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
- Nahanton at Wells Calibration
- Capacity Analyses

□ Traffic Volume Data

MDM TRANSPORTATION CONSULTANTS, INC.

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

28 Lord Road, Suite 280
Marlborough, MA
www.mdmtrans.com

Site Code: 00000770

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%
Combined Total		6171				6205				12376	

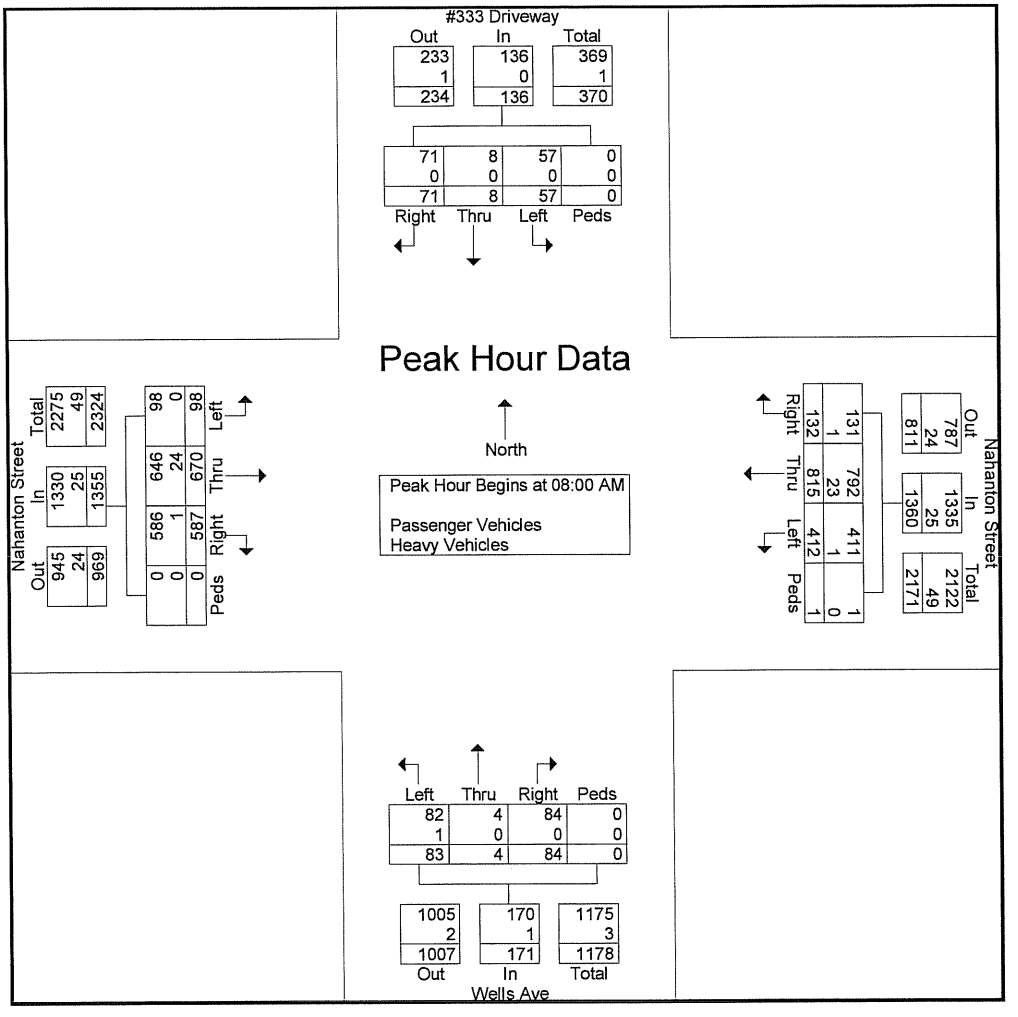
MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA

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

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							1391										1371				
% 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

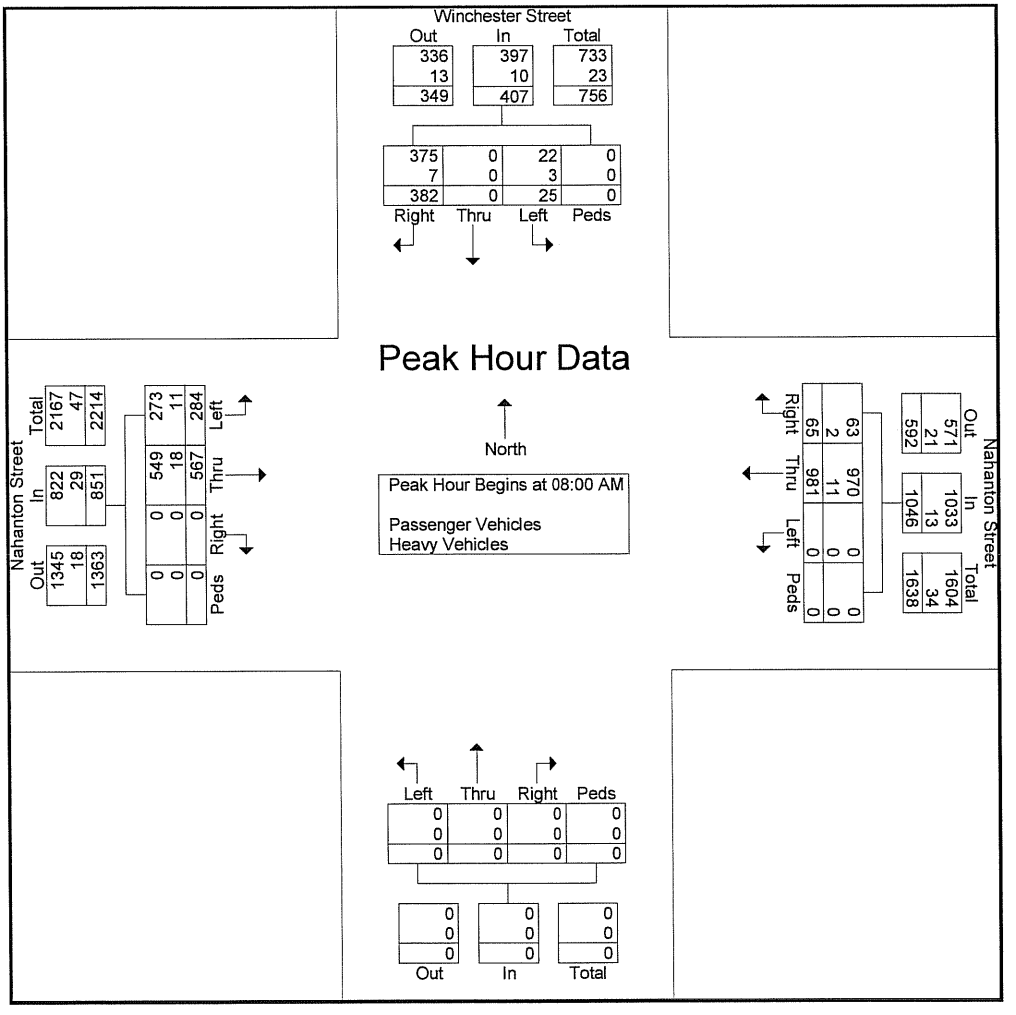
MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA

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

	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 08:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
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 Volume	382	0	25	0	407	65	981	0	0	1046	0	0	0	0	0	0	567	284	0	851	2304
% App. Total	93.9	0	6.1	0		6.2	93.8	0	0		0	0	0	0		0	66.6	33.4	0		
PHF	.845	.000	.625	.000	.855	.855	.973	.000	.000	.965	.000	.000	.000	.000	.000	.000	.886	.798	.000	.854	.978
Passenger Vehicles																					
% Passenger Vehicles	98.2	0	88.0	0	97.5	96.9	98.9	0	0	98.8	0	0	0	0	0	0	96.8	96.1	0	96.6	97.7
Heavy Vehicles																					
% Heavy Vehicles	1.8	0	12.0	0	2.5	3.1	1.1	0	0	1.2	0	0	0	0	0	0	3.2	3.9	0	3.4	2.3



MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA

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							1636										1156				
% 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

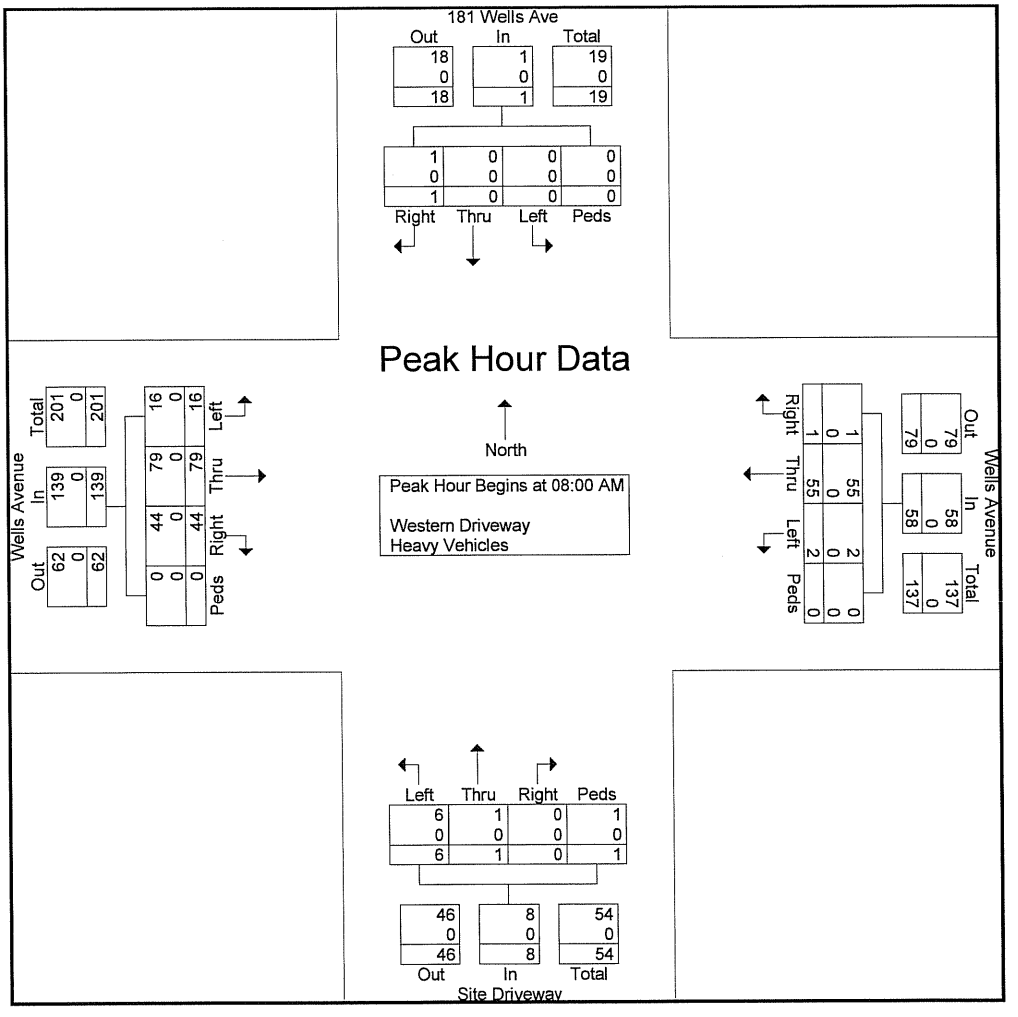
MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA

N/S: Site Driveway
E/W: Wells Avenue
Newton, MA

File Name : 840 West Driveway at Wells 7-9 AM Wed
Site Code : 840
Start Date : 7/1/2015
Page No : 2

	181 Wells Ave From North					Wells Avenue From East					Site Driveway From South					Wells Avenue 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	**1**	0	0	0	**1**	0	12	0	0	12	0	0	1	**1**	2	10	9	3	0	22	37
08:15 AM	0	0	0	0	0	**1**	11	**1**	0	13	0	0	1	0	1	9	15	**6**	0	30	44
08:30 AM	0	0	0	0	0	0	**16**	1	0	**17**	0	**1**	**3**	0	**4**	**15**	23	3	0	41	62
08:45 AM	0	0	0	0	0	0	16	0	0	16	0	0	1	0	1	10	**32**	4	0	**46**	**63**
Total Volume	1	0	0	0	1	1	55	2	0	58	0	1	6	1	8	44	79	16	0	139	206
% App. Total	100	0	0	0		1.7	94.8	3.4	0		0	12.5	75	12.5		31.7	56.8	11.5	0		
PHF	.250	.000	.000	.000	.250	.250	.859	.500	.000	.853	.000	.250	.500	.250	.500	.733	.617	.667	.000	.755	.817
Western Driveway																					
% Western Driveway	100	0	0	0	100	100	100	100	0	100	0	100	100	100	100	100	100	100	0	100	100
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

N/S: Site Driveway
E/W: Wells Avenue
Newton, MA

File Name : 840 West Driveway at Wells 7-9 AM Wed
Site Code : 840
Start Date : 7/1/2015
Page No : 1

Groups Printed- Western Driveway - Heavy Vehicles

	181 Wells Ave From North					Wells Avenue From East					Site Driveway From South					Wells Avenue 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	0	0	1	8	0	0	9	0	0	0	1	1	4	12	2	0	18	28
07:15 AM	0	0	0	0	0	0	3	0	0	3	0	0	1	0	1	5	13	10	0	28	32
07:30 AM	1	0	0	0	1	0	8	0	0	8	1	0	0	0	1	1	18	5	0	24	34
07:45 AM	0	0	0	0	0	0	6	0	0	6	0	0	2	0	2	6	19	2	0	27	35
Total	1	0	0	0	1	1	25	0	0	26	1	0	3	1	5	16	62	19	0	97	129
08:00 AM	1	0	0	0	1	0	12	0	0	12	0	0	1	1	2	10	9	3	0	22	37
08:15 AM	0	0	0	0	0	1	11	1	0	13	0	0	1	0	1	9	15	6	0	30	44
08:30 AM	0	0	0	0	0	0	16	1	0	17	0	1	3	0	4	15	23	3	0	41	62
08:45 AM	0	0	0	0	0	0	16	0	0	16	0	0	1	0	1	10	32	4	0	46	63
Total	1	0	0	0	1	1	55	2	0	58	0	1	6	1	8	44	79	16	0	139	206
Grand Total	2	0	0	0	2	2	80	2	0	84	1	1	9	2	13	60	141	35	0	236	335
Apprch %	100	0	0	0		2.4	95.2	2.4	0		7.7	7.7	69.2	15.4		25.4	59.7	14.8	0		
Total %	0.6	0	0	0	0.6	0.6	23.9	0.6	0	25.1	0.3	0.3	2.7	0.6	3.9	17.9	42.1	10.4	0	70.4	
Western Driveway	2	0	0	0	2	2	80	2	0	84	0	1	9	2	12	59	140	35	0	234	332
% Western Driveway	100	0	0	0	100	100	100	100	0	100	0	100	100	100	92.3	98.3	99.3	100	0	99.2	99.1
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	0	0	2	3
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	100	0	0	0	7.7	1.7	0.7	0	0	0.8	0.9

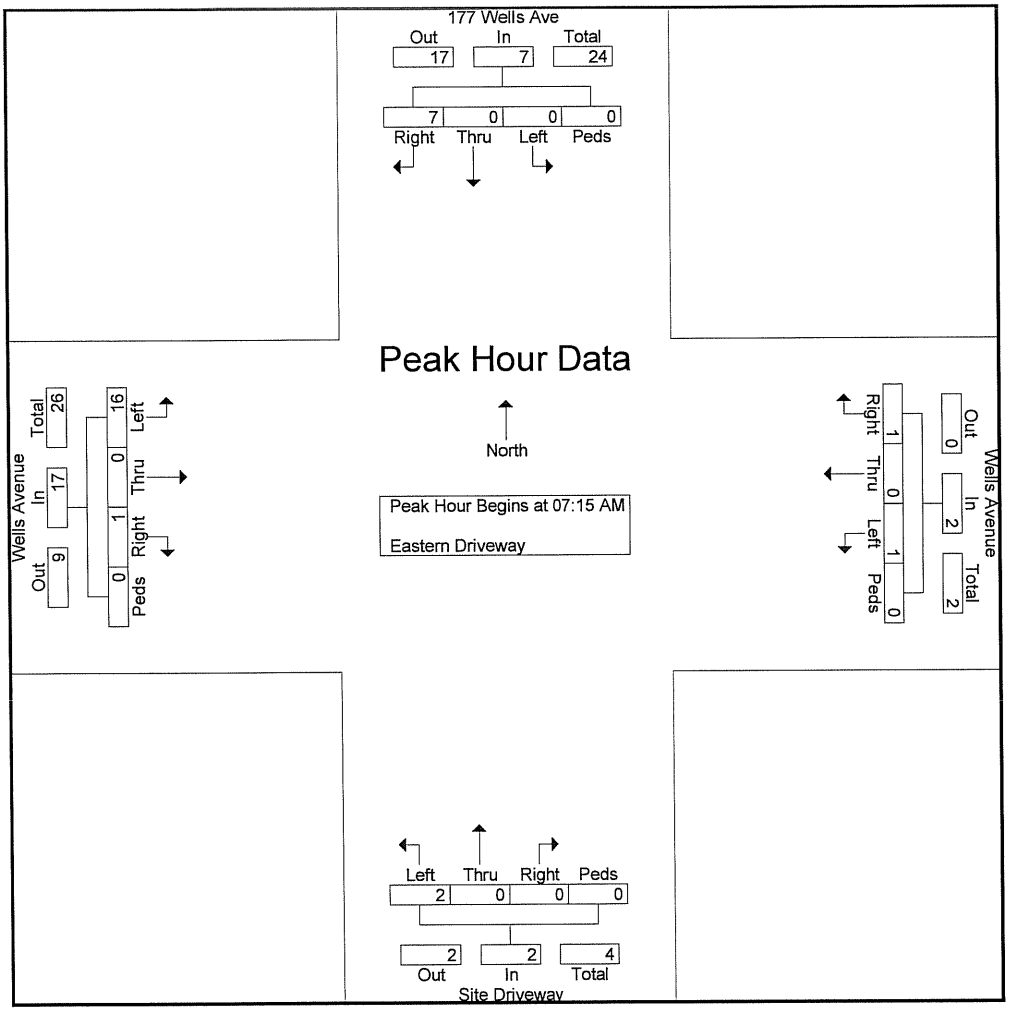
MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA

N/S: Site Driveway
E/W: Wells Avenue
Newton, MA

File Name : 840 East Driveway at Wells 7-9 AM Wed
Site Code : 840
Start Date : 7/1/2015
Page No : 2

	177 Wells Ave From North					Wells Avenue From East					Site Driveway From South					Wells Avenue 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 07:15 AM																					
07:15 AM	0	0	0	0	0	**1**	0	**1**	0	**2**	0	0	**1**	0	**1**	0	0	**6**	0	**6**	**9**
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	4
07:45 AM	**7**	0	0	0	**7**	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	8
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	**1**	0	5	0	6	7
Total Volume	7	0	0	0	7	1	0	1	0	2	0	0	2	0	2	1	0	16	0	17	28
% App. Total	100	0	0	0		50	0	50	0		0	0	100	0		5.9	0	94.1	0		
PHF	.250	.000	.000	.000	.250	.250	.000	.250	.000	.250	.000	.000	.500	.000	.500	.250	.000	.667	.000	.708	.778



MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA

N/S: Site Driveway
E/W: Wells Avenue
Newton, MA

File Name : 840 East Driveway at Wells 7-9 AM Wed
Site Code : 840
Start Date : 7/1/2015
Page No : 1

Groups Printed- Eastern Driveway

	177 Wells Ave From North					Wells Avenue From East					Site Driveway From South					Wells Avenue 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	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1	0	1	2
07:15 AM	0	0	0	0	0	1	0	1	0	2	0	0	1	0	1	0	0	6	0	6	9
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	4
07:45 AM	7	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	8
Total	7	0	0	0	7	1	0	1	0	2	0	0	2	0	2	0	0	12	0	12	23
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	5	0	6	7
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
08:30 AM	3	0	0	0	3	0	0	1	0	1	0	0	0	0	0	1	0	2	0	3	7
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	5	0	7	7
Total	3	0	0	0	3	0	0	1	0	1	0	0	2	0	2	4	0	12	0	16	22
Grand Total	10	0	0	0	10	1	0	2	0	3	0	0	4	0	4	4	0	24	0	28	45
Apprch %	100	0	0	0		33.3	0	66.7	0		0	0	100	0		14.3	0	85.7	0		
Total %	22.2	0	0	0	22.2	2.2	0	4.4	0	6.7	0	0	8.9	0	8.9	8.9	0	53.3	0	62.2	

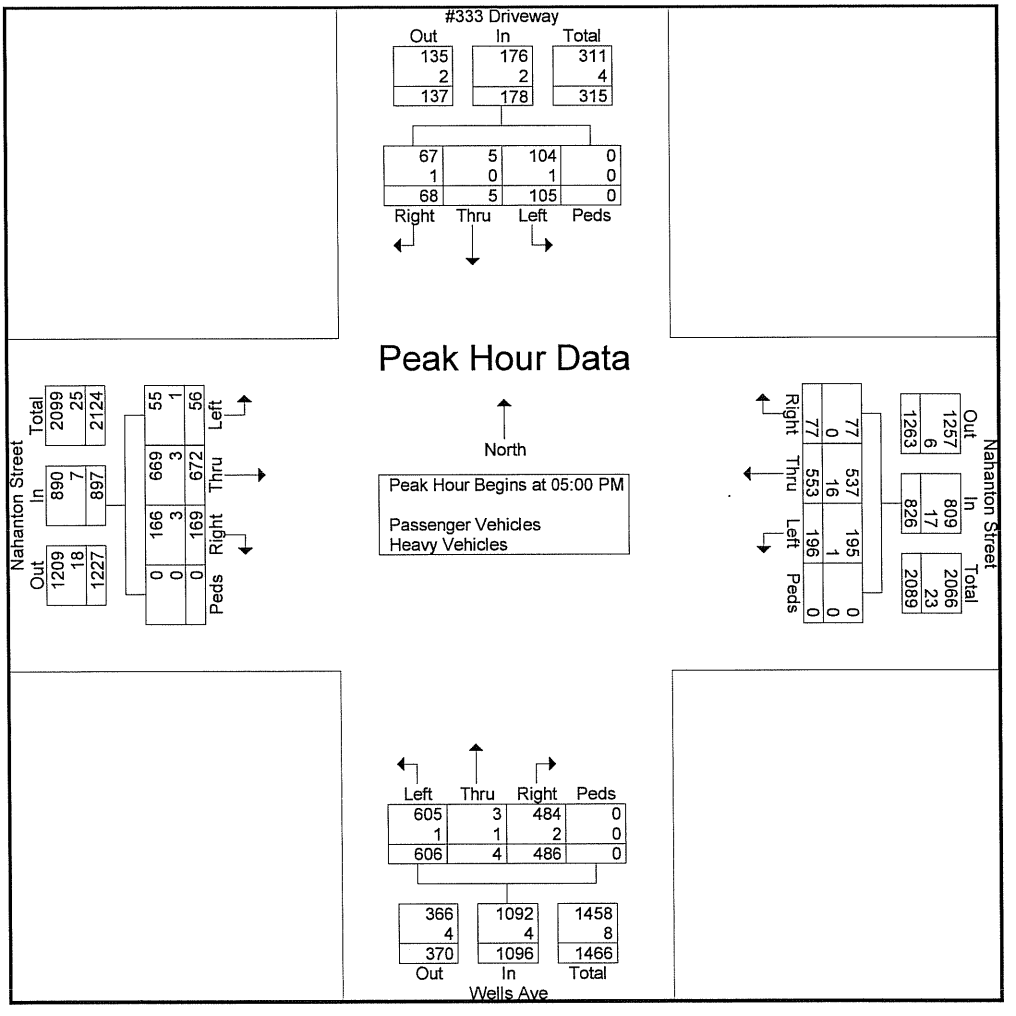
MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA

