Appendix

- Traffic Volume Data
- Seasonal Adjustment Calculations
- Speed Data
- Intersection Crash Data
- Public Transportation Information
- Sight Line Analysis
- Kendrick Street Interchange
- Background Growth
- Trip Generation Data
- Trip Distribution Calculations
- Capacity Analyses
- Parking Data

□ Traffic Volume Data

MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA 01752
508-303-0370
www.mdmtrans.com

Wells Avenue
Between Nahanton Street and #1 Wells Avenue
Newton, MA

Site Code: 00000770
Station ID:
Latitude: 0' 0.0000 Undefined

770 Wells Avenue Volume 5-29-2014

Start Time	29-May-14 Thu	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		3	122			0	87				
12:15		2	107			0	77				
12:30		1	91			1	94				
12:45		1	102	7	422	0	103	1	361	8	783
01:00		0	91			3	109				
01:15		1	64			0	101				
01:30		1	53			0	87				
01:45		0	63	2	271	1	81	4	378	6	649
02:00		1	96			1	87				
02:15		0	86			1	76				
02:30		1	94			2	69				
02:45		1	76	3	352	1	67	5	299	8	651
03:00		2	109			3	76				
03:15		0	115			2	109				
03:30		1	143			2	114				
03:45		0	139	3	506	4	113	11	412	14	918
04:00		0	146			3	79				
04:15		2	150			8	81				
04:30		0	193			10	60				
04:45		2	187	4	676	15	117	36	337	40	1013
05:00		4	259			11	89				
05:15		0	239			11	74				
05:30		1	226			20	82				
05:45		3	239	8	963	30	84	72	329	80	1292
06:00		7	236			31	112				
06:15		6	200			39	93				
06:30		10	161			55	71				
06:45		10	141	33	738	84	51	209	327	242	1065
07:00		24	120			90	66				
07:15		18	99			115	42				
07:30		36	66			162	53				
07:45		70	99	148	384	222	79	589	240	737	624
08:00		57	102			213	56				
08:15		44	80			250	47				
08:30		38	73			234	47				
08:45		31	70	170	325	268	30	965	180	1135	505
09:00		40	47			262	32				
09:15		54	63			192	16				
09:30		65	35			141	7				
09:45		45	34	204	179	136	11	731	66	935	245
10:00		53	61			92	10				
10:15		52	34			93	6				
10:30		57	18			79	2				
10:45		74	21	236	134	80	13	344	31	580	165
11:00		75	19			66	3				
11:15		65	11			62	1				
11:30		106	5			69	1				
11:45		122	0	368	35	75	1	272	6	640	41
Total		1186	4985			3239	2966			4425	7951
Percent		19.2%	80.8%			52.2%	47.8%			35.8%	64.2%
Grand Total		1186	4985			3239	2966			4425	7951
Percent		19.2%	80.8%			52.2%	47.8%			35.8%	64.2%

ADT ADT 12,376 AADT 12,376

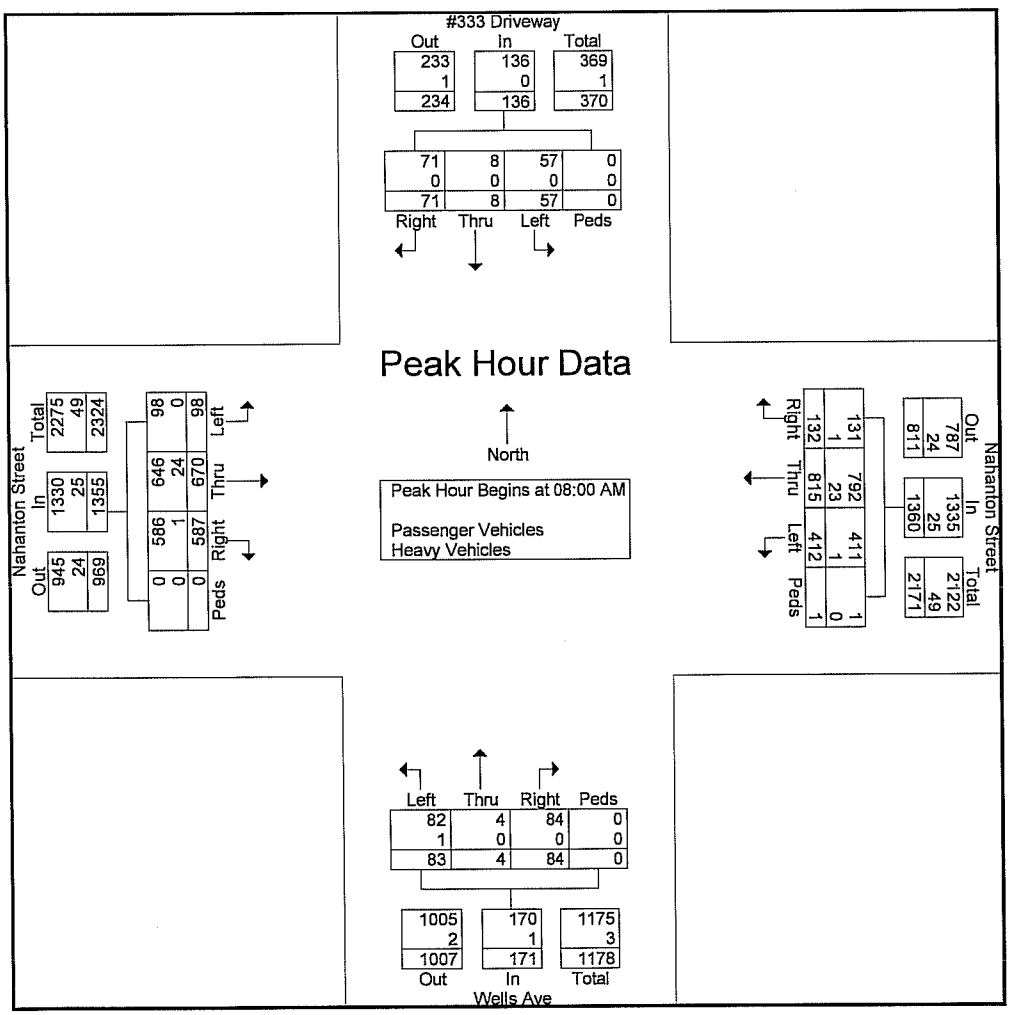
MDM Transportation Consultants, INC.

28 Lord Road, Suite 280
Marlborough, MA 01752

N: #333 Driveway
S: Wells ave
E/W: Nahanton Street
Newton, MA

File Name : Nahanton Street @ Wells Avenue AM
Site Code : 00770004
Start Date : 5/29/2014
Page No : 2

	#333 Driveway From North					Nahanton Street From East					Wells Ave From South					Nahanton Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	**19**	0	16	0	35	**45**	194	89	0	328	**29**	**4**	**28**	0	**61**	141	**205**	22	0	**368**	**792**
08:15 AM	18	2	**18**	0	**38**	30	205	102	0	337	19	0	20	0	39	143	158	**27**	0	328	742
08:30 AM	19	1	13	0	33	25	**214**	100	0	339	17	0	20	0	37	146	155	24	0	325	734
08:45 AM	15	**5**	10	0	30	32	202	**121**	**1**	**356**	19	0	15	0	34	**157**	152	25	0	334	754
Total Volume	71	8	57	0	136	132	815	412	1	1360	84	4	83	0	171	587	670	98	0	1355	3022
% App. Total	52.2	5.9	41.9	0		9.7	59.9	30.3	0.1		49.1	2.3	48.5	0		43.3	49.4	7.2	0		
PHF	.934	.400	.792	.000	.895	.733	.952	.851	.250	.955	.724	.250	.741	.000	.701	.935	.817	.907	.000	.921	.954
Passenger Vehicles																					
% Passenger Vehicles	100	100	100	0	100	99.2	97.2	99.8	100	98.2	100	100	98.8	0	99.4	99.8	96.4	100	0	98.2	98.3
Heavy Vehicles																					
% Heavy Vehicles	0	0	0	0	0	0.8	2.8	0.2	0	1.8	0	0	1.2	0	0.6	0.2	3.6	0	0	1.8	1.7



MDM Transportation Consultants, INC.

28 Lord Road, Suite 280
Marlborough, MA 01752

N: #333 Driveway
S: Wells ave
E/W: Nahanton Street
Newton, MA

File Name : Nahanton Street @ Wells Avenue AM
Site Code : 00770004
Start Date : 5/29/2014
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

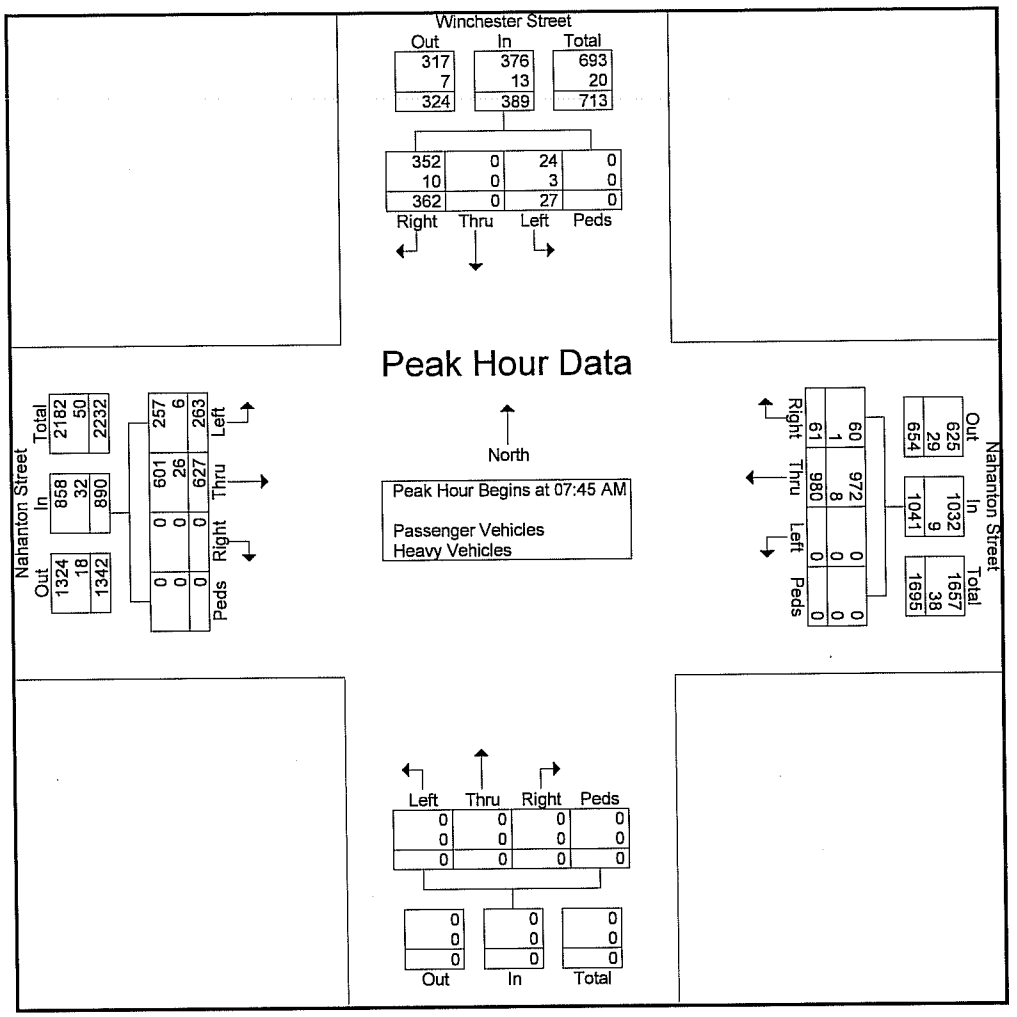
	#333 Driveway From North					Nahanton Street From East					Wells Ave From South					Nahanton Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	6	0	5	0	11	13	93	34	2	142	14	0	10	0	24	58	144	8	0	210	387
07:15 AM	4	0	7	0	11	16	130	35	0	181	7	0	10	0	17	87	194	6	0	287	496
07:30 AM	6	1	8	0	15	18	210	71	0	299	18	1	19	0	38	92	209	9	0	310	662
07:45 AM	8	0	8	0	16	26	182	96	1	305	52	2	15	0	69	145	200	16	0	361	751
Total	24	1	28	0	53	73	615	236	3	927	91	3	54	0	148	382	747	39	0	1168	2296
08:00 AM	19	0	16	0	35	45	194	89	0	328	29	4	28	0	61	141	205	22	0	368	792
08:15 AM	18	2	18	0	38	30	205	102	0	337	19	0	20	0	39	143	158	27	0	328	742
08:30 AM	19	1	13	0	33	25	214	100	0	339	17	0	20	0	37	146	155	24	0	325	734
08:45 AM	15	5	10	0	30	32	202	121	1	356	19	0	15	0	34	157	152	25	0	334	754
Total	71	8	57	0	136	132	815	412	1	1360	84	4	83	0	171	587	670	98	0	1355	3022
Grand Total	95	9	85	0	189	205	1430	648	4	2287	175	7	137	0	319	969	1417	137	0	2523	5318
Apprch %	50.3	4.8	45	0		9	62.5	28.3	0.2		54.9	2.2	42.9	0		38.4	56.2	5.4	0		
Total %	1.8	0.2	1.6	0	3.6	3.9	26.9	12.2	0.1	43	3.3	0.1	2.6	0	6	18.2	26.6	2.6	0	47.4	
Passenger Vehicles																					
% Passenger Vehicles	98.9	100	98.8	0	98.9	98.5	97.3	99.1	100	97.9	97.1	100	97.8	0	97.5	99.8	96.8	100	0	98.1	98
Heavy Vehicles																					
% Heavy Vehicles	1.1	0	1.2	0	1.1	1.5	2.7	0.9	0	2.1	2.9	0	2.2	0	2.5	0.2	3.2	0	0	1.9	2

MDM Transportation Consultants, INC.

28 Lord Road, Suite 280
Marlborough, MA 01752

N: Winchester Street
E/W: Nahanton Street
Newton, MA

File Name : Winchester St @ Nahanton St AM
Site Code : 07700001
Start Date : 6/3/2014
Page No : 2



MDM Transportation Consultants, INC.

28 Lord Road, Suite 280
Marlborough, MA 01752

N: Winchester Street
E/W: Nahanton Street
Newton, MA

File Name : Winchester St @ Nahanton St AM
Site Code : 07700001
Start Date : 6/3/2014
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	Winchester Street From North					Nahanton Street From East					From South					Nahanton Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	30	0	2	0	32	7	114	0	0	121	0	0	0	0	0	0	133	37	0	170	323
07:15 AM	44	0	3	1	48	7	149	0	0	156	0	0	0	0	0	0	156	51	2	209	413
07:30 AM	61	0	2	0	63	18	170	0	0	188	0	0	0	0	0	0	176	55	0	231	482
07:45 AM	93	0	8	0	101	13	241	0	0	254	0	0	0	0	0	0	180	63	0	243	598
Total	228	0	15	1	244	45	674	0	0	719	0	0	0	0	0	0	645	206	2	853	1816
08:00 AM	84	0	3	0	87	14	239	0	0	253	0	0	0	0	0	0	160	89	0	249	589
08:15 AM	93	0	6	0	99	19	252	0	0	271	0	0	0	0	0	0	150	55	0	205	575
08:30 AM	92	0	10	0	102	15	248	0	0	263	0	0	0	0	0	0	137	56	0	193	558
08:45 AM	113	0	6	0	119	17	242	0	0	259	0	0	0	0	0	0	120	84	0	204	582
Total	382	0	25	0	407	65	981	0	0	1046	0	0	0	0	0	0	567	284	0	851	2304
Grand Total	610	0	40	1	651	110	1655	0	0	1765	0	0	0	0	0	0	1212	490	2	1704	4120
Apprch %	93.7	0	6.1	0.2		6.2	93.8	0	0		0	0	0	0		0	71.1	28.8	0.1		
Total %	14.8	0	1	0	15.8	2.7	40.2	0	0	42.8	0	0	0	0	0	0	29.4	11.9	0	41.4	
Passenger Vehicles																					
% Passenger Vehicles	97.9	0	90	100	97.4	95.5	98.9	0	0	98.6	0	0	0	0	0	0	95.4	96.9	100	95.8	97.3
Heavy Vehicles																					
% Heavy Vehicles	2.1	0	10	0	2.6	4.5	1.1	0	0	1.4	0	0	0	0	0	0	4.6	3.1	0	4.2	2.7

	Winchester Street From North					Nahanton Street From East					From South					Nahanton Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	**93**	0	8	0	101	13	241	0	0	254	0	0	0	0	0	0	**180**	63	0	243	**598**
08:00 AM	84	0	3	0	87	14	239	0	0	253	0	0	0	0	0	0	160	**89**	0	**249**	589
08:15 AM	93	0	6	0	99	**19**	**252**	0	0	**271**	0	0	0	0	0	0	150	55	0	205	575
08:30 AM	92	0	**10**	0	**102**	15	248	0	0	263	0	0	0	0	0	0	137	56	0	193	558
Total Volume	362	0	27	0	389	61	980	0	0	1041	0	0	0	0	0	0	627	263	0	890	2320
% App. Total	93.1	0	6.9	0		5.9	94.1	0	0		0	0	0	0		0	70.4	29.6	0		
PHF	.973	.000	.675	.000	.953	.803	.972	.000	.000	.960	.000	.000	.000	.000	.000	.000	.871	.739	.000	.894	.970
Passenger Vehicles																					
% Passenger Vehicles	97.2	0	88.9	0	96.7	98.4	99.2	0	0	99.1	0	0	0	0	0	0	95.9	97.7	0	96.4	97.7
Heavy Vehicles																					
% Heavy Vehicles	2.8	0	11.1	0	3.3	1.6	0.8	0	0	0.9	0	0	0	0	0	0	4.1	2.3	0	3.6	2.3

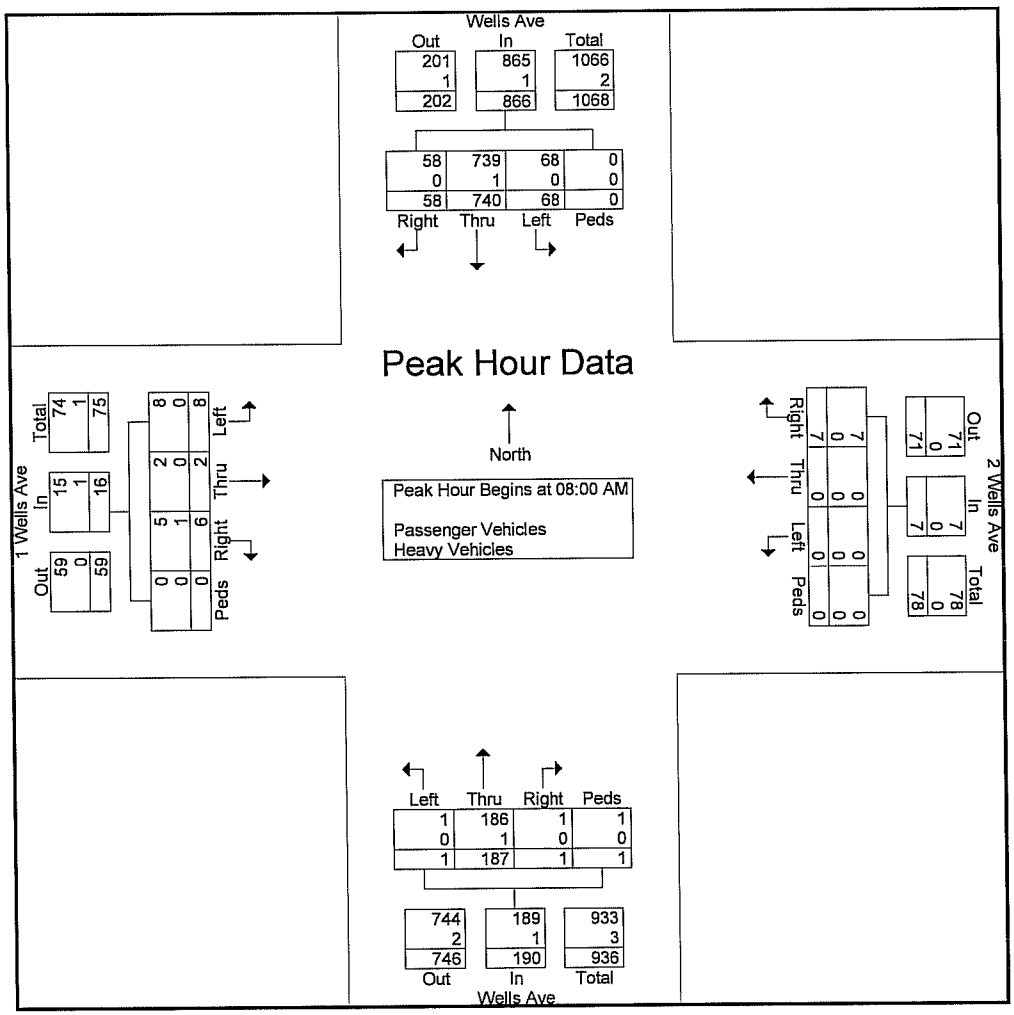
MDM Transportation Consultants, INC.

28 Lord Road, Suite 280
Marlborough, MA 01752

N/S: Wells Ave
E: 1 Wells Ave
W: 2 Wells Ave
Newton, MA

File Name : 1 & 2 wells ave @ wells ave AM
Site Code : 00077002
Start Date : 5/28/2014
Page No : 2

	Wells Ave From North					2 Wells Ave From East					Wells Ave From South					1 Wells Ave From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	16	174	18	0	208	**2**	0	0	0	**2**	**1**	**71**	0	0	**72**	0	**1**	2	0	3	285
08:15 AM	11	167	20	0	198	2	0	0	0	2	0	45	0	0	45	1	0	**3**	0	4	249
08:30 AM	13	176	**21**	0	210	2	0	0	0	2	0	36	**1**	**1**	38	**3**	0	1	0	4	254
08:45 AM	**18**	**223**	9	0	**250**	1	0	0	0	1	0	35	0	0	35	2	1	2	0	**5**	**291**
Total Volume	58	740	68	0	866	7	0	0	0	7	1	187	1	1	190	6	2	8	0	16	1079
% App. Total	6.7	85.5	7.9	0		100	0	0	0		0.5	98.4	0.5	0.5		37.5	12.5	50	0		
PHF	.806	.830	.810	.000	.866	.875	.000	.000	.000	.875	.250	.658	.250	.250	.660	.500	.500	.667	.000	.800	.927
Passenger Vehicles																					
% Passenger Vehicles	100	99.9	100	0	99.9	100	0	0	0	100	100	99.5	100	100	99.5	83.3	100	100	0	93.8	99.7
Heavy Vehicles																					
% Heavy Vehicles	0	0.1	0	0	0.1	0	0	0	0	0	0	0.5	0	0	0.5	16.7	0	0	0	6.3	0.3



MDM Transportation Consultants, INC.

28 Lord Road, Suite 280
Marlborough, MA 01752

N/S: Wells Ave
E: 1 Wells Ave
W: 2 Wells Ave
Newton, MA

File Name : 1 & 2 wells ave @ wells ave AM
Site Code : 00077002
Start Date : 5/28/2014
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

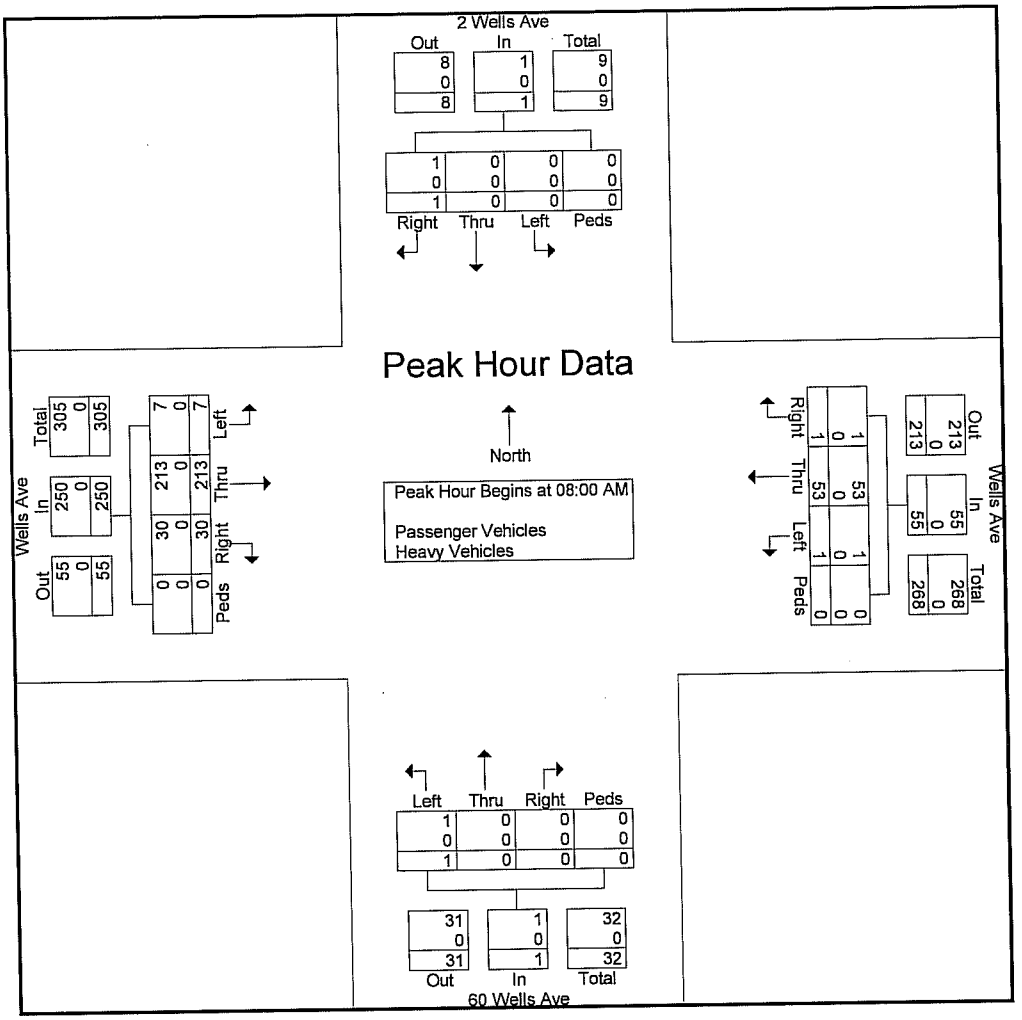
	Wells Ave From North					2 Wells Ave From East					Wells Ave From South					1 Wells Ave From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	5	77	7	0	89	1	0	0	1	2	0	16	0	0	16	0	0	1	0	1	108
07:15 AM	5	104	10	0	119	0	0	0	0	0	0	17	0	0	17	0	0	0	1	1	137
07:30 AM	6	126	13	0	145	0	0	0	0	0	0	36	0	0	36	3	0	1	1	5	186
07:45 AM	1	187	20	0	208	1	0	0	0	1	0	75	1	0	76	0	0	0	0	0	285
Total	17	494	50	0	561	2	0	0	1	3	0	144	1	0	145	3	0	2	2	7	716
08:00 AM	16	174	18	0	208	2	0	0	0	2	1	71	0	0	72	0	1	2	0	3	285
08:15 AM	11	167	20	0	198	2	0	0	0	2	0	45	0	0	45	1	0	3	0	4	249
08:30 AM	13	176	21	0	210	2	0	0	0	2	0	36	1	1	38	3	0	1	0	4	254
08:45 AM	18	223	9	0	250	1	0	0	0	1	0	35	0	0	35	2	1	2	0	5	291
Total	58	740	68	0	866	7	0	0	0	7	1	187	1	1	190	6	2	8	0	16	1079
Grand Total	75	1234	118	0	1427	9	0	0	1	10	1	331	2	1	335	9	2	10	2	23	1795
Apprch %	5.3	86.5	8.3	0		90	0	0	10		0.3	98.8	0.6	0.3		39.1	8.7	43.5	8.7		
Total %	4.2	68.7	6.6	0	79.5	0.5	0	0	0.1	0.6	0.1	18.4	0.1	0.1	18.7	0.5	0.1	0.6	0.1	1.3	
Passenger Vehicles																					
% Passenger Vehicles	100	99.2	100	0	99.3	100	0	0	100	100	100	97	50	100	96.7	88.9	100	100	100	95.7	98.8
Heavy Vehicles																					
% Heavy Vehicles	0	0.8	0	0	0.7	0	0	0	0	0	0	3	50	0	3.3	11.1	0	0	0	4.3	1.2

MDM Transportation Consultants, INC.

28 Lord Road, Suite 280
Marlborough, MA 01752

N: 2 Wells Ave
S: 60 Wells Ave
E/W: Wells Ave
Newton, MA

File Name : 60 Wells Ave @ Wells Ave AM
Site Code : 00770001
Start Date : 5/28/2014
Page No : 2



MDM Transportation Consultants, INC.

