

APPENDIX

Traffic Count Data

Seasonal Adjustment Worksheets

Crash Data Worksheets

Traffic Growth Data

Trip Generation Worksheets

Trip Distribution Gravity Model

Capacity Analysis Worksheets

Sight Distance Worksheets

Traffic Count Data

Great Road (Route 2A/119)
 200' east of Grist Mill Road (East)
 City, State: Littleton, MA
 Client: LandStrategies/ K. Cram



PRECISION
 DATA
 INDUSTRIES, LLC

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

112529 A volume
 Site Code: 11-012KC

Start	WB		EB		Combined		24-May-11
Time	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	Tue
12:00	9	114	8	141	17	255	
12:15	13	133	3	112	16	245	
12:30	6	123	1	127	7	250	
12:45	10	141	3	123	13	264	1014
01:00	5	141	2	122	7	263	
01:15	8	107	1	126	9	233	
01:30	2	148	2	115	4	263	
01:45	3	112	2	108	5	220	979
02:00	4	143	4	93	8	236	
02:15	2	138	1	131	3	269	
02:30	1	139	0	109	1	248	
02:45	1	127	1	119	2	246	999
03:00	1	136	2	99	3	235	
03:15	0	177	1	130	1	307	
03:30	2	193	4	126	6	319	
03:45	2	186	0	136	2	322	1183
04:00	2	177	5	109	7	286	
04:15	3	186	9	116	12	302	
04:30	1	233	10	96	11	329	
04:45	5	222	17	149	22	371	1288
05:00	5	255	21	119	26	374	
05:15	5	250	31	142	36	392	
05:30	14	232	58	141	72	373	
05:45	19	198	73	178	92	376	1515
06:00	22	202	117	170	139	372	
06:15	28	154	164	106	192	260	
06:30	55	174	195	116	250	290	
06:45	59	174	182	86	241	260	1182
07:00	84	142	181	106	265	248	
07:15	58	124	209	75	267	199	
07:30	111	111	198	66	309	177	
07:45	105	106	199	77	304	183	807
08:00	137	74	204	73	341	147	
08:15	121	89	185	72	306	161	
08:30	127	78	213	57	340	135	
08:45	128	72	230	54	358	126	569
09:00	125	55	172	35	297	90	
09:15	115	50	154	41	269	91	
09:30	100	42	138	42	238	84	
09:45	108	50	134	598	242	90	355
10:00	113	41	116	20	229	61	
10:15	89	33	113	21	202	54	
10:30	119	27	88	17	207	44	
10:45	114	27	109	426	223	40	199
11:00	99	25	80	11	179	36	
11:15	119	13	96	7	215	20	
11:30	109	19	109	4	218	23	
11:45	119	17	126	411	245	18	97
Total	2487	5910	3971	4277	6458	10187	
Percent	38.5%	58.0%	61.5%	42.0%			
Day Total	8397		8248		16645		
Peak	08:00	04:30	08:00	05:15	08:00	05:00	
Vol.	513	960	832	631	1345	1515	
P.H.F.	0.936	0.941	0.904	0.886	0.939	0.966	

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Start	WB		EB		Combined		25-May-11 Wed
Time	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	
12:00	7	161	5	134	12	295	
12:15	8	141	4	132	12	273	
12:30	5	152	6	127	11	279	
12:45	6	132	2	129	8	261	1108
01:00	3	132	4	128	7	260	
01:15	2	143	1	123	3	266	
01:30	3	149	3	124	6	273	
01:45	2	136	3	101	5	237	1036
02:00	3	114	1	112	4	226	
02:15	2	119	2	112	4	231	
02:30	0	127	1	118	1	245	
02:45	2	118	1	125	3	243	945
03:00	0	137	1	124	1	261	
03:15	0	186	2	114	2	300	
03:30	2	172	2	123	4	295	
03:45	0	160	3	123	3	283	1139
04:00	3	199	4	125	7	324	
04:15	3	203	5	94	8	297	
04:30	3	199	6	146	9	345	
04:45	4	221	11	125	15	346	1312
05:00	5	258	24	127	29	385	
05:15	8	246	31	130	39	376	
05:30	8	242	51	133	59	375	
05:45	19	220	86	139	105	359	1495
06:00	21	206	115	139	136	345	
06:15	21	173	150	109	171	282	
06:30	61	176	204	116	265	292	
06:45	63	146	203	111	266	257	1176
07:00	84	133	168	79	252	212	
07:15	62	115	220	95	282	210	
07:30	106	113	192	80	298	193	
07:45	102	109	216	70	318	179	794
08:00	122	90	219	72	341	162	
08:15	136	87	211	85	347	172	
08:30	157	58	211	48	368	106	
08:45	136	78	234	57	370	135	575
09:00	130	64	176	56	306	120	
09:15	102	49	174	61	276	110	
09:30	94	45	149	36	243	81	
09:45	119	50	145	33	264	83	394
10:00	95	38	117	21	212	59	
10:15	97	42	96	32	193	74	
10:30	92	34	123	11	215	45	
10:45	112	17	121	19	233	36	214
11:00	115	41	100	16	215	57	
11:15	112	23	107	7	219	30	
11:30	113	22	122	5	235	27	
11:45	129	16	115	444	5	244	135
Total	2479	5992	4147	4331	6626	10323	
Percent	37.4%	58.0%	62.6%	42.0%			
Day Total	8471		8478		16949		
Peak	08:15	04:45	08:00	05:15	08:00	05:00	
Vol.	559	967	875	541	1426	1495	
P.H.F.	0.890	0.937	0.935	0.973	0.964	0.971	



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112529 A volume
Site Code: 11-012KC

Start	WB		EB		Combined		26-May-11 Thu
Time	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	
12:00	13	133	3	125	16	258	
12:15	8	128	3	108	11	236	
12:30	11	112	3	111	14	223	
12:45	8	146	4	128	12	274	991
01:00	5	132	1	127	6	259	
01:15	5	122	0	118	5	240	
01:30	3	140	3	117	6	257	
01:45	8	124	1	110	9	234	990
02:00	2	107	3	97	5	204	
02:15	2	141	4	130	6	271	
02:30	2	180	1	111	3	291	
02:45	3	155	1	110	4	265	1031
03:00	0	162	1	132	1	294	
03:15	4	174	3	123	7	297	
03:30	2	211	3	144	5	355	
03:45	4	198	4	153	8	351	1297
04:00	2	206	4	150	6	356	
04:15	2	231	6	130	8	361	
04:30	3	236	9	139	12	375	
04:45	6	243	17	127	23	370	1462
05:00	7	244	11	158	18	402	
05:15	7	277	35	140	42	417	
05:30	9	229	58	145	67	374	
05:45	22	230	76	154	98	384	1577
06:00	25	228	95	143	120	371	
06:15	20	210	149	121	169	331	
06:30	41	172	192	121	233	293	
06:45	59	162	197	122	256	284	1279
07:00	70	153	192	97	262	250	
07:15	85	131	211	88	296	219	
07:30	91	111	186	87	277	198	
07:45	127	146	210	103	337	249	916
08:00	120	108	201	89	321	197	
08:15	118	98	209	104	327	202	
08:30	139	97	226	89	365	186	
08:45	121	72	203	85	324	157	742
09:00	120	64	192	62	312	126	
09:15	107	53	163	68	270	121	
09:30	103	49	151	62	254	111	
09:45	103	59	166	35	269	94	452
10:00	98	48	135	36	233	84	
10:15	91	38	130	34	221	72	
10:30	89	40	120	26	209	66	
10:45	100	30	120	17	220	47	269
11:00	105	39	104	15	209	54	
11:15	122	32	91	14	213	46	
11:30	114	23	112	6	226	29	
11:45	114	17	116	8	230	25	154
Total	2420	6441	4125	4719	6545	11160	
Percent	37.0%	57.7%	63.0%	42.3%			
Day Total	8861		8844		17705		
Peak	07:45	04:30	07:45	05:00	07:45	05:00	
Vol.	504	1000	846	597	1350	1577	
P.H.F.	0.906	0.903	0.936	0.945	0.925	0.945	



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112529 A CLASS
Site Code: 11-012KC

WB

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
5/24/11	0	30	8	0	0	0	0	0	0	0	0	0	0	38
01:00	0	12	3	0	2	1	0	0	0	0	0	0	0	18
02:00	0	6	2	0	0	0	0	0	0	0	0	0	0	8
03:00	0	1	0	0	4	0	0	0	0	0	0	0	0	5
04:00	0	7	3	0	0	1	0	0	0	0	0	0	0	11
05:00	1	32	7	0	2	0	0	0	1	0	0	0	0	43
06:00	1	128	24	1	10	0	0	0	0	0	0	0	0	164
07:00	3	288	47	3	10	4	0	2	1	0	0	0	0	358
08:00	4	419	67	1	16	1	0	2	0	0	0	0	0	510
09:00	2	319	94	7	20	4	1	1	1	0	0	0	0	449
10:00	2	310	94	6	15	3	0	2	1	1	0	0	0	434
11:00	7	311	95	2	25	5	0	0	1	0	0	0	0	446
12 PM	4	360	110	4	25	3	0	3	2	0	0	0	0	511
13:00	4	361	110	2	23	3	0	2	3	0	0	0	0	508
14:00	2	386	111	5	36	2	0	5	0	0	0	0	0	547
15:00	2	505	137	1	29	9	0	6	2	0	0	0	0	691
16:00	9	597	161	2	38	4	1	1	1	0	0	0	0	814
17:00	4	744	154	0	28	1	0	1	1	0	0	0	0	933
18:00	4	565	113	0	19	1	0	1	0	0	0	0	0	703
19:00	4	389	75	1	12	1	0	1	0	0	0	0	0	483
20:00	3	260	41	0	8	1	0	0	0	0	0	0	0	313
21:00	6	155	31	0	6	0	0	0	0	0	0	0	0	198
22:00	1	100	24	0	3	0	0	0	0	0	0	0	0	128
23:00	0	55	15	0	2	1	0	0	0	1	0	0	0	74
Total	63	6340	1526	35	333	45	2	27	14	2	0	0	0	8387
Percent	0.8%	75.6%	18.2%	0.4%	4.0%	0.5%	0.0%	0.3%	0.2%	0.0%	0.0%	0.0%	0.0%	
AM Peak	08:00	08:00	09:00	09:00	09:00	07:00	09:00	07:00	05:00					08:00
Vol.	4	419	94	7	20	4	1	2	1					510
Midday Peak	11:00	14:00	14:00	14:00	14:00	11:00		14:00	13:00					14:00
Vol.	7	386	111	5	36	5		5	3					547
PM Peak	16:00	17:00	16:00	16:00	16:00	15:00	16:00	15:00	15:00	23:00				17:00
Vol.	9	744	161	2	38	9	1	6	2	1				933



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Site Code: 11-012KC

WB

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
5/25/11	0	23	3	0	0	0	0	0	0	0	0	0	0	26
01:00	0	5	4	0	1	0	0	0	0	0	0	0	0	10
02:00	0	5	1	0	1	0	0	0	0	0	0	0	0	7
03:00	0	1	0	0	1	0	0	0	0	0	0	0	0	2
04:00	0	11	1	0	1	0	0	0	0	0	0	0	0	13
05:00	3	26	10	1	0	0	0	0	0	0	0	0	0	40
06:00	1	126	26	1	12	0	0	0	0	0	0	0	0	166
07:00	2	280	44	3	17	4	1	2	1	0	0	0	0	354
08:00	4	435	81	4	14	4	0	0	3	0	0	0	0	545
09:00	6	302	92	5	25	7	2	4	0	0	0	0	0	443
10:00	4	280	82	3	18	6	2	2	1	0	0	0	0	398
11:00	9	336	96	0	20	3	2	3	0	0	0	0	0	469
12 PM	9	436	98	7	25	4	1	2	3	0	0	0	0	585
13:00	7	409	98	6	31	6	0	1	1	0	0	0	0	559
14:00	6	346	92	4	18	4	1	4	2	0	0	0	0	477
15:00	14	477	127	2	28	6	1	0	0	0	0	0	0	655
16:00	8	616	142	3	35	4	2	7	1	2	0	0	0	820
17:00	14	757	156	2	30	1	0	0	1	0	0	0	0	961
18:00	12	545	113	2	25	1	0	0	1	0	0	0	0	699
19:00	9	379	65	2	13	0	0	1	0	0	0	0	0	469
20:00	4	249	52	2	5	0	0	1	0	0	0	0	0	313
21:00	1	169	30	0	6	0	0	1	0	0	0	0	0	207
22:00	2	103	22	0	3	0	0	0	1	0	0	0	0	131
23:00	5	79	17	0	1	0	0	0	0	0	0	0	0	102
Total	120	6395	1452	47	330	50	12	28	15	2	0	0	0	8451
Percent	1.4%	75.7%	17.2%	0.6%	3.9%	0.6%	0.1%	0.3%	0.2%	0.0%	0.0%	0.0%	0.0%	
AM Peak	09:00	08:00	09:00	09:00	09:00	09:00	09:00	09:00	08:00					08:00
Vol.	6	435	92	5	25	7	2	4	3					545
Midday Peak	11:00	12:00	12:00	12:00	13:00	13:00	11:00	14:00	12:00					12:00
Vol.	9	436	98	7	31	6	2	4	3					585
PM Peak	15:00	17:00	17:00	16:00	16:00	15:00	16:00	16:00	16:00	16:00				17:00
Vol.	14	757	156	3	35	6	2	7	1	2				961



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WB

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5/26/11	2	28	9	0	1	0	0	0	0	0	0	0	0	40
01:00	0	16	4	0	1	0	0	0	0	0	0	0	0	21
02:00	0	8	1	0	0	0	0	0	0	0	0	0	0	9
03:00	0	5	1	0	3	0	0	0	1	0	0	0	0	10
04:00	1	8	3	0	1	0	0	0	0	0	0	0	0	13
05:00	0	32	9	1	2	1	0	0	0	0	0	0	0	45
06:00	1	101	22	2	15	1	0	0	2	0	0	0	0	144
07:00	5	286	57	4	16	2	0	1	2	0	0	0	0	373
08:00	4	381	83	5	14	3	0	2	2	0	0	0	0	494
09:00	10	325	70	4	18	4	1	1	0	0	0	0	0	433
10:00	3	276	67	2	20	4	2	0	2	1	0	0	0	377
11:00	7	319	98	4	17	3	2	2	2	0	0	0	0	454
12 PM	12	364	107	5	25	2	0	2	2	0	0	0	0	519
13:00	5	383	105	2	16	4	1	0	2	0	0	0	0	518
14:00	8	392	132	4	35	4	1	4	3	0	0	0	0	583
15:00	11	538	138	3	43	2	1	3	5	1	0	0	0	745
16:00	12	694	161	3	34	4	0	2	4	0	0	0	0	914
17:00	16	791	145	2	22	1	0	1	0	0	0	0	0	978
18:00	23	612	111	3	19	1	0	1	0	0	0	0	0	770
19:00	33	412	76	2	15	0	0	3	0	0	0	0	0	541
20:00	18	305	45	0	6	0	0	0	0	0	0	0	0	374
21:00	4	182	31	1	6	0	0	1	0	0	0	0	0	225
22:00	2	126	21	0	4	1	0	1	0	0	0	0	0	155
23:00	1	83	20	0	6	0	0	0	0	1	0	0	0	111
Total	178	6667	1516	47	339	37	8	24	27	3	0	0	0	8846
Percent	2.0%	75.4%	17.1%	0.5%	3.8%	0.4%	0.1%	0.3%	0.3%	0.0%	0.0%	0.0%	0.0%	
AM Peak	09:00	08:00	08:00	08:00	09:00	09:00	09:00	08:00	06:00					08:00
Vol.	10	381	83	5	18	4	1	2	2					494
Midday Peak	12:00	14:00	14:00	12:00	14:00	13:00	11:00	14:00	14:00					14:00
Vol.	12	392	132	5	35	4	2	4	3					583
PM Peak	19:00	17:00	16:00	15:00	15:00	16:00	15:00	15:00	15:00	15:00				17:00
Vol.	33	791	161	3	43	4	1	3	5	1				978



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EB

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5/24/11	0	13	2	0	0	0	0	0	0	0	0	0	0	15
01:00	0	7	0	0	0	0	0	0	0	0	0	0	0	7
02:00	0	5	1	0	0	0	0	0	0	0	0	0	0	6
03:00	0	4	3	0	0	0	0	0	0	0	0	0	0	7
04:00	0	28	7	0	4	1	0	1	0	0	0	0	0	41
05:00	0	136	32	0	10	0	0	2	3	0	0	0	0	183
06:00	2	491	144	2	14	1	0	1	3	0	0	0	0	658
07:00	0	607	145	2	22	3	2	2	4	0	0	0	0	787
08:00	8	675	120	2	21	2	1	2	2	0	0	0	0	833
09:00	3	483	88	5	14	1	0	2	2	0	0	0	0	598
10:00	2	335	68	1	12	3	1	2	2	0	0	0	0	426
11:00	2	325	62	2	12	4	0	2	1	1	0	0	0	411
12 PM	0	417	64	1	13	6	1	0	1	0	0	0	0	503
13:00	3	368	78	0	16	3	1	1	1	0	0	0	0	471
14:00	1	365	68	1	8	1	0	1	6	0	0	0	0	451
15:00	5	404	69	2	9	1	0	1	0	0	0	0	0	491
16:00	4	404	52	1	8	2	0	0	0	0	0	0	0	471
17:00	2	510	59	1	5	1	0	2	0	0	0	0	0	580
18:00	4	415	51	1	6	0	0	1	0	0	0	0	0	478
19:00	2	289	30	1	2	0	0	0	1	0	0	0	0	325
20:00	4	222	27	0	3	0	0	0	0	0	0	0	0	256
21:00	0	143	14	0	0	1	0	0	0	0	0	0	0	158
22:00	1	62	7	0	1	0	0	0	0	0	0	0	0	71
23:00	0	17	5	0	1	0	0	0	0	0	0	0	0	23
Total	43	6725	1196	22	181	30	6	20	26	1	0	0	0	8250
Percent	0.5%	81.5%	14.5%	0.3%	2.2%	0.4%	0.1%	0.2%	0.3%	0.0%	0.0%	0.0%	0.0%	
AM Peak	08:00	08:00	07:00	09:00	07:00	07:00	07:00	05:00	07:00					08:00
Vol.	8	675	145	5	22	3	2	2	4					833
Midday Peak	13:00	12:00	13:00	11:00	13:00	12:00	12:00	11:00	14:00	11:00				12:00
Vol.	3	417	78	2	16	6	1	2	6	1				503
PM Peak	15:00	17:00	15:00	15:00	15:00	16:00		17:00	19:00					17:00
Vol.	5	510	69	2	9	2		2	1					580



PRECISION
D A T A
INDUSTRIES, LLC

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Email: datarequests@pdillc.com

Great Road (Route 2A/119)
200' east of Grist Mill Road (East)
City, State: Littleton, MA
Client: LandStrategies/ K. Cram

112529 A CLASS
Site Code: 11-012KC

EB

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
5/25/11	0	16	0	0	1	0	0	0	0	0	0	0	0	17
01:00	0	10	1	0	0	0	0	0	0	0	0	0	0	11
02:00	0	4	1	0	0	0	0	0	0	0	0	0	0	5
03:00	0	5	3	0	0	0	0	0	0	0	0	0	0	8
04:00	1	20	3	0	1	0	0	1	0	0	0	0	0	26
05:00	2	138	41	2	5	2	1	1	0	0	0	0	0	192
06:00	7	491	138	4	22	1	1	3	5	0	0	0	0	672
07:00	9	630	126	1	24	3	0	2	2	0	0	0	0	797
08:00	10	704	136	1	13	4	1	3	4	0	0	0	0	876
09:00	5	525	96	2	9	3	0	1	2	0	1	0	0	644
10:00	7	358	70	2	11	4	2	0	4	0	0	0	0	458
11:00	6	352	68	0	13	0	1	3	1	0	0	0	0	444
12 PM	8	424	63	3	12	6	3	2	1	0	0	0	0	522
13:00	4	385	68	2	11	4	1	1	1	0	0	0	0	477
14:00	1	371	72	5	12	1	1	0	4	0	0	0	0	467
15:00	5	396	68	2	7	1	3	0	0	0	0	0	0	482
16:00	3	418	61	0	4	2	0	0	2	0	0	0	0	490
17:00	12	457	54	0	2	1	0	2	1	0	0	0	0	529
18:00	5	412	52	3	2	1	0	1	0	0	0	0	0	476
19:00	10	290	20	1	2	0	0	1	0	0	0	0	0	324
20:00	2	238	18	1	2	0	0	1	0	0	0	0	0	262
21:00	2	164	18	0	2	0	0	0	0	0	0	0	0	186
22:00	0	72	8	0	3	0	0	0	0	0	0	0	0	83
23:00	1	31	1	0	0	0	0	0	0	0	0	0	0	33
Total	100	6911	1186	29	158	33	14	22	27	0	1	0	0	8481
Percent	1.2%	81.5%	14.0%	0.3%	1.9%	0.4%	0.2%	0.3%	0.3%	0.0%	0.0%	0.0%	0.0%	
AM Peak	08:00	08:00	06:00	06:00	07:00	08:00	05:00	06:00	06:00		09:00			08:00
Vol.	10	704	138	4	24	4	1	3	5		1			876
Midday Peak	12:00	12:00	14:00	14:00	11:00	12:00	12:00	11:00	14:00					12:00
Vol.	8	424	72	5	13	6	3	3	4					522
PM Peak	17:00	17:00	15:00	18:00	15:00	16:00	15:00	17:00	16:00					17:00
Vol.	12	457	68	3	7	2	3	2	2					529



PRECISION
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Great Road (Route 2A/119)
200' east of Grist Mill Road (East)
City, State: Littleton, MA
Client: LandStrategies/ K. Cram

112529 A CLASS
Site Code: 11-012KC

EB

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
5/26/11	0	10	2	0	0	0	0	0	1	0	0	0	0	13
01:00	0	4	0	0	1	0	0	0	0	0	0	0	0	5
02:00	0	8	0	0	1	0	0	0	0	0	0	0	0	9
03:00	1	7	2	0	0	1	0	0	0	0	0	0	0	11
04:00	1	26	6	0	1	0	0	1	0	1	0	0	0	36
05:00	6	129	36	0	7	1	0	0	1	0	0	0	0	180
06:00	8	454	132	3	29	2	0	2	2	1	0	0	0	633
07:00	14	630	129	2	15	2	0	3	4	0	0	0	0	799
08:00	9	665	135	2	24	3	0	1	1	0	0	0	0	840
09:00	5	550	94	3	13	5	1	0	2	0	0	0	0	673
10:00	5	382	88	1	18	3	0	4	4	0	0	0	0	505
11:00	3	339	60	3	12	2	1	1	2	0	0	0	0	423
12 PM	10	373	66	3	12	5	0	2	1	0	0	0	0	472
13:00	11	366	76	1	10	4	0	0	3	1	0	0	0	472
14:00	6	345	80	4	8	1	0	3	1	0	0	0	0	448
15:00	9	456	79	0	6	0	0	0	2	0	0	0	0	552
16:00	8	443	79	1	11	2	0	1	0	0	0	0	0	545
17:00	14	530	52	0	2	0	0	0	0	0	0	0	0	598
18:00	20	446	36	2	2	2	0	0	0	0	0	0	0	508
19:00	7	319	41	1	5	1	0	0	1	0	0	0	0	375
20:00	11	317	31	1	5	3	0	0	0	0	0	0	0	368
21:00	2	207	18	0	0	0	0	0	0	0	0	0	0	227
22:00	1	104	6	0	1	1	0	0	0	0	0	0	0	113
23:00	1	37	5	0	0	0	0	0	0	0	0	0	0	43
Total	152	7147	1253	27	183	38	2	18	25	3	0	0	0	8848
Percent	1.7%	80.8%	14.2%	0.3%	2.1%	0.4%	0.0%	0.2%	0.3%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	08:00	08:00	06:00	06:00	09:00	09:00	07:00	07:00	04:00				08:00
Vol.	14	665	135	3	29	5	1	3	4	1				840
Midday Peak	13:00	12:00	14:00	14:00	11:00	12:00	11:00	14:00	13:00	13:00				12:00
Vol.	11	373	80	4	12	5	1	3	3	1				472
PM Peak	18:00	17:00	15:00	18:00	16:00	20:00		16:00	15:00					17:00
Vol.	20	530	79	2	11	3		1	2					598



PRECISION
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Great Road (Route 2A/119)
200' east of Grist Mill Road (East)
City, State: Littleton, MA
Client: LandStrategies/ K. Cram

112529 A SPEED
Site Code: 11-012KC

WB

Start Time	14	15	20	25	30	35	40	45	50	55	60	65	70	Total	85th % ile	Ave Speed
5/24/11	0	0	0	0	2	3	13	15	4	1	0	0	0	38	49	45
01:00	0	0	0	0	0	0	4	7	6	1	0	0	0	18	52	48
02:00	0	0	0	0	0	0	3	4	0	1	0	0	0	8	48	46
03:00	0	0	0	0	0	1	0	4	0	0	0	0	0	5	47	44
04:00	0	0	0	0	0	0	3	2	6	0	0	0	0	11	52	48
05:00	0	0	0	0	1	2	7	13	18	2	0	0	0	43	53	48
06:00	0	0	1	2	3	11	40	58	40	9	0	0	0	164	52	46
07:00	0	0	0	2	3	31	124	148	44	4	2	0	0	358	49	45
08:00	0	1	1	2	9	37	218	181	53	7	1	0	0	510	49	44
09:00	0	0	1	2	8	72	185	143	37	1	0	0	0	449	48	43
10:00	0	0	1	4	11	54	203	138	18	4	1	0	0	434	48	43
11:00	0	0	0	1	4	49	200	153	32	6	1	0	0	446	49	44
12 PM	0	0	0	2	6	42	208	194	54	5	0	0	0	511	49	45
13:00	0	0	1	1	5	55	232	165	45	2	1	1	0	508	49	44
14:00	0	0	0	2	4	76	207	191	64	3	0	0	0	547	49	44
15:00	1	1	3	5	18	97	302	215	41	6	2	0	0	691	48	43
16:00	0	0	0	2	9	82	369	297	48	7	0	0	0	814	48	44
17:00	0	0	0	5	10	75	426	345	68	4	0	0	0	933	49	44
18:00	0	0	1	3	10	38	299	280	68	3	0	1	0	703	49	45
19:00	0	0	0	3	6	36	195	191	45	6	1	0	0	483	49	45
20:00	0	0	0	2	8	25	135	112	28	3	0	0	0	313	49	44
21:00	0	0	0	0	4	12	58	87	34	3	0	0	0	198	50	46
22:00	0	0	0	1	2	8	38	57	21	0	1	0	0	128	50	45
23:00	0	0	0	0	1	1	16	34	18	3	1	0	0	74	52	47
Total	1	2	9	39	124	807	3485	3034	792	81	11	2	0	8387		
%	0.0%	0.0%	0.1%	0.5%	1.5%	9.6%	41.6%	36.2%	9.4%	1.0%	0.1%	0.0%	0.0%			
AM Peak		08:00	06:00	06:00	08:00	09:00	08:00	08:00	08:00	06:00	07:00			08:00		
Vol.		1	1	2	9	72	218	181	53	9	2			510		
Midday Peak			13:00	12:00	12:00	14:00	13:00	12:00	14:00	11:00	11:00	13:00		14:00		
Vol.			1	2	6	76	232	194	64	6	1	1		547		
PM Peak	15:00	15:00	15:00	15:00	15:00	15:00	17:00	17:00	17:00	16:00	15:00	18:00		17:00		
Vol.	1	1	3	5	18	97	426	345	68	7	2	1		933		
% ile			15th Percentile :				40 MPH									
			50th Percentile :				44 MPH									
			85th Percentile :				49 MPH									
			95th Percentile :				52 MPH									

Stats

10 MPH Pace Speed : 40-49 MPH

Number in Pace : 6519

Percent in Pace : 77.7%

Number of Vehicles > 40 MPH : 6708

Percent of Vehicles > 40 MPH : 80.0%

Mean Speed(Average) : 44 MPH



PRECISION
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Great Road (Route 2A/119)
200' east of Grist Mill Road (East)
City, State: Littleton, MA
Client: LandStrategies/ K. Cram

112529 A SPEED
Site Code: 11-012KC

WB

Start Time	14	15	20	25	30	35	40	45	50	55	60	65	70	Total	85th % ile	Ave Speed
5/25/11	0	0	0	0	0	2	13	6	5	0	0	0	0	26	50	45
01:00	0	0	0	0	0	0	0	4	6	0	0	0	0	10	52	50
02:00	0	0	0	0	1	1	4	0	0	1	0	0	0	7	43	42
03:00	0	0	0	0	0	0	0	1	1	0	0	0	0	2	50	50
04:00	0	0	0	0	0	0	1	4	5	3	0	0	0	13	55	51
05:00	0	0	0	0	0	3	5	7	18	7	0	0	0	40	55	50
06:00	0	0	0	1	1	6	40	72	38	7	0	1	0	166	52	47
07:00	0	0	0	2	1	14	106	157	60	13	1	0	0	354	51	46
08:00	0	0	0	1	10	42	224	200	59	8	0	1	0	545	49	45
09:00	0	0	0	1	2	31	169	181	55	4	0	0	0	443	49	45
10:00	0	0	1	2	1	110	204	68	11	1	0	0	0	398	46	42
11:00	0	0	1	0	5	87	221	126	26	3	0	0	0	469	48	43
12 PM	1	0	1	4	10	115	282	144	27	1	0	0	0	585	47	42
13:00	1	4	1	5	19	115	274	116	21	2	1	0	0	559	47	42
14:00	0	0	0	2	5	59	203	169	35	4	0	0	0	477	48	44
15:00	0	0	0	2	6	63	246	265	66	6	1	0	0	655	49	45
16:00	0	1	0	2	15	94	321	310	68	7	0	1	1	820	49	44
17:00	0	0	0	2	7	75	443	352	76	6	0	0	0	961	49	44
18:00	0	0	0	2	14	73	261	267	76	5	1	0	0	699	49	44
19:00	0	0	2	2	6	14	151	192	85	15	1	1	0	469	51	46
20:00	0	0	0	0	7	19	108	142	32	5	0	0	0	313	49	45
21:00	0	0	0	0	3	13	77	80	29	5	0	0	0	207	50	45
22:00	0	0	1	0	0	6	41	57	19	6	0	0	1	131	51	46
23:00	0	0	0	2	2	7	23	34	28	5	1	0	0	102	53	47
Total	2	5	7	30	115	949	3417	2954	846	114	6	4	2	8451		
%	0.0%	0.1%	0.1%	0.4%	1.4%	11.2%	40.4%	35.0%	10.0%	1.3%	0.1%	0.0%	0.0%			
AM Peak				07:00	08:00	08:00	08:00	08:00	07:00	07:00	07:00	06:00		08:00		
Vol.				2	10	42	224	200	60	13	1	1		545		
Midday Peak	12:00	13:00	11:00	13:00	13:00	12:00	12:00	14:00	14:00	14:00	13:00			12:00		
Vol.	1	4	1	5	19	115	282	169	35	4	1			585		
PM Peak		16:00	19:00	15:00	16:00	16:00	17:00	17:00	19:00	19:00	15:00	16:00	16:00	17:00		
Vol.		1	2	2	15	94	443	352	85	15	1	1	1	961		
% ile				15th Percentile :			40 MPH									
				50th Percentile :			44 MPH									
				85th Percentile :			49 MPH									
				95th Percentile :			53 MPH									
Stats				10 MPH Pace Speed :			40-49 MPH									
				Number in Pace :			6371									
				Percent in Pace :			75.4%									
				Number of Vehicles > 40 MPH :			6659									
				Percent of Vehicles > 40 MPH :			78.8%									
				Mean Speed(Average) :			44 MPH									



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112529 A SPEED
Site Code: 11-012KC

