

Appendix

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Observed Traffic Volume Data

ATR Data

TMC Data

Existing Traffic Volume Networks



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Woodland Road
between BRMC Drives
City, State: Stoneham, MA
Client: VHB/D. Lovas

50102Avolume
Site Code: 06971

Start Time	NB		SB		Combined		08-Feb- 05 Tue					
	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.						
12:00	18	82	8	96	26	178						
12:15	13	90	7	88	20	178						
12:30	8	113	8	90	16	203						
12:45	3	42	82	367	6	29	104	378	9	71	186	745
01:00	10	99	4	107	14	206						
01:15	10	110	6	102	16	212						
01:30	7	94	3	93	10	187						
01:45	3	30	107	410	3	16	91	393	6	46	198	803
02:00	4	129	3	102	7	231						
02:15	2	136	3	103	5	239						
02:30	2	162	4	138	6	300						
02:45	3	11	154	581	3	13	115	458	6	24	269	1039
03:00	4	174	2	130	6	304						
03:15	5	155	1	120	6	275						
03:30	2	182	3	112	5	294						
03:45	3	14	183	694	2	8	129	491	5	22	312	1185
04:00	0	231	3	103	3	334						
04:15	6	234	7	128	13	362						
04:30	6	221	27	131	33	352						
04:45	5	17	248	934	10	47	120	482	15	64	368	1416
05:00	6	251	30	117	36	368						
05:15	13	240	40	132	53	372						
05:30	21	244	67	107	88	351						
05:45	18	58	250	985	73	210	118	474	91	268	368	1459
06:00	20	202	98	101	118	303						
06:15	54	190	120	88	174	278						
06:30	63	183	155	79	218	262						
06:45	79	216	132	707	198	571	87	355	277	787	219	1062
07:00	86	110	236	94	322	204						
07:15	94	99	251	68	345	167						
07:30	110	76	230	73	340	149						
07:45	138	428	64	349	215	932	63	298	353	1360	127	647
08:00	116	112	248	61	364	173						
08:15	92	84	206	56	298	140						
08:30	71	77	204	49	275	126						
08:45	104	383	64	337	219	877	61	227	323	1260	125	564
09:00	79	74	178	55	257	129						
09:15	77	61	165	52	242	113						
09:30	112	71	119	63	231	134						
09:45	111	379	43	249	115	577	37	207	226	956	80	456
10:00	80	53	110	38	190	91						
10:15	83	56	108	35	191	91						
10:30	97	53	103	31	200	84						
10:45	82	342	22	184	96	417	29	133	178	759	51	317
11:00	83	33	90	29	173	62						
11:15	82	28	97	24	179	52						
11:30	103	26	97	26	200	52						
11:45	82	350	16	103	104	388	11	90	186	738	27	193
Total	2270	5900	4085	3986	6355	9886						
Percent	35.7%	59.7%	64.3%	40.3%								
Day Total		8170		8071		16241						
Peak	07:15	05:00	07:15	02:30	07:15	04:30						
Vol.	458	985	944	503	1402	1460						
P.H.F.	0.830	0.981	0.940	0.911	0.963	0.981						



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Woodland Road
between BRMC Drives
City, State: Stoneham, MA
Client: VHB/D. Lovas

50102Avolume
Site Code: 06971

Start Time	NB		SB		Combined		09-Feb-05 Wed					
	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.						
12:00	16	103	8	95	24	198						
12:15	15	93	6	104	21	197						
12:30	12	94	7	100	19	194						
12:45	10	53	97	387	3	24	104	403	13	77	201	790
01:00	6	103	6	66	12	169						
01:15	9	107	3	91	12	198						
01:30	9	129	3	96	12	225						
01:45	1	25	125	464	7	19	113	366	8	44	238	830
02:00	6	162	2	100	8	262						
02:15	10	152	5	117	15	269						
02:30	3	124	4	115	7	239						
02:45	5	24	122	560	2	13	128	460	7	37	250	1020
03:00	3	142	1	128	4	270						
03:15	4	176	3	147	7	323						
03:30	0	195	4	132	4	327						
03:45	1	8	196	709	2	10	102	509	3	18	298	1218
04:00	4	200	6	103	10	303						
04:15	2	227	7	128	9	355						
04:30	6	222	9	138	15	360						
04:45	4	16	255	904	19	41	130	499	23	57	385	1403
05:00	7	218	33	137	40	355						
05:15	13	246	39	126	52	372						
05:30	24	261	63	147	87	408						
05:45	14	58	229	954	81	216	117	527	95	274	346	1481
06:00	33	251	105	108	138	359						
06:15	54	198	118	92	172	290						
06:30	67	174	169	105	236	279						
06:45	73	227	148	771	188	580	114	419	261	807	262	1190
07:00	84	140	247	95	331	235						
07:15	84	113	248	82	332	195						
07:30	105	98	225	77	330	175						
07:45	134	407	84	435	229	949	64	318	363	1356	148	753
08:00	115	94	229	51	344	145						
08:15	82	69	244	48	326	117						
08:30	89	80	209	58	298	138						
08:45	79	365	65	308	192	874	48	205	271	1239	113	513
09:00	64	67	170	54	234	121						
09:15	87	82	167	53	254	135						
09:30	91	52	118	44	209	96						
09:45	97	339	40	241	114	569	27	178	211	908	67	419
10:00	89	61	103	37	192	98						
10:15	119	46	103	38	222	84						
10:30	99	32	89	38	188	70						
10:45	98	405	25	164	121	416	15	128	219	821	40	292
11:00	93	29	105	31	198	60						
11:15	88	25	115	16	203	41						
11:30	99	17	94	19	193	36						
11:45	82	362	29	100	109	423	16	82	191	785	45	182
Total	2289	5997	4134	4094	6423	10091						
Percent	35.6%	59.4%	64.4%	40.6%								
Day Total		8286		8228		16514						
Peak	07:15	05:15	07:00	04:45	07:15	04:45						
Vol.	438	987	949	540	1369	1520						
P.H.F.	0.817	0.945	0.957	0.918	0.943	0.931						

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Site Code: 06971
 03310Avolume

Woodland Road between
 Boston Medical Center Driveways
 City, State: Stoneham, MA
 Client: VHB/A. Fill

Start Time	NB		SB		Combine d		27-Apr-05 Wed
	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	
12:00	30	89	10	102	40	191	
12:15	28	91	11	92	39	183	
12:30	13	78	5	107	18	185	
12:45	14	85	82	340	13	39	737
01:00	9	127	4	80	13	207	
01:15	6	88	3	92	9	180	
01:30	6	113	4	105	10	218	
01:45	4	25	126	454	3	14	829
02:00	3	118	1	99	4	217	
02:15	7	119	2	107	9	226	
02:30	3	146	5	113	8	259	
02:45	0	13	146	529	1	9	980
03:00	1	169	1	102	2	271	
03:15	2	176	3	106	5	282	
03:30	3	150	3	118	6	268	
03:45	2	8	184	679	4	11	1129
04:00	3	230	2	118	5	348	
04:15	2	208	9	112	11	320	
04:30	4	214	11	118	15	332	
04:45	5	14	270	922	22	44	1389
05:00	7	228	38	116	45	344	
05:15	15	270	31	125	46	395	
05:30	15	268	64	131	79	399	
05:45	18	55	250	1016	76	209	1488
06:00	35	253	100	116	135	369	
06:15	52	208	128	124	180	332	
06:30	73	177	158	97	231	274	
06:45	68	228	168	806	208	594	1228
07:00	78	152	215	82	293	234	
07:15	91	109	244	77	335	186	
07:30	103	120	232	79	335	199	
07:45	98	370	104	485	233	924	810
08:00	104	79	206	66	310	145	
08:15	116	68	218	61	334	129	
08:30	94	92	218	54	312	146	
08:45	107	421	74	313	184	826	553
09:00	88	63	196	60	284	123	
09:15	87	88	127	48	214	136	
09:30	74	72	116	50	190	122	
09:45	94	343	70	293	94	533	488
10:00	72	66	110	44	182	110	
10:15	95	65	100	45	195	110	
10:30	90	41	88	43	178	84	
10:45	100	357	38	210	78	376	370
11:00	80	35	99	39	179	74	
11:15	84	43	98	25	182	68	
11:30	92	32	108	26	200	58	
11:45	86	342	17	127	108	413	234
Total	2261	6174	3992	4061	6253	10235	
Percent	36.2%	60.3%	63.8%	39.7%			
Day Total		8435		8053		16488	
Peak Vol.	07:30 421	05:15 1041	07:00 924	04:45 491	07:15 1311	04:45 1527	
P.H.F.	0.907	0.964	0.947	0.930	0.978	0.957	

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 03310Avolume

Woodland Road between
 Boston Medical Center Driveways
 City, State: Stoneham, MA
 Client: VHB/A. Fill

Start Time	NB		SB		Combine d		28-Apr-05 Thu					
	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.						
12:00	14	110	8	89	22	199						
12:15	26	103	9	106	35	209						
12:30	11	84	3	112	14	196						
12:45	14	65	100	397	4	24	105	412	18	89	205	809
01:00	12	88	1	102	13	190						
01:15	6	92	5	96	11	188						
01:30	9	138	3	120	12	258						
01:45	4	31	136	454	5	14	124	442	9	45	260	896
02:00	3	144	2	121	5	265						
02:15	3	148	2	122	5	270						
02:30	4	130	5	122	9	252						
02:45	7	17	160	582	1	10	150	515	8	27	310	1097
03:00	2	184	3	118	5	302						
03:15	5	178	3	148	8	326						
03:30	1	194	6	122	7	316						
03:45	3	11	218	774	1	13	100	488	4	24	318	1262
04:00	5	211	4	104	9	315						
04:15	4	248	7	148	11	396						
04:30	4	240	21	133	25	373						
04:45	6	19	246	945	22	54	104	489	28	73	350	1434
05:00	12	262	36	128	48	390						
05:15	12	286	26	138	38	424						
05:30	22	258	56	140	78	398						
05:45	21	67	266	1072	74	192	132	538	95	259	398	1610
06:00	38	240	101	121	139	361						
06:15	50	242	130	106	180	348						
06:30	55	196	156	107	211	303						
06:45	72	215	152	830	189	576	111	445	261	791	263	1275
07:00	74	148	240	240	112	260						
07:15	93	133	224	104	317	237						
07:30	110	122	220	80	330	202						
07:45	112	389	78	481	224	908	84	380	336	1297	162	861
08:00	112	80	236	86	348	166						
08:15	108	94	245	66	353	160						
08:30	106	88	243	45	349	133						
08:45	93	419	96	358	228	952	68	265	321	1371	164	623
09:00	75	70	168	68	243	138						
09:15	88	78	162	70	250	148						
09:30	88	60	120	54	208	114						
09:45	100	351	62	270	112	562	53	245	212	913	115	515
10:00	84	58	98	55	182	113						
10:15	85	71	100	35	185	106						
10:30	90	38	96	39	186	77						
10:45	98	357	41	208	91	385	36	165	189	742	77	373
11:00	90	44	92	38	182	82						
11:15	75	31	90	39	165	70						
11:30	113	36	98	29	211	65						
11:45	88	366	28	139	104	384	12	118	192	750	40	257
Total	2307	6510	4074	4502	6381	11012						
Percent	36.2%	59.1%	63.8%	40.9%								
Day Total		8817		8576		17393						
Peak Vol.	07:30	05:00	08:00	02:30	07:45	05:00						
P.H.F.	442	1072	952	538	1386	1610						
	0.978	0.937	0.971	0.897	0.982	0.949						



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Woodland Road
Between BRMC Driveways
City, State : Stoneham, MA
Client : VHB/ A. Fill
NB

50459NBspeed
Site Code: 06971

Start Time	1	15	20	25	30	35	40	45	50	55	60	65	70	Total	Ave. Speed
12/14/05	2	0	0	1	5	27	22	11	3	0	0	0	0	71	39
01:00	1	0	0	2	7	11	3	3	0	0	0	0	0	27	35
02:00	1	0	0	2	5	12	5	0	0	0	0	0	0	25	35
03:00	1	0	0	1	1	2	2	2	0	0	0	0	0	9	35
04:00	2	0	0	1	4	1	6	2	0	0	0	0	0	16	34
05:00	2	0	0	1	9	13	25	11	1	0	0	0	0	62	39
06:00	13	0	1	1	22	78	65	28	4	1	0	0	0	213	38
07:00	27	0	1	3	19	109	167	60	11	3	0	1	0	401	39
08:00	22	0	3	6	30	159	174	66	11	0	0	0	0	471	39
09:00	9	0	3	12	40	145	113	38	5	2	0	0	0	367	38
10:00	10	1	5	10	41	134	112	46	10	1	0	0	0	370	38
11:00	8	0	4	19	43	118	116	48	7	2	1	0	0	366	38
12 PM	7	0	4	18	51	150	125	50	7	3	0	0	0	415	38
13:00	7	0	3	18	40	128	129	69	7	1	0	0	0	402	39
14:00	17	0	5	26	42	201	179	53	18	2	0	0	0	543	38
15:00	25	0	2	20	53	269	242	106	30	0	0	0	0	747	39
16:00	34	2	3	24	109	340	261	98	14	1	0	0	0	886	38
17:00	46	2	1	11	130	454	283	56	4	1	0	1	0	989	37
18:00	33	0	0	11	105	361	262	70	9	0	0	0	0	851	38
19:00	17	1	3	3	70	229	175	52	5	1	0	0	0	556	38
20:00	17	0	2	6	43	148	128	40	8	2	0	0	0	394	38
21:00	9	0	0	5	32	127	113	48	7	1	0	0	0	342	39
22:00	6	0	0	4	19	90	88	25	5	2	0	0	0	239	39
23:00	7	0	0	1	23	53	59	18	4	0	0	0	0	165	38
Total	323	6	40	206	943	3359	2854	1000	170	23	1	2	0	8927	
Percent	3.6%	0.1%	0.4%	2.3%	10.6%	37.6%	32.0%	11.2%	1.9%	0.3%	0.0%	0.0%	0.0%		

%ile Speed
 15th Percentile : 34 MPH
 50th Percentile : 39 MPH
 85th Percentile : 44 MPH
 95th Percentile : 48 MPH

Stats
 10 MPH Pace Speed : 35-44 MPH
 Number in Pace : 6213
 Percent in Pace : 69.6%
 Number of Vehicles > 40 MPH : 3479
 Percent of Vehicles > 40 MPH : 39.0%
 Mean Speed(Average) : 38 MPH



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Woodland Road
Between BRMC Driveways
City, State : Stoneham, MA
Client : VHB/ A. Fill

50459NBvolume
Site Code: 06971

Start	NB				Wed
Time	A.M.		P.M.		14-Dec-05
12:00	23		116		
12:15	22		111		
12:30	9		102		
12:45	17	71	86	415	
01:00	7		89		
01:15	8		102		
01:30	5		101		
01:45	7	27	110	402	
02:00	7		122		
02:15	5		148		
02:30	9		107		
02:45	4	25	166	543	
03:00	1		151		
03:15	2		214		
03:30	4		214		
03:45	2	9	168	747	
04:00	2		214		
04:15	4		222		
04:30	6		224		
04:45	4	16	226	886	
05:00	5		253		
05:15	11		269		
05:30	15		248		
05:45	31	62	219	989	
06:00	29		225		
06:15	49		228		
06:30	49		209		
06:45	86	213	189	851	
07:00	81		166		
07:15	104		154		
07:30	82		122		
07:45	134	401	114	556	
08:00	128		115		
08:15	110		86		
08:30	113		106		
08:45	120	471	87	394	
09:00	102		80		
09:15	77		106		
09:30	87		92		
09:45	101	367	64	342	
10:00	79		74		
10:15	97		60		
10:30	96		61		
10:45	98	370	44	239	
11:00	88		50		
11:15	107		62		
11:30	80		35		
11:45	91	366	18	165	
Total	2398		6529		
Percent			100.0%	0.0%	0.0%
Day Total		8927			
Peak	07:45		04:45		
Vol.	485		996		
P.H.F.	0.905		0.926		



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Woodland Road
Between BRMC Driveways
City, State : Stoneham, MA
Client : VHB/ A. Fill
SB

50459SBspeed
Site Code: 06971

Start Time	1	15	20	25	30	35	40	45	50	55	60	65	70	Total	Ave. Speed
12/14/05	14	19	24	29	34	39	44	49	54	59	64	69	9999		
01:00	0	0	0	0	4	10	12	10	2	0	1	0	0	39	42
02:00	0	0	0	0	1	5	5	2	3	1	0	0	0	17	43
03:00	0	0	0	0	1	4	3	1	1	0	0	0	0	10	40
04:00	0	0	0	0	0	5	5	3	2	0	0	0	0	15	42
05:00	0	0	0	0	3	10	14	7	3	0	0	0	0	37	41
06:00	3	0	0	0	3	37	94	56	13	8	2	0	0	216	43
07:00	16	0	0	0	11	107	234	152	36	5	1	0	0	562	42
08:00	22	0	1	2	15	106	344	304	71	14	2	0	0	881	43
09:00	18	0	0	0	15	115	374	326	109	9	2	0	0	968	44
10:00	16	0	1	3	18	101	239	195	49	13	2	1	0	638	43
11:00	9	0	0	4	15	86	175	108	32	5	0	0	0	434	42
12 PM	8	0	0	1	12	75	148	123	20	6	2	1	0	396	42
13:00	5	0	1	5	19	83	123	100	19	5	0	0	0	360	42
14:00	8	0	1	3	15	94	157	100	21	3	2	0	0	404	42
15:00	1	0	0	2	28	117	203	113	32	4	1	0	0	501	42
16:00	5	0	0	1	24	126	203	122	38	7	0	0	0	526	42
17:00	6	0	1	2	29	141	240	115	23	3	1	0	0	561	41
18:00	11	0	0	1	34	149	227	117	21	4	1	0	0	565	41
19:00	6	0	0	1	12	90	181	72	13	4	0	0	0	379	41
20:00	8	0	0	0	22	108	152	70	22	2	0	0	0	384	41
21:00	2	0	0	0	25	81	95	45	19	1	2	0	0	270	41
22:00	1	0	0	0	12	75	118	34	6	3	1	0	0	250	41
23:00	4	0	0	2	11	50	82	35	11	0	0	0	0	195	41
23:00	1	0	0	0	6	25	33	26	6	2	0	0	0	99	42
Total	150	0	5	27	335	1800	3461	2236	572	99	20	2	0	8707	
Percent	1.7%	0.0%	0.1%	0.3%	3.8%	20.7%	39.7%	25.7%	6.6%	1.1%	0.2%	0.0%	0.0%		

%ile Speed
 15th Percentile : 37 MPH
 50th Percentile : 42 MPH
 85th Percentile : 48 MPH
 95th Percentile : 52 MPH

Stats
 10 MPH Pace Speed : 40-49 MPH
 Number in Pace : 5697
 Percent in Pace : 65.4%
 Number of Vehicles > 40 MPH : 5697
 Percent of Vehicles > 40 MPH : 65.4%
 Mean Speed(Average) : 42 MPH



PRECISION
D A T A
INDUSTRIES, LLC

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

Woodland Road
Between BRMC Driveways
City, State : Stoneham, MA
Client : VHB/ A. Fill

50459SBvolume
Site Code: 06971

Start	SB				Wed 14-Dec- 05
Time	A.M.		P.M.		
12:00	8		83		
12:15	10		95		
12:30	12		85		
12:45	9	39	97	360	
01:00	3		98		
01:15	5		111		
01:30	6		98		
01:45	3	17	97	404	
02:00	2		93		
02:15	2		139		
02:30	2		135		
02:45	4	10	134	501	
03:00	4		114		
03:15	1		132		
03:30	9		136		
03:45	1	15	144	526	
04:00	3		135		
04:15	6		134		
04:30	13		136		
04:45	15	37	156	561	
05:00	25		161		
05:15	30		118		
05:30	77		126		
05:45	84	216	160	565	
06:00	78		118		
06:15	128		97		
06:30	165		85		
06:45	191	562	79	379	
07:00	219		87		
07:15	226		103		
07:30	225		99		
07:45	211	881	95	384	
08:00	224		79		
08:15	239		65		
08:30	257		63		
08:45	248	968	63	270	
09:00	197		72		
09:15	171		65		
09:30	143		64		
09:45	127	638	49	250	
10:00	124		58		
10:15	120		55		
10:30	104		45		
10:45	86	434	37	195	
11:00	91		29		
11:15	107		26		
11:30	104		26		
11:45	94	396	18	99	
Total	4213		4494		
Percent			100.0%	0.0%	0.0%
Day Total		8707			
Peak	08:00		04:15		
Vol.	968		587		
P.H.F.	0.942		0.911		



PRECISION
D A T A
INDUSTRIES, LLC

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71231Avolume
Site Code: 06971

Woodland Road (SB)
between Memorial Hospital Driveways
City, State: Stoneham, MA
Client: VHB/A. Fill

Start Time	A.M.	SB	P.M.		Tue 17-Jul-07
12:00	18		93		
12:15	13		100		
12:30	7		104		
12:45	7	45	127	424	
01:00	6		97		
01:15	6		104		
01:30	2		77		
01:45	2	16	110	388	
02:00	2		103		
02:15	5		127		
02:30	4		102		
02:45	4	15	120	452	
03:00	2		131		
03:15	3		123		
03:30	4		124		
03:45	4	13	127	505	
04:00	3		120		
04:15	3		133		
04:30	10		114		
04:45	23	39	127	494	
05:00	29		122		
05:15	31		144		
05:30	69		130		
05:45	85	214	124	520	
06:00	117		136		
06:15	144		99		
06:30	162		103		
06:45	181	604	99	437	
07:00	184		85		
07:15	223		94		
07:30	225		109		
07:45	208	840	81	369	
08:00	230		75		
08:15	227		86		
08:30	230		77		
08:45	228	915	74	312	
09:00	160		77		
09:15	136		62		
09:30	126		53		
09:45	130	552	62	254	
10:00	101		46		
10:15	102		41		
10:30	79		39		
10:45	89	371	45	171	
11:00	112		31		
11:15	124		30		
11:30	115		26		
11:45	116	467	19	106	
Total	4091		4432		
Percent			100.0%	0.0%	0.0%
Day Total		8523			
Peak	08:00		05:15		
Vol.	915		534		
P.H.F.	0.995		0.927		



PRECISION
D A T A
INDUSTRIES, LLC

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71231Avolume
Site Code: 06971

Woodland Road (SB)
between Memorial Hospital Driveways
City, State: Stoneham, MA
Client: VHB/A. Fill

Start Time	A.M.	SB	P.M.		Wed 18-Jul-07
12:00	17		101		
12:15	16		102		
12:30	12		96		
12:45	7	52	95	394	
01:00	9		97		
01:15	9		98		
01:30	3		120		
01:45	4	25	93	408	
02:00	3		117		
02:15	3		133		
02:30	2		99		
02:45	5	13	113	462	
03:00	3		119		
03:15	3		128		
03:30	4		124		
03:45	2	12	126	497	
04:00	3		103		
04:15	5		111		
04:30	9		109		
04:45	23	40	105	428	
05:00	29		122		
05:15	41		141		
05:30	55		115		
05:45	74	199	125	503	
06:00	114		121		
06:15	139		96		
06:30	144		107		
06:45	185	582	93	417	
07:00	181		85		
07:15	189		71		
07:30	251		74		
07:45	210	831	74	304	
08:00	219		71		
08:15	217		69		
08:30	206		59		
08:45	184	826	56	255	
09:00	163		50		
09:15	128		60		
09:30	124		62		
09:45	116	531	60	232	
10:00	114		46		
10:15	84		63		
10:30	99		58		
10:45	90	387	40	207	
11:00	108		23		
11:15	104		30		
11:30	109		19		
11:45	114	435	27	99	
Total	3933		4206		
Percent			100.0%	0.0%	0.0%
Day Total		8139			
Peak	07:30		05:00		
Vol.	897		503		
P.H.F.	0.893		0.892		



PRECISION
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INDUSTRIES, LLC

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Woodland Road (SB)
between Memorial Hospital Driveways
City, State: Stoneham, MA
Client: VHB/A. Fill
SB

71231Aspeed
Site Code: 06971

Start Time	1	15	20	25	30	35	40	45	50	55	60	65	70	Total	Ave. Speed
07/17/07	14	19	24	29	34	39	44	49	54	59	64	69	9999		
07:00	1	0	0	0	6	15	17	5	1	0	0	0	0	45	39
01:00	0	0	0	1	3	5	6	1	0	0	0	0	0	16	38
02:00	0	0	0	2	2	2	7	1	1	0	0	0	0	15	39
03:00	0	0	0	0	1	5	1	4	2	0	0	0	0	13	42
04:00	0	0	0	0	2	8	16	10	3	0	0	0	0	39	43
05:00	1	0	0	1	5	22	93	72	18	1	1	0	0	214	44
06:00	6	0	0	0	6	84	280	171	45	10	0	0	2	604	43
07:00	19	0	0	0	13	145	410	204	41	8	0	0	0	840	42
08:00	13	0	0	3	23	193	419	214	45	5	0	0	0	915	42
09:00	9	0	0	4	26	138	263	92	16	4	0	0	0	552	41
10:00	5	0	0	4	34	119	153	47	8	1	0	0	0	371	40
11:00	9	0	0	6	33	158	175	74	10	2	0	0	0	467	40
12 PM	6	0	0	4	30	148	152	72	11	0	1	0	0	424	40
13:00	1	0	0	7	28	115	148	76	8	3	1	1	0	388	41
14:00	4	0	1	3	30	156	167	79	11	1	0	0	0	452	40
15:00	4	0	0	4	32	147	204	92	19	3	0	0	0	505	41
16:00	4	0	0	1	18	106	231	114	17	1	2	0	0	494	42
17:00	5	0	0	0	24	98	238	130	22	2	1	0	0	520	42
18:00	9	0	0	0	11	105	203	94	11	3	0	0	1	437	41
19:00	2	0	0	2	21	118	160	53	10	2	0	1	0	369	41
20:00	1	0	0	4	28	120	123	33	3	0	0	0	0	312	39
21:00	1	0	0	5	27	105	84	22	8	2	0	0	0	254	39
22:00	0	0	0	3	16	59	60	28	3	1	0	0	1	171	40
23:00	0	0	0	1	6	42	35	17	3	0	1	1	0	106	41
Total	100	0	1	55	425	2213	3645	1705	316	49	7	3	4	8523	
Percent	1.2%	0.0%	0.0%	0.6%	5.0%	26.0%	42.8%	20.0%	3.7%	0.6%	0.1%	0.0%	0.0%		

%ile
Speed

15th Percentile : 36 MPH
50th Percentile : 42 MPH
85th Percentile : 47 MPH
95th Percentile : 49 MPH

Stats

10 MPH Pace Speed : 35-44 MPH
Number in Pace : 5858
Percent in Pace : 68.7%
Number of Vehicles > 35 MPH : 7500
Percent of Vehicles > 35 MPH : 88.0%
Mean Speed(Average) : 41 MPH



PRECISION
D A T A
INDUSTRIES, LLC

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Woodland Road (SB)
between Memorial Hospital Driveways
City, State: Stoneham, MA
Client: VHB/A. Fill
SB

