

Traffic Count Data

ATR Data

TMC Data

Seasonal Adjustment Factors



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

Western Avenue
east of Everett Street
City, State: Boston, MA
Client: VHB/ K. Keen

122864 A VOLUME
Site Code: 10463.00

Start Time	A.M.	EB	P.M.	A.M.	WB	P.M.	A.M.	Combined	P.M.	05-Apr-12 Thu		
12:00	31		148	44		180	75		328			
12:15	22		132	26		157	48		289			
12:30	14		147	25		189	39		336			
12:45	14	81	158	585	19	114	142	668	33	195	300	1253
01:00	9		128	20		175	29		303			
01:15	10		131	18		180	28		311			
01:30	17		156	18		170	35		326			
01:45	7	43	139	554	9	65	148	673	16	108	287	1227
02:00	10		150	12		170	22		320			
02:15	6		148	14		164	20		312			
02:30	12		136	7		157	19		293			
02:45	10	38	126	560	10	43	138	629	20	81	264	1189
03:00	3		137	6		171	9		308			
03:15	8		177	10		182	18		359			
03:30	11		158	12		174	23		332			
03:45	9	31	169	641	9	37	167	694	18	68	336	1335
04:00	10		152	5		158	15		310			
04:15	10		152	7		168	17		320			
04:30	10		158	16		161	26		319			
04:45	17	47	159	621	24	52	182	669	41	99	341	1290
05:00	15		172	20		185	35		357			
05:15	30		184	30		195	60		379			
05:30	29		174	40		208	69		382			
05:45	41	115	161	691	64	154	226	814	105	269	387	1505
06:00	54		179	74		237	128		416			
06:15	61		164	100		209	161		373			
06:30	86		140	119		171	205		311			
06:45	108	309	146	629	131	424	164	781	239	733	310	1410
07:00	118		116	130		162	248		278			
07:15	134		146	144		164	278		310			
07:30	140		142	147		118	287		260			
07:45	159	551	114	518	146	567	117	561	305	1118	231	1079
08:00	178		134	160		133	338		267			
08:15	179		102	177		120	356		222			
08:30	190		86	178		96	368		182			
08:45	194	741	88	410	202	717	97	446	396	1458	185	856
09:00	166		88	198		96	364		184			
09:15	165		78	182		100	347		178			
09:30	138		69	127		119	265		188			
09:45	139	608	58	293	154	661	90	405	293	1269	148	698
10:00	109		70	135		84	244		154			
10:15	124		56	119		66	243		122			
10:30	114		52	138		70	252		122			
10:45	134	481	62	240	125	517	46	266	259	998	108	506
11:00	122		40	135		66	257		106			
11:15	129		30	124		62	253		92			
11:30	154		36	134		38	288		74			
11:45	146	551	48	154	148	541	33	199	294	1092	81	353
Total	3596		5896	3892		6805	7488		12701			
Percent	48.0%		46.4%	52.0%		53.6%						
Day Total		9492			10697			20189				
Peak	08:00		05:15	08:30		05:30		08:15		05:15		
Vol.	741		698	760		880		1484		1564		
P.H.F.	0.955		0.948	0.941		0.928		0.937		0.940		



PRECISION
D A T A
INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503
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Western Avenue
west of Hague Street
City, State: Boston, MA
Client: VHB/ K. Keen

122864 B VOLUME
Site Code: 10463.00

Start Time	A.M.	EB	P.M.	A.M.	WB	P.M.	A.M.	Combined	P.M.	05-Apr-12 Thu		
12:00	14		86	31		101	45		187			
12:15	9		74	29		104	38		178			
12:30	8		62	22		98	30		160			
12:45	8	39	87	17	99	110	413	25	138	197	722	
01:00	10		76	21		92	31		168			
01:15	5		74	12		114	17		188			
01:30	3		74	5		104	8		178			
01:45	6	24	82	14	52	100	410	20	76	182	716	
02:00	3		84	6		129	9		213			
02:15	4		88	12		96	16		184			
02:30	10		85	8		110	18		195			
02:45	4	21	74	7	33	112	447	11	54	186	778	
03:00	2		76	4		118	6		194			
03:15	3		86	7		143	10		229			
03:30	2		91	5		136	7		227			
03:45	10	17	92	7	23	114	511	17	40	206	856	
04:00	6		80	8		106	14		186			
04:15	6		49	5		122	11		171			
04:30	4		76	8		126	12		202			
04:45	6	22	84	13	34	113	467	19	56	197	756	
05:00	10		94	26		138	36		232			
05:15	9		109	23		165	32		274			
05:30	18		89	33		153	51		242			
05:45	32	69	100	392	46	128	160	616	78	197	260	1008
06:00	22		72	38		146	60		218			
06:15	45		88	60		147	105		235			
06:30	46		72	73		112	119		184			
06:45	70	183	63	295	80	251	120	525	150	434	183	820
07:00	64		80	96		102	160		182			
07:15	74		60	93		110	167		170			
07:30	64		70	100		72	164		142			
07:45	100	302	58	268	84	373	79	363	184	675	137	631
08:00	108		78	106		88	214		166			
08:15	102		58	129		86	231		144			
08:30	96		51	116		75	212		126			
08:45	112	418	32	219	126	477	81	330	238	895	113	549
09:00	104		48	112		64	216		112			
09:15	86		35	100		71	186		106			
09:30	79		38	102		80	181		118			
09:45	74	343	30	151	96	410	70	285	170	753	100	436
10:00	78		46	95		68	173		114			
10:15	65		21	93		65	158		86			
10:30	66		31	89		55	155		86			
10:45	69	278	26	124	90	367	38	226	159	645	64	350
11:00	70		24	87		44	157		68			
11:15	70		20	98		46	168		66			
11:30	84		18	85		29	169		47			
11:45	85	309	18	80	92	362	27	146	177	671	45	226
Total	2025		3109		2609		4739		4634		7848	
Percent	43.7%		39.6%		56.3%		60.4%					
Day Total		5134				7348				12482		
Peak	08:00		05:00		08:15		05:15		08:15		05:00	
Vol.	418		392		483		624		897		1008	
P.H.F.	0.933		0.899		0.936		0.945		0.942		0.920	



PRECISION
D A T A
INDUSTRIES, LLC

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Email: datarequests@pdillc.com

N. Harvard Street
north of Hefferan Street
City, State: Boston, MA
Client: VHB/ K. Keen

122864 C VOLUME
Site Code: 10463.00

Start Time	A.M.	NB	P.M.	A.M.	SB	P.M.	A.M.	Combined	P.M.	05-Apr-12 Thu		
12:00	22		91	36		80	58		171			
12:15	27		82	25		72	52		154			
12:30	18		76	20		88	38		164			
12:45	19	86	72	321	15	96	70	310	34	182	142	631
01:00	14		96	21		100	35		196			
01:15	10		76	17		82	27		158			
01:30	16		85	15		84	31		169			
01:45	10	50	86	343	7	60	78	344	17	110	164	687
02:00	11		98	12		93	23		191			
02:15	9		68	10		86	19		154			
02:30	5		88	6		106	11		194			
02:45	8	33	94	348	12	40	126	411	20	73	220	759
03:00	4		82	5		77	9		159			
03:15	8		80	6		90	14		170			
03:30	3		124	7		93	10		217			
03:45	3	18	102	388	5	23	121	381	8	41	223	769
04:00	4		94	6		98	10		192			
04:15	6		95	7		105	13		200			
04:30	4		114	6		86	10		200			
04:45	14	28	114	417	12	31	108	397	26	59	222	814
05:00	6		135	14		104	20		239			
05:15	18		138	18		100	36		238			
05:30	24		123	24		100	48		223			
05:45	38	86	141	537	42	98	120	424	80	184	261	961
06:00	36		138	38		111	74		249			
06:15	38		156	30		130	68		286			
06:30	70		161	67		100	137		261			
06:45	64	208	130	585	82	217	112	453	146	425	242	1038
07:00	77		119	86		94	163		213			
07:15	87		103	74		109	161		212			
07:30	105		136	78		102	183		238			
07:45	143	412	93	451	90	328	118	423	233	740	211	874
08:00	108		86	86		95	194		181			
08:15	138		66	90		92	228		158			
08:30	128		60	87		86	215		146			
08:45	148	522	76	288	94	357	72	345	242	879	148	633
09:00	114		67	92		80	206		147			
09:15	93		60	112		88	205		148			
09:30	98		57	77		90	175		147			
09:45	88	393	65	249	78	359	85	343	166	752	150	592
10:00	108		51	74		68	182		119			
10:15	78		58	66		65	144		123			
10:30	92		56	86		53	178		109			
10:45	91	369	46	211	72	298	57	243	163	667	103	454
11:00	83		64	78		63	161		127			
11:15	73		34	74		52	147		86			
11:30	98		45	84		43	182		88			
11:45	87	341	41	184	94	330	42	200	181	671	83	384
Total	2546		4322	2237		4274	4783		8596			
Percent	53.2%		50.3%	46.8%		49.7%						
Day Total		6868			6511			13379				
Peak	08:15		05:45	08:30		05:30		08:15		05:45		
Vol.	528		596	385		461		891		1057		
P.H.F.	0.892		0.925	0.859		0.887		0.920		0.924		



PRECISION
D A T A
INDUSTRIES, LLC

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

Cambridge Street
east of Windom Street
City, State: Boston, MA
Client: VHB/ K. Keen

122864 E VOLUME
Site Code: 10463.00

Start Time	WB		EB		Combined		05-Apr-12 Thu					
	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.						
12:00	81	222	38	112	119	334						
12:15	58	217	36	102	94	319						
12:30	39	218	19	136	58	354						
12:45	40	218	877	28	121	117	467	68	339	337	1344	
01:00	40	212	40	114	80	326						
01:15	58	246	22	121	80	367						
01:30	28	233	27	143	55	376						
01:45	20	146	268	959	20	109	140	518	40	255	408	1477
02:00	32	244	22	150	54	394						
02:15	31	236	23	138	54	374						
02:30	28	222	12	150	40	372						
02:45	24	115	231	933	13	70	166	604	37	185	397	1537
03:00	19	230	9	156	28	386						
03:15	24	261	11	158	35	419						
03:30	18	274	9	143	27	417						
03:45	11	72	294	1059	12	41	164	621	23	113	458	1680
04:00	15	288	10	152	25	440						
04:15	26	352	7	170	33	522						
04:30	22	342	10	194	32	536						
04:45	60	123	384	1366	15	42	174	690	75	165	558	2056
05:00	33	376	14	192	47	568						
05:15	58	415	21	212	79	627						
05:30	100	400	40	208	140	608						
05:45	134	325	473	1664	31	106	182	794	165	431	655	2458
06:00	150	450	47	190	197	640						
06:15	197	446	64	194	261	640						
06:30	263	383	98	174	361	557						
06:45	280	890	424	1703	108	317	185	743	388	1207	609	2446
07:00	293	423	131	170	424	593						
07:15	292	427	126	185	418	612						
07:30	364	354	155	152	519	506						
07:45	378	1327	254	1458	200	612	136	643	578	1939	390	2101
08:00	370	212	174	132	544	344						
08:15	386	247	193	146	579	393						
08:30	327	212	171	131	498	343						
08:45	388	1471	198	869	158	696	108	517	546	2167	306	1386
09:00	389	188	146	106	535	294						
09:15	304	198	122	110	426	308						
09:30	306	188	158	106	464	294						
09:45	339	1338	174	748	151	577	101	423	490	1915	275	1171
10:00	320	176	130	90	450	266						
10:15	287	154	129	104	416	258						
10:30	288	176	156	84	444	260						
10:45	304	1199	140	646	138	553	77	355	442	1752	217	1001
11:00	293	132	136	77	429	209						
11:15	247	129	120	74	367	203						
11:30	248	111	124	58	372	169						
11:45	210	998	116	488	111	491	62	271	321	1489	178	759
Total	8222	12770	3735	6646	11957	19416						
Percent	68.8%	65.8%	31.2%	34.2%								
Day Total		20992		10381		31373						
Peak	07:30	05:30	07:45	05:00	07:30	05:30						
Vol.	1498	1769	738	794	2220	2543						
P.H.F.	0.970	0.935	0.923	0.936	0.959	0.971						



File Name : 122864 C
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

N/S: Everett Street
 E/W: Western Avenue
 City, State: Boston, MA
 Client: VHB/ K. Keen

PRECISION
 D. A. T. A.
 INDUSTRIES, LLC
 90 Beech St, Boston, MA 01093
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequests@pdic.com

Start Time	Everett Street From North			Western Avenue From East			Everett Street From South			Western Avenue From West			Int. Total	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		
07:00 AM	1	0	0	1	8	0	0	0	1	0	0	11	0	22
07:15 AM	1	1	0	0	9	0	2	0	2	9	0	0	0	26
07:30 AM	1	0	0	0	14	4	0	0	1	13	0	0	0	34
07:45 AM	0	1	0	0	11	1	0	1	1	0	9	0	0	25
Total	3	2	0	1	42	5	0	3	1	5	0	3	42	107
08:00 AM	0	0	1	0	8	0	0	0	0	0	0	15	0	26
08:15 AM	0	1	0	0	11	1	0	2	0	0	2	9	0	26
08:30 AM	0	1	0	0	7	4	0	1	0	1	0	14	1	31
08:45 AM	0	0	1	0	9	1	0	2	1	0	3	16	0	35
Total	0	2	2	0	35	6	0	5	1	2	0	9	54	118
Grand Total	3	4	2	0	77	11	0	8	2	7	0	12	96	225
Approach %	33.3	44.4	22.2	0	2.2	85.6	12.2	0	47.1	11.8	41.2	0	11	88.1
Total %	1.3	1.8	0.9	0	0.9	34.2	4.9	0	3.6	0.9	3.1	0	5.3	42.7

Start Time	Everett Street From North			Western Avenue From East			Everett Street From South			Western Avenue From West			Int. Total	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		
08:00 AM	0	0	1	0	8	0	0	0	0	0	0	15	0	26
08:15 AM	0	1	0	0	11	1	0	2	0	0	2	9	0	26
08:30 AM	0	1	0	0	7	4	0	1	0	1	0	14	1	31
08:45 AM	0	0	1	0	9	1	0	2	1	0	3	16	0	35
Total	0	2	2	0	35	6	0	5	1	2	0	9	54	118
Grand Total	3	4	2	0	77	11	0	8	2	7	0	12	96	225
Approach %	33.3	44.4	22.2	0	2.2	85.6	12.2	0	47.1	11.8	41.2	0	11	88.1
Total %	1.3	1.8	0.9	0	0.9	34.2	4.9	0	3.6	0.9	3.1	0	5.3	42.7

Start Time	Everett Street From North			Western Avenue From East			Everett Street From South			Western Avenue From West			Int. Total	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		
08:00 AM	0	0	1	0	8	0	0	0	0	0	0	15	0	26
08:15 AM	0	1	0	0	11	1	0	2	0	0	2	14	1	31
08:30 AM	0	1	0	0	7	4	0	1	0	1	0	14	1	31
08:45 AM	0	0	1	0	9	1	0	2	1	0	3	16	0	35
Total	0	2	2	0	35	6	0	5	1	2	0	9	54	118
% App. Total	0	50	0	2.4	83.3	14.3	0	42	5	25	0	14.1	84.4	118
PHF	0.00	.500	.000	1.00	.250	.795	.000	.875	.625	.230	.500	.000	.500	.750



File Name : 122864 C
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

N/S: Everett Street
 E/W: Western Avenue
 City, State: Boston, MA
 Client: VHB/ K. Keen

PRECISION
 D. A. T. A.
 INDUSTRIES, LLC
 90 Beech St, Boston, MA 01093
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Start Time	Everett Street From North			Western Avenue From East			Everett Street From South			Western Avenue From West			Int. Total	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		
07:00 AM	0	0	0	0	2	0	0	3	0	4	0	6	21	
07:15 AM	0	0	0	2	0	0	1	0	0	5	0	0	9	
07:30 AM	0	0	0	4	0	1	1	1	1	3	0	7	20	
07:45 AM	0	1	0	2	0	4	0	3	0	2	0	2	18	
Total	0	1	0	10	0	5	0	8	1	10	0	11	68	
08:00 AM	0	0	0	1	0	1	0	0	0	1	3	0	2	19
08:15 AM	0	1	0	4	0	3	0	3	0	4	0	4	0	26
08:30 AM	0	1	0	4	1	5	0	2	1	0	0	7	0	30
08:45 AM	0	0	0	4	0	4	0	1	0	0	0	8	0	19
Total	0	2	0	13	1	13	1	9	1	7	1	25	0	94
Grand Total	0	3	0	23	1	18	1	17	2	4	2	17	1	162
Approach %	0	11.5	0	88.5	2.7	48.6	2.7	45.9	8	16	8	68	1.4	58.1
Total %	0	1.9	0	14.2	0.6	11.1	0.6	10.5	1.2	2.5	1.2	10.5	0.6	26.5

Start Time	Everett Street From North			Western Avenue From East			Everett Street From South			Western Avenue From West			Int. Total	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		
08:00 AM	0	0	0	1	0	1	0	0	0	1	3	0	2	9
08:15 AM	0	1	0	4	5	0	3	0	3	6	0	4	0	26
08:30 AM	0	1	0	4	5	1	5	0	2	8	1	0	0	30
08:45 AM	0	0	0	4	4	0	4	0	1	5	0	0	0	19
Total	0	2	0	13	15	1	13	1	9	24	1	7	10	45
% App. Total	0	13.3	0	86.7	4.2	54.2	4.2	37.5	10	10	10	70	2.2	55.6
PHF	0.00	.300	.000	.813	.750	.250	.650	.250	.750	.250	.250	.438	.625	.750

Start Time	Everett Street From North			Western Avenue From East			Everett Street From South			Western Avenue From West			Int. Total	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		
08:00 AM	0	0	0	1	0	1	0	0	0	1	3	0	2	9
08:15 AM	0	1	0	4	5	0	3	0	3	6	0	4	0	26
08:30 AM	0	1	0	4	5	1	5	0	2	8	1	0	0	30
08:45 AM	0	0	0	4	4	0	4	0	1	5	0	0	0	19
Total	0	2	0	13	15	1	13	1	9	24	1	7	10	45
% App. Total	0	13.3	0	86.7	4.2	54.2	4.2	37.5	10	10	10	70	2.2	55.6
PHF	0.00	.300	.000	.813	.750	.250	.650	.250	.750	.250	.250	.438	.625	.750

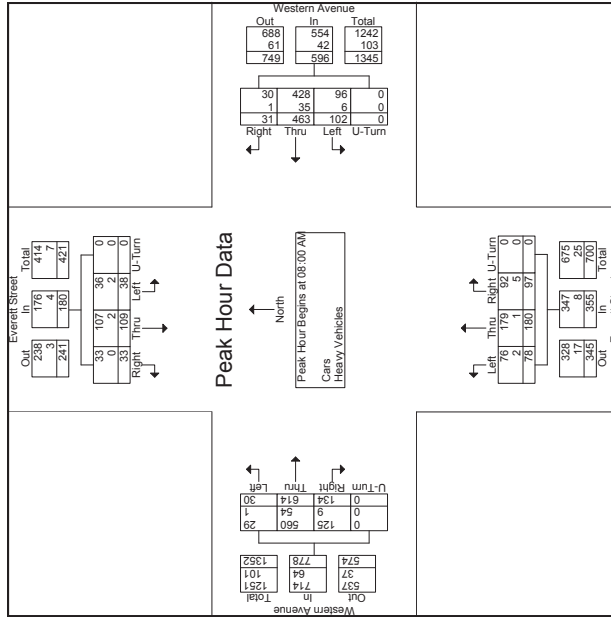


N/S: Everett Street
 E/W: Western Avenue
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 C
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

90 Bea St, Boston, MA 02109
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequest@pdilc.com

Start Time	Everett Street From North			Western Avenue From East			Everett Street From South			Western Avenue From West			Int. Total									
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left										
08:00 AM	6	21	7	0	34	9	114	21	0	144	21	28	15	0	64	27	153	8	0	189	431	
08:15 AM	10	40	9	0	59	4	123	20	0	147	32	61	22	0	115	48	157	8	0	213	534	
08:30 AM	5	22	15	0	31	10	110	30	0	150	26	47	20	0	83	29	144	8	0	181	466	
08:45 AM	12	33	109	38	0	180	31	483	102	0	596	97	180	78	0	355	134	614	30	0	778	1909
Total	33	109	38	0	180	31	483	102	0	596	97	180	78	0	355	134	614	30	0	778	1909	
% App. Total	18.3	60.6	21.1	0	97.5	5.2	77.7	17.1	0	27.3	50.7	22	0	0	77.2	69.8	95.9	83.3	0.0	91.3	89.4	
PHF	.688	.681	.633	.000	.763	.775	.841	.823	.000	.961	.758	.738	.686	.000	.772	.698	.959	.833	.000	.913	.894	
Cars	33	109	38	0	180	31	483	102	0	596	97	180	78	0	355	134	614	30	0	778	1909	
% Cars	100	98.7	94.2	0	97.2	96.9	94.1	94.1	0	94.0	94.5	96.4	97.2	0	97.1	93.5	91.4	96.7	0	91.8	91.8	
Heavy Vehicles	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% Heavy Vehicles	0	1.8	5.3	0	2.2	3.2	7.6	5.9	0	7.0	5.2	0.6	2.6	0	2.3	6.7	8.8	3.3	0	8.2	6.2	



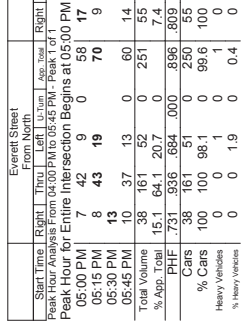
N/S: Everett Street
 E/W: Western Avenue
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 CC
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

90 Bea St, Boston, MA 02109
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequest@pdilc.com

Start Time	Everett Street From North			Western Avenue From East			Everett Street From South			Western Avenue From West			Int. Total				
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left					
04:00 PM	7	32	13	0	16	123	21	0	22	26	9	0	35	119	4	0	427
04:15 PM	8	33	14	0	10	127	29	0	18	20	16	0	29	111	6	0	420
04:30 PM	9	32	14	0	16	114	21	0	24	28	23	0	33	132	3	0	445
04:45 PM	9	39	7	0	15	156	25	0	17	33	16	0	39	128	7	0	489
Total	33	136	43	0	57	520	96	0	81	107	64	0	136	488	20	0	1781
05:00 PM	7	42	9	0	17	136	22	0	20	37	23	0	46	144	4	0	507
05:15 PM	8	43	19	0	9	147	23	0	13	25	27	0	49	153	4	0	520
05:30 PM	13	39	11	0	15	138	20	0	16	29	34	0	33	137	2	0	487
05:45 PM	10	37	13	0	14	160	40	0	25	32	18	0	36	125	8	0	518
Total	38	161	52	0	55	581	105	0	74	123	102	0	164	559	18	0	2032
Grand Total	71	297	95	0	112	1101	201	0	155	230	166	0	300	1047	38	0	3813
Approach %	15.3	64.1	20.5	0	7.9	77.9	14.2	0	28.1	41.7	30.1	0	21.7	75.6	2.7	0	520
Total %	1.9	7.8	2.5	0	2.9	28.9	5.3	0	4.1	6	4.4	0	7.9	27.5	1	0	487
Cars	70	296	94	0	111	1056	198	0	149	229	162	0	283	995	38	0	3691
% Cars	98.6	99.7	98.9	0	99.1	95.9	98.5	0	96.1	99.6	97.6	0	97.7	95	100	0	96.8
Heavy Vehicles	1	1	1	0	1	45	3	0	6	1	4	0	7	52	0	0	122
% Heavy Vehicles	1.4	0.3	1.1	0	0.9	4.1	1.5	0	3.9	0.4	2.4	0	2.3	5	0	0	3.2

Start Time	Everett Street From North			Western Avenue From East			Everett Street From South			Western Avenue From West			Int. Total				
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left					
05:00 PM	7	42	9	0	17	136	22	0	20	37	23	0	46	144	4	0	507
05:15 PM	8	43	19	0	9	147	23	0	13	25	27	0	49	153	4	0	520
05:30 PM	13	39	11	0	15	138	20	0	16	29	34	0	33	137	2	0	487
05:45 PM	10	37	13	0	14	160	40	0	25	32	18	0	36	125	8	0	518
Total	38	161	52	0	55	581	105	0	74	123	102	0	164	559	18	0	2032
Grand Total	71	297	95	0	112	1101	201	0	155	230	166	0	300	1047	38	0	3813
Approach %	15.3	64.1	20.5	0	7.9	77.9	14.2	0	28.1	41.7	30.1	0	21.7	75.6	2.7	0	520
Total %	1.9	7.8	2.5	0	2.9	28.9	5.3	0	4.1	6	4.4	0	7.9	27.5	1	0	487
Cars	70	296	94	0	111	1056	198	0	149	229	162	0	283	995	38	0	3691
% Cars	98.6	99.7	98.9	0	99.1	95.9	98.5	0	96.1	99.6	97.6	0	97.7	95	100	0	96.8
Heavy Vehicles	1	1	1	0	1	45	3	0	6	1	4	0	7	52	0	0	122
% Heavy Vehicles	1.4	0.3	1.1	0	0.9	4.1	1.5	0	3.9	0.4	2.4	0	2.3	5	0	0	3.2





N/S: Everett Street
E/W: Western Avenue
City, State: Boston, MA
Client: VHB/ K. Keen

File Name : 122864 CC
Site Code : 10463.00
Start Date : 4/5/2012
Page No : 1

N/S: Everett Street
E/W: Western Avenue
City, State: Boston, MA
Client: VHB/ K. Keen

PRECISION
INDUSTRIES, LLC
90 Beech St. Boston, MA 02109
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequest@pdic.com

Groups Printed- Cars

Start Time	Everett Street From North			Western Avenue From East			Everett Street From South			Western Avenue From West			Int. Total				
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left					
04:00 PM	6	32	13	0	16	119	21	0	21	26	9	0	35	111	4	0	413
04:15 PM	8	31	14	0	10	121	29	0	16	20	15	0	28	106	6	0	404
04:30 PM	9	33	9	0	15	108	21	0	24	27	23	0	33	124	3	0	429
04:45 PM	9	39	7	0	15	148	24	0	17	33	16	0	37	117	7	0	469
Total	32	135	43	0	56	496	95	0	78	106	63	0	133	458	20	0	1715
05:00 PM	7	42	9	0	17	133	22	0	18	37	21	0	44	140	4	0	494
05:15 PM	8	43	18	0	9	140	21	0	13	25	27	0	48	150	4	0	506
05:30 PM	13	39	11	0	15	133	20	0	15	29	33	0	32	130	2	0	472
05:45 PM	10	37	13	0	14	154	40	0	25	32	18	0	36	117	8	0	504
Total	38	161	51	0	55	560	103	0	71	123	99	0	160	537	18	0	1976
Grand Total	70	296	94	0	111	1056	198	0	149	229	162	0	293	995	38	0	3691
Approach %	15.2	64.3	20.4	0	8.1	77.4	14.5	0	27.6	42.4	30	0	22.1	75	2.9	0	0
Total %	1.9	8	2.5	0	3	28.6	5.4	0	4	6.2	4.4	0	7.9	27	1	0	0

Start Time	Everett Street From North			Western Avenue From East			Everett Street From South			Western Avenue From West			Int. Total			
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left				
04:00 PM	1	0	0	0	4	0	0	0	1	0	0	0	8	0	0	14
04:15 PM	0	1	0	0	6	0	0	2	0	1	0	0	5	0	0	16
04:30 PM	0	0	0	0	1	6	0	0	1	0	0	0	8	0	0	16
04:45 PM	1	1	0	0	8	1	0	0	0	0	0	0	2	9	0	20
Total	2	2	0	0	21	2	0	0	3	3	0	0	4	22	0	56
05:00 PM	0	0	0	0	3	0	0	0	2	0	2	0	2	4	0	13
05:15 PM	0	0	1	0	7	2	0	0	0	0	0	0	1	3	0	14
05:30 PM	0	0	0	0	5	0	0	0	1	0	1	0	1	7	0	15
05:45 PM	0	0	0	0	6	0	0	0	0	0	0	0	8	0	0	14
Total	0	0	1	0	21	2	0	0	3	0	3	0	4	22	0	56
Grand Total	1	1	1	0	45	3	0	0	6	1	4	0	7	52	0	122
Approach %	33.3	33.3	33.3	0	2	91.8	6.1	0	54.5	9.1	36.4	0	11.9	88.1	0	0
Total %	0.8	0.8	0.8	0	0.8	36.9	2.5	0	4.9	0.8	3.3	0	5.7	42.6	0	0

Peak Hour for Entire Intersection Begins at 05:00 PM

% App. Total: 15.2 64.4 20.4 0 8.1 77.7 14.3 0 27.7 42.4 33.8 0 22.4 75.1 2.5 0

PHF: .731 .356 .708 .000 .906 1.809 .909 .844 .000 .863 .710 .831 .750 .000 .951 .853 .895 .563 .000 .885 .976



N/S: Everett Street
E/W: Western Avenue
City, State: Boston, MA
Client: VHB/ K. Keen

PRECISION
INDUSTRIES, LLC
90 Beech St. Boston, MA 02109
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequest@pdic.com

Groups Printed- Heavy Vehicles

Start Time	Everett Street From North			Western Avenue From East			Everett Street From South			Western Avenue From West			Int. Total			
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left				
04:00 PM	1	0	0	0	4	0	0	0	0	0	0	0	8	0	0	14
04:15 PM	0	1	0	0	6	0	0	2	0	1	0	0	5	0	0	16
04:30 PM	0	0	0	0	1	6	0	0	1	0	0	0	8	0	0	16
04:45 PM	1	1	0	0	8	1	0	0	0	0	0	0	2	9	0	20
Total	2	2	0	0	24	1	0	0	1	1	0	0	3	30	0	66
05:00 PM	0	0	0	0	3	0	0	0	2	0	2	0	2	4	0	13
05:15 PM	0	0	1	0	7	2	0	0	0	0	0	0	1	3	0	14
05:30 PM	0	0	0	0	5	0	0	0	1	0	1	0	1	7	0	15
05:45 PM	0	0	0	0	6	0	0	0	0	0	0	0	8	0	0	14
Total	0	0	1	0	21	2	0	0	3	0	3	0	4	22	0	56
Grand Total	1	1	1	0	45	3	0	0	6	1	4	0	7	52	0	122
Approach %	33.3	33.3	33.3	0	2	91.8	6.1	0	54.5	9.1	36.4	0	11.9	88.1	0	0
Total %	0.8	0.8	0.8	0	0.8	36.9	2.5	0	4.9	0.8	3.3	0	5.7	42.6	0	0

Start Time	Everett Street From North			Western Avenue From East			Everett Street From South			Western Avenue From West			Int. Total			
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left				
04:00 PM	1	0	0	0	4	0	0	0	0	0	0	0	8	0	0	14
04:15 PM	0	1	0	0	6	0	0	2	0	1	0	0	5	0	0	16
04:30 PM	0	0	0	0	1	6	0	0	1	0	0	0	8	0	0	16
04:45 PM	1	1	0	0	8	1	0	0	0	0	0	0	2	9	0	20
Total	2	2	0	0	24	1	0	0	1	1	0	0	3	30	0	66
05:00 PM	0	0	0	0	3	0	0	0	2	0	2	0	2	4	0	13
05:15 PM	0	0	1	0	7	2	0	0	0	0	0	0	1	3	0	14
05:30 PM	0	0	0	0	5	0	0	0	1	0	1	0	1	7	0	15
05:45 PM	0	0	0	0	6	0	0	0	0	0	0	0	8	0	0	14
Total	0	0	1	0	21	2	0	0	3	0	3	0	4	22	0	56
Grand Total	1	1	1	0	45	3	0	0	6	1	4	0	7	52	0	122
Approach %	33.3	33.3	33.3	0	2	91.8	6.1	0	54.5	9.1	36.4	0	11.9	88.1	0	0
Total %	0.8	0.8	0.8	0	0.8	36.9	2.5	0	4.9	0.8	3.3	0	5.7	42.6	0	0

Peak Hour for Entire Intersection Begins at 04:00 PM

% App. Total: .250 .250 .000 .000 .500 .250 .750 .250 .000 .722 .375 .250 .250 .000 .417 .375 .383 .000 .750 .825

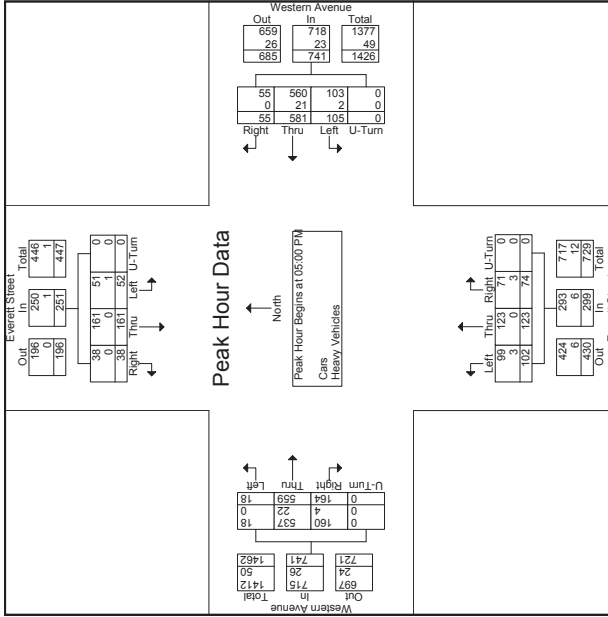


Start Time	Everett Street From North			Western Avenue From East			Everett Street From South			Western Avenue From West			Peds	Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		
04:00 PM	0	2	0	0	3	1	6	0	1	1	0	0	2	4
04:15 PM	0	0	6	0	1	1	1	0	0	10	0	0	2	23
04:30 PM	0	0	4	0	5	0	3	1	0	0	5	1	2	27
04:45 PM	0	1	0	0	4	0	4	0	2	0	2	0	5	27
Total	0	3	0	28	10	2	14	2	3	17	1	10	0	110
05:00 PM	0	0	9	0	6	0	6	0	0	6	0	3	0	35
05:15 PM	0	1	11	0	6	1	3	3	1	0	6	10	0	47
05:30 PM	0	2	1	4	0	7	0	4	0	1	0	6	0	37
05:45 PM	0	0	3	0	2	3	3	1	2	9	0	3	0	30
Total	0	3	1	27	0	21	4	16	4	3	2	27	1	149
Grand Total	0	6	1	55	0	31	6	30	6	6	3	44	2	31
Approach %	0	9.7	1.6	88.7	0	46.3	9	44.8	10.2	10.2	5.1	74.6	2.8	43.7
Total %	0	2.3	0.4	21.2	0	12	2.3	11.6	2.3	2.3	1.2	17	0.8	12

Start Time	Everett Street From North			Western Avenue From East			Everett Street From South			Western Avenue From West			Peds	Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		
04:00 PM	0	0	0	0	6	0	6	0	0	6	0	3	0	5
04:15 PM	0	0	9	0	6	1	3	10	3	1	10	0	4	15
04:30 PM	0	1	0	11	0	6	1	3	10	3	1	10	0	47
04:45 PM	0	2	1	0	3	0	3	8	1	2	9	0	3	6
Total	0	3	1	27	0	21	4	16	4	3	2	27	1	149
05:00 PM	0	3	1	27	0	21	4	16	4	3	2	27	1	149
05:15 PM	0	3	1	27	0	21	4	16	4	3	2	27	1	149
05:30 PM	0	3	1	27	0	21	4	16	4	3	2	27	1	149
05:45 PM	0	3	1	27	0	21	4	16	4	3	2	27	1	149
Total	0	3	1	27	0	21	4	16	4	3	2	27	1	149
% App. Total	0	9.7	3.2	87.1	0	51.2	8.8	39	11.3	6.3	5.6	75	2.4	51.2
PHF	0.00	.375	.230	.614	.646	0.00	.750	.333	.667	.854	.333	.750	.682	.250



Start Time	Everett Street From North			Western Avenue From East			Everett Street From South			Western Avenue From West			Peds	Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		
04:00 PM	0	2	0	0	3	1	6	0	1	1	0	0	2	4
04:15 PM	0	0	6	0	1	1	1	0	0	10	0	0	2	23
04:30 PM	0	0	4	0	5	0	3	1	0	0	5	1	2	27
04:45 PM	0	1	0	0	4	0	4	0	2	0	2	0	5	27
Total	0	3	0	28	10	2	14	2	3	17	1	10	0	110
05:00 PM	0	0	9	0	6	0	6	0	0	6	0	3	0	35
05:15 PM	0	1	11	0	6	1	3	3	1	0	6	10	0	47
05:30 PM	0	2	1	4	0	7	0	4	0	1	0	6	0	37
05:45 PM	0	0	3	0	2	3	3	1	2	9	0	3	0	30
Total	0	3	1	27	0	21	4	16	4	3	2	27	1	149
Grand Total	0	6	1	55	0	31	6	30	6	6	3	44	2	31
Approach %	0	9.7	1.6	88.7	0	46.3	9	44.8	10.2	10.2	5.1	74.6	2.8	43.7
Total %	0	2.3	0.4	21.2	0	12	2.3	11.6	2.3	2.3	1.2	17	0.8	12





N/S: Jug Handle/ Everett Street
 E/W: Soldiers Field Road
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 L
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

PRECISION
 INDUSTRIES, LLC
 90 Beech Rd, Boston, MA 02109
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequest@pdic.com

Start Time	Jug Handle From North			Soldiers Field Road From East			Everett Street From South			Soldiers Field Road From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
07:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	1
07:15 AM	0	0	2	0	0	0	0	0	0	0	1	0	3
07:30 AM	0	1	2	0	0	0	0	0	0	0	0	0	3
07:45 AM	1	0	2	0	0	0	0	0	0	0	0	0	4
Total	1	1	7	0	0	0	0	0	0	0	0	0	11
08:00 AM	0	0	2	0	0	0	0	0	0	0	2	0	4
08:15 AM	0	0	2	0	0	0	0	0	0	0	4	0	7
08:30 AM	0	0	1	0	0	0	0	0	0	2	0	0	4
08:45 AM	0	1	1	0	0	0	1	0	0	0	1	0	4
Total	0	1	6	0	0	0	1	0	0	0	9	0	21
Grand Total	1	2	13	0	0	0	1	0	0	0	10	0	32
Approach %	6.2	12.5	81.2	0	0	0	100	0	0	0	100	0	0
Total %	3.1	6.2	40.6	0	0	0	3.1	0	0	0	31.2	0	0

Start Time	Jug Handle From North			Soldiers Field Road From East			Everett Street From South			Soldiers Field Road From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
08:00 AM	0	0	2	0	0	0	0	0	0	0	2	0	4
08:15 AM	0	0	2	0	0	0	0	0	0	0	4	0	7
08:30 AM	0	1	0	0	0	0	0	0	0	2	0	0	4
08:45 AM	0	1	0	0	0	0	1	0	0	0	1	0	4
Total Volume	0	14.3	85.7	0	0	0	100	0	0	0	100	0	21
% App. Total	0.000	.250	.750	.000	.000	.000	.500	.250	.000	.000	.250	.000	.563
PHF	.000	.250	.750	.000	.000	.000	.250	.000	.000	.000	.250	.000	.563



N/S: Jug Handle/ Everett Street
 E/W: Soldiers Field Road
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 L
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

PRECISION
 INDUSTRIES, LLC
 90 Beech Rd, Boston, MA 02109
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequest@pdic.com

Start Time	Jug Handle From North			Soldiers Field Road From East			Everett Street From South			Soldiers Field Road From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	3	0	0	0	0	0	0	0	3
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	1	0	1
Total	0	0	0	0	3	0	0	0	0	0	1	0	2
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	4	0	0	0	0	0	0	0	0	0	0	4
08:30 AM	0	0	0	0	1	0	0	0	0	0	1	0	2
08:45 AM	0	4	0	0	0	0	0	0	0	0	0	0	4
Total	0	4	0	0	1	0	0	0	0	0	1	0	11
Grand Total	0	4	0	0	4	0	0	0	0	0	1	3	6
Approach %	0	100	0	0	100	0	0	66.7	0	0	30	0	60
Total %	0	19	0	0	19	0	0	4.8	0	0	14.3	0	28.6

Start Time	Jug Handle From North			Soldiers Field Road From East			Everett Street From South			Soldiers Field Road From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	4	0	0	0	0	0	0	0	0	0	0	4
Total Volume	0	4	0	0	0	0	0	0	0	0	0	0	4
% App. Total	0	100	0	0	0	0	0	0	0	0	0	0	100
PHF	.000	.250	.000	.000	.250	.000	.000	.250	.000	.000	.250	.000	.625

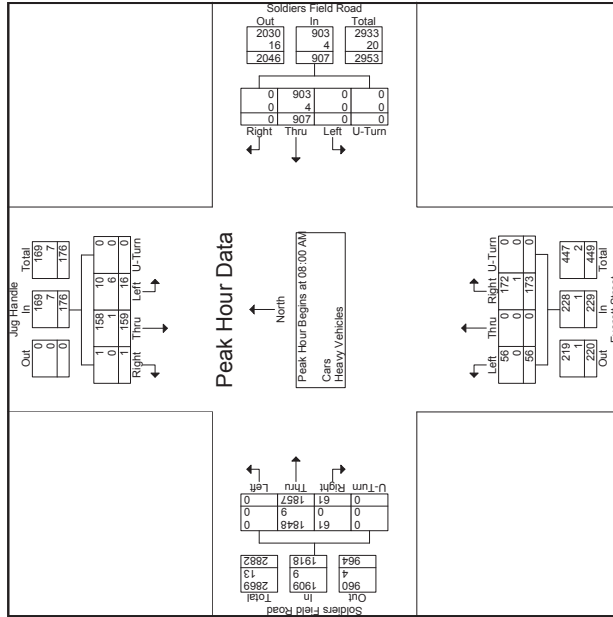


N/S: Jug Handle/ Everett Street
 E/W: Soldiers Field Road
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 L
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

PRECISION
 DATA
 INDUSTRIES, LLC
 90 Beech Rd, Boston, MA 01109
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequest@pdil.com

Start Time	Jug Handle			Soldiers Field Road			Everett Street			Soldiers Field Road			Int. Total		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left			
08:00 AM	0	37	4	0	224	0	0	12	0	44	16	457	0	473	762
08:15 AM	0	46	6	0	257	0	0	14	0	73	16	482	0	498	880
08:30 AM	1	39	1	0	40	0	0	17	0	57	16	448	0	464	760
08:45 AM	1	159	16	0	907	0	0	56	0	229	61	1857	0	1918	3230
Total Volume	0.6	993.3	9.1	0	2882	0	0	245	0	324	3.2	968.8	0	1000	1510
% App. Total	0.250	0.864	0.067	0.000	0.862	0.000	0.000	0.098	0.000	0.124	0.003	0.865	0.000	0.963	0.918
Cars	1	158	10	0	903	0	0	56	0	228	61	1848	0	1909	3209
% Cars	100	99.4	62.5	0	99.6	0	0	100	0	98.9	100	99.5	0	99.5	99.3
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Heavy Vehicles	0	0.6	37.5	0	0.4	0	0	0	0	0.4	0	0.5	0	0.5	6.7



N/S: Jug Handle/ Everett Street
 E/W: Soldiers Field Road
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 LL
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

PRECISION
 DATA
 INDUSTRIES, LLC
 90 Beech Rd, Boston, MA 01109
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequest@pdil.com

Start Time	Jug Handle			Soldiers Field Road			Everett Street			Soldiers Field Road			Int. Total		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left			
04:00 PM	0	38	6	0	263	0	0	31	0	20	0	244	0	609	
04:15 PM	2	33	8	0	278	0	0	23	0	18	0	257	0	631	
04:30 PM	0	39	13	0	342	0	0	33	0	18	0	261	0	713	
04:45 PM	1	40	3	0	361	0	0	28	0	26	0	330	0	800	
Total	3	150	30	0	1244	0	0	115	0	74	0	45	1092	2753	
05:00 PM	0	37	4	0	360	0	0	52	0	27	0	14	309	0	803
05:15 PM	0	48	8	0	415	0	0	31	0	14	0	15	345	0	876
05:30 PM	1	43	6	0	433	0	0	36	0	18	0	16	338	0	891
05:45 PM	0	40	2	0	417	0	0	34	0	18	0	13	310	0	834
Total	1	168	20	0	1625	0	0	153	0	77	0	58	1302	0	3404
Grand Total	4	318	50	0	2869	0	0	268	0	151	0	103	2394	0	6157
Approach %	1.1	85.5	13.4	0	100	0	0	64	0	36	0	4.1	95.9	0	0
Total %	0.1	5.2	0.8	0	46.6	0	0	4.4	0	2.5	0	1.7	38.9	0	0
Cars	4	318	47	0	2866	0	0	268	0	151	0	102	2393	0	6149
% Cars	100	100	94	0	99.9	0	0	100	0	100	0	99	100	0	99.9
Heavy Vehicles	0	0	3	0	3	0	0	0	0	0	0	1	1	0	8
% Heavy Vehicles	0	0	6	0	0.1	0	0	0	0	0	0	1	0	0	0.1

Start Time	Jug Handle			Soldiers Field Road			Everett Street			Soldiers Field Road			Int. Total	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		
05:00 PM	0	37	4	0	41	0	0	360	0	0	79	0	323	803
05:15 PM	1	48	8	0	56	0	0	415	0	14	0	45	345	876
05:30 PM	0	48	8	0	433	0	0	433	0	18	0	54	16	891
05:45 PM	0	40	2	0	42	0	0	417	0	18	0	52	13	834
Total Volume	1	168	20	0	189	0	0	1625	0	77	0	230	58	3404
% App. Total	0.5	88.9	10.6	0	100	0	0	66.5	0	33.5	0	4.3	95.7	0
Cars	1	168	18	0	187	0	0	1623	0	77	0	230	58	3400
% Cars	100	100	90.0	0	98.9	0	0	99.9	0	100	0	100	100	99.9
Heavy Vehicles	0	0	2	0	2	0	0	2	0	0	0	0	0	4
% Heavy Vehicles	0	0	10.0	0	1.1	0	0	0.1	0	0	0	0	0	0



N/S: Jug Handle/ Everett Street
 E/W: Soldiers Field Road
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864.LL
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

PRECISION
 D. A. T. A.
 INDUSTRIES, LLC
 90 Beech St, Boston, MA 01093
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequests@pdlic.com

Groups Printed- Cars

Start Time	Jug Handle From North			Soldiers Field Road From East			Everett Street From South			Soldiers Field Road From West			Int. Total			
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left				
04:00 PM	0	38	6	0	263	0	0	31	0	20	0	7	244	0	0	609
04:15 PM	2	33	7	0	277	0	0	23	0	10	0	19	257	0	0	628
04:30 PM	0	39	13	0	342	0	0	33	0	18	0	7	261	0	0	713
04:45 PM	1	40	3	0	361	0	0	28	0	26	0	11	329	0	0	799
Total	3	150	29	0	1243	0	0	115	0	74	0	44	1091	0	0	2749
05:00 PM	0	37	4	0	360	0	0	52	0	27	0	14	309	0	0	803
05:15 PM	0	48	7	0	415	0	0	31	0	14	0	15	345	0	0	875
05:30 PM	1	43	6	0	432	0	0	36	0	18	0	16	338	0	0	890
05:45 PM	0	1	0	0	416	0	0	34	0	18	0	13	310	0	0	852
Total	1	168	18	0	1623	0	0	153	0	77	0	58	1302	0	0	3400
Grand Total	4	318	47	0	2866	0	0	268	0	151	0	102	2393	0	0	6149
Approach %	1.1	86.2	12.7	0	100	0	0	64	0	36	0	4.1	95.9	0	0	
Total %	0.1	5.2	0.8	0	46.6	0	0	4.4	0	2.5	0	1.7	38.9	0	0	

Start Time	Jug Handle From North			Soldiers Field Road From East			Everett Street From South			Soldiers Field Road From West			Int. Total			
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left				
05:00 PM	0	37	4	0	360	0	0	52	0	27	0	14	309	0	0	803
05:15 PM	0	48	7	0	415	0	0	31	0	14	0	15	345	0	0	875
05:30 PM	1	43	6	0	432	0	0	36	0	18	0	16	338	0	0	890
05:45 PM	0	1	0	0	416	0	0	34	0	18	0	13	310	0	0	852
Total	1	168	18	0	1623	0	0	153	0	77	0	58	1302	0	0	3400
Grand Total	4	318	47	0	2866	0	0	268	0	151	0	102	2393	0	0	6149
Approach %	1.1	86.2	12.7	0	100	0	0	64	0	36	0	4.1	95.9	0	0	
Total %	0.1	5.2	0.8	0	46.6	0	0	4.4	0	2.5	0	1.7	38.9	0	0	

Start Time	Jug Handle From North			Soldiers Field Road From East			Everett Street From South			Soldiers Field Road From West			Int. Total			
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left				
05:00 PM	0	37	4	0	360	0	0	52	0	27	0	14	309	0	0	803
05:15 PM	0	48	7	0	415	0	0	31	0	14	0	15	345	0	0	875
05:30 PM	1	43	6	0	432	0	0	36	0	18	0	16	338	0	0	890
05:45 PM	0	1	0	0	416	0	0	34	0	18	0	13	310	0	0	852
Total	1	168	18	0	1623	0	0	153	0	77	0	58	1302	0	0	3400
Grand Total	4	318	47	0	2866	0	0	268	0	151	0	102	2393	0	0	6149
Approach %	1.1	86.2	12.7	0	100	0	0	64	0	36	0	4.1	95.9	0	0	
Total %	0.1	5.2	0.8	0	46.6	0	0	4.4	0	2.5	0	1.7	38.9	0	0	



N/S: Jug Handle/ Everett Street
 E/W: Soldiers Field Road
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864.LL
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

PRECISION
 D. A. T. A.
 INDUSTRIES, LLC
 90 Beech St, Boston, MA 01093
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequests@pdlic.com

Groups Printed- Heavy Vehicles

Start Time	Jug Handle From North			Soldiers Field Road From East			Everett Street From South			Soldiers Field Road From West			Int. Total			
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left				
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	4
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	4
Grand Total	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	8
Approach %	0	0	37.5	0	0	0	0	0	0	0	0	0	0	0	0	
Total %	0	0	37.5	0	0	0	0	0	0	0	0	0	0	0	0	

Start Time	Jug Handle From North			Soldiers Field Road From East			Everett Street From South			Soldiers Field Road From West			Int. Total			
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left				
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	4
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	4
Grand Total	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	8
Approach %	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	
Total %	0	0	37.5	0	0	0	0	0	0	0	0	0	0	0	0	

Start Time	Jug Handle From North			Soldiers Field Road From East			Everett Street From South			Soldiers Field Road From West			Int. Total			
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left				
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	4
% App. Total	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	
PHF	.000	.000	.250	.000	.250	.000	.000	.250	.000	.000	.000	.000	.250	.250	.000	.333



N/S: Jug Handle/ Everett Street
 E/W: Soldiers Field Road
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 LL
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

PRECISION
 D. A. T. A.
 INDUSTRIES, LLC
 90 New 391 Reels, MA 01939
 Office: 508.681.3999 Fax: 508.545.1234
 Email: datarequest@pdillc.com

Start Time	Jug Handle From North			Soldiers Field Road From East			Everett Street From South			Soldiers Field Road From West			Peds	Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
04:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	1	0	3	0	0	0	0	0	2	0	0	2
04:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	1	2	0	3	0	0	0	0	0	2	0	0	4
05:00 PM	0	0	3	0	1	0	0	0	0	0	0	0	0	2
05:15 PM	0	1	0	0	2	0	0	0	0	0	0	0	0	2
05:30 PM	0	0	0	0	2	0	0	0	0	0	2	0	0	4
05:45 PM	0	0	0	0	2	0	0	0	0	0	1	0	0	5
Total	0	1	0	3	7	0	0	0	0	0	5	0	0	22
Grand Total	0	2	0	5	10	0	0	0	0	0	7	0	0	8
Approach %	0	28.6	0	71.4	0	33.3	0	33.3	0	46.7	0	53.3	0	22.9
Total %	0	5.7	0	14.3	0	28.6	0	2.9	0	2.9	0	20	0	22.9

Start Time	Jug Handle From North			Soldiers Field Road From East			Everett Street From South			Soldiers Field Road From West			Peds	Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	1
04:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	2
05:00 PM	0	1	0	0	3	0	0	0	0	0	0	0	0	4
05:15 PM	0	2	0	0	6	0	0	0	0	0	0	0	0	11
Total	0	33.3	0	66.7	10	0	0	0	0	0	0	0	0	24
% App. Total	0	33.3	0	66.7	10	0	0	0	0	0	0	0	0	24
PHF	0.00	.500	.000	.333	.500	.000	.000	.500	.000	.250	.000	.500	.000	.688
Total	0.00	.500	.000	.333	.500	.000	.000	.250	.000	.250	.000	.500	.000	.750

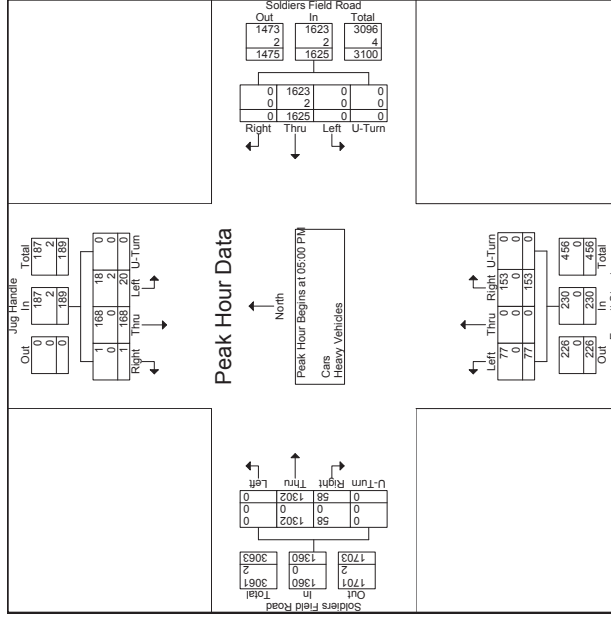


N/S: Jug Handle/ Everett Street
 E/W: Soldiers Field Road
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 LL
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

PRECISION
 D. A. T. A.
 INDUSTRIES, LLC
 90 New 391 Reels, MA 01939
 Office: 508.681.3999 Fax: 508.545.1234
 Email: datarequest@pdillc.com

Start Time	Jug Handle From North			Soldiers Field Road From East			Everett Street From South			Soldiers Field Road From West			Peds	Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	1
04:30 PM	0	0	1	0	3	0	0	0	0	0	2	0	0	2
04:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	1	2	0	3	0	0	0	0	0	2	0	0	4
05:00 PM	0	0	3	0	1	0	0	0	0	0	0	0	0	2
05:15 PM	0	1	0	0	2	0	0	0	0	0	0	0	0	2
05:30 PM	0	0	0	0	2	0	0	0	0	0	2	0	0	4
05:45 PM	0	0	0	0	2	0	0	0	0	0	1	0	0	5
Total	0	1	0	3	7	0	0	0	0	0	5	0	0	22
Grand Total	0	2	0	5	10	0	0	0	0	0	7	0	0	8
Approach %	0	28.6	0	71.4	0	33.3	0	33.3	0	46.7	0	53.3	0	22.9
Total %	0	5.7	0	14.3	0	28.6	0	2.9	0	2.9	0	20	0	22.9





N/S: North Harvard Street
E/W: Western Avenue
City, State: Boston, MA
Client: VHB/ K. Keen

File Name : 122864 F
Site Code : 10463.00
Start Date : 4/5/2012
Page No : 1

90 Beech Rd, Boston, MA 02109
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequest@pdil.com

PRECISION
DATA
INDUSTRIES, LLC

Start Time	North Harvard Street From North			Western Avenue From East			North Harvard Street From South			Western Avenue From West			Int. Total				
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left					
07:00 AM	37	33	5	10	57	18	8	42	33	0	41	24	0	308			
07:15 AM	35	47	9	5	75	12	0	13	61	26	0	53	23	0	362		
07:30 AM	29	35	4	0	5	70	10	0	15	69	33	0	2	0	337		
07:45 AM	39	46	9	0	6	69	8	0	12	88	40	0	1	0	442		
Total	140	161	27	0	26	271	48	0	48	260	132	0	6	234	1449		
08:00 AM	46	46	6	0	13	75	16	0	19	68	40	0	2	76	21	428	
08:15 AM	34	53	6	0	16	90	15	0	13	80	44	0	0	74	38	0	463
08:30 AM	30	51	2	0	16	77	17	0	12	73	36	0	0	82	41	0	437
08:45 AM	34	48	7	0	9	91	16	0	18	96	48	0	1	93	37	0	498
Total	144	198	21	0	54	333	64	0	62	317	168	0	3	325	137	0	1826
Grand Total	284	359	48	0	80	604	112	0	110	577	300	0	9	559	233	0	3275
Approach %	41.1	52	6.9	0	10.1	75.9	14.1	0	11.1	58.5	30.4	0	1.1	69.8	29.1	0	0
Total %	8.7	11	1.5	0	2.4	18.4	3.4	0	3.4	17.6	9.2	0	0.3	17.1	7.1	0	0
Cars	249	326	39	0	66	568	103	0	95	522	278	0	6	519	213	0	2984
% Cars	87.7	90.8	81.2	0	82.5	94	92	0	88.4	90.5	92.7	0	66.7	92.8	91.4	0	91.1
Heavy Vehicles	35	33	9	0	14	36	9	0	15	55	22	0	3	40	20	0	291
% Heavy Vehicles	12.3	9.2	18.8	0	17.5	6	8	0	13.6	9.5	7.3	0	33.3	7.2	8.6	0	8.9

Start Time	North Harvard Street From North			Western Avenue From East			North Harvard Street From South			Western Avenue From West			Int. Total				
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left					
08:00 AM	46	46	6	0	104	19	68	40	0	127	0	127	0	99	428		
08:15 AM	34	53	6	0	93	16	90	15	0	121	13	80	44	0	112	463	
08:30 AM	30	51	2	0	83	16	77	17	0	91	16	0	162	1	131	498	
08:45 AM	34	48	7	0	89	9	91	16	0	116	18	96	48	0	465	1826	
Total	144	198	21	0	363	54	333	64	0	451	62	317	168	0	547	3	325
% App. Total	39.7	54.5	5.8	0	12	73.8	14.2	0	11.3	58	30.7	0	0.6	69.9	29.5	0	0
Cars	130	186	18	0	334	45	316	81	0	422	56	296	159	0	511	3	304
% Cars	90.3	93.9	85.7	0	92.0	85.3	94.9	95.3	0	93.6	90.3	93.4	94.6	0	93.4	100	93.5
Heavy Vehicles	14	12	3	0	29	9	17	3	0	29	6	21	9	0	36	0	21
% Heavy Vehicles	9.7	6.1	14.3	0	8.0	16.7	5.1	4.7	0	6.4	9.7	6.6	5.4	0	6.6	0	6.5



N/S: North Harvard Street
E/W: Western Avenue
City, State: Boston, MA
Client: VHB/ K. Keen

File Name : 122864 F
Site Code : 10463.00
Start Date : 4/5/2012
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PRECISION
DATA
INDUSTRIES, LLC

Start Time	North Harvard Street From North			Western Avenue From East			North Harvard Street From South			Western Avenue From West			Int. Total				
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left					
07:00 AM	34	26	5	0	7	54	17	0	6	36	27	0	33	21	0	266	
07:15 AM	30	41	6	0	4	72	10	0	11	47	25	0	2	49	22	0	319
07:30 AM	22	34	4	0	5	61	8	0	13	62	30	0	0	46	15	0	300
07:45 AM	33	39	6	0	5	65	7	0	9	81	37	0	1	87	30	0	400
Total	119	140	21	0	21	252	42	0	39	226	119	0	3	215	88	0	1285
08:00 AM	42	42	6	0	12	73	15	0	17	67	39	0	2	72	18	0	405
08:15 AM	31	50	5	0	11	84	15	0	11	73	40	0	0	69	36	0	425
08:30 AM	24	48	2	0	14	74	16	0	12	67	34	0	0	77	37	0	405
08:45 AM	33	46	5	0	8	85	15	0	16	89	46	0	1	86	34	0	464
Total	130	186	18	0	45	316	61	0	56	296	159	0	3	304	125	0	1699
Grand Total	249	326	39	0	66	568	103	0	95	522	278	0	6	519	213	0	2984
Approach %	40.6	53.1	6.4	0	9	77.1	14	0	10.6	58.3	31.1	0	0.8	70.3	28.9	0	0
Total %	8.3	10.9	1.3	0	2.2	19	3.5	0	3.2	17.5	9.3	0	0.2	17.4	7.1	0	0

Start Time	North Harvard Street From North			Western Avenue From East			North Harvard Street From South			Western Avenue From West			Int. Total				
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left					
08:00 AM	42	42	6	0	90	12	73	15	0	100	17	67	39	0	123	2	72
08:15 AM	31	50	5	0	96	11	84	15	0	110	11	73	40	0	124	0	69
08:30 AM	24	48	2	0	74	14	74	16	0	108	16	89	46	0	151	1	86
08:45 AM	33	46	5	0	84	8	85	15	0	422	56	296	159	0	511	3	304
Total	130	186	18	0	334	45	316	61	0	422	56	296	159	0	511	3	304
% App. Total	39.9	55.7	5.4	0	10.7	74.9	14.5	0	11.1	57.9	31.1	0	0.7	70.4	28.9	0	4.32
PHF	.774	.830	.750	.000	.928	.804	.929	.963	.000	.959	.824	.831	.804	.000	.846	.375	.884



N/S: North Harvard Street
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 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 F
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

PRECISION
 D. A. T. A.
 INDUSTRIES, LLC
 90 Beech St, Boston, MA 01939
 Office: 508.681.3999 Fax: 508.545.1234
 Email: datarequests@pdic.com

Groups Printed: Heavy Vehicles

Start Time	North Harvard Street From North			Western Avenue From East			North Harvard Street From South			Western Avenue From West			Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	3	7	0	0	3	1	0	2	6	6	0	0	42
07:15 AM	5	6	3	0	1	3	2	0	14	1	0	1	43
07:30 AM	7	1	0	0	0	9	2	0	7	3	0	2	37
07:45 AM	6	7	3	0	1	4	1	0	3	7	3	0	42
Total	21	21	6	0	5	19	6	0	34	13	0	3	164
08:00 AM	4	4	0	0	1	2	1	0	2	1	0	0	23
08:15 AM	3	3	1	0	5	6	0	0	2	7	4	0	38
08:30 AM	6	3	0	0	2	3	1	0	6	2	0	0	32
08:45 AM	1	2	2	0	1	6	1	0	2	7	2	0	34
Total	14	12	3	0	9	17	3	0	6	21	9	0	127
Grand Total	35	33	9	0	14	36	9	0	15	55	22	0	291
Approach %	45.5	42.9	11.7	0	23.7	61	15.3	0	16.3	59.8	23.9	0	31.7
Total %	12	11.3	3.1	0	4.8	12.4	3.1	0	5.2	18.9	7.6	0	1

Peak Hour for Entire Intersection Begins at 07:00 AM

Start Time	North Harvard Street From North			Western Avenue From East			North Harvard Street From South			Western Avenue From West			Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	3	7	0	0	3	1	0	7	2	6	6	0	42
07:15 AM	5	6	3	0	1	3	2	0	14	3	0	1	43
07:30 AM	7	1	0	0	0	9	2	0	7	3	0	2	37
07:45 AM	6	7	3	0	1	4	1	0	3	7	3	0	42
Total	21	21	6	0	5	19	6	0	34	13	0	3	164
08:00 AM	4	4	0	0	1	2	1	0	2	1	0	0	23
08:15 AM	3	3	1	0	5	6	0	0	2	7	4	0	38
08:30 AM	6	3	0	0	2	3	1	0	6	2	0	0	32
08:45 AM	1	2	2	0	1	6	1	0	2	7	2	0	34
Total	14	12	3	0	9	17	3	0	6	21	9	0	127
Grand Total	35	33	9	0	14	36	9	0	15	55	22	0	291
Approach %	45.5	42.9	11.7	0	23.7	61	15.3	0	16.3	59.8	23.9	0	31.7
Total %	12	11.3	3.1	0	4.8	12.4	3.1	0	5.2	18.9	7.6	0	1



N/S: North Harvard Street
 E/W: Western Avenue
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 F
 Site Code : 10463.00
 Start Date : 4/5/2012
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PRECISION
 D. A. T. A.
 INDUSTRIES, LLC
 90 Beech St, Boston, MA 01939
 Office: 508.681.3999 Fax: 508.545.1234
 Email: datarequests@pdic.com

Groups Printed: Peds and Bicycles

Start Time	North Harvard Street From North			Western Avenue From East			North Harvard Street From South			Western Avenue From West			Int. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
07:00 AM	0	1	0	1	0	0	0	9	0	0	2	0	22
07:15 AM	0	4	0	1	0	0	1	10	0	3	0	2	30
07:30 AM	0	2	0	1	0	1	0	15	1	9	0	3	41
07:45 AM	2	5	0	1	0	3	0	16	0	4	0	2	42
Total	2	12	0	4	0	4	1	50	1	16	0	9	135
08:00 AM	0	4	0	2	0	0	0	15	1	4	1	0	44
08:15 AM	1	6	0	6	0	3	1	18	1	9	0	8	68
08:30 AM	2	3	0	9	0	6	1	19	0	6	0	3	68
08:45 AM	0	4	0	6	0	2	0	14	1	9	0	4	63
Total	3	17	0	23	0	11	2	66	3	28	1	16	243
Grand Total	5	29	0	27	0	15	3	116	4	44	1	25	378
Approach %	8.2	47.5	0	44.3	0	11.2	2.2	86.6	5.4	59.5	1.4	33.8	61.5
Total %	1.3	7.7	0	7.1	0	4	0.8	30.7	1.1	11.6	0.3	6.6	17.7

Peak Hour for Entire Intersection Begins at 08:00 AM

Start Time	North Harvard Street From North			Western Avenue From East			North Harvard Street From South			Western Avenue From West			Int. Total						
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds							
08:00 AM	0	4	0	2	0	0	0	15	1	4	1	7	44						
08:15 AM	1	6	0	6	0	3	1	19	26	0	6	8	68						
08:30 AM	2	4	0	9	0	6	0	14	16	0	3	9	63						
08:45 AM	0	4	0	6	0	2	0	14	16	0	4	14	63						
Total	3	17	0	23	0	11	2	66	79	3	28	1	243						
% App. Total	7	39.5	0	53.5	0	13.9	2.5	83.5	6.2	59.3	2.1	33.3	64.4						
PHF	.375	.708	.000	.639	.768	.000	.458	.500	.868	.760	.790	.250	.500	.667	.000	.853	.379	.859	.793



N/S: North Harvard Street
E/W: Western Avenue
City, State: Boston, MA
Client: VHB/ K. Keen

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Page No : 1

90 Beech Rd, Boston, MA 01093
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Email: datarequest@pdic.com

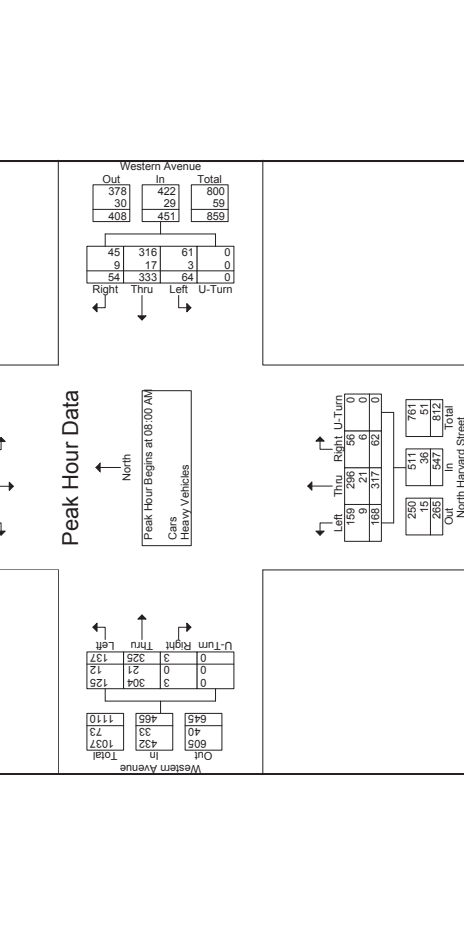
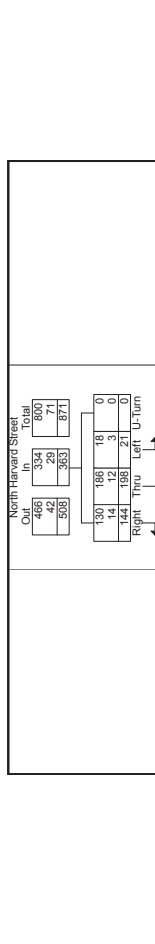
N/S: North Harvard Street
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City, State: Boston, MA
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File Name : 122864 FF
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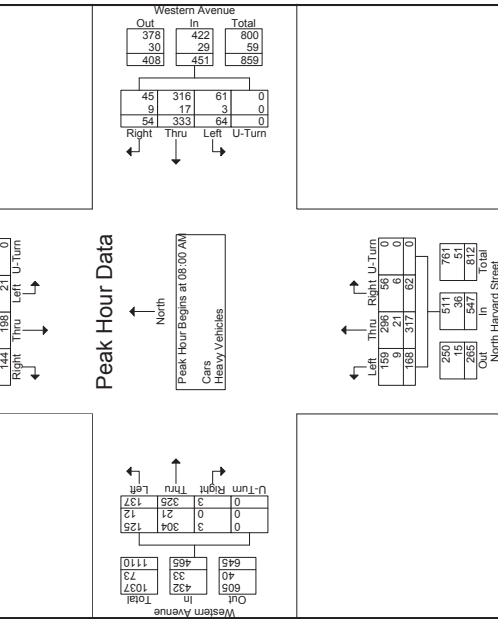
90 Beech Rd, Boston, MA 01093
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequest@pdic.com

Start Time	North Harvard Street From East			North Harvard Street From West			Western Avenue From East			Western Avenue From West		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
08:00 AM	46	46	6	0	98	13	75	16	0	104	19	68
08:15 AM	34	53	6	0	83	16	77	17	0	121	13	80
08:30 AM	30	51	2	0	89	9	91	16	0	116	18	96
08:45 AM	34	48	7	0	89	9	91	16	0	116	18	96
Total Volume	144	198	21	0	363	54	333	64	0	451	62	317
% App. Total	39.7	54.5	5.8	0	91.3	15.1	73.8	14.2	0	113.3	16.2	30.7
PHF	.783	.934	.750	.000	.926	.844	.915	.941	.000	.932	.816	.828
Cars	130	166	16	0	334	45	316	61	0	422	56	296
% Cars	90.3	83.3	76.2	0	92.0	83.3	94.9	95.3	0	94.6	92.4	94.6
Heavy Vehicles	9.7	6.1	14.3	0	8.0	16.7	5.1	4.7	0	6.4	9.7	6.6
% Heavy Vehicles	9.7	6.1	14.3	0	8.0	16.7	5.1	4.7	0	6.4	9.7	6.6



Start Time	North Harvard Street From North			Western Avenue From East			North Harvard Street From South			Western Avenue From West		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
04:00 PM	42	49	3	0	7	97	19	0	13	59	33	0
04:15 PM	46	54	5	0	9	72	24	0	7	62	25	0
04:30 PM	32	48	2	0	15	99	22	0	5	65	38	0
04:45 PM	41	57	4	0	13	85	24	0	18	68	46	0
Total	161	208	14	0	44	353	89	0	43	254	142	0
05:00 PM	33	49	3	0	12	99	24	0	16	70	30	0
05:15 PM	45	66	7	0	10	89	21	0	9	86	51	0
05:30 PM	36	56	3	0	11	99	15	0	11	78	38	0
05:45 PM	50	59	5	0	14	121	22	0	10	82	45	0
Total	164	230	18	0	47	408	82	0	46	316	164	0
Grand Total	325	438	32	0	91	761	171	0	89	570	306	0
Approach %	40.9	55.1	4	0	8.9	74.4	16.7	0	9.2	69.1	31.7	0
Total %	9	12.2	0.9	0	2.5	21.1	4.7	0	2.5	15.8	8.5	0
Cars	309	411	30	0	86	735	165	0	78	545	289	0
% Cars	95.1	93.8	93.8	0	94.5	96.6	96.5	0	87.6	95.6	94.4	0
Heavy Vehicles	16	27	2	0	5	26	6	0	11	25	17	0
% Heavy Vehicles	4.9	6.2	6.2	0	5.5	3.4	3.5	0	12.4	4.4	5.6	0

Start Time	North Harvard Street From North			Western Avenue From East			North Harvard Street From South			Western Avenue From West		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
05:00 PM	33	49	3	0	85	12	99	24	0	135	16	70
05:15 PM	45	66	7	0	118	10	89	21	0	120	9	86
05:30 PM	36	56	3	0	95	11	99	15	0	125	11	78
05:45 PM	50	59	5	0	114	14	121	22	0	157	10	82
Total Volume	164	230	18	0	412	47	408	82	0	537	46	316
% App. Total	39.8	55.8	4.4	0	8.8	76	15.3	0	8.5	7.9	31.2	0
PHF	.820	.871	.643	.000	.873	.839	.843	.854	.000	.855	.719	.919
Cars	157	218	17	0	392	44	396	79	0	519	40	306
% Cars	95.7	94.8	94.4	0	95.1	93.6	97.1	96.3	0	96.6	87.0	96.8
Heavy Vehicles	7	12	1	0	20	3	12	3	0	18	6	10
% Heavy Vehicles	4.3	5.2	5.6	0	4.9	6.4	2.9	3.7	0	3.4	13.0	3.2





N/S: North Harvard Street
E/W: Western Avenue
City, State: Boston, MA
Client: VHB/ K. Keen

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PRECISION
DATA
INDUSTRIES, LLC

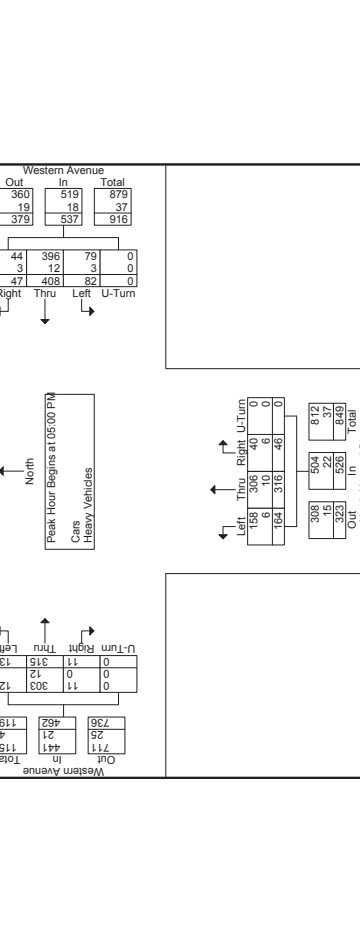
File Name : 122864 FF
Site Code : 10463.00
Start Date : 4/5/2012
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Start Time	North Harvard Street From North			Western Avenue From East			North Harvard Street From South			Western Avenue From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
04:00 PM	2	2	0	0	6	0	0	0	0	0	0	0	39
04:15 PM	1	11	0	3	0	2	0	2	0	0	1	0	5
04:30 PM	2	6	0	8	0	4	0	12	0	3	0	2	12
04:45 PM	0	6	0	3	0	1	0	16	0	5	0	1	3
Total	5	25	0	20	0	8	0	60	0	8	0	4	39
05:00 PM	1	11	0	5	0	3	0	17	0	3	0	0	7
05:15 PM	0	8	0	12	0	3	0	9	0	4	1	2	21
05:30 PM	2	8	0	6	0	4	1	13	0	7	1	5	0
05:45 PM	2	9	0	6	1	4	1	24	2	6	0	2	1
Total	5	36	0	29	1	14	3	63	3	25	1	20	80
Grand Total	10	61	0	49	1	22	4	123	3	51	1	28	10
Approach %	8.3	50.8	0	40.8	0.7	14.7	2.7	82	3.6	61.4	1.2	33.7	8.5
Total %	2	12.3	0	9.9	0.2	4.5	0.8	24.9	0.6	10.3	0.2	5.7	2

Start Time	North Harvard Street From North			Western Avenue From East			North Harvard Street From South			Western Avenue From West			Int. Total	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		
05:00 PM	1	11	0	5	17	0	3	0	17	20	1	7	0	3
05:15 PM	0	8	0	12	0	3	1	9	13	0	5	0	9	14
05:30 PM	2	9	0	6	17	1	4	1	24	30	2	5	13	0
05:45 PM	5	36	0	29	70	1	14	3	63	81	3	25	1	20
Total	8	64	0	50	117	5	21	27	104	133	11	47	27	79
Approach %	7.1	51.4	0	41.4	1.2	17.3	3.7	77.8	6.5	51	2	40.8	8.5	64.65
Total %	8.25	51.8	0.00	30.4	8.75	1.25	7.9	8.58	8.75	3.75	8.93	2.50	5.96	8.75

Start Time	North Harvard Street From North			Western Avenue From East			North Harvard Street From South			Western Avenue From West			Int. Total	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		
05:00 PM	1	11	0	5	17	0	3	0	17	20	1	7	0	3
05:15 PM	0	8	0	12	0	3	1	9	13	0	5	0	9	14
05:30 PM	2	9	0	6	17	1	4	1	24	30	2	5	13	0
05:45 PM	5	36	0	29	70	1	14	3	63	81	3	25	1	20
Total	8	64	0	50	117	5	21	27	104	133	11	47	27	79
Approach %	7.1	51.4	0	41.4	1.2	17.3	3.7	77.8	6.5	51	2	40.8	8.5	64.65
Total %	8.25	51.8	0.00	30.4	8.75	1.25	7.9	8.58	8.75	3.75	8.93	2.50	5.96	8.75

Start Time	North Harvard Street From North			Western Avenue From East			North Harvard Street From South			Western Avenue From West			Int. Total	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		
05:00 PM	1	11	0	5	17	0	3	0	17	20	1	7	0	3
05:15 PM	0	8	0	12	0	3	1	9	13	0	5	0	9	14
05:30 PM	2	9	0	6	17	1	4	1	24	30	2	5	13	0
05:45 PM	5	36	0	29	70	1	14	3	63	81	3	25	1	20
Total	8	64	0	50	117	5	21	27	104	133	11	47	27	79
Approach %	7.1	51.4	0	41.4	1.2	17.3	3.7	77.8	6.5	51	2	40.8	8.5	64.65
Total %	8.25	51.8	0.00	30.4	8.75	1.25	7.9	8.58	8.75	3.75	8.93	2.50	5.96	8.75





File Name : 122864 Q
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

N/S: North Harvard Street
 E/W: Bertram Street/ Spurr Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

N/S: North Harvard Street
 E/W: Bertram Street/ Spurr Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 Q
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

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Groups Printed- Cars - Heavy Vehicles

Start Time	North Harvard Street From North				Bertram Street From East				North Harvard Street From South				Spurr Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	0	52	0	0	1	0	1	0	3	66	0	0	31	2	16	0	172
07:15 AM	0	41	0	0	2	0	0	0	90	0	0	0	28	1	10	0	192
07:30 AM	0	67	2	0	1	0	0	2	113	0	0	33	5	19	0	223	
07:45 AM	0	54	1	0	2	0	0	1	131	0	0	28	1	17	0	235	
Total	0	214	3	0	4	0	0	5	400	0	0	120	9	62	0	822	
08:00 AM	0	62	1	0	1	0	0	4	114	0	0	0	47	3	11	0	244
08:15 AM	0	66	3	0	2	0	0	3	125	0	0	41	4	17	0	256	
08:30 AM	0	69	3	0	2	0	0	3	112	0	0	41	4	17	0	251	
08:45 AM	0	70	1	0	3	0	0	6	143	0	0	39	5	12	0	281	
Total	0	267	5	0	6	0	0	14	494	0	0	176	12	52	0	1032	
Grand Total	0	481	8	0	10	0	11	19	894	0	0	296	21	114	0	1854	
Approach %	0	98.4	1.6	0	47.6	0	52.4	0	2.1	97.9	0	0	68.7	4.9	26.5	0	1688
Total %	0	25.9	0.4	0	0.5	0	0.6	0	1	48.2	0	0	16	1.1	6.1	0	1668
Cars	0	436	6	0	10	0	9	19	805	0	0	258	20	105	0	1688	
% Heavy Vehicles	0	90.6	7.5	0	100	0	81.8	0	100	90	0	87.2	95.2	92.1	0	90	
% Heavy Vehicles	0	4.5	2	0	0	0	0	0	8.9	0	0	38	1	9	0	186	
% Heavy Vehicles	0	9.4	25	0	0	0	18.2	0	10	0	0	12.8	4.8	7.9	0	10	

Groups Printed- Cars

Start Time	North Harvard Street From North				Bertram Street From East				North Harvard Street From South				Spurr Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	0	44	0	0	1	0	1	0	3	54	0	0	28	2	13	0	146
07:15 AM	0	51	0	0	2	0	0	0	73	0	0	26	1	10	0	163	
07:30 AM	0	44	0	0	1	0	0	2	100	0	0	28	5	15	0	196	
07:45 AM	0	45	1	0	2	0	0	1	120	0	0	26	0	17	0	212	
Total	0	184	1	0	4	0	0	5	347	0	0	108	8	55	0	717	
08:00 AM	0	57	1	0	1	0	0	4	110	0	0	41	3	11	0	228	
08:15 AM	0	63	0	0	2	0	0	1	112	0	0	44	0	12	0	234	
08:30 AM	0	66	3	0	0	0	2	0	103	0	0	36	4	16	0	233	
08:45 AM	0	66	1	0	3	0	2	0	133	0	0	29	5	11	0	256	
Total	0	252	5	0	6	0	4	0	458	0	0	150	12	50	0	951	
Grand Total	0	436	6	0	10	0	9	0	805	0	0	258	20	105	0	1668	
Approach %	0	98.6	1.4	0	52.6	0	47.4	0	2.3	97.7	0	0	67.4	5.2	27.4	0	1688
Total %	0	26.1	0.4	0	0.6	0	0.5	0	1.1	48.3	0	0	15.5	1.2	6.3	0	1668

Start Time	North Harvard Street From North				Bertram Street From East				North Harvard Street From South				Spurr Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
08:00 AM	0	57	1	0	0	0	0	1	110	0	0	114	3	11	0	228	
08:15 AM	0	63	0	0	2	0	0	2	112	0	0	113	4	12	0	234	
08:30 AM	0	66	3	0	0	0	2	0	133	0	0	139	5	16	0	266	
08:45 AM	0	66	1	0	3	0	2	0	133	0	0	139	5	11	0	266	

Start Time	North Harvard Street From North				Bertram Street From East				North Harvard Street From South				Spurr Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
08:00 AM	0	57	1	0	0	0	0	1	110	0	0	114	3	11	0	228	
08:15 AM	0	63	0	0	2	0	0	2	112	0	0	113	4	12	0	234	
08:30 AM	0	66	3	0	0	0	2	0	133	0	0	139	5	16	0	266	
08:45 AM	0	66	1	0	3	0	2	0	133	0	0	139	5	11	0	266	

Peak Hour for Entire Intersection Begins at 08:00 AM

Total Volume	0	252	5	0	6	0	4	0	472	0	0	472	150	12	50	0	951
% App. Total	0	96.1	1.9	0	2.57	0	2.0	0	100	0	0	100	12.5	9.7	23.6	0	951
PHF	0.000	.365	.417	.000	.931	.500	.000	.500	.563	.861	.000	.849	.852	.600	.781	.000	.946

Peak Hour for Entire Intersection Begins at 08:00 AM

Total Volume	0	252	5	0	6	0	4	0	472	0	0	472	150	12	50	0	951
% App. Total	0	96.1	1.9	0	2.57	0	2.0	0	100	0	0	100	12.5	9.7	23.6	0	951
PHF	0.000	.365	.417	.000	.931	.500	.000	.500	.563	.861	.000	.849	.852	.600	.781	.000	.946



File Name : 122864 Q
 Site Code : 10463.00
 Start Date : 4/5/2012
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N/S: North Harvard Street
 E/W: Bertram Street/ Spurr Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

90 Bea 301 Beals, MA 01930
 Office: 508.681.3999 Fax: 508.545.1234
 Email: datarequest@pdlic.com

Start Time	North Harvard Street From North			Bertram Street From East			North Harvard Street From South			Spurr Street From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
07:00 AM	0	8	0	0	0	0	0	12	0	3	0	3	26
07:15 AM	0	10	0	0	0	0	0	17	0	2	0	0	29
07:30 AM	0	3	2	0	0	0	0	13	0	5	0	4	27
07:45 AM	0	9	0	0	0	0	0	11	0	2	1	0	23
Total	0	30	2	0	0	0	0	53	0	12	1	7	105
08:00 AM	0	5	0	0	1	0	0	4	0	6	0	0	16
08:15 AM	0	3	0	0	0	0	0	13	0	5	0	0	22
08:30 AM	0	3	0	0	0	0	0	9	0	5	0	1	18
08:45 AM	0	4	0	0	0	0	0	10	0	10	0	1	25
Total	0	15	0	0	2	0	0	36	0	26	0	2	81
Grand Total	0	45	2	0	2	0	0	89	0	38	1	9	186
Approach %	0	95.7	4.3	0	100	0	0	100	0	79.2	2.1	18.8	0
Total %	0	24.2	1.1	0	1.1	0	0	47.8	0	20.4	0.5	4.8	0

Start Time	North Harvard Street From North			Bertram Street From East			North Harvard Street From South			Spurr Street From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
07:00 AM	0	8	0	0	0	0	0	12	0	3	0	3	26
07:15 AM	0	10	0	0	0	0	0	17	0	2	0	0	29
07:30 AM	0	3	2	0	0	0	0	13	0	5	0	4	27
07:45 AM	0	9	0	0	0	0	0	11	0	2	1	0	23
Total	0	30	2	0	0	0	0	53	0	12	1	7	105
08:00 AM	0	5	0	0	1	0	0	4	0	6	0	0	16
08:15 AM	0	3	0	0	0	0	0	13	0	5	0	0	22
08:30 AM	0	3	0	0	0	0	0	9	0	5	0	1	18
08:45 AM	0	4	0	0	0	0	0	10	0	10	0	1	25
Total	0	15	0	0	2	0	0	36	0	26	0	2	81
Grand Total	0	45	2	0	2	0	0	89	0	38	1	9	186
Approach %	0	95.7	4.3	0	100	0	0	100	0	79.2	2.1	18.8	0
Total %	0	24.2	1.1	0	1.1	0	0	47.8	0	20.4	0.5	4.8	0



File Name : 122864 Q
 Site Code : 10463.00
 Start Date : 4/5/2012
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N/S: North Harvard Street
 E/W: Bertram Street/ Spurr Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

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Start Time	North Harvard Street From North			Bertram Street From East			North Harvard Street From South			Spurr Street From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
07:00 AM	0	8	0	0	0	0	0	11	0	2	0	0	17
07:15 AM	0	6	0	0	0	0	0	9	0	5	0	0	13
07:30 AM	0	2	0	0	0	0	0	16	0	9	0	0	8
07:45 AM	0	4	0	0	0	0	0	24	0	7	0	0	13
Total	0	12	0	0	0	0	0	60	0	23	0	0	37
08:00 AM	0	6	0	0	0	0	0	11	1	8	0	0	14
08:15 AM	0	4	0	0	0	0	0	25	0	14	0	0	25
08:30 AM	0	4	0	0	0	0	0	16	0	10	0	0	19
08:45 AM	0	3	0	3	0	0	0	22	1	12	0	0	16
Total	0	21	0	3	0	0	0	74	2	44	0	0	74
Grand Total	0	33	0	3	0	0	0	134	2	67	0	0	111
Approach %	0	91.7	0	8.3	0	0	0	100	2.1	70.5	0	0	100
Total %	0	8.8	0	0.8	0	0	0	35.6	0.5	17.8	0	0	29.5

Start Time	North Harvard Street From North			Bertram Street From East			North Harvard Street From South			Spurr Street From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
07:00 AM	0	8	0	0	0	0	0	11	0	2	0	0	17
07:15 AM	0	6	0	0	0	0	0	9	0	5	0	0	13
07:30 AM	0	2	0	0	0	0	0	16	0	9	0	0	8
07:45 AM	0	4	0	0	0	0	0	24	0	7	0	0	13
Total	0	12	0	0	0	0	0	60	0	23	0	0	37
08:00 AM	0	6	0	0	0	0	0	11	1	8	0	0	14
08:15 AM	0	4	0	0	0	0	0	25	0	14	0	0	25
08:30 AM	0	4	0	0	0	0	0	16	0	10	0	0	19
08:45 AM	0	3	0	3	0	0	0	22	1	12	0	0	16
Total	0	21	0	3	0	0	0	74	2	44	0	0	74
Grand Total	0	33	0	3	0	0	0	134	2	67	0	0	111
Approach %	0	91.7	0	8.3	0	0	0	100	2.1	70.5	0	0	100
Total %	0	8.8	0	0.8	0	0	0	35.6	0.5	17.8	0	0	29.5

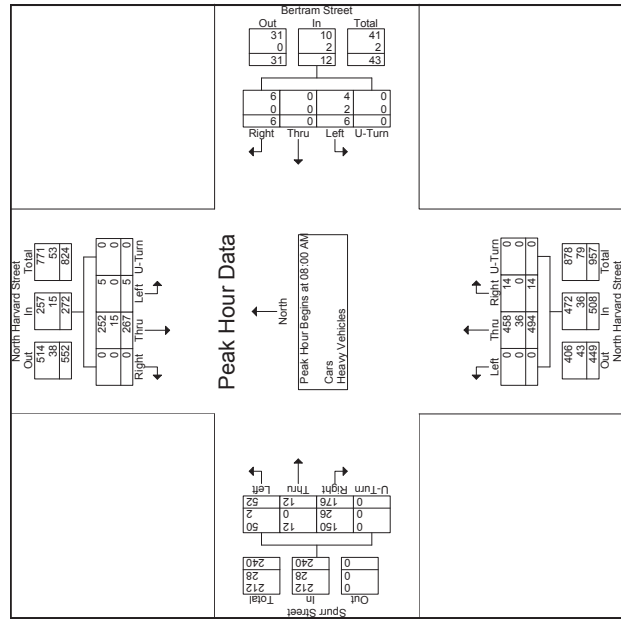


N/S: North Harvard Street
E/W: Bertram Street/ Spurr Street
City, State: Boston, MA
Client: VHB/ K. Keen

File Name : 122864 Q
Site Code : 10463.00
Start Date : 4/5/2012
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PRECISION
DATA
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Email: datarequest@pdic.com

Start Time	North Harvard Street From North			Bertram Street From East			North Harvard Street From South			Spurr Street From West			Int. Total				
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left					
08:00 AM	0	1	0	0	1	0	0	114	0	0	47	3	11	0	61	244	
08:15 AM	0	66	0	0	2	0	0	125	0	0	126	49	0	12	0	61	256
08:30 AM	0	69	3	0	0	2	0	112	0	0	115	41	4	17	0	62	251
08:45 AM	0	70	1	0	0	5	0	143	0	0	149	39	5	12	0	56	281
Total Volume	0	267	5	0	272	6	0	494	0	0	508	176	12	52	0	240	1032
% App. Total	0	98.2	1.8	0	99.4	0.0	0.0	98.3	0.0	0.0	98.8	6.0	0.0	7.65	0.0	98.8	918
Cars	0	257	5	0	267	6	0	472	0	0	472	150	12	50	0	212	951
% Cars	0	94.4	100	0	96.7	0	0	95.2	0	0	95.2	100	96.2	0	0	86.3	92.4
Heavy Vehicles	0	16	0	0	16	0	0	26	0	0	26	0	0	0	0	28	81
% Heavy Vehicles	0	5.6	0	0	33.3	0	0	7.1	0	0	7.1	14.8	0	3.8	0	11.7	7.8



N/S: North Harvard Street
E/W: Bertram Street/ Spurr Street
City, State: Boston, MA
Client: VHB/ K. Keen

File Name : 122864 QQ
Site Code : 10463.00
Start Date : 4/5/2012
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PRECISION
DATA
INDUSTRIES, LLC
90 Beech Rd, Boston, MA 02109
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequest@pdic.com

Start Time	North Harvard Street From North			Bertram Street From East			North Harvard Street From South			Spurr Street From West			Int. Total			
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left				
04:00 PM	0	75	0	0	2	0	0	2	100	0	58	1	3	0	245	
04:15 PM	0	76	0	0	2	0	1	83	0	0	53	0	5	0	221	
04:30 PM	0	73	3	0	2	0	4	105	0	0	56	2	2	0	252	
04:45 PM	0	82	1	0	3	0	4	117	0	0	45	0	4	0	258	
Total	0	306	4	0	13	0	10	9	405	0	212	3	14	0	976	
05:00 PM	0	82	2	0	3	0	4	1	115	0	50	2	4	0	263	
05:15 PM	0	98	1	0	5	0	1	140	0	0	58	1	6	0	311	
05:30 PM	0	74	0	0	4	0	3	118	0	0	50	1	4	0	257	
05:45 PM	0	85	0	0	1	0	0	6	137	0	46	2	3	0	280	
Total	0	339	3	0	13	0	8	11	510	0	204	6	17	0	1111	
Grand Total	0	645	7	0	26	0	18	0	20	915	0	416	9	31	0	2087
Approach %	0	98.9	1.1	0	59.1	0	40.9	0	2.1	97.9	0	91.2	2	6.8	0	0
Total %	0	30.9	0.3	0	1.2	0	0.9	0	1	43.8	0	19.9	0.4	1.5	0	0
Cars	0	613	7	0	26	0	17	0	200	86.3	0	396	9	31	0	1982
% Cars	0	95	100	0	100	0	94.4	0	100	94.3	0	95.2	100	100	0	95
Heavy Vehicles	0	32	0	0	0	0	1	0	52	0	20	0	0	0	105	
% Heavy Vehicles	0	5	0	0	0	0	5.6	0	5.7	0	4.8	0	0	0	5	

Start Time	North Harvard Street From North			Bertram Street From East			North Harvard Street From South			Spurr Street From West			Int. Total			
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left				
05:00 PM	0	82	2	0	4	0	0	7	115	0	50	2	4	0	263	
05:15 PM	0	98	1	0	5	0	1	6	140	0	58	1	6	0	311	
05:30 PM	0	74	0	0	3	0	3	118	0	0	50	1	4	0	257	
05:45 PM	0	85	0	0	4	0	0	6	137	0	46	2	3	0	280	
Total Volume	0	339	3	0	13	0	8	21	510	0	204	6	17	0	1111	
% App. Total	0	99.1	0.9	0	34.2	0	38.1	0	21	97.9	0	89.9	2.6	7.5	0	893
Cars	0	322	3	0	26	0	8	0	21	11	486	0	4	0	222	1065
% Cars	0	95.0	100	0	95.0	0	100	0	100	95.3	0	95.4	100	100	0	97.8
Heavy Vehicles	0	17	0	0	17	0	0	0	24	0	5	0	0	0	46	
% Heavy Vehicles	0	5.0	0	0	5.0	0	0	0	4.7	0	2.5	0	0	0	2.2	



N/S: North Harvard Street
 E/W: Bertram Street/ Spurr Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 QQ
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

PRECISION
 DATA
 INDUSTRIES, LLC
 90 Beech St, Boston, MA 02109
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 Email: datarequests@pdilc.com

Start Time	North Harvard Street From North			Bertram Street From East			North Harvard Street From South			Spurr Street From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
04:00 PM	0	70	0	0	1	0	2	90	0	53	1	3	224
04:15 PM	0	72	0	0	1	0	1	78	0	50	0	5	209
04:30 PM	0	69	3	0	2	0	4	99	0	51	2	2	237
04:45 PM	0	80	1	0	3	0	2	110	0	43	0	4	247
Total	0	291	4	0	13	0	9	377	0	197	3	14	917
05:00 PM	0	77	2	0	3	0	4	108	0	47	2	4	248
05:15 PM	0	95	1	0	1	0	1	135	0	58	1	6	303
05:30 PM	0	70	0	0	3	0	3	111	0	49	1	4	245
05:45 PM	0	80	0	0	1	0	0	132	0	45	2	3	269
Total	0	322	3	0	11	0	8	486	0	199	6	17	1065
Grand Total	0	613	7	0	26	0	17	863	0	396	9	31	1982
Approach %	0	98.9	1.1	0	60.5	0	39.5	0	0	90.8	2.1	7.1	0
Total %	0	30.9	0.4	0	1.3	0	0.9	0	0	20	0.5	1.6	0

Start Time	North Harvard Street From North			Bertram Street From East			North Harvard Street From South			Spurr Street From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
05:00 PM	0	77	2	0	3	0	4	108	0	47	2	4	248
05:15 PM	0	95	1	0	1	0	1	135	0	58	1	6	303
05:30 PM	0	70	0	0	3	0	3	111	0	49	1	4	245
05:45 PM	0	80	0	0	1	0	0	132	0	45	2	3	269
Total	0	322	3	0	11	0	8	486	0	199	6	17	1065
Grand Total	0	613	7	0	26	0	17	863	0	396	9	31	1982
Approach %	0	98.9	1.1	0	60.5	0	39.5	0	0	90.8	2.1	7.1	0
Total %	0	30.9	0.4	0	1.3	0	0.9	0	0	20	0.5	1.6	0



N/S: North Harvard Street
 E/W: Bertram Street/ Spurr Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 QQ
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

PRECISION
 DATA
 INDUSTRIES, LLC
 90 Beech St, Boston, MA 02109
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequests@pdilc.com

Start Time	North Harvard Street From North			Bertram Street From East			North Harvard Street From South			Spurr Street From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
04:00 PM	0	5	0	0	0	0	1	0	0	5	0	0	21
04:15 PM	0	4	0	0	0	0	0	0	5	0	0	0	12
04:30 PM	0	4	0	0	0	0	0	0	6	0	0	0	15
04:45 PM	0	2	0	0	0	0	0	7	0	2	0	0	11
Total	0	15	0	0	0	0	1	0	28	0	0	0	59
05:00 PM	0	5	0	0	0	0	0	0	7	0	0	0	15
05:15 PM	0	3	0	0	0	0	0	0	5	0	0	0	8
05:30 PM	0	4	0	0	0	0	0	0	7	0	0	0	12
05:45 PM	0	5	0	0	0	0	0	0	5	0	0	0	11
Total	0	17	0	0	0	0	0	0	24	0	0	0	46
Grand Total	0	32	0	0	0	0	1	0	52	0	0	0	105
Approach %	0	100	0	0	0	0	100	0	0	100	0	0	0
Total %	0	30.5	0	0	0	0	0	0	49.5	0	0	0	0

Start Time	North Harvard Street From North			Bertram Street From East			North Harvard Street From South			Spurr Street From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
04:00 PM	0	5	0	0	0	0	1	0	0	5	0	0	21
04:15 PM	0	4	0	0	0	0	0	0	5	0	0	0	12
04:30 PM	0	4	0	0	0	0	0	0	6	0	0	0	15
04:45 PM	0	2	0	0	0	0	0	7	0	2	0	0	11
Total	0	15	0	0	0	0	1	0	28	0	0	0	59
05:00 PM	0	5	0	0	0	0	0	0	7	0	0	0	15
05:15 PM	0	3	0	0	0	0	0	0	5	0	0	0	8
05:30 PM	0	4	0	0	0	0	0	0	7	0	0	0	12
05:45 PM	0	5	0	0	0	0	0	0	5	0	0	0	11
Total	0	17	0	0	0	0	0	0	24	0	0	0	46
Grand Total	0	32	0	0	0	0	1	0	52	0	0	0	105
Approach %	0	100	0	0	0	0	100	0	0	100	0	0	0
Total %	0	30.5	0	0	0	0	0	0	49.5	0	0	0	0



N/S: North Harvard Street
 E/W: Bertram Street/ Spurr Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 QQ
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

N/S: North Harvard Street
 E/W: Bertram Street/ Spurr Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 QQ
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

90 Bea St, Boston, MA 02109
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequest@pdill.com

PRECISION
 DATA
 INDUSTRIES, LLC

Start Time	North Harvard Street From North			Bertram Street From East			North Harvard Street From South			Spurr Street From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
04:00 PM	0	5	0	0	0	0	0	6	0	0	0	0	13
04:15 PM	0	11	0	0	0	0	0	6	0	0	0	0	20
04:30 PM	0	8	0	0	0	0	0	7	0	2	0	0	20
04:45 PM	0	6	0	0	0	0	0	6	0	4	1	0	28
Total	0	30	0	0	0	0	0	25	0	10	1	0	81
05:00 PM	0	12	0	0	0	0	0	9	0	2	0	0	10
05:15 PM	0	9	0	0	0	0	0	5	0	2	0	0	18
05:30 PM	0	11	0	0	0	0	0	8	0	3	0	0	18
05:45 PM	0	11	0	0	0	0	0	7	0	2	0	0	26
Total	0	43	0	0	0	0	0	29	0	9	0	0	72
Grand Total	0	73	0	0	0	0	0	54	0	19	1	0	153
Approach %	0	97.3	0	0	0	0	0	74	0	26	0.6	0	99.4
Total %	0	18.4	0	0	0	0	0	13.6	0	4.8	0.3	0	38.6

Start Time	North Harvard Street From North			Bertram Street From East			North Harvard Street From South			Spurr Street From West			Int. Total	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		
05:00 PM	0	12	0	0	0	0	0	9	0	2	0	0	10	
05:15 PM	0	9	0	0	0	0	0	5	0	2	0	0	18	
05:30 PM	0	11	0	0	0	0	0	8	0	3	0	0	26	
05:45 PM	0	11	0	0	0	0	0	7	0	2	0	0	26	
Total	0	43	0	0	0	0	0	29	0	9	0	0	72	
Approach %	0	95.6	0	0	0	0	0	76.3	0	23.7	0	0	100	
Total %	0	4.4	0	0	0	0	0	100	0	75.0	0.000	0.000	692	
PHF	0.000	.896	0.000	.804	0.000	.750	0.000	.806	0.000	.750	0.000	.864	0.000	.692



N/S: North Harvard Street
 E/W: Bertram Street/ Spurr Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

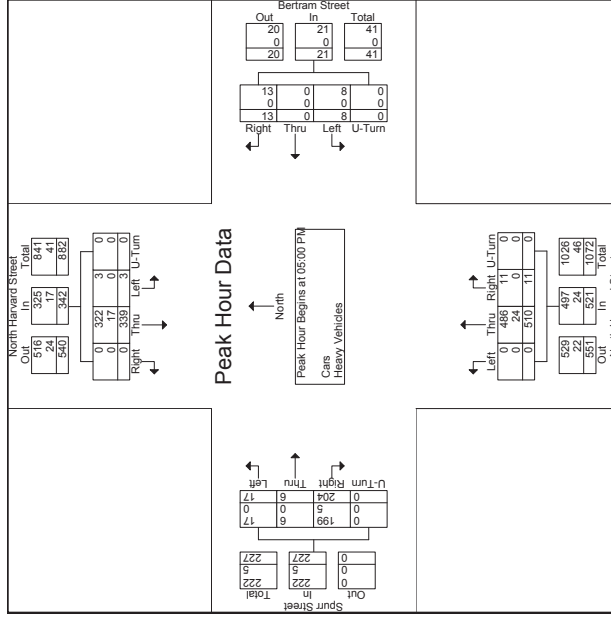
File Name : 122864 QQ
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

File Name : 122864 QQ
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

90 Bea St, Boston, MA 02109
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequest@pdill.com

PRECISION
 DATA
 INDUSTRIES, LLC

Start Time	North Harvard Street From North			Bertram Street From East			North Harvard Street From South			Spurr Street From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
05:00 PM	0	82	2	0	4	0	7	1	115	0	0	0	116
05:15 PM	0	98	1	0	0	0	0	6	140	0	0	0	121
05:30 PM	0	74	0	0	0	0	0	3	118	0	0	0	143
05:45 PM	0	85	0	0	0	0	0	1	6	0	0	0	146
Total	0	339	3	0	342	0	0	21	111	510	0	0	521
% App. Total	0	.995	0.009	0	.998	0.002	0	.999	.750	.498	.911	.000	.911
PHF	.000	.885	.375	.000	.864	.619	.000	.500	.000	.911	.000	.000	.911
Total Volume	0	339	3	0	342	0	0	21	111	510	0	0	899
% Cars	0	95.2	100	0	95.9	100	0	100	100	98.3	0	0	98.4
% Heavy Vehicles	0	4.8	0	0	4.1	0	0	0	0	1.7	0	0	1.6
% Heavy Vehicles	0	5.0	0	0	5.0	0	0	0	0	4.7	0	0	4.6
Total	0	311	0	0	311	0	0	0	311	510	0	0	822
PHF	0.000	.885	.375	.000	.864	.619	.000	.500	.000	.911	.000	.000	.911
Total Volume	0	339	3	0	342	0	0	21	111	510	0	0	899
% Cars	0	95.2	100	0	95.9	100	0	100	100	98.3	0	0	98.4
% Heavy Vehicles	0	4.8	0	0	4.1	0	0	0	0	1.7	0	0	1.6
% Heavy Vehicles	0	5.0	0	0	5.0	0	0	0	0	4.7	0	0	4.6
Total	0	311	0	0	311	0	0	0	311	510	0	0	822





N/S: North Harvard Street
E/W: Kingsley Street/ Franklin Street
City, State: Boston, MA
Client: VHB/ K. Keen

File Name : 122864 R
Site Code : 10463.00
Start Date : 4/5/2012
Page No : 1

PRECISION
INDUSTRIES, LLC
PO Box 301 Berlin, MA 01503
Office: 508.681.3999 Fax: 508.545.1234
Email: datarequest@pdic.com

Groups Printed- Cars

Start Time	North Harvard Street From North			Kingsley Street From East			North Harvard Street From South			Franklin Street From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
07:00 AM	3	80	0	2	1	2	0	65	2	0	11	0	177
07:15 AM	12	81	0	0	3	0	0	77	3	0	5	0	200
07:30 AM	3	85	0	0	3	0	0	95	2	0	5	0	208
07:45 AM	3	75	0	2	1	2	0	115	7	0	11	0	239
Total	21	321	0	6	2	10	0	352	14	0	32	0	824
08:00 AM	23	92	0	2	2	1	0	100	5	0	12	0	252
08:15 AM	11	96	0	0	2	0	0	115	9	0	2	0	255
08:30 AM	13	89	0	0	2	1	5	0	96	3	0	14	0
08:45 AM	8	105	0	1	2	0	0	134	4	0	10	0	284
Total	55	382	0	5	6	8	0	445	21	0	35	0	1025
Grand Total	76	703	0	11	8	18	0	797	35	0	67	0	1849
Approach %	9.8	90.2	0	29.7	21.6	48.6	0	95.8	4.2	0	33.3	0	66.7
Total %	4.1	38	0	0.6	0.4	1	0	43.1	1.9	0	3.6	0	7.2
Cars	69	621	0	11	7	18	0	717	28	0	64	0	1665
% Cars	90.8	88.3	0	100	87.5	100	0	90	80	0	95.5	0	97
Heavy Vehicles	7	82	0	0	1	0	0	80	7	0	3	0	184
% Heavy Vehicles	9.2	11.7	0	0	12.5	0	0	10	20	0	4.5	0	3

Groups Printed- Cars

Start Time	North Harvard Street From North			Kingsley Street From East			North Harvard Street From South			Franklin Street From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
08:00 AM	23	92	0	2	1	2	0	100	5	0	12	0	252
08:15 AM	11	96	0	0	2	0	0	115	9	0	2	0	255
08:30 AM	13	89	0	0	2	1	5	0	96	3	0	14	0
08:45 AM	8	105	0	1	2	0	0	134	4	0	10	0	284
Total	55	382	0	5	6	8	0	445	21	0	35	0	1025
Grand Total	76	703	0	11	8	18	0	797	35	0	67	0	1849
Approach %	9.8	90.2	0	29.7	21.6	48.6	0	95.8	4.2	0	33.3	0	66.7
Total %	4.1	38	0	0.6	0.4	1	0	43.1	1.9	0	3.6	0	7.2
Cars	69	621	0	11	7	18	0	717	28	0	64	0	1665
% Cars	90.8	88.3	0	100	87.5	100	0	90	80	0	95.5	0	97
Heavy Vehicles	7	82	0	0	1	0	0	80	7	0	3	0	184
% Heavy Vehicles	9.2	11.7	0	0	12.5	0	0	10	20	0	4.5	0	3

Groups Printed- Cars

Start Time	North Harvard Street From North			Kingsley Street From East			North Harvard Street From South			Franklin Street From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
08:00 AM	23	92	0	2	1	2	0	100	5	0	12	0	252
08:15 AM	11	96	0	0	2	0	0	115	9	0	2	0	255
08:30 AM	13	89	0	0	2	1	5	0	96	3	0	14	0
08:45 AM	8	105	0	1	2	0	0	134	4	0	10	0	284
Total	55	382	0	5	6	8	0	445	21	0	35	0	1025
% App. Total	12.6	87.4	0	26.3	31.6	42.1	0	95.5	4.5	0	34	0	66
PHF	.598	.910	.000	.000	.750	.400	.000	.594	.000	.830	.583	.000	.844
Cars	52	342	0	8	5	8	0	18	0	411	15	0	426
% Cars	94.5	89.5	0	90.2	100	83.3	100	94.7	0	92.4	71.4	0	91.4
Heavy Vehicles	3	40	0	0	43	0	0	34	6	0	40	0	5
% Heavy Vehicles	5.5	10.5	0	0	16.7	0	0	5.3	0	7.6	28.6	0	8.6



N/S: North Harvard Street
E/W: Kingsley Street/ Franklin Street
City, State: Boston, MA
Client: VHB/ K. Keen

File Name : 122864 R
Site Code : 10463.00
Start Date : 4/5/2012
Page No : 1

PRECISION
INDUSTRIES, LLC
PO Box 301 Berlin, MA 01503
Office: 508.681.3999 Fax: 508.545.1234
Email: datarequest@pdic.com

Groups Printed- Cars

Start Time	North Harvard Street From North			Kingsley Street From East			North Harvard Street From South			Franklin Street From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
07:00 AM	2	69	0	0	0	0	0	55	2	0	11	0	154
07:15 AM	10	71	0	0	3	0	0	61	3	0	5	0	172
07:30 AM	2	74	0	0	3	0	0	86	2	0	5	0	186
07:45 AM	3	65	0	2	1	2	0	104	6	0	11	0	217
Total	17	279	0	6	2	10	0	306	13	0	32	0	729
08:00 AM	22	80	0	2	1	1	0	95	4	0	11	0	231
08:15 AM	10	89	0	0	2	0	0	101	6	0	2	0	230
08:30 AM	13	81	0	0	2	1	5	0	88	2	0	10	0
08:45 AM	7	92	0	0	1	2	0	127	3	0	9	0	259
Total	52	342	0	6	5	8	0	411	15	0	32	0	936
Grand Total	69	621	0	11	7	18	0	717	28	0	64	0	1665
Approach %	10	90	0	30.6	19.4	50	0	96.2	3.8	0	33	0	67
Total %	4.1	37.3	0	0.7	0.4	1.1	0	43.1	1.7	0	3.8	0	7.8

Groups Printed- Cars

Start Time	North Harvard Street From North			Kingsley Street From East			North Harvard Street From South			Franklin Street From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
08:00 AM	22	80	0	2	1	1	0	95	4	0	11	0	231
08:15 AM	10	89	0	0	2	0	0	101	6	0	2	0	230
08:30 AM	13	81	0	0	2	1	5	0	88	2	0	10	0
08:45 AM	7	92	0	0	1	2	0	127	3	0	9	0	259
Total	52	342	0	6	5	8	0	411	15	0	32	0	936
Grand Total	69	621	0	11	7	18	0	717	28	0	64	0	1665
Approach %	10	90	0	30.6	19.4	50	0	96.2	3.8	0	33	0	67
Total %	4.1	37.3	0	0.7	0.4	1.1	0	43.1	1.7	0	3.8	0	7.8

Groups Printed- Cars

Start Time	North Harvard Street From North			Kingsley Street From East			North Harvard Street From South			Franklin Street From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
08:00 AM	22	80	0	2	1	1	0	95	4	0	11	0	231
08:15 AM	10	89	0	0	2	0	0	107	6	0	2	0	240
08:30 AM	13	81	0	0	2	1	5	0	99	2	0	14	0
08:45 AM	7	92	0	0	1	2	0	127	3	0	9	0	259
Total	52	342	0	6	5	8	0	411	15	0	32	0	936
% App. Total	13.2	86.8	0	38.4	5	8	0	96.3	3.5	0	32.7	0	67.3
PHF	.391	.329	.000	.966	.629	.400	.000	.563	.000	.809	.625	.000	.819



N/S: North Harvard Street
 E/W: Kingsley Street/ Franklin Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 R
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

PRECISION
 DATA
 INDUSTRIES, LLC
 90 Beech St, Boston, MA 02109
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequests@pdilc.com

Groups Printed: Heavy Vehicles

Start Time	North Harvard Street From North			Kingsley Street From East			North Harvard Street From South			Franklin Street From West		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
07:00 AM	1	11	0	0	0	0	0	10	0	0	0	0
07:15 AM	2	10	0	0	0	0	0	16	0	0	0	0
07:30 AM	1	11	0	0	0	0	0	9	0	0	0	0
07:45 AM	0	10	0	0	0	0	11	1	0	0	0	0
Total	4	42	0	0	0	0	46	1	0	0	0	0
08:00 AM	1	12	0	0	0	0	5	1	0	1	0	0
08:15 AM	1	7	0	0	0	0	14	3	0	0	0	0
08:30 AM	0	8	0	0	0	0	8	1	0	1	0	0
08:45 AM	1	13	0	0	0	0	7	1	0	1	0	0
Total	3	40	0	0	0	0	34	6	0	3	0	0
Grand Total	7	82	0	0	0	0	80	7	0	3	0	4
Approach %	7.9	92.1	0	0	0	0	92	8	0	42.9	0	57.1
Total %	3.8	44.6	0	0	0	0	43.5	3.8	0	1.6	0	2.2

Peak Hour for Entire Intersection Begins at 07:00 AM

Start Time	North Harvard Street From North			Kingsley Street From East			North Harvard Street From South			Franklin Street From West		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
07:00 AM	1	11	0	0	0	0	0	10	0	0	0	0
07:15 AM	2	10	0	0	0	0	16	0	0	0	0	0
07:30 AM	1	11	0	0	0	0	9	0	0	0	0	0
07:45 AM	0	10	0	0	0	0	11	1	0	0	0	0
Total	4	42	0	0	0	0	46	1	0	47	0	0
Total Volume	4	42	0	0	0	0	46	1	0	47	0	0
% App. Total	8.7	91.3	0	0	0	0	97.9	2.1	0	100	0	0
PHF	.500	.395	.000	.000	.000	.000	.000	.719	.250	.000	.734	.000



N/S: North Harvard Street
 E/W: Kingsley Street/ Franklin Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 R
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

PRECISION
 DATA
 INDUSTRIES, LLC
 90 Beech St, Boston, MA 02109
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequests@pdilc.com

Groups Printed: Peds and Bicycles

Start Time	North Harvard Street From North			Kingsley Street From East			North Harvard Street From South			Franklin Street From West		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
07:00 AM	1	1	0	0	0	0	0	2	0	0	0	0
07:15 AM	5	0	0	0	0	0	0	8	0	0	0	0
07:30 AM	3	1	0	0	0	0	12	0	0	4	0	0
07:45 AM	3	2	0	0	2	0	15	0	0	6	0	0
Total	12	4	0	0	4	0	38	0	0	14	0	0
08:00 AM	5	1	0	0	0	0	7	0	1	1	0	0
08:15 AM	7	1	0	0	2	0	16	0	4	0	0	0
08:30 AM	4	2	0	0	1	0	6	0	7	0	0	0
08:45 AM	4	1	0	0	6	0	11	0	4	0	0	0
Total	20	5	0	0	11	0	40	0	16	1	0	0
Grand Total	32	9	0	0	15	0	78	0	19	1	0	0
Approach %	57.1	16.1	0	0	26.8	0	97.5	0	34.5	1.8	0	63.6
Total %	10	2.8	0	0	4.7	0	24.3	0	5.9	0.3	0	10.9

Peak Hour for Entire Intersection Begins at 08:00 AM

Start Time	North Harvard Street From North			Kingsley Street From East			North Harvard Street From South			Franklin Street From West		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
08:00 AM	5	1	0	0	0	0	0	7	0	1	0	0
08:15 AM	7	1	0	0	2	0	16	0	4	0	0	0
08:30 AM	4	2	0	0	1	0	7	0	7	0	0	0
08:45 AM	4	1	0	0	6	0	11	0	4	0	0	0
Total	20	5	0	0	11	0	40	0	16	1	0	0
Total Volume	20	5	0	0	11	0	40	0	16	1	0	0
% App. Total	55.6	13.9	0	0	30.6	0	97.6	0	42.1	2.6	0	55.3
PHF	.714	.625	.000	.458	.818	.000	.625	.641	.000	.571	.250	.875

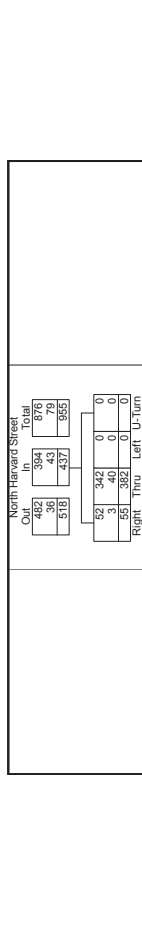


N/S: North Harvard Street
 E/W: Kingsley Street/ Franklin Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

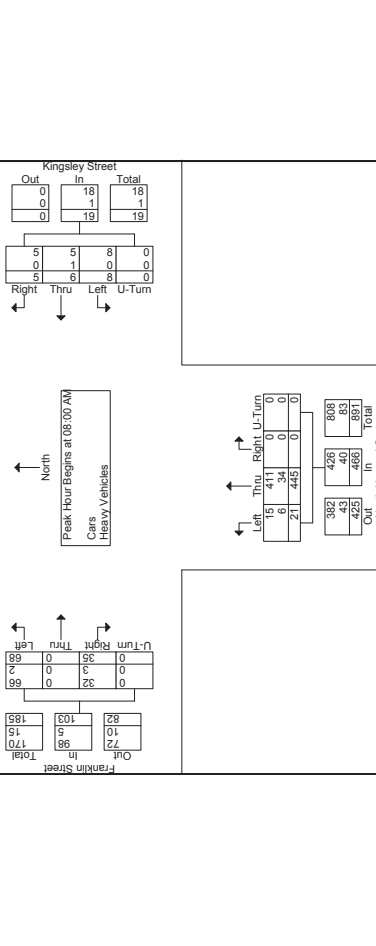
File Name : 122864 R
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

PRECISION
 D. A. T. A.
 INDUSTRIES, LLC
 90 Beech Rd, Boston, MA 01093
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequest@pdic.com

Start Time	North Harvard Street From West			Kingsley Street From East			North Harvard Street From South			Franklin Street From West		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
08:00 AM	23	92	0	2	1	0	5	0	100	5	0	15
08:15 AM	11	96	0	2	1	0	5	0	115	9	0	20
08:30 AM	13	89	0	2	1	0	4	0	96	3	0	14
08:45 AM	8	105	0	2	0	0	4	0	134	10	0	19
Total Volume	55	382	0	10	4	0	19	0	445	21	0	66
% App. Total	12.6	87.4	0	26.3	31.6	42.1	0	96.5	4.5	0	68	0
PHF	.598	.910	.000	.950	.750	.400	.000	.594	.000	.830	.583	.000
Cars	52	342	0	9	5	0	19	0	411	15	0	66
% Cars	94.5	89.4	0	90.2	100	0	94.1	0	92.4	71.4	0	97.3
Heavy Vehicles	3	40	0	1	0	0	0	0	34	6	0	0
% Heavy Vehicles	5.5	10.5	0	0	0	0	5.3	0	7.6	28.6	0	0



Peak Hour Data



N/S: North Harvard Street
 E/W: Kingsley Street/ Franklin Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 RR
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

PRECISION
 D. A. T. A.
 INDUSTRIES, LLC
 90 Beech Rd, Boston, MA 01093
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequest@pdic.com

Start Time	North Harvard Street From North			Kingsley Street From East			North Harvard Street From South			Franklin Street From West		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
04:00 PM	15	124	0	2	0	2	0	0	85	5	0	12
04:15 PM	13	117	0	3	2	5	0	0	73	4	0	10
04:30 PM	11	132	0	0	1	1	0	0	108	8	0	6
04:45 PM	19	121	0	0	1	1	0	0	110	3	0	5
Total	58	494	0	5	4	9	0	0	376	20	0	33
05:00 PM	5	131	0	1	1	3	0	0	105	6	0	13
05:15 PM	14	145	0	1	2	4	0	0	115	2	0	15
05:30 PM	9	123	0	0	3	4	0	0	116	5	0	9
05:45 PM	14	126	0	1	1	7	0	0	138	3	0	8
Total	42	525	0	3	7	18	0	0	474	16	0	48
Grand Total	100	1019	0	8	11	27	0	0	850	36	0	81
Approach %	8.9	91.1	0	0	17.4	23.9	58.7	0	95.9	4.1	0	55.1
Total %	4.5	46.4	0	0	0.4	0.5	1.2	0	38.7	1.6	0	3.7
Cars	97	968	0	8	10	27	0	0	798	36	0	65
% Cars	97	95	0	0	100	90.9	100	0	93.9	100	0	95.1
Heavy Vehicles	3	51	0	0	1	0	0	0	52	0	0	1
% Heavy Vehicles	3	5	0	0	0	0	0	0	6.1	0	0	1.5

Start Time	North Harvard Street From North			Kingsley Street From East			North Harvard Street From South			Franklin Street From West		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
05:00 PM	5	131	0	1	3	0	5	0	105	6	0	13
05:15 PM	14	145	0	1	2	4	0	7	115	2	0	15
05:30 PM	9	123	0	0	3	2	0	0	116	5	0	9
05:45 PM	14	126	0	1	1	7	0	9	138	3	0	11
Total Volume	42	525	0	3	7	18	0	28	474	16	0	48
% App. Total	7.4	92.6	0	0	10.7	25	64.3	0	96.7	3.3	0	64
PHF	.750	.905	.000	.892	.750	.643	.000	.778	.000	.667	.000	.800
Cars	41	505	0	3	6	18	0	27	452	16	0	46
% Cars	97.6	96.2	0	0	96.3	100	96.4	0	95.4	100	0	95.8
Heavy Vehicles	1	20	0	0	2	1	0	0	22	0	0	2
% Heavy Vehicles	2.4	3.8	0	0	3.7	0	14.3	0	3.6	0	0	4.2





N/S: North Harvard Street
 E/W: Kingsley Street/ Franklin Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 RR
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

PRECISION
 D. A. T. A.
 INDUSTRIES, LLC
 90 Beech St, Boston, MA 01909
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequest@pdilic.com

Start Time	North Harvard Street From North			Kingsley Street From East			North Harvard Street From South			Franklin Street From West			Int. Total	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		
04:00 PM	15	114	0	2	0	0	75	5	0	9	0	11	0	233
04:15 PM	12	112	0	3	2	5	67	4	0	11	0	9	0	225
04:30 PM	10	123	0	0	1	1	102	8	0	9	0	6	0	260
04:45 PM	19	114	0	1	1	1	102	3	0	10	0	5	0	255
Total	56	463	0	6	4	7	346	20	0	39	0	31	0	973
05:00 PM	5	125	0	1	0	3	99	6	0	4	0	12	0	255
05:15 PM	13	141	0	1	2	4	110	2	0	7	0	15	0	295
05:30 PM	9	118	0	0	3	4	109	5	0	7	0	9	0	264
05:45 PM	14	121	0	1	7	0	134	3	0	8	0	10	0	299
Total	41	505	0	3	6	18	452	16	0	26	0	46	0	1113
Grand Total	97	968	0	8	10	27	788	36	0	65	0	77	0	2086
Approach %	9.1	90.9	0	17.8	22.2	60	95.7	4.3	0	45.8	0	54.2	0	0
Total %	4.7	46.4	0	0.4	0.5	1.3	38.3	1.7	0	3.1	0	3.7	0	0

Start Time	North Harvard Street From North			Kingsley Street From East			North Harvard Street From South			Franklin Street From West			Int. Total	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		
05:00 PM	5	125	0	1	0	3	99	6	0	4	0	12	0	255
05:15 PM	13	141	0	1	2	4	110	2	0	7	0	15	0	295
05:30 PM	9	118	0	0	3	4	109	5	0	7	0	9	0	264
05:45 PM	14	121	0	1	7	0	134	3	0	8	0	10	0	299
Total	41	505	0	3	6	18	452	16	0	26	0	46	0	1113
Grand Total	97	968	0	8	10	27	788	36	0	65	0	77	0	2086
Approach %	9.1	90.9	0	17.8	22.2	60	95.7	4.3	0	45.8	0	54.2	0	0
Total %	4.7	46.4	0	0.4	0.5	1.3	38.3	1.7	0	3.1	0	3.7	0	0



N/S: North Harvard Street
 E/W: Kingsley Street/ Franklin Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 RR
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

PRECISION
 D. A. T. A.
 INDUSTRIES, LLC
 90 Beech St, Boston, MA 01909
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequest@pdilic.com

Start Time	North Harvard Street From North			Kingsley Street From East			North Harvard Street From South			Franklin Street From West			Int. Total	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		
04:00 PM	0	10	0	0	0	0	10	0	0	0	0	0	0	21
04:15 PM	1	5	0	0	0	0	6	0	0	0	0	1	0	13
04:30 PM	1	9	0	0	0	0	6	0	0	0	0	0	0	16
04:45 PM	0	7	0	0	0	0	8	0	0	0	0	0	0	15
Total	2	31	0	0	0	0	30	0	0	0	0	2	0	65
05:00 PM	0	6	0	0	1	0	0	6	0	0	1	0	1	15
05:15 PM	1	4	0	0	0	0	5	0	0	0	0	0	0	10
05:30 PM	0	5	0	0	0	0	7	0	0	0	0	0	0	12
05:45 PM	0	5	0	0	0	0	4	0	0	0	0	1	0	10
Total	1	20	0	0	1	0	22	0	0	1	0	2	0	47
Grand Total	3	51	0	0	1	0	52	0	0	1	0	4	0	112
Approach %	5.6	94.4	0	0	100	0	100	0	0	20	0	80	0	0
Total %	2.7	45.5	0	0	0.9	0	46.4	0	0	0.9	0	3.6	0	0

Start Time	North Harvard Street From North			Kingsley Street From East			North Harvard Street From South			Franklin Street From West			Int. Total	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		
04:00 PM	0	10	0	0	0	0	10	0	0	0	0	0	0	21
04:15 PM	1	5	0	0	0	0	6	0	0	0	0	1	0	13
04:30 PM	1	9	0	0	0	0	6	0	0	0	0	0	0	16
04:45 PM	0	7	0	0	0	0	8	0	0	0	0	0	0	15
Total	2	31	0	0	0	0	30	0	0	0	0	2	0	65
05:00 PM	0	6	0	0	1	0	0	6	0	0	1	0	1	15
05:15 PM	1	4	0	0	0	0	5	0	0	0	0	0	0	10
05:30 PM	0	5	0	0	0	0	7	0	0	0	0	0	0	12
05:45 PM	0	5	0	0	0	0	4	0	0	0	0	1	0	10
Total	1	20	0	0	1	0	22	0	0	1	0	2	0	47
Grand Total	3	51	0	0	1	0	52	0	0	1	0	4	0	112
Approach %	5.6	94.4	0	0	100	0	100	0	0	20	0	80	0	0
Total %	2.7	45.5	0	0	0.9	0	46.4	0	0	0.9	0	3.6	0	0



N/S: North Harvard Street
 E/W: Kingsley Street/ Franklin Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

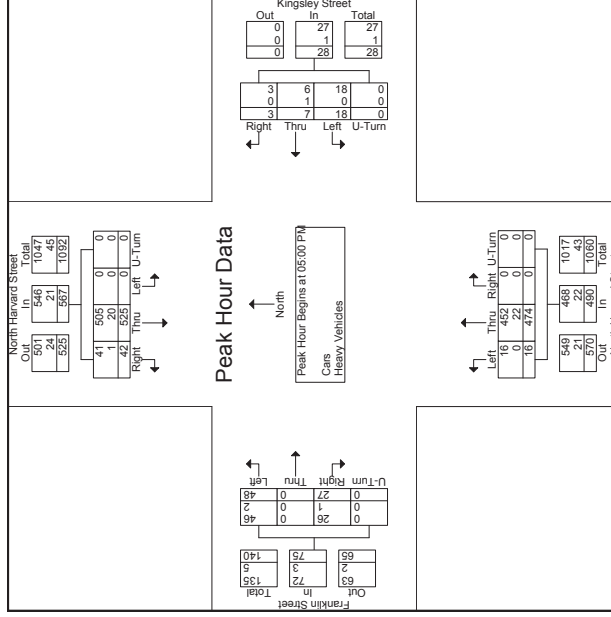
File Name : 122864 RR
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

PRECISION
 INDUSTRIES, LLC
 90 Beaconsfield, Boston, MA 02109
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequest@pdilic.com

Start Time	North Harvard Street From North			Kingsley Street From East			North Harvard Street From South			Franklin Street From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
04:00 PM	1	4	0	0	0	0	2	1	2	0	0	2	4
04:15 PM	7	4	0	0	0	14	0	0	6	0	0	3	15
04:30 PM	2	5	0	1	0	6	0	3	0	1	0	0	5
04:45 PM	3	5	0	3	0	7	0	3	0	1	0	4	15
Total	13	18	0	6	0	36	0	10	1	0	14	48	159
05:00 PM	0	5	0	1	0	11	0	5	0	8	0	0	4
05:15 PM	1	3	0	7	0	0	2	0	3	0	0	2	19
05:30 PM	1	7	0	4	0	13	0	5	0	4	1	0	3
05:45 PM	0	2	0	3	0	5	0	1	0	2	0	2	25
Total	2	17	0	15	0	31	0	14	0	18	2	11	76
Grand Total	15	35	0	21	0	67	0	24	1	28	3	0	25
Approach %	21.1	49.3	0	29.6	0	97.1	0	45.3	1.9	52.8	2	0	16.4
Total %	4.3	10.1	0	0.6	0	19.4	0	7	0.3	8.1	0.9	0	7.2

Start Time	North Harvard Street From North			Kingsley Street From East			North Harvard Street From South			Franklin Street From West			Int. Total						
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left							
04:00 PM	3	5	0	3	11	0	1	0	7	8	0	3	0	1	0	4	15	20	43
04:15 PM	0	5	0	1	6	0	0	0	11	0	8	13	0	0	4	19	23	53	
04:30 PM	1	3	0	7	0	12	0	0	13	0	5	0	4	9	1	3	13	17	51
04:45 PM	1	7	0	4	12	0	0	1	33	34	0	16	0	17	33	3	13	66	82
Total Volume	5	20	0	15	40	0	2	0	59	65	0	46.5	0	51.5	3.7	0	15.9	80.5	189
% App. Total	12.5	50	0	37.5	0	2.9	0	97.1	0	97.1	0	46.5	0	51.5	3.7	0	15.9	80.5	189
PHF	.417	.714	.000	.586	.833	.000	.654	.000	.800	.000	.531	.635	.750	.000	.813	.868	.891	.892	

Start Time	North Harvard Street From North			Kingsley Street From East			North Harvard Street From South			Franklin Street From West			Int. Total					
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left						
05:00 PM	5	131	0	0	136	1	3	0	5	0	111	5	0	13	0	18	270	
05:15 PM	14	145	0	0	159	1	2	4	7	0	117	7	0	15	0	22	305	
05:30 PM	9	123	0	0	132	0	3	0	3	0	141	8	0	11	0	19	309	
05:45 PM	14	126	0	0	140	1	7	0	9	0	138	3	0	11	0	19	309	
Total Volume	42	525	0	0	567	3	7	18	28	0	474	16	0	48	0	75	1160	
% App. Total	7.4	92.6	0	0	107	25	64.3	0	773	.000	859	667	.000	869	.544	.000	.852	939
PHF	.750	.905	.000	.000	.892	.750	.583	.643	.000	.773	.000	.859	.667	.000	.869	.544	.000	.852
Cars	41	505	0	0	546	3	6	16	27	0	468	16	0	48	0	75	1163	
Heavy Vehicles	97.0	92.0	0	0	92.3	100	85.1	100	96.4	0	95.4	100	0	92.2	0	96.3	95.7	
% Heavy Vehicles	2.4	3.8	0	0	3.7	0	14.3	0	3.6	0	4.6	0	0	4.5	3.7	0	4.0	





N/S: North Harvard Street
E/W: Rena Street/ Bayard Street
City, State: Boston, MA
Client: VHB/ K. Keen

File Name : 122864 S
Site Code : 10463.00
Start Date : 4/5/2012
Page No : 1

90 Beech Rd, Boston, MA 01093
Office: 508.681.3999 Fax: 508.545.1234
Email: datarequests@pdilc.com

Start Time	North Harvard Street From North			Rena Street From East			North Harvard Street From South			Bayard Street From West			Int. Total	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		
07:00 AM	0	94	1	0	0	0	0	66	0	4	0	2	0	168
07:15 AM	0	85	3	0	0	0	0	79	0	4	0	0	0	171
07:30 AM	0	95	1	1	0	0	2	90	0	4	0	1	0	194
07:45 AM	0	92	1	0	1	0	3	128	0	1	1	2	0	229
Total	0	366	6	1	1	0	6	363	0	13	1	5	0	762
08:00 AM	0	107	2	0	0	0	3	97	0	5	0	0	0	214
08:15 AM	0	96	2	0	0	0	1	123	0	6	0	1	0	229
08:30 AM	0	103	1	0	0	0	5	106	0	5	0	2	0	222
08:45 AM	0	116	2	0	0	0	2	135	0	5	0	0	0	260
Total	0	422	7	0	0	0	11	461	0	21	0	3	0	925
Grand Total	0	788	13	1	1	0	0	17	824	0	34	1	8	1687
Approach %	0	98.3	1.6	0.1	0.0	0.0	0.0	98.0	0.0	79.1	2.3	18.6	0.0	
Total %	0	46.7	0.8	0.1	0.1	0.0	0.0	48.8	0.0	2.0	0.1	0.5	0.0	
% Cars	0	708	13	1	1	0	0	17	736	0	34	1	8	1519
% Heavy Vehicles	0	80	0	0	0	0	0	88	0	0	0	0	0	168
% Heavy Vehicles	0	10.2	0	0	0	0	0	10.7	0	0	0	0	0	10

Start Time	North Harvard Street From North			Rena Street From East			North Harvard Street From South			Bayard Street From West			Int. Total	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		
08:00 AM	0	107	2	0	0	0	0	11	461	0	472	5	0	24
08:15 AM	0	96	2	0	0	0	0	2.3	97.7	0	87.5	0	12.5	0
08:30 AM	0	103	1	0	0	0	0	550	854	0	861	375	0	889
08:45 AM	0	116	2	0	0	0	0	100	90.9	0	91.1	100	0	100
Total	0	422	7	0	0	0	0	42	0	0	42	0	0	83
% App. Total	0	98.4	1.6	0.0	0.0	0.0	0.0	91.1	0.0	9.1	0.0	8.9	0.0	9.0
PHF	0.000	0.909	0.875	0.000	0.000	0.000	0.000	0.550	0.854	0.000	0.861	0.375	0.000	0.857
% Cars	0	381	7	0	0	0	0	11	419	0	430	21	0	24
% Heavy Vehicles	0	90.3	100	0	0	0	0	100	90.9	0	91.1	100	0	100
% Heavy Vehicles	0	41	0	0	0	0	0	42	0	0	42	0	0	0
% Heavy Vehicles	0	9.7	0	0	0	0	0	9.1	0	0	8.9	0	0	0



N/S: North Harvard Street
E/W: Rena Street/ Bayard Street
City, State: Boston, MA
Client: VHB/ K. Keen

File Name : 122864 S
Site Code : 10463.00
Start Date : 4/5/2012
Page No : 1

90 Beech Rd, Boston, MA 01093
Office: 508.681.3999 Fax: 508.545.1234
Email: datarequests@pdilc.com

Start Time	North Harvard Street From North			Rena Street From East			North Harvard Street From South			Bayard Street From West			Int. Total	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		
07:00 AM	0	84	1	0	0	0	1	55	0	4	0	2	0	147
07:15 AM	0	76	3	0	0	0	0	64	0	4	0	0	0	147
07:30 AM	0	84	1	1	0	0	2	81	0	4	0	1	0	174
07:45 AM	0	83	1	0	1	0	3	117	0	1	1	2	0	209
Total	0	327	6	1	1	0	6	317	0	13	1	5	0	677
08:00 AM	0	95	2	0	0	0	3	92	0	5	0	0	0	197
08:15 AM	0	89	2	0	0	0	1	105	0	6	0	1	0	204
08:30 AM	0	94	1	0	0	0	5	96	0	5	0	2	0	203
08:45 AM	0	103	2	0	0	0	2	126	0	5	0	0	0	238
Total	0	381	7	0	0	0	11	419	0	21	0	3	0	842
Grand Total	0	708	13	1	1	0	17	736	0	34	1	8	0	1519
Approach %	0	98.1	1.8	0.1	100	0	0	2.3	97.7	0	79.1	2.3	18.6	0
Total %	0	46.6	0.9	0.1	0.1	0.0	0.0	1.1	48.5	0.0	2.2	0.1	0.5	0

Start Time	North Harvard Street From North			Rena Street From East			North Harvard Street From South			Bayard Street From West			Int. Total	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		
08:00 AM	0	95	2	0	0	0	0	3	92	0	5	0	0	197
08:15 AM	0	89	2	0	0	0	1	105	0	6	0	1	0	204
08:30 AM	0	94	1	0	0	0	5	96	0	5	0	2	0	203
08:45 AM	0	103	2	0	0	0	2	126	0	5	0	0	0	238
Total	0	381	7	0	0	0	11	419	0	21	0	3	0	842
% App. Total	0	98.2	1.8	0.0	0.0	0.0	0.0	2.6	97.4	0.0	87.5	0.0	12.5	0
PHF	0.000	0.925	0.875	0.000	0.000	0.000	0.000	0.590	0.831	0.000	0.840	0.375	0.000	0.857



File Name : 122864 S
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

N/S: North Harvard Street
 E/W: Rena Street/ Bayard Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

PRECISION
 DATA
 INDUSTRIES, LLC
 90 Bea 301 Reels, MA 01939
 Office: 508.681.3999 Fax: 508.545.1234
 Email: datarequests@pdilc.com

Start Time	North Harvard Street From North			Rena Street From East			North Harvard Street From South			Bayard Street From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
07:00 AM	0	10	0	0	0	0	0	11	0	0	0	0	21
07:15 AM	0	9	0	0	0	0	0	15	0	0	0	0	24
07:30 AM	0	11	0	0	0	0	0	9	0	0	0	0	20
07:45 AM	0	9	0	0	0	0	0	11	0	0	0	0	20
Total	0	39	0	0	0	0	0	46	0	0	0	0	85
08:00 AM	0	12	0	0	0	0	0	5	0	0	0	0	17
08:15 AM	0	7	0	0	0	0	0	18	0	0	0	0	25
08:30 AM	0	9	0	0	0	0	0	10	0	0	0	0	19
08:45 AM	0	13	0	0	0	0	0	9	0	0	0	0	22
Total	0	41	0	0	0	0	0	42	0	0	0	0	83
Grand Total	0	80	0	0	0	0	0	88	0	0	0	0	168
Approach %	0	100	0	0	0	0	0	100	0	0	0	0	0
Total %	0	47.6	0	0	0	0	0	52.4	0	0	0	0	0

Start Time	North Harvard Street From North			Rena Street From East			North Harvard Street From South			Bayard Street From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
07:00 AM	0	10	0	0	0	0	0	11	0	0	0	0	21
07:15 AM	0	9	0	0	0	0	0	15	0	0	0	0	24
07:30 AM	0	11	0	0	0	0	0	9	0	0	0	0	20
07:45 AM	0	9	0	0	0	0	0	11	0	0	0	0	20
Total	0	39	0	0	0	0	0	46	0	0	0	0	85
08:00 AM	0	12	0	0	0	0	0	5	0	0	0	0	17
08:15 AM	0	7	0	0	0	0	0	18	0	0	0	0	25
08:30 AM	0	9	0	0	0	0	0	10	0	0	0	0	19
08:45 AM	0	13	0	0	0	0	0	9	0	0	0	0	22
Total	0	41	0	0	0	0	0	42	0	0	0	0	83
Grand Total	0	80	0	0	0	0	0	88	0	0	0	0	168
Approach %	0	100	0	0	0	0	0	100	0	0	0	0	0
Total %	0	47.6	0	0	0	0	0	52.4	0	0	0	0	0



N/S: North Harvard Street
 E/W: Rena Street/ Bayard Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 S
 Site Code : 10463.00
 Start Date : 4/5/2012
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PRECISION
 DATA
 INDUSTRIES, LLC
 90 Bea 301 Reels, MA 01939
 Office: 508.681.3999 Fax: 508.545.1234
 Email: datarequests@pdilc.com

Start Time	North Harvard Street From North			Rena Street From East			North Harvard Street From South			Bayard Street From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
07:00 AM	0	1	0	0	0	0	0	2	0	0	0	0	8
07:15 AM	0	1	0	0	0	0	0	5	0	0	0	0	15
07:30 AM	0	1	0	0	0	0	0	9	0	0	0	0	23
07:45 AM	0	3	0	0	0	0	0	10	0	0	0	0	29
Total	0	6	0	0	0	0	0	27	0	0	0	0	75
08:00 AM	0	1	0	0	0	0	0	7	0	0	0	0	18
08:15 AM	0	1	0	0	0	0	0	6	0	0	0	0	19
08:30 AM	0	1	0	0	0	0	0	9	0	0	0	0	23
08:45 AM	0	1	0	0	0	0	0	5	0	0	0	0	19
Total	0	4	0	0	0	0	0	22	0	0	0	0	32
Grand Total	0	10	0	0	0	0	0	49	1	27	0	0	59
Approach %	0	71.4	0	0	0	0	0	100	3.6	96.4	0	0	93.7
Total %	0	6.5	0	0	0	0	0	31.8	0.6	17.5	0	0	38.3

Start Time	North Harvard Street From North			Rena Street From East			North Harvard Street From South			Bayard Street From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
07:00 AM	0	1	0	0	0	0	0	2	0	0	0	0	8
07:15 AM	0	1	0	0	0	0	0	5	0	0	0	0	15
07:30 AM	0	1	0	0	0	0	0	9	0	0	0	0	23
07:45 AM	0	3	0	0	0	0	0	10	0	0	0	0	29
Total	0	6	0	0	0	0	0	27	0	0	0	0	75
08:00 AM	0	1	0	0	0	0	0	7	0	0	0	0	18
08:15 AM	0	1	0	0	0	0	0	6	0	0	0	0	19
08:30 AM	0	1	0	0	0	0	0	9	0	0	0	0	23
08:45 AM	0	1	0	0	0	0	0	5	0	0	0	0	19
Total	0	4	0	0	0	0	0	22	0	0	0	0	32
Grand Total	0	10	0	0	0	0	0	49	1	27	0	0	59
Approach %	0	71.4	0	0	0	0	0	100	3.6	96.4	0	0	93.7
Total %	0	6.5	0	0	0	0	0	31.8	0.6	17.5	0	0	38.3

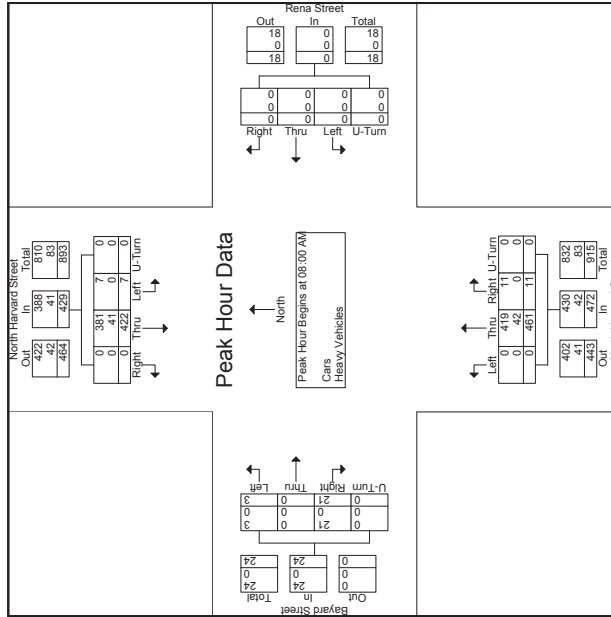


N/S: North Harvard Street
 E/W: Rena Street/ Bayard Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 S
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

PRECISION DATA INDUSTRIES, LLC
 90 Beavert Rd, Boston, MA 02109
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequest@pdic.com

Start Time	North Harvard Street From East			North Harvard Street From South			North Harvard Street From West			Bayard Street From West		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	96	2	0	109	0	0	0	0	0	0	0
08:30 AM	0	103	1	0	104	0	0	0	0	0	0	0
08:45 AM	0	116	2	0	118	0	0	0	0	0	0	0
Total Volume	0	422	5	0	429	0	0	0	0	0	0	0
% App. Total	.000	.999	.000	.000	.999	.000	.000	.000	.000	.000	.000	.000
Cars	0	381	7	0	388	0	0	0	0	0	0	0
% Cars	0	90.4	100	0	90.4	0	0	0	0	0	0	0
Heavy Vehicles	0	41	0	0	41	0	0	0	0	0	0	0
% Heavy Vehicles	0	9.7	0	0	9.7	0	0	0	0	0	0	0



N/S: North Harvard Street
 E/W: Rena Street/ Bayard Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 SS
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

PRECISION DATA INDUSTRIES, LLC
 90 Beavert Rd, Boston, MA 02109
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequest@pdic.com

Start Time	North Harvard Street From North			Rena Street From East			North Harvard Street From South			Bayard Street From West		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
04:00 PM	0	138	1	0	0	0	0	0	0	0	0	0
04:15 PM	0	133	3	0	0	0	0	0	0	0	0	0
04:30 PM	0	141	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	132	0	0	0	0	0	0	0	0	0	0
Total	0	544	4	0	0	0	0	0	0	0	0	0
05:00 PM	0	133	2	0	0	0	0	0	0	0	0	0
05:15 PM	0	157	1	0	0	0	0	0	0	0	0	0
05:30 PM	0	132	1	0	0	0	0	0	0	0	0	0
05:45 PM	0	139	2	0	1	1	0	0	0	0	0	0
Total	0	561	6	1	1	1	0	0	0	0	0	0
Grand Total	0	1105	10	1	1	1	0	0	0	0	0	0
Approach %	0	99	0.9	0.1	50	50	0	0	0	0	0	0
Total %	0	53.1	0.5	0	0	0	0	0	0	0.8	43.5	0
Cars	0	1052	10	1	1	1	0	0	0	17	853	0
% Cars	0	95.2	100	100	100	100	0	0	0	100	94.4	0
Heavy Vehicles	0	53	0	0	0	0	0	0	0	51	0	0
% Heavy Vehicles	0	4.8	0	0	0	0	0	0	0	5.6	0	0

Start Time	North Harvard Street From North			Rena Street From East			North Harvard Street From South			Bayard Street From West		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
05:00 PM	0	133	2	0	0	0	0	0	0	0	0	0
05:15 PM	0	157	1	0	0	0	0	0	0	0	0	0
05:30 PM	0	132	1	0	0	0	0	0	0	0	0	0
05:45 PM	0	139	2	0	0	0	0	0	0	0	0	0
Total Volume	0	561	6	1	1	1	0	0	0	0	0	0
% App. Total	0	98.8	1.1	0.2	50	50	0	0	0	1.6	98.4	0
Cars	0	539	6	1	546	1	0	0	0	2	8	477
% Cars	0	96.1	100	100	96.1	100	0	0	0	100	95.6	0
Heavy Vehicles	0	22	0	0	22	0	0	0	0	22	0	0
% Heavy Vehicles	0	3.9	0	0	3.9	0	0	0	0	4.4	0	0



N/S: North Harvard Street
 E/W: Rena Street/ Bayard Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864.SS
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

PRECISION
 DATA
 INDUSTRIES, LLC
 90 Beas 301 Beas, MA 01939
 Office: 508.681.3999 Fax: 508.545.1234
 Email: datarequest@pdilc.com

Start Time	North Harvard Street From North			Rena Street From East			North Harvard Street From South			Bayard Street From West			Int. Total	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		
04:00 PM	0	128	0	0	0	0	0	83	0	6	0	1	0	219
04:15 PM	0	128	3	0	0	1	80	0	0	6	0	0	0	218
04:30 PM	0	132	0	0	0	4	103	0	0	7	0	2	0	248
04:45 PM	0	125	0	0	0	4	110	0	1	4	0	3	0	247
Total	0	513	4	0	0	9	376	0	1	23	0	6	0	932
05:00 PM	0	126	2	0	0	0	116	0	0	1	0	0	0	246
05:15 PM	0	152	1	0	0	4	112	0	0	4	0	1	0	275
05:30 PM	0	127	1	0	0	3	125	0	0	1	0	0	0	257
05:45 PM	0	134	2	1	0	0	124	0	0	3	0	1	0	266
Total	0	539	6	1	1	0	477	0	0	9	0	2	0	1044
Grand Total	0	1052	10	1	1	0	853	0	1	32	0	8	0	1976
Approach %	0	99	0.9	0.1	50	0	97.9	0	0.1	80	0	20	0	0
Total %	0	53.2	0.5	0.1	0.1	0	43.2	0	0.1	1.6	0	0.4	0	0

Start Time	North Harvard Street From North			Rena Street From East			North Harvard Street From South			Bayard Street From West			Int. Total	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		
05:00 PM	0	126	2	0	0	0	116	0	0	1	0	0	0	246
05:15 PM	0	152	1	0	0	4	112	0	0	4	0	1	0	275
05:30 PM	0	127	1	0	0	3	125	0	0	1	0	0	0	257
05:45 PM	0	134	2	1	0	0	124	0	0	3	0	1	0	266
Total	0	539	6	1	1	0	477	0	0	9	0	2	0	1044
Grand Total	0	1052	10	1	1	0	853	0	1	32	0	8	0	1976
Approach %	0	99	0.9	0.1	50	0	97.9	0	0.1	80	0	20	0	0
Total %	0	53.2	0.5	0.1	0.1	0	43.2	0	0.1	1.6	0	0.4	0	0



N/S: North Harvard Street
 E/W: Rena Street/ Bayard Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864.SS
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

PRECISION
 DATA
 INDUSTRIES, LLC
 90 Beas 301 Beas, MA 01939
 Office: 508.681.3999 Fax: 508.545.1234
 Email: datarequest@pdilc.com

Start Time	North Harvard Street From North			Rena Street From East			North Harvard Street From South			Bayard Street From West			Int. Total	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		
04:00 PM	0	10	0	0	0	0	0	11	0	0	0	0	0	21
04:15 PM	0	5	0	0	0	0	6	0	0	0	0	0	0	11
04:30 PM	0	9	0	0	0	0	6	0	0	0	0	0	0	15
04:45 PM	0	7	0	0	0	0	6	0	0	0	0	0	0	13
Total	0	31	0	0	0	0	29	0	0	0	0	0	0	60
05:00 PM	0	7	0	0	0	0	6	0	0	0	0	0	0	13
05:15 PM	0	5	0	0	0	0	5	0	0	0	0	0	0	10
05:30 PM	0	5	0	0	0	0	7	0	0	0	0	0	0	12
05:45 PM	0	5	0	0	0	0	4	0	0	0	0	0	0	9
Total	0	22	0	0	0	0	22	0	0	0	0	0	0	44
Grand Total	0	53	0	0	0	0	51	0	0	0	0	0	0	104
Approach %	0	100	0	0	0	0	100	0	0	0	0	0	0	0
Total %	0	51	0	0	0	0	49	0	0	0	0	0	0	0

Start Time	North Harvard Street From North			Rena Street From East			North Harvard Street From South			Bayard Street From West			Int. Total	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		
04:00 PM	0	10	0	0	0	0	0	11	0	0	0	0	0	21
04:15 PM	0	5	0	0	0	0	6	0	0	0	0	0	0	11
04:30 PM	0	9	0	0	0	0	6	0	0	0	0	0	0	15
04:45 PM	0	7	0	0	0	0	6	0	0	0	0	0	0	13
Total	0	31	0	0	0	0	29	0	0	0	0	0	0	60
05:00 PM	0	7	0	0	0	0	6	0	0	0	0	0	0	13
05:15 PM	0	5	0	0	0	0	5	0	0	0	0	0	0	10
05:30 PM	0	5	0	0	0	0	7	0	0	0	0	0	0	12
05:45 PM	0	5	0	0	0	0	4	0	0	0	0	0	0	9
Total	0	22	0	0	0	0	22	0	0	0	0	0	0	44
Grand Total	0	53	0	0	0	0	51	0	0	0	0	0	0	104
Approach %	0	100	0	0	0	0	100	0	0	0	0	0	0	0
Total %	0	51	0	0	0	0	49	0	0	0	0	0	0	0



N/S: North Harvard Street
 E/W: Rena Street/ Bayard Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

N/S: North Harvard Street
 E/W: Rena Street/ Bayard Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864.SS
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

90 Bay St, Boston, MA 02109
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90 Bay St, Boston, MA 02109
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequest@pdic.com

Start Time	North Harvard Street From North			Rena Street From East			North Harvard Street From South			Bayard Street From West			Int. Total	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		
04:00 PM	0	4	0	0	0	5	0	2	0	0	3	0	2	17
04:15 PM	0	4	0	0	0	10	0	0	0	0	0	0	11	29
04:30 PM	1	5	0	0	0	5	0	1	1	0	0	0	9	23
04:45 PM	1	6	0	0	0	8	0	0	0	0	0	0	10	26
Total	2	19	0	0	0	28	0	3	1	0	3	0	32	95
05:00 PM	0	4	0	0	0	4	0	0	0	0	0	0	0	18
05:15 PM	0	4	0	0	0	9	0	3	0	0	0	0	13	31
05:30 PM	1	6	0	0	0	6	0	1	0	0	0	1	9	25
05:45 PM	0	2	0	0	0	6	0	1	0	0	0	0	23	32
Total	1	16	0	0	0	25	0	5	0	0	0	1	55	106
Grand Total	3	35	0	0	0	53	0	8	1	0	3	0	1	87
Approach %	6.2	72.9	0	0	0	100	0	88.9	11.1	0	3.3	0	1.1	95.6
Total %	1.5	17.4	0	0	0	26.4	0	4	0.5	0	1.5	0	0.5	43.3

Start Time	North Harvard Street From North			Rena Street From East			North Harvard Street From South			Bayard Street From West			Int. Total	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		
05:00 PM	0	4	0	0	0	4	0	0	0	0	0	0	10	18
05:15 PM	0	4	0	0	0	9	0	3	0	0	0	0	13	31
05:30 PM	1	6	0	0	0	6	0	1	0	0	0	1	23	32
05:45 PM	0	2	0	0	0	6	0	1	0	0	0	0	23	32
Total Volume	1	16	0	0	0	25	0	5	0	0	0	1	55	106
% App. Total	5	80	0	0	0	100	0	100	0	0	0	0	118	99.2
PHF	.250	.667	.000	.375	.625	.000	.000	.417	.000	.000	.417	.000	.250	.588



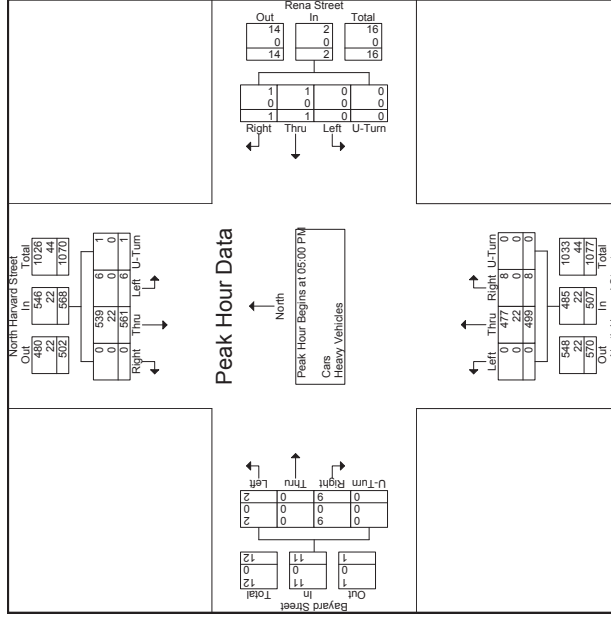
N/S: North Harvard Street
 E/W: Rena Street/ Bayard Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864.SS
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

90 Bay St, Boston, MA 02109
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequest@pdic.com

90 Bay St, Boston, MA 02109
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequest@pdic.com

Start Time	North Harvard Street From North			Rena Street From East			North Harvard Street From South			Bayard Street From West			Int. Total	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		
05:00 PM	0	4	0	0	0	5	0	2	0	0	3	0	2	17
05:15 PM	0	4	0	0	0	10	0	0	0	0	0	0	11	29
05:30 PM	1	5	0	0	0	5	0	1	1	0	0	0	9	23
05:45 PM	1	6	0	0	0	8	0	0	0	0	0	0	10	26
Total	2	19	0	0	0	28	0	3	1	0	3	0	32	95
05:00 PM	0	4	0	0	0	4	0	0	0	0	0	0	0	18
05:15 PM	0	4	0	0	0	9	0	3	0	0	0	0	13	31
05:30 PM	1	6	0	0	0	6	0	1	0	0	0	1	9	25
05:45 PM	0	2	0	0	0	6	0	1	0	0	0	0	23	32
Total	1	16	0	0	0	25	0	5	0	0	0	1	55	106
Grand Total	3	35	0	0	0	53	0	8	1	0	3	0	1	87
Approach %	6.2	72.9	0	0	0	100	0	88.9	11.1	0	3.3	0	1.1	95.6
Total %	1.5	17.4	0	0	0	26.4	0	4	0.5	0	1.5	0	0.5	43.3