WB

Start Time	14	15	20	25	30	35	40	45	50	55	60	65	70	Total	85th % ile	Ave Speed
		19	24	29	34	39	44	49	54	59	64	69	9999			
5/26/11	0	0	0	0	0	1	6	15	13	2	2	1	0	40	54	49
01:00	0	0	0	0	0	0	3	8	5	5	0	0	0	21	56	50
02:00	0	0	0	0	0	0	1	3	3	2	0	0	0	9	55	50
03:00	0	0	0	0	0	0	3	5	1	1	0	0	0	10	49	47
04:00	0	0	0	0	0	0	3	3	5	2	0	0	0	13	54	50
05:00	0	0	1	0	0	1	6	13	15	9	0	0	0	45	55	49
06:00	0	0	0	1	0	1	29	57	39	16	1	0	0	144	54	48
07:00	0	0	0	2	2	18	115	154	65	16	1	0	0	373	51	46
08:00	0	0	0	1	1	25	163	206	90	7	1	0	0	494	51	46
09:00	0	1	0	1	5	25	168	172	48	12	1	0	0	433	49	45
10:00	0	0	0	0	5	43	133	146	44	4	2	0	0	377	49	45
11:00	0	0	0	0	2	38	211	152	47	4	0	0	0	454	49	44
12 PM	1	0	0	1	11	42	226	183	51	3	1	0	0	519	49	44
13:00	0	0	0	1	2	66	214	176	54	4	1	0	0	518	49	44
14:00	0	0	1	9	9	48	242	231	41	1	1	0	0	583	49	44
15:00	0	1	1	1	3	72	306	285	72	4	0	0	0	745	49	44
16:00	0	0	0	9	30	122	448	247	53	5	0	0	0	914	48	43
17:00	0	0	0	2	10	100	408	389	64	5	0	0	0	978	48	44
18:00	0	0	0	3	14	61	289	323	70	8	2	0	0	770	49	45
19:00	0	1	0	1	2	36	225	220	51	4	1	0	0	541	49	45
20:00	0	0	0	0	7	38	148	133	45	3	0	0	0	374	49	44
21:00	0	0	0	0	4	35	88	76	17	4	1	0	0	225	49	44
22:00	0	0	0	1	2	15	46	59	30	2	0	0	0	155	51	45
23:00	0	0	0	0	0	9	39	39	17	6	1	0	0	111	51	46
Total	1	3	3	33	109	796	3520	3295	940	129	16	1	0	8846		
%	0.0%	0.0%	0.0%	0.4%	1.2%	9.0%	39.8%	37.2%	10.6%	1.5%	0.2%	0.0%	0.0%			
AM Peak		09:00	05:00	07:00	09:00	08:00	09:00	08:00	08:00	06:00	00:00	00:00		08:00		
Vol.		1	1	2	5	25	168	206	90	16	2	1		494		
Midday Peak	12:00		14:00	14:00	12:00	13:00	14:00	14:00	13:00	11:00	12:00			14:00		
Vol.	1		1	9	11	66	242	231	54	4	1			583		
PM Peak		15:00	15:00	16:00	16:00	16:00	16:00	17:00	15:00	18:00	18:00			17:00		
Vol.		1	1	9	30	122	448	389	72	8	2			978		
% ile			15th Percentile :				40 MPH									
			50th Percentile :				44 MPH									
			85th Percentile :				49 MPH									
			95th Percentile :				53 MPH									

Stats

10 MPH Pace Speed : 40-49 MPH

Number in Pace : 6815

Percent in Pace : 77.0%

Number of Vehicles > 40 MPH : 7197

Percent of Vehicles > 40 MPH : 81.4%

Mean Speed(Average) : 45 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

Great Road (Route 2A/119)
200' east of Grist Mill Road (East)
City, State: Littleton, MA
Client: LandStrategies/ K. Cram

112529 A SPEED
Site Code: 11-012KC

EB

Start Time	14	15	20	25	30	35	40	45	50	55	60	65	70	Total	85th % ile	Ave Speed
5/24/11	0	0	0	0	0	3	8	4	0	0	0	0	0	15	46	42
01:00	0	0	0	1	0	0	4	2	0	0	0	0	0	7	45	40
02:00	0	0	0	0	0	3	1	2	0	0	0	0	0	6	45	40
03:00	0	0	0	0	0	0	3	3	1	0	0	0	0	7	47	45
04:00	0	0	0	1	0	6	12	19	3	0	0	0	0	41	48	44
05:00	0	0	0	1	1	5	61	101	12	1	1	0	0	183	49	45
06:00	0	0	0	1	11	36	274	281	53	2	0	0	0	658	49	45
07:00	0	0	0	10	15	81	421	242	18	0	0	0	0	787	47	43
08:00	0	0	0	6	17	176	396	222	14	2	0	0	0	833	47	42
09:00	0	0	0	1	12	62	287	214	18	4	0	0	0	598	48	43
10:00	0	0	0	7	31	63	192	114	18	1	0	0	0	426	47	42
11:00	0	0	0	5	1	26	179	168	29	3	0	0	0	411	49	44
12 PM	0	0	0	3	14	66	231	161	27	1	0	0	0	503	48	43
13:00	0	0	0	0	2	26	233	188	20	2	0	0	0	471	48	44
14:00	1	0	5	14	17	46	189	159	19	1	0	0	0	451	48	43
15:00	6	1	0	4	22	57	242	138	19	2	0	0	0	491	48	42
16:00	0	0	0	2	15	51	222	161	20	0	0	0	0	471	48	43
17:00	0	0	0	9	23	76	265	193	14	0	0	0	0	580	48	43
18:00	0	0	0	10	19	59	219	148	22	1	0	0	0	478	48	43
19:00	0	0	0	1	9	39	137	120	18	1	0	0	0	325	48	44
20:00	0	0	0	5	16	50	112	62	11	0	0	0	0	256	47	42
21:00	0	0	1	1	7	22	82	42	3	0	0	0	0	158	47	42
22:00	0	0	0	0	0	13	25	28	5	0	0	0	0	71	48	44
23:00	0	0	0	0	1	2	9	6	3	2	0	0	0	23	51	45
Total	7	1	6	82	233	968	3804	2778	347	23	1	0	0	8250		
%	0.1%	0.0%	0.1%	1.0%	2.8%	11.7%	46.1%	33.7%	4.2%	0.3%	0.0%	0.0%	0.0%			
AM Peak				07:00	08:00	08:00	07:00	06:00	06:00	09:00	05:00			08:00		
Vol.				10	17	176	421	281	53	4	1			833		
Midday Peak	14:00		14:00	14:00	14:00	12:00	13:00	13:00	11:00	11:00				12:00		
Vol.	1		5	14	17	66	233	188	29	3				503		
PM Peak	15:00	15:00	21:00	18:00	17:00	17:00	17:00	17:00	18:00	15:00				17:00		
Vol.	6	1	1	10	23	76	265	193	22	2				580		
% ile			15th Percentile :			39 MPH										
			50th Percentile :			43 MPH										
			85th Percentile :			48 MPH										
			95th Percentile :			49 MPH										

Stats

10 MPH Pace Speed : 40-49 MPH

Number in Pace : 6582

Percent in Pace : 79.8%

Number of Vehicles > 40 MPH : 6192

Percent of Vehicles > 40 MPH : 75.1%

Mean Speed(Average) : 43 MPH



PRECISION
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INDUSTRIES, LLC

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Email: datarequests@pdillc.com

Great Road (Route 2A/119)
200' east of Grist Mill Road (East)
City, State: Littleton, MA
Client: LandStrategies/ K. Cram

112529 A SPEED
Site Code: 11-012KC

EB

Start Time	14	15	20	25	30	35	40	45	50	55	60	65	70	Total	85th % ile	Ave Speed
5/25/11	0	0	0	0	0	2	5	8	2	0	0	0	0	17	48	45
01:00	0	0	0	0	0	3	5	3	0	0	0	0	0	11	45	42
02:00	0	0	0	0	0	0	1	3	1	0	0	0	0	5	47	46
03:00	0	0	0	0	1	0	1	3	2	1	0	0	0	8	51	46
04:00	0	0	0	0	1	2	5	14	4	0	0	0	0	26	49	46
05:00	0	0	0	0	1	6	49	105	29	1	1	0	0	192	50	46
06:00	0	0	5	4	7	41	260	313	40	2	0	0	0	672	49	44
07:00	0	0	1	3	24	85	358	307	19	0	0	0	0	797	48	43
08:00	0	0	0	9	31	170	435	212	17	2	0	0	0	876	47	42
09:00	0	0	0	1	6	79	282	249	25	2	0	0	0	644	48	44
10:00	5	1	2	17	34	115	188	87	8	1	0	0	0	458	46	40
11:00	0	0	0	6	47	128	178	79	6	0	0	0	0	444	46	40
12 PM	3	1	0	18	38	98	234	121	8	1	0	0	0	522	47	41
13:00	2	9	1	11	17	69	207	150	11	0	0	0	0	477	47	42
14:00	0	0	0	3	17	94	213	123	17	0	0	0	0	467	47	42
15:00	0	1	12	4	10	81	224	139	10	0	0	1	0	482	47	42
16:00	0	0	0	2	12	65	236	159	15	1	0	0	0	490	48	43
17:00	0	0	1	6	16	92	235	162	15	2	0	0	0	529	48	42
18:00	0	0	0	3	9	64	230	153	17	0	0	0	0	476	48	43
19:00	0	0	0	1	9	40	143	109	19	3	0	0	0	324	48	43
20:00	0	0	0	1	3	31	126	90	10	1	0	0	0	262	48	43
21:00	0	0	0	0	4	38	80	58	6	0	0	0	0	186	47	43
22:00	0	0	0	1	0	12	31	29	8	2	0	0	0	83	49	44
23:00	0	0	0	0	0	2	13	14	4	0	0	0	0	33	49	45
Total	10	12	22	90	287	1317	3739	2690	293	19	1	1	0	8481		
%	0.1%	0.1%	0.3%	1.1%	3.4%	15.5%	44.1%	31.7%	3.5%	0.2%	0.0%	0.0%	0.0%			
AM Peak			06:00	08:00	08:00	08:00	08:00	06:00	06:00	06:00	05:00			08:00		
Vol.			5	9	31	170	435	313	40	2	1			876		
Midday Peak	12:00	13:00	13:00	12:00	11:00	11:00	12:00	13:00	14:00	12:00				12:00		
Vol.	3	9	1	18	47	128	234	150	17	1				522		
PM Peak		15:00	15:00	17:00	17:00	17:00	16:00	17:00	19:00	19:00		15:00		17:00		
Vol.		1	12	6	16	92	236	162	19	3		1		529		
% ile			15th Percentile :			38 MPH										
			50th Percentile :			43 MPH										
			85th Percentile :			48 MPH										
			95th Percentile :			49 MPH										

Stats

10 MPH Pace Speed :	40-49 MPH
Number in Pace :	6429
Percent in Pace :	75.8%
Number of Vehicles > 40 MPH :	5995
Percent of Vehicles > 40 MPH :	70.7%
Mean Speed(Average) :	43 MPH



PRECISION
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INDUSTRIES, LLC

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Great Road (Route 2A/119)
200' east of Grist Mill Road (East)
City, State: Littleton, MA
Client: LandStrategies/ K. Cram

112529 A SPEED
Site Code: 11-012KC

EB

Start Time	14	15	19	20	24	25	29	30	34	35	39	40	44	45	49	50	54	55	59	60	64	65	69	70	9999	Total	85th % ile	Ave Speed
5/26/11	0	0	0	0	0	0	0	0	0	1	5	3	4	0	0	0	0	0	0	0	0	0	0	0	0	13	51	46
01:00	0	0	0	0	0	0	0	0	0	0	0	3	1	1	0	0	0	0	0	0	0	0	0	0	0	5	49	44
02:00	0	0	0	0	0	1	1	1	2	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	48	44
03:00	0	0	0	0	2	0	0	1	4	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	51	44
04:00	0	0	0	0	0	0	4	10	18	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36	49	45
05:00	0	0	0	0	1	6	43	107	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	180	49	46
06:00	0	0	0	2	10	44	264	281	28	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	633	48	44
07:00	0	0	0	1	19	60	368	327	23	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	799	48	44
08:00	0	0	0	0	15	117	461	221	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	840	47	43
09:00	0	0	0	2	11	80	337	219	23	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	673	48	43
10:00	0	0	1	0	8	70	238	167	19	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	505	48	43
11:00	0	0	0	1	10	60	190	141	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	423	48	43
12 PM	0	0	0	1	4	61	234	145	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	472	48	43
13:00	0	0	1	0	4	75	244	129	18	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	472	47	43
14:00	0	0	0	1	10	50	214	153	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	448	48	43
15:00	1	0	0	3	23	62	260	183	18	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	552	48	43
16:00	0	0	0	0	16	73	264	179	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	545	48	43
17:00	0	0	0	2	18	77	253	220	26	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	598	48	43
18:00	0	0	0	10	20	58	226	169	20	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	508	48	43
19:00	0	0	0	1	11	36	173	143	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	375	48	43
20:00	0	0	0	1	12	61	189	98	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	368	47	42
21:00	0	0	0	4	10	63	94	48	7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	227	47	41
22:00	0	0	0	0	0	13	61	35	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	113	48	43
23:00	0	0	0	1	1	4	15	16	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	49	45
Total	1	0	2	32	204	1076	4149	3011	348	24	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8848		
%	0.0%	0.0%	0.0%	0.4%	2.3%	12.2%	46.9%	34.0%	3.9%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak				03:00	07:00	08:00	08:00	07:00	06:00	06:00																08:00		
Vol.				2	19	117	461	327	28	4																840		
Midday Peak			13:00	11:00	11:00	13:00	13:00	14:00	12:00	13:00																12:00		
Vol.			1	1	10	75	244	153	27	1																472		
PM Peak	15:00			18:00	15:00	17:00	16:00	17:00	17:00	18:00	17:00															17:00		
Vol.	1			10	23	77	264	220	26	5	1															598		
% ile				15th Percentile :		40 MPH																						
				50th Percentile :		43 MPH																						
				85th Percentile :		48 MPH																						
				95th Percentile :		49 MPH																						

Stats

10 MPH Pace Speed : 40-49 MPH

Number in Pace : 7160

Percent in Pace : 80.9%

Number of Vehicles > 40 MPH : 6703

Percent of Vehicles > 40 MPH : 75.8%

Mean Speed(Average) : 43 MPH



PRECISION
D A T A
INDUSTRIES, LLC

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Office: 508.481.3999 Fax: 508.545.1234
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Great Road (Route 2A/119) between
Nashoba Road and Mannion Place
City, State: Acton, MA
Client: LandStrategies/ K. Cram

112529 B volume
Site Code: 11-012KC

Start		EB		WB		Combined		24-May-11 Tue	
Time	A.M.	P.M.		A.M.	P.M.	A.M.	P.M.		
12:00	8	143		10	119	18	262		
12:15	3	112		12	130	15	242		
12:30	1	120		6	126	7	246		
12:45	3	15	123	498	10	38	143	518	1016
01:00	2	122		5	142	7	264		
01:15	1	125		8	97	9	222		
01:30	2	110		3	143	5	253		
01:45	2	7	109	466	2	18	115	497	963
02:00	4	96		4	141	8	237		
02:15	1	128		2	134	3	262		
02:30	0	105		1	136	1	241		
02:45	1	6	123	452	1	8	122	533	985
03:00	2	97		1	135	3	232		
03:15	2	131		0	181	2	312		
03:30	4	117		2	184	6	301		
03:45	0	8	131	476	2	5	181	681	1157
04:00	5	105		2	180	7	285		
04:15	9	118		3	178	12	296		
04:30	10	90		1	235	11	325		
04:45	17	41	143	456	5	11	226	819	1275
05:00	21	119		6	257	27	376		
05:15	32	132		5	228	37	360		
05:30	58	131		14	226	72	357		
05:45	69	180	179	561	20	45	197	908	1469
06:00	119	165		22	199	141	364		
06:15	162	110		28	153	190	263		
06:30	199	106		53	179	252	285		
06:45	169	649	89	470	59	162	175	706	1176
07:00	181	106		77	138	258	244		
07:15	205	78		60	120	265	198		
07:30	201	65		112	108	313	173		
07:45	196	783	76	325	96	345	106	472	797
08:00	206	73		135	80	341	153		
08:15	191	73		120	85	311	158		
08:30	207	53		119	80	326	133		
08:45	224	828	58	257	114	488	71	316	573
09:00	168	35		125	53	293	88		
09:15	151	40		118	50	269	90		
09:30	145	44		98	42	243	86		
09:45	135	599	39	158	113	454	50	195	353
10:00	116	21		109	42	225	63		
10:15	106	21		89	33	195	54		
10:30	97	17		122	27	219	44		
10:45	103	422	13	72	109	429	27	129	201
11:00	81	12		99	25	180	37		
11:15	93	7		120	13	213	20		
11:30	107	4		106	19	213	23		
11:45	131	412	1	24	117	442	17	74	98
Total	3950		4215		2445		5848	6395	10063
Percent	61.8%		41.9%		38.2%		58.1%		
Day Total		8165			8293			16458	
Peak	08:00		05:15		08:00		04:30		08:00
Vol.	828		607		488		946		1469
P.H.F.	0.924		0.848		0.904		0.920		0.977



PRECISION
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Great Road (Route 2A/119) between
Nashoba Road and Mannion Place
City, State: Acton, MA
Client: LandStrategies/ K. Cram

112529 B volume
Site Code: 11-012KC

Start		EB		WB		Combined		25-May-11 Wed	
Time	A.M.	P.M.		A.M.	P.M.	A.M.	P.M.		
12:00	5	130		7	149	12	279		
12:15	5	130		9	144	14	274		
12:30	6	110		5	137	11	247		
12:45	2	18	497	5	26	7	44	253	1053
01:00	4	122		3	128	7	250		
01:15	1	116		2	144	3	260		
01:30	3	120		3	147	6	267		
01:45	3	11	453	2	10	5	21	225	1002
02:00	1	115		3	112	4	227		
02:15	2	112		2	113	4	225		
02:30	1	117		0	126	1	243		
02:45	1	5	469	2	7	3	12	237	932
03:00	1	124		0	138	1	262		
03:15	2	116		0	175	2	291		
03:30	2	123		2	172	4	295		
03:45	3	8	484	0	2	3	10	294	1142
04:00	4	125		3	182	7	307		
04:15	5	93		3	210	8	303		
04:30	6	134		4	192	10	326		
04:45	11	26	478	4	14	15	40	342	1278
05:00	24	119		5	241	29	360		
05:15	31	132		7	240	38	372		
05:30	49	127		8	241	57	368		
05:45	88	192	510	19	39	107	231	344	1444
06:00	114	132		20	189	134	321		
06:15	148	111		20	176	168	287		
06:30	206	114		60	177	266	291		
06:45	200	668	465	59	159	259	827	243	1142
07:00	169	77		81	135	250	212		
07:15	216	98		65	119	281	217		
07:30	198	75		104	112	302	187		
07:45	201	784	320	98	348	105	471	299	791
08:00	208	75		106	91	314	166		
08:15	203	81		120	88	323	169		
08:30	201	51		146	57	347	108		
08:45	218	830	264	130	502	79	315	348	579
09:00	172	55		125	69	297	124		
09:15	180	63		104	51	284	114		
09:30	147	36		95	46	242	82		
09:45	139	638	187	125	449	50	216	264	403
10:00	114	21		94	42	208	63		
10:15	91	32		101	40	192	72		
10:30	134	11		96	35	230	46		
10:45	118	457	83	108	399	15	132	226	215
11:00	101	16		110	41	211	57		
11:15	108	8		114	23	222	31		
11:30	119	5		112	22	231	27		
11:45	121	449	34	138	474	16	102	259	136
Total	4086			2429		5873		6515	10117
Percent	62.7%			37.3%		58.1%			
Day Total		8330			8302			16632	
Peak	08:00	05:15		08:15	04:45	08:00		05:00	
Vol.	830	523		521	938	1332		1444	
P.H.F.	0.952	0.991		0.892	0.973	0.957		0.970	



PRECISION
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Great Road (Route 2A/119) between
Nashoba Road and Mannion Place
City, State: Acton, MA
Client: LandStrategies/ K. Cram

112529 B volume
Site Code: 11-012KC

Start		EB		WB		Combined		26-May-11 Thu	
Time	A.M.	P.M.		A.M.	P.M.	A.M.	P.M.		
12:00	3	127		13	131	16	258		
12:15	3	111		8	128	11	239		
12:30	5	103		13	119	18	222		
12:45	4	124	465	8	145	12	269	57	988
01:00	1	126		5	136	6	262		
01:15	0	120		5	117	5	237		
01:30	3	116		3	138	6	254		
01:45	1	108	470	8	126	9	234	26	987
02:00	3	102		2	110	5	212		
02:15	4	127		2	136	6	263		
02:30	1	109		2	178	3	287		
02:45	1	110	448	3	146	4	256	18	1018
03:00	1	125		0	160	1	285		
03:15	3	127		4	183	7	310		
03:30	3	145		2	211	5	356		
03:45	4	143	540	4	195	8	338	21	1289
04:00	5	144		2	206	7	350		
04:15	6	114		3	220	9	334		
04:30	9	141		2	223	11	364		
04:45	17	120	519	6	237	23	357	50	1405
05:00	12	144		8	243	20	387		
05:15	35	134		7	262	42	396		
05:30	55	138		10	230	65	368		
05:45	79	149	565	20	223	99	372	226	1523
06:00	91	136		23	217	114	353		
06:15	148	130		21	213	169	343		
06:30	197	119		41	176	238	295		
06:45	199	125	510	58	159	257	284	778	1275
07:00	189	96		67	156	256	252		
07:15	207	93		86	131	293	224		
07:30	186	87		85	111	271	198		
07:45	202	106	382	119	144	321	250	1141	924
08:00	202	91		121	103	323	194		
08:15	206	102		113	98	319	200		
08:30	211	87		132	97	343	184		
08:45	203	83	363	116	70	319	153	1304	731
09:00	185	64		109	63	294	127		
09:15	173	68		100	52	273	120		
09:30	146	63		100	52	246	115		
09:45	161	35	230	108	60	269	95	1082	457
10:00	137	37		89	48	226	85		
10:15	129	34		86	38	215	72		
10:30	118	23		89	41	207	64		
10:45	116	19	113	94	32	210	51	858	272
11:00	107	15		100	38	207	53		
11:15	93	14		122	31	215	45		
11:30	115	6		113	23	228	29		
11:45	114	8	43	113	17	227	25	877	152
Total	4093	4648		2345	6373	6438	11021		
Percent	63.6%	42.2%		36.4%	57.8%				
Day Total		8741			8718		17459		
Peak	08:00	05:00		07:45	04:45	07:45	05:00		
Vol.	822	565		485	972	1306	1523		
P.H.F.	0.974	0.948		0.919	0.927	0.952	0.961		



PRECISION
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Great Road (Route 2A/119) between
Nashoba Road and Mannion Place
City, State: Acton, MA
Client: LandStrategies/ K. Cram

112529 B class
Site Code: 11-012KC

EB

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
5/24/11	0	12	2	0	1	0	0	0	0	0	0	0	0	15
01:00	0	7	0	0	0	0	0	0	0	0	0	0	0	7
02:00	0	5	1	0	0	0	0	0	0	0	0	0	0	6
03:00	0	4	4	0	0	0	0	0	0	0	0	0	0	8
04:00	0	26	9	0	4	1	0	1	0	0	0	0	0	41
05:00	0	133	32	0	10	0	0	3	2	0	0	0	0	180
06:00	4	478	141	2	16	3	0	1	4	0	0	0	0	649
07:00	2	590	153	2	20	6	2	3	4	1	0	0	0	783
08:00	7	675	116	2	18	2	1	4	3	0	0	0	0	828
09:00	2	474	99	3	12	5	0	2	2	0	0	0	0	599
10:00	5	327	64	1	14	4	2	3	2	0	0	0	0	422
11:00	4	312	74	1	14	5	0	1	1	0	0	0	0	412
12 PM	2	396	75	1	16	3	1	3	1	0	0	0	0	498
13:00	4	354	86	3	15	3	0	0	1	0	0	0	0	466
14:00	2	365	67	1	8	3	0	2	4	0	0	0	0	452
15:00	4	391	66	1	9	4	0	1	0	0	0	0	0	476
16:00	5	384	54	2	8	3	0	0	0	0	0	0	0	456
17:00	6	483	57	2	4	7	0	2	0	0	0	0	0	561
18:00	10	404	45	1	6	2	0	2	0	0	0	0	0	470
19:00	2	288	30	1	3	0	0	0	1	0	0	0	0	325
20:00	6	219	27	0	4	1	0	0	0	0	0	0	0	257
21:00	0	146	12	0	0	0	0	0	0	0	0	0	0	158
22:00	1	64	6	0	1	0	0	0	0	0	0	0	0	72
23:00	0	17	6	0	1	0	0	0	0	0	0	0	0	24
Total	66	6554	1226	23	184	52	6	28	25	1	0	0	0	8165
Percent	0.8%	80.3%	15.0%	0.3%	2.3%	0.6%	0.1%	0.3%	0.3%	0.0%	0.0%	0.0%	0.0%	
AM Peak	08:00	08:00	07:00	09:00	07:00	07:00	07:00	08:00	06:00	07:00				08:00
Vol.	7	675	153	3	20	6	2	4	4	1				828
Midday Peak	11:00	12:00	13:00	13:00	12:00	11:00	12:00	12:00	14:00					12:00
Vol.	4	396	86	3	16	5	1	3	4					498
PM Peak	18:00	17:00	15:00	16:00	15:00	17:00		17:00	19:00					17:00
Vol.	10	483	66	2	9	7		2	1					561



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112529 B class
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EB

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5/25/11	0	17	0	0	1	0	0	0	0	0	0	0	0	18
01:00	0	10	1	0	0	0	0	0	0	0	0	0	0	11
02:00	0	4	1	0	0	0	0	0	0	0	0	0	0	5
03:00	0	5	3	0	0	0	0	0	0	0	0	0	0	8
04:00	1	20	3	0	1	0	0	1	0	0	0	0	0	26
05:00	2	136	41	1	7	3	1	1	0	0	0	0	0	192
06:00	9	483	135	3	23	4	2	5	4	0	0	0	0	668
07:00	9	611	128	0	24	6	1	3	1	0	1	0	0	784
08:00	15	657	124	2	18	6	1	3	4	0	0	0	0	830
09:00	7	517	93	2	11	3	1	1	2	1	0	0	0	638
10:00	7	349	75	2	15	3	2	1	2	1	0	0	0	457
11:00	5	350	74	1	11	3	1	3	1	0	0	0	0	449
12 PM	9	397	70	3	10	2	2	3	1	0	0	0	0	497
13:00	5	364	64	1	9	3	2	4	1	0	0	0	0	453
14:00	4	378	64	4	11	2	1	0	5	0	0	0	0	469
15:00	7	394	67	4	7	3	2	0	0	0	0	0	0	484
16:00	7	403	59	1	4	3	0	0	1	0	0	0	0	478
17:00	12	435	56	0	2	2	0	2	1	0	0	0	0	510
18:00	9	400	46	2	2	4	0	2	0	0	0	0	0	465
19:00	11	283	21	1	3	0	0	1	0	0	0	0	0	320
20:00	1	242	15	0	5	0	0	1	0	0	0	0	0	264
21:00	2	169	14	0	2	0	0	0	0	0	0	0	0	187
22:00	0	72	8	0	3	0	0	0	0	0	0	0	0	83
23:00	3	31	0	0	0	0	0	0	0	0	0	0	0	34
Total	125	6727	1162	27	169	47	16	31	23	2	1	0	0	8330
Percent	1.5%	80.8%	13.9%	0.3%	2.0%	0.6%	0.2%	0.4%	0.3%	0.0%	0.0%	0.0%	0.0%	
AM Peak	08:00	08:00	06:00	06:00	07:00	07:00	06:00	06:00	06:00	09:00	07:00			08:00
Vol.	15	657	135	3	24	6	2	5	4	1	1			830
Midday Peak	12:00	12:00	11:00	14:00	11:00	11:00	12:00	13:00	14:00					12:00
Vol.	9	397	74	4	11	3	2	4	5					497
PM Peak	17:00	17:00	15:00	15:00	15:00	18:00	15:00	17:00	16:00					17:00
Vol.	12	435	67	4	7	4	2	2	1					510



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5/26/11	0	12	2	0	0	0	0	0	1	0	0	0	0	15
01:00	0	4	0	0	1	0	0	0	0	0	0	0	0	5
02:00	0	7	1	0	1	0	0	0	0	0	0	0	0	9
03:00	1	7	2	0	0	1	0	0	0	0	0	0	0	11
04:00	1	27	6	0	1	0	0	1	0	1	0	0	0	37
05:00	6	130	36	0	7	1	0	1	0	0	0	0	0	181
06:00	11	443	138	3	31	1	1	4	1	2	0	0	0	635
07:00	17	615	123	2	15	3	0	6	3	0	0	0	0	784
08:00	11	659	120	2	23	3	0	2	2	0	0	0	0	822
09:00	8	533	92	3	18	8	1	1	1	0	0	0	0	665
10:00	6	390	72	2	18	5	0	4	3	0	0	0	0	500
11:00	8	343	57	2	12	1	2	3	1	0	0	0	0	429
12 PM	8	373	62	3	12	4	0	2	1	0	0	0	0	465
13:00	8	377	69	0	10	2	1	0	2	1	0	0	0	470
14:00	11	348	70	3	7	3	0	3	3	0	0	0	0	448
15:00	7	454	63	1	9	5	0	0	1	0	0	0	0	540
16:00	8	425	68	2	9	4	0	3	0	0	0	0	0	519
17:00	13	504	44	0	2	2	0	0	0	0	0	0	0	565
18:00	33	429	39	2	3	4	0	0	0	0	0	0	0	510
19:00	9	324	42	1	4	1	0	0	1	0	0	0	0	382
20:00	14	314	29	1	3	2	0	0	0	0	0	0	0	363
21:00	3	207	19	0	0	1	0	0	0	0	0	0	0	230
22:00	1	105	5	0	1	1	0	0	0	0	0	0	0	113
23:00	1	36	6	0	0	0	0	0	0	0	0	0	0	43
Total	185	7066	1165	27	187	52	5	30	20	4	0	0	0	8741
Percent	2.1%	80.8%	13.3%	0.3%	2.1%	0.6%	0.1%	0.3%	0.2%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	08:00	06:00	06:00	06:00	09:00	06:00	07:00	07:00	06:00				08:00
Vol.	17	659	138	3	31	8	1	6	3	2				822
Midday Peak	14:00	13:00	14:00	12:00	11:00	12:00	11:00	11:00	14:00	13:00				13:00
Vol.	11	377	70	3	12	4	2	3	3	1				470
PM Peak	18:00	17:00	16:00	16:00	15:00	15:00		16:00	15:00					17:00
Vol.	33	504	68	2	9	5		3	1					565



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5/24/11	0	32	6	0	0	0	0	0	0	0	0	0	0	38
01:00	0	12	5	0	0	1	0	0	0	0	0	0	0	18
02:00	0	7	1	0	0	0	0	0	0	0	0	0	0	8
03:00	0	1	1	0	3	0	0	0	0	0	0	0	0	5
04:00	0	7	3	0	0	1	0	0	0	0	0	0	0	11
05:00	1	34	7	0	2	0	0	0	1	0	0	0	0	45
06:00	1	129	19	2	9	2	0	0	0	0	0	0	0	162
07:00	2	280	45	2	9	4	0	2	1	0	0	0	0	345
08:00	1	406	65	2	9	4	0	1	0	0	0	0	0	488
09:00	2	337	88	7	13	4	1	1	1	0	0	0	0	454
10:00	1	313	95	5	7	4	0	1	2	1	0	0	0	429
11:00	8	324	88	1	15	4	0	1	1	0	0	0	0	442
12 PM	3	385	100	4	16	5	0	3	2	0	0	0	0	518
13:00	4	366	97	1	18	1	0	6	4	0	0	0	0	497
14:00	3	392	98	6	23	3	0	7	1	0	0	0	0	533
15:00	2	505	141	1	17	7	0	5	3	0	0	0	0	681
16:00	10	611	164	3	24	2	1	4	0	0	0	0	0	819
17:00	1	742	152	0	10	2	0	0	1	0	0	0	0	908
18:00	3	583	101	0	16	2	0	1	0	0	0	0	0	706
19:00	2	391	68	1	7	1	0	1	1	0	0	0	0	472
20:00	4	267	41	0	3	1	0	0	0	0	0	0	0	316
21:00	1	162	28	0	4	0	0	0	0	0	0	0	0	195
22:00	0	106	21	0	2	0	0	0	0	0	0	0	0	129
23:00	0	56	15	0	1	1	0	0	0	1	0	0	0	74
Total	49	6448	1449	35	208	49	2	33	18	2	0	0	0	8293
Percent	0.6%	77.8%	17.5%	0.4%	2.5%	0.6%	0.0%	0.4%	0.2%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	08:00	09:00	09:00	09:00	07:00	09:00	07:00	05:00					08:00
Vol.	2	406	88	7	13	4	1	2	1					488
Midday Peak	11:00	14:00	12:00	14:00	14:00	12:00		14:00	13:00					14:00
Vol.	8	392	100	6	23	5		7	4					533
PM Peak	16:00	17:00	16:00	16:00	16:00	15:00	16:00	15:00	15:00	23:00				17:00
Vol.	10	742	164	3	24	7	1	5	3	1				908