71231Aspeed
Site Code: 06971

Start Time	1	15	20	25	30	35	40	45	50	55	60	65	70	Total	Ave. Speed
07/18/07	14	19	24	29	34	39	44	49	54	59	64	69	9999		
07:00	0	0	0	0	4	21	20	3	3	1	0	0	0	52	40
01:00	0	0	0	0	2	6	11	4	0	1	1	0	0	25	42
02:00	0	0	0	0	1	5	4	3	0	0	0	0	0	13	40
03:00	0	0	0	0	1	2	5	2	2	0	0	0	0	12	43
04:00	0	0	0	0	5	10	14	6	3	2	0	0	0	40	42
05:00	2	0	1	0	13	29	92	48	11	3	0	0	0	199	42
06:00	7	0	0	0	5	88	281	156	41	4	0	0	0	582	43
07:00	8	0	0	2	17	137	423	195	42	5	1	1	0	831	42
08:00	15	0	0	2	28	186	383	181	29	2	0	0	0	826	41
09:00	9	0	0	1	22	174	214	95	12	4	0	0	0	531	41
10:00	5	0	0	2	35	141	142	54	7	1	0	0	0	387	40
11:00	3	0	0	1	29	129	199	64	8	2	0	0	0	435	41
12 PM	4	0	0	7	31	141	152	51	8	0	0	0	0	394	40
13:00	1	0	0	8	37	167	157	31	7	0	0	0	0	408	39
14:00	2	0	0	3	50	184	167	49	6	1	0	0	0	462	39
15:00	6	0	4	20	55	185	164	57	6	0	0	0	0	497	38
16:00	4	0	0	4	23	135	184	62	15	1	0	0	0	428	40
17:00	1	0	0	1	22	118	240	107	13	1	0	0	0	503	42
18:00	3	0	0	0	14	105	206	77	10	1	0	0	0	416	41
19:00	2	0	0	0	25	96	132	39	10	1	0	0	0	305	40
20:00	1	0	0	0	14	82	112	37	8	1	0	0	0	255	41
21:00	1	0	0	0	35	90	84	19	3	0	0	0	0	232	39
22:00	0	0	0	2	25	84	63	29	3	1	0	0	0	207	39
23:00	0	0	1	0	7	47	31	9	3	1	0	0	0	99	40
Total	74	0	6	53	500	2362	3480	1378	250	33	2	1	0	8139	
Percent	0.9%	0.0%	0.1%	0.7%	6.1%	29.0%	42.8%	16.9%	3.1%	0.4%	0.0%	0.0%	0.0%		

%ile Speed
 15th Percentile : 36 MPH
 50th Percentile : 41 MPH
 85th Percentile : 46 MPH
 95th Percentile : 49 MPH

Stats
 10 MPH Pace Speed : 35-44 MPH
 Number in Pace : 5842
 Percent in Pace : 71.8%
 Number of Vehicles > 35 MPH : 7034
 Percent of Vehicles > 35 MPH : 86.4%
 Mean Speed(Average) : 41 MPH



PRECISION
D A T A
INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503
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71231Aclass
Site Code: 06971

Woodland Road (SB)
between Memorial Hospital Driveways
City, State: Stoneham, MA
Client: VHB/A. Fill
SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/17/0														
7	1	38	6	0	0	0	0	0	0	0	0	0	0	45
01:00	0	14	2	0	0	0	0	0	0	0	0	0	0	16
02:00	0	11	4	0	0	0	0	0	0	0	0	0	0	15
03:00	0	11	2	0	0	0	0	0	0	0	0	0	0	13
04:00	1	28	10	0	0	0	0	0	0	0	0	0	0	39
05:00	0	144	61	1	6	0	0	2	0	0	0	0	0	214
06:00	9	467	112	0	10	2	0	4	0	0	0	0	0	604
07:00	5	688	128	2	9	0	0	8	0	0	0	0	0	840
08:00	7	763	131	0	11	0	0	3	0	0	0	0	0	915
09:00	4	441	95	0	7	1	0	1	1	1	1	0	0	552
10:00	2	303	59	0	5	0	0	2	0	0	0	0	0	371
11:00	5	382	69	0	6	0	0	5	0	0	0	0	0	467
12 PM	2	341	75	0	5	0	0	1	0	0	0	0	0	424
13:00	4	321	59	0	3	0	0	1	0	0	0	0	0	388
14:00	5	367	75	1	3	0	0	1	0	0	0	0	0	452
15:00	4	393	97	0	8	0	0	3	0	0	0	0	0	505
16:00	4	409	71	1	5	0	0	4	0	0	0	0	0	494
17:00	9	439	66	0	5	0	0	1	0	0	0	0	0	520
18:00	3	371	60	0	2	0	0	1	0	0	0	0	0	437
19:00	11	304	49	0	4	0	0	1	0	0	0	0	0	369
20:00	3	269	36	0	4	0	0	0	0	0	0	0	0	312
21:00	7	215	32	0	0	0	0	0	0	0	0	0	0	254
22:00	1	147	20	0	3	0	0	0	0	0	0	0	0	171
23:00	3	88	14	0	1	0	0	0	0	0	0	0	0	106
Total	90	6954	1333	5	97	3	0	38	1	1	1	0	0	8523
Percent	1.1%	81.6%	15.6%	0.1%	1.1%	0.0%	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	06:00	08:00	08:00	07:00	08:00	06:00		07:00	09:00	09:00	09:00			08:00
Vol.	9	763	131	2	11	2		8	1	1	1			915
PM Peak	19:00	17:00	15:00	14:00	15:00			16:00						17:00
Vol.	11	439	97	1	8			4						520



PRECISION
D A T A
INDUSTRIES, LLC

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71231Aclass
Site Code: 06971

Woodland Road (SB)
between Memorial Hospital Driveways
City, State: Stoneham, MA
Client: VHB/A. Fill
SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/18/0														
7	2	45	5	0	0	0	0	0	0	0	0	0	0	52
01:00	0	22	3	0	0	0	0	0	0	0	0	0	0	25
02:00	0	9	4	0	0	0	0	0	0	0	0	0	0	13
03:00	0	9	3	0	0	0	0	0	0	0	0	0	0	12
04:00	1	27	12	0	0	0	0	0	0	0	0	0	0	40
05:00	1	138	53	0	6	1	0	0	0	0	0	0	0	199
06:00	3	445	121	0	8	0	0	5	0	0	0	0	0	582
07:00	2	676	128	2	16	1	0	5	0	0	1	0	0	831
08:00	1	709	102	0	10	0	0	3	0	0	0	0	1	826
09:00	1	430	91	0	4	1	0	4	0	0	0	0	0	531
10:00	0	321	55	3	6	0	0	1	1	0	0	0	0	387
11:00	0	354	69	1	8	1	0	2	0	0	0	0	0	435
12 PM	2	318	65	0	4	1	0	4	0	0	0	0	0	394
13:00	0	318	86	0	4	0	0	0	0	0	0	0	0	408
14:00	0	368	87	0	5	0	0	2	0	0	0	0	0	462
15:00	1	396	86	1	13	0	0	0	0	0	0	0	0	497
16:00	2	338	80	0	5	0	0	3	0	0	0	0	0	428
17:00	0	438	61	0	2	0	0	2	0	0	0	0	0	503
18:00	1	356	54	0	3	0	0	2	0	0	0	0	0	416
19:00	0	266	34	0	3	0	0	2	0	0	0	0	0	305
20:00	0	207	43	0	5	0	0	0	0	0	0	0	0	255
21:00	0	207	24	0	1	0	0	0	0	0	0	0	0	232
22:00	2	179	26	0	0	0	0	0	0	0	0	0	0	207
23:00	0	85	14	0	0	0	0	0	0	0	0	0	0	99
Total	19	6661	1306	7	103	5	0	35	1	0	1	0	1	8139
Percent	0.2%	81.8%	16.0%	0.1%	1.3%	0.1%	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	06:00	08:00	07:00	10:00	07:00	05:00		06:00	10:00		07:00		08:00	07:00
Vol.	3	709	128	3	16	1		5	1		1		1	831
PM Peak	12:00	17:00	14:00	15:00	15:00	12:00		12:00						17:00
Vol.	2	438	87	1	13	1		4						503



PRECISION
D A T A
INDUSTRIES, LLC

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71231Bvolume
Site Code: 06971

Woodland Road (NB)
between Memorial Hospital Driveways
City, State: Stoneham, MA
Client: VHB/A. Fill

Start Time	A.M.	NB	P.M.		Tue 17-Jul-07
12:00	27		99		
12:15	16		111		
12:30	21		105		
12:45	7	71	94	409	
01:00	6		108		
01:15	8		97		
01:30	6		113		
01:45	8	28	106	424	
02:00	6		115		
02:15	2		138		
02:30	6		150		
02:45	4	18	150	553	
03:00	2		163		
03:15	5		151		
03:30	1		171		
03:45	2	10	204	689	
04:00	2		198		
04:15	6		227		
04:30	6		235		
04:45	4	18	255	915	
05:00	11		244		
05:15	12		250		
05:30	25		274		
05:45	31	79	251	1019	
06:00	39		245		
06:15	49		216		
06:30	71		216		
06:45	66	225	188	865	
07:00	66		145		
07:15	86		109		
07:30	99		117		
07:45	87	338	109	480	
08:00	99		128		
08:15	102		100		
08:30	92		85		
08:45	121	414	80	393	
09:00	105		86		
09:15	91		74		
09:30	77		63		
09:45	81	354	59	282	
10:00	99		60		
10:15	84		72		
10:30	82		46		
10:45	82	347	59	237	
11:00	104		49		
11:15	86		49		
11:30	116		38		
11:45	101	407	25	161	
Total	2309		6427		
Percent			100.0%	0.0%	0.0%
Day Total		8736			
Peak	08:15		04:45		
Vol.	420		1023		
P.H.F.	0.868		0.933		



PRECISION
D A T A
INDUSTRIES, LLC

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

71231Bvolume
Site Code: 06971

Woodland Road (NB)
between Memorial Hospital Driveways
City, State: Stoneham, MA
Client: VHB/A. Fill

Start Time	A.M.	NB	P.M.		Wed 18-Jul-07
12:00	25		85		
12:15	21		119		
12:30	21		94		
12:45	9	76	91	389	
01:00	16		93		
01:15	12		104		
01:30	7		116		
01:45	8	43	114	427	
02:00	8		136		
02:15	7		162		
02:30	6		164		
02:45	2	23	143	605	
03:00	2		138		
03:15	3		144		
03:30	1		181		
03:45	2	8	196	659	
04:00	4		213		
04:15	6		232		
04:30	4		227		
04:45	9	23	234	906	
05:00	7		242		
05:15	12		240		
05:30	14		264		
05:45	33	66	254	1000	
06:00	33		215		
06:15	36		201		
06:30	70		186		
06:45	72	211	191	793	
07:00	67		141		
07:15	91		137		
07:30	77		114		
07:45	101	336	91	483	
08:00	97		103		
08:15	108		92		
08:30	96		101		
08:45	98	399	78	374	
09:00	104		69		
09:15	82		64		
09:30	94		75		
09:45	78	358	70	278	
10:00	80		50		
10:15	90		57		
10:30	67		54		
10:45	89	326	49	210	
11:00	87		49		
11:15	101		57		
11:30	92		27		
11:45	114	394	28	161	
Total	2263		6285		
Percent			100.0%	0.0%	0.0%
Day Total		8548			
Peak	08:15		05:00		
Vol.	406		1000		
P.H.F.	0.940		0.947		



PRECISION
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Woodland Road (NB)
between Memorial Hospital Driveways
City, State: Stoneham, MA
Client: VHB/A. Fill
NB

71231Bspeed
Site Code: 06971

Start Time	1	15	20	25	30	35	40	45	50	55	60	65	70	Total	Ave. Speed
07/17/07	14	19	24	29	34	39	44	49	54	59	64	69	9999		
07:00	0	0	0	0	8	37	17	6	2	1	0	0	0	71	39
01:00	0	0	0	2	1	11	9	3	2	0	0	0	0	28	39
02:00	0	0	0	2	6	5	2	2	1	0	0	0	0	18	37
03:00	0	0	0	0	2	1	6	0	1	0	0	0	0	10	40
04:00	0	0	0	1	3	3	9	2	0	0	0	0	0	18	39
05:00	0	0	0	1	9	27	25	13	4	0	0	0	0	79	40
06:00	0	0	0	3	17	86	80	29	8	1	0	1	0	225	40
07:00	5	0	0	2	24	114	137	48	8	0	0	0	0	338	40
08:00	2	0	0	8	37	158	146	52	8	2	0	0	0	413	40
09:00	4	1	0	12	62	143	98	28	6	1	0	0	0	355	38
10:00	6	0	3	5	60	146	91	33	3	0	0	0	0	347	38
11:00	3	0	1	10	72	174	107	36	4	0	0	0	0	407	38
12 PM	2	0	0	6	53	175	120	49	2	1	0	0	0	408	39
13:00	6	1	1	10	49	151	150	50	6	1	0	0	0	425	39
14:00	9	0	1	12	55	198	201	67	9	1	0	0	0	553	39
15:00	7	0	1	9	44	239	256	109	20	3	1	0	0	689	40
16:00	14	0	0	1	55	343	371	111	17	1	2	0	0	915	40
17:00	19	0	0	3	59	390	409	120	17	1	1	0	0	1019	40
18:00	12	0	1	0	58	331	328	107	19	3	2	3	1	865	40
19:00	3	0	1	4	44	156	183	74	13	2	0	0	0	480	40
20:00	2	0	0	3	46	174	120	35	10	1	0	2	0	393	39
21:00	4	0	0	2	48	125	72	25	4	2	0	0	0	282	38
22:00	1	0	0	6	21	94	87	24	3	1	0	0	0	237	39
23:00	0	0	1	1	23	61	56	15	4	0	0	0	0	161	39
Total	99	2	10	103	856	3342	3080	1038	171	22	6	6	1	8736	
Percent	1.1%	0.0%	0.1%	1.2%	9.8%	38.3%	35.3%	11.9%	2.0%	0.3%	0.1%	0.1%	0.0%		

%ile
Speed

15th Percentile : 35 MPH
50th Percentile : 39 MPH
85th Percentile : 44 MPH
95th Percentile : 48 MPH

Stats

10 MPH Pace Speed : 35-44 MPH
Number in Pace : 6422
Percent in Pace : 73.5%
Number of Vehicles > 35 MPH : 6997
Percent of Vehicles > 35 MPH : 80.1%
Mean Speed(Average) : 39 MPH



PRECISION
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Woodland Road (NB)
between Memorial Hospital Driveways
City, State: Stoneham, MA
Client: VHB/A. Fill
NB

71231Bspeed
Site Code: 06971

Start Time	1	15	20	25	30	35	40	45	50	55	60	65	70	Total	Ave. Speed
07/18/07	1	0	0	0	9	29	32	2	3	0	0	0	0	76	39
01:00	0	0	0	1	7	22	12	0	1	0	0	0	0	43	38
02:00	0	0	2	1	4	5	8	3	0	0	0	0	0	23	37
03:00	0	0	0	0	1	3	2	1	1	0	0	0	0	8	40
04:00	0	0	0	0	4	9	6	2	0	0	0	0	0	23	40
05:00	0	0	0	3	7	16	23	17	0	0	0	0	0	66	40
06:00	1	0	0	0	15	83	80	28	4	0	0	0	0	211	40
07:00	3	0	1	2	28	127	121	49	5	0	0	0	0	336	40
08:00	4	0	1	11	42	173	127	36	3	2	0	0	0	399	39
09:00	4	0	0	12	52	154	106	25	4	1	0	0	0	358	38
10:00	3	0	0	10	51	141	97	22	1	1	0	0	0	326	38
11:00	5	1	3	4	51	174	118	34	4	0	0	0	0	394	38
12 PM	1	0	1	14	73	165	103	29	3	0	0	0	0	389	38
13:00	3	0	1	12	87	172	121	26	5	0	0	0	0	427	38
14:00	1	0	1	11	82	313	153	41	3	0	0	0	0	605	38
15:00	6	0	0	15	85	309	188	50	6	0	0	0	0	659	38
16:00	9	0	0	12	98	435	255	87	8	2	0	0	0	906	39
17:00	18	0	5	6	67	435	351	107	8	2	0	0	0	999	39
18:00	10	0	0	3	62	365	249	87	14	2	0	1	0	793	39
19:00	4	0	0	5	47	214	154	51	9	0	0	0	0	484	39
20:00	8	0	0	7	67	160	96	30	5	0	0	0	0	373	38
21:00	1	0	0	9	47	115	82	19	6	0	0	0	0	279	38
22:00	0	0	0	0	34	97	62	14	3	0	0	0	0	210	39
23:00	0	0	0	2	13	80	49	16	1	0	0	0	0	161	39
Total	82	1	15	140	1033	3796	2595	776	99	10	0	1	0	8548	
Percent t	1.0%	0.0%	0.2%	1.6%	12.1%	44.4%	30.4%	9.1%	1.2%	0.1%	0.0%	0.0%	0.0%		

%ile Speed
 15th Percentile : 35 MPH
 50th Percentile : 38 MPH
 85th Percentile : 44 MPH
 95th Percentile : 47 MPH

Stats
 10 MPH Pace Speed : 35-44 MPH
 Number in Pace : 6391
 Percent in Pace : 74.8%
 Number of Vehicles > 35 MPH : 6517
 Percent of Vehicles > 35 MPH : 76.2%
 Mean Speed(Average) : 39 MPH



PRECISION
D A T A
INDUSTRIES, LLC

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71231Bclass
Site Code: 06971

Woodland Road (NB)
between Memorial Hospital Driveways
City, State: Stoneham, MA
Client: VHB/A. Fill
NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/17/0														
7	2	55	14	0	0	0	0	0	0	0	0	0	0	71
01:00	0	25	3	0	0	0	0	0	0	0	0	0	0	28
02:00	0	14	4	0	0	0	0	0	0	0	0	0	0	18
03:00	1	9	0	0	0	0	0	0	0	0	0	0	0	10
04:00	0	16	2	0	0	0	0	0	0	0	0	0	0	18
05:00	0	57	20	0	2	0	0	0	0	0	0	0	0	79
06:00	3	165	50	0	6	1	0	0	0	0	0	0	0	225
07:00	1	286	48	0	3	0	0	0	0	0	0	0	0	338
08:00	1	353	56	0	2	0	0	1	0	0	0	0	0	413
09:00	1	290	58	1	4	0	0	1	0	0	0	0	0	355
10:00	0	294	49	0	3	0	0	1	0	0	0	0	0	347
11:00	2	335	62	1	6	0	1	0	0	0	0	0	0	407
12 PM	0	333	68	1	6	0	0	0	0	0	0	0	0	408
13:00	1	336	80	1	7	0	0	0	0	0	0	0	0	425
14:00	5	440	99	0	6	0	0	3	0	0	0	0	0	553
15:00	6	537	138	1	3	0	0	2	0	2	0	0	0	689
16:00	8	753	140	0	10	0	0	3	1	0	0	0	0	915
17:00	8	872	122	1	12	0	0	4	0	0	0	0	0	1019
18:00	11	743	97	0	9	0	0	4	0	1	0	0	0	865
19:00	2	418	56	0	4	0	0	0	0	0	0	0	0	480
20:00	12	337	41	0	3	0	0	0	0	0	0	0	0	393
21:00	3	250	26	0	2	1	0	0	0	0	0	0	0	282
22:00	2	197	33	0	4	0	0	1	0	0	0	0	0	237
23:00	3	141	17	0	0	0	0	0	0	0	0	0	0	161
Total	72	7256	1283	6	92	2	1	20	1	3	0	0	0	8736
Percent	0.8%	83.1%	14.7%	0.1%	1.1%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	06:00	08:00	11:00	09:00	06:00	06:00	11:00	08:00						08:00
Vol.	3	353	62	1	6	1	1	1						413
PM Peak	20:00	17:00	16:00	12:00	17:00	21:00		17:00	16:00	15:00				17:00
Vol.	12	872	140	1	12	1		4	1	2				1019



PRECISION
D A T A
INDUSTRIES, LLC

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71231Bclass
Site Code: 06971

Woodland Road (NB)
between Memorial Hospital Driveways
City, State: Stoneham, MA
Client: VHB/A. Fill
NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
07/18/0														
7	1	62	13	0	0	0	0	0	0	0	0	0	0	76
01:00	0	39	4	0	0	0	0	0	0	0	0	0	0	43
02:00	0	17	6	0	0	0	0	0	0	0	0	0	0	23
03:00	1	5	2	0	0	0	0	0	0	0	0	0	0	8
04:00	0	19	4	0	0	0	0	0	0	0	0	0	0	23
05:00	0	44	18	0	3	1	0	0	0	0	0	0	0	66
06:00	0	161	49	0	1	0	0	0	0	0	0	0	0	211
07:00	1	282	48	0	5	0	0	0	0	0	0	0	0	336
08:00	0	333	60	1	5	0	0	0	0	0	0	0	0	399
09:00	0	295	59	0	2	1	0	0	0	0	0	1	0	358
10:00	2	261	55	1	6	1	0	0	0	0	0	0	0	326
11:00	0	326	61	1	6	0	0	0	0	0	0	0	0	394
12 PM	1	322	61	0	3	0	0	2	0	0	0	0	0	389
13:00	0	344	75	1	5	1	0	1	0	0	0	0	0	427
14:00	1	476	123	0	4	0	0	1	0	0	0	0	0	605
15:00	4	516	129	1	5	0	0	3	1	0	0	0	0	659
16:00	1	733	154	0	13	0	0	4	0	0	1	0	0	906
17:00	1	857	130	1	5	2	0	3	0	0	0	0	0	999
18:00	4	695	77	0	11	0	0	4	0	2	0	0	0	793
19:00	2	427	52	0	2	0	0	1	0	0	0	0	0	484
20:00	0	333	39	0	1	0	0	0	0	0	0	0	0	373
21:00	1	250	22	0	3	1	0	2	0	0	0	0	0	279
22:00	1	180	28	0	1	0	0	0	0	0	0	0	0	210
23:00	1	145	14	0	0	0	0	1	0	0	0	0	0	161
Total	22	7122	1283	6	81	7	0	22	1	2	1	1	0	8548
Percent	0.3%	83.3%	15.0%	0.1%	0.9%	0.1%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	10:00	08:00	11:00	08:00	10:00	05:00						09:00		08:00
Vol.	2	333	61	1	6	1						1		399
PM Peak	15:00	17:00	16:00	13:00	16:00	17:00		16:00	15:00	18:00	16:00			17:00
Vol.	4	857	154	1	13	2		4	1	2	1			999

Woodland Road (NB)
 between Hospital Driveways
 City, State: Stoneham, MA
 Client: VHB/M. Santos



PRECISION
 D A T A
 INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503
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91813 A volume
 Site Code: 06971.03

Start Time	A.M.	NB	P.M.		Thu 05-Feb- 09
12:00	21		93		
12:15	7		85		
12:30	13		87		
12:45	7	48	87	352	
01:00	8		80		
01:15	8		94		
01:30	4		97		
01:45	3	23	106	377	
02:00	6		123		
02:15	4		118		
02:30	4		159		
02:45	0	14	147	547	
03:00	2		163		
03:15	2		185		
03:30	2		204		
03:45	2	8	197	749	
04:00	1		214		
04:15	1		214		
04:30	10		207		
04:45	3	15	226	861	
05:00	6		239		
05:15	13		261		
05:30	16		221		
05:45	20	55	226	947	
06:00	33		216		
06:15	40		197		
06:30	44		176		
06:45	76	193	149	738	
07:00	88		140		
07:15	92		97		
07:30	106		82		
07:45	97	383	93	412	
08:00	113		115		
08:15	98		73		
08:30	97		71		
08:45	101	409	64	323	
09:00	82		71		
09:15	72		71		
09:30	63		40		
09:45	80	297	34	216	
10:00	71		39		
10:15	64		39		
10:30	71		28		
10:45	76	282	30	136	
11:00	76		32		
11:15	64		34		
11:30	92		32		
11:45	96	328	38	136	
Total	2055		5794		
Percent			100.0%	0.0%	0.0%
Day Total		7849			
Peak	07:30		04:45		
Vol.	414		947		
P.H.F.	0.916		0.907		



PRECISION
D A T A
INDUSTRIES, LLC

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Woodland Road (NB)
between Hospital Driveways
City, State: Stoneham, MA
Client: VHB/M. Santos

91813 A class
Site Code: 06971.03

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
02/05/09	0	43	5	0	0	0	0	0	0	0	0	0	0	48
01:00	0	22	0	0	1	0	0	0	0	0	0	0	0	23
02:00	0	13	1	0	0	0	0	0	0	0	0	0	0	14
03:00	0	6	2	0	0	0	0	0	0	0	0	0	0	8
04:00	0	11	3	0	1	0	0	0	0	0	0	0	0	15
05:00	0	42	11	0	2	0	0	0	0	0	0	0	0	55
06:00	0	151	39	0	3	0	0	0	0	0	0	0	0	193
07:00	0	332	42	3	3	0	0	2	0	1	0	0	0	383
08:00	0	342	60	1	4	0	2	0	0	0	0	0	0	409
09:00	0	235	56	0	5	0	0	1	0	0	0	0	0	297
10:00	0	233	44	1	3	0	0	1	0	0	0	0	0	282
11:00	0	258	63	0	7	0	0	0	0	0	0	0	0	328
12 PM	0	294	53	0	5	0	0	0	0	0	0	0	0	352
13:00	0	287	81	1	7	0	0	1	0	0	0	0	0	377
14:00	0	440	98	0	6	1	0	2	0	0	0	0	0	547
15:00	1	597	136	1	12	0	0	2	0	0	0	0	0	749
16:00	0	720	135	0	3	0	0	2	0	1	0	0	0	861
17:00	0	818	123	0	3	0	0	3	0	0	0	0	0	947
18:00	0	632	90	2	7	0	0	5	1	1	0	0	0	738
19:00	0	353	55	0	4	0	0	0	0	0	0	0	0	412
20:00	1	283	37	0	2	0	0	0	0	0	0	0	0	323
21:00	0	177	36	0	3	0	0	0	0	0	0	0	0	216
22:00	0	120	13	0	3	0	0	0	0	0	0	0	0	136
23:00	0	115	19	0	2	0	0	0	0	0	0	0	0	136
Total	2	6524	1202	9	86	1	2	19	1	3	0	0	0	7849
Percent	0.0%	83.1%	15.3%	0.1%	1.1%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak		08:00	08:00	07:00	09:00		08:00	07:00		07:00				08:00
Vol.		342	60	3	5		2	2		1				409
Midday Peak		14:00	14:00	13:00	11:00	14:00		14:00						14:00
Vol.		440	98	1	7	1		2						547
PM Peak	15:00	17:00	15:00	18:00	15:00			18:00	18:00	16:00				17:00
Vol.	1	818	136	2	12			5	1	1				947



PRECISION
D A T A
INDUSTRIES, LLC

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

91813 A speed
Site Code: 06971.03

Woodland Road (NB)
between Hospital Driveways
City, State: Stoneham, MA
Client: VHB/M. Santos

NB	1	15	20	25	30	35	40	45	50	55	60	65	70	Total	85th % ile	Ave Speed
Start Time	14	19	24	29	34	39	44	49	54	59	64	69	9999			
02/05/09	0	0	0	2	10	21	10	5	0	0	0	0	0	48	43	38
01:00	0	0	0	0	7	9	6	1	0	0	0	0	0	23	42	37
02:00	0	0	0	0	5	6	1	1	1	0	0	0	0	14	44	37
03:00	0	0	0	2	0	5	1	0	0	0	0	0	0	8	39	34
04:00	0	0	0	0	1	11	1	2	0	0	0	0	0	15	44	38
05:00	0	0	1	4	8	21	17	2	2	0	0	0	0	55	43	38
06:00	0	0	0	4	43	86	44	15	0	1	0	0	0	193	43	38
07:00	0	0	0	7	51	177	117	29	2	0	0	0	0	383	43	38
08:00	0	1	1	21	85	148	130	18	4	1	0	0	0	409	43	38
09:00	0	0	2	18	66	125	67	17	2	0	0	0	0	297	42	37
10:00	0	0	2	16	79	115	58	11	1	0	0	0	0	282	42	36
11:00	0	0	1	20	88	153	59	7	0	0	0	0	0	328	41	36
12 PM	0	3	4	26	85	155	73	5	1	0	0	0	0	352	41	36
13:00	0	1	3	26	98	157	73	18	1	0	0	0	0	377	42	36
14:00	0	0	2	49	141	225	102	21	6	1	0	0	0	547	42	36
15:00	0	0	1	32	191	344	152	26	3	0	0	0	0	749	42	37
16:00	0	0	5	28	265	405	138	19	1	0	0	0	0	861	41	36
17:00	0	0	5	40	379	388	111	20	3	1	0	0	0	947	39	35
18:00	0	0	4	41	252	330	102	9	0	0	0	0	0	738	39	35
19:00	0	0	0	16	126	191	67	10	1	1	0	0	0	412	41	36
20:00	0	0	0	15	107	134	57	10	0	0	0	0	0	323	41	36
21:00	0	0	0	2	60	98	42	14	0	0	0	0	0	216	42	37
22:00	0	0	0	4	40	63	22	4	3	0	0	0	0	136	41	37
23:00	0	0	1	3	31	56	34	9	2	0	0	0	0	136	43	38
Total	0	5	32	376	2218	3423	1484	273	33	5	0	0	0	7849		
%	0.0%	0.1%	0.4%	4.8%	28.3%	43.6%	18.9%	3.5%	0.4%	0.1%	0.0%	0.0%	0.0%			
AM Peak		08:00	09:00	08:00	08:00	07:00	08:00	07:00	08:00	06:00				08:00		
Vol.		1	2	21	85	177	130	29	4	1				409		
Midday Peak		12:00	12:00	14:00	14:00	14:00	14:00	14:00	14:00	14:00				14:00		
Vol.		3	4	49	141	225	102	21	6	1				547		
PM Peak			16:00	18:00	17:00	16:00	15:00	15:00	15:00	17:00				17:00		
Vol.			5	41	379	405	152	26	3	1				947		
% ile			15th Percentile :			31 MPH										
			50th Percentile :			36 MPH										
			85th Percentile :			42 MPH										
			95th Percentile :			44 MPH										

