					*3.0*			*3.0*	
Filtering/Metering, I	*0.975*		*0.975*					*0.998*			*0.686*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*					*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*6*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width	*13.0*		*12.0*					*11.5*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*					*0*			*0*	
Min. Time for Pedestrians, G_p	*21.8*			*20.3*			*3.2*			*19.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *19.0*	G =	G =	G =	G = *31.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*198*		*22*					*238*			*994*	
Lane Group Capacity, c	*537*		*465*					*1665*			*1923*	
v/c Ratio, X	*0.37*		*0.05*					*0.14*			*0.52*	
Total Green Ratio, g/C	*0.32*		*0.32*					*0.52*			*0.52*	
Uniform Delay, d_1	*15.9*		*14.2*					*7.6*			*9.6*	
Progression Factor, PF	*1.000*		*1.000*					*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*					*0.50*			*0.50*	
Incremental Delay, d_2	*1.9*		*0.2*					*0.2*			*0.7*	
Initial Queue Delay, d_3	*0.0*		*0.0*					*0.0*			*0.0*	

Control Delay	*17.8*		*14.4*					*7.7*			*10.2*	
Lane Group LOS	*B*		*B*					*A*			*B*	
Approach Delay	*17.4*						*7.7*			*10.2*		
Approach LOS	*B*						*A*			*B*		
Intersection Delay	*10.9*			X_C = *0.46*			Intersection LOS			*B*		

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Bricktown Ctr Rd @ Vets Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*				*0*	*2*			*2*	*0*
Lane Group	*L*		*R*					*LT*			*TR*	
Volume, V (vph)	*174*		*25*				*4*	*211*			*402*	*394*
% Heavy Vehicles, %HV	*10*		*10*				*4*	*4*			*2*	*2*
Peak-Hour Factor, PHF	*0.88*		*0.88*				*0.90*	*0.90*			*0.80*	*0.80*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*					*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*					*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*					*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*					*3.0*			*3.0*	
Filtering/Metering, I	*0.975*		*0.975*					*0.998*			*0.686*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*					*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*6*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width	*13.0*		*12.0*					*11.5*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*					*0*			*0*	
Min. Time for Pedestrians, G_p	*21.8*			*20.3*			*3.2*			*19.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *19.0*	G =	G =	G =	G = *31.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*198*		*22*					*238*			*994*	
Lane Group Capacity, c	*537*		*465*					*1665*			*1923*	
v/c Ratio, X	*0.37*		*0.05*					*0.14*			*0.52*	
Total Green Ratio, g/C	*0.32*		*0.32*					*0.52*			*0.52*	
Uniform Delay, d_1	*15.9*		*14.2*					*7.6*			*9.6*	
Progression Factor, PF	*1.000*		*1.000*					*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*					*0.50*			*0.50*	
Incremental Delay, d_2	*1.9*		*0.2*					*0.2*			*0.7*	
Initial Queue Delay, d_3	*0.0*		*0.0*					*0.0*			*0.0*	

Control Delay	*17.8*		*14.4*					*7.7*			*10.2*	
Lane Group LOS	*B*		*B*					*A*			*B*	
Approach Delay	*17.4*						*7.7*			*10.2*		
Approach LOS	*B*						*A*			*B*		
Intersection Delay	*10.9*			X_C = *0.46*			Intersection LOS			*B*		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*Englewood Ave & Vets Rd W RT*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* | North/South Street: *Veterans Rd W Right Turn Bay*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*24*				
Peak-Hour Factor, PHF	*1.00*	*0.55*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*43*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*T*				
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*383*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.90*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*425*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*1*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					*R*			
v (veh/h)					*425*			
C (m) (veh/h)					*1030*			
v/c					*0.41*			
95% queue length					*2.05*			
Control Delay (s/veh)					*10.9*			
LOS					*B*			
Approach Delay (s/veh)	--	--	*10.9*					
Approach LOS	--	--	*B*					

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*Englewood Ave & Vets Rd W RT*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* | North/South Street: *Veterans Rd W Right Turn Bay*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*24*				
Peak-Hour Factor, PHF	*1.00*	*0.55*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*43*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*T*				
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*383*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.90*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*425*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*1*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					*R*			
v (veh/h)					*425*			
C (m) (veh/h)					*1030*			
v/c					*0.41*			
95% queue length					*2.05*			
Control Delay (s/veh)					*10.9*			
LOS					*B*			
Approach Delay (s/veh)	--	--	*10.9*					
Approach LOS	--	--	*B*					

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Ave @ Veterans Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*1*	*1*		*1*			*0*	*3*	*0*
Lane Group		*TR*		*L*	*LT*		*L*				*LTR*	
Volume, V (vph)		*1*	*0*	*564*	*1*		*1*			*23*	*232*	*0*
% Heavy Vehicles, %HV		*1*	*1*	*1*	*1*		*1*			*2*	*2*	*2*
Peak-Hour Factor, PHF		*0.25*	*0.25*	*0.95*	*0.95*		*0.90*			*0.80*	*0.80*	*0.80*
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*			*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Arrival Type, AT		*3*		*3*	*3*		*3*				*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*		*3.0*				*3.0*	
Filtering/Metering, I		*1.000*		*0.983*	*0.983*		*0.989*				*1.000*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*12.0*		*13.0*	*13.0*		*10.0*				*11.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*		*0*	*0*		*0*				*0*	
Min. Time for Pedestrians, G_p	*31.2*			*3.2*			*18.1*			*11.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*4*		*297*	*298*		*1*				*319*	
Lane Group Capacity, c		*784*		*612*	*587*		*403*				*2035*	
v/c Ratio, X		*0.01*		*0.49*	*0.51*		*0.00*				*0.16*	
Total Green Ratio, g/C		*0.42*		*0.42*	*0.42*		*0.42*				*0.42*	
Uniform Delay, d_1		*10.2*		*12.8*	*12.9*		*10.2*				*10.9*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*		*1.000*				*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*		*0.50*				*0.50*	
Incremental Delay, d_2		*0.0*		*2.7*	*3.1*		*0.0*				*0.2*	

Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Control Delay		*10.2*		*15.5*	*16.0*		*10.2*				*11.1*	
Lane Group LOS		*B*		*B*	*B*		*B*				*B*	
Approach Delay	*10.2*			*15.8*			*10.2*			*11.1*		
Approach LOS	*B*			*B*			*B*			*B*		
Intersection Delay	*14.1*			X_C = *0.33*			Intersection LOS			*B*		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Ave @ Veterans Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*1*	*1*		*1*			*0*	*3*	*0*
Lane Group		*TR*		*L*	*LT*		*L*				*LTR*	
Volume, V (vph)		*1*	*0*	*564*	*1*		*1*			*23*	*232*	*0*
% Heavy Vehicles, %HV		*1*	*1*	*1*	*1*		*1*			*2*	*2*	*2*
Peak-Hour Factor, PHF		*0.25*	*0.25*	*0.95*	*0.95*		*0.90*			*0.80*	*0.80*	*0.80*
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*			*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Arrival Type, AT		*3*		*3*	*3*		*3*				*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*		*3.0*				*3.0*	
Filtering/Metering, I		*1.000*		*0.983*	*0.983*		*0.989*				*1.000*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*12.0*		*13.0*	*13.0*		*10.0*				*11.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*		*0*	*0*		*0*				*0*	
Min. Time for Pedestrians, G_p	*31.2*			*3.2*			*18.1*			*11.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*4*		*297*	*298*		*1*				*319*	
Lane Group Capacity, c		*784*		*612*	*587*		*403*				*2035*	
v/c Ratio, X		*0.01*		*0.49*	*0.51*		*0.00*				*0.16*	
Total Green Ratio, g/C		*0.42*		*0.42*	*0.42*		*0.42*				*0.42*	
Uniform Delay, d_1		*10.2*		*12.8*	*12.9*		*10.2*				*10.9*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*		*1.000*				*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*		*0.50*				*0.50*	
Incremental Delay, d_2		*0.0*		*2.7*	*3.1*		*0.0*				*0.2*	

Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Control Delay		*10.2*		*15.5*	*16.0*		*10.2*				*11.1*	
Lane Group LOS		*B*		*B*	*B*		*B*				*B*	
Approach Delay	*10.2*			*15.8*			*10.2*			*11.1*		
Approach LOS	*B*			*B*			*B*			*B*		
Intersection Delay	*14.1*			X_C = *0.33*			Intersection LOS			*B*		

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*Sharrotts Rd & Veterans Rd W*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 No-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Sharrotts Road* North/South Street: *Veterans Road West*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*55*	*31*	*145*	*59*	*0*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*0*	*31*	*79*	*20*
%Thrus Left Lane				*50*		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*TR*		*LT*				*LT*	*TR*
PHF	*0.86*		*0.77*				*0.80*	*0.80*
Flow Rate (veh/h)	*99*		*264*				*86*	*73*
% Heavy Vehicles	*17*		*4*				*1*	*1*
No. Lanes	*1*		*1*		*0*		*2*	
Geometry Group	*2*		*2*				*1*	
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	*0.0*		*0.7*				*0.4*	*0.0*
Prop. Right-Turns	*0.4*		*0.0*				*0.0*	*0.3*
Prop. Heavy Vehicle	*0.2*		*0.0*				*0.0*	*0.0*
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*			*0.2*	*0.2*
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*			*-0.6*	*-0.6*
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*			*1.7*	*1.7*
hadj, computed	*0.1*		*0.2*				*0.1*	*-0.2*

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value (s)	*3.20*		*3.20*				*3.20*	*3.20*
x, initial	*0.09*		*0.23*				*0.08*	*0.06*
hd, final value (s)	*4.66*		*4.61*				*4.87*	*4.59*
x, final value	*0.13*		*0.34*				*0.12*	*0.09*
Move-up time, m (s)	*2.0*		*2.0*				*2.0*	
Service Time, t_s (s)	*2.7*		*2.6*				*2.9*	*2.6*

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*349*		*514*				*336*	*323*
Delay (s/veh)	*8.35*		*9.94*				*8.51*	*8.06*
LOS	*A*		*A*				*A*	*A*
Approach: Delay (s/veh)	*8.35*		*9.94*				*8.30*	
LOS	*A*		*A*				*A*	
Intersection Delay (s/veh)	*9.14*							
Intersection LOS	*A*							

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*Sharrotts Rd & Veterans Rd W*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 No-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Sharrotts Road* North/South Street: *Veterans Road West*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*55*	*31*	*145*	*59*	*0*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*0*	*31*	*79*	*20*
%Thrus Left Lane				*50*		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*TR*		*LT*				*LT*	*TR*
PHF	*0.86*		*0.77*				*0.80*	*0.80*
Flow Rate (veh/h)	*99*		*264*				*86*	*73*
% Heavy Vehicles	*17*		*4*				*1*	*1*
No. Lanes	*1*		*1*		*0*		*2*	
Geometry Group	*2*		*2*				*1*	
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	*0.0*		*0.7*				*0.4*	*0.0*
Prop. Right-Turns	*0.4*		*0.0*				*0.0*	*0.3*
Prop. Heavy Vehicle	*0.2*		*0.0*				*0.0*	*0.0*
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*			*0.2*	*0.2*
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*			*-0.6*	*-0.6*
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*			*1.7*	*1.7*
hadj, computed	*0.1*		*0.2*				*0.1*	*-0.2*

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value (s)	*3.20*		*3.20*				*3.20*	*3.20*
x, initial	*0.09*		*0.23*				*0.08*	*0.06*
hd, final value (s)	*4.66*		*4.61*				*4.87*	*4.59*
x, final value	*0.13*		*0.34*				*0.12*	*0.09*
Move-up time, m (s)	*2.0*		*2.0*				*2.0*	
Service Time, t_s (s)	*2.7*		*2.6*				*2.9*	*2.6*

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*349*		*514*				*336*	*323*
Delay (s/veh)	*8.35*		*9.94*				*8.51*	*8.06*
LOS	*A*		*A*				*A*	*A*
Approach: Delay (s/veh)	*8.35*		*9.94*				*8.30*	
LOS	*A*		*A*				*A*	
Intersection Delay (s/veh)	*9.14*							
Intersection LOS	*A*							

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*Sharrotts Rd @ Veterans Rd E*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 No-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Sharrotts Road* | North/South Street: *Veterans Road East*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*40*	*46*	*0*	*0*	*162*	*23*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*42*	*64*	*88*	*0*	*0*	*0*
%Thrus Left Lane	*50*					

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*LT*		*TR*		*LT*	*TR*		
PHF	*0.86*		*0.77*		*0.88*	*0.88*		
Flow Rate (veh/h)	*99*		*239*		*83*	*136*		
% Heavy Vehicles	*11*		*5*		*1*	*1*		
No. Lanes	*1*		*1*		*2*		*0*	
Geometry Group	*2*		*2*		*1*			
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	*0.5*		*0.0*		*0.6*	*0.0*		
Prop. Right-Turns	*0.0*		*0.1*		*0.0*	*0.7*		
Prop. Heavy Vehicle	*0.1*		*0.0*		*0.0*	*0.0*		
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*		
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*		
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*		
hadj, computed	*0.3*		*0.0*		*0.1*	*-0.4*		

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value (s)	*3.20*		*3.20*		*3.20*	*3.20*		
x, initial	*0.09*		*0.21*		*0.07*	*0.12*		
hd, final value (s)	*4.95*		*4.53*		*4.84*	*4.29*		
x, final value	*0.14*		*0.30*		*0.11*	*0.16*		
Move-up time, m (s)	*2.0*		*2.0*		*2.0*			
Service Time, t_s (s)	*3.0*		*2.5*		*2.8*	*2.3*		

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*349*		*489*		*333*	*386*		
Delay (s/veh)	*8.73*		*9.46*		*8.45*	*8.11*		
LOS	*A*		*A*		*A*	*A*		
Approach: Delay (s/veh)	*8.73*		*9.46*		*8.24*			
LOS	*A*		*A*		*A*			
Intersection Delay (s/veh)	*8.85*							
Intersection LOS	*A*							

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*Sharrotts Rd @ Veterans Rd E*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 No-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Sharrotts Road* | North/South Street: *Veterans Road East*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*40*	*46*	*0*	*0*	*162*	*23*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*42*	*64*	*88*	*0*	*0*	*0*
%Thrus Left Lane	*50*					

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*LT*		*TR*		*LT*	*TR*		
PHF	*0.86*		*0.77*		*0.88*	*0.88*		
Flow Rate (veh/h)	*99*		*239*		*83*	*136*		
% Heavy Vehicles	*11*		*5*		*1*	*1*		
No. Lanes	*1*		*1*		*2*		*0*	
Geometry Group	*2*		*2*		*1*			
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	*0.5*		*0.0*		*0.6*	*0.0*		
Prop. Right-Turns	*0.0*		*0.1*		*0.0*	*0.7*		
Prop. Heavy Vehicle	*0.1*		*0.0*		*0.0*	*0.0*		
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*		
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*		
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*		
hadj, computed	*0.3*		*0.0*		*0.1*	*-0.4*		

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value (s)	*3.20*		*3.20*		*3.20*	*3.20*		
x, initial	*0.09*		*0.21*		*0.07*	*0.12*		
hd, final value (s)	*4.95*		*4.53*		*4.84*	*4.29*		
x, final value	*0.14*		*0.30*		*0.11*	*0.16*		
Move-up time, m (s)	*2.0*		*2.0*		*2.0*			
Service Time, t_s (s)	*3.0*		*2.5*		*2.8*	*2.3*		

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*349*		*489*		*333*	*386*		
Delay (s/veh)	*8.73*		*9.46*		*8.45*	*8.11*		
LOS	*A*		*A*		*A*	*A*		
Approach: Delay (s/veh)	*8.73*		*9.46*		*8.24*			
LOS	*A*		*A*		*A*			
Intersection Delay (s/veh)	*8.85*							
Intersection LOS	*A*							

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Ave @ Vets Rd E*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*3*	*0*			
Lane Group		*LT*	*R*		*LTR*			*LTR*				
Volume, V (vph)	*149*	*144*	*113*	*2*	*39*	*5*	*526*	*39*	*2*			
% Heavy Vehicles, %HV	*1*	*1*	*1*	*5*	*5*	*5*	*1*	*1*	*1*			
Peak-Hour Factor, PHF	*0.91*	*0.91*	*0.91*	*0.95*	*0.95*	*0.95*	*0.97*	*0.97*	*0.97*			
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*			
Start-up Lost Time, l_1		*2.0*	*2.0*		*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*	*2.0*		*2.0*			*2.0*				
Arrival Type, AT		*3*	*3*		*3*			*3*				
Unit Extension, UE		*3.0*	*3.0*		*3.0*			*3.0*				
Filtering/Metering, I		*0.999*	*0.999*		*0.999*			*0.980*				
Initial Unmet Demand, Q_b		*0.0*	*0.0*		*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*52*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width		*13.0*	*12.0*		*11.5*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B		*0*	*0*		*0*			*0*				
Min. Time for Pedestrians, G_p	*21.2*			*12.9*			*14.3*			*17.5*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *21.0*	G =	G =	G =	G = *29.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*322*	*67*		*48*			*584*				
Lane Group Capacity, c		*554*	*560*		*531*			*2287*				
v/c Ratio, X		*0.58*	*0.12*		*0.09*			*0.26*				
Total Green Ratio, g/C		*0.35*	*0.35*		*0.35*			*0.48*				
Uniform Delay, d_1		*15.9*	*13.2*		*13.1*			*9.1*				
Progression Factor, PF		*1.000*	*1.000*		*1.000*			*1.000*				
Delay Calibration, k		*0.50*	*0.50*		*0.50*			*0.50*				
Incremental Delay, d_2		*4.4*	*0.4*		*0.3*			*0.3*				

Initial Queue Delay, d_3		*0.0*	*0.0*		*0.0*			*0.0*				
Control Delay		*20.3*	*13.7*		*13.4*			*9.4*				
Lane Group LOS		*C*	*B*		*B*			*A*				
Approach Delay	*19.2*			*13.4*			*9.4*					
Approach LOS	*B*			*B*			*A*					
Intersection Delay	*13.3*			X_C = *0.39*			Intersection LOS			*B*		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Ave @ Vets Rd E*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*3*	*0*			
Lane Group		*LT*	*R*		*LTR*			*LTR*				
Volume, V (vph)	*149*	*144*	*113*	*2*	*39*	*5*	*526*	*39*	*2*			
% Heavy Vehicles, %HV	*1*	*1*	*1*	*5*	*5*	*5*	*1*	*1*	*1*			
Peak-Hour Factor, PHF	*0.91*	*0.91*	*0.91*	*0.95*	*0.95*	*0.95*	*0.97*	*0.97*	*0.97*			
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*			
Start-up Lost Time, l_1		*2.0*	*2.0*		*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*	*2.0*		*2.0*			*2.0*				
Arrival Type, AT		*3*	*3*		*3*			*3*				
Unit Extension, UE		*3.0*	*3.0*		*3.0*			*3.0*				
Filtering/Metering, I		*0.999*	*0.999*		*0.999*			*0.980*				
Initial Unmet Demand, Q_b		*0.0*	*0.0*		*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*52*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width		*13.0*	*12.0*		*11.5*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B		*0*	*0*		*0*			*0*				
Min. Time for Pedestrians, G_p	*21.2*			*12.9*			*14.3*			*17.5*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *21.0*	G =	G =	G =	G = *29.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*322*	*67*		*48*			*584*				
Lane Group Capacity, c		*554*	*560*		*531*			*2287*				
v/c Ratio, X		*0.58*	*0.12*		*0.09*			*0.26*				
Total Green Ratio, g/C		*0.35*	*0.35*		*0.35*			*0.48*				
Uniform Delay, d_1		*15.9*	*13.2*		*13.1*			*9.1*				
Progression Factor, PF		*1.000*	*1.000*		*1.000*			*1.000*				
Delay Calibration, k		*0.50*	*0.50*		*0.50*			*0.50*				
Incremental Delay, d_2		*4.4*	*0.4*		*0.3*			*0.3*				

Initial Queue Delay, d_3		*0.0*	*0.0*		*0.0*			*0.0*				
Control Delay		*20.3*	*13.7*		*13.4*			*9.4*				
Lane Group LOS		*C*	*B*		*B*			*A*				
Approach Delay	*19.2*			*13.4*			*9.4*					
Approach LOS	*B*			*B*			*A*					
Intersection Delay	*13.3*			X_C = *0.39*			Intersection LOS			*B*		

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Englewood Av & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*107*		*40*				*14*	*294*			*347*	*32*
% Heavy Vehicles, %HV	*1*		*1*				*2*	*2*			*2*	*2*
Peak-Hour Factor, PHF	*0.81*		*0.81*				*0.87*	*0.87*			*0.91*	*0.91*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.975*						*0.967*			*0.961*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*16.0*						*14.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B		*0*						*2*			*2*	
Min. Time for Pedestrians, G_p	*14.9*			*15.5*			*3.2*			*17.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*181*						*354*			*416*	
Lane Group Capacity, c		*462*						*1093*			*1173*	
v/c Ratio, X		*0.39*						*0.32*			*0.35*	
Total Green Ratio, g/C		*0.27*						*0.57*			*0.57*	
Uniform Delay, d_1		*18.0*						*6.9*			*7.1*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*2.4*						*0.8*			*0.8*	
Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	

Control Delay		20.4						7.7			7.9	
Lane Group LOS		C						A			A	
Approach Delay	20.4						7.7			7.9		
Approach LOS	C						A			A		
Intersection Delay	10.2			X_C = 0.37			Intersection LOS			B		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Englewood Av & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*107*		*40*				*14*	*294*			*347*	*32*
% Heavy Vehicles, %HV	*1*		*1*				*2*	*2*			*2*	*2*
Peak-Hour Factor, PHF	*0.81*		*0.81*				*0.87*	*0.87*			*0.91*	*0.91*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.975*						*0.967*			*0.961*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*16.0*						*14.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B		*0*						*2*			*2*	
Min. Time for Pedestrians, G_p	*14.9*			*15.5*			*3.2*			*17.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*181*						*354*			*416*	
Lane Group Capacity, c		*462*						*1093*			*1173*	
v/c Ratio, X		*0.39*						*0.32*			*0.35*	
Total Green Ratio, g/C		*0.27*						*0.57*			*0.57*	
Uniform Delay, d_1		*18.0*						*6.9*			*7.1*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*2.4*						*0.8*			*0.8*	
Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	

Control Delay		20.4						7.7			7.9	
Lane Group LOS		C						A			A	
Approach Delay	20.4						7.7			7.9		
Approach LOS	C						A			A		
Intersection Delay	10.2			X_C = 0.37			Intersection LOS			B		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Sharrotts Rd & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*80*		*54*				*44*	*356*			*294*	*140*
% Heavy Vehicles, %HV	*4*		*4*				*2*	*2*			*1*	*1*
Peak-Hour Factor, PHF	*0.86*		*0.86*				*0.87*	*0.87*			*0.91*	*0.91*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.986*						*0.905*			*0.957*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*14*
Lane Width		*16.0*						*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*2*			*2*	
Min. Time for Pedestrians, G_p	*18.6*			*18.6*			*3.2*			*16.6*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*156*						*460*			*461*	
Lane Group Capacity, c		*554*						*840*			*1015*	
v/c Ratio, X		*0.28*						*0.55*			*0.45*	
Total Green Ratio, g/C		*0.33*						*0.50*			*0.50*	
Uniform Delay, d_1		*14.7*						*10.3*			*9.7*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*1.3*						*2.3*			*1.4*	
Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	

Control Delay		16.0						12.6			11.1	
Lane Group LOS		B						B			B	
Approach Delay	16.0						12.6			11.1		
Approach LOS	B						B			B		
Intersection Delay	12.5			X_C = 0.44			Intersection LOS			B		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Sharrotts Rd & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*80*		*54*				*44*	*356*			*294*	*140*
% Heavy Vehicles, %HV	*4*		*4*				*2*	*2*			*1*	*1*
Peak-Hour Factor, PHF	*0.86*		*0.86*				*0.87*	*0.87*			*0.91*	*0.91*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.986*						*0.905*			*0.957*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*14*
Lane Width		*16.0*						*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*2*			*2*	
Min. Time for Pedestrians, G_p	*18.6*			*18.6*			*3.2*			*16.6*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*156*						*460*			*461*	
Lane Group Capacity, c		*554*						*840*			*1015*	
v/c Ratio, X		*0.28*						*0.55*			*0.45*	
Total Green Ratio, g/C		*0.33*						*0.50*			*0.50*	
Uniform Delay, d_1		*14.7*						*10.3*			*9.7*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*1.3*						*2.3*			*1.4*	
Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	

Control Delay		16.0						12.6			11.1	
Lane Group LOS		B						B			B	
Approach Delay	16.0						12.6			11.1		
Approach LOS	B						B			B		
Intersection Delay	12.5			X_C = 0.44			Intersection LOS			B		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Vets Rd E & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*	*0*	*3*	*0*	*1*	*1*			*1*	*0*
Lane Group	*L*		*R*		*LTR*		*L*	*T*			*TR*	
Volume, V (vph)	*10*		*106*	*231*	*471*	*127*	*64*	*171*			*354*	*32*
% Heavy Vehicles, %HV	*1*		*1*	*2*	*2*	*2*	*6*	*6*			*2*	*2*
Peak-Hour Factor, PHF	*0.77*		*0.77*	*0.87*	*0.87*	*0.87*	*0.89*	*0.89*			*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*		*P*	*P*	*P*	*P*	*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*		*3*		*3*	*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*		*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I	*0.830*		*0.830*		*0.725*		*0.937*	*0.937*			*0.817*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Lane Width	*10.0*		*13.0*		*11.0*		*12.0*	*12.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*		*0*		*0*	*2*			*2*	
Min. Time for Pedestrians, G_p	*17.2*			*16.9*			*3.2*			*20.9*		

Phasing	EB Only	WB Only	03	04	NS Perm	06	07	08
Timing	G = *8.0*	G = *17.0*	G =	G =	G = *20.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*13*		*138*		*953*		*72*	*192*			*429*	
Lane Group Capacity, c	*222*		*220*		*1339*		*162*	*593*			*690*	
v/c Ratio, X	*0.06*		*0.63*		*0.71*		*0.44*	*0.32*			*0.62*	
Total Green Ratio, g/C	*0.13*		*0.13*		*0.28*		*0.33*	*0.33*			*0.33*	
Uniform Delay, d_1	*22.7*		*24.6*		*19.3*		*15.7*	*14.9*			*16.8*	
Progression Factor, PF	*1.000*		*1.000*		*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*		*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2	*0.4*		*10.7*		*2.4*		*8.1*	*1.4*			*3.4*	

Initial Queue Delay, d_3	0.0		0.0		0.0		0.0	0.0			0.0	
Control Delay	23.1		35.3		21.7		23.7	16.3			20.3	
Lane Group LOS	C		D		C		C	B			C	
Approach Delay	34.3			21.7			18.3			20.3		
Approach LOS	C			C			B			C		
Intersection Delay	21.9			X_C = 0.66			Intersection LOS			C		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Vets Rd E & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*	*0*	*3*	*0*	*1*	*1*			*1*	*0*
Lane Group	*L*		*R*		*LTR*		*L*	*T*			*TR*	
Volume, V (vph)	*10*		*106*	*231*	*471*	*127*	*64*	*171*			*354*	*32*
% Heavy Vehicles, %HV	*1*		*1*	*2*	*2*	*2*	*6*	*6*			*2*	*2*
Peak-Hour Factor, PHF	*0.77*		*0.77*	*0.87*	*0.87*	*0.87*	*0.89*	*0.89*			*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*		*P*	*P*	*P*	*P*	*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*		*3*		*3*	*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*		*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I	*0.830*		*0.830*		*0.725*		*0.937*	*0.937*			*0.817*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Lane Width	*10.0*		*13.0*		*11.0*		*12.0*	*12.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*		*0*		*0*	*2*			*2*	
Min. Time for Pedestrians, G_p	*17.2*			*16.9*			*3.2*			*20.9*		

Phasing	EB Only	WB Only	03	04	NS Perm	06	07	08
Timing	G = *8.0*	G = *17.0*	G =	G =	G = *20.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*13*		*138*		*953*		*72*	*192*			*429*	
Lane Group Capacity, c	*222*		*220*		*1339*		*162*	*593*			*690*	
v/c Ratio, X	*0.06*		*0.63*		*0.71*		*0.44*	*0.32*			*0.62*	
Total Green Ratio, g/C	*0.13*		*0.13*		*0.28*		*0.33*	*0.33*			*0.33*	
Uniform Delay, d_1	*22.7*		*24.6*		*19.3*		*15.7*	*14.9*			*16.8*	
Progression Factor, PF	*1.000*		*1.000*		*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*		*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2	*0.4*		*10.7*		*2.4*		*8.1*	*1.4*			*3.4*	

Initial Queue Delay, d_3	0.0		0.0		0.0		0.0	0.0			0.0	
Control Delay	23.1		35.3		21.7		23.7	16.3			20.3	
Lane Group LOS	C		D		C		C	B			C	
Approach Delay	34.3			21.7			18.3			20.3		
Approach LOS	C			C			B			C		
Intersection Delay	21.9			X_C = 0.66			Intersection LOS			C		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*S Service Rd & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*				*0*	*1*	*0*	*1*	*1*	*0*
Lane Group		*LTR*						*LTR*		*L*	*TR*	
Volume, V (vph)	*5*	*15*	*8*				*6*	*230*	*116*	*230*	*433*	*28*
% Heavy Vehicles, %HV	*2*	*2*	*2*				*6*	*6*	*6*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.63*	*0.63*	*0.63*				*0.89*	*0.89*	*0.89*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*				*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*		*2.0*	*2.0*	
Arrival Type, AT		*3*						*3*		*3*	*3*	
Unit Extension, UE		*3.0*						*3.0*		*3.0*	*3.0*	
Filtering/Metering, I		*1.000*						*0.932*		*0.785*	*0.785*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*13.0*						*16.0*		*12.0*	*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*2*		*0*	*2*	
Min. Time for Pedestrians, G_p	*17.5*			*16.9*			*12.6*			*12.9*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *17.0*	G =	G =	G =	G = *33.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*45*						*395*		*256*	*512*	
Lane Group Capacity, c		*454*						*920*		*546*	*1017*	
v/c Ratio, X		*0.10*						*0.43*		*0.47*	*0.50*	
Total Green Ratio, g/C		*0.28*						*0.55*		*0.55*	*0.55*	
Uniform Delay, d_1		*15.9*						*8.0*		*8.2*	*8.4*	
Progression Factor, PF		*1.000*						*1.000*		*1.000*	*1.000*	
Delay Calibration, k		*0.50*						*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2		*0.4*						*1.4*		*2.3*	*1.4*	

Initial Queue Delay, d_3		*0.0*						*0.0*		*0.0*	*0.0*	
Control Delay		*16.3*						*9.3*		*10.4*	*9.8*	
Lane Group LOS		*B*						*A*		*B*	*A*	
Approach Delay	*16.3*						*9.3*			*10.0*		
Approach LOS	*B*						*A*			*B*		
Intersection Delay	*10.0*			X_C = *0.37*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*S Service Rd & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*				*0*	*1*	*0*	*1*	*1*	*0*
Lane Group		*LTR*						*LTR*		*L*	*TR*	
Volume, V (vph)	*5*	*15*	*8*				*6*	*230*	*116*	*230*	*433*	*28*
% Heavy Vehicles, %HV	*2*	*2*	*2*				*6*	*6*	*6*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.63*	*0.63*	*0.63*				*0.89*	*0.89*	*0.89*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*				*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*		*2.0*	*2.0*	
Arrival Type, AT		*3*						*3*		*3*	*3*	
Unit Extension, UE		*3.0*						*3.0*		*3.0*	*3.0*	
Filtering/Metering, I		*1.000*						*0.932*		*0.785*	*0.785*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*13.0*						*16.0*		*12.0*	*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*2*		*0*	*2*	
Min. Time for Pedestrians, G_p	*17.5*			*16.9*			*12.6*			*12.9*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *17.0*	G =	G =	G =	G = *33.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*45*						*395*		*256*	*512*	
Lane Group Capacity, c		*454*						*920*		*546*	*1017*	
v/c Ratio, X		*0.10*						*0.43*		*0.47*	*0.50*	
Total Green Ratio, g/C		*0.28*						*0.55*		*0.55*	*0.55*	
Uniform Delay, d_1		*15.9*						*8.0*		*8.2*	*8.4*	
Progression Factor, PF		*1.000*						*1.000*		*1.000*	*1.000*	
Delay Calibration, k		*0.50*						*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2		*0.4*						*1.4*		*2.3*	*1.4*	

Initial Queue Delay, d_3		*0.0*						*0.0*		*0.0*	*0.0*	
Control Delay		*16.3*						*9.3*		*10.4*	*9.8*	
Lane Group LOS		*B*						*A*		*B*	*A*	
Approach Delay	*16.3*						*9.3*			*10.0*		
Approach LOS	*B*						*A*			*B*		
Intersection Delay	*10.0*			X_C = *0.37*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Amboy Rd & Bloomingdale Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*1*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*		*L*	*T*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*5*	*8*	*17*	*266*	*26*	*106*	*22*	*241*	*171*	*91*	*330*	*19*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*7*	*7*	*7*	*6*	*6*	*6*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.78*	*0.78*	*0.78*	*0.84*	*0.84*	*0.84*	*0.89*	*0.89*	*0.89*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*		*3*	*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*		*0.830*	*0.830*	*0.830*		*0.650*			*0.650*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*50*	*0*	*0*	*0*	*0*	*0*	*50*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*		*12.0*	*11.0*	*11.0*		*11.0*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*2*		*0*	*0*	*2*		*0*			*0*	
Min. Time for Pedestrians, G_p	*11.5*			*11.8*			*18.9*			*18.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*38*		*317*	*31*	*126*		*488*			*489*	
Lane Group Capacity, c		*628*		*547*	*763*	*563*		*687*			*628*	
v/c Ratio, X		*0.06*		*0.58*	*0.04*	*0.22*		*0.71*			*0.78*	
Total Green Ratio, g/C		*0.44*		*0.44*	*0.44*	*0.44*		*0.44*			*0.44*	
Uniform Delay, d_1		*14.3*		*18.7*	*14.1*	*15.4*		*20.3*			*21.2*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*	*0.50*		*0.50*			*0.50*	
Incremental Delay, d_2		*0.2*		*3.7*	*0.1*	*0.8*		*4.1*			*6.2*	

Initial Queue Delay, d_3		0.0		0.0	0.0	0.0		0.0			0.0	
Control Delay		14.5		22.4	14.2	16.2		24.3			27.4	
Lane Group LOS		B		C	B	B		C			C	
Approach Delay	14.5			20.2			24.3			27.4		
Approach LOS	B			C			C			C		
Intersection Delay	23.8			X_C = 0.68			Intersection LOS			C		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Amboy Rd & Bloomingdale Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*1*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*		*L*	*T*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*5*	*8*	*17*	*266*	*26*	*106*	*22*	*241*	*171*	*91*	*330*	*19*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*7*	*7*	*7*	*6*	*6*	*6*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.78*	*0.78*	*0.78*	*0.84*	*0.84*	*0.84*	*0.89*	*0.89*	*0.89*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*		*3*	*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*		*0.830*	*0.830*	*0.830*		*0.650*			*0.650*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*50*	*0*	*0*	*0*	*0*	*0*	*50*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*		*12.0*	*11.0*	*11.0*		*11.0*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*2*		*0*	*0*	*2*		*0*			*0*	
Min. Time for Pedestrians, G_p	*11.5*			*11.8*			*18.9*			*18.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*38*		*317*	*31*	*126*		*488*			*489*	
Lane Group Capacity, c		*628*		*547*	*763*	*563*		*687*			*628*	
v/c Ratio, X		*0.06*		*0.58*	*0.04*	*0.22*		*0.71*			*0.78*	
Total Green Ratio, g/C		*0.44*		*0.44*	*0.44*	*0.44*		*0.44*			*0.44*	
Uniform Delay, d_1		*14.3*		*18.7*	*14.1*	*15.4*		*20.3*			*21.2*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*	*0.50*		*0.50*			*0.50*	
Incremental Delay, d_2		*0.2*		*3.7*	*0.1*	*0.8*		*4.1*			*6.2*	

Initial Queue Delay, d_3		0.0		0.0	0.0	0.0		0.0			0.0	
Control Delay		14.5		22.4	14.2	16.2		24.3			27.4	
Lane Group LOS		B		C	B	B		C			C	
Approach Delay	14.5			20.2			24.3			27.4		
Approach LOS	B			C			C			C		
Intersection Delay	23.8			X_C = 0.68			Intersection LOS			C		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Arthur Kill Rd & Bloomingdl Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*0*	*1*		*0*		*0*			
Lane Group		*TR*			*LT*			*LR*				
Volume, V (vph)		*160*	*189*	*90*	*183*		*192*		*86*			
% Heavy Vehicles, %HV		*8*	*8*	*16*	*16*		*2*		*2*			
Peak-Hour Factor, PHF		*0.90*	*0.90*	*0.91*	*0.91*		*0.88*		*0.88*			
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*		*P*			
Start-up Lost Time, l_1		*2.0*			*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*			*2.0*			*2.0*				
Arrival Type, AT		*3*			*3*			*3*				
Unit Extension, UE		*3.0*			*3.0*			*3.0*				
Filtering/Metering, I		*0.961*			*0.989*			*0.922*				
Initial Unmet Demand, Q_b		*0.0*			*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*44*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	
Lane Width		*16.0*			*16.0*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m									*5*			
Buses Stopping, N_B		*5*			*0*			*0*				
Min. Time for Pedestrians, G_p	*18.3*			*3.2*			*15.2*			*17.2*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*339*			*300*			*316*				
Lane Group Capacity, c		*915*			*694*			*567*				
v/c Ratio, X		*0.37*			*0.43*			*0.56*				
Total Green Ratio, g/C		*0.50*			*0.50*			*0.39*				
Uniform Delay, d_1		*13.8*			*14.4*			*21.5*				
Progression Factor, PF		*1.000*			*1.000*			*1.000*				
Delay Calibration, k		*0.50*			*0.50*			*0.50*				
Incremental Delay, d_2		*1.1*			*1.9*			*3.6*				
Initial Queue Delay, d_3		*0.0*			*0.0*			*0.0*				

Control Delay		14.9			16.3			25.1				
Lane Group LOS		B			B			C				
Approach Delay	14.9			16.3			25.1					
Approach LOS	B			B			C					
Intersection Delay	18.7			X_C = 0.49			Intersection LOS			B		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Arthur Kill Rd & Bloomingdl Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*0*	*1*		*0*		*0*			
Lane Group		*TR*			*LT*			*LR*				
Volume, V (vph)		*160*	*189*	*90*	*183*		*192*		*86*			
% Heavy Vehicles, %HV		*8*	*8*	*16*	*16*		*2*		*2*			
Peak-Hour Factor, PHF		*0.90*	*0.90*	*0.91*	*0.91*		*0.88*		*0.88*			
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*		*P*			
Start-up Lost Time, l_1		*2.0*			*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*			*2.0*			*2.0*				
Arrival Type, AT		*3*			*3*			*3*				
Unit Extension, UE		*3.0*			*3.0*			*3.0*				
Filtering/Metering, I		*0.961*			*0.989*			*0.922*				
Initial Unmet Demand, Q_b		*0.0*			*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*44*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	
Lane Width		*16.0*			*16.0*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m									*5*			
Buses Stopping, N_B		*5*			*0*			*0*				
Min. Time for Pedestrians, G_p	*18.3*			*3.2*			*15.2*			*17.2*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*339*			*300*			*316*				
Lane Group Capacity, c		*915*			*694*			*567*				
v/c Ratio, X		*0.37*			*0.43*			*0.56*				
Total Green Ratio, g/C		*0.50*			*0.50*			*0.39*				
Uniform Delay, d_1		*13.8*			*14.4*			*21.5*				
Progression Factor, PF		*1.000*			*1.000*			*1.000*				
Delay Calibration, k		*0.50*			*0.50*			*0.50*				
Incremental Delay, d_2		*1.1*			*1.9*			*3.6*				
Initial Queue Delay, d_3		*0.0*			*0.0*			*0.0*				

Control Delay		14.9			16.3			25.1				
Lane Group LOS		B			B			C				
Approach Delay	14.9			16.3			25.1					
Approach LOS	B			B			C					
Intersection Delay	18.7			X_C = 0.49			Intersection LOS			B		

Weekday

PM

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*Sharrotts Rd & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Sharrotts Road* North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*29*	*229*	*69*	*58*	*230*	*28*
Peak-Hour Factor, PHF	*0.87*	*0.87*	*0.87*	*0.81*	*0.81*	*0.81*
Hourly Flow Rate, HFR (veh/h)	*33*	*263*	*79*	*71*	*283*	*34*
Percent Heavy Vehicles	*6*	--	--	*9*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*34*	*18*	*29*	*57*	*17*	*34*
Peak-Hour Factor, PHF	*0.86*	*0.86*	*0.86*	*0.81*	*0.81*	*0.81*
Hourly Flow Rate, HFR (veh/h)	*39*	*20*	*33*	*70*	*20*	*41*
Percent Heavy Vehicles	*2*	*2*	*2*	*1*	*1*	*1*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (veh/h)	*33*	*71*		*131*			*92*	
C (m) (veh/h)	*1221*	*1179*		*311*			*321*	
v/c	*0.03*	*0.06*		*0.42*			*0.29*	
95% queue length	*0.08*	*0.19*		*2.00*			*1.16*	
Control Delay (s/veh)	*8.0*	*8.2*		*24.7*			*20.7*	
LOS	*A*	*A*		*C*			*C*	
Approach Delay (s/veh)	--	--	*24.7*			*20.7*		
Approach LOS	--	--	*C*			*C*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*Englewood Ave & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*300*	*18*	*14*	*302*	
Peak-Hour Factor, PHF	*1.00*	*0.87*	*0.87*	*0.81*	*0.81*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*344*	*20*	*17*	*372*	*0*
Percent Heavy Vehicles	*0*	--	--	*7*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*29*		*27*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.68*	*1.00*	*0.68*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*42*	*0*	*39*
Percent Heavy Vehicles	*0*	*0*	*0*	*7*	*0*	*7*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (veh/h)		*17*		*81*				
C (m) (veh/h)		*1167*		*467*				
v/c		*0.01*		*0.17*				
95% queue length		*0.04*		*0.62*				
Control Delay (s/veh)		*8.1*		*14.3*				
LOS		*A*		*B*				
Approach Delay (s/veh)	--	--	*14.3*					
Approach LOS	--	--	*B*					

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*			*LT*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*1*	*11*	*2*	*278*	*20*	*263*	*4*	*141*	*325*	*203*	*246*	*1*
% Heavy Vehicles, %HV	*3*	*3*	*3*	*5*	*5*	*5*	*5*	*5*	*5*	*7*	*7*	*7*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.82*	*0.82*	*0.82*	*0.93*	*0.93*	*0.93*	*0.86*	*0.86*	*0.86*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*			*0.933*	*0.933*		*0.919*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*15.5*			*11.0*	*10.0*		*15.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*			*0*	*0*		*3*			*2*	
Min. Time for Pedestrians, G_p	*11.5*			*13.5*			*15.2*			*12.1*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*16*			*363*	*321*		*505*			*523*	
Lane Group Capacity, c		*727*			*531*	*523*		*740*			*449*	
v/c Ratio, X		*0.02*			*0.68*	*0.61*		*0.68*			*1.16*	
Total Green Ratio, g/C		*0.42*			*0.42*	*0.42*		*0.42*			*0.42*	
Uniform Delay, d_1		*10.3*			*14.3*	*13.7*		*14.3*			*17.5*	
Progression Factor, PF		*1.000*			*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*	*0.50*		*0.50*			*0.50*	
Incremental Delay, d_2		*0.1*			*6.5*	*5.0*		*4.7*			*96.0*	

Initial Queue Delay, d_3		0.0			0.0	0.0		0.0			0.0	
Control Delay		10.4			20.8	18.7		18.9			113.5	
Lane Group LOS		B			C	B		B			F	
Approach Delay	10.4			19.8			18.9			113.5		
Approach LOS	B			B			B			F		
Intersection Delay	47.8			X_C = 0.92			Intersection LOS			D		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*No Bridge St & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*			*1*	
Lane Group					*LR*			*T*			*T*	
Volume, V (vph)				*528*		*4*		*467*			*526*	
% Heavy Vehicles, %HV				*2*		*2*		*5*			*12*	
Peak-Hour Factor, PHF				*0.84*		*0.84*		*0.93*			*0.86*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*			*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.373*			*0.921*			*0.340*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	
Lane Width					*16.0*			*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B					*0*			*0*			*2*	
Min. Time for Pedestrians, G_p	*13.5*			*13.8*			*3.2*			*3.2*		

Phasing	WB Only	02	03	04	Thru Only	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*634*			*502*			*612*	
Lane Group Capacity, c					*670*			*1026*			*954*	
v/c Ratio, X					*0.95*			*0.49*			*0.64*	
Total Green Ratio, g/C					*0.33*			*0.50*			*0.50*	
Uniform Delay, d_1					*19.5*			*9.9*			*11.0*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*11.8*			*1.5*			*1.1*	
Initial Queue Delay, d_3					*0.0*			*0.0*			*0.0*	

Control Delay					31.3			11.5			12.2	
Lane Group LOS					C			B			B	
Approach Delay				31.3			11.5			12.2		
Approach LOS				C			B			B		
Intersection Delay	18.9			X_C = 0.76			Intersection LOS			B		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*So Bridge St & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *South Bridge Street* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*467*	*263*	*189*	*866*	
Peak-Hour Factor, PHF	*1.00*	*0.93*	*0.93*	*0.86*	*0.86*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*502*	*282*	*219*	*1006*	*0*
Percent Heavy Vehicles	*0*	--	--	*18*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration						

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*						
v (veh/h)		*219*						
C (m) (veh/h)		*768*						
v/c		*0.29*						
95% queue length		*1.18*						
Control Delay (s/veh)		*11.5*						
LOS		*B*						
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Rch Valley Rd & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*	*0*	*0*	*1*	
Lane Group					*LR*			*TR*			*LT*	
Volume, V (vph)				*135*		*168*		*550*	*106*	*142*	*711*	
% Heavy Vehicles, %HV				*1*		*1*		*4*	*4*	*6*	*6*	
Peak-Hour Factor, PHF				*0.84*		*0.84*		*0.93*	*0.93*	*0.86*	*0.86*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*	*P*	*P*	*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.901*			*0.798*			*0.114*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width					*12.0*			*15.0*			*15.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B					*0*			*4*			*2*	
Min. Time for Pedestrians, G_p	*11.8*			*11.8*			*14.1*			*3.2*		

Phasing	WB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*361*			*705*			*992*	
Lane Group Capacity, c					*397*			*1096*			*699*	
v/c Ratio, X					*0.91*			*0.64*			*1.42*	
Total Green Ratio, g/C					*0.27*			*0.57*			*0.57*	
Uniform Delay, d_1					*21.3*			*8.9*			*13.0*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*25.3*			*2.3*			*189.6*	
Initial Queue Delay, d_3					*0.0*			*0.0*			*0.0*	

Control Delay					46.6			11.2			202.6	
Lane Group LOS					D			B			F	
Approach Delay				46.6			11.2			202.6		
Approach LOS				D			B			F		
Intersection Delay	109.7			X_C = 1.26			Intersection LOS			F		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Richmond Valley Rd & Page Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*0*	*1*	*1*	*0*	*0*	*2*	*0*
Lane Group		*LTR*			*LTR*		*L*	*TR*			*LTR*	
Volume, V (vph)	*97*	*49*	*123*	*35*	*196*	*73*	*78*	*559*	*110*	*143*	*532*	*50*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.81*	*0.81*	*0.81*	*0.91*	*0.91*	*0.91*	*0.87*	*0.87*	*0.87*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.503*			*1.000*		*0.773*	*0.773*			*0.957*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*10*
Lane Width		*16.0*			*15.0*		*10.0*	*14.0*			*10.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*
Parking Maneuvers, N_m						*5*						*5*
Buses Stopping, N_B		*0*			*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*16.6*			*21.5*			*16.3*			*21.2*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *31.0*	G =	G =	G =	G = *49.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*306*			*375*		*86*	*735*			*821*	
Lane Group Capacity, c		*441*			*565*		*275*	*1065*			*936*	
v/c Ratio, X		*0.69*			*0.66*		*0.31*	*0.69*			*0.88*	
Total Green Ratio, g/C		*0.34*			*0.34*		*0.54*	*0.54*			*0.54*	
Uniform Delay, d_1		*25.4*			*25.1*		*11.3*	*15.0*			*17.9*	
Progression Factor, PF		*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2		*4.5*			*6.0*		*2.3*	*2.9*			*11.0*	

Initial Queue Delay, d_3		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay		*29.9*			*31.1*		*13.5*	*17.8*			*28.8*	
Lane Group LOS		*C*			*C*		*B*	*B*			*C*	
Approach Delay	*29.9*			*31.1*			*17.4*			*28.8*		
Approach LOS	*C*			*C*			*B*			*C*		
Intersection Delay	*25.3*			X_C *= 0.81*			Intersection LOS			*C*		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*S Bridge St RT & Page Ave*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *South Bridge Street Right Turn* | North/South Street: *Page Avenue*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*653*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.87*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*750*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*2*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*71*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.78*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*91*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*55*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								*R*
v (veh/h)								*91*
C (m) (veh/h)								*569*
v/c								*0.16*
95% queue length								*0.57*
Control Delay (s/veh)								*12.5*
LOS								*B*
Approach Delay (s/veh)	--	--				*12.5*		
Approach LOS	--	--				*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*S Br St & Page Ave/Boscome Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*							*2*			*2*	
Lane Group	*L*							*T*			*T*	
Volume, V (vph)	*380*							*728*			*653*	
% Heavy Vehicles, %HV	*1*							*1*			*1*	
Peak-Hour Factor, PHF	*0.91*							*0.90*			*0.87*	
Pretimed (P) or Actuated (A)	*P*							*P*			*P*	
Start-up Lost Time, l_1	*2.0*							*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*							*2.0*			*2.0*	
Arrival Type, AT	*3*							*3*			*3*	
Unit Extension, UE	*3.0*							*3.0*			*3.0*	
Filtering/Metering, I	*1.000*							*0.773*			*0.957*	
Initial Unmet Demand, Q_b	*0.0*							*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*		*0*	*0*		*0*	*0*	
Lane Width	*16.0*							*14.5*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*							*0*			*0*	
Min. Time for Pedestrians, G_p	*3.2*			*20.1*			*3.2*			*3.2*		

Phasing	EB Only	02	03	04	Thru Only	06	07	08
Timing	G = *30.0*	G =	G =	G =	G = *50.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*418*							*809*			*751*	
Lane Group Capacity, c	*675*							*2156*			*1990*	
v/c Ratio, X	*0.62*							*0.38*			*0.38*	
Total Green Ratio, g/C	*0.33*							*0.56*			*0.56*	
Uniform Delay, d_1	*25.2*							*11.2*			*11.2*	
Progression Factor, PF	*1.000*							*1.000*			*1.000*	
Delay Calibration, k	*0.50*							*0.50*			*0.50*	
Incremental Delay, d_2	*4.2*							*0.4*			*0.5*	
Initial Queue Delay, d_3	*0.0*							*0.0*			*0.0*	

Control Delay	29.4							11.6			11.8	
Lane Group LOS	C							B			B	
Approach Delay	29.4						11.6			11.8		
Approach LOS	C						B			B		
Intersection Delay	15.4			X_C = 0.47			Intersection LOS			B		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*KWVP WB OR UT & No Bridge St*
Jurisdiction	*Staten Island, NY*
Analysis Year	

Project Description *Charleston EIS*

East/West Street: *KWVP WB Off-Ramp U-Turn* | North/South Street: *North Bridge Street*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*504*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.89*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*566*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*1*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*474*		
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.90*	*0.93*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*509*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*60*	*3*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*0*
Configuration				*L*		

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration			*L*					
v (veh/h)			*509*					
C (m) (veh/h)			*484*					
v/c			*1.05*					
95% queue length			*15.47*					
Control Delay (s/veh)			*84.5*					
LOS			*F*					
Approach Delay (s/veh)	--	--	*84.5*					
Approach LOS	--	--	*F*					

HCS+™ Version 5.4

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Bricktown/KWVP*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Sat Flow Rate WB-L = 1950*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*	*0*	*1*	*2*	*0*	*0*	*2*	*0*	*1*	*1*	*0*
Lane Group	*L*	*TR*		*L*	*TR*			*LTR*		*L*	*TR*	
Volume, V (vph)	*109*	*172*	*197*	*248*	*330*	*86*	*119*	*263*	*267*	*222*	*59*	*56*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*7*	*7*	*7*	*3*	*3*	*3*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.90*	*0.82*	*0.82*	*0.93*	*0.93*	*0.93*	*0.76*	*0.76*	*0.76*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*		*2.0*	*2.0*			*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e	*2.0*	*2.0*		*3.0*	*3.0*			*2.0*		*2.0*	*2.0*	
Arrival Type, AT	*3*	*3*		*3*	*3*			*3*		*3*	*3*	
Unit Extension, UE	*3.0*	*3.0*		*3.0*	*3.0*			*3.0*		*3.0*	*3.0*	
Filtering/Metering, I	*0.701*	*0.701*		*0.949*	*0.949*			*1.000*		*0.970*	*0.970*	
Initial Unmet Demand, Q_b	*0.0*	*0.0*		*0.0*	*0.0*			*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*45*	*0*	*0*	*11*	*0*	*0*	*25*	*0*	*0*	*25*
Lane Width	*11.0*	*12.0*		*10.0*	*12.0*			*12.5*		*11.0*	*10.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*		*0*	*0*			*0*		*0*	*0*	
Min. Time for Pedestrians, G_p	*34.6*			*18.6*			*20.3*			*16.1*		

Phasing	EW Perm	02	03	04	NB Only	SB Only	07	08
Timing	G = *30.0*	G =	G =	G =	G = *25.0*	G = *20.0*	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y = *5*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*124*	*368*		*276*	*493*			*671*		*292*	*119*	
Lane Group Capacity, c	*239*	*583*		*240*	*1132*			*925*		*384*	*370*	
v/c Ratio, X	*0.52*	*0.63*		*1.15*	*0.44*			*0.73*		*0.76*	*0.32*	
Total Green Ratio, g/C	*0.33*	*0.33*		*0.34*	*0.34*			*0.28*		*0.22*	*0.22*	
Uniform Delay, d_1	*24.2*	*25.3*		*29.5*	*22.8*			*29.4*		*32.8*	*29.3*	
Progression Factor, PF	*1.000*	*1.000*		*1.000*	*1.000*			*1.000*		*1.000*	*1.000*	
Delay Calibration, k	*0.50*	*0.50*		*0.50*	*0.50*			*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2	*5.6*	*3.6*		*103.2*	*1.2*			*4.9*		*12.9*	*2.2*	

Initial Queue Delay, d_3	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Control Delay	29.7	29.0		132.7	23.9			34.3		45.6	31.5	
Lane Group LOS	C	C		F	C			C		D	C	
Approach Delay	29.2			63.0			34.3			41.6		
Approach LOS	C			E			C			D		
Intersection Delay	43.9			X_C = 0.91			Intersection LOS			D		

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*Bricktown Way/Tyrellan Avenue*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 No-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Bricktown Way* | North/South Street: *Tyrellan Avenue*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*148*	*29*	*148*	*186*	*0*
%Thrus Left Lane	*50*			*50*		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*13*	*0*	*69*	*0*	*0*	*0*
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*T*	*TR*	*LT*	*T*	*L*	*R*		
PHF	*0.87*	*0.87*	*0.91*	*0.91*	*0.76*	*0.76*		
Flow Rate (veh/h)	*85*	*118*	*264*	*102*	*17*	*90*		
% Heavy Vehicles	*7*	*7*	*1*	*1*	*1*	*1*		
No. Lanes	*2*		*2*		*2*		*0*	
Geometry Group	*5*		*5*		*1*			
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	*0.0*	*0.0*	*0.6*	*0.0*	*1.0*	*0.0*		
Prop. Right-Turns	*0.0*	*0.3*	*0.0*	*0.0*	*0.0*	*1.0*		
Prop. Heavy Vehicle	*0.1*	*0.1*	*0.0*	*0.0*	*0.0*	*0.0*		
hLT-adj	*0.5*	*0.5*	*0.5*	*0.5*	*0.2*	*0.2*		
hRT-adj	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.6*	*-0.6*		
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*		
hadj, computed	*0.1*	*-0.1*	*0.3*	*0.0*	*0.2*	*-0.6*		

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value (s)	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*		
x, initial	*0.08*	*0.10*	*0.23*	*0.09*	*0.02*	*0.08*		
hd, final value (s)	*5.23*	*5.03*	*5.28*	*4.97*	*5.39*	*4.59*		
x, final value	*0.12*	*0.16*	*0.39*	*0.14*	*0.03*	*0.11*		
Move-up time, m (s)	*2.3*		*2.3*		*2.0*			
Service Time, t_s (s)	*2.9*	*2.7*	*3.0*	*2.7*	*3.4*	*2.6*		

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*335*	*368*	*514*	*352*	*267*	*340*		
Delay (s/veh)	*8.66*	*8.72*	*11.26*	*8.48*	*8.53*	*8.19*		
LOS	*A*	*A*	*B*	*A*	*A*	*A*		
Approach: Delay (s/veh)	*8.70*		*10.49*		*8.24*			
LOS	*A*		*B*		*A*			
Intersection Delay (s/veh)	*9.60*							
Intersection LOS	*A*							

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	KM	Intersection	Veterans Rd W & Tyrellan Ave
Agency or Co.	AECOM	Area Type	All other areas
Date Performed	10/24/2012	Jurisdiction	Staten Island, NY
Time Period	Weekday 5-6 PM Peak Period	Analysis Year	2020 No-Action Conditions
		Project ID	Charleston EIS

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	0	2	0	0	2	0	0	2	0	0	2	0
Lane Group		LTR		DefL	TR		DefL	TR			LTR	
Volume, V (vph)	53	117	466	123	294	10	252	102	124	22	315	124
% Heavy Vehicles, %HV	2	2	2	2	2	2	1	1	1	2	2	2
Peak-Hour Factor, PHF	0.88	0.88	0.88	0.82	0.82	0.82	0.93	0.93	0.93	0.94	0.94	0.94
Pretimed (P) or Actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up Lost Time, l_1		2.0		2.0	2.0		2.0	2.0			2.0	
Extension of Effective Green, e		2.0		2.0	2.0		2.0	2.0			2.0	
Arrival Type, AT		3		3	3		3	3			3	
Unit Extension, UE		3.0		3.0	3.0		3.0	3.0			3.0	
Filtering/Metering, I		0.884		0.927	0.927		1.000	1.000			1.000	
Initial Unmet Demand, Q_b		0.0		0.0	0.0		0.0	0.0			0.0	
Ped / Bike / RTOR Volumes	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width		12.0		12.0	12.0		13.0	13.0			9.5	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B		0		0	0		0	0			0	
Min. Time for Pedestrians, G_p	18.6			16.6			20.1			19.8		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 40.0	G =	G =	G =	G = 40.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		723		150	371		271	243			490	
Lane Group Capacity, c		1241		247	824		375	793			1295	
v/c Ratio, X		0.58		0.61	0.45		0.72	0.31			0.38	
Total Green Ratio, g/C		0.44		0.44	0.44		0.44	0.44			0.44	
Uniform Delay, d_1		18.7		19.0	17.4		20.5	16.1			16.7	
Progression Factor, PF		1.000		1.000	1.000		1.000	1.000			1.000	
Delay Calibration, k		0.50		0.50	0.50		0.50	0.50			0.50	
Incremental Delay, d_2		1.8		9.9	1.6		11.5	1.0			0.8	

Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay		*20.5*		*28.9*	*19.0*		*31.9*	*17.1*			*17.5*	
Lane Group LOS		*C*		*C*	*B*		*C*	*B*			*B*	
Approach Delay	*20.5*			*21.9*			*24.9*			*17.5*		
Approach LOS	*C*			*C*			*C*			*B*		
Intersection Delay	*21.2*			X_C = *0.66*			Intersection LOS			*C*		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Boscombe Ave & OBX Off-Ramp*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*1*	*1*	*1*
Lane Group	*L*	*TR*			*LT*	*R*		*LTR*		*L*	*LT*	*R*
Volume, V (vph)	*750*	*354*	*4*	*3*	*366*	*536*	*2*	*3*	*2*	*118*	*0*	*286*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.95*	*0.95*	*0.95*	*0.44*	*0.44*	*0.44*	*0.80*	*0.80*	*0.80*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*	*3*		*3*		*3*	*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*	*3.0*		*3.0*		*3.0*	*3.0*	*3.0*
Filtering/Metering, I	*0.687*	*0.687*			*0.650*	*0.650*		*1.000*		*1.000*	*1.000*	*1.000*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*	*0.0*		*0.0*		*0.0*	*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*11.0*	*12.0*			*12.0*	*12.0*		*16.0*		*10.0*	*11.0*	*10.0*
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B	*0*	*0*			*0*	*0*		*0*		*0*	*0*	*0*
Min. Time for Pedestrians, G_p	*14.6*			*24.6*			*20.9*			*20.1*		

Phasing	EB Only	EW Perm	03	04	NS Perm	06	07	08
Timing	G = *33.0*	G = *28.0*	G =	G =	G = *14.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*833*	*397*			*388*	*564*		*17*		*147*	*0*	*357*
Lane Group Capacity, c	*806*	*1206*			*584*	*497*		*148*		*204*	*283*	*862*
v/c Ratio, X	*1.03*	*0.33*			*0.66*	*1.13*		*0.11*		*0.72*	*0.00*	*0.41*
Total Green Ratio, g/C	*0.73*	*0.73*			*0.31*	*0.31*		*0.16*		*0.16*	*0.16*	*0.58*
Uniform Delay, d_1	*18.2*	*4.2*			*26.9*	*31.0*		*32.7*		*36.1*	*32.1*	*10.5*
Progression Factor, PF	*1.000*	*1.000*			*1.000*	*1.000*		*1.000*		*1.000*	*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*	*0.50*		*0.50*		*0.50*	*0.50*	*0.50*
Incremental Delay, d_2	*35.3*	*0.5*			*3.9*	*76.4*		*1.6*		*19.7*	*0.0*	*1.5*

Initial Queue Delay, d_3	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Control Delay	53.5	4.7			30.8	107.4		34.2		55.8	32.1	12.0
Lane Group LOS	D	A			C	F		C		E	C	B
Approach Delay	37.7			76.2			34.2			24.8		
Approach LOS	D			E			C			C		
Intersection Delay	48.8			X_C = 1.02			Intersection LOS			D		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	KM	Intersection	Boscombe Ave & Tyrellan Ave
Agency or Co.	AECOM	Area Type	All other areas
Date Performed	10/24/2012	Jurisdiction	Staten Island, NY
Time Period	Weekday 5-6 PM Peak Hour	Analysis Year	2020 No-Action Conditions
		Project ID	Charleston EIS

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	0	2	0	0	2	0	0	2	0	0	1	1
Lane Group	DefL	TR			LTR			LTR			LT	R
Volume, V (vph)	437	37	0	1	37	43	3	3	2	62	1	866
% Heavy Vehicles, %HV	1	1	1	1	1	1	1	1	1	2	2	2
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.95	0.95	0.95	0.50	0.50	0.50	0.94	0.94	0.94
Pretimed (P) or Actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up Lost Time, l_1	2.0	2.0			2.0			2.0			2.0	2.0
Extension of Effective Green, e	2.0	2.0			2.0			2.0			2.0	2.0
Arrival Type, AT	3	3			3			3			3	3
Unit Extension, UE	3.0	3.0			3.0			3.0			3.0	3.0
Filtering/Metering, I	0.952	0.952			1.000			1.000			0.937	0.937
Initial Unmet Demand, Q_b	0.0	0.0			0.0			0.0			0.0	0.0
Ped / Bike / RTOR Volumes	0	0	0	0	0	10	0	0	0	0	0	294
Lane Width	16.0	16.0			11.5			12.0			12.0	12.0
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0			0			0			0	0
Min. Time for Pedestrians, G_p	20.3			17.5			20.3			20.3		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 45.0	G =	G =	G =	G = 35.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	486	41			75			16			67	609
Lane Group Capacity, c	753	1066			1563			1220			548	616
v/c Ratio, X	0.65	0.04			0.05			0.01			0.12	0.99
Total Green Ratio, g/C	0.50	0.50			0.50			0.39			0.39	0.39
Uniform Delay, d_1	16.6	11.5			11.5			16.9			17.6	27.3
Progression Factor, PF	1.000	1.000			1.000			1.000			1.000	1.000
Delay Calibration, k	0.50	0.50			0.50			0.50			0.50	0.50
Incremental Delay, d_2	4.0	0.1			0.1			0.0			0.4	32.4

Initial Queue Delay, d_3	0.0	0.0			0.0			0.0			0.0	0.0
Control Delay	20.7	11.5			11.6			16.9			18.1	59.7
Lane Group LOS	C	B			B			B			B	E
Approach Delay	19.9			11.6			16.9			55.6		
Approach LOS	B			B			B			E		
Intersection Delay	38.1			X_C = 0.80			Intersection LOS			D		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	KM	Intersection	Bricktown Ctr Rd @ Vets Rd W
Agency or Co.	AECOM	Area Type	All other areas
Date Performed	10/24/2012	Jurisdiction	Staten Island, NY
Time Period	Weekday 5-6 PM Peak Period	Analysis Year	2020 No-Action Conditions
		Project ID	Charleston EIS

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	1		1				0	2			2	0
Lane Group	L		R					LT			TR	
Volume, V (vph)	194		24				2	260			403	331
% Heavy Vehicles, %HV	8		8				1	1			2	2
Peak-Hour Factor, PHF	0.87		0.87				0.88	0.88			0.91	0.91
Pretimed (P) or Actuated (A)	P		P				P	P			P	P
Start-up Lost Time, l_1	2.0		2.0					2.0			2.0	
Extension of Effective Green, e	2.0		2.0					2.0			2.0	
Arrival Type, AT	3		3					3			3	
Unit Extension, UE	3.0		3.0					3.0			3.0	
Filtering/Metering, I	0.974		0.974					0.995			0.791	
Initial Unmet Demand, Q_b	0.0		0.0					0.0			0.0	
Ped / Bike / RTOR Volumes	0	0	6	0	0		0	0		0	0	0
Lane Width	13.0		12.0					11.5			16.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B	0		0					0			0	
Min. Time for Pedestrians, G_p	21.8			20.3			3.2			19.5		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = 19.0	G =	G =	G =	G = 31.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 60.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	223		21					297			807	
Lane Group Capacity, c	547		473					1731			1936	
v/c Ratio, X	0.41		0.04					0.17			0.42	
Total Green Ratio, g/C	0.32		0.32					0.52			0.52	
Uniform Delay, d_1	16.1		14.2					7.7			8.9	
Progression Factor, PF	1.000		1.000					1.000			1.000	
Delay Calibration, k	0.50		0.50					0.50			0.50	
Incremental Delay, d_2	2.2		0.2					0.2			0.5	
Initial Queue Delay, d_3	0.0		0.0					0.0			0.0	

Control Delay	*18.3*		*14.4*					*7.9*			*9.5*	
Lane Group LOS	*B*		*B*					*A*			*A*	
Approach Delay	*17.9*						*7.9*			*9.5*		
Approach LOS	*B*						*A*			*A*		
Intersection Delay	*10.6*			X_C = *0.41*			Intersection LOS			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*Englewood Ave & Vets Rd W RT*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* | North/South Street: *Veterans Rd W Right Turn Bay*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*24*				
Peak-Hour Factor, PHF	*1.00*	*0.71*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*33*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*T*				
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*449*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.88*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*510*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*1*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					*R*			
v (veh/h)					*510*			
C (m) (veh/h)					*1043*			
v/c					*0.49*			
95% queue length					*2.76*			
Control Delay (s/veh)					*11.7*			
LOS					*B*			
Approach Delay (s/veh)	--	--	*11.7*					
Approach LOS	--	--	*B*					

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Ave @ Veterans Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*1*	*1*		*1*			*0*	*3*	*0*
Lane Group		*TR*		*L*	*LT*		*L*				*LTR*	
Volume, V (vph)		*1*	*0*	*461*	*2*		*4*			*23*	*273*	*4*
% Heavy Vehicles, %HV		*1*	*1*	*3*	*3*		*1*			*1*	*1*	*1*
Peak-Hour Factor, PHF		*0.25*	*0.25*	*0.89*	*0.89*		*0.88*			*0.91*	*0.91*	*0.91*
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*			*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Arrival Type, AT		*3*		*3*	*3*		*3*				*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*		*3.0*				*3.0*	
Filtering/Metering, I		*1.000*		*0.983*	*0.983*		*0.988*				*1.000*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*12.0*		*13.0*	*13.0*		*10.0*				*11.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*		*0*	*0*		*0*				*0*	
Min. Time for Pedestrians, G_p	*31.2*			*3.2*			*18.1*			*11.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*4*		*259*	*261*		*5*				*329*	
Lane Group Capacity, c		*784*		*600*	*576*		*399*				*2052*	
v/c Ratio, X		*0.01*		*0.43*	*0.45*		*0.01*				*0.16*	
Total Green Ratio, g/C		*0.42*		*0.42*	*0.42*		*0.42*				*0.42*	
Uniform Delay, d_1		*10.2*		*12.4*	*12.6*		*10.3*				*10.9*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*		*1.000*				*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*		*0.50*				*0.50*	
Incremental Delay, d_2		*0.0*		*2.2*	*2.5*		*0.1*				*0.2*	

Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Control Delay		*10.2*		*14.7*	*15.1*		*10.3*				*11.1*	
Lane Group LOS		*B*		*B*	*B*		*B*				*B*	
Approach Delay	*10.2*			*14.9*			*10.3*			*11.1*		
Approach LOS	*B*			*B*			*B*			*B*		
Intersection Delay	*13.4*			X_C = *0.31*			Intersection LOS			*B*		

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*Sharrotts Rd & Veterans Rd W*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 No-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Sharrotts Road* | North/South Street: *Veterans Road West*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*106*	*39*	*172*	*84*	*0*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*0*	*24*	*89*	*25*
%Thrus Left Lane				*50*		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*TR*		*LT*				*LT*	*TR*
PHF	*0.80*		*0.78*				*0.91*	*0.91*
Flow Rate (veh/h)	*180*		*327*				*74*	76
% Heavy Vehicles	*2*		*3*				*1*	*1*
No. Lanes	*1*		*1*		*0*		*2*	
Geometry Group	*2*		*2*				*1*	
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	*0.0*		*0.7*				*0.4*	*0.0*
Prop. Right-Turns	*0.3*		*0.0*				*0.0*	*0.4*
Prop. Heavy Vehicle	*0.0*		*0.0*				*0.0*	*0.0*
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*			*0.2*	*0.2*
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*			*-0.6*	*-0.6*
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*			*1.7*	*1.7*
hadj, computed	*-0.1*		*0.2*				*0.1*	*-0.2*

Departure Headway and Service Time

hd, initial value (s)	*3.20*		*3.20*				*3.20*	*3.20*
x, initial	*0.16*		*0.29*				*0.07*	*0.07*
hd, final value (s)	*4.54*		*4.67*				*5.18*	*4.89*
x, final value	*0.23*		*0.42*				*0.11*	*0.10*
Move-up time, m (s)	*2.0*		*2.0*				*2.0*	
Service Time, t_s (s)	*2.5*		*2.7*				*3.2*	*2.9*

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*430*		*577*				*324*	*326*
Delay (s/veh)	*8.87*		*11.08*				*8.79*	*8.46*
LOS	*A*		*B*				*A*	*A*
Approach: Delay (s/veh)	*8.87*		*11.08*				*8.62*	
LOS	*A*		*B*				*A*	
Intersection Delay (s/veh)	*9.91*							
Intersection LOS	*A*							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*Sharrotts Rd @ Veterans Rd E*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 No-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Sharrotts Road* | North/South Street: *Veterans Road East*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*39*	*91*	*0*	*0*	*191*	*19*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*66*	*100*	*142*	*0*	*0*	*0*
%Thrus Left Lane	*50*					

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*LT*		*TR*		*LT*	*TR*		
PHF	*0.80*		*0.78*		*0.99*	*0.99*		
Flow Rate (veh/h)	*161*		*268*		*116*	*193*		
% Heavy Vehicles	*2*		*5*		*1*	*1*		
No. Lanes	*1*		*1*		*2*		*0*	
Geometry Group	*2*		*2*		*1*			
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	*0.3*		*0.0*		*0.6*	*0.0*		
Prop. Right-Turns	*0.0*		*0.1*		*0.0*	*0.7*		
Prop. Heavy Vehicle	*0.0*		*0.0*		*0.0*	*0.0*		
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*		
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*		
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*		
hadj, computed	*0.1*		*0.0*		*0.1*	*-0.4*		

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value (s)	*3.20*		*3.20*		*3.20*	*3.20*		
x, initial	*0.14*		*0.24*		*0.10*	*0.17*		
hd, final value (s)	*5.06*		*4.86*		*5.11*	*4.55*		
x, final value	*0.23*		*0.36*		*0.16*	*0.24*		
Move-up time, m (s)	*2.0*		*2.0*		*2.0*			
Service Time, t_s (s)	*3.1*		*2.9*		*3.1*	*2.5*		

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*411*		*518*		*366*	*443*		
Delay (s/veh)	*9.54*		*10.59*		*9.11*	*9.01*		
LOS	*A*		*B*		*A*	*A*		
Approach: Delay (s/veh)	*9.54*		*10.59*		*9.05*			
LOS	*A*		*B*		*A*			
Intersection Delay (s/veh)	*9.72*							
Intersection LOS	*A*							

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	KM	Intersection	Englewood Ave @ Vets Rd E
Agency or Co.	AECOM	Area Type	All other areas
Date Performed	10/24/2012	Jurisdiction	Staten Island, NY
Time Period	Weekday 5-6 PM Peak Period	Analysis Year	2020 No-Action Conditions
		Project ID	Charleston EIS

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	0	1	1	0	1	0	0	3	0			
Lane Group		LT	R		LTR			LTR				
Volume, V (vph)	193	165	115	8	47	9	416	106	2			
% Heavy Vehicles, %HV	1	1	1	1	1	1	1	1	1			
Peak-Hour Factor, PHF	0.85	0.85	0.85	0.87	0.87	0.87	0.89	0.89	0.89			
Pretimed (P) or Actuated (A)	P	P	P	P	P	P	P	P	P			
Start-up Lost Time, l_1		2.0	2.0		2.0			2.0				
Extension of Effective Green, e		2.0	2.0		2.0			2.0				
Arrival Type, AT		3	3		3			3				
Unit Extension, UE		3.0	3.0		3.0			3.0				
Filtering/Metering, I		0.999	0.999		0.996			0.980				
Initial Unmet Demand, Q_b		0.0	0.0		0.0			0.0				
Ped / Bike / RTOR Volumes	0	0	53	0	0	0	0	0	0	0	0	
Lane Width		13.0	12.0		11.5			11.0				
Parking / Grade / Parking	N	0	N	N	0	Y	N	0	N	N	0	N
Parking Maneuvers, N_m						5						
Buses Stopping, N_B		0	0		0			0				
Min. Time for Pedestrians, G_p	21.2			12.9			14.3			17.5		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = 21.0	G =	G =	G =	G = 29.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 60.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		421	73		73			588				
Lane Group Capacity, c		539	560		526			2302				
v/c Ratio, X		0.78	0.13		0.14			0.26				
Total Green Ratio, g/C		0.35	0.35		0.35			0.48				
Uniform Delay, d_1		17.4	13.3		13.3			9.1				
Progression Factor, PF		1.000	1.000		1.000			1.000				
Delay Calibration, k		0.50	0.50		0.50			0.50				
Incremental Delay, d_2		10.7	0.5		0.5			0.3				

Initial Queue Delay, d_3		*0.0*	*0.0*		*0.0*			*0.0*				
Control Delay		*28.2*	*13.8*		*13.9*			*9.4*				
Lane Group LOS		*C*	*B*		*B*			*A*				
Approach Delay	*26.0*			*13.9*			*9.4*					
Approach LOS	*C*			*B*			*A*					
Intersection Delay	*16.8*			X_C = *0.48*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Av & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*133*		*34*				*18*	*469*			*472*	*45*
% Heavy Vehicles, %HV	*3*		*3*				*1*	*1*			*4*	*4*
Peak-Hour Factor, PHF	*0.96*		*0.96*				*0.86*	*0.86*			*0.92*	*0.92*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.984*						*0.880*			*0.893*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*16.0*						*14.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B		*0*						*2*			*7*	
Min. Time for Pedestrians, G_p	*14.9*			*15.5*			*3.2*			*17.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*174*						*566*			*562*	
Lane Group Capacity, c		*456*						*1099*			*1127*	
v/c Ratio, X		*0.38*						*0.52*			*0.50*	
Total Green Ratio, g/C		*0.27*						*0.57*			*0.57*	
Uniform Delay, d_1		*18.0*						*8.0*			*7.9*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*2.4*						*1.5*			*1.4*	
Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	

Control Delay		*20.3*						*9.5*			*9.3*	
Lane Group LOS		*C*						*A*			*A*	
Approach Delay	*20.3*						*9.5*			*9.3*		
Approach LOS	*C*						*A*			*A*		
Intersection Delay	*10.8*			X_C = *0.47*			Intersection LOS			*B*		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Sharrotts Rd & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*147*		*86*				*23*	*490*			*406*	*191*
% Heavy Vehicles, %HV	*1*		*1*				*1*	*1*			*3*	*3*
Peak-Hour Factor, PHF	*0.80*		*0.80*				*0.86*	*0.86*			*0.92*	*0.92*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.911*						*0.834*			*0.880*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*21*
Lane Width		*16.0*						*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*2*			*7*	
Min. Time for Pedestrians, G_p	*18.6*			*18.6*			*3.2*			*16.6*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*291*						*597*			*626*	
Lane Group Capacity, c		*573*						*890*			*976*	
v/c Ratio, X		*0.51*						*0.67*			*0.64*	
Total Green Ratio, g/C		*0.33*						*0.50*			*0.50*	
Uniform Delay, d_1		*16.1*						*11.3*			*11.0*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*2.9*						*3.4*			*2.9*	
Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	

Control Delay		19.0						14.6			13.9	
Lane Group LOS		B						B			B	
Approach Delay	19.0						14.6			13.9		
Approach LOS	B						B			B		
Intersection Delay	15.2			X_C = 0.61			Intersection LOS			B		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Vets Rd E & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*	*0*	*3*	*0*	*1*	*1*			*1*	*0*
Lane Group	*L*		*R*		*LTR*		*L*	*T*			*TR*	
Volume, V (vph)	*4*		*119*	*284*	*466*	*276*	*53*	*207*			*501*	*5*
% Heavy Vehicles, %HV	*1*		*1*	*1*	*1*	*1*	*2*	*2*			*4*	*4*
Peak-Hour Factor, PHF	*0.95*		*0.95*	*0.88*	*0.88*	*0.88*	*0.92*	*0.92*			*0.87*	*0.87*
Pretimed (P) or Actuated (A)	*P*		*P*	*P*	*P*	*P*	*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*		*3*		*3*	*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*		*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I	*0.848*		*0.848*		*0.500*		*0.930*	*0.930*			*0.865*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Lane Width	*10.0*		*13.0*		*11.0*		*12.0*	*12.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*		*0*		*0*	*2*			*7*	
Min. Time for Pedestrians, G_p	*17.2*			*16.9*			*3.2*			*20.9*		

Phasing	EB Only	WB Only	03	04	NS Perm	06	07	08
Timing	G = *8.0*	G = *17.0*	G =	G =	G = *20.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*4*		*125*		*1167*		*58*	*225*			*582*	
Lane Group Capacity, c	*222*		*220*		*1329*		*124*	*616*			*670*	
v/c Ratio, X	*0.02*		*0.57*		*0.88*		*0.47*	*0.37*			*0.87*	
Total Green Ratio, g/C	*0.13*		*0.13*		*0.28*		*0.33*	*0.33*			*0.33*	
Uniform Delay, d_1	*22.6*		*24.4*		*20.5*		*15.8*	*15.2*			*18.8*	
Progression Factor, PF	*1.000*		*1.000*		*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*		*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2	*0.1*		*8.7*		*4.5*		*11.3*	*1.6*			*12.7*	

Initial Queue Delay, d_3	0.0		0.0		0.0		0.0	0.0			0.0	
Control Delay	22.7		33.1		25.0		27.1	16.7			31.4	
Lane Group LOS	C		C		C		C	B			C	
Approach Delay	32.8				25.0			18.9			31.4	
Approach LOS	C				C			B			C	
Intersection Delay	26.4				X_C = 0.82			Intersection LOS			C	

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*S Service Rd & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*				*0*	*1*	*0*	*1*	*1*	*0*
Lane Group		*LTR*						*LTR*		*L*	*TR*	
Volume, V (vph)	*10*	*20*	*6*				*9*	*250*	*127*	*319*	*533*	*52*
% Heavy Vehicles, %HV	*2*	*2*	*2*				*2*	*2*	*2*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.63*	*0.63*	*0.63*				*0.92*	*0.92*	*0.92*	*0.93*	*0.93*	*0.93*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*				*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*		*2.0*	*2.0*	
Arrival Type, AT		*3*						*3*		*3*	*3*	
Unit Extension, UE		*3.0*						*3.0*		*3.0*	*3.0*	
Filtering/Metering, I		*1.000*						*0.922*		*0.564*	*0.564*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*12*
Lane Width		*13.0*						*16.0*		*12.0*	*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*2*		*0*	*7*	
Min. Time for Pedestrians, G_p	*17.5*			*16.9*			*12.6*			*12.9*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *17.0*	G =	G =	G =	G = *33.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*58*						*420*		*343*	*616*	
Lane Group Capacity, c		*460*						*950*		*523*	*986*	
v/c Ratio, X		*0.13*						*0.44*		*0.66*	*0.62*	
Total Green Ratio, g/C		*0.28*						*0.55*		*0.55*	*0.55*	
Uniform Delay, d_1		*16.0*						*8.0*		*9.5*	*9.3*	
Progression Factor, PF		*1.000*						*1.000*		*1.000*	*1.000*	
Delay Calibration, k		*0.50*						*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2		*0.6*						*1.4*		*3.6*	*1.7*	

Initial Queue Delay, d_3		*0.0*						*0.0*		*0.0*	*0.0*	
Control Delay		*16.5*						*9.4*		*13.1*	*11.0*	
Lane Group LOS		*B*						*A*		*B*	*B*	
Approach Delay	*16.5*						*9.4*			*11.7*		
Approach LOS	*B*						*A*			*B*		
Intersection Delay	*11.2*			X_C = *0.48*			Intersection LOS			*B*		

 HCS+™ Version 5.4 Generated: 4/10/2013 3:00 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Amboy Rd & Bloomingdale Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*1*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*		*L*	*T*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*6*	*13*	*20*	*267*	*29*	*110*	*18*	*269*	*175*	*94*	*409*	*10*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*3*	*3*	*3*	*1*	*1*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.70*	*0.70*	*0.70*	*0.87*	*0.87*	*0.87*	*0.92*	*0.92*	*0.92*	*0.87*	*0.87*	*0.87*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*		*3*	*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*		*0.905*	*0.905*	*0.905*		*0.663*			*0.229*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*50*	*0*	*0*	*0*	*0*	*0*	*50*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*		*12.0*	*11.0*	*11.0*		*11.0*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*2*		*0*	*0*	*2*		*0*			*0*	
Min. Time for Pedestrians, G_p	*11.5*			*11.8*			*18.9*			*18.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*57*		*307*	*33*	*126*		*502*			*589*	
Lane Group Capacity, c		*634*		*560*	*792*	*585*		*727*			*632*	
v/c Ratio, X		*0.09*		*0.55*	*0.04*	*0.22*		*0.69*			*0.93*	
Total Green Ratio, g/C		*0.44*		*0.44*	*0.44*	*0.44*		*0.44*			*0.44*	
Uniform Delay, d_1		*14.5*		*18.4*	*14.2*	*15.4*		*20.0*			*23.7*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*	*0.50*		*0.50*			*0.50*	
Incremental Delay, d_2		*0.3*		*3.5*	*0.1*	*0.8*		*3.6*			*7.2*	

Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Control Delay		*14.7*		*21.8*	*14.2*	*16.1*		*23.6*			*30.9*	
Lane Group LOS		*B*		*C*	*B*	*B*		*C*			*C*	
Approach Delay	*14.7*			*19.8*			*23.6*			*30.9*		
Approach LOS	*B*			*B*			*C*			*C*		
Intersection Delay	*24.9*			X_C = *0.74*			Intersection LOS			*C*		

 HCS+™ Version 5.4 Generated: 4/10/2013 3:00 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Arthur Kill Rd & Bloomingdl Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*0*	*1*		*0*		*0*			
Lane Group		*TR*			*LT*			*LR*				
Volume, V (vph)		*162*	*253*	*106*	*179*		*144*		*105*			
% Heavy Vehicles, %HV		*5*	*5*	*8*	*8*		*1*		*1*			
Peak-Hour Factor, PHF		*0.82*	*0.82*	*0.83*	*0.83*		*0.67*		*0.67*			
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*		*P*			
Start-up Lost Time, l_1		*2.0*			*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*			*2.0*			*2.0*				
Arrival Type, AT		*3*			*3*			*3*				
Unit Extension, UE		*3.0*			*3.0*			*3.0*				
Filtering/Metering, I		*0.927*			*0.989*			*0.917*				
Initial Unmet Demand, Q_b		*0.0*			*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*59*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	
Lane Width		*16.0*			*16.0*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m									*5*			
Buses Stopping, N_B		*5*			*0*			*0*				
Min. Time for Pedestrians, G_p	*18.3*			*3.2*			*15.2*			*17.2*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*435*			*344*			*372*				
Lane Group Capacity, c		*931*			*605*			*567*				
v/c Ratio, X		*0.47*			*0.57*			*0.66*				
Total Green Ratio, g/C		*0.50*			*0.50*			*0.39*				
Uniform Delay, d_1		*14.7*			*15.7*			*22.6*				
Progression Factor, PF		*1.000*			*1.000*			*1.000*				
Delay Calibration, k		*0.50*			*0.50*			*0.50*				
Incremental Delay, d_2		*1.6*			*3.8*			*5.4*				
Initial Queue Delay, d_3		*0.0*			*0.0*			*0.0*				

Control Delay		16.2			19.5			27.9				
Lane Group LOS		B			B			C				
Approach Delay	16.2			19.5			27.9					
Approach LOS	B			B			C					
Intersection Delay	21.0			X_C = 0.61			Intersection LOS			C		

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Saturday

Midday

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Saturday 12:45-1:45 Peak Pd*

Site Information

Intersection	*Sharrotts Rd & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Sharrotts Road* North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*12*	*229*	*50*	*29*	*257*	*28*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.88*	*0.88*	*0.88*
Hourly Flow Rate, HFR (veh/h)	*13*	*248*	*54*	*32*	*292*	*31*
Percent Heavy Vehicles	*3*	--	--	*5*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*27*	*33*	*24*	*62*	*17*	*41*
Peak-Hour Factor, PHF	*0.40*	*0.40*	*0.40*	*0.78*	*0.78*	*0.78*
Hourly Flow Rate, HFR (veh/h)	*67*	*82*	*59*	*79*	*21*	*52*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (veh/h)	*13*	*32*		*152*			*208*	
C (m) (veh/h)	*1231*	*1242*		*337*			*388*	
v/c	*0.01*	*0.03*		*0.45*			*0.54*	
95% queue length	*0.03*	*0.08*		*2.25*			*3.05*	
Control Delay (s/veh)	*8.0*	*8.0*		*24.2*			*24.5*	
LOS	*A*	*A*		*C*			*C*	
Approach Delay (s/veh)	--	--	*24.2*			*24.5*		
Approach LOS	--	--	*C*			*C*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*Englewood Ave & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*271*	*13*	*16*	*327*	
Peak-Hour Factor, PHF	*1.00*	*0.92*	*0.92*	*0.88*	*0.88*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*294*	*14*	*18*	*371*	*0*
Percent Heavy Vehicles	*0*	--	--	*5*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*109*		*19*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.75*	*1.00*	*0.75*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*145*	*0*	*25*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (veh/h)		*18*		*170*				
C (m) (veh/h)		*1236*		*423*				
v/c		*0.01*		*0.40*				
95% queue length		*0.04*		*1.90*				
Control Delay (s/veh)		*8.0*		*19.1*				
LOS		*A*		*C*				
Approach Delay (s/veh)	--	--	*19.1*					
Approach LOS	--	--	*C*					

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*			*LT*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*0*	*10*	*5*	*325*	*27*	*377*	*5*	*168*	*390*	*176*	*213*	*0*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*2*	*2*	*2*	*5*	*5*	*5*	*3*	*3*	*3*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*			*0.849*	*0.849*		*0.861*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*15.5*			*11.0*	*10.0*		*15.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*			*0*	*0*		*2*			*2*	
Min. Time for Pedestrians, G_p	*11.5*			*13.5*			*15.2*			*12.1*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*16*			*382*	*410*		*619*			*427*	
Lane Group Capacity, c		*726*			*548*	*539*		*743*			*400*	
v/c Ratio, X		*0.02*			*0.70*	*0.76*		*0.83*			*1.07*	
Total Green Ratio, g/C		*0.42*			*0.42*	*0.42*		*0.42*			*0.42*	
Uniform Delay, d_1		*10.3*			*14.4*	*14.9*		*15.6*			*17.5*	
Progression Factor, PF		*1.000*			*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*	*0.50*		*0.50*			*0.50*	
Incremental Delay, d_2		*0.1*			*6.1*	*8.4*		*9.3*			*64.1*	

Initial Queue Delay, d_3		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Control Delay		*10.4*			*20.5*	*23.3*		*24.9*			*81.6*	
Lane Group LOS		*B*			*C*	*C*		*C*			*F*	
Approach Delay	*10.4*			*22.0*			*24.9*			*81.6*		
Approach LOS	*B*			*C*			*C*			*F*		
Intersection Delay	*36.6*			X_C *= 0.91*			Intersection LOS			*D*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*No Bridge St & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*			*1*	
Lane Group					*LR*			*T*			*T*	
Volume, V (vph)				*510*		*9*		*555*			*544*	
% Heavy Vehicles, %HV				*1*		*1*		*5*			*4*	
Peak-Hour Factor, PHF				*0.86*		*0.86*		*0.91*			*0.91*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*			*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.483*			*0.865*			*0.367*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	
Lane Width					*16.0*			*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B					*0*			*0*			*2*	
Min. Time for Pedestrians, G_p	*13.5*			*13.8*			*3.2*			*3.2*		

Phasing	WB Only	02	03	04	Thru Only	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*603*			*610*			*598*	
Lane Group Capacity, c					*676*			*1026*			*1027*	
v/c Ratio, X					*0.89*			*0.59*			*0.58*	
Total Green Ratio, g/C					*0.33*			*0.50*			*0.50*	
Uniform Delay, d_1					*19.0*			*10.7*			*10.6*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*9.0*			*2.2*			*0.9*	
Initial Queue Delay, d_3					*0.0*			*0.0*			*0.0*	

Control Delay					*27.9*			*12.9*			*11.5*	
Lane Group LOS					*C*			*B*			*B*	
Approach Delay				*27.9*			*12.9*			*11.5*		
Approach LOS				*C*			*B*			*B*		
Intersection Delay	*17.4*			X_C = *0.71*			Intersection LOS			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*So Bridge St & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *South Bridge Street* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*555*	*270*	*181*	*871*	
Peak-Hour Factor, PHF	*1.00*	*0.91*	*0.91*	*0.91*	*0.91*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*609*	*296*	*198*	*957*	*0*
Percent Heavy Vehicles	*0*	--	--	*6*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration						

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*						
v (veh/h)		*198*						
C (m) (veh/h)		*735*						
v/c		*0.27*						
95% queue length		*1.09*						
Control Delay (s/veh)		*11.7*						
LOS		*B*						
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Rch Valley Rd & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:15-1:45 PM Peak Pd*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*	*0*	*0*	*1*	
Lane Group					*LR*			*TR*			*LT*	
Volume, V (vph)				*108*		*218*		*591*	*94*	*155*	*692*	
% Heavy Vehicles, %HV				*1*		*1*		*2*	*2*	*2*	*2*	
Peak-Hour Factor, PHF				*0.89*		*0.89*		*0.91*	*0.91*	*0.91*	*0.91*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*	*P*	*P*	*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.940*			*0.789*			*0.272*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width					*12.0*			*15.0*			*15.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B					*0*			*2*			*2*	
Min. Time for Pedestrians, G_p	*11.8*			*11.8*			*14.1*			*3.2*		

Phasing	WB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*366*			*752*			*930*	
Lane Group Capacity, c					*393*			*1130*			*676*	
v/c Ratio, X					*0.93*			*0.67*			*1.38*	
Total Green Ratio, g/C					*0.27*			*0.57*			*0.57*	
Uniform Delay, d_1					*21.5*			*9.0*			*13.0*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*29.7*			*2.5*			*171.7*	
Initial Queue Delay, d_3					*0.0*			*0.0*			*0.0*	

Control Delay					51.2			11.5			184.7	
Lane Group LOS					D			B			F	
Approach Delay				51.2			11.5			184.7		
Approach LOS				D			B			F		
Intersection Delay	97.2			X_C = 1.23			Intersection LOS			F		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Richmond Valley Rd & Page Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*0*	*1*	*1*	*0*	*0*	*2*	*0*
Lane Group		*LTR*			*LTR*		*L*	*TR*			*LTR*	
Volume, V (vph)	*103*	*49*	*114*	*31*	*92*	*73*	*161*	*732*	*144*	*58*	*579*	*99*
% Heavy Vehicles, %HV	*0*	*0*	*0*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.78*	*0.78*	*0.78*	*0.73*	*0.73*	*0.73*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.533*			*1.000*		*0.561*	*0.561*			*0.957*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*20*
Lane Width		*16.0*			*15.0*		*10.0*	*14.0*			*10.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*
Parking Maneuvers, N_m						*5*						*5*
Buses Stopping, N_B		*0*			*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*16.6*			*21.5*			*16.3*			*21.2*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *31.0*	G =	G =	G =	G = *49.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*341*			*268*		*175*	*953*			*778*	
Lane Group Capacity, c		*487*			*538*		*293*	*1065*			*1016*	
v/c Ratio, X		*0.70*			*0.50*		*0.60*	*0.89*			*0.77*	
Total Green Ratio, g/C		*0.34*			*0.34*		*0.54*	*0.54*			*0.54*	
Uniform Delay, d_1		*25.5*			*23.3*		*13.8*	*18.2*			*16.0*	
Progression Factor, PF		*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2		*4.5*			*3.3*		*5.0*	*7.0*			*5.3*	

Initial Queue Delay, d_3		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay		*29.9*			*26.6*		*18.8*	*25.2*			*21.3*	
Lane Group LOS		*C*			*C*		*B*	*C*			*C*	
Approach Delay	*29.9*			*26.6*			*24.2*			*21.3*		
Approach LOS	*C*			*C*			*C*			*C*		
Intersection Delay	*24.4*			X_C *= 0.82*			Intersection LOS			*C*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*S Bridge St RT & Page Ave*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *South Bridge Street Right Turn* | North/South Street: *Page Avenue*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*678*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.92*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*736*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*2*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*57*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.88*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*64*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*5*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								*R*
v (veh/h)								*64*
C (m) (veh/h)								*671*
v/c								*0.10*
95% queue length								*0.32*
Control Delay (s/veh)								*10.9*
LOS								*B*
Approach Delay (s/veh)	--	--				*10.9*		
Approach LOS	--	--				*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*S Br St & Page Ave/Boscome Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*							*2*			*2*	
Lane Group	*L*							*T*			*T*	
Volume, V (vph)	*394*							*908*			*678*	
% Heavy Vehicles, %HV	*2*							*2*			*3*	
Peak-Hour Factor, PHF	*0.86*							*0.96*			*0.92*	
Pretimed (P) or Actuated (A)	*P*							*P*			*P*	
Start-up Lost Time, l_1	*2.0*							*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*							*2.0*			*2.0*	
Arrival Type, AT	*3*							*3*			*3*	
Unit Extension, UE	*3.0*							*3.0*			*3.0*	
Filtering/Metering, I	*1.000*							*0.567*			*0.957*	
Initial Unmet Demand, Q_b	*0.0*							*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*		*0*	*0*		*0*	*0*	
Lane Width	*16.0*							*14.5*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*							*0*			*0*	
Min. Time for Pedestrians, G_p	*3.2*			*20.1*			*3.2*			*3.2*		

Phasing	EB Only	02	03	04	Thru Only	06	07	08
Timing	G = *30.0*	G =	G =	G =	G = *50.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*458*							*946*			*737*	
Lane Group Capacity, c	*669*							*2134*			*1951*	
v/c Ratio, X	*0.68*							*0.44*			*0.38*	
Total Green Ratio, g/C	*0.33*							*0.56*			*0.56*	
Uniform Delay, d_1	*25.9*							*11.8*			*11.2*	
Progression Factor, PF	*1.000*							*1.000*			*1.000*	
Delay Calibration, k	*0.50*							*0.50*			*0.50*	
Incremental Delay, d_2	*5.6*							*0.4*			*0.5*	
Initial Queue Delay, d_3	*0.0*							*0.0*			*0.0*	

Control Delay	*31.5*							*12.2*			*11.8*	
Lane Group LOS	*C*							*B*			*B*	
Approach Delay	*31.5*						*12.2*			*11.8*		
Approach LOS	*C*						*B*			*B*		
Intersection Delay	*16.2*			X_C = *0.53*			Intersection LOS			*B*		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*KWVP WB OR UT & No Bridge St*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *KWVP WB Off-Ramp U-Turn* | North/South Street: *North Bridge Street*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*597*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.93*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*641*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*1*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*236*		
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.90*	*0.90*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*262*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*60*	*1*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*0*
Configuration				*L*		

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration			*L*					
v (veh/h)			*262*					
C (m) (veh/h)			*441*					
v/c			*0.59*					
95% queue length			*3.76*					
Control Delay (s/veh)			*24.4*					
LOS			*C*					
Approach Delay (s/veh)	--	--	*24.4*					
Approach LOS	--	--	*C*					

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	KM	Intersection	Veterans Rd W & Bricktown/KWVP
Agency or Co.	AECOM	Area Type	All other areas
Date Performed	10/24/2012	Jurisdiction	Staten Island
Time Period	Saturday 12:45-1:45 PM MD Peak	Analysis Year	2020 No-Action Conditions
		Project ID	Charleston EIS

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	1	1	0	1	2	0	0	2	0	1	1	0
Lane Group	L	TR		L	TR			LTR		L	TR	
Volume, V (vph)	99	191	209	273	444	100	130	402	293	241	115	93
% Heavy Vehicles, %HV	1	1	1	3	3	3	1	1	1	1	1	1
Peak-Hour Factor, PHF	0.93	0.93	0.93	0.96	0.78	0.78	0.90	0.90	0.90	0.84	0.84	0.84
Pretimed (P) or Actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up Lost Time, l_1	2.0	2.0		2.0	2.0			2.0		2.0	2.0	
Extension of Effective Green, e	2.0	2.0		3.0	3.0			2.0		2.0	2.0	
Arrival Type, AT	3	3		3	3			3		3	3	
Unit Extension, UE	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Filtering/Metering, I	0.700	0.700		0.903	0.903			1.000		0.855	0.855	
Initial Unmet Demand, Q_b	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Ped / Bike / RTOR Volumes	0	0	48	0	0	11	0	0	0	0	0	0
Lane Width	11.0	12.0		10.0	12.0			12.5		11.0	10.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0		0	0			0		0	0	
Min. Time for Pedestrians, G_p	34.6			18.6			20.3			16.1		

Phasing	EW Perm	02	03	04	NB Only	SB Only	07	08
Timing	G = 30.0	G =	G =	G =	G = 25.0	G = 20.0	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y = 5	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	106	378		284	683			917		287	248	
Lane Group Capacity, c	161	584		211	1179			950		384	364	
v/c Ratio, X	0.66	0.65		1.35	0.58			0.97		0.75	0.68	
Total Green Ratio, g/C	0.33	0.33		0.34	0.34			0.28		0.22	0.22	
Uniform Delay, d_1	25.6	25.5		29.5	24.2			32.1		32.6	32.1	
Progression Factor, PF	1.000	1.000		1.000	1.000			1.000		1.000	1.000	
Delay Calibration, k	0.50	0.50		0.50	0.50			0.50		0.50	0.50	
Incremental Delay, d_2	13.8	3.9		181.4	1.9			21.9		10.8	8.5	

Initial Queue Delay, d_3	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Control Delay	39.5	29.4		210.9	26.0			54.0		43.5	40.6	
Lane Group LOS	D	C		F	C			D		D	D	
Approach Delay	31.6			80.3			54.0			42.1		
Approach LOS	C			F			D			D		
Intersection Delay	56.8			X_C = 1.06			Intersection LOS			E		

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*Bricktown Way/Tyrellan Avenue*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 No-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Bricktown Way* | North/South Street: *Tyrellan Avenue*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*252*	*33*	*111*	*244*	*0*
%Thrus Left Lane	*50*			*50*		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*57*	*0*	*95*	*0*	*0*	*0*
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*T*	*TR*	*LT*	*T*	*L*	*R*		
PHF	*0.85*	*0.85*	*0.91*	*0.91*	*0.89*	*0.89*		
Flow Rate (veh/h)	*148*	*186*	*255*	*134*	*64*	*106*		
% Heavy Vehicles	*0*	*0*	*0*	*1*	*1*	*1*		
No. Lanes	*2*		*2*		*2*		*0*	
Geometry Group	*5*		*5*		*1*			
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	*0.0*	*0.0*	*0.5*	*0.0*	*1.0*	*0.0*		
Prop. Right-Turns	*0.0*	*0.2*	*0.0*	*0.0*	*0.0*	*1.0*		
Prop. Heavy Vehicle	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*		
hLT-adj	*0.5*	*0.5*	*0.5*	*0.5*	*0.2*	*0.2*		
hRT-adj	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.6*	*-0.6*		
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*		
hadj, computed	*0.0*	*-0.1*	*0.2*	*0.0*	*0.2*	*-0.6*		

Departure Headway and Service Time

hd, initial value (s)	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*		
x, initial	*0.13*	*0.17*	*0.23*	*0.12*	*0.06*	*0.09*		
hd, final value (s)	*5.38*	*5.24*	*5.55*	*5.32*	*5.72*	*4.92*		
x, final value	*0.22*	*0.27*	*0.39*	*0.20*	*0.10*	*0.14*		
Move-up time, m (s)	*2.3*		*2.3*		*2.0*			
Service Time, t_s (s)	*3.1*	*2.9*	*3.2*	*3.0*	*3.7*	*2.9*		

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*398*	*436*	*505*	*384*	*314*	*356*		
Delay (s/veh)	*9.60*	*9.86*	*11.79*	*9.34*	*9.36*	*8.75*		
LOS	*A*	*A*	*B*	*A*	*A*	*A*		
Approach: Delay (s/veh)	*9.75*		*10.94*		*8.98*			
LOS	*A*		*B*		*A*			
Intersection Delay (s/veh)	*10.12*							
Intersection LOS	*B*							

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Veterans Rd W & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*SFR NB-DefL = 2050*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*
Lane Group		*LTR*		*DefL*	*TR*		*DefL*	*TR*			*LTR*	
Volume, V (vph)	*82*	*127*	*476*	*165*	*369*	*25*	*291*	*207*	*115*	*26*	*540*	*168*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*1*	*1*	*1*	*1*	*1*	*1*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.78*	*0.78*	*0.78*	*0.94*	*0.91*	*0.91*	*0.93*	*0.93*	*0.93*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*		*3*	*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.830*		*0.865*	*0.865*		*1.000*	*1.000*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*		*12.0*	*12.0*		*13.0*	*13.0*			*9.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*		*0*	*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*18.6*			*16.6*			*20.1*			*19.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*744*		*212*	*505*		*310*	*353*			*790*	
Lane Group Capacity, c		*1156*		*240*	*828*		*247*	*818*			*1327*	
v/c Ratio, X		*0.64*		*0.88*	*0.61*		*1.26*	*0.43*			*0.60*	
Total Green Ratio, g/C		*0.44*		*0.44*	*0.44*		*0.44*	*0.44*			*0.44*	
Uniform Delay, d_1		*19.5*		*22.9*	*19.1*		*25.0*	*17.2*			*18.9*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2		*2.3*		*30.9*	*2.9*		*143.5*	*1.7*			*2.0*	

Initial Queue Delay, d_3		0.0		0.0	0.0		0.0	0.0			0.0	
Control Delay		21.8		53.8	21.9		168.5	18.8			20.9	
Lane Group LOS		C		D	C		F	B			C	
Approach Delay	21.8			31.4			88.8			20.9		
Approach LOS	C			C			F			C		
Intersection Delay	39.1			X_C = 1.07			Intersection LOS			D		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Boscombe Ave & OBX Off-Ramp*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Sat Flw Rate EB-L = 2100*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*			*1*	*1*				*2*		*1*
Lane Group	*L*	*T*			*T*	*R*				*L*		*R*
Volume, V (vph)	*881*	*421*			*465*	*709*				*192*		*214*
% Heavy Vehicles, %HV	*1*	*1*			*1*	*1*				*1*		*1*
Peak-Hour Factor, PHF	*0.97*	*0.96*			*0.94*	*0.97*				*0.92*		*0.92*
Pretimed (P) or Actuated (A)	*P*	*P*			*P*	*P*				*P*		*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*	*2.0*				*2.0*		*2.0*
Extension of Effective Green, e	*3.0*	*2.0*			*2.0*	*2.0*				*2.0*		*2.0*
Arrival Type, AT	*3*	*3*			*3*	*3*				*3*		*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*	*3.0*				*3.0*		*3.0*
Filtering/Metering, I	*0.508*	*0.508*			*0.176*	*0.176*				*1.000*		*1.000*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*	*0.0*				*0.0*		*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*119*	*0*	*0*		*0*	*0*	*0*
Lane Width	*11.0*	*12.0*			*12.0*	*12.0*				*10.0*		*10.0*
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B	*0*	*0*			*0*	*0*				*0*		*0*
Min. Time for Pedestrians, G_p	*14.6*			*24.6*			*3.2*			*20.1*		

Phasing	EB Only	EW Perm	03	04	SB Only	06	07	08
Timing	G = *37.0*	G = *22.0*	G =	G =	G = *16.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*908*	*439*			*495*	*608*				*209*		*233*
Lane Group Capacity, c	*895*	*1170*			*460*	*391*				*576*		*962*
v/c Ratio, X	*1.01*	*0.38*			*1.08*	*1.55*				*0.36*		*0.24*
Total Green Ratio, g/C	*0.72*	*0.71*			*0.24*	*0.24*				*0.18*		*0.64*
Uniform Delay, d_1	*10.5*	*5.1*			*34.0*	*34.0*				*32.5*		*6.7*
Progression Factor, PF	*1.000*	*1.000*			*1.000*	*1.000*				*1.000*		*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*	*0.50*				*0.50*		*0.50*
Incremental Delay, d_2	*25.1*	*0.5*			*42.2*	*252.0*				*1.8*		*0.6*
Initial Queue Delay, d_3	*0.0*	*0.0*			*0.0*	*0.0*				*0.0*		*0.0*

Control Delay	35.7	5.6			76.2	286.0				34.3		7.3
Lane Group LOS	D	A			E	F				C		A
Approach Delay	25.9			191.8						20.1		
Approach LOS	C			F						C		
Intersection Delay	88.3			X_C = 1.03			Intersection LOS			F		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	KM	Intersection	Boscombe Ave & Tyrellan Ave
Agency or Co.	AECOM	Area Type	All other areas
Date Performed	10/24/2012	Jurisdiction	Staten Island, NY
Time Period	Saturday 12:45-1:45 PM Peak Pd	Analysis Year	2020 No-Action Conditions
		Project ID	Charleston EIS

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	0	2	0	0	2	0	0	2	0	0	1	1
Lane Group	DefL	TR			LTR			LTR			LT	R
Volume, V (vph)	567	46	0	0	46	58	0	0	1	84	0	1128
% Heavy Vehicles, %HV	1	1	1	1	1	1	1	1	1	1	1	1
Peak-Hour Factor, PHF	0.96	0.96	0.96	0.91	0.91	0.91	0.90	0.90	0.90	0.93	0.93	0.93
Pretimed (P) or Actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up Lost Time, l_1	2.0	2.0			2.0			2.0			2.0	2.0
Extension of Effective Green, e	2.0	2.0			2.0			2.0			2.0	2.0
Arrival Type, AT	3	3			3			3			3	3
Unit Extension, UE	3.0	3.0			3.0			3.0			3.0	3.0
Filtering/Metering, I	0.967	0.967			1.000			1.000			0.855	0.855
Initial Unmet Demand, Q_b	0.0	0.0			0.0			0.0			0.0	0.0
Ped / Bike / RTOR Volumes	0	0	0	0	0	14	0	0	0	0	0	398
Lane Width	16.0	16.0			11.5			12.0			12.0	12.0
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0			0			0			0	0
Min. Time for Pedestrians, G_p	20.3			17.5			20.3			20.3		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 45.0	G =	G =	G =	G = 35.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	591	48			99			1			90	785
Lane Group Capacity, c	736	1066			1633			1184			544	622
v/c Ratio, X	0.80	0.05			0.06			0.00			0.17	1.26
Total Green Ratio, g/C	0.50	0.50			0.50			0.39			0.39	0.39
Uniform Delay, d_1	18.8	11.5			11.6			16.8			18.0	27.5
Progression Factor, PF	1.000	1.000			1.000			1.000			1.000	1.000
Delay Calibration, k	0.50	0.50			0.50			0.50			0.50	0.50
Incremental Delay, d_2	8.8	0.1			0.1			0.0			0.6	128.8

Initial Queue Delay, d_3	0.0	0.0			0.0			0.0			0.0	0.0
Control Delay	27.6	11.6			11.7			16.8			18.5	156.3
Lane Group LOS	C	B			B			B			B	F
Approach Delay	26.4			11.7			16.8			142.2		
Approach LOS	C			B			B			F		
Intersection Delay	88.2			X_C = 1.00			Intersection LOS			F		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Bricktown Ctr Rd @ Vets Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*				*0*	*2*			*2*	*0*
Lane Group	*L*		*R*					*LT*			*TR*	
Volume, V (vph)	*312*		*36*				*5*	*263*			*524*	*542*
% Heavy Vehicles, %HV	*3*		*3*				*1*	*1*			*1*	*1*
Peak-Hour Factor, PHF	*0.85*		*0.85*				*0.88*	*0.88*			*0.89*	*0.89*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*					*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*					*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*					*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*					*3.0*			*3.0*	
Filtering/Metering, I	*0.892*		*0.892*					*0.995*			*0.487*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*					*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*9*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width	*13.0*		*12.0*					*11.5*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*					*0*			*0*	
Min. Time for Pedestrians, G_p	*21.8*			*20.3*			*3.2*			*19.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *19.0*	G =	G =	G =	G = *31.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*367*		*32*					*305*			*1198*	
Lane Group Capacity, c	*573*		*497*					*1699*			*1937*	
v/c Ratio, X	*0.64*		*0.06*					*0.18*			*0.62*	
Total Green Ratio, g/C	*0.32*		*0.32*					*0.52*			*0.52*	
Uniform Delay, d_1	*17.6*		*14.3*					*7.7*			*10.3*	
Progression Factor, PF	*1.000*		*1.000*					*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*					*0.50*			*0.50*	
Incremental Delay, d_2	*4.8*		*0.2*					*0.2*			*0.7*	
Initial Queue Delay, d_3	*0.0*		*0.0*					*0.0*			*0.0*	

Control Delay	*22.4*		*14.5*					*8.0*			*11.0*	
Lane Group LOS	*C*		*B*					*A*			*B*	
Approach Delay	*21.8*						*8.0*			*11.0*		
Approach LOS	*C*						*A*			*B*		
Intersection Delay	*12.8*			X_C = *0.63*			Intersection LOS			*B*		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*Englewood Ave & Vets Rd W RT*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 No-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* | North/South Street: *Veterans Rd W Right Turn Bay*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*29*				
Peak-Hour Factor, PHF	*1.00*	*0.69*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*42*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*T*				
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*570*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.88*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*647*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					*R*			
v (veh/h)					*647*			
C (m) (veh/h)					*1034*			
v/c					*0.63*			
95% queue length					*4.58*			
Control Delay (s/veh)					*14.1*			
LOS					*B*			
Approach Delay (s/veh)	--	--	*14.1*					
Approach LOS	--	--	*B*					

HCS+™ Version 5.4

Generated: 4/10/2013 3:19 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Ave @ Veterans Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*1*	*1*		*1*			*0*	*3*	*0*
Lane Group		*TR*		*L*	*LT*		*L*				*LTR*	
Volume, V (vph)		*1*	*0*	*709*	*2*		*5*			*28*	*358*	*1*
% Heavy Vehicles, %HV		*1*	*1*	*2*	*2*		*0*			*2*	*2*	*2*
Peak-Hour Factor, PHF		*0.25*	*0.25*	*0.91*	*0.91*		*0.88*			*0.89*	*0.89*	*0.89*
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*			*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Arrival Type, AT		*3*		*3*	*3*		*3*				*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*		*3.0*				*3.0*	
Filtering/Metering, I		*1.000*		*0.971*	*0.971*		*0.951*				*1.000*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*12.0*		*13.0*	*13.0*		*10.0*				*11.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*		*0*	*0*		*0*				*0*	
Min. Time for Pedestrians, G_p	*31.2*			*3.2*			*18.1*			*11.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*4*		*584*	*197*		*6*				*434*	
Lane Group Capacity, c		*784*		*606*	*582*		*350*				*2036*	
v/c Ratio, X		*0.01*		*0.96*	*0.34*		*0.02*				*0.21*	
Total Green Ratio, g/C		*0.42*		*0.42*	*0.42*		*0.42*				*0.42*	
Uniform Delay, d_1		*10.2*		*17.1*	*11.9*		*10.3*				*11.2*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*		*1.000*				*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*		*0.50*				*0.50*	
Incremental Delay, d_2		*0.0*		*28.1*	*1.5*		*0.1*				*0.2*	

Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Control Delay		*10.2*		*45.2*	*13.4*		*10.4*				*11.4*	
Lane Group LOS		*B*		*D*	*B*		*B*				*B*	
Approach Delay	*10.2*			*37.2*			*10.4*			*11.4*		
Approach LOS	*B*			*D*			*B*			*B*		
Intersection Delay	*27.8*			X_C = *0.59*			Intersection LOS			*C*		

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*Sharrotts Rd & Veterans Rd W*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 No-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Sharrotts Road* North/South Street: *Veterans Road West*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*77*	*36*	*231*	*60*	*0*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*0*	*17*	*120*	*23*
%Thrus Left Lane				*50*		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*TR*		*LT*				*LT*	*TR*
PHF	*0.75*		*0.85*				*0.89*	*0.89*
Flow Rate (veh/h)	*150*		*341*				*86*	92
% Heavy Vehicles	*2*		*4*				*0*	*0*
No. Lanes	*1*		*1*		*0*		*2*	
Geometry Group	*2*		*2*				*1*	
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	*0.0*		*0.8*				*0.2*	*0.0*
Prop. Right-Turns	*0.3*		*0.0*				*0.0*	*0.3*
Prop. Heavy Vehicle	*0.0*		*0.0*				*0.0*	*0.0*
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*			*0.2*	*0.2*
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*			*-0.6*	*-0.6*
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*			*1.7*	*1.7*
hadj, computed	*-0.2*		*0.2*				*0.0*	*-0.2*