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5/25/11	0	24	2	0	0	0	0	0	0	0	0	0	0	26
01:00	0	6	3	0	1	0	0	0	0	0	0	0	0	10
02:00	0	5	1	0	1	0	0	0	0	0	0	0	0	7
03:00	0	1	0	0	1	0	0	0	0	0	0	0	0	2
04:00	0	12	1	0	1	0	0	0	0	0	0	0	0	14
05:00	3	27	8	0	0	1	0	0	0	0	0	0	0	39
06:00	0	128	24	2	4	0	0	0	1	0	0	0	0	159
07:00	2	284	41	2	11	2	0	2	4	0	0	0	0	348
08:00	8	401	73	4	7	5	0	2	2	0	0	0	0	502
09:00	6	320	91	6	17	4	2	1	2	0	0	0	0	449
10:00	2	299	67	2	18	5	2	2	2	0	0	0	0	399
11:00	7	350	98	0	14	1	3	1	0	0	0	0	0	474
12 PM	8	435	87	5	10	7	0	2	1	0	0	0	1	556
13:00	9	413	94	5	20	4	0	2	2	0	0	0	0	549
14:00	5	356	84	3	9	2	1	1	2	0	0	0	0	463
15:00	12	502	119	2	18	4	1	0	0	0	0	0	0	658
16:00	10	624	130	2	19	3	4	6	1	1	0	0	0	800
17:00	13	757	147	2	10	3	0	1	1	0	0	0	0	934
18:00	10	544	110	1	10	0	0	1	1	0	0	0	0	677
19:00	7	396	59	2	6	0	0	1	0	0	0	0	0	471
20:00	4	257	46	2	3	2	0	1	0	0	0	0	0	315
21:00	2	181	27	0	4	1	0	1	0	0	0	0	0	216
22:00	2	104	24	0	1	0	0	0	1	0	0	0	0	132
23:00	4	81	16	0	1	0	0	0	0	0	0	0	0	102
Total	114	6507	1352	40	186	44	13	24	20	1	0	0	1	8302
Percent	1.4%	78.4%	16.3%	0.5%	2.2%	0.5%	0.2%	0.3%	0.2%	0.0%	0.0%	0.0%	0.0%	
AM Peak	08:00	08:00	09:00	09:00	09:00	08:00	09:00	07:00	07:00					08:00
Vol.	8	401	91	6	17	5	2	2	4					502
Midday Peak	13:00	12:00	11:00	12:00	13:00	12:00	11:00	12:00	13:00				12:00	12:00
Vol.	9	435	98	5	20	7	3	2	2				1	556
PM Peak	17:00	17:00	17:00	15:00	16:00	15:00	16:00	16:00	16:00	16:00				17:00
Vol.	13	757	147	2	19	4	4	6	1	1				934



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5/26/11	2	34	6	0	0	0	0	0	0	0	0	0	0	42
01:00	0	17	3	0	1	0	0	0	0	0	0	0	0	21
02:00	0	8	1	0	0	0	0	0	0	0	0	0	0	9
03:00	0	5	2	0	2	0	0	0	1	0	0	0	0	10
04:00	1	9	2	0	1	0	0	0	0	0	0	0	0	13
05:00	0	33	9	0	1	2	0	0	0	0	0	0	0	45
06:00	0	111	22	1	7	0	0	0	2	0	0	0	0	143
07:00	4	279	54	4	10	0	1	1	4	0	0	0	0	357
08:00	4	385	75	5	9	2	0	2	0	0	0	0	0	482
09:00	4	333	59	3	13	2	2	1	0	0	0	0	0	417
10:00	4	271	56	2	17	6	1	0	1	0	0	0	0	358
11:00	4	328	89	6	10	4	1	3	3	0	0	0	0	448
12 PM	13	385	98	4	17	2	0	2	2	0	0	0	0	523
13:00	5	389	98	2	13	6	1	2	1	0	0	0	0	517
14:00	7	410	120	5	18	3	1	3	3	0	0	0	0	570
15:00	8	572	127	3	29	1	0	4	4	1	0	0	0	749
16:00	8	697	149	4	18	4	0	3	2	0	0	1	0	886
17:00	12	791	132	2	15	2	0	3	0	1	0	0	0	958
18:00	26	613	107	3	10	4	0	2	0	0	0	0	0	765
19:00	29	423	76	1	8	1	0	4	0	0	0	0	0	542
20:00	16	306	40	0	5	1	0	0	0	0	0	0	0	368
21:00	5	191	27	1	3	0	0	0	0	0	0	0	0	227
22:00	3	135	21	0	0	0	0	0	0	0	0	0	0	159
23:00	1	82	23	0	2	0	0	0	0	1	0	0	0	109
Total	156	6807	1396	46	209	40	7	30	23	3	0	1	0	8718
Percent	1.8%	78.1%	16.0%	0.5%	2.4%	0.5%	0.1%	0.3%	0.3%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	08:00	08:00	08:00	09:00	05:00	09:00	08:00	07:00					08:00
Vol.	4	385	75	5	13	2	2	2	4					482
Midday Peak	12:00	14:00	14:00	11:00	14:00	13:00	11:00	11:00	11:00					14:00
Vol.	13	410	120	6	18	6	1	3	3					570
PM Peak	19:00	17:00	16:00	16:00	15:00	16:00		15:00	15:00	15:00		16:00		17:00
Vol.	29	791	149	4	29	4		4	4	1		1		958



PRECISION
D A T A
INDUSTRIES, LLC

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Great Road (Route 2A/119) between
Nashoba Road and Mannion Place
City, State: Acton, MA
Client: LandStrategies/ K. Cram

112529 B speed
Site Code: 11-012KC

EB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
5/24/11	0	1	1	0	0	4	7	2	0	0	0	0	0	15	44	38
01:00	1	1	0	0	0	1	2	2	0	0	0	0	0	7	45	35
02:00	0	0	0	0	2	0	2	2	0	0	0	0	0	6	45	40
03:00	0	0	1	0	1	0	1	4	1	0	0	0	0	8	48	41
04:00	0	0	0	1	1	7	16	13	3	0	0	0	0	41	48	43
05:00	0	1	4	11	12	21	69	53	8	1	0	0	0	180	48	41
06:00	3	13	39	50	79	157	189	107	12	0	0	0	0	649	45	38
07:00	5	12	28	45	165	309	200	16	3	0	0	0	0	783	42	36
08:00	12	11	56	77	188	305	162	17	0	0	0	0	0	828	41	34
09:00	2	8	19	49	129	233	150	8	1	0	0	0	0	599	42	36
10:00	0	3	17	24	77	183	94	24	0	0	0	0	0	422	42	36
11:00	0	5	10	24	88	171	99	13	2	0	0	0	0	412	42	36
12 PM	1	15	23	34	107	186	104	27	1	0	0	0	0	498	42	36
13:00	1	3	22	27	94	181	117	20	1	0	0	0	0	466	42	36
14:00	2	7	20	34	83	168	111	26	1	0	0	0	0	452	43	36
15:00	1	16	30	38	95	170	97	28	1	0	0	0	0	476	42	35
16:00	1	13	30	30	87	163	106	24	2	0	0	0	0	456	42	36
17:00	0	7	47	59	154	190	89	14	1	0	0	0	0	561	41	34
18:00	0	4	22	20	124	194	95	10	1	0	0	0	0	470	41	36
19:00	2	6	12	19	60	132	79	14	0	1	0	0	0	325	42	36
20:00	0	9	12	11	47	91	71	14	2	0	0	0	0	257	43	36
21:00	0	3	6	9	13	48	67	12	0	0	0	0	0	158	44	38
22:00	0	1	4	2	7	23	18	14	3	0	0	0	0	72	46	39
23:00	0	0	1	1	1	7	4	7	2	1	0	0	0	24	48	41
Total	31	139	404	565	1614	2944	1949	471	45	3	0	0	0	8165		
%	0.4%	1.7%	4.9%	6.9%	19.8%	36.1%	23.9%	5.8%	0.6%	0.0%	0.0%	0.0%	0.0%			
AM Peak	08:00	06:00	08:00	08:00	08:00	07:00	07:00	06:00	06:00	05:00				08:00		
Vol.	12	13	56	77	188	309	200	107	12	1				828		
Midday Peak	14:00	12:00	12:00	12:00	12:00	12:00	13:00	12:00	11:00					12:00		
Vol.	2	15	23	34	107	186	117	27	2					498		
PM Peak	19:00	15:00	17:00	17:00	17:00	18:00	16:00	15:00	22:00	19:00				17:00		
Vol.	2	16	47	59	154	194	106	28	3	1				561		
% ile			15th Percentile :			30 MPH										
			50th Percentile :			37 MPH										
			85th Percentile :			43 MPH										
			95th Percentile :			46 MPH										

Stats

10 MPH Pace Speed : 35-44 MPH

Number in Pace : 4893

Percent in Pace : 59.9%

Number of Vehicles > 40 MPH : 2078

Percent of Vehicles > 40 MPH : 25.5%

Mean Speed(Average) : 36 MPH



PRECISION
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Great Road (Route 2A/119) between
Nashoba Road and Mannion Place
City, State: Acton, MA
Client: LandStrategies/ K. Cram

112529 B speed
Site Code: 11-012KC

EB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
5/25/11	0	0	1	0	0	9	6	1	1	0	0	0	0	18	43	39
01:00	0	1	1	0	0	3	4	2	0	0	0	0	0	11	43	37
02:00	0	0	0	0	0	1	1	2	1	0	0	0	0	5	46	45
03:00	0	0	0	0	1	0	3	2	1	1	0	0	0	8	54	44
04:00	0	0	1	0	0	4	5	13	3	0	0	0	0	26	49	44
05:00	0	0	1	2	2	20	66	85	14	1	1	0	0	192	49	44
06:00	5	1	15	28	49	135	256	159	18	2	0	0	0	668	47	40
07:00	15	12	48	58	140	272	198	38	3	0	0	0	0	784	43	35
08:00	4	25	77	77	169	317	148	13	0	0	0	0	0	830	41	34
09:00	1	5	28	30	154	234	158	27	1	0	0	0	0	638	42	36
10:00	1	6	29	63	151	166	33	8	0	0	0	0	0	457	39	33
11:00	1	7	25	68	147	162	35	4	0	0	0	0	0	449	39	33
12 PM	7	12	34	81	180	146	35	2	0	0	0	0	0	497	38	32
13:00	5	34	42	101	168	91	11	1	0	0	0	0	0	453	36	30
14:00	0	6	35	43	109	177	85	12	2	0	0	0	0	469	41	35
15:00	2	10	27	35	125	200	79	6	0	0	0	0	0	484	40	35
16:00	1	8	22	31	118	194	86	17	1	0	0	0	0	478	41	35
17:00	6	5	28	39	129	206	80	16	1	0	0	0	0	510	41	35
18:00	2	12	31	27	126	159	94	13	1	0	0	0	0	465	41	35
19:00	0	1	7	4	50	138	98	21	1	0	0	0	0	320	43	38
20:00	0	3	6	6	44	127	58	20	0	0	0	0	0	264	43	37
21:00	0	1	10	11	32	65	57	11	0	0	0	0	0	187	43	37
22:00	0	3	2	0	6	21	35	11	5	0	0	0	0	83	46	40
23:00	0	1	1	0	2	6	14	9	1	0	0	0	0	34	47	41
Total	50	153	471	704	1902	2853	1645	493	54	4	1	0	0	8330		
%	0.6%	1.8%	5.7%	8.5%	22.8%	34.2%	19.7%	5.9%	0.6%	0.0%	0.0%	0.0%	0.0%			
AM Peak	07:00	08:00	08:00	08:00	08:00	08:00	06:00	06:00	06:00	06:00	05:00			08:00		
Vol.	15	25	77	77	169	317	256	159	18	2	1			830		
Midday Peak	12:00	13:00	13:00	13:00	12:00	14:00	14:00	14:00	14:00					12:00		
Vol.	7	34	42	101	180	177	85	12	2					497		
PM Peak	17:00	18:00	18:00	17:00	17:00	17:00	19:00	19:00	22:00					17:00		
Vol.	6	12	31	39	129	206	98	21	5					510		
% iles			15th Percentile :			29 MPH										
			50th Percentile :			36 MPH										
			85th Percentile :			42 MPH										
			95th Percentile :			46 MPH										

Stats

10 MPH Pace Speed : 30-39 MPH

Number in Pace : 4755

Percent in Pace : 57.1%

Number of Vehicles > 40 MPH : 1868

Percent of Vehicles > 40 MPH : 22.4%

Mean Speed(Average) : 35 MPH



PRECISION
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Great Road (Route 2A/119) between
Nashoba Road and Mannion Place
City, State: Acton, MA
Client: LandStrategies/ K. Cram

112529 B speed
Site Code: 11-012KC

EB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
5/26/11	2	0	1	0	0	2	7	2	1	0	0	0	0	15	45	35
01:00	0	0	0	0	0	1	3	0	1	0	0	0	0	5	42	42
02:00	0	0	0	0	1	1	2	3	2	0	0	0	0	9	50	44
03:00	0	0	2	0	0	1	1	3	3	1	0	0	0	11	51	43
04:00	0	0	1	0	0	4	13	13	6	0	0	0	0	37	49	44
05:00	0	2	3	3	4	17	62	71	17	2	0	0	0	181	49	44
06:00	4	5	24	35	60	142	233	118	12	2	0	0	0	635	46	39
07:00	4	12	42	61	116	265	213	67	3	1	0	0	0	784	43	37
08:00	3	14	45	65	199	328	145	22	1	0	0	0	0	822	41	35
09:00	2	7	30	58	140	255	149	24	0	0	0	0	0	665	42	36
10:00	3	9	21	45	97	170	122	29	4	0	0	0	0	500	43	36
11:00	0	0	19	32	78	167	109	23	1	0	0	0	0	429	43	37
12 PM	0	1	17	17	89	197	127	11	5	1	0	0	0	465	42	37
13:00	0	7	23	26	86	189	117	21	1	0	0	0	0	470	42	36
14:00	1	5	22	33	74	162	129	22	0	0	0	0	0	448	43	36
15:00	0	5	27	35	104	223	132	14	0	0	0	0	0	540	42	36
16:00	2	8	38	42	113	199	102	14	1	0	0	0	0	519	41	35
17:00	0	8	28	34	141	234	103	15	2	0	0	0	0	565	41	35
18:00	4	6	19	39	114	209	104	15	0	0	0	0	0	510	41	35
19:00	1	4	14	19	71	155	98	17	3	0	0	0	0	382	43	37
20:00	0	4	9	20	66	151	91	20	2	0	0	0	0	363	43	37
21:00	1	3	7	18	52	76	56	13	3	1	0	0	0	230	43	36
22:00	0	2	1	4	11	40	41	11	3	0	0	0	0	113	44	39
23:00	0	0	1	1	3	8	18	10	2	0	0	0	0	43	47	41
Total	27	102	394	587	1619	3196	2177	558	73	8	0	0	0	8741		
%	0.3%	1.2%	4.5%	6.7%	18.5%	36.6%	24.9%	6.4%	0.8%	0.1%	0.0%	0.0%	0.0%			
AM Peak	06:00	08:00	08:00	08:00	08:00	08:00	06:00	06:00	05:00	05:00				08:00		
Vol.	4	14	45	65	199	328	233	118	17	2				822		
Midday Peak	14:00	13:00	13:00	14:00	12:00	12:00	14:00	11:00	12:00	12:00				13:00		
Vol.	1	7	23	33	89	197	129	23	5	1				470		
PM Peak	18:00	16:00	16:00	16:00	17:00	17:00	15:00	20:00	19:00	21:00				17:00		
Vol.	4	8	38	42	141	234	132	20	3	1				565		
% ile			15th Percentile :			30 MPH										
			50th Percentile :			37 MPH										
			85th Percentile :			43 MPH										
			95th Percentile :			46 MPH										

Stats

10 MPH Pace Speed :	35-44 MPH
Number in Pace :	5373
Percent in Pace :	61.5%
Number of Vehicles > 40 MPH :	2380
Percent of Vehicles > 40 MPH :	27.2%
Mean Speed(Average) :	36 MPH



PRECISION
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Great Road (Route 2A/119) between
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City, State: Acton, MA
Client: LandStrategies/ K. Cram

112529 B speed
Site Code: 11-012KC

WB

Start Time	14	15	20	25	30	35	40	45	50	55	60	65	70	Total	85th % ile	Ave Speed
		19	24	29	34	39	44	49	54	59	64	69	9999			
5/24/11	0	0	0	2	3	5	21	6	1	0	0	0	0	38	45	41
01:00	0	0	0	0	0	6	7	5	0	0	0	0	0	18	46	42
02:00	0	0	0	0	1	2	2	3	0	0	0	0	0	8	46	42
03:00	0	0	0	1	0	1	2	1	0	0	0	0	0	5	41	38
04:00	0	0	1	0	1	1	2	4	2	0	0	0	0	11	48	42
05:00	0	5	0	0	3	7	16	11	2	1	0	0	0	45	47	40
06:00	0	3	5	7	26	45	42	27	7	0	0	0	0	162	46	39
07:00	0	1	8	17	67	143	78	31	0	0	0	0	0	345	43	37
08:00	0	3	21	28	120	178	104	32	1	0	1	0	0	488	43	36
09:00	0	9	24	29	116	145	108	22	1	0	0	0	0	454	42	36
10:00	2	7	23	25	85	159	106	19	2	0	1	0	0	429	42	36
11:00	0	8	12	31	114	181	76	18	1	1	0	0	0	442	41	36
12 PM	0	5	13	24	126	230	96	21	3	0	0	0	0	518	42	36
13:00	0	8	10	41	127	210	81	19	0	0	1	0	0	497	41	36
14:00	0	4	18	42	145	202	88	32	2	0	0	0	0	533	42	36
15:00	1	7	18	29	192	281	120	32	1	0	0	0	0	681	42	36
16:00	0	9	18	57	285	339	98	13	0	0	0	0	0	819	39	35
17:00	5	11	16	89	316	359	103	9	0	0	0	0	0	908	39	34
18:00	0	2	14	38	217	277	132	24	2	0	0	0	0	706	41	36
19:00	0	2	15	25	136	188	84	21	1	0	0	0	0	472	42	36
20:00	1	2	3	15	56	129	84	25	1	0	0	0	0	316	43	37
21:00	0	2	1	3	20	66	71	29	3	0	0	0	0	195	45	40
22:00	0	1	1	3	10	43	56	13	1	0	1	0	0	129	44	40
23:00	0	0	2	0	8	10	24	26	3	1	0	0	0	74	48	42
Total	9	89	223	506	2174	3207	1601	443	34	3	4	0	0	8293		
%	0.1%	1.1%	2.7%	6.1%	26.2%	38.7%	19.3%	5.3%	0.4%	0.0%	0.0%	0.0%	0.0%			
AM Peak		09:00	09:00	09:00	08:00	08:00	09:00	08:00	06:00	05:00	08:00			08:00		
Vol.		9	24	29	120	178	108	32	7	1	1			488		
Midday Peak		11:00	14:00	14:00	14:00	12:00	12:00	14:00	12:00	11:00	13:00			14:00		
Vol.		8	18	42	145	230	96	32	3	1	1			533		
PM Peak	17:00	17:00	15:00	17:00	17:00	17:00	18:00	15:00	21:00	23:00	22:00			17:00		
Vol.	5	11	18	89	316	359	132	32	3	1	1			908		
% ile			15th Percentile :			30 MPH										
			50th Percentile :			36 MPH										
			85th Percentile :			42 MPH										
			95th Percentile :			45 MPH										

Stats

10 MPH Pace Speed : 30-39 MPH

Number in Pace : 5381

Percent in Pace : 64.9%

Number of Vehicles > 40 MPH : 1764

Percent of Vehicles > 40 MPH : 21.3%

Mean Speed(Average) : 36 MPH



PRECISION
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City, State: Acton, MA
Client: LandStrategies/ K. Cram

112529 B speed
Site Code: 11-012KC

WB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
5/25/11	0	0	1	0	2	7	10	6	0	0	0	0	0	26	45	40
01:00	0	0	2	0	0	0	4	4	0	0	0	0	0	10	46	40
02:00	0	0	1	0	2	1	2	1	0	0	0	0	0	7	41	35
03:00	0	0	0	0	0	0	1	1	0	0	0	0	0	2	45	44
04:00	0	1	0	0	2	1	3	4	3	0	0	0	0	14	50	42
05:00	0	1	1	1	1	9	7	8	10	1	0	0	0	39	52	43
06:00	0	1	6	0	12	30	64	35	9	1	1	0	0	159	48	41
07:00	0	2	13	16	64	105	91	50	7	0	0	0	0	348	45	38
08:00	0	7	38	42	121	171	98	23	1	1	0	0	0	502	42	35
09:00	0	5	14	38	119	159	91	20	3	0	0	0	0	449	42	36
10:00	3	7	31	73	118	106	50	11	0	0	0	0	0	399	40	33
11:00	0	5	22	33	162	165	78	8	1	0	0	0	0	474	40	35
12 PM	4	15	31	86	192	160	51	17	0	0	0	0	0	556	39	33
13:00	4	7	51	159	230	86	12	0	0	0	0	0	0	549	35	30
14:00	0	4	15	13	124	190	93	21	3	0	0	0	0	463	42	36
15:00	4	7	15	52	162	256	138	22	1	1	0	0	0	658	42	36
16:00	1	5	17	67	240	311	132	24	2	1	0	0	0	800	41	35
17:00	3	7	27	44	295	440	107	10	1	0	0	0	0	934	39	35
18:00	0	0	14	25	201	271	136	29	1	0	0	0	0	677	42	36
19:00	0	1	5	9	87	205	110	43	9	1	1	0	0	471	44	38
20:00	0	1	7	7	67	111	88	30	4	0	0	0	0	315	44	38
21:00	0	2	2	6	45	78	62	18	3	0	0	0	0	216	44	38
22:00	0	0	0	2	15	31	52	29	2	1	0	0	0	132	46	41
23:00	0	1	0	3	14	22	31	25	4	2	0	0	0	102	48	41
Total	19	79	313	676	2275	2915	1511	439	64	9	2	0	0	8302		
%	0.2%	1.0%	3.8%	8.1%	27.4%	35.1%	18.2%	5.3%	0.8%	0.1%	0.0%	0.0%	0.0%			
AM Peak		08:00	08:00	08:00	08:00	08:00	08:00	07:00	05:00	05:00	06:00			08:00		
Vol.		7	38	42	121	171	98	50	10	1	1			502		
Midday Peak	12:00	12:00	13:00	13:00	13:00	14:00	14:00	14:00	14:00					12:00		
Vol.	4	15	51	159	230	190	93	21	3					556		
PM Peak	15:00	15:00	17:00	16:00	17:00	17:00	15:00	19:00	19:00	23:00	19:00			17:00		
Vol.	4	7	27	67	295	440	138	43	9	2	1			934		
% ile			15th Percentile :			30 MPH										
			50th Percentile :			36 MPH										
			85th Percentile :			42 MPH										
			95th Percentile :			46 MPH										

Stats 10 MPH Pace Speed : 30-39 MPH
 Number in Pace : 5190
 Percent in Pace : 62.5%
 Number of Vehicles > 40 MPH : 1722
 Percent of Vehicles > 40 MPH : 20.7%
 Mean Speed(Average) : 36 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

Great Road (Route 2A/119) between
Nashoba Road and Mannion Place
City, State: Acton, MA
Client: LandStrategies/ K. Cram

112529 B speed
Site Code: 11-012KC

WB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
5/26/11	1	1	0	0	8	2	10	14	3	1	1	1	0	42	49	42
01:00	0	0	0	1	0	2	9	7	2	0	0	0	0	21	48	43
02:00	0	0	0	0	0	2	3	1	3	0	0	0	0	9	51	45
03:00	0	0	0	1	1	0	4	2	1	1	0	0	0	10	46	42
04:00	0	0	0	0	2	1	4	4	2	0	0	0	0	13	48	43
05:00	0	1	2	0	3	4	15	11	9	0	0	0	0	45	50	43
06:00	0	0	4	2	14	30	50	28	11	4	0	0	0	143	48	41
07:00	0	3	13	28	72	103	97	36	5	0	0	0	0	357	44	37
08:00	0	2	23	41	97	161	117	40	1	0	0	0	0	482	43	36
09:00	0	2	6	27	91	163	94	32	2	0	0	0	0	417	43	37
10:00	0	3	19	13	71	143	77	28	4	0	0	0	0	358	43	37
11:00	0	1	16	9	97	185	110	26	4	0	0	0	0	448	43	37
12 PM	0	4	9	14	124	214	124	29	4	1	0	0	0	523	43	37
13:00	1	1	17	35	135	194	101	29	4	0	0	0	0	517	42	36
14:00	0	7	5	24	121	248	140	24	1	0	0	0	0	570	42	37
15:00	0	2	20	44	195	307	145	34	2	0	0	0	0	749	42	36
16:00	3	18	51	80	294	329	92	17	2	0	0	0	0	886	39	34
17:00	1	3	9	35	326	470	102	12	0	0	0	0	0	958	39	35
18:00	0	4	16	18	203	364	123	31	6	0	0	0	0	765	41	36
19:00	0	2	3	17	121	233	125	36	4	0	1	0	0	542	43	37
20:00	1	0	4	6	59	153	113	28	4	0	0	0	0	368	43	38
21:00	0	3	4	15	44	73	68	18	1	1	0	0	0	227	43	37
22:00	0	2	1	4	18	51	58	24	1	0	0	0	0	159	45	39
23:00	0	0	0	0	15	29	40	24	1	0	0	0	0	109	46	40
Total	7	59	222	414	2111	3461	1821	535	77	8	2	1	0	8718		
%	0.1%	0.7%	2.5%	4.7%	24.2%	39.7%	20.9%	6.1%	0.9%	0.1%	0.0%	0.0%	0.0%			
AM Peak	00:00	07:00	08:00	08:00	08:00	09:00	08:00	08:00	06:00	06:00	00:00	00:00		08:00		
Vol.	1	3	23	41	97	163	117	40	11	4	1	1		482		
Midday Peak	13:00	14:00	13:00	13:00	13:00	14:00	14:00	12:00	11:00	12:00				14:00		
Vol.	1	7	17	35	135	248	140	29	4	1				570		
PM Peak	16:00	16:00	16:00	16:00	17:00	17:00	15:00	19:00	18:00	21:00	19:00			17:00		
Vol.	3	18	51	80	326	470	145	36	6	1	1			958		
% ile			15th Percentile :			31 MPH										
			50th Percentile :			37 MPH										
			85th Percentile :			43 MPH										
			95th Percentile :			46 MPH										

Stats 10 MPH Pace Speed : 30-39 MPH
 Number in Pace : 5572
 Percent in Pace : 63.9%
 Number of Vehicles > 40 MPH : 2079
 Percent of Vehicles > 40 MPH : 23.8%
 Mean Speed(Average) : 37 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

Grist Mill Road approx. 2400'
north of Great Road (East)
City, State: Littleton, MA
Client: LandStrategies/ K. Cram

112529 C volume
Site Code: 11-012KC

Start	NB		SB		Combined		24-May-11
Time	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	Tue
12:00	0	0	0	1	0	1	
12:15	0	1	0	2	0	3	
12:30	0	3	0	1	0	4	
12:45	1	1	0	0	1	1	9
01:00	0	0	0	0	0	0	
01:15	0	1	0	0	0	1	
01:30	0	1	0	1	0	2	
01:45	0	1	0	0	0	1	4
02:00	0	2	0	0	0	2	
02:15	0	4	0	1	0	5	
02:30	0	0	0	1	0	1	
02:45	0	2	0	0	0	2	10
03:00	0	2	0	3	0	5	
03:15	0	1	0	0	0	1	
03:30	0	2	0	2	0	4	
03:45	0	1	0	0	0	1	11
04:00	0	2	0	0	0	2	
04:15	0	0	0	3	0	3	
04:30	0	2	0	4	0	6	
04:45	1	1	0	0	1	1	12
05:00	0	1	0	1	0	2	
05:15	0	2	1	2	1	4	
05:30	0	2	0	2	0	4	
05:45	0	1	0	3	0	4	14
06:00	0	2	0	1	0	3	
06:15	1	0	0	1	1	1	
06:30	1	2	2	1	3	3	
06:45	1	1	0	0	1	1	8
07:00	1	2	1	2	2	4	
07:15	1	0	3	0	4	0	
07:30	1	2	2	1	3	3	
07:45	2	1	0	1	2	2	9
08:00	0	0	1	0	1	0	
08:15	4	3	2	1	6	4	
08:30	2	0	1	0	3	0	
08:45	1	0	0	0	1	0	4
09:00	1	0	1	0	2	0	
09:15	2	0	1	0	3	0	
09:30	0	0	1	0	1	0	
09:45	2	0	1	0	3	0	0
10:00	0	0	0	0	0	0	
10:15	1	0	0	0	1	0	
10:30	2	0	0	0	2	0	
10:45	1	0	1	0	2	0	0
11:00	0	1	1	0	1	1	
11:15	2	0	0	0	2	0	
11:30	0	0	0	0	0	0	
11:45	0	0	1	0	1	0	1
Total	28	47	20	35	48	82	
Percent	58.3%	57.3%	41.7%	42.7%			
Day Total	75		55		130		
Peak	07:45	01:30	06:30	04:15	07:30	05:15	
Vol.	8	8	6	8	12	15	
P.H.F.	0.500	0.500	0.500	0.500	0.500	0.938	



PRECISION
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INDUSTRIES, LLC

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Grist Mill Road approx. 2400'
north of Great Road (East)
City, State: Littleton, MA
Client: LandStrategies/ K. Cram

112529 C volume
Site Code: 11-012KC

Start	NB			SB			Combined			25-May-11 Wed
Time	A.M.	P.M.		A.M.	P.M.		A.M.	P.M.		
12:00	0	1		0	2		0	3		
12:15	0	0		0	1		0	1		
12:30	0	0		0	2		0	2		
12:45	0	1	2	0	1	6	0	2	8	
01:00	1	0		0	2		1	2		
01:15	0	1		0	0		0	1		
01:30	0	0		0	2		0	2		
01:45	0	1	1	0	1	5	0	1	6	
02:00	0	2		0	1		0	3		
02:15	0	1		0	3		0	4		
02:30	0	0		0	1		0	1		
02:45	0	4	7	0	4	9	0	8	16	
03:00	0	0		0	1		0	1		
03:15	0	3		0	0		0	3		
03:30	0	1		0	0		0	1		
03:45	0	0	4	1	0	1	1	0	5	
04:00	0	0		0	3		0	3		
04:15	0	2		0	0		0	2		
04:30	0	1		0	2		0	3		
04:45	0	0	3	0	1	6	0	1	9	
05:00	0	3		0	0		0	3		
05:15	0	3		0	1		0	4		
05:30	0	0		0	1		0	1		
05:45	0	1	7	0	1	3	0	2	10	
06:00	0	3		0	1		0	4		
06:15	1	1		0	1		1	2		
06:30	0	1		2	0		2	1		
06:45	0	1	6	2	1	3	2	2	9	
07:00	1	1		3	0		4	1		
07:15	1	3		2	1		3	4		
07:30	2	2		0	0		2	2		
07:45	1	2	8	0	1	2	1	3	10	
08:00	0	0		2	1		2	1		
08:15	1	0		0	0		1	0		
08:30	0	0		2	0		2	0		
08:45	0	1	0	0	1	2	0	1	2	
09:00	1	0		0	0		1	0		
09:15	0	0		0	0		0	0		
09:30	2	0		1	0		3	0		
09:45	1	0	0	0	0	0	1	0	0	
10:00	0	0		0	0		0	0		
10:15	0	0		2	0		2	0		
10:30	0	0		2	0		2	0		
10:45	0	0	0	0	0	0	0	0	0	
11:00	0	1		0	0		0	1		
11:15	0	0		0	0		0	0		
11:30	0	0		0	0		0	0		
11:45	0	0	1	1	0	0	1	0	1	
Total	12	39		20	37		32	76		
Percent	37.5%	51.3%		62.5%	48.7%					
Day Total	51			57			108			
Peak	07:00	02:45		06:30	02:00		06:30	02:00		
Vol.	5	8		9	9		11	16		
P.H.F.	0.625	0.500		0.750	0.563		0.688	0.500		



