APPENDIX B

Automatic Traffic Recorder (ATR) Counts

McMahon Associates Inc.

Transportation Engineers & Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Cheltenham Township
Comments: None`
Weather: Variable
ATR#/Operator: JC

ashbourne01s
Site Code: 00000000000000000002
Station ID: 00000000000000000000
Ashbourne Road south of
Oak Lane
Date Start: 26-Mar-09

Eastbound

Start Time	0 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	Total	85th Percent	95th Percent
03/26/09	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	0	0	6	35	65	36	15	0	0	0	1	0	1	159	39	43
11:00	2	0	5	33	72	36	18	3	0	0	0	0	0	169	40	44
12 PM	1	0	6	36	94	40	12	2	0	0	0	0	0	191	39	42
13:00	4	1	7	28	67	45	8	2	0	0	0	0	1	163	39	42
14:00	17	12	36	74	86	28	2	3	0	0	0	0	0	258	35	39
15:00	9	2	10	65	113	54	16	4	0	0	1	1	0	275	39	43
16:00	11	1	12	55	146	83	17	5	0	0	0	1	0	331	39	42
17:00	9	0	16	65	128	57	21	2	0	0	3	0	0	301	39	43
18:00	5	1	14	48	82	42	9	2	1	0	0	0	0	204	38	41
19:00	3	0	5	47	66	38	10	0	0	0	0	0	0	169	38	41
20:00	2	0	10	39	57	26	11	1	0	0	1	0	0	147	39	43
21:00	2	1	5	22	55	23	9	0	0	0	0	0	0	117	38	42
22:00	0	0	4	17	30	16	2	1	0	0	0	0	0	70	38	40
23:00	0	1	1	7	23	13	3	1	3	1	0	0	0	53	40	51
Total	65	19	137	571	1084	537	153	26	4	1	6	2	2	2607		
Percent	2.5%	0.7%	5.3%	21.9%	41.6%	20.6%	5.9%	1.0%	0.2%	0.0%	0.2%	0.1%	0.1%			
AM Peak	11:00		10:00	10:00	11:00	10:00	11:00	11:00			10:00		10:00	11:00		
Vol.	2		6	35	72	36	18	3			1		1	169		
PM Peak	14:00	14:00	14:00	14:00	16:00	16:00	17:00	16:00	23:00	23:00	17:00	15:00	13:00	16:00		
Vol.	17	12	36	74	146	83	21	5	3	1	3	1	1	331		

McMahon Associates Inc.

Transportation Engineers & Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Cheltenham Township
Comments: None`
Weather: Variable
ATR#/Operator: JC

ashbourne01s
Site Code: 00000000000000000002
Station ID: 00000000000000000000
Ashbourne Road south of
Oak Lane
Date Start: 26-Mar-09

Eastbound

Start Time	0 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	Total	85th Percent	95th Percent
03/27/09	0	0	3	2	8	6	0	2	1	0	0	0	0	22	40	47
01:00	0	0	1	1	5	2	2	0	0	0	0	0	0	11	40	41
02:00	0	0	1	1	1	4	1	0	0	0	0	0	0	8	39	41
03:00	0	0	0	2	4	4	1	0	1	0	0	0	0	12	39	41
04:00	0	1	1	9	14	9	3	2	0	1	0	0	0	40	40	46
05:00	2	0	1	18	53	46	**24**	3	1	0	1	0	0	149	42	45
06:00	7	0	5	50	**101**	**68**	18	1	**2**	0	**2**	0	0	254	39	43
07:00	**13**	**8**	**47**	**85**	82	46	9	1	0	0	0	0	0	**291**	37	40
08:00	2	0	9	36	91	54	10	1	1	0	1	0	0	205	39	42
09:00	3	0	3	17	71	43	16	2	1	0	0	0	0	156	40	44
10:00	4	1	3	24	86	35	17	5	2	0	0	0	0	177	40	45
11:00	4	0	5	31	82	51	20	**8**	2	0	0	0	0	203	40	45
12 PM	2	0	2	35	96	57	15	5	2	0	0	1	0	215	40	44
13:00	3	0	3	34	90	70	15	5	0	0	0	0	0	220	40	43
14:00	7	**6**	**29**	**92**	95	38	6	1	0	1	1	0	0	276	36	40
15:00	**17**	5	8	41	122	81	25	**6**	2	0	0	1	0	308	40	44
16:00	16	0	6	58	**147**	113	27	6	0	0	1	0	0	**374**	39	43
17:00	5	1	2	51	126	75	27	3	0	1	1	0	0	292	40	43
18:00	8	0	1	44	117	61	**29**	3	0	**2**	1	0	0	266	40	44
19:00	5	0	4	38	87	48	18	2	1	0	0	0	0	203	39	43
20:00	1	0	4	27	68	29	14	3	2	1	1	0	**1**	151	40	45
21:00	1	0	7	22	66	45	11	1	0	0	1	0	0	154	39	42
22:00	0	0	2	19	51	41	9	0	0	0	0	0	0	122	39	42
23:00	0	1	0	20	25	23	10	1	**3**	0	0	0	0	83	41	45
Total	100	23	147	757	1688	1049	327	61	21	6	10	2	1	4192		
Percent	2.4%	0.5%	3.5%	18.1%	40.3%	25.0%	7.8%	1.5%	0.5%	0.1%	0.2%	0.0%	0.0%			
AM Peak	07:00	07:00	07:00	07:00	06:00	06:00	05:00	11:00	06:00	04:00	06:00			07:00		
Vol.	13	8	47	85	101	68	24	8	2	1	2			291		
PM Peak	15:00	14:00	14:00	14:00	16:00	16:00	18:00	15:00	23:00	18:00	14:00	12:00	20:00	16:00		
Vol.	17	6	29	92	147	113	29	6	3	2	1	1	1	374		

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Transportation Engineers & Planners
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Fort Washington, PA 19034

Municipality: Cheltenham Township
Comments: None
Weather: Variable
ATR#/Operator: JC

ashbourne01s
Site Code: 00000000000000000002
Station ID: 00000000000000000000
Ashbourne Road south of
Oak Lane
Date Start: 26-Mar-09

Eastbound

Start Time	0 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	Total	85th Percent	95th Percent
03/28/09	0	0	2	2	25	6	1	0	0	0	0	0	0	36	36	39
01:00	0	0	2	7	15	3	0	0	0	0	0	0	0	27	35	37
02:00	0	0	1	4	4	8	2	0	0	0	0	0	0	19	39	41
03:00	0	0	0	6	8	2	1	1	0	0	0	0	0	18	36	45
04:00	0	1	0	6	8	5	4	0	0	0	0	0	0	24	40	43
05:00	0	0	1	6	27	13	7	1	0	0	0	0	0	55	40	43
06:00	1	0	1	13	27	22	4	0	0	0	0	0	0	68	39	41
07:00	0	0	2	19	62	24	11	0	0	0	0	0	0	118	39	42
08:00	0	0	2	27	73	41	10	3	1	0	0	0	0	157	39	43
09:00	1	0	5	24	76	32	16	5	0	0	0	0	0	159	40	44
10:00	2	0	4	34	76	42	20	7	1	0	0	0	0	186	40	45
11:00	4	4	3	31	95	56	23	3	0	0	0	0	0	219	40	43
12 PM	4	0	4	29	88	70	18	6	0	0	0	0	0	219	40	44
13:00	6	0	1	27	95	55	23	2	1	0	2	1	0	213	40	44
14:00	1	0	2	37	101	57	25	6	1	0	0	0	0	230	40	44
15:00	2	2	3	29	93	53	17	3	0	1	0	0	0	203	40	43
16:00	1	1	4	28	91	49	27	7	0	0	0	0	0	208	41	45
17:00	3	0	2	33	100	44	21	7	2	0	0	0	0	212	40	45
18:00	1	0	0	55	81	50	15	5	0	0	0	0	0	207	39	44
19:00	3	0	0	31	78	36	16	2	0	0	0	0	1	167	40	44
20:00	0	0	2	22	73	38	8	1	0	0	0	0	0	144	39	41
21:00	1	0	0	28	60	27	15	5	1	0	0	0	0	137	40	45
22:00	2	0	2	19	52	23	3	0	0	0	0	0	0	101	38	40
23:00	0	0	4	24	42	13	12	1	0	0	0	0	0	96	40	43
Total	32	8	47	541	1450	769	299	65	7	1	2	1	1	3223		
Percent	1.0%	0.2%	1.5%	16.8%	45.0%	23.9%	9.3%	2.0%	0.2%	0.0%	0.1%	0.0%	0.0%			
AM Peak	11:00	11:00	09:00	10:00	11:00	11:00	11:00	10:00	08:00					11:00		
Vol.	4	4	5	34	95	56	23	7	1					219		
PM Peak	13:00	15:00	12:00	18:00	14:00	12:00	16:00	16:00	17:00	15:00	13:00	13:00	19:00	14:00		
Vol.	6	2	4	55	101	70	27	7	2	1	2	1	1	230		

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ashbourne01s
Site Code: 00000000000000000002
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Ashbourne Road south of
Oak Lane
Date Start: 26-Mar-09

Eastbound

Start Time	0 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	Total	85th Percent	95th Percent
03/29/09	0	0	1	8	19	8	2	0	0	0	0	0	0	38	37	40
01:00	0	0	1	4	15	6	2	2	0	0	0	0	0	30	39	45
02:00	0	0	1	4	10	4	2	1	0	0	0	0	0	22	39	42
03:00	0	0	0	3	2	3	4	0	0	0	0	0	0	12	42	43
04:00	0	0	1	4	7	3	0	1	0	0	0	0	0	16	37	38
05:00	0	0	0	6	13	17	3	0	0	0	0	0	0	39	39	41
06:00	1	0	1	5	13	6	8	2	0	0	0	0	0	36	43	45
07:00	1	0	0	19	22	11	0	1	0	0	0	0	0	54	37	39
08:00	1	0	4	20	46	26	13	2	0	0	0	0	0	112	40	43
09:00	3	0	4	49	80	37	12	1	0	0	1	0	0	187	38	42
10:00	1	2	9	40	54	38	3	3	0	0	0	0	0	150	38	40
11:00	0	0	1	48	94	28	13	2	0	1	1	1	0	189	38	43
12 PM	2	0	1	40	107	44	16	2	0	0	0	0	0	212	39	42
13:00	13	0	4	30	102	52	10	4	4	0	0	0	0	219	39	44
14:00	2	0	6	69	86	33	8	2	0	0	0	0	0	206	37	40
15:00	3	2	11	45	64	28	16	2	0	0	0	0	1	172	39	43
16:00	7	1	3	26	85	58	25	7	2	0	1	0	0	215	41	45
17:00	3	1	0	30	81	36	22	2	2	0	0	0	0	177	40	44
18:00	4	2	11	40	65	32	10	2	0	0	0	0	0	166	38	42
19:00	2	0	0	45	86	30	12	3	0	0	0	0	0	178	38	42
20:00	3	0	1	21	67	16	10	0	0	0	0	0	0	118	38	42
21:00	0	0	6	29	45	11	7	2	0	0	0	0	0	100	37	42
22:00	2	1	1	14	31	12	4	0	0	0	0	0	0	65	37	41
23:00	0	0	3	11	20	9	0	1	0	0	0	0	0	44	37	39
Total	48	9	70	610	1214	548	202	42	8	1	3	1	1	2757		
Percent	1.7%	0.3%	2.5%	22.1%	44.0%	19.9%	7.3%	1.5%	0.3%	0.0%	0.1%	0.0%	0.0%			
AM Peak	09:00	10:00	10:00	09:00	11:00	10:00	08:00	10:00		11:00	09:00	11:00		11:00		
Vol.	3	2	9	49	94	38	13	3		1	1	1		189		
PM Peak	13:00	15:00	15:00	14:00	12:00	16:00	16:00	16:00	13:00		16:00		15:00	13:00		
Vol.	13	2	11	69	107	58	25	7	4		1		1	219		

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ashbourne01s
Site Code: 00000000000000000002
Station ID: 00000000000000000000
Ashbourne Road south of
Oak Lane
Date Start: 26-Mar-09

Eastbound

Start Time	0 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	Total	85th Percent	95th Percent
03/30/09	0	0	1	3	5	8	2	1	0	0	0	0	0	20	40	42
01:00	0	0	2	1	2	3	1	1	0	0	0	0	0	10	38	45
02:00	0	0	0	1	3	1	0	0	0	0	0	0	0	5	33	36
03:00	0	0	0	3	6	5	2	1	0	0	0	0	0	17	40	42
04:00	0	0	2	4	15	12	6	1	1	1	0	0	0	42	42	50
05:00	0	0	0	24	43	63	22	4	1	0	1	0	1	159	41	45
06:00	9	0	3	40	90	69	19	3	3	0	0	1	0	237	40	44
07:00	9	7	26	107	97	46	13	6	0	1	0	1	0	313	38	42
08:00	5	0	16	38	70	39	20	0	2	1	1	0	0	192	40	44
09:00	3	0	4	36	66	41	16	6	1	0	0	1	0	174	40	45
10:00	2	1	5	32	60	48	11	3	0	0	0	0	0	162	39	43
11:00	1	0	5	21	57	40	19	9	2	1	0	0	0	155	42	47
12 PM	4	0	1	19	70	45	16	4	0	0	0	0	0	159	40	44
13:00	3	1	3	41	110	40	19	2	1	0	0	0	0	220	39	43
14:00	14	5	29	68	100	33	11	0	1	0	1	1	0	263	37	41
15:00	12	3	4	44	90	77	17	3	1	0	1	1	0	253	39	43
16:00	5	0	5	52	149	100	32	4	2	2	0	0	0	351	40	44
17:00	6	0	6	46	119	72	30	5	1	0	0	0	0	285	40	44
18:00	3	1	6	47	86	43	18	6	0	0	1	0	0	211	40	44
19:00	2	0	4	35	50	36	11	4	2	0	2	0	0	146	40	46
20:00	0	0	1	31	52	31	12	2	0	0	0	0	0	129	40	43
21:00	1	0	1	15	43	37	11	5	1	0	0	0	0	114	40	45
22:00	0	0	0	12	31	19	12	2	1	0	0	0	0	77	41	45
23:00	0	0	3	4	12	9	5	2	0	0	0	0	0	35	42	45
Total	79	18	127	724	1426	917	325	74	20	6	7	5	1	3729		
Percent	2.1%	0.5%	3.4%	19.4%	38.2%	24.6%	8.7%	2.0%	0.5%	0.2%	0.2%	0.1%	0.0%			
AM Peak	06:00	07:00	07:00	07:00	07:00	06:00	05:00	11:00	06:00	04:00	05:00	06:00	05:00	07:00		
Vol.	9	7	26	107	97	69	22	9	3	1	1	1	1	313		
PM Peak	14:00	14:00	14:00	14:00	16:00	16:00	16:00	18:00	16:00	16:00	19:00	14:00		16:00		
Vol.	14	5	29	68	149	100	32	6	2	2	2	1		351		

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ashbourne01s
Site Code: 00000000000000000002
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Ashbourne Road south of
Oak Lane
Date Start: 26-Mar-09

Eastbound

Start Time	0 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	Total	85th Percent	95th Percent
03/31/09	0	0	1	3	2	5	2	0	1	0	0	0	0	14	41	42
01:00	0	0	1	3	5	4	4	0	1	1	0	0	0	19	43	55
02:00	0	0	0	3	2	2	0	0	0	0	0	0	0	7	36	37
03:00	0	0	1	3	4	5	2	3	1	0	0	0	0	19	46	48
04:00	1	0	1	9	16	16	7	3	0	0	0	0	0	53	41	45
05:00	0	0	0	19	60	57	15	6	2	0	0	0	0	159	40	45
06:00	11	1	5	43	108	73	31	7	0	0	0	0	0	279	40	44
07:00	10	5	26	105	106	45	7	0	0	0	0	0	0	304	36	40
08:00	2	1	3	43	68	56	14	2	0	0	0	1	0	190	39	43
09:00	4	0	1	22	80	38	11	5	0	0	0	0	0	161	39	44
10:00	0	0	0	27	65	47	18	3	0	1	0	0	0	161	40	44
11:00	1	1	0	30	80	51	22	1	0	0	0	0	0	186	40	43
12 PM	6	0	0	35	69	43	11	3	1	0	0	0	0	168	39	43
13:00	1	1	4	35	82	36	18	3	0	0	0	0	1	181	40	44
14:00	21	10	25	65	99	41	11	0	0	0	1	1	0	274	37	40
15:00	9	2	3	48	109	67	21	4	0	1	0	0	0	264	39	43
16:00	9	3	15	46	162	85	29	2	1	1	2	1	0	356	39	43
17:00	6	0	5	55	114	102	19	6	0	0	3	0	0	310	40	43
18:00	3	2	2	40	96	54	13	2	1	0	0	0	1	214	39	42
19:00	4	0	4	31	70	40	18	1	2	0	1	0	0	171	40	44
20:00	1	0	5	32	62	39	12	0	0	0	0	0	0	151	39	42
21:00	2	0	7	16	50	25	14	2	2	0	0	0	0	118	40	44
22:00	1	0	2	10	41	21	4	3	0	0	0	0	0	82	39	43
23:00	0	0	3	7	16	10	5	2	0	0	0	0	0	43	41	45
Total	92	26	114	730	1566	962	308	58	12	4	7	3	2	3884		
Percent	2.4%	0.7%	2.9%	18.8%	40.3%	24.8%	7.9%	1.5%	0.3%	0.1%	0.2%	0.1%	0.1%			
AM Peak	06:00	07:00	07:00	07:00	06:00	06:00	06:00	06:00	05:00	01:00		08:00		07:00		
Vol.	11	5	26	105	108	73	31	7	2	1		1		304		
PM Peak	14:00	14:00	14:00	14:00	16:00	17:00	16:00	17:00	19:00	15:00	17:00	14:00	13:00	16:00		
Vol.	21	10	25	65	162	102	29	6	2	1	3	1	1	356		

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ashbourne01s
Site Code: 00000000000000000002
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Ashbourne Road south of
Oak Lane
Date Start: 26-Mar-09

Eastbound

Start Time	0 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	Total	85th Percent	95th Percent
04/01/09	0	0	1	9	10	5	2	0	0	0	0	0	0	27	38	41
01:00	0	0	1	1	9	5	3	0	0	0	0	0	0	19	40	42
02:00	0	0	0	3	3	4	1	0	0	0	0	0	0	11	38	39
03:00	0	0	1	3	4	1	2	1	0	0	0	0	0	12	41	42
04:00	0	0	0	7	14	17	6	2	0	0	0	0	0	46	41	45
05:00	3	0	4	10	63	54	**21**	2	1	0	0	0	0	158	40	44
06:00	9	0	6	49	**122**	**56**	21	**5**	**4**	0	1	0	**2**	**275**	40	45
07:00	**10**	0	**34**	**81**	102	36	7	1	0	0	0	1	0	272	36	40
08:00	0	**4**	25	50	68	27	4	2	0	1	0	0	1	182	37	40
09:00	1	0	3	39	59	43	13	3	0	1	0	1	0	163	40	44
10:00	1	0	7	35	53	34	13	3	0	0	0	0	0	146	39	43
11:00	1	1	3	25	74	44	8	0	0	0	0	0	0	156	39	40
12 PM	3	0	3	58	81	47	11	1	0	0	1	0	0	205	38	41
13:00	3	0	0	62	67	37	13	2	1	1	1	1	0	188	39	44
14:00	16	**7**	**33**	**105**	97	30	4	2	0	0	1	0	0	295	35	39
15:00	**17**	5	11	61	120	54	17	**4**	1	0	1	0	1	292	39	43
16:00	9	0	13	79	**137**	**62**	12	4	**3**	0	1	0	0	**320**	38	42
17:00	2	0	13	51	128	60	15	2	1	0	1	0	0	273	39	42
18:00	2	0	7	49	71	47	**20**	1	1	**2**	0	1	0	201	40	44
19:00	1	0	8	35	85	31	12	1	0	0	0	0	0	173	38	42
20:00	2	0	5	64	48	36	10	1	1	0	0	0	0	167	39	42
21:00	2	1	4	34	48	26	18	1	0	0	0	0	0	134	40	43
22:00	1	0	3	9	42	18	4	1	0	0	0	0	0	78	38	41
23:00	0	1	2	8	12	8	4	0	1	0	0	0	0	36	40	43
Total	83	19	187	927	1517	782	241	39	14	5	7	4	4	3829		
Percent	2.2%	0.5%	4.9%	24.2%	39.6%	20.4%	6.3%	1.0%	0.4%	0.1%	0.2%	0.1%	0.1%			
AM Peak	07:00	08:00	07:00	07:00	06:00	06:00	05:00	06:00	06:00	08:00	06:00	07:00	06:00	06:00		
Vol.	10	4	34	81	122	56	21	5	4	1	1	1	2	275		
PM Peak	15:00	14:00	14:00	14:00	16:00	16:00	18:00	15:00	16:00	18:00	12:00	13:00	15:00	16:00		
Vol.	17	7	33	105	137	62	20	4	3	2	1	1	1	320		

McMahon Associates Inc.

Transportation Engineers & Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Cheltenham Township
Comments: None
Weather: Variable
ATR#/Operator: JC

ashbourne01s
Site Code: 00000000000000000002
Station ID: 00000000000000000000
Ashbourne Road south of
Oak Lane
Date Start: 26-Mar-09

Eastbound

Start Time	0 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	Total	85th Percent	95th Percent
04/02/09	0	0	1	4	3	6	1	0	0	0	0	0	0	15	39	40
01:00	0	0	1	2	1	3	3	0	0	0	0	0	0	10	41	42
02:00	0	0	1	0	3	7	2	0	0	0	0	0	0	13	40	41
03:00	0	0	0	5	5	3	1	1	1	0	0	0	0	16	45	50
04:00	1	0	1	11	15	21	4	2	1	0	0	0	0	56	40	44
05:00	4	1	2	18	63	41	18	1	0	0	1	0	0	149	40	44
06:00	**9**	3	7	65	**99**	44	**21**	7	**2**	0	**2**	0	0	259	40	45
07:00	7	3	**40**	**125**	74	35	7	2	0	0	0	0	0	**293**	35	40
08:00	4	**12**	20	58	71	**49**	13	5	2	**1**	0	0	0	235	39	43
09:00	1	0	1	34	67	37	7	3	0	0	1	0	0	151	39	42
10:00	3	0	5	35	70	39	14	1	1	0	0	0	0	168	39	43
11:00	4	0	0	27	94	39	16	4	1	0	0	**1**	0	186	40	44
12 PM	5	2	4	54	79	49	**25**	1	0	0	0	0	0	219	40	43
13:00	5	1	1	40	84	46	10	4	0	0	1	**1**	0	193	39	43
14:00	14	**10**	**35**	**95**	93	24	10	3	1	**1**	1	1	0	288	35	42
15:00	**19**	6	12	54	114	61	24	3	**2**	0	1	0	0	296	39	43
16:00	16	0	6	76	**166**	**86**	11	3	2	0	0	0	0	**366**	38	40
17:00	1	0	6	68	106	75	25	**8**	1	0	0	0	0	290	40	44
18:00	4	0	5	42	72	63	19	3	1	0	0	0	0	209	40	44
19:00	2	0	5	47	73	46	11	1	0	0	0	0	0	185	39	41
20:00	1	0	1	31	74	30	7	2	0	0	0	0	0	146	38	41
21:00	1	2	5	16	56	32	9	3	2	0	0	0	0	126	40	44
22:00	1	0	0	12	44	25	8	2	0	0	0	0	0	92	40	43
23:00	0	0	5	6	14	12	4	1	0	0	0	0	0	42	40	43
Total	102	40	164	925	1540	873	270	60	17	2	7	3	0	4003		
Percent	2.5%	1.0%	4.1%	23.1%	38.5%	21.8%	6.7%	1.5%	0.4%	0.0%	0.2%	0.1%	0.0%			
AM Peak	06:00	08:00	07:00	07:00	06:00	08:00	06:00	06:00	06:00	08:00	06:00	11:00		07:00		
Vol.	9	12	40	125	99	49	21	7	2	1	2	1		293		
PM Peak	15:00	14:00	14:00	14:00	16:00	16:00	12:00	17:00	15:00	14:00	13:00	13:00		16:00		
Vol.	19	10	35	95	166	86	25	8	2	1	1	1		366		

McMahon Associates Inc.

Transportation Engineers & Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Cheltenham Township
Comments: None`
Weather: Variable
ATR#/Operator: JC

ashbourne01s
Site Code: 00000000000000000002
Station ID: 00000000000000000000
Ashbourne Road south of
Oak Lane
Date Start: 26-Mar-09

Eastbound

Start Time	0 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	Total	85th Percent	95th Percent
04/03/09	0	0	0	5	14	7	2	2	0	0	0	0	0	30	39	45
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	0	0	0	5	14	7	2	2	0	0	0	0	0	30		
Percent	0.0%	0.0%	0.0%	16.7%	46.7%	23.3%	6.7%	6.7%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak				00:00	00:00	00:00	00:00	00:00						00:00		
Vol.				5	14	7	2	2						30		
PM Peak Vol.																
Grand Total	601	162	993	5790	11499	6444	2127	427	103	26	49	21	12	28254		
Percent	2.1%	0.6%	3.5%	20.5%	40.7%	22.8%	7.5%	1.5%	0.4%	0.1%	0.2%	0.1%	0.0%			

	15th Percentile :	28 MPH
	50th Percentile :	33 MPH
	85th Percentile :	39 MPH
	95th Percentile :	44 MPH
Stats	10 MPH Pace Speed :	31-40 MPH
	Number in Pace :	17943
	Percent in Pace :	63.5%
	Number of Vehicles > 55 MPH :	108
	Percent of Vehicles > 55 MPH :	0.4%
	Mean Speed(Average) :	33 MPH

McMahon Associates Inc.

Transportation Engineers & Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Cheltenham Township
Comments: None`
Weather: Variable
ATR#/Operator: JC

ashbourne01s
Site Code: 00000000000000000002
Station ID: 00000000000000000000
Ashbourne Road south of Oak Lane
Date Start: 26-Mar-09

Westbound

Start Time	0 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	Total	85th Percent	95th Percent
03/26/09	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	0	**1**	**8**	**35**	53	**49**	**16**	0	0	0	0	0	0	162	40	43
11:00	0	0	**4**	33	**74**	44	16	0	1	0	0	0	0	**172**	39	43
12 PM	0	0	6	39	90	52	**18**	2	1	0	0	1	0	209	40	43
13:00	3	2	8	39	108	60	15	4	0	1	1	0	0	241	39	43
14:00	12	**5**	26	76	105	56	14	1	**2**	0	0	1	0	298	38	41
15:00	11	2	26	**96**	104	**75**	6	1	2	0	2	0	1	**326**	38	40
16:00	**14**	5	**29**	75	111	66	17	1	2	1	**3**	1	0	325	39	43
17:00	13	3	13	58	**125**	60	12	3	0	0	0	0	0	287	38	41
18:00	6	0	13	59	99	46	9	1	0	0	0	**2**	0	235	38	40
19:00	3	0	10	43	55	36	7	1	0	0	0	0	0	155	38	40
20:00	0	1	6	26	53	29	9	0	0	0	0	0	0	124	39	42
21:00	4	0	4	24	54	23	14	3	0	0	0	1	0	127	40	44
22:00	0	0	2	12	27	28	8	4	0	0	0	0	0	81	40	45
23:00	0	0	3	8	13	12	1	2	0	0	0	0	0	39	39	45
Total	66	19	158	623	1071	636	162	23	8	2	6	6	1	2781		
Percent	2.4%	0.7%	5.7%	22.4%	38.5%	22.9%	5.8%	0.8%	0.3%	0.1%	0.2%	0.2%	0.0%			
AM Peak		10:00	10:00	10:00	11:00	10:00	10:00		11:00					11:00		
Vol.		1	8	35	74	49	16		1					172		
PM Peak	16:00	14:00	16:00	15:00	17:00	15:00	12:00	13:00	14:00	13:00	16:00	18:00	15:00	15:00		
Vol.	14	5	29	96	125	75	18	4	2	1	3	2	1	326		

McMahon Associates Inc.

Transportation Engineers & Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Cheltenham Township
Comments: None`
Weather: Variable
ATR#/Operator: JC

ashbourne01s
Site Code: 00000000000000000002
Station ID: 00000000000000000000
Ashbourne Road south of
Oak Lane
Date Start: 26-Mar-09

Westbound

Start Time	0 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	Total	85th Percent	95th Percent
03/27/09	0	0	0	4	11	8	4	0	0	0	0	0	0	27	40	43
01:00	0	0	3	0	7	6	0	0	0	0	0	0	0	16	38	39
02:00	0	0	0	1	4	4	1	1	0	0	0	0	0	11	39	45
03:00	1	0	0	1	6	6	2	0	0	0	0	0	0	16	40	41
04:00	0	0	3	4	15	20	7	4	1	0	0	0	0	54	42	47
05:00	3	0	4	28	48	44	14	5	2	0	0	0	0	148	40	45
06:00	7	9	34	93	114	81	37	1	2	1	1	0	1	381	40	44
07:00	10	1	43	100	124	48	4	0	1	1	1	0	0	333	36	39
08:00	3	3	17	58	75	59	19	2	0	0	0	0	2	238	39	43
09:00	0	1	5	17	59	64	19	3	3	0	0	0	0	171	40	44
10:00	2	0	2	23	52	62	26	6	0	1	0	0	0	174	42	45
11:00	5	1	5	24	73	52	22	2	0	0	0	0	0	184	40	44
12 PM	0	0	8	38	89	68	10	4	0	0	0	0	0	217	39	42
13:00	6	0	10	30	92	94	17	3	0	0	0	0	0	252	39	42
14:00	10	8	22	85	109	59	16	2	0	0	0	2	0	313	38	41
15:00	9	8	24	75	100	74	17	4	0	0	0	2	1	314	39	42
16:00	12	3	25	85	106	105	22	2	2	2	1	0	0	365	39	43
17:00	6	3	16	67	125	70	20	2	1	2	0	0	0	312	39	43
18:00	1	1	10	45	74	82	17	4	1	1	0	0	0	236	40	43
19:00	2	0	13	49	74	46	12	0	1	0	1	0	0	198	39	42
20:00	0	0	7	44	78	41	14	5	0	0	0	0	0	189	39	44
21:00	0	5	9	29	57	41	10	1	0	0	0	0	0	152	39	42
22:00	0	1	1	17	42	37	9	4	2	0	0	0	0	113	40	45
23:00	0	1	4	12	24	33	8	3	0	0	0	0	0	85	40	44
Total	77	45	265	929	1558	1204	327	58	16	8	4	4	4	4499		
Percent	1.7%	1.0%	5.9%	20.6%	34.6%	26.8%	7.3%	1.3%	0.4%	0.2%	0.1%	0.1%	0.1%			
AM Peak	07:00	06:00	07:00	07:00	07:00	06:00	06:00	10:00	09:00	06:00	06:00		08:00	06:00		
Vol.	10	9	43	100	124	81	37	6	3	1	1		2	381		
PM Peak	16:00	14:00	16:00	14:00	17:00	16:00	16:00	20:00	16:00	16:00	16:00	14:00	15:00	16:00		
Vol.	12	8	25	85	125	105	22	5	2	2	1	2	1	365		

McMahon Associates Inc.

Transportation Engineers & Planners
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Municipality: Cheltenham Township
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ashbourne01s
Site Code: 00000000000000000002
Station ID: 00000000000000000000
Ashbourne Road south of Oak Lane
Date Start: 26-Mar-09

Westbound

Start Time	0 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	Total	85th Percent	95th Percent
03/28/09	0	0	1	9	15	8	7	2	0	0	0	0	0	42	42	45
01:00	0	0	1	8	10	10	4	1	0	0	0	0	0	34	40	43
02:00	1	0	0	5	12	9	3	0	0	0	0	0	0	30	39	41
03:00	0	0	1	5	9	5	1	0	0	0	0	0	0	21	38	40
04:00	0	0	0	5	4	7	5	0	0	0	0	0	0	21	42	44
05:00	0	0	2	7	21	26	8	3	0	0	0	0	0	67	41	45
06:00	0	0	0	5	33	43	**24**	**6**	**3**	0	0	0	0	114	44	47
07:00	1	0	2	26	43	50	16	2	0	1	0	0	0	141	40	44
08:00	4	0	7	22	70	53	21	2	0	0	0	1	0	180	40	44
09:00	2	1	10	32	59	59	21	5	2	1	0	0	0	192	40	45
10:00	3	**7**	6	**42**	**79**	**73**	13	5	0	0	1	0	0	**229**	39	43
11:00	**5**	0	3	28	76	51	14	4	2	0	0	1	0	184	40	44
12 PM	0	0	2	33	86	66	26	3	**2**	0	0	0	0	218	40	44
13:00	1	0	7	42	65	**89**	21	7	0	0	1	0	1	234	40	45
14:00	**4**	2	4	25	**99**	70	27	4	1	0	0	**2**	0	238	40	44
15:00	2	2	11	**52**	84	64	12	4	0	**2**	1	0	0	234	39	43
16:00	1	**3**	5	50	95	64	20	3	0	0	1	0	0	**242**	39	43
17:00	2	0	3	22	69	72	15	3	0	0	0	1	0	187	40	44
18:00	2	0	7	33	57	56	21	**8**	0	1	0	0	0	185	41	45
19:00	1	0	**4**	38	66	38	13	2	1	0	0	1	0	164	39	43
20:00	1	2	6	22	59	42	**30**	4	0	0	0	0	0	166	42	45
21:00	4	2	6	32	51	36	16	1	1	0	0	0	0	149	40	44
22:00	1	0	3	15	42	51	14	4	1	0	0	0	0	131	40	44
23:00	0	0	4	8	35	29	7	2	0	0	0	0	0	85	40	43
Total	35	19	95	566	1239	1071	359	75	13	5	4	6	1	3488		
Percent	1.0%	0.5%	2.7%	16.2%	35.5%	30.7%	10.3%	2.2%	0.4%	0.1%	0.1%	0.2%	0.0%			
AM Peak	11:00	10:00	09:00	10:00	10:00	10:00	06:00	06:00	06:00	07:00	10:00	08:00		10:00		
Vol.	5	7	10	42	79	73	24	6	3	1	1	1		229		
PM Peak	14:00	16:00	15:00	15:00	14:00	13:00	20:00	18:00	12:00	15:00	13:00	14:00	13:00	16:00		
Vol.	4	3	11	52	99	89	30	8	2	2	1	2	1	242		

McMahon Associates Inc.