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value (s)	*3.20*		*3.20*				*3.20*	*3.20*
x, initial	*0.13*		*0.30*				*0.08*	*0.08*
hd, final value (s)	*4.61*		*4.75*				*5.12*	*4.91*
x, final value	*0.19*		*0.45*				*0.12*	*0.13*
Move-up time, m (s)	*2.0*		*2.0*				*2.0*	
Service Time, t_s (s)	*2.6*		*2.8*				*3.1*	*2.9*

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*400*		*591*				*336*	*342*
Delay (s/veh)	*8.70*		*11.58*				*8.83*	*8.62*
LOS	*A*		*B*				*A*	*A*
Approach: Delay (s/veh)	*8.70*		*11.58*				*8.72*	
LOS	*A*		*B*				*A*	
Intersection Delay (s/veh)	*10.17*							
Intersection LOS	*B*							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*Sharrotts Rd @ Veterans Rd E*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 No-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Sharrotts Road* | North/South Street: *Veterans Road East*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*26*	*69*	*0*	*0*	*237*	*24*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*53*	*107*	*139*	*0*	*0*	*0*
%Thrus Left Lane	*50*					

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*LT*		*TR*		*LT*	*TR*		
PHF	*0.75*		*0.85*		*0.95*	*0.95*		
Flow Rate (veh/h)	*126*		*306*		*110*	*202*		
% Heavy Vehicles	*2*		*2*		*1*	*1*		
No. Lanes	*1*		*1*		*2*		*0*	
Geometry Group	*2*		*2*		*1*			
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	*0.3*		*0.0*		*0.5*	*0.0*		
Prop. Right-Turns	*0.0*		*0.1*		*0.0*	*0.7*		
Prop. Heavy Vehicle	*0.0*		*0.0*		*0.0*	*0.0*		
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*		
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*		
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*		
hadj, computed	*0.1*		*-0.0*		*0.1*	*-0.4*		

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value (s)	*3.20*		*3.20*		*3.20*	*3.20*		
x, initial	*0.11*		*0.27*		*0.10*	*0.18*		
hd, final value (s)	*5.11*		*4.77*		*5.09*	*4.56*		
x, final value	*0.18*		*0.41*		*0.16*	*0.26*		
Move-up time, m (s)	*2.0*		*2.0*		*2.0*			
Service Time, t_s (s)	*3.1*		*2.8*		*3.1*	*2.6*		

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*376*		*556*		*360*	*452*		
Delay (s/veh)	*9.21*		*10.98*		*9.03*	*9.11*		
LOS	*A*		*B*		*A*	*A*		
Approach: Delay (s/veh)	*9.21*		*10.98*		*9.08*			
LOS	*A*		*B*		*A*			
Intersection Delay (s/veh)	*9.88*							
Intersection LOS	*A*							

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	KM	Intersection	Englewood Ave @ Vets Rd E
Agency or Co.	AECOM	Area Type	All other areas
Date Performed	10/24/2012	Jurisdiction	Staten Island, NY
Time Period	Saturday 12:45-1:45 PM Peak Pd	Analysis Year	2020 No-Action Conditions
		Project ID	Charleston EIS

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	0	1	1	0	1	0	0	3	0			
Lane Group		LT	R		LTR			LTR				
Volume, V (vph)	218	238	142	0	64	15	648	66	3			
% Heavy Vehicles, %HV	1	1	1	0	0	0	2	2	2			
Peak-Hour Factor, PHF	0.75	0.75	0.75	0.83	0.83	0.83	0.93	0.93	0.93			
Pretimed (P) or Actuated (A)	P	P	P	P	P	P	P	P	P			
Start-up Lost Time, l_1		2.0	2.0		2.0			2.0				
Extension of Effective Green, e		2.0	2.0		2.0			2.0				
Arrival Type, AT		3	3		3			3				
Unit Extension, UE		3.0	3.0		3.0			3.0				
Filtering/Metering, I		0.997	0.997		0.993			0.967				
Initial Unmet Demand, Q_b		0.0	0.0		0.0			0.0				
Ped / Bike / RTOR Volumes	0	0	66	0	0	0	0	0	0	0	0	
Lane Width		13.0	12.0		11.5			11.0				
Parking / Grade / Parking	N	0	N	N	0	Y	N	0	N	N	0	N
Parking Maneuvers, N_m						5						
Buses Stopping, N_B		0	0		0			0				
Min. Time for Pedestrians, G_p	21.2			12.9			14.3			17.5		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = 21.0	G =	G =	G =	G = 29.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 60.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		608	101		95			771				
Lane Group Capacity, c		544	560		558			2267				
v/c Ratio, X		1.12	0.18		0.17			0.34				
Total Green Ratio, g/C		0.35	0.35		0.35			0.48				
Uniform Delay, d_1		19.5	13.5		13.5			9.6				
Progression Factor, PF		1.000	1.000		1.000			1.000				
Delay Calibration, k		0.50	0.50		0.50			0.50				
Incremental Delay, d_2		75.0	0.7		0.7			0.4				

Initial Queue Delay, d_3		*0.0*	*0.0*		*0.0*			*0.0*				
Control Delay		*94.5*	*14.2*		*14.1*			*10.0*				
Lane Group LOS		*F*	*B*		*B*			*A*				
Approach Delay	*83.1*			*14.1*			*10.0*					
Approach LOS	*F*			*B*			*A*					
Intersection Delay	*43.1*			X_C *= 0.67*			Intersection LOS			*D*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Av & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*185*		*56*				*17*	*404*			*384*	*61*
% Heavy Vehicles, %HV	*1*		*1*				*1*	*1*			*1*	*1*
Peak-Hour Factor, PHF	*0.92*		*0.92*				*0.92*	*0.92*			*0.91*	*0.91*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.937*						*0.937*			*0.937*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*16.0*						*14.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B		*0*						*0*			*0*	
Min. Time for Pedestrians, G_p	*14.9*			*15.5*			*3.2*			*17.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*262*						*457*			*489*	
Lane Group Capacity, c		*464*						*1111*			*1186*	
v/c Ratio, X		*0.56*						*0.41*			*0.41*	
Total Green Ratio, g/C		*0.27*						*0.57*			*0.57*	
Uniform Delay, d_1		*19.0*						*7.3*			*7.4*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*4.6*						*1.1*			*1.0*	
Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	

Control Delay		23.6						8.4			8.3	
Lane Group LOS		C						A			A	
Approach Delay	23.6						8.4			8.3		
Approach LOS	C						A			A		
Intersection Delay	11.7			X_C = 0.46			Intersection LOS			B		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Sharrotts Rd & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*142*		*67*				*43*	*482*			*388*	*218*
% Heavy Vehicles, %HV	*1*		*1*				*1*	*1*			*1*	*1*
Peak-Hour Factor, PHF	*0.75*		*0.75*				*0.92*	*0.92*			*0.91*	*0.91*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.932*						*0.850*			*0.905*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*20*
Lane Width		*16.0*						*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*0*			*0*	
Min. Time for Pedestrians, G_p	*18.6*			*18.6*			*3.2*			*16.6*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*278*						*571*			*644*	
Lane Group Capacity, c		*575*						*853*			*1018*	
v/c Ratio, X		*0.48*						*0.67*			*0.63*	
Total Green Ratio, g/C		*0.33*						*0.50*			*0.50*	
Uniform Delay, d_1		*15.9*						*11.3*			*11.0*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*2.7*						*3.5*			*2.7*	
Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	

Control Delay		18.6						14.8			13.7	
Lane Group LOS		B						B			B	
Approach Delay	18.6						14.8			13.7		
Approach LOS	B						B			B		
Intersection Delay	15.0			X_C = 0.59			Intersection LOS			B		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Vets Rd E & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*	*0*	*3*	*0*	*1*	*1*			*1*	*0*
Lane Group	*L*		*R*		*LTR*		*L*	*T*			*TR*	
Volume, V (vph)	*19*		*123*	*302*	*617*	*173*	*82*	*229*			*422*	*17*
% Heavy Vehicles, %HV	*1*		*1*	*2*	*2*	*2*	*2*	*2*			*1*	*1*
Peak-Hour Factor, PHF	*0.71*		*0.71*	*0.87*	*0.87*	*0.87*	*0.92*	*0.92*			*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*		*P*	*P*	*P*	*P*	*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*		*3*		*3*	*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*		*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I	*0.717*		*0.717*		*0.483*		*0.917*	*0.917*			*0.747*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Lane Width	*10.0*		*13.0*		*11.0*		*12.0*	*12.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*		*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*17.2*			*16.9*			*3.2*			*20.9*		

Phasing	EB Only	WB Only	03	04	NS Perm	06	07	08
Timing	G = *8.0*	G = *17.0*	G =	G =	G = *20.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*27*		*173*		*1255*		*89*	*249*			*488*	
Lane Group Capacity, c	*222*		*220*		*1338*		*138*	*621*			*707*	
v/c Ratio, X	*0.12*		*0.79*		*0.94*		*0.64*	*0.40*			*0.69*	
Total Green Ratio, g/C	*0.13*		*0.13*		*0.28*		*0.33*	*0.33*			*0.33*	
Uniform Delay, d_1	*22.9*		*25.2*		*21.0*		*17.0*	*15.4*			*17.3*	
Progression Factor, PF	*1.000*		*1.000*		*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*		*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2	*0.8*		*18.2*		*7.7*		*19.4*	*1.8*			*4.1*	

Initial Queue Delay, d_3	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay	*23.7*		*43.3*		*28.7*		*36.4*	*17.2*			*21.4*	
Lane Group LOS	*C*		*D*		*C*		*D*	*B*			*C*	
Approach Delay	*40.7*			*28.7*			*22.2*			*21.4*		
Approach LOS	*D*			*C*			*C*			*C*		
Intersection Delay	*27.2*			X_C *= 0.80*			Intersection LOS			*C*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*S Service Rd & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/24/2012*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*				*0*	*1*	*0*	*1*	*1*	*0*
Lane Group		*LTR*						*LTR*		*L*	*TR*	
Volume, V (vph)	*31*	*33*	*5*				*3*	*279*	*153*	*316*	*482*	*47*
% Heavy Vehicles, %HV	*2*	*2*	*2*				*2*	*2*	*2*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.76*	*0.76*	*0.76*				*0.92*	*0.92*	*0.92*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*				*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*		*2.0*	*2.0*	
Arrival Type, AT		*3*						*3*		*3*	*3*	
Unit Extension, UE		*3.0*						*3.0*		*3.0*	*3.0*	
Filtering/Metering, I		*1.000*						*0.899*		*0.644*	*0.644*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*11*
Lane Width		*13.0*						*16.0*		*12.0*	*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*0*		*0*	*0*	
Min. Time for Pedestrians, G_p	*17.5*			*16.9*			*12.6*			*12.9*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *17.0*	G =	G =	G =	G = *33.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*91*						*472*		*351*	*576*	
Lane Group Capacity, c		*462*						*965*		*492*	*1024*	
v/c Ratio, X		*0.20*						*0.49*		*0.71*	*0.56*	
Total Green Ratio, g/C		*0.28*						*0.55*		*0.55*	*0.55*	
Uniform Delay, d_1		*16.3*						*8.3*		*10.0*	*8.8*	
Progression Factor, PF		*1.000*						*1.000*		*1.000*	*1.000*	
Delay Calibration, k		*0.50*						*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2		*1.0*						*1.6*		*5.6*	*1.4*	

Initial Queue Delay, d_3		*0.0*						*0.0*		*0.0*	*0.0*	
Control Delay		*17.3*						*9.9*		*15.6*	*10.2*	
Lane Group LOS		*B*						*A*		*B*	*B*	
Approach Delay	*17.3*						*9.9*			*12.3*		
Approach LOS	*B*						*A*			*B*		
Intersection Delay	*11.8*			X_C = *0.54*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	KM	Intersection	Amboy Rd & Bloomingdale Ave
Agency or Co.	AECOM	Area Type	All other areas
Date Performed	10/24/2012	Jurisdiction	Staten Island, NY
Time Period	Saturday 12:45-1:45 PM Peak Pd	Analysis Year	2020 No-Action Conditions
		Project ID	Charleston EIS

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	0	1	0	1	1	1	0	1	0	0	1	0
Lane Group		LTR		L	T	R		LTR			LTR	
Volume, V (vph)	8	8	18	294	18	106	13	279	242	86	387	8
% Heavy Vehicles, %HV	2	2	2	1	1	1	0	0	0	1	1	1
Peak-Hour Factor, PHF	0.84	0.84	0.84	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90
Pretimed (P) or Actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up Lost Time, l_1		2.0		2.0	2.0	2.0		2.0			2.0	
Extension of Effective Green, e		2.0		2.0	2.0	2.0		2.0			2.0	
Arrival Type, AT		3		3	3	3		3			3	
Unit Extension, UE		3.0		3.0	3.0	3.0		3.0			3.0	
Filtering/Metering, I		1.000		0.887	0.887	0.887		0.516			0.500	
Initial Unmet Demand, Q_b		0.0		0.0	0.0	0.0		0.0			0.0	
Ped / Bike / RTOR Volumes	50	0	0	0	0	0	50	0	0	0	0	0
Lane Width		12.0		12.0	11.0	11.0		11.0			12.0	
Parking / Grade / Parking	N	0	Y	N	0	Y	N	0	N	N	0	N
Parking Maneuvers, N_m			5			5						
Buses Stopping, N_B		0		0	0	0		0			0	
Min. Time for Pedestrians, G_p	11.5			11.8			18.9			18.3		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 40.0	G =	G =	G =	G = 40.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		41		327	20	118		580			535	
Lane Group Capacity, c		631		578	808	601		735			620	
v/c Ratio, X		0.06		0.57	0.02	0.20		0.79			0.86	
Total Green Ratio, g/C		0.44		0.44	0.44	0.44		0.44			0.44	
Uniform Delay, d_1		14.3		18.6	14.0	15.2		21.4			22.5	
Progression Factor, PF		1.000		1.000	1.000	1.000		1.000			1.000	
Delay Calibration, k		0.50		0.50	0.50	0.50		0.50			0.50	
Incremental Delay, d_2		0.2		3.5	0.1	0.6		4.5			8.1	

Initial Queue Delay, d_3		0.0		0.0	0.0	0.0		0.0			0.0	
Control Delay		14.5		22.1	14.1	15.9		25.9			30.6	
Lane Group LOS		B		C	B	B		C			C	
Approach Delay	14.5			20.2			25.9			30.6		
Approach LOS	B			C			C			C		
Intersection Delay	25.5			X_C = 0.71			Intersection LOS			C		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Arthur Kill Rd & Bloomingdl Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 No-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*0*	*1*		*0*		*0*			
Lane Group		*TR*			*LT*			*LR*				
Volume, V (vph)		*176*	*240*	*141*	*172*		*152*		*112*			
% Heavy Vehicles, %HV		*2*	*2*	*4*	*4*		*1*		*1*			
Peak-Hour Factor, PHF		*0.78*	*0.78*	*0.89*	*0.89*		*0.85*		*0.85*			
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*		*P*			
Start-up Lost Time, l_1		*2.0*			*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*			*2.0*			*2.0*				
Arrival Type, AT		*3*			*3*			*3*				
Unit Extension, UE		*3.0*			*3.0*			*3.0*				
Filtering/Metering, I		*0.927*			*0.992*			*0.953*				
Initial Unmet Demand, Q_b		*0.0*			*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*56*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	
Lane Width		*16.0*			*16.0*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m									*5*			
Buses Stopping, N_B		*2*			*0*			*0*				
Min. Time for Pedestrians, G_p	*18.3*			*3.2*			*15.2*			*17.2*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*462*			*351*			*311*				
Lane Group Capacity, c		*975*			*536*			*567*				
v/c Ratio, X		*0.47*			*0.65*			*0.55*				
Total Green Ratio, g/C		*0.50*			*0.50*			*0.39*				
Uniform Delay, d_1		*14.7*			*16.7*			*21.4*				
Progression Factor, PF		*1.000*			*1.000*			*1.000*				
Delay Calibration, k		*0.50*			*0.50*			*0.50*				
Incremental Delay, d_2		*1.5*			*6.1*			*3.6*				
Initial Queue Delay, d_3		*0.0*			*0.0*			*0.0*				

Control Delay		16.3			22.8			25.0				
Lane Group LOS		B			C			C				
Approach Delay	16.3			22.8			25.0					
Approach LOS	B			C			C					
Intersection Delay	20.7			X_C = 0.61			Intersection LOS			C		

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With-Action

2015

Weekday

AM

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*Sharrotts Rd & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 With-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Sharrotts Road* North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*26*	*145*	*41*	*28*	*148*	*37*
Peak-Hour Factor, PHF	*0.83*	*0.83*	*0.83*	*0.83*	*0.83*	*0.83*
Hourly Flow Rate, HFR (veh/h)	*31*	*174*	*49*	*33*	*178*	*44*
Percent Heavy Vehicles	*20*	--	--	*13*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*8*	*7*	*7*	*60*	*9*	*27*
Peak-Hour Factor, PHF	*0.79*	*0.79*	*0.79*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*10*	*8*	*8*	*63*	*9*	*28*
Percent Heavy Vehicles	*32*	*32*	*32*	*5*	*5*	*5*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (veh/h)	*31*	*33*		*100*			*26*	
C (m) (veh/h)	*1248*	*1283*		*488*			*444*	
v/c	*0.02*	*0.03*		*0.20*			*0.06*	
95% queue length	*0.08*	*0.08*		*0.76*			*0.19*	
Control Delay (s/veh)	*8.0*	*7.9*		*14.3*			*13.6*	
LOS	*A*	*A*		*B*			*B*	
Approach Delay (s/veh)	--	--	*14.3*			*13.6*		
Approach LOS	--	--	*B*			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/28/13*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*Englewood Ave & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 With-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*196*	*31*	*20*	*195*	
Peak-Hour Factor, PHF	*1.00*	*0.83*	*0.83*	*0.83*	*0.83*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*236*	*37*	*24*	*234*	*0*
Percent Heavy Vehicles	*0*	--	--	*11*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*7*		*16*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.69*	*1.00*	*0.69*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*10*	*0*	*23*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (veh/h)		*24*		*33*				
C (m) (veh/h)		*1240*		*671*				
v/c		*0.02*		*0.05*				
95% queue length		*0.06*		*0.15*				
Control Delay (s/veh)		*8.0*		*10.6*				
LOS		*A*		*B*				
Approach Delay (s/veh)	--	--	*10.6*					
Approach LOS	--	--	*B*					

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Generated: 4/10/2013 1:43 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/28/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*			*LT*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*3*	*6*	*1*	*156*	*33*	*264*	*0*	*139*	*278*	*82*	*112*	*8*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*7*	*7*	*7*	*11*	*11*	*11*	*11*	*11*	*11*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.87*	*0.87*	*0.87*	*0.85*	*0.85*	*0.85*	*0.87*	*0.87*	*0.87*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*			*0.940*	*0.940*		*0.887*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*15.5*			*11.0*	*10.0*		*15.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*			*0*	*0*		*4*			*3*	
Min. Time for Pedestrians, G_p	*11.5*			*13.5*			*15.2*			*12.1*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*					Cycle Length, C = *60.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*11*			*217*	*303*		*491*			*232*	
Lane Group Capacity, c		*719*			*541*	*514*		*702*			*433*	
v/c Ratio, X		*0.02*			*0.40*	*0.59*		*0.70*			*0.54*	
Total Green Ratio, g/C		*0.42*			*0.42*	*0.42*		*0.42*			*0.42*	
Uniform Delay, d_1		*10.3*			*12.3*	*13.5*		*14.4*			*13.1*	
Progression Factor, PF		*1.000*			*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*	*0.50*		*0.50*			*0.50*	

Incremental Delay, d_2		*0.0*			*2.1*	*4.6*		*5.1*			*4.7*	
Initial Queue Delay, d_3		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Control Delay		*10.3*			*14.3*	*18.1*		*19.5*			*17.8*	
Lane Group LOS		*B*			*B*	*B*		*B*			*B*	
Approach Delay	*10.3*			*16.6*			*19.5*			*17.8*		
Approach LOS	*B*			*B*			*B*			*B*		
Intersection Delay	*17.9*			X_C = *0.64*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*No Bridge St & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/2/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*			*1*	
Lane Group					*LR*			*T*			*T*	
Volume, V (vph)				*259*		*5*		*413*			*270*	
% Heavy Vehicles, %HV				*8*		*8*		*11*			*15*	
Peak-Hour Factor, PHF				*0.88*		*0.88*		*0.85*			*0.87*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*			*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.893*			*0.886*			*0.754*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	
Lane Width					*16.0*			*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B					*0*			*0*			*3*	
Min. Time for Pedestrians, G_p	*13.5*			*13.8*			*3.2*			*3.2*		

Phasing	WB Only	02	03	04	Thru Only	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*300*			*486*			*310*	
Lane Group Capacity, c					*632*			*970*			*925*	
v/c Ratio, X					*0.47*			*0.50*			*0.34*	
Total Green Ratio, g/C					*0.33*			*0.50*			*0.50*	
Uniform Delay, d_1					*15.8*			*10.0*			*9.0*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*2.3*			*1.6*			*0.7*	

Initial Queue Delay, d_3					*0.0*			*0.0*			*0.0*	
Control Delay					*18.1*			*11.6*			*9.7*	
Lane Group LOS					*B*			*B*			*A*	
Approach Delay				*18.1*			*11.6*			*9.7*		
Approach LOS				*B*			*B*			*A*		
Intersection Delay	*12.9*			X_C = *0.49*			Intersection LOS			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/28/13*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*So Bridge St & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 With-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *South Bridge Street* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*413*	*216*	*116*	*413*	
Peak-Hour Factor, PHF	*1.00*	*0.85*	*0.85*	*0.87*	*0.87*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*485*	*254*	*133*	*474*	*0*
Percent Heavy Vehicles	*0*	--	--	*20*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration						

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*						
v (veh/h)		*133*						
C (m) (veh/h)		*791*						
v/c		*0.17*						
95% queue length		*0.60*						
Control Delay (s/veh)		*10.5*						
LOS		*B*						
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Rch Valley Rd & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/28/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*	*0*	*0*	*1*	
Lane Group					*LR*			*TR*			*LT*	
Volume, V (vph)				*58*		*133*		*494*	*72*	*88*	*318*	
% Heavy Vehicles, %HV				*3*		*3*		*11*	*11*	*9*	*9*	
Peak-Hour Factor, PHF				*0.93*		*0.93*		*0.85*	*0.85*	*0.87*	*0.87*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*	*P*	*P*	*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.980*			*0.769*			*0.842*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width					*12.0*			*15.0*			*15.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B					*0*			*4*			*3*	
Min. Time for Pedestrians, G_p	*11.8*			*11.8*			*14.1*			*3.2*		

Phasing	WB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*205*			*666*			*467*	
Lane Group Capacity, c					*384*			*1032*			*773*	
v/c Ratio, X					*0.53*			*0.65*			*0.60*	
Total Green Ratio, g/C					*0.27*			*0.57*			*0.57*	
Uniform Delay, d_1					*18.8*			*8.9*			*8.6*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*5.1*			*2.4*			*2.9*	

Initial Queue Delay, d_3					*0.0*			*0.0*			*0.0*	
Control Delay					*23.9*			*11.3*			*11.5*	
Lane Group LOS					*C*			*B*			*B*	
Approach Delay				*23.9*			*11.3*			*11.5*		
Approach LOS				*C*			*B*			*B*		
Intersection Delay	*13.3*			X_C = *0.61*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Richmond Valley Rd & Page Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*0*	*1*	*1*	*0*	*0*	*2*	*0*
Lane Group		*LTR*			*LTR*		*L*	*TR*			*LTR*	
Volume, V (vph)	*69*	*25*	*64*	*21*	*124*	*20*	*52*	*649*	*108*	*53*	*355*	*28*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*1*	*1*	*1*	*3*	*3*	*3*	*9*	*9*	*9*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.94*	*0.94*	*0.94*	*0.92*	*0.92*	*0.92*	*0.84*	*0.84*	*0.84*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.810*			*1.000*		*0.649*	*0.649*			*0.986*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*6*
Lane Width		*16.0*			*15.0*		*10.0*	*14.0*			*10.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*
Parking Maneuvers, N_m						*5*						*5*
Buses Stopping, N_B		*0*			*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*16.6*			*21.5*			*16.3*			*21.2*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *31.0*	G =	G =	G =	G = *49.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*176*			*175*		*57*	*822*			*512*	
Lane Group Capacity, c		*563*			*585*		*415*	*1049*			*1047*	
v/c Ratio, X		*0.31*			*0.30*		*0.14*	*0.78*			*0.49*	
Total Green Ratio, g/C		*0.34*			*0.34*		*0.54*	*0.54*			*0.54*	
Uniform Delay, d_1		*21.7*			*21.6*		*10.1*	*16.3*			*12.7*	
Progression Factor, PF		*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	

Incremental Delay, d_2		*1.2*			*1.3*		*0.4*	*3.9*			*1.6*	
Initial Queue Delay, d_3		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay		*22.8*			*22.9*		*10.5*	*20.2*			*14.3*	
Lane Group LOS		*C*			*C*		*B*	*C*			*B*	
Approach Delay	*22.8*			*22.9*			*19.5*			*14.3*		
Approach LOS	*C*			*C*			*B*			*B*		
Intersection Delay	*18.7*			X_C *= 0.60*			Intersection LOS			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/15/13*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*S Bridge St RT & Page Ave*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 With-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *South Bridge Street Right Turn* | North/South Street: *Page Avenue*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*378*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.84*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*450*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*2*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*57*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.70*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*81*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*60*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								*R*
v (veh/h)								*81*
C (m) (veh/h)								*689*
v/c								*0.12*
95% queue length								*0.40*
Control Delay (s/veh)								*10.9*
LOS								*B*
Approach Delay (s/veh)	--	--				*10.9*		
Approach LOS	--	--				*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*S Br St & Page Ave/Boscome Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2015 With Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*							*2*			*2*	
Lane Group	*L*							*T*			*T*	
Volume, V (vph)	*275*							*738*			*378*	
% Heavy Vehicles, %HV	*2*							*1*			*3*	
Peak-Hour Factor, PHF	*0.90*							*0.91*			*0.84*	
Pretimed (P) or Actuated (A)	*P*							*P*			*P*	
Start-up Lost Time, l_1	*2.0*							*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*							*2.0*			*2.0*	
Arrival Type, AT	*3*							*3*			*3*	
Unit Extension, UE	*3.0*							*3.0*			*3.0*	
Filtering/Metering, I	*1.000*							*0.665*			*0.986*	
Initial Unmet Demand, Q_b	*0.0*							*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*		*0*	*0*		*0*	*0*	
Lane Width	*16.0*							*14.5*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*							*0*			*0*	
Min. Time for Pedestrians, G_p	*3.2*			*20.1*			*3.2*			*3.2*		

Phasing	EB Only	02	03	04	Thru Only	06	07	08
Timing	G = *30.0*	G =	G =	G =	G = *50.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*306*							*811*			*450*	
Lane Group Capacity, c	*669*							*2156*			*1951*	
v/c Ratio, X	*0.46*							*0.38*			*0.23*	
Total Green Ratio, g/C	*0.33*							*0.56*			*0.56*	
Uniform Delay, d_1	*23.6*							*11.2*			*10.2*	
Progression Factor, PF	*1.000*							*1.000*			*1.000*	
Delay Calibration, k	*0.50*							*0.50*			*0.50*	
Incremental Delay, d_2	*2.2*							*0.3*			*0.3*	

Initial Queue Delay, d_3	*0.0*							*0.0*			*0.0*	
Control Delay	*25.8*							*11.6*			*10.5*	
Lane Group LOS	*C*							*B*			*B*	
Approach Delay	*25.8*						*11.6*			*10.5*		
Approach LOS	*C*						*B*			*B*		
Intersection Delay	*14.0*			X_C = *0.41*			Intersection LOS			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/15/13*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*KWVP WB OR UT & No Bridge St*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 With-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *KWVP WB Off-Ramp U-Turn* | North/South Street: *North Bridge Street*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*378*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.95*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*397*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*1*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*278*		
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.90*	*0.93*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*298*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*60*	*8*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*0*
Configuration				*L*		

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration			*L*					
v (veh/h)			*298*					
C (m) (veh/h)			*597*					
v/c			*0.50*					
95% queue length			*2.78*					
Control Delay (s/veh)			*16.9*					
LOS			*C*					
Approach Delay (s/veh)	--	--	*16.9*					
Approach LOS	--	--	*C*					

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Veterans Rd W & Bricktown/KWVP*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8 - 9 AM Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*	*0*	*1*	*2*	*0*	*0*	*2*	*0*	*1*	*1*	*0*
Lane Group	*L*	*TR*		*L*	*TR*			*LTR*		*L*	*TR*	
Volume, V (vph)	*72*	*136*	*158*	*195*	*331*	*51*	*81*	*213*	*132*	*5*	*26*	*40*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*8*	*8*	*8*	*8*	*8*	*8*	*3*	*3*	*3*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.87*	*0.87*	*0.87*	*0.93*	*0.93*	*0.93*	*0.67*	*0.67*	*0.67*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*		*2.0*	*2.0*			*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e	*2.0*	*2.0*		*2.0*	*2.0*			*2.0*		*2.0*	*2.0*	
Arrival Type, AT	*3*	*3*		*3*	*3*			*3*		*3*	*3*	
Unit Extension, UE	*3.0*	*3.0*		*3.0*	*3.0*			*3.0*		*3.0*	*3.0*	
Filtering/Metering, I	*0.780*	*0.780*		*0.979*	*0.979*			*1.000*		*0.991*	*0.991*	
Initial Unmet Demand, Q_b	*0.0*	*0.0*		*0.0*	*0.0*			*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*38*	*0*	*0*	*4*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*11.0*	*12.0*		*10.0*	*12.0*			*12.5*		*11.0*	*10.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*		*0*	*0*			*0*		*0*	*0*	
Min. Time for Pedestrians, G_p	*34.6*			*18.6*			*20.3*			*16.1*		

Phasing	EW Perm	02	03	04	NB Only	SB Only	07	08
Timing	G = *30.0*	G =	G =	G =	G = *25.0*	G = *20.0*	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y = *5*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*82*	*291*		*224*	*434*			*458*		*7*	*99*	
Lane Group Capacity, c	*263*	*577*		*249*	*1096*			*894*		*376*	*348*	
v/c Ratio, X	*0.31*	*0.50*		*0.90*	*0.40*			*0.51*		*0.02*	*0.28*	
Total Green Ratio, g/C	*0.33*	*0.33*		*0.33*	*0.33*			*0.28*		*0.22*	*0.22*	
Uniform Delay, d_1	*22.3*	*24.0*		*28.6*	*23.0*			*27.4*		*27.3*	*29.1*	
Progression Factor, PF	*1.000*	*1.000*		*1.000*	*1.000*			*1.000*		*1.000*	*1.000*	
Delay Calibration, k	*0.50*	*0.50*		*0.50*	*0.50*			*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2	*2.4*	*2.4*		*35.5*	*1.1*			*2.1*		*0.1*	*2.0*	

Initial Queue Delay, d_3	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Control Delay	24.7	26.5		64.1	24.1			29.5		27.4	31.1	
Lane Group LOS	C	C		E	C			C		C	C	
Approach Delay	26.1			37.7			29.5			30.8		
Approach LOS	C			D			C			C		
Intersection Delay	32.2			X_C = 0.61			Intersection LOS			C		

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/24/13*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 With-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Bricktown Way* North/South Street: *Tyrellan Avenue*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*38*	*51*	*28*	*32*	*50*	*35*
%Thrus Left Lane	*50*			*50*		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*13*	*16*	*21*	*21*	*52*	*16*
%Thrus Left Lane				*50*		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*LT*	*TR*	*LT*	*TR*	*LT*	*R*	*LT*	*TR*
PHF	*0.80*	*0.80*	*0.78*	*0.78*	*0.86*	*1.00*	*0.92*	*0.92*
Flow Rate (veh/h)	*78*	*66*	*73*	*76*	*33*	*21*	*50*	*45*
% Heavy Vehicles	*21*	*21*	*1*	*1*	*5*	*0*	*0*	*0*
No. Lanes	*2*		*2*		*2*		*2*	
Geometry Group	*5*		*5*		*5*		*5*	
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	*0.6*	*0.0*	*0.6*	*0.0*	*0.5*	*0.0*	*0.4*	*0.0*
Prop. Right-Turns	*0.0*	*0.5*	*0.0*	*0.6*	*0.0*	*1.0*	*0.0*	*0.4*
Prop. Heavy Vehicle	*0.2*	*0.2*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
hLT-adj	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*
hRT-adj	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*
hadj, computed	*0.7*	*-0.0*	*0.3*	*-0.4*	*0.3*	*-0.7*	*0.2*	*-0.3*

Departure Headway and Service Time

hd, initial value (s)	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*
x, initial	*0.07*	*0.06*	*0.06*	*0.07*	*0.03*	*0.02*	*0.04*	*0.04*
hd, final value (s)	*5.68*	*5.01*	*5.32*	*4.64*	*5.63*	*4.62*	*5.50*	*5.01*
x, final value	*0.12*	*0.09*	*0.11*	*0.10*	*0.05*	*0.03*	*0.08*	*0.06*
Move-up time, m (s)	*2.3*		*2.3*		*2.3*		*2.3*	
Service Time, t_s (s)	*3.4*	*2.7*	*3.0*	*2.3*	*3.3*	*2.3*	*3.2*	*2.7*

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*328*	*316*	*323*	*326*	*283*	*271*	*300*	*295*
Delay (s/veh)	*9.17*	*8.22*	*8.66*	*7.84*	*8.64*	*7.45*	*8.65*	*8.05*
LOS	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Approach: Delay (s/veh)	*8.73*		*8.24*		*8.18*		*8.37*	
LOS	*A*		*A*		*A*		*A*	
Intersection Delay (s/veh)	*8.42*							
Intersection LOS	*A*							

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*
Lane Group		*LTR*			*LTR*		*DefL*	*TR*			*LTR*	
Volume, V (vph)	*52*	*28*	*180*	*111*	*260*	*6*	*222*	*91*	*50*	*10*	*157*	*99*
% Heavy Vehicles, %HV	*8*	*8*	*8*	*3*	*3*	*3*	*4*	*4*	*4*	*8*	*8*	*8*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.87*	*0.87*	*0.87*	*0.87*	*0.87*	*0.87*	*0.76*	*0.76*	*0.76*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.916*			*0.953*		*1.000*	*1.000*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*			*12.0*		*13.0*	*13.0*			*9.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*			*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*18.6*			*16.6*			*20.1*			*19.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*					Cycle Length, C = *90.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*296*			*434*		*255*	*162*			*350*	
Lane Group Capacity, c		*1071*			*1172*		*447*	*795*			*1217*	
v/c Ratio, X		*0.28*			*0.37*		*0.57*	*0.20*			*0.29*	
Total Green Ratio, g/C		*0.44*			*0.44*		*0.44*	*0.44*			*0.44*	
Uniform Delay, d_1		*15.8*			*16.6*		*18.6*	*15.3*			*15.9*	
Progression Factor, PF		*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	

Incremental Delay, d_2		0.6			0.9		5.2	0.6			0.6	
Initial Queue Delay, d_3		0.0			0.0		0.0	0.0			0.0	
Control Delay		16.4			17.5		23.8	15.9			16.5	
Lane Group LOS		B			B		C	B			B	
Approach Delay	16.4			17.5			20.7			16.5		
Approach LOS	B			B			C			B		
Intersection Delay	17.9			X_C = 0.47			Intersection LOS			B		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Boscombe Ave & OBX Off-Ramp*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*1*	*1*	*1*
Lane Group	*L*	*TR*			*LT*	*R*		*LTR*		*L*	*LT*	*R*
Volume, V (vph)	*767*	*227*	*19*	*4*	*263*	*232*	*4*	*16*	*6*	*103*	*5*	*140*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*3*	*3*	*3*	*1*	*1*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.91*	*0.91*	*0.91*	*0.86*	*0.86*	*0.86*	*0.37*	*0.37*	*0.37*	*0.87*	*0.87*	*0.87*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*	*3*		*3*		*3*	*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*	*3.0*		*3.0*		*3.0*	*3.0*	*3.0*
Filtering/Metering, I	*0.603*	*0.603*			*0.932*	*0.932*		*1.000*		*1.000*	*1.000*	*1.000*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*	*0.0*		*0.0*		*0.0*	*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*11.0*	*12.0*			*12.0*	*12.0*		*16.0*		*10.0*	*11.0*	*10.0*
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B	*0*	*0*			*0*	*0*		*0*		*0*	*0*	*0*
Min. Time for Pedestrians, G_p	*14.6*			*24.6*			*20.9*			*20.1*		

Phasing	EB Only	EW Perm	03	04	NS Perm	06	07	08
Timing	G = *37.0*	G = *22.0*	G =	G =	G = *16.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*					Cycle Length, C = *90.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*843*	*270*			*311*	*270*		*70*		*118*	*6*	*161*
Lane Group Capacity, c	*858*	*1157*			*449*	*383*		*355*		*226*	*320*	*952*
v/c Ratio, X	*0.98*	*0.23*			*0.69*	*0.70*		*0.20*		*0.52*	*0.02*	*0.17*
Total Green Ratio, g/C	*0.71*	*0.71*			*0.24*	*0.24*		*0.18*		*0.18*	*0.18*	*0.64*
Uniform Delay, d_1	*17.3*	*4.5*			*30.9*	*31.0*		*31.5*		*33.5*	*30.5*	*6.4*
Progression Factor, PF	*1.000*	*1.000*			*1.000*	*1.000*		*1.000*		*1.000*	*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*	*0.50*		*0.50*		*0.50*	*0.50*	*0.50*

Incremental Delay, d_2	20.0	0.3			8.0	9.7		1.2		8.4	0.1	0.4
Initial Queue Delay, d_3	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Control Delay	37.3	4.8			38.9	40.8		32.8		41.9	30.6	6.8
Lane Group LOS	D	A			D	D		C		D	C	A
Approach Delay	29.4			39.8			32.8			21.8		
Approach LOS	C			D			C			C		
Intersection Delay	31.4			X_C = 0.87			Intersection LOS			C		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Boscombe Ave & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Hour*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*1*	*1*
Lane Group	*DefL*	*TR*			*LTR*			*LTR*			*LT*	*R*
Volume, V (vph)	*311*	*25*	*0*	*14*	*66*	*36*	*6*	*21*	*10*	*15*	*36*	*398*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*3*	*3*	*3*	*1*	*1*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.91*	*0.91*	*0.91*	*0.72*	*0.72*	*0.72*	*0.45*	*0.45*	*0.45*	*0.76*	*0.76*	*0.76*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*			*2.0*			*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*			*2.0*			*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*			*3*			*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*			*3.0*			*3.0*	*3.0*
Filtering/Metering, I	*0.970*	*0.970*			*1.000*			*1.000*			*0.974*	*0.974*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*			*0.0*			*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*9*	*0*	*0*	*0*	*0*	*0*	*155*
Lane Width	*16.0*	*16.0*			*11.5*			*12.0*			*12.0*	*12.0*
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*			*0*			*0*			*0*	*0*
Min. Time for Pedestrians, G_p	*20.3*			*17.5*			*20.3*			*20.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*342*	*27*			*148*			*82*			*67*	*320*
Lane Group Capacity, c	*702*	*1066*			*1545*			*1235*			*671*	*616*
v/c Ratio, X	*0.49*	*0.03*			*0.10*			*0.07*			*0.10*	*0.52*
Total Green Ratio, g/C	*0.50*	*0.50*			*0.50*			*0.39*			*0.39*	*0.39*
Uniform Delay, d_1	*14.9*	*11.4*			*11.8*			*17.3*			*17.5*	*21.1*
Progression Factor, PF	*1.000*	*1.000*			*1.000*			*1.000*			*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*			*0.50*			*0.50*	*0.50*

Incremental Delay, d_2	2.3	0.0			0.1			0.1			0.3	3.0
Initial Queue Delay, d_3	0.0	0.0			0.0			0.0			0.0	0.0
Control Delay	17.2	11.4			11.9			17.4			17.8	24.1
Lane Group LOS	B	B			B			B			B	C
Approach Delay	16.8				11.9			17.4			23.0	
Approach LOS	B				B			B			C	
Intersection Delay	18.5				X_C = 0.50			Intersection LOS			B	

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Bricktown Ctr Rd @ Vets Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*				*0*	*2*			*2*	*0*
Lane Group	*L*		*R*					*LT*			*TR*	
Volume, V (vph)	*88*		*4*				*4*	*84*			*373*	*224*
% Heavy Vehicles, %HV	*11*		*11*				*2*	*2*			*1*	*1*
Peak-Hour Factor, PHF	*0.80*		*0.80*				*0.80*	*0.80*			*0.81*	*0.81*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*					*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*					*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*					*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*					*3.0*			*3.0*	
Filtering/Metering, I	*0.995*		*0.995*					*1.000*			*0.752*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*					*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*4*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width	*13.0*		*12.0*					*11.5*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*					*0*			*0*	
Min. Time for Pedestrians, G_p	*21.8*			*20.3*			*3.2*			*19.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *19.0*	G =	G =	G =	G = *31.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*110*		*0*					*110*			*737*	
Lane Group Capacity, c	*532*		*461*					*1678*			*1979*	
v/c Ratio, X	*0.21*		*0.00*					*0.07*			*0.37*	
Total Green Ratio, g/C	*0.32*		*0.32*					*0.52*			*0.52*	
Uniform Delay, d_1	*15.0*		*14.0*					*7.3*			*8.7*	
Progression Factor, PF	*1.000*		*1.000*					*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*					*0.50*			*0.50*	
Incremental Delay, d_2	*0.9*		*0.0*					*0.1*			*0.4*	

Initial Queue Delay, d_3	*0.0*		*0.0*					*0.0*			*0.0*	
Control Delay	*15.9*		*14.0*					*7.3*			*9.1*	
Lane Group LOS	*B*		*B*					*A*			*A*	
Approach Delay	*15.9*						*7.3*			*9.1*		
Approach LOS	*B*						*A*			*A*		
Intersection Delay	*9.7*			X_C = *0.31*			Intersection LOS			*A*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/15/13*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*Englewood Ave & Vets Rd W RT*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 With-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* | North/South Street: *Veterans Rd W Right Turn Bay*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*24*				
Peak-Hour Factor, PHF	*1.00*	*0.82*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*29*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*T*				
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*169*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.78*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*216*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*1*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					*R*			
v (veh/h)					*216*			
C (m) (veh/h)					*1049*			
v/c					*0.21*			
95% queue length					*0.77*			
Control Delay (s/veh)					*9.3*			
LOS					*A*			
Approach Delay (s/veh)	--	--	*9.3*					
Approach LOS	--	--	*A*					

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Ave @ Veterans Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*1*	*1*		*1*			*0*	*3*	*0*
Lane Group		*TR*		*L*	*LT*		*L*				*LTR*	
Volume, V (vph)		*1*	*0*	*421*	*1*		*3*			*23*	*176*	*0*
% Heavy Vehicles, %HV		*2*	*2*	*3*	*3*		*1*			*1*	*1*	*1*
Peak-Hour Factor, PHF		*0.25*	*0.25*	*0.79*	*0.79*		*0.80*			*0.81*	*0.81*	*0.81*
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*			*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Arrival Type, AT		*3*		*3*	*3*		*3*				*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*		*3.0*				*3.0*	
Filtering/Metering, I		*1.000*		*0.981*	*0.981*		*0.998*				*1.000*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*12.0*		*13.0*	*13.0*		*10.0*				*11.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*		*0*	*0*		*0*				*0*	
Min. Time for Pedestrians, G_p	*31.2*			*3.2*			*18.1*			*11.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*4*		*267*	*267*		*4*				*245*	
Lane Group Capacity, c		*776*		*600*	*575*		*434*				*2052*	
v/c Ratio, X		*0.01*		*0.44*	*0.46*		*0.01*				*0.12*	
Total Green Ratio, g/C		*0.42*		*0.42*	*0.42*		*0.42*				*0.42*	
Uniform Delay, d_1		*10.2*		*12.5*	*12.7*		*10.2*				*10.7*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*		*1.000*				*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*		*0.50*				*0.50*	
Incremental Delay, d_2		*0.0*		*2.3*	*2.6*		*0.0*				*0.1*	

Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Control Delay		*10.2*		*14.9*	*15.3*		*10.3*				*10.9*	
Lane Group LOS		*B*		*B*	*B*		*B*				*B*	
Approach Delay	*10.2*			*15.1*			*10.3*			*10.9*		
Approach LOS	*B*			*B*			*B*			*B*		
Intersection Delay	*13.7*			X_C *= 0.29*			Intersection LOS			*B*		

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/15/13*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*Sharrotts Rd & Veterans Rd W*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 With-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Sharrotts Road* North/South Street: *Veterans Road West*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*55*	*21*	*114*	*70*	*0*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*0*	*10*	*65*	*27*
%Thrus Left Lane				*50*		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*TR*		*LT*				*LT*	*TR*
PHF	*0.80*		*0.79*				*0.81*	*0.81*
Flow Rate (veh/h)	*94*		*232*				*51*	*73*
% Heavy Vehicles	*24*		*5*				*3*	*3*
No. Lanes	*1*		*1*		*0*		*2*	
Geometry Group	*2*		*2*				*1*	
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	*0.0*		*0.6*				*0.2*	*0.0*
Prop. Right-Turns	*0.3*		*0.0*				*0.0*	*0.5*
Prop. Heavy Vehicle	*0.2*		*0.0*				*0.0*	*0.0*
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*			*0.2*	*0.2*
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*			*-0.6*	*-0.6*
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*			*1.7*	*1.7*
hadj, computed	*0.2*		*0.2*				*0.1*	*-0.2*

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value (s)	*3.20*		*3.20*				*3.20*	*3.20*
x, initial	*0.08*		*0.21*				*0.05*	*0.06*
hd, final value (s)	*4.69*		*4.51*				*4.77*	*4.45*
x, final value	*0.12*		*0.29*				*0.07*	*0.09*
Move-up time, m (s)	*2.0*		*2.0*				*2.0*	
Service Time, t_s (s)	*2.7*		*2.5*				*2.8*	*2.4*

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*344*		*482*				*301*	*323*
Delay (s/veh)	*8.35*		*9.35*				*8.11*	*7.89*
LOS	*A*		*A*				*A*	*A*
Approach: Delay (s/veh)	*8.35*		*9.35*				*7.98*	
LOS	*A*		*A*				*A*	
Intersection Delay (s/veh)	*8.76*							
Intersection LOS	*A*							

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/15/13*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*Sharrotts Rd @ Veterans Rd E*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 With-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Sharrotts Road* | North/South Street: *Veterans Road East*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*6*	*59*	*0*	*0*	*127*	*18*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*56*	*51*	*45*	*0*	*0*	*0*
%Thrus Left Lane	*50*					

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*LT*		*TR*		*LT*	*TR*		
PHF	*0.80*		*0.79*		*0.87*	*0.87*		
Flow Rate (veh/h)	*80*		*182*		*92*	*80*		
% Heavy Vehicles	*17*		*7*		*1*	*1*		
No. Lanes	*1*		*1*		*2*		*0*	
Geometry Group	*2*		*2*		*1*			
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	*0.1*		*0.0*		*0.7*	*0.0*		
Prop. Right-Turns	*0.0*		*0.1*		*0.0*	*0.6*		
Prop. Heavy Vehicle	*0.2*		*0.1*		*0.0*	*0.0*		
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*		
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*		
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*		
hadj, computed	*0.3*		*0.0*		*0.2*	*-0.4*		

Departure Headway and Service Time

hd, initial value (s)	*3.20*		*3.20*		*3.20*	*3.20*		
x, initial	*0.07*		*0.16*		*0.08*	*0.07*		
hd, final value (s)	*4.80*		*4.43*		*4.68*	*4.15*		
x, final value	*0.11*		*0.22*		*0.12*	*0.09*		
Move-up time, m (s)	*2.0*		*2.0*		*2.0*			
Service Time, t_s (s)	*2.8*		*2.4*		*2.7*	*2.2*		

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*330*		*432*		*342*	*330*		
Delay (s/veh)	*8.37*		*8.70*		*8.31*	*7.57*		
LOS	*A*		*A*		*A*	*A*		
Approach: Delay (s/veh)	*8.37*		*8.70*		*7.97*			
LOS	*A*		*A*		*A*			
Intersection Delay (s/veh)	*8.35*							
Intersection LOS	*A*							

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Ave @ Vets Rd E*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*3*	*0*			
Lane Group		*LT*	*R*		*LTR*			*LTR*				
Volume, V (vph)	*77*	*65*	*53*	*6*	*39*	*1*	*383*	*74*	*1*			
% Heavy Vehicles, %HV	*3*	*3*	*3*	*1*	*1*	*1*	*3*	*3*	*3*			
Peak-Hour Factor, PHF	*0.79*	*0.79*	*0.79*	*0.79*	*0.79*	*0.79*	*0.76*	*0.76*	*0.76*			
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*			
Start-up Lost Time, l_1		*2.0*	*2.0*		*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*	*2.0*		*2.0*			*2.0*				
Arrival Type, AT		*3*	*3*		*3*			*3*				
Unit Extension, UE		*3.0*	*3.0*		*3.0*			*3.0*				
Filtering/Metering, I		*0.999*	*0.999*		*0.998*			*0.978*				
Initial Unmet Demand, Q_b		*0.0*	*0.0*		*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*21*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width		*13.0*	*12.0*		*11.5*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B		*0*	*0*		*0*			*0*				
Min. Time for Pedestrians, G_p	*21.2*			*12.9*			*14.3*			*17.5*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *21.0*	G =	G =	G =	G = *29.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*179*	*41*		*58*			*602*				
Lane Group Capacity, c		*543*	*549*		*545*			*2253*				
v/c Ratio, X		*0.33*	*0.07*		*0.11*			*0.27*				
Total Green Ratio, g/C		*0.35*	*0.35*		*0.35*			*0.48*				
Uniform Delay, d_1		*14.3*	*13.0*		*13.2*			*9.2*				
Progression Factor, PF		*1.000*	*1.000*		*1.000*			*1.000*				
Delay Calibration, k		*0.50*	*0.50*		*0.50*			*0.50*				
Incremental Delay, d_2		*1.6*	*0.3*		*0.4*			*0.3*				

Initial Queue Delay, d_3		*0.0*	*0.0*		*0.0*			*0.0*				
Control Delay		*15.9*	*13.3*		*13.6*			*9.5*				
Lane Group LOS		*B*	*B*		*B*			*A*				
Approach Delay	*15.5*			*13.6*			*9.5*					
Approach LOS	*B*			*B*			*A*					
Intersection Delay	*11.2*			X_C = *0.29*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Av & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*48*		*18*				*16*	*333*			*461*	*30*
% Heavy Vehicles, %HV	*1*		*1*				*7*	*7*			*9*	*9*
Peak-Hour Factor, PHF	*0.74*		*0.74*				*0.89*	*0.89*			*0.86*	*0.86*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.997*						*0.936*			*0.808*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*16.0*						*14.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B		*0*						*7*			*2*	
Min. Time for Pedestrians, G_p	*14.9*			*15.5*			*3.2*			*17.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*89*						*392*			*571*	
Lane Group Capacity, c		*462*						*1011*			*1102*	
v/c Ratio, X		*0.19*						*0.39*			*0.52*	
Total Green Ratio, g/C		*0.27*						*0.57*			*0.57*	
Uniform Delay, d_1		*17.0*						*7.2*			*8.0*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*0.9*						*1.1*			*1.4*	

Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	
Control Delay		*17.9*						*8.3*			*9.4*	
Lane Group LOS		*B*						*A*			*A*	
Approach Delay	*17.9*						*8.3*			*9.4*		
Approach LOS	*B*						*A*			*A*		
Intersection Delay	*9.7*			X_C = *0.41*			Intersection LOS			*A*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Sharrotts Rd & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*54*		*51*				*29*	*363*			*281*	*116*
% Heavy Vehicles, %HV	*14*		*14*				*8*	*8*			*11*	*11*
Peak-Hour Factor, PHF	*0.80*		*0.80*				*0.89*	*0.89*			*0.86*	*0.86*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.982*						*0.866*			*0.927*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*17*
Lane Width		*16.0*						*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*7*			*2*	
Min. Time for Pedestrians, G_p	*18.6*			*18.6*			*3.2*			*16.6*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*131*						*441*			*442*	
Lane Group Capacity, c		*502*						*806*			*929*	
v/c Ratio, X		*0.26*						*0.55*			*0.48*	
Total Green Ratio, g/C		*0.33*						*0.50*			*0.50*	
Uniform Delay, d_1		*14.6*						*10.3*			*9.8*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*1.2*						*2.3*			*1.6*	

Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	
Control Delay		*15.8*						*12.6*			*11.5*	
Lane Group LOS		*B*						*B*			*B*	
Approach Delay	*15.8*						*12.6*			*11.5*		
Approach LOS	*B*						*B*			*B*		
Intersection Delay	*12.5*			X_C = *0.43*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Vets Rd E & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*	*0*	*3*	*0*	*1*	*1*			*1*	*0*
Lane Group	*L*		*R*		*LTR*		*L*	*T*			*TR*	
Volume, V (vph)	*3*		*65*	*234*	*382*	*158*	*56*	*187*			*458*	*21*
% Heavy Vehicles, %HV	*3*		*3*	*3*	*3*	*3*	*7*	*7*			*7*	*7*
Peak-Hour Factor, PHF	*0.79*		*0.79*	*0.88*	*0.88*	*0.88*	*0.90*	*0.90*			*0.76*	*0.76*
Pretimed (P) or Actuated (A)	*P*		*P*	*P*	*P*	*P*	*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*		*3*		*3*	*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*		*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I	*0.974*		*0.974*		*0.725*		*0.946*	*0.946*			*0.293*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Lane Width	*10.0*		*13.0*		*11.0*		*12.0*	*12.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*		*0*		*0*	*7*			*2*	
Min. Time for Pedestrians, G_p	*17.2*			*16.9*			*3.2*			*20.9*		

Phasing	EB Only	WB Only	03	04	NS Perm	06	07	08
Timing	G = *8.0*	G = *17.0*	G =	G =	G = *20.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*					Cycle Length, C = *60.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*4*		*82*		*880*		*62*	*208*			*631*	
Lane Group Capacity, c	*218*		*216*		*1314*		*120*	*575*			*661*	
v/c Ratio, X	*0.02*		*0.38*		*0.67*		*0.52*	*0.36*			*0.95*	
Total Green Ratio, g/C	*0.13*		*0.13*		*0.28*		*0.33*	*0.33*			*0.33*	
Uniform Delay, d_1	*22.6*		*23.7*		*19.0*		*16.1*	*15.2*			*19.6*	
Progression Factor, PF	*1.000*		*1.000*		*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*		*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2	*0.2*		*4.9*		*2.0*		*14.2*	*1.7*			*10.9*	

Initial Queue Delay, d_3	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay	*22.7*		*28.6*		*21.0*		*30.3*	*16.8*			*30.5*	
Lane Group LOS	*C*		*C*		*C*		*C*	*B*			*C*	
Approach Delay	*28.3*				*21.0*			*19.9*			*30.5*	
Approach LOS	*C*				*C*			*B*			*C*	
Intersection Delay	*24.4*				X_C *= 0.74*			Intersection LOS			*C*	

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*S Service Rd & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*				*0*	*1*	*0*	*1*	*1*	*0*
Lane Group		*LTR*						*LTR*		*L*	*TR*	
Volume, V (vph)	*11*	*37*	*10*				*5*	*231*	*84*	*251*	*475*	*31*
% Heavy Vehicles, %HV	*3*	*3*	*3*				*7*	*7*	*7*	*7*	*7*	*7*
Peak-Hour Factor, PHF	*0.85*	*0.85*	*0.85*				*0.90*	*0.90*	*0.90*	*0.80*	*0.80*	*0.80*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*				*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*		*2.0*	*2.0*	
Arrival Type, AT		*3*						*3*		*3*	*3*	
Unit Extension, UE		*3.0*						*3.0*		*3.0*	*3.0*	
Filtering/Metering, I		*1.000*						*0.941*		*0.518*	*0.518*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*13.0*						*16.0*		*12.0*	*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*7*		*0*	*2*	
Min. Time for Pedestrians, G_p	*17.5*			*16.9*			*12.6*			*12.9*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *17.0*	G =	G =	G =	G = *33.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*69*						*356*		*314*	*633*	
Lane Group Capacity, c		*457*						*901*		*542*	*960*	
v/c Ratio, X		*0.15*						*0.40*		*0.58*	*0.66*	
Total Green Ratio, g/C		*0.28*						*0.55*		*0.55*	*0.55*	
Uniform Delay, d_1		*16.1*						*7.8*		*8.9*	*9.5*	
Progression Factor, PF		*1.000*						*1.000*		*1.000*	*1.000*	
Delay Calibration, k		*0.50*						*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2		*0.7*						*1.2*		*2.3*	*1.9*	

Initial Queue Delay, d_3		*0.0*						*0.0*		*0.0*	*0.0*	
Control Delay		*16.8*						*9.0*		*11.3*	*11.4*	
Lane Group LOS		*B*						*A*		*B*	*B*	
Approach Delay	*16.8*						*9.0*			*11.3*		
Approach LOS	*B*						*A*			*B*		
Intersection Delay	*11.0*			X_C = *0.49*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Amboy Rd & Bloomingdale Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*1*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*		*L*	*T*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*7*	*20*	*12*	*166*	*16*	*101*	*9*	*176*	*127*	*134*	*297*	*8*
% Heavy Vehicles, %HV	*3*	*3*	*3*	*5*	*5*	*5*	*7*	*7*	*7*	*7*	*7*	*7*
Peak-Hour Factor, PHF	*0.68*	*0.68*	*0.68*	*0.88*	*0.88*	*0.88*	*0.90*	*0.90*	*0.90*	*0.76*	*0.76*	*0.76*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*		*3*	*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*		*0.966*	*0.966*	*0.966*		*0.850*			*0.090*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*50*	*0*	*0*	*0*	*0*	*0*	*50*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*		*12.0*	*11.0*	*11.0*		*11.0*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*2*		*0*	*0*	*2*		*0*			*0*	
Min. Time for Pedestrians, G_p	*11.5*			*11.8*			*18.9*			*18.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*57*		*189*	*18*	*115*		*347*			*578*	
Lane Group Capacity, c		*652*		*549*	*777*	*574*		*692*			*557*	
v/c Ratio, X		*0.09*		*0.34*	*0.02*	*0.20*		*0.50*			*1.04*	
Total Green Ratio, g/C		*0.44*		*0.44*	*0.44*	*0.44*		*0.44*			*0.44*	
Uniform Delay, d_1		*14.5*		*16.4*	*14.0*	*15.2*		*17.9*			*25.0*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*	*0.50*		*0.50*			*0.50*	

Incremental Delay, d_2		0.3		1.7	0.1	0.8		2.2			22.9	
Initial Queue Delay, d_3		0.0		0.0	0.0	0.0		0.0			0.0	
Control Delay		14.7		18.1	14.1	16.0		20.1			47.9	
Lane Group LOS		B		B	B	B		C			D	
Approach Delay	14.7			17.1			20.1			47.9		
Approach LOS	B			B			C			D		
Intersection Delay	31.4			X_C = 0.69			Intersection LOS			C		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Arthur Kill Rd & Bloomingdl Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/28/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*0*	*1*		*0*		*0*			
Lane Group		*TR*			*LT*			*LR*				
Volume, V (vph)		*134*	*182*	*71*	*165*		*217*		*70*			
% Heavy Vehicles, %HV		*10*	*10*	*13*	*13*		*9*		*9*			
Peak-Hour Factor, PHF		*0.92*	*0.92*	*0.89*	*0.89*		*0.94*		*0.94*			
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*		*P*			
Start-up Lost Time, l_1		*2.0*			*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*			*2.0*			*2.0*				
Arrival Type, AT		*3*			*3*			*3*				
Unit Extension, UE		*3.0*			*3.0*			*3.0*				
Filtering/Metering, I		*0.964*			*0.986*			*0.858*				
Initial Unmet Demand, Q_b		*0.0*			*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*44*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	
Lane Width		*16.0*			*16.0*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m									*5*			
Buses Stopping, N_B		*5*			*0*			*0*				
Min. Time for Pedestrians, G_p	*18.3*			*3.2*			*15.2*			*17.2*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*296*			*265*			*305*				
Lane Group Capacity, c		*894*			*785*			*534*				
v/c Ratio, X		*0.33*			*0.34*			*0.57*				
Total Green Ratio, g/C		*0.50*			*0.50*			*0.39*				
Uniform Delay, d_1		*13.5*			*13.5*			*21.6*				
Progression Factor, PF		*1.000*			*1.000*			*1.000*				
Delay Calibration, k		*0.50*			*0.50*			*0.50*				
Incremental Delay, d_2		*1.0*			*1.1*			*3.8*				

Initial Queue Delay, d_3		*0.0*			*0.0*			*0.0*				
Control Delay		*14.4*			*14.7*			*25.4*				
Lane Group LOS		*B*			*B*			*C*				
Approach Delay	*14.4*			*14.7*			*25.4*					
Approach LOS	*B*			*B*			*C*					
Intersection Delay	*18.4*			X_C = *0.44*			Intersection LOS			*B*		

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Weekday

Midday

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*Sharrotts Rd & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 With-Action Conditions*

Project Description *Charlestone EIS*

East/West Street: *Sharrotts Road* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*35*	*223*	*35*	*31*	*235*	*22*
Peak-Hour Factor, PHF	*0.85*	*0.85*	*0.85*	*0.91*	*0.91*	*0.91*
Hourly Flow Rate, HFR (veh/h)	*41*	*262*	*41*	*34*	*258*	*24*
Percent Heavy Vehicles	*8*	--	--	*18*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*23*	*17*	*37*	*34*	*19*	*24*
Peak-Hour Factor, PHF	*0.78*	*0.78*	*0.78*	*0.88*	*0.88*	*0.88*
Hourly Flow Rate, HFR (veh/h)	*29*	*21*	*47*	*38*	*21*	*27*
Percent Heavy Vehicles	*1*	*1*	*1*	*10*	*10*	*10*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (veh/h)	*41*	*34*		*86*			*97*	
C (m) (veh/h)	*1247*	*1172*		*358*			*434*	
v/c	*0.03*	*0.03*		*0.24*			*0.22*	
95% queue length	*0.10*	*0.09*		*0.92*			*0.85*	
Control Delay (s/veh)	*8.0*	*8.2*		*18.2*			*15.7*	
LOS	*A*	*A*		*C*			*C*	
Approach Delay (s/veh)	--	--	*18.2*			*15.7*		
Approach LOS	--	--	*C*			*C*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Weekday 12-1 MD Peak Period*

Site Information

Intersection	*Englewood Ave & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 With-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*279*	*18*	*19*	*288*	
Peak-Hour Factor, PHF	*1.00*	*0.85*	*0.85*	*0.91*	*0.91*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*328*	*21*	*20*	*316*	*0*
Percent Heavy Vehicles	*0*	--	--	*15*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*43*		*15*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.94*	*1.00*	*0.94*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*45*	*0*	*15*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (veh/h)		*20*		*60*				
C (m) (veh/h)		*1141*		*454*				
v/c		*0.02*		*0.13*				
95% queue length		*0.05*		*0.45*				
Control Delay (s/veh)		*8.2*		*14.1*				
LOS		*A*		*B*				
Approach Delay (s/veh)	--	--	*14.1*					
Approach LOS	--	--	*B*					

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*			*LT*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*1*	*17*	*6*	*229*	*23*	*385*	*1*	*140*	*254*	*156*	*174*	*1*
% Heavy Vehicles, %HV	*4*	*4*	*4*	*6*	*6*	*6*	*11*	*11*	*11*	*7*	*7*	*7*
Peak-Hour Factor, PHF	*0.84*	*0.84*	*0.84*	*0.90*	*0.90*	*0.90*	*0.92*	*0.92*	*0.92*	*0.86*	*0.86*	*0.86*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*			*0.887*	*0.887*		*0.931*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*15.5*			*11.0*	*10.0*		*15.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*			*0*	*0*		*3*			*4*	
Min. Time for Pedestrians, G_p	*11.5*			*13.5*			*15.2*			*12.1*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*					Cycle Length, C = *60.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*28*			*280*	*428*		*429*			*384*	
Lane Group Capacity, c		*713*			*524*	*518*		*707*			*483*	
v/c Ratio, X		*0.04*			*0.53*	*0.83*		*0.61*			*0.80*	
Total Green Ratio, g/C		*0.42*			*0.42*	*0.42*		*0.42*			*0.42*	
Uniform Delay, d_1		*10.4*			*13.1*	*15.6*		*13.7*			*15.3*	
Progression Factor, PF		*1.000*			*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*	*0.50*		*0.50*			*0.50*	

Incremental Delay, d_2		*0.1*			*3.4*	*12.6*		*3.6*			*12.7*	
Initial Queue Delay, d_3		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Control Delay		*10.5*			*16.6*	*28.2*		*17.2*			*28.0*	
Lane Group LOS		*B*			*B*	*C*		*B*			*C*	
Approach Delay	*10.5*			*23.6*			*17.2*			*28.0*		
Approach LOS	*B*			*C*			*B*			*C*		
Intersection Delay	*22.7*			X_C = *0.81*			Intersection LOS			*C*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*No Bridge St & Arthur Kill Rd*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*			*1*	
Lane Group					*LR*			*T*			*T*	
Volume, V (vph)				*347*		*3*		*391*			*410*	
% Heavy Vehicles, %HV				*6*		*6*		*11*			*12*	
Peak-Hour Factor, PHF				*0.88*		*0.88*		*0.92*			*0.86*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*			*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.858*			*0.858*			*0.567*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	
Lane Width					*16.0*			*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B					*0*			*0*			*4*	
Min. Time for Pedestrians, G_p	*13.5*			*13.8*			*3.2*			*3.2*		

Phasing	WB Only	02	03	04	Thru Only	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*397*			*425*			*477*	
Lane Group Capacity, c					*644*			*970*			*946*	
v/c Ratio, X					*0.62*			*0.44*			*0.50*	
Total Green Ratio, g/C					*0.33*			*0.50*			*0.50*	
Uniform Delay, d_1					*16.8*			*9.6*			*10.0*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*3.8*			*1.2*			*1.1*	

Initial Queue Delay, d_3					*0.0*			*0.0*			*0.0*	
Control Delay					*20.6*			*10.8*			*11.1*	
Lane Group LOS					*C*			*B*			*B*	
Approach Delay				*20.6*			*10.8*			*11.1*		
Approach LOS				*C*			*B*			*B*		
Intersection Delay	*13.9*			X_C = *0.55*			Intersection LOS			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*So Bridge St & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 With-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *South Bridge Street* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*391*	*234*	*136*	*619*	
Peak-Hour Factor, PHF	*1.00*	*0.92*	*0.92*	*0.86*	*0.86*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*424*	*254*	*158*	*719*	*0*
Percent Heavy Vehicles	*0*	--	--	*16*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration						

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*						
v (veh/h)		*158*						
C (m) (veh/h)		*852*						
v/c		*0.19*						
95% queue length		*0.68*						
Control Delay (s/veh)		*10.2*						
LOS		*B*						
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Rch Valley Rd & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*	*0*	*0*	*1*	
Lane Group					*LR*			*TR*			*LT*	
Volume, V (vph)				*97*		*178*		*436*	*77*	*169*	*433*	
% Heavy Vehicles, %HV				*3*		*3*		*8*	*8*	*6*	*6*	
Peak-Hour Factor, PHF				*0.87*		*0.87*		*0.92*	*0.92*	*0.86*	*0.86*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*	*P*	*P*	*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.944*			*0.880*			*0.500*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width					*12.0*			*15.0*			*15.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B					*0*			*4*			*4*	
Min. Time for Pedestrians, G_p	*11.8*			*11.8*			*14.1*			*3.2*		

Phasing	WB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*316*			*558*			*700*	
Lane Group Capacity, c					*386*			*1057*			*659*	
v/c Ratio, X					*0.82*			*0.53*			*1.06*	
Total Green Ratio, g/C					*0.27*			*0.57*			*0.57*	
Uniform Delay, d_1					*20.6*			*8.0*			*13.0*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*16.5*			*1.7*			*43.1*	

Initial Queue Delay, d_3					*0.0*			*0.0*			*0.0*	
Control Delay					*37.2*			*9.7*			*56.1*	
Lane Group LOS					*D*			*A*			*E*	
Approach Delay				*37.2*			*9.7*			*56.1*		
Approach LOS				*D*			*A*			*E*		
Intersection Delay	*35.9*			X_C = *0.98*			Intersection LOS			*D*		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Richmond Valley Rd & Page Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*0*	*1*	*1*	*0*	*0*	*2*	*0*
Lane Group		*LTR*			*LTR*		*L*	*TR*			*LTR*	
Volume, V (vph)	*141*	*63*	*73*	*36*	*172*	*43*	*83*	*577*	*131*	*95*	*461*	*67*
% Heavy Vehicles, %HV	*3*	*3*	*3*	*2*	*2*	*2*	*2*	*2*	*2*	*6*	*6*	*6*
Peak-Hour Factor, PHF	*0.86*	*0.86*	*0.86*	*0.92*	*0.92*	*0.92*	*0.91*	*0.91*	*0.91*	*0.89*	*0.89*	*0.89*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.649*			*1.000*		*0.732*	*0.732*			*0.973*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*14*
Lane Width		*16.0*			*15.0*		*10.0*	*14.0*			*10.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*
Parking Maneuvers, N_m						*5*						*5*
Buses Stopping, N_B		*0*			*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*16.6*			*21.5*			*16.3*			*21.2*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *31.0*	G =	G =	G =	G = *49.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*					Cycle Length, C = *90.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*322*			*273*		*91*	*778*			*685*	
Lane Group Capacity, c		*439*			*556*		*331*	*1052*			*959*	
v/c Ratio, X		*0.73*			*0.49*		*0.27*	*0.74*			*0.71*	
Total Green Ratio, g/C		*0.34*			*0.34*		*0.54*	*0.54*			*0.54*	
Uniform Delay, d_1		*25.9*			*23.3*		*11.0*	*15.6*			*15.3*	
Progression Factor, PF		*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	

Incremental Delay, d_2		6.9			3.1		1.5	3.5			4.4	
Initial Queue Delay, d_3		0.0			0.0		0.0	0.0			0.0	
Control Delay		32.8			26.4		12.5	19.1			19.7	
Lane Group LOS		C			C		B	B			B	
Approach Delay	32.8			26.4			18.4			19.7		
Approach LOS	C			C			B			B		
Intersection Delay	22.0			X_C = 0.74			Intersection LOS			C		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/15/13*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*S Bridge St RT & Page Ave*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 With-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *South Bridge Street Right Turn* | North/South Street: *Page Avenue*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*535*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.89*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*601*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*2*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*87*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.84*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*103*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*29*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								*R*
v (veh/h)								*103*
C (m) (veh/h)								*680*
v/c								*0.15*
95% queue length								*0.53*
Control Delay (s/veh)								*11.2*
LOS								*B*
Approach Delay (s/veh)	--	--				*11.2*		
Approach LOS	--	--				*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*S Br St & Page Ave/Boscome Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*							*2*			*2*	
Lane Group	*L*							*T*			*T*	
Volume, V (vph)	*283*							*761*			*535*	
% Heavy Vehicles, %HV	*3*							*2*			*3*	
Peak-Hour Factor, PHF	*0.88*							*0.91*			*0.89*	
Pretimed (P) or Actuated (A)	*P*							*P*			*P*	
Start-up Lost Time, l_1	*2.0*							*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*							*2.0*			*2.0*	
Arrival Type, AT	*3*							*3*			*3*	
Unit Extension, UE	*3.0*							*3.0*			*3.0*	
Filtering/Metering, I	*1.000*							*0.738*			*0.973*	
Initial Unmet Demand, Q_b	*0.0*							*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*		*0*	*0*		*0*	*0*	
Lane Width	*16.0*							*14.5*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*							*0*			*0*	
Min. Time for Pedestrians, G_p	*3.2*			*20.1*			*3.2*			*3.2*		

Phasing	EB Only	02	03	04	Thru Only	06	07	08
Timing	G = *30.0*	G =	G =	G =	G = *50.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*322*							*836*			*601*	
Lane Group Capacity, c	*662*							*2134*			*1951*	
v/c Ratio, X	*0.49*							*0.39*			*0.31*	
Total Green Ratio, g/C	*0.33*							*0.56*			*0.56*	
Uniform Delay, d_1	*23.9*							*11.4*			*10.7*	
Progression Factor, PF	*1.000*							*1.000*			*1.000*	
Delay Calibration, k	*0.50*							*0.50*			*0.50*	
Incremental Delay, d_2	*2.5*							*0.4*			*0.4*	

Initial Queue Delay, d_3	*0.0*							*0.0*			*0.0*	
Control Delay	*26.4*							*11.8*			*11.1*	
Lane Group LOS	*C*							*B*			*B*	
Approach Delay	*26.4*						*11.8*			*11.1*		
Approach LOS	*C*						*B*			*B*		
Intersection Delay	*14.2*			X_C = *0.43*			Intersection LOS			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/15/13*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*KWVP WB OR UT & No Bridge St*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 With-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *KWVP WB Off-Ramp U-Turn* | North/South Street: *North Bridge Street*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*380*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.87*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*436*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*1*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*182*		
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.90*	*0.93*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*195*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*60*	*4*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*0*
Configuration				*L*		

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration			*L*					
v (veh/h)			*195*					
C (m) (veh/h)			*574*					
v/c			*0.34*					
95% queue length			*1.50*					
Control Delay (s/veh)			*14.5*					
LOS			*B*					
Approach Delay (s/veh)	--	--	*14.5*					
Approach LOS	--	--	*B*					

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Veterans Rd W & Bricktown/KWVP*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*	*0*	*1*	*2*	*0*	*0*	*2*	*0*	*1*	*1*	*0*
Lane Group	*L*	*TR*		*L*	*TR*			*LTR*		*L*	*TR*	
Volume, V (vph)	*147*	*144*	*135*	*187*	*462*	*55*	*86*	*337*	*305*	*48*	*58*	*88*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*6*	*6*	*6*	*4*	*4*	*4*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.84*	*0.84*	*0.84*	*0.90*	*0.90*	*0.90*	*0.93*	*0.93*	*0.93*	*0.80*	*0.80*	*0.80*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*		*2.0*	*2.0*			*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e	*2.0*	*2.0*		*2.0*	*2.0*			*2.0*		*2.0*	*2.0*	
Arrival Type, AT	*3*	*3*		*3*	*3*			*3*		*3*	*3*	
Unit Extension, UE	*3.0*	*3.0*		*3.0*	*3.0*			*3.0*		*3.0*	*3.0*	
Filtering/Metering, I	*0.856*	*0.856*		*0.927*	*0.927*			*1.000*		*0.985*	*0.985*	
Initial Unmet Demand, Q_b	*0.0*	*0.0*		*0.0*	*0.0*			*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*32*	*0*	*0*	*13*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*11.0*	*12.0*		*10.0*	*12.0*			*12.5*		*11.0*	*10.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*		*0*	*0*			*0*		*0*	*0*	
Min. Time for Pedestrians, G_p	*34.6*			*18.6*			*20.3*			*16.1*		

Phasing	EW Perm	02	03	04	NB Only	SB Only	07	08
Timing	G = *30.0*	G =	G =	G =	G = *25.0*	G = *20.0*	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y = *5*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*175*	*294*		*208*	*560*			*782*		*60*	*182*	
Lane Group Capacity, c	*208*	*588*		*251*	*1123*			*915*		*380*	*351*	
v/c Ratio, X	*0.84*	*0.50*		*0.83*	*0.50*			*0.85*		*0.16*	*0.52*	
Total Green Ratio, g/C	*0.33*	*0.33*		*0.33*	*0.33*			*0.28*		*0.22*	*0.22*	
Uniform Delay, d_1	*27.8*	*24.0*		*27.6*	*24.0*			*30.8*		*28.2*	*30.8*	
Progression Factor, PF	*1.000*	*1.000*		*1.000*	*1.000*			*1.000*		*1.000*	*1.000*	
Delay Calibration, k	*0.50*	*0.50*		*0.50*	*0.50*			*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2	*28.2*	*2.6*		*24.4*	*1.5*			*10.0*		*0.9*	*5.3*	

Initial Queue Delay, d_3	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Control Delay	56.0	26.6		52.1	25.5			40.8		29.1	36.1	
Lane Group LOS	E	C		D	C			D		C	D	
Approach Delay	37.6			32.7			40.8			34.3		
Approach LOS	D			C			D			C		
Intersection Delay	36.7			X_C = 0.76			Intersection LOS			D		

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/24/13*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*Bricktown Way/Tyrellan Avenue*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 With-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Bricktown Way* North/South Street: *Tyrellan Avenue*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*97*	*98*	*59*	*126*	*102*	*90*
%Thrus Left Lane	*50*			*50*		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*43*	*41*	*40*	*78*	*188*	*58*
%Thrus Left Lane				*50*		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*LT*	*TR*	*LT*	*TR*	*LT*	*R*	*LT*	*TR*
PHF	*0.88*	*0.88*	*0.90*	*0.90*	*0.78*	*0.78*	*0.92*	*0.92*
Flow Rate (veh/h)	*165*	*122*	*196*	*156*	*107*	*51*	*186*	165
% Heavy Vehicles	*42*	*42*	*4*	*4*	*3*	*3*	*0*	*0*
No. Lanes	*2*		*2*		*2*		*2*	
Geometry Group	*5*		*5*		*5*		*5*	
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	*0.7*	*0.0*	*0.7*	*0.0*	*0.5*	*0.0*	*0.5*	*0.0*
Prop. Right-Turns	*0.0*	*0.5*	*0.0*	*0.6*	*0.0*	*1.0*	*0.0*	*0.4*
Prop. Heavy Vehicle	*0.4*	*0.4*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
hLT-adj	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*
hRT-adj	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*
hadj, computed	*1.0*	*0.3*	*0.4*	*-0.4*	*0.3*	*-0.6*	*0.2*	*-0.3*

Departure Headway and Service Time

hd, initial value (s)	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*
x, initial	*0.15*	*0.11*	*0.17*	*0.14*	*0.10*	*0.05*	*0.17*	*0.15*
hd, final value (s)	*7.61*	*6.89*	*6.94*	*6.13*	*7.26*	*6.31*	*6.86*	*6.37*
x, final value	*0.35*	*0.23*	*0.38*	*0.27*	*0.22*	*0.09*	*0.35*	*0.29*
Move-up time, m (s)	*2.3*		*2.3*		*2.3*		*2.3*	
Service Time, t_s (s)	*5.3*	*4.6*	*4.6*	*3.8*	*5.0*	*4.0*	*4.6*	*4.1*

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*415*	*372*	*446*	*406*	*357*	*301*	*436*	*415*
Delay (s/veh)	*14.33*	*11.68*	*13.79*	*11.04*	*11.95*	*9.62*	*13.28*	*11.67*
LOS	*B*	*B*	*B*	*B*	*B*	*A*	*B*	*B*
Approach: Delay (s/veh)	*13.21*		*12.57*		*11.20*		*12.52*	
LOS	*B*		*B*		*B*		*B*	
Intersection Delay (s/veh)	*12.53*							
Intersection LOS	*B*							

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*
Lane Group		*LTR*			*LTR*		*DefL*	*TR*			*LTR*	
Volume, V (vph)	*60*	*101*	*308*	*130*	*266*	*18*	*227*	*196*	*86*	*22*	*518*	*219*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*3*	*3*	*3*	*3*	*3*	*3*	*12*	*12*	*12*
Peak-Hour Factor, PHF	*0.84*	*0.84*	*0.84*	*0.90*	*0.90*	*0.90*	*0.87*	*0.87*	*0.87*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.889*			*0.932*		*1.000*	*1.000*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*			*12.0*		*13.0*	*13.0*			*9.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*			*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*18.6*			*16.6*			*20.1*			*19.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*					Cycle Length, C = *90.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*558*			*460*		*261*	*324*			*843*	
Lane Group Capacity, c		*1177*			*980*		*204*	*808*			*1182*	
v/c Ratio, X		*0.47*			*0.47*		*1.28*	*0.40*			*0.71*	
Total Green Ratio, g/C		*0.44*			*0.44*		*0.44*	*0.44*			*0.44*	
Uniform Delay, d_1		*17.6*			*17.6*		*25.0*	*16.9*			*20.3*	
Progression Factor, PF		*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	

Incremental Delay, d_2		1.2			1.5		157.9	1.5			3.7	
Initial Queue Delay, d_3		0.0			0.0		0.0	0.0			0.0	
Control Delay		18.8			19.1		182.9	18.4			24.0	
Lane Group LOS		B			B		F	B			C	
Approach Delay	18.8			19.1			91.8			24.0		
Approach LOS	B			B			F			C		
Intersection Delay	38.1			X_C = 0.88			Intersection LOS			D		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Boscombe Ave & OBX Off-Ramp*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 Witho-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*1*	*1*	*1*
Lane Group	*L*	*TR*			*LT*	*R*		*LTR*		*L*	*LT*	*R*
Volume, V (vph)	*658*	*383*	*3*	*1*	*405*	*569*	*0*	*0*	*1*	*99*	*0*	*130*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*3*	*3*	*3*	*0*	*0*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*	*0.25*	*0.25*	*0.25*	*0.97*	*0.97*	*0.97*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*	*3*		*3*		*3*	*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*	*3.0*		*3.0*		*3.0*	*3.0*	*3.0*
Filtering/Metering, I	*0.735*	*0.735*			*0.546*	*0.546*		*1.000*		*1.000*	*1.000*	*1.000*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*	*0.0*		*0.0*		*0.0*	*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*85*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*11.0*	*12.0*			*12.0*	*12.0*		*16.0*		*10.0*	*11.0*	*10.0*
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B	*0*	*0*			*0*	*0*		*0*		*0*	*0*	*0*
Min. Time for Pedestrians, G_p	*14.6*			*24.6*			*20.9*			*20.1*		

Phasing	EB Only	EW Perm	03	04	NS Perm	06	07	08
Timing	G = *37.0*	G = *22.0*	G =	G =	G = *16.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*					Cycle Length, C = *90.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*723*	*424*			*446*	*532*		*4*		*102*	*0*	*134*
Lane Group Capacity, c	*783*	*1158*			*451*	*383*		*328*		*233*	*320*	*952*
v/c Ratio, X	*0.92*	*0.37*			*0.99*	*1.39*		*0.01*		*0.44*	*0.00*	*0.14*
Total Green Ratio, g/C	*0.71*	*0.71*			*0.24*	*0.24*		*0.18*		*0.18*	*0.18*	*0.64*
Uniform Delay, d_1	*20.0*	*5.1*			*33.9*	*34.0*		*30.5*		*33.0*	*30.4*	*6.3*
Progression Factor, PF	*1.000*	*1.000*			*1.000*	*1.000*		*1.000*		*1.000*	*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*	*0.50*		*0.50*		*0.50*	*0.50*	*0.50*

Incremental Delay, d_2	14.4	0.7			28.7	183.8		0.1		5.9	0.0	0.3
Initial Queue Delay, d_3	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Control Delay	34.4	5.7			62.6	217.8		30.6		38.9	30.4	6.6
Lane Group LOS	C	A			E	F		C		D	C	A
Approach Delay	23.8			147.0			30.6			20.5		
Approach LOS	C			F			C			C		
Intersection Delay	74.4			X_C = 0.99			Intersection LOS			E		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Boscombe Ave & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Hour*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*1*	*1*
Lane Group	*DefL*	*TR*			*LTR*		*DefL*	*TR*			*LT*	*R*
Volume, V (vph)	*444*	*36*	*0*	*2*	*62*	*69*	*4*	*3*	*0*	*62*	*6*	*908*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*3*	*3*	*3*	*1*	*1*	*1*	*6*	*6*	*6*
Peak-Hour Factor, PHF	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*	*0.58*	*0.58*	*0.58*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*		*3*	*3*			*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	*3.0*
Filtering/Metering, I	*0.962*	*0.962*			*1.000*		*1.000*	*1.000*			*0.889*	*0.889*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*17*	*0*	*0*	*0*	*0*	*0*	*310*
Lane Width	*16.0*	*16.0*			*11.5*		*12.0*	*12.0*			*12.0*	*12.0*
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*			*0*		*0*	*0*			*0*	*0*
Min. Time for Pedestrians, G_p	*20.3*			*17.5*			*20.3*			*20.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*488*	*40*			*127*		*7*	*5*			*76*	*664*
Lane Group Capacity, c	*709*	*1056*			*1536*		*518*	*732*			*541*	*593*
v/c Ratio, X	*0.69*	*0.04*			*0.08*		*0.01*	*0.01*			*0.14*	*1.12*
Total Green Ratio, g/C	*0.50*	*0.50*			*0.50*		*0.39*	*0.39*			*0.39*	*0.39*
Uniform Delay, d_1	*17.2*	*11.5*			*11.7*		*16.9*	*16.9*			*17.8*	*27.5*
Progression Factor, PF	*1.000*	*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	*0.50*

Incremental Delay, d_2	5.2	0.1			0.1		0.0	0.0			0.5	72.6
Initial Queue Delay, d_3	0.0	0.0			0.0		0.0	0.0			0.0	0.0
Control Delay	22.4	11.5			11.8		16.9	16.9			18.3	100.1
Lane Group LOS	C	B			B		B	B			B	F
Approach Delay	21.5				11.8		16.9				91.7	
Approach LOS	C				B		B				F	
Intersection Delay	57.5				X_C = 0.88		Intersection LOS				E	

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Bricktown Ctr Rd @ Vets Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*				*0*	*2*			*2*	*0*
Lane Group	*L*		*R*					*LT*			*TR*	
Volume, V (vph)	*233*		*24*				*4*	*205*			*390*	*452*
% Heavy Vehicles, %HV	*10*		*10*				*4*	*4*			*2*	*2*
Peak-Hour Factor, PHF	*0.88*		*0.88*				*0.90*	*0.90*			*0.80*	*0.80*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*					*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*					*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*					*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*					*3.0*			*3.0*	
Filtering/Metering, I	*0.975*		*0.975*					*0.998*			*0.686*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*					*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*6*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width	*13.0*		*12.0*					*11.5*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*					*0*			*0*	
Min. Time for Pedestrians, G_p	*21.8*			*20.3*			*3.2*			*19.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *19.0*	G =	G =	G =	G = *31.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*265*		*20*					*232*			*1052*	
Lane Group Capacity, c	*537*		*465*					*1663*			*1910*	
v/c Ratio, X	*0.49*		*0.04*					*0.14*			*0.55*	
Total Green Ratio, g/C	*0.32*		*0.32*					*0.52*			*0.52*	
Uniform Delay, d_1	*16.6*		*14.2*					*7.6*			*9.8*	
Progression Factor, PF	*1.000*		*1.000*					*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*					*0.50*			*0.50*	
Incremental Delay, d_2	*3.1*		*0.2*					*0.2*			*0.8*	

Initial Queue Delay, d_3	*0.0*		*0.0*					*0.0*			*0.0*	
Control Delay	*19.7*		*14.4*					*7.7*			*10.6*	
Lane Group LOS	*B*		*B*					*A*			*B*	
Approach Delay	*19.4*						*7.7*			*10.6*		
Approach LOS	*B*						*A*			*B*		
Intersection Delay	*11.8*			X_C = *0.53*			Intersection LOS			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/15/13*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*Englewood Ave & Vets Rd W RT*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 With-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* | North/South Street: *Veterans Rd W Right Turn Bay*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*23*				
Peak-Hour Factor, PHF	*1.00*	*0.55*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*41*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*T*				
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*436*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.90*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*484*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*1*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					*R*			
v (veh/h)					*484*			
C (m) (veh/h)					*1033*			
v/c					*0.47*			
95% queue length					*2.55*			
Control Delay (s/veh)					*11.5*			
LOS					*B*			
Approach Delay (s/veh)	--	--	*11.5*					
Approach LOS	--	--	*B*					

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Englewood Ave @ Veterans Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*1*	*1*		*1*			*0*	*3*	*0*
Lane Group		*TR*		*L*	*LT*		*L*				*LTR*	
Volume, V (vph)		*1*	*0*	*578*	*1*		*1*			*22*	*262*	*0*
% Heavy Vehicles, %HV		*1*	*1*	*1*	*1*		*1*			*2*	*2*	*2*
Peak-Hour Factor, PHF		*0.25*	*0.25*	*0.95*	*0.95*		*0.90*			*0.80*	*0.80*	*0.80*
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*			*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Arrival Type, AT		*3*		*3*	*3*		*3*				*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*		*3.0*				*3.0*	
Filtering/Metering, I		*1.000*		*0.983*	*0.983*		*0.989*				*1.000*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*12.0*		*13.0*	*13.0*		*10.0*				*11.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*		*0*	*0*		*0*				*0*	
Min. Time for Pedestrians, G_p	*31.2*			*3.2*			*18.1*			*11.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*					Cycle Length, C = *60.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*4*		*304*	*305*		*1*				*354*	
Lane Group Capacity, c		*784*		*612*	*587*		*388*				*2036*	
v/c Ratio, X		*0.01*		*0.50*	*0.52*		*0.00*				*0.17*	
Total Green Ratio, g/C		*0.42*		*0.42*	*0.42*		*0.42*				*0.42*	
Uniform Delay, d_1		*10.2*		*12.9*	*13.0*		*10.2*				*11.0*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*		*1.000*				*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*		*0.50*				*0.50*	
Incremental Delay, d_2		*0.0*		*2.8*	*3.2*		*0.0*				*0.2*	

Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Control Delay		*10.2*		*15.7*	*16.2*		*10.2*				*11.2*	
Lane Group LOS		*B*		*B*	*B*		*B*				*B*	
Approach Delay	*10.2*			*16.0*			*10.2*			*11.2*		
Approach LOS	*B*			*B*			*B*			*B*		
Intersection Delay	*14.2*			X_C = *0.35*			Intersection LOS			*B*		

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/15/13*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*Sharrotts Rd & Veterans Rd W*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 With-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Sharrotts Road* North/South Street: *Veterans Road West*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*53*	*30*	*178*	*57*	*0*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*0*	*30*	*76*	*20*
%Thrus Left Lane				*50*		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*TR*		*LT*				*LT*	*TR*
PHF	*0.86*		*0.77*				*0.80*	*0.80*
Flow Rate (veh/h)	*95*		*305*				*84*	71
% Heavy Vehicles	*17*		*4*				*1*	*1*
No. Lanes	*1*		*1*		*0*		*2*	
Geometry Group	*2*		*2*				*1*	
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	*0.0*		*0.8*				*0.4*	*0.0*
Prop. Right-Turns	*0.4*		*0.0*				*0.0*	*0.3*
Prop. Heavy Vehicle	*0.2*		*0.0*				*0.0*	*0.0*
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*			*0.2*	*0.2*
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*			*-0.6*	*-0.6*
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*			*1.7*	*1.7*
hadj, computed	*0.1*		*0.2*				*0.1*	*-0.2*

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value (s)	*3.20*		*3.20*				*3.20*	*3.20*
x, initial	*0.08*		*0.27*				*0.07*	*0.06*
hd, final value (s)	*4.71*		*4.61*				*4.96*	*4.67*
x, final value	*0.12*		*0.39*				*0.12*	*0.09*
Move-up time, m (s)	*2.0*		*2.0*				*2.0*	
Service Time, t_s (s)	*2.7*		*2.6*				*3.0*	*2.7*

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*345*		*555*				*334*	*321*
Delay (s/veh)	*8.38*		*10.53*				*8.61*	*8.14*
LOS	*A*		*B*				*A*	*A*
Approach: Delay (s/veh)	*8.38*		*10.53*				*8.40*	
LOS	*A*		*B*				*A*	
Intersection Delay (s/veh)	*9.57*							
Intersection LOS	*A*							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/15/13*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*Sharrotts Rd @ Veterans Rd E*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 With-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Sharrotts Road* North/South Street: *Veterans Road East*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*39*	*45*	*0*	*0*	*194*	*22*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*41*	*61*	*86*	*0*	*0*	*0*
%Thrus Left Lane	*50*					

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*LT*		*TR*		*LT*	*TR*		
PHF	*0.86*		*0.77*		*0.88*	*0.88*		
Flow Rate (veh/h)	*97*		*279*		*80*	*132*		
% Heavy Vehicles	*11*		*5*		*1*	*1*		
No. Lanes	*1*		*1*		*2*		*0*	
Geometry Group	*2*		*2*		*1*			
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	*0.5*		*0.0*		*0.6*	*0.0*		
Prop. Right-Turns	*0.0*		*0.1*		*0.0*	*0.7*		
Prop. Heavy Vehicle	*0.1*		*0.0*		*0.0*	*0.0*		
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*		
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*		
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*		
hadj, computed	*0.3*		*0.0*		*0.1*	*-0.4*		

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value (s)	*3.20*		*3.20*		*3.20*	*3.20*		
x, initial	*0.09*		*0.25*		*0.07*	*0.12*		
hd, final value (s)	*5.00*		*4.53*		*4.94*	*4.38*		
x, final value	*0.13*		*0.35*		*0.11*	*0.16*		
Move-up time, m (s)	*2.0*		*2.0*		*2.0*			
Service Time, t_s (s)	*3.0*		*2.5*		*2.9*	*2.4*		

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*347*		*529*		*330*	*382*		
Delay (s/veh)	*8.77*		*9.97*		*8.54*	*8.21*		
LOS	*A*		*A*		*A*	*A*		
Approach: Delay (s/veh)	*8.77*		*9.97*		*8.34*			
LOS	*A*		*A*		*A*			
Intersection Delay (s/veh)	*9.18*							
Intersection LOS	*A*							

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Ave @ Vets Rd E*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*3*	*0*			
Lane Group		*LT*	*R*		*LTR*			*LTR*				
Volume, V (vph)	*145*	*175*	*139*	*2*	*37*	*5*	*542*	*37*	*2*			
% Heavy Vehicles, %HV	*1*	*1*	*1*	*5*	*5*	*5*	*1*	*1*	*1*			
Peak-Hour Factor, PHF	*0.91*	*0.91*	*0.91*	*0.95*	*0.95*	*0.95*	*0.97*	*0.97*	*0.97*			
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*			
Start-up Lost Time, l_1		*2.0*	*2.0*		*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*	*2.0*		*2.0*			*2.0*				
Arrival Type, AT		*3*	*3*		*3*			*3*				
Unit Extension, UE		*3.0*	*3.0*		*3.0*			*3.0*				
Filtering/Metering, I		*0.999*	*0.999*		*0.999*			*0.980*				
Initial Unmet Demand, Q_b		*0.0*	*0.0*		*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*52*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width		*13.0*	*12.0*		*11.5*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B		*0*	*0*		*0*			*0*				
Min. Time for Pedestrians, G_p	*21.2*			*12.9*			*14.3*			*17.5*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *21.0*	G =	G =	G =	G = *29.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*351*	*96*		*46*			*599*				
Lane Group Capacity, c		*566*	*560*		*530*			*2286*				
v/c Ratio, X		*0.62*	*0.17*		*0.09*			*0.26*				
Total Green Ratio, g/C		*0.35*	*0.35*		*0.35*			*0.48*				
Uniform Delay, d_1		*16.2*	*13.5*		*13.1*			*9.2*				
Progression Factor, PF		*1.000*	*1.000*		*1.000*			*1.000*				
Delay Calibration, k		*0.50*	*0.50*		*0.50*			*0.50*				
Incremental Delay, d_2		*5.0*	*0.7*		*0.3*			*0.3*				

Initial Queue Delay, d_3		*0.0*	*0.0*		*0.0*			*0.0*				
Control Delay		*21.2*	*14.1*		*13.4*			*9.4*				
Lane Group LOS		*C*	*B*		*B*			*A*				
Approach Delay	*19.7*			*13.4*			*9.4*					
Approach LOS	*B*			*B*			*A*					
Intersection Delay	*13.8*			X_C = *0.41*			Intersection LOS			*B*		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Av & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*138*		*39*				*14*	*283*			*333*	*31*
% Heavy Vehicles, %HV	*1*		*1*				*2*	*2*			*2*	*2*
Peak-Hour Factor, PHF	*0.81*		*0.81*				*0.87*	*0.87*			*0.91*	*0.91*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.975*						*0.967*			*0.961*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*16.0*						*14.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B		*0*						*2*			*2*	
Min. Time for Pedestrians, G_p	*14.9*			*15.5*			*3.2*			*17.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*218*						*341*			*400*	
Lane Group Capacity, c		*465*						*1092*			*1173*	
v/c Ratio, X		*0.47*						*0.31*			*0.34*	
Total Green Ratio, g/C		*0.27*						*0.57*			*0.57*	
Uniform Delay, d_1		*18.4*						*6.8*			*7.0*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*3.3*						*0.7*			*0.8*	

Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	
Control Delay		*21.7*						*7.6*			*7.7*	
Lane Group LOS		*C*						*A*			*A*	
Approach Delay	*21.7*						*7.6*			*7.7*		
Approach LOS	*C*						*A*			*A*		
Intersection Delay	*10.9*			X_C = *0.38*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Sharrotts Rd & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*78*		*52*				*43*	*378*			*282*	*173*
% Heavy Vehicles, %HV	*4*		*4*				*2*	*2*			*1*	*1*
Peak-Hour Factor, PHF	*0.86*		*0.86*				*0.87*	*0.87*			*0.91*	*0.91*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.986*						*0.905*			*0.957*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*14*
Lane Width		*16.0*						*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*2*			*2*	
Min. Time for Pedestrians, G_p	*18.6*			*18.6*			*3.2*			*16.6*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*151*						*483*			*485*	
Lane Group Capacity, c		*555*						*844*			*1006*	
v/c Ratio, X		*0.27*						*0.57*			*0.48*	
Total Green Ratio, g/C		*0.33*						*0.50*			*0.50*	
Uniform Delay, d_1		*14.7*						*10.5*			*9.9*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*1.2*						*2.5*			*1.6*	

Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	
Control Delay		*15.9*						*13.1*			*11.5*	
Lane Group LOS		*B*						*B*			*B*	
Approach Delay	*15.9*						*13.1*			*11.5*		
Approach LOS	*B*						*B*			*B*		
Intersection Delay	*12.7*			X_C = *0.45*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Vets Rd E & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*	*0*	*3*	*0*	*1*	*1*			*1*	*0*
Lane Group	*L*		*R*		*LTR*		*L*	*T*			*TR*	
Volume, V (vph)	*9*		*132*	*222*	*455*	*123*	*95*	*164*			*341*	*31*
% Heavy Vehicles, %HV	*1*		*1*	*2*	*2*	*2*	*6*	*6*			*2*	*2*
Peak-Hour Factor, PHF	*0.77*		*0.77*	*0.87*	*0.87*	*0.87*	*0.89*	*0.89*			*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*		*P*	*P*	*P*	*P*	*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*		*3*		*3*	*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*		*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I	*0.830*		*0.830*		*0.725*		*0.937*	*0.937*			*0.817*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Lane Width	*10.0*		*13.0*		*11.0*		*12.0*	*12.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*		*0*		*0*	*2*			*2*	
Min. Time for Pedestrians, G_p	*17.2*			*16.9*			*3.2*			*20.9*		

Phasing	EB Only	WB Only	03	04	NS Perm	06	07	08
Timing	G = *8.0*	G = *17.0*	G =	G =	G = *20.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*					Cycle Length, C = *60.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*12*		*171*		*919*		*107*	*184*			*413*	
Lane Group Capacity, c	*222*		*220*		*1339*		*171*	*593*			*690*	
v/c Ratio, X	*0.05*		*0.78*		*0.69*		*0.63*	*0.31*			*0.60*	
Total Green Ratio, g/C	*0.13*		*0.13*		*0.28*		*0.33*	*0.33*			*0.33*	
Uniform Delay, d_1	*22.7*		*25.1*		*19.1*		*16.8*	*14.9*			*16.7*	
Progression Factor, PF	*1.000*		*1.000*		*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*		*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2	*0.4*		*19.8*		*2.1*		*15.1*	*1.3*			*3.1*	

Initial Queue Delay, d_3	0.0		0.0		0.0		0.0	0.0			0.0	
Control Delay	23.1		44.9		21.2		32.0	16.1			19.8	
Lane Group LOS	C		D		C		C	B			B	
Approach Delay	43.5				21.2		22.0			19.8		
Approach LOS	D				C		C			B		
Intersection Delay	23.3				X_C = 0.67		Intersection LOS			C		

 HCS+™ Version 5.4 Generated: 4/10/2013 2:00 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*S Service Rd & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*				*0*	*1*	*0*	*1*	*1*	*0*
Lane Group		*LTR*						*LTR*		*L*	*TR*	
Volume, V (vph)	*5*	*15*	*7*				*6*	*254*	*109*	*222*	*445*	*27*
% Heavy Vehicles, %HV	*2*	*2*	*2*				*6*	*6*	*6*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.63*	*0.63*	*0.63*				*0.89*	*0.89*	*0.89*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*				*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*		*2.0*	*2.0*	
Arrival Type, AT		*3*						*3*		*3*	*3*	
Unit Extension, UE		*3.0*						*3.0*		*3.0*	*3.0*	
Filtering/Metering, I		*1.000*						*0.932*		*0.785*	*0.785*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*13.0*						*16.0*		*12.0*	*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*2*		*0*	*2*	
Min. Time for Pedestrians, G_p	*17.5*			*16.9*			*12.6*			*12.9*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *17.0*	G =	G =	G =	G = *33.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*43*						*414*		*247*	*524*	
Lane Group Capacity, c		*456*						*925*		*532*	*1018*	
v/c Ratio, X		*0.09*						*0.45*		*0.46*	*0.51*	
Total Green Ratio, g/C		*0.28*						*0.55*		*0.55*	*0.55*	
Uniform Delay, d_1		*15.8*						*8.1*		*8.2*	*8.5*	
Progression Factor, PF		*1.000*						*1.000*		*1.000*	*1.000*	
Delay Calibration, k		*0.50*						*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2		*0.4*						*1.5*		*2.3*	*1.5*	

Initial Queue Delay, d_3		*0.0*						*0.0*		*0.0*	*0.0*	
Control Delay		*16.2*						*9.5*		*10.4*	*9.9*	
Lane Group LOS		*B*						*A*		*B*	*A*	
Approach Delay	*16.2*						*9.5*			*10.1*		
Approach LOS	*B*						*A*			*B*		
Intersection Delay	*10.1*			X_C = *0.37*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Amboy Rd & Bloomingdale Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*1*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*		*L*	*T*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*5*	*7*	*17*	*257*	*25*	*102*	*21*	*262*	*165*	*87*	*346*	*19*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*7*	*7*	*7*	*6*	*6*	*6*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.78*	*0.78*	*0.78*	*0.84*	*0.84*	*0.84*	*0.89*	*0.89*	*0.89*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*		*3*	*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*		*0.830*	*0.830*	*0.830*		*0.650*			*0.650*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*50*	*0*	*0*	*0*	*0*	*0*	*50*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*		*12.0*	*11.0*	*11.0*		*11.0*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*2*		*0*	*0*	*2*		*0*			*0*	
Min. Time for Pedestrians, G_p	*11.5*			*11.8*			*18.9*			*18.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*					Cycle Length, C = *90.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*37*		*306*	*30*	*121*		*503*			*502*	
Lane Group Capacity, c		*626*		*548*	*763*	*563*		*692*			*635*	
v/c Ratio, X		*0.06*		*0.56*	*0.04*	*0.21*		*0.73*			*0.79*	
Total Green Ratio, g/C		*0.44*		*0.44*	*0.44*	*0.44*		*0.44*			*0.44*	
Uniform Delay, d_1		*14.3*		*18.5*	*14.1*	*15.4*		*20.5*			*21.4*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*	*0.50*		*0.50*			*0.50*	

Incremental Delay, d_2		0.2		3.4	0.1	0.7		4.3			6.5	
Initial Queue Delay, d_3		0.0		0.0	0.0	0.0		0.0			0.0	
Control Delay		14.4		21.9	14.2	16.1		24.9			27.9	
Lane Group LOS		B		C	B	B		C			C	
Approach Delay	14.4			19.8			24.9			27.9		
Approach LOS	B			B			C			C		
Intersection Delay	24.1			X_C = 0.67			Intersection LOS			C		

 HCS+™ Version 5.4 Generated: 4/10/2013 2:01 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Arthur Kill Rd & Bloomingdl Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*0*	*1*		*0*		*0*			
Lane Group		*TR*			*LT*			*LR*				
Volume, V (vph)		*170*	*182*	*123*	*193*		*185*		*118*			
% Heavy Vehicles, %HV		*8*	*8*	*16*	*16*		*2*		*2*			
Peak-Hour Factor, PHF		*0.90*	*0.90*	*0.91*	*0.91*		*0.88*		*0.88*			
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*		*P*			
Start-up Lost Time, l_1		*2.0*			*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*			*2.0*			*2.0*				
Arrival Type, AT		*3*			*3*			*3*				
Unit Extension, UE		*3.0*			*3.0*			*3.0*				
Filtering/Metering, I		*0.961*			*0.989*			*0.922*				
Initial Unmet Demand, Q_b		*0.0*			*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*44*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	
Lane Width		*16.0*			*16.0*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m									*5*			
Buses Stopping, N_B		*5*			*0*			*0*				
Min. Time for Pedestrians, G_p	*18.3*			*3.2*			*15.2*			*17.2*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*342*			*347*			*344*				
Lane Group Capacity, c		*918*			*611*			*564*				
v/c Ratio, X		*0.37*			*0.57*			*0.61*				
Total Green Ratio, g/C		*0.50*			*0.50*			*0.39*				
Uniform Delay, d_1		*13.8*			*15.7*			*22.0*				
Progression Factor, PF		*1.000*			*1.000*			*1.000*				
Delay Calibration, k		*0.50*			*0.50*			*0.50*				
Incremental Delay, d_2		*1.1*			*3.8*			*4.5*				

Initial Queue Delay, d_3		*0.0*			*0.0*			*0.0*				
Control Delay		*14.9*			*19.5*			*26.5*				
Lane Group LOS		*B*			*B*			*C*				
Approach Delay	*14.9*			*19.5*			*26.5*					
Approach LOS	*B*			*B*			*C*					
Intersection Delay	*20.3*			X_C = *0.59*			Intersection LOS			*C*		

Weekday

PM

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*Sharrotts Rd & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 With-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Sharrotts Road* North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*28*	*227*	*66*	*56*	*226*	*27*
Peak-Hour Factor, PHF	*0.87*	*0.87*	*0.87*	*0.81*	*0.81*	*0.81*
Hourly Flow Rate, HFR (veh/h)	*32*	*260*	*75*	*69*	*279*	*33*
Percent Heavy Vehicles	*6*	--	--	*9*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*33*	*18*	*28*	*55*	*17*	*33*
Peak-Hour Factor, PHF	*0.86*	*0.86*	*0.86*	*0.81*	*0.81*	*0.81*
Hourly Flow Rate, HFR (veh/h)	*38*	*20*	*32*	*67*	*20*	*40*
Percent Heavy Vehicles	*2*	*2*	*2*	*1*	*1*	*1*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (veh/h)	*32*	*69*		*127*			*90*	
C (m) (veh/h)	*1226*	*1186*		*319*			*328*	
v/c	*0.03*	*0.06*		*0.40*			*0.27*	
95% queue length	*0.08*	*0.19*		*1.84*			*1.09*	
Control Delay (s/veh)	*8.0*	*8.2*		*23.6*			*20.1*	
LOS	*A*	*A*		*C*			*C*	
Approach Delay (s/veh)	--	--	*23.6*			*20.1*		
Approach LOS	--	--	*C*			*C*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*Englewood Ave & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 With-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*296*	*18*	*14*	*296*	
Peak-Hour Factor, PHF	*1.00*	*0.87*	*0.87*	*0.81*	*0.81*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*340*	*20*	*17*	*365*	*0*
Percent Heavy Vehicles	*0*	--	--	*7*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*28*		*26*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.68*	*1.00*	*0.68*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*41*	*0*	*38*
Percent Heavy Vehicles	*0*	*0*	*0*	*7*	*0*	*7*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (veh/h)		*17*		*79*				
C (m) (veh/h)		*1171*		*472*				
v/c		*0.01*		*0.17*				
95% queue length		*0.04*		*0.60*				
Control Delay (s/veh)		*8.1*		*14.2*				
LOS		*A*		*B*				
Approach Delay (s/veh)	--	--	*14.2*					
Approach LOS	--	--	*B*					

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*			*LT*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*1*	*10*	*2*	*259*	*20*	*261*	*4*	*136*	*301*	*202*	*236*	*1*
% Heavy Vehicles, %HV	*3*	*3*	*3*	*5*	*5*	*5*	*5*	*5*	*5*	*7*	*7*	*7*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.82*	*0.82*	*0.82*	*0.93*	*0.93*	*0.93*	*0.86*	*0.86*	*0.86*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*			*0.933*	*0.933*		*0.919*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*15.5*			*11.0*	*10.0*		*15.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*			*0*	*0*		*3*			*2*	
Min. Time for Pedestrians, G_p	*11.5*			*13.5*			*15.2*			*12.1*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*					Cycle Length, C = *60.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*14*			*340*	*318*		*474*			*510*	
Lane Group Capacity, c		*725*			*533*	*523*		*741*			*464*	
v/c Ratio, X		*0.02*			*0.64*	*0.61*		*0.64*			*1.10*	
Total Green Ratio, g/C		*0.42*			*0.42*	*0.42*		*0.42*			*0.42*	
Uniform Delay, d_1		*10.3*			*13.9*	*13.7*		*13.9*			*17.5*	
Progression Factor, PF		*1.000*			*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*	*0.50*		*0.50*			*0.50*	

Incremental Delay, d_2		*0.0*			*5.4*	*4.8*		*3.9*			*71.5*	
Initial Queue Delay, d_3		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Control Delay		*10.3*			*19.3*	*18.5*		*17.8*			*89.0*	
Lane Group LOS		*B*			*B*	*B*		*B*			*F*	
Approach Delay	*10.3*			*18.9*			*17.8*			*89.0*		
Approach LOS	*B*			*B*			*B*			*F*		
Intersection Delay	*40.1*			X_C = *0.87*			Intersection LOS			*D*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*No Bridge St & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*			*1*	
Lane Group					*LR*			*T*			*T*	
Volume, V (vph)				*511*		*4*		*437*			*496*	
% Heavy Vehicles, %HV				*2*		*2*		*5*			*12*	
Peak-Hour Factor, PHF				*0.84*		*0.84*		*0.93*			*0.86*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*			*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.373*			*0.921*			*0.340*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	
Lane Width					*16.0*			*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B					*0*			*0*			*2*	
Min. Time for Pedestrians, G_p	*13.5*			*13.8*			*3.2*			*3.2*		

Phasing	WB Only	02	03	04	Thru Only	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*613*			*470*			*577*	
Lane Group Capacity, c					*670*			*1026*			*954*	
v/c Ratio, X					*0.91*			*0.46*			*0.60*	
Total Green Ratio, g/C					*0.33*			*0.50*			*0.50*	
Uniform Delay, d_1					*19.2*			*9.7*			*10.8*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*8.8*			*1.4*			*1.0*	

Initial Queue Delay, d_3					*0.0*			*0.0*			*0.0*	
Control Delay					*28.0*			*11.1*			*11.7*	
Lane Group LOS					*C*			*B*			*B*	
Approach Delay				*28.0*			*11.1*			*11.7*		
Approach LOS				*C*			*B*			*B*		
Intersection Delay	*17.5*			X_C = *0.73*			Intersection LOS			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*So Bridge St & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 With-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *South Bridge Street* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*437*	*254*	*182*	*825*	
Peak-Hour Factor, PHF	*1.00*	*0.93*	*0.93*	*0.86*	*0.86*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*469*	*273*	*211*	*959*	*0*
Percent Heavy Vehicles	*0*	--	--	*18*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration						

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*						
v (veh/h)		*211*						
C (m) (veh/h)		*797*						
v/c		*0.26*						
95% queue length		*1.06*						
Control Delay (s/veh)		*11.1*						
LOS		*B*						
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Rch Valley Rd & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*	*0*	*0*	*1*	
Lane Group					*LR*			*TR*			*LT*	
Volume, V (vph)				*130*		*142*		*536*	*101*	*118*	*692*	
% Heavy Vehicles, %HV				*1*		*1*		*4*	*4*	*6*	*6*	
Peak-Hour Factor, PHF				*0.84*		*0.84*		*0.93*	*0.93*	*0.86*	*0.86*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*	*P*	*P*	*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.901*			*0.798*			*0.114*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width					*12.0*			*15.0*			*15.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B					*0*			*4*			*2*	
Min. Time for Pedestrians, G_p	*11.8*			*11.8*			*14.1*			*3.2*		

Phasing	WB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*324*			*685*			*942*	
Lane Group Capacity, c					*398*			*1096*			*773*	
v/c Ratio, X					*0.81*			*0.63*			*1.22*	
Total Green Ratio, g/C					*0.27*			*0.57*			*0.57*	
Uniform Delay, d_1					*20.6*			*8.7*			*13.0*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*15.1*			*2.2*			*99.8*	

Initial Queue Delay, d_3					0.0			0.0			0.0	
Control Delay					35.7			10.9			112.8	
Lane Group LOS					D			B			F	
Approach Delay				35.7			10.9			112.8		
Approach LOS				D			B			F		
Intersection Delay	64.2			X_C = 1.09			Intersection LOS			E		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Richmond Valley Rd & Page Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*0*	*1*	*1*	*0*	*0*	*2*	*0*
Lane Group		*LTR*			*LTR*		*L*	*TR*			*LTR*	
Volume, V (vph)	*94*	*44*	*102*	*33*	*188*	*42*	*56*	*564*	*104*	*108*	*537*	*49*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.81*	*0.81*	*0.81*	*0.91*	*0.91*	*0.91*	*0.87*	*0.87*	*0.87*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.503*			*1.000*		*0.773*	*0.773*			*0.957*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*10*
Lane Width		*16.0*			*15.0*		*10.0*	*14.0*			*10.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*
Parking Maneuvers, N_m						*5*						*5*
Buses Stopping, N_B		*0*			*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*16.6*			*21.5*			*16.3*			*21.2*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *31.0*	G =	G =	G =	G = *49.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*					Cycle Length, C = *90.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*273*			*325*		*62*	*734*			*786*	
Lane Group Capacity, c		*464*			*568*		*289*	*1067*			*1002*	
v/c Ratio, X		*0.59*			*0.57*		*0.21*	*0.69*			*0.78*	
Total Green Ratio, g/C		*0.34*			*0.34*		*0.54*	*0.54*			*0.54*	
Uniform Delay, d_1		*24.3*			*24.1*		*10.6*	*14.9*			*16.3*	
Progression Factor, PF		*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	