Stats
 10 MPH Pace Speed : 30-39 MPH
 Number in Pace : 5641
 Percent in Pace : 71.9%
 Number of Vehicles > 35 MPH : 4533
 Percent of Vehicles > 35 MPH : 57.8%
 Mean Speed(Average) : 36 MPH



PRECISION
D A T A
INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503
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Woodland Road (SB)
between Hospital Driveways
City, State: Stoneham, MA
Client: VHB/M. Santos

91813 B volume
Site Code: 06971.03

Start Time	A.M.	SB	P.M.		Thu 05-Feb- 09
12:00	10		79		
12:15	12		98		
12:30	5		86		
12:45	6	33	88	351	
01:00	3		84		
01:15	3		96		
01:30	2		95		
01:45	5	13	99	374	
02:00	2		105		
02:15	5		117		
02:30	4		117		
02:45	1	12	107	446	
03:00	3		123		
03:15	2		112		
03:30	8		116		
03:45	5	18	110	461	
04:00	1		109		
04:15	3		91		
04:30	15		107		
04:45	27	46	118	425	
05:00	18		118		
05:15	44		97		
05:30	71		102		
05:45	78	211	109	426	
06:00	94		102		
06:15	141		73		
06:30	187		86		
06:45	212	634	97	358	
07:00	244		72		
07:15	227		63		
07:30	203		58		
07:45	244	918	64	257	
08:00	232		64		
08:15	216		53		
08:30	255		57		
08:45	202	905	37	211	
09:00	184		40		
09:15	127		39		
09:30	131		40		
09:45	127	569	34	153	
10:00	103		26		
10:15	97		43		
10:30	96		30		
10:45	82	378	29	128	
11:00	71		13		
11:15	90		24		
11:30	89		17		
11:45	97	347	13	67	
Total	4084		3657		
Percent			100.0%	0.0%	0.0%
Day Total		7741			
Peak	07:45		02:15		
Vol.	947		464		
P.H.F.	0.928		0.943		



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Woodland Road (SB)
between Hospital Driveways
City, State: Stoneham, MA
Client: VHB/M. Santos

91813 B class
Site Code: 06971.03

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
02/05/09	0	26	4	0	3	0	0	0	0	0	0	0	0	33
01:00	0	12	1	0	0	0	0	0	0	0	0	0	0	13
02:00	0	9	3	0	0	0	0	0	0	0	0	0	0	12
03:00	0	16	2	0	0	0	0	0	0	0	0	0	0	18
04:00	0	32	12	0	2	0	0	0	0	0	0	0	0	46
05:00	0	158	45	0	8	0	0	0	0	0	0	0	0	211
06:00	2	497	119	1	10	0	0	3	0	0	0	2	0	634
07:00	2	748	150	1	11	1	0	5	0	0	0	0	0	918
08:00	0	765	127	1	6	3	0	2	0	1	0	0	0	905
09:00	1	458	99	2	8	1	0	0	0	0	0	0	0	569
10:00	0	302	67	1	8	0	0	0	0	0	0	0	0	378
11:00	0	276	59	0	12	0	0	0	0	0	0	0	0	347
12 PM	1	296	42	0	11	0	0	1	0	0	0	0	0	351
13:00	0	303	60	0	9	0	0	2	0	0	0	0	0	374
14:00	0	359	74	1	9	0	0	3	0	0	0	0	0	446
15:00	1	371	69	1	17	0	0	2	0	0	0	0	0	461
16:00	0	347	71	0	7	0	0	0	0	0	0	0	0	425
17:00	2	363	56	0	4	0	0	1	0	0	0	0	0	426
18:00	0	308	46	1	2	0	0	1	0	0	0	0	0	358
19:00	1	212	38	0	6	0	0	0	0	0	0	0	0	257
20:00	1	191	18	0	1	0	0	0	0	0	0	0	0	211
21:00	0	123	24	0	6	0	0	0	0	0	0	0	0	153
22:00	0	114	14	0	0	0	0	0	0	0	0	0	0	128
23:00	0	63	4	0	0	0	0	0	0	0	0	0	0	67
Total	11	6349	1204	9	140	5	0	20	0	1	0	2	0	7741
Percent	0.1%	82.0%	15.6%	0.1%	1.8%	0.1%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	06:00	08:00	07:00	09:00	07:00	08:00		07:00		08:00		06:00		07:00
Vol.	2	765	150	2	11	3		5		1		2		918
Midday Peak	12:00	14:00	14:00	14:00	11:00			14:00						14:00
Vol.	1	359	74	1	12			3						446
PM Peak	17:00	15:00	16:00	15:00	15:00			15:00						15:00
Vol.	2	371	71	1	17			2						461



PRECISION
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91813 B speed
Site Code: 06971.03

Woodland Road (SB)
between Hospital Driveways
City, State: Stoneham, MA
Client: VHB/M. Santos

SB	1	15	20	25	30	35	40	45	50	55	60	65	70	Total	85th % ile	Ave Speed	
Start Time	14	19	24	29	34	39	44	49	54	59	64	69	9999				
02/05/0																	
9	0	0	0	0	5	14	10	2	2	0	0	0	0	33	44	39	
01:00	0	0	0	0	2	5	3	1	2	0	0	0	0	13	49	40	
02:00	0	0	0	1	2	5	1	2	1	0	0	0	0	12	45	39	
03:00	0	0	0	1	1	8	5	3	0	0	0	0	0	18	44	39	
04:00	0	0	0	0	7	14	13	9	2	1	0	0	0	46	47	40	
05:00	0	0	0	2	6	77	87	29	7	3	0	0	0	211	46	41	
06:00	0	0	0	1	9	160	290	128	39	6	1	0	0	634	48	42	
07:00	0	0	0	4	13	169	470	216	40	5	1	0	0	918	47	43	
08:00	0	0	1	0	30	183	457	193	34	6	1	0	0	905	47	42	
09:00	0	0	1	1	19	115	275	120	35	2	1	0	0	569	48	42	
10:00	0	0	0	3	16	92	174	71	20	2	0	0	0	378	47	42	
11:00	0	0	1	2	11	84	144	72	26	6	1	0	0	347	48	42	
12 PM	0	1	0	4	14	62	183	65	21	1	0	0	0	351	47	42	
13:00	0	0	0	5	15	61	186	81	21	4	1	0	0	374	48	42	
14:00	0	0	0	4	15	81	217	105	22	2	0	0	0	446	47	42	
15:00	0	0	0	3	17	77	249	88	26	1	0	0	0	461	47	42	
16:00	0	0	0	3	24	98	182	97	18	3	0	0	0	425	47	42	
17:00	0	0	0	0	32	133	181	67	10	3	0	0	0	426	46	41	
18:00	0	0	0	3	23	126	147	50	7	2	0	0	0	358	45	40	
19:00	0	0	1	3	18	86	102	40	4	3	0	0	0	257	45	40	
20:00	0	0	0	2	20	74	81	26	7	1	0	0	0	211	45	40	
21:00	0	0	0	1	10	52	61	22	5	2	0	0	0	153	46	41	
22:00	0	0	0	2	9	48	47	18	4	0	0	0	0	128	45	40	
23:00	0	0	1	0	7	20	25	13	1	0	0	0	0	67	46	40	
Total	0	1	5	45	325	1844	3590	1518	354	53	6	0	0	7741			
%	0.0%	0.0%	0.1%	0.6%	4.2%	23.8%	46.4%	19.6%	4.6%	0.7%	0.1%	0.0%	0.0%				
AM Peak Vol.			08:00	07:00	08:00	08:00	07:00	07:00	07:00	06:00	06:00			07:00			
			1	4	30	183	470	216	40	6	1			918			
Midday Peak Vol.		12:00	11:00	13:00	13:00	11:00	14:00	14:00	11:00	11:00	11:00			14:00			
		1	1	5	15	84	217	105	26	6	1			446			
PM Peak Vol.			19:00	15:00	17:00	17:00	15:00	16:00	15:00	16:00				15:00			
			1	3	32	133	249	97	26	3				461			
% ile			15th Percentile :			37 MPH											
			50th Percentile :			42 MPH											
			85th Percentile :			47 MPH											
			95th Percentile :			50 MPH											
Stats	10 MPH Pace Speed :		35-44 MPH														
	Number in Pace :		5434														
	Percent in Pace :		70.2%														
	Number of Vehicles > 40 MPH :		4803														
	Percent of Vehicles > 40 MPH :		62.0%														
	Mean Speed(Average) :		42 MPH														

Transportation Data Corporation
P.O. Box 334 Wakefield, MA 01880
Tel. (781) 587-0086 Fax (781) 587-0189

N/S: Woodland Road/Fulton Street
E/W: Highland Avenue/Elm Street
City/State: Medford, MA
Client: VHB/A. Fill

File Name : 03310PM
Site Code : 06971
Start Date : 2/28/2006
Page No : 1

Groups Printed- Trucks

Start Time	Woodland Road From North			Highland Avenue From East			Fulton Street From South			Elm Street From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
04:00 PM	1	0	0	0	0	0	0	0	0	0	0	0	1
04:15 PM	1	0	0	0	0	0	0	0	0	0	0	0	1
04:30 PM	0	0	0	0	0	0	0	0	1	0	0	0	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	1
Total	2	0	0	0	0	0	0	0	1	0	0	1	4
05:00 PM	1	0	0	0	1	0	0	0	0	0	0	0	2
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
Total	1	0	0	0	2	0	0	0	0	0	0	0	3
Grand Total	3	0	0	0	2	0	0	0	1	0	0	1	7
Apprch %	100	0	0	0	100	0	0	0	100	0	0	100	
Total %	42.9	0	0	0	28.6	0	0	0	14.3	0	0	14.3	

Start Time	Woodland Road From North				Highland Avenue From East				Fulton Street From South				Elm Street From West				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
04:30 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
05:00 PM	1	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
Total Volume	2	0	0	2	0	1	0	1	0	0	1	1	0	0	1	1	5
% App. Total	100	0	0		0	100	0		0	0	100		0	0	100		
PHF	.500	.000	.000	.500	.000	.250	.000	.250	.000	.000	.250	.250	.000	.000	.250	.250	.625

Transportation Data Corporation
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N/S: Woodland Road/Fulton Street
E/W: Highland Avenue/Elm Street
City/State: Medford, MA
Client: VHB/A. Fill

File Name : 03310AM
Site Code : 06971
Start Date : 2/28/2006
Page No : 1

Groups Printed- Trucks

Start Time	Woodland Road From North			Highland Avenue From East			Fulton Street From South			Elm Street From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
07:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	1
07:45 AM	1	0	0	0	0	0	0	0	0	0	1	0	2
Total	1	0	1	0	1	0	0	0	0	0	1	0	4
08:00 AM	1	0	0	0	1	0	0	0	0	0	0	1	3
08:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	1
08:30 AM	1	0	0	0	0	1	1	0	2	0	0	0	5
08:45 AM	0	0	1	0	0	0	1	0	0	0	0	0	2
Total	2	0	1	0	1	2	2	0	2	0	0	1	11
Grand Total	3	0	2	0	2	2	2	0	2	0	1	1	15
Apprch %	60	0	40	0	50	50	50	0	50	0	50	50	
Total %	20	0	13.3	0	13.3	13.3	13.3	0	13.3	0	6.7	6.7	

Start Time	Woodland Road From North				Highland Avenue From East				Fulton Street From South				Elm Street From West				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
07:45 AM	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	2
08:00 AM	1	0	0	1	0	1	0	1	0	0	0	0	0	0	1	1	3
08:15 AM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
08:30 AM	1	0	0	1	0	0	1	1	1	0	2	3	0	0	0	0	5
Total Volume	3	0	0	3	0	1	2	3	1	0	2	3	0	1	1	2	11
% App. Total	100	0	0		0	33.3	66.7		33.3	0	66.7		0	50	50		
PHF	.750	.000	.000	.750	.000	.250	.500	.750	.250	.000	.250	.250	.000	.250	.250	.500	.550

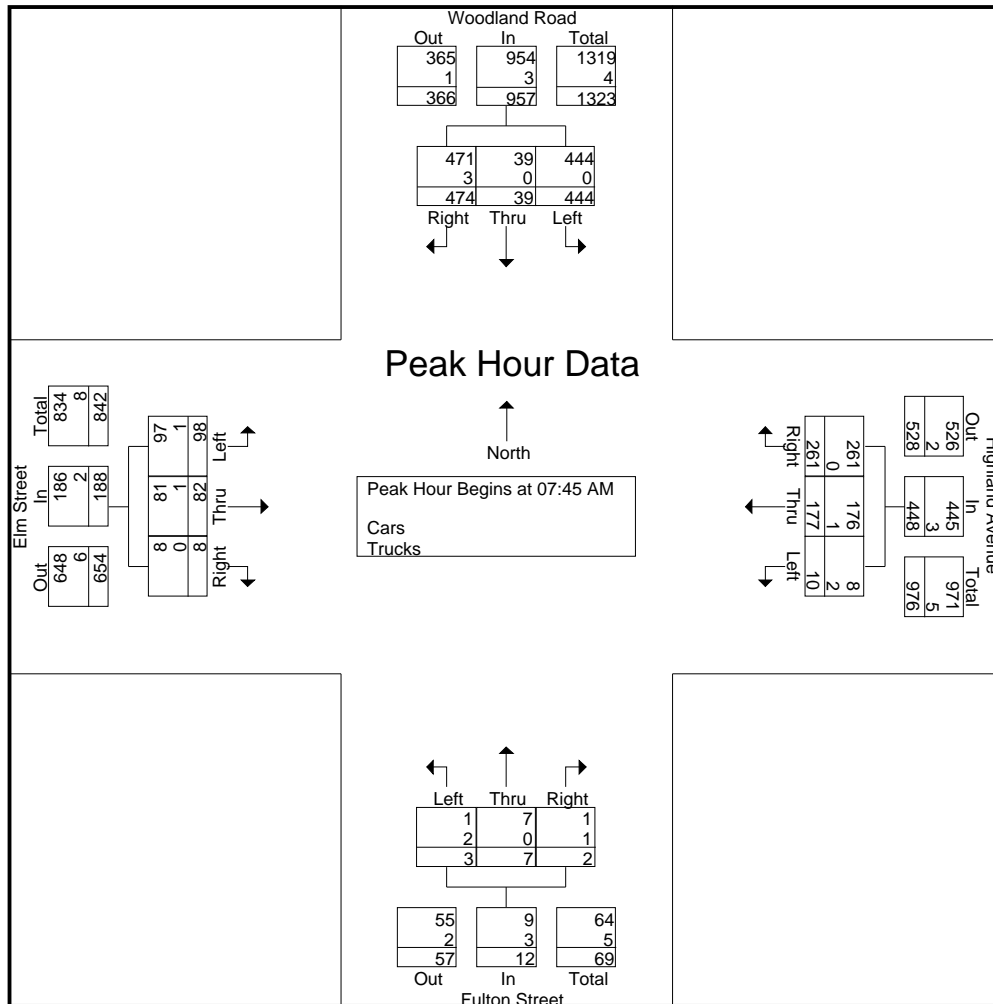
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:45 AM

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N/S: Woodland Road/Fulton Street
E/W: Highland Avenue/Elm Street
City/State: Medford, MA
Client: VHB/A. Fill

File Name : 03310AM
Site Code : 06971
Start Date : 2/28/2006
Page No : 1

Start Time	Woodland Road From North				Highland Avenue From East				Fulton Street From South				Elm Street From West				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	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	121	10	102	233	73	55	3	131	0	1	1	2	1	21	22	44	410
08:00 AM	109	9	100	218	58	41	3	102	0	0	0	0	3	20	22	45	365
08:15 AM	114	10	119	243	64	37	1	102	0	1	0	1	3	22	23	48	394
08:30 AM	130	10	123	263	66	44	3	113	2	5	2	9	1	19	31	51	436
Total Volume	474	39	444	957	261	177	10	448	2	7	3	12	8	82	98	188	1605
% App. Total	49.5	4.1	46.4		58.3	39.5	2.2		16.7	58.3	25		4.3	43.6	52.1		
PHF	.912	.975	.902	.910	.894	.805	.833	.855	.250	.350	.375	.333	.667	.932	.790	.922	.920
Cars	471	39	444	954	261	176	8	445	1	7	1	9	8	81	97	186	1594
% Cars	99.4	100	100	99.7	100	99.4	80.0	99.3	50.0	100	33.3	75.0	100	98.8	99.0	98.9	99.3
Trucks	3	0	0	3	0	1	2	3	1	0	2	3	0	1	1	2	11
% Trucks	0.6	0	0	0.3	0	0.6	20.0	0.7	50.0	0	66.7	25.0	0	1.2	1.0	1.1	0.7



Transportation Data Corporation
P.O. Box 334 Wakefield, MA 01880
Tel. (781) 587-0086 Fax (781) 587-0189

N/S: Woodland Road/Fulton Street
E/W: Highland Avenue/Elm Street
City/State: Medford, MA
Client: VHB/A. Fill

File Name : 03310AM
Site Code : 06971
Start Date : 2/28/2006
Page No : 1

Groups Printed- Cars - Trucks

Start Time	Woodland Road From North			Highland Avenue From East			Fulton Street From South			Elm Street From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
07:00 AM	141	4	86	53	57	0	0	2	0	3	18	27	391
07:15 AM	127	10	118	52	50	0	1	2	0	2	23	31	416
07:30 AM	132	10	85	65	38	2	0	0	0	3	19	33	387
07:45 AM	121	10	102	73	55	3	0	1	1	1	21	22	410
Total	521	34	391	243	200	5	1	5	1	9	81	113	1604
08:00 AM	109	9	100	58	41	3	0	0	0	3	20	22	365
08:15 AM	114	10	119	64	37	1	0	1	0	3	22	23	394
08:30 AM	130	10	123	66	44	3	2	5	2	1	19	31	436
08:45 AM	119	5	90	63	44	0	2	1	1	0	11	18	354
Total	472	34	432	251	166	7	4	7	3	7	72	94	1549
Grand Total	993	68	823	494	366	12	5	12	4	16	153	207	3153
Apprch %	52.7	3.6	43.7	56.7	42	1.4	23.8	57.1	19	4.3	40.7	55.1	
Total %	31.5	2.2	26.1	15.7	11.6	0.4	0.2	0.4	0.1	0.5	4.9	6.6	
Cars	990	68	821	494	364	10	3	12	2	16	152	206	3138
% Cars	99.7	100	99.8	100	99.5	83.3	60	100	50	100	99.3	99.5	99.5
Trucks	3	0	2	0	2	2	2	0	2	0	1	1	15
% Trucks	0.3	0	0.2	0	0.5	16.7	40	0	50	0	0.7	0.5	0.5

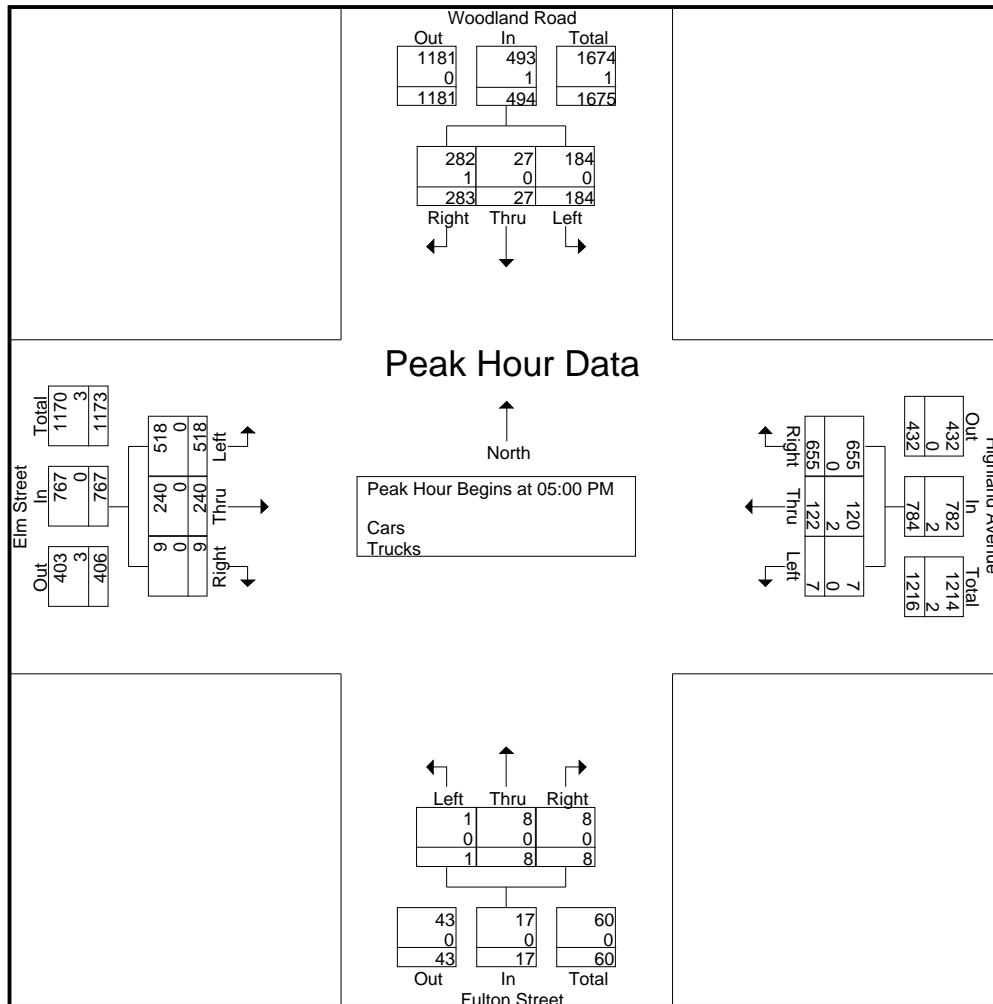
Start Time	Woodland Road From North				Highland Avenue From East				Fulton Street From South				Elm Street From West				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	121	10	102	233	73	55	3	131	0	1	1	2	1	21	22	44	410
08:00 AM	109	9	100	218	58	41	3	102	0	0	0	0	3	20	22	45	365
08:15 AM	114	10	119	243	64	37	1	102	0	1	0	1	3	22	23	48	394
08:30 AM	130	10	123	263	66	44	3	113	2	5	2	9	1	19	31	51	436
Total Volume	474	39	444	957	261	177	10	448	2	7	3	12	8	82	98	188	1605
% App. Total	49.5	4.1	46.4		58.3	39.5	2.2		16.7	58.3	25		4.3	43.6	52.1		
PHF	.912	.975	.902	.910	.894	.805	.833	.855	.250	.350	.375	.333	.667	.932	.790	.922	.920
Cars	471	39	444	954	261	176	8	445	1	7	1	9	8	81	97	186	1594
% Cars	99.4	100	100	99.7	100	99.4	80.0	99.3	50.0	100	33.3	75.0	100	98.8	99.0	98.9	99.3
Trucks	3	0	0	3	0	1	2	3	1	0	2	3	0	1	1	2	11
% Trucks	0.6	0	0	0.3	0	0.6	20.0	0.7	50.0	0	66.7	25.0	0	1.2	1.0	1.1	0.7

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N/S: Woodland Road/Fulton Street
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City/State: Medford, MA
Client: VHB/A. Fill

File Name : 03310PM
Site Code : 06971
Start Date : 2/28/2006
Page No : 1

Start Time	Woodland Road From North				Highland Avenue From East				Fulton Street From South				Elm Street From West				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	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	69	5	42	116	153	28	3	184	1	2	0	3	1	66	124	191	494
05:15 PM	67	6	51	124	191	30	2	223	2	3	0	5	5	78	141	224	576
05:30 PM	77	9	39	125	157	36	1	194	1	2	1	4	1	49	117	167	490
05:45 PM	70	7	52	129	154	28	1	183	4	1	0	5	2	47	136	185	502
Total Volume	283	27	184	494	655	122	7	784	8	8	1	17	9	240	518	767	2062
% App. Total	57.3	5.5	37.2		83.5	15.6	0.9		47.1	47.1	5.9		1.2	31.3	67.5		
PHF	.919	.750	.885	.957	.857	.847	.583	.879	.500	.667	.250	.850	.450	.769	.918	.856	.895
Cars	282	27	184	493	655	120	7	782	8	8	1	17	9	240	518	767	2059
% Cars	99.6	100	100	99.8	100	98.4	100	99.7	100	100	100	100	100	100	100	100	99.9
Trucks	1	0	0	1	0	2	0	2	0	0	0	0	0	0	0	0	3
% Trucks	0.4	0	0	0.2	0	1.6	0	0.3	0	0	0	0	0	0	0	0	0.1





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INDUSTRIES, LLC

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N/S: Woodland Road
E: Ravine Road
City, State: Stoneham, MA
Client: VHB/ A. Fill

File Name : 60505F
Site Code : 06971
Start Date : 2/9/2006
Page No : 1

Groups Printed- Cars - Trucks

Start Time	Woodland Road From North		Ravine Road From East		Woodland Road From South		Int. Total
	Thru	Left	Right	Left	Right	Thru	
07:00 AM	233	38	37	60	30	68	466
07:15 AM	210	53	37	61	18	77	456
07:30 AM	186	44	60	54	46	86	476
07:45 AM	203	38	56	47	35	66	445
Total	832	173	190	222	129	297	1843
08:00 AM	243	50	41	42	20	88	484
08:15 AM	247	35	43	45	17	85	472
08:30 AM	222	30	44	51	12	96	455
08:45 AM	213	39	26	33	18	63	392
Total	925	154	154	171	67	332	1803
Grand Total	1757	327	344	393	196	629	3646
Apprch %	84.3	15.7	46.7	53.3	23.8	76.2	
Total %	48.2	9	9.4	10.8	5.4	17.3	
Cars	1750	325	342	393	196	624	3630
% Cars	99.6	99.4	99.4	100	100	99.2	99.6
Trucks	7	2	2	0	0	5	16
% Trucks	0.4	0.6	0.6	0	0	0.8	0.4

Start Time	Woodland Road From North			Ravine Road From East			Woodland Road From South			Int. Total
	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	186	44	230	60	54	114	46	86	132	476
07:45 AM	203	38	241	56	47	103	35	66	101	445
08:00 AM	243	50	293	41	42	83	20	88	108	484
08:15 AM	247	35	282	43	45	88	17	85	102	472
Total Volume	879	167	1046	200	188	388	118	325	443	1877
% App. Total	84	16		51.5	48.5		26.6	73.4		
PHF	.890	.835	.892	.833	.870	.851	.641	.923	.839	.970
Cars	875	166	1041	199	188	387	118	325	443	1871
% Cars	99.5	99.4	99.5	99.5	100	99.7	100	100	100	99.7
Trucks	4	1	5	1	0	1	0	0	0	6
% Trucks	0.5	0.6	0.5	0.5	0	0.3	0	0	0	0.3