90 Beavertown Road, MA 01930
 Office: 508.681.3999 Fax: 508.545.1234
 Email: datarequest@pdic.com

Start Time	Western Avenue From East			Travis Street From South			Western Avenue From West			Int. Total
	Thru	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Right	
07:00 AM	81	5	0	4	0	3	52	0	145	
07:15 AM	95	3	0	1	0	1	74	0	175	
07:30 AM	88	1	0	2	0	1	65	0	158	
07:45 AM	80	2	0	1	0	4	106	0	195	
Total	344	11	0	9	0	9	297	0	673	
08:00 AM	110	4	0	8	2	0	101	0	226	
08:15 AM	119	6	0	4	3	0	93	0	227	
08:30 AM	110	11	0	7	0	3	94	0	225	
08:45 AM	115	8	0	7	2	3	112	0	247	
Total	454	29	0	26	7	0	400	0	925	
Grand Total	798	40	0	35	10	0	18	697	1588	
Approach %	95.2	4.8	0	77.8	22.2	0	2.5	97.5	0	
Total %	49.9	2.5	0	2.2	0.6	0	1.1	43.6	0	
% Cars	741	40	0	34	9	0	17	639	1480	
% Heavy Vehicles	57	0	0	1	1	0	94.4	91.7	92.6	
% Heavy Vehicles	7.1	0	0	2.9	10	0	5.6	8.3	7.4	

Start Time	Western Avenue From East			Travis Street From South			Western Avenue From West			Int. Total
	Thru	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Right	
08:00 AM	110	4	0	114	8	2	0	10	102	
08:15 AM	119	6	0	125	4	3	0	7	226	
08:30 AM	110	11	0	123	7	2	0	9	225	
08:45 AM	115	8	0	123	7	2	0	33	247	
Total Volume	454	29	0	453	26	7	0	33	925	
% App. Total	95.4	6.9	0	76.3	21.7	0	0	0	409	
% Cars	659	33	0	583	813	583	0	825	889	
% Heavy Vehicles	429	23	0	458	25	6	0	31	383	
% Heavy Vehicles	25	0	0	94.8	86.2	85.7	0	93.9	93.6	
% Heavy Vehicles	5.5	0	0	5.2	3.8	14.3	0	6.1	6.4	



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Start Time	Western Avenue From East			Travis Street From South			Western Avenue From West			Int. Total
	Thru	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Right	
07:00 AM	73	5	0	4	0	3	43	0	128	
07:15 AM	87	3	0	1	1	0	65	0	158	
07:30 AM	78	1	0	2	1	1	62	0	145	
07:45 AM	74	2	0	2	1	0	95	0	177	
Total	312	11	0	9	3	0	8	265	608	
08:00 AM	107	4	0	8	2	0	1	96	218	
08:15 AM	109	6	0	4	2	0	2	88	211	
08:30 AM	106	11	0	6	0	0	3	89	215	
08:45 AM	107	8	0	7	2	0	3	101	228	
Total	429	29	0	25	6	0	9	374	872	
Grand Total	741	40	0	34	9	0	17	639	1480	
Approach %	94.9	5.1	0	79.1	20.9	0	2.6	97.4	0	
Total %	50.1	2.7	0	2.3	0.6	0	1.1	43.2	0	

Start Time	Western Avenue From East			Travis Street From South			Western Avenue From West			Int. Total
	Thru	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Right	
08:00 AM	107	4	0	111	8	2	0	10	218	
08:15 AM	109	6	0	115	4	2	0	6	211	
08:30 AM	106	11	0	117	6	0	0	6	215	
08:45 AM	107	8	0	115	7	2	0	9	228	
Total Volume	429	29	0	458	25	6	0	31	872	
% App. Total	93.7	6.3	0	80.6	19.4	0	0	2.3	97.7	
PHF	.894	.000	.979	.761	.750	.000	.775	.750	.921	

Start Time	Western Avenue From East			Travis Street From South			Western Avenue From West			Int. Total
	Thru	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Right	
08:00 AM	107	4	0	111	8	2	0	10	218	
08:15 AM	109	6	0	115	4	2	0	6	211	
08:30 AM	106	11	0	117	6	0	0	6	215	
08:45 AM	107	8	0	115	7	2	0	9	228	
Total Volume	429	29	0	458	25	6	0	31	872	
% App. Total	93.7	6.3	0	80.6	19.4	0	0	2.3	97.7	
PHF	.894	.000	.979	.761	.750	.000	.775	.750	.921	

S: Travis Street
 E/W: Western Avenue
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 G
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1



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Groups Printed: Heavy Vehicles

Start Time	Western Avenue From East			Travis Street From South			Western Avenue From West			Int. Total
	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Left	U-Turn	
07:00 AM	8	0	0	0	0	0	0	9	0	17
07:15 AM	8	0	0	0	0	0	0	9	0	17
07:30 AM	10	0	0	0	0	0	0	3	0	13
07:45 AM	6	0	0	0	0	0	1	11	0	18
Total	32	0	0	0	0	0	1	32	0	65
08:00 AM	3	0	0	0	0	0	0	5	0	8
08:15 AM	10	0	0	0	0	0	0	5	0	16
08:30 AM	4	0	0	0	0	0	0	5	0	10
08:45 AM	8	0	0	0	0	0	0	11	0	19
Total	25	0	0	0	0	0	0	26	0	53
Grand Total	57	0	0	0	0	0	1	58	0	118
Approach %	100	0	0	0	0	0	1.7	98.3	0	0
Total %	48.3	0	0	0	0	0	0.8	49.2	0	0

Start Time	Western Avenue From East			Travis Street From South			Western Avenue From West			Int. Total
	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Left	U-Turn	
07:00 AM	8	0	0	0	0	0	0	9	0	17
07:15 AM	8	0	0	0	0	0	0	9	0	17
07:30 AM	10	0	0	0	0	0	0	3	0	13
07:45 AM	6	0	0	0	0	0	1	11	0	18
Total Volume	32	0	0	0	0	0	1	32	0	65
% App. Total	100	0	0	0	0	0	3	97	0	0
PHF	.800	.000	.000	.800	.000	.000	.250	.727	.000	.888

S: Travis Street
 E/W: Western Avenue
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 G
 Site Code : 10463.00
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Groups Printed: Peds and Bicycles

Start Time	Western Avenue From East			Travis Street From South			Western Avenue From West			Int. Total
	Thru	Left	Peds	Right	Left	Peds	Right	Left	Peds	
07:00 AM	0	0	0	0	0	0	0	2	3	8
07:15 AM	0	0	0	0	0	0	0	7	0	11
07:30 AM	2	0	0	0	0	0	0	6	1	12
07:45 AM	5	0	1	2	0	4	0	4	2	18
Total	7	0	1	2	0	14	0	19	6	49
08:00 AM	1	0	0	1	0	2	0	7	1	12
08:15 AM	5	0	1	0	0	2	0	7	2	17
08:30 AM	6	1	0	2	0	3	0	5	1	18
08:45 AM	4	0	2	3	0	3	0	10	3	25
Total	16	1	3	6	0	10	0	29	7	72
Grand Total	23	1	4	8	0	24	0	48	13	121
Approach %	82.1	3.6	14.3	25	0	75	0	78.7	21.3	0
Total %	19	0.8	3.3	6.6	0	19.8	0	39.7	10.7	0

Start Time	Western Avenue From East			Travis Street From South			Western Avenue From West			Int. Total
	Thru	Left	Peds	Right	Left	Peds	Right	Left	Peds	
08:00 AM	1	0	0	1	0	2	0	7	1	8
08:15 AM	5	0	1	0	0	2	0	7	2	17
08:30 AM	6	1	0	2	0	3	0	5	1	18
08:45 AM	4	0	2	3	0	3	0	10	3	25
Total Volume	16	1	2	6	0	10	0	29	7	72
% App. Total	80	5	15	37.5	0	62.5	0	80.6	19.4	0
PHF	.667	.250	.375	.500	.000	.833	.667	.725	.563	.692

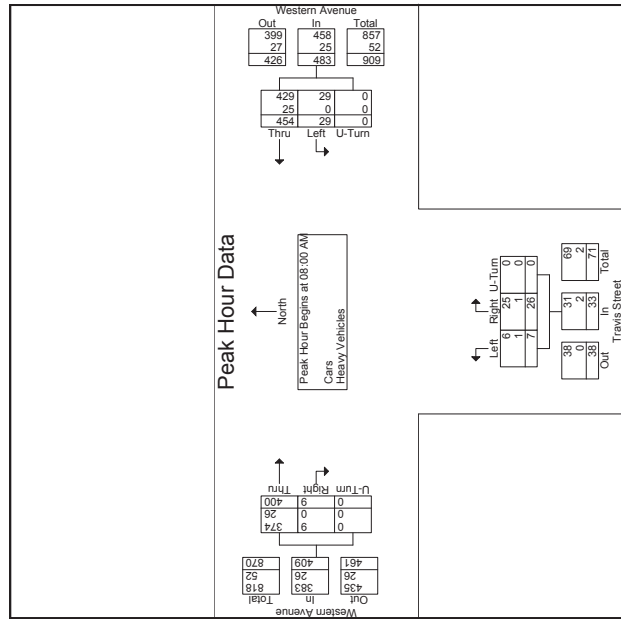


File Name : 122864 G
 Site Code : 10463.00
 Start Date : 4/5/2012
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S: Travis Street
 E/W: Western Avenue
 City, State: Boston, MA
 Client: VHB/ K. Keen

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Start Time	Western Avenue From East			Travis Street From South			Western Avenue From West			Int. Total			
	Thru	Left	U-Turn	Right	U-Turn	App. Total	Thru	Left	U-Turn		App. Total	Thru	Left
07:00 AM to 08:45 AM - Peak 1 of 1	4	0	0	114	8	2	0	101	0	102	226	0	0
08:00 AM	110	0	0	125	4	3	0	93	0	95	227	0	0
08:15 AM	110	11	0	123	7	2	0	94	0	97	225	0	0
08:30 AM	115	8	0	123	7	2	0	94	0	97	225	0	0
08:45 AM	454	29	0	483	26	7	0	400	0	409	925	0	0
Total Volume	94	6	0	966	78	21	0	978	0	996	247	0	0
% App.	.954	.659	.000	.825	.813	.583	.000	.750	.893	.000	.889	936	0
PHF	.929	.429	0	468	.25	0	0	374	0	383	872	0	0
% Cars	96.5	100	0	94.8	96.2	85.1	0	93.9	100	92.6	94.5	96.5	0
% Heavy Vehicles	3.5	0	0	5.2	3.8	14.3	0	6.5	0	6.4	5.7	0	0

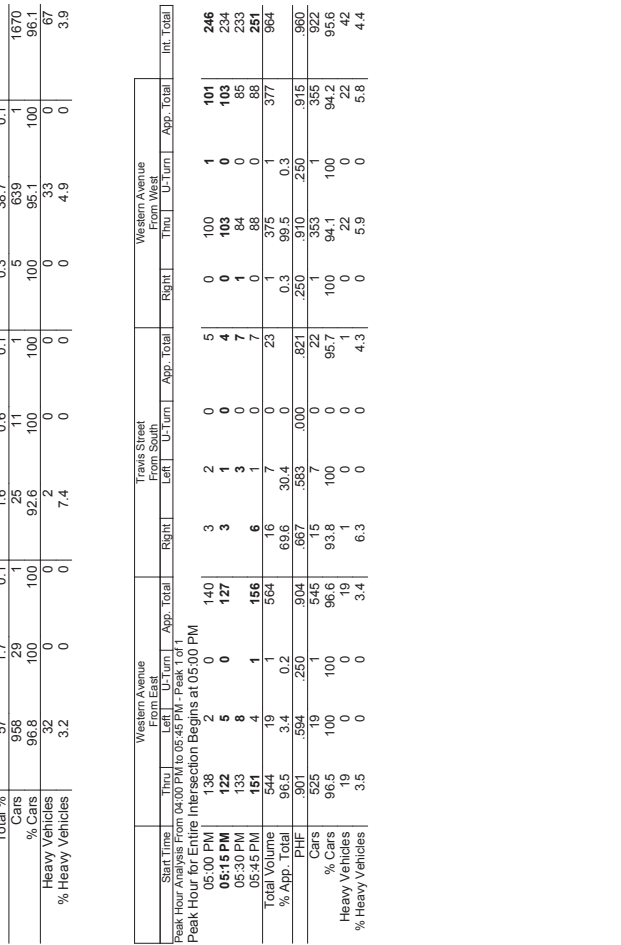


File Name : 122864 GG
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S: Travis Street
 E/W: Western Avenue
 City, State: Boston, MA
 Client: VHB/ K. Keen

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Start Time	Western Avenue From East			Travis Street From South			Western Avenue From West			Int. Total			
	Thru	Left	U-Turn	Right	U-Turn	App. Total	Thru	Left	U-Turn		App. Total	Thru	Left
04:00 PM	112	2	0	2	2	1	2	80	0	201	0	0	0
04:15 PM	105	0	0	1	0	0	1	64	0	171	0	0	0
04:30 PM	113	3	0	3	0	0	1	70	0	190	0	0	0
04:45 PM	116	5	0	5	2	0	4	83	0	211	0	0	0
Total	446	10	0	11	4	1	4	297	0	773	0	0	0
05:00 PM	138	2	0	3	2	0	0	100	1	246	0	0	0
05:15 PM	122	5	0	3	1	0	0	103	0	234	0	0	0
05:30 PM	133	8	0	4	3	0	1	84	0	233	0	0	0
05:45 PM	151	4	1	6	1	0	0	88	0	251	0	0	0
Total	544	19	1	16	7	1	1	375	1	964	0	0	0
Grand Total	990	29	1	27	11	1	5	672	1	1737	0	0	0
Approach %	97.1	2.8	0.1	69.2	28.2	2.6	0.7	98.1	0.1	103	0	0	0
Total %	57	1.7	0.1	1.6	0.6	0.1	0.3	38.7	0.1	1670	0	0	0
% Cars	95.8	29	1	25	11	1	5	639	1	1670	0	0	0
% Heavy Vehicles	3.2	0	0	7.4	0	0	0	3.3	0	67	0	0	0

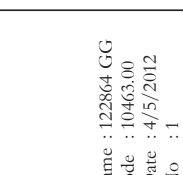




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Start Time	Western Avenue From East			Travis Street From South			Western Avenue From West			Int. Total
	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	
04:00 PM	108	2	0	2	2	0	2	76	0	193
04:15 PM	100	0	0	1	0	0	1	60	0	162
04:30 PM	111	3	0	2	0	0	1	70	0	187
04:45 PM	114	5	0	5	2	0	80	0	0	206
Total	433	10	0	10	4	0	286	0	0	748
05:00 PM	135	2	0	3	2	0	0	95	1	238
05:15 PM	119	5	0	3	1	0	0	100	0	228
05:30 PM	126	8	0	4	3	0	1	77	0	219
05:45 PM	145	4	1	5	1	0	81	0	0	237
Total	525	19	1	15	7	0	353	1	1	922
Grand Total	958	29	1	25	11	0	639	5	1	1670
Approach %	97	2.9	0.1	67.6	29.7	2.7	0.8	99.1	0.2	
Total %	57.4	1.7	0.1	1.5	0.7	0.1	0.3	38.3	0.1	

Start Time	Western Avenue From East			Travis Street From South			Western Avenue From West			Int. Total
	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	
04:00 PM	4	0	0	0	0	0	0	4	0	8
04:15 PM	5	0	0	0	0	0	0	4	0	9
04:30 PM	2	0	0	1	0	0	0	0	0	3
04:45 PM	2	0	0	0	0	0	0	3	0	5
Total	13	0	0	1	0	0	0	11	0	25
05:00 PM	3	0	0	0	0	0	0	5	0	8
05:15 PM	3	0	0	0	0	0	0	3	0	6
05:30 PM	7	0	0	0	0	0	0	7	0	14
05:45 PM	6	0	0	1	0	0	0	7	0	14
Total	19	0	0	1	0	0	0	22	0	42
Grand Total	32	0	0	2	0	0	0	33	0	67
Approach %	100	0	0	100	0	0	0	100	0	
Total %	47.8	0	0	3	0	0	0	49.3	0	



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Start Time	Western Avenue From East			Travis Street From South			Western Avenue From West			Int. Total
	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	
04:00 PM	108	2	0	2	2	0	2	76	0	193
04:15 PM	100	0	0	1	0	0	1	60	0	162
04:30 PM	111	3	0	2	0	0	1	70	0	187
04:45 PM	114	5	0	5	2	0	80	0	0	206
Total	433	10	0	10	4	0	286	0	0	748
05:00 PM	135	2	0	3	2	0	0	95	1	238
05:15 PM	119	5	0	3	1	0	0	100	0	228
05:30 PM	126	8	0	4	3	0	1	77	0	219
05:45 PM	145	4	1	5	1	0	81	0	0	237
Total	525	19	1	15	7	0	353	1	1	922
Grand Total	958	29	1	25	11	0	639	5	1	1670
Approach %	97	2.9	0.1	67.6	29.7	2.7	0.8	99.1	0.2	
Total %	57.4	1.7	0.1	1.5	0.7	0.1	0.3	38.3	0.1	

Start Time	Western Avenue From East			Travis Street From South			Western Avenue From West			Int. Total
	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	
04:00 PM	4	0	0	0	0	0	0	4	0	8
04:15 PM	5	0	0	0	0	0	0	4	0	9
04:30 PM	2	0	0	1	0	0	0	0	0	3
04:45 PM	2	0	0	0	0	0	0	3	0	5
Total	13	0	0	1	0	0	0	11	0	25
05:00 PM	3	0	0	0	0	0	0	5	0	8
05:15 PM	3	0	0	0	0	0	0	3	0	6
05:30 PM	7	0	0	0	0	0	0	7	0	14
05:45 PM	6	0	0	1	0	0	0	7	0	14
Total	19	0	0	1	0	0	0	22	0	42
Grand Total	32	0	0	2	0	0	0	33	0	67
Approach %	100	0	0	100	0	0	0	100	0	
Total %	47.8	0	0	3	0	0	0	49.3	0	



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Start Time	Western Avenue From East			Travis Street From South			Western Avenue From West			Int. Total
	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	
04:00 PM	108	2	0	2	2	0	2	76	0	193
04:15 PM	100	0	0	1	0	0	1	60	0	162
04:30 PM	111	3	0	2	0	0	1	70	0	187
04:45 PM	114	5	0	5	2	0	80	0	0	206
Total	433	10	0	10	4	0	286	0	0	748
05:00 PM	135	2	0	3	2	0	0	95	1	238
05:15 PM	119	5	0	3	1	0	0	100	0	228
05:30 PM	126	8	0	4	3	0	1	77	0	219
05:45 PM	145	4	1	5	1	0	81	0	0	237
Total	525	19	1	15	7	0	353	1	1	922
Grand Total	958	29	1	25	11	0	639	5	1	1670
Approach %	97	2.9	0.1	67.6	29.7	2.7	0.8	99.1	0.2	
Total %	57.4	1.7	0.1	1.5	0.7	0.1	0.3	38.3	0.1	

Start Time	Western Avenue From East			Travis Street From South			Western Avenue From West			Int. Total
	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	
04:00 PM	4	0	0	0	0	0	0	4	0	8
04:15 PM	5	0	0	0	0	0	0	4	0	9
04:30 PM	2	0	0	1	0	0	0	0	0	3
04:45 PM	2	0	0	0	0	0	0	3	0	5
Total	13	0	0	1	0	0	0	11	0	25
05:00 PM	3	0	0	0	0	0	0	5	0	8
05:15 PM	3	0	0	0	0	0	0	3	0	6
05:30 PM	7	0	0	0	0	0	0	7	0	14
05:45 PM	6	0	0	1	0	0	0	7	0	14
Total	19	0	0	1	0	0	0	22	0	42
Grand Total	32	0	0	2	0	0	0	33	0	67
Approach %	100	0	0	100	0	0	0	100	0	
Total %	47.8	0	0	3	0	0	0	49.3	0	



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Start Time	Western Avenue From East			Travis Street From South			Western Avenue From West			Western Avenue From East		
	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Left	U-Turn	Right	Left	U-Turn
04:00 PM	4	1	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	1	2	0	0	0	0	0	0	0	0	0	0
04:45 PM	2	0	2	0	0	3	0	0	0	0	0	0
Total	7	3	2	0	0	9	0	0	0	0	0	0
05:00 PM	4	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	4	3	0	0	0	2	0	0	0	0	0	0
05:30 PM	8	1	0	0	0	0	0	0	0	0	0	0
05:45 PM	6	2	0	0	0	0	0	0	0	0	0	0
Total	22	6	0	0	0	3	0	0	0	0	0	0
Grand Total	29	9	2	0	0	12	0	0	0	0	0	0
Approach %	72.5	22.5	5	14.3	0	85.7	0	0	0	0	0	0
Total %	29	9	2	12	0	56.5	0	0	0	0	0	0

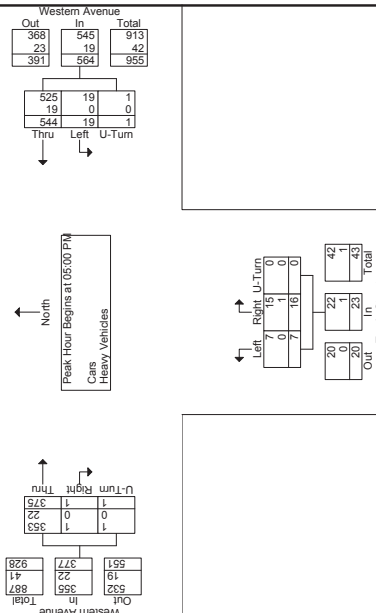


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Start Time	Western Avenue From East			Travis Street From South			Western Avenue From West			Western Avenue From East		
	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Left	U-Turn	Right	Left	U-Turn
04:00 PM	4	1	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	1	2	0	0	0	0	0	0	0	0	0	0
04:45 PM	2	0	2	0	0	3	0	0	0	0	0	0
Total	7	3	2	0	0	9	0	0	0	0	0	0
05:00 PM	4	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	4	3	0	0	0	2	0	0	0	0	0	0
05:30 PM	8	1	0	0	0	0	0	0	0	0	0	0
05:45 PM	6	2	0	0	0	0	0	0	0	0	0	0
Total	22	6	0	0	0	3	0	0	0	0	0	0
Grand Total	29	9	2	0	0	12	0	0	0	0	0	0
Approach %	72.5	22.5	5	14.3	0	85.7	0	0	0	0	0	0
Total %	29	9	2	12	0	56.5	0	0	0	0	0	0

Start Time	Western Avenue From East			Travis Street From South			Western Avenue From West			Western Avenue From East		
	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Left	U-Turn	Right	Left	U-Turn
04:00 PM	4	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	3	0	0	0	0	2	0	0	0	0	0	0
04:30 PM	8	1	0	0	0	0	0	0	0	0	0	0
04:45 PM	6	2	0	0	0	0	0	0	0	0	0	0
Total	21	3	0	0	0	2	0	0	0	0	0	0
05:00 PM	4	0	0	0	0	1	0	0	0	0	0	0
05:15 PM	7	0	0	0	0	2	0	0	0	0	0	0
05:30 PM	9	1	0	0	0	0	0	0	0	0	0	0
05:45 PM	8	2	0	0	0	0	0	0	0	0	0	0
Total	28	3	0	0	0	3	0	0	0	0	0	0
Grand Total	49	6	0	0	0	5	0	0	0	0	0	0
Approach %	77.8	12.2	0	0	0	100	0	0	0	0	0	0
Total %	49	6	0	0	0	100	0	0	0	0	0	0

Peak Hour Data





N/S: Batten Way
E/W: Western Avenue
City, State: Boston, MA
Client: VHB/ K. Keen

File Name : 122864 H
Site Code : 10463.00
Start Date : 4/3/2012
Page No : 1

PRECISION
DATA
INDUSTRIES, LLC
90 Boston Blvd, MA 01903
Office: 508.481.3999 Fax: 508.543.1234
Email: datarequest@precision.com

Start Time	Batten Way From North			Western Avenue From East			Hague Street From South			Western Avenue From West			Int. Total				
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left					
07:00 AM	2	0	3	0	10	63	0	20	6	9	0	4	57	4	0	188	
07:15 AM	0	0	0	0	88	12	0	12	8	0	0	6	61	1	0	217	
07:30 AM	0	2	4	0	11	76	2	0	36	12	10	0	67	7	0	232	
07:45 AM	1	0	4	0	18	75	4	0	22	16	9	0	89	13	0	257	
Total	3	2	11	0	47	302	28	0	99	46	36	0	21	274	25	0	894
08:00 AM	4	0	7	0	13	95	9	0	49	16	9	0	3	85	12	0	302
08:15 AM	7	1	4	0	12	106	8	0	46	16	5	0	8	98	15	0	326
08:30 AM	4	0	6	0	17	93	6	0	41	23	5	0	5	100	16	0	316
08:45 AM	5	3	6	0	20	91	9	0	28	15	4	0	5	76	15	0	277
Total	20	4	23	0	62	385	32	0	164	70	23	0	21	359	58	0	1221
Grand Total	23	6	34	0	109	687	60	0	263	116	59	0	42	633	83	0	2115
Approach %	36.5	9.5	54	0	12.7	80.3	7	0	60	26.5	13.5	0	5.5	83.5	10.9	0	32.6
Total %	1.1	0.3	1.6	0	5.2	32.5	2.8	0	12.4	5.5	2.8	0	2	29.9	3.9	0	19.12
% Cars	23	5	30	0	98	626	40	0	235	116	51	0	35	573	80	0	1912
% Heavy Vehicles	0	1	4	0	11	61	20	0	28	0	8	0	7	60	3	0	203
% Heavy Vehicles	0	16.7	11.8	0	10.1	8.9	33.3	0	10.6	0	13.6	0	16.7	9.5	3.6	0	9.6

Start Time	Batten Way From North			Western Avenue From East			Hague Street From South			Western Avenue From West			Int. Total							
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left								
08:00 AM	4	0	7	0	13	95	9	0	117	49	16	0	74	3	85	12	0	302		
08:15 AM	7	1	4	0	12	106	8	0	126	46	16	5	0	67	8	98	15	0	326	
08:30 AM	4	0	6	0	10	77	93	6	0	116	41	23	5	0	69	5	100	16	0	316
08:45 AM	5	3	6	0	14	20	91	9	0	120	28	15	4	0	47	5	76	15	0	277
Total Volume	20	4	23	0	47	62	385	32	0	479	164	70	23	0	257	21	359	58	0	1221
% App. Total	42.6	8.5	48.9	0	17.9	80.4	6.7	0	63.8	27.2	8.9	0	8.6	4.8	8.2	13.2	0	49.5		
% Cars	20	4	21	0	845	55	358	19	0	432	150	70	22	0	242	88	328	56	0	402
% Heavy Vehicles	0	0	8.7	0	4.3	11.3	7.0	40.6	0	9.8	8.5	0	4.3	0	5.8	14.3	8.6	3.4	0	8.2



N/S: Batten Way
E/W: Western Avenue
City, State: Boston, MA
Client: VHB/ K. Keen

File Name : 122864 H
Site Code : 10463.00
Start Date : 4/3/2012
Page No : 1

PRECISION
DATA
INDUSTRIES, LLC
90 Boston Blvd, MA 01903
Office: 508.481.3999 Fax: 508.543.1234
Email: datarequest@precision.com

Start Time	Batten Way From North			Western Avenue From East			Hague Street From South			Western Avenue From West			Int. Total				
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left					
07:00 AM	2	0	2	0	10	54	10	0	14	6	5	0	4	50	4	0	161
07:15 AM	0	0	0	0	6	77	9	0	20	12	8	0	5	56	1	0	194
07:30 AM	0	1	4	0	10	70	1	0	29	12	8	0	4	61	7	0	207
07:45 AM	1	0	3	0	17	67	1	0	22	16	8	0	4	78	12	0	229
Total	3	1	9	0	43	268	21	0	85	46	29	0	17	245	24	0	791
08:00 AM	4	0	6	0	10	88	7	0	44	16	8	0	3	78	12	0	276
08:15 AM	7	1	3	0	11	100	3	0	43	16	5	0	8	91	14	0	302
08:30 AM	4	0	6	0	15	86	4	0	36	23	5	0	5	93	16	0	293
08:45 AM	5	3	6	0	19	84	5	0	27	15	4	0	2	66	14	0	250
Total	20	4	21	0	55	358	19	0	150	70	22	0	18	328	56	0	1121
Grand Total	23	5	30	0	98	626	40	0	235	116	51	0	35	573	80	0	1912
Approach %	39.7	8.6	51.7	0	12.8	81.9	5.2	0	58.5	28.9	12.7	0	5.1	83.3	11.6	0	29.3
Total %	1.2	0.3	1.6	0	5.1	32.7	2.1	0	12.3	6.1	2.7	0	1.8	30	4.2	0	19.12

Start Time	Batten Way From North			Western Avenue From East			Hague Street From South			Western Avenue From West			Int. Total							
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left								
08:00 AM	4	0	6	0	10	88	7	0	105	44	16	8	0	68	3	78	12	0	93	
08:15 AM	7	1	3	0	11	100	3	0	114	43	16	5	0	64	8	91	14	0	113	
08:30 AM	4	0	6	0	10	86	4	0	105	36	23	5	0	64	5	93	16	0	114	
08:45 AM	5	3	6	0	14	19	84	5	0	108	27	15	4	0	46	2	66	14	0	82
Total Volume	20	4	21	0	45	358	19	0	432	150	70	22	0	242	18	328	56	0	402	
% App. Total	44.4	8.9	46.7	0	17.7	82.9	4.4	0	62	28.9	9.1	0	4.5	81.6	13.9	0	25.0			
% Heavy Vehicles	0	0	8.7	0	4.3	11.3	7.0	40.6	0	9.8	8.5	0	4.3	0	5.8	14.3	8.6	3.4	0	8.2



N/S: Batten Way
 E/W: Western Avenue
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 H
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

PRECISION
 D. A. T. A.
 INDUSTRIES, LLC
 90 Boston Blvd, MA 01903
 Office: 508-481-3999 Fax: 508-545-1234
 Email: datarequest@precision.com

Groups: Printed - Heavy Vehicles

Start Time	Batten Way			Western Avenue			Hague Street			Western Avenue			Int. Total			
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left				
07:00 AM	0	0	0	0	9	0	0	6	0	4	0	7	0	27		
07:15 AM	0	0	0	2	11	3	0	1	0	0	0	5	0	23		
07:30 AM	0	1	0	0	6	1	0	7	0	2	0	6	0	25		
07:45 AM	0	0	1	0	8	3	0	0	0	1	0	11	1	28		
Total	0	1	2	0	4	34	7	0	14	0	7	4	29	103		
08:00 AM	0	0	1	0	3	7	2	0	5	0	1	0	7	0	26	
08:15 AM	0	0	1	0	1	6	5	0	3	0	0	0	7	1	24	
08:30 AM	0	0	0	0	2	7	2	0	5	0	0	0	7	0	23	
08:45 AM	0	0	0	0	1	7	4	0	1	0	0	0	10	1	27	
Total	0	0	2	0	7	27	13	0	14	0	1	0	3	31	100	
Grand Total	0	1	4	0	11	61	20	0	28	0	8	0	7	60	3	203
Approach %	0	20	80	0	12	66.3	21.7	0	77.8	0	22.2	0	10	85.7	4.3	0
Total %	0	0.5	2	0	5.4	30	9.9	0	13.8	0	3.9	0	3.4	29.6	1.5	0

Start Time	Batten Way			Western Avenue			Hague Street			Western Avenue			Int. Total				
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left					
07:00 AM	0	0	1	0	9	0	0	9	0	4	0	10	0	0	27		
07:15 AM	0	0	0	2	11	3	0	16	1	0	0	1	1	5	6	23	
07:30 AM	0	1	0	0	6	1	0	8	7	0	2	0	9	1	7	25	
07:45 AM	0	0	1	0	8	3	0	12	0	0	1	0	1	0	14	28	
Total Volume	0	1	2	0	34	7	0	45	14	0	7	0	21	4	29	103	
% Appr. Total	0	33.3	66.7	0	8.9	75.6	15.6	0	66.7	0	33.3	0	11.8	85.3	2.9	0	
PHF	.000	.250	.500	.000	.750	.583	.000	.703	.500	.000	.438	.000	.535	.500	.659	.607	.920



N/S: Batten Way
 E/W: Western Avenue
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 H
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

PRECISION
 D. A. T. A.
 INDUSTRIES, LLC
 90 Boston Blvd, MA 01903
 Office: 508-481-3999 Fax: 508-545-1234
 Email: datarequest@precision.com

Groups: Printed - Peck and Bicycles

Start Time	Batten Way			Western Avenue			Hague Street			Western Avenue			Int. Total			
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left				
07:00 AM	0	0	0	0	2	0	0	0	0	0	0	1	0	0	6	
07:15 AM	0	0	0	2	1	0	1	0	0	0	0	7	0	0	21	
07:30 AM	0	0	0	4	0	3	0	0	0	0	0	2	0	8	19	
07:45 AM	0	0	0	4	0	1	0	0	0	0	0	8	0	11	25	
Total	0	0	0	12	1	5	1	0	0	0	0	18	0	30	71	
08:00 AM	0	0	0	4	1	3	0	0	1	0	0	11	0	8	1	30
08:15 AM	0	0	0	5	0	3	1	0	1	0	0	3	0	7	0	21
08:30 AM	0	0	0	1	0	2	0	0	1	0	0	3	0	10	0	18
08:45 AM	0	0	0	7	0	4	0	1	1	0	0	5	0	8	0	26
Total	0	0	0	17	1	12	1	1	4	0	0	22	0	33	1	95
Grand Total	0	0	0	29	2	17	2	1	4	0	0	40	0	63	1	166
Approach %	0	0	0	100	9.1	77.3	9.1	4.5	9.1	0	0	90.9	0	88.7	1.4	9.9
Total %	0	0	0	17.5	1.2	10.2	1.2	0.6	2.4	0	0	24.1	0	38	0.6	4.2

Start Time	Batten Way			Western Avenue			Hague Street			Western Avenue			Int. Total			
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left				
07:00 AM	0	0	0	0	2	0	0	0	0	0	0	7	0	0	10	21
07:15 AM	0	0	0	4	0	3	0	0	3	0	0	2	0	8	0	19
07:30 AM	0	0	0	4	0	1	0	0	1	0	0	8	0	11	0	25
07:45 AM	0	0	0	4	0	4	0	1	0	0	0	11	0	8	1	30
Total Volume	0	0	0	14	14	2	7	1	0	10	1	0	28	29	0	42
% Appr. Total	0	0	0	100	20	70	10	0	5.4	0	0	96.6	0	85.7	2.4	11.9
PHF	.000	.000	.000	.875	.875	.875	.800	.583	.250	.000	.653	.250	.000	.694	.000	.875

Peak Hour for Entire Intersection Begins at 07:15 AM

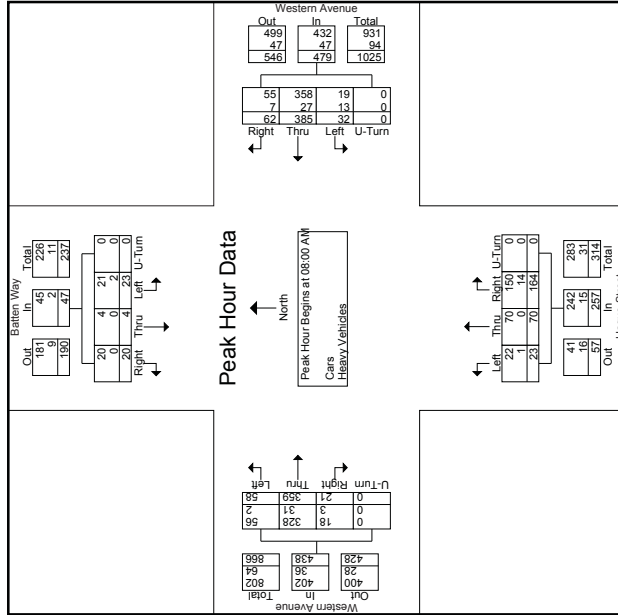


File Name : 122864 H
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

N/S: Batten Way
 E/W: Western Avenue
 City, State: Boston, MA
 Client: VHB/ K. Keen

90 Boston Blvd, MA 01903
 Office: 508-681-3999 Fax: 508-543-1234
 Email: datarequests@pdilc.com

Start Time	Batten Way From South			Western Avenue From East			Hague Street From South			Western Avenue From West			Int. Total			
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left				
08:00 AM	4	0	7	95	0	11	13	95	0	117	49	16	9	0	100	302
08:15 AM	7	1	4	0	126	46	5	0	67	8	98	15	0	121	326	
08:30 AM	4	0	6	0	116	41	23	5	0	69	5	100	16	0	121	316
08:45 AM	5	3	6	0	14	20	91	9	0	120	28	15	4	0	96	277
Total Volume	20	4	23	0	47	62	385	32	0	479	164	70	23	0	257	1221
% App. Total	42.6	8.5	48.9	0	12.9	80.4	6.7	0	0	12.9	80.4	6.7	0	0	12.9	80.4
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



File Name : 122864 HH
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

N/S: Batten Way
 E/W: Western Avenue
 City, State: Boston, MA
 Client: VHB/ K. Keen

90 Boston Blvd, MA 01903
 Office: 508-681-3999 Fax: 508-543-1234
 Email: datarequests@pdilc.com

Start Time	Batten Way From North			Western Avenue From East			Hague Street From South			Western Avenue From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
04:00 PM	6	1	16	0	6	95	5	0	17	2	7	0	220
04:15 PM	4	2	4	0	9	102	10	0	7	0	6	0	210
04:30 PM	7	0	7	0	3	99	2	0	10	5	9	0	225
04:45 PM	5	0	9	0	5	100	8	0	13	3	6	0	244
Total	22	3	36	0	23	396	25	0	47	10	28	0	899
05:00 PM	13	0	21	0	11	100	13	0	30	7	8	0	306
05:15 PM	15	1	10	0	8	98	8	0	16	7	12	0	270
05:30 PM	12	0	7	0	5	120	5	1	24	7	19	0	265
05:45 PM	11	0	12	0	9	118	7	0	16	3	17	0	278
Total	51	1	50	0	33	436	33	1	86	24	56	0	1119
Grand Total	73	4	86	0	56	832	58	1	133	34	84	0	2018
Approach %	44.8	2.5	52.8	0	5.9	87.9	6.1	0.1	5.3	13.5	33.5	0	2.6
Total %	3.6	0.2	4.3	0	2.8	41.2	2.9	0	6.6	1.7	4.2	0	0.8
% Curs	72	3	85	0	47	801	38	1	112	34	83	0	11
% Heavy Vehicles	1	1	1	0	9	31	20	0	21	0	1	0	6

Start Time	Batten Way From North			Western Avenue From East			Hague Street From South			Western Avenue From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
05:00 PM	13	0	21	0	11	100	13	0	124	30	7	8	306
05:15 PM	15	1	10	0	8	98	8	0	114	16	7	12	270
05:30 PM	12	0	7	0	5	120	5	1	131	24	7	19	265
05:45 PM	11	0	12	0	9	118	7	0	134	16	3	17	278
Total Volume	51	1	50	0	33	436	33	1	503	86	24	56	1119
% App. Total	48.0	2.50	56.0	0	6.6	86.7	6.6	0.2	51.8	14.5	33.7	0	91.4
% Heavy Vehicles	50	1	56	0	101	29	423	25	478	74	24	56	334
% Curs	98.0	100	100	0	99.0	87.9	75.8	100	95.0	86.0	100	100	96.0
% Heavy Vehicles	2.0	0	0	0	1.0	12.1	3.0	24.2	0	5.0	14.0	0	4.0



File Name : 122864 HH
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

N/S: Batten Way
 E/W: Western Avenue
 City, State: Boston, MA
 Client: VHB/ K. Keen

PRECISION
 DATA
 INDUSTRIES, LLC
 90 Boston Blvd, MA 01903
 Office: 508-681-3999 Fax: 508-543-1234
 Email: datarequest@pdic.com

Start Time	Batten Way			Western Avenue			Hague Street			Western Avenue			Int. Total				
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left					
04:00 PM	6	1	16	5	92	3	0	12	2	7	0	2	54	3	0	203	
04:15 PM	4	1	4	8	95	6	0	6	0	5	0	0	60	2	0	191	
04:30 PM	7	0	7	2	95	0	0	7	5	9	0	1	76	2	0	211	
04:45 PM	5	0	8	3	96	4	0	13	3	6	0	1	83	1	0	223	
Total	22	2	35	0	18	378	13	0	38	10	27	0	4	273	8	0	828
05:00 PM	13	0	21	0	10	98	10	0	27	7	8	0	1	88	7	1	291
05:15 PM	14	1	10	0	7	94	8	0	11	7	12	0	3	83	6	0	256
05:30 PM	12	0	7	0	4	115	4	1	21	7	19	0	3	59	1	0	253
05:45 PM	11	0	12	0	8	116	3	0	15	3	17	0	0	77	5	0	267
Total	50	1	50	0	29	423	25	1	74	24	56	0	7	307	19	1	1067
Grand Total	72	3	85	0	47	801	38	1	112	34	83	0	11	580	27	1	1895
Approach %	45	1.9	53.1	0	5.3	90.3	4.3	0.1	48.9	14.8	36.2	0	1.8	93.7	4.4	0.2	
Total %	3.8	0.2	4.5	0	2.5	42.3	2	0.1	5.9	1.8	4.4	0	0.6	30.6	1.4	0.1	

Start Time	Batten Way			Western Avenue			Hague Street			Western Avenue			Int. Total				
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left					
04:00 PM	0	0	0	1	3	2	0	1	3	2	0	0	5	1	0	17	
04:15 PM	0	1	0	0	7	4	0	1	4	0	1	0	1	3	0	0	19
04:30 PM	0	0	0	0	4	2	0	3	0	0	0	0	2	2	0	0	14
04:45 PM	0	0	1	0	2	4	0	4	4	0	0	0	1	7	2	0	21
Total	0	1	1	0	5	18	12	0	9	0	1	0	4	17	3	0	71
05:00 PM	0	0	0	0	1	2	3	0	3	0	0	0	2	4	0	0	15
05:15 PM	1	0	0	0	1	4	0	5	0	0	0	0	0	3	0	0	14
05:30 PM	0	0	0	0	1	5	1	0	3	0	0	0	2	0	0	0	12
05:45 PM	1	0	0	0	2	4	0	1	0	0	0	0	3	0	0	0	11
Total	2	0	0	0	9	24	8	0	12	0	0	0	12	0	0	0	52
Grand Total	1	1	1	0	9	31	20	0	21	0	1	0	6	29	3	0	123
Approach %	33.3	33.3	33.3	0	15	51.7	33.3	0	95.5	0	4.5	0	15.8	76.3	7.9	0	
Total %	0.8	0.8	0.8	0	7.3	25.2	16.3	0	17.1	0	0.8	0	4.9	23.6	2.4	0	



File Name : 122864 HH
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

N/S: Batten Way
 E/W: Western Avenue
 City, State: Boston, MA
 Client: VHB/ K. Keen

PRECISION
 DATA
 INDUSTRIES, LLC
 90 Boston Blvd, MA 01903
 Office: 508-681-3999 Fax: 508-543-1234
 Email: datarequest@pdic.com

Start Time	Batten Way			Western Avenue			Hague Street			Western Avenue			Int. Total				
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left					
04:00 PM	0	0	0	1	3	2	0	5	0	0	0	0	5	1	0	17	
04:15 PM	0	1	0	0	7	4	0	1	0	1	0	1	3	0	0	0	19
04:30 PM	0	0	0	1	4	2	0	3	0	0	0	2	2	0	0	0	14
04:45 PM	0	0	1	0	2	4	0	0	0	0	0	1	7	2	0	0	21
Total	0	1	1	0	5	18	12	0	9	0	1	0	4	17	3	0	71
05:00 PM	0	0	0	0	1	2	3	0	3	0	0	0	2	4	0	0	15
05:15 PM	1	0	0	0	1	4	0	5	0	0	0	0	0	3	0	0	14
05:30 PM	0	0	0	0	1	5	1	0	3	0	0	0	2	0	0	0	12
05:45 PM	1	0	0	0	2	4	0	1	0	0	0	0	3	0	0	0	11
Total	2	0	0	0	9	24	8	0	12	0	0	0	12	0	0	0	52
Grand Total	1	1	1	0	9	31	20	0	21	0	1	0	6	29	3	0	123
Approach %	33.3	33.3	33.3	0	15	51.7	33.3	0	95.5	0	4.5	0	15.8	76.3	7.9	0	
Total %	0.8	0.8	0.8	0	7.3	25.2	16.3	0	17.1	0	0.8	0	4.9	23.6	2.4	0	

Start Time	Batten Way			Western Avenue			Hague Street			Western Avenue			Int. Total				
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left					
04:00 PM	0	0	0	1	3	2	0	5	0	0	0	0	5	1	0	6	
04:15 PM	0	1	0	1	7	4	0	1	4	0	0	2	1	3	0	0	19
04:30 PM	0	0	0	1	4	2	0	3	0	0	0	3	2	2	0	0	14
04:45 PM	0	0	1	0	2	4	0	10	0	0	0	1	7	2	0	0	21
Total Volume	0	1	1	0	5	18	12	0	35	0	1	0	10	4	17	3	0
% App. Total	0	50	50	0	14.3	51.4	34.3	0	90	0	10	0	16.7	70.8	12.5	0	
PHF	.000	.280	.000	.500	.625	.643	.780	.000	.729	.450	.000	.250	.580	.607	.600	.600	.845



File Name : 122864 HH
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

N/S: Batten Way
 E/W: Western Avenue
 City, State: Boston, MA
 Client: VHB/ K. Keen

Start Time	Batten Way			Western Avenue			Hague Street			Western Avenue		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
04:00 PM	1	0	1	5	0	0	0	0	0	0	2	1
04:15 PM	0	0	0	7	0	0	0	0	0	0	3	0
04:30 PM	0	0	0	5	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	4	0	0	0	0	0	4	0	0
Total	1	0	1	21	0	0	0	0	0	22	0	1
05:00 PM	0	0	0	7	1	4	0	1	0	0	5	0
05:15 PM	0	2	0	5	0	16	2	0	0	6	0	4
05:30 PM	0	0	1	6	0	16	2	0	0	9	0	8
05:45 PM	0	0	0	3	1	10	0	0	2	0	9	0
Total	0	2	1	21	2	46	4	2	2	29	0	24
Grand Total	1	2	2	42	2	74	4	2	2	0	51	9
Approach %	2.1	4.3	4.3	89.4	2.5	92.5	5	0	3.6	0	92.7	3.3
Total %	0.5	0.9	0.9	19.8	0.9	34.9	1.9	0	0.9	0	24.1	0.5

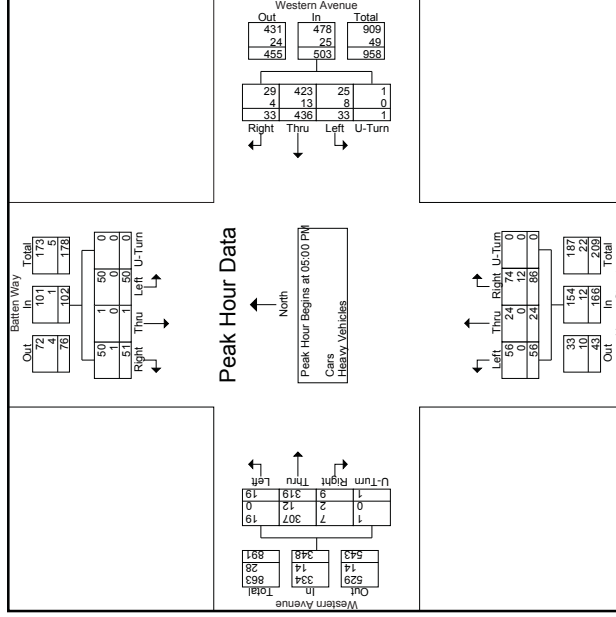
Start Time	Batten Way			Western Avenue			Hague Street			Western Avenue		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
05:00 PM	0	0	0	7	1	4	0	0	0	5	0	0
05:15 PM	0	2	0	5	0	16	2	0	0	6	0	4
05:30 PM	0	0	1	6	7	16	2	0	0	9	0	8
05:45 PM	0	0	0	3	1	10	0	0	2	0	9	11
Total	0	2	1	21	24	46	4	0	52	2	29	33
% Appr. Total	0	8.3	4.2	87.5	3.8	88.5	7.7	0	6.1	6.1	87.9	80
PHF	.000	.250	.750	.857	.500	.719	.500	.000	.722	.500	.000	.500



File Name : 122864 HH
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

N/S: Batten Way
 E/W: Western Avenue
 City, State: Boston, MA
 Client: VHB/ K. Keen

Start Time	Batten Way			Western Avenue			Hague Street			Western Avenue		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
05:00 PM	13	0	21	0	34	11	100	13	0	124	30	7
05:15 PM	15	1	10	0	26	8	98	8	0	114	16	7
05:30 PM	12	0	7	0	19	5	120	5	1	131	24	7
05:45 PM	11	0	12	0	23	9	118	7	0	134	16	3
Total	51	1	50	0	102	33	436	33	1	503	86	24
% Appr. Total	.850	.017	.850	.000	.750	.250	.908	.635	.250	.938	.717	.857
PHF	.850	.017	.850	.000	.750	.250	.908	.635	.250	.938	.717	.857
% Cars	98.0	100	98.0	100	99.0	87.9	97.0	73.8	100	95.0	86.0	100
% Heavy Vehicles	2.0	0	2.0	0	1.0	12.1	3.0	24.2	0	5.0	14.0	0
Total	2.0	0	2.0	0	1.0	12.1	3.0	24.2	0	5.0	14.0	0
Grand Total	72	1	101	0	173	44	503	45	0	576	100	24
Approach %	2.1	4.3	4.3	89.4	2.5	92.5	5	0	3.6	0	92.7	3.3
Total %	0.5	0.9	0.9	19.8	0.9	34.9	1.9	0	0.9	0	24.1	0.5





N/S: Hauge Street/□ru□ing□ot
 E/W: □ru□ing□ot/□otterdam Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

PRECISION
 DATA
 INDUSTRIES, LLC
 90 Boston Blvd, MA 01503
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequest@pdic.com

File Name : 122864 BB.am
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

Start Time	Hauge Street			Trucking Lot Access			Rotterdam Street		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
07:00 AM	12	1	0	0	0	0	0	0	0
07:15 AM	10	6	2	0	0	0	0	0	0
07:30 AM	3	3	0	0	0	0	0	0	0
07:45 AM	5	4	0	0	0	0	0	0	0
Total	30	14	6	0	0	0	0	0	0
08:00 AM	10	1	2	0	0	0	0	0	0
08:15 AM	11	4	2	0	0	0	0	0	0
08:30 AM	8	1	1	0	0	0	0	0	0
08:45 AM	9	5	3	0	0	0	0	0	0
Total	38	11	8	0	0	0	0	0	0
Grand Total	68	25	14	0	0	0	0	0	0
Approach %	23.1	13	0.9	100	0	0	93.1	6.9	0
Total %	12.2	4.5	2.5	0.2	2.3	0	4.8	0.4	0
% Cars	68	8	3	1	1	0	0	3	0
% Heavy Vehicles	0	17	11	0	12	0	0	24	1
% Trucks	0	68	78.6	0	92.3	0	0	88.9	50

Start Time	Hauge Street			Trucking Lot Access			Rotterdam Street		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
07:00 AM	10	0	0	0	0	0	0	0	0
07:15 AM	11	1	0	0	0	0	0	0	0
07:30 AM	8	0	0	0	0	0	0	0	0
07:45 AM	9	1	0	0	0	0	0	0	0
Total	38	2	0	0	0	0	0	0	0
08:00 AM	10	0	0	0	0	0	0	0	0
08:15 AM	11	1	0	0	0	0	0	0	0
08:30 AM	8	0	0	0	0	0	0	0	0
08:45 AM	9	1	0	0	0	0	0	0	0
Total	38	2	0	0	0	0	0	0	0
Grand Total	68	8	3	1	1	0	0	0	0
Approach %	85	10	3.8	1.2	100	0	0	0	0
Total %	13.8	1.6	0.6	0.2	0.2	0	0	0	0
% Cars	68	8	3	1	1	0	0	0	0
% Heavy Vehicles	0	17	11	0	12	0	0	24	1
% Trucks	0	68	78.6	0	92.3	0	0	88.9	50

Start Time	Hauge Street			Trucking Lot Access			Rotterdam Street		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
07:00 AM	10	0	0	0	0	0	0	0	0
07:15 AM	11	1	0	0	0	0	0	0	0
07:30 AM	8	0	0	0	0	0	0	0	0
07:45 AM	9	1	0	0	0	0	0	0	0
Total	38	2	0	0	0	0	0	0	0
08:00 AM	10	0	0	0	0	0	0	0	0
08:15 AM	11	1	0	0	0	0	0	0	0
08:30 AM	8	0	0	0	0	0	0	0	0
08:45 AM	9	1	0	0	0	0	0	0	0
Total	38	2	0	0	0	0	0	0	0
Grand Total	68	8	3	1	1	0	0	0	0
Approach %	85	10	3.8	1.2	100	0	0	0	0
Total %	13.8	1.6	0.6	0.2	0.2	0	0	0	0
% Cars	68	8	3	1	1	0	0	0	0
% Heavy Vehicles	0	17	11	0	12	0	0	24	1
% Trucks	0	68	78.6	0	92.3	0	0	88.9	50



N/S: Hauge Street/□ru□ing□ot
 E/W: □ru□ing□ot/□otterdam Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

PRECISION
 DATA
 INDUSTRIES, LLC
 90 Boston Blvd, MA 01503
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequest@pdic.com

File Name : 122864 BB.am
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

Start Time	Hauge Street			Trucking Lot Access			Rotterdam Street		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
07:00 AM	12	1	0	0	0	0	0	0	0
07:15 AM	10	3	1	0	0	0	0	0	0
07:30 AM	3	2	1	0	0	0	0	0	0
07:45 AM	5	4	0	0	0	0	0	0	0
Total	30	6	3	0	0	0	0	0	0
08:00 AM	10	0	0	0	0	0	0	0	0
08:15 AM	11	1	0	0	0	0	0	0	0
08:30 AM	8	0	0	0	0	0	0	0	0
08:45 AM	9	1	0	0	0	0	0	0	0
Total	38	2	0	0	0	0	0	0	0
Grand Total	68	8	3	1	1	0	0	0	0
Approach %	85	10	3.8	1.2	100	0	0	0	0
Total %	13.8	1.6	0.6	0.2	0.2	0	0	0	0
% Cars	68	8	3	1	1	0	0	0	0
% Heavy Vehicles	0	17	11	0	12	0	0	24	1
% Trucks	0	68	78.6	0	92.3	0	0	88.9	50

Start Time	Hauge Street			Trucking Lot Access			Rotterdam Street		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
07:00 AM	10	0	0	0	0	0	0	0	0
07:15 AM	11	1	0	0	0	0	0	0	0
07:30 AM	8	0	0	0	0	0	0	0	0
07:45 AM	9	1	0	0	0	0	0	0	0
Total	38	2	0	0	0	0	0	0	0
08:00 AM	10	0	0	0	0	0	0	0	0
08:15 AM	11	1	0	0	0	0	0	0	0
08:30 AM	8	0	0	0	0	0	0	0	0
08:45 AM	9	1	0	0	0	0	0	0	0
Total	38	2	0	0	0	0	0	0	0
Grand Total	68	8	3	1	1	0	0	0	0
Approach %	85	10	3.8	1.2	100	0	0	0	0
Total %	13.8	1.6	0.6	0.2	0.2	0	0	0	0
% Cars	68	8	3	1	1	0	0	0	0
% Heavy Vehicles	0	17	11	0	12	0	0	24	1
% Trucks	0	68	78.6	0	92.3	0	0	88.9	50

Start Time	Hauge Street			Trucking Lot Access			Rotterdam Street		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
07:00 AM	10	0	0	0	0	0	0	0	0
07:15 AM	11	1	0	0	0	0	0	0	0
07:30 AM	8	0	0	0	0	0	0	0	0
07:45 AM	9	1	0	0	0	0	0	0	0
Total	38	2	0	0	0	0	0	0	0
08:00 AM	10	0	0	0	0	0	0	0	0
08:15 AM	11	1	0	0	0	0	0	0	0
08:30 AM	8	0	0	0	0	0	0	0	0
08:45 AM	9	1	0	0	0	0	0	0	0
Total	38	2	0	0	0	0	0	0	0
Grand Total	68	8	3	1	1	0	0	0	0
Approach %	85	10	3.8	1.2	100	0	0	0	0
Total %	13.8	1.6	0.6	0.2	0.2	0	0	0	0
% Cars	68	8	3	1	1	0	0	0	0
% Heavy Vehicles	0	17	11	0	12	0	0	24	1
% Trucks	0	68	78.6	0	92.3	0	0	88.9	50

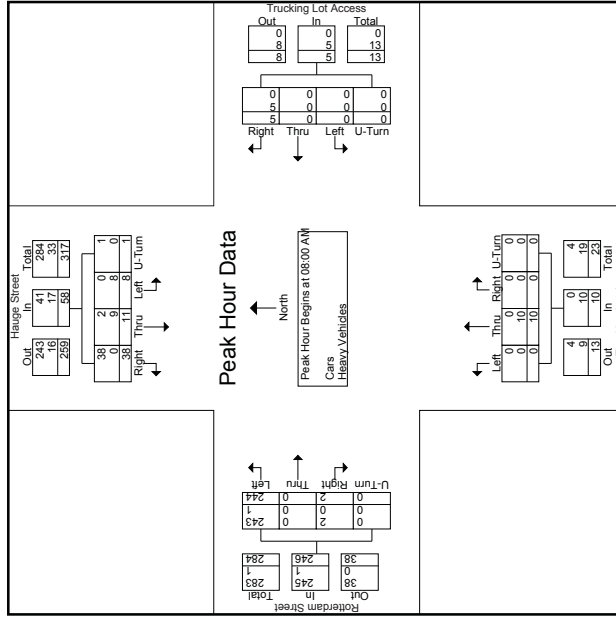


N/S: Hauge Street/ □ru□ing □ot
 E/W: □ru□ing □ot/ □otterdam Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 BB.am
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

PRECISION
 DATA
 INDUSTRIES, LLC
 90 Boston Ave, Boston, MA 02108
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequest@pdilc.com

Start Time	Hauge Street From North				Trucking Lot Access From South				Rotterdam Street From West				
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
08:00 AM	10	1	2	0	0	4	0	0	1	0	69	0	70
08:15 AM	11	4	2	0	17	2	0	0	2	1	0	63	85
08:30 AM	8	1	1	1	0	0	0	0	2	0	66	0	66
08:45 AM	9	5	3	0	17	0	0	0	2	0	46	0	46
Total Volume	38	11	8	1	58	5	0	0	10	2	244	0	246
% App. Total	65.5	19	13.8	1.7	85.3	100	0	0	100	0	99.2	0	879
% Cars	38	11	8	1	41	0	0	0	0	0	243	0	245
% Heavy Vehicles	100	18.2	0	100	70.7	0	0	0	0	0	100	0	99.6
% Heavy Vehicles	0	81.8	100	0	29.3	100	0	100	0	100	0	0	0.4



N/S: Hauge Street/ □ru□ing □ot
 E/W: □ru□ing □ot/ □otterdam Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 BB.am
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

PRECISION
 DATA
 INDUSTRIES, LLC
 90 Boston Ave, Boston, MA 02108
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequest@pdilc.com

Start Time	Hauge Street From North				Trucking Lot Access From South				Rotterdam Street From West				
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
04:00 PM	6	2	0	0	0	0	0	0	0	5	1	0	34
04:15 PM	7	3	3	0	0	0	0	0	4	0	0	0	28
04:30 PM	0	3	2	0	1	1	1	0	4	0	0	0	35
04:45 PM	4	0	5	0	2	0	0	0	1	0	0	0	30
Total	17	8	10	0	4	2	1	0	14	2	0	0	127
05:00 PM	12	2	3	0	2	0	0	0	4	0	0	0	62
05:15 PM	10	1	1	0	2	0	0	0	5	0	0	0	55
05:30 PM	7	0	1	0	0	0	0	0	2	0	0	1	52
05:45 PM	3	1	3	0	1	0	0	0	1	0	0	0	43
Total	32	4	8	0	5	0	0	0	12	1	0	0	212
Grand Total	49	12	18	0	9	2	1	0	1	26	3	0	339
Approach %	62	15.2	22.8	0	75	16.7	8.3	0	3.3	86.7	10	0	1.4
Total %	14.5	3.5	5.3	0	2.7	0.6	0.3	0	0.3	7.7	0.9	0	0.3
% Cars	47	3	2	0	7	2	1	0	1	7	2	0	1
% Heavy Vehicles	95.9	25	11.1	0	77.8	100	100	0	100	26.9	66.7	0	100
% Heavy Vehicles	2	9	16	0	2	0	0	0	0	19	1	0	0
% Heavy Vehicles	4.1	75	88.9	0	22.2	0	0	0	0	73.1	33.3	0	0

Start Time	Hauge Street From North				Trucking Lot Access From South				Rotterdam Street From West				
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
05:00 PM	12	2	3	0	17	2	0	0	2	0	0	0	62
05:15 PM	10	1	1	0	12	2	0	0	2	0	0	0	55
05:30 PM	7	0	1	0	8	0	0	0	0	2	0	0	42
05:45 PM	3	1	3	0	7	1	0	0	1	1	0	0	43
Total Volume	32	4	8	0	44	5	0	0	5	12	1	0	212
% App. Total	72.7	6.1	18.2	0	100	0	0	0	0	92.3	7.7	0	1.3
% Cars	31	50	66	0	53	3	0	0	0	25.0	0	0	3
% Heavy Vehicles	96.9	25.0	12.5	0	75.0	60.0	0	0	60.0	25.0	0	0	23.1
% Heavy Vehicles	3.1	75.0	87.5	0	25.0	40.0	0	0	40.0	75.0	100	0	76.9



N/S: Hauge Street/ □ru□ing □ot
 E/W: □ru□ing □ot/ □otterdam Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 BB□□m
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

PRECISION
 D. A. T. A.
 INDUSTRIES, LLC
 90 Boscoti Berlin MA 01903
 Office: 508-681-3999 Fax: 508-545-1234
 Email: datarequest@precision.com

Groups: Printed: Cars

Start Time	Hauge Street			Trucking Lot Access			Trucking Lot Access			Rotterdam Street		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
04:00 PM	6	0	0	1	0	0	0	1	0	0	0	19
04:15 PM	6	1	0	0	2	0	0	0	0	1	0	9
04:30 PM	0	1	0	1	1	0	1	1	0	0	0	22
04:45 PM	4	0	1	2	1	0	1	1	0	0	1	16
Total	16	2	1	4	2	1	4	2	0	1	1	66
05:00 PM	11	0	0	1	0	0	0	2	0	0	0	39
05:15 PM	10	1	0	1	0	0	0	0	0	0	1	35
05:30 PM	7	0	0	0	0	0	0	0	0	0	1	41
05:45 PM	3	0	0	1	0	0	1	0	0	0	0	32
Total	31	1	1	3	0	0	3	0	0	0	2	147
Grand Total	47	3	2	7	2	1	7	2	0	1	3	213
Approach %	90.4	5.8	3.8	70	20	10	70	20	0	0.5	1.4	98.2
Total %	16.3	1	0.7	2.4	0.7	0.3	2.4	0.7	0	0.3	1	73.7

Groups: Printed: Heavy Vehicles

Start Time	Hauge Street			Trucking Lot Access			Trucking Lot Access			Rotterdam Street		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
04:00 PM	0	2	0	0	0	0	0	5	0	0	0	0
04:15 PM	1	2	3	0	0	0	0	2	0	0	0	0
04:30 PM	0	2	0	0	0	0	0	3	0	0	0	0
04:45 PM	1	6	9	0	0	0	0	10	0	0	0	0
Total	2	10	12	0	0	0	0	17	0	0	0	0
05:00 PM	1	2	3	0	0	0	0	2	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	5	0	0	0	0
05:30 PM	0	0	1	0	0	0	0	2	0	0	0	0
05:45 PM	0	1	3	0	0	0	0	0	0	0	0	1
Total	1	3	7	0	0	0	0	9	1	0	0	1
Grand Total	2	9	16	0	0	0	0	19	1	0	0	1
Approach %	7.4	33.3	59.3	100	0	0	0	95	5	0	0	100
Total %	4	18	32	0	0	0	0	38	2	0	0	2



N/S: Hauge Street/ □ru□ing □ot
 E/W: □ru□ing □ot/ □otterdam Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 BB□□m
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

PRECISION
 D. A. T. A.
 INDUSTRIES, LLC
 90 Boscoti Berlin MA 01903
 Office: 508-681-3999 Fax: 508-545-1234
 Email: datarequest@precision.com

Groups: Printed: Heavy Vehicles

Start Time	Hauge Street			Trucking Lot Access			Trucking Lot Access			Rotterdam Street		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
04:00 PM	0	2	0	0	0	0	0	5	0	0	0	0
04:15 PM	1	2	3	0	0	0	0	2	0	0	0	0
04:30 PM	0	2	0	0	0	0	0	3	0	0	0	0
04:45 PM	1	6	9	0	0	0	0	10	0	0	0	0
Total	2	10	12	0	0	0	0	17	0	0	0	0
05:00 PM	1	2	3	0	0	0	0	2	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	5	0	0	0	0
05:30 PM	0	0	1	0	0	0	0	2	0	0	0	0
05:45 PM	0	1	3	0	0	0	0	0	0	0	0	1
Total	1	3	7	0	0	0	0	9	1	0	0	1
Grand Total	2	9	16	0	0	0	0	19	1	0	0	1
Approach %	7.4	33.3	59.3	100	0	0	0	95	5	0	0	100
Total %	4	18	32	0	0	0	0	38	2	0	0	2

Groups: Printed: Heavy Vehicles

Start Time	Hauge Street			Trucking Lot Access			Trucking Lot Access			Rotterdam Street		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
04:00 PM	0	2	0	0	0	0	0	0	0	0	0	0
04:15 PM	1	2	3	0	0	0	0	2	0	0	0	0
04:30 PM	0	2	0	0	0	0	0	3	0	0	0	0
04:45 PM	1	6	9	0	0	0	0	10	0	0	0	0
Total	2	10	12	0	0	0	0	17	0	0	0	0
05:00 PM	1	2	3	0	0	0	0	2	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	5	0	0	0	0
05:30 PM	0	0	1	0	0	0	0	2	0	0	0	0
05:45 PM	0	1	3	0	0	0	0	0	0	0	0	1
Total	1	3	7	0	0	0	0	9	1	0	0	1
Grand Total	2	9	16	0	0	0	0	19	1	0	0	1
Approach %	7.4	33.3	59.3	100	0	0	0	95	5	0	0	100
Total %	4	18	32	0	0	0	0	38	2	0	0	2



N/S: Hauge Street/ □ru□ing □ot
 E/W: □ru□ing □ot/ □otterdam Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 BB□□m
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

PRECISION
 D. A. T. A.
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 Email: datarequest@precision.com

File Name : 122864 BB□□m
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

Start Time	Hauge Street			Trucking Lot Access			Rotterdam Street		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
04:00 PM	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	1
05:15 PM	4	0	0	0	0	0	0	0	1
05:30 PM	2	0	0	0	0	0	0	0	2
05:45 PM	0	0	0	0	0	0	0	0	2
Total	6	0	0	0	0	0	0	0	3
Grand Total	6	0	0	0	0	0	0	0	3
Approach %	85.7	0	0	14.3	0	0	0	0	75
Total %	54.5	0	0	9.1	0	0	0	0	27.3

Start Time	Hauge Street			Trucking Lot Access			Rotterdam Street		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
04:00 PM	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	1
05:15 PM	4	0	0	0	0	0	0	0	1
05:30 PM	2	0	0	0	0	0	0	0	2
05:45 PM	0	0	0	0	0	0	0	0	1
Total	6	0	0	0	0	0	0	0	3
Grand Total	6	0	0	0	0	0	0	0	3
Approach %	85.7	0	0	14.3	0	0	0	0	75
Total %	54.5	0	0	9.1	0	0	0	0	27.3



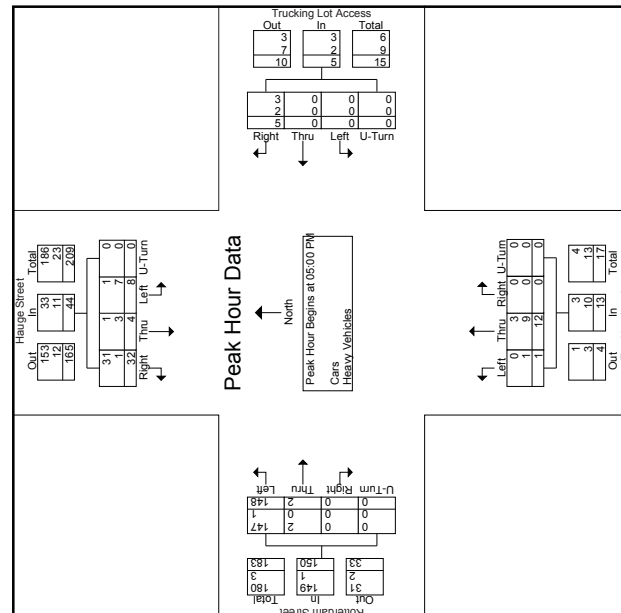
N/S: Hauge Street/ □ru□ing □ot
 E/W: □ru□ing □ot/ □otterdam Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 BB□□m
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

PRECISION
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File Name : 122864 BB□□m
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

Start Time	Hauge Street			Trucking Lot Access			Trucking Lot Access			Rotterdam Street		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
05:00 PM	12	2	3	0	0	0	2	0	0	0	0	0
05:15 PM	10	1	1	0	0	0	2	0	0	0	0	0
05:30 PM	7	0	1	0	0	0	1	0	0	0	0	0
05:45 PM	3	1	3	0	0	0	1	0	0	0	0	0
Total	32	4	8	0	0	0	5	0	0	0	0	0
PHF	667	500	667	0.000	0.000	0.000	623	0.000	0.000	0.000	0.000	0.000
% Appr. Total	72.7	9.1	18.2	0	0	0	64.7	0	0	0	0	0
% Heavy Vehicles	96.3	25.0	12.5	0	0	0	60.0	0	0	0	0	0
% Heavy Vehicles	3.1	75.0	87.5	0	25.0	40.0	0	0	0	0	0	0





90 New 071 Berlin, MA 01603
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Start Time	North Harvard Street			Gordon Road			North Harvard Street			Int. Total
	Thru	From North	U-Turn	Right	From East	U-Turn	Right	From South	U-Turn	
07:00 AM	82	10	0	0	5	2	0	77	0	176
07:15 AM	76	7	0	0	4	0	0	82	0	171
07:30 AM	79	10	0	0	12	0	2	103	0	206
07:45 AM	93	14	0	0	11	0	0	140	0	258
Total	330	41	0	0	32	2	0	402	0	811
08:00 AM	91	8	0	0	14	1	0	102	0	219
08:15 AM	92	19	1	0	18	1	0	130	0	265
08:30 AM	89	23	0	0	10	2	0	122	0	248
08:45 AM	113	18	0	0	13	3	0	139	0	288
Total	385	68	1	0	55	7	0	493	0	1020
Grand Total	715	109	1	0	87	9	0	895	0	1831
Approach %	86.7	13.2	0.1	0.0	90.6	9.4	0.0	1.6	98.4	0.0
% Cars	39	6	0.1	0.0	4.8	0.5	0.0	0.8	48.9	0.0
% Heavy Vehicles	643	108	0.9	0.0	75	9	0.0	14	804	0.0
% Heavy Vehicles	89.9	99.1	100	0.0	86.2	100	0.0	93.3	89.8	0.0
% Heavy Vehicles	72	1	0	0	12	0	0	1	91	0
% Heavy Vehicles	10.1	0.9	0	0	13.8	0	0	6.7	10.2	0

Start Time	North Harvard Street			Gordon Road			North Harvard Street			Int. Total
	Thru	From North	U-Turn	Right	From East	U-Turn	Right	From South	U-Turn	
08:00 AM	91	8	0	0	14	1	0	102	0	219
08:15 AM	92	19	1	0	18	1	0	130	0	265
08:30 AM	89	23	0	0	10	2	0	122	0	248
08:45 AM	113	18	0	0	13	3	0	139	0	288
Total Volume	385	68	1	0	55	7	0	493	0	1020
% App. Total	84.5	15.5	0.2	0.0	86.7	11.3	0.0	2.2	97.8	0.0
% Cars	79	13	0.1	0.0	7.4	0.9	0.0	1.1	46.2	0.0
% Heavy Vehicles	94.0	98.5	100	0.0	87.1	100	0.0	90.9	91.7	0.0
% Heavy Vehicles	23	1	0	0	24	8	0	9.1	41	0
% Heavy Vehicles	6.0	1.5	0	0	5.3	14.5	0	9.1	8.3	0



90 New 071 Berlin, MA 01603
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Start Time	North Harvard Street			Gordon Road			North Harvard Street			Int. Total
	Thru	From North	U-Turn	Right	From East	U-Turn	Right	From South	U-Turn	
07:00 AM	73	10	0	0	5	2	0	65	0	155
07:15 AM	63	7	0	0	3	0	0	68	0	143
07:30 AM	70	10	0	0	10	0	2	89	0	181
07:45 AM	75	14	0	0	10	0	0	130	0	229
Total	281	41	0	0	28	2	0	352	0	708
08:00 AM	86	8	0	0	11	1	0	98	0	206
08:15 AM	88	19	1	0	16	1	0	115	0	244
08:30 AM	82	22	0	0	8	2	0	111	0	227
08:45 AM	106	18	0	0	12	3	0	128	0	269
Total	362	67	1	0	47	7	0	452	0	946
Grand Total	643	108	1	0	75	9	0	804	0	1654
Approach %	85.5	14.4	0.1	0.0	89.3	10.7	0.0	1.7	98.3	0.0
% Cars	38.9	6.5	0.1	0.0	4.5	0.5	0.0	0.8	48.6	0.0
% Heavy Vehicles	643	108	1	0	75	9	0	14	804	0
% Heavy Vehicles	89.9	99.1	100	0.0	86.2	100	0.0	93.3	89.8	0.0
% Heavy Vehicles	72	1	0	0	12	0	0	1	91	0
% Heavy Vehicles	10.1	0.9	0	0	13.8	0	0	6.7	10.2	0

Start Time	North Harvard Street			Gordon Road			North Harvard Street			Int. Total
	Thru	From North	U-Turn	Right	From East	U-Turn	Right	From South	U-Turn	
08:00 AM	86	8	0	0	11	1	0	98	0	206
08:15 AM	88	19	1	0	16	1	0	115	0	244
08:30 AM	82	22	0	0	8	2	0	111	0	227
08:45 AM	106	18	0	0	12	3	0	128	0	269
Total	362	67	1	0	47	7	0	452	0	946
Approach %	85.5	14.4	0.1	0.0	89.3	10.7	0.0	1.7	98.3	0.0
% Cars	38.9	6.5	0.1	0.0	4.5	0.5	0.0	0.8	48.6	0.0
% Heavy Vehicles	643	108	1	0	75	9	0	14	804	0
% Heavy Vehicles	89.9	99.1	100	0.0	86.2	100	0.0	93.3	89.8	0.0
% Heavy Vehicles	72	1	0	0	12	0	0	1	91	0
% Heavy Vehicles	10.1	0.9	0	0	13.8	0	0	6.7	10.2	0

Start Time	North Harvard Street			Gordon Road			North Harvard Street			Int. Total
	Thru	From North	U-Turn	Right	From East	U-Turn	Right	From South	U-Turn	
08:00 AM	86	8	0	0	11	1	0	98	0	206
08:15 AM	88	19	1	0	16	1	0	115	0	244
08:30 AM	82	22	0	0	8	2	0	111	0	227
08:45 AM	106	18	0	0	12	3	0	128	0	269
Total Volume	362	67	1	0	47	7	0	452	0	946
% App. Total	84.2	15.6	0.2	0.0	87	13	0	2.2	97.8	0.0
% Heavy Vehicles	734	130	1	0	94	12	0	128	0	946
% Heavy Vehicles	73.4	13.0	0.1	0.0	9.4	12.0	0.0	13.0	0.0	8.8
% Heavy Vehicles	734	130	1	0	94	12	0	128	0	946
% Heavy Vehicles	73.4	13.0	0.1	0.0	9.4	12.0	0.0	13.0	0.0	8.8



90 Bea 301 Beahm, MA 01930
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Start Time	North Harvard Street From North			Gordon Road From East			North Harvard Street From South			Int. Total
	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Left	U-Turn	
07:00 AM	9	0	0	0	0	0	0	12	0	21
07:15 AM	13	0	0	0	0	0	0	14	0	28
07:30 AM	9	0	0	0	0	0	0	14	0	25
07:45 AM	18	1	0	0	0	0	0	10	0	29
Total	49	0	0	0	0	0	0	50	0	103
08:00 AM	5	0	0	0	0	0	1	4	0	13
08:15 AM	4	0	0	0	0	0	0	15	0	21
08:30 AM	7	1	0	0	0	0	0	11	0	21
08:45 AM	23	1	0	0	0	0	1	41	0	74
Grand Total	72	1	0	0	0	0	1	91	0	177
Approach %	98.6	1.4	0	0	0	0	1.1	98.9	0	0
Total %	40.7	0.6	0	0	0	0	0.6	51.4	0	0

Start Time	North Harvard Street From North			Gordon Road From East			North Harvard Street From South			Int. Total
	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Left	U-Turn	
07:00 AM	9	0	0	0	0	0	0	12	0	21
07:15 AM	13	0	0	0	0	0	0	14	0	28
07:30 AM	9	0	0	0	0	0	0	14	0	25
07:45 AM	18	0	0	0	0	0	0	10	0	29
Total Volume	49	0	0	0	0	0	0	50	0	103
% App. Total	100	0	0	0	0	0	0	100	0	0
PHF	.681	.000	.681	.000	.000	.000	.000	.893	.000	.893



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Start Time	North Harvard Street From North			Gordon Road From East			North Harvard Street From South			Int. Total
	Thru	Left	Peeds	Right	Left	Peeds	Right	Left	Peeds	
07:00 AM	1	0	0	0	0	2	0	2	0	5
07:15 AM	5	0	0	0	0	2	0	1	0	9
07:30 AM	2	0	0	0	0	9	0	0	0	11
07:45 AM	10	0	0	0	0	7	0	1	0	18
Total	18	0	0	0	0	20	0	4	0	43
08:00 AM	0	0	0	0	0	10	1	6	2	19
08:15 AM	0	1	0	0	0	18	2	9	0	30
08:30 AM	1	0	0	0	0	10	0	11	1	23
08:45 AM	0	1	0	0	0	7	0	20	0	28
Total	1	1	0	0	0	45	3	46	3	100
Grand Total	19	1	1	1	0	65	3	50	3	143
Approach %	90.5	4.8	0.7	0.7	0	98.5	5.4	88.3	5.4	0
Total %	13.3	0.7	0.7	0.7	0	45.5	2.1	35	2.1	0

Start Time	North Harvard Street From North			Gordon Road From East			North Harvard Street From South			Int. Total
	Thru	Left	Peeds	Right	Left	Peeds	Right	Left	Peeds	
08:00 AM	0	0	0	0	0	10	1	6	2	9
08:15 AM	0	1	0	0	0	18	2	9	0	30
08:30 AM	1	0	0	0	0	10	0	11	1	23
08:45 AM	0	0	0	0	0	7	0	20	0	28
Total Volume	1	1	0	0	0	45	3	46	3	100
% App. Total	50	50	0	2.2	0	97.8	5.8	88.5	5.8	0
PHF	.250	.250	.000	.500	.000	.639	.375	.375	.375	.650



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 Email: datarequest@pdic.com

Start Time	North Harvard Street From North			Gordon Road From East			North Harvard Street From South			Int. Total
	Thru	Left	Peeds	Right	Left	Peeds	Right	Left	Peeds	
07:00 AM	1	0	0	0	0	2	0	2	0	5
07:15 AM	5	0	0	0	0	2	0	1	0	9
07:30 AM	2	0	0	0	0	9	0	0	0	11
07:45 AM	10	0	0	0	0	7	0	1	0	18
Total	18	0	0	0	0	20	0	4	0	43
08:00 AM	0	0	0	0	0	10	1	6	2	19
08:15 AM	0	1	0	0	0	18	2	9	0	30
08:30 AM	1	0	0	0	0	10	0	11	1	23
08:45 AM	0	1	0	0	0	7	0	20	0	28
Total	1	1	0	0	0	45	3	46	3	100
Grand Total	19	1	1	1	0	65	3	50	3	143
Approach %	90.5	4.8	0.7	0.7	0	98.5	5.4	88.3	5.4	0
Total %	13.3	0.7	0.7	0.7	0	45.5	2.1	35	2.1	0

Start Time	North Harvard Street From North			Gordon Road From East			North Harvard Street From South			Int. Total
	Thru	Left	Peeds	Right	Left	Peeds	Right	Left	Peeds	
08:00 AM	0	0	0	0	0	10	1	6	2	9
08:15 AM	0	1	0	0	0	18	2	9	0	30
08:30 AM	1	0	0	0	0	10	0	11	1	23
08:45 AM	0	0	0	0	0	7	0	20	0	28
Total Volume	1	1	0	0	0	45	3	46	3	100
% App. Total	50	50	0	2.2	0	97.8	5.8	88.5	5.8	0
PHF	.250	.250	.000	.500	.000	.639	.375	.375	.375	.650

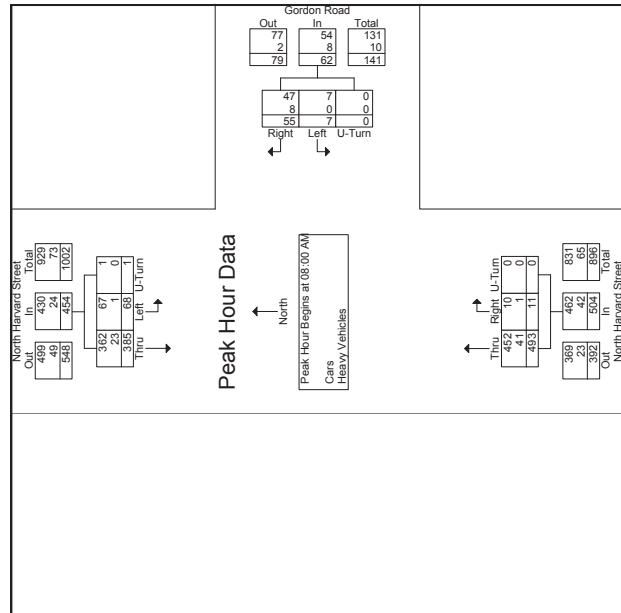


N/S: North Harvard Street
 E: Gordon Road
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 P
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

PRECISION
 DATA
 INDUSTRIES, LLC
 90 New 301 Reels, MA 01939
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Start Time	North Harvard Street			Gordon Road			North Harvard Street			Int. Total		
	Thru	Left	U-Turn	Right	Left	U-Turn	App. Total	Right	Thru		U-Turn	App. Total
08:00 AM	91	8	0	99	14	1	0	15	3	102	0	105
08:15 AM	92	19	1	112	18	1	0	19	4	130	0	134
08:30 AM	89	23	0	112	13	3	0	16	2	139	0	141
08:45 AM	113	18	0	131	68	7	0	62	11	493	0	504
Total Volume	385	68	1	454	55	11	0	66	22	97.8	0	102.0
% App. Total	84.8	15	0.2	88.7	11.3	0	0	12.3	2.2	97.8	0	99.4
PHF	.852	.739	.250	.866	.784	.593	.000	.816	.688	.887	.000	.894
% Cars	362	67	1	430	47	7	0	54	10	452	0	462
% Heavy Vehicles	94.0	96.5	100	94.7	85.5	100	0	87.1	90.9	91.7	0	91.7
% Heavy Vehicles	2.3	1	0	2.4	6	0	0	6	1	8.3	0	8.3
% Heavy Vehicles	6.0	1.5	0	5.3	14.5	0	0	12.3	9.1	8.3	0	8.3



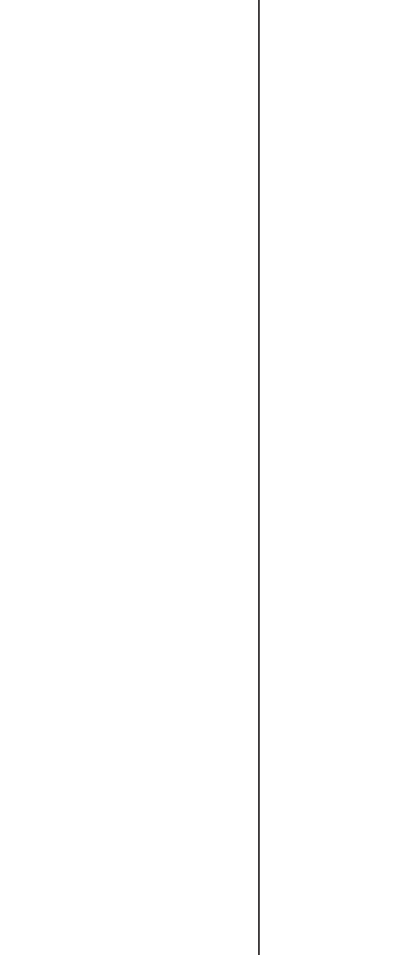
N/S: North Harvard Street
 E: Gordon Road
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 PP
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

PRECISION
 DATA
 INDUSTRIES, LLC
 90 New 301 Reels, MA 01939
 Office: 508.681.3999 Fax: 508.545.1234
 Email: datarequest@pdilic.com

Start Time	North Harvard Street			Gordon Road			North Harvard Street			Int. Total		
	Thru	Left	U-Turn	Right	Left	U-Turn	App. Total	Right	Thru		U-Turn	App. Total
04:00 PM	96	7	0	103	11	2	0	11	90	0	207	
04:15 PM	97	5	0	102	10	1	0	11	93	0	206	
04:30 PM	89	10	0	99	17	0	0	17	112	1	229	
04:45 PM	96	2	0	98	20	4	0	20	105	0	229	
Total	378	24	0	388	58	7	0	65	3	400	1	871
05:00 PM	92	9	1	102	28	2	0	30	130	0	263	
05:15 PM	95	7	1	103	21	1	0	22	130	0	256	
05:30 PM	87	5	0	92	28	1	0	29	122	0	246	
05:45 PM	114	2	0	116	24	1	0	25	135	0	277	
Total	388	23	2	393	86	5	0	91	6	517	0	1042
Grand Total	766	47	2	795	159	12	0	171	9	917	1	1913
Approach %	94	5.8	0.2	93	7	0	0	7	1	98.9	0.1	99.0
Total %	40	2.5	0.1	83	0.6	0	0	0.5	47.9	0.1	0.1	48.6
% Cars	724	46	2	772	151	11	0	162	8	871	1	1814
% Heavy Vehicles	94.5	97.9	100	95	91.7	0	0	88.9	95	100	0	94.8
% Heavy Vehicles	42	1	0	43	8	1	0	9	1	46	0	52
% Heavy Vehicles	5.5	2.1	0	5	8.3	0	0	8.3	5	0	0	5.2

Start Time	North Harvard Street			Gordon Road			North Harvard Street			Int. Total		
	Thru	Left	U-Turn	Right	Left	U-Turn	App. Total	Right	Thru		U-Turn	App. Total
05:00 PM	92	9	1	102	28	2	0	30	130	0	263	
05:15 PM	95	7	1	103	21	1	0	22	130	0	256	
05:30 PM	87	5	0	92	28	1	0	29	122	0	246	
05:45 PM	114	2	0	116	24	1	0	25	135	0	277	
Total Volume	388	23	2	393	86	5	0	91	6	517	0	1042
% App. Total	84.8	15	0.2	88.7	11.3	0	0	12.3	2.2	97.8	0	99.4
PHF	.852	.739	.250	.866	.784	.593	.000	.816	.688	.887	.000	.894
% Cars	362	67	1	430	47	7	0	54	10	452	0	462
% Heavy Vehicles	94.0	96.5	100	94.7	85.5	100	0	87.1	90.9	91.7	0	91.7
% Heavy Vehicles	2.3	1	0	2.4	6	0	0	6	1	8.3	0	8.3
% Heavy Vehicles	6.0	1.5	0	5.3	14.5	0	0	12.3	9.1	8.3	0	8.3



N/S: North Harvard Street
 E: Gordon Road
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 PP
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1



90 Bow St, Boston, MA 02109
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequest@pdilc.com

Start Time	North Harvard Street From North			Gordon Road From East			North Harvard Street From South			Int. Total
	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Left	U-Turn	
04:00 PM	89	7	0	0	10	2	0	1	83	0
04:15 PM	88	4	0	0	9	1	0	82	0	184
04:30 PM	84	10	0	0	16	0	0	106	1	217
04:45 PM	93	2	0	0	19	3	0	103	0	221
Total	354	23	0	0	54	6	0	374	1	814
05:00 PM	89	9	1	0	27	2	0	1	125	0
05:15 PM	89	7	1	0	20	1	0	1	127	0
05:30 PM	83	5	0	0	27	1	0	3	117	0
05:45 PM	109	2	0	0	23	1	0	1	128	0
Total	370	23	2	0	97	5	0	6	497	0
Grand Total	724	46	2	0	151	11	0	8	871	1
Approach %	93.8	6	0.3	0	93.2	6.8	0	0.9	99	0.1
Total %	39.9	2.5	0.1	0	8.3	0.6	0	0.4	48	0.1

Start Time	North Harvard Street From North			Gordon Road From East			North Harvard Street From South			Int. Total
	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Left	U-Turn	
05:00 PM	89	9	1	0	27	2	0	1	125	0
05:15 PM	89	7	1	0	20	1	0	1	127	0
05:30 PM	83	5	0	0	27	1	0	3	117	0
05:45 PM	109	2	0	0	23	1	0	1	128	0
Total	370	23	2	0	97	5	0	6	497	0
Grand Total	724	46	2	0	151	11	0	8	871	1
Approach %	93.8	6	0.3	0	93.2	6.8	0	0.9	99	0.1
Total %	39.9	2.5	0.1	0	8.3	0.6	0	0.4	48	0.1

N/S: North Harvard Street
 E: Gordon Road
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 PP
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1



90 Bow St, Boston, MA 02109
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequest@pdilc.com

Start Time	North Harvard Street From North			Gordon Road From East			North Harvard Street From South			Int. Total
	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Left	U-Turn	
04:00 PM	7	0	0	0	1	0	0	0	7	0
04:15 PM	9	1	0	0	1	0	0	0	11	0
04:30 PM	5	0	0	0	1	0	0	0	6	0
04:45 PM	3	0	0	0	1	0	0	2	2	0
Total	24	1	0	0	4	1	0	1	26	0
05:00 PM	3	0	0	0	1	0	0	0	5	0
05:15 PM	6	0	0	0	1	0	0	0	3	0
05:30 PM	4	0	0	0	1	0	0	0	5	0
05:45 PM	5	0	0	0	0	0	0	0	7	0
Total	18	0	0	0	4	0	0	0	20	0
Grand Total	42	1	0	0	8	1	0	1	46	0
Approach %	97.7	2.3	0	0	86.9	11.1	0	2.1	97.9	0
Total %	42.4	1	0	0	8.1	1	0	1	46.5	0

Start Time	North Harvard Street From North			Gordon Road From East			North Harvard Street From South			Int. Total
	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Left	U-Turn	
04:00 PM	7	0	0	0	1	0	0	0	7	0
04:15 PM	9	1	0	0	1	0	0	0	11	0
04:30 PM	5	0	0	0	1	0	0	0	6	0
04:45 PM	3	0	0	0	1	0	0	2	2	0
Total	24	1	0	0	4	1	0	1	26	0
05:00 PM	3	0	0	0	1	0	0	0	5	0
05:15 PM	6	0	0	0	1	0	0	0	3	0
05:30 PM	4	0	0	0	1	0	0	0	5	0
05:45 PM	5	0	0	0	0	0	0	0	7	0
Total	18	0	0	0	4	0	0	0	20	0
Grand Total	42	1	0	0	8	1	0	1	46	0
Approach %	97.7	2.3	0	0	86.9	11.1	0	2.1	97.9	0
Total %	42.4	1	0	0	8.1	1	0	1	46.5	0

N/S: North Harvard Street
 E: Gordon Road
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 PP
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1



90 Bow St, Boston, MA 02109
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequest@pdilc.com

Start Time	North Harvard Street From North			Gordon Road From East			North Harvard Street From South			Int. Total
	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Left	U-Turn	
04:00 PM	89	7	0	0	10	2	0	1	83	0
04:15 PM	88	4	0	0	9	1	0	82	0	184
04:30 PM	84	10	0	0	16	0	0	106	1	217
04:45 PM	93	2	0	0	19	3	0	103	0	221
Total	354	23	0	0	54	6	0	374	1	814
05:00 PM	89	9	1	0	27	2	0	1	125	0
05:15 PM	89	7	1	0	20	1	0	1	127	0
05:30 PM	83	5	0	0	27	1	0	3	117	0
05:45 PM	109	2	0	0	23	1	0	1	128	0
Total	370	23	2	0	97	5	0	6	497	0
Grand Total	724	46	2	0	151	11	0	8	871	1
Approach %	93.8	6	0.3	0	93.2	6.8	0	0.9	99	0.1
Total %	39.9	2.5	0.1	0	8.3	0.6	0	0.4	48	0.1

Start Time	North Harvard Street From North			Gordon Road From East			North Harvard Street From South			Int. Total
	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Left	U-Turn	
05:00 PM	89	9	1	0	27	2	0	1	125	0
05:15 PM	89	7	1	0	20	1	0	1	127	0
05:30 PM	83	5	0	0	27	1	0	3	117	0
05:45 PM	109	2	0	0	23	1	0	1	128	0
Total	370	23	2	0	97	5	0	6	497	0
Grand Total	724	46	2	0	151	11	0	8	871	1
Approach %	93.8	6	0.3	0	93.2	6.8	0	0.9	99	0.1
Total %	39.9	2.5	0.1	0	8.3	0.6	0	0.4	48	0.1



N/S: North Harvard Street
 E: Gordon Road
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 PP
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

90 Bow St, Boston, MA 02109
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequest@pdilc.com

Start Time	North Harvard Street From South			Gordon Road From East			North Harvard Street From North			Gordon Road From West		
	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right
04:00 PM	6	0	0	1	0	12	0	9	0	1	0	29
04:15 PM	6	0	0	1	0	6	0	7	0	0	0	20
04:30 PM	2	0	0	0	0	15	1	8	1	1	0	28
04:45 PM	3	2	0	2	0	18	0	9	0	3	0	34
Total	17	2	0	5	0	51	1	33	2	2	0	111
05:00 PM	6	1	0	2	0	14	0	10	0	0	0	33
05:15 PM	4	0	1	1	0	21	0	16	0	0	0	43
05:30 PM	7	0	1	2	0	12	0	11	0	0	0	33
05:45 PM	11	0	0	0	0	15	0	8	0	0	0	34
Total	28	1	2	5	0	62	0	45	0	0	0	143
Grand Total	45	3	2	10	0	113	1	78	2	2	0	254
Approach %	90	6	4	8.1	0	91.9	1.2	96.3	2.5	0.8	0	0.8
Total %	17.7	1.2	0.8	3.9	0	44.5	0.4	30.7	0.8	0	0	0.8

Start Time	North Harvard Street From South			Gordon Road From East			North Harvard Street From North			Gordon Road From West		
	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right
04:45 PM	3	0	5	2	0	20	0	9	0	0	0	9
05:00 PM	6	1	7	2	0	14	0	10	0	0	0	10
05:15 PM	4	0	1	2	0	21	0	16	0	0	0	16
05:30 PM	7	0	8	2	0	12	0	11	0	0	0	11
Total Volume	20	3	25	9	0	65	0	46	0	0	0	46
% App.	60	12	8	9.7	0	90.3	0	100	0	0	0	100
PHF	.714	.375	.500	.781	.875	.000	.774	.818	.000	.719	.000	.719
PHF	.714	.375	.500	.781	.875	.000	.774	.818	.000	.719	.000	.719

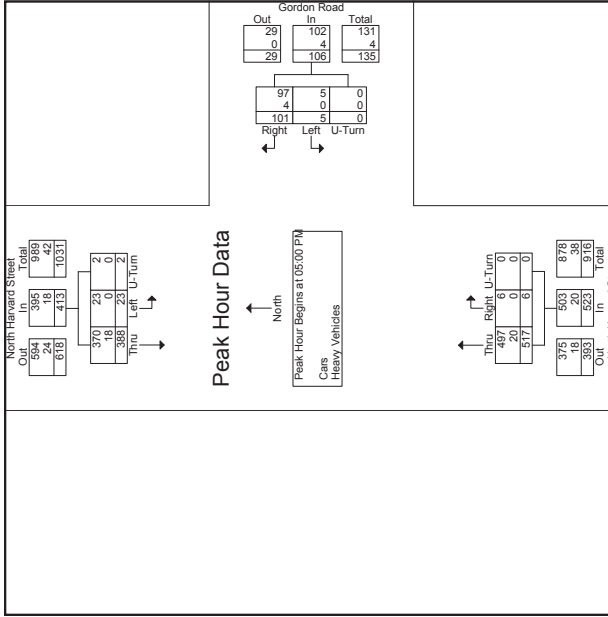


N/S: North Harvard Street
 E: Gordon Road
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 PP
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

90 Bow St, Boston, MA 02109
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequest@pdilc.com

Start Time	North Harvard Street From South			Gordon Road From East			North Harvard Street From North			Gordon Road From West		
	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right
04:00 PM	92	7	1	28	2	0	30	1	130	0	0	131
04:15 PM	95	5	0	21	1	0	22	1	130	0	0	131
04:30 PM	87	5	0	28	1	0	29	3	122	0	0	125
04:45 PM	114	2	0	24	1	0	25	1	135	0	0	136
Total Volume	388	23	2	101	5	0	106	6	517	0	0	523
% App.	93.9	5.6	0.5	95.3	4.7	0	98.3	5.0	95.7	0.0	0	96.1
PHF	.851	.639	.500	.890	.902	.000	.883	.500	.957	.000	0	.961
Cars	370	23	2	89	5	0	102	6	497	0	0	503
% Cars	95.4	100	100	98.6	100	0	96.2	100	96.1	0	0	99.2
Heavy Vehicles	18	0	0	12	0	0	4	0	20	0	0	20
% Heavy Vehicles	4.6	0	0	4.4	0	0	3.8	0	3.9	0	0	3.9





N/S: Larz Anderson /North Harvard Street
 E/W: Soldiers Field Road EB Ramps
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 N1
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

PRECISION
 INDUSTRIES, LLC
 90 Beech Street, Suite 201
 Boston, MA 02109
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequest@pdilc.com

Start Time	Larz Anderson Bridge				Soldiers Field Road EB Onramp				North Harvard Street				Soldiers Field Road EB Offramp				
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	0	80	82	0	0	0	0	0	11	70	0	1	9	2	37	0	292
07:15 AM	0	75	98	0	0	0	0	0	4	68	0	0	12	1	52	0	310
07:30 AM	0	72	93	0	0	0	0	0	7	96	0	0	12	2	45	0	327
07:45 AM	0	97	110	0	0	0	0	0	11	129	0	0	7	1	85	0	440
Total	0	324	383	0	0	0	0	0	33	363	0	1	40	6	219	0	1369
08:00 AM	0	88	107	0	0	0	0	0	10	108	0	0	11	1	69	0	394
08:15 AM	0	89	94	0	0	0	0	0	15	143	0	0	12	3	78	0	434
08:30 AM	0	96	89	0	0	0	0	0	5	127	0	0	16	2	86	0	421
08:45 AM	0	107	108	0	0	0	0	0	11	140	0	0	14	0	81	0	461
Total	0	380	398	0	0	0	0	0	41	518	0	0	53	6	314	0	1710
Grand Total	0	704	781	0	0	0	0	0	74	881	0	1	93	12	533	0	3079
Approach %	0	47.4	52.6	0	0	0	0	0	7.7	92.2	0	0.1	14.6	1.9	83.5	0	0
Total %	0	22.9	25.4	0	0	0	0	0	2.4	28.6	0	0	3	0.4	17.3	0	0
% Cars	0	632	781	0	0	0	0	0	74	778	0	0	91	12	529	0	2897
% Heavy Vehicles	0	72	89	0	0	0	0	0	100	88.3	0	0	97.8	100	99.2	0	182
% Heavy Vehicles	0	10.2	0	0	0	0	0	0	0	103	0	1	2.2	0	4	0	0.8

Start Time	Larz Anderson Bridge				Soldiers Field Road EB Onramp				North Harvard Street				Soldiers Field Road EB Offramp				
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
08:00 AM	0	88	107	0	0	0	0	0	10	108	0	0	11	1	69	0	394
08:15 AM	0	89	94	0	0	0	0	0	15	143	0	0	12	3	78	0	434
08:30 AM	0	96	89	0	0	0	0	0	5	127	0	0	16	2	86	0	421
08:45 AM	0	107	108	0	0	0	0	0	11	140	0	0	14	0	81	0	461
Total	0	380	398	0	0	0	0	0	41	518	0	0	53	6	314	0	1710
Approach %	0	47.4	52.6	0	0	0	0	0	7.7	92.2	0	0.1	14.6	1.9	83.5	0	0
Total %	0	22.9	25.4	0	0	0	0	0	2.4	28.6	0	0	3	0.4	17.3	0	0
% Cars	0	632	781	0	0	0	0	0	74	778	0	0	91	12	529	0	2897
% Heavy Vehicles	0	72	89	0	0	0	0	0	100	88.3	0	0	97.8	100	99.2	0	182
% Heavy Vehicles	0	10.2	0	0	0	0	0	0	0	103	0	1	2.2	0	4	0	0.8



N/S: Larz Anderson /North Harvard Street
 E/W: Soldiers Field Road EB Ramps
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 N1
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

PRECISION
 INDUSTRIES, LLC
 90 Beech Street, Suite 201
 Boston, MA 02109
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequest@pdilc.com

Start Time	Larz Anderson Bridge				Soldiers Field Road EB Onramp				North Harvard Street				Soldiers Field Road EB Offramp				
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	0	73	82	0	0	0	0	0	11	60	0	0	9	2	37	0	274
07:15 AM	0	61	98	0	0	0	0	0	4	58	0	0	11	1	52	0	285
07:30 AM	0	66	93	0	0	0	0	0	7	83	0	0	12	2	44	0	307
07:45 AM	0	80	110	0	0	0	0	0	11	114	0	0	6	1	85	0	407
Total	0	280	383	0	0	0	0	0	33	315	0	0	38	6	218	0	1273
08:00 AM	0	82	107	0	0	0	0	0	10	100	0	0	11	1	68	0	379
08:15 AM	0	83	94	0	0	0	0	0	15	123	0	0	12	3	76	0	406
08:30 AM	0	87	89	0	0	0	0	0	5	115	0	0	16	2	86	0	400
08:45 AM	0	100	108	0	0	0	0	0	11	125	0	0	14	0	81	0	439
Total	0	352	398	0	0	0	0	0	41	463	0	0	53	6	311	0	1624
Grand Total	0	632	781	0	0	0	0	0	74	778	0	0	91	12	529	0	2897
Approach %	0	44.7	55.3	0	0	0	0	0	8.7	91.3	0	0	14.4	1.9	83.7	0	0
Total %	0	21.8	27	0	0	0	0	0	2.6	26.9	0	0	3.1	0.4	18.3	0	0

Start Time	Larz Anderson Bridge				Soldiers Field Road EB Onramp				North Harvard Street				Soldiers Field Road EB Offramp					
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn		
08:00 AM	0	82	107	0	0	0	0	0	10	100	0	0	11	1	68	0	379	
08:15 AM	0	83	94	0	0	0	0	0	15	123	0	0	12	3	76	0	406	
08:30 AM	0	87	89	0	0	0	0	0	5	115	0	0	16	2	86	0	400	
08:45 AM	0	100	108	0	0	0	0	0	11	125	0	0	14	0	81	0	439	
Total	0	352	398	0	0	0	0	0	41	463	0	0	53	6	311	0	1624	
Approach %	0	46.9	53.1	0	0	0	0	0	8.1	91.9	0	0	14.3	1.6	84.1	0	0	
% Heavy Vehicles	0	48.9	53.1	0	0	0	0	0	86.1	91.9	0	0	92.8	100	99.4	0	0	
PHF	.000	.860	.921	.000	.901	.000	.000	.000	.863	.926	.000	.000	.913	.828	.500	.904	.000	.895



N/S: Larz Anderson /North Harvard Street
 E/W: Soldiers Field Road EB Ramps
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 N1
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

PRECISION
 D. A. T. A.
 INDUSTRIES, LLC
 90 Beech St, Boston, MA 01909
 Office: 508.681.3999 Fax: 508.545.1234
 Email: datarequest@pdilic.com

Start Time	Larz Anderson Bridge From North			Soldiers Field Road EB Onramp From East			North Harvard Street From South			Soldiers Field Road EB Offramp From West			Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	0	7	0	0	0	0	0	10	0	0	0	0	18
07:15 AM	0	14	0	0	0	0	0	10	0	0	0	0	25
07:30 AM	0	6	0	0	0	0	0	13	0	0	0	1	20
07:45 AM	0	17	0	0	0	0	0	15	0	0	0	0	33
Total	0	44	0	0	0	0	0	48	0	1	2	0	96
08:00 AM	0	6	0	0	0	0	0	8	0	0	0	1	15
08:15 AM	0	6	0	0	0	0	0	12	0	0	0	2	28
08:30 AM	0	9	0	0	0	0	0	10	0	0	0	0	21
08:45 AM	0	7	0	0	0	0	0	15	0	0	0	0	22
Total	0	28	0	0	0	0	0	55	0	0	0	3	86
Grand Total	0	72	0	0	0	0	0	103	0	1	2	0	182
Approach %	0	100	0	0	0	0	0	99	0	1	33.3	0	66.7
Total %	0	39.6	0	0	0	0	0	56.6	0	0.5	1.1	0	2.2

Start Time	Larz Anderson Bridge From North			Soldiers Field Road EB Onramp From East			North Harvard Street From South			Soldiers Field Road EB Offramp From West			Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:45 AM	0	17	0	0	0	0	0	15	0	0	0	0	33
08:00 AM	0	6	0	0	0	0	0	8	0	0	0	0	15
08:15 AM	0	6	0	0	0	0	0	20	0	0	2	0	28
08:30 AM	0	9	0	0	0	0	0	12	0	0	0	0	21
Total Volume	0	38	0	0	0	0	0	55	0	0	2	0	97
% App. Total	0	100	0	0	0	0	0	100	0	0	2	0	75
PHF	0.00	.559	0.00	.000	.000	.000	.000	.688	0.00	.000	.688	0.00	.375
	0.00	.559	0.00	.000	.000	.000	.000	.688	0.00	.000	.688	0.00	.375



N/S: Larz Anderson /North Harvard Street
 E/W: Soldiers Field Road EB Ramps
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 N1
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

PRECISION
 D. A. T. A.
 INDUSTRIES, LLC
 90 Beech St, Boston, MA 01909
 Office: 508.681.3999 Fax: 508.545.1234
 Email: datarequest@pdilic.com

Start Time	Larz Anderson Bridge From North			Soldiers Field Road EB Onramp From East			North Harvard Street From South			Soldiers Field Road EB Offramp From West			Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	0	1	0	0	0	0	0	15	0	0	0	0	15
07:15 AM	0	5	0	0	0	0	0	23	0	0	0	0	28
07:30 AM	0	3	0	0	0	0	0	42	0	0	0	0	45
07:45 AM	0	11	0	0	0	0	0	47	0	0	0	0	58
Total	0	20	0	0	0	0	0	127	0	0	0	0	196
08:00 AM	0	9	0	0	0	0	0	61	0	0	0	0	70
08:15 AM	0	12	1	1	0	0	0	60	0	5	0	0	78
08:30 AM	0	5	0	0	0	0	0	40	0	10	0	0	55
08:45 AM	0	10	0	0	0	0	0	66	0	17	0	0	83
Total	0	36	1	1	0	0	0	227	0	36	0	0	264
Grand Total	0	56	1	1	0	0	0	354	0	59	0	45	419
Approach %	0	96.6	1.7	1.7	0	0	0	100	0	43.3	0.7	0	98.9
Total %	0	7	0.1	0.1	0	0	0	44.4	0	7.4	0	0	10

Start Time	Larz Anderson Bridge From North			Soldiers Field Road EB Onramp From East			North Harvard Street From South			Soldiers Field Road EB Offramp From West			Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
08:00 AM	0	9	0	0	0	0	0	61	0	4	0	0	35
08:15 AM	0	12	1	1	0	0	0	60	0	5	0	0	50
08:30 AM	0	5	0	0	0	0	0	40	0	10	0	0	57
08:45 AM	0	10	0	0	0	0	0	66	0	17	0	0	83
Total	0	36	1	1	0	0	0	227	0	36	0	0	264
Grand Total	0	56	1	1	0	0	0	354	0	59	0	45	419
Approach %	0	96.6	1.7	1.7	0	0	0	100	0	43.3	0.7	0	98.9
Total %	0	7	0.1	0.1	0	0	0	44.4	0	7.4	0	0	10

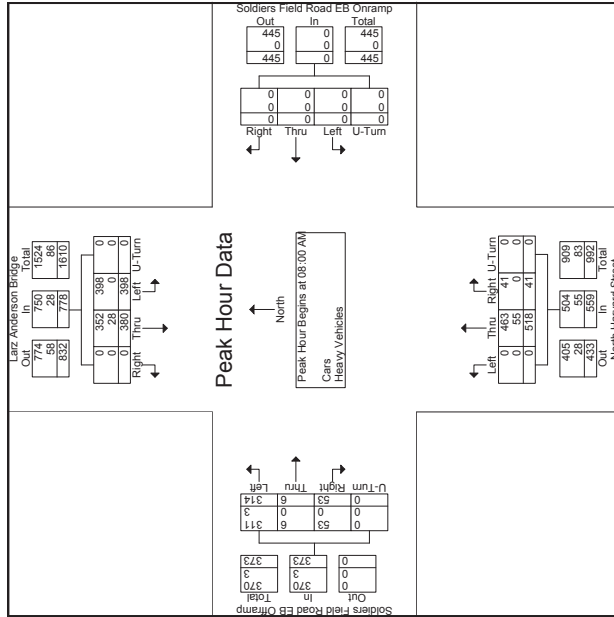


N/S: Larz Anderson /North Harvard Street
 E/W: Soldiers Field Road EB Ramps
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 N1
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

PRECISION
 INDUSTRIES, LLC
 90 Beech Rd, Boston, MA 02109
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequest@public.com

Start Time	Larz Anderson Bridge			Soldiers Field Road EB Onramp			North Harvard Street			Soldiers Field Road EB Offramp		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	88	107	0	0	0	0	10	108	0	118	11
08:30 AM	0	89	94	0	0	0	0	15	143	0	158	12
08:45 AM	0	96	89	0	0	0	0	5	127	0	132	3
Total	0	107	108	0	0	0	0	11	140	0	151	14
% App. Total	0	48.8	51.2	0	0	0	0	4.1	51.8	0	55.9	5.3
PHF	.000	.888	.921	.000	.000	.000	.000	.683	.906	.000	.884	.528
Cars	0	380	398	0	780	0	0	411	463	0	504	53
% Cars	0	92.8	100	0	99.8	0	0	100	98.4	0	98.4	100
Heavy Vehicles	0	28	7.4	0	0	0	0	10.6	0	0	9.5	0
% Heavy Vehicles	0	7.4	0	0	0.2	0	0	2.4	0	0	1.6	0



N/S: Larz Anderson /North Harvard Street
 E/W: Soldiers Field Road EB Ramps
 City, State: Boston, MA
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File Name : 122864 NN1
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

PRECISION
 INDUSTRIES, LLC
 90 Beech Rd, Boston, MA 02109
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequest@public.com

Start Time	Larz Anderson Bridge			Soldiers Field Road EB Onramp			North Harvard Street			Soldiers Field Road EB Offramp		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
04:00 PM	0	91	97	0	0	0	0	10	85	0	16	2
04:15 PM	0	88	106	0	0	0	0	13	98	0	17	1
04:30 PM	0	83	104	0	0	0	0	7	120	0	10	2
04:45 PM	0	90	84	0	0	0	0	9	119	0	12	3
Total	0	352	391	0	0	0	0	39	422	0	55	8
05:00 PM	0	86	96	0	0	0	0	9	137	0	21	3
05:15 PM	0	92	92	0	0	0	0	16	123	0	19	4
05:30 PM	0	87	87	0	0	0	0	13	148	0	19	1
05:45 PM	0	102	102	0	0	0	0	4	153	0	24	3
Total	0	367	377	0	0	0	0	42	561	0	83	11
Grand Total	0	719	768	0	0	0	0	81	983	0	138	19
Approach %	0	48.4	51.6	0	0	0	0	7.6	92.4	0	24.9	3.4
Total %	0	23.2	24.7	0	0	0	0	2.6	31.7	0	4.4	0.6
Cars	0	681	767	0	0	0	0	81	936	0	136	19
% Cars	0	94.7	99.9	0	0	0	0	100	95.2	0	98.6	100
Heavy Vehicles	0	38	1	0	0	0	0	4	47	0	2	0
% Heavy Vehicles	0	5.3	0.1	0	0	0	0	4.8	5.0	0	1.4	0

Start Time	Larz Anderson Bridge			Soldiers Field Road EB Onramp			North Harvard Street			Soldiers Field Road EB Offramp		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
05:00 PM	0	86	96	0	0	0	0	9	137	0	21	3
05:15 PM	0	92	92	0	0	0	0	16	123	0	19	4
05:30 PM	0	87	87	0	0	0	0	13	148	0	19	1
05:45 PM	0	102	102	0	0	0	0	4	153	0	24	3
Total	0	367	377	0	0	0	0	42	561	0	83	11
% App. Total	0	49.3	50.7	0	0	0	0	7	93	0	26.5	3.5
PHF	.000	.900	.924	.000	.000	.000	.000	.656	.917	.000	.936	.688
Cars	0	350	376	0	0	0	0	42	542	0	584	82
% Cars	0	95.4	99.7	0	0	0	0	100	96.6	0	96.8	100
Heavy Vehicles	0	17	1	0	0	0	0	4	19	0	19	1
% Heavy Vehicles	0	4.6	0.3	0	0	0	0	3.4	3.4	0	3.2	0.5

Peak Hour for Entire Intersection Begins at 05:00 PM



N/S: Larz Anderson /North Harvard Street
 E/W: Soldiers Field Road EB Ramps
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 NN1
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

PRECISION
 D. A. T. A.
 INDUSTRIES, LLC
 90 Beech Rd, Boston, MA 02109
 Office: 508.681.3999 Fax: 508.545.1234
 Email: datarequest@pdillc.com

Start Time	Larz Anderson Bridge From North			Soldiers Field Road EB Onramp From East			North Harvard Street From South			Soldiers Field Road EB Offramp From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
04:00 PM	0	84	97	0	0	0	10	77	0	16	2	47	0
04:15 PM	0	75	106	0	0	0	13	88	0	16	1	45	0
04:30 PM	0	85	104	0	0	0	7	113	0	10	2	39	0
04:45 PM	0	87	84	0	0	0	9	116	0	12	3	46	0
Total	0	331	391	0	0	0	39	394	0	54	8	177	0
05:00 PM	0	83	95	0	0	0	9	133	0	21	3	42	0
05:15 PM	0	88	92	0	0	0	16	119	0	18	4	54	0
05:30 PM	0	83	87	0	0	0	13	143	0	19	1	60	0
05:45 PM	0	96	102	0	0	0	4	147	0	24	3	62	0
Total	0	350	376	0	0	0	42	542	0	82	11	218	0
Grand Total	0	681	767	0	0	0	81	936	0	136	19	395	0
Approach %	0	47	53	0	0	0	8	92	0	24.7	3.5	71.8	0
Total %	0	22.6	25.4	0	0	0	2.7	31	0	4.5	0.6	13.1	0

Start Time	Larz Anderson Bridge From North			Soldiers Field Road EB Onramp From East			North Harvard Street From South			Soldiers Field Road EB Offramp From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
04:00 PM	0	83	95	0	0	0	9	133	0	14	3	42	0
04:15 PM	0	88	92	0	0	0	16	119	0	18	4	54	0
04:30 PM	0	83	87	0	0	0	13	143	0	19	1	60	0
04:45 PM	0	96	102	0	0	0	4	147	0	24	3	62	0
Total	0	350	376	0	0	0	42	542	0	82	11	218	0
Grand Total	0	681	767	0	0	0	81	936	0	136	19	395	0
Approach %	0	47	53	0	0	0	8	92	0	24.7	3.5	71.8	0
Total %	0	22.6	25.4	0	0	0	2.7	31	0	4.5	0.6	13.1	0



N/S: Larz Anderson /North Harvard Street
 E/W: Soldiers Field Road EB Ramps
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 NN1
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

PRECISION
 D. A. T. A.
 INDUSTRIES, LLC
 90 Beech Rd, Boston, MA 02109
 Office: 508.681.3999 Fax: 508.545.1234
 Email: datarequest@pdillc.com

Start Time	Larz Anderson Bridge From North			Soldiers Field Road EB Onramp From East			North Harvard Street From South			Soldiers Field Road EB Offramp From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
04:00 PM	0	7	0	0	0	0	0	8	0	0	0	0	15
04:15 PM	0	8	0	0	0	0	10	0	0	1	0	1	20
04:30 PM	0	3	0	0	0	0	0	7	0	0	0	0	10
04:45 PM	0	3	0	0	0	0	0	3	0	0	0	0	6
Total	0	21	0	0	0	0	28	0	0	1	0	1	51
05:00 PM	0	3	1	0	0	0	0	4	0	0	0	0	8
05:15 PM	0	4	0	0	0	0	0	4	0	1	0	0	9
05:30 PM	0	4	0	0	0	0	0	5	0	0	0	0	9
05:45 PM	0	6	0	0	0	0	0	6	0	0	1	0	13
Total	0	17	1	0	0	0	19	0	0	1	0	1	39
Grand Total	0	38	1	0	0	0	47	0	0	2	0	2	90
Approach %	0	97.4	2.6	0	0	0	100	0	0	50	0	50	0
Total %	0	42.2	1.1	0	0	0	52.2	0	0	2.2	0	2.2	0

Start Time	Larz Anderson Bridge From North			Soldiers Field Road EB Onramp From East			North Harvard Street From South			Soldiers Field Road EB Offramp From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
04:00 PM	0	7	0	0	0	0	0	8	0	0	0	0	15
04:15 PM	0	8	0	0	0	0	10	0	0	1	0	1	20
04:30 PM	0	3	0	0	0	0	0	7	0	0	0	0	10
04:45 PM	0	3	0	0	0	0	0	3	0	0	0	0	6
Total	0	21	0	0	0	0	28	0	0	1	0	1	51
05:00 PM	0	3	1	0	0	0	0	4	0	0	0	0	8
05:15 PM	0	4	0	0	0	0	0	4	0	1	0	0	9
05:30 PM	0	4	0	0	0	0	0	5	0	0	0	0	9
05:45 PM	0	6	0	0	0	0	0	6	0	0	1	0	13
Total	0	17	1	0	0	0	19	0	0	1	0	1	39
Grand Total	0	38	1	0	0	0	47	0	0	2	0	2	90
Approach %	0	97.4	2.6	0	0	0	100	0	0	50	0	50	0
Total %	0	42.2	1.1	0	0	0	52.2	0	0	2.2	0	2.2	0



N/S: Larz Anderson /North Harvard Street
 E/W: Soldiers Field Road EB Ramps
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 NN1
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

90 Bea St, Boston, MA 01033
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequests@pdic.com

Start Time	Larz Anderson Bridge				Soldiers Field Road EB Onramp				North Harvard Street				Soldiers Field Road EB Offramp					
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total	
04:00 PM	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	174
04:15 PM	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	64	166
04:30 PM	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	75	201
04:45 PM	0	11	1	0	0	0	0	0	0	0	0	0	0	0	0	0	81	195
Total	0	42	1	0	0	0	0	0	0	0	0	0	0	0	0	0	265	736
05:00 PM	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	75	183
05:15 PM	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	163
05:30 PM	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	93	199
05:45 PM	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	99	224
Total	0	38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	327	769
Grand Total	0	80	1	0	0	0	0	0	0	0	0	0	0	0	0	0	592	1505
Approach %	0	98.8	1.2	0	0	0	0	0	0	0	0	0	0	0	0	0	99.7	
Total %	0	5.3	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	38.3	

Start Time	Larz Anderson Bridge				Soldiers Field Road EB Onramp				North Harvard Street				Soldiers Field Road EB Offramp					
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total	
04:00 PM	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	76	183
04:15 PM	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	163
04:30 PM	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	99	224
04:45 PM	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	327	769
Total	0	38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	327	769
05:00 PM	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	75	183
05:15 PM	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	163
05:30 PM	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	93	199
05:45 PM	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	99	224
Total	0	38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	327	769
Grand Total	0	80	1	0	0	0	0	0	0	0	0	0	0	0	0	0	592	1505
Approach %	0	98.8	1.2	0	0	0	0	0	0	0	0	0	0	0	0	0	99.7	
Total %	0	5.3	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	38.3	

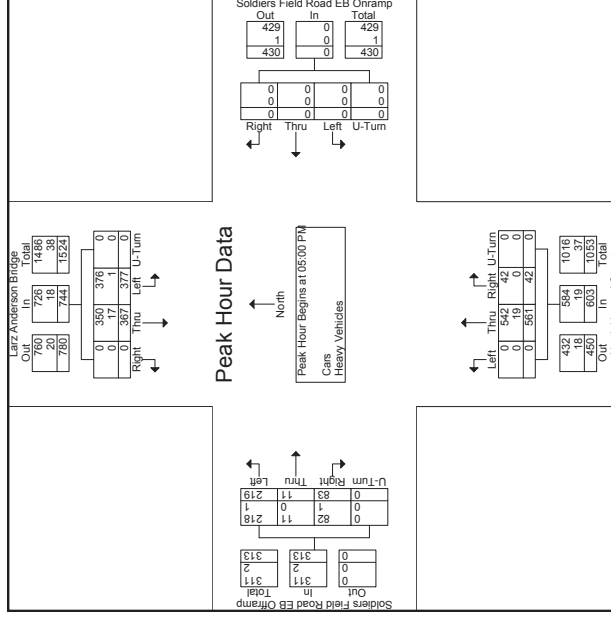


N/S: Larz Anderson /North Harvard Street
 E/W: Soldiers Field Road EB Ramps
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 NN1
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

90 Bea St, Boston, MA 01033
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequests@pdic.com

Start Time	Larz Anderson Bridge				Soldiers Field Road EB Onramp				North Harvard Street				Soldiers Field Road EB Offramp					
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total	
04:00 PM	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	174
04:15 PM	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	64	166
04:30 PM	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	75	201
04:45 PM	0	11	1	0	0	0	0	0	0	0	0	0	0	0	0	0	81	195
Total	0	42	1	0	0	0	0	0	0	0	0	0	0	0	0	0	265	736
05:00 PM	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	75	183
05:15 PM	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	163
05:30 PM	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	93	199
05:45 PM	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	99	224
Total	0	38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	327	769
Grand Total	0	80	1	0	0	0	0	0	0	0	0	0	0	0	0	0	592	1505
Approach %	0	98.8	1.2	0	0	0	0	0	0	0	0	0	0	0	0	0	99.7	
Total %	0	5.3	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	38.3	





N/S: Larz Anderson
E/W: Soldiers Field Road WB Ramps
City, State: Boston, MA
Client: VHB/ K. Keen

File Name : 122864 N2
Site Code : 10463.00
Start Date : 4/5/2012
Page No : 1

PRECISION INDUSTRIES, LLC
100 Beech Street, Boston, MA 02109
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequest@pdic.com

Groups Printed- Cars

Start Time	Larz Anderson Bridge From North			Soldiers Field Road WB Offramp From East			Larz Anderson Bridge From South			Soldiers Field Road WB Onramp From West		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
07:00 AM	15	136	0	43	1	15	0	85	11	0	0	0
07:15 AM	14	150	0	70	0	15	0	110	3	0	0	0
07:30 AM	17	141	0	77	0	16	0	107	12	0	0	0
07:45 AM	13	183	0	67	1	18	0	189	10	0	0	0
Total	59	594	0	257	2	64	0	491	36	0	0	0
08:00 AM	8	181	0	79	1	15	0	158	13	0	0	0
08:15 AM	16	156	0	79	4	12	0	186	15	0	0	0
08:30 AM	13	162	0	70	1	10	0	189	12	0	0	0
08:45 AM	12	186	0	78	2	20	0	187	17	0	0	0
Total	49	685	0	306	8	57	0	720	57	0	0	0
Grand Total	108	1279	0	563	10	121	0	1211	93	0	0	0
Approach %	7.8	92.2	0	81.1	1.4	17.4	0	92.9	7.1	0	0	0
Total %	3.2	37.8	0	16.6	0.3	3.6	0	35.8	2.7	0	0	0
% Cars	98.2	94.7	0	99.8	100	100	0	92.5	94.9	0	0	0
% Heavy Vehicles	1.8	5.3	0	0.2	0	0	0	7.5	5.1	0	0	0

Groups Printed- Heavy Vehicles

Start Time	Larz Anderson Bridge From North			Soldiers Field Road WB Offramp From East			Larz Anderson Bridge From South			Soldiers Field Road WB Onramp From West		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
07:00 AM	16	144	0	43	1	15	0	92	14	0	0	0
07:15 AM	14	163	0	70	0	15	0	122	5	0	0	0
07:30 AM	17	148	0	77	0	16	0	119	12	0	0	0
07:45 AM	13	183	0	67	1	18	0	203	10	0	0	0
Total	60	638	0	257	2	64	0	536	41	0	0	0
08:00 AM	8	187	0	79	1	15	0	166	13	0	0	0
08:15 AM	17	162	0	79	4	12	0	206	15	0	0	0
08:30 AM	13	171	0	70	1	10	0	200	12	0	0	0
08:45 AM	12	193	0	79	2	20	0	201	17	0	0	0
Total	50	713	0	307	8	57	0	773	57	0	0	0
Grand Total	110	1351	0	564	10	121	0	1309	98	0	0	0
Approach %	7.5	92.5	0	81.2	1.4	17.4	0	93	7	0	0	0
Total %	3.1	37.9	0	15.8	0.3	3.4	0	36.7	2.8	0	0	0
% Cars	108	1279	0	563	10	121	0	1211	93	0	0	0
% Heavy Vehicles	2	72	0	1	0	0	0	98	5	0	0	0

Peak Hour for Entire Intersection Begins at 08:00 AM

Start Time	Larz Anderson Bridge From North			Soldiers Field Road WB Offramp From East			Larz Anderson Bridge From South			Soldiers Field Road WB Onramp From West		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
08:00 AM	8	187	0	79	1	15	0	166	13	0	0	0
08:15 AM	17	171	0	79	4	12	0	200	12	0	0	0
08:30 AM	12	193	0	79	2	20	0	201	17	0	0	0
Total	37	551	0	237	7	47	0	567	42	0	0	0
% App. Total	6.7	59.3	0	7.3	2.2	15.4	0	92.9	7.5	0	0	0
PHF	.766	.921	.000	.927	.966	.950	.713	.000	.928	.000	.952	.000

Peak Hour for Entire Intersection Begins at 08:00 AM

Start Time	Larz Anderson Bridge From North			Soldiers Field Road WB Offramp From East			Larz Anderson Bridge From South			Soldiers Field Road WB Onramp From West		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
08:00 AM	8	187	0	79	1	15	0	166	13	0	0	0
08:15 AM	17	171	0	79	4	12	0	200	12	0	0	0
08:30 AM	12	193	0	79	2	20	0	201	17	0	0	0
Total	37	551	0	237	7	47	0	567	42	0	0	0
% App. Total	6.6	69.4	0	7.3	2.2	15.3	0	93.1	6.9	0	0	0
PHF	.735	.924	.000	.930	.972	.950	.713	.000	.938	.000	.939	.000
% Cars	49	685	0	734	306	8	57	0	720	57	0	0
% Heavy Vehicles	1	28	0	96.2	99.7	100	0	99.7	0	93.1	100	0
% Heavy Vehicles	2.0	3.9	0	3.8	0.3	0	0	0.3	6.9	0	0	0



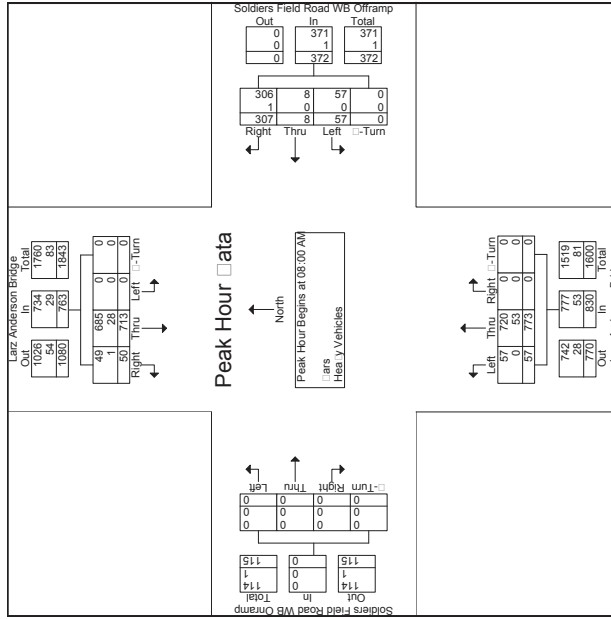
N/S: Larz Anderson
 E/W: Soldiers Field Road WB Ramps
 City, State: Boston, MA
 Client: VHB/ K. Keen

N/S: Larz Anderson /North Harvard Street
 E/W: Soldiers Field Road EB Ramps
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 N2
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

NO. Box 301 Berlin, MA 01593
 Office: 508.681.3999 Fax: 508.545.1234
 Email: datarequest@public.com

Start Time	Larz Anderson Bridge			Soldiers Field Road WB Offramp			Larz Anderson Bridge			Soldiers Field Road WB Onramp		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
08:00 AM	1	15	0	95	0	166	13	0	179	0	0	0
08:15 AM	1	171	0	184	70	1	10	0	81	0	0	0
08:30 AM	12	193	0	2	15	2	2	0	212	0	0	0
08:45 AM	50	713	0	763	307	8	57	0	372	0	0	0
Total Volume	63	934	0	1825	22	153	0	933	0	0	0	0
% App. Total	.735	.924	.000	.950	.972	.500	.713	.000	.921	.000	.000	.000
PHF	.735	.924	.000	.950	.972	.500	.713	.000	.921	.000	.000	.000
% Heav. Vehicles	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Heav. Y. Vehicles	0	0	0	0	0	0	0	0	0	0	0	0
% Heav. Y. Vehicles	2.0	3.9	0.0	0.3	0.0	0.3	0.0	6.9	0.0	6.4	0.0	4.2



N/S: Larz Anderson /North Harvard Street
 E/W: Soldiers Field Road EB Ramps
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 NN2
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

NO. Box 301 Berlin, MA 01593
 Office: 508.681.3999 Fax: 508.545.1234
 Email: datarequest@public.com

Start Time	Larz Anderson Bridge			Soldiers Field Road WB Offramp			Larz Anderson Bridge			Soldiers Field Road WB Onramp		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
04:00 PM	11	177	0	70	3	17	0	0	115	16	0	0
04:15 PM	16	170	0	86	3	9	0	0	129	15	0	0
04:30 PM	15	171	0	99	3	20	0	0	144	15	0	0
04:45 PM	21	157	0	99	1	24	0	0	144	21	0	0
Total	63	675	0	354	10	70	0	0	532	67	0	0
05:00 PM	23	168	0	99	0	19	0	0	161	17	0	0
05:15 PM	21	166	0	91	2	14	0	0	162	14	0	0
05:30 PM	22	161	0	91	2	22	0	0	181	24	0	0
05:45 PM	25	183	0	88	3	21	0	0	200	17	0	0
Total	91	678	0	369	7	76	0	0	704	72	0	0
Grand Total	154	1353	0	723	17	146	0	0	1236	139	0	0
Approach %	10.2	89.8	0.0	81.6	1.9	16.5	0.0	0.0	89.9	10.1	0.0	0.0
Total %	4.1	35.9	0.0	19.2	0.5	3.9	0.0	0.0	32.8	3.7	0.0	0.0
% Heav. Y. Vehicles	154	1317	0	722	17	145	0	0	1189	138	0	0
Heav. Y. Vehicles	100	97.3	0	99.9	100	99.3	0	0	96.2	99.3	0	0
% Heav. Y. Vehicles	0	2.7	0.0	0.1	0	0	0.0	0.0	4.7	1	0.0	0.0

Start Time	Larz Anderson Bridge			Soldiers Field Road WB Offramp			Larz Anderson Bridge			Soldiers Field Road WB Onramp		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
05:00 PM	23	168	0	0	191	99	0	19	0	17	0	178
05:15 PM	21	166	0	0	187	91	2	14	0	107	0	176
05:30 PM	22	161	0	0	183	91	2	22	0	205	0	205
05:45 PM	25	183	0	0	211	88	3	0	0	211	0	211
Total Volume	91	678	0	0	769	369	7	76	0	704	72	776
% App. Total	91.0	92.6	.000	.000	92.4	93.2	583	86.4	.000	95.8	100.0	89.4
PHF	.910	.926	.000	.000	92.4	93.2	583	86.4	.000	95.8	100.0	89.4
% Heav. Y. Vehicles	91	660	0	0	751	368	7	76	0	451	0	756
Heav. Y. Vehicles	100	97.3	0	0	97.7	99.7	100	100	0	99.8	0	97.4
% Heav. Y. Vehicles	0	18	0.0	0	18	1	0	0	0	19	0	20
% Heav. Y. Vehicles	0	2.7	0.0	0	2.3	0.3	0	0	0	2.7	1.4	2.6



N/S: Larz Anderson /North Harvard Street
 E/W: Soldiers Field Road EB Ramps
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 NN2
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

PRECISION
 INDUSTRIES, LLC
 90 Beaconsfield, MA 01909
 Office: 508.681.3999 Fax: 508.545.1234
 Email: datarequest@pdic.com

Start Time	Larz Anderson Bridge From North			Soldiers Field Road WB Onramp From East			Larz Anderson Bridge From South			Soldiers Field Road WB Onramp From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
04:00 PM	11	171	0	0	70	3	16	0	107	16	0	0	394
04:15 PM	16	164	0	0	86	3	9	0	119	15	0	0	412
04:30 PM	15	168	0	0	99	3	20	0	137	15	0	0	457
04:45 PM	21	154	0	0	99	1	24	0	141	21	0	0	461
Total	63	657	0	0	354	10	69	0	504	67	0	0	1724
05:00 PM	23	164	0	0	99	0	19	0	188	16	0	0	479
05:15 PM	21	162	0	0	90	2	14	0	188	14	0	0	461
05:30 PM	22	157	0	0	91	2	22	0	176	24	0	0	494
05:45 PM	25	177	0	0	88	3	21	0	193	17	0	0	524
Total	91	660	0	0	368	7	76	0	685	71	0	0	1958
Grand Total	154	1317	0	0	722	17	145	0	1189	138	0	0	3682
Approach %	10.5	89.5	0	0	81.7	1.9	16.4	0	89.6	10.4	0	0	0
Total %	4.2	35.8	0	0	19.6	0.5	3.9	0	32.3	3.7	0	0	0

Start Time	Larz Anderson Bridge From North			Soldiers Field Road WB Onramp From East			Larz Anderson Bridge From South			Soldiers Field Road WB Onramp From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
04:00 PM	0	6	0	0	0	0	1	0	0	8	0	0	15
04:15 PM	0	6	0	0	0	0	0	0	10	0	0	0	16
04:30 PM	0	3	0	0	0	0	0	0	7	0	0	0	10
04:45 PM	0	3	0	0	0	0	0	0	3	0	0	0	6
Total	0	18	0	0	0	0	1	0	28	0	0	0	47
05:00 PM	0	4	0	0	0	0	0	0	3	1	0	0	8
05:15 PM	0	4	0	0	0	0	0	0	4	0	0	0	9
05:30 PM	0	4	0	0	0	0	0	0	5	0	0	0	9
05:45 PM	0	6	0	0	0	0	0	0	7	0	0	0	13
Total	0	18	0	0	0	0	0	0	19	1	0	0	39
Grand Total	0	36	0	0	0	0	1	0	47	1	0	0	86
Approach %	0	100	0	0	50	0	50	0	97.9	2.1	0	0	0
Total %	0	41.9	0	0	1.2	0	1.2	0	94.7	1.2	0	0	0



N/S: Larz Anderson /North Harvard Street
 E/W: Soldiers Field Road EB Ramps
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 NN2
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

PRECISION
 INDUSTRIES, LLC
 90 Beaconsfield, MA 01909
 Office: 508.681.3999 Fax: 508.545.1234
 Email: datarequest@pdic.com

Start Time	Larz Anderson Bridge From North			Soldiers Field Road WB Onramp From East			Larz Anderson Bridge From South			Soldiers Field Road WB Onramp From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
04:00 PM	0	6	0	0	0	0	1	0	0	8	0	0	15
04:15 PM	0	6	0	0	0	0	0	0	10	0	0	0	16
04:30 PM	0	3	0	0	0	0	0	0	7	0	0	0	10
04:45 PM	0	3	0	0	0	0	0	0	3	0	0	0	6
Total	0	18	0	0	0	0	1	0	28	0	0	0	47
05:00 PM	0	4	0	0	0	0	0	0	3	1	0	0	8
05:15 PM	0	4	0	0	0	0	0	0	4	0	0	0	9
05:30 PM	0	4	0	0	0	0	0	0	5	0	0	0	9
05:45 PM	0	6	0	0	0	0	0	0	7	0	0	0	13
Total	0	18	0	0	0	0	0	0	19	1	0	0	39
Grand Total	0	36	0	0	0	0	1	0	47	1	0	0	86
Approach %	0	100	0	0	50	0	50	0	97.9	2.1	0	0	0
Total %	0	41.9	0	0	1.2	0	1.2	0	94.7	1.2	0	0	0

Start Time	Larz Anderson Bridge From North			Soldiers Field Road WB Onramp From East			Larz Anderson Bridge From South			Soldiers Field Road WB Onramp From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
04:00 PM	0	6	0	0	0	0	1	0	0	8	0	0	15
04:15 PM	0	6	0	0	0	0	0	0	10	0	0	0	16
04:30 PM	0	3	0	0	0	0	0	0	7	0	0	0	10
04:45 PM	0	3	0	0	0	0	0	0	3	0	0	0	6
Total	0	18	0	0	0	0	1	0	28	0	0	0	47
05:00 PM	0	4	0	0	0	0	0	0	3	1	0	0	8
05:15 PM	0	4	0	0	0	0	0	0	4	0	0	0	9
05:30 PM	0	4	0	0	0	0	0	0	5	0	0	0	9
05:45 PM	0	6	0	0	0	0	0	0	7	0	0	0	13
Total	0	18	0	0	0	0	0	0	19	1	0	0	39
Grand Total	0	36	0	0	0	0	1	0	47	1	0	0	86
Approach %	0	100	0	0	50	0	50	0	97.9	2.1	0	0	0
Total %	0	41.9	0	0	1.2	0	1.2	0	94.7	1.2	0	0	0



N/S: Larz Anderson /North Harvard Street
 E/W: Soldiers Field Road EB Ramps
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 NN2
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

File Name : 122864 NN2
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

90 Bow St, Boston, MA 02109
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequest@pdic.com

Start Time	Larz Anderson Bridge From North			Soldiers Field Road WB Onramp From East			Larz Anderson Bridge From South			Soldiers Field Road WB Onramp From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
04:00 PM	0	10	0	1	0	0	0	11	0	0	0	0	40
04:15 PM	0	12	0	1	0	0	0	7	0	0	0	0	68
04:30 PM	0	15	0	1	0	0	0	9	0	0	0	0	69
04:45 PM	0	12	0	1	0	0	0	11	0	0	0	0	84
Total	0	49	0	53	3	2	0	38	0	0	0	0	281
05:00 PM	2	12	0	11	0	0	0	14	0	0	0	0	69
05:15 PM	1	8	0	13	0	0	0	18	1	0	0	0	57
05:30 PM	0	12	0	18	0	0	0	18	0	0	0	0	90
05:45 PM	1	15	0	13	0	1	0	109	0	12	0	0	95
Total	4	47	0	55	0	6	0	338	0	62	1	0	311
Grand Total	4	96	0	108	3	8	0	642	0	100	1	0	572
Approach %	1.9	46.2	0	51.9	0.5	1.2	0	98.3	0	99	1	0	100
Total %	0.3	6.3	0	7	0.2	0.5	0	41.9	0	6.5	0.1	0	37.3

Start Time	Larz Anderson Bridge From North			Soldiers Field Road WB Onramp From East			Larz Anderson Bridge From South			Soldiers Field Road WB Onramp From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
05:00 PM	2	12	0	11	0	0	0	14	0	0	0	0	69
05:15 PM	1	8	0	13	0	0	0	18	1	0	0	0	57
05:30 PM	0	12	0	18	0	0	0	18	0	0	0	0	90
05:45 PM	1	15	0	13	0	1	0	109	0	12	0	0	95
Total	4	47	0	55	0	6	0	338	0	62	1	0	311
Grand Total	4	96	0	108	3	8	0	642	0	100	1	0	572
Approach %	1.9	46.2	0	51.9	0.5	1.2	0	98.3	0	99	1	0	100
Total %	0.3	6.3	0	7	0.2	0.5	0	41.9	0	6.5	0.1	0	37.3

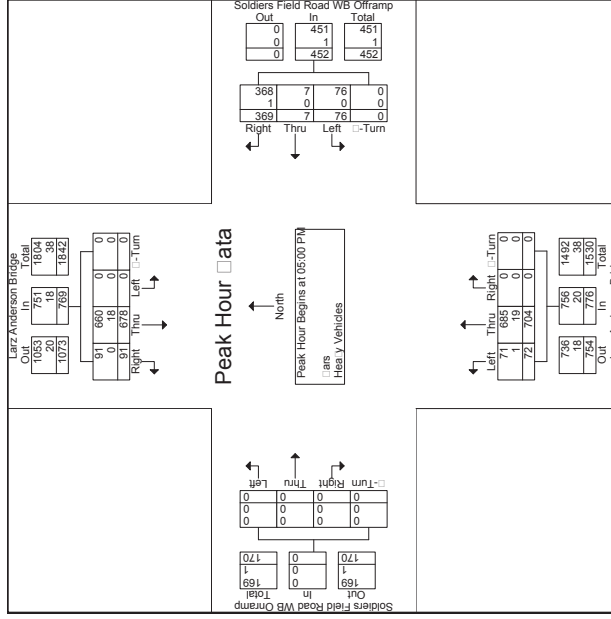


N/S: Larz Anderson /North Harvard Street
 E/W: Soldiers Field Road EB Ramps
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 NN2
 Site Code : 10463.00
 Start Date : 4/5/2012
 Page No : 1

90 Bow St, Boston, MA 02109
 Office: 508.481.3999 Fax: 508.545.1234
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Start Time	Larz Anderson Bridge From North			Soldiers Field Road WB Onramp From East			Larz Anderson Bridge From South			Soldiers Field Road WB Onramp From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
05:00 PM	2	12	0	11	0	0	0	14	0	0	0	0	69
05:15 PM	1	8	0	13	0	0	0	18	1	0	0	0	57
05:30 PM	0	12	0	18	0	0	0	18	0	0	0	0	90
05:45 PM	1	15	0	13	0	1	0	109	0	12	0	0	95
Total	4	47	0	55	0	6	0	338	0	62	1	0	311
Grand Total	4	96	0	108	3	8	0	642	0	100	1	0	572
Approach %	1.9	46.2	0	51.9	0.5	1.2	0	98.3	0	99	1	0	100
Total %	0.3	6.3	0	7	0.2	0.5	0	41.9	0	6.5	0.1	0	37.3





N/S: Soldiers Field Road EB Ramps
 E/W: Western Avenue
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 K-1
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

PRECISION
 INDUSTRIES LLC
 90 Boston Berlin MA 01903
 Office: 508-481-3999 Fax: 508-545-1234
 Email: datarequest@precision.com

Start Time	Soldiers Field Road EB Offramp				Western Avenue				Soldiers Field Road EB Onramp				Western Avenue				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	0	0	0	0	0	8	3	0	0	0	0	0	0	0	0	0	21
07:15 AM	0	1	0	0	0	18	2	0	0	0	0	0	5	0	0	0	25
07:30 AM	0	1	0	0	0	6	11	0	0	0	0	0	12	0	0	0	30
07:45 AM	0	1	0	0	0	12	2	0	0	0	0	0	9	0	0	0	23
Total	0	1	0	0	0	44	18	0	0	0	0	0	36	0	0	0	99
08:00 AM	0	0	0	0	0	12	3	0	0	0	0	0	12	0	0	0	27
08:15 AM	0	1	0	0	0	13	4	0	0	0	0	0	11	0	0	0	29
08:30 AM	0	0	0	0	0	10	5	0	0	0	0	0	10	0	0	0	25
08:45 AM	0	0	0	0	0	10	8	0	0	0	0	0	11	0	0	0	29
Total	0	1	0	0	0	45	20	0	0	0	0	0	44	0	0	0	110
Grand Total	0	2	0	0	0	89	38	0	0	0	0	0	80	0	0	0	209
Approach %	0	100	0	0	0	70.1	29.9	0	0	0	0	0	100	0	0	0	0
Total %	0	1	0	0	0	42.6	18.2	0	0	0	0	0	38.3	0	0	0	0

Start Time	Soldiers Field Road EB Offramp				Western Avenue				Soldiers Field Road EB Onramp				Western Avenue				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	0	0	0	0	0	12	3	0	0	0	0	0	12	0	0	0	27
07:15 AM	0	1	0	0	0	13	4	0	0	0	0	0	11	0	0	0	29
07:30 AM	0	0	0	0	0	10	5	0	0	0	0	0	10	0	0	0	25
07:45 AM	0	0	0	0	0	10	8	0	0	0	0	0	11	0	0	0	29
Total	0	1	0	0	0	45	20	0	0	0	0	0	44	0	0	0	110
08:00 AM	0	0	0	0	0	12	3	0	0	0	0	0	12	0	0	0	27
08:15 AM	0	1	0	0	0	13	4	0	0	0	0	0	11	0	0	0	29
08:30 AM	0	0	0	0	0	10	5	0	0	0	0	0	10	0	0	0	25
08:45 AM	0	0	0	0	0	10	8	0	0	0	0	0	11	0	0	0	29
Total	0	1	0	0	0	45	20	0	0	0	0	0	44	0	0	0	110
Grand Total	0	2	0	0	0	89	38	0	0	0	0	0	80	0	0	0	209
Approach %	0	100	0	0	0	70.1	29.9	0	0	0	0	0	100	0	0	0	0
Total %	0	1	0	0	0	42.6	18.2	0	0	0	0	0	38.3	0	0	0	0



N/S: Soldiers Field Road EB Ramps
 E/W: Western Avenue
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 K-1
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

PRECISION
 INDUSTRIES LLC
 90 Boston Berlin MA 01903
 Office: 508-481-3999 Fax: 508-545-1234
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Start Time	Soldiers Field Road EB Offramp				Western Avenue				Soldiers Field Road EB Onramp				Western Avenue				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	0	0	0	0	0	8	3	0	0	0	0	0	0	0	0	0	16
07:15 AM	0	1	0	0	0	18	2	0	0	0	0	0	5	0	0	0	20
07:30 AM	0	1	0	0	0	6	11	0	0	0	0	0	12	0	0	0	31
07:45 AM	0	1	0	0	0	12	2	0	0	0	0	0	9	0	0	0	23
Total	0	1	0	0	0	44	18	0	0	0	0	0	36	0	0	0	99
08:00 AM	0	0	0	0	0	12	3	0	0	0	0	0	12	0	0	0	27
08:15 AM	0	1	0	0	0	13	4	0	0	0	0	0	11	0	0	0	29
08:30 AM	0	0	0	0	0	10	5	0	0	0	0	0	10	0	0	0	25
08:45 AM	0	0	0	0	0	10	8	0	0	0	0	0	11	0	0	0	29
Total	0	1	0	0	0	45	20	0	0	0	0	0	44	0	0	0	110
Grand Total	0	2	0	0	0	89	38	0	0	0	0	0	80	0	0	0	209
Approach %	0	100	0	0	0	70.1	29.9	0	0	0	0	0	100	0	0	0	0
Total %	0	1	0	0	0	42.6	18.2	0	0	0	0	0	38.3	0	0	0	0

Start Time	Soldiers Field Road EB Offramp				Western Avenue				Soldiers Field Road EB Onramp				Western Avenue				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	0	0	0	0	0	8	3	0	0	0	0	0	0	0	0	0	16
07:15 AM	0	1	0	0	0	18	2	0	0	0	0	0	5	0	0	0	20
07:30 AM	0	1	0	0	0	6	11	0	0	0	0	0	12	0	0	0	31
07:45 AM	0	1	0	0	0	12	2	0	0	0	0	0	9	0	0	0	23
Total	0	1	0	0	0	44	18	0	0	0	0	0	36	0	0	0	99
08:00 AM	0	0	0	0	0	12	3	0	0	0	0	0	12	0	0	0	27
08:15 AM	0	1	0	0	0	13	4	0	0	0	0	0	11	0	0	0	29
08:30 AM	0	0	0	0	0	10	5	0	0	0	0	0	10	0	0	0	25
08:45 AM	0	0	0	0	0	10	8	0	0	0	0	0	11	0	0	0	29
Total	0	1	0	0	0	45	20	0	0	0	0	0	44	0	0	0	110
Grand Total	0	2	0	0	0	89	38	0	0	0	0	0	80	0	0	0	209
Approach %	0	100	0	0	0	70.1	29.9	0	0	0	0	0	100	0	0	0	0
Total %	0	1	0	0	0	42.6	18.2	0	0	0	0	0	38.3	0	0	0	0



N/S: Soldiers Field Road EB Ramps
 E/W: Western Avenue
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 K-1
 Site Code : 10463.00
 Start Date : 4/3/2012
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N/S: Soldiers Field Road EB Ramps
 E/W: Western Avenue
 City, State: Boston, MA
 Client: VHB/ K. Keen

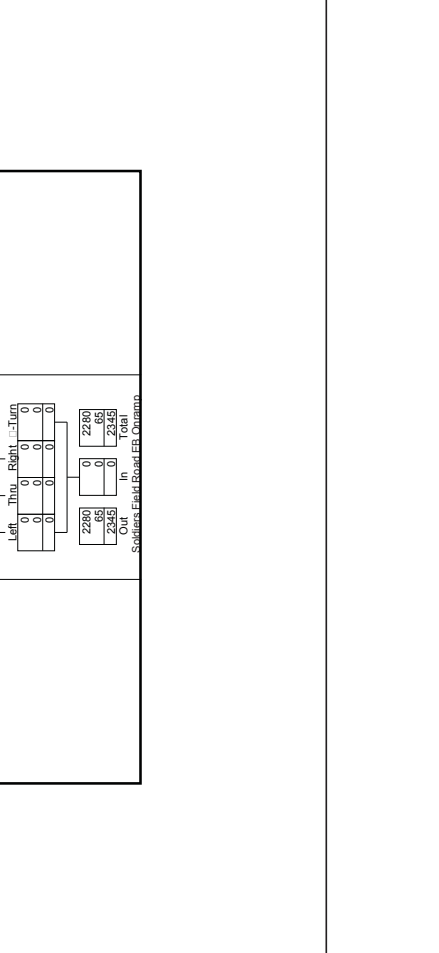
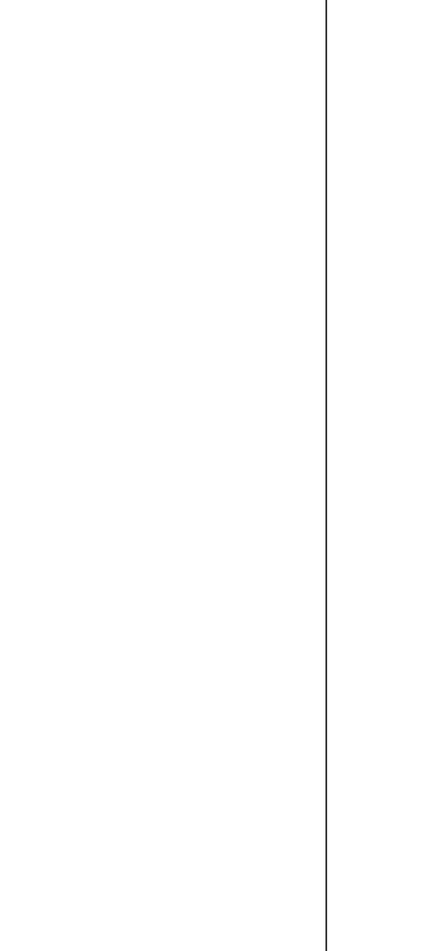
File Name : 122864 K-1
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

Start Time	Soldiers Field Road EB Offramp				Western Avenue				Soldiers Field Road EB Onramp				Western Avenue			
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
04:00 PM	8	127	0	0	0	96	283	0	0	0	0	0	120	0	0	0
04:15 PM	7	129	0	0	0	112	291	0	0	0	0	0	113	0	0	0
04:30 PM	6	129	0	0	0	100	291	0	0	0	0	0	139	0	0	0
04:45 PM	8	130	0	0	0	102	285	0	0	0	0	0	147	0	0	0
Total	29	515	0	0	0	410	1150	0	0	0	0	0	519	0	0	0
05:00 PM	6	153	0	0	0	113	285	0	0	0	0	0	167	0	0	0
05:15 PM	9	131	0	0	0	100	285	0	0	0	0	0	145	0	0	0
05:30 PM	11	140	0	0	0	126	258	0	0	0	0	0	115	0	0	0
05:45 PM	13	139	0	0	0	112	273	0	0	0	0	0	139	0	0	0
Total	39	563	0	0	0	451	1101	0	0	0	0	0	566	0	0	0
Grand Total	68	1078	0	0	0	861	2251	0	0	0	0	0	1085	0	0	0
Approach %	5.9	94.1	0	0	0	27.7	72.3	0	0	0	0	0	100	0	0	0
Total %	1.3	20.2	0	0	0	16.1	42.1	0	0	0	0	0	20.3	0	0	0
% Curs	68	1078	0	0	0	813	2225	0	0	0	0	0	1037	0	0	0
% Heavy Vehicles	0	0	0	0	0	48	26	0	0	0	0	0	95.6	0	0	0
% Heavy Vehicles	0	0	0	0	0	5.6	1.2	0	0	0	0	0	4.4	0	0	0

Start Time	Soldiers Field Road EB Offramp				Western Avenue				Soldiers Field Road EB Onramp				Western Avenue			
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
08:00 AM	16	217	0	0	0	146	244	0	0	0	0	0	133	0	0	0
08:15 AM	10	237	0	0	0	135	235	0	0	0	0	0	143	0	0	0
08:30 AM	10	247	0	0	0	121	224	0	0	0	0	0	121	0	0	0
08:45 AM	13	228	0	0	0	126	225	0	0	0	0	0	91	0	0	0
Total	49	929	0	0	0	528	928	0	0	0	0	0	488	0	0	0
% Appr. Total	5	95	0	0	0	36.3	65.7	0	0	0	0	0	100	0	0	0
% Curs	49	928	0	0	0	493	908	0	0	0	0	0	44	0	0	0
% Heavy Vehicles	100	99.9	0	0	0	91.5	97.8	0	0	0	0	0	91.0	0	0	0
% Heavy Vehicles	0	0.1	0	0	0	8.5	2.2	0	0	0	0	0	9.0	0	0	0

Start Time	Soldiers Field Road EB Offramp				Western Avenue				Soldiers Field Road EB Onramp				Western Avenue			
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
04:30 PM	6	129	0	0	0	100	291	0	0	0	0	0	139	0	0	0
04:45 PM	8	130	0	0	0	102	285	0	0	0	0	0	147	0	0	0
05:00 PM	6	153	0	0	0	113	285	0	0	0	0	0	167	0	0	0
05:15 PM	9	131	0	0	0	100	285	0	0	0	0	0	145	0	0	0
Total	29	515	0	0	0	415	1146	0	0	0	0	0	598	0	0	0
% Appr. Total	5.1	94.9	0	0	0	26.6	73.4	0	0	0	0	0	96.2	0	0	0
% Curs	29	515	0	0	0	395	1134	0	0	0	0	0	895	0	0	0
% Heavy Vehicles	0	0	0	0	0	4.8	1.0	0	0	0	0	0	3.8	0	0	0

Start Time	Soldiers Field Road EB Offramp				Western Avenue				Soldiers Field Road EB Onramp				Western Avenue			
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
08:00 AM	16	217	0	0	0	146	244	0	0	0	0	0	133	0	0	0
08:15 AM	10	237	0	0	0	135	235	0	0	0	0	0	143	0	0	0
08:30 AM	10	247	0	0	0	121	224	0	0	0	0	0	121	0	0	0
08:45 AM	13	228	0	0	0	126	225	0	0	0	0	0	91	0	0	0
Total	49	929	0	0	0	528	928	0	0	0	0	0	488	0	0	0
% Appr. Total	5	95	0	0	0	36.3	65.7	0	0	0	0	0	100	0	0	0
% Curs	49	928	0	0	0	493	908	0	0	0	0	0	44	0	0	0
% Heavy Vehicles	100	99.9	0	0	0	91.5	97.8	0	0	0	0	0	91.0	0	0	0
% Heavy Vehicles	0	0.1	0	0	0	8.5	2.2	0	0	0	0	0	9.0	0	0	0





N/S: Soldiers Field Road EB Ramps
 E/W: Western Avenue
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 KK-1
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

PRECISION
 DATA
 INDUSTRIES, LLC
 90 Boston Bldg, MA 01903
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequest@pdilc.com

Start Time	Soldiers Field Road EB Offramp					Western Avenue					Soldiers Field Road EB Onramp					Western Avenue					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
04:00 PM	8	127	0	0	0	91	276	0	0	0	0	0	0	0	0	0	0	0	0	0	611
04:15 PM	7	129	0	0	0	99	288	0	0	0	0	0	0	0	0	109	0	0	0	0	632
04:30 PM	6	129	0	0	0	94	287	0	0	0	0	0	0	0	0	136	0	0	0	0	652
04:45 PM	8	130	0	0	0	96	282	0	0	0	0	0	0	0	0	141	0	0	0	0	657
Total	29	515	0	0	0	380	1133	0	0	0	0	0	0	0	0	495	0	0	0	0	2552
05:00 PM	6	153	0	0	0	107	283	0	0	0	0	0	0	0	0	160	0	0	0	0	709
05:15 PM	9	131	0	0	0	98	282	0	0	0	0	0	0	0	0	138	0	0	0	0	658
05:30 PM	11	140	0	0	0	121	255	0	0	0	0	0	0	0	0	109	0	0	0	0	636
05:45 PM	13	139	0	0	0	107	272	0	0	0	0	0	0	0	0	135	0	0	0	0	666
Total	39	563	0	0	0	433	1092	0	0	0	0	0	0	0	0	542	0	0	0	0	2669
Grand Total	68	1078	0	0	0	813	2225	0	0	0	0	0	0	0	0	1037	0	0	0	0	5221
Approach %	5.9	94.1	0	0	0	26.8	73.2	0	0	0	0	0	0	0	0	100	0	0	0	0	0
Total %	1.3	20.6	0	0	0	15.6	42.6	0	0	0	0	0	0	0	0	19.9	0	0	0	0	0