28 Lord Road, Suite 280
Marlborough, MA 01752

N: 2 Wells Ave
S: 60 Wells Ave
E/W: Wells Ave
Newton, MA

File Name : 60 Wells Ave @ Wells Ave AM
Site Code : 00770001
Start Date : 5/28/2014
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	2 Wells Ave From North					Wells Ave From East					60 Wells Ave From South					Wells Ave From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	0	0	1	1	0	6	0	0	6	1	0	0	0	1	1	30	2	0	33	41
07:15 AM	0	0	0	0	0	0	4	0	0	4	0	0	1	0	1	0	29	3	0	32	37
07:30 AM	1	0	0	2	3	0	7	0	0	7	0	0	0	0	0	2	30	2	0	34	44
07:45 AM	0	0	0	0	0	0	11	0	0	11	0	0	0	0	0	1	34	1	0	36	47
Total	1	0	0	3	4	0	28	0	0	28	1	0	1	0	2	4	123	8	0	135	169
08:00 AM	0	0	0	0	0	0	17	0	0	17	0	0	0	0	0	3	30	1	0	34	51
08:15 AM	0	0	0	0	0	0	12	0	0	12	0	0	1	0	1	13	45	3	0	61	74
08:30 AM	0	0	0	0	0	1	13	1	0	15	0	0	0	0	0	8	62	2	0	72	87
08:45 AM	1	0	0	0	1	0	11	0	0	11	0	0	0	0	0	6	76	1	0	83	95
Total	1	0	0	0	1	1	53	1	0	55	0	0	1	0	1	30	213	7	0	250	307
Grand Total	2	0	0	3	5	1	81	1	0	83	1	0	2	0	3	34	336	15	0	385	476
Apprch %	40	0	0	60		1.2	97.6	1.2	0		33.3	0	66.7	0		8.8	87.3	3.9	0		
Total %	0.4	0	0	0.6	1.1	0.2	17	0.2	0	17.4	0.2	0	0.4	0	0.6	7.1	70.6	3.2	0	80.9	
Passenger Vehicles	50	0	0	100	80	100	95.1	100	0	95.2	100	0	100	0	100	97.1	99.1	93.3	0	98.7	97.9
% Passenger Vehicles																					
Heavy Vehicles	50	0	0	0	20	0	4.9	0	0	4.8	0	0	0	0	0	2.9	0.9	6.7	0	1.3	2.1
% Heavy Vehicles																					

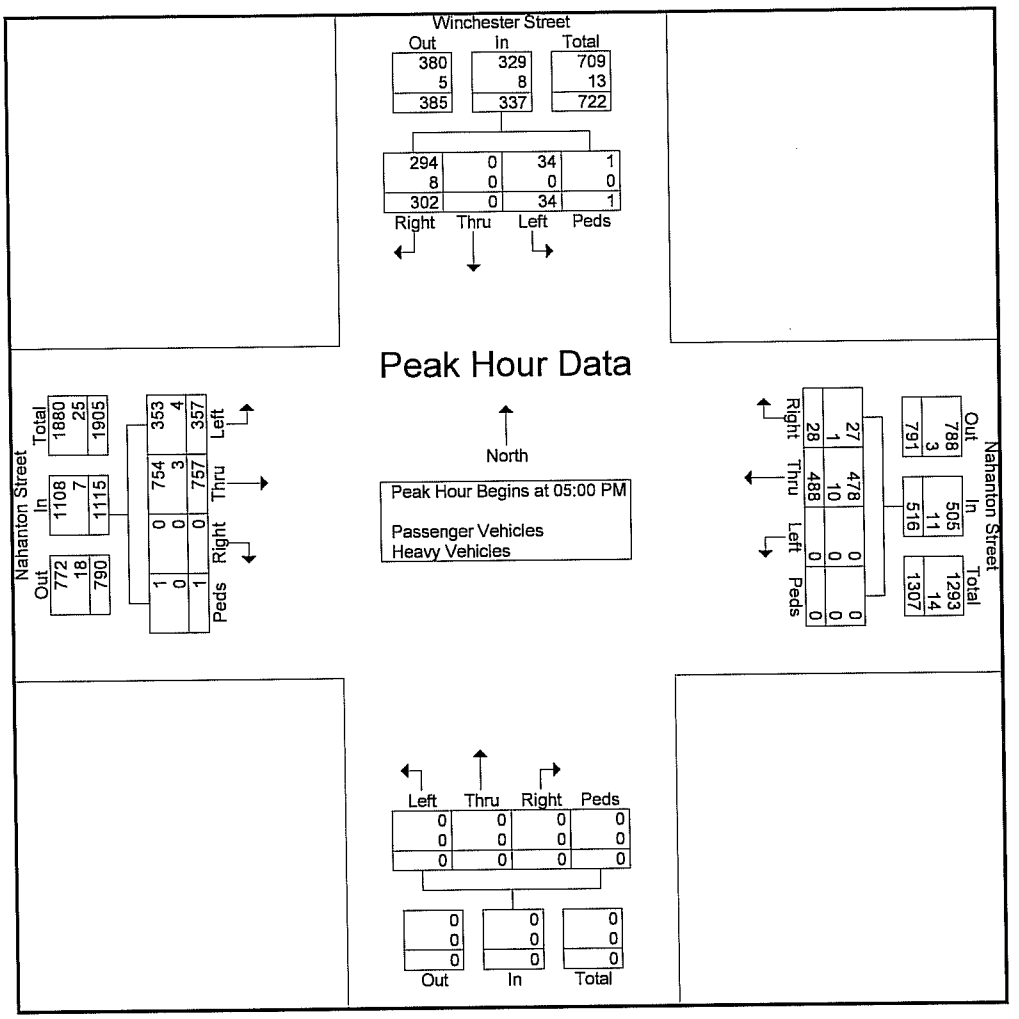
	2 Wells Ave From North					Wells Ave From East					60 Wells Ave From South					Wells Ave From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	0	0	0	0	0	**17**	0	0	**17**	0	0	0	0	0	3	30	1	0	34	51
08:15 AM	0	0	0	0	0	0	12	0	0	12	0	0	**1**	0	**1**	**13**	45	**3**	0	61	74
08:30 AM	0	0	0	0	0	**1**	13	**1**	0	15	0	0	0	0	0	8	62	2	0	72	87
08:45 AM	**1**	0	0	0	1	0	11	0	0	11	0	0	0	0	0	6	**76**	1	0	**83**	**95**
Total Volume	1	0	0	0	1	1	53	1	0	55	0	0	1	0	1	30	213	7	0	250	307
% App. Total	100	0	0	0		1.8	96.4	1.8	0		0	0	100	0		12	85.2	2.8	0		
PHF	.250	.000	.000	.000	.250	.250	.779	.250	.000	.809	.000	.000	.250	.000	.250	.577	.701	.583	.000	.753	.808
Passenger Vehicles	100	0	0	0	100	100	100	100	0	100	0	0	100	0	100	100	100	100	0	100	100
% Passenger Vehicles																					
Heavy Vehicles	0	0	0	0	0	0	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	0	0	0	0	0	0

MDM Transportation Consultants, INC.

28 Lord Road, Suite 280
Marlborough, MA 01752

N: Winchester Street
E/W: Nahanton Street
Newton, MA

File Name : Winchester St @ Nahanton St PM
Site Code : 07700001
Start Date : 6/3/2014
Page No : 2



MDM Transportation Consultants, INC.

28 Lord Road, Suite 280
Marlborough, MA 01752

N: Winchester Street
E/W: Nahanton Street
Newton, MA

File Name : Winchester St @ Nahanton St PM
Site Code : 07700001
Start Date : 6/3/2014
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	Winchester Street From North					Nahanton Street From East					From South					Nahanton Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	71	0	12	0	83	10	139	0	0	149	0	0	0	0	0	0	166	91	0	257	489
04:15 PM	76	0	11	4	91	10	160	0	0	170	0	0	0	0	0	0	137	66	0	203	464
04:30 PM	57	0	10	1	68	9	127	0	0	136	0	0	0	0	0	0	150	77	0	227	431
04:45 PM	78	0	12	0	90	10	139	0	1	150	0	0	0	0	0	0	159	62	0	221	461
Total	282	0	45	5	332	39	565	0	1	605	0	0	0	0	0	0	612	296	0	908	1845
05:00 PM	70	0	9	1	80	6	107	0	0	113	0	0	0	0	0	0	175	93	0	268	461
05:15 PM	79	0	9	0	88	13	138	0	0	151	0	0	0	0	0	0	193	81	1	275	514
05:30 PM	82	0	9	0	91	6	131	0	0	137	0	0	0	0	0	0	182	91	0	273	501
05:45 PM	71	0	7	0	78	3	112	0	0	115	0	0	0	0	0	0	207	92	0	299	492
Total	302	0	34	1	337	28	488	0	0	516	0	0	0	0	0	0	757	357	1	1115	1968
Grand Total	584	0	79	6	669	67	1053	0	1	1121	0	0	0	0	0	0	1369	653	1	2023	3813
Apprch %	87.3	0	11.8	0.9		6	93.9	0	0.1		0	0	0	0		0	67.7	32.3	0		
Total %	15.3	0	2.1	0.2	17.5	1.8	27.6	0	0	29.4	0	0	0	0	0	0	35.9	17.1	0	53.1	
Passenger Vehicles	97.6	0	97.5	100	97.6	95.5	97.6	0	100	97.5	0	0	0	0	0	0	99.6	98.8	100	99.3	98.5
% Passenger Vehicles																					
Heavy Vehicles	2.4	0	2.5	0	2.4	4.5	2.4	0	0	2.5	0	0	0	0	0	0	0.4	1.2	0	0.7	1.5
% Heavy Vehicles																					

	Winchester Street From North					Nahanton Street From East					From South					Nahanton Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	70	0	**9**	**1**	80	6	107	0	0	113	0	0	0	0	0	0	175	**93**	0	268	461
05:15 PM	79	0	9	0	88	**13**	**138**	0	0	**151**	0	0	0	0	0	0	193	81	**1**	275	**514**
05:30 PM	**82**	0	9	0	**91**	6	131	0	0	137	0	0	0	0	0	0	182	91	0	273	501
05:45 PM	71	0	7	0	78	3	112	0	0	115	0	0	0	0	0	0	**207**	92	0	**299**	492
Total Volume	302	0	34	1	337	28	488	0	0	516	0	0	0	0	0	0	757	357	1	1115	1968
% App. Total	89.6	0	10.1	0.3		5.4	94.6	0	0		0	0	0	0		0	67.9	32	0.1		
PHF	.921	.000	.944	.250	.926	.538	.884	.000	.000	.854	.000	.000	.000	.000	.000	.000	.914	.960	.250	.932	.957
Passenger Vehicles	97.4	0	100	100	97.6	96.4	98.0	0	0	97.9	0	0	0	0	0	0	99.6	98.9	100	99.4	98.7
% Passenger Vehicles																					
Heavy Vehicles	2.6	0	0	0	2.4	3.6	2.0	0	0	2.1	0	0	0	0	0	0	0.4	1.1	0	0.6	1.3
% Heavy Vehicles																					

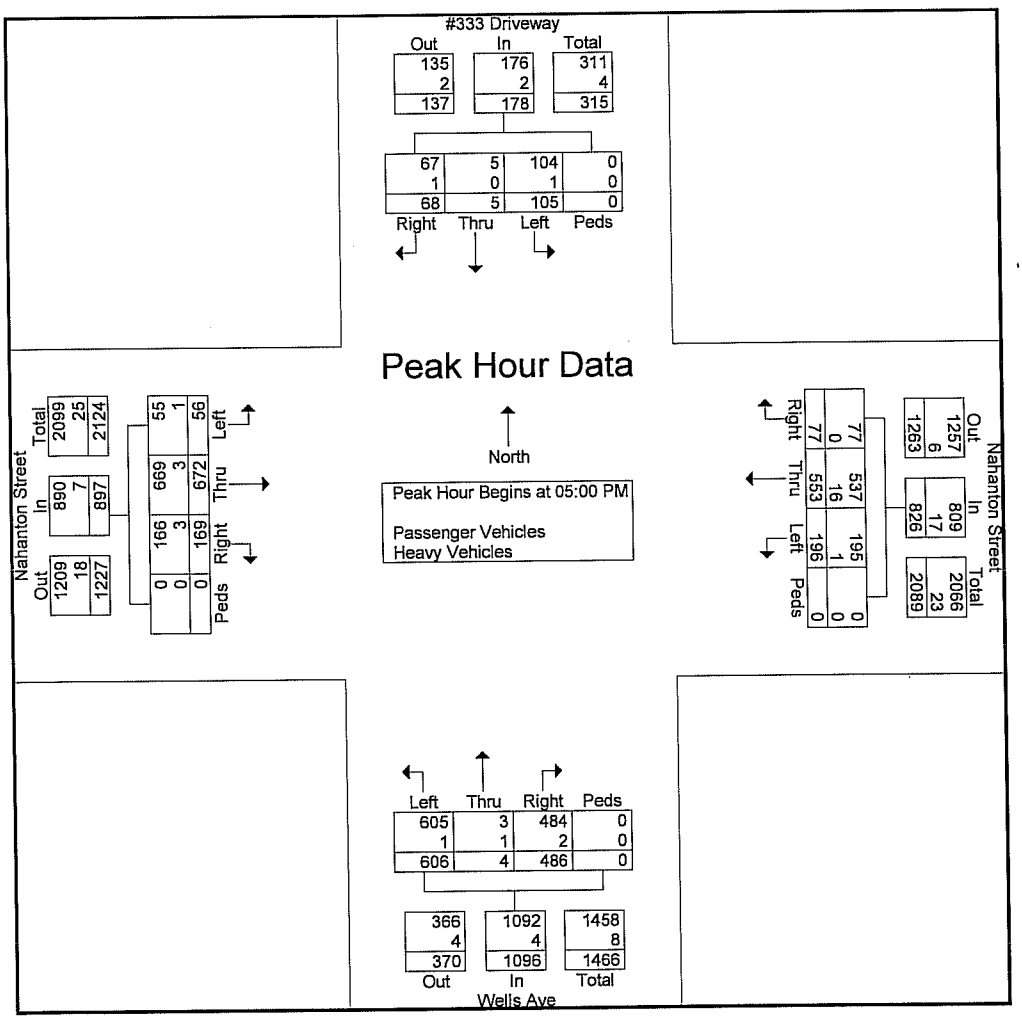
MDM Transportation Consultants, INC.

28 Lord Road, Suite 280
Marlborough, MA 01752

N: #333 Driveway
S: Wells Ave
E/W: Nahanton Street
Newton, MA

File Name : Nahanton Street @ Wells Avenue PM
Site Code : 00770001
Start Date : 5/29/2014
Page No : 2

	#333 Driveway From North					Nahanton Street From East					Wells Ave From South					Nahanton Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	16	1	24	0	41	**21**	142	41	0	204	127	1	165	0	293	39	155	**16**	0	210	748
05:15 PM	**20**	0	22	0	42	20	133	51	0	204	128	**3**	**166**	0	**297**	38	159	16	0	213	756
05:30 PM	16	**3**	**32**	0	**51**	17	130	48	0	195	97	0	147	0	244	36	170	11	0	217	707
05:45 PM	16	1	27	0	44	19	**148**	**56**	0	**223**	**134**	0	128	0	262	**56**	**188**	13	0	**257**	**786**
Total Volume	68	5	105	0	178	77	553	196	0	826	486	4	606	0	1096	169	672	56	0	897	2997
% App. Total	38.2	2.8	59	0		9.3	66.9	23.7	0		44.3	0.4	55.3	0		18.8	74.9	6.2	0		
PHF	.850	.417	.820	.000	.873	.917	.934	.875	.000	.926	.907	.333	.913	.000	.923	.754	.894	.875	.000	.873	.953
Passenger Vehicles																					
% Passenger Vehicles	98.5	100	99.0	0	98.9	100	97.1	99.5	0	97.9	99.6	75.0	99.8	0	99.6	98.2	99.6	98.2	0	99.2	99.0
Heavy Vehicles																					
% Heavy Vehicles	1.5	0	1.0	0	1.1	0	2.9	0.5	0	2.1	0.4	25.0	0.2	0	0.4	1.8	0.4	1.8	0	0.8	1.0



MDM Transportation Consultants, INC.

28 Lord Road, Suite 280
Marlborough, MA 01752

N: #333 Driveway
S: Wells Ave
E/W: Nahanton Street
Newton, MA

File Name : Nahanton Street @ Wells Avenue PM
Site Code : 00770001
Start Date : 5/29/2014
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	#333 Driveway From North					Nahanton Street From East					Wells Ave From South					Nahanton Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	22	1	26	0	49	14	151	50	0	215	89	1	144	0	234	41	155	10	0	206	704
04:15 PM	24	1	25	0	50	17	161	33	0	211	52	1	97	0	150	34	132	3	1	170	581
04:30 PM	11	0	16	0	27	23	145	37	0	205	69	1	138	0	208	46	150	8	0	204	644
04:45 PM	15	1	20	0	36	25	151	56	0	232	79	1	129	1	210	77	146	7	0	230	708
Total	72	3	87	0	162	79	608	176	0	863	289	4	508	1	802	198	583	28	1	810	2637
05:00 PM	16	1	24	0	41	21	142	41	0	204	127	1	165	0	293	39	155	16	0	210	748
05:15 PM	20	0	22	0	42	20	133	51	0	204	128	3	166	0	297	38	159	16	0	213	756
05:30 PM	16	3	32	0	51	17	130	48	0	195	97	0	147	0	244	36	170	11	0	217	707
05:45 PM	16	1	27	0	44	19	148	56	0	223	134	0	128	0	262	56	188	13	0	257	786
Total	68	5	105	0	178	77	553	196	0	826	486	4	606	0	1096	169	672	56	0	897	2997
Grand Total	140	8	192	0	340	156	1161	372	0	1689	775	8	1114	1	1898	367	1255	84	1	1707	5634
Apprch %	41.2	2.4	56.5	0		9.2	68.7	22	0		40.8	0.4	58.7	0.1		21.5	73.5	4.9	0.1		
Total %	2.5	0.1	3.4	0	6	2.8	20.6	6.6	0	30	13.8	0.1	19.8	0	33.7	6.5	22.3	1.5	0	30.3	
Passenger Vehicles																					
% Passenger Vehicles	97.9	100	99	0	98.5	98.7	96	99.5	0	97	99.4	87.5	99.7	100	99.5	98.1	99.2	98.8	100	98.9	98.5
Heavy Vehicles																					
% Heavy Vehicles	2.1	0	1	0	1.5	1.3	4	0.5	0	3	0.6	12.5	0.3	0	0.5	1.9	0.8	1.2	0	1.1	1.5

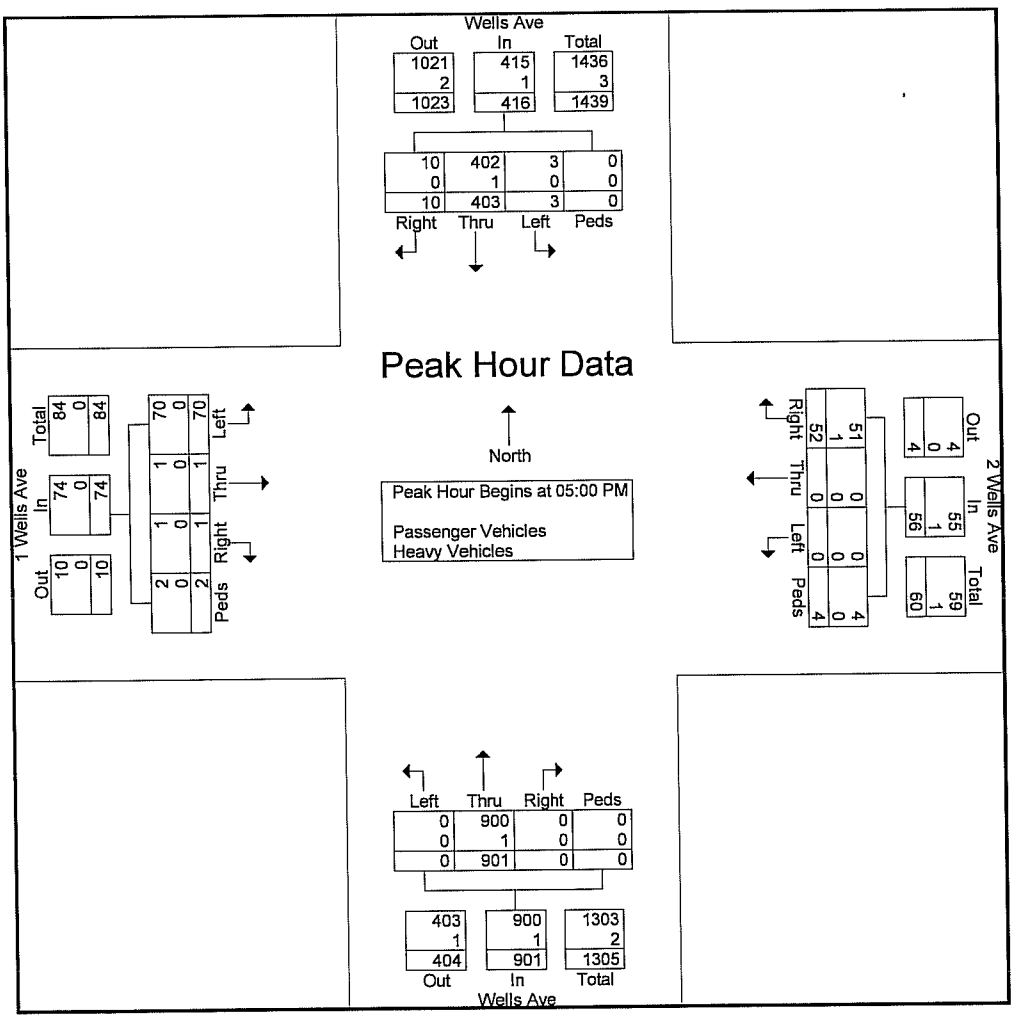
MDM Transportation Consultants, INC.

28 Lord Road, Suite 280
Marlborough, MA 01752

N/S: Wells Avenue
E: 2 Wells Avenue
W: 1 Wells Avenue
Newton, MA

File Name : 1 & 2 Wells Ave @ Wells Ave PM
Site Code : 00770003
Start Date : 5/28/2014
Page No : 2

	Wells Ave From North					2 Wells Ave From East					Wells Ave From South					1 Wells Ave From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	3	**106**	**1**	0	**110**	**31**	0	0	**2**	**33**	0	**253**	0	0	**253**	0	**1**	**29**	**2**	**32**	**428**
05:15 PM	2	90	1	0	93	11	0	0	1	12	0	201	0	0	201	**1**	0	10	0	11	317
05:30 PM	1	104	1	0	106	7	0	0	1	8	0	208	0	0	208	0	0	14	0	14	336
05:45 PM	**4**	103	0	0	107	3	0	0	0	3	0	239	0	0	239	0	0	17	0	17	366
Total Volume	10	403	3	0	416	52	0	0	4	56	0	901	0	0	901	1	1	70	2	74	1447
% App. Total	2.4	96.9	0.7	0		92.9	0	0	7.1		0	100	0	0		1.4	1.4	94.6	2.7		
PHF	.625	.950	.750	.000	.945	.419	.000	.000	.500	.424	.000	.890	.000	.000	.890	.250	.250	.603	.250	.578	.845
Passenger Vehicles																					
% Passenger Vehicles	100	99.8	100	0	99.8	98.1	0	0	100	98.2	0	99.9	0	0	99.9	100	100	100	100	100	99.8
Heavy Vehicles																					
% Heavy Vehicles	0	0.2	0	0	0.2	1.9	0	0	0	1.8	0	0.1	0	0	0.1	0	0	0	0	0	0.2



MDM Transportation Consultants, INC.

28 Lord Road, Suite 280
Marlborough, MA 01752

N/S: Wells Avenue
E: 2 Wells Avenue
W: 1 Wells Avenue
Newton, MA

File Name : 1 & 2 Wells Ave @ Wells Ave PM
Site Code : 00770003
Start Date : 5/28/2014
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	Wells Ave From North					2 Wells Ave From East					Wells Ave From South					1 Wells Ave From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	1	69	3	0	73	4	0	0	0	4	0	216	1	0	217	0	0	9	0	9	303
04:15 PM	6	81	0	0	87	10	0	0	0	10	1	143	2	0	146	0	0	22	1	23	266
04:30 PM	2	71	4	0	77	35	0	1	3	39	0	162	0	0	162	1	0	7	1	9	287
04:45 PM	1	99	2	0	102	15	0	1	2	18	1	155	1	0	157	0	0	5	0	5	282
Total	10	320	9	0	339	64	0	2	5	71	2	676	4	0	682	1	0	43	2	46	1138
05:00 PM	3	106	1	0	110	31	0	0	2	33	0	253	0	0	253	0	1	29	2	32	428
05:15 PM	2	90	1	0	93	11	0	0	1	12	0	201	0	0	201	1	0	10	0	11	317
05:30 PM	1	104	1	0	106	7	0	0	1	8	0	208	0	0	208	0	0	14	0	14	336
05:45 PM	4	103	0	0	107	3	0	0	0	3	0	239	0	0	239	0	0	17	0	17	366
Total	10	403	3	0	416	52	0	0	4	56	0	901	0	0	901	1	1	70	2	74	1447
Grand Total	20	723	12	0	755	116	0	2	9	127	2	1577	4	0	1583	2	1	113	4	120	2585
Apprch %	2.6	95.8	1.6	0		91.3	0	1.6	7.1		0.1	99.6	0.3	0		1.7	0.8	94.2	3.3		
Total %	0.8	28	0.5	0	29.2	4.5	0	0.1	0.3	4.9	0.1	61	0.2	0	61.2	0.1	0	4.4	0.2	4.6	
Passenger Vehicles																					
% Passenger Vehicles	100	99.3	100	0	99.3	98.3	0	50	100	97.6	100	99.6	100	0	99.6	100	100	100	100	100	99.5
Heavy Vehicles																					
% Heavy Vehicles	0	0.7	0	0	0.7	1.7	0	50	0	2.4	0	0.4	0	0	0.4	0	0	0	0	0	0.5

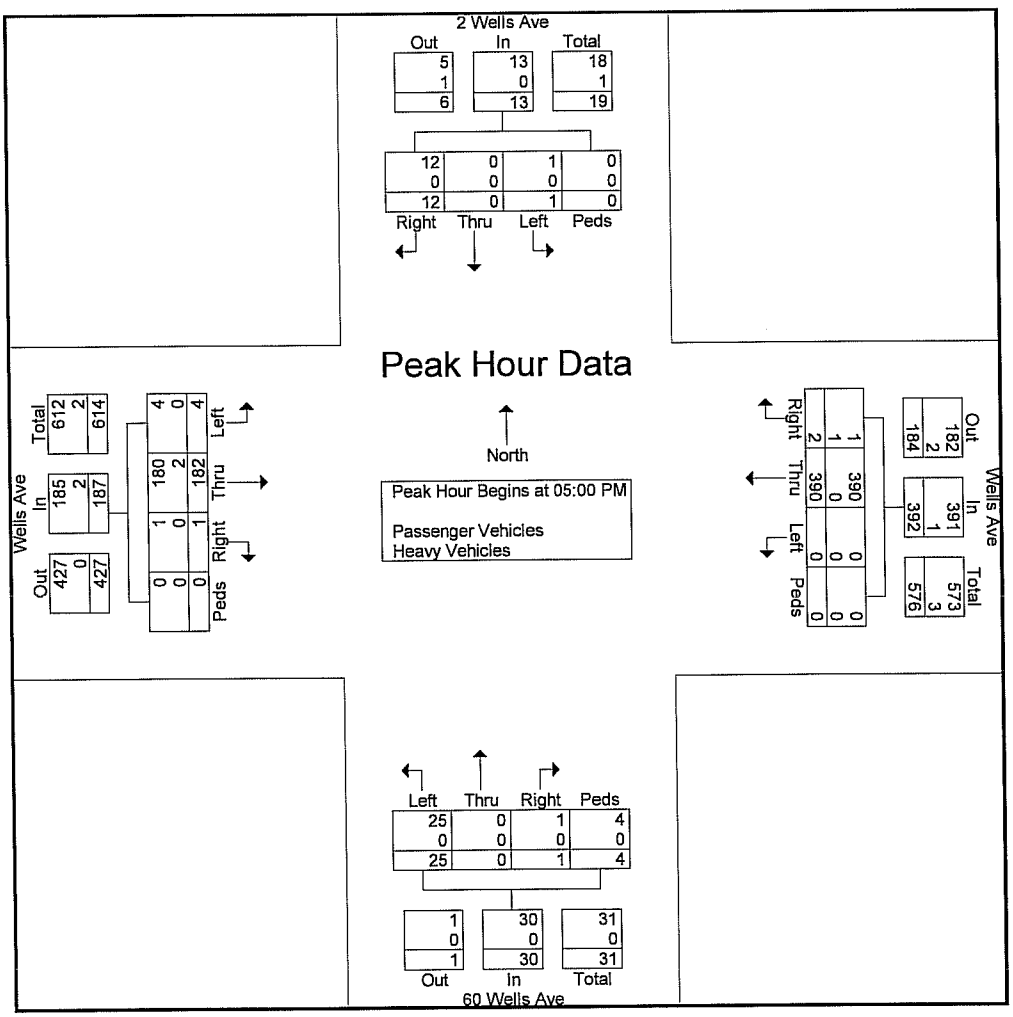
MDM Transportation Consultants, INC.

28 Lord Road, Suite 280
Marlborough, MA 01752

N: 2 Wells Ave
S: 60 Wells Ave
E/W: Wells Ave
Newton, MA

File Name : 60 Wells Ave @ wells ave PM
Site Code : 00770002
Start Date : 5/28/2014
Page No : 2

	2 Wells Ave From North					Wells Ave From East					60 Wells Ave From South					Wells Ave From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	3	0	**1**	0	**4**	**2**	89	0	0	91	0	0	3	1	4	0	25	**2**	0	27	126
05:15 PM	**4**	0	0	0	4	0	66	0	0	66	0	0	7	0	7	0	39	2	0	41	118
05:30 PM	3	0	0	0	3	0	108	0	0	108	0	0	**10**	**2**	**12**	**1**	**63**	0	0	**64**	187
05:45 PM	2	0	0	0	2	0	**127**	0	0	**127**	**1**	0	5	1	7	0	55	0	0	55	**191**
Total Volume	12	0	1	0	13	2	390	0	0	392	1	0	25	4	30	1	182	4	0	187	622
% App. Total	92.3	0	7.7	0		0.5	99.5	0	0		3.3	0	83.3	13.3		0.5	97.3	2.1	0		
PHF	.750	.000	.250	.000	.813	.250	.768	.000	.000	.772	.250	.000	.625	.500	.625	.250	.722	.500	.000	.730	.814
Passenger Vehicles																					
% Passenger Vehicles	100	0	100	0	100	50.0	100	0	0	99.7	100	0	100	100	100	100	98.9	100	0	98.9	99.5
Heavy Vehicles																					
% Heavy Vehicles	0	0	0	0	0	50.0	0	0	0	0.3	0	0	0	0	0	0	1.1	0	0	1.1	0.5



MDM Transportation Consultants, INC.

