

Attachment A

**New Intersection Impact Analyses
Turning Movement Counts
Crash Data
Capacity Analyses**

Turning Movement Counts



PRECISION
D A T A
INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdill.com

N: Smith Drive
E/W: Downey Street
City, State: Westwood, MA
Client: Tetra Tech Rizzo / N. Doherty

File Name : 133171 B
Site Code : 123-3659
Start Date : 1/4/2013
Page No : 1

Groups Printed- Cars - Heavy Vehicles

Start Time	Smith Drive From North			Downey Street From East			Downey Street From West			Int. Total
	Right	Left	U-Turns	Right	Thru	U-Turns	Thru	Left	U-Turns	
07:00 AM	4	6	0	16	3	0	2	12	0	43
07:15 AM	4	7	0	12	8	0	1	8	0	40
07:30 AM	5	19	0	10	11	0	8	6	0	59
07:45 AM	6	14	0	8	7	0	4	9	0	48
Total	19	46	0	46	29	0	15	35	0	190
08:00 AM	3	9	0	7	7	0	1	5	0	32
08:15 AM	13	5	1	8	8	0	3	2	1	41
08:30 AM	23	9	0	7	34	0	27	28	0	128
08:45 AM	10	6	0	13	12	0	19	32	0	92
Total	49	29	1	35	61	0	50	67	1	293
Grand Total	68	75	1	81	90	0	65	102	1	483
Apprch %	47.2	52.1	0.7	47.4	52.6	0	38.7	60.7	0.6	
Total %	14.1	15.5	0.2	16.8	18.6	0	13.5	21.1	0.2	
Cars	67	73	1	75	84	0	63	99	1	463
% Cars	98.5	97.3	100	92.6	93.3	0	96.9	97.1	100	95.9
Heavy Vehicles	1	2	0	6	6	0	2	3	0	20
% Heavy Vehicles	1.5	2.7	0	7.4	6.7	0	3.1	2.9	0	4.1

Start Time	Smith Drive From North <i>EB</i>				Downey Street From East <i>SB</i>				Downey Street From West <i>N/B</i>				Int. Total
	Right	Left	U-Turns	App. Total	Right	Thru	U-Turns	App. Total	Thru	Left	U-Turns	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:00 AM													
08:00 AM	3	9	0	12	7	7	0	14	1	5	0	6	32
08:15 AM	13	5	1	19	8	8	0	16	3	2	1	6	41
08:30 AM	23	9	0	32	7	34	0	41	27	28	0	55	128
08:45 AM	10	6	0	16	13	12	0	25	19	32	0	51	92
Total Volume	49	29	1	79	35	61	0	96	50	67	1	118	293
% App. Total	62	36.7	1.3		36.5	63.5	0		42.4	56.8	0.8		
PHF	.533	.806	.250	.617	.673	.449	.000	.585	.463	.523	.250	.536	.572
Cars	49	28	1	78	35	57	0	92	49	64	1	114	284
% Cars	100	96.6	100	98.7	100	93.4	0	95.8	98.0	95.5	100	96.6	96.9
Heavy Vehicles	0	1	0	1	0	4	0	4	1	3	0	4	9
% Heavy Vehicles	0	3.4	0	1.3	0	6.6	0	4.2	2.0	4.5	0	3.4	3.1



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Groups Printed- Cars

Start Time	Smith Drive From North			Downey Street From East			Downey Street From West			Int. Total
	Right	Left	U-Turns	Right	Thru	U-Turns	Thru	Left	U-Turns	
07:00 AM	4	6	0	13	3	0	2	12	0	40
07:15 AM	3	6	0	11	7	0	1	8	0	36
07:30 AM	5	19	0	8	10	0	8	6	0	56
07:45 AM	6	14	0	8	7	0	3	9	0	47
Total	18	45	0	40	27	0	14	35	0	179
08:00 AM	3	8	0	7	6	0	1	5	0	30
08:15 AM	13	5	1	8	6	0	2	2	1	38
08:30 AM	23	9	0	7	33	0	27	25	0	124
08:45 AM	10	6	0	13	12	0	19	32	0	92
Total	49	28	1	35	57	0	49	64	1	284
Grand Total	67	73	1	75	84	0	63	99	1	463
Apprch %	47.5	51.8	0.7	47.2	52.8	0	38.7	60.7	0.6	
Total %	14.5	15.8	0.2	16.2	18.1	0	13.6	21.4	0.2	

Start Time	Smith Drive From North				Downey Street From East				Downey Street From West				Int. Total
	Right	Left	U-Turns	App. Total	Right	Thru	U-Turns	App. Total	Thru	Left	U-Turns	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:00 AM													
08:00 AM	3	8	0	11	7	6	0	13	1	5	0	6	30
08:15 AM	13	5	1	19	8	6	0	14	2	2	1	5	38
08:30 AM	23	9	0	32	7	33	0	40	27	25	0	52	124
08:45 AM	10	6	0	16	13	12	0	25	19	32	0	51	92
Total Volume	49	28	1	78	35	57	0	92	49	64	1	114	284
% App. Total	62.8	35.9	1.3		38	62	0		43	56.1	0.9		
PHF	.533	.778	.250	.609	.673	.432	.000	.575	.454	.500	.250	.548	.573



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Groups Printed- Heavy Vehicles

Start Time	Smith Drive From North			Downey Street From East			Downey Street From West			Int. Total
	Right	Left	U-Turns	Right	Thru	U-Turns	Thru	Left	U-Turns	
07:00 AM	0	0	0	3	0	0	0	0	0	3
07:15 AM	1	1	0	1	1	0	0	0	0	4
07:30 AM	0	0	0	2	1	0	0	0	0	3
07:45 AM	0	0	0	0	0	0	1	0	0	1
Total	1	1	0	6	2	0	1	0	0	11
08:00 AM	0	1	0	0	1	0	0	0	0	2
08:15 AM	0	0	0	0	2	0	1	0	0	3
08:30 AM	0	0	0	0	1	0	0	3	0	4
08:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	4	0	1	3	0	9
Grand Total	1	2	0	6	6	0	2	3	0	20
Apprch %	33.3	66.7	0	50	50	0	40	60	0	
Total %	5	10	0	30	30	0	10	15	0	

Start Time	Smith Drive From North				Downey Street From East				Downey Street From West				Int. Total
	Right	Left	U-Turns	App. Total	Right	Thru	U-Turns	App. Total	Thru	Left	U-Turns	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:00 AM													
07:00 AM	0	0	0	0	3	0	0	3	0	0	0	0	3
07:15 AM	1	1	0	2	1	1	0	2	0	0	0	0	4
07:30 AM	0	0	0	0	2	1	0	3	0	0	0	0	3
07:45 AM	0	0	0	0	0	0	0	0	1	0	0	1	1
Total Volume	1	1	0	2	6	2	0	8	1	0	0	1	11
% App. Total	50	50	0		75	25	0		100	0	0		
PHF	.250	.250	.000	.250	.500	.500	.000	.667	.250	.000	.000	.250	.688



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Groups Printed- Peds and Bicycles

Start Time	Smith Drive From North			Downey Street From East			Downey Street From West			Int. Total
	Right	Left	Peds	Right	Thru	Peds	Thru	Left	Peds	
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	7	7
08:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	7	7
Grand Total	0	0	0	0	0	0	0	0	7	7
Apprch %	0	0	0	0	0	0	0	0	100	
Total %	0	0	0	0	0	0	0	0	100	

Start Time	Smith Drive From North				Downey Street From East				Downey Street From West				Int. Total
	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:45 AM													
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	7	7	7
Total Volume	0	0	0	0	0	0	0	0	0	0	7	7	7
% App. Total	0	0	0		0	0	0		0	0	100		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250	.250



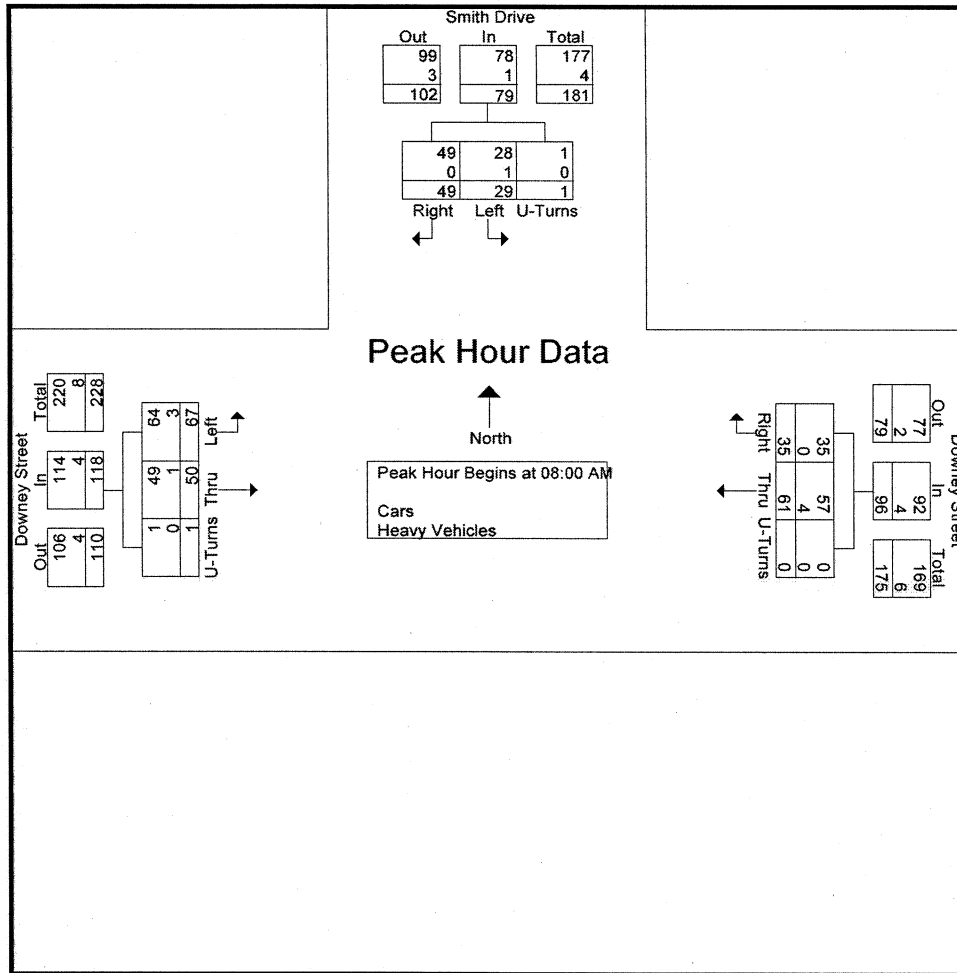
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Start Time	Smith Drive From North			App. Total	Downey Street From East			App. Total	Downey Street From West			Int. Total	
	Right	Left	U-Turns		Right	Thru	U-Turns		Thru	Left	U-Turns		
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:00 AM													
08:00 AM	3	9	0	12	7	7	0	14	1	5	0	6	32
08:15 AM	13	5	1	19	8	8	0	16	3	2	1	6	41
08:30 AM	23	9	0	32	7	34	0	41	27	28	0	55	128
08:45 AM	10	6	0	16	13	12	0	25	19	32	0	51	92
Total Volume	49	29	1	79	35	61	0	96	50	67	1	118	293
% App. Total	62	36.7	1.3		36.5	63.5	0		42.4	56.8	0.8		
PHF	.533	.806	.250	.617	.673	.449	.000	.585	.463	.523	.250	.536	.572
Cars	49	28	1	78	35	57	0	92	49	64	1	114	284
% Cars	100	96.6	100	98.7	100	93.4	0	95.8	98.0	95.5	100	96.6	96.9
Heavy Vehicles	0	1	0	1	0	4	0	4	1	3	0	4	9
% Heavy Vehicles	0	3.4	0	1.3	0	6.6	0	4.2	2.0	4.5	0	3.4	3.1





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Page No : 1

N: Smith Drive
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City, State: Westwood, MA
Client: Tetra Tech Rizzo / N. Doherty

Groups Printed- Cars

Start Time	Smith Drive From North			Downey Street From East			Downey Street From West			Int. Total
	Right	Left	U-Turns	Right	Thru	U-Turns	Thru	Left	U-Turns	
04:00 PM	3	1	0	11	4	0	3	5	0	27
04:15 PM	5	8	0	7	6	0	8	6	0	40
04:30 PM	2	6	0	7	2	0	4	4	0	25
04:45 PM	7	7	0	10	0	0	2	4	0	30
Total	17	22	0	35	12	0	17	19	0	122
05:00 PM	4	18	0	12	4	0	1	6	0	45
05:15 PM	2	10	0	14	7	0	6	0	0	39
05:30 PM	3	13	0	9	2	0	5	4	0	36
05:45 PM	2	14	0	17	3	0	0	2	0	38
Total	11	55	0	52	16	0	12	12	0	158
Grand Total	28	77	0	87	28	0	29	31	0	280
Apprch %	26.7	73.3	0	75.7	24.3	0	48.3	51.7	0	
Total %	10	27.5	0	31.1	10	0	10.4	11.1	0	