Start Time	Soldiers Field Road EB Offramp					Western Avenue					Soldiers Field Road EB Onramp					Western Avenue					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
04:00 PM	6	129	0	0	0	94	287	0	0	0	0	0	0	0	0	136	0	0	0	0	652
04:15 PM	8	130	0	0	0	96	282	0	0	0	0	0	0	0	0	141	0	0	0	0	657
04:30 PM	6	153	0	0	0	107	283	0	0	0	0	0	0	0	0	160	0	0	0	0	709
05:15 PM	9	131	0	0	0	98	282	0	0	0	0	0	0	0	0	138	0	0	0	0	658
Total	29	543	0	0	0	395	1134	0	0	0	0	0	0	0	0	575	0	0	0	0	2676
% App. Total	5.1	94.9	0	0	0	25.8	74.2	0	0	0	0	0	0	0	0	100	0	0	0	0	0
PHF	.806	.887	.000	.000	.899	.923	.988	.000	.980	.000	.000	.000	.000	.000	.000	.898	.000	.000	.000	.000	.898



N/S: Soldiers Field Road EB Ramps
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Start Time	Soldiers Field Road EB Offramp					Western Avenue					Soldiers Field Road EB Onramp					Western Avenue					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
04:00 PM	0	0	0	0	0	5	7	0	0	0	0	0	0	0	0	11	0	0	0	0	23
04:15 PM	0	0	0	0	0	13	3	0	0	0	0	0	0	0	0	4	0	0	0	0	20
04:30 PM	0	0	0	0	0	6	4	0	0	0	0	0	0	0	0	3	0	0	0	0	13
04:45 PM	0	0	0	0	0	6	3	0	0	0	0	0	0	0	0	6	0	0	0	0	15
Total	0	0	0	0	0	30	17	0	0	0	0	0	0	0	0	24	0	0	0	0	71
05:00 PM	0	0	0	0	0	6	2	0	0	0	0	0	0	0	0	7	0	0	0	0	15
05:15 PM	0	0	0	0	0	2	3	0	0	0	0	0	0	0	0	7	0	0	0	0	12
05:30 PM	0	0	0	0	0	5	3	0	0	0	0	0	0	0	0	6	0	0	0	0	14
05:45 PM	0	0	0	0	0	5	1	0	0	0	0	0	0	0	0	4	0	0	0	0	10
Total	0	0	0	0	0	18	9	0	0	0	0	0	0	0	0	24	0	0	0	0	51
Grand Total	0	0	0	0	0	48	26	0	0	0	0	0	0	0	0	48	0	0	0	0	122
Approach %	0	0	0	0	0	64.9	35.1	0	0	0	0	0	0	0	0	100	0	0	0	0	0
Total %	0	0	0	0	0	39.3	21.3	0	0	0	0	0	0	0	0	39.3	0	0	0	0	0

Start Time	Soldiers Field Road EB Offramp					Western Avenue					Soldiers Field Road EB Onramp					Western Avenue					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
04:00 PM	0	0	0	0	0	5	7	0	0	0	0	0	0	0	0	11	0	0	0	0	23
04:15 PM	0	0	0	0	0	13	3	0	0	0	0	0	0	0	0	4	0	0	0	0	20
04:30 PM	0	0	0	0	0	6	4	0	0	0	0	0	0	0	0	3	0	0	0	0	13
04:45 PM	0	0	0	0	0	6	3	0	0	0	0	0	0	0	0	6	0	0	0	0	15
Total	0	0	0	0	0	30	17	0	0	0	0	0	0	0	0	24	0	0	0	0	71
05:00 PM	0	0	0	0	0	6	2	0	0	0	0	0	0	0	0	7	0	0	0	0	15
05:15 PM	0	0	0	0	0	2	3	0	0	0	0	0	0	0	0	7	0	0	0	0	12
05:30 PM	0	0	0	0	0	5	3	0	0	0	0	0	0	0	0	6	0	0	0	0	14
05:45 PM	0	0	0	0	0	5	1	0	0	0	0	0	0	0	0	4	0	0	0	0	10
Total	0	0	0	0	0	18	9	0	0	0	0	0	0	0	0	24	0	0	0	0	51
Grand Total	0	0	0	0	0	48	26	0	0	0	0	0	0	0	0	48	0	0	0	0	122
Approach %	0	0	0	0	0	64.9	35.1	0	0	0	0	0	0	0	0	100	0	0	0	0	0
Total %	0	0	0	0	0	39.3	21.3	0	0	0	0	0	0	0	0	39.3	0	0	0	0	0



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Start Time	Soldiers Field Road EB Offramp			Soldiers Field Road EB Onramp			Western Avenue		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
04:00 PM	0	0	21	0	0	0	0	0	0
04:15 PM	0	1	12	0	0	0	0	0	0
04:30 PM	0	0	14	0	0	0	0	0	0
04:45 PM	0	1	19	0	10	0	0	5	0
Total	0	2	66	0	29	1	0	17	10
05:00 PM	0	0	14	0	0	0	0	0	0
05:15 PM	0	0	25	0	12	1	0	0	0
05:30 PM	0	0	19	0	17	1	0	0	0
05:45 PM	0	0	21	0	6	0	0	6	0
Total	0	0	79	0	38	3	0	25	10
Grand Total	0	2	145	0	67	4	1	42	2
Approach %	0	1.4	98.6	0	93.1	5.6	1.4	100	16.7
Total %	0	0.7	53.1	0	24.5	1.5	0.4	15.4	0.7

Start Time	Soldiers Field Road EB Offramp			Soldiers Field Road EB Onramp			Western Avenue		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
04:00 PM	0	0	19	0	0	0	0	0	0
04:15 PM	0	0	14	0	0	0	0	0	0
04:30 PM	0	0	25	0	0	0	0	0	0
04:45 PM	0	0	19	0	17	1	0	8	0
Total	0	0	77	0	42	3	0	24	0
05:00 PM	0	1	13	0	0	0	0	0	0
05:15 PM	0	0	12	0	12	1	0	0	0
05:30 PM	0	0	19	0	17	1	0	8	0
Total	0	1	63	0	42	5	0	5	0
% Appr. Total	0	1.3	98.7	0	91.3	6.5	2.2	100	33.3
PHF	.000	.250	.000	.770	.780	.000	.618	.750	.750

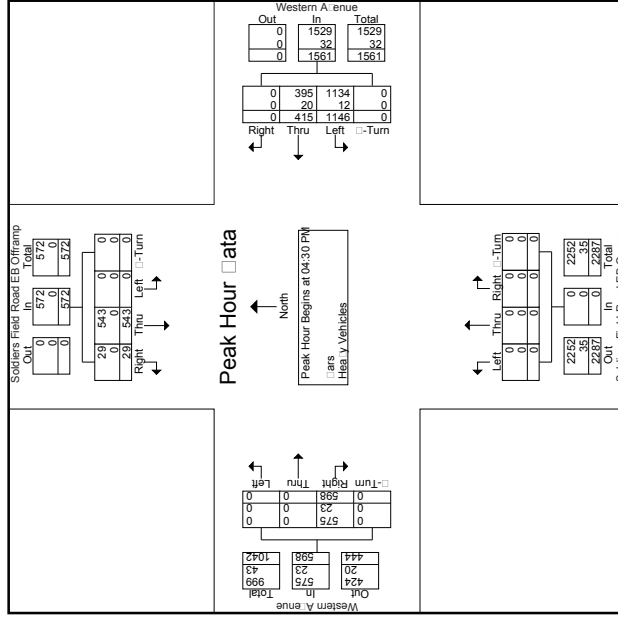


File Name : 122864 KK-1
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

N/S: Soldiers Field Road EB Ramps
 E/W: Western Avenue
 City, State: Boston, MA
 Client: VHB/ K. Keen

Start Time	Soldiers Field Road EB Offramp			Soldiers Field Road EB Onramp			Western Avenue		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
04:00 PM	0	0	21	0	0	0	0	0	0
04:15 PM	0	1	12	0	0	0	0	0	0
04:30 PM	0	0	14	0	0	0	0	0	0
04:45 PM	0	1	19	0	10	0	0	5	0
Total	0	2	66	0	29	1	0	17	10
05:00 PM	0	0	14	0	0	0	0	0	0
05:15 PM	0	0	25	0	12	1	0	0	0
05:30 PM	0	0	19	0	17	1	0	0	0
05:45 PM	0	0	21	0	6	0	0	6	0
Total	0	0	79	0	38	3	0	25	10
Grand Total	0	2	145	0	67	4	1	42	2
Approach %	0	1.4	98.6	0	93.1	5.6	1.4	100	16.7
Total %	0	0.7	53.1	0	24.5	1.5	0.4	15.4	0.7

Start Time	Soldiers Field Road EB Offramp			Soldiers Field Road EB Onramp			Western Avenue		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
04:00 PM	0	0	19	0	0	0	0	0	0
04:15 PM	0	0	14	0	0	0	0	0	0
04:30 PM	0	0	25	0	0	0	0	0	0
04:45 PM	0	0	19	0	17	1	0	8	0
Total	0	0	77	0	42	3	0	24	0
05:00 PM	0	1	13	0	0	0	0	0	0
05:15 PM	0	0	12	0	12	1	0	0	0
05:30 PM	0	0	19	0	17	1	0	8	0
Total	0	1	63	0	42	5	0	5	0
% Appr. Total	0	1.3	98.7	0	91.3	6.5	2.2	100	33.3
PHF	.000	.250	.000	.770	.780	.000	.618	.750	.750





N/S: Soldiers Field Road WB Ramps
E/W: Western Avenue
City, State: Boston, MA
Client: VHB/ K. Keen

File Name : 122864 K-2
Site Code : 10463.00
Start Date : 4/3/2012
Page No : 1

PRECISION
D. A. T. A.
INDUSTRIES, LLC
90 Boston Blvd, MA 01903
Office: 508-481-3999 Fax: 508-543-1234
Email: datarequest@pdic.com

Start Time	Soldiers Field Road WB Onramp			Western Avenue From East			Soldiers Field Road WB Offramp From South			Western Avenue From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
07:00 AM	0	0	0	42	221	0	0	33	22	0	0	0	318
07:15 AM	0	0	0	43	276	0	0	39	36	0	0	0	394
07:30 AM	0	0	0	43	289	0	0	38	30	0	0	0	400
07:45 AM	0	0	0	57	280	0	0	65	37	0	0	0	439
Total	0	0	0	185	1066	0	0	175	125	0	0	0	1551
08:00 AM	0	0	0	49	335	0	0	50	52	0	0	0	486
08:15 AM	0	0	0	46	334	0	0	43	34	0	0	0	457
08:30 AM	0	0	0	56	307	0	0	53	38	0	0	0	454
08:45 AM	0	0	0	68	313	0	0	33	37	0	0	0	451
Total	0	0	0	219	1289	0	0	179	161	0	0	0	1848
Grand Total	0	0	0	404	2355	0	0	354	286	0	0	0	3399
Approach %	0	0	0	14.6	85.4	0	0	55.3	44.7	0	0	0	0
Total %	0	0	0	11.9	69.3	0	0	10.4	8.4	0	0	0	0
% Cars	0	0	0	403	2261	0	0	354	280	0	0	0	3268
% Trucks	0	0	0	99	86	0	0	100	87.4	0	0	0	96.1
% Heavy Vehicles	0	0	0	1	94	0	0	0	36	0	0	0	131
% Heavy Vehicles	0	0	0	0.2	4	0	0	0	12.6	0	0	0	3.9

Start Time	Soldiers Field Road WB Onramp From North			Western Avenue From East			Soldiers Field Road WB Offramp From South			Western Avenue From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
08:00 AM	0	0	0	49	335	0	0	50	52	0	0	0	486
08:15 AM	0	0	0	46	334	0	0	43	34	0	0	0	457
08:30 AM	0	0	0	56	307	0	0	53	38	0	0	0	454
08:45 AM	0	0	0	68	313	0	0	33	37	0	0	0	451
Total	0	0	0	219	1289	0	0	179	161	0	0	0	1848
Grand Total	0	0	0	404	2355	0	0	354	286	0	0	0	3399
Approach %	0	0	0	14.6	85.4	0	0	55.3	44.7	0	0	0	0
Total %	0	0	0	11.9	69.3	0	0	10.4	8.4	0	0	0	0
% Cars	0	0	0	403	2261	0	0	354	280	0	0	0	3268
% Trucks	0	0	0	99	86	0	0	100	87.4	0	0	0	96.1
% Heavy Vehicles	0	0	0	1	94	0	0	0	36	0	0	0	131
% Heavy Vehicles	0	0	0	0.2	4	0	0	0	12.6	0	0	0	3.9



N/S: Soldiers Field Road WB Ramps
E/W: Western Avenue
City, State: Boston, MA
Client: VHB/ K. Keen

File Name : 122864 K-2
Site Code : 10463.00
Start Date : 4/3/2012
Page No : 1

PRECISION
D. A. T. A.
INDUSTRIES, LLC
90 Boston Blvd, MA 01903
Office: 508-481-3999 Fax: 508-543-1234
Email: datarequest@pdic.com

Start Time	Soldiers Field Road WB Onramp			Western Avenue From East			Soldiers Field Road WB Offramp From South			Western Avenue From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
07:00 AM	0	0	0	42	212	0	0	33	22	0	0	0	309
07:15 AM	0	0	0	43	263	0	0	39	30	0	0	0	375
07:30 AM	0	0	0	43	271	0	0	38	30	0	0	0	382
07:45 AM	0	0	0	57	271	0	0	65	31	0	0	0	424
Total	0	0	0	185	1017	0	0	175	113	0	0	0	1490
08:00 AM	0	0	0	49	325	0	0	50	47	0	0	0	471
08:15 AM	0	0	0	46	322	0	0	43	27	0	0	0	438
08:30 AM	0	0	0	55	295	0	0	53	33	0	0	0	436
08:45 AM	0	0	0	68	302	0	0	33	30	0	0	0	433
Total	0	0	0	218	1244	0	0	179	137	0	0	0	1778
Grand Total	0	0	0	403	2261	0	0	354	250	0	0	0	3268
Approach %	0	0	0	15.1	84.9	0	0	58.6	41.4	0	0	0	0
Total %	0	0	0	12.3	69.2	0	0	10.8	7.6	0	0	0	0
% Cars	0	0	0	403	2261	0	0	354	250	0	0	0	3268
% Trucks	0	0	0	99	86	0	0	100	87.4	0	0	0	96.1
% Heavy Vehicles	0	0	0	1	94	0	0	0	36	0	0	0	131
% Heavy Vehicles	0	0	0	0.2	4	0	0	0	12.6	0	0	0	3.9

Start Time	Soldiers Field Road WB Onramp			Western Avenue From East			Soldiers Field Road WB Offramp From South			Western Avenue From West			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
08:00 AM	0	0	0	49	325	0	0	50	47	0	0	0	471
08:15 AM	0	0	0	46	322	0	0	43	27	0	0	0	438
08:30 AM	0	0	0	55	295	0	0	53	33	0	0	0	436
08:45 AM	0	0	0	68	302	0	0	33	30	0	0	0	433
Total	0	0	0	218	1244	0	0	179	137	0	0	0	1778
Grand Total	0	0	0	403	2261	0	0	354	250	0	0	0	3268
Approach %	0	0	0	15.1	84.9	0	0	58.6	41.4	0	0	0	0
Total %	0	0	0	12.3	69.2	0	0	10.8	7.6	0	0	0	0
% Cars	0	0	0	403	2261	0	0	354	250	0	0	0	3268
% Trucks	0	0	0	99	86	0	0	100	87.4	0	0	0	96.1
% Heavy Vehicles	0	0	0	1	94	0	0	0	36	0	0	0	131
% Heavy Vehicles	0	0	0	0.2	4	0	0	0	12.6	0	0	0	3.9



N/S: Soldiers Field Road WB Ramps
 E/W: Western Avenue
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 K-2
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

90 Boston Berlin MA 01903
 Office: 508-481-3999 Fax: 508-545-1234
 Email: datarequest@precision.com

Start Time	Soldiers Field Road WB Onramp				Western Avenue				Soldiers Field Road WB Offramp				Western Avenue				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	9
07:15 AM	0	0	0	0	0	13	0	0	0	0	6	0	0	0	0	0	19
07:30 AM	0	0	0	0	0	18	0	0	0	0	0	0	0	0	0	0	18
07:45 AM	0	0	0	0	0	9	0	0	0	0	6	0	0	0	0	0	15
Total	0	0	0	0	0	49	0	0	0	0	12	0	0	0	0	0	61
08:00 AM	0	0	0	0	0	10	0	0	0	0	5	0	0	0	0	0	15
08:15 AM	0	0	0	0	0	12	0	0	0	0	7	0	0	0	0	0	19
08:30 AM	0	0	0	0	0	1	12	0	0	0	5	0	0	0	0	0	18
08:45 AM	0	0	0	0	0	11	0	0	0	0	7	0	0	0	0	0	18
Total	0	0	0	0	0	45	0	0	0	0	24	0	0	0	0	0	70
Grand Total	0	0	0	0	0	94	0	0	0	0	36	0	0	0	0	0	131
Approach %	0	0	0	0	0	1.1	98.9	0	0	0	100	0	0	0	0	0	0
Total %	0	0	0	0	0	0.8	71.8	0	0	0	27.5	0	0	0	0	0	0

Start Time	Soldiers Field Road WB Onramp				Western Avenue				Soldiers Field Road WB Offramp				Western Avenue				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
08:00 AM	0	0	0	0	0	10	0	0	10	0	5	0	0	0	0	0	15
08:15 AM	0	0	0	0	0	12	0	0	12	0	7	0	0	0	0	0	19
08:30 AM	0	0	0	0	0	1	12	0	1	12	0	5	0	0	0	0	18
08:45 AM	0	0	0	0	0	11	0	0	11	0	7	0	0	0	0	0	18
Total	0	0	0	0	0	45	0	0	45	0	24	0	0	0	0	0	70
Grand Total	0	0	0	0	0	94	0	0	94	0	36	0	0	0	0	0	131
Approach %	0	0	0	0	0	1.1	98.9	0	0	0	100	0	0	0	0	0	0
Total %	0	0	0	0	0	0.8	71.8	0	0	0	27.5	0	0	0	0	0	0



N/S: Soldiers Field Road WB Ramps
 E/W: Western Avenue
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 K-2
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

90 Boston Berlin MA 01903
 Office: 508-481-3999 Fax: 508-545-1234
 Email: datarequest@precision.com

Start Time	Soldiers Field Road WB Onramp				Western Avenue				Soldiers Field Road WB Offramp				Western Avenue				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	23
07:15 AM	0	0	0	0	0	7	0	0	0	0	1	0	0	0	0	0	27
07:30 AM	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	44
07:45 AM	0	0	0	0	0	15	0	0	0	0	0	0	0	0	0	0	59
Total	0	0	0	0	0	35	0	0	0	0	1	0	0	0	0	0	153
08:00 AM	0	0	0	0	0	22	0	0	0	0	0	0	0	0	0	0	60
08:15 AM	0	0	0	0	0	47	1	12	0	10	3	0	0	0	0	0	82
08:30 AM	0	0	0	0	0	17	1	4	0	18	0	0	0	0	0	0	52
08:45 AM	0	0	0	0	0	36	0	9	0	18	0	0	0	0	0	0	70
Total	0	0	0	0	0	122	2	30	0	68	0	3	0	0	0	0	264
Grand Total	0	0	0	0	0	157	2	43	0	146	0	3	1	65	0	0	417
Approach %	0	0	0	0	0	100	1	22.5	0	76.4	0	4.3	1.4	94.2	0	0	0
Total %	0	0	0	0	0	37.6	0.5	10.3	0	35	0	0.7	0.2	15.6	0	0	0

Start Time	Soldiers Field Road WB Onramp				Western Avenue				Soldiers Field Road WB Offramp				Western Avenue				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
08:00 AM	0	0	0	0	0	22	0	0	0	0	0	0	0	0	0	0	60
08:15 AM	0	0	0	0	0	47	1	12	0	10	3	0	0	0	0	0	82
08:30 AM	0	0	0	0	0	17	1	4	0	18	0	0	0	0	0	0	52
08:45 AM	0	0	0	0	0	36	0	9	0	18	0	0	0	0	0	0	70
Total	0	0	0	0	0	122	2	30	0	68	0	3	0	39	42	0	264
Grand Total	0	0	0	0	0	157	2	43	0	146	0	3	1	65	0	0	417
Approach %	0	0	0	0	0	100	1	22.5	0	76.4	0	4.3	1.4	94.2	0	0	0
Total %	0	0	0	0	0	37.6	0.5	10.3	0	35	0	0.7	0.2	15.6	0	0	0

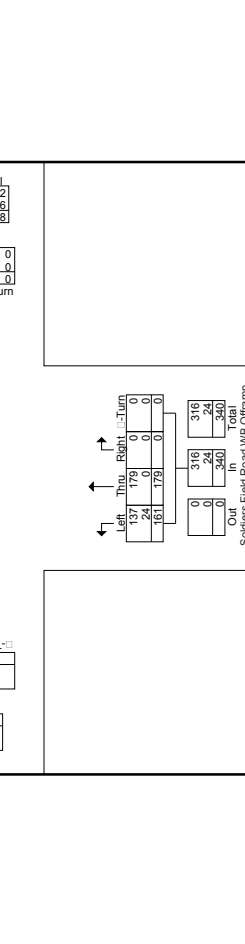
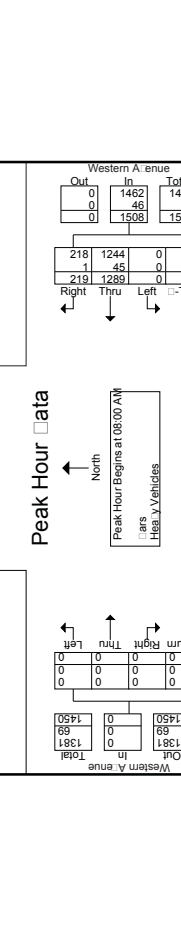
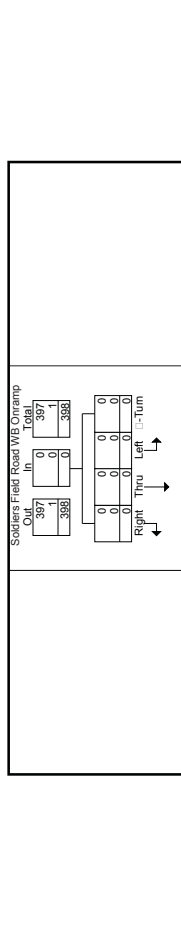


N/S: Soldiers Field Road WB Ramps
 E/W: Western Avenue
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 K-2
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

PRECISION
 DATA
 INDUSTRIES, LLC
 90 Boston Blvd, MA 01903
 Office: 508-481-3999 Fax: 508-543-1234
 Email: datarequest@pdic.com

Start Time	Soldiers Field Road WB Onramp			Western Avenue			Soldiers Field Road WB Offramp			Western Avenue		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
08:00 AM	0	0	0	0	50	52	0	0	102	0	0	0
08:15 AM	0	0	0	384	0	43	34	0	77	0	0	0
08:30 AM	0	0	0	46	334	0	53	38	91	0	0	0
08:45 AM	0	0	0	56	307	0	363	37	70	0	0	0
Total Volume	0	0	0	1508	0	179	161	0	340	0	0	0
% App. Total	0.00	0.00	0.00	21.5	85.5	0.00	52.6	47.4	0.00	0.00	0.00	0.00
Cars	0	0	0	1284	0	100	85.1	0	92.9	0	0	0
% Cars	0	0	0	98.4	0	56.0	50.3	0	27.3	0	0	0
Heavy Vehicles	0	0	0	224	0	79	76	0	24	0	0	0
% Heavy Vehicles	0	0	0	14.5	0	3.1	44.9	0	7.1	0	0	0
Total	0	0	0	1848	0	1848	0	0	0	0	0	0

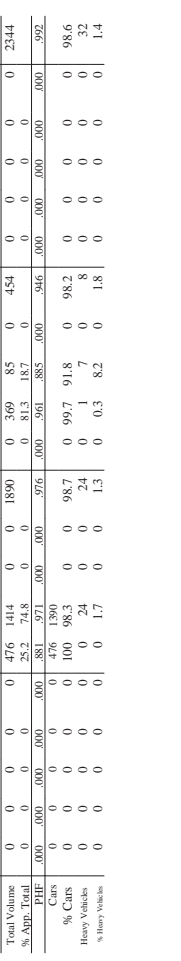
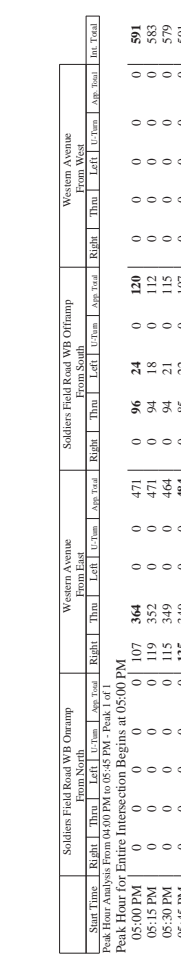


N/S: Soldiers Field Road WB Ramps
 E/W: Western Avenue
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 K-2
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

PRECISION
 DATA
 INDUSTRIES, LLC
 90 Boston Blvd, MA 01903
 Office: 508-481-3999 Fax: 508-543-1234
 Email: datarequest@pdic.com

Start Time	Soldiers Field Road WB Onramp			Western Avenue			Soldiers Field Road WB Offramp			Western Avenue		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
04:00 PM	0	0	0	83	360	0	0	70	23	0	0	0
04:15 PM	0	0	0	83	393	0	0	80	19	0	0	0
04:30 PM	0	0	0	87	377	0	0	85	20	0	0	0
04:45 PM	0	0	0	114	368	0	0	70	17	0	0	0
Total	0	0	0	367	1498	0	0	305	79	0	0	0
05:00 PM	0	0	0	107	364	0	0	96	24	0	0	0
05:15 PM	0	0	0	119	352	0	0	94	18	0	0	0
05:30 PM	0	0	0	115	349	0	0	94	21	0	0	0
05:45 PM	0	0	0	135	349	0	0	85	22	0	0	0
Total	0	0	0	476	1414	0	0	369	85	0	0	0
Grand Total	0	0	0	843	2912	0	0	674	164	0	0	0
Approach %	0	0	0	22.5	77.5	0	0	80.4	19.6	0	0	0
Total %	0	0	0	18.4	63.4	0	0	14.7	3.6	0	0	0
Cars	0	0	0	843	2855	0	0	673	140	0	0	0
% Cars	0	0	0	100	98	0	0	99.9	85.4	0	0	0
Heavy Vehicles	0	0	0	57	2	0	0	1	24	0	0	0
% Heavy Vehicles	0	0	0	6.7	0.2	0	0	0.1	14.6	0	0	0





File Name : 122864 KK-2
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

N/S: Soldiers Field Road WB Ramps
 E/W: Western Avenue
 City, State: Boston, MA
 Client: VHB/ K. Keen

Start Time	Soldiers Field Road WB Onramp			Soldiers Field Road WB Offramp			Western Avenue		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
04:00 PM	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	17	0	0	0	0	0
04:30 PM	0	0	0	26	0	0	0	0	0
04:45 PM	0	0	0	27	0	0	0	0	0
Total	0	0	0	70	0	0	0	0	0
05:00 PM	0	0	0	20	0	0	0	0	0
05:15 PM	0	0	0	27	0	0	0	0	0
05:30 PM	0	0	0	40	0	0	0	0	0
05:45 PM	0	0	0	31	0	0	0	0	0
Total	0	0	0	118	0	0	0	0	0
Grand Total	0	0	0	188	0	0	0	0	0
Approach %	0	0	0	100	0	0	0	0	0
Total %	0	0	0	34.7	0	0	0	0	0

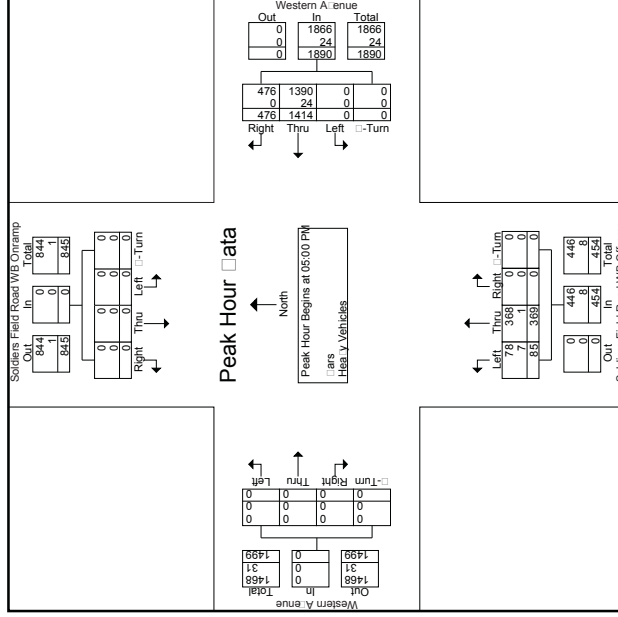
Start Time	Soldiers Field Road WB Onramp			Soldiers Field Road WB Offramp			Western Avenue		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
04:00 PM	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	16	0	0	0	0	0
04:30 PM	0	0	0	32	0	0	0	0	0
04:45 PM	0	0	0	23	0	0	0	0	0
Total	0	0	0	71	0	0	0	0	0
05:00 PM	0	0	0	28	0	0	0	0	0
05:15 PM	0	0	0	40	0	0	0	0	0
05:30 PM	0	0	0	31	0	0	0	0	0
05:45 PM	0	0	0	46	0	0	0	0	0
Total	0	0	0	145	0	0	0	0	0
Grand Total	0	0	0	216	0	0	0	0	0
Approach %	0	0	0	100	0	0	0	0	0
Total %	0	0	0	34.7	0	0	0	0	0



File Name : 122864 KK-2
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

N/S: Soldiers Field Road WB Ramps
 E/W: Western Avenue
 City, State: Boston, MA
 Client: VHB/ K. Keen

Start Time	Soldiers Field Road WB Onramp			Soldiers Field Road WB Offramp			Western Avenue		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
04:00 PM	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	17	0	0	0	0	0
04:30 PM	0	0	0	26	0	0	0	0	0
04:45 PM	0	0	0	27	0	0	0	0	0
Total	0	0	0	70	0	0	0	0	0
05:00 PM	0	0	0	20	0	0	0	0	0
05:15 PM	0	0	0	27	0	0	0	0	0
05:30 PM	0	0	0	40	0	0	0	0	0
05:45 PM	0	0	0	31	0	0	0	0	0
Total	0	0	0	118	0	0	0	0	0
Grand Total	0	0	0	188	0	0	0	0	0
Approach %	0	0	0	100	0	0	0	0	0
Total %	0	0	0	34.7	0	0	0	0	0





N/S: Mass Pike/ Hotel Driveway
 E/W/SW: Cambridge Street/ Mass Pike
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 W
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

N/S: Mass Pike/ Hotel Driveway
 E/W/SW: Cambridge Street/ Mass Pike
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 W
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

90 Boston Ave, Boston, MA 02108
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequest@pdil.com

Groups Printed: Cars - Heavy Vehicles

Start Time	Mass Pike Access						Hotel Driveway						Cambridge Street									
	From North			From South			From East			From West			From East			From West						
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn		
07:00 AM	209	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	767
07:15 AM	222	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	796
07:30 AM	241	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	869
07:45 AM	285	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	859
Total	957	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3301
08:00 AM	346	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	959
08:15 AM	301	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	868
08:30 AM	278	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	808
08:45 AM	289	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	829
Total	1214	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3464
Grand Total	2171	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6765
Approach %	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	868
Total %	52.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2171
Cars	1959	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6384
% Cars	91.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	85.7
Heavy Vehicles	212	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	281
% Heavy Vehicles	9.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14.3

Groups Printed: Cars

Start Time	Mass Pike Access						Hotel Driveway						Cambridge Street									
	From North			From South			From East			From West			From East			From West						
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn		
07:00 AM	176	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	717
07:15 AM	190	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	737
07:30 AM	227	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	840
07:45 AM	259	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	824
Total	852	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3118
08:00 AM	302	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	900
08:15 AM	277	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	817
08:30 AM	267	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	776
08:45 AM	261	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	773
Total	1107	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3266
Grand Total	1959	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6384
Approach %	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	868
Total %	50.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2171
Cars	1859	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6384
% Cars	91.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	85.7
Heavy Vehicles	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	281
% Heavy Vehicles	9.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14.3

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

Start Time	Mass Pike Access						Hotel Driveway						Cambridge Street									
	From North			From South			From East			From West			From East			From West						
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn		
07:30 AM	241	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	869
07:45 AM	285	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	859
08:00 AM	346	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	959
08:15 AM	301	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	868
Total	1214	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3464
Grand Total	2171	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6765
Approach %	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	868
Total %	52.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2171
Cars	1959	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6384
% Cars	91.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	85.7
Heavy Vehicles	212	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	281
% Heavy Vehicles	9.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14.3

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

Start Time	Mass Pike Access						Hotel Driveway						Cambridge Street									
	From North			From South			From East			From West			From East			From West						
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn		
07:30 AM	227	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	840
07:45 AM	259	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	824
08:00 AM	302	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	900
08:15 AM	277	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	817
Total	1065	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3381
% Appr. Total	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	959
PHF	0.82	0.00	0.00	0.00	0.00	0.82	0.00	0.00	0.82	0.00	0.00	0.00	0.82	0.00	0.00	0.00	0.82	0.00	0.00	0.00	0.82	0.00

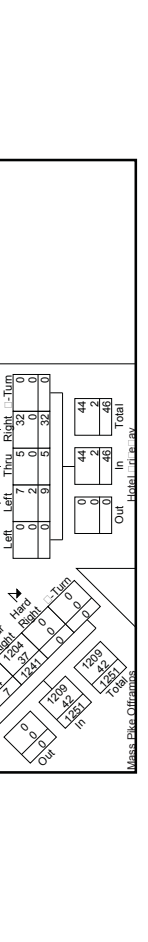
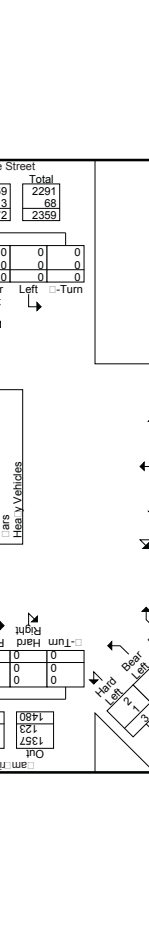
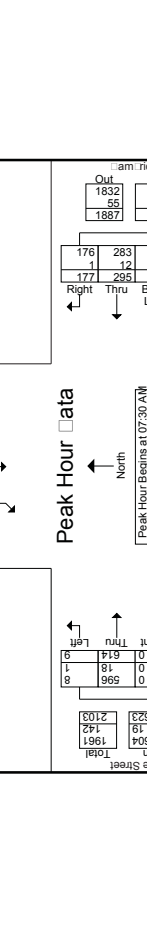
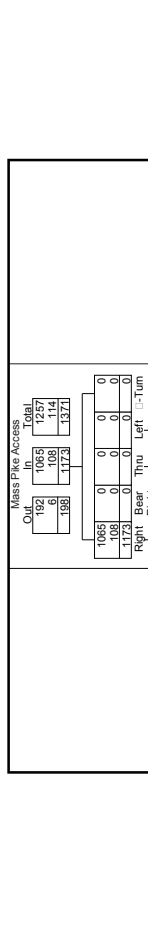


File Name : 122864 W
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

N/S: Mass Pike/ Hotel Driveway
 E/W/SW: Cambridge Street/ Mass Pike
 City, State: Boston, MA
 Client: VHB/ K. Keen

90 Boston Berlin MA 01903
 Office: 508-481-3999 Fax: 508-543-1234
 Email: datarequest@pdilc.com

Start Time	Mass Pike Access From North			Hotel Driveway From South			Cambridge Street From East			Mass Pike Offramps From Southwest			Cambridge Street From West		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
07:30 AM	0	0	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	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Cars	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

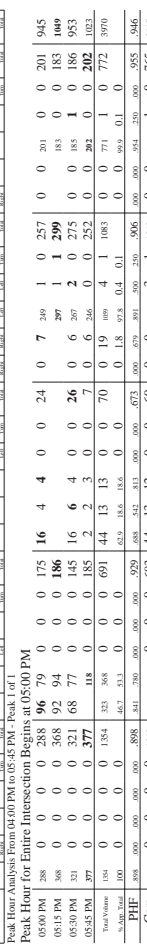
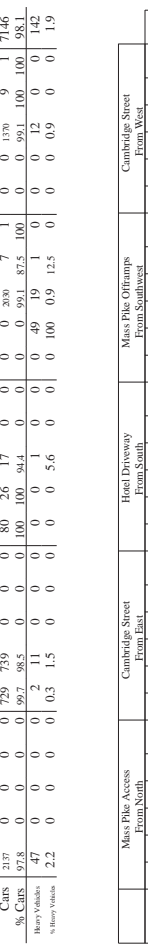


File Name : 122864 WW
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

N/S: Mass Pike/ Hotel Driveway
 E/W/SW: Cambridge Street/ Mass Pike
 City, State: Boston, MA
 Client: VHB/ K. Keen

90 Boston Berlin MA 01903
 Office: 508-481-3999 Fax: 508-543-1234
 Email: datarequest@pdilc.com

Start Time	Mass Pike Access From North			Hotel Driveway From South			Cambridge Street From East			Mass Pike Offramps From Southwest			Cambridge Street From West		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	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	0	0	0	0	0	0
05:30 PM	0	0	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	0	0
06:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Cars	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0





N/S: Mass Pike/ Hotel Driveway
 E/W/SW: Cambridge Street/ Mass Pike
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 WW
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

PRECISION
 DATA SYSTEMS, LLC
 90 Boston Blvd, Boston, MA 02108
 Office: 508-481-3999 Fax: 508-545-1234
 Email: datarequest@public.com

Start Time	Mass Pike Access From North				Cambridge Street From East				Hotel Driveway From South				Mass Pike Offramps From Southwest				Cambridge Street From West			
	Right	Thru	Left	Peak	Right	Thru	Left	Peak	Right	Thru	Left	Peak	Right	Thru	Left	Peak	Right	Thru	Left	Peak
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Start Time	Mass Pike Access From North				Cambridge Street From East				Hotel Driveway From South				Mass Pike Offramps From Southwest				Cambridge Street From West			
	Right	Thru	Left	Peak	Right	Thru	Left	Peak	Right	Thru	Left	Peak	Right	Thru	Left	Peak	Right	Thru	Left	Peak
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

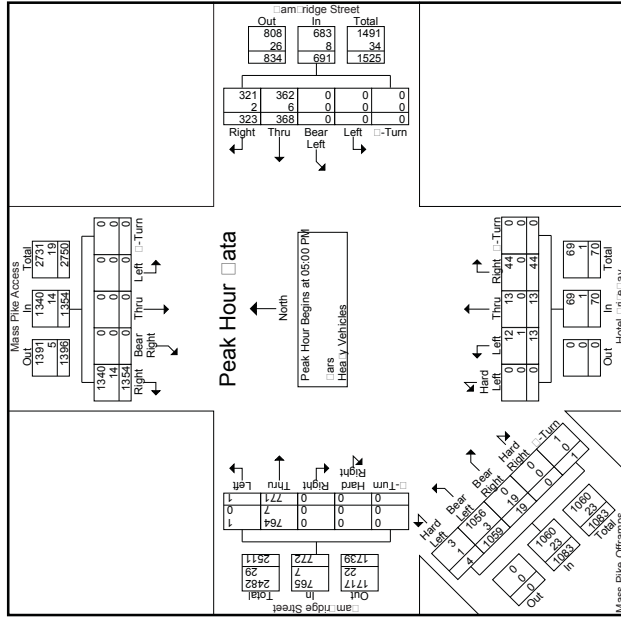


N/S: Mass Pike/ Hotel Driveway
 E/W/SW: Cambridge Street/ Mass Pike
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 WW
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

PRECISION
 DATA SYSTEMS, LLC
 90 Boston Blvd, Boston, MA 02108
 Office: 508-481-3999 Fax: 508-545-1234
 Email: datarequest@public.com

Start Time	Mass Pike Access From North				Cambridge Street From East				Hotel Driveway From South				Mass Pike Offramps From Southwest				Cambridge Street From West			
	Right	Thru	Left	Peak	Right	Thru	Left	Peak	Right	Thru	Left	Peak	Right	Thru	Left	Peak	Right	Thru	Left	Peak
05:00 PM	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00





File Name : 122864 V
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

N/S: Soldiers Field Road Ramps
 E/W: Cambridge Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

PRECISION
 DATA
 INDUSTRIES, LLC
 90 Boston Blvd, MA 01903
 Office: 508-481-3999 Fax: 508-545-1234
 Email: datarequest@pdinc.com

Start Time	Soldiers Field Road Ramps			Cambridge Street From East			Cambridge Street From West			Soldiers Field Road Ramps			Cambridge Street From East			Cambridge Street From West		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
07:00 AM	24	38	45	1	0	0	16	19	79	4	147	273	39	0	685	0	0	0
07:15 AM	26	45	66	0	0	0	18	22	87	1	142	262	55	0	724	0	0	0
07:30 AM	26	52	72	1	0	0	24	27	96	2	172	285	41	0	798	0	0	0
07:45 AM	27	61	85	1	0	0	23	25	81	1	128	287	71	0	790	0	0	0
Total	103	196	268	3	0	0	81	93	343	8	589	1107	206	0	2997	0	0	0
08:00 AM	29	88	116	0	0	0	27	39	101	3	116	295	63	0	877	0	0	0
08:15 AM	30	82	94	1	0	0	25	21	86	0	122	298	61	0	820	0	0	0
08:30 AM	30	90	115	0	0	0	23	27	64	0	101	275	60	1	786	0	0	0
08:45 AM	27	75	113	0	0	0	31	27	64	1	95	286	42	0	761	0	0	0
Total	116	335	438	1	0	0	106	114	315	4	434	1154	226	1	3244	0	0	0
Grand Total	219	531	706	4	0	0	187	207	658	12	1023	2261	432	1	6241	0	0	0
Approach %	15	36.4	48.4	0.3	0	0	17.6	19.5	61.8	1.1	27.5	60.8	11.6	0	820	0	0	0
Total %	3.5	8.5	11.3	0.1	0	0	3	3.3	10.5	0.2	16.4	36.2	6.9	0	6080	0	0	0
% Cars	197	526	680	4	0	0	187	206	654	12	1002	2185	396	1	6080	0	0	0
% Heavy Vehicles	22	5	26	0	0	0	0	1	4	0	21	76	36	0	191	0	0	0
% Heavy Vehicles	10	0.9	3.7	0	0	0	0	0.5	0.6	0	2.1	3.4	8.3	0	3.1	0	0	0

Start Time	Soldiers Field Road Ramps From North			Cambridge Street From East			Cambridge Street From West			Soldiers Field Road Ramps From South			Cambridge Street From East			Cambridge Street From West		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
07:00 AM	26	52	72	1	151	0	0	0	0	0	24	27	96	2	149	172	285	41
07:15 AM	27	61	85	1	174	0	0	0	0	0	23	25	81	1	130	128	287	71
07:30 AM	29	88	116	0	243	0	0	0	0	0	27	39	101	3	170	116	295	63
07:45 AM	30	82	94	1	207	0	0	0	0	0	25	21	86	0	152	122	298	61
08:15 AM	30	82	94	1	207	0	0	0	0	0	25	21	86	0	152	122	298	61
Total Volume	112	283	367	3	765	0	0	0	0	0	99	112	364	6	581	538	1165	236
% Appr. Total	14.6	37	48	0.4	831	0	0	0	0	0	17	19.3	62.7	1	217	60.1	12.2	0
% Heavy Vehicles	103	289	354	3	737	0	0	0	0	0	99	112	364	6	581	530	1134	231
% Cars	89.3	98.9	96.3	100	96.3	0	0	0	0	0	100	100	100	100	98.5	97.3	91.9	0
% Heavy Vehicles	1.2	3	1.3	0	2.8	0	0	0	0	0	0	0	0	0	8	3.1	1.9	0
% Heavy Vehicles	10.7	1.1	3.5	0	3.7	0	0	0	0	0	0	0	0	0	1.5	2.7	8.1	0



File Name : 122864 V
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

N/S: Soldiers Field Road Ramps
 E/W: Cambridge Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

PRECISION
 DATA
 INDUSTRIES, LLC
 90 Boston Blvd, MA 01903
 Office: 508-481-3999 Fax: 508-545-1234
 Email: datarequest@pdinc.com

Start Time	Soldiers Field Road Ramps			Cambridge Street From East			Cambridge Street From West			Soldiers Field Road Ramps			Cambridge Street From East			Cambridge Street From West		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
07:00 AM	21	38	42	1	0	0	16	19	76	4	145	265	39	0	666	0	0	0
07:15 AM	25	45	63	0	0	0	18	22	86	1	139	249	49	0	697	0	0	0
07:30 AM	22	52	69	1	0	0	24	27	96	2	169	280	41	0	783	0	0	0
07:45 AM	26	61	82	1	0	0	23	25	81	1	126	277	65	0	768	0	0	0
Total	94	196	256	3	0	0	81	93	339	8	579	1071	194	0	2914	0	0	0
08:00 AM	26	87	112	0	0	0	27	39	101	3	115	290	58	0	858	0	0	0
08:15 AM	26	80	91	1	0	0	25	21	86	0	120	287	53	0	790	0	0	0
08:30 AM	27	89	110	0	0	0	23	26	64	0	99	262	56	1	757	0	0	0
08:45 AM	24	74	111	0	0	0	31	27	64	1	89	275	35	0	731	0	0	0
Total	103	330	424	1	0	0	106	113	315	4	423	1114	202	1	3136	0	0	0
Grand Total	197	526	680	4	0	0	187	206	654	12	1002	2185	396	1	6050	0	0	0
Approach %	14	37.4	48.3	0.3	0	0	17.7	19.5	61.8	1.1	28	61	11	0	757	0	0	0
Total %	3.3	8.7	11.2	0.1	0	0	3.1	3.4	10.8	0.2	16.6	36.1	6.5	0	6050	0	0	0

Start Time	Soldiers Field Road Ramps			Cambridge Street From East			Cambridge Street From West			Soldiers Field Road Ramps			Cambridge Street From East			Cambridge Street From West		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
07:00 AM	22	52	69	1	144	0	0	0	0	0	24	27	96	2	149	169	280	41
07:15 AM	26	61	82	1	170	0	0	0	0	0	23	25	81	1	130	126	277	65
07:30 AM	26	87	112	0	225	0	0	0	0	0	27	39	101	3	170	115	290	58
07:45 AM	26	80	91	1	198	0	0	0	0	0	25	21	86	0	132	120	287	53
08:15 AM	26	80	91	1	198	0	0	0	0	0	25	21	86	0	132	120	287	53
Total Volume	100	280	354	3	737	0	0	0	0	0	99	112	364	6	581	530	1134	217
% Appr. Total	13.6	38	48	0.4	627	0	0	0	0	0	17	19.3	62.7	1	217	28.2	60.3	11.5
% Heavy Vehicles	96.2	305	390	3	730	0	0	0	0	0	97.8	98.1	98.1	98.4	784	978	833	1881
% Heavy Vehicles	96.2	305	390	3	730	0	0	0	0	0	97.8	98.1	98.1	98.4	784	978	833	1881



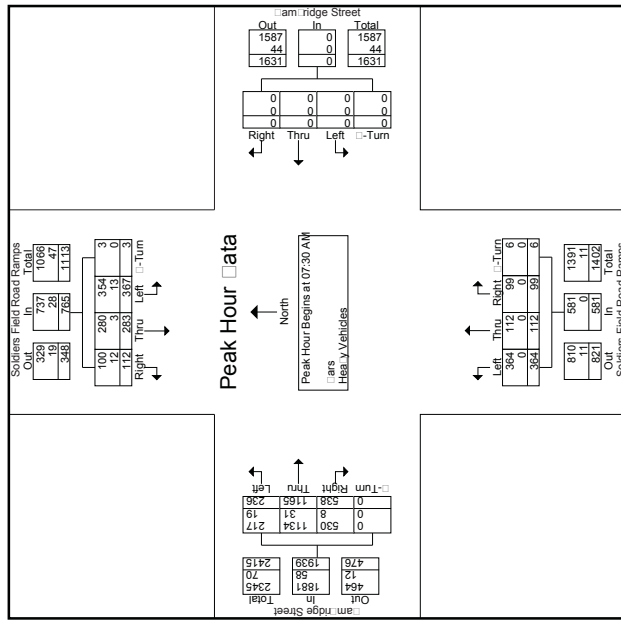
N/S: Soldiers Field Road Ramps
 E/W: Cambridge Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 V
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

90-Boston, MA 02109
 Office: 508-481-3999 Fax: 508-545-1234
 Email: datarequest@precision.com

Start Time	Soldiers Field Road Ramps				Cambridge Street				Soldiers Field Road Ramps				Cambridge Street							
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn				
07:30 AM	26	52	72	1	151	0	0	0	0	24	27	96	2	149	172	285	41	0	498	798
07:45 AM	27	61	85	1	174	0	0	0	23	25	81	1	130	128	287	71	0	486	790	
08:00 AM	29	88	116	0	233	0	0	0	27	39	101	3	170	116	295	63	0	474	877	
08:15 AM	30	82	94	1	207	0	0	0	25	21	86	0	132	122	298	61	0	481	820	
Total	112	283	367	3	765	0	0	0	99	112	364	6	581	538	1165	236	0	1939	3285	
% App. Total	14.6	37	48	0.4	821	0	0	0	17	19.3	62.7	1	7.8	73.2	15.1	3.0	0	24.5	54.0	
PHF	0.93	0.84	0.91	0.03	0.82	0.00	0.00	0.00	0.17	0.18	0.60	0.03	0.84	0.78	0.97	0.31	0.00	0.97	0.93	
Cars	100	280	354	3	737	0	0	0	99	112	364	6	581	530	1134	236	0	1939	3285	
% Cars	89.3	96.3	100	99.8	95.8	0	0	0	100	100	100	100	98.8	97.3	91.9	0	0	97.0	97.4	
Heavy Vehicles	10.7	1.1	3.5	0	3.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% Heavy Vehicles	10.7	1.1	3.5	0	3.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:30 AM



N/S: Soldiers Field Road Ramps
 E/W: Cambridge Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 VV
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

90-Boston, MA 02109
 Office: 508-481-3999 Fax: 508-545-1234
 Email: datarequest@precision.com

Start Time	Soldiers Field Road Ramps				Cambridge Street				Soldiers Field Road Ramps				Cambridge Street				
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
04:00 PM	27	74	73	0	0	0	0	0	27	14	156	0	126	167	73	0	737
04:15 PM	29	42	76	3	0	0	0	0	30	11	179	3	140	209	93	0	815
04:30 PM	29	77	83	1	0	0	0	0	26	11	150	5	108	218	86	0	794
04:45 PM	29	77	79	3	0	0	0	0	30	14	184	2	135	252	67	0	872
Total	114	270	311	7	0	0	0	0	113	50	669	10	509	846	319	0	3218
05:00 PM	25	78	83	1	0	0	0	0	34	10	149	4	135	246	115	1	881
05:15 PM	27	83	108	1	0	0	0	0	38	21	163	2	138	247	85	0	913
05:30 PM	29	69	80	2	0	0	0	0	42	15	110	3	134	247	105	0	836
05:45 PM	42	78	96	1	0	0	0	0	35	13	143	2	122	244	89	0	865
Total	123	308	367	5	0	0	0	0	149	59	565	11	529	984	394	1	3495
Grand Total	237	578	678	12	0	0	0	0	262	109	1234	21	1038	1830	713	1	6713
Approach %	15.7	38.4	45	0.8	0	0	0	0	16.1	6.7	75.9	1.3	29	51.1	19.9	0	106.6
Total %	3.5	8.6	10.1	0.2	0	0	0	0	3.9	1.6	18.4	0.3	15.5	27.3	10.6	0	662.1
Cars	227	574	665	12	0	0	0	0	261	109	1233	21	1018	1811	689	1	6621
% Cars	95.8	99.3	98.1	100	0	0	0	0	99.6	100	99.9	100	98.1	99.6	100	0	98.6
Heavy Vehicles	10	4	13	0	0	0	0	0	1	0	1	0	20	19	24	0	92
% Heavy Vehicles	4.2	0.7	1.9	0	0	0	0	0	0.4	0	0.1	0	1.9	1	3.4	0	1.4

Start Time	Soldiers Field Road Ramps				Cambridge Street				Soldiers Field Road Ramps				Cambridge Street						
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn			
04:45 PM	29	77	79	3	188	0	0	0	0	30	14	184	2	230	135	252	67	0	872
05:00 PM	25	78	83	1	187	0	0	0	0	34	10	149	4	197	135	246	115	1	881
05:15 PM	27	83	108	1	219	0	0	0	0	38	21	163	2	224	138	247	85	0	913
05:30 PM	29	69	80	2	180	0	0	0	0	42	15	110	3	170	134	247	105	0	836
Total	110	307	350	7	774	0	0	0	0	144	60	606	11	821	542	992	372	1	3502
% App. Total	14.2	39.7	45.2	0.9	98.4	0	0	0	0	17.5	7.3	73.8	1.3	89.3	28.4	52	19.5	0.1	99.9
Cars	105	303	343	7	761	0	0	0	0	144	60	606	11	821	538	982	362	1	3465
% Cars	96.4	99.3	98.0	100	98.3	0	0	0	0	100	100	100	100	100	99.3	99.0	97.3	100	98.7
Heavy Vehicles	3.6	0.7	2.0	0	1.7	0	0	0	0	0	0	0	0	0	0.7	1.0	2.7	0	1.1

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 04:45 PM



N/S: Soldiers Field Road Ramps
 E/W: Cambridge Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 VV
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

PRECISION
 D. A. T. A.
 INDUSTRIES, LLC
 90 Boston Blvd, MA 01003
 Office: 508.481.3999 Fax: 508.543.1234
 Email: datarequest@pdia.com

Start Time	Soldiers Field Road Ramps			Cambridge Street			Soldiers Field Road Ramps			Cambridge Street		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
04:00 PM	26	73	72	0	0	0	0	27	14	156	0	121
04:15 PM	27	41	74	3	0	0	30	11	179	3	134	209
04:30 PM	28	77	83	1	0	0	25	11	150	5	106	215
04:45 PM	28	77	78	3	0	0	30	14	184	2	135	251
Total	109	268	307	7	0	0	112	50	669	10	496	839
05:00 PM	25	77	80	1	0	0	34	10	149	4	133	241
05:15 PM	24	82	106	1	0	0	38	21	163	2	138	245
05:30 PM	29	69	79	2	0	0	42	15	110	3	132	245
05:45 PM	40	78	93	1	0	0	35	13	142	2	119	241
Total	118	306	358	5	0	0	149	59	564	11	522	972
Grand Total	227	574	665	12	0	0	261	109	1233	21	1018	1811
Approach %	15.4	38.8	45	0.8	0	0	16.1	6.7	75.9	1.3	28.9	51.5
Total %	3.4	8.7	10	0.2	0	0	3.9	1.6	18.6	0.3	15.4	27.4

Start Time	Soldiers Field Road Ramps			Cambridge Street			Soldiers Field Road Ramps			Cambridge Street		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
04:00 PM	28	77	78	3	186	0	0	0	0	30	14	184
05:00 PM	25	77	80	1	183	0	0	0	0	34	10	149
05:15 PM	24	82	106	1	213	0	0	0	0	38	21	163
05:30 PM	29	69	79	2	179	0	0	0	0	42	15	110
Total Volume	106	305	343	7	761	0	0	0	0	144	60	606
% Appr. Total	13.9	40.1	45.1	0.9	41.1	0	0	0	0	17.5	7.3	73.8
PHF	914	930	809	583	893	1	0	0	0	857	714	853



N/S: Soldiers Field Road Ramps
 E/W: Cambridge Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 VV
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

PRECISION
 D. A. T. A.
 INDUSTRIES, LLC
 90 Boston Blvd, MA 01003
 Office: 508.481.3999 Fax: 508.543.1234
 Email: datarequest@pdia.com

Start Time	Soldiers Field Road Ramps			Cambridge Street			Soldiers Field Road Ramps			Cambridge Street		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
04:00 PM	1	1	1	0	0	0	0	0	0	0	0	0
04:15 PM	2	1	2	0	0	0	0	0	0	0	0	0
04:30 PM	1	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	5	2	4	0	0	0	0	0	0	0	0	0
Total	9	4	7	0	0	0	0	0	0	0	0	0
05:00 PM	0	1	3	0	0	0	0	0	0	0	0	0
05:15 PM	3	1	2	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	1	0	0	0	0	0	0	0	0	0
05:45 PM	2	0	3	0	0	0	0	0	0	0	0	0
Total	5	2	9	0	0	0	0	0	0	0	0	0
Grand Total	10	4	13	0	0	0	0	0	0	0	0	0
Approach %	37	14.8	48.1	0	0	0	0	0	0	0	0	0
Total %	10.9	4.3	14.1	0	0	0	0	0	0	0	0	0

Start Time	Soldiers Field Road Ramps			Cambridge Street			Soldiers Field Road Ramps			Cambridge Street		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
04:00 PM	1	1	0	0	0	0	0	0	0	0	0	0
04:15 PM	2	1	2	0	0	0	0	0	0	0	0	0
04:30 PM	1	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	5	2	4	0	0	0	0	0	0	0	0	0
Total Volume	9	4	7	0	0	0	0	0	0	0	0	0
% Appr. Total	45.5	18.2	56.4	0	0	0	0	0	0	0	0	0
PHF	625	300	300	550	1	0	0	0	0	0	0	0



N/S: Soldiers Field Road Ramps
 E/W: Cambridge Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 VV
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

90 Boston Ave, Suite 200
 Boston, MA 02111
 Tel: 617-552-1234
 Fax: 617-552-1234
 Email: info@precisiondata.com

Start Time	Cambridge Street			Soldiers Field Road Ramps			Cambridge Street		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
04:00 PM	0	0	4	0	14	0	2	0	10
04:15 PM	0	0	0	0	13	1	1	1	5
04:30 PM	0	0	1	0	13	0	0	1	2
04:45 PM	0	0	6	0	23	0	0	0	4
Total	0	0	11	0	63	1	3	2	21
05:00 PM	0	0	1	0	20	9	0	14	8
05:15 PM	0	0	3	0	26	7	0	2	5
05:30 PM	0	0	7	0	32	7	1	0	7
05:45 PM	0	0	2	0	35	4	1	3	8
Total	0	0	11	0	113	27	2	5	34
Grand Total	0	0	22	0	176	28	5	7	42
Approach %	0	0	14.3	0	97.2	6.1	8.5	51.2	2.8
Total %	0	0	1.4	0	47.6	7.6	1.4	1.9	11.4

Start Time	Cambridge Street			Soldiers Field Road Ramps			Cambridge Street		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
04:00 PM	0	0	4	0	14	0	2	0	10
04:15 PM	0	0	0	0	13	1	1	1	5
04:30 PM	0	0	1	0	13	0	0	1	2
04:45 PM	0	0	6	0	23	0	0	0	4
Total	0	0	11	0	63	1	3	2	21
05:00 PM	0	0	1	0	20	9	0	14	8
05:15 PM	0	0	3	0	26	7	0	2	5
05:30 PM	0	0	7	0	32	7	1	0	7
05:45 PM	0	0	2	0	35	4	1	3	8
Total	0	0	11	0	113	27	2	5	34
Grand Total	0	0	22	0	176	28	5	7	42
Approach %	0	0	14.3	0	97.2	6.1	8.5	51.2	2.8
Total %	0	0	1.4	0	47.6	7.6	1.4	1.9	11.4

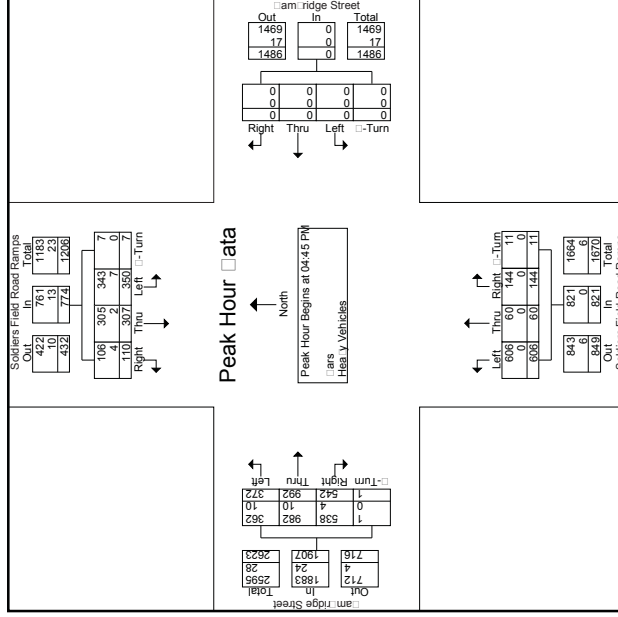


N/S: Soldiers Field Road Ramps
 E/W: Cambridge Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 VV
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

90 Boston Ave, Suite 200
 Boston, MA 02111
 Tel: 617-552-1234
 Fax: 617-552-1234
 Email: info@precisiondata.com

Start Time	Cambridge Street			Soldiers Field Road Ramps			Cambridge Street		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
04:00 PM	0	0	4	0	14	0	2	0	10
04:15 PM	0	0	0	0	13	1	1	1	5
04:30 PM	0	0	1	0	13	0	0	1	2
04:45 PM	0	0	6	0	23	0	0	0	4
Total	0	0	11	0	63	1	3	2	21
05:00 PM	0	0	1	0	20	9	0	14	8
05:15 PM	0	0	3	0	26	7	0	2	5
05:30 PM	0	0	7	0	32	7	1	0	7
05:45 PM	0	0	2	0	35	4	1	3	8
Total	0	0	11	0	113	27	2	5	34
Grand Total	0	0	22	0	176	28	5	7	42
Approach %	0	0	14.3	0	97.2	6.1	8.5	51.2	2.8
Total %	0	0	1.4	0	47.6	7.6	1.4	1.9	11.4





N: Windom Street
 E/W: Cambridge Street
 City, State: Boston, MA
 Client: VHB/ K. Keen



N: Windom Street
 E/W: Cambridge Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

Start Time	Windom Street			Cambridge Street			Cambridge Street			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
07:00 AM	9	5	0	20	229	0	113	2	0	378
07:15 AM	2	6	0	37	208	0	119	4	0	376
07:30 AM	3	6	0	51	249	0	133	1	0	443
07:45 AM	5	23	0	72	264	1	137	5	0	507
Total	19	40	0	180	950	1	502	12	0	1704
08:00 AM	3	30	0	84	293	3	140	7	3	563
08:15 AM	3	24	0	70	268	1	131	6	0	503
08:30 AM	7	21	0	70	273	1	156	9	0	537
08:45 AM	6	19	0	49	265	0	129	4	0	469
Total	19	94	0	273	1099	5	556	26	3	2072
Grand Total	35	134	0	453	2049	6	1058	38	3	3776
Approach %	20.7	79.3	0	18.1	81.7	0.2	96.3	3.5	0.3	
Total %	0.9	3.5	0	12	54.3	0.2	28	1	0.1	

Start Time	Windom Street			Cambridge Street			Cambridge Street			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
07:00 AM	9	5	0	20	268	0	114	2	0	418
07:15 AM	2	6	0	37	244	0	127	4	0	420
07:30 AM	4	6	0	51	269	0	135	2	0	467
07:45 AM	5	23	0	72	290	1	145	6	0	542
Total	20	40	0	180	1071	1	521	14	0	1847
08:00 AM	3	30	0	84	340	3	141	8	3	612
08:15 AM	3	24	0	70	300	1	135	7	0	540
08:30 AM	7	21	0	70	288	1	160	9	0	556
08:45 AM	6	19	0	50	293	0	134	5	0	507
Total	19	94	0	274	1221	5	570	29	3	2215
Grand Total	39	134	0	454	2292	6	1091	43	3	4062
Approach %	22.5	77.5	0	16.5	83.3	0.2	96	3.8	0.3	
Total %	1.1	3.3	0	11.2	56.4	0.1	26.9	1.1	0.1	
Cars	35	134	0	453	2049	6	1058	38	3	3776
% Cars	89.7	100	0	99.8	89.4	100	97	88.4	100	93
Heavy Vehicles	4	0	0	1	243	0	33	5	0	286
% Heavy Vehicles	10.3	0	0	0.2	10.6	0	3	11.6	0	7

Start Time	Windom Street			Cambridge Street			Cambridge Street			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
07:00 AM	5	23	0	28	264	1	137	5	0	507
07:15 AM	3	30	0	33	293	3	140	7	3	563
07:30 AM	3	24	0	27	268	1	131	6	0	503
07:45 AM	7	21	0	28	273	1	156	9	0	537
Total Volume	18	98	0	116	1098	6	564	27	3	2110
% App. Total	15.5	84.5	0	21.1	78.4	0.4	94.9	4.5	0.5	
PHF	.643	.817	.000	.879	.937	.500	.904	.750	.900	.937

Start Time	Windom Street			Cambridge Street			Cambridge Street			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
07:00 AM	5	23	0	28	290	1	145	6	0	542
07:15 AM	3	30	0	33	340	3	141	8	3	612
07:30 AM	3	24	0	27	300	1	135	7	0	540
07:45 AM	7	21	0	28	288	1	160	9	0	556
Total Volume	18	98	0	116	1218	6	581	30	3	2250
% App. Total	15.5	84.5	0	19.5	80.1	0.4	94.6	4.9	0.5	
PHF	.643	.817	.000	.879	.896	.500	.908	.833	.250	.908
Cars	18	98	0	116	1098	6	564	27	3	2110
% Cars	100	100	0	100	90.1	100	92.1	90.0	100	96.7
Heavy Vehicles	0	0	0	0	120	0	17	3	0	140
% Heavy Vehicles	0	0	0	0	9.9	0	2.9	10.0	0	6.2

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

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

N: Windom Street
 E/W: Cambridge Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 Z
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1



PRECISION
 DATA
 INDUSTRIES, LLC
 90 Boston Blvd, MA 01003
 Office: 508-481-3999 Fax: 508-545-1234
 Email: datarequest@precision.com

Start Time	Windom Street			Cambridge Street			U-Turn	Int. Total
	Right	Left	Thru	Right	Left	Thru		
07:00 AM	0	0	39	0	1	0	0	40
07:15 AM	0	0	36	0	8	0	0	44
07:30 AM	1	0	20	2	1	0	0	24
07:45 AM	0	0	26	0	8	1	0	35
Total	1	0	121	0	19	2	0	143
08:00 AM	0	0	47	0	1	1	0	49
08:15 AM	0	0	32	0	4	1	0	37
08:30 AM	0	0	15	0	4	0	0	19
08:45 AM	3	0	28	0	5	1	0	38
Total	3	0	122	0	14	3	0	143
Grand Total	4	0	243	0	33	5	0	286
Approach %	100	0	99.6	0	86.8	13.2	0	
Total %	1.4	0	0.3	0	11.5	1.7	0	

Start Time	Windom Street			Cambridge Street			U-Turn	App. Total	Int. Total
	Right	Left	Thru	Right	Left	Thru			
07:15 AM	0	0	36	0	0	8	0	0	44
07:30 AM	1	0	20	0	2	1	0	3	24
07:45 AM	0	0	26	0	26	8	1	0	35
08:00 AM	0	0	47	0	47	1	1	0	49
Total Volume	1	0	129	0	129	19	3	0	152
% App. Total	100	0	100	0	100	86.4	13.6	0	
PHF	.250	.000	.686	.000	.686	.594	.750	.000	.611

N: Windom Street
 E/W: Cambridge Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 Z
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1



PRECISION
 DATA
 INDUSTRIES, LLC
 90 Boston Blvd, MA 01003
 Office: 508-481-3999 Fax: 508-545-1234
 Email: datarequest@precision.com

Start Time	Windom Street			Cambridge Street			Peaks	Int. Total
	Right	Left	Thru	Right	Left	Thru		
07:00 AM	0	1	2	0	1	0	0	4
07:15 AM	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	1
07:45 AM	0	0	1	0	0	0	0	1
Total	0	1	4	0	2	0	0	9
08:00 AM	1	1	1	0	1	1	0	6
08:15 AM	0	0	2	0	0	7	0	9
08:30 AM	0	1	0	0	1	1	0	4
08:45 AM	1	2	3	0	0	4	0	4
Total	1	2	3	0	2	13	0	23
Grand Total	1	3	7	0	4	14	0	32
Approach %	9.1	27.3	63.6	0	100	82.4	0	17.6
Total %	3.1	9.4	21.9	0	12.5	43.8	0	9.4

Start Time	Windom Street			Cambridge Street			Peaks	App. Total	Int. Total
	Right	Left	Thru	Right	Left	Thru			
08:00 AM	1	1	3	0	1	1	0	1	2
08:15 AM	0	0	2	0	0	7	0	0	7
08:30 AM	0	1	0	0	1	1	0	1	2
08:45 AM	0	0	0	0	0	4	0	0	4
Total Volume	1	2	3	0	2	13	0	2	15
% App. Total	16.7	33.3	50	0	100	86.7	0	13.3	23
PHF	.250	.500	.375	.000	.500	.464	.000	.500	.639

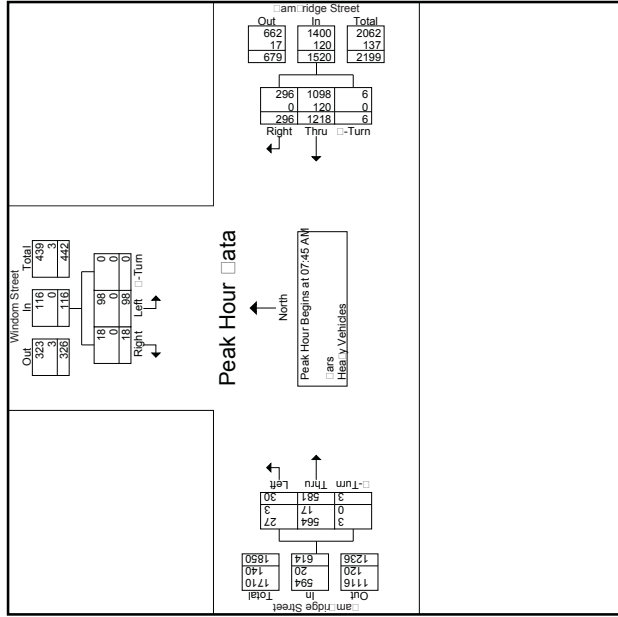


File Name : 122864 Z
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

N: Windom Street
 E/W: Cambridge Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

90 Boston Blvd, Suite 101
 Boston, MA 02108
 Office: 508-481-3999 Fax: 508-545-1234
 Email: datarequest@pdilc.com

Start Time	Windom Street			Cambridge Street			Int. Total
	Right	Thru	Left	Right	Thru	Left	
07:45 AM	28	290	1	363	145	6	542
08:00 AM	5	33	3	427	141	8	612
08:15 AM	3	24	0	27	70	300	344
08:30 AM	7	21	0	28	70	288	366
Total Volume	18	98	0	116	296	1218	1612
% App. Total	15.5	84.5	0	19.5	80.1	0.4	100.0
PHF	.643	.817	.000	.879	.881	.896	.890
Cars	18	98	0	116	296	1098	1512
% Cars	100	100	0	100	90.1	100	92.1
Heavy Vehicles	0	0	0	0	120	0	120
% Heavy Vehicles	0	0	0	0	9.9	0	7.9



File Name : 122864 ZZ
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

N: Windom Street
 E/W: Cambridge Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

90 Boston Blvd, Suite 101
 Boston, MA 02108
 Office: 508-481-3999 Fax: 508-545-1234
 Email: datarequest@pdilc.com

Start Time	Windom Street			Cambridge Street			Int. Total
	Right	Thru	Left	Right	Thru	Left	
04:00 PM	6	6	0	7	243	1	416
04:15 PM	8	2	0	13	269	1	453
04:30 PM	5	15	0	27	292	0	475
04:45 PM	4	9	0	16	335	4	536
Total	23	32	0	63	1139	3	1880
05:00 PM	12	19	0	46	329	0	579
05:15 PM	10	29	0	58	400	2	668
05:30 PM	3	30	0	55	363	2	597
05:45 PM	6	38	0	75	394	2	673
Total	31	116	0	234	1486	9	2517
Grand Total	54	148	0	297	2625	12	4397
Approach %	26.7	73.3	0	10.1	89.5	0.4	97.7
Total %	1.2	3.4	0	6.8	59.7	0.3	28
Cars	49	148	0	296	2563	12	4317
% Cars	90.7	100	0	99.7	97.6	100	98.2
Heavy Vehicles	5	0	0	1	62	0	80
% Heavy Vehicles	9.3	0	0	0.3	2.4	0	1.8

Start Time	Windom Street			Cambridge Street			Int. Total
	Right	Thru	Left	Right	Thru	Left	
05:00 PM	12	19	0	31	329	0	579
05:15 PM	10	29	0	39	400	2	668
05:30 PM	3	30	0	33	363	2	597
05:45 PM	6	38	0	44	394	5	673
Total Volume	31	116	0	147	1486	9	2517
% App. Total	21.1	78.9	0	13.5	85.9	0.5	98.4
PHF	.646	.817	.000	.835	.829	.480	.812
Cars	29	116	0	145	1465	9	2487
% Cars	93.5	100	0	98.6	98.6	100	99.1
Heavy Vehicles	2	0	0	2	21	0	23
% Heavy Vehicles	6.5	0	0	1.4	1.4	0	0.9



N: Windom Street
 E/W: Cambridge Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864.ZZ
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

PRECISION
 DATA
 INDUSTRIES, LLC
 90 Bowdoin Ave, MA 01003
 Office: 508-481-3999 Fax: 508-543-1234
 Email: datarequest@pdilc.com

Start Time	Windom Street			Cambridge Street			Int. Total
	Right	Thru	Left	Thru	Left	U-Turn	
04:00 PM	5	6	0	7	229	1	399
04:15 PM	8	2	0	13	263	1	446
04:30 PM	4	15	0	27	283	0	463
04:45 PM	3	9	0	16	323	1	522
Total	20	32	0	63	1098	3	1830
05:00 PM	11	19	0	46	325	0	571
05:15 PM	10	29	0	58	393	2	660
05:30 PM	3	30	0	55	360	2	593
05:45 PM	5	38	0	74	387	5	663
Total	29	116	0	233	1465	9	2487
Grand Total	49	148	0	296	2563	12	4317
Approach %	24.9	75.1	0	10.3	89.3	0.4	2.2
Total %	1.1	3.4	0	6.9	59.4	0.3	0.6

Start Time	Windom Street			Cambridge Street			Int. Total
	Right	Thru	Left	Thru	Left	U-Turn	
05:00 PM	11	19	0	46	325	0	571
05:15 PM	10	29	0	58	393	2	660
05:30 PM	3	30	0	55	360	2	593
05:45 PM	5	38	0	74	387	5	663
Total Volume	29	116	0	233	1465	9	2487
% Appr. Total	20	80	0	13.6	85.8	0.5	1.6
PHF	.659	.763	.000	.787	.932	.450	.934



N: Windom Street
 E/W: Cambridge Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864.ZZ
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

PRECISION
 DATA
 INDUSTRIES, LLC
 90 Bowdoin Ave, MA 01003
 Office: 508-481-3999 Fax: 508-543-1234
 Email: datarequest@pdilc.com

Start Time	Windom Street			Cambridge Street			Int. Total
	Right	Thru	Left	Thru	Left	U-Turn	
04:00 PM	1	0	0	0	14	0	17
04:15 PM	0	0	0	0	6	0	7
04:30 PM	1	0	0	0	9	0	12
04:45 PM	1	0	0	0	12	0	14
Total	3	0	0	0	41	0	50
05:00 PM	1	0	0	0	4	0	8
05:15 PM	0	0	0	0	7	0	8
05:30 PM	0	0	0	0	3	0	4
05:45 PM	1	0	0	0	7	0	10
Total	2	0	0	1	21	0	30
Grand Total	5	0	0	1	62	0	80
Approach %	100	0	0	1.6	98.4	0	100
Total %	6.2	0	0	1.2	77.5	0	15

Start Time	Windom Street			Cambridge Street			Int. Total
	Right	Thru	Left	Thru	Left	U-Turn	
04:00 PM	1	0	0	0	14	0	17
04:15 PM	0	0	0	0	6	0	7
04:30 PM	1	0	0	0	9	0	12
04:45 PM	1	0	0	0	12	0	14
Total Volume	3	0	0	0	41	0	50
% Appr. Total	100	0	0	100	0	0	100
PHF	.750	.000	.000	.732	.000	.000	.750



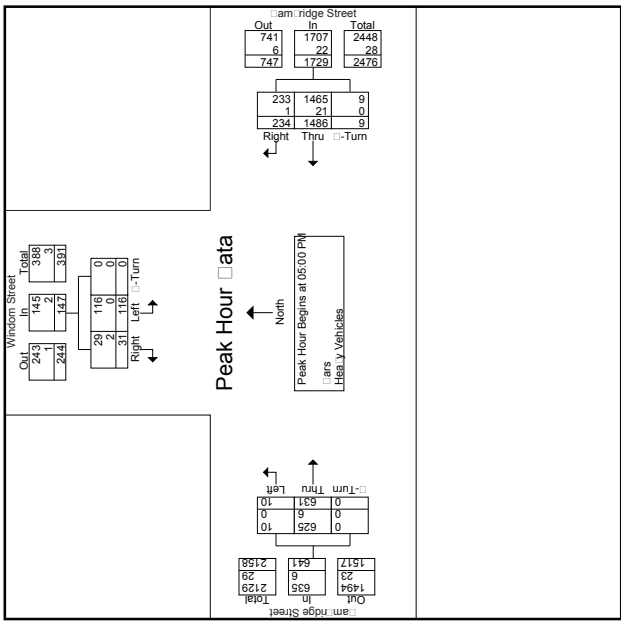
Start Time	Windom Street			Cambridge Street			Cambridge Street			Cambridge Street			
	Right	Thru	Left	Right	Thru	Left	Thru	Left	Thru	Left	U-Turn	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	2	0	0	3	0	0	0	0	0	0	0	5
04:30 PM	0	2	0	0	3	0	0	0	0	0	0	0	8
04:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	3
Total	0	4	0	0	7	0	0	0	0	0	0	0	16
05:00 PM	0	0	0	0	2	0	0	0	0	0	0	0	10
05:15 PM	1	0	0	0	4	0	0	0	0	0	0	0	8
05:30 PM	0	0	0	0	4	0	0	0	0	0	0	0	8
05:45 PM	1	0	0	0	6	0	0	0	0	0	0	0	13
Total	2	0	0	0	16	0	0	0	0	0	0	0	39
Grand Total	2	2	0	0	23	0	0	0	0	0	0	0	62
Approach %	4.2	4.2	0.0	0.0	91.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.2
Total %	1.6	1.6	0.0	0.0	38.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6

Start Time	Windom Street			Cambridge Street			Cambridge Street			Cambridge Street			
	Right	Thru	Left	Right	Thru	Left	Thru	Left	Thru	Left	U-Turn	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	2	0	0	3	0	0	0	0	0	0	0	5
04:30 PM	0	2	0	0	3	0	0	0	0	0	0	0	8
04:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	3
Total	0	4	0	0	7	0	0	0	0	0	0	0	16
05:00 PM	0	0	0	0	2	0	0	0	0	0	0	0	10
05:15 PM	1	0	0	0	4	0	0	0	0	0	0	0	8
05:30 PM	0	0	0	0	4	0	0	0	0	0	0	0	8
05:45 PM	1	0	0	0	6	0	0	0	0	0	0	0	13
Total	2	0	0	0	16	0	0	0	0	0	0	0	39
Grand Total	2	2	0	0	23	0	0	0	0	0	0	0	62
Approach %	4.2	4.2	0.0	0.0	91.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.2
Total %	1.6	1.6	0.0	0.0	38.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6



Start Time	Windom Street			Cambridge Street			Cambridge Street			Cambridge Street			
	Right	Thru	Left	Right	Thru	Left	Thru	Left	Thru	Left	U-Turn	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	2	0	0	3	0	0	0	0	0	0	0	5
04:30 PM	0	2	0	0	3	0	0	0	0	0	0	0	8
04:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	3
Total	0	4	0	0	7	0	0	0	0	0	0	0	16
05:00 PM	0	0	0	0	2	0	0	0	0	0	0	0	10
05:15 PM	1	0	0	0	4	0	0	0	0	0	0	0	8
05:30 PM	0	0	0	0	4	0	0	0	0	0	0	0	8
05:45 PM	1	0	0	0	6	0	0	0	0	0	0	0	13
Total	2	0	0	0	16	0	0	0	0	0	0	0	39
Grand Total	2	2	0	0	23	0	0	0	0	0	0	0	62
Approach %	4.2	4.2	0.0	0.0	91.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.2
Total %	1.6	1.6	0.0	0.0	38.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6

Start Time	Windom Street			Cambridge Street			Cambridge Street			Cambridge Street			
	Right	Thru	Left	Right	Thru	Left	Thru	Left	Thru	Left	U-Turn	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	2	0	0	3	0	0	0	0	0	0	0	5
04:30 PM	0	2	0	0	3	0	0	0	0	0	0	0	8
04:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	3
Total	0	4	0	0	7	0	0	0	0	0	0	0	16
05:00 PM	0	0	0	0	2	0	0	0	0	0	0	0	10
05:15 PM	1	0	0	0	4	0	0	0	0	0	0	0	8
05:30 PM	0	0	0	0	4	0	0	0	0	0	0	0	8
05:45 PM	1	0	0	0	6	0	0	0	0	0	0	0	13
Total	2	0	0	0	16	0	0	0	0	0	0	0	39
Grand Total	2	2	0	0	23	0	0	0	0	0	0	0	62
Approach %	4.2	4.2	0.0	0.0	91.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.2
Total %	1.6	1.6	0.0	0.0	38.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6



Start Time	Windom Street	Cambridge Street	Cambridge Street
04:00 PM	0	0	0
04:15 PM	0	2	0
04:30 PM	0	2	0
04:45 PM	0	0	0
Total	0	4	0
05:00 PM	0	0	0
05:15 PM	1	0	0
05:30 PM	0	0	0
05:45 PM	1	0	0
Total	2	0	0

Start Time	Windom Street	Cambridge Street	Cambridge Street
04:00 PM	0	0	0
04:15 PM	0	2	0
04:30 PM	0	2	0
04:45 PM	0	0	0
Total	0	4	0
05:00 PM	0	0	0
05:15 PM	1	0	0
05:30 PM	0	0	0
05:45 PM	1	0	0
Total	2	0	0



N/S: North Harvard Street/ Access Road
 E/W: Cambridge Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 U
 Site Code : 10463.00
 Start Date : 4/3/2012
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PRECISION
 DATA
 INDUSTRIES LLC
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 Office: 508-481-3999 Fax: 508-545-1234
 Email: datarequest@precision.com

Start Time	North Harvard Street			Cambridge Street			Access Road			Cambridge Street			Int. Total		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left			
07:00 AM	48	0	46	0	49	222	0	3	0	0	0	258	31	0	657
07:15 AM	52	0	65	0	49	200	0	5	0	0	0	314	50	0	735
07:30 AM	43	0	85	0	49	222	0	8	0	0	0	359	52	0	818
07:45 AM	49	0	73	0	75	205	0	10	0	0	0	384	50	0	846
Total	192	0	269	0	222	849	0	26	0	0	0	1315	183	0	3056
08:00 AM	50	0	74	0	71	257	0	8	0	0	0	398	55	0	913
08:15 AM	64	0	70	0	94	203	0	6	0	0	0	388	57	0	882
08:30 AM	60	0	94	0	64	214	0	17	0	0	0	390	57	0	896
08:45 AM	57	0	56	0	69	203	0	7	0	0	0	325	62	0	779
Total	231	0	294	0	298	877	0	38	0	0	0	1501	231	0	3470
Grand Total	423	0	563	0	520	1726	0	64	0	0	0	2816	414	0	6526
Approach %	42.9	0	57.1	0	22.5	74.7	0	2.8	0	0	0	87.2	12.8	0	88.2
Total %	6.5	0	8.6	0	8	26.4	0	1	0	0	0	43.2	6.3	0	60.1
% Cars	389	0	513	0	442	1550	0	64	0	0	0	2670	383	0	6011
% Heavy Vehicles	34	0	50	0	85	89.8	0	100	0	0	0	94.8	92.5	0	92.1
% Heavy Vehicles	8	0	8.9	0	1.5	10.2	0	0	0	0	0	14.6	31	0	51.5

Start Time	North Harvard Street			Cambridge Street			Access Road			Cambridge Street			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
07:00 AM	43	0	63	0	106	65	189	0	10	264	0	0	414
07:15 AM	46	0	67	0	113	56	224	0	8	288	0	0	434
07:30 AM	60	0	65	0	125	80	185	0	6	271	0	0	426
07:45 AM	56	0	88	0	144	197	17	276	0	0	0	0	424
Total	205	0	283	0	488	263	795	0	41	1099	0	0	1698
% Appr. Total	42	0	58	0	25.9	72.3	0	3.7	0	87.8	0	0	97.8
% Heavy Vehicles	354	0	301	0	847	382	887	0	603	953	0	0	978

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



N/S: North Harvard Street/ Access Road
 E/W: Cambridge Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 U
 Site Code : 10463.00
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Start Time	North Harvard Street			Cambridge Street			Access Road			Cambridge Street			Int. Total		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left			
07:00 AM	44	0	45	0	39	191	0	3	0	0	0	250	29	0	601
07:15 AM	46	0	59	0	38	177	0	5	0	0	0	297	44	0	666
07:30 AM	41	0	79	0	44	200	0	8	0	0	0	333	49	0	754
07:45 AM	43	0	63	0	65	189	0	10	0	0	0	365	49	0	784
Total	174	0	246	0	186	757	0	26	0	0	0	1245	171	0	2805
08:00 AM	46	0	67	0	56	224	0	8	0	0	0	382	52	0	835
08:15 AM	60	0	65	0	80	185	0	6	0	0	0	372	54	0	822
08:30 AM	56	0	88	0	62	197	0	17	0	0	0	372	52	0	844
08:45 AM	53	0	47	0	58	187	0	7	0	0	0	299	54	0	705
Total	215	0	267	0	256	793	0	38	0	0	0	1425	212	0	3206
Grand Total	389	0	513	0	442	1590	0	64	0	0	0	2670	383	0	6011
Approach %	43.1	0	56.9	0	21.5	75.4	0	3.1	0	0	0	87.5	12.5	0	88.2
Total %	6.5	0	8.5	0	7.4	25.8	0	1.1	0	0	0	44.4	6.4	0	60.1

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

Start Time	North Harvard Street			Cambridge Street			Access Road			Cambridge Street			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
07:00 AM	43	0	63	0	106	65	189	0	10	264	0	0	414
07:15 AM	46	0	67	0	113	56	224	0	8	288	0	0	434
07:30 AM	60	0	65	0	125	80	185	0	6	271	0	0	426
07:45 AM	56	0	88	0	144	197	17	276	0	0	0	0	424
Total	205	0	283	0	488	263	795	0	41	1099	0	0	1698
% Appr. Total	42	0	58	0	25.9	72.3	0	3.7	0	87.8	0	0	97.8
% Heavy Vehicles	354	0	301	0	847	382	887	0	603	953	0	0	978



N/S: North Harvard Street/ Access Road
 E/W: Cambridge Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 U
 Site Code : 10463.00
 Start Date : 4/3/2012
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 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequest@pdilc.com

Groups: Printed - Heavy Vehicles

Start Time	North Harvard Street			Access Road			Cambridge Street			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
07:00 AM	4	0	1	0	0	0	0	0	0	56
07:15 AM	6	0	11	23	0	0	0	0	17	69
07:30 AM	2	0	6	0	0	0	0	0	26	64
07:45 AM	6	0	10	16	0	0	0	0	19	62
Total	18	0	23	0	0	0	0	0	70	251
08:00 AM	4	0	7	15	33	0	0	0	16	78
08:15 AM	4	0	5	0	14	18	0	0	16	60
08:30 AM	4	0	6	0	2	17	0	0	18	52
08:45 AM	4	0	9	0	11	16	0	0	26	74
Total	16	0	27	0	42	84	0	0	76	264
Grand Total	34	0	50	0	78	176	0	0	146	515
Approach %	40.5	0	59.5	0	30.7	69.3	0	0	82.5	17.5
Total %	6.6	0	9.7	0	15.1	34.2	0	0	28.3	6

Start Time	North Harvard Street			Access Road			Cambridge Street			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
07:00 AM	6	0	6	0	0	0	0	0	0	23
07:15 AM	2	0	6	0	8	5	22	0	0	29
07:30 AM	6	0	10	0	16	0	0	0	19	20
07:45 AM	4	0	7	0	11	15	33	0	0	19
Total	18	0	29	0	47	41	94	0	0	91
Total Volume	18	0	29	0	47	41	94	0	0	91
% App. Total	38.3	0	61.7	0	30.4	69.6	0	0	85.7	14.3
PHF	.750	.000	.743	.000	.734	.083	.712	.000	.703	.000



N/S: North Harvard Street/ Access Road
 E/W: Cambridge Street
 City, State: Boston, MA
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 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequest@pdilc.com

Groups: Printed - Peck and Bicycles

Start Time	North Harvard Street			Access Road			Cambridge Street			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
07:00 AM	0	0	1	0	0	0	0	0	0	0
07:15 AM	1	0	0	5	0	1	0	0	2	2
07:30 AM	2	0	0	3	0	2	0	0	1	0
07:45 AM	3	0	0	2	0	0	0	0	0	0
Total	6	0	1	10	0	3	0	0	3	0
08:00 AM	0	0	0	2	1	1	0	0	0	2
08:15 AM	0	0	3	1	0	0	0	1	0	5
08:30 AM	2	0	0	1	0	0	0	0	0	6
08:45 AM	0	0	1	0	0	0	0	0	0	3
Total	2	0	4	5	1	1	0	0	0	7
Grand Total	8	0	5	15	1	4	0	0	4	10
Approach %	28.6	0	17.9	53.6	20	80	0	0	28.6	0
Total %	8.2	0	5.2	15.5	1	4.1	0	0	4.1	10.3

Start Time	North Harvard Street			Access Road			Cambridge Street			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
07:00 AM	0	0	0	2	1	1	0	0	0	2
07:15 AM	0	0	3	1	0	0	0	0	0	5
07:30 AM	2	0	0	1	0	0	0	0	0	6
07:45 AM	0	0	1	0	0	0	0	0	0	3
Total	2	0	4	5	1	1	0	0	0	15
08:00 AM	1	0	0	0	0	0	0	0	0	2
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	1	0	0	0	0	0	0	0	0	2
Grand Total	3	0	4	5	1	1	0	0	0	17
Approach %	18.2	0	36.4	45.5	50	50	0	0	36.4	0
Total %	25.0	.000	.333	.625	.688	.250	.250	.000	.333	.000
PHF	.250	.000	.333	.625	.688	.250	.250	.000	.333	.000



N/S: North Harvard Street/ Access Road
 E/W: Cambridge Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

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 90 Boston Blvd, MA 01903
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 Email: datarequest@precision.com

Groups: Printed: Cars

Start Time	North Harvard Street			Cambridge Street			Access Road			Cambridge Street			Int. Total		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left			
04:00 PM	57	0	72	0	27	198	0	1	0	0	0	297	44	0	696
04:15 PM	40	0	57	0	41	208	0	7	0	0	0	320	46	0	719
04:30 PM	56	0	63	0	52	234	0	8	0	0	0	309	64	0	786
04:45 PM	58	0	49	0	42	262	0	8	0	0	0	328	50	0	797
Total	211	0	241	0	162	902	0	24	0	0	0	1254	204	0	2998
05:00 PM	54	0	65	0	67	258	0	8	0	0	0	327	65	1	845
05:15 PM	50	0	65	0	71	298	0	5	0	0	0	316	56	1	862
05:30 PM	71	0	68	0	95	263	0	9	0	0	0	304	59	0	869
05:45 PM	76	1	48	0	56	271	0	14	0	0	0	277	66	0	809
Total	251	1	246	0	289	1090	0	36	0	0	0	1224	246	2	3385
Grand Total	462	1	487	0	451	1992	0	60	0	0	0	2478	450	2	6383
Approach %	48.6	0.1	51.3	0	18	79.6	0	2.4	0	0	0	84.6	15.4	0.1	
Total %	7.2	0	7.6	0	7.1	31.2	0	0.9	0	0	0	38.8	7	0	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 05:00 PM

Start Time	North Harvard Street			Cambridge Street			Access Road			Cambridge Street			Int. Total			
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left				
04:00 PM	54	0	65	0	119	67	258	0	8	333	0	0	327	65	1	845
05:15 PM	50	0	65	0	115	71	298	0	5	374	0	0	316	56	1	862
05:30 PM	71	0	68	0	139	95	263	0	9	367	0	0	304	59	0	869
05:45 PM	76	1	48	0	125	56	271	0	14	341	0	0	277	66	0	809
Total Volume	251	1	246	0	498	289	1090	0	36	1415	0	0	1224	246	2	3385
% App. Total	50.4	0.2	49.4	0	20.4	77	25	0	2.5	85.2	0	0	85.2	16.7	0.1	
PHF	826	280	904	0	896	761	914	0	643	946	0	0	956	932	80	974



N/S: North Harvard Street/ Access Road
 E/W: Cambridge Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

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PRECISION
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 INDUSTRIES, LLC
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Groups: Printed: Heavy Vehicles

Start Time	North Harvard Street			Cambridge Street			Access Road			Cambridge Street			Int. Total		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left			
04:00 PM	7	0	5	0	5	11	0	0	0	0	0	14	6	0	48
04:15 PM	1	0	6	0	2	5	0	0	0	0	0	8	0	0	22
04:30 PM	2	0	5	0	3	7	0	0	0	0	0	7	5	0	29
04:45 PM	2	0	5	0	6	6	0	0	0	0	0	9	4	0	32
Total	12	0	21	0	16	29	0	0	0	0	0	38	15	0	131
05:00 PM	3	0	3	0	5	2	0	0	0	0	0	9	2	0	24
05:15 PM	2	0	1	0	3	3	0	0	0	0	0	6	2	0	17
05:30 PM	3	0	4	0	3	2	0	0	0	0	0	4	0	0	16
05:45 PM	3	0	3	0	1	3	0	0	0	0	0	3	5	0	18
Total	11	0	11	0	12	10	0	0	0	0	0	22	9	0	75
Grand Total	23	0	32	0	28	39	0	0	0	0	0	60	24	0	206
Approach %	41.8	0	58.2	0	41.8	58.2	0	0	0	0	0	71.4	28.6	0	
Total %	11.2	0	15.5	0	13.6	18.9	0	0	0	0	0	29.1	11.7	0	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 04:00 PM

Start Time	North Harvard Street			Cambridge Street			Access Road			Cambridge Street			Int. Total		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left			
04:00 PM	7	0	5	0	5	11	0	0	0	0	0	14	6	0	20
04:15 PM	1	0	6	0	2	5	0	0	0	0	0	8	0	0	22
04:30 PM	2	0	5	0	3	7	0	0	0	0	0	7	5	0	12
04:45 PM	2	0	5	0	6	6	0	0	0	0	0	9	4	0	13
Total Volume	12	0	21	0	33	29	0	0	0	0	0	38	15	0	53
% App. Total	36.4	0	63.6	0	35.6	64.4	0	0	0	0	0	71.7	28.3	0	
PHF	429	0	875	0	688	667	0	0	0	0	0	679	623	0	682



N/S: North Harvard Street/ Access Road
 E/W: Cambridge Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 UU
 Site Code : 10463.00
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Start Time	North Harvard Street			Cambridge Street			Access Road			Cambridge Street			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
04:00 PM	1	0	0	0	0	0	0	0	0	0	0	0	10
04:15 PM	2	0	0	0	0	0	0	0	0	0	0	0	13
04:30 PM	3	0	0	0	0	0	0	0	0	0	0	0	10
04:45 PM	0	0	0	1	0	0	0	0	0	0	0	0	4
Total	6	0	0	1	0	0	0	0	0	0	0	0	50
05:00 PM	1	0	0	0	0	0	0	0	0	0	0	0	12
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	12
05:30 PM	1	0	0	0	0	0	0	0	0	0	0	0	3
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	2	0	0	0	0	0	0	0	0	0	0	0	48
Grand Total	8	0	0	2	0	0	0	0	0	0	0	0	98
Approach %	28.6	0	0	71.4	16.7	83.3	0	0	0	100	0	0	30.4
Total %	8.2	0	0	20.4	2	10.2	0	0	0	12.2	0	0	14.3

Start Time	North Harvard Street			Cambridge Street			Access Road			Cambridge Street			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	1	0	0	1	0	0	0	0	0	0	0	0	9
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	6
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	7
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	15
Total	1	0	0	1	0	0	0	0	0	0	0	0	28
% Appr. Total	14.3	0	0	85.7	28.6	71.4	0	0	0	100	0	0	25
PHF	.500	.000	.000	.750	.700	.800	.417	.000	.000	.583	.000	.583	.688



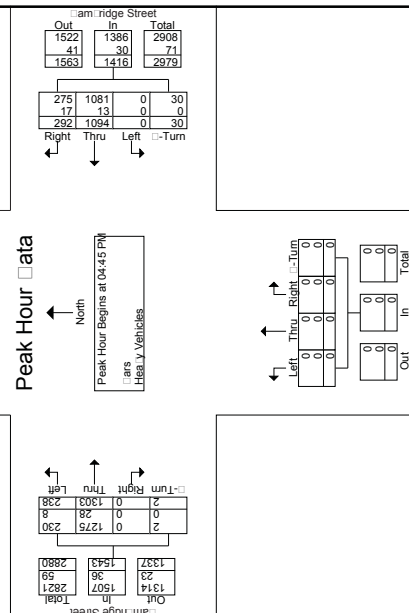
N/S: North Harvard Street/ Access Road
 E/W: Cambridge Street
 City, State: Boston, MA
 Client: VHB/ K. Keen

File Name : 122864 UU
 Site Code : 10463.00
 Start Date : 4/3/2012
 Page No : 1

PRECISION
 INDUSTRIES LLC
 90 Boston Ave, Boston, MA 02108
 Office: 508-481-3999 Fax: 508-545-1234
 Email: datarequest@public.com

Start Time	North Harvard Street			Cambridge Street			Access Road			Cambridge Street			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
04:00 PM	1	0	0	0	0	0	0	0	0	0	0	0	10
04:15 PM	2	0	0	0	0	0	0	0	0	0	0	0	13
04:30 PM	3	0	0	0	0	0	0	0	0	0	0	0	10
04:45 PM	0	0	0	1	0	0	0	0	0	0	0	0	4
Total	6	0	0	1	0	0	0	0	0	0	0	0	50
05:00 PM	1	0	0	0	0	0	0	0	0	0	0	0	12
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	12
05:30 PM	1	0	0	0	0	0	0	0	0	0	0	0	3
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	2	0	0	0	0	0	0	0	0	0	0	0	48
Grand Total	8	0	0	2	0	0	0	0	0	0	0	0	98
Approach %	28.6	0	0	71.4	16.7	83.3	0	0	0	100	0	0	30.4
Total %	8.2	0	0	20.4	2	10.2	0	0	0	12.2	0	0	14.3

Start Time	North Harvard Street			Cambridge Street			Access Road			Cambridge Street			Int. Total
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
04:00 PM	1	0	0	0	0	0	0	0	0	0	0	0	10
04:15 PM	2	0	0	0	0	0	0	0	0	0	0	0	13
04:30 PM	3	0	0	0	0	0	0	0	0	0	0	0	10
04:45 PM	0	0	0	1	0	0	0	0	0	0	0	0	4
Total	6	0	0	1	0	0	0	0	0	0	0	0	50
05:00 PM	1	0	0	0	0	0	0	0	0	0	0	0	12
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	12
05:30 PM	1	0	0	0	0	0	0	0	0	0	0	0	3
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	2	0	0	0	0	0	0	0	0	0	0	0	48
% Appr. Total	14.3	0	0	85.7	28.6	71.4	0	0	0	100	0	0	25
PHF	.500	.000	.000	.750	.700	.800	.417	.000	.000	.583	.000	.583	.688





File Name : 133355 A
 Site Code : 10463
 Start Date : 5/14/2013
 Page No : 1

N/S: Franklin Street/ Harvard Avenue
 E/W: Cambridge Street
 City, State: Allston, MA
 Client: VHB / K. Malakorn

Start Time	Franklin Street			Harvard Avenue			Cambridge Street			Harvard Avenue			Cambridge Street			Harvard Avenue			Cambridge Street			
	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	
07:00 AM	0	6	7	0	15	115	78	0	62	2	4	0	3	111	0	0	403	0	0	0	0	0
07:15 AM	1	3	10	0	13	123	74	0	97	4	4	0	5	107	0	0	441	0	0	0	0	0
07:30 AM	0	11	20	0	18	119	73	0	95	9	7	0	5	141	0	0	498	0	0	0	0	0
07:45 AM	0	9	27	0	21	141	95	0	112	8	6	0	1	138	0	0	558	0	0	0	0	0
Total	1	29	64	0	67	498	320	0	366	23	21	0	14	497	0	0	1900	0	0	0	0	0
08:00 AM	2	5	21	0	22	133	74	0	109	10	6	0	2	137	0	0	521	0	0	0	0	0
08:15 AM	1	7	24	0	17	126	105	0	145	5	5	0	3	111	0	0	549	0	0	0	0	0
08:30 AM	1	10	32	0	23	136	107	0	88	7	10	0	4	117	0	0	536	0	0	0	0	0
08:45 AM	1	7	43	0	32	136	103	0	102	10	7	0	1	107	0	0	549	0	0	0	0	0
Total	5	29	120	0	94	531	389	0	444	32	28	0	10	472	0	0	2155	0	0	0	0	0
Grand Total	6	58	184	0	161	1029	709	0	810	55	49	0	24	969	0	0	4055	0	0	0	0	0
Approach %	2.4	23.4	74.2	0	8.5	54.2	37.3	0	88.6	6	5.4	0	2.4	97.5	0.1	0	549	0	0	0	0	0
Total %	0.1	1.4	4.5	0	4	25.4	17.5	0	20	1.4	1.2	0	0.6	23.9	0	0	441	0	0	0	0	0
% Cars	5	56	172	0	158	915	643	0	761	50	38	0	21	892	0	0	3712	0	0	0	0	0
% Heavy Vehicles	1	2	12	0	3	114	66	0	49	5	11	0	3	77	0	0	343	0	0	0	0	0
% Heavy Vehicles	16.7	3.4	6.5	0	1.9	11.1	9.3	0	6	9.1	22.4	0	12.5	7.9	0	0	8.5	0	0	0	0	0

Start Time	Franklin Street			Harvard Avenue			Cambridge Street			Harvard Avenue			Cambridge Street			Harvard Avenue			Cambridge Street			
	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	
07:00 AM	0	6	7	0	15	115	78	0	62	2	4	0	3	111	0	0	403	0	0	0	0	0
07:15 AM	1	3	10	0	13	123	74	0	97	4	4	0	5	107	0	0	441	0	0	0	0	0
07:30 AM	0	11	20	0	18	119	73	0	95	9	7	0	5	141	0	0	498	0	0	0	0	0
07:45 AM	0	9	27	0	21	141	95	0	112	8	6	0	1	138	0	0	558	0	0	0	0	0
Total	1	29	64	0	67	498	320	0	366	23	21	0	14	497	0	0	1900	0	0	0	0	0
08:00 AM	2	5	21	0	22	133	74	0	109	10	6	0	2	137	0	0	521	0	0	0	0	0
08:15 AM	1	7	24	0	17	126	105	0	145	5	5	0	3	111	0	0	549	0	0	0	0	0
08:30 AM	1	10	32	0	23	136	107	0	88	7	10	0	4	117	0	0	536	0	0	0	0	0
08:45 AM	1	7	43	0	32	136	103	0	102	10	7	0	1	107	0	0	549	0	0	0	0	0
Total	5	29	120	0	94	531	389	0	444	32	28	0	10	472	0	0	2155	0	0	0	0	0
Grand Total	6	58	184	0	161	1029	709	0	810	55	49	0	24	969	0	0	4055	0	0	0	0	0
Approach %	2.4	23.4	74.2	0	8.5	54.2	37.3	0	88.6	6	5.4	0	2.4	97.5	0.1	0	549	0	0	0	0	0
Total %	0.1	1.4	4.5	0	4	25.4	17.5	0	20	1.4	1.2	0	0.6	23.9	0	0	441	0	0	0	0	0
% Cars	5	56	172	0	158	915	643	0	761	50	38	0	21	892	0	0	3712	0	0	0	0	0
% Heavy Vehicles	1	2	12	0	3	114	66	0	49	5	11	0	3	77	0	0	343	0	0	0	0	0
% Heavy Vehicles	16.7	3.4	6.5	0	1.9	11.1	9.3	0	6	9.1	22.4	0	12.5	7.9	0	0	8.5	0	0	0	0	0

Start Time	Franklin Street			Harvard Avenue			Cambridge Street			Harvard Avenue			Cambridge Street			Harvard Avenue			Cambridge Street			
	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	
07:00 AM	0	6	7	0	15	115	78	0	62	2	4	0	3	111	0	0	403	0	0	0	0	0
07:15 AM	1	3	10	0	13	123	74	0	97	4	4	0	5	107	0	0	441	0	0	0	0	0
07:30 AM	0	11	20	0	18	119	73	0	95	9	7	0	5	141	0	0	498	0	0	0	0	0
07:45 AM	0	9	27	0	21	141	95	0	112	8	6	0	1	138	0	0	558	0	0	0	0	0
Total	1	29	64	0	67	498	320	0	366	23	21	0	14	497	0	0	1900	0	0	0	0	0
08:00 AM	2	5	21	0	22	133	74	0	109	10	6	0	2	137	0	0	521	0	0	0	0	0
08:15 AM	1	7	24	0	17	126	105	0	145	5	5	0	3	111	0	0	549	0	0	0	0	0
08:30 AM	1	10	32	0	23	136	107	0	88	7	10	0	4	117	0	0	536	0	0	0	0	0
08:45 AM	1	7	43	0	32	136	103	0	102	10	7	0	1	107	0	0	549	0	0	0	0	0
Total	5	29	120	0	94	531	389	0	444	32	28	0	10	472	0	0	2155	0	0	0	0	0
Grand Total	6	58	184	0	161	1029	709	0	810	55	49	0	24	969	0	0	4055	0	0	0	0	0
Approach %	2.4	23.4	74.2	0	8.5	54.2	37.3	0	88.6	6	5.4	0	2.4	97.5	0.1	0	549	0	0	0	0	0
Total %	0.1	1.4	4.5	0	4	25.4	17.5	0	20	1.4	1.2	0	0.6	23.9	0	0	441	0	0	0	0	0
% Cars	5	56	172	0	158	915	643	0	761	50	38	0	21	892	0	0	3712	0	0	0	0	0
% Heavy Vehicles	1	2	12	0	3	114	66	0	49	5	11	0	3	77	0	0	343	0	0	0	0	0
% Heavy Vehicles	16.7	3.4	6.5	0	1.9	11.1	9.3	0	6	9.1	22.4	0	12.5	7.9	0	0	8.5	0	0	0	0	0

Start Time	Franklin Street			Harvard Avenue			Cambridge Street			Harvard Avenue			Cambridge Street			Harvard Avenue			Cambridge Street			
	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	
07:00 AM	0	6	7	0	15	115	78	0	62	2	4	0	3	111	0	0	403	0	0	0	0	0
07:15 AM	1	3	10	0	13	123	74	0	97	4	4	0	5	107	0	0	441	0	0	0	0	0
07:30 AM	0	11	20	0	18	119	73	0	95	9	7	0	5	141	0	0	498	0	0	0	0	0
07:45 AM	0	9	27	0	21	141	95	0	112	8	6	0	1	138	0	0	558	0	0	0	0	0
Total	1	29	64	0	67	498	320	0	366	23	21	0	14	497	0	0	1900	0	0	0	0	0
08:00 AM	2	5	21	0	22	133	74	0	109	10	6	0	2	137	0	0	521	0	0	0	0	0
08:15 AM	1	7	24	0	17	126	105	0	145	5	5	0	3	111	0	0	549	0	0	0	0	0
08:30 AM	1	10	32	0	23	136	107	0	88	7	10	0	4	117	0	0	536	0	0	0	0	0
08:45 AM	1	7	43	0	32	136	103	0	102	10	7	0	1	107	0	0	549	0	0	0	0	0
Total	5	29	120	0	94	531	389	0	444	32	28	0	10	472	0	0	2155	0	0	0	0	0
Grand Total	6	58	184	0	161	1029	709	0	810	55	49	0	2									



N/S: Franklin Street / Harvard Avenue
 E/W: Cambridge Street
 City, State: Allston, MA
 Client: VHB / K. Malakorn

File Name : 133355 A
 Site Code : 10463
 Start Date : 5/14/2013
 Page No : 1

PRECISION
 DATA
 INDUSTRIES, LLC
 90 Boston Blvd, MA 01903
 Office: 508-481-3999 Fax: 508-545-1234
 Email: datarequest@pdic.com

Start Time	Franklin Street			Cambridge Street			Harvard Avenue			Cambridge Street			Cambridge Street				
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		
07:00 AM	0	0	0	0	12	7	0	1	0	0	0	0	0	7	0	0	27
07:15 AM	0	0	1	0	17	7	0	7	0	2	0	0	6	6	0	0	40
07:30 AM	0	0	2	0	12	10	0	7	0	2	0	1	11	0	0	45	
07:45 AM	0	0	1	0	17	11	0	8	1	1	0	0	12	0	0	51	
Total	0	0	4	0	58	35	0	23	1	5	0	1	36	0	0	163	
08:00 AM	1	1	2	0	0	19	6	0	11	1	1	0	8	0	0	50	
08:15 AM	0	0	1	0	1	15	6	0	6	0	0	1	8	0	0	38	
08:30 AM	0	0	2	0	2	9	9	0	4	1	4	0	11	0	0	42	
08:45 AM	0	1	3	0	13	10	0	5	2	1	0	1	14	0	0	50	
Total	1	2	8	0	3	56	31	0	26	4	6	0	41	0	0	180	
Grand Total	1	2	12	0	3	114	66	0	49	5	11	0	3	77	0	343	
Approach %	6.7	13.3	80	0	1.6	62.3	36.1	0	75.4	7.7	16.9	0	3.8	96.2	0	0	
Total %	0.3	0.6	3.5	0	0.9	33.2	19.2	0	14.3	1.5	3.2	0	0.9	22.4	0	0	

Start Time	Franklin Street			Cambridge Street			Harvard Avenue			Cambridge Street			Cambridge Street				
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		
07:00 AM	0	0	0	0	17	7	0	24	7	0	2	0	9	0	0	6	
07:15 AM	0	0	1	0	12	10	0	22	7	0	2	0	9	1	11	0	12
07:30 AM	0	0	2	0	17	11	0	17	11	0	10	0	12	0	0	51	
07:45 AM	0	0	1	0	19	6	0	25	11	1	0	13	0	8	0	8	
08:00 AM	1	1	2	0	4	19	6	0	33	2	6	0	41	1	37	0	38
Total Volume	1	1	6	0	65	34	0	99	33	2	14	0	106	2	69	0	186
% App. Total	12.5	12.5	75	0	65.7	34.3	0	80.5	4.9	14.6	0	0	2.6	97.4	0	0	
PHE	1.250	250	750	0	500	855	773	0	884	750	750	0	788	250	771	0	792



N/S: Franklin Street / Harvard Avenue
 E/W: Cambridge Street
 City, State: Allston, MA
 Client: VHB / K. Malakorn

File Name : 133355 A
 Site Code : 10463
 Start Date : 5/14/2013
 Page No : 1

PRECISION
 DATA
 INDUSTRIES, LLC
 90 Boston Blvd, MA 01903
 Office: 508-481-3999 Fax: 508-545-1234
 Email: datarequest@pdic.com

Start Time	Franklin Street			Cambridge Street			Harvard Avenue			Cambridge Street			Cambridge Street		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
07:00 AM	0	0	0	0	2	8	2	2	0	0	0	0	2	0	5
07:15 AM	0	0	8	0	3	2	11	4	2	0	0	4	1	3	0
07:30 AM	0	3	0	4	0	1	8	1	0	0	1	0	2	0	1
07:45 AM	0	2	1	7	0	3	4	11	3	2	0	3	1	3	0
Total	0	5	1	20	0	9	38	10	6	0	8	2	10	0	18
08:00 AM	0	1	0	3	1	0	3	16	6	1	0	2	0	0	6
08:15 AM	0	2	0	8	0	1	2	16	6	0	0	3	0	3	8
08:30 AM	0	0	0	12	0	4	3	25	3	0	1	7	1	6	0
08:45 AM	0	0	1	3	0	3	18	4	0	0	0	4	3	2	0
Total	0	3	1	26	1	8	11	75	19	1	16	4	11	0	29
Grand Total	0	8	2	46	1	17	20	113	29	7	1	24	6	21	0
Approach %	0	14.3	3.6	82.1	0.7	11.3	13.2	74.8	47.5	11.5	1.6	39.3	8.1	28.4	0
Total %	0	2.3	0.6	13.5	0.3	5.8	33	8.5	2	0.3	7	1.8	6.1	0	13.7

Start Time	Franklin Street			Cambridge Street			Harvard Avenue			Cambridge Street			Cambridge Street		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
07:00 AM	0	2	1	7	10	0	3	4	11	18	3	2	0	3	0
07:15 AM	0	1	0	3	4	1	0	3	16	20	6	1	0	2	9
07:30 AM	0	2	0	8	10	0	1	2	16	19	6	0	0	3	0
07:45 AM	0	0	0	12	12	0	4	3	25	32	3	0	1	7	11
08:00 AM	0	5	1	30	36	1	8	12	68	89	18	3	1	15	37
Total Volume	0	13.9	2.8	83.3	1.1	9	13.5	76.4	48.6	8.1	2.7	40.5	4.3	26.1	0
% App. Total	0	13.9	2.8	83.3	1.1	9	13.5	76.4	48.6	8.1	2.7	40.5	4.3	26.1	0
PHE	1.000	625	250	625	750	250	500	750	680	693	750	250	536	841	500



PRECISION
D. A. T. A.
INDUSTRIES, LLC

90 Bow St. Berlin, MA 01803
Office: 508-881-3999 Fax: 508-545-1234
Email: datarequest@pdilc.com

N/S: Franklin Street / Harvard Avenue
E/W: Cambridge Street
City, State: Allston, MA
Client: VHB / K. Malakorn

File Name : 133355 A
Site Code : 10463
Start Date : 5/14/2013
Page No : 1

Start Time	Franklin Street			Cambridge Street			Harvard Avenue			Cambridge Street		
	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right
04:00 PM	1	6	26	0	15	120	90	0	82	15	8	0
04:15 PM	2	7	33	0	11	113	75	0	61	6	12	0
04:30 PM	2	6	18	0	15	124	99	0	55	7	11	0
04:45 PM	3	8	35	0	17	133	100	0	74	12	17	0
Total	8	27	112	0	58	490	364	0	272	40	48	0
05:00 PM	0	10	27	0	19	150	104	0	61	13	4	0
05:15 PM	3	16	29	0	18	164	92	0	85	8	11	0
05:30 PM	4	5	20	0	15	177	90	0	79	6	4	0
05:45 PM	4	7	19	0	23	180	110	0	77	9	8	0
Total	11	38	95	0	75	671	396	0	302	36	27	0
Grand Total	19	65	207	0	133	1161	760	0	574	76	75	0
Approach %	6.5	22.3	71.1	0	6.5	56.5	37	0	79.2	10.5	10.3	0
Total %	0.5	1.6	5	0	3.2	27.8	18.2	0	13.8	1.8	1.8	0
% Cars	19	61	196	0	129	1125	745	0	537	72	74	0
% Heavy Vehicles	0	4	11	0	4	36	15	0	37	4	1	0
% Heavy Vehicles	0	6.2	5.3	0	3	3.1	2	0	6.4	5.3	1.3	0

Start Time	Franklin Street			Cambridge Street			Harvard Avenue			Cambridge Street		
	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right
05:00 PM	0	10	27	0	19	150	104	0	61	13	4	0
05:15 PM	3	16	29	0	18	164	92	0	85	8	11	0
05:30 PM	4	5	20	0	15	177	90	0	79	6	4	0
05:45 PM	4	7	19	0	23	180	110	0	77	9	8	0
Total	11	38	95	0	75	671	396	0	302	36	27	0
Grand Total	19	65	207	0	133	1161	760	0	574	76	75	0
Approach %	6.5	22.3	71.1	0	6.5	56.5	37	0	79.2	10.5	10.3	0
Total %	0.5	1.6	5	0	3.2	27.8	18.2	0	13.8	1.8	1.8	0
% Cars	19	61	196	0	129	1125	745	0	537	72	74	0
% Heavy Vehicles	0	4	11	0	4	36	15	0	37	4	1	0
% Heavy Vehicles	0	6.2	5.3	0	3	3.1	2	0	6.4	5.3	1.3	0

Start Time	Franklin Street			Cambridge Street			Harvard Avenue			Cambridge Street		
	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right
05:00 PM	0	10	27	0	19	150	104	0	61	13	4	0
05:15 PM	3	16	29	0	18	164	92	0	85	8	11	0
05:30 PM	4	5	20	0	15	177	90	0	79	6	4	0
05:45 PM	4	7	19	0	23	180	110	0	77	9	8	0
Total	11	38	95	0	75	671	396	0	302	36	27	0
Grand Total	19	65	207	0	133	1161	760	0	574	76	75	0
Approach %	6.5	22.3	71.1	0	6.5	56.5	37	0	79.2	10.5	10.3	0
Total %	0.5	1.6	5	0	3.2	27.8	18.2	0	13.8	1.8	1.8	0
% Cars	19	61	196	0	129	1125	745	0	537	72	74	0
% Heavy Vehicles	0	4	11	0	4	36	15	0	37	4	1	0
% Heavy Vehicles	0	6.2	5.3	0	3	3.1	2	0	6.4	5.3	1.3	0



PRECISION
D. A. T. A.
INDUSTRIES, LLC

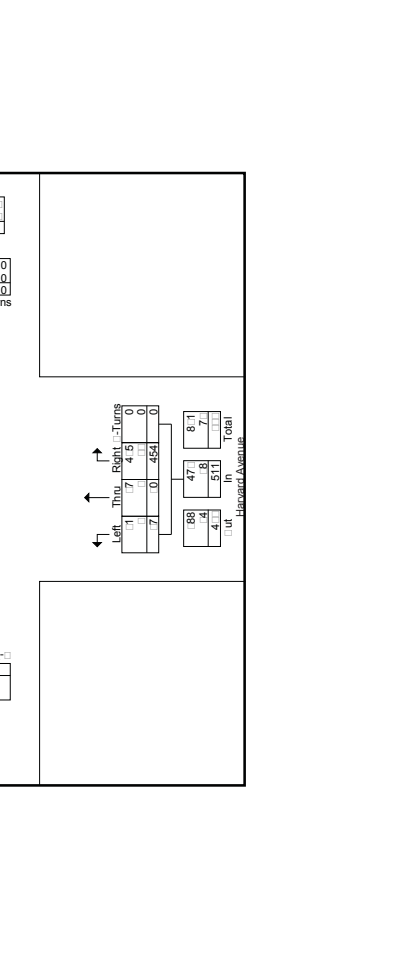
90 Bow St. Berlin, MA 01803
Office: 508-881-3999 Fax: 508-545-1234
Email: datarequest@pdilc.com

N/S: Franklin Street / Harvard Avenue
E/W: Cambridge Street
City, State: Allston, MA
Client: VHB / K. Malakorn

File Name : 133355 A
Site Code : 10463
Start Date : 5/14/2013
Page No : 1

Start Time	Franklin Street			Cambridge Street			Harvard Avenue			Cambridge Street		
	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right
07:45 AM	0	5	27	0	36	211	141	95	0	257	112	8
08:00 AM	2	9	21	0	28	229	109	10	6	0	125	2
08:15 AM	1	7	24	0	32	17	126	105	0	248	145	5
08:30 AM	1	10	32	0	43	23	136	107	0	266	88	7
Total	4	31	104	0	139	83	536	381	0	1000	454	30
% App. Total	2.9	22.3	74.8	0	8.3	53.6	38.1	0	88.8	5.9	5.3	0
PHE	500	775	813	0	808	902	950	890	0	940	783	750
% Cars	3	30	98	0	131	80	476	349	0	905	425	27
% Heavy Vehicles	1	1	6	0	8	3	60	52	0	95	29	3
% Heavy Vehicles	25.0	3.2	5.8	0	5.8	11.2	8.4	0	9.5	6.4	10.0	22.2

Start Time	Franklin Street			Cambridge Street			Harvard Avenue			Cambridge Street		
	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right
07:45 AM	0	5	27	0	36	211	141	95	0	257	112	8
08:00 AM	2	9	21	0	28	229	109	10	6	0	125	2
08:15 AM	1	7	24	0	32	17	126	105	0	248	145	5
08:30 AM	1	10	32	0	43	23	136	107	0	266	88	7
Total	4	31	104	0	139	83	536	381	0	1000	454	30
% App. Total	2.9	22.3	74.8	0	8.3	53.6	38.1	0	88.8	5.9	5.3	0
PHE	500	775	813	0	808	902	950	890	0	940	783	750
% Cars	3	30	98	0	131	80	476	349	0	905	425	27
% Heavy Vehicles	1	1	6	0	8	3	60	52	0	95	29	3
% Heavy Vehicles	25.0	3.2	5.8	0	5.8	11.2	8.4	0	9.5	6.4	10.0	22.2





N/S: Franklin Street / Harvard Avenue
 E/W: Cambridge Street
 City, State: Allston, MA
 Client: VHB / K. Malakorn

File Name : 133355_AA
 Site Code : 10463
 Start Date : 5/14/2013
 Page No : 1

PRECISION
 DATA
 INDUSTRIES, LLC
 90 Boston Blvd, MA 01003
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequest@pdic.com

Start Time	Franklin Street			Cambridge Street			Harvard Avenue			Cambridge Street		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
04:00 PM	1	5	25	0	12	116	86	0	73	14	8	0
04:15 PM	2	6	31	0	10	107	73	0	56	5	12	0
04:30 PM	2	6	16	0	15	117	98	0	54	7	11	0
04:45 PM	3	8	34	0	17	128	98	0	70	10	17	0
Total	8	25	106	0	54	468	355	0	253	36	48	0
05:00 PM	0	8	24	0	19	147	103	0	57	13	4	0
05:15 PM	3	16	28	0	18	161	90	0	79	8	11	0
05:30 PM	4	5	19	0	15	171	88	0	76	6	4	0
05:45 PM	4	7	19	0	23	178	109	0	72	9	7	0
Total	11	36	90	0	75	657	390	0	284	36	26	0
Grand Total	19	61	196	0	129	1125	745	0	537	72	74	0
Approach %	6.9	22.1	71	0	6.5	56.3	37.3	0	78.6	10.5	10.8	0
Total %	0.5	1.5	4.9	0	3.2	28.1	18.6	0	13.4	1.8	1.8	0

Start Time	Franklin Street			Cambridge Street			Harvard Avenue			Cambridge Street		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
05:00 PM	0	8	24	0	19	147	103	0	57	13	4	0
05:15 PM	3	16	28	0	18	161	90	0	79	8	11	0
05:30 PM	4	5	19	0	15	171	88	0	76	6	4	0
05:45 PM	4	7	19	0	23	178	109	0	72	9	7	0
Total	11	36	90	0	75	657	390	0	284	36	26	0
Grand Total	19	61	196	0	129	1125	745	0	537	72	74	0
Approach %	6.9	22.1	71	0	6.5	56.3	37.3	0	78.6	10.5	10.8	0
Total %	0.5	1.5	4.9	0	3.2	28.1	18.6	0	13.4	1.8	1.8	0



N/S: Franklin Street / Harvard Avenue
 E/W: Cambridge Street
 City, State: Allston, MA
 Client: VHB / K. Malakorn

File Name : 133355_AA
 Site Code : 10463
 Start Date : 5/14/2013
 Page No : 1

PRECISION
 DATA
 INDUSTRIES, LLC
 90 Boston Blvd, MA 01003
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequest@pdic.com

Start Time	Franklin Street			Cambridge Street			Harvard Avenue			Cambridge Street		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
04:00 PM	0	1	1	0	3	4	4	0	9	1	0	0
04:15 PM	0	1	2	0	1	6	2	0	5	1	0	0
04:30 PM	0	0	2	0	0	7	1	0	1	0	0	0
04:45 PM	0	0	1	0	0	5	2	0	4	2	0	0
Total	0	2	6	0	4	22	9	0	19	4	0	0
05:00 PM	0	2	3	0	0	3	1	0	4	0	0	0
05:15 PM	0	0	1	0	0	3	2	0	6	0	0	0
05:30 PM	0	0	1	0	0	6	2	0	3	0	0	0
05:45 PM	0	0	0	0	0	2	1	0	5	0	0	0
Total	0	2	5	0	0	14	6	0	18	0	0	0
Grand Total	0	4	11	0	4	36	15	0	37	4	1	0
Approach %	0	26.7	73.3	0	7.3	65.5	27.3	0	88.1	9.5	2.4	0
Total %	0	2.4	6.5	0	2.4	21.2	8.8	0	21.8	2.4	0.6	0

Start Time	Franklin Street			Cambridge Street			Harvard Avenue			Cambridge Street		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
04:00 PM	0	1	1	0	3	4	4	0	9	1	0	0
04:15 PM	0	1	2	0	1	6	2	0	5	1	0	0
04:30 PM	0	0	2	0	0	7	1	0	1	0	0	0
04:45 PM	0	0	1	0	0	5	2	0	4	2	0	0
Total	0	2	6	0	4	22	9	0	19	4	0	0
05:00 PM	0	2	3	0	0	3	1	0	4	0	0	0
05:15 PM	0	0	1	0	0	3	2	0	6	0	0	0
05:30 PM	0	0	1	0	0	6	2	0	3	0	0	0
05:45 PM	0	0	0	0	0	2	1	0	5	0	0	0
Total	0	2	5	0	0	14	6	0	18	0	0	0
Grand Total	0	4	11	0	4	36	15	0	37	4	1	0
Approach %	0	26.7	73.3	0	7.3	65.5	27.3	0	88.1	9.5	2.4	0
Total %	0	2.4	6.5	0	2.4	21.2	8.8	0	21.8	2.4	0.6	0



File Name : 133355 AA
 Site Code : 10463
 Start Date : 5/14/2013
 Page No : 1

N/S: Franklin Street/ Harvard Avenue
 E/W: Cambridge Street
 City, State: Allston, MA
 Client: VHB / K. Malakorn

Start Time	Franklin Street			Cambridge Street			Harvard Avenue			Cambridge Street			Int. Total		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left			
04:00 PM	0	0	13	3	0	7	1	0	7	0	4	0	6	71	
04:15 PM	0	0	17	1	6	30	4	0	3	0	3	0	21	86	
04:30 PM	0	0	10	3	4	16	6	0	5	1	0	0	7	52	
04:45 PM	0	0	14	1	4	24	5	0	9	0	2	0	9	69	
Total	0	0	54	2	8	92	22	1	24	1	24	0	43	278	
05:00 PM	0	2	0	4	12	23	8	2	0	4	0	1	0	12	73
05:15 PM	0	2	1	7	2	13	10	37	3	2	1	9	0	4	92
05:30 PM	0	1	0	15	2	9	44	9	0	1	0	1	0	10	94
05:45 PM	0	0	0	22	0	4	39	1	4	0	16	0	1	33	124
Total	0	5	1	49	4	23	35	143	21	8	1	30	0	59	383
Grand Total	0	5	2	103	6	31	55	235	43	9	2	54	1	13	661
Approach %	0	4.5	1.8	93.6	1.8	9.5	16.8	71.9	39.8	8.3	1.9	50	0.9	11.2	87.9
Total %	0	0.8	0.3	15.6	0.9	4.7	8.3	35.6	6.5	1.4	0.3	8.2	0.2	2	15.4

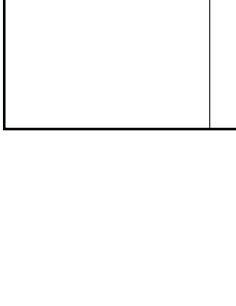
Start Time	Franklin Street			Cambridge Street			Harvard Avenue			Cambridge Street			Int. Total				
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left					
04:00 PM	0	0	5	0	4	12	23	39	8	2	0	4	14	13	73		
04:15 PM	0	2	1	7	10	2	13	10	37	62	3	2	1	9	15	0	
04:30 PM	0	1	0	15	16	2	2	9	44	57	9	0	1	10	0	10	
04:45 PM	0	0	0	22	0	4	39	47	1	4	0	16	21	0	1	0	
Total	0	5	1	49	55	4	23	35	143	205	21	8	1	30	60	4	
05:00 PM	0	5	1	49	55	4	23	35	143	205	21	8	1	30	60	4	
05:15 PM	0	9	1	89	1	2	11.2	17.1	69.8	35	13.3	1.7	50	0	6.3	0	
05:30 PM	0	9	1	89	1	2	11.2	17.1	69.8	35	13.3	1.7	50	0	6.3	0	
05:45 PM	0	9	1	89	1	2	11.2	17.1	69.8	35	13.3	1.7	50	0	6.3	0	
Total	0	9	1	89	1	2	11.2	17.1	69.8	35	13.3	1.7	50	0	6.3	0	
PHF	1.000	0.625	0.250	0.557	0.625	1.500	0.442	0.729	0.813	0.827	0.583	0.500	0.250	0.469	0.714	0.000	0.447



File Name : 133355 AA
 Site Code : 10463
 Start Date : 5/14/2013
 Page No : 1

N/S: Franklin Street/ Harvard Avenue
 E/W: Cambridge Street
 City, State: Allston, MA
 Client: VHB / K. Malakorn

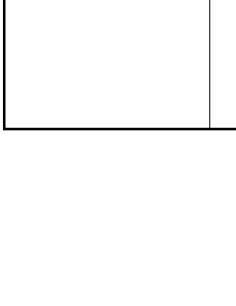
Start Time	Franklin Street			Cambridge Street			Harvard Avenue			Cambridge Street			Int. Total		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left			
04:00 PM	0	10	27	0	37	19	150	104	0	273	61	13	4	0	78
04:15 PM	3	16	29	0	48	18	164	92	0	274	85	8	11	0	104
04:30 PM	4	5	20	0	29	15	177	90	0	282	79	6	4	0	89
04:45 PM	4	7	19	0	30	23	180	110	0	313	77	9	8	0	94
Total	11	38	95	0	144	75	671	396	0	1142	302	36	27	0	365
Total Volume	11	38	95	0	144	75	671	396	0	1142	302	36	27	0	365
% App. Total	7.6	26.4	66	0	100	52.6	58.8	34.7	0	82.7	9.9	7.4	0	0	5.3
PHF	0.688	0.594	0.819	0.000	0.750	0.815	0.932	0.900	0.000	0.912	0.888	0.692	0.614	0.000	0.877
Cars	11	36	90	0	137	75	657	390	0	1122	284	36	26	0	346
% Cars	100	94.7	94.7	0	95.1	100	97.9	98.5	0	98.2	94.0	100	96.3	0	94.8
Heavy Vehicles	0	2	5	0	7	0	14	6	0	20	18	0	1	0	19
% Heavy Vehicles	0	5.3	5.3	0	4.9	0	2.1	1.5	0	1.8	6.0	0	3.7	0	5.2



File Name : 133355 AA
 Site Code : 10463
 Start Date : 5/14/2013
 Page No : 1

N/S: Franklin Street/ Harvard Avenue
 E/W: Cambridge Street
 City, State: Allston, MA
 Client: VHB / K. Malakorn

Start Time	Franklin Street			Cambridge Street			Harvard Avenue			Cambridge Street			Int. Total		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left			
04:00 PM	0	0	13	3	0	7	1	0	7	0	4	0	6	71	
04:15 PM	0	0	17	1	6	30	4	0	3	0	3	0	21	86	
04:30 PM	0	0	10	3	4	16	6	0	5	1	0	0	7	52	
04:45 PM	0	0	14	1	4	24	5	0	9	0	2	0	9	69	
Total	0	0	54	2	8	92	22	1	24	1	24	0	43	278	
05:00 PM	0	2	0	4	12	23	8	2	0	4	0	1	0	12	73
05:15 PM	0	2	1	7	2	13	10	37	3	2	1	9	0	4	92
05:30 PM	0	1	0	15	2	9	44	9	0	1	0	1	0	10	94
05:45 PM	0	0	0	22	0	4	39	1	4	0	16	0	1	33	124
Total	0	5	1	49	4	23	35	143	21	8	1	30	0	59	383
Grand Total	0	5	2	103	6	31	55	235	43	9	2	54	1	13	661
Approach %	0	4.5	1.8	93.6	1.8	9.5	16.8	71.9	39.8	8.3	1.9	50	0.9	11.2	87.9
Total %	0	0.8	0.3	15.6	0.9	4.7	8.3	35.6	6.5	1.4	0.3	8.2	0.2	2	15.4



S: Soldiers Field Road
 E/W: Soldiers Field Road/ Eliot Bridge
 City, State: Boston, MA
 Client: VHB/ K. Keen



90 Bow St, Boston, MA 02109
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequest@public.com

Start Time	Soldiers Field Road From East			Soldiers Field Road From South			Eliot Bridge From West			Int. Total
	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	
07:00 AM	187	15	0	5	74	4	4	5	0	1117
07:15 AM	174	15	0	0	148	0	51	451	0	1477
07:30 AM	118	187	0	0	57	0	5	470	0	1551
07:45 AM	177	17	0	7	71	0	5	541	0	1551
Total	700	18	0	11	71	0	1	187	0	585
08:00 AM	11	0	0	84	0	1	88	5	0	105
08:15 AM	14	11	0	4	0	1	7	55	0	100
08:30 AM	74	17	0	4	77	1	5	547	0	1511
08:45 AM	1	0	0	4	55	0	7	5	0	1511
Total	117	7	0	151	5	0	85	15	0	1511
Grand Total	100	145	0	850	1007	5	484	405	0	1171
Approach	5	4	0	7	8	0	10	8	0	10
Total	1	1	0	4	8	0	4	4	0	10

Start Time	Soldiers Field Road From East			Soldiers Field Road From South			Eliot Bridge From West			Int. Total
	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	
07:45 AM	177	17	0	7	0	0	4	0	0	165
08:00 AM	11	0	0	84	0	1	88	5	0	105
08:15 AM	14	11	0	4	0	1	7	55	0	100
08:30 AM	74	17	0	4	77	1	5	547	0	1511
08:45 AM	1	0	0	4	55	0	7	5	0	1511
Total	117	7	0	151	5	0	85	15	0	1511
Grand Total	100	145	0	850	1007	5	484	405	0	1171
Approach	5	4	0	7	8	0	10	8	0	10
Total	1	1	0	4	8	0	4	4	0	10

S: Soldiers Field Road
 E/W: Soldiers Field Road/ Eliot Bridge
 City, State: Boston, MA
 Client: VHB/ K. Keen



90 Bow St, Boston, MA 02109
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequest@public.com

Start Time	Soldiers Field Road From East			Soldiers Field Road From South			Eliot Bridge From West			Int. Total
	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	
07:00 AM	11	15	0	5	75	4	4	8	0	110
07:15 AM	17	158	0	0	150	0	5	451	0	1481
07:30 AM	118	187	0	0	57	0	5	470	0	1551
07:45 AM	177	17	0	7	71	0	5	541	0	1551
Total	715	7	0	10	71	0	0	10	0	5418
08:00 AM	11	0	0	85	101	1	8	5	0	100
08:15 AM	14	11	0	4	0	1	8	54	0	100
08:30 AM	74	18	0	4	77	1	5	547	0	1511
08:45 AM	1	0	0	4	55	0	7	5	0	1511
Total	100	7	0	158	0	0	158	0	0	1401
Grand Total	117	14	0	858	1018	7	4	40	0	1181
Approach	5	4	0	7	8	0	10	8	0	10
Total	1	1	0	4	8	0	4	4	0	10

Start Time	Soldiers Field Road From East			Soldiers Field Road From South			Eliot Bridge From West			Int. Total
	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	
07:45 AM	177	17	0	7	0	0	4	0	0	165
08:00 AM	11	0	0	84	0	1	88	5	0	105
08:15 AM	14	11	0	4	0	1	7	55	0	100
08:30 AM	74	17	0	4	77	1	5	547	0	1511
08:45 AM	1	0	0	4	55	0	7	5	0	1511
Total	117	7	0	151	5	0	85	15	0	1511
Grand Total	100	145	0	850	1007	5	484	405	0	1171
Approach	5	4	0	7	8	0	10	8	0	10
Total	1	1	0	4	8	0	4	4	0	10

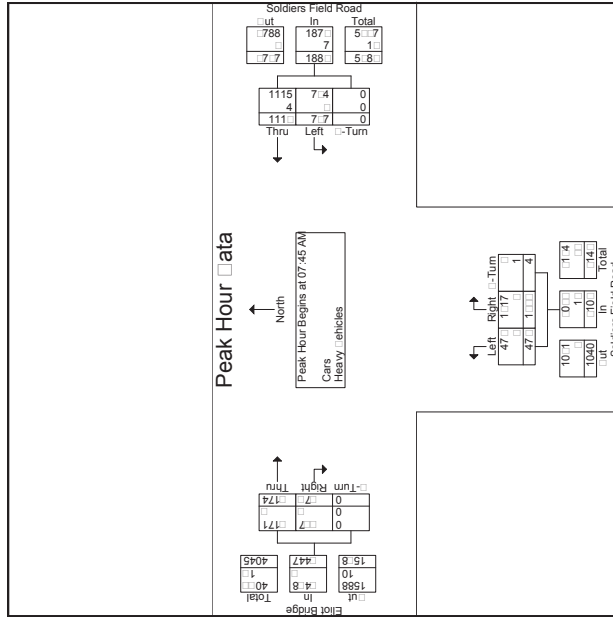
Start Time	Soldiers Field Road From East			Soldiers Field Road From South			Eliot Bridge From West			Int. Total
	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	
07:45 AM	177	17	0	7	0	0	4	0	0	165
08:00 AM	11	0	0	84	0	1	88	5	0	105
08:15 AM	14	11	0	4	0	1	7	55	0	100
08:30 AM	74	17	0	4	77	1	5	547	0	1511
08:45 AM	1	0	0	4	55	0	7	5	0	1511
Total	117	7	0	151	5	0	85	15	0	1511
Grand Total	100	145	0	850	1007	5	484	405	0	1171
Approach	5	4	0	7	8	0	10	8	0	10
Total	1	1	0	4	8	0	4	4	0	10

Start Time	Soldiers Field Road From East			Soldiers Field Road From South			Eliot Bridge From West			Int. Total
	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	
07:45 AM	177	17	0	7	0	0	4	0	0	165
08:00 AM	11	0	0	84	0	1	88	5	0	105
08:15 AM	14	11	0	4	0	1	7	55	0	100
08:30 AM	74	17	0	4	77	1	5	547	0	1511
08:45 AM	1	0	0	4	55	0	7	5	0	1511
Total	117	7	0	151	5	0	85	15	0	1511
Grand Total	100	145	0	850	1007	5	484	405	0	1171
Approach	5	4	0	7	8	0	10	8	0	10
Total	1	1	0	4	8	0	4	4	0	10



90 Bow St. Boston, MA 01093
 Office: 508.681.3999 Fax: 508.545.1234
 Email: datarequest@pdilc.com

Start Time	Soldiers Field Road				Eliot Bridge			
	Thru	Left	Right	App. Total	Thru	Left	Right	App. Total
07:00 AM	177	17	0	194	54	0	0	54
07:15 AM	177	17	0	194	54	0	0	54
07:30 AM	177	17	0	194	54	0	0	54
07:45 AM	177	17	0	194	54	0	0	54
08:00 AM	177	17	0	194	54	0	0	54
08:15 AM	177	17	0	194	54	0	0	54
08:30 AM	177	17	0	194	54	0	0	54
08:45 AM	177	17	0	194	54	0	0	54
Total Volume	1110	77	0	1187	174	0	0	174
PHF	0.40	0.40	0.00	0.40	0.40	0.00	0.00	0.40
Cars	1110	77	0	1187	174	0	0	174
Heavy Vehicles	0	0	0	0	0	0	0	0
Grand Total	1110	77	0	1187	174	0	0	174



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Start Time	Soldiers Field Road				Eliot Bridge			
	Thru	Left	Right	App. Total	Thru	Left	Right	App. Total
04:00 PM	440	4	0	444	58	0	0	58
04:15 PM	440	4	0	444	58	0	0	58
04:30 PM	440	4	0	444	58	0	0	58
04:45 PM	440	4	0	444	58	0	0	58
Total	1704	10	0	1714	230	0	0	230
PHF	0.40	0.40	0.00	0.40	0.40	0.00	0.00	0.40
Cars	1704	10	0	1714	230	0	0	230
Heavy Vehicles	0	0	0	0	0	0	0	0
Grand Total	1704	10	0	1714	230	0	0	230

Start Time	Soldiers Field Road				Eliot Bridge			
	Thru	Left	Right	App. Total	Thru	Left	Right	App. Total
05:00 PM	801	4	0	805	111	0	0	111
05:15 PM	801	4	0	805	111	0	0	111
05:30 PM	801	4	0	805	111	0	0	111
05:45 PM	801	4	0	805	111	0	0	111
Total	3204	16	0	3220	444	0	0	444
PHF	0.40	0.40	0.00	0.40	0.40	0.00	0.00	0.40
Cars	3204	16	0	3220	444	0	0	444
Heavy Vehicles	0	0	0	0	0	0	0	0
Grand Total	3204	16	0	3220	444	0	0	444



90 Beech St, Boston, MA 02109
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequest@public.com

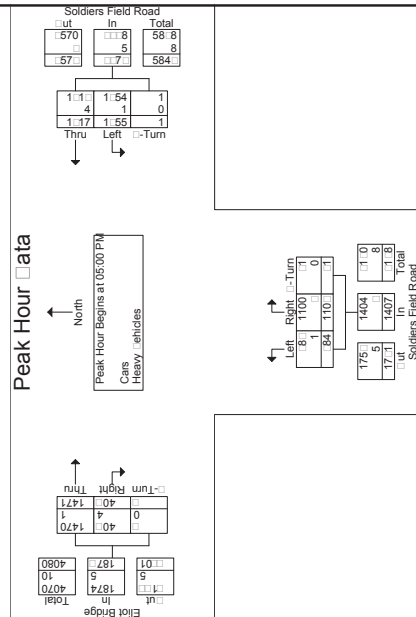
Start Time	Soldiers Field Road From East			Soldiers Field Road From South			Eliot Bridge From West			Int. Total
	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	1	1	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	1	0	0	0	0	0	0	0	0	0
Total	4	4	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	1	0	0	0	0	0	0
05:15 PM	0	0	0	0	1	0	0	0	0	0
05:30 PM	0	1	0	0	0	0	0	0	0	0
05:45 PM	0	1	0	0	0	0	0	0	0	0
Total	0	2	0	1	1	0	0	0	0	0
Grand Total	10	10	0	8	0	1	1	5	0	7
Approach	50	50	0	7	18	1	1	7	8	0
Total	7	7	0	1	1	1	1	1	1	0



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 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequest@public.com

Start Time	Soldiers Field Road From East			Soldiers Field Road From South			Eliot Bridge From West			Int. Total
	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	1	1	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	1	0	0	0	0	0	0	0	0	0
Total	4	4	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	1	0	0	0	0	0	0
05:15 PM	0	0	0	0	1	0	0	0	0	0
05:30 PM	0	1	0	0	0	0	0	0	0	0
05:45 PM	0	1	0	0	0	0	0	0	0	0
Total	0	2	0	1	1	0	0	0	0	0
Grand Total	10	10	0	8	0	1	1	5	0	7
Approach	50	50	0	7	18	1	1	7	8	0
Total	7	7	0	1	1	1	1	1	1	0

Start Time	Soldiers Field Road From East			Soldiers Field Road From South			Eliot Bridge From West			Int. Total
	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	1	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	1	0	0	0	0	0	0	0	0	0
Total	4	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	1	0	0	0	0	0	0
05:15 PM	0	0	0	0	1	0	0	0	0	0
05:30 PM	0	1	0	0	0	0	0	0	0	0
05:45 PM	0	1	0	0	0	0	0	0	0	0
Total	0	2	0	1	1	0	0	0	0	0
Grand Total	10	10	0	8	0	1	1	5	0	7
Approach	50	50	0	7	18	1	1	7	8	0
Total	7	7	0	1	1	1	1	1	1	0



MASSACHUSETTS HIGHWAY DEPARTMENT - STATEWIDE TRAFFIC DATA COLLECTION

2008 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	0.96	0.94	0.89	0.88	0.87	0.85	0.91	0.92	0.90	0.90	0.91	0.93
Use group 2 for R5, R6, & R0												
GROUP 2 - RURAL MAJOR COLLECTOR (R-5)	1.10	1.09	1.07	1.00	0.91	0.87	0.88	0.88	0.89	0.91	1.02	1.06
GROUP 3A - RECREATIONAL **(1-4) See below	1.25	1.21	1.17	1.06	0.96	0.86	0.78	0.79	0.93	1.00	1.08	1.14
GROUP 3B - RECREATIONAL *** (5) See below	1.26	1.23	1.17	1.08	0.97	0.87	0.74	0.74	0.94	0.99	1.11	1.15
GROUP 4 - I-495 INTERSTATE	1.03	1.02	1.01	0.96	0.95	0.89	0.87	0.84	0.91	0.93	0.98	1.01
GROUP 5 - EAST INTERSTATE	1.02	1.00	0.98	0.94	0.95	0.91	0.91	0.89	0.93	0.94	0.98	1.01
Use group 6 for U2, U3, U5, U6, U0, R2, & R3												
GROUP 6 - URBAN ARTERIALS, COLLECTORS & RURAL ARTERIALS (R-2, R-3)	1.02	1.00	0.96	0.93	0.91	0.90	0.92	0.91	0.92	0.93	0.96	0.98
GROUP 7 - I-84 PROXIMITY (STA. 17)	0.84	1.15	1.17	1.08	1.10	1.02	1.01	0.96	1.06	1.06	1.11	1.15
GROUP 8 - I-295 PROXIMITY (STA. 6590)	0.95	1.01	0.95	0.92	0.88	0.88	0.91	0.86	0.91	0.93	0.94	0.94
GROUP 9 - I-195 PROXIMITY (STA. 7)	1.09	1.04	1.01	0.96	0.91	0.86	0.83	0.82	0.89	0.94	1.02	1.00

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
- 1066, 1067, 1083, 1084, 1085, 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

2008 AXLE CORRECTION FACTORS

ROUND OFF

ROAD INVENTORY FUNCTIONAL CLASSIFICATION	AXLE CORRECTION FACTOR
RURAL	
1	0.91
2	0.94
3	0.97
0,5,6	0.98
URBAN	
1	0.96
2,3	0.97
5	0.99
0,6	0.99
I-84	0.83

0 - 999.....10
> 1,000.....100

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

Transit

MBTA Bus Schedules and Ridership

70/70A WEEKDAY

Table with columns: Leave Cedarwood, Leave North Waltham, Arrive Watertown Sq., Arrive University Park, Leave University Park, Arrive Watertown Sq., Arrive North Waltham, Arrive Cedarwood. Contains schedules for inbound and outbound trips.

Shaded trips are route 70A
Running time between Central Sq., Cambridge and University Pk. is appr. 5 mins.

70/70A SATURDAY

Table with columns: Leave Cedarwood, Leave North Waltham, Arrive Watertown Sq., Arrive University Park, Leave University Park, Leave Watertown Sq., Arrive North Waltham, Arrive Cedarwood. Contains schedules for inbound and outbound trips on Saturdays.

70 SUNDAY

Table with columns: Leave Cedarwood, Arrive Watertown Square, Arrive University Park, Leave University Park, Arrive Watertown Square, Arrive Cedarwood. Contains schedules for inbound and outbound trips on Sundays.

- a - Central Sq., Cambridge - Watertown Square.
b - To or from Central Sq., Waltham - Central Sq., Cambridge.
c - To or from Central Sq., Cambridge
d - To or from Central Sq., Waltham - University Park.
e - To or from Central Sq., Waltham - University Park.
g - A.M. Route - via Totten Pond Rd. & Wyman St. outbound; via Smith St. & Trapelo Rd. inbound.
h - P.M. Route - via Smith St. & Trapelo Rd. outbound; via Totten Pond Rd. & Wyman St. inbound.
w - Waits for last train to arrive at Central Sq. Sta.

170 WEEKDAY
Table with columns: Leave Central Sq., Arrive Back Bay, Arrive Dudley Sta., Leave Dudley Sta., Arrive Back Bay, Arrive Central Sq., Waltham. Contains schedules for route 170 weekdays.

ALL BUSES ARE ACCESSIBLE TO PERSONS WITH DISABILITIES
Route 70/70A
Cedarwood, No. Waltham or Central Sq. - University Park
via Central Sq., Cambridge, Arsenal St. & Western Ave.

FARES
Table with columns: PAYING WITH..., 1-BUS TRIP, 2-BUS TRIP, BUS + SUBWAY TRIP. Contains fare information for various payment methods.

Children under 12 ride free when accompanied by an adult.
Blind Access CharlieCard holders ride free, if using a guide, the guide rides free.
VALID PASSES: Local Bus Pass (\$48/mo.); LinkPass (\$70/mo.); Senior/TAP Pass** (\$28/mo.); Student Pass* (\$25/mo. M-F only or \$28/mo. 7 days); and express bus, zoned, interzoned, and boat passes.
* Available to students through participating middle schools and high schools.
** Available to Medicare cardholders, seniors 65+ and persons with disabilities.
Summer 2012 Holidays
July 4 : See Sunday September 3 : See Sunday

86

WEEKDAY

INBOUND			OUTBOUND		
Leave Sullivan Sq. Sta.	Arrive Harvard Square	Arrive Cleveland Circle	Leave Cleveland Circle	Arrive Harvard Station	Arrive Sullivan Sq. Sta.
5:06A	5:15A	5:29A	5:39A	5:56A	6:09A
5:26	5:36	5:51	6:01	6:21	6:33
5:45	5:56	6:14	6:23	6:43	6:55
6:00	6:12	6:30	6:38	6:58	7:15
6:15	6:27	6:45	6:53	7:15	7:32
6:25	6:37	6:55	7:08	7:30	7:49
6:35	6:47	7:08	7:23	7:49	8:08
6:45	6:57	7:20	7:38	8:06	8:25
7:00	7:15	7:36	7:50	8:18
7:15	7:30	7:56	8:05	8:34	8:52
7:30	7:50	8:13	8:20	8:48	9:06
7:45	8:06	8:29	8:35	9:02	9:20
8:00	8:23	8:52	8:55	9:20	9:36
8:15	8:38	9:05	9:15	9:38	9:56
8:30	8:56	9:20	9:35	9:57	10:13
8:40	9:03	9:55	10:19	10:34
9:00	9:13	9:39	10:15	10:38	10:53
9:25	9:43	10:04	10:50	11:13	11:28
10:00	10:14	10:36	11:25	11:48	12:03P
10:35	10:49	11:11			
11:10	11:24	11:46			
11:45	11:59	12:21P			
12:20P	12:34P	12:57P	12:00N	12:23P	12:38P
12:40	12:54	1:17	12:35P	12:58	1:15
1:00	1:14	1:37	1:10	1:33	1:50
1:20	1:34	1:57	1:30	1:53	2:10
1:40	1:54	2:17	1:50	2:13	2:30
2:00	2:14	2:39	2:10	2:33	2:54
2:20	2:33	2:59	2:25	2:50	3:11
2:40	2:56	3:22	2:50	3:15	3:35
2:50	3:06	3:32	3:10	3:36	3:57
3:02	3:18	3:46	3:30	3:54	4:15
3:20	3:37	4:06	3:50	4:14	4:36
3:38	3:54	4:23	4:07	4:32	4:55
3:56	4:12	4:41	4:25	4:55	5:18
4:14	4:30	4:59	4:43	5:14	5:36
4:32	4:48	5:17	5:01	5:32	5:53
4:50	5:06	5:35	5:19	5:48	6:09
5:08	5:24	5:56	5:37	6:04	6:25
5:26	5:44	6:18	5:55	6:22	6:37
5:44	6:03	6:38	6:13	6:39	6:51
6:02	6:21	6:50	6:30	6:57	7:15
6:20	6:37	7:02	6:50	7:13	7:31
6:40	6:54	7:19	7:00	7:21	7:36
7:05	7:20	7:46	7:15	7:38	7:52
u 7:45	7:59	8:24	7:50	8:07	8:21
u 8:30	8:42	9:03	8:00	8:18	8:32
u 9:20	9:32	9:53	8:35	8:55	9:13
u 10:00	10:12	10:33	9:00	9:30	9:48
u 10:45	10:57	11:16	10:00	10:14	10:28
u 11:30	11:38	11:57	10:40	10:54	11:08
u 12:05A	12:13A	12:32A	11:25	11:39	11:53
			12:05A	12:19A	12:33A
			12:35	12:49	1:03

86

SATURDAY

INBOUND			OUTBOUND		
Leave Sullivan Sq. Sta.	Arrive Harvard Square	Arrive Cleveland Circle	Leave Cleveland Circle	Arrive Harvard Station	Arrive Sullivan Sq. Sta.
5:00A	5:10A	5:24A	5:30A	5:44A	5:55A
6:05	6:16	6:31	6:40	6:57	7:08
7:15	7:27	7:45	7:50	8:09	8:21
7:45	7:57	8:15	8:20	8:41	8:53
8:25	8:37	8:55	9:05	9:28	9:42
9:05	9:17	9:37	9:45	10:08	10:22
9:50	10:07	10:29	10:30	10:53	11:13
10:30	10:44	11:06	11:10	11:35	11:50
10:55	11:09	11:31	11:40	12:08P	12:23P
11:25	11:39	12:01P			
12:00N	12:15P	12:43P	12:15P	12:43P	12:58P
12:35P	12:50	1:17	12:50	1:18	1:34
1:10	1:26	1:53	1:25	1:51	2:08
1:45	2:01	2:28	2:00	2:27	2:45
2:15	2:31	2:58	2:30	2:57	3:15
2:45	3:01	3:28	3:00	3:29	3:48
3:10	3:26	3:52	3:30	4:00	4:13
3:35	3:51	4:18	4:00	4:25	4:42
4:05	4:21	4:48	4:30	4:55	5:12
4:30	4:46	5:14	5:00	5:26	5:42
5:00	5:16	5:43	5:30	5:55	6:11
5:30	5:47	6:13	6:00	6:25	6:41
6:00	6:14	6:42	6:30	6:55	7:09
6:30	6:45	7:10	7:00	7:23	7:37
7:05	7:21	7:46	7:25	7:48	8:02
u 7:50	8:04	8:28	7:55	8:18	8:32
u 8:40	8:52	9:12	8:40	9:02	9:16
u 9:25	9:37	9:57	9:20	9:41	9:55
u 10:45	10:54	11:13	10:00	10:21	10:35
u 11:55	12:04A	12:23A	11:20	11:37	11:49
			12:30A	12:47A	12:59A

Harvard Sq: Board buses to Sullivan in Harvard Station (Upper Busway). Board buses to Reservoir on Mass. Ave. at Garden St. (Dawes Island) or on Eliot St at Bennett St.

Route 86
Sullivan Sq. Sta. - Cleveland Circle
via Harvard Square/Station

86

SUNDAY

INBOUND			OUTBOUND		
Leave Sullivan Sq. Sta.	Arrive Harvard Square	Arrive Cleveland Circle	Leave Cleveland Circle	Arrive Harvard Station	Arrive Sullivan Sq. Sta.
7:30A	7:40A	7:57A	8:05A	8:22A	8:33A
8:40	8:52	9:12	9:15	9:36	9:49
9:50	10:02	10:22	10:30	10:55	11:11
10:20	10:32	10:53	11:05	11:31	11:49
10:50	11:02	11:23	11:40	12:06P	12:24P
11:20	11:34	11:57			
11:55	12:08P	12:34P			
12:30P	12:42P	1:12P	12:15P	12:45P	1:00P
1:05	1:17	1:46	12:50	1:23	1:38
1:40	1:56	2:20	1:25	1:49	2:03
2:15	2:28	2:52	2:00	2:25	2:42
2:50	3:03	3:26	2:35	2:59	3:13
3:25	3:40	4:04	3:10	3:35	3:50
4:00	4:13	4:38	3:45	4:10	4:24
4:35	4:50	5:17	4:20	4:46	5:00
5:10	5:22	5:44	4:55	5:20	5:35
5:45	5:58	6:20	5:30	5:52	6:06
6:20	6:33	6:54	6:05	6:27	6:41
7:00	7:11	7:33	6:40	7:02	7:18
u 7:40	7:53	8:10	7:15	7:33	7:49
u 9:00	9:11	9:30	7:50	8:10	8:22
			8:25	8:44	8:56
			9:35	9:53	10:05

u - Trip departs from Sullivan Sq. upper busway.
All other trips depart from Sullivan Sq. lower busway.

ALL BUSES ARE ACCESSIBLE TO PERSONS WITH DISABILITIES.

FARES			
PAYING WITH...	1-BUS TRIP	2-BUS TRIP	BUS + SUBWAY TRIP
CharlieCard	\$1.50	\$1.50	\$2.00
CharlieTicket	\$2.00	\$2.00	\$4.50
Cash onboard	\$2.00	\$4.00	\$4.50
Student CharlieCard*	\$0.75	\$0.75	\$1.00
Senior/TAP CharlieCard**	\$0.75	\$0.75	\$1.00

Children under 12 ride free when accompanied by an adult.
Blind Access CharlieCard holders ride free, if using a guide, the guide rides free.
VALID PASSES: Local Bus Pass (\$48/mo.); LinkPass (\$70/mo.); Senior/TAP Pass** (\$28/mo.); Student Pass* (\$25/mo. M-F only or \$28/mo. 7 days); and express bus, zoned, interzoned, and boat passes.

* Available to students through participating middle schools and high schools.
** Available to Medicare cardholders, seniors 65+ and persons with disabilities.