28 Lord Road, Suite 280
Marlborough, MA 01752

N: 2 Wells Ave
S: 60 Wells Ave
E/W: Wells Ave
Newton, MA

File Name : 60 Wells Ave @ wells ave PM
Site Code : 00770002
Start Date : 5/28/2014
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	2 Wells Ave From North					Wells Ave From East					60 Wells Ave From South					Wells Ave From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	2	0	1	0	3	0	60	0	0	60	1	1	0	0	2	0	18	0	0	18	83
04:15 PM	0	0	0	0	0	2	49	0	0	51	0	0	3	0	3	0	20	0	0	20	74
04:30 PM	2	0	0	2	4	0	56	0	0	56	0	0	0	0	0	0	19	0	1	20	80
04:45 PM	4	0	0	1	5	0	76	0	0	76	0	0	2	1	3	0	45	1	0	46	130
Total	8	0	1	3	12	2	241	0	0	243	1	1	5	1	8	0	102	1	1	104	367
05:00 PM	3	0	1	0	4	2	89	0	0	91	0	0	3	1	4	0	25	2	0	27	126
05:15 PM	4	0	0	0	4	0	66	0	0	66	0	0	7	0	7	0	39	2	0	41	118
05:30 PM	3	0	0	0	3	0	108	0	0	108	0	0	10	2	12	1	63	0	0	64	187
05:45 PM	2	0	0	0	2	0	127	0	0	127	1	0	5	1	7	0	55	0	0	55	191
Total	12	0	1	0	13	2	390	0	0	392	1	0	25	4	30	1	182	4	0	187	622
Grand Total	20	0	2	3	25	4	631	0	0	635	2	1	30	5	38	1	284	5	1	291	989
Apprch %	80	0	8	12		0.6	99.4	0	0		5.3	2.6	78.9	13.2		0.3	97.6	1.7	0.3		
Total %	2	0	0.2	0.3	2.5	0.4	63.8	0	0	64.2	0.2	0.1	3	0.5	3.8	0.1	28.7	0.5	0.1	29.4	
Passenger Vehicles																					
% Passenger Vehicles	95	0	100	100	96	25	98.9	0	0	98.4	50	0	100	100	94.7	100	98.9	100	100	99	98.4
Heavy Vehicles																					
% Heavy Vehicles	5	0	0	0	4	75	1.1	0	0	1.6	50	100	0	0	5.3	0	1.1	0	0	1	1.6

□ Seasonal Adjustment Calculations

SECTION I - CONTINUOUS COUNTING STATION MONTHLY AVERAGE DAILY TRAFFIC

STATION 691 - QUINCY - RTE.I-93 - NORTH OF RTE.28

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR	May Adjustment to Year	June Adjustment to Year	
09	173,000	175,000	177,697	194,334	196,834	199,477	196,208	194,125	190,885	186,291	176,509	174,000	186,197	0.95	0.93	
	-2%	0%	4%	-1%	-1%	0%	-1%	-1%	1%	1%	3%	4%	0%			
11	166,541	175,019	190,696	192,155	193,034	197,594	193,303	191,197	193,140	188,694	187,378	187,895	188,054	0.97	0.95	
	-2%	6%	0%	0%	1%	-1%	-1%	3%	-1%	-2%	0%	-3%	0%			
12	164,007	185,226	190,193	192,337	194,846	195,145	191,419	196,457	190,548	185,609	186,469	181,669	187,827	0.96	0.96	
	9%	-1%	-5%	-3%	-1%	0%	0%	1%	0%	2%	-1%	-3%	0%			
														0.97	0.96	
13	179,468	182,613	180,861	187,402	193,159	194,612	192,130	197,467	191,411	*190,128*	185,233	176,163	187,554	0.96	0.95	Sub Average
												Growth	**0.1%**			

STATION 703 - ABINGTON - RTE.123 - AT THE BROCKTON C.L.

YR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR			
09	12,251	13,199	13,301	13,860	13,231	13,817	13,354	*13,212*	14,037	13,712	13,161	13,327	13,372	1.01	0.97	
	0%	0%	2%	1%	5%	1%	0%	1%	-1%	0%	2%	-1%	1%			
10	12,196	13,134	13,560	14,051	13,835	13,900	13,353	13,338	13,928	13,733	13,414	*13,225*	13,472	0.97	0.97	
	-5%	-4%	-1%	-4%	-3%	-2%	-3%	-2%	-1%	-2%	0%	1%	-2%			
11	11,629	12,651	13,451	13,518	13,476	13,655	12,907	*13,088*	13,778	13,495	13,434	13,377	13,205	0.98	0.97	
	5%	4%	0%	-1%	0%	-1%	-6%	0%	-2%	1%	0%	-2%	0%			
12	12,181	13,151	13,410	13,379	13,452	13,479	12,127	*13,103*	13,441	13,679	13,452	13,136	13,166	0.98	0.98	
	1%	-6%	-4%	2%	0%	-1%	7%	0%	0%	0%	-2%	0%	0%			
														0.98	0.98	
13	12,347	12,336	12,870	13,591	13,426	13,372	12,964	*13,064*	13,462	13,726	13,217	13,081	13,121	0.98	0.97	Sub Average
												Growth	**-0.5%**			

STATION 4165 - I-95/ ROUTE 128 SOUTH OF I-90

YR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR			
12	130,033	133,659	138,451	142,034	158,583	148,787	138,599	*144,999*	141,340	146,271	140,898	128,666	141,027	0.89	0.95	

STATION 6255 - WEYMOUTH - RTE.3 - NORTH OF RTE.18

YR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR			
09	120,200	123,983	124,807	134,354	135,239	143,114	143,685	144,937	140,079	137,288	138,708	136,428	135,235	1.00	0.94	
	4%	3%	6%	-1%	0%	-1%	-1%	-2%	-3%	-3%	-1%	-7%	-1%			
10	125,304	127,637	132,301	133,124	135,880	141,633	141,706	142,327	135,767	133,473	137,526	127,100	134,482	0.99	0.95	
	-3%	-1%	-1%	-6%	0%	0%	-1%	0%	-1%	-2%	-3%	-1%	-2%			
12	118,936	125,494	129,712	116,911	136,235	140,277	139,048	142,140	132,674	128,923	129,593	125,409	130,446	0.96	0.93	
	4%	-7%	-4%	13%	0%	-1%	1%	0%	1%	4%	-1%	-1%	1%			
														0.96	0.94	
13	123,783	116,501	124,813	131,533	136,712	138,977	140,057	141,851	133,978	134,144	128,712	124,607	131,306	0.98	0.94	Sub Average
												Growth	**-0.5%**			

Average Adjusment Factors	0.95	0.95
Average Yearly Growth Calculated	-0.29%	
Yearly Growth Factor Used	0.5%	

ITALICS = ESTIMATED DATA
MADT

□ Speed Data

MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA 01752
508-303-0370
www.mdmtrans.com

Wells Avenue
Between Nahanton Street and #1 Wells Avenue
Newton, MA

Site Code: 00000770
Station ID:
Latitude: 0' 0.0000 Undefined

770 Wells Avenue Speed 5-29-2014

Northbound

Start Time	1 10	11 12	13 14	15 16	17 18	19 20	21 22	23 24	25 26	27 28	29 30	31 32	33 34	35 36	37 38	39 40	41 42	43 44	45 46	47 48	49 50	51 52	53 54	55 56	57 58	59 60	61 62	63 64	65 66	67 999	Total
05/29/ 14	0	0	0	0	0	1	0	0	0	0	1	3	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
01:00	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
02:00	0	0	0	0	0	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
03:00	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
04:00	0	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
05:00	0	0	0	0	0	1	0	0	0	0	0	2	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
06:00	0	0	0	0	0	0	1	0	0	2	5	7	3	4	7	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	33
07:00	0	0	0	0	1	0	1	3	3	11	25	39	24	20	10	7	2	1	0	1	0	0	0	0	0	0	0	0	0	0	148
08:00	1	0	0	0	0	0	1	4	10	14	33	34	31	18	15	7	1	0	1	0	0	0	0	0	0	0	0	0	0	0	170
09:00	1	0	0	0	0	0	0	3	13	32	29	53	42	16	6	4	3	2	0	0	0	0	0	0	0	0	0	0	0	0	204
10:00	0	0	0	0	0	1	2	13	12	28	39	63	36	21	12	6	1	1	1	0	0	0	0	0	0	0	0	0	0	0	236
11:00	0	0	0	0	0	2	8	9	26	52	86	73	50	35	14	9	2	1	1	0	0	0	0	0	0	0	0	0	0	0	368
12 PM	2	0	0	0	1	3	8	19	37	49	102	86	50	44	13	5	1	1	0	1	0	0	0	0	0	0	0	0	0	0	422
13:00	0	0	0	0	0	1	7	9	19	31	66	50	44	24	11	8	0	0	0	1	0	0	0	0	0	0	0	0	0	0	271
14:00	0	0	0	0	0	2	12	18	38	54	56	79	46	29	7	10	1	0	0	0	0	0	0	0	0	0	0	0	0	0	352
15:00	13	5	7	11	7	19	39	43	42	65	80	61	60	35	14	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	506
16:00	10	11	9	14	7	11	14	26	65	86	130	132	78	52	22	6	3	0	0	0	0	0	0	0	0	0	0	0	0	0	676
17:00	18	27	42	56	98	77	70	68	87	104	135	95	44	24	11	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	963
18:00	1	0	0	0	1	7	25	33	66	114	160	137	103	42	20	7	2	0	0	0	0	0	0	0	0	0	0	0	0	0	738
19:00	1	0	0	0	0	2	8	8	30	42	58	101	62	40	20	6	4	1	1	0	0	0	0	0	0	0	0	0	0	0	384
20:00	1	0	0	0	0	3	8	10	28	48	79	66	41	29	9	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	325
21:00	0	0	0	0	1	0	2	12	17	35	46	33	16	10	4	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	179
22:00	0	0	0	0	0	1	2	5	21	21	21	24	16	6	15	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	134
23:00	0	0	0	0	0	1	1	1	2	2	9	6	5	5	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	37
Total	48	43	58	83	116	133	209	284	538	791	1162	1145	754	459	214	94	26	9	4	3	0	0	0	0	0	0	0	0	0	0	6173
Gr. Total	48	43	58	83	116	133	209	284	538	791	1162	1145	754	459	214	94	26	9	4	3	0	0	0	0	0	0	0	0	0	0	6173

Stats

15th Percentile :	23 MPH
50th Percentile :	29 MPH
85th Percentile :	33 MPH
95th Percentile :	36 MPH
Mean Speed(Average) :	29 MPH
Number of Vehicles > 30 MPH :	2708
Percent of Vehicles > 30 MPH :	43.9%

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Wells Avenue
Between Nahanton Street and #1 Wells Avenue
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Site Code: 00000770
Station ID:
Latitude: 0' 0.0000 Undefined

770 Wells Avenue Speed 5-29-2014

Southbound

Start Time	1 10	11 12	13 14	15 16	17 18	19 20	21 22	23 24	25 26	27 28	29 30	31 32	33 34	35 36	37 38	39 40	41 42	43 44	45 46	47 48	49 50	51 52	53 54	55 56	57 58	59 60	61 62	63 64	65 66	67 999	Total
05/29/ 14	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
01:00	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	4
02:00	0	0	0	0	0	0	0	0	0	0	0	1	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
03:00	0	0	0	0	0	0	0	0	0	2	0	0	1	1	1	2	1	0	1	0	0	0	0	1	0	0	0	0	1	0	11
04:00	0	0	0	0	0	0	2	0	0	2	4	4	4	4	6	2	1	4	0	2	1	0	0	0	0	0	0	0	0	0	36
05:00	0	0	0	0	0	0	0	3	0	0	3	5	16	14	16	5	4	3	2	1	0	0	0	0	0	0	0	0	0	0	72
06:00	0	0	0	0	0	0	0	1	0	4	17	30	38	60	31	14	9	4	1	0	0	0	0	0	0	0	0	0	0	0	209
07:00	2	0	1	0	2	4	6	17	32	57	78	114	113	67	41	33	12	8	2	0	0	0	0	0	0	0	0	0	0	0	589
08:00	1	0	1	2	6	8	24	44	57	136	182	189	149	108	35	17	4	1	1	0	0	0	0	0	0	0	0	0	0	0	965
09:00	3	0	0	0	0	1	8	23	39	72	103	132	154	100	58	24	8	1	3	2	0	0	0	0	0	0	0	0	0	0	731
10:00	2	1	0	0	1	3	4	13	11	28	42	70	68	41	26	15	10	4	4	1	0	0	0	0	0	0	0	0	0	0	344
11:00	0	0	1	0	0	2	10	7	21	21	41	43	47	35	27	11	2	1	1	2	0	0	0	0	0	0	0	0	0	0	272
12 PM	2	1	0	0	2	3	13	24	29	31	60	64	64	38	16	8	5	1	0	0	0	0	0	0	0	0	0	0	0	0	361
13:00	0	0	0	0	1	2	3	12	18	37	56	89	74	36	28	17	2	2	1	0	0	0	0	0	0	0	0	0	0	0	378
14:00	0	0	1	0	1	3	12	11	27	40	38	54	52	32	14	10	2	2	0	0	0	0	0	0	0	0	0	0	0	0	299
15:00	1	0	1	4	6	2	9	25	30	47	87	67	53	42	26	6	2	4	0	0	0	0	0	0	0	0	0	0	0	0	412
16:00	0	0	0	0	1	5	5	10	18	39	57	77	56	42	16	8	2	1	0	0	0	0	0	0	0	0	0	0	0	0	337
17:00	3	0	0	0	0	1	9	14	26	45	65	63	54	33	10	2	3	1	0	0	0	0	0	0	0	0	0	0	0	0	329
18:00	3	0	0	0	0	0	3	4	15	31	44	73	61	46	25	9	10	2	1	0	0	0	0	0	0	0	0	0	0	0	327
19:00	1	0	0	0	0	1	3	1	9	17	34	50	52	37	18	12	1	2	1	0	0	1	0	0	0	0	0	0	0	0	240
20:00	1	0	0	1	1	0	0	3	7	15	33	35	32	27	16	5	2	2	0	0	0	0	0	0	0	0	0	0	0	0	180
21:00	0	0	0	0	0	0	0	0	1	7	15	15	13	7	4	2	0	1	0	1	0	0	0	0	0	0	0	0	0	0	66
22:00	0	0	0	0	0	0	0	0	1	3	2	7	4	6	4	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	31
23:00	0	0	0	0	0	0	0	0	0	0	2	1	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	6
Total	19	2	5	7	21	35	111	212	341	634	963	1186	1108	777	419	205	81	46	19	9	1	1	0	1	0	0	0	1	1	0	6205
Gr. Total	19	2	5	7	21	35	111	212	341	634	963	1186	1108	777	419	205	81	46	19	9	1	1	0	1	0	0	0	1	1	0	6205

Stats

15th Percentile :	26 MPH
50th Percentile :	31 MPH
85th Percentile :	35 MPH
95th Percentile :	38 MPH
Mean Speed(Average) :	32 MPH
Number of Vehicles > 30 MPH :	3855
Percent of Vehicles > 30 MPH :	62.1%

□ Intersection Crash Data

massDOT | **MassDOT Crash Report for Newton for the years 2009-2012**

Crash Number	City/Town Name	Crash Date	Crash Time	Crash Severity	Number of Vehicles	Total Nonfatal Injuries	Total Fatal Injuries	Manner of Collision	Vehicle Action Prior to Crash	Vehicle Travel Directions	Most Harmful Events	Vehicle Configuration	Road Surface Condition	Ambient Light	Weather Condition	At Roadway Intersection	Distance from Nearest Roadway Intersection	Distance from Nearest Milemarker	Distance from Nearest Exit	Distance from Nearest Landmark	Non Motorist Type
2521805	NEWTON	10-Sep-2009	5:12 PM	Property damage only (none injured)	2	0	0	Rear-end	V1: Travelling straight ahead / V2:Travelling straight ahead	V1:Eastbound / V2:Not reported	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	Dry	Daylight	Clear/Unknown		NAHANTON STREET				
2655334	NEWTON	30-Jul-2009	4:12 PM	Property damage only (none injured)	2	0	0	Rear-end	V1: Slowing or stopped in traffic / V2:Travelling straight ahead	V1:Westbound / V2:Westbound	V1: Not reported / V2: Not reported	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	Dry	Daylight	Clear	NAHANTON STREET / WELLS AVENUE					
2525990	NEWTON	29-Sep-2009	5:05 PM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	V1: Travelling straight ahead / V2:Travelling straight ahead	V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2:Passenger car	Dry	Daylight	Clear	NAHANTON STREET / WELLS AVENUE					
2434595	NEWTON	17-Feb-2009	9:40 PM	Not Reported	1	0	0	Unknown	V1: Parked	V1:Not reported	V1: Unknown	V1: Passenger car	Dry	Dark - lighted roadway	Clear		NAHANTON STREET					
2475721	NEWTON	03-Jun-2009	5:08 PM	Non-fatal injury	2	2	0	Rear-end	V1: Travelling straight ahead / V2:Travelling straight ahead	V1:Southbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2:Passenger car	Dry	Daylight	Clear		NAHANTON STREET				
2478416	NEWTON	09-Jun-2009	11:58 AM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	V1: Parked / V2:Travelling straight ahead	V1:Southbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with parked motor vehicle	V1: Passenger car / V2:Passenger car	Wet	Daylight	Rain		NAHANTON STREET				
2481360	NEWTON	17-Jun-2009	2:36 PM	Property damage only (none injured)	3	0	0	Rear-end	V1: Travelling straight ahead / V2:Parked / V3:Parked	V1:Northbound / V2:Northbound / V3:Not reported	V1: Collision with parked motor vehicle / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic	V1: Passenger car / V2:Passenger car / V3:Passenger car	Dry	Daylight	Clear/Clear		NAHANTON STREET				
2470155	NEWTON	22-May-2009	6:19 PM	Non-fatal injury	1	1	0	Single vehicle crash	V1: Travelling straight ahead	V1:Northbound	V1: Collision with tree	V1: Passenger car	Dry	Daylight	Clear	NAHANTON STREET / WINCHESTER STREET					
2483060	NEWTON	24-Jun-2009	6:31 PM	Property damage only (none injured)	2	0	0	Angle	V1: Travelling straight ahead / V2:Turning left	V1:Westbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	Wet	Daylight	Rain	NAHANTON STREET / WINCHESTER STREET					
2477708	NEWTON	28-May-2009	3:31 PM	Non-fatal injury	2	4	0	Head-on	V1: Leaving traffic lane / V2:Travelling straight ahead	V1:Northbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	Dry	Daylight	Clear/Clear		NAHANTON STREET				
2561249	NEWTON	29-Jan-2010	3:19 PM	Non-fatal injury	4	3	0	Angle	V1: Travelling straight ahead / V2:Travelling straight ahead / V3:Slowing or stopped in traffic / V4:Travelling straight ahead	V1:Northbound / V2:Southbound / V3:Eastbound / 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	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V3:Light truck(van, mini-van, panel, pickup, sport	Dry	Daylight	Clear/Clear	NAHANTON STREET / WELLS AVENUE					
2653730	NEWTON	11-Oct-2010	6:19 AM	Non-fatal injury	2	2	0	Angle	V1: Turning left / V2:Travelling straight ahead	V1:Eastbound / V2:Westbound	V1: Other / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	Dry	Daylight	Clear/Clear	NAHANTON ST / WELLS AVE					
2612655	NEWTON	23-Jun-2010	7:57 PM	Property damage only (none injured)	1	0	0	Angle	V1: Parked	V1:Unknown	V1: Collision with unknown movable object	V1: Passenger car	Dry	Daylight	Clear		NAHANTON ST				
2656047	NEWTON	26-Oct-2010	1:37 PM	Property damage only (none injured)	2	0	0	Angle	V1: Parked / V2:Backing	V1:Not reported / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with parked motor vehicle	V1: Passenger car / V2:Passenger car	Dry	Daylight	Clear		NAHANTON ST				
2595984	NEWTON	05-May-2010	4:36 PM	Unknown	1	0	0	Single vehicle crash	V1: Travelling straight ahead	V1:Northbound	V1: Collision with light pole or other post/support	V1: Tractor/semi-trailer	Dry	Dusk	Clear		NAHANTON STREET				
2677451	NEWTON	29-Dec-2010	10:29 AM	Property damage only (none injured)	1	0	0	Single vehicle crash	V1: Turning left	V1:Eastbound	V1: Collision with tree	V1: Passenger car	Dry	Dawn	Clear/Clear	NAHANTON ST / WINCHESTER ST					
2649139	NEWTON	29-Sep-2010	9:05 AM	Property damage only (none injured)	1	0	0	Sideswipe, same direction	V1: Travelling straight ahead	V1:Eastbound	V1: Collision with utility pole	V1: Passenger car	Dry	Daylight	Clear/Clear	NAHANTON ST / WINCHESTER ST					
2562876	NEWTON	03-Feb-2010	5:28 AM	Property damage only (none injured)	1	0	0	Single vehicle crash	V1: Travelling straight ahead	V1:Southbound	V1: Collision with curb	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	Snow	Dark - roadway not lighted	Snow	WINCHESTER STREET / NAHANTON STREET					
2713739	NEWTON	04-Mar-2011	8:10 AM	Property damage only (none injured)	2	0	0	Angle	V1: Turning left / V2:Travelling straight ahead	V1:Southbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	Dry	Daylight	Clear	NAHANTON ST. / WELLS AVE					
2723439	NEWTON	11-May-2011	5:49 PM	Non-fatal injury	1	1	0	Not reported	V1: Backing	V1:Southbound	V1: Collision with pedestrian	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	Not reported	Not reported	Not Reported		NAHANTON ST				P3:Pedestrian
2736959	NEWTON	29-Jun-2011	00:00 AM	Property damage only (none injured)	1	0	0	Not reported	V1: Travelling straight ahead	V1:Northbound	V1: Collision with tree	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	Not reported	Not reported	Not Reported		NAHANTON ST				
2801265	NEWTON	14-Nov-2011	8:01 PM	Not Reported	2	0	0	Head-on	V1: Parked / V2:Unknown	V1:Unknown / V2:Unknown	V1: Collision with parked motor vehicle / V2: Collision with parked motor vehicle	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	Dry	Unknown	Clear		NAHANTON ST				
2669802	NEWTON	08-Feb-2011	2:32 PM	Not Reported	2	0	0	Sideswipe, opposite direction	V1: Travelling straight ahead / V2:Travelling straight ahead	V1:Northbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	Wet	Daylight	Sleet, hail (freezing rain or drizzle)/Sleet, hail (freezing rain or drizzle)	NAHANTON ST / WINCHESTER ST					
2711213	NEWTON	01-Apr-2011	4:38 AM	Property damage only (none injured)	1	0	0	Single vehicle crash	V1: Travelling straight ahead	V1:Southbound	V1: Collision with tree	V1: Passenger car	Snow	Dark - lighted roadway	Snow/Sleet, hail (freezing rain or drizzle)		WINCHESTER STREET / NAHANTON STREET				
3219344	NEWTON	26-Jul-2012	8:02 AM	Property damage only (none injured)	2	0	0	Angle	V1: Travelling straight ahead / V2:Turning left	V1:Northbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	Dry	Daylight	Cloudy	NAHANTON ST / WELLS AVE					
3321953	NEWTON	08-Dec-2012	5:26 PM	Property damage only (none injured)	2	0	0	Angle	V1: Turning left / V2:Travelling straight ahead	V1:Westbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2:Passenger car	Wet	Dark - lighted roadway	Cloudy	NAHANTON ST / WELLS AVE					

Moving Massachusetts Forward. massDOT Highway

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Newton, MA COUNT DATE : May-14

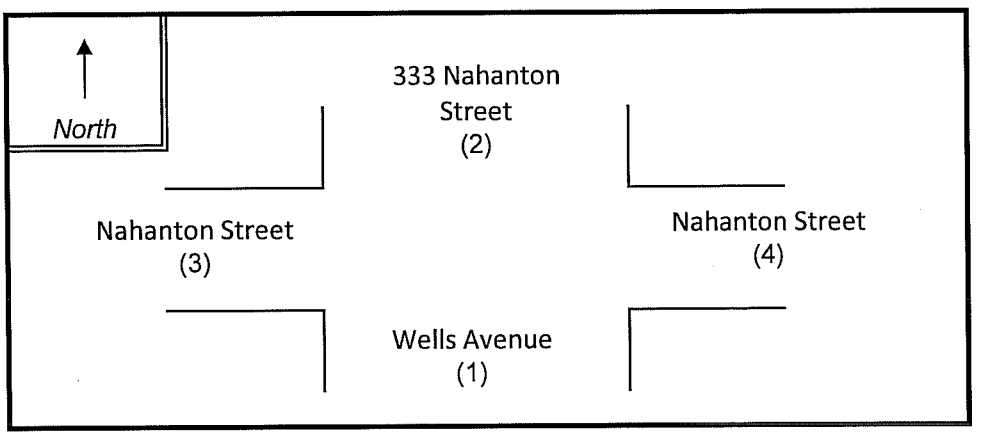
DISTRICT : 6 UNSIGNALIZED : [ ] SIGNALIZED : [X]

~ INTERSECTION DATA ~

MAJOR STREET : Nahanton Street

MINOR STREET(S) : Wells Avenue

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	NB	SB	EB	WB		
PEAK HOURLY VOLUMES (AM/PM) :	1,096	178	897	826		2,997

" K " FACTOR : **0.104**

INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **28,817**

TOTAL # OF CRASHES : 18

OF YEARS : 4

AVERAGE # OF CRASHES PER YEAR (**A**) : **4.50**

CRASH RATE CALCULATION : **0.43**

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

Comments : MassDOT District 6 Avg: Signalized = 0.76, Unsignalized = 0.58

Project Title & Date: #770 - Newton

Moving Massachusetts Forward. massDOT Highway

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Newton, MA COUNT DATE : May-14

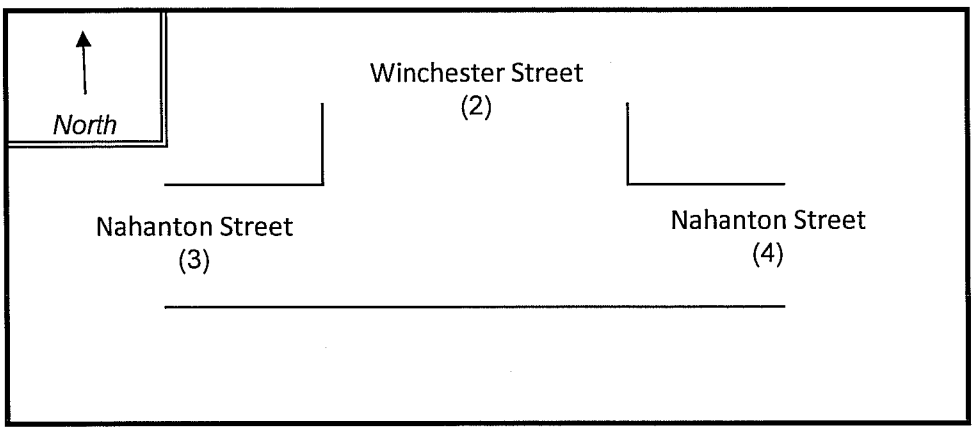
DISTRICT : 6 UNSIGNALIZED : X SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Nahanton Street

MINOR STREET(S) : Winchester Street

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	NB	SB	EB	WB		
PEAK HOURLY VOLUMES (AM/PM) :		350	1,263	538		2,151