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

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							1115						1111				1245				
% 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

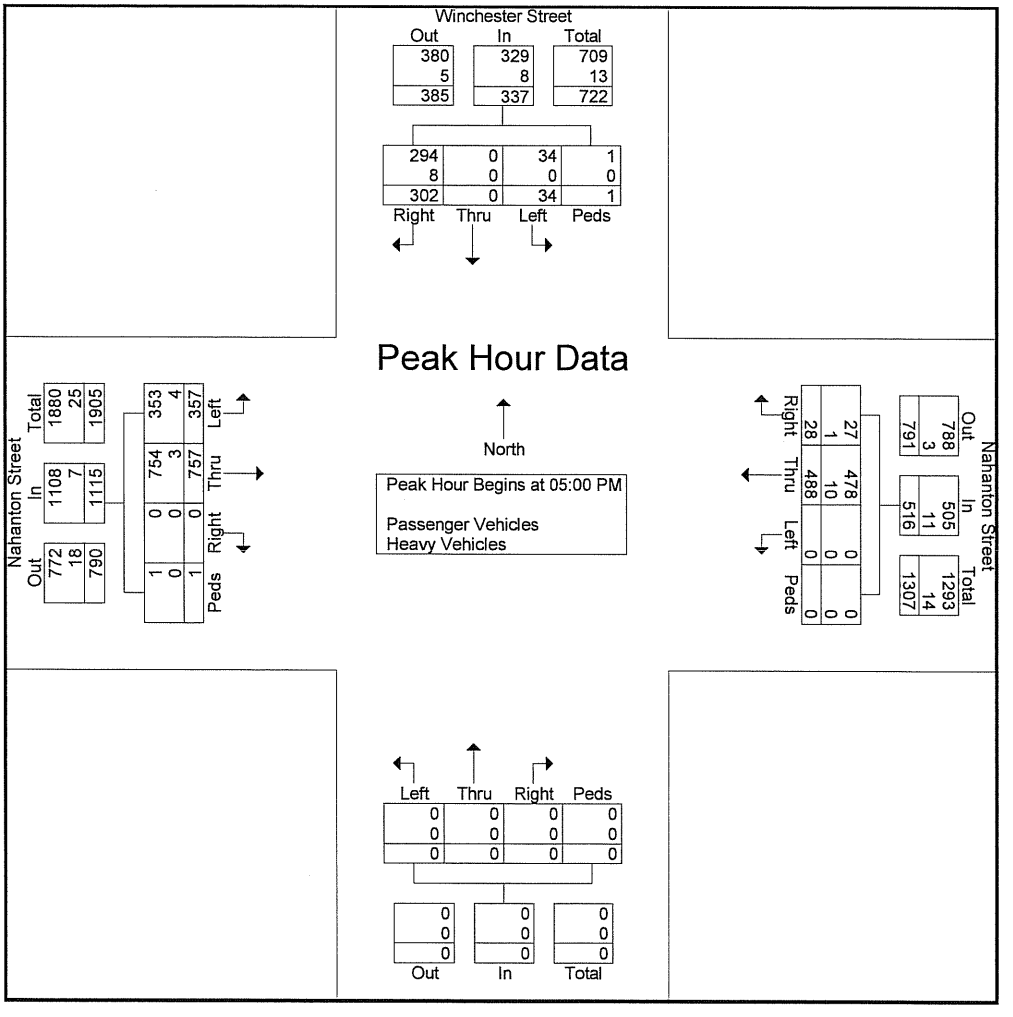
MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA

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

	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																					
% 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
Heavy 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



MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA

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							1028										1363				
% 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
Heavy 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

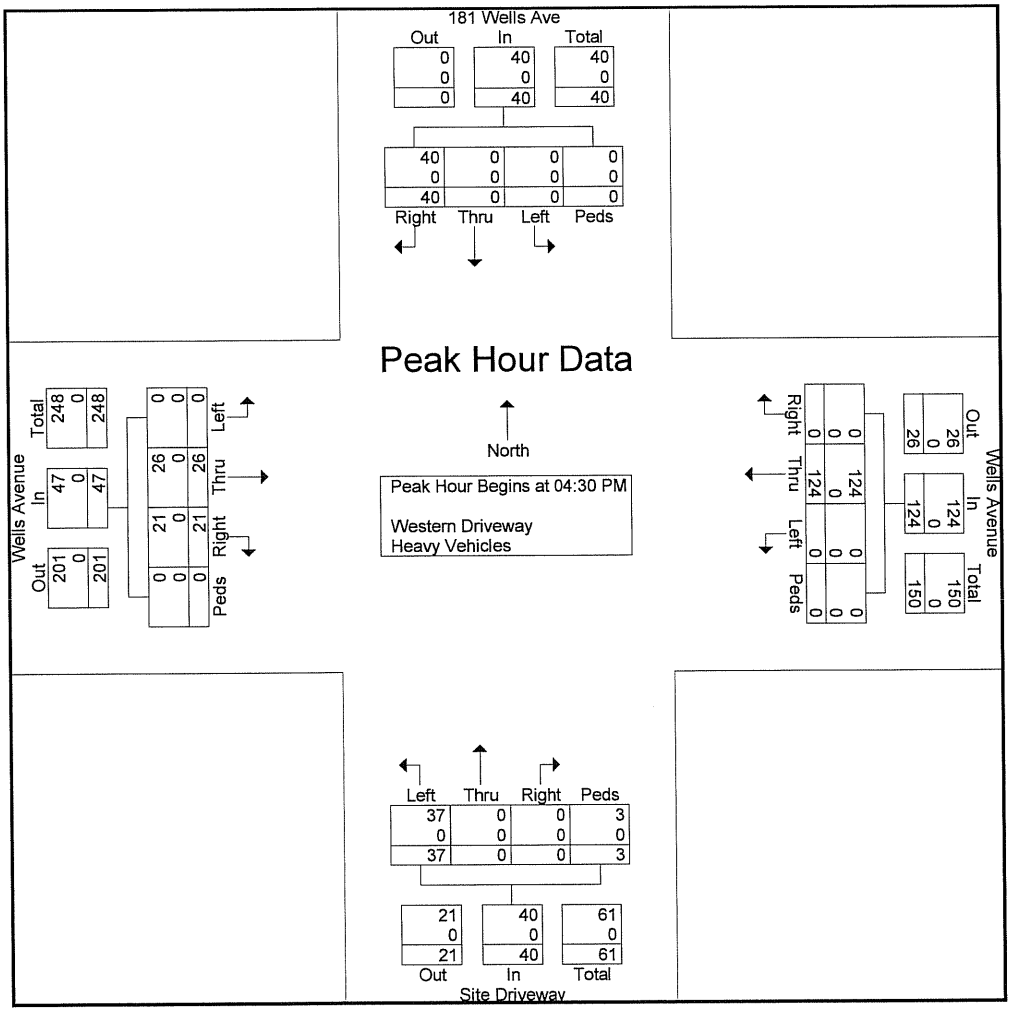
MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA

N/S: Site Driveway
E/W: Wells Avenue
Newton, MA

File Name : 840 West Driveway at Wells 4-6 PM Wed
Site Code : 840
Start Date : 7/1/2015
Page No : 2

	181 Wells Ave From North					Wells Avenue From East					Site Driveway From South					Wells Avenue 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 04:30 PM																					
04:30 PM	9	0	0	0	9	0	26	0	0	26	0	0	7	**2**	9	**7**	4	0	0	11	55
04:45 PM	9	0	0	0	9	0	24	0	0	24	0	0	4	0	4	7	2	0	0	9	46
05:00 PM	**11**	0	0	0	**11**	0	**41**	0	0	**41**	0	0	**14**	1	**15**	3	9	0	0	12	**79**
05:15 PM	11	0	0	0	11	0	33	0	0	33	0	0	12	0	12	4	**11**	0	0	**15**	71
Total Volume	40	0	0	0	40	0	124	0	0	124	0	0	37	3	40	21	26	0	0	47	251
% App. Total	100	0	0	0		0	100	0	0		0	0	92.5	7.5		44.7	55.3	0	0		
PHF	.909	.000	.000	.000	.909	.000	.756	.000	.000	.756	.000	.000	.661	.375	.667	.750	.591	.000	.000	.783	.794
Western Driveway																					
% Western Driveway	100	0	0	0	100	0	100	0	0	100	0	0	100	100	100	100	100	0	0	100	100
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

N/S: Site Driveway
E/W: Wells Avenue
Newton, MA

File Name : 840 West Driveway at Wells 4-6 PM Wed
Site Code : 840
Start Date : 7/1/2015
Page No : 1

Groups Printed- Western Driveway - Heavy Vehicles

	181 Wells Ave From North					Wells Avenue From East					Site Driveway From South					Wells Avenue 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	0	0	0	1	0	25	1	0	26	2	0	13	0	15	6	7	2	0	15	57
04:15 PM	2	0	0	0	2	0	21	2	0	23	1	0	9	0	10	1	8	0	0	9	44
04:30 PM	9	0	0	0	9	0	26	0	0	26	0	0	7	2	9	7	4	0	0	11	55
04:45 PM	9	0	0	0	9	0	24	0	0	24	0	0	4	0	4	7	2	0	0	9	46
Total	21	0	0	0	21	0	96	3	0	99	3	0	33	2	38	21	21	2	0	44	202
05:00 PM	11	0	0	0	11	0	41	0	0	41	0	0	14	1	15	3	9	0	0	12	79
05:15 PM	11	0	0	0	11	0	33	0	0	33	0	0	12	0	12	4	11	0	0	15	71
05:30 PM	7	0	0	0	7	0	19	0	0	19	1	0	8	0	9	4	5	1	0	10	45
05:45 PM	1	0	0	0	1	0	24	1	0	25	1	0	8	2	11	2	3	0	0	5	42
Total	30	0	0	0	30	0	117	1	0	118	2	0	42	3	47	13	28	1	0	42	237
Grand Total	51	0	0	0	51	0	213	4	0	217	5	0	75	5	85	34	49	3	0	86	439
Apprch %	100	0	0	0		0	98.2	1.8	0		5.9	0	88.2	5.9		39.5	57	3.5	0		
Total %	11.6	0	0	0	11.6	0	48.5	0.9	0	49.4	1.1	0	17.1	1.1	19.4	7.7	11.2	0.7	0	19.6	
Western Driveway	51	0	0	0	51	0	212	4	0	216	3	0	75	5	83	33	48	3	0	84	434
% Western Driveway	100	0	0	0	100	0	99.5	100	0	99.5	60	0	100	100	97.6	97.1	98	100	0	97.7	98.9
Heavy Vehicles	0	0	0	0	0	0	1	0	0	1	2	0	0	0	2	1	1	0	0	2	5
% Heavy Vehicles	0	0	0	0	0	0	0.5	0	0	0.5	40	0	0	0	2.4	2.9	2	0	0	2.3	1.1

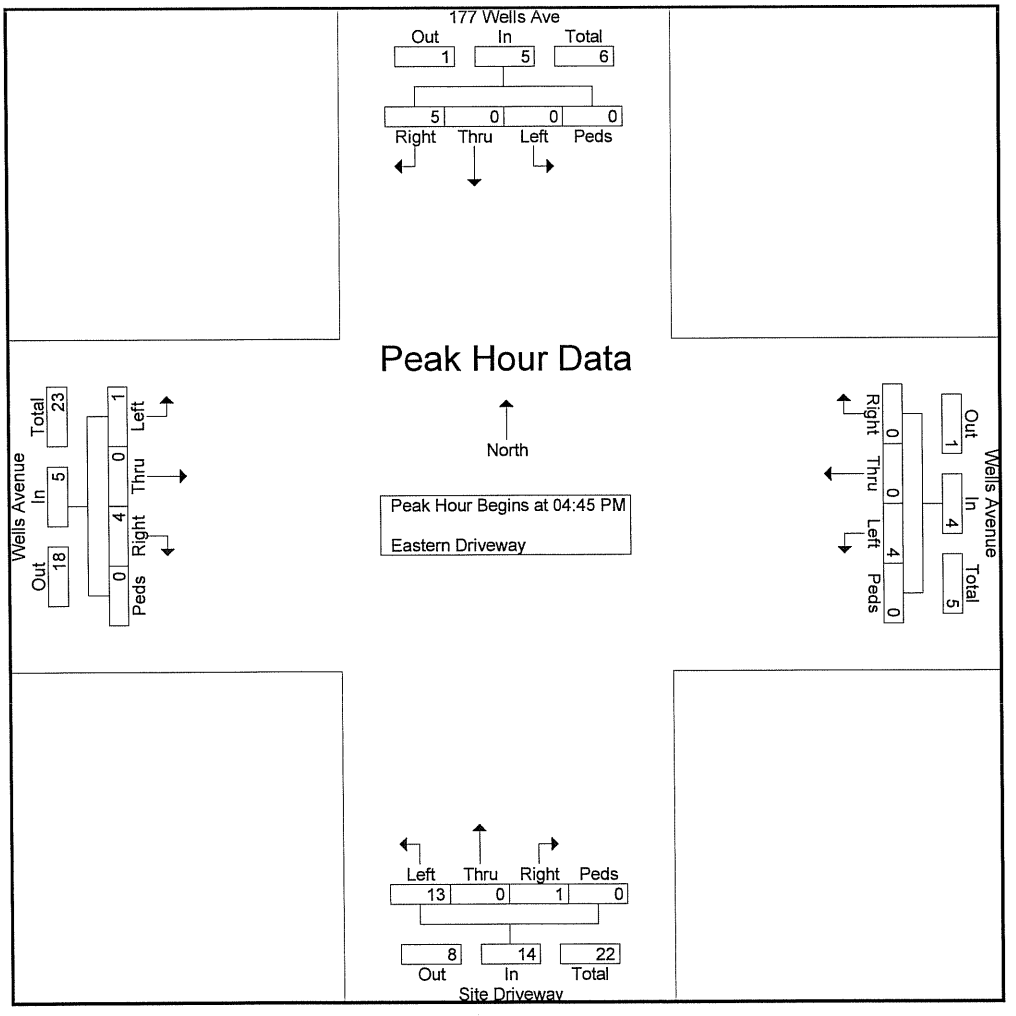
MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA

N/S: Site Driveway
E/W: Wells Avenue
Newton, MA

File Name : 840 East Driveway at Wells 4-6 PM Wed
Site Code : 840
Start Date : 7/1/2015
Page No : 2

	177 Wells Ave From North					Wells Avenue From East					Site Driveway From South					Wells Avenue 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 04:45 PM																					
04:45 PM	**2**	0	0	0	**2**	0	0	0	0	0	**1**	0	4	0	**5**	**1**	0	0	0	1	**8**
05:00 PM	1	0	0	0	1	0	0	1	0	1	0	0	**5**	0	5	1	0	0	0	1	8
05:15 PM	1	0	0	0	1	0	0	1	0	1	0	0	0	0	0	1	0	**1**	0	**2**	4
05:30 PM	1	0	0	0	1	0	0	**2**	0	**2**	0	0	4	0	4	1	0	0	0	1	8
Total Volume	5	0	0	0	5	0	0	4	0	4	1	0	13	0	14	4	0	1	0	5	28
% App. Total	100	0	0	0		0	0	100	0		7.1	0	92.9	0		80	0	20	0		
PHF	.625	.000	.000	.000	.625	.000	.000	.500	.000	.500	.250	.000	.650	.000	.700	1.00	.000	.250	.000	.625	.875



MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA

N/S: Site Driveway
E/W: Wells Avenue
Newton, MA

File Name : 840 East Driveway at Wells 4-6 PM Wed
Site Code : 840
Start Date : 7/1/2015
Page No : 1

Groups Printed- Eastern Driveway

	177 Wells Ave From North					Wells Avenue From East					Site Driveway From South					Wells Avenue 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	4	0	0	0	4	0	0	1	0	1	0	0	1	0	1	1	0	1	0	2	8
04:15 PM	2	0	0	0	2	1	0	0	0	1	0	0	0	0	0	0	0	1	0	1	4
04:30 PM	3	0	1	0	4	1	0	0	0	1	0	0	1	0	1	0	0	0	0	0	6
04:45 PM	2	0	0	0	2	0	0	0	0	0	1	0	4	0	5	1	0	0	0	1	8
Total	11	0	1	0	12	2	0	1	0	3	1	0	6	0	7	2	0	2	0	4	26
05:00 PM	1	0	0	0	1	0	0	1	0	1	0	0	5	0	5	1	0	0	0	1	8
05:15 PM	1	0	0	0	1	0	0	1	0	1	0	0	0	0	0	1	0	1	0	2	4
05:30 PM	1	0	0	0	1	0	0	2	0	2	0	0	4	0	4	1	0	0	0	1	8
05:45 PM	1	0	0	0	1	0	0	1	0	1	1	0	4	0	5	0	0	0	0	0	7
Total	4	0	0	0	4	0	0	5	0	5	1	0	13	0	14	3	0	1	0	4	27
Grand Total	15	0	1	0	16	2	0	6	0	8	2	0	19	0	21	5	0	3	0	8	53
Apprch %	93.8	0	6.2	0		25	0	75	0		9.5	0	90.5	0		62.5	0	37.5	0		
Total %	28.3	0	1.9	0	30.2	3.8	0	11.3	0	15.1	3.8	0	35.8	0	39.6	9.4	0	5.7	0	15.1	

□ 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	July 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	0.95	
	-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	0.97	
	-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	0.98	
	9%	-1%	-5%	-3%	-1%	0%	0%	1%	0%	2%	-1%	-3%	0%				
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	0.97	0.96	0.98	
												Growth	**0.1%**	0.96	0.95	0.97	Sub Average

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	1.00	
	0%	0%	2%	1%	5%	1%	0%	1%	-1%	0%	2%	-1%	1%			(100.28)	
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	1.01	
	-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	1.02	
	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	1.09	
	1%	-6%	-4%	2%	0%	-1%	7%	0%	0%	0%	-2%	0%	0%				
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	0.98	1.01	
												Growth	**-0.5%**	0.98	0.97	1.03	Sub Average

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	1.02	

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	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	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	0.94	
	4%	-7%	-4%	13%	0%	-1%	1%	0%	1%	4%	-1%	-1%	1%				
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	0.96	0.94	0.94	
												Growth	**-0.5%**	0.98	0.94	0.94	Sub Average

Average Adjusment Factors	**0.95**	**0.95**	**0.99**
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
www.mdmtrans.com

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

Site Code: 00000770

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	58	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	86	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 > 55 MPH :	0
Percent of Vehicles > 55 MPH :	0.0%

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Site Code: 00000770

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	1	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	0	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 > 55 MPH :	2
Percent of Vehicles > 55 MPH :	0.0%

□ Intersection Crash Data

Moving Massachusetts Forward. massDOT Highway

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Newton, MA COUNT DATE : Aug-15

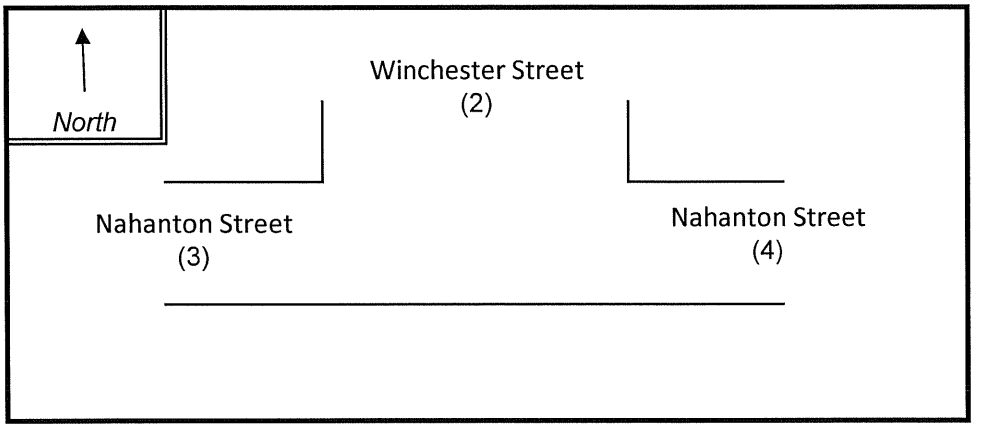
DISTRICT : 6 UNSIGNALIZED : X SIGNALIZED :

~ 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 : 12

OF YEARS : 5

AVERAGE # OF CRASHES PER YEAR (**A**) : 2.40

CRASH RATE CALCULATION : 0.32

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

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

Project Title & Date: #840 - Newton

Moving Massachusetts Forward. massDOT Highway

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Newton, MA COUNT DATE : Aug-15

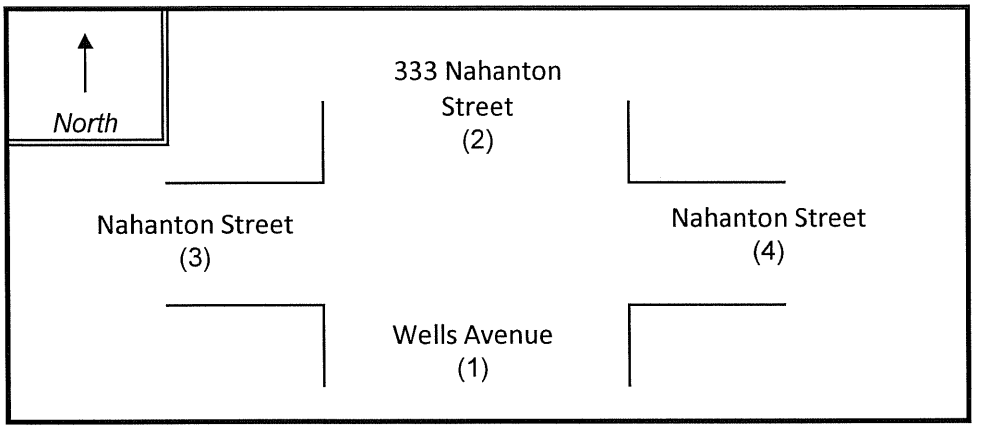
DISTRICT : 6 UNSIGNALIZED : [ ] SIGNALIZED : [X]

~ 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 : 22 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **4.40**

CRASH RATE CALCULATION : **0.42** RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