Start Time	Smith Drive From North				Downey Street From East				Downey Street From West				Int. Total
	Right	Left	U-Turns	App. Total	Right	Thru	U-Turns	App. Total	Thru	Left	U-Turns	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	4	18	0	22	12	4	0	16	1	6	0	7	45
05:15 PM	2	10	0	12	14	7	0	21	6	0	0	6	39
05:30 PM	3	13	0	16	9	2	0	11	5	4	0	9	36
05:45 PM	2	14	0	16	17	3	0	20	0	2	0	2	38
Total Volume	11	55	0	66	52	16	0	68	12	12	0	24	158
% App. Total	16.7	83.3	0		76.5	23.5	0		50	50	0		
PHF	.688	.764	.000	.750	.765	.571	.000	.810	.500	.500	.000	.667	.878



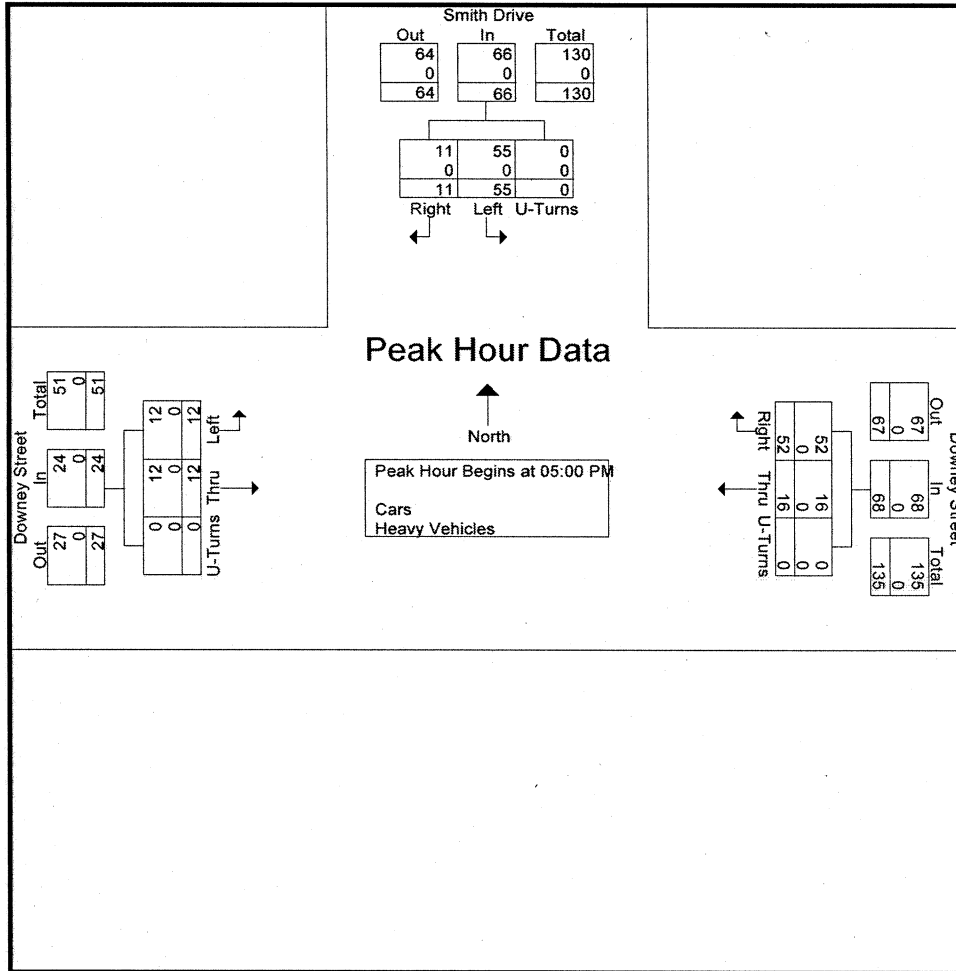
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Start Time	Smith Drive From North				Downey Street From East				Downey Street From West				Int. Total
	Right	Left	U-Turns	App. Total	Right	Thru	U-Turns	App. Total	Thru	Left	U-Turns	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	4	18	0	22	12	4	0	16	1	6	0	7	45
05:15 PM	2	10	0	12	14	7	0	21	6	0	0	6	39
05:30 PM	3	13	0	16	9	2	0	11	5	4	0	9	36
05:45 PM	2	14	0	16	17	3	0	20	0	2	0	2	38
Total Volume	11	55	0	66	52	16	0	68	12	12	0	24	158
% App. Total	16.7	83.3	0		76.5	23.5	0		50	50	0		
PHF	.688	.764	.000	.750	.765	.571	.000	.810	.500	.500	.000	.667	.878
Cars	11	55	0	66	52	16	0	68	12	12	0	24	158
% Cars	100	100	0	100	100	100	0	100	100	100	0	100	100
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0





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City, State: Westwood, MA
Client: Tetra Tech Rizzo / N. Doherty

File Name : 123163 B
Site Code : 12003
Start Date : 12/15/2012
Page No : 1

Groups Printed- Cars - Heavy Vehicles

Start Time	Smith Drive From North			Downey Street From East			Downey Street From West			Int. Total
	Right	Left	U-Turns	Right	Thru	U-Turns	Thru	Left	U-Turns	
11:00 AM	4	9	0	5	1	0	4	8	0	31
11:15 AM	7	2	0	6	5	0	5	2	0	27
11:30 AM	12	5	0	13	4	0	3	6	0	43
11:45 AM	12	8	0	13	7	0	7	20	0	67
Total	35	24	0	37	17	0	19	36	0	168
12:00 PM	9	8	0	9	1	0	4	5	0	36
12:15 PM	6	8	0	12	7	0	5	3	0	41
12:30 PM	4	4	0	6	1	0	2	4	0	21
12:45 PM	12	4	0	11	5	0	2	7	0	41
Total	31	24	0	38	14	0	13	19	0	139
Grand Total	66	48	0	75	31	0	32	55	0	307
Apprch %	57.9	42.1	0	70.8	29.2	0	36.8	63.2	0	
Total %	21.5	15.6	0	24.4	10.1	0	10.4	17.9	0	
Cars	66	46	0	75	28	0	29	54	0	298
% Cars	100	95.8	0	100	90.3	0	90.6	98.2	0	97.1
Heavy Vehicles	0	2	0	0	3	0	3	1	0	9
% Heavy Vehicles	0	4.2	0	0	9.7	0	9.4	1.8	0	2.9

Start Time	Smith Drive From North				Downey Street From East				Downey Street From West				Int. Total
	Right	Left	U-Turns	App. Total	Right	Thru	U-Turns	App. Total	Thru	Left	U-Turns	App. Total	
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 11:30 AM													
11:30 AM	12	5	0	17	13	4	0	17	3	6	0	9	43
11:45 AM	12	8	0	20	13	7	0	20	7	20	0	27	67
12:00 PM	9	8	0	17	9	1	0	10	4	5	0	9	36
12:15 PM	6	8	0	14	12	7	0	19	5	3	0	8	41
Total Volume	39	29	0	68	47	19	0	66	19	34	0	53	187
% App. Total	57.4	42.6	0		71.2	28.8	0		35.8	64.2	0		
PHF	.813	.906	.000	.850	.904	.679	.000	.825	.679	.425	.000	.491	.698
Cars	39	28	0	67	47	16	0	63	17	33	0	50	180
% Cars	100	96.6	0	98.5	100	84.2	0	95.5	89.5	97.1	0	94.3	96.3
Heavy Vehicles	0	1	0	1	0	3	0	3	2	1	0	3	7
% Heavy Vehicles	0	3.4	0	1.5	0	15.8	0	4.5	10.5	2.9	0	5.7	3.7



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	Right	Left	U-Turns	Right	Thru	U-Turns	Thru	Left	U-Turns	
11:00 AM	4	9	0	5	1	0	4	8	0	31
11:15 AM	7	1	0	6	5	0	4	2	0	25
11:30 AM	12	5	0	13	4	0	3	6	0	43
11:45 AM	12	8	0	13	5	0	7	20	0	65
Total	35	23	0	37	15	0	18	36	0	164
12:00 PM	9	7	0	9	0	0	4	4	0	33
12:15 PM	6	8	0	12	7	0	3	3	0	39
12:30 PM	4	4	0	6	1	0	2	4	0	21
12:45 PM	12	4	0	11	5	0	2	7	0	41
Total	31	23	0	38	13	0	11	18	0	134
Grand Total	66	46	0	75	28	0	29	54	0	298
Apprch %	58.9	41.1	0	72.8	27.2	0	34.9	65.1	0	
Total %	22.1	15.4	0	25.2	9.4	0	9.7	18.1	0	

Start Time	Smith Drive From North				Downey Street From East				Downey Street From West				Int. Total
	Right	Left	U-Turns	App. Total	Right	Thru	U-Turns	App. Total	Thru	Left	U-Turns	App. Total	
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 11:30 AM													
11:30 AM	12	5	0	17	13	4	0	17	3	6	0	9	43
11:45 AM	12	8	0	20	13	5	0	18	7	20	0	27	65
12:00 PM	9	7	0	16	9	0	0	9	4	4	0	8	33
12:15 PM	6	8	0	14	12	7	0	19	3	3	0	6	39
Total Volume	39	28	0	67	47	16	0	63	17	33	0	50	180
% App. Total	58.2	41.8	0		74.6	25.4	0		34	66	0		
PHF	.813	.875	.000	.838	.904	.571	.000	.829	.607	.413	.000	.463	.692



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N: Smith Drive
E/W: Downey Street
City, State: Westwood, MA
Client: Tetra Tech Rizzo / N. Doherty

File Name : 123163 B
Site Code : 12003
Start Date : 12/15/2012
Page No : 1

Groups Printed- Heavy Vehicles

Start Time	Smith Drive From North			Downey Street From East			Downey Street From West			Int. Total
	Right	Left	U-Turns	Right	Thru	U-Turns	Thru	Left	U-Turns	
11:00 AM	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	1	0	0	0	0	1	0	0	2
11:30 AM	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	2	0	0	0	0	2
Total	0	1	0	0	2	0	1	0	0	4
12:00 PM	0	1	0	0	1	0	0	1	0	3
12:15 PM	0	0	0	0	0	0	2	0	0	2
12:30 PM	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	1	0	2	1	0	5
Grand Total	0	2	0	0	3	0	3	1	0	9
Apprch %	0	100	0	0	100	0	75	25	0	
Total %	0	22.2	0	0	33.3	0	33.3	11.1	0	

Start Time	Smith Drive From North				Downey Street From East				Downey Street From West				Int. Total
	Right	Left	U-Turns	App. Total	Right	Thru	U-Turns	App. Total	Thru	Left	U-Turns	App. Total	
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 11:15 AM													
11:15 AM	0	1	0	1	0	0	0	0	1	0	0	1	2
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	2	0	2	0	0	0	0	2
12:00 PM	0	1	0	1	0	1	0	1	0	1	0	1	3
Total Volume	0	2	0	2	0	3	0	3	1	1	0	2	7
% App. Total	0	100	0		0	100	0		50	50	0		
PHF	.000	.500	.000	.500	.000	.375	.000	.375	.250	.250	.000	.500	.583



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N: Smith Drive
E/W: Downey Street
City, State: Westwood, MA
Client: Tetra Tech Rizzo / N. Doherty

File Name : 123163 B
Site Code : 12003
Start Date : 12/15/2012
Page No : 1

Groups Printed- Peds and Bicycles

Start Time	Smith Drive From North			Downey Street From East			Downey Street From West			Int. Total
	Right	Left	Peds	Right	Thru	Peds	Thru	Left	Peds	
11:00 AM	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	2	2
Total	0	0	0	0	0	0	0	0	2	2
12:00 PM	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	1	1
Total	0	0	0	0	0	0	0	0	1	1
Grand Total	0	0	0	0	0	0	0	0	3	3
Apprch %	0	0	0	0	0	0	0	0	100	
Total %	0	0	0	0	0	0	0	0	100	

Start Time	Smith Drive From North				Downey Street From East				Downey Street From West				Int. Total
	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 11:00 AM													
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	2	2	2
Total Volume	0	0	0	0	0	0	0	0	0	0	2	2	2
% App. Total	0	0	0		0	0	0		0	0	100		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250	.250