Summer 2012 Holidays
July 4 : See Sunday September 3 : See Sunday

Ridership and Service Statistics

Thirteenth
Edition
2010



Massachusetts Bay Transportation Authority



Bus Ridership as of April 2010

Typical for day and direction shown



Route	Garage	Terminals	Weekday Boardings			Saturday Boardings			Sunday Boardings			Most Recent Ridecheck		
			Inbound	Outbound	Total	Inbound	Outbound	Total	Inbound	Outbound	Total	Weekday	Sat	Sun
1	Cabot	Harvard Sq - Dudley Sta. via Mass. Ave.	5,990	6,335	12,325	4,727	4,768	9,495	2,469	2,445	4,914	FA 07	WI 03	WI 03
4	Cabot	North Station - World Trade Ctr.	176	138	314	x	x	x	x	x	x	SP 09	x	x
5	Cabot	City Point - McCormack Housing	75	63	138	35	36	71	x	x	x	SP 09	WI 08	x
6	Cabot	South Sta - Haymarket Sta	27	56	83	x	x	x	x	x	x	FA 05	x	x
7	Cabot	City Point - Otis & Summer Sts.	1,375	1,299	2,674	194	144	338	x	x	x	SP 06	WI 08	x
8	Cabot	Harbor Point /U Mass - Kenmore Sta.	1,590	1,627	3,217	507	557	1,064	328	315	643	WI 06	SP 04	SP 04
9	Cabot	City Point - Copley Sq. via Broadway Sta	2,027	2,218	4,245	916	901	1,817	527	560	1,087	SP 06	WI 08	FA 04
10	Cabot	City Point - Copley Sq. Via B.C.H.	1,338	1,598	2,936	740	873	1,613	379	360	739	FA 09	WI 08	FA 04
11	Cabot	City Point - Downtown	1,409	1,120	2,529	504	445	949	420	298	718	SP 06	WI 08	FA 06
14	Arborway	Roslindale Square - Heath Street Loop	672	619	1,291	455	434	889	x	x	x	SP 09	WI 09	x
15	Cabot	Kane Sq. - Ruggles Sta.	3,614	3,337	6,951	1,946	1,810	3,756	1,276	1,240	2,516	FA 09	WI 05	WI 05
16	Cabot	Forest Hills Sta. - U Mass.	2,219	2,131	4,350	1,218	1,138	2,356	706	670	1,376	WI 05	WI 05	WI 05
17	Cabot	Fields Corner Sta. - Andrew Sta.	1,373	1,408	2,781	1,170	962	2,132	276	255	531	WI 07	SP 00	FA 05
18	Cabot	Ashmont Sta. - Andrew Sta.	331	409	740	126	104	230	65	69	134	WI 06	WI 06	FA 05
19	Cabot	Fields Corner Sta. - Ruggles or Kenmore Sta.	1,868	1,508	3,376	x	x	x	x	x	x	FA 05	x	x
21	Arborway	Ashmont Sta. - Forest Hills Sta.	2,344	2,100	4,444	536	601	1,137	240	265	505	WI 10	SP 08	FA 08
22	Cabot	Ashmont Sta. - Ruggles Sta. Via Talbot Ave	3,615	3,432	7,047	2,638	2,322	4,960	1,261	1,293	2,554	SP 07	SP 01	WI 08
23	Cabot	Ashmont Sta. - Ruggles Sta. via Washington St.	5,657	5,485	11,142	2,722	2,869	5,591	1,479	1,507	2,986	FA 07	FA 07	SP 07
24	Arborway	Wakefield Ave. - Mattapan Sta.	621	840	1,461	402	475	877	192	231	423	SP 09	SP 09	FA 08
25	Cabot	Franklin Park - Dudley Sta. Via Grove Hall	172	31	203	NDA	NDA	NDA	NDA	NDA	NDA	SP 07		
26	Arborway	Ashmont Sta. - Norfolk & Wash. Belt	439	897	1,336	328	446	774	82	89	171	SP 09	FA 04	FA 08
27	Arborway	Mattapan Sta. - Ashmont Sta.	245	206	451	154	196	350	64	63	127	FA 04	FA 04	FA 04
28	Cabot	Mattapan Sta. - Ruggles Sta.	5,439	5,168	10,607	4,003	4,098	8,101	2,489	2,567	5,056	FA 07	SP 07	FA 07
29	Arborway	Mattapan Sta. - Jackson Sq Sta.	1,031	1,041	2,072	154	278	432	x	x	x	SP 09	FA 04	x
30	Arborway	Mattapan Sta. - Roslindale Sq.	1,038	995	2,033	504	330	834	185	193	378	SP 09	FA 09	FA 08
31	Arborway	Mattapan Sta. - Forest Hills Sta.	2,098	2,036	4,134	1,320	1,472	2,792	905	834	1,739	FA 09	FA 08	FA 04
32	Arborway	Wolcott Sq or Cleary Sq. - Forest Hills Sta.	3,563	4,170	7,733	2,067	2,300	4,367	1,349	1,429	2,778	WI 07	SP 09	SP 08
33	Arborway	River & Milton Sts. - Mattapan Sta.	538	553	1,091	98	157	255	x	x	x	FA 09	FA 09	x
34	Arborway	Dedham Line - Forest Hills Sta.	1,510	1,959	3,469	787	683	1,470	378	394	772	FA 08	WI 01	SP 08
34E	Arborway	Walpole - Forest Hills Sta.	1,754	1,872	3,626	887	1,270	2,157	714	820	1,534	FA 08	WI 01	SP 08
35	Arborway	Dedham Mall - Forest Hills Sta.	1,114	1,074	2,188	563	521	1,084	209	183	392	FA 09	FA 04	SP 08
36	Arborway	VA Hosp - Forest Hills Sta. Via Chas. River Loop	1,341	1,643	2,984	590	692	1,282	638	640	1,278	FA 09	FA 04	SP 08
37	Arborway	Baker & Vermont Sts. - Forest Hills Sta.	626	735	1,361	284	333	617	x	x	x	FA 09	FA 04	x
37/38 (37-8)	Arborway	Baker & Vermont - F Hills VIA J P Monument	x	x	x	13	36	49	112	77	189	x	FA 04	SP 08
38	Arborway	Wren St. - Forest Hills Sta.	477	574	1,051	104	131	235	x	x	x	FA 08	FA 09	x
39	Southampton	Forest Hills Sta. - Back Bay Sta.	7,482	6,923	14,405	4,600	3,676	8,276	2,451	2,262	4,713	WI 05	SP 01	WI 08
40	Arborway	Georgetowne - Forest Hills Sta.	593	646	1,239	298	205	503	113	127	240	FA 08	FA 04	FA 08
41	Arborway	Centre & Eliot Sts. - JFK U Mass Sta	1,099	1,135	2,234	414	520	934	236	284	520	SP 09	FA 09	FA 08
42	Arborway	Forest Hills Sta. - Ruggles Sta.	1,423	1,395	2,818	677	729	1,406	267	283	550	FA 09	SP 08	FA 08
43	Cabot	Ruggles Sta. - Park & Tremont Sts.	1,183	1,034	2,217	407	398	805	308	281	589	FA 07	FA 07	SP 09
44	Cabot	Jackson Sq Sta. - Ruggles Sta.	1,917	1,874	3,791	856	872	1,728	348	318	666	WI 05	SP 08	WI 06
45	Cabot	Franklin Park - Ruggles Sta.	1,901	1,699	3,600	805	881	1,686	275	300	575	WI 05	SP 08	WI 06
47	Arborway	Central Sq. Camb. - Broadway Sta.	2,343	1,998	4,341	714	557	1,271	309	321	630	SP 09	FA 00	WI 07
48	Arborway	Centre & Eliot Sts. - Jamaica Plain Loop	35	50	85	23	27	50	x	x	x	FA 05	FA 05	x
50	Arborway	Cleary Sq - Forest Hills Sta Via Metropolitan	557	505	1,062	224	154	378	x	x	x	FA 04	FA 04	x
51	Arborway	Cleveland Circle - Forest Hills Sta.	1,074	1,013	2,087	318	297	615	x	x	x	FA 04	FA 04	x
52	Arborway	Dedham Mall - Watertown Yard	330	323	653	86	57	143	x	x	x	FA 09	FA 08	x
55	Cabot	Queensberry St. - Park & Tremont Sts.	531	316	847	204	99	303	149	80	229	WI 07	FA 00	WI 07
57	Albany or Cabot	Watertown Yard - Kenmore Sta.	5,839	5,665	11,504	2,321	2,306	4,627	1,640	1,684	3,324	FA 09	FA 00	WI 06
59	Albany or Cabot	Needham Junction - Watertown Sq.	606	566	1,172	155	144	299	96	105	201	WI 06	WI 06	WI 06
60	Albany or Cabot	Chestnut Hill - Kenmore Sta.	705	645	1,350	229	201	430	162	100	262	WI 10	SP 08	WI 08
62	Somerville	Bedford V.A. Hospital - Alewife Sta.	502	620	1,122	x	x	x	x	x	x	FA 02	x	x
62/76	Somerville	Bedford V.A. Hospital - Alewife Sta. Via Hanscom AFB	x	x	x	215	244	459	x	x	x	FA 07	x	x
64	Somerville	Oak Sq. - University Pk. Cambridge	768	500	1,268	275	279	554	126	115	241	WI 07	RD II	FA 02
65	Albany or Cabot	Brighton Center - Kenmore Sta.	1,242	846	2,088	159	121	280	x	x	x	WI 10	WI 01	x
66	Cabot	Harvard Sq. - Dudley Sta. via Brookline	6,942	7,734	14,676	3,548	4,054	7,602	2,371	2,374	4,745	FA 09	FA 09	WI 07
67	Somerville	Turkey Hill - Alewife Sta.	331	186	517	x	x	x	x	x	x	FA 06	x	x
68	Somerville	Harvard Sq. - Kendall MIT Sta.	260	260	520	x	x	x	x	x	x	WI 04	x	x
69	Somerville	Harvard Sq. - Lechmere Sta.	1,531	1,454	2,985	946	872	1,818	455	465	920	WI 06	RD II	SP 02
70	Somerville	Cedarwood - Central Sq. Cambridge	2,115	2,539	4,654	2,079	1,951	4,030	1,349	1,498	2,847	FA 06	SP 00	FA 07
70A	Somerville	No. Waltham - University Pk., Camb.	1,025	1,007	2,032	678	669	1,347	x	x	x	FA 06	SP 00	x

Route	Garage	Terminals	Weekday Boardings			Saturday Boardings			Sunday Boardings			Most Recent Ridecheck		
			Inbound	Outbound	Total	Inbound	Outbound	Total	Inbound	Outbound	Total	Weekday	Sat	Sun
72/75 (72.5)	Somerville	Belmont Center - Harvard Sta via Huron Ave	x	x	x	59	85	144	163	186	349	x	FA 03	FA 04
74	Somerville	Belmont Center - Harvard Sta via Concord Ave	479	502	981	99	104	203	x	x	x	SP 04	WI 04	x
75	Somerville	Belmont Center - Harvard Sta via Fresh Pond Pkwy	235	252	487	106	139	245	x	x	x	SP 04	WI 04	x
76	Somerville	Hanscom Air Force Base - Alewife Sta.	284	342	626	x	x	x	x	x	x	FA 02	x	x
77	Somerville	Arlington Heights - Harvard Sta	3,274	3,277	6,551	2,085	2,156	4,241	1,273	1,457	2,730	FA 07	WI 05	SP 04
78	Somerville	Arlmont Village - Harvard Sta	515	634	1,149	125	203	328	97	132	229	SP 04	WI 04	WI 04
79	Somerville	Arlington Heights - Alewife Sta.	579	516	1,095	x	x	x	x	x	x	SP 04	x	x
80	Somerville	Arlington Center - Lechmere Sta.	1,009	863	1,872	681	576	1,257	303	260	563	WI 03	RD II	FA 05
83	Somerville	Rindge Ave. - Central Sq., Camb.	1,073	1,081	2,154	627	701	1,328	186	288	474	FA 04	RD II	FA 07
84	Somerville	Arlmont Loop - Alewife Sta.	152	59	211	x	x	x	x	x	x	WI 07	x	x
85	Somerville	Spring Hill - Kendall MIT Sta.	233	164	397	x	x	x	x	x	x	WI 06	x	x
86	Somerville	Sullivan Sta. - Cleveland Circle	2,469	2,670	5,139	873	1,007	1,880	557	639	1,196	FA 02	WI 03	WI 03
87	Somerville	Clarendon Hill - Lechmere Sta. via Som.	1,683	1,690	3,373	883	1,169	2,052	571	594	1,165	WI 06	FA 06	SP 02
88	Somerville	Clarendon Hill - Lechmere Sta. Via Hgln	1,995	1,790	3,785	1,180	1,077	2,257	670	744	1,414	WI 06	RD II	SP 02
89	Charlestown	Clarendon Hill - Sullivan Sta.	1,834	1,597	3,431	731	773	1,504	308	448	756	FA 05	FA 05	WI 02
90	Charlestown	Davis Sq. Sta. - Wellington Sta.	444	476	920	240	262	502	x	x	x	WI 04	WI 04	x
91	Charlestown	Sullivan Sta. - Central Sq., Camb.	770	712	1,482	686	548	1,234	305	265	570	WI 02	FA 04	FA 04
92	Charlestown	Assembly Sq Mall - Downtown Via Main St	560	495	1,055	219	274	493	x	x	x	WI 07	WI 06	x
93	Charlestown	Sullivan Sta. - Downtown Via Bunker Hill	2,196	2,014	4,210	995	974	1,969	419	374	793	WI 04	FA 04	FA 04
94	Fel or Cha	Medford Sq. - Davis Sq. Sta.	579	757	1,336	243	282	525	178	239	417	WI 09	FA 07	FA 04
95	Fel or Cha	West Medford - Sullivan Sta.	792	959	1,751	268	346	614	153	185	338	FA 08	WI 06	FA 03
96	Fel or Cha	Medford Sq - Harvard Sta	949	832	1,781	516	401	917	234	205	439	WI 09	FA 05	FA 05
97	Fel or Cha	Malden Sta. - Wellington Sta.	399	343	742	176	131	307	105	85	190	WI 10	FA 02	FA 02
99	Fel or Cha	Boston Reg. Med Ctr Stoneham - Wellington Sta.	580	679	1,259	220	323	543	117	173	290	FA 08	WI 06	FA 04
100	Fel or Cha	Elm St. - Wellington Sta.	463	421	884	152	178	330	80	86	166	FA 08	FA 05	FA 05
101	Charlestown	Malden Sta. - Sullivan Sta. Via Medford Sq	2,170	1,946	4,116	948	973	1,921	437	446	883	FA 05	FA 05	FA 04
104	Charlestown	Malden Sta. - Sullivan Sta. Via Ferry St	1,614	1,746	3,360	1,047	947	1,994	455	519	974	WI 02	WI 02	WI 02
105	Fel or Cha	Malden Sta. - Sullivan Sta. Via Main St	516	410	926	166	206	372	132	127	259	WI 10	FA 04	FA 04
106	Charlestown	Franklin Sq or Lebanon St. Loop - Wellington Sta.	1,177	1,140	2,317	597	514	1,111	282	349	631	FA 05	FA 07	FA 04
108	Charlestown	Linden Sq. - Wellington Sta.	1,249	1,351	2,600	714	630	1,344	214	190	404	FA 04	FA 07	FA 04
109	Charlestown	Linden Sq. - Sullivan Sta.	1,345	1,643	2,988	656	901	1,557	469	479	948	WI 02	WI 02	WI 02
110	Charlestown	Wonderland Sta. - Wellington Sta.	1,253	1,139	2,392	536	537	1,073	230	224	454	WI 03	FA 04	FA 04
111	Charlestown	Woodlawn or Bway & Park - Haymarket Sta.	4,293	4,399	8,692	3,140	2,887	6,027	1,799	1,948	3,747	WI 03	SU 04	SU 04
112	Charlestown	Wellington Sta. - Wood Island Sta.	620	593	1,213	326	346	672	168	211	379	WI 05	WI 05	WI 05
114	Lynn	Bellingham Sq - Maverick Sta	537	432	969	x	x	x	x	x	x	FA 03	x	x
114 (114.1)	Lynn	Mystic Mall - Maverick Sta	272	258	530	x	x	x	x	x	x	SP 00	x	x
116	Lynn	Wonderland Sta. - Maverick Sta. Via Revere	2,194	2,194	4,388	1,327	1,569	2,896	1,039	993	2,032	FA 03	SU 04	SU 04
117	Lynn	Wonderland Sta. - Maverick Sta. via Beach	2,086	1,972	4,058	1,407	1,388	2,795	956	1,136	2,092	FA 03	SU 04	SU 04
119	Lynn	Northgate Shopping Ctr. - Beachmont Sta.	460	324	784	151	155	306	122	114	236	WI 05	WI 05	WI 05
120	Lynn	Orient Heights Sta. - Maverick Sta.	1,179	1,539	2,718	510	678	1,188	231	303	534	WI 04	WI 04	WI 04
121	Lynn	Wood Island Sta. - Maverick Sta.	220	164	384	x	x	x	x	x	x	WI 07	x	x
130	Fel or Cha	Linwood Ave - Malden Sta. (Discontinued)	75	69	144	16	13	29	x	x	x	SP 01	FA 02	x
131	Fellsway	Melrose Highlands - Malden Sta.	280	349	629	x	x	x	x	x	x	FA 07	x	x
132	Fel or Cha	Redstone Shopping Ctr. - Malden Sta.	339	319	658	71	69	140	x	x	x	WI 10	WI 06	x
134	Fel or Cha	North Woburn - Wellington Sta.	1,101	1,063	2,164	534	552	1,086	251	252	503	WI 10	FA 05	FA 05
136	Fel or Cha	Reading Depot - Malden Sta. Via Lakeside	619	453	1,072	168	191	359	NDA	NDA	NDA	WI 09	FA 04	NDA
137	Fel or Cha	Reading Depot - Malden Sta. Via North Ave	499	476	975	125	188	313	NDA	NDA	NDA	WI 09	FA 04	NDA
170	Albany	Oak Park - Dudley Sta. (Limited Service)	17	25	42	x	x	x	x	x	x	SP 09	x	x
171	Cabot	Logan Airport - Dudley Sta. Sunrise	NA	38	38	NA	28	28	NA	29	29	WI 07	WI 07	WI 07
191	Arborway	Mattapan Sta - Haymarket Sta. Sunrise	52	0	52	14	0	14	43	NA	43	FA 09	WI 07	FA 08
192	Arborway	Cleary Sq - Haymarket Sta. Sunrise	19	6	25	12	9	21	x	x	x	SP 09	WI 07	x
193	Albany or Cabot	Watertown Square - Haymarket Sta. Sunrise	13	12	25	6	4	10	x	x	x	FA 09	FA 00	x
194	Charlestown	Clarendon Hill - Haymarket Sta. Sunrise	19	NA	19	NDA	NDA	NDA	x	x	x	WI 07	NDA	x
195	Arborway	L. Shattuck Hospital - Park & Tremont Sts.	4	x	4	NDA	NDA	NDA	NDA	NDA	NDA	SU 08	NDA	NDA
197	Lynn	Wonderland Sta. - Haymarket Sta. Sunrise	28	x	28	8	x	8	72	x	72	FA 03	SP 00	SP 04
197 (197.1)	Lynn	Haymarket Sta - Logan Airport Term C Sunrise	x	0	0	NDA	NDA	NDA	Activated Sun Jan 1 2006			FA 03	NDA	NDA
201/202	Quincy	Fields Corner Sta. - Fields Corner Sta.	NA	NA	877	NA	NA	319	NA	NA	118	FA 07	FA 06	FA 06
210	Quincy	Quincy Ctr. Sta. - No. Quincy Sta or Flds Cnr Sta	337	349	686	48	131	179	x	x	x	FA 07	WI 07	x
211	Quincy	Quincy Ctr. Sta. - Squantum	348	377	725	65	77	142	35	22	57	FA 06	WI 07	WI 06
212	Quincy	Quincy Ctr. Sta. - North Quincy Sta.	172	119	291	49	44	93	x	x	x	WI 09	WI 07	x
214	Quincy	Quincy Ctr. Sta. - Germantown	630	557	1,187	214	225	439	214/216 - shared routes on Sundays			WI 09	WI 07	See 216
215	Quincy	Quincy Ctr. Sta. - Ashmont Sta.	765	628	1,393	414	346	760	234	190	424	WI 09	WI 07	FA 06
216	Quincy	Quincy Ctr. Sta. - Houghs Neck	417	557	974	237	289	526	338	345	683	WI 09	WI 07	FA 06
217	Quincy	Wollaston Sta - Ashmont Sta via Wollaston Beach	120	103	223	x	x	x	x	x	x	FA 06	x	x
220	Quincy	Quincy Ctr. Sta. - Hingham	672	738	1,410	335	335	670	172	161	333	FA 06	WI 07	FA 06
221	Quincy	Quincy Ctr. Sta. - Fort Point	59	37	96	x	x	x	x	x	x	WI 09	x	x
222	Quincy	Quincy Ctr. Sta - East Weymouth	656	670	1,326	244	202	446	198	191	389	FA 06	WI 07	FA 06
225	Quincy	Quincy Ctr. Sta. - Weymouth Landing	1,228	1,329	2,557	416	379	795	195	160	355	WI 08	WI 07	WI 07
230	Quincy	Quincy Ctr. Sta. - Montello Sta.	588	717	1,305	240	201	441	156	163	319	SP 08	SP 04	WI 09

Vehicle Crash Data

Overall Vehicle Crash Summary Table

MassDOT Crash Data

MassDOT Crash Rate Worksheets

Table 2 Vehicular Crash Summary (2008-2010)

	Western Ave at							North Harvard Street at					Hague Street at	Cambridge Street at				Soldiers Field Road		
	Telford Street	Everett Street	N. Harvard Street	Travis Street	Batten Way	Hague Street	Soldiers Field Road	Gordon Road	Bertram Street/Spurr Street	Franklin St./Kingsley St.	Bayard Street/Rena Street	Soldiers Field Road	Rotterdam Street	Soldiers Field Road	I-90 On-Ramp/Hotel Driveway	Windom Street	North Harvard Street	Harvard Avenue	Everett Street	Eliot Street
Currently Signalized?	Yes	Yes	Yes	No	Yes	Yes	n/a	No	No	Yes	No	n/a	No	n/a	Yes	Yes	Yes	Yes	Yes	Yes
MassDOT District Crash Rate	0.76	0.76	0.76	0.58	0.76	0.76	n/a	0.57	0.58	0.76	0.58	n/a	0.58	n/a	0.76	0.76	0.76	0.76	0.76	0.76
MassDOT Calculated Crash Rate	0.09	0.40	0.47	0.00	0.00	0.00	n/a	0.08	0.00	0.07	0.23	n/a	0.00	n/a	0.04	0.03	0.50	0.33	0.36	0.08
Exceeds?	No	No	No	No	No	No	n/a	No	No	No	No	n/a	No	n/a	No	No	No	No	No	No
Year																				
2008	0	6	6	0	0	0	8	0	0	0	2	38	0	23	0	0	8	5	7	4
2009	1	3	0	0	0	0	0	0	0	0	1	50	0	18	1	1	4	1	6	1
<u>2010</u>	<u>1</u>	<u>1</u>	<u>5</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>4</u>	<u>1</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>22</u>	<u>0</u>	<u>12</u>	<u>1</u>	<u>0</u>	<u>7</u>	<u>3</u>	<u>2</u>	<u>1</u>
Total	2	10	11	0	0	0	12	1	0	1	3	110	0	53	2	1	20	9	15	6
Collision Type																				
Angle	0	0	4	0	0	0	5	0	0	0	1	19	0	19	0	0	1	1	4	1
Head-on	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Rear-end	1	5	2	0	0	0	5	0	0	1	2	16	0	11	0	1	9	5	8	0
Rear-to-rear	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0
Sideswipe, opposite direction	0	2	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Sideswipe, same direction	0	2	1	0	0	0	0	0	0	0	0	4	0	15	1	0	2	1	1	2
Single-vehicle crash	0	0	0	0	0	0	2	0	0	0	0	66	0	4	1	0	1	0	2	2
<u>Unknown</u>	<u>1</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>3</u>	<u>0</u>	<u>3</u>	<u>0</u>	<u>0</u>	<u>5</u>	<u>2</u>	<u>0</u>	<u>0</u>
Total	2	10	11	0	0	0	12	1	0	1	3	110	0	53	2	1	20	9	15	6
Severity																				
Fatality	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Injury	1	1	6	0	0	0	4	0	0	0	0	24	0	7	0	1	6	4	5	0
Property-related	0	7	3	0	0	0	8	0	0	0	2	80	0	44	2	0	9	3	8	6
<u>Unknown</u>	<u>1</u>	<u>2</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>1</u>	<u>1</u>	<u>6</u>	<u>0</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>4</u>	<u>2</u>	<u>1</u>	<u>0</u>
Total	2	10	11	0	0	0	12	1	0	1	3	110	0	53	2	1	20	9	15	6
Time of day																				
Weekday, 7:00 AM - 9:00 AM	0	1	2	0	0	0	3	0	0	0	0	21	0	7	0	0	4	0	2	0
Weekday, 4:00 PM - 6:00 PM	0	1	2	0	0	0	1	0	0	0	0	13	0	5	0	0	1	0	3	0
Saturday, 11:00 AM - 2:00 PM	0	1	0	0	0	0	0	0	0	0	0	6	0	1	0	1	1	1	0	0
Weekday, other time	2	6	6	0	0	0	7	0	0	0	2	37	0	32	1	0	10	6	5	6
<u>Weekend, other time</u>	<u>0</u>	<u>1</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>1</u>	<u>0</u>	<u>1</u>	<u>1</u>	<u>33</u>	<u>0</u>	<u>8</u>	<u>1</u>	<u>0</u>	<u>3</u>	<u>2</u>	<u>5</u>	<u>0</u>
Total	2	10	11	0	0	0	12	1	0	1	3	110	0	53	2	1	20	9	15	6
Pavement Conditions																				
Dry	1	7	10	0	0	0	9	1	0	1	3	34	0	43	2	0	13	5	7	3
Wet	0	3	1	0	0	0	3	0	0	0	0	72	0	9	0	1	4	3	7	3
Snow	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1	0
Other	0	0	0	0	0	0	0	0	0	0	0	3	0	1	0	0	0	1	0	0
<u>Unknown</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	2	10	11	0	0	0	12	1	0	1	3	110	0	53	2	1	20	9	15	6
Non Motorist (Bike, Pedestrian)																				
Total	0	0	3	0	0	0	1	1	0	0	0	1	0	2	0	0	1	0	1	0
Non-geolocated																				
Total							14													2

Source: MassDOT vehicle crash data

Intersection	Crash Date	Crash Time	Crash Severity	Total Vehicles	Total Injured	Total Fatal	Collision manner	Road Surface	Lighting	Intersection	Distance From Nearest Intersection	Vehicles Travel Directions	Most Harmful Events	Vehicle Action Prior to Crash	Vehicle Configuration	Non Motorist Type	
1	Thursday, December 31, 2009	12:40 PM	Not Reported	2	0	0	Not reported	Snow	Daylight		360 WESTERN AVENUE	V1:Not reported / V2:Not reported	V1: Collision with parked motor vehicle / V2: Not reported	V1: Not reported / V2:Slowing or stopped in traffic	V1: Passenger car / V2:Passenger car		
2	Friday, April 11, 2008	7:30 AM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Daylight		WESTERN AVENUE / EVERETT STREET	V1:Eastbound / V2:Eastbound	V1: Travelling straight ahead / V2:Slowing or stopped in traffic	V1: Travelling straight ahead / V2:Slowing or stopped in traffic	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car		
2	Tuesday, May 13, 2008	5:15 AM	Non-fatal injury	2	1	0	Rear-end	Dry	Daylight		100 feet E from Intersection 252 WESTERN AVENUE / EVERETT STREET	V1:Eastbound / V2:Eastbound	V1: Not reported / V2: Not reported	V1: Slowing or stopped in traffic / V2: Travelling straight ahead	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires		
2	Sunday, June 08, 2008	4:45 AM	Property damage only (none injured)	2	0	0	Sideswipe, opposite direction	Dry	Daylight	WESTERN AVENUE / EVERETT STREET		V1:Westbound / V2:Northbound	V1: Travelling straight ahead / V2:Turning left	V1: Travelling straight ahead / V2:Turning left	V1: Passenger car / V2:Passenger car		
2	Friday, June 13, 2008	10:20 AM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	Dry	Daylight		305 WESTERN AVENUE	V1:Not reported / V2:Eastbound	V1: Not reported / V2: Not reported	V1: Parked / V2: Travelling straight ahead	V1: Passenger car / V2:Passenger car		
2	Friday, July 18, 2008	6:00 PM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Daylight	SOLDIERS FIELD PARK / EVERETT STREET / WESTERN AVENUE		V1:Northbound / V2:Northbound	V1: Not reported / V2: Not reported	V1: Slowing or stopped in traffic / V2: Travelling straight ahead	V1: Passenger car / V2:Motorcycle		
2	Saturday, July 19, 2008	11:11 PM	Property damage only (none injured)	2	0	0	Sideswipe, opposite direction	Dry	Dusk		WESTERN AVENUE / EVERETT STREET	V1:Not reported / V2:Not reported	V1: Travelling straight ahead / V2:Not reported	V1: Travelling straight ahead / V2:Not reported	V1: Not reported / V2:Not reported		
2	Tuesday, April 21, 2009	8:30 PM	Property damage only (none injured)	2	0	0	Rear-end	Wet	Dark - lighted roadway		312 WESTERN AVENUE / EVERETT STREET	V1:Westbound / V2:Westbound	V1: Not reported / V2: Not reported	V1: Travelling straight ahead / V2:Slowing or stopped in traffic	V1: Passenger car / V2:Passenger car		
2	Thursday, May 21, 2009	9:20 AM	Property damage only (none injured)	2	0	0	Not reported	Wet	Daylight	EVERETT STREET / WESTERN AVENUE		V1:Southbound / V2:Not reported	V1: Not reported / V2: Not reported	V1: Travelling straight ahead / V2:Entering traffic lane	V1: Not reported / V2:Not reported		
2	Monday, October 19, 2009	1:11 PM	Not Reported	2	0	0	Sideswipe, same direction	Dry	Daylight	WESTERN AVENUE / EVERETT STREET		V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Not reported	V1: Overtaking/passing / V2:Turning right	V1: Not reported / V2:Not reported		
2	Tuesday, January 05, 2010	11:00 AM	Not Reported	2	0	0	Rear-end	Wet	Daylight			V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Not reported	V1: Slowing or stopped in traffic / V2:Slowing or stopped in traffic	V1: Not reported / V2: Collision with motor vehicle in traffic			
4	Tuesday, January 29, 2008	7:15 PM	Non-fatal injury	2	1	0	Head-on	Dry	Dusk	WESTERN AVENUE / NORTH HARVARD STREET		V1:Northbound / V2:Southbound	V1: Not reported / V2: Not reported	V1: Travelling straight ahead / V2:Turning left	V1: Passenger car / V2:Not reported		
4	Tuesday, January 29, 2008	7:22 AM	Non-fatal injury	2	1	0	Angle	Dry	Dark - lighted roadway	WESTERN AVENUE / NORTH HARVARD STREET		V1:Not reported / V2:Not reported	V1: Not reported / V2: Not reported	V1: Turning left / V2:Not reported	V1: Passenger car / V2:Passenger car		
4	Friday, February 15, 2008	11:10 PM	Non-fatal injury	2	2	0	Angle	Dry	Dark - lighted roadway	NORTH HARVARD STREET / WESTERN AVENUE		V1:Northbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Not reported	V1: Travelling straight ahead / V2: Travelling straight ahead	V1: Passenger car / V2:Passenger car		
4	Friday, July 11, 2008	4:15 PM	Not Reported	2	0	0	Sideswipe, same direction	Dry	Daylight			V1:Northbound / V2:Northbound	V1: Not reported / V2: Not reported	V1: Turning right / V2: Travelling straight ahead	V1: Not reported / V2:Not reported		
4	Thursday, July 24, 2008	6:05 AM	Property damage only (none injured)	2	0	0	Sideswipe, opposite direction	Wet	Daylight	WESTERN AVENUE / NORTH HARVARD STREET	NORTH HARVARD STREET / WESTERN AVENUE	V1:Southbound	V1: Not reported	V1: Turning left	V1: Not reported	P2:Pedalcyclist (bicycle, tricycle, unicycle, pedal car)	
4	Wednesday, September 17, 2008	1:30 AM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Daylight	WESTERN AVENUE / NORTH HARVARD STREET		V1:Eastbound / V2:Eastbound	V1: Not reported / V2: Not reported	V1: Slowing or stopped in traffic / V2: Travelling straight ahead	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires		
4	Sunday, March 07, 2010	7:25 PM	Unknown	1	0	0	Head-on	Dry	Dark - lighted roadway			V1:Eastbound	V1: Passenger car	V1: Travelling straight ahead	V1: Collision with pedestrian	P3:Pedestrian	
4	Wednesday, September 01, 2010	4:15 PM	Non-fatal injury	3	1	0	Rear-end	Dry	Daylight			V1:Northbound / V2:Northbound / V3:Northbound	V1: Truck/trailer / V2:Passenger car / V3:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V3:Slowing or stopped in traffic	V1: Turning left / V2:Turning left / V3:Slowing or stopped in traffic	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic		
4	Thursday, January 14, 2010	7:30 AM	Non-fatal injury	2	1	0	Angle	Dry	Dark - lighted roadway			V1:Passenger car / V2:Not reported	V1: Turning left / V2:Not reported	V1: Not reported / V2: Not reported	V1: Not reported / V2: Not reported		
4	Friday, January 15, 2010	6:20 AM	Property damage only (none injured)	2	0	0	Sideswipe, opposite direction	Dry	Dark - lighted roadway			V1:Northbound	V1: Passenger car	V1: Turning left	V1: Not reported	P2:Pedestrian	
4	Tuesday, May 11, 2010	6:05 PM	Non-fatal injury	2	1	0	Angle	Dry	Daylight			V1:Westbound / V2:Eastbound	V1: Passenger car / V2:Passenger car	V1: Travelling straight ahead / V2:Turning left	V1: Not reported / V2: Not reported		
12	Wednesday, April 07, 2010	10:50 PM	Non-fatal injury	2	2	0	Rear-end	Dry	Dark - lighted roadway	219 WESTERN AVENUE / NORTH HARVARD STREET		V1:Southbound / V2:Not reported / V3:Not reported	V1: Slowing or stopped in traffic / V2: Travelling straight ahead / V3: Slowing or stopped in traffic	V1: Slowing or stopped in traffic / V2: Travelling straight ahead / V3: Slowing or stopped in traffic	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Not reported		
12	Sunday, October 10, 2010	2:50 PM	Not Reported	1	0	0	Unknown	Dry	Daylight	65 NORTH HARVARD STREET		V1:Not reported	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Not reported	V1: Not reported	V1: Not reported	P3:Pedalcyclist (bicycle, tricycle, unicycle, pedal car)	
7	Sunday, May 09, 2010	5:00 PM	Not Reported	2	0	0	Rear-end	Dry	Dusk			V1:Not reported / V2:Not reported	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V3:Not reported	V1: Slowing or stopped in traffic / V2: Travelling straight ahead	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		
8	Tuesday, April 01, 2008	9:45 AM	Not Reported	2	0	0	Angle	Dry	Daylight	BAYARD STREET / NORTH HARVARD STREET		V1:Eastbound / V2:Not reported	V1: Not reported / V2: Not reported	V1: Turning right / V2: Parked	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car		
8	Wednesday, December 24, 2008	1:00 PM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Daylight	STORROW DRIVE / NORTH HARVARD STREET / BAYARD STREET		V1:Not reported / V2:Not reported	V1: Not reported / V2: Not reported	V1: Slowing or stopped in traffic / V2: Travelling straight ahead	V1: Not reported / V2:Passenger car		
8	Sunday, March 01, 2009	11:15 AM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Daylight	NORTH HARVARD STREET / BAYARD STREET		V1:Southbound / V2:Southbound	V1: Not reported / V2: Not reported	V1: Travelling straight ahead / V2:Making U-turn	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Not reported		
3	Tuesday, April 15, 2008	10:30 AM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	Dry	Daylight			V1:Eastbound / V2:Eastbound	V1: Collision with curb / V2: Collision with post/support	V1: Travelling straight ahead / V2: Travelling straight ahead	V1: Passenger car / V2:Not reported		
3	Wednesday, May 21, 2008	10:15 PM	Non-fatal injury	2	0	0	Rear-end	Wet	Dark - lighted roadway	SOLDIERS FIELD ROAD / EVERETT STREET		V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Not reported	V1: Travelling straight ahead / V2:Slowing or stopped in traffic	V1: Passenger car / V2:Passenger car		
3	Sunday, June 15, 2008	9:10 AM	Non-fatal injury	2	2	0	Single vehicle crash	Wet	Daylight			V1:Eastbound	V1: Collision with light pole or other post/support	V1: Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car		
3	Thursday, July 17, 2008	4:30 AM	Unknown	2	0	0	Rear-end	Dry	Daylight			V1:Westbound / V2:Westbound	V1: Not reported / V2: Not reported	V1: Slowing or stopped in traffic / V2: Turning left	V1: Passenger car / V2:Passenger car		
3	Sunday, September 28, 2008	11:40 AM	Property damage only (none injured)	2	0	0	Rear-end	Wet	Daylight	SOLDIERS FIELD ROAD / EVERETT STREET		V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Not reported	V1: Slowing or stopped in traffic / V2: Travelling straight ahead	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires		
3	Saturday, November 08, 2008	3:40 PM	Non-fatal injury	2	5	0	Angle	Dry	Daylight	SOLDIERS FIELD ROAD / EVERETT STREET		V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Making U-turn / V2: Travelling straight ahead	V1: Making U-turn / V2: Travelling straight ahead	V1: Passenger car / V2:Passenger car		
3	Sunday, November 16, 2008	3:09 AM	Fatal injury	1	0	1	Single vehicle crash	Wet	Dark - lighted roadway	SOLDIERS FIELD ROAD / EVERETT STREET	1170 SOLDIERS FIELD ROAD	V1:Eastbound	V1: Collision with pedestrian	V1: Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	P1:Pedestrian	
3	Wednesday, January 14, 2009	5:39 PM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Dark - lighted roadway			V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Not reported	V1: Slowing or stopped in traffic / V2: Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car		
3	Sunday, May 10, 2009	9:40 AM	Non-fatal injury	2	1	0	Angle	Dry	Daylight	SOLDIERS FIELD ROAD / EVERETT STREET		V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Not reported	V1: Travelling straight ahead / V2: Turning left	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car		
3	Friday, May 15, 2009	6:34 PM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Daylight	SOLDIERS FIELD ROAD / EVERETT STREET		V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Not reported	V1: Slowing or stopped in traffic / V2: Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car		
3	Thursday, June 25, 2009	10:03 AM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight			V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Not reported	V1: Turning left / V2: Travelling straight ahead	V1: Passenger car / V2:Passenger car		
3	Friday, July 24, 2009	8:30 AM	Non-fatal injury	2	1	0	Rear-end	Wet	Daylight			V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Not reported	V1: Slowing or stopped in traffic / V2:Slowing or stopped in traffic	V1: Passenger car / V2:Passenger car		
3	Monday, November 23, 2009	7:41 PM	Property damage only (none injured)	2	0	0	Rear-end	Wet	Dark - lighted roadway	SOLDIERS FIELD ROAD / EVERETT STREET		V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Not reported	V1: Slowing or stopped in traffic / V2: Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires		
3	Wednesday, November 17, 2010	9:50 AM	Property damage only (none injured)	2	0	0	Angle	Wet	Daylight			V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Not reported	V1: Travelling straight ahead / V2: Travelling straight ahead	V1: Passenger car / V2:Passenger car		
3	Monday, December 27, 2010	4:40 PM	Property damage only (none injured)	2	0	0	Rear-end	Snow	Dusk			V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Not reported	V1: Slowing or stopped in traffic / V2:Slowing or stopped in traffic	V1: Passenger car / V2:Passenger car		
13/14	1/16/2008	7:20 AM	Property damage only (none injured)	2	0	0	Not reported	Ice	Daylight			V1:Southbound / V2:Eastbound	V1: Not reported / V2: Not reported	V1: Travelling straight ahead / V2: Travelling straight ahead	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires		
13/14	3/12/2008	5:00 PM	Property damage only (none injured)	1	0	0	Single vehicle crash	Dry	Daylight			SOLDIERS FIELD ROAD / NORTH HARVARD STREET	V1:Westbound	V1: Collision with light pole or other post/support	V1: Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
13/14	4/13/2008	10:38 AM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	Dry	Daylight			SOLDIERS FIELD ROAD / NORTH HARVARD STREET	V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Changing lanes / V2: Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	
13/14	4/25/2008	3:25 AM	Property damage only (none injured)	2	0	0	Not reported	Dry	Daylight			SOLDIERS FIELD ROAD / NORTH HARVARD STREET	V1:Eastbound / V2:Eastbound	V1: Not reported / V2: Not reported	V1: Travelling straight ahead / V2: Changing lanes	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
13/14	4/29/2008	9:20 AM	Property damage only (none injured)	1	0	0	Single vehicle crash	Water (standing, moving)	Daylight			SOLDIERS FIELD ROAD / NORTH HARVARD STREET	V1:Westbound	V1: Collision with guardrail	V1: Travelling straight ahead	V1: Passenger car	
13/14	4/29/2008	3:31 PM	Property damage only (none injured)	1	0	0	Single vehicle crash	Wet	Daylight			SOLDIERS FIELD ROAD / NORTH HARVARD STREET	V1:Eastbound	V1: Collision with motor vehicle in traffic	V1: Travelling straight ahead	V1: Passenger car	
13/14	6/2/2008	5:30 PM	Non-fatal injury	3	1	0	Rear-end	Dry	Daylight			SOLDIERS FIELD ROAD / NORTH HARVARD STREET	V1:Westbound / V2:Westbound / V3:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic	V1: Slowing or stopped in traffic / V2: Slowing or stopped in traffic / V3: Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car / V3:Passenger car	
13/14	8/11/2008	4:25 PM	Unknown	2	0	0	Rear-end	Dry	Daylight	NORTH HARVARD STREET / SOLDIERS FIELD ROAD		V1:Northbound / V2:Northbound	V1: Not reported / V2: Not reported	V1: Overtaking/passing / V2:Slowing or stopped in traffic	V1: Passenger car / V2:Passenger car		
13/14	6/24/2008	5:50 PM	Non-fatal injury	3	1	0	Rear-end	Wet	Daylight			SOLDIERS FIELD ROAD / NORTH HARVARD STREET	V1:Eastbound / V2:Eastbound / V3:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic	V1: Slowing or stopped in traffic / V2:Slowing or stopped in traffic / V3: Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V3:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
13/14	6/29/2008	3:02 AM	Property damage only (none injured)	1	0	0	Single vehicle crash	Dry	Dark - lighted roadway			SOLDIERS FIELD ROAD / NORTH HARVARD STREET	V1:Westbound	V1: Collision with utility pole	V1: Turning left	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
13/14	7/3/2008	8:10 PM	Property damage only (none injured)	1	0	0	Single vehicle crash	Wet	Dark - lighted roadway			SOLDIERS FIELD ROAD / NORTH HARVARD STREET	V1:Eastbound	V1: Collision with light pole or other post/support	V1: Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
13/14	7/7/2008	10:53 PM	Non-fatal injury	2	1	0	Sideswipe, same direction	Dry	Dark - lighted roadway			SOLDIERS FIELD ROAD / NORTH HARVARD STREET	V1:Westbound / V2:Westbound	V1: Collision with guardrail / V2: Collision with guardrail	V1: Travelling straight ahead / V2: Entering traffic lane	V1: Passenger car / V2:Passenger car	
13/14	7/24/2008	8:05 AM	Non-fatal injury	1	1	0	Single vehicle crash	Wet	Daylight			SOLDIERS FIELD ROAD / NORTH HARVARD STREET	V1:Westbound	V1: Collision with motor vehicle in traffic	V1: Travelling straight ahead	V1: Passenger car	
13/14	8/6/2008	4:56 PM	Property damage only (none injured)	1	0	0	Single vehicle crash	Wet	Daylight			SOLDIERS FIELD ROAD / NORTH HARVARD STREET	V1:Westbound	V1: Collision with guardrail	V1: Travelling straight ahead	V1: Passenger car	
13/14	9/6/2008	9:07 AM	Non-fatal injury	1	1	0	Single vehicle crash	Wet	Daylight			SOLDIERS FIELD ROAD / NORTH HARVARD STREET	V1:Eastbound	V1: Collision with curb	V1: Travelling straight ahead	V1: Passenger car	
13/14	9/8/2008	3:53 PM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Daylight			NORTH HARVARD STREET / SOLDIERS FIELD ROAD	V1:Southbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Slowing or stopped in traffic / V2: Travelling straight ahead	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
13/14	9/12/2008	7:08 AM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Daylight			SOLDIERS FIELD ROAD / NORTH HARVARD STREET	V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Slowing or stopped in traffic / V2: Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
13/14	9/12																

Intersection	Crash Date	Crash Time	Crash Severity	Total Vehicles	Total Injured	Total Fatal	Collision manner	Road Surface	Lighting	Intersection	Distance From Nearest Intersection	Vehicles Travel Directions	Most Harmful Events	Vehicle Action Prior to Crash	Vehicle Configuration	Non Motorist Type
13/14	2/25/2010	6:50 PM	Property damage only (none injured)	4	0	0	Single vehicle crash	Wet	Dark - lighted roadway	SOLDIERS FIELD ROAD / NORTH HARVARD STREET		V1:Eastbound / V2:Eastbound / V3:Eastbound / V4:Eastbound	V1: Collision with other movable object / V2: Collision with other movable object / V3: Collision with other movable object / V4: Collision with other movable object	V1: Travelling straight ahead / V2:Travelling straight ahead / V3:Travelling straight ahead / V4:Travelling straight ahead	V1: Passenger car / V2:Passenger car / V3:Light truck(van, mini van, panel, pickup, sport utility) with only four tires / V4:Passenger car	
13/14	3/5/2010	1:45 PM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight	SOLDIERS FIELD ROAD / NORTH HARVARD STREET		V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Changing lanes / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
13/14	4/28/2010	11:05 AM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight	SOLDIERS FIELD ROAD / NORTH HARVARD STREET		V1:Northbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Turning left / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
13/14	5/3/2010	11:10 PM	Non-fatal injury	2	2	0	Sideswipe, same direction	Dry	Dark - lighted roadway	SOLDIERS FIELD ROAD / NORTH HARVARD STREET		V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Turning left / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
13/14	5/19/2010	10:34 PM	Non-fatal injury	1	1	0	Single vehicle crash	Wet	Dark - lighted roadway	SOLDIERS FIELD ROAD / NORTH HARVARD STREET		V1:Westbound	V1: Collision with guardrail	V1: Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
13/14	6/24/2010	4:42 PM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight	SOLDIERS FIELD ROAD / NORTH HARVARD STREET		V1:Southbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Travelling straight ahead / V2:Entering traffic lane	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
13/14	7/29/2010	8:24 AM	Property damage only (none injured)	2	0	0	Angle	Wet	Daylight	SOLDIERS FIELD ROAD / NORTH HARVARD STREET		V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Travelling straight ahead / V2:Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	
13/14	8/24/2010	8:55 PM	Property damage only (none injured)	2	0	0	Rear-end	Water (standing, moving)	Dark - lighted roadway	SOLDIERS FIELD ROAD / NORTH HARVARD STREET		V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Travelling straight ahead / V2:Slowing or stopped in traffic	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
13/14	8/25/2010	5:00 PM	Property damage only (none injured)	1	0	0	Single vehicle crash	Wet	Daylight	SOLDIERS FIELD ROAD / NORTH HARVARD STREET		V1:Eastbound	V1: Collision with guardrail	V1: Travelling straight ahead	V1: Passenger car	
13/14	9/12/2010	6:53 PM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight	NORTH HARVARD STREET / SOLDIERS FIELD ROAD		V1:Southbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Turning left / V2:Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
13/14	9/27/2010	10:39 AM	Property damage only (none injured)	1	0	0	Single vehicle crash	Wet	Daylight	SOLDIERS FIELD ROAD / NORTH HARVARD STREET		V1:Westbound	V1: Collision with median barrier	V1: Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
13/14	9/28/2010	5:30 PM	Property damage only (none injured)	2	0	0	Rear-end	Wet	Daylight	SOLDIERS FIELD ROAD / NORTH HARVARD STREET		V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Slowing or stopped in traffic / V2:Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	
13/14	10/8/2010	9:52 AM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight	NORTH HARVARD STREET / RAMP - SOLDIERS FIELD EB TO N HARVARD ST		V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Turning left / V2:Turning left	V1: Passenger car / V2:Passenger car	
13/14	10/17/2010	3:30 PM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight	NORTH HARVARD STREET / SOLDIERS FIELD ROAD		V1:Northbound / V2:Southbound	V1: Not reported / V2: Not reported	V1: Turning left / V2:Travelling straight ahead	V1: Not reported / V2:Not reported	
13/14	11/16/2010	7:55 AM	Property damage only (none injured)	1	0	0	Single vehicle crash	Wet	Daylight	SOLDIERS FIELD ROAD / NORTH HARVARD STREET		V1:Eastbound	V1: Collision with guardrail	V1: Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
13/14	12/1/2010	7:06 PM	Property damage only (none injured)	1	0	0	Single vehicle crash	Wet	Dark - lighted roadway	SOLDIERS FIELD ROAD / NORTH HARVARD STREET		V1:Westbound	V1: Collision with light pole or other post/support	V1: Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
13/14	12/1/2010	11:47 PM	Property damage only (none injured)	1	0	0	Single vehicle crash	Wet	Dark - lighted roadway	SOLDIERS FIELD ROAD / NORTH HARVARD STREET		V1:Eastbound	V1: Collision with guardrail	V1: Travelling straight ahead	V1: Passenger car	
13/14	12/9/2010	4:47 PM	Property damage only (none injured)	2	0	0	Angle	Dry	Dark - lighted roadway	NORTH HARVARD STREET / SOLDIERS FIELD ROAD		V1:Southbound / V2:Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Travelling straight ahead / V2:Turning left	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
13/14	12/12/2010	9:57 AM	Non-fatal injury	1	1	0	Single vehicle crash	Wet	Daylight	SOLDIERS FIELD ROAD / NORTH HARVARD STREET		V1:Westbound	V1: Reported but invalid	V1: Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
15/16	3/31/2008	4:00 AM	Property damage only (none injured)	2	0	0	Angle	Wet	Daylight	SOLDIERS FIELD ROAD / WESTERN AVENUE		V1:Westbound / V2:Westbound	V1: Not reported / V2: Not reported	V1: Turning left / V2:Turning left	V1: Passenger car / V2:Passenger car	
15/16	4/18/2008	9:15 AM	Property damage only (none injured)	3	0	0	Rear-end	Dry	Daylight	SOLDIERS FIELD ROAD / WESTERN AVENUE		V1:Eastbound / V2:Eastbound / V3:Not reported	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Not reported	V1: Slowing or stopped in traffic / V2:Travelling straight ahead / V3:Not reported	V1: Passenger car / V2:Passenger car / V3:Not reported	
15/16	6/14/2008	10:48 AM	Property damage only (none injured)	3	0	0	Rear-end	Dry	Daylight	SOLDIERS FIELD ROAD / WESTERN AVENUE		V1:Eastbound / V2:Eastbound / V3:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic	V1: Slowing or stopped in traffic / V2:Slowing or stopped in traffic / V3:Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V3:Passenger car	
15/16	6/23/2008	8:34 PM	Non-fatal injury	1	1	0	Single vehicle crash	Wet	Dark - lighted roadway	SOLDIERS FIELD ROAD / WESTERN AVENUE		V1:Eastbound	V1: Collision with motor vehicle in traffic	V1: Travelling straight ahead	V1: Passenger car	
15/16	7/30/2008	1:20 AM	Non-fatal injury	2	1	0	Angle	Dry	Daylight	WESTERN AVENUE / SOLDIERS FIELD ROAD		V1:Eastbound / V2:Westbound	V1: Not reported / V2: Not reported	V1: Turning left / V2:Not reported	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Not reported	
15/16	8/13/2008	00:00 AM	Non-fatal injury	3	2	0	Rear-end	Dry	Dark - lighted roadway	SOLDIERS FIELD ROAD / WESTERN AVENUE		V1:Westbound / V2:Westbound / V3:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic	V1: Slowing or stopped in traffic / V2:Slowing or stopped in traffic / V3:Travelling straight ahead	V1: Passenger car / V2:Passenger car / V3:Passenger car	
15/16	8/13/2008	9:40 AM	Property damage only (none injured)	3	0	0	Rear-end	Dry	Daylight	SOLDIERS FIELD ROAD / SOLDIERS FIELD ROAD / WESTERN AVENUE		V1:Southbound / V2:Southbound / V3:Southbound	V1: Not reported / V2: Not reported / V3: Not reported	V1: Slowing or stopped in traffic / V2:Slowing or stopped in traffic / V3:Not reported	V1: Passenger car / V2:Not reported / V3:Passenger car	
15/16	8/15/2008	9:49 PM	Property damage only (none injured)	1	0	0	Single vehicle crash	Wet	Dark - lighted roadway	SOLDIERS FIELD ROAD / WESTERN AVENUE		V1:Eastbound	V1: Collision with motor vehicle in traffic	V1: Travelling straight ahead	V1: Passenger car	
15/16	3/19/2010	8:07 AM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight	WESTERN AVENUE /		V1:Westbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Travelling straight ahead / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
15/16	6/18/2010	6:10 PM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Daylight	WESTERN AVENUE / RAMP - SOLDIERS FIELD RD EB TO WESTERN A		V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Slowing or stopped in traffic / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
15/16	8/9/2010	8:10 PM	Non-fatal injury	1	1	0	Angle	Dry	Dark - lighted roadway	RAMP - SOLDIERS FIELD RD EB TO WESTERN A / WESTERN AVENUE / RAMP - WESTERN AVE TO SOLDIERS FIELD RD		V1:Southbound	V1: Collision with cyclist (bicycle, tricycle, unicycle, pedal car)	V1: Travelling straight ahead	V1: Passenger car	P2:Pedalcyclist (bicycle, tricycle, unicycle, pedal car) / P3:Pedestrian
15/16	8/12/2010	10:25 PM	Property damage only (none injured)	2	0	0	Angle	Dry	Dark - lighted roadway	WESTERN AVENUE / RAMP - SOLDIERS FIELD RD WB TO WESTERN A / RAMP - WESTERN AVE TO SOLDIERS FIELD RD		V1:Southbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Travelling straight ahead / V2:Travelling straight ahead	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
17	6/5/2009	3:18 PM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	Dry	Daylight	CAMBRIDGE STREET / RAMP - RT 90 WB TO CAMBRIDGE ST / RAMP - CAMBRIDGE ST TO RT 90		V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Turning left / V2:Slowing or stopped in traffic	V1: Truck/trailer / V2:Passenger car	
17	11/13/2010	2:07 AM	Property damage only (none injured)	1	0	0	Single vehicle crash	Dry	Dark - roadway not lighted		Rte 90	V1:Northbound	V1: Collision with guardrail	V1: Travelling straight ahead	V1: Passenger car	
18/19	Wednesday, January 23, 2008	5:07 PM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Dusk	CAMBRIDGE STREET / RIVER STREET / SOLDIERS FIELD ROAD		V1:Northbound / V2:Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Travelling straight ahead / V2:Travelling straight ahead	V1: Passenger car / V2:Tractor/semi-trailer	
18/19	Friday, February 01, 2008	7:08 PM	Non-fatal injury	3	1	0	Angle	Wet	Dark - lighted roadway	11 feet N from Intersection CAMBRIDGE STREET		V1:Eastbound / V2:Eastbound / V3:Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic	V1: Turning left / V2:Travelling straight ahead / V3:Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car / V3:Passenger car	
18/19	Monday, February 11, 2008	2:40 AM	Property damage only (none injured)	2	0	0	Not reported	Dry	Daylight	CAMBRIA STREET / CAMBRIDGE STREET / SOLDIERS FIELD ROAD		V1:Northbound / V2:Northbound	V1: Not reported / V2: Not reported	V1: Travelling straight ahead / V2:Changing lanes	V1: Passenger car / V2:Passenger car	
18/19	Monday, March 24, 2008	11:14 AM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight	SOLDIERS FIELD ROAD		V1:Southbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Travelling straight ahead / V2:Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	
18/19	Monday, March 03, 2008	8:30 AM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Daylight	WESTERN AVENUE / SOLDIERS FIELD ROAD		V1:Northbound / V2:Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Turning right / V2:Turning right	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	
18/19	Wednesday, March 12, 2008	1:00 AM	Property damage only (none injured)	2	0	0	Angle	Wet	Daylight	SOLDIERS FIELD ROAD / CAMBRIDGE STREET		V1:Northbound / V2:Northbound	V1: Not reported / V2: Not reported	V1: Turning left / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
18/19	Friday, March 21, 2008	9:12 PM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	Dry	Dark - lighted roadway	SOLDIERSFIELD ROAD		V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Travelling straight ahead / V2:Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
18/19	Wednesday, April 16, 2008	6:25 PM	Property damage only (none injured)	4	0	0	Sideswipe, same direction	Dry	Daylight	CAMBRIDGE STREET		V1:Westbound / V2:Westbound / V3:Westbound / V4:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic / V4: Collision with motor vehicle in traffic	V1: Slowing or stopped in traffic / V2:Slowing or stopped in traffic / V3:Slowing or stopped in traffic / V4:Travelling straight ahead	V1: Passenger car / V2:Passenger car / V3:Passenger car / V4:Passenger car	
18/19	Saturday, May 24, 2008	4:43 PM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	Dry	Daylight	CAMBRIDGE STREET / SOLDIERS FIELD ROAD		V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Travelling straight ahead / V2:Turning left	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	
18/19	Tuesday, June 17, 2008	7:00 PM	Property damage only (none injured)	1	0	0	Not reported	Dry	Daylight	CAMBRIDGE STREET		V1:Northbound	V1: Collision with cyclist (bicycle, tricycle, unicycle, pedal car)	V1: Travelling straight ahead	V1: Bus (seats for more than 15 people, including driver)	P1:Pedalcyclist (bicycle, tricycle, unicycle, pedal car)
18/19	Thursday, July 03, 2008	5:00 PM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	Dry	Daylight	CAMBRIDGE STREET / SOLDIERS FIELD ROAD		V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Travelling straight ahead / V2:Turning right	V1: Passenger car / V2:Tractor/semi-trailer	
18/19	Tuesday, July 15, 2008	00:00 AM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	Dry	Dark - lighted roadway	CAMBRIDGE STREET		V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Parked / V2:Overtaking/passing	V1: Passenger car / V2:Passenger car	
18/19	Friday, July 25, 2008	12:25 PM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	Dry	Daylight	SOLDIERS FIELD ROAD		V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Changing lanes / V2:Travelling straight ahead	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
18/19	Thursday, October 16, 2008	12:30 PM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight	CAMBRIDGE STREET		V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Travelling straight ahead / V2:Turning left	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	
18/19	Friday, October 17, 2008	1:20 PM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight	SOLDIERS FIELD ROAD		V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Travelling straight ahead / V2:Turning left	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	
18/19	Monday, October 20, 2008	7:30 AM	Property damage only (none injured)	1	0	0	Sideswipe, same direction	Dry	Daylight	CAMBRIDGE STREET Rte 1 / SOLDIERS FIELD ROAD Rte 1		V1:Northbound	V1: Not reported	V1: Not reported	V1: Passenger car	
18/19	Sunday, November 09, 2008	4:00 AM	Property damage only (none injured)	1	0	0	Single vehicle crash	Wet	Dark - lighted roadway	SOLDIERS FIELD ROAD / CAMBRIDGE STREET / RIVER STREET		V1:Northbound	V1: Not reported	V1: Travelling straight ahead	V1: Passenger car	
18/19	Tuesday, November 11, 2008	11:10 PM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	Dry	Dark - lighted roadway	SOLDIERS FIELD ROAD / CAMBRIDGE STREET		V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Travelling straight ahead / V2:Changing lanes	V1: Passenger car / V2:Passenger car	

Intersection	Crash Date	Crash Time	Crash Severity	Total Vehicles	Total Injured	Total Fatal	Collision manner	Road Surface	Lighting	Intersection	Distance From Nearest Intersection	Vehicles Travel Directions	Most Harmful Events	Vehicle Action Prior to Crash	Vehicle Configuration	Non Motorist Type
22	Saturday, May 29, 2010	11:30 AM	Non-fatal injury	2	1	0	Sideswipe, same direction	Dry	Daylight	HARVARD AVENUE / CAMBRIDGE STREET		V1.Southbound / V2.Not reported	V1: Collision with moped / V2: Collision with motor vehicle in traffic	V1: Travelling straight ahead / V2:Travelling straight ahead	V1: Passenger car / V2.MOPEL	
22	Sunday, September 19, 2010	2:30 PM	Not Reported	2	0	0	Angle	Water (standing, moving)	Daylight	HARVARD AVENUE / CAMBRIDGE STREET		V1.Not reported / V2:Not reported	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Turning left / V2:Travelling straight ahead	V1: Passenger car / V2.Motorcycle	
22	Wednesday, November 17, 2010	2:20 PM	Non-fatal injury	2	4	0	Rear-end	Dry	Daylight	CAMBRIDGE STREET / HARVARD STREET		V1:Westbound / V2:Westbound	V1: Not reported / V2: Not reported	V1: Travelling straight ahead / V2:Travelling straight ahead	V1: Passenger car / V2:Bus (seats for more than 15 people, including driver)	
22	Saturday, November 15, 2008	6:30 AM	Not Reported	2	0	0	Rear-end	Wet	Dark - lighted roadway	CAMBRIDGE STREET / HARVARD STREET		V1.Northbound / V2:Northbound	V1: Not reported / V2: Not reported	V1: Travelling straight ahead / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
22	Wednesday, March 26, 2008	2:30 AM	Property damage only (none injured)	2	0	0	Not reported	Dry	Daylight	CAMBRIDGE STREET / HARVARD STREET		V1.Northbound / V2:Northbound	V1: Not reported / V2: Not reported	V1: Travelling straight ahead / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
23	2/7/2008	3:39 PM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	Wet	Daylight	SOLDIERS FIELD ROAD / SOLDIERS FIELD ROAD EXTENSION		V1.Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Turning left / V2:Travelling straight ahead	V1: Truck/trailer / V2:Passenger car	
23	3/31/2008	12:01 PM	Property damage only (none injured)	2	0	0	Angle	Wet	Daylight	SOLDIERS FIELD ROAD / SOLDIERS FIELD ROAD EXTENSION		V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Turning left / V2:Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
23	9/10/2008	00:00 AM	Property damage only (none injured)	1	0	0	Single vehicle crash	Wet	Dark - lighted roadway	SOLDIERS FIELD ROAD / SOLDIERS FIELD ROAD EXTENSION		V1:Westbound	V1: Collision with light pole or other post/support	V1: Travelling straight ahead	V1: Passenger car	
23	9/19/2008	3:30 AM	Property damage only (none injured)	1	0	0	Single vehicle crash	Dry	Dark - lighted roadway	SOLDIERS FIELD ROAD / SOLDIERS FIELD ROAD EXTENSION		V1:Westbound	V1: Collision with tree	V1: Travelling straight ahead	V1: Passenger car	
23	5/20/2009	10:00 PM	Property damage only (none injured)	2	0	0	Head-on	Dry	Dark - lighted roadway	SOLDIERS FIELD ROAD EXTENSION / SOLDIERS FIELD ROAD		V1:Eastbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Travelling straight ahead / V2:Other	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	
23	11/18/2010	2:25 PM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	Dry	Daylight	SOLDIERS FIELD ROAD / SOLDIERS FIELD ROAD EXTENSION	SOLDIERS FIELD ROAD / SOLDIERS FIELD ROAD EXTENSION	V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Travelling straight ahead / V2:Overtaking/passing	V1: Passenger car / V2:Passenger car	

Additional non-geolocated crash data																
Intersection	Crash Date	Crash Time	Crash Severity	Total Vehicles	Total Injured	Total Fatal	Collision manner	Road Surface	Lighting	Intersection	Distance From Nearest Intersection	Vehicles Travel Directions	Most Harmful Events	Vehicle Action Prior to Crash	Vehicle Configuration	Non Motorist Type
15	8/17/2008	3:13 PM	Non-fatal injury	1	1	0	Single vehicle crash	Dry	Daylight		SOLDIERS FIELD ROAD / WESTERN AVENUE	V1:Eastbound	V1: Collision with curb	V1: Travelling straight ahead	V1: Motorcycle	
15	9/14/2008	10:20 AM	Property damage only (none injured)	1	0	0	Single vehicle crash	Wet	Daylight		SOLDIERS FIELD ROAD / WESTERN AVENUE	V1:Eastbound	V1: Collision with median barrier	V1: Travelling straight ahead	V1: Passenger car	
15	9/19/2008	5:30 PM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Daylight		SOLDIERS FIELD ROAD / WESTERN AVENUE	V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Slowing or stopped in traffic / V2: Travelling straight ahead	V1: Passenger car / V2: Passenger car	
15	2/20/2009	9:23 PM	Non-fatal injury	3	2	0	Head-on	Dry	Dark - lighted roadway		SOLDIERS FIELD ROAD / WESTERN AVENUE	V1:Eastbound / V2:Westbound / V3:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic	V1: Travelling straight ahead / V2: Travelling straight ahead / V3: Travelling straight ahead	V1: Passenger car / V2: Passenger car / V3: Passenger car	
15	3/6/2009	10:40 PM	Non-fatal injury	2	2	0	Sideswipe, same direction	Dry	Dark - lighted roadway		SOLDIERS FIELD ROAD / WESTERN AVENUE	V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Travelling straight ahead / V2: Turning right	V1: Passenger car / V2: Passenger car	
15	3/29/2009	5:45 PM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight		SOLDIERS FIELD ROAD / WESTERN AVENUE	V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Travelling straight ahead / V2: Changing lanes	V1: Passenger car / V2: Passenger car	
15	4/17/2009	8:18 AM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Daylight		SOLDIERS FIELD ROAD / WESTERN AVENUE	V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Slowing or stopped in traffic / V2: Slowing or stopped in traffic	V1: Passenger car / V2: Not reported	
15	5/14/2009	7:31 AM	Not Reported	2	0	0	Angle	Dry	Daylight	WESTERN AVENUE / SOLDIERS FIELD ROAD		V1:Southbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Changing lanes / V2: Travelling straight ahead	V1: Passenger car / V2: Passenger car	
15	5/29/2009	00:00 AM	Property damage only (none injured)	2	0	0	Angle	Dry	Dark - lighted roadway		SOLDIERS FIELD ROAD / WESTERN AVENUE	V1:Southbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Travelling straight ahead / V2: Travelling straight ahead	V1: Passenger car / V2: Passenger car	
15	8/30/2009	2:37 PM	Property damage only (none injured)	5	0	0	Rear-end	Dry	Daylight		SOLDIERS FIELD ROAD / WESTERN AVENUE	V1:Eastbound / V2:Eastbound / V3:Eastbound / V4:Eastbound / V5:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic / V4: Collision with motor vehicle in traffic / V5: Collision with motor vehicle in traffic	V1: Travelling straight ahead / V2: Slowing or stopped in traffic / V3: Slowing or stopped in traffic / V4: Slowing or stopped in traffic / V5: Slowing or stopped in traffic	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2: Passenger car / V3: Passenger car / V4: Passenger car / V5: Passenger car	
15	10/3/2009	11:40 AM	Non-fatal injury	1	1	0	Single vehicle crash	Wet	Daylight		SOLDIERS FIELD ROAD / WESTERN AVENUE	V1:Eastbound	V1: Collision with curb	V1: Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
15	10/3/2009	3:52 PM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	Wet	Daylight		SOLDIERS FIELD ROAD / WESTERN AVENUE	V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Travelling straight ahead / V2: Travelling straight ahead	V1: Passenger car / V2: Passenger car	
15	11/20/2009	6:40 AM	Non-fatal injury	1	1	0	Single vehicle crash	Wet	Daylight		SOLDIERS FIELD ROAD / WESTERN AVENUE	V1:Eastbound	V1: Collision with curb	V1: Travelling straight ahead	V1: Passenger car	
15	1/24/2009	9:45 AM	Not Reported	1	0	0	Not reported	Wet	Daylight		SOLDIERS FIELD ROAD / WESTERN AVENUE	V1:Eastbound	V1: Not reported	V1: Turning right	V1: Passenger car	
16	9/29/2008	9:18 AM	Non-fatal injury	1	1	0	Single vehicle crash	Wet	Daylight		SOLDIERS FIELD ROAD / WESTERN AVENUE	V1:Westbound	V1: Collision with guardrail	V1: Slowing or stopped in traffic	V1: Passenger car	
16	1/26/2009	9:38 AM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight	WESTERN AVENUE / SOLDIERS FIELD ROAD		V1:Southbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Travelling straight ahead / V2: Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2: Passenger car	
16	7/21/2010	3:59 PM	Property damage only (none injured)	1	0	0	Single vehicle crash	Wet	Daylight		SOLDIERS FIELD ROAD / WESTERN AVENUE	V1:Westbound	V1: Collision with guardrail	V1: Turning left	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
16	9/12/2009	2:20 PM	Non-fatal injury	1	1	0	Single vehicle crash	Wet	Daylight		SOLDIERS FIELD ROAD / WESTERN AVENUE	V1:Westbound	V1: Not reported	V1: Travelling straight ahead	V1: Not reported	
23	2/7/2008	3:39 PM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	Wet	Daylight	SOLDIERS FIELD ROAD / SOLDIERS FIELD ROAD EXTENSION		V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Turning left / V2: Travelling straight ahead	V1: Truck/trailer / V2: Passenger car	

Crash data for Intersections 15/16 and 23 that was non-geolocated was not included in the summary due to the fact that these roadways intersect in multiple locations both within and outside of the study area.

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Boston (Brighton), MA COUNT DATE : 4/3/2012 & 4/5/2012

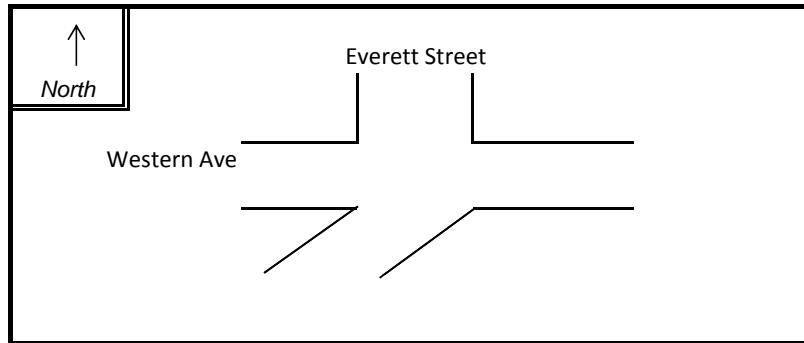
DISTRICT : 6 UNSIGNALIZED : SIGNALIZED : 0.77

~ INTERSECTION DATA ~

MAJOR STREET : Western Ave

MINOR STREET(S) : Everett Street

**INTERSECTION
 DIAGRAM
 (Label Approaches)**



PEAK HOUR VOLUMES

	1	2	3	4	5	Total Peak Hourly Approach Volume
APPROACH :						
DIRECTION :	NB	SB	WB	EB		
PEAK HOURLY VOLUMES (PM) :	299	251	741	741		2,032

" K " FACTOR :

0.090	INTERSECTION ADT (V) = TOTAL DAILY APPROACH VOLUME :	22,578
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TOTAL # OF CRASHES :

10	# OF YEARS :	3	AVERAGE # OF CRASHES PER YEAR (A) :	3.33
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CRASH RATE CALCULATION :

0.40

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

Comments : 2008 - 2010 MassDOT Crash Data
 Project Title & Date : 10463.00 Samuels Barrys Corner

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Boston, MA COUNT DATE : 4/2012

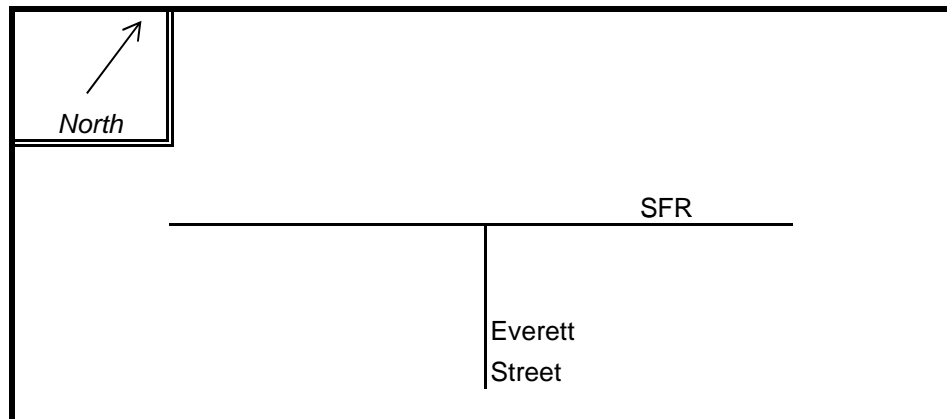
DISTRICT : 6 UNSIGNALIZED : SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Soldiers Field Road

MINOR STREET(S) : Everett Street

**INTERSECTION
DIAGRAM
(Label Approaches)**



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4		Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	NB	SB		
PEAK HOURLY VOLUMES (AM/PM) :	1,360	1,625	230	189		3,404

" K " FACTOR : INTERSECTION ADT (V) = TOTAL DAILY APPROACH VOLUME :

TOTAL # OF CRASHES : # OF YEARS : AVERAGE # OF CRASHES PER YEAR (A) :

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

Comments : _____

Project Title & Date: 10463.00:: Harvard University IMP

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Boston (Allston), MA COUNT DATE : 4/3/2012 & 4/5/2012

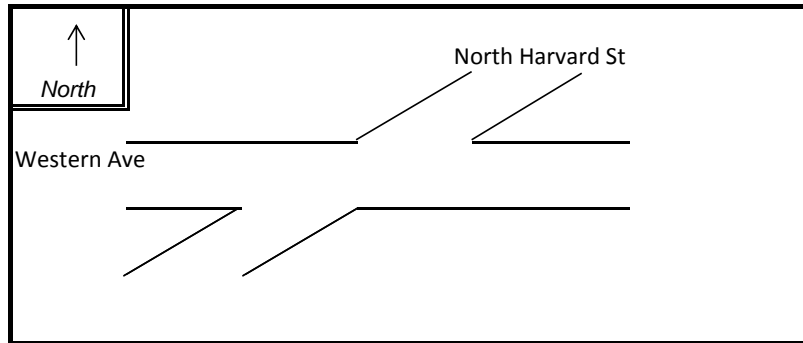
DISTRICT : 6 UNSIGNALIZED : SIGNALIZED : 0.77

~ INTERSECTION DATA ~

MAJOR STREET : Western Ave

MINOR STREET(S) : North Harvard Street

**INTERSECTION
 DIAGRAM
 (Label Approaches)**



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	NB	SB	WB	EB		
PEAK HOURLY VOLUMES (PM) :	526	412	537	462		1,937

" K " FACTOR :

0.090	INTERSECTION ADT (V) = TOTAL DAILY APPROACH VOLUME :	21,522
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TOTAL # OF CRASHES :

11	# OF YEARS :	3	AVERAGE # OF CRASHES PER YEAR (A) :	3.67
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CRASH RATE CALCULATION :

0.47

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

Comments : 2008 - 2010 MassDOT Crash Data
 Project Title & Date: 10463.00 Samuels Barrys Corner

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Boston (Allston), MA COUNT DATE : 4/3/2012 & 4/5/2012

DISTRICT : 6 UNSIGNALIZED : SIGNALIZED :
0.77

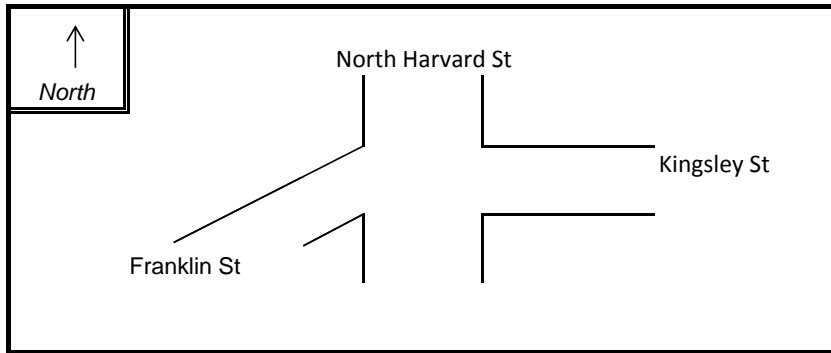
~ INTERSECTION DATA ~

MAJOR STREET : North Harvard Street

MINOR STREET(S) : Franklin Street

Kingsley Street

**INTERSECTION
 DIAGRAM
 (Label Approaches)**



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	NB	SB	WB	EB		
PEAK HOURLY VOLUMES (PM) :	490	567	28	75		1,160

" K " FACTOR : INTERSECTION ADT (V) = TOTAL DAILY APPROACH VOLUME :

TOTAL # OF CRASHES : # OF YEARS : AVERAGE # OF CRASHES PER YEAR (A) :

CRASH RATE CALCULATION :

0.07

$$\text{RATE} = \frac{(A * 1,000,000)}{V * 365} \quad ($$

Comments : 2008 - 2010 MassDOT Crash Data
 Project Title & Date: 10463.00 Samuels Barrys Corner



INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Boston (Allston), MA COUNT DATE : 4/3/2012 & 4/5/2012

DISTRICT : 6 UNSIGNALIZED : 0.57 SIGNALIZED : 0.77

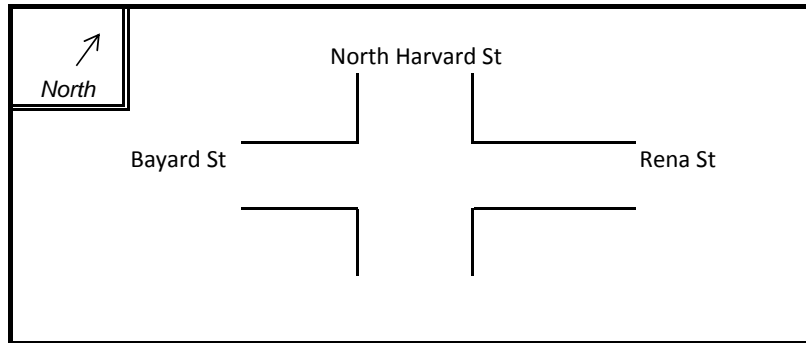
~ INTERSECTION DATA ~

MAJOR STREET : North Harvard Street

MINOR STREET(S) : Bayard Street

Rena Street

**INTERSECTION
DIAGRAM
(Label Approaches)**



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	NB	SB	WB	EB		
PEAK HOURLY VOLUMES (PM) :	507	568	2	11		1,088

" K " FACTOR :

0.090	INTERSECTION ADT (V) = TOTAL DAILY APPROACH VOLUME :	12,089
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TOTAL # OF CRASHES :

3	# OF YEARS :	3	AVERAGE # OF CRASHES PER YEAR (A) :	1.00
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CRASH RATE CALCULATION :

0.23

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

Comments : 2008 - 2010 MassDOT Crash Data
 Project Title & Date: 10463.00 Samuels Barrys Corner

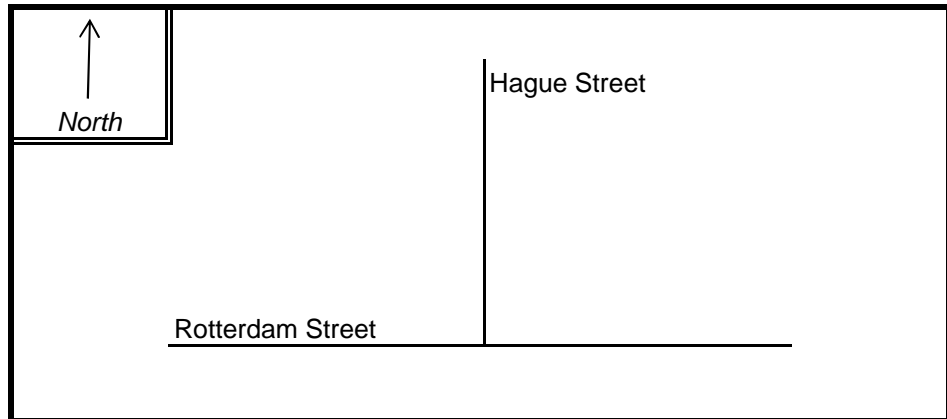
INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Boston, MA COUNT DATE : 4/2012
 DISTRICT : 6 UNSIGNALIZED : **X** SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Rotterdam Street
 MINOR STREET(S) : Hague Street

**INTERSECTION
 DIAGRAM
 (Label Approaches)**



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	NB	SB	
PEAK HOURLY VOLUMES (AM/PM) :	150	5	13	44	212

" K " FACTOR :

0.090

INTERSECTION ADT (V) = TOTAL DAILY APPROACH VOLUME :

2,356

TOTAL # OF CRASHES :

0

OF YEARS :

3

AVERAGE # OF CRASHES PER YEAR (A) :

0.00

CRASH RATE CALCULATION :

0.00

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

Comments : _____

Project Title & Date: 10463.00:: Harvard University IMP

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Boston (Allston), MA COUNT DATE : 4/3/2012 & 4/5/2012

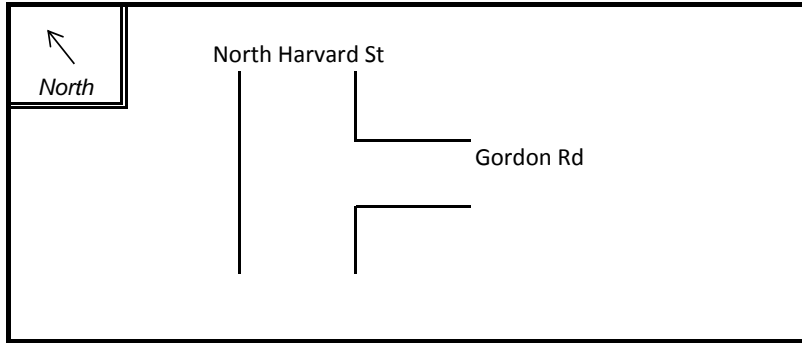
DISTRICT : 6 UNSIGNALIZED : 0.57 SIGNALIZED : 0.77

~ INTERSECTION DATA ~

MAJOR STREET : North Harvard Street

MINOR STREET(S) : Gordon Road

**INTERSECTION
 DIAGRAM
 (Label Approaches)**



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	NB	SB	WB			
PEAK HOURLY VOLUMES (PM) :	523	413	106			1,042

" K " FACTOR :

0.090	INTERSECTION ADT (V) = TOTAL DAILY APPROACH VOLUME :	11,578
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TOTAL # OF CRASHES :

1	# OF YEARS :	3	AVERAGE # OF CRASHES PER YEAR (A) :	0.33
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CRASH RATE CALCULATION :

0.08

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

Comments : 2008 - 2010 MassDOT Crash Data
 Project Title & Date: 10463.00 Samuels Barrys Corner

INTERSECTION CRASH RATE WORKSHEET

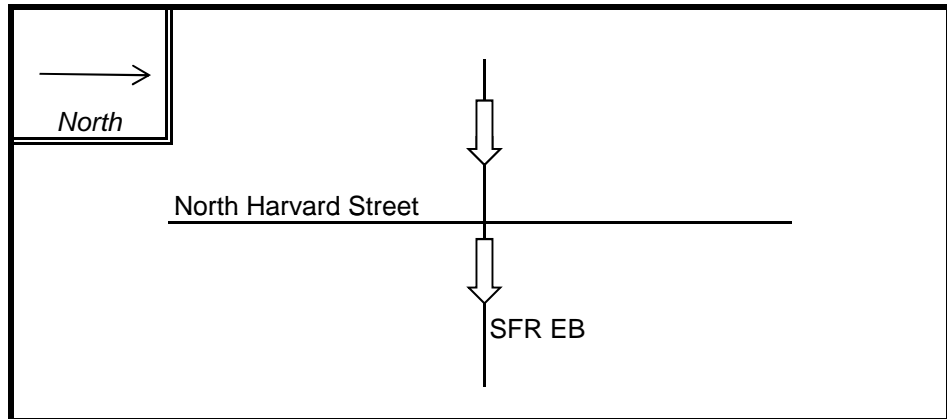
CITY/TOWN : Boston, MA COUNT DATE : 4/2012

DISTRICT : 6 UNSIGNALIZED : SIGNALIZED : **X**

~ INTERSECTION DATA ~

MAJOR STREET : Soldiers Field Road EB

MINOR STREET(S) : North Harvard Street



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4		Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	NB	SB		
PEAK HOURLY VOLUMES (AM/PM) :						

" K " FACTOR : INTERSECTION ADT (V) = TOTAL DAILY APPROACH VOLUME :

TOTAL # OF CRASHES : # OF YEARS : AVERAGE # OF CRASHES PER YEAR (A) :

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

Comments : _____

Project Title & Date: 10463.00:: Harvard University IMP

INTERSECTION CRASH RATE WORKSHEET

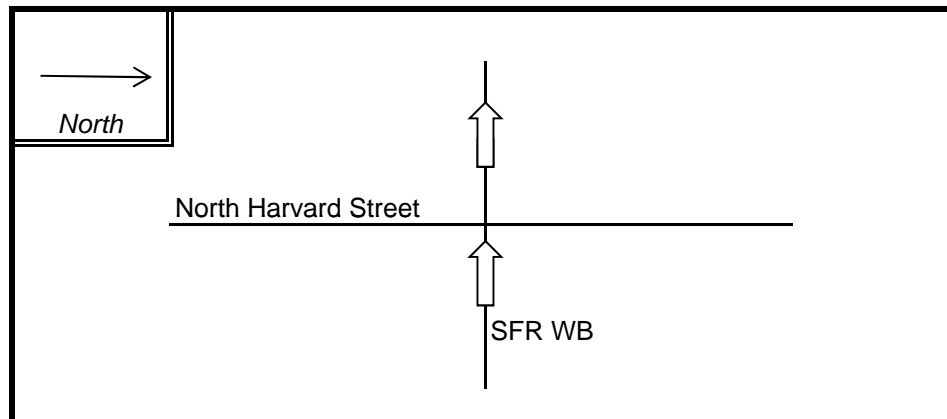
CITY/TOWN : Boston, MA COUNT DATE : 4/2012
DISTRICT : 6 UNSIGNALIZED : SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Soldiers Field Road WB

MINOR STREET(S) : North Harvard Street

INTERSECTION
DIAGRAM
(Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	NB	SB	
PEAK HOURLY VOLUMES (AM/PM) :					

" K " FACTOR :

0.090

INTERSECTION ADT (V) = TOTAL DAILY APPROACH VOLUME :

#VALUE!

TOTAL # OF CRASHES :

OF YEARS :

3

AVERAGE # OF CRASHES PER YEAR (A) :

0.00

CRASH RATE CALCULATION :

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

Comments : _____

Project Title & Date: 10463.00:: Harvard University IMP

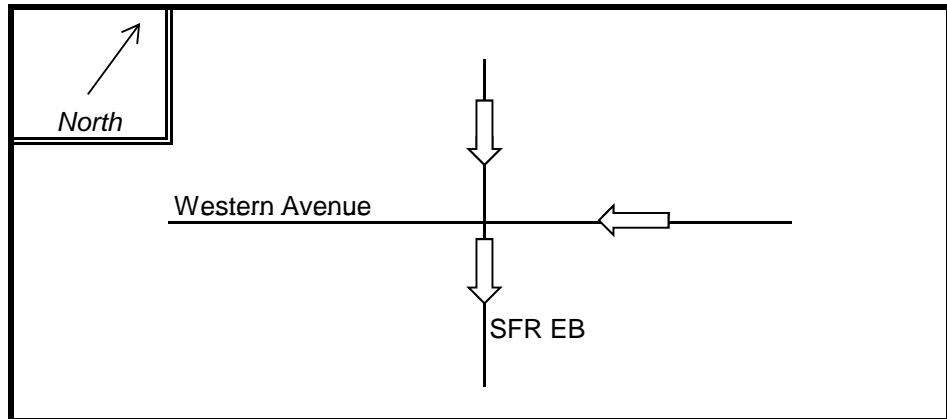
INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Boston, MA COUNT DATE : 4/2012
 DISTRICT : 6 UNSIGNALIZED : SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Soldiers Field Road EB
 MINOR STREET(S) : Western Avenue

**INTERSECTION
 DIAGRAM
 (Label Approaches)**



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4		Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	NB	SB		
PEAK HOURLY VOLUMES (AM/PM) :						

" K " FACTOR : INTERSECTION ADT (V) = TOTAL DAILY APPROACH VOLUME :

TOTAL # OF CRASHES : # OF YEARS : AVERAGE # OF CRASHES PER YEAR (A) :

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

Comments : _____
 Project Title & Date: 10463.00:: Harvard University IMP

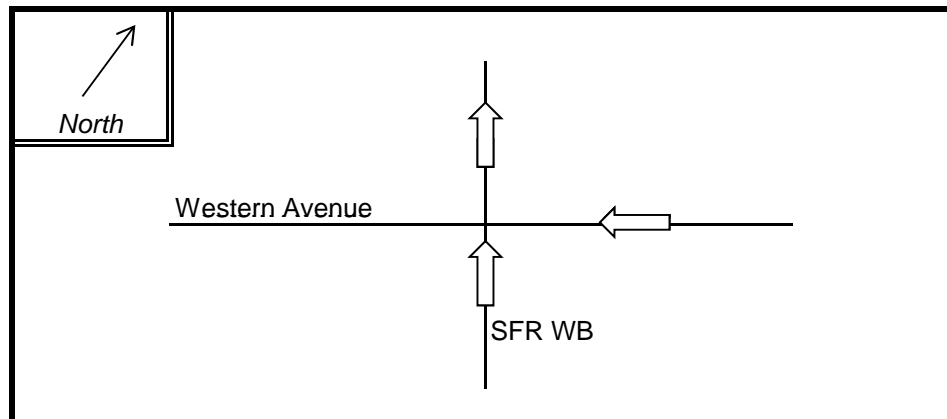
INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Boston, MA COUNT DATE : 4/2012
 DISTRICT : 6 UNSIGNALIZED : SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Soldiers Field Road WB
 MINOR STREET(S) : Western Avenue

**INTERSECTION
 DIAGRAM
 (Label Approaches)**



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	NB	SB	
PEAK HOURLY VOLUMES (AM/PM) :					

" K " FACTOR : INTERSECTION ADT (V) = TOTAL DAILY APPROACH VOLUME :

TOTAL # OF CRASHES : # OF YEARS : AVERAGE # OF CRASHES PER YEAR (A) :

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

Comments : _____

Project Title & Date: 10463.00:: Harvard University IMP

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Boston, MA COUNT DATE : 4/2012

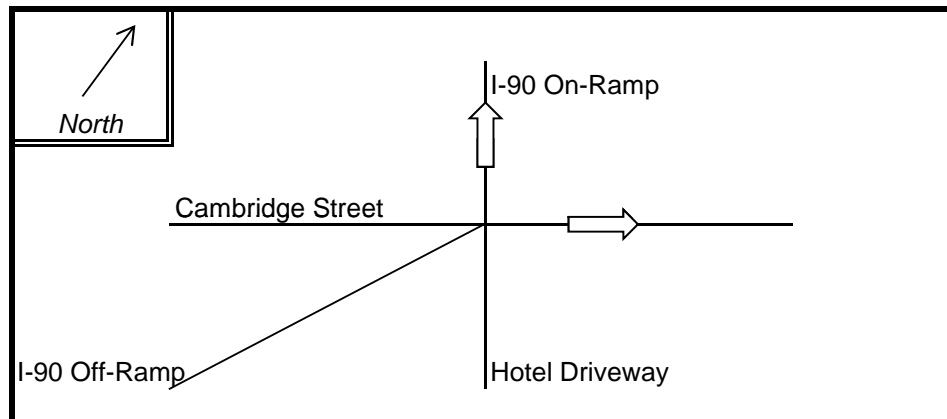
DISTRICT : 6 UNSIGNALIZED : SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : I-90 On-Ramp/Hotel Driveway

MINOR STREET(S) : Cambridge Street

**INTERSECTION
DIAGRAM
(Label Approaches)**



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	NB	SB	NE	
PEAK HOURLY VOLUMES (AM/PM) :	772	691	70	1,354	1,083	

" K " FACTOR :

0.090

INTERSECTION ADT (V) = TOTAL DAILY
APPROACH VOLUME :

44,111

TOTAL # OF CRASHES :

2

OF
YEARS :

3

AVERAGE # OF
CRASHES PER YEAR (A) :

0.67

CRASH RATE CALCULATION :

0.04

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

Comments : _____

Project Title & Date: 10463.00:: Harvard University IMP

INTERSECTION CRASH RATE WORKSHEET

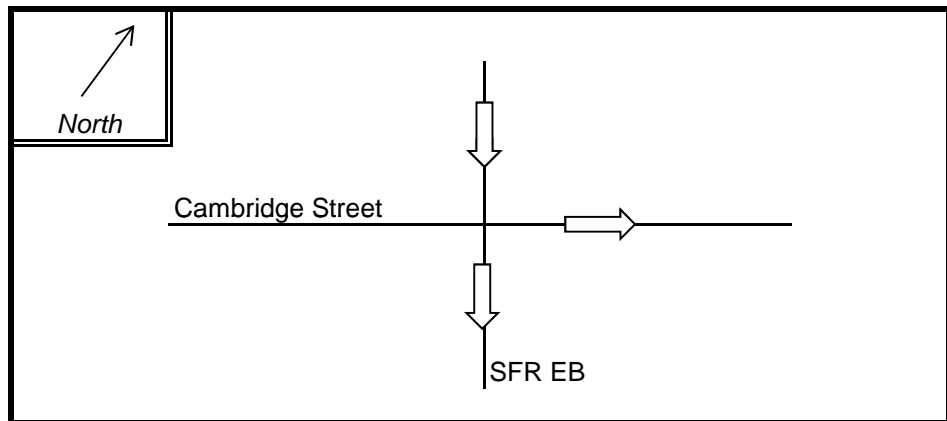
CITY/TOWN : Boston, MA COUNT DATE : 4/2012

DISTRICT : 6 UNSIGNALIZED : SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Soldiers Field Road EB

MINOR STREET(S) : Cambridge Street



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	NB	SB		
PEAK HOURLY VOLUMES (AM/PM) :						

" K " FACTOR : INTERSECTION ADT (V) = TOTAL DAILY APPROACH VOLUME :

TOTAL # OF CRASHES : # OF YEARS : AVERAGE # OF CRASHES PER YEAR (A) :

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

Comments : _____

Project Title & Date: 10463.00:: Harvard University IMP

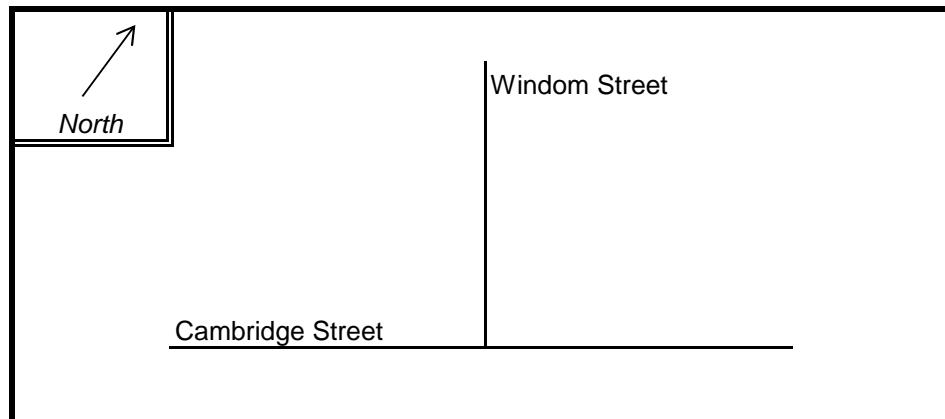
INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Boston, MA COUNT DATE : 4/2012
 DISTRICT : 6 UNSIGNALIZED : SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Cambridge Street
 MINOR STREET(S) : Windom Street

**INTERSECTION
DIAGRAM
(Label Approaches)**



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4		Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	NB	SB		
PEAK HOURLY VOLUMES (AM/PM) :	641	1,729	0	147		2,517

" K " FACTOR : INTERSECTION ADT (V) = TOTAL DAILY APPROACH VOLUME :

TOTAL # OF CRASHES : # OF YEARS : AVERAGE # OF CRASHES PER YEAR (A) :

CRASH RATE CALCULATION :

0.03

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

Comments : _____

Project Title & Date: 10463.00: Harvard University IMP



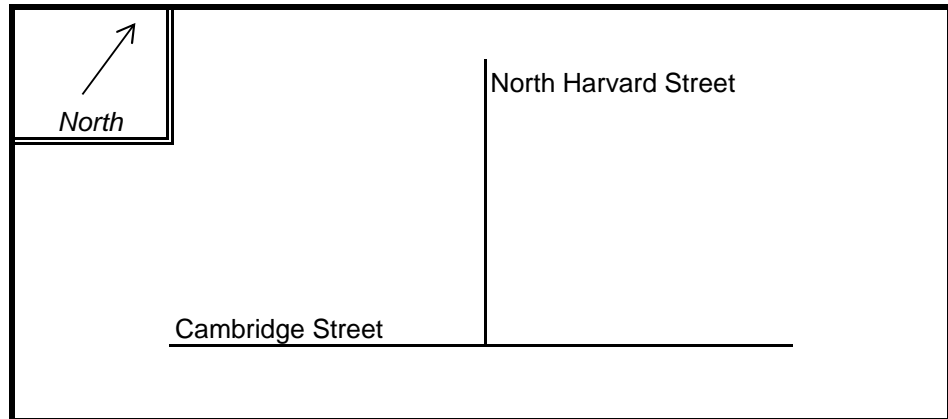
INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Boston, MA COUNT DATE : 4/2012
DISTRICT : 6 UNSIGNALIZED : SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Cambridge Street
MINOR STREET(S) : North Harvard Street

**INTERSECTION
DIAGRAM
(Label Approaches)**



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	NB	SB	
PEAK HOURLY VOLUMES (AM/PM) :	1,503	1,437	0	520	3,460

" K " FACTOR : INTERSECTION ADT (V) = TOTAL DAILY APPROACH VOLUME :

TOTAL # OF CRASHES : # OF YEARS : AVERAGE # OF CRASHES PER YEAR (A) :

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

Comments : _____
Project Title & Date: 10463.00:: Harvard University IMP

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Boston, MA COUNT DATE : 4/2012

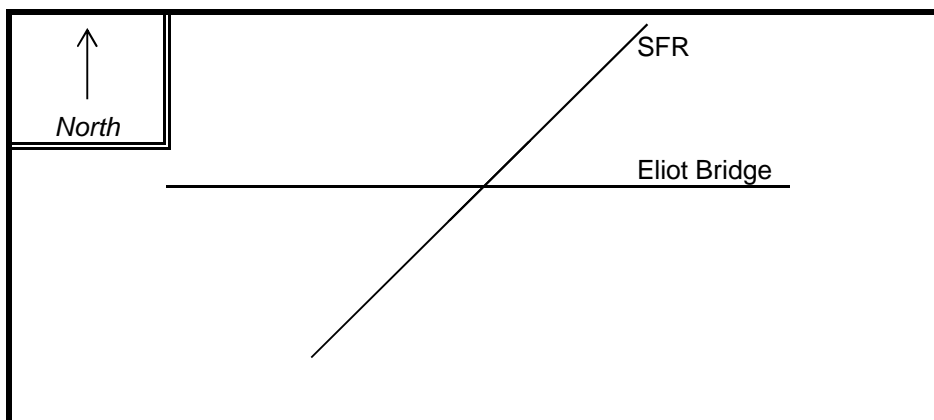
DISTRICT : 6 UNSIGNALIZED : SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Soliders Field Road

MINOR STREET(S) : Eliot Bridge

**INTERSECTION
 DIAGRAM
 (Label Approaches)**



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4		Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	NB	SB		
PEAK HOURLY VOLUMES (AM/PM) :	1,879	3,273	1,407	0		6,559

" K " FACTOR : INTERSECTION ADT (V) = TOTAL DAILY APPROACH VOLUME :

TOTAL # OF CRASHES : # OF YEARS : AVERAGE # OF CRASHES PER YEAR (A) :

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

Comments : _____

Project Title & Date: 10463.00:: Harvard University IMP

Background Traffic
Historical Annual Growth
Background Project Growth

Seasonal Adjustment Factor: **0.96**

2008 Count Data

Location	Daily Weekday	AM Volume	PM Volume
Western Avenue west of Hague Street	12,384	869	965
Cambridge Street east of Windom	27,072	2,026	2,266
Western Avenue east of Everett Street	17,664	1,267	1,397
Total	57,120	4,162	4,627

Seasonal Adjustment Factor: **0.93**

2012 Count Data

Location	Daily Weekday	AM Volume	PM Volume
Western Avenue west of Hague Street	11,608	834	888
Cambridge Street east of Windom	29,177	2,007	2,365
Western Avenue between East of Everett Street	18,776	1,381	1,449
Total	59,561	4,222	4,702

Comparison

Percent Increase (2008 to 2012)			Annual Increase (2008 to 2012)		
Daily	AM	PM	Daily	AM	PM
-6.3%	-4.0%	-7.9%	-1.6%	-1.0%	-2.0%
7.8%	-0.9%	4.4%	1.9%	-0.2%	1.1%
6.3%	9.0%	3.7%	1.5%	2.2%	0.9%
4.3%	1.5%	1.6%	1.1%	0.4%	0.4%

Estimated Vehicle-Trip Generation

The vehicle-trip generation for the Science Complex was estimated by applying an automobile mode share of 59 percent and a vehicle occupancy rate (VOR) of 1.10⁸ to the employee person-trip generation estimate. These vehicle-trips were reduced by the displaced vehicle-trips to estimate the new vehicle-trips to the study area roadway network.

The results of the estimated vehicle-trip generation analysis are summarized in Table 3-13.

Table 3-13: Estimated Vehicle-Trip Generation

Period/Direction	Science Complex Vehicle-Trips ¹	Displaced Vehicle-Trips ²	Net New Vehicle-Trips
Morning Peak Hour			
Entering	200	-450	-250
<u>Exiting</u>	<u>30</u>	<u>-55</u>	<u>-25</u>
Total	230	-505	-275
Evening Peak Hour			
Entering	20	-60	-40
<u>Exiting</u>	<u>200</u>	<u>-335</u>	<u>-135</u>
Total	220	-395	-175
Weekday Daily			
Total	1,480	-2,950	-1,470

1 Based on applying an automobile mode share of 59 percent and a vehicle occupancy rate (VOR) of 1.10 to the employee person-trip generation estimate.

2 Trips displaced by Science Complex development.

Table 3-13 indicates that with the Science Complex in place, approximately 275 and 175 net vehicle-trips are expected to be removed from the study area roadways during the morning and evening peak hours, respectively.

Estimated Transit- and Bicycle/Pedestrian-Trip Generation

As indicated in the mode split discussion, 18 percent of the estimated person-trips would use transit to access the Science Complex, while 23 percent would ride a bicycle or walk. As such, it is estimated that 75 transit-trips would be generated by the Project during each of the morning and evening peak hours, and 100 and 95 people would ride a bicycle or walk to and from the site during each of the respective peak hours.

⁸ Based on 2004 DEP Rideshare and 2000 U.S. Census data.

The Project will generate approximately 1,564 vehicle trips per day (782 entering vehicles and 782 exiting vehicles), including 98 vehicle trips (23 in and 75 out) during the a.m. peak hour and 132 vehicle trips (82 in and 50 out) during the p.m. peak hour.

It should be noted that not all of these trips will be new trips; the Project will replace 213 existing residential apartment units at the Charlesview complex, currently located on Western Avenue approximately 0.5-mile east of the Project site. Vehicle trips associated with the existing Charlesview are already on the adjacent roadway network and would only be displaced with the Project.

Table 3-11 compares the vehicle trip generation of the proposed Project with that of the existing Charlesview complex.

Table 3-11 Net New Vehicle Trip Generation

Period/Direction		Displaced Trips (Existing Charlesview)	Project-generated Trips (Brighton Mills and Telford Street Sites)	Net New Vehicle Trips
Daily	In	391	782	391
	Out	391	782	391
	Total	782	1564	782
a.m. Peak Hour	In	9	23	14
	Out	44	75	31
	Total	53	98	45
p.m. Peak Hour	In	44	82	38
	Out	21	50	29
	Total	65	132	67

As shown in the table above, 50% of the vehicle trips associated with the Project are already traveling on the adjacent roadway network. The proposed Project will result in a net increase of only 45 vehicle trips (14 trips in and 31 trips out) during the a.m. peak hour and 67 vehicle trips (38 trips in and 29 trips out) during the p.m. peak hour. This corresponds to an increase of only approximately one new vehicle trip per minute.

However, to provide a conservative estimate, no credit was taken for the vehicle trips associated with the existing Charlesview complex for the intersection capacity analysis.

3.2.2.3 As-of-Right Use

The trip generation for the proposed Project was also compared to that of the existing as-of-right uses on-site, approximately 145,700 sf of retail space on the Brighton Mills site and approximately 18,300 sf of office space on the Telford Street site (**Table 3-12**).

Swiss Bakers Development - Trip Generation

Allston, MA

10463.00

Assumptions

Development Type ITE Land Use Code Size	Back of House Bakery 140 (ksf)				Café 932 (ksf)			
	12				2			
Direction	Mode Share ^a				Mode Share ^a			
	VOR ^b	Vehicle	Transit	Walk/Bike	VOR ^c	Vehicle	Transit	Walk/Bike
Weekday Daily	1.1	69%	12%	19%	1.8	52%	8%	40%
Weekday AM								
Enter	1.1	59%	18%	23%	1.8	43%	11%	46%
Exit	1.1	65%	12%	23%	1.8	47%	7%	46%
Weekday PM								
Enter	1.1	65%	12%	23%	1.8	47%	7%	46%
Exit	1.1	59%	18%	23%	1.8	43%	11%	46%

a - Access Boston Mode Share by Purpose and Time of Day for Area 17: Allston

b - New Brighton Landing Expanded PNF, based on 2000 Census Data

c - New Brighton Landing Expanded PNF, based on 2009 National Household Travel Survey

Barrys Corner Mixed Use Development - Trip Generation
Allston, MA
 10463.00

Trip Generation by Mode (no credits)

Development Type ITE Land Use Code Size	Back of House Bakery 140 (ksf) 12 ksf				Café 932 (ksf) 2 ksf			
	Person Trips ^a	Vehicle Trips ^b	Transit Trips ^c	Walk/Bike Trips ^d	Person Trips	Vehicle Trips	Transit Trips	Walk/Bike Trips
Weekday Daily	50	31	6	10	458	132	37	183
Weekday AM								
Enter	8	4	1	2	22	5	2	10
Exit	<u>2</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>20</u>	<u>5</u>	<u>1</u>	<u>9</u>
Total	10	5	1	2	42	10	3	19
Weekday PM								
Enter	3	2	0	1	24	6	2	11
Exit	<u>6</u>	<u>3</u>	<u>1</u>	<u>1</u>	<u>16</u>	<u>4</u>	<u>2</u>	<u>7</u>
Total	9	5	1	2	40	10	4	18

a - Person Trips = ITE Trips * VOR
 b - Vehicle Trips = (Person Trips * Vehicle Mode Share)/VOR
 c - Transit Trips = Person Trips * Transit Mode Share
 d - Walk/Bike Trips = Person Trips * Walk/Bike Mode Share

Swiss Bakers Development - Trip Generation

Allston, MA

10463.00

Pass-By Rate: 25%

Vehicle Trip Generation Summary

Development Type ITE Land Use Code Size Type of Trip	Bakery ^a	Cafe ^b		Total New Vehicle Trips	
	140 12 ksf Vehicle Trips	Vehicle Trips	Pass-By Trips		Vehicle - Pass-by
Weekday Daily^c	31	132	35	97	128
Weekday AM^d					
Enter	4	5	0	5	9
<u>Exit</u>	<u>1</u>	<u>5</u>	<u>0</u>	<u>5</u>	<u>6</u>
Total	5	10	0	10	15
Weekday PM^d					
Enter	2	6	0	6	8
<u>Exit</u>	<u>3</u>	<u>4</u>	<u>0</u>	<u>4</u>	<u>7</u>
Total	5	10	0	10	15

a - Institute of Transportation Engineers, Trip Generation, 8th Edition - Land Use Code 140 [manufacturing] 12 ksf; average rates

b - Institute of Transportation Engineers, Trip Generation, 8th Edition - Land Use Code 932 [high-turnover, sit-down restaurant] 2 ksf; average rates

c - expressed in vehicles per day

d - expressed in vehicles per hour

Check: Pass-by no more than 10% of Western Avenue volume

Western Ave +		
North Harvard St	Volumes	10%
Weekday Daily	20,200	2,020
AM	1,485	149
PM	1,560	156

ITE TRIP GENERATION WORKSHEET
 (7th Edition, Updated January 2004)

LANDUSE: Manufacturing
 LANDUSE CODE: 140

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

JOB NAME: **Swiss Bakers Development - Trip Generation** FLOOR AREA (KSF): 12.0
 JOB NUMBER: **10463.00**

WEEKDAY

RATES:	# Studies	R^2	Total Trip Ends			Independent Variable Range			Directional Distribution	
			Average	Low	High	Average	Low	High	Enter	Exit
DAILY	62	0.87	3.82	0.50	52.05	349	0	2,200	50%	50%
AM PEAK (ADJACENT ST)	51	0.67	0.73	0.10	8.75	293	0	1,775	78%	22%
PM PEAK (ADJACENT ST)	56	0.75	0.73	0.07	7.85	318	0	2,100	36%	64%

TRIPS:		BY AVERAGE			BY REGRESSION		
		Total	Enter	Exit	Total	Enter	Exit
	DAILY	46	23	23	26	13	13
	AM PEAK (ADJACENT ST)	9	7	2	-20	-15	-4
	PM PEAK (ADJACENT ST)	9	3	6	-7	-2	-4

SATURDAY

RATES:	# Studies	R^2	Total Trip Ends			Independent Variable Range			Directional Distribution	
			Average	Low	High	Average	Low	High	Enter	Exit
DAILY	2	--	1.49	0.88	6.42	483	100	850	50%	50%
PEAK OF GENERATOR	2	--	0.28	0.20	0.94	483	100	850	NA	NA

Distribution Not Available

TRIPS:		BY AVERAGE			BY REGRESSION		
		Total	Enter	Exit	Total	Enter	Exit
	DAILY	18	9	9	--	--	--
	PEAK OF GENERATOR	3	NA	NA	--	--	--

SUNDAY

RATES:	# Studies	R^2	Total Trip Ends			Independent Variable Range			Directional Distribution	
			Average	Low	High	Average	Low	High	Enter	Exit
DAILY	2	--	0.62	0.07	5.09	483	100	850	50%	50%
PEAK OF GENERATOR	2	--	0.09	0.01	0.75	483	100	850	NA	NA

Distribution Not Available

TRIPS:		BY AVERAGE			BY REGRESSION		
		Total	Enter	Exit	Total	Enter	Exit
	DAILY	7	4	4	--	--	--
	PEAK OF GENERATOR	1	NA	NA	--	--	--

ITE TRIP GENERATION WORKSHEET
(8th Edition, Updated 2012)

LANDUSE: High-Turnover (Sit-Down) Restaurant
LANDUSE CODE: 932 Independent Variable --- 1,000 Sq. Feet Gross Floor Area

JOB NAME: Swiss Bakers Development - Trip Generation
JOB NUMBER: 10463.00 **FLOOR AREA (KSF):** 2.0

WEEKDAY

RATES:	# Studies	R^2	Total Trip Ends			Independent Variable Range			Directional Distribution	
			Average	Low	High	Average	Low	High	Enter	Exit
DAILY	14	--	127.15	73.51	246.00	7	5	12	50%	50%
AM PEAK (ADJACENT ST)	18	--	11.52	2.83	25.60	6	3	11	52%	48%
PM PEAK (ADJACENT ST)	46	--	11.15	2.80	62.00	6	2	14	59%	41%

TRIPS:		BY AVERAGE			BY REGRESSION		
		Total	Enter	Exit	Total	Enter	Exit
	DAILY	254	127	127	NA	NA	NA
	AM PEAK (ADJACENT ST)	23	12	11	NA	NA	NA
	PM PEAK (ADJACENT ST)	22	13	9	NA	NA	NA

SATURDAY

RATES:	# Studies	R^2	Total Trip Ends			Independent Variable Range			Directional Distribution	
			Average	Low	High	Average	Low	High	Enter	Exit
DAILY	2	--	158.37	144.60	172.71	5	4	5	50%	50%
PEAK OF GENERATOR	8	--	14.07	4.44	50.40	4	3	5	53%	47%

TRIPS:		BY AVERAGE			BY REGRESSION		
		Total	Enter	Exit	Total	Enter	Exit
	DAILY	317	158	158	NA	NA	NA
	PEAK OF GENERATOR	28	15	13	NA	NA	NA

SUNDAY

RATES:	# Studies	R^2	Total Trip Ends			Independent Variable Range			Directional Distribution	
			Average	Low	High	Average	Low	High	Enter	Exit
DAILY	2	--	131.84	119.38	143.80	5	4	5	50%	50%
PEAK OF GENERATOR	3	--	18.46	9.79	43.20	4	2	5	55%	45%

TRIPS:		BY AVERAGE			BY REGRESSION		
		Total	Enter	Exit	Total	Enter	Exit
	DAILY	264	132	132	NA	NA	NA
	PEAK OF GENERATOR	37	20	17	NA	NA	NA

Barrys Corner Mixed Use Development - Trip Generation

Allston, MA

10463.00

Assumptions

Development Type ITE Land Use Code Size	Residential 220 (units)				Retail 820 (ksf)			
	325				45			
Direction	Mode Share ^a				Mode Share ^a			
	VOR ^b	Vehicle	Transit	Walk/Bike	VOR ^c	Vehicle	Transit	Walk/Bike
Weekday Daily	1.1	47%	22%	31%	1.8	52%	8%	40%
Weekday AM								
Enter	1.1	37%	30%	33%	1.8	43%	11%	46%
Exit	1.1	43%	21%	36%	1.8	47%	7%	46%
Weekday PM								
Enter	1.1	43%	21%	36%	1.8	47%	7%	46%
Exit	1.1	37%	30%	33%	1.8	43%	11%	46%

a - Access Boston Mode Share by Purpose and Time of Day for Area 17: Allston
 b - Charlesview DPIR, based on 2000 Census Data
 c - New Brighton Landing Expanded PNF, based on 2009 National Household Travel Survey

Barrys Corner Mixed Use Development - Trip Generation
Allston, MA
 10463.00

Trip Generation by Mode (no credits)

Development Type ITE Land Use Code Size	Residential 220 (units) 325 units				Retail 820 (ksf) 45 ksf			
	Person Trips ^a	Vehicle Trips ^b	Transit Trips ^c	Walk/Bike Trips ^d	Person Trips	Vehicle Trips	Transit Trips	Walk/Bike Trips
Weekday Daily	2,300	980	510	710	7,270	2,100	580	2,910
Weekday AM								
Enter	35	10	10	10	105	25	10	50
Exit	<u>145</u>	<u>55</u>	<u>30</u>	<u>50</u>	<u>65</u>	<u>15</u>	<u>5</u>	<u>30</u>
Total	180	65	40	60	170	40	15	80
Weekday PM								
Enter	140	55	30	50	330	85	25	150
Exit	<u>75</u>	<u>25</u>	<u>25</u>	<u>25</u>	<u>340</u>	<u>80</u>	<u>35</u>	<u>155</u>
Total	215	80	55	75	670	165	60	305

a - Person Trips = ITE Trips * VOR
 b - Vehicle Trips = (Person Trips * Vehicle Mode Share)/VOR
 c - Transit Trips = Person Trips * Transit Mode Share
 d - Walk/Bike Trips = Person Trips * Walk/Bike Mode Share

Barrys Corner Mixed Use Development - Trip Generation

Allston, MA
10463.00

Pass-By Rate: 25%

Vehicle Trip Generation Summary

Development Type ITE Land Use Code Size Type of Trip	Residential ^a	Retail ^b		Total New Vehicle Trips	
	220 325 units Vehicle Trips	820 45 ksf Vehicle Trips	Pass-By Trips		Vehicle - Pass-by
Weekday Daily ^c	980	2,100	525	1,575	2,555
Weekday AM ^d					
Enter	10	25	5	20	30
<u>Exit</u>	<u>55</u>	<u>15</u>	<u>5</u>	<u>10</u>	<u>65</u>
Total	65	40	10	30	95
Weekday PM ^d					
Enter	55	85	20	65	120
<u>Exit</u>	<u>25</u>	<u>80</u>	<u>20</u>	<u>60</u>	<u>85</u>
Total	80	165	40	125	205

a - Institute of Transportation Engineers, Trip Generation, 8th Edition - Land Use Code 220 [apartments] 325 units; regression equations

b - Institute of Transportation Engineers, Trip Generation, 8th Edition - Land Use Code 820 [shopping center] 45 ksf; regression equations

c - expressed in vehicles per day

d - expressed in vehicles per hour

Check: Pass-by no more than 10% of Western Avenue + North Harvard Street volumes

Western Ave + North Harvard St		
	Volumes	10%
Weekday Daily	33,600	3,360
AM	2,375	238
PM	2,580	258

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

LANDUSE: Apartment
LANDUSE CODE: 220

Independent Variable --- Number of Units

JOB NAME: **Barrys Corner Mixed Use Peak Hour Traffic on Adjacent Street: 325** units
JOB NUMBER: **10463.00**

WEEKDAY

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

TRIPS:

	BY AVERAGE			BY REGRESSION		
	Total	Enter	Exit	Total	Enter	Exit
DAILY	2,161	1,081	1,081	2093	1047	1047
AM PEAK (ADJACENT ST)	166	33	133	163	33	130
PM PEAK (ADJACENT ST)	202	131	71	196	128	69

SATURDAY

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

TRIPS:

	BY AVERAGE			BY REGRESSION		
	Total	Enter	Exit	Total	Enter	Exit
DAILY	2,077	1,038	1,038	2295	1,148	1,148
PEAK OF GENERATOR	169	NA	NA	152	NA	NA

SUNDAY

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

TRIPS:

	BY AVERAGE			BY REGRESSION		
	Total	Enter	Exit	Total	Enter	Exit
DAILY	1,905	1,038	1,038	1985	993	993
PEAK OF GENERATOR	166	NA	NA	NA	NA	NA

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

LANDUSE: Shopping Center (non-Christmas)
LANDUSE CODE: 820 Independent Variable --- 1,000 Sq. Feet Gross Floor Area

JOB NAME: **Barrys Corner Mixed Use Development** FLOOR AREA (KSF): 45
JOB NUMBER: **10463.00**

WEEKDAY

RATES:	# Studies	R^2	Total Trip Ends			Independent Variable Range			Directional Distribution	
			Average	Low	High	Average	Low	High	Enter	Exit
DAILY	302	0.78	42.94	12.50	270.89	328	0	1,600	50%	50%
AM PEAK (ADJACENT ST)	101	0.52	1.00	0.10	9.05	296	0	1,600	61%	39%
PM PEAK (ADJACENT ST)	412	0.81	3.73	0.68	29.27	379	0	2,500	49%	51%

TRIPS:	BY AVERAGE			BY REGRESSION		
	Total	Enter	Exit	Total	Enter	Exit
DAILY	1,932	966	966	4041	2021	2021
AM PEAK (ADJACENT ST)	45	27	18	96	59	37
PM PEAK (ADJACENT ST)	168	82	86	373	183	190

SATURDAY

RATES:	# Studies	R^2	Total Trip Ends			Independent Variable Range			Directional Distribution	
			Average	Low	High	Average	Low	High	Enter	Exit
DAILY	123	0.82	49.97	16.70	227.50	450	0	1,600	50%	50%
PEAK OF GENERATOR	127	0.83	4.89	1.46	18.32	450	0	1,600	52%	48%

TRIPS:	BY AVERAGE			BY REGRESSION		
	Total	Enter	Exit	Total	Enter	Exit
DAILY	2,249	1,124	1,124	5,587	2,793	2,793
PEAK OF GENERATOR	220	114	106	510	265	245

SUNDAY

RATES:	# Studies	R^2	Total Trip Ends			Independent Variable Range			Directional Distribution	
			Average	Low	High	Average	Low	High	Enter	Exit
DAILY	77	0.52	25.24	4.15	148.15	439	0	1,600	50%	50%
PEAK OF GENERATOR	39	N/A	3.12	0.39	12.40	369	0	1,300	49%	51%

TRIPS:	BY AVERAGE			BY REGRESSION		
	Total	Enter	Exit	Total	Enter	Exit
DAILY	1,136	568	568	4918	2459	2459
PEAK OF GENERATOR	140	69	72	N/A	N/A	N/A

Build Condition Traffic

Displaced Trips

Trip Generation

Vehicle Trip Distribution

Walk/Bike Trip Distribution

Transit Trip Distribution

Site-Generated Traffic Volume Networks

114 Western Avenue

7:45-8:45AM			
Entering	48	Exiting	28
Western Ave from East	2	Western Ave to East	4
Western Ave from West	6	Western Ave to West	6
Rotterdam St from East	20	Rotterdam St to East	10
Rotterdam St from West	20	Rotterdam St to West	8
8:00-9:00 AM - Network Peak			
Entering	53	Exiting	27
Western Ave from East	1	Western Ave to East	4
Western Ave from West	7	Western Ave to West	7
Rotterdam St from East	29	Rotterdam St to East	11
Rotterdam St from West	16	Rotterdam St to West	5
8:15-9:15AM			
Entering	48	Exiting	13
Western Ave from East	1	Western Ave to East	0
Western Ave from West	6	Western Ave to West	3
Rotterdam St from East	29	Rotterdam St to East	8
Rotterdam St from West	12	Rotterdam St to West	2

**Total
Trips
76**

80

61

4:45-5:45 PM			
Entering	15	Exiting	38
Western Ave from East	0	Western Ave to East	0
Western Ave from West	5	Western Ave to West	10
Rotterdam St from East	5	Rotterdam St to East	22
Rotterdam St from West	5	Rotterdam St to West	6
5:00-6:00 PM - Network Peak			
Entering	15	Exiting	42
Western Ave from East	0	Western Ave to East	1
Western Ave from West	2	Western Ave to West	10
Rotterdam St from East	6	Rotterdam St to East	23
Rotterdam St from West	7	Rotterdam St to West	8
5:15-6:15 PM			
Entering	14	Exiting	42
Western Ave from East	1	Western Ave to East	2
Western Ave from West	0	Western Ave to West	9
Rotterdam St from East	8	Rotterdam St to East	23
Rotterdam St from West	5	Rotterdam St to West	8

53

57

56

Table 1
2013 IMP Development Projects
Based on IMP Program as of June 20, 2013

IMP Site	Project	Description/ Use	Development Program		Density	Population Employees	Students/Beds	Methodology
			Total ksf	Res. Units				
1	HBS Kresge Hall Replacement (HBS Bldg D)	Dining, Admin, Classrooms	90	n/a	n/a	n/a	n/a	No new traffic generation assumed
2	Burden Hall Replacement (HBS Bldg G2)	Academic	92	n/a	n/a	n/a	n/a	Replacement & academic expansion (no student population growth) No new traffic generation assumed
3	HBS Faculty & Admin (HBS Bldg C)	Administrative	110	n/a	n/a	n/a	n/a	ITE standard rates for general office by ksf Access Boston mode shares Harvard Empirical Trip Distribution
4	Stadium Addition/Renovation	Athletics	211	n/a	n/a	n/a	n/a	No new seats; amenity upgrades only No new traffic generation assumed
5	Basketball Venue	Athletics	60	n/a	n/a	n/a	n/a	Facility relocation: +1,000 new seats No new traffic generation assumed
5	Mixed Use Facility - Residential	Mixed Use - Affiliate Housing	250	360	n/a	n/a	500	Harvard empirical rates (using number of beds) Harvard empirical mode share (23% auto = parking permits/headcount) Access Boston Trip Distribution - Residents Zone 17
5	Mixed Use Facility - Retail	Mixed Use - Retail	15	n/a	1 emp/ksf *	15	n/a	ITE standard rates for shopping center by ksf (with Site 6) Internal trip credits with Site 6 - Office and 25% pass-by credit Access Boston mode shares Access Boston Trip Distribution - Workers Zone 17
6	Gateway Project - Office	Mixed Use - Office	250	n/a	n/a	n/a	n/a	ITE standard rates for general office by ksf Internal trip credits with Sites 5 & 6 - Retail Access Boston mode shares Harvard Empirical Trip Distribution
6	Gateway Project - Retail	Mixed Use - Retail	50	n/a	1 emp/ksf *	50	n/a	ITE standard rates for shopping center by ksf (with Site 5) Internal trip credits with Site 6 - Office and 25% pass-by credit Access Boston mode shares Access Boston Trip Distribution - Workers Zone 17
7	Hotel/Conference Center	Hotel	250	200	n/a	n/a	n/a	ITE standard rates for hotel by # of rooms Access Boston mode shares Harvard Empirical Trip Distribution
8	HBS Baker Hall Renovation	Residential	78	n/a	n/a	n/a	n/a	No new traffic generation assumed
9	Soldiers Field Park Renovation	Residential	423	n/a	n/a	n/a	n/a	No new traffic generation assumed
n/a	Science Project	Academic	343	n/a	n/a	300	900	Harvard empirical rates (using projected population) Existing SEAS mode shares (75% auto Faculty/Staff; 5% auto Grad Students) Harvard Empirical Trip Distribution
n/a	Science Project	R&D	390	n/a	2 emp/ksf*	780	n/a	ITE standard rates for R&D by # of employees Access Boston mode shares Harvard Empirical Trip Distribution
n/a	114 Western Avenue	Existing Tenants to be Removed	70?	n/a	n/a	n/a	n/a	Trips to be removed from network based on driveway counts conducted in June 2013

Red Text = Land Use that generates new vehicle trips

* Population density assumed through discussions with Harvard during IMP process

Table 2
Mode Share and VOR Assumptions

IMP Site Development Type Methodology	Site 3: HBS Faculty & Admin (HBS Bldg C) Office ITE LUC 710 (ksf)				Site 5: Mixed Use Facility Residential (Harvard Affiliated) Harvard Empirical Data (Dorm Students)				Site 6: Gateway Project Office ITE LUC 710 (ksf)				Site 5 & Site 6 Retail ITE LUS 820 (ksf)				Site 7: Hotel & Conference Center Hotel & Conference Center ITE LUC 310 (rooms)				Science Project Academic - Faculty/Staff Harvard Empirical Data (Existing SEAS)				Science Project R&D ITE LUC 760 (employees)			
	VOR ^b	Mode Share ^a			VOR ^d	Mode Share ^c			VOR ^b	Mode Share ^a			VOR ^b	Mode Share ^a			VOR ^b	Mode Share ^a			VOR ^d	Mode Share ^c			VOR ^b	Mode Share ^a		
Direction	Vehicle	Transit	Walk/Bike	Vehicle	Transit	Walk/Bike	Vehicle	Transit	Walk/Bike	Vehicle	Transit	Walk/Bike	Vehicle	Transit	Walk/Bike	Vehicle	Transit	Walk/Bike	Vehicle	Transit	Walk/Bike	Vehicle	Transit	Walk/Bike	Vehicle	Transit	Walk/Bike	
Weekday Daily	1.1	69%	12%	19%	1.0	23%	39%	38%	1.1	69%	12%	19%	1.8	52%	8%	40%	1.8	52%	8%	40%	1.0	75%	13%	12%	1.1	69%	12%	19%
Weekday AM																												
Enter	1.1	59%	18%	23%	1.0	23%	39%	38%	1.1	59%	18%	23%	1.8	43%	11%	46%	1.8	43%	11%	46%	1.0	75%	13%	12%	1.1	59%	18%	23%
Exit	1.1	65%	12%	23%	1.0	23%	39%	38%	1.1	65%	12%	23%	1.8	47%	7%	46%	1.8	47%	7%	46%	1.0	75%	13%	12%	1.1	65%	12%	23%
Weekday PM																												
Enter	1.1	65%	12%	23%	1.0	23%	39%	38%	1.1	65%	12%	23%	1.8	47%	7%	46%	1.8	47%	7%	46%	1.0	75%	13%	12%	1.1	65%	12%	23%
Exit	1.1	59%	18%	23%	1.0	23%	39%	38%	1.1	59%	18%	23%	1.8	43%	11%	46%	1.8	43%	11%	46%	1.0	75%	13%	12%	1.1	59%	18%	23%
																					Science Project Academic - Graduate Students Harvard Empirical Data (Existing SEAS)							
																					Mode Share ^c							
																					VOR ^d	Vehicle	Transit	Walk/Bike				
																					1.0	5%	48%	47%				
																					1.0	5%	48%	47%				
																					1.0	5%	48%	47%				
																					1.0	5%	48%	47%				
																					1.0	5%	48%	47%				

a - Access Boston Mode Share by Purpose and Time of Day for Area 17: Allston
b - New Brighton Landing Expanded PNF, based on 2009 National Household Travel Survey
c - Based on ratio of parking permit data to headcount
d - assumption

Table 3
Trip Generation by Mode (no credits)

Development Site Development Type Methodology Size	Site 3: HBS Faculty & Admin (HBS Bldg C) Office ITE LUC 710 (ksf) - regression equations 110 ksf				Site 5: Mixed Use Facility Residential (Harvard Affiliated) Harvard Empirical Data (Dorm Students) 500 beds				Site 6: Gateway Project Office ITE LUC 710 (ksf) - regression equations 250 ksf				Site 5: Mixed Use Facility & Site 6: Gateway Project Retail ITE LUS 820 (ksf) - average rates 65 ksf			
	Person Trips	Vehicle Trips	Transit Trips	Walk/Bike Trips	Person Trips	Vehicle Trips	Transit Trips	Walk/Bike Trips	Person Trips	Vehicle Trips	Transit Trips	Walk/Bike Trips	Person Trips ^a	Vehicle Trips ^b	Transit Trips ^c	Walk/Bike Trips ^d
Weekday Daily	1,550	970	190	290	2,500	580	980	950	2,900	1,820	350	550	5,000	1,440	400	2,000
Weekday AM																
Enter	200	105	35	45	10	0	5	5	385	205	70	90	70	15	10	30
Exit	25	15	5	5	30	5	10	10	55	35	5	15	45	10	5	20
Total	225	120	40	50	40	5	15	15	440	240	75	105	115	25	15	50
Weekday PM																
Enter	40	25	5	10	20	5	10	10	65	40	10	15	210	55	15	95
Exit	185	100	35	45	20	5	10	10	325	175	60	75	225	55	25	105
Total	225	125	40	55	40	10	20	20	390	215	70	90	435	110	40	200

a - Person Trips = ITE Trips * VOR
b - Vehicle Trips = (Person Trips * Vehicle Mode Share)/VOR
c - Transit Trips = Person Trips * Transit Mode Share
d - Walk/Bike Trips = Person Trips * Walk/Bike Mode Share

Table 3
Trip Generation by Mo

Development Site Development Type Methodology Size	Site 7: Hotel & Conference Center Hotel & Conference Center ITE LUC 310 (rooms) - average rates 200 rooms				Science Project Academic Harvard Empirical Data (Existing SEAS) 300 Faculty/Staff + 900 Graduate Students				Science Project R&D ITE LUC 760 (employees) - regression equations 780 employees			
	Person Trips ^a	Vehicle Trips ^b	Transit Trips ^c	Walk/Bike Trips ^d	Person Trips ^a	Vehicle Trips ^b	Transit Trips ^c	Walk/Bike Trips ^d	Person Trips ^a	Vehicle Trips ^b	Transit Trips ^c	Walk/Bike Trips ^d
Weekday Daily	2,940	850	240	1,180	2,270	510	880	880	2,550	1,600	310	480
Weekday AM												
Enter	115	25	15	55	460	105	180	175	310	165	55	70
Exit	80	20	5	35	30	10	10	10	50	30	5	10
Total	195	45	20	90	490	115	190	185	360	195	60	80
Weekday PM												
Enter	110	30	10	50	30	10	10	10	35	20	5	10
Exit	105	25	10	50	235	105	65	65	325	175	60	75
Total	215	55	20	100	265	115	75	75	360	195	65	85

a - Person Trips = ITE Trips * VOR
b - Vehicle Trips = (Person Trips * \
c - Transit Trips = Person Trips * Tr
d - Walk/Bike Trips = Person Trips *

Table 3
Trip Generation by Mc

Development Site Development Type Methodology Size	TOTAL			
	Person Trips	Vehicle Trips	Transit Trips	Walk/Bike Trips
Weekday Daily	19,710	7,770	3,350	6,330
Weekday AM				
Enter	1,550	620	370	470
Exit	315	125	45	105
Total	1,865	745	415	575
Weekday PM				
Enter	510	185	65	200
Exit	1,420	640	265	425
Total	1,930	825	330	625

TOTAL minus Science			
Person Trips	Vehicle Trips	Transit Trips	Walk/Bike Trips
14,890	5,660	2,160	4,970
780	350	135	225
235	85	30	85
1,015	435	165	310
445	155	50	180
860	360	140	285
1,305	515	190	465

TOTAL Science Only			
Person Trips	Vehicle Trips	Transit Trips	Walk/Bike Trips
4,820	2,110	1,190	1,360
770	270	235	245
80	40	15	20
850	310	250	265
65	30	15	20
560	280	125	140
625	310	140	160

a - Person Trips = ITE Trips * VOR
 b - Vehicle Trips = (Person Trips * \'
 c - Transit Trips = Person Trips * Tr
 d - Walk/Bike Trips = Person Trips '

Table 4
Vehicle Trip Generation Summary

Pass-By Rate: 25%

Project Type of Trip	Site 3	Site 5: Residential	Site 7: Hotel	Site 6: Office			Site 5 & Site 6: Retail				Science Academic	Science R&D	Total New Vehicle Trips	
	Vehicle Trips	Vehicle Trips	Vehicle Trips	Vehicle Trips	Internal Trips	External Trips	Vehicle Trips	Internal Trips	External Trips	Pass-By Trips	Net New Retail	Vehicle Trips		Vehicle Trips
Weekday Daily	970	580	850	1,820	n/a	1,820	1,440	n/a	n/a	360	1,080	510	1,600	7,410
Weekday AM														
Enter	105	0	25	205	5	200	15	5	10	0	10	105	165	610
Exit	15	5	20	35	5	30	10	5	5	0	5	10	30	115
Total	120	5	45	240	10	230	25	10	15	0	15	115	195	725
Weekday PM														
Enter	25	5	30	40	0	40	55	5	50	15	35	10	20	165
Exit	100	5	25	175	5	170	55	0	55	15	40	105	175	620
Total	125	10	55	215	5	210	110	5	105	30	75	115	195	785

Table 5
Retail Vehicle Trip Generation Detailed Summary

Project Type of Trip	Site 5: Retail					Site 6: Retail				
	Vehicle Trips	Internal Trips	External Trips	Pass-By Trips	Net New Retail	Vehicle Trips	Internal Trips	External Trips	Pass-By Trips	Net New Retail
Weekday Daily	330	n/a	n/a	80	250	1,110	n/a	n/a	280	830
Weekday AM										
Enter	5	0	5	0	5	10	5	5	0	5
Exit	0	0	0	0	0	10	5	5	0	5
Total	5	0	5	0	5	20	10	10	0	10
Weekday PM										
Enter	15	0	15	5	10	40	5	35	10	25
Exit	15	0	15	5	10	40	0	40	10	30
Total	30	0	30	10	20	80	5	75	20	55

Table 6
Site 3: HBS Faculty & Admin (HBS Bldg C)

ITE TRIP GENERATION WORKSHEET
(9th Edition, Updated 2013)

LANDUSE: General Office Building
LANDUSE CODE: 710

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

JOB NAME: Harvard IMP
JOB NUMBER: 10463

FLOOR AREA (KSF): 110

WEEKDAY

RATES:	# Studies	R ²	Total Trip Ends			Independent Variable Range			Directional Distribution	
			Average	Low	High	Average	Low	High	Enter	Exit
DAILY	79	0.81	11.03	3.58	28.80	197	0	1,300	50%	50%
AM PEAK	218	0.83	1.56	0.60	5.98	222	0	2,500	88%	12%
PM PEAK	236	0.82	1.49	0.49	6.39	215	0	2,500	17%	83%

TRIPS:

	BY AVERAGE			BY REGRESSION		
	Total	Enter	Exit	Total	Enter	Exit
DAILY	1,213	607	607	1411	706	706
AM PEAK	172	151	21	207	182	25
PM PEAK	164	28	136	202	34	167

Table 7
Site 5: Mixed Use Facility - Residential (Harvard Affiliated) Component (based on beds)

			Auto	Transit	Walk/Bike
# of Dorm Students	500				
% of Dorm Students - Daily	95%				
# of Dorm Students - Daily		475			
IntraCampus: % Left Dorm Pre-AM Peak	35.4%	168			
IntraCampus: % Returning Dorm AM Peak	2.0%	10	0%	0%	100%
IntraCampus: % Leaving Dorm AM Peak	40.3%	191	0%	0%	100%
% Departing Campus AM Peak	6.2%	29	23%	39%	38%
% Arriving Campus AM Peak	2.6%	12	23%	39%	38%
IntraCampus: % Left Dorm Pre-PM Peak	58.2%	276			
IntraCampus: % Returning Dorm PM Peak	11.8%	56	0%	0%	100%
IntraCampus: % Leaving Dorm PM Peak	2.0%	10	0%	0%	100%
% Departing Campus PM Peak	3.9%	19	23%	39%	38%
% Arriving Campus PM Peak	4.5%	21	23%	39%	38%
# On Campus (not dorm) Pre-AM Peak		168			
% Moving	90%				
# Moving		151			100%
# On Campus (not dorm) Pre-PM Peak		276			
% Moving	75%				
# Moving		207			100%
Dorm VOR	1.00				
Increase for Visitors	1.05				

Off-Campus Person Trips						
	AM		PM			Daily
Total	In	Out	Total	In	Out	
41	12	29	40	21	19	2500

Off-Campus Vehicle Trips						
	AM		PM			Daily
Total	In	Out	Total	In	Out	
10	3	7	9	5	4	170

Daily person trips
 5 average of housing trips per person - Undergraduate Task Force Study

2,500

Daily vehicle trips
 peak hour is 6% of daily trips - based on Western Ave Garage data

167

Table 8
Site 6: Gateway Project Office Component (based on population)

ITE TRIP GENERATION WORKSHEET
(9th Edition, Updated 2013)

LANDUSE: General Office Building
LANDUSE CODE: 710

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

JOB NAME: Harvard IMP
JOB NUMBER: 10463

FLOOR AREA (KSF): 250

WEEKDAY

RATES:	# Studies	R ²	Total Trip Ends			Independent Variable Range			Directional Distribution	
			Average	Low	High	Average	Low	High	Enter	Exit
DAILY	79	0.81	11.03	3.58	28.80	197	0	1,300	50%	50%
AM PEAK	218	0.83	1.56	0.60	5.98	222	0	2,500	88%	12%
PM PEAK	236	0.82	1.49	0.49	6.39	215	0	2,500	17%	83%

TRIPS:

	BY AVERAGE			BY REGRESSION		
	Total	Enter	Exit	Total	Enter	Exit
DAILY	2,758	1,379	1,379	2634	1317	1317
AM PEAK	390	343	47	398	350	48
PM PEAK	373	63	309	358	61	298

Table 9
Site 5 & Site 6: Retail Components

Site Location	ksf	Pct
5	15	23%
6	50	77%
	65	

ITE TRIP GENERATION WORKSHEET
(9th Edition, Updated 2013)

LANDUSE: Shopping Center (non-Christmas)
LANDUSE CODE: 820

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

JOB NAME: **Harvard IMP**
JOB NUMBER: **10463**

FLOOR AREA (KSF): 65

WEEKDAY

RATES:		# Studies	R ²	Total Trip Ends			Independent Variable Range			Directional Distribution	
				Average	Low	High	Average	Low	High	Enter	Exit
	DAILY	302	0.79	42.70	12.50	270.89	331	10	1,525	50%	50%
	AM PEAK (ADJACENT ST)	104	0.56	0.96	0.10	9.05	310	10	1,525	62%	38%
	PM PEAK (ADJACENT ST)	426	0.81	3.71	0.68	29.27	376	10	2,100	48%	52%

TRIPS:

	BY AVERAGE			BY REGRESSION		
	Total	Enter	Exit	Total	Enter	Exit
DAILY	2,776	1,388	1,388	5133	2566	2566
AM PEAK (ADJACENT ST)	62	39	24	120	74	46
PM PEAK (ADJACENT ST)	241	116	125	449	215	233

Table 10
Site 7: Hotel/Conference Center

ITE TRIP GENERATION WORKSHEET
(9th Edition, Updated 2013)

LANDUSE: 310
 LANDUSE CODE: Hotel

Independent Variable --- Number of Rooms

JOB NAME: **Harvard IMP**
 JOB NUMBER: **10463**

ROOMS (#): 200

WEEKDAY

RATES:		# Studies	R ²	Total Trip Ends			Independent Variable Range			Directional Distribution	
				Average	Low	High	Average	Low	High	Enter	Exit
	DAILY	10	0.98	8.17	3.47	9.58	476	100	1,850	50%	50%
	AM PEAK (ADJACENT ST)	29	--	0.53	0.20	1.03	204	75	500	59%	41%
	PM PEAK (ADJACENT ST)	33	--	0.60	0.21	1.06	200	75	500	51%	49%

TRIPS:

	BY AVERAGE			BY REGRESSION		
	Total	Enter	Exit	Total	Enter	Exit
DAILY	1,634	817	817			
AM PEAK (ADJACENT ST)	106	63	43	NOT USED		
PM PEAK (ADJACENT ST)	120	61	59			

Table 11
Science Project Academic
Based on projected population from Harvard

# of Faculty/Staff		2010 Rideshare (TWR average, All employees All Schools)		Auto			Transit			Walk/Bike		
% of Staff - Daily	94%	282		87	15	14	11	2	2			
# of Staff - Daily												
# of Commuting Students		2010 Rideshare (TWR average, All students, both campuses)		Auto			Transit			Walk/Bike		
% of Commuting Students - Daily	95%	855		17	165	162	1	8	8			
# of Commuting Students - Daily												
% of Arriving AM Peak		2010 Rideshare (8:00-9:00, All employees All Schools)		Auto			Transit			Walk/Bike		
% Arriving AM Peak	41%	116		75%	13%	12%	11	2	2			
% Departing AM Peak		2010 Rideshare (5:00-6:00, All employees All Schools)		Auto			Transit			Walk/Bike		
% Departing AM Peak	5%	14		75%	13%	12%	100	17	16			
% Arriving PM Peak		2010 Rideshare (8:00-9:00, All employees All Schools)		Auto			Transit			Walk/Bike		
% Arriving PM Peak	5%	14		75%	13%	12%	11	2	2			
% Departing PM Peak		2010 Rideshare (5:00-6:00, All employees All Schools)		Auto			Transit			Walk/Bike		
% Departing PM Peak	47%	133		75%	13%	12%	100	17	16			
VOR	1.00											
% of Arriving AM Peak		SFPG Counts (Red permits, entering before noon)		Auto			Transit			Walk/Bike		
% Arriving AM Peak	40%	345		5%	48%	47%	17	165	162			
% Departing AM Peak		2001 Grad Housing Survey: (Non-Harvard housing, bus school, avg of 5:00 & 6:00)		Auto			Transit			Walk/Bike		
% Departing AM Peak	2%	17		5%	48%	47%	1	8	8			
% Arriving PM Peak		2001 Grad Housing Survey: (Non-Harvard housing, bus school, avg of 5:00 & 6:00)		Auto			Transit			Walk/Bike		
% Arriving PM Peak	2%	17		5%	48%	47%	1	8	8			
% Departing PM Peak		2001 Grad Housing Survey: (Non-Harvard housing, bus school, avg of 5:00 & 6:00)		Auto			Transit			Walk/Bike		
% Departing PM Peak	12%	101		5%	48%	47%	5	48	47			
VOR	1.00											

Person Trips						
Total	AM		PM			Daily
	In	Out	Total	In	Out	
491	460	31	265	31	234	2270

Vehicle Trips						
Total	AM		PM			Daily
	In	Out	Total	In	Out	
115	104	11	116	11	105	510

Table 12
Science Project R&D

ITE TRIP GENERATION WORKSHEET
(9th Edition, Updated 2013)

LANDUSE: Research and Development Center
LANDUSE CODE: 760

Independent Variable --- Employees

JOB NAME: Harvard University IMP
JOB NUMBER: 09879.00

EMPLOYEES (#): 780.0

WEEKDAY

RATES:	# Studies	R ²	Total Trip Ends			Independent Variable Range			Directional Distribution	
			Average	Low	High	Average	Low	High	Enter	Exit
DAILY	27	0.87	2.77	0.96	10.63	1,022	10	5,000	50%	50%
AM PEAK	28	0.90	0.43	0.20	1.39	1,038	10	5,000	86%	14%
PM PEAK	29	0.91	0.41	0.18	1.39	1,049	10	5,000	10%	90%

TRIPS:

	BY AVERAGE			BY REGRESSION		
	Total	Enter	Exit	Total	Enter	Exit
DAILY	2,161	1,080	1,080	2316	1158	1158
AM PEAK	335	288	47	327	281	46
PM PEAK	320	32	288	328	33	295

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	Harvard University 2013 IMP	Organization:	VHB, Inc.
Project Location:	Allston, MA	Performed By:	NLH
Scenario Description:	Build Conditions	Date:	06.19.2013
Analysis Year:	2023	Checked By:	
Analysis Period:	AM Street Peak Hour	Date:	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office				240	205	35
Retail				25	15	10
Restaurant				0		
Cinema/Entertainment				0		
Residential				0		
Hotel				0		
All Other Land Uses ²				0		
Total				265	220	45

Table 2-A: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office	1.00	0%	0%	1.00	0%	0%
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses ²						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		5	0	0	0	0
Retail	3		0	0	0	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	265	220	45
Internal Capture Percentage	6%	4%	18%
External Vehicle-Trips ³	249	212	37
External Transit-Trips ⁴	0	0	0
External Non-Motorized Trips ⁴	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	1%	14%
Retail	33%	30%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	N/A	N/A
Hotel	N/A	N/A

¹Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

²Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

³Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

⁴Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	Harvard University 2013 IMP
Analysis Period:	AM Street Peak Hour

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	205	205	1.00	35	35
Retail	1.00	15	15	1.00	10	10
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	0	0	1.00	0	0
Hotel	1.00	0	0	1.00	0	0

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		10	22	0	0	0
Retail	3		1	0	1	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		5	0	0	0	0
Retail	8		0	0	0	0
Restaurant	29	1		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	6	3	0	0		0
Hotel	6	1	0	0	0	

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	3	202	205	202	0	0
Retail	5	10	15	10	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	5	30	35	30	0	0
Retail	3	7	10	7	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A
²Person-Trips
³Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator
*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	Harvard University 2013 IMP	Organization:	VHB, Inc.
Project Location:	Allston, MA	Performed By:	NLH
Scenario Description:	Build Conditions	Date:	06.19.2013
Analysis Year:	2023	Checked By:	
Analysis Period:	PM Street Peak Hour	Date:	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office				215	40	175
Retail				110	55	55
Restaurant				0		
Cinema/Entertainment				0		
Residential				0		
Hotel				0		
All Other Land Uses ²				0		
Total				325	95	230

Table 2-P: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office	1.00	0%	0%	1.00	0%	0%
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses ²						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		4	0	0	0	0
Retail	1		0	0	0	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	325	95	230
Internal Capture Percentage	3%	5%	2%
External Vehicle-Trips ³	315	90	225
External Transit-Trips ⁴	0	0	0
External Non-Motorized Trips ⁴	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	3%	2%
Retail	7%	2%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	N/A	N/A
Hotel	N/A	N/A

¹Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

²Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

³Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

⁴Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	Harvard University 2013 IMP
Analysis Period:	PM Street Peak Hour

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	40	40	1.00	175	175
Retail	1.00	55	55	1.00	55	55
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	0	0	1.00	0	0
Hotel	1.00	0	0	1.00	0	0

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		35	7	0	4	0
Retail	1		16	2	14	3
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		4	0	0	0	0
Retail	12		0	0	0	0
Restaurant	12	28		0	0	0
Cinema/Entertainment	2	2	0		0	0
Residential	23	6	0	0		0
Hotel	0	1	0	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	1	39	40	39	0	0
Retail	4	51	55	51	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	4	171	175	171	0	0
Retail	1	54	55	54	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

²Person-Trips

³Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

**10463.00 Harvard Univeristy 2013 IMP
Vehicular Trip Distribution**

	Harvard Affiliated	Residential	Retail
1 Western Ave (from west)	7%	14%	15%
2 Everett Street (from south)	5%	12%	11%
3 Cambridge Street (from west)	4%	7%	7%
4 Harvard Ave (from south)	3%	6%	5%
5 I-90 East	22%	18%	21%
6 I-90 West	16%	6%	14%
7 Soldiers Field Rd (from east)	15%	14%	12%
8 Western Ave (from east)	4%	9%	5%
9 North Harvard St (from north)	5%	10%	5%
10 Route 2 (from west)	19%	4%	5%

Sources:
Harvard Affiliated - Based on Harvard 2012 Employee Zip Code Data for the Allston Campus and 2007-2011 American Community Survey 5-Year Estimate Means of Transportation (Mode Share) for home-based work trips; Allston & Cambridge Mode Shares adjusted (2010 DEP Rideshare Survey & 2012 PTDM Surevey data used, respectively)
Residential - Based on Access Boston data for peak hour trips that begin in Zone 17 (residents)
Retail - Based on Access Boston data for peak hour trips that end in Zone 17 (workers)

IMP Site	Project	Vehicle TD Methodology
3	HBS Faculty & Admin (HBS Bldg C)	Harvard Affiliated
5	Wrapper Building - Residential	Residential
6	Gateway Project - Office	Harvard Affiliated
5 & 6	Wrapper Building & Gateway Project - Retail	Retail
7	Hotel/Conference Center	Harvard Affiliated
n/a	SEAS Phase 1	Harvard Affiliated
n/a	SEAS Phase 2	Harvard Affiliated

Mode Share by Purpose* and Time of Day

Trips Beginning in Zone 17

<u>Daily avg. mode shares</u>	All Purposes	Home	Work	Other
Auto	55%	47%	69%	52%
Transit	13%	22%	12%	8%
Walk	32%	31%	19%	40%
 <u>AM peak mode shares</u>				
Auto	44%	43%	65%	47%
Transit	19%	21%	12%	7%
Walk	37%	36%	23%	46%
 <u>Rest of day mode shares</u>				
Auto	57%	49%	69%	52%
Transit	12%	23%	12%	8%
Walk	31%	28%	19%	40%
 <u>PM peak mode shares</u>				
Auto	56%	37%	59%	43%
Transit	16%	30%	18%	11%
Walk	28%	33%	23%	46%

Trips Ending in Zone 17

<u>Daily avg. mode shares</u>	All Purposes	Home	Work	Other
Auto	55%	47%	69%	52%
Transit	13%	22%	12%	8%
Walk	32%	31%	19%	40%
 <u>AM peak mode shares</u>				
Auto	56%	37%	59%	43%
Transit	16%	30%	18%	11%
Walk	28%	33%	23%	46%
 <u>Rest of day mode shares</u>				
Auto	55%	47%	76%	53%
Transit	12%	22%	8%	7%
Walk	33%	31%	16%	40%
 <u>PM peak mode shares</u>				
Auto	44%	43%	65%	47%
Transit	19%	21%	12%	7%
Walk	37%	36%	23%	46%

*Purpose refers to the activity that occurs in Zone 17.