" K " FACTOR : 0.104

INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : 20,683

TOTAL # OF CRASHES : 8

OF YEARS : 4

AVERAGE # OF CRASHES PER YEAR (**A**) : 2.00

CRASH RATE CALCULATION : 0.26

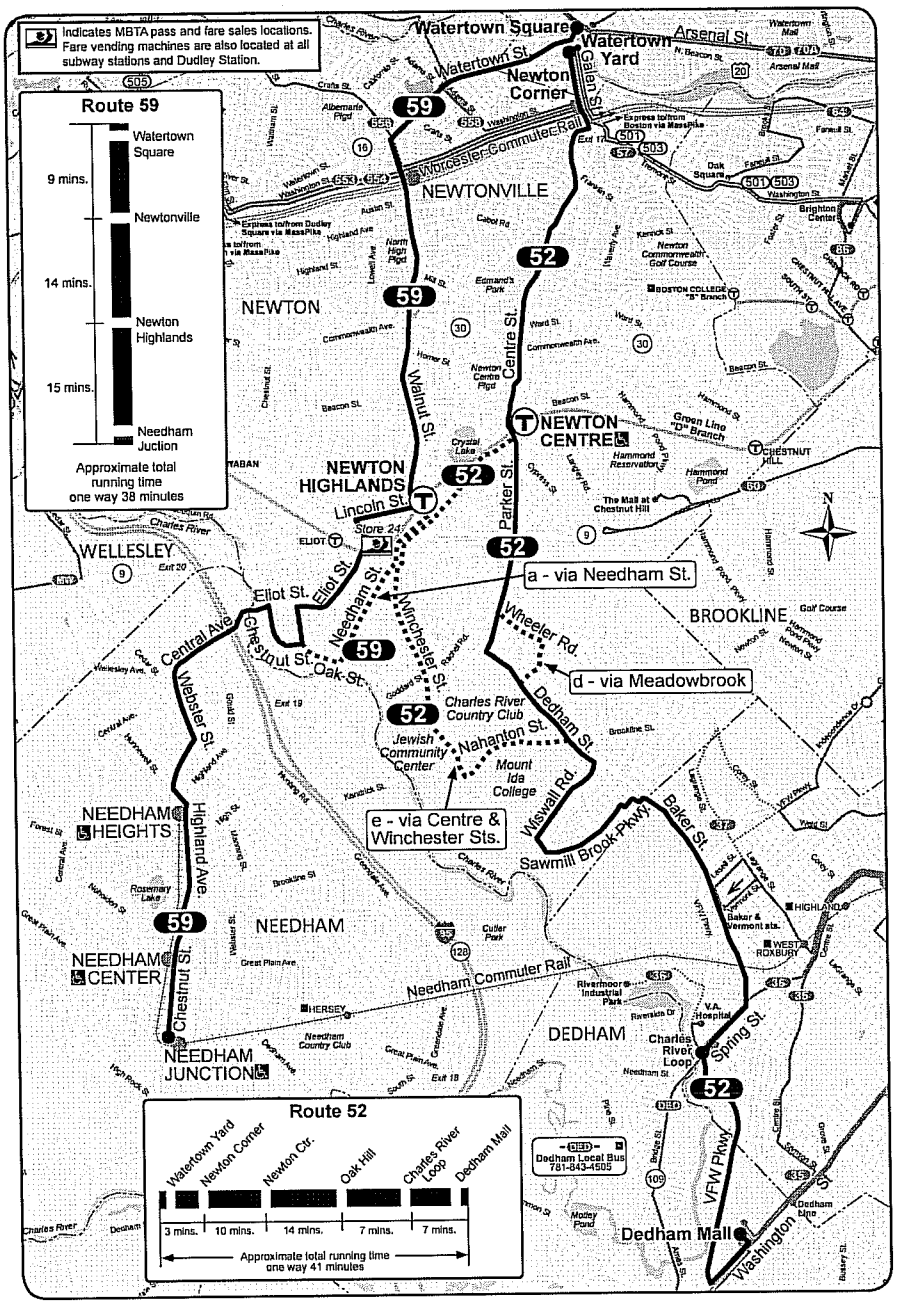
RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

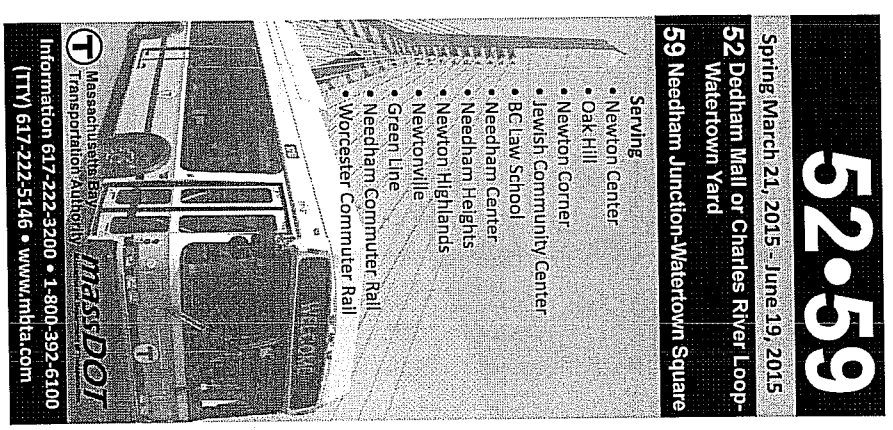
Comments : MassDOT District 6 Avg: Signalized = 0.76, Unsignalized = 0.58

Project Title & Date: #770 - Newton

□ Public Transportation Information

Route 52 Dedham Mall or Charles River Loop - Watertown Yard
Route 59 Needham Junction - Watertown Square





52 Weekday

Inbound				Outbound			
Leave Dedham Mall	Lv/Arrive Charles River	Arrive Newton Center	Arrive Watertown Yard	Leave Watertown Yard	Arrive Newton Center	Arrive Charles River	Arrive Dedham Mall
.....	6:15A	6:33A	6:43A	d 7:00A	7:10A	7:31A	.....
.....	6:45	7:03	7:13	d 7:25	7:37	7:59	.....
.....	bs 7:05	7:26	.....	d 8:05	8:19	8:42	8:46A
.....	7:20	7:42	7:56	e 8:30	8:44	9:08	.....
.....	d 7:45	8:07	8:19	9:00	9:09	9:26	9:32
.....	d 8:15	8:37	8:49	9:45	9:54	10:10	10:16
9:00	9:13	9:27	9:35	e11:15	11:24	11:45	11:49
e10:30	10:36	10:56	11:06				
				12:45P	12:53P	1:08P	1:14P
12:00N	12:11P	12:30P	12:39P	e 2:15	2:24	2:46	2:50
d 1:30P	1:34	1:53	2:11	ds 2:47	3:00	3:23	.....
d 2:20	2:24	2:43	3:00	e 3:00	3:12	3:33	3:41
d 3:05	3:09	3:28	3:43	3:50	4:01	4:21	4:29
e 3:50	3:54	4:16	4:29	e 4:35	4:47	5:08	5:16
4:25	4:32	4:48	5:02	5:10	5:25	5:47	5:52
e 4:45	4:49	5:12	5:25	e 5:45	5:57	6:18	6:26
5:30	5:39	5:55	6:09	6:20	6:32	6:52	6:59
e 6:10	6:14	6:37	6:50	6:55	7:05	7:23	.....
e 6:45	6:49	7:12	7:22	7:30	7:39	7:57	.....

b - To Newton Corner
d - Via Meadowbrook & Wheeler Roads
e - Via Centre & Winchester Streets
s - Does NOT run during school vacation

No Route 52 service on Saturday or Sunday

Route 52
Dedham Mall or Charles River Loop-Watertown Yard

59 Weekday

Inbound			Outbound		
Leave Needham Junction	Arrive Newton Highlands	Arrive Watertown Square	Leave Watertown Square	Arrive Newton Highlands	Arrive Needham Junction
6:20A	6:38A	6:52A	a 6:05A	6:19A	6:38A
a 6:55	7:14	7:31	6:35	6:48	7:07
7:30	7:53	8:17	a 7:10	7:30	7:53
8:05	8:28	8:43	a 7:45	8:08	8:31
a 8:40	9:01	9:21	8:20	8:40	9:03
9:15	9:35	9:51	a 8:55	9:11	9:33
a 9:50	10:10	10:25	a 9:30	9:46	10:08
10:35	10:54	11:10	10:05	10:21	10:42
a 11:20	11:40	11:55	a 10:35	10:51	11:13
			11:20	11:36	11:57
12:05P	12:25P	12:42P			
a 12:50	1:10	1:25	a 12:05P	12:21P	12:43P
1:35	1:55	2:13	12:50	1:06	1:27
a 2:20	2:40	2:59	a 1:30	1:46	2:08
3:10	3:33	3:50	2:20	2:38	3:01
a 3:45	4:05	4:24	2:55	3:14	3:37
4:20	4:43	5:00	a 3:30	3:49	4:12
a 4:55	5:18	5:38	4:05	4:24	4:50
a 5:30	5:54	6:14	a 4:40	4:59	5:20
6:05	6:25	6:41	5:10	5:34	5:59
6:40	7:00	7:14	5:40	6:03	6:29
a 7:15	7:34	7:48	a 6:20	6:39	7:00
7:50	8:07	8:21	7:00	7:15	7:35

a - Via Needham Street

Route 59
Needham Junction-Watertown Square

59 Saturday

Inbound			Outbound		
Leave Needham Junction	Arrive Newton Highlands	Arrive Watertown Square	Leave Watertown Square	Arrive Newton Highlands	Arrive Needham Junction
7:05A	7:25A	7:40A	6:20	6:31	6:48
8:35	8:55	9:10	7:50	8:04	8:21
10:05	10:25	10:40	9:20	9:37	9:55
11:35	11:55	12:14P	10:50	11:07	11:25
1:05P	1:25P	1:42P	12:20P	12:37P	1:00P
2:35	2:54	3:10	1:50	2:07	2:27
4:05	4:23	4:39	3:20	3:37	3:57
5:35	5:53	6:09	4:50	5:05	5:24
7:05	7:22	7:35	6:20	6:35	6:54

NOTE:
Approximate running time from Watertown Square to Newtonville Square is 7 minutes.

Approximate running time from Needham Junction to Newtonville Square is 25 minutes.

Approximate running time from Watertown Square to Homer and Walnut Streets is 11 minutes.

Approximate running time from Needham Junction to Homer and Walnut Streets is 18 minutes.

59 Sunday

Inbound			Outbound		
Leave Needham Junction	Arrive Newton Highlands	Arrive Watertown Square	Leave Watertown Square.	Arrive Newton Highlands	Arrive Needham Junction
7:50A	8:08A	8:20A	7:05A	7:16A	7:32A
9:20	9:38	9:50	8:35	8:48	9:07
10:50	11:08	11:22	10:05	10:18	10:37
			11:35	11:49	12:08P
12:20P	12:39P	12:54P	1:05P	1:19P	1:38P
1:50	2:06	2:21	2:35	2:49	3:08
3:20	3:39	3:56	4:05	4:19	4:39
4:50	5:08	5:24	5:35	5:49	6:09
6:20	6:36	6:51			

All buses are accessible to persons with disabilities

Fare	Local Bus	Bus + Bus	Rapid Transit	Bus + Rapid Transit
CharlieCard	$1.60	$1.60	$2.10	$2.10
CharlieTicket	$2.10	$2.10	$2.65	$4.75
Cash-on-Board	$2.10	$4.20	$2.65	$4.75
Student CharlieCard*	$0.80	$0.80	$1.05	$1.05
Senior/TAP CharlieCard**	$0.80	$0.80	$1.05	$1.05

VALID PASSES: LinkPass ($75/mo.); Monthly Local Bus ($50/mo.); *StudentPass ($26.00/Month for 5-Day validity Mon-Fri or 7-Day validity on all days); **Senior/TAP Pass ($29/mo.); and express bus, commuter rail, and boat passes.
FREE FARES: Children 11 and under ride free when accompanied by an adult; Blind Access CharlieCard holders ride free and if using a guide, the guide rides free.
* Requires Student CharlieCard, available to students through participating middle schools and high schools.
** Requires Senior/TAP CharlieCard, available to Medicare cardholders, seniors 65+, and persons with disabilities.

Spring 2015 Holidays
April 20: see Weekday May 25: see Sunday

Fares

PRICE PER TRIP	Local Bus	Bus + Bus	Rapid Transit	Bus + Rapid Transit
CharlieCard	$1.60	$1.60	$2.10	$2.10
CharlieTicket	$2.10	$2.10	$2.65	$4.75***
Cash-on-Board	$2.10	$4.20	$2.65	$4.75***
Student*	$0.80	$0.80	$1.05	$1.05
Senior/TAP**	$0.80	$0.80	$1.05	$1.05
UNLIMITED TRIP PASSES				
1-Day	$12.00	$12.00	$12.00	$12.00
7-Day	$19.00	$19.00	$19.00	$19.00
Monthly	$50.00	$50.00	$75.00	$75.00
Senior/TAP Monthly	$29.00/month for unlimited travel on Local Bus and Rapid Transit			

VALID PASSES: LinkPass ($75/mo.); StudentPass* ($26/Month for 5-Day validity Mon. - Fri. or 7 day validity on all days); Senior/TAP Pass* ($29/mo.); and express bus, commuter rail, and boat passes.

FREE FARES: Children 11 and under ride free when accompanied by an adult; Blind Access CharlieCard holders ride free: if using a guide, the guide rides free

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

*** For Silver Line SL4 or SL5 pay $2.65. Also see "transfers."

TRANSFERS

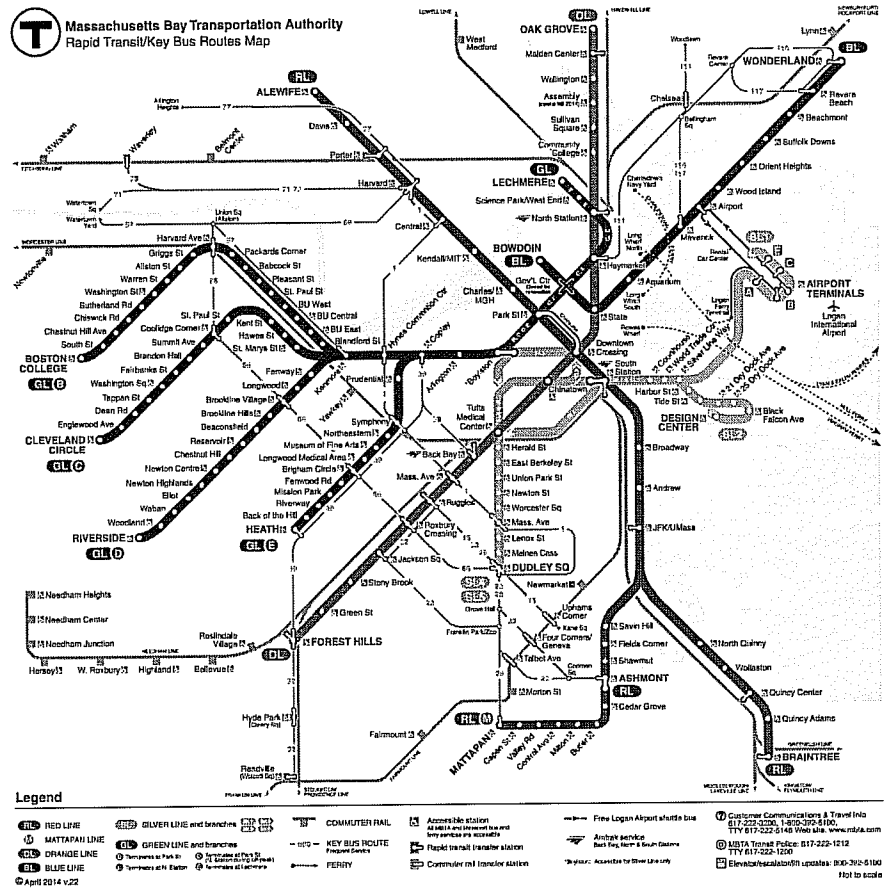
If paying with a CharlieTicket or CharlieCard, discounted transfers that are available are automatic — just use the same ticket or card throughout your trip. If paying with cash onboard a vehicle, free transfers are only allowed between rapid transit lines, and in either of the following cases you must ask for a transfer ticket from the operator before paying your fare:

- Boarding Silver Line SL4 or SL5 and transferring to other rapid transit.
- Boarding at a farebox aboard the Green Line or Silver Lines and transferring to Silver Line SL4 or SL5 later in your trip.

Free transfers between the Mattapan High Speed Line and the Red Line at Ashmont.

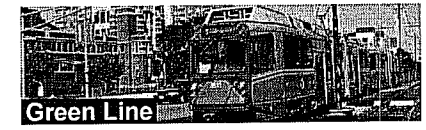
SCHEDULES

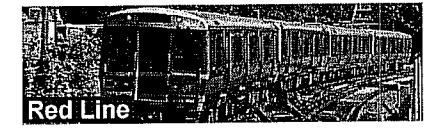
Schedules are available at the following stations: Park Street, Airport, Malden, Harvard, Government Center (Green Line Level), Back Bay, Downtown Crossing (Orange Line Level), and Quincy Center, or ask a Customer Service Agent. Schedules are also available at Boston City Hall, the State Transportation Building Library (10 Park Plaza), 45 High St, and online at mbta.com.



Rapid Transit

Spring March 21, 2015 - June 19, 2015





Massachusetts Bay Transportation Authority

massDOT Massachusetts Department of Transportation

Information 617-222-3200 • 1-800-392-6100
(TTY) 617-222-5146 • www.mbta.com

Weekday

Rapid Transit Line	First Trip	Rush Hour Service	Midday Service	Evening Service	Late Night Service	Last Trip Monday-Thursday	Last Trip Friday
Red Line							
Alewife	5:24AM	9 min	14 min	12 min	12 min	12:15AM	w 2:10AM
Braintree	5:15AM	9 min	14 min	12 min	12 min	12:18AM	1:52AM
Alewife	5:16AM	9 min	14 min	12 min	12 min	w12:22AM	w 2:15AM
Ashmont	5:16AM	9 min	14 min	12 min	12 min	w12:30AM	w 2:07AM
"M" Ashmont	5:17AM	5 min	8 min	12 min	12 min	w1:05AM	w 2:45AM
Mattapan	5:05AM	5 min	8 min	12 min	12 min	12:53AM	2:33AM
Blue Line							
Wonderland	5:13AM	5 min	9 min	9 min	10 min	12:35AM	2:05AM
Orient Heights	5:13AM	5 min	9 min	9 min	10 min	12:40AM	2:10AM
Bowdoin	5:29AM	5 min	9 min	9 min	10 min	w1:00AM	w 2:30AM
Orange Line							
Oak Grove	5:16AM	6 min	8 min	10 min	10 min	w12:30AM	w 2:13AM
Forest Hills	5:16AM	6 min	8 min	10 min	10 min	w12:35AM	w 2:13AM
Green Line							
"B" Boston College	5:01AM	7 min	8 min	8 min	9 min	12:10AM	1:48AM
Park Street	5:39AM	7 min	8 min	8 min	9 min	w12:52AM	w 2:28AM
"C" Cleveland Circle	5:01AM*	6 min	8 min	7 min	9 min	12:10AM	1:40AM
North Station	5:55AM	6 min	8 min	7 min	9 min	w12:46AM	w 2:25AM
*"D" Riverside	4:56AM	7 min	8 min	8 min	10 min	12:05AM	1:43AM
Park Street*	5:36AM	7 min	8 min	8 min	10 min	w12:49AM	w 2:30AM
"E" Lechmere	5:01AM	6 min	7 min	9 min	9 min	12:30AM	2:15AM
Heath Street	5:30AM	6 min	7 min	9 min	9 min	w12:53AM	w 2:11AM
Silver Line							
SL1 Logan Airport	5:38AM	*8 min	8 min	8 min	12 min	12:44AM	2:03AM
South Station	5:40AM	*8 min	8 min	8 min	12 min	12:30AM	2:15AM
SL2 Design Center	6:03AM	5 min	10 min	9 min	15 min	12:30AM	12:30AM
South Station	5:45AM	5 min	10 min	9 min	15 min	w12:50AM	12:50AM
Additional Waterfront-only service							
Silver Line Way	5:28AM	5 min	Use SL1/SL2				
South Station	5:35AM	5 min				12:53AM	w 2:30AM
SL4 Dudley Station	5:20AM	10 min	15 min	15 min	20 min	12:20AM	2:20AM
South Station	5:40AM	10 min	15 min	15 min	20 min	12:40AM	2:05AM
SL5 Dudley Station	5:15AM	7 min	10 min	8 min	15 min	12:48AM	2:05AM
Downtown Xing	5:30AM	7 min	10 min	8 min	15 min	w1:02AM	w 2:30AM

Saturday

Rapid Transit Line	First Trip	A.M. Peak Service	P.M. Peak Service	Evening Service	Late Night Service	Last Trip
Red Line						
Alewife	5:24AM	14 min	14 min	14 min	14 min	w 2:10AM
Braintree	5:15AM	14 min	14 min	14 min	14 min	1:52AM
Alewife	5:16AM	14 min	14 min	14 min	14 min	w 2:15AM
Ashmont	5:16AM	14 min	14 min	14 min	14 min	w 2:07AM
"M" Ashmont	5:15AM	26 min	12 min	12 min	26 min	w 2:45AM
Mattapan	5:05AM	26 min	12 min	12 min	26 min	2:33AM
Blue Line						
Wonderland	5:25AM	9 min	9 min	9 min	13 min	2:05AM
Orient Heights	5:13AM	9 min	9 min	9 min	13 min	2:10AM
Bowdoin	5:29AM	9 min	9 min	9 min	13 min	w 2:29AM
Orange Line						
Oak Grove	5:16AM	10 min	8 min	10 min	10 min	w 2:13AM
Forest Hills	5:16AM	10 min	8 min	10 min	10 min	w 2:13AM
Green Line						
"B" Boston College	4:45AM*	7 min	7 min	7 min	11 min	1:48AM
Park Street	5:33AM	7 min	7 min	7 min	11 min	w 2:28AM
"C" Cleveland Circle	4:50AM*	10 min	8 min	8 min	10 min	1:40AM
North Station	5:30AM	10 min	8 min	8 min	10 min	w 2:25AM
*"D" Riverside	4:55AM	10 min	8 min	10 min	10 min	1:43AM
Park Street*	5:39AM	10 min	8 min	10 min	10 min	w 2:30AM
"E" Lechmere	5:01AM	10 min	9 min	10 min	10 min	2:15AM
Heath Street	5:30AM	10 min	9 min	10 min	10 min	w 2:11AM
Silver Line						
SL1 Logan Airport	5:33AM	12 min	12 min	12 min	12 min	2:00AM
South Station	5:35AM	12 min	12 min	12 min	12 min	2:15AM
SL2 Design Center	6:10AM	15 min	15 min	15 min	15 min	12:35AM
South Station	5:50AM	15 min	15 min	15 min	15 min	12:49AM
Additional Waterfront-only service						
Silver Line Way	5:28AM	Use SL1/SL2				
South Station						w 2:30AM
SL4 Dudley Station	5:23AM	15 min	15 min	15 min	20 min	2:20AM
South Station	5:40AM	15 min	15 min	15 min	20 min	2:05AM
SL5 Dudley Station	5:19AM	10 min	10 min	11 min	11 min	2:05AM
Downtown Xing	5:34AM	10 min	10 min	11 min	11 min	w 2:30AM

Sunday

Rapid Transit Line	First Trip	A.M. Peak Service	P.M. Peak Service	Evening Service	Late Night Service	Last Trip
Red Line						
Alewife	6:08AM	16 min	16 min	16 min	16 min	12:15AM
Braintree	6:00AM	16 min	16 min	16 min	16 min	12:18AM
Alewife	6:00AM	16 min	16 min	16 min	16 min	w12:22AM
Ashmont	6:00AM	16 min	16 min	16 min	16 min	w12:30AM
"M" Ashmont	6:03AM	26 min	12 min	12 min	26 min	w1:05AM
Mattapan	5:51AM	26 min	12 min	12 min	26 min	12:53AM
Blue Line						
Wonderland	5:58AM	13 min	9 min	9 min	13 min	12:26AM
Orient Heights	6:03AM	13 min	9 min	9 min	13 min	12:31AM
Bowdoin	6:21AM	13 min	9 min	9 min	13 min	w1:00AM
Orange Line						
Oak Grove	6:00AM	13 min	10 min	10 min	10 min	w12:30AM
Forest Hills	6:00AM	13 min	10 min	10 min	10 min	w12:35AM
Green Line						
"B" Boston College	5:20AM*	10 min	9 min	7 min	10 min	12:10AM
Park Street	6:06AM	10 min	9 min	7 min	10 min	w12:48AM
"C" Cleveland Circle	5:30AM*	10 min	10 min	10 min	10 min	12:10AM
North Station	6:06AM	10 min	10 min	10 min	10 min	w12:48AM
*"D" Riverside	5:25AM	10 min	10 min	10 min	10 min	12:00AM
Park Street*	6:09AM	10 min	10 min	10 min	10 min	w12:45AM
"E" Lechmere	5:35AM	12 min	12 min	12 min	12 min	12:30AM
Heath Street	6:15AM	12 min	12 min	12 min	12 min	w12:47AM
Silver Line						
SL1 Logan Airport	5:50AM	12 min	8 min	8 min	8 min	12:45AM
South Station	6:12AM	12 min	8 min	8 min	8 min	12:30AM
SL2 Design Center	6:50AM	15 min	15 min	15 min	15 min	12:34AM
South Station	6:35AM	15 min	15 min	15 min	15 min	w12:48AM
Additional Waterfront-only service						
Silver Line Way	6:05AM	Use SL1/SL2				
South Station						1:01AM
SL4 Dudley Station	6:02AM	15 min	15 min	15 min	20 min	12:20AM
South Station	6:20AM	15 min	15 min	15 min	20 min	12:40AM
SL5 Dudley Station	6:00AM	10 min	8 min	9 min	9 min	12:25AM
Downtown Xing	6:15AM	10 min	8 min	9 min	9 min	w12:47AM

Schedule Periods (approximate):

AM Rush Hour:	6:30 AM - 9:00 AM
Midday:	9:00 AM - 3:30 PM
PM Rush Hour:	3:30 PM - 6:30 PM
Evening:	6:30 PM - 8:00 PM
Late Night:	8:00 PM - CLOSE

Government Center:
Due to the closure of Government Center Station, please use Orange Line and Haymarket Station to transfer between Blue and Green Lines. For travel around the Government Center area, walking to/from a nearby station will often be fastest. A shuttle bus (Rt. 608) also operates every 20 minutes from 5:20AM – 1:00AM, starting at Haymarket and serving State, Government Center, and Bowdoin Stations, 7 days a week. Shuttle operates until 2:30AM on Friday/Saturday nights, and begins at 6:00AM on Sundays.

Green Line Notes:
*The first two "C" Line AM inbound trips run through to Lechmere Station on weekdays.

*The first "B" Line and second "C" Line AM inbound trips run through to Lechmere Station on weekends.

*The "D" Line will run to/from North Station off peak, late night and all trips on weekends. Except the last trip on Friday and Saturday will run to/from Park Street Station.

w - Last trips wait at some stations, primarily in the Downtown area, for connecting service. Departure times are approximate.

* Silver Line - For AM rush 8 minutes and for the PM rush 10 minutes.

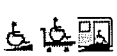
Spring 2015 Holidays
April 20: see Weekday May 25: see Sunday

Schedules & Maps

Newton Centre Station

Union Street between Herrick Street and Langley Road, near Newton Centre Shopping area, Newton.

This MBTA station is accessible (Accessibility Key)



Parking

Parking Spaces

Parking Rate

Bike Spaces 15 spaces

Subway Lines

Green Line

Bus Lines

52 -- Dedham Mall Or Charles River Loop -- Watertown Yard Via Oak...

□ Sight Line Analysis

Stopping Sight Distance - Posted

		SPEED (MPH)	BRAKE REACTION DISTANCE (FT)	BRAKING DISTANCE (FT)	CALCULATED STOPPING SIGHT DISTANCE (FT)
Direction 1	NB	30	110.25	86.3	196.5
Direction 2	SB	30	110.25	86.3	196.5

INPUTS	Direction 1	Direction 2
Travel Direction	NB	SB
Speed	30	30
Grade	0	0
t	2.5	2.5
a	11.2	11.2

Stopping Sight Distance (SSD) - Source: AASHTO

SSD = Reaction Distance + Brake Distance

Reaction Distance = 1.47 x t x V

Brake Distance = V^2 / (30 x ((a/32.2)+G))

Where:
t = reaction time (sec)
V = travel speed (mph)
G= roadway grade
a - deceleration rate (ft/sec^2)

Stopping Sight Distance - Average

		SPEED (MPH)	BRAKE REACTION DISTANCE (FT)	BRAKING DISTANCE (FT)	CALCULATED STOPPING SIGHT DISTANCE (FT)
Direction 1	NB	29	106.575	80.6	187.2
Direction 2	SB	32	117.6	98.1	215.7

INPUTS	Direction 1	Direction 2
Travel Direction	NB	SB
Speed	29	32
Grade	0	0
t	2.5	2.5
a	11.2	11.2

Stopping Sight Distance (SSD) - Source: AASHTO

SSD = Reaction Distance + Brake Distance

Reaction Distance = 1.47 x t x V

Brake Distance = V^2 / (30 x ((a/32.2)+G))

Where:
t = reaction time (sec)
V = travel speed (mph)
G= roadway grade
a - deceleration rate (ft/sec^2)

Stopping Sight Distance - 85th Percentile

		SPEED (MPH)	BRAKE REACTION DISTANCE (FT)	BRAKING DISTANCE (FT)	CALCULATED STOPPING SIGHT DISTANCE (FT)
Direction 1	NB	33	121.275	104.4	225.6
Direction 2	SB	35	128.625	117.4	246.0

INPUTS	Direction 1	Direction 2
Travel Direction	NB	SB
Speed	33	35
Grade	0	0
t	2.5	2.5
a	11.2	11.2

Stopping Sight Distance (SSD) - Source: AASHTO

SSD = Reaction Distance + Brake Distance

Reaction Distance = 1.47 x t x V

Brake Distance = V^2 / (30 x ((a/32.2)+G))

Where:
t = reaction time (sec)
V = travel speed (mph)
G= roadway grade
a - deceleration rate (ft/sec^2)

Intersection Sight Distance Calculations

Source: *A Policy on Geometric Design of Highways and Street, 6th Edition;* AASHTO; 2011.