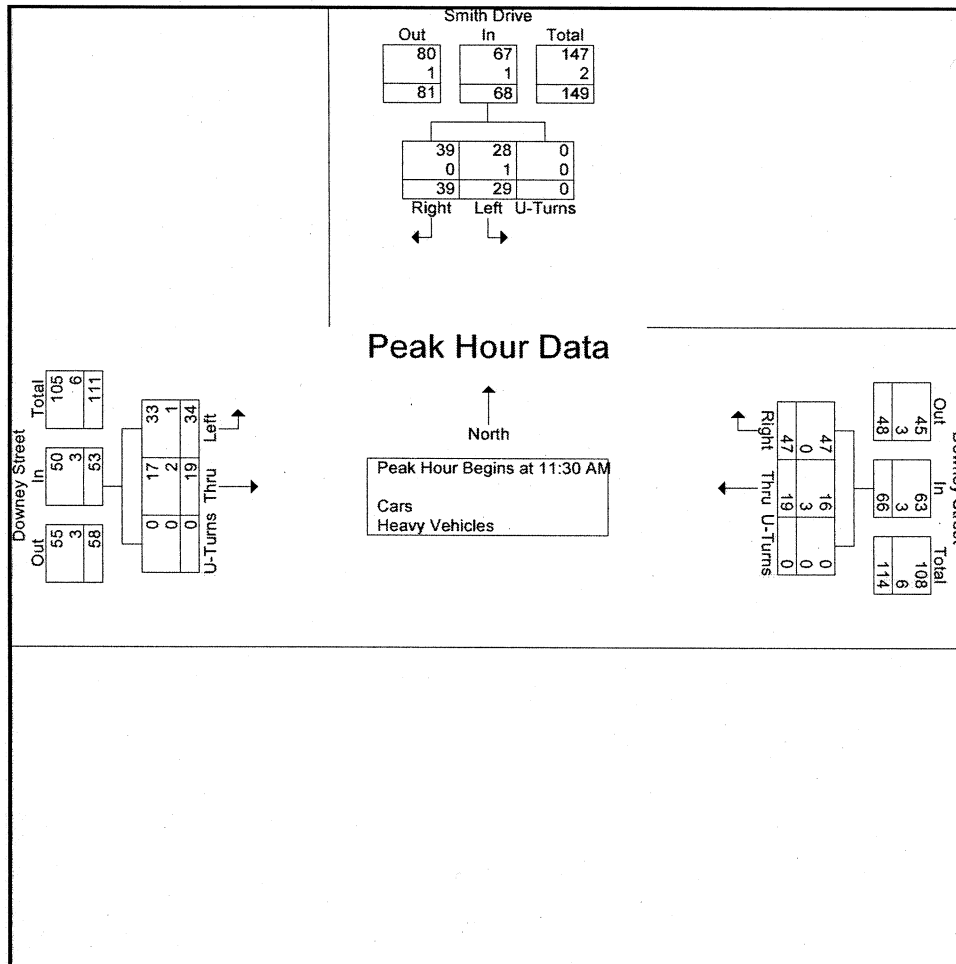
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N: Smith Drive
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City, State: Westwood, MA
Client: Tetra Tech Rizzo / N. Doherty

File Name : 123163 B
Site Code : 12003
Start Date : 12/15/2012
Page No : 1

Start Time	Smith Drive From North				Downey Street From East				Downey Street From West				Int. Total
	Right	Left	U-Turns	App. Total	Right	Thru	U-Turns	App. Total	Thru	Left	U-Turns	App. Total	
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 11:30 AM													
11:30 AM	12	5	0	17	13	4	0	17	3	6	0	9	43
11:45 AM	12	8	0	20	13	7	0	20	7	20	0	27	67
12:00 PM	9	8	0	17	9	1	0	10	4	5	0	9	36
12:15 PM	6	8	0	14	12	7	0	19	5	3	0	8	41
Total Volume	39	29	0	68	47	19	0	66	19	34	0	53	187
% App. Total	57.4	42.6	0		71.2	28.8	0		35.8	64.2	0		
PHF	.813	.906	.000	.850	.904	.679	.000	.825	.679	.425	.000	.491	.698
Cars	39	28	0	67	47	16	0	63	17	33	0	50	180
% Cars	100	96.6	0	98.5	100	84.2	0	95.5	89.5	97.1	0	94.3	96.3
Heavy Vehicles	0	1	0	1	0	3	0	3	2	1	0	3	7
% Heavy Vehicles	0	3.4	0	1.5	0	15.8	0	4.5	10.5	2.9	0	5.7	3.7





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S: Smith Drive
E/W: East Street
City, State: Westwood, MA
Client: Tetra Tech Rizzo/ N. Doherty

File Name : 133171 C
Site Code : 123-3659
Start Date : 1/4/2013
Page No : 1

Groups Printed- Cars - Heavy Vehicles

Start Time	East Street From East			Smith Drive From South			East Street From West			Int. Total
	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	
07:00 AM	87	0	0	5	21	0	11	187	0	311
07:15 AM	89	4	0	4	20	0	11	180	0	308
07:30 AM	110	2	0	8	11	0	21	216	0	368
07:45 AM	116	5	0	3	15	0	16	187	0	342
Total	402	11	0	20	67	0	59	770	0	1329
08:00 AM	86	0	0	0	12	0	11	179	0	288
08:15 AM	65	1	0	3	10	0	20	205	0	304
08:30 AM	80	18	0	4	28	0	14	148	0	292
08:45 AM	94	5	0	12	46	0	10	163	0	330
Total	325	24	0	19	96	0	55	695	0	1214
Grand Total	727	35	0	39	163	0	114	1465	0	2543
Apprch %	95.4	4.6	0	19.3	80.7	0	7.2	92.8	0	
Total %	28.6	1.4	0	1.5	6.4	0	4.5	57.6	0	
Cars	718	33	0	39	154	0	113	1453	0	2510
% Cars	98.8	94.3	0	100	94.5	0	99.1	99.2	0	98.7
Heavy Vehicles	9	2	0	0	9	0	1	12	0	33
% Heavy Vehicles	1.2	5.7	0	0	5.5	0	0.9	0.8	0	1.3

Start Time	East Street From East				Smith Drive From South				East Street From West				Int. Total
	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:00 AM													
07:00 AM	87	0	0	87	5	21	0	26	11	187	0	198	311
07:15 AM	89	4	0	93	4	20	0	24	11	180	0	191	308
07:30 AM	110	2	0	112	8	11	0	19	21	216	0	237	368
07:45 AM	116	5	0	121	3	15	0	18	16	187	0	203	342
Total Volume	402	11	0	413	20	67	0	87	59	770	0	829	1329
% App. Total	97.3	2.7	0		23	77	0		7.1	92.9	0		
PHF	.866	.550	.000	.853	.625	.798	.000	.837	.702	.891	.000	.874	.903
Cars	397	9	0	406	20	61	0	81	59	763	0	822	1309
% Cars	98.8	81.8	0	98.3	100	91.0	0	93.1	100	99.1	0	99.2	98.5
Heavy Vehicles	5	2	0	7	0	6	0	6	0	7	0	7	20
% Heavy Vehicles	1.2	18.2	0	1.7	0	9.0	0	6.9	0	0.9	0	0.8	1.5



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S: Smith Drive
E/W: East Street
City, State: Westwood, MA
Client: Tetra Tech Rizzo/ N. Doherty

File Name : 133171 C
Site Code : 123-3659
Start Date : 1/4/2013
Page No : 1

Groups Printed- Cars

Start Time	East Street From East			Smith Drive From South			East Street From West			Int. Total
	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	
07:00 AM	86	0	0	5	18	0	11	184	0	304
07:15 AM	88	2	0	4	19	0	11	177	0	301
07:30 AM	108	2	0	8	9	0	21	216	0	364
07:45 AM	115	5	0	3	15	0	16	186	0	340
Total	397	9	0	20	61	0	59	763	0	1309
08:00 AM	85	0	0	0	12	0	10	176	0	283
08:15 AM	64	1	0	3	10	0	20	204	0	302
08:30 AM	79	18	0	4	25	0	14	147	0	287
08:45 AM	93	5	0	12	46	0	10	163	0	329
Total	321	24	0	19	93	0	54	690	0	1201
Grand Total	718	33	0	39	154	0	113	1453	0	2510
Apprch %	95.6	4.4	0	20.2	79.8	0	7.2	92.8	0	
Total %	28.6	1.3	0	1.6	6.1	0	4.5	57.9	0	

Start Time	East Street From East				Smith Drive From South				East Street From West				Int. Total
	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:00 AM													
07:00 AM	86	0	0	86	5	18	0	23	11	184	0	195	304
07:15 AM	88	2	0	90	4	19	0	23	11	177	0	188	301
07:30 AM	108	2	0	110	8	9	0	17	21	216	0	237	364
07:45 AM	115	5	0	120	3	15	0	18	16	186	0	202	340
Total Volume	397	9	0	406	20	61	0	81	59	763	0	822	1309
% App. Total	97.8	2.2	0		24.7	75.3	0		7.2	92.8	0		
PHF	.863	.450	.000	.846	.625	.803	.000	.880	.702	.883	.000	.867	.899



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File Name : 133171 C

Site Code : 123-3659

Start Date : 1/4/2013

Page No : 1

S: Smith Drive
E/W: East Street
City, State: Westwood, MA
Client: Tetra Tech Rizzo/ N. Doherty

Groups Printed- Heavy Vehicles

Start Time	East Street From East			Smith Drive From South			East Street From West			Int. Total
	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	
07:00 AM	1	0	0	0	3	0	0	3	0	7
07:15 AM	1	2	0	0	1	0	0	3	0	7
07:30 AM	2	0	0	0	2	0	0	0	0	4
07:45 AM	1	0	0	0	0	0	0	1	0	2
Total	5	2	0	0	6	0	0	7	0	20
08:00 AM	1	0	0	0	0	0	1	3	0	5
08:15 AM	1	0	0	0	0	0	0	1	0	2
08:30 AM	1	0	0	0	3	0	0	1	0	5
08:45 AM	1	0	0	0	0	0	0	0	0	1
Total	4	0	0	0	3	0	1	5	0	13
Grand Total	9	2	0	0	9	0	1	12	0	33
Apprch %	81.8	18.2	0	0	100	0	7.7	92.3	0	
Total %	27.3	6.1	0	0	27.3	0	3	36.4	0	

Start Time	East Street From East				Smith Drive From South				East Street From West				Int. Total
	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:00 AM													
07:00 AM	1	0	0	1	0	3	0	3	0	3	0	3	7
07:15 AM	1	2	0	3	0	1	0	1	0	3	0	3	7
07:30 AM	2	0	0	2	0	2	0	2	0	0	0	0	4
07:45 AM	1	0	0	1	0	0	0	0	0	1	0	1	2
Total Volume	5	2	0	7	0	6	0	6	0	7	0	7	20
% App. Total	71.4	28.6	0		0	100	0		0	100	0		
PHF	.625	.250	.000	.583	.000	.500	.000	.500	.000	.583	.000	.583	.714



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S: Smith Drive
E/W: East Street
City, State: Westwood, MA
Client: Tetra Tech Rizzo/ N. Doherty

File Name : 133171 C
Site Code : 123-3659
Start Date : 1/4/2013
Page No : 1

Groups Printed- Peds and Bicycles

Start Time	East Street From East			Smith Drive From South			East Street From West			Int. Total
	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	1	1
08:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	1	1
Grand Total	0	0	0	0	0	0	0	0	1	1
Apprch %	0	0	0	0	0	0	0	0	100	
Total %	0	0	0	0	0	0	0	0	100	

Start Time	East Street From East				Smith Drive From South				East Street From West				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:45 AM													
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	1	1	1
Total Volume	0	0	0	0	0	0	0	0	0	0	1	1	1
% App. Total	0	0	0		0	0	0		0	0	100		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250	.250