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

Project Title & Date: #840 - Newton

MassDOT Crash Report for Newton for 2009-2013

2009

Crash Number	City/Town Name	Crash Date	Crash Time	Crash Severity	Number of Vehicles	Total Nonfatal Injuries	Total Fatal Injuries	Manner of Collision	Vehicle Action Prior to Crash	Vehicle Travel Directions	Most Harmful Events	Vehicle Configuration	Road Surface Condition	Ambient Light	Weather Condition	At Roadway Intersection	Distance from Nearest Roadway Intersection	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: Traveling 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		
2434596	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	26-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	

2010

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	Non Motorist Type
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 with motor vehicle in traffic	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 utility) with only four tires / V4:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	Dry	Daylight	Clear/Clear	NAHANTON STREET / WELLS AVENUE		
2653730	NEWTON	11-Oct-2010	8:19 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		
2612855	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	
2595684	NEWTON	05-May-2010	4:38 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	26-Sep-2010	8:06 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		

2011

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	Non Motorist Type
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		
2723430	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	
2601265	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	
2689802	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	4:39 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	

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	Non Motorist Type
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		
3084972	NEWTON	11-May-2012	5:33 PM	Property damage only (none injured)	2	0	0	Angle	V1: Travelling straight ahead / V2:Backing	V1:Southbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	Dry	Daylight	Clear		WELLS AVE	
3270221	NEWTON	27-Sep-2012	9:07 AM	Property damage only (none injured)	2	0	0	Rear-end	V1: Slowing or stopped in traffic / V2:Slowing or stopped in traffic	V1:Unknown / V2:Unknown	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/Clear		WELLS AVE	
3281012	NEWTON	17-Oct-2012	8:59 AM	Property damage only (none injured)	2	0	0	Angle	V1: Travelling straight ahead / V2:Turning left	V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2:Passenger car	Dry	Daylight	Clear		WELLS AVE	
3309655	NEWTON	14-Dec-2012	10:46 AM	Not Reported	1	0	0	Unknown	V1: Parked	V1:Unknown	V1: Unknown	V1: Not reported	Dry	Daylight	Clear/Clear		WELLS AVE	
3328843	NEWTON	21-Dec-2012	7:43 PM	Not Reported	1	0	0	Rear-end	V1: Parked	V1:Reported but invalid	V1: Collision with parked motor vehicle	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	Dry	Dark - lighted roadway	Cloudy		WELLS AVE	

2013

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	Non Motorist Type
3556762	NEWTON	01-Aug-2013	7:20 AM	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:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	Dry	Daylight	Clear/Clear	NAHANTON ST / WELLS AVE		
3556772	NEWTON	11-Aug-2013	9:05 AM	Non-fatal injury	1	1	0	Angle	V1: Turning left	V1:Eastbound	V1: Collision with cyclist (bicycle, tricycle, unicycle, pedal car)	V1: Passenger car	Dry	Daylight	Clear/Clear	NAHANTON ST / WELLS AVE		
3665345	NEWTON	19-Nov-2013	8:38 AM	Non-fatal injury	2	1	0	Rear-end	V1: Slowing or stopped in traffic / V2:Travelling straight ahead	V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	Dry	Daylight	Clear	NAHANTON ST / WELLS AVE		
3385996	NEWTON	06-Apr-2013	6:21 PM	Property damage only (none injured)	1	0	0	Single vehicle crash	V1: Turning left	V1:Northbound	V1: Collision with tree	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	Dry	Daylight	Clear	NAHANTON ST / WINCHESTER ST		
3428273	NEWTON	20-May-2013	8:09 AM	Non-fatal injury	2	1	0	Angle	V1: Turning left / V2:Travelling straight ahead	V1:Southbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2:Passenger car	Dry	Daylight	Cloudy/Cloudy	NAHANTON ST / WINCHESTER ST		
3676186	NEWTON	20-Nov-2013	1:10 PM	Property damage only (none injured)	3	0	0	Angle	V1: Travelling straight ahead / V2:Entering traffic lane / V3:Slowing or stopped in traffic	V1:Westbound / V2:Westbound / V3:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic	V1: Passenger car / V2:Passenger car / V3:Passenger car	Dry	Daylight	Clear	NAHANTON ST / WINCHESTER ST		
3689138	NEWTON	12-Dec-2013	10:32 AM	Non-fatal injury	1	1	0	Single vehicle crash	V1: Travelling straight ahead	V1:Westbound	V1: Collision with tree	V1: Passenger car	Dry	Daylight	Clear/Clear	NAHANTON ST / WINCHESTER ST		
3356144	NEWTON	11-Feb-2013	11:50 AM	Not Reported	2	0	0	Head-on	V1: Travelling straight ahead / V2:Travelling straight ahead	V1:Northbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2:Passenger car	Wet	Daylight	Rain/Rain	WELLS AVE / NAHANTON ST		

□ Public Transportation Information

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

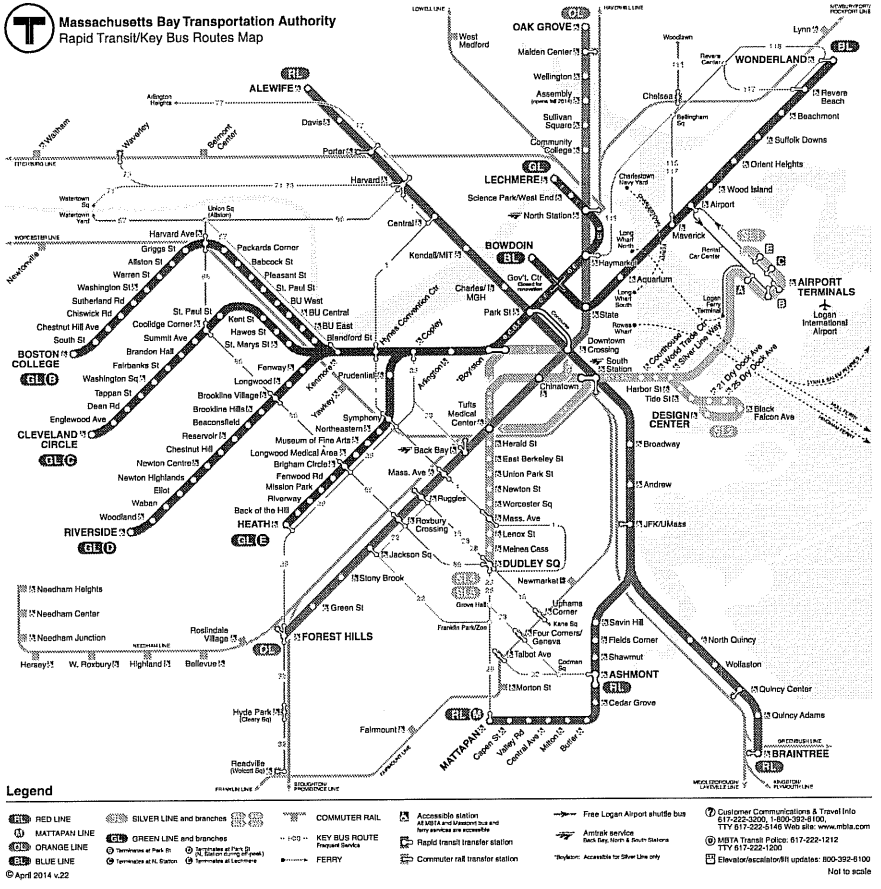
If paying with a CharlieTicket or CharlieCard, discounted transfers that are available are automatic — just use the same ticket or card throughout your trip. If paying with cash onboard a vehicle, free transfers are only allowed between rapid transit lines, and in either of the following cases you must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

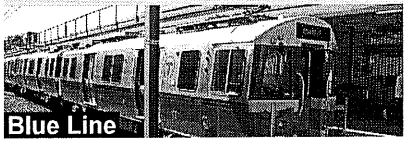
SCHEDULES

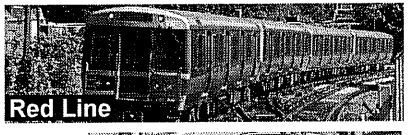
Schedules are available at the following stations: Park Street, Airport, Malden, Harvard, Government Center (Green Line Level), Back Bay, Downtown Crossing (Orange Line Level), and Quincy Center, or ask a Customer Service Agent. Schedules are also available at Boston City Hall, the State Transportation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

Rapid Transit Line	Weekday							Saturday						Sunday					
	First Trip	Rush Hour Service	Midday Service	Evening Service	Late Night Service	Last Trip Monday-Thursday	Last Trip Friday	First Trip	A.M. Peak Service	P.M. Peak Service	Evening Service	Late Night Service	Last Trip	First Trip	A.M. Peak Service	P.M. Peak Service	Evening Service	Late Night Service	Last Trip
Red Line																			
Alewife	5:24AM	9 min	14 min	12 min	12 min	12:15AM	w 2:10AM	5:24AM	14 min	14 min	14 min	14 min	w 2:10AM	6:08AM	16 min	16 min	16 min	16 min	12:15AM
Braintree	5:15AM	9 min	14 min	12 min	12 min	12:18AM	1:52AM	5:15AM	14 min	14 min	14 min	14 min	1:52AM	6:00AM	16 min	16 min	16 min	16 min	12:18AM
Alewife	5:16AM	9 min	14 min	12 min	12 min	w12:22AM	w 2:15AM	5:16AM	14 min	14 min	14 min	14 min	w 2:15AM	6:00AM	16 min	16 min	16 min	16 min	w12:22AM
Ashmont	5:16AM	9 min	14 min	12 min	12 min	w12:30AM	w 2:07AM	5:16AM	14 min	14 min	14 min	14 min	w 2:07AM	6:00AM	16 min	16 min	16 min	16 min	w12:30AM
"M" Ashmont	5:17AM	5 min	8 min	12 min	12 min	w1:05AM	w 2:45AM	5:15AM	26 min	12 min	12 min	26 min	w 2:45AM	6:03AM	26 min	12 min	12 min	26 min	w1:05AM
Mattapan	5:05AM	5 min	8 min	12 min	12 min	12:53AM	2:33AM	5:05AM	26 min	12 min	12 min	26 min	2:33AM	5:51AM	26 min	12 min	12 min	26 min	12:53AM
Blue Line																			
Wonderland	5:13AM	5 min	9 min	9 min	10 min	12:35AM	2:05AM	5:25AM	9 min	9 min	9 min	13 min	2:05AM	5:58AM	13 min	9 min	9 min	13 min	12:26AM
Orient Heights	5:13AM	5 min	9 min	9 min	10 min	12:40AM	2:10AM	5:13AM	9 min	9 min	9 min	13 min	2:10AM	6:03AM	13 min	9 min	9 min	13 min	12:31AM
Bowdoin	5:29AM	5 min	9 min	9 min	10 min	w1:00AM	w 2:30AM	5:29AM	9 min	9 min	9 min	13 min	w 2:29AM	6:21AM	13 min	9 min	9 min	13 min	w1:00AM
Orange Line																			
Oak Grove	5:16AM	6 min	8 min	10 min	10 min	w12:30AM	w 2:13AM	5:16AM	10 min	8 min	10 min	10 min	w 2:13AM	6:00AM	13 min	10 min	10 min	10 min	w12:30AM
Forest Hills	5:16AM	6 min	8 min	10 min	10 min	w12:35AM	w 2:13AM	5:16AM	10 min	8 min	10 min	10 min	w 2:13AM	6:00AM	13 min	10 min	10 min	10 min	w12:35AM
Green Line																			
"B" Boston College	5:01AM	7 min	8 min	8 min	9 min	12:10AM	1:48AM	4:45AM*	7 min	7 min	7 min	11 min	1:48AM	5:20AM*	10 min	9 min	7 min	10 min	12:10AM
Park Street	5:39AM	7 min	8 min	8 min	9 min	w12:52AM	w 2:28AM	5:33AM	7 min	7 min	7 min	11 min	w 2:28AM	6:06AM	10 min	9 min	7 min	10 min	w12:48AM
"C" Cleveland Circle	5:01AM*	6 min	8 min	7 min	9 min	12:10AM	1:40AM	4:50AM*	10 min	8 min	8 min	10 min	1:40AM	5:30AM*	10 min	10 min	10 min	10 min	12:10AM
North Station	5:55AM	6 min	8 min	7 min	9 min	w12:46AM	w 2:25AM	5:30AM	10 min	8 min	8 min	10 min	w 2:25AM	6:06AM	10 min	10 min	10 min	10 min	w12:48AM
*"D" Riverside	4:56AM	7 min	8 min	8 min	10 min	12:05AM	1:43AM	4:55AM	10 min	8 min	10 min	10 min	1:43AM	5:25AM	10 min	10 min	10 min	10 min	12:00AM
Park Street*	5:36AM	7 min	8 min	8 min	10 min	w12:49AM	w 2:30AM	5:39AM	10 min	8 min	10 min	10 min	w 2:30AM	6:09AM	10 min	10 min	10 min	10 min	w12:45AM
"E" Lechmere	5:01AM	6 min	7 min	9 min	9 min	12:30AM	2:15AM	5:01AM	10 min	9 min	10 min	10 min	2:15AM	5:35AM	12 min	12 min	12 min	12 min	12:30AM
Heath Street	5:30AM	6 min	7 min	9 min	9 min	w12:53AM	w 2:11AM	5:30AM	10 min	9 min	10 min	10 min	w 2:11AM	6:15AM	12 min	12 min	12 min	12 min	w12:47AM
Silver Line																			
SL1 Logan Airport	5:38AM	*8 min	8 min	8 min	12 min	12:44AM	2:03AM	5:33AM	12 min	12 min	12 min	12 min	2:00AM	5:50AM	12 min	8 min	8 min	8 min	12:45AM
South Station	5:40AM	*8 min	8 min	8 min	12 min	12:30AM	2:15AM	5:35AM	12 min	12 min	12 min	12 min	2:15AM	6:12AM	12 min	8 min	8 min	8 min	12:30AM
SL2 Design Center	6:03AM	5 min	10 min	9 min	15 min	12:30AM	12:30AM	6:10AM	15 min	15 min	15 min	15 min	12:35AM	6:50AM	15 min	15 min	15 min	15 min	12:34AM
South Station	5:45AM	5 min	10 min	9 min	15 min	w12:50AM	12:50AM	5:50AM	15 min	15 min	15 min	15 min	12:49AM	6:35AM	15 min	15 min	15 min	15 min	w12:48AM
Additional Waterfront-only service																			
Silver Line Way	5:28AM	5 min	Use SL1/SL2					5:28AM	Use SL1/SL2					6:05AM	Use SL1/SL2				
South Station	5:35AM	5 min				12:53AM	w 2:30AM						w 2:30AM						1:01AM
SL4 Dudley Station	5:20AM	10 min	15 min	15 min	20 min	12:20AM	2:20AM	5:23AM	15 min	15 min	15 min	20 min	2:20AM	6:02AM	15 min	15 min	15 min	20 min	12:20AM
South Station	5:40AM	10 min	15 min	15 min	20 min	12:40AM	2:05AM	5:40AM	15 min	15 min	15 min	20 min	2:05AM	6:20AM	15 min	15 min	15 min	20 min	12:40AM
SL5 Dudley Station	5:15AM	7 min	10 min	8 min	15 min	12:48AM	2:05AM	5:19AM	10 min	10 min	11 min	11 min	2:05AM	6:00AM	10 min	8 min	9 min	9 min	12:25AM
Downtown Xing	5:30AM	7 min	10 min	8 min	15 min	w1:02AM	w 2:30AM	5:34AM	10 min	10 min	11 min	11 min	w 2:30AM	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

52•59

Spring March 21, 2015 - June 19, 2015

52 Dedham Mall or Charles River Loop-Watertown Yard

59 Needham Junction-Watertown Square

Serving
- Newton Center
- Oak Hill
- Newton Corner
- Jewish Community Center
- BC Law School
- Needham Center
- Needham Heights
- Newton Highlands
- Newtonville
- Green Line
- Needham Commuter Rail
- Worcester Commuter Rail

Massachusetts Bay Transportation Authority *massDOT*

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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 CharliCard*	$0.80	$0.80	$1.05	$1.05
Senior/TAP CharliCard**	$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

□ 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)

□ Kendrick Street Interchange

Needham-Wellesley I-95 Add-A-Lane

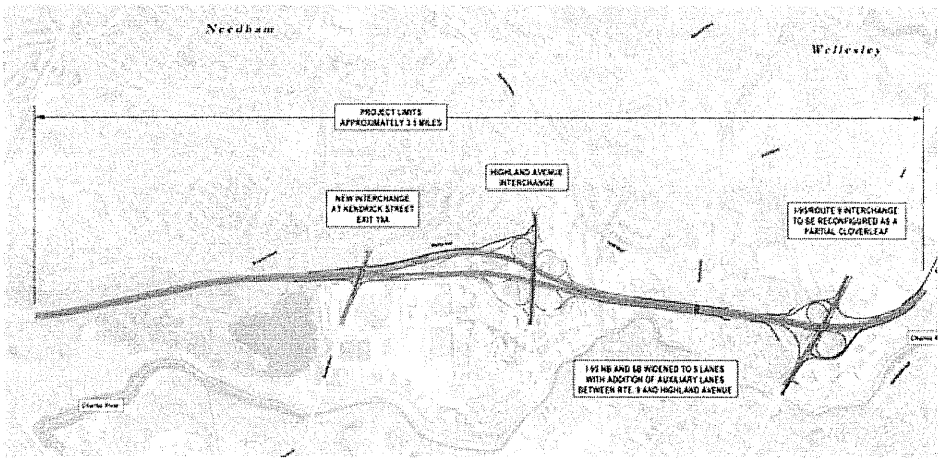
Project Area

The work on I-95 begins approximately 1,000 feet north of the Needham Branch RR Bridge in Needham and continues to 5,000 feet north of Route 9 in Wellesley, approximately 3.8 miles.

Project Overview

This project is the sixth and final contract to provide an additional travel lane and shoulder toward the median on I-95 from approximately Route 24 in Randolph to Route 9 in Wellesley. This widening includes restoring the breakdown lanes for their intended use. This sixth contract is a 3.8-mile segment of I-95 from just north of the Needham Branch railroad bridge in Needham to about 5,000 feet north of Route 9 in Wellesley.

Work under this project includes:



- Additional travel lane and shoulder to I-95 northbound and southbound toward the median along the entire length of the project.
- A new interchange at Kendrick Street and two collector-distributor roads connecting Kendrick Street and Highland Avenue.
- Seven new noise barriers.
- Upgrades to the interchanges at Highland Avenue and Route 9 to improve safety and mobility to reduce traffic diversions to local roads.
- Two additional auxiliary lanes between Highland Avenue and Route 9.
- Four new bridges: Kendrick Street over I-95, a new flyover ramp at the Kendrick Street interchange, Highland Avenue over Route 128, and I-95 over Route 9.
- Widening of the bridge carrying Central Avenue over I-95.

Project Status

Barletta Heavy Division, Inc. is the prime contractor. Construction began in January 2015 and is expected to be completed in Spring 2019. MassDOT established an interim milestone requiring a portion of the new Kendrick Street Interchange to be open to traffic in Fall 2016.

The project has been split into five major stages to minimize impacts to the traveling public. Stage 1 (January 2015 to October 2015) includes the following:

- Widening the northern half of the Kendrick Street Bridge while maintaining the existing three lanes on the structure.
- Building Kendrick Street ramp bridge to I-95 NB.
- Commencing construction of the new Highland Street Bridge while maintaining traffic on the existing spans.
- Initial construction at the interchange of I-95 and Route 9.
- Demolition of the railroad bridge over I-95.

Current Construction Activities: Week of August 3rd

Throughout the week of August 3, 2015, Barletta Heavy Division (BHD), MassDOT's contractor for the Route 128 Add-a-Lane Bridge V project, will continue construction operations. Work will be performed during both the standard working hours of 7:00AM to 3:00PM and third shift of 7:00PM to 5:00AM.

During the third shift, construction activities will be located on both Route 9 and Route 128 mainline and require the closure of two highway lanes, which is prohibited during standard working hours. Work on the mainline will include the installation of drainage in the median south of Kendrick Street and from the Railroad Bridge to Central Avenue, and the drainage component for a temporary cross over lane.

Within standard working hours, work will take place on the Kendrick Street Bridge, Central Avenue Bridge, and the Highland Avenue Bridge. At the Kendrick Street Bridge, the work will continue on the installation of walls, and forming, reinforcing, and pouring the west abutment wall, and work will continue on setting the bearings and setting the structural steel. Furthermore, the installation of the utility

racks and hanger will commence.

At Highland Avenue, work will conclude on forming and reinforcing of the east abutment walls, and pouring of the east abutment wall will commence. Work will conclude on striping the west abutment, and the backfill and preload of the west abutment will commence. Finally, striping and shoring of the pier caps will commence.

At the Central Avenue Bridge site, excavations and lagging for the central arch will be undertaken.

At Route 9, work will conclude on the installation of the mast arms and strain pole foundations, and the installation of the traffic controller foundations and cabinets will begin. Work will commence on the removal of the center median and the construction of the left-turn lanes.

It should be noted that in early September, the left-turn lanes and the cross over will be activated on Route 9. More information will provided when a date has been set. Please share this information with neighbors, friends, co-workers, family members or anyone else you think may benefit from it.

Upcoming Meetings

No meetings are planned at this time.