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

Grist Mill Road approx. 2400'
north of Great Road (East)
City, State: Littleton, MA
Client: LandStrategies/ K. Cram

112529 C volume
Site Code: 11-012KC

Start	NB			SB			Combined			26-May-11 Thu
Time	A.M.	P.M.		A.M.	P.M.		A.M.	P.M.		
12:00	0	1		0	1		0	2		
12:15	0	0		0	1		0	1		
12:30	0	0		0	0		0	0		
12:45	0	0	2	0	0	2	0	0	1	4
01:00	0	1		0	0		0	1		
01:15	1	0		0	1		1	1		
01:30	0	1		0	0		0	1		
01:45	0	0	2	0	0	1	0	0	0	3
02:00	0	2		0	3		0	5		
02:15	0	1		0	0		0	1		
02:30	0	1		0	0		0	1		
02:45	0	0	4	0	1	4	0	1	1	8
03:00	0	2		0	2		0	4		
03:15	0	0		0	0		0	0		
03:30	0	2		0	0		0	2		
03:45	0	1	5	0	0	2	0	1	1	7
04:00	0	0		0	2		0	2		
04:15	0	2		1	2		1	4		
04:30	0	0		0	0		0	0		
04:45	0	2	4	0	2	6	0	4	1	10
05:00	0	1		0	1		0	2		
05:15	0	0		0	1		0	1		
05:30	0	0		0	1		0	1		
05:45	0	1	2	0	1	4	0	2	0	6
06:00	0	1		0	1		0	2		
06:15	1	0		1	0		2	0		
06:30	0	2		1	0		1	2		
06:45	0	2	5	0	2	3	0	4	3	8
07:00	0	0		0	2		0	2		
07:15	1	0		2	0		3	0		
07:30	1	0		1	1		2	1		
07:45	1	0	0	1	1	4	2	1	7	4
08:00	1	1		0	2		1	3		
08:15	2	1		2	1		4	2		
08:30	1	0		0	2		1	2		
08:45	2	2	4	1	2	7	3	4	9	11
09:00	3	0		1	1		4	1		
09:15	1	1		1	1		2	2		
09:30	0	0		0	0		0	0		
09:45	0	0	1	0	0	2	0	0	6	3
10:00	1	0		1	1		2	1		
10:15	0	0		0	0		0	0		
10:30	1	1		0	1		1	2		
10:45	0	1	2	1	0	2	1	1	4	4
11:00	0	0		0	0		0	0		
11:15	0	0		3	0		3	0		
11:30	1	1		0	0		1	1		
11:45	0	0	1	1	1	1	1	1	5	2
Total	18	32		18	38		36	70		
Percent	50.0%	45.7%		50.0%	54.3%					
Day Total	50			56			106			
Peak	08:15	03:00		07:00	08:00		08:15	08:00		
Vol.	8	5		4	7		12	11		
P.H.F.	0.667	0.625		0.500	0.875		0.750	0.688		



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

S: Nashoba Road
E/W: Great Road (Route 2A/119)
City, State: Acton, MA
Client: LandStrategies/ K. Cram

File Name : 112529 B
Site Code : 11-012KC
Start Date : 5/24/2011
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Great Road (Route 2A/119) From East		Nashoba Road From South		Great Road (Route 2A/119) From West		
Start Time	Thru	Left	Right	Left	Right	Thru	Int. Total
07:00 AM	73	9	9	3	2	182	278
07:15 AM	66	1	17	3	2	213	302
07:30 AM	102	8	23	2	4	206	345
07:45 AM	112	9	16	2	5	193	337
Total	353	27	65	10	13	794	1262
08:00 AM	130	7	24	6	4	210	381
08:15 AM	117	8	11	8	8	189	341
08:30 AM	124	13	25	3	8	206	379
08:45 AM	126	16	33	6	6	223	410
Total	497	44	93	23	26	828	1511
Grand Total	850	71	158	33	39	1622	2773
Apprch %	92.3	7.7	82.7	17.3	2.3	97.7	
Total %	30.7	2.6	5.7	1.2	1.4	58.5	
Cars	807	66	154	32	35	1547	2641
% Cars	94.9	93	97.5	97	89.7	95.4	95.2
Heavy Vehicles	43	5	4	1	4	75	132
% Heavy Vehicles	5.1	7	2.5	3	10.3	4.6	4.8

	Great Road (Route 2A/119) From East			Nashoba Road From South			Great Road (Route 2A/119) From West			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	130	7	137	24	6	30	4	210	214	381
08:15 AM	117	8	125	11	8	19	8	189	197	341
08:30 AM	124	13	137	25	3	28	8	206	214	379
08:45 AM	126	16	142	33	6	39	6	223	229	410
Total Volume	497	44	541	93	23	116	26	828	854	1511
% App. Total	91.9	8.1		80.2	19.8		3	97		
PHF	.956	.688	.952	.705	.719	.744	.813	.928	.932	.921
Cars	473	39	512	90	22	112	24	790	814	1438
% Cars	95.2	88.6	94.6	96.8	95.7	96.6	92.3	95.4	95.3	95.2
Heavy Vehicles	24	5	29	3	1	4	2	38	40	73
% Heavy Vehicles	4.8	11.4	5.4	3.2	4.3	3.4	7.7	4.6	4.7	4.8



PRECISION
D A T A
INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503
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Email: datarequests@pdillc.com

S: Nashoba Road
E/W: Great Road (Route 2A/119)
City, State: Acton, MA
Client: LandStrategies/ K. Cram

File Name : 112529 B
Site Code : 11-012KC
Start Date : 5/24/2011
Page No : 1

Groups Printed- Cars

	Great Road (Route 2A/119) From East		Nashoba Road From South		Great Road (Route 2A/119) From West		
Start Time	Thru	Left	Right	Left	Right	Thru	Int. Total
07:00 AM	68	9	9	3	2	169	260
07:15 AM	60	1	16	3	1	203	284
07:30 AM	98	8	23	2	3	200	334
07:45 AM	108	9	16	2	5	185	325
Total	334	27	64	10	11	757	1203
08:00 AM	124	7	24	5	4	203	367
08:15 AM	113	7	10	8	8	181	327
08:30 AM	116	12	23	3	6	193	353
08:45 AM	120	13	33	6	6	213	391
Total	473	39	90	22	24	790	1438
Grand Total	807	66	154	32	35	1547	2641
Apprch %	92.4	7.6	82.8	17.2	2.2	97.8	
Total %	30.6	2.5	5.8	1.2	1.3	58.6	

	Great Road (Route 2A/119) From East			Nashoba Road From South			Great Road (Route 2A/119) From West			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	124	7	131	24	5	29	4	203	207	367
08:15 AM	113	7	120	10	8	18	8	181	189	327
08:30 AM	116	12	128	23	3	26	6	193	199	353
08:45 AM	120	13	133	33	6	39	6	213	219	391
Total Volume	473	39	512	90	22	112	24	790	814	1438
% App. Total	92.4	7.6		80.4	19.6		2.9	97.1		
PHF	.954	.750	.962	.682	.688	.718	.750	.927	.929	.919



PRECISION
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INDUSTRIES, LLC

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S: Nashoba Road
E/W: Great Road (Route 2A/119)
City, State: Acton, MA
Client: LandStrategies/ K. Cram

File Name : 112529 B
Site Code : 11-012KC
Start Date : 5/24/2011
Page No : 1

Groups Printed- Heavy Vehicles

	Great Road (Route 2A/119) From East		Nashoba Road From South		Great Road (Route 2A/119) From West		
Start Time	Thru	Left	Right	Left	Right	Thru	Int. Total
07:00 AM	5	0	0	0	0	13	18
07:15 AM	6	0	1	0	1	10	18
07:30 AM	4	0	0	0	1	6	11
07:45 AM	4	0	0	0	0	8	12
Total	19	0	1	0	2	37	59
08:00 AM	6	0	0	1	0	7	14
08:15 AM	4	1	1	0	0	8	14
08:30 AM	8	1	2	0	2	13	26
08:45 AM	6	3	0	0	0	10	19
Total	24	5	3	1	2	38	73
Grand Total	43	5	4	1	4	75	132
Apprch %	89.6	10.4	80	20	5.1	94.9	
Total %	32.6	3.8	3	0.8	3	56.8	

	Great Road (Route 2A/119) From East			Nashoba Road From South			Great Road (Route 2A/119) From West			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	6	0	6	0	1	1	0	7	7	14
08:15 AM	4	1	5	1	0	1	0	8	8	14
08:30 AM	8	1	9	2	0	2	2	13	15	26
08:45 AM	6	3	9	0	0	0	0	10	10	19
Total Volume	24	5	29	3	1	4	2	38	40	73
% App. Total	82.8	17.2		75	25		5	95		
PHF	.750	.417	.806	.375	.250	.500	.250	.731	.667	.702



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S: Nashoba Road
E/W: Great Road (Route 2A/119)
City, State: Acton, MA
Client: LandStrategies/ K. Cram

File Name : 112529 B
Site Code : 11-012KC
Start Date : 5/24/2011
Page No : 1

Groups Printed- Peds and Bicycles

Start Time	Great Road (Route 2A/119) From East			Nashoba Road From South			Great Road (Route 2A/119) From West			Int. Total
	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	1	0	0	2	0	0	0	3
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	1	0	0	0	0	0	0	0	0	1
Total	1	0	1	0	0	2	0	0	0	4
08:00 AM	0	0	0	0	0	0	0	1	0	1
08:15 AM	0	0	0	0	0	0	0	0	0	0
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	0	0	0	0	1	0	1
Grand Total	1	0	1	0	0	2	0	1	0	5
Apprch %	50	0	50	0	0	100	0	100	0	
Total %	20	0	20	0	0	40	0	20	0	

	Great Road (Route 2A/119) From East				Nashoba Road From South				Great Road (Route 2A/119) From West				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:15 AM													
07:15 AM	0	0	1	1	0	0	2	2	0	0	0	0	3
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	1	0	0	1	0	0	0	0	0	0	0	0	1
08:00 AM	0	0	0	0	0	0	0	0	0	1	0	1	1
Total Volume	1	0	1	2	0	0	2	2	0	1	0	1	5
% App. Total	50	0	50		0	0	100		0	100	0		
PHF	.250	.000	.250	.500	.000	.000	.250	.250	.000	.250	.000	.250	.417



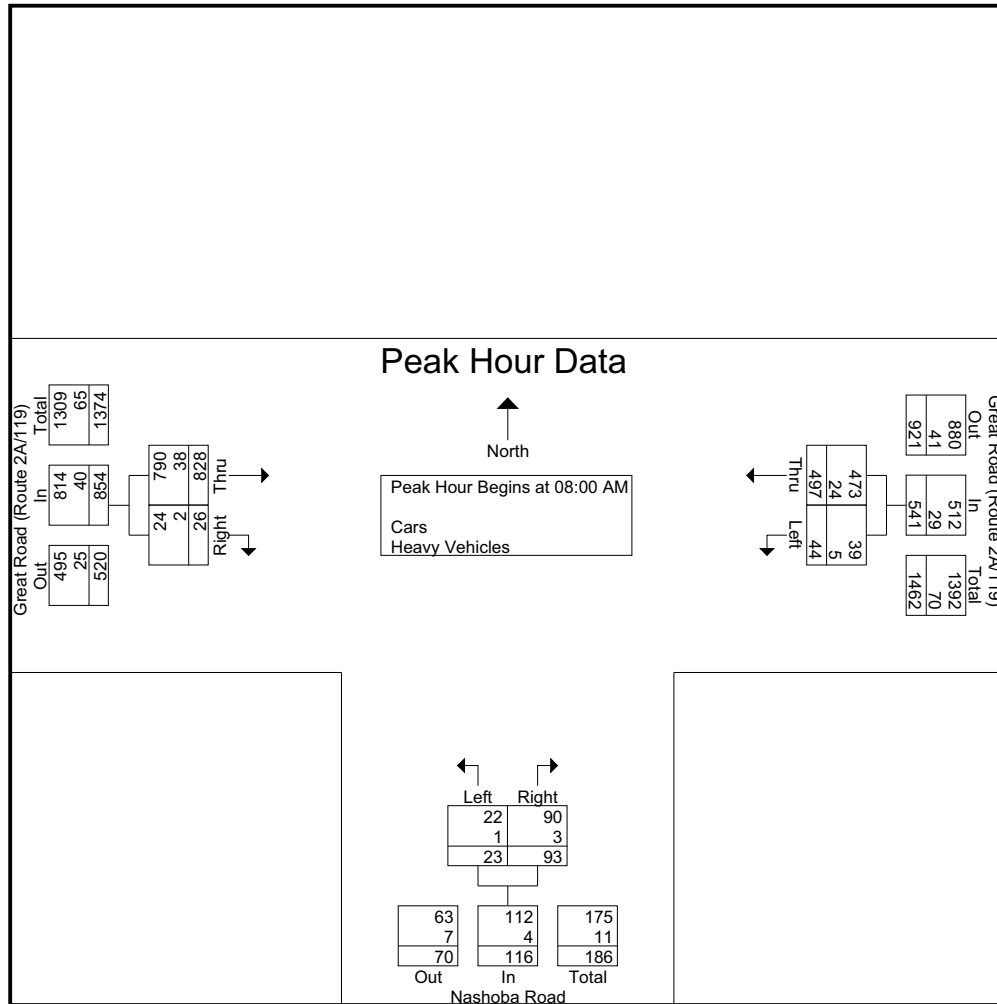
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S: Nashoba Road
E/W: Great Road (Route 2A/119)
City, State: Acton, MA
Client: LandStrategies/ K. Cram

File Name : 112529 B
Site Code : 11-012KC
Start Date : 5/24/2011
Page No : 1

	Great Road (Route 2A/119) From East			Nashoba Road From South			Great Road (Route 2A/119) From West			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	130	7	137	24	6	30	4	210	214	381
08:15 AM	117	8	125	11	8	19	8	189	197	341
08:30 AM	124	13	137	25	3	28	8	206	214	379
08:45 AM	126	16	142	33	6	39	6	223	229	410
Total Volume	497	44	541	93	23	116	26	828	854	1511
% App. Total	91.9	8.1		80.2	19.8		3	97		
PHF	.956	.688	.952	.705	.719	.744	.813	.928	.932	.921
Cars	473	39	512	90	22	112	24	790	814	1438
% Cars	95.2	88.6	94.6	96.8	95.7	96.6	92.3	95.4	95.3	95.2
Heavy Vehicles	24	5	29	3	1	4	2	38	40	73
% Heavy Vehicles	4.8	11.4	5.4	3.2	4.3	3.4	7.7	4.6	4.7	4.8





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Client: LandStrategies/ K. Cram

File Name : 112529 BB
Site Code : 11-014KC
Start Date : 5/24/2011
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Great Road (Route 2A/119) From East		Nashoba Road From South		Great Road (Route 2A/119) From West		
Start Time	Thru	Left	Right	Left	Right	Thru	Int. Total
04:30 PM	244	25	11	3	3	97	383
04:45 PM	214	25	21	7	6	148	421
Total	458	50	32	10	9	245	804
05:00 PM	268	36	22	4	6	117	453
05:15 PM	229	22	24	5	10	144	434
05:30 PM	238	26	27	1	8	133	433
05:45 PM	185	14	20	2	12	175	408
Total	920	98	93	12	36	569	1728
06:00 PM	206	16	24	5	3	154	408
06:15 PM	144	25	24	9	8	106	316
Grand Total	1728	189	173	36	56	1074	3256
Apprch %	90.1	9.9	82.8	17.2	5	95	
Total %	53.1	5.8	5.3	1.1	1.7	33	
Cars	1700	188	172	34	56	1058	3208
% Cars	98.4	99.5	99.4	94.4	100	98.5	98.5
Heavy Vehicles	28	1	1	2	0	16	48
% Heavy Vehicles	1.6	0.5	0.6	5.6	0	1.5	1.5

	Great Road (Route 2A/119) From East			Nashoba Road From South			Great Road (Route 2A/119) From West			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:45 PM										
04:45 PM	214	25	239	21	7	28	6	148	154	421
05:00 PM	268	36	304	22	4	26	6	117	123	453
05:15 PM	229	22	251	24	5	29	10	144	154	434
05:30 PM	238	26	264	27	1	28	8	133	141	433
Total Volume	949	109	1058	94	17	111	30	542	572	1741
% App. Total	89.7	10.3		84.7	15.3		5.2	94.8		
PHF	.885	.757	.870	.870	.607	.957	.750	.916	.929	.961
Cars	936	108	1044	94	17	111	30	536	566	1721
% Cars	98.6	99.1	98.7	100	100	100	100	98.9	99.0	98.9
Heavy Vehicles	13	1	14	0	0	0	0	6	6	20
% Heavy Vehicles	1.4	0.9	1.3	0	0	0	0	1.1	1.0	1.1



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S: Nashoba Road
E/W: Great Road (Route 2A/119)
City, State: Acton, MA
Client: LandStrategies/ K. Cram

File Name : 112529 BB
Site Code : 11-014KC
Start Date : 5/24/2011
Page No : 1

Groups Printed- Cars

	Great Road (Route 2A/119) From East		Nashoba Road From South		Great Road (Route 2A/119) From West		Int. Total
Start Time	Thru	Left	Right	Left	Right	Thru	
04:30 PM	235	25	11	2	3	93	369
04:45 PM	208	25	21	7	6	147	414
Total	443	50	32	9	9	240	783
05:00 PM	265	35	22	4	6	114	446
05:15 PM	228	22	24	5	10	144	433
05:30 PM	235	26	27	1	8	131	428
05:45 PM	183	14	20	2	12	173	404
Total	911	97	93	12	36	562	1711
06:00 PM	204	16	24	5	3	153	405
06:15 PM	142	25	23	8	8	103	309
Grand Total	1700	188	172	34	56	1058	3208
Apprch %	90	10	83.5	16.5	5	95	
Total %	53	5.9	5.4	1.1	1.7	33	

	Great Road (Route 2A/119) From East			Nashoba Road From South			Great Road (Route 2A/119) From West			Int. Total
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:45 PM										
04:45 PM	208	25	233	21	7	28	6	147	153	414
05:00 PM	265	35	300	22	4	26	6	114	120	446
05:15 PM	228	22	250	24	5	29	10	144	154	433
05:30 PM	235	26	261	27	1	28	8	131	139	428
Total Volume	936	108	1044	94	17	111	30	536	566	1721
% App. Total	89.7	10.3		84.7	15.3		5.3	94.7		
PHF	.883	.771	.870	.870	.607	.957	.750	.912	.919	.965



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City, State: Acton, MA
Client: LandStrategies/ K. Cram

File Name : 112529 BB
Site Code : 11-014KC
Start Date : 5/24/2011
Page No : 1

Groups Printed- Heavy Vehicles

	Great Road (Route 2A/119) From East		Nashoba Road From South		Great Road (Route 2A/119) From West		
Start Time	Thru	Left	Right	Left	Right	Thru	Int. Total
04:30 PM	9	0	0	1	0	4	14
04:45 PM	6	0	0	0	0	1	7
Total	15	0	0	1	0	5	21
05:00 PM	3	1	0	0	0	3	7
05:15 PM	1	0	0	0	0	0	1
05:30 PM	3	0	0	0	0	2	5
05:45 PM	2	0	0	0	0	2	4
Total	9	1	0	0	0	7	17
06:00 PM	2	0	0	0	0	1	3
06:15 PM	2	0	1	1	0	3	7
Grand Total	28	1	1	2	0	16	48
Apprch %	96.6	3.4	33.3	66.7	0	100	
Total %	58.3	2.1	2.1	4.2	0	33.3	

	Great Road (Route 2A/119) From East			Nashoba Road From South			Great Road (Route 2A/119) From West			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	9	0	9	0	1	1	0	4	4	14
04:45 PM	6	0	6	0	0	0	0	1	1	7
05:00 PM	3	1	4	0	0	0	0	3	3	7
05:15 PM	1	0	1	0	0	0	0	0	0	1
Total Volume	19	1	20	0	1	1	0	8	8	29
% App. Total	95	5		0	100		0	100		
PHF	.528	.250	.556	.000	.250	.250	.000	.500	.500	.518



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Client: LandStrategies/ K. Cram

File Name : 112529 BB
Site Code : 11-014KC
Start Date : 5/24/2011
Page No : 1

Groups Printed- Peds and Bicycles

	Great Road (Route 2A/119) From East			Nashoba Road From South			Great Road (Route 2A/119) From West			
Start Time	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	Int. Total
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	1	0	0	0	0	0	0	1
Total	0	0	1	0	0	0	0	0	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	1	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	1	1
Total	0	0	0	0	0	0	0	1	1	2
06:00 PM	0	0	0	0	0	0	0	0	0	0
06:15 PM	1	0	0	0	0	0	0	0	0	1
Grand Total	1	0	1	0	0	0	0	1	1	4
Apprch %	50	0	50	0	0	0	0	50	50	
Total %	25	0	25	0	0	0	0	25	25	

	Great Road (Route 2A/119) From East				Nashoba Road From South				Great Road (Route 2A/119) From West				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:30 PM													
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	1	1	0	0	0	0	0	0	0	0	1
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	1
Total Volume	0	0	1	1	0	0	0	0	0	1	0	1	2
% App. Total	0	0	100		0	0	0		0	100	0		
PHF	.000	.000	.250	.250	.000	.000	.000	.000	.000	.250	.000	.250	.500



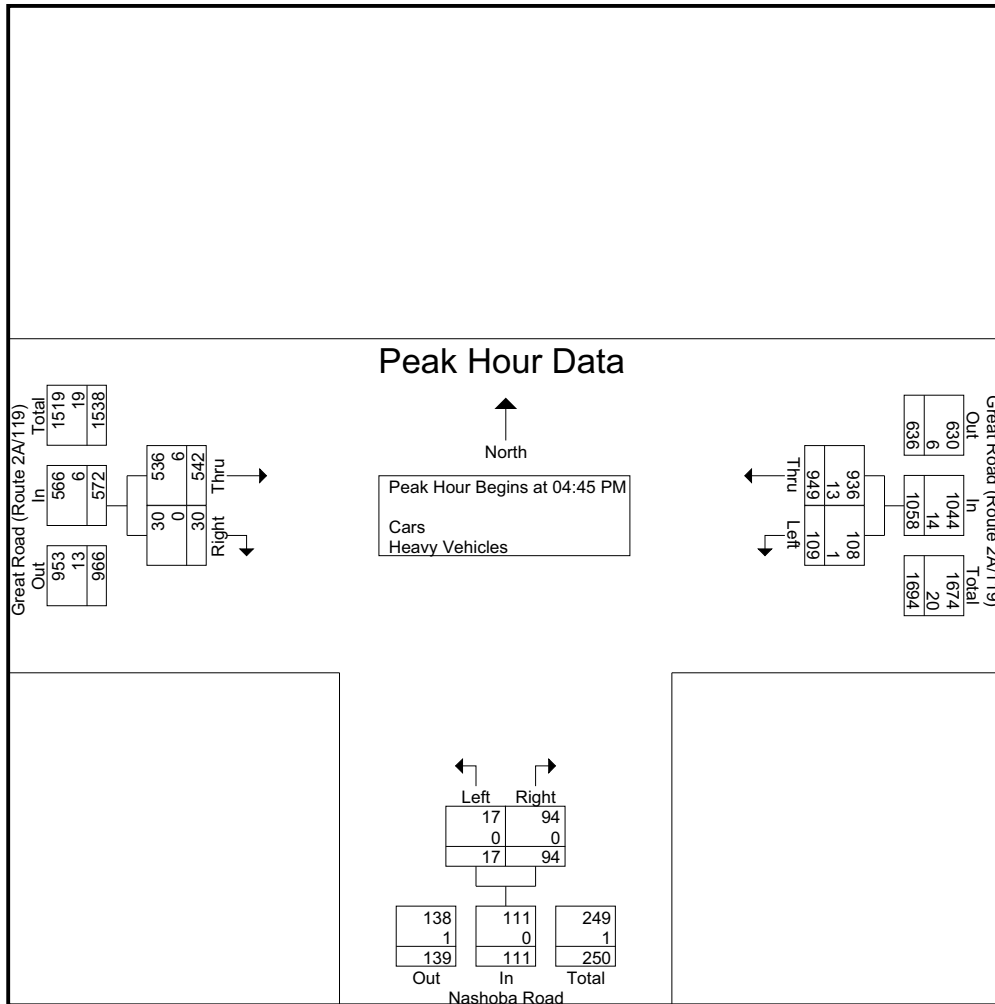
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S: Nashoba Road
E/W: Great Road (Route 2A/119)
City, State: Acton, MA
Client: LandStrategies/ K. Cram

File Name : 112529 BB
Site Code : 11-014KC
Start Date : 5/24/2011
Page No : 1

	Great Road (Route 2A/119) From East			Nashoba Road From South			Great Road (Route 2A/119) From West			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:45 PM										
04:45 PM	214	25	239	21	7	28	6	148	154	421
05:00 PM	268	36	304	22	4	26	6	117	123	453
05:15 PM	229	22	251	24	5	29	10	144	154	434
05:30 PM	238	26	264	27	1	28	8	133	141	433
Total Volume	949	109	1058	94	17	111	30	542	572	1741
% App. Total	89.7	10.3		84.7	15.3		5.2	94.8		
PHF	.885	.757	.870	.870	.607	.957	.750	.916	.929	.961
Cars	936	108	1044	94	17	111	30	536	566	1721
% Cars	98.6	99.1	98.7	100	100	100	100	98.9	99.0	98.9
Heavy Vehicles	13	1	14	0	0	0	0	6	6	20
% Heavy Vehicles	1.4	0.9	1.3	0	0	0	0	1.1	1.0	1.1





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S: Mannion Place
E/W: Great Road (Route 2A/119)
City, State: Littleton, MA
Client: LandStrategies/ K. Cram

File Name : 112529 C
Site Code : 11-012KC
Start Date : 5/24/2011
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Great Road (Route 2A/119) From East		Mannion Place From South		Great Road (Route 2A/119) From West		
Start Time	Thru	Left	Right	Left	Right	Thru	Int. Total
07:00 AM	78	0	2	1	0	180	261
07:15 AM	64	0	1	0	0	215	280
07:30 AM	108	0	2	0	0	205	315
07:45 AM	114	0	0	2	0	199	315
Total	364	0	5	3	0	799	1171
08:00 AM	133	0	2	0	0	211	346
08:15 AM	127	0	0	0	0	198	325
08:30 AM	127	0	1	0	0	213	341
08:45 AM	126	0	2	0	0	233	361
Total	513	0	5	0	0	855	1373
Grand Total	877	0	10	3	0	1654	2544
Apprch %	100	0	76.9	23.1	0	100	
Total %	34.5	0	0.4	0.1	0	65	
Cars	839	0	8	3	0	1588	2438
% Cars	95.7	0	80	100	0	96	95.8
Heavy Vehicles	38	0	2	0	0	66	106
% Heavy Vehicles	4.3	0	20	0	0	4	4.2

	Great Road (Route 2A/119) From East			Mannion Place From South			Great Road (Route 2A/119) From West			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	133	0	133	2	0	2	0	211	211	346
08:15 AM	127	0	127	0	0	0	0	198	198	325
08:30 AM	127	0	127	1	0	1	0	213	213	341
08:45 AM	126	0	126	2	0	2	0	233	233	361
Total Volume	513	0	513	5	0	5	0	855	855	1373
% App. Total	100	0		100	0		0	100		
PHF	.964	.000	.964	.625	.000	.625	.000	.917	.917	.951
Cars	492	0	492	4	0	4	0	821	821	1317
% Cars	95.9	0	95.9	80.0	0	80.0	0	96.0	96.0	95.9
Heavy Vehicles	21	0	21	1	0	1	0	34	34	56
% Heavy Vehicles	4.1	0	4.1	20.0	0	20.0	0	4.0	4.0	4.1



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City, State: Littleton, MA
Client: LandStrategies/ K. Cram

File Name : 112529 C
Site Code : 11-012KC
Start Date : 5/24/2011
Page No : 1

Groups Printed- Cars

	Great Road (Route 2A/119) From East		Mannion Place From South		Great Road (Route 2A/119) From West		
Start Time	Thru	Left	Right	Left	Right	Thru	Int. Total
07:00 AM	73	0	2	1	0	169	245
07:15 AM	59	0	1	0	0	205	265
07:30 AM	105	0	1	0	0	201	307
07:45 AM	110	0	0	2	0	192	304
Total	347	0	4	3	0	767	1121
08:00 AM	128	0	2	0	0	205	335
08:15 AM	124	0	0	0	0	191	315
08:30 AM	119	0	0	0	0	201	320
08:45 AM	121	0	2	0	0	224	347
Total	492	0	4	0	0	821	1317
Grand Total	839	0	8	3	0	1588	2438
Apprch %	100	0	72.7	27.3	0	100	
Total %	34.4	0	0.3	0.1	0	65.1	

	Great Road (Route 2A/119) From East			Mannion Place From South			Great Road (Route 2A/119) From West			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	128	0	128	2	0	2	0	205	205	335
08:15 AM	124	0	124	0	0	0	0	191	191	315
08:30 AM	119	0	119	0	0	0	0	201	201	320
08:45 AM	121	0	121	2	0	2	0	224	224	347
Total Volume	492	0	492	4	0	4	0	821	821	1317
% App. Total	100	0		100	0		0	100		
PHF	.961	.000	.961	.500	.000	.500	.000	.916	.916	.949



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S: Mannion Place
E/W: Great Road (Route 2A/119)
City, State: Littleton, MA
Client: LandStrategies/ K. Cram

File Name : 112529 C
Site Code : 11-012KC
Start Date : 5/24/2011
Page No : 1

Groups Printed- Heavy Vehicles

	Great Road (Route 2A/119) From East		Mannion Place From South		Great Road (Route 2A/119) From West		
Start Time	Thru	Left	Right	Left	Right	Thru	Int. Total
07:00 AM	5	0	0	0	0	11	16
07:15 AM	5	0	0	0	0	10	15
07:30 AM	3	0	1	0	0	4	8
07:45 AM	4	0	0	0	0	7	11
Total	17	0	1	0	0	32	50
08:00 AM	5	0	0	0	0	6	11
08:15 AM	3	0	0	0	0	7	10
08:30 AM	8	0	1	0	0	12	21
08:45 AM	5	0	0	0	0	9	14
Total	21	0	1	0	0	34	56
Grand Total	38	0	2	0	0	66	106
Apprch %	100	0	100	0	0	100	
Total %	35.8	0	1.9	0	0	62.3	

	Great Road (Route 2A/119) From East			Mannion Place From South			Great Road (Route 2A/119) From West			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	5	0	5	0	0	0	0	6	6	11
08:15 AM	3	0	3	0	0	0	0	7	7	10
08:30 AM	8	0	8	1	0	1	0	12	12	21
08:45 AM	5	0	5	0	0	0	0	9	9	14
Total Volume	21	0	21	1	0	1	0	34	34	56
% App. Total	100	0		100	0		0	100		
PHF	.656	.000	.656	.250	.000	.250	.000	.708	.708	.667