Transportation Engineers & Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Cheltenham Township
Comments: None
Weather: Variable
ATR#/Operator: JC

ashbourne01s
Site Code: 00000000000000000002
Station ID: 00000000000000000000
Ashbourne Road south of
Oak Lane
Date Start: 26-Mar-09

Westbound

Start Time	0 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	Total	85th Percent	95th Percent
03/29/09	1	0	0	6	12	22	7	1	0	0	0	0	0	49	41	44
01:00	0	0	2	4	8	12	5	0	0	0	0	0	0	31	40	43
02:00	0	0	0	6	11	8	4	0	0	1	0	0	0	30	40	43
03:00	0	0	0	2	3	3	3	0	0	0	0	0	0	11	41	42
04:00	0	0	2	2	3	2	1	1	0	0	0	0	0	11	37	45
05:00	0	0	0	4	11	8	2	1	0	0	0	0	0	26	39	42
06:00	0	0	1	10	25	34	14	3	0	0	0	0	0	87	42	45
07:00	0	0	0	12	49	42	15	**6**	0	0	0	0	0	124	41	45
08:00	0	1	1	20	45	54	**20**	5	**2**	0	0	**1**	1	150	42	46
09:00	**2**	1	3	**29**	**98**	54	16	4	2	0	0	1	0	**210**	40	44
10:00	2	**2**	**5**	23	61	53	8	3	1	0	0	0	0	158	39	42
11:00	0	1	2	27	79	**68**	16	3	0	0	0	0	0	196	40	43
12 PM	3	0	1	**45**	**78**	58	15	**6**	0	0	0	0	0	206	40	44
13:00	4	1	6	31	73	72	24	4	0	**1**	0	0	0	216	40	44
14:00	**7**	0	6	31	78	62	20	4	**2**	0	0	0	0	210	40	44
15:00	5	2	1	32	76	79	27	4	0	0	**1**	0	0	**227**	40	44
16:00	7	2	4	25	69	72	**30**	2	0	0	0	0	0	211	40	44
17:00	0	0	4	44	68	**81**	16	2	2	0	0	0	0	217	40	43
18:00	2	4	**15**	39	66	30	5	3	0	0	0	0	0	164	38	40
19:00	1	1	7	35	52	44	13	1	0	0	1	0	0	155	39	43
20:00	2	0	0	24	47	34	20	2	0	0	1	0	0	130	41	44
21:00	1	0	5	20	39	34	9	2	0	1	0	0	0	111	40	43
22:00	0	0	3	14	27	30	8	1	0	0	0	0	0	83	40	43
23:00	1	0	1	3	10	10	4	2	0	0	0	0	0	31	41	44
Total	38	15	69	488	1088	966	302	60	9	3	3	2	1	3044		
Percent	1.2%	0.5%	2.3%	16.0%	35.7%	31.7%	9.9%	2.0%	0.3%	0.1%	0.1%	0.1%	0.0%			
AM Peak	09:00	10:00	10:00	09:00	09:00	11:00	08:00	07:00	08:00	02:00		08:00	08:00	09:00		
Vol.	2	2	5	29	98	68	20	6	2	1		1	1	210		
PM Peak	14:00	18:00	18:00	12:00	12:00	17:00	16:00	12:00	14:00	13:00	15:00			15:00		
Vol.	7	4	15	45	78	81	30	6	2	1	1			227		

McMahon Associates Inc.

Transportation Engineers & Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Cheltenham Township
Comments: None
Weather: Variable
ATR#/Operator: JC

ashbourne01s
Site Code: 00000000000000000002
Station ID: 00000000000000000000
Ashbourne Road south of
Oak Lane
Date Start: 26-Mar-09

Westbound

Start Time	0 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	Total	85th Percent	95th Percent
03/30/09	0	0	1	3	2	5	6	1	0	0	0	0	0	18	43	45
01:00	0	0	1	6	2	6	2	0	0	0	0	0	0	17	39	41
02:00	0	0	0	0	1	3	0	0	0	0	0	0	0	4	37	38
03:00	0	0	0	2	2	4	5	1	0	0	0	0	0	14	44	45
04:00	0	0	0	5	21	20	4	2	1	0	0	0	0	53	40	44
05:00	0	1	3	14	37	63	19	7	3	0	0	0	0	147	42	47
06:00	8	4	23	46	134	112	37	7	0	0	1	2	0	374	40	44
07:00	19	12	32	94	133	65	8	3	0	1	0	0	0	367	37	40
08:00	1	4	21	52	83	38	16	3	0	0	1	0	0	219	39	43
09:00	3	0	5	21	67	34	12	2	0	1	0	0	0	145	39	43
10:00	0	0	1	30	59	48	19	5	0	1	0	0	0	163	41	45
11:00	4	1	7	32	76	52	14	4	2	0	0	0	0	192	40	44
12 PM	5	0	2	33	58	50	20	1	1	0	0	0	0	170	40	44
13:00	1	2	5	47	91	58	24	7	1	0	1	0	0	237	40	45
14:00	8	5	25	50	95	60	12	1	0	1	0	0	0	257	38	41
15:00	14	4	38	74	123	71	11	3	1	2	1	1	0	343	38	41
16:00	3	4	20	72	125	93	35	1	0	1	1	2	0	357	40	44
17:00	7	3	17	58	96	74	36	2	0	0	1	2	0	296	40	44
18:00	3	0	5	37	80	79	21	2	1	0	0	1	0	229	40	44
19:00	2	0	12	41	59	33	14	4	0	0	0	0	0	165	39	44
20:00	2	0	2	24	47	40	10	3	1	0	0	0	0	129	40	44
21:00	1	4	3	15	50	24	13	1	1	0	0	0	0	112	40	43
22:00	0	3	3	9	25	24	11	4	0	0	0	0	0	79	41	45
23:00	0	0	4	2	7	13	6	1	1	0	0	0	0	34	42	45
Total	81	47	230	767	1473	1069	355	65	13	7	6	8	0	4121		
Percent	2.0%	1.1%	5.6%	18.6%	35.7%	25.9%	8.6%	1.6%	0.3%	0.2%	0.1%	0.2%	0.0%			
AM Peak	07:00	07:00	07:00	07:00	06:00	06:00	06:00	05:00	05:00	07:00	06:00	06:00		06:00		
Vol.	19	12	32	94	134	112	37	7	3	1	1	2		374		
PM Peak	15:00	14:00	15:00	15:00	16:00	16:00	17:00	13:00	12:00	15:00	13:00	16:00		16:00		
Vol.	14	5	38	74	125	93	36	7	1	2	1	2		357		

McMahon Associates Inc.

Transportation Engineers & Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Cheltenham Township
Comments: None
Weather: Variable
ATR#/Operator: JC

ashbourne01s
Site Code: 00000000000000000002
Station ID: 00000000000000000000
Ashbourne Road south of
Oak Lane
Date Start: 26-Mar-09

Westbound

Start Time	0 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	Total	85th Percent	95th Percent
03/31/09	0	0	1	1	5	5	7	1	0	0	0	0	0	20	43	45
01:00	0	0	1	1	3	3	0	0	0	0	0	0	0	8	37	38
02:00	0	0	0	1	1	0	2	2	0	0	0	0	0	6	46	47
03:00	0	0	0	1	7	8	5	1	0	0	0	0	0	22	43	45
04:00	0	0	1	9	15	21	7	3	0	1	0	0	0	57	41	46
05:00	0	2	3	22	39	51	29	3	0	0	0	0	0	149	42	45
06:00	12	8	34	73	115	97	26	4	2	0	0	1	0	372	39	43
07:00	12	9	45	104	111	46	4	3	0	1	1	1	0	337	36	40
08:00	4	4	13	61	83	55	15	2	1	0	0	0	0	238	39	42
09:00	2	0	5	25	53	39	22	1	0	0	1	0	0	148	41	44
10:00	1	0	4	18	75	56	18	5	0	0	1	0	0	178	40	44
11:00	5	0	7	27	55	55	22	3	0	1	0	0	0	175	40	44
12 PM	2	1	4	29	56	67	17	4	0	0	1	0	0	181	40	44
13:00	9	2	11	25	82	75	20	8	2	0	0	0	0	234	40	45
14:00	8	3	18	81	102	41	22	1	0	0	1	1	0	278	38	43
15:00	6	5	29	70	128	87	15	2	2	0	1	0	1	346	39	42
16:00	12	9	26	108	113	77	26	6	0	1	0	1	0	379	39	43
17:00	13	1	13	49	105	78	30	5	2	0	0	2	0	298	40	44
18:00	3	1	11	42	95	55	29	2	0	0	0	0	1	239	40	44
19:00	0	1	6	33	61	39	17	2	1	0	0	0	0	160	40	44
20:00	1	0	11	32	51	43	14	1	0	0	0	0	0	153	39	43
21:00	3	1	5	11	55	37	10	3	2	1	1	0	0	129	40	46
22:00	1	1	2	10	26	21	10	1	0	0	0	0	0	72	40	44
23:00	0	0	0	5	7	13	9	1	0	0	0	0	0	35	43	44
Total	94	48	250	838	1443	1069	376	64	12	5	7	6	2	4214		
Percent	2.2%	1.1%	5.9%	19.9%	34.2%	25.4%	8.9%	1.5%	0.3%	0.1%	0.2%	0.1%	0.0%			
AM Peak	06:00	07:00	07:00	07:00	06:00	06:00	05:00	10:00	06:00	04:00	07:00	06:00		06:00		
Vol.	12	9	45	104	115	97	29	5	2	1	1	1		372		
PM Peak	17:00	16:00	15:00	16:00	15:00	15:00	17:00	13:00	13:00	16:00	12:00	17:00	15:00	16:00		
Vol.	13	9	29	108	128	87	30	8	2	1	1	2	1	379		

McMahon Associates Inc.

Transportation Engineers & Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Cheltenham Township
Comments: None`
Weather: Variable
ATR#/Operator: JC

ashbourne01s
Site Code: 00000000000000000002
Station ID: 00000000000000000000
Ashbourne Road south of
Oak Lane
Date Start: 26-Mar-09

Westbound

Start Time	0 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	Total	85th Percent	95th Percent
04/01/09	0	0	0	3	11	3	4	0	2	0	0	0	0	23	43	51
01:00	0	0	0	5	6	6	1	0	0	0	0	0	0	18	38	40
02:00	0	0	1	3	2	8	2	2	0	0	0	0	0	18	44	46
03:00	0	0	0	1	4	6	3	1	0	0	0	0	0	15	42	43
04:00	0	0	1	3	11	30	9	2	0	0	0	0	0	56	42	44
05:00	3	0	9	26	47	61	21	4	2	0	0	0	0	173	41	45
06:00	11	2	30	79	124	74	20	4	0	1	1	0	0	346	39	43
07:00	14	14	40	87	119	47	12	1	1	0	0	0	0	335	37	40
08:00	1	1	26	67	81	39	13	3	0	1	1	0	0	233	38	42
09:00	0	0	12	42	61	36	11	0	0	0	0	0	0	162	39	41
10:00	5	1	4	21	58	46	23	5	1	0	1	0	0	165	41	45
11:00	4	0	5	35	56	55	27	7	1	0	0	0	0	190	41	45
12 PM	2	1	2	37	66	66	16	2	0	0	0	0	0	192	40	43
13:00	0	1	13	30	97	52	21	1	1	0	0	0	0	216	40	43
14:00	5	5	21	78	86	47	10	1	0	0	0	1	0	254	38	40
15:00	13	12	36	96	117	73	24	0	1	0	2	0	0	374	38	42
16:00	11	7	27	76	125	60	15	1	0	2	0	1	1	326	38	42
17:00	10	2	15	80	114	57	14	3	1	0	1	1	0	298	38	42
18:00	2	3	10	37	74	47	17	2	0	0	0	0	0	192	39	43
19:00	1	0	10	39	63	22	12	4	0	0	0	0	0	151	39	43
20:00	1	0	8	31	53	34	8	2	2	1	2	0	0	142	39	45
21:00	0	0	5	18	30	31	8	1	0	1	1	0	0	95	40	43
22:00	0	0	3	15	40	20	9	3	0	0	0	0	0	90	40	44
23:00	0	1	1	7	17	10	1	1	0	0	0	0	0	38	38	40
Total	83	50	279	916	1462	930	301	50	12	6	9	3	1	4102		
Percent	2.0%	1.2%	6.8%	22.3%	35.6%	22.7%	7.3%	1.2%	0.3%	0.1%	0.2%	0.1%	0.0%			
AM Peak	07:00	07:00	07:00	07:00	06:00	06:00	11:00	11:00	00:00	06:00	06:00			06:00		
Vol.	14	14	40	87	124	74	27	7	2	1	1			346		
PM Peak	15:00	15:00	15:00	15:00	16:00	15:00	15:00	19:00	20:00	16:00	15:00	14:00	16:00	15:00		
Vol.	13	12	36	96	125	73	24	4	2	2	2	1	1	374		

McMahon Associates Inc.

Transportation Engineers & Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Cheltenham Township
Comments: None`
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ashbourne01s
Site Code: 00000000000000000002
Station ID: 00000000000000000000
Ashbourne Road south of
Oak Lane
Date Start: 26-Mar-09

Westbound

Start Time	0 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	Total	85th Percent	95th Percent
04/02/09	0	0	1	1	10	12	4	0	1	0	0	0	0	29	41	44
01:00	0	0	0	2	5	5	3	0	0	0	0	0	0	15	41	42
02:00	0	0	1	0	4	1	1	0	0	0	0	0	0	7	40	41
03:00	0	0	0	1	3	7	3	0	0	0	0	0	0	14	41	42
04:00	0	0	1	5	16	15	9	3	1	0	0	0	0	50	43	46
05:00	3	1	3	20	42	65	14	2	1	1	0	0	0	152	40	44
06:00	11	8	43	75	128	71	28	4	0	0	0	0	0	368	39	43
07:00	11	11	64	120	110	29	5	4	0	1	2	0	0	357	35	39
08:00	3	4	10	59	88	62	12	2	0	0	0	1	1	242	39	42
09:00	1	2	6	38	64	39	17	1	0	0	1	0	0	169	40	43
10:00	3	0	1	18	52	52	18	9	1	0	0	0	0	154	42	46
11:00	2	1	2	19	68	65	19	1	0	0	1	0	0	178	40	43
12 PM	2	2	5	26	71	56	17	4	2	0	0	0	0	185	40	44
13:00	2	1	8	42	74	65	20	5	0	0	0	0	0	217	40	44
14:00	7	4	25	83	87	69	15	2	1	0	0	1	0	294	39	42
15:00	7	6	28	101	128	91	18	2	0	1	0	0	0	382	38	41
16:00	12	4	42	74	131	82	10	2	2	0	0	1	1	361	38	40
17:00	13	2	16	69	123	74	15	2	0	1	0	0	0	315	38	41
18:00	3	3	5	45	82	70	18	2	1	0	0	0	0	229	40	43
19:00	3	3	13	34	68	40	16	4	0	1	0	0	0	182	40	44
20:00	2	0	6	32	65	37	11	3	1	0	0	1	0	158	39	44
21:00	1	0	5	24	35	52	14	5	2	0	0	0	0	138	40	45
22:00	1	0	3	14	29	26	13	2	0	0	0	0	0	88	41	44
23:00	0	0	0	7	18	20	6	0	0	0	0	0	0	51	40	42
Total	87	52	288	909	1501	1105	306	59	13	5	4	4	2	4335		
Percent	2.0%	1.2%	6.6%	21.0%	34.6%	25.5%	7.1%	1.4%	0.3%	0.1%	0.1%	0.1%	0.0%			
AM Peak	06:00	07:00	07:00	07:00	06:00	06:00	06:00	10:00	00:00	05:00	07:00	08:00	08:00	06:00		
Vol.	11	11	64	120	128	71	28	9	1	1	2	1	1	368		
PM Peak	17:00	15:00	16:00	15:00	16:00	15:00	13:00	13:00	12:00	15:00		14:00	16:00	15:00		
Vol.	13	6	42	101	131	91	20	5	2	1		1	1	382		

McMahon Associates Inc.

Transportation Engineers & Planners
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Fort Washington, PA 19034

Municipality: Cheltenham Township
Comments: None`
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ashbourne01s
Site Code: 00000000000000000002
Station ID: 00000000000000000000
Ashbourne Road south of
Oak Lane
Date Start: 26-Mar-09

Westbound

Start Time	0 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	Total	85th Percent	95th Percent
04/03/09	0	0	1	3	7	5	4	0	0	0	0	0	0	20	41	43
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	0	0	1	3	7	5	4	0	0	0	0	0	0	20		
Percent	0.0%	0.0%	5.0%	15.0%	35.0%	25.0%	20.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak			00:00	00:00	00:00	00:00	00:00							00:00		
Vol.			1	3	7	5	4							20		
PM Peak Vol.																
Grand Total	561	295	1635	6039	10842	8055	2492	454	96	41	43	39	12	30604		
Percent	1.8%	1.0%	5.3%	19.7%	35.4%	26.3%	8.1%	1.5%	0.3%	0.1%	0.1%	0.1%	0.0%			

	15th Percentile :	27 MPH
	50th Percentile :	34 MPH
	85th Percentile :	40 MPH
	95th Percentile :	44 MPH
Stats	10 MPH Pace Speed :	31-40 MPH
	Number in Pace :	18897
	Percent in Pace :	61.7%
	Number of Vehicles > 55 MPH :	135
	Percent of Vehicles > 55 MPH :	0.4%
	Mean Speed(Average) :	33 MPH

McMahon Associates Inc.

Transportation Engineers & Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Cheltenham Township
Comments: None
Weather: Variable
ATR#/Operator: JC

ashbourne01c
Site Code: 00000000000000000002
Station ID: 00000000000000000000
Ashbourne Road south of
Oak Lane
Date Start: 26-Mar-09

Eastbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
03/26/09	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	0	118	23	4	4	**3**	0	**5**	**1**	**1**	0	0	0	159
11:00	**1**	**122**	**33**	**5**	**5**	1	0	3	0	0	0	0	0	**170**
12 PM	1	144	30	7	**7**	1	0	0	0	0	0	0	1	191
13:00	1	109	35	7	2	2	0	3	0	1	0	**1**	1	162
14:00	**11**	167	46	6	3	**8**	0	**10**	**1**	1	0	0	2	255
15:00	3	194	42	8	3	8	1	7	0	**4**	0	1	**4**	275
16:00	7	**242**	**49**	5	3	6	1	9	1	4	0	0	4	**331**
17:00	9	218	38	**9**	3	6	**2**	8	1	3	0	0	3	300
18:00	3	162	25	2	0	4	1	4	0	0	**1**	0	1	203
19:00	1	140	20	3	1	3	0	1	0	0	0	0	2	171
20:00	1	118	23	2	0	0	0	2	0	0	0	0	0	146
21:00	1	98	13	4	0	0	1	0	0	0	0	0	0	117
22:00	2	62	3	2	0	0	0	0	0	0	0	0	0	69
23:00	0	46	5	1	0	1	0	0	0	0	0	0	0	53
Day Total	41	1940	385	65	31	43	6	52	4	14	1	2	18	2602
Percent	1.6%	74.6%	14.8%	2.5%	1.2%	1.7%	0.2%	2.0%	0.2%	0.5%	0.0%	0.1%	0.7%	
AM Peak	11:00	11:00	11:00	11:00	11:00	10:00		10:00	10:00	10:00				11:00
Vol.	1	122	33	5	5	3		5	1	1				170
PM Peak	14:00	16:00	16:00	17:00	12:00	14:00	17:00	14:00	14:00	15:00	18:00	13:00	15:00	16:00
Vol.	11	242	49	9	7	8	2	10	1	4	1	1	4	331

McMahon Associates Inc.

Transportation Engineers & Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Cheltenham Township
Comments: None
Weather: Variable
ATR#/Operator: JC

ashbourne01c
Site Code: 00000000000000000002
Station ID: 00000000000000000000
Ashbourne Road south of Oak Lane
Date Start: 26-Mar-09

Eastbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
03/27/09	0	17	3	0	0	1	0	0	0	0	0	0	0	21
01:00	0	11	0	0	0	0	0	0	0	0	0	0	0	11
02:00	0	8	0	0	0	0	0	0	0	0	0	0	0	8
03:00	0	9	3	0	0	0	0	0	0	0	0	0	0	12
04:00	0	34	3	1	1	0	0	1	0	0	0	0	0	40
05:00	0	116	22	3	1	0	0	5	0	0	0	0	1	148
06:00	4	178	31	**13**	6	4	**2**	**11**	**1**	**4**	0	0	0	254
07:00	**11**	**190**	**48**	13	5	**5**	2	8	1	0	0	**3**	**4**	**290**
08:00	1	158	25	6	**8**	2	0	3	0	0	0	0	1	204
09:00	0	110	33	4	6	0	0	2	0	0	0	0	2	157
10:00	2	139	26	3	4	1	0	2	0	0	0	0	0	177
11:00	3	153	31	6	7	1	0	3	0	0	0	0	0	204
12 PM	3	158	35	7	**5**	2	0	6	0	0	0	**1**	0	217
13:00	1	175	24	8	3	**5**	0	4	0	1	0	0	1	222
14:00	2	183	**55**	**9**	5	1	0	**15**	**2**	**3**	0	1	2	278
15:00	4	230	40	9	4	3	0	6	0	2	0	0	**10**	308
16:00	5	**290**	44	7	5	5	**1**	7	1	3	0	1	3	**372**
17:00	**8**	224	39	6	3	1	1	10	0	1	0	0	3	296
18:00	4	209	29	6	3	2	0	9	0	3	0	0	2	267
19:00	1	161	31	3	1	1	0	5	0	0	0	0	1	204
20:00	3	119	16	4	0	4	1	3	0	0	0	1	0	151
21:00	4	125	22	1	0	1	0	1	0	0	0	1	0	155
22:00	1	100	17	3	0	0	1	0	0	0	0	0	0	122
23:00	1	70	6	1	3	1	0	0	0	0	0	0	0	82
Day Total	58	3167	583	113	70	40	8	101	5	17	0	8	30	4200
Percent	1.4%	75.4%	13.9%	2.7%	1.7%	1.0%	0.2%	2.4%	0.1%	0.4%	0.0%	0.2%	0.7%	
AM Peak	07:00	07:00	07:00	06:00	08:00	07:00	06:00	06:00	06:00	06:00		07:00	07:00	07:00
Vol.	11	190	48	13	8	5	2	11	1	4		3	4	290
PM Peak	17:00	16:00	14:00	14:00	12:00	13:00	16:00	14:00	14:00	14:00		12:00	15:00	16:00
Vol.	8	290	55	9	5	5	1	15	2	3		1	10	372

McMahon Associates Inc.

Transportation Engineers & Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Cheltenham Township
Comments: None
Weather: Variable
ATR#/Operator: JC

ashbourne01c
Site Code: 00000000000000000002
Station ID: 00000000000000000000
Ashbourne Road south of
Oak Lane
Date Start: 26-Mar-09

Eastbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
03/28/09	0	28	5	2	0	1	0	0	0	0	0	0	0	36
01:00	0	22	2	1	1	1	0	0	0	0	0	0	0	27
02:00	0	16	2	0	1	0	0	0	0	0	0	0	0	19
03:00	0	16	1	0	1	0	0	0	0	0	0	0	0	18
04:00	0	20	4	0	0	0	0	0	0	0	0	0	0	24
05:00	0	44	10	0	1	0	0	0	0	0	0	0	0	55
06:00	0	54	8	2	1	0	0	2	0	0	0	**1**	0	68
07:00	0	87	16	2	3	**4**	0	4	0	0	0	0	0	116
08:00	0	122	23	1	**4**	1	0	4	0	**1**	0	0	0	156
09:00	1	131	16	2	2	1	**1**	2	0	1	0	0	0	157
10:00	0	145	**28**	1	2	1	0	**5**	0	1	0	0	2	185
11:00	**2**	**181**	25	**4**	1	1	0	2	0	0	0	1	**3**	**220**
12 PM	1	174	**31**	2	2	**5**	0	1	**1**	**1**	0	0	1	219
13:00	1	172	31	**6**	1	1	0	2	0	0	0	0	1	215
14:00	0	**187**	28	5	**4**	2	0	4	0	1	0	0	1	**232**
15:00	1	160	28	5	1	0	**1**	3	0	1	**1**	0	**2**	203
16:00	2	173	20	1	2	1	0	**6**	0	0	1	0	0	206
17:00	2	173	20	5	3	2	0	5	1	0	0	0	1	212
18:00	**3**	175	22	3	1	0	0	2	0	0	0	0	0	206
19:00	0	139	20	3	1	0	0	3	0	0	0	0	0	166
20:00	0	126	14	3	0	0	0	1	0	0	0	0	0	144
21:00	1	117	14	3	2	0	0	1	0	0	0	0	0	138
22:00	0	84	10	4	1	1	0	2	0	0	0	0	0	102
23:00	0	75	16	2	1	0	0	2	0	0	0	0	0	96
Day Total	14	2621	394	57	36	22	2	51	2	6	2	2	11	3220
Percent	0.4%	81.4%	12.2%	1.8%	1.1%	0.7%	0.1%	1.6%	0.1%	0.2%	0.1%	0.1%	0.3%	
AM Peak	11:00	11:00	10:00	11:00	08:00	07:00	09:00	10:00		08:00		06:00	11:00	11:00
Vol.	2	181	28	4	4	4	1	5		1		1	3	220
PM Peak	18:00	14:00	12:00	13:00	14:00	12:00	15:00	16:00	12:00	12:00	15:00		15:00	14:00
Vol.	3	187	31	6	4	5	1	6	1	1	1		2	232

McMahon Associates Inc.

Transportation Engineers & Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Cheltenham Township
Comments: None
Weather: Variable
ATR#/Operator: JC

ashbourne01c
Site Code: 00000000000000000002
Station ID: 00000000000000000000
Ashbourne Road south of
Oak Lane
Date Start: 26-Mar-09

Eastbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
03/29/09	0	34	3	1	0	0	0	0	0	0	0	0	0	38
01:00	0	23	4	2	1	0	0	0	0	0	0	0	0	30
02:00	0	22	0	0	0	0	0	0	0	0	0	0	0	22
03:00	0	9	3	0	0	0	0	0	0	0	0	0	0	12
04:00	0	14	2	0	0	0	0	0	0	0	0	0	0	16
05:00	0	35	3	1	0	0	0	0	0	0	0	0	0	39
06:00	1	29	3	2	**2**	0	0	0	0	0	0	0	0	37
07:00	0	48	3	2	0	0	0	1	0	0	0	0	0	54
08:00	0	95	11	2	0	0	0	2	0	**2**	0	0	0	112
09:00	0	148	**30**	3	0	0	**1**	3	0	0	0	**1**	**1**	187
10:00	1	120	19	1	1	**1**	0	**5**	0	2	0	0	0	150
11:00	**2**	**157**	21	**5**	0	1	0	1	**1**	0	0	0	0	**188**
12 PM	1	178	16	**4**	2	2	0	**4**	0	**1**	0	**1**	**1**	210
13:00	**5**	**184**	20	3	1	2	0	1	0	1	0	1	1	**219**
14:00	1	162	**31**	4	2	1	0	2	0	0	**1**	0	0	204
15:00	2	141	22	4	1	0	**1**	1	0	0	0	1	0	173
16:00	3	180	20	3	**3**	**3**	0	4	0	1	0	0	1	218
17:00	1	146	21	2	1	0	1	4	0	1	0	1	0	178
18:00	1	136	22	2	0	2	0	3	0	0	0	0	1	167
19:00	3	152	18	3	0	1	0	1	0	0	0	0	0	178
20:00	1	100	12	3	1	0	0	0	0	0	0	0	0	117
21:00	1	86	8	3	1	0	0	1	0	0	0	0	0	100
22:00	0	57	4	1	1	0	1	0	0	0	0	0	1	65
23:00	1	35	6	1	0	0	0	0	0	0	0	0	0	43
Day Total	24	2291	302	52	17	13	4	33	1	8	1	5	6	2757
Percent	0.9%	83.1%	11.0%	1.9%	0.6%	0.5%	0.1%	1.2%	0.0%	0.3%	0.0%	0.2%	0.2%	
AM Peak	11:00	11:00	09:00	11:00	06:00	10:00	09:00	10:00	11:00	08:00		09:00	09:00	11:00
Vol.	2	157	30	5	2	1	1	5	1	2		1	1	188
PM Peak	13:00	13:00	14:00	12:00	16:00	16:00	15:00	12:00		12:00	14:00	12:00	12:00	13:00
Vol.	5	184	31	4	3	3	1	4		1	1	1	1	219

McMahon Associates Inc.

Transportation Engineers & Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Cheltenham Township
Comments: None
Weather: Variable
ATR#/Operator: JC

ashbourne01c
Site Code: 00000000000000000002
Station ID: 00000000000000000000
Ashbourne Road south of
Oak Lane
Date Start: 26-Mar-09

Eastbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
03/30/09	0	15	4	1	0	0	0	0	0	0	0	0	0	20
01:00	0	7	0	2	1	0	0	0	0	0	0	0	0	10
02:00	0	5	0	0	0	0	0	0	0	0	0	0	0	5
03:00	0	15	2	0	0	0	0	0	0	0	0	0	0	17
04:00	0	34	6	1	1	0	0	0	0	0	0	0	0	42
05:00	0	131	16	7	0	0	0	4	0	0	0	0	0	158
06:00	2	177	25	**19**	5	2	**2**	6	0	0	0	0	2	240
07:00	**4**	**228**	**40**	13	5	2	1	**12**	**2**	**1**	0	**2**	**3**	**313**
08:00	3	130	30	7	**6**	3	1	6	0	1	0	1	3	191
09:00	2	127	32	5	3	3	0	1	0	0	0	0	0	173
10:00	2	125	18	3	3	**5**	0	7	0	0	0	0	0	163
11:00	2	117	21	3	5	2	2	2	0	0	0	0	0	154
12 PM	2	118	25	5	3	**4**	0	3	0	0	0	0	0	160
13:00	3	160	33	9	3	2	**3**	4	0	**2**	0	0	1	220
14:00	4	180	37	**11**	3	3	2	**13**	0	0	0	1	**8**	262
15:00	1	183	40	6	**5**	1	0	10	0	2	0	1	4	253
16:00	**7**	**269**	**49**	4	3	3	1	10	0	1	0	**2**	2	**351**
17:00	6	223	34	3	3	1	1	8	**1**	2	0	0	2	284
18:00	3	166	25	4	3	3	0	5	1	0	0	0	0	210
19:00	2	124	15	3	0	0	0	0	0	0	0	0	1	145
20:00	1	105	18	3	1	0	0	0	0	0	0	0	1	129
21:00	0	98	12	2	0	0	0	0	0	0	0	0	1	113
22:00	0	69	5	3	0	0	0	0	0	0	0	0	0	77
23:00	0	26	5	2	1	0	0	1	0	0	0	0	0	35
Day Total	44	2832	492	116	54	34	13	92	4	9	0	7	28	3725
Percent	1.2%	76.0%	13.2%	3.1%	1.4%	0.9%	0.3%	2.5%	0.1%	0.2%	0.0%	0.2%	0.8%	
AM Peak	07:00	07:00	07:00	06:00	08:00	10:00	06:00	07:00	07:00	07:00		07:00	07:00	07:00
Vol.	4	228	40	19	6	5	2	12	2	1		2	3	313
PM Peak	16:00	16:00	16:00	14:00	15:00	12:00	13:00	14:00	17:00	13:00		16:00	14:00	16:00
Vol.	7	269	49	11	5	4	3	13	1	2		2	8	351

McMahon Associates Inc.

Transportation Engineers & Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Cheltenham Township
Comments: None
Weather: Variable
ATR#/Operator: JC

ashbourne01c
Site Code: 00000000000000000002
Station ID: 00000000000000000000
Ashbourne Road south of
Oak Lane
Date Start: 26-Mar-09

Eastbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
03/31/09	1	9	2	2	0	0	0	0	0	0	0	0	0	14
01:00	0	16	2	1	0	0	0	0	0	0	0	0	0	19
02:00	0	5	2	0	0	0	0	0	0	0	0	0	0	7
03:00	0	15	4	0	0	0	0	0	0	0	0	0	0	19
04:00	0	44	8	1	0	0	0	0	0	0	0	0	0	53
05:00	1	127	19	5	0	1	0	2	0	1	0	0	1	157
06:00	**5**	198	38	**14**	5	**5**	0	5	**1**	**3**	0	0	**6**	280
07:00	4	**221**	**42**	7	4	4	0	**10**	1	1	0	**1**	6	**301**
08:00	1	140	28	5	5	4	0	4	1	0	**1**	1	0	190
09:00	2	126	20	4	1	2	0	3	0	1	0	1	0	160
10:00	0	118	33	3	3	0	0	2	0	0	0	1	0	160
11:00	0	132	38	5	**8**	1	**1**	1	0	0	0	0	1	187
12 PM	1	127	28	4	3	4	0	1	0	0	0	0	0	168
13:00	1	133	27	6	2	5	0	4	1	1	0	0	1	181
14:00	**7**	197	35	7	**5**	3	**1**	8	1	0	0	1	**7**	272
15:00	3	173	**45**	**10**	4	3	1	**17**	1	**2**	0	**2**	4	265
16:00	4	**266**	42	9	5	**8**	0	12	1	1	0	1	4	**353**
17:00	5	231	42	9	5	2	0	9	**2**	0	0	2	2	309
18:00	3	170	32	3	1	1	0	2	0	0	0	2	1	215
19:00	1	145	22	3	1	0	0	1	0	0	0	1	0	174
20:00	2	121	19	5	0	2	0	2	0	1	0	0	0	152
21:00	1	99	12	3	1	0	0	1	0	0	0	0	1	118
22:00	1	70	6	2	0	0	0	0	0	1	0	0	1	81
23:00	0	36	5	2	0	0	0	0	0	0	0	0	0	43
Day Total	43	2919	551	110	53	45	3	84	9	12	1	13	35	3878
Percent	1.1%	75.3%	14.2%	2.8%	1.4%	1.2%	0.1%	2.2%	0.2%	0.3%	0.0%	0.3%	0.9%	
AM Peak	06:00	07:00	07:00	06:00	11:00	06:00	11:00	07:00	06:00	06:00	08:00	07:00	06:00	07:00
Vol.	5	221	42	14	8	5	1	10	1	3	1	1	6	301
PM Peak	14:00	16:00	15:00	15:00	14:00	16:00	14:00	15:00	17:00	15:00		15:00	14:00	16:00
Vol.	7	266	45	10	5	8	1	17	2	2		2	7	353

McMahon Associates Inc.