ISD = 1.47 * V * t

V = speed
t = time gap

t = 7.5 s for a passenger car for Left Turn from a Stop
t = 6.5 s for a passenger car for Right Turn from a Stop

Posted (Advisory) Speed Limit

Proposed Site Driveway ISD = 1.47 * 30 * 7.5 = 331ft **SAY 335 ft**
(left-turn from a stop)

Proposed Site Driveway ISD = 1.47 * 30 * 6.5 = 287ft **SAY 290 ft**
(right-turn from a stop)

Proposed Site Driveway ISD = 1.47 * 15 * 7.5 = 165ft **SAY 165 ft**
(left-turn from a stop)

Proposed Site Driveway ISD = 1.47 * 15 * 6.5 = 143ft **SAY 145 ft**
(right-turn from a stop)

□ Kendrick Street Interchange

Needham/Wellesley: I-95/Route 128 Add-A-Lane Project

Needham/Wellesley: Bridge Rehab/Replacement On Route 128 (Add-a-Lane 3.25 Miles); Includes 6 Bridges (Bridge V Contract)

Project 603711

This project is the final bridge contract (Bridge V) of the I-95/93 (Route 128) Transportation Improvement Project. The work includes five bridge locations and approximately 3.25 miles of I-95 roadway reconstruction. This roadway work on I-95, from just south of Kendrick Street to just north of Route 9, includes the installation of an additional 12 foot travel lane and 10 foot shoulder in each direction toward the median, along with new collector/distributor roads between Highland Avenue and Kendrick Street. The collector roads will provide safer weaving movements between the interchanges and provide safer traffic movements to and from the adjacent business park.

The bridge locations include the following:

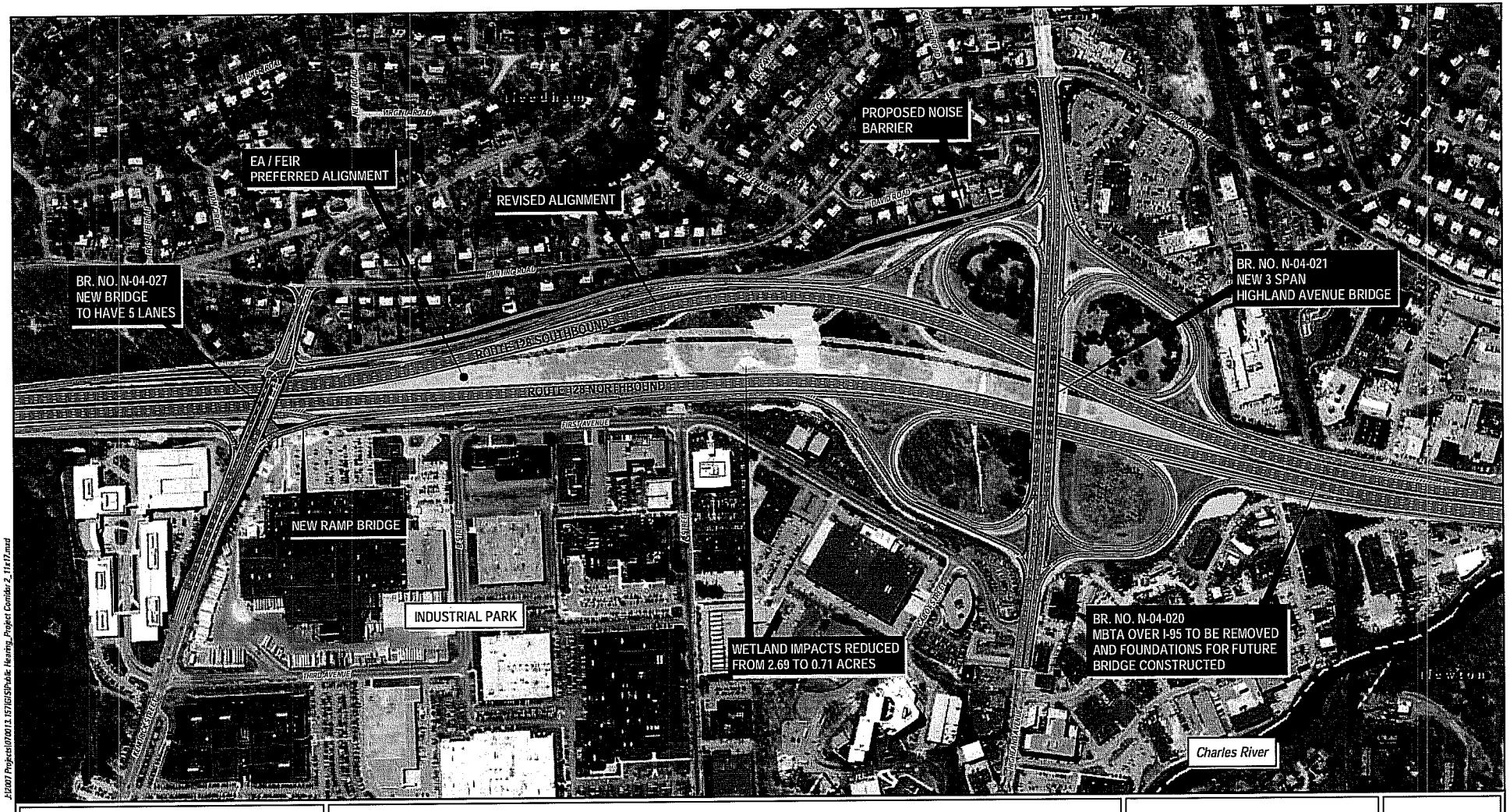
- Kendrick Street over I-95 (Route 128) in Needham
- Highland Avenue over I-95 (Route 128) in Needham
- MBTA RR (Newton Upper Falls Branch) over I-95 (Route 128) in Needham
- I-95 (Route 128) over Central Street in Needham (N-04-022)
- I-95 (Route 128) over Route 9 in Wellesley (W-13-023).

75% Design Plans

- **Pavement Marking Drawings (PDF 4.72 mb)**

25% Design/Public Hearing Drawings

- **Kendrick Street Interchange (PDF 241 kb)**
- **Kendrick Street to Highland Ave (PDF 403 kb)**
- **Central Ave to Rte 9 and Northern Limits (PDF 336 kb)**
- **Southern Limits of Project (PDF 227 kb)**



0 100 200 400 600 800
Scale in Feet

Legend:

Flagged Wetlands

Kendrick Street to Highland Avenue

I-95 / I-93 Transportation Improvement Project
Bridge V

SCALE	DATE	PROJECT NO.
1"=400'	June 2011	603711

massDOT

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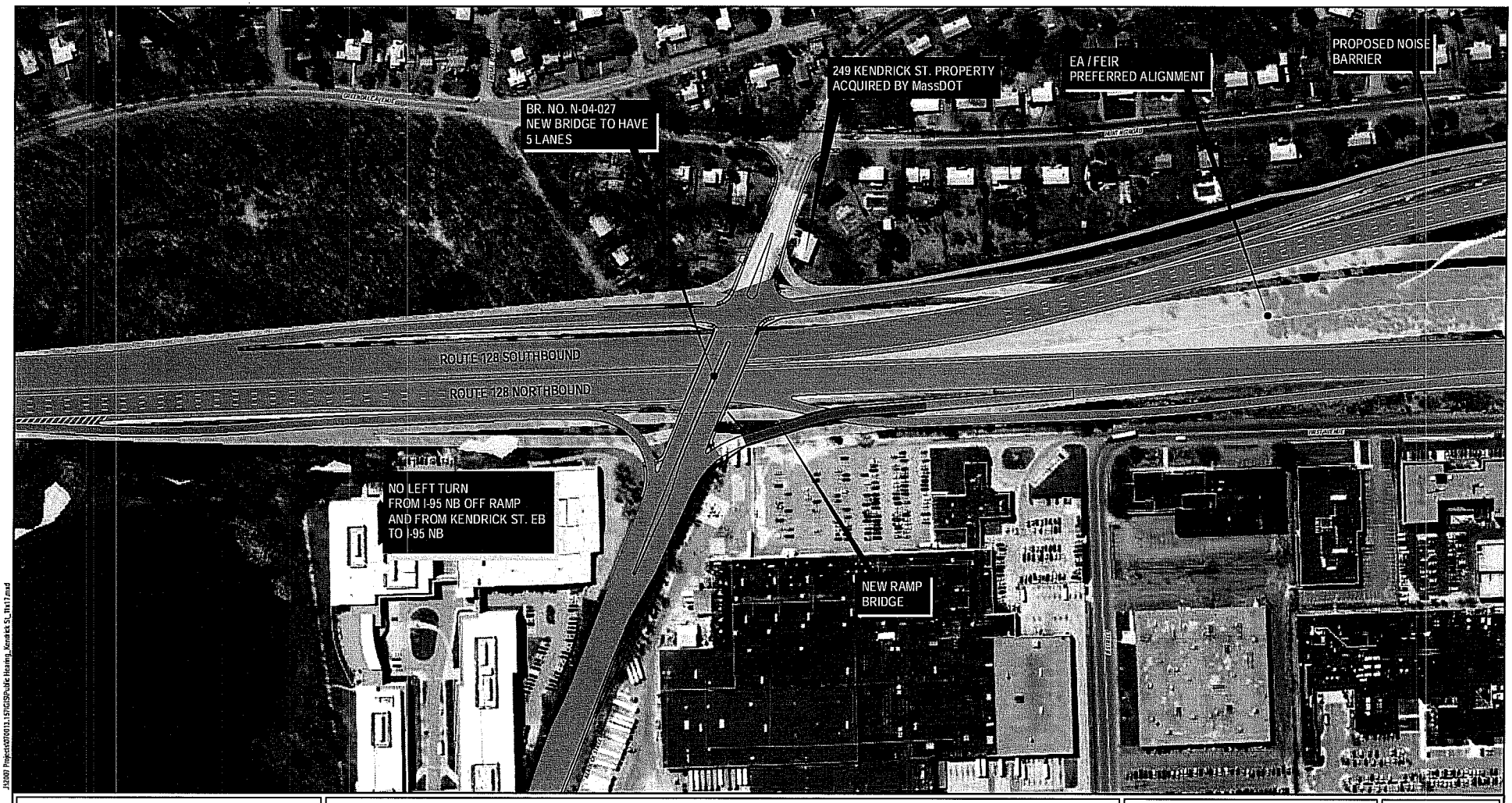

0 50 100 200 300 400
Scale in Feet

Legend:

Flagged Wetlands

Kendrick Street Interchange

I-95 / I-93 Transportation Improvement Project
Bridge V

SCALE	DATE	PROJECT NO.
1"=200'	June 2011	603711

massDOT

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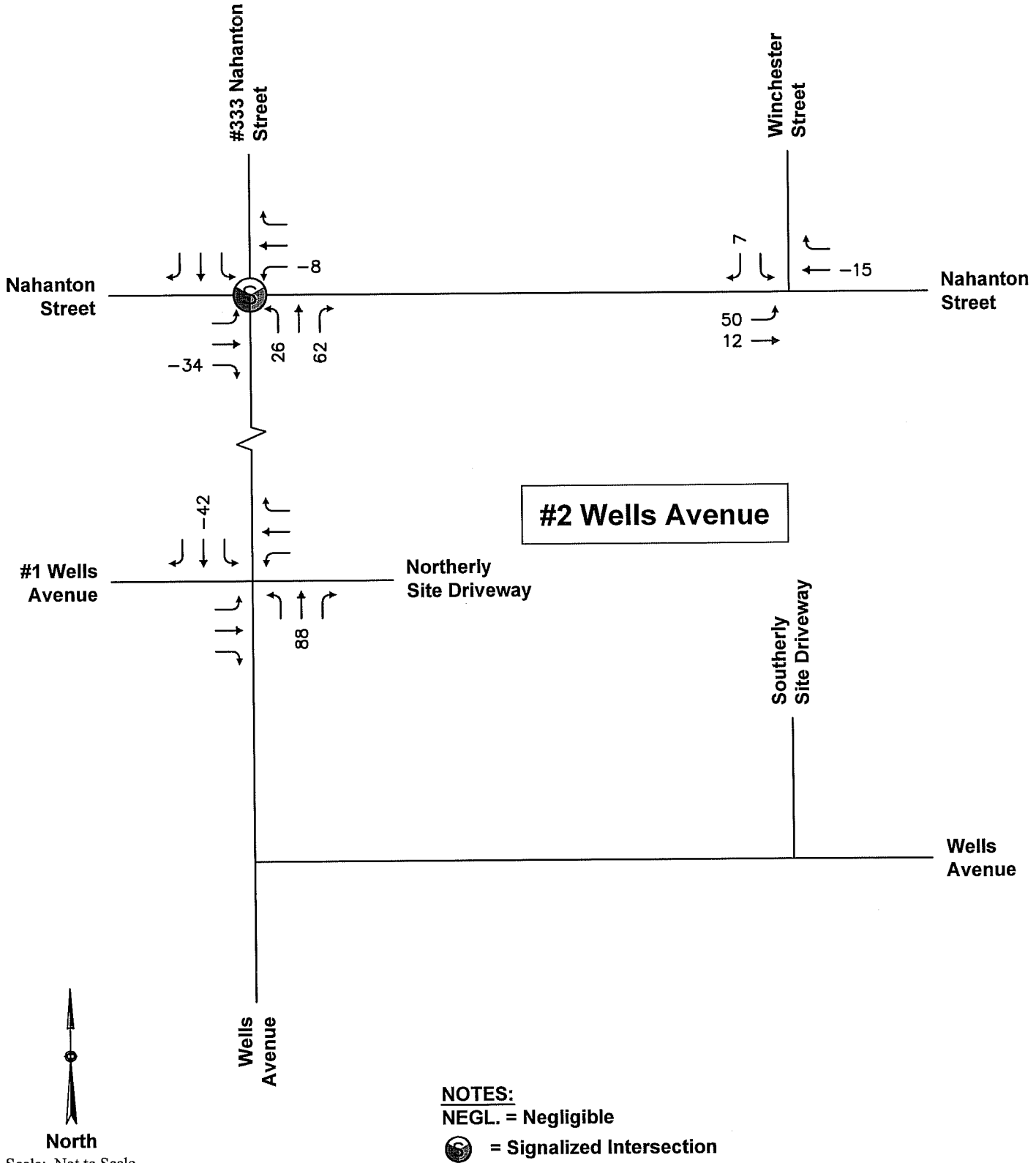
□ Background Growth

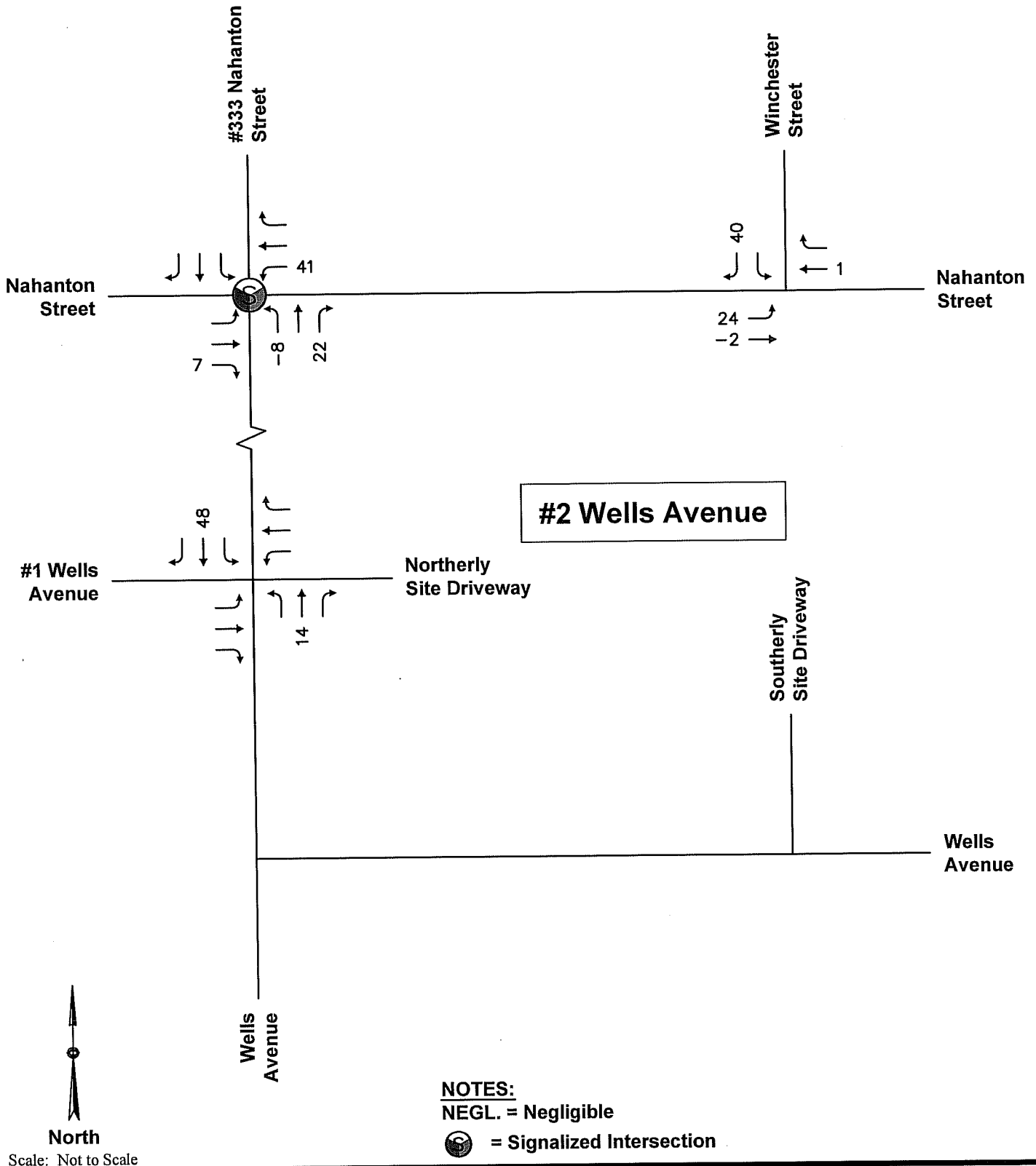


Attachments

MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

135 Wells Avenue Site Generated Trips
Weekday Morning
Peak Hour Traffic Volumes

Date: October 2014
Dwg No. 770 MR01.dwg



Scale: Not to Scale

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135 Wells Avenue Site Generated Trips
Weekday Evening
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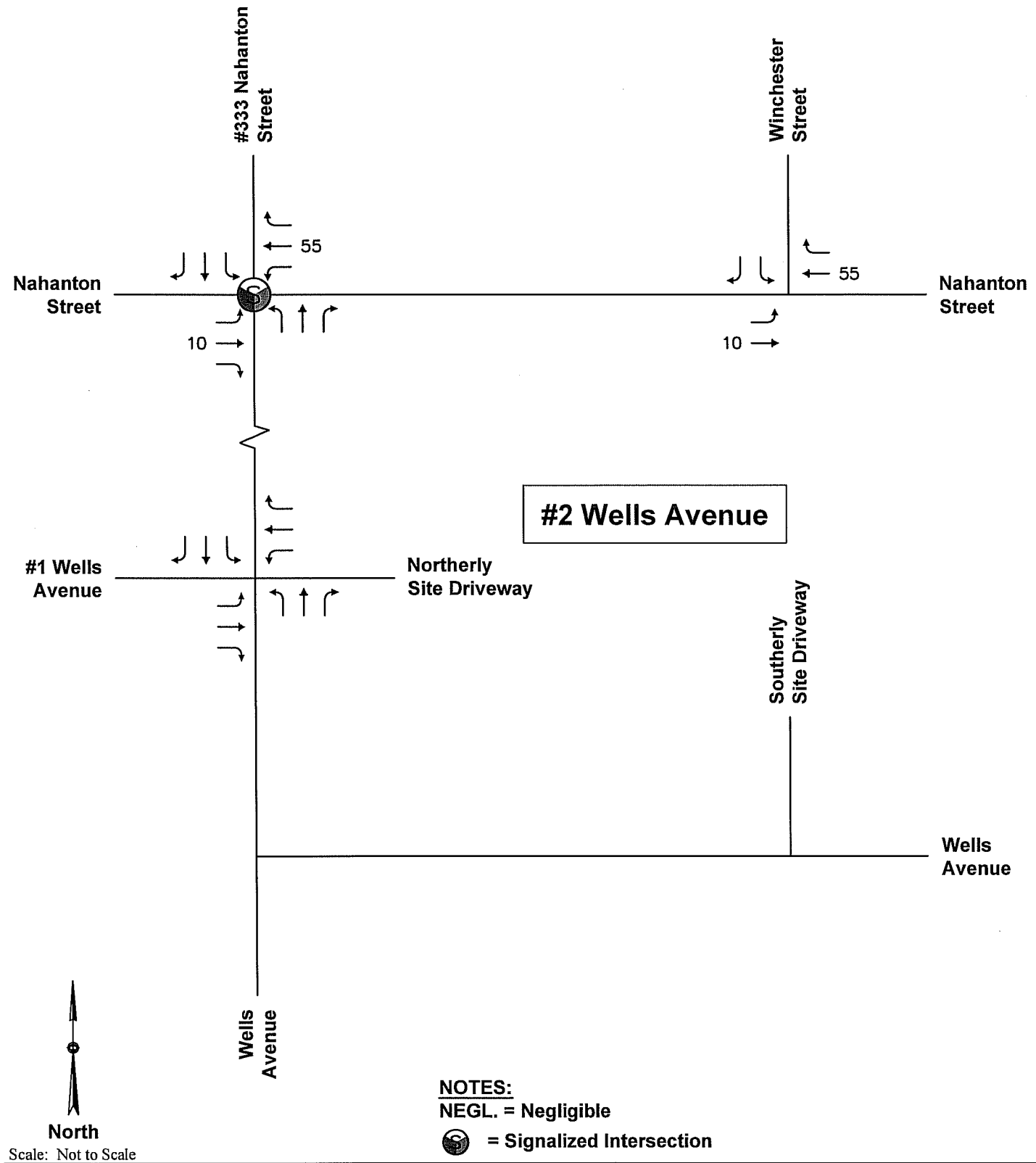
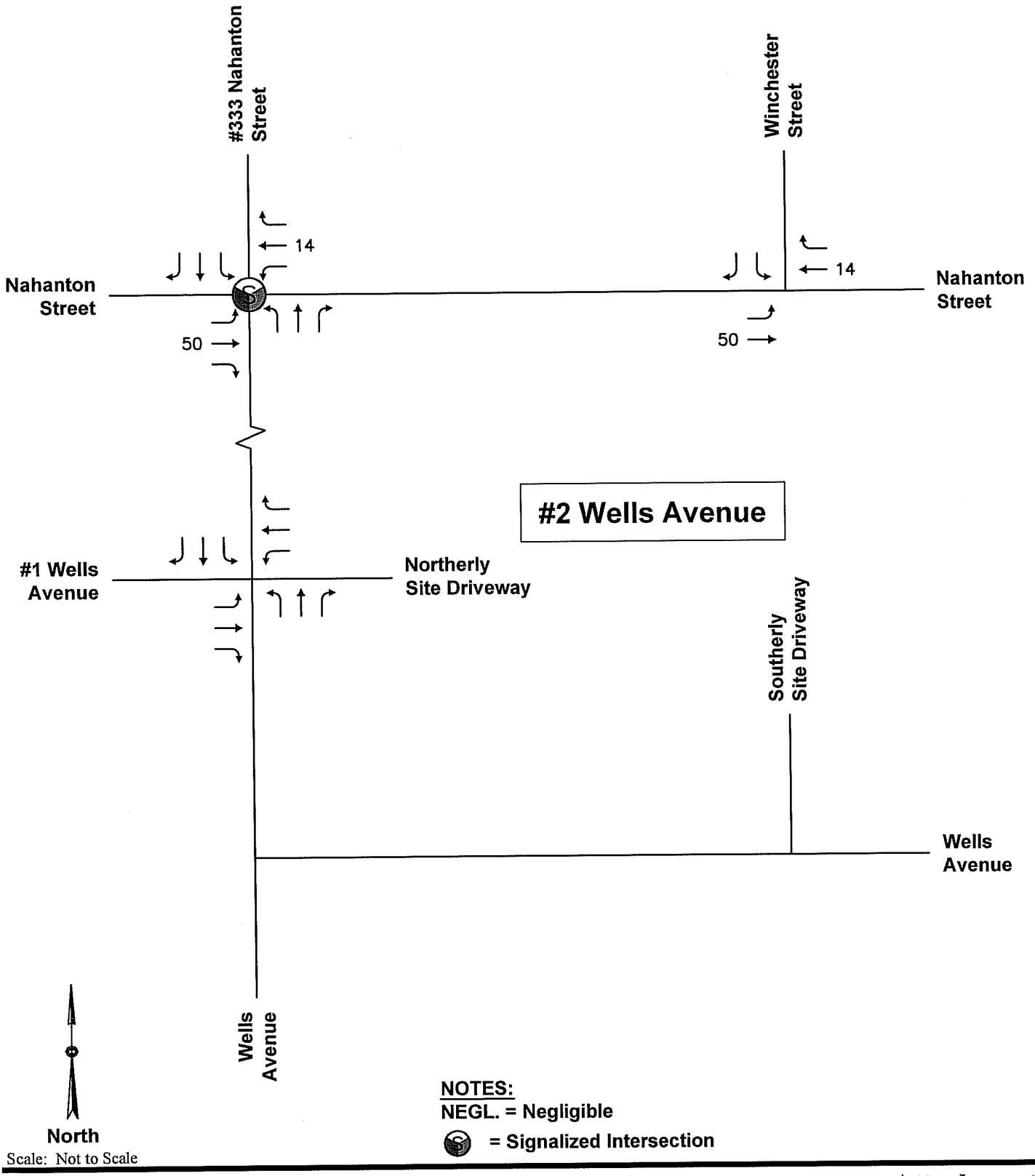


Attachments

MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Center 128 Site Generated Trips
Weekday Morning
Peak Hour Traffic Volumes