Getting Involved

Please sign up for e-mail updates on the project. Send questions and comments to: NWi95@dot.state.ma.us

For additional information, please contact:

Nathaniel Curtis, Howard/Stein-Hudson, Public Involvement Specialist
Tel: (617)482-7080 x236

or

Trish Foley
MassDOT Legislative Liaison for Norfolk & Bristol Counties
Tel: 857-368-8907

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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

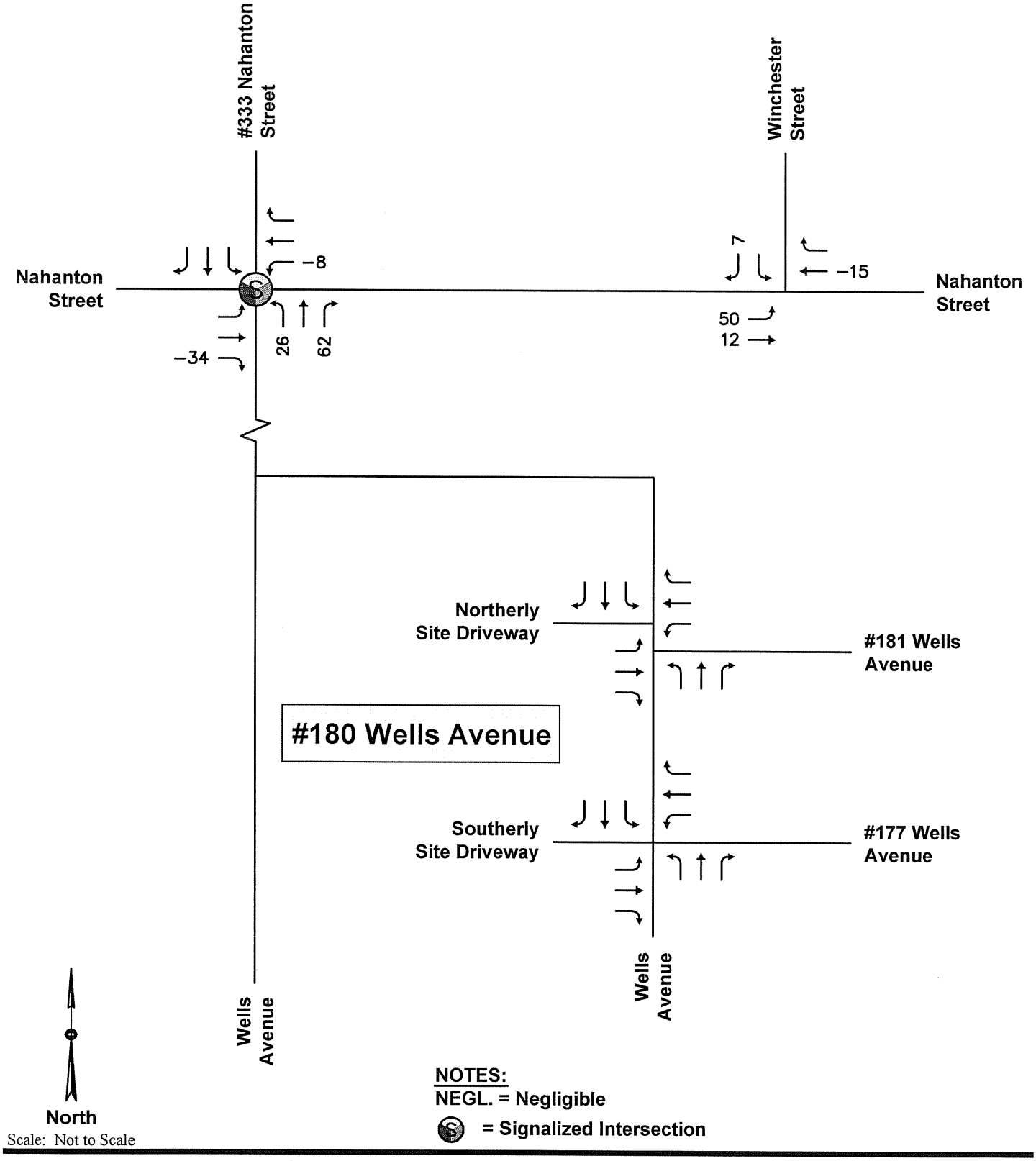
Kendrick Street Interchange

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

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

massDOT

□ Background Growth

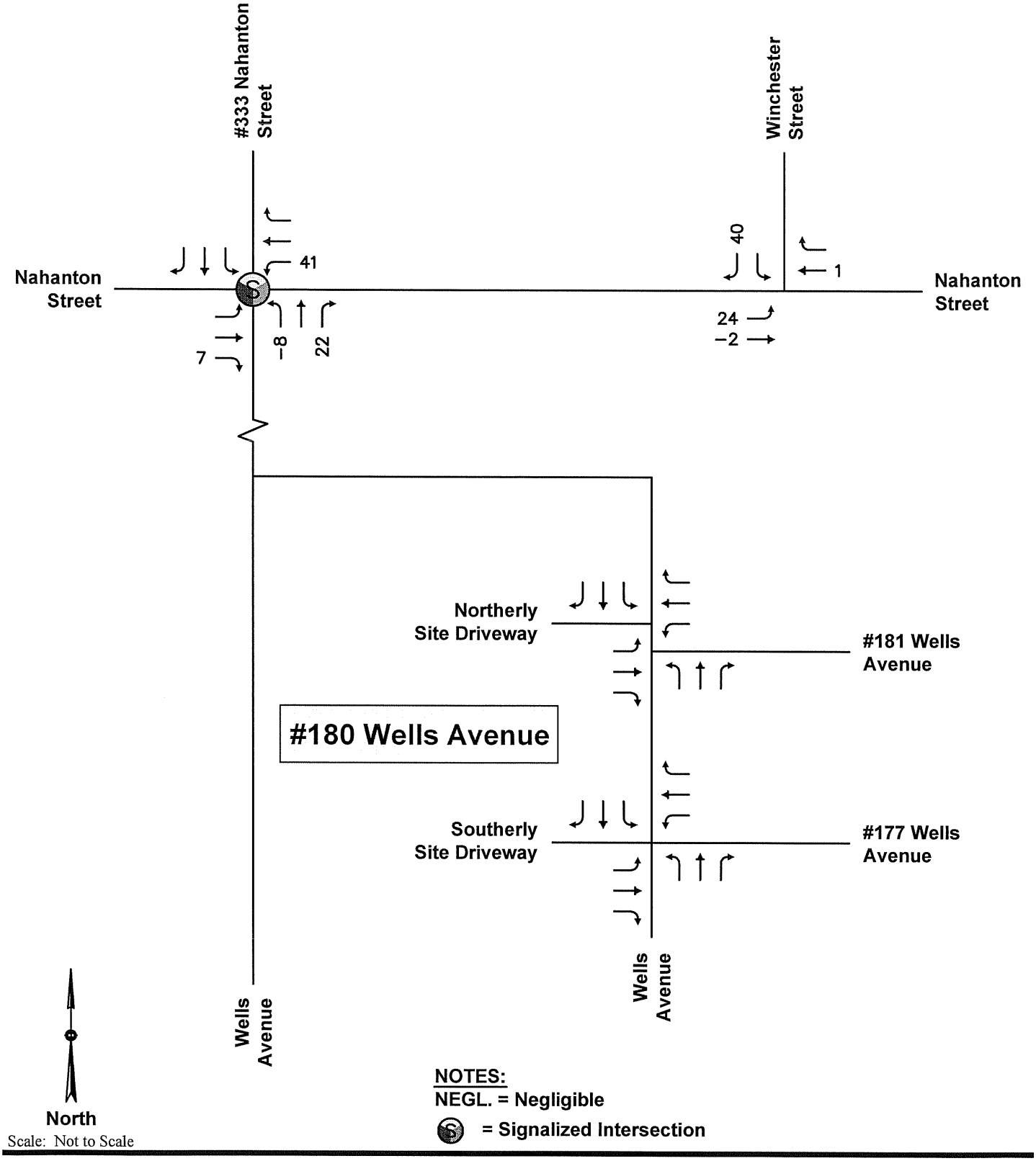


MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Attachments

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

Date: July 2015
Dwg No. 840 MR01.dwg

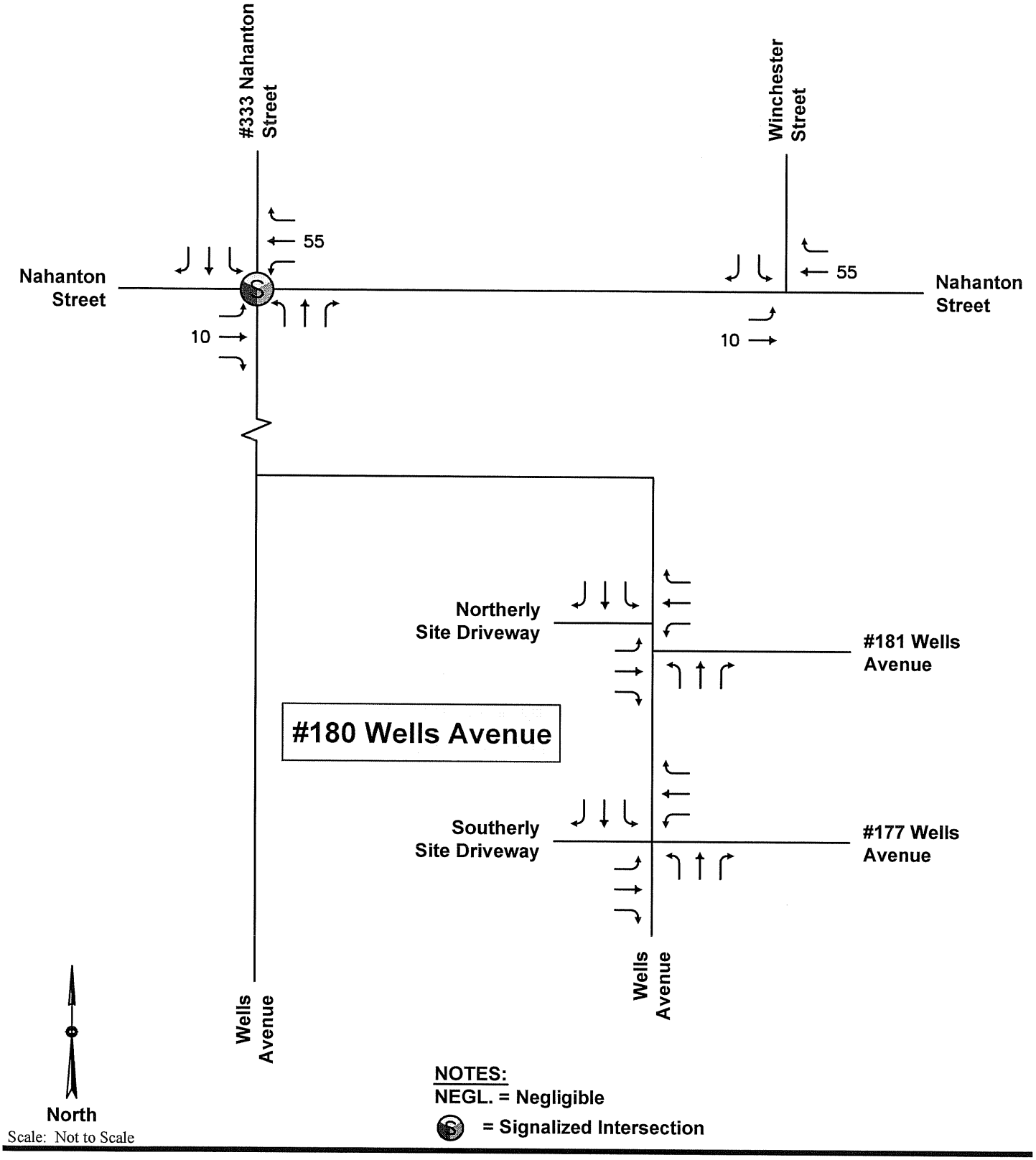


MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Attachments

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

Date: July 2015
Dwg No. 840 MR01.dwg

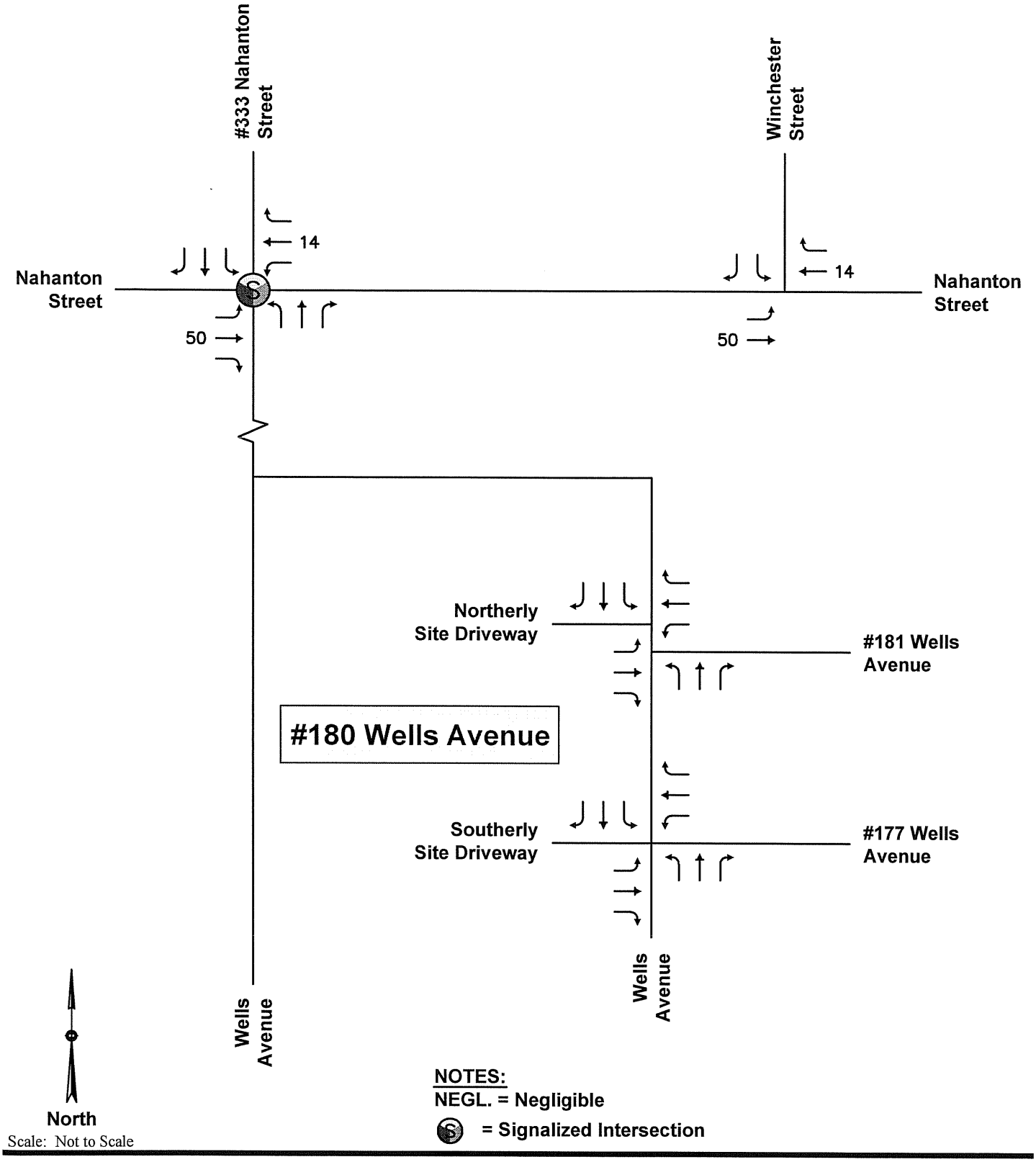


MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Attachments

Center 128 Site Generated Trips
Weekday Morning
Peak Hour Traffic Volumes

Date: July 2015
Dwg No. 840 MR01.dwg

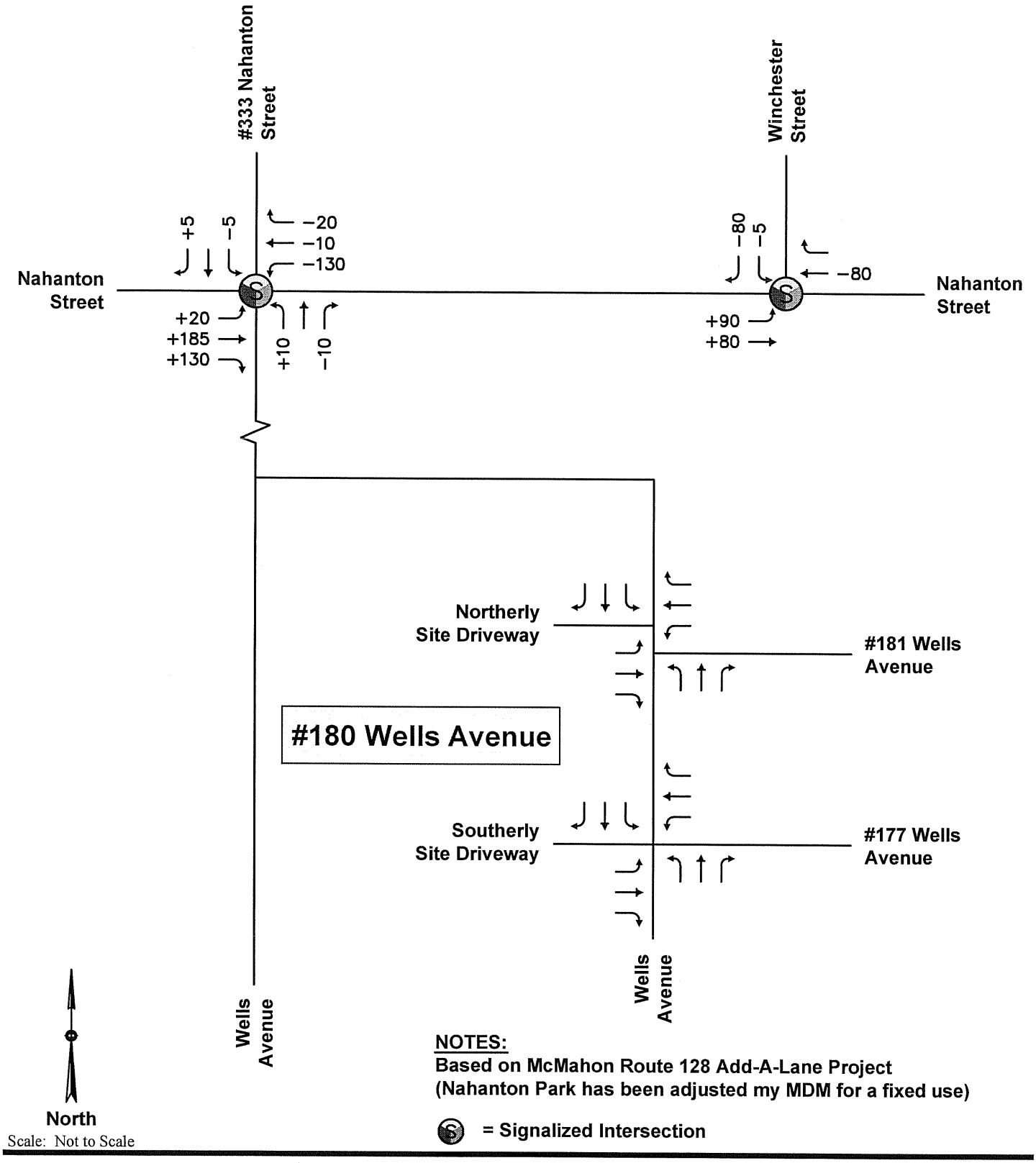


MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Attachments

Center 128 Site Generated Trips
Weekday Evening
Peak Hour Traffic Volumes

Date: July 2015
Dwg No. 840 MR01.dwg

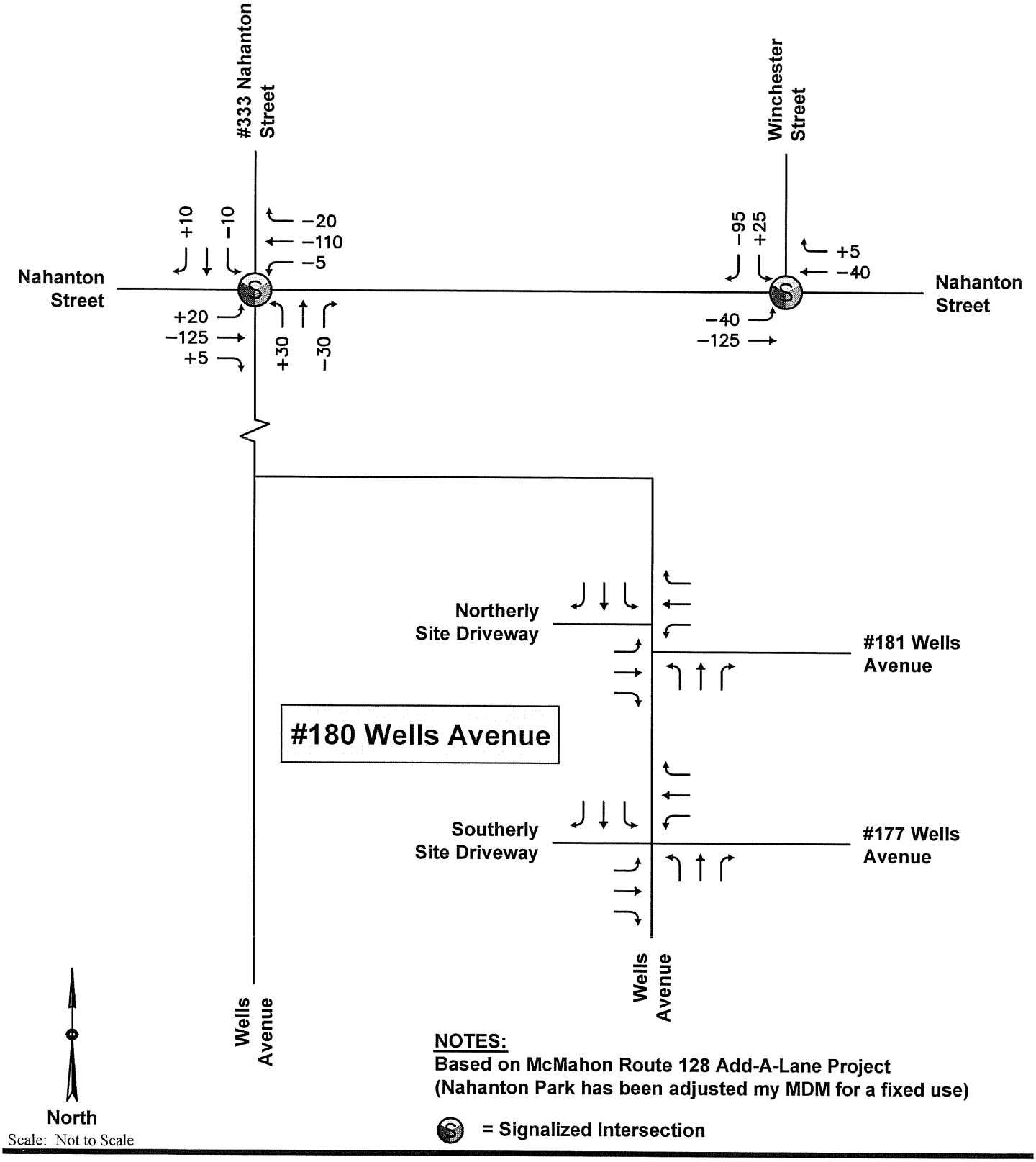


MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Attachments

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

Date: July 2015
Dwg No. 840 MR01.dwg

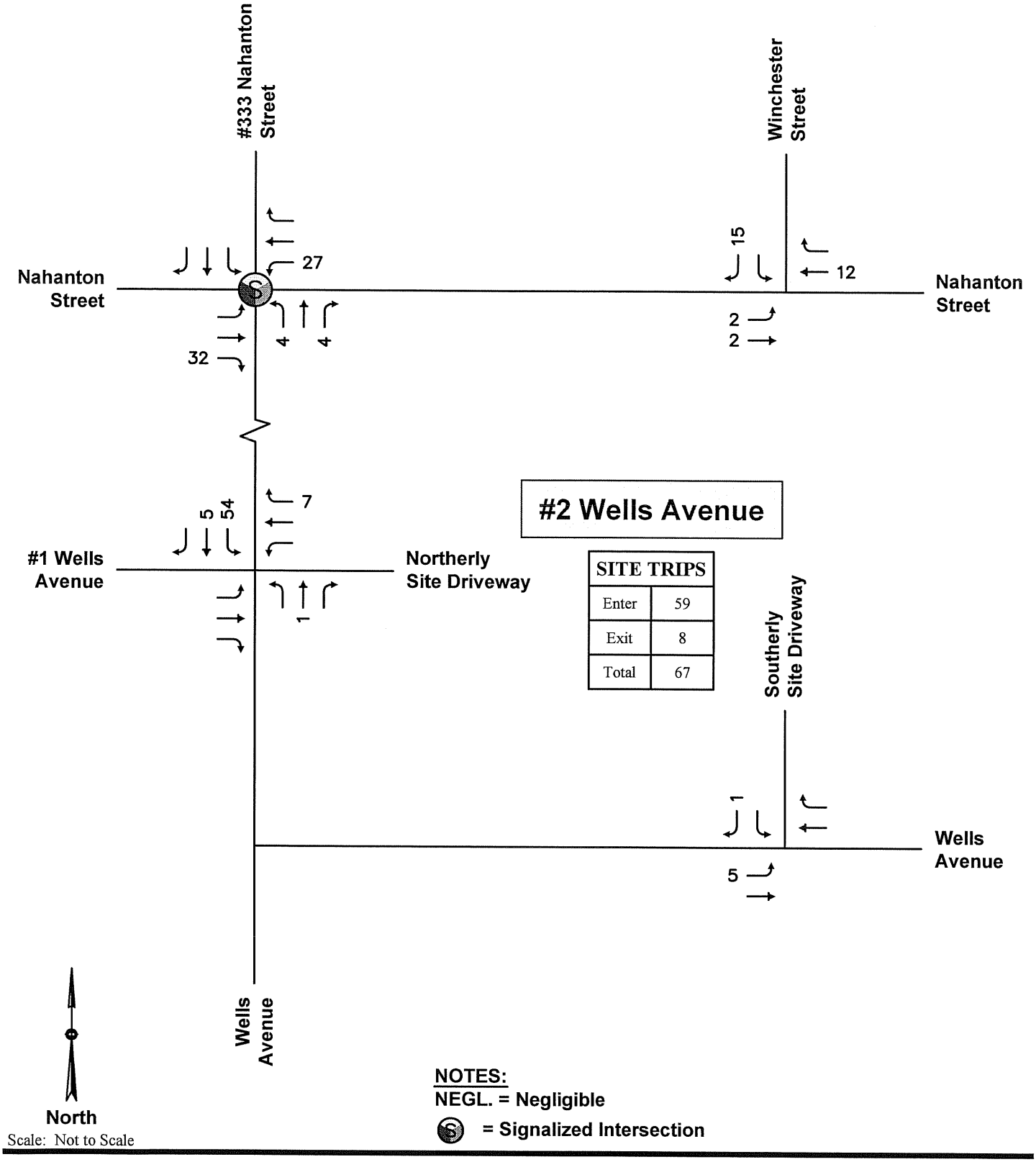


MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Attachments

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

Date: July 2015
Dwg No. 840 MR01.dwg

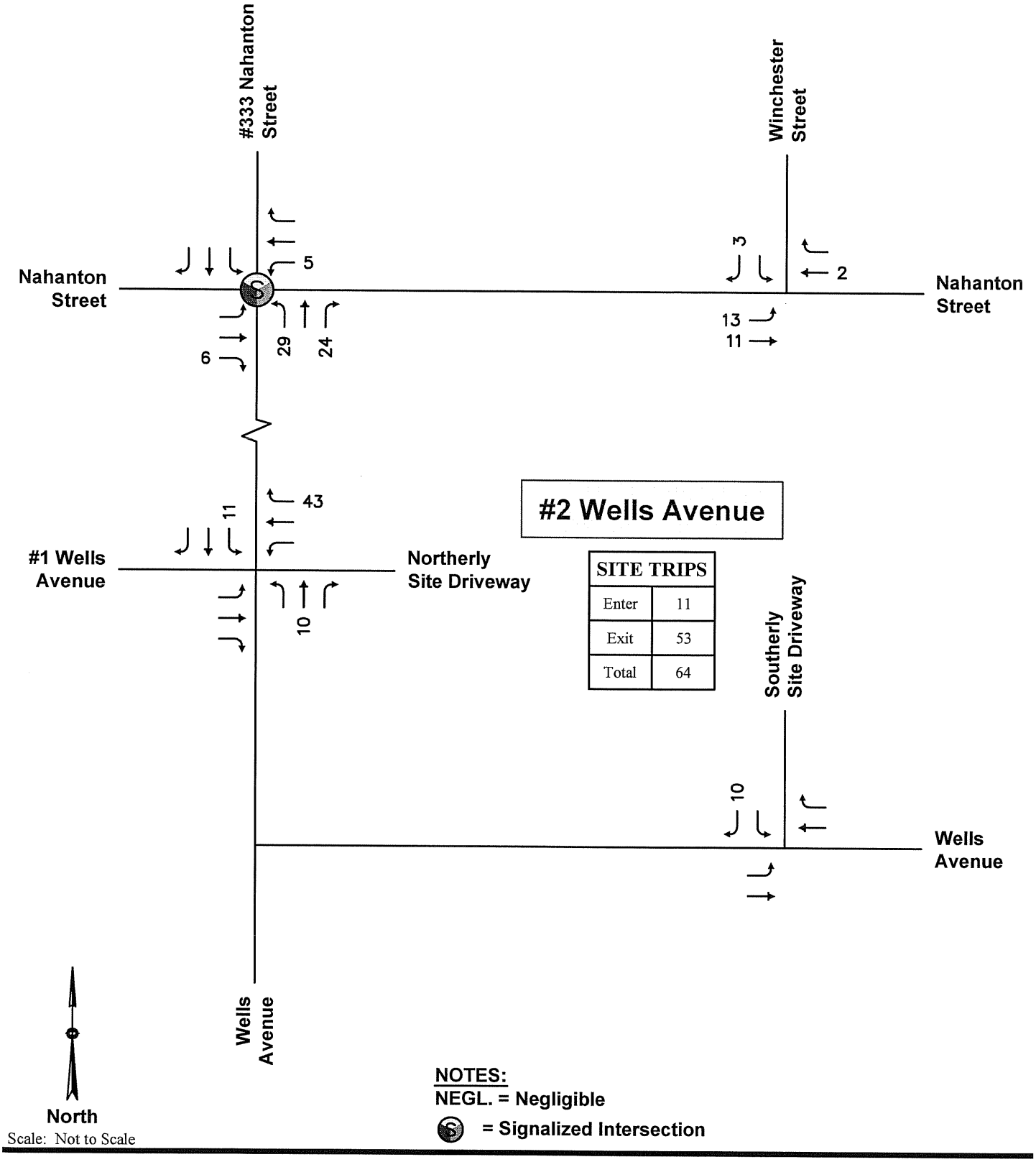


MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Attachments

2025 Projected Build Traffic Shifts
2 Wells Ave Office Expansion
Weekday Morning
Peak Hour Traffic Volumes

Date: July 2015
Dwg No. 840 MR01.dwg



MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Attachments

2025 Projected Build Traffic Shifts
2 Wells Ave Office Expansion
Weekday Evening
Peak Hour Traffic Volumes

Date: July 2015
Dwg No. 840 MR01.dwg

□ Trip Generation Data

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

Average Vehicle Trips Ends vs: 1000 Sq. Feet Gross Floor Area
Independent Variable (X): 60.585

Average Weekday Daily

T = 11.03 * (X)
T = 11.03 * 60.59
T = 668.25
T = 668 vehicle trips
with 50% (**334** vpd) entering and 50% (**334** vpd) exiting.

Weekday Morning Peak Hour Of Adjacent Street Traffic

T = 1:56 * (X)
T = 1.56 * 60.59
T = 94.51
T = 95 vehicle trips
with 88% (**84** vph) entering and 12% (**11** vph) exiting.

Weekday Evening Peak Hour Of Adjacent Street Traffic

T = 1.49 * (X)
T = 1.49 * 60.59
T = 90.27
T = 90 vehicle trips
with 17% (**15** vph) entering and 83% (**75** vph) exiting.

Saturday Daily

T = 2.46 * (x)
T = 2.46 * 60.59
T = 149.04
T = 150 vehicle trips
with 50% (**75** vpd) entering and 50% (**75** vpd) exiting.

Saturday Midday Peak Hour Of Generator

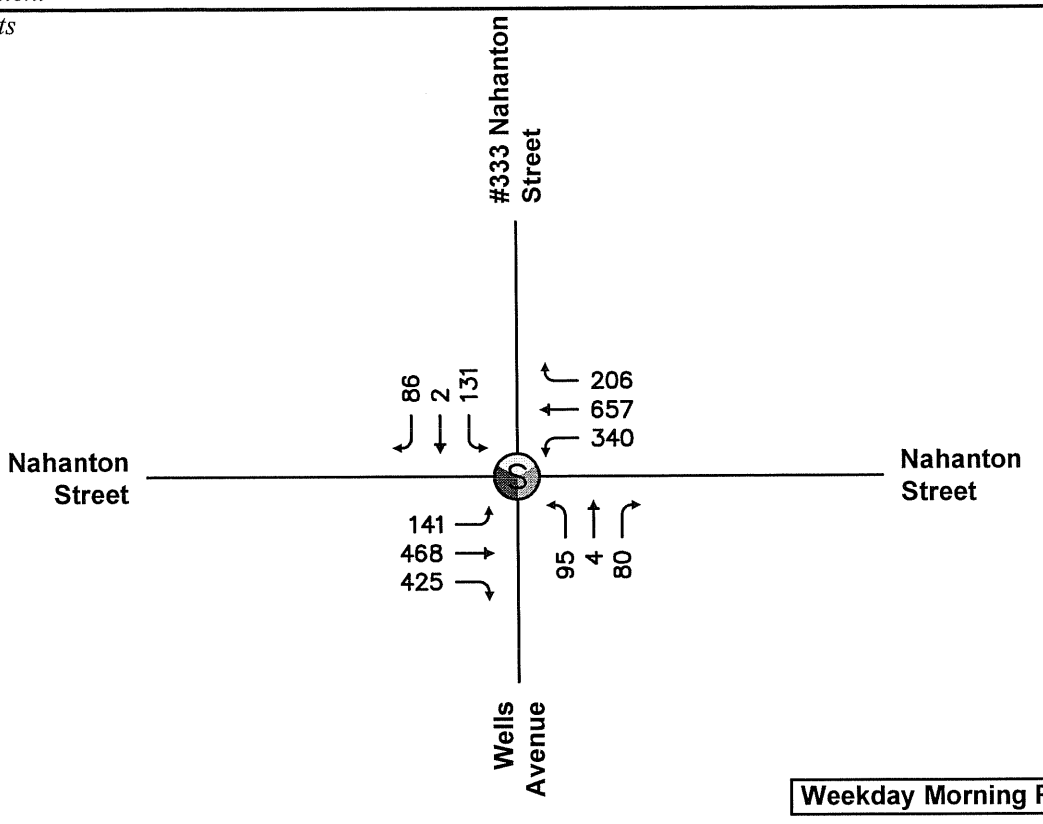
T = 0.43 * (X)
T = 0.43 * 60.59
T = 26.05
T = 26 vehicle trips
with 54% (**14** vph) entering and 46% (**12** vph) exiting.