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N/S: Woodland Road
E: Ravine Road
City, State: Stoneham, MA
Client: VHB/ A. Fill

File Name : 60505F
Site Code : 06971
Start Date : 2/9/2006
Page No : 1

Groups Printed- Cars

Start Time	Woodland Road From North		Ravine Road From East		Woodland Road From South		Int. Total
	Thru	Left	Right	Left	Right	Thru	
07:00 AM	231	37	36	60	30	67	461
07:15 AM	210	53	37	61	18	76	455
07:30 AM	185	44	60	54	46	86	475
07:45 AM	202	38	56	47	35	66	444
Total	828	172	189	222	129	295	1835
08:00 AM	242	50	41	42	20	88	483
08:15 AM	246	34	42	45	17	85	469
08:30 AM	222	30	44	51	12	94	453
08:45 AM	212	39	26	33	18	62	390
Total	922	153	153	171	67	329	1795
Grand Total	1750	325	342	393	196	624	3630
Apprch %	84.3	15.7	46.5	53.5	23.9	76.1	
Total %	48.2	9	9.4	10.8	5.4	17.2	

Start Time	Woodland Road From North			Ravine Road From East			Woodland Road From South			Int. Total
	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	185	44	229	60	54	114	46	86	132	475
07:45 AM	202	38	240	56	47	103	35	66	101	444
08:00 AM	242	50	292	41	42	83	20	88	108	483
08:15 AM	246	34	280	42	45	87	17	85	102	469
Total Volume	875	166	1041	199	188	387	118	325	443	1871
% App. Total	84.1	15.9		51.4	48.6		26.6	73.4		
PHF	.889	.830	.891	.829	.870	.849	.641	.923	.839	.968



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N/S: Woodland Road
E: Ravine Road
City, State: Stoneham, MA
Client: VHB/ A. Fill

File Name : 60505F
Site Code : 06971
Start Date : 2/9/2006
Page No : 1

Groups Printed- Trucks

Start Time	Woodland Road From North		Ravine Road From East		Woodland Road From South		Int. Total
	Thru	Left	Right	Left	Right	Thru	
07:00 AM	2	1	1	0	0	1	5
07:15 AM	0	0	0	0	0	1	1
07:30 AM	1	0	0	0	0	0	1
07:45 AM	1	0	0	0	0	0	1
Total	4	1	1	0	0	2	8
08:00 AM	1	0	0	0	0	0	1
08:15 AM	1	1	1	0	0	0	3
08:30 AM	0	0	0	0	0	2	2
08:45 AM	1	0	0	0	0	1	2
Total	3	1	1	0	0	3	8
Grand Total	7	2	2	0	0	5	16
Apprch %	77.8	22.2	100	0	0	100	
Total %	43.8	12.5	12.5	0	0	31.2	

Start Time	Woodland Road From North			Ravine Road From East			Woodland Road From South			Int. Total
	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	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	2	1	3	1	0	1	0	1	1	5
07:15 AM	0	0	0	0	0	0	0	1	1	1
07:30 AM	1	0	1	0	0	0	0	0	0	1
07:45 AM	1	0	1	0	0	0	0	0	0	1
Total Volume	4	1	5	1	0	1	0	2	2	8
% App. Total	80	20		100	0		0	100		
PHF	.500	.250	.417	.250	.000	.250	.000	.500	.500	.400



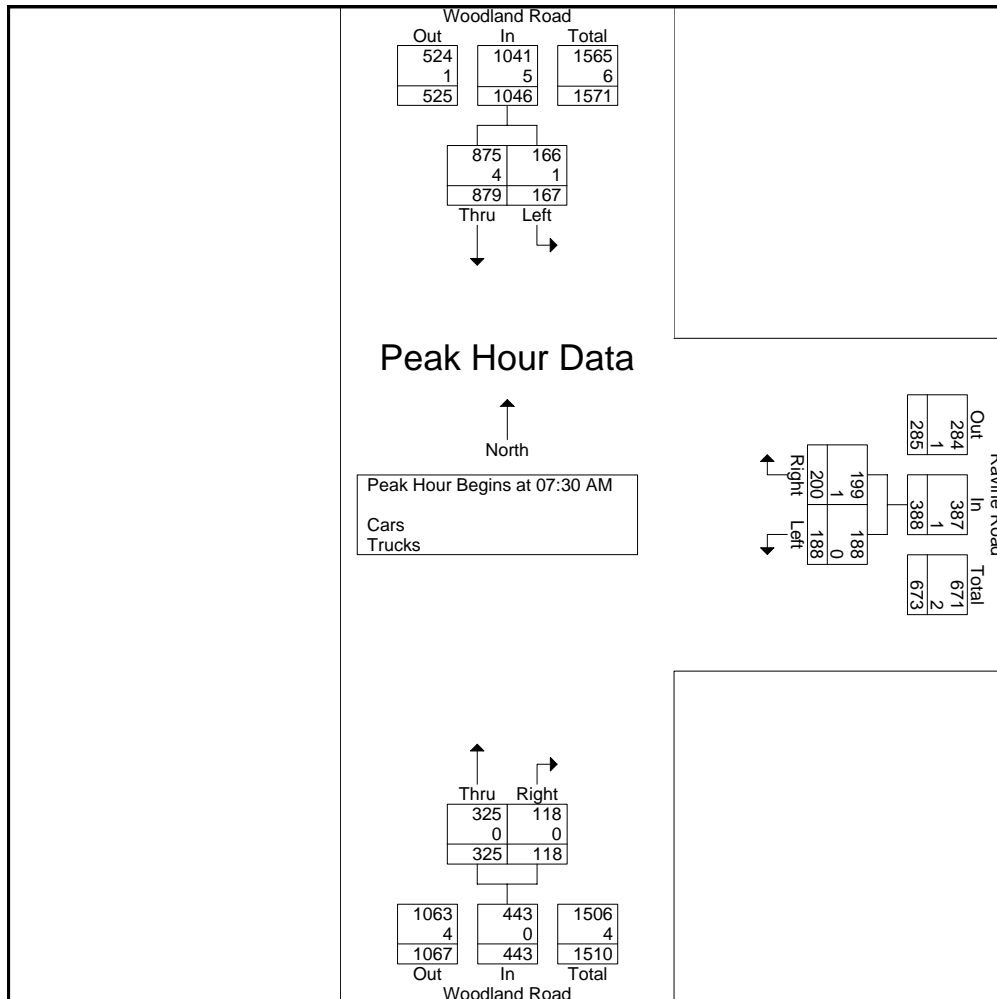
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File Name : 60505F
Site Code : 06971
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Page No : 1

Start Time	Woodland Road From North			Ravine Road From East			Woodland Road From South			Int. Total
	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	186	44	230	60	54	114	46	86	132	476
07:45 AM	203	38	241	56	47	103	35	66	101	445
08:00 AM	243	50	293	41	42	83	20	88	108	484
08:15 AM	247	35	282	43	45	88	17	85	102	472
Total Volume	879	167	1046	200	188	388	118	325	443	1877
% App. Total	84	16		51.5	48.5		26.6	73.4		
PHF	.890	.835	.892	.833	.870	.851	.641	.923	.839	.970
Cars	875	166	1041	199	188	387	118	325	443	1871
% Cars	99.5	99.4	99.5	99.5	100	99.7	100	100	100	99.7
Trucks	4	1	5	1	0	1	0	0	0	6
% Trucks	0.5	0.6	0.5	0.5	0	0.3	0	0	0	0.3





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N/S: Woodland Road
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City, State: Stoneham, MA
Client: VHB/ A. Fill

File Name : 60505FF
Site Code : 06971
Start Date : 2/9/2006
Page No : 1

Groups Printed- Cars - Trucks

Start Time	Woodland Road From North		Ravine Road From East		Woodland Road From South		Int. Total
	Thru	Left	Right	Left	Right	Thru	
04:00 PM	122	32	42	27	101	174	498
04:15 PM	92	48	44	19	78	181	462
04:30 PM	117	45	40	22	82	174	480
04:45 PM	90	56	48	16	79	194	483
Total	421	181	174	84	340	723	1923
05:00 PM	96	60	45	15	79	201	496
05:15 PM	102	62	52	22	94	194	526
05:30 PM	98	41	44	25	79	183	470
05:45 PM	107	65	48	17	76	172	485
Total	403	228	189	79	328	750	1977
Grand Total	824	409	363	163	668	1473	3900
Apprch %	66.8	33.2	69	31	31.2	68.8	
Total %	21.1	10.5	9.3	4.2	17.1	37.8	
Cars	824	409	361	163	668	1473	3898
% Cars	100	100	99.4	100	100	100	99.9
Trucks	0	0	2	0	0	0	2
% Trucks	0	0	0.6	0	0	0	0.1

Start Time	Woodland Road From North			Ravine Road From East			Woodland Road From South			Int. Total
	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	117	45	162	40	22	62	82	174	256	480
04:45 PM	90	56	146	48	16	64	79	194	273	483
05:00 PM	96	60	156	45	15	60	79	201	280	496
05:15 PM	102	62	164	52	22	74	94	194	288	526
Total Volume	405	223	628	185	75	260	334	763	1097	1985
% App. Total	64.5	35.5		71.2	28.8		30.4	69.6		
PHF	.865	.899	.957	.889	.852	.878	.888	.949	.952	.943
Cars	405	223	628	184	75	259	334	763	1097	1984
% Cars	100	100	100	99.5	100	99.6	100	100	100	99.9
Trucks	0	0	0	1	0	1	0	0	0	1
% Trucks	0	0	0	0.5	0	0.4	0	0	0	0.1



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N/S: Woodland Road
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City, State: Stoneham, MA
Client: VHB/ A. Fill

File Name : 60505FF
Site Code : 06971
Start Date : 2/9/2006
Page No : 1

Groups Printed- Cars

Start Time	Woodland Road From North		Ravine Road From East		Woodland Road From South		Int. Total
	Thru	Left	Right	Left	Right	Thru	
04:00 PM	122	32	41	27	101	174	497
04:15 PM	92	48	44	19	78	181	462
04:30 PM	117	45	40	22	82	174	480
04:45 PM	90	56	48	16	79	194	483
Total	421	181	173	84	340	723	1922
05:00 PM	96	60	44	15	79	201	495
05:15 PM	102	62	52	22	94	194	526
05:30 PM	98	41	44	25	79	183	470
05:45 PM	107	65	48	17	76	172	485
Total	403	228	188	79	328	750	1976
Grand Total	824	409	361	163	668	1473	3898
Apprch %	66.8	33.2	68.9	31.1	31.2	68.8	
Total %	21.1	10.5	9.3	4.2	17.1	37.8	

Start Time	Woodland Road From North			Ravine Road From East			Woodland Road From South			Int. Total
	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	117	45	162	40	22	62	82	174	256	480
04:45 PM	90	56	146	48	16	64	79	194	273	483
05:00 PM	96	60	156	44	15	59	79	201	280	495
05:15 PM	102	62	164	52	22	74	94	194	288	526
Total Volume	405	223	628	184	75	259	334	763	1097	1984
% App. Total	64.5	35.5		71	29		30.4	69.6		
PHF	.865	.899	.957	.885	.852	.875	.888	.949	.952	.943



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City, State: Stoneham, MA
Client: VHB/ A. Fill

File Name : 60505FF
Site Code : 06971
Start Date : 2/9/2006
Page No : 1

Groups Printed- Trucks

Start Time	Woodland Road From North		Ravine Road From East		Woodland Road From South		Int. Total
	Thru	Left	Right	Left	Right	Thru	
04:00 PM	0	0	1	0	0	0	1
04:15 PM	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0
Total	0	0	1	0	0	0	1
05:00 PM	0	0	1	0	0	0	1
05:15 PM	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0
Total	0	0	1	0	0	0	1
Grand Total	0	0	2	0	0	0	2
Apprch %	0	0	100	0	0	0	
Total %	0	0	100	0	0	0	

Start Time	Woodland Road From North			Ravine Road From East			Woodland Road From South			Int. Total
	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	0	0	0	1	0	1	0	0	0	1
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 Volume	0	0	0	1	0	1	0	0	0	1
% App. Total	0	0	0	100	0	0	0	0	0	0
PHF	.000	.000	.000	.250	.000	.250	.000	.000	.000	.250



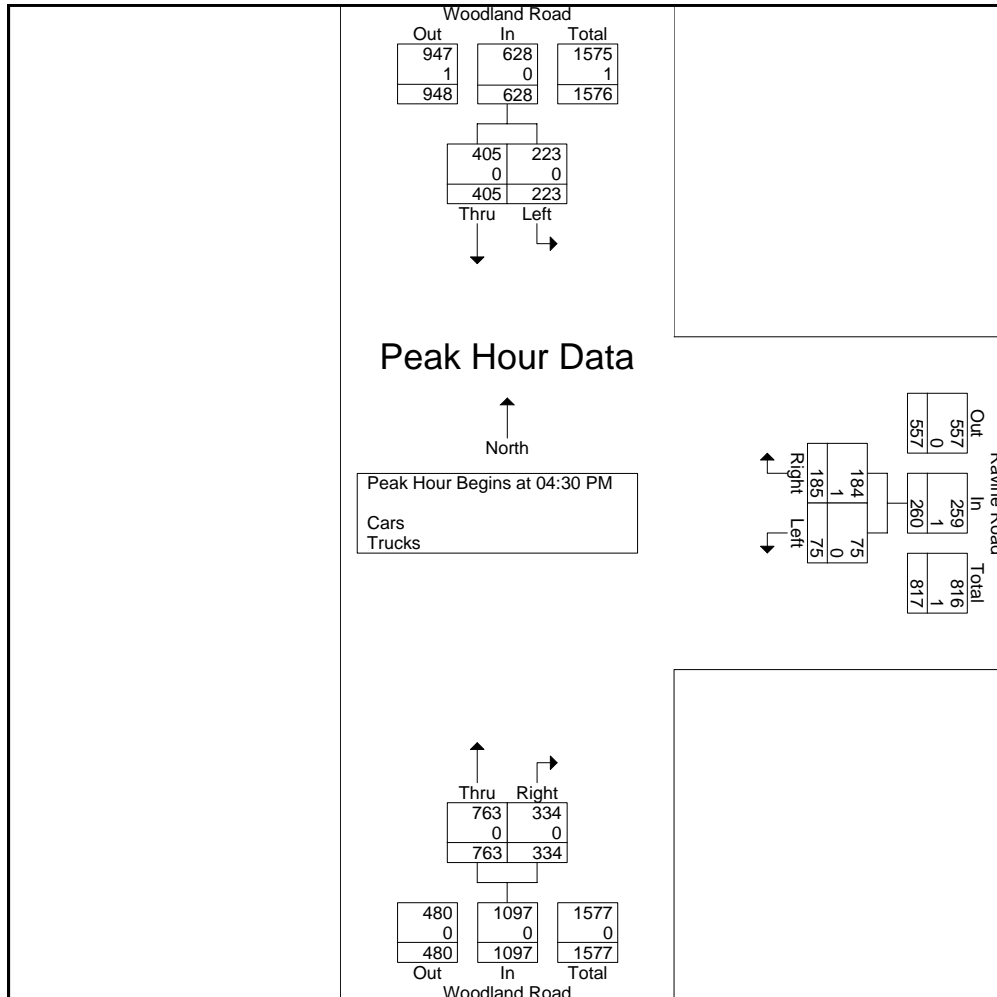
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City, State: Stoneham, MA
Client: VHB/ A. Fill

File Name : 60505FF
Site Code : 06971
Start Date : 2/9/2006
Page No : 1

Start Time	Woodland Road From North			Ravine Road From East			Woodland Road From South			Int. Total
	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	117	45	162	40	22	62	82	174	256	480
04:45 PM	90	56	146	48	16	64	79	194	273	483
05:00 PM	96	60	156	45	15	60	79	201	280	496
05:15 PM	102	62	164	52	22	74	94	194	288	526
Total Volume	405	223	628	185	75	260	334	763	1097	1985
% App. Total	64.5	35.5		71.2	28.8		30.4	69.6		
PHF	.865	.899	.957	.889	.852	.878	.888	.949	.952	.943
Cars	405	223	628	184	75	259	334	763	1097	1984
% Cars	100	100	100	99.5	100	99.6	100	100	100	99.9
Trucks	0	0	0	1	0	1	0	0	0	1
% Trucks	0	0	0	0.5	0	0.4	0	0	0	0.1





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N/S: Woodland Road
E: Boston Medical South Driveway
City, State: Stoneham, MA
Client: VHB/ A. Fill

File Name : 60505N
Site Code : 06971
Start Date : 2/9/2006
Page No : 1

Groups Printed- Cars - Trucks

Start Time	Woodland Road From North			Boston Medical South Driveway From East		Woodland Road From South		Int. Total
	Thru	Left	U-Turns	Right	Left	Right	Thru	
07:00 AM	273	1	0	2	6	4	77	363
07:15 AM	246	1	0	1	1	4	93	346
07:30 AM	235	4	0	3	3	6	120	371
07:45 AM	212	9	0	0	2	11	94	328
Total	966	15	0	6	12	25	384	1408
08:00 AM	259	7	2	2	1	11	107	389
08:15 AM	266	8	1	2	1	10	97	385
08:30 AM	215	7	0	4	7	8	102	343
08:45 AM	212	8	1	7	5	5	69	307
Total	952	30	4	15	14	34	375	1424
Grand Total	1918	45	4	21	26	59	759	2832
Apprch %	97.5	2.3	0.2	44.7	55.3	7.2	92.8	
Total %	67.7	1.6	0.1	0.7	0.9	2.1	26.8	
Cars	1917	45	4	21	26	59	759	2831
% Cars	99.9	100	100	100	100	100	100	100
Trucks	1	0	0	0	0	0	0	1
% Trucks	0.1	0	0	0	0	0	0	0

Start Time	Woodland Road From North				Boston Medical South Driveway From East			Woodland Road From South			Int. Total
	Thru	Left	U-Turns	App. Total	Right	Left	App. Total	Right	Thru	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1											
Peak Hour for Entire Intersection Begins at 07:30 AM											
07:30 AM	235	4	0	239	3	3	6	6	120	126	371
07:45 AM	212	9	0	221	0	2	2	11	94	105	328
08:00 AM	259	7	2								389
08:15 AM	266			275							
Total Volume	972	28	3	1003	7	7	14	38	418	456	1473
% App. Total	96.9	2.8	0.3		50	50		8.3	91.7		
PHF	.914	.778	.375	.912	.583	.583	.583	.864	.871	.905	.947
Cars	971	28	3	1002	7	7	14	38	418	456	1472
% Cars	99.9	100	100	99.9	100	100	100	100	100	100	99.9
Trucks	1	0	0	1	0	0	0	0	0	0	1
% Trucks	0.1	0	0	0.1	0	0	0	0	0	0	0.1



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N/S: Woodland Road
E: Boston Medical South Driveway
City, State: Stoneham, MA
Client: VHB/ A. Fill

File Name : 60505N
Site Code : 06971
Start Date : 2/9/2006
Page No : 1

Groups Printed- Cars

Start Time	Woodland Road From North			Boston Medical South Driveway From East		Woodland Road From South		Int. Total
	Thru	Left	U-Turns	Right	Left	Right	Thru	
07:00 AM	273	1	0	2	6	4	77	363
07:15 AM	246	1	0	1	1	4	93	346
07:30 AM	235	4	0	3	3	6	120	371
07:45 AM	211	9	0	0	2	11	94	327
Total	965	15	0	6	12	25	384	1407
08:00 AM	259	7	2	2	1	11	107	389
08:15 AM	266	8	1	2	1	10	97	385
08:30 AM	215	7	0	4	7	8	102	343
08:45 AM	212	8	1	7	5	5	69	307
Total	952	30	4	15	14	34	375	1424
Grand Total	1917	45	4	21	26	59	759	2831
Apprch %	97.5	2.3	0.2	44.7	55.3	7.2	92.8	
Total %	67.7	1.6	0.1	0.7	0.9	2.1	26.8	

Start Time	Woodland Road From North				Boston Medical South Driveway From East			Woodland Road From South			Int. Total
	Thru	Left	U-Turns	App. Total	Right	Left	App. Total	Right	Thru	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1											
Peak Hour for Entire Intersection Begins at 07:30 AM											
07:30 AM	235	4	0	239	3	3	6	6	120	126	371
07:45 AM	211	9	0	220	0	2	2	11	94	105	327
08:00 AM	259	7	2								389
08:15 AM	266			275							
Total Volume	971	28	3	1002	7	7	14	38	418	456	1472
% App. Total	96.9	2.8	0.3		50	50		8.3	91.7		
PHF	.913	.778	.375	.911	.583	.583	.583	.864	.871	.905	.946



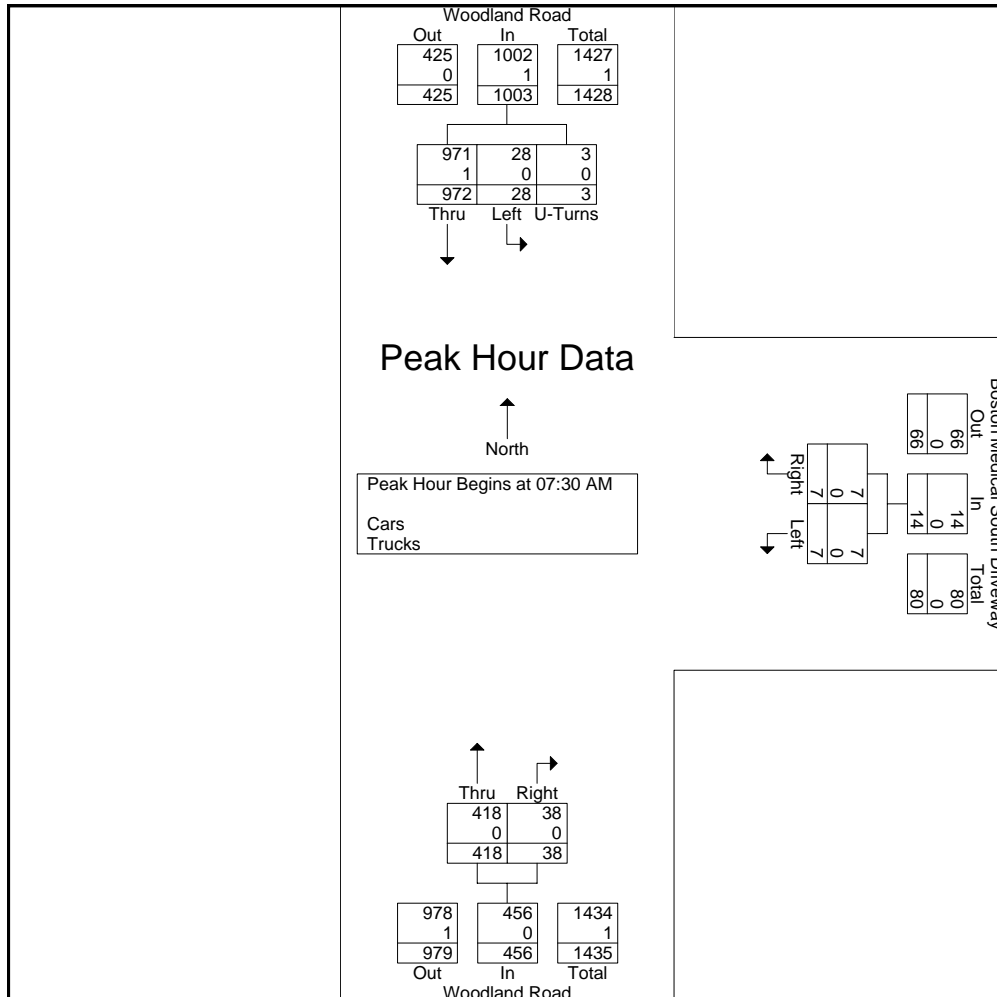
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City, State: Stoneham, MA
Client: VHB/ A. Fill

File Name : 60505N
Site Code : 06971
Start Date : 2/9/2006
Page No : 1

Start Time	Woodland Road From North				Boston Medical South Driveway From East			Woodland Road From South			Int. Total
	Thru	Left	U-Turns	App. Total	Right	Left	App. Total	Right	Thru	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1											
Peak Hour for Entire Intersection Begins at 07:30 AM											
07:30 AM	235	4	0	239	3	3	6	6	120	126	371
07:45 AM	212	9	0	221	0	2	2	11	94	105	328
08:00 AM	259	7	2								389
08:15 AM	266			275							
Total Volume	972	28	3	1003	7	7	14	38	418	456	1473
% App. Total	96.9	2.8	0.3		50	50		8.3	91.7		
PHF	.914	.778	.375	.912	.583	.583	.583	.864	.871	.905	.947
Cars	971	28	3	1002	7	7	14	38	418	456	1472
% Cars	99.9	100	100	99.9	100	100	100	100	100	100	99.9
Trucks	1	0	0	1	0	0	0	0	0	0	1
% Trucks	0.1	0	0	0.1	0	0	0	0	0	0	0.1





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City, State: Stoneham, MA
Client: VHB/ A. Fill

File Name : 60505NN
Site Code : 06971
Start Date : 2/9/2006
Page No : 1

Groups Printed- Cars

Start Time	Woodland Road From North			Boston Medical South Driveway From East		Woodland Road From South		Int. Total
	Thru	Left	U-Turns	Right	Left	Right	Thru	
04:00 PM	126	11	0	7	8	14	243	409
04:15 PM	119	5	2	9	5	4	230	374
04:30 PM	118	6	0	9	11	7	214	365
04:45 PM	113	4	0	19	11	10	230	387
Total	476	26	2	44	35	35	917	1535
05:00 PM	122	7	1	11	9	7	245	402
05:15 PM	115	4	0	10	11	3	277	420
05:30 PM	108	4	0	4	4	8	257	385
05:45 PM	120	1	1	4	4	3	296	429
Total	465	16	2	29	28	21	1075	1636
Grand Total	941	42	4	73	63	56	1992	3171
Apprch %	95.3	4.3	0.4	53.7	46.3	2.7	97.3	
Total %	29.7	1.3	0.1	2.3	2	1.8	62.8	

Start Time	Woodland Road From North				Boston Medical South Driveway From East			Woodland Road From South			Int. Total
	Thru	Left	U-Turns	App. Total	Right	Left	App. Total	Right	Thru	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	122	7	1	130	11	9	20	7	245	252	402
05:15 PM	115	4	0	119	10	11	21				
05:30 PM	108	4	0	112	4	4	8	8	257	265	385
05:45 PM	120	1	1	122	4	4	8	3	296	299	429
Total Volume	465	16	2	483	29	28	57	21	1075	1096	1636
% App. Total	96.3	3.3	0.4		50.9	49.1		1.9	98.1		
PHF	.953	.571	.500	.929	.659	.636	.679	.656	.908	.916	.953