Incremental Delay, d_2		2.7			4.1		1.3	2.8			5.9	
Initial Queue Delay, d_3		0.0			0.0		0.0	0.0			0.0	
Control Delay		27.0			28.2		11.9	17.7			22.2	
Lane Group LOS		C			C		B	B			C	
Approach Delay	27.0			28.2			17.3			22.2		
Approach LOS	C			C			B			C		
Intersection Delay	21.9			X_C = 0.71			Intersection LOS			C		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/15/13*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*S Bridge St RT & Page Ave*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 With-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *South Bridge Street Right Turn* | North/South Street: *Page Avenue*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*624*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.87*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*717*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*2*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*69*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.78*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*88*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*55*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								*R*
v (veh/h)								*88*
C (m) (veh/h)								*582*
v/c								*0.15*
95% queue length								*0.53*
Control Delay (s/veh)								*12.3*
LOS								*B*
Approach Delay (s/veh)	--	--				*12.3*		
Approach LOS	--	--				*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*S Br St & Page Ave/Boscome Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*							*2*			*2*	
Lane Group	*L*							*T*			*T*	
Volume, V (vph)	*368*							*700*			*624*	
% Heavy Vehicles, %HV	*1*							*1*			*1*	
Peak-Hour Factor, PHF	*0.91*							*0.90*			*0.87*	
Pretimed (P) or Actuated (A)	*P*							*P*			*P*	
Start-up Lost Time, l_1	*2.0*							*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*							*2.0*			*2.0*	
Arrival Type, AT	*3*							*3*			*3*	
Unit Extension, UE	*3.0*							*3.0*			*3.0*	
Filtering/Metering, I	*1.000*							*0.773*			*0.957*	
Initial Unmet Demand, Q_b	*0.0*							*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*		*0*	*0*		*0*	*0*	
Lane Width	*16.0*							*14.5*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*							*0*			*0*	
Min. Time for Pedestrians, G_p	*3.2*			*20.1*			*3.2*			*3.2*		

Phasing	EB Only	02	03	04	Thru Only	06	07	08
Timing	G = *30.0*	G =	G =	G =	G = *50.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*404*							*778*			*717*	
Lane Group Capacity, c	*675*							*2156*			*1990*	
v/c Ratio, X	*0.60*							*0.36*			*0.36*	
Total Green Ratio, g/C	*0.33*							*0.56*			*0.56*	
Uniform Delay, d_1	*25.0*							*11.1*			*11.1*	
Progression Factor, PF	*1.000*							*1.000*			*1.000*	
Delay Calibration, k	*0.50*							*0.50*			*0.50*	
Incremental Delay, d_2	*3.9*							*0.4*			*0.5*	

Initial Queue Delay, d_3	*0.0*							*0.0*			*0.0*	
Control Delay	*28.9*							*11.5*			*11.6*	
Lane Group LOS	*C*							*B*			*B*	
Approach Delay	*28.9*						*11.5*			*11.6*		
Approach LOS	*C*						*B*			*B*		
Intersection Delay	*15.2*			X_C = *0.45*			Intersection LOS			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/15/13*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*KWVP WB OR UT & No Bridge St*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 With-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *KWVP WB Off-Ramp U-Turn* | North/South Street: *North Bridge Street*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*490*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.89*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*550*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*1*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*458*		
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.90*	*0.93*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*492*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*60*	*3*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*0*
Configuration				*L*		

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration			*L*					
v (veh/h)			*492*					
C (m) (veh/h)			*494*					
v/c			*1.00*					
95% queue length			*13.46*					
Control Delay (s/veh)			*68.5*					
LOS			*F*					
Approach Delay (s/veh)	--	--	*68.5*					
Approach LOS	--	--	*F*					

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Bricktown/KWVP*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/15/13*	Jurisdiction	*Sat Flow Rate WB-L = 1950*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*	*0*	*1*	*2*	*0*	*0*	*2*	*0*	*1*	*1*	*0*
Lane Group	*L*	*TR*		*L*	*TR*			*LTR*		*L*	*TR*	
Volume, V (vph)	*158*	*166*	*190*	*239*	*319*	*44*	*116*	*297*	*253*	*46*	*61*	*104*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*7*	*7*	*7*	*3*	*3*	*3*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.90*	*0.82*	*0.82*	*0.93*	*0.93*	*0.93*	*0.76*	*0.76*	*0.76*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*		*2.0*	*2.0*			*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e	*2.0*	*2.0*		*3.0*	*3.0*			*2.0*		*2.0*	*2.0*	
Arrival Type, AT	*3*	*3*		*3*	*3*			*3*		*3*	*3*	
Unit Extension, UE	*3.0*	*3.0*		*3.0*	*3.0*			*3.0*		*3.0*	*3.0*	
Filtering/Metering, I	*0.701*	*0.701*		*0.949*	*0.949*			*1.000*		*0.970*	*0.970*	
Initial Unmet Demand, Q_b	*0.0*	*0.0*		*0.0*	*0.0*			*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*45*	*0*	*0*	*11*	*0*	*0*	*25*	*0*	*0*	*25*
Lane Width	*11.0*	*12.0*		*10.0*	*12.0*			*12.5*		*11.0*	*10.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*		*0*	*0*			*0*		*0*	*0*	
Min. Time for Pedestrians, G_p	*34.6*			*18.6*			*20.3*			*16.1*		

Phasing	EW Perm	02	03	04	NB Only	SB Only	07	08
Timing	G = *30.0*	G =	G =	G =	G = *25.0*	G = *20.0*	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y = *5*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*180*	*354*		*266*	*429*			*689*		*61*	*184*	
Lane Group Capacity, c	*270*	*583*		*240*	*1148*			*931*		*384*	*357*	
v/c Ratio, X	*0.67*	*0.61*		*1.11*	*0.37*			*0.74*		*0.16*	*0.52*	
Total Green Ratio, g/C	*0.33*	*0.33*		*0.34*	*0.34*			*0.28*		*0.22*	*0.22*	
Uniform Delay, d_1	*25.7*	*25.1*		*29.5*	*22.2*			*29.5*		*28.2*	*30.7*	
Progression Factor, PF	*1.000*	*1.000*		*1.000*	*1.000*			*1.000*		*1.000*	*1.000*	
Delay Calibration, k	*0.50*	*0.50*		*0.50*	*0.50*			*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2	*8.8*	*3.3*		*88.7*	*0.9*			*5.3*		*0.9*	*5.1*	

Initial Queue Delay, d_3	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Control Delay	34.5	28.4		118.2	23.1			34.8		29.1	35.8	
Lane Group LOS	C	C		F	C			C		C	D	
Approach Delay	30.4			59.5			34.8			34.1		
Approach LOS	C			E			C			C		
Intersection Delay	41.6			X_C = 0.83			Intersection LOS			D		

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/24/13*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*Bricktown Way/Tyrellan Avenue*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 With-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Bricktown Way* | North/South Street: *Tyrellan Avenue*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*93*	*111*	*54*	*143*	*140*	*86*
%Thrus Left Lane	*50*			*50*		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*15*	*39*	*67*	*80*	*193*	*60*
%Thrus Left Lane				*50*		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*LT*	*TR*	*LT*	*TR*	*LT*	*R*	*LT*	*TR*
PHF	*0.87*	*0.87*	*0.91*	*0.91*	*0.76*	*1.00*	*1.00*	*1.00*
Flow Rate (veh/h)	*169*	*126*	*233*	*170*	*70*	*67*	*176*	157
% Heavy Vehicles	*7*	*7*	*1*	*1*	*1*	*0*	*0*	*0*
No. Lanes	*2*		*2*		*2*		*2*	
Geometry Group	*5*		*5*		*5*		*5*	
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	*0.6*	*0.0*	*0.7*	*0.0*	*0.3*	*0.0*	*0.5*	*0.0*
Prop. Right-Turns	*0.0*	*0.5*	*0.0*	*0.6*	*0.0*	*1.0*	*0.0*	*0.4*
Prop. Heavy Vehicle	*0.1*	*0.1*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
hLT-adj	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*
hRT-adj	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*
hadj, computed	*0.4*	*-0.2*	*0.4*	*-0.4*	*0.2*	*-0.7*	*0.2*	*-0.3*

Departure Headway and Service Time

hd, initial value (s)	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*
x, initial	*0.15*	*0.11*	*0.21*	*0.15*	*0.06*	*0.06*	*0.16*	*0.14*
hd, final value (s)	*6.93*	*6.27*	*6.71*	*5.98*	*7.12*	*6.27*	*6.86*	*6.36*
x, final value	*0.33*	*0.22*	*0.43*	*0.28*	*0.14*	*0.12*	*0.34*	*0.28*
Move-up time, m (s)	*2.3*		*2.3*		*2.3*		*2.3*	
Service Time, t_s (s)	*4.6*	*4.0*	*4.4*	*3.7*	*4.8*	*4.0*	*4.6*	*4.1*

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*419*	*376*	*483*	*420*	*320*	*317*	*426*	*407*
Delay (s/veh)	*12.93*	*10.72*	*14.45*	*11.02*	*10.97*	*9.80*	*12.97*	*11.48*
LOS	*B*	*B*	*B*	*B*	*B*	*A*	*B*	*B*
Approach: Delay (s/veh)	*11.98*		*13.00*		*10.39*		*12.27*	
LOS	*B*		*B*		*B*		*B*	
Intersection Delay (s/veh)	*12.23*							
Intersection LOS	*B*							

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*
Lane Group		*LTR*			*LTR*		*DefL*	*TR*			*LTR*	
Volume, V (vph)	*51*	*114*	*275*	*120*	*284*	*9*	*203*	*142*	*121*	*21*	*523*	*120*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*2*	*2*	*2*	*1*	*1*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.82*	*0.82*	*0.82*	*0.93*	*0.93*	*0.93*	*0.94*	*0.94*	*0.94*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.884*			*0.927*		*1.000*	*1.000*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*			*12.0*		*13.0*	*13.0*			*9.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*			*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*18.6*			*16.6*			*20.1*			*19.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*					Cycle Length, C = *90.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*501*			*503*		*218*	*283*			*706*	
Lane Group Capacity, c		*1198*			*1040*		*265*	*804*			*1321*	
v/c Ratio, X		*0.42*			*0.48*		*0.82*	*0.35*			*0.53*	
Total Green Ratio, g/C		*0.44*			*0.44*		*0.44*	*0.44*			*0.44*	
Uniform Delay, d_1		*17.1*			*17.7*		*21.9*	*16.5*			*18.2*	
Progression Factor, PF		*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	

Incremental Delay, d_2		*1.0*			*1.5*		*24.2*	*1.2*			*1.6*	
Initial Queue Delay, d_3		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay		*18.0*			*19.2*		*46.1*	*17.7*			*19.8*	
Lane Group LOS		*B*			*B*		*D*	*B*			*B*	
Approach Delay	*18.0*			*19.2*			*30.0*			*19.8*		
Approach LOS	*B*			*B*			*C*			*B*		
Intersection Delay	*21.6*			X_C *= 0.65*			Intersection LOS			*C*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Boscombe Ave & OBX Off-Ramp*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*1*	*1*	*1*
Lane Group	*L*	*TR*			*LT*	*R*		*LTR*		*L*	*LT*	*R*
Volume, V (vph)	*723*	*340*	*4*	*3*	*348*	*569*	*2*	*3*	*2*	*118*	*0*	*275*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.95*	*0.95*	*0.95*	*0.44*	*0.44*	*0.44*	*0.80*	*0.80*	*0.80*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*	*3*		*3*		*3*	*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*	*3.0*		*3.0*		*3.0*	*3.0*	*3.0*
Filtering/Metering, I	*0.687*	*0.687*			*0.650*	*0.650*		*1.000*		*1.000*	*1.000*	*1.000*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*	*0.0*		*0.0*		*0.0*	*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*11.0*	*12.0*			*12.0*	*12.0*		*16.0*		*10.0*	*11.0*	*10.0*
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B	*0*	*0*			*0*	*0*		*0*		*0*	*0*	*0*
Min. Time for Pedestrians, G_p	*14.6*			*24.6*			*20.9*			*20.1*		

Phasing	EB Only	EW Perm	03	04	NS Perm	06	07	08
Timing	G = *33.0*	G = *28.0*	G =	G =	G = *14.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*					Cycle Length, C = *90.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*803*	*382*			*369*	*599*		*17*		*147*	*0*	*344*
Lane Group Capacity, c	*820*	*1205*			*584*	*497*		*148*		*204*	*283*	*862*
v/c Ratio, X	*0.98*	*0.32*			*0.63*	*1.21*		*0.11*		*0.72*	*0.00*	*0.40*
Total Green Ratio, g/C	*0.73*	*0.73*			*0.31*	*0.31*		*0.16*		*0.16*	*0.16*	*0.58*
Uniform Delay, d_1	*16.8*	*4.2*			*26.6*	*31.0*		*32.7*		*36.1*	*32.1*	*10.4*
Progression Factor, PF	*1.000*	*1.000*			*1.000*	*1.000*		*1.000*		*1.000*	*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*	*0.50*		*0.50*		*0.50*	*0.50*	*0.50*

Incremental Delay, d_2	21.5	0.5			3.4	104.6		1.6		19.7	0.0	1.4
Initial Queue Delay, d_3	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Control Delay	38.3	4.6			30.0	135.6		34.2		55.8	32.1	11.8
Lane Group LOS	D	A			C	F		C		E	C	B
Approach Delay	27.5			95.3			34.2			25.0		
Approach LOS	C			F			C			C		
Intersection Delay	51.7			X_C = 1.02			Intersection LOS			D		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Boscombe Ave & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Hour*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*1*	*1*
Lane Group	*DefL*	*TR*			*LTR*			*LTR*			*LT*	*R*
Volume, V (vph)	*426*	*35*	*0*	*1*	*35*	*42*	*3*	*3*	*2*	*60*	*1*	*882*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.95*	*0.95*	*0.95*	*0.50*	*0.50*	*0.50*	*0.94*	*0.94*	*0.94*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*			*2.0*			*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*			*2.0*			*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*			*3*			*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*			*3.0*			*3.0*	*3.0*
Filtering/Metering, I	*0.952*	*0.952*			*1.000*			*1.000*			*0.937*	*0.937*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*			*0.0*			*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*10*	*0*	*0*	*0*	*0*	*0*	*294*
Lane Width	*16.0*	*16.0*			*11.5*			*12.0*			*12.0*	*12.0*
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*			*0*			*0*			*0*	*0*
Min. Time for Pedestrians, G_p	*20.3*			*17.5*			*20.3*			*20.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*473*	*39*			*72*			*16*			*65*	*626*
Lane Group Capacity, c	*755*	*1066*			*1561*			*1220*			*550*	*616*
v/c Ratio, X	*0.63*	*0.04*			*0.05*			*0.01*			*0.12*	*1.02*
Total Green Ratio, g/C	*0.50*	*0.50*			*0.50*			*0.39*			*0.39*	*0.39*
Uniform Delay, d_1	*16.4*	*11.5*			*11.5*			*16.9*			*17.6*	*27.5*
Progression Factor, PF	*1.000*	*1.000*			*1.000*			*1.000*			*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*			*0.50*			*0.50*	*0.50*

Incremental Delay, d_2	*3.7*	*0.1*			*0.1*			*0.0*			*0.4*	*39.2*
Initial Queue Delay, d_3	*0.0*	*0.0*			*0.0*			*0.0*			*0.0*	*0.0*
Control Delay	*20.1*	*11.5*			*11.6*			*16.9*			*18.0*	*66.7*
Lane Group LOS	*C*	*B*			*B*			*B*			*B*	*E*
Approach Delay	*19.5*				*11.6*			*16.9*			*62.1*	
Approach LOS	*B*				*B*			*B*			*E*	
Intersection Delay	*41.8*				X_C = *0.80*			Intersection LOS			*D*	

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Bricktown Ctr Rd @ Vets Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*				*0*	*2*			*2*	*0*
Lane Group	*L*		*R*					*LT*			*TR*	
Volume, V (vph)	*235*		*23*				*2*	*252*			*391*	*367*
% Heavy Vehicles, %HV	*8*		*8*				*1*	*1*			*2*	*2*
Peak-Hour Factor, PHF	*0.87*		*0.87*				*0.88*	*0.88*			*0.91*	*0.91*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*					*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*					*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*					*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*					*3.0*			*3.0*	
Filtering/Metering, I	*0.974*		*0.974*					*0.995*			*0.791*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*					*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*6*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width	*13.0*		*12.0*					*11.5*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*					*0*			*0*	
Min. Time for Pedestrians, G_p	*21.8*			*20.3*			*3.2*			*19.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *19.0*	G =	G =	G =	G = *31.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*270*		*20*					*288*			*833*	
Lane Group Capacity, c	*547*		*473*					*1731*			*1926*	
v/c Ratio, X	*0.49*		*0.04*					*0.17*			*0.43*	
Total Green Ratio, g/C	*0.32*		*0.32*					*0.52*			*0.52*	
Uniform Delay, d_1	*16.6*		*14.2*					*7.7*			*9.0*	
Progression Factor, PF	*1.000*		*1.000*					*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*					*0.50*			*0.50*	
Incremental Delay, d_2	*3.1*		*0.2*					*0.2*			*0.6*	

Initial Queue Delay, d_3	*0.0*		*0.0*					*0.0*			*0.0*	
Control Delay	*19.7*		*14.4*					*7.9*			*9.6*	
Lane Group LOS	*B*		*B*					*A*			*A*	
Approach Delay	*19.3*						*7.9*			*9.6*		
Approach LOS	*B*						*A*			*A*		
Intersection Delay	*11.2*			X_C = *0.46*			Intersection LOS			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/15/13*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*Englewood Ave & Vets Rd W RT*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 With-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* | North/South Street: *Veterans Rd W Right Turn Bay*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*23*				
Peak-Hour Factor, PHF	*1.00*	*0.71*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*32*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*T*				
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*483*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.88*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*548*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*1*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					*R*			
v (veh/h)					*548*			
C (m) (veh/h)					*1045*			
v/c					*0.52*			
95% queue length					*3.15*			
Control Delay (s/veh)					*12.2*			
LOS					*B*			
Approach Delay (s/veh)	--	--	*12.2*					
Approach LOS	--	--	*B*					

HCS+™ Version 5.4

Generated: 4/10/2013 2:17 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Ave @ Veterans Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*1*	*1*		*1*			*0*	*3*	*0*
Lane Group		*TR*		*L*	*LT*		*L*				*LTR*	
Volume, V (vph)		*1*	*0*	*477*	*2*		*4*			*22*	*280*	*4*
% Heavy Vehicles, %HV		*1*	*1*	*3*	*3*		*1*			*1*	*1*	*1*
Peak-Hour Factor, PHF		*0.25*	*0.25*	*0.89*	*0.89*		*0.88*			*0.91*	*0.91*	*0.91*
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*			*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Arrival Type, AT		*3*		*3*	*3*		*3*				*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*		*3.0*				*3.0*	
Filtering/Metering, I		*1.000*		*0.983*	*0.983*		*0.988*				*1.000*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*12.0*		*13.0*	*13.0*		*10.0*				*11.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*		*0*	*0*		*0*				*0*	
Min. Time for Pedestrians, G_p	*31.2*			*3.2*			*18.1*			*11.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*4*		*268*	*270*		*5*				*336*	
Lane Group Capacity, c		*784*		*600*	*576*		*396*				*2053*	
v/c Ratio, X		*0.01*		*0.45*	*0.47*		*0.01*				*0.16*	
Total Green Ratio, g/C		*0.42*		*0.42*	*0.42*		*0.42*				*0.42*	
Uniform Delay, d_1		*10.2*		*12.5*	*12.7*		*10.3*				*11.0*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*		*1.000*				*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*		*0.50*				*0.50*	
Incremental Delay, d_2		*0.0*		*2.4*	*2.7*		*0.1*				*0.2*	

Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Control Delay		*10.2*		*14.9*	*15.4*		*10.3*				*11.1*	
Lane Group LOS		*B*		*B*	*B*		*B*				*B*	
Approach Delay	*10.2*			*15.1*			*10.3*			*11.1*		
Approach LOS	*B*			*B*			*B*			*B*		
Intersection Delay	*13.6*			X_C *= 0.32*			Intersection LOS			*B*		

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/15/13*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*Sharrotts Rd & Veterans Rd W*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 With-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Sharrotts Road* | North/South Street: *Veterans Road West*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*103*	*37*	*182*	*81*	*0*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*0*	*23*	*86*	*24*
%Thrus Left Lane				*50*		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*TR*		*LT*				*LT*	*TR*
PHF	*0.80*		*0.78*				*0.91*	*0.91*
Flow Rate (veh/h)	*174*		*336*				*72*	73
% Heavy Vehicles	*2*		*3*				*1*	*1*
No. Lanes	*1*		*1*		*0*		*2*	
Geometry Group	*2*		*2*				*1*	
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	*0.0*		*0.7*				*0.3*	*0.0*
Prop. Right-Turns	*0.3*		*0.0*				*0.0*	*0.4*
Prop. Heavy Vehicle	*0.0*		*0.0*				*0.0*	*0.0*
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*			*0.2*	*0.2*
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*			*-0.6*	*-0.6*
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*			*1.7*	*1.7*
hadj, computed	*-0.1*		*0.2*				*0.1*	*-0.2*

Departure Headway and Service Time

hd, initial value (s)	*3.20*		*3.20*				*3.20*	*3.20*
x, initial	*0.15*		*0.30*				*0.06*	*0.06*
hd, final value (s)	*4.54*		*4.66*				*5.18*	*4.90*
x, final value	*0.22*		*0.43*				*0.10*	*0.10*
Move-up time, m (s)	*2.0*		*2.0*				*2.0*	
Service Time, t_s (s)	*2.5*		*2.7*				*3.2*	*2.9*

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*424*		*586*				*322*	*323*
Delay (s/veh)	*8.81*		*11.19*				*8.78*	*8.44*
LOS	*A*		*B*				*A*	*A*
Approach: Delay (s/veh)	*8.81*		*11.19*				*8.61*	
LOS	*A*		*B*				*A*	
Intersection Delay (s/veh)	*9.99*							
Intersection LOS	*A*							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/15/13*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*Sharrotts Rd @ Veterans Rd E*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 With-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Sharrotts Road* North/South Street: *Veterans Road East*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*37*	*88*	*0*	*0*	*200*	*19*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*63*	*97*	*138*	*0*	*0*	*0*
%Thrus Left Lane	*50*					

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*LT*		*TR*		*LT*	*TR*		
PHF	*0.80*		*0.78*		*0.99*	*0.99*		
Flow Rate (veh/h)	*155*		*280*		*111*	*188*		
% Heavy Vehicles	*2*		*5*		*1*	*1*		
No. Lanes	*1*		*1*		*2*		*0*	
Geometry Group	*2*		*2*		*1*			
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	*0.3*		*0.0*		*0.6*	*0.0*		
Prop. Right-Turns	*0.0*		*0.1*		*0.0*	*0.7*		
Prop. Heavy Vehicle	*0.0*		*0.0*		*0.0*	*0.0*		
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*		
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*		
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*		
hadj, computed	*0.1*		*0.0*		*0.1*	*-0.4*		

Departure Headway and Service Time

hd, initial value (s)	*3.20*		*3.20*		*3.20*	*3.20*		
x, initial	*0.14*		*0.25*		*0.10*	*0.17*		
hd, final value (s)	*5.05*		*4.83*		*5.12*	*4.56*		
x, final value	*0.22*		*0.38*		*0.16*	*0.24*		
Move-up time, m (s)	*2.0*		*2.0*		*2.0*			
Service Time, t_s (s)	*3.1*		*2.8*		*3.1*	*2.6*		

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*405*		*530*		*361*	*438*		
Delay (s/veh)	*9.45*		*10.72*		*9.08*	*8.98*		
LOS	*A*		*B*		*A*	*A*		
Approach: Delay (s/veh)	*9.45*		*10.72*		*9.01*			
LOS	*A*		*B*		*A*			
Intersection Delay (s/veh)	*9.76*							
Intersection LOS	*A*							

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Ave @ Vets Rd E*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*3*	*0*			
Lane Group		*LT*	*R*		*LTR*			*LTR*				
Volume, V (vph)	*187*	*177*	*142*	*7*	*46*	*8*	*434*	*102*	*2*			
% Heavy Vehicles, %HV	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*			
Peak-Hour Factor, PHF	*0.85*	*0.85*	*0.85*	*0.87*	*0.87*	*0.87*	*0.89*	*0.89*	*0.89*			
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*			
Start-up Lost Time, l_1		*2.0*	*2.0*		*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*	*2.0*		*2.0*			*2.0*				
Arrival Type, AT		*3*	*3*		*3*			*3*				
Unit Extension, UE		*3.0*	*3.0*		*3.0*			*3.0*				
Filtering/Metering, I		*0.999*	*0.999*		*0.996*			*0.980*				
Initial Unmet Demand, Q_b		*0.0*	*0.0*		*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*53*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width		*13.0*	*12.0*		*11.5*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B		*0*	*0*		*0*			*0*				
Min. Time for Pedestrians, G_p	*21.2*			*12.9*			*14.3*			*17.5*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *21.0*	G =	G =	G =	G = *29.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*428*	*105*		*70*			*605*				
Lane Group Capacity, c		*545*	*560*		*529*			*2300*				
v/c Ratio, X		*0.79*	*0.19*		*0.13*			*0.26*				
Total Green Ratio, g/C		*0.35*	*0.35*		*0.35*			*0.48*				
Uniform Delay, d_1		*17.5*	*13.6*		*13.3*			*9.2*				
Progression Factor, PF		*1.000*	*1.000*		*1.000*			*1.000*				
Delay Calibration, k		*0.50*	*0.50*		*0.50*			*0.50*				
Incremental Delay, d_2		*10.9*	*0.7*		*0.5*			*0.3*				

Initial Queue Delay, d_3		0.0	0.0		0.0			0.0				
Control Delay		28.3	14.3		13.8			9.4				
Lane Group LOS		C	B		B			A				
Approach Delay	25.6			13.8			9.4					
Approach LOS	C			B			A					
Intersection Delay	16.8			X_C = 0.48			Intersection LOS			B		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Englewood Av & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*146*		*33*				*18*	*451*			*451*	*44*
% Heavy Vehicles, %HV	*3*		*3*				*1*	*1*			*4*	*4*
Peak-Hour Factor, PHF	*0.96*		*0.96*				*0.86*	*0.86*			*0.92*	*0.92*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.984*						*0.880*			*0.893*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*16.0*						*14.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B		*0*						*2*			*7*	
Min. Time for Pedestrians, G_p	*14.9*			*15.5*			*3.2*			*17.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*186*						*545*			*538*	
Lane Group Capacity, c		*457*						*1099*			*1127*	
v/c Ratio, X		*0.41*						*0.50*			*0.48*	
Total Green Ratio, g/C		*0.27*						*0.57*			*0.57*	
Uniform Delay, d_1		*18.1*						*7.8*			*7.7*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*2.6*						*1.4*			*1.3*	

Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	
Control Delay		*20.7*						*9.2*			*9.0*	
Lane Group LOS		*C*						*A*			*A*	
Approach Delay	*20.7*						*9.2*			*9.0*		
Approach LOS	*C*						*A*			*A*		
Intersection Delay	*10.8*			X_C = *0.47*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Sharrotts Rd & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*143*		*83*				*22*	*489*			*388*	*200*
% Heavy Vehicles, %HV	*1*		*1*				*1*	*1*			*3*	*3*
Peak-Hour Factor, PHF	*0.80*		*0.80*				*0.86*	*0.86*			*0.92*	*0.92*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.911*						*0.834*			*0.880*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*21*
Lane Width		*16.0*						*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*2*			*7*	
Min. Time for Pedestrians, G_p	*18.6*			*18.6*			*3.2*			*16.6*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*283*						*595*			*617*	
Lane Group Capacity, c		*573*						*892*			*973*	
v/c Ratio, X		*0.49*						*0.67*			*0.63*	
Total Green Ratio, g/C		*0.33*						*0.50*			*0.50*	
Uniform Delay, d_1		*16.0*						*11.3*			*11.0*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*2.8*						*3.3*			*2.8*	

Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	
Control Delay		*18.7*						*14.6*			*13.8*	
Lane Group LOS		*B*						*B*			*B*	
Approach Delay	*18.7*						*14.6*			*13.8*		
Approach LOS	*B*						*B*			*B*		
Intersection Delay	*15.0*			X_C = *0.60*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Vets Rd E & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*	*0*	*3*	*0*	*1*	*1*			*1*	*0*
Lane Group	*L*		*R*		*LTR*		*L*	*T*			*TR*	
Volume, V (vph)	*4*		*145*	*266*	*450*	*266*	*83*	*198*			*479*	*5*
% Heavy Vehicles, %HV	*1*		*1*	*1*	*1*	*1*	*2*	*2*			*4*	*4*
Peak-Hour Factor, PHF	*0.95*		*0.95*	*0.88*	*0.88*	*0.88*	*0.92*	*0.92*			*0.87*	*0.87*
Pretimed (P) or Actuated (A)	*P*		*P*	*P*	*P*	*P*	*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*		*3*		*3*	*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*		*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I	*0.848*		*0.848*		*0.500*		*0.930*	*0.930*			*0.865*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Lane Width	*10.0*		*13.0*		*11.0*		*12.0*	*12.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*		*0*		*0*	*2*			*7*	
Min. Time for Pedestrians, G_p	*17.2*			*16.9*			*3.2*			*20.9*		

Phasing	EB Only	WB Only	03	04	NS Perm	06	07	08
Timing	G = *8.0*	G = *17.0*	G =	G =	G = *20.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*					Cycle Length, C = *60.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*4*		*153*		*1115*		*90*	*215*			*557*	
Lane Group Capacity, c	*222*		*220*		*1329*		*124*	*616*			*670*	
v/c Ratio, X	*0.02*		*0.70*		*0.84*		*0.73*	*0.35*			*0.83*	
Total Green Ratio, g/C	*0.13*		*0.13*		*0.28*		*0.33*	*0.33*			*0.33*	
Uniform Delay, d_1	*22.6*		*24.8*		*20.2*		*17.6*	*15.1*			*18.4*	
Progression Factor, PF	*1.000*		*1.000*		*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*		*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2	*0.1*		*14.3*		*3.4*		*28.9*	*1.4*			*10.1*	

Initial Queue Delay, d_3	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay	*22.7*		*39.2*		*23.6*		*46.5*	*16.5*			*28.6*	
Lane Group LOS	*C*		*D*		*C*		*D*	*B*			*C*	
Approach Delay	*38.8*			*23.6*			*25.4*			*28.6*		
Approach LOS	*D*			*C*			*C*			*C*		
Intersection Delay	*26.3*			X_C *= 0.81*			Intersection LOS			*C*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*S Service Rd & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*				*0*	*1*	*0*	*1*	*1*	*0*
Lane Group		*LTR*						*LTR*		*L*	*TR*	
Volume, V (vph)	*9*	*20*	*6*				*8*	*272*	*118*	*308*	*533*	*50*
% Heavy Vehicles, %HV	*2*	*2*	*2*				*2*	*2*	*2*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.63*	*0.63*	*0.63*				*0.92*	*0.92*	*0.92*	*0.93*	*0.93*	*0.93*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*				*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*		*2.0*	*2.0*	
Arrival Type, AT		*3*						*3*		*3*	*3*	
Unit Extension, UE		*3.0*						*3.0*		*3.0*	*3.0*	
Filtering/Metering, I		*1.000*						*0.922*		*0.564*	*0.564*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*12*
Lane Width		*13.0*						*16.0*		*12.0*	*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*2*		*0*	*7*	
Min. Time for Pedestrians, G_p	*17.5*			*16.9*			*12.6*			*12.9*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *17.0*	G =	G =	G =	G = *33.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*56*						*433*		*331*	*614*	
Lane Group Capacity, c		*460*						*957*		*514*	*986*	
v/c Ratio, X		*0.12*						*0.45*		*0.64*	*0.62*	
Total Green Ratio, g/C		*0.28*						*0.55*		*0.55*	*0.55*	
Uniform Delay, d_1		*16.0*						*8.1*		*9.4*	*9.2*	
Progression Factor, PF		*1.000*						*1.000*		*1.000*	*1.000*	
Delay Calibration, k		*0.50*						*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2		*0.5*						*1.4*		*3.5*	*1.7*	

Initial Queue Delay, d_3		*0.0*						*0.0*		*0.0*	*0.0*	
Control Delay		*16.5*						*9.5*		*12.9*	*10.9*	
Lane Group LOS		*B*						*A*		*B*	*B*	
Approach Delay	*16.5*						*9.5*			*11.6*		
Approach LOS	*B*						*A*			*B*		
Intersection Delay	*11.2*			X_C = *0.47*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Amboy Rd & Bloomingdale Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*1*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*		*L*	*T*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*6*	*12*	*20*	*258*	*28*	*106*	*18*	*286*	*169*	*91*	*413*	*9*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*3*	*3*	*3*	*1*	*1*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.70*	*0.70*	*0.70*	*0.87*	*0.87*	*0.87*	*0.92*	*0.92*	*0.92*	*0.87*	*0.87*	*0.87*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*		*3*	*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*		*0.905*	*0.905*	*0.905*		*0.663*			*0.229*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*50*	*0*	*0*	*0*	*0*	*0*	*50*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*		*12.0*	*11.0*	*11.0*		*11.0*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*2*		*0*	*0*	*2*		*0*			*0*	
Min. Time for Pedestrians, G_p	*11.5*			*11.8*			*18.9*			*18.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*					Cycle Length, C = *90.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*55*		*297*	*32*	*122*		*515*			*590*	
Lane Group Capacity, c		*632*		*560*	*792*	*585*		*731*			*633*	
v/c Ratio, X		*0.09*		*0.53*	*0.04*	*0.21*		*0.70*			*0.93*	
Total Green Ratio, g/C		*0.44*		*0.44*	*0.44*	*0.44*		*0.44*			*0.44*	
Uniform Delay, d_1		*14.4*		*18.2*	*14.1*	*15.3*		*20.2*			*23.7*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*	*0.50*		*0.50*			*0.50*	

Incremental Delay, d_2		0.3		3.2	0.1	0.7		3.8			7.2	
Initial Queue Delay, d_3		0.0		0.0	0.0	0.0		0.0			0.0	
Control Delay		14.7		21.4	14.2	16.0		24.0			30.9	
Lane Group LOS		B		C	B	B		C			C	
Approach Delay	14.7			19.4			24.0			30.9		
Approach LOS	B			B			C			C		
Intersection Delay	25.0			X_C = 0.73			Intersection LOS			C		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Arthur Kill Rd & Bloomingdl Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*0*	*1*		*0*		*0*			
Lane Group		*TR*			*LT*			*LR*				
Volume, V (vph)		*163*	*245*	*114*	*177*		*139*		*117*			
% Heavy Vehicles, %HV		*5*	*5*	*8*	*8*		*1*		*1*			
Peak-Hour Factor, PHF		*0.82*	*0.82*	*0.83*	*0.83*		*0.67*		*0.67*			
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*		*P*			
Start-up Lost Time, l_1		*2.0*			*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*			*2.0*			*2.0*				
Arrival Type, AT		*3*			*3*			*3*				
Unit Extension, UE		*3.0*			*3.0*			*3.0*				
Filtering/Metering, I		*0.927*			*0.989*			*0.917*				
Initial Unmet Demand, Q_b		*0.0*			*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*59*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	
Lane Width		*16.0*			*16.0*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m									*5*			
Buses Stopping, N_B		*5*			*0*			*0*				
Min. Time for Pedestrians, G_p	*18.3*			*3.2*			*15.2*			*17.2*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*426*			*350*			*382*				
Lane Group Capacity, c		*933*			*590*			*565*				
v/c Ratio, X		*0.46*			*0.59*			*0.68*				
Total Green Ratio, g/C		*0.50*			*0.50*			*0.39*				
Uniform Delay, d_1		*14.6*			*16.0*			*22.8*				
Progression Factor, PF		*1.000*			*1.000*			*1.000*				
Delay Calibration, k		*0.50*			*0.50*			*0.50*				
Incremental Delay, d_2		*1.5*			*4.3*			*5.9*				

Initial Queue Delay, d_3		*0.0*			*0.0*			*0.0*				
Control Delay		*16.1*			*20.3*			*28.7*				
Lane Group LOS		*B*			*C*			*C*				
Approach Delay	*16.1*			*20.3*			*28.7*					
Approach LOS	*B*			*C*			*C*					
Intersection Delay	*21.5*			X_C = *0.63*			Intersection LOS			*C*		

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Saturday

Midday

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Saturday 12:45-1:45 Peak Pd*

Site Information

Intersection	*Sharrotts Rd & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 With-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Sharrotts Road* North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*11*	*234*	*49*	*28*	*261*	*27*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.88*	*0.88*	*0.88*
Hourly Flow Rate, HFR (veh/h)	*11*	*254*	*53*	*31*	*296*	*30*
Percent Heavy Vehicles	*3*	--	--	*5*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*26*	*32*	*23*	*60*	*17*	*40*
Peak-Hour Factor, PHF	*0.40*	*0.40*	*0.40*	*0.78*	*0.78*	*0.78*
Hourly Flow Rate, HFR (veh/h)	*64*	*79*	*57*	*76*	*21*	*51*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (veh/h)	*11*	*31*		*148*			*200*	
C (m) (veh/h)	*1228*	*1237*		*341*			*389*	
v/c	*0.01*	*0.03*		*0.43*			*0.51*	
95% queue length	*0.03*	*0.08*		*2.12*			*2.83*	
Control Delay (s/veh)	*8.0*	*8.0*		*23.4*			*23.6*	
LOS	*A*	*A*		*C*			*C*	
Approach Delay (s/veh)	--	--	*23.4*			*23.6*		
Approach LOS	--	--	*C*			*C*		

HCS+™ Version 5.4

Generated: 4/10/2013 2:01 PM

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*Englewood Ave & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 With-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*276*	*12*	*16*	*328*	
Peak-Hour Factor, PHF	*1.00*	*0.92*	*0.92*	*0.88*	*0.88*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*299*	*13*	*18*	*372*	*0*
Percent Heavy Vehicles	*0*	--	--	*5*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*9*		*19*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.75*	*1.00*	*0.75*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*12*	*0*	*25*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (veh/h)		*18*		*37*				
C (m) (veh/h)		*1232*		*570*				
v/c		*0.01*		*0.06*				
95% queue length		*0.04*		*0.21*				
Control Delay (s/veh)		*8.0*		*11.8*				
LOS		*A*		*B*				
Approach Delay (s/veh)	--	--	*11.8*					
Approach LOS	--	--	*B*					

HCS+™ Version 5.4

Generated: 4/10/2013 2:02 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*			*LT*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*0*	*9*	*5*	*308*	*26*	*378*	*5*	*162*	*366*	*184*	*204*	*0*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*2*	*2*	*2*	*5*	*5*	*5*	*3*	*3*	*3*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*			*0.849*	*0.849*		*0.861*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*15.5*			*11.0*	*10.0*		*15.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*			*0*	*0*		*2*			*2*	
Min. Time for Pedestrians, G_p	*11.5*			*13.5*			*15.2*			*12.1*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*					Cycle Length, C = *60.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*15*			*363*	*411*		*585*			*426*	
Lane Group Capacity, c		*724*			*549*	*539*		*744*			*409*	
v/c Ratio, X		*0.02*			*0.66*	*0.76*		*0.79*			*1.04*	
Total Green Ratio, g/C		*0.42*			*0.42*	*0.42*		*0.42*			*0.42*	
Uniform Delay, d_1		*10.3*			*14.1*	*15.0*		*15.2*			*17.5*	
Progression Factor, PF		*1.000*			*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*	*0.50*		*0.50*			*0.50*	

Incremental Delay, d_2		*0.1*			*5.3*	*8.4*		*7.1*			*55.7*	
Initial Queue Delay, d_3		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Control Delay		*10.3*			*19.3*	*23.4*		*22.3*			*73.2*	
Lane Group LOS		*B*			*B*	*C*		*C*			*E*	
Approach Delay	*10.3*			*21.5*			*22.3*			*73.2*		
Approach LOS	*B*			*C*			*C*			*E*		
Intersection Delay	*33.9*			X_C = *0.90*			Intersection LOS			*C*		

 HCS+™ Version 5.4 Generated: 4/10/2013 2:03 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*No Bridge St & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*			*1*	
Lane Group					*LR*			*T*			*T*	
Volume, V (vph)				*493*		*8*		*524*			*518*	
% Heavy Vehicles, %HV				*1*		*1*		*5*			*4*	
Peak-Hour Factor, PHF				*0.86*		*0.86*		*0.91*			*0.91*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*			*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.483*			*0.865*			*0.367*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	
Lane Width					*16.0*			*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B					*0*			*0*			*2*	
Min. Time for Pedestrians, G_p	*13.5*			*13.8*			*3.2*			*3.2*		

Phasing	WB Only	02	03	04	Thru Only	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*582*			*576*			*569*	
Lane Group Capacity, c					*676*			*1026*			*1027*	
v/c Ratio, X					*0.86*			*0.56*			*0.55*	
Total Green Ratio, g/C					*0.33*			*0.50*			*0.50*	
Uniform Delay, d_1					*18.7*			*10.4*			*10.4*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*7.1*			*1.9*			*0.8*	

Initial Queue Delay, d_3					0.0			0.0			0.0	
Control Delay					25.8			12.4			11.2	
Lane Group LOS					C			B			B	
Approach Delay				25.8			12.4			11.2		
Approach LOS				C			B			B		
Intersection Delay	16.5			X_C = 0.68			Intersection LOS			B		

 HCS+™ Version 5.4 Generated: 4/10/2013 2:03 PM

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*So Bridge St & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 With-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *South Bridge Street* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*524*	*262*	*175*	*835*	
Peak-Hour Factor, PHF	*1.00*	*0.91*	*0.91*	*0.91*	*0.91*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*575*	*287*	*192*	*917*	*0*
Percent Heavy Vehicles	*0*	--	--	*6*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration						

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*						
v (veh/h)		*192*						
C (m) (veh/h)		*763*						
v/c		*0.25*						
95% queue length		*0.99*						
Control Delay (s/veh)		*11.3*						
LOS		*B*						
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

HCS+™ Version 5.4

Generated: 4/10/2013 2:04 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Rch Valley Rd & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:15-1:45 PM Peak Pd*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*	*0*	*0*	*1*	
Lane Group					*LR*			*TR*			*LT*	
Volume, V (vph)				*104*		*186*		*583*	*90*	*130*	*680*	
% Heavy Vehicles, %HV				*1*		*1*		*2*	*2*	*2*	*2*	
Peak-Hour Factor, PHF				*0.89*		*0.89*		*0.91*	*0.91*	*0.91*	*0.91*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*	*P*	*P*	*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.940*			*0.789*			*0.272*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width					*12.0*			*15.0*			*15.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B					*0*			*2*			*2*	
Min. Time for Pedestrians, G_p	*11.8*			*11.8*			*14.1*			*3.2*		

Phasing	WB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*326*			*740*			*890*	
Lane Group Capacity, c					*394*			*1131*			*745*	
v/c Ratio, X					*0.83*			*0.65*			*1.19*	
Total Green Ratio, g/C					*0.27*			*0.57*			*0.57*	
Uniform Delay, d_1					*20.7*			*9.0*			*13.0*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*16.9*			*2.3*			*91.4*	

Initial Queue Delay, d_3					*0.0*			*0.0*			*0.0*	
Control Delay					*37.6*			*11.3*			*104.4*	
Lane Group LOS					*D*			*B*			*F*	
Approach Delay				*37.6*			*11.3*			*104.4*		
Approach LOS				*D*			*B*			*F*		
Intersection Delay	*58.1*			X_C = *1.08*			Intersection LOS			*E*		

 HCS+™ Version 5.4 Generated: 4/10/2013 2:05 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Richmond Valley Rd & Page Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*0*	*1*	*1*	*0*	*0*	*2*	*0*
Lane Group		*LTR*			*LTR*		*L*	*TR*			*LTR*	
Volume, V (vph)	*101*	*45*	*91*	*29*	*88*	*35*	*133*	*743*	*138*	*26*	*591*	*96*
% Heavy Vehicles, %HV	*0*	*0*	*0*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.78*	*0.78*	*0.78*	*0.73*	*0.73*	*0.73*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.533*			*1.000*		*0.561*	*0.561*			*0.957*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*20*
Lane Width		*16.0*			*15.0*		*10.0*	*14.0*			*10.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*
Parking Maneuvers, N_m						*5*						*5*
Buses Stopping, N_B		*0*			*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*16.6*			*21.5*			*16.3*			*21.2*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *31.0*	G =	G =	G =	G = *49.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*304*			*209*		*145*	*958*			*753*	
Lane Group Capacity, c		*520*			*544*		*304*	*1067*			*1222*	
v/c Ratio, X		*0.58*			*0.38*		*0.48*	*0.90*			*0.62*	
Total Green Ratio, g/C		*0.34*			*0.34*		*0.54*	*0.54*			*0.54*	
Uniform Delay, d_1		*24.2*			*22.3*		*12.6*	*18.3*			*14.1*	
Progression Factor, PF		*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	

Incremental Delay, d_2		2.6			2.0		3.0	7.2			2.2	
Initial Queue Delay, d_3		0.0			0.0		0.0	0.0			0.0	
Control Delay		26.8			24.3		15.6	25.5			16.3	
Lane Group LOS		C			C		B	C			B	
Approach Delay	26.8			24.3			24.2			16.3		
Approach LOS	C			C			C			B		
Intersection Delay	22.0			X_C = 0.78			Intersection LOS			C		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/16/13*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*S Bridge St RT & Page Ave*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 With-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *South Bridge Street Right Turn* | North/South Street: *Page Avenue*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*656*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.92*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*713*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*2*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*55*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.88*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*62*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*5*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								*R*
v (veh/h)								*62*
C (m) (veh/h)								*681*
v/c								*0.09*
95% queue length								*0.30*
Control Delay (s/veh)								*10.8*
LOS								*B*
Approach Delay (s/veh)	--	--				*10.8*		
Approach LOS	--	--				*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*S Br St & Page Ave/Boscome Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*							*2*			*2*	
Lane Group	*L*							*T*			*T*	
Volume, V (vph)	*381*							*879*			*656*	
% Heavy Vehicles, %HV	*2*							*2*			*3*	
Peak-Hour Factor, PHF	*0.86*							*0.96*			*0.92*	
Pretimed (P) or Actuated (A)	*P*							*P*			*P*	
Start-up Lost Time, l_1	*2.0*							*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*							*2.0*			*2.0*	
Arrival Type, AT	*3*							*3*			*3*	
Unit Extension, UE	*3.0*							*3.0*			*3.0*	
Filtering/Metering, I	*1.000*							*0.567*			*0.957*	
Initial Unmet Demand, Q_b	*0.0*							*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*		*0*	*0*		*0*	*0*	
Lane Width	*16.0*							*14.5*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*							*0*			*0*	
Min. Time for Pedestrians, G_p	*3.2*			*20.1*			*3.2*			*3.2*		

Phasing	EB Only	02	03	04	Thru Only	06	07	08
Timing	G = *30.0*	G =	G =	G =	G = *50.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*443*							*916*			*713*	
Lane Group Capacity, c	*669*							*2134*			*1951*	
v/c Ratio, X	*0.66*							*0.43*			*0.37*	
Total Green Ratio, g/C	*0.33*							*0.56*			*0.56*	
Uniform Delay, d_1	*25.7*							*11.7*			*11.2*	
Progression Factor, PF	*1.000*							*1.000*			*1.000*	
Delay Calibration, k	*0.50*							*0.50*			*0.50*	
Incremental Delay, d_2	*5.1*							*0.4*			*0.5*	

Initial Queue Delay, d_3	*0.0*							*0.0*			*0.0*	
Control Delay	*30.8*							*12.0*			*11.7*	
Lane Group LOS	*C*							*B*			*B*	
Approach Delay	*30.8*						*12.0*			*11.7*		
Approach LOS	*C*						*B*			*B*		
Intersection Delay	*15.9*			X_C = *0.52*			Intersection LOS			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/13/16*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*KWVP WB OR UT & No Bridge St*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 With-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *KWVP WB Off-Ramp U-Turn* | North/South Street: *North Bridge Street*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*585*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.93*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*629*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*1*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*228*		
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.90*	*0.90*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*253*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*60*	*1*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*0*
Configuration				*L*		

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration			*L*					
v (veh/h)			*253*					
C (m) (veh/h)			*448*					
v/c			*0.56*					
95% queue length			*3.41*					
Control Delay (s/veh)			*23.0*					
LOS			*C*					
Approach Delay (s/veh)	--	--	*23.0*					
Approach LOS	--	--	*C*					

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Bricktown/KWVP*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Staten Island*
Time Period	*Saturday 12:45-1:45 PM MD Peak*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*	*0*	*1*	*2*	*0*	*0*	*2*	*0*	*1*	*1*	*0*
Lane Group	*L*	*TR*		*L*	*TR*			*LTR*		*L*	*TR*	
Volume, V (vph)	*173*	*185*	*202*	*263*	*429*	*48*	*126*	*486*	*280*	*45*	*121*	*156*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*3*	*3*	*3*	*1*	*1*	*1*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.93*	*0.93*	*0.93*	*0.96*	*0.78*	*0.78*	*0.90*	*0.90*	*0.90*	*0.84*	*0.84*	*0.84*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*		*2.0*	*2.0*			*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e	*2.0*	*2.0*		*3.0*	*3.0*			*2.0*		*2.0*	*2.0*	
Arrival Type, AT	*3*	*3*		*3*	*3*			*3*		*3*	*3*	
Unit Extension, UE	*3.0*	*3.0*		*3.0*	*3.0*			*3.0*		*3.0*	*3.0*	
Filtering/Metering, I	*0.700*	*0.700*		*0.903*	*0.903*			*1.000*		*0.855*	*0.855*	
Initial Unmet Demand, Q_b	*0.0*	*0.0*		*0.0*	*0.0*			*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*48*	*0*	*0*	*11*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*11.0*	*12.0*		*10.0*	*12.0*			*12.5*		*11.0*	*10.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*		*0*	*0*			*0*		*0*	*0*	
Min. Time for Pedestrians, G_p	*34.6*			*18.6*			*20.3*			*16.1*		

Phasing	EW Perm	02	03	04	NB Only	SB Only	07	08
Timing	G = *30.0*	G =	G =	G =	G = *25.0*	G = *20.0*	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y = *5*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*186*	*365*		*274*	*597*			*991*		*54*	*330*	
Lane Group Capacity, c	*195*	*584*		*221*	*1196*			*957*		*384*	*357*	
v/c Ratio, X	*0.95*	*0.63*		*1.24*	*0.50*			*1.04*		*0.14*	*0.92*	
Total Green Ratio, g/C	*0.33*	*0.33*		*0.34*	*0.34*			*0.28*		*0.22*	*0.22*	
Uniform Delay, d_1	*29.3*	*25.3*		*29.5*	*23.4*			*32.5*		*28.1*	*34.3*	
Progression Factor, PF	*1.000*	*1.000*		*1.000*	*1.000*			*1.000*		*1.000*	*1.000*	
Delay Calibration, k	*0.50*	*0.50*		*0.50*	*0.50*			*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2	*43.3*	*3.5*		*137.7*	*1.3*			*38.7*		*0.7*	*28.6*	

Initial Queue Delay, d_3	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Control Delay	72.6	28.8		167.2	24.7			71.2		28.8	62.9	
Lane Group LOS	E	C		F	C			E		C	E	
Approach Delay	43.6			69.5			71.2			58.1		
Approach LOS	D			E			E			E		
Intersection Delay	63.4			X_C = 1.09			Intersection LOS			E		

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*Bricktown Way/Tyrellan Avenue*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 With-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Bricktown Way* | North/South Street: *Tyrellan Avenue*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*138*	*206*	*58*	*107*	*187*	*128*
%Thrus Left Lane	*50*			*50*		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*59*	*59*	*92*	*111*	*269*	*83*
%Thrus Left Lane				*50*		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*LT*	*TR*	*LT*	*TR*	*LT*	*R*	*LT*	*TR*
PHF	*0.89*	*0.85*	*0.91*	*0.91*	*0.89*	*0.89*	*0.92*	*0.92*
Flow Rate (veh/h)	*270*	*189*	*219*	*243*	*132*	*103*	*265*	236
% Heavy Vehicles	*0*	*0*	*0*	*1*	*1*	*1*	*0*	*0*
No. Lanes	*2*		*2*		*2*		*2*	
Geometry Group	*5*		*5*		*5*		*5*	
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	*0.6*	*0.0*	*0.5*	*0.0*	*0.5*	*0.0*	*0.5*	*0.0*
Prop. Right-Turns	*0.0*	*0.4*	*0.0*	*0.6*	*0.0*	*1.0*	*0.0*	*0.4*
Prop. Heavy Vehicle	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
hLT-adj	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*
hRT-adj	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*
hadj, computed	*0.3*	*-0.3*	*0.3*	*-0.4*	*0.3*	*-0.7*	*0.2*	*-0.3*

Departure Headway and Service Time

hd, initial value (s)	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*
x, initial	*0.24*	*0.17*	*0.19*	*0.22*	*0.12*	*0.09*	*0.24*	*0.21*
hd, final value (s)	*7.95*	*7.41*	*7.95*	*7.29*	*8.45*	*7.50*	*7.90*	*7.40*
x, final value	*0.60*	*0.39*	*0.48*	*0.49*	*0.31*	*0.21*	*0.58*	*0.49*
Move-up time, m (s)	*2.3*		*2.3*		*2.3*		*2.3*	
Service Time, t_s (s)	*5.7*	*5.1*	*5.6*	*5.0*	*6.1*	*5.2*	*5.6*	*5.1*

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*443*	*439*	*442*	*481*	*382*	*353*	*446*	*474*
Delay (s/veh)	*21.72*	*14.76*	*17.86*	*16.86*	*14.89*	*12.23*	*20.98*	*16.88*
LOS	*C*	*B*	*C*	*C*	*B*	*B*	*C*	*C*
Approach: Delay (s/veh)	*18.85*		*17.33*		*13.73*		*19.05*	
LOS	*C*		*C*		*B*		*C*	
Intersection Delay (s/veh)	*17.76*							
Intersection LOS	*C*							

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*SFR NB-DefL = 2050*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*
Lane Group		*LTR*			*LTR*		*DefL*	*TR*			*LTR*	
Volume, V (vph)	*79*	*123*	*266*	*161*	*357*	*24*	*231*	*262*	*112*	*25*	*815*	*162*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*1*	*1*	*1*	*1*	*1*	*1*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.78*	*0.78*	*0.78*	*0.94*	*0.91*	*0.91*	*0.93*	*0.93*	*0.93*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.830*			*0.865*		*1.000*	*1.000*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*			*12.0*		*13.0*	*13.0*			*9.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*			*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*18.6*			*16.6*			*20.1*			*19.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*509*			*695*		*246*	*411*			*1077*	
Lane Group Capacity, c		*1016*			*1038*		*137*	*825*			*1348*	
v/c Ratio, X		*0.50*			*0.67*		*1.80*	*0.50*			*0.80*	
Total Green Ratio, g/C		*0.44*			*0.44*		*0.44*	*0.44*			*0.44*	
Uniform Delay, d_1		*17.9*			*19.8*		*25.0*	*17.8*			*21.5*	
Progression Factor, PF		*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	

Incremental Delay, d_2		1.5			3.0		385.6	2.1			5.0	
Initial Queue Delay, d_3		0.0			0.0		0.0	0.0			0.0	
Control Delay		19.3			22.8		410.6	20.0			26.6	
Lane Group LOS		B			C		F	B			C	
Approach Delay	19.3			22.8			166.2			26.6		
Approach LOS	B			C			F			C		
Intersection Delay	55.6			X_C = 1.23			Intersection LOS			E		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Boscombe Ave & OBX Off-Ramp*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Sat Flw Rate EB-L = 2100*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*			*1*	*1*				*2*		*1*
Lane Group	*L*	*T*			*T*	*R*				*L*		*R*
Volume, V (vph)	*849*	*411*			*451*	*786*				*194*		*206*
% Heavy Vehicles, %HV	*1*	*1*			*1*	*1*				*1*		*1*
Peak-Hour Factor, PHF	*0.97*	*0.96*			*0.94*	*0.97*				*0.92*		*0.92*
Pretimed (P) or Actuated (A)	*P*	*P*			*P*	*P*				*P*		*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*	*2.0*				*2.0*		*2.0*
Extension of Effective Green, e	*3.0*	*2.0*			*2.0*	*2.0*				*2.0*		*2.0*
Arrival Type, AT	*3*	*3*			*3*	*3*				*3*		*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*	*3.0*				*3.0*		*3.0*
Filtering/Metering, I	*0.508*	*0.508*			*0.176*	*0.176*				*1.000*		*1.000*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*	*0.0*				*0.0*		*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*119*	*0*	*0*		*0*	*0*	*0*
Lane Width	*11.0*	*12.0*			*12.0*	*12.0*				*10.0*		*10.0*
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B	*0*	*0*			*0*	*0*				*0*		*0*
Min. Time for Pedestrians, G_p	*14.6*			*24.6*			*3.2*			*20.1*		

Phasing	EB Only	EW Perm	03	04	SB Only	06	07	08
Timing	G = *37.0*	G = *22.0*	G =	G =	G = *16.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*875*	*428*			*480*	*688*				*211*		*224*
Lane Group Capacity, c	*895*	*1170*			*460*	*391*				*576*		*962*
v/c Ratio, X	*0.98*	*0.37*			*1.04*	*1.76*				*0.37*		*0.23*
Total Green Ratio, g/C	*0.72*	*0.71*			*0.24*	*0.24*				*0.18*		*0.64*
Uniform Delay, d_1	*17.4*	*5.1*			*34.0*	*34.0*				*32.5*		*6.7*
Progression Factor, PF	*1.000*	*1.000*			*1.000*	*1.000*				*1.000*		*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*	*0.50*				*0.50*		*0.50*
Incremental Delay, d_2	*16.8*	*0.5*			*30.3*	*343.7*				*1.8*		*0.6*

Initial Queue Delay, d_3	0.0	0.0			0.0	0.0				0.0		0.0
Control Delay	34.2	5.5			64.3	377.7				34.3		7.3
Lane Group LOS	C	A			E	F				C		A
Approach Delay	24.8			248.9						20.4		
Approach LOS	C			F						C		
Intersection Delay	114.2			X_C = 1.09			Intersection LOS			F		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Boscombe Ave & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*1*	*1*
Lane Group	*DefL*	*TR*			*LTR*			*LTR*			*LT*	*R*
Volume, V (vph)	*561*	*45*	*0*	*0*	*45*	*56*	*0*	*0*	*1*	*81*	*0*	*1192*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.96*	*0.96*	*0.96*	*0.91*	*0.91*	*0.91*	*0.90*	*0.90*	*0.90*	*0.93*	*0.93*	*0.93*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*			*2.0*			*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*			*2.0*			*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*			*3*			*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*			*3.0*			*3.0*	*3.0*
Filtering/Metering, I	*0.967*	*0.967*			*1.000*			*1.000*			*0.855*	*0.855*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*			*0.0*			*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*14*	*0*	*0*	*0*	*0*	*0*	*398*
Lane Width	*16.0*	*16.0*			*11.5*			*12.0*			*12.0*	*12.0*
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*			*0*			*0*			*0*	*0*
Min. Time for Pedestrians, G_p	*20.3*			*17.5*			*20.3*			*20.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*584*	*47*			*95*			*1*			*87*	*854*
Lane Group Capacity, c	*738*	*1066*			*1633*			*1184*			*546*	*622*
v/c Ratio, X	*0.79*	*0.04*			*0.06*			*0.00*			*0.16*	*1.37*
Total Green Ratio, g/C	*0.50*	*0.50*			*0.50*			*0.39*			*0.39*	*0.39*
Uniform Delay, d_1	*18.6*	*11.5*			*11.6*			*16.8*			*17.9*	*27.5*
Progression Factor, PF	*1.000*	*1.000*			*1.000*			*1.000*			*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*			*0.50*			*0.50*	*0.50*

Incremental Delay, d_2	8.2	0.1			0.1			0.0			0.5	176.5
Initial Queue Delay, d_3	0.0	0.0			0.0			0.0			0.0	0.0
Control Delay	26.8	11.6			11.7			16.8			18.4	204.0
Lane Group LOS	C	B			B			B			B	F
Approach Delay	25.7			11.7			16.8			186.9		
Approach LOS	C			B			B			F		
Intersection Delay	115.8			X_C = 1.05			Intersection LOS			F		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Bricktown Ctr Rd @ Vets Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*				*0*	*2*			*2*	*0*
Lane Group	*L*		*R*					*LT*			*TR*	
Volume, V (vph)	*374*		*34*				*5*	*256*			*508*	*603*
% Heavy Vehicles, %HV	*3*		*3*				*1*	*1*			*1*	*1*
Peak-Hour Factor, PHF	*0.85*		*0.85*				*0.88*	*0.88*			*0.89*	*0.89*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*					*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*					*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*					*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*					*3.0*			*3.0*	
Filtering/Metering, I	*0.892*		*0.892*					*0.995*			*0.487*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*					*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*9*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width	*13.0*		*12.0*					*11.5*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*					*0*			*0*	
Min. Time for Pedestrians, G_p	*21.8*			*20.3*			*3.2*			*19.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *19.0*	G =	G =	G =	G = *31.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*440*		*29*					*297*			*1249*	
Lane Group Capacity, c	*573*		*497*					*1695*			*1927*	
v/c Ratio, X	*0.77*		*0.06*					*0.18*			*0.65*	
Total Green Ratio, g/C	*0.32*		*0.32*					*0.52*			*0.52*	
Uniform Delay, d_1	*18.5*		*14.3*					*7.7*			*10.5*	
Progression Factor, PF	*1.000*		*1.000*					*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*					*0.50*			*0.50*	
Incremental Delay, d_2	*8.6*		*0.2*					*0.2*			*0.8*	

Initial Queue Delay, d_3	*0.0*		*0.0*					*0.0*			*0.0*	
Control Delay	*27.1*		*14.5*					*7.9*			*11.4*	
Lane Group LOS	*C*		*B*					*A*			*B*	
Approach Delay	*26.3*						*7.9*			*11.4*		
Approach LOS	*C*						*A*			*B*		
Intersection Delay	*14.3*			X_C = *0.69*			Intersection LOS			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/16/13*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*Englewood Ave & Vets Rd W RT*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 With-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* | North/South Street: *Veterans Rd W Right Turn Bay*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*28*				
Peak-Hour Factor, PHF	*1.00*	*0.69*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*40*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*T*				
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*625*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.88*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*710*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					*R*			
v (veh/h)					*710*			
C (m) (veh/h)					*1037*			
v/c					*0.68*			
95% queue length					*5.71*			
Control Delay (s/veh)					*15.6*			
LOS					*C*			
Approach Delay (s/veh)	--	--	*15.6*					
Approach LOS	--	--	*C*					

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Ave @ Veterans Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*1*	*1*		*1*			*0*	*3*	*0*
Lane Group		*TR*		*L*	*LT*		*L*				*LTR*	
Volume, V (vph)		*1*	*0*	*732*	*2*		*5*			*27*	*380*	*1*
% Heavy Vehicles, %HV		*1*	*1*	*2*	*2*		*0*			*2*	*2*	*2*
Peak-Hour Factor, PHF		*0.25*	*0.25*	*0.91*	*0.91*		*0.88*			*0.89*	*0.89*	*0.89*
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*			*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Arrival Type, AT		*3*		*3*	*3*		*3*				*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*		*3.0*				*3.0*	
Filtering/Metering, I		*1.000*		*0.971*	*0.971*		*0.951*				*1.000*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*12.0*		*13.0*	*13.0*		*10.0*				*11.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*		*0*	*0*		*0*				*0*	
Min. Time for Pedestrians, G_p	*31.2*			*3.2*			*18.1*			*11.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*4*		*603*	*203*		*6*				*458*	
Lane Group Capacity, c		*784*		*606*	*582*		*337*				*2036*	
v/c Ratio, X		*0.01*		*1.00*	*0.35*		*0.02*				*0.22*	
Total Green Ratio, g/C		*0.42*		*0.42*	*0.42*		*0.42*				*0.42*	
Uniform Delay, d_1		*10.2*		*17.4*	*11.9*		*10.3*				*11.3*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*		*1.000*				*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*		*0.50*				*0.50*	
Incremental Delay, d_2		*0.0*		*34.8*	*1.6*		*0.1*				*0.3*	

Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Control Delay		*10.2*		*52.3*	*13.5*		*10.4*				*11.5*	
Lane Group LOS		*B*		*D*	*B*		*B*				*B*	
Approach Delay	*10.2*			*42.5*			*10.4*			*11.5*		
Approach LOS	*B*			*D*			*B*			*B*		
Intersection Delay	*31.1*			X_C = *0.61*			Intersection LOS			*C*		

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/16/13*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*Sharrotts Rd & Veterans Rd W*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 With-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Sharrotts Road* | North/South Street: *Veterans Road West*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*75*	*34*	*258*	*58*	*0*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*0*	*17*	*116*	*22*
%Thrus Left Lane				*50*		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*TR*		*LT*				*LT*	*TR*
PHF	*0.75*		*0.85*				*0.89*	*0.89*
Flow Rate (veh/h)	*145*		*371*				*84*	89
% Heavy Vehicles	*2*		*4*				*0*	*0*
No. Lanes	*1*		*1*		*0*		*2*	
Geometry Group	*2*		*2*				*1*	
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	*0.0*		*0.8*				*0.2*	*0.0*
Prop. Right-Turns	*0.3*		*0.0*				*0.0*	*0.3*
Prop. Heavy Vehicle	*0.0*		*0.0*				*0.0*	*0.0*
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*			*0.2*	*0.2*
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*			*-0.6*	*-0.6*
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*			*1.7*	*1.7*
hadj, computed	*-0.2*		*0.2*				*0.0*	*-0.2*

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value (s)	*3.20*		*3.20*				*3.20*	*3.20*
x, initial	*0.13*		*0.33*				*0.07*	*0.08*
hd, final value (s)	*4.64*		*4.74*				*5.18*	*4.98*
x, final value	*0.19*		*0.49*				*0.12*	*0.12*
Move-up time, m (s)	*2.0*		*2.0*				*2.0*	
Service Time, t_s (s)	*2.6*		*2.7*				*3.2*	*3.0*

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*395*		*621*				*334*	*339*
Delay (s/veh)	*8.70*		*12.19*				*8.90*	*8.67*
LOS	*A*		*B*				*A*	*A*
Approach: Delay (s/veh)	*8.70*		*12.19*				*8.78*	
LOS	*A*		*B*				*A*	
Intersection Delay (s/veh)	*10.60*							
Intersection LOS	*B*							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/16/13*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*Sharrotts Rd @ Veterans Rd E*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2015 With-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Sharrotts Road* North/South Street: *Veterans Road East*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*25*	*66*	*0*	*0*	*264*	*23*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*51*	*103*	*135*	*0*	*0*	*0*
%Thrus Left Lane	*50*					

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*LT*		*TR*		*LT*	*TR*		
PHF	*0.75*		*0.85*		*0.95*	*0.95*		
Flow Rate (veh/h)	*121*		*337*		*106*	*196*		
% Heavy Vehicles	*2*		*2*		*1*	*1*		
No. Lanes	*1*		*1*		*2*		*0*	
Geometry Group	*2*		*2*		*1*			
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	*0.3*		*0.0*		*0.5*	*0.0*		
Prop. Right-Turns	*0.0*		*0.1*		*0.0*	*0.7*		
Prop. Heavy Vehicle	*0.0*		*0.0*		*0.0*	*0.0*		
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*		
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*		
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*		
hadj, computed	*0.1*		*-0.0*		*0.1*	*-0.4*		

Departure Headway and Service Time

hd, initial value (s)	*3.20*		*3.20*		*3.20*	*3.20*		
x, initial	*0.11*		*0.30*		*0.09*	*0.17*		
hd, final value (s)	*5.13*		*4.75*		*5.16*	*4.62*		
x, final value	*0.17*		*0.45*		*0.15*	*0.25*		
Move-up time, m (s)	*2.0*		*2.0*		*2.0*			
Service Time, t_s (s)	*3.1*		*2.8*		*3.2*	*2.6*		

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*371*		*587*		*356*	*446*		
Delay (s/veh)	*9.20*		*11.51*		*9.08*	*9.16*		
LOS	*A*		*B*		*A*	*A*		
Approach: Delay (s/veh)	*9.20*		*11.51*		*9.13*			
LOS	*A*		*B*		*A*			
Intersection Delay (s/veh)	*10.20*							
Intersection LOS	*B*							

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Ave @ Vets Rd E*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*3*	*0*			
Lane Group		*LT*	*R*		*LTR*			*LTR*				
Volume, V (vph)	*211*	*262*	*178*	*0*	*61*	*15*	*672*	*63*	*3*			
% Heavy Vehicles, %HV	*1*	*1*	*1*	*0*	*0*	*0*	*2*	*2*	*2*			
Peak-Hour Factor, PHF	*0.75*	*0.75*	*0.75*	*0.83*	*0.83*	*0.83*	*0.93*	*0.93*	*0.93*			
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*			
Start-up Lost Time, l_1		*2.0*	*2.0*		*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*	*2.0*		*2.0*			*2.0*				
Arrival Type, AT		*3*	*3*		*3*			*3*				
Unit Extension, UE		*3.0*	*3.0*		*3.0*			*3.0*				
Filtering/Metering, I		*0.997*	*0.997*		*0.993*			*0.967*				
Initial Unmet Demand, Q_b		*0.0*	*0.0*		*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*66*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width		*13.0*	*12.0*		*11.5*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B		*0*	*0*		*0*			*0*				
Min. Time for Pedestrians, G_p	*21.2*			*12.9*			*14.3*			*17.5*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *21.0*	G =	G =	G =	G = *29.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*630*	*149*		*91*			*794*				
Lane Group Capacity, c		*553*	*560*		*557*			*2266*				
v/c Ratio, X		*1.14*	*0.27*		*0.16*			*0.35*				
Total Green Ratio, g/C		*0.35*	*0.35*		*0.35*			*0.48*				
Uniform Delay, d_1		*19.5*	*14.0*		*13.4*			*9.6*				
Progression Factor, PF		*1.000*	*1.000*		*1.000*			*1.000*				
Delay Calibration, k		*0.50*	*0.50*		*0.50*			*0.50*				
Incremental Delay, d_2		*82.8*	*1.2*		*0.6*			*0.4*				

Initial Queue Delay, d_3		0.0	0.0		0.0			0.0				
Control Delay		102.3	15.1		14.1			10.1				
Lane Group LOS		F	B		B			B				
Approach Delay	85.6			14.1			10.1					
Approach LOS	F			B			B					
Intersection Delay	45.6			X_C = 0.68			Intersection LOS			D		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Av & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*211*		*54*				*17*	*388*			*367*	*59*
% Heavy Vehicles, %HV	*1*		*1*				*1*	*1*			*1*	*1*
Peak-Hour Factor, PHF	*0.92*		*0.92*				*0.92*	*0.92*			*0.91*	*0.91*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.937*						*0.937*			*0.937*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*16.0*						*14.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B		*0*						*0*			*0*	
Min. Time for Pedestrians, G_p	*14.9*			*15.5*			*3.2*			*17.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*288*						*440*			*468*	
Lane Group Capacity, c		*465*						*1111*			*1185*	
v/c Ratio, X		*0.62*						*0.40*			*0.39*	
Total Green Ratio, g/C		*0.27*						*0.57*			*0.57*	
Uniform Delay, d_1		*19.3*						*7.3*			*7.3*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*5.7*						*1.0*			*0.9*	

Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	
Control Delay		*25.0*						*8.3*			*8.2*	
Lane Group LOS		*C*						*A*			*A*	
Approach Delay	*25.0*						*8.3*			*8.2*		
Approach LOS	*C*						*A*			*A*		
Intersection Delay	*12.3*			X_C = *0.47*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Sharrotts Rd & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*138*		*65*				*42*	*495*			*371*	*245*
% Heavy Vehicles, %HV	*1*		*1*				*1*	*1*			*1*	*1*
Peak-Hour Factor, PHF	*0.75*		*0.75*				*0.92*	*0.92*			*0.91*	*0.91*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.932*						*0.850*			*0.905*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*20*
Lane Width		*16.0*						*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*0*			*0*	
Min. Time for Pedestrians, G_p	*18.6*			*18.6*			*3.2*			*16.6*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*271*						*584*			*655*	
Lane Group Capacity, c		*575*						*854*			*1012*	
v/c Ratio, X		*0.47*						*0.68*			*0.65*	
Total Green Ratio, g/C		*0.33*						*0.50*			*0.50*	
Uniform Delay, d_1		*15.8*						*11.4*			*11.1*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*2.6*						*3.8*			*2.9*	

Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	
Control Delay		*18.4*						*15.2*			*14.0*	
Lane Group LOS		*B*						*B*			*B*	
Approach Delay	*18.4*						*15.2*			*14.0*		
Approach LOS	*B*						*B*			*B*		
Intersection Delay	*15.2*			X_C = *0.60*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Vets Rd E & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*	*0*	*3*	*0*	*1*	*1*			*1*	*0*
Lane Group	*L*		*R*		*LTR*		*L*	*T*			*TR*	
Volume, V (vph)	*19*		*160*	*285*	*596*	*168*	*126*	*218*			*404*	*17*
% Heavy Vehicles, %HV	*1*		*1*	*2*	*2*	*2*	*2*	*2*			*1*	*1*
Peak-Hour Factor, PHF	*0.71*		*0.71*	*0.87*	*0.87*	*0.87*	*0.92*	*0.92*			*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*		*P*	*P*	*P*	*P*	*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*		*3*		*3*	*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*		*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I	*0.717*		*0.717*		*0.483*		*0.917*	*0.917*			*0.747*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Lane Width	*10.0*		*13.0*		*11.0*		*12.0*	*12.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*		*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*17.2*			*16.9*			*3.2*			*20.9*		

Phasing	EB Only	WB Only	03	04	NS Perm	06	07	08
Timing	G = *8.0*	G = *17.0*	G =	G =	G = *20.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*27*		*225*		*1206*		*137*	*237*			*468*	
Lane Group Capacity, c	*222*		*220*		*1338*		*148*	*621*			*707*	
v/c Ratio, X	*0.12*		*1.02*		*0.90*		*0.93*	*0.38*			*0.66*	
Total Green Ratio, g/C	*0.13*		*0.13*		*0.28*		*0.33*	*0.33*			*0.33*	
Uniform Delay, d_1	*22.9*		*26.0*		*20.7*		*19.3*	*15.3*			*17.1*	
Progression Factor, PF	*1.000*		*1.000*		*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*		*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2	*0.8*		*57.3*		*5.3*		*53.5*	*1.6*			*3.6*	

Initial Queue Delay, d_3	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay	*23.7*		*83.3*		*26.0*		*72.7*	*16.9*			*20.7*	
Lane Group LOS	*C*		*F*		*C*		*E*	*B*			*C*	
Approach Delay	*76.9*			*26.0*			*37.4*			*20.7*		
Approach LOS	*E*			*C*			*D*			*C*		
Intersection Delay	*32.4*			X_C *= 0.93*			Intersection LOS			*C*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*S Service Rd & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*				*0*	*1*	*0*	*1*	*1*	*0*
Lane Group		*LTR*						*LTR*		*L*	*TR*	
Volume, V (vph)	*30*	*32*	*5*				*3*	*314*	*143*	*305*	*498*	*46*
% Heavy Vehicles, %HV	*2*	*2*	*2*				*2*	*2*	*2*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.76*	*0.76*	*0.76*				*0.92*	*0.92*	*0.92*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*				*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*		*2.0*	*2.0*	
Arrival Type, AT		*3*						*3*		*3*	*3*	
Unit Extension, UE		*3.0*						*3.0*		*3.0*	*3.0*	
Filtering/Metering, I		*1.000*						*0.899*		*0.644*	*0.644*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*11*
Lane Width		*13.0*						*16.0*		*12.0*	*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*0*		*0*	*0*	
Min. Time for Pedestrians, G_p	*17.5*			*16.9*			*12.6*			*12.9*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *17.0*	G =	G =	G =	G = *33.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*88*						*499*		*339*	*592*	
Lane Group Capacity, c		*462*						*971*		*475*	*1025*	
v/c Ratio, X		*0.19*						*0.51*		*0.71*	*0.58*	
Total Green Ratio, g/C		*0.28*						*0.55*		*0.55*	*0.55*	
Uniform Delay, d_1		*16.3*						*8.5*		*10.0*	*8.9*	
Progression Factor, PF		*1.000*						*1.000*		*1.000*	*1.000*	
Delay Calibration, k		*0.50*						*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2		*0.9*						*1.7*		*5.8*	*1.5*	

Initial Queue Delay, d_3		*0.0*						*0.0*		*0.0*	*0.0*	
Control Delay		*17.2*						*10.2*		*15.8*	*10.4*	
Lane Group LOS		*B*						*B*		*B*	*B*	
Approach Delay	*17.2*						*10.2*			*12.4*		
Approach LOS	*B*						*B*			*B*		
Intersection Delay	*12.0*			X_C = *0.54*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Amboy Rd & Bloomingdale Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*1*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*		*L*	*T*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*7*	*7*	*18*	*284*	*18*	*102*	*12*	*309*	*234*	*83*	*406*	*7*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*1*	*1*	*1*	*0*	*0*	*0*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.84*	*0.84*	*0.84*	*0.90*	*0.90*	*0.90*	*0.92*	*0.92*	*0.92*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*		*3*	*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*		*0.887*	*0.887*	*0.887*		*0.516*			*0.500*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*50*	*0*	*0*	*0*	*0*	*0*	*50*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*		*12.0*	*11.0*	*11.0*		*11.0*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*		*0*	*0*	*0*		*0*			*0*	
Min. Time for Pedestrians, G_p	*11.5*			*11.8*			*18.9*			*18.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*					Cycle Length, C = *90.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*37*		*316*	*20*	*113*		*603*			*551*	
Lane Group Capacity, c		*628*		*580*	*808*	*601*		*741*			*626*	
v/c Ratio, X		*0.06*		*0.54*	*0.02*	*0.19*		*0.81*			*0.88*	
Total Green Ratio, g/C		*0.44*		*0.44*	*0.44*	*0.44*		*0.44*			*0.44*	
Uniform Delay, d_1		*14.3*		*18.3*	*14.0*	*15.2*		*21.8*			*22.8*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*	*0.50*		*0.50*			*0.50*	

Incremental Delay, d_2		0.2		3.2	0.1	0.6		5.2			9.0	
Initial Queue Delay, d_3		0.0		0.0	0.0	0.0		0.0			0.0	
Control Delay		14.4		21.6	14.1	15.8		26.9			31.9	
Lane Group LOS		B		C	B	B		C			C	
Approach Delay	14.4			19.8			26.9			31.9		
Approach LOS	B			B			C			C		
Intersection Delay	26.3			X_C = 0.71			Intersection LOS			C		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Arthur Kill Rd & Bloomingdl Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2015 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*0*	*1*		*0*		*0*			
Lane Group		*TR*			*LT*			*LR*				
Volume, V (vph)		*183*	*232*	*166*	*179*		*147*		*138*			
% Heavy Vehicles, %HV		*2*	*2*	*4*	*4*		*1*		*1*			
Peak-Hour Factor, PHF		*0.78*	*0.78*	*0.89*	*0.89*		*0.85*		*0.85*			
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*		*P*			
Start-up Lost Time, l_1		*2.0*			*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*			*2.0*			*2.0*				
Arrival Type, AT		*3*			*3*			*3*				
Unit Extension, UE		*3.0*			*3.0*			*3.0*				
Filtering/Metering, I		*0.927*			*0.992*			*0.953*				
Initial Unmet Demand, Q_b		*0.0*			*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*56*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	
Lane Width		*16.0*			*16.0*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m									*5*			
Buses Stopping, N_B		*2*			*0*			*0*				
Min. Time for Pedestrians, G_p	*18.3*			*3.2*			*15.2*			*17.2*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*461*			*388*			*335*				
Lane Group Capacity, c		*978*			*505*			*564*				
v/c Ratio, X		*0.47*			*0.77*			*0.59*				
Total Green Ratio, g/C		*0.50*			*0.50*			*0.39*				
Uniform Delay, d_1		*14.7*			*18.3*			*21.9*				
Progression Factor, PF		*1.000*			*1.000*			*1.000*				
Delay Calibration, k		*0.50*			*0.50*			*0.50*				
Incremental Delay, d_2		*1.5*			*10.6*			*4.3*				

Initial Queue Delay, d_3		*0.0*			*0.0*			*0.0*				
Control Delay		*16.2*			*28.9*			*26.2*				
Lane Group LOS		*B*			*C*			*C*				
Approach Delay	*16.2*			*28.9*			*26.2*					
Approach LOS	*B*			*C*			*C*					
Intersection Delay	*23.2*			X_C = *0.69*			Intersection LOS			*C*		

With-Action

2020

Weekday

AM

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*Sharrotts Rd & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Sharrotts Road* North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*27*	*186*	*42*	*29*	*255*	*39*
Peak-Hour Factor, PHF	*0.83*	*0.83*	*0.83*	*0.83*	*0.83*	*0.83*
Hourly Flow Rate, HFR (veh/h)	*32*	*224*	*50*	*34*	*307*	*46*
Percent Heavy Vehicles	*20*	--	--	*13*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*9*	*8*	*8*	*46*	*10*	*28*
Peak-Hour Factor, PHF	*0.79*	*0.79*	*0.79*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*11*	*10*	*10*	*48*	*10*	*29*
Percent Heavy Vehicles	*32*	*32*	*32*	*5*	*5*	*5*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (veh/h)	*32*	*34*		*87*			*31*	
C (m) (veh/h)	*1113*	*1228*		*388*			*342*	
v/c	*0.03*	*0.03*		*0.22*			*0.09*	
95% queue length	*0.09*	*0.09*		*0.85*			*0.30*	
Control Delay (s/veh)	*8.3*	*8.0*		*16.9*			*16.6*	
LOS	*A*	*A*		*C*			*C*	
Approach Delay (s/veh)	--	--	*16.9*			*16.6*		
Approach LOS	--	--	*C*			*C*		

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Generated: 4/10/2013 3:26 PM

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*Englewood Ave & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*216*	*89*	*102*	*205*	
Peak-Hour Factor, PHF	*1.00*	*0.83*	*0.83*	*0.83*	*0.83*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*260*	*107*	*122*	*246*	*0*
Percent Heavy Vehicles	*0*	--	--	*11*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*150*		*39*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.69*	*1.00*	*0.69*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*217*	*0*	*56*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (veh/h)		*122*		*273*				
C (m) (veh/h)		*1144*		*359*				
v/c		*0.11*		*0.76*				
95% queue length		*0.36*		*6.08*				
Control Delay (s/veh)		*8.5*		*40.7*				
LOS		*A*		*E*				
Approach Delay (s/veh)	--	--	*40.7*					
Approach LOS	--	--	*E*					

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Generated: 4/10/2013 3:27 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*			*LT*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*3*	*6*	*1*	*174*	*34*	*227*	*0*	*205*	*304*	*117*	*160*	*9*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*7*	*7*	*7*	*11*	*11*	*11*	*11*	*11*	*11*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.87*	*0.87*	*0.87*	*0.85*	*0.85*	*0.85*	*0.87*	*0.87*	*0.87*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*			*0.940*	*0.940*		*0.887*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*15.5*			*11.0*	*10.0*		*15.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*			*0*	*0*		*4*			*3*	
Min. Time for Pedestrians, G_p	*11.5*			*13.5*			*15.2*			*12.1*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*					Cycle Length, C = *60.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*11*			*239*	*261*		*599*			*328*	
Lane Group Capacity, c		*717*			*539*	*514*		*710*			*304*	
v/c Ratio, X		*0.02*			*0.44*	*0.51*		*0.84*			*1.08*	
Total Green Ratio, g/C		*0.42*			*0.42*	*0.42*		*0.42*			*0.42*	
Uniform Delay, d_1		*10.3*			*12.5*	*12.9*		*15.7*			*17.5*	
Progression Factor, PF		*1.000*			*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*	*0.50*		*0.50*			*0.50*	

Incremental Delay, d_2		*0.0*			*2.5*	*3.3*		*10.6*			*74.2*	
Initial Queue Delay, d_3		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Control Delay		*10.3*			*15.0*	*16.3*		*26.3*			*91.7*	
Lane Group LOS		*B*			*B*	*B*		*C*			*F*	
Approach Delay	*10.3*			*15.7*			*26.3*			*91.7*		
Approach LOS	*B*			*B*			*C*			*F*		
Intersection Delay	*37.4*			X_C *= 0.79*			Intersection LOS			*D*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*No Bridge St & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/28/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*			*1*	
Lane Group					*LR*			*T*			*T*	
Volume, V (vph)				*268*		*5*		*504*			*335*	
% Heavy Vehicles, %HV				*8*		*8*		*11*			*15*	
Peak-Hour Factor, PHF				*0.88*		*0.88*		*0.85*			*0.87*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*			*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.893*			*0.886*			*0.754*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	
Lane Width					*16.0*			*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B					*0*			*0*			*3*	
Min. Time for Pedestrians, G_p	*13.5*			*13.8*			*3.2*			*3.2*		

Phasing	WB Only	02	03	04	Thru Only	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*311*			*593*			*385*	
Lane Group Capacity, c					*632*			*970*			*925*	
v/c Ratio, X					*0.49*			*0.61*			*0.42*	
Total Green Ratio, g/C					*0.33*			*0.50*			*0.50*	
Uniform Delay, d_1					*15.9*			*10.8*			*9.5*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*2.4*			*2.5*			*1.0*	

Initial Queue Delay, d_3					*0.0*			*0.0*			*0.0*	
Control Delay					*18.4*			*13.4*			*10.5*	
Lane Group LOS					*B*			*B*			*B*	
Approach Delay				*18.4*			*13.4*			*10.5*		
Approach LOS				*B*			*B*			*B*		
Intersection Delay	*13.7*			X_C = *0.56*			Intersection LOS			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/28/13*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*So Bridge St & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *South Bridge Street* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*504*	*224*	*120*	*483*	
Peak-Hour Factor, PHF	*1.00*	*0.85*	*0.85*	*0.87*	*0.87*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*592*	*263*	*137*	*555*	*0*
Percent Heavy Vehicles	*0*	--	--	*20*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration						

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*						
v (veh/h)		*137*						
C (m) (veh/h)		*713*						
v/c		*0.19*						
95% queue length		*0.71*						
Control Delay (s/veh)		*11.2*						
LOS		*B*						
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Rch Valley Rd & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/28/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*	*0*	*0*	*1*	
Lane Group					*LR*			*TR*			*LT*	
Volume, V (vph)				*62*		*177*		*549*	*74*	*119*	*358*	
% Heavy Vehicles, %HV				*3*		*3*		*11*	*11*	*9*	*9*	
Peak-Hour Factor, PHF				*0.93*		*0.93*		*0.85*	*0.85*	*0.87*	*0.87*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*	*P*	*P*	*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.980*			*0.769*			*0.842*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width					*12.0*			*15.0*			*15.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B					*0*			*4*			*3*	
Min. Time for Pedestrians, G_p	*11.8*			*11.8*			*14.1*			*3.2*		

Phasing	WB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*257*			*733*			*548*	
Lane Group Capacity, c					*382*			*1033*			*637*	
v/c Ratio, X					*0.67*			*0.71*			*0.86*	
Total Green Ratio, g/C					*0.27*			*0.57*			*0.57*	
Uniform Delay, d_1					*19.7*			*9.4*			*11.0*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*9.0*			*3.2*			*12.3*	

Initial Queue Delay, d_3					0.0			0.0			0.0	
Control Delay					28.6			12.6			23.3	
Lane Group LOS					C			B			C	
Approach Delay				28.6			12.6			23.3		
Approach LOS				C			B			C		
Intersection Delay	19.1			X_C = 0.80			Intersection LOS			B		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Richmond Valley Rd & Page Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*0*	*1*	*1*	*0*	*0*	*2*	*0*
Lane Group		*LTR*			*LTR*		*L*	*TR*			*LTR*	
Volume, V (vph)	*72*	*27*	*94*	*24*	*133*	*46*	*88*	*675*	*112*	*65*	*369*	*30*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*1*	*1*	*1*	*3*	*3*	*3*	*9*	*9*	*9*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.94*	*0.94*	*0.94*	*0.92*	*0.92*	*0.92*	*0.84*	*0.84*	*0.84*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.810*			*1.000*		*0.649*	*0.649*			*0.986*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*6*
Lane Width		*16.0*			*15.0*		*10.0*	*14.0*			*10.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*
Parking Maneuvers, N_m						*5*						*5*
Buses Stopping, N_B		*0*			*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*16.6*			*21.5*			*16.3*			*21.2*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *31.0*	G =	G =	G =	G = *49.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*214*			*216*		*96*	*856*			*545*	
Lane Group Capacity, c		*558*			*574*		*397*	*1049*			*960*	
v/c Ratio, X		*0.38*			*0.38*		*0.24*	*0.82*			*0.57*	
Total Green Ratio, g/C		*0.34*			*0.34*		*0.54*	*0.54*			*0.54*	
Uniform Delay, d_1		*22.3*			*22.2*		*10.8*	*16.8*			*13.5*	
Progression Factor, PF		*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	

Incremental Delay, d_2		1.6			1.9		0.9	4.7			2.4	
Initial Queue Delay, d_3		0.0			0.0		0.0	0.0			0.0	
Control Delay		23.9			24.1		11.7	21.5			15.9	
Lane Group LOS		C			C		B	C			B	
Approach Delay	23.9			24.1			20.5			15.9		
Approach LOS	C			C			C			B		
Intersection Delay	20.0			X_C = 0.65			Intersection LOS			B		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/16/13*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*S Bridge St RT & Page Ave*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *South Bridge Street Right Turn* | North/South Street: *Page Avenue*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*405*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.84*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*482*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*2*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*59*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.70*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*84*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*60*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								*R*
v (veh/h)								*84*
C (m) (veh/h)								*674*
v/c								*0.12*
95% queue length								*0.42*
Control Delay (s/veh)								*11.1*
LOS								*B*
Approach Delay (s/veh)	--	--				*11.1*		
Approach LOS	--	--				*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*S Br St & Page Ave/Boscome Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 With Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*							*2*			*2*	
Lane Group	*L*							*T*			*T*	
Volume, V (vph)	*284*							*793*			*405*	
% Heavy Vehicles, %HV	*2*							*1*			*3*	
Peak-Hour Factor, PHF	*0.90*							*0.91*			*0.84*	
Pretimed (P) or Actuated (A)	*P*							*P*			*P*	
Start-up Lost Time, l_1	*2.0*							*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*							*2.0*			*2.0*	
Arrival Type, AT	*3*							*3*			*3*	
Unit Extension, UE	*3.0*							*3.0*			*3.0*	
Filtering/Metering, I	*1.000*							*0.665*			*0.986*	
Initial Unmet Demand, Q_b	*0.0*							*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*		*0*	*0*		*0*	*0*	
Lane Width	*16.0*							*14.5*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*							*0*			*0*	
Min. Time for Pedestrians, G_p	*3.2*			*20.1*			*3.2*			*3.2*		

Phasing	EB Only	02	03	04	Thru Only	06	07	08
Timing	G = *30.0*	G =	G =	G =	G = *50.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*316*							*871*			*482*	
Lane Group Capacity, c	*669*							*2156*			*1951*	
v/c Ratio, X	*0.47*							*0.40*			*0.25*	
Total Green Ratio, g/C	*0.33*							*0.56*			*0.56*	
Uniform Delay, d_1	*23.7*							*11.5*			*10.3*	
Progression Factor, PF	*1.000*							*1.000*			*1.000*	
Delay Calibration, k	*0.50*							*0.50*			*0.50*	
Incremental Delay, d_2	*2.4*							*0.4*			*0.3*	

Initial Queue Delay, d_3	*0.0*							*0.0*			*0.0*	
Control Delay	*26.1*							*11.8*			*10.6*	
Lane Group LOS	*C*							*B*			*B*	
Approach Delay	*26.1*						*11.8*			*10.6*		
Approach LOS	*C*						*B*			*B*		
Intersection Delay	*14.2*			X_C = *0.43*			Intersection LOS			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/16/13*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*KWVP WB OR UT & No Bridge St*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *KWVP WB Off-Ramp U-Turn* | North/South Street: *North Bridge Street*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*404*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.95*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*425*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*1*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*287*		
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.90*	*0.93*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*308*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*60*	*8*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*0*
Configuration				*L*		

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration			*L*					
v (veh/h)			*308*					
C (m) (veh/h)			*575*					
v/c			*0.54*					
95% queue length			*3.16*					
Control Delay (s/veh)			*18.2*					
LOS			*C*					
Approach Delay (s/veh)	--	--	*18.2*					
Approach LOS	--	--	*C*					

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Bricktown/KWVP*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/23/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8 - 9 AM Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*	*0*	*1*	*2*	*0*	*0*	*2*	*0*	*1*	*1*	*0*
Lane Group	*L*	*TR*		*L*	*TR*			*LTR*		*L*	*TR*	
Volume, V (vph)	*74*	*164*	*169*	*203*	*285*	*80*	*119*	*324*	*138*	*68*	*32*	*41*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*8*	*8*	*8*	*8*	*8*	*8*	*3*	*3*	*3*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.87*	*0.87*	*0.87*	*0.93*	*0.93*	*0.93*	*0.67*	*0.67*	*0.67*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*		*2.0*	*2.0*			*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e	*2.0*	*2.0*		*2.0*	*2.0*			*2.0*		*2.0*	*2.0*	
Arrival Type, AT	*3*	*3*		*3*	*3*			*3*		*3*	*3*	
Unit Extension, UE	*3.0*	*3.0*		*3.0*	*3.0*			*3.0*		*3.0*	*3.0*	
Filtering/Metering, I	*0.780*	*0.780*		*0.979*	*0.979*			*1.000*		*0.991*	*0.991*	
Initial Unmet Demand, Q_b	*0.0*	*0.0*		*0.0*	*0.0*			*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*38*	*0*	*0*	*4*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*11.0*	*12.0*		*10.0*	*12.0*			*12.5*		*11.0*	*10.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*		*0*	*0*			*0*		*0*	*0*	
Min. Time for Pedestrians, G_p	*34.6*			*18.6*			*20.3*			*16.1*		

Phasing	EW Perm	02	03	04	NB Only	SB Only	07	08
Timing	G = *30.0*	G =	G =	G =	G = *25.0*	G = *20.0*	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y = *5*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*84*	*335*		*233*	*415*			*624*		*101*	*109*	
Lane Group Capacity, c	*272*	*579*		*217*	*1081*			*903*		*376*	*350*	
v/c Ratio, X	*0.31*	*0.58*		*1.07*	*0.38*			*0.69*		*0.27*	*0.31*	
Total Green Ratio, g/C	*0.33*	*0.33*		*0.33*	*0.33*			*0.28*		*0.22*	*0.22*	
Uniform Delay, d_1	*22.3*	*24.8*		*30.0*	*22.9*			*29.0*		*29.0*	*29.2*	
Progression Factor, PF	*1.000*	*1.000*		*1.000*	*1.000*			*1.000*		*1.000*	*1.000*	
Delay Calibration, k	*0.50*	*0.50*		*0.50*	*0.50*			*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2	*2.3*	*3.3*		*81.4*	*1.0*			*4.3*		*1.7*	*2.3*	

Initial Queue Delay, d_3	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Control Delay	24.6	28.1		111.4	23.9			33.4		30.7	31.5	
Lane Group LOS	C	C		F	C			C		C	C	
Approach Delay	27.4			55.4			33.4			31.1		
Approach LOS	C			E			C			C		
Intersection Delay	39.3			X_C = 0.74			Intersection LOS			D		

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*Bricktown Way/Tyrellan Avenue*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Bricktown Way* | North/South Street: *Tyrellan Avenue*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*38*	*69*	*28*	*33*	*84*	*35*
%Thrus Left Lane	*50*			*50*		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*14*	*16*	*22*	*21*	*52*	*16*
%Thrus Left Lane				*50*		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*LT*	*TR*	*LT*	*TR*	*LT*	*R*	*LT*	*TR*
PHF	*0.80*	*0.80*	*0.78*	*0.78*	*0.86*	*0.86*	*1.00*	*1.00*
Flow Rate (veh/h)	*89*	*77*	*95*	*97*	*34*	*25*	*47*	*42*
% Heavy Vehicles	*21*	*21*	*1*	*1*	*5*	*5*	*0*	*0*
No. Lanes	*2*		*2*		*2*		*2*	
Geometry Group	*5*		*5*		*5*		*5*	
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	*0.5*	*0.0*	*0.4*	*0.0*	*0.5*	*0.0*	*0.4*	*0.0*
Prop. Right-Turns	*0.0*	*0.4*	*0.0*	*0.5*	*0.0*	*1.0*	*0.0*	*0.4*
Prop. Heavy Vehicle	*0.2*	*0.2*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
hLT-adj	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*
hRT-adj	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*
hadj, computed	*0.6*	*0.0*	*0.2*	*-0.3*	*0.3*	*-0.6*	*0.2*	*-0.3*

Departure Headway and Service Time

hd, initial value (s)	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*
x, initial	*0.08*	*0.07*	*0.08*	*0.09*	*0.03*	*0.02*	*0.04*	*0.04*
hd, final value (s)	*5.69*	*5.12*	*5.29*	*4.76*	*5.80*	*4.86*	*5.66*	*5.17*
x, final value	*0.14*	*0.11*	*0.14*	*0.13*	*0.05*	*0.03*	*0.07*	*0.06*
Move-up time, m (s)	*2.3*		*2.3*		*2.3*		*2.3*	
Service Time, t_s (s)	*3.4*	*2.8*	*3.0*	*2.5*	*3.5*	*2.6*	*3.4*	*2.9*

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*339*	*327*	*345*	*347*	*284*	*275*	*297*	*292*
Delay (s/veh)	*9.32*	*8.44*	*8.85*	*8.15*	*8.83*	*7.73*	*8.81*	*8.20*
LOS	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Approach: Delay (s/veh)	*8.91*		*8.50*		*8.36*		*8.53*	
LOS	*A*		*A*		*A*		*A*	
Intersection Delay (s/veh)	*8.62*							
Intersection LOS	*A*							

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/23/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*
Lane Group		*LTR*			*LTR*		*DefL*	*TR*			*LTR*	
Volume, V (vph)	*54*	*28*	*275*	*115*	*203*	*6*	*264*	*93*	*51*	*11*	*160*	*102*
% Heavy Vehicles, %HV	*8*	*8*	*8*	*3*	*3*	*3*	*4*	*4*	*4*	*8*	*8*	*8*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.87*	*0.87*	*0.87*	*0.87*	*0.87*	*0.87*	*0.76*	*0.76*	*0.76*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.916*			*0.953*		*1.000*	*1.000*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*			*12.0*		*13.0*	*13.0*			*9.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*			*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*18.6*			*16.6*			*20.1*			*19.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*406*			*372*		*303*	*166*			*359*	
Lane Group Capacity, c		*1104*			*1058*		*441*	*794*			*1216*	
v/c Ratio, X		*0.37*			*0.35*		*0.69*	*0.21*			*0.30*	
Total Green Ratio, g/C		*0.44*			*0.44*		*0.44*	*0.44*			*0.44*	
Uniform Delay, d_1		*16.6*			*16.5*		*20.0*	*15.3*			*16.0*	
Progression Factor, PF		*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	

Incremental Delay, d_2		*0.9*			*0.9*		*8.5*	*0.6*			*0.6*	
Initial Queue Delay, d_3		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay		*17.5*			*17.3*		*28.4*	*15.9*			*16.6*	
Lane Group LOS		*B*			*B*		*C*	*B*			*B*	
Approach Delay	*17.5*			*17.3*			*24.0*			*16.6*		
Approach LOS	*B*			*B*			*C*			*B*		
Intersection Delay	*19.2*			X_C = *0.53*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Boscombe Ave & OBX Off-Ramp*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*1*	*1*	*1*
Lane Group	*L*	*TR*			*LT*	*R*		*LTR*		*L*	*LT*	*R*
Volume, V (vph)	*802*	*256*	*19*	*4*	*284*	*315*	*4*	*16*	*6*	*119*	*5*	*146*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*3*	*3*	*3*	*1*	*1*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.91*	*0.91*	*0.91*	*0.86*	*0.86*	*0.86*	*0.37*	*0.37*	*0.37*	*0.87*	*0.87*	*0.87*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*	*3*		*3*		*3*	*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*	*3.0*		*3.0*		*3.0*	*3.0*	*3.0*
Filtering/Metering, I	*0.603*	*0.603*			*0.932*	*0.932*		*1.000*		*1.000*	*1.000*	*1.000*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*	*0.0*		*0.0*		*0.0*	*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*11.0*	*12.0*			*12.0*	*12.0*		*16.0*		*10.0*	*11.0*	*10.0*
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B	*0*	*0*			*0*	*0*		*0*		*0*	*0*	*0*
Min. Time for Pedestrians, G_p	*14.6*			*24.6*			*20.9*			*20.1*		

Phasing	EB Only	EW Perm	03	04	NS Perm	06	07	08
Timing	G = *37.0*	G = *22.0*	G =	G =	G = *16.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*					Cycle Length, C = *90.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*881*	*302*			*335*	*366*		*70*		*137*	*6*	*168*
Lane Group Capacity, c	*839*	*1158*			*449*	*383*		*355*		*226*	*320*	*952*
v/c Ratio, X	*1.05*	*0.26*			*0.75*	*0.96*		*0.20*		*0.61*	*0.02*	*0.18*
Total Green Ratio, g/C	*0.71*	*0.71*			*0.24*	*0.24*		*0.18*		*0.18*	*0.18*	*0.64*
Uniform Delay, d_1	*18.7*	*4.6*			*31.4*	*33.5*		*31.5*		*34.1*	*30.5*	*6.4*
Progression Factor, PF	*1.000*	*1.000*			*1.000*	*1.000*		*1.000*		*1.000*	*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*	*0.50*		*0.50*		*0.50*	*0.50*	*0.50*

Incremental Delay, d_2	*38.4*	*0.3*			*10.1*	*34.5*		*1.2*		*11.5*	*0.1*	*0.4*
Initial Queue Delay, d_3	*0.0*	*0.0*			*0.0*	*0.0*		*0.0*		*0.0*	*0.0*	*0.0*
Control Delay	*57.2*	*4.9*			*41.5*	*68.1*		*32.8*		*45.6*	*30.6*	*6.8*
Lane Group LOS	*E*	*A*			*D*	*E*		*C*		*D*	*C*	*A*
Approach Delay	*43.8*			*55.4*			*32.8*			*24.4*		
Approach LOS	*D*			*E*			*C*			*C*		
Intersection Delay	*44.4*			X_C *= 1.03*			Intersection LOS			*D*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Boscombe Ave & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Hour*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*1*	*1*
Lane Group	*DefL*	*TR*			*LTR*			*LTR*			*LT*	*R*
Volume, V (vph)	*356*	*26*	*0*	*14*	*68*	*38*	*6*	*22*	*11*	*15*	*38*	*499*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*3*	*3*	*3*	*1*	*1*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.91*	*0.91*	*0.91*	*0.72*	*0.72*	*0.72*	*0.45*	*0.45*	*0.45*	*0.76*	*0.76*	*0.76*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*			*2.0*			*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*			*2.0*			*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*			*3*			*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*			*3.0*			*3.0*	*3.0*
Filtering/Metering, I	*0.970*	*0.970*			*1.000*			*1.000*			*0.974*	*0.974*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*			*0.0*			*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*9*	*0*	*0*	*0*	*0*	*0*	*155*
Lane Width	*16.0*	*16.0*			*11.5*			*12.0*			*12.0*	*12.0*
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*			*0*			*0*			*0*	*0*
Min. Time for Pedestrians, G_p	*20.3*			*17.5*			*20.3*			*20.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*391*	*29*			*153*			*86*			*70*	*453*
Lane Group Capacity, c	*699*	*1066*			*1543*			*1234*			*673*	*616*
v/c Ratio, X	*0.56*	*0.03*			*0.10*			*0.07*			*0.10*	*0.74*
Total Green Ratio, g/C	*0.50*	*0.50*			*0.50*			*0.39*			*0.39*	*0.39*
Uniform Delay, d_1	*15.6*	*11.4*			*11.8*			*17.3*			*17.5*	*23.5*
Progression Factor, PF	*1.000*	*1.000*			*1.000*			*1.000*			*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*			*0.50*			*0.50*	*0.50*

Incremental Delay, d_2	3.1	0.0			0.1			0.1			0.3	7.4
Initial Queue Delay, d_3	0.0	0.0			0.0			0.0			0.0	0.0
Control Delay	18.7	11.5			12.0			17.4			17.8	31.0
Lane Group LOS	B	B			B			B			B	C
Approach Delay	18.2			12.0			17.4			29.2		
Approach LOS	B			B			B			C		
Intersection Delay	22.2			X_C = 0.64			Intersection LOS			C		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Bricktown Ctr Rd @ Vets Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/23/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*				*0*	*2*			*2*	*0*
Lane Group	*L*		*R*					*LT*			*TR*	
Volume, V (vph)	*108*		*4*				*4*	*86*			*320*	*263*
% Heavy Vehicles, %HV	*11*		*11*				*2*	*2*			*1*	*1*
Peak-Hour Factor, PHF	*0.80*		*0.80*				*0.80*	*0.80*			*0.81*	*0.81*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*					*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*					*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*					*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*					*3.0*			*3.0*	
Filtering/Metering, I	*0.995*		*0.995*					*1.000*			*0.752*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*					*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*4*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width	*13.0*		*12.0*					*11.5*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*					*0*			*0*	
Min. Time for Pedestrians, G_p	*21.8*			*20.3*			*3.2*			*19.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *19.0*	G =	G =	G =	G = *31.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*135*		*0*					*112*			*720*	
Lane Group Capacity, c	*532*		*461*					*1680*			*1956*	
v/c Ratio, X	*0.25*		*0.00*					*0.07*			*0.37*	
Total Green Ratio, g/C	*0.32*		*0.32*					*0.52*			*0.52*	
Uniform Delay, d_1	*15.2*		*14.0*					*7.3*			*8.7*	
Progression Factor, PF	*1.000*		*1.000*					*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*					*0.50*			*0.50*	
Incremental Delay, d_2	*1.1*		*0.0*					*0.1*			*0.4*	

Initial Queue Delay, d_3	*0.0*		*0.0*					*0.0*			*0.0*	
Control Delay	*16.4*		*14.0*					*7.3*			*9.1*	
Lane Group LOS	*B*		*B*					*A*			*A*	
Approach Delay	*16.4*						*7.3*			*9.1*		
Approach LOS	*B*						*A*			*A*		
Intersection Delay	*9.9*			X_C = *0.32*			Intersection LOS			*A*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/23/13*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*Englewood Ave & Vets Rd W RT*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* | North/South Street: *Veterans Rd W Right Turn Bay*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*238*				
Peak-Hour Factor, PHF	*1.00*	*0.82*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*290*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*T*				
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*190*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.78*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*243*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*1*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					*R*			
v (veh/h)					*243*			
C (m) (veh/h)					*752*			
v/c					*0.32*			
95% queue length					*1.40*			
Control Delay (s/veh)					*12.1*			
LOS					*B*			
Approach Delay (s/veh)	--	--	*12.1*					
Approach LOS	--	--	*B*					

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Ave @ Veterans Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*1*	*1*		*1*			*0*	*3*	*0*
Lane Group		*TR*		*L*	*T*		*L*				*LTR*	
Volume, V (vph)		*214*	*0*	*384*	*191*		*3*			*24*	*200*	*64*
% Heavy Vehicles, %HV		*2*	*2*	*3*	*3*		*1*			*1*	*1*	*1*
Peak-Hour Factor, PHF		*0.80*	*0.25*	*0.79*	*0.79*		*0.80*			*0.81*	*0.81*	*0.81*
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*			*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Arrival Type, AT		*3*		*3*	*3*		*3*				*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*		*3.0*				*3.0*	
Filtering/Metering, I		*1.000*		*0.981*	*0.981*		*0.998*				*1.000*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*12.0*		*13.0*	*13.0*		*10.0*				*11.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*		*0*	*0*		*0*				*0*	
Min. Time for Pedestrians, G_p	*31.2*			*3.2*			*18.1*			*11.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*267*		*486*	*242*		*4*				*356*	
Lane Group Capacity, c		*776*		*402*	*794*		*387*				*1987*	
v/c Ratio, X		*0.34*		*1.21*	*0.30*		*0.01*				*0.18*	
Total Green Ratio, g/C		*0.42*		*0.42*	*0.42*		*0.42*				*0.42*	
Uniform Delay, d_1		*11.9*		*17.5*	*11.7*		*10.3*				*11.0*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*		*1.000*				*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*		*0.50*				*0.50*	
Incremental Delay, d_2		*1.2*		*114.8*	*1.0*		*0.0*				*0.2*	

Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Control Delay		*13.1*		*132.3*	*12.7*		*10.3*				*11.2*	
Lane Group LOS		*B*		*F*	*B*		*B*				*B*	
Approach Delay	*13.1*			*92.6*			*10.3*			*11.2*		
Approach LOS	*B*			*F*			*B*			*B*		
Intersection Delay	*55.3*			X_C = *0.69*			Intersection LOS			*E*		

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/23/13*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*Sharrotts Rd & Veterans Rd W*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Sharrotts Road* North/South Street: *Veterans Road West*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*57*	*22*	*183*	*72*	*0*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*0*	*11*	*83*	*12*
%Thrus Left Lane				*50*		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*TR*		*LT*				*LT*	*TR*
PHF	*0.80*		*0.79*				*0.81*	*0.81*
Flow Rate (veh/h)	*98*		*322*				*63*	65
% Heavy Vehicles	*24*		*5*				*3*	*3*
No. Lanes	*1*		*1*		*0*		*2*	
Geometry Group	*2*		*2*				*1*	
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	*0.0*		*0.7*				*0.2*	*0.0*
Prop. Right-Turns	*0.3*		*0.0*				*0.0*	*0.2*
Prop. Heavy Vehicle	*0.2*		*0.0*				*0.0*	*0.0*
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*			*0.2*	*0.2*
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*			*-0.6*	*-0.6*
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*			*1.7*	*1.7*
hadj, computed	*0.2*		*0.2*				*0.1*	*-0.1*

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value (s)	*3.20*		*3.20*				*3.20*	*3.20*
x, initial	*0.09*		*0.29*				*0.06*	*0.06*
hd, final value (s)	*4.83*		*4.57*				*5.00*	*4.82*
x, final value	*0.13*		*0.41*				*0.09*	*0.09*
Move-up time, m (s)	*2.0*		*2.0*				*2.0*	
Service Time, t_s (s)	*2.8*		*2.6*				*3.0*	*2.8*

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*348*		*572*				*313*	*315*
Delay (s/veh)	*8.56*		*10.68*				*8.47*	*8.28*
LOS	*A*		*B*				*A*	*A*
Approach: Delay (s/veh)	*8.56*		*10.68*				*8.38*	
LOS	*A*		*B*				*A*	
Intersection Delay (s/veh)	*9.76*							
Intersection LOS	*A*							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/16/13*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*Sharrotts Rd @ Veterans Rd E*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Sharrotts Road* | North/South Street: *Veterans Road East*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*6*	*61*	*0*	*0*	*197*	*18*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*58*	*53*	*46*	*0*	*0*	*0*
%Thrus Left Lane	*50*					

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*LT*		*TR*		*LT*	*TR*		
PHF	*0.80*		*0.79*		*0.87*	*0.87*		
Flow Rate (veh/h)	*83*		*271*		*95*	*83*		
% Heavy Vehicles	*17*		*7*		*1*	*1*		
No. Lanes	*1*		*1*		*2*		*0*	
Geometry Group	*2*		*2*		*1*			
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	*0.1*		*0.0*		*0.7*	*0.0*		
Prop. Right-Turns	*0.0*		*0.1*		*0.0*	*0.6*		
Prop. Heavy Vehicle	*0.2*		*0.1*		*0.0*	*0.0*		
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*		
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*		
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*		
hadj, computed	*0.3*		*0.1*		*0.2*	*-0.4*		

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value (s)	*3.20*		*3.20*		*3.20*	*3.20*		
x, initial	*0.07*		*0.24*		*0.08*	*0.07*		
hd, final value (s)	*4.94*		*4.49*		*4.90*	*4.38*		
x, final value	*0.11*		*0.34*		*0.13*	*0.10*		
Move-up time, m (s)	*2.0*		*2.0*		*2.0*			
Service Time, t_s (s)	*2.9*		*2.5*		*2.9*	*2.4*		

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*333*		*521*		*345*	*333*		
Delay (s/veh)	*8.57*		*9.77*		*8.63*	*7.87*		
LOS	*A*		*A*		*A*	*A*		
Approach: Delay (s/veh)	*8.57*		*9.77*		*8.28*			
LOS	*A*		*A*		*A*			
Intersection Delay (s/veh)	*9.08*							
Intersection LOS	*A*							

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Ave @ Vets Rd E*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*3*	*0*			
Lane Group		*LT*	*R*		*LTR*			*LTR*				
Volume, V (vph)	*79*	*196*	*153*	*6*	*73*	*1*	*501*	*77*	*1*			
% Heavy Vehicles, %HV	*3*	*3*	*3*	*1*	*1*	*1*	*3*	*3*	*3*			
Peak-Hour Factor, PHF	*0.79*	*0.79*	*0.79*	*0.79*	*0.79*	*0.79*	*0.76*	*0.76*	*0.76*			
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*			
Start-up Lost Time, l_1		*2.0*	*2.0*		*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*	*2.0*		*2.0*			*2.0*				
Arrival Type, AT		*3*	*3*		*3*			*3*				
Unit Extension, UE		*3.0*	*3.0*		*3.0*			*3.0*				
Filtering/Metering, I		*0.999*	*0.999*		*0.998*			*0.978*				
Initial Unmet Demand, Q_b		*0.0*	*0.0*		*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*21*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width		*13.0*	*12.0*		*11.5*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B		*0*	*0*		*0*			*0*				
Min. Time for Pedestrians, G_p	*21.2*			*12.9*			*14.3*			*17.5*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *21.0*	G =	G =	G =	G = *29.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*348*	*167*		*101*			*761*				
Lane Group Capacity, c		*585*	*549*		*548*			*2250*				
v/c Ratio, X		*0.59*	*0.30*		*0.18*			*0.34*				
Total Green Ratio, g/C		*0.35*	*0.35*		*0.35*			*0.48*				
Uniform Delay, d_1		*16.0*	*14.2*		*13.5*			*9.6*				
Progression Factor, PF		*1.000*	*1.000*		*1.000*			*1.000*				
Delay Calibration, k		*0.50*	*0.50*		*0.50*			*0.50*				
Incremental Delay, d_2		*4.4*	*1.4*		*0.7*			*0.4*				

Initial Queue Delay, d_3		*0.0*	*0.0*		*0.0*			*0.0*				
Control Delay		*20.4*	*15.6*		*14.3*			*10.0*				
Lane Group LOS		*C*	*B*		*B*			*A*				
Approach Delay	*18.9*			*14.3*			*10.0*					
Approach LOS	*B*			*B*			*A*					
Intersection Delay	*13.6*			X_C = *0.45*			Intersection LOS			*B*		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Av & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*179*		*18*				*16*	*351*			*478*	*64*
% Heavy Vehicles, %HV	*1*		*1*				*7*	*7*			*9*	*9*
Peak-Hour Factor, PHF	*0.74*		*0.74*				*0.89*	*0.89*			*0.86*	*0.86*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.997*						*0.936*			*0.808*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*16.0*						*14.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B		*0*						*7*			*2*	
Min. Time for Pedestrians, G_p	*14.9*			*15.5*			*3.2*			*17.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*266*						*412*			*630*	
Lane Group Capacity, c		*470*						*1010*			*1093*	
v/c Ratio, X		*0.57*						*0.41*			*0.58*	
Total Green Ratio, g/C		*0.27*						*0.57*			*0.57*	
Uniform Delay, d_1		*19.0*						*7.3*			*8.4*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*4.9*						*1.1*			*1.8*	

Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	
Control Delay		*23.9*						*8.5*			*10.2*	
Lane Group LOS		*C*						*A*			*B*	
Approach Delay	*23.9*						*8.5*			*10.2*		
Approach LOS	*C*						*A*			*B*		
Intersection Delay	*12.4*			X_C = *0.57*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Sharrotts Rd & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*56*		*53*				*30*	*510*			*325*	*185*
% Heavy Vehicles, %HV	*14*		*14*				*8*	*8*			*11*	*11*
Peak-Hour Factor, PHF	*0.80*		*0.80*				*0.89*	*0.89*			*0.86*	*0.86*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.982*						*0.866*			*0.927*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*17*
Lane Width		*16.0*						*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*7*			*2*	
Min. Time for Pedestrians, G_p	*18.6*			*18.6*			*3.2*			*16.6*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*136*						*607*			*573*	
Lane Group Capacity, c		*502*						*808*			*918*	
v/c Ratio, X		*0.27*						*0.75*			*0.62*	
Total Green Ratio, g/C		*0.33*						*0.50*			*0.50*	
Uniform Delay, d_1		*14.7*						*12.0*			*10.9*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*1.3*						*5.6*			*3.0*	

Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	
Control Delay		*16.0*						*17.6*			*13.9*	
Lane Group LOS		*B*						*B*			*B*	
Approach Delay	*16.0*						*17.6*			*13.9*		
Approach LOS	*B*						*B*			*B*		
Intersection Delay	*15.8*			X_C = *0.56*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Vets Rd E & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*	*0*	*3*	*0*	*1*	*1*			*1*	*0*
Lane Group	*L*		*R*		*LTR*		*L*	*T*			*TR*	
Volume, V (vph)	*3*		*166*	*244*	*467*	*164*	*90*	*200*			*475*	*22*
% Heavy Vehicles, %HV	*3*		*3*	*3*	*3*	*3*	*7*	*7*			*7*	*7*
Peak-Hour Factor, PHF	*0.79*		*0.79*	*0.88*	*0.88*	*0.88*	*0.90*	*0.90*			*0.76*	*0.76*
Pretimed (P) or Actuated (A)	*P*		*P*	*P*	*P*	*P*	*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*		*3*		*3*	*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*		*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I	*0.974*		*0.974*		*0.725*		*0.946*	*0.946*			*0.293*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Lane Width	*10.0*		*13.0*		*11.0*		*12.0*	*12.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*		*0*		*0*	*7*			*2*	
Min. Time for Pedestrians, G_p	*17.2*			*16.9*			*3.2*			*20.9*		

Phasing	EB Only	WB Only	03	04	NS Perm	06	07	08
Timing	G = *8.0*	G = *17.0*	G =	G =	G = *20.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*4*		*210*		*994*		*100*	*222*			*654*	
Lane Group Capacity, c	*218*		*216*		*1319*		*120*	*575*			*661*	
v/c Ratio, X	*0.02*		*0.97*		*0.75*		*0.83*	*0.39*			*0.99*	
Total Green Ratio, g/C	*0.13*		*0.13*		*0.28*		*0.33*	*0.33*			*0.33*	
Uniform Delay, d_1	*22.6*		*25.9*		*19.6*		*18.5*	*15.3*			*19.9*	
Progression Factor, PF	*1.000*		*1.000*		*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*		*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2	*0.2*		*53.7*		*2.9*		*44.5*	*1.9*			*16.6*	

Initial Queue Delay, d_3	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay	*22.7*		*79.6*		*22.5*		*63.0*	*17.2*			*36.5*	
Lane Group LOS	*C*		*E*		*C*		*E*	*B*			*D*	
Approach Delay	*78.5*			*22.5*			*31.4*			*36.5*		
Approach LOS	*E*			*C*			*C*			*D*		
Intersection Delay	*33.5*			X_C *= 0.90*			Intersection LOS			*C*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*S Service Rd & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*				*0*	*1*	*0*	*1*	*1*	*0*
Lane Group		*LTR*						*LTR*		*L*	*TR*	
Volume, V (vph)	*12*	*39*	*11*				*5*	*278*	*98*	*330*	*523*	*32*
% Heavy Vehicles, %HV	*3*	*3*	*3*				*7*	*7*	*7*	*7*	*7*	*7*
Peak-Hour Factor, PHF	*0.85*	*0.85*	*0.85*				*0.90*	*0.90*	*0.90*	*0.80*	*0.80*	*0.80*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*				*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*		*2.0*	*2.0*	
Arrival Type, AT		*3*						*3*		*3*	*3*	
Unit Extension, UE		*3.0*						*3.0*		*3.0*	*3.0*	
Filtering/Metering, I		*1.000*						*0.941*		*0.518*	*0.518*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*13.0*						*16.0*		*12.0*	*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*7*		*0*	*2*	
Min. Time for Pedestrians, G_p	*17.5*			*16.9*			*12.6*			*12.9*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *17.0*	G =	G =	G =	G = *33.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*73*						*424*		*412*	*694*	
Lane Group Capacity, c		*457*						*902*		*496*	*960*	
v/c Ratio, X		*0.16*						*0.47*		*0.83*	*0.72*	
Total Green Ratio, g/C		*0.28*						*0.55*		*0.55*	*0.55*	
Uniform Delay, d_1		*16.1*						*8.2*		*11.2*	*10.1*	
Progression Factor, PF		*1.000*						*1.000*		*1.000*	*1.000*	
Delay Calibration, k		*0.50*						*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2		*0.7*						*1.7*		*8.3*	*2.5*	

Initial Queue Delay, d_3		*0.0*						*0.0*		*0.0*	*0.0*	
Control Delay		*16.9*						*9.8*		*19.5*	*12.6*	
Lane Group LOS		*B*						*A*		*B*	*B*	
Approach Delay	*16.9*						*9.8*			*15.2*		
Approach LOS	*B*						*A*			*B*		
Intersection Delay	*13.8*			X_C = *0.60*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Amboy Rd & Bloomingdale Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*1*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*		*L*	*T*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*8*	*20*	*13*	*172*	*16*	*105*	*10*	*231*	*131*	*139*	*339*	*9*
% Heavy Vehicles, %HV	*3*	*3*	*3*	*5*	*5*	*5*	*7*	*7*	*7*	*7*	*7*	*7*
Peak-Hour Factor, PHF	*0.68*	*0.68*	*0.68*	*0.88*	*0.88*	*0.88*	*0.90*	*0.90*	*0.90*	*0.76*	*0.76*	*0.76*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*		*3*	*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*		*0.966*	*0.966*	*0.966*		*0.850*			*0.090*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*50*	*0*	*0*	*0*	*0*	*0*	*50*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*		*12.0*	*11.0*	*11.0*		*11.0*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*2*		*0*	*0*	*2*		*0*			*0*	
Min. Time for Pedestrians, G_p	*11.5*			*11.8*			*18.9*			*18.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*					Cycle Length, C = *90.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*60*		*195*	*18*	*119*		*414*			*641*	
Lane Group Capacity, c		*648*		*548*	*777*	*574*		*699*			*531*	
v/c Ratio, X		*0.09*		*0.36*	*0.02*	*0.21*		*0.59*			*1.21*	
Total Green Ratio, g/C		*0.44*		*0.44*	*0.44*	*0.44*		*0.44*			*0.44*	
Uniform Delay, d_1		*14.5*		*16.5*	*14.0*	*15.3*		*18.9*			*25.0*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*	*0.50*		*0.50*			*0.50*	

Incremental Delay, d_2		0.3		1.7	0.1	0.8		3.1			95.0	
Initial Queue Delay, d_3		0.0		0.0	0.0	0.0		0.0			0.0	
Control Delay		14.8		18.2	14.1	16.1		22.0			120.0	
Lane Group LOS		B		B	B	B		C			F	
Approach Delay	14.8			17.2			22.0			120.0		
Approach LOS	B			B			C			F		
Intersection Delay	64.0			X_C = 0.78			Intersection LOS			E		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Arthur Kill Rd & Bloomingdl Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/28/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*0*	*1*		*0*		*0*			
Lane Group		*TR*			*LT*			*LR*				
Volume, V (vph)		*174*	*189*	*173*	*215*		*282*		*151*			
% Heavy Vehicles, %HV		*10*	*10*	*13*	*13*		*9*		*9*			
Peak-Hour Factor, PHF		*0.92*	*0.92*	*0.89*	*0.89*		*0.94*		*0.94*			
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*		*P*			
Start-up Lost Time, l_1		*2.0*			*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*			*2.0*			*2.0*				
Arrival Type, AT		*3*			*3*			*3*				
Unit Extension, UE		*3.0*			*3.0*			*3.0*				
Filtering/Metering, I		*0.964*			*0.986*			*0.858*				
Initial Unmet Demand, Q_b		*0.0*			*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*44*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	
Lane Width		*16.0*			*16.0*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m									*5*			
Buses Stopping, N_B		*5*			*0*			*0*				
Min. Time for Pedestrians, G_p	*18.3*			*3.2*			*15.2*			*17.2*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*347*			*436*			*461*				
Lane Group Capacity, c		*900*			*557*			*529*				
v/c Ratio, X		*0.39*			*0.78*			*0.87*				
Total Green Ratio, g/C		*0.50*			*0.50*			*0.39*				
Uniform Delay, d_1		*13.9*			*18.5*			*25.4*				
Progression Factor, PF		*1.000*			*1.000*			*1.000*				
Delay Calibration, k		*0.50*			*0.50*			*0.50*				
Incremental Delay, d_2		*1.2*			*10.4*			*15.6*				

Initial Queue Delay, d_3		*0.0*			*0.0*			*0.0*				
Control Delay		*15.1*			*28.9*			*41.0*				
Lane Group LOS		*B*			*C*			*D*				
Approach Delay	*15.1*			*28.9*			*41.0*					
Approach LOS	*B*			*C*			*D*					
Intersection Delay	*29.5*			X_C *= 0.82*			Intersection LOS			*C*		

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Weekday

Midday

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*Sharrotts Rd & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Conditions*

Project Description *Charlestone EIS*

East/West Street: *Sharrotts Road* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*37*	*253*	*36*	*32*	*275*	*23*
Peak-Hour Factor, PHF	*0.85*	*0.85*	*0.85*	*0.91*	*0.91*	*0.91*
Hourly Flow Rate, HFR (veh/h)	*43*	*297*	*42*	*35*	*302*	*25*
Percent Heavy Vehicles	*8*	--	--	*18*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*24*	*17*	*39*	*27*	*19*	*25*
Peak-Hour Factor, PHF	*0.78*	*0.78*	*0.78*	*0.88*	*0.88*	*0.88*
Hourly Flow Rate, HFR (veh/h)	*30*	*21*	*50*	*30*	*21*	*28*
Percent Heavy Vehicles	*1*	*1*	*1*	*10*	*10*	*10*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (veh/h)	*43*	*35*		*79*			*101*	
C (m) (veh/h)	*1200*	*1136*		*327*			*389*	
v/c	*0.04*	*0.03*		*0.24*			*0.26*	
95% queue length	*0.11*	*0.10*		*0.93*			*1.02*	
Control Delay (s/veh)	*8.1*	*8.3*		*19.5*			*17.5*	
LOS	*A*	*A*		*C*			*C*	
Approach Delay (s/veh)	--	--	*19.5*			*17.5*		
Approach LOS	--	--	*C*			*C*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Weekday 12-1 MD Peak Period*

Site Information

Intersection	*Englewood Ave & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*310*	*44*	*25*	*316*	
Peak-Hour Factor, PHF	*1.00*	*0.85*	*0.85*	*0.91*	*0.91*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*364*	*51*	*27*	*347*	*0*
Percent Heavy Vehicles	*0*	--	--	*15*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*148*		*16*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.94*	*1.00*	*0.94*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*157*	*0*	*17*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (veh/h)		*27*		*174*				
C (m) (veh/h)		*1077*		*369*				
v/c		*0.03*		*0.47*				
95% queue length		*0.08*		*2.43*				
Control Delay (s/veh)		*8.4*		*23.2*				
LOS		*A*		*C*				
Approach Delay (s/veh)	--	--	*23.2*					
Approach LOS	--	--	*C*					

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*			*LT*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*1*	*17*	*6*	*255*	*24*	*391*	*1*	*175*	*272*	*233*	*192*	*1*
% Heavy Vehicles, %HV	*4*	*4*	*4*	*6*	*6*	*6*	*11*	*11*	*11*	*7*	*7*	*7*
Peak-Hour Factor, PHF	*0.84*	*0.84*	*0.84*	*0.90*	*0.90*	*0.90*	*0.92*	*0.92*	*0.92*	*0.86*	*0.86*	*0.86*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*			*0.887*	*0.887*		*0.931*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*15.5*			*11.0*	*10.0*		*15.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*			*0*	*0*		*3*			*4*	
Min. Time for Pedestrians, G_p	*11.5*			*13.5*			*15.2*			*12.1*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*					Cycle Length, C = *60.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*28*			*310*	*434*		*487*			*495*	
Lane Group Capacity, c		*713*			*523*	*518*		*711*			*418*	
v/c Ratio, X		*0.04*			*0.59*	*0.84*		*0.68*			*1.18*	
Total Green Ratio, g/C		*0.42*			*0.42*	*0.42*		*0.42*			*0.42*	
Uniform Delay, d_1		*10.4*			*13.6*	*15.7*		*14.3*			*17.5*	
Progression Factor, PF		*1.000*			*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*	*0.50*		*0.50*			*0.50*	

Incremental Delay, d_2		*0.1*			*4.3*	*13.4*		*5.0*			*104.8*	
Initial Queue Delay, d_3		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Control Delay		*10.5*			*17.9*	*29.1*		*19.2*			*122.3*	
Lane Group LOS		*B*			*B*	*C*		*B*			*F*	
Approach Delay	*10.5*			*24.4*			*19.2*			*122.3*		
Approach LOS	*B*			*C*			*B*			*F*		
Intersection Delay	*50.4*			X_C = *1.01*			Intersection LOS			*D*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*No Bridge St & Arthur Kill Rd*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*			*1*	
Lane Group					*LR*			*T*			*T*	
Volume, V (vph)				*359*		*3*		*441*			*454*	
% Heavy Vehicles, %HV				*6*		*6*		*11*			*12*	
Peak-Hour Factor, PHF				*0.88*		*0.88*		*0.92*			*0.86*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*			*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.858*			*0.858*			*0.567*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	
Lane Width					*16.0*			*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B					*0*			*0*			*4*	
Min. Time for Pedestrians, G_p	*13.5*			*13.8*			*3.2*			*3.2*		

Phasing	WB Only	02	03	04	Thru Only	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*411*			*479*			*528*	
Lane Group Capacity, c					*644*			*970*			*946*	
v/c Ratio, X					*0.64*			*0.49*			*0.56*	
Total Green Ratio, g/C					*0.33*			*0.50*			*0.50*	
Uniform Delay, d_1					*16.9*			*10.0*			*10.4*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*4.1*			*1.5*			*1.4*	

Initial Queue Delay, d_3					0.0			0.0			0.0	
Control Delay					21.1			11.5			11.8	
Lane Group LOS					C			B			B	
Approach Delay				21.1			11.5			11.8		
Approach LOS				C			B			B		
Intersection Delay	14.4			X_C = 0.59			Intersection LOS			B		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*So Bridge St & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *South Bridge Street* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*441*	*242*	*141*	*671*	
Peak-Hour Factor, PHF	*1.00*	*0.92*	*0.92*	*0.86*	*0.86*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*479*	*263*	*163*	*780*	*0*
Percent Heavy Vehicles	*0*	--	--	*16*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration						

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*						
v (veh/h)		*163*						
C (m) (veh/h)		*805*						
v/c		*0.20*						
95% queue length		*0.75*						
Control Delay (s/veh)		*10.6*						
LOS		*B*						
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Rch Valley Rd & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*	*0*	*0*	*1*	
Lane Group					*LR*			*TR*			*LT*	
Volume, V (vph)				*102*		*199*		*473*	*80*	*186*	*467*	
% Heavy Vehicles, %HV				*3*		*3*		*8*	*8*	*6*	*6*	
Peak-Hour Factor, PHF				*0.87*		*0.87*		*0.92*	*0.92*	*0.86*	*0.86*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*	*P*	*P*	*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.944*			*0.880*			*0.500*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width					*12.0*			*15.0*			*15.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B					*0*			*4*			*4*	
Min. Time for Pedestrians, G_p	*11.8*			*11.8*			*14.1*			*3.2*		

Phasing	WB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*346*			*601*			*759*	
Lane Group Capacity, c					*385*			*1058*			*612*	
v/c Ratio, X					*0.90*			*0.57*			*1.24*	
Total Green Ratio, g/C					*0.27*			*0.57*			*0.57*	
Uniform Delay, d_1					*21.2*			*8.3*			*13.0*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*25.2*			*1.9*			*115.2*	

Initial Queue Delay, d_3					0.0			0.0			0.0	
Control Delay					46.4			10.3			128.2	
Lane Group LOS					D			B			F	
Approach Delay				46.4			10.3			128.2		
Approach LOS				D			B			F		
Intersection Delay	70.1			X_C = 1.13			Intersection LOS			E		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Richmond Valley Rd & Page Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*0*	*1*	*1*	*0*	*0*	*2*	*0*
Lane Group		*LTR*			*LTR*		*L*	*TR*			*LTR*	
Volume, V (vph)	*144*	*65*	*86*	*39*	*177*	*64*	*99*	*607*	*137*	*115*	*485*	*70*
% Heavy Vehicles, %HV	*3*	*3*	*3*	*2*	*2*	*2*	*2*	*2*	*2*	*6*	*6*	*6*
Peak-Hour Factor, PHF	*0.86*	*0.86*	*0.86*	*0.92*	*0.92*	*0.92*	*0.91*	*0.91*	*0.91*	*0.89*	*0.89*	*0.89*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.649*			*1.000*		*0.732*	*0.732*			*0.973*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*14*
Lane Width		*16.0*			*15.0*		*10.0*	*14.0*			*10.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*
Parking Maneuvers, N_m						*5*						*5*
Buses Stopping, N_B		*0*			*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*16.6*			*21.5*			*16.3*			*21.2*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *31.0*	G =	G =	G =	G = *49.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*343*			*304*		*109*	*818*			*737*	
Lane Group Capacity, c		*424*			*550*		*308*	*1052*			*880*	
v/c Ratio, X		*0.81*			*0.55*		*0.35*	*0.78*			*0.84*	
Total Green Ratio, g/C		*0.34*			*0.34*		*0.54*	*0.54*			*0.54*	
Uniform Delay, d_1		*26.8*			*23.9*		*11.6*	*16.2*			*17.2*	
Progression Factor, PF		*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	

Incremental Delay, d_2		10.4			4.0		2.3	4.2			9.1	
Initial Queue Delay, d_3		0.0			0.0		0.0	0.0			0.0	
Control Delay		37.2			27.9		13.9	20.4			26.3	
Lane Group LOS		D			C		B	C			C	
Approach Delay	37.2			27.9			19.6			26.3		
Approach LOS	D			C			B			C		
Intersection Delay	25.4			X_C = 0.83			Intersection LOS			C		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/16/13*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*S Bridge St RT & Page Ave*
Jurisdiction	*Staten Island, NY*
Analysis Year	

Project Description *Charleston EIS*

East/West Street: *South Bridge Street Right Turn* | North/South Street: *Page Avenue*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*578*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.89*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*649*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*2*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*91*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.84*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*108*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*29*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								*R*
v (veh/h)								*108*
C (m) (veh/h)								*659*
v/c								*0.16*
95% queue length								*0.58*
Control Delay (s/veh)								*11.5*
LOS								*B*
Approach Delay (s/veh)	--	--				*11.5*		
Approach LOS	--	--				*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*S Br St & Page Ave/Boscome Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*							*2*			*2*	
Lane Group	*L*							*T*			*T*	
Volume, V (vph)	*292*							*814*			*578*	
% Heavy Vehicles, %HV	*3*							*2*			*3*	
Peak-Hour Factor, PHF	*0.88*							*0.91*			*0.89*	
Pretimed (P) or Actuated (A)	*P*							*P*			*P*	
Start-up Lost Time, l_1	*2.0*							*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*							*2.0*			*2.0*	
Arrival Type, AT	*3*							*3*			*3*	
Unit Extension, UE	*3.0*							*3.0*			*3.0*	
Filtering/Metering, I	*1.000*							*0.738*			*0.973*	
Initial Unmet Demand, Q_b	*0.0*							*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*		*0*	*0*		*0*	*0*	
Lane Width	*16.0*							*14.5*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*							*0*			*0*	
Min. Time for Pedestrians, G_p	*3.2*			*20.1*			*3.2*			*3.2*		

Phasing	EB Only	02	03	04	Thru Only	06	07	08
Timing	G = *30.0*	G =	G =	G =	G = *50.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*332*							*895*			*649*	
Lane Group Capacity, c	*662*							*2134*			*1951*	
v/c Ratio, X	*0.50*							*0.42*			*0.33*	
Total Green Ratio, g/C	*0.33*							*0.56*			*0.56*	
Uniform Delay, d_1	*24.0*							*11.6*			*10.9*	
Progression Factor, PF	*1.000*							*1.000*			*1.000*	
Delay Calibration, k	*0.50*							*0.50*			*0.50*	
Incremental Delay, d_2	*2.7*							*0.4*			*0.4*	

Initial Queue Delay, d_3	*0.0*							*0.0*			*0.0*	
Control Delay	*26.7*							*12.0*			*11.4*	
Lane Group LOS	*C*							*B*			*B*	
Approach Delay	*26.7*						*12.0*			*11.4*		
Approach LOS	*C*						*B*			*B*		
Intersection Delay	*14.4*			X_C = *0.45*			Intersection LOS			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/16/13*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*KWVP WB OR UT & No Bridge St*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *KWVP WB Off-Ramp U-Turn* | North/South Street: *North Bridge Street*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*410*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.87*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*471*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*1*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*188*		
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.90*	*0.93*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*202*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*60*	*4*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*0*
Configuration				*L*		

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration			*L*					
v (veh/h)			*202*					
C (m) (veh/h)			*548*					
v/c			*0.37*					
95% queue length			*1.69*					
Control Delay (s/veh)			*15.4*					
LOS			*C*					
Approach Delay (s/veh)	--	--	*15.4*					
Approach LOS	--	--	*C*					

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Bricktown/KWVP*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/23/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*	*0*	*1*	*2*	*0*	*0*	*2*	*0*	*1*	*1*	*0*
Lane Group	*L*	*TR*		*L*	*TR*			*LTR*		*L*	*TR*	
Volume, V (vph)	*150*	*250*	*148*	*195*	*446*	*84*	*178*	*448*	*316*	*149*	*67*	*89*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*6*	*6*	*6*	*4*	*4*	*4*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.84*	*0.84*	*0.84*	*0.90*	*0.90*	*0.90*	*0.93*	*0.93*	*0.93*	*0.80*	*0.80*	*0.80*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*		*2.0*	*2.0*			*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e	*2.0*	*2.0*		*2.0*	*2.0*			*2.0*		*2.0*	*2.0*	
Arrival Type, AT	*3*	*3*		*3*	*3*			*3*		*3*	*3*	
Unit Extension, UE	*3.0*	*3.0*		*3.0*	*3.0*			*3.0*		*3.0*	*3.0*	
Filtering/Metering, I	*0.856*	*0.856*		*0.927*	*0.927*			*1.000*		*0.985*	*0.985*	
Initial Unmet Demand, Q_b	*0.0*	*0.0*		*0.0*	*0.0*			*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*32*	*0*	*0*	*13*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*11.0*	*12.0*		*10.0*	*12.0*			*12.5*		*11.0*	*10.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*		*0*	*0*			*0*		*0*	*0*	
Min. Time for Pedestrians, G_p	*34.6*			*18.6*			*20.3*			*16.1*		

Phasing	EW Perm	02	03	04	NB Only	SB Only	07	08
Timing	G = *30.0*	G =	G =	G =	G = *25.0*	G = *20.0*	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y = *5*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*179*	*436*		*217*	*575*			*1013*		*186*	*195*	
Lane Group Capacity, c	*202*	*597*		*150*	*1114*			*924*		*380*	*353*	
v/c Ratio, X	*0.89*	*0.73*		*1.45*	*0.52*			*1.10*		*0.49*	*0.55*	
Total Green Ratio, g/C	*0.33*	*0.33*		*0.33*	*0.33*			*0.28*		*0.22*	*0.22*	
Uniform Delay, d_1	*28.4*	*26.4*		*30.0*	*24.2*			*32.5*		*30.5*	*31.0*	
Progression Factor, PF	*1.000*	*1.000*		*1.000*	*1.000*			*1.000*		*1.000*	*1.000*	
Delay Calibration, k	*0.50*	*0.50*		*0.50*	*0.50*			*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2	*35.2*	*6.6*		*232.2*	*1.6*			*59.5*		*4.4*	*6.0*	

Initial Queue Delay, d_3	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Control Delay	63.6	33.1		262.2	25.7			92.0		34.9	37.1	
Lane Group LOS	E	C		F	C			F		C	D	
Approach Delay	41.9			90.5			92.0			36.0		
Approach LOS	D			F			F			D		
Intersection Delay	73.0			X_C = 1.09			Intersection LOS			E		

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/24/13*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Bricktown Way* North/South Street: *Tyrellan Avenue*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*97*	*128*	*60*	*130*	*139*	*90*
%Thrus Left Lane	*50*			*50*		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*44*	*41*	*41*	*78*	*188*	*58*
%Thrus Left Lane				*50*		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*LT*	*TR*	*LT*	*TR*	*LT*	*R*	*LT*	*TR*
PHF	*0.88*	*0.88*	*0.90*	*0.90*	*0.78*	*0.78*	*1.00*	*1.00*
Flow Rate (veh/h)	*182*	*140*	*220*	*177*	*108*	*52*	*172*	152
% Heavy Vehicles	*42*	*42*	*4*	*4*	*3*	*3*	*0*	*0*
No. Lanes	*2*		*2*		*2*		*2*	
Geometry Group	*5*		*5*		*5*		*5*	
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	*0.6*	*0.0*	*0.7*	*0.0*	*0.5*	*0.0*	*0.5*	*0.0*
Prop. Right-Turns	*0.0*	*0.5*	*0.0*	*0.6*	*0.0*	*1.0*	*0.0*	*0.4*
Prop. Heavy Vehicle	*0.4*	*0.4*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
hLT-adj	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*
hRT-adj	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*
hadj, computed	*1.0*	*0.4*	*0.4*	*-0.3*	*0.3*	*-0.6*	*0.2*	*-0.3*

Departure Headway and Service Time

hd, initial value (s)	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*
x, initial	*0.16*	*0.12*	*0.20*	*0.16*	*0.10*	*0.05*	*0.15*	*0.14*
hd, final value (s)	*7.62*	*6.98*	*6.94*	*6.22*	*7.44*	*6.48*	*7.07*	*6.57*
x, final value	*0.39*	*0.27*	*0.42*	*0.31*	*0.22*	*0.09*	*0.34*	*0.28*
Move-up time, m (s)	*2.3*		*2.3*		*2.3*		*2.3*	
Service Time, t_s (s)	*5.3*	*4.7*	*4.6*	*3.9*	*5.1*	*4.2*	*4.8*	*4.3*

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*432*	*390*	*470*	*427*	*358*	*302*	*422*	*402*
Delay (s/veh)	*15.03*	*12.27*	*14.66*	*11.64*	*12.27*	*9.85*	*13.33*	*11.78*
LOS	*C*	*B*	*B*	*B*	*B*	*A*	*B*	*B*
Approach: Delay (s/veh)	*13.83*		*13.31*		*11.48*		*12.60*	
LOS	*B*		*B*		*B*		*B*	
Intersection Delay (s/veh)	*13.02*							
Intersection LOS	*B*							

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/23/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*
Lane Group		*LTR*		*DefL*	*TR*		*DefL*	*TR*			*LTR*	
Volume, V (vph)	*62*	*117*	*509*	*134*	*223*	*18*	*281*	*201*	*88*	*23*	*528*	*226*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*3*	*3*	*3*	*3*	*3*	*3*	*12*	*12*	*12*
Peak-Hour Factor, PHF	*0.84*	*0.84*	*0.84*	*0.90*	*0.90*	*0.90*	*0.87*	*0.87*	*0.87*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*		*3*	*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.889*		*0.932*	*0.932*		*1.000*	*1.000*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*		*12.0*	*12.0*		*13.0*	*13.0*			*9.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*		*0*	*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*18.6*			*16.6*			*20.1*			*19.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*819*		*149*	*268*		*323*	*332*			*864*	
Lane Group Capacity, c		*1246*		*206*	*811*		*196*	*808*			*1180*	
v/c Ratio, X		*0.66*		*0.72*	*0.33*		*1.65*	*0.41*			*0.73*	
Total Green Ratio, g/C		*0.44*		*0.44*	*0.44*		*0.44*	*0.44*			*0.44*	
Uniform Delay, d_1		*19.6*		*20.5*	*16.3*		*25.0*	*17.0*			*20.6*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*		*0.50*	*0.50*			*0.50*	

Incremental Delay, d_2		2.4		18.5	1.0		313.3	1.5			4.0	
Initial Queue Delay, d_3		0.0		0.0	0.0		0.0	0.0			0.0	
Control Delay		22.0		39.0	17.3		338.3	18.5			24.6	
Lane Group LOS		C		D	B		F	B			C	
Approach Delay	22.0			25.1			176.2			24.6		
Approach LOS	C			C			F			C		
Intersection Delay	60.0			X_C = 1.19			Intersection LOS			E		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Boscombe Ave & OBX Off-Ramp*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*1*	*1*	*1*
Lane Group	*L*	*TR*			*LT*	*R*		*LTR*		*L*	*LT*	*R*
Volume, V (vph)	*681*	*422*	*3*	*1*	*443*	*746*	*0*	*0*	*1*	*119*	*0*	*136*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*3*	*3*	*3*	*0*	*0*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.91*	*0.91*	*0.91*	*0.91*	*0.93*	*0.91*	*0.25*	*0.25*	*0.25*	*0.97*	*0.97*	*0.97*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*	*3*		*3*		*3*	*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*	*3.0*		*3.0*		*3.0*	*3.0*	*3.0*
Filtering/Metering, I	*0.735*	*0.735*			*0.546*	*0.546*		*1.000*		*1.000*	*1.000*	*1.000*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*	*0.0*		*0.0*		*0.0*	*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*85*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*11.0*	*12.0*			*12.0*	*12.0*		*16.0*		*10.0*	*11.0*	*10.0*
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B	*0*	*0*			*0*	*0*		*0*		*0*	*0*	*0*
Min. Time for Pedestrians, G_p	*14.6*			*24.6*			*20.9*			*20.1*		

Phasing	EB Only	EW Perm	03	04	NS Perm	06	07	08
Timing	G = *37.0*	G = *22.0*	G =	G =	G = *16.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*					Cycle Length, C = *90.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*748*	*467*			*477*	*726*		*4*		*123*	*0*	*140*
Lane Group Capacity, c	*783*	*1158*			*451*	*383*		*328*		*233*	*320*	*952*
v/c Ratio, X	*0.96*	*0.40*			*1.06*	*1.90*		*0.01*		*0.53*	*0.00*	*0.15*
Total Green Ratio, g/C	*0.71*	*0.71*			*0.24*	*0.24*		*0.18*		*0.18*	*0.18*	*0.64*
Uniform Delay, d_1	*18.0*	*5.3*			*34.0*	*34.0*		*30.5*		*33.6*	*30.4*	*6.3*
Progression Factor, PF	*1.000*	*1.000*			*1.000*	*1.000*		*1.000*		*1.000*	*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*	*0.50*		*0.50*		*0.50*	*0.50*	*0.50*

Incremental Delay, d_2	18.7	0.8			47.7	408.4		0.1		8.3	0.0	0.3
Initial Queue Delay, d_3	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Control Delay	36.7	6.0			81.7	442.4		30.6		41.9	30.4	6.6
Lane Group LOS	D	A			F	F		C		D	C	A
Approach Delay	24.9			299.4			30.6			23.1		
Approach LOS	C			F			C			C		
Intersection Delay	147.7			X_C = 1.16			Intersection LOS			F		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Boscombe Ave & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Hour*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*1*	*1*
Lane Group	*DefL*	*TR*			*LTR*		*DefL*	*TR*			*LT*	*R*
Volume, V (vph)	*504*	*38*	*0*	*2*	*65*	*71*	*4*	*3*	*0*	*65*	*6*	*1120*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*3*	*3*	*3*	*1*	*1*	*1*	*6*	*6*	*6*
Peak-Hour Factor, PHF	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*	*0.58*	*0.58*	*0.58*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*		*3*	*3*			*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	*3.0*
Filtering/Metering, I	*0.962*	*0.962*			*1.000*		*1.000*	*1.000*			*0.889*	*0.889*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*17*	*0*	*0*	*0*	*0*	*0*	*310*
Lane Width	*16.0*	*16.0*			*11.5*		*12.0*	*12.0*			*12.0*	*12.0*
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*			*0*		*0*	*0*			*0*	*0*
Min. Time for Pedestrians, G_p	*20.3*			*17.5*			*20.3*			*20.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*554*	*42*			*132*		*7*	*5*			*79*	*900*
Lane Group Capacity, c	*706*	*1056*			*1537*		*516*	*732*			*538*	*593*
v/c Ratio, X	*0.78*	*0.04*			*0.09*		*0.01*	*0.01*			*0.15*	*1.52*
Total Green Ratio, g/C	*0.50*	*0.50*			*0.50*		*0.39*	*0.39*			*0.39*	*0.39*
Uniform Delay, d_1	*18.5*	*11.5*			*11.8*		*16.9*	*16.9*			*17.8*	*27.5*
Progression Factor, PF	*1.000*	*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	*0.50*

Incremental Delay, d_2	8.2	0.1			0.1		0.0	0.0			0.5	240.6
Initial Queue Delay, d_3	0.0	0.0			0.0		0.0	0.0			0.0	0.0
Control Delay	26.8	11.5			11.9		16.9	16.9			18.3	268.1
Lane Group LOS	C	B			B		B	B			B	F
Approach Delay	25.7			11.9			16.9			248.0		
Approach LOS	C			B			B			F		
Intersection Delay	151.2			X_C = 1.11			Intersection LOS			F		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Bricktown Ctr Rd @ Vets Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/23/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*				*0*	*2*			*2*	*0*
Lane Group	*L*		*R*					*LT*			*TR*	
Volume, V (vph)	*265*		*25*				*4*	*224*			*351*	*497*
% Heavy Vehicles, %HV	*10*		*10*				*4*	*4*			*2*	*2*
Peak-Hour Factor, PHF	*0.88*		*0.88*				*0.90*	*0.90*			*0.80*	*0.80*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*					*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*					*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*					*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*					*3.0*			*3.0*	
Filtering/Metering, I	*0.975*		*0.975*					*0.998*			*0.686*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*					*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*6*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width	*13.0*		*12.0*					*11.5*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*					*0*			*0*	
Min. Time for Pedestrians, G_p	*21.8*			*20.3*			*3.2*			*19.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *19.0*	G =	G =	G =	G = *31.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*301*		*22*					*253*			*1060*	
Lane Group Capacity, c	*537*		*465*					*1664*			*1894*	
v/c Ratio, X	*0.56*		*0.05*					*0.15*			*0.56*	
Total Green Ratio, g/C	*0.32*		*0.32*					*0.52*			*0.52*	
Uniform Delay, d_1	*17.0*		*14.2*					*7.6*			*9.9*	
Progression Factor, PF	*1.000*		*1.000*					*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*					*0.50*			*0.50*	
Incremental Delay, d_2	*4.1*		*0.2*					*0.2*			*0.8*	

Initial Queue Delay, d_3	*0.0*		*0.0*					*0.0*			*0.0*	
Control Delay	*21.1*		*14.4*					*7.8*			*10.7*	
Lane Group LOS	*C*		*B*					*A*			*B*	
Approach Delay	*20.7*						*7.8*			*10.7*		
Approach LOS	*C*						*A*			*B*		
Intersection Delay	*12.2*			X_C = *0.56*			Intersection LOS			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/23/13*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*Englewood Ave & Vets Rd W RT*
Jurisdiction	*Staten Island, NY*
Analysis Year	

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* | North/South Street: *Veterans Rd W Right Turn Bay*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*61*				
Peak-Hour Factor, PHF	*1.00*	*0.55*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*110*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*T*				
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*487*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.90*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*541*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*1*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					*R*			
v (veh/h)					*541*			
C (m) (veh/h)					*946*			
v/c					*0.57*			
95% queue length					*3.73*			
Control Delay (s/veh)					*13.8*			
LOS					*B*			
Approach Delay (s/veh)	--	--	*13.8*					
Approach LOS	--	--	*B*					

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Ave @ Veterans Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*1*	*1*		*1*			*0*	*3*	*0*
Lane Group		*TR*		*L*	*T*		*L*				*LTR*	
Volume, V (vph)		*38*	*0*	*553*	*83*		*1*			*23*	*294*	*30*
% Heavy Vehicles, %HV		*1*	*1*	*1*	*1*		*1*			*2*	*2*	*2*
Peak-Hour Factor, PHF		*0.25*	*0.25*	*0.95*	*0.95*		*0.90*			*0.80*	*0.80*	*0.80*
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*			*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Arrival Type, AT		*3*		*3*	*3*		*3*				*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*		*3.0*				*3.0*	
Filtering/Metering, I		*1.000*		*0.983*	*0.983*		*0.989*				*1.000*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*12.0*		*13.0*	*13.0*		*10.0*				*11.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*		*0*	*0*		*0*				*0*	
Min. Time for Pedestrians, G_p	*31.2*			*3.2*			*18.1*			*11.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*152*		*582*	*87*		*1*				*433*	
Lane Group Capacity, c		*784*		*521*	*810*		*347*				*2011*	
v/c Ratio, X		*0.19*		*1.12*	*0.11*		*0.00*				*0.22*	
Total Green Ratio, g/C		*0.42*		*0.42*	*0.42*		*0.42*				*0.42*	
Uniform Delay, d_1		*11.1*		*17.5*	*10.7*		*10.2*				*11.2*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*		*1.000*				*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*		*0.50*				*0.50*	
Incremental Delay, d_2		*0.6*		*75.3*	*0.3*		*0.0*				*0.2*	

Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Control Delay		*11.7*		*92.8*	*10.9*		*10.2*				*11.5*	
Lane Group LOS		*B*		*F*	*B*		*B*				*B*	
Approach Delay	*11.7*			*82.2*			*10.2*			*11.5*		
Approach LOS	*B*			*F*			*B*			*B*		
Intersection Delay	*49.2*			X_C = *0.67*			Intersection LOS			*D*		

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/23/13*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*Sharrotts Rd & Veterans Rd W*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Sharrotts Road* | North/South Street: *Veterans Road West*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*55*	*31*	*229*	*59*	*0*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*0*	*31*	*87*	*12*
%Thrus Left Lane				*50*		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*TR*		*LT*				*LT*	*TR*
PHF	*0.86*		*0.77*				*0.80*	*0.80*
Flow Rate (veh/h)	*99*		*373*				*91*	68
% Heavy Vehicles	*17*		*4*				*1*	*1*
No. Lanes	*1*		*1*		*0*		*2*	
Geometry Group	*2*		*2*				*1*	
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	*0.0*		*0.8*				*0.4*	*0.0*
Prop. Right-Turns	*0.4*		*0.0*				*0.0*	*0.2*
Prop. Heavy Vehicle	*0.2*		*0.0*				*0.0*	*0.0*
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*			*0.2*	*0.2*
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*			*-0.6*	*-0.6*
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*			*1.7*	*1.7*
hadj, computed	*0.1*		*0.2*				*0.1*	*-0.1*

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value (s)	*3.20*		*3.20*				*3.20*	*3.20*
x, initial	*0.09*		*0.33*				*0.08*	*0.06*
hd, final value (s)	*4.82*		*4.65*				*5.14*	*4.93*
x, final value	*0.13*		*0.48*				*0.13*	*0.09*
Move-up time, m (s)	*2.0*		*2.0*				*2.0*	
Service Time, t_s (s)	*2.8*		*2.7*				*3.1*	*2.9*

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*349*		*623*				*341*	*318*
Delay (s/veh)	*8.56*		*11.91*				*8.91*	*8.44*
LOS	*A*		*B*				*A*	*A*
Approach: Delay (s/veh)	*8.56*		*11.91*				*8.71*	
LOS	*A*		*B*				*A*	
Intersection Delay (s/veh)	*10.57*							
Intersection LOS	*B*							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/16/13*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*Sharrotts Rd @ Veterans Rd E*
Jurisdiction	*Staten Island, NY*
Analysis Year	

Project ID *Charleston EIS*

East/West Street: *Sharrotts Road* | North/South Street: *Veterans Road East*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*40*	*46*	*0*	*0*	*246*	*23*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*42*	*64*	*88*	*0*	*0*	*0*
%Thrus Left Lane	*50*					

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*LT*		*TR*		*LT*	*TR*		
PHF	*0.86*		*0.77*		*0.88*	*0.88*		
Flow Rate (veh/h)	*99*		*348*		*83*	*136*		
% Heavy Vehicles	*11*		*5*		*1*	*1*		
No. Lanes	*1*		*1*		*2*		*0*	
Geometry Group	*2*		*2*		*1*			
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	*0.5*		*0.0*		*0.6*	*0.0*		
Prop. Right-Turns	*0.0*		*0.1*		*0.0*	*0.7*		
Prop. Heavy Vehicle	*0.1*		*0.0*		*0.0*	*0.0*		
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*		
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*		
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*		
hadj, computed	*0.3*		*0.0*		*0.1*	*-0.4*		

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value (s)	*3.20*		*3.20*		*3.20*	*3.20*		
x, initial	*0.09*		*0.31*		*0.07*	*0.12*		
hd, final value (s)	*5.12*		*4.58*		*5.11*	*4.55*		
x, final value	*0.14*		*0.44*		*0.12*	*0.17*		
Move-up time, m (s)	*2.0*		*2.0*		*2.0*			
Service Time, t_s (s)	*3.1*		*2.6*		*3.1*	*2.6*		

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*349*		*598*		*333*	*386*		
Delay (s/veh)	*8.96*		*11.18*		*8.79*	*8.50*		
LOS	*A*		*B*		*A*	*A*		
Approach: Delay (s/veh)	*8.96*		*11.18*		*8.61*			
LOS	*A*		*B*		*A*			
Intersection Delay (s/veh)	*10.00+*							
Intersection LOS	*B*							

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Ave @ Vets Rd E*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*3*	*0*			
Lane Group		*LT*	*R*		*LTR*			*LTR*				
Volume, V (vph)	*149*	*236*	*163*	*2*	*54*	*5*	*582*	*39*	*2*			
% Heavy Vehicles, %HV	*1*	*1*	*1*	*5*	*5*	*5*	*1*	*1*	*1*			
Peak-Hour Factor, PHF	*0.91*	*0.91*	*0.91*	*0.95*	*0.95*	*0.95*	*0.97*	*0.97*	*0.97*			
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*			
Start-up Lost Time, l_1		*2.0*	*2.0*		*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*	*2.0*		*2.0*			*2.0*				
Arrival Type, AT		*3*	*3*		*3*			*3*				
Unit Extension, UE		*3.0*	*3.0*		*3.0*			*3.0*				
Filtering/Metering, I		*0.999*	*0.999*		*0.999*			*0.980*				
Initial Unmet Demand, Q_b		*0.0*	*0.0*		*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*52*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width		*13.0*	*12.0*		*11.5*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B		*0*	*0*		*0*			*0*				
Min. Time for Pedestrians, G_p	*21.2*			*12.9*			*14.3*			*17.5*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *21.0*	G =	G =	G =	G = *29.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*423*	*122*		*64*			*642*				
Lane Group Capacity, c		*575*	*560*		*533*			*2286*				
v/c Ratio, X		*0.74*	*0.22*		*0.12*			*0.28*				
Total Green Ratio, g/C		*0.35*	*0.35*		*0.35*			*0.48*				
Uniform Delay, d_1		*17.1*	*13.7*		*13.2*			*9.3*				
Progression Factor, PF		*1.000*	*1.000*		*1.000*			*1.000*				
Delay Calibration, k		*0.50*	*0.50*		*0.50*			*0.50*				
Incremental Delay, d_2		*8.1*	*0.9*		*0.5*			*0.3*				

Initial Queue Delay, d_3		0.0	0.0		0.0			0.0				
Control Delay		25.2	14.6		13.7			9.6				
Lane Group LOS		C	B		B			A				
Approach Delay	22.8			13.7			9.6					
Approach LOS	C			B			A					
Intersection Delay	15.6			X_C = 0.47			Intersection LOS			B		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Av & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*199*		*40*				*14*	*294*			*347*	*47*
% Heavy Vehicles, %HV	*1*		*1*				*2*	*2*			*2*	*2*
Peak-Hour Factor, PHF	*0.81*		*0.81*				*0.87*	*0.87*			*0.91*	*0.91*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.975*						*0.967*			*0.961*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*16.0*						*14.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B		*0*						*2*			*2*	
Min. Time for Pedestrians, G_p	*14.9*			*15.5*			*3.2*			*17.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*295*						*354*			*433*	
Lane Group Capacity, c		*467*						*1091*			*1167*	
v/c Ratio, X		*0.63*						*0.32*			*0.37*	
Total Green Ratio, g/C		*0.27*						*0.57*			*0.57*	
Uniform Delay, d_1		*19.4*						*6.9*			*7.1*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*6.2*						*0.8*			*0.9*	

Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	
Control Delay		*25.6*						*7.7*			*8.0*	
Lane Group LOS		*C*						*A*			*A*	
Approach Delay	*25.6*						*7.7*			*8.0*		
Approach LOS	*C*						*A*			*A*		
Intersection Delay	*12.7*			X_C = *0.45*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Sharrotts Rd & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*80*		*54*				*44*	*448*			*309*	*224*
% Heavy Vehicles, %HV	*4*		*4*				*2*	*2*			*1*	*1*
Peak-Hour Factor, PHF	*0.86*		*0.86*				*0.87*	*0.87*			*0.91*	*0.91*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.986*						*0.905*			*0.957*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*14*
Lane Width		*16.0*						*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*2*			*2*	
Min. Time for Pedestrians, G_p	*18.6*			*18.6*			*3.2*			*16.6*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*156*						*566*			*571*	
Lane Group Capacity, c		*554*						*841*			*1000*	
v/c Ratio, X		*0.28*						*0.67*			*0.57*	
Total Green Ratio, g/C		*0.33*						*0.50*			*0.50*	
Uniform Delay, d_1		*14.7*						*11.3*			*10.5*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*1.3*						*3.9*			*2.3*	

Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	
Control Delay		*16.0*						*15.2*			*12.8*	
Lane Group LOS		*B*						*B*			*B*	
Approach Delay	*16.0*						*15.2*			*12.8*		
Approach LOS	*B*						*B*			*B*		
Intersection Delay	*14.2*			X_C = *0.52*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Vets Rd E & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*	*0*	*3*	*0*	*1*	*1*			*1*	*0*
Lane Group	*L*		*R*		*LTR*		*L*	*T*			*TR*	
Volume, V (vph)	*10*		*156*	*231*	*477*	*127*	*114*	*171*			*354*	*32*
% Heavy Vehicles, %HV	*1*		*1*	*2*	*2*	*2*	*6*	*6*			*2*	*2*
Peak-Hour Factor, PHF	*0.77*		*0.77*	*0.87*	*0.87*	*0.87*	*0.89*	*0.89*			*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*		*P*	*P*	*P*	*P*	*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*		*3*		*3*	*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*		*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I	*0.830*		*0.830*		*0.725*		*0.937*	*0.937*			*0.817*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Lane Width	*10.0*		*13.0*		*11.0*		*12.0*	*12.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*		*0*		*0*	*2*			*2*	
Min. Time for Pedestrians, G_p	*17.2*			*16.9*			*3.2*			*20.9*		

Phasing	EB Only	WB Only	03	04	NS Perm	06	07	08
Timing	G = *8.0*	G = *17.0*	G =	G =	G = *20.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*					Cycle Length, C = *60.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*13*		*203*		*960*		*128*	*192*			*429*	
Lane Group Capacity, c	*222*		*220*		*1340*		*162*	*593*			*690*	
v/c Ratio, X	*0.06*		*0.92*		*0.72*		*0.79*	*0.32*			*0.62*	
Total Green Ratio, g/C	*0.13*		*0.13*		*0.28*		*0.33*	*0.33*			*0.33*	
Uniform Delay, d_1	*22.7*		*25.7*		*19.3*		*18.1*	*14.9*			*16.8*	
Progression Factor, PF	*1.000*		*1.000*		*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*		*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2	*0.4*		*38.5*		*2.4*		*29.8*	*1.4*			*3.4*	

Initial Queue Delay, d_3	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay	*23.1*		*64.2*		*21.7*		*47.9*	*16.3*			*20.3*	
Lane Group LOS	*C*		*E*		*C*		*D*	*B*			*C*	
Approach Delay	*61.7*			*21.7*			*28.9*			*20.3*		
Approach LOS	*E*			*C*			*C*			*C*		
Intersection Delay	*27.1*			X_C *= 0.79*			Intersection LOS			*C*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*S Service Rd & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*				*0*	*1*	*0*	*1*	*1*	*0*
Lane Group		*LTR*						*LTR*		*L*	*TR*	
Volume, V (vph)	*5*	*15*	*8*				*6*	*280*	*116*	*236*	*477*	*28*
% Heavy Vehicles, %HV	*2*	*2*	*2*				*6*	*6*	*6*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.63*	*0.63*	*0.63*				*0.89*	*0.89*	*0.89*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*				*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*		*2.0*	*2.0*	
Arrival Type, AT		*3*						*3*		*3*	*3*	
Unit Extension, UE		*3.0*						*3.0*		*3.0*	*3.0*	
Filtering/Metering, I		*1.000*						*0.932*		*0.785*	*0.785*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*13.0*						*16.0*		*12.0*	*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*2*		*0*	*2*	
Min. Time for Pedestrians, G_p	*17.5*			*16.9*			*12.6*			*12.9*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *17.0*	G =	G =	G =	G = *33.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*45*						*452*		*262*	*561*	
Lane Group Capacity, c		*454*						*926*		*506*	*1018*	
v/c Ratio, X		*0.10*						*0.49*		*0.52*	*0.55*	
Total Green Ratio, g/C		*0.28*						*0.55*		*0.55*	*0.55*	
Uniform Delay, d_1		*15.9*						*8.3*		*8.5*	*8.7*	
Progression Factor, PF		*1.000*						*1.000*		*1.000*	*1.000*	
Delay Calibration, k		*0.50*						*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2		*0.4*						*1.7*		*3.0*	*1.7*	

Initial Queue Delay, d_3		*0.0*						*0.0*		*0.0*	*0.0*	
Control Delay		*16.3*						*10.0*		*11.5*	*10.4*	
Lane Group LOS		*B*						*B*		*B*	*B*	
Approach Delay	*16.3*						*10.0*			*10.7*		
Approach LOS	*B*						*B*			*B*		
Intersection Delay	*10.7*			X_C = *0.40*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Amboy Rd & Bloomingdale Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*1*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*		*L*	*T*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*5*	*8*	*17*	*266*	*26*	*106*	*22*	*291*	*171*	*91*	*374*	*19*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*7*	*7*	*7*	*6*	*6*	*6*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.78*	*0.78*	*0.78*	*0.84*	*0.84*	*0.84*	*0.89*	*0.89*	*0.89*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*		*3*	*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*		*0.830*	*0.830*	*0.830*		*0.650*			*0.650*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*50*	*0*	*0*	*0*	*0*	*0*	*50*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*		*12.0*	*11.0*	*11.0*		*11.0*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*2*		*0*	*0*	*2*		*0*			*0*	
Min. Time for Pedestrians, G_p	*11.5*			*11.8*			*18.9*			*18.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*					Cycle Length, C = *90.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*38*		*317*	*31*	*126*		*544*			*538*	
Lane Group Capacity, c		*628*		*547*	*763*	*563*		*693*			*617*	
v/c Ratio, X		*0.06*		*0.58*	*0.04*	*0.22*		*0.78*			*0.87*	
Total Green Ratio, g/C		*0.44*		*0.44*	*0.44*	*0.44*		*0.44*			*0.44*	
Uniform Delay, d_1		*14.3*		*18.7*	*14.1*	*15.4*		*21.3*			*22.7*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*	*0.50*		*0.50*			*0.50*	

Incremental Delay, d_2		0.2		3.7	0.1	0.8		5.8			10.9	
Initial Queue Delay, d_3		0.0		0.0	0.0	0.0		0.0			0.0	
Control Delay		14.5		22.4	14.2	16.2		27.1			33.5	
Lane Group LOS		B		C	B	B		C			C	
Approach Delay	14.5			20.2			27.1			33.5		
Approach LOS	B			C			C			C		
Intersection Delay	26.9			X_C = 0.73			Intersection LOS			C		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Arthur Kill Rd & Bloomingdl Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*0*	*1*		*0*		*0*			
Lane Group		*TR*			*LT*			*LR*				
Volume, V (vph)		*198*	*189*	*189*	*226*		*196*		*174*			
% Heavy Vehicles, %HV		*8*	*8*	*16*	*16*		*2*		*2*			
Peak-Hour Factor, PHF		*0.90*	*0.90*	*0.91*	*0.91*		*0.88*		*0.88*			
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*		*P*			
Start-up Lost Time, l_1		*2.0*			*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*			*2.0*			*2.0*				
Arrival Type, AT		*3*			*3*			*3*				
Unit Extension, UE		*3.0*			*3.0*			*3.0*				
Filtering/Metering, I		*0.961*			*0.989*			*0.922*				
Initial Unmet Demand, Q_b		*0.0*			*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*44*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	
Lane Width		*16.0*			*16.0*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m									*5*			
Buses Stopping, N_B		*5*			*0*			*0*				
Min. Time for Pedestrians, G_p	*18.3*			*3.2*			*15.2*			*17.2*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*381*			*456*			*421*				
Lane Group Capacity, c		*921*			*515*			*559*				
v/c Ratio, X		*0.41*			*0.89*			*0.75*				
Total Green Ratio, g/C		*0.50*			*0.50*			*0.39*				
Uniform Delay, d_1		*14.2*			*20.2*			*23.8*				
Progression Factor, PF		*1.000*			*1.000*			*1.000*				
Delay Calibration, k		*0.50*			*0.50*			*0.50*				
Incremental Delay, d_2		*1.3*			*19.4*			*8.4*				

Initial Queue Delay, d_3		*0.0*			*0.0*			*0.0*				
Control Delay		*15.5*			*39.6*			*32.2*				
Lane Group LOS		*B*			*D*			*C*				
Approach Delay	*15.5*			*39.6*			*32.2*					
Approach LOS	*B*			*D*			*C*					
Intersection Delay	*29.8*			X_C = *0.83*			Intersection LOS			*C*		

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Weekday

PM

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*Sharrotts Rd & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Sharrotts Road* North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*29*	*270*	*69*	*58*	*289*	*28*
Peak-Hour Factor, PHF	*0.87*	*0.87*	*0.87*	*0.81*	*0.81*	*0.81*
Hourly Flow Rate, HFR (veh/h)	*33*	*310*	*79*	*71*	*356*	*34*
Percent Heavy Vehicles	*6*	--	--	*9*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*34*	*18*	*29*	*45*	*17*	*34*
Peak-Hour Factor, PHF	*0.86*	*0.86*	*0.86*	*0.81*	*0.81*	*0.81*
Hourly Flow Rate, HFR (veh/h)	*39*	*20*	*33*	*55*	*20*	*41*
Percent Heavy Vehicles	*2*	*2*	*2*	*1*	*1*	*1*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (veh/h)	*33*	*71*		*116*			*92*	
C (m) (veh/h)	*1147*	*1132*		*269*			*267*	
v/c	*0.03*	*0.06*		*0.43*			*0.34*	
95% queue length	*0.09*	*0.20*		*2.05*			*1.48*	
Control Delay (s/veh)	*8.2*	*8.4*		*28.2*			*25.4*	
LOS	*A*	*A*		*D*			*D*	
Approach Delay (s/veh)	--	--	*28.2*			*25.4*		
Approach LOS	--	--	*D*			*D*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*Englewood Ave & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*338*	*63*	*33*	*330*	
Peak-Hour Factor, PHF	*1.00*	*0.87*	*0.87*	*0.81*	*0.81*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*388*	*72*	*40*	*407*	*0*
Percent Heavy Vehicles	*0*	--	--	*7*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*111*		*31*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.68*	*1.00*	*0.68*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*163*	*0*	*45*
Percent Heavy Vehicles	*0*	*0*	*0*	*7*	*0*	*7*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (veh/h)		*40*		*208*				
C (m) (veh/h)		*1075*		*325*				
v/c		*0.04*		*0.64*				
95% queue length		*0.12*		*4.15*				
Control Delay (s/veh)		*8.5*		*33.8*				
LOS		*A*		*D*				
Approach Delay (s/veh)	--	--	*33.8*					
Approach LOS	--	--	*D*					

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*			*LT*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*1*	*11*	*2*	*301*	*20*	*300*	*4*	*183*	*328*	*287*	*262*	*1*
% Heavy Vehicles, %HV	*3*	*3*	*3*	*5*	*5*	*5*	*5*	*5*	*5*	*7*	*7*	*7*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.82*	*0.82*	*0.82*	*0.93*	*0.93*	*0.93*	*0.86*	*0.86*	*0.86*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*			*0.933*	*0.933*		*0.919*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*15.5*			*11.0*	*10.0*		*15.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*			*0*	*0*		*3*			*2*	
Min. Time for Pedestrians, G_p	*11.5*			*13.5*			*15.2*			*12.1*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*					Cycle Length, C = *60.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*16*			*391*	*366*		*554*			*640*	
Lane Group Capacity, c		*727*			*530*	*523*		*746*			*392*	
v/c Ratio, X		*0.02*			*0.74*	*0.70*		*0.74*			*1.63*	
Total Green Ratio, g/C		*0.42*			*0.42*	*0.42*		*0.42*			*0.42*	
Uniform Delay, d_1		*10.3*			*14.7*	*14.4*		*14.8*			*17.5*	
Progression Factor, PF		*1.000*			*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*	*0.50*		*0.50*			*0.50*	

Incremental Delay, d_2		*0.1*			*8.3*	*7.1*		*6.1*			*296.1*	
Initial Queue Delay, d_3		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Control Delay		*10.4*			*23.1*	*21.5*		*20.9*			*313.6*	
Lane Group LOS		*B*			*C*	*C*		*C*			*F*	
Approach Delay	*10.4*			*22.3*			*20.9*			*313.6*		
Approach LOS	*B*			*C*			*C*			*F*		
Intersection Delay	*116.6*			X_C *= 1.18*			Intersection LOS			*F*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*No Bridge St & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*			*1*	
Lane Group					*LR*			*T*			*T*	
Volume, V (vph)				*528*		*4*		*512*			*565*	
% Heavy Vehicles, %HV				*2*		*2*		*5*			*12*	
Peak-Hour Factor, PHF				*0.84*		*0.84*		*0.93*			*0.86*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*			*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.373*			*0.921*			*0.340*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	
Lane Width					*16.0*			*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B					*0*			*0*			*2*	
Min. Time for Pedestrians, G_p	*13.5*			*13.8*			*3.2*			*3.2*		

Phasing	WB Only	02	03	04	Thru Only	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*634*			*551*			*657*	
Lane Group Capacity, c					*670*			*1026*			*954*	
v/c Ratio, X					*0.95*			*0.54*			*0.69*	
Total Green Ratio, g/C					*0.33*			*0.50*			*0.50*	
Uniform Delay, d_1					*19.5*			*10.3*			*11.4*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*11.8*			*1.9*			*1.4*	

Initial Queue Delay, d_3					*0.0*			*0.0*			*0.0*	
Control Delay					*31.3*			*12.1*			*12.8*	
Lane Group LOS					*C*			*B*			*B*	
Approach Delay				*31.3*			*12.1*			*12.8*		
Approach LOS				*C*			*B*			*B*		
Intersection Delay	*19.0*			X_C = *0.79*			Intersection LOS			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*So Bridge St & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *South Bridge Street* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*512*	*263*	*189*	*905*	
Peak-Hour Factor, PHF	*1.00*	*0.93*	*0.93*	*0.86*	*0.86*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*550*	*282*	*219*	*1052*	*0*
Percent Heavy Vehicles	*0*	--	--	*18*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration						

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*						
v (veh/h)		*219*						
C (m) (veh/h)		*736*						
v/c		*0.30*						
95% queue length		*1.25*						
Control Delay (s/veh)		*11.9*						
LOS		*B*						
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Rch Valley Rd & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*	*0*	*0*	*1*	
Lane Group					*LR*			*TR*			*LT*	
Volume, V (vph)				*135*		*175*		*588*	*106*	*145*	*747*	
% Heavy Vehicles, %HV				*1*		*1*		*4*	*4*	*6*	*6*	
Peak-Hour Factor, PHF				*0.84*		*0.84*		*0.93*	*0.93*	*0.86*	*0.86*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*	*P*	*P*	*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.901*			*0.798*			*0.114*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width					*12.0*			*15.0*			*15.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B					*0*			*4*			*2*	
Min. Time for Pedestrians, G_p	*11.8*			*11.8*			*14.1*			*3.2*		

Phasing	WB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*369*			*746*			*1038*	
Lane Group Capacity, c					*397*			*1098*			*673*	
v/c Ratio, X					*0.93*			*0.68*			*1.54*	
Total Green Ratio, g/C					*0.27*			*0.57*			*0.57*	
Uniform Delay, d_1					*21.4*			*9.2*			*13.0*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*28.4*			*2.7*			*244.9*	

Initial Queue Delay, d_3					*0.0*			*0.0*			*0.0*	
Control Delay					*49.9*			*11.9*			*257.9*	
Lane Group LOS					*D*			*B*			*F*	
Approach Delay				*49.9*			*11.9*			*257.9*		
Approach LOS				*D*			*B*			*F*		
Intersection Delay	*137.0*			X_C = *1.35*			Intersection LOS			*F*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Richmond Valley Rd & Page Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*0*	*1*	*1*	*0*	*0*	*2*	*0*
Lane Group		*LTR*			*LTR*		*L*	*TR*			*LTR*	
Volume, V (vph)	*97*	*49*	*126*	*35*	*196*	*73*	*82*	*593*	*110*	*143*	*564*	*53*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.81*	*0.81*	*0.81*	*0.91*	*0.91*	*0.91*	*0.87*	*0.87*	*0.87*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.503*			*1.000*		*0.773*	*0.773*			*0.957*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*10*
Lane Width		*16.0*			*15.0*		*10.0*	*14.0*			*10.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*
Parking Maneuvers, N_m						*5*						*5*
Buses Stopping, N_B		*0*			*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*16.6*			*21.5*			*16.3*			*21.2*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *31.0*	G =	G =	G =	G = *49.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*309*			*375*		*90*	*773*			*861*	
Lane Group Capacity, c		*442*			*565*		*259*	*1067*			*912*	
v/c Ratio, X		*0.70*			*0.66*		*0.35*	*0.72*			*0.94*	
Total Green Ratio, g/C		*0.34*			*0.34*		*0.54*	*0.54*			*0.54*	
Uniform Delay, d_1		*25.5*			*25.1*		*11.5*	*15.4*			*19.2*	
Progression Factor, PF		*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	

Incremental Delay, d_2		4.6			6.0		2.8	3.3			18.4	
Initial Queue Delay, d_3		0.0			0.0		0.0	0.0			0.0	
Control Delay		30.1			31.1		14.4	18.8			37.6	
Lane Group LOS		C			C		B	B			D	
Approach Delay	30.1			31.1			18.3			37.6		
Approach LOS	C			C			B			D		
Intersection Delay	28.7			X_C = 0.85			Intersection LOS			C		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/16/13*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*S Bridge St RT & Page Ave*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *South Bridge Street Right Turn* | North/South Street: *Page Avenue*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*688*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.87*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*790*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*2*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*71*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.78*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*91*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*55*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								*R*
v (veh/h)								*91*
C (m) (veh/h)								*553*
v/c								*0.16*
95% queue length								*0.58*
Control Delay (s/veh)								*12.8*
LOS								*B*
Approach Delay (s/veh)	--	--				*12.8*		
Approach LOS	--	--				*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*S Br St & Page Ave/Boscome Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*							*2*			*2*	
Lane Group	*L*							*T*			*T*	
Volume, V (vph)	*380*							*762*			*688*	
% Heavy Vehicles, %HV	*1*							*1*			*1*	
Peak-Hour Factor, PHF	*0.91*							*0.90*			*0.87*	
Pretimed (P) or Actuated (A)	*P*							*P*			*P*	
Start-up Lost Time, l_1	*2.0*							*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*							*2.0*			*2.0*	
Arrival Type, AT	*3*							*3*			*3*	
Unit Extension, UE	*3.0*							*3.0*			*3.0*	
Filtering/Metering, I	*1.000*							*0.773*			*0.957*	
Initial Unmet Demand, Q_b	*0.0*							*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*		*0*	*0*		*0*	*0*	
Lane Width	*16.0*							*14.5*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*							*0*			*0*	
Min. Time for Pedestrians, G_p	*3.2*			*20.1*			*3.2*			*3.2*		

Phasing	EB Only	02	03	04	Thru Only	06	07	08
Timing	G = *30.0*	G =	G =	G =	G = *50.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*418*							*847*			*791*	
Lane Group Capacity, c	*675*							*2156*			*1990*	
v/c Ratio, X	*0.62*							*0.39*			*0.40*	
Total Green Ratio, g/C	*0.33*							*0.56*			*0.56*	
Uniform Delay, d_1	*25.2*							*11.4*			*11.4*	
Progression Factor, PF	*1.000*							*1.000*			*1.000*	
Delay Calibration, k	*0.50*							*0.50*			*0.50*	
Incremental Delay, d_2	*4.2*							*0.4*			*0.6*	

Initial Queue Delay, d_3	*0.0*							*0.0*			*0.0*	
Control Delay	*29.4*							*11.8*			*12.0*	
Lane Group LOS	*C*							*B*			*B*	
Approach Delay	*29.4*						*11.8*			*12.0*		
Approach LOS	*C*						*B*			*B*		
Intersection Delay	*15.4*			X_C = *0.48*			Intersection LOS			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/16/13*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*KWVP WB OR UT & No Bridge St*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *KWVP WB Off-Ramp U-Turn* | North/South Street: *North Bridge Street*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*532*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.89*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*597*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*1*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*474*		
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.90*	*0.93*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*509*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*60*	*3*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*0*
Configuration				*L*		

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration			*L*					
v (veh/h)			*509*					
C (m) (veh/h)			*464*					
v/c			*1.10*					
95% queue length			*16.91*					
Control Delay (s/veh)			*100.2*					
LOS			*F*					
Approach Delay (s/veh)	--	--	*100.2*					
Approach LOS	--	--	*F*					

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Bricktown/KWVP*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/23/13*	Jurisdiction	*Sat Flow Rate WB-L = 1950*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*	*0*	*1*	*2*	*0*	*0*	*2*	*0*	*1*	*1*	*0*
Lane Group	*L*	*TR*		*L*	*TR*			*LTR*		*L*	*TR*	
Volume, V (vph)	*162*	*264*	*206*	*248*	*326*	*87*	*205*	*471*	*267*	*223*	*77*	*106*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*7*	*7*	*7*	*3*	*3*	*3*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.90*	*0.82*	*0.82*	*0.93*	*0.93*	*0.93*	*0.76*	*0.76*	*0.76*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*		*2.0*	*2.0*			*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e	*2.0*	*2.0*		*3.0*	*3.0*			*2.0*		*2.0*	*2.0*	
Arrival Type, AT	*3*	*3*		*3*	*3*			*3*		*3*	*3*	
Unit Extension, UE	*3.0*	*3.0*		*3.0*	*3.0*			*3.0*		*3.0*	*3.0*	
Filtering/Metering, I	*0.701*	*0.701*		*0.949*	*0.949*			*1.000*		*0.970*	*0.970*	
Initial Unmet Demand, Q_b	*0.0*	*0.0*		*0.0*	*0.0*			*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*45*	*0*	*0*	*11*	*0*	*0*	*25*	*0*	*0*	*25*
Lane Width	*11.0*	*12.0*		*10.0*	*12.0*			*12.5*		*11.0*	*10.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*		*0*	*0*			*0*		*0*	*0*	
Min. Time for Pedestrians, G_p	*34.6*			*18.6*			*20.3*			*16.1*		

Phasing	EW Perm	02	03	04	NB Only	SB Only	07	08
Timing	G = *30.0*	G =	G =	G =	G = *25.0*	G = *20.0*	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y = *5*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*184*	*483*		*276*	*491*			*986*		*293*	*208*	
Lane Group Capacity, c	*240*	*591*		*240*	*1132*			*942*		*384*	*360*	
v/c Ratio, X	*0.77*	*0.82*		*1.15*	*0.43*			*1.05*		*0.76*	*0.58*	
Total Green Ratio, g/C	*0.33*	*0.33*		*0.34*	*0.34*			*0.28*		*0.22*	*0.22*	
Uniform Delay, d_1	*26.9*	*27.5*		*29.5*	*22.7*			*32.5*		*32.8*	*31.2*	
Progression Factor, PF	*1.000*	*1.000*		*1.000*	*1.000*			*1.000*		*1.000*	*1.000*	
Delay Calibration, k	*0.50*	*0.50*		*0.50*	*0.50*			*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2	*15.1*	*8.6*		*103.2*	*1.2*			*42.3*		*13.0*	*6.4*	

Initial Queue Delay, d_3	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Control Delay	42.0	36.1		132.7	23.9			74.8		45.8	37.7	
Lane Group LOS	D	D		F	C			E		D	D	
Approach Delay	37.7			63.0			74.8			42.4		
Approach LOS	D			E			E			D		
Intersection Delay	57.7			X_C = 1.01			Intersection LOS			E		

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/24/13*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*Bricktown Way/Tyrellan Avenue*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Bricktown Way* | North/South Street: *Tyrellan Avenue*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*93*	*161*	*55*	*148*	*197*	*86*
%Thrus Left Lane	*50*			*50*		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*16*	*39*	*69*	*80*	*193*	*60*
%Thrus Left Lane				*50*		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*LT*	*TR*	*LT*	*TR*	*LT*	*R*	*LT*	*TR*
PHF	*0.87*	*0.87*	*0.91*	*0.91*	*0.76*	*0.76*	*1.00*	*1.00*
Flow Rate (veh/h)	*197*	*156*	*269*	*202*	*72*	*90*	*176*	157
% Heavy Vehicles	*7*	*7*	*1*	*1*	*1*	*1*	*0*	*0*
No. Lanes	*2*		*2*		*2*		*2*	
Geometry Group	*5*		*5*		*5*		*5*	
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	*0.5*	*0.0*	*0.6*	*0.0*	*0.3*	*0.0*	*0.5*	*0.0*
Prop. Right-Turns	*0.0*	*0.4*	*0.0*	*0.5*	*0.0*	*1.0*	*0.0*	*0.4*
Prop. Heavy Vehicle	*0.1*	*0.1*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
hLT-adj	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*
hRT-adj	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*
hadj, computed	*0.4*	*-0.2*	*0.3*	*-0.3*	*0.2*	*-0.7*	*0.2*	*-0.3*

Departure Headway and Service Time

hd, initial value (s)	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*
x, initial	*0.18*	*0.14*	*0.24*	*0.18*	*0.06*	*0.08*	*0.16*	*0.14*
hd, final value (s)	*7.15*	*6.60*	*6.93*	*6.30*	*7.52*	*6.67*	*7.25*	*6.75*
x, final value	*0.39*	*0.29*	*0.52*	*0.35*	*0.15*	*0.17*	*0.35*	*0.29*
Move-up time, m (s)	*2.3*		*2.3*		*2.3*		*2.3*	
Service Time, t_s (s)	*4.9*	*4.3*	*4.6*	*4.0*	*5.2*	*4.4*	*4.9*	*4.5*

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*447*	*406*	*507*	*452*	*322*	*340*	*426*	*407*
Delay (s/veh)	*14.38*	*11.93*	*16.82*	*12.40*	*11.54*	*10.70*	*13.88*	*12.25*
LOS	*B*	*B*	*C*	*B*	*B*	*B*	*B*	*B*
Approach: Delay (s/veh)	*13.30*		*14.92*		*11.08*		*13.11*	
LOS	*B*		*B*		*B*		*B*	
Intersection Delay (s/veh)	*13.56*							
Intersection LOS	*B*							

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/23/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*
Lane Group		*LTR*		*DefL*	*TR*		*DefL*	*TR*			*LTR*	
Volume, V (vph)	*53*	*120*	*557*	*123*	*272*	*10*	*271*	*145*	*124*	*22*	*534*	*124*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*2*	*2*	*2*	*1*	*1*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.82*	*0.82*	*0.82*	*0.93*	*0.93*	*0.93*	*0.94*	*0.94*	*0.94*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*		*3*	*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.884*		*0.927*	*0.927*		*1.000*	*1.000*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*		*12.0*	*12.0*		*13.0*	*13.0*			*9.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*		*0*	*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*18.6*			*16.6*			*20.1*			*19.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*829*		*150*	*344*		*291*	*289*			*723*	
Lane Group Capacity, c		*1250*		*204*	*824*		*258*	*804*			*1320*	
v/c Ratio, X		*0.66*		*0.74*	*0.42*		*1.13*	*0.36*			*0.55*	
Total Green Ratio, g/C		*0.44*		*0.44*	*0.44*		*0.44*	*0.44*			*0.44*	
Uniform Delay, d_1		*19.7*		*20.6*	*17.1*		*25.0*	*16.5*			*18.4*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*		*0.50*	*0.50*			*0.50*	

Incremental Delay, d_2		2.5		19.5	1.4		94.9	1.3			1.6	
Initial Queue Delay, d_3		0.0		0.0	0.0		0.0	0.0			0.0	
Control Delay		22.2		40.2	18.5		119.9	17.8			20.0	
Lane Group LOS		C		D	B		F	B			B	
Approach Delay	22.2			25.1			69.0			20.0		
Approach LOS	C			C			E			B		
Intersection Delay	32.5			X_C = 0.93			Intersection LOS			C		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Boscombe Ave & OBX Off-Ramp*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*1*	*1*	*1*
Lane Group	*L*	*TR*			*LT*	*R*		*LTR*		*L*	*LT*	*R*
Volume, V (vph)	*750*	*388*	*4*	*3*	*398*	*814*	*2*	*3*	*2*	*146*	*0*	*289*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.95*	*0.95*	*0.95*	*0.44*	*0.44*	*0.44*	*0.80*	*0.80*	*0.80*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*	*3*		*3*		*3*	*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*	*3.0*		*3.0*		*3.0*	*3.0*	*3.0*
Filtering/Metering, I	*0.687*	*0.687*			*0.650*	*0.650*		*1.000*		*1.000*	*1.000*	*1.000*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*	*0.0*		*0.0*		*0.0*	*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*11.0*	*12.0*			*12.0*	*12.0*		*16.0*		*10.0*	*11.0*	*10.0*
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B	*0*	*0*			*0*	*0*		*0*		*0*	*0*	*0*
Min. Time for Pedestrians, G_p	*14.6*			*24.6*			*20.9*			*20.1*		

Phasing	EB Only	EW Perm	03	04	NS Perm	06	07	08
Timing	G = *33.0*	G = *28.0*	G =	G =	G = *14.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*					Cycle Length, C = *90.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*833*	*435*			*422*	*857*		*17*		*182*	*0*	*361*
Lane Group Capacity, c	*780*	*1206*			*584*	*497*		*148*		*204*	*283*	*862*
v/c Ratio, X	*1.07*	*0.36*			*0.72*	*1.72*		*0.11*		*0.89*	*0.00*	*0.42*
Total Green Ratio, g/C	*0.73*	*0.73*			*0.31*	*0.31*		*0.16*		*0.16*	*0.16*	*0.58*
Uniform Delay, d_1	*19.6*	*4.4*			*27.5*	*31.0*		*32.7*		*37.3*	*32.1*	*10.6*
Progression Factor, PF	*1.000*	*1.000*			*1.000*	*1.000*		*1.000*		*1.000*	*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*	*0.50*		*0.50*		*0.50*	*0.50*	*0.50*

Incremental Delay, d_2	46.8	0.6			5.0	331.5		1.6		40.0	0.0	1.5
Initial Queue Delay, d_3	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Control Delay	66.5	4.9			32.6	362.5		34.2		77.3	32.1	12.1
Lane Group LOS	E	A			C	F		C		E	C	B
Approach Delay	45.4			253.6			34.2			33.9		
Approach LOS	D			F			C			C		
Intersection Delay	129.0			X_C = 1.25			Intersection LOS			F		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Boscombe Ave & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Hour*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*1*	*1*
Lane Group	*DefL*	*TR*			*LTR*			*LTR*			*LT*	*R*
Volume, V (vph)	*499*	*37*	*0*	*1*	*37*	*43*	*3*	*3*	*2*	*62*	*1*	*1176*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.95*	*0.95*	*0.95*	*0.50*	*0.50*	*0.50*	*0.94*	*0.94*	*0.94*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*			*2.0*			*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*			*2.0*			*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*			*3*			*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*			*3.0*			*3.0*	*3.0*
Filtering/Metering, I	*0.952*	*0.952*			*1.000*			*1.000*			*0.937*	*0.937*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*			*0.0*			*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*10*	*0*	*0*	*0*	*0*	*0*	*294*
Lane Width	*16.0*	*16.0*			*11.5*			*12.0*			*12.0*	*12.0*
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*			*0*			*0*			*0*	*0*
Min. Time for Pedestrians, G_p	*20.3*			*17.5*			*20.3*			*20.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*554*	*41*			*75*			*16*			*67*	*938*
Lane Group Capacity, c	*753*	*1066*			*1563*			*1220*			*548*	*616*
v/c Ratio, X	*0.74*	*0.04*			*0.05*			*0.01*			*0.12*	*1.52*
Total Green Ratio, g/C	*0.50*	*0.50*			*0.50*			*0.39*			*0.39*	*0.39*
Uniform Delay, d_1	*17.8*	*11.5*			*11.5*			*16.9*			*17.6*	*27.5*
Progression Factor, PF	*1.000*	*1.000*			*1.000*			*1.000*			*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*			*0.50*			*0.50*	*0.50*

Incremental Delay, d_2	6.0	0.1			0.1			0.0			0.4	242.9
Initial Queue Delay, d_3	0.0	0.0			0.0			0.0			0.0	0.0
Control Delay	23.8	11.5			11.6			16.9			18.1	270.4
Lane Group LOS	C	B			B			B			B	F
Approach Delay	23.0			11.6			16.9			253.6		
Approach LOS	C			B			B			F		
Intersection Delay	159.5			X_C = 1.08			Intersection LOS			F		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Bricktown Ctr Rd @ Vets Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/23/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*				*0*	*2*			*2*	*0*
Lane Group	*L*		*R*					*LT*			*TR*	
Volume, V (vph)	*287*		*24*				*2*	*263*			*381*	*428*
% Heavy Vehicles, %HV	*8*		*8*				*1*	*1*			*2*	*2*
Peak-Hour Factor, PHF	*0.87*		*0.87*				*0.88*	*0.88*			*0.91*	*0.91*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*					*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*					*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*					*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*					*3.0*			*3.0*	
Filtering/Metering, I	*0.974*		*0.974*					*0.995*			*0.791*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*					*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*6*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width	*13.0*		*12.0*					*11.5*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*					*0*			*0*	
Min. Time for Pedestrians, G_p	*21.8*			*20.3*			*3.2*			*19.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *19.0*	G =	G =	G =	G = *31.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*330*		*21*					*301*			*889*	
Lane Group Capacity, c	*547*		*473*					*1731*			*1912*	
v/c Ratio, X	*0.60*		*0.04*					*0.17*			*0.46*	
Total Green Ratio, g/C	*0.32*		*0.32*					*0.52*			*0.52*	
Uniform Delay, d_1	*17.3*		*14.2*					*7.7*			*9.2*	
Progression Factor, PF	*1.000*		*1.000*					*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*					*0.50*			*0.50*	
Incremental Delay, d_2	*4.7*		*0.2*					*0.2*			*0.6*	

Initial Queue Delay, d_3	*0.0*		*0.0*					*0.0*			*0.0*	
Control Delay	*22.1*		*14.4*					*7.9*			*9.9*	
Lane Group LOS	*C*		*B*					*A*			*A*	
Approach Delay	*21.6*						*7.9*			*9.9*		
Approach LOS	*C*						*A*			*A*		
Intersection Delay	*12.2*			X_C = *0.52*			Intersection LOS			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/23/13*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*Englewood Ave & Vets Rd W RT*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* | North/South Street: *Veterans Rd W Right Turn Bay*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*94*				
Peak-Hour Factor, PHF	*1.00*	*0.71*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*132*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*T*				
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*545*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.88*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*619*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*1*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					*R*			
v (veh/h)					*619*			
C (m) (veh/h)					*920*			
v/c					*0.67*			
95% queue length					*5.40*			
Control Delay (s/veh)					*16.6*			
LOS					*C*			
Approach Delay (s/veh)	--	--	*16.6*					
Approach LOS	--	--	*C*					

HCS+™ Version 5.4

Generated: 4/10/2013 3:47 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Ave @ Veterans Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*1*	*1*		*1*			*0*	*3*	*0*
Lane Group		*TR*		*L*	*T*		*L*				*LTR*	
Volume, V (vph)		*71*	*0*	*475*	*76*		*4*			*23*	*334*	*38*
% Heavy Vehicles, %HV		*1*	*1*	*3*	*3*		*1*			*1*	*1*	*1*
Peak-Hour Factor, PHF		*0.50*	*0.25*	*0.89*	*0.89*		*0.88*			*0.91*	*0.91*	*0.91*
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*			*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Arrival Type, AT		*3*		*3*	*3*		*3*				*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*		*3.0*				*3.0*	
Filtering/Metering, I		*1.000*		*0.983*	*0.983*		*0.988*				*1.000*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*12.0*		*13.0*	*13.0*		*10.0*				*11.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*		*0*	*0*		*0*				*0*	
Min. Time for Pedestrians, G_p	*31.2*			*3.2*			*18.1*			*11.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*					Cycle Length, C = *60.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*142*		*534*	*85*		*5*				*434*	
Lane Group Capacity, c		*784*		*521*	*794*		*346*				*2028*	
v/c Ratio, X		*0.18*		*1.02*	*0.11*		*0.01*				*0.21*	
Total Green Ratio, g/C		*0.42*		*0.42*	*0.42*		*0.42*				*0.42*	
Uniform Delay, d_1		*11.0*		*17.5*	*10.7*		*10.3*				*11.2*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*		*1.000*				*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*		*0.50*				*0.50*	
Incremental Delay, d_2		*0.5*		*45.6*	*0.3*		*0.1*				*0.2*	

Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Control Delay		*11.5*		*63.1*	*11.0*		*10.3*				*11.4*	
Lane Group LOS		*B*		*E*	*B*		*B*				*B*	
Approach Delay	*11.5*			*55.9*			*10.3*			*11.4*		
Approach LOS	*B*			*E*			*B*			*B*		
Intersection Delay	*34.4*			X_C = *0.62*			Intersection LOS			*C*		

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/23/13*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*Sharrotts Rd & Veterans Rd W*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Sharrotts Road* | North/South Street: *Veterans Road West*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*106*	*39*	*255*	*84*	*0*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*0*	*24*	*101*	*13*
%Thrus Left Lane				*50*		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*TR*		*LT*				*LT*	*TR*
PHF	*0.80*		*0.78*				*0.91*	*0.91*
Flow Rate (veh/h)	*180*		*433*				*80*	70
% Heavy Vehicles	*2*		*3*				*1*	*1*
No. Lanes	*1*		*1*		*0*		*2*	
Geometry Group	*2*		*2*				*1*	
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	*0.0*		*0.8*				*0.3*	*0.0*
Prop. Right-Turns	*0.3*		*0.0*				*0.0*	*0.2*
Prop. Heavy Vehicle	*0.0*		*0.0*				*0.0*	*0.0*
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*			*0.2*	*0.2*
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*			*-0.6*	*-0.6*
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*			*1.7*	*1.7*
hadj, computed	*-0.1*		*0.2*				*0.1*	*-0.1*

Departure Headway and Service Time

hd, initial value (s)	*3.20*		*3.20*				*3.20*	*3.20*
x, initial	*0.16*		*0.38*				*0.07*	*0.06*
hd, final value (s)	*4.70*		*4.72*				*5.44*	*5.25*
x, final value	*0.24*		*0.57*				*0.12*	*0.10*
Move-up time, m (s)	*2.0*		*2.0*				*2.0*	
Service Time, t_s (s)	*2.7*		*2.7*				*3.4*	*3.3*

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*430*		*683*				*330*	*320*
Delay (s/veh)	*9.14*		*13.74*				*9.19*	*8.85*
LOS	*A*		*B*				*A*	*A*
Approach: Delay (s/veh)	*9.14*		*13.74*				*9.03*	
LOS	*A*		*B*				*A*	
Intersection Delay (s/veh)	*11.73*							
Intersection LOS	*B*							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/16/13*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*Sharrotts Rd @ Veterans Rd E*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Sharrotts Road* | North/South Street: *Veterans Road East*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*39*	*91*	*0*	*0*	*274*	*19*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*66*	*100*	*142*	*0*	*0*	*0*
%Thrus Left Lane	*50*					

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*LT*		*TR*		*LT*	*TR*		
PHF	*0.80*		*0.78*		*0.99*	*0.99*		
Flow Rate (veh/h)	*161*		*375*		*116*	*193*		
% Heavy Vehicles	*2*		*5*		*1*	*1*		
No. Lanes	*1*		*1*		*2*		*0*	
Geometry Group	*2*		*2*		*1*			
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	*0.3*		*0.0*		*0.6*	*0.0*		
Prop. Right-Turns	*0.0*		*0.1*		*0.0*	*0.7*		
Prop. Heavy Vehicle	*0.0*		*0.0*		*0.0*	*0.0*		
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*		
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*		
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*		
hadj, computed	*0.1*		*0.0*		*0.1*	*-0.4*		

Departure Headway and Service Time

hd, initial value (s)	*3.20*		*3.20*		*3.20*	*3.20*		
x, initial	*0.14*		*0.33*		*0.10*	*0.17*		
hd, final value (s)	*5.25*		*4.92*		*5.39*	*4.83*		
x, final value	*0.24*		*0.51*		*0.17*	*0.26*		
Move-up time, m (s)	*2.0*		*2.0*		*2.0*			
Service Time, t_s (s)	*3.3*		*2.9*		*3.4*	*2.8*		

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*411*		*625*		*366*	*443*		
Delay (s/veh)	*9.86*		*12.99*		*9.52*	*9.51*		
LOS	*A*		*B*		*A*	*A*		
Approach: Delay (s/veh)	*9.86*		*12.99*		*9.51*			
LOS	*A*		*B*		*A*			
Intersection Delay (s/veh)	*11.12*							
Intersection LOS	*B*							

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Ave @ Vets Rd E*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*3*	*0*			
Lane Group		*LT*	*R*		*LTR*			*LTR*				
Volume, V (vph)	*193*	*270*	*176*	*8*	*66*	*9*	*486*	*106*	*2*			
% Heavy Vehicles, %HV	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*			
Peak-Hour Factor, PHF	*0.85*	*0.85*	*0.85*	*0.87*	*0.87*	*0.87*	*0.89*	*0.89*	*0.89*			
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*			
Start-up Lost Time, l_1		*2.0*	*2.0*		*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*	*2.0*		*2.0*			*2.0*				
Arrival Type, AT		*3*	*3*		*3*			*3*				
Unit Extension, UE		*3.0*	*3.0*		*3.0*			*3.0*				
Filtering/Metering, I		*0.999*	*0.999*		*0.996*			*0.980*				
Initial Unmet Demand, Q_b		*0.0*	*0.0*		*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*53*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width		*13.0*	*12.0*		*11.5*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B		*0*	*0*		*0*			*0*				
Min. Time for Pedestrians, G_p	*21.2*			*12.9*			*14.3*			*17.5*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *21.0*	G =	G =	G =	G = *29.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*545*	*145*		*95*			*667*				
Lane Group Capacity, c		*559*	*560*		*528*			*2299*				
v/c Ratio, X		*0.97*	*0.26*		*0.18*			*0.29*				
Total Green Ratio, g/C		*0.35*	*0.35*		*0.35*			*0.48*				
Uniform Delay, d_1		*19.2*	*13.9*		*13.5*			*9.3*				
Progression Factor, PF		*1.000*	*1.000*		*1.000*			*1.000*				
Delay Calibration, k		*0.50*	*0.50*		*0.50*			*0.50*				
Incremental Delay, d_2		*32.4*	*1.1*		*0.7*			*0.3*				

Initial Queue Delay, d_3		*0.0*	*0.0*		*0.0*			*0.0*				
Control Delay		*51.6*	*15.1*		*14.3*			*9.6*				
Lane Group LOS		*D*	*B*		*B*			*A*				
Approach Delay	*43.9*			*14.3*			*9.6*					
Approach LOS	*D*			*B*			*A*					
Intersection Delay	*26.2*			X_C *= 0.58*			Intersection LOS			*C*		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Av & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*238*		*34*				*18*	*469*			*472*	*64*
% Heavy Vehicles, %HV	*3*		*3*				*1*	*1*			*4*	*4*
Peak-Hour Factor, PHF	*0.96*		*0.96*				*0.86*	*0.86*			*0.92*	*0.92*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.984*						*0.880*			*0.893*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*16.0*						*14.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B		*0*						*2*			*7*	
Min. Time for Pedestrians, G_p	*14.9*			*15.5*			*3.2*			*17.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*283*						*566*			*583*	
Lane Group Capacity, c		*459*						*1098*			*1122*	
v/c Ratio, X		*0.62*						*0.52*			*0.52*	
Total Green Ratio, g/C		*0.27*						*0.57*			*0.57*	
Uniform Delay, d_1		*19.3*						*8.0*			*8.0*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*6.0*						*1.5*			*1.5*	

Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	
Control Delay		*25.3*						*9.5*			*9.5*	
Lane Group LOS		*C*						*A*			*A*	
Approach Delay	*25.3*						*9.5*			*9.5*		
Approach LOS	*C*						*A*			*A*		
Intersection Delay	*12.6*			X_C = *0.55*			Intersection LOS			*B*		

 HCS+™ Version 5.4 Generated: 4/10/2013 3:48 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Sharrotts Rd & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*147*		*86*				*23*	*595*			*425*	*274*
% Heavy Vehicles, %HV	*1*		*1*				*1*	*1*			*3*	*3*
Peak-Hour Factor, PHF	*0.80*		*0.80*				*0.86*	*0.86*			*0.92*	*0.92*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.911*						*0.834*			*0.880*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*21*
Lane Width		*16.0*						*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*2*			*7*	
Min. Time for Pedestrians, G_p	*18.6*			*18.6*			*3.2*			*16.6*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*291*						*719*			*737*	
Lane Group Capacity, c		*573*						*890*			*965*	
v/c Ratio, X		*0.51*						*0.81*			*0.76*	
Total Green Ratio, g/C		*0.33*						*0.50*			*0.50*	
Uniform Delay, d_1		*16.1*						*12.6*			*12.1*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*2.9*						*6.6*			*5.1*	

Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	
Control Delay		*19.0*						*19.2*			*17.2*	
Lane Group LOS		*B*						*B*			*B*	
Approach Delay	*19.0*						*19.2*			*17.2*		
Approach LOS	*B*						*B*			*B*		
Intersection Delay	*18.3*			X_C = *0.69*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Vets Rd E & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*	*0*	*3*	*0*	*1*	*1*			*1*	*0*
Lane Group	*L*		*R*		*LTR*		*L*	*T*			*TR*	
Volume, V (vph)	*4*		*180*	*284*	*485*	*276*	*104*	*207*			*501*	*5*
% Heavy Vehicles, %HV	*1*		*1*	*1*	*1*	*1*	*2*	*2*			*4*	*4*
Peak-Hour Factor, PHF	*0.95*		*0.95*	*0.88*	*0.88*	*0.88*	*0.92*	*0.92*			*0.87*	*0.87*
Pretimed (P) or Actuated (A)	*P*		*P*	*P*	*P*	*P*	*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*		*3*		*3*	*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*		*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I	*0.848*		*0.848*		*0.500*		*0.930*	*0.930*			*0.865*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Lane Width	*10.0*		*13.0*		*11.0*		*12.0*	*12.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*		*0*		*0*	*2*			*7*	
Min. Time for Pedestrians, G_p	*17.2*			*16.9*			*3.2*			*20.9*		

Phasing	EB Only	WB Only	03	04	NS Perm	06	07	08
Timing	G = *8.0*	G = *17.0*	G =	G =	G = *20.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*					Cycle Length, C = *60.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*4*		*189*		*1188*		*113*	*225*			*582*	
Lane Group Capacity, c	*222*		*220*		*1330*		*124*	*616*			*670*	
v/c Ratio, X	*0.02*		*0.86*		*0.89*		*0.91*	*0.37*			*0.87*	
Total Green Ratio, g/C	*0.13*		*0.13*		*0.28*		*0.33*	*0.33*			*0.33*	
Uniform Delay, d_1	*22.6*		*25.4*		*20.6*		*19.2*	*15.2*			*18.8*	
Progression Factor, PF	*1.000*		*1.000*		*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*		*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2	*0.1*		*29.0*		*5.1*		*57.1*	*1.6*			*12.7*	

Initial Queue Delay, d_3	0.0		0.0		0.0		0.0	0.0			0.0	
Control Delay	22.7		54.5		25.7		76.2	16.7			31.4	
Lane Group LOS	C		D		C		E	B			C	
Approach Delay	53.8				25.7			36.6			31.4	
Approach LOS	D				C			D			C	
Intersection Delay	31.1				X_C = 0.89			Intersection LOS			C	

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*S Service Rd & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*				*0*	*1*	*0*	*1*	*1*	*0*
Lane Group		*LTR*						*LTR*		*L*	*TR*	
Volume, V (vph)	*10*	*20*	*6*				*9*	*301*	*127*	*333*	*580*	*52*
% Heavy Vehicles, %HV	*2*	*2*	*2*				*2*	*2*	*2*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.63*	*0.63*	*0.63*				*0.92*	*0.92*	*0.92*	*0.93*	*0.93*	*0.93*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*				*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*		*2.0*	*2.0*	
Arrival Type, AT		*3*						*3*		*3*	*3*	
Unit Extension, UE		*3.0*						*3.0*		*3.0*	*3.0*	
Filtering/Metering, I		*1.000*						*0.922*		*0.564*	*0.564*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*12*
Lane Width		*13.0*						*16.0*		*12.0*	*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*2*		*0*	*7*	
Min. Time for Pedestrians, G_p	*17.5*			*16.9*			*12.6*			*12.9*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *17.0*	G =	G =	G =	G = *33.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*58*						*475*		*358*	*667*	
Lane Group Capacity, c		*460*						*956*		*487*	*986*	
v/c Ratio, X		*0.13*						*0.50*		*0.74*	*0.68*	
Total Green Ratio, g/C		*0.28*						*0.55*		*0.55*	*0.55*	
Uniform Delay, d_1		*16.0*						*8.4*		*10.2*	*9.7*	
Progression Factor, PF		*1.000*						*1.000*		*1.000*	*1.000*	
Delay Calibration, k		*0.50*						*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2		*0.6*						*1.7*		*5.5*	*2.1*	

Initial Queue Delay, d_3		*0.0*						*0.0*		*0.0*	*0.0*	
Control Delay		*16.5*						*10.1*		*15.7*	*11.8*	
Lane Group LOS		*B*						*B*		*B*	*B*	
Approach Delay	*16.5*						*10.1*			*13.2*		
Approach LOS	*B*						*B*			*B*		
Intersection Delay	*12.3*			X_C = *0.53*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Amboy Rd & Bloomingdale Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*1*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*		*L*	*T*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*6*	*13*	*20*	*267*	*29*	*110*	*18*	*320*	*175*	*94*	*456*	*10*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*3*	*3*	*3*	*1*	*1*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.70*	*0.70*	*0.70*	*0.87*	*0.87*	*0.87*	*0.92*	*0.92*	*0.92*	*0.87*	*0.87*	*0.87*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*		*3*	*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*		*0.905*	*0.905*	*0.905*		*0.663*			*0.229*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*50*	*0*	*0*	*0*	*0*	*0*	*50*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*		*12.0*	*11.0*	*11.0*		*11.0*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*2*		*0*	*0*	*2*		*0*			*0*	
Min. Time for Pedestrians, G_p	*11.5*			*11.8*			*18.9*			*18.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*					Cycle Length, C = *90.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*57*		*307*	*33*	*126*		*558*			*643*	
Lane Group Capacity, c		*634*		*560*	*792*	*585*		*733*			*620*	
v/c Ratio, X		*0.09*		*0.55*	*0.04*	*0.22*		*0.76*			*1.04*	
Total Green Ratio, g/C		*0.44*		*0.44*	*0.44*	*0.44*		*0.44*			*0.44*	
Uniform Delay, d_1		*14.5*		*18.4*	*14.2*	*15.4*		*21.0*			*25.0*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*	*0.50*		*0.50*			*0.50*	

Incremental Delay, d_2		0.3		3.5	0.1	0.8		5.0			27.8	
Initial Queue Delay, d_3		0.0		0.0	0.0	0.0		0.0			0.0	
Control Delay		14.7		21.8	14.2	16.1		26.0			52.8	
Lane Group LOS		B		C	B	B		C			D	
Approach Delay	14.7			19.8			26.0			52.8		
Approach LOS	B			B			C			D		
Intersection Delay	33.9			X_C = 0.79			Intersection LOS			C		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Arthur Kill Rd & Bloomingdl Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*0*	*1*		*0*		*0*			
Lane Group		*TR*			*LT*			*LR*				
Volume, V (vph)		*203*	*253*	*208*	*224*		*158*		*200*			
% Heavy Vehicles, %HV		*5*	*5*	*8*	*8*		*1*		*1*			
Peak-Hour Factor, PHF		*0.82*	*0.82*	*0.83*	*0.83*		*0.67*		*0.67*			
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*		*P*			
Start-up Lost Time, l_1		*2.0*			*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*			*2.0*			*2.0*				
Arrival Type, AT		*3*			*3*			*3*				
Unit Extension, UE		*3.0*			*3.0*			*3.0*				
Filtering/Metering, I		*0.927*			*0.989*			*0.917*				
Initial Unmet Demand, Q_b		*0.0*			*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*59*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	
Lane Width		*16.0*			*16.0*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m									*5*			
Buses Stopping, N_B		*5*			*0*			*0*				
Min. Time for Pedestrians, G_p	*18.3*			*3.2*			*15.2*			*17.2*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*485*			*521*			*535*				
Lane Group Capacity, c		*939*			*470*			*560*				
v/c Ratio, X		*0.52*			*1.11*			*0.96*				
Total Green Ratio, g/C		*0.50*			*0.50*			*0.39*				
Uniform Delay, d_1		*15.2*			*22.5*			*26.7*				
Progression Factor, PF		*1.000*			*1.000*			*1.000*				
Delay Calibration, k		*0.50*			*0.50*			*0.50*				
Incremental Delay, d_2		*1.9*			*74.3*			*26.9*				

Initial Queue Delay, d_3		*0.0*			*0.0*			*0.0*				
Control Delay		*17.0*			*96.8*			*53.7*				
Lane Group LOS		*B*			*F*			*D*				
Approach Delay	*17.0*			*96.8*			*53.7*					
Approach LOS	*B*			*F*			*D*					
Intersection Delay	*56.7*			X_C *= 1.04*			Intersection LOS			*E*		

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Saturday

Midday

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Saturday 12:45-1:45 Peak Pd*

Site Information

Intersection	*Sharrotts Rd & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Sharrotts Road* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*12*	*282*	*50*	*29*	*328*	*28*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.88*	*0.88*	*0.88*
Hourly Flow Rate, HFR (veh/h)	*13*	*306*	*54*	*32*	*372*	*31*
Percent Heavy Vehicles	*3*	--	--	*5*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*27*	*33*	*24*	*52*	*17*	*41*
Peak-Hour Factor, PHF	*0.40*	*0.40*	*0.40*	*0.78*	*0.78*	*0.78*
Hourly Flow Rate, HFR (veh/h)	*67*	*82*	*59*	*66*	*21*	*52*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (veh/h)	*13*	*32*		*139*			*208*	
C (m) (veh/h)	*1150*	*1182*		*278*			*320*	
v/c	*0.01*	*0.03*		*0.50*			*0.65*	
95% queue length	*0.03*	*0.08*		*2.61*			*4.27*	
Control Delay (s/veh)	*8.2*	*8.1*		*30.2*			*34.9*	
LOS	*A*	*A*		*D*			*D*	
Approach Delay (s/veh)	--	--	*30.2*			*34.9*		
Approach LOS	--	--	*D*			*D*		

HCS+™ Version 5.4

Generated: 4/10/2013 4:01 PM

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*Englewood Ave & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*321*	*55*	*27*	*377*	
Peak-Hour Factor, PHF	*1.00*	*0.92*	*0.92*	*0.88*	*0.88*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*348*	*59*	*30*	*428*	*0*
Percent Heavy Vehicles	*0*	--	--	*5*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*119*		*22*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.75*	*1.00*	*0.75*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*158*	*0*	*29*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (veh/h)		*30*		*187*				
C (m) (veh/h)		*1136*		*341*				
v/c		*0.03*		*0.55*				
95% queue length		*0.08*		*3.13*				
Control Delay (s/veh)		*8.3*		*27.7*				
LOS		*A*		*D*				
Approach Delay (s/veh)	--	--	*27.7*					
Approach LOS	--	--	*D*					

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Generated: 4/10/2013 4:01 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*			*LT*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*0*	*10*	*5*	*356*	*27*	*434*	*5*	*216*	*400*	*296*	*229*	*0*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*2*	*2*	*2*	*5*	*5*	*5*	*3*	*3*	*3*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*			*0.849*	*0.849*		*0.861*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*15.5*			*11.0*	*10.0*		*15.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*			*0*	*0*		*2*			*2*	
Min. Time for Pedestrians, G_p	*11.5*			*13.5*			*15.2*			*12.1*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*					Cycle Length, C = *60.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*16*			*416*	*472*		*682*			*577*	
Lane Group Capacity, c		*726*			*547*	*539*		*748*			*324*	
v/c Ratio, X		*0.02*			*0.76*	*0.88*		*0.91*			*1.78*	
Total Green Ratio, g/C		*0.42*			*0.42*	*0.42*		*0.42*			*0.42*	
Uniform Delay, d_1		*10.3*			*14.9*	*16.1*		*16.5*			*17.5*	
Progression Factor, PF		*1.000*			*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*	*0.50*		*0.50*			*0.50*	

Incremental Delay, d_2		0.1			8.2	15.6		15.4			363.6	
Initial Queue Delay, d_3		0.0			0.0	0.0		0.0			0.0	
Control Delay		10.4			23.2	31.7		31.9			381.1	
Lane Group LOS		B			C	C		C			F	
Approach Delay	10.4			27.7			31.9			381.1		
Approach LOS	B			C			C			F		
Intersection Delay	123.2			X_C = 1.33			Intersection LOS			F		

 HCS+™ Version 5.4 Generated: 4/10/2013 4:02 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*No Bridge St & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*			*1*	
Lane Group					*LR*			*T*			*T*	
Volume, V (vph)				*510*		*9*		*613*			*592*	
% Heavy Vehicles, %HV				*1*		*1*		*5*			*4*	
Peak-Hour Factor, PHF				*0.86*		*0.86*		*0.91*			*0.91*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*			*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.483*			*0.865*			*0.367*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	
Lane Width					*16.0*			*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B					*0*			*0*			*2*	
Min. Time for Pedestrians, G_p	*13.5*			*13.8*			*3.2*			*3.2*		

Phasing	WB Only	02	03	04	Thru Only	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*603*			*674*			*651*	
Lane Group Capacity, c					*676*			*1026*			*1027*	
v/c Ratio, X					*0.89*			*0.66*			*0.63*	
Total Green Ratio, g/C					*0.33*			*0.50*			*0.50*	
Uniform Delay, d_1					*19.0*			*11.2*			*11.0*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*9.0*			*2.9*			*1.1*	

Initial Queue Delay, d_3					0.0			0.0			0.0	
Control Delay					27.9			14.0			12.1	
Lane Group LOS					C			B			B	
Approach Delay				27.9			14.0			12.1		
Approach LOS				C			B			B		
Intersection Delay	17.7			X_C = 0.75			Intersection LOS			B		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*3/31/13*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*So Bridge St & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *South Bridge Street* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*613*	*270*	*181*	*919*	
Peak-Hour Factor, PHF	*1.00*	*0.91*	*0.91*	*0.91*	*0.91*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*673*	*296*	*198*	*1009*	*0*
Percent Heavy Vehicles	*0*	--	--	*6*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration						

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*						
v (veh/h)		*198*						
C (m) (veh/h)		*695*						
v/c		*0.28*						
95% queue length		*1.17*						
Control Delay (s/veh)		*12.2*						
LOS		*B*						
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

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Generated: 4/10/2013 4:03 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Rch Valley Rd & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:15-1:45 PM Peak Pd*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*	*0*	*0*	*1*	
Lane Group					*LR*			*TR*			*LT*	
Volume, V (vph)				*108*		*222*		*645*	*94*	*157*	*735*	
% Heavy Vehicles, %HV				*1*		*1*		*2*	*2*	*2*	*2*	
Peak-Hour Factor, PHF				*0.89*		*0.89*		*0.91*	*0.91*	*0.91*	*0.91*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*	*P*	*P*	*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.940*			*0.789*			*0.272*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width					*12.0*			*15.0*			*15.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B					*0*			*2*			*2*	
Min. Time for Pedestrians, G_p	*11.8*			*11.8*			*14.1*			*3.2*		

Phasing	WB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*370*			*812*			*981*	
Lane Group Capacity, c					*393*			*1132*			*643*	
v/c Ratio, X					*0.94*			*0.72*			*1.53*	
Total Green Ratio, g/C					*0.27*			*0.57*			*0.57*	
Uniform Delay, d_1					*21.5*			*9.5*			*13.0*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*31.5*			*3.1*			*238.7*	

Initial Queue Delay, d_3					*0.0*			*0.0*			*0.0*	
Control Delay					*53.1*			*12.6*			*251.7*	
Lane Group LOS					*D*			*B*			*F*	
Approach Delay				*53.1*			*12.6*			*251.7*		
Approach LOS				*D*			*B*			*F*		
Intersection Delay	*128.0*			X_C = *1.34*			Intersection LOS			*F*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Richmond Valley Rd & Page Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/17/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*0*	*1*	*1*	*0*	*0*	*2*	*0*
Lane Group		*LTR*			*LTR*		*L*	*TR*			*LTR*	
Volume, V (vph)	*103*	*49*	*116*	*31*	*92*	*73*	*163*	*783*	*144*	*58*	*622*	*101*
% Heavy Vehicles, %HV	*0*	*0*	*0*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.78*	*0.78*	*0.78*	*0.73*	*0.73*	*0.73*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.533*			*1.000*		*0.561*	*0.561*			*0.957*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*20*
Lane Width		*16.0*			*15.0*		*10.0*	*14.0*			*10.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*
Parking Maneuvers, N_m						*5*						*5*
Buses Stopping, N_B		*0*			*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*16.6*			*21.5*			*16.3*			*21.2*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *31.0*	G =	G =	G =	G = *49.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*344*			*268*		*177*	*1008*			*827*	
Lane Group Capacity, c		*488*			*538*		*272*	*1067*			*959*	
v/c Ratio, X		*0.70*			*0.50*		*0.65*	*0.94*			*0.86*	
Total Green Ratio, g/C		*0.34*			*0.34*		*0.54*	*0.54*			*0.54*	
Uniform Delay, d_1		*25.5*			*23.3*		*14.5*	*19.2*			*17.6*	
Progression Factor, PF		*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	

Incremental Delay, d_2		4.5			3.3		6.6	11.2			9.7	
Initial Queue Delay, d_3		0.0			0.0		0.0	0.0			0.0	
Control Delay		30.1			26.6		21.1	30.4			27.3	
Lane Group LOS		C			C		C	C			C	
Approach Delay	30.1			26.6			29.0			27.3		
Approach LOS	C			C			C			C		
Intersection Delay	28.4			X_C = 0.85			Intersection LOS			C		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/17/13*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*S Bridge St RT & Page Ave*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *South Bridge Street Right Turn* | North/South Street: *Page Avenue*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*723*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.92*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*785*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*2*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*57*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.88*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*64*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*5*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								*R*
v (veh/h)								*64*
C (m) (veh/h)								*650*
v/c								*0.10*
95% queue length								*0.33*
Control Delay (s/veh)								*11.1*
LOS								*B*
Approach Delay (s/veh)	--	--				*11.1*		
Approach LOS	--	--				*B*		

HCS+™ Version 5.4

Generated: 4/10/2013 4:04 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*S Br St & Page Ave/Boscome Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/17/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*							*2*			*2*	
Lane Group	*L*							*T*			*T*	
Volume, V (vph)	*394*							*959*			*723*	
% Heavy Vehicles, %HV	*2*							*2*			*3*	
Peak-Hour Factor, PHF	*0.86*							*0.96*			*0.92*	
Pretimed (P) or Actuated (A)	*P*							*P*			*P*	
Start-up Lost Time, l_1	*2.0*							*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*							*2.0*			*2.0*	
Arrival Type, AT	*3*							*3*			*3*	
Unit Extension, UE	*3.0*							*3.0*			*3.0*	
Filtering/Metering, I	*1.000*							*0.567*			*0.957*	
Initial Unmet Demand, Q_b	*0.0*							*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*		*0*	*0*		*0*	*0*	
Lane Width	*16.0*							*14.5*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*							*0*			*0*	
Min. Time for Pedestrians, G_p	*3.2*			*20.1*			*3.2*			*3.2*		

Phasing	EB Only	02	03	04	Thru Only	06	07	08
Timing	G = *30.0*	G =	G =	G =	G = *50.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*458*							*999*			*786*	
Lane Group Capacity, c	*669*							*2134*			*1951*	
v/c Ratio, X	*0.68*							*0.47*			*0.40*	
Total Green Ratio, g/C	*0.33*							*0.56*			*0.56*	
Uniform Delay, d_1	*25.9*							*12.0*			*11.5*	
Progression Factor, PF	*1.000*							*1.000*			*1.000*	
Delay Calibration, k	*0.50*							*0.50*			*0.50*	
Incremental Delay, d_2	*5.6*							*0.4*			*0.6*	

Initial Queue Delay, d_3	*0.0*							*0.0*			*0.0*	
Control Delay	*31.5*							*12.4*			*12.0*	
Lane Group LOS	*C*							*B*			*B*	
Approach Delay	*31.5*						*12.4*			*12.0*		
Approach LOS	*C*						*B*			*B*		
Intersection Delay	*16.2*			X_C = *0.55*			Intersection LOS			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/17/13633*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*KWVP WB OR UT & No Bridge St*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *KWVP WB Off-Ramp U-Turn* | North/South Street: *North Bridge Street*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*633*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.93*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*680*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*1*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*236*		
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.90*	*0.90*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*262*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*60*	*1*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*0*
Configuration				*L*		

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration			*L*					
v (veh/h)			*262*					
C (m) (veh/h)			*418*					
v/c			*0.63*					
95% queue length			*4.15*					
Control Delay (s/veh)			*27.0*					
LOS			*D*					
Approach Delay (s/veh)	--	--	*27.0*					
Approach LOS	--	--	*D*					

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Generated: 4/10/2013 4:05 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Bricktown/KWVP*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/23/13*	Jurisdiction	*Staten Island*
Time Period	*Saturday 12:45-1:45 PM MD Peak*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*	*0*	*1*	*2*	*0*	*0*	*2*	*0*	*1*	*1*	*0*
Lane Group	*L*	*TR*		*L*	*TR*			*LTR*		*L*	*TR*	
Volume, V (vph)	*176*	*318*	*221*	*273*	*443*	*102*	*266*	*705*	*293*	*243*	*140*	*160*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*3*	*3*	*3*	*1*	*1*	*1*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.93*	*0.93*	*0.93*	*0.96*	*0.78*	*0.78*	*0.90*	*0.90*	*0.90*	*0.84*	*0.84*	*0.84*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*		*2.0*	*2.0*			*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e	*2.0*	*2.0*		*3.0*	*3.0*			*2.0*		*2.0*	*2.0*	
Arrival Type, AT	*3*	*3*		*3*	*3*			*3*		*3*	*3*	
Unit Extension, UE	*3.0*	*3.0*		*3.0*	*3.0*			*3.0*		*3.0*	*3.0*	
Filtering/Metering, I	*0.700*	*0.700*		*0.903*	*0.903*			*1.000*		*0.855*	*0.855*	
Initial Unmet Demand, Q_b	*0.0*	*0.0*		*0.0*	*0.0*			*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*48*	*0*	*0*	*11*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*11.0*	*12.0*		*10.0*	*12.0*			*12.5*		*11.0*	*10.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*		*0*	*0*			*0*		*0*	*0*	
Min. Time for Pedestrians, G_p	*34.6*			*18.6*			*20.3*			*16.1*		

Phasing	EW Perm	02	03	04	NB Only	SB Only	07	08
Timing	G = *30.0*	G =	G =	G =	G = *25.0*	G = *20.0*	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y = *5*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*189*	*528*		*284*	*685*			*1405*		*289*	*357*	
Lane Group Capacity, c	*160*	*594*		*97*	*1179*			*966*		*384*	*359*	
v/c Ratio, X	*1.18*	*0.89*		*2.93*	*0.58*			*1.45*		*0.75*	*0.99*	
Total Green Ratio, g/C	*0.33*	*0.33*		*0.34*	*0.34*			*0.28*		*0.22*	*0.22*	
Uniform Delay, d_1	*30.0*	*28.4*		*29.5*	*24.2*			*32.5*		*32.7*	*34.9*	
Progression Factor, PF	*1.000*	*1.000*		*1.000*	*1.000*			*1.000*		*1.000*	*1.000*	
Delay Calibration, k	*0.50*	*0.50*		*0.50*	*0.50*			*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2	*117.3*	*13.4*		*892.3*	*1.9*			*210.3*		*11.1*	*42.6*	

Initial Queue Delay, d_3	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Control Delay	147.3	41.8		921.8	26.1			242.8		43.8	77.5	
Lane Group LOS	F	D		F	C			F		D	E	
Approach Delay	69.6			288.6			242.8			62.4		
Approach LOS	E			F			F			E		
Intersection Delay	190.3			X_C = 1.93			Intersection LOS			F		