Transportation Engineers & Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Cheltenham Township
Comments: None
Weather: Variable
ATR#/Operator: JC

ashbourne01c
Site Code: 00000000000000000002
Station ID: 00000000000000000000
Ashbourne Road south of
Oak Lane
Date Start: 26-Mar-09

Eastbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
04/01/09	0	19	4	2	0	2	0	0	0	0	0	0	0	27
01:00	0	17	1	1	0	0	0	0	0	0	0	0	0	19
02:00	0	9	2	0	0	0	0	0	0	0	0	0	0	11
03:00	1	8	3	0	0	0	0	0	0	0	0	0	0	12
04:00	0	36	8	1	1	0	0	0	0	0	0	0	0	46
05:00	1	132	18	5	1	0	0	1	0	0	0	0	0	158
06:00	4	**202**	33	**15**	**7**	1	0	**8**	0	**3**	0	1	3	**277**
07:00	**6**	196	**35**	9	6	**3**	0	6	**1**	3	0	**2**	**5**	272
08:00	3	124	32	6	6	3	0	7	0	1	0	0	0	182
09:00	2	117	24	8	5	1	0	4	1	0	0	0	0	162
10:00	3	105	26	2	5	2	**1**	1	0	0	0	1	0	146
11:00	2	128	19	3	3	1	0	0	0	0	0	0	0	156
12 PM	1	147	38	5	5	2	0	2	**2**	0	**1**	0	0	203
13:00	1	146	21	7	3	4	0	5	0	0	0	0	2	189
14:00	5	192	**53**	**12**	7	8	**4**	8	0	**4**	0	0	**3**	296
15:00	**6**	211	44	8	5	4	1	7	0	2	0	0	3	291
16:00	5	**238**	36	9	3	**9**	2	**9**	1	4	0	**1**	3	**320**
17:00	1	213	31	7	3	5	0	8	0	2	0	0	2	272
18:00	1	152	33	4	2	1	0	5	0	0	0	1	2	201
19:00	0	142	24	2	1	1	0	2	1	0	0	0	0	173
20:00	0	140	20	3	0	1	1	0	0	0	0	0	0	165
21:00	0	111	11	4	0	2	1	3	0	2	0	0	0	134
22:00	1	64	10	2	0	0	0	1	0	0	0	0	0	78
23:00	1	31	2	2	0	0	0	0	0	0	0	0	0	36
Day Total	44	2880	528	117	63	50	10	77	6	21	1	6	23	3826
Percent	1.2%	75.3%	13.8%	3.1%	1.6%	1.3%	0.3%	2.0%	0.2%	0.5%	0.0%	0.2%	0.6%	
AM Peak	07:00	06:00	07:00	06:00	06:00	07:00	10:00	06:00	07:00	06:00		07:00	07:00	06:00
Vol.	6	202	35	15	7	3	1	8	1	3		2	5	277
PM Peak	15:00	16:00	14:00	14:00	14:00	16:00	14:00	16:00	12:00	14:00	12:00	16:00	14:00	16:00
Vol.	6	238	53	12	7	9	4	9	2	4	1	1	3	320

McMahon Associates Inc.

Transportation Engineers & Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Cheltenham Township
Comments: None
Weather: Variable
ATR#/Operator: JC

ashbourne01c
Site Code: 00000000000000000002
Station ID: 00000000000000000000
Ashbourne Road south of
Oak Lane
Date Start: 26-Mar-09

Eastbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
04/02/09	0	13	0	2	0	0	0	0	0	0	0	0	0	15
01:00	1	7	1	1	0	0	0	0	0	0	0	0	0	10
02:00	0	10	1	0	1	1	0	0	0	0	0	0	0	13
03:00	0	14	2	0	0	0	0	0	0	0	0	0	0	16
04:00	1	43	9	2	2	0	0	0	0	0	0	0	0	57
05:00	1	125	14	4	1	1	0	2	0	0	0	0	1	149
06:00	**5**	185	31	**14**	5	3	0	**7**	0	**2**	0	1	**5**	258
07:00	4	**218**	**38**	13	4	**6**	**2**	4	0	2	0	**2**	4	**297**
08:00	2	174	38	6	**6**	3	0	6	0	1	0	1	0	237
09:00	2	102	31	5	1	4	0	5	0	0	0	0	0	150
10:00	2	127	27	3	5	2	0	1	0	0	0	0	1	168
11:00	0	146	27	5	3	1	0	4	0	0	0	0	0	186
12 PM	2	158	33	5	**9**	2	0	8	**2**	0	0	**1**	0	220
13:00	3	139	27	6	4	**4**	1	4	1	2	0	1	1	193
14:00	2	203	43	10	5	4	**3**	**16**	0	0	0	0	3	289
15:00	2	215	37	**11**	2	2	0	15	0	**4**	0	1	6	295
16:00	**5**	**280**	**49**	3	5	1	0	13	0	0	0	1	**9**	**366**
17:00	3	230	35	8	3	2	0	5	0	3	0	1	0	290
18:00	2	170	22	3	3	0	0	5	0	2	0	1	0	208
19:00	1	151	27	1	1	1	0	2	0	0	0	0	1	185
20:00	2	123	14	3	0	1	0	2	0	0	0	0	0	145
21:00	1	106	13	3	0	0	0	3	0	0	0	0	0	126
22:00	1	79	9	3	0	0	0	0	0	0	0	0	0	92
23:00	0	31	9	2	0	0	0	0	0	0	0	0	0	42
Day Total	42	3049	537	113	60	38	6	102	3	16	0	10	31	4007
Percent	1.0%	76.1%	13.4%	2.8%	1.5%	0.9%	0.1%	2.5%	0.1%	0.4%	0.0%	0.2%	0.8%	
AM Peak	06:00	07:00	07:00	06:00	08:00	07:00	07:00	06:00		06:00		07:00	06:00	07:00
Vol.	5	218	38	14	6	6	2	7		2		2	5	297
PM Peak	16:00	16:00	16:00	15:00	12:00	13:00	14:00	14:00	12:00	15:00		12:00	16:00	16:00
Vol.	5	280	49	11	9	4	3	16	2	4		1	9	366

McMahon Associates Inc.

Transportation Engineers & Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Cheltenham Township
Comments: None
Weather: Variable
ATR#/Operator: JC

ashbourne01c
Site Code: 00000000000000000002
Station ID: 00000000000000000000
Ashbourne Road south of
Oak Lane
Date Start: 26-Mar-09

Eastbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
04/03/09	0	**25**	**3**	**2**	0	0	0	0	0	0	0	0	0	**30**
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Day Total	0	25	3	2	0	0	0	0	0	0	0	0	0	30
Percent	0.0%	83.3%	10.0%	6.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak		00:00	00:00	00:00										00:00
Vol.		25	3	2										30
PM Peak														
Vol.														
Grand Total	310	21724	3775	745	384	285	52	592	34	103	6	53	182	28245
Percent	1.1%	76.9%	13.4%	2.6%	1.4%	1.0%	0.2%	2.1%	0.1%	0.4%	0.0%	0.2%	0.6%	

McMahon Associates Inc.

Transportation Engineers & Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Cheltenham Township
Comments: None
Weather: Variable
ATR#/Operator: JC

ashbourne01c
Site Code: 00000000000000000002
Station ID: 00000000000000000000
Ashbourne Road south of
Oak Lane
Date Start: 26-Mar-09

Westbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
03/26/09	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	0	**119**	32	3	**5**	0	**1**	1	**1**	0	0	0	0	162
11:00	0	117	**41**	**7**	4	0	0	**4**	0	0	0	0	0	**173**
12 PM	0	143	40	7	**9**	1	0	7	**1**	0	0	0	0	208
13:00	0	170	46	10	7	1	0	4	0	0	0	0	2	240
14:00	0	209	**53**	**16**	6	0	0	8	0	2	0	**1**	4	299
15:00	**2**	**241**	52	11	5	0	0	11	1	1	0	1	2	**327**
16:00	2	233	44	11	3	**2**	**1**	**15**	0	**5**	0	1	**8**	325
17:00	1	233	36	3	2	0	0	7	0	0	0	1	1	284
18:00	1	178	37	5	3	1	0	7	0	2	0	1	0	235
19:00	0	128	18	4	2	0	0	2	0	0	0	0	1	155
20:00	0	101	17	3	1	0	0	1	0	1	0	0	0	124
21:00	0	99	21	4	1	0	0	2	0	0	0	0	1	128
22:00	0	59	17	3	1	0	0	1	0	0	0	0	0	81
23:00	0	30	7	2	0	0	0	0	0	0	0	0	0	39
Day Total	6	2060	461	89	49	5	2	70	3	11	0	5	19	2780
Percent	0.2%	74.1%	16.6%	3.2%	1.8%	0.2%	0.1%	2.5%	0.1%	0.4%	0.0%	0.2%	0.7%	
AM Peak		10:00	11:00	11:00	10:00		10:00	11:00	10:00					11:00
Vol.		119	41	7	5		1	4	1					173
PM Peak	15:00	15:00	14:00	14:00	12:00	16:00	16:00	16:00	12:00	16:00		14:00	16:00	15:00
Vol.	2	241	53	16	9	2	1	15	1	5		1	8	327

McMahon Associates Inc.

Transportation Engineers & Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Cheltenham Township
Comments: None
Weather: Variable
ATR#/Operator: JC

ashbourne01c
Site Code: 00000000000000000002
Station ID: 00000000000000000000
Ashbourne Road south of
Oak Lane
Date Start: 26-Mar-09

Westbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
03/27/09	0	23	3	1	0	0	0	0	0	0	0	0	0	27
01:00	0	13	2	1	0	0	0	0	0	0	0	0	0	16
02:00	0	5	4	0	2	0	0	0	0	0	0	0	0	11
03:00	0	13	3	0	0	0	0	0	0	0	0	0	0	16
04:00	0	40	12	1	0	0	0	1	0	0	0	0	0	54
05:00	0	96	35	6	3	0	0	7	**1**	0	0	**1**	0	149
06:00	**3**	**275**	**56**	**13**	**14**	0	1	13	0	1	0	0	4	**380**
07:00	3	232	47	13	12	0	**2**	**15**	1	1	0	0	**6**	332
08:00	3	163	44	11	6	0	1	9	0	**2**	0	0	0	239
09:00	0	127	28	4	4	0	0	8	0	0	0	0	0	171
10:00	0	130	35	3	3	0	0	4	0	0	0	0	0	175
11:00	1	132	34	9	3	0	0	2	0	1	0	1	0	183
12 PM	1	165	32	5	5	**1**	0	8	0	0	0	0	0	217
13:00	1	178	38	**17**	**8**	0	1	8	**1**	0	0	0	2	254
14:00	3	242	37	11	3	0	2	8	0	2	0	**2**	**5**	315
15:00	**5**	219	**64**	7	5	1	1	7	0	1	0	0	3	313
16:00	3	**275**	49	11	4	0	0	17	0	**3**	0	1	3	**366**
17:00	0	237	35	11	2	0	0	**21**	0	2	**1**	1	2	312
18:00	1	176	40	3	2	0	**3**	7	0	0	0	1	0	233
19:00	1	157	32	3	2	0	0	2	0	0	0	1	0	198
20:00	1	160	25	1	2	0	0	0	0	0	0	0	0	189
21:00	0	117	25	2	1	0	0	3	1	1	0	0	0	150
22:00	0	90	19	3	0	0	0	1	0	0	0	0	0	113
23:00	0	71	12	2	0	0	0	0	0	0	0	0	0	85
Day Total	26	3336	711	138	81	2	11	141	4	14	1	8	25	4498
Percent	0.6%	74.2%	15.8%	3.1%	1.8%	0.0%	0.2%	3.1%	0.1%	0.3%	0.0%	0.2%	0.6%	
AM Peak	06:00	06:00	06:00	06:00	06:00		07:00	07:00	05:00	08:00		05:00	07:00	06:00
Vol.	3	275	56	13	14		2	15	1	2		1	6	380
PM Peak	15:00	16:00	15:00	13:00	13:00	12:00	18:00	17:00	13:00	16:00	17:00	14:00	14:00	16:00
Vol.	5	275	64	17	8	1	3	21	1	3	1	2	5	366

McMahon Associates Inc.

Transportation Engineers & Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Cheltenham Township
Comments: None
Weather: Variable
ATR#/Operator: JC

ashbourne01c
Site Code: 00000000000000000002
Station ID: 00000000000000000000
Ashbourne Road south of
Oak Lane
Date Start: 26-Mar-09

Westbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
03/28/09	0	33	8	1	0	0	0	0	0	0	0	0	0	42
01:00	0	26	7	1	0	0	0	0	0	0	0	0	0	34
02:00	0	23	4	0	1	0	0	1	0	0	0	0	0	29
03:00	0	15	6	0	0	0	0	0	0	0	0	0	0	21
04:00	0	15	2	0	3	0	0	1	0	0	0	0	0	21
05:00	0	50	13	2	2	0	0	0	0	0	0	0	0	67
06:00	0	88	21	2	2	0	1	0	0	0	0	0	0	114
07:00	0	110	25	4	1	0	0	1	**1**	0	0	0	0	142
08:00	0	140	31	2	1	0	**2**	4	0	0	0	0	0	180
09:00	0	146	31	**5**	**6**	0	0	3	0	0	0	0	0	191
10:00	**2**	**168**	**36**	4	5	0	0	**13**	0	0	**1**	0	**1**	**230**
11:00	0	140	30	4	5	0	0	4	1	0	1	0	1	186
12 PM	0	176	28	4	4	0	**1**	4	0	0	0	0	0	217
13:00	0	173	**41**	3	**5**	**1**	1	7	0	0	0	**1**	**1**	233
14:00	**2**	**194**	26	3	4	0	0	8	0	0	0	0	1	238
15:00	0	181	33	3	4	0	1	**10**	0	**1**	0	1	1	235
16:00	0	193	38	5	2	0	0	5	0	0	0	0	0	**243**
17:00	1	145	27	**6**	0	1	1	5	0	1	0	0	0	187
18:00	1	149	19	4	2	0	1	8	0	0	0	0	0	184
19:00	0	140	14	3	2	0	0	3	0	0	0	0	0	162
20:00	0	135	20	4	2	0	0	6	**1**	0	0	0	0	168
21:00	0	117	20	4	1	0	0	5	0	0	0	1	1	149
22:00	0	106	20	2	0	0	0	3	0	0	0	0	0	131
23:00	0	70	11	3	0	0	0	1	0	0	0	0	0	85
Day Total	6	2733	511	69	52	2	8	92	3	2	2	3	6	3489
Percent	0.2%	78.3%	14.6%	2.0%	1.5%	0.1%	0.2%	2.6%	0.1%	0.1%	0.1%	0.1%	0.2%	
AM Peak	10:00	10:00	10:00	09:00	09:00		08:00	10:00	07:00		10:00		10:00	10:00
Vol.	2	168	36	5	6		2	13	1		1		1	230
PM Peak	14:00	14:00	13:00	17:00	13:00	13:00	12:00	15:00	20:00	15:00		13:00	13:00	16:00
Vol.	2	194	41	6	5	1	1	10	1	1		1	1	243

McMahon Associates Inc.

Transportation Engineers & Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Cheltenham Township
Comments: None
Weather: Variable
ATR#/Operator: JC

ashbourne01c
Site Code: 00000000000000000002
Station ID: 00000000000000000000
Ashbourne Road south of
Oak Lane
Date Start: 26-Mar-09

Westbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
03/29/09	0	37	10	1	1	0	0	0	0	0	0	0	0	49
01:00	0	28	2	1	0	0	0	0	0	0	0	0	0	31
02:00	0	27	2	0	0	0	0	1	0	0	0	0	0	30
03:00	0	8	3	0	0	0	0	0	0	0	0	0	0	11
04:00	0	8	3	0	0	0	0	0	0	0	0	0	0	11
05:00	0	17	7	1	0	0	0	1	0	0	0	0	0	26
06:00	**1**	69	14	2	1	0	0	1	0	0	0	0	0	88
07:00	0	99	21	2	1	0	0	0	0	0	0	0	0	123
08:00	0	124	19	3	1	0	0	1	**1**	0	0	0	0	149
09:00	0	**166**	34	2	1	0	0	4	0	0	0	0	**1**	**208**
10:00	0	121	23	3	**3**	0	0	**7**	0	0	0	0	1	158
11:00	0	146	**42**	**5**	0	0	0	4	0	**1**	0	0	0	198
12 PM	0	167	25	**5**	**3**	0	0	5	0	0	0	0	0	205
13:00	0	173	31	2	2	0	0	**9**	0	0	0	0	0	217
14:00	0	172	27	3	1	0	**2**	4	0	**2**	0	0	**2**	213
15:00	**3**	167	**43**	4	3	0	0	7	0	1	0	**1**	0	**229**
16:00	1	**174**	29	1	1	0	0	4	0	0	0	1	0	211
17:00	0	167	38	3	0	0	0	9	0	0	0	0	0	217
18:00	0	141	16	2	1	0	0	2	0	2	0	1	0	165
19:00	0	127	19	4	2	0	1	2	0	0	0	0	0	155
20:00	0	104	23	3	0	0	0	0	0	0	0	0	0	130
21:00	1	87	16	4	1	0	0	1	0	0	0	0	0	110
22:00	0	67	12	3	0	**1**	0	0	0	0	0	0	0	83
23:00	0	25	6	0	0	0	0	0	0	0	0	0	0	31
Day Total	6	2421	465	54	22	1	3	62	1	6	0	3	4	3048
Percent	0.2%	79.4%	15.3%	1.8%	0.7%	0.0%	0.1%	2.0%	0.0%	0.2%	0.0%	0.1%	0.1%	
AM Peak	06:00	09:00	11:00	11:00	10:00			10:00	08:00	11:00			09:00	09:00
Vol.	1	166	42	5	3			7	1	1			1	208
PM Peak	15:00	16:00	15:00	12:00	12:00	22:00	14:00	13:00		14:00		15:00	14:00	15:00
Vol.	3	174	43	5	3	1	2	9		2		1	2	229

McMahon Associates Inc.

Transportation Engineers & Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Cheltenham Township
Comments: None
Weather: Variable
ATR#/Operator: JC

ashbourne01c
Site Code: 00000000000000000002
Station ID: 00000000000000000000
Ashbourne Road south of
Oak Lane
Date Start: 26-Mar-09

Westbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
03/30/09	0	15	2	1	0	0	0	0	0	0	0	0	0	18
01:00	0	9	6	2	0	0	0	0	0	0	0	0	0	17
02:00	0	3	1	0	0	0	0	0	0	0	0	0	0	4
03:00	0	12	2	0	0	0	0	0	0	0	0	0	0	14
04:00	0	42	9	1	1	0	0	0	0	0	0	0	0	53
05:00	0	105	33	5	3	0	0	1	0	0	0	0	0	147
06:00	2	**280**	**52**	10	**11**	0	0	14	**1**	0	0	**1**	2	**373**
07:00	**4**	261	49	**15**	11	0	**1**	**16**	1	0	0	1	**5**	364
08:00	1	161	28	8	11	0	0	6	0	**1**	0	1	2	219
09:00	0	94	37	6	6	**1**	0	3	0	0	0	0	0	147
10:00	0	115	31	3	4	1	1	6	0	1	0	0	0	162
11:00	0	155	21	4	4	0	1	7	0	0	0	0	1	193
12 PM	0	129	24	5	6	0	0	4	0	1	0	0	1	170
13:00	0	169	37	9	**11**	0	**2**	6	0	2	0	0	1	237
14:00	0	187	41	11	3	**1**	0	10	0	0	0	0	3	256
15:00	1	241	**54**	**12**	8	0	2	11	**2**	**3**	0	1	**6**	341
16:00	1	**282**	48	6	3	0	0	**12**	0	0	0	1	5	**358**
17:00	**2**	229	40	4	2	0	2	12	0	1	**1**	1	1	295
18:00	1	177	35	3	2	0	0	7	0	1	0	0	1	227
19:00	0	136	19	4	2	0	0	3	0	0	0	0	0	164
20:00	0	108	17	2	0	0	0	2	0	0	0	0	0	129
21:00	0	86	17	4	0	0	0	4	0	0	0	**2**	0	113
22:00	0	64	11	3	0	0	0	1	0	0	0	0	0	79
23:00	0	26	6	2	0	0	0	0	0	0	0	0	0	34
Day Total	12	3086	620	120	88	3	9	125	4	10	1	8	28	4114
Percent	0.3%	75.0%	15.1%	2.9%	2.1%	0.1%	0.2%	3.0%	0.1%	0.2%	0.0%	0.2%	0.7%	
AM Peak	07:00	06:00	06:00	07:00	06:00	09:00	07:00	07:00	06:00	08:00		06:00	07:00	06:00
Vol.	4	280	52	15	11	1	1	16	1	1		1	5	373
PM Peak	17:00	16:00	15:00	15:00	13:00	14:00	13:00	16:00	15:00	15:00	17:00	21:00	15:00	16:00
Vol.	2	282	54	12	11	1	2	12	2	3	1	2	6	358

McMahon Associates Inc.

Transportation Engineers & Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Cheltenham Township
Comments: None
Weather: Variable
ATR#/Operator: JC

ashbourne01c
Site Code: 00000000000000000002
Station ID: 00000000000000000000
Ashbourne Road south of
Oak Lane
Date Start: 26-Mar-09

Westbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
03/31/09	0	14	5	1	0	0	0	0	0	0	0	0	0	20
01:00	0	6	1	1	0	0	0	0	0	0	0	0	0	8
02:00	0	3	2	0	1	0	0	0	0	0	0	0	0	6
03:00	0	14	8	0	0	0	0	0	0	0	0	0	0	22
04:00	0	46	10	1	1	0	0	0	0	0	0	0	0	58
05:00	0	97	37	4	7	0	**1**	3	0	0	0	0	0	149
06:00	1	**274**	**52**	**12**	9	0	1	14	**1**	**3**	0	1	2	**370**
07:00	**2**	245	42	12	**13**	0	0	**18**	1	1	0	0	**4**	338
08:00	1	168	39	7	11	0	1	8	0	2	0	0	0	237
09:00	0	106	31	5	1	1	0	1	1	1	0	0	0	147
10:00	0	131	37	3	3	0	0	3	0	1	0	0	0	178
11:00	0	125	33	5	3	**2**	0	7	0	0	0	0	0	175
12 PM	0	118	43	6	8	0	1	3	1	0	0	1	0	181
13:00	1	167	48	8	5	0	1	3	0	0	0	0	1	234
14:00	3	191	47	**15**	6	1	0	10	**2**	2	0	0	4	281
15:00	1	251	55	6	**9**	0	**2**	16	0	2	0	1	**5**	348
16:00	**4**	**265**	**58**	7	8	1	2	**23**	1	3	0	**2**	5	**379**
17:00	3	233	31	6	3	0	0	12	0	**5**	0	2	2	297
18:00	0	176	44	5	2	0	0	10	0	2	0	0	2	241
19:00	0	124	27	4	2	0	1	3	0	0	0	1	0	162
20:00	0	126	22	3	1	0	0	1	0	0	0	0	0	153
21:00	0	98	25	3	2	0	0	0	0	0	0	0	1	129
22:00	0	55	12	3	0	0	0	2	0	0	0	0	0	72
23:00	0	27	6	2	0	0	0	0	0	0	0	0	0	35
Day Total	16	3060	715	119	95	5	10	137	7	22	0	8	26	4220
Percent	0.4%	72.5%	16.9%	2.8%	2.3%	0.1%	0.2%	3.2%	0.2%	0.5%	0.0%	0.2%	0.6%	
AM Peak	07:00	06:00	06:00	06:00	07:00	11:00	05:00	07:00	06:00	06:00		06:00	07:00	06:00
Vol.	2	274	52	12	13	2	1	18	1	3		1	4	370
PM Peak	16:00	16:00	16:00	14:00	15:00	14:00	15:00	16:00	14:00	17:00		16:00	15:00	16:00
Vol.	4	265	58	15	9	1	2	23	2	5		2	5	379

McMahon Associates Inc.

Transportation Engineers & Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Cheltenham Township
Comments: None
Weather: Variable
ATR#/Operator: JC

ashbourne01c
Site Code: 00000000000000000002
Station ID: 00000000000000000000
Ashbourne Road south of Oak Lane
Date Start: 26-Mar-09

Westbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
04/01/09	0	16	5	1	1	0	0	0	0	0	0	0	0	23
01:00	0	14	3	1	0	0	0	0	0	0	0	0	0	18
02:00	0	13	5	0	0	0	0	0	0	0	0	0	0	18
03:00	0	11	4	0	0	0	0	0	0	0	0	0	0	15
04:00	0	44	9	1	2	0	0	0	0	0	0	0	0	56
05:00	1	117	45	4	4	0	0	2	0	0	0	0	1	174
06:00	**5**	**239**	**50**	**15**	9	1	**1**	**15**	**1**	**7**	0	0	3	**346**
07:00	1	239	45	10	**11**	**2**	1	13	1	2	0	0	**9**	334
08:00	0	163	44	9	6	0	0	7	0	3	0	1	1	234
09:00	0	109	37	6	8	0	0	2	0	0	0	0	0	162
10:00	0	122	31	3	5	0	0	4	0	1	0	0	1	167
11:00	1	135	40	5	10	0	0	1	0	0	0	0	0	192
12 PM	0	138	28	7	**13**	0	1	4	0	0	0	1	0	192
13:00	0	154	34	10	8	0	0	11	0	0	0	0	0	217
14:00	2	175	43	**17**	5	**1**	2	7	0	1	0	0	2	255
15:00	**3**	**274**	**59**	6	5	1	**3**	**16**	**1**	0	0	2	5	**375**
16:00	2	251	36	10	4	0	1	11	0	**2**	0	4	4	325
17:00	1	230	47	3	4	0	0	7	1	0	0	0	**6**	299
18:00	0	141	38	3	1	0	0	8	0	0	0	1	0	192
19:00	0	123	20	4	0	0	0	4	0	0	0	0	0	151
20:00	0	110	25	3	1	0	1	1	0	0	0	0	0	141
21:00	0	76	16	2	0	0	0	1	0	0	0	0	0	95
22:00	0	75	12	3	0	0	0	0	0	0	0	0	0	90
23:00	0	33	3	2	0	0	0	1	0	0	0	0	0	39
Day Total	16	3002	679	125	97	5	10	115	4	16	0	9	32	4110
Percent	0.4%	73.0%	16.5%	3.0%	2.4%	0.1%	0.2%	2.8%	0.1%	0.4%	0.0%	0.2%	0.8%	
AM Peak	06:00	06:00	06:00	06:00	07:00	07:00	06:00	06:00	06:00	06:00		08:00	07:00	06:00
Vol.	5	239	50	15	11	2	1	15	1	7		1	9	346
PM Peak	15:00	15:00	15:00	14:00	12:00	14:00	15:00	15:00	15:00	16:00		16:00	17:00	15:00
Vol.	3	274	59	17	13	1	3	16	1	2		4	6	375

McMahon Associates Inc.

Transportation Engineers & Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Cheltenham Township
Comments: None
Weather: Variable
ATR#/Operator: JC

ashbourne01c
Site Code: 00000000000000000002
Station ID: 00000000000000000000
Ashbourne Road south of
Oak Lane
Date Start: 26-Mar-09

Westbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
04/02/09	0	25	3	1	0	0	0	0	0	0	0	0	0	29
01:00	0	11	2	1	0	0	0	1	0	0	0	0	0	15
02:00	0	4	3	0	0	0	0	0	0	0	0	0	0	7
03:00	0	9	5	0	0	0	0	0	0	0	0	0	0	14
04:00	0	39	8	1	3	0	0	0	0	0	0	0	0	51
05:00	0	105	34	5	3	0	0	5	0	0	0	0	0	152
06:00	**3**	**260**	55	**12**	**14**	0	2	**9**	**2**	1	0	**1**	**9**	**368**
07:00	2	255	**57**	9	13	**1**	**3**	9	0	**2**	0	0	5	356
08:00	1	160	52	12	11	1	0	5	0	2	0	0	1	245
09:00	1	119	35	5	1	0	2	4	0	0	0	0	1	168
10:00	0	105	36	3	7	0	0	2	0	0	0	0	0	153
11:00	1	134	28	3	6	1	0	2	0	2	0	0	0	177
12 PM	1	121	40	7	**10**	0	0	4	0	0	0	0	1	184
13:00	0	155	42	8	3	0	1	6	0	0	0	0	3	218
14:00	0	211	39	**17**	8	**1**	0	**18**	0	0	0	1	0	295
15:00	2	**280**	**65**	8	7	0	**3**	14	0	0	0	0	3	**382**
16:00	**4**	261	55	13	8	0	2	11	0	1	**1**	**3**	2	361
17:00	0	247	39	7	3	0	1	7	0	**2**	0	1	**7**	314
18:00	1	170	45	2	4	0	0	6	0	1	0	1	0	230
19:00	0	142	28	3	3	0	0	5	0	0	0	1	0	182
20:00	0	125	24	4	0	0	0	4	0	0	0	0	0	157
21:00	0	106	24	3	2	0	1	2	0	0	0	0	0	138
22:00	0	70	14	3	0	0	0	1	0	0	0	0	0	88
23:00	0	40	9	1	0	0	0	1	0	0	0	0	0	51
Day Total	16	3154	742	128	106	4	15	116	2	11	1	8	32	4335
Percent	0.4%	72.8%	17.1%	3.0%	2.4%	0.1%	0.3%	2.7%	0.0%	0.3%	0.0%	0.2%	0.7%	
AM Peak	06:00	06:00	07:00	06:00	06:00	07:00	07:00	06:00	06:00	07:00		06:00	06:00	06:00
Vol.	3	260	57	12	14	1	3	9	2	2		1	9	368
PM Peak	16:00	15:00	15:00	14:00	12:00	14:00	15:00	14:00		17:00	16:00	16:00	17:00	15:00
Vol.	4	280	65	17	10	1	3	18		2	1	3	7	382

McMahon Associates Inc.

Transportation Engineers & Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Cheltenham Township
Comments: None
Weather: Variable
ATR#/Operator: JC

ashbourne01c
Site Code: 00000000000000000002
Station ID: 00000000000000000000
Ashbourne Road south of Oak Lane
Date Start: 26-Mar-09

Westbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
04/03/09	0	17	2	1	0	0	0	0	0	0	0	0	0	20
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Day Total	0	17	2	1	0	0	0	0	0	0	0	0	0	20
Percent	0.0%	85.0%	10.0%	5.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak		00:00	00:00	00:00										00:00
Vol.		17	2	1										20
PM Peak														
Vol.														
Grand Total	104	22869	4906	843	590	27	68	858	28	92	5	52	172	30614
Percent	0.3%	74.7%	16.0%	2.8%	1.9%	0.1%	0.2%	2.8%	0.1%	0.3%	0.0%	0.2%	0.6%	

APPENDIX C

Manual Turning Movement (MTM) Counts

McMahon Associates Inc.
Transportation Engineers & Planners

425 Commerce Drive, Suite 200
Ft. Washington, PA 19034

Municipality: Cheltenham Township
Location: New Second Street & Ashbourne Road
Counter/ Board #: TD

File Name : ashbourne01w
Site Code : 80901501
Start Date : 2/24/2009
Page No : 1

Groups Printed- Unshifted

	New Second St Southbound				Ashbourne Rd Westbound				New Second St Northbound				Ashbourne Rd Eastbound						
Start Time	Left	Thru	Right	HV	Left	Thru	Right	HV	Left	Thru	Right	HV	Left	Thru	Right	HV	Exclu. Total	Inclu. Total	Int. Total
07:00	19	107	8	8	3	32	24	5	1	44	2	1	11	17	6	2	16	274	290
07:15	13	111	11	8	0	35	22	4	3	69	2	5	22	28	9	3	20	325	345
07:30	17	133	12	9	0	39	18	8	4	81	1	0	19	31	12	3	20	367	387
07:45	21	99	14	6	0	46	21	2	7	101	4	4	24	23	5	2	14	365	379
Total	70	450	45	31	3	152	85	19	15	295	9	10	76	99	32	10	70	1331	1401
08:00	15	109	26	1	2	32	30	3	3	76	0	4	45	27	3	1	9	368	377
08:15	23	108	17	5	4	34	25	2	0	76	1	1	13	25	3	1	9	329	338
08:30	15	99	9	5	1	21	20	1	3	69	1	4	21	19	6	2	12	284	296
08:45	14	79	17	5	1	25	32	5	4	71	0	3	34	22	7	5	18	306	324
Total	67	395	69	16	8	112	107	11	10	292	2	12	113	93	19	9	48	1287	1335
16:00	12	82	15	2	3	30	27	5	2	70	1	2	17	26	3	3	12	288	300
16:15	14	73	12	1	3	30	17	5	4	76	2	2	21	29	6	0	8	287	295
16:30	20	82	6	2	1	36	30	2	8	93	1	5	22	46	4	1	10	349	359
16:45	23	63	18	3	2	35	19	1	5	103	6	1	25	35	6	1	6	340	346
Total	69	300	51	8	9	131	93	13	19	342	10	10	85	136	19	5	36	1264	1300
17:00	31	87	17	3	2	33	22	2	2	86	4	0	17	28	5	2	7	334	341
17:15	28	75	15	1	2	30	51	2	3	99	1	0	22	43	8	1	4	377	381
17:30	26	68	17	1	4	30	23	1	1	63	2	0	19	32	8	1	3	293	296
17:45	24	67	16	1	4	36	26	0	5	82	3	1	14	33	3	1	3	313	316
Total	109	297	65	6	12	129	122	5	11	330	10	1	72	136	24	5	17	1317	1334
Grand Total	315	1442	230	61	32	524	407	48	55	1259	31	33	346	464	94	29	171	5199	5370
Apprch %	15.9	72.6	11.6		3.3	54.4	42.3		4.1	93.6	2.3		38.3	51.3	10.4				
Total %	6.1	27.7	4.4		0.6	10.1	7.8		1.1	24.2	0.6		6.7	8.9	1.8		3.2	96.8	

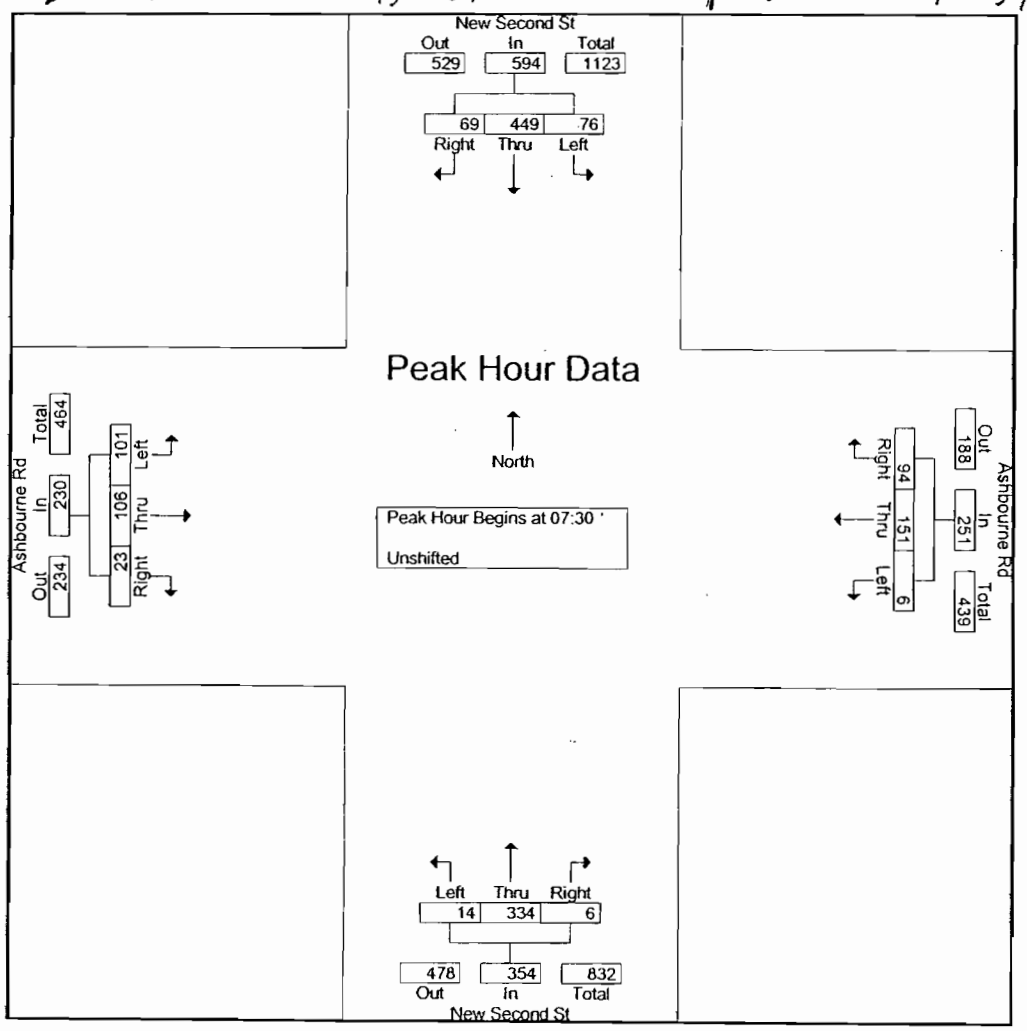
McMahon Associates Inc.
Transportation Engineers & Planners