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S: Mannion Place
E/W: Great Road (Route 2A/119)
City, State: Littleton, MA
Client: LandStrategies/ K. Cram

File Name : 112529 C
Site Code : 11-012KC
Start Date : 5/24/2011
Page No : 1

Groups Printed- Peds and Bicycles

Start Time	Great Road (Route 2A/119) From East			Mannion Place From South			Great Road (Route 2A/119) From West			Int. Total
	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	1	1
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	1	0	0	0	0	0	0	0	0	1
Total	1	0	0	0	0	0	0	0	1	2
08:00 AM	0	0	0	0	0	0	0	1	0	1
08:15 AM	0	0	0	0	0	0	0	0	0	0
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	0	0	0	0	1	0	1
Grand Total	1	0	0	0	0	0	0	1	1	3
Apprch %	100	0	0	0	0	0	0	50	50	
Total %	33.3	0	0	0	0	0	0	33.3	33.3	

	Great Road (Route 2A/119) From East				Mannion Place From South				Great Road (Route 2A/119) From West				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:15 AM													
07:15 AM	0	0	0	0	0	0	0	0	0	0	1	1	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	1	0	0	1	0	0	0	0	0	0	0	0	1
08:00 AM	0	0	0	0	0	0	0	0	0	1	0	1	1
Total Volume	1	0	0	1	0	0	0	0	0	1	1	2	3
% App. Total	100	0	0		0	0	0		0	50	50		
PHF	.250	.000	.000	.250	.000	.000	.000	.000	.000	.250	.250	.500	.750



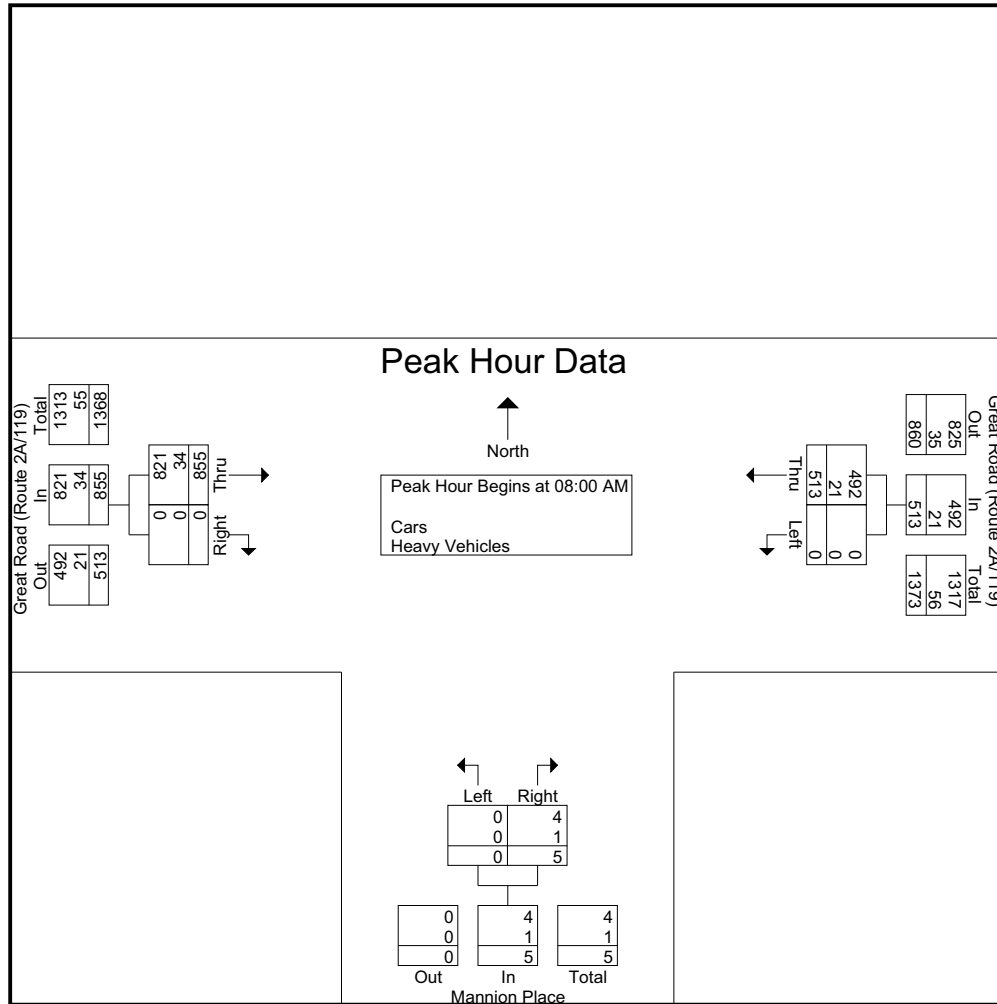
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S: Mannion Place
E/W: Great Road (Route 2A/119)
City, State: Littleton, MA
Client: LandStrategies/ K. Cram

File Name : 112529 C
Site Code : 11-012KC
Start Date : 5/24/2011
Page No : 1

	Great Road (Route 2A/119) From East			Mannion Place From South			Great Road (Route 2A/119) From West			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	133	0	133	2	0	2	0	211	211	346
08:15 AM	127	0	127	0	0	0	0	198	198	325
08:30 AM	127	0	127	1	0	1	0	213	213	341
08:45 AM	126	0	126	2	0	2	0	233	233	361
Total Volume	513	0	513	5	0	5	0	855	855	1373
% App. Total	100	0		100	0		0	100		
PHF	.964	.000	.964	.625	.000	.625	.000	.917	.917	.951
Cars	492	0	492	4	0	4	0	821	821	1317
% Cars	95.9	0	95.9	80.0	0	80.0	0	96.0	96.0	95.9
Heavy Vehicles	21	0	21	1	0	1	0	34	34	56
% Heavy Vehicles	4.1	0	4.1	20.0	0	20.0	0	4.0	4.0	4.1





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File Name : 112529 CC
Site Code : 11-012KC
Start Date : 5/24/2011
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Great Road (Route 2A/119) From East		Mannion Place From South		Great Road (Route 2A/119) From West		
Start Time	Thru	Left	Right	Left	Right	Thru	Int. Total
04:30 PM	248	0	0	1	0	102	351
04:45 PM	223	1	1	0	0	152	377
Total	471	1	1	1	0	254	728
05:00 PM	277	1	2	0	0	123	403
05:15 PM	238	0	5	0	0	149	392
05:30 PM	239	1	0	0	0	142	382
05:45 PM	191	2	1	0	0	189	383
Total	945	4	8	0	0	603	1560
06:00 PM	209	2	0	0	0	155	366
06:15 PM	152	2	0	0	0	110	264
Grand Total	1777	9	9	1	0	1122	2918
Apprch %	99.5	0.5	90	10	0	100	
Total %	60.9	0.3	0.3	0	0	38.5	
Cars	1750	8	9	1	0	1107	2875
% Cars	98.5	88.9	100	100	0	98.7	98.5
Heavy Vehicles	27	1	0	0	0	15	43
% Heavy Vehicles	1.5	11.1	0	0	0	1.3	1.5

	Great Road (Route 2A/119) From East			Mannion Place From South			Great Road (Route 2A/119) From West			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	277	1	278	2	0	2	0	123	123	403
05:15 PM	238	0	238	5	0	5	0	149	149	392
05:30 PM	239	1	240	0	0	0	0	142	142	382
05:45 PM	191	2	193	1	0	1	0	189	189	383
Total Volume	945	4	949	8	0	8	0	603	603	1560
% App. Total	99.6	0.4		100	0		0	100		
PHF	.853	.500	.853	.400	.000	.400	.000	.798	.798	.968
Cars	937	4	941	8	0	8	0	596	596	1545
% Cars	99.2	100	99.2	100	0	100	0	98.8	98.8	99.0
Heavy Vehicles	8	0	8	0	0	0	0	7	7	15
% Heavy Vehicles	0.8	0	0.8	0	0	0	0	1.2	1.2	1.0



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S: Mannion Place
E/W: Great Road (Route 2A/119)
City, State: Littleton, MA
Client: LandStrategies/ K. Cram

File Name : 112529 CC
Site Code : 11-012KC
Start Date : 5/24/2011
Page No : 1

Groups Printed- Cars

	Great Road (Route 2A/119) From East		Mannion Place From South		Great Road (Route 2A/119) From West		
Start Time	Thru	Left	Right	Left	Right	Thru	Int. Total
04:30 PM	240	0	0	1	0	98	339
04:45 PM	216	1	1	0	0	151	369
Total	456	1	1	1	0	249	708
05:00 PM	275	1	2	0	0	120	398
05:15 PM	237	0	5	0	0	149	391
05:30 PM	236	1	0	0	0	140	377
05:45 PM	189	2	1	0	0	187	379
Total	937	4	8	0	0	596	1545
06:00 PM	207	2	0	0	0	154	363
06:15 PM	150	1	0	0	0	108	259
Grand Total	1750	8	9	1	0	1107	2875
Apprch %	99.5	0.5	90	10	0	100	
Total %	60.9	0.3	0.3	0	0	38.5	

	Great Road (Route 2A/119) From East			Mannion Place From South			Great Road (Route 2A/119) From West			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	275	1	276	2	0	2	0	120	120	398
05:15 PM	237	0	237	5	0	5	0	149	149	391
05:30 PM	236	1	237	0	0	0	0	140	140	377
05:45 PM	189	2	191	1	0	1	0	187	187	379
Total Volume	937	4	941	8	0	8	0	596	596	1545
% App. Total	99.6	0.4		100	0		0	100		
PHF	.852	.500	.852	.400	.000	.400	.000	.797	.797	.970



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File Name : 112529 CC
Site Code : 11-012KC
Start Date : 5/24/2011
Page No : 1

Groups Printed- Heavy Vehicles

	Great Road (Route 2A/119) From East		Mannion Place From South		Great Road (Route 2A/119) From West		
Start Time	Thru	Left	Right	Left	Right	Thru	Int. Total
04:30 PM	8	0	0	0	0	4	12
04:45 PM	7	0	0	0	0	1	8
Total	15	0	0	0	0	5	20
05:00 PM	2	0	0	0	0	3	5
05:15 PM	1	0	0	0	0	0	1
05:30 PM	3	0	0	0	0	2	5
05:45 PM	2	0	0	0	0	2	4
Total	8	0	0	0	0	7	15
06:00 PM	2	0	0	0	0	1	3
06:15 PM	2	1	0	0	0	2	5
Grand Total	27	1	0	0	0	15	43
Apprch %	96.4	3.6	0	0	0	100	
Total %	62.8	2.3	0	0	0	34.9	

	Great Road (Route 2A/119) From East			Mannion Place From South			Great Road (Route 2A/119) From West			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	8	0	8	0	0	0	0	4	4	12
04:45 PM	7	0	7	0	0	0	0	1	1	8
05:00 PM	2	0	2	0	0	0	0	3	3	5
05:15 PM	1	0	1	0	0	0	0	0	0	1
Total Volume	18	0	18	0	0	0	0	8	8	26
% App. Total	100	0		0	0		0	100		
PHF	.563	.000	.563	.000	.000	.000	.000	.500	.500	.542



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File Name : 112529 CC
Site Code : 11-012KC
Start Date : 5/24/2011
Page No : 1

Groups Printed- Peds and Bicycles

Start Time	Great Road (Route 2A/119) From East			Mannion Place From South			Great Road (Route 2A/119) From West			Int. Total
	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	1	0	1
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	1	0	1
06:00 PM	0	0	0	0	0	0	0	0	0	0
06:15 PM	1	0	0	0	0	0	0	0	1	2
Grand Total	1	0	0	0	0	0	0	1	1	3
Apprch %	100	0	0	0	0	0	0	50	50	
Total %	33.3	0	0	0	0	0	0	33.3	33.3	

	Great Road (Route 2A/119)				Mannion Place				Great Road (Route 2A/119)				
	From East					From South				From West			
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:30 PM													
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 PM	1	0	0	1	0	0	0	0	0	0	1	1	2
Total Volume	1	0	0	1	0	0	0	0	0	0	1	1	2
% App. Total	100	0	0		0	0	0		0	0	100		
PHF	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.250	.250	.250



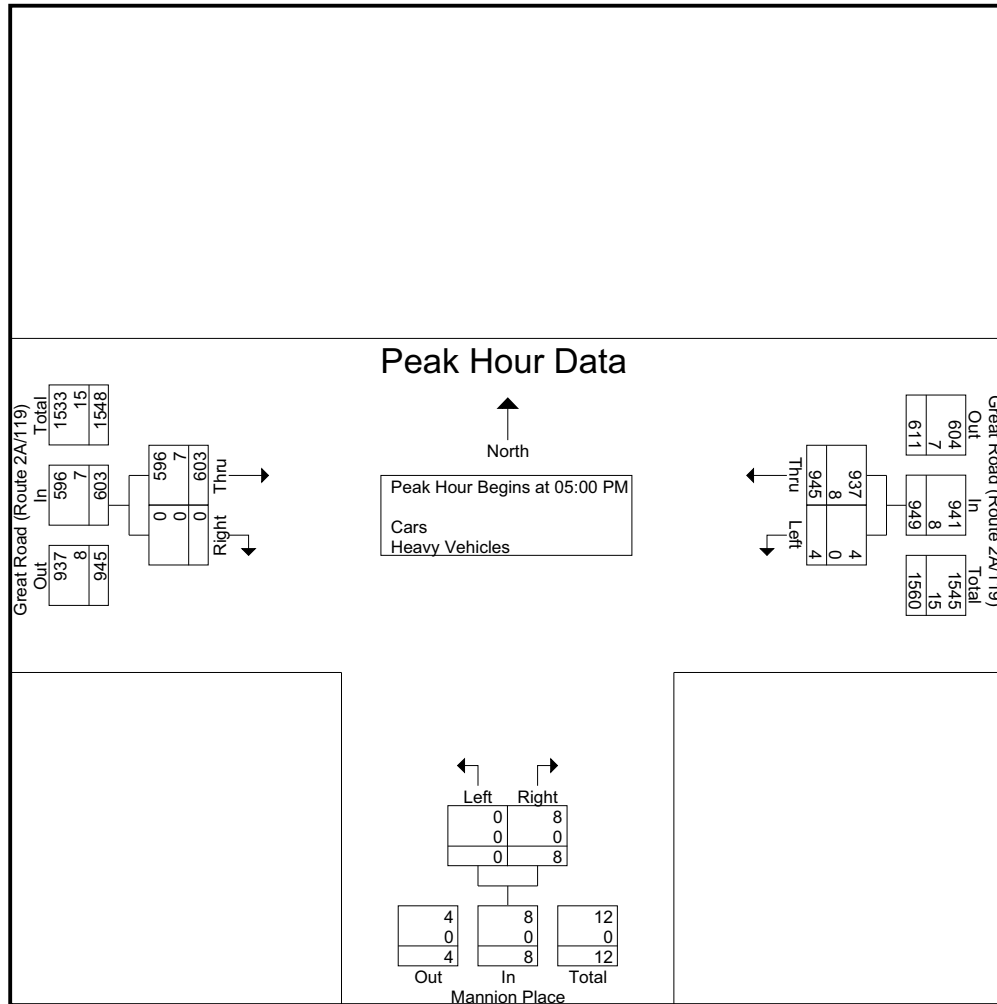
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S: Mannion Place
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File Name : 112529 CC
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	Great Road (Route 2A/119) From East			Mannion Place From South			Great Road (Route 2A/119) From West			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	277	1	278	2	0	2	0	123	123	403
05:15 PM	238	0	238	5	0	5	0	149	149	392
05:30 PM	239	1	240	0	0	0	0	142	142	382
05:45 PM	191	2	193	1	0	1	0	189	189	383
Total Volume	945	4	949	8	0	8	0	603	603	1560
% App. Total	99.6	0.4		100	0		0	100		
PHF	.853	.500	.853	.400	.000	.400	.000	.798	.798	.968
Cars	937	4	941	8	0	8	0	596	596	1545
% Cars	99.2	100	99.2	100	0	100	0	98.8	98.8	99.0
Heavy Vehicles	8	0	8	0	0	0	0	7	7	15
% Heavy Vehicles	0.8	0	0.8	0	0	0	0	1.2	1.2	1.0





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N: Grist Mill Road (West)
E/W: Great Road (Route 2A/119)
City, State: Littleton, MA
Client: LandStrategies/ K. Cram

File Name : 112529 D
Site Code : 11-012KC
Start Date : 5/24/2011
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Grist Mill Road (West) From North		Great Road (Route 2A/119) From East		Great Road (Route 2A/119) From West		
Start Time	Right	Left	Right	Thru	Thru	Left	Int. Total
07:00 AM	6	1	0	89	172	0	268
07:15 AM	5	0	1	65	221	3	295
07:30 AM	4	1	1	110	208	1	325
07:45 AM	6	0	0	107	191	0	304
Total	21	2	2	371	792	4	1192
08:00 AM	4	0	0	144	215	1	364
08:15 AM	9	1	0	128	203	4	345
08:30 AM	7	4	0	126	212	3	352
08:45 AM	4	0	0	135	225	2	366
Total	24	5	0	533	855	10	1427
Grand Total	45	7	2	904	1647	14	2619
Apprch %	86.5	13.5	0.2	99.8	99.2	0.8	
Total %	1.7	0.3	0.1	34.5	62.9	0.5	
Cars	43	5	2	870	1590	13	2523
% Cars	95.6	71.4	100	96.2	96.5	92.9	96.3
Heavy Vehicles	2	2	0	34	57	1	96
% Heavy Vehicles	4.4	28.6	0	3.8	3.5	7.1	3.7

	Grist Mill Road (West) From North			Great Road (Route 2A/119) From East			Great Road (Route 2A/119) From West			
Start Time	Right	Left	App. Total	Right	Thru	App. Total	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	4	0	4	0	144	144	215	1	216	364
08:15 AM	9	1	10	0	128	128	203	4	207	345
08:30 AM	7	4	11	0	126	126	212	3	215	352
08:45 AM	4	0	4	0	135	135	225	2	227	366
Total Volume	24	5	29	0	533	533	855	10	865	1427
% App. Total	82.8	17.2		0	100		98.8	1.2		
PHF	.667	.313	.659	.000	.925	.925	.950	.625	.953	.975
Cars	22	4	26	0	515	515	827	9	836	1377
% Cars	91.7	80.0	89.7	0	96.6	96.6	96.7	90.0	96.6	96.5
Heavy Vehicles	2	1	3	0	18	18	28	1	29	50
% Heavy Vehicles	8.3	20.0	10.3	0	3.4	3.4	3.3	10.0	3.4	3.5



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City, State: Littleton, MA
Client: LandStrategies/ K. Cram

File Name : 112529 D
Site Code : 11-012KC
Start Date : 5/24/2011
Page No : 1

Groups Printed- Cars

	Grist Mill Road (West) From North		Great Road (Route 2A/119) From East		Great Road (Route 2A/119) From West		
Start Time	Right	Left	Right	Thru	Thru	Left	Int. Total
07:00 AM	6	1	0	84	164	0	255
07:15 AM	5	0	1	62	214	3	285
07:30 AM	4	0	1	105	201	1	312
07:45 AM	6	0	0	104	184	0	294
Total	21	1	2	355	763	4	1146
08:00 AM	3	0	0	142	208	1	354
08:15 AM	8	1	0	126	196	3	334
08:30 AM	7	3	0	118	204	3	335
08:45 AM	4	0	0	129	219	2	354
Total	22	4	0	515	827	9	1377
Grand Total	43	5	2	870	1590	13	2523
Apprch %	89.6	10.4	0.2	99.8	99.2	0.8	
Total %	1.7	0.2	0.1	34.5	63	0.5	

	Grist Mill Road (West) From North			Great Road (Route 2A/119) From East			Great Road (Route 2A/119) From West			
Start Time	Right	Left	App. Total	Right	Thru	App. Total	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	3	0	3	0	142	142	208	1	209	354
08:15 AM	8	1	9	0	126	126	196	3	199	334
08:30 AM	7	3	10	0	118	118	204	3	207	335
08:45 AM	4	0	4	0	129	129	219	2	221	354
Total Volume	22	4	26	0	515	515	827	9	836	1377
% App. Total	84.6	15.4		0	100		98.9	1.1		
PHF	.688	.333	.650	.000	.907	.907	.944	.750	.946	.972



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N: Grist Mill Road (West)
E/W: Great Road (Route 2A/119)
City, State: Littleton, MA
Client: LandStrategies/ K. Cram

File Name : 112529 D
Site Code : 11-012KC
Start Date : 5/24/2011
Page No : 1

Groups Printed- Heavy Vehicles

	Grist Mill Road (West) From North		Great Road (Route 2A/119) From East		Great Road (Route 2A/119) From West		
Start Time	Right	Left	Right	Thru	Thru	Left	Int. Total
07:00 AM	0	0	0	5	8	0	13
07:15 AM	0	0	0	3	7	0	10
07:30 AM	0	1	0	5	7	0	13
07:45 AM	0	0	0	3	7	0	10
Total	0	1	0	16	29	0	46
08:00 AM	1	0	0	2	7	0	10
08:15 AM	1	0	0	2	7	1	11
08:30 AM	0	1	0	8	8	0	17
08:45 AM	0	0	0	6	6	0	12
Total	2	1	0	18	28	1	50
Grand Total	2	2	0	34	57	1	96
Apprch %	50	50	0	100	98.3	1.7	
Total %	2.1	2.1	0	35.4	59.4	1	

	Grist Mill Road (West) From North			Great Road (Route 2A/119) From East			Great Road (Route 2A/119) From West			
Start Time	Right	Left	App. Total	Right	Thru	App. Total	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	1	0	1	0	2	2	7	0	7	10
08:15 AM	1	0	1	0	2	2	7	1	8	11
08:30 AM	0	1	1	0	8	8	8	0	8	17
08:45 AM	0	0	0	0	6	6	6	0	6	12
Total Volume	2	1	3	0	18	18	28	1	29	50
% App. Total	66.7	33.3		0	100		96.6	3.4		
PHF	.500	.250	.750	.000	.563	.563	.875	.250	.906	.735



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File Name : 112529 D
Site Code : 11-012KC
Start Date : 5/24/2011
Page No : 1

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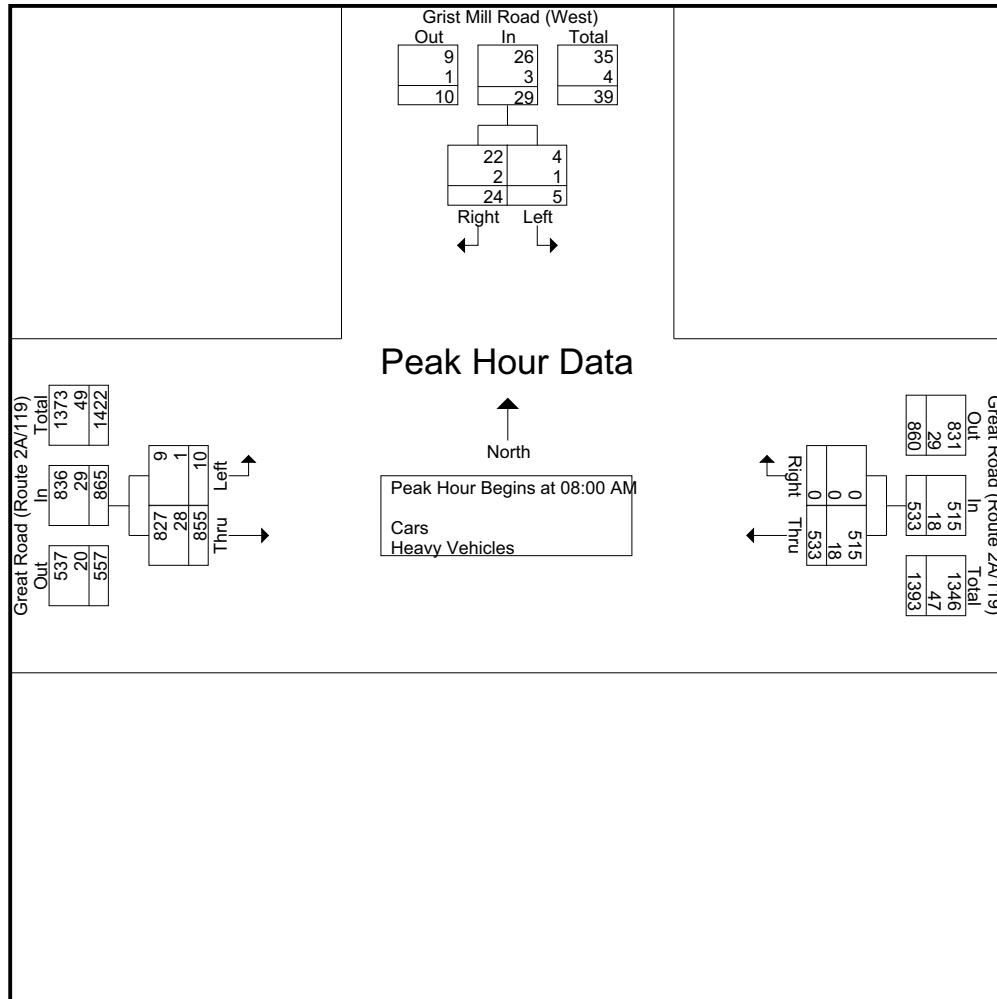
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Site Code : 11-012KC
Start Date : 5/24/2011
Page No : 1

	Grist Mill Road (West) From North			Great Road (Route 2A/119) From East			Great Road (Route 2A/119) From West			
Start Time	Right	Left	App. Total	Right	Thru	App. Total	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	4	0	4	0	144	144	215	1	216	364
08:15 AM	9	1	10	0	128	128	203	4	207	345
08:30 AM	7	4	11	0	126	126	212	3	215	352
08:45 AM	4	0	4	0	135	135	225	2	227	366
Total Volume	24	5	29	0	533	533	855	10	865	1427
% App. Total	82.8	17.2		0	100		98.8	1.2		
PHF	.667	.313	.659	.000	.925	.925	.950	.625	.953	.975
Cars	22	4	26	0	515	515	827	9	836	1377
% Cars	91.7	80.0	89.7	0	96.6	96.6	96.7	90.0	96.6	96.5
Heavy Vehicles	2	1	3	0	18	18	28	1	29	50
% Heavy Vehicles	8.3	20.0	10.3	0	3.4	3.4	3.3	10.0	3.4	3.5





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City, State: Littleton, MA
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File Name : 112529 DD
Site Code : 11-012KC
Start Date : 5/24/2011
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Grist Mill Road (West) From North		Great Road (Route 2A/119) From East		Great Road (Route 2A/119) From West		
Start Time	Right	Left	Right	Thru	Thru	Left	Int. Total
04:30 PM	3	0	0	237	106	2	348
04:45 PM	5	1	2	230	154	5	397
Total	8	1	2	467	260	7	745
05:00 PM	1	0	2	268	127	6	404
05:15 PM	4	1	1	244	156	5	411
05:30 PM	4	0	1	240	148	5	398
05:45 PM	5	1	4	197	192	10	409
Total	14	2	8	949	623	26	1622
06:00 PM	6	0	2	201	150	3	362
06:15 PM	1	0	0	152	118	3	274
Grand Total	29	3	12	1769	1151	39	3003
Apprch %	90.6	9.4	0.7	99.3	96.7	3.3	
Total %	1	0.1	0.4	58.9	38.3	1.3	
Cars	28	3	11	1747	1141	39	2969
% Cars	96.6	100	91.7	98.8	99.1	100	98.9
Heavy Vehicles	1	0	1	22	10	0	34
% Heavy Vehicles	3.4	0	8.3	1.2	0.9	0	1.1

	Grist Mill Road (West) From North			Great Road (Route 2A/119) From East			Great Road (Route 2A/119) From West			
Start Time	Right	Left	App. Total	Right	Thru	App. Total	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	1	0	1	2	268	270	127	6	133	404
05:15 PM	4	1	5	1	244	245	156	5	161	411
05:30 PM	4	0	4	1	240	241	148	5	153	398
05:45 PM	5	1	6	4	197	201	192	10	202	409
Total Volume	14	2	16	8	949	957	623	26	649	1622
% App. Total	87.5	12.5		0.8	99.2		96	4		
PHF	.700	.500	.667	.500	.885	.886	.811	.650	.803	.987
Cars	13	2	15	7	940	947	618	26	644	1606
% Cars	92.9	100	93.8	87.5	99.1	99.0	99.2	100	99.2	99.0
Heavy Vehicles	1	0	1	1	9	10	5	0	5	16
% Heavy Vehicles	7.1	0	6.3	12.5	0.9	1.0	0.8	0	0.8	1.0



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N: Grist Mill Road (West)
E/W: Great Road (Route 2A/119)
City, State: Littleton, MA
Client: LandStrategies/ K. Cram

File Name : 112529 DD
Site Code : 11-012KC
Start Date : 5/24/2011
Page No : 1

Groups Printed- Cars

	Grist Mill Road (West) From North		Great Road (Route 2A/119) From East		Great Road (Route 2A/119) From West		
Start Time	Right	Left	Right	Thru	Thru	Left	Int. Total
04:30 PM	3	0	0	230	105	2	340
04:45 PM	5	1	2	225	152	5	390
Total	8	1	2	455	257	7	730
05:00 PM	1	0	1	265	126	6	399
05:15 PM	4	1	1	242	156	5	409
05:30 PM	4	0	1	238	146	5	394
05:45 PM	4	1	4	195	190	10	404
Total	13	2	7	940	618	26	1606
06:00 PM	6	0	2	201	149	3	361
06:15 PM	1	0	0	151	117	3	272
Grand Total	28	3	11	1747	1141	39	2969
Apprch %	90.3	9.7	0.6	99.4	96.7	3.3	
Total %	0.9	0.1	0.4	58.8	38.4	1.3	

	Grist Mill Road (West) From North			Great Road (Route 2A/119) From East			Great Road (Route 2A/119) From West			
Start Time	Right	Left	App. Total	Right	Thru	App. Total	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	1	0	1	1	265	266	126	6	132	399
05:15 PM	4	1	5	1	242	243	156	5	161	409
05:30 PM	4	0	4	1	238	239	146	5	151	394
05:45 PM	4	1	5	4	195	199	190	10	200	404
Total Volume	13	2	15	7	940	947	618	26	644	1606
% App. Total	86.7	13.3		0.7	99.3		96	4		
PHF	.813	.500	.750	.438	.887	.890	.813	.650	.805	.982



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File Name : 112529 DD
Site Code : 11-012KC
Start Date : 5/24/2011
Page No : 1

Groups Printed- Heavy Vehicles

	Grist Mill Road (West) From North		Great Road (Route 2A/119) From East		Great Road (Route 2A/119) From West		
Start Time	Right	Left	Right	Thru	Thru	Left	Int. Total
04:30 PM	0	0	0	7	1	0	8
04:45 PM	0	0	0	5	2	0	7
Total	0	0	0	12	3	0	15
05:00 PM	0	0	1	3	1	0	5
05:15 PM	0	0	0	2	0	0	2
05:30 PM	0	0	0	2	2	0	4
05:45 PM	1	0	0	2	2	0	5
Total	1	0	1	9	5	0	16
06:00 PM	0	0	0	0	1	0	1
06:15 PM	0	0	0	1	1	0	2
Grand Total	1	0	1	22	10	0	34
Apprch %	100	0	4.3	95.7	100	0	
Total %	2.9	0	2.9	64.7	29.4	0	

	Grist Mill Road (West) From North			Great Road (Route 2A/119) From East			Great Road (Route 2A/119) From West			
Start Time	Right	Left	App. Total	Right	Thru	App. Total	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	0	0	0	0	7	7	1	0	1	8
04:45 PM	0	0	0	0	5	5	2	0	2	7
05:00 PM	0	0	0	1	3	4	1	0	1	5
05:15 PM	0	0	0	0	2	2	0	0	0	2
Total Volume	0	0	0	1	17	18	4	0	4	22
% App. Total	0	0		5.6	94.4		100	0		
PHF	.000	.000	.000	.250	.607	.643	.500	.000	.500	.688