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*10/24/2012*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*Bricktown Way/Tyrellan Avenue*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Bricktown Way* | North/South Street: *Tyrellan Avenue*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*138*	*265*	*59*	*111*	*258*	*128*
%Thrus Left Lane	*50*			*50*		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*61*	*59*	*95*	*111*	*269*	*83*
%Thrus Left Lane				*50*		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*LT*	*TR*	*LT*	*TR*	*LT*	*R*	*LT*	*TR*
PHF	*0.85*	*0.85*	*0.91*	*0.91*	*0.89*	*0.89*	*0.92*	*0.92*
Flow Rate (veh/h)	*317*	*225*	*262*	*281*	*134*	*106*	*265*	*236*
% Heavy Vehicles	*0*	*0*	*0*	*1*	*1*	*1*	*0*	*0*
No. Lanes	*2*		*2*		*2*		*2*	
Geometry Group	*5*		*5*		*5*		*5*	
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	*0.5*	*0.0*	*0.5*	*0.0*	*0.5*	*0.0*	*0.5*	*0.0*
Prop. Right-Turns	*0.0*	*0.3*	*0.0*	*0.5*	*0.0*	*1.0*	*0.0*	*0.4*
Prop. Heavy Vehicle	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
hLT-adj	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*
hRT-adj	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*
hadj, computed	*0.3*	*-0.2*	*0.2*	*-0.3*	*0.3*	*-0.7*	*0.2*	*-0.3*

Departure Headway and Service Time

hd, initial value (s)	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*
x, initial	*0.28*	*0.20*	*0.23*	*0.25*	*0.12*	*0.09*	*0.24*	*0.21*
hd, final value (s)	*8.21*	*7.74*	*8.20*	*7.64*	*8.92*	*7.97*	*8.33*	*7.84*
x, final value	*0.72*	*0.48*	*0.60*	*0.60*	*0.33*	*0.23*	*0.61*	*0.51*
Move-up time, m (s)	*2.3*		*2.3*		*2.3*		*2.3*	
Service Time, t_s (s)	*5.9*	*5.4*	*5.9*	*5.3*	*6.6*	*5.7*	*6.0*	*5.5*

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*433*	*456*	*432*	*463*	*384*	*356*	*424*	*449*
Delay (s/veh)	*29.53*	*17.47*	*22.33*	*21.00*	*16.00*	*13.09*	*23.37*	*18.53*
LOS	*D*	*C*	*C*	*C*	*C*	*B*	*C*	*C*
Approach: Delay (s/veh)	*24.52*		*21.64*		*14.71*		*21.09*	
LOS	*C*		*C*		*B*		*C*	
Intersection Delay (s/veh)	*21.44*							
Intersection LOS	*C*							

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/23/13*	Jurisdiction	*SFR NB-DefL = 2050*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*
Lane Group		*LTR*		*DefL*	*TR*		*DefL*	*TR*			*LTR*	
Volume, V (vph)	*82*	*139*	*593*	*165*	*339*	*25*	*322*	*269*	*115*	*26*	*834*	*168*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*1*	*1*	*1*	*1*	*1*	*1*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.78*	*0.78*	*0.78*	*0.94*	*0.91*	*0.91*	*0.93*	*0.93*	*0.93*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*		*3*	*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.830*		*0.865*	*0.865*		*1.000*	*1.000*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*		*12.0*	*12.0*		*13.0*	*13.0*			*9.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*		*0*	*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*18.6*			*16.6*			*20.1*			*19.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*885*		*212*	*467*		*343*	*422*			*1106*	
Lane Group Capacity, c		*1182*		*186*	*828*		*128*	*825*			*1346*	
v/c Ratio, X		*0.75*		*1.14*	*0.56*		*2.68*	*0.51*			*0.82*	
Total Green Ratio, g/C		*0.44*		*0.44*	*0.44*		*0.44*	*0.44*			*0.44*	
Uniform Delay, d_1		*20.8*		*25.0*	*18.5*		*25.0*	*18.0*			*21.9*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*		*0.50*	*0.50*			*0.50*	

Incremental Delay, d_2		3.6		104.1	2.4		777.7	2.3			5.8	
Initial Queue Delay, d_3		0.0		0.0	0.0		0.0	0.0			0.0	
Control Delay		24.5		129.1	20.9		802.7	20.2			27.6	
Lane Group LOS		C		F	C		F	C			C	
Approach Delay	24.5			54.7			371.1			27.6		
Approach LOS	C			D			F			C		
Intersection Delay	108.7			X_C = 1.92			Intersection LOS			F		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Boscombe Ave & OBX Off-Ramp*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/17/13*	Jurisdiction	*Sat Flw Rate EB-L = 2100*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*			*1*	*1*				*2*		*1*
Lane Group	*L*	*T*			*T*	*R*				*L*		*R*
Volume, V (vph)	*881*	*472*			*508*	*1077*				*233*		*216*
% Heavy Vehicles, %HV	*1*	*1*			*1*	*1*				*1*		*1*
Peak-Hour Factor, PHF	*0.97*	*0.96*			*0.94*	*0.97*				*0.92*		*0.92*
Pretimed (P) or Actuated (A)	*P*	*P*			*P*	*P*				*P*		*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*	*2.0*				*2.0*		*2.0*
Extension of Effective Green, e	*3.0*	*2.0*			*2.0*	*2.0*				*2.0*		*2.0*
Arrival Type, AT	*3*	*3*			*3*	*3*				*3*		*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*	*3.0*				*3.0*		*3.0*
Filtering/Metering, I	*0.508*	*0.508*			*0.176*	*0.176*				*1.000*		*1.000*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*	*0.0*				*0.0*		*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*119*	*0*	*0*		*0*	*0*	*0*
Lane Width	*11.0*	*12.0*			*12.0*	*12.0*				*10.0*		*10.0*
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B	*0*	*0*			*0*	*0*				*0*		*0*
Min. Time for Pedestrians, G_p	*14.6*			*24.6*			*3.2*			*20.1*		

Phasing	EB Only	EW Perm	03	04	SB Only	06	07	08
Timing	G = *37.0*	G = *22.0*	G =	G =	G = *16.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*908*	*492*			*540*	*988*				*253*		*235*
Lane Group Capacity, c	*895*	*1170*			*460*	*391*				*576*		*962*
v/c Ratio, X	*1.01*	*0.42*			*1.17*	*2.53*				*0.44*		*0.24*
Total Green Ratio, g/C	*0.72*	*0.71*			*0.24*	*0.24*				*0.18*		*0.64*
Uniform Delay, d_1	*21.4*	*5.4*			*34.0*	*34.0*				*33.0*		*6.8*
Progression Factor, PF	*1.000*	*1.000*			*1.000*	*1.000*				*1.000*		*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*	*0.50*				*0.50*		*0.50*
Incremental Delay, d_2	*25.1*	*0.6*			*82.7*	*688.4*				*2.4*		*0.6*

Initial Queue Delay, d_3	0.0	0.0			0.0	0.0				0.0		0.0
Control Delay	46.5	5.9			116.7	722.4				35.4		7.4
Lane Group LOS	D	A			F	F				D		A
Approach Delay	32.2			508.3						21.9		
Approach LOS	C			F						C		
Intersection Delay	243.7			X_C = 1.32			Intersection LOS			F		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Boscombe Ave & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/17/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*1*	*1*
Lane Group	*DefL*	*TR*			*LTR*			*LTR*			*LT*	*R*
Volume, V (vph)	*660*	*46*	*0*	*0*	*46*	*58*	*0*	*0*	*1*	*84*	*0*	*1539*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.96*	*0.96*	*0.96*	*0.91*	*0.91*	*0.91*	*0.90*	*0.90*	*0.90*	*0.93*	*0.93*	*0.93*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*			*2.0*			*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*			*2.0*			*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*			*3*			*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*			*3.0*			*3.0*	*3.0*
Filtering/Metering, I	*0.967*	*0.967*			*1.000*			*1.000*			*0.855*	*0.855*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*			*0.0*			*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*14*	*0*	*0*	*0*	*0*	*0*	*398*
Lane Width	*16.0*	*16.0*			*11.5*			*12.0*			*12.0*	*12.0*
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*			*0*			*0*			*0*	*0*
Min. Time for Pedestrians, G_p	*20.3*			*17.5*			*20.3*			*20.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*688*	*48*			*99*			*1*			*90*	*1227*
Lane Group Capacity, c	*736*	*1066*			*1633*			*1184*			*544*	*622*
v/c Ratio, X	*0.93*	*0.05*			*0.06*			*0.00*			*0.17*	*1.97*
Total Green Ratio, g/C	*0.50*	*0.50*			*0.50*			*0.39*			*0.39*	*0.39*
Uniform Delay, d_1	*21.1*	*11.5*			*11.6*			*16.8*			*18.0*	*27.5*
Progression Factor, PF	*1.000*	*1.000*			*1.000*			*1.000*			*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*			*0.50*			*0.50*	*0.50*

Incremental Delay, d_2	*20.1*	*0.1*			*0.1*			*0.0*			*0.6*	*442.7*
Initial Queue Delay, d_3	*0.0*	*0.0*			*0.0*			*0.0*			*0.0*	*0.0*
Control Delay	*41.2*	*11.6*			*11.7*			*16.8*			*18.5*	*470.2*
Lane Group LOS	*D*	*B*			*B*			*B*			*B*	*F*
Approach Delay	*39.3*				*11.7*			*16.8*			*439.3*	
Approach LOS	*D*				*B*			*B*			*F*	
Intersection Delay	*282.7*				X_C *= 1.39*			Intersection LOS			*F*	

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Bricktown Ctr Rd @ Vets Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/23/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*				*0*	*2*			*2*	*0*
Lane Group	*L*		*R*					*LT*			*TR*	
Volume, V (vph)	*436*		*36*				*5*	*275*			*494*	*684*
% Heavy Vehicles, %HV	*3*		*3*				*1*	*1*			*1*	*1*
Peak-Hour Factor, PHF	*0.85*		*0.85*				*0.88*	*0.88*			*0.89*	*0.89*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*					*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*					*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*					*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*					*3.0*			*3.0*	
Filtering/Metering, I	*0.892*		*0.892*					*0.995*			*0.487*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*					*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*9*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width	*13.0*		*12.0*					*11.5*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*					*0*			*0*	
Min. Time for Pedestrians, G_p	*21.8*			*20.3*			*3.2*			*19.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *19.0*	G =	G =	G =	G = *31.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*513*		*32*					*319*			*1324*	
Lane Group Capacity, c	*573*		*497*					*1695*			*1915*	
v/c Ratio, X	*0.90*		*0.06*					*0.19*			*0.69*	
Total Green Ratio, g/C	*0.32*		*0.32*					*0.52*			*0.52*	
Uniform Delay, d_1	*19.6*		*14.3*					*7.8*			*10.9*	
Progression Factor, PF	*1.000*		*1.000*					*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*					*0.50*			*0.50*	
Incremental Delay, d_2	*17.5*		*0.2*					*0.2*			*1.0*	

Initial Queue Delay, d_3	*0.0*		*0.0*					*0.0*			*0.0*	
Control Delay	*37.0*		*14.5*					*8.0*			*11.9*	
Lane Group LOS	*D*		*B*					*A*			*B*	
Approach Delay	*35.7*						*8.0*			*11.9*		
Approach LOS	*D*						*A*			*B*		
Intersection Delay	*17.3*			X_C = *0.77*			Intersection LOS			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/23/13*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*Englewood Ave & Vets Rd W RT*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* | North/South Street: *Veterans Rd W Right Turn Bay*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*93*				
Peak-Hour Factor, PHF	*1.00*	*0.75*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*124*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*T*				
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*706*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.88*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*802*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					*R*			
v (veh/h)					*802*			
C (m) (veh/h)					*932*			
v/c					*0.86*			
95% queue length					*11.03*			
Control Delay (s/veh)					*27.3*			
LOS					*D*			
Approach Delay (s/veh)	--	--	*27.3*					
Approach LOS	--	--	*D*					

HCS+™ Version 5.4

Generated: 4/10/2013 4:07 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Ave @ Veterans Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*1*	*1*		*1*			*0*	*3*	*0*
Lane Group		*TR*		*L*	*T*		*L*				*LTR*	
Volume, V (vph)		*65*	*0*	*728*	*89*		*5*			*28*	*451*	*37*
% Heavy Vehicles, %HV		*1*	*1*	*2*	*2*		*0*			*2*	*2*	*2*
Peak-Hour Factor, PHF		*0.75*	*0.25*	*0.91*	*0.91*		*0.88*			*0.89*	*0.89*	*0.89*
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*			*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Arrival Type, AT		*3*		*3*	*3*		*3*				*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*		*3.0*				*3.0*	
Filtering/Metering, I		*1.000*		*0.971*	*0.971*		*0.951*				*1.000*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*12.0*		*13.0*	*13.0*		*10.0*				*11.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*		*0*	*0*		*0*				*0*	
Min. Time for Pedestrians, G_p	*31.2*			*3.2*			*18.1*			*11.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*87*		*800*	*98*		*6*				*580*	
Lane Group Capacity, c		*784*		*562*	*802*		*283*				*2016*	
v/c Ratio, X		*0.11*		*1.42*	*0.12*		*0.02*				*0.29*	
Total Green Ratio, g/C		*0.42*		*0.42*	*0.42*		*0.42*				*0.42*	
Uniform Delay, d_1		*10.7*		*17.5*	*10.8*		*10.3*				*11.6*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*		*1.000*				*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*		*0.50*				*0.50*	
Incremental Delay, d_2		*0.3*		*200.5*	*0.3*		*0.1*				*0.4*	

Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Control Delay		*11.0*		*218.0*	*11.1*		*10.4*				*12.0*	
Lane Group LOS		*B*		*F*	*B*		*B*				*B*	
Approach Delay	*11.0*			*195.4*			*10.4*			*12.0*		
Approach LOS	*B*			*F*			*B*			*B*		
Intersection Delay	*116.8*			X_C = *0.86*			Intersection LOS			*F*		

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/28/13*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*Sharrotts Rd & Veterans Rd W*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Sharrotts Road* North/South Street: *Veterans Road West*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*77*	*36*	*350*	*60*	*0*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*0*	*17*	*130*	*13*
%Thrus Left Lane				*50*		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*TR*		*LT*				*LT*	*TR*
PHF	*0.75*		*0.85*				*0.89*	*0.89*
Flow Rate (veh/h)	*150*		*481*				*92*	*87*
% Heavy Vehicles	*2*		*4*				*0*	*0*
No. Lanes	*1*		*1*		*0*		*2*	
Geometry Group	*2*		*2*				*1*	
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	*0.0*		*0.9*				*0.2*	*0.0*
Prop. Right-Turns	*0.3*		*0.0*				*0.0*	*0.2*
Prop. Heavy Vehicle	*0.0*		*0.0*				*0.0*	*0.0*
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*			*0.2*	*0.2*
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*			*-0.6*	*-0.6*
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*			*1.7*	*1.7*
hadj, computed	*-0.2*		*0.2*				*0.0*	*-0.1*

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value (s)	*3.20*		*3.20*				*3.20*	*3.20*
x, initial	*0.13*		*0.43*				*0.08*	*0.08*
hd, final value (s)	*4.83*		*4.81*				*5.48*	*5.34*
x, final value	*0.20*		*0.64*				*0.14*	*0.13*
Move-up time, m (s)	*2.0*		*2.0*				*2.0*	
Service Time, t_s (s)	*2.8*		*2.8*				*3.5*	*3.3*

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*400*		*731*				*342*	*337*
Delay (s/veh)	*9.04*		*16.03*				*9.37*	*9.13*
LOS	*A*		*C*				*A*	*A*
Approach: Delay (s/veh)	*9.04*		*16.03*				*9.26*	
LOS	*A*		*C*				*A*	
Intersection Delay (s/veh)	*13.24*							
Intersection LOS	*B*							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*1/17/13*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*Sharrotts Rd @ Veterans Rd E*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Conditions*

Project ID *Charleston EIS*

East/West Street: *Sharrotts Road* North/South Street: *Veterans Road East*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*26*	*69*	*0*	*0*	*356*	*24*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*53*	*107*	*139*	*0*	*0*	*0*
%Thrus Left Lane	*50*					

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*LT*		*TR*		*LT*	*TR*		
PHF	*0.75*		*0.85*		*0.95*	*0.95*		
Flow Rate (veh/h)	*126*		*446*		*110*	*202*		
% Heavy Vehicles	*2*		*2*		*1*	*1*		
No. Lanes	*1*		*1*		*2*		*0*	
Geometry Group	*2*		*2*		*1*			
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	*0.3*		*0.0*		*0.5*	*0.0*		
Prop. Right-Turns	*0.0*		*0.1*		*0.0*	*0.7*		
Prop. Heavy Vehicle	*0.0*		*0.0*		*0.0*	*0.0*		
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*		
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*		
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*		
hadj, computed	*0.1*		*-0.0*		*0.1*	*-0.4*		

Departure Headway and Service Time

hd, initial value (s)	*3.20*		*3.20*		*3.20*	*3.20*		
x, initial	*0.11*		*0.40*		*0.10*	*0.18*		
hd, final value (s)	*5.36*		*4.84*		*5.46*	*4.92*		
x, final value	*0.19*		*0.60*		*0.17*	*0.28*		
Move-up time, m (s)	*2.0*		*2.0*		*2.0*			
Service Time, t_s (s)	*3.4*		*2.8*		*3.5*	*2.9*		

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*376*		*696*		*360*	*452*		
Delay (s/veh)	*9.59*		*14.84*		*9.55*	*9.79*		
LOS	*A*		*B*		*A*	*A*		
Approach: Delay (s/veh)	*9.59*		*14.84*		*9.70*			
LOS	*A*		*B*		*A*			
Intersection Delay (s/veh)	*12.28*							
Intersection LOS	*B*							

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Ave @ Vets Rd E*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/17/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*3*	*0*			
Lane Group		*LT*	*R*		*LTR*			*LTR*				
Volume, V (vph)	*218*	*367*	*213*	*0*	*88*	*15*	*730*	*66*	*3*			
% Heavy Vehicles, %HV	*1*	*1*	*1*	*0*	*0*	*0*	*2*	*2*	*2*			
Peak-Hour Factor, PHF	*0.75*	*0.75*	*0.75*	*0.83*	*0.83*	*0.83*	*0.93*	*0.93*	*0.93*			
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*			
Start-up Lost Time, l_1		*2.0*	*2.0*		*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*	*2.0*		*2.0*			*2.0*				
Arrival Type, AT		*3*	*3*		*3*			*3*				
Unit Extension, UE		*3.0*	*3.0*		*3.0*			*3.0*				
Filtering/Metering, I		*0.997*	*0.997*		*0.993*			*0.967*				
Initial Unmet Demand, Q_b		*0.0*	*0.0*		*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*66*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width		*13.0*	*12.0*		*11.5*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B		*0*	*0*		*0*			*0*				
Min. Time for Pedestrians, G_p	*21.2*			*12.9*			*14.3*			*17.5*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *21.0*	G =	G =	G =	G = *29.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*780*	*196*		*124*			*859*				
Lane Group Capacity, c		*549*	*560*		*561*			*2266*				
v/c Ratio, X		*1.42*	*0.35*		*0.22*			*0.38*				
Total Green Ratio, g/C		*0.35*	*0.35*		*0.35*			*0.48*				
Uniform Delay, d_1		*19.5*	*14.4*		*13.7*			*9.8*				
Progression Factor, PF		*1.000*	*1.000*		*1.000*			*1.000*				
Delay Calibration, k		*0.50*	*0.50*		*0.50*			*0.50*				
Incremental Delay, d_2		*199.8*	*1.7*		*0.9*			*0.5*				

Initial Queue Delay, d_3		*0.0*	*0.0*		*0.0*			*0.0*				
Control Delay		*219.3*	*16.2*		*14.6*			*10.3*				
Lane Group LOS		*F*	*B*		*B*			*B*				
Approach Delay	*178.5*			*14.6*			*10.3*					
Approach LOS	*F*			*B*			*B*					
Intersection Delay	*94.4*			X_C = *0.82*			Intersection LOS			*F*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Av & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/17/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*314*		*56*				*17*	*404*			*384*	*85*
% Heavy Vehicles, %HV	*1*		*1*				*1*	*1*			*1*	*1*
Peak-Hour Factor, PHF	*0.92*		*0.92*				*0.92*	*0.92*			*0.91*	*0.91*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.937*						*0.937*			*0.937*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*16.0*						*14.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B		*0*						*0*			*0*	
Min. Time for Pedestrians, G_p	*14.9*			*15.5*			*3.2*			*17.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*402*						*457*			*515*	
Lane Group Capacity, c		*467*						*1110*			*1179*	
v/c Ratio, X		*0.86*						*0.41*			*0.44*	
Total Green Ratio, g/C		*0.27*						*0.57*			*0.57*	
Uniform Delay, d_1		*20.9*						*7.3*			*7.5*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*17.5*						*1.1*			*1.1*	

Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	
Control Delay		*38.4*						*8.4*			*8.6*	
Lane Group LOS		*D*						*A*			*A*	
Approach Delay	*38.4*						*8.4*			*8.6*		
Approach LOS	*D*						*A*			*A*		
Intersection Delay	*17.3*			X_C = *0.57*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Sharrotts Rd & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/17/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*142*		*67*				*43*	*611*			*412*	*337*
% Heavy Vehicles, %HV	*1*		*1*				*1*	*1*			*1*	*1*
Peak-Hour Factor, PHF	*0.75*		*0.75*				*0.92*	*0.92*			*0.91*	*0.91*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.932*						*0.850*			*0.905*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*20*
Lane Width		*16.0*						*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*0*			*0*	
Min. Time for Pedestrians, G_p	*18.6*			*18.6*			*3.2*			*16.6*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*278*						*711*			*801*	
Lane Group Capacity, c		*575*						*781*			*1004*	
v/c Ratio, X		*0.48*						*0.91*			*0.80*	
Total Green Ratio, g/C		*0.33*						*0.50*			*0.50*	
Uniform Delay, d_1		*15.9*						*13.8*			*12.5*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*2.7*						*14.6*			*6.0*	

Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	
Control Delay		*18.6*						*28.4*			*18.5*	
Lane Group LOS		*B*						*C*			*B*	
Approach Delay	*18.6*						*28.4*			*18.5*		
Approach LOS	*B*						*C*			*B*		
Intersection Delay	*22.4*			X_C = *0.74*			Intersection LOS			*C*		

 HCS+™ Version 5.4 Generated: 4/10/2013 4:09 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Vets Rd E & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/17/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*	*0*	*3*	*0*	*1*	*1*			*1*	*0*
Lane Group	*L*		*R*		*LTR*		*L*	*T*			*TR*	
Volume, V (vph)	*19*		*194*	*302*	*628*	*173*	*153*	*229*			*422*	*17*
% Heavy Vehicles, %HV	*1*		*1*	*2*	*2*	*2*	*2*	*2*			*1*	*1*
Peak-Hour Factor, PHF	*0.71*		*0.71*	*0.87*	*0.87*	*0.87*	*0.92*	*0.92*			*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*		*P*	*P*	*P*	*P*	*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*		*3*		*3*	*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*		*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I	*0.717*		*0.717*		*0.483*		*0.917*	*0.917*			*0.747*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Lane Width	*10.0*		*13.0*		*11.0*		*12.0*	*12.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*		*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*17.2*			*16.9*			*3.2*			*20.9*		

Phasing	EB Only	WB Only	03	04	NS Perm	06	07	08
Timing	G = *8.0*	G = *17.0*	G =	G =	G = *20.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*27*		*273*		*1268*		*166*	*249*			*488*	
Lane Group Capacity, c	*222*		*220*		*1339*		*138*	*621*			*707*	
v/c Ratio, X	*0.12*		*1.24*		*0.95*		*1.20*	*0.40*			*0.69*	
Total Green Ratio, g/C	*0.13*		*0.13*		*0.28*		*0.33*	*0.33*			*0.33*	
Uniform Delay, d_1	*22.9*		*26.0*		*21.1*		*20.0*	*15.4*			*17.3*	
Progression Factor, PF	*1.000*		*1.000*		*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*		*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2	*0.8*		*133.0*		*8.5*		*138.2*	*1.8*			*4.1*	

Initial Queue Delay, d_3	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay	*23.7*		*159.0*		*29.6*		*158.2*	*17.2*			*21.4*	
Lane Group LOS	*C*		*F*		*C*		*F*	*B*			*C*	
Approach Delay	*146.9*			*29.6*			*73.6*			*21.4*		
Approach LOS	*F*			*C*			*E*			*C*		
Intersection Delay	*49.6*			X_C *= 1.11*			Intersection LOS			*D*		

 HCS+™ Version 5.4 Generated: 4/10/2013 4:09 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*S Service Rd & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/17/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*				*0*	*1*	*0*	*1*	*1*	*0*
Lane Group		*LTR*						*LTR*		*L*	*TR*	
Volume, V (vph)	*31*	*33*	*5*				*3*	*350*	*153*	*327*	*542*	*47*
% Heavy Vehicles, %HV	*2*	*2*	*2*				*2*	*2*	*2*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.76*	*0.76*	*0.76*				*0.92*	*0.92*	*0.92*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*				*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*		*2.0*	*2.0*	
Arrival Type, AT		*3*						*3*		*3*	*3*	
Unit Extension, UE		*3.0*						*3.0*		*3.0*	*3.0*	
Filtering/Metering, I		*1.000*						*0.899*		*0.644*	*0.644*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*11*
Lane Width		*13.0*						*16.0*		*12.0*	*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*0*		*0*	*0*	
Min. Time for Pedestrians, G_p	*17.5*			*16.9*			*12.6*			*12.9*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *17.0*	G =	G =	G =	G = *33.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*91*						*549*		*363*	*642*	
Lane Group Capacity, c		*462*						*972*		*445*	*1025*	
v/c Ratio, X		*0.20*						*0.56*		*0.82*	*0.63*	
Total Green Ratio, g/C		*0.28*						*0.55*		*0.55*	*0.55*	
Uniform Delay, d_1		*16.3*						*8.8*		*11.0*	*9.3*	
Progression Factor, PF		*1.000*						*1.000*		*1.000*	*1.000*	
Delay Calibration, k		*0.50*						*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2		*1.0*						*2.1*		*10.3*	*1.9*	

Initial Queue Delay, d_3		*0.0*						*0.0*		*0.0*	*0.0*	
Control Delay		*17.3*						*11.0*		*21.3*	*11.1*	
Lane Group LOS		*B*						*B*		*C*	*B*	
Approach Delay	*17.3*						*11.0*			*14.8*		
Approach LOS	*B*						*B*			*B*		
Intersection Delay	*13.7*			X_C = *0.61*			Intersection LOS			*B*		

 HCS+™ Version 5.4 Generated: 4/10/2013 4:10 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Amboy Rd & Bloomingdale Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/17/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*1*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*		*L*	*T*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*8*	*8*	*18*	*294*	*18*	*106*	*13*	*350*	*242*	*86*	*447*	*8*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*1*	*1*	*1*	*0*	*0*	*0*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.84*	*0.84*	*0.84*	*0.90*	*0.90*	*0.90*	*0.92*	*0.92*	*0.92*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*		*3*	*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*		*0.887*	*0.887*	*0.887*		*0.516*			*0.500*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*50*	*0*	*0*	*0*	*0*	*0*	*50*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*		*12.0*	*11.0*	*11.0*		*11.0*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*		*0*	*0*	*0*		*0*			*0*	
Min. Time for Pedestrians, G_p	*11.5*			*11.8*			*18.9*			*18.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*					Cycle Length, C = *90.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*41*		*327*	*20*	*118*		*657*			*602*	
Lane Group Capacity, c		*631*		*578*	*808*	*601*		*743*			*605*	
v/c Ratio, X		*0.06*		*0.57*	*0.02*	*0.20*		*0.88*			*1.00*	
Total Green Ratio, g/C		*0.44*		*0.44*	*0.44*	*0.44*		*0.44*			*0.44*	
Uniform Delay, d_1		*14.3*		*18.6*	*14.0*	*15.2*		*22.9*			*24.9*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*	*0.50*		*0.50*			*0.50*	

Incremental Delay, d_2		0.2		3.5	0.1	0.6		8.2			24.7	
Initial Queue Delay, d_3		0.0		0.0	0.0	0.0		0.0			0.0	
Control Delay		14.5		22.1	14.1	15.9		31.1			49.6	
Lane Group LOS		B		C	B	B		C			D	
Approach Delay	14.5			20.2			31.1			49.6		
Approach LOS	B			C			C			D		
Intersection Delay	34.2			X_C = 0.78			Intersection LOS			C		

 HCS+™ Version 5.4 Generated: 4/10/2013 4:11 PM

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Arthur Kill Rd & Bloomingdl Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*3/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*0*	*1*		*0*		*0*			
Lane Group		*TR*			*LT*			*LR*				
Volume, V (vph)		*229*	*240*	*283*	*234*		*160*		*233*			
% Heavy Vehicles, %HV		*2*	*2*	*4*	*4*		*1*		*1*			
Peak-Hour Factor, PHF		*0.78*	*0.78*	*0.89*	*0.89*		*0.85*		*0.85*			
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*		*P*			
Start-up Lost Time, l_1		*2.0*			*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*			*2.0*			*2.0*				
Arrival Type, AT		*3*			*3*			*3*				
Unit Extension, UE		*3.0*			*3.0*			*3.0*				
Filtering/Metering, I		*0.927*			*0.992*			*0.953*				
Initial Unmet Demand, Q_b		*0.0*			*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*56*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	
Lane Width		*16.0*			*16.0*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m									*5*			
Buses Stopping, N_B		*2*			*0*			*0*				
Min. Time for Pedestrians, G_p	*18.3*			*3.2*			*15.2*			*17.2*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*530*			*581*			*462*				
Lane Group Capacity, c		*984*			*435*			*558*				
v/c Ratio, X		*0.54*			*1.34*			*0.83*				
Total Green Ratio, g/C		*0.50*			*0.50*			*0.39*				
Uniform Delay, d_1		*15.4*			*22.5*			*24.8*				
Progression Factor, PF		*1.000*			*1.000*			*1.000*				
Delay Calibration, k		*0.50*			*0.50*			*0.50*				
Incremental Delay, d_2		*2.0*			*165.9*			*12.7*				

Initial Queue Delay, d_3		*0.0*			*0.0*			*0.0*				
Control Delay		*17.4*			*188.4*			*37.5*				
Lane Group LOS		*B*			*F*			*D*				
Approach Delay	*17.4*			*188.4*			*37.5*					
Approach LOS	*B*			*F*			*D*					
Intersection Delay	*86.4*			X_C = *1.11*			Intersection LOS			*F*		

 HCS+™ Version 5.4 Generated: 4/10/2013 4:11 PM

Mitigation

2015

Weekday

AM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Rch Valley Rd & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*04/02/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2015 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*	*0*	*1*	*1*	
Lane Group					*LR*			*TR*		*L*	*T*	
Volume, V (vph)				*58*		*133*		*494*	*72*	*88*	*318*	
% Heavy Vehicles, %HV				*3*		*3*		*11*	*11*	*9*	*9*	
Peak-Hour Factor, PHF				*0.93*		*0.93*		*0.85*	*0.85*	*0.87*	*0.87*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*	*P*	*P*	*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*		*2.0*	*2.0*	
Arrival Type, AT					*3*			*3*		*3*	*3*	
Unit Extension, UE					*3.0*			*3.0*		*3.0*	*3.0*	
Filtering/Metering, I					*0.980*			*0.769*		*0.842*	*0.842*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width					*12.0*			*15.0*		*10.0*	*10.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B					*0*			*4*		*0*	*3*	
Min. Time for Pedestrians, G_p	*11.8*			*11.8*			*14.1*			*3.2*		

Phasing	WB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*205*			*666*		*101*	*366*	
Lane Group Capacity, c					*384*			*1032*		*293*	*911*	
v/c Ratio, X					*0.53*			*0.65*		*0.34*	*0.40*	
Total Green Ratio, g/C					*0.27*			*0.57*		*0.57*	*0.57*	
Uniform Delay, d_1					*18.8*			*8.9*		*7.0*	*7.3*	
Progression Factor, PF					*1.000*			*1.000*		*1.000*	*1.000*	
Delay Calibration, k					*0.50*			*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2					*5.1*			*2.4*		*2.7*	*1.1*	
Initial Queue Delay, d_3					*0.0*			*0.0*		*0.0*	*0.0*	

Control Delay					23.9			11.3		9.7	8.4	
Lane Group LOS					C			B		A	A	
Approach Delay				23.9			11.3			8.7		
Approach LOS				C			B			A		
Intersection Delay	12.3			X_c = 0.61			Intersection LOS			B		

 HCS+™ Version 5.4 Generated: 4/10/2013 2:26 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Amboy Rd & Bloomingdale Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/29/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2015 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*1*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*		*L*	*T*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*7*	*20*	*12*	*166*	*16*	*101*	*9*	*176*	*127*	*134*	*297*	*8*
% Heavy Vehicles, %HV	*3*	*3*	*3*	*5*	*5*	*5*	*7*	*7*	*7*	*7*	*7*	*7*
Peak-Hour Factor, PHF	*0.68*	*0.68*	*0.68*	*0.88*	*0.88*	*0.88*	*0.90*	*0.90*	*0.90*	*0.76*	*0.76*	*0.76*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*		*3*	*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*		*0.966*	*0.966*	*0.966*		*0.850*			*0.090*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*50*	*0*	*0*	*0*	*0*	*0*	*50*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*		*12.0*	*11.0*	*11.0*		*11.0*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*2*		*0*	*0*	*2*		*0*			*0*	
Min. Time for Pedestrians, G_p	*11.5*			*11.8*			*18.9*			*18.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *39.0*	G =	G =	G =	G = *41.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*57*		*189*	*18*	*115*		*347*			*578*	
Lane Group Capacity, c		*635*		*534*	*758*	*559*		*710*			*575*	
v/c Ratio, X		*0.09*		*0.35*	*0.02*	*0.21*		*0.49*			*1.01*	
Total Green Ratio, g/C		*0.43*		*0.43*	*0.43*	*0.43*		*0.46*			*0.46*	
Uniform Delay, d_1		*15.0*		*17.1*	*14.6*	*15.9*		*17.2*			*24.5*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*	*0.50*		*0.50*			*0.50*	
Incremental Delay, d_2		*0.3*		*1.8*	*0.1*	*0.8*		*2.0*			*12.5*	

Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Control Delay		*15.3*		*18.8*	*14.7*	*16.7*		*19.2*			*37.0*	
Lane Group LOS		*B*		*B*	*B*	*B*		*B*			*D*	
Approach Delay	*15.3*			*17.8*			*19.2*			*37.0*		
Approach LOS	*B*			*B*			*B*			*D*		
Intersection Delay	*26.6*			X_C = *0.69*			Intersection LOS			*C*		

Weekday

Midday

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Rch Valley Rd & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/2/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*	*0*	*1*	*1*	
Lane Group					*LR*			*TR*		*L*	*T*	
Volume, V (vph)				*97*		*178*		*436*	*77*	*169*	*433*	
% Heavy Vehicles, %HV				*3*		*3*		*8*	*8*	*6*	*6*	
Peak-Hour Factor, PHF				*0.87*		*0.87*		*0.92*	*0.92*	*0.86*	*0.86*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*	*P*	*P*	*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*		*2.0*	*2.0*	
Arrival Type, AT					*3*			*3*		*3*	*3*	
Unit Extension, UE					*3.0*			*3.0*		*3.0*	*3.0*	
Filtering/Metering, I					*0.944*			*0.880*		*0.500*	*0.500*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width					*12.0*			*15.0*		*10.0*	*10.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B					*0*			*4*		*0*	*4*	
Min. Time for Pedestrians, G_p	*11.8*			*11.8*			*14.1*			*3.2*		

Phasing	WB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*316*			*558*		*197*	*503*	
Lane Group Capacity, c					*386*			*1057*		*354*	*933*	
v/c Ratio, X					*0.82*			*0.53*		*0.56*	*0.54*	
Total Green Ratio, g/C					*0.27*			*0.57*		*0.57*	*0.57*	
Uniform Delay, d_1					*20.6*			*8.0*		*8.2*	*8.1*	
Progression Factor, PF					*1.000*			*1.000*		*1.000*	*1.000*	
Delay Calibration, k					*0.50*			*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2					*16.5*			*1.7*		*3.1*	*1.1*	
Initial Queue Delay, d_3					*0.0*			*0.0*		*0.0*	*0.0*	

Control Delay					37.2			9.7		11.4	9.2	
Lane Group LOS					D			A		B	A	
Approach Delay				37.2			9.7			9.8		
Approach LOS				D			A			A		
Intersection Delay	15.3			X_c = 0.64			Intersection LOS			B		

 HCS+™ Version 5.4 Generated: 4/10/2013 2:31 PM

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Veterans Rd W & Bricktown/KWVP*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/4/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*	*0*	*1*	*2*	*0*	*0*	*2*	*0*	*1*	*1*	*0*
Lane Group	*L*	*TR*		*L*	*TR*			*LTR*		*L*	*TR*	
Volume, V (vph)	*147*	*144*	*135*	*187*	*462*	*55*	*86*	*337*	*305*	*48*	*58*	*88*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*6*	*6*	*6*	*4*	*4*	*4*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.84*	*0.84*	*0.84*	*0.90*	*0.90*	*0.90*	*0.93*	*0.93*	*0.93*	*0.80*	*0.80*	*0.80*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*		*2.0*	*2.0*			*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e	*2.0*	*2.0*		*2.0*	*2.0*			*2.0*		*2.0*	*2.0*	
Arrival Type, AT	*3*	*3*		*3*	*3*			*3*		*3*	*3*	
Unit Extension, UE	*3.0*	*3.0*		*3.0*	*3.0*			*3.0*		*3.0*	*3.0*	
Filtering/Metering, I	*0.856*	*0.856*		*0.927*	*0.927*			*1.000*		*0.985*	*0.985*	
Initial Unmet Demand, Q_b	*0.0*	*0.0*		*0.0*	*0.0*			*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*32*	*0*	*0*	*13*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*11.0*	*12.0*		*10.0*	*12.0*			*12.5*		*11.0*	*10.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*		*0*	*0*			*0*		*0*	*0*	
Min. Time for Pedestrians, G_p	*34.6*			*18.6*			*20.3*			*16.1*		

Phasing	EW Perm	02	03	04	NB Only	SB Only	07	08
Timing	G = *32.0*	G =	G =	G =	G = *25.0*	G = *18.0*	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y = *5*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*175*	*294*		*208*	*560*			*782*		*60*	*182*	
Lane Group Capacity, c	*230*	*627*		*277*	*1198*			*915*		*342*	*316*	
v/c Ratio, X	*0.76*	*0.47*		*0.75*	*0.47*			*0.85*		*0.18*	*0.58*	
Total Green Ratio, g/C	*0.36*	*0.36*		*0.36*	*0.36*			*0.28*		*0.20*	*0.20*	
Uniform Delay, d_1	*25.6*	*22.4*		*25.5*	*22.4*			*30.8*		*29.8*	*32.5*	
Progression Factor, PF	*1.000*	*1.000*		*1.000*	*1.000*			*1.000*		*1.000*	*1.000*	
Delay Calibration, k	*0.50*	*0.50*		*0.50*	*0.50*			*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2	*18.2*	*2.2*		*15.9*	*1.2*			*10.0*		*1.1*	*7.3*	

Initial Queue Delay, d_3	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Control Delay	43.8	24.6		41.4	23.6			40.8		30.9	39.9	
Lane Group LOS	D	C		D	C			D		C	D	
Approach Delay	31.8			28.4			40.8			37.7		
Approach LOS	C			C			D			D		
Intersection Delay	34.4			X_C = 0.75			Intersection LOS			C		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/29/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*
Lane Group		*LTR*			*LTR*		*DefL*	*TR*			*LTR*	
Volume, V (vph)	*60*	*101*	*308*	*130*	*266*	*18*	*227*	*196*	*86*	*22*	*518*	*219*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*3*	*3*	*3*	*3*	*3*	*3*	*12*	*12*	*12*
Peak-Hour Factor, PHF	*0.84*	*0.84*	*0.84*	*0.90*	*0.90*	*0.90*	*0.87*	*0.87*	*0.87*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.889*			*0.932*		*1.000*	*1.000*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*			*12.0*		*13.0*	*13.0*			*9.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*			*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*18.6*			*16.6*			*20.1*			*19.8*		

Phasing	EW Perm	02	03	04	NS Perm	NB Only	07	08
Timing	G = *36.0*	G =	G =	G =	G = *34.0*	G = *5.0*	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y = *5*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*558*			*460*		*261*	*324*			*843*	
Lane Group Capacity, c		*1057*			*871*		*348*	*889*			*1004*	
v/c Ratio, X		*0.53*			*0.53*		*0.75*	*0.36*			*0.84*	
Total Green Ratio, g/C		*0.40*			*0.40*		*0.49*	*0.49*			*0.38*	
Uniform Delay, d_1		*20.5*			*20.5*		*30.5*	*14.3*			*25.5*	
Progression Factor, PF		*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2		*1.7*			*2.1*		*13.8*	*1.2*			*8.4*	

Initial Queue Delay, d_3		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay		*22.2*			*22.7*		*44.3*	*15.5*			*33.9*	
Lane Group LOS		*C*			*C*		*D*	*B*			*C*	
Approach Delay	*22.2*			*22.7*			*28.3*			*33.9*		
Approach LOS	*C*			*C*			*C*			*C*		
Intersection Delay	*27.8*			X_C *= 0.92*			Intersection LOS			*C*		

 HCS+™ Version 5.4 Generated: 4/10/2013 2:32 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Boscombe Ave & OBX Off-Ramp*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/4/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2015 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*1*	*1*	*1*
Lane Group	*L*	*TR*			*LT*	*R*		*LTR*		*L*	*LT*	*R*
Volume, V (vph)	*658*	*383*	*3*	*1*	*405*	*569*	*0*	*0*	*1*	*99*	*0*	*130*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*3*	*3*	*3*	*0*	*0*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*	*0.25*	*0.25*	*0.25*	*0.97*	*0.97*	*0.97*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*	*3*		*3*		*3*	*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*	*3.0*		*3.0*		*3.0*	*3.0*	*3.0*
Filtering/Metering, I	*0.735*	*0.735*			*0.546*	*0.546*		*1.000*		*1.000*	*1.000*	*1.000*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*	*0.0*		*0.0*		*0.0*	*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*85*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*11.0*	*12.0*			*12.0*	*12.0*		*16.0*		*10.0*	*11.0*	*10.0*
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B	*0*	*0*			*0*	*0*		*0*		*0*	*0*	*0*
Min. Time for Pedestrians, G_p	*14.6*			*24.6*			*20.9*			*20.1*		

Phasing	EB Only	EW Perm	WB Only	04	NS Perm	06	07	08
Timing	G = *35.0*	G = *14.0*	G = *11.0*	G =	G = *14.0*	G =	G =	G =
	Y = *3*	Y = *3*	Y = *5*	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*723*	*424*			*446*	*532*		*4*		*102*	*0*	*134*
Lane Group Capacity, c	*745*	*941*			*574*	*488*		*287*		*204*	*280*	*887*
v/c Ratio, X	*0.97*	*0.45*			*0.78*	*1.09*		*0.01*		*0.50*	*0.00*	*0.15*
Total Green Ratio, g/C	*0.58*	*0.58*			*0.31*	*0.31*		*0.16*		*0.16*	*0.16*	*0.60*
Uniform Delay, d_1	*20.6*	*10.8*			*28.2*	*31.0*		*32.2*		*34.8*	*32.1*	*7.9*
Progression Factor, PF	*1.000*	*1.000*			*1.000*	*1.000*		*1.000*		*1.000*	*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*	*0.50*		*0.50*		*0.50*	*0.50*	*0.50*
Incremental Delay, d_2	*22.0*	*1.1*			*5.6*	*57.7*		*0.1*		*8.5*	*0.0*	*0.4*

Initial Queue Delay, d_3	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Control Delay	42.6	12.0			33.8	88.7		32.2		43.3	32.1	8.3
Lane Group LOS	D	B			C	F		C		D	C	A
Approach Delay	31.3			63.7			32.2			23.4		
Approach LOS	C			E			C			C		
Intersection Delay	43.9			X_C = 0.94			Intersection LOS			D		

 HCS+™ Version 5.4 Generated: 4/10/2013 2:32 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Boscombe Ave & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/29/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Hour*	Analysis Year	*2015 MitiAction Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*1*	*1*
Lane Group	*DefL*	*TR*			*LTR*		*DefL*	*TR*			*LT*	*R*
Volume, V (vph)	*444*	*36*	*0*	*2*	*62*	*69*	*4*	*3*	*0*	*62*	*6*	*908*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*3*	*3*	*3*	*1*	*1*	*1*	*6*	*6*	*6*
Peak-Hour Factor, PHF	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*	*0.58*	*0.58*	*0.58*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*		*3*	*3*			*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	*3.0*
Filtering/Metering, I	*0.962*	*0.962*			*1.000*		*1.000*	*1.000*			*0.889*	*0.889*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*17*	*0*	*0*	*0*	*0*	*0*	*310*
Lane Width	*16.0*	*16.0*			*11.5*		*12.0*	*12.0*			*12.0*	*12.0*
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*			*0*		*0*	*0*			*0*	*0*
Min. Time for Pedestrians, G_p	*20.3*			*17.5*			*20.3*			*20.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *38.0*	G =	G =	G =	G = *42.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*488*	*40*			*127*		*7*	*5*			*76*	*664*
Lane Group Capacity, c	*599*	*891*			*1297*		*621*	*878*			*654*	*711*
v/c Ratio, X	*0.81*	*0.04*			*0.10*		*0.01*	*0.01*			*0.12*	*0.93*
Total Green Ratio, g/C	*0.42*	*0.42*			*0.42*		*0.47*	*0.47*			*0.47*	*0.47*
Uniform Delay, d_1	*22.9*	*15.3*			*15.7*		*12.9*	*12.8*			*13.5*	*22.7*
Progression Factor, PF	*1.000*	*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	*0.50*
Incremental Delay, d_2	*11.2*	*0.1*			*0.2*		*0.0*	*0.0*			*0.3*	*19.3*

Initial Queue Delay, d_3	0.0	0.0			0.0		0.0	0.0			0.0	0.0
Control Delay	34.1	15.4			15.8		12.9	12.8			13.9	42.0
Lane Group LOS	C	B			B		B	B			B	D
Approach Delay	32.7			15.8			12.9			39.1		
Approach LOS	C			B			B			D		
Intersection Delay	34.4			X_C = 0.88			Intersection LOS			C		

 HCS+™ Version 5.4 Generated: 4/10/2013 2:33 PM

Weekday

PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/2/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2015 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*			*LT*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*1*	*10*	*2*	*259*	*20*	*261*	*4*	*136*	*301*	*202*	*236*	*1*
% Heavy Vehicles, %HV	*3*	*3*	*3*	*5*	*5*	*5*	*5*	*5*	*5*	*7*	*7*	*7*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.82*	*0.82*	*0.82*	*0.93*	*0.93*	*0.93*	*0.86*	*0.86*	*0.86*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*			*0.933*	*0.933*		*0.919*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*15.5*			*11.0*	*10.0*		*15.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*			*0*	*0*		*3*			*2*	
Min. Time for Pedestrians, G_p	*11.5*			*13.5*			*15.2*			*12.1*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *23.0*	G =	G =	G =	G = *27.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*14*			*340*	*318*		*474*			*510*	
Lane Group Capacity, c		*666*			*490*	*481*		*801*			*521*	
v/c Ratio, X		*0.02*			*0.69*	*0.66*		*0.59*			*0.98*	
Total Green Ratio, g/C		*0.38*			*0.38*	*0.38*		*0.45*			*0.45*	
Uniform Delay, d_1		*11.5*			*15.5*	*15.3*		*12.4*			*16.2*	
Progression Factor, PF		*1.000*			*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*	*0.50*		*0.50*			*0.50*	
Incremental Delay, d_2		*0.1*			*7.4*	*6.5*		*2.9*			*34.5*	

Initial Queue Delay, d_3		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Control Delay		*11.6*			*22.9*	*21.8*		*15.3*			*50.8*	
Lane Group LOS		*B*			*C*	*C*		*B*			*D*	
Approach Delay	*11.6*			*22.4*			*15.3*			*50.8*		
Approach LOS	*B*			*C*			*B*			*D*		
Intersection Delay	*29.0*			X_C *= 0.85*			Intersection LOS			*C*		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Rch Valley Rd & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/2/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2015 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*	*0*	*1*	*1*	
Lane Group					*LR*			*TR*		*L*	*T*	
Volume, V (vph)				*130*		*142*		*536*	*101*	*118*	*692*	
% Heavy Vehicles, %HV				*1*		*1*		*4*	*4*	*6*	*6*	
Peak-Hour Factor, PHF				*0.84*		*0.84*		*0.93*	*0.93*	*0.86*	*0.86*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*	*P*	*P*	*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*		*2.0*	*2.0*	
Arrival Type, AT					*3*			*3*		*3*	*3*	
Unit Extension, UE					*3.0*			*3.0*		*3.0*	*3.0*	
Filtering/Metering, I					*0.901*			*0.798*		*0.114*	*0.114*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width					*12.0*			*15.0*		*10.0*	*10.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B					*0*			*4*		*0*	*2*	
Min. Time for Pedestrians, G_p	*11.8*			*11.8*			*14.1*			*3.2*		

Phasing	WB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*324*			*685*		*137*	*805*	
Lane Group Capacity, c					*398*			*1096*		*293*	*941*	
v/c Ratio, X					*0.81*			*0.63*		*0.47*	*0.86*	
Total Green Ratio, g/C					*0.27*			*0.57*		*0.57*	*0.57*	
Uniform Delay, d_1					*20.6*			*8.7*		*7.7*	*10.9*	
Progression Factor, PF					*1.000*			*1.000*		*1.000*	*1.000*	
Delay Calibration, k					*0.50*			*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2					*15.1*			*2.2*		*0.6*	*1.3*	
Initial Queue Delay, d_3					*0.0*			*0.0*		*0.0*	*0.0*	

Control Delay					35.7			10.9		8.3	12.2	
Lane Group LOS					D			B		A	B	
Approach Delay				35.7			10.9			11.6		
Approach LOS				D			B			B		
Intersection Delay	15.4			X_c = 0.84			Intersection LOS			B		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/29/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2015 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*
Lane Group		*LTR*			*LTR*		*DefL*	*TR*			*LTR*	
Volume, V (vph)	*51*	*114*	*275*	*120*	*284*	*9*	*203*	*142*	*121*	*21*	*523*	*120*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*2*	*2*	*2*	*1*	*1*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.82*	*0.82*	*0.82*	*0.93*	*0.93*	*0.93*	*0.94*	*0.94*	*0.94*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.884*			*0.927*		*1.000*	*1.000*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*			*12.0*		*13.0*	*13.0*			*9.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*			*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*18.6*			*16.6*			*20.1*			*19.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *39.0*	G =	G =	G =	G = *41.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*501*			*503*		*218*	*283*			*706*	
Lane Group Capacity, c		*1167*			*1012*		*276*	*825*			*1354*	
v/c Ratio, X		*0.43*			*0.50*		*0.79*	*0.34*			*0.52*	
Total Green Ratio, g/C		*0.43*			*0.43*		*0.46*	*0.46*			*0.46*	
Uniform Delay, d_1		*17.8*			*18.4*		*20.8*	*15.8*			*17.5*	
Progression Factor, PF		*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2		*1.0*			*1.6*		*20.2*	*1.1*			*1.4*	

Initial Queue Delay, d_3		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay		*18.8*			*20.0*		*41.0*	*16.9*			*18.9*	
Lane Group LOS		*B*			*C*		*D*	*B*			*B*	
Approach Delay	*18.8*			*20.0*			*27.4*			*18.9*		
Approach LOS	*B*			*C*			*C*			*B*		
Intersection Delay	*21.1*			X_C *= 0.65*			Intersection LOS			*C*		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Boscombe Ave & OBX Off-Ramp*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*10/4/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2015 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*1*	*1*	*1*
Lane Group	*L*	*TR*			*LT*	*R*		*LTR*		*L*	*LT*	*R*
Volume, V (vph)	*723*	*340*	*4*	*3*	*348*	*569*	*2*	*3*	*2*	*118*	*0*	*275*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.95*	*0.95*	*0.95*	*0.44*	*0.44*	*0.44*	*0.80*	*0.80*	*0.80*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*	*3*		*3*		*3*	*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*	*3.0*		*3.0*		*3.0*	*3.0*	*3.0*
Filtering/Metering, I	*0.687*	*0.687*			*0.650*	*0.650*		*1.000*		*1.000*	*1.000*	*1.000*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*	*0.0*		*0.0*		*0.0*	*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*11.0*	*12.0*			*12.0*	*12.0*		*16.0*		*10.0*	*11.0*	*10.0*
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B	*0*	*0*			*0*	*0*		*0*		*0*	*0*	*0*
Min. Time for Pedestrians, G_p	*14.6*			*24.6*			*20.9*			*20.1*		

Phasing	EB Only	EW Perm	03	04	NS Perm	06	07	08
Timing	G = *33.0*	G = *27.0*	G =	G =	G = *15.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*803*	*382*			*369*	*599*		*17*		*147*	*0*	*344*
Lane Group Capacity, c	*806*	*1187*			*563*	*480*		*167*		*218*	*303*	*879*
v/c Ratio, X	*1.00*	*0.32*			*0.66*	*1.25*		*0.10*		*0.67*	*0.00*	*0.39*
Total Green Ratio, g/C	*0.72*	*0.72*			*0.30*	*0.30*		*0.17*		*0.17*	*0.17*	*0.59*
Uniform Delay, d_1	*17.8*	*4.5*			*27.4*	*31.5*		*31.8*		*35.2*	*31.3*	*9.9*
Progression Factor, PF	*1.000*	*1.000*			*1.000*	*1.000*		*1.000*		*1.000*	*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*	*0.50*		*0.50*		*0.50*	*0.50*	*0.50*
Incremental Delay, d_2	*25.4*	*0.5*			*3.9*	*122.7*		*1.2*		*15.5*	*0.0*	*1.3*

Initial Queue Delay, d_3	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Control Delay	43.2	5.0			31.3	154.2		33.0		50.7	31.3	11.2
Lane Group LOS	D	A			C	F		C		D	C	B
Approach Delay	30.9			107.4			33.0			23.0		
Approach LOS	C			F			C			C		
Intersection Delay	57.3			X_C = 1.02			Intersection LOS			E		

 HCS+™ Version 5.4 Generated: 4/10/2013 2:30 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Boscombe Ave & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/29/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Hour*	Analysis Year	*2015 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*1*	*1*
Lane Group	*DefL*	*TR*			*LTR*			*LTR*			*LT*	*R*
Volume, V (vph)	*426*	*35*	*0*	*1*	*35*	*42*	*3*	*3*	*2*	*60*	*1*	*882*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.95*	*0.95*	*0.95*	*0.50*	*0.50*	*0.50*	*0.94*	*0.94*	*0.94*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*			*2.0*			*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*			*2.0*			*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*			*3*			*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*			*3.0*			*3.0*	*3.0*
Filtering/Metering, I	*0.952*	*0.952*			*1.000*			*1.000*			*0.937*	*0.937*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*			*0.0*			*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*10*	*0*	*0*	*0*	*0*	*0*	*294*
Lane Width	*16.0*	*16.0*			*11.5*			*12.0*			*12.0*	*12.0*
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*			*0*			*0*			*0*	*0*
Min. Time for Pedestrians, G_p	*20.3*			*17.5*			*20.3*			*20.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *41.0*	G =	G =	G =	G = *39.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*473*	*39*			*72*			*16*			*65*	*626*
Lane Group Capacity, c	*687*	*971*			*1422*			*1362*			*616*	*686*
v/c Ratio, X	*0.69*	*0.04*			*0.05*			*0.01*			*0.11*	*0.91*
Total Green Ratio, g/C	*0.46*	*0.46*			*0.46*			*0.43*			*0.43*	*0.43*
Uniform Delay, d_1	*19.4*	*13.6*			*13.7*			*14.5*			*15.1*	*23.9*
Progression Factor, PF	*1.000*	*1.000*			*1.000*			*1.000*			*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*			*0.50*			*0.50*	*0.50*
Incremental Delay, d_2	*5.3*	*0.1*			*0.1*			*0.0*			*0.3*	*17.7*

Initial Queue Delay, d_3	0.0	0.0			0.0			0.0			0.0	0.0
Control Delay	24.7	13.7			13.7			14.5			15.5	41.6
Lane Group LOS	C	B			B			B			B	D
Approach Delay	23.9			13.7			14.5			39.1		
Approach LOS	C			B			B			D		
Intersection Delay	31.4			X_C = 0.80			Intersection LOS			C		

 HCS+™ Version 5.4 Generated: 4/10/2013 2:30 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Vets Rd E & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/29/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2015 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*	*0*	*3*	*0*	*1*	*1*			*1*	*0*
Lane Group	*L*		*R*		*LTR*		*L*	*T*			*TR*	
Volume, V (vph)	*4*		*145*	*266*	*450*	*266*	*83*	*198*			*479*	*5*
% Heavy Vehicles, %HV	*1*		*1*	*1*	*1*	*1*	*2*	*2*			*4*	*4*
Peak-Hour Factor, PHF	*0.95*		*0.95*	*0.88*	*0.88*	*0.88*	*0.92*	*0.92*			*0.87*	*0.87*
Pretimed (P) or Actuated (A)	*P*		*P*	*P*	*P*	*P*	*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*		*3*		*3*	*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*		*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I	*0.848*		*0.848*		*0.500*		*0.930*	*0.930*			*0.865*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Lane Width	*10.0*		*13.0*		*11.0*		*12.0*	*12.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*		*0*		*0*	*2*			*7*	
Min. Time for Pedestrians, G_p	*17.2*			*16.9*			*3.2*			*20.9*		

Phasing	EB Only	WB Only	03	04	NS Perm	06	07	08
Timing	G = *8.0*	G = *16.0*	G =	G =	G = *21.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*4*		*153*		*1115*		*90*	*215*			*557*	
Lane Group Capacity, c	*222*		*220*		*1250*		*126*	*647*			*703*	
v/c Ratio, X	*0.02*		*0.70*		*0.89*		*0.71*	*0.33*			*0.79*	
Total Green Ratio, g/C	*0.13*		*0.13*		*0.27*		*0.35*	*0.35*			*0.35*	
Uniform Delay, d_1	*22.6*		*24.8*		*21.2*		*16.9*	*14.3*			*17.5*	
Progression Factor, PF	*1.000*		*1.000*		*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*		*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2	*0.1*		*14.3*		*5.4*		*27.4*	*1.3*			*7.8*	

Initial Queue Delay, d_3	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay	*22.7*		*39.2*		*26.5*		*44.3*	*15.6*			*25.3*	
Lane Group LOS	*C*		*D*		*C*		*D*	*B*			*C*	
Approach Delay	*38.8*			*26.5*			*24.1*			*25.3*		
Approach LOS	*D*			*C*			*C*			*C*		
Intersection Delay	*26.8*			X_C *= 0.81*			Intersection LOS			*C*		

 HCS+™ Version 5.4 Generated: 4/10/2013 2:30 PM

Saturday

Midday

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/2/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2015 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*			*LT*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*0*	*9*	*5*	*308*	*26*	*378*	*5*	*162*	*366*	*184*	*204*	*0*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*2*	*2*	*2*	*5*	*5*	*5*	*3*	*3*	*3*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*			*0.849*	*0.849*		*0.861*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*15.5*			*11.0*	*10.0*		*15.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*			*0*	*0*		*2*			*2*	
Min. Time for Pedestrians, G_p	*11.5*			*13.5*			*15.2*			*12.1*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *23.0*	G =	G =	G =	G = *27.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*15*			*363*	*411*		*585*			*426*	
Lane Group Capacity, c		*666*			*505*	*496*		*803*			*467*	
v/c Ratio, X		*0.02*			*0.72*	*0.83*		*0.73*			*0.91*	
Total Green Ratio, g/C		*0.38*			*0.38*	*0.38*		*0.45*			*0.45*	
Uniform Delay, d_1		*11.5*			*15.7*	*16.7*		*13.5*			*15.4*	
Progression Factor, PF		*1.000*			*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*	*0.50*		*0.50*			*0.50*	
Incremental Delay, d_2		*0.1*			*7.3*	*12.8*		*5.0*			*24.7*	

Initial Queue Delay, d_3		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Control Delay		*11.6*			*23.1*	*29.5*		*18.5*			*40.1*	
Lane Group LOS		*B*			*C*	*C*		*B*			*D*	
Approach Delay	*11.6*			*26.5*			*18.5*			*40.1*		
Approach LOS	*B*			*C*			*B*			*D*		
Intersection Delay	*27.0*			X_C *= 0.87*			Intersection LOS			*C*		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Rch Valley Rd & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/2/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:15-1:45 PM Peak Pd*	Analysis Year	*2015 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*	*0*	*1*	*1*	
Lane Group					*LR*			*TR*		*L*	*T*	
Volume, V (vph)				*104*		*186*		*583*	*90*	*130*	*680*	
% Heavy Vehicles, %HV				*1*		*1*		*2*	*2*	*2*	*2*	
Peak-Hour Factor, PHF				*0.89*		*0.89*		*0.91*	*0.91*	*0.91*	*0.91*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*	*P*	*P*	*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*		*2.0*	*2.0*	
Arrival Type, AT					*3*			*3*		*3*	*3*	
Unit Extension, UE					*3.0*			*3.0*		*3.0*	*3.0*	
Filtering/Metering, I					*0.940*			*0.789*		*0.272*	*0.272*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width					*12.0*			*15.0*		*10.0*	*10.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B					*0*			*2*		*0*	*2*	
Min. Time for Pedestrians, G_p	*11.8*			*11.8*			*14.1*			*3.2*		

Phasing	WB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*326*			*740*		*143*	*747*	
Lane Group Capacity, c					*394*			*1131*		*280*	*977*	
v/c Ratio, X					*0.83*			*0.65*		*0.51*	*0.76*	
Total Green Ratio, g/C					*0.27*			*0.57*		*0.57*	*0.57*	
Uniform Delay, d_1					*20.7*			*9.0*		*7.9*	*9.9*	
Progression Factor, PF					*1.000*			*1.000*		*1.000*	*1.000*	
Delay Calibration, k					*0.50*			*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2					*16.9*			*2.3*		*1.8*	*1.6*	
Initial Queue Delay, d_3					*0.0*			*0.0*		*0.0*	*0.0*	

Control Delay					37.6			11.3		9.7	11.5	
Lane Group LOS					D			B		A	B	
Approach Delay				37.6			11.3			11.3		
Approach LOS				D			B			B		
Intersection Delay	15.7			X_c = 0.78			Intersection LOS			B		

 HCS+™ Version 5.4 Generated: 4/10/2013 2:34 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/29/13*	Jurisdiction	*SFR NB-DefL = 2050*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2015 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*
Lane Group		*LTR*			*LTR*		*DefL*	*TR*			*LTR*	
Volume, V (vph)	*79*	*123*	*266*	*161*	*357*	*24*	*231*	*262*	*112*	*25*	*815*	*162*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*1*	*1*	*1*	*1*	*1*	*1*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.78*	*0.78*	*0.78*	*0.94*	*0.91*	*0.91*	*0.93*	*0.93*	*0.93*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.830*			*0.865*		*1.000*	*1.000*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*			*12.0*		*13.0*	*13.0*			*9.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*			*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*18.6*			*16.6*			*20.1*			*19.8*		

Phasing	EW Perm	02	03	04	NS Perm	NB Only	07	08
Timing	G = *31.0*	G =	G =	G =	G = *39.0*	G = *5.0*	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y = *5*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*509*			*695*		*246*	*411*			*1077*	
Lane Group Capacity, c		*723*			*783*		*349*	*1011*			*1313*	
v/c Ratio, X		*0.70*			*0.89*		*0.70*	*0.41*			*0.82*	
Total Green Ratio, g/C		*0.34*			*0.34*		*0.54*	*0.54*			*0.43*	
Uniform Delay, d_1		*25.5*			*27.9*		*31.1*	*12.0*			*22.4*	
Progression Factor, PF		*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2		*4.7*			*12.6*		*11.3*	*1.2*			*5.8*	

Initial Queue Delay, d_3		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay		*30.3*			*40.4*		*42.4*	*13.2*			*28.3*	
Lane Group LOS		*C*			*D*		*D*	*B*			*C*	
Approach Delay	*30.3*			*40.4*			*24.1*			*28.3*		
Approach LOS	*C*			*D*			*C*			*C*		
Intersection Delay	*30.6*			X_C *= 1.15*			Intersection LOS			*C*		

 HCS+™ Version 5.4 Generated: 4/10/2013 2:34 PM

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Boscombe Ave & OBX Off-Ramp*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/10/13*	Jurisdiction	*Sat Flw Rate EB-L = 2100*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2015 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*			*1*	*1*				*2*		*1*
Lane Group	*L*	*T*			*T*	*R*				*L*		*R*
Volume, V (vph)	*849*	*411*			*451*	*786*				*194*		*206*
% Heavy Vehicles, %HV	*1*	*1*			*1*	*1*				*1*		*1*
Peak-Hour Factor, PHF	*0.97*	*0.96*			*0.94*	*0.97*				*0.92*		*0.92*
Pretimed (P) or Actuated (A)	*P*	*P*			*P*	*P*				*P*		*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*	*2.0*				*2.0*		*2.0*
Extension of Effective Green, e	*3.0*	*2.0*			*2.0*	*2.0*				*2.0*		*2.0*
Arrival Type, AT	*3*	*3*			*3*	*3*				*3*		*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*	*3.0*				*3.0*		*3.0*
Filtering/Metering, I	*0.508*	*0.508*			*0.176*	*0.176*				*1.000*		*1.000*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*	*0.0*				*0.0*		*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*119*	*0*	*0*		*0*	*0*	*0*
Lane Width	*11.0*	*12.0*			*12.0*	*12.0*				*10.0*		*10.0*
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B	*0*	*0*			*0*	*0*				*0*		*0*
Min. Time for Pedestrians, G_p	*14.6*			*24.6*			*3.2*			*20.1*		

Phasing	EB Only	EW Perm	03	04	SB Only	06	07	08
Timing	G = *37.0*	G = *23.0*	G =	G =	G = *15.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*875*	*428*			*480*	*688*				*211*		*224*
Lane Group Capacity, c	*895*	*1189*			*481*	*764*				*540*		*945*
v/c Ratio, X	*0.98*	*0.36*			*1.00*	*0.90*				*0.39*		*0.24*
Total Green Ratio, g/C	*0.73*	*0.72*			*0.26*	*0.48*				*0.17*		*0.63*
Uniform Delay, d_1	*21.0*	*4.7*			*33.5*	*21.5*				*33.4*		*7.1*
Progression Factor, PF	*1.000*	*1.000*			*1.000*	*1.000*				*1.000*		*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*	*0.50*				*0.50*		*0.50*
Incremental Delay, d_2	*16.8*	*0.4*			*16.7*	*3.5*				*2.1*		*0.6*
Initial Queue Delay, d_3	*0.0*	*0.0*			*0.0*	*0.0*				*0.0*		*0.0*
Control Delay	*37.8*	*5.1*			*50.2*	*25.0*				*35.5*		*7.7*
Lane Group LOS	*D*	*A*			*D*	*C*				*D*		*A*
Approach Delay	*27.0*			*35.4*						*21.2*		
Approach LOS	*C*			*D*						*C*		
Intersection Delay	*29.5*			X_C = *0.95*			Intersection LOS			*C*		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Boscombe Ave & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/29/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2015 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*1*	*1*
Lane Group	*DefL*	*TR*			*LTR*			*LTR*			*LT*	*R*
Volume, V (vph)	*561*	*45*	*0*	*0*	*45*	*56*	*0*	*0*	*1*	*81*	*0*	*1192*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.96*	*0.96*	*0.96*	*0.91*	*0.91*	*0.91*	*0.90*	*0.90*	*0.90*	*0.93*	*0.93*	*0.93*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*			*2.0*			*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*			*2.0*			*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*			*3*			*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*			*3.0*			*3.0*	*3.0*
Filtering/Metering, I	*0.967*	*0.967*			*1.000*			*1.000*			*0.855*	*0.855*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*			*0.0*			*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*14*	*0*	*0*	*0*	*0*	*0*	*398*
Lane Width	*16.0*	*16.0*			*11.5*			*12.0*			*12.0*	*12.0*
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*			*0*			*0*			*0*	*0*
Min. Time for Pedestrians, G_p	*20.3*			*17.5*			*20.3*			*20.3*		

Phasing	EW Perm	EB Only	03	04	NS Perm	06	07	08
Timing	G = *31.0*	G = *9.0*	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*584*	*47*			*95*			*1*			*87*	*854*
Lane Group Capacity, c	*823*	*1066*			*1125*			*1184*			*546*	*871*
v/c Ratio, X	*0.71*	*0.04*			*0.08*			*0.00*			*0.16*	*0.98*
Total Green Ratio, g/C	*0.50*	*0.50*			*0.34*			*0.39*			*0.39*	*0.54*
Uniform Delay, d_1	*18.6*	*11.5*			*19.9*			*16.8*			*17.9*	*20.0*
Progression Factor, PF	*1.000*	*1.000*			*1.000*			*1.000*			*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*			*0.50*			*0.50*	*0.50*
Incremental Delay, d_2	*5.0*	*0.1*			*0.1*			*0.0*			*0.5*	*23.9*

Initial Queue Delay, d_3	*0.0*	*0.0*			*0.0*			*0.0*			*0.0*	*0.0*
Control Delay	*23.6*	*11.6*			*20.1*			*16.8*			*18.4*	*43.9*
Lane Group LOS	*C*	*B*			*C*			*B*			*B*	*D*
Approach Delay	*22.7*				*20.1*			*16.8*			*41.6*	
Approach LOS	*C*				*C*			*B*			*D*	
Intersection Delay	*33.2*				X_C *= 0.99*			Intersection LOS			*C*	

 HCS+™ Version 5.4 Generated: 4/10/2013 2:35 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Ave @ Veterans Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/29/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2015 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*1*	*1*		*1*			*0*	*3*	*0*
Lane Group		*TR*		*L*	*LT*		*L*				*LTR*	
Volume, V (vph)		*1*	*0*	*732*	*2*		*5*			*27*	*380*	*1*
% Heavy Vehicles, %HV		*1*	*1*	*2*	*2*		*0*			*2*	*2*	*2*
Peak-Hour Factor, PHF		*0.25*	*0.25*	*0.91*	*0.91*		*0.88*			*0.89*	*0.89*	*0.89*
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*			*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Arrival Type, AT		*3*		*3*	*3*		*3*				*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*		*3.0*				*3.0*	
Filtering/Metering, I		*1.000*		*0.971*	*0.971*		*0.951*				*1.000*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*12.0*		*13.0*	*13.0*		*10.0*				*11.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*		*0*	*0*		*0*				*0*	
Min. Time for Pedestrians, G_p	*31.2*			*3.2*			*18.1*			*11.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *26.0*	G =	G =	G =	G = *24.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*4*		*603*	*203*		*6*				*458*	
Lane Group Capacity, c		*815*		*630*	*606*		*321*				*1955*	
v/c Ratio, X		*0.00*		*0.96*	*0.33*		*0.02*				*0.23*	
Total Green Ratio, g/C		*0.43*		*0.43*	*0.43*		*0.40*				*0.40*	
Uniform Delay, d_1		*9.7*		*16.5*	*11.3*		*10.9*				*11.9*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*		*1.000*				*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*		*0.50*				*0.50*	
Incremental Delay, d_2		*0.0*		*26.2*	*1.4*		*0.1*				*0.3*	

Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Control Delay		*9.7*		*42.7*	*12.7*		*11.0*				*12.2*	
Lane Group LOS		*A*		*D*	*B*		*B*				*B*	
Approach Delay	*9.7*			*35.2*			*11.0*			*12.2*		
Approach LOS	*A*			*D*			*B*			*B*		
Intersection Delay	*26.7*			X_C = *0.61*			Intersection LOS			*C*		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Ave @ Vets Rd E*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/29/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2015 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*3*	*0*			
Lane Group		*LT*	*R*		*LTR*			*LTR*				
Volume, V (vph)	*211*	*262*	*178*	*0*	*61*	*15*	*672*	*63*	*3*			
% Heavy Vehicles, %HV	*1*	*1*	*1*	*0*	*0*	*0*	*2*	*2*	*2*			
Peak-Hour Factor, PHF	*0.75*	*0.75*	*0.75*	*0.83*	*0.83*	*0.83*	*0.93*	*0.93*	*0.93*			
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*			
Start-up Lost Time, l_1		*2.0*	*2.0*		*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*	*2.0*		*2.0*			*2.0*				
Arrival Type, AT		*3*	*3*		*3*			*3*				
Unit Extension, UE		*3.0*	*3.0*		*3.0*			*3.0*				
Filtering/Metering, I		*0.997*	*0.997*		*0.993*			*0.967*				
Initial Unmet Demand, Q_b		*0.0*	*0.0*		*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*66*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width		*13.0*	*12.0*		*11.5*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B		*0*	*0*		*0*			*0*				
Min. Time for Pedestrians, G_p	*21.2*			*12.9*			*14.3*			*17.5*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *24.0*	G =	G =	G =	G = *26.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*630*	*149*		*91*			*794*				
Lane Group Capacity, c		*632*	*640*		*636*			*2032*				
v/c Ratio, X		*1.00*	*0.23*		*0.14*			*0.39*				
Total Green Ratio, g/C		*0.40*	*0.40*		*0.40*			*0.43*				
Uniform Delay, d_1		*18.0*	*11.9*		*11.5*			*11.6*				
Progression Factor, PF		*1.000*	*1.000*		*1.000*			*1.000*				
Delay Calibration, k		*0.50*	*0.50*		*0.50*			*0.50*				
Incremental Delay, d_2		*35.0*	*0.8*		*0.5*			*0.5*				

Initial Queue Delay, d_3		0.0	0.0		0.0			0.0				
Control Delay		52.9	12.8		11.9			12.1				
Lane Group LOS		D	B		B			B				
Approach Delay	45.3			11.9			12.1					
Approach LOS	D			B			B					
Intersection Delay	27.6			X_C = 0.68			Intersection LOS			C		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Vets Rd E & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/29/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2015 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*	*0*	*3*	*0*	*1*	*1*			*1*	*0*
Lane Group	*L*		*R*		*LTR*		*L*	*T*			*TR*	
Volume, V (vph)	*19*		*160*	*285*	*596*	*168*	*126*	*218*			*404*	*17*
% Heavy Vehicles, %HV	*1*		*1*	*2*	*2*	*2*	*2*	*2*			*1*	*1*
Peak-Hour Factor, PHF	*0.71*		*0.71*	*0.87*	*0.87*	*0.87*	*0.92*	*0.92*			*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*		*P*	*P*	*P*	*P*	*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*		*3*		*3*	*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*		*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I	*0.717*		*0.717*		*0.483*		*0.917*	*0.917*			*0.747*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Lane Width	*10.0*		*13.0*		*11.0*		*12.0*	*12.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*		*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*17.2*			*16.9*			*3.2*			*20.9*		

Phasing	EB Only	WB Only	03	04	NS Perm	NB Only	07	08
Timing	G = *5.0*	G = *16.0*	G =	G =	G = *15.0*	G = *4.0*	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y = *5*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*27*		*225*		*1206*		*137*	*237*			*468*	
Lane Group Capacity, c	*139*		*385*		*1259*		*390*	*745*			*530*	
v/c Ratio, X	*0.19*		*0.58*		*0.96*		*0.35*	*0.32*			*0.88*	
Total Green Ratio, g/C	*0.08*		*0.23*		*0.27*		*0.40*	*0.40*			*0.25*	
Uniform Delay, d_1	*25.6*		*20.4*		*21.7*		*19.7*	*12.4*			*21.7*	
Progression Factor, PF	*1.000*		*1.000*		*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*		*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2	*2.2*		*4.6*		*10.2*		*2.3*	*1.0*			*14.9*	

Initial Queue Delay, d_3	0.0		0.0		0.0		0.0	0.0			0.0	
Control Delay	27.8		25.0		31.9		22.0	13.4			36.6	
Lane Group LOS	C		C		C		C	B			D	
Approach Delay	25.3			31.9			16.5			36.6		
Approach LOS	C			C			B			D		
Intersection Delay	29.6			X_C = 0.85			Intersection LOS			C		

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Mitigation

2020

Weekday

AM

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*4/4/13*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*Englewood Ave & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 Miti-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*216*	*89*	*102*	*205*	
Peak-Hour Factor, PHF	*1.00*	*0.83*	*0.83*	*0.83*	*0.83*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*260*	*107*	*122*	*246*	*0*
Percent Heavy Vehicles	*0*	--	--	*11*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*150*		*39*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.75*	*1.00*	*0.70*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*200*	*0*	*55*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*	*L*		*R*			
v (veh/h)		*122*	*200*		*55*			
C (m) (veh/h)		*1144*	*317*		*731*			
v/c		*0.11*	*0.63*		*0.08*			
95% queue length		*0.36*	*4.02*		*0.24*			
Control Delay (s/veh)		*8.5*	*33.9*		*10.3*			
LOS		*A*	*D*		*B*			
Approach Delay (s/veh)	--	--	*28.8*					
Approach LOS	--	--	*D*					

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Generated: 4/12/2013 11:14 AM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/2/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*1*	*1*	*1*	*0*
Lane Group		*LTR*			*LT*	*R*		*LT*	*R*	*L*	*TR*	
Volume, V (vph)	*3*	*6*	*1*	*174*	*34*	*227*	*0*	*205*	*304*	*117*	*160*	*9*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*7*	*7*	*7*	*11*	*11*	*11*	*11*	*11*	*11*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.87*	*0.87*	*0.87*	*0.85*	*0.85*	*0.85*	*0.87*	*0.87*	*0.87*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	
Arrival Type, AT		*3*			*3*	*3*		*3*	*3*	*3*	*3*	
Unit Extension, UE		*3.0*			*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	
Filtering/Metering, I		*1.000*			*0.940*	*0.940*		*0.887*	*0.887*	*1.000*	*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*	*0.0*		*0.0*	*0.0*	*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*15.5*			*11.0*	*10.0*		*12.0*	*12.0*	*10.0*	*11.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*			*0*	*0*		*4*	*0*	*0*	*3*	
Min. Time for Pedestrians, G_p	*11.5*			*13.5*			*15.2*			*12.1*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*11*			*239*	*261*		*241*	*358*	*134*	*194*	
Lane Group Capacity, c		*717*			*539*	*514*		*702*	*606*	*399*	*676*	
v/c Ratio, X		*0.02*			*0.44*	*0.51*		*0.34*	*0.59*	*0.34*	*0.29*	
Total Green Ratio, g/C		*0.42*			*0.42*	*0.42*		*0.42*	*0.42*	*0.42*	*0.42*	
Uniform Delay, d_1		*10.3*			*12.5*	*12.9*		*11.9*	*13.5*	*11.9*	*11.6*	
Progression Factor, PF		*1.000*			*1.000*	*1.000*		*1.000*	*1.000*	*1.000*	*1.000*	
Delay Calibration, k		*0.50*			*0.50*	*0.50*		*0.50*	*0.50*	*0.50*	*0.50*	
Incremental Delay, d_2		*0.0*			*2.5*	*3.3*		*1.2*	*3.7*	*2.3*	*1.1*	

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Rch Valley Rd & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/3/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*	*0*	*1*	*1*	
Lane Group					*LR*			*TR*		*L*	*T*	
Volume, V (vph)				*62*		*177*		*549*	*74*	*119*	*358*	
% Heavy Vehicles, %HV				*3*		*3*		*11*	*11*	*9*	*9*	
Peak-Hour Factor, PHF				*0.93*		*0.93*		*0.85*	*0.85*	*0.87*	*0.87*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*	*P*	*P*	*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*		*2.0*	*2.0*	
Arrival Type, AT					*3*			*3*		*3*	*3*	
Unit Extension, UE					*3.0*			*3.0*		*3.0*	*3.0*	
Filtering/Metering, I					*0.980*			*0.769*		*0.842*	*0.842*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width					*12.0*			*15.0*		*10.0*	*10.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B					*0*			*4*		*0*	*3*	
Min. Time for Pedestrians, G_p	*11.8*			*11.8*			*14.1*			*3.2*		

Phasing	WB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*257*			*733*		*137*	*411*	
Lane Group Capacity, c					*382*			*1033*		*265*	*911*	
v/c Ratio, X					*0.67*			*0.71*		*0.52*	*0.45*	
Total Green Ratio, g/C					*0.27*			*0.57*		*0.57*	*0.57*	
Uniform Delay, d_1					*19.7*			*9.4*		*8.0*	*7.6*	
Progression Factor, PF					*1.000*			*1.000*		*1.000*	*1.000*	
Delay Calibration, k					*0.50*			*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2					*9.0*			*3.2*		*6.0*	*1.4*	
Initial Queue Delay, d_3					*0.0*			*0.0*		*0.0*	*0.0*	

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Bricktown/KWVP*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/10/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8 - 9 AM Peak Period*	Analysis Year	*2020 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*	*0*	*1*	*2*	*0*	*0*	*2*	*0*	*1*	*1*	*0*
Lane Group	*L*	*TR*		*L*	*TR*			*LTR*		*L*	*TR*	
Volume, V (vph)	*74*	*164*	*169*	*203*	*285*	*80*	*119*	*324*	*138*	*68*	*32*	*41*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*8*	*8*	*8*	*8*	*8*	*8*	*3*	*3*	*3*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.87*	*0.87*	*0.87*	*0.93*	*0.93*	*0.93*	*0.67*	*0.67*	*0.67*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*		*2.0*	*2.0*			*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e	*2.0*	*2.0*		*2.0*	*2.0*			*2.0*		*2.0*	*2.0*	
Arrival Type, AT	*3*	*3*		*3*	*3*			*3*		*3*	*3*	
Unit Extension, UE	*3.0*	*3.0*		*3.0*	*3.0*			*3.0*		*3.0*	*3.0*	
Filtering/Metering, I	*0.780*	*0.780*		*0.979*	*0.979*			*1.000*		*0.991*	*0.991*	
Initial Unmet Demand, Q_b	*0.0*	*0.0*		*0.0*	*0.0*			*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*38*	*0*	*0*	*4*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*11.0*	*12.0*		*10.0*	*12.0*			*12.5*		*11.0*	*10.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*		*0*	*0*			*0*		*0*	*0*	
Min. Time for Pedestrians, G_p	*34.6*			*18.6*			*20.3*			*16.1*		

Phasing	EW Perm	02	03	04	NB Only	SB Only	07	08
Timing	G = *32.0*	G =	G =	G =	G = *25.0*	G = *18.0*	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y = *5*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*84*	*335*		*233*	*415*			*624*		*101*	*109*	
Lane Group Capacity, c	*295*	*618*		*242*	*1153*			*903*		*339*	*315*	
v/c Ratio, X	*0.28*	*0.54*		*0.96*	*0.36*			*0.69*		*0.30*	*0.35*	
Total Green Ratio, g/C	*0.36*	*0.36*		*0.36*	*0.36*			*0.28*		*0.20*	*0.20*	
Uniform Delay, d_1	*20.8*	*23.2*		*28.4*	*21.4*			*29.0*		*30.6*	*30.9*	
Progression Factor, PF	*1.000*	*1.000*		*1.000*	*1.000*			*1.000*		*1.000*	*1.000*	
Delay Calibration, k	*0.50*	*0.50*		*0.50*	*0.50*			*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2	*1.9*	*2.7*		*48.4*	*0.9*			*4.3*		*2.2*	*3.0*	

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Veterans Rd W & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/2/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*1*	*2*	*0*
Lane Group	*L*	*TR*			*LTR*		*DefL*	*TR*		*L*	*TR*	
Volume, V (vph)	*54*	*28*	*275*	*115*	*203*	*6*	*264*	*93*	*51*	*11*	*160*	*102*
% Heavy Vehicles, %HV	*8*	*8*	*8*	*3*	*3*	*3*	*4*	*4*	*4*	*8*	*8*	*8*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.87*	*0.87*	*0.87*	*0.87*	*0.87*	*0.87*	*0.76*	*0.76*	*0.76*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	
Arrival Type, AT	*3*	*3*			*3*		*3*	*3*		*3*	*3*	
Unit Extension, UE	*3.0*	*3.0*			*3.0*		*3.0*	*3.0*		*3.0*	*3.0*	
Filtering/Metering, I	*0.916*	*0.916*			*0.953*		*1.000*	*1.000*		*1.000*	*1.000*	
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*		*0.0*	*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*11.0*	*12.0*			*12.0*		*13.0*	*13.0*		*10.0*	*9.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*			*0*		*0*	*0*		*0*	*0*	
Min. Time for Pedestrians, G_p	*18.6*			*16.6*			*20.1*			*19.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*61*	*345*			*372*		*303*	*166*		*14*	*345*	
Lane Group Capacity, c	*390*	*1286*			*1101*		*450*	*794*		*476*	*1285*	
v/c Ratio, X	*0.16*	*0.27*			*0.34*		*0.67*	*0.21*		*0.03*	*0.27*	
Total Green Ratio, g/C	*0.44*	*0.44*			*0.44*		*0.44*	*0.44*		*0.44*	*0.44*	
Uniform Delay, d_1	*14.9*	*15.8*			*16.3*		*19.8*	*15.3*		*14.1*	*15.8*	
Progression Factor, PF	*1.000*	*1.000*			*1.000*		*1.000*	*1.000*		*1.000*	*1.000*	
Delay Calibration, k	*0.50*	*0.50*			*0.50*		*0.50*	*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2	*0.8*	*0.5*			*0.8*		*7.8*	*0.6*		*0.1*	*0.5*	

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Boscombe Ave & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Hour*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*1*	*1*
Lane Group	*DefL*	*TR*			*LTR*			*LTR*			*LT*	*R*
Volume, V (vph)	*356*	*26*	*0*	*14*	*68*	*38*	*6*	*22*	*11*	*15*	*38*	*499*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*3*	*3*	*3*	*1*	*1*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.91*	*0.91*	*0.91*	*0.72*	*0.72*	*0.72*	*0.45*	*0.45*	*0.45*	*0.76*	*0.76*	*0.76*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*			*2.0*			*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*			*2.0*			*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*			*3*			*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*			*3.0*			*3.0*	*3.0*
Filtering/Metering, I	*0.970*	*0.970*			*1.000*			*1.000*			*0.974*	*0.974*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*			*0.0*			*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*9*	*0*	*0*	*0*	*0*	*0*	*155*
Lane Width	*16.0*	*16.0*			*11.5*			*12.0*			*12.0*	*12.0*
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*			*0*			*0*			*0*	*0*
Min. Time for Pedestrians, G_p	*20.3*			*17.5*			*20.3*			*20.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*391*	*29*			*153*			*86*			*70*	*453*
Lane Group Capacity, c	*699*	*1066*			*1543*			*1234*			*673*	*616*
v/c Ratio, X	*0.56*	*0.03*			*0.10*			*0.07*			*0.10*	*0.74*
Total Green Ratio, g/C	*0.50*	*0.50*			*0.50*			*0.39*			*0.39*	*0.39*
Uniform Delay, d_1	*15.6*	*11.4*			*11.8*			*17.3*			*17.5*	*23.5*
Progression Factor, PF	*1.000*	*1.000*			*1.000*			*1.000*			*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*			*0.50*			*0.50*	*0.50*

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Ave @ Veterans Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*1*	*1*		*1*			*0*	*3*	*0*
Lane Group		*TR*		*L*	*T*		*L*				*LTR*	
Volume, V (vph)		*214*	*0*	*384*	*191*		*3*			*24*	*200*	*64*
% Heavy Vehicles, %HV		*2*	*2*	*3*	*3*		*1*			*1*	*1*	*1*
Peak-Hour Factor, PHF		*0.80*	*0.25*	*0.79*	*0.79*		*0.80*			*0.81*	*0.81*	*0.81*
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*			*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Arrival Type, AT		*3*		*3*	*3*		*3*				*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*		*3.0*				*3.0*	
Filtering/Metering, I		*1.000*		*0.981*	*0.981*		*0.998*				*1.000*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*12.0*		*13.0*	*13.0*		*10.0*				*11.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*		*0*	*0*		*0*				*0*	
Min. Time for Pedestrians, G_p	*31.2*			*3.2*			*18.1*			*11.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *30.0*	G =	G =	G =	G = *20.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*267*		*486*	*242*		*4*				*356*	
Lane Group Capacity, c		*932*		*522*	*953*		*298*				*1590*	
v/c Ratio, X		*0.29*		*0.93*	*0.25*		*0.01*				*0.22*	
Total Green Ratio, g/C		*0.50*		*0.50*	*0.50*		*0.33*				*0.33*	
Uniform Delay, d_1		*8.8*		*14.0*	*8.6*		*13.4*				*14.4*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*		*1.000*				*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*		*0.50*				*0.50*	
Incremental Delay, d_2		*0.8*		*25.2*	*0.6*		*0.1*				*0.3*	

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Vets Rd E & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/2/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*	*0*	*3*	*0*	*1*	*1*			*2*	*0*
Lane Group	*L*		*R*		*LTR*		*L*	*T*			*TR*	
Volume, V (vph)	*3*		*166*	*244*	*467*	*164*	*90*	*200*			*475*	*22*
% Heavy Vehicles, %HV	*3*		*3*	*3*	*3*	*3*	*7*	*7*			*7*	*7*
Peak-Hour Factor, PHF	*0.79*		*0.79*	*0.88*	*0.88*	*0.88*	*0.90*	*0.90*			*0.76*	*0.76*
Pretimed (P) or Actuated (A)	*P*		*P*	*P*	*P*	*P*	*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*		*3*		*3*	*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*		*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I	*0.974*		*0.974*		*0.725*		*0.946*	*0.946*			*0.293*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Lane Width	*10.0*		*13.0*		*11.0*		*12.0*	*12.0*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*		*0*		*0*	*7*			*2*	
Min. Time for Pedestrians, G_p	*17.2*			*16.9*			*3.2*			*20.9*		

Phasing	EB Only	WB Only	03	04	NS Perm	NB Only	07	08
Timing	G = *10.0*	G = *15.0*	G =	G =	G = *12.0*	G = *5.0*	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *3*	Y = *5*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*4*		*210*		*994*		*100*	*222*			*654*	
Lane Group Capacity, c	*273*		*540*		*1164*		*401*	*575*			*669*	
v/c Ratio, X	*0.01*		*0.39*		*0.85*		*0.25*	*0.39*			*0.98*	
Total Green Ratio, g/C	*0.17*		*0.33*		*0.25*		*0.33*	*0.33*			*0.20*	
Uniform Delay, d_1	*20.9*		*15.3*		*21.5*		*19.3*	*15.3*			*23.9*	
Progression Factor, PF	*1.000*		*1.000*		*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*		*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2	*0.1*		*2.1*		*6.0*		*1.4*	*1.9*			*14.2*	

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Amboy Rd & Bloomingdale Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*1*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*		*L*	*T*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*8*	*20*	*13*	*172*	*16*	*105*	*10*	*231*	*131*	*139*	*339*	*9*
% Heavy Vehicles, %HV	*3*	*3*	*3*	*5*	*5*	*5*	*7*	*7*	*7*	*7*	*7*	*7*
Peak-Hour Factor, PHF	*0.68*	*0.68*	*0.68*	*0.88*	*0.88*	*0.88*	*0.90*	*0.90*	*0.90*	*0.76*	*0.76*	*0.76*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*		*3*	*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*		*0.966*	*0.966*	*0.966*		*0.850*			*0.090*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*50*	*0*	*0*	*0*	*0*	*0*	*50*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*		*12.0*	*11.0*	*11.0*		*11.0*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*2*		*0*	*0*	*2*		*0*			*0*	
Min. Time for Pedestrians, G_p	*11.5*			*11.8*			*18.9*			*18.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *37.0*	G =	G =	G =	G = *43.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*60*		*195*	*18*	*119*		*414*			*641*	
Lane Group Capacity, c		*597*		*504*	*719*	*531*		*753*			*587*	
v/c Ratio, X		*0.10*		*0.39*	*0.03*	*0.22*		*0.55*			*1.09*	
Total Green Ratio, g/C		*0.41*		*0.41*	*0.41*	*0.41*		*0.48*			*0.48*	
Uniform Delay, d_1		*16.3*		*18.6*	*15.8*	*17.2*		*16.6*			*23.5*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*	*0.50*		*0.50*			*0.50*	
Incremental Delay, d_2		*0.3*		*2.2*	*0.1*	*0.9*		*2.5*			*44.4*	

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Arthur Kill Rd & Bloomingdl Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/4/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*1*	*1*		*0*		*0*			
Lane Group		*TR*		*L*	*T*			*LR*				
Volume, V (vph)		*174*	*189*	*173*	*215*		*282*		*151*			
% Heavy Vehicles, %HV		*10*	*10*	*13*	*13*		*9*		*9*			
Peak-Hour Factor, PHF		*0.92*	*0.92*	*0.89*	*0.89*		*0.94*		*0.94*			
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*		*P*			
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*			*2.0*				
Arrival Type, AT		*3*		*3*	*3*			*3*				
Unit Extension, UE		*3.0*		*3.0*	*3.0*			*3.0*				
Filtering/Metering, I		*0.964*		*0.986*	*0.986*			*0.858*				
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*44*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	
Lane Width		*16.0*		*11.0*	*11.0*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m									*5*			
Buses Stopping, N_B		*5*		*0*	*0*			*0*				
Min. Time for Pedestrians, G_p	*18.3*			*3.2*			*15.2*			*17.2*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*347*		*194*	*242*			*461*				
Lane Group Capacity, c		*900*		*377*	*813*			*529*				
v/c Ratio, X		*0.39*		*0.51*	*0.30*			*0.87*				
Total Green Ratio, g/C		*0.50*		*0.50*	*0.50*			*0.39*				
Uniform Delay, d_1		*13.9*		*15.1*	*13.2*			*25.4*				
Progression Factor, PF		*1.000*		*1.000*	*1.000*			*1.000*				
Delay Calibration, k		*0.50*		*0.50*	*0.50*			*0.50*				
Incremental Delay, d_2		*1.2*		*4.9*	*0.9*			*15.6*				
Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*			*0.0*				

Weekday

Midday

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*4/4/13*
Analysis Time Period	*Weekday 12-1 MD Peak Period*

Site Information

Intersection	*Englewood Ave & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 Miti-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*310*	*44*	*25*	*316*	
Peak-Hour Factor, PHF	*1.00*	*0.85*	*0.85*	*0.91*	*0.91*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*364*	*51*	*27*	*347*	*0*
Percent Heavy Vehicles	*0*	--	--	*15*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*148*		*16*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.94*	*1.00*	*0.94*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*157*	*0*	*17*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*	*L*		*R*			
v (veh/h)		*27*	*157*		*17*			
C (m) (veh/h)		*1077*	*352*		*663*			
v/c		*0.03*	*0.45*		*0.03*			
95% queue length		*0.08*	*2.21*		*0.08*			
Control Delay (s/veh)		*8.4*	*23.2*		*10.6*			
LOS		*A*	*C*		*B*			
Approach Delay (s/veh)	--	--	*22.0*					
Approach LOS	--	--	*C*					

HCS+™ Version 5.4 Generated: 4/12/2013 11:23 AM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/2/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*1*	*1*	*1*	*0*
Lane Group		*LTR*			*LT*	*R*		*LT*	*R*	*L*	*TR*	
Volume, V (vph)	*1*	*17*	*6*	*255*	*24*	*391*	*1*	*175*	*272*	*233*	*192*	*1*
% Heavy Vehicles, %HV	*4*	*4*	*4*	*6*	*6*	*6*	*11*	*11*	*11*	*7*	*7*	*7*
Peak-Hour Factor, PHF	*0.84*	*0.84*	*0.84*	*0.90*	*0.90*	*0.90*	*0.92*	*0.92*	*0.92*	*0.86*	*0.86*	*0.86*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	
Arrival Type, AT		*3*			*3*	*3*		*3*	*3*	*3*	*3*	
Unit Extension, UE		*3.0*			*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	
Filtering/Metering, I		*1.000*			*0.887*	*0.887*		*0.931*	*0.931*	*1.000*	*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*	*0.0*		*0.0*	*0.0*	*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*15.5*			*11.0*	*10.0*		*12.0*	*12.0*	*10.0*	*11.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*			*0*	*0*		*3*	*0*	*0*	*4*	
Min. Time for Pedestrians, G_p	*11.5*			*13.5*			*15.2*			*12.1*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*28*			*310*	*434*		*191*	*296*	*271*	*224*	
Lane Group Capacity, c		*713*			*523*	*518*		*704*	*606*	*440*	*703*	
v/c Ratio, X		*0.04*			*0.59*	*0.84*		*0.27*	*0.49*	*0.62*	*0.32*	
Total Green Ratio, g/C		*0.42*			*0.42*	*0.42*		*0.42*	*0.42*	*0.42*	*0.42*	
Uniform Delay, d_1		*10.4*			*13.6*	*15.7*		*11.5*	*12.8*	*13.7*	*11.8*	
Progression Factor, PF		*1.000*			*1.000*	*1.000*		*1.000*	*1.000*	*1.000*	*1.000*	
Delay Calibration, k		*0.50*			*0.50*	*0.50*		*0.50*	*0.50*	*0.50*	*0.50*	
Incremental Delay, d_2		*0.1*			*4.3*	*13.4*		*0.9*	*2.6*	*6.3*	*1.2*	

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Rch Valley Rd & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/3/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*	*0*	*1*	*1*	
Lane Group					*LR*			*TR*		*L*	*T*	
Volume, V (vph)				*102*		*199*		*473*	*80*	*186*	*467*	
% Heavy Vehicles, %HV				*3*		*3*		*8*	*8*	*6*	*6*	
Peak-Hour Factor, PHF				*0.87*		*0.87*		*0.92*	*0.92*	*0.86*	*0.86*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*	*P*	*P*	*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*		*2.0*	*2.0*	
Arrival Type, AT					*3*			*3*		*3*	*3*	
Unit Extension, UE					*3.0*			*3.0*		*3.0*	*3.0*	
Filtering/Metering, I					*0.944*			*0.880*		*0.500*	*0.500*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width					*12.0*			*15.0*		*10.0*	*10.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B					*0*			*4*		*0*	*4*	
Min. Time for Pedestrians, G_p	*11.8*			*11.8*			*14.1*			*3.2*		

Phasing	WB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*346*			*601*		*216*	*543*	
Lane Group Capacity, c					*385*			*1058*		*332*	*933*	
v/c Ratio, X					*0.90*			*0.57*		*0.65*	*0.58*	
Total Green Ratio, g/C					*0.27*			*0.57*		*0.57*	*0.57*	
Uniform Delay, d_1					*21.2*			*8.3*		*8.9*	*8.4*	
Progression Factor, PF					*1.000*			*1.000*		*1.000*	*1.000*	
Delay Calibration, k					*0.50*			*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2					*25.2*			*1.9*		*4.9*	*1.3*	
Initial Queue Delay, d_3					*0.0*			*0.0*		*0.0*	*0.0*	

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Bricktown/KWVP*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/10/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*	*0*	*1*	*2*	*0*	*0*	*2*	*0*	*1*	*1*	*0*
Lane Group	*L*	*TR*		*L*	*TR*			*LTR*		*L*	*TR*	
Volume, V (vph)	*150*	*250*	*148*	*195*	*446*	*84*	*178*	*448*	*316*	*149*	*67*	*89*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*6*	*6*	*6*	*4*	*4*	*4*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.84*	*0.84*	*0.84*	*0.90*	*0.90*	*0.90*	*0.93*	*0.93*	*0.93*	*0.80*	*0.80*	*0.80*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*		*2.0*	*2.0*			*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e	*2.0*	*2.0*		*2.0*	*2.0*			*2.0*		*2.0*	*2.0*	
Arrival Type, AT	*3*	*3*		*3*	*3*			*3*		*3*	*3*	
Unit Extension, UE	*3.0*	*3.0*		*3.0*	*3.0*			*3.0*		*3.0*	*3.0*	
Filtering/Metering, I	*0.856*	*0.856*		*0.927*	*0.927*			*1.000*		*0.985*	*0.985*	
Initial Unmet Demand, Q_b	*0.0*	*0.0*		*0.0*	*0.0*			*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*32*	*0*	*0*	*13*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*11.0*	*12.0*		*10.0*	*12.0*			*12.5*		*11.0*	*10.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*		*0*	*0*			*0*		*0*	*0*	
Min. Time for Pedestrians, G_p	*34.6*			*18.6*			*20.3*			*16.1*		

Phasing	EW Perm	02	03	04	NB Only	SB Only	07	08
Timing	G = *33.0*	G =	G =	G =	G = *25.0*	G = *17.0*	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y = *5*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*179*	*436*		*217*	*575*			*1013*		*186*	*195*	
Lane Group Capacity, c	*234*	*657*		*187*	*1225*			*924*		*323*	*300*	
v/c Ratio, X	*0.76*	*0.66*		*1.16*	*0.47*			*1.10*		*0.58*	*0.65*	
Total Green Ratio, g/C	*0.37*	*0.37*		*0.37*	*0.37*			*0.28*		*0.19*	*0.19*	
Uniform Delay, d_1	*25.1*	*23.9*		*28.5*	*21.8*			*32.5*		*33.2*	*33.7*	
Progression Factor, PF	*1.000*	*1.000*		*1.000*	*1.000*			*1.000*		*1.000*	*1.000*	
Delay Calibration, k	*0.50*	*0.50*		*0.50*	*0.50*			*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2	*18.3*	*4.5*		*113.3*	*1.2*			*59.5*		*7.2*	*10.3*	

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/2/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*1*	*2*	*0*
Lane Group	*L*	*TR*		*DefL*	*TR*		*DefL*	*TR*		*L*	*TR*	
Volume, V (vph)	*62*	*117*	*509*	*134*	*223*	*18*	*281*	*201*	*88*	*23*	*528*	*226*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*3*	*3*	*3*	*3*	*3*	*3*	*12*	*12*	*12*
Peak-Hour Factor, PHF	*0.84*	*0.84*	*0.84*	*0.90*	*0.90*	*0.90*	*0.87*	*0.87*	*0.87*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*		*2.0*	*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e	*2.0*	*2.0*		*2.0*	*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	
Arrival Type, AT	*3*	*3*		*3*	*3*		*3*	*3*		*3*	*3*	
Unit Extension, UE	*3.0*	*3.0*		*3.0*	*3.0*		*3.0*	*3.0*		*3.0*	*3.0*	
Filtering/Metering, I	*0.889*	*0.889*		*0.932*	*0.932*		*1.000*	*1.000*		*1.000*	*1.000*	
Initial Unmet Demand, Q_b	*0.0*	*0.0*		*0.0*	*0.0*		*0.0*	*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*11.0*	*12.0*		*12.0*	*12.0*		*13.0*	*13.0*		*10.0*	*9.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*		*0*	*0*		*0*	*0*		*0*	*0*	
Min. Time for Pedestrians, G_p	*18.6*			*16.6*			*20.1*			*19.8*		

Phasing	EW Perm	WB Only	03	04	SB Only	NS Perm	NB Only	08
Timing	G = *25.0*	G = *5.0*	G =	G =	G = *13.0*	G = *14.0*	G = *14.0*	G =
	Y = *3*	Y = *5*	Y =	Y =	Y = *3*	Y = *3*	Y = *5*	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*74*	*745*		*149*	*268*		*323*	*332*		*26*	*838*	
Lane Group Capacity, c	*278*	*865*		*277*	*669*		*468*	*627*		*325*	*943*	
v/c Ratio, X	*0.27*	*0.86*		*0.54*	*0.40*		*0.69*	*0.53*		*0.08*	*0.89*	
Total Green Ratio, g/C	*0.28*	*0.28*		*0.37*	*0.37*		*0.34*	*0.34*		*0.33*	*0.33*	
Uniform Delay, d_1	*25.3*	*30.9*		*33.3*	*21.2*		*29.1*	*23.7*		*20.6*	*28.4*	
Progression Factor, PF	*1.000*	*1.000*		*1.000*	*1.000*		*1.000*	*1.000*		*1.000*	*1.000*	
Delay Calibration, k	*0.50*	*0.50*		*0.50*	*0.50*		*0.50*	*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2	*2.1*	*9.9*		*6.8*	*1.7*		*8.1*	*3.2*		*0.5*	*12.2*	

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Boscombe Ave & OBX Off-Ramp*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/16/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 With-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*1*	*1*	*1*
Lane Group	*L*	*TR*			*LT*	*R*		*LTR*		*L*	*LT*	*R*
Volume, V (vph)	*681*	*422*	*3*	*1*	*443*	*746*	*0*	*0*	*1*	*119*	*0*	*136*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*3*	*3*	*3*	*0*	*0*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.91*	*0.91*	*0.91*	*0.91*	*0.93*	*0.91*	*0.25*	*0.25*	*0.25*	*0.97*	*0.97*	*0.97*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*	*3*		*3*		*3*	*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*	*3.0*		*3.0*		*3.0*	*3.0*	*3.0*
Filtering/Metering, I	*0.735*	*0.735*			*0.546*	*0.546*		*1.000*		*1.000*	*1.000*	*1.000*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*	*0.0*		*0.0*		*0.0*	*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*85*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*11.0*	*12.0*			*12.0*	*12.0*		*16.0*		*10.0*	*11.0*	*10.0*
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B	*0*	*0*			*0*	*0*		*0*		*0*	*0*	*0*
Min. Time for Pedestrians, G_p	*14.6*			*24.6*			*20.9*			*20.1*		

Phasing	EB Only	EW Perm	03	04	NS Perm	06	07	08
Timing	G = *37.0*	G = *23.0*	G =	G =	G = *15.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*					Cycle Length, C = *90.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*748*	*467*			*477*	*726*		*4*		*123*	*0*	*140*
Lane Group Capacity, c	*783*	*1176*			*471*	*401*		*307*		*219*	*300*	*936*
v/c Ratio, X	*0.96*	*0.40*			*1.01*	*1.81*		*0.01*		*0.56*	*0.00*	*0.15*
Total Green Ratio, g/C	*0.72*	*0.72*			*0.26*	*0.26*		*0.17*		*0.17*	*0.17*	*0.63*
Uniform Delay, d_1	*21.2*	*4.9*			*33.5*	*33.5*		*31.3*		*34.5*	*31.3*	*6.7*
Progression Factor, PF	*1.000*	*1.000*			*1.000*	*1.000*		*1.000*		*1.000*	*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*	*0.50*		*0.50*		*0.50*	*0.50*	*0.50*

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Boscombe Ave & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Hour*	Analysis Year	*2020 Mitih-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*1*	*1*
Lane Group	*DefL*	*TR*			*LTR*		*DefL*	*TR*			*LT*	*R*
Volume, V (vph)	*504*	*38*	*0*	*2*	*65*	*71*	*4*	*3*	*0*	*65*	*6*	*1120*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*3*	*3*	*3*	*1*	*1*	*1*	*6*	*6*	*6*
Peak-Hour Factor, PHF	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*	*0.58*	*0.58*	*0.58*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*		*3*	*3*			*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	*3.0*
Filtering/Metering, I	*0.962*	*0.962*			*1.000*		*1.000*	*1.000*			*0.889*	*0.889*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*17*	*0*	*0*	*0*	*0*	*0*	*310*
Lane Width	*16.0*	*16.0*			*11.5*		*12.0*	*12.0*			*12.0*	*12.0*
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*			*0*		*0*	*0*			*0*	*0*
Min. Time for Pedestrians, G_p	*20.3*			*17.5*			*20.3*			*20.3*		

Phasing	EW Perm	EB Only	03	04	NS Perm	06	07	08
Timing	G = *28.0*	G = *12.0*	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*					Cycle Length, C = *90.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*554*	*42*			*132*		*7*	*5*			*79*	*900*
Lane Group Capacity, c	*818*	*1056*			*955*		*516*	*732*			*538*	*881*
v/c Ratio, X	*0.68*	*0.04*			*0.14*		*0.01*	*0.01*			*0.15*	*1.02*
Total Green Ratio, g/C	*0.50*	*0.50*			*0.31*		*0.39*	*0.39*			*0.39*	*0.58*
Uniform Delay, d_1	*18.5*	*11.5*			*22.3*		*16.9*	*16.9*			*17.8*	*19.0*
Progression Factor, PF	*1.000*	*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	*0.50*

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Englewood Ave @ Veterans Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*1*	*1*		*1*			*0*	*3*	*0*
Lane Group		*TR*		*L*	*T*		*L*				*LTR*	
Volume, V (vph)		*38*	*0*	*553*	*83*		*1*			*23*	*294*	*30*
% Heavy Vehicles, %HV		*1*	*1*	*1*	*1*		*1*			*2*	*2*	*2*
Peak-Hour Factor, PHF		*0.25*	*0.25*	*0.95*	*0.95*		*0.90*			*0.80*	*0.80*	*0.80*
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*			*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Arrival Type, AT		*3*		*3*	*3*		*3*				*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*		*3.0*				*3.0*	
Filtering/Metering, I		*1.000*		*0.983*	*0.983*		*0.989*				*1.000*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*12.0*		*13.0*	*13.0*		*10.0*				*11.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*		*0*	*0*		*0*				*0*	
Min. Time for Pedestrians, G_p	*31.2*			*3.2*			*18.1*			*11.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *29.0*	G =	G =	G =	G = *21.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*152*		*582*	*87*		*1*				*433*	
Lane Group Capacity, c		*909*		*621*	*940*		*279*				*1689*	
v/c Ratio, X		*0.17*		*0.94*	*0.09*		*0.00*				*0.26*	
Total Green Ratio, g/C		*0.48*		*0.48*	*0.48*		*0.35*				*0.35*	
Uniform Delay, d_1		*8.7*		*14.6*	*8.4*		*12.7*				*13.9*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*		*1.000*				*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*		*0.50*				*0.50*	
Incremental Delay, d_2		*0.4*		*23.3*	*0.2*		*0.0*				*0.4*	

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Vets Rd E & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/2/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*	*0*	*3*	*0*	*1*	*1*			*2*	*0*
Lane Group	*L*		*R*		*LTR*		*L*	*T*			*TR*	
Volume, V (vph)	*10*		*156*	*231*	*477*	*127*	*114*	*171*			*354*	*32*
% Heavy Vehicles, %HV	*1*		*1*	*2*	*2*	*2*	*6*	*6*			*2*	*2*
Peak-Hour Factor, PHF	*0.77*		*0.77*	*0.87*	*0.87*	*0.87*	*0.89*	*0.89*			*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*		*P*	*P*	*P*	*P*	*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*		*3*		*3*	*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*		*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I	*0.830*		*0.830*		*0.725*		*0.937*	*0.937*			*0.817*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Lane Width	*10.0*		*13.0*		*11.0*		*12.0*	*12.0*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*		*0*		*0*	*2*			*2*	
Min. Time for Pedestrians, G_p	*17.2*			*16.9*			*3.2*			*20.9*		

Phasing	EB Only	WB Only	03	04	NS Perm	06	07	08
Timing	G = *10.0*	G = *15.0*	G =	G =	G = *20.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*13*		*203*		*960*		*128*	*192*			*429*	
Lane Group Capacity, c	*278*		*275*		*1182*		*289*	*593*			*1163*	
v/c Ratio, X	*0.05*		*0.74*		*0.81*		*0.44*	*0.32*			*0.37*	
Total Green Ratio, g/C	*0.17*		*0.17*		*0.25*		*0.33*	*0.33*			*0.33*	
Uniform Delay, d_1	*21.0*		*23.8*		*21.2*		*15.6*	*14.9*			*15.2*	
Progression Factor, PF	*1.000*		*1.000*		*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*		*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2	*0.3*		*13.7*		*4.5*		*4.6*	*1.4*			*0.7*	

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Arthur Kill Rd & Bloomingdl Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/4/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*1*	*1*		*0*		*0*			
Lane Group		*TR*		*L*	*T*			*LR*				
Volume, V (vph)		*198*	*189*	*189*	*226*		*196*		*174*			
% Heavy Vehicles, %HV		*8*	*8*	*16*	*16*		*2*		*2*			
Peak-Hour Factor, PHF		*0.90*	*0.90*	*0.91*	*0.91*		*0.88*		*0.88*			
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*		*P*			
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*			*2.0*				
Arrival Type, AT		*3*		*3*	*3*			*3*				
Unit Extension, UE		*3.0*		*3.0*	*3.0*			*3.0*				
Filtering/Metering, I		*0.961*		*0.989*	*0.989*			*0.922*				
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*44*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	
Lane Width		*16.0*		*11.0*	*11.0*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m									*5*			
Buses Stopping, N_B		*5*		*0*	*0*			*0*				
Min. Time for Pedestrians, G_p	*18.3*			*3.2*			*15.2*			*17.2*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*381*		*208*	*248*			*421*				
Lane Group Capacity, c		*921*		*347*	*792*			*559*				
v/c Ratio, X		*0.41*		*0.60*	*0.31*			*0.75*				
Total Green Ratio, g/C		*0.50*		*0.50*	*0.50*			*0.39*				
Uniform Delay, d_1		*14.2*		*16.1*	*13.3*			*23.8*				
Progression Factor, PF		*1.000*		*1.000*	*1.000*			*1.000*				
Delay Calibration, k		*0.50*		*0.50*	*0.50*			*0.50*				
Incremental Delay, d_2		*1.3*		*7.4*	*1.0*			*8.4*				
Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*			*0.0*				

Weekday

PM

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*4/4/13*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*Englewood Ave & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 Miti-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*338*	*63*	*33*	*330*	
Peak-Hour Factor, PHF	*1.00*	*0.87*	*0.87*	*0.81*	*0.81*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*388*	*72*	*40*	*407*	*0*
Percent Heavy Vehicles	*0*	--	--	*7*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*111*		*31*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.68*	*1.00*	*0.68*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*163*	*0*	*45*
Percent Heavy Vehicles	*0*	*0*	*0*	*7*	*0*	*7*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*	*L*		*R*			
v (veh/h)		*40*	*163*		*45*			
C (m) (veh/h)		*1075*	*287*		*619*			
v/c		*0.04*	*0.57*		*0.07*			
95% queue length		*0.12*	*3.26*		*0.23*			
Control Delay (s/veh)		*8.5*	*32.8*		*11.3*			
LOS		*A*	*D*		*B*			
Approach Delay (s/veh)	--	--	*28.2*					
Approach LOS	--	--	*D*					

HCS+™ Version 5.4 Generated: 4/12/2013 11:28 AM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/2/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*1*	*1*	*1*	*0*
Lane Group		*LTR*			*LT*	*R*		*LT*	*R*	*L*	*TR*	
Volume, V (vph)	*1*	*11*	*2*	*301*	*20*	*300*	*4*	*183*	*328*	*287*	*262*	*1*
% Heavy Vehicles, %HV	*3*	*3*	*3*	*5*	*5*	*5*	*5*	*5*	*5*	*7*	*7*	*7*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.82*	*0.82*	*0.82*	*0.93*	*0.93*	*0.93*	*0.86*	*0.86*	*0.86*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	
Arrival Type, AT		*3*			*3*	*3*		*3*	*3*	*3*	*3*	
Unit Extension, UE		*3.0*			*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	
Filtering/Metering, I		*1.000*			*0.933*	*0.933*		*0.919*	*0.919*	*1.000*	*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*	*0.0*		*0.0*	*0.0*	*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*15.5*			*11.0*	*10.0*		*12.0*	*12.0*	*10.0*	*11.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*			*0*	*0*		*3*	*0*	*0*	*2*	
Min. Time for Pedestrians, G_p	*11.5*			*13.5*			*15.2*			*12.1*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*16*			*391*	*366*		*201*	*353*	*334*	*306*	
Lane Group Capacity, c		*727*			*530*	*523*		*741*	*641*	*436*	*709*	
v/c Ratio, X		*0.02*			*0.74*	*0.70*		*0.27*	*0.55*	*0.77*	*0.43*	
Total Green Ratio, g/C		*0.42*			*0.42*	*0.42*		*0.42*	*0.42*	*0.42*	*0.42*	
Uniform Delay, d_1		*10.3*			*14.7*	*14.4*		*11.5*	*13.2*	*15.0*	*12.4*	
Progression Factor, PF		*1.000*			*1.000*	*1.000*		*1.000*	*1.000*	*1.000*	*1.000*	
Delay Calibration, k		*0.50*			*0.50*	*0.50*		*0.50*	*0.50*	*0.50*	*0.50*	
Incremental Delay, d_2		*0.1*			*8.3*	*7.1*		*0.8*	*3.1*	*12.1*	*1.9*	