Distribution and Mode Share of Daily Trips by Transportation Zone

Daily Trips

Note that the same number of trips are assumed to begin or end in Zone 17

To/From ZONE	Mode Shares			Geographical Distribution of Trips			
	Auto	Transit	Walk	Total	Auto	Transit	Walk
1	63.1	36.9	0.0	0.7	0.8	2.0	0.0
2	33.3	66.7	0.0	1.6	1.0	8.4	0.0
3	47.6	52.4	0.0	0.5	0.4	2.0	0.0
4	38.0	51.3	10.7	6.7	4.6	26.9	2.2
5	62.9	37.1	0.0	2.1	2.4	6.1	0.0
6	79.3	20.7	0.0	0.9	1.4	1.5	0.0
7	81.4	18.6	0.0	0.3	0.4	0.4	0.0
8	84.9	15.1	0.0	0.6	1.0	0.8	0.0
9	77.8	22.2	0.0	0.7	0.9	1.2	0.0
10	64.9	14.8	20.3	7.9	9.3	9.2	5.0
11	86.0	14.0	0.0	0.3	0.4	0.3	0.0
12	74.6	25.4	0.0	0.3	0.4	0.6	0.0
13	69.2	30.8	0.0	0.5	0.6	1.2	0.0
14	73.2	26.8	0.0	0.7	1.0	1.6	0.0
15	86.9	13.1	0.0	1.4	2.2	1.4	0.0
16	85.2	14.8	0.0	0.2	0.3	0.3	0.0
17	17.0	1.3	81.7	31.5	9.7	3.2	80.0
18	93.3	6.7	0.0	0.2	0.4	0.1	0.0
19	95.9	4.1	0.0	0.7	1.2	0.2	0.0
20	98.8	1.2	0.0	0.2	0.4	0.0	0.0
RBO	96.4	3.6	0.0	4.1	7.1	1.2	0.0
RGR	63.9	14.4	21.7	14.4	16.8	16.3	9.8
RCD	77.9	9.9	12.2	8.0	11.3	6.2	3.0
RMR	79.7	20.3	0.0	0.9	1.2	1.3	0.0
BNE	91.0	9.0	0.0	0.6	1.0	0.4	0.0
BNO	90.0	10.0	0.0	1.1	1.8	0.8	0.0
BNW	87.8	12.2	0.0	4.2	6.6	4.0	0.0
CN	96.7	3.3	0.0	2.3	4.1	0.6	0.0
CW	98.3	1.7	0.0	3.1	5.6	0.4	0.0
CSW	95.8	4.2	0.0	2.1	3.7	0.7	0.0
CSE	92.2	7.8	0.0	1.2	2.0	0.7	0.0
TOTAL	55.0	12.8	32.2	100.0	100.0	100.0	100.0

Distribution and Mode Share by Transportation Zone For AM & PM Peak

AM Peak Period Trips (6-9AM)

To/From ZONE	Trips Starting in Zone 17							Trips Ending in Zone 17						
	Mode Shares			Geographical Distribution of Trips				Mode Shares			Geographical Distribution of Trips			
	Auto	Transit	Walk	Total	Auto	Transit	Walk	Auto	Transit	Walk	Total	Auto	Transit	Walk
1	67.6	32.4	0.0	1.1	1.7	1.9	0.0	30.4	69.6	0.0	0.7	0.4	2.8	0.0
2	29.2	70.8	0.0	4.7	3.1	17.5	0.0	79.9	20.1	0.0	0.3	0.4	0.3	0.0
3	40.7	59.3	0.0	1.2	1.1	3.8	0.0	100.0	0.0	0.0	0.1	0.2	0.0	0.0
4	35.1	54.5	10.4	8.0	6.3	23.0	2.2	36.4	45.2	18.4	3.4	2.3	9.5	2.2
5	89.9	10.1	0.0	1.5	3.0	0.8	0.0	38.0	62.0	0.0	2.0	1.4	7.6	0.0
6	74.3	25.7	0.0	0.5	0.9	0.8	0.0	56.9	43.1	0.0	1.1	1.1	2.8	0.0
7	100.0	0.0	0.0	0.2	0.4	0.0	0.0	51.3	48.7	0.0	0.4	0.4	1.2	0.0
8	93.0	7.0	0.0	0.6	1.3	0.2	0.0	84.4	15.6	0.0	0.3	0.5	0.3	0.0
9	54.2	45.8	0.0	0.5	0.6	1.1	0.0	61.8	38.2	0.0	0.7	0.8	1.7	0.0
10	52.4	18.6	29.0	6.4	7.6	6.3	5.0	52.2	30.1	17.7	8.0	7.6	14.8	5.0
11	81.9	18.1	0.0	0.3	0.5	0.3	0.0	100.0	0.0	0.0	0.2	0.3	0.0	0.0
12	100.0	0.0	0.0	0.1	0.3	0.0	0.0	59.1	40.9	0.0	0.7	0.8	1.8	0.0
13	43.3	56.7	0.0	1.2	1.1	3.5	0.0	81.9	18.1	0.0	0.3	0.4	0.3	0.0
14	100.0	0.0	0.0	0.2	0.5	0.0	0.0	44.4	55.6	0.0	1.4	1.1	4.6	0.0
15	69.1	30.9	0.0	1.3	2.1	2.2	0.0	79.5	20.5	0.0	0.9	1.3	1.2	0.0
16	100.0	0.0	0.0	0.1	0.2	0.0	0.0	78.8	21.2	0.0	0.4	0.6	0.6	0.0
17	11.7	3.8	84.5	35.1	9.3	7.1	80.0	11.7	3.8	84.5	26.9	5.7	6.3	80.0
18	100.0	0.0	0.0	0.1	0.3	0.0	0.0	59.1	40.9	0.0	0.2	0.2	0.5	0.0
19	69.9	30.1	0.0	0.7	1.1	1.1	0.0	93.8	6.2	0.0	1.0	1.7	0.4	0.0
20	100.0	0.0	0.0	0.5	1.2	0.0	0.0	100.0	0.0	0.0	0.2	0.3	0.0	0.0
RBO	95.4	4.6	0.0	2.1	4.5	0.5	0.0	86.1	13.9	0.0	3.5	5.5	3.0	0.0
RGR	54.0	22.8	23.2	15.5	19.0	18.8	9.7	55.2	18.7	26.1	10.6	10.6	12.1	9.7
RCD	77.0	5.1	17.9	6.3	10.9	1.7	3.0	71.3	18.0	10.7	8.0	10.4	8.9	3.0
RMR	60.6	39.4	0.0	0.9	1.3	1.9	0.0	77.5	22.5	0.0	1.4	2.0	1.9	0.0
BNE	93.1	6.9	0.0	0.4	0.8	0.1	0.0	90.3	9.7	0.0	1.1	1.8	0.7	0.0
BNO	56.6	43.4	0.0	1.5	1.9	3.4	0.0	94.7	5.3	0.0	1.9	3.3	0.6	0.0
BNW	87.7	12.3	0.0	4.1	8.2	2.7	0.0	77.4	22.6	0.0	6.4	9.0	8.9	0.0
CN	100.0	0.0	0.0	1.0	2.2	0.0	0.0	93.9	6.1	0.0	4.8	8.1	1.8	0.0
CW	96.2	3.8	0.0	2.1	4.5	0.4	0.0	96.8	3.2	0.0	6.1	10.7	1.2	0.0
CSW	95.2	4.8	0.0	1.3	2.8	0.3	0.0	93.0	7.0	0.0	4.1	6.8	1.7	0.0
CSE	80.1	19.9	0.0	0.6	1.1	0.7	0.0	86.1	13.9	0.0	2.8	4.3	2.4	0.0
TOTAL	44.1	18.8	37.1	100.0	100.0	100.0	100.0	55.3	16.3	28.4	100.0	100.0	100.0	100.0

PM Peak Period Trips (3-6PM)

To/From ZONE	Trips Starting in Zone 17							Trips Ending in Zone 17						
	Mode Shares			Geographical Distribution of Trips				Mode Shares			Geographical Distribution of Trips			
	Auto	Transit	Walk	Total	Auto	Transit	Walk	Auto	Transit	Walk	Total	Auto	Transit	Walk
1	43.2	56.8	0.0	0.6	0.5	2.5	0.0	61.9	38.1	0.0	0.8	1.1	1.9	0.0
2	40.3	59.7	0.0	0.6	0.4	2.4	0.0	26.5	73.5	0.0	3.1	1.7	13.8	0.0
3	52.2	47.8	0.0	0.2	0.2	0.8	0.0	38.8	61.2	0.0	0.8	0.6	3.0	0.0
4	31.8	56.8	11.4	5.9	3.4	23.4	2.2	34.5	55.9	9.6	8.0	5.6	27.1	2.2
5	61.5	38.5	0.0	1.8	2.0	4.7	0.0	48.7	51.3	0.0	2.9	2.8	8.9	0.0
6	68.1	31.9	0.0	1.1	1.3	2.4	0.0	83.0	17.0	0.0	0.8	1.3	0.8	0.0
7	70.7	29.3	0.0	0.3	0.4	0.7	0.0	100.0	0.0	0.0	0.2	0.3	0.0	0.0
8	77.6	22.4	0.0	0.6	0.9	1.0	0.0	83.8	16.2	0.0	0.7	1.3	0.7	0.0
9	75.0	25.0	0.0	0.7	1.0	1.3	0.0	82.9	17.1	0.0	0.5	0.9	0.5	0.0
10	61.1	18.5	20.5	7.4	8.1	9.5	5.0	61.4	13.4	25.2	6.8	8.5	5.5	5.0
11	90.7	9.3	0.0	0.2	0.4	0.1	0.0	74.7	25.3	0.0	0.3	0.5	0.5	0.0
12	70.7	29.3	0.0	0.5	0.6	0.9	0.0	100.0	0.0	0.0	0.2	0.4	0.0	0.0
13	73.5	26.5	0.0	0.4	0.5	0.7	0.0	57.5	42.5	0.0	0.7	0.8	1.8	0.0
14	68.9	31.1	0.0	0.9	1.2	2.0	0.0	94.0	6.0	0.0	0.5	0.9	0.2	0.0
15	81.2	18.8	0.0	1.3	2.0	1.7	0.0	88.1	11.9	0.0	1.3	2.3	0.9	0.0
16	82.4	17.6	0.0	0.3	0.5	0.4	0.0	100.0	0.0	0.0	0.2	0.3	0.0	0.0
17	13.4	1.2	85.4	28.3	6.9	2.3	80.0	13.4	1.2	85.4	32.2	8.8	2.3	80.0
18	86.6	13.4	0.0	0.2	0.4	0.2	0.0	100.0	0.0	0.0	0.2	0.4	0.0	0.0
19	95.0	5.0	0.0	0.8	1.5	0.3	0.0	100.0	0.0	0.0	0.6	1.2	0.0	0.0
20	100.0	0.0	0.0	0.2	0.4	0.0	0.0	100.0	0.0	0.0	0.2	0.4	0.0	0.0
RBO	93.7	6.3	0.0	4.2	7.1	1.9	0.0	96.4	3.6	0.0	3.3	6.4	0.7	0.0
RGR	58.9	19.2	22.0	13.4	14.2	17.9	9.7	59.0	19.5	21.5	15.5	18.7	18.3	9.7
RCD	75.2	13.5	11.3	8.1	11.0	7.6	3.0	74.1	11.5	14.5	7.2	10.8	5.0	3.0
RMR	78.0	22.0	0.0	1.2	1.7	1.9	0.0	83.2	16.8	0.0	0.8	1.4	0.8	0.0
BNE	86.4	13.6	0.0	0.9	1.4	0.9	0.0	95.4	4.6	0.0	0.5	0.9	0.1	0.0
BNO	94.9	5.1	0.0	1.5	2.6	0.5	0.0	75.8	24.2	0.0	1.2	1.9	1.8	0.0
BNW	79.5	20.5	0.0	5.0	7.2	7.1	0.0	83.2	16.8	0.0	4.0	6.8	4.1	0.0
CN	93.5	6.5	0.0	3.5	5.8	1.6	0.0	97.5	2.5	0.0	1.6	3.1	0.2	0.0
CW	97.8	2.2	0.0	4.7	8.2	0.7	0.0	97.7	2.3	0.0	2.5	5.0	0.4	0.0
CSW	95.0	5.0	0.0	3.2	5.4	1.1	0.0	96.0	4.0	0.0	1.6	3.2	0.4	0.0
CSE	88.4	11.6	0.0	1.8	2.9	1.5	0.0	95.4	4.6	0.0	0.7	1.4	0.2	0.0
TOTAL	55.4	14.4	30.2	100.0	100.0	100.0	100.0	49.1	16.6	34.3	100.0	100.0	100.0	100.0

Auto trips for AREA 17
Allston

Commute Zone	Peak Hour Trips that Begin in Area 17 (Residents)	Peak Hour Trips that end in Area 17 (Workers)	Route Assignment	Percent of Auto Trips											
				1	2	3	4	5	6	7	8	9	10		
1 north end	1.7	0.4	SFR (east)								100%				100%
2 downtown	3.1	0.4	SFR (east)								100%				100%
3 chinatown	1.1	0.2	I-90 (east)						100%						100%
4 backbay/fens	6.3	2.3	I-90 (east), SFR (east)						50%		50%				100%
5 lma	3.0	1.4	Harvard Ave (south)						100%						100%
6 jamaica plain	0.9	1.1	Everett St, Harvard Ave (south)			50%		50%							100%
7 revere/suffolk downs	0.4	0.4	I-90 (east)						100%						100%
8 north dorchester	1.3	0.5	I-90 (east)						100%						100%
9 south dorchester	0.6	0.8	I-90 (east)						100%						100%
10 brighton	7.6	7.6	Western Ave (west), Everett St, Camb St (west)	25%	50%	25%									100%
11 charlestown	0.5	0.3	SFR (east)								100%				100%
12 hyde park	0.3	0.8	Everett St, Harvard Ave (south)			50%		50%							100%
13 south boston	1.1	0.4	I-90 (east)						100%						100%
14 mattapan	0.5	1.1	Camb St (west), Harvard Ave (south)				50%	50%							100%
15 south end/roxbury	2.1	1.3	I-90 (east)								100%				100%
16 forest hills	0.2	0.6	Camb St (west), Harvard Ave (south)					50%	50%						100%
17 allston	9.3	5.7	Western Ave (west), Everett St, Camb St (west), Harvard Ave (south)	33%	33%	17%	17%								100%
18 savin hill	0.3	0.2	I-90 (east)						100%						100%
19 rosindale	1.1	1.7	Everett St, Harvard Ave (south)				50%	50%							100%
20 east boston	1.2	0.3	I-90 (east), SFR (east)						50%		50%				100%
RBO - Everett Chelsea	4.5	5.5	I-90 (east), SFR (east)						50%		50%				100%
RGR - Cambridge/Somerville	19.0	10.6	Western Ave (east), N. Harvard St (north)								50%	50%			100%
RCD - Newton/Chesnut Hill	10.9	10.4	Western Ave (west), Everett St, Camb St (west)	34%	33%	33%									100%
RMR - Quincy	1.3	2.0	I-90 (east)						100%						100%
BNE - Lynn Salem Saugus	0.6	1.8	I-90 (east), SFR (east)						50%		50%				100%
BNO - Stoneham/Burlington/Wakefield	1.9	3.3	I-90 (east), SFR (east)						50%		50%				100%
BNW - Watertown	8.2	9.0	Western Ave (west), SFR (west)			50%								50%	100%
CN - Andover/Methuen/Wilmington	2.2	8.1	I-90 (east), SFR (east)						50%		50%				100%
CW - Natick	4.5	10.7	I-90 (west)							100%					100%
CSW - Needham/Dedham	2.8	6.8	Western Ave (west), I-90 (west)			50%				50%					100%
CSE - Commuter SE SouthShore	1.1	4.3	I-90 (east)							100%					100%
Total	99.8	100													

Vehicle Trip Assignment		
	trips beginning	trips ending
1	Western Ave (from west)	14
2	Everett Street (from south)	12
3	Cambridge Street (from west)	7
4	Harvard Ave (from south)	6
5	I-90 East	18
6	I-90 West	6
7	Soldiers Field Rd (from east)	14
8	Western Ave (from east)	10
9	North Harvard St (from north)	10
10	Eliot Bridge (from west)	4
	100	100

Gateways

1	Western Ave (from west)	= Arsenal St, SFR from west, Birmingham, Market St
2	Everett Street (from south)	= Everett St
3	Cambridge Street (from west)	= Cambridge St
4	Harvard Ave (from south)	= Harvard Ave
5	I-90 East	= I-90 East, I-93 South, I-93 North, Route 1 North
6	I-90 West	= I-90 West
7	Soldiers Field Rd (from east)	= SFR from east
8	Western Ave (from east)	= Western Ave/River St from east, Mem Dr from east
9	North Harvard St (from north)	= JFK St, Mem Dr from west
10	Eliot Bridge (from west)	= Eliot Bridge

Harvard-Allston Vehicular Trip Distribution

Route	Trips
I-93 South	77
I-93 North	129
Route 1 North	46
Route 2 West	135
I-90 West	138
I-90 East	32
Local Roads	321
<u>Unassigned</u>	<u>0</u>
	878

Gateways

- | | | |
|-----------|-------------------------------|--|
| 1 | Western Ave (from west) | = Arsenal St, SFR from west, Birmingham, Market St |
| 2 | Everett Street (from south) | = Everett St |
| 3 | Cambridge Street (from west) | = Cambridge St |
| 4 | Harvard Ave (from south) | = Harvard Ave |
| 5 | I-90 East | = I-90 East, I-93 South, I-93 North, Route 1 North |
| 6 | I-90 West | = I-90 West |
| 7 | Soldiers Field Rd (from east) | = SFR from east |
| 8 | Western Ave (from east) | = Western Ave/River St from east, Mem Dr from east |
| 9 | North Harvard St (from north) | = JFK St, Mem Dr from west |
| 10 | Eliot Bridge (from west) | = Eliot Bridge |

Vehicle Trip Assignment			say
	Trips	%	%
1	Western Ave (from west)	61	7.0%
2	Everett Street (from south)	45	5.1%
3	Cambridge Street (from west)	32	3.6%
4	Harvard Ave (from south)	28	3.2%
5	I-90 East	196	22.3%
6	I-90 West	144	16.4%
7	Soldiers Field Rd (from east)	128	14.6%
8	Western Ave (from east)	37	4.2%
9	North Harvard St (from north)	44	5.0%
10	Eliot Bridge (from west)	163	18.5%
		878	100%
			100%

Harvard-Allston Vehicular Trip Distribution

REGIONAL TRIPS

Regional Route	Percent of Auto Trips									
	1	2	3	4	5	6	7	8	9	10
I-93 South					100%					100%
I-93 North					50%		50%			100%
Route 1 North					50%		50%			100%
Route 2 West									100%	100%
I-90 West						100%				100%
I-90 East					100%					100%

Regional Route	Auto Trips									
	1	2	3	4	5	6	7	8	9	10
I-93 South	0	0	0	0	77	0	0	0	0	77
I-93 North	0	0	0	0	64	0	64	0	0	129
Route 1 North	0	0	0	0	23	0	23	0	0	46
Route 2 West	0	0	0	0	0	0	0	0	135	135
I-90 West	0	0	0	0	0	138	0	0	0	138
I-90 East	0	0	0	0	32	0	0	0	0	32

LOCAL TRIPS

Note: Where applicable, Access Boston distribution applied to local trips

Local Trips	Percent of Auto Trips									
	1	2	3	4	5	6	7	8	9	10
Allston	33%	33%	17%	17%						100%
Auburndale	33%	33%	34%							100%
Boston75			20%	20%		60%				100%
Brighton	25%	50%	25%							100%
Brookline	34%	33%		33%						100%
Brookline Village	34%	33%		33%						100%
Cambridge							50%	50%		100%
Charlestown							100%			100%
Chestnut Hill	33%	33%	34%							100%
E Somerville							100%			100%
E Watertown	50%								50%	100%
East Cambridge							100%			100%
Hyde Park		50%		50%						100%
Jamaica Plain		50%		50%						100%
Medfordb50						40%	10%		50%	100%
Needham	50%					50%				100%
Needham Heights	50%					50%				100%
New Town	34%	33%	33%							100%
Newton	34%	33%	33%							100%
Newton Center	34%	33%	33%							100%
Newton Highlands	34%	33%	33%							100%
Newton Lower Falls	34%	33%	33%							100%
Newton Upper Falls	34%	33%	33%							100%
Newtonville	34%	33%	33%							100%
North Cambridge										100%
Roslindale		50%		50%						100%
Somerville							40%	60%		100%
Wabon	34%	33%	33%							100%
Watertown	50%								50%	100%
Wellesley Hills25	100%									100%
Wellesley25	100%									100%
West Newton	34%	33%	33%							100%
West Somerville							50%	50%		100%

Local Trips	Auto Trips									
	1	2	3	4	5	6	7	8	9	10
Allston	3	3	1	1	0	0	0	0	0	8
Auburndale	0	0	0	0	0	0	0	0	0	1
Boston75	0	0	10	10	0	0	29	0	0	48
Brighton	4	8	4	0	0	0	0	0	0	17
Brookline	10	9	0	9	0	0	0	0	0	29
Brookline Village	0	0	0	0	0	0	0	0	0	0
Cambridge	0	0	0	0	0	0	0	18	18	36
Charlestown	0	0	0	0	0	0	5	0	0	5
Chestnut Hill	2	2	2	0	0	0	0	0	0	6
E Somerville	0	0	0	0	0	0	0	0	0	0
E Watertown	0	0	0	0	0	0	0	0	0	0
East Cambridge	0	0	0	0	0	0	0	0	0	0
Hyde Park	0	1	0	1	0	0	0	0	0	1
Jamaica Plain	0	6	0	6	0	0	0	0	0	12
Medfordb50	0	0	0	0	0	0	7	2	0	9
Needham	5	0	0	0	0	5	0	0	0	10
Needham Heights	1	0	0	0	0	1	0	0	0	2
New Town	0	0	0	0	0	0	0	0	0	0
Newton	6	6	6	0	0	0	0	0	0	18
Newton Center	3	3	3	0	0	0	0	0	0	8
Newton Highlands	0	0	0	0	0	0	0	0	0	1
Newton Lower Falls	0	0	0	0	0	0	0	0	0	0
Newton Upper Falls	0	0	0	0	0	0	0	0	0	0
Newtonville	2	2	2	0	0	0	0	0	0	6
North Cambridge	0	0	0	0	0	0	0	0	0	0
Roslindale	0	1	0	1	0	0	0	0	0	2
Somerville	0	0	0	0	0	0	0	17	26	44
Wabon	2	2	2	0	0	0	0	0	0	5
Watertown	19	0	0	0	0	0	0	0	19	38
Wellesley Hills25	2	0	0	0	0	0	0	0	0	2
Wellesley25	1	0	0	0	0	0	0	0	0	1
West Newton	1	1	1	0	0	0	0	0	0	4
West Somerville	0	0	0	0	0	0	0	0	0	0

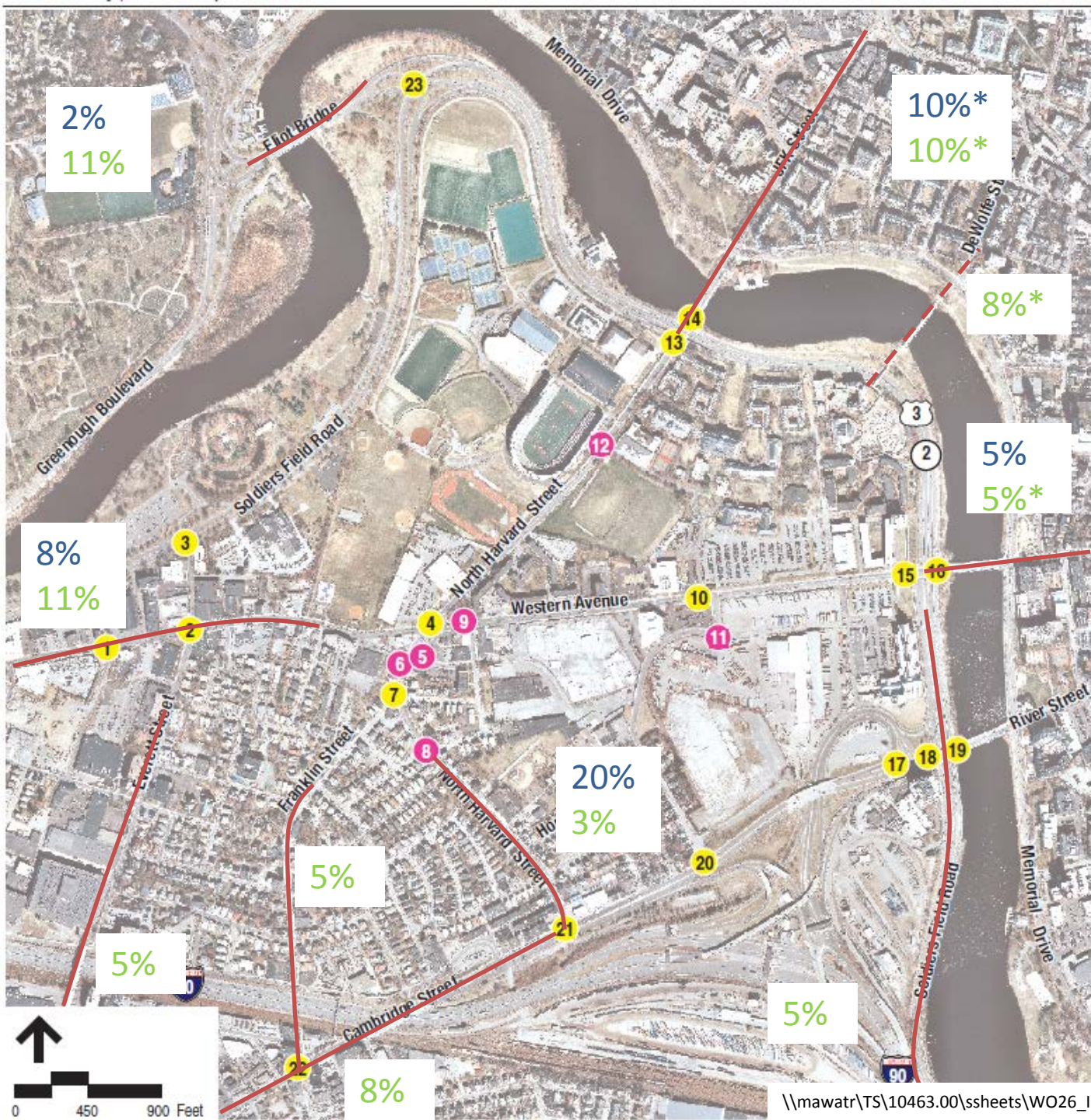
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Trips

8
1
48
17
29
0
36
5
6
0
0
0
1
12
17
10
2
0
18
8
0
44
5
38
2
1
4
0

321

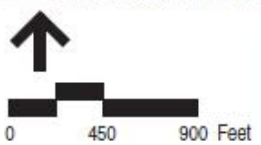
321



Walk
Bike

*A proportion of walk trips over Weeks Bridge
*8% of trips over Weeks Bridge, take from these origins

Bicycle volumes for IMP project trips were distributed over the network based the vehicle trip distribution developed for the project sites with revisions made to reflect bicycle volumes in closer proximities and available bicycle accommodations.



Route	Dist.	Morning		Evening	
		Enter	Exit	Enter	Exit
Red Line	59.5%	220	27	39	158
Route 64	0.4%	2	0	0	1
Route 66	6.8%	25	3	4	18
Route 70	3.0%	11	1	2	8
Route 70A	2.0%	7	1	1	5
Route 86 IB	3.1%	11	1	2	8
Route 86 OB	7.2%	27	3	5	19
Local Bus-Harvard Sq.	11.1%	41	5	7	29
Local Bus-Central Sq.	6.2%	23	3	4	16
Harvard Shuttle	0.8%	3	0	0	2
Unassigned	0.0%	0	0	0	0
	100.0%	370	45	65	265

Entering

Transfers to site	Red Line	Local Bus -	Local Bus-
Route 70	15%	0%	60%
Route 70A	10%	0%	40%
Route 86	15%	20%	0%
Route 66	30%	40%	0%
Harvard Shuttle:BC-HS Exp	30%	40%	0%

Exiting

Transfers to site	Red Line	Local Bus - H.S.	Local Bus- C.S.
Route 70	15%	0%	60%
Route 70A	10%	0%	40%
Route 86	10%	15%	0%
Route 66	25%	35%	0%
Harvard Shuttle:BC-HS Exp	30%	40%	0%
Harvard Shuttle: Allston Ex	10%	10%	0%

*In the future, a Harvard shuttle will be available AM and PM to make direct trips between Allston (Barry's Corner) and Harvard Sq. "Harvard Shuttle:BC-HS Exp." The Existing Allston Campus Express will still run, however, this loop will better serve evening trips from Allston to H.S.

Distribution of trips at Harvard Square and on the Red Line generally based on frequency of service with some minor revisions (rounding)

Route	Entering	Dist.
Route 70/70A	6	26.1%
Route 86	4	17.4%
Route 66	7	30.4%
Harvard BC-HS Exp.	6	26.1%

FINAL-Entering

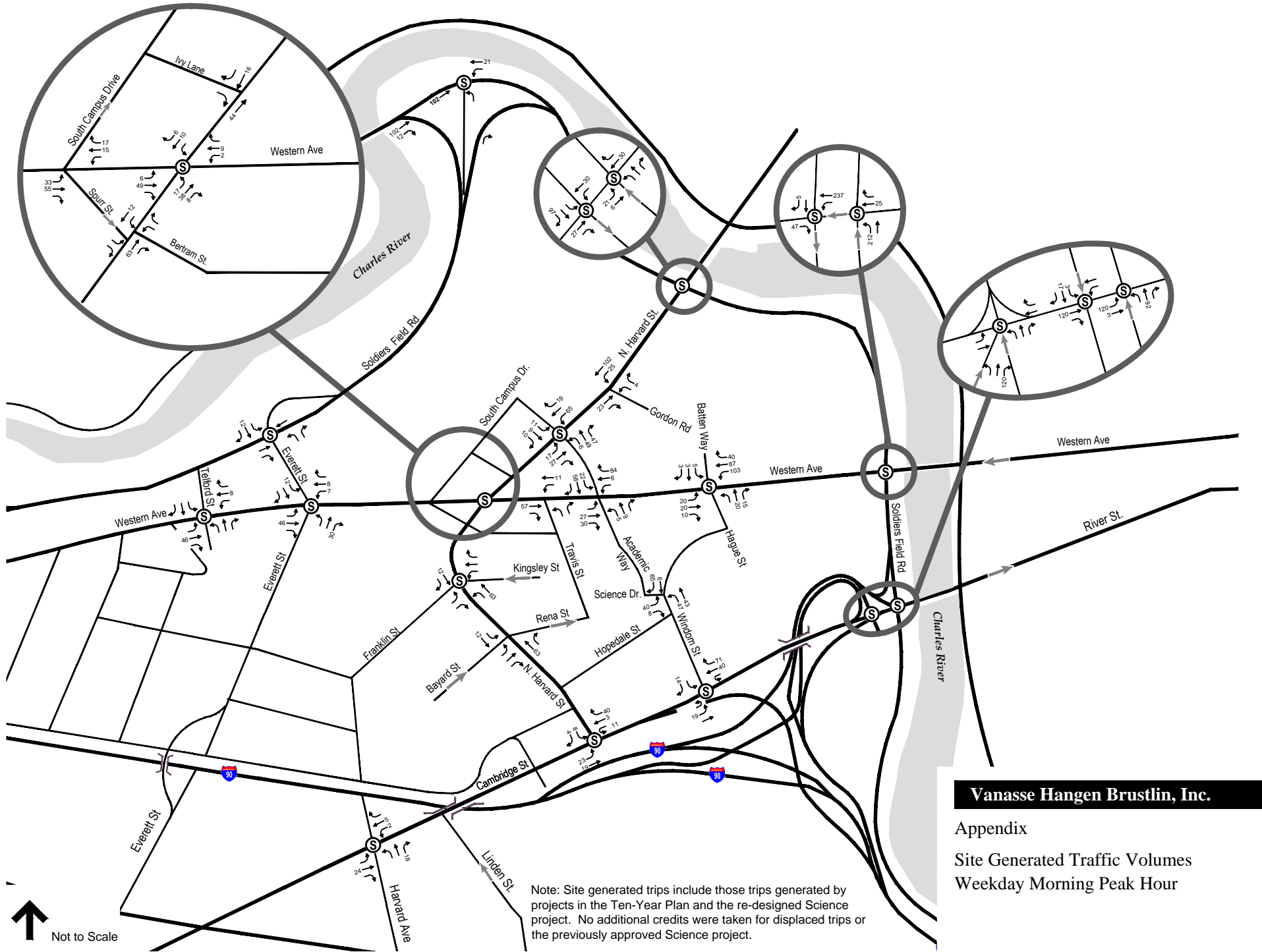
Route	Dist.	Trips	
		Morning	Evening
Route 64			
Inbound	0.4%	1.6	0.3
Outbound	0	0.0	0.0
Route 66			
Inbound	6.8%	25.0	4.4
Outbound	22.3%	82.5	14.5
Route 70			
Inbound	3.0%	11.0	1.9
Outbound	12.6%	46.8	8.2
Route 70A			
Inbound	2.0%	7.3	1.3
Outbound	8.4%	31.2	5.5
Route 86			
Inbound	14.3%	52.7	9.3
Outbound	7.2%	26.6	4.7
Harvard Sh.: BC-HS Exp.			
Northbound	0	0	0
Southbound	23.1%	85.3	15.0
TOTAL	100.0%	370	65

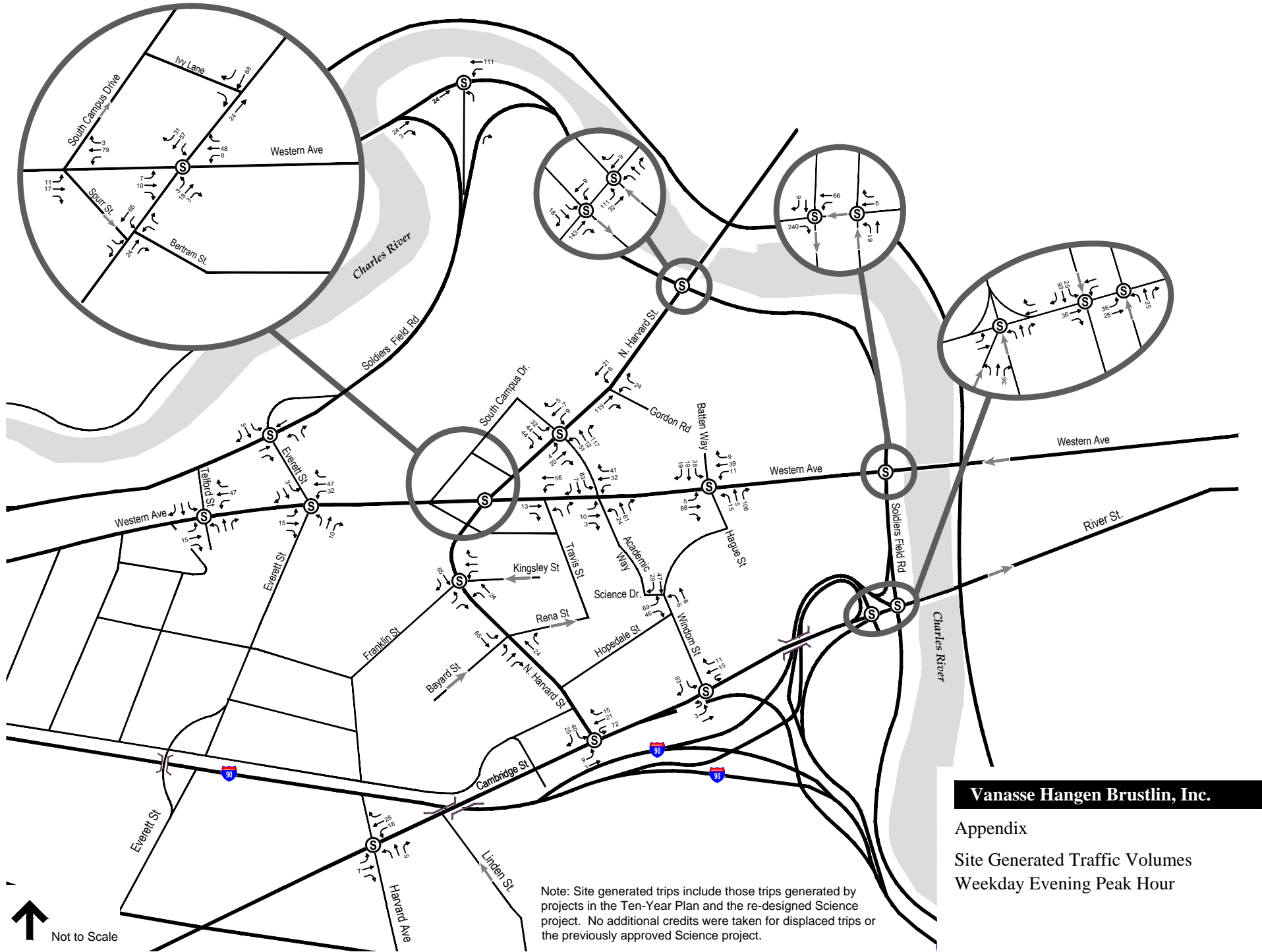
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FINAL-Exiting

Route	Dist.	Trips	
		Morning	Evening
Route 64			
Inbound		0.0	0.0
Outbound	0.4%	0.2	1.1
Route 66			
Inbound	18.8%	8.4	49.7
Outbound	6.8%	3.0	17.9
Route 70			
Inbound	12.6%	5.7	33.5
Outbound	3.0%	1.3	7.9
Route 70A			
Inbound	8.4%	3.8	22.3
Outbound	2.0%	0.9	5.2
Route 86			
Inbound	7.2%	3.2	19.1
Outbound	10.7%	4.8	28.4
Harvard Sh.: BC-HS Exp.			
Northbound	22.9%	10.3	60.6
Southbound			
Harvard Sh.: Allston Exp.	7.3%	3.3	19.2
TOTAL	100.0%	45.0	265.0

check: 45.0 265.0





Overall Capacity Summary Tables

Appendix

Intersection	Lane Group	2012 Existing Conditions								2022 No-Build Conditions								2022 Build Conditions								2022 Build Conditions with Mitigation							
		Weekday Morning Peak Hour				Weekday Evening Peak Hour				Weekday Morning Peak Hour				Weekday Evening Peak Hour				Weekday Morning Peak Hour				Weekday Evening Peak Hour				Weekday Morning Peak Hour				Weekday Evening Peak Hour			
		V/C	Delay	LOS	Q	V/C	Delay	LOS	Q	V/C	Delay	LOS	Q	V/C	Delay	LOS	Q	V/C	Delay	LOS	Q	V/C	Delay	LOS	Q	V/C	Delay	LOS	Q	V/C	Delay	LOS	Q
Western Avenue at Soldiers Field Road EB	Western Ave. EB R	0.80	42	D	202	0.98	69	E	#261	>1.20	>120	F	#694	>1.20	>120	F	#950	>1.20	>120	F	#728	>1.20	>120	F	#1162	1.12	110	F	#371	>1.20	>120	F	#603
	Western Ave. WB L	0.51	2	A	m8	0.49	0	A	m3	0.51	1	A	m8	0.50	1	A	m0	0.51	1	A	m11	0.50	1	A	m0	0.51	1	A	m12	0.50	1	A	m0
	Western Ave. WB T	0.57	3	A	m12	0.39	0	A	m4	0.69	4	A	m26	0.43	0	A	m1	0.83	8	A	m515	0.48	1	A	m1	0.83	7	A	m525	0.48	1	A	m1
	SFR SB T/R	1.18	>120	F	#548	1.08	96	F	#324	>1.20	>120	F	#624	>1.20	>120	F	#390	>1.20	>120	F	#621	>1.20	>120	F	#394	>1.20	>120	F	#621	>1.20	>120	F	#394
	Overall	0.84	50	D		0.75	37	D		>1.20	>120	F		1.11	>120	F		>1.20	>120	F		>1.20	>120	F		1.08	91	F		0.96	95	F	

Source: VHB, Inc. using Synchro 6 (Build 614) software
 Note: Shaded cells denote LOS E/F conditions.
 1. V/C - Volume-to-capacity ratio. V/C ratios range from 1.0 when demand equals capacity to 0 when demand is zero. Values over 1.0 indicate demand in excess of capacity.
 2. Delay - Control delay per vehicle, expressed in seconds, includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay.
 3. LOS - Level-of-Service. LOS A indicates free flow conditions with minimal delays. LOS E and F indicate congested conditions.
 4. Q - 95th percentile queue length estimate, in feet.
 5. The NB approach inner lane of N. Harvard Street at Soldiers Field Road WB operates as a defacto left turn lane during some conditions, not as a shared lane, and is analyzed as such.
 m Volume for 95th percentile queue is metered by upstream signal.
 # 95th percentile volume exceeds capacity; queue may be longer
 SFR = Soldiers Field Road; NB = Northbound; SB = Southbound; EB = Eastbound; WB = Westbound; L = Left-turn; T = Through; R = Right-turn

Intersection	Critical Movement(s)	2012 Existing Conditions								2022 No-Build Conditions								2022 Build Conditions								2022 Build Conditions with Mitigation															
		Weekday Morning Peak Hour				Weekday Evening Peak Hour				Weekday Morning Peak Hour				Weekday Evening Peak Hour				Weekday Morning Peak Hour				Weekday Evening Peak Hour				Weekday Morning Peak Hour				Weekday Evening Peak Hour											
		V/C ¹	Delay ²	LOS ³	Q ⁴	V/C	Delay	LOS	Q	V/C ¹	Delay ²	LOS ³	Q ⁴	V/C	Delay	LOS	Q	V/C ¹	Delay ²	LOS ³	Q ⁴	V/C	Delay	LOS	Q	V/C ¹	Delay ²	LOS ³	Q ⁴	V/C	Delay	LOS	Q								
North Harvard Street at Bertram Street / Spurr Street	Bertram St. WB Approach	0.05	16	C	4	0.09	15	C	7	0.05	17	C	4	0.10	16	C	8	0.06	20	C	5	0.11	18	C	9	0.06	20	C	5	0.11	18	C	9	0.06	20	C	5	0.11	18	C	9
	Spurr St. EB L	0.19	18	C	17	0.09	17	C	7	0.20	19	C	19	0.09	18	C	8	0.26	24	C	25	0.11	20	C	9	0.26	24	C	25	0.11	21	C	9	0.26	24	C	25	0.11	21	C	9
	Spurr St. EB R	0.25	12	B	25	0.39	15	B	47	0.27	12	B	27	0.46	17	C	60	0.28	12	B	28	0.52	20	C	75	0.28	13	B	28	0.54	21	C	78	0.28	13	B	28	0.54	21	C	78
North Harvard Street at Bayard Street / Rena Street	Bayard St. EB Approach	0.07	15	B	6	0.04	14	B	3	0.08	16	C	7	0.05	15	B	4	0.09	17	C	7	0.06	17	C	4	0.09	17	C	7	0.06	17	C	5	0.09	17	C	7	0.06	17	C	5
Western Avenue at Travis Street	Travis St. NB Approach	0.08	14	B	7	0.06	15	B	5	0.12	18	C	10	0.09	20	C	8	0.10	17	C	9	0.08	19	C	7	0.09	15	C	7	0.06	14	B	5	0.09	15	C	7	0.06	14	B	5
Hague Street at Rotterdam Street	Hague St. NB Approach	0.06	19	C	5	0.04	14	B	3			N/A				N/A				N/A				N/A				N/A				N/A				N/A					
	Hague St. SB Approach	0.12	12	B	10	0.09	10	B	8			N/A				N/A				N/A				N/A				N/A				N/A				N/A					
North Harvard Street at Gordon Road	Gordon Rd. WB Approach	0.17	15	C	15	0.24	14	B	23	0.19	16	C	17	0.27	15	C	28	0.21	17	C	20	0.35	18	C	39	0.21	17	C	19	0.35	18	C	39	0.21	17	C	19	0.35	18	C	39
North Harvard Street at South Campus Drive	South Campus Dr. EB Approach			N/A				N/A		0.07	17	C	6	0.10	19	C	8			N/A				N/A				N/A				N/A				N/A					
North Harvard Street at Ivy Lane	Ivy Lane EB Approach			N/A				N/A		0.09	11	B	7	0.15	13	B	13	0.06	11	B	5	0.13	13	B	11	0.06	11	B	5	0.13	13	B	11	0.06	11	B	5	0.13	13	B	11
Western Avenue at Academic Way	Academic Way NB Approach			N/A				N/A				N/A				N/A		0.19	22	C	17	0.55	39	E	75			N/A				N/A				N/A					
	Academic Way SB Approach			N/A				N/A				N/A				N/A		0.49	29	D	62	0.87	96	F	153			N/A				N/A				N/A					
Rotterdam Street at Science Drive	Science Drive EB Approach			N/A				N/A				N/A				N/A		0.09	12	B	8	0.16	10	B	14			N/A				N/A				N/A					

Source: VHB, Inc. using Synchro 6 (Build 614) software

Note: Shaded cells denote LOS E/F conditions.

1. V/C – Volume-to-capacity ratio. V/C ratios range from 1.0 when demand equals capacity to 0 when demand is zero. Values over 1.0 indicate demand in excess of capacity.

2. Delay – Control delay per vehicle, expressed in seconds, includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay.

3. LOS – Level-of-Service. LOS A indicates free flow conditions with minimal delays. LOS E and F indicate congested conditions.

4. Q – 95th percentile queue length estimate, in feet.

NB = Northbound; SB = Southbound; EB = Eastbound; WB = Westbound; L = Left-turn; T = Through; R = Right-turn

Vehicular Intersection Capacity Analyses

2012 Existing Conditions

2022 No-Build Conditions

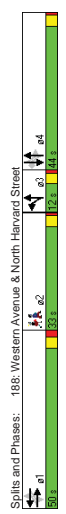
2022 Build Conditions

2022 Build with Proposed Improvements

10463.00: Harvard IMP
188: Western Avenue & North Harvard Street

2012 Existing Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vph)	12	12	12	11	11	16	12	11	11	10	10	10
Lane Width (ft)	0	0	0	0	0	0	0	0	0	0	0	100
Grade (%)	0	0	0	0	0	0	0	0	0	0	0	0
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Storage Length (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Flare Length (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Leading Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15	15	15	15	15	15	15	15	15	15	15	9
Link Turn on Red	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Link Speed (mph)	30	30	30	30	30	30	30	30	30	30	30	30
Link Delay (s)	185	185	185	212	212	169	185	185	185	185	185	185
Volume (vph)	145	340	5	65	340	55	175	325	65	20	205	145
Confl. Peds. (#/hr)	9	13	13	0	0	9	49	76	76	20	205	49
Peak Hour Factor	0.89	0.89	0.89	0.93	0.93	0.84	0.84	0.84	0.84	0.83	0.83	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	7%	6%	6%	6%	7%	7%	7%	7%	8%	8%	8%
Parking (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	163	388	0	70	425	0	208	464	0	242	156	166
Turn Type	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm
Protected Phases	1	1	1	1	1	1	3	3	4	4	4	4
Minimum Split (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Total Split (s)	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0
Total Split (%)	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Allied Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lag	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lead	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall/Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max	None
v/c Ratio	1.16	0.65	0.43	0.75	0.66	0.74	0.54	0.54	0.35	0.43	0.35	0.35
Control Delay	163.8	42.2	45.4	46.4	43.3	42.1	43.3	42.1	43.3	14.0	14.0	14.0
Queue Delay	0.0	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Length (ft)	163.8	4.27	45.8	46.4	43.3	45.8	43.3	45.8	43.3	14.0	14.0	14.0
Queue Length (s)	133	429	107	4531	190	472	286	50	286	50	50	50
Internal Link Dist (ft)	115	115	115	192	192	106	192	106	192	579	100	100
Turn Bay Length (ft)	141	594	163	569	313	625	445	443	443	443	443	443
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Starvation Cap Reductn	0	32	8	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduction v/c Ratio	1.16	0.69	0.46	0.75	0.66	0.87	0.55	0.36	0.55	0.36	0.36	0.36



Area Type: CBD
 Area Length: 125
 Actuated Lane Length: 125.8
 Natural Cycle: 100
 Control Type: Semi Act-Uncoord
 - Volume exceeds capacity, queue is theoretically infinite.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 Queue shown is maximum after two cycles.

10463.00: Harvard IMP
188: Western Avenue & North Harvard Street

2012 Existing Conditions
Weekday Morning

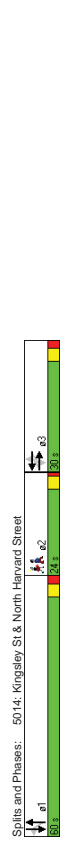
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vph)	12	12	12	11	11	16	12	11	11	10	10	10
Lane Width (ft)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flare Length (ft)	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Flare Length (s)	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Flare v/c Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flare Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flare Incremental Delay, d2	15.10	15.84	14.69	15.20	14.91	14.79	14.79	14.79	14.64	11.37	11.37	11.37
Flare Level of Service	F	D	D	D	D	D	D	D	D	D	D	D
Flare Approach LOS	E	E	E	E	E	E	E	E	E	E	E	E
Flare HCM Level of Service	D	D	D	D	D	D	D	D	D	D	D	D
Flare Sum of lost time (s)	15	15	15	15	15	15	15	15	15	15	15	15
Flare ICU Level of Service	E	E	E	E	E	E	E	E	E	E	E	E
Flare Analysis Period (min)	15	15	15	15	15	15	15	15	15	15	15	15
Flare Critical Lane Group	c	c	c	c	c	c	c	c	c	c	c	c

Area Type: CBD
 Area Length: 125
 Actuated Lane Length: 125.8
 Natural Cycle: 100
 Control Type: Semi Act-Uncoord
 - Volume exceeds capacity, queue is theoretically infinite.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 Queue shown is maximum after two cycles.

10463.00: Harvard IMP
5014: Kingsley St & North Harvard Street

2012 Existing Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	a2											
Lane Configurations	1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900											
Ideal Flow (vph)	10 10 10 13 13 13 12 12 12 12 16 16 16											
Lane Width (ft)	0 0 0 0 0 0 0 0 0 0 0 0 0											
Grades (%)	0 0 0 0 0 0 0 0 0 0 0 0 0											
Storage Length (ft)	0 0 0 0 0 0 0 0 0 0 0 0 0											
Storage Length (s)	0 0 0 0 0 0 0 0 0 0 0 0 0											
Lead Time (s)	4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0											
Leading Detector (ft)	0 0 0 0 0 0 0 0 0 0 0 0 0											
Trailing Speed (mph)	15 9 15 9 15 9 15 9 15 9 15 9 15											
Right Turn on Red	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes											
Link Speed (mph)	25 30 30 30 30 30 30 30 30 30 30 30 30											
Link Delay (s)	173 173 173 173 173 173 173 173 173 173 173 173 173											
Volume (vph)	70 0 35 10 5 5 20 445 0 0 395 55											
Confl. Peds. (#/hr)	0 0 0 0 0 0 0 0 0 0 0 0 0											
Peak Hour Factor	0.89 0.89 0.59 0.59 0.84 0.84 0.84 0.84 0.84 0.84 0.85 0.85											
Growth Factor	100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 100%											
Heavy Vehicles (%)	5% 5% 5% 5% 5% 5% 9% 9% 9% 9% 10% 10% 10%											
Parking (#/hr)	0 0 0 0 0 0 0 0 0 0 0 0 0											
Mid-Block Traffic (%)	0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%											
Lane Group Flow (vph)	Perm 3 3 3 3 3 3 3 3 3 3 3 3											
Turn Type	Perm 3 3 3 3 3 3 3 3 3 3 3 3											
Protected Phases	3 3 3 3 3 3 3 3 3 3 3 3											
Permitted Phases	3 3 3 3 3 3 3 3 3 3 3 3											
Minimum Initial (s)	8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0											
Minimum Split (s)	13.0 13.0 13.0 13.0 13.0 13.0 13.0 13.0 13.0 13.0 13.0 13.0											
Total Split (s)	30.0 30.0 30.0 30.0 30.0 30.0 60.0 60.0 60.0 60.0 60.0 60.0											
Total Split (%)	26.3% 26.3% 0.0% 26.3% 26.3% 0.0% 52.6% 52.6% 0.0% 52.6% 0.0%											
Yellow Time (s)	3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0											
Allied Time (s)	2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0											
Lead Lag	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes											
Lead Lag Optimize?	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes											
Recall Mode	None None None None Max Max Max Max											
v/c Ratio	0.66 0.16 0.54 0.41											
Control Delay	50.5 31.9 17.1 13.9											
Queue Delay	0.2 0.0 0.1 0.3											
Queue Length	50.7 31.9 17.2 14.3											
Queue Length 95th (ft)	120 75 25 318											
Queue Length 95th (ft)	293 236 297 170											
Internal Link Dist (ft)	279 328 1020 1161											
Base Capacity (vph)	0 0 0 261											
Starvation Cap Reductn	12 14 42 0											
Storage Cap Reductn	0 0 0 0											
Reaches v/c Ratio	0.44 0.11 0.57 0.59											
Area Type	CBD											
Area Length	114											
Area Width	102.3											
Actual Cycle Length	102.3											
Natural Cycle	70											
Control Type	Semi Act-Uncoord											



Splits and Phases: 5014: Kingsley St & North Harvard Street
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VHB, Inc. 5/10/2013

10463.00: Harvard IMP
5014: Kingsley St & North Harvard Street

2012 Existing Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900											
Ideal Flow (vph)	10 10 10 13 13 13 12 12 12 12 16 16 16											
Lane Width (ft)	0 0 0 0 0 0 0 0 0 0 0 0 0											
Total Lost Time (s)	4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0											
Lane Util. Factor	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00											
Storage Length (ft)	0 0 0 0 0 0 0 0 0 0 0 0 0											
Storage Length (s)	0 0 0 0 0 0 0 0 0 0 0 0 0											
Lead Time (s)	4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0											
Leading Detector (ft)	0 0 0 0 0 0 0 0 0 0 0 0 0											
Trailing Speed (mph)	15 9 15 9 15 9 15 9 15 9 15 9 15											
Right Turn on Red	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes											
Link Speed (mph)	25 30 30 30 30 30 30 30 30 30 30 30 30											
Link Delay (s)	173 173 173 173 173 173 173 173 173 173 173 173 173											
Volume (vph)	70 0 35 10 5 5 20 445 0 0 395 55											
Confl. Peds. (#/hr)	0 0 0 0 0 0 0 0 0 0 0 0 0											
Peak Hour Factor	0.89 0.89 0.59 0.59 0.84 0.84 0.84 0.84 0.84 0.84 0.85 0.85											
Growth Factor	100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 100%											
Heavy Vehicles (%)	5% 5% 5% 5% 5% 5% 9% 9% 9% 9% 10% 10% 10%											
Parking (#/hr)	0 0 0 0 0 0 0 0 0 0 0 0 0											
Mid-Block Traffic (%)	0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%											
Lane Group Flow (vph)	Perm 3 3 3 3 3 3 3 3 3 3 3 3											
Turn Type	Perm 3 3 3 3 3 3 3 3 3 3 3 3											
Protected Phases	3 3 3 3 3 3 3 3 3 3 3 3											
Permitted Phases	3 3 3 3 3 3 3 3 3 3 3 3											
Minimum Initial (s)	8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0											
Minimum Split (s)	13.0 13.0 13.0 13.0 13.0 13.0 13.0 13.0 13.0 13.0 13.0 13.0											
Total Split (s)	30.0 30.0 30.0 30.0 30.0 30.0 60.0 60.0 60.0 60.0 60.0 60.0											
Total Split (%)	26.3% 26.3% 0.0% 26.3% 26.3% 0.0% 52.6% 52.6% 0.0% 52.6% 0.0%											
Yellow Time (s)	3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0											
Allied Time (s)	2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0											
Lead Lag	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes											
Lead Lag Optimize?	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes											
Recall Mode	None None None None Max Max Max Max											
v/c Ratio	0.66 0.15 0.02 0.27											
Control Delay	50.5 31.9 17.1 13.9											
Queue Delay	0.2 0.0 0.1 0.3											
Queue Length	50.7 31.9 17.2 14.3											
Queue Length 95th (ft)	120 75 25 318											
Queue Length 95th (ft)	293 236 297 170											
Internal Link Dist (ft)	279 328 1020 1161											
Base Capacity (vph)	0 0 0 261											
Starvation Cap Reductn	12 14 42 0											
Storage Cap Reductn	0 0 0 0											
Reaches v/c Ratio	0.44 0.11 0.57 0.59											
Area Type	CBD											
Area Length	114											
Area Width	102.3											
Actual Cycle Length	102.3											
Natural Cycle	70											
Control Type	Semi Act-Uncoord											

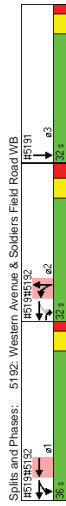


Splits and Phases: 5014: Kingsley St & North Harvard Street
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VHB, Inc. 5/10/2013

10463.00: Harvard IMP
5192: Western Avenue & Soldiers Field Road WB

2012 Existing Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	a3
Lane Group												
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vph)	12	12	12	11	11	11	11	11	11	11	12	12
Lane Width (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Grade (%)	0	0	0	0	0	0	0	0	0	0	0	0
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Storage Time (s)	0	0	0	0	0	0	0	0	0	0	0	0
Trailing Detector (ft)	4.0	4.0	4.0	6.0	4.0	4.0	6.0	4.0	4.0	4.0	4.0	4.0
Trailing Detector (ft)	15	9	15	0	0	0	50	50	0	0	0	0
Turning Speed (mph)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Link Speed (mph)	30	30	30	30	30	30	30	30	30	30	30	30
Link Distance (ft)	100	100	100	100	100	100	100	100	100	100	100	100
Volume (vph)	2	2	2	418	418	418	165	180	0	0	0	0
Confl. Peds. (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.98	0.98	0.98	0.83	0.83	0.83	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	7%	7%	7%	2%	2%	2%
Pedals (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	0	0	0	1556	0	0	416	0	0	0	0	0
Turn Type	Split											
Protected Phases	1 2 2											
Actuated Green, g (s)	10.0 10.0 10.0											
Minimum Split (s)	2.0 2.0 2.0											
Total Split (s)	0.0 0.0 0.0 36.0 0.0 32.0 32.0 0.0 0.0 0.0 0.0 32.0											
Total Split (%)	0.0% 0.0% 0.0% 0.0% 36.0% 0.0% 32.0% 32.0% 0.0% 0.0% 0.0% 0.0% 32.0%											
Yellow Time (s)	4.0 4.0 4.0											
All-red Time (s)	3.0 3.0 3.0											
Lead-Lag	Yes											
Lead-Lag Optimize?	Yes											
Recall Mode	C-Max											
v/c Ratio	1.08											
Queue Delay	73.9											
Queue Length	16.1											
Queue Length 95th (ft)	83.9											
Queue Length 95th (ft)	81.0											
Internal Link Dist (ft)	m4434											
Turn Bay Length (ft)	384											
Base Capacity (vph)	1441											
Starvation Cap Reductn	0											
Storage Cap Reductn	48											
Reaches v/c Ratio	1.12											
Intersection Summary												
Area Type	CBD											
Area Length	100											
Area Width	100											
Actuated Cycle Length	100											
Offser: 0 (0%)	Referenced to phase 1=WBL1, Start of Green, Master Intersection											
Natural Cycle: 110												
Control Type: Actuated-Coordinated												
- Volume exceeds capacity, queue is theoretically infinite.												
- Queue shown is maximum after two cycles.												
# Split phase volume exceeds capacity, queue may be longer.												
Control Type: Actuated												
Control Type: Actuated												
m - Volume for 85th percentile queue is metered by upstream signal.												



10463.00: Harvard IMP
5192: Western Avenue & Soldiers Field Road WB

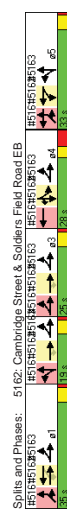
2012 Existing Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Ideal Flow (vph)	12	12	12	11	11	11	11	11	11	12	12	
Lane Width (ft)	0	0	0	0	0	0	0	0	0	0	0	
Grade (%)	0	0	0	0	0	0	0	0	0	0	0	
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0	
Storage Time (s)	0	0	0	0	0	0	0	0	0	0	0	
Trailing Detector (ft)	4.0	4.0	4.0	6.0	4.0	4.0	6.0	4.0	4.0	4.0	4.0	
Trailing Detector (ft)	15	9	15	0	0	0	50	50	0	0	0	
Turning Speed (mph)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Link Speed (mph)	30	30	30	30	30	30	30	30	30	30	30	
Link Distance (ft)	100	100	100	100	100	100	100	100	100	100	100	
Volume (vph)	2	2	2	418	418	418	165	180	0	0	0	
Confl. Peds. (#/hr)	0	0	0	0	0	0	0	0	0	0	0	
Peak Hour Factor	0.92	0.92	0.92	0.98	0.98	0.98	0.83	0.83	0.83	0.92	0.92	
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	7%	7%	7%	2%	2%	
Pedals (#/hr)	0	0	0	0	0	0	0	0	0	0	0	
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Lane Group Flow (vph)	0	0	0	1556	0	0	416	0	0	0	0	
Turn Type	Split											
Protected Phases	1 2 2											
Actuated Green, g (s)	33.1											
Minimum Split (s)	2.0											
Total Split (s)	0.0 0.0 0.0 36.0 0.0 32.0 32.0 0.0 0.0 0.0 0.0 32.0											
Total Split (%)	0.0% 0.0% 0.0% 0.0% 36.0% 0.0% 32.0% 32.0% 0.0% 0.0% 0.0% 0.0% 32.0%											
Yellow Time (s)	4.0 4.0 4.0											
All-red Time (s)	3.0 3.0 3.0											
Lead-Lag	Yes											
Lead-Lag Optimize?	Yes											
Recall Mode	C-Max											
v/c Ratio	1.08											
Queue Delay	73.9											
Queue Length	16.1											
Queue Length 95th (ft)	83.9											
Queue Length 95th (ft)	81.0											
Internal Link Dist (ft)	m4434											
Turn Bay Length (ft)	384											
Base Capacity (vph)	1441											
Starvation Cap Reductn	0											
Storage Cap Reductn	48											
Reaches v/c Ratio	1.12											
Intersection Summary												
HCM Average Control Delay	66.7											
HCM Volume to Capacity Ratio	0.80											
Actuated Cycle Length (s)	100.0											
Sum of lost time (s)	44.0											
Intersection Capacity Utilization	106.9%											
ICU Level of Service	G											
Area Type	CBD											
Area Length	100											
Area Width	100											
Actuated Cycle Length	100											
Offser: 0 (0%)	Referenced to phase 1=WBL1, Start of Green, Master Intersection											
Natural Cycle: 110												
Control Type: Actuated-Coordinated												
- Volume exceeds capacity, queue is theoretically infinite.												
- Queue shown is maximum after two cycles.												
# Split phase volume exceeds capacity, queue may be longer.												
Control Type: Actuated												
Control Type: Actuated												
m - Volume for 85th percentile queue is metered by upstream signal.												

10463.00: Harvard IMP
5162: Cambridge Street & Soldiers Field Road EB

2012 Existing Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	e1 e2 e3											
Lane Configurations	↑↑↑											
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	12	12	12	11	11	10
Grade (%)	0	0	0	0	0	0	0	0	0	0	0	0
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Storage Spacing (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Storage Length (ft)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15											
Right Turn on Red	Yes											
Link Speed (mph)	35	35	35	35	35	35	30	30	30	30	30	30
Link Distance (ft)	170	170	170	170	170	170	306	306	306	266	266	266
Volume (vph)	0	1380	435	5	320	0	0	0	0	470	355	125
Conf. Peds. (#/hr)	0											
Peak-Hour Factor	0.94	0.84	0.79	0.79	0.92	0.92	0.92	0.92	0.92	0.85	0.85	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	0%	0%	2%	2%	4%	4%	4%	4%	4%
Parking (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Mid-Block Traffic (%)	0%											
Lane Group Flow (vph)	0	1468	463	0	411	0	0	0	0	495	374	132
Turn Type	1 2 3 5 1 5 pmm+pt											
Protected Phases	1 2 3 5 1 5 4 4 4 4 1 2 3											
Permitted Phases	1 2 3 1 5 1 5											
Minimum Initial (s)	1.2 3 1 2 3 8.0 1.5											
Minimum Split (s)	13.0											
Total Split (%)	0.0 79.0 79.0 33.0 68.0 0.0 0.0 0.0 0.0 20.0% 20.0% 20.0% 20.0%											
Yellow Time (s)	4.0											
All-Red Time (s)	1.0											
Lead Lag	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes											
Recall Mode	None None None None None None None None None None None None											
v/c Ratio	0.63	0.49	0.30	0.30	0.30	0.30	0.99	1.38	0.41	0.99	1.38	0.41
Control Delay	18.1	6.0	0.0	0.0	0.0	0.0	94.2	232.7	14.8	94.2	232.7	14.8
Queue Delay	65.7	5.5	0.0	0.0	0.0	0.0	22.5	0.0	0.0	22.5	0.0	0.0
Queue Length 95th (ft)	83.9	11.5	0.0	0.0	0.0	0.0	116.7	232.7	14.8	116.7	232.7	14.8
Queue Length 95th (ft)	m:337 m:88											
Internal Link Dist (ft)	0 306 226											
Turn Bay Length (ft)	0 0 0 0 0 0 0 0 0 0 0 0											
Base Capacity (vph)	2306 935 1378											
Starvation Cap Reductn	1018 402 0 0 0 0 0 0 0 0 0 0											
Spillback Cap Reductn	4 0 0 0 0 0 0 0 0 0 0 0											
Storage Cap Reductn	0 0 0 0 0 0 0 0 0 0 0 0											
Reaches v/c Ratio	1.14 0.87 0.90											
Intersection Summary												
Area Type:	CBD											
Officer:	95 (68%)											
Actuated Cycle Length:	140											
Natural Cycle:	110											
Control Type:	Actuated-Coordinated											
# Volume exceeds capacity, queue is theoretically infinite.	0											
# Queue shown is maximum after two cycles.	0											
# Split shows volume exceeds capacity, queue may be longer.	0											
# Control shows volume exceeds capacity, queue may be longer.	0											
m - Volume for 95th percentile queue is met/beat by upstream signal.	0											



10463.00: Harvard IMP
5162: Cambridge Street & Soldiers Field Road EB

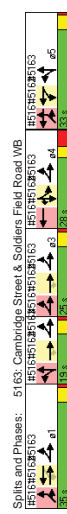
2012 Existing Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑											
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	12	12	12	11	11	10
Grade (%)	0	0	0	0	0	0	0	0	0	0	0	0
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Storage Spacing (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Storage Length (ft)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15											
Right Turn on Red	Yes											
Link Speed (mph)	35	35	35	35	35	35	30	30	30	30	30	30
Link Distance (ft)	170	170	170	170	170	170	306	306	306	266	266	266
Volume (vph)	0	1380	435	5	320	0	0	0	0	470	355	125
Conf. Peds. (#/hr)	0											
Peak-Hour Factor	0.94	0.84	0.79	0.79	0.92	0.92	0.92	0.92	0.92	0.85	0.85	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	0%	0%	2%	2%	4%	4%	4%	4%	4%
Parking (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Mid-Block Traffic (%)	0%											
Lane Group Flow (vph)	0	1468	463	0	411	0	0	0	0	495	374	132
Turn Type	1 2 3 5 1 5 pmm+pt											
Protected Phases	1 2 3 1 5 1 5											
Permitted Phases	1 2 3 1 5											
Minimum Initial (s)	1.2 3 1 2 3 8.0 1.5											
Minimum Split (s)	13.0											
Total Split (%)	0.0 79.0 79.0 33.0 68.0 0.0 0.0 0.0 0.0 20.0% 20.0% 20.0% 20.0%											
Yellow Time (s)	4.0											
All-Red Time (s)	1.0											
Lead Lag	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes											
Recall Mode	None None None None None None None None None None None None											
v/c Ratio	0.63	0.49	0.30	0.30	0.30	0.30	0.99	1.38	0.41	0.99	1.38	0.41
Control Delay	18.1	6.0	0.0	0.0	0.0	0.0	94.2	232.7	14.8	94.2	232.7	14.8
Queue Delay	65.7	5.5	0.0	0.0	0.0	0.0	22.5	0.0	0.0	22.5	0.0	0.0
Queue Length 95th (ft)	83.9	11.5	0.0	0.0	0.0	0.0	116.7	232.7	14.8	116.7	232.7	14.8
Queue Length 95th (ft)	m:337 m:88											
Internal Link Dist (ft)	0 306 226											
Turn Bay Length (ft)	0 0 0 0 0 0 0 0 0 0 0 0											
Base Capacity (vph)	2306 935 1378											
Starvation Cap Reductn	1018 402 0 0 0 0 0 0 0 0 0 0											
Spillback Cap Reductn	4 0 0 0 0 0 0 0 0 0 0 0											
Storage Cap Reductn	0 0 0 0 0 0 0 0 0 0 0 0											
Reaches v/c Ratio	1.14 0.87 0.90											
Intersection Summary												
Area Type:	CBD											
Officer:	95 (68%)											
Actuated Cycle Length:	140											
Natural Cycle:	110											
Control Type:	Actuated-Coordinated											
# Volume exceeds capacity, queue is theoretically infinite.	0											
# Queue shown is maximum after two cycles.	0											
# Split shows volume exceeds capacity, queue may be longer.	0											
# Control shows volume exceeds capacity, queue may be longer.	0											
m - Volume for 95th percentile queue is met/beat by upstream signal.	0											

10463.00: Harvard IMP
5163: Cambridge Street & Soldiers Field Road WB

2012 Existing Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	e1	e2	e3	e4	
Lane Group	EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL SBR e1 e2 e3 e4															
Lane Configurations	4+4															
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900					
Lane Width (ft)	11	11	11	12	12	12	11	10	10	12	12					
Grade (%)	0%															
Storage Length (ft)	0															
Storage Length (s)	0															
Trailing Detector (ft)	0															
Trailing Detector (s)	0															
Trailing Detector (ft)	0															
Trailing Detector (s)	0															
Right Turn on Red	9															
Link Speed (mph)	35															
Link Speed (ft/s)	30															
Volume (vph)	230															
Volume (vph)	230															
Conf. Peds. (#/hr)	0															
Peak-Hour Factor	0.94															
Growth Factor	100%															
Heavy Vehicles (%)	4%															
Parking (#/hr)	0															
Mid-Block Traffic (%)	0%															
Lane Group Flow (vph)	0															
Turn Type	Split															
Permitted Phases	1 2 3 4															
Minimum Split (s)	5															
Minimum Split (%)	8.0															
Total Split (s)	107.0															
Total Split (%)	76.4%															
Yellow Time (s)	4.0															
All-red Time (s)	1.0															
Recall Mode	None															
v/c Ratio	0.62															
Control Delay	1.1															
Queue Delay	0.3															
Queue Length (ft)	177.3															
Queue Length (s)	328.1															
Queue Length (veh)	449.7															
Internal Link Dist (ft)	m13															
Turn Bay Length (ft)	375															
Base Capacity (vph)	3155															
Starvation Cap. Reductn	0															
Storage Cap. Reductn	468															
Reduced v/c Ratio	0.79															
Area Type:	CBD															
Officer:	95															
Actuated Cycle Length:	140															
Natural Cycle:	110															
Control Type:	Actuated-Coordinated															
Volume exceeds capacity:	No															
Queue shown is maximum after two cycles.	No															
Split shown is volume exclusive of queue.	No															
Control shown is maximum after two cycles.	No															
Queue shown is volume exclusive of queue.	No															
Control shown is maximum after two cycles.	No															
Volume for 85th percentile queue is metered by upstream signal.	No															



Splits and Phases: 5163: Cambridge Street & Soldiers Field Road WB
 e1: 25%, e2: 25%, e3: 25%, e4: 25%

10463.00: Harvard IMP
5163: Cambridge Street & Soldiers Field Road WB

2012 Existing Conditions
Weekday Morning

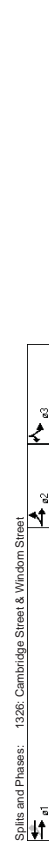
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	
Lane Configurations	4+4											
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	11	11	11	12	12	12	11	10	10	12	12	
Grade (%)	0%											
Storage Length (ft)	0											
Storage Length (s)	0											
Trailing Detector (ft)	0											
Trailing Detector (s)	0											
Trailing Detector (ft)	0											
Trailing Detector (s)	0											
Right Turn on Red	9											
Link Speed (mph)	35											
Link Speed (ft/s)	30											
Volume (vph)	230											
Volume (vph)	230											
Conf. Peds. (#/hr)	0											
Peak-Hour Factor	0.94											
Growth Factor	100%											
Heavy Vehicles (%)	4%											
Parking (#/hr)	0											
Mid-Block Traffic (%)	0%											
Lane Group Flow (vph)	0											
Turn Type	Split											
Permitted Phases	1 2 3 4											
Minimum Split (s)	5											
Minimum Split (%)	8.0											
Total Split (s)	107.0											
Total Split (%)	76.4%											
Yellow Time (s)	4.0											
All-red Time (s)	1.0											
Recall Mode	None											
v/c Ratio	0.62											
Control Delay	1.1											
Queue Delay	0.3											
Queue Length (ft)	177.3											
Queue Length (s)	328.1											
Queue Length (veh)	449.7											
Internal Link Dist (ft)	m13											
Turn Bay Length (ft)	375											
Base Capacity (vph)	3155											
Starvation Cap. Reductn	0											
Storage Cap. Reductn	468											
Reduced v/c Ratio	0.79											
Area Type:	CBD											
Officer:	95											
Actuated Cycle Length:	140											
Natural Cycle:	110											
Control Type:	Actuated-Coordinated											
Volume exceeds capacity:	No											
Queue shown is maximum after two cycles.	No											
Split shown is volume exclusive of queue.	No											
Control shown is maximum after two cycles.	No											
Queue shown is volume exclusive of queue.	No											
Control shown is maximum after two cycles.	No											
Volume for 85th percentile queue is metered by upstream signal.	No											

Intersection Summary	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
HCM Average Control Delay	48.1										
HCM Volume to Capacity ratio	0.75										
Actuated Cycle Length (s)	140.0										
Intersection Capacity Utilization	65.2%										
Approach	15										
Critical Lane Group	F										

10463.00: Harvard IMP
1326: Cambridge Street & Windom Street

2012 Existing Conditions
Weekday Morning

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	12	10	10	14	14	14
Lane Width (ft)	0%	0%	0%	0%	0%	0%
Grade (%)	175	0	0	100	0	0
Storage Length (ft)	4.0	4.0	4.0	4.0	4.0	4.0
Storage Length (s)	50	50	50	50	50	50
Leading Detector (ft)	0	0	0	0	0	0
Trailing Detector (ft)	15	0	0	0	0	0
Turning Speed (mph)	40	35	30	30	30	30
Link Speed (mph)	200	100	100	100	100	100
Link Delay (s)	3	2	2	2	2	2
Volume (vph)	35	595	1245	280	95	20
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)	0.89	0.88	0.88	0.86	0.86	0.86
Peak Hour Factor	100%	100%	100%	100%	100%	100%
Growth Factor	3%	3%	8%	3%	3%	3%
Heavy Vehicles (%)	0	0	0	0	0	0
Parking (veh)	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	39	669	1415	318	110	23
Turn Type	pm+pt	Perm	Perm	Prot	Prot	Prot
Protected Phases	2	1	2	1	3	3
Permitted Phases	1, 2	1	1	1	3	3
Minimum Initial (s)	6.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	10.0	13.0	13.0	20.0	20.0	20.0
Total Split (s)	17.0	80.0	63.0	20.0	20.0	20.0
Total Split (%)	17.0%	80.0%	63.0%	20.0%	20.0%	20.0%
Yellow Time (s)	3.0	4.0	4.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Ag Lead (s)	Yes	Yes	Yes	Yes	Yes	Yes
Lead to Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Min	C-Max	C-Max	Min	Min	Min
v/c Ratio	0.17	0.20	0.71	0.32	0.59	0.12
Control Delay	2.3	0.8	11.6	1.6	54.7	16.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Queue Length	2.3	0.8	11.6	1.6	54.7	16.3
Queue Length 95th (ft)	0	0	0	0	0	0
Queue Length 95th (ft)	m3	m17	360	25	113	21
Internal Link Dist (ft)	175	120	980	100	654	100
Turn Bay Length (ft)	333	3718	1991	983	269	260
Base Capacity (vph)	0	0	0	0	0	0
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.18	0.71	0.32	0.41	0.09



Splits and Phases: 1326: Cambridge Street & Windom Street

10463.00: Harvard IMP
1326: Cambridge Street & Windom Street

2012 Existing Conditions
Weekday Morning

	EBL	EBT	WBT	WBR	SBL	SBR
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	12	10	10	14	14	14
Lane Width (ft)	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	1.00	0.81	0.85	1.00	1.00	1.00
Lane Util. Factor	0.96	1.00	1.00	0.95	0.95	0.95
Flt Protected	1577	4230	2808	1256	1832	1505
Satd. Flow (prot)	0.14	1.00	1.00	0.95	1.00	1.00
Flt Permitted	241	4230	2808	1256	1832	1505
Satd. Flow (perm)	35	595	1245	280	95	20
Volume (vph)	0.89	0.89	0.88	0.88	0.86	0.86
Peak-hour factor, PHF	39	669	1415	318	110	23
Adj. Flow (vph)	0	669	1415	318	110	23
Heavy Vehicles (%)	3%	3%	8%	3%	3%	3%
Lane Group Flow (vph)	39	669	1415	318	110	23
Turn Type	pm+pt	Perm	Perm	Prot	Prot	Prot
Protected Phases	2	1	2	1	3	3
Permitted Phases	1, 2	1	1	1	3	3
Actuated Green, G (s)	75.9	80.9	69.9	69.9	111.1	111.1
Effective Green, g (s)	76.9	80.9	70.9	70.9	111.1	111.1
Clearance Time (s)	4.0	0.81	0.85	0.85	4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lane Cap (vph)	265	3422	1951	691	167	167
v/s Ratio Prot	0.01	c0.16	c0.50	c0.07	0.00	0.00
v/s Ratio Perm	0.10	0.20	0.71	0.25	0.59	0.02
Uniform Delay, d1	9.0	2.2	8.5	5.2	42.3	39.6
Incremental Delay, d2	0.1	0.0	2.2	0.7	3.0	0.0
Delay (s)	2.6	0.7	10.7	5.8	45.3	39.6
Level of Service	A	A	B	A	D	D
Approach Delay (s)	A	A	9.8	A	44.3	D
Approach LOS	A	A	A	A	D	D

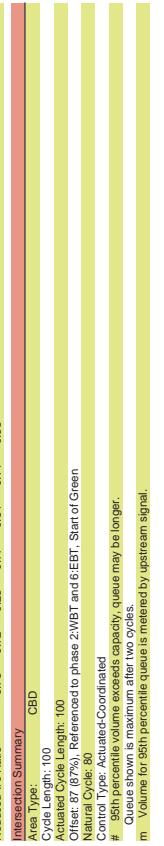


Splits and Phases: 1326: Cambridge Street & Windom Street

10463.00: Harvard IMP
803: Cambridge Street & North Harvard Street

2012 Existing Conditions
Weekday Morning

	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	11	11	10	11	10	12	12
Lane Width (ft)	200	120	0%	100	0	50	50
Storage Length (ft)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Storage Length (s)	50	50	50	50	50	50	50
Leading Detector (ft)	0	0	0	0	0	0	0
Trailing Detector (ft)	15	9	9	15	9	15	9
Turning Speed (mph)	35	35	35	35	35	35	35
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	No	No
Link Speed (mph)	48	48	48	48	48	48	48
Link Distance (ft)	426	426	426	426	426	426	426
Link Delay (s)	98	98	98	98	98	98	98
Volume (vph)	230	1595	40	915	310	295	230
Confl. Peds. (#/hr)	16	16	16	16	16	16	16
Peak Hour Factor	0.94	0.87	0.87	0.87	0.87	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	4%	4%	4%	7%	7%
Bicycles (#/hr)	0	0	0	0	0	0	0
Parking (#/hr)	0	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	245	1601	46	1052	356	314	245
Turn Type	Prot	Prot	Perm	Perm	ptov	ptov	ptov
Permitted Phases	1	6	5	2	4	1,4	1,4
Minimum Initial (s)	8.0	12.0	8.0	12.0	12.0	12.0	12.0
Minimum Split (s)	14.0	16.0	12.0	25.0	25.0	29.0	29.0
Total Split (s)	25.0	51.0	17.0	43.0	43.0	32.0	57.0
Total Split (%)	25.0%	51.0%	17.0%	43.0%	43.0%	32.0%	57.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Allied Time (s)	3.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead Lag (s)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lead/Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	Max	C-Max	C-Max	Min	Min
v/c Ratio	0.77	0.70	0.23	0.77	0.54	0.83	0.37
Control Delay	64.1	16.1	32.8	29.6	15.7	54.5	16.9
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Queue Length	64.1	16.2	32.8	29.6	15.7	54.5	16.9
Queue Length 95th (ft)	#254	379	m42	332	156	280	136
Internal Link Dist (ft)	200	408	346	346	100	497	50
Turn Bay Length (ft)	336	2286	204	1369	660	440	676
Base Capacity (vph)	0	0	0	0	0	0	0
Starvation Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.72	0.23	0.77	0.54	0.71	0.36



Area Type: 100
 Area Length: 100
 Actuated Cycle Length: 100
 Offset: 87 (87%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 m Queue shown is maximum after two cycles.
 n Volume for 95th percentile queue is metered by upstream signal.



10463.00: Harvard IMP
803: Cambridge Street & North Harvard Street

2012 Existing Conditions
Weekday Morning

	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	11	11	10	11	10	12	12
Lane Width (ft)	200	120	0%	100	0	50	50
Storage Length (ft)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Storage Length (s)	50	50	50	50	50	50	50
Leading Detector (ft)	0	0	0	0	0	0	0
Trailing Detector (ft)	15	9	9	15	9	15	9
Turning Speed (mph)	35	35	35	35	35	35	35
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	No	No
Link Speed (mph)	48	48	48	48	48	48	48
Link Distance (ft)	426	426	426	426	426	426	426
Link Delay (s)	98	98	98	98	98	98	98
Volume (vph)	230	1595	40	915	310	295	230
Confl. Peds. (#/hr)	16	16	16	16	16	16	16
Peak Hour Factor	0.94	0.87	0.87	0.87	0.87	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	4%	4%	4%	7%	7%
Bicycles (#/hr)	0	0	0	0	0	0	0
Parking (#/hr)	0	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	245	1601	46	1052	356	314	245
Turn Type	Prot	Prot	Perm	Perm	ptov	ptov	ptov
Permitted Phases	1	6	5	2	4	1,4	1,4
Minimum Initial (s)	8.0	12.0	8.0	12.0	12.0	12.0	12.0
Minimum Split (s)	14.0	16.0	12.0	25.0	25.0	29.0	29.0
Total Split (s)	25.0	51.0	17.0	43.0	43.0	32.0	57.0
Total Split (%)	25.0%	51.0%	17.0%	43.0%	43.0%	32.0%	57.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Allied Time (s)	3.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead Lag (s)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lead/Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	Max	C-Max	C-Max	Min	Min
v/c Ratio	0.77	0.70	0.23	0.77	0.54	0.83	0.37
Control Delay	64.1	16.1	32.8	29.6	15.7	54.5	16.9
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Queue Length	64.1	16.2	32.8	29.6	15.7	54.5	16.9
Queue Length 95th (ft)	#254	379	m42	332	156	280	136
Internal Link Dist (ft)	200	408	346	346	100	497	50
Turn Bay Length (ft)	336	2286	204	1369	660	440	676
Base Capacity (vph)	0	0	0	0	0	0	0
Starvation Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.72	0.23	0.77	0.54	0.71	0.36



Area Type: 100
 Area Length: 100
 Actuated Cycle Length: 100
 Offset: 87 (87%), Referenced to phase 2:WBT and 6:EBT, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 m Queue shown is maximum after two cycles.
 n Volume for 95th percentile queue is metered by upstream signal.



10463.00: Harvard IMP
621: Cambridge Street & Franklin St

2012 Existing Conditions
Weekday Morning

2012 Existing Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group												
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Ideal Flow (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	11	12	12	12	12	10	11	12	10	11	16
Total Lost Time (s)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Util. Factor	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Storage Length (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Queue Length (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Leaving Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Turning Speed (mph)	15	9	15	0	0	0	0	0	0	0	0	0
Right Turn on Red	35	No	25	No	No	30	No	No	30	No	No	No
Link Speed (mph)	14.0	4.0	11.0	11.0	11.0	5.0	11.0	11.0	11.0	11.0	11.0	11.0
Volume (vph)	0	470	10	390	530	95	30	445	120	30	5	1
Conf. Peds. (#/hr)	41	17	17	0	0	0	0	0	0	0	0	0
Peak Hour Factor	0.87	0.87	0.94	0.84	0.85	0.85	0.85	0.85	0.75	0.75	0.75	0.75
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
Pedestrians (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	Perm	0	551	0	415	564	101	0	70	524	0	207
Turn Type	Perm	1	1	1	1	1	1	1	1	1	1	1
Protected Phases	1	1	1	1	1	1	1	1	1	1	1	1
Minimum Initial (s)	11.0	11.0	8.0	14.0	14.0	14.0	6.0	6.0	6.0	6.0	6.0	11.0
Minimum Split (s)	15.0	15.0	12.0	10.0	10.0	12.0	10.0	10.0	10.0	10.0	10.0	15.0
Total Split (s)	28.0	28.0	0.0	31.0	59.0	20.0	20.0	31.0	20.0	20.0	0.0	21.0
Total Split (%)	28.0%	28.0%	0.0%	31.0%	59.0%	20.0%	20.0%	31.0%	20.0%	20.0%	0.0%	21.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead Lag (ft)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lead Lag Lag (ft)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lead Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	None	None	Min	None	Min	Min	Min	Min	Min	None	None
v/c Ratio	0.49	0.76	0.52	0.12	0.32	0.93	1.01	1.01	1.01	1.01	1.01	1.01
Queue Delay	17.3	18.5	6.5	2.2	41.2	50.3	108.7	108.7	108.7	108.7	108.7	108.7
Queue Delay (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Length 95th (ft)	17.3	18.5	6.5	2.2	41.2	50.3	108.7	108.7	108.7	108.7	108.7	108.7
Queue Length 95th (ft)	m183	#321	184	m15	77	#464	4213	4213	4213	4213	4213	4213
Internal Link Dist (ft)	1350	350	350	870	870	870	158	158	158	158	158	158
Turn Bay Length (ft)	1114	562	1076	835	218	581	205	205	205	205	205	205
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reductn v/c Ratio	0.49	0.74	0.52	0.12	0.32	0.93	1.01	1.01	1.01	1.01	1.01	1.01

Area Type	Area Length	Area Width	Area Volume	Area Delay
Area Type: 100	100	100	100	100
Area Type: 100	100	100	100	100
Area Type: 100	100	100	100	100
Area Type: 100	100	100	100	100
Area Type: 100	100	100	100	100
Area Type: 100	100	100	100	100

Control Type: Actuated-Coordinated
Control Type: Actuated-Coordinated
Control Type: Actuated-Coordinated

Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
Spillback volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 621: Cambridge Street & Franklin St

10463.00: Harvard IMP
503: Elliot Bridge & Soldiers Field Road

2012 Existing Conditions
Weekday Morning

	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	10	10	11	14	14
Grades (%)	0%	0%	0%	0%	0%	0%
Storage Length (ft)	180	255	0	0	0	0
Storage Length (s)	4.0	4.0	4.0	4.0	4.0	4.0
Trailing Detector (ft)	100	20	20	20	4.0	4.0
Trailing Detector (s)	0	0	0	0	0	0
Turning Speed (mph)	Yes	30	30	30	30	30
Link Speed (mph)	45	389	210	410	410	410
Link Distance (ft)	2160	0	795	0	285	0
Volume (vph)	0.98	0.98	0.90	0.97	0.97	0.97
Confl. Peds. (#/hr)	100%	100%	100%	100%	100%	100%
Peak Hour Factor	0%	0%	0%	1%	1%	0
Growth Factor	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Parking (ft)	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	2204	0	883	0	304	0
Turn Type	Prot					
Protected Phases	2	1	3			
Permitted Phases	2	1	3			
Minimum Initial (s)	15.0	15.0	15.0			
Minimum Split (s)	20.0	20.0	20.0			
Total Split (s)	30.0	0.0	0.0	40.0	0.0	0.0
Total Split (%)	30.0%	0.0%	0.0%	40.0%	0.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0			
Allied Time (s)	1.0	1.0	1.0			
Lead Lag	Yes	Yes	Yes			
Lead Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Min	Max	None			
v/c Ratio	1.20	0.64	0.45			
Control Delay	122.3	25.8	30.4			
Queue Delay	0.0	0.0	0.0			
Total Delay	122.3	25.8	30.4			
Queue Length 50th (ft)	487	179	106			
Queue Length 95th (ft)	345	309	180			
Internal Link Dist (ft)	255					
Turn Bay Length (ft)	1839	1383	1188			
Base Capacity (vph)	0	0	0			
Starvation Cap Reductn	0	0	0			
Spillback Cap Reductn	0	0	0			
Storage Cap Reductn	0	0	0			
Reduced v/c Ratio	1.20	0.64	0.25			
Intersection Summary						
Area Type	CBD					
Area Length	100					
Area Width	100					
Actual Cycle Length	86.4					
Natural Cycle	80					
Control Type	Semi Act-Uncoordinated					
-	Volume exceeds capacity, queue is theoretically infinite.					
#	95th percentile volume exceeds capacity, queue may be longer.					
	Queue shown is maximum after two cycles.					
	Queue shown is maximum after two cycles.					

Splits and Phases: 503: Elliot Bridge & Soldiers Field Road

10463.00: Harvard IMP
503: Elliot Bridge & Soldiers Field Road

2012 Existing Conditions
Weekday Morning

	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	10	10	11	14	14
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.86	0.94	0.97			
Flt Protected	1.00	0.95	0.95			
Satd. Flow (prot)	5686	4276	3328			
Flt Permitted	1.00	0.95	0.95			
Satd. Flow (perm)	5686	4276	3328			
Volume (vph)	2160	0	795	0	285	0
Peak-hour factor, PHF	0.98	0.98	0.90	0.97	0.97	0.97
Adj. Flow (vph)	2204	0	883	0	304	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	2204	0	883	0	304	0
Heavy Vehicles (%)	0%	0%	0%	0%	1%	1%
Turn Type	Prot					
Protected Phases	2	1	3			
Permitted Phases	2	1	3			
Actuated Green, G (s)	25.0	25.0	15.4			
Effective Green, g (s)	26.0	26.0	16.4			
Clearance Time (s)	6.0	6.0	6.0			
Vehicle Extension (s)	5.0	5.0	5.0			
Lane Group Flow (vph)	1839	1383	679			
v/s Ratio Prot	c0.39	c0.21	c0.09			
v/s Ratio Perm	1.20	0.64	0.45			
Uniform Delay, d1	27.2	23.2	26.0			
Incremental Delay, d2	94.9	2.3	0.6			
Delay (s)	122.1	25.5	26.7			
Level of Service	F	C	C			
Approach Delay (s)	122.1	25.5	26.7			
Approach LOS	F	C	C			
Intersection Summary						
HCM Average Control Delay	88.5					
HCM Volume to Capacity ratio	0.81					
Actuated Cycle Length (s)	80.4					
Intersection Capacity Utilization	74.1%					
Sum of lost time (s)	12.0					
ICU Level of Service	D					
6. Critical Lane Group	15					

10463.00: Harvard IMP
5012: Bertram St & North Harvard Street

2012 Existing Conditions
Weekday Morning

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Stop	Free	Free	Free	Free	Free
Sign Control	0%	0%	0%	0%	0%	0%
Grade	5	5	560	25	5	270
Volume (veh/h)	0.60	0.60	0.85	0.85	0.94	0.94
Peak Hour Factor	8	8	659	29	5	287
Platoon length (ft)						
Platoon spacing (ft)						
Platoon flow rate (pph)						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Median width (ft)						
pX platoon unblocked	0.89	0.82	300		186	
vC conflicting volume	971	674			688	
vC1 stage 1 conf vol						
vC2 stage 2 conf vol						
vCu unblocked vol	739	601			619	
vC stage (s)	6.6	6.4			4.2	
p0 queue free %	3.7	3.5			2.3	
IF (s)	97	98			99	
cM capacity (veh/h)	320	388			772	
Direction Lane #	WB 1	NB 1	SB 1			
Volume Total	17	688	293			
Volume Left	8	0	5			
Volume Right	8	29	0			
cSH	351	1700	772			
Volume to Capacity	0.05	0.40	0.01			
Queue Length 30th (ft)	4	0	0			
Queue Length 50th (ft)	4	0	0			
Lane LOS	C	A	C			
Approach Delay (s)	15.8	0.0	0.3			
Approach LOS	C		C			
Intersection Summary						
Average Delay	0.3					
Intersection Capacity Utilization	44.4%					
ICU Level of Service	A					
Analysis Period (min)	15					

10463.00: Harvard IMP
5013: Spurr St & North Harvard Street

2012 Existing Conditions
Weekday Morning

Movement	EBL	EBR	NBL	NBT	SBL	SBT
Lane Configurations	Stop	Free	Free	Free	Free	Free
Sign Control	0%	0%	0%	0%	0%	0%
Grade	65	175	0	520	275	0
Volume (veh/h)	0.97	0.87	0.85	0.94	0.94	0.94
Peak Hour Factor	67	180	0	612	285	0
Platoon length (ft)						
Platoon spacing (ft)						
Platoon flow rate (pph)						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Median width (ft)						
pX platoon unblocked	0.88	0.88	0.88	250	286	
vC conflicting volume	904	293	293			
vC1 stage 1 conf vol						
vC2 stage 2 conf vol						
vCu unblocked vol	679	192	192			
vC stage (s)	6.5	6.3	4.2			
p0 queue free %	3.6	3.4	2.3			
IF (s)	81	75	100			
cM capacity (veh/h)	354	722	1184			
Direction Lane #	EB 1	EB 2	NB 1	SB 1		
Volume Total	67	180	612	293		
Volume Left	67	0	0	0		
Volume Right	0	180	0	0		
cSH	354	722	1700	1700		
Volume to Capacity	0.19	0.25	0.36	0.17		
Queue Length 30th (ft)	17	28	0	0		
Queue Length 50th (ft)	17	28	0	0		
Lane LOS	C	B	C	C		
Approach Delay (s)	13.2	0.0	0.0	0.0		
Approach LOS	B		B	C		
Intersection Summary						
Average Delay	2.8					
Intersection Capacity Utilization	41.1%					
ICU Level of Service	A					
Analysis Period (min)	15					

10463.00: Harvard IMP
5015: Bayard Street & North Harvard Street

2012 Existing Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	Stop	Stop	Stop	Free	Stop	Free	Free	Free	Free	Free	Free	Free
Sign Control	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Grade	5	0	20	0	0	0	0	460	10	5	435	0
Volume (veh/h)	0.86	0.86	0.86	0.52	0.92	0.32	0.86	0.86	0.86	0.91	0.91	0.99
Peak Hour Factor	6	0	23	0	0	0	535	12	5	478	0	
Platoon flow rate (pph)												
Platoon length (ft)												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median storage (veh)												
Median storage (veh)												
pX platoon unblocked	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
vC, conflicting volume	1030	1038	478	1053	1030	541	478	547	547	547	547	547
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1034	1040	409	1060	1034	541	409	547	547	547	547	547
IC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.2	4.2	4.2	4.2	4.2	4.2
IF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3	2.3	2.3	2.3	2.3	2.3
p0 queue free %	97	100	96	100	100	100	100	100	99	99	99	99
cM capacity (veh/h)	187	204	571	170	204	541	983	984	984	984	984	984
Direction Lane #	EB 1	NB 1	SB 1									
Volume Total	29	547	484									
Volume Left	6	0	5									
Volume Right	23	12	0									
cSH	405	1700	984									
Volume to Capacity	0.07	0.32	0.01									
Queue Length 35th (ft)	6	0	0									
Queue Delay (s)	14.6	0.9	0.2									
Lane LOS	B	B	A									
Approach Delay (s)	14.6	0.0	0.2									
Approach LOS	B	B	B									
Intersection Summary												
Average Delay	0.5											
Intersection Capacity Utilization	39.9%											
ICU Level of Service	A											
Analysis Period (min)	15											

10463.00: Harvard IMP
5006: Western Avenue & Travis Street

2012 Existing Conditions
Weekday Morning

Movement	EBT	EBR	WBT	WBR	NBT	NBR
Lane Configurations	Free	Free	Free	Free	Stop	Stop
Sign Control	0%	0%	0%	0%	0%	0%
Grade	415	10	30	455	5	25
Volume (veh/h)	0.89	0.89	0.37	0.83	0.83	0.83
Peak Hour Factor	466	11	31	469	6	30
Platoon flow rate (pph)						
Platoon length (ft)						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median storage (veh)						
Median storage (veh)						
pX platoon unblocked	0.80	0.80	0.80	0.80	0.80	0.80
vC, conflicting volume	478	1003	472	472	472	472
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	351	1004	344	344	344	344
IC, single (s)	4.1	6.5	6.3	6.3	6.3	6.3
IF (s)	2.2	3.6	3.4	3.4	3.4	3.4
p0 queue free %	97	97	97	95	95	95
cM capacity (veh/h)	959	205	555	555	555	555
Direction Lane #	EB 1	WB 1	NB 1			
Volume Total	478	500	36			
Volume Left	0	31	6			
Volume Right	11	0	30			
cSH	1700	959	432			
Volume to Capacity	0.28	0.03	0.08			
Queue Length 35th (ft)	0	0	14.1			
Queue Delay (s)	0.0	0.2	14.1			
Lane LOS	A	A	B			
Approach Delay (s)	0.0	0.9	14.1			
Approach LOS	B	B	B			
Intersection Summary						
Average Delay	1.0					
Intersection Capacity Utilization	64.0%					
ICU Level of Service	B					
Analysis Period (min)	15					

10463.00: Harvard IMP
5029: Rotterdam Street & Hague Street

2012 Existing Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
Sign Control	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Grade	245	0	0	0	5	0	10	0	10	10	40	0
Volume (veh/h)	0.88	0.88	0.63	0.63	0.63	0.63	0.63	0.63	0.85	0.85	0.85	0.85
Peak Hour Factor	278	0	0	0	8	0	16	0	12	12	47	0
Platoon length (ft)												
Platoon rate (pph)												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None	None	None	None	None	None
Median storage (veh)												
Median width (ft)												
pX platoon unblocked												
vC, conflicting volume	8	0	0	614	565	0	569	561	4			
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	8	0	0	614	565	0	569	561	4			
IC, single (s)	4.1	5.1	8.1	7.5	7.2	7.4	6.8	6.5				
IC, stage (s)												
p0 queue free %	2.2	3.1	4.4	4.9	4.2	3.8	4.3	3.6				
IF (s)	100	100	94	100	96	96	96	95				
cM capacity (veh/h)	1626	1161	236	269	857	328	333	1006				
Direction Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	278	8	16	71								
Volume Left	0	0	0	12								
Volume Right	1626	1161	269	598								
cSH	0.17	0.00	0.06	0.12								
Volume to Capacity	15	0	19.5	0								
Queue Length 30th (ft)	7.1	0.9	1.9	1.8								
Queue Delay (s)	A	C	B									
Lane LOS	A	C	B									
Approach Delay (s)	7.7	0.0	19.2	11.8								
Approach LOS	C	B										
Intersection Summary												
Average Delay	8.8											
Intersection Capacity Utilization	39.0%											A
Analysis Period (min)	15											

10463.00: Harvard IMP
5011: Gordon Rd & North Harvard Street

2012 Existing Conditions
Weekday Morning

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Stop	Free	Free	Free	Free	Free
Sign Control	0%	0%	0%	0%	0%	0%
Grade	5	55	500	10	70	385
Volume (veh/h)	0.82	0.82	0.89	0.87	0.87	0.87
Peak Hour Factor	6	67	562	11	80	443
Platoon length (ft)						
Platoon rate (pph)						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			
Median storage (veh)						
Median width (ft)						
pX platoon unblocked			0.94			629
vC, conflicting volume	1171	567			573	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1182	567			573	
IC, single (s)	6.5	6.3			4.1	
IC, stage (s)						
p0 queue free %	3.6	3.4			2.2	
IF (s)	96	87			92	
cM capacity (veh/h)	171	502			985	
Direction Lane #	WB 1	NB 1	SB 1			
Volume Total	73	573	523			
Volume Left	6	0	80			
Volume Right	67	11	0			
cSH	4.33	1700	885			
Volume to Capacity	0.17	0.34	0.08			
Queue Length 30th (ft)	15	0	0			
Queue Delay (s)	15.0	0.9	2.2			
Lane LOS	C	A				
Approach Delay (s)	15.0	0.0	2.2			
Approach LOS	C					
Intersection Summary						
Average Delay	1.9					
Intersection Capacity Utilization	70.8%					
Analysis Period (min)	15					

10463.00: Harvard IMP
503: Eliot Bridge & Soldiers Field Road

2012 Existing Conditions
Weekday Evening

	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	10	10	11	14	14
Grade (%)	0%	0%	0%	0%	0%	0%
Storage Length (ft)	180	285	0	0	0	0
Storage Length (s)	4.0	4.0	4.0	4.0	4.0	4.0
Trailing Detector (ft)	100	20	20	20	4.0	4.0
Trailing Detector (s)	0	0	0	0	0	0
Turning Speed (mph)	Yes	15	15	9	15	15
Link Speed (mph)	30	Yes	30	30	30	30
Link Distance (ft)	425	389	210	389	210	425
Link Distance (s)	1.6	1.6	1.1	1.6	1.1	1.6
Volume (vph)	1470	0	1355	0	285	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Parking (ft/hr)	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	1547	0	1441	0	303	0
Turn Type	Prot					
Protected Phases	2	1	3			
Permitted Phases	2	1	3			
Minimum Initial (s)	15.0	15.0	15.0			
Minimum Split (s)	20.0	20.0	20.0			
Total Split (s)	30.0	0.0	30.0	0.0	40.0	0.0
Total Split (%)	30.0%	0.0%	30.0%	0.0%	40.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0			
Allied Time (s)	1.0	1.0	1.0			
Lead Lag	Yes	Yes	Yes			
Lead Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Min	Max	None			
v/c Ratio	0.84	1.04	0.44			
Control Delay	30.6	64.2	30.3			
Queue Delay	0.0	0.0	0.0			
Queue Length	30.6	64.2	30.3			
Queue Length 95th (ft)	260	539	260			
Queue Length 95th (ft)	260	539	106			
Internal Link Dist (ft)	245	309	190			
Turn Bay Length (ft)	1839	255	1210			
Base Capacity (vph)	1839	1383	1210			
Starvation Cap Reductn	0	0	0			
Spillback Cap Reductn	0	0	0			
Storage Cap Reductn	0	0	0			
Reduced v/c Ratio	0.84	1.04	0.25			

Intersection Summary

Area Type: CBD
 Area Length: 100
 Actual Cycle Length: 80.4
 Natural Cycle: 80
 Control Type: Semi Act-Uncoordinated
 - Volume exceeds capacity, queue is theoretically infinite.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 Queue shown is maximum after two cycles.



10463.00: Harvard IMP
503: Eliot Bridge & Soldiers Field Road

2012 Existing Conditions
Weekday Evening

	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	10	10	11	14	14
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.86	0.94	0.97			
Storage Length (ft)	180	285	0	0	0	0
Storage Length (s)	4.0	4.0	4.0			
Trailing Detector (ft)	100	20	20	4.0	4.0	4.0
Trailing Detector (s)	0	0	0	0	0	0
Turning Speed (mph)	Yes	15	15	9	15	15
Link Speed (mph)	30	Yes	30	30	30	30
Link Distance (ft)	425	389	210	389	210	425
Link Distance (s)	1.6	1.6	1.1	1.6	1.1	1.6
Volume (vph)	1547	0	1441	0	303	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Parking (ft/hr)	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	1547	0	1441	0	303	0
Turn Type	Prot					
Protected Phases	2	1	3			
Permitted Phases	2	1	3			
Actuated Green, G (s)	25.0	25.0	15.4			
Effective Green, g (s)	26.0	26.0	16.4			
Yellow Time (s)	4.0	4.0	4.0			
Clearance Time (s)	5.0	5.0	5.0			
Vehicle Extension (s)	4.0	4.0	4.0			
Lane Cap (vph)	1839	1383	686			
v/s Ratio Prot	c0.27	c0.34	c0.09			
v/c Ratio	0.84	1.04	0.44			
Uniform Delay, d1	25.3	27.2	26.0			
Incremental Delay, d2	3.8	35.9	0.6			
Delay (s)	29.1	63.1	26.6			
Level of Service	C	E	C			
Approach Delay (s)	29.1	63.1	26.6			
Approach LOS	C	E	C			

Intersection Summary

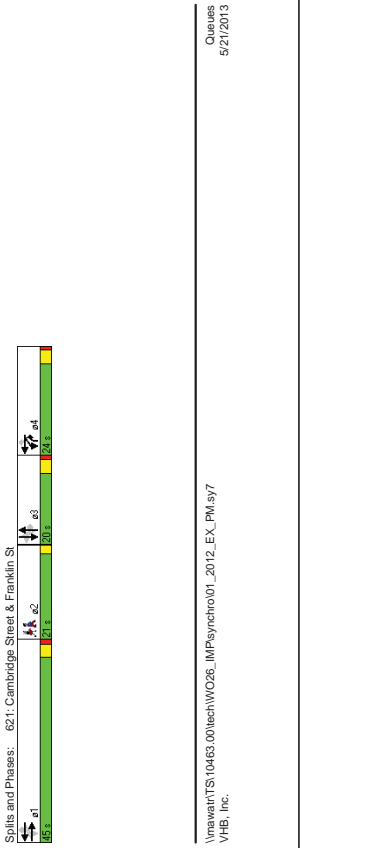
HCM Average Control Delay: 43.9 HCM Level of Service: D
 HCM Volume to Capacity ratio: 0.82
 Actuated Cycle Length (s): 80.4 Sum of lost time (s): 12.0
 Intersection Capacity Utilization: 74.8% ICU Level of Service: D
 Area Type: CBD
 Area Length: 100
 Actual Cycle Length: 80.4
 Natural Cycle: 80
 Control Type: Semi Act-Uncoordinated
 - Volume exceeds capacity, queue is theoretically infinite.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 Queue shown is maximum after two cycles.



10463.00: Harvard IMP
621: Cambridge Street & Franklin St

2012 Existing Conditions
Weekday Evening

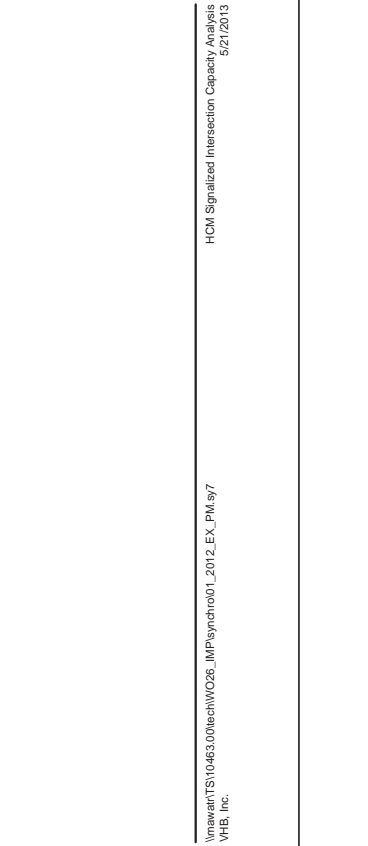
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	a2
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Ideal Flow (vph)	10	11	12	12	12	12	10	11	12	16	16	16	
Lane Width (ft)	0	125	0	0	0	0	0	85	0	0	0	0	
Storage Length (ft)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Storage Spaces	50	50	50	50	50	50	50	50	50	50	50	50	
Leading Detector (ft)	15	0	0	0	0	0	0	0	0	0	0	0	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0	
Turning Speed (mph)	30	No	25	No	25	No	30	No	30	No	30	No	
Right Turn on Red	14.0	14.0	4.0	11.0	11.0	11.0	36.0	36.0	36.0	23.0	23.0	23.0	
Link Speed (mph)	5	535	30	395	670	75	25	35	300	85	40	10	
Volume (vph)	68	13	13	68	68	63	63	80	80	63	63	63	
Confl. Peds. (#/hr)	0.92	0.92	0.91	0.91	0.91	0.88	0.88	0.88	0.88	0.75	0.75	0.75	
Peak Hour Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Growth Factor	5%	5%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%	
Heavy Vehicles (%)	0	0	0	0	0	0	0	0	0	0	0	0	
Ped/Bikes (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Mid-Block Traffic (%)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	620	0	434	736	82	0	68	341	0	193	0	193	
Turn Type	Perm	pm+pt	Perm	Perm	Perm	Perm	pm+ov	Perm	Perm	pm+ov	Perm	Perm	
Protected Phases	1	1	1	1	1	1	1	1	1	1	1	1	
Minimum Initial (s)	11.0	11.0	8.0	14.0	14.0	14.0	6.0	6.0	6.0	6.0	6.0	6.0	
Minimum Split (s)	15.0	15.0	12.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	
Total Split (s)	45.0	45.0	0.0	24.0	69.0	20.0	20.0	24.0	20.0	20.0	0.0	21.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
All-red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lead Lag	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	C-Max	None	None	None	None	None	None	None	None	None	None	None	
v/c Ratio	0.57	0.82	0.65	0.10	0.35	0.76	1.04	0.35	0.76	1.04	0.35	0.76	
Queue Delay	28.6	25.8	9.8	2.3	47.4	43.8	124.2	43.8	43.8	124.2	43.8	43.8	
Control Delay	28.6	25.8	9.8	2.3	47.4	43.8	124.2	43.8	43.8	124.2	43.8	43.8	
Total Delay	182	420	570	m17	86	#308	4222	86	#308	4222	86	#308	
Internal Link Dist (ft)	1350	350	870	870	870	870	870	870	870	870	870	870	
Turn Bay Length (ft)	1095	532	1134	861	194	446	185	446	185	446	185	446	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0	
Reducted v/c Ratio	0.57	0.82	0.65	0.10	0.35	0.76	1.04	0.35	0.76	1.04	0.35	0.76	



10463.00: Harvard IMP
621: Cambridge Street & Franklin St

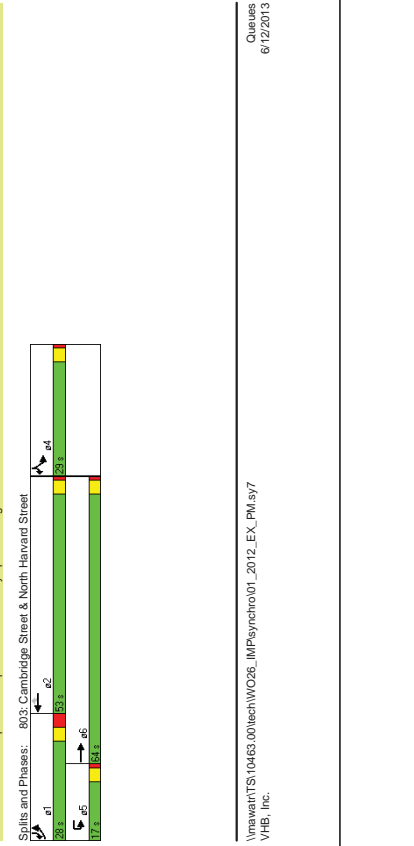
2012 Existing Conditions
Weekday Evening

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vph)	10	11	12	12	12	12	10	11	12	16	16	16
Lane Width (ft)	0	125	0	0	0	0	0	85	0	0	0	0
Storage Length (ft)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Storage Spaces	50	50	50	50	50	50	50	50	50	50	50	50
Leading Detector (ft)	15	0	0	0	0	0	0	0	0	0	0	0
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	30	No	25	No	25	No	30	No	30	No	30	No
Right Turn on Red	14.0	14.0	4.0	11.0	11.0	11.0	36.0	36.0	36.0	23.0	23.0	23.0
Link Speed (mph)	5	535	30	395	670	75	25	35	300	85	40	10
Volume (vph)	68	13	13	68	68	63	63	80	80	63	63	63
Confl. Peds. (#/hr)	0.92	0.92	0.91	0.91	0.91	0.88	0.88	0.88	0.88	0.75	0.75	0.75
Peak Hour Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Growth Factor	5%	5%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Heavy Vehicles (%)	0	0	0	0	0	0	0	0	0	0	0	0
Ped/Bikes (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Mid-Block Traffic (%)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	620	0	434	736	82	0	68	341	0	193	0	193
Turn Type	Perm	pm+pt	Perm	Perm	Perm	Perm	pm+ov	Perm	Perm	pm+ov	Perm	Perm
Protected Phases	1	1	1	1	1	1	1	1	1	1	1	1
Minimum Initial (s)	11.0	11.0	8.0	14.0	14.0	14.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	15.0	15.0	12.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Total Split (s)	45.0	45.0	0.0	24.0	69.0	20.0	20.0	24.0	20.0	20.0	0.0	21.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead Lag	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	None	None	None	None	None	None	None	None	None	None	None
v/c Ratio	0.57	0.82	0.65	0.10	0.35	0.76	1.04	0.35	0.76	1.04	0.35	0.76
Queue Delay	28.6	25.8	9.8	2.3	47.4	43.8	124.2	43.8	43.8	124.2	43.8	43.8
Control Delay	28.6	25.8	9.8	2.3	47.4	43.8	124.2	43.8	43.8	124.2	43.8	43.8
Total Delay	182	420	570	m17	86	#308	4222	86	#308	4222	86	#308
Internal Link Dist (ft)	1350	350	870	870	870	870	870	870	870	870	870	870
Turn Bay Length (ft)	1095	532	1134	861	194	446	185	446	185	446	185	446
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reducted v/c Ratio	0.57	0.82	0.65	0.10	0.35	0.76	1.04	0.35	0.76	1.04	0.35	0.76



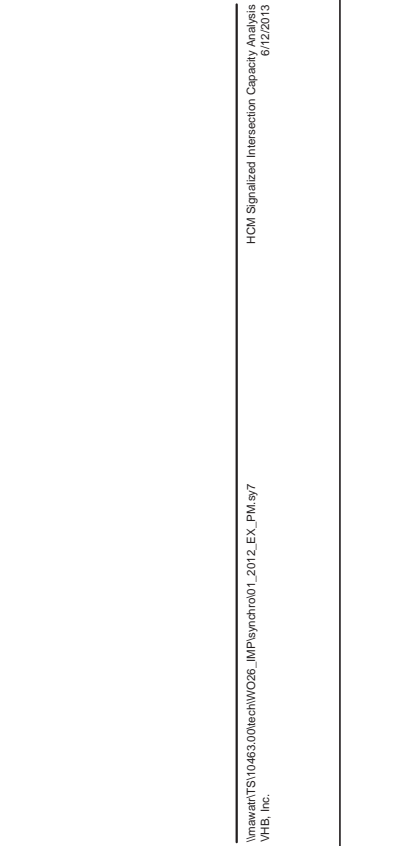
10463.00: Harvard IMP
803: Cambridge Street & North Harvard Street
2012 Existing Conditions
Weekday Evening

	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vph/ft)	11	11	10	11	10	12	12
Lane Width (ft)	200	0%	120	0%	100	0	50
Grade (%)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Storage Length (ft)	50	50	50	50	50	50	50
Storage Spacing (s)	0	0	0	0	0	0	0
Leading Detector (ft)	15	9	9	9	15	9	9
Turning Speed (mph)	40	30	30	30	30	30	30
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	No	No
Link Speed (mph)	40	30	30	30	30	30	30
Link Distance (ft)	426	426	426	426	426	426	426
Link Volume (vph)	255	1260	40	1185	325	260	260
Volume (vph)	255	1260	40	1185	325	260	260
Conf. Peds. (#/hr)	10	10	10	10	10	10	10
Conf. Bikes (#/hr)	0	0	0	0	0	0	0
Peak Hour Factor	0.90	0.92	0.92	0.92	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	1%	1%	2%	2%	2%
Parking (ft/h)	0	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	283	1400	43	1288	353	280	280
Turn Type	Prot	Perm	Perm	Perm	ptov	ptov	ptov
Protected Phases	1	6	5	2	4	1,4	1,4
Permitted Phases	1	6	5	2	4	1,4	1,4
Minimum Initial (s)	8.0	12.0	8.0	12.0	12.0	12.0	12.0
Minimum Split (s)	14.0	16.0	12.0	25.0	25.0	29.0	29.0
Total Split (s)	28.0	64.0	17.0	53.0	53.0	29.0	57.0
Total Split (%)	25.5%	58.2%	15.5%	48.2%	48.2%	26.4%	51.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Allared Time (s)	3.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag
Lead/Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	Max	C-Max	C-Max	Min	Min
v/c Ratio	0.85	0.55	0.23	0.85	0.50	0.83	0.43
Control Delay	65.6	16.2	57.4	21.9	5.9	61.7	21.8
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Total Delay	65.6	16.3	57.4	21.9	5.9	61.7	21.8
Queue Length 95th (ft)	0	0	0	0	0	0	0
Queue Length 90th (ft)	0	0	0	0	0	0	0
Internal Link Dist (ft)	m#280	m#278	m#44	m#276	m#52	#302	188
Turn Bay Length (ft)	200	120	348	348	100	497	50
Base Capacity (vph)	350	2559	191	1520	703	377	659
Starvation Cap Reductn	0	274	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.61	0.23	0.85	0.50	0.74	0.42



10463.00: Harvard IMP
803: Cambridge Street & North Harvard Street
2012 Existing Conditions
Weekday Evening

	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vph/ft)	11	11	10	11	10	12	12
Lane Width (ft)	200	0%	120	0%	100	0	50
Grade (%)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Storage Length (ft)	50	50	50	50	50	50	50
Storage Spacing (s)	0	0	0	0	0	0	0
Leading Detector (ft)	15	9	9	9	15	9	9
Turning Speed (mph)	40	30	30	30	30	30	30
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	No	No
Link Speed (mph)	40	30	30	30	30	30	30
Link Distance (ft)	426	426	426	426	426	426	426
Link Volume (vph)	255	1260	40	1185	325	260	260
Volume (vph)	255	1260	40	1185	325	260	260
Conf. Peds. (#/hr)	10	10	10	10	10	10	10
Conf. Bikes (#/hr)	0	0	0	0	0	0	0
Peak Hour Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	1%	1%	2%	2%	2%
Parking (ft/h)	0	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	283	1400	43	1288	353	280	280
Turn Type	Prot	Perm	Perm	Perm	ptov	ptov	ptov
Protected Phases	1	6	5	2	4	1,4	1,4
Permitted Phases	1	6	5	2	4	1,4	1,4
Minimum Initial (s)	8.0	12.0	8.0	12.0	12.0	12.0	12.0
Minimum Split (s)	14.0	16.0	12.0	25.0	25.0	29.0	29.0
Total Split (s)	28.0	64.0	17.0	53.0	53.0	29.0	57.0
Total Split (%)	25.5%	58.2%	15.5%	48.2%	48.2%	26.4%	51.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Allared Time (s)	3.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag
Lead/Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	Max	C-Max	C-Max	Min	Min
v/c Ratio	0.85	0.55	0.23	0.85	0.50	0.83	0.43
Control Delay	65.6	16.2	57.4	21.9	5.9	61.7	21.8
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Total Delay	65.6	16.3	57.4	21.9	5.9	61.7	21.8
Queue Length 95th (ft)	0	0	0	0	0	0	0
Queue Length 90th (ft)	0	0	0	0	0	0	0
Internal Link Dist (ft)	m#280	m#278	m#44	m#276	m#52	#302	188
Turn Bay Length (ft)	200	120	348	348	100	497	50
Base Capacity (vph)	350	2559	191	1520	703	377	659
Starvation Cap Reductn	0	274	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.61	0.23	0.85	0.50	0.74	0.42



10463.00: Harvard IMP
1326: Cambridge Street & Windom Street

2012 Existing Conditions
Weekday Evening

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	12	10	10	14	14	14
Lane Width (ft)	0%	0%	0%	0%	0%	0%
Grade (%)	175	0	0	100	0	0
Storage Length (ft)	4.0	4.0	4.0	4.0	4.0	4.0
Storage Spaces (s)	50	50	50	50	50	50
Leading Detector (ft)	0	0	0	0	0	0
Trailing Detector (ft)	0	0	0	0	0	0
Turning Speed (mph)	15	9	15	9	15	9
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	Yes
Link Speed (mph)	40	30	30	30	30	30
Link Distance (ft)	200	1000	754	1000	754	1000
Volume (vph)	10	655	1510	235	120	30
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.93	0.81	0.91	0.84	0.84	0.84
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Parking (veh)	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	11	704	1659	258	143	36
Turn Type	pm+pt	Perm	Perm	Perm	Prot	Prot
Protected Phases	2	1, 2	1	3	3	3
Permitted Phases	1, 2	1	1	3	3	3
Minimum Initial (s)	6.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	10.0	13.0	13.0	20.0	20.0	20.0
Total Split (s)	14.0	90.0	76.0	20.0	20.0	20.0
Total Split (%)	12.7%	81.8%	69.1%	89.1%	18.2%	18.2%
Yellow Time (s)	3.0	4.0	4.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lead Lag	Yes	Yes	Yes	Yes	Yes	Yes
Lead Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Min	C-Max	C-Max	Min	Min	Min
v/c Ratio	0.06	0.20	0.77	0.25	0.72	0.17
Control Delay	1.8	1.4	13.3	1.3	66.2	15.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Queue Length	1.8	1.4	13.3	1.3	66.2	15.4
Queue Length 95th (ft)	1	1	10	1	28	7
Queue Length 95th (ft)	m1	m20	485	23	150	26
Internal Link Dist (ft)	120	980			654	
Turn Bay Length (ft)	175				100	
Base Capacity (vph)	246	3656	2162	1040	250	254
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.19	0.77	0.25	0.57	0.14



Splits and Phases: 1326: Cambridge Street & Windom Street

10463.00: Harvard IMP
1326: Cambridge Street & Windom Street

2012 Existing Conditions
Weekday Evening

	EBL	EBT	WBT	WBR	SBL	SBR
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	12	10	10	14	14	14
Lane Width (ft)	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	1.00	0.81	0.85	1.00	1.00	1.00
Lane Util. Factor	0.96	1.00	1.00	0.85	0.85	0.85
Flt Protected	0.96	1.00	1.00	0.85	0.85	0.85
Satd. Flow (prot)	1608	4314	3002	1343	1716	1535
Flt Permitted	0.10	1.00	1.00	1.00	0.85	1.00
Satd. Flow (perm)	171	4314	3002	1343	1716	1535
Volume (vph)	10	655	1510	235	120	30
Peak-hour factor, PHF	0.93	0.83	0.91	0.91	0.84	0.84
Adj. Flow (vph)	11	704	1659	258	143	36
Heavy Vehicle (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	11	704	1659	182	143	34
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type	pm+pt	Perm	Perm	Perm	Prot	Prot
Protected Phases	2	1, 2	1	3	3	3
Permitted Phases	1, 2	1	1	3	3	3
Actuated Green, G (s)	84.2	88.2	78.2	78.2	12.8	12.8
Effective Green, g (s)	85.2	89.2	79.2	79.2	12.8	12.8
Clearance Time (s)	6.0	0.81	0.85	0.85	0.85	0.85
Vehicle Extension (s)	4.0	5.0	5.0	5.0	4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lane Cap (vph)	211	3488	2161	967	200	179
v/s Ratio Prot	0.00	c0.16	c0.55	c0.08	0.00	0.00
v/s Ratio Perm	0.04	0.05	0.20	0.77	0.19	0.72
v/c Ratio	0.06	0.20	0.77	0.19	0.72	0.02
Uniform Delay, d1	11.8	2.4	9.6	5.0	46.8	43.1
Incremental Delay, d2	0.0	0.0	0.0	0.4	9.7	0.0
Incremental Delay, d2	0.0	0.0	0.0	0.4	9.7	0.0
Level of Service	A	A	B	A	E	D
Approach Delay (s)	A	A	B	A	E	D
Approach LOS	A	B	B	B	D	D



Splits and Phases: 1326: Cambridge Street & Windom Street

10463.00: Harvard IMP
5006: Western Avenue & Travis Street

2012 Existing Conditions
Weekday Evening

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	Free	Free	Free	Free	Stop	Stop
Sign Control	0%	0%	0%	0%	0%	0%
Grade (%)	395	0	20	555	5	15
Volume (veh/h)	0.32	0.92	0.30	0.82	0.82	0.82
Peak Hour Factor	429	0	22	617	6	16
Priority flow rate (pph)						
Storage Length (ft)						
Storage Lanes						
Leading Detector (ft)						
Trailing Detector (ft)						
Turning Speed (mph)						
Right Turn on Red						
Link Speed (mph)						
Link Distance (ft)						
Volume (veh/h)						
Volume (veh)						
Conf. Ped. (#/hr)						
Peak Hour Factor						
Growth Factor						
Heavy Vehicles (%)						
Trucks (%)						
Buses (%)						
Parking (#/hr)						
Mid-Block Traffic (%)						
Lane Group Flow (vph)						
Turn Type						
Permitted Phases						
Minimum Initial (s)						
Minimum Split (s)						
Total Split (s)						
Total Split (%)						
Yellow Time (s)						
Allied Time (s)						
Lead Lag						
Lead Lag Optimize?						
Recall Mode						
v/c Ratio						
Control Delay						
Queue Delay						
Queue Length						
Queue Length 95th (ft)						
Queue Length 95th (ft)						
Internal Link Dist (ft)						
Turn Bay Length (ft)						
Base Capacity (vph)						
Stallion Cap Reductn						
Storage Cap Reductn						
Recessed v/c Ratio						
Intersection Summary						
Area Type	CBD					
Circle Length (ft)	0.4					
Actual Cycle Length	76.6					
Natural Cycle	90					
Control Type	Semi-Auto-Unstaged					
# 85th percentile volume exceeds capacity, queue may be longer.						
Queue shown is maximum after two cycles.						

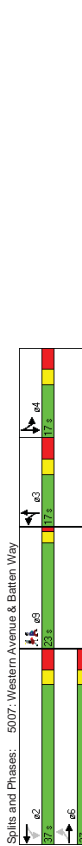


Splits and Phases: 5006: Western Avenue & Travis Street

10463.00: Harvard IMP
5007: Western Avenue & Batten Way

2012 Existing Conditions
Weekday Evening

Movement	EBT	EBR	WBL	WBT	NBL	NBR	SBL	SBR	e#
Lane Configurations	Free	Free	Free	Free	Free	Free	Free	Free	
Sign Control	0%	0%	0%	0%	0%	0%	0%	0%	
Grade (%)	120	0%	0	120	0	0	0	0	
Volume (veh/h)	1	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Peak Hour Factor	50	50	50	50	50	50	50	50	
Priority flow rate (pph)									
Storage Length (ft)									
Storage Lanes									
Leading Detector (ft)									
Trailing Detector (ft)									
Turning Speed (mph)									
Right Turn on Red									
Link Speed (mph)									
Link Distance (ft)									
Volume (veh/h)									
Volume (veh)									
Conf. Ped. (#/hr)									
Peak Hour Factor									
Growth Factor									
Heavy Vehicles (%)									
Trucks (%)									
Buses (%)									
Parking (#/hr)									
Mid-Block Traffic (%)									
Lane Group Flow (vph)									
Turn Type									
Permitted Phases									
Minimum Initial (s)									
Minimum Split (s)									
Total Split (s)									
Total Split (%)									
Yellow Time (s)									
Allied Time (s)									
Lead Lag									
Lead Lag Optimize?									
Recall Mode									
v/c Ratio									
Control Delay									
Queue Delay									
Queue Length									
Queue Length 95th (ft)									
Queue Length 95th (ft)									
Internal Link Dist (ft)									
Turn Bay Length (ft)									
Base Capacity (vph)									
Stallion Cap Reductn									
Storage Cap Reductn									
Recessed v/c Ratio									
Intersection Summary									
Area Type	CBD								
Circle Length (ft)	0.4								
Actual Cycle Length	76.6								
Natural Cycle	90								
Control Type	Semi-Auto-Unstaged								
# 85th percentile volume exceeds capacity, queue may be longer.									
Queue shown is maximum after two cycles.									



Splits and Phases: 5007: Western Avenue & Batten Way

10463.00: Harvard IMP
5007: Western Avenue & Batten Way

2012 Existing Conditions
Weekday Evening

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	16	16	16	16	12	16	12	16	12	12	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt. Ped/Bikes	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Flt. Ped/Bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt. Protected	0.95	1.00	1.00	0.89	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Std. Flow (prot)	1553	1854	1766	1842	1440	1519	1519	1519	1519	1519	1519	1519
Std. Flow (perm)	472	1854	727	1842	1440	1440	1440	1440	1440	1440	1440	1440
Volume (vph)	20	325	10	35	445	30	55	25	90	50	0	50
Volume (vph) - Pk	0.24	0.94	0.04	0.14	0.98	0.03	0.98	0.03	0.97	0.75	0.05	0.75
Adj. Flow (vph)	24	387	12	37	473	32	66	30	103	67	0	67
RTOR Reduction (vph)	0	1	0	0	2	0	0	0	0	0	0	0
Lane Group Flow (vph)	24	388	0	37	503	0	204	0	204	0	134	0
Confl. Peds. (#/hr)	12	4	4	4	12	2	2	2	2	2	1	2
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	7%	7%	7%	1%	1%	1%
Turn Type	Perm	Perm	Perm	Perm	Perm	Split	Split	Split	Split	Split	Split	Split
Preceded Phases	6	6	2	2	2	3	3	3	3	4	4	4
Actuated Green (s)	31.4	31.4	31.4	31.4	31.4	10.4	10.4	10.4	10.4	7.3	7.3	7.3
Effective Green (s)	34.4	34.4	34.4	34.4	34.4	13.4	13.4	13.4	13.4	10.3	10.3	10.3
Actuated g/C Ratio	0.43	0.43	0.43	0.43	0.43	0.17	0.17	0.17	0.17	0.13	0.13	0.13
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	204	801	314	796	242	242	242	242	242	197	197	197
v/s Ratio Prot	0.05	0.21	0.05	0.05	0.27	0.14	0.14	0.14	0.14	0.09	0.09	0.09
v/c Ratio	0.12	0.50	0.12	0.12	0.63	0.84	0.84	0.84	0.84	0.68	0.68	0.68
Uniform Delay, d1	13.5	16.3	13.5	13.5	17.7	32.1	32.1	32.1	32.1	33.1	33.1	33.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2	2.2	1.2	1.2	2.2	21.7	21.7	21.7	21.7	7.5	7.5	7.5
Delay (s)	14.7	18.5	14.3	14.3	21.4	53.8	53.8	53.8	53.8	40.5	40.5	40.5
Level of Service	B	B	B	B	C	D	D	D	D	D	D	D
Approach LOS	B	B	B	B	C	D	D	D	D	D	D	D
Approach LOS	B	B	B	B	C	D	D	D	D	D	D	D
Intersection Summary												
HCM Average Control Delay	27.3											
HCM Level of Service	C											
HCM v/c Ratio	0.69											
Actuated Cycle Length (s)	736											
Sum of lost time (s)	21.5											
Intersection Capacity Utilization	51.3%											
ICU Level of Service	A											
Analysis Period (min)	15											
Critical Lane Group	C											

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VHB, Inc. HCM Signalized Intersection Capacity Analysis 5/10/2013

10463.00: Harvard IMP
5011: Gordon Rd & North Harvard Street

2012 Existing Conditions
Weekday Evening

Movement	WBL	WBR	NBT	NBR	SBL	SBR
Lane Configurations	Stop	Free	Free	Free	Free	Free
Sign Control	0%	0%	0%	0%	0%	0%
Grade	5	100	520	5	25	435
Volume (veh/h)	0.88	0.88	0.96	0.89	0.89	0.89
Peak Hour Factor	6	114	542	5	28	469
Playway flow rate (pph)	6	114	542	5	28	469
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Median storage (veh)						629
px platoon unblocked	0.95					
v/c conflicting volume	1089	544				547
v/C1, stage 1 conf vol						
v/C2, stage 2 conf vol						
v/Cu, unblocked vol	1094	544				547
v/C, single (s)	6.4	6.2				4.1
IF (s)	3.5	3.3				2.2
p0 queue free %	97	79				97
cM capacity (veh/h)	217	535				1012
Direction Lane #	WB 1	NB 1	SB 1			
Volume Total	119	547	517			
Volume Left	6	0	28			
Volume Right	114	5	0			
cSH	500	1700	1012			
Volume to Capacity	0.24	0.32	0.03			
Queue Length 30th (ft)	14.3	0	0			
Queue Delay (s)	14.2	0	0			
Lane LOS	B	B	A			
Approach Delay (s)	14.4	0.0	0.8			
Approach LOS	B	B	B			
Intersection Summary						
Average Delay	1.8					
Intersection Capacity Utilization	62.0%					
ICU Level of Service	B					
Analysis Period (min)	15					

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VHB, Inc. HCM Unsignalized Intersection Capacity Analysis 5/10/2013

10463.00: Harvard IMP
5012: Bertram St & North Harvard Street

2012 Existing Conditions
Weekday Evening

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Stop	Free	Free	Free	Free	Free
Sign Control	0%	0%	0%	0%	0%	0%
Grade	10	15	550	15	5	350
Volume (veh/h)	0.75	0.75	0.91	0.91	0.86	0.86
Peak Hour Factor	13	20	604	16	6	407
Platoon flow rate (pph)						
Platoon length (ft)						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
px platoon unblocked	0.87	0.85	300	0.85	186	
vc conflicting volume	1031	613		621		
vc1 stage 1 conf vol						
vc2 stage 2 conf vol						
vcu unblocked vol	768	542		552		
lc single (s)	6.4	6.2		4.1		
lc stage (s)						
p0 queue free %	3.5	3.3		2.2		
pf (s)	96	96		99		
cm capacity (veh/h)	320	460		848		
Direction Lane #	WB 1	NB 1	SB 1			
Volume Total	33	621	413			
Volume Left	13	0	6			
Volume Right	20	16	0			
cSH	392	1700	848			
Volume to Capacity	0.09	0.37	0.01			
Queue Length 30th (ft)	7	0	0			
Queue Delay (s)	15.7	0.9	0.2			
Lane LOS	C	C	A			
Approach Delay (s)	15.0	0.0	0.2			
Approach LOS	C	C	A			
Intersection Summary						
Average Delay	43.2%		0.6		A	
Intersection Capacity Utilization	49.2%		15		A	
Analysis Period (min)						

10463.00: Harvard IMP
5013: Spurr St & North Harvard Street

2012 Existing Conditions
Weekday Evening

Movement	EBL	EBR	NBL	NBT	SBL	SBT
Lane Configurations	Stop	Free	Free	Free	Free	Free
Sign Control	0%	0%	0%	0%	0%	0%
Grade	25	210	0	540	360	0
Volume (veh/h)	0.87	0.87	0.91	0.98	0.86	
Peak Hour Factor	29	241	0	593	419	0
Platoon flow rate (pph)						
Platoon length (ft)						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
px platoon unblocked	0.87	0.80	0.80	250	296	
vc conflicting volume	1012	419	419			
vc1 stage 1 conf vol						
vc2 stage 2 conf vol						
vcu unblocked vol	746	270	270			
lc single (s)	6.4	6.2	4.1			
lc stage (s)						
p0 queue free %	3.5	3.3	2.2			
pf (s)	91	61	100			
cm capacity (veh/h)	333	612	1016			
Direction Lane #	EB 1	EB 2	NB 1	SB 1		
Volume Total	29	241	593	419		
Volume Left	29	0	0	0		
Volume Right	0	241	0	0		
cSH	333	612	1700	1700		
Volume to Capacity	0.09	0.39	0.35	0.25		
Queue Length 30th (ft)	7	0	0	0		
Queue Delay (s)	16.7	14.7	0.0	0.0		
Lane LOS	C	B	C	C		
Approach Delay (s)	14.9	0.0	0.0	0.0		
Approach LOS	B	C	C	C		
Intersection Summary						
Average Delay	42.2%		3.1		A	
Intersection Capacity Utilization	42.2%		15		A	
Analysis Period (min)						

10463.00: Harvard IMP
5014: Kingsley St & North Harvard Street

2012 Existing Conditions
Weekday Evening

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	a2
Lane Group	EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL SBR a2											
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Ideal Flow (vph)	10	10	10	13	13	13	12	12	12	16	16	16
Lane Width (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Grade (%)	0	0	0	0	0	0	0	0	0	0	0	0
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Storage Length (s)	0	0	0	0	0	0	0	0	0	0	0	0
Storage Delay (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	9
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Link Speed (mph)	25	30	25	30	25	30	25	30	25	30	25	30
Link Delay (s)	97.3	316	97.3	316	97.3	316	97.3	316	97.3	316	97.3	316
Link Volume (vph)	190	86	190	86	190	86	190	86	190	86	190	86
Volume (vph)	50	0	25	20	5	5	15	485	0	0	530	40
Confl. Peds. (#/hr)												
Peak Hour Factor	0.85	0.85	0.78	0.78	0.78	0.87	0.87	0.87	0.87	0.89	0.89	0.89
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Parking (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	0	88	0	0	38	0	0	574	0	0	641	0
Turn Type	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm
Protected Phases	3	3	3	3	3	3	1	1	1	1	2	
Permitted Phases	3	3	3	3	3	3	1	1	1	1	2	
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	1.0	
Minimum Split (s)	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	24.0	
Total Split (s)	30.0	30.0	30.0	30.0	30.0	30.0	60.0	60.0	60.0	60.0	0.0	24.0
Total Split (%)	26.3%	26.3%	0.0%	26.3%	26.3%	0.0%	52.6%	52.6%	0.0%	0.0%	52.6%	21%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead Lag	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lead/Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	Max	Max	None	None
v/c Ratio	0.53	0.22	0.53	0.22	0.53	0.22	0.51	0.51	0.51	0.48	0.48	0.48
Control Delay	41.0	34.8	41.0	34.8	41.0	34.8	12.7	12.7	12.7	11.7	11.7	11.7
Queue Delay	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.7	0.7	0.7
Total Delay	41.1	34.8	41.1	34.8	41.1	34.8	12.7	12.7	12.7	12.4	12.4	12.4
Queue Length (ft)	293	85	293	85	293	85	365	365	365	418	418	418
Queue Length (s)	85	26	85	26	85	26	365	365	365	418	418	418
Internal Link Dist (ft)	293	236	293	236	293	236	297	297	297	170	170	170
Turn Bay Length (ft)	299	333	299	333	299	333	1130	1130	1130	1332	1332	1332
Base Capacity (vph)	0	0	0	0	0	0	0	0	0	350	350	350
Starvation Cap Reductn	12	13	12	13	12	13	32	32	32	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduction v/c Ratio	0.31	0.12	0.31	0.12	0.31	0.12	0.52	0.52	0.52	0.65	0.65	0.65

Splits and Phases: 5014: Kingsley St & North Harvard Street



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VHB, Inc. 5/10/2013

10463.00: Harvard IMP
5014: Kingsley St & North Harvard Street

2012 Existing Conditions
Weekday Evening

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vph)	10	10	10	13	13	13	12	12	12	16	16
Lane Width (ft)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost Time (s)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Util. Factor	0.85	0.85	0.85	0.87	0.87	0.87	0.87	0.87	0.87	0.89	0.89
Flt Protected	1419	1419	1419	1419	1419	1419	1419	1419	1419	1419	1419
Satd. Flow (prot)	0.82	0.82	0.79	0.82	0.82	0.82	0.82	0.82	0.82	0.84	0.84
Flt Permitted	1202	1202	1319	1202	1202	1202	1202	1202	1202	1202	1202
Satd. Flow (perm)	50	0	25	20	5	5	15	485	0	0	530
Peak-hour factor, PHF	0.85	0.85	0.78	0.78	0.78	0.78	0.87	0.87	0.87	0.89	0.89
Adj. Flow (vph)	59	0	29	26	6	6	17	557	0	0	596
Adj. Satd. Flow (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	70	0	0	33	0	0	574	0	0	641
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm
Protected Phases	3	3	3	3	3	3	1	1	1	1	1
Permitted Phases	3	3	3	3	3	3	1	1	1	1	2
Actuated Green, G (s)	9.7	9.7	9.7	9.7	9.7	9.7	66.8	66.8	66.8	66.8	66.8
Effective Green, g (s)	10.7	10.7	10.7	10.7	10.7	10.7	67.8	67.8	67.8	67.8	67.8
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lane Cap (vph)	132	132	144	132	132	132	1115	1115	1115	1280	1280
v/s Ratio Prot	0.06	0.06	0.02	0.02	0.06	0.06	0.36	0.36	0.36	0.35	0.35
v/s Ratio Perm	0.53	0.23	0.53	0.23	0.53	0.23	0.51	0.51	0.51	0.50	0.50
Uniform Delay, d1	41.2	38.8	41.2	38.8	41.2	38.8	1.72	1.72	1.72	1.0	1.0
Incremental Delay, d2	2.1	0.3	2.1	0.3	2.1	0.3	1.7	1.7	1.7	1.4	1.4
Delay (s)	43.2	40.1	43.2	40.1	43.2	40.1	8.9	8.9	8.9	8.4	8.4
Level of Service	D	D	D	D	D	D	A	A	A	A	A
Approach LOS	D	D	D	D	D	D	A	A	A	A	A

Intersection Summary

HCM Average Control Delay	11.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.52	Sum of lost time (s)	19.3
Actuated Cycle Length (s)	97.8	ICU Level of Service	B
Intersection Capacity Utilization	55.1%	ICU Level of Service	B
Approach Satd. Flow (vph)	15		

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VHB, Inc. 5/10/2013

10463.00: Harvard IMP
5015: Bayard Street & North Harvard Street

2012 Existing Conditions
Weekday Evening

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
Grade	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Volume (veh/h)	0	0	10	0	0	0	500	10	5	570	0	0
Peak Hour Factor	0.55	0.55	0.25	0.25	0.25	0.94	0.94	0.94	0.89	0.89	0.89	0.89
Platoon flow rate (pph)	0	0	18	0	0	532	11	6	640	0	0	0
Platoon length (ft)												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None	None	None	None	None	None	None	None	None	None	None	None
Median storage (veh)												
pX platoon unblocked												377
vC, conflicting volume	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
vC1, stage 1 conf vol	1189	1184	640	1207	1189	537	640	543	543	543	543	543
vC2, stage 2 conf vol												
vCu, unblocked vol	1227	1233	569	1249	1227	537	569	543	543	543	543	543
IC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1	4.1	4.1	4.1	4.1	4.1
IC, stage (s)												
p0 queue free %	3.5	4.0	3.3	3.5	4.0	3.3	2.2	2.2	2.2	2.2	2.2	2.2
IF (s)	100	100	96	100	100	100	100	99	99	99	99	99
pM capacity (veh/h)	130	148	438	120	149	548	828	1016	1016	1016	1016	1016
Direction Lane #	EB 1	NB 1	SB 1									
Volume Total	18	543	646									
Volume Left	0	0	6									
Volume Right	18	11	0									
cSH	438	1700	1016									
Volume to Capacity	0.04	0.32	0.01									
Queue Length 35th (ft)	3	0	0									
Queue Delay (s)	13.3	0.9	0.1									
Lane LOS	B	B	A									
Approach Delay (s)	13.6	0.0	0.1									
Approach LOS	B	B	A									
Intersection Summary												
Average Delay	0.3											
Intersection Capacity Utilization	47.8%											
ICU Level of Service	A											
Analysis Period (min)	15											

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10463.00: Harvard IMP
5029: Rotterdam Street & Hague Street

2012 Existing Conditions
Weekday Evening

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
Grade	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Volume (veh/h)	155	0	0	0	0	5	0	10	0	10	5	30
Peak Hour Factor	0.89	0.89	0.89	0.63	0.63	0.63	0.65	0.65	0.65	0.65	0.65	0.65
Platoon flow rate (pph)	174	0	0	0	0	8	0	15	0	15	8	46
Platoon length (ft)												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None	None	None	None	None	None	None	None	None	None	None	None
Median storage (veh)												
pX platoon unblocked												
vC, conflicting volume	8	0	0	402	356	0	360	352	4	4	4	4
vC1, stage 1 conf vol	8	0	0	402	356	0	360	352	4	4	4	4
vC2, stage 2 conf vol												
vCu, unblocked vol	4.1	4.5	4.5	7.3	7.3	7.0	7.4	6.8	6.4	6.4	6.4	6.4
IC, single (s)												
IC, stage (s)												
p0 queue free %	2.2	2.6	2.6	4.2	4.7	4.0	3.7	4.2	3.5	3.5	3.5	3.5
IF (s)	89	100	100	100	96	100	97	98	95	95	95	95
pM capacity (veh/h)	1619	1406	1406	386	417	902	485	480	1016	1016	1016	1016
Direction Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	174	8	15	69								
Volume Left	174	0	0	15								
Volume Right	0	8	0	46								
cSH	1619	1406	417	748								
Volume to Capacity	0.11	0.00	0.04	0.09								
Queue Length 35th (ft)	9	0	0	3								
Queue Delay (s)	7.1	0.9	1.4	10.3								
Lane LOS	A	A	B	B								
Approach Delay (s)	7.5	0.0	14.0	10.3								
Approach LOS	B	B	B	B								
Intersection Summary												
Average Delay	8.4											
Intersection Capacity Utilization	32.5%											
ICU Level of Service	A											
Analysis Period (min)	15											

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10463.00: Harvard IMP
5163: Cambridge Street & Soldiers Field Road WB

Table with 24 columns: Lane Group, EBL, EBT, EBR, EBR, WBL, WBT, WBR, WBR, NBL, NBT, NBR, SBL, SBT, SBR, e1, e2, e3, e4. Includes data for Lane Configurations, Lane Width, Lane Util. Factor, etc.

Intersection Summary table, HCM Average Control Delay, HCM Volume to Capacity ratio, Actuated Cycle Length (s), etc.

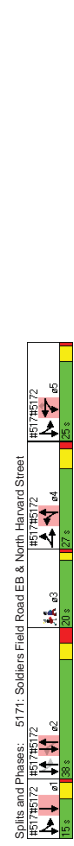
10463.00: Harvard IMP
5163: Cambridge Street & Soldiers Field Road WB

Table with 24 columns: Lane Group, EBL, EBT, EBR, EBR, WBL, WBT, WBR, WBR, NBL, NBT, NBR, SBL, SBT, SBR, e1, e2, e3, e4. Includes data for Lane Configurations, Lane Width, Lane Util. Factor, etc.

Intersection Summary table, HCM Average Control Delay, HCM Volume to Capacity ratio, Actuated Cycle Length (s), etc.

10463.00: Harvard IMP
5171: Soldiers Field Road EB & North Harvard Street
2012 Existing Conditions
Weekday Evening

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	e1	e3	e5
Lane Group	EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL SBR e1 e3 e5													
Lane Configurations	1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900													
Ideal Flow (vph)	13 16 16 12 12 12 13 13 13 10 10 10 10 10													
Lane Width (ft)	0 0 0 0 0 0 0 0 0 0 0 0 0 0													
Grades (%)	0 0 0 0 0 0 0 0 0 0 0 0 0 0													
Storage Length (ft)	0 0 0 0 0 0 0 0 0 0 0 0 0 0													
Storage Lengths (s)	4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0													
Trailing Detector (ft)	50 50 0 0 0 0 0 0 0 0 0 0 0 0													
Trailing Detector (s)	15 0 9 15 9 15 0 0 0 0 0 0 0 0													
Right Turn on Red	Yes Yes													
Link Speed (mph)	30 30 30 30 30 30 30 30 30 30 30 30 30 30													
Link Distance (ft)	585 518 81 118 31 76 31 17 31 17 31 17 31 17													
Volume (vph)	220 110 85 0 0 0 0 0 575 45 380 375 0													
Confl. Peds. (#/hr)	48													
Peak Hour Factor	0.87 0.87 0.92 0.92 0.94 0.94 0.94 0.94 0.91 0.91 0.91 0.91 0.91													
Growth Factor	100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 100%													
Heavy Vehicles (%)	1% 1% 2% 2% 2% 2% 3% 3% 2% 2% 2%													
Parking (#/hr)	0 0 0 0 0 0 0 0 0 0 0 0 0 0													
Mid-Block Traffic (%)	0%													
Lane Group Flow (vph)	188 174 0 0 0 0 0 660 0 418 412 0													
Turn Type	Split													
Permitted Phases	4 4 2 1 5 1 2 5													
Minimum Initial (s)	4.0 8.0 4.0 2.0 1.5 1.5 1.2 5													
Minimum Split (s)	21.0 21.0 28.0 9.0 20.0 17.0													
Total Split (s)	27.0 27.0 0.0 0.0 0.0 0.0 38.0 0.0 40.0 78.0 0.0													
Total Split (%)	21.6% 21.6% 0.0% 0.0% 0.0% 0.0% 30.4% 0.0% 32.0% 62.4% 0.0%													
Yellow Time (s)	5.0 5.0													
All-red Time (s)	2.0 2.0													
Agg. Leg	Yes Yes Yes Yes Yes Yes													
Lead/Lag	Yes No Yes No Yes No													
Recall Mode	Max Max Max													
v/c Ratio	0.60 0.54 0.73 0.78 0.41													
Control Delay	53.8 38.6 44.2 47.1 1.2													
Queue Delay	2.2 2.8 25.4 0.0 0.0													
Queue Length (ft)	55.9 42.4 69.7 47.1 1.2													
Queue Length (s)	17.9 13.1 21.3 13.8 0.3													
Internal Link Dist (ft)	227 172 334 #401 4													
Turn Bay Length (ft)	515 439 301													
Base Capacity (vph)	313 320 903 537 997													
Starvation Cap Reductn	0 0 0 0 0													
Storage Cap Reductn	47 70 261 0 0													
Reaches v/c Ratio	0 0 1.03 0.78 0.41													

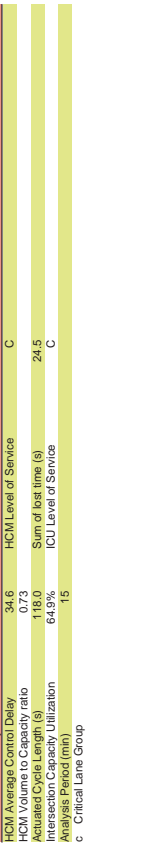


Area Type: CBD
 Area Length: 125
 Actuated Cycle Length: 117
 Natural Cycle: 135
 Control Type: Semi Act-Uncoord
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

VmevhvT510463.00tscHW026_IMPsynchr001_2012_EX_PMI.s7
 VHB, Inc. 5/14/2013

10463.00: Harvard IMP
5171: Soldiers Field Road EB & North Harvard Street
2012 Existing Conditions
Weekday Evening

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	
Lane Configurations	1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900											
Ideal Flow (vph)	13 16 16 12 12 12 13 13 13 10 10 10											
Lane Width (ft)	0 0 0 0 0 0 0 0 0 0 0 0											
Grades (%)	0 0 0 0 0 0 0 0 0 0 0 0											
Storage Length (ft)	0 0 0 0 0 0 0 0 0 0 0 0											
Storage Lengths (s)	4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0											
Trailing Detector (ft)	50 50 0 0 0 0 0 0 0 0 0 0											
Trailing Detector (s)	15 0 9 15 9 15 0 0 0 0 0 0											
Right Turn on Red	Yes Yes											
Link Speed (mph)	30 30 30 30 30 30 30 30 30 30 30 30											
Link Distance (ft)	585 518 81 118 31 76 31 17 31 17 31 17											
Volume (vph)	220 110 85 0 0 0 0 0 575 45 380 375 0											
Confl. Peds. (#/hr)	48											
Peak Hour Factor	0.87 0.87 0.92 0.92 0.94 0.94 0.94 0.94 0.91 0.91 0.91 0.91											
Growth Factor	100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 100%											
Heavy Vehicles (%)	1% 1% 2% 2% 2% 2% 3% 3% 2% 2% 2%											
Parking (#/hr)	0 0 0 0 0 0 0 0 0 0 0 0											
Mid-Block Traffic (%)	0%											
Lane Group Flow (vph)	188 137 0 0 0 0 0 660 0 418 412 0											
Turn Type	Split											
Permitted Phases	4 4 2 1 5 1 2 5											
Minimum Initial (s)	4.0 8.0 4.0 2.0 1.5 1.5 1.2 5											
Minimum Split (s)	21.0 21.0 28.0 9.0 20.0 17.0											
Total Split (s)	27.0 27.0 0.0 0.0 0.0 0.0 38.0 0.0 40.0 78.0 0.0											
Total Split (%)	21.6% 21.6% 0.0% 0.0% 0.0% 0.0% 30.4% 0.0% 32.0% 62.4% 0.0%											
Yellow Time (s)	5.0 5.0											
All-red Time (s)	2.0 2.0											
Agg. Leg	Yes Yes Yes Yes Yes Yes											
Lead/Lag	Yes No Yes No Yes No											
Recall Mode	Max Max Max											
v/c Ratio	0.60 0.54 0.73 0.78 0.41											
Control Delay	53.8 38.6 44.2 47.1 1.2											
Queue Delay	2.2 2.8 25.4 0.0 0.0											
Queue Length (ft)	55.9 42.4 69.7 47.1 1.2											
Queue Length (s)	17.9 13.1 21.3 13.8 0.3											
Internal Link Dist (ft)	227 172 334 #401 4											
Turn Bay Length (ft)	515 439 301											
Base Capacity (vph)	313 320 903 537 997											
Starvation Cap Reductn	0 0 0 0 0											
Storage Cap Reductn	47 70 261 0 0											
Reaches v/c Ratio	0 0 1.03 0.78 0.41											



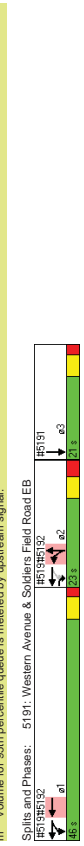
Area Type: CBD
 Area Length: 125
 Actuated Cycle Length: 117
 Natural Cycle: 135
 Control Type: Semi Act-Uncoord
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

VmevhvT510463.00tscHW026_IMPsynchr001_2012_EX_PMI.s7
 VHB, Inc. 5/14/2013

10463.00: Harvard IMP
5191: Western Avenue & Soldiers Field Road EB

2012 Existing Conditions
Weekday Evening

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	13	13	13	12	11	11	12	12	12	11	11
Lane Width (ft)	0	0	0	0	0	0	0	0	0	0	0
Grade (%)	0	0	0	0	0	0	0	0	0	0	0
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0
Storage Spaces (ft)	0	0	0	0	0	0	0	0	0	0	0
Trailing Detector (ft)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Link Speed (mph)	30	100	30	100	30	100	30	100	30	100	30
Link Distance (ft)	414	100	414	100	414	100	414	100	414	100	414
Volume (vph)	112	112	112	20	20	20	20	20	20	20	20
Conf. Peds. (#/hr)	0	0	0	0	0	0	0	0	0	0	0
Peak-Hour Factor	0.85	0.85	0.85	0.97	0.97	0.97	0.92	0.92	0.92	0.85	0.85
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	0%	0%	0%	2%	2%	2%	0%	0%
Pedestrians (#/hr)	0	0	0	0	0	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	0	0	671	1134	469	0	0	0	0	0	637
Turn Type	custom	pm+pt	custom	pm+pt	custom	pm+pt	custom	pm+pt	custom	pm+pt	pm+pt
Protected Phases	2	1	2	1	2	1	2	1	2	1	2
Permitted Phases	2	1	2	1	2	1	2	1	2	1	2
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	0.0	0.0	23.0	46.0	69.0	0.0	0.0	0.0	0.0	0.0	21.0
Total Split (%)	0.0%	0.0%	25.6%	51.1%	76.7%	0.0%	0.0%	0.0%	0.0%	0.0%	23.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Allied Time (s)	3.0	2.0	3.0	2.0	3.0	2.0	3.0	2.0	3.0	2.0	3.0
Lead Lag	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lead Lag Optimize?	None	C-Max	None	C-Max	None	C-Max	None	C-Max	None	C-Max	None
v/c Ratio	0.99	0.50	0.39	0.99	0.50	0.39	0.99	0.50	0.39	0.99	0.50
Control Delay	58.4	0.4	0.5	58.4	0.4	0.5	58.4	0.4	0.5	58.4	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Length (ft)	58.4	0.4	0.5	58.4	0.4	0.5	58.4	0.4	0.5	58.4	0.4
Queue Length 95th (ft)	4281	ns	ns	4281	ns	ns	4281	ns	ns	4281	ns
Internal Link Dist (ft)	414	2284	1184	414	2284	1184	414	2284	1184	414	2284
Turn Bay Length (ft)	681	2284	1184	681	2284	1184	681	2284	1184	681	2284
Base Capacity (vph)	0	0	0	0	0	0	0	0	0	0	0
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reaches v/c Ratio	0.99	0.50	0.39	0.99	0.50	0.39	0.99	0.50	0.39	0.99	0.50



10463.00: Harvard IMP
5191: Western Avenue & Soldiers Field Road EB

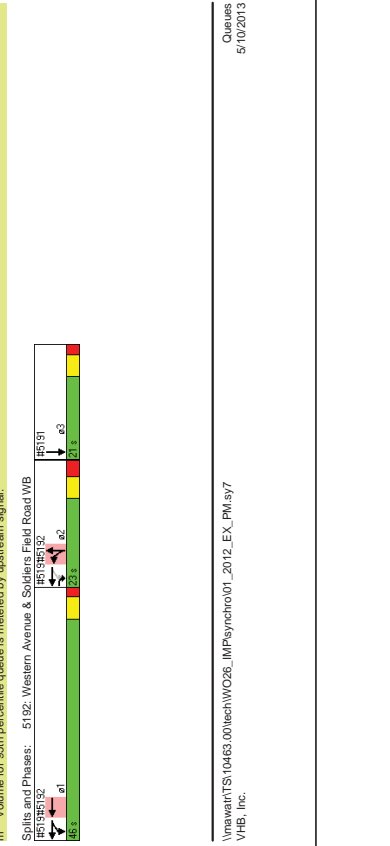
2012 Existing Conditions
Weekday Evening

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	13	13	13	12	11	11	12	12	12	11	11
Lane Width (ft)	0	0	0	0	0	0	0	0	0	0	0
Grade (%)	0	0	0	0	0	0	0	0	0	0	0
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0
Storage Spaces (ft)	0	0	0	0	0	0	0	0	0	0	0
Trailing Detector (ft)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Link Speed (mph)	30	100	30	100	30	100	30	100	30	100	30
Link Distance (ft)	414	100	414	100	414	100	414	100	414	100	414
Volume (vph)	0	0	570	1100	469	0	0	0	0	0	565
Conf. Peds. (#/hr)	0	0	0	0	0	0	0	0	0	0	0
Peak-Hour Factor	0.85	0.85	0.85	0.97	0.97	0.97	0.92	0.92	0.92	0.85	0.85
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	0%	0%	0%	2%	2%	2%	0%	0%
Pedestrians (#/hr)	0	0	0	0	0	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	0	0	671	1134	469	0	0	0	0	0	637
Turn Type	custom	pm+pt	custom	pm+pt	custom	pm+pt	custom	pm+pt	custom	pm+pt	pm+pt
Protected Phases	2	1	2	1	2	1	2	1	2	1	2
Permitted Phases	2	1	2	1	2	1	2	1	2	1	2
Minimum Initial (s)	16.0	56.0	62.0	16.0	56.0	62.0	16.0	56.0	62.0	16.0	56.0
Minimum Split (s)	19.0	61.0	65.0	19.0	61.0	65.0	19.0	61.0	65.0	19.0	61.0
Total Split (%)	7.0	6.0	0.72	7.0	6.0	0.72	7.0	6.0	0.72	7.0	6.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lane Cap (vph)	537	2276	1184	537	2276	1184	537	2276	1184	537	2276
v/s Ratio Prot	c0.21	c0.23	0.28	c0.21	c0.23	0.28	c0.21	c0.23	0.28	c0.21	c0.23
v/s Ratio Perm	0.98	0.49	0.39	0.98	0.49	0.39	0.98	0.49	0.39	0.98	0.49
Uniform Delay, d1	35.3	7.0	4.8	35.3	7.0	4.8	35.3	7.0	4.8	35.3	7.0
Uniform Delay, d2	33.7	0.0	0.0	33.7	0.0	0.0	33.7	0.0	0.0	33.7	0.0
Incremental Delay, d2	69.0	0.2	0.3	69.0	0.2	0.3	69.0	0.2	0.3	69.0	0.2
Delay (s)	E	A	A	E	A	A	E	A	A	E	A
Level of Service	E	A	A	E	A	A	E	A	A	E	A
Approach LOS	E	A	A	E	A	A	E	A	A	E	A



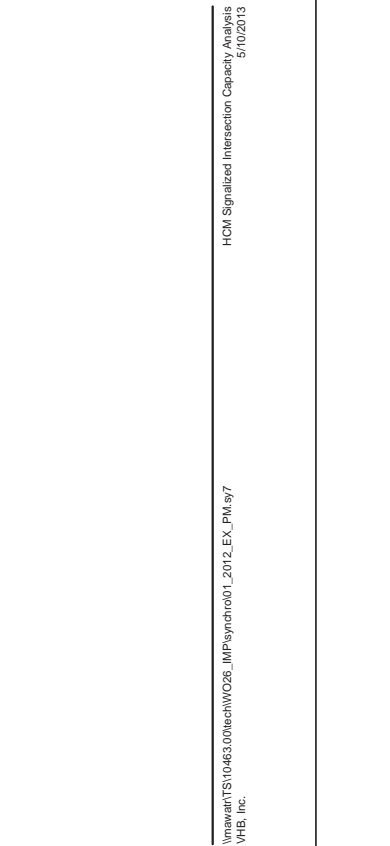
10463.00: Harvard IMP
5192: Western Avenue & Soldiers Field Road WB
2012 Existing Conditions
Weekday Evening

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	
Lane Group	EBL			WBL			NBL			SBL		
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Ideal Flow (vphpl)	12	12	12	11	11	11	11	11	11	12	12	
Lane Width (ft)	0	0	0	0	0	0	0	0	0	0	0	
Grade (%)	0	0	0	0	0	0	0	0	0	0	0	
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0	
Storage Time (s)	0	0	0	0	0	0	0	0	0	0	0	
Trailing Detector (ft)	4.0	4.0	4.0	6.0	4.0	4.0	6.0	4.0	4.0	4.0	4.0	
Trailing Detector (ft)	15	9	15	0	0	0	0	0	0	0	0	
Turning Speed (mph)	30	Yes	30	Yes	30	Yes	30	Yes	30	Yes	30	
Link Speed (mph)	100	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Link Distance (ft)	40	40	40	185	185	185	456	456	456	456	456	
Volume (vph)	0	0	0	1465	475	90	375	0	0	0	0	
Confl. Peds. (#/hr)	0.92	0.92	0.98	0.98	0.95	0.95	0.95	0.92	0.92	0.92	0.92	
Peak Hour Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Growth Factor	2%	2%	2%	1%	1%	1%	2%	2%	2%	2%	2%	
Heavy Vehicles (%)	0	0	0	0	0	0	0	0	0	0	0	
Parking (ft/hr)	0	0	0	0	0	0	0	0	0	0	0	
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Lane Group Flow (vph)	0	0	0	1980	0	0	490	0	0	0	0	
Turn Type	Protected Phases			Split			Split			Split		
Permitted Phases	1			2			2			3		
Minimum Initial (s)	10.0			10.0			10.0			10.0		
Minimum Split (s)	21.0			22.0			22.0			18.0		
Total Split (%)	0.0			0.0			23.0			0.0		
Total Split (%)	0.0%			0.0%			25.6%			0.0%		
Yellow Time (s)	4.0			4.0			4.0			4.0		
All-red Time (s)	2.0			3.0			3.0			2.0		
Lead-Lag	Yes			Yes			Yes			Yes		
Lead-Lag Optimize?	Yes			Yes			Yes			Yes		
Recall Mode	C-Max			None			None			None		
v/c Ratio	1.00			0.82			0.82			0.82		
Control Delay	40.2			45.5			45.5			40.2		
Queue Delay	1.8			0.3			0.3			1.8		
Queue Length (ft)	42.1			45.8			45.8			42.1		
Queue Length 95th (ft)	42.1			45.8			45.8			42.1		
Internal Link Dist (ft)	m#395			#212			#212			#212		
Turn Bay Length (ft)	20			384			1071			376		
Base Capacity (vph)	1977			599			599			1977		
Station Cap Reductn	5			0			0			5		
Storage Cap Reductn	14			7			7			14		
Reductn v/c Ratio	1.01			0.83			0.83			1.01		
Intersection Summary												
Area Type	CBD											
Area Length (ft)	90											
Area Width (ft)	90											
Actuated Cycle Length (s)	90											
Offser: 0 (0%)	Referenced to phase 1/WBTL, Start of Green, Master Intersection											
Natural Cycle: 100	Natural Cycle: 100											
Control Type: Actuated-Coordinated	Control Type: Actuated-Coordinated											
- Volume exceeds capacity, queue is theoretically infinite.												
- Queue shown is maximum after two cycles.												
# Split phasing volume exceeds capacity, queue may be longer.												
# Control phasing volume exceeds capacity, queue may be longer.												
m - Volume for 95th percentile queue is metered by upstream signal.												