Date: October 2014
Dwg No. 770 MR01.dwg



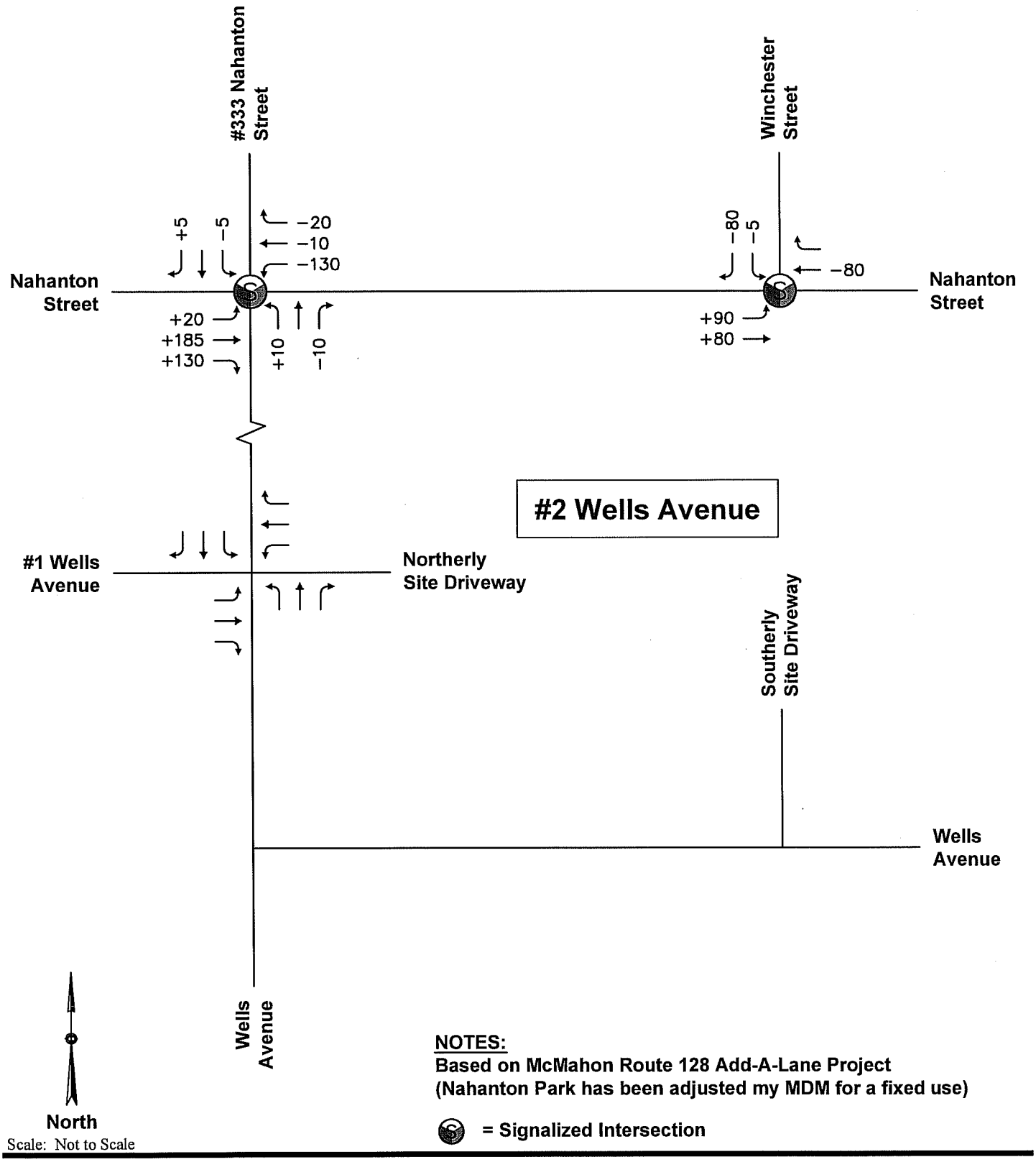
Scale: Not to Scale

MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Attachments

Center 128 Site Generated Trips
Weekday Evening
Peak Hour Traffic Volumes

Date: October 2014
Dwg No. 770 MR01.dwg

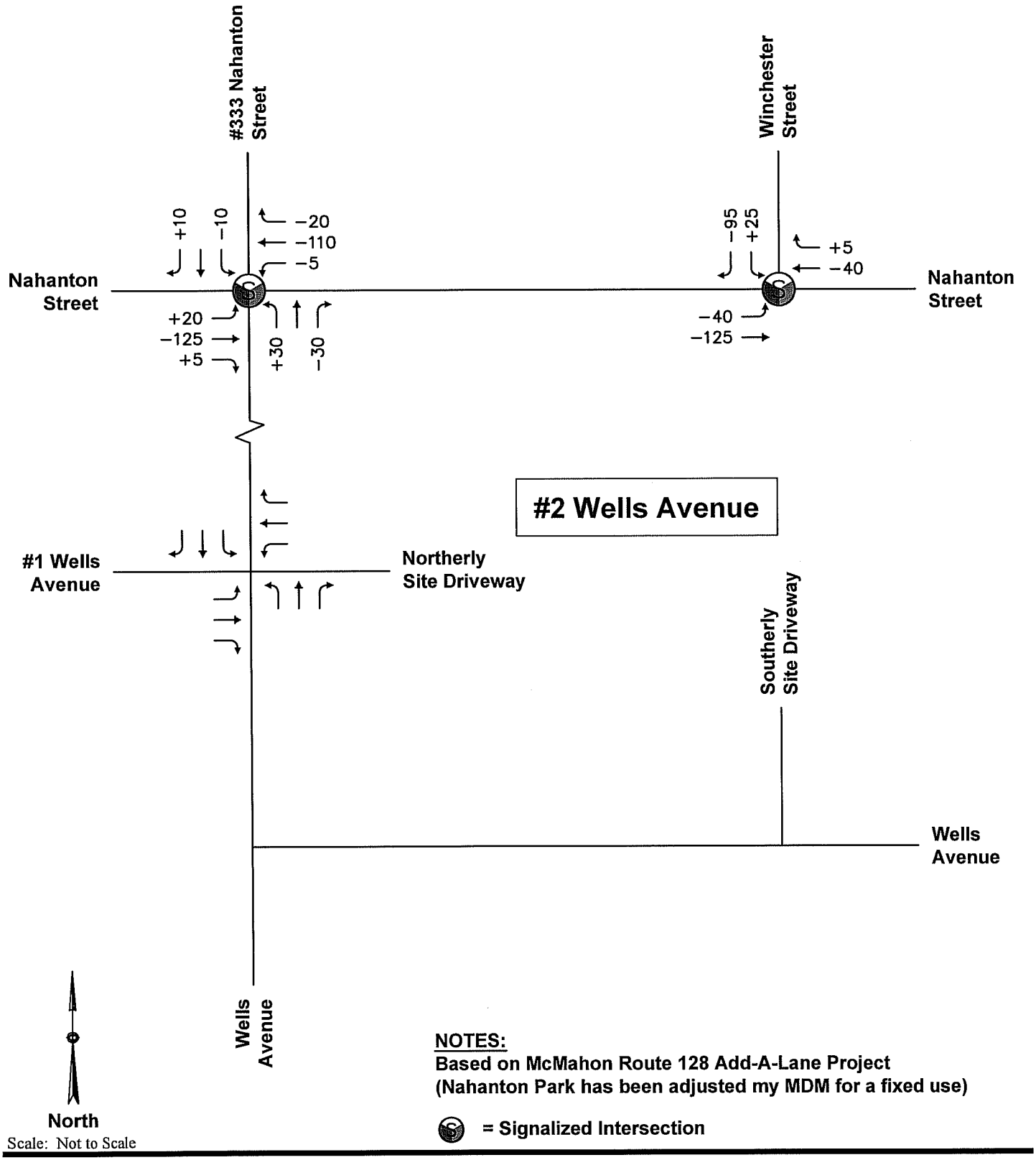


MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Attachments

2025 Projected Build Traffic Shifts
Route 128 Add-a-lane Project
Weekday Morning
Peak Hour Traffic Volumes

Date: October 2014
Dwg No. 770 MR01.dwg



Attachments

MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

2025 Projected Build Traffic Shifts
Route 128 Add-a-lane Project
Weekday Evening
Peak Hour Traffic Volumes

Date: October 2014
Dwg No. 770 MR01.dwg

□ Trip Generation Data

Institute of Transportation Engineers (ITE) 9th Edition
Land Use Code (LUC) 710 - General Office Building

Employees Calculation

Period	Average Employees	Average Area (1,000 sf)	Employees/1,000 sf
Weekday Daily	610	197	3.10
Weekday Morning Peak Hour	695	222	3.13
Weekday Evening Peak Hour	688	215	3.20
		Average =	3.14

Proposed Office Building = 132,598 sf

132.598 x 3.14 = 416 Total Employees

- 264 Existing Employees

152 New Employees

Institute of Transportation Engineers (ITE) 9th Edition
Land Use Code (LUC) 710 - General Office Building

Average Vehicle Trips Ends vs: Employees
Independent Variable (X): 416
152

AVERAGE WEEKDAY DAILY

Ln T = 0.84 Ln (X) + 2.23
Ln T = 0.84 Ln 416 + (2.23)
Ln T = 7.30
T = 1474.06
T = 1,474 vehicle trips
with 50% (**737** vpd) entering and 50% (**737** vpd) exiting.

	2	2	
Prorated:	**270**	**270**	**540**

WEEKDAY MORNING PEAK HOUR OF ADJACENT STREET TRAFFIC

Ln T = 0.86 Ln (X) + 0.24
Ln T = 0.86 Ln 416 + (0.24)
Ln T = 5.43
T = 227.33
T = 227 vehicle trips
with 88% (**200** vph) entering and 12% (**27** vph) exiting.

	0	0	
Prorated:	**73**	**10**	**83**

WEEKDAY EVENING PEAK HOUR OF ADJACENT STREET TRAFFIC

T = 0.37 * (X) + 60.08
T = 0.37 * 416 + (60.08)
T = 214.00
T = 214 vehicle trips
with 17% (**36** vph) entering and 83% (**178** vph) exiting.

	0	0	
Prorated:	**13**	**65**	**78**

SATURDAY DAILY

T = 0.54 * (X)
T = 0.54 * 416
T = 224.64
T = 224 vehicle trips
with 50% (**112** vpd) entering and 50% (**112** vpd) exiting.

	0	0	
Prorated:	**41**	**41**	**82**

SATURDAY MIDDAY PEAK HOUR OF GENERATOR

T = 0.09 * (X)
T = 0.09 * 416
T = 37.44
T = 37 vehicle trips
with 54% (**20** vpd) entering and 46% (**17** vpd) exiting.

	0	0	
Prorated:	**7**	**6**	**14**

□ Trip Distribution Calculations

Workplace MCD/County Flows for the United States and Puerto Rico Sorted b

For more information on sampling and estimation methods, confidentiality protection, and sampling and nonsampling errors, see

Residence		Workplace		
Number	MCD	MCD	% of Total	
10,154	Newton city	Newton city	25.2%	
6,986	Boston city	Newton city	17.3%	
2,225	Waltham city	Newton city	5.5%	
1,352	Framingham town	Newton city	3.4%	
1,091	Brookline town	Newton city	2.7%	
1,088	Somerville city	Newton city	2.7%	
1,006	Watertown Town city	Newton city	2.5%	
902	Needham town	Newton city	2.2%	
873	Natick town	Newton city	2.2%	
767	Medford city	Newton city	1.9%	
761	Cambridge city	Newton city	1.9%	
528	Dedham town	Newton city	1.3%	
525	Everett city	Newton city	1.3%	
507	Belmont town	Newton city	1.3%	
475	Lowell city	Newton city	1.2%	
474	Wellesley town	Newton city	1.2%	
468	Arlington town	Newton city	1.2%	
463	Billerica town	Newton city	1.1%	
455	Norwood town	Newton city	1.1%	
448	Marlborough city	Newton city	1.1%	
446	Quincy city	Newton city	1.1%	
353	Malden city	Newton city	0.9%	
349	Revere city	Newton city	0.9%	
348	Ashland town	Newton city	0.9%	
325	Walpole town	Newton city	0.8%	
317	Woburn city	Newton city	0.8%	
306	Randolph town	Newton city	0.8%	
295	Milton town	Newton city	0.7%	
293	Canton town	Newton city	0.7%	
287	Lexington town	Newton city	0.7%	
260	Worcester city	Newton city	0.6%	
259	Brockton city	Newton city	0.6%	
250	Millis town	Newton city	0.6%	
230	Burlington town	Newton city	0.6%	
225	Medfield town	Newton city	0.6%	
225	Weymouth Town city	Newton city	0.6%	
223	Shrewsbury town	Newton city	0.6%	
222	Easton town	Newton city	0.6%	
218	Braintree Town city	Newton city	0.5%	
214	Westwood town	Newton city	0.5%	
207	Wayland town	Newton city	0.5%	
205	Lynn city	Newton city	0.5%	
199	Medway town	Newton city	0.5%	
197	Chelmsford town	Newton city	0.5%	
194	Sudbury town	Newton city	0.5%	
193	Wilmington town	Newton city	0.5%	
184	Weston town	Newton city	0.5%	
179	Sharon town	Newton city	0.4%	
178	Franklin Town city	Newton city	0.4%	
178	Stoughton town	Newton city	0.4%	
177	Nashua city	Newton city	0.4%	
165	Holliston town	Newton city	0.4%	
153	Melrose city	Newton city	0.4%	
151	Dracut town	Newton city	0.4%	
143	Hudson town	Newton city	0.4%	
140	Hopkinton town	Newton city	0.3%	
134	Reading town	Newton city	0.3%	
127	Mansfield town	Newton city	0.3%	100.0%
40,279				

Residence	To/From Routes						Total
	Nahanton Street (From West)		Nahanton Street (From East)		Winchester Street (From North)		
Newton city	10%	2.5%	25%	6.3%	65%	16.4%	25.2%
Boston city	50%	8.7%	25%	4.3%	25%	4.3%	17.3%
Waltham city	75%	4.1%	25%	1.4%		0.0%	5.5%
Framingham town	100%	3.4%		0.0%		0.0%	3.4%
Brookline town	10%	0.3%	65%	1.8%	25%	0.7%	2.7%
Somerville city	50%	1.4%	25%	0.7%	25%	0.7%	2.7%
Watertown Town city	50%	1.2%	25%	0.6%	25%	0.6%	2.5%
Needham town	100%	2.2%		0.0%		0.0%	2.2%
Natick town	100%	2.2%		0.0%		0.0%	2.2%
Medford city	50%	1.0%	25%	0.5%	25%	0.5%	1.9%
Cambridge city	50%	0.9%	25%	0.5%	25%	0.5%	1.9%
Dedham town	50%	0.7%	50%	0.7%		0.0%	1.3%
Everett city	50%	0.7%	25%	0.3%	25%	0.3%	1.3%
Belmont town	50%	0.6%	25%	0.3%	25%	0.3%	1.3%
Lowell city	100%	1.2%		0.0%		0.0%	1.2%
Wellesley town	100%	1.2%		0.0%		0.0%	1.2%
Arlington town	75%	0.9%		0.0%	25%	0.3%	1.2%
Billerica town	100%	1.1%		0.0%		0.0%	1.1%
Norwood town	100%	1.1%		0.0%		0.0%	1.1%
Marlborough city	100%	1.1%		0.0%		0.0%	1.1%
Quincy city	75%	0.8%	25%	0.3%		0.0%	1.1%
Malden city	50%	0.4%	50%	0.4%		0.0%	0.9%
Revere city	50%	0.4%	25%	0.2%	25%	0.2%	0.9%
Ashland town	100%	0.9%		0.0%		0.0%	0.9%
Walpole town	100%	0.8%		0.0%		0.0%	0.8%
Woburn city	75%	0.6%	25%	0.2%		0.0%	0.8%
Randolph town	100%	0.8%		0.0%		0.0%	0.8%
Milton town	50%	0.4%	50%	0.4%		0.0%	0.7%
Canton town	75%	0.5%	25%	0.2%		0.0%	0.7%
Lexington town	75%	0.5%		0.0%	25%	0.2%	0.7%
Worcester city	100%	0.6%		0.0%		0.0%	0.6%
Brockton city	100%	0.6%		0.0%		0.0%	0.6%
Millis town	100%	0.6%		0.0%		0.0%	0.6%
Burlington town	100%	0.6%		0.0%		0.0%	0.6%
Medfield town	100%	0.6%		0.0%		0.0%	0.6%
Weymouth Town city	75%	0.4%	25%	0.1%		0.0%	0.6%
Shrewsbury town	100%	0.6%		0.0%		0.0%	0.6%
Easton town	100%	0.6%		0.0%		0.0%	0.6%
Braintree Town city	75%	0.4%	25%	0.1%		0.0%	0.5%
Westwood town	100%	0.5%		0.0%		0.0%	0.5%
Wayland town	100%	0.5%		0.0%		0.0%	0.5%
Lynn city	50%	0.3%	50%	0.3%		0.0%	0.5%
Medway town	100%	0.5%		0.0%		0.0%	0.5%
Chelmsford town	100%	0.5%		0.0%		0.0%	0.5%
Sudbury town	100%	0.5%		0.0%		0.0%	0.5%
Wilmington town	75%	0.4%	25%	0.1%		0.0%	0.5%
Weston town	100%	0.5%		0.0%		0.0%	0.5%
Sharon town	100%	0.4%		0.0%		0.0%	0.4%
Franklin Town city	100%	0.4%		0.0%		0.0%	0.4%
Stoughton town	100%	0.4%		0.0%		0.0%	0.4%
Nashua city	100%	0.4%		0.0%		0.0%	0.4%
Holliston town	100%	0.4%		0.0%		0.0%	0.4%
Melrose city	50%	0.2%	25%	0.1%	25%	0.1%	0.4%
Dracut town	100%	0.4%		0.0%		0.0%	0.4%
Hudson town	100%	0.4%		0.0%		0.0%	0.4%
Hopkinton town	100%	0.3%		0.0%		0.0%	0.3%
Reading town	50%	0.2%	25%	0.1%	25%	0.1%	0.3%
Mansfield town	100%	0.3%		0.0%		0.0%	0.3%
	Total	55.0%		19.8%		25.1%	100.0%
	SAY	55.0%		20.0%		25.0%	100.0%

□ Capacity Analyses

LEVEL OF SERVICE METHODOLOGY

Capacity analysis of intersections is developed using the Synchro® computer software, which implements the methods of the 2010 Highway Capacity Manual (HCM). The resulting analysis presents a level-of-service (LOS) designation for individual intersection movements and (for signalized intersections) for the entire intersection. The LOS is a letter designation that provides a qualitative measure of operating conditions based on several factors including roadway geometry, speeds, ambient traffic volumes, traffic controls, and driver characteristics. Since the LOS of a traffic facility is a function of the traffic flows placed upon it, such a facility may operate at a wide range of LOS, depending on the time of day, day of week, or period of year. A range of six levels of service are defined on the basis of average delay, ranging from LOS A (the least delay) to LOS F (delays greater than 50 seconds for unsignalized movements, and greater than 80 seconds for signalized movements).

Signalized Intersection Performance Measures

The six LOS designations for signalized intersections may be described as follows:

- *LOS A* describes operations with low control delay; most vehicles do not stop at all.
- *LOS B* describes operations with relatively low control delay. However, more vehicles stop than LOS A.
- *LOS C* describes operations with higher control delays. Individual cycle failures may begin to appear. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.
- *LOS D* describes operations with control delay in the range where the influence of congestion becomes more noticeable. Many vehicles stop and individual cycle failures are noticeable.
- *LOS E* describes operations with high control delay values. Individual cycle failures are frequent occurrences.
- *LOS F* describes operations with high control delay values that often occur with over-saturation. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

The LOS for signalized intersections are calculated using the operational analysis methodology of the 2010 *Highway Capacity Manual*.[1] This method assesses the effects of signal type, timing, phasing, and progression; vehicle mix; and geometrics on delay. LOS designations are based on the criterion of control or signal delay per vehicle. Control or signal delay is a measure of driver discomfort, frustration, and fuel consumption, and includes initial deceleration delay approaching the traffic signal, queue move-up time, stopped delay and final acceleration delay. **Table A1** summarizes the relationship between LOS and control delay. The tabulated control delay criterion may be applied in assigning LOS designations to individual lane groups, to individual intersection approaches, or to entire intersections.

Table A1
LEVEL-OF-SERVICE CRITERIA
FOR SIGNALIZED INTERSECTIONS[1]

Level of Service	Control (Signal) Delay per Vehicle (Seconds)
A	≤10.0
B	10.1 to 20.0
C	20.1 to 35.0
D	35.1 to 55.0
E	55.1 to 80.0
F	>80.0

[1]Source: *Highway Capacity Manual 2010;* Transportation Research Board; Washington, DC; 2010.

[1]*Highway Capacity Manual* 2010; Transportation Research Board; Washington, DC; 2010.

Unsignalized Intersection Performance Measures

The six LOS designations for unsignalized intersections may be described as follows:

- *LOS A* represents a condition with little or no control delay to minor street traffic.
- *LOS B* represents a condition with short control delays to minor street traffic.
- *LOS C* represents a condition with average control delays to minor street traffic.
- *LOS D* represents a condition with long control delays to minor street traffic.
- *LOS E* represents operating conditions at or near capacity level, with very long control delays to minor street traffic.
- *LOS F* represents a condition where minor street demand volume exceeds capacity of an approach lane, with extreme control delays resulting.

The LOS designations of unsignalized intersections are determined by application of a procedure described in the 2010 *Highway Capacity Manual.*[2] LOS is measured in terms of average control delay. Mathematically, control delay is a function of the capacity and degree of saturation of the lane group and/or approach under study and is a quantification of motorist delay associated with traffic control devices such as traffic signals and STOP signs. Control delay includes the effects of initial deceleration delay approaching a STOP sign, stopped delay, queue move-up time, and final acceleration delay from a stopped condition. Definitions for LOS at unsignalized intersections are also given in the *Highway Capacity Manual 2010.* **Table A2** summarizes the relationship between LOS and average control delay.

Table A2
LEVEL-OF-SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS[1]

Average Control Delay (seconds per vehicle)	Level of Service	
	v/c ≤ 1	v/c > 1
≤ 10.0	A	F
10.1 to 15.0	B	F
15.1 to 25.0	C	F
25.1 to 35.0	D	F
35.1 to 50.0	E	F
>50.0	F	F

[1]Source: *Highway Capacity Manual 2010,* Transportation Research Board; Washington, DC; 2010.

[2] ibid

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	98	670	587	412	815	132	83	4	84	57	8	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	14	11	11	11	12	12	16	12	11	11
Grade (%)		3%			-3%			0%			0%	
Storage Length (ft)	175		175	250		0	0		125	75		0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
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
Frt			0.850		0.979			0.857			0.864	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	1740	1697	1771	1777	0	1787	1628	0	1805	1587	0
Flt Permitted	0.080			0.254			0.703			0.697		
Satd. Flow (perm)	145	1740	1697	474	1777	0	1322	1628	0	1324	1587	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			616		14			88			75	
Link Speed (mph)		35			30			30			30	
Link Distance (ft)		1000			960			980			500	
Travel Time (s)		19.5			21.8			22.3			11.4	
Peak Hour 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
Heavy Vehicles (%)	0%	4%	0%	0%	3%	1%	1%	0%	0%	0%	0%	0%
Adj. Flow (vph)	103	705	618	434	858	139	87	4	88	60	8	75
Shared Lane Traffic (%)												
Lane Group Flow (vph)	103	705	618	434	997	0	87	92	0	60	83	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	0.94	1.02	1.02	1.02	1.00	1.00	0.85	1.00	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	2		1	2	
Detector Template	Left							Thru		Left	Thru	
Leading Detector (ft)	20	50	50	50	50		50	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	50	50	50	50		50	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)								94			94	
Detector 2 Size(ft)								6			6	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	

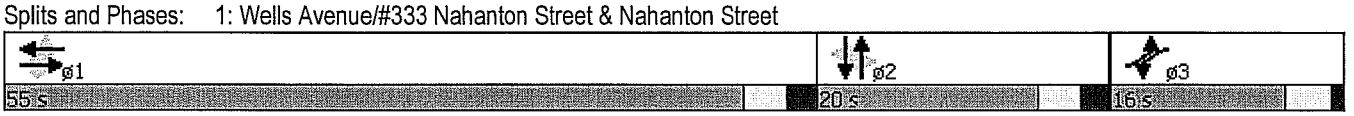
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	3	1		3	1			2			2	
Permitted Phases	1		1	1			2			2		
Detector Phase	3	1	1	3	1		2	2		2	2	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	10.0	11.0	11.0	10.0	11.0		11.0	11.0		11.0	11.0	
Total Split (s)	16.0	55.0	55.0	16.0	55.0		20.0	20.0		20.0	20.0	
Total Split (%)	17.6%	60.4%	60.4%	17.6%	60.4%		22.0%	22.0%		22.0%	22.0%	
Maximum Green (s)	12.0	50.0	50.0	12.0	50.0		15.0	15.0		15.0	15.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag		Lead	Lead		Lead		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?		Yes	Yes		Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0		2.0	2.0		2.0	2.0	
Recall Mode	None	Min	Min	None	Min		None	None		None	None	
Act Effct Green (s)	62.9	50.1	50.1	62.9	50.1		10.1	10.1		10.1	10.1	
Actuated g/C Ratio	0.73	0.58	0.58	0.73	0.58		0.12	0.12		0.12	0.12	
v/c Ratio	0.32	0.70	0.50	0.83	0.96		0.56	0.34		0.39	0.33	
Control Delay	9.6	18.0	2.4	22.7	38.9		50.0	12.4		42.2	13.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	9.6	18.0	2.4	22.7	38.9		50.0	12.4		42.2	13.9	
LOS	A	B	A	C	D		D	B		D	B	
Approach Delay		10.6			34.0			30.7			25.8	
Approach LOS		B			C			C			C	
90th %ile Green (s)	12.0	50.0	50.0	12.0	50.0		15.0	15.0		15.0	15.0	
90th %ile Term Code	Max	Max	Max	Max	Max		Max	Max		Max	Max	
70th %ile Green (s)	12.0	50.0	50.0	12.0	50.0		12.1	12.1		12.1	12.1	
70th %ile Term Code	Max	Max	Max	Max	Max		Gap	Gap		Gap	Gap	
50th %ile Green (s)	12.0	50.0	50.0	12.0	50.0		10.0	10.0		10.0	10.0	
50th %ile Term Code	Max	Max	Max	Max	Max		Gap	Gap		Gap	Gap	
30th %ile Green (s)	12.0	50.0	50.0	12.0	50.0		7.9	7.9		7.9	7.9	
30th %ile Term Code	Max	Max	Max	Max	Max		Gap	Gap		Gap	Gap	
10th %ile Green (s)	11.0	50.0	50.0	11.0	50.0		6.0	6.0		6.0	6.0	
10th %ile Term Code	Gap	Max	Max	Gap	Max		Min	Min		Min	Min	
Queue Length 50th (ft)	10	248	0	52	466		45	2		31	4	
Queue Length 95th (ft)	49	435	47	#171	#849		92	43		68	43	
Internal Link Dist (ft)		920			880			900			420	
Turn Bay Length (ft)	175		175	250						75		
Base Capacity (vph)	326	1013	1245	529	1040		230	357		231	339	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback 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/c Ratio	0.32	0.70	0.50	0.82	0.96		0.38	0.26		0.26	0.24	

Intersection Summary

Area Type: Other
Cycle Length: 91

Actuated Cycle Length: 86
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 23.0 Intersection LOS: C
Intersection Capacity Utilization 81.0% ICU Level of Service D
Analysis Period (min) 15
90th %ile Actuated Cycle: 91
70th %ile Actuated Cycle: 88.1
50th %ile Actuated Cycle: 86
30th %ile Actuated Cycle: 83.9
10th %ile Actuated Cycle: 81
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Wells Avenue/#333 Nahanton Street & Nahanton Street



Intersection

Int Delay, s/veh 118.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	263	627	980	61	27	362
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	225	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	4	1	2	11	3
Mvmt Flow	271	646	1010	63	28	373

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1073	0	-	0	2231	1042
Stage 1	-	-	-	-	1042	-
Stage 2	-	-	-	-	1189	-
Critical Hdwy	4.12	-	-	-	6.51	6.23
Critical Hdwy Stg 1	-	-	-	-	5.51	-
Critical Hdwy Stg 2	-	-	-	-	5.51	-
Follow-up Hdwy	2.218	-	-	-	3.599	3.327
Pot Cap-1 Maneuver	650	-	-	-	44	~ 278
Stage 1	-	-	-	-	327	-
Stage 2	-	-	-	-	277	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	650	-	-	-	~ 26	~ 278
Mov Cap-2 Maneuver	-	-	-	-	~ 26	-
Stage 1	-	-	-	-	327	-
Stage 2	-	-	-	-	162	-

Approach	EB	WB	SB
HCM Control Delay, s	4.3	0	$ 698.9
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	650	-	-	-	166
HCM Lane V/C Ratio	0.417	-	-	-	2.416
HCM Control Delay (s)	14.4	-	-	-	-$ 698.9
HCM Lane LOS	B	-	-	-	F
HCM 95th %tile Q(veh)	2.1	-	-	-	33.8

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection

Int Delay, s/veh 0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	8	2	6	0	0	7	1	187	1	68	740	58
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	17	0	0	0	0	1	0	0	0	0
Mvmt Flow	9	2	6	0	0	8	1	201	1	73	796	62

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1181	1177	827	1181	1208	202	858	0	0	202	0	0
Stage 1	973	973	-	204	204	-	-	-	-	-	-	-
Stage 2	208	204	-	977	1004	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.37	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.453	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	168	193	350	168	185	844	791	-	-	1382	-	-
Stage 1	306	333	-	803	737	-	-	-	-	-	-	-
Stage 2	799	737	-	304	322	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	153	173	350	150	166	844	791	-	-	1382	-	-
Mov Cap-2 Maneuver	153	173	-	150	166	-	-	-	-	-	-	-
Stage 1	306	299	-	802	736	-	-	-	-	-	-	-
Stage 2	791	736	-	266	289	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	24.9	9.3	0.1	0.6
HCM LOS	C	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	791	-	-	198	844	1382	-	-
HCM Lane V/C Ratio	0.001	-	-	0.087	0.009	0.053	-	-
HCM Control Delay (s)	9.6	0	-	24.9	9.3	7.8	0	-
HCM Lane LOS	A	A	-	C	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0	0.2	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	7	213	54	1	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	9	263	67	1	0	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	68	0	-	0	347	67
Stage 1	-	-	-	-	67	-
Stage 2	-	-	-	-	280	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1546	-	-	-	654	1002
Stage 1	-	-	-	-	961	-
Stage 2	-	-	-	-	772	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1546	-	-	-	649	1002
Mov Cap-2 Maneuver	-	-	-	-	649	-
Stage 1	-	-	-	-	961	-
Stage 2	-	-	-	-	767	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1546	-	-	-	1002
HCM Lane V/C Ratio	0.006	-	-	-	0.001
HCM Control Delay (s)	7.3	0	-	-	8.6
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	56	672	169	196	553	77	606	4	486	105	5	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	14	11	11	11	12	12	16	12	11	11
Grade (%)		3%			-3%			0%			0%	
Storage Length (ft)	175		175	250		0	0		125	75		0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
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
Frt			0.850		0.982			0.851			0.860	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1685	1809	1664	1753	1784	0	1805	1614	0	1787	1551	0
Flt Permitted	0.133			0.133			0.707			0.277		
Satd. Flow (perm)	236	1809	1664	245	1784	0	1343	1614	0	521	1551	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			113		8			315			72	
Link Speed (mph)		35			30			30			30	
Link Distance (ft)		1000			960			980			500	
Travel Time (s)		19.5			21.8			22.3			11.4	
Peak Hour 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
Heavy Vehicles (%)	2%	0%	2%	1%	3%	0%	0%	25%	0%	1%	0%	2%
Adj. Flow (vph)	59	707	178	206	582	81	638	4	512	111	5	72
Shared Lane Traffic (%)												
Lane Group Flow (vph)	59	707	178	206	663	0	638	516	0	111	77	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	0.94	1.02	1.02	1.02	1.00	1.00	0.85	1.00	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	2		1	2	
Detector Template	Left							Thru		Left	Thru	
Leading Detector (ft)	20	50	50	50	50		50	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	50	50	50	50		50	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)								94			94	
Detector 2 Size(ft)								6			6	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	

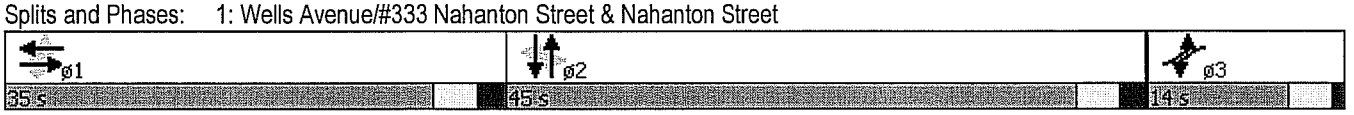
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	3	1		3	1			2			2	
Permitted Phases	1		1	1			2			2		
Detector Phase	3	1	1	3	1		2	2		2	2	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	10.0	11.0	11.0	10.0	11.0		11.0	11.0		11.0	11.0	
Total Split (s)	14.0	35.0	35.0	14.0	35.0		45.0	45.0		45.0	45.0	
Total Split (%)	14.9%	37.2%	37.2%	14.9%	37.2%		47.9%	47.9%		47.9%	47.9%	
Maximum Green (s)	10.0	30.0	30.0	10.0	30.0		40.0	40.0		40.0	40.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag		Lead	Lead		Lead		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?		Yes	Yes		Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0		2.0	2.0		2.0	2.0	
Recall Mode	None	Min	Min	None	Min		None	None		None	None	
Act Effct Green (s)	40.6	30.0	30.0	40.6	30.0		40.0	40.0		40.0	40.0	
Actuated g/C Ratio	0.43	0.32	0.32	0.43	0.32		0.43	0.43		0.43	0.43	
v/c Ratio	0.24	1.22	0.29	0.79	1.15		1.11	0.59		0.50	0.11	
Control Delay	15.8	144.5	11.0	41.2	117.3		100.3	10.7		29.4	5.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	15.8	144.5	11.0	41.2	117.3		100.3	10.7		29.4	5.1	
LOS	B	F	B	D	F		F	B		C	A	
Approach Delay		111.3			99.2			60.2			19.4	
Approach LOS		F			F			E			B	
90th %ile Green (s)	10.0	30.0	30.0	10.0	30.0		40.0	40.0		40.0	40.0	
90th %ile Term Code	Max	Max	Max	Max	Max		Max	Max		Max	Max	
70th %ile Green (s)	10.0	30.0	30.0	10.0	30.0		40.0	40.0		40.0	40.0	
70th %ile Term Code	Max	Max	Max	Max	Max		Max	Max		Max	Max	
50th %ile Green (s)	10.0	30.0	30.0	10.0	30.0		40.0	40.0		40.0	40.0	
50th %ile Term Code	Max	Max	Max	Max	Max		Max	Max		Max	Max	
30th %ile Green (s)	10.0	30.0	30.0	10.0	30.0		40.0	40.0		40.0	40.0	
30th %ile Term Code	Max	Max	Max	Max	Max		Max	Max		Max	Max	
10th %ile Green (s)	7.9	30.0	30.0	7.9	30.0		40.0	40.0		40.0	40.0	
10th %ile Term Code	Gap	Max	Max	Gap	Max		Max	Max		Max	Max	
Queue Length 50th (ft)	18	~523	27	70	~469		~441	79		47	2	
Queue Length 95th (ft)	40	#740	77	#178	#686		#651	182		105	27	
Internal Link Dist (ft)		920			880			900			420	
Turn Bay Length (ft)	175		175	250						75		
Base Capacity (vph)	258	580	610	268	577		574	870		222	704	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback 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/c Ratio	0.23	1.22	0.29	0.77	1.15		1.11	0.59		0.50	0.11	

Intersection Summary

Area Type: Other
Cycle Length: 94

Actuated Cycle Length: 93.6
Natural Cycle: 110
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.22
Intersection Signal Delay: 83.8 Intersection LOS: F
Intersection Capacity Utilization 100.6% ICU Level of Service G
Analysis Period (min) 15
90th %ile Actuated Cycle: 94
70th %ile Actuated Cycle: 94
50th %ile Actuated Cycle: 94
30th %ile Actuated Cycle: 94
10th %ile Actuated Cycle: 91.9
~ 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.