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Rch Valley Rd & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/2/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*	*0*	*1*	*1*	
Lane Group					*LR*			*TR*		*L*	*T*	
Volume, V (vph)				*135*		*175*		*588*	*106*	*145*	*747*	
% Heavy Vehicles, %HV				*1*		*1*		*4*	*4*	*6*	*6*	
Peak-Hour Factor, PHF				*0.84*		*0.84*		*0.93*	*0.93*	*0.86*	*0.86*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*	*P*	*P*	*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*		*2.0*	*2.0*	
Arrival Type, AT					*3*			*3*		*3*	*3*	
Unit Extension, UE					*3.0*			*3.0*		*3.0*	*3.0*	
Filtering/Metering, I					*0.901*			*0.798*		*0.114*	*0.114*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width					*12.0*			*15.0*		*10.0*	*10.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B					*0*			*4*		*0*	*2*	
Min. Time for Pedestrians, G_p	*11.8*			*11.8*			*14.1*			*3.2*		

Phasing	WB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*369*			*746*		*169*	*869*	
Lane Group Capacity, c					*397*			*1098*		*267*	*941*	
v/c Ratio, X					*0.93*			*0.68*		*0.63*	*0.92*	
Total Green Ratio, g/C					*0.27*			*0.57*		*0.57*	*0.57*	
Uniform Delay, d_1					*21.4*			*9.2*		*8.8*	*11.8*	
Progression Factor, PF					*1.000*			*1.000*		*1.000*	*1.000*	
Delay Calibration, k					*0.50*			*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2					*28.4*			*2.7*		*1.3*	*2.5*	
Initial Queue Delay, d_3					*0.0*			*0.0*		*0.0*	*0.0*	

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Veterans Rd W & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/2/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*1*	*2*	*0*
Lane Group	*L*	*TR*		*DefL*	*TR*		*DefL*	*TR*		*L*	*TR*	
Volume, V (vph)	*53*	*120*	*557*	*123*	*272*	*10*	*271*	*145*	*124*	*22*	*534*	*124*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*2*	*2*	*2*	*1*	*1*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.82*	*0.82*	*0.82*	*0.93*	*0.93*	*0.93*	*0.94*	*0.94*	*0.94*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*		*2.0*	*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e	*2.0*	*2.0*		*2.0*	*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	
Arrival Type, AT	*3*	*3*		*3*	*3*		*3*	*3*		*3*	*3*	
Unit Extension, UE	*3.0*	*3.0*		*3.0*	*3.0*		*3.0*	*3.0*		*3.0*	*3.0*	
Filtering/Metering, I	*0.884*	*0.884*		*0.927*	*0.927*		*1.000*	*1.000*		*1.000*	*1.000*	
Initial Unmet Demand, Q_b	*0.0*	*0.0*		*0.0*	*0.0*		*0.0*	*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*12.0*	*12.0*		*12.0*	*12.0*		*13.0*	*13.0*		*12.0*	*9.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*		*0*	*0*		*0*	*0*		*0*	*0*	
Min. Time for Pedestrians, G_p	*18.6*			*16.6*			*20.1*			*19.8*		

Phasing	EW Perm	WB Only	03	04	SB Only	NS Perm	NB Only	08
Timing	G = *25.0*	G = *5.0*	G =	G =	G = *13.0*	G = *14.0*	G = *14.0*	G =
	Y = *3*	Y = *5*	Y =	Y =	Y = *3*	Y = *3*	Y = *5*	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*60*	*769*		*150*	*344*		*291*	*289*		*23*	*700*	
Lane Group Capacity, c	*252*	*864*		*280*	*679*		*490*	*623*		*399*	*1053*	
v/c Ratio, X	*0.24*	*0.89*		*0.54*	*0.51*		*0.59*	*0.46*		*0.06*	*0.66*	
Total Green Ratio, g/C	*0.28*	*0.28*		*0.37*	*0.37*		*0.34*	*0.34*		*0.33*	*0.33*	
Uniform Delay, d_1	*25.1*	*31.2*		*33.5*	*22.2*		*27.6*	*23.0*		*20.4*	*25.7*	
Progression Factor, PF	*1.000*	*1.000*		*1.000*	*1.000*		*1.000*	*1.000*		*1.000*	*1.000*	
Delay Calibration, k	*0.50*	*0.50*		*0.50*	*0.50*		*0.50*	*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2	*2.0*	*12.0*		*6.7*	*2.5*		*5.2*	*2.5*		*0.3*	*3.3*	

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Boscombe Ave & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Hour*	Analysis Year	*2020 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*1*	*1*
Lane Group	*DefL*	*TR*			*LTR*			*LTR*			*LT*	*R*
Volume, V (vph)	*499*	*37*	*0*	*1*	*37*	*43*	*3*	*3*	*2*	*62*	*1*	*1176*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.95*	*0.95*	*0.95*	*0.50*	*0.50*	*0.50*	*0.94*	*0.94*	*0.94*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*			*2.0*			*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*			*2.0*			*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*			*3*			*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*			*3.0*			*3.0*	*3.0*
Filtering/Metering, I	*0.952*	*0.952*			*1.000*			*1.000*			*0.937*	*0.937*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*			*0.0*			*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*10*	*0*	*0*	*0*	*0*	*0*	*294*
Lane Width	*16.0*	*16.0*			*11.5*			*12.0*			*12.0*	*12.0*
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*			*0*			*0*			*0*	*0*
Min. Time for Pedestrians, G_p	*20.3*			*17.5*			*20.3*			*20.3*		

Phasing	EW Perm	EB Only	03	04	NS Perm	06	07	08
Timing	G = *29.0*	G = *11.0*	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*554*	*41*			*75*			*16*			*67*	*938*
Lane Group Capacity, c	*845*	*1066*			*1007*			*1220*			*548*	*897*
v/c Ratio, X	*0.66*	*0.04*			*0.07*			*0.01*			*0.12*	*1.05*
Total Green Ratio, g/C	*0.50*	*0.50*			*0.32*			*0.39*			*0.39*	*0.57*
Uniform Delay, d_1	*17.8*	*11.5*			*21.2*			*16.9*			*17.6*	*19.5*
Progression Factor, PF	*1.000*	*1.000*			*1.000*			*1.000*			*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*			*0.50*			*0.50*	*0.50*
Incremental Delay, d_2	*3.8*	*0.1*			*0.1*			*0.0*			*0.4*	*41.8*

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Ave @ Veterans Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*1*	*1*		*1*			*0*	*3*	*0*
Lane Group		*TR*		*L*	*T*		*L*				*LTR*	
Volume, V (vph)		*71*	*0*	*475*	*76*		*4*			*23*	*334*	*38*
% Heavy Vehicles, %HV		*1*	*1*	*3*	*3*		*1*			*1*	*1*	*1*
Peak-Hour Factor, PHF		*0.50*	*0.25*	*0.89*	*0.89*		*0.88*			*0.91*	*0.91*	*0.91*
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*			*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Arrival Type, AT		*3*		*3*	*3*		*3*				*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*		*3.0*				*3.0*	
Filtering/Metering, I		*1.000*		*0.983*	*0.983*		*0.988*				*1.000*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*12.0*		*13.0*	*13.0*		*10.0*				*11.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*		*0*	*0*		*0*				*0*	
Min. Time for Pedestrians, G_p	*31.2*			*3.2*			*18.1*			*11.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *27.0*	G =	G =	G =	G = *23.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*142*		*534*	*85*		*5*				*434*	
Lane Group Capacity, c		*846*		*571*	*858*		*312*				*1866*	
v/c Ratio, X		*0.17*		*0.94*	*0.10*		*0.02*				*0.23*	
Total Green Ratio, g/C		*0.45*		*0.45*	*0.45*		*0.38*				*0.38*	
Uniform Delay, d_1		*9.8*		*15.7*	*9.5*		*11.5*				*12.5*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*		*1.000*				*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*		*0.50*				*0.50*	
Incremental Delay, d_2		*0.4*		*24.4*	*0.2*		*0.1*				*0.3*	

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Ave @ Vets Rd E*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*3*	*0*			
Lane Group		*LT*	*R*		*LTR*			*LTR*				
Volume, V (vph)	*193*	*270*	*176*	*8*	*66*	*9*	*486*	*106*	*2*			
% Heavy Vehicles, %HV	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*			
Peak-Hour Factor, PHF	*0.85*	*0.85*	*0.85*	*0.87*	*0.87*	*0.87*	*0.89*	*0.89*	*0.89*			
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*			
Start-up Lost Time, l_1		*2.0*	*2.0*		*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*	*2.0*		*2.0*			*2.0*				
Arrival Type, AT		*3*	*3*		*3*			*3*				
Unit Extension, UE		*3.0*	*3.0*		*3.0*			*3.0*				
Filtering/Metering, I		*0.999*	*0.999*		*0.996*			*0.980*				
Initial Unmet Demand, Q_b		*0.0*	*0.0*		*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*53*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width		*13.0*	*12.0*		*11.5*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B		*0*	*0*		*0*			*0*				
Min. Time for Pedestrians, G_p	*21.2*			*12.9*			*14.3*			*17.5*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *22.0*	G =	G =	G =	G = *28.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*545*	*145*		*95*			*667*				
Lane Group Capacity, c		*586*	*586*		*556*			*2220*				
v/c Ratio, X		*0.93*	*0.25*		*0.17*			*0.30*				
Total Green Ratio, g/C		*0.37*	*0.37*		*0.37*			*0.47*				
Uniform Delay, d_1		*18.3*	*13.2*		*12.8*			*9.9*				
Progression Factor, PF		*1.000*	*1.000*		*1.000*			*1.000*				
Delay Calibration, k		*0.50*	*0.50*		*0.50*			*0.50*				
Incremental Delay, d_2		*23.4*	*1.0*		*0.7*			*0.3*				

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Vets Rd E & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/2/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*	*0*	*3*	*0*	*1*	*1*			*2*	*0*
Lane Group	*L*		*R*		*LTR*		*L*	*T*			*TR*	
Volume, V (vph)	*4*		*180*	*284*	*485*	*276*	*104*	*207*			*501*	*5*
% Heavy Vehicles, %HV	*1*		*1*	*1*	*1*	*1*	*2*	*2*			*4*	*4*
Peak-Hour Factor, PHF	*0.95*		*0.95*	*0.88*	*0.88*	*0.88*	*0.92*	*0.92*			*0.87*	*0.87*
Pretimed (P) or Actuated (A)	*P*		*P*	*P*	*P*	*P*	*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*		*3*		*3*	*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*		*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I	*0.848*		*0.848*		*0.500*		*0.930*	*0.930*			*0.865*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Lane Width	*10.0*		*13.0*		*11.0*		*12.0*	*12.0*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*		*0*		*0*	*2*			*7*	
Min. Time for Pedestrians, G_p	*17.2*			*16.9*			*3.2*			*20.9*		

Phasing	EB Only	WB Only	03	04	NS Perm	06	07	08
Timing	G = *9.0*	G = *16.0*	G =	G =	G = *20.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*4*		*189*		*1188*		*113*	*225*			*582*	
Lane Group Capacity, c	*250*		*248*		*1251*		*226*	*616*			*1141*	
v/c Ratio, X	*0.02*		*0.76*		*0.95*		*0.50*	*0.37*			*0.51*	
Total Green Ratio, g/C	*0.15*		*0.15*		*0.27*		*0.33*	*0.33*			*0.33*	
Uniform Delay, d_1	*21.7*		*24.5*		*21.6*		*16.0*	*15.2*			*16.1*	
Progression Factor, PF	*1.000*		*1.000*		*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*		*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2	*0.1*		*17.0*		*9.5*		*7.2*	*1.6*			*1.4*	

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Amboy Rd & Bloomingdale Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*1*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*		*L*	*T*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*6*	*13*	*20*	*267*	*29*	*110*	*18*	*320*	*175*	*94*	*456*	*10*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*3*	*3*	*3*	*1*	*1*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.70*	*0.70*	*0.70*	*0.87*	*0.87*	*0.87*	*0.92*	*0.92*	*0.92*	*0.87*	*0.87*	*0.87*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*		*3*	*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*		*0.905*	*0.905*	*0.905*		*0.663*			*0.229*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*50*	*0*	*0*	*0*	*0*	*0*	*50*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*		*12.0*	*11.0*	*11.0*		*11.0*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*2*		*0*	*0*	*2*		*0*			*0*	
Min. Time for Pedestrians, G_p	*11.5*			*11.8*			*18.9*			*18.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *39.0*	G =	G =	G =	G = *41.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*57*		*307*	*33*	*126*		*558*			*643*	
Lane Group Capacity, c		*618*		*545*	*773*	*570*		*752*			*644*	
v/c Ratio, X		*0.09*		*0.56*	*0.04*	*0.22*		*0.74*			*1.00*	
Total Green Ratio, g/C		*0.43*		*0.43*	*0.43*	*0.43*		*0.46*			*0.46*	
Uniform Delay, d_1		*15.1*		*19.1*	*14.7*	*16.0*		*20.2*			*24.5*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*	*0.50*		*0.50*			*0.50*	
Incremental Delay, d_2		*0.3*		*3.8*	*0.1*	*0.8*		*4.4*			*16.6*	

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Arthur Kill Rd & Bloomingdl Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/4/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*1*	*1*		*0*		*0*			
Lane Group		*TR*		*L*	*T*			*LR*				
Volume, V (vph)		*203*	*253*	*208*	*224*		*158*		*200*			
% Heavy Vehicles, %HV		*5*	*5*	*8*	*8*		*1*		*1*			
Peak-Hour Factor, PHF		*0.82*	*0.82*	*0.83*	*0.83*		*0.67*		*0.67*			
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*		*P*			
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*			*2.0*				
Arrival Type, AT		*3*		*3*	*3*			*3*				
Unit Extension, UE		*3.0*		*3.0*	*3.0*			*3.0*				
Filtering/Metering, I		*0.927*		*0.989*	*0.989*			*0.917*				
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*59*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	
Lane Width		*16.0*		*11.0*	*11.0*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m									*5*			
Buses Stopping, N_B		*5*		*0*	*0*			*0*				
Min. Time for Pedestrians, G_p	*18.3*			*3.2*			*15.2*			*17.2*		

Phasing	EW Perm	WB Only	03	04	NB Only	06	07	08
Timing	G = *34.0*	G = *5.0*	G =	G =	G = *38.0*	G =	G =	G =
	Y = *3*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*485*		*251*	*270*			*535*				
Lane Group Capacity, c		*709*		*336*	*794*			*608*				
v/c Ratio, X		*0.68*		*0.75*	*0.34*			*0.88*				
Total Green Ratio, g/C		*0.38*		*0.47*	*0.47*			*0.42*				
Uniform Delay, d_1		*23.5*		*30.8*	*15.2*			*23.9*				
Progression Factor, PF		*1.000*		*1.000*	*1.000*			*1.000*				
Delay Calibration, k		*0.50*		*0.50*	*0.50*			*0.50*				
Incremental Delay, d_2		*4.9*		*13.9*	*1.2*			*15.5*				
Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*			*0.0*				

Saturday

Midday

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*4/3/13*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*Englewood Ave & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 Miti-Action Conditions*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*321*	*55*	*27*	*377*	
Peak-Hour Factor, PHF	*1.00*	*0.92*	*0.92*	*0.88*	*0.88*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*348*	*59*	*30*	*428*	*0*
Percent Heavy Vehicles	*0*	--	--	*5*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*119*		*22*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.75*	*1.00*	*0.75*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*158*	*0*	*29*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*	*L*		*R*			
v (veh/h)		*30*	*158*		*29*			
C (m) (veh/h)		*1136*	*313*		*667*			
v/c		*0.03*	*0.50*		*0.04*			
95% queue length		*0.08*	*2.69*		*0.14*			
Control Delay (s/veh)		*8.3*	*27.7*		*10.6*			
LOS		*A*	*D*		*B*			
Approach Delay (s/veh)	--	--	*25.0*					
Approach LOS	--	--	*D*					

HCS+™ Version 5.4

Generated: 4/12/2013 11:33 AM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/2/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*1*	*1*	*1*	*0*
Lane Group		*LTR*			*LT*	*R*		*LT*	*R*	*L*	*TR*	
Volume, V (vph)	*0*	*10*	*5*	*356*	*27*	*434*	*5*	*216*	*400*	*296*	*229*	*0*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*2*	*2*	*2*	*5*	*5*	*5*	*3*	*3*	*3*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	
Arrival Type, AT		*3*			*3*	*3*		*3*	*3*	*3*	*3*	
Unit Extension, UE		*3.0*			*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	
Filtering/Metering, I		*1.000*			*0.849*	*0.849*		*0.861*	*0.861*	*1.000*	*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*	*0.0*		*0.0*	*0.0*	*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*15.5*			*11.0*	*10.0*		*12.0*	*12.0*	*10.0*	*11.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*			*0*	*0*		*2*	*0*	*0*	*2*	
Min. Time for Pedestrians, G_p	*11.5*			*13.5*			*15.2*			*12.1*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*16*			*416*	*472*		*242*	*440*	*325*	*252*	
Lane Group Capacity, c		*726*			*547*	*539*		*744*	*641*	*429*	*737*	
v/c Ratio, X		*0.02*			*0.76*	*0.88*		*0.33*	*0.69*	*0.76*	*0.34*	
Total Green Ratio, g/C		*0.42*			*0.42*	*0.42*		*0.42*	*0.42*	*0.42*	*0.42*	
Uniform Delay, d_1		*10.3*			*14.9*	*16.1*		*11.8*	*14.3*	*14.9*	*11.9*	
Progression Factor, PF		*1.000*			*1.000*	*1.000*		*1.000*	*1.000*	*1.000*	*1.000*	
Delay Calibration, k		*0.50*			*0.50*	*0.50*		*0.50*	*0.50*	*0.50*	*0.50*	
Incremental Delay, d_2		*0.1*			*8.2*	*15.6*		*1.0*	*5.1*	*11.8*	*1.3*	

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Rch Valley Rd & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/2/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:15-1:45 PM Peak Pd*	Analysis Year	*2020 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*	*0*	*1*	*1*	
Lane Group					*LR*			*TR*		*L*	*T*	
Volume, V (vph)				*108*		*222*		*645*	*94*	*157*	*735*	
% Heavy Vehicles, %HV				*1*		*1*		*2*	*2*	*2*	*2*	
Peak-Hour Factor, PHF				*0.89*		*0.89*		*0.91*	*0.91*	*0.91*	*0.91*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*	*P*	*P*	*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*		*2.0*	*2.0*	
Arrival Type, AT					*3*			*3*		*3*	*3*	
Unit Extension, UE					*3.0*			*3.0*		*3.0*	*3.0*	
Filtering/Metering, I					*0.940*			*0.789*		*0.272*	*0.272*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width					*12.0*			*15.0*		*10.0*	*10.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B					*0*			*2*		*0*	*2*	
Min. Time for Pedestrians, G_p	*11.8*			*11.8*			*14.1*			*3.2*		

Phasing	WB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*370*			*812*		*173*	*808*	
Lane Group Capacity, c					*393*			*1132*		*252*	*977*	
v/c Ratio, X					*0.94*			*0.72*		*0.69*	*0.83*	
Total Green Ratio, g/C					*0.27*			*0.57*		*0.57*	*0.57*	
Uniform Delay, d_1					*21.5*			*9.5*		*9.2*	*10.6*	
Progression Factor, PF					*1.000*			*1.000*		*1.000*	*1.000*	
Delay Calibration, k					*0.50*			*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2					*31.5*			*3.1*		*4.1*	*2.3*	
Initial Queue Delay, d_3					*0.0*			*0.0*		*0.0*	*0.0*	

Control Delay					53.1			12.6		13.4	12.9	
Lane Group LOS					D			B		B	B	
Approach Delay				53.1			12.6			13.0		
Approach LOS				D			B			B		
Intersection Delay	19.7			X_c = 0.86			Intersection LOS			B		

 HCS+™ Version 5.4 Generated: 4/12/2013 11:34 AM

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Veterans Rd W & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/2/13*	Jurisdiction	*SFR NB-DefL = 2050*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*1*	*2*	*0*
Lane Group	*L*	*TR*		*DefL*	*TR*		*DefL*	*TR*		*L*	*TR*	
Volume, V (vph)	*82*	*139*	*593*	*165*	*339*	*25*	*322*	*269*	*115*	*26*	*834*	*168*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*1*	*1*	*1*	*1*	*1*	*1*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.78*	*0.78*	*0.78*	*0.94*	*0.91*	*0.91*	*0.93*	*0.93*	*0.93*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*		*2.0*	*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e	*2.0*	*2.0*		*2.0*	*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	
Arrival Type, AT	*3*	*3*		*3*	*3*		*3*	*3*		*3*	*3*	
Unit Extension, UE	*3.0*	*3.0*		*3.0*	*3.0*		*3.0*	*3.0*		*3.0*	*3.0*	
Filtering/Metering, I	*0.830*	*0.830*		*0.865*	*0.865*		*1.000*	*1.000*		*1.000*	*1.000*	
Initial Unmet Demand, Q_b	*0.0*	*0.0*		*0.0*	*0.0*		*0.0*	*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*11.0*	*12.0*		*12.0*	*12.0*		*13.0*	*13.0*		*10.0*	*9.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*		*0*	*0*		*0*	*0*		*0*	*0*	
Min. Time for Pedestrians, G_p	*18.6*			*16.6*			*20.1*			*19.8*		

Phasing	EW Perm	WB Only	03	04	SB Only	NS Perm	NB Only	08
Timing	G = *25.0*	G = *6.0*	G =	G =	G = *15.0*	G = *14.0*	G = *11.0*	G =
	Y = *3*	Y = *5*	Y =	Y =	Y = *3*	Y = *3*	Y = *5*	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*89*	*796*		*212*	*467*		*343*	*422*		*28*	*1078*	
Lane Group Capacity, c	*195*	*866*		*302*	*703*		*447*	*578*		*370*	*1150*	
v/c Ratio, X	*0.46*	*0.92*		*0.70*	*0.66*		*0.77*	*0.73*		*0.08*	*0.94*	
Total Green Ratio, g/C	*0.28*	*0.28*		*0.38*	*0.38*		*0.31*	*0.31*		*0.36*	*0.36*	
Uniform Delay, d_1	*26.9*	*31.5*		*34.4*	*23.3*		*32.1*	*27.6*		*19.4*	*28.0*	
Progression Factor, PF	*1.000*	*1.000*		*1.000*	*1.000*		*1.000*	*1.000*		*1.000*	*1.000*	
Delay Calibration, k	*0.50*	*0.50*		*0.50*	*0.50*		*0.50*	*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2	*6.3*	*14.1*		*11.2*	*4.3*		*11.9*	*7.9*		*0.4*	*15.2*	

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Boscombe Ave & OBX Off-Ramp*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/10/13*	Jurisdiction	*Sat Flw Rate EB-L = 2100*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*			*1*	*1*				*2*		*1*
Lane Group	*L*	*T*			*T*	*R*				*L*		*R*
Volume, V (vph)	*881*	*472*			*508*	*1077*				*233*		*216*
% Heavy Vehicles, %HV	*1*	*1*			*1*	*1*				*1*		*1*
Peak-Hour Factor, PHF	*0.97*	*0.96*			*0.94*	*0.97*				*0.92*		*0.92*
Pretimed (P) or Actuated (A)	*P*	*P*			*P*	*P*				*P*		*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*	*2.0*				*2.0*		*2.0*
Extension of Effective Green, e	*3.0*	*2.0*			*2.0*	*2.0*				*2.0*		*2.0*
Arrival Type, AT	*3*	*3*			*3*	*3*				*3*		*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*	*3.0*				*3.0*		*3.0*
Filtering/Metering, I	*0.508*	*0.508*			*0.176*	*0.176*				*1.000*		*1.000*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*	*0.0*				*0.0*		*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*119*	*0*	*0*		*0*	*0*	*0*
Lane Width	*11.0*	*12.0*			*12.0*	*12.0*				*10.0*		*10.0*
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B	*0*	*0*			*0*	*0*				*0*		*0*
Min. Time for Pedestrians, G_p	*14.6*			*24.6*			*3.2*			*20.1*		

Phasing	EB Only	EW Perm	03	04	SB Only	06	07	08
Timing	G = *37.0*	G = *24.0*	G =	G =	G = *14.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*908*	*492*			*540*	*988*				*253*		*235*
Lane Group Capacity, c	*895*	*1207*			*502*	*764*				*504*		*928*
v/c Ratio, X	*1.01*	*0.41*			*1.08*	*1.29*				*0.50*		*0.25*
Total Green Ratio, g/C	*0.74*	*0.73*			*0.27*	*0.48*				*0.16*		*0.62*
Uniform Delay, d_1	*9.5*	*4.6*			*33.0*	*23.5*				*34.8*		*7.6*
Progression Factor, PF	*1.000*	*1.000*			*1.000*	*1.000*				*1.000*		*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*	*0.50*				*0.50*		*0.50*
Incremental Delay, d_2	*25.1*	*0.5*			*41.4*	*133.7*				*3.5*		*0.7*
Initial Queue Delay, d_3	*0.0*	*0.0*			*0.0*	*0.0*				*0.0*		*0.0*

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	KM	Intersection	Boscombe Ave & Tyrellan Ave
Agency or Co.	AECOM	Area Type	All other areas
Date Performed	1/31/13	Jurisdiction	Staten Island, NY
Time Period	Saturday 12:45-1:45 PM Peak Pd	Analysis Year	2020 Miti-Action Conditions
		Project ID	Charleston EIS

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	0	2	0	0	2	0	0	2	0	0	1	1
Lane Group	DefL	TR			LTR			LTR			LT	R
Volume, V (vph)	660	46	0	0	46	58	0	0	1	84	0	1539
% Heavy Vehicles, %HV	1	1	1	1	1	1	1	1	1	1	1	1
Peak-Hour Factor, PHF	0.96	0.96	0.96	0.91	0.91	0.91	0.90	0.90	0.90	0.93	0.93	0.93
Pretimed (P) or Actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up Lost Time, l_1	2.0	2.0			2.0			2.0			2.0	2.0
Extension of Effective Green, e	2.0	2.0			2.0			2.0			2.0	2.0
Arrival Type, AT	3	3			3			3			3	3
Unit Extension, UE	3.0	3.0			3.0			3.0			3.0	3.0
Filtering/Metering, I	0.967	0.967			1.000			1.000			0.855	0.855
Initial Unmet Demand, Q_b	0.0	0.0			0.0			0.0			0.0	0.0
Ped / Bike / RTOR Volumes	0	0	0	0	0	14	0	0	0	0	0	398
Lane Width	16.0	16.0			11.5			12.0			12.0	12.0
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0			0			0			0	0
Min. Time for Pedestrians, G_p	20.3			17.5			20.3			20.3		

Phasing	EW Perm	EB Only	03	04	NS Perm	06	07	08
Timing	G = 26.0	G = 14.0	G =	G =	G = 35.0	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	688	48			99			1			90	1227
Lane Group Capacity, c	853	1066			944			1184			544	959
v/c Ratio, X	0.81	0.05			0.10			0.00			0.17	1.28
Total Green Ratio, g/C	0.50	0.50			0.29			0.39			0.39	0.60
Uniform Delay, d_1	20.7	11.5			23.5			16.8			18.0	18.0
Progression Factor, PF	1.000	1.000			1.000			1.000			1.000	1.000
Delay Calibration, k	0.50	0.50			0.50			0.50			0.50	0.50
Incremental Delay, d_2	7.8	0.1			0.2			0.0			0.6	132.7

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Ave @ Veterans Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*1*	*1*		*1*			*0*	*3*	*0*
Lane Group		*TR*		*L*	*T*		*L*				*LTR*	
Volume, V (vph)		*65*	*0*	*728*	*89*		*5*			*28*	*451*	*37*
% Heavy Vehicles, %HV		*1*	*1*	*2*	*2*		*0*			*2*	*2*	*2*
Peak-Hour Factor, PHF		*0.75*	*0.25*	*0.91*	*0.91*		*0.88*			*0.89*	*0.89*	*0.89*
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*			*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Arrival Type, AT		*3*		*3*	*3*		*3*				*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*		*3.0*				*3.0*	
Filtering/Metering, I		*1.000*		*0.971*	*0.971*		*0.951*				*1.000*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*12.0*		*13.0*	*13.0*		*10.0*				*11.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*		*0*	*0*		*0*				*0*	
Min. Time for Pedestrians, G_p	*31.2*			*3.2*			*18.1*			*11.8*		

Phasing	EW Perm	WB Only	03	04	NS Perm	06	07	08
Timing	G = *19.0*	G = *7.0*	G =	G =	G = *19.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*87*		*800*	*98*		*6*				*580*	
Lane Group Capacity, c		*596*		*793*	*995*		*191*				*1532*	
v/c Ratio, X		*0.15*		*1.01*	*0.10*		*0.03*				*0.38*	
Total Green Ratio, g/C		*0.32*		*0.52*	*0.52*		*0.32*				*0.32*	
Uniform Delay, d_1		*14.7*		*15.7*	*7.4*		*14.1*				*15.9*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*		*1.000*				*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*		*0.50*				*0.50*	
Incremental Delay, d_2		*0.5*		*33.7*	*0.2*		*0.3*				*0.7*	

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Ave @ Vets Rd E*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*3*	*0*			
Lane Group		*LT*	*R*		*LTR*			*LTR*				
Volume, V (vph)	*218*	*367*	*213*	*0*	*88*	*15*	*730*	*66*	*3*			
% Heavy Vehicles, %HV	*1*	*1*	*1*	*0*	*0*	*0*	*2*	*2*	*2*			
Peak-Hour Factor, PHF	*0.75*	*0.75*	*0.75*	*0.83*	*0.83*	*0.83*	*0.93*	*0.93*	*0.93*			
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*			
Start-up Lost Time, l_1		*2.0*	*2.0*		*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*	*2.0*		*2.0*			*2.0*				
Arrival Type, AT		*3*	*3*		*3*			*3*				
Unit Extension, UE		*3.0*	*3.0*		*3.0*			*3.0*				
Filtering/Metering, I		*0.997*	*0.997*		*0.993*			*0.967*				
Initial Unmet Demand, Q_b		*0.0*	*0.0*		*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*66*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width		*13.0*	*12.0*		*11.5*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B		*0*	*0*		*0*			*0*				
Min. Time for Pedestrians, G_p	*21.2*			*12.9*			*14.3*			*17.5*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *26.0*	G =	G =	G =	G = *24.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*780*	*196*		*124*			*859*				
Lane Group Capacity, c		*695*	*693*		*695*			*1875*				
v/c Ratio, X		*1.12*	*0.28*		*0.18*			*0.46*				
Total Green Ratio, g/C		*0.43*	*0.43*		*0.43*			*0.40*				
Uniform Delay, d_1		*17.0*	*11.0*		*10.4*			*13.2*				
Progression Factor, PF		*1.000*	*1.000*		*1.000*			*1.000*				
Delay Calibration, k		*0.50*	*0.50*		*0.50*			*0.50*				
Incremental Delay, d_2		*72.9*	*1.0*		*0.6*			*0.8*				

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Vets Rd E & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/2/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*	*0*	*3*	*0*	*1*	*1*			*2*	*0*
Lane Group	*L*		*R*		*LTR*		*L*	*T*			*TR*	
Volume, V (vph)	*19*		*194*	*302*	*628*	*173*	*153*	*229*			*422*	*17*
% Heavy Vehicles, %HV	*1*		*1*	*2*	*2*	*2*	*2*	*2*			*1*	*1*
Peak-Hour Factor, PHF	*0.71*		*0.71*	*0.87*	*0.87*	*0.87*	*0.92*	*0.92*			*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*		*P*	*P*	*P*	*P*	*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*		*3*		*3*	*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*		*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I	*0.717*		*0.717*		*0.483*		*0.917*	*0.917*			*0.747*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Lane Width	*10.0*		*13.0*		*11.0*		*12.0*	*12.0*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*		*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*17.2*			*16.9*			*3.2*			*20.9*		

Phasing	EB Only	WB Only	03	04	NS Perm	06	07	08
Timing	G = *12.0*	G = *16.0*	G =	G =	G = *17.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*27*		*273*		*1268*		*166*	*249*			*488*	
Lane Group Capacity, c	*334*		*330*		*1260*		*219*	*528*			*1009*	
v/c Ratio, X	*0.08*		*0.83*		*1.01*		*0.76*	*0.47*			*0.48*	
Total Green Ratio, g/C	*0.20*		*0.20*		*0.27*		*0.28*	*0.28*			*0.28*	
Uniform Delay, d_1	*19.5*		*23.0*		*22.0*		*19.6*	*17.8*			*17.9*	
Progression Factor, PF	*1.000*		*1.000*		*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*		*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2	*0.3*		*15.6*		*19.2*		*20.0*	*2.8*			*1.2*	

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Amboy Rd & Bloomingdale Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*1/31/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*1*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*		*L*	*T*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*8*	*8*	*18*	*294*	*18*	*106*	*13*	*350*	*242*	*86*	*447*	*8*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*1*	*1*	*1*	*0*	*0*	*0*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.84*	*0.84*	*0.84*	*0.90*	*0.90*	*0.90*	*0.92*	*0.92*	*0.92*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*		*3*	*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*		*0.887*	*0.887*	*0.887*		*0.516*			*0.500*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*50*	*0*	*0*	*0*	*0*	*0*	*50*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*		*12.0*	*11.0*	*11.0*		*11.0*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*		*0*	*0*	*0*		*0*			*0*	
Min. Time for Pedestrians, G_p	*11.5*			*11.8*			*18.9*			*18.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *39.0*	G =	G =	G =	G = *41.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*41*		*327*	*20*	*118*		*657*			*602*	
Lane Group Capacity, c		*615*		*563*	*788*	*586*		*763*			*630*	
v/c Ratio, X		*0.07*		*0.58*	*0.03*	*0.20*		*0.86*			*0.96*	
Total Green Ratio, g/C		*0.43*		*0.43*	*0.43*	*0.43*		*0.46*			*0.46*	
Uniform Delay, d_1		*14.9*		*19.3*	*14.6*	*15.8*		*21.9*			*23.6*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*	*0.50*		*0.50*			*0.50*	
Incremental Delay, d_2		*0.2*		*3.9*	*0.1*	*0.7*		*6.8*			*16.7*	

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Arthur Kill Rd & Bloomingdl Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/4/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*1*	*1*		*0*		*0*			
Lane Group		*TR*		*L*	*T*			*LR*				
Volume, V (vph)		*229*	*240*	*283*	*234*		*160*		*233*			
% Heavy Vehicles, %HV		*2*	*2*	*4*	*4*		*1*		*1*			
Peak-Hour Factor, PHF		*0.78*	*0.78*	*0.89*	*0.89*		*0.85*		*0.85*			
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*		*P*			
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*			*2.0*				
Arrival Type, AT		*3*		*3*	*3*			*3*				
Unit Extension, UE		*3.0*		*3.0*	*3.0*			*3.0*				
Filtering/Metering, I		*0.927*		*0.992*	*0.992*			*0.953*				
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*56*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	
Lane Width		*16.0*		*11.0*	*11.0*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m									*5*			
Buses Stopping, N_B		*2*		*0*	*0*			*0*				
Min. Time for Pedestrians, G_p	*18.3*			*3.2*			*15.2*			*17.2*		

Phasing	EW Perm	WB Only	03	04	NB Only	06	07	08
Timing	G = *30.0*	G = *12.0*	G =	G =	G = *35.0*	G =	G =	G =
	Y = *3*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*530*		*318*	*263*			*462*				
Lane Group Capacity, c		*656*		*408*	*883*			*558*				
v/c Ratio, X		*0.81*		*0.78*	*0.30*			*0.83*				
Total Green Ratio, g/C		*0.33*		*0.50*	*0.50*			*0.39*				
Uniform Delay, d_1		*27.4*		*31.1*	*13.2*			*24.8*				
Progression Factor, PF		*1.000*		*1.000*	*1.000*			*1.000*				
Delay Calibration, k		*0.50*		*0.50*	*0.50*			*0.50*				
Incremental Delay, d_2		*9.6*		*13.6*	*0.9*			*12.7*				
Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*			*0.0*				

Accident Data

Charleston Development (SI)

Data Source: NYSDMV/NYSDOT

Allentown Lane-Veterans Road West/Arthur Kill Road

NODE_ID	YEAR	# of Crashes	# of Injury Crashes	# of Injuries			Total
				Pedestrian	Bike	Motor Vehicle Occupant	
0000449	2008	1	1	0	0	1	1
0000449	2009	3	1	0	0	1	1
0000449	2010	4	3	0	0	3	3
Total		8	5	0	0	5	5

North Bridge Street/Arthur Kill Road

NODE_ID	YEAR	# of Crashes	# of Injury Crashes	# of Injuries			Total
				Pedestrian	Bike	Motor Vehicle Occupant	
0000447	2008	1	1	0	0	1	1
0000447	2009	0	0	0	0	0	0
0000447	2010	0	0	0	0	0	0
Total		1	1	0	0	1	1

Richmond Valley Road/Arthur Kill Road

NODE_ID	YEAR	# of Crashes	# of Injury Crashes	# of Injuries			Total
				Pedestrian	Bike	Motor Vehicle Occupant	
0000291	2008	2	0	0	0	0	0
0000291	2009	0	0	0	0	0	0
0000291	2010	1	0	0	0	0	0
Total		3	0	0	0	0	0

Richmond Valley Road/Page Avenue

NODE_ID	YEAR	# of Crashes	# of Injury Crashes	# of Injuries			Total
				Pedestrian	Bike	Motor Vehicle Occupant	
0000372	2008	0	0	0	0	0	0
0000372	2009	2	1	0	0	1	1
0000372	2010	0	0	0	0	0	0
Total		2	1	0	0	1	1

South Bridge Street/Page Avenue-Boscombe Avenue

NODE_ID	YEAR	# of Crashes	# of Injury Crashes	# of Injuries			Total
				Pedestrian	Bike	Motor Vehicle Occupant	
0000492	2008	2	1	1	0	0	1
0000492	2009	0	0	0	0	0	0
0000492	2010	2	2	0	0	2	2
Total		4	3	1	0	2	3

Veterans Road West/Mohr Street-Korean War Veterans Parkway ramps

NODE_ID	YEAR	# of Crashes	# of Injury Crashes	# of Injuries			Total
				Pedestrian	Bike	Motor Vehicle Occupant	
0000465	2008	0	0	0	0	0	0
0000465	2009	0	0	0	0	0	0
0000465	2010	0	0	0	0	0	0
Total		0	0	0	0	0	0

Veterans Road West/Tyrellan Avenue

NODE_ID	YEAR	# of Crashes	# of Injury Crashes	# of Injuries			Total
				Pedestrian	Bike	Motor Vehicle Occupant	
0000872	2008	2	1	0	0	1	1
0000872	2009	2	2	0	0	2	2
0000872	2010	1	1	0	0	2	2
Total		5	4	0	0	5	5

Note: There is one fatal crash in 2011 (7/23/2011, motor vehicle occupant, NYPD fatality data).

Boscombe Avenue/Outerbridge crossing on- & off-ramps

NODE_ID	YEAR	# of Crashes	# of Injury Crashes	# of Injuries			Total
				Pedestrian	Bike	Motor Vehicle Occupant	
0000497	2008	0	0	0	0	0	0
0000497	2009	0	0	0	0	0	0
0000497	2010	0	0	0	0	0	0

Total	0	0	0	0	0	0

Boscombe Avenue/Tyrellan Avenue

NODE_ID	YEAR	# of Crashes	# of Injury Crashes	# of Injuries			Total
				Pedestrian	Bike	Motor Vehicle Occupant	
0000863	2008	0	0	0	0	0	0
0000863	2009	0	0	0	0	0	0
0000863	2010	1	0	0	0	0	0
Total		1	0	0	0	0	0

Bricktown Centre Road-Mohr Street/Veterans Road West

NODE_ID	YEAR	# of Crashes	# of Injury Crashes	# of Injuries			Total
				Pedestrian	Bike	Motor Vehicle Occupant	
No node ID/No crash records							
Total							

Englewood Avenue/Veterans Road West

NODE_ID	YEAR	# of Crashes	# of Injury Crashes	# of Injuries			Total
				Pedestrian	Bike	Motor Vehicle Occupant	
0000906	2008	0	0	0	0	0	0
0000906	2009	0	0	0	0	0	0
0000906	2010	0	0	0	0	0	0
Total		0	0	0	0	0	0

Englewood Avenue/Veterans Road East

NODE_ID	YEAR	# of Crashes	# of Injury Crashes	# of Injuries			Total
				Pedestrian	Bike	Motor Vehicle Occupant	
0000950	2008	1	1	0	0	1	1
0000950	2009	1	0	0	0	0	0
0000950	2010	0	0	0	0	0	0
Total		2	1	0	0	1	1

Englewood Avenue/Bloomingdale Road

NODE_ID	YEAR	# of Crashes	# of Injury Crashes	# of Injuries			Total
				Pedestrian	Bike	Motor Vehicle Occupant	
0001048	2008	0	0	0	0	0	0
0001048	2009	0	0	0	0	0	0
0001048	2010	0	0	0	0	0	0
Total		0	0	0	0	0	0

Sharrotts Road/Bloomingdale Road

NODE_ID	YEAR	# of Crashes	# of Injury Crashes	# of Injuries			Total
				Pedestrian	Bike	Motor Vehicle Occupant	
0001079	2008	1	0	0	0	0	0
0001079	2009	2	1	1	0	0	1
0001079	2010	0	0	0	0	0	0
Total		3	1	1	0	0	1

Veterans Road East-Drumgoole Road West/Bloomingdale Road

NODE_ID	YEAR	# of Crashes	# of Injury Crashes	# of Injuries			Total
				Pedestrian	Bike	Motor Vehicle Occupant	
0001039	2008	1	0	0	0	0	0
0001039	2009	0	0	0	0	0	0
0001039	2010	0	0	0	0	0	0
Total		1	0	0	0	0	0

South Service Road-Drumgoole Road East/Bloomingdale Road

NODE_ID	YEAR	# of Crashes	# of Injury Crashes	# of Injuries			Total
				Pedestrian	Bike	Motor Vehicle Occupant	
0001146	2008	0	0	0	0	0	0
0001146	2009	1	0	0	0	0	0
0001146	2010	0	0	0	0	0	0
Total		1	0	0	0	0	0

Pleasant Plains Avenue-Amboy Road/Bloomingdale Road

NODE_ID	YEAR	# of Crashes	# of Injury Crashes	# of Injuries			Total
				Pedestrian	Bike	Motor Vehicle Occupant	
0001136	2008	1	1	0	0	1	1
0001136	2009	1	0	0	0	0	0
0001136	2010	3	0	0	0	0	0
Total		5	1	0	0	1	1

Arthur Kill Road/Bloomingdale Road

NODE_ID	YEAR	# of Crashes	# of Injury Crashes	# of Injuries			Total
				Pedestrian	Bike	Motor Vehicle Occupant	
0001011	2008	1	0	0	0	0	0
0001011	2009	2	0	0	0	0	0
0001011	2010	0	0	0	0	0	0
Total		3	0	0	0	0	0

Sharrotts Road/Arthur Kill Road

NODE_ID	YEAR	# of Crashes	# of Injury Crashes	# of Injuries			Total
				Pedestrian	Bike	Motor Vehicle Occupant	
0000481	2008	1	1	0	0	1	1
0000481	2009	2	1	0	0	1	1
0000481	2010	1	1	0	0	1	1
Total		4	3	0	0	3	3

Englewood Avenue/Arthur Kill Road

NODE_ID	YEAR	# of Crashes	# of Injury Crashes	# of Injuries			Total
				Pedestrian	Bike	Motor Vehicle Occupant	
0000469	2008	0	0	0	0	0	0
0000469	2009	0	0	0	0	0	0
0000469	2010	0	0	0	0	0	0
Total		0	0	0	0	0	0

South Bridge Street/Arthur Kill Road

NODE_ID	YEAR	# of Crashes	# of Injury Crashes	# of Injuries			Total
				Pedestrian	Bike	Motor Vehicle Occupant	
0000445	2008	0	0	0	0	0	0
0000445	2009	0	0	0	0	0	0
0000445	2010	0	0	0	0	0	0
Total		0	0	0	0	0	0

Mohr Street/Tyrellan Avenue

NODE_ID	YEAR	# of Crashes	# of Injury Crashes	# of Injuries			Total
				Pedestrian	Bike	Motor Vehicle Occupant	
No node ID/No crash records							
Total							

Sharrotts Road/Veterans Road West

NODE_ID	YEAR	# of Crashes	# of Injury Crashes	# of Injuries			Total
				Pedestrian	Bike	Motor Vehicle Occupant	
0000910	2008	0	0	0	0	0	0
0000910	2009	0	0	0	0	0	0
0000910	2010	0	0	0	0	0	0
Total		0	0	0	0	0	0

Sharrotts Road/Veterans Road East

NODE_ID	YEAR	# of Crashes	# of Injury Crashes	# of Injuries			Total
				Pedestrian	Bike	Motor Vehicle Occupant	
0000967	2008	0	0	0	0	0	0
0000967	2009	0	0	0	0	0	0
0000967	2010	0	0	0	0	0	0
Total		0	0	0	0	0	0

Alternative 2

With-Action

2020

Weekday

AM

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*2/8/13*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*Sharrotts Rd & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Alt 2*

Project Description *Charleston EIS*

East/West Street: *Sharrotts Road* North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*27*	*186*	*149*	*29*	*255*	*39*
Peak-Hour Factor, PHF	*0.83*	*0.83*	*0.83*	*0.83*	*0.83*	*0.83*
Hourly Flow Rate, HFR (veh/h)	*32*	*224*	*179*	*34*	*307*	*46*
Percent Heavy Vehicles	*20*	--	--	*13*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*9*	*8*	*8*	*118*	*10*	*28*
Peak-Hour Factor, PHF	*0.79*	*0.79*	*0.79*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*11*	*10*	*10*	*124*	*10*	*29*
Percent Heavy Vehicles	*32*	*32*	*32*	*5*	*5*	*5*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (veh/h)	*32*	*34*		*163*			*31*	
C (m) (veh/h)	*1113*	*1099*		*310*			*302*	
v/c	*0.03*	*0.03*		*0.53*			*0.10*	
95% queue length	*0.09*	*0.10*		*2.88*			*0.34*	
Control Delay (s/veh)	*8.3*	*8.4*		*28.8*			*18.3*	
LOS	*A*	*A*		*D*			*C*	
Approach Delay (s/veh)	--	--	*28.8*			*18.3*		
Approach LOS	--	--	*D*			*C*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*2/8/13*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*Englewood Ave & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Alt 2*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*216*	*178*	*158*	*221*	
Peak-Hour Factor, PHF	*1.00*	*0.83*	*0.83*	*0.83*	*0.83*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*260*	*214*	*190*	*266*	*0*
Percent Heavy Vehicles	*0*	--	--	*11*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*147*		*146*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.75*	*1.00*	*0.70*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*196*	*0*	*208*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (veh/h)		*190*		*404*				
C (m) (veh/h)		*1043*		*336*				
v/c		*0.18*		*1.20*				
95% queue length		*0.66*		*17.27*				
Control Delay (s/veh)		*9.2*		*150.0*				
LOS		*A*		*F*				
Approach Delay (s/veh)	--	--	*150.0*					
Approach LOS	--	--	*F*					

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/11/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*			*LT*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*3*	*6*	*1*	*174*	*34*	*382*	*0*	*224*	*313*	*119*	*255*	*9*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*7*	*7*	*7*	*11*	*11*	*11*	*11*	*11*	*11*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.87*	*0.87*	*0.87*	*0.85*	*0.85*	*0.85*	*0.87*	*0.87*	*0.87*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*			*0.940*	*0.940*		*0.887*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*15.5*			*11.0*	*10.0*		*15.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*			*0*	*0*		*4*			*3*	
Min. Time for Pedestrians, G_p	*11.5*			*13.5*			*15.2*			*12.1*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*11*			*239*	*439*		*632*			*440*	
Lane Group Capacity, c		*717*			*539*	*514*		*711*			*308*	
v/c Ratio, X		*0.02*			*0.44*	*0.85*		*0.89*			*1.43*	
Total Green Ratio, g/C		*0.42*			*0.42*	*0.42*		*0.42*			*0.42*	
Uniform Delay, d_1		*10.3*			*12.5*	*15.8*		*16.2*			*17.5*	
Progression Factor, PF		*1.000*			*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*	*0.50*		*0.50*			*0.50*	
Incremental Delay, d_2		*0.0*			*2.5*	*15.6*		*14.0*			*210.7*	

Initial Queue Delay, d_3		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Control Delay		*10.3*			*15.0*	*31.4*		*30.2*			*228.2*	
Lane Group LOS		*B*			*B*	*C*		*C*			*F*	
Approach Delay	*10.3*			*25.6*			*30.2*			*228.2*		
Approach LOS	*B*			*C*			*C*			*F*		
Intersection Delay	*77.8*			X_C *= 1.14*			Intersection LOS			*E*		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*No Bridge St & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/11/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*			*1*	
Lane Group					*LR*			*T*			*T*	
Volume, V (vph)				*268*		*5*		*532*			*431*	
% Heavy Vehicles, %HV				*8*		*8*		*11*			*15*	
Peak-Hour Factor, PHF				*0.88*		*0.88*		*0.85*			*0.87*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*			*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.893*			*0.886*			*0.754*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	
Lane Width					*16.0*			*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B					*0*			*0*			*3*	
Min. Time for Pedestrians, G_p	*13.5*			*13.8*			*3.2*			*3.2*		

Phasing	WB Only	02	03	04	Thru Only	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*311*			*626*			*495*	
Lane Group Capacity, c					*632*			*970*			*925*	
v/c Ratio, X					*0.49*			*0.65*			*0.54*	
Total Green Ratio, g/C					*0.33*			*0.50*			*0.50*	
Uniform Delay, d_1					*15.9*			*11.1*			*10.2*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*2.4*			*2.9*			*1.7*	
Initial Queue Delay, d_3					*0.0*			*0.0*			*0.0*	

Control Delay					18.4			14.0			11.9	
Lane Group LOS					B			B			B	
Approach Delay				18.4			14.0			11.9		
Approach LOS				B			B			B		
Intersection Delay	14.2			X_C = 0.58			Intersection LOS			B		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*2/8/13*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*So Bridge St & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Alt 2*

Project Description *Charleston EIS*

East/West Street: *South Bridge Street* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*532*	*224*	*190*	*509*	
Peak-Hour Factor, PHF	*1.00*	*0.85*	*0.85*	*0.87*	*0.87*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*625*	*263*	*218*	*585*	*0*
Percent Heavy Vehicles	*0*	--	--	*20*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*1*	*1*	*0*
Configuration		*T*	*R*	*L*	*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration						

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*						
v (veh/h)		*218*						
C (m) (veh/h)		*692*						
v/c		*0.32*						
95% queue length		*1.35*						
Control Delay (s/veh)		*12.6*						
LOS		*B*						
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Rch Valley Rd & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/11/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*	*0*	*0*	*1*	
Lane Group					*LR*			*TR*			*LT*	
Volume, V (vph)				*62*		*204*		*549*	*74*	*144*	*358*	
% Heavy Vehicles, %HV				*3*		*3*		*11*	*11*	*9*	*9*	
Peak-Hour Factor, PHF				*0.93*		*0.93*		*0.85*	*0.85*	*0.87*	*0.87*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*	*P*	*P*	*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.980*			*0.769*			*0.842*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width					*12.0*			*15.0*			*15.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B					*0*			*4*			*3*	
Min. Time for Pedestrians, G_p	*11.8*			*11.8*			*14.1*			*3.2*		

Phasing	WB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*286*			*733*			*577*	
Lane Group Capacity, c					*381*			*1033*			*569*	
v/c Ratio, X					*0.75*			*0.71*			*1.01*	
Total Green Ratio, g/C					*0.27*			*0.57*			*0.57*	
Uniform Delay, d_1					*20.2*			*9.4*			*13.0*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*12.5*			*3.2*			*38.2*	
Initial Queue Delay, d_3					*0.0*			*0.0*			*0.0*	

Control Delay					32.7			12.6			51.2	
Lane Group LOS					C			B			D	
Approach Delay				32.7			12.6			51.2		
Approach LOS				C			B			D		
Intersection Delay	30.2			X_C = 0.93			Intersection LOS			C		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Richmond Valley Rd & Page Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/8/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*0*	*1*	*1*	*0*	*0*	*2*	*0*
Lane Group		*LTR*			*LTR*		*L*	*TR*			*LTR*	
Volume, V (vph)	*72*	*53*	*94*	*24*	*161*	*46*	*88*	*675*	*112*	*65*	*369*	*30*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*1*	*1*	*1*	*3*	*3*	*3*	*9*	*9*	*9*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.94*	*0.94*	*0.94*	*0.92*	*0.92*	*0.92*	*0.84*	*0.84*	*0.84*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.810*			*1.000*		*0.649*	*0.649*			*0.986*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*6*
Lane Width		*16.0*			*15.0*		*10.0*	*14.0*			*10.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*
Parking Maneuvers, N_m						*5*						*5*
Buses Stopping, N_B		*0*			*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*16.6*			*21.5*			*16.3*			*21.2*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *31.0*	G =	G =	G =	G = *49.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*243*			*246*		*96*	*856*			*545*	
Lane Group Capacity, c		*560*			*577*		*397*	*1049*			*960*	
v/c Ratio, X		*0.43*			*0.43*		*0.24*	*0.82*			*0.57*	
Total Green Ratio, g/C		*0.34*			*0.34*		*0.54*	*0.54*			*0.54*	
Uniform Delay, d_1		*22.7*			*22.7*		*10.8*	*16.8*			*13.5*	
Progression Factor, PF		*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2		*2.0*			*2.3*		*0.9*	*4.7*			*2.4*	

Initial Queue Delay, d_3		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay		*24.7*			*25.0*		*11.7*	*21.5*			*15.9*	
Lane Group LOS		*C*			*C*		*B*	*C*			*B*	
Approach Delay	*24.7*			*25.0*			*20.5*			*15.9*		
Approach LOS	*C*			*C*			*C*			*B*		
Intersection Delay	*20.3*			X_C = *0.67*			Intersection LOS			*C*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*S Br St & Page Ave/Boscome Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/8/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 With Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*							*2*			*2*	
Lane Group	*L*							*T*			*T*	
Volume, V (vph)	*354*							*793*			*405*	
% Heavy Vehicles, %HV	*2*							*1*			*3*	
Peak-Hour Factor, PHF	*0.90*							*0.91*			*0.84*	
Pretimed (P) or Actuated (A)	*P*							*P*			*P*	
Start-up Lost Time, l_1	*2.0*							*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*							*2.0*			*2.0*	
Arrival Type, AT	*3*							*3*			*3*	
Unit Extension, UE	*3.0*							*3.0*			*3.0*	
Filtering/Metering, I	*1.000*							*0.665*			*0.986*	
Initial Unmet Demand, Q_b	*0.0*							*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*		*0*	*0*		*0*	*0*	
Lane Width	*16.0*							*14.5*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*							*0*			*0*	
Min. Time for Pedestrians, G_p	*3.2*			*20.1*			*3.2*			*3.2*		

Phasing	EB Only	02	03	04	Thru Only	06	07	08
Timing	G = *30.0*	G =	G =	G =	G = *50.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*393*							*871*			*482*	
Lane Group Capacity, c	*669*							*2156*			*1951*	
v/c Ratio, X	*0.59*							*0.40*			*0.25*	
Total Green Ratio, g/C	*0.33*							*0.56*			*0.56*	
Uniform Delay, d_1	*24.9*							*11.5*			*10.3*	
Progression Factor, PF	*1.000*							*1.000*			*1.000*	
Delay Calibration, k	*0.50*							*0.50*			*0.50*	
Incremental Delay, d_2	*3.8*							*0.4*			*0.3*	
Initial Queue Delay, d_3	*0.0*							*0.0*			*0.0*	

Control Delay	*28.6*							*11.8*			*10.6*	
Lane Group LOS	*C*							*B*			*B*	
Approach Delay	*28.6*						*11.8*			*10.6*		
Approach LOS	*C*						*B*			*B*		
Intersection Delay	*15.3*			X_C = *0.47*			Intersection LOS			*B*		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*2/8/13*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*S Bridge St RT & Page Ave*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Alt 2*

Project Description *Charleston EIS*

East/West Street: *South Bridge Street Right Turn* | North/South Street: *Page Avenue*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*405*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.84*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*482*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*2*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*59*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.70*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*84*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*60*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								*R*
v (veh/h)								*84*
C (m) (veh/h)								*674*
v/c								*0.12*
95% queue length								*0.42*
Control Delay (s/veh)								*11.1*
LOS								*B*
Approach Delay (s/veh)	--	--				*11.1*		
Approach LOS	--	--				*B*		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	KM	Intersection	Veterans Rd W & Bricktown/KWVP
Agency or Co.	AECOM	Area Type	All other areas
Date Performed	2/8/13	Jurisdiction	Staten Island, NY
Time Period	Weekday 8 - 9 AM Peak Period	Analysis Year	2020 With-Action Alt 2
		Project ID	Charleston EIS

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	1	1	0	1	2	0	0	2	0	1	1	0
Lane Group	L	TR		L	TR			LTR		L	TR	
Volume, V (vph)	74	175	169	203	367	80	192	324	138	68	32	41
% Heavy Vehicles, %HV	2	2	2	8	8	8	8	8	8	3	3	3
Peak-Hour Factor, PHF	0.88	0.88	0.88	0.87	0.87	0.87	0.93	0.93	0.93	0.67	0.67	0.67
Pretimed (P) or Actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up Lost Time, l_1	2.0	2.0		2.0	2.0			2.0		2.0	2.0	
Extension of Effective Green, e	2.0	2.0		2.0	2.0			2.0		2.0	2.0	
Arrival Type, AT	3	3		3	3			3		3	3	
Unit Extension, UE	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Filtering/Metering, I	0.780	0.780		0.979	0.979			1.000		0.991	0.991	
Initial Unmet Demand, Q_b	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Ped / Bike / RTOR Volumes	0	0	38	0	0	4	0	0	0	0	0	0
Lane Width	11.0	12.0		10.0	12.0			12.5		11.0	10.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0		0	0			0		0	0	
Min. Time for Pedestrians, G_p	34.6			18.6			20.3			16.1		

Phasing	EW Perm	02	03	04	NB Only	SB Only	07	08
Timing	G = 30.0	G =	G =	G =	G = 25.0	G = 20.0	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y = 5	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	84	348		233	509			702		101	109	
Lane Group Capacity, c	228	581		208	1088			903		376	350	
v/c Ratio, X	0.37	0.60		1.12	0.47			0.78		0.27	0.31	
Total Green Ratio, g/C	0.33	0.33		0.33	0.33			0.28		0.22	0.22	
Uniform Delay, d_1	22.8	25.0		30.0	23.7			29.9		29.0	29.2	
Progression Factor, PF	1.000	1.000		1.000	1.000			1.000		1.000	1.000	
Delay Calibration, k	0.50	0.50		0.50	0.50			0.50		0.50	0.50	
Incremental Delay, d_2	3.5	3.5		97.8	1.4			6.5		1.7	2.3	

Initial Queue Delay, d_3	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Control Delay	26.3	28.5		127.8	25.1			36.5		30.7	31.5	
Lane Group LOS	C	C		F	C			D		C	C	
Approach Delay	28.1			57.3			36.5			31.1		
Approach LOS	C			E			D			C		
Intersection Delay	41.6			X_C = 0.79			Intersection LOS			D		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*2/8/13*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*KWVP WB OR UT & No Bridge St*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Alt 2*

Project Description *Charleston EIS*

East/West Street: *KWVP WB Off-Ramp U-Turn* North/South Street: *North Bridge Street*

Intersection Orientation: *North-South* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*404*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.95*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*425*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*1*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*287*		
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.90*	*0.93*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*308*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*60*	*8*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*0*
Configuration				*L*		

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration			*L*					
v (veh/h)			*308*					
C (m) (veh/h)			*575*					
v/c			*0.54*					
95% queue length			*3.16*					
Control Delay (s/veh)			*18.2*					
LOS			*C*					
Approach Delay (s/veh)	--	--	*18.2*					
Approach LOS	--	--	*C*					

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*2/8/13*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*Bricktown Way/Tyrellan Avenue*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Alt 2*

Project ID *Charleston EIS*

East/West Street: *Bricktown Way* | North/South Street: *Tyrellan Avenue*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*38*	*69*	*28*	*33*	*84*	*35*
%Thrus Left Lane	*50*			*50*		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*14*	*16*	*22*	*21*	*52*	*16*
%Thrus Left Lane				*50*		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*LT*	*TR*	*LT*	*TR*	*LT*	*R*	*LT*	*TR*
PHF	*0.80*	*0.80*	*0.78*	*0.78*	*0.86*	*0.86*	*1.00*	*1.00*
Flow Rate (veh/h)	*89*	*77*	*95*	*97*	*34*	*25*	*47*	*42*
% Heavy Vehicles	*21*	*21*	*1*	*1*	*5*	*5*	*0*	*0*
No. Lanes	*2*		*2*		*2*		*2*	
Geometry Group	*5*		*5*		*5*		*5*	
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	*0.5*	*0.0*	*0.4*	*0.0*	*0.5*	*0.0*	*0.4*	*0.0*
Prop. Right-Turns	*0.0*	*0.4*	*0.0*	*0.5*	*0.0*	*1.0*	*0.0*	*0.4*
Prop. Heavy Vehicle	*0.2*	*0.2*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
hLT-adj	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*
hRT-adj	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*
hadj, computed	*0.6*	*0.0*	*0.2*	*-0.3*	*0.3*	*-0.6*	*0.2*	*-0.3*

Departure Headway and Service Time

hd, initial value (s)	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*
x, initial	*0.08*	*0.07*	*0.08*	*0.09*	*0.03*	*0.02*	*0.04*	*0.04*
hd, final value (s)	*5.69*	*5.12*	*5.29*	*4.76*	*5.80*	*4.86*	*5.66*	*5.17*
x, final value	*0.14*	*0.11*	*0.14*	*0.13*	*0.05*	*0.03*	*0.07*	*0.06*
Move-up time, m (s)	*2.3*		*2.3*		*2.3*		*2.3*	
Service Time, t_s (s)	*3.4*	*2.8*	*3.0*	*2.5*	*3.5*	*2.6*	*3.4*	*2.9*

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*339*	*327*	*345*	*347*	*284*	*275*	*297*	*292*
Delay (s/veh)	*9.32*	*8.44*	*8.85*	*8.15*	*8.83*	*7.73*	*8.81*	*8.20*
LOS	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Approach: Delay (s/veh)	*8.91*		*8.50*		*8.36*		*8.53*	
LOS	*A*		*A*		*A*		*A*	
Intersection Delay (s/veh)	*8.62*							
Intersection LOS	*A*							

HCS+™ Version 5.4 Generated: 4/16/2013 5:09 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/8/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*
Lane Group		*LTR*			*LTR*		*DefL*	*TR*			*LTR*	
Volume, V (vph)	*54*	*39*	*275*	*115*	*285*	*6*	*264*	*93*	*51*	*11*	*160*	*102*
% Heavy Vehicles, %HV	*8*	*8*	*8*	*3*	*3*	*3*	*4*	*4*	*4*	*8*	*8*	*8*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.87*	*0.87*	*0.87*	*0.87*	*0.87*	*0.87*	*0.76*	*0.76*	*0.76*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.916*			*0.953*		*1.000*	*1.000*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*			*12.0*		*13.0*	*13.0*			*9.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*			*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*18.6*			*16.6*			*20.1*			*19.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*418*			*467*		*303*	*166*			*359*	
Lane Group Capacity, c		*1087*			*1092*		*441*	*794*			*1216*	
v/c Ratio, X		*0.38*			*0.43*		*0.69*	*0.21*			*0.30*	
Total Green Ratio, g/C		*0.44*			*0.44*		*0.44*	*0.44*			*0.44*	
Uniform Delay, d_1		*16.8*			*17.1*		*20.0*	*15.3*			*16.0*	
Progression Factor, PF		*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2		*0.9*			*1.2*		*8.5*	*0.6*			*0.6*	

Initial Queue Delay, d_3		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay		*17.7*			*18.3*		*28.4*	*15.9*			*16.6*	
Lane Group LOS		*B*			*B*		*C*	*B*			*B*	
Approach Delay	*17.7*			*18.3*			*24.0*			*16.6*		
Approach LOS	*B*			*B*			*C*			*B*		
Intersection Delay	*19.4*			X_C *= 0.56*			Intersection LOS			*B*		

 HCS+™ Version 5.4 Generated: 4/16/2013 5:10 PM

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Boscombe Ave & OBX Off-Ramp*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/8/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*1*	*1*	*1*
Lane Group	*L*	*TR*			*LT*	*R*		*LTR*		*L*	*LT*	*R*
Volume, V (vph)	*872*	*256*	*19*	*4*	*284*	*315*	*4*	*16*	*6*	*119*	*5*	*146*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*3*	*3*	*3*	*1*	*1*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.91*	*0.91*	*0.91*	*0.86*	*0.86*	*0.86*	*0.37*	*0.37*	*0.37*	*0.87*	*0.87*	*0.87*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*	*3*		*3*		*3*	*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*	*3.0*		*3.0*		*3.0*	*3.0*	*3.0*
Filtering/Metering, I	*0.603*	*0.603*			*0.932*	*0.932*		*1.000*		*1.000*	*1.000*	*1.000*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*	*0.0*		*0.0*		*0.0*	*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*11.0*	*12.0*			*12.0*	*12.0*		*16.0*		*10.0*	*11.0*	*10.0*
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B	*0*	*0*			*0*	*0*		*0*		*0*	*0*	*0*
Min. Time for Pedestrians, G_p	*14.6*			*24.6*			*20.9*			*20.1*		

Phasing	EB Only	EW Perm	03	04	NS Perm	06	07	08
Timing	G = *37.0*	G = *22.0*	G =	G =	G = *16.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*958*	*302*			*335*	*366*		*70*		*137*	*6*	*168*
Lane Group Capacity, c	*839*	*1158*			*449*	*383*		*355*		*226*	*320*	*952*
v/c Ratio, X	*1.14*	*0.26*			*0.75*	*0.96*		*0.20*		*0.61*	*0.02*	*0.18*
Total Green Ratio, g/C	*0.71*	*0.71*			*0.24*	*0.24*		*0.18*		*0.18*	*0.18*	*0.64*
Uniform Delay, d_1	*18.7*	*4.6*			*31.4*	*33.5*		*31.5*		*34.1*	*30.5*	*6.4*
Progression Factor, PF	*1.000*	*1.000*			*1.000*	*1.000*		*1.000*		*1.000*	*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*	*0.50*		*0.50*		*0.50*	*0.50*	*0.50*
Incremental Delay, d_2	*72.9*	*0.3*			*10.1*	*34.5*		*1.2*		*11.5*	*0.1*	*0.4*

Initial Queue Delay, d_3	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Control Delay	91.7	4.9			41.5	68.1		32.8		45.6	30.6	6.8
Lane Group LOS	F	A			D	E		C		D	C	A
Approach Delay	70.9			55.4			32.8			24.4		
Approach LOS	E			E			C			C		
Intersection Delay	58.9			X_C = 1.23			Intersection LOS			E		

 HCS+™ Version 5.4 Generated: 4/16/2013 5:10 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Boscombe Ave & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/8/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Hour*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*1*	*1*
Lane Group	*DefL*	*TR*			*LTR*			*LTR*			*LT*	*R*
Volume, V (vph)	*356*	*26*	*0*	*14*	*68*	*38*	*6*	*22*	*11*	*15*	*38*	*499*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*3*	*3*	*3*	*1*	*1*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.91*	*0.91*	*0.91*	*0.72*	*0.72*	*0.72*	*0.45*	*0.45*	*0.45*	*0.76*	*0.76*	*0.76*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*			*2.0*			*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*			*2.0*			*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*			*3*			*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*			*3.0*			*3.0*	*3.0*
Filtering/Metering, I	*0.970*	*0.970*			*1.000*			*1.000*			*0.974*	*0.974*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*			*0.0*			*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*9*	*0*	*0*	*0*	*0*	*0*	*155*
Lane Width	*16.0*	*16.0*			*11.5*			*12.0*			*12.0*	*12.0*
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*			*0*			*0*			*0*	*0*
Min. Time for Pedestrians, G_p	*20.3*			*17.5*			*20.3*			*20.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*391*	*29*			*153*			*86*			*70*	*453*
Lane Group Capacity, c	*699*	*1066*			*1543*			*1234*			*673*	*616*
v/c Ratio, X	*0.56*	*0.03*			*0.10*			*0.07*			*0.10*	*0.74*
Total Green Ratio, g/C	*0.50*	*0.50*			*0.50*			*0.39*			*0.39*	*0.39*
Uniform Delay, d_1	*15.6*	*11.4*			*11.8*			*17.3*			*17.5*	*23.5*
Progression Factor, PF	*1.000*	*1.000*			*1.000*			*1.000*			*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*			*0.50*			*0.50*	*0.50*
Incremental Delay, d_2	*3.1*	*0.0*			*0.1*			*0.1*			*0.3*	*7.4*

Initial Queue Delay, d_3	*0.0*	*0.0*			*0.0*			*0.0*			*0.0*	*0.0*
Control Delay	*18.7*	*11.5*			*12.0*			*17.4*			*17.8*	*31.0*
Lane Group LOS	*B*	*B*			*B*			*B*			*B*	*C*
Approach Delay	*18.2*			*12.0*			*17.4*			*29.2*		
Approach LOS	*B*			*B*			*B*			*C*		
Intersection Delay	*22.2*			X_C *= 0.64*			Intersection LOS			*C*		

 HCS+™ Version 5.4 Generated: 4/16/2013 5:10 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Bricktown Ctr Rd @ Vets Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/8/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*				*0*	*2*			*2*	*0*
Lane Group	*L*		*R*					*LT*			*TR*	
Volume, V (vph)	*108*		*4*				*4*	*97*			*402*	*263*
% Heavy Vehicles, %HV	*11*		*11*				*2*	*2*			*1*	*1*
Peak-Hour Factor, PHF	*0.80*		*0.80*				*0.80*	*0.80*			*0.81*	*0.81*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*					*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*					*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*					*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*					*3.0*			*3.0*	
Filtering/Metering, I	*0.995*		*0.995*					*1.000*			*0.752*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*					*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*4*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width	*13.0*		*12.0*					*11.5*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*					*0*			*0*	
Min. Time for Pedestrians, G_p	*21.8*			*20.3*			*3.2*			*19.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *19.0*	G =	G =	G =	G = *31.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*135*		*0*					*126*			*821*	
Lane Group Capacity, c	*532*		*461*					*1678*			*1973*	
v/c Ratio, X	*0.25*		*0.00*					*0.08*			*0.42*	
Total Green Ratio, g/C	*0.32*		*0.32*					*0.52*			*0.52*	
Uniform Delay, d_1	*15.2*		*14.0*					*7.3*			*8.9*	
Progression Factor, PF	*1.000*		*1.000*					*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*					*0.50*			*0.50*	
Incremental Delay, d_2	*1.1*		*0.0*					*0.1*			*0.5*	
Initial Queue Delay, d_3	*0.0*		*0.0*					*0.0*			*0.0*	

Control Delay	16.4		14.0					7.4			9.4	
Lane Group LOS	B		B					A			A	
Approach Delay	16.4						7.4			9.4		
Approach LOS	B						A			A		
Intersection Delay	10.0			X_C = 0.35			Intersection LOS			B		

 HCS+™ Version 5.4 Generated: 4/16/2013 5:11 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Ave @ Veterans Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/8/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*1*	*1*		*1*			*0*	*3*	*0*
Lane Group		*TR*		*L*	*LT*		*L*				*LTR*	
Volume, V (vph)		*1*	*0*	*446*	*1*		*3*			*24*	*220*	*0*
% Heavy Vehicles, %HV		*2*	*2*	*3*	*3*		*1*			*1*	*1*	*1*
Peak-Hour Factor, PHF		*0.80*	*0.25*	*0.79*	*0.79*		*0.80*			*0.81*	*0.81*	*0.81*
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*			*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Arrival Type, AT		*3*		*3*	*3*		*3*				*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*		*3.0*				*3.0*	
Filtering/Metering, I		*1.000*		*0.981*	*0.981*		*0.998*				*1.000*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*12.0*		*13.0*	*13.0*		*10.0*				*11.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*		*0*	*0*		*0*				*0*	
Min. Time for Pedestrians, G_p	*31.2*			*3.2*			*18.1*			*11.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*1*		*283*	*283*		*4*				*302*	
Lane Group Capacity, c		*776*		*601*	*577*		*410*				*2054*	
v/c Ratio, X		*0.00*		*0.47*	*0.49*		*0.01*				*0.15*	
Total Green Ratio, g/C		*0.42*		*0.42*	*0.42*		*0.42*				*0.42*	
Uniform Delay, d_1		*10.2*		*12.7*	*12.8*		*10.3*				*10.9*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*		*1.000*				*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*		*0.50*				*0.50*	
Incremental Delay, d_2		*0.0*		*2.6*	*2.9*		*0.0*				*0.2*	

Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Control Delay		*10.2*		*15.3*	*15.7*		*10.3*				*11.0*	
Lane Group LOS		*B*		*B*	*B*		*B*				*B*	
Approach Delay	*10.2*			*15.5*			*10.3*			*11.0*		
Approach LOS	*B*			*B*			*B*			*B*		
Intersection Delay	*13.9*			X_C *= 0.32*			Intersection LOS			*B*		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*2/8/13*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*Englewood Ave & Vets Rd W RT*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Alt 2*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* | North/South Street: *Veterans Rd W Right Turn Bay*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*25*				
Peak-Hour Factor, PHF	*1.00*	*0.82*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*30*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*T*				
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*201*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.78*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*257*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*1*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					*R*			
v (veh/h)					*257*			
C (m) (veh/h)					*1047*			
v/c					*0.25*			
95% queue length					*0.97*			
Control Delay (s/veh)					*9.6*			
LOS					*A*			
Approach Delay (s/veh)	--	--	*9.6*					
Approach LOS	--	--	*A*					

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*2/8/13*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*Sharrotts Rd & Veterans Rd W*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Alt 2*

Project ID *Charleston EIS*

East/West Street: *Sharrotts Road* North/South Street: *Veterans Road West*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*164*	*22*	*155*	*128*	*0*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*0*	*11*	*67*	*28*
%Thrus Left Lane				*50*		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*TR*		*LT*				*LT*	*TR*
PHF	*0.80*		*0.79*				*0.81*	*0.81*
Flow Rate (veh/h)	*231*		*358*				*53*	*75*
% Heavy Vehicles	*24*		*5*				*3*	*3*
No. Lanes	*1*		*1*		*0*		*2*	
Geometry Group	*2*		*2*				*1*	
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	*0.0*		*0.5*				*0.2*	*0.0*
Prop. Right-Turns	*0.1*		*0.0*				*0.0*	*0.5*
Prop. Heavy Vehicle	*0.2*		*0.0*				*0.0*	*0.0*
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*			*0.2*	*0.2*
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*			*-0.6*	*-0.6*
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*			*1.7*	*1.7*
hadj, computed	*0.3*		*0.2*				*0.1*	*-0.2*

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value (s)	*3.20*		*3.20*				*3.20*	*3.20*
x, initial	*0.21*		*0.32*				*0.05*	*0.07*
hd, final value (s)	*5.01*		*4.73*				*5.43*	*5.10*
x, final value	*0.32*		*0.47*				*0.08*	*0.11*
Move-up time, m (s)	*2.0*		*2.0*				*2.0*	
Service Time, t_s (s)	*3.0*		*2.7*				*3.4*	*3.1*

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*481*		*608*				*303*	*325*
Delay (s/veh)	*10.36*		*11.85*				*8.90*	*8.71*
LOS	*B*		*B*				*A*	*A*
Approach: Delay (s/veh)	*10.36*		*11.85*				*8.79*	
LOS	*B*		*B*				*A*	
Intersection Delay (s/veh)	*10.82*							
Intersection LOS	*B*							

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*2/8/13*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*Sharrotts Rd @ Veterans Rd E*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Alt 2*

Project ID *Charleston EIS*

East/West Street: *Sharrotts Road* North/South Street: *Veterans Road East*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*6*	*168*	*0*	*0*	*225*	*18*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*58*	*53*	*46*	*0*	*0*	*0*
%Thrus Left Lane	*50*					

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*LT*		*TR*		*LT*	*TR*		
PHF	*0.80*		*0.79*		*0.87*	*0.87*		
Flow Rate (veh/h)	*216*		*306*		*95*	*83*		
% Heavy Vehicles	*17*		*7*		*1*	*1*		
No. Lanes	*1*		*1*		*2*		*0*	
Geometry Group	*2*		*2*		*1*			
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	*0.0*		*0.0*		*0.7*	*0.0*		
Prop. Right-Turns	*0.0*		*0.1*		*0.0*	*0.6*		
Prop. Heavy Vehicle	*0.2*		*0.1*		*0.0*	*0.0*		
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*		
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*		
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*		
hadj, computed	*0.3*		*0.1*		*0.2*	*-0.4*		

Departure Headway and Service Time

hd, initial value (s)	*3.20*		*3.20*		*3.20*	*3.20*		
x, initial	*0.19*		*0.27*		*0.08*	*0.07*		
hd, final value (s)	*5.02*		*4.71*		*5.33*	*4.81*		
x, final value	*0.30*		*0.40*		*0.14*	*0.11*		
Move-up time, m (s)	*2.0*		*2.0*		*2.0*			
Service Time, t_s (s)	*3.0*		*2.7*		*3.3*	*2.8*		

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*466*		*556*		*345*	*333*		
Delay (s/veh)	*10.18*		*10.82*		*9.20*	*8.41*		
LOS	*B*		*B*		*A*	*A*		
Approach: Delay (s/veh)	*10.18*		*10.82*		*8.83*			
LOS	*B*		*B*		*A*			
Intersection Delay (s/veh)	*10.11*							
Intersection LOS	*B*							

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Englewood Ave @ Vets Rd E*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/8/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*3*	*0*			
Lane Group		*LT*	*R*		*LTR*			*LTR*				
Volume, V (vph)	*79*	*89*	*57*	*6*	*45*	*1*	*401*	*77*	*1*			
% Heavy Vehicles, %HV	*3*	*3*	*3*	*1*	*1*	*1*	*3*	*3*	*3*			
Peak-Hour Factor, PHF	*0.79*	*0.79*	*0.79*	*0.79*	*0.79*	*0.79*	*0.76*	*0.76*	*0.76*			
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*			
Start-up Lost Time, l_1		*2.0*	*2.0*		*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*	*2.0*		*2.0*			*2.0*				
Arrival Type, AT		*3*	*3*		*3*			*3*				
Unit Extension, UE		*3.0*	*3.0*		*3.0*			*3.0*				
Filtering/Metering, I		*0.999*	*0.999*		*0.998*			*0.978*				
Initial Unmet Demand, Q_b		*0.0*	*0.0*		*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*21*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width		*13.0*	*12.0*		*11.5*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B		*0*	*0*		*0*			*0*				
Min. Time for Pedestrians, G_p	*21.2*			*12.9*			*14.3*			*17.5*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *21.0*	G =	G =	G =	G = *29.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*213*	*46*		*66*			*630*				
Lane Group Capacity, c		*554*	*549*		*546*			*2253*				
v/c Ratio, X		*0.38*	*0.08*		*0.12*			*0.28*				
Total Green Ratio, g/C		*0.35*	*0.35*		*0.35*			*0.48*				
Uniform Delay, d_1		*14.6*	*13.1*		*13.2*			*9.3*				
Progression Factor, PF		*1.000*	*1.000*		*1.000*			*1.000*				
Delay Calibration, k		*0.50*	*0.50*		*0.50*			*0.50*				
Incremental Delay, d_2		*2.0*	*0.3*		*0.5*			*0.3*				

Initial Queue Delay, d_3		*0.0*	*0.0*		*0.0*			*0.0*				
Control Delay		*16.7*	*13.4*		*13.7*			*9.6*				
Lane Group LOS		*B*	*B*		*B*			*A*				
Approach Delay	*16.1*			*13.7*			*9.6*					
Approach LOS	*B*			*B*			*A*					
Intersection Delay	*11.6*			X_C = *0.32*			Intersection LOS			*B*		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Av & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/8/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*72*		*18*				*16*	*351*			*478*	*36*
% Heavy Vehicles, %HV	*1*		*1*				*7*	*7*			*9*	*9*
Peak-Hour Factor, PHF	*0.74*		*0.74*				*0.89*	*0.89*			*0.86*	*0.86*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.997*						*0.936*			*0.808*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*16.0*						*14.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B		*0*						*7*			*2*	
Min. Time for Pedestrians, G_p	*14.9*			*15.5*			*3.2*			*17.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*121*						*412*			*598*	
Lane Group Capacity, c		*466*						*1012*			*1100*	
v/c Ratio, X		*0.26*						*0.41*			*0.54*	
Total Green Ratio, g/C		*0.27*						*0.57*			*0.57*	
Uniform Delay, d_1		*17.3*						*7.3*			*8.1*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*1.3*						*1.1*			*1.6*	
Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	

Control Delay		18.7						8.5			9.7	
Lane Group LOS		B						A			A	
Approach Delay	18.7						8.5			9.7		
Approach LOS	B						A			A		
Intersection Delay	10.2			X_C = 0.45			Intersection LOS			B		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Sharrotts Rd & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/8/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*163*		*53*				*30*	*403*			*297*	*213*
% Heavy Vehicles, %HV	*14*		*14*				*8*	*8*			*11*	*11*
Peak-Hour Factor, PHF	*0.80*		*0.80*				*0.89*	*0.89*			*0.86*	*0.86*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.982*						*0.866*			*0.927*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*17*
Lane Width		*16.0*						*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*7*			*2*	
Min. Time for Pedestrians, G_p	*18.6*			*18.6*			*3.2*			*16.6*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*270*						*487*			*573*	
Lane Group Capacity, c		*513*						*799*			*911*	
v/c Ratio, X		*0.53*						*0.61*			*0.63*	
Total Green Ratio, g/C		*0.33*						*0.50*			*0.50*	
Uniform Delay, d_1		*16.2*						*10.8*			*10.9*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*3.8*						*3.0*			*3.0*	
Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	

Control Delay		19.9						13.8			14.0	
Lane Group LOS		B						B			B	
Approach Delay	19.9						13.8			14.0		
Approach LOS	B						B			B		
Intersection Delay	15.1			X_C = 0.59			Intersection LOS			B		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Vets Rd E & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/8/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*	*0*	*3*	*0*	*1*	*1*			*1*	*0*
Lane Group	*L*		*R*		*LTR*		*L*	*T*			*TR*	
Volume, V (vph)	*3*		*70*	*244*	*395*	*164*	*62*	*200*			*475*	*22*
% Heavy Vehicles, %HV	*3*		*3*	*3*	*3*	*3*	*7*	*7*			*7*	*7*
Peak-Hour Factor, PHF	*0.79*		*0.79*	*0.88*	*0.88*	*0.88*	*0.90*	*0.90*			*0.76*	*0.76*
Pretimed (P) or Actuated (A)	*P*		*P*	*P*	*P*	*P*	*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*		*3*		*3*	*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*		*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I	*0.974*		*0.974*		*0.725*		*0.946*	*0.946*			*0.293*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Lane Width	*10.0*		*13.0*		*11.0*		*12.0*	*12.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*		*0*		*0*	*7*			*2*	
Min. Time for Pedestrians, G_p	*17.2*			*16.9*			*3.2*			*20.9*		

Phasing	EB Only	WB Only	03	04	NS Perm	06	07	08
Timing	G = *8.0*	G = *17.0*	G =	G =	G = *20.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*4*		*89*		*912*		*69*	*222*			*654*	
Lane Group Capacity, c	*218*		*216*		*1314*		*120*	*575*			*661*	
v/c Ratio, X	*0.02*		*0.41*		*0.69*		*0.57*	*0.39*			*0.99*	
Total Green Ratio, g/C	*0.13*		*0.13*		*0.28*		*0.33*	*0.33*			*0.33*	
Uniform Delay, d_1	*22.6*		*23.8*		*19.2*		*16.5*	*15.3*			*19.9*	
Progression Factor, PF	*1.000*		*1.000*		*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*		*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2	*0.2*		*5.6*		*2.2*		*17.6*	*1.9*			*16.6*	

Initial Queue Delay, d_3	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay	*22.7*		*29.4*		*21.4*		*34.1*	*17.2*			*36.5*	
Lane Group LOS	*C*		*C*		*C*		*C*	*B*			*D*	
Approach Delay	*29.1*				*21.4*			*21.2*			*36.5*	
Approach LOS	*C*				*C*			*C*			*D*	
Intersection Delay	*26.8*				X_C *= 0.77*			Intersection LOS			*C*	

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*S Service Rd & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/8/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*				*0*	*1*	*0*	*1*	*1*	*0*
Lane Group		*LTR*						*LTR*		*L*	*TR*	
Volume, V (vph)	*12*	*39*	*11*				*5*	*250*	*98*	*260*	*497*	*32*
% Heavy Vehicles, %HV	*3*	*3*	*3*				*7*	*7*	*7*	*7*	*7*	*7*
Peak-Hour Factor, PHF	*0.85*	*0.85*	*0.85*				*0.90*	*0.90*	*0.90*	*0.80*	*0.80*	*0.80*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*				*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*		*2.0*	*2.0*	
Arrival Type, AT		*3*						*3*		*3*	*3*	
Unit Extension, UE		*3.0*						*3.0*		*3.0*	*3.0*	
Filtering/Metering, I		*1.000*						*0.941*		*0.518*	*0.518*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*13.0*						*16.0*		*12.0*	*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*7*		*0*	*2*	
Min. Time for Pedestrians, G_p	*17.5*			*16.9*			*12.6*			*12.9*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *17.0*	G =	G =	G =	G = *33.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*73*						*393*		*325*	*661*	
Lane Group Capacity, c		*457*						*899*		*516*	*960*	
v/c Ratio, X		*0.16*						*0.44*		*0.63*	*0.69*	
Total Green Ratio, g/C		*0.28*						*0.55*		*0.55*	*0.55*	
Uniform Delay, d_1		*16.1*						*8.0*		*9.3*	*9.8*	
Progression Factor, PF		*1.000*						*1.000*		*1.000*	*1.000*	
Delay Calibration, k		*0.50*						*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2		*0.7*						*1.5*		*3.0*	*2.1*	

Initial Queue Delay, d_3		*0.0*						*0.0*		*0.0*	*0.0*	
Control Delay		*16.9*						*9.5*		*12.3*	*11.9*	
Lane Group LOS		*B*						*A*		*B*	*B*	
Approach Delay	*16.9*						*9.5*			*12.0*		
Approach LOS	*B*						*A*			*B*		
Intersection Delay	*11.6*			X_C = *0.51*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Amboy Rd & Bloomingdale Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/8/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*1*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*		*L*	*T*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*8*	*20*	*13*	*172*	*16*	*105*	*10*	*203*	*131*	*139*	*313*	*9*
% Heavy Vehicles, %HV	*3*	*3*	*3*	*5*	*5*	*5*	*7*	*7*	*7*	*7*	*7*	*7*
Peak-Hour Factor, PHF	*0.68*	*0.68*	*0.68*	*0.88*	*0.88*	*0.88*	*0.90*	*0.90*	*0.90*	*0.76*	*0.76*	*0.76*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*		*3*	*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*		*0.966*	*0.966*	*0.966*		*0.850*			*0.090*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*50*	*0*	*0*	*0*	*0*	*0*	*50*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*		*12.0*	*11.0*	*11.0*		*11.0*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*2*		*0*	*0*	*2*		*0*			*0*	
Min. Time for Pedestrians, G_p	*11.5*			*11.8*			*18.9*			*18.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*60*		*195*	*18*	*119*		*383*			*607*	
Lane Group Capacity, c		*648*		*548*	*777*	*574*		*695*			*539*	
v/c Ratio, X		*0.09*		*0.36*	*0.02*	*0.21*		*0.55*			*1.13*	
Total Green Ratio, g/C		*0.44*		*0.44*	*0.44*	*0.44*		*0.44*			*0.44*	
Uniform Delay, d_1		*14.5*		*16.5*	*14.0*	*15.3*		*18.4*			*25.0*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*	*0.50*		*0.50*			*0.50*	
Incremental Delay, d_2		*0.3*		*1.7*	*0.1*	*0.8*		*2.7*			*59.3*	

Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Control Delay		*14.8*		*18.2*	*14.1*	*16.1*		*21.1*			*84.3*	
Lane Group LOS		*B*		*B*	*B*	*B*		*C*			*F*	
Approach Delay	*14.8*			*17.2*			*21.1*			*84.3*		
Approach LOS	*B*			*B*			*C*			*F*		
Intersection Delay	*47.7*			X_C = *0.74*			Intersection LOS			*D*		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Arthur Kill Rd & Bloomingdl Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/11/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*0*	*1*		*0*		*0*			
Lane Group		*TR*			*LT*			*LR*				
Volume, V (vph)		*174*	*189*	*173*	*215*		*282*		*151*			
% Heavy Vehicles, %HV		*10*	*10*	*13*	*13*		*9*		*9*			
Peak-Hour Factor, PHF		*0.92*	*0.92*	*0.89*	*0.89*		*0.94*		*0.94*			
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*		*P*			
Start-up Lost Time, l_1		*2.0*			*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*			*2.0*			*2.0*				
Arrival Type, AT		*3*			*3*			*3*				
Unit Extension, UE		*3.0*			*3.0*			*3.0*				
Filtering/Metering, I		*0.964*			*0.986*			*0.858*				
Initial Unmet Demand, Q_b		*0.0*			*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*44*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	
Lane Width		*16.0*			*16.0*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m									*5*			
Buses Stopping, N_B		*5*			*0*			*0*				
Min. Time for Pedestrians, G_p	*18.3*			*3.2*			*15.2*			*17.2*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*347*			*436*			*461*				
Lane Group Capacity, c		*900*			*557*			*529*				
v/c Ratio, X		*0.39*			*0.78*			*0.87*				
Total Green Ratio, g/C		*0.50*			*0.50*			*0.39*				
Uniform Delay, d_1		*13.9*			*18.5*			*25.4*				
Progression Factor, PF		*1.000*			*1.000*			*1.000*				
Delay Calibration, k		*0.50*			*0.50*			*0.50*				
Incremental Delay, d_2		*1.2*			*10.4*			*15.6*				
Initial Queue Delay, d_3		*0.0*			*0.0*			*0.0*				

Control Delay		15.1			28.9			41.0				
Lane Group LOS		B			C			D				
Approach Delay	15.1			28.9			41.0					
Approach LOS	B			C			D					
Intersection Delay	29.5			X_C = 0.82			Intersection LOS			C		

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Weekday

Midday

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*2/8/13*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*Sharrotts Rd & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Alt 2*

Project Description *Charlestone EIS*

East/West Street: *Sharrotts Road* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*37*	*253*	*43*	*32*	*275*	*23*
Peak-Hour Factor, PHF	*0.85*	*0.85*	*0.85*	*0.91*	*0.91*	*0.91*
Hourly Flow Rate, HFR (veh/h)	*43*	*297*	*50*	*35*	*302*	*25*
Percent Heavy Vehicles	*8*	--	--	*18*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*24*	*17*	*39*	*38*	*19*	*25*
Peak-Hour Factor, PHF	*0.78*	*0.78*	*0.78*	*0.88*	*0.88*	*0.88*
Hourly Flow Rate, HFR (veh/h)	*30*	*21*	*50*	*43*	*21*	*28*
Percent Heavy Vehicles	*1*	*1*	*1*	*10*	*10*	*10*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (veh/h)	*43*	*35*		*92*			*101*	
C (m) (veh/h)	*1200*	*1128*		*307*			*387*	
v/c	*0.04*	*0.03*		*0.30*			*0.26*	
95% queue length	*0.11*	*0.10*		*1.23*			*1.03*	
Control Delay (s/veh)	*8.1*	*8.3*		*21.7*			*17.6*	
LOS	*A*	*A*		*C*			*C*	
Approach Delay (s/veh)	--	--	*21.7*			*17.6*		
Approach LOS	--	--	*C*			*C*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*2/8/13*
Analysis Time Period	*Weekday 12-1 MD Peak Period*

Site Information

Intersection	*Englewood Ave & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Alt 2*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*310*	*29*	*28*	*324*	
Peak-Hour Factor, PHF	*1.00*	*0.85*	*0.85*	*0.91*	*0.91*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*364*	*34*	*30*	*356*	*0*
Percent Heavy Vehicles	*0*	--	--	*15*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*54*		*24*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.94*	*1.00*	*0.94*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*57*	*0*	*25*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (veh/h)		*30*		*82*				
C (m) (veh/h)		*1093*		*408*				
v/c		*0.03*		*0.20*				
95% queue length		*0.08*		*0.74*				
Control Delay (s/veh)		*8.4*		*16.0*				
LOS		*A*		*C*				
Approach Delay (s/veh)	--	--	*16.0*					
Approach LOS	--	--	*C*					

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/11/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*			*LT*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*1*	*17*	*6*	*255*	*24*	*490*	*1*	*161*	*287*	*241*	*200*	*1*
% Heavy Vehicles, %HV	*4*	*4*	*4*	*6*	*6*	*6*	*11*	*11*	*11*	*7*	*7*	*7*
Peak-Hour Factor, PHF	*0.84*	*0.84*	*0.84*	*0.90*	*0.90*	*0.90*	*0.92*	*0.92*	*0.92*	*0.86*	*0.86*	*0.86*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*			*0.887*	*0.887*		*0.931*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*15.5*			*11.0*	*10.0*		*15.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*			*0*	*0*		*3*			*4*	
Min. Time for Pedestrians, G_p	*11.5*			*13.5*			*15.2*			*12.1*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*28*			*310*	*544*		*488*			*514*	
Lane Group Capacity, c		*713*			*523*	*518*		*708*			*418*	
v/c Ratio, X		*0.04*			*0.59*	*1.05*		*0.69*			*1.23*	
Total Green Ratio, g/C		*0.42*			*0.42*	*0.42*		*0.42*			*0.42*	
Uniform Delay, d_1		*10.4*			*13.6*	*17.5*		*14.3*			*17.5*	
Progression Factor, PF		*1.000*			*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*	*0.50*		*0.50*			*0.50*	
Incremental Delay, d_2		*0.1*			*4.3*	*51.1*		*5.1*			*122.8*	

Initial Queue Delay, d_3		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Control Delay		*10.5*			*17.9*	*68.6*		*19.4*			*140.3*	
Lane Group LOS		*B*			*B*	*E*		*B*			*F*	
Approach Delay	*10.5*			*50.2*			*19.4*			*140.3*		
Approach LOS	*B*			*D*			*B*			*F*		
Intersection Delay	*66.2*			X_C = *1.14*			Intersection LOS			*E*		

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*No Bridge St & Arthur Kill Rd*
Agency or Co.	*Philip Habib & Associates*	Area Type	*All other areas*
Date Performed	*4/11/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*			*1*	
Lane Group					*LR*			*T*			*T*	
Volume, V (vph)				*359*		*3*		*443*			*461*	
% Heavy Vehicles, %HV				*6*		*6*		*11*			*12*	
Peak-Hour Factor, PHF				*0.88*		*0.88*		*0.92*			*0.86*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*			*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.858*			*0.858*			*0.567*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	
Lane Width					*16.0*			*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B					*0*			*0*			*4*	
Min. Time for Pedestrians, G_p	*13.5*			*13.8*			*3.2*			*3.2*		

Phasing	WB Only	02	03	04	Thru Only	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*411*			*482*			*536*	
Lane Group Capacity, c					*644*			*970*			*946*	
v/c Ratio, X					*0.64*			*0.50*			*0.57*	
Total Green Ratio, g/C					*0.33*			*0.50*			*0.50*	
Uniform Delay, d_1					*16.9*			*10.0*			*10.5*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*4.1*			*1.6*			*1.4*	
Initial Queue Delay, d_3					*0.0*			*0.0*			*0.0*	

Control Delay					*21.1*			*11.5*			*11.9*	
Lane Group LOS					*C*			*B*			*B*	
Approach Delay				*21.1*			*11.5*			*11.9*		
Approach LOS				*C*			*B*			*B*		
Intersection Delay	*14.4*			X_C = *0.60*			Intersection LOS			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*2/8/13*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*So Bridge St & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Alt 2*

Project Description *Charleston EIS*

East/West Street: *South Bridge Street* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*443*	*242*	*147*	*673*	
Peak-Hour Factor, PHF	*1.00*	*0.92*	*0.92*	*0.86*	*0.86*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*481*	*263*	*170*	*782*	*0*
Percent Heavy Vehicles	*0*	--	--	*16*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*1*	*1*	*0*
Configuration		*T*	*R*	*L*	*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration						

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*						
v (veh/h)		*170*						
C (m) (veh/h)		*803*						
v/c		*0.21*						
95% queue length		*0.80*						
Control Delay (s/veh)		*10.7*						
LOS		*B*						
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Rch Valley Rd & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/11/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*	*0*	*0*	*1*	
Lane Group					*LR*			*TR*			*LT*	
Volume, V (vph)				*102*		*201*		*473*	*80*	*188*	*467*	
% Heavy Vehicles, %HV				*3*		*3*		*8*	*8*	*6*	*6*	
Peak-Hour Factor, PHF				*0.87*		*0.87*		*0.92*	*0.92*	*0.86*	*0.86*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*	*P*	*P*	*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.944*			*0.880*			*0.500*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width					*12.0*			*15.0*			*15.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B					*0*			*4*			*4*	
Min. Time for Pedestrians, G_p	*11.8*			*11.8*			*14.1*			*3.2*		

Phasing	WB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*348*			*601*			*762*	
Lane Group Capacity, c					*385*			*1058*			*610*	
v/c Ratio, X					*0.90*			*0.57*			*1.25*	
Total Green Ratio, g/C					*0.27*			*0.57*			*0.57*	
Uniform Delay, d_1					*21.3*			*8.3*			*13.0*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*25.9*			*1.9*			*119.1*	
Initial Queue Delay, d_3					*0.0*			*0.0*			*0.0*	

Control Delay					47.2			10.3			132.1	
Lane Group LOS					D			B			F	
Approach Delay				47.2			10.3			132.1		
Approach LOS				D			B			F		
Intersection Delay	72.0			X_C = 1.14			Intersection LOS			E		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Richmond Valley Rd & Page Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/8/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*0*	*1*	*1*	*0*	*0*	*2*	*0*
Lane Group		*LTR*			*LTR*		*L*	*TR*			*LTR*	
Volume, V (vph)	*144*	*67*	*86*	*39*	*179*	*64*	*99*	*607*	*137*	*115*	*485*	*70*
% Heavy Vehicles, %HV	*3*	*3*	*3*	*2*	*2*	*2*	*2*	*2*	*2*	*6*	*6*	*6*
Peak-Hour Factor, PHF	*0.86*	*0.86*	*0.86*	*0.92*	*0.92*	*0.92*	*0.91*	*0.91*	*0.91*	*0.89*	*0.89*	*0.89*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.649*			*1.000*		*0.732*	*0.732*			*0.973*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*14*
Lane Width		*16.0*			*15.0*		*10.0*	*14.0*			*10.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*
Parking Maneuvers, N_m						*5*						*5*
Buses Stopping, N_B		*0*			*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*16.6*			*21.5*			*16.3*			*21.2*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *31.0*	G =	G =	G =	G = *49.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*345*			*307*		*109*	*818*			*737*	
Lane Group Capacity, c		*423*			*550*		*308*	*1052*			*880*	
v/c Ratio, X		*0.82*			*0.56*		*0.35*	*0.78*			*0.84*	
Total Green Ratio, g/C		*0.34*			*0.34*		*0.54*	*0.54*			*0.54*	
Uniform Delay, d_1		*26.9*			*23.9*		*11.6*	*16.2*			*17.2*	
Progression Factor, PF		*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2		*10.8*			*4.1*		*2.3*	*4.2*			*9.1*	

Initial Queue Delay, d_3		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay		*37.7*			*28.0*		*13.9*	*20.4*			*26.3*	
Lane Group LOS		*D*			*C*		*B*	*C*			*C*	
Approach Delay	*37.7*			*28.0*			*19.6*			*26.3*		
Approach LOS	*D*			*C*			*B*			*C*		
Intersection Delay	*25.5*			X_C *= 0.83*			Intersection LOS			*C*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*S Br St & Page Ave/Boscome Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/8/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*							*2*			*2*	
Lane Group	*L*							*T*			*T*	
Volume, V (vph)	*298*							*814*			*578*	
% Heavy Vehicles, %HV	*3*							*2*			*3*	
Peak-Hour Factor, PHF	*0.88*							*0.91*			*0.89*	
Pretimed (P) or Actuated (A)	*P*							*P*			*P*	
Start-up Lost Time, l_1	*2.0*							*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*							*2.0*			*2.0*	
Arrival Type, AT	*3*							*3*			*3*	
Unit Extension, UE	*3.0*							*3.0*			*3.0*	
Filtering/Metering, I	*1.000*							*0.738*			*0.973*	
Initial Unmet Demand, Q_b	*0.0*							*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*		*0*	*0*		*0*	*0*	
Lane Width	*16.0*							*14.5*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*							*0*			*0*	
Min. Time for Pedestrians, G_p	*3.2*			*20.1*			*3.2*			*3.2*		

Phasing	EB Only	02	03	04	Thru Only	06	07	08
Timing	G = *30.0*	G =	G =	G =	G = *50.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*339*							*895*			*649*	
Lane Group Capacity, c	*662*							*2134*			*1951*	
v/c Ratio, X	*0.51*							*0.42*			*0.33*	
Total Green Ratio, g/C	*0.33*							*0.56*			*0.56*	
Uniform Delay, d_1	*24.1*							*11.6*			*10.9*	
Progression Factor, PF	*1.000*							*1.000*			*1.000*	
Delay Calibration, k	*0.50*							*0.50*			*0.50*	
Incremental Delay, d_2	*2.8*							*0.4*			*0.4*	
Initial Queue Delay, d_3	*0.0*							*0.0*			*0.0*	

Control Delay	26.9							12.0			11.4	
Lane Group LOS	C							B			B	
Approach Delay	26.9						12.0			11.4		
Approach LOS	C						B			B		
Intersection Delay	14.5			X_C = 0.45			Intersection LOS			B		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*2/8/13*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*S Bridge St RT & Page Ave*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Alt 2*

Project Description *Charleston EIS*

East/West Street: *South Bridge Street Right Turn* | North/South Street: *Page Avenue*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*578*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.89*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*649*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*2*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*91*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.84*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*108*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*29*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								*R*
v (veh/h)								*108*
C (m) (veh/h)								*659*
v/c								*0.16*
95% queue length								*0.58*
Control Delay (s/veh)								*11.5*
LOS								*B*
Approach Delay (s/veh)	--	--				*11.5*		
Approach LOS	--	--				*B*		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	KM	Intersection	Veterans Rd W & Bricktown/KWVP
Agency or Co.	AECOM	Area Type	All other areas
Date Performed	2/8/13	Jurisdiction	Staten Island, NY
Time Period	Weekday 12-1 PM MD Peak Period	Analysis Year	2020 With-Action Alt 2
		Project ID	Charleston EIS

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	1	1	0	1	2	0	0	2	0	1	1	0
Lane Group	L	TR		L	TR			LTR		L	TR	
Volume, V (vph)	150	273	148	195	539	84	184	448	316	149	67	89
% Heavy Vehicles, %HV	1	1	1	6	6	6	4	4	4	2	2	2
Peak-Hour Factor, PHF	0.84	0.84	0.84	0.90	0.90	0.90	0.93	0.93	0.93	0.80	0.80	0.80
Pretimed (P) or Actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up Lost Time, l_1	2.0	2.0		2.0	2.0			2.0		2.0	2.0	
Extension of Effective Green, e	2.0	2.0		2.0	2.0			2.0		2.0	2.0	
Arrival Type, AT	3	3		3	3			3		3	3	
Unit Extension, UE	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Filtering/Metering, I	0.856	0.856		0.927	0.927			1.000		0.985	0.985	
Initial Unmet Demand, Q_b	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Ped / Bike / RTOR Volumes	0	0	32	0	0	13	0	0	0	0	0	0
Lane Width	11.0	12.0		10.0	12.0			12.5		11.0	10.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0		0	0			0		0	0	
Min. Time for Pedestrians, G_p	34.6			18.6			20.3			16.1		

Phasing	EW Perm	02	03	04	NB Only	SB Only	07	08
Timing	G = 30.0	G =	G =	G =	G = 25.0	G = 20.0	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y = 5	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	179	463		217	678			1020		186	195	
Lane Group Capacity, c	161	599		131	1118			924		380	353	
v/c Ratio, X	1.11	0.77		1.66	0.61			1.10		0.49	0.55	
Total Green Ratio, g/C	0.33	0.33		0.33	0.33			0.28		0.22	0.22	
Uniform Delay, d_1	30.0	26.9		30.0	25.1			32.5		30.5	31.0	
Progression Factor, PF	1.000	1.000		1.000	1.000			1.000		1.000	1.000	
Delay Calibration, k	0.50	0.50		0.50	0.50			0.50		0.50	0.50	
Incremental Delay, d_2	98.8	8.1		324.7	2.3			62.3		4.4	6.0	

Initial Queue Delay, d_3	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Control Delay	128.8	35.1		354.7	27.3			94.8		34.9	37.1	
Lane Group LOS	F	D		F	C			F		C	D	
Approach Delay	61.2			106.7			94.8			36.0		
Approach LOS	E			F			F			D		
Intersection Delay	83.5			X_C = 1.18			Intersection LOS			F		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*2/8/13*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*KWVP WB OR UT & No Bridge St*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Alt 2*

Project Description *Charleston EIS*

East/West Street: *KWVP WB Off-Ramp U-Turn* | North/South Street: *North Bridge Street*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*410*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.87*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*471*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*1*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*188*		
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.90*	*0.93*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*202*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*60*	*4*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*0*
Configuration				*L*		

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration			*L*					
v (veh/h)			*202*					
C (m) (veh/h)			*548*					
v/c			*0.37*					
95% queue length			*1.69*					
Control Delay (s/veh)			*15.4*					
LOS			*C*					
Approach Delay (s/veh)	--	--	*15.4*					
Approach LOS	--	--	*C*					

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*2/8/13*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*Bricktown Way/Tyrellan Avenue*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Alt 2*

Project ID *Charleston EIS*

East/West Street: *Bricktown Way* | North/South Street: *Tyrellan Avenue*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*97*	*128*	*60*	*130*	*139*	*90*
%Thrus Left Lane	*50*			*50*		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*44*	*41*	*41*	*78*	*188*	*58*
%Thrus Left Lane				*50*		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*LT*	*TR*	*LT*	*TR*	*LT*	*R*	*LT*	*TR*
PHF	*0.88*	*0.88*	*0.90*	*0.90*	*0.78*	*0.78*	*1.00*	*1.00*
Flow Rate (veh/h)	*182*	*140*	*220*	*177*	*108*	*52*	*172*	152
% Heavy Vehicles	*42*	*42*	*4*	*4*	*3*	*3*	*0*	*0*
No. Lanes	*2*		*2*		*2*		*2*	
Geometry Group	*5*		*5*		*5*		*5*	
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	*0.6*	*0.0*	*0.7*	*0.0*	*0.5*	*0.0*	*0.5*	*0.0*
Prop. Right-Turns	*0.0*	*0.5*	*0.0*	*0.6*	*0.0*	*1.0*	*0.0*	*0.4*
Prop. Heavy Vehicle	*0.4*	*0.4*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
hLT-adj	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*
hRT-adj	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*
hadj, computed	*1.0*	*0.4*	*0.4*	*-0.3*	*0.3*	*-0.6*	*0.2*	*-0.3*

Departure Headway and Service Time

hd, initial value (s)	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*
x, initial	*0.16*	*0.12*	*0.20*	*0.16*	*0.10*	*0.05*	*0.15*	*0.14*
hd, final value (s)	*7.62*	*6.98*	*6.94*	*6.22*	*7.44*	*6.48*	*7.07*	*6.57*
x, final value	*0.39*	*0.27*	*0.42*	*0.31*	*0.22*	*0.09*	*0.34*	*0.28*
Move-up time, m (s)	*2.3*		*2.3*		*2.3*		*2.3*	
Service Time, t_s (s)	*5.3*	*4.7*	*4.6*	*3.9*	*5.1*	*4.2*	*4.8*	*4.3*

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*432*	*390*	*470*	*427*	*358*	*302*	*422*	*402*
Delay (s/veh)	*15.03*	*12.27*	*14.66*	*11.64*	*12.27*	*9.85*	*13.33*	*11.78*
LOS	*C*	*B*	*B*	*B*	*B*	*A*	*B*	*B*
Approach: Delay (s/veh)	*13.83*		*13.31*		*11.48*		*12.60*	
LOS	*B*		*B*		*B*		*B*	
Intersection Delay (s/veh)	*13.02*							
Intersection LOS	*B*							

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/8/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*
Lane Group		*LTR*		*DefL*	*TR*		*DefL*	*TR*			*LTR*	
Volume, V (vph)	*62*	*140*	*509*	*134*	*316*	*18*	*281*	*201*	*88*	*23*	*528*	*226*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*3*	*3*	*3*	*3*	*3*	*3*	*12*	*12*	*12*
Peak-Hour Factor, PHF	*0.84*	*0.84*	*0.84*	*0.90*	*0.90*	*0.90*	*0.87*	*0.87*	*0.87*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*		*3*	*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.889*		*0.932*	*0.932*		*1.000*	*1.000*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*		*12.0*	*12.0*		*13.0*	*13.0*			*9.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*		*0*	*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*18.6*			*16.6*			*20.1*			*19.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*847*		*149*	*371*		*323*	*332*			*864*	
Lane Group Capacity, c		*1232*		*196*	*813*		*196*	*808*			*1180*	
v/c Ratio, X		*0.69*		*0.76*	*0.46*		*1.65*	*0.41*			*0.73*	
Total Green Ratio, g/C		*0.44*		*0.44*	*0.44*		*0.44*	*0.44*			*0.44*	
Uniform Delay, d_1		*20.0*		*21.0*	*17.4*		*25.0*	*17.0*			*20.6*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2		*2.8*		*22.5*	*1.7*		*313.3*	*1.5*			*4.0*	

Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay		*22.8*		*43.4*	*19.1*		*338.3*	*18.5*			*24.6*	
Lane Group LOS		*C*		*D*	*B*		*F*	*B*			*C*	
Approach Delay	*22.8*			*26.1*			*176.2*			*24.6*		
Approach LOS	*C*			*C*			*F*			*C*		
Intersection Delay	*58.8*			X_C *= 1.20*			Intersection LOS			*E*		

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	KM	Intersection	Boscombe Ave & OBX Off-Ramp
Agency or Co.	AECOM	Area Type	All other areas
Date Performed	2/8/13	Jurisdiction	Staten Island, NY
Time Period	Weekday 12-1 PM MD Peak Period	Analysis Year	2020 With-Action Alt 2
		Project ID	Charleston EIS

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	1	1	0	0	1	1	0	1	0	1	1	1
Lane Group	L	TR			LT	R		LTR		L	LT	R
Volume, V (vph)	687	422	3	1	443	746	0	0	1	119	0	136
% Heavy Vehicles, %HV	2	2	2	3	3	3	0	0	1	2	2	2
Peak-Hour Factor, PHF	0.91	0.91	0.91	0.91	0.93	0.91	0.25	0.25	0.25	0.97	0.97	0.97
Pretimed (P) or Actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up Lost Time, l_1	2.0	2.0			2.0	2.0		2.0		2.0	2.0	2.0
Extension of Effective Green, e	2.0	2.0			2.0	2.0		2.0		2.0	2.0	2.0
Arrival Type, AT	3	3			3	3		3		3	3	3
Unit Extension, UE	3.0	3.0			3.0	3.0		3.0		3.0	3.0	3.0
Filtering/Metering, I	0.735	0.735			0.546	0.546		1.000		1.000	1.000	1.000
Initial Unmet Demand, Q_b	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Ped / Bike / RTOR Volumes	0	0	0	0	0	85	0	0	0	0	0	0
Lane Width	11.0	12.0			12.0	12.0		16.0		10.0	11.0	10.0
Parking / Grade / Parking	N	0	Y	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N_m			5									
Buses Stopping, N_B	0	0			0	0		0		0	0	0
Min. Time for Pedestrians, G_p	14.6			24.6			20.9			20.1		

Phasing	EB Only	EW Perm	03	04	NS Perm	06	07	08
Timing	G = 37.0	G = 22.0	G =	G =	G = 16.0	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	755	467			477	726		4		123	0	140
Lane Group Capacity, c	783	1158			451	383		328		233	320	952
v/c Ratio, X	0.96	0.40			1.06	1.90		0.01		0.53	0.00	0.15
Total Green Ratio, g/C	0.71	0.71			0.24	0.24		0.18		0.18	0.18	0.64
Uniform Delay, d_1	18.2	5.3			34.0	34.0		30.5		33.6	30.4	6.3
Progression Factor, PF	1.000	1.000			1.000	1.000		1.000		1.000	1.000	1.000
Delay Calibration, k	0.50	0.50			0.50	0.50		0.50		0.50	0.50	0.50
Incremental Delay, d_2	20.2	0.8			47.7	408.4		0.1		8.3	0.0	0.3

Initial Queue Delay, d_3	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Control Delay	38.4	6.0			81.7	442.4		30.6		41.9	30.4	6.6
Lane Group LOS	D	A			F	F		C		D	C	A
Approach Delay	26.0			299.4			30.6			23.1		
Approach LOS	C			F			C			C		
Intersection Delay	147.9			X_C = 1.16			Intersection LOS			F		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Boscombe Ave & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/8/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Hour*	Analysis Year	*2020 With-Action Alt*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*1*	*1*
Lane Group	*DefL*	*TR*			*LTR*		*DefL*	*TR*			*LT*	*R*
Volume, V (vph)	*504*	*38*	*0*	*2*	*65*	*71*	*4*	*3*	*0*	*65*	*6*	*1120*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*3*	*3*	*3*	*1*	*1*	*1*	*6*	*6*	*6*
Peak-Hour Factor, PHF	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*	*0.58*	*0.58*	*0.58*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*		*3*	*3*			*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	*3.0*
Filtering/Metering, I	*0.962*	*0.962*			*1.000*		*1.000*	*1.000*			*0.889*	*0.889*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*17*	*0*	*0*	*0*	*0*	*0*	*310*
Lane Width	*16.0*	*16.0*			*11.5*		*12.0*	*12.0*			*12.0*	*12.0*
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*			*0*		*0*	*0*			*0*	*0*
Min. Time for Pedestrians, G_p	*20.3*			*17.5*			*20.3*			*20.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*554*	*42*			*132*		*7*	*5*			*79*	*900*
Lane Group Capacity, c	*706*	*1056*			*1537*		*516*	*732*			*538*	*593*
v/c Ratio, X	*0.78*	*0.04*			*0.09*		*0.01*	*0.01*			*0.15*	*1.52*
Total Green Ratio, g/C	*0.50*	*0.50*			*0.50*		*0.39*	*0.39*			*0.39*	*0.39*
Uniform Delay, d_1	*18.5*	*11.5*			*11.8*		*16.9*	*16.9*			*17.8*	*27.5*
Progression Factor, PF	*1.000*	*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	*0.50*
Incremental Delay, d_2	*8.2*	*0.1*			*0.1*		*0.0*	*0.0*			*0.5*	*240.6*