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File Name : 133171 C

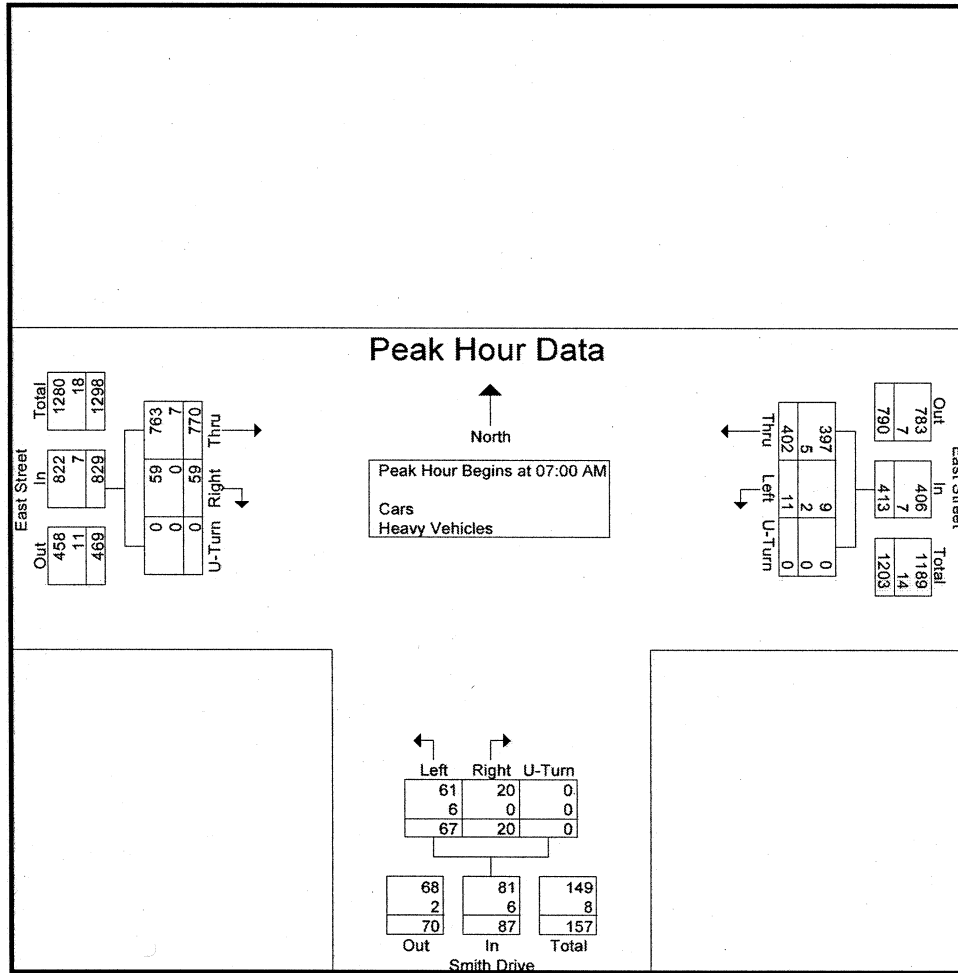
Site Code : 123-3659

Start Date : 1/4/2013

Page No : 1

S: Smith Drive
E/W: East Street
City, State: Westwood, MA
Client: Tetra Tech Rizzo/ N. Doherty

Start Time	East Street From East			App. Total	Smith Drive From South			App. Total	East Street From West			Int. Total	
	Thru	Left	U-Turn		Right	Left	U-Turn		Right	Thru	U-Turn		App. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:00 AM													
07:00 AM	87	0	0	87	5	21	0	26	11	187	0	198	311
07:15 AM	89	4	0	93	4	20	0	24	11	180	0	191	308
07:30 AM	110	2	0	112	8	11	0	19	21	216	0	237	368
07:45 AM	116	5	0	121	3	15	0	18	16	187	0	203	342
Total Volume	402	11	0	413	20	67	0	87	59	770	0	829	1329
% App. Total	97.3	2.7	0		23	77	0		7.1	92.9	0		
PHF	.866	.550	.000	.853	.625	.798	.000	.837	.702	.891	.000	.874	.903
Cars	397	9	0	406	20	61	0	81	59	763	0	822	1309
% Cars	98.8	81.8	0	98.3	100	91.0	0	93.1	100	99.1	0	99.2	98.5
Heavy Vehicles	5	2	0	7	0	6	0	6	0	7	0	7	20
% Heavy Vehicles	1.2	18.2	0	1.7	0	9.0	0	6.9	0	0.9	0	0.8	1.5





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Email: datarequests@pdilic.com

S: Smith Drive
E/W: East Street
City, State: Westwood, MA
Client: Tetra Tech Rizzo / N. Doherty

File Name : 133171 CC
Site Code : 123-3659
Start Date : 1/3/2013
Page No : 1

Groups Printed- Cars - Heavy Vehicles

Start Time	East Street From East			Smith Drive From South			East Street From West			Int. Total
	Thru	Left	U-Turns	Right	Left	U-Turns	Right	Thru	U-Turns	
04:00 PM	147	1	0	2	15	0	5	101	0	271
04:15 PM	146	3	0	2	11	0	12	93	0	267
04:30 PM	140	0	0	0	13	0	9	110	0	272
04:45 PM	165	3	0	3	12	0	14	106	0	303
Total	598	7	0	7	51	0	40	410	0	1113
05:00 PM	169	2	0	3	15	0	21	105	2	317
05:15 PM	192	3	0	3	13	0	15	117	0	343
05:30 PM	186	2	0	0	10	0	18	102	0	318
05:45 PM	194	2	0	1	21	0	13	100	0	331
Total	741	9	0	7	59	0	67	424	2	1309
Grand Total	1339	16	0	14	110	0	107	834	2	2422
Apprch %	98.8	1.2	0	11.3	88.7	0	11.3	88.4	0.2	
Total %	55.3	0.7	0	0.6	4.5	0	4.4	34.4	0.1	
Cars	1331	16	0	14	110	0	107	831	2	2411
% Cars	99.4	100	0	100	100	0	100	99.6	100	99.5
Heavy Vehicles	8	0	0	0	0	0	0	3	0	11
% Heavy Vehicles	0.6	0	0	0	0	0	0	0.4	0	0.5

Start Time	East Street From East				Smith Drive From South				East Street From West				Int. Total
	Thru	Left	U-Turns	App. Total	Right	Left	U-Turns	App. Total	Right	Thru	U-Turns	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	169	2	0	171	3	15	0	18	21	105	2	128	317
05:15 PM	192	3	0	195	3	13	0	16	15	117	0	132	343
05:30 PM	186	2	0	188	0	10	0	10	18	102	0	120	318
05:45 PM	194	2	0	196	1	21	0	22	13	100	0	113	331
Total Volume	741	9	0	750	7	59	0	66	67	424	2	493	1309
% App. Total	98.8	1.2	0		10.6	89.4	0		13.6	86	0.4		
PHF	.955	.750	.000	.957	.583	.702	.000	.750	.798	.906	.250	.934	.954
Cars	736	9	0	745	7	59	0	66	67	423	2	492	1303
% Cars	99.3	100	0	99.3	100	100	0	100	100	99.8	100	99.8	99.5
Heavy Vehicles	5	0	0	5	0	0	0	0	0	1	0	1	6
% Heavy Vehicles	0.7	0	0	0.7	0	0	0	0	0	0.2	0	0.2	0.5



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Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdilic.com

S: Smith Drive
E/W: East Street
City, State: Westwood, MA
Client: Tetra Tech Rizzo / N. Doherty

File Name : 133171 CC
Site Code : 123-3659
Start Date : 1/3/2013
Page No : 1

Groups Printed- Cars

Start Time	East Street From East			Smith Drive From South			East Street From West			Int. Total
	Thru	Left	U-Turns	Right	Left	U-Turns	Right	Thru	U-Turns	
04:00 PM	147	1	0	2	15	0	5	100	0	270
04:15 PM	144	3	0	2	11	0	12	93	0	265
04:30 PM	140	0	0	0	13	0	9	110	0	272
04:45 PM	164	3	0	3	12	0	14	105	0	301
Total	595	7	0	7	51	0	40	408	0	1108
05:00 PM	167	2	0	3	15	0	21	105	2	315
05:15 PM	191	3	0	3	13	0	15	117	0	342
05:30 PM	185	2	0	0	10	0	18	101	0	316
05:45 PM	193	2	0	1	21	0	13	100	0	330
Total	736	9	0	7	59	0	67	423	2	1303
Grand Total	1331	16	0	14	110	0	107	831	2	2411
Apprch %	98.8	1.2	0	11.3	88.7	0	11.4	88.4	0.2	
Total %	55.2	0.7	0	0.6	4.6	0	4.4	34.5	0.1	

Start Time	East Street From East				Smith Drive From South				East Street From West				Int. Total
	Thru	Left	U-Turns	App. Total	Right	Left	U-Turns	App. Total	Right	Thru	U-Turns	App. Total	
05:00 PM	167	2	0	169	3	15	0	18	21	105	2	128	315
05:15 PM	191	3	0	194	3	13	0	16	15	117	0	132	342
05:30 PM	185	2	0	187	0	10	0	10	18	101	0	119	316
05:45 PM	193	2	0	195	1	21	0	22	13	100	0	113	330
Total Volume	736	9	0	745	7	59	0	66	67	423	2	492	1303
% App. Total	98.8	1.2	0		10.6	89.4	0		13.6	86	0.4		
PHF	.953	.750	.000	.955	.583	.702	.000	.750	.798	.904	.250	.932	.952

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 05:00 PM



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Client: Tetra Tech Rizzo / N. Doherty

File Name : 133171 CC
Site Code : 123-3659
Start Date : 1/3/2013
Page No : 1

Groups Printed- Heavy Vehicles

Start Time	East Street From East			Smith Drive From South			East Street From West			Int. Total
	Thru	Left	U-Turns	Right	Left	U-Turns	Right	Thru	U-Turns	
04:00 PM	0	0	0	0	0	0	0	1	0	1
04:15 PM	2	0	0	0	0	0	0	0	0	2
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	1	0	0	0	0	0	0	1	0	2
Total	3	0	0	0	0	0	0	2	0	5
05:00 PM	2	0	0	0	0	0	0	0	0	2
05:15 PM	1	0	0	0	0	0	0	0	0	1
05:30 PM	1	0	0	0	0	0	0	1	0	2
05:45 PM	1	0	0	0	0	0	0	0	0	1
Total	5	0	0	0	0	0	0	1	0	6
Grand Total	8	0	0	0	0	0	0	3	0	11
Apprch %	100	0	0	0	0	0	0	100	0	
Total %	72.7	0	0	0	0	0	0	27.3	0	

Start Time	East Street From East				Smith Drive From South				East Street From West				Int. Total
	Thru	Left	U-Turns	App. Total	Right	Left	U-Turns	App. Total	Right	Thru	U-Turns	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	1	0	0	1	0	0	0	0	0	1	0	1	2
05:00 PM	2	0	0	2	0	0	0	0	0	0	0	0	2
05:15 PM	1	0	0	1	0	0	0	0	0	0	0	0	1
05:30 PM	1	0	0	1	0	0	0	0	0	1	0	1	2
Total Volume	5	0	0	5	0	0	0	0	0	2	0	2	7
% App. Total	100	0	0		0	0	0		0	100	0		
PHF	.625	.000	.000	.625	.000	.000	.000	.000	.000	.500	.000	.500	.875



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S: Smith Drive
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Client: Tetra Tech Rizzo / N. Doherty

File Name : 133171 CC
Site Code : 123-3659
Start Date : 1/3/2013
Page No : 1

Groups Printed- Peds and Bicycles

Start Time	East Street From East			Smith Drive From South			East Street From West			Int. Total
	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0	0	0	0	0	0	0	0
Total %										

Start Time	East Street From East				Smith Drive From South				East Street From West				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:00 PM



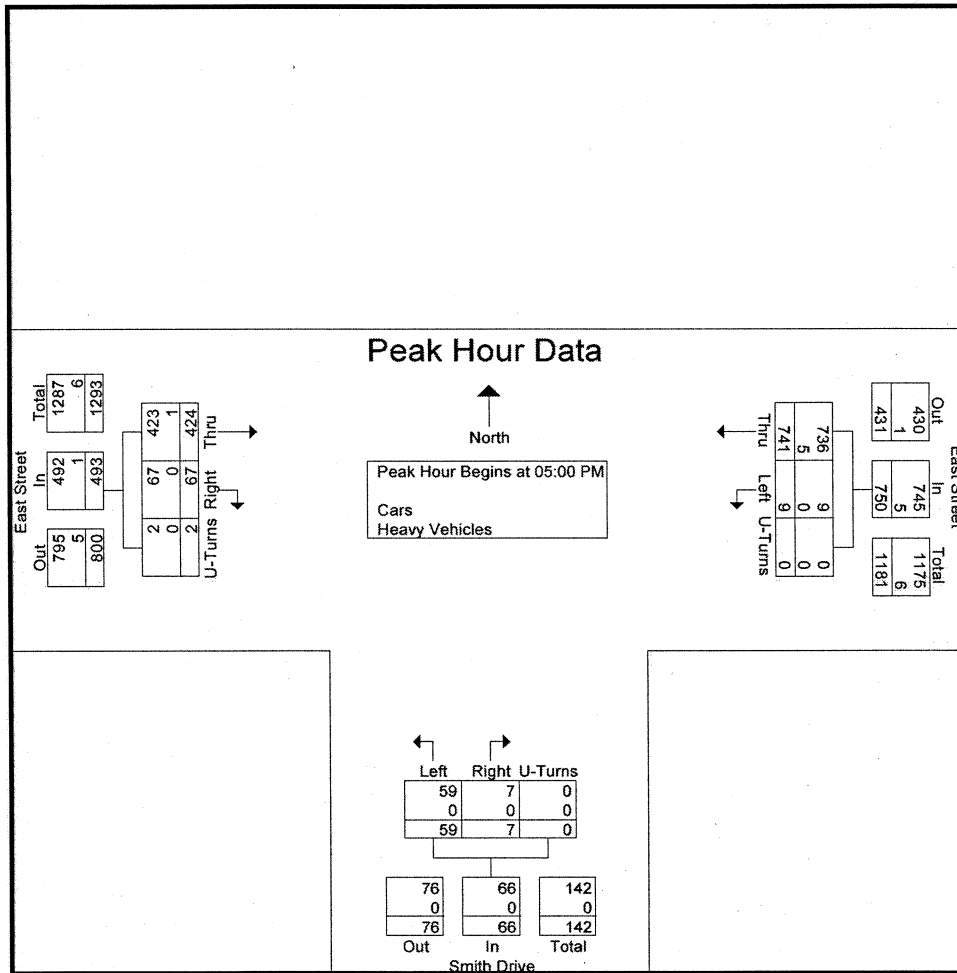
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File Name : 133171 CC
Site Code : 123-3659
Start Date : 1/3/2013
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Start Time	East Street From East				Smith Drive From South				East Street From West				Int. Total
	Thru	Left	U-Turns	App. Total	Right	Left	U-Turns	App. Total	Right	Thru	U-Turns	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	169	2	0	171	3	15	0	18	21	105	2	128	317
05:15 PM	192	3	0	195	3	13	0	16	15	117	0	132	343
05:30 PM	186	2	0	188	0	10	0	10	18	102	0	120	318
05:45 PM	194	2	0	196	1	21	0	22	13	100	0	113	331
Total Volume	741	9	0	750	7	59	0	66	67	424	2	493	1309
% App. Total	98.8	1.2	0		10.6	89.4	0		13.6	86	0.4		
PHF	.955	.750	.000	.957	.583	.702	.000	.750	.798	.906	.250	.934	.954
Cars	736	9	0	745	7	59	0	66	67	423	2	492	1303
% Cars	99.3	100	0	99.3	100	100	0	100	100	99.8	100	99.8	99.5
Heavy Vehicles	5	0	0	5	0	0	0	0	0	1	0	1	6
% Heavy Vehicles	0.7	0	0	0.7	0	0	0	0	0	0.2	0	0.2	0.5