Splits and Phases: 1: Wells Avenue/#333 Nahanton Street & Nahanton Street



Intersection

Int Delay, s/veh 83.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	405	858	510	28	34	316
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	225	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	1	0	2	4	0	3
Mvmt Flow	422	894	531	29	35	329

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	560	0	-	0	2284	546
Stage 1	-	-	-	-	546	-
Stage 2	-	-	-	-	1738	-
Critical Hdwy	4.11	-	-	-	6.4	6.23
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.209	-	-	-	3.5	3.327
Pot Cap-1 Maneuver	1016	-	-	-	44	536
Stage 1	-	-	-	-	584	-
Stage 2	-	-	-	-	157	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1016	-	-	-	~ 26	536
Mov Cap-2 Maneuver	-	-	-	-	~ 26	-
Stage 1	-	-	-	-	584	-
Stage 2	-	-	-	-	92	-

Approach	EB	WB	SB
HCM Control Delay, s	3.5	0	$ 502.7
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1016	-	-	-	184
HCM Lane V/C Ratio	0.415	-	-	-	1.981
HCM Control Delay (s)	11	-	-	-	$ 502.7
HCM Lane LOS	B	-	-	-	F
HCM 95th %tile Q(veh)	2.1	-	-	-	27.5

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection

Int Delay, s/veh 16.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	70	1	1	0	0	52	0	901	0	3	403	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	0	0	0	0	0	2	0	0	0	0	0	0
Mvmt Flow	83	1	1	0	0	62	0	1073	0	4	480	12

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1597	1566	486	1567	1572	1073	492	0	0	1073	0	0
Stage 1	493	493	-	1073	1073	-	-	-	-	-	-	-
Stage 2	1104	1073	-	494	499	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.22	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.318	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	87	112	585	91	111	268	1082	-	-	657	-	-
Stage 1	562	550	-	269	299	-	-	-	-	-	-	-
Stage 2	258	299	-	561	547	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 66	111	585	90	110	268	1082	-	-	657	-	-
Mov Cap-2 Maneuver	~ 66	111	-	90	110	-	-	-	-	-	-	-
Stage 1	562	546	-	269	299	-	-	-	-	-	-	-
Stage 2	198	299	-	554	543	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 308.3	22.4	0	0.1
HCM LOS	F	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1082	-	-	67	268	657	-	-
HCM Lane V/C Ratio	-	-	-	1.279	0.231	0.005	-	-
HCM Control Delay (s)	0	-	-	$ 308.3	22.4	10.5	0	-
HCM Lane LOS	A	-	-	F	C	B	A	-
HCM 95th %tile Q(veh)	0	-	-	7	0.9	0	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	4	183	390	2	1	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	0	1	0	0	0	0
Mvmt Flow	5	226	481	2	1	15

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	484	0	-	0	719	483
Stage 1	-	-	-	-	483	-
Stage 2	-	-	-	-	236	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1089	-	-	-	398	588
Stage 1	-	-	-	-	625	-
Stage 2	-	-	-	-	808	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1089	-	-	-	396	588
Mov Cap-2 Maneuver	-	-	-	-	396	-
Stage 1	-	-	-	-	625	-
Stage 2	-	-	-	-	804	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	11.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1089	-	-	-	567
HCM Lane V/C Ratio	0.005	-	-	-	0.028
HCM Control Delay (s)	8.3	0	-	-	11.5
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	158	1134	813	144	870	92	124	9	134	47	8	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	14	11	11	11	12	12	16	12	11	11
Grade (%)		3%			-3%			0%			0%	
Storage Length (ft)	175		175	250		0	0		125	75		0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
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
Frt			0.850		0.986			0.859			0.862	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	1740	1697	1771	1788	0	1787	1632	0	1805	1583	0
Flt Permitted	0.098			0.073			0.693			0.536		
Satd. Flow (perm)	177	1740	1697	136	1788	0	1304	1632	0	1018	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			590		11			141			91	
Link Speed (mph)		35			30			30			30	
Link Distance (ft)		1000			960			980			500	
Travel Time (s)		19.5			21.8			22.3			11.4	
Peak Hour 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
Heavy Vehicles (%)	0%	4%	0%	0%	3%	1%	1%	0%	0%	0%	0%	0%
Adj. Flow (vph)	166	1194	856	152	916	97	131	9	141	49	8	91
Shared Lane Traffic (%)												
Lane Group Flow (vph)	166	1194	856	152	1013	0	131	150	0	49	99	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	0.94	1.02	1.02	1.02	1.00	1.00	0.85	1.00	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	2		1	2	
Detector Template	Left							Thru		Left	Thru	
Leading Detector (ft)	20	50	50	50	50		50	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	50	50	50	50		50	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)								94			94	
Detector 2 Size(ft)								6			6	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	

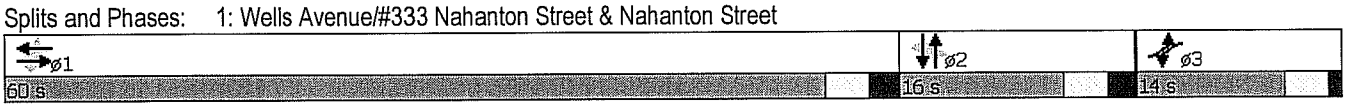
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	3	1		3	1			2			2	
Permitted Phases	1		1	1			2			2		
Detector Phase	3	1	1	3	1		2	2		2	2	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	10.0	11.0	11.0	10.0	11.0		11.0	11.0		11.0	11.0	
Total Split (s)	14.0	60.0	60.0	14.0	60.0		16.0	16.0		16.0	16.0	
Total Split (%)	15.6%	66.7%	66.7%	15.6%	66.7%		17.8%	17.8%		17.8%	17.8%	
Maximum Green (s)	10.0	55.0	55.0	10.0	55.0		11.0	11.0		11.0	11.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag		Lead	Lead		Lead		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?		Yes	Yes		Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0		2.0	2.0		2.0	2.0	
Recall Mode	None	Min	Min	None	Min		None	None		None	None	
Act Effct Green (s)	64.0	55.0	55.0	64.0	55.0		10.5	10.5		10.5	10.5	
Actuated g/C Ratio	0.73	0.63	0.63	0.73	0.63		0.12	0.12		0.12	0.12	
v/c Ratio	0.62	1.09	0.67	0.61	0.90		0.84	0.47		0.40	0.37	
Control Delay	20.2	75.1	5.9	24.6	27.1		79.5	13.1		46.7	14.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	20.2	75.1	5.9	24.6	27.1		79.5	13.1		46.7	14.0	
LOS	C	E	A	C	C		E	B		D	B	
Approach Delay		44.2			26.8			44.1			24.9	
Approach LOS		D			C			D			C	
90th %ile Green (s)	10.0	55.0	55.0	10.0	55.0		11.0	11.0		11.0	11.0	
90th %ile Term Code	Max	Max	Max	Max	Max		Max	Max		Max	Max	
70th %ile Green (s)	10.0	55.0	55.0	10.0	55.0		11.0	11.0		11.0	11.0	
70th %ile Term Code	Max	Max	Max	Max	Max		Max	Max		Max	Max	
50th %ile Green (s)	8.0	55.0	55.0	8.0	55.0		11.0	11.0		11.0	11.0	
50th %ile Term Code	Gap	Max	Max	Gap	Max		Max	Max		Max	Max	
30th %ile Green (s)	6.0	55.0	55.0	6.0	55.0		11.0	11.0		11.0	11.0	
30th %ile Term Code	Min	Max	Max	Min	Max		Max	Max		Max	Max	
10th %ile Green (s)	6.0	55.0	55.0	6.0	55.0		8.6	8.6		8.6	8.6	
10th %ile Term Code	Min	Max	Max	Min	Max		Gap	Gap		Gap	Gap	
Queue Length 50th (ft)	18	~759	59	28	433		72	4		25	4	
Queue Length 95th (ft)	83	#1035	175	89	#791		#174	59		63	50	
Internal Link Dist (ft)		920			880			900			420	
Turn Bay Length (ft)	175		175	250						75		
Base Capacity (vph)	310	1094	1286	289	1128		164	328		128	278	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback 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/c Ratio	0.54	1.09	0.67	0.53	0.90		0.80	0.46		0.38	0.36	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 87.5

Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.09
Intersection Signal Delay: 38.1 Intersection LOS: D
Intersection Capacity Utilization 97.3% ICU Level of Service F
Analysis Period (min) 15
90th %ile Actuated Cycle: 90
70th %ile Actuated Cycle: 90
50th %ile Actuated Cycle: 88
30th %ile Actuated Cycle: 86
10th %ile Actuated Cycle: 83.6
~ 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.

Splits and Phases: 1: Wells Avenue/#333 Nahanton Street & Nahanton Street



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	493	822	887	61	27	219
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	14	14	16	16
Storage Length (ft)	225			0	0	0
Storage Lanes	1			1	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1711	1827	2007	1689	1843	1777
Flt Permitted	0.084				0.950	
Satd. Flow (perm)	151	1827	2007	1689	1843	1777
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				63		96
Link Speed (mph)		35	30		30	
Link Distance (ft)		960	1000		500	
Travel Time (s)		18.7	22.7		11.4	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	1%	2%	11%	3%
Adj. Flow (vph)	508	847	914	63	28	226
Shared Lane Traffic (%)						
Lane Group Flow (vph)	508	847	914	63	28	226
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		11	11		16	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.04	1.00	0.92	0.92	0.85	0.85
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	pm+ov	NA	pt+ov
Protected Phases	5	2	6	4	4	4 5

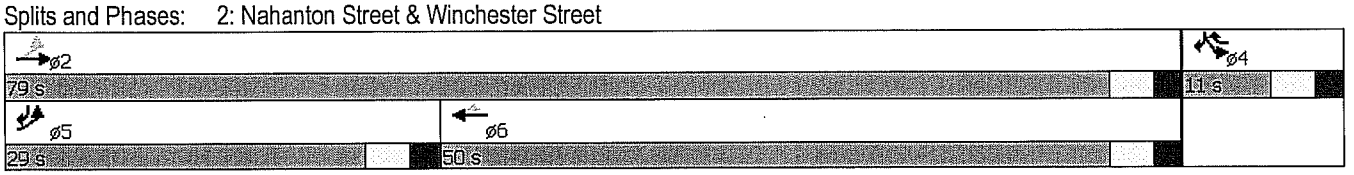
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Permitted Phases	2			6		
Detector Phase	5	2	6	4	4	4 5
Switch Phase						
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0	
Total Split (s)	29.0	79.0	50.0	11.0	11.0	
Total Split (%)	32.2%	87.8%	55.6%	12.2%	12.2%	
Maximum Green (s)	24.0	74.0	45.0	6.0	6.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	Min	Min	
Act Effct Green (s)	71.7	71.7	42.7	53.7	6.0	35.1
Actuated g/C Ratio	0.82	0.82	0.49	0.61	0.07	0.40
v/c Ratio	0.92	0.57	0.94	0.06	0.22	0.29
Control Delay	48.2	4.4	39.6	2.0	44.4	11.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.2	4.4	39.6	2.0	44.4	11.8
LOS	D	A	D	A	D	B
Approach Delay		20.8	37.2		15.4	
Approach LOS		C	D		B	
90th %ile Green (s)	24.0	74.0	45.0	6.0	6.0	
90th %ile Term Code	Max	Hold	Max	Max	Max	
70th %ile Green (s)	24.0	74.0	45.0	6.0	6.0	
70th %ile Term Code	Max	Hold	Max	Max	Max	
50th %ile Green (s)	24.0	74.0	45.0	6.0	6.0	
50th %ile Term Code	Max	Hold	Max	Max	Max	
30th %ile Green (s)	24.0	74.0	45.0	6.0	6.0	
30th %ile Term Code	Max	Hold	Max	Max	Max	
10th %ile Green (s)	24.0	62.8	33.8	6.0	6.0	
10th %ile Term Code	Max	Hold	Gap	Max	Max	
Queue Length 50th (ft)	226	110	455	0	15	48
Queue Length 95th (ft)	#427	166	#722	14	42	100
Internal Link Dist (ft)		880	920		420	
Turn Bay Length (ft)	225					
Base Capacity (vph)	551	1545	1032	1057	126	768
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	0.92	0.55	0.89	0.06	0.22	0.29

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 87.8
Natural Cycle: 90

Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 26.5
Intersection LOS: C
Intersection Capacity Utilization 91.5%
ICU Level of Service F
Analysis Period (min) 15
90th %ile Actuated Cycle: 90
70th %ile Actuated Cycle: 90
50th %ile Actuated Cycle: 90
30th %ile Actuated Cycle: 90
10th %ile Actuated Cycle: 78.8
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Nahanton Street & Winchester Street



Intersection	
Intersection Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	8	2	6	0	0	7	1	275	1	68	698	58
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	17	0	0	0	0	1	0	0	0	0
Mvmt Flow	9	2	6	0	0	8	1	296	1	73	751	62

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1230	1227	782	1230	1257	296	813	0	0	297	0	0
Stage 1	928	928	-	298	298	-	-	-	-	-	-	-
Stage 2	302	299	-	932	959	-	-	-	-	-	-	-
Follow-up Headway	3.5	4	3.453	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Capacity-1 Maneuver	156	180	371	156	173	748	823	-	-	1276	-	-
Stage 1	324	349	-	715	671	-	-	-	-	-	-	-
Stage 2	712	670	-	322	338	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	142	161	371	139	155	748	823	-	-	1276	-	-
Mov Capacity-2 Maneuver	142	161	-	139	155	-	-	-	-	-	-	-
Stage 1	324	312	-	714	670	-	-	-	-	-	-	-
Stage 2	704	669	-	281	302	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	26.1	9.9	0	0.7
HCM LOS	D	A		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	823	-	-	188	748	1276	-	-
HCM Lane V/C Ratio	0.001	-	-	0.092	0.01	0.057	-	-
HCM Control Delay (s)	9.38	0	-	26.1	9.9	7.993	0	-
HCM Lane LOS	A	A		D	A	A	A	
HCM 95th %tile Q(veh)	0.004	-	-	0.298	0.03	0.182	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	7	213	54	1	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	9	263	67	1	0	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	68	0	-	0	347	67
Stage 1	-	-	-	-	67	-
Stage 2	-	-	-	-	280	-
Follow-up Headway	2.2	-	-	-	3.5	3.3
Pot Capacity-1 Maneuver	1546	-	-	-	654	1002
Stage 1	-	-	-	-	961	-
Stage 2	-	-	-	-	772	-
Time blocked-Platoon, %		-	-	-		
Mov Capacity-1 Maneuver	1546	-	-	-	649	1002
Mov Capacity-2 Maneuver	-	-	-	-	649	-
Stage 1	-	-	-	-	961	-
Stage 2	-	-	-	-	767	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	8.6
HCM LOS			A

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1546	-	-	-	1002
HCM Lane V/C Ratio	0.006	-	-	-	0.001
HCM Control Delay (s)	7.342	0	-	-	8.6
HCM Lane LOS	A	A			A
HCM 95th %tile Q(veh)	0.017	-	-	-	0.004

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	81	489	186	227	366	77	658	4	448	90	5	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	14	11	11	11	12	12	16	12	11	11
Grade (%)		3%			-3%			0%			0%	
Storage Length (ft)	175		175	250		0	0		125	75		0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
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
Frt			0.850		0.974			0.851			0.857	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1685	1809	1664	1753	1772	0	1805	1614	0	1787	1545	0
Flt Permitted	0.197			0.139			0.690			0.319		
Satd. Flow (perm)	349	1809	1664	257	1772	0	1311	1614	0	600	1545	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			171		12			370			98	
Link Speed (mph)		35			30			30			30	
Link Distance (ft)		1000			960			980			500	
Travel Time (s)		19.5			21.8			22.3			11.4	
Peak Hour 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
Heavy Vehicles (%)	2%	0%	2%	1%	3%	0%	0%	25%	0%	1%	0%	2%
Adj. Flow (vph)	85	515	196	239	385	81	693	4	472	95	5	98
Shared Lane Traffic (%)												
Lane Group Flow (vph)	85	515	196	239	466	0	693	476	0	95	103	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	0.94	1.02	1.02	1.02	1.00	1.00	0.85	1.00	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	2		1	2	
Detector Template	Left							Thru		Left	Thru	
Leading Detector (ft)	20	50	50	50	50		50	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	50	50	50	50		50	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)								94			94	
Detector 2 Size(ft)								6			6	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	

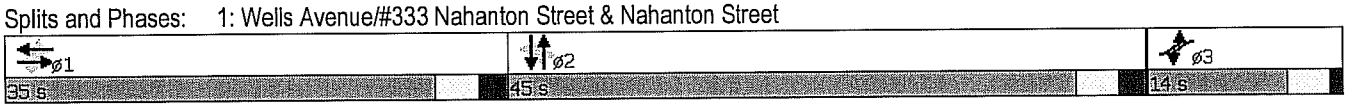
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	3	1		3	1			2			2	
Permitted Phases	1		1	1			2			2		
Detector Phase	3	1	1	3	1		2	2		2	2	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	10.0	11.0	11.0	10.0	11.0		11.0	11.0		11.0	11.0	
Total Split (s)	14.0	35.0	35.0	14.0	35.0		45.0	45.0		45.0	45.0	
Total Split (%)	14.9%	37.2%	37.2%	14.9%	37.2%		47.9%	47.9%		47.9%	47.9%	
Maximum Green (s)	10.0	30.0	30.0	10.0	30.0		40.0	40.0		40.0	40.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag		Lead	Lead		Lead		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?		Yes	Yes		Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0		2.0	2.0		2.0	2.0	
Recall Mode	None	Min	Min	None	Min		None	None		None	None	
Act Effct Green (s)	39.8	28.8	28.8	39.8	28.8		40.0	40.0		40.0	40.0	
Actuated g/C Ratio	0.43	0.31	0.31	0.43	0.31		0.43	0.43		0.43	0.43	
v/c Ratio	0.29	0.92	0.31	0.89	0.84		1.23	0.53		0.37	0.14	
Control Delay	16.3	54.4	6.8	53.4	43.8		144.4	6.9		23.6	4.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	16.3	54.4	6.8	53.4	43.8		144.4	6.9		23.6	4.5	
LOS	B	D	A	D	D		F	A		C	A	
Approach Delay		38.6			47.0			88.4			13.7	
Approach LOS		D			D			F			B	
90th %ile Green (s)	10.0	30.0	30.0	10.0	30.0		40.0	40.0		40.0	40.0	
90th %ile Term Code	Max	Max	Max	Max	Max		Max	Max		Max	Max	
70th %ile Green (s)	10.0	30.0	30.0	10.0	30.0		40.0	40.0		40.0	40.0	
70th %ile Term Code	Max	Max	Max	Max	Max		Max	Max		Max	Max	
50th %ile Green (s)	10.0	30.0	30.0	10.0	30.0		40.0	40.0		40.0	40.0	
50th %ile Term Code	Max	Max	Max	Max	Max		Max	Max		Max	Max	
30th %ile Green (s)	10.0	30.0	30.0	10.0	30.0		40.0	40.0		40.0	40.0	
30th %ile Term Code	Max	Max	Max	Max	Max		Max	Max		Max	Max	
10th %ile Green (s)	9.8	24.2	24.2	9.8	24.2		40.0	40.0		40.0	40.0	
10th %ile Term Code	Gap	Gap	Gap	Gap	Gap		Max	Max		Max	Max	
Queue Length 50th (ft)	27	290	10	85	248		~518	38		38	2	
Queue Length 95th (ft)	53	#478	59	#223	#409		#733	116		82	31	
Internal Link Dist (ft)		920			880			900			420	
Turn Bay Length (ft)	175		175	250						75		
Base Capacity (vph)	293	585	653	271	581		565	906		258	721	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback 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/c Ratio	0.29	0.88	0.30	0.88	0.80		1.23	0.53		0.37	0.14	

Intersection Summary

Area Type: Other
Cycle Length: 94
Actuated Cycle Length: 92.8

Natural Cycle: 100
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.23
Intersection Signal Delay: 59.3 Intersection LOS: E
Intersection Capacity Utilization 96.6% ICU Level of Service F
Analysis Period (min) 15
90th %ile Actuated Cycle: 94
70th %ile Actuated Cycle: 94
50th %ile Actuated Cycle: 94
30th %ile Actuated Cycle: 94
10th %ile Actuated Cycle: 88
~ 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.

Splits and Phases: 1: Wells Avenue/#333 Nahanton Street & Nahanton Street



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	359	668	469	38	84	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	14	14	16	16
Storage Length (ft)	225			0	0	0
Storage Lanes	1			1	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1728	1900	1987	1656	2046	1777
Flt Permitted	0.207				0.950	
Satd. Flow (perm)	376	1900	1987	1656	2046	1777
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				40		209
Link Speed (mph)		35	30		30	
Link Distance (ft)		960	1000		500	
Travel Time (s)		18.7	22.7		11.4	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	1%	0%	2%	4%	0%	3%
Adj. Flow (vph)	374	696	489	40	88	209
Shared Lane Traffic (%)						
Lane Group Flow (vph)	374	696	489	40	88	209
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		11	11		16	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.04	1.00	0.92	0.92	0.85	0.85
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	pm+ov	NA	pt+ov
Protected Phases	5	2	6	4	4	4 5

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Permitted Phases	2			6		
Detector Phase	5	2	6	4	4	4 5
Switch Phase						
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0	
Total Split (s)	22.0	57.0	35.0	13.0	13.0	
Total Split (%)	31.4%	81.4%	50.0%	18.6%	18.6%	
Maximum Green (s)	17.0	52.0	30.0	8.0	8.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	Min	Min	
Act Effct Green (s)	37.6	37.6	18.4	30.9	7.3	26.6
Actuated g/C Ratio	0.68	0.68	0.33	0.56	0.13	0.48
v/c Ratio	0.63	0.54	0.74	0.04	0.32	0.22
Control Delay	11.3	6.0	24.0	2.2	28.8	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.3	6.0	24.0	2.2	28.8	2.7
LOS	B	A	C	A	C	A
Approach Delay		7.8	22.3		10.4	
Approach LOS		A	C		B	
90th %ile Green (s)	17.0	51.8	29.8	8.0	8.0	
90th %ile Term Code	Max	Hold	Gap	Max	Max	
70th %ile Green (s)	17.0	43.9	21.9	8.0	8.0	
70th %ile Term Code	Max	Hold	Gap	Max	Max	
50th %ile Green (s)	15.0	38.2	18.2	7.6	7.6	
50th %ile Term Code	Gap	Hold	Gap	Gap	Gap	
30th %ile Green (s)	12.3	31.5	14.2	6.6	6.6	
30th %ile Term Code	Gap	Hold	Gap	Gap	Gap	
10th %ile Green (s)	9.3	25.0	10.7	6.0	6.0	
10th %ile Term Code	Gap	Hold	Gap	Min	Min	
Queue Length 50th (ft)	39	89	143	0	27	0
Queue Length 95th (ft)	124	145	242	10	76	34
Internal Link Dist (ft)		880	920		420	
Turn Bay Length (ft)	225					
Base Capacity (vph)	685	1716	1115	970	306	990
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	0.55	0.41	0.44	0.04	0.29	0.21

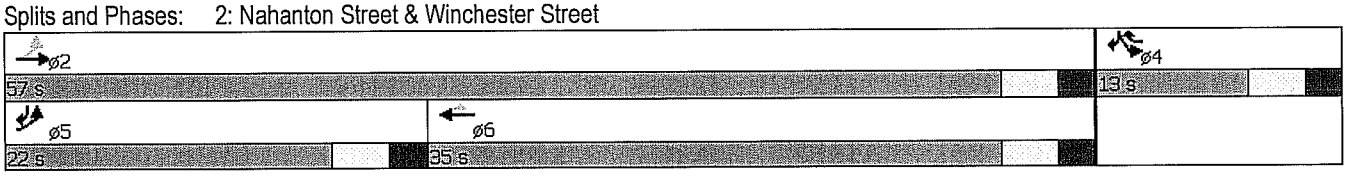
Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 55.3
Natural Cycle: 55

Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 12.3
Intersection Capacity Utilization 62.1%
Analysis Period (min) 15
90th %ile Actuated Cycle: 69.8
70th %ile Actuated Cycle: 61.9
50th %ile Actuated Cycle: 55.8
30th %ile Actuated Cycle: 48.1
10th %ile Actuated Cycle: 41

Intersection LOS: B
ICU Level of Service B

Splits and Phases: 2: Nahanton Street & Winchester Street



Intersection	
Intersection Delay, s/veh	19.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	70	1	1	0	0	52	0	915	0	3	451	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	0	0	0	0	0	2	0	0	0	0	0	0
Mvmt Flow	83	1	1	0	0	62	0	1089	0	4	537	12

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1670	1639	543	1640	1645	1089	549	0	0	1089	0	0
Stage 1	550	550	-	1089	1089	-	-	-	-	-	-	-
Stage 2	1120	1089	-	551	556	-	-	-	-	-	-	-
Follow-up Headway	3.5	4	3.3	3.5	4	3.318	2.2	-	-	2.2	-	-
Pot Capacity-1 Maneuver	# 77	101	544	81	101	262	1031	-	-	648	-	-
Stage 1	523	519	-	263	294	-	-	-	-	-	-	-
Stage 2	253	294	-	522	516	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	# 58	100	544	80	100	262	1031	-	-	648	-	-
Mov Capacity-2 Maneuver	# 58	100	-	80	100	-	-	-	-	-	-	-
Stage 1	523	514	-	263	294	-	-	-	-	-	-	-
Stage 2	193	294	-	515	511	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 392.1	22.9	0	0.1
HCM LOS	F	C		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1031	-	-	59	262	648	-	-
HCM Lane V/C Ratio	-	-	-	1.453	0.236	0.006	-	-
HCM Control Delay (s)	0	-	-	$ 392.1	22.9	10.586	0	-
HCM Lane LOS	A			F	C	B	A	
HCM 95th %tile Q(veh)	0	-	-	7.58	0.896	0.017	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	4	183	390	2	1	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	0	1	0	0	0	0
Mvmt Flow	5	226	481	2	1	15

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	484	0	-	0	719	483
Stage 1	-	-	-	-	483	-
Stage 2	-	-	-	-	236	-
Follow-up Headway	2.2	-	-	-	3.5	3.3
Pot Capacity-1 Maneuver	1089	-	-	-	398	588
Stage 1	-	-	-	-	625	-
Stage 2	-	-	-	-	808	-
Time blocked-Platoon, %		-	-	-		
Mov Capacity-1 Maneuver	1089	-	-	-	396	588
Mov Capacity-2 Maneuver	-	-	-	-	396	-
Stage 1	-	-	-	-	625	-
Stage 2	-	-	-	-	804	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	11.5
HCM LOS			B