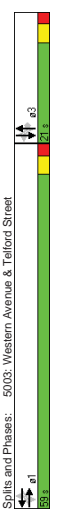
10463.00: Harvard IMP
5192: Western Avenue & Soldiers Field Road WB
2012 Existing Conditions
Weekday Evening

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	
Lane Group	EBL			WBL			NBL			SBL		
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Ideal Flow (vphpl)	12	12	12	11	11	11	11	11	11	12	12	
Lane Width (ft)	0	0	0	0	0	0	0	0	0	0	0	
Grade (%)	0	0	0	0	0	0	0	0	0	0	0	
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0	
Storage Time (s)	0	0	0	0	0	0	0	0	0	0	0	
Trailing Detector (ft)	4.0	4.0	4.0	6.0	4.0	4.0	6.0	4.0	4.0	4.0	4.0	
Trailing Detector (ft)	15	9	15	0	0	0	0	0	0	0	0	
Turning Speed (mph)	30	Yes	30	Yes	30	Yes	30	Yes	30	Yes	30	
Link Speed (mph)	100	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Link Distance (ft)	40	40	40	185	185	185	456	456	456	456	456	
Volume (vph)	0	0	0	1465	475	90	375	0	0	0	0	
Confl. Peds. (#/hr)	0.92	0.92	0.98	0.98	0.95	0.95	0.95	0.92	0.92	0.92	0.92	
Peak Hour Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Growth Factor	2%	2%	2%	1%	1%	1%	2%	2%	2%	2%	2%	
Heavy Vehicles (%)	0	0	0	0	0	0	0	0	0	0	0	
Parking (ft/hr)	0	0	0	0	0	0	0	0	0	0	0	
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Lane Group Flow (vph)	0	0	0	1980	0	0	490	0	0	0	0	
Turn Type	Protected Phases			Split			Split			Split		
Permitted Phases	1			2			2			3		
Minimum Initial (s)	10.0			10.0			10.0			10.0		
Minimum Split (s)	21.0			22.0			22.0			18.0		
Total Split (%)	0.0			0.0			23.0			0.0		
Total Split (%)	0.0%			0.0%			25.6%			0.0%		
Yellow Time (s)	4.0			4.0			4.0			4.0		
All-red Time (s)	2.0			3.0			3.0			2.0		
Lead-Lag	Yes			Yes			Yes			Yes		
Lead-Lag Optimize?	Yes			Yes			Yes			Yes		
Recall Mode	C-Max			None			None			None		
v/c Ratio	1.00			0.81			0.81			0.81		
Control Delay	40.2			45.5			45.5			40.2		
Queue Delay	1.8			0.3			0.3			1.8		
Queue Length (ft)	42.1			45.8			45.8			42.1		
Queue Length 95th (ft)	42.1			45.8			45.8			42.1		
Internal Link Dist (ft)	m#395			#212			#212			#212		
Turn Bay Length (ft)	20			384			1071			376		
Base Capacity (vph)	1977			599			599			1977		
Station Cap Reductn	5			0			0			5		
Storage Cap Reductn	14			7			7			14		
Reductn v/c Ratio	1.01			0.83			0.83			1.01		
Intersection Summary												
Area Type	CBD											
Area Length (ft)	90											
Area Width (ft)	90											
Actuated Cycle Length (s)	90											
Offser: 0 (0%)	Referenced to phase 1/WBTL, Start of Green, Master Intersection											
Natural Cycle: 100	Natural Cycle: 100											
Control Type: Actuated-Coordinated	Control Type: Actuated-Coordinated											
- Volume exceeds capacity, queue is theoretically infinite.												
- Queue shown is maximum after two cycles.												
# Split phasing volume exceeds capacity, queue may be longer.												
# Control phasing volume exceeds capacity, queue may be longer.												
m - Volume for 95th percentile queue is metered by upstream signal.												



10463.00: Harvard IMP
5003: Western Avenue & Telford Street
2022 No-Build Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Area Type: CBD												
Area Length: 80												
Actuated Green: 80												
Actuated Yellow: 80												
Actuated Red: 80												
Control Delay: 11.2												
Queue Delay: 4.4												
Queue Length: 15.6												
Queue Length 95th (ft): 49.3												
Queue Length 95th (ft) #95L: 70												
Internal Link Dist (ft): 265												
Turn Bay Length (ft): 125												
Base Capacity (vph): 1245												
Starvation Cap. Reductn: 256												
Starvation Cap. Reductn: 0												
Starvation Cap. Reductn: 17												
Starvation Cap. Reductn: 0												
Reduced V/ Ratio: 0.82												
Intersection Summary												
Area Type: CBD												
Area Length: 80												
Actuated Green: 80												
Actuated Yellow: 80												
Actuated Red: 80												
Control Delay: 11.2												
Queue Delay: 4.4												
Queue Length: 15.6												
Queue Length 95th (ft): 49.3												
Queue Length 95th (ft) #95L: 70												
Internal Link Dist (ft): 265												
Turn Bay Length (ft): 125												
Base Capacity (vph): 1245												
Starvation Cap. Reductn: 256												
Starvation Cap. Reductn: 0												
Starvation Cap. Reductn: 17												
Starvation Cap. Reductn: 0												
Reduced V/ Ratio: 0.82												



Volume for 95th percentile queue is metered by upstream signal.

Spills and Phases: 5003: Western Avenue & Telford Street

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Volume for 95th percentile queue is metered by upstream signal.

10463.00: Harvard IMP
5003: Western Avenue & Telford Street
2022 No-Build Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Area Type: CBD												
Area Length: 80												
Actuated Green: 80												
Actuated Yellow: 80												
Actuated Red: 80												
Control Delay: 11.2												
Queue Delay: 4.4												
Queue Length: 15.6												
Queue Length 95th (ft): 49.3												
Queue Length 95th (ft) #95L: 70												
Internal Link Dist (ft): 265												
Turn Bay Length (ft): 125												
Base Capacity (vph): 1245												
Starvation Cap. Reductn: 256												
Starvation Cap. Reductn: 0												
Starvation Cap. Reductn: 17												
Starvation Cap. Reductn: 0												
Reduced V/ Ratio: 0.82												
Intersection Summary												
Area Type: CBD												
Area Length: 80												
Actuated Green: 80												
Actuated Yellow: 80												
Actuated Red: 80												
Control Delay: 11.2												
Queue Delay: 4.4												
Queue Length: 15.6												
Queue Length 95th (ft): 49.3												
Queue Length 95th (ft) #95L: 70												
Internal Link Dist (ft): 265												
Turn Bay Length (ft): 125												
Base Capacity (vph): 1245												
Starvation Cap. Reductn: 256												
Starvation Cap. Reductn: 0												
Starvation Cap. Reductn: 17												
Starvation Cap. Reductn: 0												
Reduced V/ Ratio: 0.82												

Volume for 95th percentile queue is metered by upstream signal.

Spills and Phases: 5003: Western Avenue & Telford Street

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Volume for 95th percentile queue is metered by upstream signal.

10463.00: Harvard IMP
5003: Western Avenue & Telford Street
2022 No-Build Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Area Type: CBD												
Area Length: 80												
Actuated Green: 80												
Actuated Yellow: 80												
Actuated Red: 80												
Control Delay: 11.2												
Queue Delay: 4.4												
Queue Length: 15.6												
Queue Length 95th (ft): 49.3												
Queue Length 95th (ft) #95L: 70												
Internal Link Dist (ft): 265												
Turn Bay Length (ft): 125												
Base Capacity (vph): 1245												
Starvation Cap. Reductn: 256												
Starvation Cap. Reductn: 0												
Starvation Cap. Reductn: 17												
Starvation Cap. Reductn: 0												
Reduced V/ Ratio: 0.82												
Intersection Summary												
Area Type: CBD												
Area Length: 80												
Actuated Green: 80												
Actuated Yellow: 80												
Actuated Red: 80												
Control Delay: 11.2												
Queue Delay: 4.4												
Queue Length: 15.6												
Queue Length 95th (ft): 49.3												
Queue Length 95th (ft) #95L: 70												
Internal Link Dist (ft): 265												
Turn Bay Length (ft): 125												
Base Capacity (vph): 1245												
Starvation Cap. Reductn: 256												
Starvation Cap. Reductn: 0												
Starvation Cap. Reductn: 17												
Starvation Cap. Reductn: 0												
Reduced V/ Ratio: 0.82												

Volume for 95th percentile queue is metered by upstream signal.

Spills and Phases: 5003: Western Avenue & Telford Street

Queue shown is maximum after two cycles.

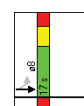
95th percentile volume exceeds capacity, queue may be longer.

Volume for 95th percentile queue is metered by upstream signal.

10463.00: Harvard IMP
5003: Western Avenue & Telford Street
2022 No-Build Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900											
Ideal Flow (vphpl)	13 16 16 12 12 12 13 13 13 10 10 10											
Lane Width (ft)	0 0 0 0 0 0 0 0 0 0 0 0											
Grades (%)	0 0 0 0 0 0 0 0 0 0 0 0											
Storage Length (ft)	0 0 0 0 0 0 0 0 0 0 0 0											
Storage Times (s)	4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0											
Leading Detector (ft)	50 50 50 50 50 50 50 50 50 50 50 50											
Trail Detektor (ft)	0 0 0 0 0 0 0 0 0 0 0 0											
Turning Speed (mph)	15 0 9 15 9 15 9 15 9 15 9 0											
Right Turn on Red	Yes											
Link Speed (mph)	30											
Link Distance (ft)	585											
Link Volume (vph)	19											
Volume (vph)	325 5 65 0 0 0 0 540 45 410 425 0											
Confl. Peds. (#/hr)	0											
Peak Hour Factor	0.90 0.90 0.92 0.92 0.92 0.88 0.88 0.88 0.90 0.90 0.90 0.90											
Growth Factor	100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 100%											
Heavy Vehicles (%)	1% 1% 2% 2% 2% 10% 10% 10% 4% 4% 4% 4%											
Parking (ft/hr)	0 0 0 0 0 0 0 0 0 0 0 0											
Mid-Block Traffic (%)	0 0 0 0 0 0 0 0 0 0 0 0											
Lane Group Flow (vph)	233 206 0 0 0 0 0 665 0 466 472 0											
Turn Type	Split											
Protected Phases	4 4 4 2 1 6 8 8											
Permitted Phases	4 4 6 8											
Minimum Initial (s)	10 10 10 15 10 10 10 10 10 10 15 10 6 8											
Minimum Split (s)	22 20 22 0 0 0 0 0 0 0 23 0 78 0 0 61 17 0											
Total Split (%)	22.0% 22.0% 0.0% 0.0% 0.0% 38.0% 0.0% 23.0% 78.0% 0.0% 61% 17%											
Yellow Time (s)	4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0											
Allared Time (s)	7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0											
Lead Lag	0 0 0 0 0 0 0 0 0 0 0 0											
Lead Lag Optimize?	Yes Yes Yes											
Recall Mode	None None C-Min Max C-Min None											
v/c Ratio	0.82 0.69 0.61 0.83 0.42											
Control Delay	63.4 46.8 28.0 32.4 0.5											
Queue Delay	166.4 84.8 0.2 0.0 0.0											
Total Delay	239.8 131.6 28.2 32.4 0.5											
Queue Length 95th (ft)	226 224 231											
Queue Length 95th (ft)	#286 #214 #231											
Internal Link Dist (ft)	439 301											
Turn Bay Length (ft)	284 300 1086 491 1136											
Starvation Cap Reductn	0 0 0 0 0											
Starvation Cap Reductn	113 122 66 0 0											
Storage Cap Reductn	0 0 0 0 0											
Reduction % Ratio	1.36 1.16 0.65 0.89 0.42											

Area Type	Area	Area Length	Area Width
Area Type	None		
Area Length	100		
Area Width	100		
Offser	0.0%		
Natural Cycle	90		
Control Type	Actuated-Coordinated		
#	95th percentile volume exceeds capacity, queue may be longer.		
m	Queue shown is maximum after two cycles.		
n	Volume for 95th percentile queue is met/led by upstream signal.		



V:\work\10463.00\hcn\WO26_IMP\synchro02_2022_NB_AMI.s7
 VHB, Inc.
 HCM Signalized Intersection Capacity Analysis
 7/23/2013

10463.00: Harvard IMP
 5171: Soldiers Field Road EB & North Harvard Street

2022 No-Build Conditions
 Weekday Morning

V:\work\10463.00\hcn\WO26_IMP\synchro02_2022_NB_AMI.s7
 VHB, Inc.
 HCM Signalized Intersection Capacity Analysis
 7/23/2013

10463.00: Harvard IMP
5172: Soldiers Field Road WB & Larz Anderson Bridge

2022 No-Build Conditions
Weekday Morning

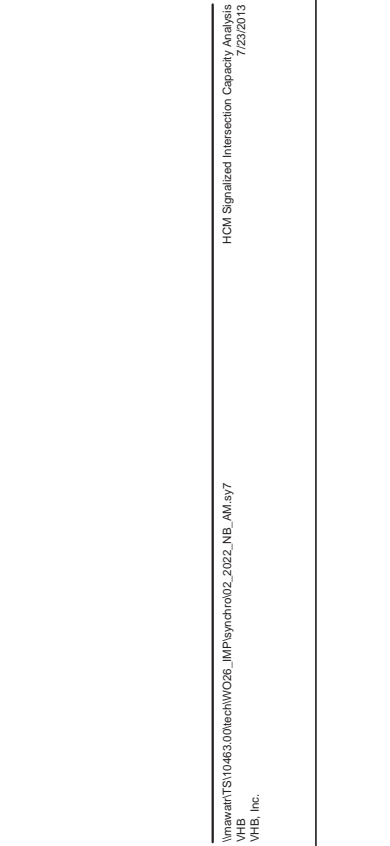
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	a1	a2	a4
Lane Group	Lane Group													
Lane Configurations	Lane Configurations													
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	16	16	16	12	10	10	12	11	11	11	11
Grade (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Storage Length (s)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trailing Detector (ft)	3.0	3.0	3.0	3.0	3.0	3.0	6.0	3.0	3.0	6.0	3.0	6.0	3.0	3.0
Leading Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15	9	15	0	0	0	0	0	0	0	0	9	15	0
Right Turn on Red	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Link Speed (mph)	30	30	30	30	30	30	30	30	30	30	30	30	30	30
Link Distance (ft)	680	194	536	194	536	194	194	536	194	536	194	536	194	536
Volume (vph)	0	0	0	60	10	280	140	725	0	0	775	50	50	50
Confl. Peds. (#/hr)	0	0	0	6	10	27	124	0	0	0	775	50	50	50
Confl. Bikes (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94	0.93	0.83	0.83	0.83	0.83
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	6%	6%	6%	4%	4%	4%	4%	4%
Pedestrians (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	0	0	0	76	304	0	920	0	0	887	0	887	0	887
Turn Type	Split custom Perm													
Permitted Phases	8 8 18 2.4 2.4													
Protected Phases	8 8 18 2.4 2.4													
Minimum Initial (s)	6.0 6.0 15.0 11.0													
Minimum Split (s)	26.0 14.0 22.0 22.0													
Total Split (s)	0.0 0.0 17.0 17.0 40.0 60.0 0.0 0.0 61.0 0.0 23.0 38.0 22.0													
Yellow Time (s)	0.0% 0.0% 0.0% 17.0% 17.0% 40.0% 60.0% 60.0% 0.0% 0.0% 61.0% 0.0% 23% 38% 22%													
Allied Time (s)	4.0 4.0 2.0 3.0 3.0													
Lead Lag	Lead Lag													
Lead Lag Optimize?	Lead Lag Optimize?													
Recall Mode	None													
v/c Ratio	0.29 0.50 1.01													
Control Delay	42.0 27.8 41.4													
Queue Delay	0.4 0.0 0.0													
Queue Length	42.4 27.8 41.4													
Queue Length 95th (ft)	88 229 4436													
Internal Link Dist (ft)	510													
Turn Bay Length (ft)	456													
Base Capacity (vph)	260 609 913													
Starvation Cap Reductn	0 0 0													
Storage Cap Reductn	37 0 0													
Reaches v/c Ratio	0.94 0.98 1.01													



10463.00: Harvard IMP
5172: Soldiers Field Road WB & Larz Anderson Bridge

2022 No-Build Conditions
Weekday Morning

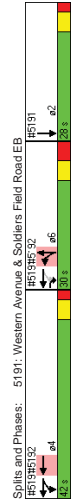
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	
Lane Configurations	Lane Configurations											
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	11	11	12	16	16	16	12	10	10	12	11	
Grade (%)	0	0	0	0	0	0	0	0	0	0	0	
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0	
Storage Length (s)	0	0	0	0	0	0	0	0	0	0	0	
Trailing Detector (ft)	3.0	3.0	3.0	3.0	3.0	3.0	6.0	3.0	3.0	6.0	3.0	
Leading Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Turning Speed (mph)	15	9	15	0	0	0	0	0	0	0	0	
Right Turn on Red	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	
Link Speed (mph)	30	30	30	30	30	30	30	30	30	30	30	
Link Distance (ft)	680	194	536	194	536	194	194	536	194	536	194	
Volume (vph)	0	0	0	60	10	280	140	725	0	0	775	
Confl. Peds. (#/hr)	0	0	0	6	10	27	124	0	0	0	775	
Confl. Bikes (#/hr)	0	0	0	0	0	0	0	0	0	0	0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94	0.93	0.83	
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	6%	6%	6%	4%	4%	
Pedestrians (#/hr)	0	0	0	0	0	0	0	0	0	0	0	
Bicycles (#/hr)	0	0	0	0	0	0	0	0	0	0	0	
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Lane Group Flow (vph)	0	0	0	76	304	0	920	0	0	885	0	
Turn Type	Split custom Perm											
Permitted Phases	8 8 18 2.4 2.4											
Protected Phases	8 8 18 2.4 2.4											
Minimum Initial (s)	6.0 6.0 15.0 11.0											
Minimum Split (s)	26.0 14.0 22.0 22.0											
Total Split (s)	0.0 0.0 17.0 17.0 40.0 60.0 0.0 0.0 61.0 0.0 23.0 38.0 22.0											
Yellow Time (s)	0.0% 0.0% 0.0% 17.0% 17.0% 40.0% 60.0% 60.0% 0.0% 0.0% 61.0% 0.0% 23% 38% 22%											
Allied Time (s)	4.0 4.0 2.0 3.0 3.0											
Lead Lag	Lead Lag											
Lead Lag Optimize?	Lead Lag Optimize?											
Recall Mode	None											
v/c Ratio	0.29 0.50 1.01											
Control Delay	42.0 27.8 41.4											
Queue Delay	0.4 0.0 0.0											
Queue Length	42.4 27.8 41.4											
Queue Length 95th (ft)	88 229 4436											
Internal Link Dist (ft)	510											
Turn Bay Length (ft)	456											
Base Capacity (vph)	260 609 914											
Starvation Cap Reductn	0 0 0											
Storage Cap Reductn	37 0 0											
Reaches v/c Ratio	0.94 0.98 1.01											



10463.00: Harvard IMP
5191: Western Avenue & Soldiers Field Road EB

2022 No-Build Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	
Lane Group	EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL SBR											
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Ideal Flow (vphpl)	13	13	13	12	11	11	12	12	12	11	11	
Lane Width (ft)	0	0	0	0	0	0	0	0	0	0	0	
Grade (%)	0	0	0	0	0	0	0	0	0	0	0	
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0	
Storage Spaces (s)	0	0	0	0	0	0	0	0	0	0	0	
Trailing Detector (ft)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Leading Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Link Speed (mph)	30	30	30	30	30	30	30	30	30	30	30	
Link Distance (ft)	412	100	412	100	412	100	412	100	412	100	412	
Volume (vph)	112	112	112	2	2	2	2	2	2	2	2	
Volume (vph)	0	0	550	980	695	0	0	0	0	0	955	
Conf. Peds. (#/hr)	0	0	0	0	0	0	0	0	0	0	0	
Peak Hour Factor	0.85	0.85	0.85	0.93	0.83	0.93	0.94	0.94	0.94	0.85	0.95	
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	9%	9%	9%	4%	4%	4%	0%	0%	0%	0%	0%	
Parking (veh)	0	0	0	0	0	0	0	0	0	0	0	
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Lane Group Flow (vph)	0	0	647	1054	747	0	0	0	0	0	1073	
Turn Type	custom pm+pt											
Protected Phases	6 4 4 6 2											
Minimum Initial (s)	14.0 14.0											
Minimum Split (s)	22.0 20.0											
Total Split (s)	0.0 0.0 30.0 42.0 72.0 0.0 0.0 0.0 0.0 0.0 28.0 0.0											
Total Split (%)	0.0% 0.0% 30.0% 42.0% 72.0% 0.0% 0.0% 0.0% 0.0% 0.0% 28.0% 0.0%											
Yellow Time (s)	4.0 4.0											
Allied Time (s)	4.0 2.0											
Lead-Lag	-											
Recall Mode	Ped C-Mh Ped											
v/c Ratio	1.50 0.51 0.69 1.43											
Control Delay	285.3 0.9 4.6 231.7											
Queue Delay	0.0 0.0 0.0 0.0											
Queue Length (ft)	265.3 0.9 4.6 231.7											
Queue Length (veh)	6694 m8 m26 4624											
Internal Link Dist (ft)	414											
Turn Bay Length (ft)	430 2062 1081											
Base Capacity (vph)	0 0 0 0											
Starvation Cap Reductn	0 0 0 0											
Storage Cap Reductn	0 0 0 0											
Reaches v/c Ratio	1.50 0.51 0.69 1.43											

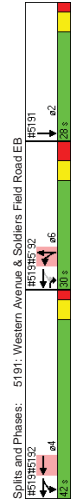


Splits and Phases: 5191: Western Avenue & Soldiers Field Road EB
#5191S152 #5191S16 #5191S17 #5191S18 #5191S19 #5191S20 #5191S21 #5191S22 #5191S23

10463.00: Harvard IMP
5191: Western Avenue & Soldiers Field Road EB

2022 No-Build Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Ideal Flow (vphpl)	13	13	13	12	11	11	12	12	12	11	11	
Lane Width (ft)	0	0	0	0	0	0	0	0	0	0	0	
Grade (%)	0	0	0	0	0	0	0	0	0	0	0	
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0	
Storage Spaces (s)	0	0	0	0	0	0	0	0	0	0	0	
Trailing Detector (ft)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Leading Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Link Speed (mph)	30	30	30	30	30	30	30	30	30	30	30	
Link Distance (ft)	412	100	412	100	412	100	412	100	412	100	412	
Volume (vph)	0	0	550	980	695	0	0	0	0	0	955	
Conf. Peds. (#/hr)	0	0	0	0	0	0	0	0	0	0	0	
Peak Hour Factor	0.85	0.85	0.85	0.93	0.83	0.93	0.94	0.94	0.94	0.85	0.95	
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	9%	9%	9%	4%	4%	4%	0%	0%	0%	0%	0%	
Parking (veh)	0	0	0	0	0	0	0	0	0	0	0	
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Lane Group Flow (vph)	0	0	647	1054	747	0	0	0	0	0	1068	
Turn Type	custom pm+pt											
Protected Phases	6 4 4 6 2											
Minimum Initial (s)	14.0 14.0											
Minimum Split (s)	22.0 20.0											
Total Split (s)	0.0 0.0 30.0 42.0 72.0 0.0 0.0 0.0 0.0 0.0 28.0 0.0											
Total Split (%)	0.0% 0.0% 30.0% 42.0% 72.0% 0.0% 0.0% 0.0% 0.0% 0.0% 28.0% 0.0%											
Yellow Time (s)	4.0 4.0											
Allied Time (s)	4.0 2.0											
Lead-Lag	-											
Recall Mode	Ped C-Mh Ped											
v/c Ratio	1.50 0.51 0.69 1.43											
Control Delay	285.3 0.9 4.6 231.7											
Queue Delay	0.0 0.0 0.0 0.0											
Queue Length (ft)	265.3 0.9 4.6 231.7											
Queue Length (veh)	6694 m8 m26 4624											
Internal Link Dist (ft)	414											
Turn Bay Length (ft)	430 2062 1081											
Base Capacity (vph)	0 0 0 0											
Starvation Cap Reductn	0 0 0 0											
Storage Cap Reductn	0 0 0 0											
Reaches v/c Ratio	1.50 0.51 0.69 1.43											



Splits and Phases: 5191: Western Avenue & Soldiers Field Road EB
#5191S152 #5191S16 #5191S17 #5191S18 #5191S19 #5191S20 #5191S21 #5191S22 #5191S23

10463.00: Harvard IMP
5192: Western Avenue & Soldiers Field Road WB

2022 No-Build Conditions
Weekday Morning

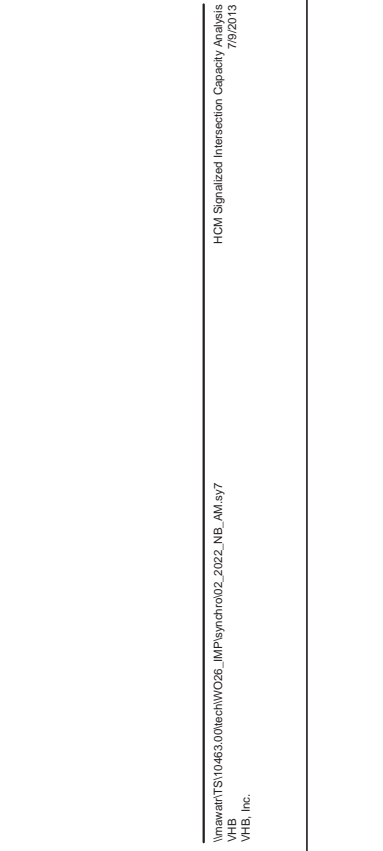
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	
Lane Group	EBL			WBL			NBL			SBL		
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Ideal Flow (vph)	12	12	12	11	11	11	11	11	11	12	12	
Lane Width (ft)	0	0	0	0	0	0	0	0	0	0	0	
Grade (%)	0	0	0	0	0	0	0	0	0	0	0	
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0	
Storage Length (s)	0	0	0	0	0	0	0	0	0	0	0	
Trailing Detector (ft)	4.0	4.0	4.0	6.0	6.0	6.0	4.0	4.0	4.0	4.0	4.0	
Trailing Detector (s)	0	0	0	0	0	0	0	0	0	0	0	
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	
Right Turn on Red	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	
Link Speed (mph)	30	30	30	30	30	30	30	30	30	30	30	
Link Distance (ft)	100	100	100	100	100	100	100	100	100	100	100	
Volume (vph)	2	2	2	418	418	418	195	195	195	456	456	
Volume (veh)	0	0	0	0	0	0	1435	225	240	185	0	
Conf. Peds. (#/hr)	0	0	0	0	0	0	0	0	0	0	0	
Peak Hour Factor	0.92	0.92	0.92	0.98	0.98	0.98	0.83	0.83	0.83	0.92	0.92	
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	7%	7%	7%	2%	2%	
Parking (veh)	0	0	0	0	0	0	0	0	0	0	0	
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Lane Group Flow (vph)	0	0	0	0	1684	0	0	512	0	0	0	
Turn Type	Protected Phases			Split								
Permitted Phases	4			6			6			2		
Minimum Initial (s)	14.0			14.0			14.0			14.0		
Total Split (s)	20.0			22.0			22.0			20.0		
Total Split (%)	0.0			0.0			30.0			0.0		
Yellow Time (s)	4.0			4.0			4.0			4.0		
Allied Time (s)	2.0			4.0			4.0			2.0		
Recall Mode	C-Min			Ped			Ped			Ped		
v/c Ratio	1.10			0.57			0.57			0.57		
Control Delay	72.1			16.7			16.7			16.7		
Queue Delay	28.3			0.2			0.2			0.2		
Queue Length (ft)	100.4			16.9			16.9			16.9		
Queue Length (veh)	64			1			1			1		
Internal Link Dist (ft)	m4447			96			96			96		
Turn Bay Length (ft)	20			394			1071			376		
Base Capacity (vph)	1546			905			905			905		
Starvation Cap Reductn	0			48			48			48		
Storage Cap Reductn	0			0			0			0		
Reduction Ratio	1.16			0.60			0.60			0.60		
Intersection Summary												
Area Type	CBD											
Area Length (ft)	100											
Area Width (ft)	100											
Access Cycle Length (s)	100											
Offset (0.0%)	Referenced to phase 4(WBL), Start of Yellow											
Natural Cycle (s)	150											
Control Type	Actuated-Coordinated											
Control Cycle (s)	150											
Volume exceeds capacity	Queue is theoretically infinite.											
Queue shown is maximum after two cycles.												
Split phasing volume exceeds capacity, queue may be longer.												
Control shown is theoretical, queue may be longer.												
Control shown is theoretical, queue may be longer.												
m - Volume for 85th percentile queue is met/beat by upstream signal.												



10463.00: Harvard IMP
5192: Western Avenue & Soldiers Field Road WB

2022 No-Build Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	
Lane Group	EBL			WBL			NBL			SBL		
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Ideal Flow (vph)	12	12	12	11	11	11	11	11	11	12	12	
Lane Width (ft)	0	0	0	0	0	0	0	0	0	0	0	
Grade (%)	0	0	0	0	0	0	0	0	0	0	0	
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0	
Storage Length (s)	0	0	0	0	0	0	0	0	0	0	0	
Trailing Detector (ft)	4.0	4.0	4.0	6.0	6.0	6.0	4.0	4.0	4.0	4.0	4.0	
Trailing Detector (s)	0	0	0	0	0	0	0	0	0	0	0	
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	
Right Turn on Red	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	
Link Speed (mph)	30	30	30	30	30	30	30	30	30	30	30	
Link Distance (ft)	100	100	100	100	100	100	100	100	100	100	100	
Volume (vph)	2	2	2	418	418	418	195	195	195	456	456	
Volume (veh)	0	0	0	0	0	0	1435	225	240	185	0	
Conf. Peds. (#/hr)	0	0	0	0	0	0	0	0	0	0	0	
Peak Hour Factor	0.92	0.92	0.92	0.98	0.98	0.98	0.83	0.83	0.83	0.92	0.92	
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	7%	7%	7%	2%	2%	
Parking (veh)	0	0	0	0	0	0	0	0	0	0	0	
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Lane Group Flow (vph)	0	0	0	0	1684	0	0	512	0	0	0	
Turn Type	Protected Phases			Split								
Permitted Phases	4			6			6			6		
Minimum Initial (s)	14.0			14.0			14.0			14.0		
Total Split (s)	20.0			22.0			22.0			20.0		
Total Split (%)	0.0			0.0			30.0			0.0		
Yellow Time (s)	4.0			4.0			4.0			4.0		
Allied Time (s)	2.0			4.0			4.0			2.0		
Recall Mode	C-Min			Ped			Ped			Ped		
v/c Ratio	1.10			0.57			0.57			0.57		
Control Delay	72.1			16.7			16.7			16.7		
Queue Delay	28.3			0.2			0.2			0.2		
Queue Length (ft)	100.4			16.9			16.9			16.9		
Queue Length (veh)	64			1			1			1		
Internal Link Dist (ft)	m4447			96			96			96		
Turn Bay Length (ft)	20			394			1071			376		
Base Capacity (vph)	1546			905			905			905		
Starvation Cap Reductn	0			48			48			48		
Storage Cap Reductn	0			0			0			0		
Reduction Ratio	1.16			0.60			0.60			0.60		
Intersection Summary												
Area Type	CBD											
Area Length (ft)	100											
Area Width (ft)	100											
Access Cycle Length (s)	100											
Offset (0.0%)	Referenced to phase 4(WBL), Start of Yellow											
Natural Cycle (s)	150											
Control Type	Actuated-Coordinated											
Control Cycle (s)	150											
Volume exceeds capacity	Queue is theoretically infinite.											
Queue shown is maximum after two cycles.												
Split phasing volume exceeds capacity, queue may be longer.												
Control shown is theoretical, queue may be longer.												
Control shown is theoretical, queue may be longer.												
m - Volume for 85th percentile queue is met/beat by upstream signal.												



10463.00: Harvard IMP
5163: Cambridge Street & Soldiers Field Road WB

2022 No-Build Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	SBT	SBR																												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	SBT	SBR																												
Lane Configurations	<table> <tr><td>1900</td><td>1900</td><td>1900</td><td>1900</td><td>1900</td><td>1900</td><td>1900</td><td>1900</td><td>1900</td><td>1900</td><td>1900</td><td>1900</td><td>1900</td><td>1900</td></tr> <tr><td>11</td><td>11</td><td>11</td><td>12</td><td>12</td><td>12</td><td>12</td><td>11</td><td>10</td><td>10</td><td>12</td><td>12</td><td>12</td><td>12</td></tr> </table>													1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	11	11	11	12	12	12	12	11	10	10	12	12	12	12
1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900																												
11	11	11	12	12	12	12	11	10	10	12	12	12	12																												
Ideal Flow (vph)	411																																								
Lane Width (ft)	11																																								
Grade (%)	0%																																								
Storage Length (ft)	0																																								
Storage Turn (ph)	0																																								
Storage Length (ft)	0																																								
Storage Turn (ph)	0																																								
Lead-Lag (s)	0																																								
Leading Detector (ft)	50																																								
Trailing Detector (ft)	0																																								
Trailing Speed (mph)	15																																								
Right Turn on Red	No																																								
Link Speed (mph)	35																																								
Link Distance (ft)	455																																								
Volume (vph)	87																																								
Volume (vph)	275																																								
Confl. Peds. (#/hr)	0																																								
Confl. Bikes (#/hr)	0																																								
Peak-Hour Factor	0.94																																								
Growth Factor	100%																																								
Heavy Vehicles (%)	4%																																								
Parking (ft)	0																																								
Mid-Block Traffic (%)	0%																																								
Lane Group Flow (vph)	0																																								
Turn Type	Split																																								
Permitted Phases	1 2 3 5																																								
Minimum Initial (s)	4																																								
Minimum Split (s)	17.0																																								
Total Split (s)	27.0																																								
Total Split (%)	75.7%																																								
Yellow Time (s)	4.0																																								
Allied Time (s)	4.0																																								
Lead-Lag (s)	0																																								
Recall Mode	Yes																																								
Control Delay	0.66																																								
Queue Delay	0.2																																								
Queue Length 95th (ft)	1.0																																								
Queue Length 90th (ft)	1.0																																								
Internal Link Dist (ft)	m																																								
Turn Bay Length (ft)	6																																								
Base Capacity (vph)	375																																								
Starvation Cap. Reductn	0																																								
Storage Cap. Reductn	350																																								
Reduced v/r Ratio	0.79																																								

Area Type	Area Length	Area Width	Area Volume
CBD	140	140	19600
Access Cycle Length	140		
Offset: 0 (0%), Referenced to phase 1 (N-E-L, Start of Yellow)			
Natural Cycle: 140			
Control Type: Actuated-Coordinated			
# Volume exceeds capacity, queue is theoretically infinite.			
# Queue shown is maximum after two cycles.			
# Split phasing is volume dependent, queue may be longer.			
# Control shows no queue for the intersection.			
m - Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 5163: Cambridge Street & Soldiers Field Road WB

Version: 11/20/2021 10:46:33 AM
VHB, Inc.

Version: 11/20/2021 10:46:33 AM
VHB, Inc.

2022 No-Build Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	SBT	SBR																												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	SBT	SBR																												
Lane Configurations	<table> <tr><td>1900</td><td>1900</td><td>1900</td><td>1900</td><td>1900</td><td>1900</td><td>1900</td><td>1900</td><td>1900</td><td>1900</td><td>1900</td><td>1900</td><td>1900</td><td>1900</td></tr> <tr><td>11</td><td>11</td><td>11</td><td>12</td><td>12</td><td>12</td><td>12</td><td>11</td><td>10</td><td>10</td><td>12</td><td>12</td><td>12</td><td>12</td></tr> </table>													1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	11	11	11	12	12	12	12	11	10	10	12	12	12	12
1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900																												
11	11	11	12	12	12	12	11	10	10	12	12	12	12																												
Ideal Flow (vph)	411																																								
Lane Width (ft)	11																																								
Grade (%)	0%																																								
Storage Length (ft)	0																																								
Storage Turn (ph)	0																																								
Storage Length (ft)	0																																								
Storage Turn (ph)	0																																								
Lead-Lag (s)	0																																								
Leading Detector (ft)	50																																								
Trailing Detector (ft)	0																																								
Trailing Speed (mph)	15																																								
Right Turn on Red	No																																								
Link Speed (mph)	35																																								
Link Distance (ft)	455																																								
Volume (vph)	87																																								
Volume (vph)	275																																								
Confl. Peds. (#/hr)	0																																								
Confl. Bikes (#/hr)	0																																								
Peak-Hour Factor	0.94																																								
Growth Factor	100%																																								
Heavy Vehicles (%)	4%																																								
Parking (ft)	0																																								
Mid-Block Traffic (%)	0%																																								
Lane Group Flow (vph)	0																																								
Turn Type	Split																																								
Permitted Phases	1 2 3 5																																								
Minimum Initial (s)	4																																								
Minimum Split (s)	17.0																																								
Total Split (s)	27.0																																								
Total Split (%)	75.7%																																								
Yellow Time (s)	4.0																																								
Allied Time (s)	4.0																																								
Lead-Lag (s)	0																																								
Recall Mode	Yes																																								
Control Delay	0.66																																								
Queue Delay	0.2																																								
Queue Length 95th (ft)	1.0																																								
Queue Length 90th (ft)	1.0																																								
Internal Link Dist (ft)	m																																								
Turn Bay Length (ft)	6																																								
Base Capacity (vph)	375																																								
Starvation Cap. Reductn	0																																								
Storage Cap. Reductn	350																																								
Reduced v/r Ratio	0.79																																								

Area Type	Area Length	Area Width	Area Volume
CBD	140	140	19600
Access Cycle Length	140		
Offset: 0 (0%), Referenced to phase 1 (N-E-L, Start of Yellow)			
Natural Cycle: 140			
Control Type: Actuated-Coordinated			
# Volume exceeds capacity, queue is theoretically infinite.			
# Queue shown is maximum after two cycles.			
# Split phasing is volume dependent, queue may be longer.			
# Control shows no queue for the intersection.			
m - Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 5163: Cambridge Street & Soldiers Field Road WB

Version: 11/20/2021 10:46:33 AM
VHB, Inc.

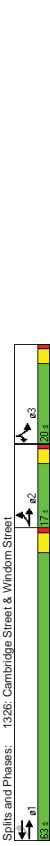
Version: 11/20/2021 10:46:33 AM
VHB, Inc.

10463.00: Harvard IMP
1326: Cambridge Street & Windom Street

2022 No-Build Conditions
Weekday Morning

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900
Ideal Flow (vehpl)	12	10	10	14	14	14
Lane Width (ft)	0%	0%	0%	0%	0%	0%
Grade (%)	175	0	0	0	100	0
Storage Length (ft)	4.0	4.0	4.0	4.0	4.0	4.0
Storage Length (s)	50	50	50	50	50	50
Leading Detector (ft)	0	0	0	0	0	0
Trailing Detector (ft)	15	0	0	0	0	0
Turning Speed (mph)	Yes	Yes	Yes	Yes	Yes	Yes
Right Turn on Red	40	35	30	30	30	30
Link Speed (mph)	200	100	75	75	100	100
Link Distance (ft)	50	640	1600	345	105	25
Volume (vph)	56	719	1818	392	122	29
Conf. Peds. (#/hr)	0.89	0.88	0.88	0.86	0.86	0.86
Peak Hour Factor	100%	100%	100%	100%	100%	100%
Growth Factor	3%	8%	8%	3%	3%	3%
Heavy Vehicles (%)	0	0	0	0	0	0
Pedals (#/hr)	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	56	719	1818	392	122	29
Turn Type	pm+pt	Perm	Prot	Prot	Prot	Prot
Protected Phases	2	1	2	1	2	1
Permitted Phases	1, 2	1	1	3	3	3
Minimum Initial (s)	6.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	10.0	13.0	13.0	20.0	20.0	20.0
Total Split (s)	17.0	80.0	63.0	20.0	20.0	20.0
Total Split (%)	17.0%	80.0%	63.0%	20.0%	20.0%	20.0%
Yellow Time (s)	3.0	4.0	4.0	3.0	3.0	3.0
All-red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lead Lag	Yes	Yes	Yes	Yes	Yes	Yes
Lead Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Min	C-Max	C-Max	Min	Min	Min
v/c Ratio	0.32	0.21	0.92	0.39	0.62	0.14
Control Delay	12.1	1.0	23.3	1.9	55.6	15.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Queue Length	12.1	1.0	23.3	1.9	55.6	15.1
Queue Length 95th (ft)	2	m19	4743	28	122	23
Internal Link Dist (ft)	175	120	980	654	100	100
Turn Bay Length (ft)	284	3686	1969	998	269	265
Base Capacity (vph)	0	0	0	0	0	0
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reaches v/c Ratio	0.20	0.20	0.92	0.39	0.45	0.11

Intersection Summary
 Area Type: CBD
 Area Length: 100
 Actuated Cycle Length: 100
 Offset: 97 (87%), Referenced to phase 1:EBWB, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 m Queue shown is maximum after two cycles.
 n Volume for 95th percentile queue is metered by upstream signal.



Spills and Phases: 1326: Cambridge Street & Windom Street

10463.00: Harvard IMP
1326: Cambridge Street & Windom Street

2022 No-Build Conditions
Weekday Morning

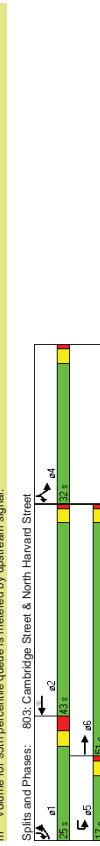
	EBL	EBT	WBT	WBR	SBL	SBR
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900
Ideal Flow (vehpl)	12	10	10	14	14	14
Lane Width (ft)	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	1.00	0.81	0.85	1.00	1.00	1.00
Lane Util. Factor	0.96	1.00	1.00	0.95	0.95	0.95
Flt Protected	1577	4230	2808	1256	1832	1505
Satd. Flow (prot)	0.07	1.00	1.00	0.95	1.00	1.00
Flt Permitted	120	4230	2808	1256	1832	1505
Satd. Flow (perm)	50	640	1600	345	105	25
Volume (vph)	0.89	0.89	0.88	0.88	0.86	0.86
Peak-hour factor, PHF	56	719	1818	392	122	29
Adj. Flow (vph)	0	0	0	0	0	0
Heavy Vehicles (%)	56	719	1818	275	122	29
Lane Group Flow (vph)	3%	3%	8%	8%	3%	3%
Heavy Vehicles (%)	0	0	0	0	0	0
Turn Type	pm+pt	1	2	1	2	1
Protected Phases	2	1	2	1	2	1
Permitted Phases	1, 2	1	1	3	3	3
Actuated Green, G (s)	75.4	80.4	69.2	69.2	11.6	11.6
Effective Green, g (s)	76.4	80.4	70.2	70.2	11.6	11.6
Yellow Time (s)	0	0	0	0	0	0
Clearance Time (s)	4.0	0.80	0.0	0.0	4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lane Cap (vph)	182	3401	1971	882	185	175
v/s Ratio Prot	c0.02	0.17	c0.65	c0.07	0.00	0.00
v/s Ratio Perm	0.22	0.21	0.92	0.31	0.63	0.02
v/c Ratio	0.31	0.21	0.92	0.31	0.63	0.02
Uniform Delay, d1	19.5	2.3	12.6	5.7	42.1	39.2
Incremental Delay, d2	0.3	0.0	8.7	0.9	4.4	0.0
Incremental Delay, d2	0.3	0.0	8.7	0.9	4.4	0.0
Level of Service	B	A	C	A	D	D
Approach Delay (s)	B	A	C	A	D	D
Approach LOS	A	B	A	B	D	D

Intersection Summary
 HCM Average Control Delay: 15.8
 HCM Level of Service: B
 HCM Volume to Capacity ratio: 0.84
 Actuated Cycle Length (s): 100.0
 Sum of lost time (s): 12.0
 Intersection Capacity Utilization: 62.9%
 ICU Level of Service: B
 Area Type: CBD
 Area Length: 15
 Critical Lane Group

10463.00: Harvard IMP
803: Cambridge Street & North Harvard Street

2022 No-Build Conditions
Weekday Morning

	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphft)	11	11	10	11	10	12	12
Lane Width (ft)	200	0%	120	0%	100	0	50
Grade (%)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Storage Length (ft)	50	50	50	50	50	50	50
Storage Spacing (s)	0	0	0	0	0	0	0
Leading Detector (ft)	15	9	9	9	15	9	9
Trailing Detector (ft)							
Turning Speed (mph)	35	35	35	35	35	35	35
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	No	No
Link Speed (mph)	48	48	48	48	48	48	48
Link Distance (ft)	95	95	95	95	95	95	95
Volume (vph)	245	1620	45	1255	325	320	240
Conf. Peds. (#/hr)	16						
Peak Hour Factor	0.94	0.87	0.87	0.87	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	4%	4%	4%	4%	7%	7%
Parking (ft/hr)	0	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	261	1723	52	1443	374	340	255
Turn Type	Prot	Prot	Perm	Perm	ptov	ptov	ptov
Protected Phases	1	6	5	2	4	1,4	
Minimum Initial (s)	8.0	12.0	8.0	12.0	12.0	12.0	1.4
Minimum Split (s)	14.0	16.0	12.0	22.0	22.0	29.0	
Total Split (s)	25.0	51.0	17.0	43.0	43.0	32.0	57.0
Total Split (%)	25.0%	51.0%	17.0%	43.0%	43.0%	32.0%	57.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Allied Time (s)	3.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead Lag	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lead Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	Max	C-Max	C-Max	Min	
v/c Ratio	0.81	0.77	0.25	1.09	0.86	0.37	
Control Delay	68.1	14.8	27.8	81.8	22.2	55.9	16.2
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Queue Length (ft)	68.1	14.9	27.8	81.8	22.2	55.9	16.2
Queue Length 95th (ft)	#280	312	m:32	m#662	m:158	#333	142
Internal Link Dist (ft)	200	408	204	1318	440	687	
Turn Bay Length (ft)	336	2227	204	1318	617	440	687
Base Capacity (vph)	0	48	0	0	0	0	0
Starvation Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reaches v/c Ratio	0.78	0.79	0.25	1.09	0.86	0.77	0.37



Intersection Summary
Area Type: CBD
Area Length: 100
Actuated Cycle Length: 100
Offser: 87 (87%), Referenced to phase 2:WBT and 6:EBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
- Volume exceeds capacity, queue is theoretically infinite.
- Queue shown is maximum after two cycles.
- Split shown is volume exclusive capacity, queue may be longer.
- Control shown is the control for the intersection.
m - Volume for 85th percentile queue is met/beat by upstream signal.

Splits and Phases: 803: Cambridge Street & North Harvard Street

10463.00: Harvard IMP
803: Cambridge Street & North Harvard Street

2022 No-Build Conditions
Weekday Morning

	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphft)	11	11	10	11	10	12	12
Lane Width (ft)	200	0%	120	0%	100	0	50
Grade (%)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Storage Length (ft)	50	50	50	50	50	50	50
Storage Spacing (s)	0	0	0	0	0	0	0
Leading Detector (ft)	15	9	9	9	15	9	9
Trailing Detector (ft)							
Turning Speed (mph)	35	35	35	35	35	35	35
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	No	No
Link Speed (mph)	48	48	48	48	48	48	48
Link Distance (ft)	95	95	95	95	95	95	95
Volume (vph)	245	1620	45	1255	325	320	240
Conf. Peds. (#/hr)	16						
Peak Hour Factor	0.94	0.87	0.87	0.87	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	4%	4%	4%	4%	7%	7%
Parking (ft/hr)	0	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	261	1723	52	1443	374	340	255
Turn Type	Prot	Prot	Perm	Perm	ptov	ptov	ptov
Protected Phases	1	6	5	2	4	1,4	
Minimum Initial (s)	8.0	12.0	8.0	12.0	12.0	12.0	1.4
Minimum Split (s)	14.0	16.0	12.0	22.0	22.0	29.0	
Total Split (s)	25.0	51.0	17.0	43.0	43.0	32.0	57.0
Total Split (%)	25.0%	51.0%	17.0%	43.0%	43.0%	32.0%	57.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Allied Time (s)	3.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead Lag	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lead Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	Max	C-Max	C-Max	Min	
v/c Ratio	0.81	0.77	0.25	1.09	0.86	0.37	
Control Delay	68.1	14.8	27.8	81.8	22.2	55.9	16.2
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Queue Length (ft)	68.1	14.9	27.8	81.8	22.2	55.9	16.2
Queue Length 95th (ft)	#280	312	m:32	m#662	m:158	#333	142
Internal Link Dist (ft)	200	408	204	1318	440	687	
Turn Bay Length (ft)	336	2227	204	1318	617	440	687
Base Capacity (vph)	0	48	0	0	0	0	0
Starvation Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reaches v/c Ratio	0.78	0.79	0.25	1.09	0.86	0.77	0.37



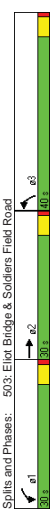
Intersection Summary
Area Type: CBD
Area Length: 100
Actuated Cycle Length: 100
Offser: 87 (87%), Referenced to phase 2:WBT and 6:EBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
- Volume exceeds capacity, queue is theoretically infinite.
- Queue shown is maximum after two cycles.
- Split shown is volume exclusive capacity, queue may be longer.
- Control shown is the control for the intersection.
m - Volume for 85th percentile queue is met/beat by upstream signal.

Splits and Phases: 803: Cambridge Street & North Harvard Street

10463.00: Harvard IMP
503: Eliot Bridge & Soldiers Field Road

2022 No-Build Conditions
Weekday Morning

	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	10	10	11	14	14
Grade (%)	0%	0%	0%	0%	0%	0%
Storage Length (ft)	180	255	0	0	0	0
Storage Times (s)	2	2	0	0	0	0
Trailing Detector (ft)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	0	0	0	0	0	0
Turning Speed (mph)	9	15	15	9		
Right Turn on Red	Yes					Yes
Link Speed (mph)	30		30	30		
Link Distance (ft)	445		389	270		
Volume (vph)	186		186	186		
Volume (vph)	2235	0	815	0	310	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.98	0.98	0.90	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	1%	1%	0%
Parking (ft/hr)	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	2281	0	906	0	320	0
Turn Type	Prot					
Protected Phases	2	1	3			
Permitted Phases	2	1	3			
Minimum Initial (s)	15.0	15.0	15.0			
Minimum Split (s)	20.0	20.0	20.0			
Total Split (s)	30.0	0.0	30.0	0.0	40.0	0.0
Total Split (%)	30.0%	0.0%	30.0%	0.0%	40.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0			
Allied Time (s)	1.0	1.0	1.0			
Lead Lag (s)	Yes	Yes	Yes			
Lead Lag Optimize?	Yes	Yes	Yes			
Recall Mode	Min	Max	None			
v/c Ratio	1.24	0.66	0.47			
Control Delay	141.1	26.3	30.7			
Queue Delay	0.0	0.0	0.0			
Total Delay	141.1	26.3	30.7			
Queue Length 50th (ft)	186	186	111			
Queue Length 95th (ft)	#516	186	111			
Internal Link Dist (ft)	345		309	190		
Turn Bay Length (ft)	1835		1380	1188		
Base Capacity (vph)	0	0	0	0		
Starvation Cap Reductn	0	0	0	0		
Spillback Cap Reductn	0	0	0	0		
Storage Cap Reductn	0	0	0	0		
Reaches v/c Ratio	1.24	0.66	0.27			



Spits and Phases: 503: Eliot Bridge & Soldiers Field Road

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VHB
VHB, Inc.
7/9/2013

10463.00: Harvard IMP
503: Eliot Bridge & Soldiers Field Road

2022 No-Build Conditions
Weekday Morning

	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	10	10	11	14	14
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.86	0.94	0.97			
Flt Protected	1.00	0.95	0.95			
Satd. Flow (prot)	5686	4276	3328			
Flt Permitted	1.00	0.95	0.95			
Satd. Flow (perm)	5686	4276	3328			
Volume (vph)	2235	0	815	0	310	0
Peak-hour factor, PHF	0.98	0.98	0.90	0.97	0.97	0.97
Adj. Flow (vph)	2281	0	906	0	320	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	2281	0	906	0	320	0
Heavy Vehicles (%)	0%	0%	0%	0%	1%	1%
Turn Type	Prot					
Protected Phases	2	1	3			
Permitted Phases	2	1	3			
Actuated Green, G (s)	25.0	25.0	15.5			
Effective Green, g (s)	26.0	26.0	16.5			
Clearance Time (s)	6.0	6.0	6.0			
Vehicle Extension (s)	5.0	5.0	5.0			
Lane Group Flow (vph)	1836	1361	682			
v/s Ratio Prot	c0.40	c0.21	c0.10			
v/s Ratio Perm	1.24	0.66	0.47			
Uniform Delay, d1	27.3	23.4	26.1			
Incremental Delay, d2	113.9	2.4	0.7			
Delay (s)	141.1	25.9	26.8			
Level of Service	F	C	C			
Approach Delay (s)	141.1	25.9	26.8			
Approach LOS	F	C	C			
Intersection Summary						
HCM Average Control Delay	101.1					F
HCM Volume to Capacity ratio	0.63					
Actuated Cycle Length (s)	80.5					12.0
Intersection Capacity Utilization	75.7%					D
Approach Capacity	15					
Critical Lane Group						

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VHB
VHB, Inc.
7/9/2013

10463.00: Harvard IMP
5012: Bertram St & North Harvard Street

2022 No-Build Conditions
Weekday Morning

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Stop	Free	Free	Free	Free	Free
Sign Control	0%	0%	0%	0%	0%	0%
Grade	5	5	595	25	5	305
Volume (veh/h)	0.60	0.60	0.85	0.85	0.94	0.94
Peak Hour Factor	8	8	700	29	5	324
Priority flow rate (pph)						
Flow rate (veh/h)						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
px platoon unblocked	0.87	0.80	300		0.80	186
vc conflicting volume	1050	715			729	
vc1, stage 1 conf vol						
vc2, stage 2 conf vol						
vcu, unblocked vol	786	641			660	
tc, single (s)	6.6	6.4			4.2	
tc, stage (s)						
p0 queue free %	3.7	3.5			2.3	
pf (s)	97	98			99	
cm capacity (veh/h)	296	357			724	
Direction Lane #	WB 1	NB 1	SB 1			
Volume Total	17	729	330			
Volume Left	8	0	5			
Volume Right	8	29	0			
cSH	324	1700	724			
Volume to Capacity	0.05	0.43	0.01			
Queue Length 35th (ft)	4	0	0			
Queue Delay (s)	16.7	0.9	0.3			
Lane LOS	C	C	A			
Approach Delay (s)	16.7	0.0	0.3			
Approach LOS	C	C	A			
Intersection Summary						
Average Delay	0.3		46.5%			
Intersection Capacity Utilization	46.5%		ICU Level of Service			
Analysis Period (min)	15		A			

10463.00: Harvard IMP
5013: Spurr St & North Harvard Street

2022 No-Build Conditions
Weekday Morning

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Stop	Free	Free	Free	Free	Free
Sign Control	0%	0%	0%	0%	0%	0%
Grade	65	180	0	855	310	0
Volume (veh/h)	0.97	0.97	0.85	0.85	0.94	0.94
Peak Hour Factor	67	186	0	653	330	0
Priority flow rate (pph)						
Flow rate (veh/h)						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
px platoon unblocked	0.87	0.85	0.85	250	296	
vc conflicting volume	983	330	330			
vc1, stage 1 conf vol						
vc2, stage 2 conf vol						
vcu, unblocked vol	725	214	214			
tc, single (s)	6.5	6.3	4.2			
tc, stage (s)						
p0 queue free %	3.6	3.4	2.3			
pf (s)	80	73	100			
cm capacity (veh/h)	328	683	1131			
Direction Lane #	EB 1	EB 2	NB 1	SB 1		
Volume Total	67	186	653	330		
Volume Left	67	0	0	0		
Volume Right	0	186	0	0		
cSH	328	683	1700	1700		
Volume to Capacity	0.20	0.27	0.38	0.19		
Queue Length 35th (ft)	9	0	0	0		
Queue Delay (s)	18.6	12.2	0.0	0.0		
Lane LOS	C	B	C	C		
Approach Delay (s)	14.0	0.0	0.0	0.0		
Approach LOS	B	B	C	C		
Intersection Summary						
Average Delay	2.9		43.1%			
Intersection Capacity Utilization	43.1%		ICU Level of Service			
Analysis Period (min)	15		A			

10463.00: Harvard IMP
5015: Bayard Street & North Harvard Street

2022 No-Build Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
Sign Control	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Grade	5	0	20	0	0	0	0	490	10	5	475	0
Volume (veh/h)	0.86	0.86	0.86	0.52	0.92	0.92	0.86	0.86	0.86	0.91	0.91	0.99
Peak Hour Factor	6	0	23	0	0	0	0	570	12	5	522	0
Play factor rate (pph)												
Flow (veh/h)												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
pX platoon unblocked	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
vC, conflicting volume	1109	1114	522	1132	1109	576	522	581				377
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1126	1133	446	1153	1126	576	446	581				
IC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.2	4.2				
IC, stage (s)												
p0 queue free %	3.5	4.0	3.3	3.5	4.0	3.3	2.3	2.3				
IF (s)	96	100	96	100	100	100	100	99				
p0 queue free %												
cM capacity (veh/h)	158	175	532	143	176	517	930	954				
Direction Lane #	EB 1	NB 1	SB 1									
Volume Total	29	581	527									
Volume Left	6	0	5									
Volume Right	23	12	0									
cSH	361	1700	954									
Volume to Capacity	0.08	0.34	0.01									
Queue Length 35th (ft)	15.7	0	0									
Queue Delay (s)	15.7	0	0									
Lane LOS	C	A	A									
Approach Delay (s)	15.9	0.0	0.2									
Approach LOS	C		C									
Intersection Summary												
Average Delay	0.5											
Intersection Capacity Utilization	42.2%											
ICU Level of Service	A											
Analysis Period (min)	15											

10463.00: Harvard IMP
5006: Western Avenue & Travis Street

2022 No-Build Conditions
Weekday Morning

Movement	EBT	EBR	WBT	WBR	NBT	NBR
Lane Configurations	Free	Free	Free	Free	Stop	Stop
Sign Control	0%	0%	0%	0%	0%	0%
Grade	530	10	30	850	5	25
Volume (veh/h)	0.89	0.89	0.97	0.97	0.83	0.83
Peak Hour Factor	596	11	31	567	6	30
Play factor rate (pph)						
Flow (veh/h)						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
pX platoon unblocked					0.74	0.74
vC, conflicting volume					607	1230
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol					468	1311
IC, single (s)					4.1	6.5
IC, stage (s)						
p0 queue free %					2.2	3.6
IF (s)					96	95
p0 queue free %						93
cM capacity (veh/h)					797	122
Direction Lane #	EB 1	WB 1	NB 1			
Volume Total	607	588	36			
Volume Left	0	31	6			
Volume Right	11	0	30			
cSH	1700	797	306			
Volume to Capacity	0.36	0.04	0.12			
Queue Length 35th (ft)	0	3	0			
Queue Delay (s)	0.0	1.0	18.0			
Lane LOS	A	A	C			
Approach Delay (s)	0.0	1.0	18.3			
Approach LOS	C		C			
Intersection Summary						
Average Delay	1.0					
Intersection Capacity Utilization	69.4%					
ICU Level of Service	C					
Analysis Period (min)	15					

10463.00: Harvard IMP
5011: Gordon Rd & North Harvard Street

2022 No-Build Conditions
Weekday Morning

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Stop	Free	Free	Free	Free	Free
Sign Control	0%	0%	0%	0%	0%	0%
Grade	5	60	520	10	80	410
Volume (veh/h)	0.82	0.82	0.89	0.89	0.87	0.87
Peak Hour Factor	6	73	584	11	52	471
Platoon length (ft)						
Platoon delay (s)						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Median storage (veh)						629
pX platoon unblocked	0.95					
vC, conflicting volume	1245	590			596	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1257	590			596	
IC, single (s)	6.5	6.3			4.1	
IC, stage (s)						
p0 queue free %	3.6	3.4			2.2	
PF (s)	96	85			90	
cM capacity (veh/h)	155	488			966	
Direction Lane #	WB 1	NB 1	SB 1			
Volume Total	79	586	563			
Volume Left	6	0	92			
Volume Right	73	11	0			
cSH	418	1700	966			
Volume to Capacity	0.19	0.35	0.10			
Queue Length 35th (ft)	17	0	0			
Queue Delay (s)	18.7	0.9	2.6			
Lane LOS	C	C	A			
Approach Delay (s)	15.6	0.0	2.5			
Approach LOS	C	C	C			
Intersection Summary						
Average Delay	2.1		74.4%		ICU Level of Service	
Intersection Capacity Utilization	15		D			
Analysis Period (min)						

10463.00: Harvard IMP
1: South Campus Drive & North Harvard Street

2022 No-Build Conditions
Weekday Morning

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Stop	Free	Free	Free	Free	Free
Sign Control	0%	0%	0%	0%	0%	0%
Grade	10	10	10	850	375	0
Volume (veh/h)	0.92	0.92	0.92	0.92	0.92	0.92
Peak Hour Factor	11	11	11	595	408	0
Platoon length (ft)						
Platoon delay (s)						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Median storage (veh)						659
pX platoon unblocked	0.82					
vC, conflicting volume	1027	408	408			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1033	408	408			
IC, single (s)	6.4	6.2	4.1			
IC, stage (s)						
p0 queue free %	3.5	3.3	2.2			
PF (s)	95	98	99			
cM capacity (veh/h)	210	644	1151			
Direction Lane #	EB 1	NB 1	SB 1			
Volume Total	22	609	408			
Volume Left	11	11	0			
Volume Right	11	0	0			
cSH	316	1151	1700			
Volume to Capacity	0.07	0.01	0.24			
Queue Length 35th (ft)	6	0	0			
Queue Delay (s)	17.2	0.3	0.0			
Lane LOS	C	A	C			
Approach Delay (s)	17.2	0.3	0.0			
Approach LOS	C	C	C			
Intersection Summary						
Average Delay	0.5		51.1%		ICU Level of Service	
Intersection Capacity Utilization	15		A			
Analysis Period (min)						

10463.00: Harvard IMP
2: Ivy Lane & North Harvard Street

2022 No-Build Conditions
Weekday Morning

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Stop	Free	Free	Free	Free	Free
Sign Control	0%	0%	0%	0%	0%	0%
Grade	0	50	0	560	385	0
Volume (veh/h)	0.92	0.92	0.92	0.92	0.92	0.92
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Platoon flow rate (pph)	0	599	224	16	763	0
Platoon length (ft)	0	0	0	0	0	0
Platoon delay (s)	0	0	0	0	0	0
Walking Speed (ft/s)	0	0	0	0	0	0
Percent Blockage	0	0	0	0	0	0
Right turn flare (veh)	0	0	0	0	0	0
Median type	None	None	None	None	None	None
Median storage (veh)	0	0	0	0	0	0
Platoon unblocked	0.75	0.75	0.75	0.75	0.75	0.75
vC, conflicting volume	1027	418	418	418	418	418
vC1, stage 1 conf vol	0	0	0	0	0	0
vC2, stage 2 conf vol	0	0	0	0	0	0
vCu, unblocked vol	1036	418	418	418	418	418
IC, single (s)	6.4	6.2	4.1	6.4	6.2	4.1
IC, stage (s)	3.5	3.3	2.2	3.5	3.3	2.2
p0 queue free %	100	91	100	100	91	100
IF (s)	193	635	1141	193	635	1141
cM capacity (veh/h)	193	635	1141	193	635	1141
Direction Lane #	EB 1	NB 1	SB 1	EB 1	NB 1	SB 1
Volume Total	54	609	418	54	609	418
Volume Left	0	0	0	0	0	0
Volume Right	54	0	0	54	0	0
cSH	635	1700	1700	635	1700	1700
Volume to Capacity	0.09	0.36	0.25	0.09	0.36	0.25
Queue Length 35th (ft)	7	0	0	7	0	0
Queue Length 50th (ft)	0	0	0	0	0	0
Approach Delay (s)	B	B	B	B	B	B
Lane LOS	B	B	B	B	B	B
Approach Delay (s)	11.2	0.0	0.0	11.2	0.0	0.0
Approach LOS	B	B	B	B	B	B
Intersection Summary						
Average Delay	0.6					
Intersection Capacity Utilization	32.8%					
ICU Level of Service	A					
Analysis Period (min)	15					

10463.00: Harvard IMP
5005: Western Avenue & South Campus Drive

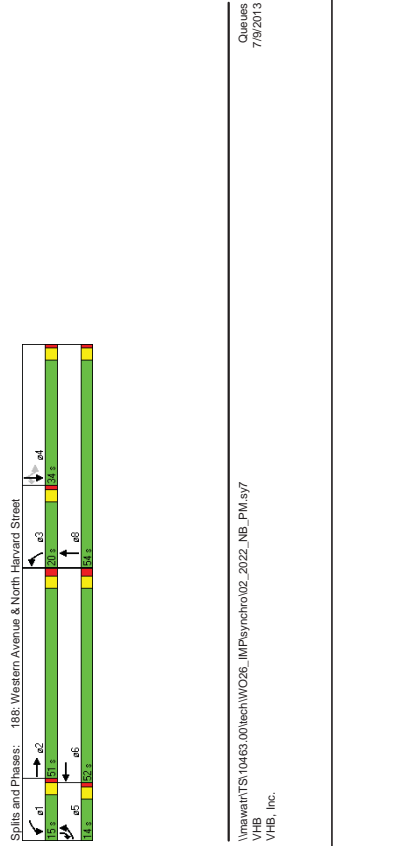
2022 No-Build Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	NWL	NWR
Lane Configurations	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
Sign Control	0%	0%	0%	0%	0%	0%	0%	0%	0%
Grade	5	57.5	215	15	725	15	0	0	0
Volume (veh/h)	0.92	0.96	0.96	0.95	0.92	0.92	0.92	0.25	0.92
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.25	0.92
Platoon flow rate (pph)	5	599	224	16	763	16	0	0	0
Platoon length (ft)	0	0	0	0	0	0	0	0	0
Platoon delay (s)	0	0	0	0	0	0	0	0	0
Walking Speed (ft/s)	0	0	0	0	0	0	0	0	0
Percent Blockage	0	0	0	0	0	0	0	0	0
Right turn flare (veh)	0	0	0	0	0	0	0	0	0
Median type	None	None	None	None	None	None	None	None	None
Median storage (veh)	0	0	0	0	0	0	0	0	0
Platoon unblocked	0.71	0.71	0.71	0.94	0.94	0.74	0.71	0.74	0.74
vC, conflicting volume	779	823	1637	771	1525	1533	771	1525	1533
vC1, stage 1 conf vol	0	0	0	0	0	0	0	0	0
vC2, stage 2 conf vol	0	0	0	0	0	0	0	0	0
vCu, unblocked vol	688	812	1746	676	1594	1605	676	1594	1605
IC, single (s)	4.1	4.2	6.5	6.2	7.1	6.5	4.1	6.5	6.5
IC, stage (s)	2.2	2.3	4.0	3.3	3.5	4.0	2.2	3.5	4.0
p0 queue free %	99	98	100	100	100	100	100	100	100
cM capacity (veh/h)	640	747	1533	640	747	1533	640	747	747
Direction Lane #	EB 1	WB 1	EB 1	WB 1	EB 1	WB 1	EB 1	WB 1	WB 1
Volume Total	828	795	1623	828	795	1623	828	795	795
Volume Left	5	16	0	5	16	0	5	16	16
Volume Right	224	16	0	224	16	0	224	16	16
cSH	640	747	1533	640	747	1533	640	747	747
Volume to Capacity	0.01	0.02	0.01	0.01	0.02	0.01	0.01	0.02	0.02
Queue Length 35th (ft)	1	0	0	1	0	0	1	0	0
Queue Length 50th (ft)	0	0	0	0	0	0	0	0	0
Lane LOS	A	A	A	A	A	A	A	A	A
Approach Delay (s)	0.2	0.6	0.2	0.2	0.6	0.2	0.2	0.6	0.6
Approach LOS	B	B	B	B	B	B	B	B	B
Intersection Summary									
Average Delay	0.4								
Intersection Capacity Utilization	56.1%								
ICU Level of Service	B								
Analysis Period (min)	15								

10463.00: Harvard IMP
188: Western Avenue & North Harvard Street

2022 No-Build Conditions
Weekday Evening

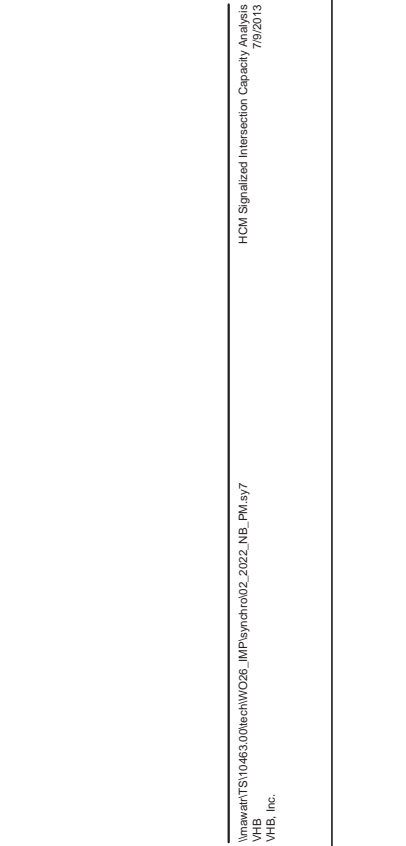
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL SBT SBR											
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vph)	12	12	12	11	11	16	12	11	11	10	10	10
Lane Width (ft)	0											
Grade (%)	0%											
Storage Length (ft)	0											
Storage Capacity (veh)	0											
Storage Length (ft)	0											
Storage Capacity (veh)	0											
Leading Detector (ft)	0											
Trailing Detector (ft)	0											
Turning Speed (mph)	9											
Link Speed (mph)	30											
Link Distance (ft)	30											
Link Delay (s)	21											
Volume (vph)	42											
Conf. Peds. (#/hr)	22											
Peak Hour Factor	0.93											
Growth Factor	100%											
Heavy Vehicles (%)	5%											
Parking (#/hr)	0											
Mid-Block Traffic (%)	0%											
Lane Group Flow (vph)	145											
Turn Type	Prot											
Permitted Phases	5 2 1 6 3 8											
Minimum Initial (s)	4.0											
Minimum Split (s)	8.0											
Total Split (%)	11.7%											
Yellow Time (s)	3.0											
Allied Time (s)	1.0											
Lead Lag	Yes											
Lead Lag	Yes											
Recall Mode	None											
v/c Ratio	1.12											
Queue Delay	186.1											
Control Delay	186.1											
Queue Length (ft)	168.1											
Queue Length (veh)	40.1											
Queue Length 95th (ft)	#284											
Internal Link Dist (ft)	#401											
Turn Bay Length (ft)	250											
Base Capacity (vph)	129											
Starvation Cap Reductn	0											
Storage Cap Reductn	0											
Reaches v/c Ratio	1.18											



10463.00: Harvard IMP
188: Western Avenue & North Harvard Street

2022 No-Build Conditions
Weekday Evening

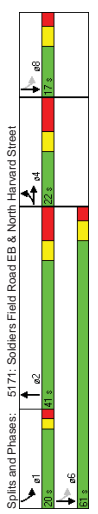
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vph)	12	12	12	11	11	16	12	11	11	10	10	10
Lane Width (ft)	0											
Grade (%)	0%											
Storage Length (ft)	0											
Storage Capacity (veh)	0											
Storage Length (ft)	0											
Storage Capacity (veh)	0											
Leading Detector (ft)	0											
Trailing Detector (ft)	0											
Turning Speed (mph)	9											
Link Speed (mph)	30											
Link Distance (ft)	30											
Link Delay (s)	21											
Volume (vph)	42											
Conf. Peds. (#/hr)	22											
Peak Hour Factor	0.95											
Growth Factor	100%											
Heavy Vehicles (%)	5%											
Parking (#/hr)	0											
Mid-Block Traffic (%)	0%											
Lane Group Flow (vph)	145											
Turn Type	Prot											
Permitted Phases	5 2 1 6 3 8											
Minimum Initial (s)	4.0											
Minimum Split (s)	8.0											
Total Split (%)	11.7%											
Yellow Time (s)	3.0											
Allied Time (s)	1.0											
Lead Lag	Yes											
Lead Lag	Yes											
Recall Mode	None											
v/c Ratio	1.12											
Queue Delay	186.1											
Control Delay	186.1											
Queue Length (ft)	168.1											
Queue Length (veh)	40.1											
Queue Length 95th (ft)	#284											
Internal Link Dist (ft)	#401											
Turn Bay Length (ft)	250											
Base Capacity (vph)	129											
Starvation Cap Reductn	0											
Storage Cap Reductn	0											
Reaches v/c Ratio	1.18											



10463.00: Harvard IMP
5171: Soldiers Field Road EB & North Harvard Street

2022 No-Build Conditions
Weekday Evening

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EB EB EB EB EB EB EB EB EB EB EB EB											
Lane Configurations	1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900											
Ideal Flow (vphpl)	13	16	16	12	12	12	13	13	13	10	10	10
Lane Width (ft)	0 0 0 0 0 0 0 0 0 0 0 0											
Grades (%)	0 0 0 0 0 0 0 0 0 0 0 0											
Storage Length (ft)	0 0 0 0 0 0 0 0 0 0 0 0											
Storage Lengths (s)	0 0 0 0 0 0 0 0 0 0 0 0											
Storage Delay (s)	0 0 0 0 0 0 0 0 0 0 0 0											
Leading Detector (ft)	50 50 4.0 4.0 4.0 4.0 4.0 4.0 4.0 50 50 4.0											
Trailing Detector (ft)	0 0 0 0 0 0 0 0 0 0 0 0											
Turning Speed (mph)	15 9 15 9 15 9 15 9 15 9 15 9											
Right Turn on Red	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes											
Link Speed (mph)	30 30 30 30 30 30 30 30 30 30 30 30											
Link Distance (ft)	585 518 118 381 176 381 118 518 585 381 176 381											
Volume (vph)	225	110	90	0	0	0	625	45	390	390	0	
Confl. Peds. (#/hr)	48											
Peak Hour Factor	0.87 0.87 0.87 0.87 0.87 0.87 0.87 0.87 0.87 0.87 0.87 0.87											
Growth Factor	100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 100%											
Heavy Vehicles (%)	1% 1% 2% 2% 2% 3% 3% 2% 2% 2% 2% 2%											
Pedestrians (#/hr)	0 0 0 0 0 0 0 0 0 0 0 0											
Mid-Block Traffic (%)	0%											
Lane Group Flow (vph)	191	182	0	0	0	0	713	0	429	429	0	
Turn Type	Split											
Permitted Phases	4 4 4 2 2 1 6 8 6 8											
Protected Phases	4 4 4 2 2 1 6 8 6 8											
Minimum Initial (s)	11.0 11.0 15.0 10.0 10.0 22.0 17.0											
Minimum Split (s)	22.0 22.0 0.0 0.0 0.0 41.0 20.0 78.0 0.0 61.0 17.0											
Total Split (s)	22.0% 22.0% 0.0% 0.0% 0.0% 41.0% 20.0% 78.0% 0.0% 61.0% 17.0%											
Yellow Time (s)	4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0											
All-Red Time (s)	7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0											
Lead Lag (s)	None None None None None None None None None None None None											
Lead Lag Optimize?	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes											
Recall Modes	C-Min C-Min C-Min C-Min C-Min C-Min C-Min C-Min C-Min C-Min C-Min C-Min											
v/c Ratio	0.67	0.60	0.57	0.83	0.37	0.83	0.37	0.37	32.9	0.4	0.4	
Control Delay	51.3	34.9	25.3	32.9	0.4	32.9	0.4	0.4	32.9	0.4	0.4	
Queue Delay	2.4	1.8	0.4	0.0	0.0	0.0	0.0	0.0	32.9	0.4	0.4	
Queue Length (ft)	53.7	36.6	25.7	32.9	0.4	32.9	0.4	0.4	32.9	0.4	0.4	
Queue Length 95th (ft)	192	148	238	m88	m2	m88	m2	m2	301	m2	m2	
Internal Link Dist (ft)	439											
Turn Bay Length (ft)	284 303											
Storage Capacity (vph)	1240 461 1150											
Starvation Cap Reductn	0 0 0											
Storage Cap Reductn	31 39 154 0 0 0											
Reduction Ratio	0 0 0 0.66 0.83 0.37											



VehicleType: 10463.00:Weekday Evening
VHB
VHB, Inc.

10463.00: Harvard IMP
5171: Soldiers Field Road EB & North Harvard Street

2022 No-Build Conditions
Weekday Evening

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900											
Ideal Flow (vphpl)	13	16	16	12	12	12	13	13	13	10	10	10
Lane Width (ft)	0 0 0 0 0 0 0 0 0 0 0 0											
Grades (%)	0 0 0 0 0 0 0 0 0 0 0 0											
Storage Length (ft)	0 0 0 0 0 0 0 0 0 0 0 0											
Storage Lengths (s)	0 0 0 0 0 0 0 0 0 0 0 0											
Storage Delay (s)	0 0 0 0 0 0 0 0 0 0 0 0											
Leading Detector (ft)	50 50 4.0 4.0 4.0 4.0 4.0 4.0 4.0 50 50 4.0											
Trailing Detector (ft)	0 0 0 0 0 0 0 0 0 0 0 0											
Turning Speed (mph)	15 9 15 9 15 9 15 9 15 9 15 9											
Right Turn on Red	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes											
Link Speed (mph)	30 30 30 30 30 30 30 30 30 30 30 30											
Link Distance (ft)	585 518 118 381 176 381 118 518 585 381 176 381											
Volume (vph)	225	110	90	0	0	0	625	45	390	390	0	
Confl. Peds. (#/hr)	48											
Peak Hour Factor	0.87 0.87 0.87 0.87 0.87 0.87 0.87 0.87 0.87 0.87 0.87 0.87											
Growth Factor	100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 100%											
Heavy Vehicles (%)	1% 1% 2% 2% 2% 3% 3% 2% 2% 2% 2% 2%											
Pedestrians (#/hr)	0 0 0 0 0 0 0 0 0 0 0 0											
Mid-Block Traffic (%)	0%											
Lane Group Flow (vph)	191	182	0	0	0	0	713	0	429	429	0	
Turn Type	Split											
Permitted Phases	4 4 4 2 2 1 6 8 6 8											
Protected Phases	4 4 4 2 2 1 6 8 6 8											
Minimum Initial (s)	11.0 11.0 15.0 10.0 10.0 22.0 17.0											
Minimum Split (s)	22.0 22.0 0.0 0.0 0.0 41.0 20.0 78.0 0.0 61.0 17.0											
Total Split (s)	22.0% 22.0% 0.0% 0.0% 0.0% 41.0% 20.0% 78.0% 0.0% 61.0% 17.0%											
Yellow Time (s)	4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0											
All-Red Time (s)	7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0											
Lead Lag (s)	None None None None None None None None None None None None											
Lead Lag Optimize?	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes											
Recall Modes	C-Min C-Min C-Min C-Min C-Min C-Min C-Min C-Min C-Min C-Min C-Min C-Min											
v/c Ratio	0.67	0.60	0.57	0.83	0.37	0.83	0.37	0.37	32.9	0.4	0.4	
Control Delay	51.3	34.9	25.3	32.9	0.4	32.9	0.4	0.4	32.9	0.4	0.4	
Queue Delay	2.4	1.8	0.4	0.0	0.0	0.0	0.0	0.0	32.9	0.4	0.4	
Queue Length (ft)	53.7	36.6	25.7	32.9	0.4	32.9	0.4	0.4	32.9	0.4	0.4	
Queue Length 95th (ft)	192	148	238	m88	m2	m88	m2	m2	301	m2	m2	
Internal Link Dist (ft)	439											
Turn Bay Length (ft)	284 303											
Storage Capacity (vph)	1240 461 1150											
Starvation Cap Reductn	0 0 0											
Storage Cap Reductn	31 39 154 0 0 0											
Reduction Ratio	0 0 0 0.66 0.83 0.37											

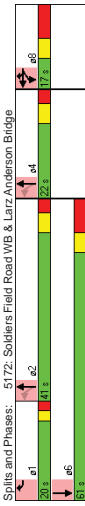
Intersection Summary
HCM Level of Service C
HCM Average Control Delay 25.0
HCM Sat. Ratio 0.98
Actuated Cycle Length (s) 100.0
Sum of lost time (s) 12.0
Intersection Capacity Utilization 118.9%
ICU Level of Service H
Analysis Period (min) 15
c Critical Lane Group

VehicleType: 10463.00:Weekday Evening
VHB
VHB, Inc.

10463.00: Harvand IMP
5172: Soldiers Field Road WB & Larz Anderson Bridge

2022 No-Build Conditions
Weekday Evening

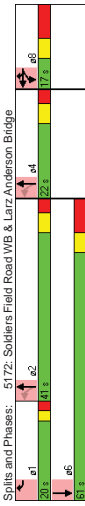
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Conf. Ped. (#/hr)	0	0	0	0	0	0	0	0	0	0	0
Group Flow (vph)	0	0	0	0	0	0	0	0	0	0	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Split custom Perm										
Permitted Phases	8 8 18 2.4										
Minimum Initial (s)	6.0 6.0 18 2.4 2.4										
Minimum Split (s)	10.0 15.0 11.0										
Total Split (s)	26.0										
Uniform Delay, d1	0.0 0.0 17.0 17.0 37.0 63.0 0.0 0.0 61.0 0.0 20.0 41.0 22.0										
Progression Factor	1.00 0.0% 0.0% 0.0% 17.0% 37.0% 63.0% 63.0% 0.0% 61.0% 0.0% 20% 41% 22%										
Incremental Delay, d2	4.0 4.0 4.0										
Level of Service	A B C C										
Approach LOS	A B D										
v/c Ratio	0.32 0.61 0.91 0.82										
Queue Delay	42.6 33.0 44.7 14.4										
Control Delay	52.3										
Queue Length	99.8										
Queue Delay (ft)	152.1										
Queue Length (ft)	481.4										
Internal Link Dist (ft)	480										
Turn Bay Length (ft)	520										
Base Capacity (vph)	838										
Starvation Cap Reductn	0										
Storage Cap Reductn	198										
Reaches % Ratio	0.97 0.61 0.91 0.82										
Area Type	CBD										
Actuated Cycle Length	100										
Actuated Split Length	100										
Offser	0 (0%)										
Natural Cycle	100										
Control Type	Actuated-Coordinated										
Volume exceeds capacity	No										
Queue shown is maximum after two cycles	No										
Split percentage volume exceeds capacity, queue may be longer	No										
Queue shown is maximum after two cycles	No										



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2022 No-Build Conditions
Weekday Evening

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Conf. Ped. (#/hr)	0	0	0	0	0	0	0	0	0	0	0
Group Flow (vph)	0	0	0	0	0	0	0	0	0	0	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Split custom Perm										
Permitted Phases	8 8 18 2.4										
Minimum Initial (s)	6.0 6.0 18 2.4 2.4										
Minimum Split (s)	10.0 15.0 11.0										
Total Split (s)	26.0										
Uniform Delay, d1	0.0 0.0 17.0 17.0 37.0 63.0 0.0 0.0 61.0 0.0 20.0 41.0 22.0										
Progression Factor	1.00 0.0% 0.0% 0.0% 17.0% 37.0% 63.0% 63.0% 0.0% 61.0% 0.0% 20% 41% 22%										
Incremental Delay, d2	4.0 4.0 4.0										
Level of Service	A B C C										
Approach LOS	A B D										
v/c Ratio	0.32 0.61 0.91 0.82										
Queue Delay	42.6 33.0 44.7 14.4										
Control Delay	52.3										
Queue Length	99.8										
Queue Delay (ft)	152.1										
Queue Length (ft)	481.4										
Internal Link Dist (ft)	480										
Turn Bay Length (ft)	520										
Base Capacity (vph)	838										
Starvation Cap Reductn	0										
Storage Cap Reductn	198										
Reaches % Ratio	0.97 0.61 0.91 0.82										
Area Type	CBD										
Actuated Cycle Length	100										
Actuated Split Length	100										
Offser	0 (0%)										
Natural Cycle	100										
Control Type	Actuated-Coordinated										
Volume exceeds capacity	No										
Queue shown is maximum after two cycles	No										
Split percentage volume exceeds capacity, queue may be longer	No										
Queue shown is maximum after two cycles	No										



10463.00: Harvard IMP
5191: Western Avenue & Soldiers Field Road EB

2022 No-Build Conditions
Weekday Evening

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	13	13	13	12	11	11	12	12	12	11	11
Lane Width (ft)	0	0	0	0	0	0	0	0	0	0	0
Grade (%)	0	0	0	0	0	0	0	0	0	0	0
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0
Storage Spaces	0	0	0	0	0	0	0	0	0	0	0
Queue Length (ft)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Link Speed (mph)	30	30	30	30	30	30	30	30	30	30	30
Link Distance (ft)	43	43	43	100	100	100	888	888	888	888	888
Turn Lane (ft)	112	112	112	20	20	20	20	20	20	20	20
Volume (vph)	0	0	750	1160	520	0	0	0	0	0	550
Conf. Peds. (/hr)											
Confl. Bikes (/hr)											
Peak-Hour Factor	0.85	0.85	0.97	0.97	0.97	0.92	0.92	0.92	0.85	0.85	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	0%	0%	0%	2%	2%	2%	0%	0%	0%
Right Turns (vph)	0	0	0	0	0	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	0	0	882	1196	536	0	0	0	0	0	658
Turn Type	Protected	Permitted	custom	pm+pt							Protected
Permitted Phases	6	4	4	6							2
Minimum Initial (s)	14.0	14.0	4.6								14.0
Minimum Split (s)	0.0	0.0	35.0	44.0	79.0	0.0	0.0	0.0	0.0	0.0	21.0
Total Split (s)	0.0%	0.0%	35.0%	44.0%	79.0%	0.0%	0.0%	0.0%	0.0%	0.0%	21.0%
Yellow Time (s)	4.0	4.0	4.0	4.0							4.0
Allied Time (s)											
Lead Lag											
Lead to Optimize?											
Recall Mode	Ped	C-Mh									Ped
v/c Ratio	1.69	0.51	0.43								1.23
Control Delay	341.5	0.8	0.5								156.4
Queue Delay	0.0	0.0	0.0								0.0
Total Delay	341.5	0.8	0.5								156.4
Queue Length (ft)	414	0	0								430
Queue Length 95% (ft)	650	m0	m1								630
Internal Link Dist (ft)	414		20								361
Turn Bay Length (ft)	523	2368	1240								534
Base Capacity (vph)	0	0	0								0
Starvation Cap Reductn	0	0	0								0
Storage Cap Reductn	0	0	0								0
Reaches v/c Ratio	1.69	0.51	0.43								1.23

Protected Phases: 6 4 6

Actuated Green, G (s): 27.0 65.0 71.0 15.0

Effective Green, g (s): 31.0 71.0 75.0 17.0

Start of Green, s: 8.0 6.0 0.75 6.0

Clearance Time (s): 8.0 6.0 0.75 6.0

Vehicle Extension (s): 2.0 2.0

Lane Cap (vph): 456 2364 1240 528

v/s Ratio Prot: 0.55 0.20 0.32 0.21

v/s Ratio Perm: 1.79 0.50 0.43 1.24

v/c Ratio: 34.5 6.3 4.6 41.5

Uniform Delay, d1: 362.4 0.0 0.0 121.4

Incremental Delay, d2: 396.9 0.9 0.4 162.9

Level of Service: F A A A

Approach Delay (s): 396.9 F A A 0.0 A 162.9 F

Approach LOS: F A A A

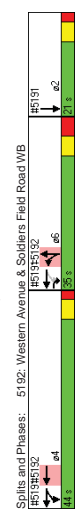
Intersection Summary			
HCM Average Control Delay	140.2	HCM Level of Service	F
HCM Volume to Capacity Ratio	1.11		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	144.8%	ICU Level of Service	H
Approach Capacity	15		
Critical Lane Group			

Area Type: CBD
Area Length: 100
Area Width: 100
Actuated Cycle Length: 100
Offser: 62 (62%), Referenced to phase 4:WBT_L, Start of 1st Green
Natural Cycle: 140
Control Type: Actuated-Coordinated
- Volume exceeds capacity, queue is theoretically infinite.
- Queue shown is maximum after two cycles.
Split phasing to volume exceeds capacity, queue may be longer.
Control phasing to volume exceeds capacity, queue may be longer.
m - Volume for 95th percentile queue is met by upstream signal.



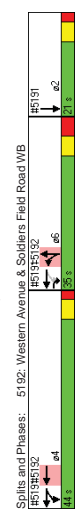
10463.00: Harvard IMP
5192: Western Avenue & Soldiers Field Road WB
2022 No-Build Conditions
Weekday Evening

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	
Lane Group	a2											
Lane Configurations	4+4											
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	11	11	11	11	11	11	12	12	
Grade (%)	0	0	0	0	0	0	0	0	0	0	0	
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0	
Storage Lengths (s)	0	0	0	0	0	0	0	0	0	0	0	
Trailing Detector (ft)	4.0	4.0	4.0	6.0	4.0	4.0	6.0	4.0	4.0	4.0	4.0	
Trailing Detector (ft)	15	9	15	9	15	9	15	9	15	9	15	
Right Turn on Red	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Link Speed (mph)	30	30	30	30	30	30	30	30	30	30	30	
Link Distance (ft)	100	41	100	41	100	41	100	41	100	41	100	
Volume (vph)	2	2	2	108	108	108	191	191	191	456	456	
Volume (vph)	0	0	0	1585	485	95	395	0	0	0	0	
Conf. Peds. (#/hr)	0											
Conf. Bikes (#/hr)	0											
Peak Hour Factor	0.92	0.92	0.92	0.98	0.98	0.95	0.95	0.95	0.92	0.92	0.92	
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	2%	2%	2%	1%	1%	2%	2%	2%	2%	2%	2%	
Parking (ft/hr)	0											
Mid-Block Traffic (%)	0%											
Lane Group Flow (vph)	0	0	0	2112	0	0	505	0	0	0	0	
Turn Type	Split											
Protected Phases	4 6 6											
Permitted Phases	4											
Minimum Initial (s)	14.0											
Minimum Split (s)	20.0											
Total Split (s)	35.0											
Total Split (%)	0.0%											
Yellow Time (s)	4.0											
All-red Time (s)	4.0											
Lead Lag	0											
Lead Lag Optimize?	0											
Recall Mode	C-Min	Ped	Ped									Ped
v/c Ratio	1.29	0.56	0.56									0.56
Control Delay	163.7	30.9	30.9									30.9
Queue Delay	16.7	0.0	0.0									0.0
Queue Length	180.4	30.9	30.9									30.9
Queue Length 95th (ft)	472.7	187	187									187
Internal Link Dist (ft)	20											
Turn Bay Length (ft)	384											
Base Capacity (vph)	1638											
Station Cap Reductn	8											
Storage Cap Reductn	48											
Reduced v/c Ratio	1.33											
Intersection Summary												
Area Type	CBD											
Area Length	100											
Actuated Cycle Length	100											
Offset	62 (62%), Referenced to phase 4:WBT_L, Start of 1st Green											
Natural Cycle	140											
Control Type	Actuated-Coordinated											
Volume exceeds capacity	No											
Queue shown is maximum after two cycles	No											
Split percentile volume exceeds capacity, queue may be longer	No											
Queue shown is maximum after two cycles	No											
Queue shown is maximum after two cycles	No											



10463.00: Harvard IMP
5192: Western Avenue & Soldiers Field Road WB
2022 No-Build Conditions
Weekday Evening

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	
Lane Configurations	4+4											
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	11	11	11	11	11	11	12	12	
Grade (%)	0	0	0	0	0	0	0	0	0	0	0	
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0	
Storage Lengths (s)	0	0	0	0	0	0	0	0	0	0	0	
Trailing Detector (ft)	4.0	4.0	4.0	6.0	4.0	4.0	6.0	4.0	4.0	4.0	4.0	
Trailing Detector (ft)	15	9	15	9	15	9	15	9	15	9	15	
Right Turn on Red	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Link Speed (mph)	30	30	30	30	30	30	30	30	30	30	30	
Link Distance (ft)	100	41	100	41	100	41	100	41	100	41	100	
Volume (vph)	2	2	2	108	108	108	191	191	191	456	456	
Volume (vph)	0	0	0	1585	485	95	395	0	0	0	0	
Conf. Peds. (#/hr)	0											
Conf. Bikes (#/hr)	0											
Peak Hour Factor	0.92	0.92	0.92	0.98	0.98	0.95	0.95	0.95	0.92	0.92	0.92	
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	2%	2%	2%	1%	1%	2%	2%	2%	2%	2%	2%	
Parking (ft/hr)	0											
Mid-Block Traffic (%)	0%											
Lane Group Flow (vph)	0	0	0	2112	0	0	505	0	0	0	0	
Turn Type	Split											
Protected Phases	4 6 6											
Permitted Phases	4											
Minimum Initial (s)	14.0											
Minimum Split (s)	20.0											
Total Split (s)	35.0											
Total Split (%)	0.0%											
Yellow Time (s)	4.0											
All-red Time (s)	4.0											
Lead Lag	0											
Lead Lag Optimize?	0											
Recall Mode	C-Min	Ped	Ped									Ped
v/c Ratio	1.29	0.56	0.56									0.56
Control Delay	163.7	30.9	30.9									30.9
Queue Delay	16.7	0.0	0.0									0.0
Queue Length	180.4	30.9	30.9									30.9
Queue Length 95th (ft)	472.7	187	187									187
Internal Link Dist (ft)	20											
Turn Bay Length (ft)	384											
Base Capacity (vph)	1638											
Station Cap Reductn	8											
Storage Cap Reductn	48											
Reduced v/c Ratio	1.33											
Intersection Summary												
Area Type	CBD											
Area Length	100											
Actuated Cycle Length	100											
Offset	62 (62%), Referenced to phase 4:WBT_L, Start of 1st Green											
Natural Cycle	140											
Control Type	Actuated-Coordinated											
Volume exceeds capacity	No											
Queue shown is maximum after two cycles	No											
Split percentile volume exceeds capacity, queue may be longer	No											
Queue shown is maximum after two cycles	No											
Queue shown is maximum after two cycles	No											




10463.00: Harvard IMP
5161: Cambridge Street & I-90 On-Ramp

2022 No-Build Conditions
Weekday Evening

	EBT	WBT	WBR	NBL	NBT	NBR	NEL2	NEL	NER	e4	e5
Lane Group	EBT	WBT	WBR	NBL	NBT	NBR	NEL2	NEL	NER	e4	e5
Lane Configurations	4+4	4+4	4+4	4+4	4+4	4+4	4+4	4+4	4+4	4+4	4+4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12
Lane Util. Factor	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0
Storage Length (s)	0	0	0	0	0	0	0	0	0	0	0
Storage Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Leading Detector (ft)	0	0	0	0	0	0	0	0	0	0	0
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	9	15	0	0	0	0	15	15	9		
Right Turn on Red	No	No	No	No	No	No	No	No	No		
Link Speed (mph)	30	30	30	30	30	30	30	30	30		
Link Distance (ft)	279	170	128	128	128	128	128	128	128		
Link Delay (s)	3	2	2	2	2	2	2	2	2		
Volume (vph)	1065	480	335	15	45	5	20	1100			
Confl. Peds. (#/hr)											
Peak Hour Factor	0.96	0.93	0.83	0.67	0.67	0.91	0.91	0.91	0.91		
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%		
Heavy Vehicles (%)	1%	1%	1%	76%	76%	2%	2%	2%	2%		
Pedings (#/hr)	0	0	0	0	0	0	0	0	0		
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%		
Lane Group Flow (vph)	1109	876	0	0	111	0	0	430	806		
Turn Type	Perm	Split	Perm	custom							
Protected Phases	2	4/5/1	3	3	3	1/5/1	1/5/1	1/5/1	1/5/1		
Permitted Phases	2	4/5	3	3	3	1/5	1/5	1/5	1/5		
Minimum Split (s)	17.0	4.0	4.0	4.0	17.0	17.0	17.0	17.0	17.0		
Total Split (s)	24.0	12.0	12.0	12.0	0.0	63.0	63.0	30.0	33.0		
Total Split (%)	19.3%	50.7%	0.0%	8.6%	8.6%	0.0%	45.0%	45.0%	21%		
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		
Allied Time (s)	2.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		
Lead Lag	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Lead Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Recall Mode	Max	Max	Max	Max	Max	C-Min	Ped	Ped	Ped		
v/c Ratio	1.40	0.60	1.88	0.71	0.73						
Control Delay	229.5	5.4	530.9	40.7	37.8						
Queue Delay	21.3	2.7	127.8	30.4	32.7						
Total Delay	250.8	8.1	658.8	71.1	70.5						
Queue Length 95th (ft)	163	16	316	46	45						
Queue Length 90th (ft)	153	15	298	43	42						
Internal Link Dist (ft)	199	90	45	468	468						
Turn Bay Length (ft)	792	1465	56	606	1111						
Storage Cap Reductn	0	453	0	0	0						
Spillback Cap Reductn	26	0	7	189	346						
Reduces v/c Ratio	1.46	0.67	2.27	1.03	1.03						

Intersection Summary

Area Type: CBD
 Area Length: 140
 Actuated Cycle Length: 140
 Offser: 0 (0%), Referenced to phase 1NEL, Start of Yellow
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 # Volume exceeds capacity, queue is theoretically infinite.
 - Queue shown is maximum after two cycles.
 # Split phase volume exceeds capacity, queue may be longer.
 - Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.
 ! Phase conflict between lane groups.

Splits and Phases: 5161: Cambridge Street & I-90 On-Ramp


10463.00: Harvard IMP
5161: Cambridge Street & I-90 On-Ramp

2022 No-Build Conditions
Weekday Evening

	EBT	WBT	WBR	NBL	NBT	NBR	NEL2	NEL	NER
Movement	EBT	WBT	WBR	NBL	NBT	NBR	NEL2	NEL	NER
Lane Configurations	4+4	4+4	4+4	4+4	4+4	4+4	4+4	4+4	4+4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.91	0.95	1.00	0.99	0.99	1.00	0.91	0.91	0.91
Flps. ped/bikes	1.00	1.00	1.00	0.99	0.99	1.00	0.98	0.98	1.00
Flps. ped/bikes	1.00	1.00	1.00	0.99	0.99	1.00	0.98	0.98	1.00
Flps. ped/bikes	1.00	1.00	1.00	0.99	0.99	1.00	0.98	0.98	1.00
Flps. ped/bikes	1.00	1.00	1.00	0.99	0.99	1.00	0.98	0.98	1.00
Satd. Flow (prot)	4622	3019	872	1414	2594				
Fls. Permitted	1.00	1.00	0.99	0.99	1.00	1.00	1.00	1.00	1.00
Satd. Flow (perm)	4622	3019	872	1414	2594				
Volume (vph)	1065	480	335	15	45	5	20	1100	
Peak-hour factor, PHF	0.96	0.93	0.83	0.67	0.67	0.91	0.91	0.91	0.91
Volume (vphpl)	1109	910	360	22	69	22	69	1209	
RTOR, Reductn (vph)	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	1109	876	0	0	111	0	0	430	806
Confl. Peds. (#/hr)	1%	1%	1%	76%	76%	2%	2%	2%	2%
Turn Type	Perm	Split	Perm	custom					
Protected Phases	2	4/5/1	3	3	3	1/5/1	1/5/1	1/5/1	1/5/1
Permitted Phases	2	4/5	3	3	3	1/5	1/5	1/5	1/5
Minimum Split (s)	17.0	4.0	4.0	4.0	17.0	17.0	17.0	17.0	17.0
Total Split (s)	24.0	12.0	12.0	12.0	0.0	63.0	63.0	30.0	33.0
Total Split (%)	19.3%	50.7%	0.0%	8.6%	8.6%	0.0%	45.0%	45.0%	21%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Allied Time (s)	2.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead Lag	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lead Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	C-Min	Ped	Ped	Ped
v/c Ratio	1.40	0.60	1.88	0.71	0.73				
Control Delay	229.5	5.4	530.9	40.7	37.8				
Queue Delay	21.3	2.7	127.8	30.4	32.7				
Total Delay	250.8	8.1	658.8	71.1	70.5				
Queue Length 95th (ft)	163	16	316	46	45				
Queue Length 90th (ft)	153	15	298	43	42				
Internal Link Dist (ft)	199	90	45	468	468				
Turn Bay Length (ft)	792	1465	56	606	1111				
Storage Cap Reductn	0	453	0	0	0				
Spillback Cap Reductn	26	0	7	189	346				
Reduces v/c Ratio	1.46	0.67	2.27	1.03	1.03				

Intersection Summary

HCM Average Control Delay: 115.2
 HCM Level of Service: F
 HCM Volume to Capacity Ratio: 0.91
 Sum of lost time (s): 12.0
 Intersection Capacity Utilization: 80.6%
 Analysis Period (min): 15
 ! Phase conflict between lane groups.
 c Critical Lane Group

10463.00: Harvard IMP
5163: Cambridge Street & Soldiers Field Road WB

2022 No-Build Conditions
Weekday Evening

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	e1	e2	e3	e5
Lane Group	EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL SBR e1 e2 e3 e5														
Lane Configurations	1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900														
Ideal Flow (vph)	11 11 11 12 12 12 11 10 10 12 12 12														
Lane Width (ft)	0 0 0 0 0 0 0 0 0 0 0 0														
Grade (%)	0 0 0 0 0 0 0 0 0 0 0 0														
Storage Length (ft)	0 0 0 0 0 0 0 0 0 0 0 0														
Storage Time (s)	4.0 4.0 4.0 4.0 4.0 4.0 50 50 4.0 4.0 4.0 4.0														
Trailing Detector (ft)	0 0 0 0 0 0 0 0 0 0 0 0														
Turning Speed (mph)	15 9 15 9 15 9 15 9 15 9 15 9														
Right Turn on Red	No No No No No No No No No No No No														
Link Speed (mph)	30 30 30 30 30 30 30 30 30 30 30 30														
Link Distance (ft)	86 465 165 260 260 260 260 260 260 260 260 260														
Volume (vph)	410 1510 0 0 0 0 660 70 155 0 0 0														
Confl. Peds. (#/hr)	0 0 0 0 0 0 0 0 0 0 0 0														
Confl. Bikes (#/hr)	0 0 0 0 0 0 0 0 0 0 0 0														
Peak Hour Factor	0.96 0.96 0.96 0.25 0.25 0.25 0.88 0.88 0.88 0.92 0.92 0.92														
Growth Factor	100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 100%														
Heavy Vehicles (%)	1% 1% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%														
Parking (ft/hr)	0 0 0 0 0 0 0 0 0 0 0 0														
Mid-Block Traffic (%)	0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%														
Lane Group Flow (vph)	0 2000 0 0 0 0 526 480 0 0 0 0														
Turn Type	Split														
Protected Phases	1 2 3 5 1 2 3 5														
Minimum Initial (s)	4 4 4 4 4 4 4 4 4 4 4 4														
Minimum Split (s)	17.0 17.0 17.0 17.0 17.0 17.0 17.0 17.0 17.0 17.0 17.0 17.0														
Total Split (s)	102.0 102.0 0.0 0.0 0.0 0.0 38.0 38.0 0.0 0.0 0.0 0.0														
Total Split (%)	72.9% 72.9% 0.0% 0.0% 0.0% 0.0% 27.1% 27.1% 0.0% 0.0% 0.0% 0.0%														
Yellow Time (s)	4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0														
Allied Time (s)	4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0														
Recall Mode	Ped Ped Ped Ped Ped Ped Ped Ped Ped Ped Ped Ped														
Recall Optimize?	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes														
Control Delay	0.65 1.54 1.50 294.7 278.1														
Queue Delay	0.2 81.7 79.9 376.3 358.0														
Queue Length 95th (ft)	m3 4915 4941 4915 4941														
Queue Length 95th (ft)	m3 4915 4941 4915 4941														
Internal Link Dist (ft)	375 224 341 320														
Turn Bay Length (ft)	3093 341 320														
Storage Cap Reductn	0 0 0 0														
Storage Cap Reductn	306 36 34														
Reduced v/r Ratio	0.72 1.72 1.68														



Splits and Phases: 5163: Cambridge Street & Soldiers Field Road WB
 # Split priority is maximum after two cycles.
 # Split priority is volume exclusive capacity, queue may be longer.
 # Control priority is maximum after two cycles.
 # Control priority is volume exclusive capacity, queue may be longer.
 m - Volume for 95th percentile queue is metered by upstream signal.

10463.00: Harvard IMP
5163: Cambridge Street & Soldiers Field Road WB

2022 No-Build Conditions
Weekday Evening

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900										
Ideal Flow (vph)	11 11 11 12 12 12 11 10 10 12 12 12										
Lane Width (ft)	0 0 0 0 0 0 0 0 0 0 0 0										
Grade (%)	0 0 0 0 0 0 0 0 0 0 0 0										
Storage Length (ft)	0 0 0 0 0 0 0 0 0 0 0 0										
Storage Time (s)	4.0 4.0 4.0 4.0 4.0 4.0 50 50 4.0 4.0 4.0 4.0										
Trailing Detector (ft)	0 0 0 0 0 0 0 0 0 0 0 0										
Turning Speed (mph)	15 9 15 9 15 9 15 9 15 9 15 9										
Right Turn on Red	No No No No No No No No No No No No										
Link Speed (mph)	30 30 30 30 30 30 30 30 30 30 30 30										
Link Distance (ft)	86 465 165 260 260 260 260 260 260 260 260 260										
Volume (vph)	410 1510 0 0 0 0 660 70 155 0 0 0										
Confl. Peds. (#/hr)	0 0 0 0 0 0 0 0 0 0 0 0										
Confl. Bikes (#/hr)	0 0 0 0 0 0 0 0 0 0 0 0										
Peak Hour Factor	0.96 0.96 0.96 0.25 0.25 0.25 0.88 0.88 0.88 0.92 0.92 0.92										
Growth Factor	100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 100%										
Heavy Vehicles (%)	1% 1% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%										
Parking (ft/hr)	0 0 0 0 0 0 0 0 0 0 0 0										
Mid-Block Traffic (%)	0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%										
Lane Group Flow (vph)	0 2000 0 0 0 0 526 480 0 0 0 0										
Turn Type	Split										
Protected Phases	1 2 3 5 1 2 3 5										
Minimum Initial (s)	4 4 4 4 4 4 4 4 4 4 4 4										
Minimum Split (s)	17.0 17.0 17.0 17.0 17.0 17.0 17.0 17.0 17.0 17.0 17.0 17.0										
Total Split (s)	102.0 102.0 0.0 0.0 0.0 0.0 38.0 38.0 0.0 0.0 0.0 0.0										
Total Split (%)	72.9% 72.9% 0.0% 0.0% 0.0% 0.0% 27.1% 27.1% 0.0% 0.0% 0.0% 0.0%										
Yellow Time (s)	4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0										
Allied Time (s)	4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0										
Recall Mode	Ped Ped Ped Ped Ped Ped Ped Ped Ped Ped Ped Ped										
Recall Optimize?	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes										
Control Delay	0.65 1.54 1.50 294.7 278.1										
Queue Delay	0.2 81.7 79.9 376.3 358.0										
Queue Length 95th (ft)	m3 4915 4941 4915 4941										
Queue Length 95th (ft)	m3 4915 4941 4915 4941										
Internal Link Dist (ft)	375 224 341 320										
Turn Bay Length (ft)	3093 341 320										
Storage Cap Reductn	0 0 0 0										
Storage Cap Reductn	306 36 34										
Reduced v/r Ratio	0.72 1.72 1.68										



Splits and Phases: 5163: Cambridge Street & Soldiers Field Road WB
 # Split priority is maximum after two cycles.
 # Split priority is volume exclusive capacity, queue may be longer.
 # Control priority is maximum after two cycles.
 # Control priority is volume exclusive capacity, queue may be longer.
 m - Volume for 95th percentile queue is metered by upstream signal.

10463.00: Harvard IMP
1326: Cambridge Street & Windom Street

2022 No-Build Conditions
Weekday Evening

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	12	10	10	14	14	14
Lane Width (ft)	0%	0%	0%	0%	0%	0%
Grade (%)	175	0	0	0	100	0
Storage Length (ft)	4.0	4.0	4.0	4.0	4.0	4.0
Storage Spaces (s)	50	50	50	50	50	50
Leading Detector (ft)	0	0	0	0	0	0
Trailing Detector (ft)	0	0	0	0	0	0
Turning Speed (mph)	15	9	15	9	15	9
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	Yes
Link Speed (mph)	40	30	30	30	30	30
Link Distance (ft)	200	1000	750	1000	750	1000
Time of Day (h)	10	905	1720	245	150	65
Volume (vph)	0.93	0.93	0.91	0.84	0.84	0.84
Conf. Peds. (#/hr)	100%	100%	100%	100%	100%	100%
Peak Hour Factor	1%	1%	1%	1%	1%	1%
Heavy Vehicles (%)	0	0	0	0	0	0
Heavy Trucks (#/hr)	0	0	0	0	0	0
Parking (#/hr)	0%	0%	0%	0%	0%	0%
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	11	973	1890	269	179	77
Turn Type	pm+pt	Perm	Prot	Prot	Prot	Prot
Protected Phases	2	1, 2	1	3	3	3
Permitted Phases	1, 2	1	1	3	3	3
Minimum Initial (s)	6.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	10.0	13.0	13.0	20.0	20.0	20.0
Total Split (s)	14.0	90.0	76.0	20.0	20.0	20.0
Total Split (%)	12.7%	81.8%	69.1%	89.1%	18.2%	18.2%
Yellow Time (s)	3.0	4.0	4.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lead Lag	Yes	Yes	Yes	Yes	Yes	Yes
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Min	C-Max	C-Max	Min	Min	Min
v/c Ratio	0.07	0.28	0.89	0.26	0.81	0.29
Control Delay	2.2	1.7	20.9	1.4	72.5	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Queue Length	2.2	1.7	20.9	1.4	72.5	12.5
Queue Length 95th (ft)	1	1	1	1	1	1
Queue Length 95th (ft)	m1	m30	4618	25	#183	36
Internal Link Dist (ft)	120	980	654	100	100	100
Turn Bay Length (ft)	175	3585	2112	1025	250	289
Base Capacity (vph)	213	3585	2112	1025	250	289
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reaches v/c Ratio	0.06	0.27	0.89	0.26	0.72	0.27

Intersection Summary
Area Type: CBD
Area Length: 110
Actuated Cycle Length: 110
Offset: 93 (85%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Cue shown is maximum after two cycles.
m 95th percentile queue is metered by upstream signal.



Spills and Phases: 1326: Cambridge Street & Windom Street

10463.00: Harvard IMP
1326: Cambridge Street & Windom Street

2022 No-Build Conditions
Weekday Evening

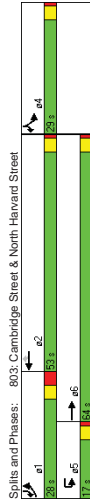
	EBL	EBT	WBT	WBR	SBL	SBR
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	12	10	10	14	14	14
Lane Width (ft)	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	1.00	0.81	0.85	1.00	1.00	1.00
Lane Util. Factor	0.96	1.00	1.00	0.85	0.85	0.85
Flt Protected	0.96	1.00	1.00	0.85	0.85	0.85
Satd. Flow (prot)	1608	4314	3002	1343	1716	1535
Flt Permitted	0.06	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	105	4314	3002	1343	1716	1535
Volume (vph)	10	905	1720	245	150	65
Peak-hour factor, PHF	0.93	0.93	0.91	0.91	0.84	0.84
Adj. Flow (vph)	11	973	1890	269	179	77
Flow (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	11	973	1890	269	179	77
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type	pm+pt	1, 2	1	Perm	3	3
Protected Phases	2	1, 2	1	3	3	3
Permitted Phases	1, 2	1	1	3	3	3
Actuated Green, G (s)	82.8	87.8	76.4	76.4	14.2	14.2
Effective Green, g (s)	83.8	87.8	77.4	77.4	14.2	14.2
Clearance Time (s)	9.0	0.60	0.0	0.0	4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lane Cap (vph)	167	3443	2112	945	222	198
v/s Ratio Prot	0.00	c0.23	c0.63	c0.10	0.01	0.01
v/s Ratio Perm	0.05	0.07	0.28	0.89	0.20	0.81
v/c Ratio	0.07	0.28	0.89	0.20	0.81	0.05
Uniform Delay, d1	18.8	2.9	13.0	5.6	46.6	42.0
Incremental Delay, d2	0.0	0.0	6.4	0.5	17.9	0.0
Delay (s)	7.7	1.5	19.4	6.1	64.5	42.0
Level of Service	A	A	B	A	E	D
Approach Delay (s)	A	B	A	B	57.7	E
Approach LOS	A	B	A	B	E	E

Intersection Summary
HCM Average Control Delay: 16.1
HCM Level of Service: B
HCM Volume to Capacity ratio: 0.82
Actuated Cycle Length (s): 110.0
Sum of lost time (s): 8.0
Intersection Capacity Utilization: 66.7%
ICU Level of Service: C
Area Type: CBD
Area Length: 15
Critical Lane Group

10463.00: Harvard IMP
803: Cambridge Street & North Harvard Street
2022 No-Build Conditions
Weekday Evening

	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vph/ft)	11	11	10	11	10	12	12
Lane Width (ft)	200	0%	120	0%	100	0	50
Storage Length (ft)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Storage Length (s)	50	50	50	50	50	50	50
Leading Detector (ft)	0	0	0	0	0	0	0
Trailing Detector (ft)	15	9	9	9	15	9	9
Turning Speed (mph)	40	30	30	30	30	30	No
Right Turn on Red	40	30	30	30	30	30	No
Link Speed (mph)	40	30	30	30	30	30	No
Link Distance (ft)	426	426	426	426	426	426	426
Link Volume (vph)	83	83	83	83	83	83	83
Volume (vph)	280	1625	60	1370	365	290	285
Conf. Peds. (#/hr)	10	0	0	0	0	0	5
Peak Hour Factor	0.90	0.92	0.92	0.92	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	1%	1%	2%	2%	0%
Parking (ft/hr)	0	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	311	1806	65	1489	397	312	306
Turn Type	Prot	Prot	Perm	Perm	ptov	ptov	ptov
Permitted Phases	1	6	5	2	4	1,4	1,4
Minimum Initial (s)	8.0	12.0	8.0	12.0	12.0	12.0	12.0
Minimum Split (s)	14.0	16.0	12.0	25.0	25.0	29.0	29.0
Total Split (s)	28.0	64.0	17.0	53.0	53.0	29.0	57.0
Total Split (%)	25.5%	59.2%	15.5%	48.2%	48.2%	26.4%	51.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Allied Time (s)	3.0	10.0	1.0	10.0	10.0	1.0	1.0
Lead Lag (ft)	0	0	0	0	0	0	0
Lead Lag (s)	0	0	0	0	0	0	0
Lead Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	Max	C-Max	C-Max	Min	Min
v/c Ratio	0.90	0.72	0.34	1.02	0.58	0.88	0.45
Control Delay	73.8	16.4	55.5	47.4	10.0	66.9	21.5
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Total Delay	73.8	16.6	55.5	47.4	10.0	66.9	21.5
Queue Length 95th (ft)	0	0	0	0	0	0	0
Queue Length 95th (s)	0	0	0	0	0	0	0
Internal Link Dist (ft)	m#537	m#407	m#2	m#237	m#8	m#598	m#210
Turn Bay Length (ft)	200	120	191	1463	100	497	50
Base Capacity (vph)	350	2514	191	1463	681	377	676
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Revised v/c Ratio	0.89	0.79	0.34	1.02	0.58	0.89	0.45

Intersection Summary
Area Type: CBD
Area Length: 110
Actuated Cycle Length: 110
Offser: 5 (6%), Referenced to phase 2/WBT and 6/EBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
- Volume exceeds capacity, queue is theoretically infinite.
- Queue shown is maximum after two cycles.
- Split phasing volume exceeds capacity, queue may be longer.
- Control shown is theoretical, actual control may vary.
- m - Volume for 95th percentile queue is metered by upstream signal.



Splits and Phases: 803: Cambridge Street & North Harvard Street

10463.00: Harvard IMP
803: Cambridge Street & North Harvard Street
2022 No-Build Conditions
Weekday Evening

	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vph/ft)	11	11	10	11	10	12	12
Lane Width (ft)	200	0%	120	0%	100	0	50
Storage Length (ft)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Storage Length (s)	50	50	50	50	50	50	50
Leading Detector (ft)	0	0	0	0	0	0	0
Trailing Detector (ft)	15	9	9	9	15	9	9
Turning Speed (mph)	40	30	30	30	30	30	No
Right Turn on Red	40	30	30	30	30	30	No
Link Speed (mph)	40	30	30	30	30	30	No
Link Distance (ft)	426	426	426	426	426	426	426
Link Volume (vph)	83	83	83	83	83	83	83
Volume (vph)	280	1625	60	1370	365	290	285
Conf. Peds. (#/hr)	10	0	0	0	0	0	5
Peak Hour Factor	0.90	0.92	0.92	0.92	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	1%	1%	2%	2%	0%
Parking (ft/hr)	0	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	311	1806	65	1489	397	312	306
Turn Type	Prot	Prot	Perm	Perm	ptov	ptov	ptov
Permitted Phases	1	6	5	2	4	1,4	1,4
Minimum Initial (s)	8.0	12.0	8.0	12.0	12.0	12.0	12.0
Minimum Split (s)	14.0	16.0	12.0	25.0	25.0	29.0	29.0
Total Split (s)	28.0	64.0	17.0	53.0	53.0	29.0	57.0
Total Split (%)	25.5%	59.2%	15.5%	48.2%	48.2%	26.4%	51.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Allied Time (s)	3.0	10.0	1.0	10.0	10.0	1.0	1.0
Lead Lag (ft)	0	0	0	0	0	0	0
Lead Lag (s)	0	0	0	0	0	0	0
Lead Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	Max	C-Max	C-Max	Min	Min
v/c Ratio	0.90	0.72	0.34	1.02	0.58	0.88	0.45
Control Delay	73.8	16.4	55.5	47.4	10.0	66.9	21.5
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Total Delay	73.8	16.6	55.5	47.4	10.0	66.9	21.5
Queue Length 95th (ft)	0	0	0	0	0	0	0
Queue Length 95th (s)	0	0	0	0	0	0	0
Internal Link Dist (ft)	m#537	m#407	m#2	m#237	m#8	m#598	m#210
Turn Bay Length (ft)	200	120	191	1463	100	497	50
Base Capacity (vph)	350	2514	191	1463	681	377	676
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Revised v/c Ratio	0.89	0.79	0.34	1.02	0.58	0.89	0.45

Intersection Summary
Area Type: CBD
Area Length: 110
Actuated Cycle Length: 110
Offser: 5 (6%), Referenced to phase 2/WBT and 6/EBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
- Volume exceeds capacity, queue is theoretically infinite.
- Queue shown is maximum after two cycles.
- Split phasing volume exceeds capacity, queue may be longer.
- Control shown is theoretical, actual control may vary.
- m - Volume for 95th percentile queue is metered by upstream signal.

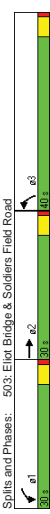


Splits and Phases: 803: Cambridge Street & North Harvard Street

10463.00: Harvard IMP
503: Elliot Bridge & Soldiers Field Road

2022 No-Build Conditions
Weekday Evening

	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	10	10	11	14	14
Grades (%)	0%	0%	0%	0%	0%	0%
Storage Length (ft)	180	255	0	0	0	0
Storage Length (s)	4.0	4.0	4.0	4.0	4.0	4.0
Trailing Detector (ft)	100	20	20	20	4.0	4.0
Trailing Detector (s)	0	0	0	0	0	0
Turning Speed (mph)	Yes	15	15	9	15	15
Right Turn on Red	Yes	30	30	30	30	30
Link Speed (mph)	45	389	210	45	45	45
Link Distance (ft)	1510	0	1390	0	345	0
Volume (vph)	1589	0	1479	0	367	0
Conf. Peds. (#/hr)	0.95	0.94	0.94	0.94	0.94	0.94
Peak Hour Factor	100%	100%	100%	100%	100%	100%
Growth Factor	0%	0%	0%	0%	0%	0%
Heavy Vehicles (%)	0	0	0	0	0	0
Parking (ft)	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	1589	0	1479	0	367	0
Turn Type	Prot					
Protected Phases	2	1	3	3		
Permitted Phases	2	1	3	3		
Minimum Initial (s)	15.0	15.0	15.0	15.0		
Minimum Split (s)	20.0	20.0	20.0	20.0		
Total Split (s)	30.0	0.0	30.0	0.0	40.0	0.0
Total Split (%)	30.0%	0.0%	30.0%	0.0%	40.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0		
Allied Time (s)	1.0	1.0	1.0	1.0		
Lead Lag	Yes	Yes	Yes	Yes		
Lead Lag Optimize?	Yes	Yes	Yes	Yes		
Recall Mode	Min	Max	None	None		
v/c Ratio	0.87	1.08	0.87	0.51		
Control Delay	33.1	77.9	31.3	28.3		
Queue Delay	0.0	0.0	0.0	0.0		
Queue Length	33.1	77.9	31.3	31.1		
Queue Length 95th	33.1	77.9	31.3	31.1		
Queue Length 95th (ft)	#309	#418	#309	126		
Internal Link Dist (ft)	345	309	309	180		
Turn Bay Length (ft)	1819	1368	1210			
Base Capacity (vph)	0	0	0	0		
Starvation Cap Reductn	0	0	0	0		
Spillback Cap Reductn	0	0	0	0		
Storage Cap Reductn	0	0	0	0		
Reaches v/c Ratio	0.87	1.08	0.87	0.50		



Spills and Phases: 503: Elliot Bridge & Soldiers Field Road

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10463.00: Harvard IMP
503: Elliot Bridge & Soldiers Field Road

2022 No-Build Conditions
Weekday Evening

	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	10	10	11	14	14
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.86	0.94	0.97	0.95	0.95	0.95
Flt Protected	1.00	0.95	0.95	0.95	0.95	0.95
Satd. Flow (prot)	5686	4276	3362	3362	3362	3362
Satd. Flow (perm)	5686	4276	3362	3362	3362	3362
Volume (vph)	1510	0	1390	0	345	0
Peak-hour factor, PHF	0.95	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	1589	0	1479	0	367	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	1589	0	1479	0	367	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	Prot					
Protected Phases	2	1	3	3		
Permitted Phases	2	1	3	3		
Actuated Green, G (s)	25.0	25.0	16.3	16.3		
Effective Green, g (s)	26.0	26.0	17.3	17.3		
Clearance Time (s)	6.0	6.0	6.0	6.0		
Vehicle Extension (s)	5.0	5.0	5.0	5.0		
Lane Group Cap (vph)	1818	1367	715	715		
v/s Ratio Prot	c0.28	c0.35	c0.11	c0.11		
v/s Ratio Perm	0.87	1.08	0.87	0.51		
Uniform Delay, d1	26.1	27.6	26.3	26.3		
Incremental Delay, d2	5.2	49.8	0.8	0.8		
Delay (s)	31.3	77.4	27.1	27.1		
Level of Service	C	E	C	C		
Approach Delay (s)	31.3	77.4	27.1	27.1		
Approach LOS	C	E	C	C		
Intersection Summary						
HCM Average Control Delay	50.9					D
HCM Volume to Capacity ratio	0.86					
Actuated Cycle Length (s)	81.3					12.0
Intersection Capacity Utilization	76.2%					D
Approach Capacity	15					
6. Critical Lane Group						

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10463.00: Harvard IMP
5012: Bertram St & North Harvard Street

2022 No-Build Conditions
Weekday Evening

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Stop	Free	Free	Free	Free	Free
Sign Control	0%	0%	0%	0%	0%	0%
Grade	10	15	620	15	5	405
Volume (veh/h)	0.75	0.75	0.91	0.91	0.86	0.86
Peak Hour Factor	13	20	681	16	6	471
Platoon flow rate (pph)						
Platoon length (ft)						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
pX platoon unblocked	0.88	0.78	300		186	
vC conflicting volume	1172	690			688	
vC1 stage 1 conf vol						
vC2 stage 2 conf vol						
vCu unblocked vol	625	603			614	
IC single (s)	6.4	6.2			4.1	
IC stage (s)						
p0 queue free %	3.5	3.3			2.2	
IF (s)	96	95			99	
cM capacity (veh/h)	300	383			745	
Direction Lane #	WB 1	NB 1	SB 1			
Volume Total	33	688	477			
Volume Left	13	0	6			
Volume Right	20	16	0			
cSH	350	1700	745			
Volume to Capacity	0.10	0.41	0.01			
Queue Length 35th (ft)	8	0	0			
Queue Delay (s)	16.4	0.9	0.2			
Lane LOS	C	A	A			
Approach Delay (s)	16.4	0.0	0.2			
Approach LOS	C		C			
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			47.3%			A
Analysis Period (min)			15			

10463.00: Harvard IMP
5013: Spurr St & North Harvard Street

2022 No-Build Conditions
Weekday Evening

Movement	EBL	EBR	NBL	NBT	SBL	SBT
Lane Configurations	Stop	Free	Free	Free	Free	Free
Sign Control	0%	0%	0%	0%	0%	0%
Grade	25	220	0	610	415	0
Volume (veh/h)	0.87	0.87	0.91	0.86	0.86	0.86
Peak Hour Factor	29	253	0	670	483	0
Platoon flow rate (pph)						
Platoon length (ft)						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
pX platoon unblocked	0.88	0.77	0.77	250	286	
vC conflicting volume	1153	483	483			
vC1 stage 1 conf vol						
vC2 stage 2 conf vol						
vCu unblocked vol	802	329	329			
IC single (s)	6.4	6.2	4.1			
IC stage (s)						
p0 queue free %	3.5	3.3	2.2			
IF (s)	91	54	100			
cM capacity (veh/h)	311	549	936			
Direction Lane #	EB 1	EB 2	NB 1	SB 1		
Volume Total	29	253	670	483		
Volume Left	29	0	0	0		
Volume Right	0	253	0	0		
cSH	311	549	1700	1700		
Volume to Capacity	0.09	0.46	0.39	0.28		
Queue Length 35th (ft)	8	60	0	0		
Queue Delay (s)	17.1	17.1	0.0	0.0		
Lane LOS	C	C	A	A		
Approach Delay (s)	17.1	0.0	0.0	0.0		
Approach LOS	C		C	C		
Intersection Summary						
Average Delay			3.4			
Intersection Capacity Utilization			46.1%			A
Analysis Period (min)			15			

10463.00: Harvard IMP
5015: Bayard Street & North Harvard Street

2022 No-Build Conditions
Weekday Evening

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
Sign Control	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Grade	0	0	10	0	0	0	0	565	10	5	630	0
Volume (veh/h)	0.55	0.55	0.25	0.25	0.25	0.94	0.94	0.89	0.89	0.89	0.89	0.89
Peak Hour Factor	0	0	16	0	0	0	601	11	6	708	0	
Platoon flow rate (pph)												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median storage (veh)												
pX platoon unblocked												377
vC, conflicting volume	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
vC1, stage 1 conf vol	1325	1331	708	1344	1325	606	708	612	612	612	612	612
vC2, stage 2 conf vol												
vCu, unblocked vol	1420	1427	623	1443	1420	606	623	612	612	612	612	612
IC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1	4.1	4.1	4.1	4.1	4.1
IF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2	2.2	2.2	2.2	2.2	2.2
p0 queue free %	100	100	95	100	100	100	100	99	99	99	99	99
cM capacity (veh/h)	89	105	380	82	106	500	735	958	958	958	958	958
Direction Lane #	EB 1	NB 1	SB 1									
Volume Total	18	612	713									
Volume Left	0	0	6									
Volume Right	18	11	0									
cSH	380	1700	958									
Volume to Capacity	0.05	0.36	0.01									
Queue Length 35th (ft)	4	0	0									
Queue Delay (s)	15.8	0.9	0.2									
Lane LOS	B	B	A									
Approach Delay (s)	15.0	0.0	0.2									
Approach LOS	B	B	A									
Intersection Summary												
Average Delay	0.3											
Intersection Capacity Utilization	51.3%											
ICU Level of Service	A											
Analysis Period (min)	15											

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HCM Unsignalized Intersection Capacity Analysis
7/9/2013

10463.00: Harvard IMP
5006: Western Avenue & Travis Street

2022 No-Build Conditions
Weekday Evening

Movement	EBT	EBR	WBT	WBR	NBT	NBR
Lane Configurations	Free	Free	Free	Free	Stop	Stop
Sign Control	0%	0%	0%	0%	0%	0%
Grade	4.95	0	20	705	5	15
Volume (veh/h)	0.92	0.92	0.90	0.82	0.82	0.82
Peak Hour Factor	538	0	22	763	6	16
Platoon flow rate (pph)						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median storage (veh)						
pX platoon unblocked						
vC, conflicting volume	0.78	0.78	0.78	0.78	0.78	0.78
vC1, stage 1 conf vol	538	538	1366	538	538	538
vC2, stage 2 conf vol						
vCu, unblocked vol	406	406	1471	406	406	406
IC, single (s)	4.1	4.1	6.4	6.2	6.2	6.2
IF (s)	2.2	2.2	3.5	3.3	3.3	3.3
p0 queue free %	98	98	94	96	96	96
cM capacity (veh/h)	892	892	105	498	498	498
Direction Lane #	EB 1	WB 1	NB 1			
Volume Total	538	806	24			
Volume Left	0	22	6			
Volume Right	0	0	18			
cSH	1700	892	257			
Volume to Capacity	0.32	0.02	0.09			
Queue Length 35th (ft)	0	0	7			
Queue Delay (s)	0.0	0.7	2.0			
Lane LOS	A	A	C			
Approach Delay (s)	0.0	0.7	20.4			
Approach LOS	C	C	C			
Intersection Summary						
Average Delay	0.8					
Intersection Capacity Utilization	69.1%					
ICU Level of Service	C					
Analysis Period (min)	15					

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VHB, Inc.

HCM Unsignalized Intersection Capacity Analysis
7/9/2013

10463.00: Harvard IMP
5011: Gordon Rd & North Harvard Street

2022 No-Build Conditions
Weekday Evening



Movement	WBL	WBR	NBR	SBL	SBT
Lane Configurations	Stop	Free	Free	Free	Free
Sign Control	Stop	Free	Free	Free	Free
Grade	0%	0%	0%	0%	0%
Volume (veh/h)	5	110	560	5	25
Peak Hour Factor	0.88	0.96	0.96	0.89	0.89
Peak Hour Rate (pph)	6	125	583	5	28
Peak Hour Delay (s)	6	125	583	5	28
Lane Width (ft)					
Walking Speed (ft/s)					
Percent Blockage					
Right turn flare (veh)					
Median type	None				
Median storage (veh)					
Median storage (veh)					629
pX, platoon unblocked	0.98				
vC, conflicting volume	1153	586			589
vC1, stage 1 conf vol					
vC2, stage 2 conf vol					
vCu, unblocked vol	1157	586			589
IC, single (s)	6.4	6.2			4.1
IC, stage (s)					
p0 queue free %	3.5	3.3			2.2
IF (s)	97	75			97
cM capacity (veh/h)	205	506			977
Direction Lane #	WB 1	NB 1	SB 1		
Volume Total	131	589	539		
Volume Left	6	0	28		
Volume Right	125	5	0		
cSH	476	1700	977		
Volume to Capacity	0.27	0.35	0.03		
Queue Length 35th (ft)	126	0	2		
Queue Delay (s)	15	0.9	0.1		
Lane LOS	C	C	A		
Approach Delay (s)	15.4	0.0	0.8		
Approach LOS	C	C	C		
Intersection Summary					
Average Delay	1.9				
Intersection Capacity Utilization	63.8%				
ICU Level of Service	B				
Analysis Period (min)	15				

10463.00: Harvard IMP
1: South Campus Drive & North Harvard Street

2022 No-Build Conditions
Weekday Evening



Movement	EBL	EBR	NBL	NBT	SBL	SBR
Lane Configurations	Stop	Free	Free	Free	Free	Free
Sign Control	Stop	Free	Free	Free	Free	Free
Grade	0%	0%	0%	0%	0%	0%
Volume (veh/h)	10	15	30	540	485	10
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Peak Hour Rate (pph)	11	16	33	587	485	11
Peak Hour Delay (s)						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Median storage (veh)						659
pX, platoon unblocked	0.81					
vC, conflicting volume	1152	500	505			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1189	500	505			
IC, single (s)	6.4	6.2	4.1			
IC, stage (s)						
p0 queue free %	3.5	3.3	2.2			
IF (s)	93	97	97			
cM capacity (veh/h)	162	571	1059			
Direction Lane #	EB 1	NB 1	SB 1			
Volume Total	27	620	505			
Volume Left	11	33	0			
Volume Right	16	0	11			
cSH	284	1059	1700			
Volume to Capacity	0.10	0.03	0.30			
Queue Length 35th (ft)	6	0	0			
Queue Delay (s)	19.0	0.8	0.0			
Lane LOS	C	A	C			
Approach Delay (s)	19.0	0.8	0.0			
Approach LOS	C	C	C			
Intersection Summary						
Average Delay	0.9					
Intersection Capacity Utilization	68.8%					
ICU Level of Service	C					
Analysis Period (min)	15					

10463.00: Harvard IMP
2: Ivy Lane & North Harvard Street

2022 No-Build Conditions
Weekday Evening

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Stop	Free	Free	Free	Free	Free
Sign Control	0%	0%	0%	0%	0%	0%
Grade	0	80	0	570	460	10
Volume (veh/h)	0	80	0	570	460	10
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Platoon flow rate (pph)	0	87	0	620	500	11
Platoon length (ft)						
Platoon delay (s)						
Platoon LOS						
Approach Delay (s)						
Approach LOS						
Intersection Summary						
Average Delay	0.9					
Intersection Capacity Utilization	36.4%					
ICU Level of Service	A					
Analysis Period (min)	15					

10463.00: Harvard IMP
5005: Western Avenue & South Campus Drive

2022 No-Build Conditions
Weekday Evening

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	NWL	NWR
Lane Configurations	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop
Sign Control	0%	0%	0%	0%	0%	0%	0%	0%	0%
Grade	40	550	235	15	890	55	0	0	0
Volume (veh/h)	40	550	235	15	890	55	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.85	0.92	0.92	0.92	0.38	0.92
Platoon flow rate (pph)	43	598	285	16	1047	60	0	0	0
Platoon length (ft)									
Platoon delay (s)									
Platoon LOS									
Approach Delay (s)									
Approach LOS									
Intersection Summary									
Average Delay	2.4								
Intersection Capacity Utilization	77.5%								
ICU Level of Service	D								
Analysis Period (min)	15								

10463.00: Harvard IMP
504: Soldiers Field Rd & Everett St

2022 Build Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	12	12	12	12	12	12	13	13	13	15	15	15
Lane Width (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Grade (%)	0	0	0	0	0	0	0	0	0	0	0	0
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Leading Detector (ft)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	9
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Link Speed (mph)	30	30	30	30	30	30	30	30	30	30	30	30
Link Distance (ft)	633	633	633	633	633	633	633	633	633	633	633	633
Link Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Volume (vph)	0	1900	60	0	930	0	60	0	200	3	15	220
Confl. Peds. (#/hr)	12	12	12	12	12	12	12	12	12	12	12	12
Peak Hour Factor	0.96	0.96	0.88	0.88	0.88	0.78	0.78	0.85	0.85	0.85	0.85	0.85
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	4%	4%
Parking (veh)	0	0	0	0	0	0	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	0	2041	0	0	1057	0	0	333	0	18	259	0
Turn Type	1	1	1	1	1	1	1	1	1	1	1	1
Permitted Phases	1	2	2	2	2	2	2	2	2	2	2	2
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
Total Split (s)	0.0	45.0	0.0	0.0	45.0	0.0	24.0	24.0	0.0	24.0	24.0	0.0
Total Split (%)	0.0%	65.2%	0.0%	0.0%	65.2%	0.0%	34.8%	34.8%	0.0%	34.8%	34.8%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
Allared Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead Lag (s)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lead Lag Optimize?	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max
v/c Ratio	1.06	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
Queue Delay	55.7	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Delay	55.7	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3
Queue Length 95th (ft)	161	424	424	424	424	424	424	424	424	424	424	424
Queue Length 95th (ft)	161	424	424	424	424	424	424	424	424	424	424	424
Internal Link Dist (ft)	489	489	489	489	489	489	489	489	489	489	489	489
Turn Bay Length (ft)	1923	2060	2060	2060	2060	2060	2060	2060	2060	2060	2060	2060
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reductn v/c Ratio	1.06	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51

Intersection Summary

Area Type: CBD
 Area Length: 60
 Actuated Green Length: 69
 Offset: 0.0%, Referenced to phase 1:EBIWB, Start of Green
 Natural Cycle: 90
 Control Type: Pretimed

- Volume exceeds capacity, queue is theoretically infinite.
- Queue shown is maximum after two cycles.
- # Split percentage volume exceeds capacity, queue may be longer.
- Queue shown is maximum after two cycles.

Splits and Phases: 504:Soldiers Field Rd & Everett St

10463.00: Harvard IMP
504: Soldiers Field Rd & Everett St

2022 Build Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	12	12	12	12	12	12	13	13	13	15	15	15
Lane Width (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Grade (%)	0	0	0	0	0	0	0	0	0	0	0	0
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Leading Detector (ft)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	9
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Link Speed (mph)	30	30	30	30	30	30	30	30	30	30	30	30
Link Distance (ft)	633	633	633	633	633	633	633	633	633	633	633	633
Link Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Volume (vph)	0	1900	60	0	930	0	60	0	200	3	15	220
Confl. Peds. (#/hr)	12	12	12	12	12	12	12	12	12	12	12	12
Peak Hour Factor	0.96	0.96	0.88	0.88	0.88	0.78	0.78	0.85	0.85	0.85	0.85	0.85
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	4%	4%
Parking (veh)	0	0	0	0	0	0	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	0	2038	0	0	1057	0	0	325	0	18	259	0
Turn Type	1	1	1	1	1	1	1	1	1	1	1	1
Permitted Phases	1	2	2	2	2	2	2	2	2	2	2	2
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
Total Split (s)	0.0	45.0	0.0	0.0	45.0	0.0	24.0	24.0	0.0	24.0	24.0	0.0
Total Split (%)	0.0%	65.2%	0.0%	0.0%	65.2%	0.0%	34.8%	34.8%	0.0%	34.8%	34.8%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
Allared Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead Lag (s)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lead Lag Optimize?	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max
v/c Ratio	1.06	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
Queue Delay	55.7	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Delay	55.7	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3
Queue Length 95th (ft)	161	424	424	424	424	424	424	424	424	424	424	424
Queue Length 95th (ft)	161	424	424	424	424	424	424	424	424	424	424	424
Internal Link Dist (ft)	489	489	489	489	489	489	489	489	489	489	489	489
Turn Bay Length (ft)	1923	2060	2060	2060	2060	2060	2060	2060	2060	2060	2060	2060
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reductn v/c Ratio	1.06	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51

Intersection Summary

HCM Average Control Delay: 38.2 HCM Level of Service: D
 HCM Volume to Capacity Ratio: 69.1 Sum of lost time (s): 8.0
 Analysis Period (min): 15 ICU Level of Service: G
 Critical Lane Group: C

10463.00: Harvard IMP
5014: Kingsley St & North Harvard Street

2022 Build Conditions
Weekday Morning

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	a2
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	a2
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Ideal Flow (vph)	10	10	10	13	13	13	12	12	12	16	16	16	
Lane Width (ft)	0	0	0	0	0	0	0	0	0	0	0	0	
Grade (%)	0	0	0	0	0	0	0	0	0	0	0	0	
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0	0	
Storage Length (s)	0	0	0	0	0	0	0	0	0	0	0	0	
Storage Volume (veh)	0	0	0	0	0	0	0	0	0	0	0	0	
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0	
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	9	
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Link Speed (mph)	25	30	25	30	25	30	25	30	25	30	25	30	
Link Delay (s)	973	316	973	316	973	316	973	316	973	316	973	316	
Link Volume (vph)	190	86	190	86	190	86	190	86	190	86	190	86	
Volume (vph)	75	0	35	10	5	5	20	540	0	0	445	55	
Confl. Peds. (/hr)													
Confl. Bikes (/hr)													
Peak Hour Factor	0.89	0.89	0.59	0.59	0.84	0.84	0.84	0.84	0.84	0.85	0.85	0.95	
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	9%	9%	9%	10%	10%	10%	
Heavy Vehicle Delay (s)	0	0	0	0	0	0	0	0	0	0	0	0	
Parking (veh)	0	0	0	0	0	0	0	0	0	0	0	0	
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Lane Group Flow (vph)	Perm	3	0	0	33	0	0	667	0	0	526	0	
Turn Type	Perm	3	Perm	3	Perm	3	Perm	3	Perm	3	Perm	3	
Protected Phases	3	3	3	3	3	3	3	3	3	3	3	3	
Permitted Phases	3	3	3	3	3	3	3	3	3	3	3	3	
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	
Minimum Split (s)	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	
Total Split (s)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	
Total Split (%)	26.3%	26.3%	0.0%	26.3%	26.3%	0.0%	52.6%	52.6%	0.0%	0.0%	52.6%	0.0%	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lead Lag	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None	Max	Max	Max	Max	Max	None	
v/c Ratio	0.67	0.16	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	
Control Delay	51.4	31.6	51.4	31.6	51.4	31.6	51.4	31.6	51.4	31.6	51.4	31.6	
Queue Delay	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
Total Delay	51.5	31.6	51.5	31.6	51.5	31.6	51.5	31.6	51.5	31.6	51.5	31.6	
Queue Length (ft)	128	25	128	25	128	25	128	25	128	25	128	25	
Queue Length (veh)	293	236	293	236	293	236	293	236	293	236	293	236	
Internal Link Dist (ft)	279	330	279	330	279	330	279	330	279	330	279	330	
Turn Bay Length (ft)	0	0	0	0	0	0	0	0	0	0	0	0	
Base Capacity (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Starvation Cap Reductn	7	8	7	8	7	8	7	8	7	8	7	8	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.45	0.10	0.45	0.10	0.45	0.10	0.45	0.10	0.45	0.10	0.45	0.10	



Splits and Phases: 5014: Kingsley St & North Harvard Street

Area Type: CBD
Area Length: 114
Area Width: 101.1
Actuated Cycle Length: 101.1
Natural Cycle: 90
Control Type: Semi Act-Uncoord

10463.00: Harvard IMP
5014: Kingsley St & North Harvard Street

2022 Build Conditions
Weekday Morning

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vph)	10	10	10	13	13	13	12	12	12	16	16	16
Lane Width (ft)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost Time (s)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Util. Factor	0.89	0.89	0.59	0.59	0.84	0.84	0.84	0.84	0.84	0.85	0.85	0.95
Flt Protected	0	0	0	0	0	0	0	0	0	0	0	0
Flt Permitted	1407	1407	1587	1587	1566	1566	1566	1566	1566	1736	1736	1736
Flt Permitted	0.79	0.79	0.85	0.85	0.97	0.97	0.97	0.97	0.97	1.00	1.00	1.00
Stand. Flow (perm)	1149	1149	1388	1388	1528	1528	1528	1528	1528	1736	1736	1736
Volume (vph)	75	0	35	10	5	5	20	540	0	0	445	55
Peak-hour factor, PHF	0.89	0.89	0.59	0.59	0.84	0.84	0.84	0.84	0.84	0.85	0.85	0.95
Adj. Flow (vph)	84	0	39	17	8	8	24	643	0	0	468	58
Adj. Sat. Flow (vph)	1067	1067	1244	1244	1388	1388	1388	1388	1388	1607	1607	1607
Lane Group Flow (vph)	0	106	0	0	26	0	0	667	0	0	526	0
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	9%	9%	9%	10%	10%	10%
Turn Type	Perm	3	Perm	3	Perm	3	Perm	3	Perm	3	Perm	3
Protected Phases	3	3	3	3	3	3	3	3	3	3	3	3
Permitted Phases	3	3	3	3	3	3	3	3	3	3	3	3
Actuated Green, G (s)	12.4	12.4	12.4	12.4	12.4	12.4	12.4	12.4	12.4	12.4	12.4	12.4
Effective Green, g (s)	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4
Start of Green (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lane Cap. Cap (vph)	149	149	180	180	180	180	180	180	180	180	180	180
v/s Ratio Prot	0.09	0.09	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
v/s Ratio Perm	0.71	0.71	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
v/c Ratio	0.68	0.68	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
Uniform Delay, d1	43.2	43.2	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
Incremental Delay, d2	12.7	12.7	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Delay (s)	55.9	55.9	40.1	40.1	40.1	40.1	40.1	40.1	40.1	40.1	40.1	40.1
Level of Service	E	E	D	D	D	D	D	D	D	B	B	B
Approach Delay (s)	55.9	55.9	40.1	40.1	40.1	40.1	40.1	40.1	40.1	40.1	40.1	40.1
Approach LOS	E	E	D	D	D	D	D	D	D	B	B	B
Intersection Summary												
HCM Average Control Delay	17.9 HCM Level of Service B											
HCM Volume to Capacity ratio	0.68											
Actuated Cycle Length (s)	103.5 Sum of lost time (s) 23.4											
Intersection Capacity Utilization	66.2% ICU Level of Service C											
Area Type	15											
Area Length	15											
Area Width	15											
Control Type	S											
Critical Lane Group	S											

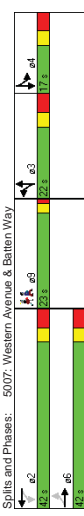
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VHB, Inc.

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VHB, Inc.

10463.00: Harvard IMP
5007: Western Avenue & Batten Way

2022 Build Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vph)	12	16	16	16	16	16	12	16	12	12	12	12
Lane Width (ft)	12	16	16	16	16	16	12	16	12	12	12	12
Grade (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Storage Length (ft)	0	120	0	0	0	0	0	0	0	0	0	0
Storage Length (s)	0	4.0	0	0	0	0	0	0	0	0	0	0
Storage Length (ft)	0	4.0	0	0	0	0	0	0	0	0	0	0
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	9
Link Turn on Red	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Link Speed (mph)	30	30	30	30	30	30	30	30	30	30	30	30
Link Delay (s)	11.62	3.2	11.62	3.2	11.62	3.2	11.62	3.2	11.62	3.2	11.62	3.2
Volume (vph)	80	425	5	115	565	105	20	90	165	25	10	20
Confl. Peds. (#/hr)	3	1	1	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.90	0.90	0.95	0.95	0.87	0.87	0.87	0.87	0.84	0.84	0.84	0.84
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	8%	8%	10%	10%	10%	6%	6%	6%	4%	4%	4%	4%
Bicycles (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	89	478	0	121	685	0	0	316	0	66	0	0
Turn Type	Perm	Perm		Split	Split			Split		Split		
Protected Phases	6	6	2	2	2	3	3	3	4	4	4	9
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	6.0	6.0	6.0	6.0	6.0	6.0	1.0
Minimum Split (s)	17.0	17.0	17.0	17.0	17.0	13.0	13.0	13.0	13.0	13.0	23.0	23.0
Total Split (s)	42.0	42.0	0.0	42.0	42.0	0.0	22.0	22.0	0.0	17.0	0.0	23.0
Total Split (%)	40.4%	40.4%	0.0%	40.4%	40.4%	0.0%	21.2%	21.2%	0.0%	16.3%	0.0%	22%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Allied Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead Lag	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lead Lag Optimize?	Max	Max	Max	Max	Max	None	None	None	None	None	None	None
v/c Ratio	1.22	0.61	0.67	0.92	1.03	0.36	0.36	0.36	0.36	0.36	0.36	0.36
Control Delay	211.6	28.1	49.3	48.1	100.9	46.9	46.9	46.9	46.9	46.9	46.9	46.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Length (ft)	211.6	28.1	49.3	48.1	100.9	46.9	46.9	46.9	46.9	46.9	46.9	46.9
Queue Length (s)	183	398	179	179	4413	78	78	78	78	78	78	78
Internal Link Dist (ft)	120	1072	312	312	182	70	70	70	70	70	70	70
Turn Bay Length (ft)	120	783	180	754	306	211	211	211	211	211	211	211
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.22	0.61	0.67	0.92	1.03	0.36	0.36	0.36	0.36	0.36	0.36	0.36



Intersection Summary
Area Type: CBD
Queue Length: 104
Queue Delay: 100.9
Actuated Cycle Length: 96.4
Natural Cycle: 120
Control Type: Semi Act-Uncoord
- Volume exceeds capacity, queue is theoretically infinite.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
Queue shown is maximum after two cycles.

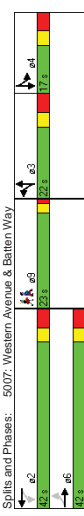
10463.00: Harvard IMP
5007: Western Avenue & Batten Way

2022 Build Conditions
Weekday Morning

10463.00: Harvard IMP
5007: Western Avenue & Batten Way

2022 Build Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vph)	12	16	16	16	16	16	12	16	12	12	12	12
Lane Width (ft)	12	16	16	16	16	16	12	16	12	12	12	12
Grade (%)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.95	1.00	1.00	0.98	1.00	1.00	0.98	1.00	0.95	0.95	0.95	0.95
Satd. Flow (prot)	1503	1791	1673	1713	1477	1477	1515	1515	1515	1515	1515	1515
Satd. Flow (perm)	161	1791	528	1713	1477	1477	1515	1515	1515	1515	1515	1515
Volume (vph)	80	425	5	115	565	105	20	90	165	25	10	20
Volume (vph)	80	425	5	115	565	105	20	90	165	25	10	20
Volume (vph)	80	425	5	115	565	105	20	90	165	25	10	20
Adj. Flow (vph)	89	478	0	121	685	0	0	316	0	66	0	0
RTOR Reduction (%)	0	1	0	0	6	0	0	0	0	0	0	0
RTOR Reduction (s)	0	1	0	0	6	0	0	0	0	0	0	0
Lane Group Flow (vph)	89	478	0	121	685	0	0	316	0	66	0	0
Confl. Peds. (#/hr)	3	1	1	1	1	1	1	1	1	1	1	1
Heavy Vehicles (%)	8%	8%	10%	10%	10%	6%	6%	6%	4%	4%	4%	4%
Turn Type	Perm	Perm		Split	Split			Split		Split		
Protected Phases	6	6	2	2	2	3	3	3	4	4	4	9
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	6.0	6.0	6.0	6.0	6.0	6.0	1.0
Minimum Split (s)	17.0	17.0	17.0	17.0	17.0	13.0	13.0	13.0	13.0	13.0	23.0	23.0
Total Split (s)	42.0	42.0	0.0	42.0	42.0	0.0	22.0	22.0	0.0	17.0	0.0	23.0
Total Split (%)	40.4%	40.4%	0.0%	40.4%	40.4%	0.0%	21.2%	21.2%	0.0%	16.3%	0.0%	22%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Allied Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead Lag	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lead Lag Optimize?	Max	Max	Max	Max	Max	None	None	None	None	None	None	None
v/c Ratio	1.22	0.61	0.67	0.92	1.03	0.36	0.36	0.36	0.36	0.36	0.36	0.36
Control Delay	211.6	28.1	49.3	48.1	100.9	46.9	46.9	46.9	46.9	46.9	46.9	46.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Length (ft)	211.6	28.1	49.3	48.1	100.9	46.9	46.9	46.9	46.9	46.9	46.9	46.9
Queue Length (s)	183	398	179	179	4413	78	78	78	78	78	78	78
Internal Link Dist (ft)	120	1072	312	312	182	70	70	70	70	70	70	70
Turn Bay Length (ft)	120	783	180	754	306	211	211	211	211	211	211	211
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.22	0.61	0.67	0.92	1.03	0.36	0.36	0.36	0.36	0.36	0.36	0.36



Intersection Summary
Area Type: CBD
Queue Length: 104
Queue Delay: 100.9
Actuated Cycle Length: 96.4
Natural Cycle: 120
Control Type: Semi Act-Uncoord
- Volume exceeds capacity, queue is theoretically infinite.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
Queue shown is maximum after two cycles.

10463.00: Harvard IMP
5007: Western Avenue & Batten Way

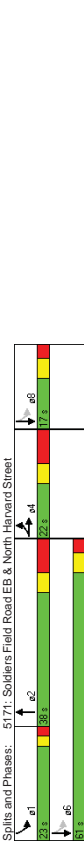
2022 Build Conditions
Weekday Morning

10463.00: Harvard IMP
5171: Soldiers Field Road EB & North Harvard Street

2022 Build Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	SBB	SBR
Lane Group	e6 e8												
Lane Configurations	SBR SBR												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	16	16	12	12	12	13	13	13	10	10	10	10
Grades (%)	0	0	0	0	0	0	0	0	0	0	0	0	0
Storage Length (ft)	0	0	0	0	0	0	0	0	0	125	0	0	0
Storage Lengths (s)	0	0	0	0	0	0	0	0	0	0	0	0	0
Storage Capacity (veh)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	4.0	4.0	4.0	4.0	50	4.0	50	50	50	4.0	4.0
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15	0	9	15	9	15	0	9	15	0	0	9	9
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	30	Yes	30	Yes
Link Speed (mph)	30	585	518	30	30	30	30	30	30	30	30	30	30
Link Distance (ft)	190	585	518	118	118	118	30	30	30	30	30	30	30
Volume (vph)	325	5	150	0	0	0	0	560	45	410	445	0	0
Confl. Peds. (#/hr)	40	0	0	0	0	0	0	0	0	252	252	0	0
Peak Hour Factor	0.90	0.90	0.92	0.92	0.88	0.88	0.88	0.88	0.88	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	1%	2%	2%	2%	2%	10%	10%	10%	4%	4%	4%	4%
Pedestrians (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	266	268	0	0	0	0	687	0	456	494	0	0	0
Turn Type	Split	Split	Split	Split	Split	Split	Split	Split	Split	Split	Split	Split	Split
Protected Phases	4	4	4	4	4	4	2	1	6	8	6	8	8
Permitted Phases	4	4	4	4	4	4	2	1	6	8	6	8	8
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	15.0	6.0	6.0	6.0
Minimum Split (s)	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	17.0	17.0	17.0
Total Split (s)	22.0	22.0	0.0	0.0	0.0	0.0	38.0	0.0	23.0	78.0	0.0	61.0	17.0
Total Split (%)	22.0%	22.0%	0.0%	0.0%	0.0%	0.0%	38.0%	0.0%	23.0%	78.0%	0.0%	61%	17%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	2.0	4.0	4.0	4.0
Allied Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	2.0	3.0	3.0	3.0
Lead Lag	None	None	None	None	None	None	None	None	None	None	None	None	None
Lead Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Min	C-Min	C-Min	C-Min	C-Min	C-Min	C-Min	C-Min	C-Min	C-Min	C-Min	C-Min	C-Min
v/c Ratio	0.94	0.85	0.63	0.63	0.84	0.43	0.63	0.84	0.43	0.84	0.43	0.84	0.43
Control Delay	81.4	53.7	28.5	28.5	33.9	0.4	28.5	33.9	0.4	33.9	0.4	33.9	0.4
Queue Delay	206.5	182.3	0.2	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	287.9	236.0	0.2	0.2	0.0	0.0	28.7	0.0	33.9	0.4	0.4	0.4	0.4
Queue Length 95th (ft)	439	347	0	0	0	0	240	0	301	m3	m3	m3	m3
Queue Length 95th (ft)	#340	#280	0	0	0	0	240	0	m108	m3	m3	m3	m3
Internal Link Dist (ft)	439	315	0	0	0	0	301	0	301	1	1	1	1
Turn Bay Length (ft)	284	316	0	0	0	0	1089	0	483	1136	0	0	0
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0	0
Starvation Cap Reductn	104	125	0	0	0	0	66	0	66	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0	0
Reductn % Ratio	1.46	1.40	0.67	0.67	0.94	0.43	0.67	0.94	0.43	0.67	0.43	0.67	0.43

Area Type: CBD
 Area Type: 100
 Area Type: 100
 Actuated Split Length: 100
 Actuated Split Length: 100
 Offset: 0 (0%); Referenced to phase 2/NBT and 6/SBT; Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 m Queue shown is maximum after two cycles.
 m Queue for 95th percentile queue is metered by upstream signal.