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Office: 508.481.3999 Fax: 508.545.1234
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S: Smith Drive
E/W: East Street
City, State: Westwood, MA
Client: Tetra Tech Rizzo / N. Doherty

File Name : 123163 C
Site Code : 12003
Start Date : 12/15/2012
Page No : 1

Groups Printed- Cars - Heavy Vehicles

Start Time	East Street From East			Smith Drive From South			East Street From West			Int. Total
	Thru	Left	U-Turns	Right	Left	U-Turns	Right	Thru	U-Turns	
11:00 AM	82	2	0	2	12	0	10	90	0	198
11:15 AM	98	0	0	2	7	0	11	92	0	210
11:30 AM	99	1	0	0	21	0	13	98	0	232
11:45 AM	109	1	0	0	36	0	24	102	0	272
Total	388	4	0	4	76	0	58	382	0	912
12:00 PM	97	6	0	4	17	0	25	104	0	253
12:15 PM	122	0	0	2	18	0	14	101	0	257
12:30 PM	106	0	0	0	14	0	9	103	0	232
12:45 PM	101	2	0	1	18	0	17	107	0	246
Total	426	8	0	7	67	0	65	415	0	988
Grand Total	814	12	0	11	143	0	123	797	0	1900
Apprch %	98.5	1.5	0	7.1	92.9	0	13.4	86.6	0	
Total %	42.8	0.6	0	0.6	7.5	0	6.5	41.9	0	
Cars	807	12	0	11	142	0	122	786	0	1880
% Cars	99.1	100	0	100	99.3	0	99.2	98.6	0	98.9
Heavy Vehicles	7	0	0	0	1	0	1	11	0	20
% Heavy Vehicles	0.9	0	0	0	0.7	0	0.8	1.4	0	1.1

Start Time	East Street From East				Smith Drive From South				East Street From West				Int. Total
	Thru	Left	U-Turns	App. Total	Right	Left	U-Turns	App. Total	Right	Thru	U-Turns	App. Total	
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 11:30 AM													
11:30 AM	99	1	0	100	0	21	0	21	13	98	0	111	232
11:45 AM	109	1	0	110	0	36	0	36	24	102	0	126	272
12:00 PM	97	6	0	103	4	17	0	21	25	104	0	129	253
12:15 PM	122	0	0	122	2	18	0	20	14	101	0	115	257
Total Volume	427	8	0	435	6	92	0	98	76	405	0	481	1014
% App. Total	98.2	1.8	0		6.1	93.9	0		15.8	84.2	0		
PHF	.875	.333	.000	.891	.375	.639	.000	.681	.760	.974	.000	.932	.932
Cars	423	8	0	431	6	91	0	97	76	403	0	479	1007
% Cars	99.1	100	0	99.1	100	98.9	0	99.0	100	99.5	0	99.6	99.3
Heavy Vehicles	4	0	0	4	0	1	0	1	0	2	0	2	7
% Heavy Vehicles	0.9	0	0	0.9	0	1.1	0	1.0	0	0.5	0	0.4	0.7



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P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

S: Smith Drive
E/W: East Street
City, State: Westwood, MA
Client: Tetra Tech Rizzo / N. Doherty

File Name : 123163 C
Site Code : 12003
Start Date : 12/15/2012
Page No : 1

Groups Printed- Cars

Start Time	East Street From East			Smith Drive From South			East Street From West			Int. Total
	Thru	Left	U-Turns	Right	Left	U-Turns	Right	Thru	U-Turns	
11:00 AM	82	2	0	2	12	0	10	88	0	196
11:15 AM	97	0	0	2	7	0	10	92	0	208
11:30 AM	99	1	0	0	21	0	13	97	0	231
11:45 AM	108	1	0	0	36	0	24	101	0	270
Total	386	4	0	4	76	0	57	378	0	905
12:00 PM	97	6	0	4	16	0	25	104	0	252
12:15 PM	119	0	0	2	18	0	14	101	0	254
12:30 PM	104	0	0	0	14	0	9	101	0	228
12:45 PM	101	2	0	1	18	0	17	102	0	241
Total	421	8	0	7	66	0	65	408	0	975
Grand Total	807	12	0	11	142	0	122	786	0	1880
Apprch %	98.5	1.5	0	7.2	92.8	0	13.4	86.6	0	
Total %	42.9	0.6	0	0.6	7.6	0	6.5	41.8	0	

Start Time	East Street From East				Smith Drive From South				East Street From West				Int. Total
	Thru	Left	U-Turns	App. Total	Right	Left	U-Turns	App. Total	Right	Thru	U-Turns	App. Total	
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 11:30 AM													
11:30 AM	99	1	0	100	0	21	0	21	13	97	0	110	231
11:45 AM	108	1	0	109	0	36	0	36	24	101	0	125	270
12:00 PM	97	6	0	103	4	16	0	20	25	104	0	129	252
12:15 PM	119	0	0	119	2	18	0	20	14	101	0	115	254
Total Volume	423	8	0	431	6	91	0	97	76	403	0	479	1007
% App. Total	98.1	1.9	0		6.2	93.8	0		15.9	84.1	0		
PHF	.889	.333	.000	.905	.375	.632	.000	.674	.760	.969	.000	.928	.932



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Start Date : 12/15/2012
Page No : 1

Groups Printed- Heavy Vehicles

Start Time	East Street From East			Smith Drive From South			East Street From West			Int. Total
	Thru	Left	U-Turns	Right	Left	U-Turns	Right	Thru	U-Turns	
11:00 AM	0	0	0	0	0	0	0	2	0	2
11:15 AM	1	0	0	0	0	0	1	0	0	2
11:30 AM	0	0	0	0	0	0	0	1	0	1
11:45 AM	1	0	0	0	0	0	0	1	0	2
Total	2	0	0	0	0	0	1	4	0	7
12:00 PM	0	0	0	0	1	0	0	0	0	1
12:15 PM	3	0	0	0	0	0	0	0	0	3
12:30 PM	2	0	0	0	0	0	0	2	0	4
12:45 PM	0	0	0	0	0	0	0	5	0	5
Total	5	0	0	0	1	0	0	7	0	13
Grand Total	7	0	0	0	1	0	1	11	0	20
Apprch %	100	0	0	0	100	0	8.3	91.7	0	
Total %	35	0	0	0	5	0	5	55	0	

Start Time	East Street From East				Smith Drive From South				East Street From West				Int. Total
	Thru	Left	U-Turns	App. Total	Right	Left	U-Turns	App. Total	Right	Thru	U-Turns	App. Total	
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 12:00 PM													
12:00 PM	0	0	0	0	0	1	0	1	0	0	0	0	1
12:15 PM	3	0	0	3	0	0	0	0	0	0	0	0	3
12:30 PM	2	0	0	2	0	0	0	0	0	2	0	2	4
12:45 PM	0	0	0	0	0	0	0	0	0	5	0	5	5
Total Volume	5	0	0	5	0	1	0	1	0	7	0	7	13
% App. Total	100	0	0		0	100	0		0	100	0		
PHF	.417	.000	.000	.417	.000	.250	.000	.250	.000	.350	.000	.350	.650



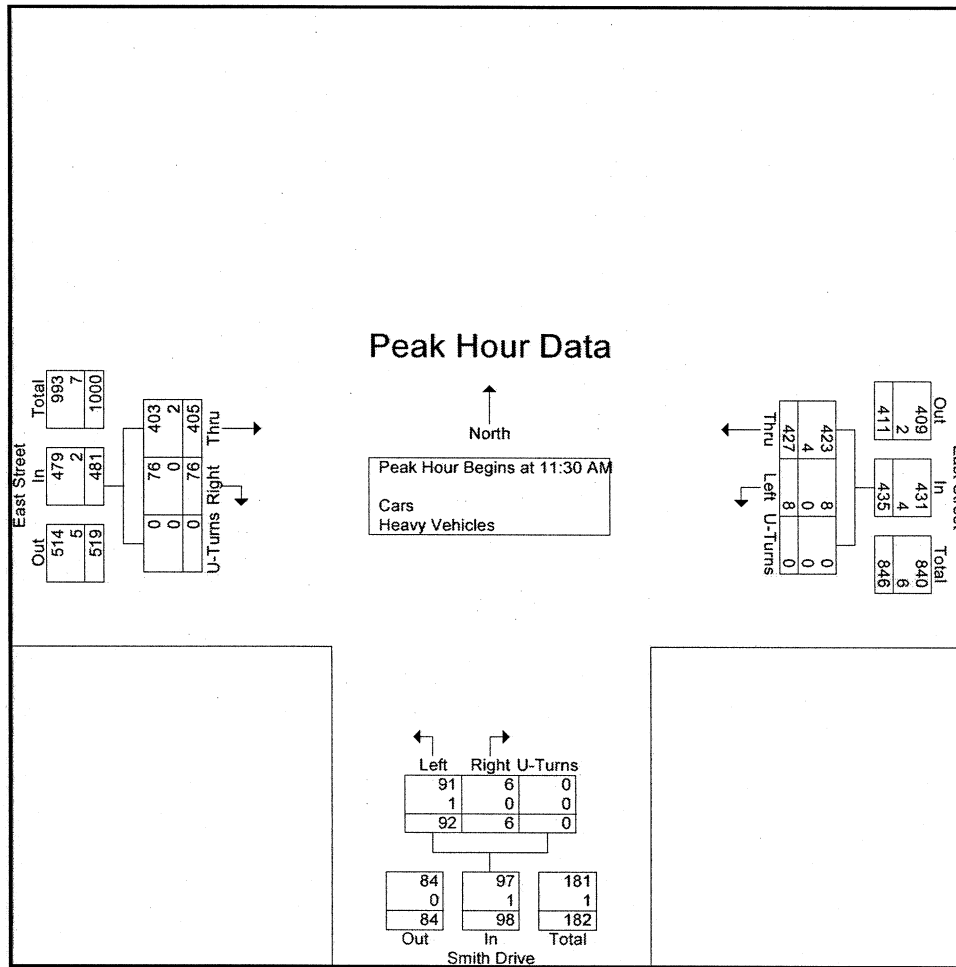
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Start Time	East Street From East			App. Total	Smith Drive From South			App. Total	East Street From West			Int. Total	
	Thru	Left	U-Turns		Right	Left	U-Turns		Right	Thru	U-Turns		App. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 11:30 AM													
11:30 AM	99	1	0	100	0	21	0	21	13	98	0	111	232
11:45 AM	109	1	0	110	0	36	0	36	24	102	0	126	272
12:00 PM	97	6	0	103	4	17	0	21	25	104	0	129	253
12:15 PM	122	0	0	122	2	18	0	20	14	101	0	115	257
Total Volume	427	8	0	435	6	92	0	98	76	405	0	481	1014
% App. Total	98.2	1.8	0		6.1	93.9	0		15.8	84.2	0		
PHF	.875	.333	.000	.891	.375	.639	.000	.681	.760	.974	.000	.932	.932
Cars	423	8	0	431	6	91	0	97	76	403	0	479	1007
% Cars	99.1	100	0	99.1	100	98.9	0	99.0	100	99.5	0	99.6	99.3
Heavy Vehicles	4	0	0	4	0	1	0	1	0	2	0	2	7
% Heavy Vehicles	0.9	0	0	0.9	0	1.1	0	1.0	0	0.5	0	0.4	0.7