425 Commerce Drive, Suite 200
Ft. Washington, PA 19034

Municipality: Cheltenham Township
Location: New Second Street & Ashbourne Road
Counter/ Board #: TD

File Name : ashbourne01w
Site Code : 80901501
Start Date : 2/24/2009
Page No : 2

	New Second St Southbound				Ashbourne Rd Westbound				New Second St Northbound				Ashbourne Rd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	17	**133**	12	**162**	0	39	18	57	4	81	1	86	19	**31**	**12**	62	367
07:45	21	99	14	134	0	**46**	21	**67**	**7**	**101**	4	**112**	24	23	5	52	365
08:00	15	109	**26**	150	2	32	**30**	64	3	76	0	79	**45**	27	3	**75**	**368**
08:15	**23**	108	17	148	**4**	34	25	63	0	76	1	77	13	25	3	41	329
Total Volume	76	449	69	594	6	151	94	251	14	334	6	354	101	106	23	230	1429
% App. Total	12.8	75.6	11.6		2.4	60.2	37.5		4	94.4	1.7		43.9	46.1	10		
PHF	.826	.844	.663	.917	.375	.821	.783	.937	.500	.827	.375	.790	.561	.855	.479	.767	.971
		21	4%				15	6%			9	3%		7	3%		



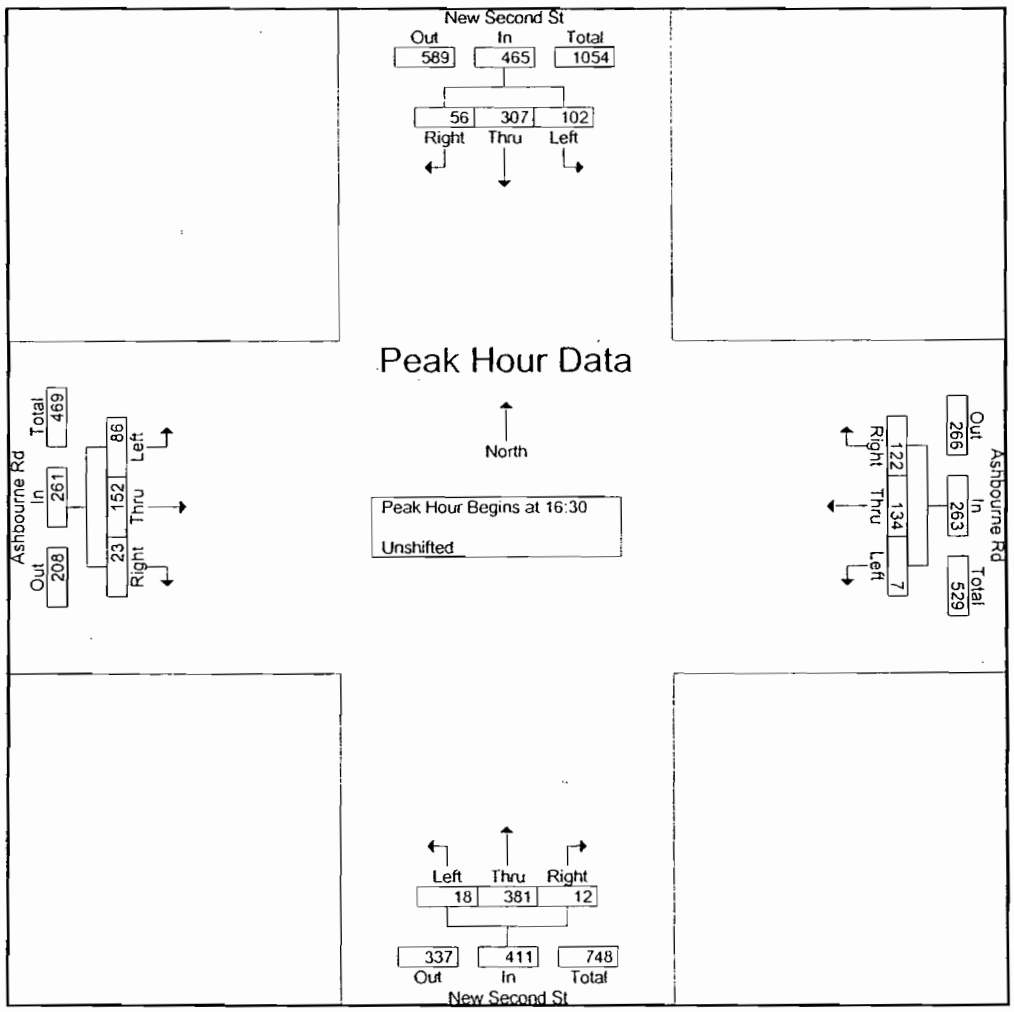
McMahon Associates Inc.
Transportation Engineers & Planners

425 Commerce Drive, Suite 200
Ft. Washington, PA 19034

Municipality: Cheltenham Township
Location: New Second Street & Ashbourne Road
Counter/ Board #: TD

File Name : ashbourne01w
Site Code : 80901501
Start Date : 2/24/2009
Page No : 3

	New Second St Southbound				Ashbourne Rd Westbound				New Second St Northbound				Ashbourne Rd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:30																	
16:30	20	82	6	108	1	**36**	30	67	**8**	93	1	102	22	**46**	4	72	349
16:45	23	63	**18**	104	**2**	35	19	56	5	**103**	**6**	**114**	**25**	35	6	66	340
17:00	**31**	**87**	17	**135**	2	33	22	57	2	86	4	92	17	28	5	50	334
17:15	28	75	15	118	2	30	**51**	**83**	3	99	1	103	22	43	**8**	**73**	**377**
Total Volume	102	307	56	465	7	134	122	263	18	381	12	411	86	152	23	261	1400
% App. Total	21.9	66	12		2.7	51	46.4		4.4	92.7	2.9		33	58.2	8.8		
PHF	.823	.882	.778	.861	.875	.931	.598	.792	.563	.925	.500	.901	.860	.826	.719	.894	.928
		9	2%			7	3%			6	1%			5	2%		



McMahon Associates Inc.
Transportation Engineers & Planners

425 Commerce Drive, Suite 200
Ft. Washington, PA 19034

Municipality: Cheltenham Township
Location: New Second Street & Ashbourne Road
Counter/ Board #: TD

File Name : ashbourne01w
Site Code : 80901501
Start Date : 2/24/2009
Page No : 1

Groups Printed- Pedestrians

	New Second St Southbound				Ashbourne Rd Westbound				New Second St Northbound				Ashbourne Rd Eastbound						
Start Time	Left	Thru	Right	E/W Peds	Left	Thru	Right	N/S Peds	Left	Thru	Right	E/W Peds	Left	Thru	Right	N/S Peds	Exclu. Total	Inclu. Total	Int. Total
07:15	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	2	0	2
07:30	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1
07:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1
Total	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	4	0	4
08:15	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1
08:30	0	0	0	3	0	0	0	2	0	0	0	1	0	0	0	0	6	0	6
08:45	0	0	0	1	0	0	0	2	0	0	0	2	0	0	0	0	5	0	5
Total	0	0	0	4	0	0	0	5	0	0	0	3	0	0	0	0	12	0	12
16:00	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	2
16:30	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	3	0	3
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1
Total	0	0	0	1	0	0	0	1	0	0	0	3	0	0	0	1	6	0	6
17:00	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
17:15	0	0	0	0	0	0	0	2	0	0	0	1	0	0	0	2	5	0	5
Total	0	0	0	1	0	0	0	2	0	0	0	1	0	0	0	2	6	0	6
Grand Total	0	0	0	7	0	0	0	9	0	0	0	8	0	0	0	4	28	0	28
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0				
Total %																	100	0	

McMahon Associates Inc.
Transportation Engineers & Planners

425 Commerce Drive, Suite 200
Ft. Washington, PA 19034

Municipality: Cheltenham Township
Location: Ashbourne Road &
Oak Lane Road / Country Club Access
Counter/ Board #: JB

File Name : ashbourne02w
Site Code : 80901502
Start Date : 2/24/2009
Page No : 1

Groups Printed- Unshifted

	C.C. Access Southbound				Ashbourne Rd Westbound				Oak Lane Rd Northbound				Ashbourne Rd Eastbound						
Start Time	Left	Thru	Right	HV	Left	Thru	Right	HV	Left	Thru	Right	HV	Left	Thru	Right	HV	Exclu Total	Inclu Total	Int. Total
07:00	0	0	1	1	58	42	0	5	8	0	48	7	0	35	3	2	15	195	210
07:15	0	0	0	0	59	44	0	7	7	0	39	7	0	37	4	3	17	190	207
07:30	0	0	0	0	66	50	0	8	9	0	52	5	0	55	2	4	17	234	251
07:45	0	1	0	0	71	51	0	6	14	1	34	5	0	41	2	1	12	215	227
Total	0	1	1	1	254	187	0	26	38	1	173	24	0	168	11	10	61	834	895
08:00	0	0	0	0	58	48	0	8	6	0	35	4	0	40	3	0	12	190	202
08:15	0	0	0	0	58	60	0	6	8	0	37	4	0	41	2	0	10	206	216
08:30	0	0	0	0	51	31	0	3	9	0	58	3	0	41	4	1	7	194	201
08:45	0	0	0	0	45	48	0	6	14	0	56	3	0	29	4	3	12	196	208
Total	0	0	0	0	212	187	0	23	37	0	186	14	0	151	13	4	41	786	827
16:00	0	1	0	0	49	41	0	5	7	0	58	1	0	37	6	2	8	199	207
16:15	0	0	0	0	49	54	0	5	7	0	40	2	0	34	7	1	8	191	199
16:30	1	0	1	0	63	51	0	2	4	1	50	3	0	53	11	1	6	235	241
16:45	0	0	0	0	43	57	0	5	2	0	44	2	0	47	11	1	8	204	212
Total	1	1	1	0	204	203	0	17	20	1	192	8	0	171	35	5	30	829	859
17:00	0	1	0	1	54	51	0	3	11	1	56	4	0	53	15	0	8	242	250
17:15	0	0	0	0	52	75	0	4	10	0	46	3	0	48	10	0	7	241	248
17:30	0	0	0	0	55	42	0	4	5	0	67	1	0	53	8	0	5	230	235
17:45	0	0	0	0	52	61	1	1	7	0	41	1	0	42	15	0	2	219	221
Total	0	1	0	1	213	229	1	12	33	1	210	9	0	196	48	0	22	932	954
Grand Total	1	3	2	2	883	806	1	78	128	3	761	55	0	686	107	19	154	3381	3535
Apprch %	16.7	50	33.3		52.2	47.7	0.1		14.3	0.3	85.3		0	86.5	13.5				
Total %	0	0.1	0.1		26.1	23.8	0		3.8	0.1	22.5		0	20.3	3.2		4.4	95.6	

McMahon Associates Inc.
Transportation Engineers & Planners

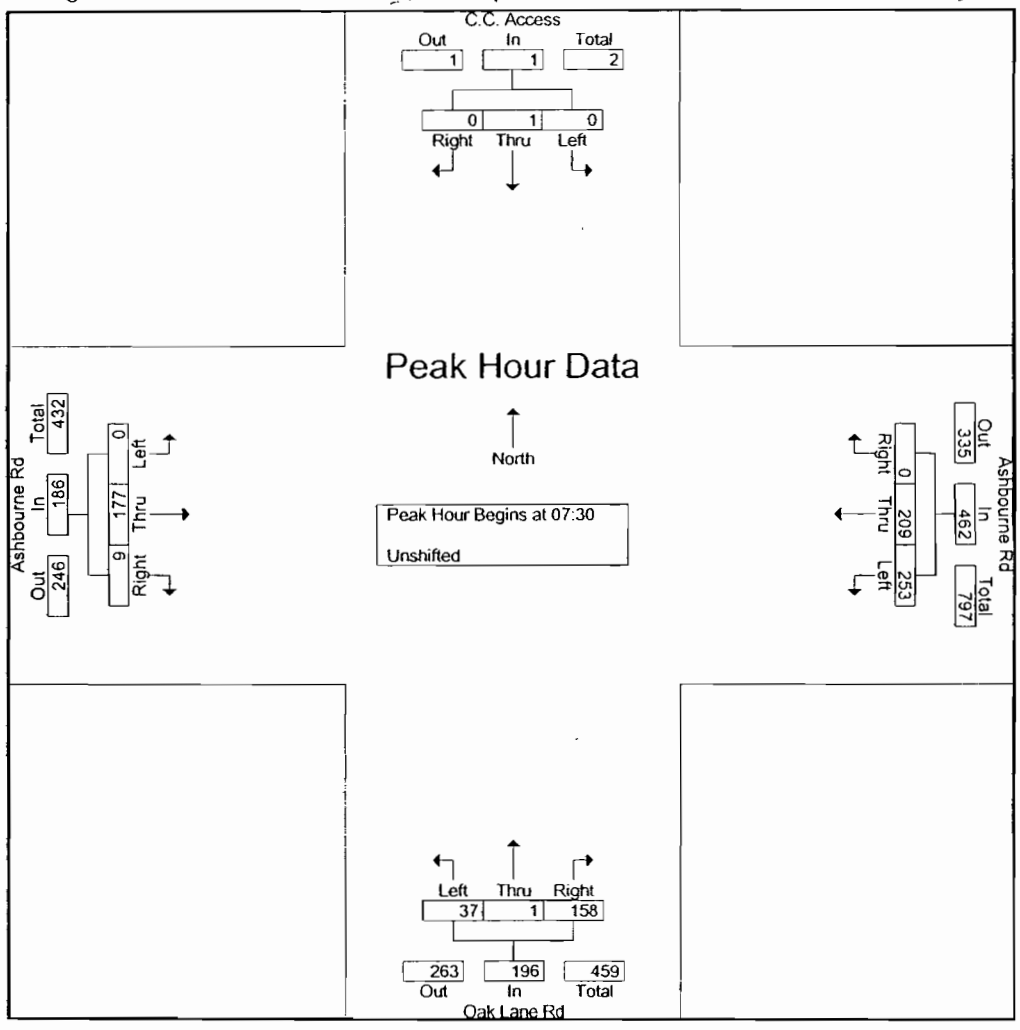
425 Commerce Drive, Suite 200
Ft. Washington, PA 19034

Municipality: Cheltenham Township
Location: Ashbourne Road &
Oak Lane Road / Country Club Access
Counter/ Board #: JB

File Name : ashbourne02w
Site Code : 80901502
Start Date : 2/24/2009
Page No : 2

	C.C. Access Southbound				Ashbourne Rd Westbound				Oak Lane Rd Northbound				Ashbourne Rd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	0	0	0	0	66	50	0	116	9	0	**52**	**61**	0	**55**	2	**57**	**234**
07:45	0	**1**	0	**1**	**71**	51	0	**122**	**14**	**1**	34	49	0	41	2	43	215
08:00	0	0	0	0	58	48	0	106	6	0	35	41	0	40	**3**	43	190
08:15	**0**	0	0	0	58	**60**	0	118	8	0	**37**	45	0	41	2	**43**	206
Total Volume	0	1	0	1	253	209	0	462	37	1	158	196	0	177	9	186	845
% App. Total	0	100	0		54.8	45.2	0		18.9	0.5	80.6		0	95.2	4.8		
PHF	.000	.250	.000	.250	.891	.871	.000	.947	.661	.250	.760	.803	.000	.805	.750	.816	.903

0 28 6% 18 9% 5 3%



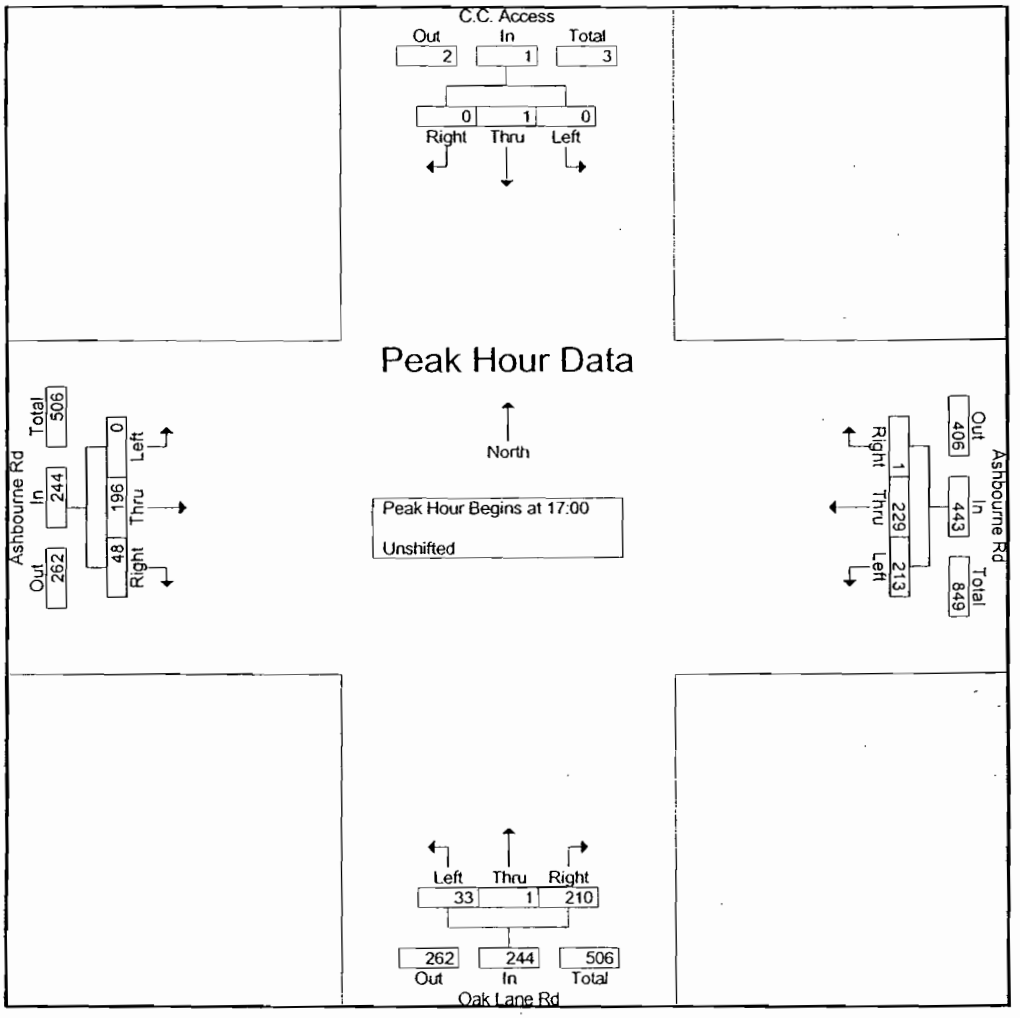
McMahon Associates Inc.
Transportation Engineers & Planners

425 Commerce Drive, Suite 200
Ft. Washington, PA 19034

Municipality: Cheltenham Township
Location: Ashbourne Road &
Oak Lane Road / Country Club Access
Counter/ Board #: JB

File Name : ashbourne02w
Site Code : 80901502
Start Date : 2/24/2009
Page No : 3

	C.C. Access Southbound				Ashbourne Rd Westbound				Oak Lane Rd Northbound				Ashbourne Rd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:00																	
17:00	0	**1**	0	**1**	54	51	0	105	**11**	**1**	56	68	0	**53**	**15**	**68**	**242**
17:15	0	0	0	0	52	**75**	0	**127**	10	0	46	56	0	48	10	58	241
17:30	0	0	0	0	**55**	42	0	97	5	0	**67**	**72**	0	53	8	61	230
17:45	0	0	0	0	52	61	**1**	114	7	0	41	48	0	42	15	57	219
Total Volume	0	1	0	1	213	229	1	443	33	1	210	244	0	196	48	244	932
% App. Total	0	100	0		48.1	51.7	0.2		13.5	0.4	86.1		0	80.3	19.7		
PHF	.000	.250	.000	.250	.968	.763	.250	.872	.750	.250	.784	.847	.000	.925	.800	.897	.963
		1	100%				12	3%			9	4%		0			



McMahon Associates Inc.
Transportation Engineers & Planners

425 Commerce Drive, Suite 200
Ft. Washington, PA 19034

Municipality: Cheltenham Township
Location: Ashbourne Road &
Oak Lane Road / Country Club Access
Counter/ Board #: JB

File Name : ashbourne02w
Site Code : 80901502
Start Date : 2/24/2009
Page No : 1

Groups Printed- Pedestrians

	C.C. Access Southbound				Ashbourne Rd Westbound				Oak Lane Rd Northbound				Ashbourne Rd Eastbound						
Start Time	Left	Thru	Right	E/W Peds	Left	Thru	Right	N/S Peds	Left	Thru	Right	E/W Peds	Left	Thru	Right	N/S Peds	Exclu. Total	Inclu. Total	Int. Total
07:00	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1
07:15	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
07:30	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1
Total	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0	0	3	0	3
08:30	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	5	0	5
08:45	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1
Total	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	6	0	6
16:00	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1
16:30	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1
16:45	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1
Total	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	3	0	3
17:00	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Total	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Grand Total	0	0	0	2	0	0	0	0	0	0	0	11	0	0	0	0	13	0	13
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0				
Total %																	100	0	

McMahon Associates Inc.
Transportation Engineers & Planners

425 Commerce Drive, Suite 200
Ft. Washington, PA 19034

Municipality: Cheltenham Township
Location: Ashbourne Road &
Ashmead Rd & Front St & Arbour Rd
Counter/ Board #:EW

File Name : ashbourne03w
Site Code : 80901503
Start Date : 2/24/2009
Page No : 1

Groups Printed- Unshifted

	Front St Southbound					Arbor Rd Southwestbound					Ashmead Rd Westbound					Front St Northbound					Ashbourne Rd Eastbound							
Start Time	Hard Left	Left	Thru	Right	HV	Hard Left	Bear Left	Bear Right	Hard Right	HV	Left	Thru	Right	Hard Right	HV	Left	Thru	Bear Right	Right	HV	Left	Bear Left	Thru	Right	HV	Exclu. Total	Inclu. Total	Int. Total
07:00	0	1	24	27	6	0	1	1	0	1	0	27	2	0	0	8	19	0	2	1	34	0	29	3	4	12	178	190
07:15	0	4	24	54	3	0	2	2	1	0	4	62	5	0	0	0	20	0	1	0	33	0	40	0	7	10	252	262
07:30	0	4	18	55	7	0	3	3	0	0	4	59	2	0	1	1	20	0	1	1	49	0	54	0	6	15	273	288
07:45	0	2	21	56	8	0	1	3	1	1	4	62	1	0	5	0	12	0	0	0	33	1	33	2	5	19	232	251
Total	0	11	87	192	24	0	7	9	2	2	12	210	10	0	6	9	71	0	4	2	149	1	156	5	22	56	935	991
08:00	1	6	24	51	4	0	0	3	0	0	3	59	5	0	0	3	12	0	0	0	29	2	37	4	2	6	239	245
08:15	1	5	16	38	4	0	3	1	0	0	3	49	6	0	2	4	15	1	1	2	27	0	25	9	4	12	204	216
08:30	2	1	29	35	5	0	3	4	3	0	10	44	6	0	0	0	31	1	1	0	22	2	30	38	4	9	262	271
08:45	2	7	22	35	2	0	0	1	0	0	2	35	2	0	1	8	19	0	0	5	33	2	26	14	4	12	208	220
Total	6	19	91	159	15	0	6	9	3	0	18	187	19	0	3	15	77	2	2	7	111	6	118	65	14	39	913	952
15:45	0	2	19	28	3	0	0	0	0	0	4	47	7	0	1	0	10	1	4	0	41	0	37	1	5	9	201	210
Total	0	2	19	28	3	0	0	0	0	0	4	47	7	0	1	0	10	1	4	0	41	0	37	1	5	9	201	210
16:00	0	3	16	32	4	0	1	1	0	0	0	54	3	0	1	1	15	1	0	1	53	1	27	2	2	8	210	218
16:15	0	1	24	36	3	0	0	1	1	0	11	68	7	0	0	1	20	2	1	1	31	3	57	4	3	7	268	275
16:30	2	9	16	42	2	0	0	0	0	0	8	65	2	0	1	2	30	1	7	1	49	2	47	2	4	8	284	292
16:45	0	5	24	30	4	0	0	0	0	0	6	69	6	0	2	2	23	0	1	1	51	0	43	7	3	10	267	277
Total	2	18	80	140	13	0	1	2	1	0	25	256	18	0	4	6	88	4	9	4	184	6	174	15	12	33	1029	1062
17:00	1	2	25	44	2	0	0	0	3	2	5	77	7	0	1	4	16	2	5	0	45	6	50	3	1	6	295	301
17:15	0	3	25	39	4	0	0	0	1	0	3	57	2	0	1	1	19	1	2	0	67	2	45	8	2	7	275	282
17:30	1	0	24	41	0	0	0	1	1	0	6	65	4	0	0	4	20	1	3	0	33	3	45	5	1	1	257	258
Grand Total			33.1	60.7			30.4	45.7	23.9			86.5				10.3	79.2				45.6		45.3					
				16.5																	16.1							

McMahon Associates Inc.
Transportation Engineers & Planners

425 Commerce Drive Suite 200
Ft Washington, PA 19034

Municipality: Cheltenham Township
Location: Ashbourne Road &
Ashmead Rd & Front St & Arbour Rd
Counter/ Board #:EW

File Name : ashbourne03w
Site Code : 80901503
Start Date : 2/24/2009
Page No : 2

	Front St Southbound					Arbor Rd Southwestbound					Ashmead Rd Westbound					Front St Northbound					Ashbourne Rd Eastbound					
Start Time	Hard Left	Left	Thru	Right	App. Total	Hard Left	Bear Left	Bear Right	Hard Right	App. Total	Left	Thru	Right	Hard Right	App Total	Left	Thru	Bear Right	Right	App. Total	Left	Bear Left	Thru	Right	App Total	Int. Total
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1																										
Peak Hour for Entire Intersection Begins at 07:15																										
07:15	0	4	**24**	54	**82**	0	2	2	**1**	5	**4**	**62**	**5**	0	**71**	0	**20**	0	**1**	21	33	0	**40**	0	73	252
07:30	0	4	18	55	77	0	**3**	**3**	0	**6**	4	59	2	0	65	1	20	0	1	**22**	**49**	0	**54**	0	**103**	**273**
07:45	0	2	21	**56**	79	0	1	3	1	5	4	62	1	0	67	0	12	0	0	12	33	1	33	2	69	232
08:00	**1**	**6**	24	51	82	0	0	3	0	3	3	59	5	0	67	**3**	12	0	0	15	29	**2**	37	**4**	72	239
Total Volume	1	16	87	216	320	0	6	11	2	19	15	242	13	0	270	4	64	0	2	70	144	3	164	6	317	996
% App. Total	0.3		27.2	67.5			31.6	57.9	10.5		5.6	89.6	4.8			5.7	91.4		2.9		45.4	0.9	51.7	1.9		
PHF	.250	.667	.906	.964	.976	.000	.500	.917	.500	.792	.938	.976	.650	.000	.951	.333	.800	.000	.500	.795	.735	.375	.759	375	.769	.912
		22	7%				1	5%				6	2%				1	1%				20	6%			

McMahon Associates Inc.
Transportation Engineers & Planners

425 Commerce Drive, Suite 200
Ft. Washington, PA 19034

Municipality: Cheltenham Township
Location: Ashbourne Road &
Ashmead Rd & Front St & Arbour Rd
Counter/ Board #:EW

File Name : ashbourne03w
Site Code : 80901503
Start Date : 2/24/2009
Page No : 1

Groups Printed- Pedestrians

	Front St Southbound					Arbor Rd Southwestbound					Ashmead Rd Westbound					Front St Northbound					Ashbourne Rd Eastbound							
Start Time	Hard Left	Left	Thru	Right	E/W Peds	Hard Left	Bear Left	Bear Right	Hard Right	E/W Peds	Left	Thru	Right	Hard Right	N/S Peds	Left	Thru	Bear Right	Right	E/W Peds	Left	Bear Left	Thru	Right	N/S Peds	Exclu. Total	Inclu. Total	Inc. Total
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	1	0	0	0	0	0	4	0	4
07:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	3	0	3
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	1	0	0	0	0	0	7	0	7
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	1
08:15	0	0	0	0	3	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	6	0	6
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	0	0	0	0	29	0	0	0	0	0	48	0	48
08:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	5	0	0	0	0	0	6	0	6
Total	0	0	0	0	3	0	0	0	0	0	0	0	0	0	24	0	0	0	0	34	0	0	0	0	0	61	0	61
15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	3	0	3
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	3	0	3
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	0	2
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	4	0	4
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	5	0	0	0	0	0	7	0	7
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	9	0	0	0	0	0	13	0	13
Grand Total	0	0	0	0	3	0	0	0	0	0	0	0	0	0	37	0	0	0	0	44	0	0	0	0	0	84	0	84
Apprch %	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0				
Total %																										100	0	

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425 Commerce Drive, Suite 200
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Municipality: Cheltenham Township
Location: Ashbourne Road &
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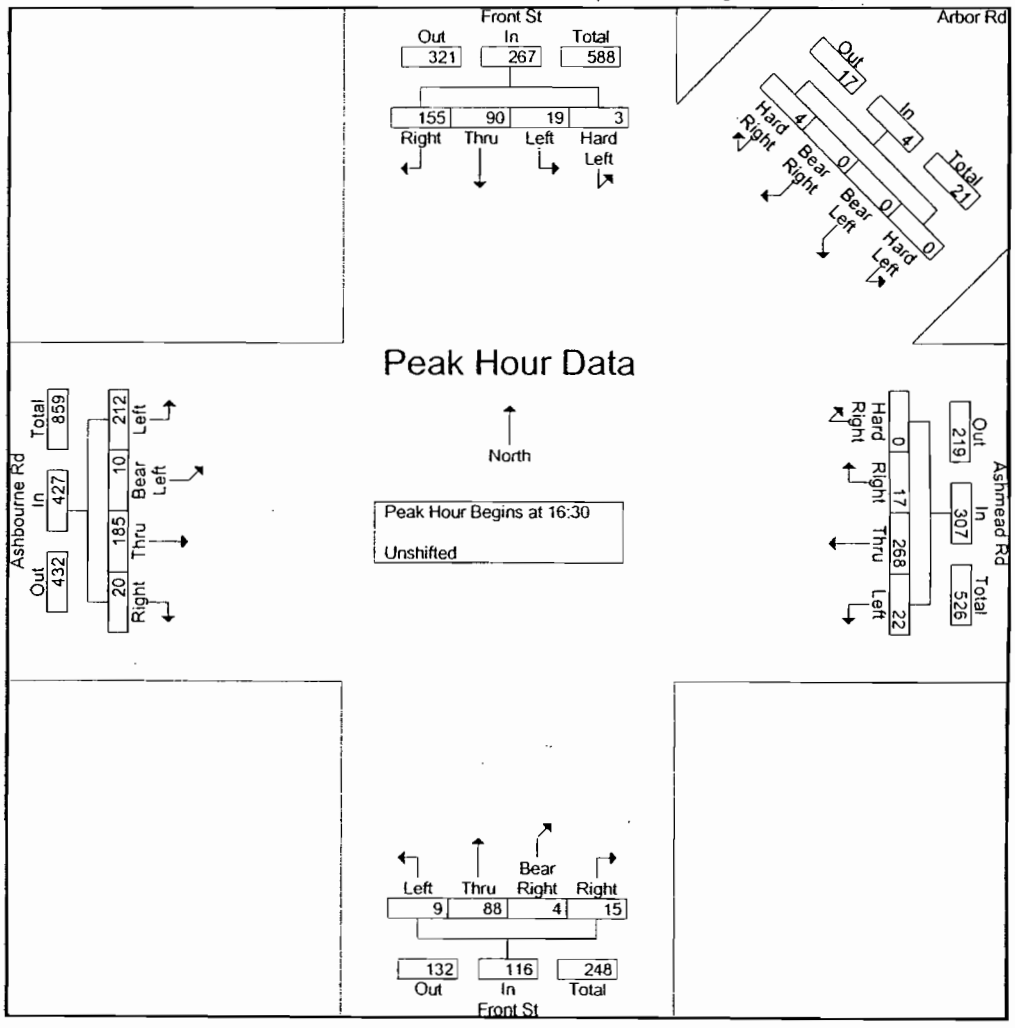
Counter/ Board #:EW

File Name : ashbourne03w
Site Code : 80901503
Start Date : 2/24/2009
Page No : 3

	Front St Southbound					Arbor Rd Southwestbound					Ashmead Rd Westbound					Front St Northbound					Ashbourne Rd Eastbound					
Start Time	Hard Left	Left	Thru	Right	App. Total	Hard Left	Bear Left	Bear Right	Hard Right	App. Total	Left	Thru	Right	Hard Right	App. Total	Left	Thru	Bear Right	Right	App. Total	Left	Bear Left	Thru	Right	App. Total	Int Total
Peak Hour Analysis From 12:00 to 17:30 - Peak 1 of 1																										
Peak Hour for Entire Intersection Begins at 16:30																										
16:30	**2**	**9**	16	42	69	0	0	0	0	0	**8**	65	2	0	75	2	**30**	1	7	**40**	49	2	47	2	100	284
16:45	0	5	24	30	59	0	0	0	0	0	6	69	6	0	81	2	23	0	1	26	51	0	43	7	101	267
17:00	1	2	**25**	**44**	**72**	0	0	0	**3**	**3**	5	**77**	**7**	0	**89**	**4**	16	**2**	5	27	45	**6**	**50**	3	104	**295**
17:15	0	3	25	39	67	0	0	0	1	1	3	57	2	0	62	1	19	1	2	23	**67**	2	45	**8**	**122**	275
Total Volume	3	19	90	155	267	0	0	0	4	4	22	268	17	0	307	9	88	4	15	116	212	10	185	20	427	1121
% App. Total	1.1	7.1	33.7	58.1					100		7.2	87.3	5.5			7.8	75.9	3.4	12.9		49.6	2.3	43.3	4.7		
PHF	.375	.528	.900	.881	.927	.000	.000	.000	.333	.333	.688	.870	.607	.000	.862	.563	.733	.500	.536	.725	.791	.417	.925	.625	.875	.950
	12	4%				2	50%				5	2%				2	2%				10	2%				



APPENDIX D

HCM Methodology

CAPACITY/LEVEL-OF-SERVICE ANALYSIS METHODOLOGY

The detailed capacity/level-of-service analysis contained in this traffic impact study was performed in accordance with the standard techniques contained in the "Highway Capacity Manual".(1) By definition, capacity represents "the maximum rate of flow that can reasonably be expected to pass a point on a uniform section of a lane or roadway under prevailing roadway, traffic, and control conditions." The level of functioning of an intersection or a uniform section of a lane or roadway can be expressed in terms of levels of service. Level of service (LOS) is defined as "a qualitative measure describing operational conditions within a traffic stream, and their perception by motorists and/or passengers". Such measures include "speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety."