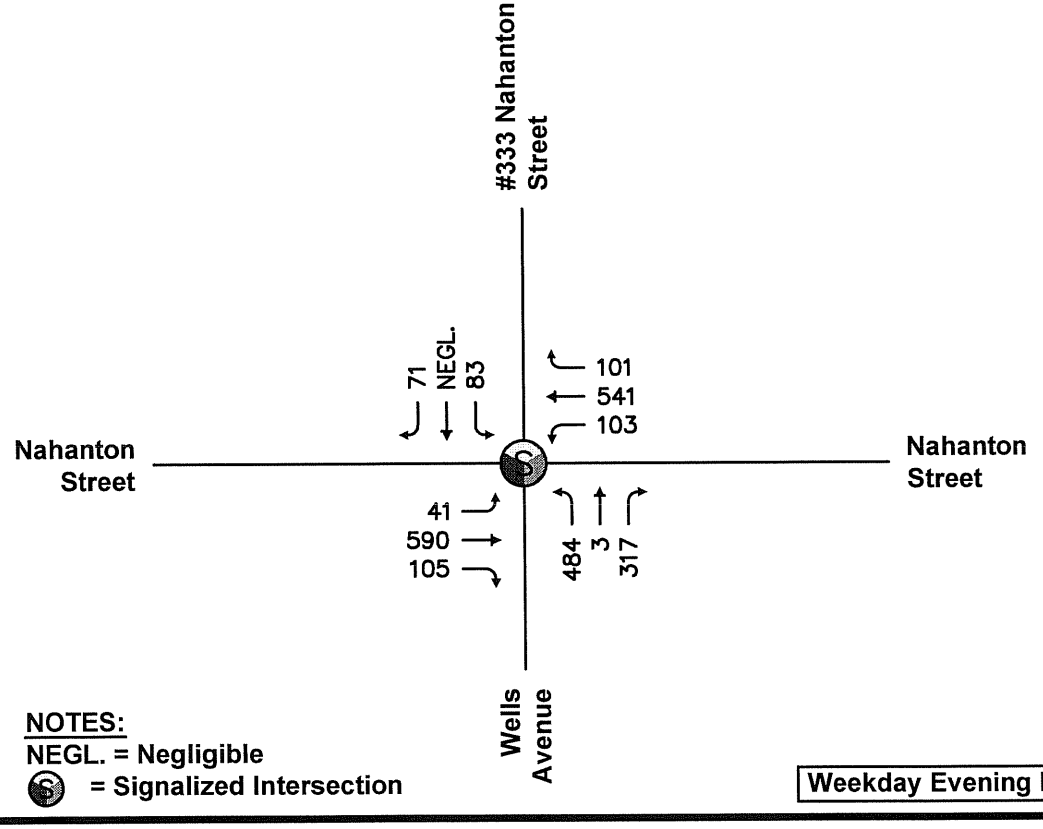
□ Trip Distribution Calculations

Workplace MCD/County Flows for the United States and Puerto Rico Sorted			
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%
529	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%
267	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%
166	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%
40,279			100.0%

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%

□ Nahanton at Wells Calibration





North
Scale: Not to Scale

NOTES:
NEGL. = Negligible
S = Signalized Intersection

MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Attachments

Calibration Data
July 1, 2015 Count
Peak Hour Traffic Volumes

Date: August 2015
Dwg No. 840 MR01.dwg

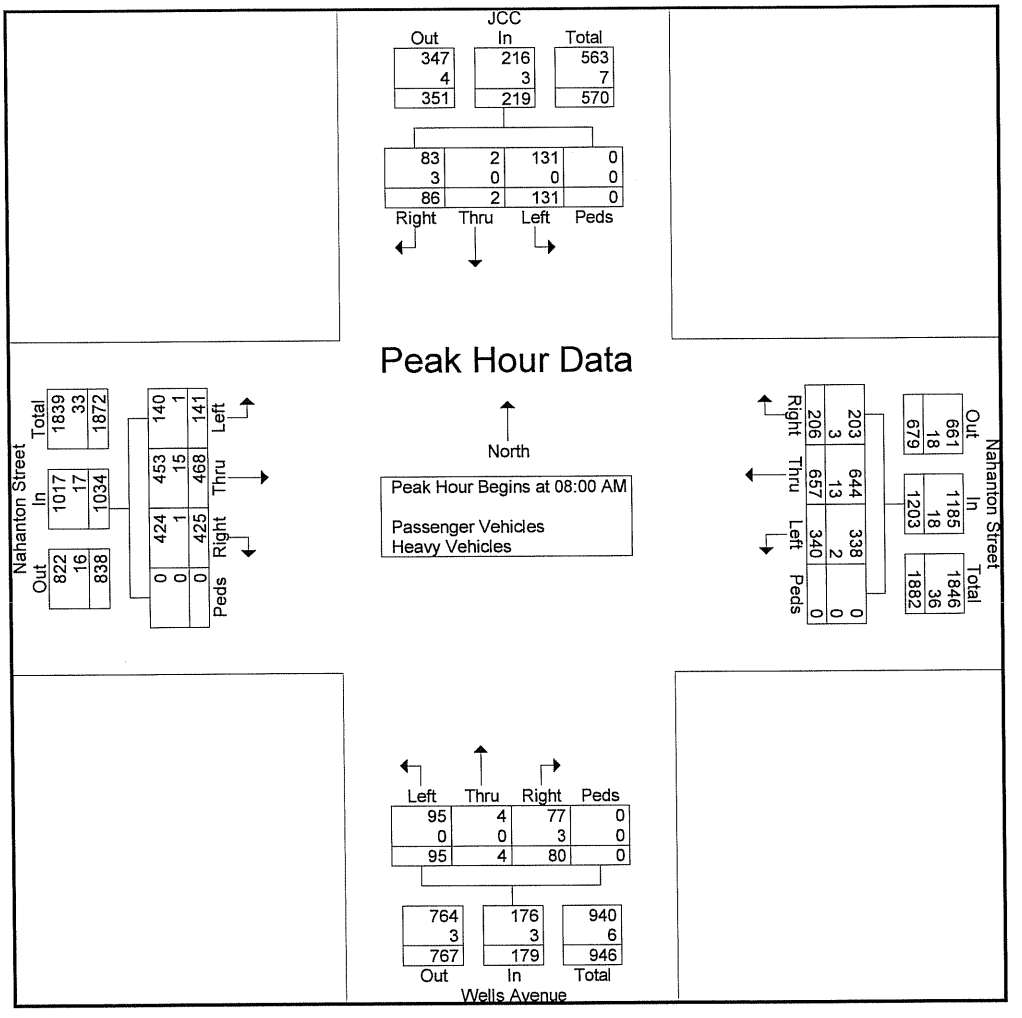
MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA

N/S: Wells Avenue
E/W: Nahanton Street
Newton, MA

File Name : 840 Wells Ave at Nahanton St 8-9 AM
Site Code : 840
Start Date : 7/1/2015
Page No : 2

	JCC From North					Nahanton Street From East					Wells Avenue 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 08:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	9	**1**	24	0	34	31	**175**	67	0	273	**27**	**2**	19	0	48	85	**124**	31	0	240	595
08:15 AM	16	0	19	0	35	**67**	159	70	0	296	14	1	21	0	36	102	114	34	0	250	617
08:30 AM	21	0	30	0	51	57	169	100	0	**326**	13	1	26	0	40	99	123	**42**	0	264	681
08:45 AM	**40**	1	**58**	0	**99**	51	154	**103**	0	308	26	0	**29**	0	**55**	**139**	107	34	0	**280**	**742**
Total Volume	86	2	131	0	219	206	657	340	0	1203	80	4	95	0	179	425	468	141	0	1034	2635
% App. Total	39.3	0.9	59.8	0		17.1	54.6	28.3	0		44.7	2.2	53.1	0		41.1	45.3	13.6	0		
PHF	.538	.500	.565	.000	.553	.769	.939	.825	.000	.923	.741	.500	.819	.000	.814	.764	.944	.839	.000	.923	.888
Passenger Vehicles	83	2	131	0	216	203	644	338	0	1185	77	4	95	0	176	424	453	140	0	1017	2594
% Passenger Vehicles																					
Heavy Vehicles	3	0	0	0	3	3	13	2	0	18	3	0	0	0	3	1	15	1	0	17	41
% Heavy Vehicles	3.5	0	0	0	1.4	1.5	2.0	0.6	0	1.5	3.8	0	0	0	1.7	0.2	3.2	0.7	0	1.6	1.6



MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA

N/S: Wells Avenue
E/W: Nahanton Street
Newton, MA

File Name : 840 Wells Ave at Nahanton St 8-9 AM
Site Code : 840
Start Date : 7/1/2015
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	JCC From North					Nahanton Street From East					Wells Avenue 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
08:00 AM	9	1	24	0	34	31	175	67	0	273	27	2	19	0	48	85	124	31	0	240	595
08:15 AM	16	0	19	0	35	67	159	70	0	296	14	1	21	0	36	102	114	34	0	250	617
08:30 AM	21	0	30	0	51	57	169	100	0	326	13	1	26	0	40	99	123	42	0	264	681
08:45 AM	40	1	58	0	99	51	154	103	0	308	26	0	29	0	55	139	107	34	0	280	742
Total	86	2	131	0	219	206	657	340	0	1203	80	4	95	0	179	425	468	141	0	1034	2635
Grand Total	86	2	131	0	219	206	657	340	0	1203	80	4	95	0	179	425	468	141	0	1034	2635
Apprch %	39.3	0.9	59.8	0		17.1	54.6	28.3	0		44.7	2.2	53.1	0		41.1	45.3	13.6	0		
Total %	3.3	0.1	5	0	8.3	7.8	24.9	12.9	0	45.7	3	0.2	3.6	0	6.8	16.1	17.8	5.4	0	39.2	
Passenger Vehicles	83	2	131	0	216	203	644	338	0	1185	77	4	95	0	176	424	453	140	0	1017	2594
% Passenger Vehicles																					
Heavy Vehicles	3	0	0	0	3	3	13	2	0	18	3	0	0	0	3	1	15	1	0	17	41
% Heavy Vehicles	3.5	0	0	0	1.4	1.5	2	0.6	0	1.5	3.8	0	0	0	1.7	0.2	3.2	0.7	0	1.6	1.6

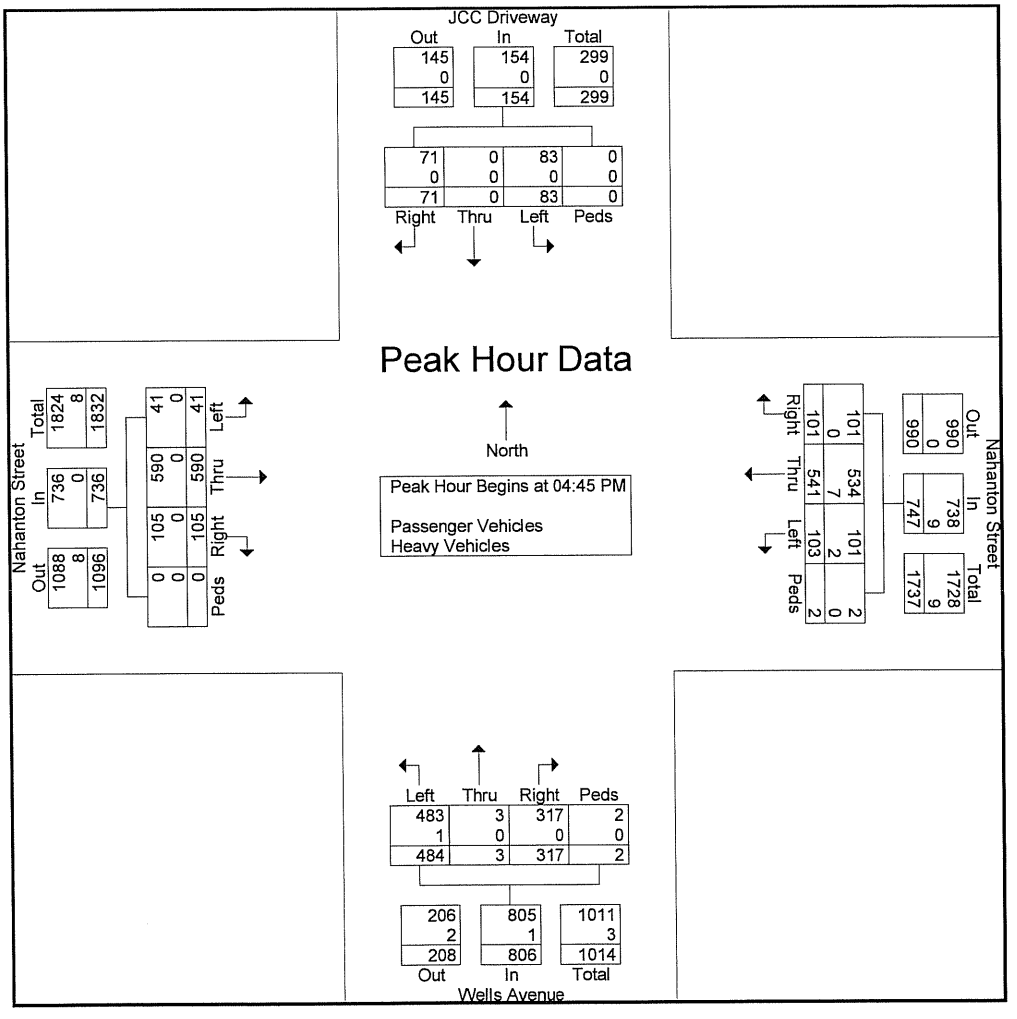
MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA

N/S: Wells Avenue
E/W: Nahanton Street
Newton, MA

File Name : 840 Wells Ave at Nahanton St 445-6
Site Code : 840
Start Date : 6/30/2015
Page No : 2

	JCC Driveway From North					Nahanton Street From East					Wells Avenue 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 04:45 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	13	0	17	0	30	27	**140**	26	**1**	**194**	52	**1**	118	**1**	172	**29**	124	9	0	162	558
05:00 PM	**22**	0	17	0	39	22	134	22	0	178	**100**	1	**134**	0	**235**	24	141	**14**	0	179	**631**
05:15 PM	17	0	**32**	0	**49**	21	140	26	0	187	89	1	109	1	200	28	158	9	0	195	631
05:30 PM	19	0	17	0	36	**31**	127	**29**	1	188	76	0	123	0	199	24	**167**	9	0	**200**	623
Total Volume	71	0	83	0	154	101	541	103	2	747	317	3	484	2	806	105	590	41	0	736	2443
% App. Total	46.1	0	53.9	0		13.5	72.4	13.8	0.3		39.3	0.4	60	0.2		14.3	80.2	5.6	0		
PHF	.807	.000	.648	.000	.786	.815	.966	.888	.500	.963	.793	.750	.903	.500	.857	.905	.883	.732	.000	.920	.968
Passenger Vehicles	71	0	83	0	154	101	534	101	2	738	317	3	483	2	805	105	590	41	0	736	2433
% Passenger Vehicles																					
Heavy Vehicles	0	0	0	0	0	0	7	2	0	9	0	0	1	0	1	0	0	0	0	0	10
% Heavy Vehicles	0	0	0	0	0	0	1.3	1.9	0	1.2	0	0	0.2	0	0.1	0	0	0	0	0	0.4



MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA

N/S: Wells Avenue
E/W: Nahanton Street
Newton, MA

File Name : 840 Wells Ave at Nahanton St 445-6
Site Code : 840
Start Date : 6/30/2015
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	JCC Driveway From North					Nahanton Street From East					Wells Avenue 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
04:45 PM	13	0	17	0	30	27	140	26	1	194	52	1	118	1	172	29	124	9	0	162	558
Total	13	0	17	0	30	27	140	26	1	194	52	1	118	1	172	29	124	9	0	162	558
05:00 PM	22	0	17	0	39	22	134	22	0	178	100	1	134	0	235	24	141	14	0	179	631
05:15 PM	17	0	32	0	49	21	140	26	0	187	89	1	109	1	200	28	158	9	0	195	631
05:30 PM	19	0	17	0	36	31	127	29	1	188	76	0	123	0	199	24	167	9	0	200	623
05:45 PM	17	0	28	0	45	22	147	19	0	188	71	0	72	0	143	19	142	11	0	172	548
Total	75	0	94	0	169	96	548	96	1	741	336	2	438	1	777	95	608	43	0	746	2433
Grand Total	88	0	111	0	199	123	688	122	2	935	388	3	556	2	949	124	732	52	0	908	2991
Apprch %	44.2	0	55.8	0		13.2	73.6	13	0.2		40.9	0.3	58.6	0.2		13.7	80.6	5.7	0		
Total %	2.9	0	3.7	0	6.7	4.1	23	4.1	0.1	31.3	13	0.1	18.6	0.1	31.7	4.1	24.5	1.7	0	30.4	
Passenger Vehicles	88	0	111	0	199	123	680	120	2	925	388	3	555	2	948	124	731	52	0	907	2979
% Passenger Vehicles																					
Heavy Vehicles	0	0	0	0	0	0	8	2	0	10	0	0	1	0	1	0	1	0	0	1	12
% Heavy Vehicles	0	0	0	0	0	0	1.2	1.6	0	1.1	0	0	0.2	0	0.1	0	0.1	0	0	0.1	0.4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	141	468	425	340	657	206	95	4	80	131	2	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		0.964			0.856			0.853	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1702	1756	1697	1753	1762	0	1736	1626	0	1805	1567	0
Flt Permitted	0.080			0.373			0.693			0.696		
Satd. Flow (perm)	143	1756	1697	688	1762	0	1266	1626	0	1322	1567	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			478		27			90			97	
Link Speed (mph)		35			30			30			30	
Link Distance (ft)		1000			960			1000			500	
Travel Time (s)		19.5			21.8			22.7			11.4	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	1%	3%	0%	1%	2%	2%	4%	0%	0%	0%	0%	0%
Adj. Flow (vph)	158	526	478	382	738	231	107	4	90	147	2	97
Shared Lane Traffic (%)												
Lane Group Flow (vph)	158	526	478	382	969	0	107	94	0	147	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	

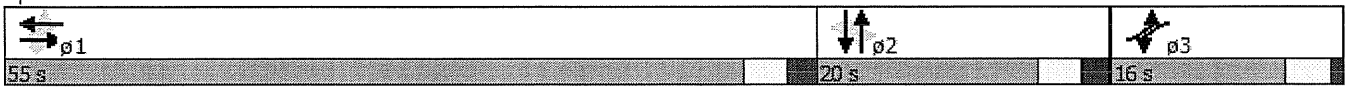
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	3	1		3	1			2			2	
Permitted Phases	1		1	1			2			2		
Detector Phase	3	1	1	3	1		2	2		2	2	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	10.0	11.0	11.0	10.0	11.0		11.0	11.0		11.0	11.0	
Total Split (s)	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)	61.2	50.0	50.0	61.2	50.0		12.7	12.7		12.7	12.7	
Actuated g/C Ratio	0.70	0.58	0.58	0.70	0.58		0.15	0.15		0.15	0.15	
v/c Ratio	0.56	0.52	0.41	0.63	0.94		0.58	0.30		0.76	0.32	
Control Delay	21.6	14.3	2.1	9.0	37.1		48.2	11.2		61.7	10.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	21.6	14.3	2.1	9.0	37.1		48.2	11.2		61.7	10.8	
LOS	C	B	A	A	D		D	B		E	B	
Approach Delay		10.3			29.2			30.9			41.2	
Approach LOS		B			C			C			D	
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		15.0	15.0		15.0	15.0	
70th %ile Term Code	Max	Max	Max	Max	Max		Max	Max		Max	Max	
50th %ile Green (s)	11.1	50.0	50.0	11.1	50.0		14.7	14.7		14.7	14.7	
50th %ile Term Code	Gap	Max	Max	Gap	Max		Gap	Gap		Gap	Gap	
30th %ile Green (s)	9.0	50.0	50.0	9.0	50.0		11.6	11.6		11.6	11.6	
30th %ile Term Code	Gap	Max	Max	Gap	Max		Gap	Gap		Gap	Gap	
10th %ile Green (s)	6.9	49.3	49.3	6.9	49.3		7.8	7.8		7.8	7.8	
10th %ile Term Code	Gap	Gap	Gap	Gap	Gap		Gap	Gap		Gap	Gap	
Queue Length 50th (ft)	32	177	0	60	489		56	2		79	1	
Queue Length 95th (ft)	93	269	40	93	#794		109	43		#161	43	
Internal Link Dist (ft)		920			880			920			420	
Turn Bay Length (ft)	175		175	250						75		
Base Capacity (vph)	319	1013	1181	644	1029		219	356		228	351	
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	0.50	0.52	0.40	0.59	0.94		0.49	0.26		0.64	0.28	

Intersection Summary

Area Type: Other
Cycle Length: 91

Actuated Cycle Length: 86.9
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 22.9 Intersection LOS: C
Intersection Capacity Utilization 80.5% ICU Level of Service D
Analysis Period (min) 15
90th %ile Actuated Cycle: 91
70th %ile Actuated Cycle: 91
50th %ile Actuated Cycle: 89.8
30th %ile Actuated Cycle: 84.6
10th %ile Actuated Cycle: 78
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	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	41	590	105	103	541	101	484	3	317	299	0	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		0.976			0.851			0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	1809	1697	1736	1804	0	1805	1617	0	1805	1561	0
Flt Permitted	0.130			0.130			0.709			0.459		
Satd. Flow (perm)	235	1809	1697	238	1804	0	1347	1617	0	872	1561	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			80		10			327			353	
Link Speed (mph)		35			30			30			30	
Link Distance (ft)		1000			960			1000			500	
Travel Time (s)		19.5			21.8			22.7			11.4	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	0%	0%	2%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	42	608	108	106	558	104	499	3	327	308	0	73
Shared Lane Traffic (%)												
Lane Group Flow (vph)	42	608	108	106	662	0	499	330	0	308	73	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	

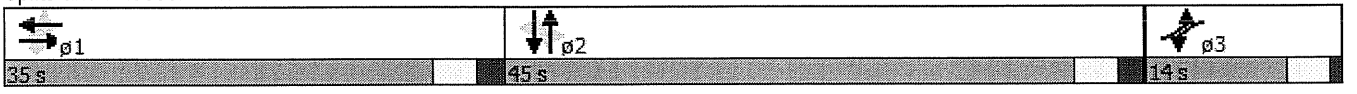
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	3	1		3	1			2			2	
Permitted Phases	1		1	1			2			2		
Detector Phase	3	1	1	3	1		2	2		2	2	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	10.0	11.0	11.0	10.0	11.0		11.0	11.0		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)	37.9	30.8	30.8	37.9	30.8		35.1	35.1		35.1	35.1	
Actuated g/C Ratio	0.44	0.36	0.36	0.44	0.36		0.41	0.41		0.41	0.41	
v/c Ratio	0.18	0.93	0.16	0.44	1.01		0.90	0.38		0.86	0.09	
Control Delay	15.0	53.1	9.2	19.7	68.7		45.3	3.5		47.8	0.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	15.0	53.1	9.2	19.7	68.7		45.3	3.5		47.8	0.2	
LOS	B	D	A	B	E		D	A		D	A	
Approach Delay		44.7			61.9			28.7			38.7	
Approach LOS		D			E			C			D	
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)	8.7	30.0	30.0	8.7	30.0		40.0	40.0		40.0	40.0	
70th %ile Term Code	Gap	Max	Max	Gap	Max		Max	Max		Max	Max	
50th %ile Green (s)	7.6	30.0	30.0	7.6	30.0		40.0	40.0		40.0	40.0	
50th %ile Term Code	Gap	Max	Max	Gap	Max		Max	Max		Max	Max	
30th %ile Green (s)	6.4	30.0	30.0	6.4	30.0		35.4	35.4		35.4	35.4	
30th %ile Term Code	Gap	Max	Max	Gap	Max		Gap	Gap		Gap	Gap	
10th %ile Green (s)	0.0	30.0	30.0	0.0	30.0		21.9	21.9		21.9	21.9	
10th %ile Term Code	Skip	Max	Max	Skip	Max		Gap	Gap		Gap	Gap	
Queue Length 50th (ft)	13	~380	11	34	~440		251	1		151	0	
Queue Length 95th (ft)	31	#606	49	64	#679		#458	50		#316	0	
Internal Link Dist (ft)		920			880			920			420	
Turn Bay Length (ft)	175		175	250						75		
Base Capacity (vph)	287	652	663	290	657		648	947		419	934	
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	0.15	0.93	0.16	0.37	1.01		0.77	0.35		0.74	0.08	

Intersection Summary

Area Type: Other
Cycle Length: 94

Actuated Cycle Length: 85.2
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.01
Intersection Signal Delay: 43.8 Intersection LOS: D
Intersection Capacity Utilization 91.8% ICU Level of Service F
Analysis Period (min) 15
90th %ile Actuated Cycle: 94
70th %ile Actuated Cycle: 92.7
50th %ile Actuated Cycle: 91.6
30th %ile Actuated Cycle: 85.8
10th %ile Actuated Cycle: 61.9
~ 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



MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA

Stop Delay Study
Westbound Approach
Nahanton Street
Newton, Ma

File Name : 840 Nahanton Street Left Turn Delay 8-9
Site Code : 840
Start Date : 7/31/2015
Page No : 1

Summary Information:

8:00:00 AM - 9:00:00 AM	Left Turn Lane
Total Vehicle Count:	325
Delayed Vehicle Count:	325
Through Vehicle Count:	0
Average Stopped Time:	32.47
Maximum Stopped Time:	149
Min. Secs. for Delay:	0
Average Queue:	2.94
Queue Density:	5.08
Maximum Queue:	18
Delay in Vehicle Hour:	2.94
Total Delay:	10553

MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA

Stop Delay Study
Northbound Approach
Wells Avenue
Newton, Ma

File Name : 840 Wells Ave Delay Wed PM
Site Code : 840
Start Date : 7/1/2015
Page No : 1

Summary Information:

5:00:00 PM - 5:59:00 PM	Left Turn Lane
Total Vehicle Count:	488
Delayed Vehicle Count:	488
Through Vehicle Count:	0
Average Stopped Time:	26.83
Maximum Stopped Time:	75
Min. Secs. for Delay:	0
Average Queue:	3.73
Queue Density:	4.92
Maximum Queue:	21
Delay in Vehicle Hour:	3.73
Total Delay:	13092

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	141	468	425	340	657	206	95	4	80	131	2	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		0.964			0.856			0.853	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1702	1756	1697	1753	1762	0	1736	1626	0	1805	1567	0
Flt Permitted	0.080			0.358			0.639			0.652		
Satd. Flow (perm)	143	1756	1697	*307	1762	0	1167	*1818	0	1239	1567	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			478		29			90			97	
Link Speed (mph)		35			30			30			30	
Link Distance (ft)		1000			960			1000			500	
Travel Time (s)		19.5			21.8			22.7			11.4	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	1%	3%	0%	1%	2%	2%	4%	0%	0%	0%	0%	0%
Adj. Flow (vph)	158	526	478	382	738	231	107	4	90	147	2	97
Shared Lane Traffic (%)												
Lane Group Flow (vph)	158	526	478	382	969	0	107	94	0	147	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	

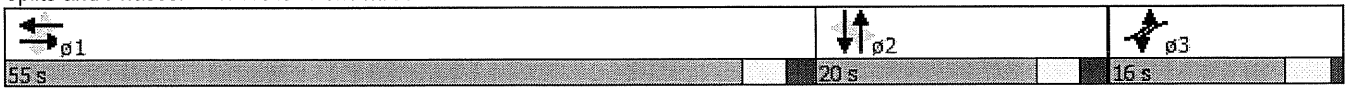
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	3	1		3	1			2			2	
Permitted Phases	1		1	1			2			2		
Detector Phase	3	1	1	3	1		2	2		2	2	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	10.0	11.0	11.0	10.0	11.0		11.0	11.0		11.0	11.0	
Total Split (s)	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)	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	2.0	3.0	3.0	2.0	3.0		3.0	3.0		3.0	3.0	
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	50.3	50.3	64.5	50.3		14.8	14.8		14.8	14.8	
Actuated g/C Ratio	0.75	0.58	0.58	0.75	0.58		0.17	0.17		0.17	0.17	
v/c Ratio	0.46	0.52	0.40	0.85	0.93		0.54	0.27		0.69	0.28	
Control Delay	16.2	13.6	2.0	31.8	34.5		44.1	10.2		52.5	9.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	16.2	13.6	2.0	31.8	34.5		44.1	10.2		52.5	9.8	
LOS	B	B	A	C	C		D	B		D	A	
Approach Delay		9.2			33.8			28.3			35.3	
Approach LOS		A			C			C			D	
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		15.0	15.0		15.0	15.0	
70th %ile Term Code	Max	Max	Max	Max	Max		Max	Max		Max	Max	
50th %ile Green (s)	12.0	50.0	50.0	12.0	50.0		15.0	15.0		15.0	15.0	
50th %ile Term Code	Max	Max	Max	Max	Max		Max	Max		Max	Max	
30th %ile Green (s)	12.0	50.0	50.0	12.0	50.0		12.2	12.2		12.2	12.2	
30th %ile Term Code	Max	Max	Max	Max	Max		Gap	Gap		Gap	Gap	
10th %ile Green (s)	8.4	40.9	40.9	8.4	40.9		7.7	7.7		7.7	7.7	
10th %ile Term Code	Gap	Gap	Gap	Gap	Gap		Gap	Gap		Gap	Gap	
Queue Length 50th (ft)	28	172	0	96	476		56	2		79	1	
Queue Length 95th (ft)	87	253	38	#247	#769		107	41		#153	41	
Internal Link Dist (ft)		920			880			920			420	
Turn Bay Length (ft)	175		175	250						75		
Base Capacity (vph)	362	1066	1218	467	1081		231	394		245	388	
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	0.44	0.49	0.39	0.82	0.90		0.46	0.24		0.60	0.26	

Intersection Summary

Area Type: Other
Cycle Length: 91

Actuated Cycle Length: 86.4
Natural Cycle: 75
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 23.9 Intersection LOS: C
Intersection Capacity Utilization 78.8% ICU Level of Service D
Analysis Period (min) 15
90th %ile Actuated Cycle: 91
70th %ile Actuated Cycle: 91
50th %ile Actuated Cycle: 91
30th %ile Actuated Cycle: 88.2
10th %ile Actuated Cycle: 71
* User Entered Value
\# 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	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	41	590	105	103	541	101	484	3	317	299	0	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		0.976			0.851			0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	1809	1697	1736	1804	0	1805	1617	0	1805	1561	0
Flt Permitted	0.122			0.122			0.709			0.439		
Satd. Flow (perm)	221	1809	1697	*307	1804	0	1347	*1818	0	834	1561	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			83		11			*51			367	
Link Speed (mph)		35			30			30			30	
Link Distance (ft)		1000			960			1000			500	
Travel Time (s)		19.5			21.8			22.7			11.4	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	0%	0%	2%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	42	608	108	106	558	104	499	3	327	308	0	73
Shared Lane Traffic (%)												
Lane Group Flow (vph)	42	608	108	106	662	0	499	330	0	308	73	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)	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	2.0	3.0	3.0	2.0	3.0		3.0	3.0		3.0	3.0	
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)	41.4	32.9	32.9	41.4	32.9		36.5	36.5		36.5	36.5	
Actuated g/C Ratio	0.49	0.39	0.39	0.49	0.39		0.43	0.43		0.43	0.43	
v/c Ratio	0.15	0.86	0.15	0.34	0.93		0.86	0.45		0.86	0.08	
Control Delay	13.3	42.1	8.3	15.5	50.5		38.6	16.7		46.5	0.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	13.3	42.1	8.3	15.5	50.5		38.6	16.7		46.5	0.2	
LOS	B	D	A	B	D		D	B		D	A	
Approach Delay		35.7			45.7			29.8			37.6	
Approach LOS		D			D			C			D	
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)	8.5	30.0	30.0	8.5	30.0		40.0	40.0		40.0	40.0	
70th %ile Term Code	Gap	Max	Max	Gap	Max		Max	Max		Max	Max	
50th %ile Green (s)	7.5	30.0	30.0	7.5	30.0		40.0	40.0		40.0	40.0	
50th %ile Term Code	Gap	Max	Max	Gap	Max		Max	Max		Max	Max	
30th %ile Green (s)	6.2	30.0	30.0	6.2	30.0		33.8	33.8		33.8	33.8	
30th %ile Term Code	Gap	Max	Max	Gap	Max		Gap	Gap		Gap	Gap	
10th %ile Green (s)	0.0	30.0	30.0	0.0	30.0		20.5	20.5		20.5	20.5	
10th %ile Term Code	Skip	Max	Max	Skip	Max		Gap	Gap		Gap	Gap	
Queue Length 50th (ft)	12	341	9	32	~413		240	103		147	0	
Queue Length 95th (ft)	29	#582	46	61	#653		#440	182		#315	0	
Internal Link Dist (ft)		920			880			920			420	
Turn Bay Length (ft)	175		175	250						75		
Base Capacity (vph)	329	703	711	362	709		688	851		425	977	
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	0.13	0.86	0.15	0.29	0.93		0.73	0.39		0.72	0.07	

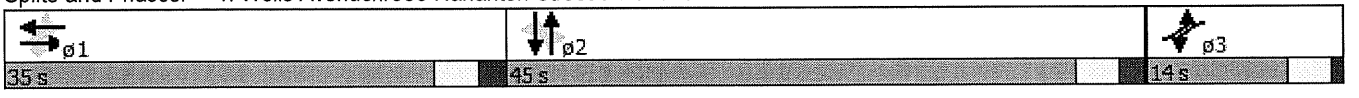
Intersection Summary

Area Type: Other
Cycle Length: 94

Actuated Cycle Length: 84.5
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 37.0 Intersection LOS: D
Intersection Capacity Utilization 89.3% ICU Level of Service E
Analysis Period (min) 15
90th %ile Actuated Cycle: 94
70th %ile Actuated Cycle: 92.5
50th %ile Actuated Cycle: 91.5
30th %ile Actuated Cycle: 84
10th %ile Actuated Cycle: 60.5

* User Entered Value
~ 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



□ 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	707	590	415	821	134	83	4	88	60	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			0.856			0.864	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	1740	1697	1771	1777	0	1787	1626	0	1805	1587	0
Flt Permitted	0.077			0.233			0.667			0.619		
Satd. Flow (perm)	139	1740	1697	*307	1777	0	*1818	1626	0	1176	1587	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			616		15			93			75	
Link Speed (mph)		35			30			30			30	
Link Distance (ft)		1000			960			1000			500	
Travel Time (s)		19.5			21.8			22.7			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	744	621	437	864	141	87	4	93	63	8	75
Shared Lane Traffic (%)												
Lane Group Flow (vph)	103	744	621	437	1005	0	87	97	0	63	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	