Crash Data

MassDOT Crash Report for 2008 to 2010 - East Street @ Smith Drive

Crash Number	Town	Crash Date	Crash Time	Crash Severity	Number of Vehicles	Total Nonfatal Injuries	Total Fatal Injuries	Manner of Collision	Vehicle Action Prior to Crash	Vehicle Travel Directions	Most Harmful Events	Vehicle Configuration	Road Surface Condition	Ambient Light	Weather Condition	At Roadway Intersection
2297820	WESTWOOD	10-Mar-08	9:22 PM	Non-fatal injury	2	2	0	Angle	V1: Turning left / V2: Travelling straight	V1: Northbound / V2: Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Passenger car	Dry	Dark - lighted roadway	Clear	EAST STREET / SMITH DRIVE
2353020	WESTWOOD	25-Jul-08	12:14 PM	Property damage only (none injured)	2	0	0	Rear-end Sideswipe, same direction	V1: Turning left / V2: Travelling straight ahead	V1: Westbound / V2: Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	Dry	Daylight	Clear	EAST STREET / SMITH DRIVE
2375053	WESTWOOD	29-Aug-08	8:29 AM	Property damage only (none injured)	2	0	0	Rear-end Sideswipe, same direction	V1: Turning left / V2: Travelling straight ahead	V1: Westbound / V2: Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	Dry	Daylight	Clear	EAST STREET / SMITH DRIVE

MassDOT

CRASH RATE WORKSHEET

CITY/TOWN : Westwood, MA COUNT DATE : 1/3/2012
 UNSIGNALIZED : X SIGNALIZED :

MHD USE ONLY

Source #

~ INTERSECTION DATA ~

MAJOR STREET : East Street
 MINOR STREET(S) : Smith Drive

RIN #

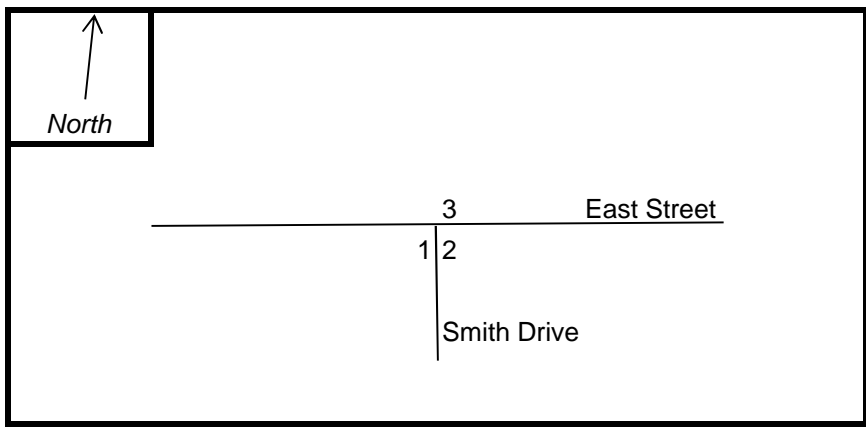
RIN #

RIN #

RIN #

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**INTERSECTION
 DIAGRAM
 (Label Approaches)**



INTERSECTION
 REF #

Peak Hour Volumes

APPROACH :	1	2	3	4	5	6
DIRECTION :	EB	NB	WB			
VOLUMES (PM) :	491	66	750			

"K" FACTOR : APPROACH ADT : ADT = TOTAL VOL/"K" FACT.

TOTAL # OF ACCIDENTS : # OF YEARS : AVERAGE # OF ACCIDENTS (A) :

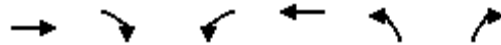
CRASH RATE CALCULATION : RATE = $\frac{(A * 1,000,000)}{(ADT * 365)}$

Comments : Crash rate is below State and District 6 averages

Capacity Analysis

HCM Unsignalized Intersection Capacity Analysis
610: East Street & Smith Drive

2012 Existing AM



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→			←	↔	↔
Volume (veh/h)	770	59	11	402	67	20
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	856	66	12	447	74	22
Pedestrians	1					
Lane Width (ft)	11.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			921		1360	888
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			921		1360	888
tC, single (s)			4.3		6.5	6.2
tC, 2 stage (s)						
tF (s)			2.4		3.6	3.3
p0 queue free %			98		52	94
cM capacity (veh/h)			679		155	345

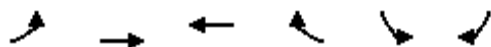
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	921	459	97
Volume Left	0	12	74
Volume Right	66	0	22
cSH	1700	679	177
Volume to Capacity	0.54	0.02	0.54
Queue Length 95th (ft)	0	1	56
Control Delay (s)	0.0	0.5	47.2
Lane LOS		A	E
Approach Delay (s)	0.0	0.5	47.2
Approach LOS			E

Intersection Summary			
Average Delay		3.3	
Intersection Capacity Utilization		55.7%	ICU Level of Service B
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis

611: Downey Street & Smith Drive

2012 Existing AM

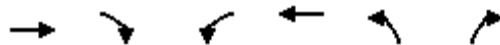


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	67	50	61	35	29	49
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.57	0.57	0.57	0.57	0.57	0.57
Hourly flow rate (vph)	118	88	107	61	51	86
Pedestrians					7	
Lane Width (ft)					16.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					1	
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	175				468	145
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	175				468	145
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	91				90	90
cM capacity (veh/h)	1372				501	901
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	205	168	137			
Volume Left	118	0	51			
Volume Right	0	61	86			
cSH	1372	1700	695			
Volume to Capacity	0.09	0.10	0.20			
Queue Length 95th (ft)	6	0	15			
Control Delay (s)	4.8	0.0	11.5			
Lane LOS	A		B			
Approach Delay (s)	4.8	0.0	11.5			
Approach LOS			B			
Intersection Summary						
Average Delay			5.0			
Intersection Capacity Utilization		24.3%		ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

610: East Street & Smith Drive

2012 Existing PM



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	424	67	9	741	59	7
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	446	71	9	780	62	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			517	1281		482
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			517	1281		482
tC, single (s)			4.1	6.4		6.2
tC, 2 stage (s)						
tF (s)			2.2	3.5		3.3
p0 queue free %			99	66		99
cM capacity (veh/h)			1059	183		589

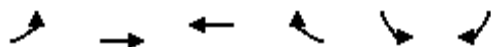
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	517	789	69
Volume Left	0	9	62
Volume Right	71	0	7
cSH	1700	1059	197
Volume to Capacity	0.30	0.01	0.35
Queue Length 95th (ft)	0	1	30
Control Delay (s)	0.0	0.2	32.8
Lane LOS		A	D
Approach Delay (s)	0.0	0.2	32.8
Approach LOS			D

Intersection Summary			
Average Delay			1.8
Intersection Capacity Utilization	56.5%		ICU Level of Service
Analysis Period (min)	15		B

HCM Unsignalized Intersection Capacity Analysis

611: Downey Street & Smith Drive

2012 Existing PM



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	12	12	16	52	55	11
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	14	14	18	59	62	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	77				89	48
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	77				89	48
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				93	99
cM capacity (veh/h)	1534				909	1027

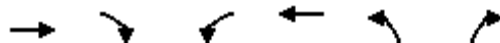
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	27	77	75
Volume Left	14	0	62
Volume Right	0	59	12
cSH	1534	1700	927
Volume to Capacity	0.01	0.05	0.08
Queue Length 95th (ft)	1	0	5
Control Delay (s)	3.7	0.0	9.2
Lane LOS	A		A
Approach Delay (s)	3.7	0.0	9.2
Approach LOS			A

Intersection Summary			
Average Delay		4.4	
Intersection Capacity Utilization	18.3%		ICU Level of Service A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis

610: East Street & Smith Drive

2012 Existing SAT



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→			←	↔	↔
Volume (veh/h)	405	76	8	427	92	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	435	82	9	459	99	6
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			517		953	476
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			517		953	476
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		65	99
cM capacity (veh/h)			1059		286	593

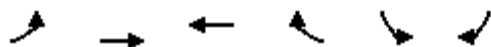
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	517	468	105
Volume Left	0	9	99
Volume Right	82	0	6
cSH	1700	1059	296
Volume to Capacity	0.30	0.01	0.36
Queue Length 95th (ft)	0	0	31
Control Delay (s)	0.0	0.2	23.8
Lane LOS		A	C
Approach Delay (s)	0.0	0.2	23.8
Approach LOS			C

Intersection Summary			
Average Delay		2.4	
Intersection Capacity Utilization		41.0%	ICU Level of Service
Analysis Period (min)		15	A

HCM Unsignalized Intersection Capacity Analysis

611: Downey Street & Smith Drive

2012 Existing SAT



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Volume (veh/h)	34	19	19	47	29	39
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Hourly flow rate (vph)	49	27	27	67	41	56
Pedestrians		2				
Lane Width (ft)		14.0				
Walking Speed (ft/s)		4.0				
Percent Blockage		0				
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	94				185	63
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	94				185	63
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				95	94
cM capacity (veh/h)	1494				776	1006

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	76	94	97
Volume Left	49	0	41
Volume Right	0	67	56
cSH	1494	1700	893
Volume to Capacity	0.03	0.06	0.11
Queue Length 95th (ft)	2	0	7
Control Delay (s)	4.9	0.0	9.5
Lane LOS	A		A
Approach Delay (s)	4.9	0.0	9.5
Approach LOS			A

Intersection Summary			
Average Delay		4.9	
Intersection Capacity Utilization	20.9%		ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis

610: East Street & Smith Drive

2017 No Build AM



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→			←	←	↘
Volume (veh/h)	809	60	11	458	69	21
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	899	67	12	509	77	23
Pedestrians	1					
Lane Width (ft)	11.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			966		1467	932
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			966		1467	932
tC, single (s)			4.3		6.5	6.2
tC, 2 stage (s)						
tF (s)			2.4		3.6	3.3
p0 queue free %			98		42	93
cM capacity (veh/h)			653		133	326

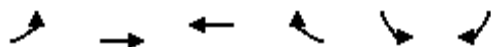
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	966	521	100
Volume Left	0	12	77
Volume Right	67	0	23
cSH	1700	653	155
Volume to Capacity	0.57	0.02	0.65
Queue Length 95th (ft)	0	1	72
Control Delay (s)	0.0	0.5	63.3
Lane LOS		A	F
Approach Delay (s)	0.0	0.5	63.3
Approach LOS			F

Intersection Summary			
Average Delay		4.2	
Intersection Capacity Utilization		58.0%	ICU Level of Service B
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis

611: Downey Street & Smith Drive

2017 No Build AM



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	↷
Volume (veh/h)	69	51	63	36	30	50
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.57	0.57	0.57	0.57	0.57	0.57
Hourly flow rate (vph)	121	89	111	63	53	88
Pedestrians					7	
Lane Width (ft)					16.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					1	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	181				481	149
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	181				481	149
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	91				89	90
cM capacity (veh/h)	1366				490	896

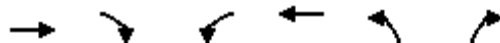
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	211	174	140
Volume Left	121	0	53
Volume Right	0	63	88
cSH	1366	1700	684
Volume to Capacity	0.09	0.10	0.21
Queue Length 95th (ft)	6	0	15
Control Delay (s)	4.9	0.0	11.6
Lane LOS	A		B
Approach Delay (s)	4.9	0.0	11.6
Approach LOS			B

Intersection Summary			
Average Delay		5.1	
Intersection Capacity Utilization		24.6%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis

610: East Street & Smith Drive

2017 No Build PM



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→			←	↔	↔
Volume (veh/h)	438	69	9	783	60	7
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	461	73	9	824	63	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			534		1341	497
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			534		1341	497
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		62	99
cM capacity (veh/h)			1044		168	577

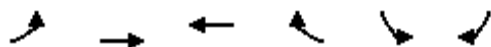
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	534	834	71
Volume Left	0	9	63
Volume Right	73	0	7
cSH	1700	1044	182
Volume to Capacity	0.31	0.01	0.39
Queue Length 95th (ft)	0	1	34
Control Delay (s)	0.0	0.2	36.9
Lane LOS		A	E
Approach Delay (s)	0.0	0.2	36.9
Approach LOS			E

Intersection Summary			
Average Delay		1.9	
Intersection Capacity Utilization		58.8%	ICU Level of Service B
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis

611: Downey Street & Smith Drive

2017 No Build PM



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	12	12	16	53	56	11
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	14	14	18	60	64	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	78				89	48
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	78				89	48
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				93	99
cM capacity (veh/h)	1533				908	1026