At unsignalized intersections, a methodology for evaluating the relative functioning of intersections controlled by stop or yield signs has been developed, and is based on several assumptions, including:

- Major street flows are not affected by the minor (stop-sign controlled) street movements.
- Left turns from the major street to the minor street are influenced only by opposing major street through flow.
- Minor street left turns are impeded by all major street traffic plus opposing minor street traffic.
- Minor street through traffic is impeded by all major street traffic.
- Minor street right turns are impeded only by the major street traffic coming from the left.

The concept of stop-controlled or yield-controlled intersection analysis is based on the estimate of average total delay on minor streets. The methodology of analysis relies on three elements: the size and distribution of gaps in the major traffic stream, the usefulness of these gaps to the minor stream drivers, and the relative priority of the various traffic streams at the intersection. The results of the analysis provide an estimate of average total delay for the various critical movements at the unsignalized intersections. Correlation between average total delay and the respective levels of service are provided for unsignalized intersections as follows:

---

(1) *Transportation Research Board, Special Report 209, Highway Capacity Manual, published by the Transportation Research Board, Washington, DC, Updated 2000.*

Unsignalized Intersections

Level of Service	Description	Control Delay Per Vehicle (seconds)
A	Little or no delay	≤10.0
B	Short traffic delays	10.1 to 15.0
C	Average traffic delays	15.1 to 25.0
D	Long traffic delays	25.1 to 35.0
E	Very long traffic delays	35.1 to 50.0
F	Demand exceeds capacity of the lane or approach	> 50.0

At signalized intersections, an additional element must be considered: time allocation. Level of service is based primarily on the average control delay per vehicle for various movements within the intersection. Volume/capacity relationships also affect level of service. Thus, both volume/capacity and delay must be considered to evaluate the overall operation of a signalized intersection. Correlation between average delay per vehicle and the respective levels of service are provided for signalized intersections as follows:

Signalized Intersections

Level of Service	Description	Control Delay Per Vehicle (seconds)
A	Very low delay, high quality flow	≤10.0
B	Low delay, good traffic flow	10.1 to 20.0
C	Average delay, stable traffic flow	20.1 to 35.0
D	Longer delay, approach capacity flow	35.1 to 55.0
E	Limit of acceptable delay, capacity flow	55.1 to 80.0
F	Unacceptable delay, forced flow	> 80.0

APPENDIX E

2009 Existing
Capacity/Level-of-Service Analysis Worksheets

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	109	115	25	7	164	102	15	362	7	82	487	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	13	16	16	16	16	16	16	12	12	12
Grade (%)		-4%			2%			1%			-3%	
Storage Length (ft)	0		110	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25		25	25		25	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
Ped Bike Factor												
Frt			0.850		0.949			0.998			0.984	
Flt Protected		0.976			0.999			0.998			0.994	
Satd. Flow (prot)	0	1836	1653	0	1907	0	0	2072	0	0	1814	0
Flt Permitted		0.646			0.991			0.967			0.892	
Satd. Flow (perm)	0	1215	1653	0	1891	0	0	2007	0	0	1628	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			32		50			2			15	
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		500			2250			500			1140	
Travel Time (s)		8.5			38.4			9.7			22.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.77	0.77	0.77	0.94	0.94	0.94	0.79	0.79	0.79	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	3%	6%	6%	6%	3%	3%	3%	4%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	142	149	32	7	174	109	19	458	9	89	529	82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	291	32	0	290	0	0	486	0	0	700	0
Number of Detectors	1	0	0	1	0		1	0		1	0	
Detector Template												
Leading Detector (ft)	35	0	0	35	0		35	0		35	0	
Trailing Detector (ft)	-5	0	0	-5	0		-5	0		-5	0	
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase												
Switch Phase												
Minimum Initial (s)	22.0	22.0	22.0	22.0	22.0		33.0	33.0		33.0	33.0	
Minimum Split (s)	27.0	27.0	27.0	27.0	27.0		38.0	38.0		38.0	38.0	
Total Split (s)	27.0	27.0	27.0	27.0	27.0	0.0	38.0	38.0	0.0	38.0	38.0	0.0
Total Split (%)	41.5%	41.5%	41.5%	41.5%	41.5%	0.0%	58.5%	58.5%	0.0%	58.5%	58.5%	0.0%
Maximum Green (s)	22.0	22.0	22.0	22.0	22.0		33.0	33.0		33.0	33.0	
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)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	0.0	0.0	-1.0	0.0	0.0	-1.0	0.0	0.0	-1.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0	4.0	4.0	5.0	4.0	4.0	5.0	4.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Recall Mode	Max	Max	Max	Max	Max		Max	Max		Max	Max	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.71	0.06		0.43			0.48			0.84	
Control Delay		30.5	6.3		16.0			12.3			25.2	
Queue Delay		0.0	0.0		0.0			0.0			0.0	
Total Delay		30.5	6.3		16.0			12.3			25.2	
Queue Length 50th (ft)		98	0		71			115			216	
Queue Length 95th (ft)		145	12		131			153			#427	
Internal Link Dist (ft)		420			2170			420			1060	
Turn Bay Length (ft)			110									
Base Capacity (vph)		411	581		673			1020			834	
Starvation Cap Reductn		0	0		0			0			0	
Spillback Cap Reductn		0	0		0			0			0	
Storage Cap Reductn		0	0		0			0			0	
Reduced v/c Ratio		0.71	0.06		0.43			0.48			0.84	

Intersection Summary

Area Type: Other

Cycle Length: 65

Actuated Cycle Length: 65

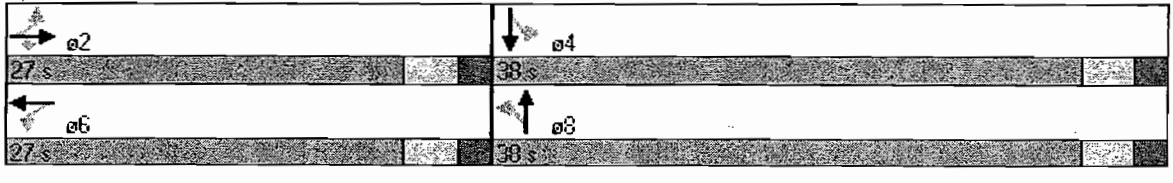
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 65

Control Type: Pretimed

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Ashbourne Rd & New Second St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	109	115	25	7	164	102	15	362	7	82	487	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	13	16	16	16	16	16	16	12	12	12
Grade (%)		-4%			2%			1%			-3%	
Total Lost time (s)		5.0	5.0		5.0			5.0			5.0	
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00	
Frt		1.00	0.85		0.95			1.00			0.98	
Flt Protected		0.98	1.00		1.00			1.00			0.99	
Satd. Flow (prot)		1837	1653		1907			2071			1813	
Flt Permitted		0.65	1.00		0.99			0.97			0.89	
Satd. Flow (perm)		1215	1653		1892			2006			1628	
Peak-hour factor, PHF	0.77	0.77	0.77	0.94	0.94	0.94	0.79	0.79	0.79	0.92	0.92	0.92
Adj. Flow (vph)	142	149	32	7	174	109	19	458	9	89	529	82
RTOR Reduction (vph)	0	0	21	0	33	0	0	1	0	0	7	0
Lane Group Flow (vph)	0	291	11	0	257	0	0	485	0	0	693	0
Heavy Vehicles (%)	3%	3%	3%	6%	6%	6%	3%	3%	3%	4%	4%	4%
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)		22.0	22.0		22.0			33.0			33.0	
Effective Green, g (s)		22.0	22.0		22.0			33.0			33.0	
Actuated g/C Ratio		0.34	0.34		0.34			0.51			0.51	
Clearance Time (s)		5.0	5.0		5.0			5.0			5.0	
Lane Grp Cap (vph)		411	559		640			1018			827	
v/s Ratio Prot												
v/s Ratio Perm		c0.24	0.01		0.14			0.24			c0.43	
v/c Ratio		0.71	0.02		0.40			0.48			0.84	
Uniform Delay, d1		18.7	14.3		16.5			10.4			13.7	
Progression Factor		1.00	1.00		1.00			1.00			1.00	
Incremental Delay, d2		9.9	0.1		1.9			1.6			9.9	
Delay (s)		28.6	14.4		18.3			12.0			23.6	
Level of Service		C	B		B			B			C	
Approach Delay (s)		27.2			18.3			12.0			23.6	
Approach LOS		C			B			B			C	

Intersection Summary			
HCM Average Control Delay	20.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	113.9%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	192	10	274	227	0	40	1	171	0	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	9	10	10	11	11	14	9	9	9
Grade (%)		1%			1%			-2%			1%	
Storage Length (ft)	140		0	150		0	0		45	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25		25	25		25	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
Ped Bike Factor												
Frt		0.993							0.850			
Flt Protected				0.950				0.953				
Satd. Flow (prot)	1713	1701	0	1525	1665	0	0	1622	1596	0	1701	0
Flt Permitted				0.606				0.768				
Satd. Flow (perm)	1713	1701	0	973	1665	0	0	1307	1596	0	1701	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6							214			
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		2250			1365			500			300	
Travel Time (s)		38.4			23.3			9.7			5.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.82	0.82	0.82	0.95	0.95	0.95	0.80	0.80	0.80	0.25	0.25	0.25
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	3%	6%	6%	6%	9%	9%	9%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	234	12	288	239	0	50	1	214	0	4	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	246	0	288	239	0	0	51	214	0	4	0
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template												
Leading Detector (ft)	35	35		35	35		35	35	35	20	20	
Trailing Detector (ft)	-5	-5		-5	-5		-5	-5	-5	-5	-5	
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase							8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	33.0	33.0		33.0	33.0		20.0	20.0	20.0	20.0	20.0	
Minimum Split (s)	39.0	39.0		39.0	39.0		26.0	26.0	26.0	26.0	26.0	
Total Split (s)	39.0	39.0	0.0	39.0	39.0	0.0	26.0	26.0	26.0	26.0	26.0	0.0
Total Split (%)	60.0%	60.0%	0.0%	60.0%	60.0%	0.0%	40.0%	40.0%	40.0%	40.0%	40.0%	0.0%
Maximum Green (s)	33.0	33.0		33.0	33.0		20.0	20.0	20.0	20.0	20.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		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	-2.0	0.0	0.0	-2.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	4.0	6.0	6.0	4.0	6.0	4.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Recall Mode	Max	Max		Max	Max		None	None	None	None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.28		0.58	0.28			0.13	0.33		0.01	
Control Delay		10.1		17.2	10.3			17.3	4.5		16.0	
Queue Delay		0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay		10.1		17.2	10.3			17.3	4.5		16.0	
Queue Length 50th (ft)		50		74	50			14	0		1	
Queue Length 95th (ft)		81		149	91			33	29		2	
Internal Link Dist (ft)		2170			1285			420			220	
Turn Bay Length (ft)				150					45			
Base Capacity (vph)		867		494	845			402	639		523	
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		0.28		0.58	0.28			0.13	0.33		0.01	

Intersection Summary

Area Type: Other

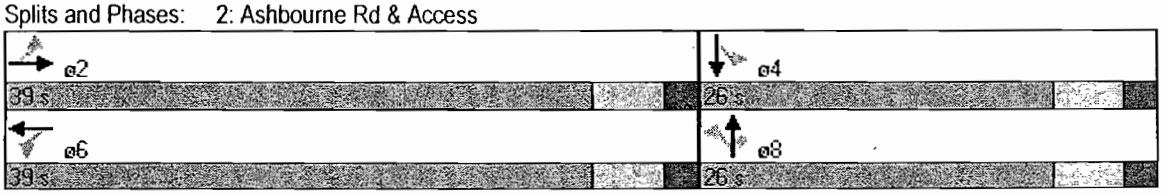
Cycle Length: 65

Actuated Cycle Length: 65

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Ashbourne Rd & Access



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	192	10	274	227	0	40	1	171	0	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	9	10	10	11	11	14	9	9	9
Grade (%)		1%			1%			-2%			1%	
Total Lost time (s)		6.0		6.0	6.0			6.0	6.0		6.0	
Lane Util. Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Frt		0.99		1.00	1.00			1.00	0.85		1.00	
Flt Protected		1.00		0.95	1.00			0.95	1.00		1.00	
Satd. Flow (prot)		1701		1525	1665			1622	1596		1701	
Flt Permitted		1.00		0.61	1.00			0.77	1.00		1.00	
Satd. Flow (perm)		1701		973	1665			1307	1596		1701	
Peak-hour factor, PHF	0.82	0.82	0.82	0.95	0.95	0.95	0.80	0.80	0.80	0.25	0.25	0.25
Adj. Flow (vph)	0	234	12	288	239	0	50	1	214	0	4	0
RTOR Reduction (vph)	0	3	0	0	0	0	0	0	148	0	0	0
Lane Group Flow (vph)	0	243	0	288	239	0	0	51	66	0	4	0
Heavy Vehicles (%)	3%	3%	3%	6%	6%	6%	9%	9%	9%	0%	0%	0%
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)		33.0		33.0	33.0			20.0	20.0		20.0	
Effective Green, g (s)		33.0		33.0	33.0			20.0	20.0		20.0	
Actuated g/C Ratio		0.51		0.51	0.51			0.31	0.31		0.31	
Clearance Time (s)		6.0		6.0	6.0			6.0	6.0		6.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)		864		494	845			402	491		523	
v/s Ratio Prot		0.14			0.14						0.00	
v/s Ratio Perm				c0.30				0.04	c0.04			
v/c Ratio		0.28		0.58	0.28			0.13	0.13		0.01	
Uniform Delay, d1		9.2		11.2	9.2			16.2	16.2		15.6	
Progression Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2		0.8		5.0	0.8			0.1	0.1		0.0	
Delay (s)		10.0		16.2	10.0			16.4	16.4		15.6	
Level of Service		B		B	B			B	B		B	
Approach Delay (s)		10.0			13.4			16.4			15.6	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	13.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	EBR2	WBL	WBT	WBR	NBL	NBT	NBR2	SBL2	SBL
Lane Configurations												
Volume (vph)	156	3	177	7	6	11	2	4	69	2	1	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	15	15	12	12	12	16	16	16	15	15
Grade (%)		0%				1%			1%			
Storage Length (ft)	0		0		0		0	0				0
Storage Lanes	0		0		0		0	0				0
Taper Length (ft)	25		25		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
Ped Bike Factor												
Frt		0.928				0.984			0.997			
Flt Protected		0.978				0.984			0.997			
Satd. Flow (prot)	0	1789	0	0	0	1743	0	0	2109	0	0	0
Flt Permitted		0.978				0.984			0.980			
Satd. Flow (perm)	0	1789	0	0	0	1743	0	0	2073	0	0	0
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)		1				3			1			
Link Speed (mph)		40				25			15			
Link Distance (ft)		1365				527			500			
Travel Time (s)		23.3				14.4			22.7			
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.77	0.77	0.77	0.77	0.79	0.79	0.79	0.80	0.80	0.80	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	6%	6%	6%	6%	5%	5%	5%	1%	1%	1%	7%	7%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%				0%			0%			
Adj. Flow (vph)	203	4	230	9	8	14	3	5	86	2	1	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	446	0	0	0	25	0	0	93	0	0	0
Number of Detectors	1	1			1	1		1	1		2	2
Detector Template												
Leading Detector (ft)	35	35			35	35		35	35		70	70
Trailing Detector (ft)	-5	-5			-5	-5		-5	-5		-5	-5
Turn Type	Split				Split			Perm			Perm	Perm
Protected Phases	2	2			6	6			8			
Permitted Phases		2						8			4	4
Detector Phase	2	2			6	6		8	8		4	4
Switch Phase												
Minimum Initial (s)	8.0	8.0			5.0	5.0		8.0	8.0		8.0	8.0
Minimum Split (s)	14.0	14.0			11.0	11.0		14.0	14.0		14.0	14.0
Total Split (s)	46.0	46.0	0.0	0.0	21.0	21.0	0.0	51.0	51.0	0.0	51.0	51.0
Total Split (%)	28.0%	28.0%	0.0%	0.0%	12.8%	12.8%	0.0%	31.1%	31.1%	0.0%	31.1%	31.1%
Maximum Green (s)	40.0	40.0			15.0	15.0		45.0	45.0		45.0	45.0
Yellow Time (s)	4.0	4.0			4.0	4.0		4.0	4.0		4.0	4.0
All-Red Time (s)	2.0	2.0			2.0	2.0		2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-2.0	0.0	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	0.0	-2.0	-2.0
Total Lost Time (s)	4.0	6.0	4.0	4.0	4.0	6.0	4.0	4.0	6.0	4.0	4.0	4.0

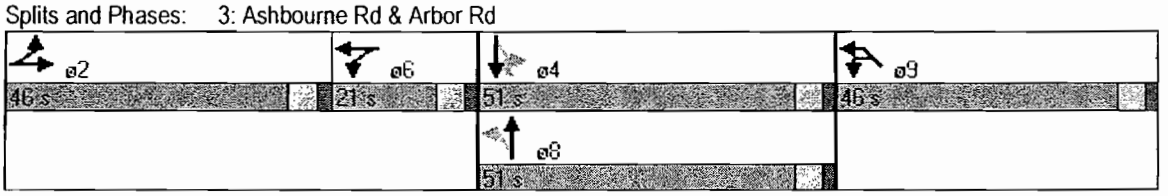
Lane Group	SBT	SBR	NWL2	NWL	NWR
Lane Configurations					
Volume (vph)	94	234	16	261	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	16	16	16
Grade (%)	0%			2%	
Storage Length (ft)		0		0	0
Storage Lanes		0		1	0
Taper Length (ft)		25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					
Frt	0.909			0.993	
Flt Protected	0.997			0.955	
Satd. Flow (prot)	1770	0	0	1982	0
Flt Permitted	0.984			0.955	
Satd. Flow (perm)	1747	0	0	1982	0
Right Turn on Red		Yes			
Satd. Flow (RTOR)	63				
Link Speed (mph)	35			25	
Link Distance (ft)	1140			573	
Travel Time (s)	22.2			15.6	
Confl. Peds. (#/hr)					
Confl. Bikes (#/hr)					
Peak Hour Factor	0.98	0.98	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	7%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0
Parking (#/hr)					
Mid-Block Traffic (%)	0%			0%	
Adj. Flow (vph)	96	239	17	275	15
Shared Lane Traffic (%)					
Lane Group Flow (vph)	353	0	0	307	0
Number of Detectors	2		1	1	
Detector Template					
Leading Detector (ft)	70		35	35	
Trailing Detector (ft)	-5		-5	-5	
Turn Type			Split		
Protected Phases	4		9	9	
Permitted Phases					
Detector Phase	4		9	9	
Switch Phase					
Minimum Initial (s)	8.0		8.0	8.0	
Minimum Split (s)	14.0		14.0	14.0	
Total Split (s)	51.0	0.0	46.0	46.0	0.0
Total Split (%)	31.1%	0.0%	28.0%	28.0%	0.0%
Maximum Green (s)	45.0		40.0	40.0	
Yellow Time (s)	4.0		4.0	4.0	
All-Red Time (s)	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	-2.0	0.0	0.0
Total Lost Time (s)	6.0	4.0	4.0	6.0	4.0

Lane Group	EBL	EBT	EBR	EBR2	WBL	WBT	WBR	NBL	NBT	NBR2	SBL2	SBL
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0			5.0	5.0		5.0	5.0		5.0	5.0
Minimum Gap (s)	3.0	3.0			3.0	3.0		3.0	3.0		3.0	3.0
Time Before Reduce (s)	0.0	0.0			0.0	0.0		0.0	0.0		0.0	0.0
Time To Reduce (s)	0.0	0.0			0.0	0.0		0.0	0.0		0.0	0.0
Recall Mode	None	None			None	None		Max	Max		Max	Max
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.88				0.21			0.14			
Control Delay		68.9				65.6			38.6			
Queue Delay		0.0				0.0			0.0			
Total Delay		68.9				65.6			38.6			
Queue Length 50th (ft)		420				21			65			
Queue Length 95th (ft)		#541				49			109			
Internal Link Dist (ft)		1285				447			420			
Turn Bay Length (ft)												
Base Capacity (vph)		509				188			664			
Starvation Cap Reductn		0				0			0			
Spillback Cap Reductn		0				0			0			
Storage Cap Reductn		0				0			0			
Reduced v/c Ratio		0.88				0.13			0.14			

Intersection Summary

Area Type: Other
Cycle Length: 164
Actuated Cycle Length: 142.4
Natural Cycle: 80
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Ashbourne Rd & Arbor Rd



Lane Group	SBT	SBR	NWL2	NWL	NWR
Lead/Lag					
Lead-Lag Optimize?					
Vehicle Extension (s)	5.0		5.0	5.0	
Minimum Gap (s)	3.0		3.0	3.0	
Time Before Reduce (s)	0.0		0.0	0.0	
Time To Reduce (s)	0.0		0.0	0.0	
Recall Mode	Max		None	None	
Walk Time (s)					
Flash Dont Walk (s)					
Pedestrian Calls (#/hr)					
v/c Ratio	0.59			0.76	
Control Delay	40.0			67.0	
Queue Delay	0.0			0.0	
Total Delay	40.0			67.0	
Queue Length 50th (ft)	242			284	
Queue Length 95th (ft)	394			400	
Internal Link Dist (ft)	1060			493	
Turn Bay Length (ft)					
Base Capacity (vph)	602			563	
Starvation Cap Reductn	0			0	
Spillback Cap Reductn	0			0	
Storage Cap Reductn	0			0	
Reduced v/c Ratio	0.59			0.55	

Intersection Summary

Movement	EBL	EBT	EBR	EBR2	WBL	WBT	WBR	NBL	NBT	NBR2	SBL2	SBL
Lane Configurations												
Volume (vph)	156	3	177	7	6	11	2	4	69	2	1	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	15	15	15	15	12	12	12	16	16	16	15	15
Grade (%)		0%				1%			1%			
Total Lost time (s)		6.0				6.0			6.0			
Lane Util. Factor		1.00				1.00			1.00			
Frt		0.93				0.98			1.00			
Flt Protected		0.98				0.98			1.00			
Satd. Flow (prot)		1788				1743			2110			
Flt Permitted		0.98				0.98			0.98			
Satd. Flow (perm)		1788				1743			2073			
Peak-hour factor, PHF	0.77	0.77	0.77	0.77	0.79	0.79	0.79	0.80	0.80	0.80	0.98	0.98
Adj. Flow (vph)	203	4	230	9	8	14	3	5	86	2	1	17
RTOR Reduction (vph)	0	1	0	0	0	3	0	0	1	0	0	0
Lane Group Flow (vph)	0	445	0	0	0	22	0	0	92	0	0	0
Heavy Vehicles (%)	6%	6%	6%	6%	5%	5%	5%	1%	1%	1%	7%	7%
Turn Type	Split				Split			Perm			Perm	Perm
Protected Phases	2	2			6	6			8			
Permitted Phases		2						8			4	4
Actuated Green, G (s)		40.5				5.9			45.5			
Effective Green, g (s)		40.5				5.9			45.5			
Actuated g/C Ratio		0.28				0.04			0.31			
Clearance Time (s)		6.0				6.0			6.0			
Vehicle Extension (s)		5.0				5.0			5.0			
Lane Grp Cap (vph)		500				71			651			
v/s Ratio Prot		c0.25				c0.01						
v/s Ratio Perm									0.04			
v/c Ratio		0.89				0.31			0.14			
Uniform Delay, d1		50.0				67.5			35.6			
Progression Factor		1.00				1.00			1.00			
Incremental Delay, d2		18.8				5.2			0.5			
Delay (s)		68.8				72.7			36.1			
Level of Service		E				E			D			
Approach Delay (s)		68.8				72.7			36.1			
Approach LOS		E				E			D			

Intersection Summary			
HCM Average Control Delay	58.9	HCM Level of Service	E
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	144.8	Sum of lost time (s)	24.0
Intersection Capacity Utilization	83.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR	NWL2	NWL	NWR
Lane Configurations					
Volume (vph)	94	234	16	261	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Lane Width	15	15	16	16	16
Grade (%)	0%			2%	
Total Lost time (s)	6.0			6.0	
Lane Util. Factor	1.00			1.00	
Frt	0.91			0.99	
Flt Protected	1.00			0.95	
Satd. Flow (prot)	1770			1982	
Flt Permitted	0.98			0.95	
Satd. Flow (perm)	1746			1982	
Peak-hour factor, PHF	0.98	0.98	0.95	0.95	0.95
Adj. Flow (vph)	96	239	17	275	15
RTOR Reduction (vph)	43	0	0	0	0
Lane Group Flow (vph)	310	0	0	307	0
Heavy Vehicles (%)	7%	7%	2%	2%	2%
Turn Type			Split		
Protected Phases	4		9	9	
Permitted Phases					
Actuated Green, G (s)	45.5			28.9	
Effective Green, g (s)	45.5			28.9	
Actuated g/C Ratio	0.31			0.20	
Clearance Time (s)	6.0			6.0	
Vehicle Extension (s)	5.0			5.0	
Lane Grp Cap (vph)	549			396	
v/s Ratio Prot				c0.15	
v/s Ratio Perm	c0.18				
v/c Ratio	0.56			0.78	
Uniform Delay, d1	41.4			54.9	
Progression Factor	1.00			1.00	
Incremental Delay, d2	4.2			10.6	
Delay (s)	45.5			65.5	
Level of Service	D			E	
Approach Delay (s)	45.5			65.5	
Approach LOS	D			E	

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	93	165	25	8	145	132	20	413	13	111	333	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	14	16	16	16	16	16	16	12	12	12
Grade (%)		-4%			2%			1%			-3%	
Storage Length (ft)	0		115	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25		25	25		25	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
Ped Bike Factor												
Frt			0.850		0.938			0.996			0.984	
Flt Protected		0.982			0.999			0.998			0.989	
Satd. Flow (prot)	0	1866	1723	0	1939	0	0	2109	0	0	1840	0
Flt Permitted		0.682			0.989			0.967			0.797	
Satd. Flow (perm)	0	1296	1723	0	1920	0	0	2043	0	0	1483	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			28		72			3			15	
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		500			2250			500			1140	
Travel Time (s)		8.5			38.4			9.7			22.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.89	0.89	0.89	0.79	0.79	0.79	0.90	0.90	0.90	0.86	0.86	0.86
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	1%	1%	1%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	104	185	28	10	184	167	22	459	14	129	387	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	289	28	0	361	0	0	495	0	0	587	0
Number of Detectors	1	0	0	1	0		1	0		1	0	
Detector Template												
Leading Detector (ft)	35	0	0	35	0		35	0		35	0	
Trailing Detector (ft)	-5	0	0	-5	0		-5	0		-5	0	
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase												
Switch Phase												
Minimum Initial (s)	22.0	22.0	22.0	22.0	22.0		33.0	33.0		33.0	33.0	
Minimum Split (s)	27.0	27.0	27.0	27.0	27.0		38.0	38.0		38.0	38.0	
Total Split (s)	27.0	27.0	27.0	27.0	27.0	0.0	38.0	38.0	0.0	38.0	38.0	0.0
Total Split (%)	41.5%	41.5%	41.5%	41.5%	41.5%	0.0%	58.5%	58.5%	0.0%	58.5%	58.5%	0.0%
Maximum Green (s)	22.0	22.0	22.0	22.0	22.0		33.0	33.0		33.0	33.0	
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)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	0.0	0.0	-1.0	0.0	0.0	-1.0	0.0	0.0	-1.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0	4.0	4.0	5.0	4.0	4.0	5.0	4.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Recall Mode	Max	Max	Max	Max	Max		Max	Max		Max	Max	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.66	0.05		0.52			0.48			0.77	
Control Delay		27.1	6.5		16.8			12.2			21.6	
Queue Delay		0.0	0.0		0.0			0.0			0.0	
Total Delay		27.1	6.5		16.8			12.2			21.6	
Queue Length 50th (ft)		96	0		88			117			170	
Queue Length 95th (ft)		#175	15		131			187			275	
Internal Link Dist (ft)		420			2170			420			1060	
Turn Bay Length (ft)			115									
Base Capacity (vph)		439	602		697			1039			760	
Starvation Cap Reductn		0	0		0			0			0	
Spillback Cap Reductn		0	0		0			0			0	
Storage Cap Reductn		0	0		0			0			0	
Reduced v/c Ratio		0.66	0.05		0.52			0.48			0.77	

Intersection Summary

Area Type: Other

Cycle Length: 65

Actuated Cycle Length: 65

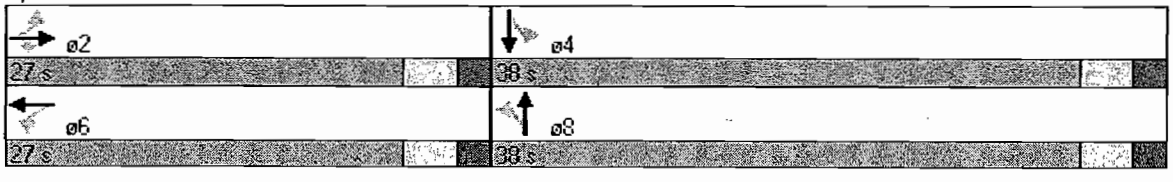
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 65

Control Type: Pretimed

#. 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Ashbourne Rd & New Second St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	93	165	25	8	145	132	20	413	13	111	333	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	14	16	16	16	16	16	16	12	12	12
Grade (%)		-4%			2%			1%			-3%	
Total Lost time (s)		5.0	5.0		5.0			5.0			5.0	
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00	
Frt		1.00	0.85		0.94			1.00			0.98	
Flt Protected		0.98	1.00		1.00			1.00			0.99	
Satd. Flow (prot)		1866	1723		1938			2109			1840	
Flt Permitted		0.68	1.00		0.99			0.97			0.80	
Satd. Flow (perm)		1296	1723		1919			2043			1482	
Peak-hour factor, PHF	0.89	0.89	0.89	0.79	0.79	0.79	0.90	0.90	0.90	0.86	0.86	0.86
Adj. Flow (vph)	104	185	28	10	184	167	22	459	14	129	387	71
RTOR Reduction (vph)	0	0	19	0	48	0	0	1	0	0	7	0
Lane Group Flow (vph)	0	289	9	0	313	0	0	494	0	0	580	0
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	1%	1%	1%	2%	2%	2%
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)		22.0	22.0		22.0			33.0			33.0	
Effective Green, g (s)		22.0	22.0		22.0			33.0			33.0	
Actuated g/C Ratio		0.34	0.34		0.34			0.51			0.51	
Clearance Time (s)		5.0	5.0		5.0			5.0			5.0	
Lane Grp Cap (vph)		439	583		650			1037			752	
v/s Ratio Prot												
v/s Ratio Perm		c0.22	0.01		0.16			0.24			c0.39	
v/c Ratio		0.66	0.02		0.48			0.48			0.77	
Uniform Delay, d1		18.3	14.3		17.0			10.4			12.9	
Progression Factor		1.00	1.00		1.00			1.00			1.00	
Incremental Delay, d2		7.5	0.1		2.5			1.6			7.5	
Delay (s)		25.8	14.4		19.5			12.0			20.4	
Level of Service		C	B		B			B			C	
Approach Delay (s)		24.8			19.5			12.0			20.4	
Approach LOS		C			B			B			C	

Intersection Summary			
HCM Average Control Delay	18.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	108.3%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	212	52	231	248	1	36	1	228	0	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	9	10	10	11	11	14	9	9	9
Grade (%)		1%			1%			-2%			1%	
Storage Length (ft)	140		0	150		0	0		45	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25		25	25		25	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
Ped Bike Factor												
Frt		0.970			0.999				0.850			
Flt Protected				0.950				0.953				
Satd. Flow (prot)	1764	1712	0	1569	1711	0	0	1700	1673	0	851	0
Flt Permitted				0.576				0.779				
Satd. Flow (perm)	1764	1712	0	951	1711	0	0	1389	1673	0	851	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		28							268			
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		2250			1365			500			300	
Travel Time (s)		38.4			23.3			9.7			5.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.87	0.87	0.87	0.85	0.85	0.85	0.25	0.25	0.25
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	3%	3%	3%	4%	4%	4%	100%	100%	100%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	236	58	266	285	1	42	1	268	0	4	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	294	0	266	286	0	0	43	268	0	4	0
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template												
Leading Detector (ft)	35	35		35	35		35	35	35	20	20	
Trailing Detector (ft)	-5	-5		-5	-5		-5	-5	-5	-5	-5	
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase							8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	33.0	33.0		33.0	33.0		20.0	20.0	20.0	20.0	20.0	
Minimum Split (s)	39.0	39.0		39.0	39.0		26.0	26.0	26.0	26.0	26.0	
Total Split (s)	39.0	39.0	0.0	39.0	39.0	0.0	26.0	26.0	26.0	26.0	26.0	0.0
Total Split (%)	60.0%	60.0%	0.0%	60.0%	60.0%	0.0%	40.0%	40.0%	40.0%	40.0%	40.0%	0.0%
Maximum Green (s)	33.0	33.0		33.0	33.0		20.0	20.0	20.0	20.0	20.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		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	-2.0	0.0	0.0	-2.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	4.0	6.0	6.0	4.0	6.0	4.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Recall Mode	Max	Max		Max	Max		None	None	None	None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.33		0.55	0.33			0.10	0.38		0.02	
Control Delay		9.8		16.4	10.8			17.0	4.4		16.0	
Queue Delay		0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay		9.8		16.4	10.8			17.0	4.4		16.0	
Queue Length 50th (ft)		57		67	62			12	0		1	
Queue Length 95th (ft)		103		128	104			31	38		2	
Internal Link Dist (ft)		2170			1285			420			220	
Turn Bay Length (ft)				150					45			
Base Capacity (vph)		883		483	869			427	700		262	
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		0.33		0.55	0.33			0.10	0.38		0.02	