Spills and Phases: 5171: Soldiers Field Road EB & North Harvard Street

10463.00: Harvard IMP
5171: Soldiers Field Road EB & North Harvard Street

2022 Build Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	SBB	SBR
Lane Configurations	SBR SBR												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	16	16	12	12	12	13	13	13	10	10	10	10
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Flt. Ped/Bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt. Ped/Bikes	1.00	0.91	0.89	1.00	0.91	0.89	1.00	0.91	0.89	1.00	1.00	1.00	1.00
Flt. Protected	0.95	0.98	1.00	0.95	0.98	1.00	0.95	0.98	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1579	1423	2864	1579	1423	2864	1579	1423	2864	1458	1535	1458	1535
Satd. Flow (perm)	1579	1423	2864	1579	1423	2864	1579	1423	2864	416	1535	416	1535
Volume (vph)	325	5	150	0	0	0	560	45	410	445	0	445	0
Volume (vph): PHF	0.90	0.90	0.92	0.92	0.88	0.88	0.88	0.88	0.88	0.90	0.90	0.90	0.90
Adj. Flow (vph)	367	6	167	0	0	0	636	51	465	494	0	494	0
RTOR Reduction (%)	0	60	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	266	208	0	0	0	0	687	0	456	494	0	0	0
Confl. Peds. (#/hr)	1%	1%	2%	2%	2%	2%	10%	10%	10%	4%	4%	4%	4%
Heavy Vehicles (%)	Split	Split	Split	Split	Split	Split	Split	Split	Split	Split	Split	Split	Split
Turn Type	Split	Split	Split	Split	Split	Split	Split	Split	Split	Split	Split	Split	Split
Protected Phases	4	4	4	4	4	4	2	1	6	8	6	8	8
Permitted Phases	4	4	4	4	4	4	2	1	6	8	6	8	8
Actuated Green (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	6.4	7.0	6.4	7.0
Effective Green (s)	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	7.0	7.4	7.0	7.4
Actuated g/C Ratio	0.18	0.18	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.70	0.74	0.38	0.74
Clearance Time (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grip Cap (vph)	294	256	1088	294	256	1088	294	256	1088	489	1136	489	1136
v/s Ratio Prot	c0.17	0.15	0.24	c0.17	0.15	0.24	c0.17	0.15	0.24	c0.18	0.32	c0.18	0.32
v/s Ratio Perm	0.94	0.81	0.63	0.63	0.84	0.43	0.63	0.84	0.43	0.84	0.43	0.84	0.43
Uniform Delay, d1	40.4	39.4	0.63	0.63	0.83	0.43	0.63	0.83	0.43	21.3	5.0	21.3	5.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.61	0.03	1.61	0.03
Incremental Delay, d2	36.1	16.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	9.0	0.0	9.0	0.0
Level of Service	E	E	E	E	E	E	C	C	C	D	D	D	D
Delay (s)	76.6	56.2	28.1	28.1	33.9	0.4	28.1	33.9	0.4	33.9	0.2	33.9	0.2
Approach LOS	E	E	E	E	E	E	A	A	A	D	D	D	D
Approach LOS	E	E	E	E	E	E	A	A	A	D	D	D	D

Intersection Summary
 HCM Average Control Delay: 34.3 HCM Level of Service: C
 HCM v/c Ratio: 0.92
 Actuated Cycle Length (s): 100.0 Sum of lost time (s): 12.0
 Intersection Capacity Utilization: 70.9% ICU Level of Service: C
 Analysis Period (min): 15
 c Critical Lane Group

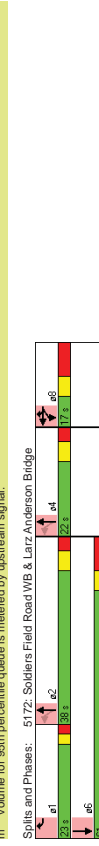
10463.00: Harvard IMP
5172: Soldiers Field Road WB & Larz Anderson Bridge

2022 Build Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	11	11	12	16	16	16	12	10	10	12	11
Lane Width (ft)	0	0	0	0	0	0	0	0	0	0	0
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0
Grade (%)	0	0	0	0	0	0	0	0	0	0	0
Storage Length (ft)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0
Leading Detector (ft)	15	9	15	0	0	0	0	0	0	0	0
Trailing Detector (ft)											
Turning Speed (mph)	30	Yes	30	No	30	Yes	30	Yes	30	Yes	30
Link Speed (mph)	680	194	536	194	536	194	536	194	536	194	536
Link Distance (ft)	194	194	194	194	194	194	194	194	194	194	194
Volume (vph)	0	0	6	10	280	160	725	0	0	795	50
Confl. Peds. (#/hr)	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94	0.94	0.93	0.93
Peak Hour Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Growth Factor	2%	2%	0%	0%	0%	6%	6%	6%	6%	4%	4%
Heavy Vehicles (%)	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)	0	0	0	0	0	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	0	0	0	76	304	0	941	0	0	909	0
Turn Type	Split	Split	custom	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm
Permitted Phases	8	8	8	18	24	24	24	6	1	2	4
Actuated Green (s)	6.0	6.0	6.0	18	24	24	24	6	10.0	15.0	11.0
Minimum Split (s)	0.0	0.0	17.0	17.0	40.0	60.0	60.0	0.0	0.0	23.0	22.0
Total Split (s)	0.0%	0.0%	0.0%	17.0%	17.0%	40.0%	60.0%	0.0%	61.0%	38.0%	22.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	2.0	4.0	3.0
Allied Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	2.0	3.0	3.0
Lead Lag	None	None	None	None	None	None	None	None	C-Min	None	None
Lead Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	0.29	0.50	1.07	0.29	0.50	1.07	0.29	0.50	1.07	0.29	0.50
v/c Ratio	42.0	27.8	60.2	42.0	27.8	60.2	42.0	27.8	60.2	42.0	27.8
Control Delay	0.4	0.0	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.4	0.0
Queue Delay	42.4	27.8	60.2	42.4	27.8	60.2	42.4	27.8	60.2	42.4	27.8
Queue Length (ft)	88	223	m4444	88	223	m4444	88	223	m4444	88	223
Queue Length (ft)	510	456	520	510	456	520	510	456	520	510	456
Internal Link Dist (ft)	260	609	879	260	609	879	260	609	879	260	609
Turn Bay Length (ft)	0	0	0	0	0	0	0	0	0	0	0
Base Capacity (vph)	37	0	0	37	0	0	37	0	0	37	0
Station Cap Reductn	0.94	0.94	1.07	0.94	0.94	1.07	0.94	0.94	1.07	0.94	0.94
Storage Cap Reductn											
Reduced v/c Ratio											

Intersection Summary

Area Type: CBD
 Area Length: 100
 Actuated Cycle Length: 100
 Offser: 0.0% (Referenced to phase 2/NBL and 6/SBT, Start of Green, Master Intersection)
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 # Volume exceeds capacity, queue is theoretically infinite.
 # Queue shown is maximum after two cycles.
 # Split phasing volume exceeds capacity, queue may be longer.
 # Control showing is theoretical.
 m Volume for 95th percentile queue is metered by upstream signal.



10463.00: Harvard IMP
5172: Soldiers Field Road WB & Larz Anderson Bridge

2022 Build Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	11	11	12	16	16	16	12	10	10	12	11
Lane Width (ft)	0	0	0	0	0	0	0	0	0	0	0
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0
Grade (%)	0	0	0	0	0	0	0	0	0	0	0
Storage Length (ft)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0
Leading Detector (ft)	15	9	15	0	0	0	0	0	0	0	0
Trailing Detector (ft)											
Turning Speed (mph)	30	Yes	30	No	30	Yes	30	Yes	30	Yes	30
Link Speed (mph)	680	194	536	194	536	194	536	194	536	194	536
Link Distance (ft)	194	194	194	194	194	194	194	194	194	194	194
Volume (vph)	0	0	6	10	280	160	725	0	0	795	50
Confl. Peds. (#/hr)	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94	0.94	0.93	0.93
Peak Hour Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Growth Factor	2%	2%	0%	0%	0%	6%	6%	6%	6%	4%	4%
Heavy Vehicles (%)	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)	0	0	0	0	0	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	0	0	0	76	304	0	941	0	0	907	0
Turn Type	Split	Split	custom	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm
Permitted Phases	8	8	8	18	24	24	24	6	1	2	4
Actuated Green (s)	6.0	6.0	6.0	18	24	24	24	6	10.0	15.0	11.0
Minimum Split (s)	0.0	0.0	17.0	17.0	40.0	60.0	60.0	0.0	0.0	23.0	22.0
Total Split (s)	0.0%	0.0%	0.0%	17.0%	17.0%	40.0%	60.0%	0.0%	61.0%	38.0%	22.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	2.0	4.0	3.0
Allied Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	2.0	3.0	3.0
Lead Lag	None	None	None	None	None	None	None	None	C-Min	None	None
Lead Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	0.29	0.50	1.07	0.29	0.50	1.07	0.29	0.50	1.07	0.29	0.50
v/c Ratio	42.0	27.8	60.2	42.0	27.8	60.2	42.0	27.8	60.2	42.0	27.8
Control Delay	0.4	0.0	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.4	0.0
Queue Delay	42.4	27.8	60.2	42.4	27.8	60.2	42.4	27.8	60.2	42.4	27.8
Queue Length (ft)	88	223	m4444	88	223	m4444	88	223	m4444	88	223
Queue Length (ft)	510	456	520	510	456	520	510	456	520	510	456
Internal Link Dist (ft)	260	609	879	260	609	879	260	609	879	260	609
Turn Bay Length (ft)	0	0	0	0	0	0	0	0	0	0	0
Base Capacity (vph)	37	0	0	37	0	0	37	0	0	37	0
Station Cap Reductn	0.94	0.94	1.07	0.94	0.94	1.07	0.94	0.94	1.07	0.94	0.94
Storage Cap Reductn											
Reduced v/c Ratio											

Intersection Summary

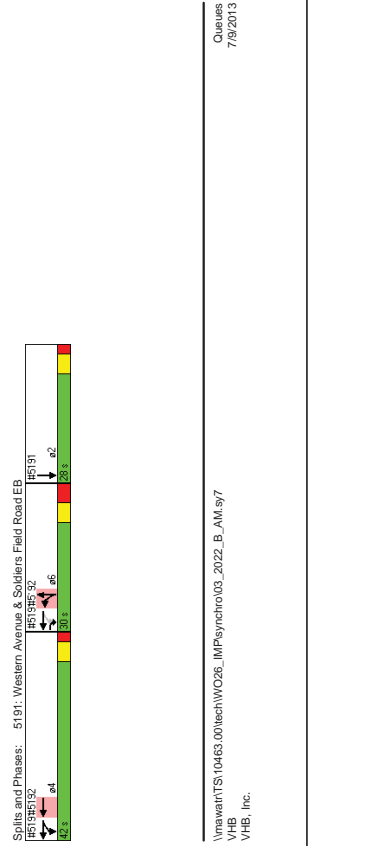
Area Type: CBD
 Area Length: 100
 Actuated Cycle Length: 100
 Offser: 0.0% (Referenced to phase 2/NBL and 6/SBT, Start of Green, Master Intersection)
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 # Volume exceeds capacity, queue is theoretically infinite.
 # Queue shown is maximum after two cycles.
 # Split phasing volume exceeds capacity, queue may be longer.
 # Control showing is theoretical.
 m Volume for 95th percentile queue is metered by upstream signal.



10463.00: Harvard IMP
5191: Western Avenue & Soldiers Field Road EB

2022 Build Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL SBT SBR											
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	13	13	13	12	11	11	12	12	12	11	11	11
Lane Width (ft)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Grade (%)	0	0	0	0	0	0	0	0	0	0	0	0
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Storage Times (s)	0	0	0	0	0	0	0	0	0	0	0	0
Trailing Detector (ft)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	9
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Link Speed (mph)	30	30	30	30	30	30	30	30	30	30	30	30
Link Distance (ft)	412	100	412	100	412	100	412	100	412	100	412	100
Volume (vph)	112	112	112	2	2	2	2	2	2	2	2	2
Confl. Peds. (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour Factor	0.85	0.85	0.85	0.93	0.93	0.93	0.94	0.94	0.94	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	9%	9%	9%	4%	4%	4%	0%	0%	0%	0%	0%	0%
Parking (veh)	0	0	0	0	0	0	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	0	0	671	1054	892	0	0	0	0	0	1068	0
Turn Type	custom pm+pt											
Permitted Phases	6 4 6 2											
Minimum Initial (s)	14.0 14.0											
Minimum Split (s)	22.0 20.0											
Total Split (s)	0.0 0.0 30.0 42.0 72.0 0.0 0.0 0.0 0.0 0.0 28.0 0.0											
Total Split (%)	0.0% 0.0% 30.0% 42.0% 72.0% 0.0% 0.0% 0.0% 0.0% 0.0% 28.0% 0.0%											
Yellow Time (s)	4.0 4.0											
Allied Time (s)	4.0 2.0											
Lead Lag												
Lead Lag Optimize?												
Recall Mode	Ped C-Mh Ped											
v/c Ratio	1.56 0.51 0.83 1.42											
Control Delay	289.2 1.1 9.0 228.8											
Queue Delay	0.0 0.0 0.0 0.0											
Queue Length (ft)	269.2 1.1 9.0 228.8											
Queue Length 95th (ft)	412 1.1 9.0 228.8											
Internal Link Dist (ft)	414 1.1 9.0 228.8											
Turn Bay Length (ft)	430 2062 1081 751											
Base Capacity (vph)	0 0 0 0											
Starvation Cap Reductn	0 0 0 0											
Storage Cap Reductn	0 0 0 0											
Reaches v/c Ratio	1.56 0.51 0.83 1.42											



Intersection Summary
Area Type: CBD
Area Length: 100
Area Width: 100
Actuated Cycle Length: 100
Offset: 0.0%, Referenced to phase 4(WBTL), Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
- Volume exceeds capacity, queue is theoretically infinite.
- Queue shown is maximum after two cycles.
- Split phasing volume exceeds capacity, queue may be longer.
- Control shown is theoretical.
m - Volume for 85th percentile queue is metered by upstream signal.

Splits and Phases: 5191: Western Avenue & Soldiers Field Road EB

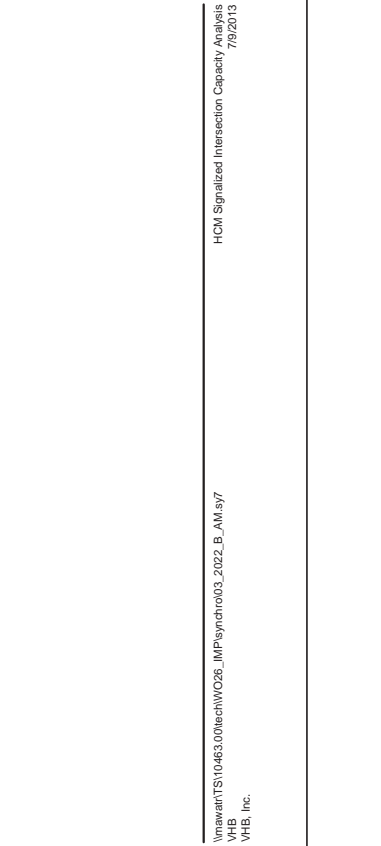
Queues
7/9/2013

VHB, Inc.

10463.00: Harvard IMP
5191: Western Avenue & Soldiers Field Road EB

2022 Build Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	13	13	13	12	11	11	12	12	12	11	11	11
Lane Width (ft)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Grade (%)	0	0	0	0	0	0	0	0	0	0	0	0
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Storage Times (s)	0	0	0	0	0	0	0	0	0	0	0	0
Trailing Detector (ft)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	9
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Link Speed (mph)	30	30	30	30	30	30	30	30	30	30	30	30
Link Distance (ft)	412	100	412	100	412	100	412	100	412	100	412	100
Volume (vph)	0	0	570	980	830	0	0	0	0	0	955	60
Confl. Peds. (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour Factor	0.85	0.85	0.85	0.93	0.93	0.93	0.94	0.94	0.94	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	9%	9%	9%	4%	4%	4%	0%	0%	0%	0%	0%	0%
Parking (veh)	0	0	0	0	0	0	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	0	0	671	1054	892	0	0	0	0	0	1068	0
Turn Type	custom pm+pt											
Permitted Phases	6 4 6 2											
Minimum Initial (s)	14.0 14.0											
Minimum Split (s)	22.0 20.0											
Total Split (s)	0.0 0.0 30.0 42.0 72.0 0.0 0.0 0.0 0.0 0.0 28.0 0.0											
Total Split (%)	0.0% 0.0% 30.0% 42.0% 72.0% 0.0% 0.0% 0.0% 0.0% 0.0% 28.0% 0.0%											
Yellow Time (s)	4.0 4.0											
Allied Time (s)	4.0 2.0											
Lead Lag												
Lead Lag Optimize?												
Recall Mode	Ped C-Mh Ped											
v/c Ratio	1.56 0.51 0.83 1.42											
Control Delay	289.2 1.1 9.0 228.8											
Queue Delay	0.0 0.0 0.0 0.0											
Queue Length (ft)	269.2 1.1 9.0 228.8											
Queue Length 95th (ft)	412 1.1 9.0 228.8											
Internal Link Dist (ft)	414 1.1 9.0 228.8											
Turn Bay Length (ft)	430 2062 1081 751											
Base Capacity (vph)	0 0 0 0											
Starvation Cap Reductn	0 0 0 0											
Storage Cap Reductn	0 0 0 0											
Reaches v/c Ratio	1.56 0.51 0.83 1.42											



Intersection Summary
Area Type: CBD
Area Length: 100
Area Width: 100
Actuated Cycle Length: 100
Offset: 0.0%, Referenced to phase 4(WBTL), Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
- Volume exceeds capacity, queue is theoretically infinite.
- Queue shown is maximum after two cycles.
- Split phasing volume exceeds capacity, queue may be longer.
- Control shown is theoretical.
m - Volume for 85th percentile queue is metered by upstream signal.

Splits and Phases: 5191: Western Avenue & Soldiers Field Road EB

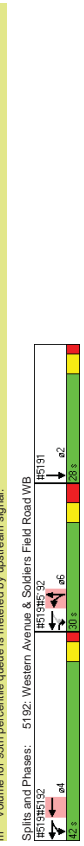
Queues
7/9/2013

VHB, Inc.

10463.00: Harvard IMP
5192: Western Avenue & Soldiers Field Road WB

2022 Build Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	a2
Lane Group	a2											
Lane Configurations	4+4											
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	11	11	11	12	12	12
Grade (%)	0	0	0	0	0	0	0	0	0	0	0	0
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Storage Length (s)	0	0	0	0	0	0	0	0	0	0	0	0
Trailing Detector (ft)	4.0	4.0	4.0	6.0	4.0	4.0	6.0	4.0	4.0	4.0	4.0	4.0
Trailing Detector (ft)	15	9	15	0	0	0	0	0	0	0	0	0
Right Turn on Red	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Link Speed (mph)	30	30	30	30	30	30	30	30	30	30	30	30
Link Distance (ft)	100	41	100	41	100	41	100	41	100	41	100	41
Volume (vph)	2	2	2	108	108	108	191	191	191	191	191	191
Conf. Peds. (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.98	0.98	0.98	0.83	0.83	0.83	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	7%	7%	7%	2%	2%	2%
Parking (veh)	0	0	0	0	0	0	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	0	0	0	0	1699	0	0	669	0	0	0	0
Turn Type	Split											
Protected Phases	4 6 6											
Permitted Phases	4 6 6											
Minimum Initial (s)	14.0 14.0 14.0											
Minimum Split (s)	20.0 22.0 22.0											
Total Split (s)	0.0 0.0 0.0 42.0 0.0 30.0 0.0 0.0 0.0 0.0 0.0 28.0											
Total Split (%)	0.0% 0.0% 0.0% 0.0% 42.0% 0.0% 30.0% 0.0% 0.0% 0.0% 0.0% 28%											
Yellow Time (s)	4.0 4.0 4.0 4.0 4.0 4.0											
Allied Time (s)	2.0 4.0 4.0 4.0											
Lead Lag	-											
Lead Lag Optimize?	-											
Recall Mode	C-Min Ped Ped											
v/c Ratio	1.10 0.67											
Control Delay	73.5 16.2											
Queue Delay	19.8 0.4											
Queue Length	93.4 16.8											
Queue Length 95th (ft)	74 11											
Queue Length 95th (ft)	m4450 110											
Internal Link Dist (ft)	20 384											
Turn Bay Length (ft)	1546 998											
Storage Cap Reductn	62 68											
Storage Cap Reductn	0 0											
Reduced v/c Ratio	1.14 0.72											



Splits and Phases: 5192: Western Avenue & Soldiers Field Road WB
 # Split phasing is volume dependent, queue may be longer.
 # Control phasing is volume dependent, queue may be longer.
 m - Volume for 95th percentile queue is metered by upstream signal.

10463.00: Harvard IMP
5192: Western Avenue & Soldiers Field Road WB

2022 Build Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	
Lane Configurations	4+4											
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	11	11	11	11	11	11	12	12	
Grade (%)	0	0	0	0	0	0	0	0	0	0	0	
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0	
Storage Length (s)	0	0	0	0	0	0	0	0	0	0	0	
Trailing Detector (ft)	4.0	4.0	4.0	6.0	4.0	4.0	6.0	4.0	4.0	4.0	4.0	
Trailing Detector (ft)	15	9	15	0	0	0	0	0	0	0	0	
Right Turn on Red	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Link Speed (mph)	30	30	30	30	30	30	30	30	30	30	30	
Link Distance (ft)	100	41	100	41	100	41	100	41	100	41	100	
Volume (vph)	2	2	2	108	108	108	191	191	191	191	191	
Conf. Peds. (#/hr)	0	0	0	0	0	0	0	0	0	0	0	
Peak Hour Factor	0.92	0.92	0.92	0.98	0.98	0.98	0.83	0.83	0.83	0.92	0.92	
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	7%	7%	7%	2%	2%	
Parking (veh)	0	0	0	0	0	0	0	0	0	0	0	
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Lane Group Flow (vph)	0	0	0	0	1699	0	0	669	0	0	0	
Turn Type	Split											
Protected Phases	4 6 6											
Permitted Phases	4 6 6											
Minimum Initial (s)	14.0 14.0 14.0											
Minimum Split (s)	20.0 22.0 22.0											
Total Split (s)	0.0 0.0 0.0 42.0 0.0 30.0 0.0 0.0 0.0 0.0 0.0 28.0											
Total Split (%)	0.0% 0.0% 0.0% 0.0% 42.0% 0.0% 30.0% 0.0% 0.0% 0.0% 0.0% 28%											
Yellow Time (s)	4.0 4.0 4.0 4.0 4.0 4.0											
Allied Time (s)	2.0 4.0 4.0 4.0											
Lead Lag	-											
Lead Lag Optimize?	-											
Recall Mode	C-Min Ped Ped											
v/c Ratio	1.10 0.67											
Control Delay	73.5 16.2											
Queue Delay	19.8 0.4											
Queue Length	93.4 16.8											
Queue Length 95th (ft)	74 11											
Queue Length 95th (ft)	m4450 110											
Internal Link Dist (ft)	20 384											
Turn Bay Length (ft)	1546 998											
Storage Cap Reductn	62 68											
Storage Cap Reductn	0 0											
Reduced v/c Ratio	1.14 0.72											



Splits and Phases: 5192: Western Avenue & Soldiers Field Road WB
 # Split phasing is volume dependent, queue may be longer.
 # Control phasing is volume dependent, queue may be longer.
 m - Volume for 95th percentile queue is metered by upstream signal.

10463.00: Harvard IMP
5163: Cambridge Street & Soldiers Field Road WB

2022 Build Conditions
Weekday Morning

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	e1	e2	e3	e5	
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900					
Ideal Flow (vph)	11	11	11	12	12	12	11	10	10	12	12					
Lane Width (ft)	0	0	0	0	0	0	0	0	0	0	0					
Grade (%)	0	0	0	0	0	0	0	0	0	0	0					
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0					
Storage Length (s)	0	0	0	0	0	0	0	0	0	0	0					
Storage Times (s)	4.0	4.0	4.0	4.0	4.0	4.0	6.0	6.0	4.0	4.0	4.0					
Leading Detector (ft)	50	50	4.0	4.0	50	50	50	50	4.0	4.0	4.0					
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0					
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	9					
Right Turn on Red	35	No	35	No	35	No	30	No	30	No	No					
Link Speed (mph)	35	35	35	35	35	35	30	30	30	30	30					
Link Distance (ft)	45	45	45	45	45	45	30	30	30	30	30					
Volume (vph)	345	1685	0	0	0	0	445	210	110	0	0					
Confl. Peds. (#/hr)																
Confl. Bikes (#/hr)																
Peak Hour Factor	0.94	0.94	0.94	0.92	0.92	0.92	0.79	0.79	0.92	0.92	0.92					
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%					
Heavy Vehicles (%)	4%	4%	2%	2%	2%	0%	0%	0%	2%	2%	2%					
Pedestrians (#/hr)	0	0	0	0	0	0	0	0	0	0	0					
Parking (#/hr)	0	0	0	0	0	0	0	0	0	0	0					
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%					
Lane Group Flow (vph)	0	2160	0	0	0	492	476	0	0	0	0					
Turn Type	Split															
Protected Phases	1 2 3 5															
Permitted Phases	4															
Minimum Initial (s)	4															
Minimum Split (s)	17.0															
Total Split (s)	27.0															
Total Split (%)	75.7%															
Yellow Time (s)	4.0															
Allied Time (s)	4.0															
Lead Lag	Yes															
Lead Lag Optimize?	Yes															
Recall Mode	Ped															
Control Delay	0.69															
Queue Delay	0.8															
Total Delay	1.1															
Queue Length 95th (ft)	373.5															
Queue Length 95th (s)	44.8															
Internal Link Dist (ft)	#767															
Turn Bay Length (ft)	6															
Base Capacity (vph)	375															
Starvation Cap Reductn	0															
Storage Cap Reductn	368															
Reaches v/r Ratio	0.79															
Area Type:	CBD															
Queue Length 140	140															
Actuated Cycle Length	140															
Offsr: 0 (0%)	Referenced to phase 1=NEL, Start of Yellow															
Natural Cycle: 140																
Control Type: Actuated-Coordinated																
#	Volume exceeds capacity, queue is theoretically infinite.															
#	Queue shown is maximum after two cycles.															
#	Split phase is volume saturated, queue may be longer.															
#	Control shown is theoretical, queue may be longer.															
m	Volume for 95th percentile queue is metered by upstream signal.															



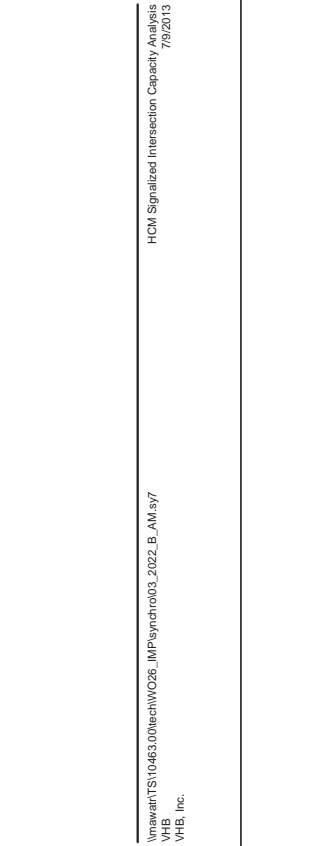
10463.00: Harvard IMP
5163: Cambridge Street & Soldiers Field Road WB

2022 Build Conditions
Weekday Morning

10463.00: Harvard IMP
5163: Cambridge Street & Soldiers Field Road WB

2022 Build Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Ideal Flow (vph)	11	11	11	12	12	12	11	10	10	12	12	
Lane Width (ft)	0	0	0	0	0	0	0	0	0	0	0	
Grade (%)	0	0	0	0	0	0	0	0	0	0	0	
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0	
Storage Length (s)	0	0	0	0	0	0	0	0	0	0	0	
Storage Times (s)	4.0	4.0	4.0	4.0	4.0	4.0	6.0	6.0	4.0	4.0	4.0	
Leading Detector (ft)	50	50	4.0	4.0	50	50	50	50	4.0	4.0	4.0	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	9	
Right Turn on Red	35	No	35	No	35	No	30	No	30	No	No	
Link Speed (mph)	35	35	35	35	35	35	30	30	30	30	30	
Link Distance (ft)	45	45	45	45	45	45	30	30	30	30	30	
Volume (vph)	345	1685	0	0	0	0	445	210	110	0	0	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.94	0.94	0.94	0.92	0.92	0.92	0.79	0.79	0.92	0.92	0.92	
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	4%	4%	2%	2%	2%	0%	0%	0%	2%	2%	2%	
Pedestrians (#/hr)	0	0	0	0	0	0	0	0	0	0	0	
Parking (#/hr)	0	0	0	0	0	0	0	0	0	0	0	
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Lane Group Flow (vph)	0	2160	0	0	0	492	476	0	0	0	0	
Turn Type	Split											
Protected Phases	1 2 3 5											
Permitted Phases	4											
Minimum Initial (s)	4											
Minimum Split (s)	17.0											
Total Split (s)	27.0											
Total Split (%)	75.7%											
Yellow Time (s)	4.0											
Allied Time (s)	4.0											
Lead Lag	Yes											
Lead Lag Optimize?	Yes											
Recall Mode	Ped											
Control Delay	0.69											
Queue Delay	0.8											
Total Delay	1.1											
Queue Length 95th (ft)	373.5											
Queue Length 95th (s)	44.8											
Internal Link Dist (ft)	#767											
Turn Bay Length (ft)	6											
Base Capacity (vph)	375											
Starvation Cap Reductn	0											
Storage Cap Reductn	368											
Reaches v/r Ratio	0.79											
Area Type:	CBD											
Queue Length 140	140											
Actuated Cycle Length	140											
Offsr: 0 (0%)	Referenced to phase 1=NEL, Start of Yellow											
Natural Cycle: 140												
Control Type: Actuated-Coordinated												
#	Volume exceeds capacity, queue is theoretically infinite.											
#	Queue shown is maximum after two cycles.											
#	Split phase is volume saturated, queue may be longer.											
#	Control shown is theoretical, queue may be longer.											
m	Volume for 95th percentile queue is metered by upstream signal.											
HCM Average Control Delay	113.0											
HCM Volume to Capacity ratio	0.90											
Actuated Cycle Length (s)	140.0											
Intersection Capacity Utilization	75.9%											
Sum of lost time (s)	15											
ICU Level of Service	D											
Level of Service	F											
Approach Delay (s)	0.5											
Approach LOS	A											
Volume (vph)	345											
v/s Ratio Prot	c0.50											
v/s Ratio Perm	0.33											
v/c Ratio	0.69											
Uniform Delay, d1	10.4											
Incremental Delay, d2	0.3											
Delay (s)	0.5											
Level of Service	F											
Approach LOS	A											
Intersection Summary	F											
HCM Average Control Delay	113.0											
HCM Volume to Capacity ratio	0.90											
Actuated Cycle Length (s)	140.0											
Intersection Capacity Utilization	75.9%											
Sum of lost time (s)	15											
ICU Level of Service	D											
Level of Service	F											
Approach Delay (s)	0.5											
Approach LOS	A											



10463.00: Harvard IMP
5163: Cambridge Street & Soldiers Field Road WB

2022 Build Conditions
Weekday Morning

Intersection Capacity Analysis
7/9/2013
VHB, Inc.

10463.00: Harvard IMP
1326: Cambridge Street & Windom Street

2022 Build Conditions
Weekday Morning

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	12	10	10	14	14	14
Lane Width (ft)	0%	0%	0%	0%	0%	0%
Grade (%)	175	0	0	0	100	0
Storage Length (ft)	4.0	4.0	4.0	4.0	4.0	4.0
Storage Time (s)	50	50	50	50	50	50
Leading Detector (ft)	0	0	0	0	0	0
Trailing Detector (ft)	0	0	0	0	0	0
Turning Speed (mph)	15	9	15	9	15	9
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	Yes
Link Speed (mph)	40	35	30	30	30	30
Link Distance (ft)	200	100	75	75	75	75
Turn Time (s)	56	640	1645	365	100	30
Volume (vph)	56	719	1869	415	116	35
Conf. Peds. (#/hr)	0.89	0.88	0.88	0.88	0.86	0.86
Peak Hour Factor	100%	100%	100%	100%	100%	100%
Growth Factor	3%	8%	8%	3%	3%	0
Heavy Vehicles (%)	0	0	0	0	0	0
Parking (ft/hr)	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	56	719	1869	415	116	35
Turn Type	pm+pt	Perm	Perm	Prot	Prot	Prot
Protected Phases	2	1, 2	1	3	3	3
Permitted Phases	1, 2	1	1	3	3	3
Minimum Initial (s)	6.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	10.0	13.0	13.0	20.0	20.0	20.0
Total Split (s)	17.0	80.0	63.0	20.0	20.0	20.0
Total Split (%)	17.0%	80.0%	63.0%	20.0%	20.0%	20.0%
Yellow Time (s)	3.0	4.0	4.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lead Lag	Yes	Yes	Yes	Yes	Yes	Yes
Lead/Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Min	C-Max	C-Max	Min	Min	Min
v/c Ratio	0.31	0.21	0.95	0.41	0.60	0.17
Control Delay	12.0	1.0	26.0	2.1	54.8	14.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.0	1.0	26.0	2.1	54.8	14.8
Queue Length 95th (ft)	2	0	0	0	0	0
Queue Length 95th (ft)	m5	m20	4728	31	117	25
Internal Link Dist (ft)	175	120	980	100	654	100
Turn Bay Length (ft)	284	3695	1976	1004	269	270
Base Capacity (vph)	0	0	0	0	0	0
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.19	0.95	0.41	0.43	0.13

Intersection Summary
Area Type: CBD
Area Type: 100
Actuated Cycle Length: 100
Natural Cycle: 100
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
m Queue shown is maximum after two cycles.
n Queue shown is maximum after two cycles.



10463.00: Harvard IMP
1326: Cambridge Street & Windom Street

2022 Build Conditions
Weekday Morning

	EBL	EBT	WBT	WBR	SBL	SBR
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	12	10	10	14	14	14
Lane Width (ft)	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	1.00	0.81	0.95	1.00	1.00	1.00
Lane Util. Factor	0.96	1.00	1.00	0.95	0.95	0.95
Flt Protected	1577	4230	2808	1256	1832	1505
Satd. Flow (prot)	0.07	1.00	1.00	0.95	1.00	1.00
Flt Permitted	109	4230	2808	1256	1832	1505
Satd. Flow (perm)	50	640	1645	365	100	30
Volume (vph)	56	719	1869	415	116	35
Peak-hour factor, PHF	0.89	0.88	0.88	0.88	0.86	0.86
Adj. Flow (vph)	56	719	1869	415	116	35
Flow (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	56	719	1869	290	116	4
Heavy Vehicles (%)	3%	3%	8%	3%	3%	3%
Turn Type	pm+pt	1, 2	1	Perm	3	3
Protected Phases	2	1, 2	1	3	3	3
Permitted Phases	1, 2	1	1	3	3	3
Actuated Green, G (s)	75.6	80.6	69.4	69.4	11.4	11.4
Effective Green, g (s)	76.6	80.6	70.4	70.4	11.4	11.4
Yellow Time (s)	4.0	0.81	0.95	1.00	1.00	1.00
Clearance Time (s)	4.0	5.0	5.0	4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lane Cap (vph)	175	3409	1977	884	192	172
v/s Ratio Prot	c0.02	0.17	c0.67	c0.07	0.00	0.00
v/s Ratio Perm	0.23	0.21	0.95	0.33	0.60	0.02
Uniform Delay, d1	21.2	2.3	13.1	5.7	42.2	39.4
Incremental Delay, d2	0.3	0.0	10.9	1.0	3.6	0.0
Incremental Delay, d2	16.8	0.8	24.0	6.7	45.8	39.4
Level of Service	B	A	C	A	D	D
Approach Delay (s)	B	A	C	A	D	D
Approach LOS	A	C	C	A	D	D
Intersection Summary						
HCM Average Control Delay	17.4					
HCM Volume to Capacity ratio	0.86					
Actuated Cycle Length (s)	100.0					
Intersection Capacity Utilization	63.9%					
Sum of lost time (s)	12.0					
ICU Level of Service	B					
15						
6 Critical Lane Group						

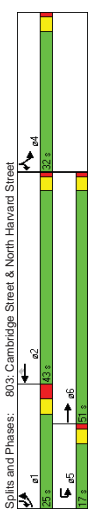
10463.00: Harvard IMP
803: Cambridge Street & North Harvard Street

2022 Build Conditions
Weekday Morning

	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vph/ft)	11	11	10	11	10	12	12
Lane Width (ft)	11	11	10	11	10	12	12
Grade (%)	0%	0%	0%	0%	0%	0%	0%
Storage Length (ft)	200	120	100	100	0	50	50
Storage Length (s)	3.0	3.0	3.0	3.0	0	3.0	3.0
Storage Delay (s)	1.00	1.00	1.00	1.00	0.00	1.00	1.00
Leading Detector (ft)	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0
Turning Speed (mph)	15	9	9	9	15	9	9
Right Turn on Red			Yes	Yes	Yes	No	No
Link Speed (mph)	35	35	35	35	35	30	30
Link Distance (ft)	426	426	426	426	426	330	330
Link Distance (s)	9.5	9.5	9.5	9.5	9.5	7.7	7.7
Volume (vph)	270	1620	50	1260	365	330	245
Confl. Peds. (#/hr)	16					6	
Confl. Bikes (#/hr)							
Peak Hour Factor	0.94	0.87	0.87	0.87	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	4%	4%	7%	7%	7%
Parking (#/hr)	0	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	287	1723	57	1448	420	351	261
Turn Type	Prot	Prot	Perm	Perm	ptov	ptov	ptov
Protected Phases	1	6	5	2	4	1,4	
Permitted Phases	1	6	5	2	4	1,4	
Minimum Initial (s)	8.0	12.0	8.0	12.0	12.0	12.0	12.0
Minimum Split (s)	14.0	16.0	12.0	22.0	22.0	29.0	
Total Split (s)	25.0	51.0	17.0	43.0	43.0	32.0	57.0
Total Split (%)	25.0%	51.0%	17.0%	43.0%	43.0%	32.0%	57.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Allied Time (s)	3.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead Lag	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lead Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	Max	C-Max	C-Max	Min	
v/c Ratio	0.87	0.78	0.28	1.12	0.68	0.87	0.38
Control Delay	74.2	15.1	28.4	91.6	23.5	57.8	16.0
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Queue Length	74.2	15.2	28.4	91.6	23.5	57.8	16.0
Queue Length 95th (ft)	121	305	m35	m49	m73	434	146
Internal Link Dist (ft)	#321	408	m35	m49	m73	434	146
Turn Bay Length (ft)	200	408	204	1294	618	440	689
Base Capacity (vph)	336	2214	204	1294	618	440	689
Starvation Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.80	0.28	1.12	0.68	0.80	0.37

Intersection Summary

Area Type	100
Area Type	100
Actuated Green Length	100
Offset	87 (87%), Referenced to phase 2:WBT and 6:EBT, Start of Green
Natural Cycle	100
Control Type	Actuated-Coordinated
Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
Split shown is volume exclusive, queue may be longer.	
Capacity shown is theoretical.	
Queue shown is maximum after two cycles.	
Split shown is volume exclusive, queue may be longer.	
Capacity shown is theoretical.	
Queue shown is maximum after two cycles.	
Split shown is volume exclusive, queue may be longer.	
Capacity shown is theoretical.	



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VHB
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2022 Build Conditions
Weekday Morning

10463.00: Harvard IMP
803: Cambridge Street & North Harvard Street

2022 Build Conditions
Weekday Morning

	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vph/ft)	11	11	10	11	10	12	12
Lane Width (ft)	11	11	10	11	10	12	12
Grade (%)	0%	0%	0%	0%	0%	0%	0%
Storage Length (ft)	200	120	100	100	0	50	50
Storage Length (s)	3.0	3.0	3.0	3.0	0	3.0	3.0
Storage Delay (s)	1.00	1.00	1.00	1.00	0.00	1.00	1.00
Leading Detector (ft)	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0
Turning Speed (mph)	15	9	9	9	15	9	9
Right Turn on Red			Yes	Yes	Yes	No	No
Link Speed (mph)	35	35	35	35	35	30	30
Link Distance (ft)	426	426	426	426	426	330	330
Link Distance (s)	9.5	9.5	9.5	9.5	9.5	7.7	7.7
Volume (vph)	270	1620	50	1260	365	330	245
Confl. Peds. (#/hr)	16					6	
Confl. Bikes (#/hr)							
Peak Hour Factor	0.94	0.87	0.87	0.87	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	4%	4%	7%	7%	7%
Parking (#/hr)	0	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	287	1723	57	1448	420	351	261
Turn Type	Prot	Prot	Perm	Perm	ptov	ptov	ptov
Protected Phases	1	6	5	2	4	1,4	
Permitted Phases	1	6	5	2	4	1,4	
Minimum Initial (s)	8.0	12.0	8.0	12.0	12.0	12.0	12.0
Minimum Split (s)	14.0	16.0	12.0	22.0	22.0	29.0	
Total Split (s)	25.0	51.0	17.0	43.0	43.0	32.0	57.0
Total Split (%)	25.0%	51.0%	17.0%	43.0%	43.0%	32.0%	57.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Allied Time (s)	3.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead Lag	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lead Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	Max	C-Max	C-Max	Min	
v/c Ratio	0.87	0.78	0.28	1.12	0.68	0.87	0.38
Control Delay	74.2	15.1	28.4	91.6	23.5	57.8	16.0
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Queue Length	74.2	15.2	28.4	91.6	23.5	57.8	16.0
Queue Length 95th (ft)	121	305	m35	m49	m73	434	146
Internal Link Dist (ft)	#321	408	m35	m49	m73	434	146
Turn Bay Length (ft)	200	408	204	1294	618	440	689
Base Capacity (vph)	336	2214	204	1294	618	440	689
Starvation Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.80	0.28	1.12	0.68	0.80	0.37

Intersection Summary

Area Type	100
Area Type	100
Actuated Green Length	100
Offset	87 (87%), Referenced to phase 2:WBT and 6:EBT, Start of Green
Natural Cycle	100
Control Type	Actuated-Coordinated
Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
Split shown is volume exclusive, queue may be longer.	
Capacity shown is theoretical.	
Queue shown is maximum after two cycles.	
Split shown is volume exclusive, queue may be longer.	
Capacity shown is theoretical.	



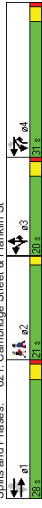
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VHB
VHB, Inc.

2022 Build Conditions
Weekday Morning

10463.00: Harvard IMP
621: Cambridge Street & Franklin St

2022 Build Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	a2
Lane Group	EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL SBR a2											
Lane Configurations	<ul style="list-style-type: none"> EBL: 1900 (1900) 1900 (1900) 1900 (1900) 1900 (1900) 1900 (1900) 1900 (1900) EBT: 10 (11) 12 (12) 12 (12) 10 (11) 12 (12) 10 (11) 16 (16) 16 (16) EBR: 0 (0) 125 (0) 0 (0) 0 (0) 0 (0) 0 (0) 85 (0) 0 (0) WBL: 3 (3) 3 (3) 3 (3) 3 (3) 3 (3) 3 (3) 3 (3) 3 (3) 3 (3) 3 (3) 3 (3) 0 (0) WBT: 50 (50) 50 (50) 50 (50) 50 (50) 50 (50) 50 (50) 50 (50) 50 (50) WBR: 15 (0) 9 (15) 0 (0) 0 (0) 0 (0) 0 (0) 9 (15) 0 (0) NBL: 1400 (1400) 450 (0) 350 (350) 960 (960) 238 (0) NBT: 5 (645) 80 (400) 660 (240) 30 (30) 475 (0) 0 (0) NBR: 41 (17) 17 (17) 0 (0) 0 (0) 48 (48) 0 (0) 11 (11) SBL: 0 (0) 0 (0) 0 (0) 0 (0) 0 (0) 0 (0) 0 (0) 0 (0) 0 (0) 0 (0) 0 (0) SBR: 0 (0) 0 (0) 0 (0) 0 (0) 0 (0) 0 (0) 0 (0) 0 (0) 0 (0) 0 (0) 0 (0) 											
Ideal Flow (vph)												
Lane Width (ft)												
Total Lost time (s)												
Storage Length (ft)												
Storage Time (s)												
Leading Detector (ft)												
Trailing Detector (ft)												
Turning Speed (mph)												
Light Turn on Red												
Link Speed (mph)												
Link Distance (ft)												
Volume (vph)												
Conf. Peds. (#/hr)												
Peak Hour Factor												
Growth Factor												
Heavy Vehicles (%)												
Ped/Bikes (#/hr)												
Mid-Block Traffic (%)												
Lane Group Flow (vph)												
Turn Type												
Permitted Phases												
Minimum Initial (s)												
Total Split (s)												
Total Split (%)												
Yellow Time (s)												
All-Red Time (s)												
Lead Lag												
Lead/Lag Optimize?												
v/c Ratio												
Queue Delay												
Queue Length 95th (ft)												
Queue Length 90th (ft)												
Internal Link Dist (ft)												
Turn Bay Length (ft)												
Base Capacity (vph)												
Starvation Cap Reductn												
Storage Cap Reductn												
Reaches v/c Ratio												



Split and Phases: 621: Cambridge Street & Franklin St

Area Type: CBD

Area Type: 100

Control Type: 53 (53%), Referenced to phase 1:EBWB, Start of Green

Offser: 53 (53%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

95th percentile queue exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

m - Volume for 95th percentile queue is metered by upstream signal.

10463.00: Harvard IMP
621: Cambridge Street & Franklin St

2022 Build Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	
Lane Configurations	EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL SBR											
Ideal Flow (vph)	1900 (1900) 1900 (1900) 1900 (1900) 1900 (1900) 1900 (1900) 1900 (1900) 1900 (1900)											
Lane Width (ft)	10 (11) 12 (12) 12 (12) 10 (11) 12 (12) 10 (11) 16 (16) 16 (16) 16 (16) 16 (16)											
Total Lost time (s)	3 (3) 3 (3) 3 (3) 3 (3) 3 (3) 3 (3) 3 (3) 3 (3) 3 (3) 3 (3) 3 (3)											
Lane Util. Factor	0.95 (1.00) 1.00 (1.00) 1.00 (1.00) 1.00 (1.00) 1.00 (1.00) 1.00 (1.00) 1.00 (1.00)											
Flt. Ped/Bikes	1.00 (1.00) 1.00 (1.00) 1.00 (1.00) 1.00 (1.00) 1.00 (1.00) 1.00 (1.00) 1.00 (1.00)											
Flt. Protected	1.00 (0.95) 1.00 (1.00) 1.00 (0.98) 1.00 (1.00)											
Statd. Flow (prot)	2819 (1490) 1569 (1225) 1455 (1313)											
Statd. Flow (perm)	2242 (271) 1589 (1225) 1455 (1313)											
Volume (vph)	5 (645) 80 (400) 660 (240) 30 (30) 475 (0) 0 (0) 475 (0) 0 (0)											
Adj. Flow (vph)	0.85 (0.85) 0.99 (0.99) 0.99 (0.99) 0.99 (0.99) 0.99 (0.99) 0.99 (0.99) 0.99 (0.99) 0.99 (0.99)											
RTOR Reduction (vph)	6 (741) 92 (426) 702 (255) 35 (35) 55 (55) 0 (0) 0 (0) 0 (0) 0 (0) 0 (0) 0 (0)											
Lane Group Flow (vph)	0 (839) 0 (426) 702 (255) 0 (70) 559 (0) 0 (0) 559 (0) 0 (0) 0 (0) 0 (0) 0 (0)											
Conf. Peds. (#/hr)	41 (17) 17 (17) 41 (11) 41 (11) 48 (48) 48 (48) 11 (11)											
Heavy Vehicles (%)	9% (9%) 9% (9%) 9% (9%) 9% (9%) 9% (9%) 9% (9%) 9% (9%) 9% (9%) 9% (9%) 9% (9%) 9% (9%)											
Turn Type	Perm											
Projected Phases	1 1 4 1 4 1 4 1 4 1 4 1 4											
Actuated Green (s)	35.4 (62.4) 66.4 (66.4) 16.0 (47.0)											
Effective Green (s)	36.4 (64.4) 67.4 (67.4) 17.0 (48.0)											
Actuated g/C Ratio	0.36 (0.64) 0.64 (0.67) 0.17 (0.48)											
Clearance Time (s)	4.0 (4.0) 2.0 (2.0)											
Vehicle Extension (s)	2.0 (2.0)											
Lane Cap (vph)	816 (516) 1058 (826) 247 (630)											
v/s Ratio Prot	0.23 (0.45) 0.21 (0.05) c0.43											
v/c Ratio Perm	0.937 (1.03) 0.83 (0.66) 0.31 (0.28) 0.89											
Uniform Delay, d1	31.8 (20.3) 9.6 (6.7) 36.2 (23.8)											
Progression Factor	0.88 (0.71) 0.39 (0.17) 1.00 (1.00) 1.00											
Incremental Delay, d2	34.4 (8.4) 1.0 (0.1) 0.2 (13.9)											
Delay (s)	62.5 (22.7) 4.8 (1.2) 36.4 (37.4)											
Level of Service	E C A A D D D D											
Approach LOS	E C A A D D D											
Approach LOS	E C A A D D D											
Intersection Summary	HCM Level of Service C											
HCM Average Control Delay	91.3 (0.95)											
HCM v/c Ratio	100.0 (84.3%)											
Actuated Cycle Length (s)	15.6 (15.6)											
Intersection Capacity Utilization	84.3% (15)											
Analysis Period (min)	15 (c Critical Lane Group)											

Split and Phases: 621: Cambridge Street & Franklin St

Area Type: CBD

Area Type: 100

Control Type: 53 (53%), Referenced to phase 1:EBWB, Start of Green

Offser: 53 (53%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

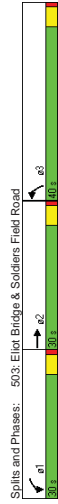
95th percentile queue exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

m - Volume for 95th percentile queue is metered by upstream signal.

10463.00: Harvard IMP
503: Eliot Bridge & Soldiers Field Road

2022 Build Conditions
Weekday Morning

	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	10	10	11	14	14
Grade (%)	0%	0%	0%	0%	0%	0%
Storage Length (ft)	180	255	0	0	0	0
Storage Length (s)	4.0	4.0	4.0	4.0	4.0	4.0
Trailing Detector (ft)	100	20	20	20	4.0	0
Trailing Detector (ft)	0	0	0	0	0	0
Turning Speed (mph)	Yes	15	15	9	Yes	Yes
Link Speed (mph)	30	30	30	30	30	30
Link Distance (ft)	425	389	270	186	470	470
Volume (vph)	2315	0	815	0	310	0
Confl. Peds. (#/hr)						
Peak Hour Factor	0.98	0.98	0.90	0.90	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	1%	1%
Parking (ft/hr)	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	2362	0	906	0	320	0
Turn Type	Prot					
Protected Phases	2	1	3			
Permitted Phases	2	1	3			
Minimum Initial (s)	15.0	15.0	15.0			
Minimum Split (s)	20.0	20.0	20.0			
Total Split (s)	30.0	0.0	30.0	0.0	40.0	0.0
Total Split (%)	30.0%	0.0%	30.0%	0.0%	40.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0		4.0	
Allied Time (s)	1.0	1.0	1.0		1.0	
Lead Lag	Yes	Yes	Yes		Yes	
Lead Lag Optimize?	Yes	Yes	Yes		Yes	
Recall Mode	Min	Max	None		None	
v/c Ratio	1.29	0.66	0.47		0.47	
Control Delay	160.2	26.3	30.7		30.7	
Queue Delay	0.0	0.0	0.0		0.0	
Queue Length 95th (ft)	160.2	26.3	30.7		30.7	
Queue Length 95th (s)	4.54	1.86	1.11		1.11	
Internal Link Dist (ft)	345	309	190		190	
Turn Bay Length (ft)	1835	1380	1188		1188	
Base Capacity (vph)	0	0	0		0	
Starvation Cap Reductn	0	0	0		0	
Spillback Cap Reductn	0	0	0		0	
Storage Cap Reductn	0	0	0		0	
Reduced v/c Ratio	1.29	0.66	0.27		0.27	
Intersection Summary						
Area Type	CBD					
Area Length	100					
Area Width	80.6					
Actual Cycle Length	80.6					
Natural Cycle	90					
Control Type	Semi Act-Uncoord					
-	Volume exceeds capacity, queue is theoretically infinite.					
-	Queue shown is maximum after two cycles.					
#	95th percentile volume exceeds capacity, queue may be longer.					
-	Queue shown is maximum after two cycles.					



10463.00: Harvard IMP
503: Eliot Bridge & Soldiers Field Road

2022 Build Conditions
Weekday Morning

	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	10	10	11	14	14
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.86	0.94	0.97		0.95	
Flt Protected	1.00	0.95	0.95		0.95	
Satd. Flow (prot)	5686	4276	3328		3328	
Flt Permitted	1.00	0.95	0.95		0.95	
Satd. Flow (perm)	5686	4276	3328		3328	
Volume (vph)	2315	0	815	0	310	0
Peak-hour factor, PHF	0.98	0.98	0.90	0.90	0.97	0.97
Adj. Flow (vph)	2362	0	906	0	320	0
Heavy Vehicles (%)	0%	0%	0%	0%	1%	1%
Lane Group Flow (vph)	2362	0	906	0	320	0
Heavy Vehicles (%)	0%	0%	0%	0%	1%	1%
Turn Type	Prot					
Protected Phases	2	1	3			
Permitted Phases	2	1	3			
Actuated Green, G (s)	25.0	25.0	15.5		15.5	
Effective Green, g (s)	26.0	26.0	16.5		16.5	
Clearance Time (s)	6.0	6.0	6.0		6.0	
Vehicle Extension (s)	5.0	5.0	5.0		5.0	
Vehicle Extension (%)	4.0	4.0	4.0		4.0	
Lane Cap (vph)	1836	1381	682		682	
v/s Ratio Prot	c0.42	c0.21	c0.10		c0.10	
v/s Ratio Perm						
v/c Ratio	1.29	0.66	0.47		0.47	
Uniform Delay, d1	27.3	23.4	26.1		26.1	
Incremental Delay, d2	133.2	2.4	0.7		0.7	
Delay (s)	160.4	25.9	26.8		26.8	
Level of Service	F	C	C		C	
Approach Delay (s)	160.4	25.9	26.8		26.8	
Approach LOS	F	C	C		C	
Intersection Summary						
HCM Average Control Delay	114.7					
HCM Volume to Capacity ratio	0.85					
Actuated Cycle Length (s)	12.0					
Intersection Capacity Utilization	77.0%					
Sum of lost time (s)	15					
ICU Level of Service	D					
Critical Lane Group						

10463.00: Harvard IMP
5012: Bertram St & North Harvard Street

2022 Build Conditions
Weekday Morning

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Stop	Free	Free	Free	Free	Free
Sign Control	0%	0%	0%	0%	0%	0%
Grade	5	5	660	25	5	315
Volume (veh/h)	0.60	0.60	0.85	0.85	0.94	0.94
Peak Hour Factor	8	8	776	29	5	335
Platoon flow rate (pph)						
Platoon length (ft)						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
px platoon unblocked	0.81	0.74	300		0.74	186
vc conflicting volume	1137	791			806	
vc1, stage 1 conf vol						
vc2, stage 2 conf vol						
vcu, unblocked vol	917	719			739	
tc, single (s)	6.6	6.4			4.2	
pf (s)						
p0 queue free %	3.7	3.5			2.3	
pf (s)	96	97			99	
cm capacity (veh/h)	228	300			631	
Direction Lane #	WB 1	NB 1	SB 1			
Volume Total	17	806	340			
Volume Left	8	0	5			
Volume Right	8	29	0			
cSH	260	1700	631			
Volume to Capacity	0.06	0.47	0.01			
Queue Length 36th (ft)	5	0	0			
Queue Delay (s)	19.8	0.9	0.3			
Lane LOS	C	C	A			
Approach Delay (s)	19.8	0.0	0.3			
Approach LOS	C	C	C			
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			50.3%			
ICU Level of Service			A			
Analysis Period (min)			15			

10463.00: Harvard IMP
5013: Spurr St & North Harvard Street

2022 Build Conditions
Weekday Morning

Movement	EBL	EBR	NBL	NBT	SBL	SBT
Lane Configurations	Stop	Free	Free	Free	Free	Free
Sign Control	0%	0%	0%	0%	0%	0%
Grade	65	180	0	620	320	0
Volume (veh/h)	0.97	0.97	0.85	0.85	0.94	0.94
Peak Hour Factor	67	186	0	729	340	0
Platoon flow rate (pph)						
Platoon length (ft)						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
px platoon unblocked	0.81	0.87		250	296	
vc conflicting volume	1070	340	340			
vc1, stage 1 conf vol						
vc2, stage 2 conf vol						
vcu, unblocked vol	841	240	240			
tc, single (s)	6.5	6.3	4.2			
pf (s)						
p0 queue free %	3.6	3.4	2.3			
pf (s)	74	72	100			
cm capacity (veh/h)	260	672	1126			
Direction Lane #	EB 1	EB 2	NB 1	SB 1		
Volume Total	67	186	729	340		
Volume Left	67	0	0	0		
Volume Right	0	186	0	0		
cSH	260	672	1700	1700		
Volume to Capacity	0.26	0.28	0.43	0.20		
Queue Length 36th (ft)	25	28	0	0		
Queue Delay (s)	29.6	12.4	0.0	0.0		
Lane LOS	C	B	C	C		
Approach Delay (s)	15.4	0.0	0.0	0.0		
Approach LOS	C	C	C	C		
Intersection Summary						
Average Delay			2.9			
Intersection Capacity Utilization			46.9%			
ICU Level of Service			A			
Analysis Period (min)			15			

10463.00: Harvard IMP
5015: Bayard Street & North Harvard Street

2022 Build Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
Sign Control	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Grade	5	0	20	0	0	0	0	555	10	5	485	0
Volume (veh/h)	0.86	0.86	0.86	0.52	0.92	0.92	0.86	0.86	0.86	0.91	0.91	0.99
Peak Hour Factor	6	0	23	0	0	0	0	645	12	5	533	0
Playability rate (pph)												
Percent Blockage												
Walking Speed (ft/s)												
Right turn flare (veh)												
Median storage (veh)												
pX, platoon unblocked	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
vC, conflicting volume	1195	1201	533	1218	1185	651	533	657				377
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCU, unblocked vol	1228	1234	485	1255	1228	651	455	657				
IC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.2	4.2				
IF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3	2.3				
p0 queue free %	96	100	96	100	100	100	100	99				
cM capacity (veh/h)	134	152	522	121	152	468	917	884				
Direction Lane #	EB 1	NB 1	SB 1									
Volume Total	29	657	538									
Volume Left	6	0	5									
Volume Right	23	12	0									
cSH	330	1700	894									
Volume to Capacity	0.09	0.39	0.01									
Queue Length 35th (ft)	7	0	0									
Queue Delay (s)	17.7	0.9	0.2									
Lane LOS	C	C	A									
Approach Delay (s)	17.0	0.0	0.2									
Approach LOS	C	C	C									
Intersection Summary												
Average Delay	0.5											
Intersection Capacity Utilization	43.1%											
ICU Level of Service	A											
Analysis Period (min)	15											

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HCM Unsignalized Intersection Capacity Analysis
7/9/2013

10463.00: Harvard IMP
5006: Western Avenue & Travis Street

2022 Build Conditions
Weekday Morning

Movement	EBT	EBR	WBT	WBR	NBT	NBR
Lane Configurations	Free	Free	Free	Free	Stop	Stop
Sign Control	0%	0%	0%	0%	0%	0%
Grade	490	10	30	480	5	25
Volume (veh/h)	0.89	0.89	0.37	0.83	0.83	0.83
Peak Hour Factor	551	11	31	495	6	30
Playability rate (pph)						
Percent Blockage						
Walking Speed (ft/s)						
Right turn flare (veh)						
Median storage (veh)						
pX, platoon unblocked	272					
vC, conflicting volume	0.72	0.72	0.72	0.72	0.72	0.72
vC1, stage 1 conf vol	562	1113	556			
vC2, stage 2 conf vol						
vCU, unblocked vol	395			1156	387	
IC, single (s)	4.1	6.5	6.3			
IF (s)	2.2	3.6	3.4			
p0 queue free %	96	96	94			
cM capacity (veh/h)	831	149	472			
Direction Lane #	EB 1	WB 1	NB 1			
Volume Total	562	526	36			
Volume Left	0	31	6			
Volume Right	11	0	30			
cSH	1700	831	347			
Volume to Capacity	0.33	0.04	0.10			
Queue Length 35th (ft)	0	3	9			
Queue Delay (s)	0.0	1.6	1.6			
Lane LOS	A	C	C			
Approach Delay (s)	0.0	1.0	16.6			
Approach LOS	C	C	C			
Intersection Summary						
Average Delay	1.0					
Intersection Capacity Utilization	65.4%					
ICU Level of Service	C					
Analysis Period (min)	15					

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VHB
VHB, Inc.

HCM Unsignalized Intersection Capacity Analysis
7/9/2013

10463.00: Harvard IMP
5011: Gordon Rd & North Harvard Street

2022 Build Conditions
Weekday Morning



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Stop	Free	Free	Free	Free	Free
Sign Control	0%	0%	0%	0%	0%	0%
Grade	5	60	540	10	100	495
Volume (veh/h)	0.82	0.82	0.89	0.89	0.87	0.87
Peak Hour Factor	6	73	607	11	115	569
Platoon flow rate (pph)						
Platoon length (ft)						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
px platoon unblocked	0.91	0.98	988		629	
vc conflicting volume	1411	612			618	
vc1, stage 1 conf vol						
vc2, stage 2 conf vol						
vcu, unblocked vol	1426	606			612	
lc, single (s)	6.5	6.3			4.1	
lf (s)						
p0 queue free %	3.6	3.4			2.2	
p0 queue free (veh/h)	95	84			88	
cm capacity (veh/h)	113	470			938	
Direction Lane #	WB 1	NB 1	SB 1			
Volume Total	79	618	684			
Volume Left	6	0	115			
Volume Right	73	11	0			
cSH	378	1700	938			
Volume to Capacity	0.21	0.36	0.12			
Queue Length 35th (ft)	1.20	0	0			
Queue Delay (s)	17.0	0.9	3.0			
Lane LOS	C	B	A			
Approach Delay (s)	17.0	0.0	3.0			
Approach LOS	C		C			
Intersection Summary						
Average Delay	2.5					
Intersection Capacity Utilization	81.8%					
ICU Level of Service	D					
Analysis Period (min)	15					

10463.00: Harvard IMP
2: Grove Street & North Harvard Street

2022 Build Conditions
Weekday Morning



Movement	EBL	EBR	NBL	NBT	SBL	SBR
Lane Configurations	Stop	Free	Free	Free	Free	Free
Sign Control	0%	0%	0%	0%	0%	0%
Grade	0	35	0	535	360	0
Volume (veh/h)	0.92	0.92	0.92	0.92	0.92	0.92
Peak Hour Factor	0	38	0	562	391	0
Platoon flow rate (pph)						
Platoon length (ft)						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
px platoon unblocked	0.73	0.97		211	448	
vc conflicting volume	973	391	391			
vc1, stage 1 conf vol						
vc2, stage 2 conf vol						
vcu, unblocked vol	910	375	375			
lc, single (s)	6.4	6.2	4.1			
lf (s)						
p0 queue free %	3.5	3.3	2.2			
p0 queue free (veh/h)	100	94	100			
cm capacity (veh/h)	222	654	1153			
Direction Lane #	EB 1	NB 1	SB 1			
Volume Total	38	592	391			
Volume Left	0	0	0			
Volume Right	38	0	0			
cSH	654	1700	1700			
Volume to Capacity	0.06	0.34	0.23			
Queue Length 35th (ft)	5	0	0			
Queue Delay (s)	10.0	0.9	0.0			
Lane LOS	B	B	A			
Approach Delay (s)	10.8	0.0	0.0			
Approach LOS	B		B			
Intersection Summary						
Average Delay	0.4					
Intersection Capacity Utilization	31.5%					
ICU Level of Service	A					
Analysis Period (min)	15					

10463.00: Harvard IMP
5005: Western Avenue & Smith Field Drive

2022 Build Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NW	NW	NWR	
Lane Configurations	Free			Free			Stop			Stop		
Sign Control	0%			0%			0%			0%		
Grade	0			0			0			0		
Volume (veh/h)	40	585	215	15	730	30	0	0	0	0	0	
Peak Hour Factor	0.92	0.96	0.96	0.95	0.92	0.92	0.92	0.25	0.92			
Platoon flow rate (pph)	43	659	224	16	768	33	0	0	0			
Platoon length (ft)												
Lane Width (ft)	12											
Walking Speed (ft/s)	4.0											
Percent Blockage	None											
Right turn flare (veh)	None											
Median storage (veh)	None											
px platoon unblocked	0.74	271	0.91	406	0.78	0.74	0.78	0.78				
vc conflicting volume	801	833	833	1737	785	1625	1641					
vc1 stage 1 conf vol												
vc2 stage 2 conf vol												
vcu unblocked vol	730	817	817	1767	708	1624	1645					
lc single (s)	4.1	4.2	4.2	6.5	6.2	7.1	6.5					
pf (s)	2.2	2.3	2.3	4.0	3.3	3.5	4.0					
pf queue free %	93	98	98	100	100	100	100					
cm capacity (veh/h)	645	718	718	60	321	61	71					
Direction Lane #	EB 1 WB 1											
Volume Total	877	817										
Volume Left	43	16										
Volume Right	224	33										
cSH	645	718										
Volume to Capacity	0.07	0.02										
Queue Length 30th (ft)	5	0										
Queue Delay (s)	1.8	0.6										
Lane LOS	A	A										
Approach Delay (s)	1.9	0.6										
Approach LOS	C	D										
Intersection Summary												
Average Delay	1.3											
Intersection Capacity Utilization	76.2%											
ICU Level of Service	D											
Analysis Period (min)	15											

10463.00: Harvard IMP
7: Western Avenue & Academic Way

2022 Build Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	Free			Free			Stop			Stop		
Sign Control	0%			0%			0%			0%		
Grade	0			0			0			0		
Volume (veh/h)	0	445	50	10	435	150	20	20	5	60	65	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Platoon flow rate (pph)	0	484	54	11	473	163	22	22	5	65	71	0
Platoon length (ft)												
Lane Width (ft)	12											
Walking Speed (ft/s)	4.0											
Percent Blockage	None											
Right turn flare (veh)	None											
Median storage (veh)	None											
px platoon unblocked	0.68	681	0.76	1152	0.80	0.80	0.76	0.80	0.80	0.80	0.68	
vc conflicting volume	636	538	538	1122	1188	511	1103	1114	554			
vc1 stage 1 conf vol												
vc2 stage 2 conf vol												
vcu unblocked vol	486	4.1	392	4.1	703	356	679	693	347			
lc single (s)	4.1	4.1	4.1	7.1	6.5	6.2	7.1	6.5	6.2			
pf (s)	2.2	2.2	2.2	3.5	4.0	3.3	3.5	4.0	3.3			
pf queue free %	100	99	99	90	92	99	76	76	100			
cm capacity (veh/h)	747	886	886	227	266	523	269	291	475			
Direction Lane #	EB 1 WB 1 NB 1 SB 1											
Volume Total	538	647	49	136								
Volume Left	0	11	22	65								
Volume Right	54	163	5	0								
cSH	747	886	260	280								
Volume to Capacity	0.00	0.01	0.19	0.49								
Queue Length 30th (ft)	0	0	0	17								
Queue Delay (s)	0.0	0.3	22.0	26.2								
Lane LOS	A	C	D	D								
Approach Delay (s)	0.0	0.3	22.0	29.4								
Approach LOS	C	C	D	D								
Intersection Summary												
Average Delay	3.9											
Intersection Capacity Utilization	55.8%											
ICU Level of Service	B											
Analysis Period (min)	15											

10463.00: Harvard IMP
 6: Science Drive & Rotterdam Street

2022 Build Conditions
 Weekday Morning

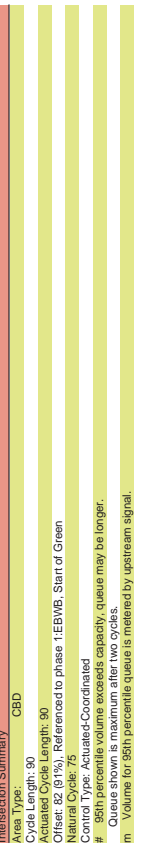


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Stop	Stop	Free	Free	Free	Free
Sign Control	0%	0%	0%	0%	0%	0%
Grade	40	10	45	285	20	65
Volume (veh/h)	0.92	0.92	0.92	0.92	0.92	0.92
Peak Hour Factor	4.3	11	49	310	22	71
Priority flow rate (pph)						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median storage (veh)						
Median storage (veh)						
Median storage (veh)						
pX, platoon unblocked						
VC, conflicting volume	465	57	92			
VC1, stage 1 cont vol						
VC2, stage 2 cont vol						
vCU, unblocked vol	465	57	92			
IC, single (s)	6.4	6.2	4.1			
IC, stage (s)						
p0 queue free %	3.5	3.3	2.2			
ICM capacity (veh/h)	538	1009	1502			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	54	359	92			
Volume Left	43	49	0			
Volume Right	11	0	71			
cSH	593	1502	1700			
Volume to Capacity	0.09	0.03	0.05			
Queue Length 35th (ft)	0	0	0			
Queue Length 50th (ft)	0	0	0			
Lane LOS	B	A	B			
Approach Delay (s)	11.7	1.3	0.0			
Approach LOS	B	B	B			
Intersection Summary						
Average Delay			2.2			
Intersection Capacity Utilization			34.2%			A
Analysis Period (min)			15			

10463.00: Harvard IMP
5003: Western Avenue & Telford Street

2022 Build Conditions
Weekday Evening

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL SBT SBR											
Lane Configurations	1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900											
Ideal Flow (vphpl)	11	11	11	11	11	11	11	11	11	11	12	12
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	12	12
Grades (%)	0	0	0	0	0	0	0	0	0	0	0	0
Storage Length (ft)	0	125	0	0	0	0	0	100	0	0	0	0
Storage Spaces (s)	0	0	0	0	0	0	0	0	0	0	0	0
Storage Delay (s)	0	0	0	0	0	0	0	0	0	0	0	0
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	9
Right Turn on Red	Yes											
Link Speed (mph)	30											
Link Delay (s)	153											
Link Volume (vph)	30											
Volume (vph)	20 700 150 150 705 10 105 15 75 10 0 5											
Conf. Peds. (#/hr)	0											
Peak Hour Factor	0.92											
Growth Factor	100%											
Heavy Vehicles (%)	0%											
Parking (ft/hr)	0											
Mid-Block Traffic (%)	0%											
Lane Group Flow (vph)	0 946 0 163 777 0 0 130 82 0 16 0											
Turn Type	Perm Perm											
Protected Phases	1 1 1 3 3 3 3											
Permitted Phases	1 1 1 3 3 3 3											
Minimum Initial (s)	10.0 10.0 10.0 10.0 7.0 7.0 7.0 7.0											
Minimum Split (s)	23.0 23.0 23.0 23.0 21.0 21.0 21.0 21.0											
Total Split (s)	67.0 67.0 67.0 67.0 67.0 67.0 67.0 67.0											
Total Split (%)	74.4% 74.4% 0.0% 74.4% 74.4% 0.0% 25.6% 25.6% 25.6% 25.6% 0.0%											
Yellow Time (s)	3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0											
Allied Time (s)	2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0											
Lead Lag Optimize?	No											
Recall Mode	C-Max C-Max C-Max C-Max C-Max C-Max C-Max C-Max											
v/c Ratio	0.79 0.46 0.63 0.68 0.28 0.07											
Control Delay	14.4 5.0 4.9 53.0 9.9 24.6											
Queue Delay	18.3 0.0 0.6 0.6 0.0 0.0											
Queue Length	33.6 5.0 5.5 53.6 9.9 24.6											
Queue Length 95th (ft)	17 17 17 17 17 17 17 17											
Internal Link Dist (ft)	#682 m1 m49 m124 36 22											
Internal Link Dist (ft)	285 125 73 242 100											
Turn Bay Length (ft)	1194 352 1242 254 356 294											
Base Capacity (vph)	265 0 180 0 0 0											
Starvation Cap Reductn	0 0 0 0 0 0											
Spillback Cap Reductn	0 0 0 0 0 0											
Storage Cap Reductn	0 0 0 0 0 0											
Reduces v/c Ratio	1.02 0.46 0.73 0.66 0.23 0.06											
Intersection Summary												
Area Type	CBD											
Area Length	100											
Area Width	80											
Actuated Cycle Length	90											
Offser: 82 (91%), Referenced to phase 1:EBWB, Start of Green												
Natural Cycle: 75												
Control Type: Actuated-Coordinated												
# 95th percentile volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												
m 95th percentile queue is metered by upstream signal.												



Splits and Phases: 5003: Western Avenue & Telford Street

10463.00: Harvard IMP
5003: Western Avenue & Telford Street

2022 Build Conditions
Weekday Evening

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL SBT SBR											
Lane Configurations	1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900											
Ideal Flow (vphpl)	11	11	11	11	11	11	11	11	11	11	12	12
Lane Width (ft)	11	11	11	11	11	11	11	11	11	11	12	12
Grades (%)	0	0	0	0	0	0	0	0	0	0	0	0
Storage Length (ft)	0	125	0	0	0	0	0	100	0	0	0	0
Storage Spaces (s)	0	0	0	0	0	0	0	0	0	0	0	0
Storage Delay (s)	0	0	0	0	0	0	0	0	0	0	0	0
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	9
Right Turn on Red	Yes											
Link Speed (mph)	30											
Link Delay (s)	153											
Link Volume (vph)	30											
Volume (vph)	20 700 150 150 705 10 105 15 75 10 0 5											
Conf. Peds. (#/hr)	0											
Peak Hour Factor	0.92											
Growth Factor	100%											
Heavy Vehicles (%)	0%											
Parking (ft/hr)	0											
Mid-Block Traffic (%)	0%											
Lane Group Flow (vph)	0 946 0 163 777 0 0 130 82 0 16 0											
Turn Type	Perm Perm											
Protected Phases	1 1 1 3 3 3 3											
Permitted Phases	1 1 1 3 3 3 3											
Minimum Initial (s)	10.0 10.0 10.0 10.0 7.0 7.0 7.0 7.0											
Minimum Split (s)	23.0 23.0 23.0 23.0 21.0 21.0 21.0 21.0											
Total Split (s)	67.0 67.0 67.0 67.0 67.0 67.0 67.0 67.0											
Total Split (%)	74.4% 74.4% 0.0% 74.4% 74.4% 0.0% 25.6% 25.6% 25.6% 25.6% 0.0%											
Yellow Time (s)	3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0											
Allied Time (s)	2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0											
Lead Lag Optimize?	No											
Recall Mode	C-Max C-Max C-Max C-Max C-Max C-Max C-Max C-Max											
v/c Ratio	0.79 0.46 0.63 0.68 0.28 0.07											
Control Delay	14.4 5.0 4.9 53.0 9.9 24.6											
Queue Delay	18.3 0.0 0.6 0.6 0.0 0.0											
Queue Length	33.6 5.0 5.5 53.6 9.9 24.6											
Queue Length 95th (ft)	17 17 17 17 17 17 17 17											
Internal Link Dist (ft)	#682 m1 m49 m124 36 22											
Internal Link Dist (ft)	285 125 73 242 100											
Turn Bay Length (ft)	1194 352 1242 254 356 294											
Base Capacity (vph)	265 0 180 0 0 0											
Starvation Cap Reductn	0 0 0 0 0 0											
Spillback Cap Reductn	0 0 0 0 0 0											
Storage Cap Reductn	0 0 0 0 0 0											
Reduces v/c Ratio	1.02 0.46 0.73 0.66 0.23 0.06											
Intersection Summary												
Area Type	CBD											
Area Length	100											
Area Width	80											
Actuated Cycle Length	90											
Offser: 82 (91%), Referenced to phase 1:EBWB, Start of Green												
Natural Cycle: 75												
Control Type: Actuated-Coordinated												
# 95th percentile volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												
m 95th percentile queue is metered by upstream signal.												

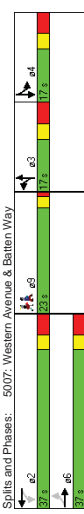


Splits and Phases: 5003: Western Avenue & Telford Street

10463.00: Harvard IMP
5007: Western Avenue & Batten Way

2022 Build Conditions
Weekday Evening

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	e9											
Lane Configurations	1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900											
Ideal Flow (vphpl)	12	16	16	16	16	16	12	16	12	16	12	12
Lane Width (ft)	12	16	16	16	16	16	12	16	12	16	12	12
Grade (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Storage Length (ft)	0	120	0	0	0	0	0	0	0	0	0	0
Storage Length (s)	0	0	0	0	0	0	0	0	0	0	0	0
Storage Length (ft)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Trailing Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	9
Link Turn on Red	Yes											
Link Speed (mph)	30											
Link Delay (s)	11.62											
Link Delay (s)	3.2											
Volume (vph)	25	510	0	35	555	40	65	30	170	85	20	70
Conf. Peds. (#/hr)	0											
Peak Hour Factor	0.84											
Growth Factor	100%											
Heavy Vehicles (%)	4%											
Heavy Vehicles (vph)	0											
Parking (#/hr)	0											
Mid-Block Traffic (%)	0%											
Lane Group Flow (vph)	30	607	0	37	633	0	0	319	0	233	0	233
Turn Type	Perm											
Protected Phases	6 2 2 2 2 2 3 3 3 4 4 4 9											
Minimum Initial (s)	10.0											
Minimum Split (s)	17.0											
Total Split (%)	39.4%											
Yellow Time (s)	3.0											
Allied Time (s)	4.0											
Lead Lag	Yes											
Recall Mode	Max											
v/c Ratio	0.36											
Control Delay	36.8											
Queue Delay	36.8											
Queue Length (ft)	447											
Queue Length (ft)	462											
Internal Link Dist (ft)	1072											
Turn Bay Length (ft)	120											
Base Capacity (vph)	83											
Starvation Cap Reductn	0											
Storage Cap Reductn	0											
Recessed v/c Ratio	0.36											



Spells and Phases: 5007: Western Avenue & Batten Way

Area Type: CBD

Control Type: Semi Act-Uncoordinated

Control Cycle: 120

Queue shown is maximum after two cycles.

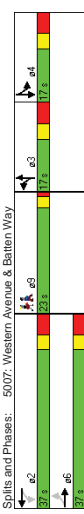
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

10463.00: Harvard IMP
5007: Western Avenue & Batten Way

2022 Build Conditions
Weekday Evening

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900											
Ideal Flow (vphpl)	12	16	16	16	16	16	12	16	12	16	12	12
Lane Width (ft)	12	16	16	16	16	16	12	16	12	16	12	12
Grade (%)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Storage Length (ft)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Storage Length (s)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Storage Length (ft)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Trailing Detector (ft)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Trailing Detector (ft)	0.95	1.00	1.00	0.99	1.00	0.99	1.00	0.99	1.00	0.95	1.00	0.95
Turning Speed (mph)	15.56	18.63	17.66	18.40	14.18	14.18	15.48	15.48	15.48	15.48	15.48	15.48
Link Turn on Red	0.14											
Link Speed (mph)	237											
Link Delay (s)	315											
Link Delay (s)	1863											
Volume (vph)	25	510	0	35	555	40	65	30	170	85	20	70
Conf. Peds. (#/hr)	0											
Peak Hour Factor	0.84											
Growth Factor	100%											
Heavy Vehicles (%)	4%											
Heavy Vehicles (vph)	0											
Parking (#/hr)	0											
Mid-Block Traffic (%)	0%											
Lane Group Flow (vph)	30	607	0	37	631	0	0	319	0	233	0	233
Turn Type	Perm											
Protected Phases	6 6 6 2 2 2 3 3 3 4 4 4 4											
Minimum Initial (s)	30.6											
Minimum Split (s)	33.6											
Total Split (%)	7.0											
Yellow Time (s)	2.0											
Allied Time (s)	2.0											
Lead Lag	Yes											
Recall Mode	Max											
v/c Ratio	0.13											
Control Delay	97											
Queue Delay	97											
Queue Length (ft)	129											
Queue Length (ft)	756											
Internal Link Dist (ft)	229											
Turn Bay Length (ft)	120											
Base Capacity (vph)	83											
Starvation Cap Reductn	0											
Storage Cap Reductn	0											
Recessed v/c Ratio	0.36											



Spells and Phases: 5007: Western Avenue & Batten Way

Area Type: CBD

Control Type: Semi Act-Uncoordinated

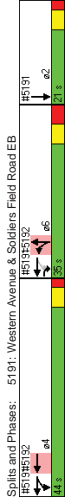
Control Cycle: 120

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	13	13	13	12	11	11	12	12	12	11	11
Lane Width (ft)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0
Storage Spaces	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	0	0	0	0	0	0	0	0	0	0	0
Trailing Speed (mph)	15	9	15	9	15	9	15	9	15	9	15
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Link Speed (mph)	30	100	30	30	30	30	30	30	30	30	30
Link Distance (ft)	42	100	42	88	88	42	88	88	42	88	88
Turn Lane(s)	112	2	112	2	2	2	112	2	112	2	2
Volume (vph)	0	0	895	1160	575	0	0	0	0	0	590
Confl. Peds. (#/hr)											
Confl. Bikes (#/hr)											
Peak Hour Factor	0.85	0.85	0.97	0.97	0.97	0.92	0.92	0.92	0.85	0.85	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	0%	0%	0%	2%	2%	0%	0%	0%	0%
Parking (#/hr)	0	0	0	0	0	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	0	0	1041	1196	593	0	0	0	0	0	664
Turn Type	custom	pm+pt									
Protected Phases	6	4	6								
Permitted Phases	6	4	6								
Minimum Initial (s)	14.0	14.0									
Minimum Split (s)	22.0	20.0									
Total Split (s)	0.0	0.0	35.0	44.0	79.0	0.0	0.0	0.0	0.0	21.0	0.0
Total Split (%)	0.0%	0.0%	35.0%	44.0%	79.0%	0.0%	0.0%	0.0%	0.0%	21.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Allied Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead-Lag											
Lead-Lag Optimize?											
Recall Mode	Ped	C-Mh								Ped	Ped
v/c Ratio	1.99	0.51	0.48							1.24	
Control Delay	474.6	0.6	0.8							160.7	
Queue Delay	0.0	0.0	0.0							0.0	
Queue Length	474.6	0.6	0.8							160.7	
Queue Length 95th (ft)	0	0	0							4394	
Queue Length 95th (ft)	#1162	nr	n1							4394	
Internal Link Dist (ft)	414		20							818	
Turn Bay Length (ft)			523		2368	1240				534	
Base Capacity (vph)	0	0	0							0	
Starvation Cap Reductn	0	0	0							0	
Starvation Cap Reductn	0	0	0							0	
Storage Cap Reductn	0	0	0							0	
Reaches v/c Ratio	1.99	0.51	0.48							1.24	
Intersection Summary											
Area Type	CBD										
Control Type	Actuated-Coordinate										
Actuated Cycle Length	100										
Offser	62 (62%), Referenced to phase 4:WBT-L, Start of 1st Green										
Natural Cycle	150										
Control Type: Actuated-Coordinate											
-	Volume exceeds capacity, queue is theoretically infinite.										
-	Queue shown is maximum after two cycles.										
#	Split phase volume exceeds capacity, queue may be longer.										
#	Control Type: Actuated-Coordinate										
m	Volume for 85th percentile queue is met/beat by upstream signal.										

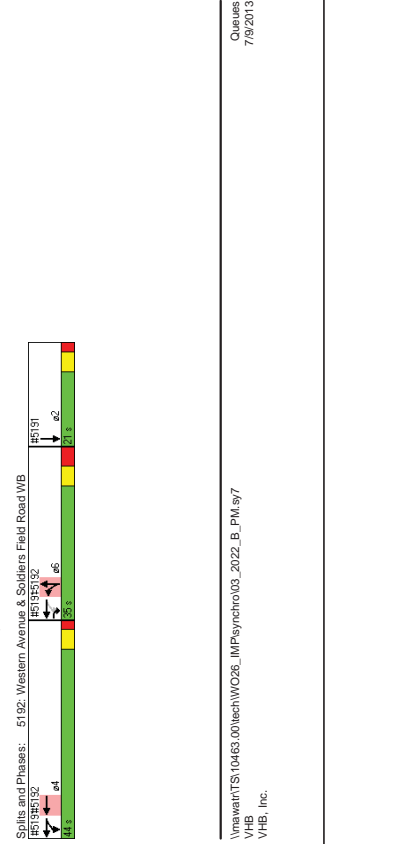


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	13	13	13	12	11	11	12	12	12	11	11
Lane Width (ft)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost Time (s)	1.00	0.97	1.00							0.95	
Lane Util. Factor	1.00	0.97	1.00							0.95	
Flt Protected	0	0	0	0	0	0	0	0	0	0	0
Satd. Flow (prot)	1470	3152	1653							3103	
Flt Permitted	1.00	0.95	1.00							1.00	
Satd. Flow (perm)	1470	3152	1653							3103	
Volume (vph)	0	0	885	1160	575	0	0	0	0	0	580
Peak-hour factor, PHF	0.85	0.85	0.97	0.97	0.97	0.92	0.92	0.92	0.85	0.85	0.95
Adj. Flow (vph)	0	0	1041	1196	593	0	0	0	0	0	611
Adj. Satd. Flow (vph)	0	0	1192	1405	714	0	0	0	0	0	657
Lane Group Flow (vph)	0	0	973	1192	593	0	0	0	0	0	657
Heavy Vehicles (%)	4%	4%	0%	0%	0%	2%	2%	0%	0%	0%	0%
Turn Type	custom	pm+pt									
Protected Phases	6	4	6								
Permitted Phases	6	4	6								
Actuated Green, G (s)	27.0	65.0	71.0							15.0	
Effective Green, g (s)	31.0	71.0	75.0							17.0	
Clearance Time (s)	8.0	6.0	6.0							6.0	
Vehicle Extension (s)	2.0	2.0								2.0	
Lane Cap. Prot (vph)	456	2364	1240							528	
v/s Ratio Prot	c0.66	c0.20	0.36							c0.21	
v/s Ratio Perm	2.13	0.50	0.48							1.25	
v/c Ratio	34.5	6.5	4.9							41.5	
Uniform Delay, d1	0.0	0.0	0.1							0.1	
Incremental Delay, d2	517.9	0.0	0.0							125.5	
Delay (s)	552.4	0.8	0.6							167.0	
Level of Service	F	A	A							F	
Approach Delay (s)	552.4		0.6							167.0	
Approach LOS	F	A	A							F	
Intersection Summary											
HCM Average Control Delay	196.6										
HCM Volume to Capacity ratio	1.23										
Actuated Cycle Length (s)	100.0										
Sum of lost time (s)	12.0										
Intersection Capacity Utilization	156.0%										
ICU Level of Service	H										
Approach	15										
6 Critical Lane Group											

10463.00: Harvard IMP
5192: Western Avenue & Soldiers Field Road WB

2022 Build Conditions
Weekday Evening

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	
Lane Group	a2								a2			
Lane Configurations	1900 1900		1900 1900						1900 1900			
Ideal Flow (vphpl)	12 12		11 11						11 11			
Lane Width (ft)	0		0						0			
Grade (%)	0%		0%						0%			
Storage Length (ft)	0		0						0			
Storage Times (s)	0		0						0			
Trailing Detector (ft)	4.0		6.0						4.0			
Trailing Detector (ft)	0		0						0			
Trailing Speed (mph)	15		9						15			
Right Turn on Red	30		No						Yes			
Link Speed (mph)	100		41						185			
Link Distance (ft)	2		1018						486			
Volume (vph)	0		0						1590			
Conf. Peds. (#/hr)	0		0						0			
Peak Hour Factor	0.92		0.98						0.95			
Growth Factor	100%		100%						100%			
Heavy Vehicles (%)	2%		1%						2%			
Parking (veh)	0		0						0			
Mid-Block Traffic (%)	0%		0%						0%			
Lane Group Flow (vph)	0		0						558			
Turn Type	Protected Phases		Protected Phases						Protected Phases			
Permitted Phases	4		4						6			
Minimum Initial (s)	14.0		14.0						14.0			
Minimum Split (s)	20.0		22.0						20.0			
Total Split (s)	0.0		0.0						35.0			
Total Split (%)	0.0%		0.0%						35.0%			
Yellow Time (s)	4.0		4.0						4.0			
AllRed Time (s)	2.0		2.0						4.0			
Recall Mode	C-Min		Ped						Ped			
v/c Ratio	1.29		0.61						0.61			
Queue Delay	165.0		30.7						30.7			
Queue Length	178.4		30.7						30.7			
Queue Length 95th (ft)	473.0		202						202			
Internal Link Dist (ft)	384		1071						1071			
Turn Bay Length (ft)	1638		919						919			
Starvation Cap Reductn	8		11						11			
Storage Cap Reductn	37		11						11			
Reduction Ratio	1.92		0.61						0.61			



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10463.00: Harvard IMP
5192: Western Avenue & Soldiers Field Road WB

2022 Build Conditions
Weekday Evening

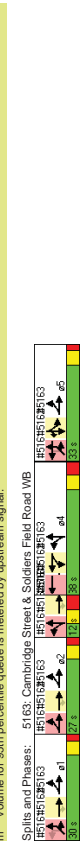
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	
Lane Configurations	1900 1900		1900 1900						1900 1900			
Ideal Flow (vphpl)	12 12		11 11						11 11			
Lane Width (ft)	0		0						0			
Grade (%)	0%		0%						0%			
Storage Length (ft)	0		0						0			
Storage Times (s)	0		0						0			
Trailing Detector (ft)	4.0		6.0						4.0			
Trailing Detector (ft)	0		0						0			
Trailing Speed (mph)	15		9						15			
Right Turn on Red	30		No						Yes			
Link Speed (mph)	100		41						185			
Link Distance (ft)	2		1018						486			
Volume (vph)	0		0						1590			
Conf. Peds. (#/hr)	0		0						0			
Peak Hour Factor	0.92		0.98						0.95			
Growth Factor	100%		100%						100%			
Heavy Vehicles (%)	2%		1%						2%			
Parking (veh)	0		0						0			
Mid-Block Traffic (%)	0%		0%						0%			
Lane Group Flow (vph)	0		0						217			
Turn Type	Protected Phases		Protected Phases						Protected Phases			
Permitted Phases	4		4						6			
Minimum Initial (s)	38.0		38.0						27.0			
Minimum Split (s)	36.0		36.0						23.0			
Clearance Time (s)	6.0		6.0						8.0			
Vehicle Extension (s)	2.0		2.0						2.0			
Lane Gap Cap (vph)	1638		881						881			
v/s Ratio Prot	c0.49		c0.17						c0.17			
v/c Ratio Perm	1.29		0.99						0.99			
Uniform Delay, d1	31.0		30.4						30.4			
Uniform Delay, d2	136.3		0.7						0.7			
Delay (s)	167.3		31.1						31.1			
Level of Service	F		F						C			
Approach Delay (s)	0.0		167.3						31.1			
Approach LOS	A		F						C			
Intersection Summary	138.9		138.9						138.9			
HCM Average Control Delay	0.99		0.99						0.99			
HCM Volume to Capacity Ratio	100.0		100.0						100.0			
Actuated Cycle Length (s)	156.0%		156.0%						156.0%			
Actuated Capacity Utilization	15		15						15			
Sum of lost time (s)	33.0		33.0						33.0			
ICU Level of Service	H		H						H			
Critical Lane Group	6		6						6			

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8/9/2013

10463.00: Harvard IMP
5163: Cambridge Street & Soldiers Field Road WB

2022 Build Conditions
Weekday Evening

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	e1	e2	e3	e5
Lane Group	EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL SBR e1 e2 e3 e5														
Lane Configurations	4+1+1														
Ideal Flow (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	12	12	12	11	10	10	12	12	12	12	12	12
Grades (%)	0%														
Storage Length (ft)	0														
Storage Length (s)	0														
Storage Times (s)	0														
Lead Time (s)	0														
Leading Detector (ft)	50														
Trailing Detector (ft)	0														
Turning Speed (mph)	15														
Right Turn on Red	No														
Link Speed (mph)	30														
Link Distance (ft)	86														
Turn Proportion	2														
Volume (vph)	440														
Confl. Peds. (#/hr)	0														
Confl. Bikes (#/hr)	0														
Peak Hour Factor	0.96														
Growth Factor	100%														
Heavy Vehicles (%)	1%														
Parking (#/hr)	0														
Mid-Block Traffic (%)	0%														
Lane Group Flow (vph)	0														
Turn Type	Split														
Protected Phases	1 2 3 5														
Minimum Split (s)	17.0														
Total Split (s)	102.0														
Yellow Time (s)	72.9%														
All-Red Time (s)	4.0														
Recall Mode	Ped														
Control Delay	0.66														
Queue Delay	0.2														
Queue Length (ft)	388.7														
Queue Length (veh)	49.8														
Internal Link Dist (ft)	375														
Turn Bay Length (ft)	341														
Storage Cap Reductn	297														
Reduced v/r Ratio	0.73														



Splits and Phases: 5163: Cambridge Street & Soldiers Field Road WB
 # Split priority is maximum after two cycles.
 # Split priority is volume exclusive, queue may be longer.
 # Control shows the maximum capacity, queue may be longer.
 m - Volume for 85th percentile queue is metered by upstream signal.

10463.00: Harvard IMP
5163: Cambridge Street & Soldiers Field Road WB

2022 Build Conditions
Weekday Evening

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	4+1+1										
Ideal Flow (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	12	12	12	11	10	10	12	12
Total Lost time (s)	4.0										
Lane Util. Factor	0.81										
Flt Protected	0.96										
Satd. Flow (prot)	4418										
Flt Permitted	0.99										
Satd. Flow (perm)	4418										
Volume (vph)	440										
Peak-hour factor, PHF	0.96										
Adj. Flow (vph)	438										
Lane Group Flow (vph)	0										
Lane Group Flow (vph)	2041										
Heavy Vehicles (%)	1%										
Turn Type	Split										
Protected Phases	1 2 3 5										
Permitted Phases	4										
Actuated Green, G (s)	94.0										
Effective Green, g (s)	95.0										
Clearance Time (s)	0.70										
Vehicle Extension (s)	8.0										
Lane Cap (vph)	3083										
v/r Ratio Prot	c0.46										
v/r Ratio Perm	c0.36										
v/c Ratio	0.66										
Uniform Delay, d1	1.57										
Incremental Delay, d2	0.3										
Delay (s)	269.8										
Level of Service	F										
Approach Delay (s)	0.5										
Approach LOS	A										
Intersection Summary	106.6 HCM Level of Service F										
HCM Average Control Delay	0.88										
Actuated Cycle Length (s)	140.0										
Intersection Capacity Utilization	79.1%										
Sum of lost time (s)	15										
ICU Level of Service	D										
Critical Lane Group	15										

HCM Level of Service F
 Sum of lost time (s) 15
 ICU Level of Service D
 Critical Lane Group 15

10463.00: Harvard IMP
1326: Cambridge Street & Windom Street

2022 Build Conditions
Weekday Evening

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900
Ideal Flow (vph)	12	10	10	14	14	14
Lane Width (ft)	0%	0%	0%	0%	0%	0%
Grade (%)	175	0	0	0	100	0
Storage Length (ft)	4.0	4.0	4.0	4.0	4.0	4.0
Storage Spaces (s)	50	50	50	50	50	50
Leading Detector (ft)	0	0	0	0	0	0
Trailing Detector (ft)	15	0	0	0	0	0
Turning Speed (mph)	40	30	30	30	30	30
Link Speed (mph)	200	1000	1000	757	1000	757
Link Distance (ft)	300	1000	1000	167	1000	167
Volume (vph)	10	895	1735	245	130	120
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)	0.93	0.93	0.91	0.84	0.84	0.84
Peak Hour Factor	100%	100%	100%	100%	100%	100%
Growth Factor	1%	1%	1%	1%	1%	1%
Heavy Vehicles (%)	0	0	0	0	0	0
Parking (ft/hr)	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	11	973	1907	269	155	143
Turn Type	pm+pt	Perm	Perm	Perm	Prot	Prot
Protected Phases	2	1, 2	1	3	3	3
Permitted Phases	1, 2	1	1	3	3	3
Minimum Initial (s)	6.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	10.0	13.0	13.0	20.0	20.0	20.0
Total Split (s)	14.0	90.0	76.0	20.0	20.0	20.0
Total Split (%)	12.7%	81.8%	69.1%	89.1%	18.2%	18.2%
Yellow Time (s)	3.0	4.0	4.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lead Lag	Yes	Yes	Yes	Yes	Yes	Yes
Lead/Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Min	C-Max	C-Max	Min	Min	Min
v/c Ratio	0.07	0.28	0.89	0.26	0.75	0.46
Control Delay	1.8	1.3	20.2	1.4	68.6	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Queue Length	1.8	1.3	20.2	1.4	68.6	12.2
Queue Length 95th (ft)	1	1	26	1	0	0
Queue Length 95th (ft)	m1	m26	4632	25	161	46
Internal Link Dist (ft)	120	980	654	100	100	100
Turn Bay Length (ft)	175	3625	2141	1035	250	345
Base Capacity (vph)	0	0	0	0	0	0
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduction v/c Ratio	0.06	0.27	0.89	0.26	0.62	0.41

Intersection Summary
Area Type: CBD
Area Length: 110
Actuated Cycle Length: 110
Offset: 93 (85%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Cue shown is maximum after two cycles.
m - Volume for 95th percentile queue is metered by upstream signal.



Spills and Phases: 1326: Cambridge Street & Windom Street

10463.00: Harvard IMP
1326: Cambridge Street & Windom Street

2022 Build Conditions
Weekday Evening

	EBL	EBT	WBT	WBR	SBL	SBR
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900
Ideal Flow (vph)	12	10	10	14	14	14
Lane Width (ft)	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	1.00	0.81	0.85	1.00	1.00	1.00
Lane Util. Factor	0.96	1.00	1.00	0.85	0.85	0.85
Storage Length (ft)	4.0	4.0	4.0	4.0	4.0	4.0
Storage Spaces (s)	50	50	50	50	50	50
Leading Detector (ft)	0	0	0	0	0	0
Trailing Detector (ft)	1608	4314	3002	1343	1716	1535
Satd. Flow (prot)	0.06	1.00	1.00	1.00	0.95	1.00
Std. Flow (perm)	105	4314	3002	1343	1716	1535
Volume (vph)	10	905	1735	245	130	120
Peak-hour factor, PHF	0.93	0.93	0.91	0.91	0.84	0.84
Adj. Flow (vph)	11	973	1907	269	155	143
Flow (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	11	973	1907	192	155	143
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type	pm+pt	Perm	Perm	Perm	Prot	Prot
Protected Phases	2	1, 2	1	3	3	3
Permitted Phases	1, 2	1	1	3	3	3
Actuated Green, G (s)	83.8	88.8	77.4	77.4	13.2	13.2
Effective Green, g (s)	84.8	88.8	78.4	78.4	13.2	13.2
Clearance Time (s)	6.0	0.81	0.85	0.85	0.85	0.85
Vehicle Extension (s)	4.0	5.0	5.0	4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lane Cap (vph)	168	3483	2140	957	206	184
v/s Ratio Prot	0.00	c0.23	c0.64	c0.09	0.01	0.01
v/s Ratio Perm	0.05	0.28	0.89	0.20	0.75	0.09
v/c Ratio	0.07	0.28	0.89	0.20	0.75	0.09
Uniform Delay, d1	18.0	2.8	12.4	5.3	46.8	43.1
Incremental Delay, d2	0.0	0.0	6.1	0.5	12.9	0.1
Incremental Delay, d2	0.0	0.0	6.1	0.5	12.9	0.1
Delay (s)	6.4	1.1	18.6	5.8	59.7	43.2
Level of Service	A	A	B	A	E	D
Approach Delay (s)	A	B	A	B	D	D
Approach LOS	A	B	A	B	D	D

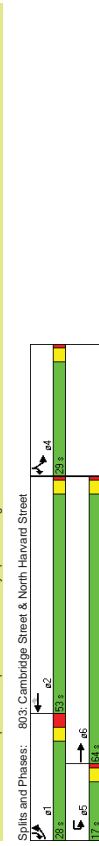
Intersection Summary
HCM Average Control Delay: 15.5 HCM Level of Service: B
HCM Volume to Capacity ratio: 0.81
Actuated Cycle Length (s): 110.0 Sum of lost time (s): 8.0
Intersection Capacity Utilization: 66.2% ICU Level of Service: C
Area Type: CBD
Area Length: 110
Actuated Cycle Length: 110

10463.00: Harvard IMP
803: Cambridge Street & North Harvard Street

2022 Build Conditions
Weekday Evening

	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	11	11	10	11	10	12	12
Lane Width (ft)	0%	0%	0%	0%	0%	0%	0%
Storage Length (ft)	200	120	100	0	50		
Grade (%)	0	0	0	0	0	0	0
Storage Length (ft)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Storage Length (ft)	50	50	50	50	50	50	50
Leading Detector (ft)	0	0	0	0	0	0	0
Trailing Detector (ft)	15	9	9	9	15	9	9
Turning Speed (mph)			Yes		No		
Right Turn on Red							
Link Speed (mph)	40	30	30	30	30	30	30
Link Distance (ft)	426	426	426	426	426	426	426
Link Delay (s)	83	83	83	83	83	83	83
Volume (vph)	290	1625	110	1375	380	330	310
Confl. Peds. (#/hr)	10						
Confl. Bikes (#/hr)							
Peak Hour Factor	0.90	0.92	0.92	0.92	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	1%	1%	2%	2%	0	0
Parking (#/hr)	0	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	322	1806	120	1495	413	355	333
Turn Type	Prot	Prot	Perm	Perm	ptov	ptov	ptov
Protected Phases	1	6	5	2	4	1	4
Minimum Initial (s)	8.0	12.0	8.0	12.0	12.0	12.0	12.0
Minimum Split (s)	14.0	16.0	12.0	25.0	25.0	29.0	29.0
Total Split (s)	28.0	64.0	17.0	53.0	53.0	29.0	57.0
Total Split (%)	25.5%	55.2%	15.5%	48.2%	48.2%	26.4%	51.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Allowed Time (s)	3.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead Lag (ft)	Lead	Lag	Lead	Yes	Lag	Yes	Lag
Lead/Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	Max	C-Max	C-Max	Min	Min
v/c Ratio	0.92	0.73	0.63	1.06	0.62	0.95	0.48
Control Delay	75.9	17.4	64.1	56.6	9.3	77.1	21.5
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0
Queue Length	75.9	17.6	64.1	56.6	9.3	77.1	21.5
Queue Length 95th (ft)	me557	m449	m105	#742	m74	#428	232
Internal Link Dist (ft)	200	408	120	345	100	497	50
Turn Bay Length (ft)	350	2458	191	1417	667	377	692
Base Capacity (vph)	0	0	0	0	0	0	0
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reaches v/c Ratio	0.92	0.77	0.63	1.06	0.62	0.94	0.48

Intersection Summary
Area Type: CBD
Area Length: 110
Area Width: 110
Actuated Cycle Length: 110
Offser: 5 (5%), Referenced to phase 2/WBT and 6/EBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
- Volume exceeds capacity, queue is theoretically infinite.
- Queue shown is maximum after two cycles.
- Split phasing volume exceeds capacity, queue may be longer.
- Control shown is theoretical, may not be implemented.
- Control shown is theoretical, may not be implemented.
m - Volume for 85th percentile queue is met/beat by upstream signal.



10463.00: Harvard IMP
803: Cambridge Street & North Harvard Street

2022 Build Conditions
Weekday Evening

	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	11	11	10	11	10	12	12
Lane Width (ft)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Total Lost time (s)	1.00	0.81	1.00	0.95	1.00	1.00	1.00
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Storage Length (ft)	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Grade (%)	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Storage Length (ft)	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Leading Detector (ft)	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Trailing Detector (ft)	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Turning Speed (mph)	15.40	44.24	15.01	31.10	12.76	15.93	14.25
Right Turn on Red	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Link Speed (mph)	15.40	44.24	15.01	31.10	12.76	15.93	14.25
Link Distance (ft)	230	1625	110	1375	380	330	310
Link Delay (s)	83	83	83	83	83	83	83
Volume (vph)	322	1806	120	1495	413	355	333
Confl. Peds. (#/hr)	0	0	0	0	85	0	0
Confl. Bikes (#/hr)	0	0	0	0	85	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	1%	1%	1%	2%	2%
Parking (#/hr)	10	10	10	10	10	10	10
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	322	1806	120	1495	328	355	333
Turn Type	Prot	2%	1%	1%	1%	2%	2%
Protected Phases	1	6	5	2	4	1	4
Minimum Initial (s)	22.0	60.1	13.0	49.1	49.1	24.9	50.9
Minimum Split (s)	25.0	61.1	14.0	50.1	50.1	25.9	53.9
Total Split (s)	6.0	4.0	4.0	4.0	4.0	4.0	4.0
Total Split (%)	3.0	2.0	2.0	2.0	2.0	2.0	3.0
Yellow Time (s)	3.00	2.67	1.91	1.416	5.81	3.75	6.88
Allowed Time (s)	c0.21	0.41	0.08	c0.48	0.96	c0.22	0.23
Lead Lag (ft)	0.92	0.74	0.63	1.06	0.66	0.95	0.48
Lead/Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	Max	C-Max	C-Max	Min	Min
v/c Ratio	41.5	18.4	45.5	29.9	21.9	41.4	18.7
Control Delay	1.15	0.84	1.22	0.71	0.51	1.00	1.00
Queue Delay	25.1	1.7	7.7	34.1	2.0	32.6	0.5
Queue Length	72.8	17.2	63.2	55.4	13.2	74.0	19.2
Queue Length 95th (ft)	E	B	E	B	E	B	E
Internal Link Dist (ft)	25.6	47.2	15.0	47.2	15.0	47.2	15.0
Turn Bay Length (ft)	25.6	47.2	15.0	47.2	15.0	47.2	15.0
Base Capacity (vph)	0	0	0	0	0	0	0
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reaches v/c Ratio	0.92	0.77	0.63	1.06	0.62	0.94	0.48

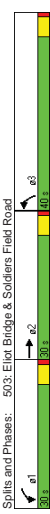
Intersection Summary
Area Type: CBD
Area Length: 110
Area Width: 110
Actuated Cycle Length: 110
Offser: 5 (5%), Referenced to phase 2/WBT and 6/EBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
- Volume exceeds capacity, queue is theoretically infinite.
- Queue shown is maximum after two cycles.
- Split phasing volume exceeds capacity, queue may be longer.
- Control shown is theoretical, may not be implemented.
- Control shown is theoretical, may not be implemented.
m - Volume for 85th percentile queue is met/beat by upstream signal.



10463.00: Harvard IMP
503: Elliot Bridge & Soldiers Field Road

2022 Build Conditions
Weekday Evening

	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	10	10	11	14	14
Grades (%)	0%	0%	0%	0%	0%	0%
Storage Length (ft)	180	255	0	0	0	0
Storage Length (s)	2	4	0	0	0	0
Trailing Detector (ft)	4.0	4.0	4.0	4.0	4.0	4.0
Trailing Detector (s)	0	0	0	0	0	0
Turning Speed (mph)	9	15	15	9		
Right Turn on Red	Yes					Yes
Link Speed (mph)	30		30	30		
Link Distance (ft)	465		389	270		
Link Distance (s)	8.6		6.6	4.6		
Volume (vph)	1530	0	1390	0	330	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Heavy Trucks (%)	0	0	0	0	0	0
Parking (ft/hr)						
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	1811	0	1479	0	351	0
Turn Type	Prot					
Protected Phases	2	1	3			
Permitted Phases	2	1	3			
Minimum Initial (s)	15.0	15.0	15.0			
Minimum Split (s)	20.0	20.0	20.0			
Total Split (s)	30.0	0.0	30.0	0.0	40.0	0.0
Total Split (%)	30.0%	0.0%	30.0%	0.0%	40.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Allied Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lead Lag	Yes	Yes	Yes	Yes	Yes	Yes
Lead Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Min	Max	None			
v/c Ratio	0.88	1.08	0.50			
Control Delay	33.6	76.8	30.8			
Queue Delay	0.0	0.0	0.0			
Queue Length	33.6	76.8	30.8			
Queue Length 95th (ft)	33.6	76.8	30.8			
Queue Length 95th (s)	1.1	2.5	1.1			
Internal Link Dist (ft)	#313	#414	#308	121		
Internal Link Dist (s)	345		308	190		
Turn Bay Length (ft)	1824	1372	1210			
Base Capacity (vph)	0	0	0			
Starvation Cap Reductn	0	0	0			
Spillback Cap Reductn	0	0	0			
Storage Cap Reductn	0	0	0			
Reduced v/c Ratio	0.88	1.08	0.29			



Spits and Phases: 503: Elliot Bridge & Soldiers Field Road

Area Type: CBD
 Area Length: 100
 Area Width: 100
 Actual Cycle Length: 81.1
 Natural Cycle: 90
 Control Type: Semi Act-Uncoordinated
 - Volume exceeds capacity, queue is theoretically infinite.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 Queue shown is maximum after two cycles.

10463.00: Harvard IMP
503: Elliot Bridge & Soldiers Field Road

2022 Build Conditions
Weekday Evening

	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	10	10	11	14	14
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.86	0.94	0.97			
Storage Length (ft)	180	255	0	0	0	0
Storage Length (s)	2	4	0	0	0	0
Trailing Detector (ft)	4.0	4.0	4.0	4.0	4.0	4.0
Trailing Detector (s)	0	0	0	0	0	0
Turning Speed (mph)	9	15	15	9		
Right Turn on Red	Yes					Yes
Link Speed (mph)	30		30	30		
Link Distance (ft)	465		389	270		
Link Distance (s)	8.6		6.6	4.6		
Volume (vph)	1611	0	1479	0	351	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	Prot					
Protected Phases	2	1	3			
Permitted Phases	2	1	3			
Actuated Green, G (s)	25.0	25.0	16.1			
Effective Green, g (s)	26.0	26.0	17.1			
Yellow Time (s)	4.0	4.0	4.0			
Clearance Time (s)	5.0	5.0	5.0			
Vehicle Extension (s)	4.0	4.0	4.0			
Lane Gap Cap (vph)	1823	1371	709			
v/s Ratio Prot	c0.28	c0.35	c0.10			
v/s Ratio Perm	0.88	1.08	0.50			
Uniform Delay, d1	26.1	27.5	26.2			
Incremental Delay, d2	5.6	48.6	0.7			
Delay (s)	31.8	76.1	26.9			
Level of Service	C	E	C			
Approach Delay (s)	31.8	76.1	26.9			
Approach LOS	C	E	C			

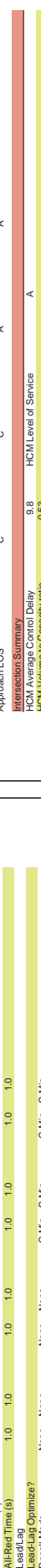


Intersection Summary
 HCM Average Control Delay: 50.5 HCM Level of Service: D
 HCM Volume to Capacity ratio: 0.86
 Actuated Cycle Length (s): 81.1 Sum of lost time (s): 12.0
 Intersection Capacity Utilization: 76.5% ICU Level of Service: D
 Approach Capacity (vph): 15
 Critical Lane Group: 6

10463.00: Harvard IMP
1: South Campus Drive & North Harvard Street

2022 Build Conditions
Weekday Evening

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900											
Ideal Flow (vph)	12 12 12 12 12 12 12 12 12 12 12 12											
Lane Width (ft)	12 12 12 12 12 12 12 12 12 12 12 12											
Lane Util. Factor	0.95 0.91 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00											
Storage Length (ft)	0 0 0 0 0 0 0 0 0 0 0 0											
Storage Lengths (%)	0 0 0 0 0 0 0 0 0 0 0 0											
Storage Length (s)	4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0											
Leading Detector (ft)	50 50 50 50 50 50 50 50 50 50 50 50											
Trailing Detector (ft)	0 0 0 0 0 0 0 0 0 0 0 0											
Turning Speed (mph)	15 9 15 0 0 0 9 15 0 0 0 0											
Right Turn on Red	Yes Yes 30 Yes 30 Yes 30 Yes 30 Yes 30 Yes											
Link Speed (mph)	54 44 54 44 54 44 54 44 54 44 54 44											
Link Distance (ft)	162 162 162 162 162 162 162 162 162 162 162 162											
Volume (vph)	40 65 55 50 20 160 25 495 0 30 425 5											
Confl. Peds. (/hr)	0 0 0 0 0 0 0 0 0 0 0 0											
Peak Hour Factor	0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92											
Growth Factor	100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 100%											
Risky Vehicles (%)	2% 2% 2% 2% 2% 2% 2% 2% 2% 2% 2% 2%											
Heavy Vehicles (%)	0 0 0 0 0 0 0 0 0 0 0 0											
Parking (ft/hr)	0 0 0 0 0 0 0 0 0 0 0 0											
Mid-Block Traffic (%)	0 0 0 0 0 0 0 0 0 0 0 0											
Lane Group Flow (vph)	Perm 174 0 0 250 0 0 565 0 0 500 0											
Turn Type	Perm 6 6 6 6 6 6 6 6 6 6 6 6											
Protected Phases	2 2 2 2 6 6 4 4 8 8 8 8											
Minimum Initial (s)	8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0											
Minimum Split (s)	19.0 19.0 19.0 19.0 19.0 19.0 19.0 19.0 19.0 19.0 19.0 19.0											
Total Split (s)	20.0 20.0 0.0 20.0 20.0 0.0 35.0 35.0 0.0 35.0 35.0 0.0											
Total Split (%)	36.4% 36.4% 0.0% 36.4% 36.4% 0.0% 63.6% 63.6% 0.0% 63.6% 63.6% 0.0%											
Yellow Time (s)	3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0											
Allied Time (s)	1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0											
Recall to Optimize?	None None None None C-Min C-Min C-Min C-Min C-Min											
Recall Mode	0.54 0.61 20.2 13.6 0.0 0.0 5.1 7.3 0.48											
Control Delay	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0											
Queue Delay	20.2 13.6 0.0 0.0 5.1 7.3 0.0 0.0 0.0											
Queue Length (ft)	27.4 27.4 69 69 m221 161 381 381 368 888											
Queue Length 95th (ft)	484 484 381 381 368 888											
Internal Link Dist (ft)	454 523 1072 1051											
Turn Bay Length (ft)	0 0 0 0 0 0 0 0 0											
Starvation Cap Reductn	0 0 0 0 0 0 0 0 0											
Storage Cap Reductn	0 0 0 0 0 0 0 0 0											
Reduced V/R Ratio	0.58 0.48 0.68 0.53 0.48											
Intersection Summary												
Area Type	CBD											
Officer	55											
Actuated Cycle Length	55											
Offset	53 (96%), Referenced to phase 4:NBT/L and 8:SBTL_Start of Green											
Natural Cycle	50											
Control Type	Actuated-Coordinated											
m	Volume for 85th percentile queue is metered by upstream signal.											



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900											
Ideal Flow (vph)	4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0											
Total Lost time (s)	0 0 0 0 0 0 0 0 0 0 0 0											
Lane Util. Factor	0.95 0.91 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00											
Storage Length (ft)	0 0 0 0 0 0 0 0 0 0 0 0											
Storage Lengths (%)	0 0 0 0 0 0 0 0 0 0 0 0											
Storage Length (s)	4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0											
Leading Detector (ft)	50 50 50 50 50 50 50 50 50 50 50 50											
Trailing Detector (ft)	0 0 0 0 0 0 0 0 0 0 0 0											
Turning Speed (mph)	15 9 15 0 0 0 9 15 0 0 0 0											
Right Turn on Red	Yes Yes 30 Yes 30 Yes 30 Yes 30 Yes 30 Yes											
Link Speed (mph)	54 44 54 44 54 44 54 44 54 44 54 44											
Link Distance (ft)	162 162 162 162 162 162 162 162 162 162 162 162											
Volume (vph)	40 65 55 50 20 160 25 495 0 30 425 5											
Confl. Peds. (/hr)	0 0 0 0 0 0 0 0 0 0 0 0											
Peak Hour Factor	0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92											
Growth Factor	100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 100%											
Risky Vehicles (%)	2% 2% 2% 2% 2% 2% 2% 2% 2% 2% 2% 2%											
Heavy Vehicles (%)	0 0 0 0 0 0 0 0 0 0 0 0											
Parking (ft/hr)	0 0 0 0 0 0 0 0 0 0 0 0											
Mid-Block Traffic (%)	0 0 0 0 0 0 0 0 0 0 0 0											
Lane Group Flow (vph)	Perm 2 2 2 6 6 6 4 4 8 8 8 8											
Turn Type	Perm 6 6 6 6 6 6 6 6 6 6 6 6											
Protected Phases	2 2 2 6 6 6 4 4 8 8 8 8											
Minimum Initial (s)	8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0											
Minimum Split (s)	20.0 20.0 0.0 20.0 20.0 0.0 35.0 35.0 0.0 35.0 35.0 0.0											
Total Split (s)	21.8 21.8 0.0 21.8 21.8 0.0 40.0 40.0 0.0 40.0 40.0 0.0											
Total Split (%)	36.4% 36.4% 0.0% 36.4% 36.4% 0.0% 63.6% 63.6% 0.0% 63.6% 63.6% 0.0%											
Yellow Time (s)	3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0											
Allied Time (s)	1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0											
Recall to Optimize?	None None None None C-Min C-Min C-Min C-Min C-Min											
Recall Mode	0.54 0.61 20.2 13.6 0.0 0.0 5.1 7.3 0.48											
Control Delay	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0											
Queue Delay	20.2 13.6 0.0 0.0 5.1 7.3 0.0 0.0 0.0											
Queue Length (ft)	27.4 27.4 69 69 m221 161 381 381 368 888											
Queue Length 95th (ft)	484 484 381 381 368 888											
Internal Link Dist (ft)	454 523 1072 1051											
Turn Bay Length (ft)	0 0 0 0 0 0 0 0 0											
Starvation Cap Reductn	0 0 0 0 0 0 0 0 0											
Storage Cap Reductn	0 0 0 0 0 0 0 0 0											
Reduced V/R Ratio	0.58 0.48 0.68 0.53 0.48											
Intersection Summary												
Area Type	CBD											
Officer	55											
Actuated Cycle Length	55											
Offset	53 (96%), Referenced to phase 4:NBT/L and 8:SBTL_Start of Green											
Natural Cycle	50											
Control Type	Actuated-Coordinated											
m	Volume for 85th percentile queue is metered by upstream signal.											

10463.00: Harvard IMP
5012: Bertram St & North Harvard Street

2022 Build Conditions
Weekday Evening

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Stop	Free	Free	Free	Free	Free
Sign Control	0%	0%	0%	0%	0%	0%
Grade	10	15	650	15	5	470
Volume (veh/h)	0.75	0.75	0.91	0.91	0.86	0.86
Peak Hour Factor	13	20	714	16	6	547
Platoon flow rate (pph)						
Platoon length (ft)						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
px platoon unblocked	0.88	0.76	300	0.76	186	
vc conflicting volume	1281	723		731		
vc1, stage 1 conf vol						
vc2, stage 2 conf vol						
vcu, unblocked vol	920	635		646		
lc, single (s)	6.4	6.2		4.1		
lf (s)	3.5	3.3		2.2		
p0 queue free %	95	95		99		
cm capacity (veh/h)	264	367		704		
Direction Lane #	WB 1	NB 1	SB 1			
Volume Total	33	731	552			
Volume Left	13	0	6			
Volume Right	20	16	0			
cSH	317	1700	704			
Volume to Capacity	0.11	0.43	0.01			
Queue Length 30th (ft)	9	0	0			
Queue Delay (s)	17.7	0.9	0.2			
Lane LOS	C	C	A			
Approach Delay (s)	17.7	0.0	0.2			
Approach LOS	C	C	C			
Intersection Summary						
Average Delay	0.5		49.0%		A	
Intersection Capacity Utilization	49.0%		ICU Level of Service		A	
Analysis Period (min)	15					

10463.00: Harvard IMP
5013: Spurr St & North Harvard Street

2022 Build Conditions
Weekday Evening

Movement	EBL	EBR	NBL	NBT	SBL	SBT
Lane Configurations	Stop	Free	Free	Free	Free	Free
Sign Control	0%	0%	0%	0%	0%	0%
Grade	25	220	0	640	480	0
Volume (veh/h)	0.87	0.87	0.91	0.86	0.86	0.86
Peak Hour Factor	29	253	0	703	556	0
Platoon flow rate (pph)						
Platoon length (ft)						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
px platoon unblocked	0.88	0.77	0.77	250	296	
vc conflicting volume	1261	568	558			
vc1, stage 1 conf vol						
vc2, stage 2 conf vol						
vcu, unblocked vol	902	425	425			
lc, single (s)	6.4	6.2	4.1			
lf (s)	3.5	3.3	2.2			
p0 queue free %	89	48	100			
cm capacity (veh/h)	270	484	859			
Direction Lane #	EB 1	EB 2	NB 1	SB 1		
Volume Total	29	253	703	553		
Volume Left	29	0	0	0		
Volume Right	0	253	0	0		
cSH	270	484	1700	1700		
Volume to Capacity	0.11	0.52	0.41	0.33		
Queue Length 30th (ft)	9	73	0	0		
Queue Delay (s)	19.6	20.3	0.0	0.0		
Lane LOS	C	C	C	C		
Approach Delay (s)	20.3	0.0	0.0	0.0		
Approach LOS	C	C	C	C		
Intersection Summary						
Average Delay	3.7		49.9%		A	
Intersection Capacity Utilization	49.9%		ICU Level of Service		A	
Analysis Period (min)	15					

10463.00: Harvard IMP
5015: Bayard Street & North Harvard Street

2022 Build Conditions
Weekday Evening

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
Sign Control	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Grade	0	0	10	0	0	0	0	595	10	5	695	0
Volume (veh/h)	0.55	0.55	0.25	0.25	0.25	0.94	0.94	0.89	0.89	0.89	0.89	0.89
Peak Hour Factor	0	0	18	0	0	0	633	11	6	761	0	
Platoon Flow Rate (pph)												
Platoon Length (ft)												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median storage (veh)												
Median storage (veh)												
pX platoon unblocked	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
vC, conflicting volume	1430	1438	781	1449	1430	638	781	644	644	644	644	644
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1598	1598	700	1614	1589	638	700	644	644	644	644	644
IC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1	4.1	4.1	4.1	4.1	4.1
IF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2	2.2	2.2	2.2	2.2	2.2
p0 queue free %	100	100	94	100	100	100	100	99	99	99	99	99
cM capacity (veh/h)	64	78	323	58	79	480	648	932	932	932	932	932
Direction Lane #	EB 1	NB 1	SB 1									
Volume Total	18	644	767									
Volume Left	0	0	6									
Volume Right	18	11	0									
cSH	323	1700	932									
Volume to Capacity	0.06	0.38	0.01									
Queue Length 35th (ft)	4	0	0									
Queue Delay (s)	16.8	0.9	0.2									
Lane LOS	C	C	A									
Approach Delay (s)	16.8	0.0	0.2									
Approach LOS	C	C	C									
Intersection Summary												
Average Delay	0.3											
Intersection Capacity Utilization	55.1%											
ICU Level of Service	B											
Analysis Period (min)	15											

10463.00: Harvard IMP
5006: Western Avenue & Travis Street

2022 Build Conditions
Weekday Evening

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	Free	Free	Free	Free	Stop	Stop
Sign Control	0%	0%	0%	0%	0%	0%
Grade	460	0	20	645	5	15
Volume (veh/h)	0.92	0.92	0.90	0.82	0.82	0.82
Peak Hour Factor	500	0	22	717	6	16
Platoon Flow Rate (pph)						
Platoon Length (ft)						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median storage (veh)						
Median storage (veh)						
pX platoon unblocked	0.76	0.76	0.76	0.76	0.76	0.76
vC, conflicting volume	500	500	1261	500	500	500
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	340	340	1345	340	340	340
IC, single (s)	4.1	4.1	6.4	6.2	6.2	6.2
IF (s)	2.2	2.2	3.5	3.3	3.3	3.3
p0 queue free %	98	98	95	97	97	97
cM capacity (veh/h)	920	920	122	529	529	529
Direction Lane #	EB 1	WB 1	NB 1			
Volume Total	500	739	24			
Volume Left	0	22	6			
Volume Right	0	0	18			
cSH	1700	920	289			
Volume to Capacity	0.29	0.02	0.08			
Queue Length 35th (ft)	0	0	0			
Queue Delay (s)	0.0	0.2	18.6			
Lane LOS	A	C	C			
Approach Delay (s)	0.0	0.6	18.6			
Approach LOS	C	C	C			
Intersection Summary						
Average Delay	0.7					
Intersection Capacity Utilization	65.6%					
ICU Level of Service	C					
Analysis Period (min)	15					

10463.00: Harvard IMP
5011: Gordon Rd & North Harvard Street

2022 Build Conditions
Weekday Evening

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Stop	Free	Free	Free	Free	Free
Sign Control	0%	0%	0%	0%	0%	0%
Grade	5	125	695	5	30	475
Volume (veh/h)	0.88	0.88	0.96	0.96	0.89	0.89
Peak Hour Factor	6	142	682	5	34	534
Platoon flow rate (pph)						
Platoon length (ft)						
Platoon delay (s)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Unsignalized						
pX, platoon unblocked	1286	988	629	688		
vC, conflicting volume						
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1294	685	688	688		
IC, single (s)	6.4	6.2	4.1	4.1		
IC, stage (s)						
p0 queue free %	3.5	3.3	2.2	96		
IF (s)						
cM capacity (veh/h)	167	445	887			
Direction Lane #	WB 1	NB 1	SB 1			
Volume Total	148	688	567			
Volume Left	6	0	34			
Volume Right	142	5	0			
cSH	418	1700	897			
Volume to Capacity	0.35	0.40	0.04			
Queue Length 35th (ft)	39	0	3			
Queue Delay (s)	18.3	0.9	1.0			
Lane LOS	C	A	A			
Approach Delay (s)	18.3	0.0	1.0			
Approach LOS	C	C	C			
Intersection Summary						
Average Delay	2.3					
Intersection Capacity Utilization	70.7%					
ICU Level of Service	C					
Analysis Period (min)	15					

10463.00: Harvard IMP
2: Ivy Lane & North Harvard Street

2022 Build Conditions
Weekday Evening

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Stop	Free	Free	Free	Free	Free
Sign Control	0%	0%	0%	0%	0%	0%
Grade	0	60	0	520	520	10
Volume (veh/h)	0.92	0.92	0.92	0.92	0.92	0.92
Peak Hour Factor	0	65	0	565	565	11
Platoon flow rate (pph)						
Platoon length (ft)						
Platoon delay (s)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Unsignalized						
pX, platoon unblocked	0.81	0.90	0.90	211	448	
vC, conflicting volume						
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	978	522	528			
IC, single (s)	6.4	6.2	4.1			
IC, stage (s)						
p0 queue free %	3.5	3.3	2.2			
IF (s)						
cM capacity (veh/h)	226	488	933			
Direction Lane #	EB 1	NB 1	SB 1			
Volume Total	65	565	576			
Volume Left	0	0	0			
Volume Right	65	0	11			
cSH	488	1700	1700			
Volume to Capacity	0.13	0.33	0.34			
Queue Length 35th (ft)	1	0	0			
Queue Delay (s)	13.3	0.9	0.0			
Lane LOS	B	B	B			
Approach Delay (s)	13.3	0.0	0.0			
Approach LOS	B	B	B			
Intersection Summary						
Average Delay	0.7					
Intersection Capacity Utilization	38.4%					
ICU Level of Service	A					
Analysis Period (min)	15					

10463.00: Harvard IMP
5005: Western Avenue & South Campus Drive

2022 Build Conditions
Weekday Evening

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NW	NW	NW
Lane Configurations	Free										
Sign Control	Free										
Grade	0%										
Volume (veh/h)	50	560	235	15	925	60	0	0	0	0	0
Peak Hour Factor	0.92	0.92	0.85	0.85	0.92	0.92	0.38	0.92			
Playoff/rate (pph)	54	659	285	16	1088	65	0	0	0	0	0
Lane Width (ft)	12										
Walking Speed (ft/s)	4.0										
Percent Blockage	None										
Right turn flare (veh)	None										
Median storage (veh)	406										
px platoon unblocked	0.65	0.91	0.91	0.70	0.65	0.70	0.70	0.70			
vc conflicting volume	1153	864	864	2129	1121	2001	2084				
vc1 stage 1 conf vol											
vc2 stage 2 conf vol	1235	850	850	2414	1185	2232	2278				
vcu unblocked vol	4.1	4.1	4.1	6.5	6.2	7.1	6.5				
lc single (s)	2.2	2.2	2.2	4.0	3.3	3.5	4.0				
lf (s)	85	98	98	100	100	100	100				
p0 queue free %	369	711	711	19	150	19	23				
cm capacity (veh/h)	918	1171	1171	54	18						
Direction Lane #	EB 1	WB 1	SB 1	EB 1	WB 1	SB 1	EB 1	WB 1	SB 1	EB 1	WB 1
Volume Total	54	18		389	711						
Volume Left	255	65		0.15	0.02						
Volume Right	389	711		5.3	0.6						
cSH	A	A		A	A						
Volume to Capacity	5.6	0.9		5.6	0.9						
Queue Length 30th (ft)											
Queue Length 50th (ft)											
Queue Length 85th (ft)											
Lane LOS	A	A		A	A						
Approach Delay (s)	5.6	0.9		5.6	0.9						
Approach LOS	E	E		E	E						
Intersection Summary											
Average Delay	3.0										
Intersection Capacity Utilization	85.2%										
ICU Level of Service	E										
Analysis Period (min)	15										

10463.00: Harvard IMP
7: Western Avenue & Academic Way

2022 Build Conditions
Weekday Evening

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	Free											
Sign Control	Free											
Grade	0%											
Volume (veh/h)	0	410	10	10	580	100	45	70	0	125	5	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Playoff/rate (pph)	0	446	11	11	630	109	49	76	0	136	5	0
Lane Width (ft)	12											
Walking Speed (ft/s)	4.0											
Percent Blockage	None											
Right turn flare (veh)	None											
Median storage (veh)	1162											
px platoon unblocked	0.70	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.70
vc conflicting volume	739	457	457	1160	1212	451	1186	1163	685			
vc1 stage 1 conf vol												
vc2 stage 2 conf vol	625	319	319	820	885	312	865	824	547			
vcu unblocked vol	4.1	4.1	4.1	7.1	6.5	6.2	7.1	6.5	6.2			
lc single (s)	2.2	2.2	2.2	3.5	4.0	3.3	3.5	4.0	3.3			
lf (s)	100	99	99	79	66	100	15	98	100			
p0 queue free %	666	890	890	228	224	551	160	243	374			
cm capacity (veh/h)	457	750	125	141								
Direction Lane #	EB 1	WB 1	NB 1	SB 1	EB 1	WB 1	SB 1	EB 1	WB 1	SB 1	EB 1	WB 1
Volume Total	11	109	0	0	666	980	226	162				
Volume Left	0.00	0.01	0.55	0.87								
cSH	0	0	0	0								
Volume to Capacity	0.0	0.3	39.1	96.4								
Queue Length 30th (ft)												
Queue Length 50th (ft)												
Queue Length 85th (ft)												
Lane LOS	A	A	E	F								
Approach Delay (s)	0.0	0.3	39.1	96.4								
Approach LOS	E	F	E	F								
Intersection Summary												
Average Delay	12.7											
Intersection Capacity Utilization	65.3%											
ICU Level of Service	C											
Analysis Period (min)	15											

10463.00: Harvard IMP
 6: Science Drive & Rotterdam Street

2022 Build Conditions
 Weekday Evening

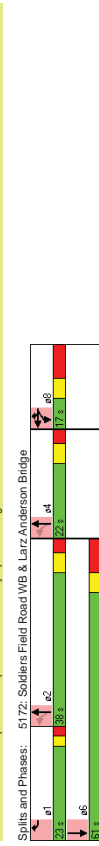
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Stop	Free	Free	Free	Free	Free
Sign Control	0%	0%	0%	0%	0%	0%
Grade	70	45	5	145	70	30
Volume (veh/h)	0.92	0.92	0.92	0.92	0.92	0.92
Peak Hour Factor	76	49	5	158	76	33
Priority flow rate (pph)						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median storage (veh)						
Median storage (veh)						
px platoon unblocked						
vc, conflicting volume	261	92	109			
vc1, stage 1 cont vol						
vc2, stage 2 cont vol						
vcu, unblocked vol	261	92	109			
tc, single (s)	6.4	6.2	4.1			
tc, stage (s)						
p0 queue free %	3.5	3.3	2.2			
p0 queue free %	90	95	100			
cm capacity (veh/h)	725	965	1482			
Direction Lane #	EB 1	NB 1	SB 1			
Volume Total	125	163	109			
Volume Left	76	5	0			
Volume Right	49	0	33			
cSH	803	1482	1700			
Volume to Capacity	0.16	0.00	0.06			
Queue Length 35th (ft)	14	0	0			
Queue Length 50th (ft)	10	0	0			
Lane LOS	B	A	B			
Approach Delay (s)	10.3	0.3	0.0			
Approach LOS	B		B			
Intersection Summary						
Average Delay			3.4			
Intersection Capacity Utilization		25.0%				A
Analysis Period (min)			15			

10463.00: Harvard IMP
 5172: Soldiers Field Road WB & Larz Anderson Bridge

2022 Build with Mitigation Conditions
 Weekday Morning

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	a1	a2	a4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	a1	a2	a4
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900			
Ideal Flow (vph)	11	11	12	16	16	16	12	10	10	12	11			
Lane Width (ft)	0	0	0	0	0	0	0	0	0	0	0			
Grade (%)	0	0	0	0	0	0	0	0	0	0	0			
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0			
Storage Length (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0			
Trailing Detector (ft)	15	9	15	0	0	0	0	0	0	0	0			
Turning Speed (mph)	30	Yes	30	No	No	30	Yes	30	Yes	30	Yes			
Link Speed (mph)	580	190	530	190	190	530	190	190	530	190	530			
Link Distance (ft)	190	190	190	190	190	190	190	190	190	190	190			
Volume (vph)	0	0	6	10	280	160	725	0	0	785	50			
Confl. Peds. (#/hr)	0.92	0.32	0.92	0.92	0.92	0.94	0.94	0.94	0.94	0.93	0.93			
Peak Hour Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%			
Growth Factor	2%	2%	0%	0%	0%	0%	6%	6%	6%	4%	4%			
Heavy Vehicles (%)	0	0	0	0	0	0	0	0	0	0	0			
Parking (#/hr)	0	0	0	0	0	0	0	0	0	0	0			
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%			
Lane Group Flow (vph)	0	0	0	76	304	0	941	0	0	909	0			
Turn Type	Split custom Perm													
Permitted Phases	8 8 18 2.4 2.4													
Minimum Initial (s)	6.0 6.0 18 2.4 2.4													
Minimum Split (s)	10.0 15.0 11.0													
Total Split (s)	0.0 0.0 17.0 17.0 40.0 60.0 0.0 0.0 61.0 23.0 38.0 22.0													
Yellow Time (s)	0.0% 0.0% 0.0% 17.0% 17.0% 40.0% 60.0% 60.0% 61.0% 23% 38% 22%													
Allied Time (s)	4.0 4.0													
Lead Lag	2.0 3.0 3.0													
Lead Lag Optimize?	Yes Yes													
Recall Mode	None None C-Min C-Min None													
v/c Ratio	0.29 0.50 1.07													
Control Delay	42.0 27.8 60.2													
Queue Delay	0.4 0.0 0.0													
Queue Length (ft)	42.4 27.8 60.2													
Queue Length (s)	88 223 m4444													
Internal Link Dist (ft)	510													
Turn Bay Length (ft)	456													
Base Capacity (vph)	260 609 879													
Station Cap Reductn	0 0 0													
Storage Cap Reductn	37 0 0													
Reaches v/c Ratio	0.94 0.98 1.07													

Intersection Summary
 Area Type: CBD
 Area Length: 100
 Actuated Green Length: 100
 Actuated Yellow Length: 100
 Actuated Red Length: 100
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 - Volume exceeds capacity, queue is theoretically infinite.
 - Queue shown is maximum after two cycles.
 # Split phasing volume exceeds capacity, queue may be longer.
 * Control phasing volume exceeds capacity, queue may be longer.
 m - Volume for 85th percentile queue is metered by upstream signal.



Splits and Phases: 5172: Soldiers Field Road WB & Larz Anderson Bridge
 a1 17.0 s
 a2 17.0 s
 a4 22.0 s
 e1 4.0 s
 e2 4.0 s
 e4 4.0 s
 s1 11.0 s
 s2 11.0 s
 s4 11.0 s

10463.00: Harvard IMP
 5172: Soldiers Field Road WB & Larz Anderson Bridge

2022 Build with Mitigation Conditions
 Weekday Morning

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vph)	11	11	12	16	16	16	12	10	10	12	11
Lane Width (ft)	0	0	0	0	0	0	0	0	0	0	0
Grade (%)	0	0	0	0	0	0	0	0	0	0	0
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0
Storage Length (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Trailing Detector (ft)	15	9	15	0	0	0	0	0	0	0	0
Turning Speed (mph)	30	Yes	30	No	No	30	Yes	30	Yes	30	Yes
Link Speed (mph)	580	190	530	190	190	530	190	190	530	190	530
Link Distance (ft)	190	190	190	190	190	190	190	190	190	190	190
Volume (vph)	0	0	6	10	280	160	725	0	0	795	50
Confl. Peds. (#/hr)	0.92	0.32	0.92	0.92	0.92	0.94	0.94	0.94	0.94	0.93	0.93
Peak Hour Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Growth Factor	2%	2%	0%	0%	0%	0%	6%	6%	6%	4%	4%
Heavy Vehicles (%)	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)	0	0	0	0	0	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	0	0	0	76	304	0	941	0	0	907	0
Turn Type	Split custom Perm										
Permitted Phases	8 8 18 2.4 2.4										
Minimum Initial (s)	6.0 6.0 18 2.4 2.4										
Minimum Split (s)	10.0 15.0 11.0										
Total Split (s)	0.0 0.0 17.0 17.0 40.0 60.0 0.0 0.0 61.0 23.0 38.0 22.0										
Yellow Time (s)	0.0% 0.0% 0.0% 17.0% 17.0% 40.0% 60.0% 60.0% 61.0% 23% 38% 22%										
Allied Time (s)	4.0 4.0										
Lead Lag	2.0 3.0 3.0										
Lead Lag Optimize?	Yes Yes										
Recall Mode	None None C C C										
v/c Ratio	0.29 0.50 1.07										
Control Delay	42.0 27.8 60.2										
Queue Delay	0.4 0.0 0.0										
Queue Length (ft)	42.4 27.8 60.2										
Queue Length (s)	88 223 m4444										
Internal Link Dist (ft)	510										
Turn Bay Length (ft)	456										
Base Capacity (vph)	260 609 880										
Station Cap Reductn	0 0 0										
Storage Cap Reductn	37 0 0										
Reaches v/c Ratio	0.94 0.98 1.07										

Intersection Summary
 Area Type: CBD
 Area Length: 100
 Actuated Green Length: 100
 Actuated Yellow Length: 100
 Actuated Red Length: 100
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 - Volume exceeds capacity, queue is theoretically infinite.
 - Queue shown is maximum after two cycles.
 # Split phasing volume exceeds capacity, queue may be longer.
 * Control phasing volume exceeds capacity, queue may be longer.
 m - Volume for 85th percentile queue is metered by upstream signal.

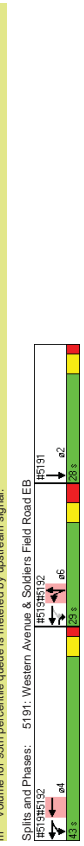


Splits and Phases: 5172: Soldiers Field Road WB & Larz Anderson Bridge
 a1 17.0 s
 a2 17.0 s
 a4 22.0 s
 e1 4.0 s
 e2 4.0 s
 e4 4.0 s
 s1 11.0 s
 s2 11.0 s
 s4 11.0 s

10463.00: Harvard IMP
5191: Western Avenue & Soldiers Field Road EB

2022 Build with Mitigation Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL SBT SBR											
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	13	13	13	12	11	11	12	12	12	11	11	11
Lane Width (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Grade (%)	0	0	0	0	0	0	0	0	0	0	0	0
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Storage Spaces (s)	0	0	0	0	0	0	0	0	0	0	0	0
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Leaving Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	9
Right Turn on Red	No	Yes	Yes	30	Yes	30	Yes	30	Yes	30	Yes	30
Link Speed (mph)	40	40	40	100	888	100	40	40	40	40	40	40
Link Length (ft)	112	112	112	2	208	2	112	112	112	112	112	112
Volume (vph)	0	0	575	980	830	0	0	0	0	0	955	60
Confl. Peds. (/hr)	custom pm+pt											
Peak-Hour Factor	0.85	0.85	0.93	0.83	0.93	0.94	0.94	0.94	0.94	0.85	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	9%	9%	4%	4%	4%	0%	0%	0%	0%	0%	0%	0%
Trucks (%)	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians (/hr)	0											
Mid-Block Traffic (%)	0%											
Lane Group Flow (vph)	0	0	676	1054	892	0	0	0	0	0	1068	0
Turn Type	custom pm+pt											
Permitted Phases	6 4 4 6 2											
Minimum Initial (s)	14.0 14.0											
Minimum Split (s)	22.0 20.0											
Total Split (s)	0.0 0.0 29.0 43.0 72.0 0.0 0.0 0.0 0.0 0.0 0.0 28.0 0.0											
Yellow Time (s)	0.0% 0.0% 29.0% 43.0% 72.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 28.0% 0.0%											
Allied Time (s)	4.0 4.0											
Lead-Lag	4.0 2.0											
Recall Mode	Ped C-Mh Ped											
v/c Ratio	1.12	0.51	0.83	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42
Control Delay	108.7	1.1	8.6	228.8	228.8	228.8	228.8	228.8	228.8	228.8	228.8	228.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Length (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Length 95th (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Internal Link Dist (ft)	4371 m12 m525 818 361											
Turn Bay Length (ft)	606 2062 1081 751											
Storage Cap Reductn	0 0 0 0 0											
Spillback Cap Reductn	0 0 0 0 0											
Reaches v/c Ratio	1.12 0.51 0.83 1.42											



Intersection Summary
Area Type: CBD
Area Length: 100
Actuated Cycle Length: 100
Offser: 0 (0%), Referenced to phase 4(WBTL, Start of Yellow)
Natural Cycle: 150
Control Type: Actuated-Coordinated
Queue shown is maximum after two cycles.
Split shown is volume extension; queue may be longer.
Control shown is maximum for the intersection.
m - Volume for 95th percentile queue is met/beat by upstream signal.

Splits and Phases: 5191: Western Avenue & Soldiers Field Road EB
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10463.00: Harvard IMP
5191: Western Avenue & Soldiers Field Road EB

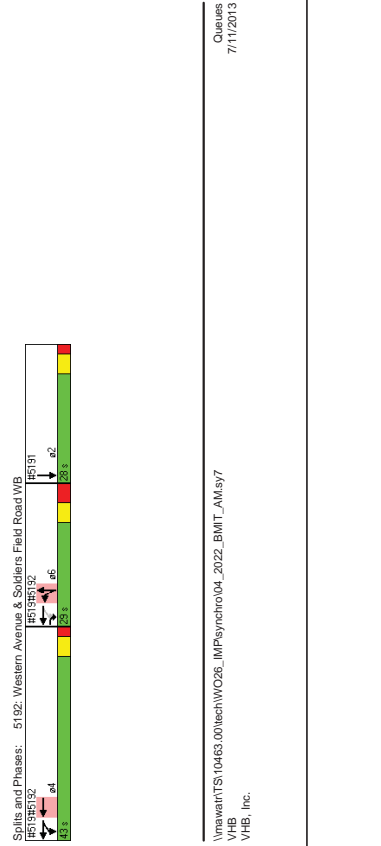
2022 Build with Mitigation Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	13	13	13	12	11	11	12	12	12	11	11	11
Lane Width (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Grade (%)	0	0	0	0	0	0	0	0	0	0	0	0
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Storage Spaces (s)	0	0	0	0	0	0	0	0	0	0	0	0
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Leaving Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	9
Right Turn on Red	No	Yes	Yes	30	Yes	30	Yes	30	Yes	30	Yes	30
Link Speed (mph)	40	40	40	100	888	100	40	40	40	40	40	40
Link Length (ft)	112	112	112	2	208	2	112	112	112	112	112	112
Volume (vph)	0	0	575	980	830	0	0	0	0	0	955	60
Confl. Peds. (/hr)	custom pm+pt											
Peak-Hour Factor	0.85	0.85	0.93	0.83	0.93	0.93	0.94	0.94	0.94	0.85	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	9%	9%	4%	4%	4%	0%	0%	0%	0%	0%	0%	0%
Trucks (%)	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians (/hr)	0											
Mid-Block Traffic (%)	0%											
Lane Group Flow (vph)	0	0	676	1054	892	0	0	0	0	0	1063	0
Turn Type	custom pm+pt											
Permitted Phases	6 4 4 6 2											
Minimum Initial (s)	21.0 58.0 64.0 22.0											
Minimum Split (s)	25.0 64.0 66.0 24.0											
Clearance Time (s)	8.0 6.0 0.88 6.0											
Vehicle Extension (s)	2.0 2.0											
Lane Cap (vph)	606 2060 1081 747											
v/s Ratio Prot	c0.28 0.20 c0.56 c0.34											
v/s Ratio Perm	1.12 0.51 0.83 1.42											
v/c Ratio	37.5 9.6 11.0 38.0											
Uniform Delay, d1	72.5 0.0 1.5 198.4											
Incremental Delay, d2	110.0 1.0 7.2 236.4											
Delay (s)	110.0 F A A A 0.0 F											
Level of Service	F A A A A A											
Approach Delay (s)	110.0 F 3.9 A 236.4 F											
Approach LOS	F A A A A F											
Intersection Summary	HCM Average Control Delay 30.6 HCM Level of Service F											
HCM Volume to Capacity ratio	1.08											
Actuated Cycle Length (s)	100.0											
Intersection Capacity Utilization	120.8% ICU Level of Service H											
Area Type	15											
Area Length	15											
6 - Critical Lane Group	15											

10463.00: Harvard IMP
5192: Western Avenue & Soldiers Field Road WB

2022 Build with Mitigation Conditions
Weekday Morning

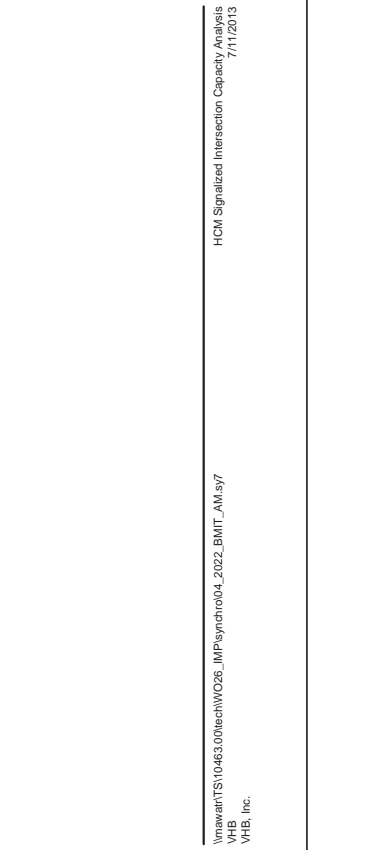
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	a2
Lane Group	a2											
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	12	12	12	11	11	11	11	11	11	12	12	12
Lane Width (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Grade (%)	0	0	0	0	0	0	0	0	0	0	0	0
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Storage Turn Time (s)	0	0	0	0	0	0	0	0	0	0	0	0
Trailing Detektor (ft)	4.0	4.0	4.0	6.0	4.0	4.0	6.0	4.0	4.0	4.0	4.0	4.0
Trailing Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	9
Right Turn on Red	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Link Speed (mph)	30	30	30	30	30	30	30	30	30	30	30	30
Link Distance (ft)	100	41	100	41	100	41	100	41	100	41	100	41
Volume (vph)	2	2	2	10	10	10	10	10	10	10	10	10
Conf. Peds. (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Peak-Hour Factor	0.92	0.92	0.92	0.98	0.98	0.98	0.83	0.83	0.83	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	7%	7%	7%	2%	2%	2%
Parking (veh)	0	0	0	0	0	0	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	0	0	0	1699	0	0	669	0	0	0	0	0
Turn Type	Split											
Permitted Phases	4 6 6											
Minimum Initial (s)	14.0											
Minimum Split (s)	20.0											
Total Split (s)	43.0											
Total Split (%)	0.0%											
Yellow Time (s)	4.0											
All-Red Time (s)	2.0											
Recall Mode	C-Min Ped Ped											
v/c Ratio	1.07											
Queue Delay	60.6											
Queue Length	17.9											
Queue Length 95th (ft)	78.6											
Queue Length 95th (ft)	17.8											
Internal Link Dist (ft)	m4439											
Turn Bay Length (ft)	384											
Base Capacity (vph)	1589											
Spillback Cap. Reductn	61											
Storage Cap. Reductn	0											
Reduced v/c Ratio	1.11											
Area Type	CBD											
Area Length (ft)	100											
Area Width (ft)	100											
Offsr. (0.0%)	Referenced to phase 4(WBTL, Start of Yellow											
Natural Cycle: 150												
Control Type: Actuated-Coordinated												
#	Volume exceeds capacity, queue is theoretically infinite.											
#	Queue shown is maximum after two cycles.											
#	Split shows volume exceeds capacity, queue may be longer.											
#	Control shows volume exceeds capacity, queue may be longer.											
m	Volume for 95th percentile queue is metered by upstream signal.											



10463.00: Harvard IMP
5192: Western Avenue & Soldiers Field Road WB

2022 Build with Mitigation Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Ideal Flow (vphpl)	12	12	12	11	11	11	11	11	11	12	12	
Lane Width (ft)	0	0	0	0	0	0	0	0	0	0	0	
Grade (%)	0	0	0	0	0	0	0	0	0	0	0	
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0	
Storage Turn Time (s)	0	0	0	0	0	0	0	0	0	0	0	
Trailing Detektor (ft)	4.0	4.0	4.0	6.0	4.0	4.0	6.0	4.0	4.0	4.0	4.0	
Trailing Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	
Right Turn on Red	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes	Yes	
Link Speed (mph)	30	30	30	30	30	30	30	30	30	30	30	
Link Distance (ft)	100	41	100	41	100	41	100	41	100	41	100	
Volume (vph)	2	2	2	10	10	10	10	10	10	10	10	
Conf. Peds. (#/hr)	0	0	0	0	0	0	0	0	0	0	0	
Peak-Hour Factor	0.92	0.92	0.92	0.98	0.98	0.98	0.83	0.83	0.83	0.92	0.92	
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	7%	7%	7%	2%	2%	
Parking (veh)	0	0	0	0	0	0	0	0	0	0	0	
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Lane Group Flow (vph)	0	0	0	1699	0	0	669	0	0	0	0	
Turn Type	Split											
Permitted Phases	4 6 6											
Minimum Initial (s)	14.0											
Minimum Split (s)	20.0											
Total Split (s)	43.0											
Total Split (%)	0.0%											
Yellow Time (s)	4.0											
All-Red Time (s)	2.0											
Recall Mode	C-Min Ped Ped											
v/c Ratio	1.07											
Queue Delay	60.6											
Queue Length	17.9											
Queue Length 95th (ft)	78.6											
Queue Length 95th (ft)	17.8											
Internal Link Dist (ft)	m4439											
Turn Bay Length (ft)	384											
Base Capacity (vph)	1589											
Spillback Cap. Reductn	61											
Storage Cap. Reductn	0											
Reduced v/c Ratio	1.11											
Area Type	CBD											
Area Length (ft)	100											
Area Width (ft)	100											
Offsr. (0.0%)	Referenced to phase 4(WBTL, Start of Yellow											
Natural Cycle: 150												
Control Type: Actuated-Coordinated												
#	Volume exceeds capacity, queue is theoretically infinite.											
#	Queue shown is maximum after two cycles.											
#	Split shows volume exceeds capacity, queue may be longer.											
#	Control shows volume exceeds capacity, queue may be longer.											
m	Volume for 95th percentile queue is metered by upstream signal.											



10463.00: Harvard IMP
5163: Cambridge Street & Soldiers Field Road WB

2022 Build with Mitigation Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	e1	e2	e3	e5
Lane Group	EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL SBR e1 e2 e3 e5														
Lane Configurations	4+4														
Ideal Flow (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900				
Lane Width (ft)	11	11	11	12	12	12	11	10	10	12	12				
Grades (%)	0%														
Storage Length (ft)	0														
Storage Length (s)	0														
Storage Times (s)	4.0														
Leading Detector (ft)	50														
Trailing Detector (ft)	0														
Turning Speed (mph)	15														
Right Turn on Red	No														
Link Speed (mph)	35														
Link Distance (ft)	455														
Volume (vph)	345	1685	0	0	0	0	445	210	110	0	0				
Confl. Peds. (#/hr)	0														
Confl. Bikes (#/hr)	0														
Peak Hour Factor	0.94														
Growth Factor	100%														
Heavy Vehicles (%)	4%														
Parking (#/hr)	0														
Mid-Block Traffic (%)	0%														
Lane Group Flow (vph)	0														
Turn Type	Split														
Protected Phases	1 2 3 5														
Permitted Phases	1 2 3 5														
Minimum Split (s)	17.0														
Total Split (s)	34.0														
Total Split (%)	75.7%														
Yellow Time (s)	4.0														
All-red Time (s)	4.0														
Lead-Lag	Yes														
Lead-Lag Optimize?	Yes														
Recall Mode	Ped														
v/c Ratio	0.69														
Control Delay	3.42														
Queue Delay	0.3														
Queue Length (ft)	373.5														
Queue Length (veh)	44														
Internal Link Dist (ft)	#767														
Turn Bay Length (ft)	224														
Base Capacity (vph)	288														
Starvation Cap. Reductn	0														
Storage Cap. Reductn	38														
Reaches v/c Ratio	0.78														



Splits and Phases: 5163: Cambridge Street & Soldiers Field Road WB
 # Split phase is volume actuated, queue may be longer.
 # Control phase is volume actuated, queue may be longer.
 m - Volume for 85th percentile queue is metered by upstream signal.

10463.00: Harvard IMP
5163: Cambridge Street & Soldiers Field Road WB

2022 Build with Mitigation Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations	4+4										
Ideal Flow (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	12	12	12	11	10	10	12	12
Total Lost time (s)	4.0										
Lane Util. Factor	0.81										
Flt Protected	0.95										
Flt Permitted	0.99										
Stand. Flow (perm)	4303										
Stand. Flow (vph)	4303										
Peak-hour factor, PHF	0.94										
Adj. Flow (vph)	367										
Lane Group Flow (vph)	0										
Heavy Vehicles (%)	4%										
Turn Type	Split										
Protected Phases	1 2 3 5										
Permitted Phases	1 2 3 5										
Actuated Green, G (s)	98.0										
Effective Green, g (s)	102.0										
Clearance Time (s)	0.79										
Vehicle Extension (s)	8.0										
Lane Cap (vph)	3135										
v/s Ratio Prot	0.50										
v/c Ratio	0.69										
Uniform Delay, d1	10.4										
Incremental Delay, d2	0.3										
Delay (s)	10.7										
Level of Service	F										
Approach Delay (s)	0.5										
Approach LOS	A										
Intersection Summary	113.0										
HCM Average Control Delay	113.0										
HCM Volume to Capacity ratio	0.90										
Actuated Cycle Length (s)	140.0										
Intersection Capacity Utilization	75.8%										
Sum of lost time (s)	15										
ICU Level of Service	D										
Critical Lane Group	15										

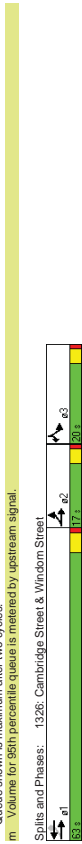
HCM Level of Service: F
 Sum of lost time (s): 10.0
 ICU Level of Service: D

10463.00: Harvard IMP
1326: Cambridge Street & Windom Street

2022 Build with Mitigation Conditions
Weekday Morning

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900
Ideal Flow (vehpl)	12	10	10	14	14	14
Lane Width (ft)	0%	0%	0%	0%	0%	0%
Grade (%)	175	0	0	0	100	0
Storage Length (ft)	4.0	4.0	4.0	4.0	4.0	4.0
Storage Length (s)	50	50	50	50	50	50
Leading Detector (ft)	0	0	0	0	0	0
Trailing Detector (ft)	0	0	0	0	0	0
Turning Speed (mph)	15	0	0	9	15	9
Right Turn on Red				Yes		Yes
Link Speed (mph)	40	35	30	30	30	30
Link Distance (ft)	200	100	100	75	100	75
Link Delay (s)	50	640	1645	365	100	20
Volume (vph)	56	719	1869	415	116	23
Conf. Peds. (#/hr)	0.89	0.88	0.88	0.86	0.86	0.86
Peak Hour Factor	100%	100%	100%	100%	100%	100%
Growth Factor	3%	3%	8%	3%	3%	3%
Heavy Vehicles (%)	0	0	0	0	0	0
Bicycles (#/hr)	0	0	0	0	0	0
Parking (ft)	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	56	719	1869	415	116	23
Turn Type	pm+pt			Perm		Prot.
Protected Phases	2	1	2	1	3	3
Permitted Phases	1 2	1	1	1	3	3
Minimum Initial (s)	6.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	10.0	13.0	13.0	20.0	20.0	20.0
Total Split (s)	17.0	80.0	63.0	20.0	20.0	20.0
Yellow Time (s)	3.0	4.0	4.0	3.0	3.0	3.0
All-red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lead Lag (ft)	Yes	Yes	Yes	Yes	Yes	Yes
Lead Lag (s)	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Min	C-Max	C-Max	Min	Min	Min
v/c Ratio	0.31	0.21	0.95	0.41	0.60	0.12
Control Delay	12.0	1.0	26.0	2.1	54.8	16.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Queue Length	12.0	1.0	26.0	2.1	54.8	16.1
Queue Length 95th (ft)	2	1	2	1	2	2
Queue Length 95th (s)	ms	m19	4728	31	117	21
Internal Link Dist (ft)	175	120	980	100	654	100
Turn Bay Length (ft)	284	3695	1976	1004	269	260
Base Capacity (vph)	0	0	0	0	0	0
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Revised v/c Ratio	0.20	0.19	0.95	0.41	0.43	0.09

Intersection Summary
Area Type: CBD
Area Type: 100
Area Type: 100
Actuated Cycle Length: 100
Offset: 97 (97%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
m Queue shown is maximum after two cycles.
n Volume for 95th percentile queue is metered by upstream signal.