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File Name : 112529 DD
Site Code : 11-012KC
Start Date : 5/24/2011
Page No : 1

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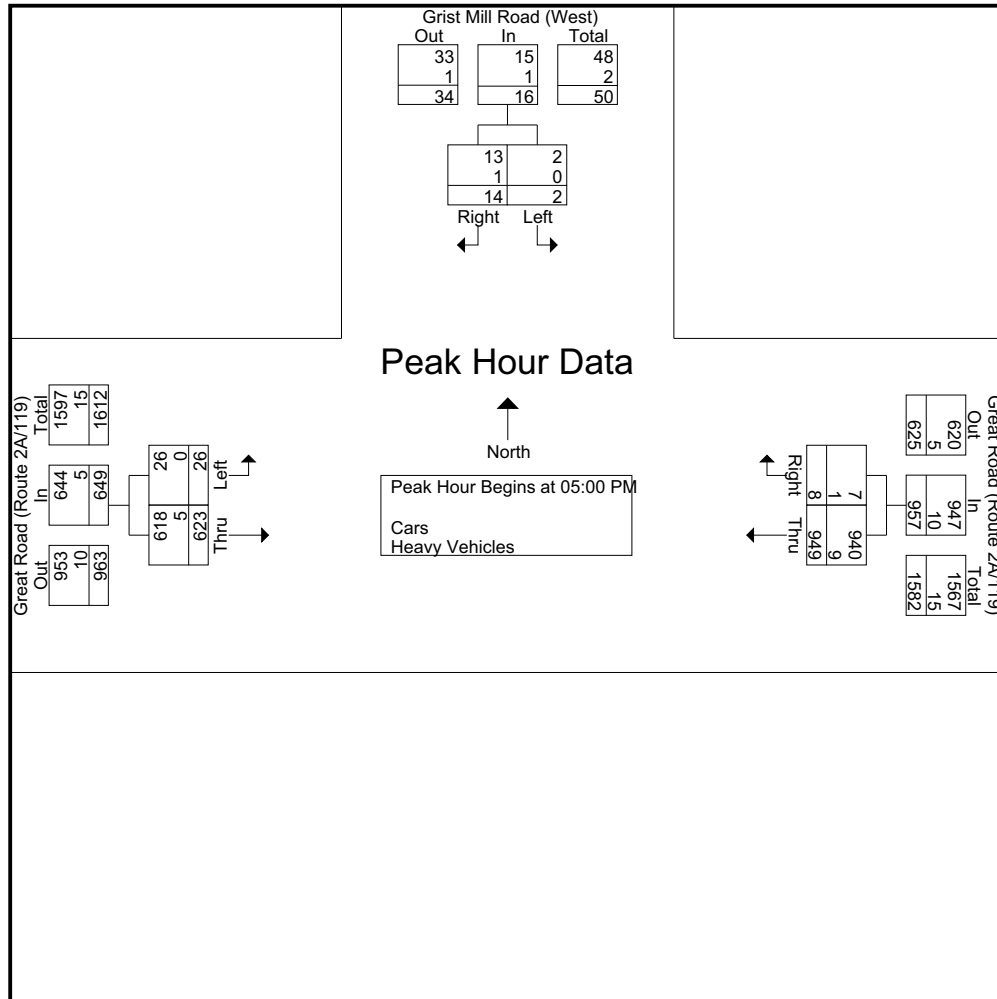
PRECISION
DATA
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File Name : 112529 DD
Site Code : 11-012KC
Start Date : 5/24/2011
Page No : 1

	Grist Mill Road (West) From North			Great Road (Route 2A/119) From East			Great Road (Route 2A/119) From West			
Start Time	Right	Left	App. Total	Right	Thru	App. Total	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	1	0	1	2	268	270	127	6	133	404
05:15 PM	4	1	5	1	244	245	156	5	161	411
05:30 PM	4	0	4	1	240	241	148	5	153	398
05:45 PM	5	1	6	4	197	201	192	10	202	409
Total Volume	14	2	16	8	949	957	623	26	649	1622
% App. Total	87.5	12.5		0.8	99.2		96	4		
PHF	.700	.500	.667	.500	.885	.886	.811	.650	.803	.987
Cars	13	2	15	7	940	947	618	26	644	1606
% Cars	92.9	100	93.8	87.5	99.1	99.0	99.2	100	99.2	99.0
Heavy Vehicles	1	0	1	1	9	10	5	0	5	16
% Heavy Vehicles	7.1	0	6.3	12.5	0.9	1.0	0.8	0	0.8	1.0





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City, State: Littleton, MA
Client: LandStrategies/ K. Cram

File Name : 112529 E
Site Code : 11-012KC
Start Date : 5/24/2011
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Grist Mill Road (East) From North		Great Road (Route 2A/119) From East		Great Road (Route 2A/119) From West		
Start Time	Right	Left	Right	Thru	Thru	Left	Int. Total
07:00 AM	6	6	1	80	171	0	264
07:15 AM	4	4	3	61	212	2	286
07:30 AM	2	5	0	108	202	2	319
07:45 AM	0	2	0	113	195	1	311
Total	12	17	4	362	780	5	1180
08:00 AM	3	3	2	132	210	1	351
08:15 AM	5	4	2	125	195	2	333
08:30 AM	3	3	0	125	211	1	343
08:45 AM	4	2	1	139	242	2	390
Total	15	12	5	521	858	6	1417
Grand Total	27	29	9	883	1638	11	2597
Apprch %	48.2	51.8	1	99	99.3	0.7	
Total %	1	1.1	0.3	34	63.1	0.4	
Cars	27	27	9	843	1572	9	2487
% Cars	100	93.1	100	95.5	96	81.8	95.8
Heavy Vehicles	0	2	0	40	66	2	110
% Heavy Vehicles	0	6.9	0	4.5	4	18.2	4.2

	Grist Mill Road (East) From North			Great Road (Route 2A/119) From East			Great Road (Route 2A/119) From West			
Start Time	Right	Left	App. Total	Right	Thru	App. Total	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	3	3	6	2	132	134	210	1	211	351
08:15 AM	5	4	9	2	125	127	195	2	197	333
08:30 AM	3	3	6	0	125	125	211	1	212	343
08:45 AM	4	2	6	1	139	140	242	2	244	390
Total Volume	15	12	27	5	521	526	858	6	864	1417
% App. Total	55.6	44.4		1	99		99.3	0.7		
PHF	.750	.750	.750	.625	.937	.939	.886	.750	.885	.908
Cars	15	11	26	5	499	504	824	5	829	1359
% Cars	100	91.7	96.3	100	95.8	95.8	96.0	83.3	95.9	95.9
Heavy Vehicles	0	1	1	0	22	22	34	1	35	58
% Heavy Vehicles	0	8.3	3.7	0	4.2	4.2	4.0	16.7	4.1	4.1



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City, State: Littleton, MA
Client: LandStrategies/ K. Cram

File Name : 112529 E
Site Code : 11-012KC
Start Date : 5/24/2011
Page No : 1

Groups Printed- Cars

	Grist Mill Road (East) From North		Great Road (Route 2A/119) From East		Great Road (Route 2A/119) From West		
Start Time	Right	Left	Right	Thru	Thru	Left	Int. Total
07:00 AM	6	6	1	75	161	0	249
07:15 AM	4	4	3	55	201	2	269
07:30 AM	2	4	0	105	198	1	310
07:45 AM	0	2	0	109	188	1	300
Total	12	16	4	344	748	4	1128
08:00 AM	3	3	2	127	204	1	340
08:15 AM	5	4	2	122	188	1	322
08:30 AM	3	2	0	117	199	1	322
08:45 AM	4	2	1	133	233	2	375
Total	15	11	5	499	824	5	1359
Grand Total	27	27	9	843	1572	9	2487
Apprch %	50	50	1.1	98.9	99.4	0.6	
Total %	1.1	1.1	0.4	33.9	63.2	0.4	

	Grist Mill Road (East) From North			Great Road (Route 2A/119) From East			Great Road (Route 2A/119) From West			
Start Time	Right	Left	App. Total	Right	Thru	App. Total	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	3	3	6	2	127	129	204	1	205	340
08:15 AM	5	4	9	2	122	124	188	1	189	322
08:30 AM	3	2	5	0	117	117	199	1	200	322
08:45 AM	4	2	6	1	133	134	233	2	235	375
Total Volume	15	11	26	5	499	504	824	5	829	1359
% App. Total	57.7	42.3		1	99		99.4	0.6		
PHF	.750	.688	.722	.625	.938	.940	.884	.625	.882	.906



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File Name : 112529 E
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Start Date : 5/24/2011
Page No : 1

Groups Printed- Heavy Vehicles

	Grist Mill Road (East) From North		Great Road (Route 2A/119) From East		Great Road (Route 2A/119) From West		
Start Time	Right	Left	Right	Thru	Thru	Left	Int. Total
07:00 AM	0	0	0	5	10	0	15
07:15 AM	0	0	0	6	11	0	17
07:30 AM	0	1	0	3	4	1	9
07:45 AM	0	0	0	4	7	0	11
Total	0	1	0	18	32	1	52
08:00 AM	0	0	0	5	6	0	11
08:15 AM	0	0	0	3	7	1	11
08:30 AM	0	1	0	8	12	0	21
08:45 AM	0	0	0	6	9	0	15
Total	0	1	0	22	34	1	58
Grand Total	0	2	0	40	66	2	110
Apprch %	0	100	0	100	97.1	2.9	
Total %	0	1.8	0	36.4	60	1.8	

	Grist Mill Road (East) From North			Great Road (Route 2A/119) From East			Great Road (Route 2A/119) From West			
Start Time	Right	Left	App. Total	Right	Thru	App. Total	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	0	0	0	0	5	5	6	0	6	11
08:15 AM	0	0	0	0	3	3	7	1	8	11
08:30 AM	0	1	1	0	8	8	12	0	12	21
08:45 AM	0	0	0	0	6	6	9	0	9	15
Total Volume	0	1	1	0	22	22	34	1	35	58
% App. Total	0	100		0	100		97.1	2.9		
PHF	.000	.250	.250	.000	.688	.688	.708	.250	.729	.690



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File Name : 112529 E
Site Code : 11-012KC
Start Date : 5/24/2011
Page No : 1

Groups Printed- Peds and Bicycles

Start Time	Grist Mill Road (East) From North			Great Road (Route 2A/119) From East			Great Road (Route 2A/119) From West			Int. Total
	Right	Left	Peds	Right	Thru	Peds	Thru	Left	Peds	
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0	0	0	0	0	0	0	
Total %										

Start Time	Grist Mill Road (East) From North				Great Road (Route 2A/119) From East				Great Road (Route 2A/119) From West				Int. Total
	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:00 AM



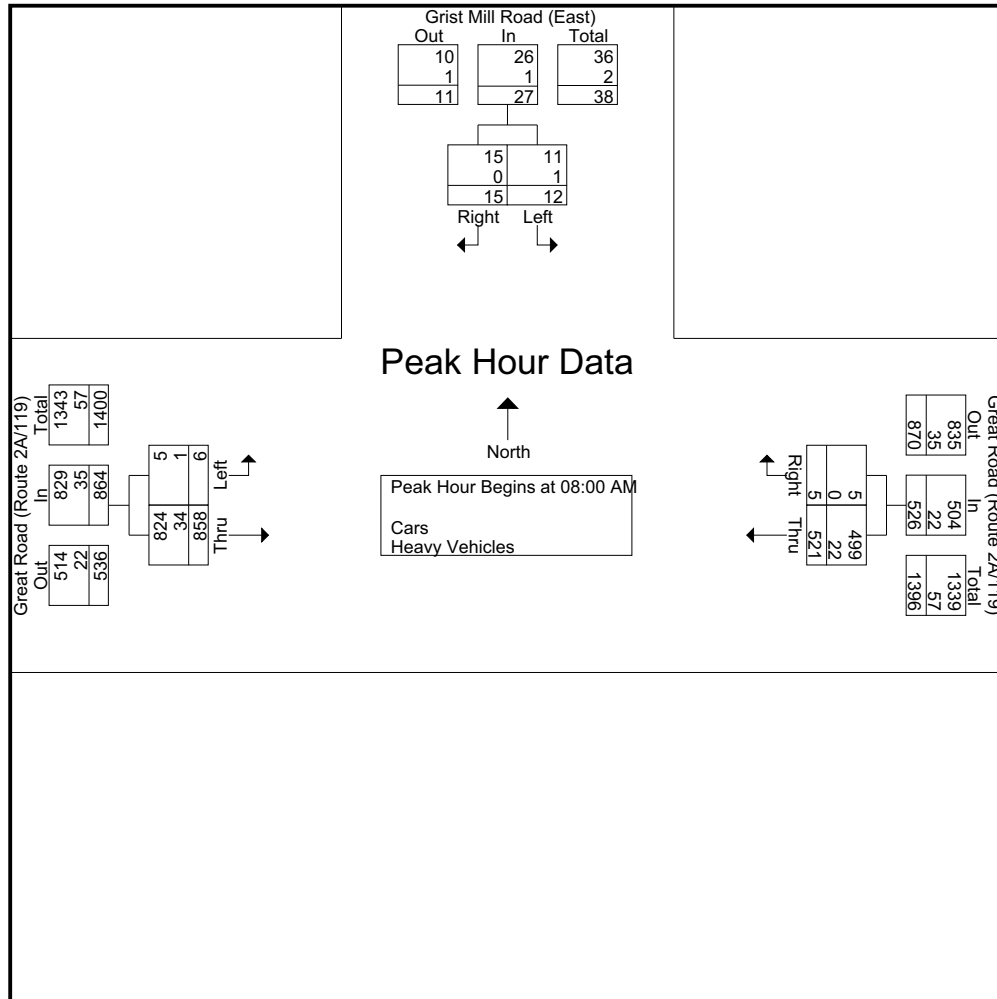
PRECISION
DATA
INDUSTRIES, LLC

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

N: Grist Mill Road (East)
E/W: Great Road (Route 2A/119)
City, State: Littleton, MA
Client: LandStrategies/ K. Cram

File Name : 112529 E
Site Code : 11-012KC
Start Date : 5/24/2011
Page No : 1

	Grist Mill Road (East) From North			Great Road (Route 2A/119) From East			Great Road (Route 2A/119) From West			
Start Time	Right	Left	App. Total	Right	Thru	App. Total	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	3	3	6	2	132	134	210	1	211	351
08:15 AM	5	4	9	2	125	127	195	2	197	333
08:30 AM	3	3	6	0	125	125	211	1	212	343
08:45 AM	4	2	6	1	139	140	242	2	244	390
Total Volume	15	12	27	5	521	526	858	6	864	1417
% App. Total	55.6	44.4		1	99		99.3	0.7		
PHF	.750	.750	.750	.625	.937	.939	.886	.750	.885	.908
Cars	15	11	26	5	499	504	824	5	829	1359
% Cars	100	91.7	96.3	100	95.8	95.8	96.0	83.3	95.9	95.9
Heavy Vehicles	0	1	1	0	22	22	34	1	35	58
% Heavy Vehicles	0	8.3	3.7	0	4.2	4.2	4.0	16.7	4.1	4.1





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City, State: Littleton, MA
Client: LandStrategies/ K. Cram

File Name : 112529 EE
Site Code : 11-012KC
Start Date : 5/24/2011
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Grist Mill Road (East) From North		Great Road (Route 2A/119) From East		Great Road (Route 2A/119) From West		
Start Time	Right	Left	Right	Thru	Thru	Left	Int. Total
04:30 PM	1	2	5	246	102	2	358
04:45 PM	4	2	4	216	150	5	381
Total	5	4	9	462	252	7	739
05:00 PM	5	0	3	274	125	3	410
05:15 PM	3	1	5	236	145	5	395
05:30 PM	0	1	4	231	139	6	381
05:45 PM	4	3	1	196	186	4	394
Total	12	5	13	937	595	18	1580
06:00 PM	2	3	2	198	150	1	356
06:15 PM	3	0	5	149	115	5	277
Grand Total	22	12	29	1746	1112	31	2952
Apprch %	64.7	35.3	1.6	98.4	97.3	2.7	
Total %	0.7	0.4	1	59.1	37.7	1.1	
Cars	22	12	28	1725	1098	30	2915
% Cars	100	100	96.6	98.8	98.7	96.8	98.7
Heavy Vehicles	0	0	1	21	14	1	37
% Heavy Vehicles	0	0	3.4	1.2	1.3	3.2	1.3

	Grist Mill Road (East) From North			Great Road (Route 2A/119) From East			Great Road (Route 2A/119) From West			
Start Time	Right	Left	App. Total	Right	Thru	App. Total	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	5	0	5	3	274	277	125	3	128	410
05:15 PM	3	1	4	5	236	241	145	5	150	395
05:30 PM	0	1	1	4	231	235	139	6	145	381
05:45 PM	4	3	7	1	196	197	186	4	190	394
Total Volume	12	5	17	13	937	950	595	18	613	1580
% App. Total	70.6	29.4		1.4	98.6		97.1	2.9		
PHF	.600	.417	.607	.650	.855	.857	.800	.750	.807	.963
Cars	12	5	17	13	929	942	588	18	606	1565
% Cars	100	100	100	100	99.1	99.2	98.8	100	98.9	99.1
Heavy Vehicles	0	0	0	0	8	8	7	0	7	15
% Heavy Vehicles	0	0	0	0	0.9	0.8	1.2	0	1.1	0.9



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E/W: Great Road (Route 2A/119)
City, State: Littleton, MA
Client: LandStrategies/ K. Cram

File Name : 112529 EE
Site Code : 11-012KC
Start Date : 5/24/2011
Page No : 1

Groups Printed- Cars

	Grist Mill Road (East) From North		Great Road (Route 2A/119) From East		Great Road (Route 2A/119) From West		
Start Time	Right	Left	Right	Thru	Thru	Left	Int. Total
04:30 PM	1	2	5	238	98	2	346
04:45 PM	4	2	3	212	149	5	375
Total	5	4	8	450	247	7	721
05:00 PM	5	0	3	272	122	3	405
05:15 PM	3	1	5	235	145	5	394
05:30 PM	0	1	4	228	137	6	376
05:45 PM	4	3	1	194	184	4	390
Total	12	5	13	929	588	18	1565
06:00 PM	2	3	2	197	150	1	355
06:15 PM	3	0	5	149	113	4	274
Grand Total	22	12	28	1725	1098	30	2915
Apprch %	64.7	35.3	1.6	98.4	97.3	2.7	
Total %	0.8	0.4	1	59.2	37.7	1	

	Grist Mill Road (East) From North			Great Road (Route 2A/119) From East			Great Road (Route 2A/119) From West			
Start Time	Right	Left	App. Total	Right	Thru	App. Total	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	5	0	5	3	272	275	122	3	125	405
05:15 PM	3	1	4	5	235	240	145	5	150	394
05:30 PM	0	1	1	4	228	232	137	6	143	376
05:45 PM	4	3	7	1	194	195	184	4	188	390
Total Volume	12	5	17	13	929	942	588	18	606	1565
% App. Total	70.6	29.4		1.4	98.6		97	3		
PHF	.600	.417	.607	.650	.854	.856	.799	.750	.806	.966



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File Name : 112529 EE
Site Code : 11-012KC
Start Date : 5/24/2011
Page No : 1

Groups Printed- Heavy Vehicles

	Grist Mill Road (East) From North		Great Road (Route 2A/119) From East		Great Road (Route 2A/119) From West		
Start Time	Right	Left	Right	Thru	Thru	Left	Int. Total
04:30 PM	0	0	0	8	4	0	12
04:45 PM	0	0	1	4	1	0	6
Total	0	0	1	12	5	0	18
05:00 PM	0	0	0	2	3	0	5
05:15 PM	0	0	0	1	0	0	1
05:30 PM	0	0	0	3	2	0	5
05:45 PM	0	0	0	2	2	0	4
Total	0	0	0	8	7	0	15
06:00 PM	0	0	0	1	0	0	1
06:15 PM	0	0	0	0	2	1	3
Grand Total	0	0	1	21	14	1	37
Apprch %	0	0	4.5	95.5	93.3	6.7	
Total %	0	0	2.7	56.8	37.8	2.7	

	Grist Mill Road (East) From North			Great Road (Route 2A/119) From East			Great Road (Route 2A/119) From West			
Start Time	Right	Left	App. Total	Right	Thru	App. Total	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	0	0	0	0	8	8	4	0	4	12
04:45 PM	0	0	0	1	4	5	1	0	1	6
05:00 PM	0	0	0	0	2	2	3	0	3	5
05:15 PM	0	0	0	0	1	1	0	0	0	1
Total Volume	0	0	0	1	15	16	8	0	8	24
% App. Total	0	0		6.2	93.8		100	0		
PHF	.000	.000	.000	.250	.469	.500	.500	.000	.500	.500



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Start Date : 5/24/2011
Page No : 1

	Grist Mill Road (East) From North			Great Road (Route 2A/119) From East			Great Road (Route 2A/119) From West			
Start Time	Right	Left	Peds	Right	Thru	Peds	Thru	Left	Peds	Int. Total
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	1	0	0	0	0	0	0	0	1
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	1	0	0	0	0	0	0	0	1
06:00 PM	0	0	0	0	0	0	0	0	0	0
06:15 PM	0	0	0	1	0	0	0	0	0	1
Grand Total	0	1	0	1	0	0	0	0	0	2
Apprch %	0	100	0	100	0	0	0	0	0	
Total %	0	50	0	50	0	0	0	0	0	

[illegible]



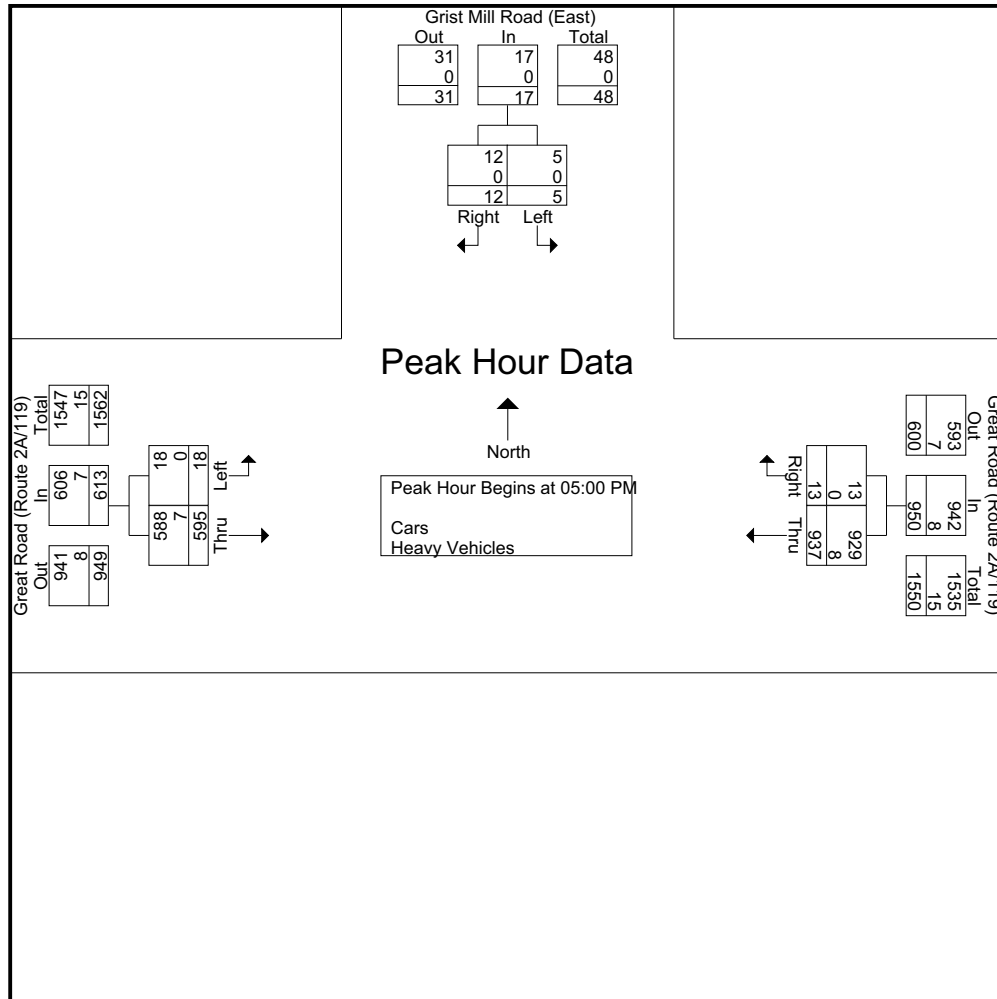
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Start Time	Right	Left	App. Total	Right	Thru	App. Total	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	5	0	5	3	274	277	125	3	128	410
05:15 PM	3	1	4	5	236	241	145	5	150	395
05:30 PM	0	1	1	4	231	235	139	6	145	381
05:45 PM	4	3	7	1	196	197	186	4	190	394
Total Volume	12	5	17	13	937	950	595	18	613	1580
% App. Total	70.6	29.4		1.4	98.6		97.1	2.9		
PHF	.600	.417	.607	.650	.855	.857	.800	.750	.807	.963
Cars	12	5	17	13	929	942	588	18	606	1565
% Cars	100	100	100	100	99.1	99.2	98.8	100	98.9	99.1
Heavy Vehicles	0	0	0	0	8	8	7	0	7	15
% Heavy Vehicles	0	0	0	0	0.9	0.8	1.2	0	1.1	0.9



Seasonal Adjustment Worksheets

MASSACHUSETTS HIGHWAY DEPARTMENT - STATEWIDE TRAFFIC DATA COLLECTION

2010 WEEKDAY SEASONAL FACTORS *

* Note: These are weekday factors. The average of the factors for the year will not equal 1, as weekend data are not considered.

FACTOR GROUP	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
GROUP 1 - WEST INTERSTATE	0.97	0.93	0.89	0.88	0.89	0.87	0.91	0.89	0.89	0.90	0.93	0.95
GROUP 2 - RURAL MAJOR COLLECTOR (R-5) Use group 2 for R5, R6, & R0	1.11	1.10	1.07	1.00	0.91	0.89	0.87	0.86	0.90	0.92	1.02	1.06
GROUP 3A - RECREATIONAL ** (1-4) See below	1.26	1.25	1.19	1.08	0.95	0.88	0.77	0.76	0.93	1.00	1.08	1.15
GROUP 3B - RECREATIONAL *** (5) See below	1.25	1.23	1.16	1.10	0.96	0.90	0.75	0.73	0.93	0.99	1.13	1.16
GROUP 4 - I-495 INTERSTATE	1.02	0.99	0.98	0.95	0.92	0.88	0.86	0.84	0.93	0.95	0.99	1.03
GROUP 5 - EAST INTERSTATE	1.04	1.00	0.97	0.93	0.92	0.91	0.92	0.89	0.92	0.93	0.97	1.01
GROUP 6: URBAN ARTERIALS, COLLECTORS & RURAL ARTERIALS (R-2, R-3) Use group 6 for U2, U3, U5, U6, U0, R2, & R3	1.01	1.00	0.96	0.93	0.91	0.90	0.91	0.90	0.92	0.93	0.97	0.99
GROUP 7 - I-84 PROXIMITY (STA. 17, 3921)	1.21	1.20	1.11	1.06	1.00	1.01	0.95	0.90	1.06	1.06	1.06	1.14
GROUP 8 - I-295 PROXIMITY (STA. 6590)	1.00	0.99	0.95	0.92	0.88	0.87	0.92	0.88	0.91	0.91	0.92	0.94
GROUP 9 - I-195 PROXIMITY (STA. 7)	1.10	1.05	1.03	0.96	0.90	0.86	0.85	0.79	0.88	0.93	0.99	1.04

RECREATIONAL: (ALL YEARS)

**GROUP 3A:

1. CAPE COD (ALL TOWNS)

2. PLYMOUTH (SOUTH OF RTE. 3A)

7014, 7079, 7080, 7090, 7091, 7092, 7093, 7094, 7095, 7096, 7097, 7108, 7178

3. MARTHA'S VINEYARD

4. NANTUCKET

***GROUP 3B:

5. PERMANENTS 2 & 189

1086, 1087, 1088, 1089, 1090, 1091, 1092,

1093, 1094, 1095, 1096, 1097, 1098, 1099, 1100, 1101, 1102, 1103, 1104,

1105, 1106, 1107, 1108, 1113, 1114, 1116, 2196, 2197, 2198

2018 AXLE CORRECTION FACTORS

ROAD INVENTORY

FUNCTIONAL CLASSIFICATION

FACTOR	AXLE CORRECTION
RURAL	
1	0.93
2	0.97
3	0.98
0,5,6	0.98
URBAN	
1	0.96
2,3	0.97
5	0.98
0,6	0.98
I-84	0.78

ROUND OFF
0 - 999 10
> 1,000 100

Apply I-84 factor to stations:
3290, 3921, 3929

Crash Data Worksheets

MASS HIGHWAY MassHighway Crash Report for ACTON in the year 2007

Crash Number	City/Town Name	Crash Date	Crash Time	Crash Severity	Number of Vehicles	Total Nonfatal Injuries	Total Fatal Injuries	Manner of Collision	Vehicle Action Prior to Crash	Vehicle Travel Directions	Most Harmful Events	Vehicle Configuration	Road Surface Condition	Ambient Light	Weather Condition	At Roadway Intersection

MassDOT MassDOT Crash Report for ACTON for the year 2008

Crash Number	City/Town Name	Crash Date	Crash Time	Crash Severity	Number of Vehicles	Total Nonfatal Injuries	Total Fatal Injuries	Manner of Collision	Vehicle Action Prior to Crash	Vehicle Travel Directions	Most Harmful Events	Vehicle Configuration	Road Surface Condition	Ambient Light	Weather Condition	At Roadway Intersection
2363864	ACTON	28-Sep-2008	3:12 AM	Property damage only (none injured)	1	0	0	Single vehicle crash	V1: Travelling straight ahead	V1: Westbound	V1: Collision with motor vehicle in traffic	V1: Light truck (van, mini-van, panel pickup, sport utility) with driver's door open	Wet	Dark - lighted roadway	Rain/Fog, smog, smoke	GREAT ROAD Rte 2A / NASHOBA ROAD

MassDOT MassDOT Crash Report for ACTON for the year 2009

Crash Number	City/Town Name	Crash Date	Crash Time	Crash Severity	Number of Vehicles	Total Nonfatal Injuries	Total Fatal Injuries	Manner of Collision	Vehicle Action Prior to Crash	Vehicle Travel Directions	Most Harmful Events	Vehicle Configuration	Road Surface Condition	Ambient Light	Weather Condition	At Roadway Intersection
2430393	ACTON	04-Jan-2009	3:44 PM	Property damage only (none injured)	2	0	0	Rear-end	V1: Slowing or stopped in traffic / V2: Travelling straight ahead	V1: Westbound / V2: Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Passenger car	Dry	Daylight	Clear/Clear	NAGOG PARK DRIVE / GREAT ROAD Rte 2A W / NASHOBA ROAD

MassHighway

CRASH RATE WORKSHEET

CITY/TOWN : Littleton COUNT DATE : May 2011

DISTRICT : 3 UNSIGNALIZED : ☒ X SIGNALIZED : ☐

MHD USE ONLY

Source #

~ INTERSECTION DATA ~

MAJOR STREET : Great Road

ST #

MINOR STREET(S) : Mannion Place

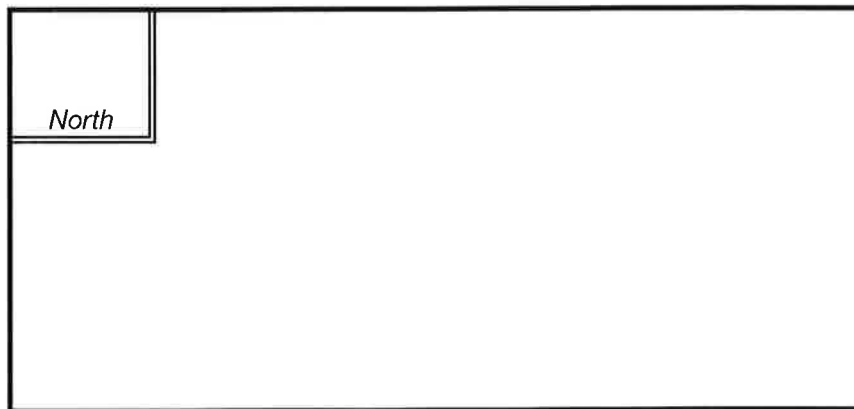
ST #

ST #

ST #

ST #

**INTERSECTION
DIAGRAM**
(Label Approaches)



INTERSECTION
REF #

Peak Hour Volumes

APPROACH :	1	2	3	4	5	Total Entering Vehicles
DIRECTION :	EB	WB	NB	SB		
VOLUMES (PM) :	600	954	8			1,562