Intersection Summary

Area Type: Other

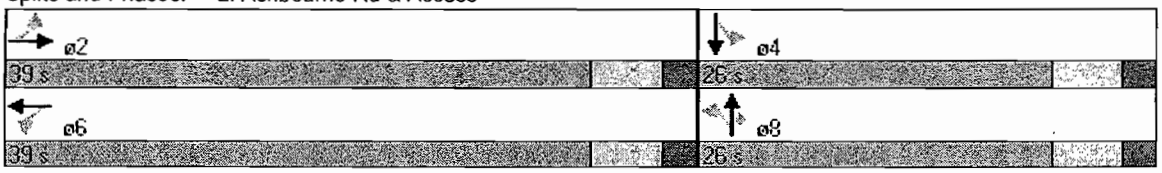
Cycle Length: 65

Actuated Cycle Length: 65

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Ashbourne Rd & Access



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	212	52	231	248	1	36	1	228	0	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	9	10	10	11	11	14	9	9	9
Grade (%)		1%			1%			-2%			1%	
Total Lost time (s)		6.0		6.0	6.0			6.0	6.0		6.0	
Lane Util. Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Frt		0.97		1.00	1.00			1.00	0.85		1.00	
Flt Protected		1.00		0.95	1.00			0.95	1.00		1.00	
Satd. Flow (prot)		1712		1569	1712			1701	1673		851	
Flt Permitted		1.00		0.58	1.00			0.78	1.00		1.00	
Satd. Flow (perm)		1712		951	1712			1390	1673		851	
Peak-hour factor, PHF	0.90	0.90	0.90	0.87	0.87	0.87	0.85	0.85	0.85	0.25	0.25	0.25
Adj. Flow (vph)	0	236	58	266	285	1	42	1	268	0	4	0
RTOR Reduction (vph)	0	14	0	0	0	0	0	0	186	0	0	0
Lane Group Flow (vph)	0	280	0	266	286	0	0	43	82	0	4	0
Heavy Vehicles (%)	0%	0%	0%	3%	3%	3%	4%	4%	4%	100%	100%	100%
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)		33.0		33.0	33.0			20.0	20.0		20.0	
Effective Green, g (s)		33.0		33.0	33.0			20.0	20.0		20.0	
Actuated g/C Ratio		0.51		0.51	0.51			0.31	0.31		0.31	
Clearance Time (s)		6.0		6.0	6.0			6.0	6.0		6.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)		869		483	869			428	515		262	
v/s Ratio Prot		0.16			0.17						0.00	
v/s Ratio Perm				c0.28				0.03	c0.05			
v/c Ratio		0.32		0.55	0.33			0.10	0.16		0.02	
Uniform Delay, d1		9.4		10.9	9.5			16.1	16.4		15.7	
Progression Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2		1.0		4.5	1.0			0.1	0.1		0.0	
Delay (s)		10.4		15.4	10.5			16.2	16.5		15.7	
Level of Service		B		B	B			B	B		B	
Approach Delay (s)		10.4			12.8			16.5			15.7	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	13.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	EBR2	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2	SBL
Lane Configurations												
Volume (vph)	230	11	200	22	0	4	10	95	4	16	3	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	15	15	12	12	16	16	16	16	15	15
Grade (%)		0%			1%			1%				
Storage Length (ft)	0		0			0	0		0			0
Storage Lanes	0		0			0	0		0			0
Taper Length (ft)	25		25			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
Ped Bike Factor												
Frt		0.935			0.865			0.979				
Flt Protected		0.976						0.996				
Satd. Flow (prot)	0	1870	0	0	1090	0	0	2048	0	0	0	0
Flt Permitted		0.976						0.960				
Satd. Flow (perm)	0	1870	0	0	1090	0	0	1974	0	0	0	0
Right Turn on Red				Yes		Yes				Yes		
Satd. Flow (RTOR)		1			614			4				
Link Speed (mph)		40			25			15				
Link Distance (ft)		1365			527			500				
Travel Time (s)		23.3			14.4			22.7				
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.88	0.88	0.88	0.88	0.33	0.33	0.73	0.73	0.73	0.73	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	50%	50%	2%	2%	2%	2%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%				
Adj. Flow (vph)	261	12	227	25	0	12	14	130	5	22	3	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	525	0	0	12	0	0	171	0	0	0	0
Number of Detectors	1	1			1		1	1			2	2
Detector Template												
Leading Detector (ft)	35	35			35		35	35			70	70
Trailing Detector (ft)	-5	-5			-5		-5	-5			-5	-5
Turn Type	Split						Perm				Perm	Perm
Protected Phases	2	2			6			8				
Permitted Phases		2					8				4	4
Detector Phase	2	2			6		8	8			4	4
Switch Phase												
Minimum Initial (s)	8.0	8.0			5.0		8.0	8.0			8.0	8.0
Minimum Split (s)	14.0	14.0			11.0		14.0	14.0			14.0	14.0
Total Split (s)	46.0	46.0	0.0	0.0	21.0	0.0	51.0	51.0	0.0	0.0	51.0	51.0
Total Split (%)	28.0%	28.0%	0.0%	0.0%	12.8%	0.0%	31.1%	31.1%	0.0%	0.0%	31.1%	31.1%
Maximum Green (s)	40.0	40.0			15.0		45.0	45.0			45.0	45.0
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0			4.0	4.0
All-Red Time (s)	2.0	2.0			2.0		2.0	2.0			2.0	2.0
Lost Time Adjust (s)	-2.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	0.0	0.0	-2.0	-2.0
Total Lost Time (s)	4.0	6.0	4.0	4.0	6.0	4.0	4.0	6.0	4.0	4.0	4.0	4.0

Lane Group	SBT	SBR	NWL2	NWL	NWR
Lane Configurations					
Volume (vph)	98	168	24	289	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	16	16	16
Grade (%)	0%			2%	
Storage Length (ft)		0		0	0
Storage Lanes		0		1	0
Taper Length (ft)		25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					
Frt	0.921			0.993	
Flt Protected	0.996			0.955	
Satd. Flow (prot)	1843	0	0	1982	0
Flt Permitted	0.965			0.955	
Satd. Flow (perm)	1786	0	0	1982	0
Right Turn on Red		Yes			
Satd. Flow (RTOR)	42				
Link Speed (mph)	35			25	
Link Distance (ft)	1140			573	
Travel Time (s)	22.2			15.6	
Confl. Peds. (#/hr)					
Confl. Bikes (#/hr)					
Peak Hour Factor	0.93	0.93	0.86	0.86	0.86
Growth Factor	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0
Parking (#/hr)					
Mid-Block Traffic (%)	0%			0%	
Adj. Flow (vph)	105	181	28	336	21
Shared Lane Traffic (%)					
Lane Group Flow (vph)	311	0	0	385	0
Number of Detectors	2		1	1	
Detector Template					
Leading Detector (ft)	70		35	35	
Trailing Detector (ft)	-5		-5	-5	
Turn Type			Split		
Protected Phases	4		9	9	
Permitted Phases					
Detector Phase	4		9	9	
Switch Phase					
Minimum Initial (s)	8.0		8.0	8.0	
Minimum Split (s)	14.0		14.0	14.0	
Total Split (s)	51.0	0.0	46.0	46.0	0.0
Total Split (%)	31.1%	0.0%	28.0%	28.0%	0.0%
Maximum Green (s)	45.0		40.0	40.0	
Yellow Time (s)	4.0		4.0	4.0	
All-Red Time (s)	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	-2.0	0.0	0.0
Total Lost Time (s)	6.0	4.0	4.0	6.0	4.0

Lane Group	EBL	EBT	EBR	EBR2	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2	SBL
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0			5.0		5.0	5.0			5.0	5.0
Minimum Gap (s)	3.0	3.0			3.0		3.0	3.0			3.0	3.0
Time Before Reduce (s)	0.0	0.0			0.0		0.0	0.0			0.0	0.0
Time To Reduce (s)	0.0	0.0			0.0		0.0	0.0			0.0	0.0
Recall Mode	None	None			None		Max	Max			Max	Max
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.99			0.02			0.27				
Control Delay		86.8			0.0			38.9				
Queue Delay		0.0			0.0			0.0				
Total Delay		86.8			0.0			38.9				
Queue Length 50th (ft)		458			0			108				
Queue Length 95th (ft)		#813			0			160				
Internal Link Dist (ft)		1285			447			420				
Turn Bay Length (ft)												
Base Capacity (vph)		531			665			633				
Starvation Cap Reductn		0			0			0				
Spillback Cap Reductn		0			0			0				
Storage Cap Reductn		0			0			0				
Reduced v/c Ratio		0.99			0.02			0.27				

Intersection Summary

Area Type: Other

Cycle Length: 164

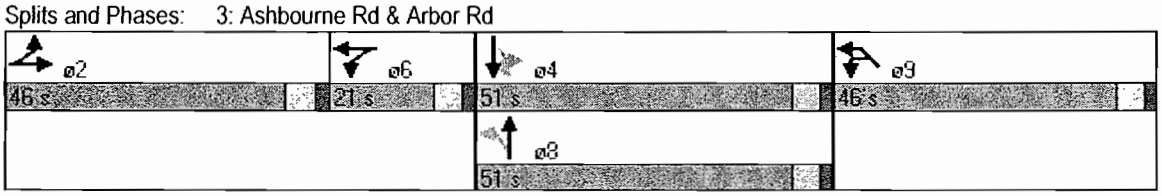
Actuated Cycle Length: 142

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Ashbourne Rd & Arbor Rd



Lane Group	SBT	SBR	NWL2	NWL	NWR
Lead/Lag					
Lead-Lag Optimize?					
Vehicle Extension (s)	5.0		5.0	5.0	
Minimum Gap (s)	3.0		3.0	3.0	
Time Before Reduce (s)	0.0		0.0	0.0	
Time To Reduce (s)	0.0		0.0	0.0	
Recall Mode	Max		None	None	
Walk Time (s)					
Flash Dont Walk (s)					
Pedestrian Calls (#/hr)					
v/c Ratio	0.52			0.83	
Control Delay	39.4			68.0	
Queue Delay	0.0			0.0	
Total Delay	39.4			68.0	
Queue Length 50th (ft)	191			322	
Queue Length 95th (ft)	342			465	
Internal Link Dist (ft)	1060			493	
Turn Bay Length (ft)					
Base Capacity (vph)	599			562	
Starvation Cap Reductn	0			0	
Spillback Cap Reductn	0			0	
Storage Cap Reductn	0			0	
Reduced v/c Ratio	0.52			0.69	

Intersection Summary

Movement	EBL	EBT	EBR	EBR2	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2	SBL
Lane Configurations												
Volume (vph)	230	11	200	22	0	4	10	95	4	16	3	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	15	15	15	15	12	12	16	16	16	16	15	15
Grade (%)		0%			1%			1%				
Total Lost time (s)		6.0			6.0			6.0				
Lane Util. Factor		1.00			1.00			1.00				
Frt		0.94			0.86			0.98				
Flt Protected		0.98			1.00			1.00				
Satd. Flow (prot)		1870			1090			2047				
Flt Permitted		0.98			1.00			0.96				
Satd. Flow (perm)		1870			1090			1973				
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.33	0.33	0.73	0.73	0.73	0.73	0.93	0.93
Adj. Flow (vph)	261	12	227	25	0	12	14	130	5	22	3	22
RTOR Reduction (vph)	0	1	0	0	12	0	0	3	0	0	0	0
Lane Group Flow (vph)	0	524	0	0	0	0	0	168	0	0	0	0
Heavy Vehicles (%)	2%	2%	2%	2%	50%	50%	2%	2%	2%	2%	4%	4%
Turn Type	Split						Perm				Perm	Perm
Protected Phases	2	2			6			8				
Permitted Phases		2					8				4	4
Actuated Green, G (s)		40.3			2.8			45.3				
Effective Green, g (s)		40.3			2.8			45.3				
Actuated g/C Ratio		0.28			0.02			0.31				
Clearance Time (s)		6.0			6.0			6.0				
Vehicle Extension (s)		5.0			5.0			5.0				
Lane Grp Cap (vph)		517			21			613				
v/s Ratio Prot		c0.28			c0.00							
v/s Ratio Perm								0.09				
v/c Ratio		1.01			0.01			0.27				
Uniform Delay, d1		52.7			70.1			37.8				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		43.2			0.4			1.1				
Delay (s)		95.9			70.5			38.9				
Level of Service		F			E			D				
Approach Delay (s)		95.9			70.5			38.9				
Approach LOS		F			E			D				

Intersection Summary			
HCM Average Control Delay	69.9	HCM Level of Service	E
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	145.7	Sum of lost time (s)	24.0
Intersection Capacity Utilization	88.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR	NWL2	NWL	NWR
Lane Configurations					
Volume (vph)	98	168	24	289	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Lane Width	15	15	16	16	16
Grade (%)	0%			2%	
Total Lost time (s)	6.0			6.0	
Lane Util. Factor	1.00			1.00	
Frt	0.92			0.99	
Flt Protected	1.00			0.95	
Satd. Flow (prot)	1844			1981	
Flt Permitted	0.96			0.95	
Satd. Flow (perm)	1786			1981	
Peak-hour factor, PHF	0.93	0.93	0.86	0.86	0.86
Adj. Flow (vph)	105	181	28	336	21
RTOR Reduction (vph)	29	0	0	0	0
Lane Group Flow (vph)	282	0	0	385	0
Heavy Vehicles (%)	4%	4%	2%	2%	2%
Turn Type			Split		
Protected Phases	4		9	9	
Permitted Phases					
Actuated Green, G (s)	45.3			33.3	
Effective Green, g (s)	45.3			33.3	
Actuated g/C Ratio	0.31			0.23	
Clearance Time (s)	6.0			6.0	
Vehicle Extension (s)	5.0			5.0	
Lane Grp Cap (vph)	555			453	
v/s Ratio Prot				c0.19	
v/s Ratio Perm	c0.16				
v/c Ratio	0.51			0.85	
Uniform Delay, d1	41.1			53.8	
Progression Factor	1.00			1.00	
Incremental Delay, d2	3.3			15.2	
Delay (s)	44.4			69.0	
Level of Service	D			E	
Approach Delay (s)	44.4			69.0	
Approach LOS	D			E	

Intersection Summary

APPENDIX F

2011 Future without Development Capacity/Level-of-Service Analysis Worksheets

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	111	117	25	7	167	104	15	369	7	84	496	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	13	16	16	16	16	16	16	12	12	12
Grade (%)		-4%			2%			1%			-3%	
Storage Length (ft)	0		110	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25		25	25		25	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
Ped Bike Factor												
Frt			0.850		0.949			0.998			0.984	
Flt Protected		0.976			0.999			0.998			0.994	
Satd. Flow (prot)	0	1836	1653	0	1907	0	0	2072	0	0	1814	0
Flt Permitted		0.640			0.991			0.967			0.890	
Satd. Flow (perm)	0	1204	1653	0	1891	0	0	2007	0	0	1624	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			32		50			2			15	
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		500			2250			500			1140	
Travel Time (s)		8.5			38.4			9.7			22.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.77	0.77	0.77	0.94	0.94	0.94	0.79	0.79	0.79	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	3%	6%	6%	6%	3%	3%	3%	4%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	144	152	32	7	178	111	19	467	9	91	539	83
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	296	32	0	296	0	0	495	0	0	713	0
Number of Detectors	1	0	0	1	0		1	0		1	0	
Detector Template												
Leading Detector (ft)	35	0	0	35	0		35	0		35	0	
Trailing Detector (ft)	-5	0	0	-5	0		-5	0		-5	0	
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase												
Switch Phase												
Minimum Initial (s)	22.0	22.0	22.0	22.0	22.0		33.0	33.0		33.0	33.0	
Minimum Split (s)	27.0	27.0	27.0	27.0	27.0		38.0	38.0		38.0	38.0	
Total Split (s)	27.0	27.0	27.0	27.0	27.0	0.0	38.0	38.0	0.0	38.0	38.0	0.0
Total Split (%)	41.5%	41.5%	41.5%	41.5%	41.5%	0.0%	58.5%	58.5%	0.0%	58.5%	58.5%	0.0%
Maximum Green (s)	22.0	22.0	22.0	22.0	22.0		33.0	33.0		33.0	33.0	
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)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	0.0	0.0	-1.0	0.0	0.0	-1.0	0.0	0.0	-1.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0	4.0	4.0	5.0	4.0	4.0	5.0	4.0

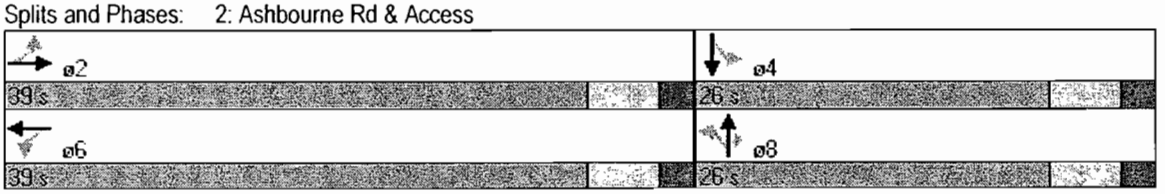
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	196	10	279	231	0	41	1	174	0	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	9	10	10	11	11	14	9	9	9
Grade (%)		1%			1%			-2%			1%	
Storage Length (ft)	140		0	150		0	0		45	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25		25	25		25	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
Ped Bike Factor												
Frt		0.993							0.850			
Flt Protected				0.950				0.953				
Satd. Flow (prot)	1713	1701	0	1525	1665	0	0	1622	1596	0	1701	0
Flt Permitted				0.603				0.767				
Satd. Flow (perm)	1713	1701	0	968	1665	0	0	1305	1596	0	1701	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6							218			
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		2250			1365			500			300	
Travel Time (s)		38.4			23.3			9.7			5.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.82	0.82	0.82	0.95	0.95	0.95	0.80	0.80	0.80	0.25	0.25	0.25
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	3%	6%	6%	6%	9%	9%	9%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	239	12	294	243	0	51	1	218	0	4	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	251	0	294	243	0	0	52	218	0	4	0
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template												
Leading Detector (ft)	35	35		35	35		35	35	35	20	20	
Trailing Detector (ft)	-5	-5		-5	-5		-5	-5	-5	-5	-5	
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase							8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	33.0	33.0		33.0	33.0		20.0	20.0	20.0	20.0	20.0	
Minimum Split (s)	39.0	39.0		39.0	39.0		26.0	26.0	26.0	26.0	26.0	
Total Split (s)	39.0	39.0	0.0	39.0	39.0	0.0	26.0	26.0	26.0	26.0	26.0	0.0
Total Split (%)	60.0%	60.0%	0.0%	60.0%	60.0%	0.0%	40.0%	40.0%	40.0%	40.0%	40.0%	0.0%
Maximum Green (s)	33.0	33.0		33.0	33.0		20.0	20.0	20.0	20.0	20.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		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	-2.0	0.0	0.0	-2.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	4.0	6.0	6.0	4.0	6.0	4.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Recall Mode	Max	Max		Max	Max		None	None	None	None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.29		0.60	0.29			0.13	0.34		0.01	
Control Delay		10.1		17.7	10.4			17.4	4.5		16.0	
Queue Delay		0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay		10.1		17.7	10.4			17.4	4.5		16.0	
Queue Length 50th (ft)		52		76	51			15	0		1	
Queue Length 95th (ft)		82		154	92			33	29		2	
Internal Link Dist (ft)		2170			1285			420			220	
Turn Bay Length (ft)				150					45			
Base Capacity (vph)		867		491	845			402	642		523	
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		0.29		0.60	0.29			0.13	0.34		0.01	

Intersection Summary

Area Type: Other
Cycle Length: 65
Actuated Cycle Length: 65
Natural Cycle: 65
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Ashbourne Rd & Access



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	196	10	279	231	0	41	1	174	0	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	9	10	10	11	11	14	9	9	9
Grade (%)		1%			1%			-2%			1%	
Total Lost time (s)		6.0		6.0	6.0			6.0	6.0		6.0	
Lane Util. Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Frt		0.99		1.00	1.00			1.00	0.85		1.00	
Flt Protected		1.00		0.95	1.00			0.95	1.00		1.00	
Satd. Flow (prot)		1701		1525	1665			1622	1596		1701	
Flt Permitted		1.00		0.60	1.00			0.77	1.00		1.00	
Satd. Flow (perm)		1701		969	1665			1305	1596		1701	
Peak-hour factor, PHF	0.82	0.82	0.82	0.95	0.95	0.95	0.80	0.80	0.80	0.25	0.25	0.25
Adj. Flow (vph)	0	239	12	294	243	0	51	1	218	0	4	0
RTOR Reduction (vph)	0	3	0	0	0	0	0	0	151	0	0	0
Lane Group Flow (vph)	0	248	0	294	243	0	0	52	67	0	4	0
Heavy Vehicles (%)	3%	3%	3%	6%	6%	6%	9%	9%	9%	0%	0%	0%
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)		33.0		33.0	33.0			20.0	20.0		20.0	
Effective Green, g (s)		33.0		33.0	33.0			20.0	20.0		20.0	
Actuated g/C Ratio		0.51		0.51	0.51			0.31	0.31		0.31	
Clearance Time (s)		6.0		6.0	6.0			6.0	6.0		6.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)		864		492	845			402	491		523	
v/s Ratio Prot		0.15			0.15						0.00	
v/s Ratio Perm				c0.30				0.04	c0.04			
v/c Ratio		0.29		0.60	0.29			0.13	0.14		0.01	
Uniform Delay, d1		9.2		11.3	9.2			16.2	16.3		15.6	
Progression Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2		0.8		5.3	0.9			0.1	0.1		0.0	
Delay (s)		10.1		16.6	10.1			16.4	16.4		15.6	
Level of Service		B		B	B			B	B		B	
Approach Delay (s)		10.1			13.6			16.4			15.6	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	13.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	EBR2	WBL	WBT	WBR	NBL	NBT	NBR2	SBL2	SBL
Lane Configurations												
Volume (vph)	159	3	180	7	6	11	2	4	70	2	1	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	15	15	12	12	12	16	16	16	15	15
Grade (%)		0%				1%			1%			
Storage Length (ft)	0		0		0		0	0				0
Storage Lanes	0		0		0		0	0				0
Taper Length (ft)	25		25		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
Ped Bike Factor												
Frt		0.928				0.984			0.997			
Flt Protected		0.978				0.984			0.997			
Satd. Flow (prot)	0	1789	0	0	0	1743	0	0	2109	0	0	0
Flt Permitted		0.978				0.984			0.980			
Satd. Flow (perm)	0	1789	0	0	0	1743	0	0	2073	0	0	0
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)		1				3			1			
Link Speed (mph)		40				25			15			
Link Distance (ft)		1365				527			500			
Travel Time (s)		23.3				14.4			22.7			
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.77	0.77	0.77	0.77	0.79	0.79	0.79	0.80	0.80	0.80	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	6%	6%	6%	6%	5%	5%	5%	1%	1%	1%	7%	7%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%				0%			0%			
Adj. Flow (vph)	206	4	234	9	8	14	3	5	88	2	1	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	453	0	0	0	25	0	0	95	0	0	0
Number of Detectors	1	1			1	1		1	1		2	2
Detector Template												
Leading Detector (ft)	35	35			35	35		35	35		70	70
Trailing Detector (ft)	-5	-5			-5	-5		-5	-5		-5	-5
Turn Type	Split				Split			Perm			Perm	Perm
Protected Phases	2	2			6	6			8			
Permitted Phases		2						8			4	4
Detector Phase	2	2			6	6		8	8		4	4
Switch Phase												
Minimum Initial (s)	8.0	8.0			5.0	5.0		8.0	8.0		8.0	8.0
Minimum Split (s)	14.0	14.0			11.0	11.0		14.0	14.0		14.0	14.0
Total Split (s)	46.0	46.0	0.0	0.0	21.0	21.0	0.0	51.0	51.0	0.0	51.0	51.0
Total Split (%)	28.0%	28.0%	0.0%	0.0%	12.8%	12.8%	0.0%	31.1%	31.1%	0.0%	31.1%	31.1%
Maximum Green (s)	40.0	40.0			15.0	15.0		45.0	45.0		45.0	45.0
Yellow Time (s)	4.0	4.0			4.0	4.0		4.0	4.0		4.0	4.0
All-Red Time (s)	2.0	2.0			2.0	2.0		2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-2.0	0.0	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	0.0	-2.0	-2.0
Total Lost Time (s)	4.0	6.0	4.0	4.0	4.0	6.0	4.0	4.0	6.0	4.0	4.0	4.0

Lane Group	SBT	SBR	NWL2	NWL	NWR
Lane Configurations					
Volume (vph)	96	238	16	266	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	16	16	16
Grade (%)	0%			2%	
Storage Length (ft)		0		0	0
Storage Lanes		0		1	0
Taper Length (ft)		25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					
Frt	0.909			0.994	
Flt Protected	0.997			0.955	
Satd. Flow (prot)	1770	0	0	1984	0
Flt Permitted	0.984			0.955	
Satd. Flow (perm)	1747	0	0	1984	0
Right Turn on Red		Yes			
Satd. Flow (RTOR)	63				
Link Speed (mph)	35			25	
Link Distance (ft)	1140			573	
Travel Time (s)	22.2			15.6	
Confl. Peds. (#/hr)					
Confl. Bikes (#/hr)					
Peak Hour Factor	0.98	0.98	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	7%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0
Parking (#/hr)					
Mid-Block Traffic (%)	0%			0%	
Adj. Flow (vph)	98	243	17	280	15
Shared Lane Traffic (%)					
Lane Group Flow (vph)	359	0	0	312	0
Number of Detectors	2		1	1	
Detector Template					
Leading Detector (ft)	70		35	35	
Trailing Detector (ft)	-5		-5	-5	
Turn Type			Split		
Protected Phases	4		9	9	
Permitted Phases					
Detector Phase	4		9	9	
Switch Phase					
Minimum Initial (s)	8.0		8.0	8.0	
Minimum Split (s)	14.0		14.0	14.0	
Total Split (s)	51.0	0.0	46.0	46.0	0.0
Total Split (%)	31.1%	0.0%	28.0%	28.0%	0.0%
Maximum Green (s)	45.0		40.0	40.0	
Yellow Time (s)	4.0		4.0	4.0	
All-Red Time (s)	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	-2.0	0.0	0.0
Total Lost Time (s)	6.0	4.0	4.0	6.0	4.0

Lane Group	EBL	EBT	EBR	EBR2	WBL	WBT	WBR	NBL	NBT	NBR2	SBL2	SBL
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0			5.0	5.0		5.0	5.0		5.0	5.0
Minimum Gap (s)	3.0	3.0			3.0	3.0		3.0	3.0		3.0	3.0
Time Before Reduce (s)	0.0	0.0			0.0	0.0		0.0	0.0		0.0	0.0
Time To Reduce (s)	0.0	0.0			0.0	0.0		0.0	0.0		0.0	0.0
Recall Mode	None	None			None	None		Max	Max		Max	Max
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.89				0.21			0.14			
Control Delay		71.0				65.7			38.8			
Queue Delay		0.0				0.0			0.0			
Total Delay		71.0				65.7			38.8			
Queue Length 50th (ft)		431				21			67			
Queue Length 95th (ft)		#554				49			111			
Internal Link Dist (ft)		1285				447			420			
Turn Bay Length (ft)												
Base Capacity (vph)		508				188			662			
Starvation Cap Reductn		0				0			0			
Spillback Cap Reductn		0				0			0			
Storage Cap Reductn		0				0			0			
Reduced v/c Ratio		0.89				0.13			0.14			

Intersection Summary

Area Type: Other

Cycle Length: 164

Actuated Cycle Length: 142.7

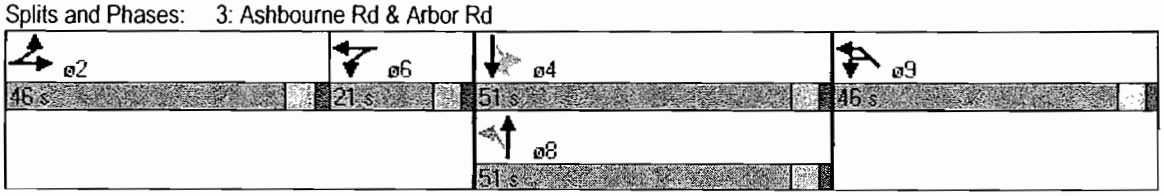
Natural Cycle: 90

Control Type: Semi Act-Uncoord

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Ashbourne Rd & Arbor Rd



Lane Group	SBT	SBR	NWL2	NWL	NWR
Lead/Lag					
Lead-Lag Optimize?					
Vehicle Extension (s)	5.0		5.0	5.0	
Minimum Gap (s)	3.0		3.0	3.0	
Time Before Reduce (s)	0.0		0.0	0.0	
Time To Reduce (s)	0.0		0.0	0.0	
Recall Mode	Max		None	None	
Walk Time (s)					
Flash Dont Walk (s)					
Pedestrian Calls (#/hr)					
v/c Ratio	0.60			0.77	
Control Delay	40.6			67.3	
Queue Delay	0.0			0.0	
Total Delay	40.6			67.3	
Queue Length 50th (ft)	249			289	
Queue Length 95th (ft)	402			406	
Internal Link Dist (ft)	1060			493	
Turn Bay Length (ft)					
Base Capacity (vph)	600			562	
Starvation Cap Reductn	0			0	
Spillback Cap Reductn	0			0	
Storage Cap Reductn	0			0	
Reduced v/c Ratio	0.60			0.56	

Intersection Summary

Movement	EBL	EBT	EBR	EBR2	WBL	WBT	WBR	NBL	NBT	NBR2	SBL2	SBL
Lane Configurations												
Volume (vph)	159	3	180	7	6	11	2	4	70	2	1	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	15	15	15	15	12	12	12	16	16	16	15	15
Grade (%)		0%				1%			1%			
Total Lost time (s)		6.0				6.0			6.0			
Lane Util. Factor		1.00				1.00			1.00			
Frt		0.93				0.98			1.00			
Flt Protected		0.98				0.98			1.00			
Satd. Flow (prot)		1788				1743			2110			
Flt Permitted		0.98				0.98			0.98			
Satd. Flow (perm)		1788				1743			2073			
Peak-hour factor, PHF	0.77	0.77	0.77	0.77	0.79	0.79	0.79	0.80	0.80	0.80	0.98	0.98
Adj. Flow (vph)	206	4	234	9	8	14	3	5	88	2	1	17
RTOR Reduction (vph)	0	1	0	0	0	3	0	0	1	0	0	0
Lane Group Flow (vph)	0	452	0	0	0	22	0	0	94	0	0	0
Heavy Vehicles (%)	6%	6%	6%	6%	5%	5%	5%	1%	1%	1%	7%	7%
Turn Type	Split				Split			Perm			Perm	Perm
Protected Phases	2	2			6	6			8			
Permitted Phases		2						8			4	4
Actuated Green, G (s)		40.5				5.9			45.5			
Effective Green, g (s)		40.5				5.9			45.5			
Actuated g/C Ratio		0.28				0.04			0.31			
Clearance Time (s)		6.0				6.0			6.0			
Vehicle Extension (s)		5.0				5.0			5.0			
Lane Grp Cap (vph)		499				71			650			
v/s Ratio Prot		c0.25				c0.01						
v/s Ratio Perm									0.05			
v/c Ratio		0.91				0.31			0.15			
Uniform Delay, d1		50.5				67.6			35.8			
Progression Factor		1.00				1.00			1.00			
Incremental Delay, d2		21.0				5.2			0.5			
Delay (s)		71.5				72.8			36.3			
Level of Service		E				E			D			
Approach Delay (s)		71.5				72.8			36.3			
Approach LOS		E				E			D			

Intersection Summary			
HCM Average Control Delay	60.1	HCM Level of Service	E
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	145.1	Sum of lost time (s)	24.0
Intersection Capacity Utilization	84.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR	NWL2	NWL	NWR
Lane Configurations					
Volume (vph)	96	238	16	266	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Lane Width	15	15	16	16	16
Grade (%)	0%			2%	
Total Lost time (s)	6.0			6.0	
Lane Util. Factor	1.00			1.00	
Frt	0.91			0.99	
Flt Protected	1.00			0.95	
Satd. Flow (prot)	1770			1982	
Flt Permitted	0.98			0.95	
Satd. Flow (perm)	1746			1982	
Peak-hour factor, PHF	0.98	0.98	0.95	0.95	0.95
Adj. Flow (vph)	98	243	17	280	15
RTOR Reduction (vph)	43	0	0	0	0
Lane Group Flow (vph)	316	0	0	312	0
Heavy Vehicles (%)	7%	7%	2%	2%	2%
Turn Type			Split		
Protected Phases	4		9	9	
Permitted Phases					
Actuated Green, G (s)	45.5			29.2	
Effective Green, g (s)	45.5			29.2	
Actuated g/C Ratio	0.31			0.20	
Clearance Time (s)	6.0			6.0	
Vehicle Extension (s)	5.0			5.0	
Lane Grp Cap (vph)	548			399	
v/s Ratio Prot				c0.16	
v/s Ratio Perm	c0.18				
v/c Ratio	0.58			0.78	
Uniform Delay, d1	41.7			54.9	
Progression Factor	1.00			1.00	
Incremental Delay, d2	4.4			11.1	
Delay (s)	46.1			66.0	
Level of Service	D			E	
Approach Delay (s)	46.1			66.0	
Approach LOS	D			E	

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	95	168	25	8	148	134	20	421	13	113	339	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	14	16	16	16	16	16	16	12	12	12
Grade (%)		-4%			2%			1%			-3%	
Storage Length (ft)	0		115	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25		25	25		25	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
Ped Bike Factor												
Frt			0.850		0.937			0.996			0.984	
Flt Protected		0.982			0.999			0.998			0.989	
Satd. Flow (prot)	0	1866	1723	0	1937	0	0	2109	0	0	1840	0
Flt Permitted		0.670			0.989			0.967			0.792	
Satd. Flow (perm)	0	1273	1723	0	1918	0	0	2043	0	0	1473	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			28		72			3			15	
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		500			2250			500			1140	
Travel Time (s)		8.5			38.4			9.7			22.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.89	0.89	0.89	0.79	0.79	0.79	0.90	0.90	0.90	0.86	0.86	0.86
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	1%	1%	1%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	107	189	28	10	187	170	22	468	14	131	394	72
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	296	28	0	367	0	0	504	0	0	597	0
Number of Detectors	1	0	0	1	0		1	0		1	0	
Detector Template												
Leading Detector (ft)	35	0	0	35	0		35	0		35	0	
Trailing Detector (ft)	-5	0	0	-5	0		-5	0		-5	0	
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase												
Switch Phase												
Minimum Initial (s)	22.0	22.0	22.0	22.0	22.0		33.0	33.0		33.0	33.0	
Minimum Split (s)	27.0	27.0	27.0	27.0	27.0		38.0	38.0		38.0	38.0	
Total Split (s)	27.0	27.0	27.0	27.0	27.0	0.0	38.0	38.0	0.0	38.0	38.0	0.0
Total Split (%)	41.5%	41.5%	41.5%	41.5%	41.5%	0.0%	58.5%	58.5%	0.0%	58.5%	58.5%	0.0%
Maximum Green (s)	22.0	22.0	22.0	22.0	22.0		33.0	33.0		33.0	33.0	
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)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	0.0	0.0	-1.0	0.0	0.0	-1.0	0.0	0.0	-1.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0	4.0	4.0	5.0	4.0	4.0	5.0	4.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Recall Mode	Max	Max	Max	Max	Max		Max	Max		Max	Max	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.69	0.05		0.53			0.49			0.79	
Control Delay		28.7	6.5		17.0			12.4			22.8	
Queue Delay		0.0	0.0		0.0			0.0			0.0	
Total Delay		28.7	6.5		17.0			12.4			22.8	
Queue Length 50th (ft)		99	0		90			120			176	
Queue Length 95th (ft)		#200	15		134			192			#301	
Internal Link Dist (ft)		420			2170			420			1060	
Turn Bay Length (ft)			115									
Base Capacity (vph)		431	602		697			1039			755	
Starvation Cap Reductn		0	0		0			0			0	
Spillback Cap Reductn		0	0		0			0			0	
Storage Cap Reductn		0	0		0			0			0	
Reduced v/c Ratio		0.69	0.05		0.53			0.49			0.79	