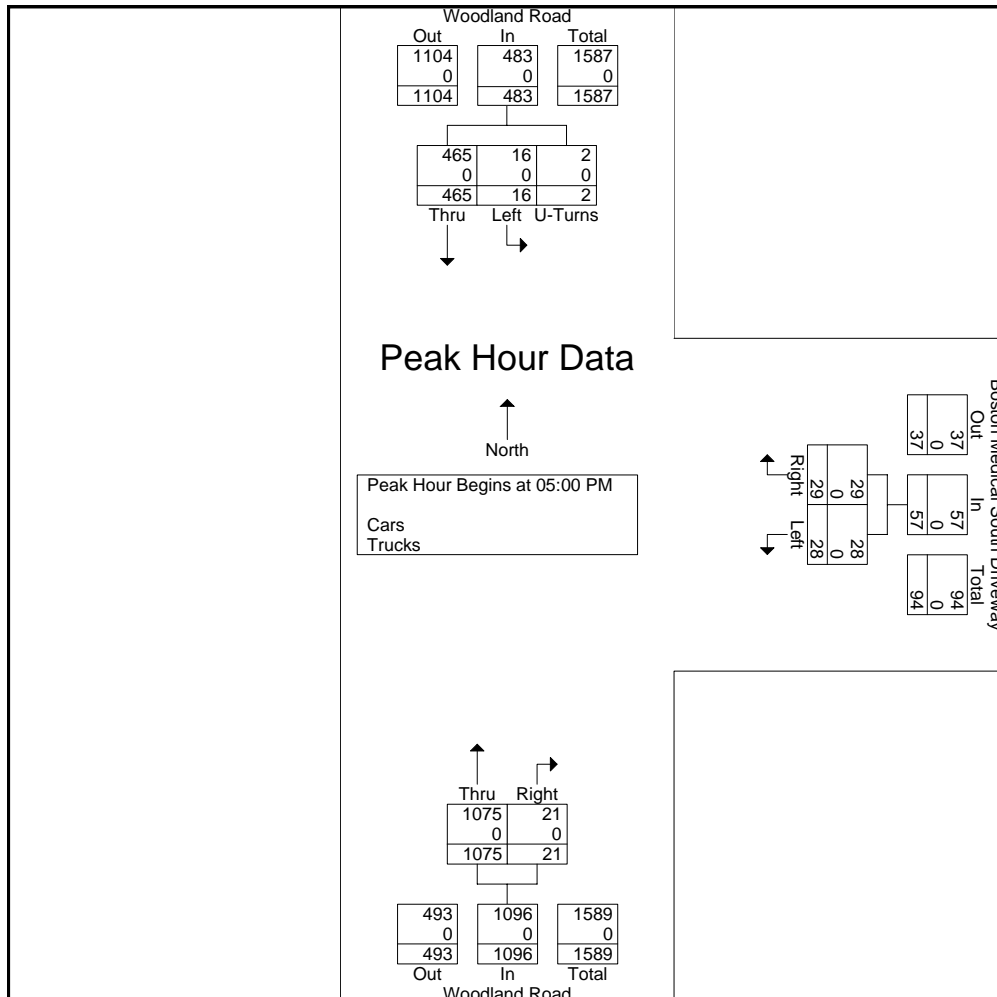
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File Name : 60505NN
Site Code : 06971
Start Date : 2/9/2006
Page No : 1

Start Time	Woodland Road From North				Boston Medical South Driveway From East			Woodland Road From South			Int. Total
	Thru	Left	U-Turns	App. Total	Right	Left	App. Total	Right	Thru	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	122	7	1	130	11	9	20	7	245	252	402
05:15 PM	115	4	0	119	10	11	21				
05:30 PM	108	4	0	112	4	4	8	8	257	265	385
05:45 PM	120	1	1	122	4	4	8	3	296	299	429
Total Volume	465	16	2	483	29	28	57	21	1075	1096	1636
% App. Total	96.3	3.3	0.4		50.9	49.1		1.9	98.1		
PHF	.953	.571	.500	.929	.659	.636	.679	.656	.908	.916	.953
Cars	465	16	2	483	29	28	57	21	1075	1096	1636
% Cars	100	100	100	100	100	100	100	100	100	100	100
Trucks	0	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0	0





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E: Boston Medical North Driveway
City, State: Stoneham, MA
Client: VHB/ A. Fill

File Name : 60505P
Site Code : 06971
Start Date : 2/9/2006
Page No : 1

Groups Printed- Cars

Start Time	Woodland Road From North		Boston Medical North Driveway From East		Woodland Road From South		Int. Total
	Thru	Left	Right	Left	Right	Thru	
07:00 AM	268	10	1	0	0	82	361
07:15 AM	248	14	4	1	0	92	359
07:30 AM	233	28	2	1	1	121	386
07:45 AM	218	26	5	0	5	90	344
Total	967	78	12	2	6	385	1450
08:00 AM	260	20	5	2	4	106	397
08:15 AM	267	25	10	1	7	93	403
08:30 AM	220	38	12	2	4	99	375
08:45 AM	208	38	10	6	4	70	336
Total	955	121	37	11	19	368	1511
Grand Total	1922	199	49	13	25	753	2961
Apprch %	90.6	9.4	79	21	3.2	96.8	
Total %	64.9	6.7	1.7	0.4	0.8	25.4	

Start Time	Woodland Road From North			Boston Medical North Driveway From East			Woodland Road From South			Int. Total
	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	233	28	261	2	1	3	1	121	122	386
07:45 AM	218	26	244	5	0	5	5	90	95	344
08:00 AM	260	20	280	5	2	7	4	106	110	397
08:15 AM	267	25	292	10	1	11	7	93	100	403
Total Volume	978	99	1077	22	4	26	17	410	427	1530
% App. Total	90.8	9.2		84.6	15.4		4	96		
PHF	.916	.884	.922	.550	.500	.591	.607	.847	.875	.949



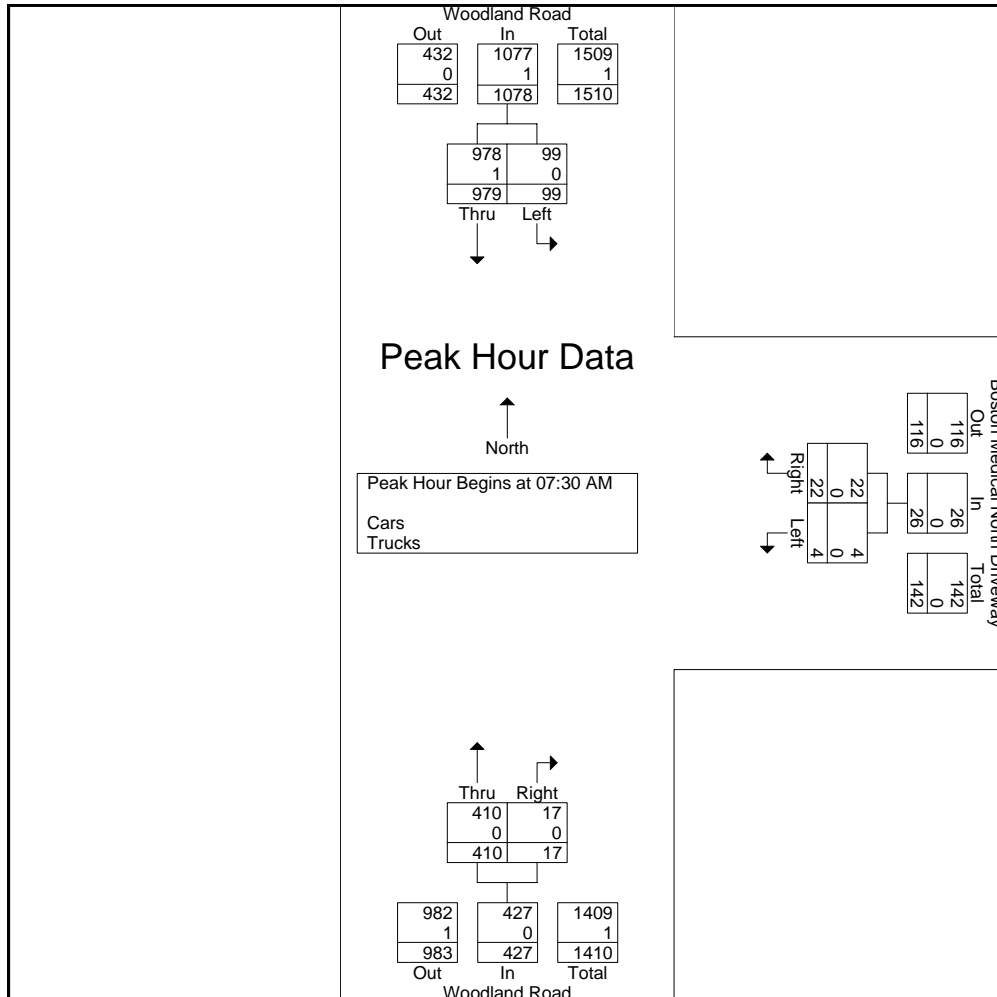
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N/S: Woodland Road
E: Boston Medical North Driveway
City, State: Stoneham, MA
Client: VHB/ A. Fill

File Name : 60505P
Site Code : 06971
Start Date : 2/9/2006
Page No : 1

Start Time	Woodland Road From North			Boston Medical North Driveway From East			Woodland Road From South			Int. Total
	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	233	28	261	2	1	3	1	121	122	386
07:45 AM	219	26	245	5	0	5	5	90	95	345
08:00 AM	260	20	280	5	2	7	4	106	110	397
08:15 AM	267	25	292	10	1	11	7	93	100	403
Total Volume	979	99	1078	22	4	26	17	410	427	1531
% App. Total	90.8	9.2		84.6	15.4		4	96		
PHF	.917	.884	.923	.550	.500	.591	.607	.847	.875	.950
Cars	978	99	1077	22	4	26	17	410	427	1530
% Cars	99.9	100	99.9	100	100	100	100	100	100	99.9
Trucks	1	0	1	0	0	0	0	0	0	1
% Trucks	0.1	0	0.1	0	0	0	0	0	0	0.1





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N/S: Woodland Road
E: Boston Medical North Driveway
City, State: Stoneham, MA
Client: VHB/ A. Fill

File Name : 60505PP
Site Code : 06971
Start Date : 2/9/2006
Page No : 1

Groups Printed- Cars

Start Time	Woodland Road From North		Boston Medical North Driveway From East		Woodland Road From South		Int. Total
	Thru	Left	Right	Left	Right	Thru	
04:00 PM	135	7	33	2	0	248	425
04:15 PM	103	9	39	7	6	219	383
04:30 PM	116	14	35	5	2	218	390
04:45 PM	105	5	33	5	2	247	397
Total	459	35	140	19	10	932	1595
05:00 PM	115	6	33	9	0	241	404
05:15 PM	111	9	33	4	4	260	421
05:30 PM	115	8	17	2	0	241	383
05:45 PM	116	6	14	1	0	238	375
Total	457	29	97	16	4	980	1583
Grand Total	916	64	237	35	14	1912	3178
Apprch %	93.5	6.5	87.1	12.9	0.7	99.3	
Total %	28.8	2	7.5	1.1	0.4	60.2	

Start Time	Woodland Road From North			Boston Medical North Driveway From East			Woodland Road From South			Int. Total
	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	116	14	130	35	5	40	2	218	220	390
04:45 PM	105	5	110	33	5	38	2	247	249	397
05:00 PM	115	6	121	33	9	42	0	241	241	404
05:15 PM	111	9	120	33	4	37	4	260	264	421
Total Volume	447	34	481	134	23	157	8	966	974	1612
% App. Total	92.9	7.1		85.4	14.6		0.8	99.2		
PHF	.963	.607	.925	.957	.639	.935	.500	.929	.922	.957



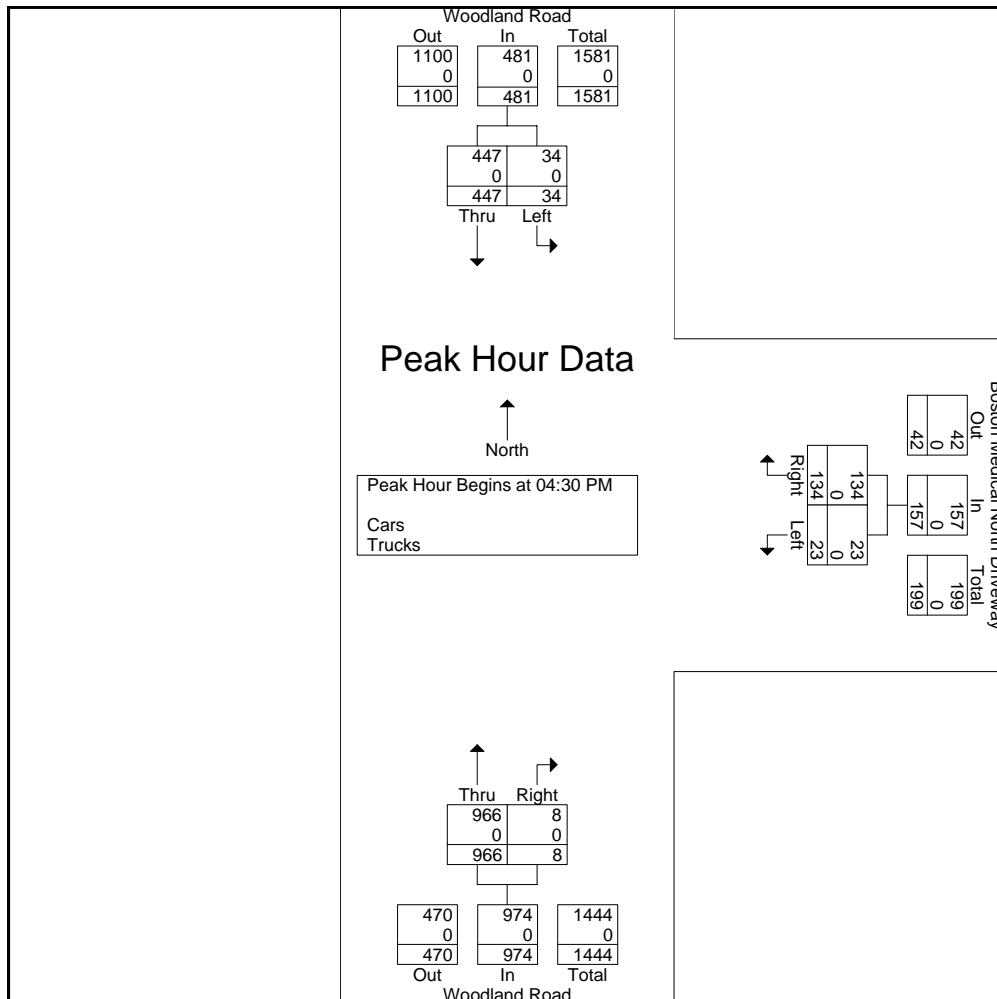
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City, State: Stoneham, MA
Client: VHB/ A. Fill

File Name : 60505PP
Site Code : 06971
Start Date : 2/9/2006
Page No : 1

Start Time	Woodland Road From North			Boston Medical North Driveway From East			Woodland Road From South			Int. Total
	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	116	14	130	35	5	40	2	218	220	390
04:45 PM	105	5	110	33	5	38	2	247	249	397
05:00 PM	115	6	121	33	9	42	0	241	241	404
05:15 PM	111	9	120	33	4	37	4	260	264	421
Total Volume	447	34	481	134	23	157	8	966	974	1612
% App. Total	92.9	7.1		85.4	14.6		0.8	99.2		
PHF	.963	.607	.925	.957	.639	.935	.500	.929	.922	.957
Cars	447	34	481	134	23	157	8	966	974	1612
% Cars	100	100	100	100	100	100	100	100	100	100
Trucks	0	0	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0	0	0	0	0



Transportation Data Corporation

P.O Box 334 Wakefield, MA 01880

Tel. (781) 587-0086 Fax (781) 587-0189

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N/S: Pond Street/Woodland Road
 E: Pond Street
 City, State: Stoneham, MA
 Client: VHB/A. Fill

File Name : 03310B
 Site Code : 06971
 Start Date : 4/27/2005
 Page No : 1

Groups Printed- Cars - Trucks

Start Time	Pond Street From North			Pond Street From East			Woodland Road From South			Int. Total
	Thru	Left	UTurn	Right	Left	Peds	Right	Thru	UTurn	
07:00 AM	159	64	0	170	64	0	16	79	0	552
07:15 AM	175	81	0	178	73	0	22	98	1	628
07:30 AM	178	72	0	197	59	0	25	92	0	623
07:45 AM	148	98	1	173	40	0	26	93	2	581
Total	660	315	1	718	236	0	89	362	3	2384
08:00 AM	153	66	0	161	41	0	25	101	0	547
08:15 AM	181	74	0	147	71	0	31	105	1	610
08:30 AM	162	70	1	144	77	0	35	81	0	570
08:45 AM	115	77	1	130	67	0	33	90	0	513
Total	611	287	2	582	256	0	124	377	1	2240
Grand Total	1271	602	3	1300	492	0	213	739	4	4624
Apprch %	67.8	32.1	0.2	72.5	27.5	0	22.3	77.3	0.4	
Total %	27.5	13	0.1	28.1	10.6	0	4.6	16	0.1	
Cars	1271	602	3	1298	491	0	213	738	4	4620
% Cars	100	100	100	99.8	99.8	0	100	99.9	100	99.9
Trucks	0	0	0	2	1	0	0	1	0	4
% Trucks	0	0	0	0.2	0.2	0	0	0.1	0	0.1

Start Time	Pond Street From North				Pond Street From East				Woodland Road From South				Int. Total
	Thru	Left	UTurn	App. Total	Right	Left	Peds	App. Total	Right	Thru	UTurn	App. Total	
07:00 AM	159	64	0	223	170	64	0	234	16	79	0	95	552
07:15 AM	175	81	0	256	178	73	0	251	22	98	1	121	628
07:30 AM	178	72	0	250	197	59	0	256	25	92	0	117	623
07:45 AM	148	98	1	247	173	40	0	213	26	93	2	121	581
Total Volume	660	315	1	976	718	236	0	954	89	362	3	454	2384
% App. Total	67.6	32.3	0.1		75.3	24.7	0		19.6	79.7	0.7		
PHF	.927	.804	.250	.953	.911	.808	.000	.932	.856	.923	.375	.938	.949

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

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E: Pond Street
City, State: Stoneham, MA
Client: VHB/A. Fill

File Name : 03310B
Site Code : 06971
Start Date : 4/27/2005
Page No : 1

Groups Printed- Trucks

Start Time	Pond Street From North			Pond Street From East			Woodland Road From South			Int. Total
	Thru	Left	UTurn	Right	Left	Peds	Right	Thru	UTurn	
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	1	1	0	0	0	0	2
Total	0	0	0	1	1	0	0	0	0	2
08:00 AM	0	0	0	1	0	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	0	1	0	1
08:30 AM	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	1	0	0	0	0	1	2
Grand Total	0	0	0	2	1	0	0	1	0	4
Apprch %	0	0	0	66.7	33.3	0	0	100	0	
Total %	0	0	0	50	25	0	0	25	0	

Start Time	Pond Street From North				Pond Street From East				Woodland Road From South				Int. Total
	Thru	Left	UTurn	App. Total	Right	Left	Peds	App. Total	Right	Thru	UTurn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:30 AM													
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	1	1	0	2	0	0	0	0	2
08:00 AM	0	0	0	0	1	0	0	1	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	0	0	0	1	0	1	1
Total Volume	0	0	0	0	2	1	0	3	0	1	0	1	4
% App. Total	0	0	0	0	66.7	33.3	0		0	100	0		
PHF	.000	.000	.000	.000	.500	.250	.000	.375	.000	.250	.000	.250	.500

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File Name : 03310B
Site Code : 06971
Start Date : 4/27/2005
Page No : 1

Groups Printed- Cars

Start Time	Pond Street From North			Pond Street From East			Woodland Road From South			Int. Total
	Thru	Left	UTurn	Right	Left	Peds	Right	Thru	UTurn	
07:00 AM	159	64	0	170	64	0	16	79	0	552
07:15 AM	175	81	0	178	73	0	22	98	1	628
07:30 AM	178	72	0	197	59	0	25	92	0	623
07:45 AM	148	98	1	172	39	0	26	93	2	579
Total	660	315	1	717	235	0	89	362	3	2382
08:00 AM	153	66	0	160	41	0	25	101	0	546
08:15 AM	181	74	0	147	71	0	31	104	1	609
08:30 AM	162	70	1	144	77	0	35	81	0	570
08:45 AM	115	77	1	130	67	0	33	90	0	513
Total	611	287	2	581	256	0	124	376	1	2238
Grand Total	1271	602	3	1298	491	0	213	738	4	4620
Apprch %	67.8	32.1	0.2	72.6	27.4	0	22.3	77.3	0.4	
Total %	27.5	13	0.1	28.1	10.6	0	4.6	16	0.1	

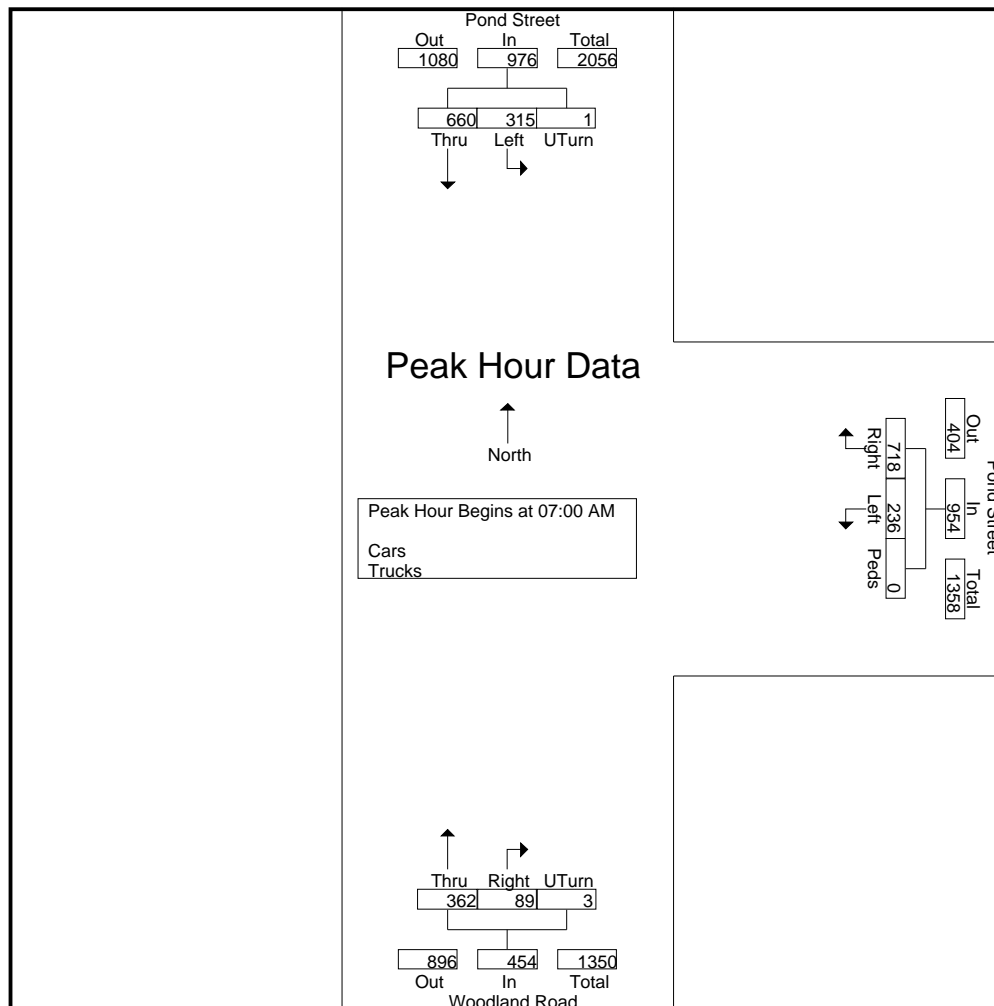
Start Time	Pond Street From North				Pond Street From East				Woodland Road From South				Int. Total
	Thru	Left	UTurn	App. Total	Right	Left	Peds	App. Total	Right	Thru	UTurn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:00 AM													
07:00 AM	159	64	0	223	170	64	0	234	16	79	0	95	552
07:15 AM	175	81	0	256	178	73	0	251	22	98	1	121	628
07:30 AM	178	72	0	250	197	59	0	256	25	92	0	117	623
07:45 AM	148	98	1	247	172	39	0	211	26	93	2	121	579
Total Volume	660	315	1	976	717	235	0	952	89	362	3	454	2382
% App. Total	67.6	32.3	0.1		75.3	24.7	0		19.6	79.7	0.7		
PHF	.927	.804	.250	.953	.910	.805	.000	.930	.856	.923	.375	.938	.948

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File Name : 03310B
Site Code : 06971
Start Date : 4/27/2005
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Start Time	Pond Street From North				Pond Street From East				Woodland Road From South			Int. Total	
	Thru	Left	UTurn	App. Total	Right	Left	Peds	App. Total	Right	Thru	UTurn		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	159	64	0	223	170	64	0	234	16	79	0	95	552
07:15 AM	175	81	0	256	178	73	0	251	22	98	1	121	628
07:30 AM	178	72	0	250	197	59	0	256	25	92	0	117	623
07:45 AM	148	98	1	247	173	40	0	213	26	93	2	121	581
Total Volume	660	315	1	976	718	236	0	954	89	362	3	454	2384
% App. Total	67.6	32.3	0.1		75.3	24.7	0		19.6	79.7	0.7		
PHF	.927	.804	.250	.953	.911	.808	.000	.932	.856	.923	.375	.938	.949



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 City, State: Stoneham, MA
 Client: VHB/A. Fill

File Name : 03310BB
 Site Code : 06971
 Start Date : 4/27/2005
 Page No : 1

Groups Printed- Cars - Trucks

Start Time	Pond Street From North			Pond Street From East			Woodland Road From South			Int. Total
	Thru	Left	UTurn	Rght	Left	Peds	Rght	Thru	UTurn	
04:00 PM	91	102	2	114	30	0	60	121	0	520
04:15 PM	88	126	0	100	17	0	72	123	1	527
04:30 PM	80	122	4	133	19	0	75	143	1	577
04:45 PM	100	128	3	136	21	0	61	169	0	618
Total	359	478	9	483	87	0	268	556	2	2242
05:00 PM	112	104	1	127	23	0	74	147	2	590
05:15 PM	121	110	2	115	25	0	72	189	1	635
05:30 PM	128	93	2	122	20	0	71	123	0	559
05:45 PM	114	112	1	113	20	0	70	153	0	583
Total	475	419	6	477	88	0	287	612	3	2367
Grand Total	834	897	15	960	175	0	555	1168	5	4609
Apprch %	47.8	51.4	0.9	84.6	15.4	0	32.1	67.6	0.3	
Total %	18.1	19.5	0.3	20.8	3.8	0	12	25.3	0.1	
Cars	834	897	15	960	175	0	555	1167	5	4608
% Cars	100	100	100	100	100	0	100	99.9	100	100
Trucks	0	0	0	0	0	0	0	1	0	1
% Trucks	0	0	0	0	0	0	0	0.1	0	0

Start Time	Pond Street From North				Pond Street From East				Woodland Road From South				Int. Total
	Thru	Left	UTurn	App. Total	Rght	Left	Peds	App. Total	Rght	Thru	UTurn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:30 PM													
04:30 PM	80	122	4	206	133	19	0	152	75	143	1	219	577
04:45 PM	100	128	3	231	136	21	0	157	61	169	0	230	618
05:00 PM	112	104	1	217	127	23	0	150	74	147	2	223	590
05:15 PM	121	110	2	233	115	25	0	140	72	189	1	262	635
Total Volume	413	464	10	887	511	88	0	599	282	648	4	934	2420
% App. Total	46.6	52.3	1.1		85.3	14.7	0		30.2	69.4	0.4		
PHF	.853	.906	.625	.952	.939	.880	.000	.954	.940	.857	.500	.891	.953

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Client: VHB/A. Fill

File Name : 03310BB
Site Code : 06971
Start Date : 4/27/2005
Page No : 1

Groups Printed- Cars

Start Time	Pond Street From North			Pond Street From East			Woodland Road From South			Int. Total
	Thru	Left	UTurn	Rght	Left	Peds	Rght	Thru	UTurn	
04:00 PM	91	102	2	114	30	0	60	121	0	520
04:15 PM	88	126	0	100	17	0	72	122	1	526
04:30 PM	80	122	4	133	19	0	75	143	1	577
04:45 PM	100	128	3	136	21	0	61	169	0	618
Total	359	478	9	483	87	0	268	555	2	2241
05:00 PM	112	104	1	127	23	0	74	147	2	590
05:15 PM	121	110	2	115	25	0	72	189	1	635
05:30 PM	128	93	2	122	20	0	71	123	0	559
05:45 PM	114	112	1	113	20	0	70	153	0	583
Total	475	419	6	477	88	0	287	612	3	2367
Grand Total	834	897	15	960	175	0	555	1167	5	4608
Apprch %	47.8	51.4	0.9	84.6	15.4	0	32.1	67.6	0.3	
Total %	18.1	19.5	0.3	20.8	3.8	0	12	25.3	0.1	