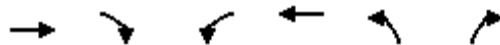
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	27	78	76
Volume Left	14	0	64
Volume Right	0	60	12
cSH	1533	1700	926
Volume to Capacity	0.01	0.05	0.08
Queue Length 95th (ft)	1	0	5
Control Delay (s)	3.7	0.0	9.2
Lane LOS	A		A
Approach Delay (s)	3.7	0.0	9.2
Approach LOS			A

Intersection Summary			
Average Delay		4.4	
Intersection Capacity Utilization	18.4%		ICU Level of Service A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis

610: East Street & Smith Drive

2017 No Build SAT



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→			←	↔	↔
Volume (veh/h)	421	78	8	456	94	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	453	84	9	490	101	6
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			537		1002	495
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			537		1002	495
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		62	99
cM capacity (veh/h)			1042		268	579

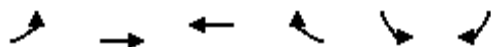
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	537	499	108
Volume Left	0	9	101
Volume Right	84	0	6
cSH	1700	1042	277
Volume to Capacity	0.32	0.01	0.39
Queue Length 95th (ft)	0	0	35
Control Delay (s)	0.0	0.2	26.1
Lane LOS		A	D
Approach Delay (s)	0.0	0.2	26.1
Approach LOS			D

Intersection Summary			
Average Delay		2.6	
Intersection Capacity Utilization		42.6%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis

611: Downey Street & Smith Drive

2017 No Build SAT



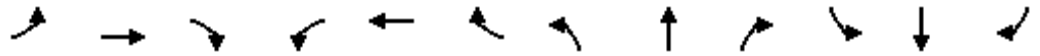
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Volume (veh/h)	35	19	19	48	30	40
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Hourly flow rate (vph)	50	27	27	69	43	57
Pedestrians		2				
Lane Width (ft)		14.0				
Walking Speed (ft/s)		4.0				
Percent Blockage		0				
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	96				189	63
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	96				189	63
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				94	94
cM capacity (veh/h)	1492				771	1005

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	77	96	100
Volume Left	50	0	43
Volume Right	0	69	57
cSH	1492	1700	889
Volume to Capacity	0.03	0.06	0.11
Queue Length 95th (ft)	2	0	8
Control Delay (s)	4.9	0.0	9.6
Lane LOS	A		A
Approach Delay (s)	4.9	0.0	9.6
Approach LOS			A

Intersection Summary			
Average Delay		4.9	
Intersection Capacity Utilization		21.1%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 201: Downey Street & Canton St.

2017 Build AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	37	0	45	0	0	5	31	537	0	2	327	13
Sign Control		Stop			Stop			Free			Free	
Grade		5%			0%			1%			4%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	38	0	46	0	0	5	32	554	0	2	337	13
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)											851	
pX, platoon unblocked												
vC, conflicting volume	971	965	344	1012	972	554	351			554		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	971	965	344	1012	972	554	351			554		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	83	100	93	100	100	99	97			100		
cM capacity (veh/h)	223	249	703	201	247	536	1197			1027		

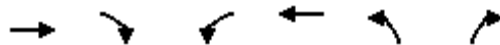
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	85	5	586	353
Volume Left	38	0	32	2
Volume Right	46	5	0	13
cSH	356	536	1197	1027
Volume to Capacity	0.24	0.01	0.03	0.00
Queue Length 95th (ft)	18	1	2	0
Control Delay (s)	18.2	11.8	0.7	0.1
Lane LOS	C	B	A	A
Approach Delay (s)	18.2	11.8	0.7	0.1
Approach LOS	C	B		

Intersection Summary			
Average Delay		2.0	
Intersection Capacity Utilization	68.1%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis

610: East Street & Smith Drive

2017 Build AM



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↻			↻	↻	
Volume (veh/h)	809	64	11	458	73	21
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	899	71	12	509	81	23
Pedestrians	1					
Lane Width (ft)	11.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			970		1469	934
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			970		1469	934
tC, single (s)			4.3		6.5	6.2
tC, 2 stage (s)						
tF (s)			2.4		3.6	3.3
p0 queue free %			98		39	93
cM capacity (veh/h)			650		133	325

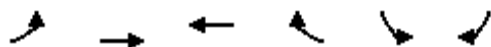
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	970	521	104
Volume Left	0	12	81
Volume Right	71	0	23
cSH	1700	650	153
Volume to Capacity	0.57	0.02	0.68
Queue Length 95th (ft)	0	1	78
Control Delay (s)	0.0	0.5	68.2
Lane LOS		A	F
Approach Delay (s)	0.0	0.5	68.2
Approach LOS			F

Intersection Summary			
Average Delay		4.6	
Intersection Capacity Utilization		58.5%	ICU Level of Service B
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis

611: Downey Street & Smith Drive

2017 Build AM



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	69	51	63	40	33	50
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.57	0.57	0.57	0.57	0.57	0.57
Hourly flow rate (vph)	121	89	111	70	58	88
Pedestrians					7	
Lane Width (ft)					16.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					1	
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	188				484	153
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	188				484	153
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	91				88	90
cM capacity (veh/h)	1358				488	892
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	211	181	146			
Volume Left	121	0	58			
Volume Right	0	70	88			
cSH	1358	1700	671			
Volume to Capacity	0.09	0.11	0.22			
Queue Length 95th (ft)	6	0	16			
Control Delay (s)	4.9	0.0	11.8			
Lane LOS	A		B			
Approach Delay (s)	4.9	0.0	11.8			
Approach LOS			B			
Intersection Summary						
Average Delay			5.1			
Intersection Capacity Utilization			24.7%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

201: Downey Street & Canton St.

2017 Build PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	49	0	32	1	1	2	43	463	0	3	725	32
Sign Control		Stop			Stop			Free			Free	
Grade		5%			0%			1%			4%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	53	0	34	1	1	2	46	498	0	3	780	34
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1396	1394	797	1428	1411	498	814			498		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1396	1394	797	1428	1411	498	814			498		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	53	100	91	99	99	100	94			100		
cM capacity (veh/h)	111	134	386	99	131	576	822			1077		

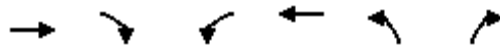
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	87	4	544	817
Volume Left	53	1	46	3
Volume Right	34	2	0	34
cSH	155	189	822	1077
Volume to Capacity	0.56	0.02	0.06	0.00
Queue Length 95th (ft)	58	1	4	0
Control Delay (s)	54.8	24.5	1.5	0.1
Lane LOS	F	C	A	A
Approach Delay (s)	54.8	24.5	1.5	0.1
Approach LOS	F	C		

Intersection Summary			
Average Delay		4.0	
Intersection Capacity Utilization		73.2%	ICU Level of Service
Analysis Period (min)		15	D

HCM Unsignalized Intersection Capacity Analysis

610: East Street & Smith Drive

2017 Build PM



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→			←	←	↘
Volume (veh/h)	438	77	9	783	67	7
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	461	81	9	824	71	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			542		1345	502
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			542		1345	502
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		58	99
cM capacity (veh/h)			1037		167	574

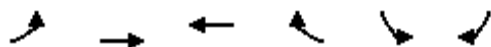
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	542	834	78
Volume Left	0	9	71
Volume Right	81	0	7
cSH	1700	1037	179
Volume to Capacity	0.32	0.01	0.43
Queue Length 95th (ft)	0	1	40
Control Delay (s)	0.0	0.2	39.7
Lane LOS		A	E
Approach Delay (s)	0.0	0.2	39.7
Approach LOS			E

Intersection Summary			
Average Delay		2.3	
Intersection Capacity Utilization		59.2%	ICU Level of Service B
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis

611: Downey Street & Smith Drive

2017 Build PM



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	12	12	16	60	65	11
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	14	14	18	68	74	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	86				93	52
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	86				93	52
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				92	99
cM capacity (veh/h)	1523				903	1021

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	27	86	86
Volume Left	14	0	74
Volume Right	0	68	12
cSH	1523	1700	919
Volume to Capacity	0.01	0.05	0.09
Queue Length 95th (ft)	1	0	6
Control Delay (s)	3.7	0.0	9.3
Lane LOS	A		A
Approach Delay (s)	3.7	0.0	9.3
Approach LOS			A

Intersection Summary			
Average Delay		4.5	
Intersection Capacity Utilization		18.9%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis

201: Downey Street & Canton St.

2017 Build SAT



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	39	0	29	0	0	4	38	297	0	4	324	22
Sign Control		Stop			Stop			Free			Free	
Grade		5%			0%			1%			4%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	41	0	31	0	0	4	40	316	0	4	345	23
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)											851	
pX, platoon unblocked												
vC, conflicting volume	766	762	356	793	773	316	368			316		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	766	762	356	793	773	316	368			316		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	86	100	96	100	100	99	97			100		
cM capacity (veh/h)	307	324	692	287	320	729	1202			1256		

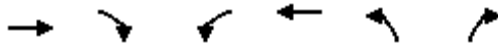
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	72	4	356	372
Volume Left	41	0	40	4
Volume Right	31	4	0	23
cSH	402	729	1202	1256
Volume to Capacity	0.18	0.01	0.03	0.00
Queue Length 95th (ft)	13	0	2	0
Control Delay (s)	15.9	10.0	1.2	0.1
Lane LOS	C	A	A	A
Approach Delay (s)	15.9	10.0	1.2	0.1
Approach LOS	C	A		

Intersection Summary			
Average Delay		2.1	
Intersection Capacity Utilization	56.9%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis

610: East Street & Smith Drive

2017 Build SAT



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	421	88	8	456	103	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	453	95	9	490	111	6
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			547	1008		500
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			547	1008		500
tC, single (s)			4.1	6.4		6.2
tC, 2 stage (s)						
tF (s)			2.2	3.5		3.3
p0 queue free %			99	58		99
cM capacity (veh/h)			1032	266		575

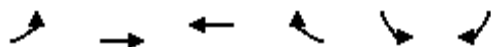
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	547	499	117
Volume Left	0	9	111
Volume Right	95	0	6
cSH	1700	1032	274
Volume to Capacity	0.32	0.01	0.43
Queue Length 95th (ft)	0	1	41
Control Delay (s)	0.0	0.2	27.6
Lane LOS		A	D
Approach Delay (s)	0.0	0.2	27.6
Approach LOS			D

Intersection Summary			
Average Delay			2.9
Intersection Capacity Utilization	43.1%		ICU Level of Service
Analysis Period (min)	15		A

HCM Unsignalized Intersection Capacity Analysis

611: Downey Street & Smith Drive

2017 Build SAT



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖	↗		↘	
Volume (veh/h)	35	19	19	57	39	40
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Hourly flow rate (vph)	50	27	27	81	56	57
Pedestrians		2				
Lane Width (ft)		14.0				
Walking Speed (ft/s)		4.0				
Percent Blockage		0				
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	109				195	70
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	109				195	70
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				93	94
cM capacity (veh/h)	1476				765	997

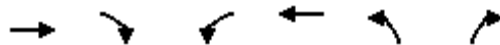
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	77	109	113
Volume Left	50	0	56
Volume Right	0	81	57
cSH	1476	1700	867
Volume to Capacity	0.03	0.06	0.13
Queue Length 95th (ft)	2	0	9
Control Delay (s)	5.0	0.0	9.8
Lane LOS	A		A
Approach Delay (s)	5.0	0.0	9.8
Approach LOS			A

Intersection Summary			
Average Delay		5.0	
Intersection Capacity Utilization		21.6%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis

610: East Street & Smith Drive

2022 No Build AM



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↩			↩	↩	
Volume (veh/h)	829	62	12	469	70	21
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	921	69	13	521	78	23
Pedestrians	1					
Lane Width (ft)	11.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			990		1504	956
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			990		1504	956
tC, single (s)			4.3		6.5	6.2
tC, 2 stage (s)						
tF (s)			2.4		3.6	3.3
p0 queue free %			98		38	93
cM capacity (veh/h)			639		126	316

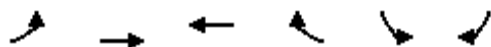
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	990	534	101
Volume Left	0	13	78
Volume Right	69	0	23
cSH	1700	639	146
Volume to Capacity	0.58	0.02	0.69
Queue Length 95th (ft)	0	1	79
Control Delay (s)	0.0	0.6	71.9
Lane LOS		A	F
Approach Delay (s)	0.0	0.6	71.9
Approach LOS			F

Intersection Summary			
Average Delay		4.7	
Intersection Capacity Utilization		59.2%	ICU Level of Service B
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis

611: Downey Street & Smith Drive

2022 No Build AM



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Volume (veh/h)	70	53	64	37	30	52
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.57	0.57	0.57	0.57	0.57	0.57
Hourly flow rate (vph)	123	93	112	65	53	91
Pedestrians					7	
Lane Width (ft)					16.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					1	
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	184				490	152
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	184				490	152
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	91				89	90
cM capacity (veh/h)	1362				483	893