Intersection Summary

Area Type: Other

Cycle Length: 65

Actuated Cycle Length: 65

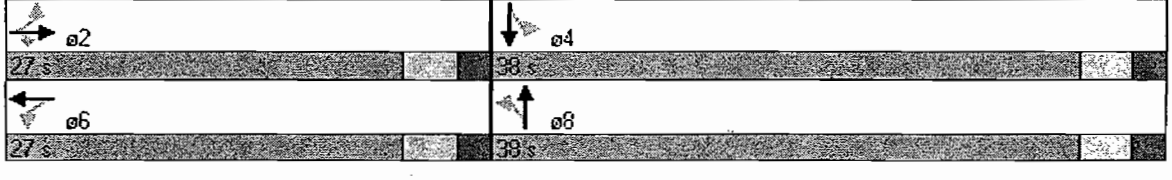
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 65

Control Type: Pretimed

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Ashbourne Rd & New Second St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	95	168	25	8	148	134	20	421	13	113	339	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	14	16	16	16	16	16	16	12	12	12
Grade (%)		-4%			2%			1%			-3%	
Total Lost time (s)		5.0	5.0		5.0			5.0			5.0	
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00	
Frt		1.00	0.85		0.94			1.00			0.98	
Flt Protected		0.98	1.00		1.00			1.00			0.99	
Satd. Flow (prot)		1866	1723		1938			2109			1840	
Flt Permitted		0.67	1.00		0.99			0.97			0.79	
Satd. Flow (perm)		1273	1723		1919			2043			1473	
Peak-hour factor, PHF	0.89	0.89	0.89	0.79	0.79	0.79	0.90	0.90	0.90	0.86	0.86	0.86
Adj. Flow (vph)	107	189	28	10	187	170	22	468	14	131	394	72
RTOR Reduction (vph)	0	0	19	0	48	0	0	1	0	0	7	0
Lane Group Flow (vph)	0	296	9	0	319	0	0	503	0	0	590	0
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	1%	1%	1%	2%	2%	2%
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)		22.0	22.0		22.0			33.0			33.0	
Effective Green, g (s)		22.0	22.0		22.0			33.0			33.0	
Actuated g/C Ratio		0.34	0.34		0.34			0.51			0.51	
Clearance Time (s)		5.0	5.0		5.0			5.0			5.0	
Lane Grp Cap (vph)		431	583		650			1037			748	
v/s Ratio Prot												
v/s Ratio Perm		c0.23	0.01		0.17			0.25			c0.40	
v/c Ratio		0.69	0.02		0.49			0.48			0.79	
Uniform Delay, d1		18.5	14.3		17.1			10.4			13.1	
Progression Factor		1.00	1.00		1.00			1.00			1.00	
Incremental Delay, d2		8.6	0.1		2.6			1.6			8.2	
Delay (s)		27.2	14.4		19.7			12.1			21.4	
Level of Service		C	B		B			B			C	
Approach Delay (s)		26.1			19.7			12.1			21.4	
Approach LOS		C			B			B			C	

Intersection Summary			
HCM Average Control Delay	19.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	108.7%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

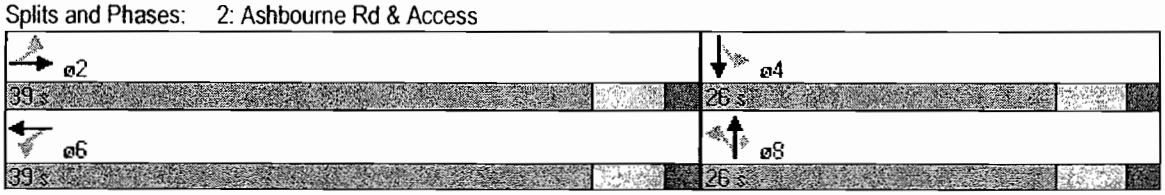
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	216	53	235	253	1	37	1	232	0	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	9	10	10	11	11	14	9	9	9
Grade (%)		1%			1%			-2%			1%	
Storage Length (ft)	140		0	150		0	0		45	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25		25	25		25	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
Ped Bike Factor												
Frt		0.970			0.999				0.850			
Flt Protected				0.950				0.953				
Satd. Flow (prot)	1764	1712	0	1569	1711	0	0	1700	1673	0	851	0
Flt Permitted				0.571				0.776				
Satd. Flow (perm)	1764	1712	0	943	1711	0	0	1384	1673	0	851	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		28							273			
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		2250			1365			500			300	
Travel Time (s)		38.4			23.3			9.7			5.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.87	0.87	0.87	0.85	0.85	0.85	0.25	0.25	0.25
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	3%	3%	3%	4%	4%	4%	100%	100%	100%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	240	59	270	291	1	44	1	273	0	4	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	299	0	270	292	0	0	45	273	0	4	0
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template												
Leading Detector (ft)	35	35		35	35		35	35	35	20	20	
Trailing Detector (ft)	-5	-5		-5	-5		-5	-5	-5	-5	-5	
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase							8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	33.0	33.0		33.0	33.0		20.0	20.0	20.0	20.0	20.0	
Minimum Split (s)	39.0	39.0		39.0	39.0		26.0	26.0	26.0	26.0	26.0	
Total Split (s)	39.0	39.0	0.0	39.0	39.0	0.0	26.0	26.0	26.0	26.0	26.0	0.0
Total Split (%)	60.0%	60.0%	0.0%	60.0%	60.0%	0.0%	40.0%	40.0%	40.0%	40.0%	40.0%	0.0%
Maximum Green (s)	33.0	33.0		33.0	33.0		20.0	20.0	20.0	20.0	20.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		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	-2.0	0.0	0.0	-2.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	4.0	6.0	6.0	4.0	6.0	4.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Recall Mode	Max	Max		Max	Max		None	None	None	None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.34		0.56	0.34			0.11	0.39		0.02	
Control Delay		9.9		16.8	10.9			17.0	4.4		16.0	
Queue Delay		0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay		9.9		16.8	10.9			17.0	4.4		16.0	
Queue Length 50th (ft)		58		68	64			13	0		1	
Queue Length 95th (ft)		105		131	106			32	39		2	
Internal Link Dist (ft)		2170			1285			420			220	
Turn Bay Length (ft)				150					45			
Base Capacity (vph)		883		479	869			426	704		262	
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		0.34		0.56	0.34			0.11	0.39		0.02	

Intersection Summary

Area Type: Other
Cycle Length: 65
Actuated Cycle Length: 65
Natural Cycle: 65
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Ashbourne Rd & Access



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	216	53	235	253	1	37	1	232	0	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	9	10	10	11	11	14	9	9	9
Grade (%)		1%			1%			-2%			1%	
Total Lost time (s)		6.0		6.0	6.0			6.0	6.0		6.0	
Lane Util. Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Frt		0.97		1.00	1.00			1.00	0.85		1.00	
Flt Protected		1.00		0.95	1.00			0.95	1.00		1.00	
Satd. Flow (prot)		1712		1569	1712			1701	1673		851	
Flt Permitted		1.00		0.57	1.00			0.78	1.00		1.00	
Satd. Flow (perm)		1712		943	1712			1384	1673		851	
Peak-hour factor, PHF	0.90	0.90	0.90	0.87	0.87	0.87	0.85	0.85	0.85	0.25	0.25	0.25
Adj. Flow (vph)	0	240	59	270	291	1	44	1	273	0	4	0
RTOR Reduction (vph)	0	14	0	0	0	0	0	0	189	0	0	0
Lane Group Flow (vph)	0	285	0	270	292	0	0	45	84	0	4	0
Heavy Vehicles (%)	0%	0%	0%	3%	3%	3%	4%	4%	4%	100%	100%	100%
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)		33.0		33.0	33.0			20.0	20.0		20.0	
Effective Green, g (s)		33.0		33.0	33.0			20.0	20.0		20.0	
Actuated g/C Ratio		0.51		0.51	0.51			0.31	0.31		0.31	
Clearance Time (s)		6.0		6.0	6.0			6.0	6.0		6.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)		869		479	869			426	515		262	
v/s Ratio Prot		0.17			0.17						0.00	
v/s Ratio Perm				c0.29				0.03	c0.05			
v/c Ratio		0.33		0.56	0.34			0.11	0.16		0.02	
Uniform Delay, d1		9.5		11.0	9.5			16.1	16.4		15.7	
Progression Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2		1.0		4.7	1.0			0.1	0.1		0.0	
Delay (s)		10.5		15.8	10.5			16.2	16.5		15.7	
Level of Service		B		B	B			B	B		B	
Approach Delay (s)		10.5			13.1			16.5			15.7	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	13.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	EBR2	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2	SBL
Lane Configurations												
Volume (vph)	234	11	204	22	0	4	10	97	4	16	3	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	15	15	12	12	16	16	16	16	15	15
Grade (%)		0%			1%			1%				
Storage Length (ft)	0		0			0	0		0			0
Storage Lanes	0		0			0	0		0			0
Taper Length (ft)	25		25			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
Ped Bike Factor												
Frt		0.935			0.865			0.979				
Flt Protected		0.976						0.996				
Satd. Flow (prot)	0	1870	0	0	1090	0	0	2048	0	0	0	0
Flt Permitted		0.976						0.960				
Satd. Flow (perm)	0	1870	0	0	1090	0	0	1974	0	0	0	0
Right Turn on Red				Yes		Yes				Yes		
Satd. Flow (RTOR)		1			609			4				
Link Speed (mph)		40			25			15				
Link Distance (ft)		1365			527			500				
Travel Time (s)		23.3			14.4			22.7				
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.88	0.88	0.88	0.88	0.33	0.33	0.73	0.73	0.73	0.73	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	50%	50%	2%	2%	2%	2%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%				
Adj. Flow (vph)	266	12	232	25	0	12	14	133	5	22	3	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	535	0	0	12	0	0	174	0	0	0	0
Number of Detectors	1	1			1		1	1			2	2
Detector Template												
Leading Detector (ft)	35	35			35		35	35			70	70
Trailing Detector (ft)	-5	-5			-5		-5	-5			-5	-5
Turn Type	Split						Perm				Perm	Perm
Protected Phases	2	2			6			8				
Permitted Phases		2					8				4	4
Detector Phase	2	2			6		8	8			4	4
Switch Phase												
Minimum Initial (s)	8.0	8.0			5.0		8.0	8.0			8.0	8.0
Minimum Split (s)	14.0	14.0			11.0		14.0	14.0			14.0	14.0
Total Split (s)	46.0	46.0	0.0	0.0	21.0	0.0	51.0	51.0	0.0	0.0	51.0	51.0
Total Split (%)	28.0%	28.0%	0.0%	0.0%	12.8%	0.0%	31.1%	31.1%	0.0%	0.0%	31.1%	31.1%
Maximum Green (s)	40.0	40.0			15.0		45.0	45.0			45.0	45.0
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0			4.0	4.0
All-Red Time (s)	2.0	2.0			2.0		2.0	2.0			2.0	2.0
Lost Time Adjust (s)	-2.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	0.0	0.0	-2.0	-2.0
Total Lost Time (s)	4.0	6.0	4.0	4.0	6.0	4.0	4.0	6.0	4.0	4.0	4.0	4.0

Lane Group	SBT	SBR	NWL2	NWL	NWR
Lane Configurations					
Volume (vph)	100	171	24	294	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	16	16	16
Grade (%)	0%			2%	
Storage Length (ft)		0		0	0
Storage Lanes		0		1	0
Taper Length (ft)		25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					
Frt	0.922			0.993	
Flt Protected	0.996			0.955	
Satd. Flow (prot)	1845	0	0	1982	0
Flt Permitted	0.965			0.955	
Satd. Flow (perm)	1788	0	0	1982	0
Right Turn on Red		Yes			
Satd. Flow (RTOR)	42				
Link Speed (mph)	35			25	
Link Distance (ft)	1140			573	
Travel Time (s)	22.2			15.6	
Confl. Peds. (#/hr)					
Confl. Bikes (#/hr)					
Peak Hour Factor	0.93	0.93	0.86	0.86	0.86
Growth Factor	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0
Parking (#/hr)					
Mid-Block Traffic (%)	0%			0%	
Adj. Flow (vph)	108	184	28	342	21
Shared Lane Traffic (%)					
Lane Group Flow (vph)	317	0	0	391	0
Number of Detectors	2		1	1	
Detector Template					
Leading Detector (ft)	70		35	35	
Trailing Detector (ft)	-5		-5	-5	
Turn Type			Split		
Protected Phases	4		9	9	
Permitted Phases					
Detector Phase	4		9	9	
Switch Phase					
Minimum Initial (s)	8.0		8.0	8.0	
Minimum Split (s)	14.0		14.0	14.0	
Total Split (s)	51.0	0.0	46.0	46.0	0.0
Total Split (%)	31.1%	0.0%	28.0%	28.0%	0.0%
Maximum Green (s)	45.0		40.0	40.0	
Yellow Time (s)	4.0		4.0	4.0	
All-Red Time (s)	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	-2.0	0.0	0.0
Total Lost Time (s)	6.0	4.0	4.0	6.0	4.0

Lane Group	EBL	EBT	EBR	EBR2	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2	SBL
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0			5.0		5.0	5.0			5.0	5.0
Minimum Gap (s)	3.0	3.0			3.0		3.0	3.0			3.0	3.0
Time Before Reduce (s)	0.0	0.0			0.0		0.0	0.0			0.0	0.0
Time To Reduce (s)	0.0	0.0			0.0		0.0	0.0			0.0	0.0
Recall Mode	None	None			None		Max	Max			Max	Max
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		1.01			0.02			0.28				
Control Delay		91.9			0.0			39.1				
Queue Delay		0.0			0.0			0.0				
Total Delay		91.9			0.0			39.1				
Queue Length 50th (ft)		474			0			112				
Queue Length 95th (ft)		#834			0			163				
Internal Link Dist (ft)		1285			447			420				
Turn Bay Length (ft)												
Base Capacity (vph)		530			660			631				
Starvation Cap Reductn		0			0			0				
Spillback Cap Reductn		0			0			0				
Storage Cap Reductn		0			0			0				
Reduced v/c Ratio		1.01			0.02			0.28				

Intersection Summary

Area Type: Other

Cycle Length: 164

Actuated Cycle Length: 142.3

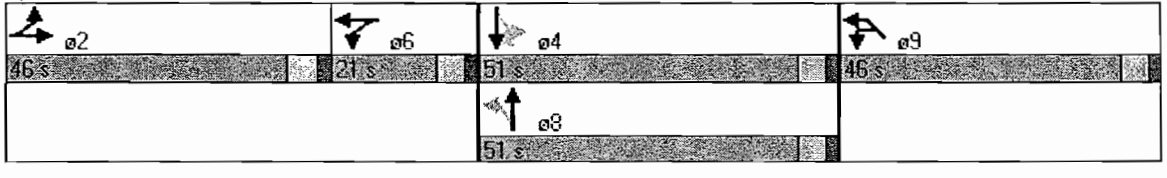
Natural Cycle: 90

Control Type: Actuated-Uncoordinated

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Ashbourne Rd & Arbor Rd



Lane Group	SBT	SBR	NWL2	NWL	NWR
Lead/Lag					
Lead-Lag Optimize?					
Vehicle Extension (s)	5.0		5.0	5.0	
Minimum Gap (s)	3.0		3.0	3.0	
Time Before Reduce (s)	0.0		0.0	0.0	
Time To Reduce (s)	0.0		0.0	0.0	
Recall Mode	Max		None	None	
Walk Time (s)					
Flash Dont Walk (s)					
Pedestrian Calls (#/hr)					
v/c Ratio	0.53			0.84	
Control Delay	39.9			68.5	
Queue Delay	0.0			0.0	
Total Delay	39.9			68.5	
Queue Length 50th (ft)	198			328	
Queue Length 95th (ft)	349			473	
Internal Link Dist (ft)	1060			493	
Turn Bay Length (ft)					
Base Capacity (vph)	598			561	
Starvation Cap Reductn	0			0	
Spillback Cap Reductn	0			0	
Storage Cap Reductn	0			0	
Reduced v/c Ratio	0.53			0.70	

Intersection Summary

Movement	EBL	EBT	EBR	EBR2	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2	SBL
Lane Configurations												
Volume (vph)	234	11	204	22	0	4	10	97	4	16	3	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	15	15	15	15	12	12	16	16	16	16	15	15
Grade (%)		0%			1%			1%				
Total Lost time (s)		6.0			6.0			6.0				
Lane Util. Factor		1.00			1.00			1.00				
Frt		0.94			0.86			0.98				
Flt Protected		0.98			1.00			1.00				
Satd. Flow (prot)		1870			1090			2048				
Flt Permitted		0.98			1.00			0.96				
Satd. Flow (perm)		1870			1090			1974				
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.33	0.33	0.73	0.73	0.73	0.73	0.93	0.93
Adj. Flow (vph)	266	12	232	25	0	12	14	133	5	22	3	22
RTOR Reduction (vph)	0	1	0	0	12	0	0	3	0	0	0	0
Lane Group Flow (vph)	0	534	0	0	0	0	0	171	0	0	0	0
Heavy Vehicles (%)	2%	2%	2%	2%	50%	50%	2%	2%	2%	2%	4%	4%
Turn Type	Split						Perm				Perm	Perm
Protected Phases	2	2			6			8				
Permitted Phases		2					8				4	4
Actuated Green, G (s)		40.3			2.8			45.3				
Effective Green, g (s)		40.3			2.8			45.3				
Actuated g/C Ratio		0.28			0.02			0.31				
Clearance Time (s)		6.0			6.0			6.0				
Vehicle Extension (s)		5.0			5.0			5.0				
Lane Grp Cap (vph)		516			21			612				
v/s Ratio Prot		c0.29			c0.00							
v/s Ratio Perm								0.09				
v/c Ratio		1.04			0.01			0.28				
Uniform Delay, d1		52.8			70.2			38.0				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		49.1			0.4			1.1				
Delay (s)		101.9			70.7			39.2				
Level of Service		F			E			D				
Approach Delay (s)		101.9			70.7			39.2				
Approach LOS		F			E			D				

Intersection Summary			
HCM Average Control Delay	72.6	HCM Level of Service	E
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	146.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	90.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR	NWL2	NWL	NWR
Lane Configurations					
Volume (vph)	100	171	24	294	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Lane Width	15	15	16	16	16
Grade (%)	0%			2%	
Total Lost time (s)	6.0			6.0	
Lane Util. Factor	1.00			1.00	
Frt	0.92			0.99	
Flt Protected	1.00			0.95	
Satd. Flow (prot)	1845			1981	
Flt Permitted	0.97			0.95	
Satd. Flow (perm)	1788			1981	
Peak-hour factor, PHF	0.93	0.93	0.86	0.86	0.86
Adj. Flow (vph)	108	184	28	342	21
RTOR Reduction (vph)	29	0	0	0	0
Lane Group Flow (vph)	288	0	0	391	0
Heavy Vehicles (%)	4%	4%	2%	2%	2%
Turn Type			Split		
Protected Phases	4		9	9	
Permitted Phases					
Actuated Green, G (s)	45.3			33.6	
Effective Green, g (s)	45.3			33.6	
Actuated g/C Ratio	0.31			0.23	
Clearance Time (s)	6.0			6.0	
Vehicle Extension (s)	5.0			5.0	
Lane Grp Cap (vph)	555			456	
v/s Ratio Prot				c0.20	
v/s Ratio Perm	c0.16				
v/c Ratio	0.52			0.86	
Uniform Delay, d1	41.4			53.9	
Progression Factor	1.00			1.00	
Incremental Delay, d2	3.4			16.0	
Delay (s)	44.8			69.9	
Level of Service	D			E	
Approach Delay (s)	44.8			69.9	
Approach LOS	D			E	

Intersection Summary

APPENDIX G

2016 Future without Development Capacity/Level-of-Service Analysis Worksheets

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	116	123	27	7	175	109	16	387	7	88	520	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	13	16	16	16	16	16	16	12	12	12
Grade (%)		-4%			2%			1%			-3%	
Storage Length (ft)	0		110	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25		25	25		25	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
Ped Bike Factor												
Frt			0.850		0.949			0.998			0.984	
Flt Protected		0.976			0.999			0.998			0.994	
Satd. Flow (prot)	0	1836	1653	0	1907	0	0	2072	0	0	1814	0
Flt Permitted		0.626			0.991			0.964			0.882	
Satd. Flow (perm)	0	1178	1653	0	1891	0	0	2001	0	0	1609	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			35		50			2			15	
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		500			2250			500			1140	
Travel Time (s)		8.5			38.4			9.7			22.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.77	0.77	0.77	0.94	0.94	0.94	0.79	0.79	0.79	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	3%	6%	6%	6%	3%	3%	3%	4%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	151	160	35	7	186	116	20	490	9	96	565	87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	311	35	0	309	0	0	519	0	0	748	0
Number of Detectors	1	0	0	1	0		1	0		1	0	
Detector Template												
Leading Detector (ft)	35	0	0	35	0		35	0		35	0	
Trailing Detector (ft)	-5	0	0	-5	0		-5	0		-5	0	
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase												
Switch Phase												
Minimum Initial (s)	22.0	22.0	22.0	22.0	22.0		33.0	33.0		33.0	33.0	
Minimum Split (s)	27.0	27.0	27.0	27.0	27.0		38.0	38.0		38.0	38.0	
Total Split (s)	27.0	27.0	27.0	27.0	27.0	0.0	38.0	38.0	0.0	38.0	38.0	0.0
Total Split (%)	41.5%	41.5%	41.5%	41.5%	41.5%	0.0%	58.5%	58.5%	0.0%	58.5%	58.5%	0.0%
Maximum Green (s)	22.0	22.0	22.0	22.0	22.0		33.0	33.0		33.0	33.0	
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)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	0.0	0.0	-1.0	0.0	0.0	-1.0	0.0	0.0	-1.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0	4.0	4.0	5.0	4.0	4.0	5.0	4.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Recall Mode	Max	Max	Max	Max	Max		Max	Max		Max	Max	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.78	0.06		0.46			0.51			0.91	
Control Delay		35.8	6.1		16.6			12.8			32.4	
Queue Delay		0.0	0.0		0.0			0.0			0.0	
Total Delay		35.8	6.1		16.6			12.8			32.4	
Queue Length 50th (ft)		109	0		77			126			246	
Queue Length 95th (ft)		#164	12		142			166			#478	
Internal Link Dist (ft)		420			2170			420			1060	
Turn Bay Length (ft)			110									
Base Capacity (vph)		399	583		673			1017			824	
Starvation Cap Reductn		0	0		0			0			0	
Spillback Cap Reductn		0	0		0			0			0	
Storage Cap Reductn		0	0		0			0			0	
Reduced v/c Ratio		0.78	0.06		0.46			0.51			0.91	

Intersection Summary

Area Type: Other

Cycle Length: 65

Actuated Cycle Length: 65

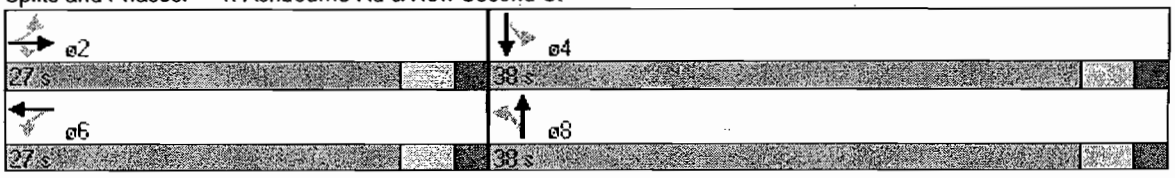
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 65

Control Type: Pretimed

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Ashbourne Rd & New Second St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	116	123	27	7	175	109	16	387	7	88	520	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	13	16	16	16	16	16	16	12	12	12
Grade (%)		-4%			2%			1%			-3%	
Total Lost time (s)		5.0	5.0		5.0			5.0			5.0	
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00	
Frt		1.00	0.85		0.95			1.00			0.98	
Flt Protected		0.98	1.00		1.00			1.00			0.99	
Satd. Flow (prot)		1837	1653		1907			2071			1814	
Flt Permitted		0.63	1.00		0.99			0.96			0.88	
Satd. Flow (perm)		1178	1653		1893			2001			1610	
Peak-hour factor, PHF	0.77	0.77	0.77	0.94	0.94	0.94	0.79	0.79	0.79	0.92	0.92	0.92
Adj. Flow (vph)	151	160	35	7	186	116	20	490	9	96	565	87
RTOR Reduction (vph)	0	0	23	0	33	0	0	1	0	0	7	0
Lane Group Flow (vph)	0	311	12	0	276	0	0	518	0	0	741	0
Heavy Vehicles (%)	3%	3%	3%	6%	6%	6%	3%	3%	3%	4%	4%	4%
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)		22.0	22.0		22.0			33.0			33.0	
Effective Green, g (s)		22.0	22.0		22.0			33.0			33.0	
Actuated g/C Ratio		0.34	0.34		0.34			0.51			0.51	
Clearance Time (s)		5.0	5.0		5.0			5.0			5.0	
Lane Grp Cap (vph)		399	559		641			1016			817	
v/s Ratio Prot												
v/s Ratio Perm		c0.26	0.01		0.15			0.26			c0.46	
v/c Ratio		0.78	0.02		0.43			0.51			0.91	
Uniform Delay, d1		19.3	14.3		16.6			10.6			14.6	
Progression Factor		1.00	1.00		1.00			1.00			1.00	
Incremental Delay, d2		14.0	0.1		2.1			1.8			15.6	
Delay (s)		33.3	14.4		18.8			12.5			30.2	
Level of Service		C	B		B			B			C	
Approach Delay (s)		31.4			18.8			12.5			30.2	
Approach LOS		C			B			B			C	

Intersection Summary			
HCM Average Control Delay	23.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	117.9%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	205	11	293	242	0	43	1	183	0	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	9	10	10	11	11	14	9	9	9
Grade (%)		1%			1%			-2%			1%	
Storage Length (ft)	140		0	150		0	0		45	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25		25	25		25	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
Ped Bike Factor												
Frt		0.993							0.850			
Flt Protected				0.950				0.953				
Satd. Flow (prot)	1713	1701	0	1525	1665	0	0	1622	1596	0	1701	0
Flt Permitted				0.597				0.763				
Satd. Flow (perm)	1713	1701	0	958	1665	0	0	1299	1596	0	1701	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6							229			
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		2250			1365			500			300	
Travel Time (s)		38.4			23.3			9.7			5.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.82	0.82	0.82	0.95	0.95	0.95	0.80	0.80	0.80	0.25	0.25	0.25
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	3%	6%	6%	6%	9%	9%	9%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	250	13	308	255	0	54	1	229	0	4	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	263	0	308	255	0	0	55	229	0	4	0
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template												
Leading Detector (ft)	35	35		35	35		35	35	35	20	20	
Trailing Detector (ft)	-5	-5		-5	-5		-5	-5	-5	-5	-5	
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase							8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	33.0	33.0		33.0	33.0		20.0	20.0	20.0	20.0	20.0	
Minimum Split (s)	39.0	39.0		39.0	39.0		26.0	26.0	26.0	26.0	26.0	
Total Split (s)	39.0	39.0	0.0	39.0	39.0	0.0	26.0	26.0	26.0	26.0	26.0	0.0
Total Split (%)	60.0%	60.0%	0.0%	60.0%	60.0%	0.0%	40.0%	40.0%	40.0%	40.0%	40.0%	0.0%
Maximum Green (s)	33.0	33.0		33.0	33.0		20.0	20.0	20.0	20.0	20.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		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	-2.0	0.0	0.0	-2.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	4.0	6.0	6.0	4.0	6.0	4.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Recall Mode	Max	Max		Max	Max		None	None	None	None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.30		0.63	0.30			0.14	0.35		0.01	
Control Delay		10.3		19.0	10.5			17.5	4.5		16.0	
Queue Delay		0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay		10.3		19.0	10.5			17.5	4.5		16.0	
Queue Length 50th (ft)		55		82	54			16	0		1	
Queue Length 95th (ft)		87		168	97			35	30		2	
Internal Link Dist (ft)		2170			1285			420			220	
Turn Bay Length (ft)				150					45			
Base Capacity (vph)		867		486	845			400	650		523	
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		0.30		0.63	0.30			0.14	0.35		0.01	

Intersection Summary

Area Type: Other

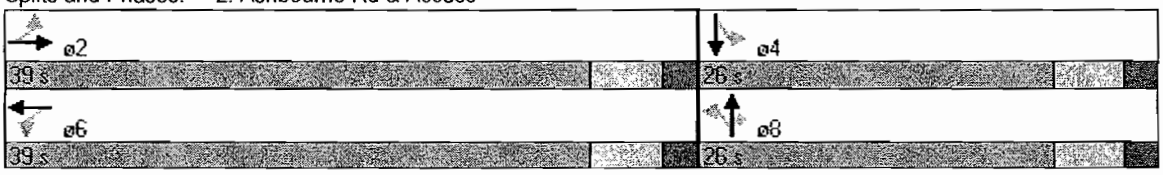
Cycle Length: 65

Actuated Cycle Length: 65

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Ashbourne Rd & Access



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	205	11	293	242	0	43	1	183	0	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	9	10	10	11	11	14	9	9	9
Grade (%)		1%			1%			-2%			1%	
Total Lost time (s)		6.0		6.0	6.0			6.0	6.0		6.0	
Lane Util. Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Frt		0.99		1.00	1.00			1.00	0.85		1.00	
Flt Protected		1.00		0.95	1.00			0.95	1.00		1.00	
Satd. Flow (prot)		1700		1525	1665			1622	1596		1701	
Flt Permitted		1.00		0.60	1.00			0.76	1.00		1.00	
Satd. Flow (perm)		1700		958	1665			1298	1596		1701	
Peak-hour factor, PHF	0.82	0.82	0.82	0.95	0.95	0.95	0.80	0.80	0.80	0.25	0.25	0.25
Adj. Flow (vph)	0	250	13	308	255	0	54	1	229	0	4	0
RTOR Reduction (vph)	0	3	0	0	0	0	0	0	159	0	0	0
Lane Group Flow (vph)	0	260	0	308	255	0	0	55	70	0	4	0
Heavy Vehicles (%)	3%	3%	3%	6%	6%	6%	9%	9%	9%	0%	0%	0%
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)		33.0		33.0	33.0			20.0	20.0		20.0	
Effective Green, g (s)		33.0		33.0	33.0			20.0	20.0		20.0	
Actuated g/C Ratio		0.51		0.51	0.51			0.31	0.31		0.31	
Clearance Time (s)		6.0		6.0	6.0			6.0	6.0		6.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)		863		486	845			399	491		523	
v/s Ratio Prot		0.15			0.15						0.00	
v/s Ratio Perm				c0.32				0.04	c0.04			
v/c Ratio		0.30		0.63	0.30			0.14	0.14		0.01	
Uniform Delay, d1		9.3		11.6	9.3			16.3	16.3		15.6	
Progression Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2		0.9		6.2	0.9			0.2	0.1		0.0	
Delay (s)		10.2		17.8	10.2			16.4	16.4		15.6	
Level of Service		B		B	B			B	B		B	
Approach Delay (s)		10.2			14.4			16.4			15.6	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	13.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	EBR2	WBL	WBT	WBR	NBL	NBT	NBR2	SBL2	SBL
Lane Configurations												
Volume (vph)	167	3	189	7	6	12	2	4	74	2	1	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	15	15	12	12	12	16	16	16	15	15
Grade (%)		0%				1%			1%			
Storage Length (ft)	0		0		0		0	0				0
Storage Lanes	0		0		0		0	0				0
Taper Length (ft)	25		25		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
Ped Bike Factor												
Frt		0.928				0.984			0.997			
Flt Protected		0.978				0.985			0.997			
Satd. Flow (prot)	0	1789	0	0	0	1745	0	0	2109	0	0	0
Flt Permitted		0.978				0.985			0.980			
Satd. Flow (perm)	0	1789	0	0	0	1745	0	0	2073	0	0	0
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)		1				3			1			
Link Speed (mph)		40				25			15			
Link Distance (ft)		1365				527			500			
Travel Time (s)		23.3				14.4			22.7			
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.77	0.77	0.77	0.77	0.79	0.79	0.79	0.80	0.80	0.80	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	6%	6%	6%	6%	5%	5%	5%	1%	1%	1%	7%	7%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%				0%			0%			
Adj. Flow (vph)	217	4	245	9	8	15	3	5	92	2	1	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	475	0	0	0	26	0	0	99	0	0	0
Number of Detectors	1	1			1	1		1	1		2	2
Detector Template												
Leading Detector (ft)	35	35			35	35		35	35		70	70
Trailing Detector (ft)	-5	-5			-5	-5		-5	-5		-5	-5
Turn Type	Split				Split			Perm			Perm	Perm
Protected Phases	2	2			6	6			8			
Permitted Phases		2						8			4	4
Detector Phase	2	2			6	6		8	8		4	4
Switch Phase												
Minimum Initial (s)	8.0	8.0			5.0	5.0		8.0	8.0		8.0	8.0
Minimum Split (s)	14.0	14.0			11.0	11.0		14.0	14.0		14.0	14.0
Total Split (s)	46.0	46.0	0.0	0.0	21.0	21.0	0.0	51.0	51.0	0.0	51.0	51.0
Total Split (%)	28.0%	28.0%	0.0%	0.0%	12.8%	12.8%	0.0%	31.1%	31.1%	0.0%	31.1%	31.1%
Maximum Green (s)	40.0	40.0			15.0	15.0		45.0	45.0		45.0	45.0
Yellow Time (s)	4.0	4.0			4.0	4.0		4.0	4.0		4.0	4.0
All-Red Time (s)	2.0	2.0			2.0	2.0		2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-2.0	0.0	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	0.0	-2.0	-2.0
Total Lost Time (s)	4.0	6.0	4.0	4.0	4.0	6.0	4.0	4.0	6.0	4.0	4.0	4.0