Initial Queue Delay, d_3	0.0	0.0			0.0		0.0	0.0			0.0	0.0
Control Delay	26.8	11.5			11.9		16.9	16.9			18.3	268.1
Lane Group LOS	C	B			B		B	B			B	F
Approach Delay	25.7			11.9			16.9			248.0		
Approach LOS	C			B			B			F		
Intersection Delay	151.2			X_C = 1.11			Intersection LOS			F		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Bricktown Ctr Rd @ Vets Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/8/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*				*0*	*2*			*2*	*0*
Lane Group	*L*		*R*					*LT*			*TR*	
Volume, V (vph)	*265*		*25*				*4*	*247*			*444*	*497*
% Heavy Vehicles, %HV	*10*		*10*				*4*	*4*			*2*	*2*
Peak-Hour Factor, PHF	*0.88*		*0.88*				*0.90*	*0.90*			*0.80*	*0.80*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*					*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*					*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*					*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*					*3.0*			*3.0*	
Filtering/Metering, I	*0.975*		*0.975*					*0.998*			*0.686*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*					*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*6*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width	*13.0*		*12.0*					*11.5*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*					*0*			*0*	
Min. Time for Pedestrians, G_p	*21.8*			*20.3*			*3.2*			*19.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *19.0*	G =	G =	G =	G = *31.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*301*		*22*					*278*			*1176*	
Lane Group Capacity, c	*537*		*465*					*1663*			*1912*	
v/c Ratio, X	*0.56*		*0.05*					*0.17*			*0.62*	
Total Green Ratio, g/C	*0.32*		*0.32*					*0.52*			*0.52*	
Uniform Delay, d_1	*17.0*		*14.2*					*7.7*			*10.3*	
Progression Factor, PF	*1.000*		*1.000*					*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*					*0.50*			*0.50*	
Incremental Delay, d_2	*4.1*		*0.2*					*0.2*			*1.0*	
Initial Queue Delay, d_3	*0.0*		*0.0*					*0.0*			*0.0*	

Control Delay	*21.1*		*14.4*					*7.9*			*11.3*	
Lane Group LOS	*C*		*B*					*A*			*B*	
Approach Delay	*20.7*						*7.9*			*11.3*		
Approach LOS	*C*						*A*			*B*		
Intersection Delay	*12.5*			X_C = *0.59*			Intersection LOS			*B*		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Ave @ Veterans Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/8/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*1*	*1*		*1*			*0*	*3*	*0*
Lane Group		*TR*		*L*	*LT*		*L*				*LTR*	
Volume, V (vph)		*1*	*0*	*626*	*1*		*1*			*23*	*314*	*0*
% Heavy Vehicles, %HV		*1*	*1*	*1*	*1*		*1*			*2*	*2*	*2*
Peak-Hour Factor, PHF		*0.25*	*0.25*	*0.95*	*0.95*		*0.90*			*0.80*	*0.80*	*0.80*
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*			*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Arrival Type, AT		*3*		*3*	*3*		*3*				*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*		*3.0*				*3.0*	
Filtering/Metering, I		*1.000*		*0.983*	*0.983*		*0.989*				*1.000*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*12.0*		*13.0*	*13.0*		*10.0*				*11.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*		*0*	*0*		*0*				*0*	
Min. Time for Pedestrians, G_p	*31.2*			*3.2*			*18.1*			*11.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*4*		*330*	*330*		*1*				*421*	
Lane Group Capacity, c		*784*		*612*	*587*		*352*				*2037*	
v/c Ratio, X		*0.01*		*0.54*	*0.56*		*0.00*				*0.21*	
Total Green Ratio, g/C		*0.42*		*0.42*	*0.42*		*0.42*				*0.42*	
Uniform Delay, d_1		*10.2*		*13.2*	*13.3*		*10.2*				*11.2*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*		*1.000*				*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*		*0.50*				*0.50*	
Incremental Delay, d_2		*0.0*		*3.3*	*3.8*		*0.0*				*0.2*	

Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Control Delay		*10.2*		*16.5*	*17.1*		*10.2*				*11.4*	
Lane Group LOS		*B*		*B*	*B*		*B*				*B*	
Approach Delay	*10.2*			*16.8*			*10.2*			*11.4*		
Approach LOS	*B*			*B*			*B*			*B*		
Intersection Delay	*14.7*			X_C *= 0.38*			Intersection LOS			*B*		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*2/8/13*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*Englewood Ave & Vets Rd W RT*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Alt 2*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* | North/South Street: *Veterans Rd W Right Turn Bay*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*24*				
Peak-Hour Factor, PHF	*1.00*	*0.55*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*43*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*T*				
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*510*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.90*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*566*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*1*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					*R*			
v (veh/h)					*566*			
C (m) (veh/h)					*1030*			
v/c					*0.55*			
95% queue length					*3.45*			
Control Delay (s/veh)					*12.7*			
LOS					*B*			
Approach Delay (s/veh)	--	--	*12.7*					
Approach LOS	--	--	*B*					

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*2/8/13*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*Sharrotts Rd & Veterans Rd W*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With Action Alt 2*

Project ID *Charleston EIS*

East/West Street: *Sharrotts Road* North/South Street: *Veterans Road West*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*62*	*31*	*227*	*62*	*0*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*0*	*31*	*79*	*20*
%Thrus Left Lane				*50*		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*TR*		*LT*				*LT*	*TR*
PHF	*0.86*		*0.77*				*0.80*	*0.80*
Flow Rate (veh/h)	*108*		*374*				*86*	73
% Heavy Vehicles	*17*		*4*				*1*	*1*
No. Lanes	*1*		*1*		*0*		*2*	
Geometry Group	*2*		*2*				*1*	
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	*0.0*		*0.8*				*0.4*	*0.0*
Prop. Right-Turns	*0.3*		*0.0*				*0.0*	*0.3*
Prop. Heavy Vehicle	*0.2*		*0.0*				*0.0*	*0.0*
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*			*0.2*	*0.2*
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*			*-0.6*	*-0.6*
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*			*1.7*	*1.7*
hadj, computed	*0.1*		*0.2*				*0.1*	*-0.2*

Departure Headway and Service Time

hd, initial value (s)	*3.20*		*3.20*				*3.20*	*3.20*
x, initial	*0.10*		*0.33*				*0.08*	*0.06*
hd, final value (s)	*4.84*		*4.66*				*5.17*	*4.88*
x, final value	*0.15*		*0.48*				*0.12*	*0.10*
Move-up time, m (s)	*2.0*		*2.0*				*2.0*	
Service Time, t_s (s)	*2.8*		*2.7*				*3.2*	*2.9*

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*358*		*624*				*336*	*323*
Delay (s/veh)	*8.66*		*11.96*				*8.90*	*8.42*
LOS	*A*		*B*				*A*	*A*
Approach: Delay (s/veh)	*8.66*		*11.96*				*8.68*	
LOS	*A*		*B*				*A*	
Intersection Delay (s/veh)	*10.59*							
Intersection LOS	*B*							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*2/8/13*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*Sharrotts Rd @ Veterans Rd E*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Alt 2*

Project ID *Charleston EIS*

East/West Street: *Sharrotts Road* North/South Street: *Veterans Road East*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*40*	*53*	*0*	*0*	*247*	*23*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*42*	*64*	*88*	*0*	*0*	*0*
%Thrus Left Lane	*50*					

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*LT*		*TR*		*LT*	*TR*		
PHF	*0.86*		*0.77*		*0.88*	*0.88*		
Flow Rate (veh/h)	*107*		*349*		*83*	*136*		
% Heavy Vehicles	*11*		*5*		*1*	*1*		
No. Lanes	*1*		*1*		*2*		*0*	
Geometry Group	*2*		*2*		*1*			
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	*0.4*		*0.0*		*0.6*	*0.0*		
Prop. Right-Turns	*0.0*		*0.1*		*0.0*	*0.7*		
Prop. Heavy Vehicle	*0.1*		*0.0*		*0.0*	*0.0*		
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*		
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*		
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*		
hadj, computed	*0.3*		*0.0*		*0.1*	*-0.4*		

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value (s)	*3.20*		*3.20*		*3.20*	*3.20*		
x, initial	*0.10*		*0.31*		*0.07*	*0.12*		
hd, final value (s)	*5.12*		*4.60*		*5.14*	*4.58*		
x, final value	*0.15*		*0.45*		*0.12*	*0.17*		
Move-up time, m (s)	*2.0*		*2.0*		*2.0*			
Service Time, t_s (s)	*3.1*		*2.6*		*3.1*	*2.6*		

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*357*		*599*		*333*	*386*		
Delay (s/veh)	*9.03*		*11.24*		*8.82*	*8.53*		
LOS	*A*		*B*		*A*	*A*		
Approach: Delay (s/veh)	*9.03*		*11.24*		*8.64*			
LOS	*A*		*B*		*A*			
Intersection Delay (s/veh)	*10.05*							
Intersection LOS	*B*							

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Englewood Ave @ Vets Rd E*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/8/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*3*	*0*			
Lane Group		*LT*	*R*		*LTR*			*LTR*				
Volume, V (vph)	*149*	*229*	*155*	*2*	*53*	*5*	*574*	*39*	*2*			
% Heavy Vehicles, %HV	*1*	*1*	*1*	*5*	*5*	*5*	*1*	*1*	*1*			
Peak-Hour Factor, PHF	*0.91*	*0.91*	*0.91*	*0.95*	*0.95*	*0.95*	*0.97*	*0.97*	*0.97*			
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*			
Start-up Lost Time, l_1		*2.0*	*2.0*		*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*	*2.0*		*2.0*			*2.0*				
Arrival Type, AT		*3*	*3*		*3*			*3*				
Unit Extension, UE		*3.0*	*3.0*		*3.0*			*3.0*				
Filtering/Metering, I		*0.999*	*0.999*		*0.999*			*0.980*				
Initial Unmet Demand, Q_b		*0.0*	*0.0*		*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*52*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width		*13.0*	*12.0*		*11.5*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B		*0*	*0*		*0*			*0*				
Min. Time for Pedestrians, G_p	*21.2*			*12.9*			*14.3*			*17.5*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *21.0*	G =	G =	G =	G = *29.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*416*	*113*		*63*			*634*				
Lane Group Capacity, c		*574*	*560*		*533*			*2286*				
v/c Ratio, X		*0.72*	*0.20*		*0.12*			*0.28*				
Total Green Ratio, g/C		*0.35*	*0.35*		*0.35*			*0.48*				
Uniform Delay, d_1		*17.0*	*13.6*		*13.2*			*9.2*				
Progression Factor, PF		*1.000*	*1.000*		*1.000*			*1.000*				
Delay Calibration, k		*0.50*	*0.50*		*0.50*			*0.50*				
Incremental Delay, d_2		*7.8*	*0.8*		*0.5*			*0.3*				

Initial Queue Delay, d_3		*0.0*	*0.0*		*0.0*			*0.0*				
Control Delay		*24.7*	*14.4*		*13.7*			*9.5*				
Lane Group LOS		*C*	*B*		*B*			*A*				
Approach Delay	*22.5*			*13.7*			*9.5*					
Approach LOS	*C*			*B*			*A*					
Intersection Delay	*15.4*			X_C = *0.47*			Intersection LOS			*B*		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Av & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/8/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*192*		*40*				*14*	*294*			*347*	*46*
% Heavy Vehicles, %HV	*1*		*1*				*2*	*2*			*2*	*2*
Peak-Hour Factor, PHF	*0.81*		*0.81*				*0.87*	*0.87*			*0.91*	*0.91*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.975*						*0.967*			*0.961*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*16.0*						*14.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B		*0*						*2*			*2*	
Min. Time for Pedestrians, G_p	*14.9*			*15.5*			*3.2*			*17.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*286*						*354*			*432*	
Lane Group Capacity, c		*467*						*1091*			*1168*	
v/c Ratio, X		*0.61*						*0.32*			*0.37*	
Total Green Ratio, g/C		*0.27*						*0.57*			*0.57*	
Uniform Delay, d_1		*19.3*						*6.9*			*7.1*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*5.7*						*0.8*			*0.9*	
Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	

Control Delay		25.0						7.7			8.0	
Lane Group LOS		C						A			A	
Approach Delay	25.0						7.7			8.0		
Approach LOS	C						A			A		
Intersection Delay	12.4			X_C = 0.45			Intersection LOS			B		

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Sharrotts Rd & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/8/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*87*		*54*				*44*	*441*			*308*	*225*
% Heavy Vehicles, %HV	*4*		*4*				*2*	*2*			*1*	*1*
Peak-Hour Factor, PHF	*0.86*		*0.86*				*0.87*	*0.87*			*0.91*	*0.91*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.986*						*0.905*			*0.957*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*14*
Lane Width		*16.0*						*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*2*			*2*	
Min. Time for Pedestrians, G_p	*18.6*			*18.6*			*3.2*			*16.6*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*164*						*558*			*570*	
Lane Group Capacity, c		*555*						*840*			*1000*	
v/c Ratio, X		*0.30*						*0.66*			*0.57*	
Total Green Ratio, g/C		*0.33*						*0.50*			*0.50*	
Uniform Delay, d_1		*14.8*						*11.2*			*10.5*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*1.3*						*3.7*			*2.3*	
Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	

Control Delay		16.1						15.0			12.7	
Lane Group LOS		B						B			B	
Approach Delay	16.1						15.0			12.7		
Approach LOS	B						B			B		
Intersection Delay	14.1			X_C = 0.52			Intersection LOS			B		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Vets Rd E & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/8/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*	*0*	*3*	*0*	*1*	*1*			*1*	*0*
Lane Group	*L*		*R*		*LTR*		*L*	*T*			*TR*	
Volume, V (vph)	*10*		*148*	*231*	*471*	*127*	*112*	*171*			*354*	*32*
% Heavy Vehicles, %HV	*1*		*1*	*2*	*2*	*2*	*6*	*6*			*2*	*2*
Peak-Hour Factor, PHF	*0.77*		*0.77*	*0.87*	*0.87*	*0.87*	*0.89*	*0.89*			*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*		*P*	*P*	*P*	*P*	*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*		*3*		*3*	*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*		*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I	*0.830*		*0.830*		*0.725*		*0.937*	*0.937*			*0.817*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Lane Width	*10.0*		*13.0*		*11.0*		*12.0*	*12.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*		*0*		*0*	*2*			*2*	
Min. Time for Pedestrians, G_p	*17.2*			*16.9*			*3.2*			*20.9*		

Phasing	EB Only	WB Only	03	04	NS Perm	06	07	08
Timing	G = *8.0*	G = *17.0*	G =	G =	G = *20.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*13*		*192*		*953*		*126*	*192*			*429*	
Lane Group Capacity, c	*222*		*220*		*1339*		*162*	*593*			*690*	
v/c Ratio, X	*0.06*		*0.87*		*0.71*		*0.78*	*0.32*			*0.62*	
Total Green Ratio, g/C	*0.13*		*0.13*		*0.28*		*0.33*	*0.33*			*0.33*	
Uniform Delay, d_1	*22.7*		*25.5*		*19.3*		*18.0*	*14.9*			*16.8*	
Progression Factor, PF	*1.000*		*1.000*		*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*		*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2	*0.4*		*30.4*		*2.4*		*28.4*	*1.4*			*3.4*	

Initial Queue Delay, d_3	0.0		0.0		0.0		0.0	0.0			0.0	
Control Delay	23.1		55.9		21.7		46.4	16.3			20.3	
Lane Group LOS	C		E		C		D	B			C	
Approach Delay	53.8			21.7			28.2			20.3		
Approach LOS	D			C			C			C		
Intersection Delay	25.9			X_C = 0.77			Intersection LOS			C		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*S Service Rd & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/8/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*				*0*	*1*	*0*	*1*	*1*	*0*
Lane Group		*LTR*						*LTR*		*L*	*TR*	
Volume, V (vph)	*5*	*15*	*8*				*6*	*278*	*116*	*230*	*475*	*28*
% Heavy Vehicles, %HV	*2*	*2*	*2*				*6*	*6*	*6*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.63*	*0.63*	*0.63*				*0.89*	*0.89*	*0.89*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*				*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*		*2.0*	*2.0*	
Arrival Type, AT		*3*						*3*		*3*	*3*	
Unit Extension, UE		*3.0*						*3.0*		*3.0*	*3.0*	
Filtering/Metering, I		*1.000*						*0.932*		*0.785*	*0.785*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*13.0*						*16.0*		*12.0*	*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*2*		*0*	*2*	
Min. Time for Pedestrians, G_p	*17.5*			*16.9*			*12.6*			*12.9*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *17.0*	G =	G =	G =	G = *33.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*45*						*449*		*256*	*559*	
Lane Group Capacity, c		*454*						*925*		*508*	*1018*	
v/c Ratio, X		*0.10*						*0.49*		*0.50*	*0.55*	
Total Green Ratio, g/C		*0.28*						*0.55*		*0.55*	*0.55*	
Uniform Delay, d_1		*15.9*						*8.3*		*8.4*	*8.7*	
Progression Factor, PF		*1.000*						*1.000*		*1.000*	*1.000*	
Delay Calibration, k		*0.50*						*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2		*0.4*						*1.7*		*2.8*	*1.7*	

Initial Queue Delay, d_3		*0.0*						*0.0*		*0.0*	*0.0*	
Control Delay		*16.3*						*10.0*		*11.2*	*10.4*	
Lane Group LOS		*B*						*A*		*B*	*B*	
Approach Delay	*16.3*						*10.0*			*10.6*		
Approach LOS	*B*						*A*			*B*		
Intersection Delay	*10.6*			X_C = *0.40*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Amboy Rd & Bloomingdale Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/8/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*1*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*		*L*	*T*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*5*	*8*	*17*	*266*	*26*	*106*	*22*	*289*	*171*	*91*	*372*	*19*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*7*	*7*	*7*	*6*	*6*	*6*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.78*	*0.78*	*0.78*	*0.84*	*0.84*	*0.84*	*0.89*	*0.89*	*0.89*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*		*3*	*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*		*0.830*	*0.830*	*0.830*		*0.650*			*0.650*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*50*	*0*	*0*	*0*	*0*	*0*	*50*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*		*12.0*	*11.0*	*11.0*		*11.0*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*2*		*0*	*0*	*2*		*0*			*0*	
Min. Time for Pedestrians, G_p	*11.5*			*11.8*			*18.9*			*18.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*38*		*317*	*31*	*126*		*542*			*535*	
Lane Group Capacity, c		*628*		*547*	*763*	*563*		*693*			*618*	
v/c Ratio, X		*0.06*		*0.58*	*0.04*	*0.22*		*0.78*			*0.87*	
Total Green Ratio, g/C		*0.44*		*0.44*	*0.44*	*0.44*		*0.44*			*0.44*	
Uniform Delay, d_1		*14.3*		*18.7*	*14.1*	*15.4*		*21.3*			*22.6*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*	*0.50*		*0.50*			*0.50*	
Incremental Delay, d_2		*0.2*		*3.7*	*0.1*	*0.8*		*5.7*			*10.4*	

Initial Queue Delay, d_3		0.0		0.0	0.0	0.0		0.0			0.0	
Control Delay		14.5		22.4	14.2	16.2		27.0			33.0	
Lane Group LOS		B		C	B	B		C			C	
Approach Delay	14.5			20.2			27.0			33.0		
Approach LOS	B			C			C			C		
Intersection Delay	26.7			X_C = 0.72			Intersection LOS			C		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Arthur Kill Rd & Bloomingdl Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/11/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*0*	*1*		*0*		*0*			
Lane Group		*TR*			*LT*			*LR*				
Volume, V (vph)		*198*	*189*	*189*	*226*		*196*		*174*			
% Heavy Vehicles, %HV		*8*	*8*	*16*	*16*		*2*		*2*			
Peak-Hour Factor, PHF		*0.90*	*0.90*	*0.91*	*0.91*		*0.88*		*0.88*			
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*		*P*			
Start-up Lost Time, l_1		*2.0*			*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*			*2.0*			*2.0*				
Arrival Type, AT		*3*			*3*			*3*				
Unit Extension, UE		*3.0*			*3.0*			*3.0*				
Filtering/Metering, I		*0.961*			*0.989*			*0.922*				
Initial Unmet Demand, Q_b		*0.0*			*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*44*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	
Lane Width		*16.0*			*16.0*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m									*5*			
Buses Stopping, N_B		*5*			*0*			*0*				
Min. Time for Pedestrians, G_p	*18.3*			*3.2*			*15.2*			*17.2*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*381*			*456*			*421*				
Lane Group Capacity, c		*921*			*515*			*559*				
v/c Ratio, X		*0.41*			*0.89*			*0.75*				
Total Green Ratio, g/C		*0.50*			*0.50*			*0.39*				
Uniform Delay, d_1		*14.2*			*20.2*			*23.8*				
Progression Factor, PF		*1.000*			*1.000*			*1.000*				
Delay Calibration, k		*0.50*			*0.50*			*0.50*				
Incremental Delay, d_2		*1.3*			*19.4*			*8.4*				
Initial Queue Delay, d_3		*0.0*			*0.0*			*0.0*				

Control Delay		15.5			39.6			32.2				
Lane Group LOS		B			D			C				
Approach Delay	15.5			39.6			32.2					
Approach LOS	B			D			C					
Intersection Delay	29.8			X_C = 0.83			Intersection LOS			C		

Weekday

PM

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*2/9/13*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*Sharrotts Rd & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Alt 2*

Project Description *Charleston EIS*

East/West Street: *Sharrotts Road* North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*29*	*270*	*88*	*58*	*289*	*28*
Peak-Hour Factor, PHF	*0.87*	*0.87*	*0.87*	*0.81*	*0.81*	*0.81*
Hourly Flow Rate, HFR (veh/h)	*33*	*310*	*101*	*71*	*356*	*34*
Percent Heavy Vehicles	*6*	--	--	*9*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*34*	*18*	*29*	*68*	*17*	*34*
Peak-Hour Factor, PHF	*0.86*	*0.86*	*0.86*	*0.81*	*0.81*	*0.81*
Hourly Flow Rate, HFR (veh/h)	*39*	*20*	*33*	*83*	*20*	*41*
Percent Heavy Vehicles	*2*	*2*	*2*	*1*	*1*	*1*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (veh/h)	*33*	*71*		*144*			*92*	
C (m) (veh/h)	*1147*	*1111*		*245*			*261*	
v/c	*0.03*	*0.06*		*0.59*			*0.35*	
95% queue length	*0.09*	*0.20*		*3.37*			*1.52*	
Control Delay (s/veh)	*8.2*	*8.5*		*38.7*			*26.1*	
LOS	*A*	*A*		*E*			*D*	
Approach Delay (s/veh)	--	--	*38.7*			*26.1*		
Approach LOS	--	--	*E*			*D*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*2/9/13*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*Englewood Ave & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Alt 2*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*338*	*53*	*43*	*342*	
Peak-Hour Factor, PHF	*1.00*	*0.87*	*0.87*	*0.81*	*0.81*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*388*	*60*	*53*	*422*	*0*
Percent Heavy Vehicles	*0*	--	--	*7*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*55*		*49*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.68*	*1.00*	*0.68*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*80*	*0*	*72*
Percent Heavy Vehicles	*0*	*0*	*0*	*7*	*0*	*7*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (veh/h)		*53*		*152*				
C (m) (veh/h)		*1086*		*369*				
v/c		*0.05*		*0.41*				
95% queue length		*0.15*		*1.96*				
Control Delay (s/veh)		*8.5*		*21.4*				
LOS		*A*		*C*				
Approach Delay (s/veh)	--	--	*21.4*					
Approach LOS	--	--	*C*					

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/11/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*			*LT*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*1*	*11*	*2*	*301*	*20*	*380*	*4*	*167*	*349*	*300*	*279*	*1*
% Heavy Vehicles, %HV	*3*	*3*	*3*	*5*	*5*	*5*	*5*	*5*	*5*	*7*	*7*	*7*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.82*	*0.82*	*0.82*	*0.93*	*0.93*	*0.93*	*0.86*	*0.86*	*0.86*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*			*0.933*	*0.933*		*0.919*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*15.5*			*11.0*	*10.0*		*15.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*			*0*	*0*		*3*			*2*	
Min. Time for Pedestrians, G_p	*11.5*			*13.5*			*15.2*			*12.1*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*16*			*391*	*463*		*559*			*674*	
Lane Group Capacity, c		*727*			*530*	*523*		*742*			*391*	
v/c Ratio, X		*0.02*			*0.74*	*0.89*		*0.75*			*1.72*	
Total Green Ratio, g/C		*0.42*			*0.42*	*0.42*		*0.42*			*0.42*	
Uniform Delay, d_1		*10.3*			*14.7*	*16.2*		*14.9*			*17.5*	
Progression Factor, PF		*1.000*			*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*	*0.50*		*0.50*			*0.50*	
Incremental Delay, d_2		*0.1*			*8.3*	*18.3*		*6.4*			*336.3*	

Initial Queue Delay, d_3		0.0			0.0	0.0		0.0			0.0	
Control Delay		10.4			23.1	34.5		21.3			353.8	
Lane Group LOS		B			C	C		C			F	
Approach Delay	10.4			29.2			21.3			353.8		
Approach LOS	B			C			C			F		
Intersection Delay	131.0			X_C = 1.30			Intersection LOS			F		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*No Bridge St & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/11/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*			*1*	
Lane Group					*LR*			*T*			*T*	
Volume, V (vph)				*528*		*4*		*517*			*583*	
% Heavy Vehicles, %HV				*2*		*2*		*5*			*12*	
Peak-Hour Factor, PHF				*0.84*		*0.84*		*0.93*			*0.86*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*			*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.373*			*0.921*			*0.340*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	
Lane Width					*16.0*			*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B					*0*			*0*			*2*	
Min. Time for Pedestrians, G_p	*13.5*			*13.8*			*3.2*			*3.2*		

Phasing	WB Only	02	03	04	Thru Only	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*634*			*556*			*678*	
Lane Group Capacity, c					*670*			*1026*			*954*	
v/c Ratio, X					*0.95*			*0.54*			*0.71*	
Total Green Ratio, g/C					*0.33*			*0.50*			*0.50*	
Uniform Delay, d_1					*19.5*			*10.3*			*11.6*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*11.8*			*1.9*			*1.6*	
Initial Queue Delay, d_3					*0.0*			*0.0*			*0.0*	

Control Delay					31.3			12.2			13.2	
Lane Group LOS					C			B			B	
Approach Delay				31.3			12.2			13.2		
Approach LOS				C			B			B		
Intersection Delay	19.0			X_C = 0.81			Intersection LOS			B		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*2/9/13*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*So Bridge St & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Alt 2*

Project Description *Charleston EIS*

East/West Street: *South Bridge Street* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*517*	*263*	*203*	*909*	
Peak-Hour Factor, PHF	*1.00*	*0.93*	*0.93*	*0.86*	*0.86*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*555*	*282*	*236*	*1056*	*0*
Percent Heavy Vehicles	*0*	--	--	*18*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*1*	*1*	*0*
Configuration		*T*	*R*	*L*	*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration						

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*						
v (veh/h)		*236*						
C (m) (veh/h)		*732*						
v/c		*0.32*						
95% queue length		*1.40*						
Control Delay (s/veh)		*12.2*						
LOS		*B*						
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Rch Valley Rd & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/11/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*	*0*	*0*	*1*	
Lane Group					*LR*			*TR*			*LT*	
Volume, V (vph)				*135*		*180*		*588*	*106*	*149*	*747*	
% Heavy Vehicles, %HV				*1*		*1*		*4*	*4*	*6*	*6*	
Peak-Hour Factor, PHF				*0.84*		*0.84*		*0.93*	*0.93*	*0.86*	*0.86*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*	*P*	*P*	*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.901*			*0.798*			*0.114*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width					*12.0*			*15.0*			*15.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B					*0*			*4*			*2*	
Min. Time for Pedestrians, G_p	*11.8*			*11.8*			*14.1*			*3.2*		

Phasing	WB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*375*			*746*			*1042*	
Lane Group Capacity, c					*397*			*1098*			*665*	
v/c Ratio, X					*0.94*			*0.68*			*1.57*	
Total Green Ratio, g/C					*0.27*			*0.57*			*0.57*	
Uniform Delay, d_1					*21.6*			*9.2*			*13.0*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*31.0*			*2.7*			*256.0*	
Initial Queue Delay, d_3					*0.0*			*0.0*			*0.0*	

Control Delay					*52.6*			*11.9*			*269.0*	
Lane Group LOS					*D*			*B*			*F*	
Approach Delay				*52.6*			*11.9*			*269.0*		
Approach LOS				*D*			*B*			*F*		
Intersection Delay	*142.8*			X_C = *1.37*			Intersection LOS			*F*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Richmond Valley Rd & Page Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/9/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*0*	*1*	*1*	*0*	*0*	*2*	*0*
Lane Group		*LTR*			*LTR*		*L*	*TR*			*LTR*	
Volume, V (vph)	*97*	*53*	*126*	*35*	*201*	*73*	*82*	*593*	*110*	*143*	*564*	*53*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.81*	*0.81*	*0.81*	*0.91*	*0.91*	*0.91*	*0.87*	*0.87*	*0.87*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.503*			*1.000*		*0.773*	*0.773*			*0.957*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*10*
Lane Width		*16.0*			*15.0*		*10.0*	*14.0*			*10.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*
Parking Maneuvers, N_m						*5*						*5*
Buses Stopping, N_B		*0*			*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*16.6*			*21.5*			*16.3*			*21.2*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *31.0*	G =	G =	G =	G = *49.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*313*			*381*		*90*	*773*			*861*	
Lane Group Capacity, c		*440*			*565*		*259*	*1067*			*912*	
v/c Ratio, X		*0.71*			*0.67*		*0.35*	*0.72*			*0.94*	
Total Green Ratio, g/C		*0.34*			*0.34*		*0.54*	*0.54*			*0.54*	
Uniform Delay, d_1		*25.6*			*25.2*		*11.5*	*15.4*			*19.2*	
Progression Factor, PF		*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2		*4.9*			*6.3*		*2.8*	*3.3*			*18.4*	

Initial Queue Delay, d_3		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay		*30.5*			*31.5*		*14.4*	*18.8*			*37.6*	
Lane Group LOS		*C*			*C*		*B*	*B*			*D*	
Approach Delay	*30.5*			*31.5*			*18.3*			*37.6*		
Approach LOS	*C*			*C*			*B*			*D*		
Intersection Delay	*28.8*			X_C *= 0.85*			Intersection LOS			*C*		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*S Br St & Page Ave/Boscome Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/9/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*							*2*			*2*	
Lane Group	*L*							*T*			*T*	
Volume, V (vph)	*394*							*762*			*688*	
% Heavy Vehicles, %HV	*1*							*1*			*1*	
Peak-Hour Factor, PHF	*0.91*							*0.90*			*0.87*	
Pretimed (P) or Actuated (A)	*P*							*P*			*P*	
Start-up Lost Time, l_1	*2.0*							*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*							*2.0*			*2.0*	
Arrival Type, AT	*3*							*3*			*3*	
Unit Extension, UE	*3.0*							*3.0*			*3.0*	
Filtering/Metering, I	*1.000*							*0.773*			*0.957*	
Initial Unmet Demand, Q_b	*0.0*							*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*		*0*	*0*		*0*	*0*	
Lane Width	*16.0*							*14.5*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*							*0*			*0*	
Min. Time for Pedestrians, G_p	*3.2*			*20.1*			*3.2*			*3.2*		

Phasing	EB Only	02	03	04	Thru Only	06	07	08
Timing	G = *30.0*	G =	G =	G =	G = *50.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*433*							*847*			*791*	
Lane Group Capacity, c	*675*							*2156*			*1990*	
v/c Ratio, X	*0.64*							*0.39*			*0.40*	
Total Green Ratio, g/C	*0.33*							*0.56*			*0.56*	
Uniform Delay, d_1	*25.4*							*11.4*			*11.4*	
Progression Factor, PF	*1.000*							*1.000*			*1.000*	
Delay Calibration, k	*0.50*							*0.50*			*0.50*	
Incremental Delay, d_2	*4.6*							*0.4*			*0.6*	
Initial Queue Delay, d_3	*0.0*							*0.0*			*0.0*	

Control Delay	30.1							11.8			12.0	
Lane Group LOS	C							B			B	
Approach Delay	30.1						11.8			12.0		
Approach LOS	C						B			B		
Intersection Delay	15.7			X_C = 0.49			Intersection LOS			B		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*2/9/13*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*S Bridge St RT & Page Ave*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Alt 2*

Project Description *Charleston EIS*

East/West Street: *South Bridge Street Right Turn* | North/South Street: *Page Avenue*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*688*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.87*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*790*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*2*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*71*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.78*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*91*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*55*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								*R*
v (veh/h)								*91*
C (m) (veh/h)								*553*
v/c								*0.16*
95% queue length								*0.58*
Control Delay (s/veh)								*12.8*
LOS								*B*
Approach Delay (s/veh)	--	--				*12.8*		
Approach LOS	--	--				*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Bricktown/KWVP*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/9/13*	Jurisdiction	*Sat Flow Rate WB-L = 1950*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*	*0*	*1*	*2*	*0*	*0*	*2*	*0*	*1*	*1*	*0*
Lane Group	*L*	*TR*		*L*	*TR*			*LTR*		*L*	*TR*	
Volume, V (vph)	*162*	*298*	*206*	*248*	*388*	*87*	*223*	*471*	*267*	*223*	*77*	*106*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*7*	*7*	*7*	*3*	*3*	*3*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.90*	*0.82*	*0.82*	*0.93*	*0.93*	*0.93*	*0.76*	*0.76*	*0.76*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*		*2.0*	*2.0*			*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e	*2.0*	*2.0*		*3.0*	*3.0*			*2.0*		*2.0*	*2.0*	
Arrival Type, AT	*3*	*3*		*3*	*3*			*3*		*3*	*3*	
Unit Extension, UE	*3.0*	*3.0*		*3.0*	*3.0*			*3.0*		*3.0*	*3.0*	
Filtering/Metering, I	*0.701*	*0.701*		*0.949*	*0.949*			*1.000*		*0.970*	*0.970*	
Initial Unmet Demand, Q_b	*0.0*	*0.0*		*0.0*	*0.0*			*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*45*	*0*	*0*	*11*	*0*	*0*	*25*	*0*	*0*	*25*
Lane Width	*11.0*	*12.0*		*10.0*	*12.0*			*12.5*		*11.0*	*10.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*		*0*	*0*			*0*		*0*	*0*	
Min. Time for Pedestrians, G_p	*34.6*			*18.6*			*20.3*			*16.1*		

Phasing	EW Perm	02	03	04	NB Only	SB Only	07	08
Timing	G = *30.0*	G =	G =	G =	G = *25.0*	G = *20.0*	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y = *5*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*184*	*522*		*276*	*566*			*1006*		*293*	*208*	
Lane Group Capacity, c	*207*	*594*		*240*	*1136*			*942*		*384*	*360*	
v/c Ratio, X	*0.89*	*0.88*		*1.15*	*0.50*			*1.07*		*0.76*	*0.58*	
Total Green Ratio, g/C	*0.33*	*0.33*		*0.34*	*0.34*			*0.28*		*0.22*	*0.22*	
Uniform Delay, d_1	*28.4*	*28.3*		*29.5*	*23.3*			*32.5*		*32.8*	*31.2*	
Progression Factor, PF	*1.000*	*1.000*		*1.000*	*1.000*			*1.000*		*1.000*	*1.000*	
Delay Calibration, k	*0.50*	*0.50*		*0.50*	*0.50*			*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2	*30.3*	*12.5*		*103.2*	*1.5*			*49.2*		*13.0*	*6.4*	

Initial Queue Delay, d_3	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Control Delay	58.8	40.8		132.7	24.8			81.7		45.8	37.7	
Lane Group LOS	E	D		F	C			F		D	D	
Approach Delay	45.5			60.2			81.7			42.4		
Approach LOS	D			E			F			D		
Intersection Delay	61.0			X_C = 1.02			Intersection LOS			E		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*2/9/13*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*KWVP WB OR UT & No Bridge St*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Alt 2*

Project Description *Charleston EIS*

East/West Street: *KWVP WB Off-Ramp U-Turn* | North/South Street: *North Bridge Street*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*532*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.89*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*597*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*1*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*474*		
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.90*	*0.93*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*509*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*60*	*3*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*0*
Configuration				*L*		

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration			*L*					
v (veh/h)			*509*					
C (m) (veh/h)			*464*					
v/c			*1.10*					
95% queue length			*16.91*					
Control Delay (s/veh)			*100.2*					
LOS			*F*					
Approach Delay (s/veh)	--	--	*100.2*					
Approach LOS	--	--	*F*					

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*2/9/13*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*Bricktown Way/Tyrellan Avenue*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Alt 2*

Project ID *Charleston EIS*

East/West Street: *Bricktown Way* | North/South Street: *Tyrellan Avenue*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*93*	*161*	*55*	*148*	*197*	*86*
%Thrus Left Lane	*50*			*50*		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*16*	*39*	*69*	*80*	*193*	*60*
%Thrus Left Lane				*50*		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*LT*	*TR*	*LT*	*TR*	*LT*	*R*	*LT*	*TR*
PHF	*0.87*	*0.87*	*0.91*	*0.91*	*0.76*	*0.76*	*1.00*	*1.00*
Flow Rate (veh/h)	*197*	*156*	*269*	*202*	*72*	*90*	*176*	157
% Heavy Vehicles	*7*	*7*	*1*	*1*	*1*	*1*	*0*	*0*
No. Lanes	*2*		*2*		*2*		*2*	
Geometry Group	*5*		*5*		*5*		*5*	
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	*0.5*	*0.0*	*0.6*	*0.0*	*0.3*	*0.0*	*0.5*	*0.0*
Prop. Right-Turns	*0.0*	*0.4*	*0.0*	*0.5*	*0.0*	*1.0*	*0.0*	*0.4*
Prop. Heavy Vehicle	*0.1*	*0.1*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
hLT-adj	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*
hRT-adj	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*
hadj, computed	*0.4*	*-0.2*	*0.3*	*-0.3*	*0.2*	*-0.7*	*0.2*	*-0.3*

Departure Headway and Service Time

hd, initial value (s)	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*
x, initial	*0.18*	*0.14*	*0.24*	*0.18*	*0.06*	*0.08*	*0.16*	*0.14*
hd, final value (s)	*7.15*	*6.60*	*6.93*	*6.30*	*7.52*	*6.67*	*7.25*	*6.75*
x, final value	*0.39*	*0.29*	*0.52*	*0.35*	*0.15*	*0.17*	*0.35*	*0.29*
Move-up time, m (s)	*2.3*		*2.3*		*2.3*		*2.3*	
Service Time, t_s (s)	*4.9*	*4.3*	*4.6*	*4.0*	*5.2*	*4.4*	*4.9*	*4.5*

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*447*	*406*	*507*	*452*	*322*	*340*	*426*	*407*
Delay (s/veh)	*14.38*	*11.93*	*16.82*	*12.40*	*11.54*	*10.70*	*13.88*	*12.25*
LOS	*B*	*B*	*C*	*B*	*B*	*B*	*B*	*B*
Approach: Delay (s/veh)	*13.30*		*14.92*		*11.08*		*13.11*	
LOS	*B*		*B*		*B*		*B*	
Intersection Delay (s/veh)	*13.56*							
Intersection LOS	*B*							

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/9/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*
Lane Group		*LTR*		*DefL*	*TR*		*DefL*	*TR*			*LTR*	
Volume, V (vph)	*53*	*154*	*557*	*123*	*334*	*10*	*271*	*145*	*124*	*22*	*534*	*124*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*2*	*2*	*2*	*1*	*1*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.82*	*0.82*	*0.82*	*0.93*	*0.93*	*0.93*	*0.94*	*0.94*	*0.94*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*		*3*	*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.884*		*0.927*	*0.927*		*1.000*	*1.000*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*		*12.0*	*12.0*		*13.0*	*13.0*			*9.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*		*0*	*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*18.6*			*16.6*			*20.1*			*19.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*868*		*150*	*419*		*291*	*289*			*723*	
Lane Group Capacity, c		*1248*		*190*	*824*		*258*	*804*			*1320*	
v/c Ratio, X		*0.70*		*0.79*	*0.51*		*1.13*	*0.36*			*0.55*	
Total Green Ratio, g/C		*0.44*		*0.44*	*0.44*		*0.44*	*0.44*			*0.44*	
Uniform Delay, d_1		*20.1*		*21.4*	*17.9*		*25.0*	*16.5*			*18.4*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2		*2.9*		*25.9*	*2.1*		*94.9*	*1.3*			*1.6*	

Initial Queue Delay, d_3		0.0		0.0	0.0		0.0	0.0			0.0	
Control Delay		23.0		47.3	20.0		119.9	17.8			20.0	
Lane Group LOS		C		D	C		F	B			B	
Approach Delay	23.0			27.2			69.0			20.0		
Approach LOS	C			C			E			B		
Intersection Delay	32.8			X_C = 0.96			Intersection LOS			C		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Boscombe Ave & OBX Off-Ramp*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/9/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*1*	*1*	*1*
Lane Group	*L*	*TR*			*LT*	*R*		*LTR*		*L*	*LT*	*R*
Volume, V (vph)	*764*	*388*	*4*	*3*	*398*	*814*	*2*	*3*	*2*	*146*	*0*	*289*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.95*	*0.95*	*0.95*	*0.44*	*0.44*	*0.44*	*0.80*	*0.80*	*0.80*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*	*3*		*3*		*3*	*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*	*3.0*		*3.0*		*3.0*	*3.0*	*3.0*
Filtering/Metering, I	*0.687*	*0.687*			*0.650*	*0.650*		*1.000*		*1.000*	*1.000*	*1.000*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*	*0.0*		*0.0*		*0.0*	*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*11.0*	*12.0*			*12.0*	*12.0*		*16.0*		*10.0*	*11.0*	*10.0*
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B	*0*	*0*			*0*	*0*		*0*		*0*	*0*	*0*
Min. Time for Pedestrians, G_p	*14.6*			*24.6*			*20.9*			*20.1*		

Phasing	EB Only	EW Perm	03	04	NS Perm	06	07	08
Timing	G = *33.0*	G = *28.0*	G =	G =	G = *14.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*849*	*435*			*422*	*857*		*17*		*182*	*0*	*361*
Lane Group Capacity, c	*780*	*1206*			*584*	*497*		*148*		*204*	*283*	*862*
v/c Ratio, X	*1.09*	*0.36*			*0.72*	*1.72*		*0.11*		*0.89*	*0.00*	*0.42*
Total Green Ratio, g/C	*0.73*	*0.73*			*0.31*	*0.31*		*0.16*		*0.16*	*0.16*	*0.58*
Uniform Delay, d_1	*19.6*	*4.4*			*27.5*	*31.0*		*32.7*		*37.3*	*32.1*	*10.6*
Progression Factor, PF	*1.000*	*1.000*			*1.000*	*1.000*		*1.000*		*1.000*	*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*	*0.50*		*0.50*		*0.50*	*0.50*	*0.50*
Incremental Delay, d_2	*54.1*	*0.6*			*5.0*	*331.5*		*1.6*		*40.0*	*0.0*	*1.5*

Initial Queue Delay, d_3	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Control Delay	73.8	4.9			32.6	362.5		34.2		77.3	32.1	12.1
Lane Group LOS	E	A			C	F		C		E	C	B
Approach Delay	50.4			253.6			34.2			33.9		
Approach LOS	D			F			C			C		
Intersection Delay	130.7			X_C = 1.18			Intersection LOS			F		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Boscombe Ave & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/9/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Hour*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*1*	*1*
Lane Group	*DefL*	*TR*			*LTR*			*LTR*			*LT*	*R*
Volume, V (vph)	*499*	*37*	*0*	*1*	*37*	*43*	*3*	*3*	*2*	*62*	*1*	*1176*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.95*	*0.95*	*0.95*	*0.50*	*0.50*	*0.50*	*0.94*	*0.94*	*0.94*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*			*2.0*			*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*			*2.0*			*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*			*3*			*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*			*3.0*			*3.0*	*3.0*
Filtering/Metering, I	*0.952*	*0.952*			*1.000*			*1.000*			*0.937*	*0.937*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*			*0.0*			*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*10*	*0*	*0*	*0*	*0*	*0*	*294*
Lane Width	*16.0*	*16.0*			*11.5*			*12.0*			*12.0*	*12.0*
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*			*0*			*0*			*0*	*0*
Min. Time for Pedestrians, G_p	*20.3*			*17.5*			*20.3*			*20.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*554*	*41*			*75*			*16*			*67*	*938*
Lane Group Capacity, c	*753*	*1066*			*1563*			*1220*			*548*	*616*
v/c Ratio, X	*0.74*	*0.04*			*0.05*			*0.01*			*0.12*	*1.52*
Total Green Ratio, g/C	*0.50*	*0.50*			*0.50*			*0.39*			*0.39*	*0.39*
Uniform Delay, d_1	*17.8*	*11.5*			*11.5*			*16.9*			*17.6*	*27.5*
Progression Factor, PF	*1.000*	*1.000*			*1.000*			*1.000*			*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*			*0.50*			*0.50*	*0.50*
Incremental Delay, d_2	*6.0*	*0.1*			*0.1*			*0.0*			*0.4*	*242.9*

Initial Queue Delay, d_3	*0.0*	*0.0*			*0.0*			*0.0*			*0.0*	*0.0*
Control Delay	*23.8*	*11.5*			*11.6*			*16.9*			*18.1*	*270.4*
Lane Group LOS	*C*	*B*			*B*			*B*			*B*	*F*
Approach Delay	*23.0*			*11.6*			*16.9*			*253.6*		
Approach LOS	*C*			*B*			*B*			*F*		
Intersection Delay	*159.5*			X_C *= 1.08*			Intersection LOS			*F*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Bricktown Ctr Rd @ Vets Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*9/2/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*				*0*	*2*			*2*	*0*
Lane Group	*L*		*R*					*LT*			*TR*	
Volume, V (vph)	*287*		*24*				*2*	*297*			*443*	*428*
% Heavy Vehicles, %HV	*8*		*8*				*1*	*1*			*2*	*2*
Peak-Hour Factor, PHF	*0.87*		*0.87*				*0.88*	*0.88*			*0.91*	*0.91*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*					*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*					*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*					*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*					*3.0*			*3.0*	
Filtering/Metering, I	*0.974*		*0.974*					*0.995*			*0.791*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*					*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*6*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width	*13.0*		*12.0*					*11.5*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*					*0*			*0*	
Min. Time for Pedestrians, G_p	*21.8*			*20.3*			*3.2*			*19.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *19.0*	G =	G =	G =	G = *31.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*330*		*21*					*340*			*957*	
Lane Group Capacity, c	*547*		*473*					*1731*			*1924*	
v/c Ratio, X	*0.60*		*0.04*					*0.20*			*0.50*	
Total Green Ratio, g/C	*0.32*		*0.32*					*0.52*			*0.52*	
Uniform Delay, d_1	*17.3*		*14.2*					*7.8*			*9.4*	
Progression Factor, PF	*1.000*		*1.000*					*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*					*0.50*			*0.50*	
Incremental Delay, d_2	*4.7*		*0.2*					*0.3*			*0.7*	
Initial Queue Delay, d_3	*0.0*		*0.0*					*0.0*			*0.0*	

Control Delay	22.1		14.4					8.1			10.2	
Lane Group LOS	C		B					A			B	
Approach Delay	21.6						8.1			10.2		
Approach LOS	C						A			B		
Intersection Delay	12.2			X_C = 0.54			Intersection LOS			B		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Ave @ Veterans Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/9/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*1*	*1*		*1*			*0*	*3*	*0*
Lane Group		*TR*		*L*	*LT*		*L*				*LTR*	
Volume, V (vph)		*1*	*0*	*520*	*2*		*4*			*23*	*351*	*4*
% Heavy Vehicles, %HV		*1*	*1*	*3*	*3*		*1*			*1*	*1*	*1*
Peak-Hour Factor, PHF		*0.50*	*0.25*	*0.89*	*0.89*		*0.88*			*0.91*	*0.91*	*0.91*
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*			*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Arrival Type, AT		*3*		*3*	*3*		*3*				*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*		*3.0*				*3.0*	
Filtering/Metering, I		*1.000*		*0.983*	*0.983*		*0.988*				*1.000*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*12.0*		*13.0*	*13.0*		*10.0*				*11.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*		*0*	*0*		*0*				*0*	
Min. Time for Pedestrians, G_p	*31.2*			*3.2*			*18.1*			*11.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*2*		*292*	*294*		*5*				*415*	
Lane Group Capacity, c		*784*		*601*	*577*		*355*				*2055*	
v/c Ratio, X		*0.00*		*0.49*	*0.51*		*0.01*				*0.20*	
Total Green Ratio, g/C		*0.42*		*0.42*	*0.42*		*0.42*				*0.42*	
Uniform Delay, d_1		*10.2*		*12.8*	*13.0*		*10.3*				*11.1*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*		*1.000*				*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*		*0.50*				*0.50*	
Incremental Delay, d_2		*0.0*		*2.7*	*3.1*		*0.1*				*0.2*	

Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Control Delay		*10.2*		*15.5*	*16.1*		*10.3*				*11.4*	
Lane Group LOS		*B*		*B*	*B*		*B*				*B*	
Approach Delay	*10.2*			*15.8*			*10.3*			*11.4*		
Approach LOS	*B*			*B*			*B*			*B*		
Intersection Delay	*14.0*			X_C *= 0.36*			Intersection LOS			*B*		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*2/9/13*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*Englewood Ave & Vets Rd W RT*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Alt 2*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* | North/South Street: *Veterans Rd W Right Turn Bay*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*24*				
Peak-Hour Factor, PHF	*1.00*	*0.71*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*33*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*T*				
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*579*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.88*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*657*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*1*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					*R*			
v (veh/h)					*657*			
C (m) (veh/h)					*1043*			
v/c					*0.63*			
95% queue length					*4.66*			
Control Delay (s/veh)					*14.1*			
LOS					*B*			
Approach Delay (s/veh)	--	--	*14.1*					
Approach LOS	--	--	*B*					

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*2/9/13*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*Sharrotts Rd & Veterans Rd W*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Alt 2*

Project ID *Charleston EIS*

East/West Street: *Sharrotts Road* North/South Street: *Veterans Road West*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*125*	*39*	*250*	*95*	*0*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*0*	*24*	*89*	*25*
%Thrus Left Lane				*50*		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*TR*		*LT*				*LT*	*TR*
PHF	*0.80*		*0.78*				*0.91*	*0.91*
Flow Rate (veh/h)	*204*		*441*				*74*	76
% Heavy Vehicles	*2*		*3*				*1*	*1*
No. Lanes	*1*		*1*		*0*		*2*	
Geometry Group	*2*		*2*				*1*	
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	*0.0*		*0.7*				*0.4*	*0.0*
Prop. Right-Turns	*0.2*		*0.0*				*0.0*	*0.4*
Prop. Heavy Vehicle	*0.0*		*0.0*				*0.0*	*0.0*
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*			*0.2*	*0.2*
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*			*-0.6*	*-0.6*
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*			*1.7*	*1.7*
hadj, computed	*-0.1*		*0.2*				*0.1*	*-0.2*

Departure Headway and Service Time

hd, initial value (s)	*3.20*		*3.20*				*3.20*	*3.20*
x, initial	*0.18*		*0.39*				*0.07*	*0.07*
hd, final value (s)	*4.74*		*4.75*				*5.52*	*5.24*
x, final value	*0.27*		*0.58*				*0.11*	*0.11*
Move-up time, m (s)	*2.0*		*2.0*				*2.0*	
Service Time, t_s (s)	*2.7*		*2.7*				*3.5*	*3.2*

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*454*		*691*				*324*	*326*
Delay (s/veh)	*9.46*		*14.14*				*9.23*	*8.89*
LOS	*A*		*B*				*A*	*A*
Approach: Delay (s/veh)	*9.46*		*14.14*				*9.06*	
LOS	*A*		*B*				*A*	
Intersection Delay (s/veh)	*11.98*							
Intersection LOS	*B*							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*2/9/13*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*Sharrotts Rd @ Veterans Rd E*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Alt*

Project ID *Charleston EIS*

East/West Street: *Sharrotts Road* | North/South Street: *Veterans Road East*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*39*	*110*	*0*	*0*	*280*	*19*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*66*	*100*	*142*	*0*	*0*	*0*
%Thrus Left Lane	*50*					

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*LT*		*TR*		*LT*	*TR*		
PHF	*0.80*		*0.78*		*0.99*	*0.99*		
Flow Rate (veh/h)	*185*		*382*		*116*	*193*		
% Heavy Vehicles	*2*		*5*		*1*	*1*		
No. Lanes	*1*		*1*		*2*		*0*	
Geometry Group	*2*		*2*		*1*			
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	*0.3*		*0.0*		*0.6*	*0.0*		
Prop. Right-Turns	*0.0*		*0.1*		*0.0*	*0.7*		
Prop. Heavy Vehicle	*0.0*		*0.0*		*0.0*	*0.0*		
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*		
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*		
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*		
hadj, computed	*0.1*		*0.0*		*0.1*	*-0.4*		

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value (s)	*3.20*		*3.20*		*3.20*	*3.20*		
x, initial	*0.16*		*0.34*		*0.10*	*0.17*		
hd, final value (s)	*5.27*		*4.97*		*5.48*	*4.91*		
x, final value	*0.27*		*0.53*		*0.18*	*0.26*		
Move-up time, m (s)	*2.0*		*2.0*		*2.0*			
Service Time, t_s (s)	*3.3*		*3.0*		*3.5*	*2.9*		

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*435*		*632*		*366*	*443*		
Delay (s/veh)	*10.22*		*13.39*		*9.65*	*9.66*		
LOS	*B*		*B*		*A*	*A*		
Approach: Delay (s/veh)	*10.22*		*13.39*		*9.65*			
LOS	*B*		*B*		*A*			
Intersection Delay (s/veh)	*11.40*							
Intersection LOS	*B*							

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Ave @ Vets Rd E*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/9/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*3*	*0*			
Lane Group		*LT*	*R*		*LTR*			*LTR*				
Volume, V (vph)	*193*	*251*	*158*	*8*	*60*	*9*	*462*	*106*	*2*			
% Heavy Vehicles, %HV	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*			
Peak-Hour Factor, PHF	*0.85*	*0.85*	*0.85*	*0.87*	*0.87*	*0.87*	*0.89*	*0.89*	*0.89*			
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*			
Start-up Lost Time, l_1		*2.0*	*2.0*		*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*	*2.0*		*2.0*			*2.0*				
Arrival Type, AT		*3*	*3*		*3*			*3*				
Unit Extension, UE		*3.0*	*3.0*		*3.0*			*3.0*				
Filtering/Metering, I		*0.999*	*0.999*		*0.996*			*0.980*				
Initial Unmet Demand, Q_b		*0.0*	*0.0*		*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*53*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width		*13.0*	*12.0*		*11.5*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B		*0*	*0*		*0*			*0*				
Min. Time for Pedestrians, G_p	*21.2*			*12.9*			*14.3*			*17.5*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *21.0*	G =	G =	G =	G = *29.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*522*	*124*		*88*			*640*				
Lane Group Capacity, c		*557*	*560*		*528*			*2300*				
v/c Ratio, X		*0.94*	*0.22*		*0.17*			*0.28*				
Total Green Ratio, g/C		*0.35*	*0.35*		*0.35*			*0.48*				
Uniform Delay, d_1		*18.9*	*13.7*		*13.5*			*9.3*				
Progression Factor, PF		*1.000*	*1.000*		*1.000*			*1.000*				
Delay Calibration, k		*0.50*	*0.50*		*0.50*			*0.50*				
Incremental Delay, d_2		*25.4*	*0.9*		*0.7*			*0.3*				

Initial Queue Delay, d_3		*0.0*	*0.0*		*0.0*			*0.0*				
Control Delay		*44.2*	*14.7*		*14.1*			*9.5*				
Lane Group LOS		*D*	*B*		*B*			*A*				
Approach Delay	*38.6*			*14.1*			*9.5*					
Approach LOS	*D*			*B*			*A*					
Intersection Delay	*23.5*			X_C *= 0.56*			Intersection LOS			*C*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Av & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/9/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*219*		*34*				*18*	*469*			*472*	*58*
% Heavy Vehicles, %HV	*3*		*3*				*1*	*1*			*4*	*4*
Peak-Hour Factor, PHF	*0.96*		*0.96*				*0.86*	*0.86*			*0.92*	*0.92*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.984*						*0.880*			*0.893*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*16.0*						*14.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B		*0*						*2*			*7*	
Min. Time for Pedestrians, G_p	*14.9*			*15.5*			*3.2*			*17.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*263*						*566*			*576*	
Lane Group Capacity, c		*459*						*1098*			*1124*	
v/c Ratio, X		*0.57*						*0.52*			*0.51*	
Total Green Ratio, g/C		*0.27*						*0.57*			*0.57*	
Uniform Delay, d_1		*19.0*						*8.0*			*7.9*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*5.0*						*1.5*			*1.5*	
Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	

Control Delay		24.1						9.5			9.4	
Lane Group LOS		C						A			A	
Approach Delay	24.1						9.5			9.4		
Approach LOS	C						A			A		
Intersection Delay	12.2			X_C = 0.53			Intersection LOS			B		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Sharrotts Rd & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/9/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*166*		*86*				*23*	*576*			*419*	*280*
% Heavy Vehicles, %HV	*1*		*1*				*1*	*1*			*3*	*3*
Peak-Hour Factor, PHF	*0.80*		*0.80*				*0.86*	*0.86*			*0.92*	*0.92*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.911*						*0.834*			*0.880*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*21*
Lane Width		*16.0*						*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*2*			*7*	
Min. Time for Pedestrians, G_p	*18.6*			*18.6*			*3.2*			*16.6*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*314*						*697*			*737*	
Lane Group Capacity, c		*574*						*889*			*964*	
v/c Ratio, X		*0.55*						*0.78*			*0.76*	
Total Green Ratio, g/C		*0.33*						*0.50*			*0.50*	
Uniform Delay, d_1		*16.3*						*12.3*			*12.1*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*3.4*						*5.8*			*5.1*	
Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	

Control Delay		19.7						18.1			17.2	
Lane Group LOS		B						B			B	
Approach Delay	19.7						18.1			17.2		
Approach LOS	B						B			B		
Intersection Delay	18.0			X_C = 0.69			Intersection LOS			B		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Vets Rd E & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/9/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*	*0*	*3*	*0*	*1*	*1*			*1*	*0*
Lane Group	*L*		*R*		*LTR*		*L*	*T*			*TR*	
Volume, V (vph)	*4*		*162*	*284*	*466*	*276*	*99*	*207*			*501*	*5*
% Heavy Vehicles, %HV	*1*		*1*	*1*	*1*	*1*	*2*	*2*			*4*	*4*
Peak-Hour Factor, PHF	*0.95*		*0.95*	*0.88*	*0.88*	*0.88*	*0.92*	*0.92*			*0.87*	*0.87*
Pretimed (P) or Actuated (A)	*P*		*P*	*P*	*P*	*P*	*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*		*3*		*3*	*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*		*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I	*0.848*		*0.848*		*0.500*		*0.930*	*0.930*			*0.865*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Lane Width	*10.0*		*13.0*		*11.0*		*12.0*	*12.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*		*0*		*0*	*2*			*7*	
Min. Time for Pedestrians, G_p	*17.2*			*16.9*			*3.2*			*20.9*		

Phasing	EB Only	WB Only	03	04	NS Perm	06	07	08
Timing	G = *8.0*	G = *17.0*	G =	G =	G = *20.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*4*		*171*		*1167*		*108*	*225*			*582*	
Lane Group Capacity, c	*222*		*220*		*1329*		*124*	*616*			*670*	
v/c Ratio, X	*0.02*		*0.78*		*0.88*		*0.87*	*0.37*			*0.87*	
Total Green Ratio, g/C	*0.13*		*0.13*		*0.28*		*0.33*	*0.33*			*0.33*	
Uniform Delay, d_1	*22.6*		*25.1*		*20.5*		*18.8*	*15.2*			*18.8*	
Progression Factor, PF	*1.000*		*1.000*		*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*		*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2	*0.1*		*20.2*		*4.5*		*49.3*	*1.6*			*12.7*	

Initial Queue Delay, d_3	0.0		0.0		0.0		0.0	0.0			0.0	
Control Delay	22.7		45.3		25.0		68.1	16.7			31.4	
Lane Group LOS	C		D		C		E	B			C	
Approach Delay	44.8				25.0		33.4			31.4		
Approach LOS	D				C		C			C		
Intersection Delay	29.4				X_C = 0.86		Intersection LOS			C		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*S Service Rd & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/9/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*				*0*	*1*	*0*	*1*	*1*	*0*
Lane Group		*LTR*						*LTR*		*L*	*TR*	
Volume, V (vph)	*10*	*20*	*6*				*9*	*296*	*127*	*319*	*576*	*52*
% Heavy Vehicles, %HV	*2*	*2*	*2*				*2*	*2*	*2*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.63*	*0.63*	*0.63*				*0.92*	*0.92*	*0.92*	*0.93*	*0.93*	*0.93*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*				*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*		*2.0*	*2.0*	
Arrival Type, AT		*3*						*3*		*3*	*3*	
Unit Extension, UE		*3.0*						*3.0*		*3.0*	*3.0*	
Filtering/Metering, I		*1.000*						*0.922*		*0.564*	*0.564*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*12*
Lane Width		*13.0*						*16.0*		*12.0*	*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*2*		*0*	*7*	
Min. Time for Pedestrians, G_p	*17.5*			*16.9*			*12.6*			*12.9*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *17.0*	G =	G =	G =	G = *33.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*58*						*470*		*343*	*662*	
Lane Group Capacity, c		*460*						*955*		*490*	*986*	
v/c Ratio, X		*0.13*						*0.49*		*0.70*	*0.67*	
Total Green Ratio, g/C		*0.28*						*0.55*		*0.55*	*0.55*	
Uniform Delay, d_1		*16.0*						*8.3*		*9.9*	*9.6*	
Progression Factor, PF		*1.000*						*1.000*		*1.000*	*1.000*	
Delay Calibration, k		*0.50*						*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2		*0.6*						*1.7*		*4.7*	*2.1*	

Initial Queue Delay, d_3		*0.0*						*0.0*		*0.0*	*0.0*	
Control Delay		*16.5*						*10.0*		*14.6*	*11.7*	
Lane Group LOS		*B*						*B*		*B*	*B*	
Approach Delay	*16.5*						*10.0*			*12.7*		
Approach LOS	*B*						*B*			*B*		
Intersection Delay	*12.0*			X_C = *0.51*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Amboy Rd & Bloomingdale Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/9/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*1*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*		*L*	*T*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*6*	*13*	*20*	*267*	*29*	*110*	*18*	*315*	*175*	*94*	*452*	*10*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*3*	*3*	*3*	*1*	*1*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.70*	*0.70*	*0.70*	*0.87*	*0.87*	*0.87*	*0.92*	*0.92*	*0.92*	*0.87*	*0.87*	*0.87*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*		*3*	*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*		*0.905*	*0.905*	*0.905*		*0.663*			*0.229*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*50*	*0*	*0*	*0*	*0*	*0*	*50*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*		*12.0*	*11.0*	*11.0*		*11.0*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*2*		*0*	*0*	*2*		*0*			*0*	
Min. Time for Pedestrians, G_p	*11.5*			*11.8*			*18.9*			*18.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*57*		*307*	*33*	*126*		*552*			*639*	
Lane Group Capacity, c		*634*		*560*	*792*	*585*		*732*			*622*	
v/c Ratio, X		*0.09*		*0.55*	*0.04*	*0.22*		*0.75*			*1.03*	
Total Green Ratio, g/C		*0.44*		*0.44*	*0.44*	*0.44*		*0.44*			*0.44*	
Uniform Delay, d_1		*14.5*		*18.4*	*14.2*	*15.4*		*20.9*			*25.0*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*	*0.50*		*0.50*			*0.50*	
Incremental Delay, d_2		*0.3*		*3.5*	*0.1*	*0.8*		*4.8*			*24.7*	

Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Control Delay		*14.7*		*21.8*	*14.2*	*16.1*		*25.7*			*49.7*	
Lane Group LOS		*B*		*C*	*B*	*B*		*C*			*D*	
Approach Delay	*14.7*			*19.8*			*25.7*			*49.7*		
Approach LOS	*B*			*B*			*C*			*D*		
Intersection Delay	*32.7*			X_C *= 0.79*			Intersection LOS			*C*		

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Arthur Kill Rd & Bloomingdl Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/11/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*0*	*1*		*0*		*0*			
Lane Group		*TR*			*LT*			*LR*				
Volume, V (vph)		*203*	*253*	*208*	*224*		*158*		*200*			
% Heavy Vehicles, %HV		*5*	*5*	*8*	*8*		*1*		*1*			
Peak-Hour Factor, PHF		*0.82*	*0.82*	*0.83*	*0.83*		*0.67*		*0.67*			
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*		*P*			
Start-up Lost Time, l_1		*2.0*			*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*			*2.0*			*2.0*				
Arrival Type, AT		*3*			*3*			*3*				
Unit Extension, UE		*3.0*			*3.0*			*3.0*				
Filtering/Metering, I		*0.927*			*0.989*			*0.917*				
Initial Unmet Demand, Q_b		*0.0*			*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*59*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	
Lane Width		*16.0*			*16.0*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m									*5*			
Buses Stopping, N_B		*5*			*0*			*0*				
Min. Time for Pedestrians, G_p	*18.3*			*3.2*			*15.2*			*17.2*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*485*			*521*			*535*				
Lane Group Capacity, c		*939*			*470*			*560*				
v/c Ratio, X		*0.52*			*1.11*			*0.96*				
Total Green Ratio, g/C		*0.50*			*0.50*			*0.39*				
Uniform Delay, d_1		*15.2*			*22.5*			*26.7*				
Progression Factor, PF		*1.000*			*1.000*			*1.000*				
Delay Calibration, k		*0.50*			*0.50*			*0.50*				
Incremental Delay, d_2		*1.9*			*74.3*			*26.9*				
Initial Queue Delay, d_3		*0.0*			*0.0*			*0.0*				

Control Delay		17.0			96.8			53.7				
Lane Group LOS		B			F			D				
Approach Delay	17.0			96.8			53.7					
Approach LOS	B			F			D					
Intersection Delay	56.7			X_c = 1.04			Intersection LOS			E		

Saturday

Midday

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*2/9/13*
Analysis Time Period	*Saturday 12:45-1:45 Peak Pd*

Site Information

Intersection	*Sharrotts Rd & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Alt 2*

Project Description *Charleston EIS*

East/West Street: *Sharrotts Road* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*12*	*282*	*64*	*29*	*328*	*28*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.88*	*0.88*	*0.88*
Hourly Flow Rate, HFR (veh/h)	*13*	*306*	*69*	*32*	*372*	*31*
Percent Heavy Vehicles	*3*	--	--	*5*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*27*	*33*	*24*	*68*	*17*	*41*
Peak-Hour Factor, PHF	*0.40*	*0.40*	*0.40*	*0.78*	*0.78*	*0.78*
Hourly Flow Rate, HFR (veh/h)	*67*	*82*	*59*	*87*	*21*	*52*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (veh/h)	*13*	*32*		*160*			*208*	
C (m) (veh/h)	*1150*	*1167*		*257*			*315*	
v/c	*0.01*	*0.03*		*0.62*			*0.66*	
95% queue length	*0.03*	*0.08*		*3.77*			*4.39*	
Control Delay (s/veh)	*8.2*	*8.2*		*39.6*			*36.1*	
LOS	*A*	*A*		*E*			*E*	
Approach Delay (s/veh)	--	--	*39.6*			*36.1*		
Approach LOS	--	--	*E*			*E*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*2/9/13*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*Englewood Ave & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Alt 2*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*321*	*33*	*33*	*387*	
Peak-Hour Factor, PHF	*1.00*	*0.92*	*0.92*	*0.88*	*0.88*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*348*	*35*	*37*	*439*	*0*
Percent Heavy Vehicles	*0*	--	--	*5*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*30*		*36*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.75*	*1.00*	*0.75*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*40*	*0*	*48*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (veh/h)		*37*		*88*				
C (m) (veh/h)		*1159*		*437*				
v/c		*0.03*		*0.20*				
95% queue length		*0.10*		*0.74*				
Control Delay (s/veh)		*8.2*		*15.3*				
LOS		*A*		*C*				
Approach Delay (s/veh)	--	--	*15.3*					
Approach LOS	--	--	*C*					

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Veterans Rd W & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/11/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*			*LT*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*0*	*10*	*5*	*356*	*27*	*538*	*5*	*193*	*426*	*306*	*243*	*0*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*2*	*2*	*2*	*5*	*5*	*5*	*3*	*3*	*3*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*			*0.849*	*0.849*		*0.861*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*15.5*			*11.0*	*10.0*		*15.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*			*0*	*0*		*2*			*2*	
Min. Time for Pedestrians, G_p	*11.5*			*13.5*			*15.2*			*12.1*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*16*			*416*	*585*		*685*			*603*	
Lane Group Capacity, c		*726*			*547*	*539*		*744*			*325*	
v/c Ratio, X		*0.02*			*0.76*	*1.09*		*0.92*			*1.86*	
Total Green Ratio, g/C		*0.42*			*0.42*	*0.42*		*0.42*			*0.42*	
Uniform Delay, d_1		*10.3*			*14.9*	*17.5*		*16.6*			*17.5*	
Progression Factor, PF		*1.000*			*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*	*0.50*		*0.50*			*0.50*	
Incremental Delay, d_2		*0.1*			*8.2*	*61.1*		*16.5*			*396.6*	

Initial Queue Delay, d_3		0.0			0.0	0.0		0.0			0.0	
Control Delay		10.4			23.2	78.6		33.1			414.1	
Lane Group LOS		B			C	E		C			F	
Approach Delay	10.4			55.6			33.1			414.1		
Approach LOS	B			E			C			F		
Intersection Delay	142.4			X_C = 1.47			Intersection LOS			F		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*No Bridge St & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/11/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*			*1*	
Lane Group					*LR*			*T*			*T*	
Volume, V (vph)				*510*		*9*		*616*			*606*	
% Heavy Vehicles, %HV				*1*		*1*		*5*			*4*	
Peak-Hour Factor, PHF				*0.86*		*0.86*		*0.91*			*0.91*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*			*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.483*			*0.865*			*0.367*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	
Lane Width					*16.0*			*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B					*0*			*0*			*2*	
Min. Time for Pedestrians, G_p	*13.5*			*13.8*			*3.2*			*3.2*		

Phasing	WB Only	02	03	04	Thru Only	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*603*			*677*			*666*	
Lane Group Capacity, c					*676*			*1026*			*1027*	
v/c Ratio, X					*0.89*			*0.66*			*0.65*	
Total Green Ratio, g/C					*0.33*			*0.50*			*0.50*	
Uniform Delay, d_1					*19.0*			*11.2*			*11.1*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*9.0*			*2.9*			*1.2*	
Initial Queue Delay, d_3					*0.0*			*0.0*			*0.0*	

Control Delay					27.9			14.1			12.3	
Lane Group LOS					C			B			B	
Approach Delay				27.9			14.1			12.3		
Approach LOS				C			B			B		
Intersection Delay	17.8			X_C = 0.75			Intersection LOS			B		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*2/9/13*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*So Bridge St & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Alt 2*

Project Description *Charleston EIS*

East/West Street: *South Bridge Street* North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*616*	*270*	*192*	*921*	
Peak-Hour Factor, PHF	*1.00*	*0.91*	*0.91*	*0.91*	*0.91*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*676*	*296*	*210*	*1012*	*0*
Percent Heavy Vehicles	*0*	--	--	*6*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*1*	*1*	*0*
Configuration		*T*	*R*	*L*	*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration						

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*						
v (veh/h)		*210*						
C (m) (veh/h)		*693*						
v/c		*0.30*						
95% queue length		*1.28*						
Control Delay (s/veh)		*12.4*						
LOS		*B*						
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

HCS+™ Version 5.4

Generated: 4/16/2013 5:36 PM

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Rch Valley Rd & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/11/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:15-1:45 PM Peak Pd*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*	*0*	*0*	*1*	
Lane Group					*LR*			*TR*			*LT*	
Volume, V (vph)				*108*		*222*		*645*	*94*	*157*	*735*	
% Heavy Vehicles, %HV				*1*		*1*		*2*	*2*	*2*	*2*	
Peak-Hour Factor, PHF				*0.89*		*0.89*		*0.91*	*0.91*	*0.91*	*0.91*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*	*P*	*P*	*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*			*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*			*2.0*	
Arrival Type, AT					*3*			*3*			*3*	
Unit Extension, UE					*3.0*			*3.0*			*3.0*	
Filtering/Metering, I					*0.940*			*0.789*			*0.272*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width					*12.0*			*15.0*			*15.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B					*0*			*2*			*2*	
Min. Time for Pedestrians, G_p	*11.8*			*11.8*			*14.1*			*3.2*		

Phasing	WB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*370*			*812*			*981*	
Lane Group Capacity, c					*393*			*1132*			*643*	
v/c Ratio, X					*0.94*			*0.72*			*1.53*	
Total Green Ratio, g/C					*0.27*			*0.57*			*0.57*	
Uniform Delay, d_1					*21.5*			*9.5*			*13.0*	
Progression Factor, PF					*1.000*			*1.000*			*1.000*	
Delay Calibration, k					*0.50*			*0.50*			*0.50*	
Incremental Delay, d_2					*31.5*			*3.1*			*238.7*	
Initial Queue Delay, d_3					*0.0*			*0.0*			*0.0*	

Control Delay					53.1			12.6			251.7	
Lane Group LOS					D			B			F	
Approach Delay				53.1			12.6			251.7		
Approach LOS				D			B			F		
Intersection Delay	128.0			X_C = 1.34			Intersection LOS			F		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Richmond Valley Rd & Page Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/9/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*0*	*1*	*1*	*0*	*0*	*2*	*0*
Lane Group		*LTR*			*LTR*		*L*	*TR*			*LTR*	
Volume, V (vph)	*103*	*52*	*116*	*31*	*95*	*73*	*163*	*783*	*144*	*58*	*622*	*101*
% Heavy Vehicles, %HV	*0*	*0*	*0*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.78*	*0.78*	*0.78*	*0.73*	*0.73*	*0.73*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.533*			*1.000*		*0.561*	*0.561*			*0.957*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*20*
Lane Width		*16.0*			*15.0*		*10.0*	*14.0*			*10.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*
Parking Maneuvers, N_m						*5*						*5*
Buses Stopping, N_B		*0*			*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*16.6*			*21.5*			*16.3*			*21.2*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *31.0*	G =	G =	G =	G = *49.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*348*			*272*		*177*	*1008*			*827*	
Lane Group Capacity, c		*487*			*538*		*272*	*1067*			*959*	
v/c Ratio, X		*0.71*			*0.51*		*0.65*	*0.94*			*0.86*	
Total Green Ratio, g/C		*0.34*			*0.34*		*0.54*	*0.54*			*0.54*	
Uniform Delay, d_1		*25.7*			*23.4*		*14.5*	*19.2*			*17.6*	
Progression Factor, PF		*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2		*4.8*			*3.4*		*6.6*	*11.2*			*9.7*	

Initial Queue Delay, d_3		*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay		*30.4*			*26.8*		*21.1*	*30.4*			*27.3*	
Lane Group LOS		*C*			*C*		*C*	*C*			*C*	
Approach Delay	*30.4*			*26.8*			*29.0*			*27.3*		
Approach LOS	*C*			*C*			*C*			*C*		
Intersection Delay	*28.4*			X_C *= 0.86*			Intersection LOS			*C*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*S Br St & Page Ave/Boscome Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/9/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*							*2*			*2*	
Lane Group	*L*							*T*			*T*	
Volume, V (vph)	*405*							*959*			*723*	
% Heavy Vehicles, %HV	*2*							*2*			*3*	
Peak-Hour Factor, PHF	*0.86*							*0.96*			*0.92*	
Pretimed (P) or Actuated (A)	*P*							*P*			*P*	
Start-up Lost Time, l_1	*2.0*							*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*							*2.0*			*2.0*	
Arrival Type, AT	*3*							*3*			*3*	
Unit Extension, UE	*3.0*							*3.0*			*3.0*	
Filtering/Metering, I	*1.000*							*0.567*			*0.957*	
Initial Unmet Demand, Q_b	*0.0*							*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*		*0*	*0*		*0*	*0*	
Lane Width	*16.0*							*14.5*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*							*0*			*0*	
Min. Time for Pedestrians, G_p	*3.2*			*20.1*			*3.2*			*3.2*		

Phasing	EB Only	02	03	04	Thru Only	06	07	08
Timing	G = *30.0*	G =	G =	G =	G = *50.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*471*							*999*			*786*	
Lane Group Capacity, c	*669*							*2134*			*1951*	
v/c Ratio, X	*0.70*							*0.47*			*0.40*	
Total Green Ratio, g/C	*0.33*							*0.56*			*0.56*	
Uniform Delay, d_1	*26.1*							*12.0*			*11.5*	
Progression Factor, PF	*1.000*							*1.000*			*1.000*	
Delay Calibration, k	*0.50*							*0.50*			*0.50*	
Incremental Delay, d_2	*6.1*							*0.4*			*0.6*	
Initial Queue Delay, d_3	*0.0*							*0.0*			*0.0*	

Control Delay	*32.3*							*12.4*			*12.0*	
Lane Group LOS	*C*							*B*			*B*	
Approach Delay	*32.3*						*12.4*			*12.0*		
Approach LOS	*C*						*B*			*B*		
Intersection Delay	*16.4*			X_C = *0.56*			Intersection LOS			*B*		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*2/9/13*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*S Bridge St RT & Page Ave*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Alt 2*

Project Description *Charleston EIS*

East/West Street: *South Bridge Street Right Turn* | North/South Street: *Page Avenue*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*723*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.92*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*785*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Raised curb*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*2*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*57*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.88*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*64*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*5*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								*R*
v (veh/h)								*64*
C (m) (veh/h)								*650*
v/c								*0.10*
95% queue length								*0.33*
Control Delay (s/veh)								*11.1*
LOS								*B*
Approach Delay (s/veh)	--	--				*11.1*		
Approach LOS	--	--				*B*		

HCS+™ Version 5.4

Generated: 4/16/2013 5:38 PM

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	KM	Intersection	Veterans Rd W & Bricktown/KWVP
Agency or Co.	AECOM	Area Type	All other areas
Date Performed	2/9/13	Jurisdiction	Staten Island
Time Period	Saturday 12:45-1:45 PM MD Peak	Analysis Year	2020 With-Action Alt 2
		Project ID	Charleston EIS

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	1	1	0	1	2	0	0	2	0	1	1	0
Lane Group	L	TR		L	TR			LTR		L	TR	
Volume, V (vph)	176	354	221	273	536	102	277	705	293	243	140	160
% Heavy Vehicles, %HV	1	1	1	3	3	3	1	1	1	1	1	1
Peak-Hour Factor, PHF	0.93	0.93	0.93	0.96	0.78	0.78	0.90	0.90	0.90	0.84	0.84	0.84
Pretimed (P) or Actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up Lost Time, l_1	2.0	2.0		2.0	2.0			2.0		2.0	2.0	
Extension of Effective Green, e	2.0	2.0		3.0	3.0			2.0		2.0	2.0	
Arrival Type, AT	3	3		3	3			3		3	3	
Unit Extension, UE	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Filtering/Metering, I	0.700	0.700		0.903	0.903			1.000		0.855	0.855	
Initial Unmet Demand, Q_b	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Ped / Bike / RTOR Volumes	0	0	48	0	0	11	0	0	0	0	0	0
Lane Width	11.0	12.0		10.0	12.0			12.5		11.0	10.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0		0	0			0		0	0	
Min. Time for Pedestrians, G_p	34.6			18.6			20.3			16.1		

Phasing	EW Perm	02	03	04	NB Only	SB Only	07	08
Timing	G = 30.0	G =	G =	G =	G = 25.0	G = 20.0	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y = 5	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	189	567		284	804			1417		289	357	
Lane Group Capacity, c	119	596		83	1184			966		384	359	
v/c Ratio, X	1.59	0.95		3.42	0.68			1.47		0.75	0.99	
Total Green Ratio, g/C	0.33	0.33		0.34	0.34			0.28		0.22	0.22	
Uniform Delay, d_1	30.0	29.3		29.5	25.2			32.5		32.7	34.9	
Progression Factor, PF	1.000	1.000		1.000	1.000			1.000		1.000	1.000	
Delay Calibration, k	0.50	0.50		0.50	0.50			0.50		0.50	0.50	
Incremental Delay, d_2	290.7	21.1		1117	2.8			215.8		11.1	42.6	

Initial Queue Delay, d_3	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Control Delay	320.7	50.4		1146	28.1			248.3		43.8	77.5	
Lane Group LOS	F	D		F	C			F		D	E	
Approach Delay	117.9			320.0			248.3			62.4		
Approach LOS	F			F			F			E		
Intersection Delay	212.3			X_C = 2.15			Intersection LOS			F		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*2/9/13*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*KWVP WB OR UT & No Bridge St*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Alt 2*

Project Description *Charleston EIS*

East/West Street: *KWVP WB Off-Ramp U-Turn* | North/South Street: *North Bridge Street*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*633*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.93*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*680*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*1*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*236*		
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.90*	*0.90*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*262*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*60*	*1*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*0*
Configuration				*L*		

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration			*L*					
v (veh/h)			*262*					
C (m) (veh/h)			*418*					
v/c			*0.63*					
95% queue length			*4.15*					
Control Delay (s/veh)			*27.0*					
LOS			*D*					
Approach Delay (s/veh)	--	--	*27.0*					
Approach LOS	--	--	*D*					

HCS+™ Version 5.4

Generated: 4/16/2013 5:39 PM

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*2/9/13*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*Bricktown Way/Tyrellan Avenue*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Alt 2*

Project ID *Charleston EIS*

East/West Street: *Bricktown Way* North/South Street: *Tyrellan Avenue*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*138*	*265*	*59*	*111*	*258*	*128*
%Thrus Left Lane	*50*			*50*		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*61*	*59*	*95*	*111*	*269*	*83*
%Thrus Left Lane				*50*		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*LT*	*TR*	*LT*	*TR*	*LT*	*R*	*LT*	*TR*
PHF	*0.85*	*0.85*	*0.91*	*0.91*	*0.89*	*0.89*	*0.92*	*0.92*
Flow Rate (veh/h)	*317*	*225*	*262*	*281*	*134*	*106*	*265*	236
% Heavy Vehicles	*0*	*0*	*0*	*1*	*1*	*1*	*0*	*0*
No. Lanes	*2*		*2*		*2*		*2*	
Geometry Group	*5*		*5*		*5*		*5*	
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	*0.5*	*0.0*	*0.5*	*0.0*	*0.5*	*0.0*	*0.5*	*0.0*
Prop. Right-Turns	*0.0*	*0.3*	*0.0*	*0.5*	*0.0*	*1.0*	*0.0*	*0.4*
Prop. Heavy Vehicle	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
hLT-adj	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*
hRT-adj	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*
hadj, computed	*0.3*	*-0.2*	*0.2*	*-0.3*	*0.3*	*-0.7*	*0.2*	*-0.3*

Departure Headway and Service Time

hd, initial value (s)	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*	*3.20*
x, initial	*0.28*	*0.20*	*0.23*	*0.25*	*0.12*	*0.09*	*0.24*	*0.21*
hd, final value (s)	*8.21*	*7.74*	*8.20*	*7.64*	*8.92*	*7.97*	*8.33*	*7.84*
x, final value	*0.72*	*0.48*	*0.60*	*0.60*	*0.33*	*0.23*	*0.61*	*0.51*
Move-up time, m (s)	*2.3*		*2.3*		*2.3*		*2.3*	
Service Time, t_s (s)	*5.9*	*5.4*	*5.9*	*5.3*	*6.6*	*5.7*	*6.0*	*5.5*

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*433*	*456*	*432*	*463*	*384*	*356*	*424*	*449*
Delay (s/veh)	*29.53*	*17.47*	*22.33*	*21.00*	*16.00*	*13.09*	*23.37*	*18.53*
LOS	*D*	*C*	*C*	*C*	*C*	*B*	*C*	*C*
Approach: Delay (s/veh)	*24.52*		*21.64*		*14.71*		*21.09*	
LOS	*C*		*C*		*B*		*C*	
Intersection Delay (s/veh)	*21.44*							
Intersection LOS	*C*							

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/9/13*	Jurisdiction	*SFR NB-DefL = 2050*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*
Lane Group		*LTR*		*DefL*	*TR*		*DefL*	*TR*			*LTR*	
Volume, V (vph)	*82*	*175*	*593*	*165*	*432*	*25*	*322*	*269*	*115*	*26*	*834*	*168*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*1*	*1*	*1*	*1*	*1*	*1*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.78*	*0.78*	*0.78*	*0.94*	*0.91*	*0.91*	*0.93*	*0.93*	*0.93*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT		*3*		*3*	*3*		*3*	*3*			*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I		*0.830*		*0.865*	*0.865*		*1.000*	*1.000*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*		*12.0*	*12.0*		*13.0*	*13.0*			*9.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*		*0*	*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*18.6*			*16.6*			*20.1*			*19.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*924*		*212*	*586*		*343*	*422*			*1106*	
Lane Group Capacity, c		*1142*		*172*	*829*		*128*	*825*			*1346*	
v/c Ratio, X		*0.81*		*1.23*	*0.71*		*2.68*	*0.51*			*0.82*	
Total Green Ratio, g/C		*0.44*		*0.44*	*0.44*		*0.44*	*0.44*			*0.44*	
Uniform Delay, d_1		*21.7*		*25.0*	*20.3*		*25.0*	*18.0*			*21.9*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2		*5.2*		*140.4*	*4.4*		*777.7*	*2.3*			*5.8*	

Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay		*26.9*		*165.4*	*24.6*		*802.7*	*20.2*			*27.6*	
Lane Group LOS		*C*		*F*	*C*		*F*	*C*			*C*	
Approach Delay	*26.9*			*62.0*			*371.1*			*27.6*		
Approach LOS	*C*			*E*			*F*			*C*		
Intersection Delay	*108.2*			X_C = *1.96*			Intersection LOS			*F*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Boscombe Ave & OBX Off-Ramp*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/9/13*	Jurisdiction	*Sat Flw Rate EB-L = 2100*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*			*1*	*1*				*2*		*1*
Lane Group	*L*	*T*			*T*	*R*				*L*		*R*
Volume, V (vph)	*892*	*472*			*508*	*1077*				*233*		*216*
% Heavy Vehicles, %HV	*1*	*1*			*1*	*1*				*1*		*1*
Peak-Hour Factor, PHF	*0.97*	*0.96*			*0.94*	*0.97*				*0.92*		*0.92*
Pretimed (P) or Actuated (A)	*P*	*P*			*P*	*P*				*P*		*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*	*2.0*				*2.0*		*2.0*
Extension of Effective Green, e	*3.0*	*2.0*			*2.0*	*2.0*				*2.0*		*2.0*
Arrival Type, AT	*3*	*3*			*3*	*3*				*3*		*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*	*3.0*				*3.0*		*3.0*
Filtering/Metering, I	*0.508*	*0.508*			*0.176*	*0.176*				*1.000*		*1.000*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*	*0.0*				*0.0*		*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*119*	*0*	*0*		*0*	*0*	*0*
Lane Width	*11.0*	*12.0*			*12.0*	*12.0*				*10.0*		*10.0*
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B	*0*	*0*			*0*	*0*				*0*		*0*
Min. Time for Pedestrians, G_p	*14.6*			*24.6*			*3.2*			*20.1*		

Phasing	EB Only	EW Perm	03	04	SB Only	06	07	08
Timing	G = *37.0*	G = *22.0*	G =	G =	G = *16.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*920*	*492*			*540*	*988*				*253*		*235*
Lane Group Capacity, c	*895*	*1170*			*460*	*391*				*576*		*962*
v/c Ratio, X	*1.03*	*0.42*			*1.17*	*2.53*				*0.44*		*0.24*
Total Green Ratio, g/C	*0.72*	*0.71*			*0.24*	*0.24*				*0.18*		*0.64*
Uniform Delay, d_1	*21.4*	*5.4*			*34.0*	*34.0*				*33.0*		*6.8*
Progression Factor, PF	*1.000*	*1.000*			*1.000*	*1.000*				*1.000*		*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*	*0.50*				*0.50*		*0.50*
Incremental Delay, d_2	*28.9*	*0.6*			*82.7*	*688.4*				*2.4*		*0.6*
Initial Queue Delay, d_3	*0.0*	*0.0*			*0.0*	*0.0*				*0.0*		*0.0*

Control Delay	50.3	5.9			116.7	722.4				35.4		7.4
Lane Group LOS	D	A			F	F				D		A
Approach Delay	34.8			508.3						21.9		
Approach LOS	C			F						C		
Intersection Delay	244.1			X_C = 1.32			Intersection LOS			F		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	KM	Intersection	Boscombe Ave & Tyrellan Ave
Agency or Co.	AECOM	Area Type	All other areas
Date Performed	2/9/13	Jurisdiction	Staten Island, NY
Time Period	Saturday 12:45-1:45 PM Peak Pd	Analysis Year	2020 With-Action Alt 2
		Project ID	Charleston EIS

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	0	2	0	0	2	0	0	2	0	0	1	1
Lane Group	DefL	TR			LTR			LTR			LT	R
Volume, V (vph)	660	46	0	0	46	58	0	0	1	84	0	1539
% Heavy Vehicles, %HV	1	1	1	1	1	1	1	1	1	1	1	1
Peak-Hour Factor, PHF	0.96	0.96	0.96	0.91	0.91	0.91	0.90	0.90	0.90	0.93	0.93	0.93
Pretimed (P) or Actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up Lost Time, l_1	2.0	2.0			2.0			2.0			2.0	2.0
Extension of Effective Green, e	2.0	2.0			2.0			2.0			2.0	2.0
Arrival Type, AT	3	3			3			3			3	3
Unit Extension, UE	3.0	3.0			3.0			3.0			3.0	3.0
Filtering/Metering, I	0.967	0.967			1.000			1.000			0.855	0.855
Initial Unmet Demand, Q_b	0.0	0.0			0.0			0.0			0.0	0.0
Ped / Bike / RTOR Volumes	0	0	0	0	0	14	0	0	0	0	0	398
Lane Width	16.0	16.0			11.5			12.0			12.0	12.0
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0			0			0			0	0
Min. Time for Pedestrians, G_p	20.3			17.5			20.3			20.3		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 45.0	G =	G =	G =	G = 35.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	688	48			99			1			90	1227
Lane Group Capacity, c	736	1066			1633			1184			544	622
v/c Ratio, X	0.93	0.05			0.06			0.00			0.17	1.97
Total Green Ratio, g/C	0.50	0.50			0.50			0.39			0.39	0.39
Uniform Delay, d_1	21.1	11.5			11.6			16.8			18.0	27.5
Progression Factor, PF	1.000	1.000			1.000			1.000			1.000	1.000
Delay Calibration, k	0.50	0.50			0.50			0.50			0.50	0.50
Incremental Delay, d_2	20.1	0.1			0.1			0.0			0.6	442.7

Initial Queue Delay, d_3	0.0	0.0			0.0			0.0			0.0	0.0
Control Delay	41.2	11.6			11.7			16.8			18.5	470.2
Lane Group LOS	D	B			B			B			B	F
Approach Delay	39.3			11.7			16.8			439.3		
Approach LOS	D			B			B			F		
Intersection Delay	282.7			X_C = 1.39			Intersection LOS			F		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	KM	Intersection	Bricktown Ctr Rd @ Vets Rd W
Agency or Co.	AECOM	Area Type	All other areas
Date Performed	2/9/13	Jurisdiction	Staten Island, NY
Time Period	Saturday 12:45-1:45 PM Peak Pd	Analysis Year	2020 With-Action Alt 2
		Project ID	Charleston EIS

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	1		1				0	2			2	0
Lane Group	L		R					LT			TR	
Volume, V (vph)	436		36				5	311			587	684
% Heavy Vehicles, %HV	3		3				1	1			1	1
Peak-Hour Factor, PHF	0.85		0.85				0.88	0.88			0.89	0.89
Pretimed (P) or Actuated (A)	P		P				P	P			P	P
Start-up Lost Time, l_1	2.0		2.0					2.0			2.0	
Extension of Effective Green, e	2.0		2.0					2.0			2.0	
Arrival Type, AT	3		3					3			3	
Unit Extension, UE	3.0		3.0					3.0			3.0	
Filtering/Metering, I	0.892		0.892					0.995			0.487	
Initial Unmet Demand, Q_b	0.0		0.0					0.0			0.0	
Ped / Bike / RTOR Volumes	0	0	9	0	0		0	0		0	0	0
Lane Width	13.0		12.0					11.5			16.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B	0		0					0			0	
Min. Time for Pedestrians, G_p	21.8			20.3			3.2			19.5		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = 19.0	G =	G =	G =	G = 31.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 60.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	513		32					359			1429	
Lane Group Capacity, c	573		497					1694			1928	
v/c Ratio, X	0.90		0.06					0.21			0.74	
Total Green Ratio, g/C	0.32		0.32					0.52			0.52	
Uniform Delay, d_1	19.6		14.3					7.9			11.4	
Progression Factor, PF	1.000		1.000					1.000			1.000	
Delay Calibration, k	0.50		0.50					0.50			0.50	
Incremental Delay, d_2	17.5		0.2					0.3			1.3	
Initial Queue Delay, d_3	0.0		0.0					0.0			0.0	

Control Delay	*37.0*		*14.5*					*8.2*			*12.6*	
Lane Group LOS	*D*		*B*					*A*			*B*	
Approach Delay	*35.7*						*8.2*			*12.6*		
Approach LOS	*D*						*A*			*B*		
Intersection Delay	*17.3*			X_C = *0.80*			Intersection LOS			*B*		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Ave @ Veterans Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/9/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*1*	*1*		*1*			*0*	*3*	*0*
Lane Group		*TR*		*L*	*LT*		*L*				*LTR*	
Volume, V (vph)		*1*	*0*	*798*	*2*		*5*			*28*	*474*	*1*
% Heavy Vehicles, %HV		*1*	*1*	*2*	*2*		*0*			*2*	*2*	*2*
Peak-Hour Factor, PHF		*0.75*	*0.25*	*0.91*	*0.91*		*0.88*			*0.89*	*0.89*	*0.89*
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*			*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Arrival Type, AT		*3*		*3*	*3*		*3*				*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*		*3.0*				*3.0*	
Filtering/Metering, I		*1.000*		*0.971*	*0.971*		*0.951*				*1.000*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*12.0*		*13.0*	*13.0*		*10.0*				*11.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*		*0*	*0*		*0*				*0*	
Min. Time for Pedestrians, G_p	*31.2*			*3.2*			*18.1*			*11.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*1*		*658*	*221*		*6*				*565*	
Lane Group Capacity, c		*784*		*607*	*584*		*289*				*2037*	
v/c Ratio, X		*0.00*		*1.08*	*0.38*		*0.02*				*0.28*	
Total Green Ratio, g/C		*0.42*		*0.42*	*0.42*		*0.42*				*0.42*	
Uniform Delay, d_1		*10.2*		*17.5*	*12.1*		*10.3*				*11.5*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*		*1.000*				*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*		*0.50*				*0.50*	
Incremental Delay, d_2		*0.0*		*60.9*	*1.8*		*0.1*				*0.3*	

Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Control Delay		*10.2*		*78.4*	*13.9*		*10.4*				*11.9*	
Lane Group LOS		*B*		*E*	*B*		*B*				*B*	
Approach Delay	*10.2*			*62.2*			*10.4*			*11.9*		
Approach LOS	*B*			*E*			*B*			*B*		
Intersection Delay	*42.3*			X_C = *0.68*			Intersection LOS			*D*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*2/9/13*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*Englewood Ave & Vets Rd W RT*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Alt 2*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* | North/South Street: *Veterans Rd W Right Turn Bay*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*29*				
Peak-Hour Factor, PHF	*1.00*	*0.75*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*38*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*T*				
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)			*742*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.88*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*843*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*1*	*0*	*0*	*0*
Configuration			*R*			

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration					*R*			
v (veh/h)					*843*			
C (m) (veh/h)					*1040*			
v/c					*0.81*			
95% queue length					*9.31*			
Control Delay (s/veh)					*21.3*			
LOS					*C*			
Approach Delay (s/veh)	--	--	*21.3*					
Approach LOS	--	--	*C*					

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*2/9/13*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*Sharrotts Rd & Veterans Rd W*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Alt 2*

Project ID *Charleston EIS*

East/West Street: *Sharrotts Road* North/South Street: *Veterans Road West*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*91*	*36*	*347*	*66*	*0*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*0*	*17*	*120*	*23*
%Thrus Left Lane				*50*		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*TR*		*LT*				*LT*	*TR*
PHF	*0.75*		*0.85*				*0.89*	*0.89*
Flow Rate (veh/h)	*169*		*485*				*86*	92
% Heavy Vehicles	*2*		*4*				*0*	*0*
No. Lanes	*1*		*1*		*0*		*2*	
Geometry Group	*2*		*2*				*1*	
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	*0.0*		*0.8*				*0.2*	*0.0*
Prop. Right-Turns	*0.3*		*0.0*				*0.0*	*0.3*
Prop. Heavy Vehicle	*0.0*		*0.0*				*0.0*	*0.0*
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*			*0.2*	*0.2*
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*			*-0.6*	*-0.6*
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*			*1.7*	*1.7*
hadj, computed	*-0.1*		*0.2*				*0.0*	*-0.2*

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value (s)	*3.20*		*3.20*				*3.20*	*3.20*
x, initial	*0.15*		*0.43*				*0.08*	*0.08*
hd, final value (s)	*4.86*		*4.83*				*5.54*	*5.33*
x, final value	*0.23*		*0.65*				*0.13*	*0.14*
Move-up time, m (s)	*2.0*		*2.0*				*2.0*	
Service Time, t_s (s)	*2.9*		*2.8*				*3.5*	*3.3*

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*419*		*735*				*336*	*342*
Delay (s/veh)	*9.29*		*16.37*				*9.38*	*9.17*
LOS	*A*		*C*				*A*	*A*
Approach: Delay (s/veh)	*9.29*		*16.37*				*9.27*	
LOS	*A*		*C*				*A*	
Intersection Delay (s/veh)	*13.41*							
Intersection LOS	*B*							

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*2/9/13*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*Sharrotts Rd @ Veterans Rd E*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Alt 2*

Project ID *Charleston EIS*

East/West Street: *Sharrotts Road* North/South Street: *Veterans Road East*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*26*	*83*	*0*	*0*	*358*	*24*
%Thrus Left Lane						

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	*53*	*107*	*139*	*0*	*0*	*0*
%Thrus Left Lane	*50*					

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	*LT*		*TR*		*LT*	*TR*		
PHF	*0.75*		*0.85*		*0.95*	*0.95*		
Flow Rate (veh/h)	*144*		*449*		*110*	*202*		
% Heavy Vehicles	*2*		*2*		*1*	*1*		
No. Lanes	*1*		*1*		*2*		*0*	
Geometry Group	*2*		*2*		*1*			
Duration, T	*0.25*							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	*0.2*		*0.0*		*0.5*	*0.0*		
Prop. Right-Turns	*0.0*		*0.1*		*0.0*	*0.7*		
Prop. Heavy Vehicle	*0.0*		*0.0*		*0.0*	*0.0*		
hLT-adj	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*		
hRT-adj	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*		
hHV-adj	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*		
hadj, computed	*0.1*		*-0.0*		*0.1*	*-0.4*		

Departure Headway and Service Time

hd, initial value (s)	*3.20*		*3.20*		*3.20*	*3.20*		
x, initial	*0.13*		*0.40*		*0.10*	*0.18*		
hd, final value (s)	*5.37*		*4.88*		*5.52*	*4.98*		
x, final value	*0.21*		*0.61*		*0.17*	*0.28*		
Move-up time, m (s)	*2.0*		*2.0*		*2.0*			
Service Time, t_s (s)	*3.4*		*2.9*		*3.5*	*3.0*		

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	*394*		*699*		*360*	*452*		
Delay (s/veh)	*9.83*		*15.17*		*9.63*	*9.90*		
LOS	*A*		*C*		*A*	*A*		
Approach: Delay (s/veh)	*9.83*		*15.17*		*9.80*			
LOS	*A*		*C*		*A*			
Intersection Delay (s/veh)	*12.47*							
Intersection LOS	*B*							

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	KM	Intersection	Englewood Ave @ Vets Rd E
Agency or Co.	AECOM		
Date Performed	2/9/13	Area Type	All other areas
Time Period	Saturday 12:45-1:45 PM Peak Pd	Jurisdiction	Staten Island, NY
		Analysis Year	2020 With-Action Alt 2
		Project ID	Charleston EIS

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	0	1	1	0	1	0	0	3	0			
Lane Group		LT	R		LTR			LTR				
Volume, V (vph)	218	353	199	0	85	15	716	66	3			
% Heavy Vehicles, %HV	1	1	1	0	0	0	2	2	2			
Peak-Hour Factor, PHF	0.75	0.75	0.75	0.83	0.83	0.83	0.93	0.93	0.93			
Pretimed (P) or Actuated (A)	P	P	P	P	P	P	P	P	P			
Start-up Lost Time, l_1		2.0	2.0		2.0			2.0				
Extension of Effective Green, e		2.0	2.0		2.0			2.0				
Arrival Type, AT		3	3		3			3				
Unit Extension, UE		3.0	3.0		3.0			3.0				
Filtering/Metering, I		0.997	0.997		0.993			0.967				
Initial Unmet Demand, Q_b		0.0	0.0		0.0			0.0				
Ped / Bike / RTOR Volumes	0	0	66	0	0	0	0	0	0	0	0	
Lane Width		13.0	12.0		11.5			11.0				
Parking / Grade / Parking	N	0	N	N	0	Y	N	0	N	N	0	N
Parking Maneuvers, N_m						5						
Buses Stopping, N_B		0	0		0			0				
Min. Time for Pedestrians, G_p	21.2			12.9			14.3			17.5		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = 21.0	G =	G =	G =	G = 29.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 60.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		762	177		120			844				
Lane Group Capacity, c		552	560		561			2266				
v/c Ratio, X		1.38	0.32		0.21			0.37				
Total Green Ratio, g/C		0.35	0.35		0.35			0.48				
Uniform Delay, d_1		19.5	14.3		13.7			9.8				
Progression Factor, PF		1.000	1.000		1.000			1.000				
Delay Calibration, k		0.50	0.50		0.50			0.50				
Incremental Delay, d_2		182.3	1.5		0.9			0.5				

Initial Queue Delay, d_3		*0.0*	*0.0*		*0.0*			*0.0*				
Control Delay		*201.8*	*15.7*		*14.6*			*10.2*				
Lane Group LOS		*F*	*B*		*B*			*B*				
Approach Delay	*166.7*			*14.6*			*10.2*					
Approach LOS	*F*			*B*			*B*					
Intersection Delay	*87.7*			X_C = *0.80*			Intersection LOS			*F*		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Av & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/9/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*300*		*56*				*17*	*404*			*384*	*82*
% Heavy Vehicles, %HV	*1*		*1*				*1*	*1*			*1*	*1*
Peak-Hour Factor, PHF	*0.92*		*0.92*				*0.92*	*0.92*			*0.91*	*0.91*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.937*						*0.937*			*0.937*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*16.0*						*14.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B		*0*						*0*			*0*	
Min. Time for Pedestrians, G_p	*14.9*			*15.5*			*3.2*			*17.5*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*387*						*457*			*512*	
Lane Group Capacity, c		*467*						*1110*			*1179*	
v/c Ratio, X		*0.83*						*0.41*			*0.43*	
Total Green Ratio, g/C		*0.27*						*0.57*			*0.57*	
Uniform Delay, d_1		*20.7*						*7.3*			*7.5*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*14.7*						*1.1*			*1.1*	
Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	

Control Delay		35.4						8.4			8.6	
Lane Group LOS		D						A			A	
Approach Delay	35.4						8.4			8.6		
Approach LOS	D						A			A		
Intersection Delay	16.2			X_C = 0.56			Intersection LOS			B		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Sharrotts Rd & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/9/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*		*0*				*0*	*1*			*1*	*0*
Lane Group		*LR*						*LT*			*TR*	
Volume, V (vph)	*156*		*67*				*43*	*597*			*409*	*339*
% Heavy Vehicles, %HV	*1*		*1*				*1*	*1*			*1*	*1*
Peak-Hour Factor, PHF	*0.75*		*0.75*				*0.92*	*0.92*			*0.91*	*0.91*
Pretimed (P) or Actuated (A)	*P*		*P*				*P*	*P*			*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*			*2.0*	
Arrival Type, AT		*3*						*3*			*3*	
Unit Extension, UE		*3.0*						*3.0*			*3.0*	
Filtering/Metering, I		*0.932*						*0.850*			*0.905*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*20*
Lane Width		*16.0*						*16.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*0*			*0*	
Min. Time for Pedestrians, G_p	*18.6*			*18.6*			*3.2*			*16.6*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *20.0*	G =	G =	G =	G = *30.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*297*						*696*			*800*	
Lane Group Capacity, c		*576*						*780*			*1003*	
v/c Ratio, X		*0.52*						*0.89*			*0.80*	
Total Green Ratio, g/C		*0.33*						*0.50*			*0.50*	
Uniform Delay, d_1		*16.1*						*13.5*			*12.5*	
Progression Factor, PF		*1.000*						*1.000*			*1.000*	
Delay Calibration, k		*0.50*						*0.50*			*0.50*	
Incremental Delay, d_2		*3.1*						*12.8*			*6.0*	
Initial Queue Delay, d_3		*0.0*						*0.0*			*0.0*	

Control Delay		19.2						26.4			18.5	
Lane Group LOS		B						C			B	
Approach Delay	19.2						26.4			18.5		
Approach LOS	B						C			B		
Intersection Delay	21.7			X_C = 0.74			Intersection LOS			C		

 HCS+™ Version 5.4 Generated: 4/16/2013 5:43 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Vets Rd E & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/9/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*	*0*	*3*	*0*	*1*	*1*			*1*	*0*
Lane Group	*L*		*R*		*LTR*		*L*	*T*			*TR*	
Volume, V (vph)	*19*		*180*	*302*	*617*	*173*	*150*	*229*			*422*	*17*
% Heavy Vehicles, %HV	*1*		*1*	*2*	*2*	*2*	*2*	*2*			*1*	*1*
Peak-Hour Factor, PHF	*0.71*		*0.71*	*0.87*	*0.87*	*0.87*	*0.92*	*0.92*			*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*		*P*	*P*	*P*	*P*	*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*		*3*		*3*	*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*		*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I	*0.717*		*0.717*		*0.483*		*0.917*	*0.917*			*0.747*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Lane Width	*10.0*		*13.0*		*11.0*		*12.0*	*12.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*		*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*17.2*			*16.9*			*3.2*			*20.9*		

Phasing	EB Only	WB Only	03	04	NS Perm	06	07	08
Timing	G = *8.0*	G = *17.0*	G =	G =	G = *20.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*27*		*254*		*1255*		*163*	*249*			*488*	
Lane Group Capacity, c	*222*		*220*		*1338*		*138*	*621*			*707*	
v/c Ratio, X	*0.12*		*1.15*		*0.94*		*1.18*	*0.40*			*0.69*	
Total Green Ratio, g/C	*0.13*		*0.13*		*0.28*		*0.33*	*0.33*			*0.33*	
Uniform Delay, d_1	*22.9*		*26.0*		*21.0*		*20.0*	*15.4*			*17.3*	
Progression Factor, PF	*1.000*		*1.000*		*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*		*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2	*0.8*		*100.0*		*7.7*		*130.3*	*1.8*			*4.1*	

Initial Queue Delay, d_3	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay	*23.7*		*126.0*		*28.7*		*150.3*	*17.2*			*21.4*	
Lane Group LOS	*C*		*F*		*C*		*F*	*B*			*C*	
Approach Delay	*116.2*				*28.7*			*69.8*			*21.4*	
Approach LOS	*F*				*C*			*E*			*C*	
Intersection Delay	*44.3*				X_C *= 1.09*			Intersection LOS			*D*	

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*S Service Rd & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/9/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*				*0*	*1*	*0*	*1*	*1*	*0*
Lane Group		*LTR*						*LTR*		*L*	*TR*	
Volume, V (vph)	*31*	*33*	*5*				*3*	*347*	*153*	*316*	*539*	*47*
% Heavy Vehicles, %HV	*2*	*2*	*2*				*2*	*2*	*2*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.76*	*0.76*	*0.76*				*0.92*	*0.92*	*0.92*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*				*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*						*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e		*2.0*						*2.0*		*2.0*	*2.0*	
Arrival Type, AT		*3*						*3*		*3*	*3*	
Unit Extension, UE		*3.0*						*3.0*		*3.0*	*3.0*	
Filtering/Metering, I		*1.000*						*0.899*		*0.644*	*0.644*	
Initial Unmet Demand, Q_b		*0.0*						*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*11*
Lane Width		*13.0*						*16.0*		*12.0*	*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*						*5*			
Buses Stopping, N_B		*0*						*0*		*0*	*0*	
Min. Time for Pedestrians, G_p	*17.5*			*16.9*			*12.6*			*12.9*		

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = *17.0*	G =	G =	G =	G = *33.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*91*						*546*		*351*	*639*	
Lane Group Capacity, c		*462*						*972*		*447*	*1025*	
v/c Ratio, X		*0.20*						*0.56*		*0.79*	*0.62*	
Total Green Ratio, g/C		*0.28*						*0.55*		*0.55*	*0.55*	
Uniform Delay, d_1		*16.3*						*8.8*		*10.7*	*9.2*	
Progression Factor, PF		*1.000*						*1.000*		*1.000*	*1.000*	
Delay Calibration, k		*0.50*						*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2		*1.0*						*2.1*		*8.7*	*1.9*	

Initial Queue Delay, d_3		*0.0*						*0.0*		*0.0*	*0.0*	
Control Delay		*17.3*						*10.9*		*19.4*	*11.1*	
Lane Group LOS		*B*						*B*		*B*	*B*	
Approach Delay	*17.3*						*10.9*			*14.0*		
Approach LOS	*B*						*B*			*B*		
Intersection Delay	*13.2*			X_C = *0.59*			Intersection LOS			*B*		

 HCS+™ Version 5.4 Generated: 4/16/2013 5:44 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Amboy Rd & Bloomingdale Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/9/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*1*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*		*L*	*T*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*8*	*8*	*18*	*294*	*18*	*106*	*13*	*347*	*242*	*86*	*444*	*8*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*1*	*1*	*1*	*0*	*0*	*0*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.84*	*0.84*	*0.84*	*0.90*	*0.90*	*0.90*	*0.92*	*0.92*	*0.92*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*		*3*	*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*		*0.887*	*0.887*	*0.887*		*0.516*			*0.500*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*50*	*0*	*0*	*0*	*0*	*0*	*50*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*		*12.0*	*11.0*	*11.0*		*11.0*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*		*0*	*0*	*0*		*0*			*0*	
Min. Time for Pedestrians, G_p	*11.5*			*11.8*			*18.9*			*18.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*41*		*327*	*20*	*118*		*654*			*598*	
Lane Group Capacity, c		*631*		*578*	*808*	*601*		*743*			*606*	
v/c Ratio, X		*0.06*		*0.57*	*0.02*	*0.20*		*0.88*			*0.99*	
Total Green Ratio, g/C		*0.44*		*0.44*	*0.44*	*0.44*		*0.44*			*0.44*	
Uniform Delay, d_1		*14.3*		*18.6*	*14.0*	*15.2*		*22.8*			*24.7*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*	*0.50*		*0.50*			*0.50*	
Incremental Delay, d_2		*0.2*		*3.5*	*0.1*	*0.6*		*8.0*			*22.9*	

Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Control Delay		*14.5*		*22.1*	*14.1*	*15.9*		*30.8*			*47.6*	
Lane Group LOS		*B*		*C*	*B*	*B*		*C*			*D*	
Approach Delay	*14.5*			*20.2*			*30.8*			*47.6*		
Approach LOS	*B*			*C*			*C*			*D*		
Intersection Delay	*33.3*			X_C *= 0.78*			Intersection LOS			*C*		

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Arthur Kill Rd & Bloomingdl Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/11/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 With-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*0*	*1*		*0*		*0*			
Lane Group		*TR*			*LT*			*LR*				
Volume, V (vph)		*229*	*240*	*283*	*234*		*160*		*233*			
% Heavy Vehicles, %HV		*2*	*2*	*4*	*4*		*1*		*1*			
Peak-Hour Factor, PHF		*0.78*	*0.78*	*0.89*	*0.89*		*0.85*		*0.85*			
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*		*P*			
Start-up Lost Time, l_1		*2.0*			*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*			*2.0*			*2.0*				
Arrival Type, AT		*3*			*3*			*3*				
Unit Extension, UE		*3.0*			*3.0*			*3.0*				
Filtering/Metering, I		*0.927*			*0.992*			*0.953*				
Initial Unmet Demand, Q_b		*0.0*			*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*56*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	
Lane Width		*16.0*			*16.0*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m									*5*			
Buses Stopping, N_B		*2*			*0*			*0*				
Min. Time for Pedestrians, G_p	*18.3*			*3.2*			*15.2*			*17.2*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*530*			*581*			*462*				
Lane Group Capacity, c		*984*			*435*			*558*				
v/c Ratio, X		*0.54*			*1.34*			*0.83*				
Total Green Ratio, g/C		*0.50*			*0.50*			*0.39*				
Uniform Delay, d_1		*15.4*			*22.5*			*24.8*				
Progression Factor, PF		*1.000*			*1.000*			*1.000*				
Delay Calibration, k		*0.50*			*0.50*			*0.50*				
Incremental Delay, d_2		*2.0*			*165.9*			*12.7*				
Initial Queue Delay, d_3		*0.0*			*0.0*			*0.0*				

Control Delay		17.4			188.4			37.5				
Lane Group LOS		B			F			D				
Approach Delay	17.4			188.4			37.5					
Approach LOS	B			F			D					
Intersection Delay	86.4			X_C = 1.11			Intersection LOS			F		

 HCS+™ Version 5.4 Generated: 4/16/2013 5:47 PM

Alternative 2

Mitigation

2020

Weekday

AM

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*4/15/13*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*Englewood Ave & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 Miti-Action Alt 2*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*216*	*178*	*158*	*221*	
Peak-Hour Factor, PHF	*1.00*	*0.83*	*0.83*	*0.83*	*0.83*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*260*	*214*	*190*	*266*	*0*
Percent Heavy Vehicles	*0*	--	--	*11*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*1*	*1*	*0*
Configuration		*T*	*R*	*L*	*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*147*		*146*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.75*	*1.00*	*0.70*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*196*	*0*	*208*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*	*L*		*R*			
v (veh/h)		*190*	*196*		*208*			
C (m) (veh/h)		*1043*	*253*		*784*			
v/c		*0.18*	*0.77*		*0.27*			
95% queue length		*0.66*	*5.72*		*1.07*			
Control Delay (s/veh)		*9.2*	*55.3*		*11.2*			
LOS		*A*	*F*		*B*			
Approach Delay (s/veh)	--	--	*32.6*					
Approach LOS	--	--	*D*					