Start Time	Pond Street From North				Pond Street From East				Woodland Road From South				Int. Total
	Thru	Left	UTurn	App. Total	Rght	Left	Peds	App. Total	Rght	Thru	UTurn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:30 PM													
04:30 PM	80	122	4	206	133	19	0	152	75	143	1	219	577
04:45 PM	100	128	3	231	136	21	0	157	61	169	0	230	618
05:00 PM	112	104	1	217	127	23	0	150	74	147	2	223	590
05:15 PM	121	110	2	233	115	25	0	140	72	189	1	262	635
Total Volume	413	464	10	887	511	88	0	599	282	648	4	934	2420
% App. Total	46.6	52.3	1.1		85.3	14.7	0		30.2	69.4	0.4		
PHF	.853	.906	.625	.952	.939	.880	.000	.954	.940	.857	.500	.891	.953

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File Name : 03310BB
Site Code : 06971
Start Date : 4/27/2005
Page No : 1

Groups Printed- Trucks

Start Time	Pond Street From North			Pond Street From East			Woodland Road From South			Int. Total
	Thru	Left	UTurn	Rght	Left	Peds	Rght	Thru	UTurn	
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	1	0	1
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	1	0	1
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	1	0	1
Apprch %	0	0	0	0	0	0	0	100	0	
Total %	0	0	0	0	0	0	0	100	0	

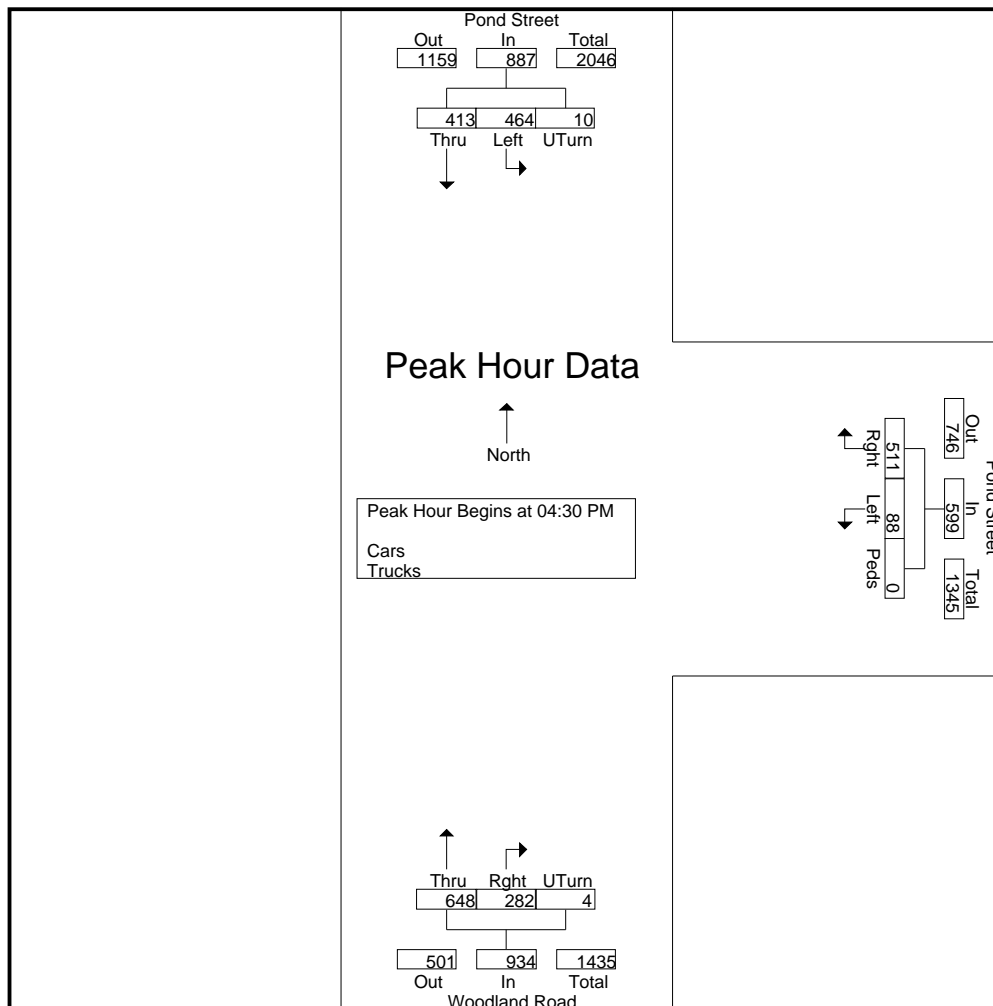
Start Time	Pond Street From North				Pond Street From East				Woodland Road From South				Int. Total
	Thru	Left	UTurn	App. Total	Rght	Left	Peds	App. Total	Rght	Thru	UTurn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:00 PM													
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	1	0	1	1
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	1	0	1	1
% App. Total	0	0	0		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250	.250

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Start Time	Pond Street From North				Pond Street From East				Woodland Road From South			Int. Total	
	Thru	Left	UTurn	App. Total	Right	Left	Peds	App. Total	Right	Thru	UTurn		App. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:30 PM													
04:30 PM	80	122	4	206	133	19	0	152	75	143	1	219	577
04:45 PM	100	128	3	231	136	21	0	157	61	169	0	230	618
05:00 PM	112	104	1	217	127	23	0	150	74	147	2	223	590
05:15 PM	121	110	2	233	115	25	0	140	72	189	1	262	635
Total Volume	413	464	10	887	511	88	0	599	282	648	4	934	2420
% App. Total	46.6	52.3	1.1		85.3	14.7	0		30.2	69.4	0.4		
PHF	.853	.906	.625	.952	.939	.880	.000	.954	.940	.857	.500	.891	.953





Project: Langwood Commons Project # 06971.30

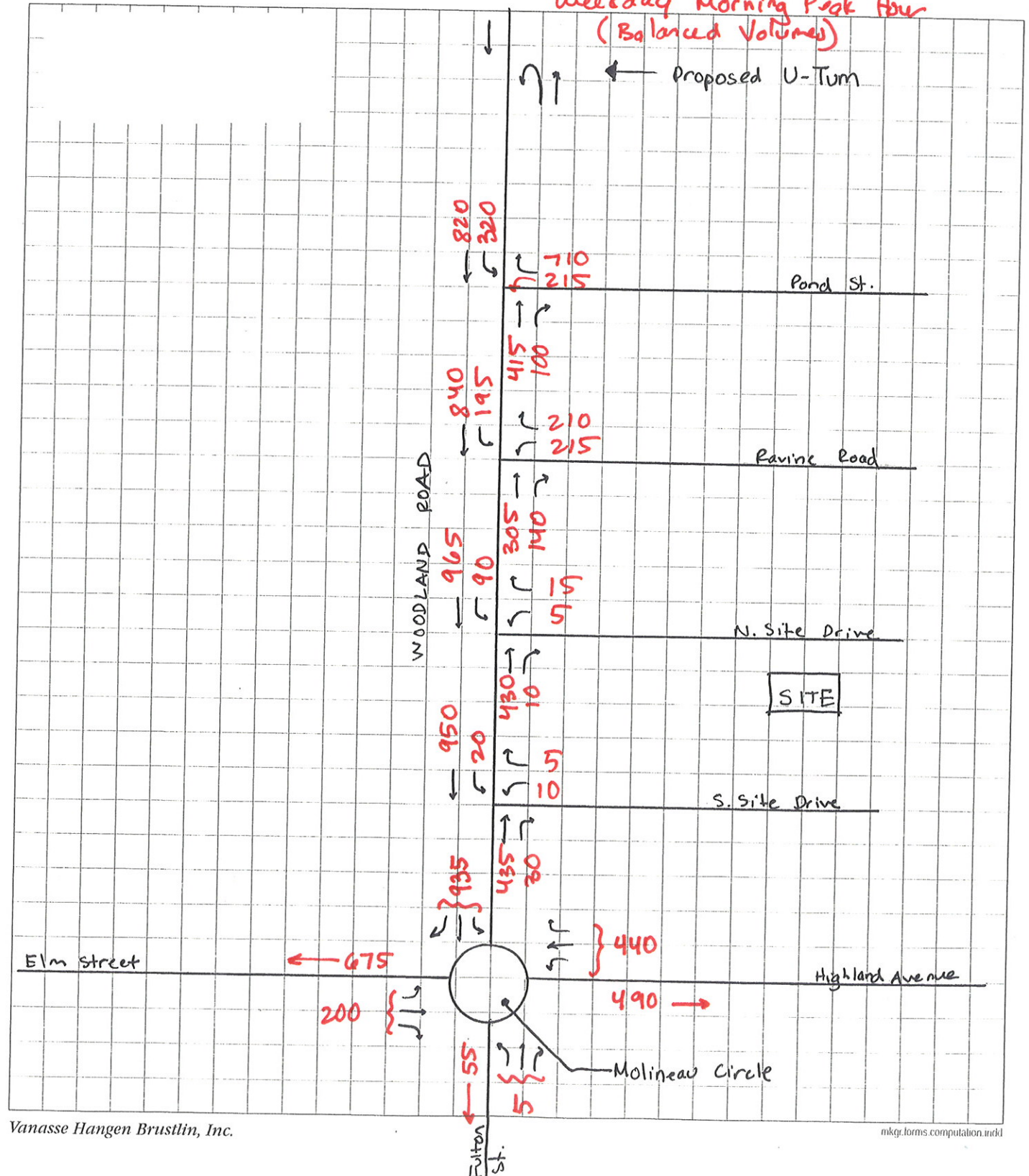
Location: Stoneham, MA Sheet of

Calculated by: MAS Date: 2/24/09

Checked by: _____ Date: _____

Title Existing Traffic Volumes (2009)

Weekday Morning Peak Hour
(Balanced Volumes)





Project: Langwood Commons Project # 06971.30

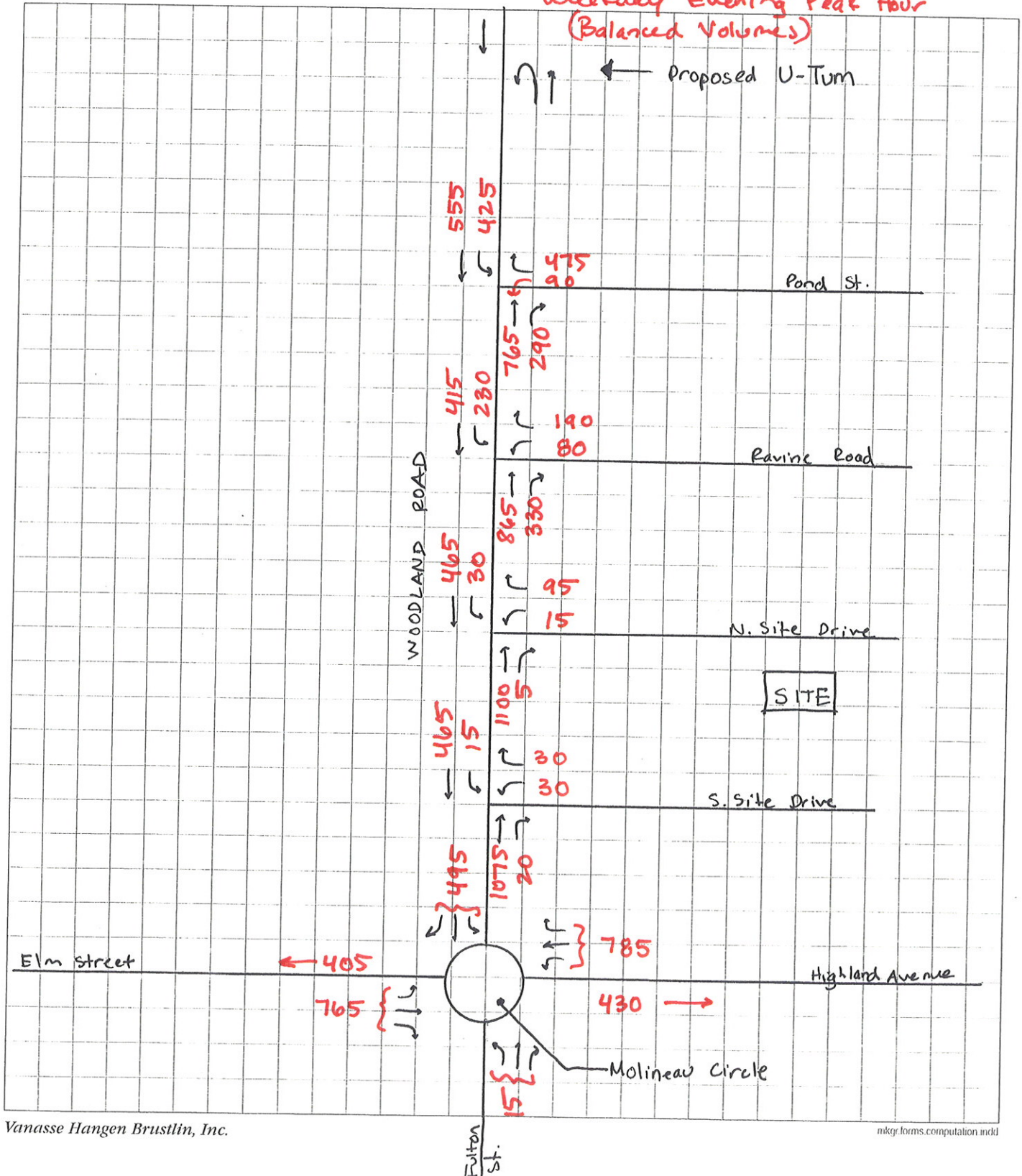
Location: Stoneham, MA Sheet of

Calculated by: MAS Date: 2/24/09

Checked by: Date:

Title Existing Traffic Volumes (2009)

Weekday Evening Peak Hour
(Balanced Volumes)



Motor Vehicle Crash Data

MHD Crash Data
MHD Crash Rate Calculations

MEDFORD		1/1/2004	12/31/2006											
Location	Crash_Date	Crash_Time	Crash_Type	Collision_manner	Road_Surface	Lighting	Weather	Street	Intersection	Address/Landmark	Exit Distance	Mile Marker Distance	Feet_From	Dir_From
Molineau Circle														
1	Friday, December 24, 2004	12:20:00 PM	Not Reported	Single vehicle crash	Wet	Dark - unknown roadway lighting	Severe crosswinds			ROTARY - WOODLAND ROAD			200 feet N from Intersection WOODLAND ROAD / ELM STREET	
1	Saturday, June 04, 2005	3:40:00 PM	Fatal injury	Angle	Dry	Daylight	Clear/Clear			FLYNN SKATING RINK - WOODLAND ROAD			WOODLAND ROAD	
1	Thursday, June 30, 2005	3:45:00 PM	Property damage only (none injured)	Angle	Dry	Daylight	Clear/Clear			MIDDLESEX ROTARY - WOODLAND ROAD			WOODLAND ROAD / MIDDLESEX ROTARY	
1	Friday, February 03, 2006	5:40:00 PM	Property damage only (none injured)	Sideswipe, opposite direction	Wet	Dark - lighted roadway	Clear						100 feet S from Intersection FULTON STREET / ELM STREET	
1	Friday, September 01, 2006	8:10:00 AM	Property damage only (none injured)	Single vehicle crash	Dry	Daylight	Clear/Clear						WOODLAND ROAD / ELM STREET	
1	Thursday, December 07, 2006	8:24:00 AM	Property damage only (none injured)	Sideswipe, opposite direction	Dry	Daylight	Clear/Clear			ROTARY AT HIGHLAND AVE			ELM STREET / HIGHLAND AVENUE	
Woodland Road/Site Driveways														
2	Wednesday, January 21, 2004	12:00:00 PM	Not Reported	Not reported	Not reported	Not reported	Not Reported			3 WOODLAND ROAD			3 WOODLAND ROAD	
2	Wednesday, January 19, 2005	2:30:00 AM	Property damage only (none injured)	Angle	Dry	Daylight	Clear						3 WOODLAND ROAD	
2	Wednesday, August 03, 2005	12:30:00 PM	Non-fatal injury	Angle	Dry	Daylight	Clear/Clear			OLD HOSPITAL BLDG - WOODLAND ROAD			WOODLAND ROAD	
2	Thursday, December 22, 2005	4:10:00 PM	Non-fatal injury	Single vehicle crash	Dry	Daylight	Clear/Clear			BOSTON REGIONAL HEALTH CARE - WOODLAND ROAD			200 feet S from Intersection WOODLAND ROAD	
2	Sunday, February 26, 2006	8:45:00 AM	Non-fatal injury	Rear-end	Wet	Daylight	Clear			FARMER BOSTON MEDICAL CENTER			300 WOODLAND ROAD	
2	Thursday, May 18, 2006	3:20:00 PM	Non-fatal injury	Angle	Dry	Daylight	Clear/Clear	WOODLAND ROAD	WOODLAND ROAD					
Woodland Road/Ravine Road														
3	Monday, January 05, 2004	3:05:00 PM	Property damage only (none injured)	Angle	Dry	Daylight	Cloudy	WOODLAND ROAD	RAVINE ROAD					
3	Sunday, March 28, 2004	11:15:00 AM	Non-fatal injury	Single vehicle crash	Dry	Daylight	Clear	WOODLAND ROAD	RAVINE ROAD				2 WOODLAND ROAD	
3	Thursday, September 30, 2004	3:30:00 PM	Not Reported	Not reported	Dry	Daylight	Clear	RAVINE ROAD	WOODLAND ROAD					
3	Wednesday, November 10, 2004	7:10:00 AM	Property damage only (none injured)	Not reported	Dry	Dark - roadway not lighted	Clear			RAVINE ROAD				RAVINE ROAD / WOODLAND ROAD
3	Sunday, April 30, 2006	1:09:00 PM	Property damage only (none injured)	Angle	Dry	Daylight	Clear	WOODLAND ROAD	RAVINE ROAD					
3	Thursday, July 06, 2006	6:05:00 PM	Property damage only (none injured)	Sideswipe, same direction	Dry	Daylight	Clear	WOODLAND ROAD	RAVINE ROAD					
3	Tuesday, July 11, 2006	9:30:00 AM	Non-fatal injury	Not reported	Dry	Daylight	Clear	WOODLAND ROAD	RAVINE ROAD					
3	Wednesday, August 16, 2006	11:24:00 AM	Property damage only (none injured)	Single vehicle crash	Dry	Daylight	Clear/Clear							WOODLAND ROAD / RAVINE ROAD
3	Tuesday, August 29, 2006	3:50:00 PM	Property damage only (none injured)	Angle	Wet	Daylight	Rain/Rain	WOODLAND ROAD	RAVINE ROAD					
3	Saturday, December 30, 2006	2:50:00 AM	Property damage only (none injured)	Rear-end	Snow	Daylight	Snow	WOODLAND ROAD	RAVINE ROAD					
3	Wednesday, February 21, 2007	4:05 PM	Property damage only (none injured)	Angle	Dry	Daylight	Clear/Clear	WOODLAND ROAD / RAVINE ROAD						
3	Saturday, March 24, 2007	11:50 PM	Property damage only (none injured)	Rear-end	Slush	Dark - lighted roadway	Snow		WOODLAND ROAD / RAVINE ROAD					PRIOR TO FLYNN RINK
3	Tuesday, May 01, 2007	4:15 AM	Property damage only (none injured)	Angle	Dry	Daylight	Clear/Clear	WOODLAND ROAD / RAVINE ROAD						
3	Friday, June 15, 2007	4:20 PM	Non-fatal injury	Angle	Dry	Daylight	Clear	WOODLAND ROAD / RAVINE ROAD						
3	Saturday, August 25, 2007	6:15 PM	Non-fatal injury	Rear-end	Dry	Dusk	Cloudy		RAVINE ROAD / WOODLAND ROAD					BETWEEN WOODLAND AND FELLSWAY
3	Tuesday, September 18, 2007	7:50 AM	Non-fatal injury	Rear-end	Dry	Daylight	Clear		WOODLAND ROAD / RAVINE ROAD					PUMPING STATION
3	Monday, October 08, 2007	12:15 PM	Property damage only (none injured)	Single vehicle crash	Wet	Daylight	Cloudy/Rain		WOODLAND ROAD					CLOSEST REFERENCE RAVINE ROAD
3	Tuesday, December 25, 2007	3:36 PM	Non-fatal injury	Rear-end	Dry	Daylight	Clear	RAVINE ROAD / WOODLAND ROAD						
Woodland Road/Pond Street														
4	Friday, March 19, 2004	1:35:00 PM	Non-fatal injury	Rear-end	Dry	Daylight	Cloudy	POND STREET	WOODLAND ROAD					
4	Sunday, March 21, 2004	4:45:00 PM	Property damage only (none injured)	Angle	Dry	Daylight	Clear	WOODLAND ROAD	POND STREET					
4	Thursday, April 01, 2004	11:15:00 AM	Non-fatal injury	Single vehicle crash	Wet	Daylight	Cloudy/Rain	WOODLAND ROAD	POND STREET					
4	Thursday, May 20, 2004	8:10:00 PM	Property damage only (none injured)	Angle	Dry	Daylight	Clear	POND STREET	WOODLAND ROAD					
4	Tuesday, October 19, 2004	11:00:00 PM	Property damage only (none injured)	Angle	Wet	Dark - lighted roadway	Rain	WOODLAND ROAD	POND STREET					
4	Monday, December 13, 2004	1:30:00 AM	Not Reported	Not reported	Dry	Daylight	Clear	POND STREET	WOODLAND ROAD					
4	Saturday, February 12, 2005	2:35:00 PM	Non-fatal injury	Rear-end	Dry	Daylight	Clear/Clear	WOODLAND ROAD	POND STREET					
4	Friday, March 18, 2005	12:14:00 AM	Property damage only (none injured)	Single vehicle crash	Dry	Dark - roadway not lighted	Clear/Clear	WOODLAND ROAD	POND STREET					
4	Monday, May 02, 2005	9:45:00 AM	Property damage only (none injured)	Rear-end	Dry	Daylight	Clear	POND STREET	WOODLAND ROAD					
4	Wednesday, July 20, 2005	8:15:00 AM	Property damage only (none injured)	Rear-end	Dry	Daylight	Clear	POND STREET	WOODLAND ROAD					
4	Sunday, July 31, 2005	10:15:00 AM	Property damage only (none injured)	Angle	Dry	Daylight	Clear	WOODLAND ROAD	POND STREET					
4	Thursday, August 11, 2005	2:20:00 PM	Property damage only (none injured)	Angle	Dry	Daylight	Clear	WOODLAND ROAD	POND STREET					
4	Monday, October 24, 2005	5:15:00 PM	Property damage only (none injured)	Single vehicle crash	Wet	Dusk	Cloudy	WOODLAND ROAD	POND STREET					
4	Saturday, March 18, 2006	11:35:00 AM	Property damage only (none injured)	Angle	Dry	Daylight	Clear/Clear	WOODLAND ROAD	POND STREET					
4	Friday, March 24, 2006	10:00:00 AM	Unknown	Angle	Dry	Daylight	Cloudy	WOODLAND ROAD	POND STREET					
4	Wednesday, May 24, 2006	5:36:00 PM	Property damage only (none injured)	Rear-end	Dry	Daylight	Clear/Clear							WOODLAND ROAD / POND STREET
4	Tuesday, June 13, 2006	3:30:00 PM	Property damage only (none injured)	Not reported	Dry	Daylight	Clear	POND STREET	WOODLAND ROAD					
4	Saturday, July 08, 2006	11:00:00 AM	Not Reported	Rear-end	Dry	Daylight	Clear	POND STREET	WOODLAND ROAD					
4	Thursday, July 27, 2006	3:00:00 PM	Not Reported	Sideswipe, opposite direction	Dry	Daylight	Clear	POND STREET	WOODLAND ROAD					
4	Tuesday, August 08, 2006	6:05:00 PM	Property damage only (none injured)	Rear-end	Dry	Daylight	Clear	POND STREET	WOODLAND ROAD					
4	Saturday, September 30, 2006	10:15:00 PM	Not Reported	Rear-end	Dry	Dark - lighted roadway	Clear/Clear	POND STREET	WOODLAND ROAD					
4	Monday, October 09, 2006	4:20:00 AM	Not Reported	Sideswipe, same direction	Dry	Daylight	Clear							WOODLAND ROAD / POND STREET
4	Saturday, January 06, 2007	1:00:00 PM	Property damage only (none injured)	Rear-end	Dry	Daylight	Clear		WOODLAND ROAD / POND STREET					
4	Friday, January 12, 2007	4:50 AM	Non-fatal injury	Sideswipe, same direction	Dry	Daylight	Clear	POND STREET / WOODLAND ROAD						
4	Sunday, January 14, 2007	11:40 AM	Property damage only (none injured)	Rear-end	Wet	Daylight	Rain	POND STREET / WOODLAND ROAD						
4	Thursday, January 18, 2007	11:30 AM	Property damage only (none injured)	Angle	Dry	Daylight	Clear	WOODLAND ROAD / POND STREET						
4	Wednesday, February 28, 2007	5:40 AM	Property damage only (none injured)	Rear-end	Dry	Dusk	Clear	POND STREET / WOODLAND ROAD						
4	Thursday, March 29, 2007	5:00 AM	Non-fatal injury	Rear-end	Dry	Daylight	Clear	POND STREET / WOODLAND ROAD						
4	Tuesday, May 01, 2007	3:17 PM	Property damage only (none injured)	Rear-end	Dry	Daylight	Clear	POND STREET / WOODLAND ROAD						
4	Monday, May 14, 2007	5:00 AM	Property damage only (none injured)	Angle	Dry	Daylight	Clear	POND STREET / WOODLAND ROAD						
4	Thursday, May 17, 2007	6:00 PM	Property damage only (none injured)	Rear-end	Dry	Daylight	Clear	POND STREET / WOODLAND ROAD						
4	Friday, August 03, 2007	9:45 AM	Property damage only (none injured)	Angle	Dry	Daylight	Clear		WOODLAND ROAD / POND STREET					
4	Friday, September 14, 2007	8:30 AM	Property damage only (none injured)	Rear-end	Dry	Daylight	Clear	POND STREET / WOODLAND ROAD						
4	Friday, October 05, 2007	2:30 PM	Property damage only (none injured)	Angle	Dry	Daylight	Clear	WOODLAND ROAD / POND STREET						
4	Tuesday, November 06, 2007	10:09 AM	Non-fatal injury	Single vehicle crash	Wet	Daylight	Cloudy/Rain		WOODLAND ROAD / POND STREET					
4	Tuesday, November 06, 2007	4:20 PM	Property damage only (none injured)	Angle	Dry	Daylight	Clear		WOODLAND ROAD / POND STREET					

MassHighway

CRASH RATE WORKSHEET

CITY/TOWN : Stoneham

COUNT DATE : April 2005

MHD USE ONLY

DISTRICT : 4

UNSIGNALIZED : X

SIGNALIZED :

Source #

~ INTERSECTION DATA ~

MAJOR STREET : Woodland Road

RIN #

MINOR STREET(S) : Pond Street

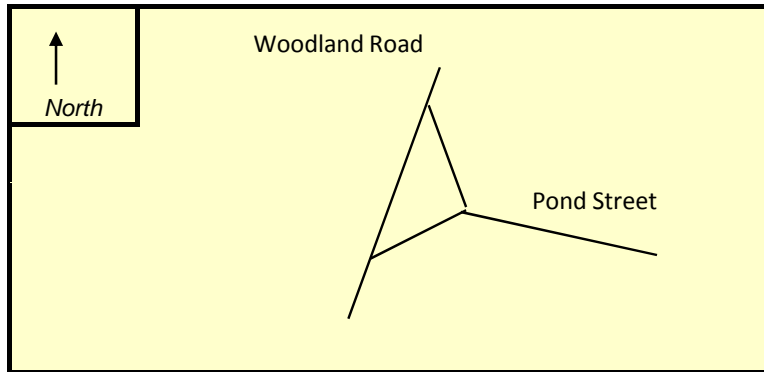
RIN #

RIN #

RIN #

RIN #

**INTERSECTION
DIAGRAM**
(Label Approaches)



INTERSECTION
REF #

Peak Hour Volumes

APPROACH :

	1	2	3	4	5	6
DIRECTION :	NB	SB	WB			
VOLUMES (PM) :	1055	980	565			

" K " FACTOR :

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

TOTAL # OF
ACCIDENTS :

OF
YEARS : AVERAGE # OF
ACCIDENTS (A) :

CRASH RATE CALCULATION :

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

Source (optional):

Comments:

MassHighway

CRASH RATE WORKSHEET

CITY/TOWN : Stoneham

COUNT DATE : Feb 2006

MHD USE ONLY

DISTRICT : 4

UNSIGNALIZED : X

SIGNALIZED :

Source #

~ INTERSECTION DATA ~

MAJOR STREET : Woodland Road

RIN #

MINOR STREET(S) : Ravine Road

RIN #

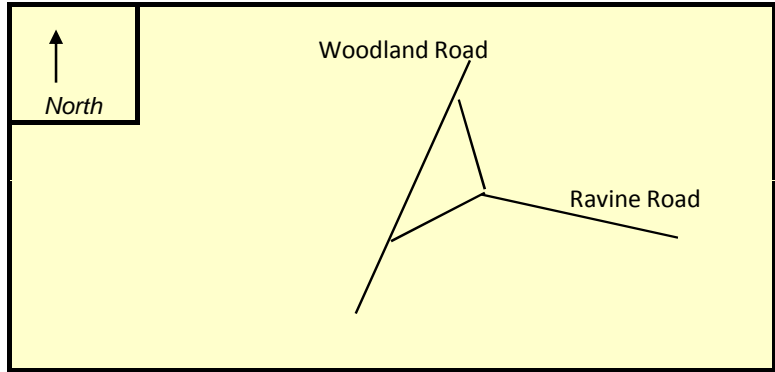
RIN #

RIN #

RIN #

RIN #

**INTERSECTION
DIAGRAM**
(Label Approaches)



INTERSECTION
REF #

Peak Hour Volumes

APPROACH :

	1	2	3	4	5	6
DIRECTION :	NB	SB	WB			
VOLUMES (PM) :	1195	645	270			

" K " FACTOR :

APPROACH ADT :

ADT = TOTAL VOL/"K" FACT.