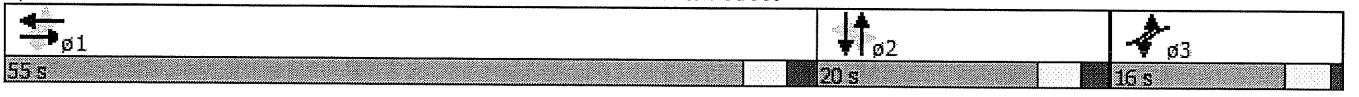
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	3	1		3	1			2			2	
Permitted Phases	1		1	1			2			2		
Detector Phase	3	1	1	3	1		2	2		2	2	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	10.0	11.0	11.0	10.0	11.0		11.0	11.0		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)	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	2.0	3.0	3.0	2.0	3.0		3.0	3.0		3.0	3.0	
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)	67.1	52.0	52.0	67.1	52.0		11.2	11.2		11.2	11.2	
Actuated g/C Ratio	0.79	0.61	0.61	0.79	0.61		0.13	0.13		0.13	0.13	
v/c Ratio	0.28	0.70	0.49	0.91	0.92		0.36	0.33		0.41	0.30	
Control Delay	7.7	16.5	2.2	39.7	31.0		37.9	11.3		41.8	12.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	7.7	16.5	2.2	39.7	31.0		37.9	11.3		41.8	12.9	
LOS	A	B	A	D	C		D	B		D	B	
Approach Delay		9.9			33.7			23.9			25.4	
Approach LOS		A			C			C			C	
90th %ile Green (s)	12.0	50.0	50.0	12.0	50.0		14.5	14.5		14.5	14.5	
90th %ile Term Code	Max	Max	Max	Max	Max		Gap	Gap		Gap	Gap	
70th %ile Green (s)	12.0	50.0	50.0	12.0	50.0		10.6	10.6		10.6	10.6	
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		8.7	8.7		8.7	8.7	
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		6.9	6.9		6.9	6.9	
30th %ile Term Code	Max	Max	Max	Max	Max		Gap	Gap		Gap	Gap	
10th %ile Green (s)	12.0	50.0	50.0	12.0	50.0		6.0	6.0		6.0	6.0	
10th %ile Term Code	Max	Max	Max	Max	Max		Min	Min		Min	Min	
Queue Length 50th (ft)	7	241	1	111	421		43	2		31	4	
Queue Length 95th (ft)	45	445	44	#326	#827		86	43		70	42	
Internal Link Dist (ft)		920			880			920			420	
Turn Bay Length (ft)	175		175	250						75		
Base Capacity (vph)	368	1061	1275	481	1090		362	398		234	376	
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	0.28	0.70	0.49	0.91	0.92		0.24	0.24		0.27	0.22	

Intersection Summary

Area Type: Other
Cycle Length: 91

Actuated Cycle Length: 85.3
Natural Cycle: 75
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 22.0
Intersection LOS: C
Intersection Capacity Utilization 81.5%
ICU Level of Service D
Analysis Period (min) 15
90th %ile Actuated Cycle: 90.5
70th %ile Actuated Cycle: 86.6
50th %ile Actuated Cycle: 84.7
30th %ile Actuated Cycle: 82.9
10th %ile Actuated Cycle: 82
* User Entered Value
\# 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 132.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	285	570	986	65	25	384
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	294	588	1016	67	26	396

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1084	0	-	0	2225	1050
Stage 1	-	-	-	-	1050	-
Stage 2	-	-	-	-	1175	-
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	643	-	-	-	45	~ 275
Stage 1	-	-	-	-	324	-
Stage 2	-	-	-	-	281	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	643	-	-	-	~ 24	~ 275
Mov Cap-2 Maneuver	-	-	-	-	~ 24	-
Stage 1	-	-	-	-	324	-
Stage 2	-	-	-	-	153	-

Approach	EB	WB	SB
HCM Control Delay, s	5.1	0	$ 739.8
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	643	-	-	-	168
HCM Lane V/C Ratio	0.457	-	-	-	2.51
HCM Control Delay (s)	15.2	-	-	-	$ 739.8
HCM Lane LOS	C	-	-	-	F
HCM 95th %tile Q(veh)	2.4	-	-	-	36.1

Notes

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

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	9	1	0	63	116	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	1	0	68	126	58

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	223	155	184	0	-	0
Stage 1	155	-	-	-	-	-
Stage 2	68	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	765	891	1391	-	-	-
Stage 1	873	-	-	-	-	-
Stage 2	955	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	765	891	1391	-	-	-
Mov Cap-2 Maneuver	765	-	-	-	-	-
Stage 1	873	-	-	-	-	-
Stage 2	955	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.7	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1391	-	776	-	-
HCM Lane V/C Ratio	-	-	0.014	-	-
HCM Control Delay (s)	0	-	9.7	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection

Int Delay, s/veh 1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	2	0	0	0	0	7	1	53	1	16	77	1
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	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	0	0	0	0	8	1	58	1	17	84	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	183	180	84	179	180	58	85	0	0	59	0	0
Stage 1	119	119	-	60	60	-	-	-	-	-	-	-
Stage 2	64	61	-	119	120	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	778	714	975	783	714	1008	1512	-	-	1545	-	-
Stage 1	885	797	-	951	845	-	-	-	-	-	-	-
Stage 2	947	844	-	885	796	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	764	705	975	775	705	1008	1512	-	-	1545	-	-
Mov Cap-2 Maneuver	764	705	-	775	705	-	-	-	-	-	-	-
Stage 1	884	787	-	950	844	-	-	-	-	-	-	-
Stage 2	939	843	-	874	786	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.7	8.6	0.1	1.3
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1512	-	-	764	1008	1545	-	-
HCM Lane V/C Ratio	0.001	-	-	0.003	0.008	0.011	-	-
HCM Control Delay (s)	7.4	0	-	9.7	8.6	7.4	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	120	920	733	314	888	117	125	4	146	57	8	78
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		0.983			0.854			0.863	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	1740	1697	1771	1783	0	1787	1623	0	1805	1585	0
Flt Permitted	0.077			0.128			0.638			0.403		
Satd. Flow (perm)	139	1740	1697	*307	1783	0	*1818	1623	0	766	1585	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			576		14			154			82	
Link Speed (mph)		35			30			30			30	
Link Distance (ft)		1000			960			1000			500	
Travel Time (s)		19.5			21.8			22.7			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)	126	968	772	331	935	123	132	4	154	60	8	82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	126	968	772	331	1058	0	132	158	0	60	90	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	

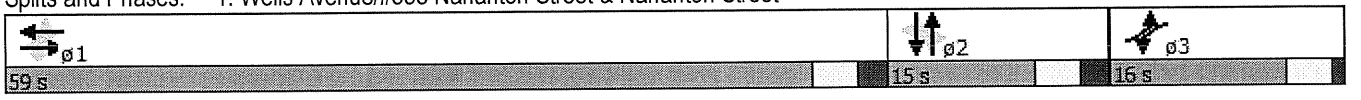
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	3	1		3	1			2			2	
Permitted Phases	1		1	1			2			2		
Detector Phase	3	1	1	3	1		2	2		2	2	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	10.0	11.0	11.0	10.0	11.0		11.0	11.0		11.0	11.0	
Total Split (s)	16.0	59.0	59.0	16.0	59.0		15.0	15.0		15.0	15.0	
Total Split (%)	17.8%	65.6%	65.6%	17.8%	65.6%		16.7%	16.7%		16.7%	16.7%	
Maximum Green (s)	12.0	54.0	54.0	12.0	54.0		10.0	10.0		10.0	10.0	
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)	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	2.0	3.0	3.0	2.0	3.0		3.0	3.0		3.0	3.0	
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)	68.1	55.5	55.5	68.1	55.5		10.9	10.9		10.9	10.9	
Actuated g/C Ratio	0.79	0.65	0.65	0.79	0.65		0.13	0.13		0.13	0.13	
v/c Ratio	0.39	0.86	0.59	0.75	0.92		0.57	0.46		0.62	0.33	
Control Delay	11.5	23.4	4.3	20.6	28.5		46.6	11.7		65.3	13.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	11.5	23.4	4.3	20.6	28.5		46.6	11.7		65.3	13.8	
LOS	B	C	A	C	C		D	B		E	B	
Approach Delay		14.7			26.6			27.6			34.4	
Approach LOS		B			C			C			C	
90th %ile Green (s)	12.0	54.0	54.0	12.0	54.0		10.0	10.0		10.0	10.0	
90th %ile Term Code	Max	Max	Max	Max	Max		Max	Max		Max	Max	
70th %ile Green (s)	12.0	54.0	54.0	12.0	54.0		10.0	10.0		10.0	10.0	
70th %ile Term Code	Max	Max	Max	Max	Max		Max	Max		Max	Max	
50th %ile Green (s)	11.0	54.0	54.0	11.0	54.0		10.0	10.0		10.0	10.0	
50th %ile Term Code	Gap	Max	Max	Gap	Max		Max	Max		Max	Max	
30th %ile Green (s)	7.4	54.0	54.0	7.4	54.0		8.7	8.7		8.7	8.7	
30th %ile Term Code	Gap	Max	Max	Gap	Max		Gap	Gap		Gap	Gap	
10th %ile Green (s)	6.1	50.5	50.5	6.1	50.5		6.1	6.1		6.1	6.1	
10th %ile Term Code	Gap	Gap	Gap	Gap	Gap		Gap	Gap		Gap	Gap	
Queue Length 50th (ft)	10	409	42	48	481		70	2		32	4	
Queue Length 95th (ft)	59	#743	114	144	#836		130	57		#91	47	
Internal Link Dist (ft)		920			880			920			420	
Turn Bay Length (ft)	175		175	250						75		
Base Capacity (vph)	370	1137	1309	485	1170		254	359		107	292	
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	0.34	0.85	0.59	0.68	0.90		0.52	0.44		0.56	0.31	

Intersection Summary

Area Type: Other
Cycle Length: 90

Actuated Cycle Length: 86
Natural Cycle: 65
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 21.0
Intersection LOS: C
Intersection Capacity Utilization 93.4%
ICU Level of Service F
Analysis Period (min) 15
90th %ile Actuated Cycle: 90
70th %ile Actuated Cycle: 90
50th %ile Actuated Cycle: 89
30th %ile Actuated Cycle: 84.1
10th %ile Actuated Cycle: 76.7
* User Entered Value
\# 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)	434	689	983	67	21	336
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	0.080				0.950	
Satd. Flow (perm)	144	1827	2007	1689	1843	1777
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				69		73
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)	447	710	1013	69	22	346
Shared Lane Traffic (%)						
Lane Group Flow (vph)	447	710	1013	69	22	346
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

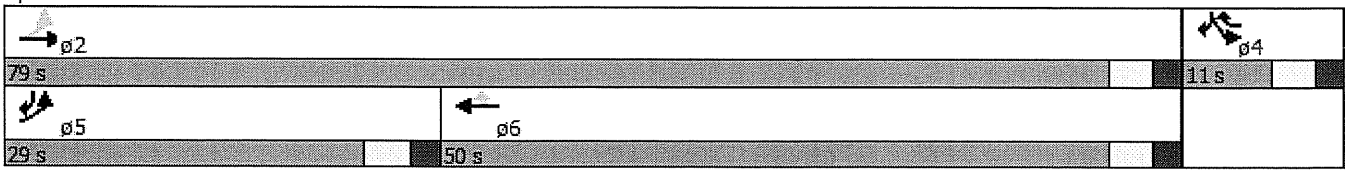
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Permitted Phases	2			6		
Detector Phase	5	2	6	4	4	4 5
Switch Phase						
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0	
Total Split (s)	29.0	79.0	50.0	11.0	11.0	
Total Split (%)	32.2%	87.8%	55.6%	12.2%	12.2%	
Maximum Green (s)	24.0	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)	73.2	73.2	45.0	56.0	6.0	34.2
Actuated g/C Ratio	0.82	0.82	0.50	0.63	0.07	0.38
v/c Ratio	0.85	0.47	1.00	0.06	0.18	0.48
Control Delay	39.1	3.5	52.4	2.0	43.3	18.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.1	3.5	52.4	2.0	43.3	18.6
LOS	D	A	D	A	D	B
Approach Delay		17.3	49.2		20.1	
Approach LOS		B	D		C	
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)	19.9	69.9	45.0	6.0	6.0	
10th %ile Term Code	Gap	Hold	Max	Max	Max	
Queue Length 50th (ft)	185	81	~566	0	12	112
Queue Length 95th (ft)	#348	121	#846	14	36	189
Internal Link Dist (ft)		880	920		420	
Turn Bay Length (ft)	225					
Base Capacity (vph)	540	1516	1013	1087	123	741
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	0.83	0.47	1.00	0.06	0.18	0.47

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 89.2

Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.00
Intersection Signal Delay: 30.9
Intersection LOS: C
Intersection Capacity Utilization 93.3%
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: 85.9
~ 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: 2: Nahanton Street & Winchester Street



Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	9	1	0	109	98	54
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	1	0	118	107	59

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	254	136	165	0	-	0
Stage 1	136	-	-	-	-	-
Stage 2	118	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	735	913	1413	-	-	-
Stage 1	890	-	-	-	-	-
Stage 2	907	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	735	913	1413	-	-	-
Mov Cap-2 Maneuver	735	-	-	-	-	-
Stage 1	890	-	-	-	-	-
Stage 2	907	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.9	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1413	-	750	-	-
HCM Lane V/C Ratio	-	-	0.014	-	-
HCM Control Delay (s)	0	-	9.9	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection

Int Delay, s/veh 0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	2	0	0	0	0	7	1	99	1	1	58	16
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	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	0	0	0	0	8	1	108	1	1	63	17

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	188	185	72	184	193	108	80	0	0	109	0	0
Stage 1	74	74	-	110	110	-	-	-	-	-	-	-
Stage 2	114	111	-	74	83	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	772	709	990	777	702	946	1518	-	-	1481	-	-
Stage 1	935	833	-	895	804	-	-	-	-	-	-	-
Stage 2	891	804	-	935	826	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	765	708	990	776	701	946	1518	-	-	1481	-	-
Mov Cap-2 Maneuver	765	708	-	776	701	-	-	-	-	-	-	-
Stage 1	934	832	-	894	803	-	-	-	-	-	-	-
Stage 2	883	803	-	934	825	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.7	8.8	0.1	0.1
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1518	-	-	765	946	1481	-	-
HCM Lane V/C Ratio	0.001	-	-	0.003	0.008	0.001	-	-
HCM Control Delay (s)	7.4	0	-	9.7	8.8	7.4	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	120	920	779	351	888	117	131	4	151	57	8	78
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		0.983			0.854			0.863	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	1740	1697	1771	1783	0	1787	1623	0	1805	1585	0
Flt Permitted	0.072			0.123			0.634			0.380		
Satd. Flow (perm)	130	1740	1697	*307	1783	0	*1818	1623	0	722	1585	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			555		14			159			82	
Link Speed (mph)		35			30			30			30	
Link Distance (ft)		1000			960			1000			500	
Travel Time (s)		19.5			21.8			22.7			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)	126	968	820	369	935	123	138	4	159	60	8	82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	126	968	820	369	1058	0	138	163	0	60	90	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	

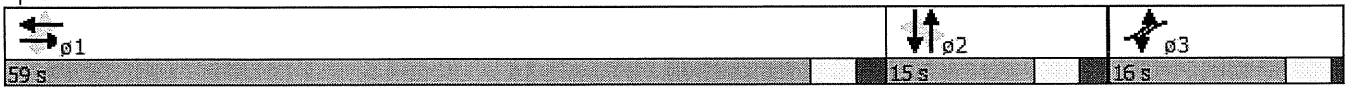
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	3	1		3	1			2			2	
Permitted Phases	1		1	1			2			2		
Detector Phase	3	1	1	3	1		2	2		2	2	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	10.0	11.0	11.0	10.0	11.0		11.0	11.0		11.0	11.0	
Total Split (s)	16.0	59.0	59.0	16.0	59.0		15.0	15.0		15.0	15.0	
Total Split (%)	17.8%	65.6%	65.6%	17.8%	65.6%		16.7%	16.7%		16.7%	16.7%	
Maximum Green (s)	12.0	54.0	54.0	12.0	54.0		10.0	10.0		10.0	10.0	
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)	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	2.0	3.0	3.0	2.0	3.0		3.0	3.0		3.0	3.0	
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)	69.3	55.8	55.8	69.3	55.8		11.0	11.0		11.0	11.0	
Actuated g/C Ratio	0.79	0.64	0.64	0.79	0.64		0.13	0.13		0.13	0.13	
v/c Ratio	0.38	0.87	0.64	0.81	0.93		0.60	0.47		0.66	0.33	
Control Delay	12.3	24.6	5.5	26.6	30.2		48.3	11.7		71.5	13.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	12.3	24.6	5.5	26.6	30.2		48.3	11.7		71.5	13.8	
LOS	B	C	A	C	C		D	B		E	B	
Approach Delay		15.6			29.3			28.5			36.9	
Approach LOS		B			C			C			D	
90th %ile Green (s)	12.0	54.0	54.0	12.0	54.0		10.0	10.0		10.0	10.0	
90th %ile Term Code	Max	Max	Max	Max	Max		Max	Max		Max	Max	
70th %ile Green (s)	12.0	54.0	54.0	12.0	54.0		10.0	10.0		10.0	10.0	
70th %ile Term Code	Max	Max	Max	Max	Max		Max	Max		Max	Max	
50th %ile Green (s)	12.0	54.0	54.0	12.0	54.0		10.0	10.0		10.0	10.0	
50th %ile Term Code	Max	Max	Max	Max	Max		Max	Max		Max	Max	
30th %ile Green (s)	10.0	54.0	54.0	10.0	54.0		9.1	9.1		9.1	9.1	
30th %ile Term Code	Gap	Max	Max	Gap	Max		Gap	Gap		Gap	Gap	
10th %ile Green (s)	7.1	52.4	52.4	7.1	52.4		6.3	6.3		6.3	6.3	
10th %ile Term Code	Gap	Gap	Gap	Gap	Gap		Gap	Gap		Gap	Gap	
Queue Length 50th (ft)	10	425	61	73	499		75	2		33	4	
Queue Length 95th (ft)	63	#743	159	#211	#836		134	57		#94	47	
Internal Link Dist (ft)		920			880			920			420	
Turn Bay Length (ft)	175		175	250						75		
Base Capacity (vph)	359	1117	1288	481	1150		250	360		99	289	
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	0.35	0.87	0.64	0.77	0.92		0.55	0.45		0.61	0.31	

Intersection Summary

Area Type: Other
Cycle Length: 90

Actuated Cycle Length: 87.4
Natural Cycle: 75
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 22.6
Intersection LOS: C
Intersection Capacity Utilization 95.8%
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: 87.1
10th %ile Actuated Cycle: 79.8
* User Entered Value
\# 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)	437	691	999	67	21	357
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	0.080				0.950	
Satd. Flow (perm)	144	1827	2007	1689	1843	1777
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				69		70
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)	451	712	1030	69	22	368
Shared Lane Traffic (%)						
Lane Group Flow (vph)	451	712	1030	69	22	368
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

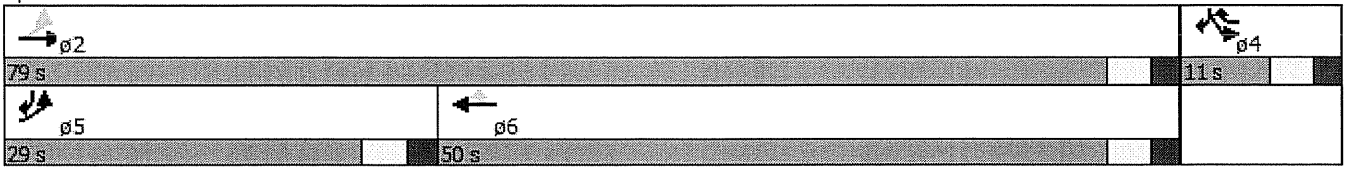
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Permitted Phases	2			6		
Detector Phase	5	2	6	4	4	4 5
Switch Phase						
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0	
Total Split (s)	29.0	79.0	50.0	11.0	11.0	
Total Split (%)	32.2%	87.8%	55.6%	12.2%	12.2%	
Maximum Green (s)	24.0	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)	73.3	73.3	45.0	56.0	6.0	34.3
Actuated g/C Ratio	0.82	0.82	0.50	0.63	0.07	0.38
v/c Ratio	0.86	0.47	1.02	0.06	0.18	0.51
Control Delay	39.8	3.5	57.0	2.0	43.3	19.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.8	3.5	57.0	2.0	43.3	19.6
LOS	D	A	E	A	D	B
Approach Delay		17.6	53.5		21.0	
Approach LOS		B	D		C	
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)	20.3	70.3	45.0	6.0	6.0	
10th %ile Term Code	Gap	Hold	Max	Max	Max	
Queue Length 50th (ft)	188	81	~631	0	12	124
Queue Length 95th (ft)	#355	122	#868	14	36	207
Internal Link Dist (ft)		880	920		420	
Turn Bay Length (ft)	225					
Base Capacity (vph)	539	1515	1012	1086	123	739
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	0.84	0.47	1.02	0.06	0.18	0.50

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 89.3

Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.02
Intersection Signal Delay: 33.0 Intersection LOS: C
Intersection Capacity Utilization 94.3% 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: 86.3
~ 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: 2: Nahanton Street & Winchester Street



Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	10	1	1	108	98	69
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	1	1	117	107	75

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	264	144	182	0	-	0
Stage 1	144	-	-	-	-	-
Stage 2	120	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	725	903	1393	-	-	-
Stage 1	883	-	-	-	-	-
Stage 2	905	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	724	903	1393	-	-	-
Mov Cap-2 Maneuver	724	-	-	-	-	-
Stage 1	883	-	-	-	-	-
Stage 2	904	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1393	-	737	-	-
HCM Lane V/C Ratio	0.001	-	0.016	-	-
HCM Control Delay (s)	7.6	0	10	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	0	12	224	0	70	478
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	13	243	0	76	520

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	915	243	0	0	243	0
Stage 1	243	-	-	-	-	-
Stage 2	672	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	303	796	-	-	1323	-
Stage 1	797	-	-	-	-	-
Stage 2	508	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	278	796	-	-	1323	-
Mov Cap-2 Maneuver	278	-	-	-	-	-
Stage 1	797	-	-	-	-	-
Stage 2	467	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	796	1323	-
HCM Lane V/C Ratio	-	-	0.016	0.058	-
HCM Control Delay (s)	-	-	9.6	7.9	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.2	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	56	675	170	197	557	77	609	4	488	106	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	1791	1664	1771	1782	0	1805	1614	0	1787	1551	0
Flt Permitted	0.124			0.124			0.707			0.247		
Satd. Flow (perm)	220	1791	1664	*307	1782	0	*1818	1614	0	465	1551	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			117		8			*78			72	
Link Speed (mph)		35			30			30			30	
Link Distance (ft)		1000			960			1000			500	
Travel Time (s)		19.5			21.8			22.7			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%	1%	2%	0%	3%	1%	0%	25%	0%	1%	0%	2%
Adj. Flow (vph)	59	711	179	207	586	81	641	4	514	112	5	72
Shared Lane Traffic (%)												
Lane Group Flow (vph)	59	711	179	207	667	0	641	518	0	112	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	