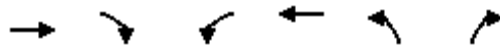
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	216	177	144
Volume Left	123	0	53
Volume Right	0	65	91
cSH	1362	1700	682
Volume to Capacity	0.09	0.10	0.21
Queue Length 95th (ft)	6	0	16
Control Delay (s)	4.8	0.0	11.7
Lane LOS	A		B
Approach Delay (s)	4.8	0.0	11.7
Approach LOS			B

Intersection Summary			
Average Delay		5.1	
Intersection Capacity Utilization	24.9%		ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis

610: East Street & Smith Drive

2022 No Build PM



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→			←	←	↘
Volume (veh/h)	449	70	9	802	62	7
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	473	74	9	844	65	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			546		1373	509
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			546		1373	509
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		59	99
cM capacity (veh/h)			1033		161	568

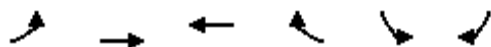
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	546	854	73
Volume Left	0	9	65
Volume Right	74	0	7
cSH	1700	1033	173
Volume to Capacity	0.32	0.01	0.42
Queue Length 95th (ft)	0	1	38
Control Delay (s)	0.0	0.2	39.9
Lane LOS		A	E
Approach Delay (s)	0.0	0.2	39.9
Approach LOS			E

Intersection Summary			
Average Delay		2.1	
Intersection Capacity Utilization		59.9%	ICU Level of Service B
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis

611: Downey Street & Smith Drive

2022 No Build PM



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Volume (veh/h)	13	13	17	55	58	12
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	15	15	19	62	66	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	82				95	51
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	82				95	51
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				93	99
cM capacity (veh/h)	1528				901	1023

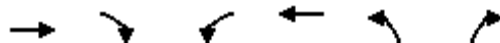
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	30	82	80
Volume Left	15	0	66
Volume Right	0	62	14
cSH	1528	1700	920
Volume to Capacity	0.01	0.05	0.09
Queue Length 95th (ft)	1	0	6
Control Delay (s)	3.7	0.0	9.3
Lane LOS	A		A
Approach Delay (s)	3.7	0.0	9.3
Approach LOS			A

Intersection Summary			
Average Delay		4.4	
Intersection Capacity Utilization		18.7%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis

610: East Street & Smith Drive

2022 No Build SAT



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→			←	↘	↙
Volume (veh/h)	432	80	8	467	97	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	465	86	9	502	104	6
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			551		1027	508
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			551		1027	508
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		60	99
cM capacity (veh/h)			1029		259	569

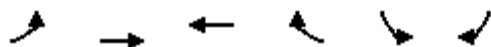
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	551	511	111
Volume Left	0	9	104
Volume Right	86	0	6
cSH	1700	1029	267
Volume to Capacity	0.32	0.01	0.41
Queue Length 95th (ft)	0	1	39
Control Delay (s)	0.0	0.2	27.7
Lane LOS		A	D
Approach Delay (s)	0.0	0.2	27.7
Approach LOS			D

Intersection Summary			
Average Delay		2.7	
Intersection Capacity Utilization		43.4%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis

611: Downey Street & Smith Drive

2022 No Build SAT



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖	↗		↘	
Volume (veh/h)	36	20	20	49	30	41
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Hourly flow rate (vph)	51	29	29	70	43	59
Pedestrians		2				
Lane Width (ft)		14.0				
Walking Speed (ft/s)		4.0				
Percent Blockage		0				
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	99				195	66
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	99				195	66
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				94	94
cM capacity (veh/h)	1488				764	1002

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	80	99	101
Volume Left	51	0	43
Volume Right	0	70	59
cSH	1488	1700	886
Volume to Capacity	0.03	0.06	0.11
Queue Length 95th (ft)	2	0	8
Control Delay (s)	4.9	0.0	9.6
Lane LOS	A		A
Approach Delay (s)	4.9	0.0	9.6
Approach LOS			A

Intersection Summary			
Average Delay		4.9	
Intersection Capacity Utilization		21.3%	ICU Level of Service
Analysis Period (min)		15	A

HCM Unsignalized Intersection Capacity Analysis

201: Downey Street & Canton St.

2022 Build AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	38	0	46	0	0	5	32	617	0	2	357	14
Sign Control		Stop			Stop			Free			Free	
Grade		5%			0%			1%			4%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	39	0	47	0	0	5	33	636	0	2	368	14
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)											851	
pX, platoon unblocked												
vC, conflicting volume	1087	1081	375	1129	1089	636	382			636		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1087	1081	375	1129	1089	636	382			636		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	79	100	93	100	100	99	97			100		
cM capacity (veh/h)	185	212	675	166	211	481	1165			957		

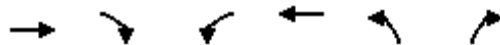
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	87	5	669	385
Volume Left	39	0	33	2
Volume Right	47	5	0	14
cSH	307	481	1165	957
Volume to Capacity	0.28	0.01	0.03	0.00
Queue Length 95th (ft)	23	1	2	0
Control Delay (s)	21.3	12.6	0.8	0.1
Lane LOS	C	B	A	A
Approach Delay (s)	21.3	12.6	0.8	0.1
Approach LOS	C	B		

Intersection Summary			
Average Delay		2.1	
Intersection Capacity Utilization		73.4%	ICU Level of Service D
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis

610: East Street & Smith Drive

2022 Build AM



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→			←	↔	↔
Volume (veh/h)	829	65	12	469	75	21
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	921	72	13	521	83	23
Pedestrians	1					
Lane Width (ft)	11.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			993		1506	957
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			993		1506	957
tC, single (s)			4.3		6.5	6.2
tC, 2 stage (s)						
tF (s)			2.4		3.6	3.3
p0 queue free %			98		34	93
cM capacity (veh/h)			637		126	315

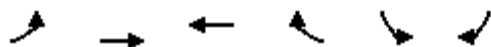
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	993	534	107
Volume Left	0	13	83
Volume Right	72	0	23
cSH	1700	637	145
Volume to Capacity	0.58	0.02	0.74
Queue Length 95th (ft)	0	1	88
Control Delay (s)	0.0	0.6	79.2
Lane LOS		A	F
Approach Delay (s)	0.0	0.6	79.2
Approach LOS			F

Intersection Summary			
Average Delay		5.4	
Intersection Capacity Utilization		59.7%	ICU Level of Service B
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis

611: Downey Street & Smith Drive

2022 Build AM



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Volume (veh/h)	70	53	64	41	34	52
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.57	0.57	0.57	0.57	0.57	0.57
Hourly flow rate (vph)	123	93	112	72	60	91
Pedestrians					7	
Lane Width (ft)					16.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					1	
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	191				494	155
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	191				494	155
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	91				88	90
cM capacity (veh/h)	1354				481	889

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	216	184	151
Volume Left	123	0	60
Volume Right	0	72	91
cSH	1354	1700	666
Volume to Capacity	0.09	0.11	0.23
Queue Length 95th (ft)	6	0	17
Control Delay (s)	4.8	0.0	12.0
Lane LOS	A		B
Approach Delay (s)	4.8	0.0	12.0
Approach LOS			B

Intersection Summary			
Average Delay		5.2	
Intersection Capacity Utilization		25.1%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis

201: Downey Street & Canton St.

2022 Build PM



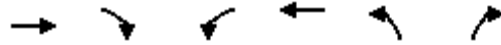
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	50	0	32	1	1	2	44	496	0	3	746	33
Sign Control		Stop			Stop			Free			Free	
Grade		5%			0%			1%			4%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	54	0	34	1	1	2	47	533	0	3	802	35
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)											851	
pX, platoon unblocked												
vC, conflicting volume	1457	1454	820	1489	1472	533	838			533		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1457	1454	820	1489	1472	533	838			533		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	46	100	91	99	99	100	94			100		
cM capacity (veh/h)	100	123	375	89	120	550	805			1045		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	88	4	581	841
Volume Left	54	1	47	3
Volume Right	34	2	0	35
cSH	141	173	805	1045
Volume to Capacity	0.63	0.02	0.06	0.00
Queue Length 95th (ft)	67	2	4	0
Control Delay (s)	66.1	26.4	1.6	0.1
Lane LOS	F	D	A	A
Approach Delay (s)	66.1	26.4	1.6	0.1
Approach LOS	F	D		

Intersection Summary			
Average Delay		4.6	
Intersection Capacity Utilization	75.9%	ICU Level of Service	D
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
 610: East Street & Smith Drive

2022 Build PM



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→			←	←	↘
Volume (veh/h)	449	79	9	802	68	7
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	473	83	9	844	72	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			556		1377	514
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			556		1377	514
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		55	99
cM capacity (veh/h)			1025		160	564

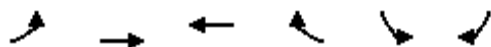
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	556	854	79
Volume Left	0	9	72
Volume Right	83	0	7
cSH	1700	1025	171
Volume to Capacity	0.33	0.01	0.46
Queue Length 95th (ft)	0	1	43
Control Delay (s)	0.0	0.3	42.8
Lane LOS		A	E
Approach Delay (s)	0.0	0.3	42.8
Approach LOS			E

Intersection Summary			
Average Delay		2.4	
Intersection Capacity Utilization		60.2%	ICU Level of Service B
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis

611: Downey Street & Smith Drive

2022 Build PM



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Volume (veh/h)	13	13	17	61	66	12
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	15	15	19	69	75	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	89				98	54
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	89				98	54
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				92	99
cM capacity (veh/h)	1520				897	1019

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	30	89	89
Volume Left	15	0	75
Volume Right	0	69	14
cSH	1520	1700	914
Volume to Capacity	0.01	0.05	0.10
Queue Length 95th (ft)	1	0	6
Control Delay (s)	3.7	0.0	9.4
Lane LOS	A		A
Approach Delay (s)	3.7	0.0	9.4
Approach LOS			A

Intersection Summary			
Average Delay		4.5	
Intersection Capacity Utilization		19.1%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis

201: Downey Street & Canton St.

2022 Build SAT



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	40	0	30	0	0	4	38	305	0	4	334	22
Sign Control		Stop			Stop			Free			Free	
Grade		5%			0%			1%			4%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	43	0	32	0	0	4	40	324	0	4	355	23
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)											851	
pX, platoon unblocked												
vC, conflicting volume	785	781	367	813	793	324	379			324		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	785	781	367	813	793	324	379			324		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	86	100	95	100	100	99	97			100		
cM capacity (veh/h)	298	316	682	277	312	721	1191			1247		

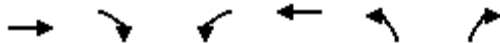
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	74	4	365	383
Volume Left	43	0	40	4
Volume Right	32	4	0	23
cSH	393	721	1191	1247
Volume to Capacity	0.19	0.01	0.03	0.00
Queue Length 95th (ft)	14	0	2	0
Control Delay (s)	16.3	10.0	1.2	0.1
Lane LOS	C	B	A	A
Approach Delay (s)	16.3	10.0	1.2	0.1
Approach LOS	C	B		

Intersection Summary			
Average Delay		2.1	
Intersection Capacity Utilization	58.0%		ICU Level of Service B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis

610: East Street & Smith Drive

2022 Build SAT

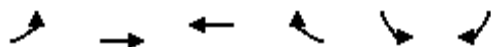


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→			←	↔	↔
Volume (veh/h)	432	89	8	467	106	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	465	96	9	502	114	6
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			560		1032	512
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			560		1032	512
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		56	99
cM capacity (veh/h)			1021		257	566
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	560	511	120			
Volume Left	0	9	114			
Volume Right	96	0	6			
cSH	1700	1021	265			
Volume to Capacity	0.33	0.01	0.45			
Queue Length 95th (ft)	0	1	45			
Control Delay (s)	0.0	0.2	29.5			
Lane LOS		A	D			
Approach Delay (s)	0.0	0.2	29.5			
Approach LOS			D			
Intersection Summary						
Average Delay			3.1			
Intersection Capacity Utilization			43.9%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

611: Downey Street & Smith Drive

2022 Build SAT



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Volume (veh/h)	36	20	20	58	40	41
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Hourly flow rate (vph)	51	29	29	83	57	59
Pedestrians		2				
Lane Width (ft)		14.0				
Walking Speed (ft/s)		4.0				
Percent Blockage		0				
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	111				201	72
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	111				201	72
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				92	94
cM capacity (veh/h)	1472				757	994

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	80	111	116
Volume Left	51	0	57
Volume Right	0	83	59
cSH	1472	1700	861
Volume to Capacity	0.03	0.07	0.13
Queue Length 95th (ft)	2	0	9
Control Delay (s)	4.9	0.0	9.8
Lane LOS	A		A
Approach Delay (s)	4.9	0.0	9.8
Approach LOS			A

Intersection Summary			
Average Delay		5.0	
Intersection Capacity Utilization	21.8%		ICU Level of Service A
Analysis Period (min)	15		