HCS+™ Version 5.4

Generated: 4/16/2013 5:48 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 Miti-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*1*	*1*	*1*	*0*
Lane Group		*LTR*			*LT*	*R*		*LT*	*R*	*L*	*TR*	
Volume, V (vph)	*3*	*6*	*1*	*174*	*34*	*382*	*0*	*224*	*313*	*119*	*255*	*9*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*7*	*7*	*7*	*11*	*11*	*11*	*11*	*11*	*11*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.87*	*0.87*	*0.87*	*0.85*	*0.85*	*0.85*	*0.87*	*0.87*	*0.87*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	
Arrival Type, AT		*3*			*3*	*3*		*3*	*3*	*3*	*3*	
Unit Extension, UE		*3.0*			*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	
Filtering/Metering, I		*1.000*			*0.940*	*0.940*		*0.887*	*0.887*	*1.000*	*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*	*0.0*		*0.0*	*0.0*	*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*15.5*			*11.0*	*10.0*		*12.0*	*12.0*	*10.0*	*11.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*			*0*	*0*		*4*	*0*	*0*	*3*	
Min. Time for Pedestrians, G_p	*11.5*			*13.5*			*15.2*			*12.1*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*11*			*239*	*439*		*264*	*368*	*137*	*303*	
Lane Group Capacity, c		*717*			*539*	*514*		*702*	*606*	*381*	*678*	
v/c Ratio, X		*0.02*			*0.44*	*0.85*		*0.38*	*0.61*	*0.36*	*0.45*	
Total Green Ratio, g/C		*0.42*			*0.42*	*0.42*		*0.42*	*0.42*	*0.42*	*0.42*	
Uniform Delay, d_1		*10.3*			*12.5*	*15.8*		*12.1*	*13.7*	*12.0*	*12.5*	
Progression Factor, PF		*1.000*			*1.000*	*1.000*		*1.000*	*1.000*	*1.000*	*1.000*	
Delay Calibration, k		*0.50*			*0.50*	*0.50*		*0.50*	*0.50*	*0.50*	*0.50*	
Incremental Delay, d_2		*0.0*			*2.5*	*15.6*		*1.4*	*4.0*	*2.6*	*2.1*	

Initial Queue Delay, d_3		0.0			0.0	0.0		0.0	0.0	0.0	0.0	
Control Delay		10.3			15.0	31.4		13.5	17.7	14.6	14.7	
Lane Group LOS		B			B	C		B	B	B	B	
Approach Delay	10.3			25.6			15.9			14.7		
Approach LOS	B			C			B			B		
Intersection Delay	19.3			X_C = 0.73			Intersection LOS			B		

 HCS+™ Version 5.4 Generated: 4/16/2013 5:49 PM

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Rch Valley Rd & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 Miti-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*	*0*	*1*	*1*	
Lane Group					*LR*			*TR*		*L*	*T*	
Volume, V (vph)				*62*		*204*		*549*	*74*	*144*	*358*	
% Heavy Vehicles, %HV				*3*		*3*		*11*	*11*	*9*	*9*	
Peak-Hour Factor, PHF				*0.93*		*0.93*		*0.85*	*0.85*	*0.87*	*0.87*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*	*P*	*P*	*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*		*2.0*	*2.0*	
Arrival Type, AT					*3*			*3*		*3*	*3*	
Unit Extension, UE					*3.0*			*3.0*		*3.0*	*3.0*	
Filtering/Metering, I					*0.980*			*0.769*		*0.842*	*0.842*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width					*12.0*			*15.0*		*10.0*	*10.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B					*0*			*4*		*0*	*3*	
Min. Time for Pedestrians, G_p	*11.8*			*11.8*			*14.1*			*3.2*		

Phasing	WB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*286*			*733*		*166*	*411*	
Lane Group Capacity, c					*381*			*1033*		*265*	*911*	
v/c Ratio, X					*0.75*			*0.71*		*0.63*	*0.45*	
Total Green Ratio, g/C					*0.27*			*0.57*		*0.57*	*0.57*	
Uniform Delay, d_1					*20.2*			*9.4*		*8.7*	*7.6*	
Progression Factor, PF					*1.000*			*1.000*		*1.000*	*1.000*	
Delay Calibration, k					*0.50*			*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2					*12.5*			*3.2*		*9.1*	*1.4*	
Initial Queue Delay, d_3					*0.0*			*0.0*		*0.0*	*0.0*	

Control Delay					32.7			12.6		17.8	8.9	
Lane Group LOS					C			B		B	A	
Approach Delay				32.7			12.6			11.5		
Approach LOS				C			B			B		
Intersection Delay	15.8			X_c = 0.72			Intersection LOS			B		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Bricktown/KWVP*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8 - 9 AM Peak Period*	Analysis Year	*2020 Miti-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*	*0*	*1*	*2*	*0*	*0*	*2*	*0*	*1*	*1*	*0*
Lane Group	*L*	*TR*		*L*	*TR*			*LTR*		*L*	*TR*	
Volume, V (vph)	*74*	*175*	*169*	*203*	*367*	*80*	*192*	*324*	*138*	*68*	*32*	*41*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*8*	*8*	*8*	*8*	*8*	*8*	*3*	*3*	*3*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.87*	*0.87*	*0.87*	*0.93*	*0.93*	*0.93*	*0.67*	*0.67*	*0.67*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*		*2.0*	*2.0*			*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e	*2.0*	*2.0*		*2.0*	*2.0*			*2.0*		*2.0*	*2.0*	
Arrival Type, AT	*3*	*3*		*3*	*3*			*3*		*3*	*3*	
Unit Extension, UE	*3.0*	*3.0*		*3.0*	*3.0*			*3.0*		*3.0*	*3.0*	
Filtering/Metering, I	*0.780*	*0.780*		*0.979*	*0.979*			*1.000*		*0.991*	*0.991*	
Initial Unmet Demand, Q_b	*0.0*	*0.0*		*0.0*	*0.0*			*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*38*	*0*	*0*	*4*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*11.0*	*12.0*		*10.0*	*12.0*			*12.5*		*11.0*	*10.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*		*0*	*0*			*0*		*0*	*0*	
Min. Time for Pedestrians, G_p	*34.6*			*18.6*			*20.3*			*16.1*		

Phasing	EW Perm	02	03	04	NB Only	SB Only	07	08
Timing	G = *33.0*	G =	G =	G =	G = *25.0*	G = *17.0*	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y = *5*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*84*	*348*		*233*	*509*			*702*		*101*	*109*	
Lane Group Capacity, c	*261*	*639*		*245*	*1197*			*903*		*320*	*298*	
v/c Ratio, X	*0.32*	*0.54*		*0.95*	*0.43*			*0.78*		*0.32*	*0.37*	
Total Green Ratio, g/C	*0.37*	*0.37*		*0.37*	*0.37*			*0.28*		*0.19*	*0.19*	
Uniform Delay, d_1	*20.5*	*22.6*		*27.7*	*21.4*			*29.9*		*31.5*	*31.8*	
Progression Factor, PF	*1.000*	*1.000*		*1.000*	*1.000*			*1.000*		*1.000*	*1.000*	
Delay Calibration, k	*0.50*	*0.50*		*0.50*	*0.50*			*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2	*2.5*	*2.6*		*45.5*	*1.1*			*6.5*		*2.5*	*3.4*	

Initial Queue Delay, d_3	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Control Delay	23.0	25.1		73.3	22.5			36.5		34.0	35.2	
Lane Group LOS	C	C		E	C			D		C	D	
Approach Delay	24.7			38.4			36.5			34.6		
Approach LOS	C			D			D			C		
Intersection Delay	34.5			X_C = 0.76			Intersection LOS			C		

 HCS+™ Version 5.4 Generated: 4/16/2013 5:50 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/13/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 Miti-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*1*	*2*	*0*
Lane Group	*L*	*TR*			*LTR*		*DefL*	*TR*		*L*	*TR*	
Volume, V (vph)	*54*	*39*	*275*	*115*	*285*	*6*	*264*	*93*	*51*	*11*	*160*	*102*
% Heavy Vehicles, %HV	*8*	*8*	*8*	*3*	*3*	*3*	*4*	*4*	*4*	*8*	*8*	*8*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.87*	*0.87*	*0.87*	*0.87*	*0.87*	*0.87*	*0.76*	*0.76*	*0.76*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	
Arrival Type, AT	*3*	*3*			*3*		*3*	*3*		*3*	*3*	
Unit Extension, UE	*3.0*	*3.0*			*3.0*		*3.0*	*3.0*		*3.0*	*3.0*	
Filtering/Metering, I	*0.916*	*0.916*			*0.953*		*1.000*	*1.000*		*1.000*	*1.000*	
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*		*0.0*	*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*11.0*	*12.0*			*12.0*		*13.0*	*13.0*		*10.0*	*9.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*			*0*		*0*	*0*		*0*	*0*	
Min. Time for Pedestrians, G_p	*18.6*			*16.6*			*20.1*			*19.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *40.0*	G =	G =	G =	G = *40.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*61*	*357*			*467*		*303*	*166*		*14*	*345*	
Lane Group Capacity, c	*340*	*1293*			*1136*		*450*	*794*		*476*	*1285*	
v/c Ratio, X	*0.18*	*0.28*			*0.41*		*0.67*	*0.21*		*0.03*	*0.27*	
Total Green Ratio, g/C	*0.44*	*0.44*			*0.44*		*0.44*	*0.44*		*0.44*	*0.44*	
Uniform Delay, d_1	*15.1*	*15.8*			*17.0*		*19.8*	*15.3*		*14.1*	*15.8*	
Progression Factor, PF	*1.000*	*1.000*			*1.000*		*1.000*	*1.000*		*1.000*	*1.000*	
Delay Calibration, k	*0.50*	*0.50*			*0.50*		*0.50*	*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2	*1.1*	*0.5*			*1.0*		*7.8*	*0.6*		*0.1*	*0.5*	

Initial Queue Delay, d_3	*0.0*	*0.0*			*0.0*		*0.0*	*0.0*		*0.0*	*0.0*	
Control Delay	*16.1*	*16.3*			*18.0*		*27.6*	*15.9*		*14.2*	*16.3*	
Lane Group LOS	*B*	*B*			*B*		*C*	*B*		*B*	*B*	
Approach Delay	*16.3*			*18.0*			*23.5*			*16.2*		
Approach LOS	*B*			*B*			*C*			*B*		
Intersection Delay	*18.7*			X_C *= 0.54*			Intersection LOS			*B*		

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Vets Rd E & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/13/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 Miti-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*	*0*	*3*	*0*	*1*	*1*			*2*	*0*
Lane Group	*L*		*R*		*LTR*		*L*	*T*			*TR*	
Volume, V (vph)	*3*		*70*	*244*	*395*	*164*	*62*	*200*			*475*	*22*
% Heavy Vehicles, %HV	*3*		*3*	*3*	*3*	*3*	*7*	*7*			*7*	*7*
Peak-Hour Factor, PHF	*0.79*		*0.79*	*0.88*	*0.88*	*0.88*	*0.90*	*0.90*			*0.76*	*0.76*
Pretimed (P) or Actuated (A)	*P*		*P*	*P*	*P*	*P*	*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*		*3*		*3*	*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*		*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I	*0.974*		*0.974*		*0.725*		*0.946*	*0.946*			*0.293*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Lane Width	*10.0*		*13.0*		*11.0*		*12.0*	*12.0*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*		*0*		*0*	*7*			*2*	
Min. Time for Pedestrians, G_p	*17.2*			*16.9*			*3.2*			*20.9*		

Phasing	EB Only	WB Only	03	04	NS Perm	06	07	08
Timing	G = *8.0*	G = *17.0*	G =	G =	G = *20.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*4*		*89*		*912*		*69*	*222*			*654*	
Lane Group Capacity, c	*218*		*216*		*1314*		*186*	*575*			*1115*	
v/c Ratio, X	*0.02*		*0.41*		*0.69*		*0.37*	*0.39*			*0.59*	
Total Green Ratio, g/C	*0.13*		*0.13*		*0.28*		*0.33*	*0.33*			*0.33*	
Uniform Delay, d_1	*22.6*		*23.8*		*19.2*		*15.2*	*15.3*			*16.6*	
Progression Factor, PF	*1.000*		*1.000*		*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*		*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2	*0.2*		*5.6*		*2.2*		*5.3*	*1.9*			*0.7*	

Initial Queue Delay, d_3	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay	*22.7*		*29.4*		*21.4*		*20.5*	*17.2*			*17.2*	
Lane Group LOS	*C*		*C*		*C*		*C*	*B*			*B*	
Approach Delay	*29.1*			*21.4*			*17.9*			*17.2*		
Approach LOS	*C*			*C*			*B*			*B*		
Intersection Delay	*19.9*			X_C *= 0.60*			Intersection LOS			*B*		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Amboy Rd & Bloomingdale Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/13/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 Miti-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*1*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*		*L*	*T*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*8*	*20*	*13*	*172*	*16*	*105*	*10*	*203*	*131*	*139*	*313*	*9*
% Heavy Vehicles, %HV	*3*	*3*	*3*	*5*	*5*	*5*	*7*	*7*	*7*	*7*	*7*	*7*
Peak-Hour Factor, PHF	*0.68*	*0.68*	*0.68*	*0.88*	*0.88*	*0.88*	*0.90*	*0.90*	*0.90*	*0.76*	*0.76*	*0.76*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*		*3*	*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*		*0.966*	*0.966*	*0.966*		*0.850*			*0.090*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*50*	*0*	*0*	*0*	*0*	*0*	*50*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*		*12.0*	*11.0*	*11.0*		*11.0*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*2*		*0*	*0*	*2*		*0*			*0*	
Min. Time for Pedestrians, G_p	*11.5*			*11.8*			*18.9*			*18.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *37.0*	G =	G =	G =	G = *43.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*60*		*195*	*18*	*119*		*383*			*607*	
Lane Group Capacity, c		*597*		*504*	*719*	*531*		*748*			*594*	
v/c Ratio, X		*0.10*		*0.39*	*0.03*	*0.22*		*0.51*			*1.02*	
Total Green Ratio, g/C		*0.41*		*0.41*	*0.41*	*0.41*		*0.48*			*0.48*	
Uniform Delay, d_1		*16.3*		*18.6*	*15.8*	*17.2*		*16.2*			*23.5*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*	*0.50*		*0.50*			*0.50*	
Incremental Delay, d_2		*0.3*		*2.2*	*0.1*	*0.9*		*2.1*			*17.2*	

Initial Queue Delay, d_3		0.0		0.0	0.0	0.0		0.0			0.0	
Control Delay		16.6		20.7	15.8	18.1		18.4			40.7	
Lane Group LOS		B		C	B	B		B			D	
Approach Delay	16.6			19.5			18.4			40.7		
Approach LOS	B			B			B			D		
Intersection Delay	28.4			X_C = 0.73			Intersection LOS			C		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Arthur Kill Rd & Bloomingdl Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 Miti-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*1*	*1*		*0*		*0*			
Lane Group		*TR*		*L*	*T*			*LR*				
Volume, V (vph)		*174*	*189*	*173*	*215*		*282*		*151*			
% Heavy Vehicles, %HV		*10*	*10*	*13*	*13*		*9*		*9*			
Peak-Hour Factor, PHF		*0.92*	*0.92*	*0.89*	*0.89*		*0.94*		*0.94*			
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*		*P*			
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*			*2.0*				
Arrival Type, AT		*3*		*3*	*3*			*3*				
Unit Extension, UE		*3.0*		*3.0*	*3.0*			*3.0*				
Filtering/Metering, I		*0.964*		*0.986*	*0.986*			*0.858*				
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*44*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	
Lane Width		*16.0*		*11.0*	*11.0*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m									*5*			
Buses Stopping, N_B		*5*		*0*	*0*			*0*				
Min. Time for Pedestrians, G_p	*18.3*			*3.2*			*15.2*			*17.2*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*347*		*194*	*242*			*461*				
Lane Group Capacity, c		*900*		*377*	*813*			*529*				
v/c Ratio, X		*0.39*		*0.51*	*0.30*			*0.87*				
Total Green Ratio, g/C		*0.50*		*0.50*	*0.50*			*0.39*				
Uniform Delay, d_1		*13.9*		*15.1*	*13.2*			*25.4*				
Progression Factor, PF		*1.000*		*1.000*	*1.000*			*1.000*				
Delay Calibration, k		*0.50*		*0.50*	*0.50*			*0.50*				
Incremental Delay, d_2		*1.2*		*4.9*	*0.9*			*15.6*				
Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*			*0.0*				

Control Delay		15.1		20.0	14.1			41.0				
Lane Group LOS		B		C	B			D				
Approach Delay	15.1			16.8			41.0					
Approach LOS	B			B			D					
Intersection Delay	25.3			X_C = 0.67			Intersection LOS			C		

Weekday

Midday

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*4/15/13*
Analysis Time Period	*Weekday 12-1 MD Peak Period*

Site Information

Intersection	*Englewood Ave & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 Miti-Action Alt 2*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*310*	*29*	*28*	*324*	
Peak-Hour Factor, PHF	*1.00*	*0.85*	*0.85*	*0.91*	*0.91*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*364*	*34*	*30*	*356*	*0*
Percent Heavy Vehicles	*0*	--	--	*15*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*1*	*1*	*0*
Configuration		*T*	*R*	*L*	*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*54*		*24*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.94*	*1.00*	*0.94*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*57*	*0*	*25*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*	*L*		*R*			
v (veh/h)		*30*	*57*		*25*			
C (m) (veh/h)		*1093*	*357*		*685*			
v/c		*0.03*	*0.16*		*0.04*			
95% queue length		*0.08*	*0.56*		*0.11*			
Control Delay (s/veh)		*8.4*	*17.0*		*10.5*			
LOS		*A*	*C*		*B*			
Approach Delay (s/veh)	--	--	*15.0*					
Approach LOS	--	--	*B*					

HCS+™ Version 5.4

Generated: 4/16/2013 5:53 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 Miti-Action Conditions*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*1*	*1*	*1*	*0*
Lane Group		*LTR*			*LT*	*R*		*LT*	*R*	*L*	*TR*	
Volume, V (vph)	*1*	*17*	*6*	*255*	*24*	*490*	*1*	*161*	*287*	*241*	*200*	*1*
% Heavy Vehicles, %HV	*4*	*4*	*4*	*6*	*6*	*6*	*11*	*11*	*11*	*7*	*7*	*7*
Peak-Hour Factor, PHF	*0.84*	*0.84*	*0.84*	*0.90*	*0.90*	*0.90*	*0.92*	*0.92*	*0.92*	*0.86*	*0.86*	*0.86*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	
Arrival Type, AT		*3*			*3*	*3*		*3*	*3*	*3*	*3*	
Unit Extension, UE		*3.0*			*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	
Filtering/Metering, I		*1.000*			*0.887*	*0.887*		*0.931*	*0.931*	*1.000*	*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*	*0.0*		*0.0*	*0.0*	*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*15.5*			*11.0*	*10.0*		*12.0*	*12.0*	*10.0*	*11.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*			*0*	*0*		*3*	*0*	*0*	*4*	
Min. Time for Pedestrians, G_p	*11.5*			*13.5*			*15.2*			*12.1*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *28.0*	G =	G =	G =	G = *22.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*28*			*310*	*544*		*176*	*312*	*280*	*234*	
Lane Group Capacity, c		*799*			*586*	*581*		*619*	*534*	*393*	*619*	
v/c Ratio, X		*0.04*			*0.53*	*0.94*		*0.28*	*0.58*	*0.71*	*0.38*	
Total Green Ratio, g/C		*0.47*			*0.47*	*0.47*		*0.37*	*0.37*	*0.37*	*0.37*	
Uniform Delay, d_1		*8.7*			*11.3*	*15.2*		*13.4*	*15.3*	*16.3*	*14.0*	
Progression Factor, PF		*1.000*			*1.000*	*1.000*		*1.000*	*1.000*	*1.000*	*1.000*	
Delay Calibration, k		*0.50*			*0.50*	*0.50*		*0.50*	*0.50*	*0.50*	*0.50*	
Incremental Delay, d_2		*0.1*			*3.0*	*22.6*		*1.1*	*4.3*	*10.5*	*1.8*	

Initial Queue Delay, d_3		0.0			0.0	0.0		0.0	0.0	0.0	0.0	
Control Delay		8.8			14.3	37.7		14.5	19.6	26.8	15.7	
Lane Group LOS		A			B	D		B	B	C	B	
Approach Delay	8.8			29.3			17.8			21.8		
Approach LOS	A			C			B			C		
Intersection Delay	23.9			X_C = 0.84			Intersection LOS			C		

 HCS+™ Version 5.4 Generated: 4/16/2013 5:53 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Rch Valley Rd & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 Miti-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*	*0*	*1*	*1*	
Lane Group					*LR*			*TR*		*L*	*T*	
Volume, V (vph)				*102*		*201*		*473*	*80*	*188*	*467*	
% Heavy Vehicles, %HV				*3*		*3*		*8*	*8*	*6*	*6*	
Peak-Hour Factor, PHF				*0.87*		*0.87*		*0.92*	*0.92*	*0.86*	*0.86*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*	*P*	*P*	*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*		*2.0*	*2.0*	
Arrival Type, AT					*3*			*3*		*3*	*3*	
Unit Extension, UE					*3.0*			*3.0*		*3.0*	*3.0*	
Filtering/Metering, I					*0.944*			*0.880*		*0.500*	*0.500*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width					*12.0*			*15.0*		*10.0*	*10.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B					*0*			*4*		*0*	*4*	
Min. Time for Pedestrians, G_p	*11.8*			*11.8*			*14.1*			*3.2*		

Phasing	WB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*348*			*601*		*219*	*543*	
Lane Group Capacity, c					*385*			*1058*		*332*	*933*	
v/c Ratio, X					*0.90*			*0.57*		*0.66*	*0.58*	
Total Green Ratio, g/C					*0.27*			*0.57*		*0.57*	*0.57*	
Uniform Delay, d_1					*21.3*			*8.3*		*9.0*	*8.4*	
Progression Factor, PF					*1.000*			*1.000*		*1.000*	*1.000*	
Delay Calibration, k					*0.50*			*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2					*25.9*			*1.9*		*5.1*	*1.3*	
Initial Queue Delay, d_3					*0.0*			*0.0*		*0.0*	*0.0*	

Control Delay					47.2			10.3		14.1	9.7	
Lane Group LOS					D			B		B	A	
Approach Delay				47.2			10.3			11.0		
Approach LOS				D			B			B		
Intersection Delay	18.1			X_c = 0.74			Intersection LOS			B		

 HCS+™ Version 5.4 Generated: 4/16/2013 5:53 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/13/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 Miti-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*1*	*2*	*0*
Lane Group	*L*	*TR*		*DefL*	*TR*		*DefL*	*TR*		*L*	*TR*	
Volume, V (vph)	*62*	*140*	*509*	*134*	*316*	*18*	*281*	*201*	*88*	*23*	*528*	*226*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*3*	*3*	*3*	*3*	*3*	*3*	*12*	*12*	*12*
Peak-Hour Factor, PHF	*0.84*	*0.84*	*0.84*	*0.90*	*0.90*	*0.90*	*0.87*	*0.87*	*0.87*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*		*2.0*	*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e	*2.0*	*2.0*		*2.0*	*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	
Arrival Type, AT	*3*	*3*		*3*	*3*		*3*	*3*		*3*	*3*	
Unit Extension, UE	*3.0*	*3.0*		*3.0*	*3.0*		*3.0*	*3.0*		*3.0*	*3.0*	
Filtering/Metering, I	*0.889*	*0.889*		*0.932*	*0.932*		*1.000*	*1.000*		*1.000*	*1.000*	
Initial Unmet Demand, Q_b	*0.0*	*0.0*		*0.0*	*0.0*		*0.0*	*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*11.0*	*12.0*		*12.0*	*12.0*		*13.0*	*13.0*		*10.0*	*9.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*		*0*	*0*		*0*	*0*		*0*	*0*	
Min. Time for Pedestrians, G_p	*18.6*			*16.6*			*20.1*			*19.8*		

Phasing	EW Perm	02	03	04	NS Perm	NB Only	07	08
Timing	G = *40.0*	G =	G =	G =	G = *30.0*	G = *7.0*	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *3*	Y = *5*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*74*	*773*		*149*	*371*		*323*	*332*		*26*	*838*	
Lane Group Capacity, c	*424*	*1391*		*224*	*813*		*338*	*808*		*275*	*943*	
v/c Ratio, X	*0.17*	*0.56*		*0.67*	*0.46*		*0.96*	*0.41*		*0.09*	*0.89*	
Total Green Ratio, g/C	*0.44*	*0.44*		*0.44*	*0.44*		*0.44*	*0.44*		*0.33*	*0.33*	
Uniform Delay, d_1	*15.1*	*18.4*		*19.7*	*17.4*		*34.9*	*17.0*		*20.7*	*28.4*	
Progression Factor, PF	*1.000*	*1.000*		*1.000*	*1.000*		*1.000*	*1.000*		*1.000*	*1.000*	
Delay Calibration, k	*0.50*	*0.50*		*0.50*	*0.50*		*0.50*	*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2	*0.8*	*1.4*		*13.6*	*1.7*		*38.9*	*1.5*		*0.7*	*12.2*	

Initial Queue Delay, d_3	*0.0*	*0.0*		*0.0*	*0.0*		*0.0*	*0.0*		*0.0*	*0.0*	
Control Delay	*15.9*	*19.9*		*33.4*	*19.1*		*73.8*	*18.5*		*21.3*	*40.7*	
Lane Group LOS	*B*	*B*		*C*	*B*		*E*	*B*		*C*	*D*	
Approach Delay	*19.5*			*23.2*			*45.8*			*40.1*		
Approach LOS	*B*			*C*			*D*			*D*		
Intersection Delay	*32.3*			X_C = *0.95*			Intersection LOS			*C*		

 HCS+™ Version 5.4 Generated: 4/16/2013 5:54 PM

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Boscombe Ave & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/13/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Hour*	Analysis Year	*2020 Miti-Action Alt*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*1*	*1*
Lane Group	*DefL*	*TR*			*LTR*		*DefL*	*TR*			*LT*	*R*
Volume, V (vph)	*504*	*38*	*0*	*2*	*65*	*71*	*4*	*3*	*0*	*65*	*6*	*1120*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*3*	*3*	*3*	*1*	*1*	*1*	*6*	*6*	*6*
Peak-Hour Factor, PHF	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*	*0.58*	*0.58*	*0.58*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*		*2.0*	*2.0*			*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*		*3*	*3*			*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*		*3.0*	*3.0*			*3.0*	*3.0*
Filtering/Metering, I	*0.962*	*0.962*			*1.000*		*1.000*	*1.000*			*0.889*	*0.889*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*17*	*0*	*0*	*0*	*0*	*0*	*310*
Lane Width	*16.0*	*16.0*			*11.5*		*12.0*	*12.0*			*12.0*	*12.0*
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*			*0*		*0*	*0*			*0*	*0*
Min. Time for Pedestrians, G_p	*20.3*			*17.5*			*20.3*			*20.3*		

Phasing	EW Perm	EB Only	03	04	NS Perm	06	07	08
Timing	G = *28.0*	G = *12.0*	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*554*	*42*			*132*		*7*	*5*			*79*	*900*
Lane Group Capacity, c	*818*	*1056*			*955*		*516*	*732*			*538*	*881*
v/c Ratio, X	*0.68*	*0.04*			*0.14*		*0.01*	*0.01*			*0.15*	*1.02*
Total Green Ratio, g/C	*0.50*	*0.50*			*0.31*		*0.39*	*0.39*			*0.39*	*0.58*
Uniform Delay, d_1	*18.5*	*11.5*			*22.3*		*16.9*	*16.9*			*17.8*	*19.0*
Progression Factor, PF	*1.000*	*1.000*			*1.000*		*1.000*	*1.000*			*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*		*0.50*	*0.50*			*0.50*	*0.50*
Incremental Delay, d_2	*4.3*	*0.1*			*0.3*		*0.0*	*0.0*			*0.5*	*34.2*

Initial Queue Delay, d_3	*0.0*	*0.0*			*0.0*		*0.0*	*0.0*			*0.0*	*0.0*
Control Delay	*22.8*	*11.5*			*22.6*		*16.9*	*16.9*			*18.3*	*53.2*
Lane Group LOS	*C*	*B*			*C*		*B*	*B*			*B*	*D*
Approach Delay	*22.0*				*22.6*			*16.9*			*50.3*	
Approach LOS	*C*				*C*			*B*			*D*	
Intersection Delay	*38.2*				X_C *= 1.01*			Intersection LOS			*D*	

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Vets Rd E & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/13/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 Miti-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*	*0*	*3*	*0*	*1*	*1*			*2*	*0*
Lane Group	*L*		*R*		*LTR*		*L*	*T*			*TR*	
Volume, V (vph)	*10*		*148*	*231*	*471*	*127*	*112*	*171*			*354*	*32*
% Heavy Vehicles, %HV	*1*		*1*	*2*	*2*	*2*	*6*	*6*			*2*	*2*
Peak-Hour Factor, PHF	*0.77*		*0.77*	*0.87*	*0.87*	*0.87*	*0.89*	*0.89*			*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*		*P*	*P*	*P*	*P*	*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*		*3*		*3*	*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*		*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I	*0.830*		*0.830*		*0.725*		*0.937*	*0.937*			*0.817*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Lane Width	*10.0*		*13.0*		*11.0*		*12.0*	*12.0*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*		*0*		*0*	*2*			*2*	
Min. Time for Pedestrians, G_p	*17.2*			*16.9*			*3.2*			*20.9*		

Phasing	EB Only	WB Only	03	04	NS Perm	06	07	08
Timing	G = *9.0*	G = *17.0*	G =	G =	G = *19.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*13*		*192*		*953*		*126*	*192*			*429*	
Lane Group Capacity, c	*250*		*248*		*1339*		*272*	*563*			*1105*	
v/c Ratio, X	*0.05*		*0.77*		*0.71*		*0.46*	*0.34*			*0.39*	
Total Green Ratio, g/C	*0.15*		*0.15*		*0.28*		*0.32*	*0.32*			*0.32*	
Uniform Delay, d_1	*21.8*		*24.5*		*19.3*		*16.4*	*15.7*			*16.0*	
Progression Factor, PF	*1.000*		*1.000*		*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*		*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2	*0.3*		*17.6*		*2.4*		*5.2*	*1.5*			*0.8*	

Initial Queue Delay, d_3	0.0		0.0		0.0		0.0	0.0			0.0	
Control Delay	22.2		42.1		21.7		21.7	17.2			16.8	
Lane Group LOS	C		D		C		C	B			B	
Approach Delay	40.9			21.7			19.0			16.8		
Approach LOS	D			C			B			B		
Intersection Delay	22.2			X_C = 0.62			Intersection LOS			C		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Arthur Kill Rd & Bloomingdl Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 Miti-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*1*	*1*		*0*		*0*			
Lane Group		*TR*		*L*	*T*			*LR*				
Volume, V (vph)		*198*	*189*	*189*	*226*		*196*		*174*			
% Heavy Vehicles, %HV		*8*	*8*	*16*	*16*		*2*		*2*			
Peak-Hour Factor, PHF		*0.90*	*0.90*	*0.91*	*0.91*		*0.88*		*0.88*			
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*		*P*			
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*			*2.0*				
Arrival Type, AT		*3*		*3*	*3*			*3*				
Unit Extension, UE		*3.0*		*3.0*	*3.0*			*3.0*				
Filtering/Metering, I		*0.961*		*0.989*	*0.989*			*0.922*				
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*44*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	
Lane Width		*16.0*		*11.0*	*11.0*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m									*5*			
Buses Stopping, N_B		*5*		*0*	*0*			*0*				
Min. Time for Pedestrians, G_p	*18.3*			*3.2*			*15.2*			*17.2*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *45.0*	G =	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*381*		*208*	*248*			*421*				
Lane Group Capacity, c		*921*		*347*	*792*			*559*				
v/c Ratio, X		*0.41*		*0.60*	*0.31*			*0.75*				
Total Green Ratio, g/C		*0.50*		*0.50*	*0.50*			*0.39*				
Uniform Delay, d_1		*14.2*		*16.1*	*13.3*			*23.8*				
Progression Factor, PF		*1.000*		*1.000*	*1.000*			*1.000*				
Delay Calibration, k		*0.50*		*0.50*	*0.50*			*0.50*				
Incremental Delay, d_2		*1.3*		*7.4*	*1.0*			*8.4*				
Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*			*0.0*				

Control Delay		*15.5*		*23.4*	*14.4*			*32.2*				
Lane Group LOS		*B*		*C*	*B*			*C*				
Approach Delay	*15.5*			*18.5*			*32.2*					
Approach LOS	*B*			*B*			*C*					
Intersection Delay	*22.2*			X_C = *0.67*			Intersection LOS			*C*		

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Weekday

PM

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*4/15/13*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*Englewood Ave & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 Miti-Action Alt 2*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*338*	*53*	*43*	*342*	
Peak-Hour Factor, PHF	*1.00*	*0.87*	*0.87*	*0.81*	*0.81*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*388*	*60*	*53*	*422*	*0*
Percent Heavy Vehicles	*0*	--	--	*7*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*1*	*1*	*0*
Configuration		*T*	*R*	*L*	*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*55*		*49*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.68*	*1.00*	*0.68*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*80*	*0*	*72*
Percent Heavy Vehicles	*0*	*0*	*0*	*7*	*0*	*7*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*	*L*		*R*			
v (veh/h)		*53*	*80*		*72*			
C (m) (veh/h)		*1086*	*282*		*649*			
v/c		*0.05*	*0.28*		*0.11*			
95% queue length		*0.15*	*1.14*		*0.37*			
Control Delay (s/veh)		*8.5*	*22.7*		*11.2*			
LOS		*A*	*C*		*B*			
Approach Delay (s/veh)	--	--	*17.3*					
Approach LOS	--	--	*C*					

HCS+™ Version 5.4

Generated: 4/16/2013 5:56 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 Miti-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*1*	*1*	*1*	*0*
Lane Group		*LTR*			*LT*	*R*		*LT*	*R*	*L*	*TR*	
Volume, V (vph)	*1*	*11*	*2*	*301*	*20*	*380*	*4*	*167*	*349*	*300*	*279*	*1*
% Heavy Vehicles, %HV	*3*	*3*	*3*	*5*	*5*	*5*	*5*	*5*	*5*	*7*	*7*	*7*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.82*	*0.82*	*0.82*	*0.93*	*0.93*	*0.93*	*0.86*	*0.86*	*0.86*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	
Arrival Type, AT		*3*			*3*	*3*		*3*	*3*	*3*	*3*	
Unit Extension, UE		*3.0*			*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	
Filtering/Metering, I		*1.000*			*0.933*	*0.933*		*0.919*	*0.919*	*1.000*	*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*	*0.0*		*0.0*	*0.0*	*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*15.5*			*11.0*	*10.0*		*12.0*	*12.0*	*10.0*	*11.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*			*0*	*0*		*3*	*0*	*0*	*2*	
Min. Time for Pedestrians, G_p	*11.5*			*13.5*			*15.2*			*12.1*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*16*			*391*	*463*		*184*	*375*	*349*	*325*	
Lane Group Capacity, c		*727*			*530*	*523*		*740*	*641*	*443*	*709*	
v/c Ratio, X		*0.02*			*0.74*	*0.89*		*0.25*	*0.59*	*0.79*	*0.46*	
Total Green Ratio, g/C		*0.42*			*0.42*	*0.42*		*0.42*	*0.42*	*0.42*	*0.42*	
Uniform Delay, d_1		*10.3*			*14.7*	*16.2*		*11.4*	*13.5*	*15.2*	*12.6*	
Progression Factor, PF		*1.000*			*1.000*	*1.000*		*1.000*	*1.000*	*1.000*	*1.000*	
Delay Calibration, k		*0.50*			*0.50*	*0.50*		*0.50*	*0.50*	*0.50*	*0.50*	
Incremental Delay, d_2		*0.1*			*8.3*	*18.3*		*0.7*	*3.6*	*13.2*	*2.1*	

Initial Queue Delay, d_3		0.0			0.0	0.0		0.0	0.0	0.0	0.0	
Control Delay		10.4			23.1	34.5		12.1	17.1	28.4	14.7	
Lane Group LOS		B			C	C		B	B	C	B	
Approach Delay	10.4			29.2			15.4			21.8		
Approach LOS	B			C			B			C		
Intersection Delay	23.1			X_C = 0.84			Intersection LOS			C		

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HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Rch Valley Rd & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 Miti-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*	*0*	*1*	*1*	
Lane Group					*LR*			*TR*		*L*	*T*	
Volume, V (vph)				*135*		*180*		*588*	*106*	*149*	*747*	
% Heavy Vehicles, %HV				*1*		*1*		*4*	*4*	*6*	*6*	
Peak-Hour Factor, PHF				*0.84*		*0.84*		*0.93*	*0.93*	*0.86*	*0.86*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*	*P*	*P*	*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*		*2.0*	*2.0*	
Arrival Type, AT					*3*			*3*		*3*	*3*	
Unit Extension, UE					*3.0*			*3.0*		*3.0*	*3.0*	
Filtering/Metering, I					*0.901*			*0.798*		*0.114*	*0.114*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width					*12.0*			*15.0*		*10.0*	*10.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B					*0*			*4*		*0*	*2*	
Min. Time for Pedestrians, G_p	*11.8*			*11.8*			*14.1*			*3.2*		

Phasing	WB Only	02	03	04	NS Perm	06	07	08
Timing	G = *17.0*	G =	G =	G =	G = *33.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*375*			*746*		*173*	*869*	
Lane Group Capacity, c					*421*			*1065*		*251*	*913*	
v/c Ratio, X					*0.89*			*0.70*		*0.69*	*0.95*	
Total Green Ratio, g/C					*0.28*			*0.55*		*0.55*	*0.55*	
Uniform Delay, d_1					*20.6*			*9.9*		*9.8*	*12.7*	
Progression Factor, PF					*1.000*			*1.000*		*1.000*	*1.000*	
Delay Calibration, k					*0.50*			*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2					*21.8*			*3.1*		*1.8*	*3.8*	
Initial Queue Delay, d_3					*0.0*			*0.0*		*0.0*	*0.0*	

Control Delay					42.4			13.0		11.6	16.5	
Lane Group LOS					D			B		B	B	
Approach Delay				42.4			13.0			15.7		
Approach LOS				D			B			B		
Intersection Delay	19.4			X_c = 0.93			Intersection LOS			B		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/13/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 Miti-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*1*	*2*	*0*
Lane Group	*L*	*TR*		*DefL*	*TR*		*DefL*	*TR*		*L*	*TR*	
Volume, V (vph)	*53*	*154*	*557*	*123*	*334*	*10*	*271*	*145*	*124*	*22*	*534*	*124*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*2*	*2*	*2*	*1*	*1*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.82*	*0.82*	*0.82*	*0.93*	*0.93*	*0.93*	*0.94*	*0.94*	*0.94*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*		*2.0*	*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e	*2.0*	*2.0*		*2.0*	*2.0*		*2.0*	*2.0*		*2.0*	*2.0*	
Arrival Type, AT	*3*	*3*		*3*	*3*		*3*	*3*		*3*	*3*	
Unit Extension, UE	*3.0*	*3.0*		*3.0*	*3.0*		*3.0*	*3.0*		*3.0*	*3.0*	
Filtering/Metering, I	*0.884*	*0.884*		*0.927*	*0.927*		*1.000*	*1.000*		*1.000*	*1.000*	
Initial Unmet Demand, Q_b	*0.0*	*0.0*		*0.0*	*0.0*		*0.0*	*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*10.0*	*12.0*		*12.0*	*12.0*		*13.0*	*13.0*		*10.0*	*9.5*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*		*0*	*0*		*0*	*0*		*0*	*0*	
Min. Time for Pedestrians, G_p	*18.6*			*16.6*			*20.1*			*19.8*		

Phasing	EW Perm	02	03	04	NS Perm	NB Only	07	08
Timing	G = *40.0*	G =	G =	G =	G = *23.0*	G = *14.0*	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *3*	Y = *5*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*60*	*808*		*150*	*419*		*291*	*289*		*23*	*700*	
Lane Group Capacity, c	*384*	*1391*		*212*	*824*		*476*	*804*		*244*	*807*	
v/c Ratio, X	*0.16*	*0.58*		*0.71*	*0.51*		*0.61*	*0.36*		*0.09*	*0.87*	
Total Green Ratio, g/C	*0.44*	*0.44*		*0.44*	*0.44*		*0.44*	*0.44*		*0.26*	*0.26*	
Uniform Delay, d_1	*14.9*	*18.7*		*20.3*	*17.9*		*28.7*	*16.5*		*25.6*	*32.0*	
Progression Factor, PF	*1.000*	*1.000*		*1.000*	*1.000*		*1.000*	*1.000*		*1.000*	*1.000*	
Delay Calibration, k	*0.50*	*0.50*		*0.50*	*0.50*		*0.50*	*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2	*0.8*	*1.6*		*16.9*	*2.1*		*5.8*	*1.3*		*0.8*	*12.1*	

Initial Queue Delay, d_3	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay	15.7	20.3		37.1	20.0		34.5	17.8		26.3	44.2	
Lane Group LOS	B	C		D	C		C	B		C	D	
Approach Delay	20.0			24.5			26.2			43.6		
Approach LOS	B			C			C			D		
Intersection Delay	28.5			X_C = 0.85			Intersection LOS			C		

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HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Boscombe Ave & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/13/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Hour*	Analysis Year	*2020 Miti-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*1*	*1*
Lane Group	*DefL*	*TR*			*LTR*			*LTR*			*LT*	*R*
Volume, V (vph)	*499*	*37*	*0*	*1*	*37*	*43*	*3*	*3*	*2*	*62*	*1*	*1176*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.95*	*0.95*	*0.95*	*0.50*	*0.50*	*0.50*	*0.94*	*0.94*	*0.94*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*			*2.0*			*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*			*2.0*			*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*			*3*			*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*			*3.0*			*3.0*	*3.0*
Filtering/Metering, I	*0.952*	*0.952*			*1.000*			*1.000*			*0.937*	*0.937*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*			*0.0*			*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*10*	*0*	*0*	*0*	*0*	*0*	*294*
Lane Width	*16.0*	*16.0*			*11.5*			*12.0*			*12.0*	*12.0*
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*			*0*			*0*			*0*	*0*
Min. Time for Pedestrians, G_p	*20.3*			*17.5*			*20.3*			*20.3*		

Phasing	EW Perm	EB Only	03	04	NS Perm	06	07	08
Timing	G = *29.0*	G = *11.0*	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*554*	*41*			*75*			*16*			*67*	*938*
Lane Group Capacity, c	*845*	*1066*			*1007*			*1220*			*548*	*897*
v/c Ratio, X	*0.66*	*0.04*			*0.07*			*0.01*			*0.12*	*1.05*
Total Green Ratio, g/C	*0.50*	*0.50*			*0.32*			*0.39*			*0.39*	*0.57*
Uniform Delay, d_1	*17.8*	*11.5*			*21.2*			*16.9*			*17.6*	*19.5*
Progression Factor, PF	*1.000*	*1.000*			*1.000*			*1.000*			*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*			*0.50*			*0.50*	*0.50*
Incremental Delay, d_2	*3.8*	*0.1*			*0.1*			*0.0*			*0.4*	*41.8*

Initial Queue Delay, d_3	*0.0*	*0.0*			*0.0*			*0.0*			*0.0*	*0.0*
Control Delay	*21.6*	*11.5*			*21.3*			*16.9*			*18.1*	*61.3*
Lane Group LOS	*C*	*B*			*C*			*B*			*B*	*E*
Approach Delay	*20.9*				*21.3*			*16.9*			*58.4*	
Approach LOS	*C*				*C*			*B*			*E*	
Intersection Delay	*43.1*				X_C = *1.03*			Intersection LOS			*D*	

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Vets Rd E & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/13/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 Miti-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*	*0*	*3*	*0*	*1*	*1*			*2*	*0*
Lane Group	*L*		*R*		*LTR*		*L*	*T*			*TR*	
Volume, V (vph)	*4*		*162*	*284*	*466*	*276*	*99*	*207*			*501*	*5*
% Heavy Vehicles, %HV	*1*		*1*	*1*	*1*	*1*	*2*	*2*			*4*	*4*
Peak-Hour Factor, PHF	*0.95*		*0.95*	*0.88*	*0.88*	*0.88*	*0.92*	*0.92*			*0.87*	*0.87*
Pretimed (P) or Actuated (A)	*P*		*P*	*P*	*P*	*P*	*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*		*3*		*3*	*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*		*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I	*0.848*		*0.848*		*0.500*		*0.930*	*0.930*			*0.865*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Lane Width	*10.0*		*13.0*		*11.0*		*12.0*	*12.0*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*		*0*		*0*	*2*			*7*	
Min. Time for Pedestrians, G_p	*17.2*			*16.9*			*3.2*			*20.9*		

Phasing	EB Only	WB Only	03	04	NS Perm	06	07	08
Timing	G = *9.0*	G = *17.0*	G =	G =	G = *19.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*4*		*171*		*1167*		*108*	*225*			*582*	
Lane Group Capacity, c	*250*		*248*		*1329*		*210*	*585*			*1084*	
v/c Ratio, X	*0.02*		*0.69*		*0.88*		*0.51*	*0.38*			*0.54*	
Total Green Ratio, g/C	*0.15*		*0.15*		*0.28*		*0.32*	*0.32*			*0.32*	
Uniform Delay, d_1	*21.7*		*24.2*		*20.5*		*16.7*	*16.0*			*16.9*	
Progression Factor, PF	*1.000*		*1.000*		*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*		*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2	*0.1*		*12.5*		*4.5*		*8.1*	*1.8*			*1.7*	

Initial Queue Delay, d_3	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Control Delay	*21.8*		*36.7*		*25.0*		*24.9*	*17.7*			*18.5*	
Lane Group LOS	*C*		*D*		*C*		*C*	*B*			*B*	
Approach Delay	*36.4*				*25.0*			*20.0*			*18.5*	
Approach LOS	*D*				*C*			*C*			*B*	
Intersection Delay	*23.5*				X_C *= 0.70*			Intersection LOS			*C*	

 HCS+™ Version 5.4 Generated: 4/16/2013 5:59 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Amboy Rd & Bloomingdale Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/13/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 Miti-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*1*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*		*L*	*T*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*6*	*13*	*20*	*267*	*29*	*110*	*18*	*315*	*175*	*94*	*452*	*10*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*3*	*3*	*3*	*1*	*1*	*1*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.70*	*0.70*	*0.70*	*0.87*	*0.87*	*0.87*	*0.92*	*0.92*	*0.92*	*0.87*	*0.87*	*0.87*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*		*3*	*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*		*0.905*	*0.905*	*0.905*		*0.663*			*0.229*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*50*	*0*	*0*	*0*	*0*	*0*	*50*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*		*12.0*	*11.0*	*11.0*		*11.0*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*2*		*0*	*0*	*2*		*0*			*0*	
Min. Time for Pedestrians, G_p	*11.5*			*11.8*			*18.9*			*18.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *39.0*	G =	G =	G =	G = *41.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*57*		*307*	*33*	*126*		*552*			*639*	
Lane Group Capacity, c		*618*		*545*	*773*	*570*		*751*			*646*	
v/c Ratio, X		*0.09*		*0.56*	*0.04*	*0.22*		*0.74*			*0.99*	
Total Green Ratio, g/C		*0.43*		*0.43*	*0.43*	*0.43*		*0.46*			*0.46*	
Uniform Delay, d_1		*15.1*		*19.1*	*14.7*	*16.0*		*20.1*			*24.3*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*	*0.50*		*0.50*			*0.50*	
Incremental Delay, d_2		*0.3*		*3.8*	*0.1*	*0.8*		*4.3*			*14.6*	

Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Control Delay		*15.3*		*22.9*	*14.8*	*16.8*		*24.3*			*38.9*	
Lane Group LOS		*B*		*C*	*B*	*B*		*C*			*D*	
Approach Delay	*15.3*			*20.7*			*24.3*			*38.9*		
Approach LOS	*B*			*C*			*C*			*D*		
Intersection Delay	*28.5*			X_C *= 0.78*			Intersection LOS			*C*		

 HCS+™ Version 5.4 Generated: 4/16/2013 5:59 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Arthur Kill Rd & Bloomingdl Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 Miti-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*1*	*1*		*0*		*0*			
Lane Group		*TR*		*L*	*T*			*LR*				
Volume, V (vph)		*203*	*253*	*208*	*224*		*158*		*200*			
% Heavy Vehicles, %HV		*5*	*5*	*8*	*8*		*1*		*1*			
Peak-Hour Factor, PHF		*0.82*	*0.82*	*0.83*	*0.83*		*0.67*		*0.67*			
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*		*P*			
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*			*2.0*				
Arrival Type, AT		*3*		*3*	*3*			*3*				
Unit Extension, UE		*3.0*		*3.0*	*3.0*			*3.0*				
Filtering/Metering, I		*0.927*		*0.989*	*0.989*			*0.917*				
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*59*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	
Lane Width		*16.0*		*11.0*	*11.0*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m									*5*			
Buses Stopping, N_B		*5*		*0*	*0*			*0*				
Min. Time for Pedestrians, G_p	*18.3*			*3.2*			*15.2*			*17.2*		

Phasing	EW Perm	WB Only	03	04	NB Only	06	07	08
Timing	G = *30.0*	G = *10.0*	G =	G =	G = *37.0*	G =	G =	G =
	Y = *3*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*485*		*251*	*270*			*535*				
Lane Group Capacity, c		*626*		*374*	*813*			*592*				
v/c Ratio, X		*0.77*		*0.67*	*0.33*			*0.90*				
Total Green Ratio, g/C		*0.33*		*0.48*	*0.48*			*0.41*				
Uniform Delay, d_1		*27.0*		*30.3*	*14.6*			*24.8*				
Progression Factor, PF		*1.000*		*1.000*	*1.000*			*1.000*				
Delay Calibration, k		*0.50*		*0.50*	*0.50*			*0.50*				
Incremental Delay, d_2		*8.5*		*9.1*	*1.1*			*18.4*				
Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*			*0.0*				

Control Delay		35.4		39.4	15.7			43.2				
Lane Group LOS		D		D	B			D				
Approach Delay	35.4			27.1			43.2					
Approach LOS	D			C			D					
Intersection Delay	35.3			X_C = 0.87			Intersection LOS			D		

 HCS+™ Version 5.4 Generated: 4/16/2013 5:59 PM

Saturday

Midday

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*4/15/13*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*Englewood Ave & Arthur Kill Rd*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 Miti-Action Alt 2*

Project Description *Charleston EIS*

East/West Street: *Englewood Avenue* | North/South Street: *Arthur Kill Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*321*	*33*	*33*	*387*	
Peak-Hour Factor, PHF	*1.00*	*0.92*	*0.92*	*0.88*	*0.88*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*348*	*35*	*37*	*439*	*0*
Percent Heavy Vehicles	*0*	--	--	*5*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*1*	*1*	*1*	*0*
Configuration		*T*	*R*	*L*	*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*30*		*36*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.75*	*1.00*	*0.75*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*40*	*0*	*48*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*1*
Configuration				*L*		*R*

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*	*L*		*R*			
v (veh/h)		*37*	*40*		*48*			
C (m) (veh/h)		*1159*	*315*		*693*			
v/c		*0.03*	*0.13*		*0.07*			
95% queue length		*0.10*	*0.43*		*0.22*			
Control Delay (s/veh)		*8.2*	*18.1*		*10.6*			
LOS		*A*	*C*		*B*			
Approach Delay (s/veh)	--	--	*14.0*					
Approach LOS	--	--	*B*					

HCS+™ Version 5.4

Generated: 4/16/2013 6:00 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/11/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 Miti-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*1*	*1*	*1*	*0*
Lane Group		*LTR*			*LT*	*R*		*LT*	*R*	*L*	*TR*	
Volume, V (vph)	*0*	*10*	*5*	*356*	*27*	*538*	*5*	*193*	*426*	*306*	*243*	*0*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*2*	*2*	*2*	*5*	*5*	*5*	*3*	*3*	*3*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	
Arrival Type, AT		*3*			*3*	*3*		*3*	*3*	*3*	*3*	
Unit Extension, UE		*3.0*			*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	
Filtering/Metering, I		*1.000*			*0.849*	*0.849*		*0.861*	*0.861*	*1.000*	*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*	*0.0*		*0.0*	*0.0*	*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*15.5*			*11.0*	*10.0*		*12.0*	*12.0*	*10.0*	*11.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*			*0*	*0*		*2*	*0*	*0*	*2*	
Min. Time for Pedestrians, G_p	*11.5*			*13.5*			*15.2*			*12.1*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *28.0*	G =	G =	G =	G = *22.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*16*			*416*	*585*		*217*	*468*	*336*	*267*	
Lane Group Capacity, c		*813*			*613*	*603*		*654*	*564*	*389*	*649*	
v/c Ratio, X		*0.02*			*0.68*	*0.97*		*0.33*	*0.83*	*0.86*	*0.41*	
Total Green Ratio, g/C		*0.47*			*0.47*	*0.47*		*0.37*	*0.37*	*0.37*	*0.37*	
Uniform Delay, d_1		*8.6*			*12.5*	*15.6*		*13.7*	*17.3*	*17.6*	*14.2*	
Progression Factor, PF		*1.000*			*1.000*	*1.000*		*1.000*	*1.000*	*1.000*	*1.000*	
Delay Calibration, k		*0.50*			*0.50*	*0.50*		*0.50*	*0.50*	*0.50*	*0.50*	
Incremental Delay, d_2		*0.0*			*5.1*	*27.2*		*1.2*	*11.6*	*21.7*	*1.9*	

Initial Queue Delay, d_3		0.0			0.0	0.0		0.0	0.0	0.0	0.0	
Control Delay		8.7			17.6	42.8		14.9	28.9	39.3	16.1	
Lane Group LOS		A			B	D		B	C	D	B	
Approach Delay	8.7			32.3			24.5			29.0		
Approach LOS	A			C			C			C		
Intersection Delay	29.0			X_C = 0.92			Intersection LOS			C		

 HCS+™ Version 5.4 Generated: 4/16/2013 6:01 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Rch Valley Rd & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:15-1:45 PM Peak Pd*	Analysis Year	*2020 Miti-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1				*0*		*0*		*1*	*0*	*1*	*1*	
Lane Group					*LR*			*TR*		*L*	*T*	
Volume, V (vph)				*108*		*222*		*645*	*94*	*157*	*735*	
% Heavy Vehicles, %HV				*1*		*1*		*2*	*2*	*2*	*2*	
Peak-Hour Factor, PHF				*0.89*		*0.89*		*0.91*	*0.91*	*0.91*	*0.91*	
Pretimed (P) or Actuated (A)				*P*		*P*		*P*	*P*	*P*	*P*	
Start-up Lost Time, l_1					*2.0*			*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e					*2.0*			*2.0*		*2.0*	*2.0*	
Arrival Type, AT					*3*			*3*		*3*	*3*	
Unit Extension, UE					*3.0*			*3.0*		*3.0*	*3.0*	
Filtering/Metering, I					*0.940*			*0.789*		*0.272*	*0.272*	
Initial Unmet Demand, Q_b					*0.0*			*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width					*12.0*			*15.0*		*10.0*	*10.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B					*0*			*2*		*0*	*2*	
Min. Time for Pedestrians, G_p	*11.8*			*11.8*			*14.1*			*3.2*		

Phasing	WB Only	02	03	04	NS Perm	06	07	08
Timing	G = *16.0*	G =	G =	G =	G = *34.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v					*370*			*812*		*173*	*808*	
Lane Group Capacity, c					*393*			*1132*		*252*	*977*	
v/c Ratio, X					*0.94*			*0.72*		*0.69*	*0.83*	
Total Green Ratio, g/C					*0.27*			*0.57*		*0.57*	*0.57*	
Uniform Delay, d_1					*21.5*			*9.5*		*9.2*	*10.6*	
Progression Factor, PF					*1.000*			*1.000*		*1.000*	*1.000*	
Delay Calibration, k					*0.50*			*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2					*31.5*			*3.1*		*4.1*	*2.3*	
Initial Queue Delay, d_3					*0.0*			*0.0*		*0.0*	*0.0*	

Control Delay					53.1			12.6		13.4	12.9	
Lane Group LOS					D			B		B	B	
Approach Delay				53.1			12.6			13.0		
Approach LOS				D			B			B		
Intersection Delay	19.7			X_c = 0.86			Intersection LOS			B		

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	KM	Intersection	Veterans Rd W & Tyrellan Ave
Agency or Co.	AECOM	Area Type	All other areas
Date Performed	2/13/13	Jurisdiction	SFR NB-DefL = 2050
Time Period	Saturday 12:45-1:45 PM Peak Pd	Analysis Year	2020 Miti-Action Alt 2
		Project ID	Charleston EIS

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	1	2	0	0	2	0	0	2	0	1	2	0
Lane Group	L	TR		DefL	TR		DefL	TR		L	TR	
Volume, V (vph)	82	175	593	165	432	25	322	269	115	26	834	168
% Heavy Vehicles, %HV	2	2	2	1	1	1	1	1	1	0	0	0
Peak-Hour Factor, PHF	0.92	0.92	0.92	0.78	0.78	0.78	0.94	0.91	0.91	0.93	0.93	0.93
Pretimed (P) or Actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up Lost Time, l_1	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Extension of Effective Green, e	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Arrival Type, AT	3	3		3	3		3	3		3	3	
Unit Extension, UE	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Filtering/Metering, I	0.830	0.830		0.865	0.865		1.000	1.000		1.000	1.000	
Initial Unmet Demand, Q_b	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Ped / Bike / RTOR Volumes	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	11.0	12.0		12.0	12.0		13.0	13.0		10.0	9.5	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0		0	0		0	0		0	0	
Min. Time for Pedestrians, G_p	18.6			16.6			20.1			19.8		

Phasing	EW Perm	WB Only	03	04	SB Only	NS Perm	NB Only	08
Timing	G = 25.0	G = 6.0	G =	G =	G = 15.0	G = 14.0	G = 11.0	G =
	Y = 3	Y = 5	Y =	Y =	Y = 3	Y = 3	Y = 5	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	89	835		212	586		343	422		28	1078	
Lane Group Capacity, c	152	871		302	705		447	578		370	1150	
v/c Ratio, X	0.59	0.96		0.70	0.83		0.77	0.73		0.08	0.94	
Total Green Ratio, g/C	0.28	0.28		0.38	0.38		0.31	0.31		0.36	0.36	
Uniform Delay, d_1	28.0	32.0		34.7	25.4		32.1	27.6		19.4	28.0	
Progression Factor, PF	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Delay Calibration, k	0.50	0.50		0.50	0.50		0.50	0.50		0.50	0.50	
Incremental Delay, d_2	13.0	19.4		11.2	9.6		11.9	7.9		0.4	15.2	

Initial Queue Delay, d_3	*0.0*	*0.0*		*0.0*	*0.0*		*0.0*	*0.0*		*0.0*	*0.0*	
Control Delay	*41.0*	*51.4*		*45.9*	*35.0*		*44.0*	*35.5*		*19.8*	*43.2*	
Lane Group LOS	*D*	*D*		*D*	*D*		*D*	*D*		*B*	*D*	
Approach Delay	*50.4*			*37.9*			*39.4*			*42.7*		
Approach LOS	*D*			*D*			*D*			*D*		
Intersection Delay	*42.9*			X_C *= 1.39*			Intersection LOS			*D*		

 HCS+™ Version 5.4 Generated: 4/16/2013 6:02 PM

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Boscombe Ave & OBX Off-Ramp*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/13/13*	Jurisdiction	*Sat Flw Rate EB-L = 2100*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 Miti-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*			*1*	*1*				*2*		*1*
Lane Group	*L*	*T*			*T*	*R*				*L*		*R*
Volume, V (vph)	*892*	*472*			*508*	*1077*				*233*		*216*
% Heavy Vehicles, %HV	*1*	*1*			*1*	*1*				*1*		*1*
Peak-Hour Factor, PHF	*0.97*	*0.96*			*0.94*	*0.97*				*0.92*		*0.92*
Pretimed (P) or Actuated (A)	*P*	*P*			*P*	*P*				*P*		*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*	*2.0*				*2.0*		*2.0*
Extension of Effective Green, e	*3.0*	*2.0*			*2.0*	*2.0*				*2.0*		*2.0*
Arrival Type, AT	*3*	*3*			*3*	*3*				*3*		*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*	*3.0*				*3.0*		*3.0*
Filtering/Metering, I	*0.508*	*0.508*			*0.176*	*0.176*				*1.000*		*1.000*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*	*0.0*				*0.0*		*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*		*0*	*0*	*119*	*0*	*0*		*0*	*0*	*0*
Lane Width	*11.0*	*12.0*			*12.0*	*12.0*				*10.0*		*10.0*
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*									
Buses Stopping, N_B	*0*	*0*			*0*	*0*				*0*		*0*
Min. Time for Pedestrians, G_p	*14.6*			*24.6*			*3.2*			*20.1*		

Phasing	EB Only	EW Perm	03	04	SB Only	06	07	08
Timing	G = *37.0*	G = *24.0*	G =	G =	G = *14.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*920*	*492*			*540*	*988*				*253*		*235*
Lane Group Capacity, c	*895*	*1207*			*502*	*764*				*504*		*928*
v/c Ratio, X	*1.03*	*0.41*			*1.08*	*1.29*				*0.50*		*0.25*
Total Green Ratio, g/C	*0.74*	*0.73*			*0.27*	*0.48*				*0.16*		*0.62*
Uniform Delay, d_1	*9.5*	*4.6*			*33.0*	*23.5*				*34.8*		*7.6*
Progression Factor, PF	*1.000*	*1.000*			*1.000*	*1.000*				*1.000*		*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*	*0.50*				*0.50*		*0.50*
Incremental Delay, d_2	*28.9*	*0.5*			*41.4*	*133.7*				*3.5*		*0.7*
Initial Queue Delay, d_3	*0.0*	*0.0*			*0.0*	*0.0*				*0.0*		*0.0*

Control Delay	*38.4*	*5.1*			*74.4*	*157.2*				*38.4*		*8.3*
Lane Group LOS	*D*	*A*			*E*	*F*				*D*		*A*
Approach Delay	*26.8*			*128.0*						*23.9*		
Approach LOS	*C*			*F*						*C*		
Intersection Delay	*71.5*			X_C *= 1.16*			Intersection LOS			*E*		

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Boscombe Ave & Tyrellan Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/13/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 mITI-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*2*	*0*	*0*	*1*	*1*
Lane Group	*DefL*	*TR*			*LTR*			*LTR*			*LT*	*R*
Volume, V (vph)	*660*	*46*	*0*	*0*	*46*	*58*	*0*	*0*	*1*	*84*	*0*	*1539*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.96*	*0.96*	*0.96*	*0.91*	*0.91*	*0.91*	*0.90*	*0.90*	*0.90*	*0.93*	*0.93*	*0.93*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*			*2.0*			*2.0*			*2.0*	*2.0*
Extension of Effective Green, e	*2.0*	*2.0*			*2.0*			*2.0*			*2.0*	*2.0*
Arrival Type, AT	*3*	*3*			*3*			*3*			*3*	*3*
Unit Extension, UE	*3.0*	*3.0*			*3.0*			*3.0*			*3.0*	*3.0*
Filtering/Metering, I	*0.967*	*0.967*			*1.000*			*1.000*			*0.855*	*0.855*
Initial Unmet Demand, Q_b	*0.0*	*0.0*			*0.0*			*0.0*			*0.0*	*0.0*
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*14*	*0*	*0*	*0*	*0*	*0*	*398*
Lane Width	*16.0*	*16.0*			*11.5*			*12.0*			*12.0*	*12.0*
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*			*0*			*0*			*0*	*0*
Min. Time for Pedestrians, G_p	*20.3*			*17.5*			*20.3*			*20.3*		

Phasing	EW Perm	EB Only	03	04	NS Perm	06	07	08
Timing	G = *26.0*	G = *14.0*	G =	G =	G = *35.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*688*	*48*			*99*			*1*			*90*	*1227*
Lane Group Capacity, c	*853*	*1066*			*944*			*1184*			*544*	*959*
v/c Ratio, X	*0.81*	*0.05*			*0.10*			*0.00*			*0.17*	*1.28*
Total Green Ratio, g/C	*0.50*	*0.50*			*0.29*			*0.39*			*0.39*	*0.60*
Uniform Delay, d_1	*20.7*	*11.5*			*23.5*			*16.8*			*18.0*	*18.0*
Progression Factor, PF	*1.000*	*1.000*			*1.000*			*1.000*			*1.000*	*1.000*
Delay Calibration, k	*0.50*	*0.50*			*0.50*			*0.50*			*0.50*	*0.50*
Incremental Delay, d_2	*7.8*	*0.1*			*0.2*			*0.0*			*0.6*	*132.7*

Initial Queue Delay, d_3	*0.0*	*0.0*			*0.0*			*0.0*			*0.0*	*0.0*
Control Delay	*28.5*	*11.6*			*23.7*			*16.8*			*18.5*	*150.7*
Lane Group LOS	*C*	*B*			*C*			*B*			*B*	*F*
Approach Delay	*27.4*				*23.7*			*16.8*			*141.7*	
Approach LOS	*C*				*C*			*B*			*F*	
Intersection Delay	*97.1*				X_C *= 1.19*			Intersection LOS			*F*	

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Ave @ Veterans Rd W*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/12/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 Miti-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*1*	*1*		*1*			*0*	*3*	*0*
Lane Group		*TR*		*L*	*LT*		*L*				*LTR*	
Volume, V (vph)		*1*	*0*	*798*	*2*		*5*			*28*	*474*	*1*
% Heavy Vehicles, %HV		*1*	*1*	*2*	*2*		*0*			*2*	*2*	*2*
Peak-Hour Factor, PHF		*0.75*	*0.25*	*0.91*	*0.91*		*0.88*			*0.89*	*0.89*	*0.89*
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*			*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*		*2.0*				*2.0*	
Arrival Type, AT		*3*		*3*	*3*		*3*				*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*		*3.0*				*3.0*	
Filtering/Metering, I		*1.000*		*0.971*	*0.971*		*0.951*				*1.000*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*		*0.0*				*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*		*0*	*0*		*0*	*0*	*0*
Lane Width		*12.0*		*13.0*	*13.0*		*10.0*				*11.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B		*0*		*0*	*0*		*0*				*0*	
Min. Time for Pedestrians, G_p	*31.2*			*3.2*			*18.1*			*11.8*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *28.0*	G =	G =	G =	G = *22.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*1*		*658*	*221*		*6*				*565*	
Lane Group Capacity, c		*878*		*680*	*654*		*243*				*1793*	
v/c Ratio, X		*0.00*		*0.97*	*0.34*		*0.02*				*0.32*	
Total Green Ratio, g/C		*0.47*		*0.47*	*0.47*		*0.37*				*0.37*	
Uniform Delay, d_1		*8.5*		*15.6*	*10.1*		*12.1*				*13.6*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*		*1.000*				*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*		*0.50*				*0.50*	
Incremental Delay, d_2		*0.0*		*27.0*	*1.4*		*0.2*				*0.5*	

Initial Queue Delay, d_3		0.0		0.0	0.0		0.0				0.0	
Control Delay		8.5		42.5	11.5		12.3				14.1	
Lane Group LOS		A		D	B		B				B	
Approach Delay	8.5			34.7			12.3			14.1		
Approach LOS	A			C			B			B		
Intersection Delay	26.6			X_C = 0.68			Intersection LOS			C		

 HCS+™ Version 5.4 Generated: 4/16/2013 6:03 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Englewood Ave @ Vets Rd E*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/12/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 Miti-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*3*	*0*			
Lane Group		*LT*	*R*		*LTR*			*LTR*				
Volume, V (vph)	*218*	*353*	*199*	*0*	*85*	*15*	*716*	*66*	*3*			
% Heavy Vehicles, %HV	*1*	*1*	*1*	*0*	*0*	*0*	*2*	*2*	*2*			
Peak-Hour Factor, PHF	*0.75*	*0.75*	*0.75*	*0.83*	*0.83*	*0.83*	*0.93*	*0.93*	*0.93*			
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*			
Start-up Lost Time, l_1		*2.0*	*2.0*		*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*	*2.0*		*2.0*			*2.0*				
Arrival Type, AT		*3*	*3*		*3*			*3*				
Unit Extension, UE		*3.0*	*3.0*		*3.0*			*3.0*				
Filtering/Metering, I		*0.997*	*0.997*		*0.993*			*0.967*				
Initial Unmet Demand, Q_b		*0.0*	*0.0*		*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*66*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Lane Width		*13.0*	*12.0*		*11.5*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m						*5*						
Buses Stopping, N_B		*0*	*0*		*0*			*0*				
Min. Time for Pedestrians, G_p	*21.2*			*12.9*			*14.3*			*17.5*		

Phasing	EW Perm	02	03	04	NB Only	06	07	08
Timing	G = *26.0*	G =	G =	G =	G = *24.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*762*	*177*		*120*			*844*				
Lane Group Capacity, c		*693*	*693*		*694*			*1875*				
v/c Ratio, X		*1.10*	*0.26*		*0.17*			*0.45*				
Total Green Ratio, g/C		*0.43*	*0.43*		*0.43*			*0.40*				
Uniform Delay, d_1		*17.0*	*10.8*		*10.4*			*13.2*				
Progression Factor, PF		*1.000*	*1.000*		*1.000*			*1.000*				
Delay Calibration, k		*0.50*	*0.50*		*0.50*			*0.50*				
Incremental Delay, d_2		*64.6*	*0.9*		*0.5*			*0.8*				

Initial Queue Delay, d_3		*0.0*	*0.0*		*0.0*			*0.0*				
Control Delay		*81.6*	*11.7*		*11.0*			*13.9*				
Lane Group LOS		*F*	*B*		*B*			*B*				
Approach Delay	*68.5*			*11.0*			*13.9*					
Approach LOS	*E*			*B*			*B*					
Intersection Delay	*40.6*			X_C = *0.79*			Intersection LOS			*D*		

 HCS+™ Version 5.4 Generated: 4/16/2013 6:03 PM

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Vets Rd E & Bloomingdale Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/13/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 Miti-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*		*1*	*0*	*3*	*0*	*1*	*1*			*2*	*0*
Lane Group	*L*		*R*		*LTR*		*L*	*T*			*TR*	
Volume, V (vph)	*19*		*180*	*302*	*617*	*173*	*150*	*229*			*422*	*17*
% Heavy Vehicles, %HV	*1*		*1*	*2*	*2*	*2*	*2*	*2*			*1*	*1*
Peak-Hour Factor, PHF	*0.71*		*0.71*	*0.87*	*0.87*	*0.87*	*0.92*	*0.92*			*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*		*P*	*P*	*P*	*P*	*P*	*P*			*P*	*P*
Start-up Lost Time, l_1	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Extension of Effective Green, e	*2.0*		*2.0*		*2.0*		*2.0*	*2.0*			*2.0*	
Arrival Type, AT	*3*		*3*		*3*		*3*	*3*			*3*	
Unit Extension, UE	*3.0*		*3.0*		*3.0*		*3.0*	*3.0*			*3.0*	
Filtering/Metering, I	*0.717*		*0.717*		*0.483*		*0.917*	*0.917*			*0.747*	
Initial Unmet Demand, Q_b	*0.0*		*0.0*		*0.0*		*0.0*	*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Lane Width	*10.0*		*13.0*		*11.0*		*12.0*	*12.0*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*		*0*		*0*		*0*	*0*			*0*	
Min. Time for Pedestrians, G_p	*17.2*			*16.9*			*3.2*			*20.9*		

Phasing	EB Only	WB Only	03	04	NS Perm	06	07	08
Timing	G = *11.0*	G = *17.0*	G =	G =	G = *17.0*	G =	G =	G =
	Y = *5*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*27*		*254*		*1255*		*163*	*249*			*488*	
Lane Group Capacity, c	*306*		*303*		*1338*		*219*	*528*			*1009*	
v/c Ratio, X	*0.09*		*0.84*		*0.94*		*0.74*	*0.47*			*0.48*	
Total Green Ratio, g/C	*0.18*		*0.18*		*0.28*		*0.28*	*0.28*			*0.28*	
Uniform Delay, d_1	*20.3*		*23.6*		*21.0*		*19.5*	*17.8*			*17.9*	
Progression Factor, PF	*1.000*		*1.000*		*1.000*		*1.000*	*1.000*			*1.000*	
Delay Calibration, k	*0.50*		*0.50*		*0.50*		*0.50*	*0.50*			*0.50*	
Incremental Delay, d_2	*0.4*		*17.7*		*7.7*		*18.9*	*2.8*			*1.2*	

Initial Queue Delay, d_3	0.0		0.0		0.0		0.0	0.0			0.0	
Control Delay	20.7		41.4		28.7		38.4	20.5			19.1	
Lane Group LOS	C		D		C		D	C			B	
Approach Delay	39.4			28.7			27.6			19.1		
Approach LOS	D			C			C			B		
Intersection Delay	27.8			X_C = 0.84			Intersection LOS			C		

 HCS+™ Version 5.4 Generated: 4/16/2013 6:04 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Amboy Rd & Bloomingdale Ave*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/13/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 Miti-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*1*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*		*L*	*T*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*8*	*8*	*18*	*294*	*18*	*106*	*13*	*347*	*242*	*86*	*444*	*8*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*1*	*1*	*1*	*0*	*0*	*0*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.84*	*0.84*	*0.84*	*0.90*	*0.90*	*0.90*	*0.92*	*0.92*	*0.92*	*0.90*	*0.90*	*0.90*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*		*3*	*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*		*3.0*	*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*		*0.887*	*0.887*	*0.887*		*0.516*			*0.500*	
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*50*	*0*	*0*	*0*	*0*	*0*	*50*	*0*	*0*	*0*	*0*	*0*
Lane Width		*12.0*		*12.0*	*11.0*	*11.0*		*11.0*			*12.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*		*0*	*0*	*0*		*0*			*0*	
Min. Time for Pedestrians, G_p	*11.5*			*11.8*			*18.9*			*18.3*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *39.0*	G =	G =	G =	G = *41.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*41*		*327*	*20*	*118*		*654*			*598*	
Lane Group Capacity, c		*615*		*563*	*788*	*586*		*762*			*630*	
v/c Ratio, X		*0.07*		*0.58*	*0.03*	*0.20*		*0.86*			*0.95*	
Total Green Ratio, g/C		*0.43*		*0.43*	*0.43*	*0.43*		*0.46*			*0.46*	
Uniform Delay, d_1		*14.9*		*19.3*	*14.6*	*15.8*		*21.9*			*23.5*	
Progression Factor, PF		*1.000*		*1.000*	*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*		*0.50*	*0.50*	*0.50*		*0.50*			*0.50*	
Incremental Delay, d_2		*0.2*		*3.9*	*0.1*	*0.7*		*6.7*			*15.8*	

Initial Queue Delay, d_3		0.0		0.0	0.0	0.0		0.0			0.0	
Control Delay		15.1		23.2	14.7	16.5		28.6			39.3	
Lane Group LOS		B		C	B	B		C			D	
Approach Delay	15.1			21.1			28.6			39.3		
Approach LOS	B			C			C			D		
Intersection Delay	29.9			X_C = 0.77			Intersection LOS			C		

 HCS+™ Version 5.4 Generated: 4/16/2013 6:04 PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Arthur Kill Rd & Bloomingdl Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/15/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 Miti-Action Alt 2*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1		*1*	*0*	*1*	*1*		*0*		*0*			
Lane Group		*TR*		*L*	*T*			*LR*				
Volume, V (vph)		*229*	*240*	*283*	*234*		*160*		*233*			
% Heavy Vehicles, %HV		*2*	*2*	*4*	*4*		*1*		*1*			
Peak-Hour Factor, PHF		*0.78*	*0.78*	*0.89*	*0.89*		*0.85*		*0.85*			
Pretimed (P) or Actuated (A)		*P*	*P*	*P*	*P*		*P*		*P*			
Start-up Lost Time, l_1		*2.0*		*2.0*	*2.0*			*2.0*				
Extension of Effective Green, e		*2.0*		*2.0*	*2.0*			*2.0*				
Arrival Type, AT		*3*		*3*	*3*			*3*				
Unit Extension, UE		*3.0*		*3.0*	*3.0*			*3.0*				
Filtering/Metering, I		*0.927*		*0.992*	*0.992*			*0.953*				
Initial Unmet Demand, Q_b		*0.0*		*0.0*	*0.0*			*0.0*				
Ped / Bike / RTOR Volumes	*0*	*0*	*56*	*0*	*0*		*0*	*0*	*0*	*0*	*0*	
Lane Width		*16.0*		*11.0*	*11.0*			*11.0*				
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*Y*	*N*	*0*	*N*
Parking Maneuvers, N_m									*5*			
Buses Stopping, N_B		*2*		*0*	*0*			*0*				
Min. Time for Pedestrians, G_p	*18.3*			*3.2*			*15.2*			*17.2*		

Phasing	EW Perm	WB Only	03	04	NB Only	06	07	08
Timing	G = *30.0*	G = *12.0*	G =	G =	G = *35.0*	G =	G =	G =
	Y = *3*	Y = *5*	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*530*		*318*	*263*			*462*				
Lane Group Capacity, c		*656*		*408*	*883*			*558*				
v/c Ratio, X		*0.81*		*0.78*	*0.30*			*0.83*				
Total Green Ratio, g/C		*0.33*		*0.50*	*0.50*			*0.39*				
Uniform Delay, d_1		*27.4*		*31.1*	*13.2*			*24.8*				
Progression Factor, PF		*1.000*		*1.000*	*1.000*			*1.000*				
Delay Calibration, k		*0.50*		*0.50*	*0.50*			*0.50*				
Incremental Delay, d_2		*9.6*		*13.6*	*0.9*			*12.7*				
Initial Queue Delay, d_3		*0.0*		*0.0*	*0.0*			*0.0*				

Control Delay		37.0		44.7	14.1			37.5				
Lane Group LOS		D		D	B			D				
Approach Delay	37.0			30.8			37.5					
Approach LOS	D			C			D					
Intersection Delay	34.9			X_C = 0.86			Intersection LOS			C		

 HCS+™ Version 5.4 Generated: 4/16/2013 6:05 PM

Alternative 3

With-Action

2020

Weekday

AM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/11/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 Alt 3 With-Action Cond*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*			*LT*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*3*	*6*	*1*	*167*	*34*	*220*	*0*	*216*	*293*	*104*	*166*	*9*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*7*	*7*	*7*	*11*	*11*	*11*	*11*	*11*	*11*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.87*	*0.87*	*0.87*	*0.85*	*0.85*	*0.85*	*0.87*	*0.87*	*0.87*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*			*0.940*	*0.940*		*0.887*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*15.5*			*11.0*	*10.0*		*15.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*			*0*	*0*		*4*			*3*	
Min. Time for Pedestrians, G_p	*11.5*			*13.5*			*15.2*			*12.1*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*					Cycle Length, C = *60.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*11*			*231*	*253*		*599*			*321*	
Lane Group Capacity, c		*718*			*540*	*514*		*712*			*332*	
v/c Ratio, X		*0.02*			*0.43*	*0.49*		*0.84*			*0.97*	
Total Green Ratio, g/C		*0.42*			*0.42*	*0.42*		*0.42*			*0.42*	
Uniform Delay, d_1		*10.3*			*12.4*	*12.8*		*15.7*			*17.1*	
Progression Factor, PF		*1.000*			*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*	*0.50*		*0.50*			*0.50*	

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	KM	Intersection	Veterans Rd W & Bricktown/KWVP
Agency or Co.	AECOM	Area Type	All other areas
Date Performed	2/7/13	Jurisdiction	Staten Island, NY
Time Period	Weekday 8 - 9 AM Peak Period	Analysis Year	2020 With-Action Alt 3
		Project ID	Charleston EIS

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	1	1	0	1	2	0	0	2	0	1	1	0
Lane Group	L	TR		L	TR			LTR		L	TR	
Volume, V (vph)	50	164	169	203	285	80	119	324	138	68	32	27
% Heavy Vehicles, %HV	2	2	2	8	8	8	8	8	8	3	3	3
Peak-Hour Factor, PHF	0.88	0.88	0.88	0.87	0.87	0.87	0.93	0.93	0.93	0.67	0.67	0.67
Pretimed (P) or Actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up Lost Time, l_1	2.0	2.0		2.0	2.0			2.0		2.0	2.0	
Extension of Effective Green, e	2.0	2.0		2.0	2.0			2.0		2.0	2.0	
Arrival Type, AT	3	3		3	3			3		3	3	
Unit Extension, UE	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Filtering/Metering, I	0.780	0.780		0.979	0.979			1.000		0.991	0.991	
Initial Unmet Demand, Q_b	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Ped / Bike / RTOR Volumes	0	0	38	0	0	4	0	0	0	0	0	0
Lane Width	11.0	12.0		10.0	12.0			12.5		11.0	10.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0		0	0			0		0	0	
Min. Time for Pedestrians, G_p	34.6			18.6			20.3			16.1		

Phasing	EW Perm	02	03	04	NB Only	SB Only	07	08
Timing	G = 30.0	G =	G =	G =	G = 25.0	G = 20.0	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y = 5	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	57	335		233	415			624		101	88	
Lane Group Capacity, c	272	579		217	1081			903		376	356	
v/c Ratio, X	0.21	0.58		1.07	0.38			0.69		0.27	0.25	
Total Green Ratio, g/C	0.33	0.33		0.33	0.33			0.28		0.22	0.22	
Uniform Delay, d_1	21.5	24.8		30.0	22.9			29.0		29.0	28.8	
Progression Factor, PF	1.000	1.000		1.000	1.000			1.000		1.000	1.000	
Delay Calibration, k	0.50	0.50		0.50	0.50			0.50		0.50	0.50	
Incremental Delay, d_2	1.4	3.3		81.4	1.0			4.3		1.7	1.6	

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*2/7/13*
Analysis Time Period	*Weekday 8-9 AM Peak Period*

Site Information

Intersection	*KWVP WB OR UT & No Bridge St*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Alt 3*

Project Description *Charleston EIS*

East/West Street: *KWVP WB Off-Ramp U-Turn* North/South Street: *North Bridge Street*

Intersection Orientation: *North-South* Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*404*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.95*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*425*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*1*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*287*		
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.90*	*0.93*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*308*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*60*	*8*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*0*
Configuration				*L*		

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration			*L*					
v (veh/h)			*308*					
C (m) (veh/h)			*575*					
v/c			*0.54*					
95% queue length			*3.16*					
Control Delay (s/veh)			*18.2*					
LOS			*C*					
Approach Delay (s/veh)	--	--	*18.2*					
Approach LOS	--	--	*C*					

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Generated: 4/12/2013 12:06 PM

Weekday

Midday

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/11/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 Alt 3 With-Action Cond*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*			*LT*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*1*	*17*	*6*	*232*	*24*	*364*	*1*	*200*	*246*	*203*	*215*	*1*
% Heavy Vehicles, %HV	*4*	*4*	*4*	*6*	*6*	*6*	*11*	*11*	*11*	*7*	*7*	*7*
Peak-Hour Factor, PHF	*0.84*	*0.84*	*0.84*	*0.90*	*0.90*	*0.90*	*0.92*	*0.92*	*0.92*	*0.86*	*0.86*	*0.86*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*			*0.887*	*0.887*		*0.931*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*15.5*			*11.0*	*10.0*		*15.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*			*0*	*0*		*3*			*4*	
Min. Time for Pedestrians, G_p	*11.5*			*13.5*			*15.2*			*12.1*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*					Cycle Length, C = *60.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*28*			*285*	*404*		*485*			*487*	
Lane Group Capacity, c		*713*			*524*	*518*		*717*			*443*	
v/c Ratio, X		*0.04*			*0.54*	*0.78*		*0.68*			*1.10*	
Total Green Ratio, g/C		*0.42*			*0.42*	*0.42*		*0.42*			*0.42*	
Uniform Delay, d_1		*10.4*			*13.2*	*15.1*		*14.2*			*17.5*	
Progression Factor, PF		*1.000*			*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*	*0.50*		*0.50*			*0.50*	

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	KM	Intersection	Veterans Rd W & Bricktown/KWVP
Agency or Co.	AECOM	Area Type	All other areas
Date Performed	2/7/13	Jurisdiction	Staten Island, NY
Time Period	Weekday 12-1 PM MD Peak Period	Analysis Year	2020 With-Action Alt 3
		Project ID	Charleston EIS

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	1	1	0	1	2	0	0	2	0	1	1	0
Lane Group	L	TR		L	TR			LTR		L	TR	
Volume, V (vph)	94	250	148	195	446	84	178	448	316	149	67	40
% Heavy Vehicles, %HV	1	1	1	6	6	6	4	4	4	2	2	2
Peak-Hour Factor, PHF	0.84	0.84	0.84	0.90	0.90	0.90	0.93	0.93	0.93	0.80	0.80	0.80
Pretimed (P) or Actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up Lost Time, l_1	2.0	2.0		2.0	2.0			2.0		2.0	2.0	
Extension of Effective Green, e	2.0	2.0		2.0	2.0			2.0		2.0	2.0	
Arrival Type, AT	3	3		3	3			3		3	3	
Unit Extension, UE	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Filtering/Metering, I	0.856	0.856		0.927	0.927			1.000		0.985	0.985	
Initial Unmet Demand, Q_b	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Ped / Bike / RTOR Volumes	0	0	32	0	0	13	0	0	0	0	0	0
Lane Width	11.0	12.0		10.0	12.0			12.5		11.0	10.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0		0	0			0		0	0	
Min. Time for Pedestrians, G_p	34.6			18.6			20.3			16.1		

Phasing	EW Perm	02	03	04	NB Only	SB Only	07	08
Timing	G = 30.0	G =	G =	G =	G = 25.0	G = 20.0	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y = 5	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	112	436		217	575			1013		186	134	
Lane Group Capacity, c	202	597		150	1114			924		380	365	
v/c Ratio, X	0.55	0.73		1.45	0.52			1.10		0.49	0.37	
Total Green Ratio, g/C	0.33	0.33		0.33	0.33			0.28		0.22	0.22	
Uniform Delay, d_1	24.5	26.4		30.0	24.2			32.5		30.5	29.6	
Progression Factor, PF	1.000	1.000		1.000	1.000			1.000		1.000	1.000	
Delay Calibration, k	0.50	0.50		0.50	0.50			0.50		0.50	0.50	
Incremental Delay, d_2	9.1	6.6		232.2	1.6			59.5		4.4	2.8	

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*2/7/13*
Analysis Time Period	*Weekday 12-1 PM MD Peak Period*

Site Information

Intersection	*KWVP WB OR UT & No Bridge St*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Alt 3*

Project Description *Charleston EIS*

East/West Street: *KWVP WB Off-Ramp U-Turn* | North/South Street: *North Bridge Street*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*410*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.87*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*471*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*1*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*188*		
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.90*	*0.93*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*202*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*60*	*4*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*0*
Configuration				*L*		

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration			*L*					
v (veh/h)			*202*					
C (m) (veh/h)			*548*					
v/c			*0.37*					
95% queue length			*1.69*					
Control Delay (s/veh)			*15.4*					
LOS			*C*					
Approach Delay (s/veh)	--	--	*15.4*					
Approach LOS	--	--	*C*					

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Generated: 4/12/2013 12:11 PM

Weekday

PM

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	*KM*	Intersection	*Veterans Rd W & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/11/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 Alt 3 With-Action Cond*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*			*LT*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*1*	*11*	*2*	*278*	*20*	*273*	*4*	*207*	*304*	*259*	*285*	*1*
% Heavy Vehicles, %HV	*3*	*3*	*3*	*5*	*5*	*5*	*5*	*5*	*5*	*7*	*7*	*7*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.82*	*0.82*	*0.82*	*0.93*	*0.93*	*0.93*	*0.86*	*0.86*	*0.86*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*			*0.933*	*0.933*		*0.919*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*15.5*			*11.0*	*10.0*		*15.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*			*0*	*0*		*3*			*2*	
Min. Time for Pedestrians, G_p	*11.5*			*13.5*			*15.2*			*12.1*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*					Cycle Length, C = *60.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*16*			*363*	*333*		*554*			*633*	
Lane Group Capacity, c		*727*			*531*	*523*		*751*			*410*	
v/c Ratio, X		*0.02*			*0.68*	*0.64*		*0.74*			*1.54*	
Total Green Ratio, g/C		*0.42*			*0.42*	*0.42*		*0.42*			*0.42*	
Uniform Delay, d_1		*10.3*			*14.3*	*13.9*		*14.7*			*17.5*	
Progression Factor, PF		*1.000*			*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*	*0.50*		*0.50*			*0.50*	

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Bricktown/KWVP*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*2/7/13*	Jurisdiction	*Sat Flow Rate WB-L = 1950*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 With-Action Alt 3*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*	*0*	*1*	*2*	*0*	*0*	*2*	*0*	*1*	*1*	*0*
Lane Group	*L*	*TR*		*L*	*TR*			*LTR*		*L*	*TR*	
Volume, V (vph)	*109*	*264*	*206*	*248*	*326*	*87*	*205*	*471*	*267*	*223*	*77*	*56*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*7*	*7*	*7*	*3*	*3*	*3*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.90*	*0.82*	*0.82*	*0.93*	*0.93*	*0.93*	*0.76*	*0.76*	*0.76*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*		*2.0*	*2.0*			*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e	*2.0*	*2.0*		*3.0*	*3.0*			*2.0*		*2.0*	*2.0*	
Arrival Type, AT	*3*	*3*		*3*	*3*			*3*		*3*	*3*	
Unit Extension, UE	*3.0*	*3.0*		*3.0*	*3.0*			*3.0*		*3.0*	*3.0*	
Filtering/Metering, I	*0.701*	*0.701*		*0.949*	*0.949*			*1.000*		*0.970*	*0.970*	
Initial Unmet Demand, Q_b	*0.0*	*0.0*		*0.0*	*0.0*			*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*45*	*0*	*0*	*11*	*0*	*0*	*25*	*0*	*0*	*25*
Lane Width	*11.0*	*12.0*		*10.0*	*12.0*			*12.5*		*11.0*	*10.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*		*0*	*0*			*0*		*0*	*0*	
Min. Time for Pedestrians, G_p	*34.6*			*18.6*			*20.3*			*16.1*		

Phasing	EW Perm	02	03	04	NB Only	SB Only	07	08
Timing	G = *30.0*	G =	G =	G =	G = *25.0*	G = *20.0*	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y = *5*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*124*	*483*		*276*	*491*			*986*		*293*	*142*	
Lane Group Capacity, c	*240*	*591*		*240*	*1132*			*942*		*384*	*373*	
v/c Ratio, X	*0.52*	*0.82*		*1.15*	*0.43*			*1.05*		*0.76*	*0.38*	
Total Green Ratio, g/C	*0.33*	*0.33*		*0.34*	*0.34*			*0.28*		*0.22*	*0.22*	
Uniform Delay, d_1	*24.2*	*27.5*		*29.5*	*22.7*			*32.5*		*32.8*	*29.7*	
Progression Factor, PF	*1.000*	*1.000*		*1.000*	*1.000*			*1.000*		*1.000*	*1.000*	
Delay Calibration, k	*0.50*	*0.50*		*0.50*	*0.50*			*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2	*5.5*	*8.6*		*103.2*	*1.2*			*42.3*		*13.0*	*2.8*	

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*2/7/13*
Analysis Time Period	*Weekday 5-6 PM Peak Period*

Site Information

Intersection	*KWVP WB OR UT & No Bridge St*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Alt 3*

Project Description *Charleston EIS*

East/West Street: *KWVP WB Off-Ramp U-Turn* | North/South Street: *North Bridge Street*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*532*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.89*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*597*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*1*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*474*		
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.90*	*0.93*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*509*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*60*	*3*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*0*
Configuration				*L*		

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration			*L*					
v (veh/h)			*509*					
C (m) (veh/h)			*464*					
v/c			*1.10*					
95% queue length			*16.91*					
Control Delay (s/veh)			*100.2*					
LOS			*F*					
Approach Delay (s/veh)	--	--	*100.2*					
Approach LOS	--	--	*F*					

HCS+™ Version 5.4

Generated: 4/12/2013 12:13 PM

Saturday

Midday

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/11/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 Alt 3 With-Action Cond*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*0*	*1*	*0*
Lane Group		*LTR*			*LT*	*R*		*LTR*			*LTR*	
Volume, V (vph)	*0*	*10*	*5*	*325*	*27*	*398*	*5*	*252*	*364*	*254*	*261*	*0*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*2*	*2*	*2*	*5*	*5*	*5*	*3*	*3*	*3*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*	*2.0*		*2.0*			*2.0*	
Arrival Type, AT		*3*			*3*	*3*		*3*			*3*	
Unit Extension, UE		*3.0*			*3.0*	*3.0*		*3.0*			*3.0*	
Filtering/Metering, I		*1.000*			*0.849*	*0.849*		*0.861*			*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*	*0.0*		*0.0*			*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*15.5*			*11.0*	*10.0*		*15.0*			*16.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*			*0*	*0*		*2*			*2*	
Min. Time for Pedestrians, G_p	*11.5*			*13.5*			*15.2*			*12.1*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*					Cycle Length, C = *60.0*			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*16*			*382*	*433*		*682*			*566*	
Lane Group Capacity, c		*726*			*548*	*539*		*755*			*350*	
v/c Ratio, X		*0.02*			*0.70*	*0.80*		*0.90*			*1.62*	
Total Green Ratio, g/C		*0.42*			*0.42*	*0.42*		*0.42*			*0.42*	
Uniform Delay, d_1		*10.3*			*14.4*	*15.3*		*16.4*			*17.5*	
Progression Factor, PF		*1.000*			*1.000*	*1.000*		*1.000*			*1.000*	
Delay Calibration, k		*0.50*			*0.50*	*0.50*		*0.50*			*0.50*	

HCS+™ DETAILED REPORT

General Information		Site Information	
Analyst	KM	Intersection	Veterans Rd W & Bricktown/KWVP
Agency or Co.	AECOM	Area Type	All other areas
Date Performed	2/7/13	Jurisdiction	Staten Island
Time Period	Saturday 12:45-1:45 PM MD Peak	Analysis Year	2020 With-Action Alt 3
		Project ID	Charleston EIS

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	1	1	0	1	2	0	0	2	0	1	1	0
Lane Group	L	TR		L	TR			LTR		L	TR	
Volume, V (vph)	99	318	221	273	443	102	266	705	293	243	140	93
% Heavy Vehicles, %HV	1	1	1	3	3	3	1	1	1	1	1	1
Peak-Hour Factor, PHF	0.93	0.93	0.93	0.96	0.78	0.78	0.90	0.90	0.90	0.84	0.84	0.84
Pretimed (P) or Actuated (A)	P	P	P	P	P	P	P	P	P	P	P	P
Start-up Lost Time, l_1	2.0	2.0		2.0	2.0			2.0		2.0	2.0	
Extension of Effective Green, e	2.0	2.0		3.0	3.0			2.0		2.0	2.0	
Arrival Type, AT	3	3		3	3			3		3	3	
Unit Extension, UE	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Filtering/Metering, I	0.700	0.700		0.903	0.903			1.000		0.855	0.855	
Initial Unmet Demand, Q_b	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Ped / Bike / RTOR Volumes	0	0	48	0	0	11	0	0	0	0	0	0
Lane Width	11.0	12.0		10.0	12.0			12.5		11.0	10.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N_m												
Buses Stopping, N_B	0	0		0	0			0		0	0	
Min. Time for Pedestrians, G_p	34.6			18.6			20.3			16.1		

Phasing	EW Perm	02	03	04	NB Only	SB Only	07	08
Timing	G = 30.0	G =	G =	G =	G = 25.0	G = 20.0	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y = 5	Y =	Y =
Duration of Analysis, T = 0.25						Cycle Length, C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	106	528		284	685			1405		289	278	
Lane Group Capacity, c	160	594		97	1179			966		384	367	
v/c Ratio, X	0.66	0.89		2.93	0.58			1.45		0.75	0.76	
Total Green Ratio, g/C	0.33	0.33		0.34	0.34			0.28		0.22	0.22	
Uniform Delay, d_1	25.7	28.4		29.5	24.2			32.5		32.7	32.7	
Progression Factor, PF	1.000	1.000		1.000	1.000			1.000		1.000	1.000	
Delay Calibration, k	0.50	0.50		0.50	0.50			0.50		0.50	0.50	
Incremental Delay, d_2	14.1	13.4		892.3	1.9			210.3		11.1	11.8	

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*KM*
Agency/Co.	*AECOM*
Date Performed	*2/7/13*
Analysis Time Period	*Saturday 12:45-1:45 PM Peak Pd*

Site Information

Intersection	*KWVP WB OR UT & No Bridge St*
Jurisdiction	*Staten Island, NY*
Analysis Year	*2020 With-Action Alt 3*

Project Description *Charleston EIS*

East/West Street: *KWVP WB Off-Ramp U-Turn* | North/South Street: *North Bridge Street*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*633*	
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*0.93*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*680*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*1*	*0*
Configuration					*T*	
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*236*		
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.90*	*0.90*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*262*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*60*	*1*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*0*
Configuration				*L*		

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration			*L*					
v (veh/h)			*262*					
C (m) (veh/h)			*418*					
v/c			*0.63*					
95% queue length			*4.15*					
Control Delay (s/veh)			*27.0*					
LOS			*D*					
Approach Delay (s/veh)	--	--	*27.0*					
Approach LOS	--	--	*D*					

HCS+™ Version 5.4

Generated: 4/12/2013 12:16 PM

Alternative 3

Mitigation

2020

Weekday

AM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/11/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8-9 AM Peak Period*	Analysis Year	*2020 Alt 3 Miti-Action Cond*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*1*	*1*	*0*
Lane Group		*LTR*			*LT*	*R*		*LTR*		*L*	*TR*	
Volume, V (vph)	*3*	*6*	*1*	*167*	*34*	*220*	*0*	*216*	*293*	*104*	*166*	*9*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*7*	*7*	*7*	*11*	*11*	*11*	*11*	*11*	*11*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.87*	*0.87*	*0.87*	*0.85*	*0.85*	*0.85*	*0.87*	*0.87*	*0.87*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	
Arrival Type, AT		*3*			*3*	*3*		*3*		*3*	*3*	
Unit Extension, UE		*3.0*			*3.0*	*3.0*		*3.0*		*3.0*	*3.0*	
Filtering/Metering, I		*1.000*			*0.940*	*0.940*		*0.887*		*1.000*	*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*	*0.0*		*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*15.5*			*11.0*	*10.0*		*15.0*		*10.0*	*11.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*			*0*	*0*		*4*		*0*	*3*	
Min. Time for Pedestrians, G_p	*11.5*			*13.5*			*15.2*			*12.1*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*11*			*231*	*253*		*599*		*120*	*201*	
Lane Group Capacity, c		*718*			*540*	*514*		*712*		*162*	*676*	
v/c Ratio, X		*0.02*			*0.43*	*0.49*		*0.84*		*0.74*	*0.30*	
Total Green Ratio, g/C		*0.42*			*0.42*	*0.42*		*0.42*		*0.42*	*0.42*	
Uniform Delay, d_1		*10.3*			*12.4*	*12.8*		*15.7*		*14.8*	*11.7*	
Progression Factor, PF		*1.000*			*1.000*	*1.000*		*1.000*		*1.000*	*1.000*	
Delay Calibration, k		*0.50*			*0.50*	*0.50*		*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2		*0.0*			*2.3*	*3.1*		*10.4*		*26.0*	*1.1*	

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Bricktown/KWVP*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/11/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 8 - 9 AM Peak Period*	Analysis Year	*2020 Miti-Action Alt 3*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*	*0*	*1*	*2*	*0*	*0*	*2*	*0*	*1*	*1*	*0*
Lane Group	*L*	*TR*		*L*	*TR*			*LTR*		*L*	*TR*	
Volume, V (vph)	*50*	*164*	*169*	*203*	*285*	*80*	*119*	*324*	*138*	*68*	*32*	*27*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*8*	*8*	*8*	*8*	*8*	*8*	*3*	*3*	*3*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.87*	*0.87*	*0.87*	*0.93*	*0.93*	*0.93*	*0.67*	*0.67*	*0.67*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*		*2.0*	*2.0*			*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e	*2.0*	*2.0*		*2.0*	*2.0*			*2.0*		*2.0*	*2.0*	
Arrival Type, AT	*3*	*3*		*3*	*3*			*3*		*3*	*3*	
Unit Extension, UE	*3.0*	*3.0*		*3.0*	*3.0*			*3.0*		*3.0*	*3.0*	
Filtering/Metering, I	*0.780*	*0.780*		*0.979*	*0.979*			*1.000*		*0.991*	*0.991*	
Initial Unmet Demand, Q_b	*0.0*	*0.0*		*0.0*	*0.0*			*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*38*	*0*	*0*	*4*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*11.0*	*12.0*		*10.0*	*12.0*			*12.5*		*11.0*	*10.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*		*0*	*0*			*0*		*0*	*0*	
Min. Time for Pedestrians, G_p	*34.6*			*18.6*			*20.3*			*16.1*		

Phasing	EW Perm	02	03	04	NB Only	SB Only	07	08
Timing	G = *32.0*	G =	G =	G =	G = *25.0*	G = *18.0*	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y = *5*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*57*	*335*		*233*	*415*			*624*		*101*	*88*	
Lane Group Capacity, c	*295*	*618*		*242*	*1153*			*903*		*339*	*321*	
v/c Ratio, X	*0.19*	*0.54*		*0.96*	*0.36*			*0.69*		*0.30*	*0.27*	
Total Green Ratio, g/C	*0.36*	*0.36*		*0.36*	*0.36*			*0.28*		*0.20*	*0.20*	
Uniform Delay, d_1	*20.1*	*23.2*		*28.4*	*21.4*			*29.0*		*30.6*	*30.5*	
Progression Factor, PF	*1.000*	*1.000*		*1.000*	*1.000*			*1.000*		*1.000*	*1.000*	
Delay Calibration, k	*0.50*	*0.50*		*0.50*	*0.50*			*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2	*1.1*	*2.7*		*48.4*	*0.9*			*4.3*		*2.2*	*2.1*	

Weekday

Midday

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/11/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 Alt 3 Miti-Action Cond*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*1*	*1*	*0*
Lane Group		*LTR*			*LT*	*R*		*LTR*		*L*	*TR*	
Volume, V (vph)	*1*	*17*	*6*	*232*	*24*	*364*	*1*	*200*	*246*	*203*	*215*	*1*
% Heavy Vehicles, %HV	*4*	*4*	*4*	*6*	*6*	*6*	*11*	*11*	*11*	*7*	*7*	*7*
Peak-Hour Factor, PHF	*0.84*	*0.84*	*0.84*	*0.90*	*0.90*	*0.90*	*0.92*	*0.92*	*0.92*	*0.86*	*0.86*	*0.86*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	
Arrival Type, AT		*3*			*3*	*3*		*3*		*3*	*3*	
Unit Extension, UE		*3.0*			*3.0*	*3.0*		*3.0*		*3.0*	*3.0*	
Filtering/Metering, I		*1.000*			*0.887*	*0.887*		*0.931*		*1.000*	*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*	*0.0*		*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*15.5*			*11.0*	*10.0*		*15.0*		*10.0*	*11.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*			*0*	*0*		*3*		*0*	*4*	
Min. Time for Pedestrians, G_p	*11.5*			*13.5*			*15.2*			*12.1*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *25.0*	G =	G =	G =	G = *25.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*28*			*285*	*404*		*485*		*236*	*251*	
Lane Group Capacity, c		*713*			*524*	*518*		*717*		*275*	*703*	
v/c Ratio, X		*0.04*			*0.54*	*0.78*		*0.68*		*0.86*	*0.36*	
Total Green Ratio, g/C		*0.42*			*0.42*	*0.42*		*0.42*		*0.42*	*0.42*	
Uniform Delay, d_1		*10.4*			*13.2*	*15.1*		*14.2*		*15.9*	*12.0*	
Progression Factor, PF		*1.000*			*1.000*	*1.000*		*1.000*		*1.000*	*1.000*	
Delay Calibration, k		*0.50*			*0.50*	*0.50*		*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2		*0.1*			*3.6*	*9.9*		*4.7*		*27.6*	*1.4*	

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Bricktown/KWVP*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/11/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 12-1 PM MD Peak Period*	Analysis Year	*2020 Miti-Action Alt 3*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*	*0*	*1*	*2*	*0*	*0*	*2*	*0*	*1*	*1*	*0*
Lane Group	*L*	*TR*		*L*	*TR*			*LTR*		*L*	*TR*	
Volume, V (vph)	*94*	*250*	*148*	*195*	*446*	*84*	*178*	*448*	*316*	*149*	*67*	*40*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*6*	*6*	*6*	*4*	*4*	*4*	*2*	*2*	*2*
Peak-Hour Factor, PHF	*0.84*	*0.84*	*0.84*	*0.90*	*0.90*	*0.90*	*0.93*	*0.93*	*0.93*	*0.80*	*0.80*	*0.80*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*		*2.0*	*2.0*			*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e	*2.0*	*2.0*		*2.0*	*2.0*			*2.0*		*2.0*	*2.0*	
Arrival Type, AT	*3*	*3*		*3*	*3*			*3*		*3*	*3*	
Unit Extension, UE	*3.0*	*3.0*		*3.0*	*3.0*			*3.0*		*3.0*	*3.0*	
Filtering/Metering, I	*0.856*	*0.856*		*0.927*	*0.927*			*1.000*		*0.985*	*0.985*	
Initial Unmet Demand, Q_b	*0.0*	*0.0*		*0.0*	*0.0*			*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*32*	*0*	*0*	*13*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*11.0*	*12.0*		*10.0*	*12.0*			*12.5*		*11.0*	*10.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*		*0*	*0*			*0*		*0*	*0*	
Min. Time for Pedestrians, G_p	*34.6*			*18.6*			*20.3*			*16.1*		

Phasing	EW Perm	02	03	04	NB Only	SB Only	07	08
Timing	G = *30.0*	G =	G =	G =	G = *29.0*	G = *16.0*	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y = *5*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*112*	*436*		*217*	*575*			*1013*		*186*	*134*	
Lane Group Capacity, c	*202*	*597*		*150*	*1114*			*1072*		*304*	*292*	
v/c Ratio, X	*0.55*	*0.73*		*1.45*	*0.52*			*0.94*		*0.61*	*0.46*	
Total Green Ratio, g/C	*0.33*	*0.33*		*0.33*	*0.33*			*0.32*		*0.18*	*0.18*	
Uniform Delay, d_1	*24.5*	*26.4*		*30.0*	*24.2*			*29.7*		*34.1*	*33.1*	
Progression Factor, PF	*1.000*	*1.000*		*1.000*	*1.000*			*1.000*		*1.000*	*1.000*	
Delay Calibration, k	*0.50*	*0.50*		*0.50*	*0.50*			*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2	*9.1*	*6.6*		*232.2*	*1.6*			*17.1*		*8.8*	*5.0*	

Weekday

PM

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/11/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 Alt 3 Miti-Action Cond*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*1*	*1*	*0*
Lane Group		*LTR*			*LT*	*R*		*LTR*		*L*	*TR*	
Volume, V (vph)	*1*	*11*	*2*	*278*	*20*	*273*	*4*	*207*	*304*	*259*	*285*	*1*
% Heavy Vehicles, %HV	*3*	*3*	*3*	*5*	*5*	*5*	*5*	*5*	*5*	*7*	*7*	*7*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.82*	*0.82*	*0.82*	*0.93*	*0.93*	*0.93*	*0.86*	*0.86*	*0.86*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	
Arrival Type, AT		*3*			*3*	*3*		*3*		*3*	*3*	
Unit Extension, UE		*3.0*			*3.0*	*3.0*		*3.0*		*3.0*	*3.0*	
Filtering/Metering, I		*1.000*			*0.933*	*0.933*		*0.919*		*1.000*	*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*	*0.0*		*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*15.5*			*11.0*	*10.0*		*15.0*		*10.0*	*11.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*			*0*	*0*		*3*		*0*	*2*	
Min. Time for Pedestrians, G_p	*11.5*			*13.5*			*15.2*			*12.1*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *23.0*	G =	G =	G =	G = *27.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*16*			*363*	*333*		*554*		*301*	*332*	
Lane Group Capacity, c		*669*			*488*	*481*		*813*		*280*	*766*	
v/c Ratio, X		*0.02*			*0.74*	*0.69*		*0.68*		*1.08*	*0.43*	
Total Green Ratio, g/C		*0.38*			*0.38*	*0.38*		*0.45*		*0.45*	*0.45*	
Uniform Delay, d_1		*11.5*			*16.0*	*15.5*		*13.1*		*16.5*	*11.3*	
Progression Factor, PF		*1.000*			*1.000*	*1.000*		*1.000*		*1.000*	*1.000*	
Delay Calibration, k		*0.50*			*0.50*	*0.50*		*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2		*0.1*			*9.3*	*7.5*		*4.2*		*75.1*	*1.8*	

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Bricktown/KWVP*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/11/13*	Jurisdiction	*Sat Flow Rate WB-L = 1950*
Time Period	*Weekday 5-6 PM Peak Period*	Analysis Year	*2020 Miti-Action Alt 3*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*1*	*1*	*0*	*1*	*2*	*0*	*0*	*2*	*0*	*1*	*1*	*0*
Lane Group	*L*	*TR*		*L*	*TR*			*LTR*		*L*	*TR*	
Volume, V (vph)	*109*	*264*	*206*	*248*	*326*	*87*	*205*	*471*	*267*	*223*	*77*	*56*
% Heavy Vehicles, %HV	*1*	*1*	*1*	*7*	*7*	*7*	*3*	*3*	*3*	*1*	*1*	*1*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*0.88*	*0.90*	*0.82*	*0.82*	*0.93*	*0.93*	*0.93*	*0.76*	*0.76*	*0.76*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1	*2.0*	*2.0*		*2.0*	*2.0*			*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e	*2.0*	*2.0*		*3.0*	*3.0*			*2.0*		*2.0*	*2.0*	
Arrival Type, AT	*3*	*3*		*3*	*3*			*3*		*3*	*3*	
Unit Extension, UE	*3.0*	*3.0*		*3.0*	*3.0*			*3.0*		*3.0*	*3.0*	
Filtering/Metering, I	*0.701*	*0.701*		*0.949*	*0.949*			*1.000*		*0.970*	*0.970*	
Initial Unmet Demand, Q_b	*0.0*	*0.0*		*0.0*	*0.0*			*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*45*	*0*	*0*	*11*	*0*	*0*	*25*	*0*	*0*	*25*
Lane Width	*11.0*	*12.0*		*10.0*	*12.0*			*12.5*		*11.0*	*10.0*	
Parking / Grade / Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m												
Buses Stopping, N_B	*0*	*0*		*0*	*0*			*0*		*0*	*0*	
Min. Time for Pedestrians, G_p	*34.6*			*18.6*			*20.3*			*16.1*		

Phasing	EW Perm	02	03	04	NB Only	SB Only	07	08
Timing	G = *30.0*	G =	G =	G =	G = *26.0*	G = *19.0*	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y = *5*	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *90.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v	*124*	*483*		*276*	*491*			*986*		*293*	*142*	
Lane Group Capacity, c	*240*	*591*		*240*	*1132*			*980*		*365*	*355*	
v/c Ratio, X	*0.52*	*0.82*		*1.15*	*0.43*			*1.01*		*0.80*	*0.40*	
Total Green Ratio, g/C	*0.33*	*0.33*		*0.34*	*0.34*			*0.29*		*0.21*	*0.21*	
Uniform Delay, d_1	*24.2*	*27.5*		*29.5*	*22.7*			*32.0*		*33.7*	*30.6*	
Progression Factor, PF	*1.000*	*1.000*		*1.000*	*1.000*			*1.000*		*1.000*	*1.000*	
Delay Calibration, k	*0.50*	*0.50*		*0.50*	*0.50*			*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2	*5.5*	*8.6*		*103.2*	*1.2*			*30.2*		*16.4*	*3.2*	

Saturday

Midday

HCS+™ DETAILED REPORT

General Information		***Site Information***	
Analyst	*KM*	Intersection	*Veterans Rd W & Arthur Kill Rd*
Agency or Co.	*AECOM*	Area Type	*All other areas*
Date Performed	*4/11/13*	Jurisdiction	*Staten Island, NY*
Time Period	*Saturday 12:45-1:45 PM Peak Pd*	Analysis Year	*2020 Alt 3 Miti-Action Cond*
		Project ID	*Charleston EIS*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N_1	*0*	*1*	*0*	*0*	*1*	*1*	*0*	*1*	*0*	*1*	*1*	*0*
Lane Group		*LTR*			*LT*	*R*		*LTR*		*L*	*TR*	
Volume, V (vph)	*0*	*10*	*5*	*325*	*27*	*398*	*5*	*252*	*364*	*254*	*261*	*0*
% Heavy Vehicles, %HV	*2*	*2*	*2*	*2*	*2*	*2*	*5*	*5*	*5*	*3*	*3*	*3*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*
Pretimed (P) or Actuated (A)	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*	*P*
Start-up Lost Time, l_1		*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	
Extension of Effective Green, e		*2.0*			*2.0*	*2.0*		*2.0*		*2.0*	*2.0*	
Arrival Type, AT		*3*			*3*	*3*		*3*		*3*	*3*	
Unit Extension, UE		*3.0*			*3.0*	*3.0*		*3.0*		*3.0*	*3.0*	
Filtering/Metering, I		*1.000*			*0.849*	*0.849*		*0.861*		*1.000*	*1.000*	
Initial Unmet Demand, Q_b		*0.0*			*0.0*	*0.0*		*0.0*		*0.0*	*0.0*	
Ped / Bike / RTOR Volumes	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width		*15.5*			*11.0*	*10.0*		*15.0*		*10.0*	*11.0*	
Parking / Grade / Parking	*N*	*0*	*Y*	*N*	*0*	*Y*	*N*	*0*	*N*	*N*	*0*	*N*
Parking Maneuvers, N_m			*5*			*5*						
Buses Stopping, N_B		*0*			*0*	*0*		*2*		*0*	*2*	
Min. Time for Pedestrians, G_p	*11.5*			*13.5*			*15.2*			*12.1*		

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = *22.0*	G =	G =	G =	G = *28.0*	G =	G =	G =
	Y = *5*	Y =	Y =	Y =	Y = *5*	Y =	Y =	Y =
Duration of Analysis, T = *0.25*						Cycle Length, C = *60.0*		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		*16*			*382*	*433*		*682*		*279*	*287*	
Lane Group Capacity, c		*639*			*483*	*474*		*847*		*254*	*826*	
v/c Ratio, X		*0.03*			*0.79*	*0.91*		*0.81*		*1.10*	*0.35*	
Total Green Ratio, g/C		*0.37*			*0.37*	*0.37*		*0.47*		*0.47*	*0.47*	
Uniform Delay, d_1		*12.1*			*16.9*	*18.1*		*13.7*		*16.0*	*10.2*	
Progression Factor, PF		*1.000*			*1.000*	*1.000*		*1.000*		*1.000*	*1.000*	
Delay Calibration, k		*0.50*			*0.50*	*0.50*		*0.50*		*0.50*	*0.50*	
Incremental Delay, d_2		*0.1*			*10.7*	*21.8*		*7.0*		*85.3*	*1.2*	