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

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

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

Comments : _____

MassHighway

CRASH RATE WORKSHEET

CITY/TOWN : Littleton COUNT DATE : May 2011

MHD USE ONLY

DISTRICT : 3 UNSIGNALIZED : ☒ X SIGNALIZED : ☐

Source #

~ INTERSECTION DATA ~

MAJOR STREET : Great Road

ST #

MINOR STREET(S) : Nashoba Road

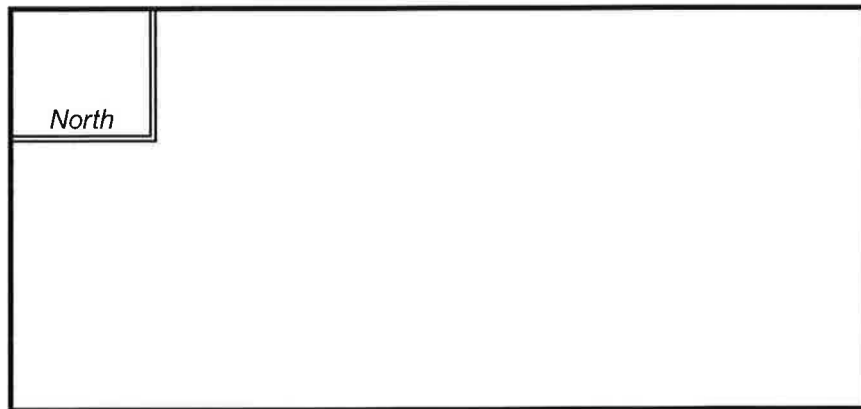
ST #

ST #

ST #

ST #

**INTERSECTION
DIAGRAM**
(Label Approaches)



INTERSECTION
REF #

Peak Hour Volumes

APPROACH :	1	2	3	4	5	Total Entering Vehicles
DIRECTION :	EB	WB	NB	SB		
VOLUMES (PM) :	608	1,046	111			1,765

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

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

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

Comments : _____

Traffic Growth Data

SECTION I - CONTINUOUS COUNTING STATION MONTHLY AVERAGE DAILY TRAFFIC

STATION 4094 - TEWKSBURY - RTE.I-495 - SOUTH OF RTE. 133

YR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
07	102,351	102,627	106,577	110,198	118,938	121,809	127,805	133,457	119,013	118,605	115,154	106,941	115,290
	-1%	-2%	4%	2%	-4%	-1%	-3%	-6%	-4%	-2%	-8%	2%	-2%
08	101,374	101,031	111,000	112,165	114,506	120,016	123,483	125,679	114,656	116,648	105,753	108,715	112,919
	-5%	3%	-6%	2%	0%	2%	3%	2%	3%	-2%	1%	-7%	0%
09	96,811	103,712	104,446	114,001	115,035	122,117	127,687	128,491	118,421	113,868	106,337	100,903	112,652

STATION 4170 - CHELMSFORD - RTE.I-495 - NORTH OF RTE. 4

YR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
06	100,000	102,000	102,000	104,000	103,243	108,638	117,000	117,356	105,105	102,950	98,868	92,481	104,470
	-8%	-7%	-8%	-8%	1%	1%	-3%	2%	1%	2%	-3%	-5%	-3%
07	91,950	94,873	94,099	95,258	103,802	109,192	113,808	120,103	106,428	105,467	95,598	88,019	101,550
	-10%	-6%	1%	1%	-4%	-4%	-5%	-7%	-3%	-3%	-3%	-2%	-4%
08	82,908	89,494	95,000	96,549	99,670	104,487	107,612	111,258	103,346	101,899	92,885	86,352	97,622
	4%	0%	-7%	1%	-1%	1%	3%	1%	0%	-1%	1%	4%	1%
09	86,006	89,523	88,806	97,307	98,894	105,468	111,003	112,512	103,316	100,554	94,083	90,186	98,138

ITALICS = ESTIMATED DATA
MADT

Trip Generation Worksheets

Proposed 40B Apartments, Littleton, MA

30 Percent of trips pass proposed site

Land Use Code (LUC) 220 - Apartments

Source: Institute of Transportation Engineers (ITE) - 8th Edition

Average Vehicle Trips Ends vs: Dwelling units

Independent Variable (X): 108

AVERAGE WEEKDAY DAILY

$$T = 6.06 * (X) + 123.56 \quad R^2 = 0.87$$

$$T = 6.06 * 108 + 123.56$$

$$T = 778.04$$

$$T = 778 \text{ vehicle trips} \quad 7.2037$$

with 50% (389 vpd) entering and 50% (389 vpd) exiting.

WEEKDAY MORNING PEAK HOUR OF ADJACENT STREET TRAFFIC

$$T = 0.49 * (X) + 3.73 \quad R^2 = 0.83$$

$$T = 0.49 * 108 + 3.73$$

$$T = 56.65$$

$$T = 57 \text{ vehicle trips}$$

with 20% (11 vph) entering and 80% (46 vph) exiting.

3.3 13.8

WEEKDAY EVENING PEAK HOUR OF ADJACENT STREET TRAFFIC

$$T = 0.55 * (X) + 17.65 \quad R^2 = 0.77$$

$$T = 0.55 * 108 + 17.65$$

$$T = 77.05$$

$$T = 77 \text{ vehicle trips}$$

with 65% (50 vph) entering and 35% (27 vph) exiting.

15 8.1

SATURDAY DAILY

$$T = 7.85 * (X) - 256.19 \quad R^2 = 0.85$$

$$T = 7.85 * 108 - 256.19$$

$$T = 591.61$$

$$T = 592 \text{ vehicle trips}$$

with 50% (296 vpd) entering and 50% (296 vpd) exiting.

SATURDAY MIDDAY PEAK HOUR OF GENERATOR

$$T = 0.41 * (X) + 19.23 \quad R^2 = 0.56$$

$$T = 0.41 * 108 + 19.23$$

$$T = 63.51$$

$$T = 64 \text{ vehicle trips}$$

with 53% (34 vph) entering and 47% (30 vph) exiting.

(same distribution split as ITE LUC 210 during the Saturday midday peak hour of generator)

Proposed Office Space (Cisco) Littleton, MA

10 Percent of trips pass proposed site

Land Use Code (LUC) 710 - General Office Building

Source : Institute of Transportation Engineers (ITE) Trip Generation, 8th Edition

Average Vehicle Trips Ends vs.: 1,000 Square Feet Gross Floor Area

Independent Variable (X): 640.000 ksf

AVERAGE WEEKDAY DAILY

$$\ln T = 0.77 \ln (X) + 3.65$$

$$R^2 = 0.80$$

$$\ln T = 0.77 \ln (640.000) + 3.65$$

$$\ln T = 8.63$$

$$T = 5571.00$$

$$T = 5,572 \text{ vehicle trips}$$

with 50% (2,786 vpd) entering and 50% 2,786 vpd) exiting.

WEEKDAY MORNING PEAK HOUR

$$\ln T = 0.80 \ln (X) + 1.55$$

$$R^2 = 0.83$$

$$\ln T = 0.80 \ln (640.000) + 1.55$$

$$\ln T = 6.72$$

$$T = 828.13$$

$$T = 828 \text{ vehicle trips}$$

with 88% (729 vph) entering and 12% 99 vph) exiting.
73 10

WEEKDAY EVENING PEAK HOUR

$$T = 1.12 * (X) + 78.81$$

$$R^2 = 0.82$$

$$T = 1.12 * (640.000) + 78.81$$

$$T = 795.61$$

$$T = 796 \text{ vehicle trips}$$

with 17% (135 vph) entering and 83% 661 vph) exiting.
13.5 66.1

SATURDAY DAILY

$$T = 2.14 * (X) + 18.47$$

$$R^2 = 0.59, \text{ Use Average Rate}$$

$$T = 2.14 * (640.000) + 18.47$$

$$AR = 0.41 \text{ trips/ksf}$$

$$T = 1388.07$$

$$T = 1,516 \text{ vehicle trips}$$

with 50% (758 vpd) entering and 50% 758 vpd) exiting.

SATURDAY MIDDAY PEAK HOUR OF GENERATOR

$$\ln T = 0.81 \ln (X) - 0.12$$

$$R^2 = 0.59, \text{ Use Average Rate}$$

$$\ln T = 0.81 \ln (640.000) - 0.12$$

$$AR = 0.41 \text{ trips/ksf}$$

$$\ln T = 5.11$$

$$T = 262 \text{ vehicle trips}$$

with 54% (141 vph) entering and 46% 121 vph) exiting.

Proposed Senior Adult Housing - Detached, Acton, MA

Land Use Code (LUC) 251 - Senior Adult Housing - Detached

Source : Institute of Transportation Engineers (ITE) Trip Generation, 8th Edition

30 Percent of trips pass proposed site

Average Vehicle Trips Ends vs: Dwelling Units
Independent Variable (X): 153

AVERAGE WEEKDAY DAILY

$$\ln T = 0.85 \ln (X) + 2.38 \quad R^2 = 0.98$$

$$\ln T = 0.85 \ln 153 + (2.38)$$

$$\ln T = 6.66$$

$$T = 777.34$$

T = 778 vehicle trips
with 50% (389 vpd) entering and 50% (389 vpd) exiting.

WEEKDAY MORNING PEAK HOUR

$$T = 0.17 * (X) + 29.95 \quad R^2 = 0.93$$

$$T = 0.17 * 153 + 29.95$$

$$T = 55.96$$

T = 56 vehicle trips
with 35% (20 vph) entering and 65% (36 vph) exiting.
6 11

WEEKDAY EVENING PEAK HOUR

$$\ln T = 0.75 \ln (X) + 0.35 \quad R^2 = 0.89$$

$$\ln T = 0.75 \ln 153 + 0.35$$

$$\ln T = 4.12$$

$$T = 61.73$$

T = 62 vehicle trips
with 61% (38 vph) entering and 39% (24 vph) exiting.
11.4 7.2

SATURDAY DAILY

$$T = 2.77 * (X) \quad \text{No Formula, Average Rate}$$

$$T = 2.77 * 153$$

$$T = 424.00$$

with 50% (212 vpd) entering and 50% (212 vpd) exiting.

SATURDAY MIDDAY PEAK HOUR OF GENERATOR

$$T = 0.23 * (X) \quad \text{No Formula, Average Rate}$$

$$T = 0.23 * 153$$

$$T = 35.00$$

with 48% (17 vph) entering and 52% (18 vph) exiting.

Proposed Apartments, Littleton, MA

Land Use Code (LUC) 220 - Apartments

Source: Institute of Transportation Engineers (ITE) - 8th Edition

Average Vehicle Trips Ends vs: Dwelling units

Independent Variable (X): 200

AVERAGE WEEKDAY DAILY

$$T = 6.06 * (X) + 123.56 \quad R^2 = 0.87$$

$$T = 6.06 * 200 + 123.56$$

$$T = 1335.56$$

$$T = 1,336 \text{ vehicle trips} \quad 6.68$$

with 50% (668 vpd) entering and 50% (668 vpd) exiting.

WEEKDAY MORNING PEAK HOUR OF ADJACENT STREET TRAFFIC

$$T = 0.49 * (X) + 3.73 \quad R^2 = 0.83$$

$$T = 0.49 * 200 + 3.73$$

$$T = 101.73$$

$$T = 102 \text{ vehicle trips}$$

with 20% (20 vph) entering and 80% (82 vph) exiting.

WEEKDAY EVENING PEAK HOUR OF ADJACENT STREET TRAFFIC

$$T = 0.55 * (X) + 17.65 \quad R^2 = 0.77$$

$$T = 0.55 * 200 + 17.65$$

$$T = 127.65$$

$$T = 128 \text{ vehicle trips}$$

with 65% (83 vph) entering and 35% (45 vph) exiting.

SATURDAY DAILY

$$T = 7.85 * (X) - 256.19 \quad R^2 = 0.85$$

$$T = 7.85 * 200 - 256.19$$

$$T = 1313.81$$

$$T = 1,314 \text{ vehicle trips}$$

with 50% (657 vpd) entering and 50% (657 vpd) exiting.

SATURDAY MIDDAY PEAK HOUR OF GENERATOR

$$T = 0.41 * (X) + 19.23 \quad R^2 = 0.56$$

$$T = 0.41 * 200 + 19.23$$

$$T = 101.23$$

$$T = 101 \text{ vehicle trips}$$

with 53% (54 vph) entering and 47% (47 vph) exiting.

(same distribution split as ITE LUC 210 during the Saturday midday peak hour of generator)

Trip Distribution Gravity Model

Residence MCD/County to Workplace MCD/County Flows for Massachusetts: 2000
Sorted by Residence State-County, or State-County-County Subdivision (in 12 states)

Res State	Res County	Res MCD	Res (C)MSA	Res PMSA	Residence State-County- MCD Name	Work State	Work County	Work MCD	Work (C)MSA	Work PMSA	Workplace State-County- MCD Name	Count
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	005	10425	1122	1122	5400	Dartmouth town Bristol Co. MA	8
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	009	01465	1122	1122	4160	Andover town Essex Co. MA	37
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	009	05595	1122	1120	4160	Beverly city Essex Co. MA	9
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	009	29405	1122	4160	4160	Haverhill city Essex Co. MA	27
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	009	34550	1122	4160	4160	Lawrence city Essex Co. MA	8
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	009	37560	1122	1120	1120	Lynnfield town Essex Co. MA	8
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	009	40710	1122	4160	4160	Methuen city Essex Co. MA	8
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	009	46365	1122	4160	4160	North Andover town Essex Co.	27
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	009	52490	1122	1120	1120	Peabody city Essex Co. MA	14
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	009	59105	1122	1120	1120	Salem city Essex Co. MA	7
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	009	60015	1122	1120	1120	Saugus town Essex Co. MA	9
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	011	61135	9999	9999	9999	Shelburne town Franklin Co. M#	10
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	013	52105	8000	9999	9999	Palmer town Hampden Co. MA	7
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	017	00380	1122	1120	1120	Action town Middlesex Co. MA	295
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	017	01605	1122	1120	1120	Arlington town Middlesex Co. M	24
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	017	03005	1122	1120	1120	Ayer town Middlesex Co. MA	41
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	017	04615	1122	1120	1120	Bedford town Middlesex Co. M#	41
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	017	05070	1122	1120	1120	Belmont town Middlesex Co. M#	7
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	017	05805	1122	4560	4560	Billerica town Middlesex Co. M#	43
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	017	07350	1122	1120	1120	Boxbor. town Middlesex Co. M#	21
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	017	09840	1122	1120	1120	Burlington town Middlesex Co. I	30
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	017	11000	1122	1120	1120	Cambridge city Middlesex Co. I#	103
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	017	11525	1122	1120	1120	Carlisle town Middlesex Co. MA	27
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	017	13135	1122	4560	4560	Chelmsford town Middlesex Co	112
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	017	15060	1122	1120	1120	Concord town Middlesex Co. M.	294
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	017	21990	1122	1120	1120	Everett city Middlesex Co. MA	36
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	017	24925	1122	1120	1120	Framingham town Middlesex Co	65
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	017	27480	1122	4560	4560	Groton town Middlesex Co. MA	62
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	017	30700	1122	1120	1120	Holliston town Middlesex Co. M.	8
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	017	31085	1122	1120	1120	Hopkinton town Middlesex Co. I	7
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	017	31540	1122	1120	1120	Hudson town Middlesex Co. M#	33
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	017	35215	1122	1120	1120	Lexington town Middlesex Co. I#	119
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	017	35425	1122	1120	1120	Lincoln town Middlesex Co. MA	31
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	017	37000	1122	4560	4560	Lowell city Middlesex Co. MA	801
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	017	38715	1122	1120	1120	Marbor. city Middlesex Co. MA	139
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	017	39625	1122	1120	1120	Maynard town Middlesex Co. M	94
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	017	39835	1122	1120	1120	Medford city Middlesex Co. MA	90
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	017	43895	1122	1120	1120	Natick town Middlesex Co. MA	7
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	017	45560	1122	1120	1120	Newton city Middlesex Co. MA	20
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	017	48955	1122	1120	1120	North Reading town Middlesex	27
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	017	52805	1122	4560	4560	Pepperell town Middlesex Co. I#	34
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	017	56130	1122	1120	1120	Reading town Middlesex Co. M#	15
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	017	61590	1122	1120	1120	Shirley town Middlesex Co. MA	7
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	017	62535	1122	1120	1120	Somerville city Middlesex Co. I#	23
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	017	68050	1122	1120	1120	Stow town Middlesex Co. MA	21
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	017	68260	1122	1120	1120	Sudbury town Middlesex Co. M#	30
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	017	69415	1122	4560	4560	Tewksbury town Middlesex Co.	40
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	017	70360	1122	1120	1120	Townsend town Middlesex Co. I	31
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	017	71025	1122	4560	4560	Tyngsbor. town Middlesex Co. I	34
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	017	72215	1122	1120	1120	Wakefield town Middlesex Co. I	13
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	017	72600	1122	1120	1120	Waltham city Middlesex Co. M#	9
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	017	73440	1122	1120	1120	Watertown city Middlesex Co. I#	97
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	017	73790	1122	1120	1120	Wayland town Middlesex Co. M	21
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	017	76135	1122	4560	4560	Westford town Middlesex Co. I#	7
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	017	77255	1122	1120	1120	Weston town Middlesex Co. M#	251
25	017	35950	1122	1120	Littleton town Middlesex Co. M# 025	017						13

Route 119 E
(east of Nashoba
Road)

Nashoba
Road

Route 119 W
(west of I-495)

I-495 NB

I-495 NB via
Powers Road

I-495 SB

Residence MCD/County to Workplace MCD/County Flows for Massachusetts: 2000
Sorted by Residence State-County, or State-County Subdivision (in 12 states)

[illegible]

Capacity Analysis Worksheets

5: Great Road & Nashoba Rd (R)
 HCM Unsignalized Intersection Capacity Analysis

2011 Existing AM Peak Hour

	→	↗	↖	←	↘	↙
Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations	↑			↕		↗
Volume (veh/h)	849	0	44	503	0	93
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.92	0.69	0.95	0.92	0.71
Hourly flow rate (vph)	913	0	64	529	0	131
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)				268		
pX, platoon unblocked						
vC, conflicting volume			913		1570	913
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			913		1570	913
tC, single (s)			4.2		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.3		3.5	3.3
p0 queue free %			91		100	60
cM capacity (veh/h)			711		112	330
Direction, Lane #	EB 1	WB 1	NE 1			
Volume Total	913	593	131			
Volume Left	0	64	0			
Volume Right	0	0	131			
cSH	1700	711	330			
Volume to Capacity	0.54	0.09	0.40			
Queue Length 95th (ft)	0	7	46			
Control Delay (s)	0.0	2.4	22.9			
Lane LOS		A	C			
Approach Delay (s)	0.0	2.4	22.9			
Approach LOS			C			
Intersection Summary						
Average Delay		2.7				
Intersection Capacity Utilization		66.2%	ICU Level of Service		C	
Analysis Period (min)		15				

7: Great Road & Nashoba Road (L)
 HCM Unsignalized Intersection Capacity Analysis

2011 Existing AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↑	↗	
Volume (veh/h)	849	26	0	503	23	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.81	0.92	0.95	0.72	0.92
Hourly flow rate (vph)	913	32	0	529	32	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)				351		
pX, platoon unblocked						
vC, conflicting volume			945		1458	929
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			945		1458	929
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		77	100
cM capacity (veh/h)			734		141	327
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	945	529	32			
Volume Left	0	0	32			
Volume Right	32	0	0			
cSH	1700	1700	141			
Volume to Capacity	0.56	0.31	0.23			
Queue Length 95th (ft)	0	0	21			
Control Delay (s)	0.0	0.0	37.9			
Lane LOS			E			
Approach Delay (s)	0.0	0.0	37.9			
Approach LOS			E			
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilization			56.3%	ICU Level of Service		B
Analysis Period (min)			15			

Intersection Sign configuration not allowed in HCM analysis.

9: Great Road & Mannion Place
HCM Unsignalized Intersection Capacity Analysis

2011 Existing AM Peak Hour

	→	↘	↙	←	↗	↖
Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations	↘			↗		↖
Volume (veh/h)	870	0	0	526	0	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.96	0.92	0.63
Hourly flow rate (vph)	946	0	0	548	0	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				664		
pX, platoon unblocked						
vC, conflicting volume			946		1494	946
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			946		1494	946
tC, single (s)			4.1		6.4	6.4
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.5
p0 queue free %			100		100	97
cM capacity (veh/h)			734		137	294
Direction, Lane #	EB 1	WB 1	NE 1			
Volume Total	946	548	8			
Volume Left	0	0	0			
Volume Right	0	0	8			
cSH	1700	734	294			
Volume to Capacity	0.56	0.00	0.03			
Queue Length 95th (ft)	0	0	2			
Control Delay (s)	0.0	0.0	17.6			
Lane LOS			C			
Approach Delay (s)	0.0	0.0	17.6			
Approach LOS			C			
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			55.8%	ICU Level of Service		B
Analysis Period (min)			15			

11: Great Road & Site Driveway
HCM Unsignalized Intersection Capacity Analysis

2011 Existing AM Peak Hour

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	46	700	1010	37	20	25
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	50	761	1098	40	22	27
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			846			
pX, platoon unblocked						
vC, conflicting volume	1138				1979	1118
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1138				1979	1118
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				65	89
cM capacity (veh/h)	614				62	252
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	811	1138	49			
Volume Left	50	0	22			
Volume Right	0	40	27			
cSH	614	1700	107			
Volume to Capacity	0.08	0.67	0.46			
Queue Length 95th (ft)	7	0	50			
Control Delay (s)	2.3	0.0	64.2			
Lane LOS	A		F			
Approach Delay (s)	2.3	0.0	64.2			
Approach LOS			F			
Intersection Summary						
Average Delay			2.5			
Intersection Capacity Utilization			84.6%	ICU Level of Service		E
Analysis Period (min)			15			

13: Great Road & Grist Mill Road (E)
 HCM Unsignalized Intersection Capacity Analysis

2011 Existing AM Peak Hour

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	6	858	521	5	12	15
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.75	0.89	0.94	0.63	0.75	0.75
Hourly flow rate (vph)	8	964	554	8	16	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	562				1538	558
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	562				1538	558
tC, single (s)	4.3				6.5	6.2
tC, 2 stage (s)						
tF (s)	2.4				3.6	3.3
p0 queue free %	99				87	96
cM capacity (veh/h)	939				122	533
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	972	562	36			
Volume Left	8	0	16			
Volume Right	0	8	20			
cSH	939	1700	214			
Volume to Capacity	0.01	0.33	0.17			
Queue Length 95th (ft)	1	0	15			
Control Delay (s)	0.2	0.0	25.2			
Lane LOS	A		D			
Approach Delay (s)	0.2	0.0	25.2			
Approach LOS			D			
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			59.9%	ICU Level of Service		B
Analysis Period (min)			15			

15: Great Road & Mannion Place
 HCM Unsignalized Intersection Capacity Analysis

2011 Existing AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations	↰			↱	↰	↱
Volume (veh/h)	0	0	0	0	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			0		0	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		0	0
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1623		1023	1085
Direction, Lane #	EB 1	WB 1	NW 1			
Volume Total	0	0	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1700	1700			
Volume to Capacity	0.00	0.00	0.00			
Queue Length 95th (ft)	0	0	0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS			A			
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			0.0%	ICU Level of Service		A
Analysis Period (min)			15			

17: Great Road & Grist Mill Road (W)
 HCM Unsignalized Intersection Capacity Analysis

2011 Existing AM Peak Hour

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	10	855	533	0	5	24
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.63	0.95	0.93	0.92	0.31	0.67
Hourly flow rate (vph)	16	900	573	0	16	36
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	573				1505	573
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	573				1505	573
tC, single (s)	4.2				6.6	6.3
tC, 2 stage (s)						
tF (s)	2.3				3.7	3.4
p0 queue free %	98				86	93
cM capacity (veh/h)	961				119	508
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	916	573	52			
Volume Left	16	0	16			
Volume Right	0	0	36			
cSH	961	1700	253			
Volume to Capacity	0.02	0.34	0.21			
Queue Length 95th (ft)	1	0	19			
Control Delay (s)	0.5	0.0	22.9			
Lane LOS	A		C			
Approach Delay (s)	0.5	0.0	22.9			
Approach LOS			C			
Intersection Summary						
Average Delay			1.0			
Intersection Capacity Utilization			63.0%	ICU Level of Service		B
Analysis Period (min)			15			

5: Great Road & Nashoba Rd (R)
HCM Unsignalized Intersection Capacity Analysis

2016 No-Build AM Peak Hour

	→	↗	↖	←	↘	↙
Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations	↑			↕		↗
Volume (veh/h)	900	0	45	603	0	95
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.92	0.69	0.95	0.92	0.71
Hourly flow rate (vph)	968	0	65	635	0	134
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)				268		
pX, platoon unblocked						
vC, conflicting volume			968		1733	968
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			968		1733	968
tC, single (s)			4.2		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.3		3.5	3.3
p0 queue free %			90		100	56
cM capacity (veh/h)			677		88	307
Direction, Lane #	EB 1	WB 1	NE 1			
Volume Total	968	700	134			
Volume Left	0	65	0			
Volume Right	0	0	134			
cSH	1700	677	307			
Volume to Capacity	0.57	0.10	0.44			
Queue Length 95th (ft)	0	8	53			
Control Delay (s)	0.0	2.5	25.5			
Lane LOS		A	D			
Approach Delay (s)	0.0	2.5	25.5			
Approach LOS			D			
Intersection Summary						
Average Delay			2.9			
Intersection Capacity Utilization			72.1%	ICU Level of Service		C
Analysis Period (min)			15			

7: Great Road & Nashoba Road (L)
 HCM Unsignalized Intersection Capacity Analysis

2016 No-Build AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↖	↘	
Volume (veh/h)	900	27	0	603	24	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.81	0.92	0.95	0.72	0.92
Hourly flow rate (vph)	968	33	0	635	33	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				351		
pX, platoon unblocked						
vC, conflicting volume			1001		1619	984
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1001		1619	984
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		70	100
cM capacity (veh/h)			700		112	304
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	1001	635	33			
Volume Left	0	0	33			
Volume Right	33	0	0			
cSH	1700	1700	112			
Volume to Capacity	0.59	0.37	0.30			
Queue Length 95th (ft)	0	0	28			
Control Delay (s)	0.0	0.0	50.1			
Lane LOS			F			
Approach Delay (s)	0.0	0.0	50.1			
Approach LOS			F			
Intersection Summary						
Average Delay			1.0			
Intersection Capacity Utilization			59.0%	ICU Level of Service		B
Analysis Period (min)			15			

Intersection Sign configuration not allowed in HCM analysis.

9: Great Road & Mannion Place
HCM Unsignalized Intersection Capacity Analysis

2016 No-Build AM Peak Hour

	→	↗	↖	←	↘	↙
Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations	↰			↱		↱
Volume (veh/h)	922	0	0	626	0	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.96	0.92	0.63
Hourly flow rate (vph)	1002	0	0	652	0	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				664		
pX, platoon unblocked						
vC, conflicting volume			1002		1654	1002
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1002		1654	1002
tC, single (s)			4.1		6.4	6.4
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.5
p0 queue free %			100		100	97
cM capacity (veh/h)			699		109	272
Direction, Lane #	EB 1	WB 1	NE 1			
Volume Total	1002	652	8			
Volume Left	0	0	0			
Volume Right	0	0	8			
cSH	1700	699	272			
Volume to Capacity	0.59	0.00	0.03			
Queue Length 95th (ft)	0	0	2			
Control Delay (s)	0.0	0.0	18.6			
Lane LOS			C			
Approach Delay (s)	0.0	0.0	18.6			
Approach LOS			C			
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			58.5%	ICU Level of Service		B
Analysis Period (min)			15			

11: Great Road & Site Driveway
HCM Unsignalized Intersection Capacity Analysis

2016 No-Build AM Peak Hour

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	46	700	1010	37	20	25
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	50	761	1098	40	22	27
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)			846			
pX, platoon unblocked						
vC, conflicting volume	1138				1979	1118
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1138				1979	1118
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				65	89
cM capacity (veh/h)	614				62	252
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	811	1138	49			
Volume Left	50	0	22			
Volume Right	0	40	27			
cSH	614	1700	107			
Volume to Capacity	0.08	0.67	0.46			
Queue Length 95th (ft)	7	0	50			
Control Delay (s)	2.3	0.0	64.2			
Lane LOS	A		F			
Approach Delay (s)	2.3	0.0	64.2			
Approach LOS			F			
Intersection Summary						
Average Delay		2.5				
Intersection Capacity Utilization		84.6%		ICU Level of Service	E	
Analysis Period (min)		15				

13: Great Road & Grist Mill Road (E)
 HCM Unsignalized Intersection Capacity Analysis

2016 No-Build AM Peak Hour

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	6	910	621	5	12	15
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.75	0.89	0.94	0.63	0.75	0.75
Hourly flow rate (vph)	8	1022	661	8	16	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	669				1703	665
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	669				1703	665
tC, single (s)	4.3				6.5	6.2
tC, 2 stage (s)						
tF (s)	2.4				3.6	3.3
p0 queue free %	99				83	96
cM capacity (veh/h)	855				96	464
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	1030	669	36			
Volume Left	8	0	16			
Volume Right	0	8	20			
cSH	855	1700	172			
Volume to Capacity	0.01	0.39	0.21			
Queue Length 95th (ft)	1	0	19			
Control Delay (s)	0.3	0.0	31.3			
Lane LOS	A		D			
Approach Delay (s)	0.3	0.0	31.3			
Approach LOS			D			
Intersection Summary						
Average Delay		0.8				
Intersection Capacity Utilization		62.7%	ICU Level of Service		B	
Analysis Period (min)		15				

15: Great Road & Mannion Place
HCM Unsignalized Intersection Capacity Analysis

2016 No-Build AM Peak Hour

	→	↗	↖	←	↙	↘
Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations	↰			↱	↰	↱
Volume (veh/h)	0	0	0	0	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			0		0	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		0	0
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1623		1023	1085
Direction, Lane #	EB 1	WB 1	NW 1			
Volume Total	0	0	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1700	1700			
Volume to Capacity	0.00	0.00	0.00			
Queue Length 95th (ft)	0	0	0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS			A			
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			0.0%	ICU Level of Service	A	
Analysis Period (min)			15			

17: Great Road & Grist Mill Road (W)
 HCM Unsignalized Intersection Capacity Analysis

2016 No-Build AM Peak Hour

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	10	907	633	0	5	25
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.63	0.95	0.93	0.92	0.31	0.67
Hourly flow rate (vph)	16	955	681	0	16	37
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	681				1667	681
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	681				1667	681
tC, single (s)	4.2				6.6	6.3
tC, 2 stage (s)						
tF (s)	2.3				3.7	3.4
p0 queue free %	98				83	92
cM capacity (veh/h)	875				94	440
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	971	681	53			
Volume Left	16	0	16			
Volume Right	0	0	37			
cSH	875	1700	209			
Volume to Capacity	0.02	0.40	0.26			
Queue Length 95th (ft)	1	0	25			
Control Delay (s)	0.5	0.0	28.1			
Lane LOS	A		D			
Approach Delay (s)	0.5	0.0	28.1			
Approach LOS			D			
Intersection Summary						
Average Delay			1.2			
Intersection Capacity Utilization			65.7%	ICU Level of Service		C
Analysis Period (min)			15			

5: Great Road & Nashoba Rd (R)
 HCM Unsignalized Intersection Capacity Analysis

2016 Build AM Peak Hour

	→	↗	↖	←	↘	↙
Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations	↑			↕		↗
Volume (veh/h)	938	0	45	612	0	95
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.92	0.69	0.95	0.92	0.71
Hourly flow rate (vph)	1009	0	65	644	0	134
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)				268		
pX, platoon unblocked						
vC, conflicting volume			1009		1783	1009
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1009		1783	1009
tC, single (s)			4.2		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.3		3.5	3.3
p0 queue free %			90		100	54
cM capacity (veh/h)			653		82	290
Direction, Lane #	EB 1	WB 1	NE 1			
Volume Total	1009	709	134			
Volume Left	0	65	0			
Volume Right	0	0	134			
cSH	1700	653	290			
Volume to Capacity	0.59	0.10	0.46			
Queue Length 95th (ft)	0	8	57			
Control Delay (s)	0.0	2.6	27.6			
Lane LOS		A	D			
Approach Delay (s)	0.0	2.6	27.6			
Approach LOS			D			
Intersection Summary						
Average Delay			3.0			
Intersection Capacity Utilization			72.6%	ICU Level of Service	C	
Analysis Period (min)			15			

7: Great Road & Nashoba Road (L)
HCM Unsignalized Intersection Capacity Analysis

2016 Build AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↑	↱	
Volume (veh/h)	936	28	0	612	24	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.81	0.92	0.95	0.72	0.92
Hourly flow rate (vph)	1006	35	0	644	33	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)				351		
pX, platoon unblocked						
vC, conflicting volume			1041		1668	1024
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1041		1668	1024
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		68	100
cM capacity (veh/h)			676		105	288
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	1041	644	33			
Volume Left	0	0	33			
Volume Right	35	0	0			
cSH	1700	1700	105			
Volume to Capacity	0.61	0.38	0.32			
Queue Length 95th (ft)	0	0	31			
Control Delay (s)	0.0	0.0	54.6			
Lane LOS			F			
Approach Delay (s)	0.0	0.0	54.6			
Approach LOS			F			
Intersection Summary						
Average Delay			1.1			
Intersection Capacity Utilization			61.0%	ICU Level of Service		B
Analysis Period (min)			15			

Intersection Sign configuration not allowed in HCM analysis.