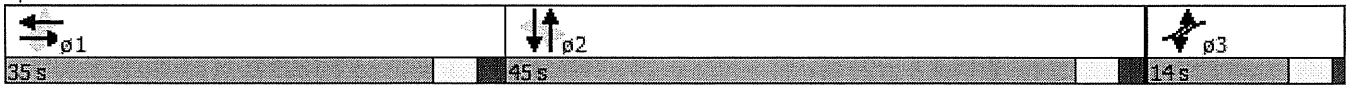
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	3	1		3	1			2			2	
Permitted Phases	1		1	1			2			2		
Detector Phase	3	1	1	3	1		2	2		2	2	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	10.0	11.0	11.0	10.0	11.0		11.0	11.0		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)	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	2.0	3.0	3.0	2.0	3.0		3.0	3.0		3.0	3.0	
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)	44.2	32.3	32.3	44.2	32.3		37.1	37.1		37.1	37.1	
Actuated g/C Ratio	0.50	0.37	0.37	0.50	0.37		0.42	0.42		0.42	0.42	
v/c Ratio	0.20	1.09	0.26	0.62	1.02		0.84	0.72		0.57	0.11	
Control Delay	13.8	91.9	9.8	22.2	70.8		34.2	24.1		33.1	4.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	13.8	91.9	9.8	22.2	70.8		34.2	24.1		33.1	4.8	
LOS	B	F	A	C	E		C	C		C	A	
Approach Delay		71.5			59.3			29.7			21.6	
Approach LOS		E			E			C			C	
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)	8.5	30.0	30.0	8.5	30.0		33.4	33.4		33.4	33.4	
30th %ile Term Code	Gap	Max	Max	Gap	Max		Gap	Gap		Gap	Gap	
10th %ile Green (s)	6.2	30.0	30.0	6.2	30.0		23.8	23.8		23.8	23.8	
10th %ile Term Code	Gap	Max	Max	Gap	Max		Gap	Gap		Gap	Gap	
Queue Length 50th (ft)	17	~508	25	67	~450		317	202		47	2	
Queue Length 95th (ft)	38	#724	73	119	#667		466	322		110	26	
Internal Link Dist (ft)		920			880			920			420	
Turn Bay Length (ft)	175		175	250						75		
Base Capacity (vph)	312	654	681	356	655		871	814		222	780	
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	0.19	1.09	0.26	0.58	1.02		0.74	0.64		0.50	0.10	

Intersection Summary

Area Type: Other
Cycle Length: 94

Actuated Cycle Length: 88.4
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.09
Intersection Signal Delay: 49.9 Intersection LOS: D
Intersection Capacity Utilization 98.5% 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: 85.9
10th %ile Actuated Cycle: 74
* User Entered Value
~ 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 88.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	407	862	513	28	34	318
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	424	898	534	29	35	331

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	564	0	-	0	2295	549
Stage 1	-	-	-	-	549	-
Stage 2	-	-	-	-	1746	-
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	1013	-	-	-	43	534
Stage 1	-	-	-	-	583	-
Stage 2	-	-	-	-	156	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1013	-	-	-	~ 25	534
Mov Cap-2 Maneuver	-	-	-	-	~ 25	-
Stage 1	-	-	-	-	583	-
Stage 2	-	-	-	-	91	-

Approach	EB	WB	SB
HCM Control Delay, s	3.6	0	$ 528.1
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1013	-	-	-	180
HCM Lane V/C Ratio	0.419	-	-	-	2.037
HCM Control Delay (s)	11.1	-	-	-	$ 528.1
HCM Lane LOS	B	-	-	-	F
HCM 95th %tile Q(veh)	2.1	-	-	-	28.2

Notes

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

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	37	0	0	164	26	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	40	0	0	178	28	23

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	218	40	51	0	-	0
Stage 1	40	-	-	-	-	-
Stage 2	178	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	770	1031	1555	-	-	-
Stage 1	982	-	-	-	-	-
Stage 2	853	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	770	1031	1555	-	-	-
Mov Cap-2 Maneuver	770	-	-	-	-	-
Stage 1	982	-	-	-	-	-
Stage 2	853	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.9	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1555	-	770	-	-
HCM Lane V/C Ratio	-	-	0.052	-	-
HCM Control Delay (s)	0	-	9.9	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection

Int Delay, s/veh 1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	17	0	0	1	0	12	0	95	1	1	23	2
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	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	0	0	1	0	13	0	103	1	1	25	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	138	132	26	132	133	104	27	0	0	104	0	0
Stage 1	28	28	-	104	104	-	-	-	-	-	-	-
Stage 2	110	104	-	28	29	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	833	759	1050	840	758	951	1587	-	-	1488	-	-
Stage 1	989	872	-	902	809	-	-	-	-	-	-	-
Stage 2	895	809	-	989	871	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	821	758	1050	839	757	951	1587	-	-	1488	-	-
Mov Cap-2 Maneuver	821	758	-	839	757	-	-	-	-	-	-	-
Stage 1	989	871	-	902	809	-	-	-	-	-	-	-
Stage 2	883	809	-	988	870	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.5	8.9	0	0.3
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1587	-	-	821	941	1488	-	-
HCM Lane V/C Ratio	-	-	-	0.023	0.015	0.001	-	-
HCM Control Delay (s)	0	-	-	9.5	8.9	7.4	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	77	617	192	243	475	59	709	4	516	99	5	80
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		0.983			0.851			0.858	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1685	1809	1664	1753	1785	0	1805	1614	0	1787	1547	0
Flt Permitted	0.148			0.121			0.699			0.246		
Satd. Flow (perm)	262	1809	1664	*307	1785	0	*1818	1614	0	463	1547	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			157		8			*83			84	
Link Speed (mph)		35			30			30			30	
Link Distance (ft)		1000			960			1000			500	
Travel Time (s)		19.5			21.8			22.7			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)	81	649	202	256	500	62	746	4	543	104	5	84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	81	649	202	256	562	0	746	547	0	104	89	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	

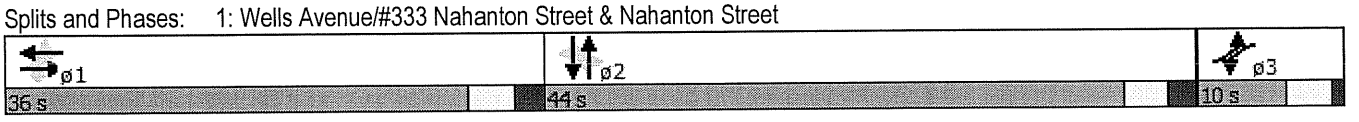
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	3	1		3	1			2			2	
Permitted Phases	1		1	1			2			2		
Detector Phase	3	1	1	3	1		2	2		2	2	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	10.0	11.0	11.0	10.0	11.0		11.0	11.0		11.0	11.0	
Total Split (s)	10.0	36.0	36.0	10.0	36.0		44.0	44.0		44.0	44.0	
Total Split (%)	11.1%	40.0%	40.0%	11.1%	40.0%		48.9%	48.9%		48.9%	48.9%	
Maximum Green (s)	6.0	31.0	31.0	6.0	31.0		39.0	39.0		39.0	39.0	
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)	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	2.0	3.0	3.0	2.0	3.0		3.0	3.0		3.0	3.0	
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)	42.0	33.0	33.0	42.0	33.0		39.5	39.5		39.5	39.5	
Actuated g/C Ratio	0.47	0.37	0.37	0.47	0.37		0.45	0.45		0.45	0.45	
v/c Ratio	0.32	0.96	0.28	0.93	0.84		0.92	0.72		0.50	0.12	
Control Delay	15.9	55.8	6.8	57.7	38.6		41.6	22.8		27.9	4.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	15.9	55.8	6.8	57.7	38.6		41.6	22.8		27.9	4.2	
LOS	B	E	A	E	D		D	C		C	A	
Approach Delay		41.7			44.6			33.7			17.0	
Approach LOS		D			D			C			B	
90th %ile Green (s)	6.0	31.0	31.0	6.0	31.0		39.0	39.0		39.0	39.0	
90th %ile Term Code	Max	Max	Max	Max	Max		Max	Max		Max	Max	
70th %ile Green (s)	6.0	31.0	31.0	6.0	31.0		39.0	39.0		39.0	39.0	
70th %ile Term Code	Max	Max	Max	Max	Max		Max	Max		Max	Max	
50th %ile Green (s)	6.0	31.0	31.0	6.0	31.0		39.0	39.0		39.0	39.0	
50th %ile Term Code	Max	Max	Max	Max	Max		Max	Max		Max	Max	
30th %ile Green (s)	6.0	31.0	31.0	6.0	31.0		39.0	39.0		39.0	39.0	
30th %ile Term Code	Max	Max	Max	Max	Max		Max	Max		Max	Max	
10th %ile Green (s)	6.0	31.0	31.0	6.0	31.0		31.6	31.6		31.6	31.6	
10th %ile Term Code	Max	Max	Max	Max	Max		Gap	Gap		Gap	Gap	
Queue Length 50th (ft)	24	359	16	83	286		378	205		40	2	
Queue Length 95th (ft)	48	#587	62	#222	#475		#613	329		95	27	
Internal Link Dist (ft)		920			880			920			420	
Turn Bay Length (ft)	175		175	250						75		
Base Capacity (vph)	253	675	719	276	671		843	792		214	762	
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	0.96	0.28	0.93	0.84		0.88	0.69		0.49	0.12	

Intersection Summary

Area Type: Other
Cycle Length: 90

Actuated Cycle Length: 88.5
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 37.8
Intersection LOS: D
Intersection Capacity Utilization 103.8%
ICU Level of Service G
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: 82.6
* User Entered Value
\# 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)	414	818	503	34	62	274
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	0.183				0.950	
Satd. Flow (perm)	333	1900	1987	1656	2046	1777
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				35		221
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)	431	852	524	35	65	285
Shared Lane Traffic (%)						
Lane Group Flow (vph)	431	852	524	35	65	285
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

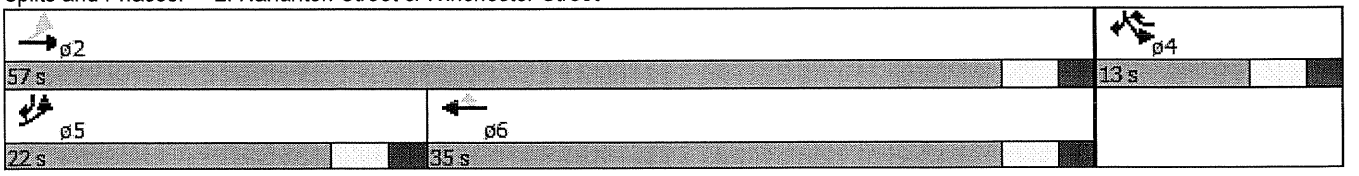
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Permitted Phases	2			6		
Detector Phase	5	2	6	4	4	4 5
Switch Phase						
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0	
Total Split (s)	22.0	57.0	35.0	13.0	13.0	
Total Split (%)	31.4%	81.4%	50.0%	18.6%	18.6%	
Maximum Green (s)	17.0	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)	39.6	39.6	19.7	32.0	7.1	27.1
Actuated g/C Ratio	0.69	0.69	0.35	0.56	0.12	0.47
v/c Ratio	0.73	0.65	0.77	0.04	0.25	0.30
Control Delay	17.5	7.3	24.9	2.3	28.8	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.5	7.3	24.9	2.3	28.8	4.2
LOS	B	A	C	A	C	A
Approach Delay		10.7	23.5		8.8	
Approach LOS		B	C		A	
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	46.7	24.7	8.0	8.0	
70th %ile Term Code	Max	Hold	Gap	Max	Max	
50th %ile Green (s)	17.0	41.9	19.9	7.1	7.1	
50th %ile Term Code	Max	Hold	Gap	Gap	Gap	
30th %ile Green (s)	13.0	33.1	15.1	6.2	6.2	
30th %ile Term Code	Gap	Hold	Gap	Gap	Gap	
10th %ile Green (s)	10.0	26.4	11.4	6.0	6.0	
10th %ile Term Code	Gap	Hold	Gap	Min	Min	
Queue Length 50th (ft)	67	120	164	0	21	11
Queue Length 95th (ft)	#209	208	264	9	60	58
Internal Link Dist (ft)		880	920		420	
Turn Bay Length (ft)	225					
Base Capacity (vph)	660	1682	1079	974	296	971
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	0.65	0.51	0.49	0.04	0.22	0.29

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 57.1

Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 13.7 Intersection LOS: B
Intersection Capacity Utilization 66.9% ICU Level of Service C
Analysis Period (min) 15
90th %ile Actuated Cycle: 70
70th %ile Actuated Cycle: 64.7
50th %ile Actuated Cycle: 59
30th %ile Actuated Cycle: 49.3
10th %ile Actuated Cycle: 42.4
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 1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	37	0	0	168	51	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	40	0	0	183	55	24

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	250	67	79	0	-	0
Stage 1	67	-	-	-	-	-
Stage 2	183	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	739	997	1519	-	-	-
Stage 1	956	-	-	-	-	-
Stage 2	848	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	739	997	1519	-	-	-
Mov Cap-2 Maneuver	739	-	-	-	-	-
Stage 1	956	-	-	-	-	-
Stage 2	848	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.2	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1519	-	739	-	-
HCM Lane V/C Ratio	-	-	0.054	-	-
HCM Control Delay (s)	0	-	10.2	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection

Int Delay, s/veh 1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	17	0	0	1	0	12	0	98	1	1	48	2
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	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	0	0	1	0	13	0	107	1	1	52	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	169	163	53	162	164	107	54	0	0	108	0	0
Stage 1	55	55	-	107	107	-	-	-	-	-	-	-
Stage 2	114	108	-	55	57	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	795	729	1014	803	729	947	1551	-	-	1483	-	-
Stage 1	957	849	-	898	807	-	-	-	-	-	-	-
Stage 2	891	806	-	957	847	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	783	728	1014	802	728	947	1551	-	-	1483	-	-
Mov Cap-2 Maneuver	783	728	-	802	728	-	-	-	-	-	-	-
Stage 1	957	848	-	898	807	-	-	-	-	-	-	-
Stage 2	879	806	-	956	846	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.7	8.9	0	0.1
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1551	-	-	783	934	1483	-	-
HCM Lane V/C Ratio	-	-	-	0.024	0.015	0.001	-	-
HCM Control Delay (s)	0	-	-	9.7	8.9	7.4	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	77	617	200	250	475	59	750	4	550	99	5	80
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		0.983			0.851			0.858	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1685	1809	1664	1753	1828	0	1805	1614	0	1787	1573	0
Flt Permitted	0.140			0.121			0.699			0.222		
Satd. Flow (perm)	248	1809	1664	*307	1828	0	*1818	1614	0	418	1573	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			164		8			*88			84	
Link Speed (mph)		35			30			30			30	
Link Distance (ft)		1000			960			1000			500	
Travel Time (s)		19.5			21.8			22.7			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%	0%	2%	0%	25%	0%	1%	3%	0%
Adj. Flow (vph)	81	649	211	263	500	62	789	4	579	104	5	84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	81	649	211	263	562	0	789	583	0	104	89	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	

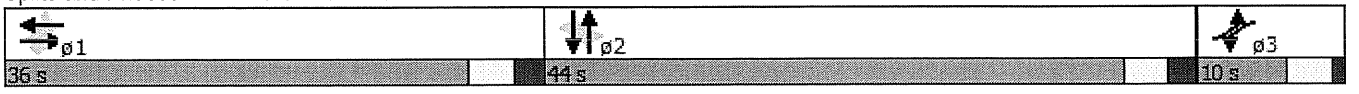
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	3	1		3	1			2			2	
Permitted Phases	1		1	1			2			2		
Detector Phase	3	1	1	3	1		2	2		2	2	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	10.0	11.0	11.0	10.0	11.0		11.0	11.0		11.0	11.0	
Total Split (s)	10.0	36.0	36.0	10.0	36.0		44.0	44.0		44.0	44.0	
Total Split (%)	11.1%	40.0%	40.0%	11.1%	40.0%		48.9%	48.9%		48.9%	48.9%	
Maximum Green (s)	6.0	31.0	31.0	6.0	31.0		39.0	39.0		39.0	39.0	
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)	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	2.0	3.0	3.0	2.0	3.0		3.0	3.0		3.0	3.0	
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)	42.0	33.0	33.0	42.0	33.0		40.9	40.9		40.9	40.9	
Actuated g/C Ratio	0.47	0.37	0.37	0.47	0.37		0.45	0.45		0.45	0.45	
v/c Ratio	0.33	0.98	0.30	0.97	0.83		0.95	0.75		0.55	0.12	
Control Delay	16.3	59.9	6.8	67.3	38.2		47.2	24.0		31.1	4.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	16.3	59.9	6.8	67.3	38.2		47.2	24.0		31.1	4.1	
LOS	B	E	A	E	D		D	C		C	A	
Approach Delay		44.2			47.5			37.3			18.7	
Approach LOS		D			D			D			B	
90th %ile Green (s)	6.0	31.0	31.0	6.0	31.0		39.0	39.0		39.0	39.0	
90th %ile Term Code	Max	Max	Max	Max	Max		Max	Max		Max	Max	
70th %ile Green (s)	6.0	31.0	31.0	6.0	31.0		39.0	39.0		39.0	39.0	
70th %ile Term Code	Max	Max	Max	Max	Max		Max	Max		Max	Max	
50th %ile Green (s)	6.0	31.0	31.0	6.0	31.0		39.0	39.0		39.0	39.0	
50th %ile Term Code	Max	Max	Max	Max	Max		Max	Max		Max	Max	
30th %ile Green (s)	6.0	31.0	31.0	6.0	31.0		39.0	39.0		39.0	39.0	
30th %ile Term Code	Max	Max	Max	Max	Max		Max	Max		Max	Max	
10th %ile Green (s)	6.0	31.0	31.0	6.0	31.0		38.6	38.6		38.6	38.6	
10th %ile Term Code	Max	Max	Max	Max	Max		Gap	Gap		Gap	Gap	
Queue Length 50th (ft)	24	359	17	86	283		417	226		41	2	
Queue Length 95th (ft)	48	#587	64	#233	#465		#668	364		103	27	
Internal Link Dist (ft)		920			880			920			420	
Turn Bay Length (ft)	175		175	250						75		
Base Capacity (vph)	243	664	714	271	676		829	784		190	763	
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	0.33	0.98	0.30	0.97	0.83		0.95	0.74		0.55	0.12	

Intersection Summary

Area Type: Other
Cycle Length: 90

Actuated Cycle Length: 89.9
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 40.7 — Intersection LOS: D
Intersection Capacity Utilization 106.4% — ICU Level of Service G
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: 89.6
* User Entered Value
\# 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)	433	833	506	34	62	278
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	0.175				0.950	
Satd. Flow (perm)	315	1827	2007	1689	1843	1777
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				35		183
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)	446	859	522	35	64	287
Shared Lane Traffic (%)						
Lane Group Flow (vph)	446	859	522	35	64	287
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

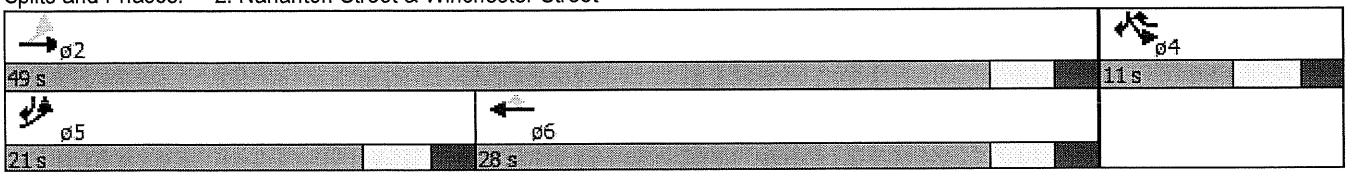
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Permitted Phases	2			6		
Detector Phase	5	2	6	4	4	4 5
Switch Phase						
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0	
Total Split (s)	21.0	49.0	28.0	11.0	11.0	
Total Split (%)	35.0%	81.7%	46.7%	18.3%	18.3%	
Maximum Green (s)	16.0	44.0	23.0	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)	37.0	37.0	17.8	29.0	6.1	25.3
Actuated g/C Ratio	0.69	0.69	0.33	0.54	0.11	0.47
v/c Ratio	0.76	0.68	0.78	0.04	0.30	0.31
Control Delay	19.1	7.7	25.0	2.5	28.6	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.1	7.7	25.0	2.5	28.6	5.0
LOS	B	A	C	A	C	A
Approach Delay		11.6	23.6		9.3	
Approach LOS		B	C		A	
90th %ile Green (s)	16.0	44.0	23.0	6.0	6.0	
90th %ile Term Code	Max	Hold	Max	Max	Max	
70th %ile Green (s)	16.0	44.0	23.0	6.0	6.0	
70th %ile Term Code	Max	Hold	Max	Max	Max	
50th %ile Green (s)	16.0	40.5	19.5	6.0	6.0	
50th %ile Term Code	Max	Hold	Gap	Max	Max	
30th %ile Green (s)	12.9	32.4	14.5	6.0	6.0	
30th %ile Term Code	Gap	Hold	Gap	Max	Max	
10th %ile Green (s)	9.9	25.8	10.9	6.0	6.0	
10th %ile Term Code	Gap	Hold	Gap	Max	Max	
Queue Length 50th (ft)	72	113	152	0	21	18
Queue Length 95th (ft)	#206	197	248	9	54	60
Internal Link Dist (ft)		880	920		420	
Turn Bay Length (ft)	225					
Base Capacity (vph)	645	1517	882	936	211	1006
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	0.69	0.57	0.59	0.04	0.30	0.29

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 53.3

Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 14.3 Intersection LOS: B
Intersection Capacity Utilization 68.1% ICU Level of Service C
Analysis Period (min) 15
90th %ile Actuated Cycle: 60
70th %ile Actuated Cycle: 60
50th %ile Actuated Cycle: 56.5
30th %ile Actuated Cycle: 48.4
10th %ile Actuated Cycle: 41.8
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	
Int Delay, s/veh	2.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	65	0	0	168	51	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	71	0	0	183	55	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	249	66	76	0	-	0
Stage 1	66	-	-	-	-	-
Stage 2	183	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	739	998	1523	-	-	-
Stage 1	957	-	-	-	-	-
Stage 2	848	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	739	998	1523	-	-	-
Mov Cap-2 Maneuver	739	-	-	-	-	-
Stage 1	957	-	-	-	-	-
Stage 2	848	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.4	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1523	-	739	-	-
HCM Lane V/C Ratio	-	-	0.096	-	-
HCM Control Delay (s)	0	-	10.4	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection

Int Delay, s/veh 1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	0	65	534	0	20	264
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	71	580	0	22	287

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	910	580	0	0	580	0
Stage 1	580	-	-	-	-	-
Stage 2	330	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	305	514	-	-	994	-
Stage 1	560	-	-	-	-	-
Stage 2	728	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	297	514	-	-	994	-
Mov Cap-2 Maneuver	297	-	-	-	-	-
Stage 1	560	-	-	-	-	-
Stage 2	709	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.1	0	0.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	514	994	-
HCM Lane V/C Ratio	-	-	0.137	0.022	-
HCM Control Delay (s)	-	-	13.1	8.7	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.1	-