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VHB
VHB, Inc.
8/9/2013

10463.00: Harvard IMP
1326: Cambridge Street & Windom Street

2022 Build with Mitigation Conditions
Weekday Morning

	EBL	EBT	WBT	WBR	SBL	SBR
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900
Ideal Flow (vehpl)	12	10	10	14	14	14
Lane Width (ft)	4.0	4.0	4.0	4.0	4.0	4.0
Total Lost time (s)	1.00	0.81	0.95	1.00	1.00	1.00
Lane Util. Factor	0.96	1.00	1.00	0.95	0.95	0.95
Flt Protected	0	0	0	0	0	0
Satd. Flow (prot)	1577	4230	2808	1256	1832	1505
Flt Permitted	0.07	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	109	4230	2808	1256	1832	1505
Volume (vph)	50	640	1645	365	100	20
Peak-hour factor, PHF	0.89	0.89	0.88	0.88	0.86	0.86
Adj. Flow (vph)	56	719	1869	415	116	23
Heavy Vehicles (%)	0	0	0	0	0	0
Lane Group Flow (vph)	56	719	1869	290	116	23
Heavy Vehicles (%)	3%	3%	8%	3%	3%	3%
Turn Type	pm+pt			Perm		Prot.
Protected Phases	2	1	2	1	3	3
Permitted Phases	1 2	1	1	1	3	3
Actuated Green, G (s)	75.6	80.6	69.4	69.4	114	114
Effective Green, g (s)	76.6	80.6	70.4	70.4	114	114
Yellow Time (s)	4.0	0.81	0.95	0.95	0.95	0.95
Clearance Time (s)	4.0	5.0	5.0	4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lane Cap (vph)	175	3409	1977	884	182	172
v/s Ratio Prot	c0.02	0.17	c0.67	c0.07	0.00	0.00
v/s Ratio Perm	0.23	0.23	0.23	0.23	0.23	0.23
v/c Ratio	0.32	0.21	0.95	0.33	0.60	0.02
Uniform Delay, d1	21.2	2.3	13.1	5.7	42.2	39.3
Incremental Delay, d2	0.3	0.0	10.9	1.0	3.6	0.0
Incremental Delay, d2	0.3	0.0	10.9	1.0	3.6	0.0
Level of Service	B	A	C	A	D	D
Approach Delay (s)	B	A	C	A	D	D
Approach LOS	A	C	C	A	D	D

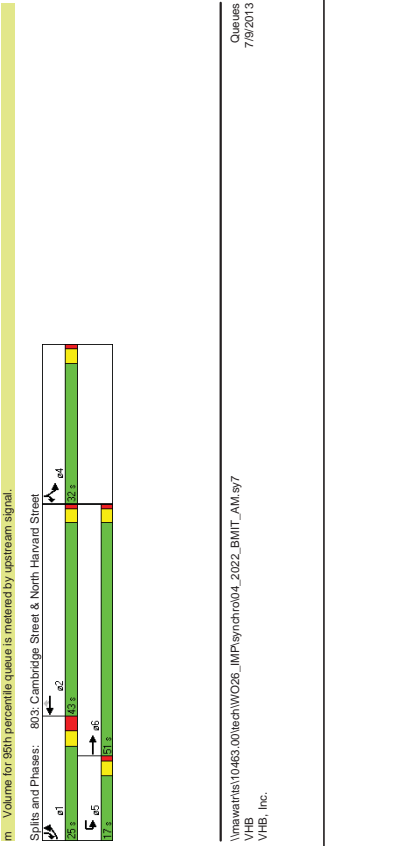
Intersection Summary
HCM Average Control Delay: 17.3
HCM Level of Service: B
HCM Volume to Capacity ratio: 0.86
Actuated Cycle Length (s): 100.0
Sum of lost time (s): 12.0
Intersection Capacity Utilization: 63.9%
ICU Level of Service: B
Area Type: 100
Area Type: 100
Area Type: 100
Critical Lane Group

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VHB
VHB, Inc.
8/9/2013

10463.00: Harvard IMP
803: Cambridge Street & North Harvard Street

2022 Build with Mitigation Conditions
Weekday Morning

	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	11	11	10	11	10	12	12
Lane Width (ft)	200	120	0%	100	0	50	50
Storage Length (ft)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Storage Spaces (s)	50	50	50	50	50	50	50
Leading Detector (ft)	0	0	0	0	0	0	0
Trailing Detector (ft)	15	9	9	15	9	15	9
Turning Speed (mph)	35	35	35	35	35	35	35
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	No	No
Link Speed (mph)	48	48	48	48	48	48	48
Link Distance (ft)	426	426	426	426	426	426	426
Link Volume (vph)	985	985	985	985	985	985	985
Volume (vph)	270	1620	45	1255	365	330	250
Confl. Peds. (#/hr)	16	16	16	16	16	16	16
Confl. Bikes (#/hr)	0	0	0	0	0	0	0
Peak Hour Factor	0.94	0.87	0.87	0.87	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	4%	4%	4%	7%	7%
Bicycles (%)	0	0	0	0	0	0	0
Pedestrians (#/hr)	0	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	287	1723	52	1443	420	351	266
Turn Type	Prot	Prot	Perm	Perm	ptov	ptov	ptov
Protected Phases	1	6	5	2	4	1	4
Permitted Phases	1	6	5	2	4	1	4
Minimum Initial (s)	8.0	12.0	8.0	12.0	12.0	12.0	12.0
Minimum Split (s)	14.0	16.0	12.0	22.0	22.0	29.0	29.0
Total Split (s)	25.0	51.0	17.0	43.0	43.0	32.0	57.0
Total Split (%)	25.0%	51.0%	17.0%	43.0%	43.0%	32.0%	57.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-red Time (s)	3.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead Lag (s)	0	0	0	0	0	0	0
Lead Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	Max	C-Max	C-Max	Min	Min
v/c Ratio	0.87	0.78	0.25	1.12	0.68	0.87	0.38
Control Delay	74.2	15.1	27.9	90.1	23.5	57.8	16.1
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Queue Length (ft)	74.2	15.2	27.9	90.1	23.5	57.8	16.1
Queue Length 95th (ft)	74.2	15.2	27.9	90.1	23.5	57.8	16.1
Internal Link Dist (ft)	#321	305	m32	m#45	m175	#349	149
Internal Link Dist (ft)	200	408	200	348	100	497	50
Turn Bay Length (ft)	336	2214	204	1294	618	440	699
Storage Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.80	0.25	1.12	0.68	0.80	0.38



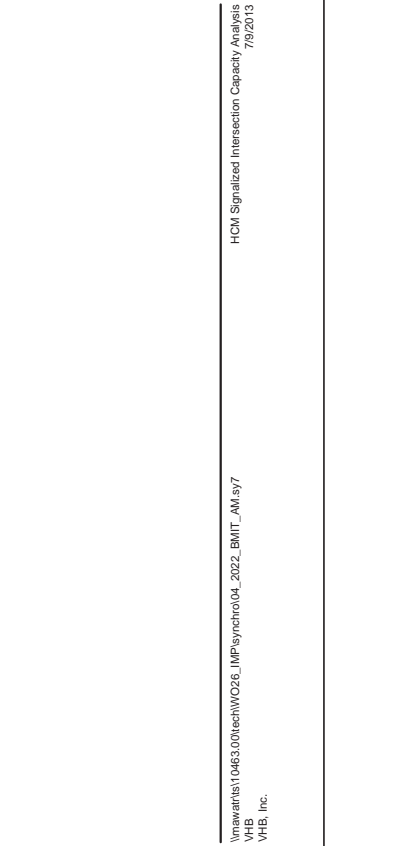
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VHB
VHB, Inc.

Queues
7/9/2013

10463.00: Harvard IMP
803: Cambridge Street & North Harvard Street

2022 Build with Mitigation Conditions
Weekday Morning

	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	11	11	10	11	10	12	12
Lane Width (ft)	200	120	0%	100	0	50	50
Storage Length (ft)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Storage Spaces (s)	50	50	50	50	50	50	50
Leading Detector (ft)	0	0	0	0	0	0	0
Trailing Detector (ft)	15	9	9	15	9	15	9
Turning Speed (mph)	35	35	35	35	35	35	35
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	No	No
Link Speed (mph)	48	48	48	48	48	48	48
Link Distance (ft)	426	426	426	426	426	426	426
Link Volume (vph)	985	985	985	985	985	985	985
Volume (vph)	270	1620	45	1255	365	330	250
Confl. Peds. (#/hr)	16	16	16	16	16	16	16
Confl. Bikes (#/hr)	0	0	0	0	0	0	0
Peak Hour Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	4%	4%	4%	7%	7%
Bicycles (%)	0	0	0	0	0	0	0
Pedestrians (#/hr)	0	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	287	1723	52	1443	420	351	266
Turn Type	Prot	Prot	Perm	Perm	ptov	ptov	ptov
Protected Phases	1	6	5	2	4	1	4
Permitted Phases	1	6	5	2	4	1	4
Minimum Initial (s)	8.0	12.0	8.0	12.0	12.0	12.0	12.0
Minimum Split (s)	14.0	16.0	12.0	22.0	22.0	29.0	29.0
Total Split (s)	25.0	51.0	17.0	43.0	43.0	32.0	57.0
Total Split (%)	25.0%	51.0%	17.0%	43.0%	43.0%	32.0%	57.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-red Time (s)	3.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead Lag (s)	0	0	0	0	0	0	0
Lead Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	Max	C-Max	C-Max	Min	Min
v/c Ratio	0.87	0.78	0.25	1.12	0.62	0.87	0.38
Control Delay	73.8	20.2	38.3	28.6	22.3	35.1	14.8
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Queue Length (ft)	73.8	20.2	38.3	28.6	22.3	35.1	14.8
Queue Length 95th (ft)	73.8	20.2	38.3	28.6	22.3	35.1	14.8
Internal Link Dist (ft)	#321	305	m32	m#45	m175	#349	149
Internal Link Dist (ft)	200	408	200	348	100	497	50
Turn Bay Length (ft)	336	2214	204	1294	618	440	699
Storage Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.80	0.25	1.12	0.68	0.80	0.38



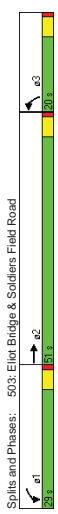
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VHB
VHB, Inc.

Queues
7/9/2013

10463.00: Harvard IMP
503: Eliot Bridge & Soldiers Field Road

2022 Build with Mitigation Conditions
Weekday Morning

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	TTT	TTT	TTT	TTT	TTT	TTT
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	10	10	11	14	14
Grade (%)	0%	0%	0%	0%	0%	0%
Storage Length (ft)	180	255	0	0	0	0
Storage Length (s)	2	2	0	0	0	0
Trailing Detector (ft)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	100	20	20	20	4.0	4.0
Trailing Speed (mph)	0	9	15	15	9	9
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	Yes
Link Speed (mph)	30	30	30	30	30	30
Link Distance (ft)	425	389	270	270	425	425
Volume (vph)	2315	0	815	0	310	0
Conf. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.98	0.98	0.90	0.90	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	1%	1%
Parking (ft/hr)	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	2362	0	906	0	320	0
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	2	1	3	3		
Permitted Phases	2	1	3	3		
Minimum Initial (s)	15.0	15.0	20.0	20.0		
Minimum Split (s)	20.0	20.0	20.0	20.0		
Total Split (s)	51.0	0.0	29.0	0.0	20.0	0.0
Total Split (%)	51.0%	0.0%	29.0%	0.0%	20.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0		
Allied Time (s)	1.0	1.0	1.0	1.0		
Lead Lag	Yes	Yes	Yes	Yes		
Lead Lag Optimize?	Yes	Yes	Yes	Yes		
Recall Mode	Min	Max	None	None		
v/c Ratio	0.88	0.85	0.60	0.60		
Control Delay	29.1	44.5	44.4	44.4		
Queue Delay	0.0	0.0	0.0	0.0		
Queue Length	23.1	44.5	44.4	44.4		
Queue Length 95th (ft)	44	44	44	44		
Queue Length 95th (ft)	44	44	44	44		
Internal Link Dist (ft)	345	309	309	190		
Turn Bay Length (ft)	255					
Base Capacity (vph)	2672	1069	532	532		
Starvation Cap Reductn	0	0	0	0		
Spillback Cap Reductn	0	0	0	0		
Storage Cap Reductn	0	0	0	0		
Reduced v/c Ratio	0.88	0.85	0.60	0.60		
Intersection Summary						
Area Type	CBD					
Area Length	100					
Actuated Cycle Length	100					
Natural Cycle	90					
Control Type	Semi Act-Uncoord					
# 85th percentile volume exceeds capacity, queue may be longer.						
Queue shown is maximum after two cycles.						



10463.00: Harvard IMP
503: Eliot Bridge & Soldiers Field Road

2022 Build with Mitigation Conditions
Weekday Morning

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	TTT	TTT	TTT	TTT	TTT	TTT
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	10	10	11	14	14
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.86	0.84	0.97	0.97	0.95	0.95
Flt Protected	1.00	1.00	0.95	0.95		
Satd. Flow (prot)	5686	4276	3328	3328		
Flt Permitted	1.00	0.95	0.95	0.95		
Satd. Flow (perm)	5686	4276	3328	3328		
Volume (vph)	2315	0	815	0	310	0
Peak-hour factor, PHF	0.98	0.98	0.90	0.90	0.97	0.97
Adj. Flow (vph)	2362	0	906	0	320	0
Peak-hour factor, PHF	0.98	0.98	0.90	0.90	0.97	0.97
Adj. Flow (vph)	2362	0	906	0	320	0
Lane Group Flow (vph)	2362	0	906	0	320	0
Heavy Vehicles (%)	0%	0%	0%	0%	1%	1%
Turn Type	Prot	Prot	Prot	Prot	Prot	Prot
Protected Phases	2	1	3	3		
Permitted Phases	2	1	3	3		
Actuated Green, G (s)	46.0	24.0	15.0	15.0		
Effective Green, g (s)	47.0	25.0	16.0	16.0		
Clearance Time (s)	6.0	6.0	6.0	6.0		
Vehicle Extension (s)	5.0	5.0	5.0	5.0		
Lane Group Flow (vph)	2672	1069	532	532		
v/s Ratio Prot	c0.42	c0.21	c0.10	c0.10		
v/s Ratio Perm	0.88	0.85	0.60	0.60		
Uniform Delay, d1	24.0	35.7	36.0	36.0		
Incremental Delay, d2	4.0	8.3	2.2	2.2		
Delay (s)	28.0	44.0	41.3	41.3		
Level of Service	C	D	D	D		
Approach Delay (s)	28.0	44.0	41.3	41.3		
Approach LOS	C	D	D	D		
Intersection Summary						
HCM Average Control Delay	33.2					
HCM Volume to Capacity ratio	0.82					
Actuated Cycle Length (s)	100.0					
Sum of lost time (s)	12.0					
Intersection Capacity Utilization	77.0%					
ICU Level of Service	D					
Area Type	CBD					
Area Length	100					
Actuated Cycle Length	100					
Natural Cycle	90					
Control Type	Semi Act-Uncoord					
# 85th percentile volume exceeds capacity, queue may be longer.						
Queue shown is maximum after two cycles.						



10463.00: Harvard IMP
5012: Bertram St & North Harvard Street

2022 Build with Mitigation Conditions
Weekday Morning

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Stop	Free	Free	Free	Free	Free
Sign Control	0%	0%	0%	0%	0%	0%
Grade	5	5	660	25	5	320
Volume (veh/h)	0.60	0.60	0.85	0.85	0.94	0.94
Peak Hour Factor	8	8	776	29	5	340
Priority flow rate (pph)						
Flow rate (veh/h)						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
px platoon unblocked	0.82	0.75	300		0.75	186
vc conflicting volume	1142	791			806	
vc1, stage 1 conf vol						
vc2, stage 2 conf vol	924	721			741	
vcu, unblocked vol	6.6	6.4			4.2	
tc, single (s)						
tf (s)	3.7	3.5			2.3	
p0 queue free %	96	97			99	
cm capacity (veh/h)	228	302			635	
Direction Lane #	WB 1	NB 1	SB 1			
Volume Total	17	806	346			
Volume Left	8	0	5			
Volume Right	8	29	0			
cSH	260	1700	635			
Volume to Capacity	0.06	0.47	0.01			
Queue Length 36th (ft)	5	0	0			
Queue Delay (s)	19.8	0.9	0.3			
Lane LOS	C	C	A			
Approach Delay (s)	19.8	0.0	0.3			
Approach LOS	C	C	A			
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			50.3%			
ICU Level of Service			A			
Analysis Period (min)			15			

10463.00: Harvard IMP
5013: Spurr St & North Harvard Street

2022 Build with Mitigation Conditions
Weekday Morning

Movement	EBL	EBR	NBL	NBT	SBL	SBT
Lane Configurations	Stop	Free	Free	Free	Free	Free
Sign Control	0%	0%	0%	0%	0%	0%
Grade	65	180	0	620	325	0
Volume (veh/h)	0.97	0.97	0.85	0.85	0.94	0.94
Peak Hour Factor	67	186	0	729	346	0
Priority flow rate (pph)						
Flow rate (veh/h)						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
px platoon unblocked	0.81	0.87		250	286	
vc conflicting volume	1075	346	346			
vc1, stage 1 conf vol						
vc2, stage 2 conf vol	849	246	246			
vcu, unblocked vol	6.5	6.3	4.2			
tc, single (s)						
tf (s)	3.6	3.4	2.3			
p0 queue free %	74	72	100			
cm capacity (veh/h)	259	667	1121			
Direction Lane #	EB 1	EB 2	NB 1	SB 1		
Volume Total	67	186	729	346		
Volume Left	67	0	0	0		
Volume Right	0	186	0	0		
cSH	259	667	1700	1700		
Volume to Capacity	0.26	0.28	0.43	0.20		
Queue Length 36th (ft)	25	28	0	0		
Queue Delay (s)	25.0	12.0	0.0	0.0		
Lane LOS	C	B	C	C		
Approach Delay (s)	15.4	0.0	0.0	0.0		
Approach LOS	C	C	C	C		
Intersection Summary						
Average Delay			2.9			
Intersection Capacity Utilization			46.9%			
ICU Level of Service			A			
Analysis Period (min)			15			

10463.00: Harvard IMP
5015: Bayard Street & North Harvard Street

2022 Build with Mitigation Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
Sign Control	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Grade	5	0	20	0	0	0	0	555	10	5	490	0
Volume (veh/h)	0.86	0.86	0.86	0.52	0.92	0.92	0.86	0.86	0.86	0.91	0.91	0.96
Peak Hour Factor	6	0	23	0	0	0	0	645	12	5	538	0
Play factor rate (pph)												
Platoon length (ft)												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None											
Median storage (veh)												
pX platoon unblocked	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
vC, conflicting volume	1201	1206	538	1224	1201	651	538	657	657	377	377	377
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1234	1241	462	1261	1234	651	462	657	657	377	377	377
IC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.2	4.2	4.2	4.2	4.2	4.2
IC, stage (s)												
p0 queue free %	3.5	4.0	3.3	3.5	4.0	3.3	2.3	2.3	2.3	2.3	2.3	2.3
p0 queue free %	96	100	96	100	100	100	100	99	99	99	99	99
cM capacity (veh/h)	132	150	518	120	150	468	912	884	884	884	884	884
Direction Lane #	EB 1	NB 1	SB 1									
Volume Total	29	657	544									
Volume Left	6	0	5									
Volume Right	23	12	0									
cSH	327	1700	894									
Volume to Capacity	0.09	0.39	0.01									
Queue Length 35th (ft)	7	0	0									
Queue Delay (s)	17.1	0.0	0.2									
Lane LOS	C	A	A									
Approach Delay (s)	17.1	0.0	0.2									
Approach LOS	C	C	C									
Intersection Summary												
Average Delay	0.5											
Intersection Capacity Utilization	43.1%											
ICU Level of Service	A											
Analysis Period (min)	15											

10463.00: Harvard IMP
5006: Western Avenue & Travis Street

2022 Build with Mitigation Conditions
Weekday Morning

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	Free	Free	Free	Free	Stop	Stop
Sign Control	0%	0%	0%	0%	0%	0%
Grade	490	10	30	485	5	25
Volume (veh/h)	0.89	0.89	0.37	0.37	0.83	0.83
Peak Hour Factor	551	11	31	500	6	30
Play factor rate (pph)						
Platoon length (ft)						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
pX platoon unblocked	272			409	0.78	0.72
vC, conflicting volume	562			562	1118	556
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	395			4.1	6.5	387
IC, single (s)	4.1			4.1	6.5	6.3
IC, stage (s)						
p0 queue free %	2.2			2.2	3.6	3.4
IF (s)	96			96	97	94
cM capacity (veh/h)	831			831	218	472
Direction Lane #	EB 1	WB 1	NB 1			
Volume Total	562	531	36			
Volume Left	0	31	6			
Volume Right	11	0	30			
cSH	1700	831	386			
Volume to Capacity	0.33	0.04	0.09			
Queue Length 35th (ft)	0	3	7			
Queue Delay (s)	0.0	1.0	15.7			
Lane LOS	A	A	C			
Approach Delay (s)	0.0	1.0	15.0			
Approach LOS	C	C	C			
Intersection Summary						
Average Delay	1.0					
Intersection Capacity Utilization	65.7%					
ICU Level of Service	C					
Analysis Period (min)	15					

10463.00: Harvard IMP
 5011: Gordon Rd & North Harvard Street

2022 Build with Mitigation Conditions
 Weekday Morning

Movement	WBL	WBR	NBT	NBR	SBT	SBT
Lane Configurations	Stop	Free	Free	Free	Free	Free
Sign Control	0%	0%	0%	0%	0%	0%
Grade	5	60	540	10	100	495
Volume (veh/h)	0.82	0.82	0.89	0.89	0.87	0.87
Peak Hour Factor	6	73	607	11	115	569
Platoon flow rate (pph)						
Platoon length (ft)						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Left turn storage (veh)	0.91	0.98	988	0.98	629	
pX, platoon unblocked	1411	612		618		
vC, conflicting volume						
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1423	606		611		
IC, single (s)	6.5	6.3		4.1		
IC, stage (s)						
p0 queue free %	3.6	3.4		2.2		
IF (s)	95	84		88		
cM capacity (veh/h)	113	469		937		
Direction Lane #	WB 1	NB 1	SB 1	SB 1		
Volume Total	79	618	684			
Volume Left	6	0	115			
Volume Right	73	11	0			
cSH	378	1700	937			
Volume to Capacity	0.21	0.36	0.12			
Queue Length 36th (ft)	9	0	0			
Queue Delay (s)	17.0	0.9	3.0			
Lane LOS	C	A	A			
Approach Delay (s)	17.0	0.0	3.0			
Approach LOS	C		C			
Intersection Summary						
Average Delay	2.5					
Intersection Capacity Utilization	81.8%					
ICU Level of Service	D					
Analysis Period (min)	15					

10463.00: Harvard IMP
 2: Grove Street & North Harvard Street

2022 Build with Mitigation Conditions
 Weekday Morning

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Stop	Free	Free	Free	Free	Free
Sign Control	0%	0%	0%	0%	0%	0%
Grade	0	35	0	535	360	0
Volume (veh/h)	0.92	0.92	0.92	0.92	0.92	0.92
Peak Hour Factor	0	38	0	562	391	0
Platoon flow rate (pph)						
Platoon length (ft)						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Left turn storage (veh)	0.73	0.97	0.97	211	448	
pX, platoon unblocked	973	391	391			
vC, conflicting volume						
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	909	375	375			
IC, single (s)	6.4	6.2	4.1			
IC, stage (s)						
p0 queue free %	3.5	3.3	2.2			
IF (s)	100	94	100			
cM capacity (veh/h)	222	664	1153			
Direction Lane #	EB 1	NB 1	SB 1	SB 1		
Volume Total	38	592	391			
Volume Left	0	0	0			
Volume Right	38	0	0			
cSH	654	1700	1700			
Volume to Capacity	0.06	0.34	0.23			
Queue Length 36th (ft)	5	0	0			
Queue Delay (s)	10.0	0.9	0.0			
Lane LOS	B	B	B			
Approach Delay (s)	10.8	0.0	0.0			
Approach LOS	B		B			
Intersection Summary						
Average Delay	0.4					
Intersection Capacity Utilization	31.5%					
ICU Level of Service	A					
Analysis Period (min)	15					

10463.00: Harvard IMP
6: Science Drive & Rotterdam Street

2022 Build with Mitigation Conditions
Weekday Morning

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Stop	Free	Free	Free	Free	Free
Sign Control	0%	0%	0%	0%	0%	0%
Grade	0	45	285	20	65	0
Volume (veh/h)	0	0	45	285	20	65
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Platoon flow rate (pph)	0	0	49	310	22	71
Platoon length (ft)						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Left turn storage (veh)						
pX platoon unblocked	465	57	92			
vC, conflicting volume						
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	465	57	92			
IC, single (s)	6.4	6.2	4.1			
IC, stage (s)						
IF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	97			
cM capacity (veh/h)	538	1009	1502			
Direction Lane #	NB 1	SB 1				
Volume Total	359	92				
Volume Left	49	0				
Volume Right	0	71				
cSH	1502	1700				
Volume to Capacity	0.03	0.05				
Queue Length 35th (ft)	3	0				
Approach Delay (s)	1.3	0.9				
Lane LOS	A	A				
Approach Delay (s)	1.3	0.0				
Approach LOS						
Intersection Summary						
Average Delay	1.0					
Intersection Capacity Utilization	27.5%		A			
Analysis Period (min)	15					

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HCM Unsaturated Intersection Capacity Analysis
7/9/2013

10463.00: Harvard IMP
5005: Western Avenue & Smith Field Drive

2022 Build with Mitigation Conditions
Weekday Morning

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NWL	NWR
Lane Configurations	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop
Sign Control	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Grade	40	585	215	15	730	30	0	0	0	0
Volume (veh/h)	0.92	0.96	0.96	0.95	0.92	0.92	0.92	0.25	0.92	0.92
Peak Hour Factor	43	609	224	16	768	33	0	0	0	0
Platoon flow rate (pph)										
Platoon length (ft)										
Lane Width (ft)										
Walking Speed (ft/s)										
Percent Blockage										
Right turn flare (veh)										
Median type							None	None		
Median storage (veh)										
Left turn storage (veh)										
pX platoon unblocked	0.74	271		0.91		0.78	0.74	0.78	0.78	0.78
vC, conflicting volume	801	833		833		1737	785	1625	1641	1641
vC1, stage 1 conf vol										
vC2, stage 2 conf vol										
vCu, unblocked vol	730	817		817		1767	708	1624	1645	1645
IC, single (s)	4.1	4.2		4.2		6.5	6.2	7.1	6.5	6.5
IC, stage (s)										
IF (s)	2.2	2.3		2.3		4.0	3.3	3.5	4.0	4.0
p0 queue free %	93	98		98		100	100	100	100	100
cM capacity (veh/h)	645	718		718		60	321	61	71	71
Direction Lane #	EB 1	WB 1								
Volume Total	877	817								
Volume Left	43	16								
Volume Right	224	33								
cSH	645	718								
Volume to Capacity	0.07	0.02								
Queue Length 35th (ft)	5	0								
Approach Delay (s)	1.3	0.2								
Lane LOS	A	A								
Approach Delay (s)	1.9	0.6								
Approach LOS										
Intersection Summary										
Average Delay	1.3									
Intersection Capacity Utilization	76.2%		D							
Analysis Period (min)	15									

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HCM Unsaturated Intersection Capacity Analysis
7/9/2013

10463.00: Harvard IMP
756: Western Avenue & Everett St

2022 Build with Mitigation Conditions
Weekday Evening

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	a2
Lane Group													
Lane Configurations													
Ideal Flow (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	11	11	11	12	11	11	16	16	16	13	13	13	
Grades (%)	0%												
Storage Length (ft)	0												
Storage Length (s)	0												
Storage Length (ft)	0												
Leading Detector (ft)	0												
Trailing Detector (ft)	0												
Turning Speed (mph)	15												
Link Turn on Red	No												
Link Speed (mph)	30												
Link Delay (s)	4.3												
Volume (vph)	635	175	160	680	65	105	185	130	55	180	60		
Conf. Peds. (#/hr)	8												
Conf. Bikes (#/hr)	11												
Peak Hour Factor	0.90												
Growth Factor	100%												
Heavy Vehicles (%)	4%												
RTOR Reduction (%)	0%												
RTOR Reduction (s)	0												
RTOR Reduction (ft)	0												
Mid-Block Traffic (%)	0%												
Mid-Block Traffic (ft)	0												
Lane Group Flow (vph)	706	194	184	857	0	0	452	0	0	328	0		
Turn Type	1	1	1	1	1	1	1	1	1	1	1	2	
Permitted Phases	1 1 1 1 1 1 1 1 1 1 1 1												
Minimum Initial (s)	12.0												
Minimum Split (s)	17.0												
Total Split (s)	35.0												
Total Split (%)	38.9%												
Yellow Time (s)	3.0												
Allied Time (s)	2.0												
Lag	0												
Lead	0												
Lead to Optimize?	No												
Recall Mode	C-Max												
v/c Ratio	0.75	0.25	1.45	0.81			None	None	None	None	None	1.01	
Control Delay	18.7	11.7	284.2	34.6			254.0	34.6			88.1		
Queue Delay	0.0	0.0	0.0	0.0			0.0	0.0			0.0		
Queue Length (ft)	18.7	11.7	284.2	34.6			254.0	34.6			88.1		
Queue Length (s)	28.5	17.7	426.8	51.9			204.0	51.9			133.6		
Internal Link Dist (ft)	328	m88	#268	#883			#540	#883			#481		
Turn Bay Length (ft)	328	m88	#268	#883			297	#481			489		
Base Capacity (vph)	943	773	127	938			309	325			325		
Starvation Cap Reductn	0	0	0	0			0	0			0		
Starvation Cap Reductn	0	0	0	0			0	0			0		
Starvation Cap Reductn	0	0	0	0			0	0			0		
Reduction v/c Ratio	0.75	0.25	1.45	0.81			1.46				1.01		

Area Type: CBD
 Area Length: 90
 Area Width: 90
 Actuated Cycle Length: 90
 Offser: 0.0%, Referenced to phase 1 (EB|WB, Start of Green)
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 - Volume exceeds capacity, queue is theoretically infinite.
 - Queue shown is maximum after two cycles.
 # Split phasing volume exceeds capacity, queue may be longer.
 # Control phasing volume exceeds capacity, queue may be longer.
 m - Volume for 85th percentile queue is metered by upstream signal.



Splits and Phases: 756: Western Avenue & Everett St

10463.00: Harvard IMP
756: Western Avenue & Everett St

2022 Build with Mitigation Conditions
Weekday Evening

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	12	11	11	16	16	16	13	13	13
Total Lost Time (s)	4.0											
Lane Util. Factor	1.00											
RTOR Reduction (%)	0%											
RTOR Reduction (s)	0											
RTOR Reduction (ft)	0											
Lane Group Flow (vph)	706	194	184	857	0	0	452	0	0	328	0	
Turn Type	1	1	1	1	1	1	1	1	1	1	1	3
Permitted Phases	1 1 1 1 1 1 1 1 1 1 1 1											
Minimum Initial (s)	12.0											
Minimum Split (s)	17.0											
Total Split (s)	35.0											
Total Split (%)	38.9%											
Yellow Time (s)	3.0											
Allied Time (s)	2.0											
Lag	0											
Lead	0											
Lead to Optimize?	No											
Recall Mode	C-Max											
v/c Ratio	0.75	0.25	1.45	0.81			None	None	None	None	None	1.01
Control Delay	18.7	11.7	284.2	34.6			254.0	34.6			88.1	
Queue Delay	0.0	0.0	0.0	0.0			0.0	0.0			0.0	
Queue Length (ft)	18.7	11.7	284.2	34.6			254.0	34.6			88.1	
Queue Length (s)	28.5	17.7	426.8	51.9			204.0	51.9			133.6	
Internal Link Dist (ft)	328	m88	#268	#883			#540	#883			#481	
Turn Bay Length (ft)	328	m88	#268	#883			297	#481			489	
Base Capacity (vph)	943	773	127	938			309	325			325	
Starvation Cap Reductn	0	0	0	0			0	0			0	
Starvation Cap Reductn	0	0	0	0			0	0			0	
Starvation Cap Reductn	0	0	0	0			0	0			0	
Reduction v/c Ratio	0.75	0.25	1.45	0.81			1.46				1.01	

Area Type: CBD
 Area Length: 90
 Area Width: 90
 Actuated Cycle Length: 90
 Offser: 0.0%, Referenced to phase 1 (EB|WB, Start of Green)
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 - Volume exceeds capacity, queue is theoretically infinite.
 - Queue shown is maximum after two cycles.
 # Split phasing volume exceeds capacity, queue may be longer.
 # Control phasing volume exceeds capacity, queue may be longer.
 m - Volume for 85th percentile queue is metered by upstream signal.

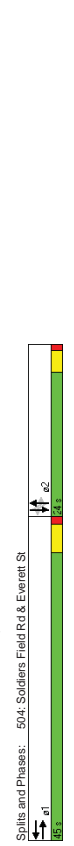


Splits and Phases: 756: Western Avenue & Everett St

10463.00: Harvard IMP
504: Soldiers Field Rd & Everett St

2022 Build with Mitigation Conditions
Weekday Evening

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Area Type: CBD												
Area Length: 60												
Area Width: 60												
Actuated Green Time (s)												
Actuated Yellow Time (s)												
Actuated Red Time (s)												
Offset: 0.0%, Referenced to phase TEB/WB, Start of Green												
Natural Cycle: 70												
Control Type: Pre-timed												
Volume exceeds capacity, queue is theoretically infinite.												
Queue shown is maximum after two cycles.												
Split percentage volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												



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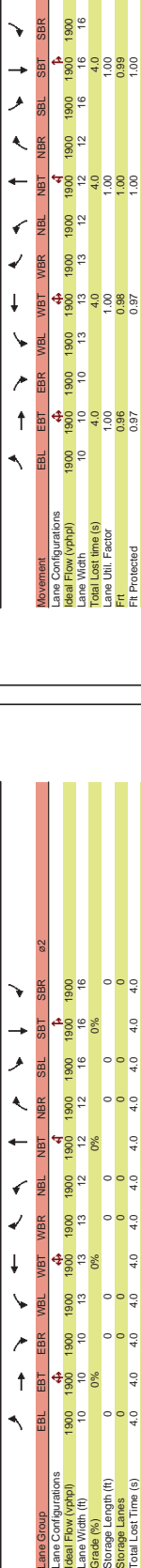
10463.00: Harvard IMP
504: Soldiers Field Rd & Everett St

2022 Build with Mitigation Conditions
Weekday Evening

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group: CBD												
Lane Length: 60												
Lane Width: 60												
Actuated Green Time (s)												
Actuated Yellow Time (s)												
Actuated Red Time (s)												
Offset: 0.0%, Referenced to phase TEB/WB, Start of Green												
Natural Cycle: 70												
Control Type: Pre-timed												
Volume exceeds capacity, queue is theoretically infinite.												
Queue shown is maximum after two cycles.												
Split percentage volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												



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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	a2
Lane Configurations	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vph)	10	10	10	13	13	13	12	12	12	16	16	16
Lane Width (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Grade (%)	0	0	0	0	0	0	0	0	0	0	0	0
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Storage Spaces	0	0	0	0	0	0	0	0	0	0	0	0
Trailing Detector (ft)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	9
Right Turn on Red	Yes		Yes		Yes		Yes		Yes	90	90	No
Link Speed (mph)	25		25		25		25		25	30	30	
Link Length (ft)	573		316		316		316		316	350	350	
Link Volume (vph)	190		86		86		86		86	250	250	
Volume (vph)	55	0	25	20	5	5	15	580	0	0	670	45

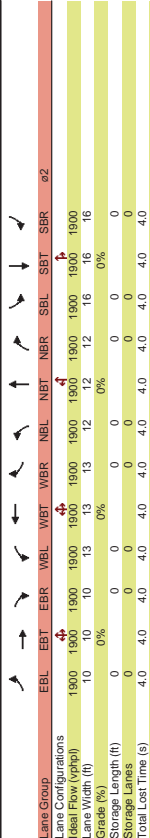
Conf. Peds. (#/hr)	Peak Hour Factor	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
0.85	0.85	0.78	0.78	0.87	0.87	0.87	0.87	0.89	0.89	0.89	0.89	0.89
100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
0	0	0	0	0	0	0	0	0	0	0	0	0
0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
0%	0%	0%	0%	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%	0%	0%	0%	0%	0%

Lane Group Flow (vph)	Perm	3	Perm	3	Perm	3	1	1	1	2
84	0	0	38	0	0	684	0	0	804	0
3	3	3	3	3	3	1	1	1	2	
17.0	17.0	17.0	17.0	17.0	17.0	8.0	8.0	8.0	1.0	
22.0	22.0	22.0	22.0	22.0	22.0	13.0	13.0	13.0	240	
20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	58.2%	58.2%	0.0%	58.2%	22%
3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0	
0.46	0.46	0.16	0.16	0.16	0.71	0.64	C-Min	C-Min	None	
0.46	0.46	0.16	0.16	0.16	0.71	0.64	C-Min	C-Min	None	
42.2	42.2	36.7	36.7	36.7	20.5	7.3	20.5	7.3		
42.2	42.2	36.7	36.7	36.7	20.5	7.6	20.5	7.6		
98	98	43	43	43	m#351	m118	m118	m118		
293	293	236	236	236	297	170	236	297		
203	203	231	231	231	986	1256	231	986		
0	0	0	0	0	4	89	0	89		
0	0	0	0	0	4	0	0	0		
0.46	0.46	0.16	0.16	0.16	0.71	0.69	0.71	0.69		

Area Type	Area	Offsr	92 (84%)	Reference	to phase	1(NBSB)	Start of Green
110	110	32	32	110	110	110	110
110	110	32	32	110	110	110	110
100	100	32	32	100	100	100	100

Spills and Phases: 5014: Kingsley St & North Harvand Street

Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m - Volume for 95th percentile queue is metered by upstream signal.

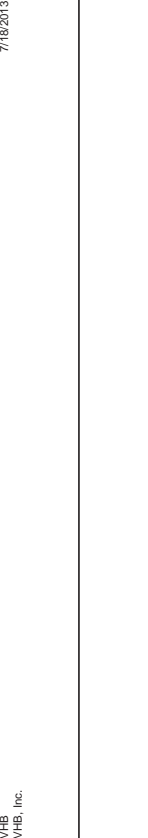


Area Type	Area	Offsr	92 (84%)	Reference	to phase	1(NBSB)	Start of Green
110	110	32	32	110	110	110	110
110	110	32	32	110	110	110	110
100	100	32	32	100	100	100	100

Area Type	Area	Offsr	92 (84%)	Reference	to phase	1(NBSB)	Start of Green
110	110	32	32	110	110	110	110
110	110	32	32	110	110	110	110
100	100	32	32	100	100	100	100

Spills and Phases: 5014: Kingsley St & North Harvand Street

Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m - Volume for 95th percentile queue is metered by upstream signal.



10463.00: Harvard IMP
5007: Western Avenue & Batten Way



2022 Build with Mitigation Conditions
Weekday Evening

Area Type	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Area Type	CBD											
Area Length (ft)	84											
Actuated Green (s)	80.2											
Natural Cycle (s)	120											
Control Type	Semi Act-Uncooord											
# 85th percentile volume exceeds capacity, queue may be longer.												
# Queue shown is maximum after two cycles.												
Spills and Phases:	5007: Western Avenue & Batten Way											
	a2	a3	a4	a5	a6	a7	a8	a9	a10	a11	a12	a13
	37.4	23.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3
	a1	a2	a3	a4	a5	a6	a7	a8	a9	a10	a11	a12
	37.4	23.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3

10463.00: Harvard IMP
5007: Western Avenue & Batten Way

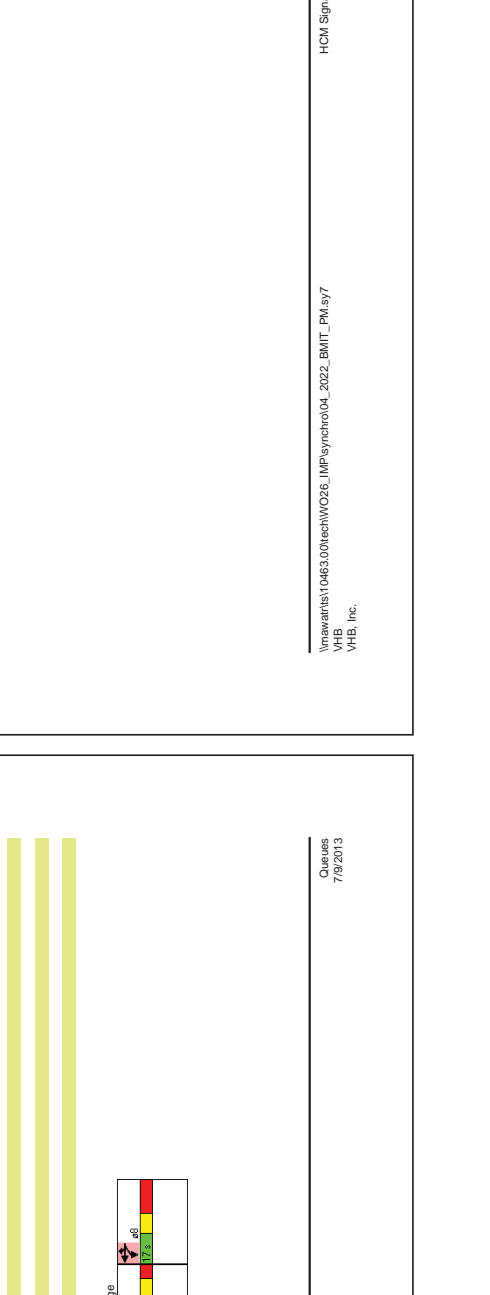


2022 Build with Mitigation Conditions
Weekday Evening

Area Type	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Area Type	CBD											
Area Length (ft)	84											
Actuated Green (s)	80.2											
Natural Cycle (s)	120											
Control Type	Semi Act-Uncooord											
# 85th percentile volume exceeds capacity, queue may be longer.												
# Queue shown is maximum after two cycles.												
Spills and Phases:	5007: Western Avenue & Batten Way											
	a2	a3	a4	a5	a6	a7	a8	a9	a10	a11	a12	a13
	37.4	23.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3
	a1	a2	a3	a4	a5	a6	a7	a8	a9	a10	a11	a12
	37.4	23.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3

10463.00: Harvand IMP
 5172: Soldiers Field Road WB & Larz Anderson Bridge

2022 Build with Mitigation Conditions
 Weekday Evening

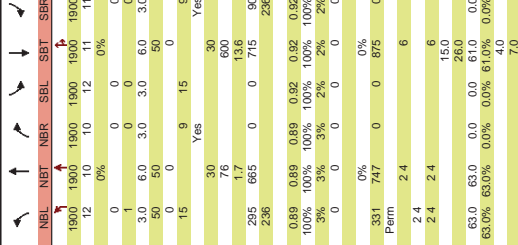


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Volume (vph)	30	0	0	190	532	190	190	190	190	190	190
Actuated Green (s)	1.04	0	0	42.6	33.0	19.74	15.7	134.1	43.0	33.0	197.4
Queue Length (ft)	0	0	0	0	0	0	0	0	0	0	0
Queue Length 95th (ft)	0	0	0	0	0	0	0	0	0	0	0
Internal Link Dist (ft)	510	510	510	95	273	4566	4530	4832	95	273	4530
Turn Bay Length (ft)	0	0	0	0	0	0	0	0	0	0	0
Base Capacity (vph)	0	0	0	0	0	0	0	0	0	0	0
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reductn % Ratio	0.37	0.61	1.36	0.85							
Intersection Summary											
Area Type	CBD										
Area Length	100										
Actuated Cycle Length	100										
Offsr: 0.0%	Referenced to phase 2/NBL and 6/SBT, Start of Green										
Natural Cycle: 130											
Control Type: Actuated-Coordinated											
Volume exceeds capacity, queue is theoretically infinite.											
Queue shown is maximum after two cycles.											
Split percentages will be maximum after two cycles.											
Queue shown is maximum after two cycles.											
Queue shown is maximum after two cycles.											

Splits and Phases: 5172: Soldiers Field Road WB & Larz Anderson Bridge

10463.00: Harvand IMP
 5172: Soldiers Field Road WB & Larz Anderson Bridge

2022 Build with Mitigation Conditions
 Weekday Evening



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Volume (vph)	0	0	0	75	5	325	295	665	0	0	715
Actuated Green (s)	0.92	0.92	0.92	0.75	0.04	0.85	0.85	0.85	0.85	0.85	0.85
Queue Length (ft)	0	0	0	0	0	0	0	0	0	0	0
Queue Length 95th (ft)	0	0	0	0	0	0	0	0	0	0	0
Internal Link Dist (ft)	0	0	0	0	0	0	0	0	0	0	0
Turn Bay Length (ft)	0	0	0	0	0	0	0	0	0	0	0
Base Capacity (vph)	0	0	0	0	0	0	0	0	0	0	0
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reductn % Ratio	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Intersection Summary											
Area Type	A										
Area Length	100										
Actuated Cycle Length	100										
Offsr: 0.0%	Referenced to phase 2/NBL and 6/SBT, Start of Green										
Natural Cycle: 130											
Control Type: Actuated-Coordinated											
Volume exceeds capacity, queue is theoretically infinite.											
Queue shown is maximum after two cycles.											
Split percentages will be maximum after two cycles.											
Queue shown is maximum after two cycles.											
Queue shown is maximum after two cycles.											

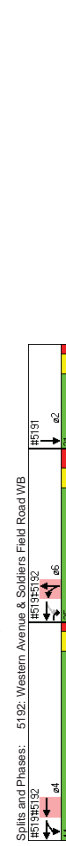
Splits and Phases: 5172: Soldiers Field Road WB & Larz Anderson Bridge

10463.00: Harvard IMP
5192: Western Avenue & Soldiers Field Road WB

2022 Build with Mitigation Conditions
Weekday Evening

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	a2
Lane Group												
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	11	11	11	11	11	11	12	12	
Grade (%)	0	0	0	0	0	0	0	0	0	0	0	
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0	
Storage Length (s)	0	0	0	0	0	0	0	0	0	0	0	
Trailing Detector (ft)	4.0	4.0	4.0	6.0	4.0	4.0	6.0	4.0	4.0	4.0	4.0	
Trailing Detector (ft)	15	9	15	9	15	9	15	9	15	9	15	
Right Turn on Red	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Link Speed (mph)	30	30	30	30	30	30	30	30	30	30	30	
Link Speed (ft/s)	100	100	100	100	100	100	100	100	100	100	100	
Volume (vph)	20	20	20	1018	456	1918	1445	365	0	0	0	
Conf. Peds. (#/hr)	0	0	0	1590	485	1445	365	0	0	0	0	
Peak Hour Factor	0.92	0.92	0.92	0.98	0.98	0.95	0.95	0.95	0.92	0.92	0.92	
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	2%	2%	2%	1%	1%	2%	2%	2%	2%	2%	2%	
Parking (ft/hr)	0	0	0	0	0	0	0	0	0	0	0	
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Lane Group Flow (vph)	0	0	0	2117	0	558	0	0	0	0	0	
Turn Type	Split											
Protected Phases	4 6 6											
Permitted Phases	4											
Minimum Initial (s)	14.0											
Minimum Split (s)	20.0											
Total Split (s)	35.0											
Total Split (%)	0.0%											
Yellow Time (s)	4.0											
All-red Time (s)	2.0											
Lead Lag	0											
Lead Lag Optimize?	No											
Recall Mode	C-Min Ped Ped											
v/c Ratio	1.29 0.61											
Control Delay	165.0 30.7											
Queue Delay	13.4 0.0											
Queue Length (ft)	178.4 30.7											
Queue Length (s)	47.30 202											
Internal Link Dist (ft)	384 1071											
Turn Bay Length (ft)	1638 919											
Storage Cap Reductn	8 0											
Storage Cap Reductn	37 11											
Reduction Ratio	1.92 0.61											

Area Type: CBD
 Area Type Length: 100
 Actuated Cycle Length: 100
 Offset: 62 (6.2%), Referenced to phase 4:WBTL, Start of 1st Green
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 - Volume exceeds capacity, queue is theoretically infinite.
 # Queue shown is maximum after two cycles.
 # Split percentage volume exceeds capacity, queue may be longer.
 # Queue shown is maximum after two cycles.



Splits and Phases: 5192: Western Avenue & Soldiers Field Road WB
 #5192#5192
 #5192#5192
 #5192#5192

10463.00: Harvard IMP
5192: Western Avenue & Soldiers Field Road WB

2022 Build with Mitigation Conditions
Weekday Evening

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	11	11	11	11	11	11	12	12	
Total Lost time (s)	6.0											
Lane Util. Factor	0.95											
FI Protected	0.96											
FI Protected	0.99											
Satd. Flow (vph)	4311											
FI Permitted	1.00											
Satd. Flow (perm)	4311											
Volume (vph)	0	0	0	1590	485	1445	365	0	0	0	0	
Peak-hour factor, PHF	0.92	0.92	0.92	0.98	0.98	0.95	0.95	0.95	0.92	0.92	0.92	
Adj. Flow (vph)	0	0	0	1622	495	153	405	0	0	0	0	
Lane Group Flow (vph)	0	0	0	2117	0	519	0	0	0	0	0	
Lane Group Flow (vph)	0	0	0	1	1%	1%	2%	2%	2%	2%	2%	
Heavy Vehicles (%)	Split											
Turn Type	4 6 6											
Protected Phases	4 6 6											
Permitted Phases	38.0											
Actuated Green, g (s)	38.0											
Effective Green, g (s)	23.0											
Clearance Time (s)	6.0											
Vehicle Extension (s)	2.0											
Lane Gap Cap (vph)	1638											
v/s Ratio Prot	c0.49											
v/s Ratio Perm	1.29											
v/c Ratio	31.0											
Uniform Delay, d1	30.4											
Incremental Delay, d2	136.3											
Delay (s)	167.3											
Level of Service	F											
Approach Delay (s)	167.3											
Approach LOS	F											

Intersection Summary
 HCM Average Control Delay: 138.9 HCM Level of Service: F
 HCM Volume to Capacity ratio: 0.99
 Actuated Cycle Length (s): 100.0 Sum of lost time (s): 33.0
 Intersection Capacity Utilization: 130.7% ICU Level of Service: H
 # Critical Lane Group: 15



Splits and Phases: 5192: Western Avenue & Soldiers Field Road WB
 #5192#5192
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 #5192#5192

10463.00: Harvard IMP
5163: Cambridge Street & Soldiers Field Road WB
2022 Build with Mitigation Conditions
Weekday Evening

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	1 2 3 5 1 2 3 5											
Lane Configurations	4 4 4 1 1 1 1 1 1 1 1 1 1											
Ideal Flow (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	12	12	12	11	10	10	12	12	12
Grades (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Storage Length (s)	0	0	0	0	0	0	0	0	0	0	0	0
Storage Times (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	9
Right Turn on Red	No	No	No	No	No	No	No	No	No	No	No	No
Link Speed (mph)	30	30	30	30	30	30	30	30	30	30	30	30
Link Distance (ft)	66	465	66	465	66	465	66	465	66	465	66	465
Turn Type	4 4 4 1 1 1 1 1 1 1 1 1 1											
Volume (vph)	440	1520	0	0	0	0	660	90	155	0	0	0
Confl. Peds. (/hr)	0 0 0 0 0 0 0 0 0 0 0 0 0											
Confl. Bikes (/hr)	0 0 0 0 0 0 0 0 0 0 0 0 0											
Peak Hour Factor	0.96 0.96 0.96 0.25 0.25 0.25 0.88 0.88 0.88 0.92 0.92 0.92 0.92											
Growth Factor	100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 100%											
Heavy Vehicles (%)	1% 1% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%											
Parking (veh)	0 0 0 0 0 0 0 0 0 0 0 0 0											
Mid-Block Traffic (%)	0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%											
Lane Group Flow (vph)	0	2041	0	0	0	0	535	493	0	0	0	0
Turn Type	Split											
Protected Phases	1 2 3 5 1 2 3 5											
Minimum Split (s)	4 4 4 17.0 17.0 17.0 17.0 17.0 17.0 4.0 4.0 27.0											
Total Split (s)	102.0 102.0 0.0 0.0 0.0 0.0 0.0 38.0 38.0 0.0 0.0 0.0 0.0 33.0											
Total Split (%)	72.9% 72.9% 0.0% 0.0% 0.0% 0.0% 27.1% 27.1% 0.0% 0.0% 0.0% 0.0% 0.0%											
Yellow Time (s)	4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0											
All-Red Time (s)	4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0											
Recall/Optimize?	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes											
Recall Mode	Ped Ped Ped Ped Ped Ped C-Min Ped Max Ped											
v/c Ratio	0.66 1.57 1.54 1.57 1.54 1.57 1.54 0.66 1.57 1.54 1.57 1.54											
Control Delay	0.8 306.6 232.8 306.6 232.8 306.6 232.8 0.8 306.6 232.8 306.6 232.8											
Queue Delay	0.2 88.1 81.6 88.1 81.6 88.1 81.6 0.2 88.1 81.6 88.1 81.6											
Total Delay	1.0 394.7 314.4 394.7 314.4 394.7 314.4 1.0 394.7 314.4 394.7 314.4											
Queue Length (ft)	n3 4935 4935 4935 4935 4935 4935 4935 4935 4935 4935 4935 4935											
Queue Length (veh)	n3 4935 4935 4935 4935 4935 4935 4935 4935 4935 4935 4935 4935											
Internal Link Dist (ft)	375 224 224 375 224 224 375 224 224 375 224 224											
Turn Bay Length (ft)	3093 341 321 3093 341 321 3093 341 321 3093 341 321											
Base Capacity (vph)	3093 341 321 3093 341 321 3093 341 321 3093 341 321											
Starvation Cap Reductn	0 0 0 0 0 0 0 0 0 0 0 0 0											
Starvation Cap Reductn	237 38 34 237 38 34 237 38 34 237 38 34											
Storage Cap Reductn	0 0 0 0 0 0 0 0 0 0 0 0 0											
Reduced v/c Ratio	0.73 1.75 1.72 0.73 1.75 1.72 0.73 1.75 1.72 0.73 1.75 1.72											

Intersection Summary

Area Type	CBD
Control Type	TSC
Actuated Cycle Length	140
Offset (0.0%), Referenced to phase 1 NEL, Start of Yellow	0.0
Natural Cycle	150
Control Type	Actuated-Coordinated
Queue shows maximum after two cycles.	
Storage shows volume extension, queue may be longer.	
Cycle shows maximum cycle time.	
m - Volume for 85th percentile queue is metered by upstream signal.	

Splits and Phases: 5163: Cambridge Street & Soldiers Field Road WB

EBL 90s 120s 150s 180s 210s
EBT 120s 150s 180s 210s 240s
EBR 150s 180s 210s 240s 270s
WBL 270s 300s 330s 360s 390s
WBT 300s 330s 360s 390s 420s
WBR 330s 360s 390s 420s 450s
NBL 450s 480s 510s 540s 570s
NBT 480s 510s 540s 570s 600s
NBR 510s 540s 570s 600s 630s
SBL 630s 660s 690s 720s 750s
SBT 660s 690s 720s 750s 780s
SBR 690s 720s 750s 780s 810s

10463.00: Harvard IMP
5163: Cambridge Street & Soldiers Field Road WB
2022 Build with Mitigation Conditions
Weekday Evening

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	4 4 4 1 1 1 1 1 1 1 1 1 1											
Ideal Flow (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	12	12	12	11	10	10	12	12	12
Total Lost time (s)	4.0	4.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95											
Proctected Phases	4 4 4 1 1 1 1 1 1 1 1 1 1											
Volume (vph)	440	1520	0	0	0	0	660	90	155	0	0	0
Peak-hour factor, PHF	0.96 0.96 0.96 0.25 0.25 0.25 0.88 0.88 0.88 0.92 0.92 0.92 0.92											
Adj. Flow (vph)	438	1583	0	0	0	0	750	102	176	0	0	0
Lane Group Flow (vph)	0	2041	0	0	0	0	535	493	0	0	0	0
Lane Group Flow (vph)	0	2041	0	0	0	0	535	493	0	0	0	0
Heavy Vehicles (%)	1% 1% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%											
Turn Type	Split											
Protected Phases	1 2 3 5 1 2 3 5											
Actuated Green, G (s)	94.0 30.0 30.0 32.0 32.0 32.0 94.0 30.0 30.0 32.0 32.0 32.0											
Effective Green, g (s)	94.0 30.0 30.0 32.0 32.0 32.0 94.0 30.0 30.0 32.0 32.0 32.0											
Clearance Time (s)	8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0											
Vehicle Extension (s)	3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0											
Lane Gap Cap (vph)	3093 341 321 3093 341 321 3093 341 321 3093 341 321											
v/s Ratio Prot	c0.46 c0.36 c0.35 c0.46 c0.36 c0.35 c0.46 c0.36 c0.35 c0.46 c0.36 c0.35											
v/c Ratio	0.66 1.57 1.54 0.66 1.57 1.54 0.66 1.57 1.54 0.66 1.57 1.54											
Uniform Delay, d1	1.0 394.7 314.4 1.0 394.7 314.4 1.0 394.7 314.4 1.0 394.7 314.4											
Incremental Delay, d2	0.3 269.8 256.2 0.3 269.8 256.2 0.3 269.8 256.2 0.3 269.8 256.2											
Delay (s)	1.3 664.5 570.6 1.3 664.5 570.6 1.3 664.5 570.6 1.3 664.5 570.6											
Level of Service	A F F A F F A F F A F F A F F											
Approach Delay (s)	0.5 0.0 0.0 0.5 0.0 0.0 0.5 0.0 0.0 0.5 0.0 0.0 0.5											
Approach LOS	A A A A A A A A A A A A A											

Intersection Summary

Area Type	CBD
Control Type	TSC
Actuated Cycle Length	140
Offset (0.0%), Referenced to phase 1 NEL, Start of Yellow	0.0
Natural Cycle	150
Control Type	Actuated-Coordinated
Queue shows maximum after two cycles.	
Storage shows volume extension, queue may be longer.	
Cycle shows maximum cycle time.	
m - Volume for 85th percentile queue is metered by upstream signal.	

Splits and Phases: 5163: Cambridge Street & Soldiers Field Road WB

EBL 90s 120s 150s 180s 210s
EBT 120s 150s 180s 210s 240s
EBR 150s 180s 210s 240s 270s
WBL 270s 300s 330s 360s 390s
WBT 300s 330s 360s 390s 420s
WBR 330s 360s 390s 420s 450s
NBL 450s 480s 510s 540s 570s
NBT 480s 510s 540s 570s 600s
NBR 510s 540s 570s 600s 630s
SBL 630s 660s 690s 720s 750s
SBT 660s 690s 720s 750s 780s
SBR 690s 720s 750s 780s 810s

10463.00: Harvard IMP
1326: Cambridge Street & Windom Street

2022 Build with Mitigation Conditions
Weekday Evening

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL EBT WBT WBR SBL SBR					
Lane Configurations	1900 1900 1900 1900 1900 1900					
Ideal Flow (vphpl)	12	10	10	10	14	14
Lane Width (ft)	0%					
Grades (%)	0%					
Storage Length (ft)	0					
Storage Capacity (veh)	0					
Storage Turn Time (s)	0					
Trailing Detector (ft)	0					
Leading Detector (ft)	0					
Trailing Speed (mph)	0					
Right Turn on Red	Yes					
Link Speed (mph)	30					
Link Distance (ft)	1000					
Travel Time (s)	7.97					
Volume (vph)	10	895	1735	245	130	75
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.93	0.93	0.91	0.91	0.84	0.84
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Trucks (%)	0	0	0	0	0	0
Trailers (%)	0	0	0	0	0	0
Ped/Bike Traffic (%)	0%					
Mid-Block Traffic (%)	0%					
Lane Group Flow (vph)	11	973	1907	269	155	89
Turn Type	pm+pt	1	Perm			Prot
Protected Phases	2	1	2	1	3	3
Permitted Phases	1	2	1	1	3	3
Minimum Initial (s)	6.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	10.0	13.0	13.0	20.0	20.0	20.0
Total Split (s)	14.0	90.0	76.0	20.0	20.0	20.0
Total Split (%)	12.7%	81.8%	69.1%	89.1%	18.2%	18.2%
Yellow Time (s)	3.0	4.0	4.0	3.0	3.0	3.0
Allied Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lead Lag	Yes	Yes	Yes	Yes	Yes	Yes
Lead Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Min	C-Max	C-Max	Min	Min	Min
v/c Ratio	0.07	0.28	0.69	0.26	0.75	0.34
Control Delay	1.8	1.3	20.2	1.4	68.6	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.8	1.3	20.2	1.4	68.6	12.6
Queue Length 95th (ft)	0	0	0	0	0	0
Queue Length 90th (ft)	0	0	0	0	0	0
Internal Link Dist (ft)	m1	m27	#632	25	161	30
Turn Bay Length (ft)	175	120	980		654	
Base Capacity (vph)	214	3625	2141	1035	250	299
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.27	0.69	0.26	0.62	0.30

Intersection Summary

Area Type	CBD
Lane Type	110
Actuated Cycle Length	110
Actuated Cycle Length	110
Offset: 93 (85%), Referenced to phase 1:EBWB, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	
m - Volume for 95th percentile queue is metered by upstream signal.	



10463.00: Harvard IMP
1326: Cambridge Street & Windom Street

2022 Build with Mitigation Conditions
Weekday Evening

	EBL	EBT	WBT	WBR	SBL	SBR
Movement	EBL EBT WBT WBR SBL SBR					
Lane Configurations	1900 1900 1900 1900 1900 1900					
Ideal Flow (vphpl)	12	10	10	10	14	14
Lane Width (ft)	0%					
Grades (%)	0%					
Storage Length (ft)	0					
Storage Capacity (veh)	0					
Storage Turn Time (s)	0					
Trailing Detector (ft)	0					
Leading Detector (ft)	0					
Trailing Speed (mph)	0					
Right Turn on Red	Yes					
Link Speed (mph)	30					
Link Distance (ft)	1000					
Travel Time (s)	7.97					
Volume (vph)	10	895	1735	245	130	75
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.93	0.93	0.91	0.91	0.84	0.84
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Trucks (%)	0	0	0	0	0	0
Trailers (%)	0	0	0	0	0	0
Ped/Bike Traffic (%)	0%					
Mid-Block Traffic (%)	0%					
Lane Group Flow (vph)	11	973	1907	269	155	89
Turn Type	pm+pt	1	Perm			Prot
Protected Phases	2	1	2	1	3	3
Permitted Phases	1	2	1	1	3	3
Minimum Initial (s)	6.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	10.0	13.0	13.0	20.0	20.0	20.0
Total Split (s)	14.0	90.0	76.0	20.0	20.0	20.0
Total Split (%)	12.7%	81.8%	69.1%	89.1%	18.2%	18.2%
Yellow Time (s)	3.0	4.0	4.0	3.0	3.0	3.0
Allied Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lead Lag	Yes	Yes	Yes	Yes	Yes	Yes
Lead Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Min	C-Max	C-Max	Min	Min	Min
v/c Ratio	0.07	0.28	0.69	0.26	0.75	0.34
Control Delay	1.8	1.3	20.2	1.4	68.6	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.8	1.3	20.2	1.4	68.6	12.6
Queue Length 95th (ft)	0	0	0	0	0	0
Queue Length 90th (ft)	0	0	0	0	0	0
Internal Link Dist (ft)	m1	m27	#632	25	161	30
Turn Bay Length (ft)	175	120	980		654	
Base Capacity (vph)	214	3625	2141	1035	250	299
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.27	0.69	0.26	0.62	0.30

Intersection Summary

Area Type	CBD
Lane Type	110
Actuated Cycle Length	110
Actuated Cycle Length	110
Offset: 93 (85%), Referenced to phase 1:EBWB, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	
m - Volume for 95th percentile queue is metered by upstream signal.	

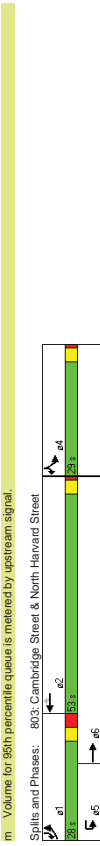


10463.00: Harvard IMP
803: Cambridge Street & North Harvard Street
Weekday Evening

10463.00: Harvard IMP
803: Cambridge Street & North Harvard Street
Weekday Evening

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vehph)	11	11	10	11	10	12	12
Lane Width (ft)	200	0	120	0	0	50	50
Grade (%)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Storage Length (ft)	50	50	50	50	50	50	50
Storage Length (s)	0	0	0	0	0	0	0
Trailing Detector (ft)	15	9	9	9	15	9	9
Turning Speed (mph)	40	30	30	30	30	30	30
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	No	No
Link Speed (mph)	40	30	30	30	30	30	30
Link Distance (ft)	426	426	426	426	426	426	426
Link Delay (s)	83	83	83	83	83	83	83
Volume (vph)	290	1625	80	1360	380	330	325
Confl. Peds. (#/hr)	10	0	0	0	0	0	0
Confl. Bikes (#/hr)	0	0	0	0	0	0	0
Peak Hour Factor	0.90	0.92	1.00	0.92	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	1%	1%	2%	2%	2%
Pedestrians (#/hr)	0	0	0	0	0	0	0
Parking (#/hr)	0	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	322	1806	87	1478	413	355	349
Turn Type	Prot	Perm	Perm	Perm	ptov	ptov	ptov
Protected Phases	1	6	5	2	4	1	4
Minimum Initial (s)	8.0	12.0	8.0	12.0	12.0	12.0	12.0
Minimum Split (s)	14.0	16.0	12.0	25.0	25.0	29.0	29.0
Total Split (s)	28.0	64.0	17.0	53.0	53.0	29.0	57.0
Total Split (%)	25.5%	58.2%	15.5%	48.2%	48.2%	26.4%	51.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Allied Time (s)	3.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead Lag (ft)	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	Max	C-Max	C-Max	Min	Min
v/c Ratio	0.92	0.74	0.46	1.04	0.62	0.95	0.50
Control Delay	75.9	17.4	59.4	52.1	9.0	84.6	12.4
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0
Queue Length	75.9	17.6	59.4	52.1	9.0	64.6	12.4
Queue Length 95th (ft)	me#57	me#49	me#728	me#728	me#728	me#49	me#57
Internal Link Dist (ft)	200	120	120	1417	688	377	692
Turn Bay Length (ft)	350	2457	191	1417	688	377	692
Base Capacity (vph)	0	0	0	0	0	0	0
Starvation Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reaches v/c Ratio	0.92	0.77	0.46	1.04	0.62	0.94	0.50

Intersection Summary
Area Type: CBD
Area Length: 110
Actuated Cycle Length: 110
Offser: 5 (5%), Referenced to phase 2/WBT and 6/EBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
- Volume exceeds capacity, queue is theoretically infinite.
- Queue shown is maximum after two cycles.
- Split phasing volume exceeds capacity, queue may be longer.
- Control shown is theoretical, queue may be longer.
m - Volume for 85th percentile queue is metered by upstream signal.



Splits and Phases: 803: Cambridge Street & North Harvard Street
Queues: 7/9/2013
VHB, Inc.

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vehph)	11	11	10	11	10	12	12
Lane Width (ft)	200	0	120	0	0	50	50
Grade (%)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Storage Length (ft)	50	50	50	50	50	50	50
Storage Length (s)	0	0	0	0	0	0	0
Trailing Detector (ft)	15	9	9	9	15	9	9
Turning Speed (mph)	40	30	30	30	30	30	30
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	No	No
Link Speed (mph)	40	30	30	30	30	30	30
Link Distance (ft)	426	426	426	426	426	426	426
Link Delay (s)	83	83	83	83	83	83	83
Volume (vph)	290	1625	80	1360	380	330	325
Confl. Peds. (#/hr)	10	0	0	0	0	0	0
Confl. Bikes (#/hr)	0	0	0	0	0	0	0
Peak Hour Factor	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Growth Factor	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	1%	1%	2%	2%	2%
Pedestrians (#/hr)	0	0	0	0	0	0	0
Parking (#/hr)	0	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	322	1806	87	1478	413	355	349
Turn Type	Prot	Perm	Perm	Perm	ptov	ptov	ptov
Protected Phases	1	6	5	2	4	1	4
Minimum Initial (s)	8.0	12.0	8.0	12.0	12.0	12.0	12.0
Minimum Split (s)	14.0	16.0	12.0	25.0	25.0	29.0	29.0
Total Split (s)	28.0	64.0	17.0	53.0	53.0	29.0	57.0
Total Split (%)	25.5%	58.2%	15.5%	48.2%	48.2%	26.4%	51.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Allied Time (s)	3.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead Lag (ft)	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	Max	C-Max	C-Max	Min	Min
v/c Ratio	0.92	0.74	0.46	1.04	0.62	0.95	0.50
Control Delay	75.9	17.4	59.4	52.1	9.0	84.6	12.4
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0
Queue Length	75.9	17.6	59.4	52.1	9.0	64.6	12.4
Queue Length 95th (ft)	me#57	me#49	me#728	me#728	me#728	me#49	me#57
Internal Link Dist (ft)	200	120	120	1417	688	377	692
Turn Bay Length (ft)	350	2457	191	1417	688	377	692
Base Capacity (vph)	0	0	0	0	0	0	0
Starvation Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reaches v/c Ratio	0.92	0.77	0.46	1.04	0.62	0.94	0.50

Intersection Summary
Area Type: CBD
Area Length: 110
Actuated Cycle Length: 110
Offser: 5 (5%), Referenced to phase 2/WBT and 6/EBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
- Volume exceeds capacity, queue is theoretically infinite.
- Queue shown is maximum after two cycles.
- Split phasing volume exceeds capacity, queue may be longer.
- Control shown is theoretical, queue may be longer.
m - Volume for 85th percentile queue is metered by upstream signal.

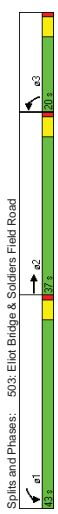


Splits and Phases: 803: Cambridge Street & North Harvard Street
Queues: 7/9/2013
VHB, Inc.

10463.00: Harvard IMP
503: Eliot Bridge & Soldiers Field Road

2022 Build with Mitigation Conditions
Weekday Evening

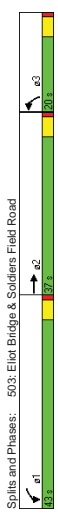
	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	10	10	11	14	14
Grade (%)	0%	0%	0%	0%	0%	0%
Storage Length (ft)	180	285	0	0	0	0
Storage Length (s)	2	4	0	0	0	0
Trailing Detector (ft)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	0	0	0	0	0	0
Turning Speed (mph)	9	15	15	9		
Right Turn on Red	Yes					Yes
Link Speed (mph)	30			30		30
Link Distance (ft)	465			389		270
Turn Type	0			0		0
Volume (vph)	1530	0	1390	0	330	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Parking (ft/hr)	0	0	0	0	0	0
Mid-Block Traffic (%)	0%	0%	0%	0%	0%	0%
Lane Group Flow (vph)	1811	0	1479	0	351	0
Turn Type	Prot					
Protected Phases	2	1	3			
Permitted Phases	2	1	3			
Minimum Initial (s)	15.0	15.0	15.0			
Minimum Split (s)	20.0	20.0	20.0			
Total Split (s)	37.0	0.0	43.0	0.0	20.0	0.0
Total Split (%)	37.0%	0.0%	43.0%	0.0%	20.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Allied Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lead Lag	Yes	Yes	Yes	Yes	Yes	Yes
Lead Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Min	Max	None			
v/c Ratio	0.86	0.89	0.65			
Control Delay	37.0	36.4	45.8			
Queue Delay	0.0	0.0	0.0			
Queue Length	37.0	36.4	45.8			
Queue Length 95th (ft)	326	326	432			
Queue Length 95th (ft)	326	4374	308	157		
Internal Link Dist (ft)	345		308	190		
Turn Bay Length (ft)		255				
Base Capacity (vph)	1876	1668	538			
Starvation Cap Reductn	0	0	0			
Spillback Cap Reductn	0	0	0			
Storage Cap Reductn	0	0	0			
Reduced v/c Ratio	0.86	0.89	0.65			
Intersection Summary						
Area Type	CBD					
Area Length (ft)	100					
Actuated Cycle Length	100					
Natural Cycle	90					
Control Type	Semi Act-Uncoord					
#	85th percentile volume exceeds capacity, queue may be longer.					
	Queue shown is maximum after two cycles.					



10463.00: Harvard IMP
503: Eliot Bridge & Soldiers Field Road

2022 Build with Mitigation Conditions
Weekday Evening

	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	10	10	11	14	14
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.86	0.84	0.94	0.97		
Storage Length (ft)	180	285	0	0	0	0
Storage Length (s)	2	4	0	0	0	0
Trailing Detector (ft)	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	0	0	0	0	0	0
Turning Speed (mph)	9	15	15	9		
Right Turn on Red	Yes					Yes
Link Speed (mph)	30			30		30
Link Distance (ft)	465			389		270
Turn Type	0			0		0
Volume (vph)	1611	0	1479	0	351	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	Prot					
Protected Phases	2	1	3			
Permitted Phases	2	1	3			
Actuated Green, G (s)	32.0	38.0	15.0			
Effective Green, g (s)	33.0	39.0	16.0			
Yellow Time (s)	4.0	4.0	4.0			
Clearance Time (s)	5.0	5.0	5.0			
Vehicle Extension (s)	4.0	4.0	4.0			
Lane Cap (vph)	1876	1668	538			
v/s Ratio Prot	c0.28	c0.35	c0.10			
v/s Ratio Perm						
v/c Ratio	0.86	0.89	0.65			
Uniform Delay, d1	31.3	28.4	38.4			
Incremental Delay, d2	4.3	7.4	3.1			
Delay (s)	35.6	35.8	42.5			
Level of Service	D	D	D			
Approach Delay (s)	35.6		35.8	42.5		
Approach LOS	D		D	D		
Intersection Summary						
HCM Average Control Delay	36.4					
HCM Volume to Capacity ratio	0.83					
Actuated Cycle Length (s)	100.0					
Sum of lost time (s)	12.0					
Intersection Capacity Utilization	76.5%					
ICU Level of Service	D					
Area Type	CBD					
Area Length (ft)	100					
Actuated Cycle Length	100					
Natural Cycle	90					
Control Type	Semi Act-Uncoord					
#	85th percentile volume exceeds capacity, queue may be longer.					
	Queue shown is maximum after two cycles.					

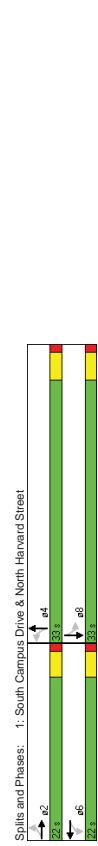


Queues
1: South Campus Drive & North Harvard Street

2022 Build with Mitigation Conditions
Weekday Evening

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900											
Lane Configurations	12 12 12 12 12 12 12 12 12 12 12 12											
Ideal Flow (vphpl)	0 0 0 0 0 0 0 0 0 0 0 0											
Lane Width (ft)	0 0 0 0 0 0 0 0 0 0 0 0											
Storage Length (ft)	4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0											
Storage Lengths (s)	0 0 0 0 0 0 0 0 0 0 0 0											
Leadlag Detectors (ft)	50 50 50 50 50 50 50 50 50 50 50 50											
Trailing Detectors (ft)	0 0 0 0 0 0 0 0 0 0 0 0											
Turning Speed (mph)	15 9 15 9 15 9 15 9 15 9 15 9											
Right Turn on Red	Yes											
Link Speed (mph)	30											
Link Distance (ft)	64											
Link Distance (s)	161											
Volume (vph)	40 65 55 50 20 160 25 495 0 30 425 5											
Confl. Peds. (/hr)	0											
Peak Hour Factor	0.92 0.92 0.92 100% 100% 100% 0.92 0.92 0.92 0.92 0.92 0.92											
Growth Factor	100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 100%											
Heavy Vehicles (%)	2% 2% 2% 2% 2% 2% 2% 2% 2% 2% 2% 2%											
Bikes (/hr)	0 0 0 0 0 0 0 0 0 0 0 0											
Parking (/hr)	0 0 0 0 0 0 0 0 0 0 0 0											
Mid-Block Traffic (%)	0%											
Lane Group Flow (vph)	Perm 0 174 0 0 250 0 0 565 0 0 500 0											
Turn Type	Perm											
Protected Phases	2 2 6 6 4 4 8 8											
Minimum Initial (s)	8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0											
Minimum Split (s)	22.0 22.0 22.0 22.0 22.0 22.0 22.0 22.0 22.0 22.0 22.0 22.0											
Total Split (s)	22.0 22.0 22.0 22.0 22.0 22.0 22.0 22.0 22.0 22.0 22.0 22.0											
Total Split (%)	40.0% 40.0% 0.0% 40.0% 40.0% 40.0% 60.0% 60.0% 60.0% 60.0% 60.0% 60.0%											
Yellow Time (s)	3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0											
Allied Time (s)	1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0											
Recall to Optimize?	None None None None None None C-Min C-Min C-Min C-Min											
Recall Mode	0.49 0.56 0.55 0.50 0.50 0.50											
v/c Ratio	16.7 10.8 10.8 6.6 6.6 9.0											
Queue Delay	0.0 0.0 0.0 0.0 0.0 0.0											
Total Delay	16.7 10.8 10.8 6.6 6.6 9.0											
Queue Length 50th (ft)	46 46 46 20 20 20											
Queue Length 95th (ft)	70 70 70 260 260 182											
Internal Link Dist (ft)	484 381 381 368 368 888											
Turn Bay Length (ft)	497 568 568 1023 1004											
Starvation Cap Reductn	0 0 0 0 0 0											
Storage Cap Reductn	0 0 0 0 0 0											
Reduced v/c Ratio	0.35 0.44 0.44 0.55 0.55 0.50											

Intersection Summary
Area Type: CBD
Area Length: 55
Actuated Cycle Length: 55
Offser: 16 (23%), Referenced to phase 4:NBL and 8:SBTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.



Splits and Phases: 1: South Campus Drive & North Harvard Street

HCM Signalized Intersection Capacity Analysis
1: South Campus Drive & North Harvard Street

2022 Build with Mitigation Conditions
Weekday Evening

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900											
Lane Configurations	4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0											
Total Lost time (s)	0.95 0.91 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00											
Lane Util. Factor	0.87 0.87 0.87 0.87 0.87 0.87 0.87 0.87 0.87 0.87 0.87 0.87											
Permitted Phases	1387 1387 1387 1387 1387 1387 1387 1387 1387 1387 1387 1387											
Volume (vph)	40 65 55 50 20 160 25 495 0 30 425 5											
Peak-hour factor, PHF	0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92											
Adj. Flow (vph)	43 71 60 54 22 174 27 538 0 33 462 5											
RTOR Reduction (vph)	0 40 0 0 135 0 0 0 0 0 0 0 0											
RTOR Reduction (s)	0 154 0 0 115 0 0 565 0 0 500 0											
Lane Group Flow (vph)	Perm 2 2 6 6 4 4 8 8											
Turn Type	Perm											
Protected Phases	2 2 6 6 4 4 8 8											
Actuated Green, G (s)	12.4 12.4 12.4 12.4 12.4 12.4 12.4 12.4 12.4 12.4 12.4 12.4											
Effective Green, g (s)	12.4 12.4 12.4 12.4 12.4 12.4 12.4 12.4 12.4 12.4 12.4 12.4											
Actuated g/C Ratio	0.23 0.23 0.23 0.23 0.23 0.23 0.23 0.23 0.23 0.23 0.23 0.23											
Clearance Time (s)	4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0											
Link Distance (ft)	64 64 64 64 64 64 64 64 64 64 64 64											
Link Distance (s)	161 161 161 161 161 161 161 161 161 161 161 161											
Volume G-Cap (vph)	313 1024 1024											
v/s Ratio Perm	c0.10 0.08 c0.35 0.31											
v/c Ratio	0.43 0.37 0.55 0.50											
Uniform Delay, d1	18.3 18.0 18.0 5.8 5.5											
Progression Factor	1.00 1.04 0.76 0.76											
Incremental Delay, d2	0.9 0.9 0.9 0.9											
Level of Service	B B A A											
Approach Delay (s)	19.2 19.4 5.6 7.3											
Approach LOS	B B A A											

Intersection Summary
HCM Average Control Delay: 10.1
HCM Level of Service: B
HCM Volume to Capacity ratio: 0.52
Actuated Cycle Length (s): 55.0
Sum of lost time (s): 8.0
Intersection Capacity Utilization: 62.9%
ICU Level of Service: B
Analysis Period (min): 15
Critical Lane Group

10463.00: Harvard IMP
5012: Bertram St & North Harvard Street

2022 Build with Mitigation Conditions
Weekday Evening

Movement	WBL	WBR	NBT	NBR	SBT	SBR
Lane Configurations	Stop	Free	Free	Free	Free	Free
Sign Control	0%	0%	0%	0%	0%	0%
Grade	10	15	650	15	5	485
Volume (veh/h)	0.75	0.75	0.91	0.91	0.86	0.86
Peak Hour Factor	13	20	714	16	6	564
Platoon flow rate (pph)						
Platoon length (ft)						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
px platoon unblocked	0.88	0.78	300	0.78	186	
vc conflicting volume	1298	723		731		
vc1, stage 1 conf vol						
vc2, stage 2 conf vol						
vcu, unblocked vol	964	644		655		
tc, single (s)	6.4	6.2		4.1		
pf (s)	3.5	3.3		2.2		
p0 queue free %	95	95		99		
cm capacity (veh/h)	248	372		716		
Direction Lane #	WB1	NB1	SB1			
Volume Total	33	731	570			
Volume Left	13	0	6			
Volume Right	20	16	0			
cSH	310	1700	716			
Volume to Capacity	0.11	0.43	0.01			
Queue Length 36th (ft)	9	0	0			
Queue Delay (s)	18.0	0.9	0.2			
Lane LOS	C	C	A			
Approach Delay (s)	18.0	0.0	0.2			
Approach LOS	C	C	C			
Intersection Summary						
Average Delay	0.5		49.0%		A	
Intersection Capacity Utilization	49.0%		ICU Level of Service		A	
Analysis Period (min)	15					

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HCM Unsignalized Intersection Capacity Analysis
7/9/2013

10463.00: Harvard IMP
5013: Spurr St & North Harvard Street

2022 Build with Mitigation Conditions
Weekday Evening

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Stop	Free	Free	Free	Free	Free
Sign Control	0%	0%	0%	0%	0%	0%
Grade	25	220	0	640	485	0
Volume (veh/h)	0.87	0.87	0.91	0.96	0.86	
Peak Hour Factor	29	253	0	703	576	0
Platoon flow rate (pph)						
Platoon length (ft)						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
px platoon unblocked	0.88	0.77	0.77	250	286	
vc conflicting volume	1279	576	576			
vc1, stage 1 conf vol						
vc2, stage 2 conf vol						
vcu, unblocked vol	941	448	448			
tc, single (s)	6.4	6.2	4.1			
pf (s)	3.5	3.3	2.2			
p0 queue free %	89	46	100			
cm capacity (veh/h)	257	470	843			
Direction Lane #	EB1	EB2	NB1	SB1		
Volume Total	29	253	703	576		
Volume Left	29	0	0	0		
Volume Right	0	253	0	0		
cSH	257	470	1700	1700		
Volume to Capacity	0.11	0.54	0.41	0.34		
Queue Length 36th (ft)	9	178	0	0		
Queue Delay (s)	20.0	21.0	0.0	0.0		
Lane LOS	C	C	C	C		
Approach Delay (s)	21.2	0.0	0.0	0.0		
Approach LOS	C	C	C	C		
Intersection Summary						
Average Delay	3.8		50.7%		A	
Intersection Capacity Utilization	50.7%		ICU Level of Service		A	
Analysis Period (min)	15					

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HCM Unsignalized Intersection Capacity Analysis
7/9/2013

10463.00: Harvard IMP
5015: Bayard Street & North Harvard Street

2022 Build with Mitigation Conditions
Weekday Evening

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	Stop	Stop	Stop	Free	Stop	Free	Free	Free	Free	Free	Free	Free
Sign Control	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Grade	0	0	10	0	0	0	0	595	10	5	710	0
Volume (veh/h)	0.55	0.55	0.25	0.25	0.25	0.94	0.94	0.89	0.89	0.89	0.89	0.89
Peak Hour Factor	0	0	16	0	0	0	0	633	11	6	798	0
Platoon flow rate (pph)												
Platoon length (ft)												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median storage (veh)												
Median storage (veh)												
pX platoon unblocked	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
vC, conflicting volume	1447	1463	798	1465	1447	638	798	644	644	644	377	644
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1603	1610	727	1627	1603	638	727	644	644	644	377	644
IC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1	4.1	4.1	4.1	4.1	4.1
IC, stage (s)												
p0 queue free %	3.5	4.0	3.3	3.5	4.0	3.3	2.2	2.2	2.2	2.2	2.2	2.2
p0 queue free %	100	100	94	100	100	100	100	99	99	99	99	99
cM capacity (veh/h)	64	78	317	58	79	480	643	932	932	932	932	932
Direction Lane #	EB 1	NB 1	SB 1									
Volume Total	18	644	803									
Volume Left	0	0	6									
Volume Right	18	11	0									
cSH	317	1700	932									
Volume to Capacity	0.06	0.38	0.01									
Queue Length 35th (ft)	5	0	0									
Queue Delay (s)	17.1	0.9	0.2									
Lane LOS	C	C	A									
Approach Delay (s)	17.1	0.0	0.2									
Approach LOS	C	C	C									
Intersection Summary												
Average Delay	0.3											
Intersection Capacity Utilization	55.9%											
ICU Level of Service	B											
Analysis Period (min)	15											

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VHB, Inc. HCM Unsignalized Intersection Capacity Analysis
7/9/2013

10463.00: Harvard IMP
5006: Western Avenue & Travis Street

2022 Build with Mitigation Conditions
Weekday Evening

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	Free	Free	Free	Free	Stop	Stop
Sign Control	0%	0%	0%	0%	0%	0%
Grade	460	0	20	860	5	15
Volume (veh/h)	0.92	0.92	0.50	0.90	0.82	0.82
Peak Hour Factor	500	0	22	733	6	16
Platoon flow rate (pph)						
Platoon length (ft)						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median storage (veh)						
Median storage (veh)						
pX platoon unblocked	272			409	0.88	0.76
vC, conflicting volume	500			500	1278	500
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	339			905	339	339
IC, single (s)	4.1			6.4	6.2	6.2
IC, stage (s)						
p0 queue free %	2.2			3.5	3.3	3.3
p0 queue free %	98			98	97	97
cM capacity (veh/h)	919			261	529	529
Direction Lane #	EB 1	WB 1	NB 1			
Volume Total	500	756	24			
Volume Left	0	22	6			
Volume Right	0	0	18			
cSH	1700	919	420			
Volume to Capacity	0.29	0.02	0.06			
Queue Length 35th (ft)	0	0	2			
Queue Delay (s)	0.0	0.2	14.1			
Lane LOS	A	A	B			
Approach Delay (s)	0.0	0.6	14.1			
Approach LOS	B	B	B			
Intersection Summary						
Average Delay	0.6					
Intersection Capacity Utilization	66.5%					
ICU Level of Service	C					
Analysis Period (min)	15					

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VHB, Inc. HCM Unsignalized Intersection Capacity Analysis
7/9/2013

10463.00: Harvard IMP
5011: Gordon Rd & North Harvard Street

2022 Build with Mitigation Conditions
Weekday Evening

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Stop	Free	Free	Free	Free	Free
Sign Control	0%	0%	0%	0%	0%	0%
Grade	0	125	695	5	30	475
Volume (veh/h)	0.88	0.88	0.96	0.89	0.89	0.89
Peak Hour Factor	6	142	682	5	34	534
Platoon flow rate (pph)						
Platoon length (ft)						
Platoon delay (s)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Platoon unblocked	0.97		988		629	
vC, conflicting volume	1286	685		688		
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1294	685		688		
IC, single (s)	6.4	6.2		4.1		
IC, stage (s)						
p0 queue free %	3.5	3.3		2.2		
IF (s)	97	68		96		
cM capacity (veh/h)	167	445		897		
Direction Lane #	WB 1	NB 1	SB 1			
Volume Total	148	688	567			
Volume Left	6	0	34			
Volume Right	142	5	0			
cSH	418	1700	897			
Volume to Capacity	0.35	0.40	0.04			
Queue Length 36th (ft)	39	0	3			
Queue Delay (s)	18.3	0.9	1.0			
Lane LOS	C	A	A			
Approach Delay (s)	18.3	0.0	1.0			
Approach LOS	C		C			
Intersection Summary						
Average Delay	2.3			C		
Intersection Capacity Utilization	70.7%			15		
Analysis Period (min)	15			15		

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HCM Unsignalized Intersection Capacity Analysis
7/9/2013

10463.00: Harvard IMP
2: Ivy Lane & North Harvard Street

2022 Build with Mitigation Conditions
Weekday Evening

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Stop	Free	Free	Free	Free	Free
Sign Control	0%	0%	0%	0%	0%	0%
Grade	0	60	0	520	520	10
Volume (veh/h)	0.92	0.92	0.92	0.92	0.92	0.92
Peak Hour Factor	0	65	0	565	565	11
Platoon flow rate (pph)						
Platoon length (ft)						
Platoon delay (s)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Platoon unblocked	0.81	0.90		211	448	
vC, conflicting volume	1136	571	576			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	978	522	528			
IC, single (s)	6.4	6.2	4.1			
IC, stage (s)						
p0 queue free %	3.5	3.3	2.2			
IF (s)	100	87	100			
cM capacity (veh/h)	226	488	933			
Direction Lane #	EB 1	NB 1	SB 1			
Volume Total	65	565	576			
Volume Left	0	0	0			
Volume Right	65	0	11			
cSH	488	1700	1700			
Volume to Capacity	0.13	0.33	0.34			
Queue Length 36th (ft)	1	0	0			
Queue Delay (s)	13.3	0.9	0.0			
Lane LOS	B	B	B			
Approach Delay (s)	13.3	0.0	0.0			
Approach LOS	B		B			
Intersection Summary						
Average Delay	0.7			A		
Intersection Capacity Utilization	38.4%			15		
Analysis Period (min)	15			15		

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VHB, Inc.

HCM Unsignalized Intersection Capacity Analysis
7/9/2013

10463.00: Harvard IMP
5005: Western Avenue & South Campus Drive

2022 Build with Mitigation Conditions
Weekday Evening

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NW	NW	NW
Lane Configurations	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop
Sign Control	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Grade	50	560	235	15	925	60	0	0	0	0	0
Volume (veh/h)	0.92	0.92	0.85	0.85	0.92	0.92	0.92	0.38	0.92	0.92	0.92
Peak Hour Factor	54	659	285	16	1086	65	0	0	0	0	0
Platoon flow rate (pph)											
Platoon length (ft)											
Lane Width (ft)											
Walking Speed (ft/s)											
Percent Blockage											
Right turn flare (veh)											
Median type							None	None	None	None	None
Median storage (veh)											
px platoon unblocked	271			406							
vc conflicting volume	0.65	0.91	0.91	0.70	0.65	0.70	0.70	0.70	0.70	0.70	0.70
vc1 stage 1 conf vol	1153			864			2129	1121	2001	2084	
vc2 stage 2 conf vol											
vcu unblocked vol	1235			850			2414	1185	2232	2278	
lc single (s)	4.1			4.1			6.5	6.2	7.1	6.5	
lf (s)	2.2			2.2			4.0	3.3	3.5	4.0	
p0 queue free %	85			98			100	100	100	100	
cm capacity (veh/h)	369			711			19	150	19	23	
Direction Lane #	EB 1	WB 1									
Volume Total	918	1171									
Volume Left	54	18									
Volume Right	255	65									
cSH	369	711									
Volume to Capacity	0.15	0.02									
Queue Length 36th (ft)	13	2									
Approach Delay (s)	A	A									
Lane LOS	A	A									
Approach Delay (s)	5.6	0.9									
Approach LOS											
Intersection Summary											
Average Delay	3.0										
Intersection Capacity Utilization	85.2%										
ICU Level of Service	E										
Analysis Period (min)	15										

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VHB, Inc. HCM Unsignalized Intersection Capacity Analysis
7/9/2013

10463.00: Harvard IMP
6: Science Drive & Rotterdam Street

2022 Build with Mitigation Conditions
Weekday Evening

Movement	EBL	EBR	NBL	NBT	SBR	SBR
Lane Configurations	Stop	Free	Free	Free	Free	Free
Sign Control	0%	0%	0%	0%	0%	0%
Grade	0	0	5	145	70	30
Volume (veh/h)	0.92	0.92	0.92	0.92	0.92	0.92
Peak Hour Factor	0	0	5	158	76	33
Platoon flow rate (pph)						
Platoon length (ft)						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
Median storage (veh)						
px platoon unblocked	261	92	109			
vc conflicting volume						
vc1 stage 1 conf vol						
vc2 stage 2 conf vol						
vcu unblocked vol	261	92	109			
lc single (s)	6.4	6.2	4.1			
lf (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cm capacity (veh/h)	725	965	1482			
Direction Lane #	NB 1	SB 1				
Volume Total	163	109				
Volume Left	5	0				
Volume Right	0	33				
cSH	1482	1700				
Volume to Capacity	0.00	0.06				
Queue Length 36th (ft)	0	0				
Approach Delay (s)	0.0	0.9				
Lane LOS	A	A				
Approach Delay (s)	0.3	0.0				
Approach LOS						
Intersection Summary						
Average Delay	0.2					
Intersection Capacity Utilization	15.0%					
ICU Level of Service	A					
Analysis Period (min)	15					

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VHB, Inc. HCM Unsignalized Intersection Capacity Analysis
7/9/2013

Traffic Signal Warrants

North Harvard Street at Academic Way

Western Avenue at Academic Way

2003 MUTCD

TRAFFIC SIGNAL WARRANT ANALYSIS (VOLUME BASED)

Intersection: Academic Way at North Harvard Street

Major Street Direction: Northbound-Southbound ▼

Year: 2022 **Condition:** IMP Build

Operating speed on major roadway: 30 mph

Number of approaches: 4

Required approach volumes

Warrant 1	EIGHT-HOUR VEHICULAR VOLUME	Minimum*	Adjusted Minimum**
Warrant 1A	MINIMUM VEHICULAR VOLUME (8 hours of day)		
	Major Street : 1 Lane(s) on each approach	500	500
	Minor Street : 1 Lane(s) on each approach	150	150
Warrant 1B	INTERRUPTION OF CONTINUOUS TRAFFIC (8 hours of day)		
	Major Street : 1 Lane(s) on each approach	750	750
	Minor Street : 1 Lane(s) on each approach	75	75
80 PERCENT SATISFACTION OF WARRANT 1A AND WARRANT 1B		Warrant 1A	Warrant 1B
	Major Street : 1 Lane(s) on each approach	400	600
	Minor Street : 1 Lane(s) on each approach	120	60

Warrant 2	FOUR HOUR VEHICULAR VOLUME	Major Street : 1 Lane(s) on each approach Minor Street : 1 Lane(s) on each approach	If "verify" indicated, see Figure 4C-1 or 4C-2. 25 = accuracy of regression equations
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Warrant 3	PEAK HOUR VOLUME	Major Street : 1 Lane(s) on each approach Minor Street : 1 Lane(s) on each approach	If "verify" indicated, see Figure 4C-3 or 4C-4. 25 = accuracy of regression equations
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Hour	Entering Vol. Minor Road+	Entering Vol. on Major Road		Tot. Ent. Vol. On Major Rd	Meets the following volume-based warrants?					
		Northbound	Southbound		1A	1B	80%(1A&1B)	2	3	
6:00 - 7:00 AM				0	No	No	No	No	No	
7:00 - 8:00 AM				0	No	No	No	No	No	
8:00 - 9:00 AM	165	535	450	985	Yes	Yes	Yes	Yes	No	
9:00 - 10:00 AM				0	No	No	No	No	No	
10:00 - 11:00 AM				0	No	No	No	No	No	
11:00 - 12:00 AM				0	No	No	No	No	No	
12:00 - 1:00 PM				0	No	No	No	No	No	
1:00 - 2:00 PM				0	No	No	No	No	No	
2:00 - 3:00 PM				0	No	No	No	No	No	
3:00 - 4:00 PM				0	No	No	No	No	No	
4:00 - 5:00 PM				0	No	No	No	No	No	
5:00 - 6:00 PM	230	520	460	980	Yes	Yes	Yes	Yes	Verify	
6:00 - 7:00 PM				0	No	No	No	No	No	
					No	No	No	No	Verify	
					Warrants Met?	1	2	3		
						NO	No	No	Verify	

*From the criteria described for the warrant in the MUTCD.

**If the operating speed is higher than 40mph then the volumes can be adjusted to 70%. (If no adjusted minimum, the minimum from the previous column is shown)

+If more than one approach, report the approach that has the higher volume.

NON-VOLUME-BASED WARRANTS

Warrant 4, Minimum Pedestrian Volume:
 Peak Four Hour Pedestrian Volumes: 0
 (non-concurrent) 0
 0
 0

Warrant 5, School Crossing:
 See MUTCD for details.

Warrant 6, Coordinated Signal System:
 See MUTCD for details.

Warrant 7, Crash Experience:
 # of accidents "correctable by signalization" occurring in the last 12 months: 0

Warrant 8, Roadway Network:
 See MUTCD for details.

Source: Manual on Uniform Traffic Control Devices (MUTCD); 2003 Edition [2003]

2003 MUTCD

TRAFFIC SIGNAL WARRANT ANALYSIS (VOLUME BASED)

Intersection: Academic Way at Western Ave

Major Street Direction: Eastbound-Westbound ▼

Year: 2022 **Condition:** IMP Build with Mitigation

Operating speed on major roadway: 30 mph
Number of approaches: 4

Required approach volumes

Warrant 1	EIGHT-HOUR VEHICULAR VOLUME	Required approach volumes	
		Minimum*	Adjusted Minimum**
Warrant 1A	MINIMUM VEHICULAR VOLUME (8 hours of day)		
	Major Street : 1 Lane(s) on each approach	500	500
	Minor Street : 1 Lane(s) on each approach	150	150
Warrant 1B	INTERRUPTION OF CONTINUOUS TRAFFIC (8 hours of day)		
	Major Street : 1 Lane(s) on each approach	750	750
	Minor Street : 1 Lane(s) on each approach	75	75
80 PERCENT SATISFACTION OF WARRANT 1A AND WARRANT 1B		Warrant 1A	Warrant 1B
	Major Street : 1 Lane(s) on each approach	400	600
	Minor Street : 1 Lane(s) on each approach	120	60

Warrant 2	FOUR HOUR VEHICULAR VOLUME	
	Major Street : 1 Lane(s) on each approach	If "verify" indicated, see Figure 4C-1 or 4C-2. 25 = accuracy of regression equations
	Minor Street : 1 Lane(s) on each approach	

Warrant 3	PEAK HOUR VOLUME	
	Major Street : 1 Lane(s) on each approach	If "verify" indicated, see Figure 4C-3 or 4C-4. 25 = accuracy of regression equations
	Minor Street : 1 Lane(s) on each approach	

Hour	Entering Vol. Minor Road+	Entering Vol. on Major Road		Tot. Ent. Vol. On Major Rd	Meets the following volume-based warrants?					
		Eastbound	Westbound		1A	1B	80%(1A&1B)	2	3	
6:00 - 7:00 AM				0	No	No	No	No	No	
7:00 - 8:00 AM				0	No	No	No	No	No	
8:00 - 9:00 AM	125	495	595	1090	No	Yes	Yes	Yes	No	
9:00 - 10:00 AM				0	No	No	No	No	No	
10:00 - 11:00 AM				0	No	No	No	No	No	
11:00 - 12:00 AM				0	No	No	No	No	No	
12:00 - 1:00 PM				0	No	No	No	No	No	
1:00 - 2:00 PM				0	No	No	No	No	No	
2:00 - 3:00 PM				0	No	No	No	No	No	
3:00 - 4:00 PM				0	No	No	No	No	No	
4:00 - 5:00 PM				0	No	No	No	No	No	
5:00 - 6:00 PM	225	420	690	1110	Yes	Yes	Yes	Yes	Yes	
6:00 - 7:00 PM				0	No	No	No	No	No	
					No	No	No	No	Yes	
					Warrants Met?			1	2	3
								NO	No	Yes

*From the criteria described for the warrant in the MUTCD.

**If the operating speed is higher than 40mph then the volumes can be adjusted to 70%. (If no adjusted minimum, the minimum from the previous column is shown)

+If more than one approach, report the approach that has the higher volume.

NON-VOLUME-BASED WARRANTS

Warrant 4, Minimum Pedestrian Volume:
 Peak Four Hour Pedestrian Volumes: 0
 (non-concurrent) 0
 0
 0

Warrant 5, School Crossing:
 See MUTCD for details.

Warrant 6, Coordinated Signal System:
 See MUTCD for details.

Warrant 7, Crash Experience:
 # of accidents "correctable by signalization" occurring in the last 12 months: 0

Warrant 8, Roadway Network:
 See MUTCD for details.

Source: Manual on Uniform Traffic Control Devices (MUTCD); 2003 Edition [2003]

Pedestrian Intersection Capacity Analyses

2012 Existing Conditions

2022 No-Build Conditions

2022 Build Conditions

Project number: 10463.00, WO 26

Harvard IMP

Existing Pedestrian Level of Service for signalized intersections with pedestrian accommodations

APPENDIX- For Harvard Review- Preliminary Results

Intersection	Street	Crosswalk Crossing	AM Peak Hour				PM Peak Hour			
			Cycle	Eff. Green	Delay (s)	LOS	Cycle	Eff. Green	Delay (s)	LOS
Western Avenue at Telford Street	Western Ave.	East	80	19	23	C	90	21	26	C
	Western Ave.	West	80	19	23	C	90	21	26	C
	Telford St.	North	80	57	3	A	90	65	3	A
	driveway	South	80	57	3	A	90	65	3	A
Western Avenue at Everett Street	Western Ave.	East	80	26	18	B	90	26	23	C
	Everett St.	North	80	26	18	B	90	26	23	C
	Everett St.	South	80	26	18	B	90	26	23	C
Western Avenue at North Harvard Street	Western Ave.	East	139	29	44	E	139	29	44	E
	Western Ave.	West	139	29	44	E	139	29	44	E
	N. Harvard St.	North	139	29	44	E	139	29	44	E
	N. Harvard St.	South	139	29	44	E	139	29	44	E
North Harvard Street at Kingsley Street/ Franklin Street	Kingsley St.	East	114	23	36	D	114	23	36	D
	Franklin St.	West	114	23	36	D	114	23	36	D
	N. Harvard St.	North	114	23	36	D	114	23	36	D
	N. Harvard St.	South	114	23	36	D	114	23	36	D
Western Avenue at Batten Way/Hague Street	Western Ave.	East	104	22	32	D	94	22	28	C
	Western Ave.	West	104	22	32	D	94	22	28	C
	Batten Way	North	104	22	32	D	94	22	28	C
	Hague St.	South	104	22	32	D	94	22	28	C
North Harvard Street at Soldiers Field Road EB	Soldiers Field Rd.	East	125	53	21	C	125	53	21	C
	Soldiers Field Rd.	West	125	91	5	A	125	91	5	A
	N. Harvard St.	South	125	44	26	C	125	44	26	C
	Soldiers Field Rd.	East-right	125	92	4	A	125	92	4	A
North Harvard Street at Soldiers Field Road WB	Soldiers Field Rd.	East-thru	125	92	4	A	125	92	4	A
	Soldiers Field Rd.	West- inner lane	125	67	13	B	125	67	13	B
	N. Harvard St.	North	125	43	27	C	125	43	27	C
	Western Ave.	West- thru	100	30	25	C	90	19	28	C
Western Avenue at Soldiers Field Road EB	Western Ave.	West- right	100	30	25	C	90	19	28	C
	Soldiers Field Rd.	North	100	34	22	C	90	44	12	B
	Soldiers Field Rd.	South	100	29	25	C	90	20	27	C
	Western Ave.	East	100	29	25	C	90	20	27	C
Western Avenue at Soldiers Field Road WB	Soldiers Field Rd.	North	100	30	25	C	90	19	28	C
	Soldiers Field Rd.	South	100	30	25	C	90	19	28	C
	Cambridge Street at Windom Street	West	100	16	35	D	110	16	40	D
Cambridge Street at North Harvard Street	Windom St.	North	100				110			
	Cambridge St.	West	100	28	26	C	110	25	33	D
	N. Harvard St.	North	100	42	17	B	110	52	15	B
Cambridge Street at North Harvard Street	N. Harvard St.	South	100	42	17	B	110	52	15	B
	Cambridge St.	East	100	21	31	D	110	21	36	D
Franklin Street and Harvard Avenue	Cambridge St.	West	100	21	31	D	110	21	36	D
	Franklin St.	North	100	21	31	D	110	21	36	D
	Harvard Ave.	South	100	21	31	D	110	21	36	D

Source: Highway Capacity Manual, 2000 (Equation 18-5).

Project number: 10463.00, WO 26

Harvard IMP

2022 No-Build Pedestrian Level of Service for signalized intersections with pedestrian accommodations

APPENDIX- For Harvard Review- Preliminary Results

Intersection	Street	Crosswalk Crossing	AM Peak Hour				PM Peak Hour			
			Cycle	Eff. Green	Delay (s)	LOS	Cycle	Eff. Green	Delay (s)	LOS
Western Avenue at Telford Street	Western Ave.	East	80	19	23	C	90	21	26	C
	Western Ave.	West	80	19	23	C	90	21	26	C
	Telford St.	North	80	57	3	A	90	65	3	A
	driveway	South	80	57	3	A	90	65	3	A
Western Avenue at Everett Street	Western Ave.	East	80	26	18	B	90	26	23	C
	Everett St.	North	80	26	18	B	90	26	23	C
	Everett St.	South	80	26	18	B	90	26	23	C
Western Avenue at North Harvard Street	Western Ave.	East	110	48	17	B	120	50	20	B
	Western Ave.	West	110	27	31	D	120	30	34	D
	N. Harvard St.	North	110	38	24	C	120	47	22	C
	N. Harvard St.	South	110	41	22	C	120	46	23	C
North Harvard Street at Kingsley Street/ Franklin Street	Kingsley St.	East	114	23	36	D	114	23	36	D
	Franklin St.	West	114	23	36	D	114	23	36	D
	N. Harvard St.	North	114	23	36	D	114	23	36	D
	N. Harvard St.	South	114	23	36	D	114	23	36	D
Western Avenue at Batten Way/Hague Street	Western Ave.	East	104	22	32	D	94	22	28	C
	Western Ave.	West	104	22	32	D	94	22	28	C
	Batten Way	North	104	22	32	D	94	22	28	C
	Hague St.	South	104	22	32	D	94	22	28	C
North Harvard Street at Soldiers Field Road EB	Soldiers Field Rd.	East	100	14	37	D	100	14	37	D
	Soldiers Field Rd.	West	100	72	4	A	100	72	4	A
	N. Harvard St.	South	100	15	36	D	100	15	36	D
North Harvard Street at Soldiers Field Road WB	Soldiers Field Rd.	East	100	54	11	B	100	57	9	A
	Soldiers Field Rd.	West	100	19	33	D	100	19	33	D
	N. Harvard St.	North	100	10	41	E	100	10	41	E
Western Avenue at Soldiers Field Road EB	Western Ave.	West- thru	100	26	27	C	100	19	33	D
	Western Ave.	West- right	100	66	6	A	100	61	8	A
	Soldiers Field Rd.	North	100	66	6	A	100	73	4	A
	Soldiers Field Rd.	South	100	26	27	C	100	31	24	C
Western Avenue at Soldiers Field Road WB	Western Ave.	East	100	52	12	B	100	50	13	B
	Soldiers Field Rd.	North	100	26	27	C	100	19	33	D
	Soldiers Field Rd.	South	100	66	6	A	100	61	8	A
Cambridge Street at I-90 On-Ramp/ Hotel Driveway	I-90 on-ramp	North	140	58	24	C	140	56	25	C
	Hotel driveway	South	140	118	2	A	140	118	2	A
	I-90 off-ramp	Southwest	140	65	20	B	140	67	19	B
Cambridge Street at Soldiers Field Road EB	Cambridge St.	West	140	31	42	E	140	31	42	E
	Soldiers Field Rd.	North	140	95	7	A	140	95	7	A
	Soldiers Field Rd.	South	140	30	43	E	140	34	40	D
Cambridge Street at Soldiers Field Road WB	Cambridge St.	East	140	30	43	E	140	34	40	D
	Soldiers Field Rd.	North	140	31	42	E	140	31	42	E
Cambridge Street at Windom Street	Soldiers Field Rd.	South	140	88	10	B	140	84	11	B
	Cambridge St.	West	100	16	35	D	110	16	40	D
Cambridge Street at North Harvard Street	Windom St.	North	100				110			
	Cambridge St.	West	100	28	26	C	110	25	33	D
	N. Harvard St.	North	100	42	17	B	110	52	15	B
Cambridge Street at Harvard Avenue	N. Harvard St.	South	100	42	17	B	110	52	15	B
	Cambridge St.	East	100	21	31	D	110	21	36	D
Franklin Street and Harvard Avenue	Cambridge St.	West	100	21	31	D	110	21	36	D
	Franklin St.	North	100	21	31	D	110	21	36	D
	Harvard Ave.	South	100	21	31	D	110	21	36	D

Source: Highway Capacity Manual, 2000 (Equation 18-5).

Project number: 10463.00, WO 26

Harvard IMP

2022 Build Pedestrian Level of Service for signalized intersections with pedestrian accommodations

APPENDIX- For Harvard Review- Preliminary Results

Intersection	Street	Crosswalk Crossing	AM Peak Hour				PM Peak Hour			
			Cycle	Eff. Green	Delay (s)	LOS	Cycle	Eff. Green	Delay (s)	LOS
Western Avenue at Telford Street	Western Ave.	East	80	19	23	C	90	21	26	C
	Western Ave.	West	80	19	23	C	90	21	26	C
	Telford St.	North	80	57	3	A	90	65	3	A
	driveway	South	80	57	3	A	90	65	3	A
Western Avenue at Everett Street	Western Ave.	East	80	26	18	B	90	26	23	C
	Everett St.	North	80	26	18	B	90	26	23	C
	Everett St.	South	80	26	18	B	90	26	23	C
Western Avenue at North Harvard Street	Western Ave.	East	110	50	16	B	120	48	22	C
	Western Ave.	West	110	27	31	D	120	27	36	D
	N. Harvard St.	North	110	33	27	C	120	39	27	C
	N. Harvard St.	South	110	39	23	C	120	37	29	C
North Harvard Street at Kingsley Street/ Franklin Street	Kingsley St.	East	114	23	36	D	114	23	36	D
	Franklin St.	West	114	23	36	D	114	23	36	D
	N. Harvard St.	North	114	23	36	D	114	23	36	D
	N. Harvard St.	South	114	23	36	D	114	23	36	D
Western Avenue at Batten Way/Hague Street	Western Ave.	East	104	22	32	D	94	22	28	C
	Western Ave.	West	104	22	32	D	94	22	28	C
	Batten Way	North	104	22	32	D	94	22	28	C
	Hague St.	South	104	22	32	D	94	22	28	C
North Harvard Street at Soldiers Field Road EB	Soldiers Field Rd.	East	100	14	37	D	100	14	37	D
	Soldiers Field Rd.	West	100	72	4	A	100	72	4	A
	N. Harvard St.	South	100	15	36	D	100	15	36	D
North Harvard Street at Soldiers Field Road WB	Soldiers Field Rd.	East	100	38	19	B	100	57	9	A
	Soldiers Field Rd.	West	100	19	33	D	100	19	33	D
	N. Harvard St.	North	100	10	41	E	100	10	41	E
Western Avenue at Soldiers Field Road EB	Western Ave.	West- thru	100	26	27	C	100	19	33	D
	Western Ave.	West- right	100	66	6	A	100	61	8	A
	Soldiers Field Rd.	North	100	66	6	A	100	73	4	A
	Soldiers Field Rd.	South	100	26	27	C	100	31	24	C
Western Avenue at Soldiers Field Road WB	Western Ave.	East	100	52	12	B	100	50	13	B
	Soldiers Field Rd.	North	100	26	27	C	100	19	33	D
	Soldiers Field Rd.	South	100	66	6	A	100	61	8	A
Cambridge Street at I-90 On-Ramp/ Hotel Driveway	I-90 on-ramp	North	140	58	24	C	140	56	25	C
	Hotel driveway	South	140	118	2	A	140	118	2	A
	I-90 off-ramp	Southwest	140	65	20	B	140	67	19	B
Cambridge Street at Soldiers Field Road EB	Cambridge St.	West	140	31	42	E	140	31	42	E
	Soldiers Field Rd.	North	140	95	7	A	140	95	7	A
	Soldiers Field Rd.	South	140	30	43	E	140	34	40	D
Cambridge Street at Soldiers Field Road WB	Cambridge St.	East	140	30	43	E	140	34	40	D
	Soldiers Field Rd.	North	140	31	42	E	140	31	42	E
Cambridge Street at Windom Street	Soldiers Field Rd.	South	140	88	10	B	140	84	11	B
	Cambridge St.	West	100	16	35	D	110	16	40	D
Cambridge Street at North Harvard Street	Windom St.	North	100				110			
	Cambridge St.	West	100	28	26	C	110	25	33	D
	N. Harvard St.	North	100	42	17	B	110	52	15	B
Cambridge Street at Franklin Street and Harvard Avenue	N. Harvard St.	South	100	42	17	B	110	52	15	B
	Cambridge St.	East	100	21	31	D	110	21	36	D
	Cambridge St.	West	100	21	31	D	110	21	36	D
North Harvard Street at Academic Way and South Campus Drive	Franklin St.	North	100	21	31	D	110	21	36	D
	Harvard Ave.	South	100	21	31	D	110	21	36	D
	South Campus Drive	East	110	69	8	A	55	31	5	A
North Harvard Street at Academic Way and South Campus Drive	Academic Way	West	110	69	8	A	55	31	5	A
	N. Harvard St.	North	110	33	27	C	55	16	14	B
	N. Harvard St.	South	110	33	27	C	55	16	14	B

Source: Highway Capacity Manual, 2000 (Equation 18-5).

Bicycle Intersection Capacity Analyses

2012 Existing Conditions

2022 No-Build Conditions

2022 Build Conditions

Project number: 10463.00, WO 26
 Harvard IMP
 Existing Bicycle Level of Service for signalized intersections
 Appendix

Intersection	Street	Approach	AM Peak Hour						PM Peak Hour					
			Cycle Length	Effective Green	volume ^a	capacity	Control Delay (s)	LOS	Cycle Length	Effective Green	volume ^a	capacity	Control Delay (s)	LOS
Western Avenue at Everett Street	Western Ave.	Eastbound	80	46.4	26	1160	7	A	90	53.4	22	1187	8	A
	Western Ave.	Westbound	80	46.4	15	1160	7	A	90	53.4	25	1187	8	A
	Everett St.	Northbound	80	20	3	500	23	C	90	23	9	511	25	C
Western Avenue at North Harvard Street	Everett St.	Southbound	80	20	2	500	23	C	90	23	4	511	25	C
	Western Ave.	Eastbound	139	46.8	26	673	31	D	139	51.9	14	747	27	C
	Western Ave.	Westbound	139	46.8	13	673	31	D	139	51.9	18	747	28	C
North Harvard Street at Kingsley Street/ Franklin Street	N. Harvard St.	Northbound	139	52.9	32	761	27	C	139	47.8	29	688	30	C
	N. Harvard St.	Southbound	139	40.7	20	586	35	D	139	35.6	41	512	39	D
	Franklin St.	Eastbound	114	14.7	35	258	44	E	114	12.2	13	214	46	E
Western Avenue at Batten Way/Hague Street	Kingsley St.	Westbound	114	14.7	1	258	43	E	114	12.2	0	214		
	N. Harvard St.	Northbound	114	68.6	17	1204	9	A	114	68.4	14	1200	9	A
	N. Harvard St.	Southbound	114	68.6	25	1204	9	A	114	68.4	19	1200	9	A
North Harvard Street at Soldiers Field Road EB	Western Ave.	Eastbound	104	40.1	34	771	20	B	94	34.5	16	734	19	B
	Western Ave.	Westbound	104	40.1	14	771	20	B	94	34.5	52	734	19	B
	Hague St.	Northbound	104	19	4	365	35	D	94	13.6	4	289	34	D
	Batten Way	Southbound	104	10.9	0	210			94	12.1	3	257	36	D
North Harvard Street at Soldiers Field Road WB	N. Harvard St.	Northbound	125	34	36	544	34	D	125	34	55	544	34	D
	N. Harvard St.	Southbound	125	74	37	1184	11	B	125	74	38	1184	11	B
Western Avenue at Soldiers Field Road EB	N. Harvard St.	Northbound	125	53	50	848	21	C	125	53	63	848	21	C
	N. Harvard St.	Southbound	125	47	36	752	25	C	125	47	51	752	25	C
Western Avenue at Soldiers Field Road WB	Western Ave.	Eastbound	100	24.9	5	498	28	C	90	19	1	422	28	C
	Western Ave.	Westbound	100	64	42	1280	7	A	90	65	41	1444	4	A
Cambridge Street at I-90 On-Ramp/ Hotel Driveway	Western Ave.	Westbound	100	33.1	32	662	23	C	90	40	33	889	14	B
	Cambridge St.	Eastbound	140	22	14	314	50	E	140	26	5	371	47	E
	Cambridge St.	Westbound	140	58	0	829			140	70	3	1000	18	B
Cambridge Street at Soldiers Field Road EB	Hotel Driveway	Northbound	140	13	0	186			140	11	0	157		
	Cambridge St.	Eastbound	140	75	9	1071	15	B	140	63	5	900	21	C
Cambridge Street at Soldiers Field Road WB	Cambridge St.	Westbound	140	63	1	900	21	C	140	61	10	871	22	C
	River St.	Eastbound	140	103	9	1471	5	A	140	91	9	1300	9	A
Cambridge Street at Windom Street	Cambridge St.	Eastbound	88	69.1	13	1570	2	A	110	82.1	8	1493	4	A
	Cambridge St.	Westbound	88	59	2	1341	5	A	110	72	16	1309	7	A
	Windom St.	Southbound	88	16	3	364	29	C	110	16	1	291	40	D
Cambridge Street at North Harvard Street	Cambridge St.	Eastbound	100	61.2	25	1224	8	A	110	72.7	18	1322	6	A
	Cambridge St.	Westbound	100	45.3	2	906	15	B	110	53.8	5	978	14	B
	N. Harvard St.	Southbound	100	24.8	6	496	28	C	110	23.4	2	425	34	D
Cambridge Street at Franklin Street/ Harvard Avenue	Cambridge St.	Eastbound	100	37.6	15	752	20	B	110	49.6	4	902	17	B
	Cambridge St.	Westbound	100	67.4	20	1348	5	A	110	73.6	62	1338	6	A
	Harvard Ave.	Northbound	100	17	21	340	35	D	110	17	30	309	40	D
Cambridge Street at Franklin St.	Franklin St.	Southbound	100	17	4	340	35	D	110	17	6	309	39	D

Source: Highway Capacity Manual 2000, Equation 19-10)

^a Bicycle volumes reflect total volume on the approach

Assumptions: Bicycles will bypass queued automobiles even when sharing the lane, therefore queue delay is eliminated. The bicycle saturation flow rate does not exceed 2,000 bicycles/hour.

Intersection	Street	Approach	AM Peak Hour						PM Peak Hour					
			Cycle Length	Effective Green	volume ^a	capacity	Control Delay (s)	LOS	Cycle Length	Effective Green	volume ^a	capacity	Control Delay (s)	LOS
Western Avenue at Everett Street	Western Ave.	Eastbound	80	46.4	34	1160	7	A	90	53.4	45	1187	8	A
	Western Ave.	Westbound	80	46.4	28	1160	7	A	90	53.4	55	1187	8	A
	Everett St.	Northbound	80	20.0	6	500	23	C	90	23.0	19	511	25	C
	Everett St.	Southbound	80	20.0	2	500	23	C	90	23.0	4	511	25	C
Western Avenue at North Harvard Street	Western Ave.	Eastbound	110	41.8	27	760	21	C	120	47.5	14	792	22	C
	Western Ave.	Westbound	110	38.3	22	696	24	C	120	48.0	48	800	22	C
	N. Harvard St.	Northbound	110	47.8	38	869	18	B	120	50.0	46	833	21	C
	N. Harvard St.	Southbound	110	27.0	39	491	32	D	120	30.0	83	500	35	D
North Harvard Street at Kingsley Street/ Franklin Street	Franklin St.	Eastbound	114	15.1	39	265	44	E	114	13.0	23	228	45	E
	Kingsley St.	Westbound	114	15.1	1	265	43	E	114	13.0	0	228		
	N. Harvard St.	Northbound	114	67.4	19	1182	10	B	114	67.8	20	1189	9	A
	N. Harvard St.	Southbound	114	67.4	32	1182	10	B	114	67.8	33	1189	10	B
Western Avenue at Batten Way/Hague Street	Western Ave.	Eastbound	82	60.7	47	1480	3	A	77	42.4	43	1101	8	A
	Western Ave.	Westbound	82	60.7	23	1480	3	A	77	42.4	83	1101	8	A
	Hague St.	Northbound	82	N/A	4	N/A	N/A	N/A	77	N/A	4	N/A	N/A	N/A
	Batten Way	Southbound	82	11.6	0	283			77	12.1	3	314	27	C
North Harvard Street at Soldiers Field Road EB	N. Harvard St.	Northbound	100	38	50	760	20	B	100	40.5	85	810	18	B
	N. Harvard St.	Southbound	100	74	48	1480	3	A	100	70.0	71	1400	5	A
North Harvard Street at Soldiers Field Road WB	N. Harvard St.	Northbound	100	54.0	64	1080	11	B	100	57.0	94	1140	10	B
	N. Harvard St.	Southbound	100	55.0	47	1100	10	B	100	55.0	84	1100	11	B
Western Avenue at Soldiers Field Road EB	Western Ave.	Eastbound ^b	100	24.0	11	480	29	C	100	29.0	14	580	25	C
	Western Ave.	Westbound ^b	100	66.0	47	1320	6	A	100	73.0	56	1460	4	A
Western Avenue at Soldiers Field Road WB	Western Ave.	Eastbound ^b	100	64	6	1280	6	A	100	59	13	1180	8	A
	Western Ave.	Westbound ^b	100	22.0	37	440	31	D	100	15.0	48	300	37	D
Cambridge Street at I-90 On-Ramp/ Hotel Driveway	Cambridge St.	Eastbound ^b	140	47.0	14	671	31	D	140	49.0	5	700	30	C
	Cambridge St.	Westbound	140	64.0	0	914			140	68.0	3	971	19	B
	Hotel Driveway	Northbound	140	9.0	0	129			140	9.0	0	129		
Cambridge Street at Soldiers Field Road EB	Cambridge St.	Eastbound ^b	140	27.0	9	386	46	E	140	31.0	5	443	43	E
Cambridge Street at Soldiers Field Road WB	River St.	Eastbound ^b	140	47.0	9	671	31	D	140	43.0	9	614	34	D
Cambridge Street at Windom Street	Cambridge St.	Eastbound	100	80.4	13	1608	2	A	110	87.8	8	1596	2	A
	Cambridge St.	Westbound	100	70.1	2	1402	4	A	110	77.4	16	1407	5	A
	Windom St.	Southbound	100	11.6	3	232	39	D	110	14.2	1	258	42	E
Cambridge Street at North Harvard Street	Cambridge St.	Eastbound	100	50.8	28	1016	12	B	110	62.5	24	1136	10	B
	Cambridge St.	Westbound	100	43.6	2	872	16	B	110	51.7	5	940	15	B
	N. Harvard St.	Southbound	100	26.2	8	524	27	C	110	24.5	7	445	33	D
Cambridge Street at Franklin Street/ Harvard Avenue	Cambridge St.	Eastbound	100	37.6	20	752	20	B	110	50.4	20	916	16	B
	Cambridge St.	Westbound	100	68.6	27	1372	5	A	110	74.4	78	1353	6	A
Harvard Avenue	Harvard Ave.	Northbound	100	17.0	22	340	35	D	110	17.0	31	309	40	D

Source: Highway Capacity Manual 2000, Equation 19-10)

a Bicycle volumes reflect total volume on the approach

b Bicycle volumes on this approach are controlled by a bicycle signal, effective green times are determined using the bicycle signal timings.

Assumptions: Bicycles will bypass queued automobiles even when sharing the lane, therefore queue delay is eliminated. The bicycle saturation flow rate does not exceed 2,000 bicycles/hour.

Intersection	Street	Approach	AM Peak Hour						PM Peak Hour					
			Cycle Length	Effective Green	volume ^a	capacity	Control Delay (s)	LOS	Cycle Length	Effective Green	volume ^a	capacity	Control Delay (s)	LOS
Western Avenue at Everett Street	Western Ave.	Eastbound	80	46.4	86	1160	7	A	90	53.4	67	1187	8	A
	Western Ave.	Westbound	80	46.4	46	1160	7	A	90	53.4	124	1187	8	A
	Everett St.	Northbound	80	20.0	30	500	23	C	90	23.0	31	511	25	C
	Everett St.	Southbound	80	20.0	2	500	23	C	90	23.0	4	511	25	C
Western Avenue at North Harvard Street	Western Ave.	Eastbound	110	39.2	103	713	24	C	110	38.9	48	707	24	C
	Western Ave.	Westbound	110	33	48	600	28	C	110	40.0	136	727	24	C
	N. Harvard St.	Northbound	110	51.2	75	931	16	B	110	48.0	69	873	18	B
	N. Harvard St.	Southbound	110	28.7	99	522	32	D	110	27.0	142	491	34	D
North Harvard Street at Kingsley Street/ Franklin Street	Franklin St.	Eastbound	114	15.1	63	265	44	E	114	13.0	35	228	46	E
	Kingsley St.	Westbound	114	15.1	1	265	43	E	114	13.0	0	228		
	N. Harvard St.	Northbound	114	67.4	32	1182	10	B	114	67.8	25	1189	9	A
	N. Harvard St.	Southbound	114	67.4	41	1182	10	B	114	67.8	67	1189	10	B
Western Avenue at Batten Way/Hague Street	Western Ave.	Eastbound	104	39.5	91	760	21	C	94	33.6	118	715	21	C
	Western Ave.	Westbound	104	39.5	95	760	21	C	94	33.6	138	715	21	C
	Hague St.	Northbound	104	18.7	4	360	35	D	94	13.2	4	281	35	D
	Batten Way	Southbound	104	11.2	0	215			94	13.2	3	281	35	D
North Harvard Street at Soldiers Field Road EB	N. Harvard St.	Northbound	100	38	68	760	20	B	100	41.0	154	820	19	B
	N. Harvard St.	Southbound	100	74	124	1480	4	A	100	74.0	105	1480	4	A
North Harvard Street at Soldiers Field Road WB	N. Harvard St.	Northbound	100	54.0	82	1080	11	B	100	57.0	163	1140	10	B
	N. Harvard St.	Southbound	100	55.0	123	1100	11	B	100	55.0	118	1100	11	B
Western Avenue at Soldiers Field Road EB	Western Ave.	Eastbound ^b	100	24.0	19	480	29	C	100	29.0	45	580	26	C
	Western Ave.	Westbound ^b	100	66.0	81	1320	6	A	100	73.0	71	1460	4	A
Western Avenue at Soldiers Field Road WB	Western Ave.	Eastbound ^b	100	64	14	1280	7	A	100	59	44	1180	9	A
	Western Ave.	Westbound ^b	100	22.0	71	440	32	D	100	15.0	63	300	37	D
Cambridge Street at I-90 On-Ramp/ Hotel Driveway	Cambridge St.	Eastbound ^b	140	47.0	14	671	31	D	140	49.0	5	700	30	C
	Cambridge St.	Westbound	140	64.0	0	914			140	68.0	3	971	19	B
	Hotel Driveway	Northbound	140	9.0	0	129			140	9.0	0	129		
Cambridge Street at Soldiers Field Road EB	Cambridge St.	Eastbound ^b	140	27.0	9	386	46	E	140	31.0	5	443	43	E
Cambridge Street at Soldiers Field Road WB	River St.	Eastbound ^b	140	47.0	9	671	31	D	140	43.0	9	614	34	D
Cambridge Street at Windom Street	Cambridge St.	Eastbound	100	80.6	13	1612	2	A	110	88.8	8	1615	2	A
	Cambridge St.	Westbound	100	70.4	2	1408	4	A	110	78.4	16	1425	5	A
	Windom St.	Southbound	100	11.4	3	228	39	D	110	13.2	1	240	43	E
Cambridge Street at North Harvard Street	Cambridge St.	Eastbound	100	50.5	41	1010	13	B	110	61.1	29	1111	11	B
	Cambridge St.	Westbound	100	42.8	2	856	16	B	110	50.1	5	911	16	B
	N. Harvard St.	Southbound	100	26.5	11	530	27	C	110	25.9	19	471	32	D
Cambridge Street at Franklin Street/ Harvard Avenue	Cambridge St.	Eastbound	100	37.6	57	752	20	B	110	50.4	37	916	16	B
	Cambridge St.	Westbound	100	68.6	36	1372	5	A	110	74.4	112	1353	6	A
N Harvard St at Academic Way/ S Campus Drive	Harvard Ave.	Northbound	100	17.0	22	340	35	D	110	17.0	31	309	40	D
N Harvard St at Academic Way/ S Campus Drive	S Campus Dr	Eastbound	110	12.9	9	235	43	E	55	10.7	39	389	18	B
	Academic Way	Westbound	110	12.9	9	235	43	E	55	10.7	38	389	18	B
	N Harvard St	Northbound	110	89.1	40	1620	2	A	55	36.3	60	1320	3	A
S Campus Drive	N Harvard St	Southbound	110	89.1	69	1620	2	A	55	36.3	32	1320	3	A

Source: Highway Capacity Manual 2000, Equation 19-10)

a Bicycle volumes reflect total volume on the approach

b Bicycle volumes on this approach are controlled by a bicycle signal, effective green times are determined using the bicycle signal timings.

Assumptions: Bicycles will bypass queued automobiles even when sharing the lane, therefore queue delay is eliminated. The bicycle saturation flow rate does not exceed 2,000 bicycles/hour.

Transit Analysis

Existing

2022 Build Ridership: Ten Year Plan, Science, Barry's Corner

Route and Direction	Frequency (buses/hr)	Capacity (buses/hr)	Hourly Ridership		V/C Ratio (Utilization)		site generated trips		Residential trips		Hourly Ridership		V/C Ratio (Utilization)	
			Arriving	Leaving	Arriving	Leaving	Arriving	Leaving	Arriving	Leaving	Arriving	Leaving	Arriving	Leaving
MBTA														
<i>Weekday AM Peak</i>														
64 Inbound	4	240	160	160	0.67	0.67	1.7	0.0			161.7	160.0	0.67	0.67
Outbound	4	240	120	120	0.5	0.5	0.0	0.3			120.0	120.3	0.50	0.50
66 Inbound	7	420	100	120	0.24	0.29	26.4	15.0	-2.8	-7.6	123.6	127.4	0.29	0.30
Outbound	7	420	280	285	0.67	0.68	86.9	5.4	-2.5	-0.2	364.5	290.2	0.87	0.69
70 Inbound	4	240	130	135	0.54	0.56	11.6	10.1			141.6	145.1	0.59	0.60
Outbound	3	180	90	90	0.5	0.5	49.3	2.4			139.3	92.4	0.77	0.51
70A Inbound	2	120	70	70	0.58	0.58	7.7	6.7			77.7	76.7	0.65	0.64
Outbound	2	120	65	75	0.54	0.63	32.9	1.6			97.9	76.6	0.82	0.64
86 Inbound	5	300	110	105	0.37	0.37	55.6	5.8	-6.8	-4.1	158.8	106.6	0.53	0.36
Outbound	5	300	210	230	0.7	0.77	28.1	8.6	-3.5	-10.4	234.6	228.2	0.78	0.76
<i>Weekday PM Peak</i>														
64 Inbound	3	180	55	55	0.31	0.31	0.5	0.0			55.5	55.0	0.31	0.31
Outbound	4	240	125	125	0.52	0.52	0.0	1.4			125.0	126.4	0.52	0.53
66 Inbound	7	420	270	265	0.64	0.63	8.1	61.0	-0.9	-2.0	277.2	324.0	0.66	0.77
Outbound	7	420	230	220	0.55	0.52	26.8	22.0	-9.4	-2.3	247.4	239.7	0.59	0.57
70 Inbound	4	240	135	135	0.56	0.56	3.6	41.1			138.6	176.1	0.58	0.73
Outbound	4	240	160	160	0.67	0.67	15.2	9.6			175.2	169.6	0.73	0.71
70A Inbound	2	120	80	75	0.67	0.63	2.4	27.4			82.4	102.4	0.69	0.85
Outbound	2	120	85	85	0.71	0.71	10.1	6.4			95.1	91.4	0.79	0.76
86 Inbound	4	240	185	180	0.77	0.75	17.1	23.4	-7.3	-2.3	194.8	201.1	0.81	0.84
Outbound	4	240	125	130	0.52	0.54	8.6	34.8	-2.8	-4.3	130.8	160.5	0.55	0.67
Havard Shuttle														
<i>Morning</i>														
Allston Campus Express	4	128	64	64	0.5		0.0	5.8			64.0	69.8	0.50	0.55
Harvard Sq.-BC Express														
Northbound	6	192	N/A	N/A	N/A			18.3		25.8		44.1		0.23
Southbound	6	192					89.9		14.6		104.5		0.54	
<i>Evening</i>														
Allston Campus Express	4	128	64	64	0.5		0.0	23.6			64.0	87.6	0.50	0.68
Harvard Sq.-BC Express														
Northbound	6	192	N/A	N/A	N/A			74.3		11.7		86.0		0.45
Southbound	6	192					27.7		20.9		48.6		0.25	

Distribution of 10-Year Plan trips, Science trips, and Barry's Corner trips

Route	Dist.	Morning		Evening	
		Enter	Exit	Enter	Exit
Red Line	59.5%	232	48	71	193
Route 64	0.4%	2	0	1	1
Route 66	6.8%	26	5	8	22
Route 70	3.0%	12	2	4	10
Route 70A	2.0%	8	2	2	6
Route 86 IB	3.1%	12	2	4	10
Route 86 OB	7.2%	28	6	9	23
Local Bus-Harvard Sq.	11.1%	43	9	13	36
Local Bus-Central Sq.	6.2%	24	5	7	20
Harvard Shuttle	0.8%	3	1	1	2
Unassigned	0.0%	0	0	0	0
	100.0%	390	80	120	325

Entering

Transfers to site	Red Line	Local Bus -H.S.	Local Bus C.S.
Route 70	15%	0%	60%
Route 70A	10%	0%	40%
Route 86	15%	20%	0%
Route 66	30%	40%	0%
Harvard Shuttle:BC-HS Exp	30%	40%	0%

Exiting

Transfers to site	Red Line	Local Bus -H.S.	Local Bus-C.S.
Route 70	15%	0%	60%
Route 70A	10%	0%	40%
Route 86	10%	15%	0%
Route 66	25%	35%	0%
Harvard Shuttle:BC-HS Exp.	30%	40%	0%
Harvard Shuttle: Allston Exp.	10%	10%	0%

*In the future, a Harvard shuttle will be available AM and PM to make direct trips between Allston (Barry's Corner) and Harvard Sq. "Harvard Shuttle:BC-HS Exp." The Existing Allston Campus Express will still run, however, this loop will better serve evening trips from Allston to H.S.

Distribution of trips at Harvard Square and on the Red Line generally based on frequency of service with some minor revisions (rounding)

Route	Entering Bus/hour (freq.)	Dist.
Route 70/70A	6	26.1%
Route 86	4	17.4%
Route 66	7	30.4%
Harvard BC-HS Exp.	6	26.1%

FINAL-Entering

Route	Dist.	Trips	
		Morning	Evening
Route 64			
Inbound	0.4%	1.7	0.5
Outbound	0	0.0	0.0
Route 66			
Inbound	6.8%	26.4	8.1
Outbound	22.3%	86.9	26.8
Route 70			
Inbound	3.0%	11.6	3.6
Outbound	12.6%	49.3	15.2
Route 70A			
Inbound	2.0%	7.7	2.4
Outbound	8.4%	32.9	10.1
Route 86			
Inbound	14.3%	55.6	17.1
Outbound	7.2%	28.1	8.6
Harvard Sh.: BC-HS Exp.			
Northbound	0	0	0
Southbound	23.1%	89.9	27.7
TOTAL	100.0%	390	120

check: 390.0 120.0

FINAL-Exiting

Route	Dist.	Trips	
		Morning	Evening
Route 64			
Inbound		0.0	0.0
Outbound	0.4%	0.3	1.4
Route 66			
Inbound	18.8%	15.0	61.0
Outbound	6.8%	5.4	22.0
Route 70			
Inbound	12.6%	10.1	41.1
Outbound	3.0%	2.4	9.6
Route 70A			
Inbound	8.4%	6.7	27.4
Outbound	2.0%	1.6	6.4
Route 86			
Inbound	7.2%	5.8	23.4
Outbound	10.7%	8.6	34.8
Harvard Sh.: BC-HS Exp.			
Northbound	22.9%	18.3	74.3
Southbound			
Harvard Sh.: Allston Exp.	7.3%	5.8	23.6
TOTAL	100.0%	80.0	325.0

check: 80.0 325.0

Potential Shift of Neighborhood MBTA Trips to Harvard Shuttle

TO HARVARD SQUARE

	Route 66: Inbound - On to Harvard Shuttle				Route 86: Outbound - On to Harvard Shuttle			Harvard Sq. Express-northbound		
Stop	Oxford	Kingsley	Barry's	Total	Riverdale	Barry's	Total	Route 66	Route 86	Total
Shift	20%	50%	50%		50%	50%				
AM	2.78	4.85	4.4	12.03	3.45	10.35	13.8	12.03	13.80	25.83
PM	0.9	1.1	2.7	4.7	2.8	4.3	7.0	4.72	7.00	11.72

FROM HARVARD SQUARE

	Route 66: Outbound - Off to Harvard Shuttle				Route 86: Inbound - Off to Harvard Shuttle			Harvard Sq. Express-southbound		
Stop	Barry's	Franklin	Coolidge	Total	Barry's	Riverdale	Total	Route 66	Route 86	Total
Shift to HS	50%	50%	20%		50%	50%				
AM	5.35	2.25	0.22	7.82	2.65	4.125	6.8	7.82	6.78	14.60
PM	4.2	7.1	2.3	13.6	5.0	2.3	7.3	13.60	7.25	20.85

Barry's Corner Traffic Signal Communications Study



Vanasse Hangen Brustlin, Inc.

101 Walnut Street
P. O. Box 9151
Watertown, MA 02471-9151
617 924 1770
FAX 617 924 2286

Memorandum

To: Michael Regan, P.E.

Date: July 12, 2013

Project No.: 10463

From: Joseph R. Herr, P.E.
Paul T. Nauyokas, P.E.

Re: Harvard University
Barry's Corner Intersection
Traffic Signal Communications Study

VHB has been tasked by Harvard University with identifying existing Boston Transportation Department (BTD) communications network facilities installed in the Brighton/ Allston section of the City; specifically in reference to the Barry's Corner intersection. The goal would be to connect the existing traffic signal at Western Avenue/North Harvard Street to the BTD central computer system and to provide real time video monitoring of the intersection at the BTD Traffic Management Center (TMC) at Boston City Hall.

Background

The City of Boston Transportation Department (BTD) maintains a large scale communications network that provides interconnection between nearly 400 of its signalized intersections and their main TMC at Boston City Hall. Earlier versions of traffic signal control had limited requirements for information passed from the TMC to the field devices. As such, the predominant type of communications media deployed by the City was copper cable. Over the past 15 years, the need for faster has increased with the deployment of more data intensive devices such as video monitoring systems. Today, traditional twisted pair copper cable is being supplemented with fiber optic cable to provide the City with enhanced monitoring and control capabilities.

Most of the hardwire communications is routed through underground conduit via spare duct space in utility banks or City owned conduit. There are some places where cable is installed overhead within the municipal gain space on utility poles.

Data Requirements

To remotely monitor and control the BTD's system-based traffic signals, data is sent and received on a second rate. Typically the copper cable system is routed through each cabinet along a specific route. Designated pairs (two per cabinet; one transmit/one receive) with a single communications channel are assigned supporting eight signalized intersections per channel.

For the past ten years, the City has been deploying video monitoring cameras at strategic locations throughout the City allowing real time video images to be sent back to the TMC. Early deployments relied upon spare pairs of existing copper communications cable. Most deployments required special accommodations to support video transmission including replacing in-cabinet punch down terminal

strip connections with soldered connections and installing video amplifiers at mid-points along the communications route. Each camera requires a single, twisted pair conductor to be connected to the camera at the intersection to be able to transmit the images back to the TMC.

Approach

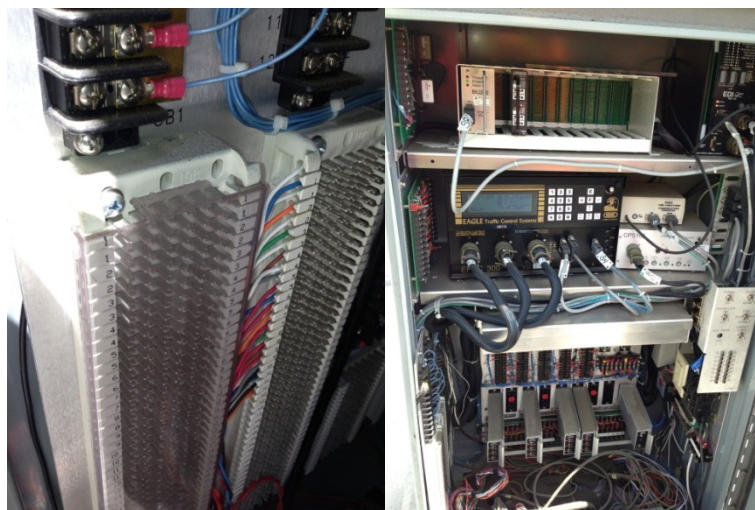
The critical element of this investigation was to identify any existing communications links that currently support data transfer between the TMC and the Barry's Corner area (North Harvard Street and Western Avenue). This intersection is located in the lower Allston section of the City bounded by the Massachusetts Turnpike and the Charles River. Without an existing hardware communications link in place, any proposed system interconnection would require either the installation of a conduit system across the Massachusetts Turnpike or the investigation of a wireless communications option. (Note: Wireless communications systems are typically not used by the BTM.)

VHB identified existing control cabinet locations in the lower Allston area and field investigated the types and routing of any interconnect cable in the area. The following sections provides a per location photo of the existing traffic signal control cabinets and a close up of existing in-cabinet interconnect cable terminations along with a summary of our findings:

North Harvard Street/Franklin Street/Kingsley Street

This signalized intersection located is approximately 500 feet south of the intersection of Barry's Corner. The traffic signal was installed in 2011. There is a single 12 twisted- pair, #22 AWG, IMSA 19-2 interconnect cable in the cabinet. There are provisions in the cabinet to allow for the controller to communicate with the TMC, but there is currently no hardware communications link between this location and the TMC. This signal is operating in a non-system mode.

The communications cable enters the cabinet through a 3" conduit. The conduit is installed underground to an adjacent utility pole. The cable is supported up the side of the pole and suspended along the pole line southerly along North Harvard Street into the Easton Street traffic signal control cabinet.



In-Cabinet Interconnect Cable – North Harvard Street/Franklin Street/Kingsley Street

North Harvard Street/Easton Street

This signalized intersection is located approximately 560 feet south of the intersection of North Harvard Street, Franklin Street and Kingsley Street and was installed at the same time as the North Harvard Street, Franklin Street and Kingsley Street traffic signal was installed. There is a single 12 twisted-pair, #22 AWG, IMSA 19-2 interconnect cable in the cabinet. There are provisions in the cabinet to allow for the controller to communicate with the TMC, but there is currently no hardwire communications link between this location and the TMC. This signal is operating in a non-system mode.

The communications cable enters the cabinet through a 3" conduit. The conduit is installed underground to an adjacent utility pole. The cable is supported along the side of the pole and suspended along the pole line northerly along North Harvard Street into the Franklin Street / Kingsley Street traffic signal control cabinet.



Existing In-Cabinet Interconnect Cable - North Harvard Street/Easton Street

Cambridge Street/North Harvard Street

This location is interconnected and operating as part to the BTD central system. There is two, 10 twisted pair conductor #12 AWG interconnect cables in the cabinet. One of the cables is routed underground to the traffic signal control cabinet at Cambridge Street/Windom Street while the other cable is routed underground to the traffic signal control cabinet at Cambridge Street / Lincoln Street. This location currently is actively working on-line from the TMC.



Existing In-Cabinet Interconnect Cable - Cambridge Street / North Harvard Street

Cambridge Street/Window Street

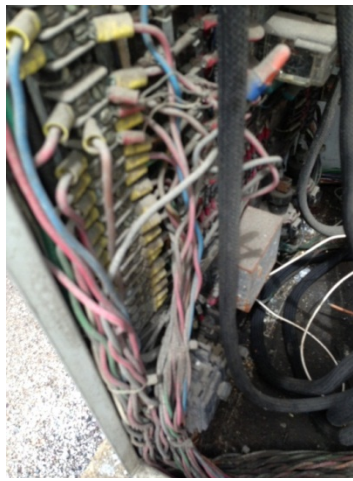
This location is interconnected and operating as part to the BTD central system. There is a single 10 twisted pair, #14 AWG interconnect cable terminated in the cabinet. The cable is routed underground to the traffic signal control cabinet at Cambridge Street / North Harvard Street. This location currently is actively working on-line from the TMC.



Existing In-Cabinet Interconnect Cable - Cambridge Street / Window Street

Cambridge Street/Lincoln Street

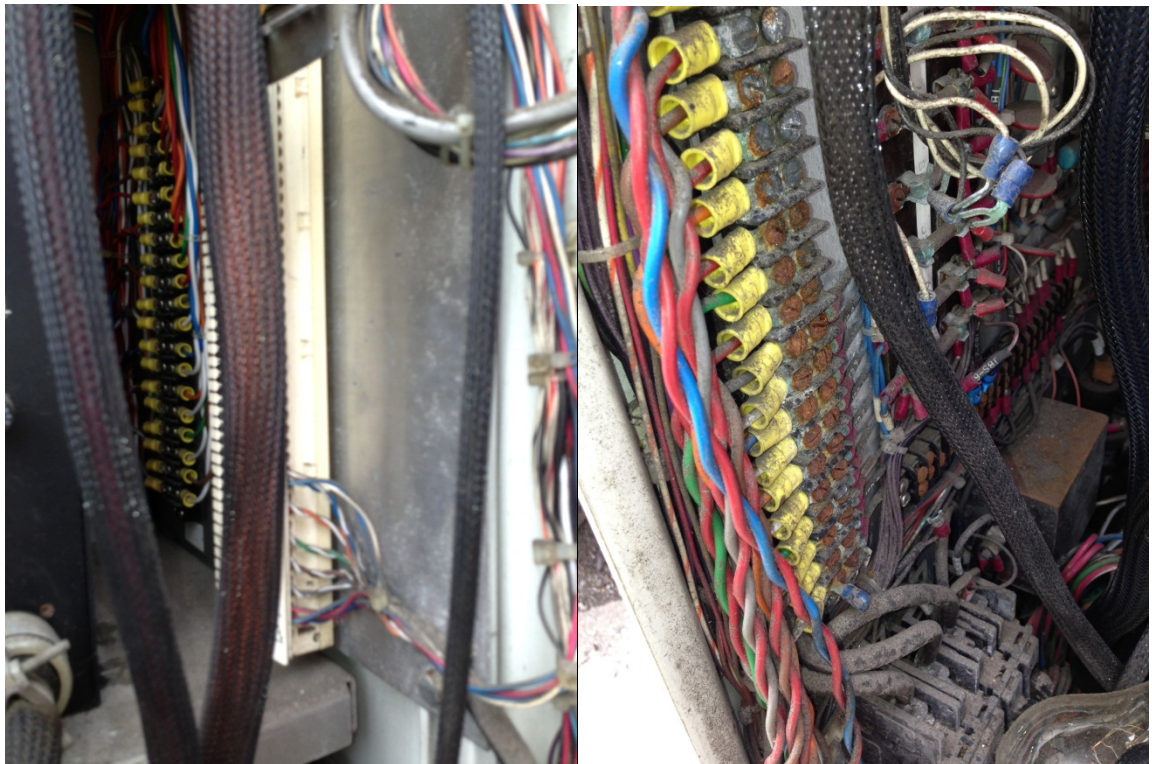
This location is interconnected and operating as part to the BTD central system. There is two 10 twisted pair, #14 AWG interconnect cables in the cabinet. One of the cables is routed underground to the traffic signal control cabinet at Cambridge Street/North Harvard Street while the other cable is routed underground to the traffic signal control cabinet at Cambridge Street / Franklin Street / Harvard Street. This location currently is actively working on-line from the TMC.



Existing In-Cabinet Interconnect Cable - Cambridge Street / Lincoln Street

Cambridge Street/Franklin Street/Harvard Street

This location is interconnected and operating as part to the BTD central system. There are three,10 twisted pair, #14 AWG interconnect cables in the cabinet. One of the cables is routed underground to the traffic signal control cabinet at Cambridge Street/Brighton Avenue (Union Square) another cable is routed underground to the traffic signal control cabinet at Harvard Street/ Brighton Avenue while the third cable is routed underground to the traffic signal control cabinet at Cambridge Street / Lincoln Street. This location currently is actively working on-line from the BTD central system.



Existing In-Cabinet Interconnect Cable - Cambridge Street/Franklin Street/Harvard Street

Existing BTM cameras in Brighton

According to BTM records, there are currently nine monitoring cameras installed in the Brighton area used by BTM for traffic monitoring purposes. The video feeds from these cameras are transmitted over existing BTM interconnect cable to the TMC at Boston City Hall. A listing of the intersections in the Brighton area that contain a traffic monitoring camera is as follows:

1. Brighton Ave./ Cambridge St./ North Beacon St. (Union Square)
2. Brock St./ Lake St./ Washington St.
3. BU Bridge & Memorial Drive (Cambridge) – Camera #1
4. BU Bridge & Memorial Drive (Cambridge) – Camera #2
5. BU Bridge/Commonwealth Ave. /Essex St.
6. Cambridge St. /Sparhawk St. /Warren St.
7. Cambridge St. / Washington St. / Winship St. (Morgan Sq.)
8. Commonwealth Ave. / Carlton St.
9. Washington St. / Foster St.

Proposed BTM Cameras in Brighton

In consultation with BTM, the following upgrades to video monitoring in Brighton are planned for 2013:

1. Ethernet Communication Hub at the Boston Fire Department Station at Brighton Ave./ Cambridge St./ North Beacon St. (Union Square)
2. Brighton Ave. / Harvard Ave.
3. Brighton Ave. / Commonwealth Ave.

The existing and proposed BTM camera locations are shown on **Figure 2**. The ethernet hub improvement in Union Square will allow BTM to deploy and accept the installation of IP-based monitoring cameras and ethernet extender hardware which will lessen the communication demand on the existing copper-based interconnect system.

Summary

Through the course of this investigation, VHB has identified existing system interconnection in proximity to Barry's Corner. VHB identified that there was existing interconnection from the TMC to the traffic signal control cabinet at Cambridge Street / North Harvard Street. The existence of this BTM interconnection eliminates the need to install a conduit system across the Massachusetts Turnpike to support system data communications or video monitoring of the Barry Corner intersection.

In discussions on June 28, 2013 with Don Burgess and Wilson Aleman of BTM, it was stated that there are available spare pairs within the existing communications cable to support the addition of a camera at Barry's Corner intersection, as well as two to three other locations in North Allston. Additionally, he also stated that any proposed communications cable installed on North Harvard Street could be installed overhead in the municipal gain space. (There is existing BTM interconnect cable installed overhead between Franklin Street and Easton Street on North Harvard Street). New

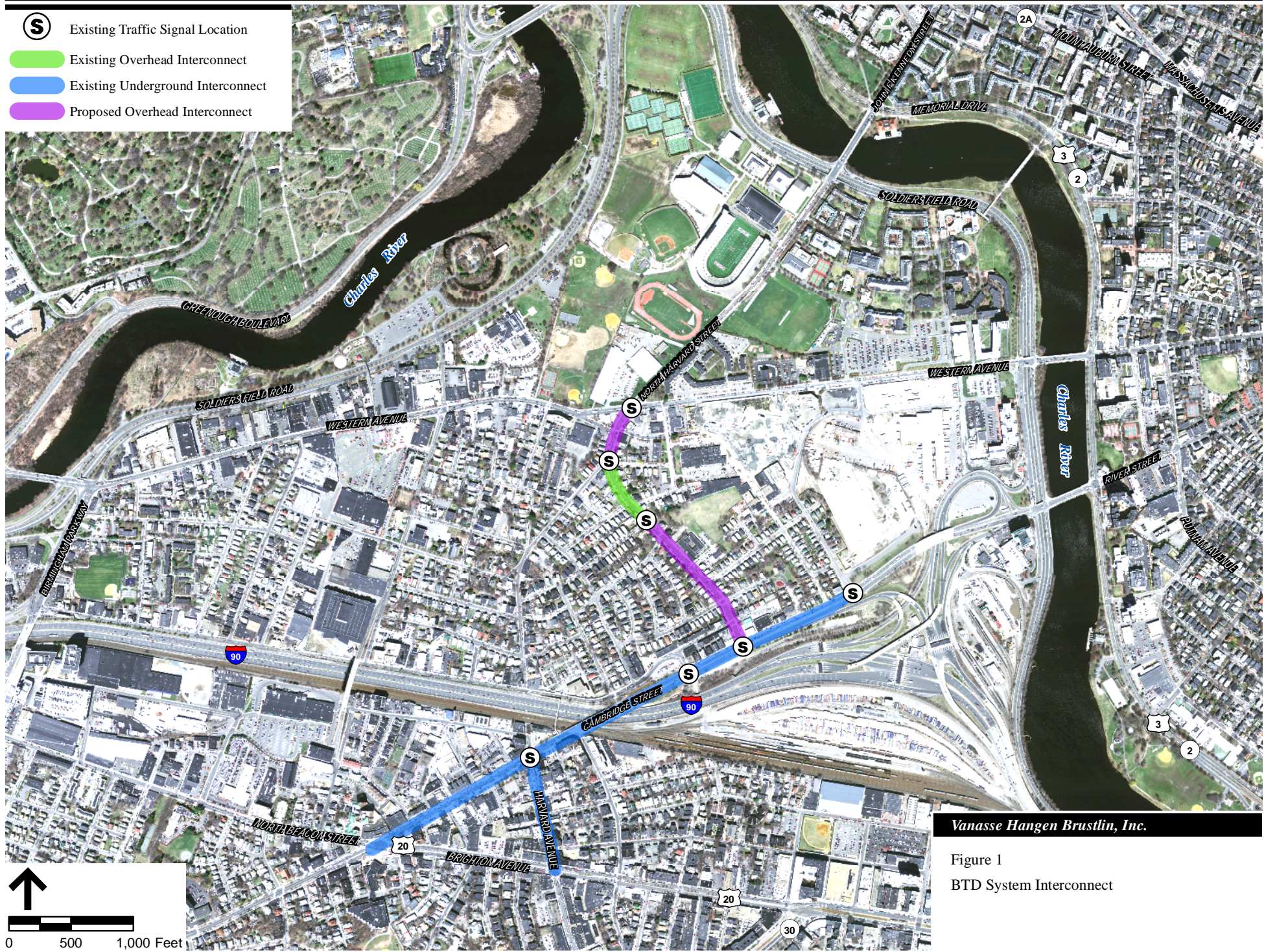
cable would need to be installed on North Harvard Street between Cambridge Street and Easton Street as well as on North Harvard Street between Franklin Street and Barry's Corner to complete the interconnection from Barry's Corner to the TMC. Figure 1 illustrates the existing and proposed interconnections.

Table 1 provides a summary of the required improvements to implement video monitoring at the Western Avenue / North Harvard Street, Cambridge Street / North Harvard Street and Cambridge Street / Harvard Avenue intersections.

Table 1. Conceptual Improvement Summary and Estimate

Improvement	Design Cost	Construction Cost	Total Cost
Aerial Communication Cable	\$4,000	\$35,000	\$39,000
Camera System (3) *	\$9,000	\$45,000	\$54,000
Total	\$13,000	\$80,000	\$93,000

* Includes camera, mounts, power supply, ethernet extenders, estimated labor. Estimates are conceptual in nature and do not include costs for integration or troubleshooting the system connection to BTM TMC.



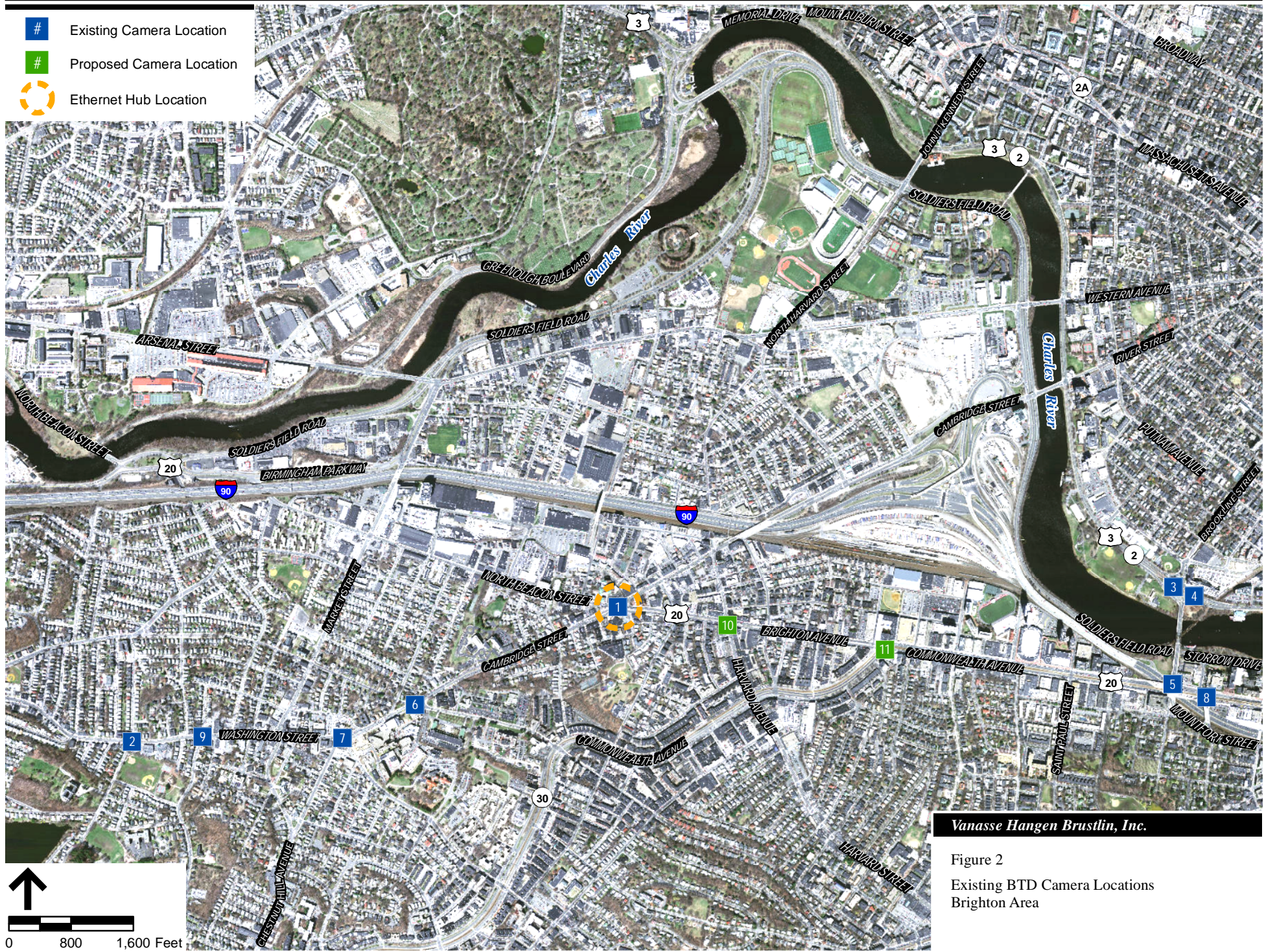


Figure 2
Existing BTM Camera Locations
Brighton Area