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1089	-	-	-	567
HCM Lane V/C Ratio	0.005	-	-	-	0.028
HCM Control Delay (s)	8.321	0	-	-	11.5
HCM Lane LOS	A	A			B
HCM 95th %tile Q(veh)	0.014	-	-	-	0.087

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	158	1134	853	177	870	92	129	9	139	47	8	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	14	11	11	11	12	12	16	12	11	11
Grade (%)		3%			-3%			0%			0%	
Storage Length (ft)	175		175	250		0	0		125	75		0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
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
Frt			0.850		0.986			0.859			0.862	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	1740	1697	1771	1788	0	1787	1632	0	1805	1583	0
Flt Permitted	0.093			0.073			0.693			0.517		
Satd. Flow (perm)	168	1740	1697	136	1788	0	1304	1632	0	982	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			619		11			146			91	
Link Speed (mph)		35			30			30			30	
Link Distance (ft)		1000			960			980			500	
Travel Time (s)		19.5			21.8			22.3			11.4	
Peak Hour 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
Heavy Vehicles (%)	0%	4%	0%	0%	3%	1%	1%	0%	0%	0%	0%	0%
Adj. Flow (vph)	166	1194	898	186	916	97	136	9	146	49	8	91
Shared Lane Traffic (%)												
Lane Group Flow (vph)	166	1194	898	186	1013	0	136	155	0	49	99	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	0.94	1.02	1.02	1.02	1.00	1.00	0.85	1.00	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	2		1	2	
Detector Template	Left							Thru		Left	Thru	
Leading Detector (ft)	20	50	50	50	50		50	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	50	50	50	50		50	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)								94			94	
Detector 2 Size(ft)								6			6	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	

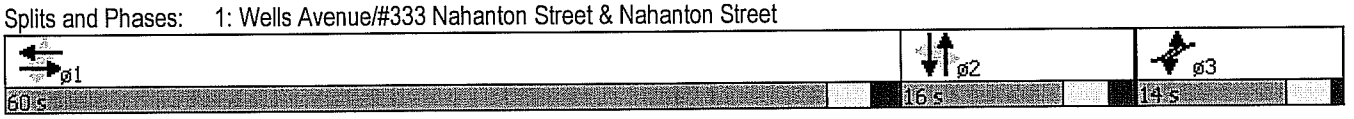
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	3	1		3	1			2			2	
Permitted Phases	1		1	1			2			2		
Detector Phase	3	1	1	3	1		2	2		2	2	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	10.0	11.0	11.0	10.0	11.0		11.0	11.0		11.0	11.0	
Total Split (s)	14.0	60.0	60.0	14.0	60.0		16.0	16.0		16.0	16.0	
Total Split (%)	15.6%	66.7%	66.7%	15.6%	66.7%		17.8%	17.8%		17.8%	17.8%	
Maximum Green (s)	10.0	55.0	55.0	10.0	55.0		11.0	11.0		11.0	11.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag		Lead	Lead		Lead		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?		Yes	Yes		Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0		2.0	2.0		2.0	2.0	
Recall Mode	None	Min	Min	None	Min		None	None		None	None	
Act Effct Green (s)	64.5	55.0	55.0	64.5	55.0		10.7	10.7		10.7	10.7	
Actuated g/C Ratio	0.73	0.62	0.62	0.73	0.62		0.12	0.12		0.12	0.12	
v/c Ratio	0.61	1.10	0.70	0.72	0.91		0.87	0.48		0.42	0.37	
Control Delay	20.9	78.6	6.4	33.8	28.2		84.3	13.0		47.8	14.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	20.9	78.6	6.4	33.8	28.2		84.3	13.0		47.8	14.0	
LOS	C	E	A	C	C		F	B		D	B	
Approach Delay		45.7			29.1			46.4			25.2	
Approach LOS		D			C			D			C	
90th %ile Green (s)	10.0	55.0	55.0	10.0	55.0		11.0	11.0		11.0	11.0	
90th %ile Term Code	Max	Max	Max	Max	Max		Max	Max		Max	Max	
70th %ile Green (s)	10.0	55.0	55.0	10.0	55.0		11.0	11.0		11.0	11.0	
70th %ile Term Code	Max	Max	Max	Max	Max		Max	Max		Max	Max	
50th %ile Green (s)	9.6	55.0	55.0	9.6	55.0		11.0	11.0		11.0	11.0	
50th %ile Term Code	Gap	Max	Max	Gap	Max		Max	Max		Max	Max	
30th %ile Green (s)	7.1	55.0	55.0	7.1	55.0		11.0	11.0		11.0	11.0	
30th %ile Term Code	Gap	Max	Max	Gap	Max		Max	Max		Max	Max	
10th %ile Green (s)	6.0	55.0	55.0	6.0	55.0		9.3	9.3		9.3	9.3	
10th %ile Term Code	Min	Max	Max	Min	Max		Gap	Gap		Gap	Gap	
Queue Length 50th (ft)	21	~785	66	48	459		77	5		26	4	
Queue Length 95th (ft)	87	#1035	193	#132	#791		#181	60		63	50	
Internal Link Dist (ft)		920			880			900			420	
Turn Bay Length (ft)	175		175	250						75		
Base Capacity (vph)	301	1085	1291	287	1119		162	331		122	277	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback 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/c Ratio	0.55	1.10	0.70	0.65	0.91		0.84	0.47		0.40	0.36	

Intersection Summary

Area Type: Other
Cycle Length: 90

Actuated Cycle Length: 88.2
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.10
Intersection Signal Delay: 39.8
Intersection LOS: D
Intersection Capacity Utilization 99.4%
ICU Level of Service F
Analysis Period (min) 15
90th %ile Actuated Cycle: 90
70th %ile Actuated Cycle: 90
50th %ile Actuated Cycle: 89.6
30th %ile Actuated Cycle: 87.1
10th %ile Actuated Cycle: 84.3
~ 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.

Splits and Phases: 1: Wells Avenue/#333 Nahanton Street & Nahanton Street



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	496	824	902	61	27	237
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	14	14	16	16
Storage Length (ft)	225			0	0	0
Storage Lanes	1			1	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1711	1827	2007	1689	1843	1777
Flt Permitted	0.083				0.950	
Satd. Flow (perm)	149	1827	2007	1689	1843	1777
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				63		92
Link Speed (mph)		35	30		30	
Link Distance (ft)		960	1000		500	
Travel Time (s)		18.7	22.7		11.4	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	1%	2%	11%	3%
Adj. Flow (vph)	511	849	930	63	28	244
Shared Lane Traffic (%)						
Lane Group Flow (vph)	511	849	930	63	28	244
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		11	11		16	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.04	1.00	0.92	0.92	0.85	0.85
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	pm+ov	Prot	pt+ov
Protected Phases	5	2	6	4	4	4 5

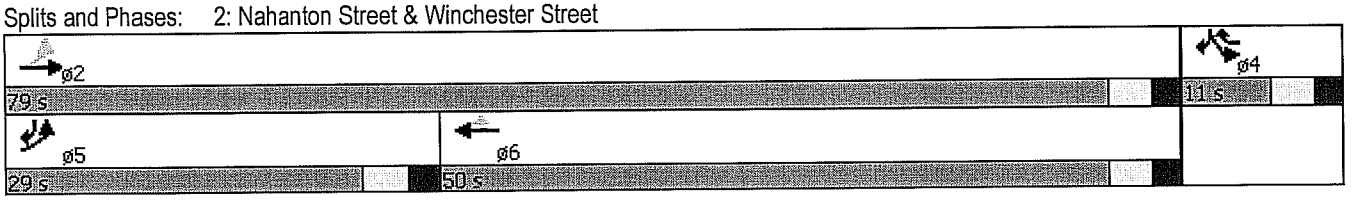
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Permitted Phases	2			6		
Detector Phase	5	2	6	4	4	4 5
Switch Phase						
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0	
Total Split (s)	29.0	79.0	50.0	11.0	11.0	
Total Split (%)	32.2%	87.8%	55.6%	12.2%	12.2%	
Maximum Green (s)	24.0	74.0	45.0	6.0	6.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	Min	Min	
Act Effct Green (s)	72.1	72.1	43.0	54.0	6.0	35.1
Actuated g/C Ratio	0.82	0.82	0.49	0.61	0.07	0.40
v/c Ratio	0.93	0.57	0.95	0.06	0.22	0.32
Control Delay	50.2	4.4	41.5	2.0	44.4	12.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.2	4.4	41.5	2.0	44.4	12.9
LOS	D	A	D	A	D	B
Approach Delay		21.6	39.0		16.2	
Approach LOS		C	D		B	
90th %ile Green (s)	24.0	74.0	45.0	6.0	6.0	
90th %ile Term Code	Max	Hold	Max	Max	Max	
70th %ile Green (s)	24.0	74.0	45.0	6.0	6.0	
70th %ile Term Code	Max	Hold	Max	Max	Max	
50th %ile Green (s)	24.0	74.0	45.0	6.0	6.0	
50th %ile Term Code	Max	Hold	Max	Max	Max	
30th %ile Green (s)	24.0	74.0	45.0	6.0	6.0	
30th %ile Term Code	Max	Hold	Max	Max	Max	
10th %ile Green (s)	24.0	64.6	35.6	6.0	6.0	
10th %ile Term Code	Max	Hold	Gap	Max	Max	
Queue Length 50th (ft)	230	111	470	0	15	57
Queue Length 95th (ft)	#432	167	#741	14	42	113
Internal Link Dist (ft)		880	920		420	
Turn Bay Length (ft)	225					
Base Capacity (vph)	548	1537	1026	1060	125	762
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	0.93	0.55	0.91	0.06	0.22	0.32

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 88.1

Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 27.6
Intersection LOS: C
Intersection Capacity Utilization 92.5%
ICU Level of Service F
Analysis Period (min) 15
90th %ile Actuated Cycle: 90
70th %ile Actuated Cycle: 90
50th %ile Actuated Cycle: 90
30th %ile Actuated Cycle: 90
10th %ile Actuated Cycle: 80.6
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Nahanton Street & Winchester Street



Intersection

Int Delay, s/veh 1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	8	2	6	0	0	16	1	277	1	134	705	58
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	17	0	0	0	0	1	0	0	0	0
Mvmt Flow	9	2	6	0	0	17	1	298	1	144	758	62

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1386	1378	789	1383	1410	298	820	0	0	299	0	0
Stage 1	1077	1077	-	301	301	-	-	-	-	-	-	-
Stage 2	309	301	-	1082	1109	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.37	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.453	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	122	146	368	122	140	746	818	-	-	1274	-	-
Stage 1	268	298	-	712	669	-	-	-	-	-	-	-
Stage 2	705	669	-	266	288	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	100	115	368	99	110	746	818	-	-	1274	-	-
Mov Cap-2 Maneuver	100	115	-	99	110	-	-	-	-	-	-	-
Stage 1	268	235	-	711	668	-	-	-	-	-	-	-
Stage 2	688	668	-	205	228	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	34	9.9	0	1.2
HCM LOS	D	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	818	-	-	141	746	1274	-	-
HCM Lane V/C Ratio	0.001	-	-	0.122	0.023	0.113	-	-
HCM Control Delay (s)	9.4	0	-	34	9.9	8.2	0	-
HCM Lane LOS	A	A	-	D	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.4	0.1	0.4	-	-

Intersection

Int Delay, s/veh 0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	14	213	54	1	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	17	263	67	1	0	2

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	68	0	-	0	365	67
Stage 1	-	-	-	-	67	-
Stage 2	-	-	-	-	298	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1546	-	-	-	639	1002
Stage 1	-	-	-	-	961	-
Stage 2	-	-	-	-	758	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1546	-	-	-	631	1002
Mov Cap-2 Maneuver	-	-	-	-	631	-
Stage 1	-	-	-	-	961	-
Stage 2	-	-	-	-	748	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1546	-	-	-	1002
HCM Lane V/C Ratio	0.011	-	-	-	0.002
HCM Control Delay (s)	7.4	0	-	-	8.6
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	81	489	193	233	366	77	694	4	477	90	5	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	14	11	11	11	12	12	16	12	11	11
Grade (%)		3%			-3%			0%			0%	
Storage Length (ft)	175		175	250		0	0		125	75		0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
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
Frt			0.850		0.974			0.851			0.857	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1685	1809	1664	1753	1772	0	1805	1614	0	1787	1545	0
Flt Permitted	0.197			0.139			0.690			0.291		
Satd. Flow (perm)	349	1809	1664	257	1772	0	1311	1614	0	547	1545	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			177		12			370			98	
Link Speed (mph)		35			30			30			30	
Link Distance (ft)		1000			960			980			500	
Travel Time (s)		19.5			21.8			22.3			11.4	
Peak Hour 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
Heavy Vehicles (%)	2%	0%	2%	1%	3%	0%	0%	25%	0%	1%	0%	2%
Adj. Flow (vph)	85	515	203	245	385	81	731	4	502	95	5	98
Shared Lane Traffic (%)												
Lane Group Flow (vph)	85	515	203	245	466	0	731	506	0	95	103	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	0.94	1.02	1.02	1.02	1.00	1.00	0.85	1.00	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	2		1	2	
Detector Template	Left							Thru		Left	Thru	
Leading Detector (ft)	20	50	50	50	50		50	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	50	50	50	50		50	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)								94			94	
Detector 2 Size(ft)								6			6	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Perm	NA		Perm	NA	

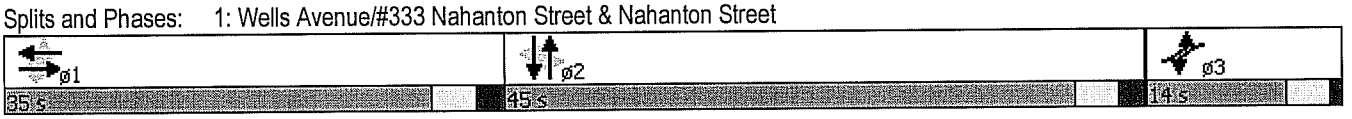
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	3	1		3	1			2			2	
Permitted Phases	1		1	1			2			2		
Detector Phase	3	1	1	3	1		2	2		2	2	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	10.0	11.0	11.0	10.0	11.0		11.0	11.0		11.0	11.0	
Total Split (s)	14.0	35.0	35.0	14.0	35.0		45.0	45.0		45.0	45.0	
Total Split (%)	14.9%	37.2%	37.2%	14.9%	37.2%		47.9%	47.9%		47.9%	47.9%	
Maximum Green (s)	10.0	30.0	30.0	10.0	30.0		40.0	40.0		40.0	40.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag		Lead	Lead		Lead		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?		Yes	Yes		Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	3.0	3.0	2.0	3.0		2.0	2.0		2.0	2.0	
Recall Mode	None	Min	Min	None	Min		None	None		None	None	
Act Effct Green (s)	39.8	28.8	28.8	39.8	28.8		40.0	40.0		40.0	40.0	
Actuated g/C Ratio	0.43	0.31	0.31	0.43	0.31		0.43	0.43		0.43	0.43	
v/c Ratio	0.29	0.92	0.32	0.90	0.84		1.30	0.56		0.40	0.14	
Control Delay	16.3	54.4	6.8	56.9	43.8		172.4	8.0		25.3	4.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	16.3	54.4	6.8	56.9	43.8		172.4	8.0		25.3	4.5	
LOS	B	D	A	E	D		F	A		C	A	
Approach Delay		38.4			48.3			105.1			14.5	
Approach LOS		D			D			F			B	
90th %ile Green (s)	10.0	30.0	30.0	10.0	30.0		40.0	40.0		40.0	40.0	
90th %ile Term Code	Max	Max	Max	Max	Max		Max	Max		Max	Max	
70th %ile Green (s)	10.0	30.0	30.0	10.0	30.0		40.0	40.0		40.0	40.0	
70th %ile Term Code	Max	Max	Max	Max	Max		Max	Max		Max	Max	
50th %ile Green (s)	10.0	30.0	30.0	10.0	30.0		40.0	40.0		40.0	40.0	
50th %ile Term Code	Max	Max	Max	Max	Max		Max	Max		Max	Max	
30th %ile Green (s)	10.0	30.0	30.0	10.0	30.0		40.0	40.0		40.0	40.0	
30th %ile Term Code	Max	Max	Max	Max	Max		Max	Max		Max	Max	
10th %ile Green (s)	10.0	24.3	24.3	10.0	24.3		40.0	40.0		40.0	40.0	
10th %ile Term Code	Max	Gap	Gap	Max	Gap		Max	Max		Max	Max	
Queue Length 50th (ft)	27	290	11	89	248		~565	50		38	2	
Queue Length 95th (ft)	53	#478	60	#233	#409		#783	139		86	31	
Internal Link Dist (ft)		920			880			900			420	
Turn Bay Length (ft)	175		175	250						75		
Base Capacity (vph)	293	584	657	271	580		564	906		235	721	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback 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/c Ratio	0.29	0.88	0.31	0.90	0.80		1.30	0.56		0.40	0.14	

Intersection Summary

Area Type: Other
Cycle Length: 94

Actuated Cycle Length: 92.9
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.30
Intersection Signal Delay: 67.2
Intersection LOS: E
Intersection Capacity Utilization 98.9%
ICU Level of Service F
Analysis Period (min) 15
90th %ile Actuated Cycle: 94
70th %ile Actuated Cycle: 94
50th %ile Actuated Cycle: 94
30th %ile Actuated Cycle: 94
10th %ile Actuated Cycle: 88.3
~ 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.

Splits and Phases: 1: Wells Avenue/#333 Nahanton Street & Nahanton Street



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	375	681	472	38	84	204
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	14	14	16	16
Storage Length (ft)	225			0	0	0
Storage Lanes	1			1	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1728	1900	1987	1656	2046	1777
Flt Permitted	0.204				0.950	
Satd. Flow (perm)	371	1900	1987	1656	2046	1777
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				40		212
Link Speed (mph)		35	30		30	
Link Distance (ft)		960	1000		500	
Travel Time (s)		18.7	22.7		11.4	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	1%	0%	2%	4%	0%	3%
Adj. Flow (vph)	391	709	492	40	88	212
Shared Lane Traffic (%)						
Lane Group Flow (vph)	391	709	492	40	88	212
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		11	11		16	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.04	1.00	0.92	0.92	0.85	0.85
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	pm+ov	Prot	pt+ov
Protected Phases	5	2	6	4	4	4 5

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Permitted Phases	2			6		
Detector Phase	5	2	6	4	4	4 5
Switch Phase						
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0	
Total Split (s)	22.0	57.0	35.0	13.0	13.0	
Total Split (%)	31.4%	81.4%	50.0%	18.6%	18.6%	
Maximum Green (s)	17.0	52.0	30.0	8.0	8.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	Min	Min	
Act Effct Green (s)	38.0	38.0	18.6	31.1	7.3	26.8
Actuated g/C Ratio	0.68	0.68	0.33	0.56	0.13	0.48
v/c Ratio	0.65	0.55	0.74	0.04	0.33	0.22
Control Delay	12.5	6.0	24.1	2.2	29.0	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.5	6.0	24.1	2.2	29.0	2.7
LOS	B	A	C	A	C	A
Approach Delay		8.3	22.5		10.4	
Approach LOS		A	C		B	
90th %ile Green (s)	17.0	52.0	30.0	8.0	8.0	
90th %ile Term Code	Max	Hold	Max	Max	Max	
70th %ile Green (s)	17.0	44.2	22.2	8.0	8.0	
70th %ile Term Code	Max	Hold	Gap	Max	Max	
50th %ile Green (s)	15.5	38.9	18.4	7.6	7.6	
50th %ile Term Code	Gap	Hold	Gap	Gap	Gap	
30th %ile Green (s)	12.7	32.0	14.3	6.6	6.6	
30th %ile Term Code	Gap	Hold	Gap	Gap	Gap	
10th %ile Green (s)	9.6	25.4	10.8	6.0	6.0	
10th %ile Term Code	Gap	Hold	Gap	Min	Min	
Queue Length 50th (ft)	45	91	146	0	27	0
Queue Length 95th (ft)	138	149	244	10	76	34
Internal Link Dist (ft)		880	920		420	
Turn Bay Length (ft)	225					
Base Capacity (vph)	681	1709	1106	968	303	985
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	0.57	0.41	0.44	0.04	0.29	0.22

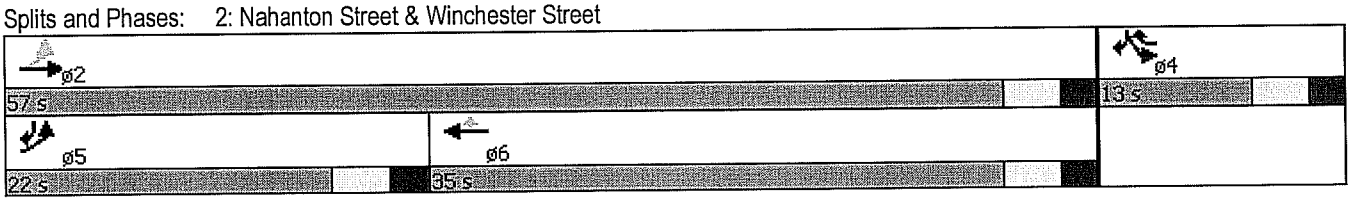
Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 55.7

Natural Cycle: 55
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 12.5
Intersection Capacity Utilization 63.1%
Analysis Period (min) 15
90th %ile Actuated Cycle: 70
70th %ile Actuated Cycle: 62.2
50th %ile Actuated Cycle: 56.5
30th %ile Actuated Cycle: 48.6
10th %ile Actuated Cycle: 41.4

Intersection LOS: B
ICU Level of Service B

Splits and Phases: 2: Nahanton Street & Winchester Street



Intersection

Int Delay, s/veh 43.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	70	1	1	0	0	105	0	927	0	16	451	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	0	0	0	0	0	2	0	0	0	0	0	0
Mvmt Flow	83	1	1	0	0	125	0	1104	0	19	537	12

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1747	1685	543	1686	1691	1104	549	0	0	1104	0	0
Stage 1	581	581	-	1104	1104	-	-	-	-	-	-	-
Stage 2	1166	1104	-	582	587	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.22	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.318	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	~ 68	95	544	75	94	257	1031	-	-	640	-	-
Stage 1	503	503	-	258	289	-	-	-	-	-	-	-
Stage 2	238	289	-	502	500	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 34	91	544	72	90	257	1031	-	-	640	-	-
Mov Cap-2 Maneuver	~ 34	91	-	72	90	-	-	-	-	-	-	-
Stage 1	503	481	-	258	289	-	-	-	-	-	-	-
Stage 2	122	289	-	478	479	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 902.5	31.6	0	0.4
HCM LOS	F	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1031	-	-	35	257	640	-	-
HCM Lane V/C Ratio	-	-	-	2.449	0.486	0.03	-	-
HCM Control Delay (s)	0	-	-	$ 902.5	31.6	10.8	0	-
HCM Lane LOS	A	-	-	F	D	B	A	-
HCM 95th %tile Q(veh)	0	-	-	9.7	2.5	0.1	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection

Int Delay, s/veh 0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	4	183	390	2	1	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	0	1	0	0	0	0
Mvmt Flow	5	226	481	2	1	30

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	484	0	-	0	719	483
Stage 1	-	-	-	-	483	-
Stage 2	-	-	-	-	236	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1089	-	-	-	398	588
Stage 1	-	-	-	-	625	-
Stage 2	-	-	-	-	808	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1089	-	-	-	396	588
Mov Cap-2 Maneuver	-	-	-	-	396	-
Stage 1	-	-	-	-	625	-
Stage 2	-	-	-	-	804	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	11.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1089	-	-	-	577
HCM Lane V/C Ratio	0.005	-	-	-	0.053
HCM Control Delay (s)	8.3	0	-	-	11.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

□ Parking Data

Parking Accumulation Survey

Location: 2 Wells Avenue - Newton, MA
Date: 5/28/2014 Wednesday
Count Technician: Matt Desrosiers

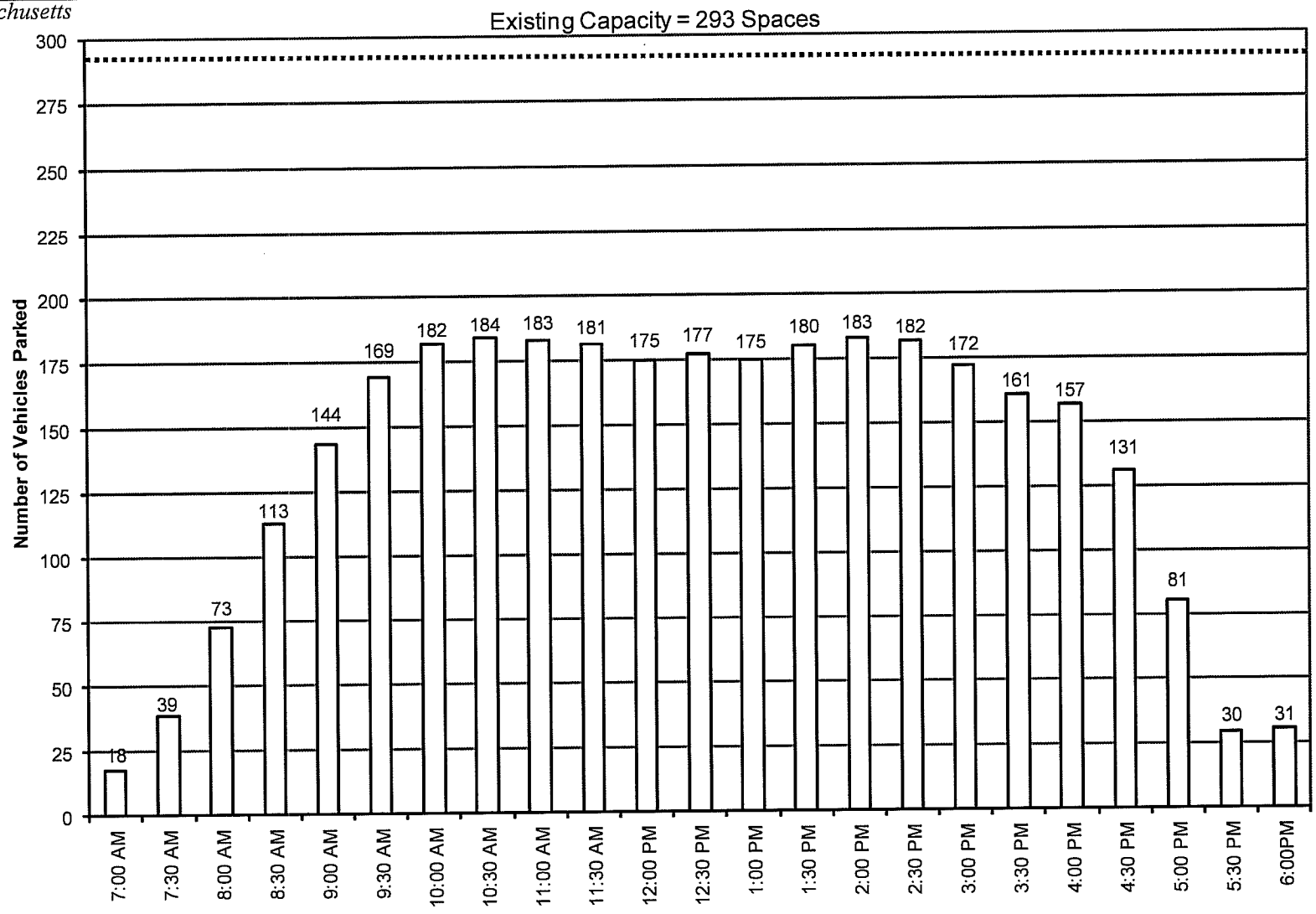
# of cars parked at 7: 00 AM 18
# of cars parked at 6:00 PM 31

Parking Supply 293

	Zone											
	1	2	3	4	5	6	7	8	9	10	11	Total
# Available Parking Spaces (designated as Handicapped Parking)	2	0	0	0	0	2	0	0	0	0	3	7
# Reserved / Visitor Spaces	2	0	0	0	0	15	11	0	0	0	0	28
# Available Parking Spaces (NOT designated as Handicapped Parking)	5	24	21	41	12	14	29	45	38	20	9	258

	# Occupied Spaces											
Time/ Parking Zone	1	2	3	4	5	6	7	8	9	10	11	Total
7:00 AM	1	2	2	0	0	3	3	4	0	0	0	18
7:30 AM												39
8:00 AM												73
8:30 AM												113
9:00 AM	4	6	9	7	4	23	29	40	16	1	5	144
9:30 AM	6	9	12	13	6	24	30	44	18	2	5	169
10:00 AM	7	10	13	13	7	24	32	45	22	3	6	182
10:30 AM	7	10	14	14	6	25	32	44	22	4	6	184
11:00 AM	7	10	14	14	5	24	33	45	22	3	6	183
11:30 AM	7	10	13	15	5	25	32	43	22	3	6	181
12:00 PM	7	10	12	14	5	24	32	42	21	3	5	175
12:30 PM	7	10	12	13	6	22	33	45	20	3	6	177
1:00 PM	7	10	9	15	5	23	33	43	20	4	6	175
1:30 PM	7	9	13	13	5	24	35	42	20	5	7	180
2:00 PM	9	9	14	14	5	25	33	42	20	5	7	183
2:30 PM	7	11	14	14	5	25	31	43	21	5	6	182
3:00 PM	7	9	12	12	5	24	30	42	20	5	6	172
3:30 PM	6	8	11	11	5	22	31	41	17	3	6	161
4:00 PM	5	9	12	12	4	22	24	43	17	3	6	157
4:30 PM												131
5:00 PM												81
5:30 PM												30
6:00PM	4	3	3	2	0	4	3	7	5	0	0	31

NOTES:



Attachment

MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Existing Weekday Parking Demand

Date: October 2014
Dwg No. 770 MR01.dwg