9: Great Road & Mannion Place
HCM Unsignalized Intersection Capacity Analysis

2016 Build AM Peak Hour

	→	↗	↖	←	↘	↙
Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations	↰			↱		↱
Volume (veh/h)	959	0	0	635	0	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.96	0.92	0.63
Hourly flow rate (vph)	1042	0	0	661	0	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				664		
pX, platoon unblocked						
vC, conflicting volume			1042		1704	1042
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1042		1704	1042
tC, single (s)			4.1		6.4	6.4
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.5
p0 queue free %			100		100	97
cM capacity (veh/h)			675		102	257
Direction, Lane #	EB 1	WB 1	NE 1			
Volume Total	1042	661	8			
Volume Left	0	0	0			
Volume Right	0	0	8			
cSH	1700	675	257			
Volume to Capacity	0.61	0.00	0.03			
Queue Length 95th (ft)	0	0	2			
Control Delay (s)	0.0	0.0	19.4			
Lane LOS			C			
Approach Delay (s)	0.0	0.0	19.4			
Approach LOS			C			
Intersection Summary						
Average Delay		0.1				
Intersection Capacity Utilization		60.5%	ICU Level of Service	B		
Analysis Period (min)		15				

11: Great Road & Site Driveway
HCM Unsignalized Intersection Capacity Analysis

2016 Build AM Peak Hour

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	11	922	626	9	37	45
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	1002	680	10	40	49
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (ft)			846			
pX, platoon unblocked						
vC, conflicting volume	690				1711	685
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	690				1711	685
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				60	89
cM capacity (veh/h)	914				99	451
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	1014	690	89			
Volume Left	12	0	40			
Volume Right	0	10	49			
cSH	914	1700	174			
Volume to Capacity	0.01	0.41	0.51			
Queue Length 95th (ft)	1	0	64			
Control Delay (s)	0.4	0.0	45.7			
Lane LOS	A		E			
Approach Delay (s)	0.4	0.0	45.7			
Approach LOS			E			
Intersection Summary						
Average Delay		2.5				
Intersection Capacity Utilization		68.8%	ICU Level of Service	C		
Analysis Period (min)		15				

13: Great Road & Grist Mill Road (E)
 HCM Unsignalized Intersection Capacity Analysis

2016 Build AM Peak Hour

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	6	921	666	5	12	15
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.75	0.89	0.94	0.63	0.75	0.75
Hourly flow rate (vph)	8	1035	709	8	16	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	716				1763	712
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	716				1763	712
tC, single (s)	4.3				6.5	6.2
tC, 2 stage (s)						
tF (s)	2.4				3.6	3.3
p0 queue free %	99				82	95
cM capacity (veh/h)	819				88	436
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	1043	716	36			
Volume Left	8	0	16			
Volume Right	0	8	20			
cSH	819	1700	159			
Volume to Capacity	0.01	0.42	0.23			
Queue Length 95th (ft)	1	0	21			
Control Delay (s)	0.3	0.0	34.2			
Lane LOS	A		D			
Approach Delay (s)	0.3	0.0	34.2			
Approach LOS			D			
Intersection Summary						
Average Delay		0.9				
Intersection Capacity Utilization		63.2%	ICU Level of Service	B		
Analysis Period (min)		15				

15: Great Road & Mannion Place
HCM Unsignalized Intersection Capacity Analysis

2016 Build AM Peak Hour

	→	↗	↖	←	↙	↘
Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations	↰			↱	↰	↱
Volume (veh/h)	0	0	0	0	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			0		0	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		0	0
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1623		1023	1085
Direction, Lane #	EB 1	WB 1	NW 1			
Volume Total	0	0	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1700	1700			
Volume to Capacity	0.00	0.00	0.00			
Queue Length 95th (ft)	0	0	0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS			A			
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			0.0%	ICU Level of Service		A
Analysis Period (min)			15			

17: Great Road & Grist Mill Road (W)
 HCM Unsignalized Intersection Capacity Analysis

2016 Build AM Peak Hour

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	10	918	678	0	5	25
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.63	0.95	0.93	0.92	0.31	0.67
Hourly flow rate (vph)	16	966	729	0	16	37
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	729				1727	729
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	729				1727	729
tC, single (s)	4.2				6.6	6.3
tC, 2 stage (s)						
tF (s)	2.3				3.7	3.4
p0 queue free %	98				81	91
cM capacity (veh/h)	839				86	413
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	982	729	53			
Volume Left	16	0	16			
Volume Right	0	0	37			
cSH	839	1700	193			
Volume to Capacity	0.02	0.43	0.28			
Queue Length 95th (ft)	1	0	27			
Control Delay (s)	0.6	0.0	30.7			
Lane LOS	A		D			
Approach Delay (s)	0.6	0.0	30.7			
Approach LOS			D			
Intersection Summary						
Average Delay			1.2			
Intersection Capacity Utilization			66.3%	ICU Level of Service		C
Analysis Period (min)			15			

5: Great Road & Nashoba Rd (R)
HCM Unsignalized Intersection Capacity Analysis

2011 Existing PM Peak Hour

	→	↗	↖	←	↘	↙
Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations	↑			↕		↗
Volume (veh/h)	578	0	109	937	0	94
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.76	0.89	0.92	0.87
Hourly flow rate (vph)	628	0	143	1053	0	108
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				268		
pX, platoon unblocked						
vC, conflicting volume			628		1968	628
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			628		1968	628
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			85		100	78
cM capacity (veh/h)			959		59	486
Direction, Lane #	EB 1	WB 1	NE 1			
Volume Total	628	1196	108			
Volume Left	0	143	0			
Volume Right	0	0	108			
cSH	1700	959	486			
Volume to Capacity	0.37	0.15	0.22			
Queue Length 95th (ft)	0	13	21			
Control Delay (s)	0.0	4.4	14.5			
Lane LOS		A	B			
Approach Delay (s)	0.0	4.4	14.5			
Approach LOS			B			
Intersection Summary						
Average Delay			3.5			
Intersection Capacity Utilization		92.4%		ICU Level of Service		F
Analysis Period (min)		15				

7: Great Road & Nashoba Road (L)
 HCM Unsignalized Intersection Capacity Analysis

2011 Existing PM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↶			↷	↶	
Volume (veh/h)	578	30	0	937	17	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.75	0.92	0.89	0.61	0.92
Hourly flow rate (vph)	628	40	0	1053	28	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				351		
pX, platoon unblocked						
vC, conflicting volume			668		1701	648
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			668		1701	648
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		73	100
cM capacity (veh/h)			931		102	474
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	668	1053	28			
Volume Left	0	0	28			
Volume Right	40	0	0			
cSH	1700	1700	102			
Volume to Capacity	0.39	0.62	0.27			
Queue Length 95th (ft)	0	0	25			
Control Delay (s)	0.0	0.0	52.9			
Lane LOS			F			
Approach Delay (s)	0.0	0.0	52.9			
Approach LOS			F			
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilization			59.3%	ICU Level of Service		B
Analysis Period (min)			15			

Intersection Sign configuration not allowed in HCM analysis.

9: Great Road & Mannion Place
HCM Unsignalized Intersection Capacity Analysis

2011 Existing PM Peak Hour

	→	↗	↖	←	↘	↙
Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations	↶			↷		↶
Volume (veh/h)	600	0	4	950	0	8
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.92	0.50	0.85	0.92	0.40
Hourly flow rate (vph)	750	0	8	1118	0	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				664		
pX, platoon unblocked						
vC, conflicting volume			750		1884	750
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			750		1884	750
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		100	95
cM capacity (veh/h)			868		78	415
Direction, Lane #	EB 1	WB 1	NE 1			
Volume Total	750	1126	20			
Volume Left	0	8	0			
Volume Right	0	0	20			
cSH	1700	868	415			
Volume to Capacity	0.44	0.01	0.05			
Queue Length 95th (ft)	0	1	4			
Control Delay (s)	0.0	0.3	14.1			
Lane LOS		A	B			
Approach Delay (s)	0.0	0.3	14.1			
Approach LOS			B			
Intersection Summary						
Average Delay		0.3				
Intersection Capacity Utilization		56.5%	ICU Level of Service	B		
Analysis Period (min)		15				

11: Great Road & Site Driveway
HCM Unsignalized Intersection Capacity Analysis

2011 Existing PM Peak Hour

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	46	700	1010	37	20	25
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	50	761	1098	40	22	27
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (ft)			846			
pX, platoon unblocked						
vC, conflicting volume	1138				1979	1118
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1138				1979	1118
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				65	89
cM capacity (veh/h)	614				62	252
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	811	1138	49			
Volume Left	50	0	22			
Volume Right	0	40	27			
cSH	614	1700	107			
Volume to Capacity	0.08	0.67	0.46			
Queue Length 95th (ft)	7	0	50			
Control Delay (s)	2.3	0.0	64.2			
Lane LOS	A		F			
Approach Delay (s)	2.3	0.0	64.2			
Approach LOS			F			
Intersection Summary						
Average Delay		2.5				
Intersection Capacity Utilization		84.6%	ICU Level of Service		E	
Analysis Period (min)		15				

13: Great Road & Grist Mill Road (E)
 HCM Unsignalized Intersection Capacity Analysis

2011 Existing PM Peak Hour

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	18	595	937	13	5	12
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.75	0.80	0.86	0.65	0.42	0.60
Hourly flow rate (vph)	24	744	1090	20	12	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1110				1891	1100
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1110				1891	1100
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				84	92
cM capacity (veh/h)	637				75	261
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	768	1110	32			
Volume Left	24	0	12			
Volume Right	0	20	20			
cSH	637	1700	135			
Volume to Capacity	0.04	0.65	0.24			
Queue Length 95th (ft)	3	0	22			
Control Delay (s)	1.0	0.0	39.6			
Lane LOS	A		E			
Approach Delay (s)	1.0	0.0	39.6			
Approach LOS			E			
Intersection Summary						
Average Delay			1.1			
Intersection Capacity Utilization		60.1%		ICU Level of Service		B
Analysis Period (min)		15				

15: Great Road & Mannion Place
 HCM Unsignalized Intersection Capacity Analysis

2011 Existing PM Peak Hour

	→	↗	↖	←	↙	↘
Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations	↰			↱	↗↘	
Volume (veh/h)	0	0	0	0	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			0		0	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		0	0
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1623		1023	1085
Direction, Lane #	EB 1	WB 1	NW 1			
Volume Total	0	0	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1700	1700			
Volume to Capacity	0.00	0.00	0.00			
Queue Length 95th (ft)	0	0	0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS			A			
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			0.0%	ICU Level of Service		A
Analysis Period (min)			15			

17: Great Road & Grist Mill Road (W)
 HCM Unsignalized Intersection Capacity Analysis

2011 Existing PM Peak Hour

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	26	623	949	8	2	14
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.65	0.81	0.89	0.50	0.50	0.70
Hourly flow rate (vph)	40	769	1066	16	4	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1082				1923	1074
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1082				1923	1074
tC, single (s)	4.1				6.4	6.3
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.4
p0 queue free %	94				94	92
cM capacity (veh/h)	652				70	261
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	809	1082	24			
Volume Left	40	0	4			
Volume Right	0	16	20			
cSH	652	1700	179			
Volume to Capacity	0.06	0.64	0.13			
Queue Length 95th (ft)	5	0	11			
Control Delay (s)	1.7	0.0	28.2			
Lane LOS	A		D			
Approach Delay (s)	1.7	0.0	28.2			
Approach LOS			D			
Intersection Summary						
Average Delay			1.1			
Intersection Capacity Utilization			63.9%	ICU Level of Service		B
Analysis Period (min)			15			

5: Great Road & Nashoba Rd (R)
HCM Unsignalized Intersection Capacity Analysis

2016 No-Build PM Peak Hour

	→	↗	↖	←	↘	↙
Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations	↑			↕		↗
Volume (veh/h)	678	0	112	997	0	96
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.76	0.89	0.92	0.87
Hourly flow rate (vph)	737	0	147	1120	0	110
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				268		
pX, platoon unblocked						
vC, conflicting volume			737		2152	737
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			737		2152	737
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			83		100	74
cM capacity (veh/h)			873		44	422
Direction, Lane #	EB 1	WB 1	NE 1			
Volume Total	737	1268	110			
Volume Left	0	147	0			
Volume Right	0	0	110			
cSH	1700	873	422			
Volume to Capacity	0.43	0.17	0.26			
Queue Length 95th (ft)	0	15	26			
Control Delay (s)	0.0	5.5	16.5			
Lane LOS		A	C			
Approach Delay (s)	0.0	5.5	16.5			
Approach LOS			C			
Intersection Summary						
Average Delay		4.2				
Intersection Capacity Utilization		101.0%	ICU Level of Service	G		
Analysis Period (min)		15				

7: Great Road & Nashoba Road (L)
HCM Unsignalized Intersection Capacity Analysis

2016 No-Build PM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↰	
Volume (veh/h)	678	30	0	997	17	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.75	0.92	0.89	0.61	0.92
Hourly flow rate (vph)	737	40	0	1120	28	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)				351		
pX, platoon unblocked						
vC, conflicting volume			777		1877	757
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			777		1877	757
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		65	100
cM capacity (veh/h)			848		80	411
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	777	1120	28			
Volume Left	0	0	28			
Volume Right	40	0	0			
cSH	1700	1700	80			
Volume to Capacity	0.46	0.66	0.35			
Queue Length 95th (ft)	0	0	34			
Control Delay (s)	0.0	0.0	72.9			
Lane LOS			F			
Approach Delay (s)	0.0	0.0	72.9			
Approach LOS			F			
Intersection Summary						
Average Delay			1.1			
Intersection Capacity Utilization			62.5%	ICU Level of Service		B
Analysis Period (min)			15			

Intersection Sign configuration not allowed in HCM analysis.

9: Great Road & Mannion Place
HCM Unsignalized Intersection Capacity Analysis

2016 No-Build PM Peak Hour

	→	↗	↖	←	↘	↙
Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations	↰			↱		↱
Volume (veh/h)	700	0	4	1010	0	8
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.92	0.50	0.85	0.92	0.40
Hourly flow rate (vph)	875	0	8	1188	0	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				664		
pX, platoon unblocked						
vC, conflicting volume			875		2079	875
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			875		2079	875
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		100	94
cM capacity (veh/h)			780		59	351
Direction, Lane #	EB 1	WB 1	NE 1			
Volume Total	875	1196	20			
Volume Left	0	8	0			
Volume Right	0	0	20			
cSH	1700	780	351			
Volume to Capacity	0.51	0.01	0.06			
Queue Length 95th (ft)	0	1	5			
Control Delay (s)	0.0	0.4	15.9			
Lane LOS		A	C			
Approach Delay (s)	0.0	0.4	15.9			
Approach LOS			C			
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			59.7%	ICU Level of Service	B	
Analysis Period (min)			15			

11: Great Road & Site Driveway HCM Unsignalized Intersection Capacity Analysis

2016 No-Build PM Peak Hour

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	46	700	1010	37	20	25
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	50	761	1098	40	22	27
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)			846			
pX, platoon unblocked						
vC, conflicting volume	1138				1979	1118
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1138				1979	1118
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				65	89
cM capacity (veh/h)	614				62	252
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	811	1138	49			
Volume Left	50	0	22			
Volume Right	0	40	27			
cSH	614	1700	107			
Volume to Capacity	0.08	0.67	0.46			
Queue Length 95th (ft)	7	0	50			
Control Delay (s)	2.3	0.0	64.2			
Lane LOS	A		F			
Approach Delay (s)	2.3	0.0	64.2			
Approach LOS			F			
Intersection Summary						
Average Delay			2.5			
Intersection Capacity Utilization			84.6%	ICU Level of Service		E
Analysis Period (min)			15			

13: Great Road & Grist Mill Road (E)
 HCM Unsignalized Intersection Capacity Analysis

2016 No-Build PM Peak Hour

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	18	695	997	13	5	12
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.75	0.80	0.86	0.65	0.42	0.60
Hourly flow rate (vph)	24	869	1159	20	12	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1179				2086	1169
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1179				2086	1169
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				79	92
cM capacity (veh/h)	599				57	237
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	893	1179	32			
Volume Left	24	0	12			
Volume Right	0	20	20			
cSH	599	1700	108			
Volume to Capacity	0.04	0.69	0.29			
Queue Length 95th (ft)	3	0	28			
Control Delay (s)	1.2	0.0	51.6			
Lane LOS	A		F			
Approach Delay (s)	1.2	0.0	51.6			
Approach LOS			F			
Intersection Summary						
Average Delay			1.3			
Intersection Capacity Utilization		63.3%		ICU Level of Service		B
Analysis Period (min)		15				

15: Great Road & Mannion Place
HCM Unsignalized Intersection Capacity Analysis

2016 No-Build PM Peak Hour

	→	↗	↖	←	↙	↘
	EBT	EBR	WBL	WBT	NWL	NWR
Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations	↗			↖	↗	↖
Volume (veh/h)	0	0	0	0	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			0		0	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		0	0
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1623		1023	1085
Direction, Lane #	EB 1	WB 1	NW 1			
Volume Total	0	0	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1700	1700			
Volume to Capacity	0.00	0.00	0.00			
Queue Length 95th (ft)	0	0	0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS			A			
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			0.0%	ICU Level of Service		A
Analysis Period (min)			15			

17: Great Road & Grist Mill Road (W)
HCM Unsignalized Intersection Capacity Analysis

2016 No-Build PM Peak Hour

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	27	724	1009	8	2	14
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.65	0.81	0.89	0.50	0.50	0.70
Hourly flow rate (vph)	42	894	1134	16	4	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1150				2119	1142
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1150				2119	1142
tC, single (s)	4.1				6.4	6.3
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.4
p0 queue free %	93				92	92
cM capacity (veh/h)	615				52	238
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	935	1150	24			
Volume Left	42	0	4			
Volume Right	0	16	20			
cSH	615	1700	150			
Volume to Capacity	0.07	0.68	0.16			
Queue Length 95th (ft)	5	0	14			
Control Delay (s)	2.0	0.0	33.6			
Lane LOS	A		D			
Approach Delay (s)	2.0	0.0	33.6			
Approach LOS			D			
Intersection Summary						
Average Delay			1.3			
Intersection Capacity Utilization			70.0%	ICU Level of Service		C
Analysis Period (min)			15			

5: Great Road & Nashoba Rd (R)
 HCM Unsignalized Intersection Capacity Analysis

2016 Build PM Peak Hour

	→	↘	↙	←	↗	↖
Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations	↑			↕		↗
Volume (veh/h)	698	0	112	1033	0	96
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.76	0.89	0.92	0.87
Hourly flow rate (vph)	759	0	147	1161	0	110
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				268		
pX, platoon unblocked						
vC, conflicting volume			759		2214	759
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			759		2214	759
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			83		100	73
cM capacity (veh/h)			857		40	410
Direction, Lane #	EB 1	WB 1	NE 1			
Volume Total	759	1308	110			
Volume Left	0	147	0			
Volume Right	0	0	110			
cSH	1700	857	410			
Volume to Capacity	0.45	0.17	0.27			
Queue Length 95th (ft)	0	15	27			
Control Delay (s)	0.0	6.0	17.0			
Lane LOS		A	C			
Approach Delay (s)	0.0	6.0	17.0			
Approach LOS			C			
Intersection Summary						
Average Delay			4.5			
Intersection Capacity Utilization	104.0%		ICU Level of Service	G		
Analysis Period (min)	15					

7: Great Road & Nashoba Road (L)
 HCM Unsignalized Intersection Capacity Analysis

2016 Build PM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↑	↱	
Volume (veh/h)	698	30	0	1033	18	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.75	0.92	0.89	0.61	0.92
Hourly flow rate (vph)	759	40	0	1161	30	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				351		
pX, platoon unblocked						
vC, conflicting volume			799		1939	779
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			799		1939	779
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		59	100
cM capacity (veh/h)			833		73	399
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	799	1161	30			
Volume Left	0	0	30			
Volume Right	40	0	0			
cSH	1700	1700	73			
Volume to Capacity	0.47	0.68	0.41			
Queue Length 95th (ft)	0	0	40			
Control Delay (s)	0.0	0.0	84.8			
Lane LOS			F			
Approach Delay (s)	0.0	0.0	84.8			
Approach LOS			F			
Intersection Summary						
Average Delay			1.3			
Intersection Capacity Utilization			64.4%	ICU Level of Service		C
Analysis Period (min)			15			

Intersection Sign configuration not allowed in HCM analysis.

9: Great Road & Mannion Place
HCM Unsignalized Intersection Capacity Analysis

2016 Build PM Peak Hour

	→	↗	↖	←	↘	↙
Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations	↰			↱		↱
Volume (veh/h)	720	0	4	1047	0	8
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.92	0.50	0.85	0.92	0.40
Hourly flow rate (vph)	900	0	8	1232	0	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)				664		
pX, platoon unblocked						
vC, conflicting volume			900		2148	900
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			900		2148	900
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		100	94
cM capacity (veh/h)			763		53	340
Direction, Lane #	EB 1	WB 1	NE 1			
Volume Total	900	1240	20			
Volume Left	0	8	0			
Volume Right	0	0	20			
cSH	1700	763	340			
Volume to Capacity	0.53	0.01	0.06			
Queue Length 95th (ft)	0	1	5			
Control Delay (s)	0.0	0.4	16.2			
Lane LOS		A	C			
Approach Delay (s)	0.0	0.4	16.2			
Approach LOS			C			
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			61.6%	ICU Level of Service		B
Analysis Period (min)			15			

11: Great Road & Site Driveway HCM Unsignalized Intersection Capacity Analysis

2016 Build PM Peak Hour

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	46	700	1010	37	20	25
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	50	761	1098	40	22	27
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)			846			
pX, platoon unblocked						
vC, conflicting volume	1138				1979	1118
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1138				1979	1118
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				65	89
cM capacity (veh/h)	614				62	252
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	811	1138	49			
Volume Left	50	0	22			
Volume Right	0	40	27			
cSH	614	1700	107			
Volume to Capacity	0.08	0.67	0.46			
Queue Length 95th (ft)	7	0	50			
Control Delay (s)	2.3	0.0	64.2			
Lane LOS	A		F			
Approach Delay (s)	2.3	0.0	64.2			
Approach LOS			F			
Intersection Summary						
Average Delay			2.5			
Intersection Capacity Utilization		84.6%		ICU Level of Service		E
Analysis Period (min)		15				

13: Great Road & Grist Mill Road (E)
HCM Unsignalized Intersection Capacity Analysis

2016 Build PM Peak Hour

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	18	741	1022	13	5	12
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.75	0.80	0.86	0.65	0.42	0.60
Hourly flow rate (vph)	24	926	1188	20	12	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1208				2173	1198
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1208				2173	1198
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				76	91
cM capacity (veh/h)	584				50	228
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	950	1208	32			
Volume Left	24	0	12			
Volume Right	0	20	20			
cSH	584	1700	98			
Volume to Capacity	0.04	0.71	0.33			
Queue Length 95th (ft)	3	0	32			
Control Delay (s)	1.3	0.0	58.8			
Lane LOS	A		F			
Approach Delay (s)	1.3	0.0	58.8			
Approach LOS			F			
Intersection Summary						
Average Delay			1.4			
Intersection Capacity Utilization			64.6%	ICU Level of Service		C
Analysis Period (min)			15			

15: Great Road & Mannion Place
HCM Unsignalized Intersection Capacity Analysis

2016 Build PM Peak Hour

	→	↗	↖	←	↙	↘
Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations	↰			↱	↰	↱
Volume (veh/h)	0	0	0	0	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			0		0	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		0	0
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1623		1023	1085
Direction, Lane #	EB 1	WB 1	NW 1			
Volume Total	0	0	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1700	1700			
Volume to Capacity	0.00	0.00	0.00			
Queue Length 95th (ft)	0	0	0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS			A			
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			0.0%	ICU Level of Service		A
Analysis Period (min)			15			

17: Great Road & Grist Mill Road (W)
HCM Unsignalized Intersection Capacity Analysis

2016 Build PM Peak Hour

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	27	770	1034	8	2	14
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.65	0.81	0.89	0.50	0.50	0.70
Hourly flow rate (vph)	42	951	1162	16	4	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1178				2203	1170
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1178				2203	1170
tC, single (s)	4.1				6.4	6.3
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.4
p0 queue free %	93				91	91
cM capacity (veh/h)	600				46	229
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	992	1178	24			
Volume Left	42	0	4			
Volume Right	0	16	20			
cSH	600	1700	138			
Volume to Capacity	0.07	0.69	0.17			
Queue Length 95th (ft)	6	0	15			
Control Delay (s)	2.2	0.0	36.5			
Lane LOS	A		E			
Approach Delay (s)	2.2	0.0	36.5			
Approach LOS			E			
Intersection Summary						
Average Delay			1.4			
Intersection Capacity Utilization			72.4%	ICU Level of Service	C	
Analysis Period (min)			15			

Sight Distance Worksheets

Sight Distance Calculations

Proposed Residential, Littleton, MA

Inputs

Posted Speed Limit = 50 mph

Direction 1 =	Great Road Eastbound	85% Speed =	48	mph	Grade =	0	t =	2.5 s	a =	11.2 ft/s ²
Direction 2 =	Great Road Westbound	85% Speed =	43	mph	Grade =	0	t =	2.5 s	a =	11.2 ft/s ²
							Left: t _g =	7.5 s		
							Right: t _g =	6.5 s		

SSD = Reaction Distance + Braking Distance

Reaction Distance = 1.47 x V x t

Braking Distance = $V^2 / (30 \times ((a/32.2) + G))$

ISD = 1.47 x V x t_g

Where t = reaction time (sec)

t_g = time gap for minor road vehicle to enter the major road

V = travel speed (mph)

G = roadway grade

a = deceleration rate (ft/s²)

Calculations

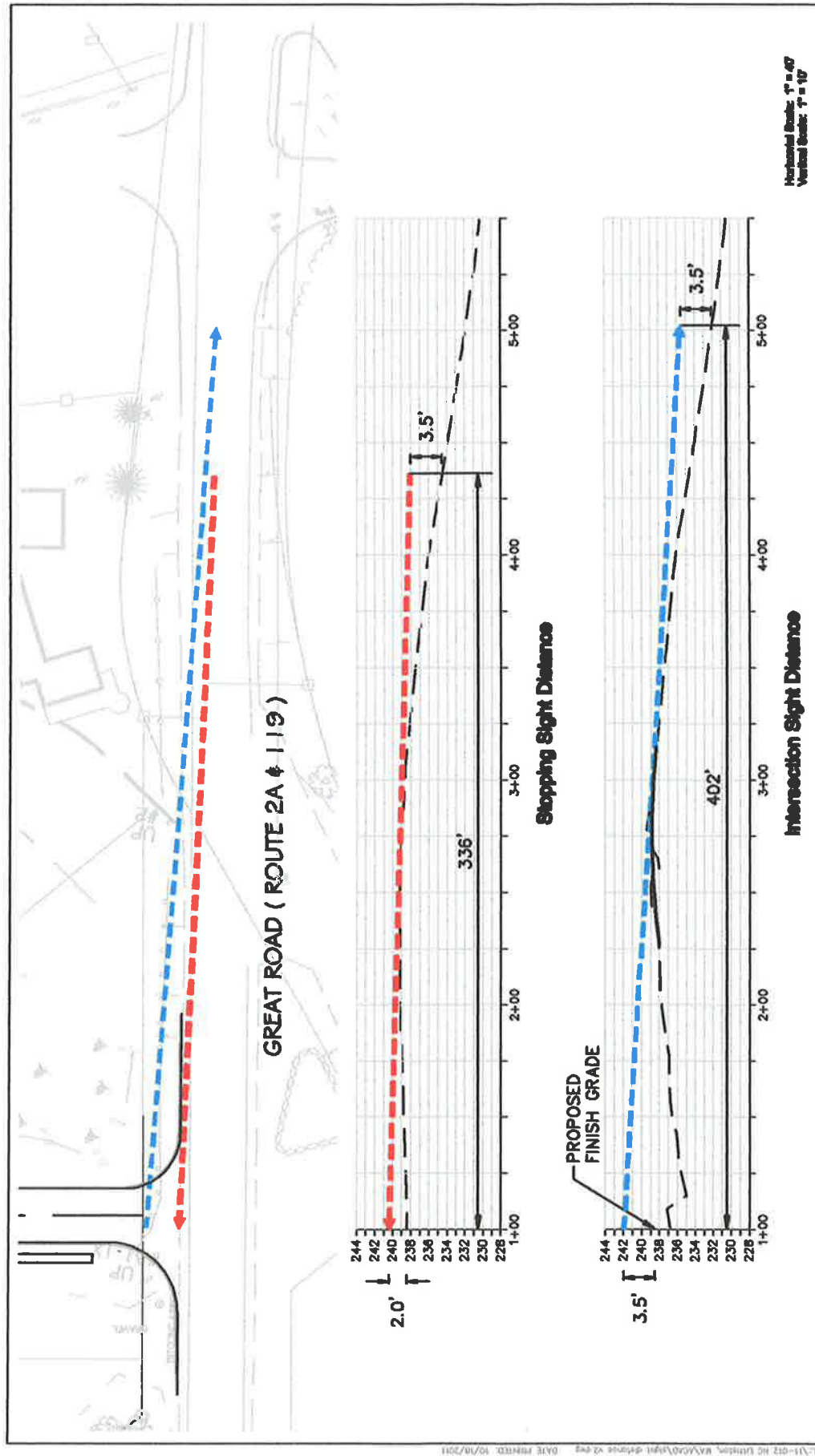
	Reaction Distance (ft)	Brake Distance (ft)	SSD (ft)
Great Road Eastbound	176.4	220.8	397
Great Road Westbound	158.0	177.2	335

For 48 mph:

Left Turn ISD =	529	ft
Right Turn ISD =	459	ft

For 43 mph:

Left Turn ISD =	474	ft
Right Turn ISD =	411	ft



LANDSTRATEGIES

**Proposed Residential
Development
Littleton, MA**

Figure A

Sight Distance Profiles