TOTAL # OF
ACCIDENTS :

OF
YEARS :

AVERAGE # OF
ACCIDENTS (A) :

CRASH RATE CALCULATION :

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

Source (optional):

Comments:

MassHighway

CRASH RATE WORKSHEET

CITY/TOWN : Stoneham

COUNT DATE : Feb 2006

MHD USE ONLY

DISTRICT : 4

UNSIGNALIZED : X

SIGNALIZED :

Source #

~ INTERSECTION DATA ~

MAJOR STREET : Woodland Road

RIN #

MINOR STREET(S) : North Site Drive

RIN #

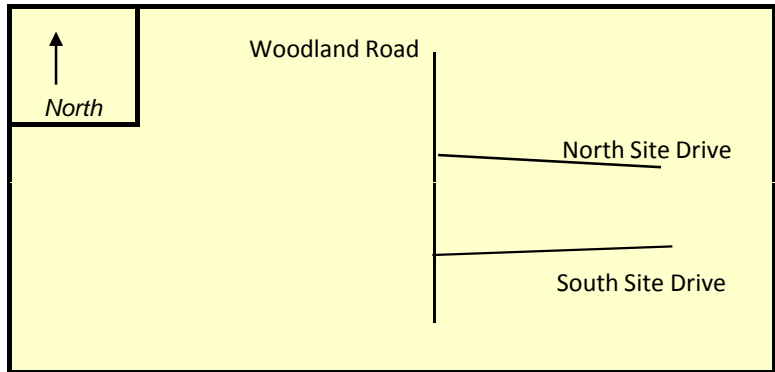
South Site Drive

RIN #

RIN #

RIN #

**INTERSECTION
DIAGRAM**
(Label Approaches)



INTERSECTION
REF #

Peak Hour Volumes

APPROACH :

	1	2	3	4	5	6
DIRECTION :	NB	SB	WB			
VOLUMES (PM) :	1095	495	170			

" K " FACTOR :

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

TOTAL # OF
ACCIDENTS :

OF YEARS : AVERAGE # OF ACCIDENTS (A) :

CRASH RATE CALCULATION :

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

Source (optional):

Comments:

MassHighway

CRASH RATE WORKSHEET

CITY/TOWN : Stoneham

COUNT DATE : Feb 2006

MHD USE ONLY

DISTRICT : 4

UNSIGNALIZED : X

SIGNALIZED :

Source #

~ INTERSECTION DATA ~

MAJOR STREET : Molineau Circle

RIN #

MINOR STREET(S) : Woodland Road

RIN #

Highland Street/Avenue

RIN #

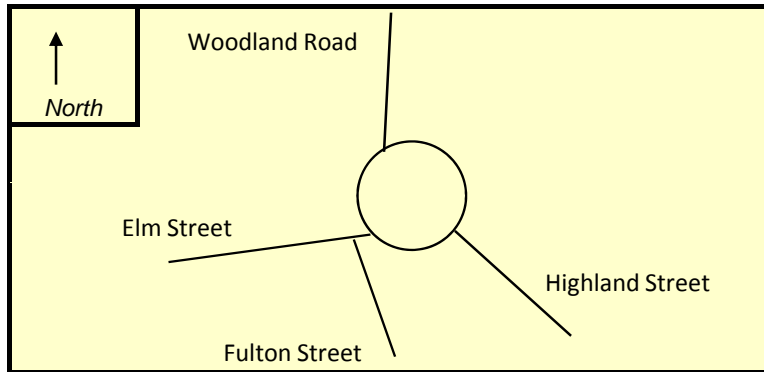
Elm Street

RIN #

Fulton Street

RIN #

**INTERSECTION
DIAGRAM**
(Label Approaches)



INTERSECTION
REF #

Peak Hour Volumes

APPROACH :

	1	2	3	4	5	6
DIRECTION :	NB	SB	EB	WB		
VOLUMES (PM) :	15	495	765	785		

" K " FACTOR :

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

TOTAL # OF
ACCIDENTS :

OF YEARS : AVERAGE # OF ACCIDENTS (A) :

CRASH RATE CALCULATION :

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

Source (optional):

Comments:

Background Traffic

Background Project Traffic Volume Network



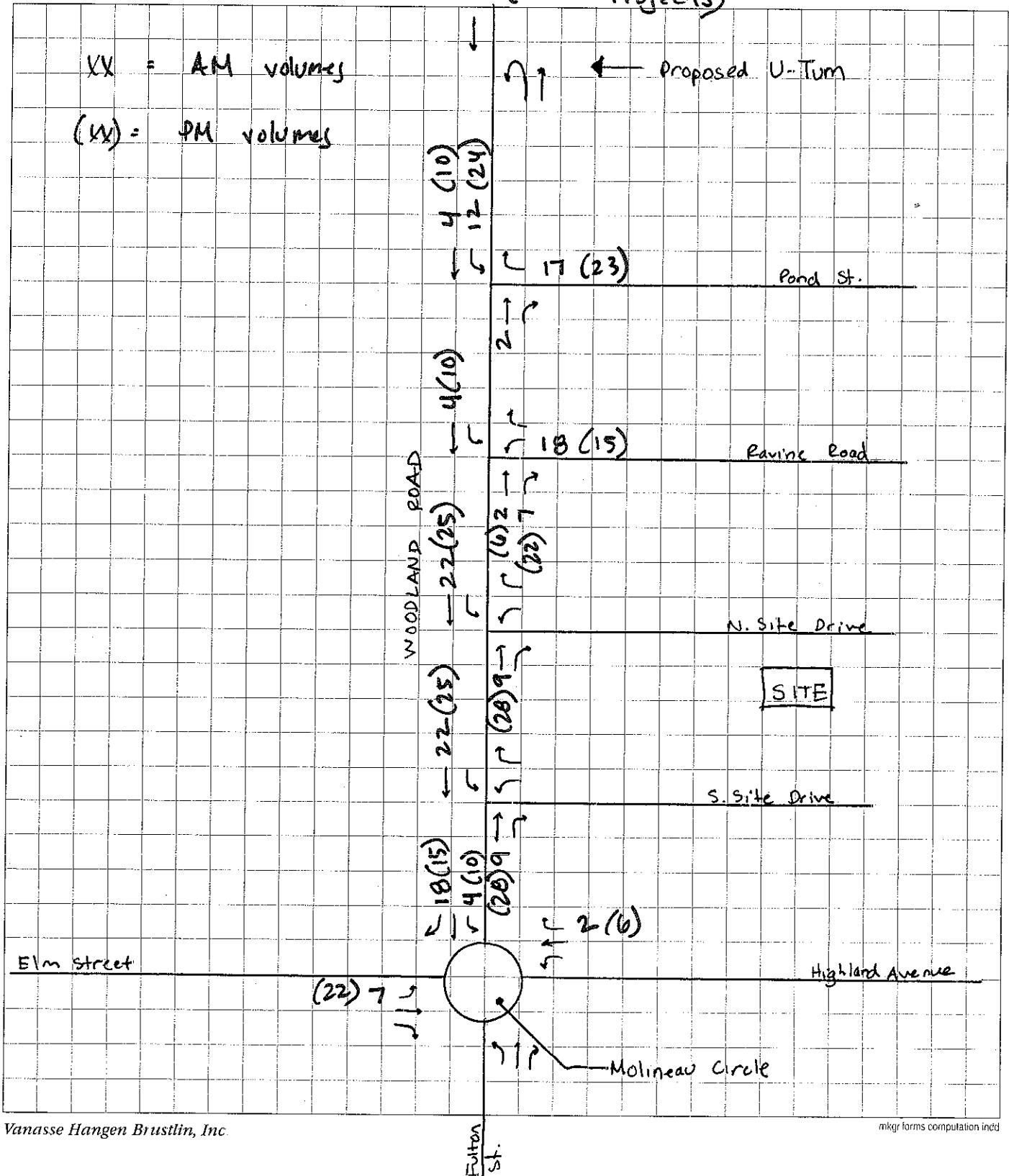
Project: Langwood Commons Project # 06971.30

Location: Stoneham, MA Sheet of

Calculated by: MAS Date: 2/24/09

Checked by: Date:

Title Background Project Traffic
(2007 Projects)



Project Generated Traffic

ITE Trip Generation Data
Project-Generated Traffic Volume Networks

ITE TRIP GENERATION WORKSHEET
(8th Edition, Updated 2008)

LANDUSE: General Office Building
LANDUSE CODE: 710

Independent Variable --- 1,000 Sq. Feet Gross Floor Area

JOB NAME: _____
JOB NUMBER: _____
FLOOR AREA (KSF): 225.0

WEEKDAY

RATES:	# Studies	R ²	Total Trip Ends			Independent Variable Range			Directional Distribution	
			Average	Low	High	Average	Low	High	Enter	Exit
DAILY	78	0.80	11.01	3.58	28.80	199	0	1,300	50%	50%
AM PEAK	217	0.83	1.55	0.60	5.98	223	0	2,500	88%	12%
PM PEAK	235	0.82	1.49	0.49	6.39	216	0	2,500	17%	83%

TRIPS:	BY AVERAGE			BY REGRESSION		
	Total	Enter	Exit	Total	Enter	Exit
DAILY	2,477	1,239	1,239	2491	1245	1245
AM PEAK	349	307	42	359	316	43
PM PEAK	335	57	278	331	56	275

SATURDAY

RATES:	# Studies	R ²	Total Trip Ends			Independent Variable Range			Directional Distribution	
			Average	Low	High	Average	Low	High	Enter	Exit
DAILY	17	0.66	2.37	0.59	14.67	78	0	190	50%	50%
PEAK OF GENERATOR	10	0.59	0.41	0.16	1.57	97	0	190	54%	46%

TRIPS:	BY AVERAGE			BY REGRESSION		
	Total	Enter	Exit	Total	Enter	Exit
DAILY	533	267	267	500	250	250
PEAK OF GENERATOR	92	50	42	71	39	33

SUNDAY

RATES:	# Studies	R ²	Total Trip Ends			Independent Variable Range			Directional Distribution	
			Average	Low	High	Average	Low	High	Enter	Exit
DAILY	17	0.50	0.98	0.19	7.33	78	0	190	50%	50%
PEAK OF GENERATOR	10	0.56	0.14	0.06	0.37	97	0	190	58%	42%

TRIPS:	BY AVERAGE			BY REGRESSION		
	Total	Enter	Exit	Total	Enter	Exit
DAILY	221	110	110	144	72	72
PEAK OF GENERATOR	32	18	13	22	13	9

ITE TRIP GENERATION WORKSHEET
(8th Edition, Updated 2008)

LANDUSE: Residential Condominium/Townhouse
LANDUSE CODE: 230 Independent Variable --- Dwelling Units

JOB NAME: Dwelling Units 144
JOB NUMBER:

WEEKDAY

RATES:	# Studies	R ²	Total Trip Ends			Independent Variable Range			Directional Distribution	
			Average	Low	High	Average	Low	High	Enter	Exit
DAILY	56	0.80	5.81	1.53	11.79	179	0	1,300	50%	50%
AM PEAK (ADJACENT ST)	59	0.76	0.44	0.15	1.61	213	0	1,300	17%	83%
PM PEAK (ADJACENT ST)	62	0.80	0.52	0.18	1.24	205	0	1,300	67%	33%

TRIPS:	BY AVERAGE			BY REGRESSION		
	Total	Enter	Exit	Total	Enter	Exit
DAILY	837	418	418	883	442	442
AM PEAK (ADJACENT ST)	63	11	53	69	12	57
PM PEAK (ADJACENT ST)	75	50	25	81	54	27

SATURDAY

RATES:	# Studies	R ²	Total Trip Ends			Independent Variable Range			Directional Distribution	
			Average	Low	High	Average	Low	High	Enter	Exit
DAILY	30	0.84	5.67	1.17	11.40	209	0	1,300	50%	50%
PEAK OF GENERATOR	27	0.84	0.47	0.14	0.93	228	0	1,300	54%	46%

TRIPS:	BY AVERAGE			BY REGRESSION		
	Total	Enter	Exit	Total	Enter	Exit
DAILY	816	408	408	949	475	475
PEAK OF GENERATOR	68	37	31	84	46	39

SUNDAY

RATES:	# Studies	R ²	Total Trip Ends			Independent Variable Range			Directional Distribution	
			Average	Low	High	Average	Low	High	Enter	Exit
DAILY	30	0.88	4.84	1.36	8.56	209	0	1,300	50%	50%
PEAK OF GENERATOR	27	0.78	0.45	0.16	1.07	228	0	1,300	49%	51%

TRIPS:	BY AVERAGE			BY REGRESSION		
	Total	Enter	Exit	Total	Enter	Exit
DAILY	697	348	348	808	404	404
PEAK OF GENERATOR	65	32	33	83	41	42

ITE TRIP GENERATION WORKSHEET
(8th Edition, Updated 2008)

LANDUSE: Apartment
LANDUSE CODE: 220

Independent Variable --- Number of Units

JOB NAME: Peak Hour Traffic on Adjacent Street: 261 units
JOB NUMBER:

WEEKDAY

RATES:	# Studies	R ²	Total Trip Ends			Independent Variable Range			Directional Distribution	
			Average	Low	High	Average	Low	High	Enter	Exit
DAILY	88	0.87	6.65	1.27	12.50	210	0	1,000	50%	50%
AM PEAK (ADJACENT ST)	78	0.83	0.51	0.10	1.02	235	0	1,100	20%	80%
PM PEAK (ADJACENT ST)	90	0.77	0.62	0.10	1.64	233	0	1,100	65%	35%

TRIPS:		BY AVERAGE			BY REGRESSION		
		Total	Enter	Exit	Total	Enter	Exit
	DAILY	1,736	67	67	1705	853	853
	AM PEAK (ADJACENT ST)	133	27	106	132	26	105
	PM PEAK (ADJACENT ST)	162	105	57	161	105	56

SATURDAY

RATES:	# Studies	R ²	Total Trip Ends			Independent Variable Range			Directional Distribution	
			Average	Low	High	Average	Low	High	Enter	Exit
DAILY	15	0.85	6.39	2.84	8.40	175	65	360	50%	50%
PEAK OF GENERATOR	14	0.56	0.52	0.26	1.05	178	65	360	<i>Peak Distribution Not Available</i>	

TRIPS:		BY AVERAGE			BY REGRESSION		
		Total	Enter	Exit	Total	Enter	Exit
	DAILY	1,668	834	834	1793	896	896
	PEAK OF GENERATOR	136	NA	NA	126	NA	NA

SUNDAY

RATES:	# Studies	R ²	Total Trip Ends			Independent Variable Range			Directional Distribution	
			Average	Low	High	Average	Low	High	Enter	Exit
DAILY	14	0.82	5.86	3.21	7.53	182	90	360	50%	50%
PEAK OF GENERATOR	13	--	0.51	0.26	1.43	186	90	360	<i>Peak Distribution Not Available</i>	

TRIPS:		BY AVERAGE			BY REGRESSION		
		Total	Enter	Exit	Total	Enter	Exit
	DAILY	1,529	834	834	1575	787	787
	PEAK OF GENERATOR	133	NA	NA	NA	NA	NA

ITE TRIP GENERATION WORKSHEET
(8th Edition, Updated 2008)

LANDUSE: Medical-Dental Office Building
LANDUSE CODE: 720

Independent Variable --- 1,000 Sq. Feet Gross Floor Area

JOB NAME:
JOB NUMBER:

FLOOR AREA (KSF): 11.0

WEEKDAY

RATES:

	# Studies	R ²
DAILY	10	0.90
EAK (ADJACENT ST)	23	--
EAK (ADJACENT ST)	43	0.75

Total Trip Ends		
Average	Low	High
36.13	23.16	50.51
2.30	0.85	4.79
3.46	0.97	8.86

Independent Variable Range		
Average	Low	High
45	10	110
43	10	112
32	2	112

Directional Distribution	
Enter	Exit
50%	50%
79%	21%
27%	73%

TRIPS:

DAILY
 AM PEAK (ADJACENT ST)
 PM PEAK (ADJACENT ST)

BY AVERAGE		
Total	Enter	Exit
397	199	199
25	20	5
38	10	28

BY REGRESSION		
Total	Enter	Exit
235	117	117
NA	NA	NA
40	11	30

SATURDAY

RATES:

	# Studies	R ²
DAILY	5	--
AK OF GENERATOR	3	--

Total Trip Ends		
Average	Low	High
8.96	1.10	21.93
3.63	3.08	4.02

Independent Variable Range		
Average	Low	High
44	17	112
28	17	44

Directional Distribution	
Enter	Exit
50%	50%
57%	43%

TRIPS:

DAILY
 PEAK OF GENERATOR

BY AVERAGE		
Total	Enter	Exit
99	49	49
40	23	17

BY REGRESSION		
Total	Enter	Exit
NA	NA	NA
NA	NA	NA

SUNDAY

RATES:

	# Studies	R ²
DAILY	4	--
AK OF GENERATOR	2	--

Total Trip Ends		
Average	Low	High
1.55	0.71	5.11
0.40	0.28	0.63

Independent Variable Range		
Average	Low	High
49	17	112
34	24	43

Directional Distribution	
Enter	Exit
50%	50%
52%	48%

TRIPS:

DAILY
 PEAK OF GENERATOR

BY AVERAGE		
Total	Enter	Exit
17	9	9
4	2	2

BY REGRESSION		
Total	Enter	Exit
NA	NA	NA
NA	NA	NA

Stoneham Executive Center - Mixed-Use Development

Trip Generation Summary

ITE, 8th Ed.

Use	Existing Site Conditions			Project-Generated Trip Generation					Full-Build Trip Generation ^c
	Existing Driveway Counts ^a	Medical-Dental Office ^b	Total Trip Generation - Existing Site Conditions	Apartments	Condos	TOTAL Residential	Office	TOTAL	
ITE Land Use									
ITE LUC		720		220	230		710		
Units/ksf		11		261	144		225		
Weekday Daily^d									
Enter	1,880	199	2,079	853	442	1,295	1,245	2,540	4,619
Exit	<u>1,880</u>	<u>199</u>	<u>2,079</u>	<u>853</u>	<u>442</u>	<u>1,295</u>	<u>1,245</u>	<u>2,540</u>	<u>4,619</u>
Total	3,760	398	4,158	1,706	884	2,590	2,490	5,080	9,238
Weekday AM^e									
Enter	150	20	170	26	12	38	316	354	524
Exit	<u>35</u>	<u>5</u>	<u>40</u>	<u>105</u>	<u>57</u>	<u>162</u>	<u>43</u>	<u>205</u>	<u>245</u>
Total	185	25	210	131	69	200	359	559	769
Weekday PM^e									
Enter	70	10	80	105	54	159	56	215	295
Exit	<u>170</u>	<u>28</u>	<u>198</u>	<u>56</u>	<u>27</u>	<u>83</u>	<u>275</u>	<u>358</u>	<u>556</u>
Total	240	38	278	161	81	242	331	573	851

a Includes 99,000 sf of medical office and an assisted living facility. Trip generation is based on counts conducted at the driveways on February 9th, 2006.

b Accounts for the unoccupied 11,000 sf of medical office building.

c The full-build out of the project consists of the existing site uses plus the proposed Project related uses.

d Expressed in vehicles per day.

e Expressed in vehicles per hour.

Intersection Capacity Analyses

HCM Unsignalized Intersection Capacity Analysis
 22: North Site Drive & Woodland Road

Langwood Commons
 Build w/ Vision Morning Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕			↕
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	0*	470	10	300	1040
Peak Hour Factor	0.71	0.71	0.86	0.86	0.94	0.94
Hourly flow rate (vph)	0	0	547	12	319	1106
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1744	279			558	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1744	279			558	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			69	
cM capacity (veh/h)	55	724			1023	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	0	364	194	688	738
Volume Left	0	0	0	319	0
Volume Right	0	0	12	0	0
cSH	1700	1700	1700	1023	1700
Volume to Capacity	0.00	0.21	0.11	0.31	0.43
Queue Length 95th (ft)	0	0	0	34	0
Control Delay (s)	0.0	0.0	0.0	6.8	0.0
Lane LOS	A			A	
Approach Delay (s)	0.0	0.0		3.3	
Approach LOS	A				

Intersection Summary					
Average Delay			2.4		
Intersection Capacity Utilization		57.4%		ICU Level of Service	B
Analysis Period (min)			15		

* Right-turns will be a free movement.

HCM Unsignalized Intersection Capacity Analysis
 16: Pond Street & Woodland Road

Langwood Commons
 Build w/ Vision Morning Peak Hour

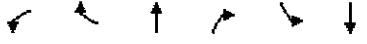


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↑	↖	↗	↑
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	0*	530	130	330	1285
Peak Hour Factor	0.90	0.90	0.96	0.96	0.95	0.95
Hourly flow rate (vph)	0	0	552	135	347	1353
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2599	552			688	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2599	552			688	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			62	
cM capacity (veh/h)	17	537			916	

Direction Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	0	552	135	347	1353
Volume Left	0	0	0	347	0
Volume Right	0	0	135	0	0
cSH	1700	1700	1700	916	1700
Volume to Capacity	0.00	0.32	0.08	0.38	0.80
Queue Length 95th (ft)	0	0	0	45	0
Control Delay (s)	0.0	0.0	0.0	11.3	0.0
Lane LOS	A		B		
Approach Delay (s)	0.0	0.0		2.3	
Approach LOS	A				

Intersection Summary			
Average Delay		1.6	
Intersection Capacity Utilization		71.0%	ICU Level of Service C
Analysis Period (min)		15	

* Right-turns will be a free movement



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↵		↑		↵	↑
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	270	0	0	0	0	1345
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	293	0	0	0	0	1462
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)						
pX platoon unblocked						
vC, conflicting volume	1462	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1462	0			0	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	100			100	
cM capacity (veh/h)	142	1085			1623	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	293	0	1462
Volume Left	293	0	0
Volume Right	0	0	0
cSH	142	1700	1700
Volume to Capacity	2.07	0.64	0.86
Queue Length 95th (ft)	591	0	0
Control Delay (s)	556.8	0.0	0.0
Lane LOS	F		
Approach Delay (s)	556.8	0.0	0.0
Approach LOS	F		

Intersection Summary			
Average Delay		93.1	
Intersection Capacity Utilization		92.4%	ICU Level of Service F
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 22: North Site Drive & Woodland Road

Langwood Commons
 Build w/ Vision Evening Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕			↖
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	0	1180	5	170	515
Peak Hour Factor	0.67	0.67	0.93	0.93	0.99	0.99
Hourly flow rate (vph)	0	0	1269	5	172	520
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1875	637			1274	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1875	637			1274	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			69	
cM capacity (veh/h)	45	425			552	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	0	846	428	345	347
Volume Left	0	0	0	172	0
Volume Right	0	0	5	0	0
cSH	1700	1700	1700	552	1700
Volume to Capacity	0.00	0.50	0.25	0.31	0.20
Queue Length 95th (ft)	0	0	0	33	0
Control Delay (s)	0.0	0.0	0.0	9.7	0.0
Lane LOS	A			A	
Approach Delay (s)	0.0	0.0		4.8	
Approach LOS	A				

Intersection Summary					
Average Delay			1.7		
Intersection Capacity Utilization		58.6%		ICU Level of Service	B
Analysis Period (min)		15			

* Right - turns will be a free movement.

HCM Unsignalized Intersection Capacity Analysis
 16: Pond Street & Woodland Road

Langwood Commons
 Build w/ Vision Evening Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↑	↖	↗	↑
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	0*	970	345	450	810
Peak Hour Factor	0.94	0.94	0.86	0.86	0.97	0.97
Hourly flow rate (vph)	0	0	1128	401	464	835
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2891	1128			1529	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2891	1128			1529	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	100			0	
cM capacity (veh/h)	0	251			441	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	0	1128	401	464	835
Volume Left	0	0	0	464	0
Volume Right	0	0	401	0	0
cSH	1700	1700	1700	441	1700
Volume to Capacity	0.00	0.66	0.24	1.05	0.49
Queue Length 95th (ft)	0	0	0	367	0
Control Delay (s)	0.0	0.0	0.0	87.8	0.0
Lane LOS	A			F	
Approach Delay (s)	0.0	0.0		31.4	
Approach LOS	A				

Intersection Summary						
Average Delay			14.4			
Intersection Capacity Utilization			82.7%	ICU Level of Service	E	
Analysis Period (min)			15			

* Right-turns will be a free movement.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔					↕
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	125	0	0	0	0	1135
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	136	0	0	0	0	1234
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1234	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1234	0			0	
tC, single (s)	6.4	6.2			4.1	
tC 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	30	100			100	
cM capacity (veh/h)	195	1085			1623	
Direction, Lane #						
	WB 1	SB 1				
Volume Total	136	1234				
Volume Left	136	0				
Volume Right	0	0				
cSH	195	1700				
Volume to Capacity	0.70	0.73				
Queue Length 95th (ft)	108	0				
Control Delay (s)	57.3	0.0				
Lane LOS	F					
Approach Delay (s)	57.3	0.0				
Approach LOS	F					
Intersection Summary						
Average Delay		5.7				
Intersection Capacity Utilization		73.3%		ICU Level of Service		D
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis
 16: Pond Street & Woodland Road

Langwood Commons
 Build w/ Vision Morning Peak Hour - Sensitivity Analysis



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↑	↖	↘	↑
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	0*	530	130	330	1150
Peak Hour Factor	0.90	0.90	0.96	0.96	0.95	0.95
Hourly flow rate (vph)	0	0	552	135	347	1211
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2457	552			688	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2457	552			688	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			62	
cM capacity (veh/h)	21	537			916	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	0	552	135	347	1211
Volume Left	0	0	0	347	0
Volume Right	0	0	135	0	0
cSH	1700	1700	1700	916	1700
Volume to Capacity	0.00	0.32	0.08	0.38	0.71
Queue Length 95th (ft)	0	0	0	45	0
Control Delay (s)	0.0	0.0	0.0	11.3	0.0
Lane LOS	A			B	
Approach Delay (s)	0.0	0.0		2.5	
Approach LOS	A				

Intersection Summary					
Average Delay			1.7		
Intersection Capacity Utilization		63.9%		ICU Level of Service	B
Analysis Period (min)		15			

* Right-turns will be a free movement.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙		↑		↘	↓
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	135	0	0	0	0	1345
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	147	0	0	0	0	1462
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh						
Upstream signal (ft)						
pX platoon unblocked						
vC, conflicting volume	1462	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1462	0			0	
tC, single (s)	6.4	6.2			4.1	
tC 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	100			100	
cM capacity (veh/h)	142	1085			1623	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	147	0	1462
Volume Left	147	0	0
Volume Right	0	0	0
cSH	142	1700	1700
Volume to Capacity	1.03	0.00	0.86
Queue Length 95th (ft)	193	0	0
Control Delay (s)	147.3	0.0	0.0
Lane LOS	F		
Approach Delay (s)	147.3	0.0	0.0
Approach LOS	F		

Intersection Summary			
Average Delay		13.4	
Intersection Capacity Utilization		84.9%	ICU Level of Service E
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 16: Pond Street & Woodland Road

Langwood Commons
 Build w/ Vision Evening Peak Hour - (Sensitivity)



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↑	↖	↗	↑
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	0*	970	345	450	745
Peak Hour Factor	0.94	0.94	0.86	0.86	0.97	0.97
Hourly flow rate (vph)	0	0	1128	401	464	768
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2824	1128			1529	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2824	1128			1529	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	100			0	
cM capacity (veh/h)	0	251			441	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	0	1128	401	464	768
Volume Left	0	0	0	464	0
Volume Right	0	0	401	0	0
cSH	1700	1700	1700	441	1700
Volume to Capacity	0.00	0.66	0.24	1.05	0.45
Queue Length 95th (ft)	0	0	0	367	0
Control Delay (s)	0.0	0.0	0.0	87.8	0.0
Lane LOS	A			F	
Approach Delay (s)	0.0	0.0		33.1	
Approach LOS	A				

Intersection Summary					
Average Delay		14.8			
Intersection Capacity Utilization		82.7%		ICU Level of Service	E
Analysis Period (min)		15			

* Right-turns will be a free movement.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖					↗
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	60	0	0	0	0	1135
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	65	0	0	0	0	1234
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1234	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1234	0			0	
IC, single (s)	6.4	6.2			4.1	
IC 2 stage (s)						
IF (s)	3.5	3.3			2.2	
p0 queue free %	67	100			100	
cM capacity (veh/h)	195	1085			1623	

Direction, Lane #	WB 1	SB 1
Volume Total	65	1234
Volume Left	65	0
Volume Right	0	0
cSH	195	1700
Volume to Capacity	0.33	0.73
Queue Length 95th (ft)	35	0
Control Delay (s)	32.4	0.0
Lane LOS	D	
Approach Delay (s)	32.4	0.0
Approach LOS	D	

Intersection Summary			
Average Delay		1.6	
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		

SIDRA INTERSECTION

Movement Summary

Woodland Road at Ravine Road

2012 AM Build Conditions - 2 Lane

Roundabout

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (ft)	Prop. Queued	Eff. Stop Rate	Aver Speed (mph)
Woodland Ave NB										
3L	L	5	16.7	0.273	9.4	LOS A	58	0.49	0.65	24.4
8T	T	489	2.0	0.278	2.2	LOS A	60	0.48	0.27	27.1
8R	R	174	1.7	0.278	3.4	LOS A	60	0.47	0.39	26.6
Approach		668	2.1	0.278	2.6	LOS A	60	0.48	0.31	27.0
Ravine Road										
1L	L	272	1.8	0.715	15.4	LOS B	190	0.81	1.06	22.4
6T	T	5	16.7	0.750	9.0	LOS A	190	0.81	0.98	24.7
6R	R	228	2.2	0.716	10.1	LOS B	190	0.81	0.95	24.1
Approach		506	2.2	0.715	12.9	LOS B	190	0.81	1.01	23.2
Woodland Ave SB										
7L	L	212	1.9	0.686	11.6	LOS B	216	0.75	0.80	23.8
4T	T	1185	2.0	0.685	5.3	LOS A	216	0.75	0.67	25.8
4R	R	5	16.7	0.667	6.7	LOS A	216	0.75	0.76	25.4
Approach		1403	2.1	0.685	6.2	LOS A	216	0.75	0.69	25.4
Driveway										
5L	L	5	16.7	0.072	18.0	LOS B	11	0.80	0.92	21.6
2T	T	5	16.7	0.072	10.8	LOS B	11	0.80	0.83	23.8
2R	R	5	16.7	0.072	12.8	LOS B	11	0.80	0.77	22.9
Approach		18	16.7	0.072	13.9	LOS B	11	0.80	0.84	22.7
All Vehicles		2595	2.2	0.750	6.6	LOS A	216	0.69	0.65	25.3

Symbols which may appear in this table:

Following Degree of Saturation

x = 1.00 for Short Lane with resulting Excess Flow

* x = 1.00 due to minimum capacity

Following LOS

- Based on density for continuous movements

Following Queue



Movement Summary

Woodland Road at South Site Drive

2012 AM Build

Roundabout

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (ft)	Prop. Queued	Eff. Stop Rate	Aver Speed (mph)
Woodland Ave NB										
8T	T	484	2.1	0.482	1.6	LOS A	138	0.40	0.20	27.5
8R	R	152	2.0	0.483	2.7	LOS A	138	0.40	0.31	27.0
Approach		636	2.0	0.482	1.9	LOS A	138	0.40	0.23	27.4
South Site Drive										
1L	L	76	2.6	0.165	11.4	LOS B	25	0.57	0.76	24.0
6R	R	38	2.6	0.165	6.1	LOS A	25	0.57	0.63	26.0
Approach		115	2.6	0.165	9.6	LOS A	25	0.57	0.71	24.6
Woodland Ave SB										
7L	L	82	2.4	0.911	9.9	LOS A	562	0.93	0.53	23.5
4T	T	1049	2.0	0.907	3.7	LOS A	562	0.93	0.43	25.2
Approach		1131	2.0	0.907	4.1	LOS A	562	0.93	0.44	25.0
All Vehicles		1882	2.1	0.911	3.7	LOS A	562	0.73	0.38	25.7

Symbols which may appear in this table:

Following Degree of Saturation

x = 1.00 for Short Lane with resulting Excess Flow

* x = 1.00 due to minimum capacity

Following LOS

- Based on density for continuous movements

Following Queue

- Density for continuous movement



Site: South Site Drive AM

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SIDRA INTERSECTION

Movement Summary

Molineau Circle

2012 Build AM

Roundabout

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (ft)	Prop. Queued	Eff. Stop Rate	Aver Speed (mph)
Highland Ave										
3L	L	201	2.0	0.489	10.0	LOS B	120	0.58	0.67	24.1
8T	T	310	1.9	0.489	2.8	LOS A	120	0.58	0.35	26.7
Approach		511	2.0	0.489	5.7	LOS A	120	0.58	0.47	25.6
Woodland Road										
4T	T	467	1.9	0.495	3.6	LOS A	104	0.53	0.42	26.6
4R	R	587	2.0	0.622	4.9	LOS A	159	0.62	0.56	26.0
Approach		1054	2.0	0.623	4.3	LOS A	159	0.58	0.50	26.2
Elm Street										
5L	L	207	1.9	0.296	11.5	LOS B	50	0.62	0.79	24.0
2R	R	87	2.3	0.125	5.5	LOS A	19	0.56	0.59	26.2
Approach		293	2.0	0.295	9.7	LOS A	50	0.60	0.73	24.6
All Vehicles		1858	2.0	0.622	5.5	LOS A	159	0.58	0.53	25.8

Symbols which may appear in this table:

Following Degree of Saturation

x = 1.00 for Short Lane with resulting Excess Flow

* x = 1.00 due to minimum capacity

Following LOS

- Based on density for continuous movements

Following Queue

- Density for continuous movement



SIDRA SOLUTIONS

Site: Molineau Circle AM

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**SIDRA
INTERSECTION**

Movement Summary

Woodland Road at Ravine Road

2012 PM Build Conditons - 2 Lane

Roundabout

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (ft)	Prop. Queued	Eff. Stop Rate	Aver Speed (mph)
Woodland Ave NB										
3L	L	5	16.7	0.750	11.9	LOS B	248	0.73	0.82	23.9
8T	T	1223	2.0	0.734	4.7	LOS A	248	0.73	0.64	26.1
8R	R	408	2.0	0.735	5.8	LOS A	248	0.73	0.69	25.7
Approach		1635	2.0	0.734	5.0	LOS A	248	0.73	0.65	26.0
Ravine Road										
1L	L	114	1.8	0.826	27.6	LOS C	210	0.93	1.27	18.7
6T	T	5	16.7	0.857	21.2	LOS C	210	0.93	1.23	19.9
6R	R	207	1.9	0.827	22.3	LOS C	210	0.93	1.25	19.5
Approach		326	2.1	0.828	24.2	LOS C	210	0.93	1.25	19.2
Woodland Ave SB										
7L	L	250	2.0	0.370	8.8	LOS A	77	0.37	0.60	24.6
4T	T	630	2.1	0.371	2.6	LOS A	77	0.37	0.30	27.2
4R	R	5	16.7	0.375	4.0	LOS A	77	0.37	0.43	26.5
Approach		887	2.1	0.371	4.3	LOS A	77	0.37	0.38	26.4
Driveway										
5L	L	5	16.7	0.040	13.2	LOS B	5	0.62	0.82	23.3
2T	T	5	16.7	0.040	6.1	LOS A	5	0.62	0.63	26.2
2R	R	5	16.7	0.040	8.1	LOS A	5	0.62	0.63	25.1
Approach		18	16.7	0.040	9.1	LOS A	5	0.62	0.69	24.8
All Vehicles		2866	2.2	0.857	7.0	LOS A	248	0.64	0.64	25.1

Symbols which may appear in this table:

Following Degree of Saturation
 # x = 1.00 for Short Lane with resulting Excess Flow
 * x = 1.00 due to minimum capacity

Following LOS
 # - Based on density for continuous movements

Following Queue



Movement Summary

Woodland Road at South Site Drive

2012 PM Build

Roundabout

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (ft)	Prop. Queued	Eff. Stop Rate	Aver Speed (mph)
Woodland Ave NB										
8T	T	1201	2.0	0.857	1.9	LOS A	573	0.62	0.23	26.6
8R	R	87	2.3	0.861	2.9	LOS A	573	0.62	0.34	26.2
Approach		1288	2.0	0.857	2.0	LOS A	573	0.62	0.24	26.5
South Site Drive										
1L	L	168	1.8	0.960	81.1	LOS F	412	1.00	1.69	10.8
6R	R	87	2.3	0.967	75.8	LOS E	412	1.00	1.69	10.6
Approach		255	2.0	0.963	79.3	LOS E	412	1.00	1.69	10.8
Woodland Ave SB										
7L	L	43	2.3	0.571	9.6	LOS A	143	0.58	0.66	24.2
4T	T	516	1.9	0.569	3.4	LOS A	143	0.58	0.40	26.4
Approach		560	2.0	0.569	3.9	LOS A	143	0.58	0.42	26.2
All Vehicles		2103	2.0	0.967	11.9	LOS B	573	0.65	0.46	22.3

Symbols which may appear in this table:

Following Degree of Saturation
 # x = 1.00 for Short Lane with resulting Excess Flow
 * x = 1.00 due to minimum capacity

Following LOS
 # - Based on density for continuous movements

Following Queue
 # - Density for continuous movement



Site: South Site Drive PM
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Movement Summary

Molineau Circle

2012 Build PM

Roundabout

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (ft)	Prop. Queued	Eff. Stop Rate	Aver Speed (mph)
Highland Ave										
3L	L	130	2.3	1.365	188.2	LOS F	2362	1.00	4.15	5.9
8T	T	745	2.0	1.362	181.0	LOS F	2362	1.00	4.15	5.6
Approach		876	2.1	1.361	182.0	LOS F	2362	1.00	4.15	5.7
Woodland Road										
4T	T	255	2.0	0.245	2.5	LOS A	45	0.31	0.29	27.4
4R	R	408	2.0	0.391	3.3	LOS A	83	0.36	0.37	26.9
Approach		662	2.0	0.391	3.0	LOS A	83	0.34	0.34	27.1
Elm Street										
5L	L	625	1.9	0.682	12.2	LOS B	199	0.70	0.81	23.7
2R	R	261	1.9	0.285	4.2	LOS A	46	0.45	0.48	26.6
Approach		886	1.9	0.682	9.9	LOS A	199	0.63	0.71	24.4
All Vehicles		2424	2.0	1.365	70.2	LOS E	2362	0.68	1.85	11.3

Symbols which may appear in this table:

Following Degree of Saturation

x = 1.00 for Short Lane with resulting Excess Flow

* x = 1.00 due to minimum capacity

Following LOS

- Based on density for continuous movements

Following Queue

- Density for continuous movement



Site: Molineau Circle PM

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SIDRA INTERSECTION

Movement Summary

Woodland Road at Ravine Road

2012 AM Build Conditions - 2 Lane Sensitivity

Roundabout

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (ft)	Prop. Queued	Eff. Stop Rate	Aver Speed (mph)
Woodland Ave NB										
3L	L	5	16.7	0.286	9.4	LOS A	61	0.50	0.65	24.4
8T	T	489	2.0	0.280	2.2	LOS A	62	0.50	0.27	27.1
8R	R	174	1.7	0.280	3.4	LOS A	62	0.49	0.39	26.6
Approach		668	2.1	0.280	2.6	LOS A	62	0.50	0.31	26.9
Ravine Road										
1L	L	418	1.9	0.915	24.1	LOS C	411	1.00	1.41	19.6
6T	T	5	16.7	0.857	17.7	LOS B	411	1.00	1.39	21.1
6R	R	228	2.2	0.916	18.9	LOS B	411	1.00	1.36	20.7
Approach		653	2.1	0.915	22.2	LOS C	411	1.00	1.39	20.0
Woodland Ave SB										
7L	L	212	1.9	0.744	14.9	LOS B	265	0.91	1.02	22.7
4T	T	1038	2.0	0.743	8.6	LOS A	265	0.91	0.99	24.9
4R	R	5	16.7	0.750	10.0	LOS A	265	0.91	1.03	24.2
Approach		1256	2.1	0.743	9.6	LOS A	265	0.91	0.99	24.5
Driveway										
5L	L	5	16.7	0.080	19.2	LOS B	12	0.82	0.93	21.2
2T	T	5	16.7	0.080	12.1	LOS B	12	0.82	0.85	23.3
2R	R	5	16.7	0.080	14.1	LOS B	12	0.82	0.77	22.4
Approach		18	16.7	0.080	15.1	LOS B	12	0.82	0.85	22.2
All Vehicles		2595	2.2	0.916	11.0	LOS B	411	0.83	0.92	23.6

Symbols which may appear in this table:

Following Degree of Saturation

x = 1.00 for Short Lane with resulting Excess Flow

* x = 1.00 due to minimum capacity

Following LOS

- Based on density for continuous movements

Following Queue

SIDRA INTERSECTION

Movement Summary

Woodland Road at Ravine Road

2012 PM Build Conditions - 2 Lane Sensitivity

Roundabout

Vehicle Movements

Mov ID	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (ft)	Prop. Queued	Eff. Stop Rate	Aver Speed (mph)
Woodland Ave NB										
3L	L	5	16.7	0.750	11.9	LOS B	255	0.75	0.82	23.8
8T	T	1223	2.0	0.738	4.7	LOS A	255	0.75	0.65	26.1
8R	R	408	2.0	0.739	5.9	LOS A	255	0.75	0.70	25.7
Approach		1635	2.0	0.738	5.0	LOS A	255	0.75	0.66	26.0
Ravine Road										
1L	L	185	2.2	1.016	55.6	LOS E	452	1.00	1.83	13.5
6T	T	5	16.7	1.000	49.2	LOS D	452	1.00	1.80	13.8
6R	R	207	1.9	1.015	50.3	LOS D	452	1.00	1.83	13.6
Approach		397	2.3	1.015	52.7	LOS D	452	1.00	1.83	13.6
Woodland Ave SB										
7L	L	250	2.0	0.377	9.3	LOS A	78	0.47	0.64	24.4
4T	T	560	2.0	0.376	3.0	LOS A	78	0.47	0.35	26.8
4R	R	5	16.7	0.375	4.4	LOS A	78	0.47	0.48	26.2
Approach		816	2.1	0.376	4.9	LOS A	78	0.47	0.44	26.0
Driveway										
5L	L	5	16.7	0.041	13.4	LOS B	6	0.63	0.82	23.3
2T	T	5	16.7	0.041	6.2	LOS A	6	0.63	0.64	26.1
2R	R	5	16.7	0.041	8.2	LOS A	6	0.63	0.63	25.1
Approach		18	16.7	0.041	9.3	LOS A	6	0.63	0.70	24.7
All Vehicles		2866	2.2	1.016	11.6	LOS B	452	0.70	0.76	23.0

Symbols which may appear in this table:

Following Degree of Saturation

x = 1.00 for Short Lane with resulting Excess Flow

* x = 1.00 due to minimum capacity

Following LOS

- Based on density for continuous movements

Following Queue

Existing and Build Conditions Capacity Analysis Comparison Table

Intersection Operations Summary Table

<i>Intersection/Time Period</i>	Existing Conditions (As shown in the March 2005 TIAS)				Build Conditions (assumes all Pond Street traffic uses U-turn for southbound)				Build Conditions Sensitivity Analysis (assumes 50% of Pond Street traffic uses U-turn for southbound)			
	v/c ^a	Delay ^b	LOS ^c	Queue ^d	v/c	Delay	LOS	Queue	v/c	Delay	LOS	Queue
	Pond Street at Pond Street U-Turn											
<i>Weekday Morning Peak Hour</i>												
Pond Street NB U-Turn	Intersection Does Not Exist under Existing Conditions.				>1.20	>120	F	>500	1.03	>120	F	193
Pond Street SB TH					0.86	0	A	0	0.86	0	A	0
<i>Weekday Evening Peak Hour</i>												
Pond Street NB U-Turn	The Pond Street NB U-Turn represents the LT vehicles currently using Pond Street WB RT/LT (see below).				0.70	57	F	108	0.33	32	D	35
Pond Street SB TH					0.73	0	A	0	0.73	0	A	0
Woodland Road at Pond Street												
<i>Weekday Morning Peak Hour</i>												
Pond Street WB RT [LT/RT]	>120	F	2,645	Free Movement				Free Movement				
Woodland Road NB TH	0	A	0	0.32	0	A	0	0.32	0	A	0	
Woodland Road NB RT	0	A	0	0.08	0	A	0	0.08	0	A	0	
Pond Street SB LT [LT/TH]	13	B	50	0.38	11	B	45	0.38	11	B	45	
Pond Street SB TH				0.80	0	A	0	0.71	0	A	0	
<i>Weekday Evening Peak Hour</i>												
Pond Street WB RT [LT/RT]	>120	F	2,000	Free Movement				Free Movement				
Woodland Road NB TH	0	A	0	0.66	0	A	0	0.66	0	A	0	
Woodland Road NB RT	0	A	0	0.24	0	A	0	0.24	0	A	0	
Pond Street SB LT [LT/TH]	26	D	190	1.05	88	F	367	1.05	88	F	367	
Pond Street SB TH				0.49	0	A	0	0.45	0	A	0	

See notes at end of table.
 [LT/RT] = Existing movements.

Intersection Operations Summary Table (Continued)

<i>Intersection/Time Period</i>	Existing Conditions (As shown in the March 2005 TIAS)				Build Conditions (assumes all Pond Street traffic uses U-turn for southbound)				Build Conditions Sensitivity Analysis (assumes 50% of Pond Street traffic uses U-turn for southbound)			
	v/c ^a	Delay ^b	LOS ^c	Queue ^d	v/c	Delay	LOS	Queue	v/c	Delay	LOS	Queue
	Unsignalized Intersection				Proposed Roundabout							
Woodland Road at Ravine Road												
<i>Weekday Morning Peak Hour</i>												
Woodland Road NB		0	A	0	0.28	3	A	60	0.28	3	A	62
Woodland Road SB [LT]		16	C	35	0.69	6	A	216	0.74	10	A	265
Ravine Road WB		>120	F	675	0.71	13	B	190	0.92	22	C	411
Overall		--	--	--	0.75	7	A	--	0.92	11	B	--
<i>Weekday Evening Peak Hour</i>												
Woodland Road NB		0	A	0	0.73	5	A	248	0.74	5	A	255
Woodland Road SB [LT]		>120	F	255	0.37	4	A	77	0.38	5	A	78
Ravine Road WB		50	E	210	0.83	24	C	210	1.02	53	D	452
Overall		--	--	--	0.86	7	A	--	1.02	12	B	--
Woodland Road at North Site Drive												
<i>Weekday Morning Peak Hour</i>												
North Site Drive WB RT [LT/RT]		14	B	5	Free Movement				Free Movement			
Woodland Road NB TH		0	A	0	0.21	0	A	0	0.21	0	A	0
Woodland Road NB TH/RT		0	A	0	0.11	0	A	0	0.11	0	A	0
Woodland Road SB LT/TH		9	A	5	0.31	7	A	34	0.31	7	A	34
Woodland Road SB TH		0	A	0	0.43	0	A	0	0.43	0	A	0
<i>Weekday Evening Peak Hour</i>												
North Site Drive WB RT [LT/RT]		18	C	25	Free Movement				Free Movement			
Woodland Road NB TH		0	A	0	0.50	0	A	0	0.50	0	A	0
Woodland Road NB TH/RT		0	A	0	0.25	0	A	0	0.25	0	A	0
Woodland Road SB LT/TH		11	B	5	0.31	10	A	33	0.31	10	A	33
Woodland Road SB TH		0	A	0	0.20	0	A	0	0.20	0	A	0

See notes at end of table.
 [LT/RT] = Existing movements.

Intersection Operations Summary Table (Continued)

<i>Intersection/Time Period</i>	Existing Conditions (As shown in the March 2005 TIAS)				Build Conditions (assumes all Pond Street traffic uses U-turn for southbound)				Build Conditions Sensitivity Analysis (assumes 50% of Pond Street traffic uses U-turn for southbound)			
	v/c ^a	Delay ^b	LOS ^c	Queue ^d	v/c	Delay	LOS	Queue	v/c	Delay	LOS	Queue
	Unsignalized Intersection				Proposed Roundabout							
Woodland Road at South Site Drive												
<i>Weekday Morning Peak Hour</i>												
Woodland Road NB		0	A	0	0.48	2	A	138	0.48	2	A	138
Woodland Road SB [LT]		9	A	0	0.91	4	A	>500	0.91	4	A	>500
South Site Drive WB		14	B	5	0.17	10	A	25	0.17	10	A	25
Overall		--	--	--	0.91	4	A	--	0.91	4	A	--
<i>Weekday Evening Peak Hour</i>												
Woodland Road NB		0	A	0	0.86	2	A	>500	0.86	2	A	>500
Woodland Road SB [LT]		11	B	0	0.57	4	A	143	0.57	4	A	143
South Site Drive WB		22	C	20	0.96	79	E	412	0.96	79	E	412
Overall		--	--	--	0.97	12	B	--	0.97	12	B	--
Molineau Circle												
<i>Weekday Morning Peak Hour</i>												
Elm Street EB	0.30	12	B	55	0.30	10	A	50	0.30	10	A	50
Highland Avenue WB	0.47	11	B	105	0.49	6	A	120	0.49	6	A	120
Woodland Road SB	0.61	11	B	150	0.62	4	A	159	0.62	4	A	159
Overall	--	--	--	--	0.62	6	A	--	0.62	6	A	--
<i>Weekday Evening Peak Hour</i>												
Elm Street EB	0.89	18	B	515	0.68	10	A	199	0.68	10	A	199
Highland Avenue WB	1.05	78	E	100	>1.20	>120	F	>500	>1.20	>120	F	>500
Woodland Road SB	0.26	10	B	45	0.39	3	A	83	0.39	3	A	83
Overall	--	--	--	--	>1.20	70	E	--	>1.20	70	E	--

- a Volume-to-capacity ratio. The v/c ratio was not reported for unsignalized intersections in the 2005 TIAS prepared for the project.
 b Delay, measured in seconds.
 c Level-of-service.
 d 95th percentile queue length, measured in feet.
 [LT/RT] = Existing movements.

General Notes:

- The information presented in the Existing Conditions columns was obtained from the Traffic Impact and Access Study (TIAS) prepared for the Langwood Commons Mixed-Use Development conducted by VHB, Inc. in March 2005.
- The March 2005 TIAS used traffic counts conducted in 2000 as the basis of the analysis for the intersections listed in this table.
- The Existing Conditions traffic analysis is based on methodologies described in the *1997 Highway Capacity Manual*; the Build Conditions traffic analyses are based on methodologies described in the *2000 Highway Capacity Manual*.

Intersection Operations Analysis Methodologies:

Traffic operations analyses are intended to determine the effectiveness of the traffic control devices at intersections. Traffic operations analyses for signalized intersections are typically conducted for each approach or lane group at the intersection as well as for overall intersection operations. It is assumed that each approach or lane group at the intersection will experience some delay caused by the traffic signal. The overall intersection operations analysis incorporates the traffic signal timing and phasing plans and is used to determine the overall efficiency of the traffic signal, which controls all approaches to the intersection. The individual approach or lane group operations analyses determines the overall efficiency of that specific approach or lane group, independent of other approaches at the intersection.

Traffic operation analyses for roundabout or rotary operations are also typically conducted for each approach to the intersection as well as for overall intersection operations. Similar to the signalized intersection operations analyses, it is assumed that each approach to the roundabout or rotary will be delayed by the roundabout or rotary, so it is useful to establish how well the intersection can process all of the entering traffic, cumulatively.

Traffic operations analyses for unsignalized intersections focus on movements at the stop (or yield) controlled approach (i.e. the Pond Street westbound approach to Woodland Road) and any left-turning movements along the mainline (i.e. southbound left-turning movements from Woodland Road to Pond Street). These movements are expected to experience delay due to the traffic control device or to conflicting through traffic volumes along the mainline (the Pond Street westbound lefts must yield to both northbound and southbound movements along Woodland Road; the southbound left-turn movements along Woodland Road must yield to northbound through movements along Woodland Road). The mainline through traffic volumes are not expected to experience any significant amount of delay because it always has the right-of-way and is not subjected to any traffic control devices. An overall intersection operations analysis at unsignalized intersections is meaningless because it would include approaches to the intersection that are not controlled and would artificially "hide" the actual operations of the stop controlled approach or any left-turning movements along the mainline.

The analyses provided are consistent with methodologies published in the *Highway Capacity Manual*, which provides many traffic engineering standard procedures and its methodologies have been adopted and accepted by the State of Massachusetts.

Movement Differences Between Existing and Build Conditions:

The table above shows various turning movements reported at each intersection during both the Existing and Build conditions scenarios. With the construction of the Transportation Safety Improvements Plan, traffic patterns throughout the Woodland Road corridor will be affected and certain turning movements at intersections will be eliminated.

For example, the westbound left-turn at Pond Street will not exist under Build conditions, therefore it is only reported for the Existing conditions scenario. Similarly, the southbound left-turn movements along Woodland Road at the intersection with Pond Street will provide an exclusive left-turn lane, therefore there is not a direct comparison between Existing and Build conditions. As shown in the table, under existing conditions, the southbound through movements are expected to experience some delay due to the southbound left-turning vehicles (because they share the same lane). Under Build conditions, the southbound through movements are expected to experience minimal delay because the left-turning movements have been removed, therefore the through traffic is allowed to flow freely without any significant impedance.

Another example where there is no direct comparison is at the intersection of Woodland Road at Ravine Road. With the construction of a modern roundabout at this location, the southbound left-turn movement along Woodland Road will be incorporated into the Woodland Road southbound approach to the proposed roundabout, therefore there is no "southbound left-turn" movement to be analyzed under Build conditions. Instead, the entire southbound approach is analyzed and not just the southbound left-turn movement. Also as described above, there is no overall intersection operation analysis for the Existing conditions at this intersection, but there is one provided under the Build conditions.