Lane Group	SBT	SBR	NWL2	NWL	NWR
Lane Configurations					
Volume (vph)	100	250	17	279	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	16	16	16
Grade (%)	0%			2%	
Storage Length (ft)		0		0	0
Storage Lanes		0		1	0
Taper Length (ft)		25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					
Frt	0.908			0.993	
Flt Protected	0.997			0.955	
Satd. Flow (prot)	1768	0	0	1982	0
Flt Permitted	0.983			0.955	
Satd. Flow (perm)	1743	0	0	1982	0
Right Turn on Red		Yes			
Satd. Flow (RTOR)	64				
Link Speed (mph)	35			25	
Link Distance (ft)	1140			573	
Travel Time (s)	22.2			15.6	
Confl. Peds. (#/hr)					
Confl. Bikes (#/hr)					
Peak Hour Factor	0.98	0.98	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	7%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0
Parking (#/hr)					
Mid Block Traffic (%)	0%			0%	
Adj. Flow (vph)	102	255	18	294	16
Shared Lane Traffic (%)					
Lane Group Flow (vph)	376	0	0	328	0
Number of Detectors	2		1	1	
Detector Template					
Leading Detector (ft)	70		35	35	
Trailing Detector (ft)	-5		-5	-5	
Turn Type			Split		
Protected Phases	4		9	9	
Permitted Phases					
Detector Phase	4		9	9	
Switch Phase					
Minimum Initial (s)	8.0		8.0	8.0	
Minimum Split (s)	14.0		14.0	14.0	
Total Split (s)	51.0	0.0	46.0	46.0	0.0
Total Split (%)	31.1%	0.0%	28.0%	28.0%	0.0%
Maximum Green (s)	45.0		40.0	40.0	
Yellow Time (s)	4.0		4.0	4.0	
All-Red Time (s)	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	-2.0	0.0	0.0
Total Lost Time (s)	6.0	4.0	4.0	6.0	4.0

Lane Group	EBL	EBT	EBR	EBR2	WBL	WBT	WBR	NBL	NBT	NBR2	SBL2	SBL
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0			5.0	5.0		5.0	5.0		5.0	5.0
Minimum Gap (s)	3.0	3.0			3.0	3.0		3.0	3.0		3.0	3.0
Time Before Reduce (s)	0.0	0.0			0.0	0.0		0.0	0.0		0.0	0.0
Time To Reduce (s)	0.0	0.0			0.0	0.0		0.0	0.0		0.0	0.0
Recall Mode	None	None			None	None		Max	Max		Max	Max
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.94				0.22			0.15			
Control Delay		79.5				66.4			39.4			
Queue Delay		0.0				0.0			0.0			
Total Delay		79.5				66.4			39.4			
Queue Length 50th (ft)		466				22			71			
Queue Length 95th (ft)		#600				50			115			
Internal Link Dist (ft)		1285				447			420			
Turn Bay Length (ft)												
Base Capacity (vph)		504				187			657			
Starvation Cap Reductn		0				0			0			
Spillback Cap Reductn		0				0			0			
Storage Cap Reductn		0				0			0			
Reduced v/c Ratio		0.94				0.14			0.15			

Intersection Summary

Area Type: Other

Cycle Length: 164

Actuated Cycle Length: 143.8

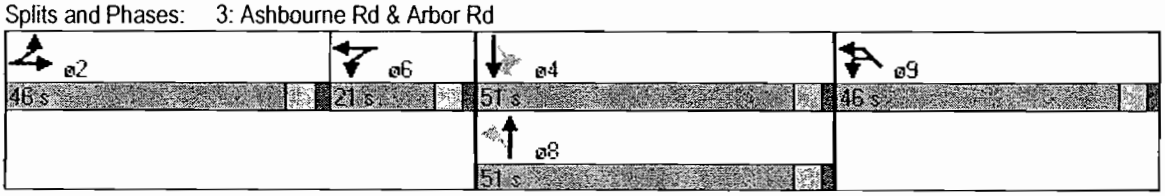
Natural Cycle: 90

Control Type: Semi Act-Uncoord

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Ashbourne Rd & Arbor Rd



Lane Group	SBT	SBR	NWL2	NWL	NWR
Lead/Lag					
Lead-Lag Optimize?					
Vehicle Extension (s)	5.0		5.0	5.0	
Minimum Gap (s)	3.0		3.0	3.0	
Time Before Reduce (s)	0.0		0.0	0.0	
Time To Reduce (s)	0.0		0.0	0.0	
Recall Mode	Max		None	None	
Walk Time (s)					
Flash Dont Walk (s)					
Pedestrian Calls (#/hr)					
v/c Ratio	0.63			0.79	
Control Delay	42.4			68.4	
Queue Delay	0.0			0.0	
Total Delay	42.4			68.4	
Queue Length 50th (ft)	270			307	
Queue Length 95th (ft)	428			430	
Internal Link Dist (ft)	1060			493	
Turn Bay Length (ft)					
Base Capacity (vph)	596			558	
Starvation Cap Reductn	0			0	
Spillback Cap Reductn	0			0	
Storage Cap Reductn	0			0	
Reduced v/c Ratio	0.63			0.59	

Intersection Summary

Movement	EBL	EBT	EBR	EBR2	WBL	WBT	WBR	NBL	NBT	NBR2	SBL2	SBL
Lane Configurations												
Volume (vph)	167	3	189	7	6	12	2	4	74	2	1	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	15	15	15	15	12	12	12	16	16	16	15	15
Grade (%)		0%				1%			1%			
Total Lost time (s)		6.0				6.0			6.0			
Lane Util. Factor		1.00				1.00			1.00			
Frt		0.93				0.98			1.00			
Flt Protected		0.98				0.98			1.00			
Satd. Flow (prot)		1789				1746			2110			
Flt Permitted		0.98				0.98			0.98			
Satd. Flow (perm)		1789				1746			2073			
Peak-hour factor, PHF	0.77	0.77	0.77	0.77	0.79	0.79	0.79	0.80	0.80	0.80	0.98	0.98
Adj. Flow (vph)	217	4	245	9	8	15	3	5	92	2	1	18
RTOR Reduction (vph)	0	1	0	0	0	3	0	0	1	0	0	0
Lane Group Flow (vph)	0	474	0	0	0	23	0	0	98	0	0	0
Heavy Vehicles (%)	6%	6%	6%	6%	5%	5%	5%	1%	1%	1%	7%	7%
Turn Type	Split				Split			Perm			Perm	Perm
Protected Phases	2	2			6	6			8			
Permitted Phases		2						8			4	4
Actuated Green, G (s)		40.5				6.0			45.5			
Effective Green, g (s)		40.5				6.0			45.5			
Actuated g/C Ratio		0.28				0.04			0.31			
Clearance Time (s)		6.0				6.0			6.0			
Vehicle Extension (s)		5.0				5.0			5.0			
Lane Grp Cap (vph)		495				72			645			
v/s Ratio Prot		c0.27				c0.01						
v/s Ratio Perm									0.05			
v/c Ratio		0.96				0.32			0.15			
Uniform Delay, d1		52.1				68.2			36.5			
Progression Factor		1.00				1.00			1.00			
Incremental Delay, d2		30.3				5.3			0.5			
Delay (s)		82.4				73.5			37.0			
Level of Service		F				E			D			
Approach Delay (s)		82.4				73.5			37.0			
Approach LOS		F				E			D			

Intersection Summary			
HCM Average Control Delay	65.0	HCM Level of Service	E
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	146.3	Sum of lost time (s)	24.0
Intersection Capacity Utilization	88.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR	NWL2	NWL	NWR
Lane Configurations					
Volume (vph)	100	250	17	279	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Lane Width	15	15	16	16	16
Grade (%)	0%			2%	
Total Lost time (s)	6.0			6.0	
Lane Util. Factor	1.00			1.00	
Frt	0.91			0.99	
Flt Protected	1.00			0.95	
Satd. Flow (prot)	1770			1982	
Flt Permitted	0.98			0.95	
Satd. Flow (perm)	1744			1982	
Peak-hour factor, PHF	0.98	0.98	0.95	0.95	0.95
Adj. Flow (vph)	102	255	18	294	16
RTOR Reduction (vph)	44	0	0	0	0
Lane Group Flow (vph)	332	0	0	328	0
Heavy Vehicles (%)	7%	7%	2%	2%	2%
Turn Type			Split		
Protected Phases	4		9	9	
Permitted Phases					
Actuated Green, G (s)	45.5			30.3	
Effective Green, g (s)	45.5			30.3	
Actuated g/C Ratio	0.31			0.21	
Clearance Time (s)	6.0			6.0	
Vehicle Extension (s)	5.0			5.0	
Lane Grp Cap (vph)	542			410	
v/s Ratio Prot				c0.17	
v/s Ratio Perm	c0.19				
v/c Ratio	0.61			0.80	
Uniform Delay, d1	42.9			55.1	
Progression Factor	1.00			1.00	
Incremental Delay, d2	5.1			12.1	
Delay (s)	48.0			67.2	
Level of Service	D			E	
Approach Delay (s)	48.0			67.2	
Approach LOS	D			E	

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	99	176	27	9	155	141	21	441	14	119	356	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	14	16	16	16	16	16	16	12	12	12
Grade (%)		-4%			2%			1%			-3%	
Storage Length (ft)	0		115	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25		25	25		25	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
Ped Bike Factor												
Frt			0.850		0.938			0.996			0.984	
Flt Protected		0.982			0.999			0.998			0.989	
Satd. Flow (prot)	0	1866	1723	0	1939	0	0	2109	0	0	1840	0
Flt Permitted		0.648			0.988			0.965			0.775	
Satd. Flow (perm)	0	1231	1723	0	1918	0	0	2039	0	0	1442	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			30		72			4			15	
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		500			2250			500			1140	
Travel Time (s)		8.5			38.4			9.7			22.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.89	0.89	0.89	0.79	0.79	0.79	0.90	0.90	0.90	0.86	0.86	0.86
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	1%	1%	1%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	111	198	30	11	196	178	23	490	16	138	414	76
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	309	30	0	385	0	0	529	0	0	628	0
Number of Detectors	1	0	0	1	0		1	0		1	0	
Detector Template												
Leading Detector (ft)	35	0	0	35	0		35	0		35	0	
Trailing Detector (ft)	-5	0	0	-5	0		-5	0		-5	0	
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase												
Switch Phase												
Minimum Initial (s)	22.0	22.0	22.0	22.0	22.0		33.0	33.0		33.0	33.0	
Minimum Split (s)	27.0	27.0	27.0	27.0	27.0		38.0	38.0		38.0	38.0	
Total Split (s)	27.0	27.0	27.0	27.0	27.0	0.0	38.0	38.0	0.0	38.0	38.0	0.0
Total Split (%)	41.5%	41.5%	41.5%	41.5%	41.5%	0.0%	58.5%	58.5%	0.0%	58.5%	58.5%	0.0%
Maximum Green (s)	22.0	22.0	22.0	22.0	22.0		33.0	33.0		33.0	33.0	
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)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	0.0	0.0	-1.0	0.0	0.0	-1.0	0.0	0.0	-1.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0	4.0	4.0	5.0	4.0	4.0	5.0	4.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Recall Mode	Max	Max	Max	Max	Max		Max	Max		Max	Max	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.74	0.05		0.55			0.51			0.85	
Control Delay		32.4	6.3		17.6			12.7			27.4	
Queue Delay		0.0	0.0		0.0			0.0			0.0	
Total Delay		32.4	6.3		17.6			12.7			27.4	
Queue Length 50th (ft)		106	0		97			128			195	
Queue Length 95th (ft)		#219	15		142			204			#367	
Internal Link Dist (ft)		420			2170			420			1060	
Turn Bay Length (ft)			115									
Base Capacity (vph)		417	603		697			1037			739	
Starvation Cap Reductn		0	0		0			0			0	
Spillback Cap Reductn		0	0		0			0			0	
Storage Cap Reductn		0	0		0			0			0	
Reduced v/c Ratio		0.74	0.05		0.55			0.51			0.85	

Intersection Summary

Area Type: Other

Cycle Length: 65

Actuated Cycle Length: 65

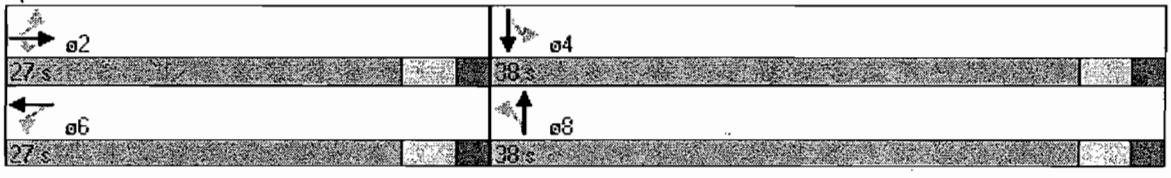
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 65

Control Type: Pretimed

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Ashbourne Rd & New Second St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	99	176	27	9	155	141	21	441	14	119	356	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	14	16	16	16	16	16	16	12	12	12
Grade (%)		-4%			2%			1%			-3%	
Total Lost time (s)		5.0	5.0		5.0			5.0			5.0	
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00	
Frt		1.00	0.85		0.94			1.00			0.98	
Flt Protected		0.98	1.00		1.00			1.00			0.99	
Satd. Flow (prot)		1866	1723		1938			2108			1840	
Flt Permitted		0.65	1.00		0.99			0.96			0.77	
Satd. Flow (perm)		1232	1723		1916			2038			1441	
Peak-hour factor, PHF	0.89	0.89	0.89	0.79	0.79	0.79	0.90	0.90	0.90	0.86	0.86	0.86
Adj. Flow (vph)	111	198	30	11	196	178	23	490	16	138	414	76
RTOR Reduction (vph)	0	0	20	0	48	0	0	2	0	0	7	0
Lane Group Flow (vph)	0	309	10	0	337	0	0	527	0	0	621	0
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	1%	1%	1%	2%	2%	2%
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)		22.0	22.0		22.0			33.0			33.0	
Effective Green, g (s)		22.0	22.0		22.0			33.0			33.0	
Actuated g/C Ratio		0.34	0.34		0.34			0.51			0.51	
Clearance Time (s)		5.0	5.0		5.0			5.0			5.0	
Lane Grp Cap (vph)		417	583		648			1035			732	
v/s Ratio Prot												
v/s Ratio Perm		c0.25	0.01		0.18			0.26			c0.43	
v/c Ratio		0.74	0.02		0.52			0.51			0.85	
Uniform Delay, d1		19.0	14.3		17.3			10.6			13.8	
Progression Factor		1.00	1.00		1.00			1.00			1.00	
Incremental Delay, d2		11.3	0.1		3.0			1.8			11.7	
Delay (s)		30.2	14.4		20.2			12.4			25.5	
Level of Service		C	B		C			B			C	
Approach Delay (s)		28.8			20.2			12.4			25.5	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM Average Control Delay	21.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	110.1%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	226	56	247	265	1	38	1	243	0	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	9	10	10	11	11	14	9	9	9
Grade (%)		1%			1%			-2%			1%	
Storage Length (ft)	140		0	150		0	0		45	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25		25	25		25	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
Ped Bike Factor												
Frt		0.970							0.850			
Flt Protected				0.950				0.953				
Satd. Flow (prot)	1764	1712	0	1569	1713	0	0	1700	1673	0	851	0
Flt Permitted				0.557				0.775				
Satd. Flow (perm)	1764	1712	0	920	1713	0	0	1382	1673	0	851	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		28							286			
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		2250			1365			500			300	
Travel Time (s)		38.4			23.3			9.7			5.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.87	0.87	0.87	0.85	0.85	0.85	0.25	0.25	0.25
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	3%	3%	3%	4%	4%	4%	100%	100%	100%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	251	62	284	305	1	45	1	286	0	4	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	313	0	284	306	0	0	46	286	0	4	0
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template												
Leading Detector (ft)	35	35		35	35		35	35	35	20	20	
Trailing Detector (ft)	-5	-5		-5	-5		-5	-5	-5	-5	-5	
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase							8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	33.0	33.0		33.0	33.0		20.0	20.0	20.0	20.0	20.0	
Minimum Split (s)	39.0	39.0		39.0	39.0		26.0	26.0	26.0	26.0	26.0	
Total Split (s)	39.0	39.0	0.0	39.0	39.0	0.0	26.0	26.0	26.0	26.0	26.0	0.0
Total Split (%)	60.0%	60.0%	0.0%	60.0%	60.0%	0.0%	40.0%	40.0%	40.0%	40.0%	40.0%	0.0%
Maximum Green (s)	33.0	33.0		33.0	33.0		20.0	20.0	20.0	20.0	20.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		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	-2.0	0.0	0.0	-2.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	4.0	4.0	6.0	6.0	4.0	6.0	4.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Recall Mode	Max	Max		Max	Max		None	None	None	None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.35		0.61	0.35			0.11	0.40		0.02	
Control Delay		10.1		18.3	11.1			17.1	4.4		16.0	
Queue Delay		0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay		10.1		18.3	11.1			17.1	4.4		16.0	
Queue Length 50th (ft)		62		74	67			13	0		1	
Queue Length 95th (ft)		111		143	111			32	39		2	
Internal Link Dist (ft)		2170			1285			420			220	
Turn Bay Length (ft)				150					45			
Base Capacity (vph)		883		467	870			425	713		262	
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		0.35		0.61	0.35			0.11	0.40		0.02	

Intersection Summary

Area Type: Other

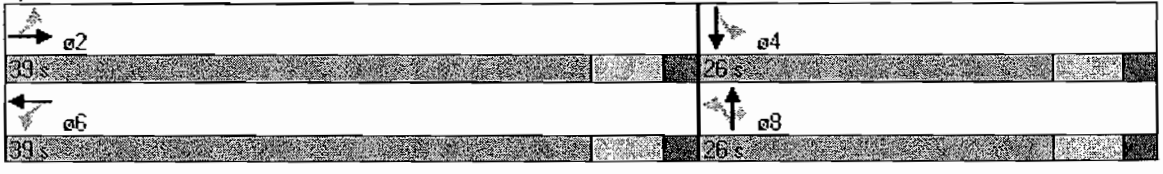
Cycle Length: 65

Actuated Cycle Length: 65

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Ashbourne Rd & Access



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	226	56	247	265	1	38	1	243	0	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	9	10	10	11	11	14	9	9	9
Grade (%)		1%			1%			-2%			1%	
Total Lost time (s)		6.0		6.0	6.0			6.0	6.0		6.0	
Lane Util. Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Frt		0.97		1.00	1.00			1.00	0.85		1.00	
Flt Protected		1.00		0.95	1.00			0.95	1.00		1.00	
Satd. Flow (prot)		1712		1569	1712			1701	1673		851	
Flt Permitted		1.00		0.56	1.00			0.77	1.00		1.00	
Satd. Flow (perm)		1712		921	1712			1382	1673		851	
Peak-hour factor, PHF	0.90	0.90	0.90	0.87	0.87	0.87	0.85	0.85	0.85	0.25	0.25	0.25
Adj. Flow (vph)	0	251	62	284	305	1	45	1	286	0	4	0
RTOR Reduction (vph)	0	14	0	0	0	0	0	0	198	0	0	0
Lane Group Flow (vph)	0	299	0	284	306	0	0	46	88	0	4	0
Heavy Vehicles (%)	0%	0%	0%	3%	3%	3%	4%	4%	4%	100%	100%	100%
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)		33.0		33.0	33.0			20.0	20.0		20.0	
Effective Green, g (s)		33.0		33.0	33.0			20.0	20.0		20.0	
Actuated g/C Ratio		0.51		0.51	0.51			0.31	0.31		0.31	
Clearance Time (s)		6.0		6.0	6.0			6.0	6.0		6.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)		869		468	869			425	515		262	
v/s Ratio Prot		0.17			0.18						0.00	
v/s Ratio Perm				c0.31				0.03	c0.05			
v/c Ratio		0.34		0.61	0.35			0.11	0.17		0.02	
Uniform Delay, d1		9.5		11.4	9.6			16.1	16.4		15.7	
Progression Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2		1.1		5.7	1.1			0.1	0.2		0.0	
Delay (s)		10.6		17.1	10.7			16.2	16.6		15.7	
Level of Service		B		B	B			B	B		B	
Approach Delay (s)		10.6			13.8			16.5			15.7	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	13.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	EBR2	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2	SBL
Lane Configurations												
Volume (vph)	246	12	213	23	0	4	11	101	4	17	3	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	15	15	12	12	16	16	16	16	15	15
Grade (%)		0%			1%			1%				
Storage Length (ft)	0		0			0	0		0			0
Storage Lanes	0		0			0	0		0			0
Taper Length (ft)	25		25			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
Ped Bike Factor												
Frt		0.936			0.865			0.979				
Flt Protected		0.976						0.996				
Satd. Flow (prot)	0	1872	0	0	1090	0	0	2048	0	0	0	0
Flt Permitted		0.976						0.958				
Satd. Flow (perm)	0	1872	0	0	1090	0	0	1970	0	0	0	0
Right Turn on Red				Yes		Yes				Yes		
Satd. Flow (RTOR)		1			596			4				
Link Speed (mph)		40			25			15				
Link Distance (ft)		1365			527			500				
Travel Time (s)		23.3			14.4			22.7				
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.88	0.88	0.88	0.88	0.33	0.33	0.73	0.73	0.73	0.73	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	50%	50%	2%	2%	2%	2%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%				
Adj. Flow (vph)	280	14	242	26	0	12	15	138	5	23	3	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	562	0	0	12	0	0	181	0	0	0	0
Number of Detectors	1	1			1		1	1			2	2
Detector Template												
Leading Detector (ft)	35	35			35		35	35			70	70
Trailing Detector (ft)	-5	-5			-5		-5	-5			-5	-5
Turn Type	Split						Perm				Perm	Perm
Protected Phases	2	2			6			8				
Permitted Phases		2					8				4	4
Detector Phase	2	2			6		8	8			4	4
Switch Phase												
Minimum Initial (s)	8.0	8.0			5.0		8.0	8.0			8.0	8.0
Minimum Split (s)	14.0	14.0			11.0		14.0	14.0			14.0	14.0
Total Split (s)	46.0	46.0	0.0	0.0	21.0	0.0	51.0	51.0	0.0	0.0	51.0	51.0
Total Split (%)	28.0%	28.0%	0.0%	0.0%	12.8%	0.0%	31.1%	31.1%	0.0%	0.0%	31.1%	31.1%
Maximum Green (s)	40.0	40.0			15.0		45.0	45.0			45.0	45.0
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0			4.0	4.0
All-Red Time (s)	2.0	2.0			2.0		2.0	2.0			2.0	2.0
Lost Time Adjust (s)	-2.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	0.0	0.0	-2.0	-2.0
Total Lost Time (s)	4.0	6.0	4.0	4.0	6.0	4.0	4.0	6.0	4.0	4.0	4.0	4.0

Lane Group	SBT	SBR	NWL2	NWL	NWR
Lane Configurations					
Volume (vph)	105	179	26	309	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	16	16	16
Grade (%)	0%			2%	
Storage Length (ft)		0		0	0
Storage Lanes		0		1	0
Taper Length (ft)		25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					
Frt	0.922			0.993	
Flt Protected	0.996			0.955	
Satd. Flow (prot)	1845	0	0	1982	0
Flt Permitted	0.964			0.955	
Satd. Flow (perm)	1786	0	0	1982	0
Right Turn on Red		Yes			
Satd. Flow (RTOR)	42				
Link Speed (mph)	35			25	
Link Distance (ft)	1140			573	
Travel Time (s)	22.2			15.6	
Confl. Peds. (#/hr)					
Confl. Bikes (#/hr)					
Peak Hour Factor	0.93	0.93	0.86	0.86	0.86
Growth Factor	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0
Parking (#/hr)					
Mid-Block Traffic (%)	0%			0%	
Adj. Flow (vph)	113	192	30	359	22
Shared Lane Traffic (%)					
Lane Group Flow (vph)	331	0	0	411	0
Number of Detectors	2		1	1	
Detector Template					
Leading Detector (ft)	70		35	35	
Trailing Detector (ft)	-5		-5	-5	
Turn Type			Split		
Protected Phases	4		9	9	
Permitted Phases					
Detector Phase	4		9	9	
Switch Phase					
Minimum Initial (s)	8.0		8.0	8.0	
Minimum Split (s)	14.0		14.0	14.0	
Total Split (s)	51.0	0.0	46.0	46.0	0.0
Total Split (%)	31.1%	0.0%	28.0%	28.0%	0.0%
Maximum Green (s)	45.0		40.0	40.0	
Yellow Time (s)	4.0		4.0	4.0	
All-Red Time (s)	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	-2.0	0.0	0.0
Total Lost Time (s)	6.0	4.0	4.0	6.0	4.0

Lane Group	EBL	EBT	EBR	EBR2	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2	SBL
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0			5.0		5.0	5.0			5.0	5.0
Minimum Gap (s)	3.0	3.0			3.0		3.0	3.0			3.0	3.0
Time Before Reduce (s)	0.0	0.0			0.0		0.0	0.0			0.0	0.0
Time To Reduce (s)	0.0	0.0			0.0		0.0	0.0			0.0	0.0
Recall Mode	None	None			None		Max	Max			Max	Max
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		1.07			0.02			0.29				
Control Delay		108.1			0.0			39.9				
Queue Delay		0.0			0.0			0.0				
Total Delay		108.1			0.0			39.9				
Queue Length 50th (ft)		~560			0			121				
Queue Length 95th (ft)		#894			0			169				
Internal Link Dist (ft)		1285			447			420				
Turn Bay Length (ft)												
Base Capacity (vph)		525			648			623				
Starvation Cap Reductn		0			0			0				
Spillback Cap Reductn		0			0			0				
Storage Cap Reductn		0			0			0				
Reduced v/c Ratio		1.07			0.02			0.29				

Intersection Summary

Area Type: Other

Cycle Length: 164

Actuated Cycle Length: 143.8

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

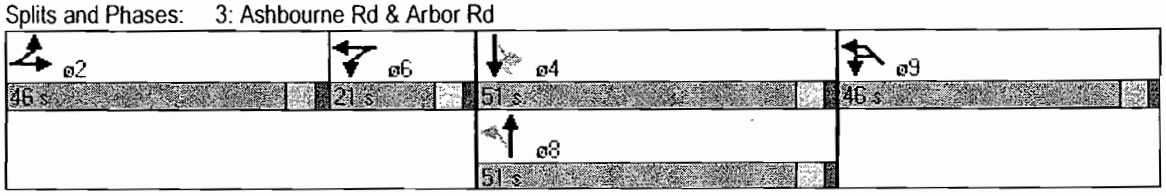
~ Volume exceeds capacity, queue is theoretically infinite.

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: 3: Ashbourne Rd & Arbor Rd



Lane Group	SBT	SBR	NWL2	NWL	NWR
Lead/Lag					
Lead-Lag Optimize?					
Vehicle Extension (s)	5.0		5.0	5.0	
Minimum Gap (s)	3.0		3.0	3.0	
Time Before Reduce (s)	0.0		0.0	0.0	
Time To Reduce (s)	0.0		0.0	0.0	
Recall Mode	Max		None	None	
Walk Time (s)					
Flash Dont Walk (s)					
Pedestrian Calls (#/hr)					
v/c Ratio	0.56			0.85	
Control Delay	41.5			69.1	
Queue Delay	0.0			0.0	
Total Delay	41.5			69.1	
Queue Length 50th (ft)	218			349	
Queue Length 95th (ft)	369			501	
Internal Link Dist (ft)	1060			493	
Turn Bay Length (ft)					
Base Capacity (vph)	591			555	
Starvation Cap Reductn	0			0	
Spillback Cap Reductn	0			0	
Storage Cap Reductn	0			0	
Reduced v/c Ratio	0.56			0.74	

Intersection Summary

Movement	EBL	EBT	EBR	EBR2	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2	SBL
Lane Configurations												
Volume (vph)	246	12	213	23	0	4	11	101	4	17	3	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	15	15	15	15	12	12	16	16	16	16	15	15
Grade (%)		0%			1%			1%				
Total Lost time (s)		6.0			6.0			6.0				
Lane Util. Factor		1.00			1.00			1.00				
Frt		0.94			0.86			0.98				
Flt Protected		0.98			1.00			1.00				
Satd. Flow (prot)		1871			1090			2048				
Flt Permitted		0.98			1.00			0.96				
Satd. Flow (perm)		1871			1090			1970				
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.33	0.33	0.73	0.73	0.73	0.73	0.93	0.93
Adj. Flow (vph)	280	14	242	26	0	12	15	138	5	23	3	23
RTOR Reduction (vph)	0	1	0	0	12	0	0	3	0	0	0	0
Lane Group Flow (vph)	0	561	0	0	0	0	0	178	0	0	0	0
Heavy Vehicles (%)	2%	2%	2%	2%	50%	50%	2%	2%	2%	2%	4%	4%
Turn Type	Split						Perm				Perm	Perm
Protected Phases	2	2			6			8				
Permitted Phases		2					8				4	4
Actuated Green, G (s)		40.2			2.8			45.3				
Effective Green, g (s)		40.2			2.8			45.3				
Actuated g/C Ratio		0.27			0.02			0.31				
Clearance Time (s)		6.0			6.0			6.0				
Vehicle Extension (s)		5.0			5.0			5.0				
Lane Grp Cap (vph)		510			21			605				
v/s Ratio Prot		c0.30			c0.00							
v/s Ratio Perm								0.09				
v/c Ratio		1.10			0.01			0.29				
Uniform Delay, d1		53.6			71.0			38.9				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		70.2			0.4			1.2				
Delay (s)		123.8			71.4			40.2				
Level of Service		F			E			D				
Approach Delay (s)		123.8			71.4			40.2				
Approach LOS		F			E			D				

Intersection Summary			
HCM Average Control Delay	81.6	HCM Level of Service	F
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	147.5	Sum of lost time (s)	24.0
Intersection Capacity Utilization	93.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR	NWL2	NWL	NWR
Lane Configurations					
Volume (vph)	105	179	26	309	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Lane Width	15	15	16	16	16
Grade (%)	0%			2%	
Total Lost time (s)	6.0			6.0	
Lane Util. Factor	1.00			1.00	
Frt	0.92			0.99	
Flt Protected	1.00			0.95	
Satd. Flow (prot)	1845			1981	
Flt Permitted	0.96			0.95	
Satd. Flow (perm)	1786			1981	
Peak-hour factor, PHF	0.93	0.93	0.86	0.86	0.86
Adj. Flow (vph)	113	192	30	359	22
RTOR Reduction (vph)	29	0	0	0	0
Lane Group Flow (vph)	302	0	0	411	0
Heavy Vehicles (%)	4%	4%	2%	2%	2%
Turn Type			Split		
Protected Phases	4		9	9	
Permitted Phases					
Actuated Green, G (s)	45.3			35.2	
Effective Green, g (s)	45.3			35.2	
Actuated g/C Ratio	0.31			0.24	
Clearance Time (s)	6.0			6.0	
Vehicle Extension (s)	5.0			5.0	
Lane Grp Cap (vph)	549			473	
v/s Ratio Prot				c0.21	
v/s Ratio Perm	c0.17				
v/c Ratio	0.55			0.87	
Uniform Delay, d1	42.6			53.9	
Progression Factor	1.00			1.00	
Incremental Delay, d2	3.9			16.7	
Delay (s)	46.5			70.7	
Level of Service	D			E	
Approach Delay (s)	46.5			70.7	
Approach LOS	D			E	

Intersection Summary

APPENDIX H

2011 Future with Development Capacity/Level-of-Service Analysis Worksheets

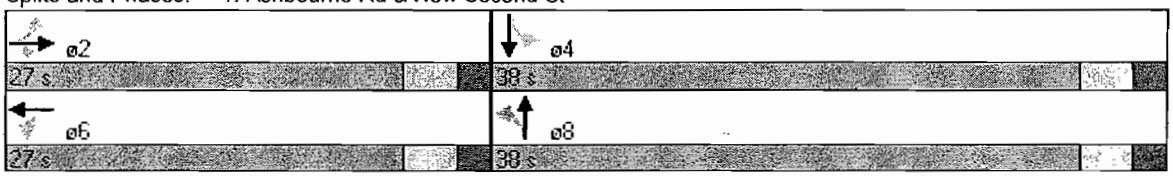
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	111	122	25	30	181	137	15	369	15	97	496	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	13	16	16	16	16	16	16	12	12	12
Grade (%)		-4%			2%			1%			-3%	
Storage Length (ft)	0		110	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25		25	25		25	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
Ped Bike Factor												
Frt			0.850		0.947			0.995			0.985	
Flt Protected		0.977			0.996			0.998			0.993	
Satd. Flow (prot)	0	1838	1653	0	1897	0	0	2066	0	0	1814	0
Flt Permitted		0.580			0.952			0.967			0.868	
Satd. Flow (perm)	0	1091	1653	0	1813	0	0	2001	0	0	1585	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			32		54			4			14	
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		500			2250			500			1140	
Travel Time (s)		8.5			38.4			9.7			22.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.77	0.77	0.77	0.94	0.94	0.94	0.79	0.79	0.79	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	3%	6%	6%	6%	3%	3%	3%	4%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	144	158	32	32	193	146	19	467	19	105	539	83
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	302	32	0	371	0	0	505	0	0	727	0
Number of Detectors	1	0	0	1	0		1	0		1	0	
Detector Template												
Leading Detector (ft)	35	0	0	35	0		35	0		35	0	
Trailing Detector (ft)	-5	0	0	-5	0		-5	0		-5	0	
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase												
Switch Phase												
Minimum Initial (s)	22.0	22.0	22.0	22.0	22.0		33.0	33.0		33.0	33.0	
Minimum Split (s)	27.0	27.0	27.0	27.0	27.0		38.0	38.0		38.0	38.0	
Total Split (s)	27.0	27.0	27.0	27.0	27.0	0.0	38.0	38.0	0.0	38.0	38.0	0.0
Total Split (%)	41.5%	41.5%	41.5%	41.5%	41.5%	0.0%	58.5%	58.5%	0.0%	58.5%	58.5%	0.0%
Maximum Green (s)	22.0	22.0	22.0	22.0	22.0		33.0	33.0		33.0	33.0	
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)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	0.0	0.0	-1.0	0.0	0.0	-1.0	0.0	0.0	-1.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0	4.0	4.0	5.0	4.0	4.0	5.0	4.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Recall Mode	Max	Max	Max	Max	Max		Max	Max		Max	Max	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.82	0.06		0.57			0.50			0.90	
Control Delay		40.7	6.3		19.1			12.6			31.1	
Queue Delay		0.0	0.0		0.0			0.0			0.0	
Total Delay		40.7	6.3		19.1			12.6			31.1	
Queue Length 50th (ft)		107	0		100			121			237	
Queue Length 95th (ft)		#180	12		177			160			#463	
Internal Link Dist (ft)		420			2170			420			1060	
Turn Bay Length (ft)			110									
Base Capacity (vph)		369	581		649			1018			812	
Starvation Cap Reductn		0	0		0			0			0	
Spillback Cap Reductn		0	0		0			0			0	
Storage Cap Reductn		0	0		0			0			0	
Reduced v/c Ratio		0.82	0.06		0.57			0.50			0.90	

Intersection Summary

Area Type: Other
Cycle Length: 65
Actuated Cycle Length: 65
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow
Natural Cycle: 65
Control Type: Pretimed
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Ashbourne Rd & New Second St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	111	122	25	30	181	137	15	369	15	97	496	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	13	16	16	16	16	16	16	12	12	12
Grade (%)		-4%			2%			1%			-3%	
Total Lost time (s)		5.0	5.0		5.0			5.0			5.0	
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00	
Frt		1.00	0.85		0.95			0.99			0.98	
Flt Protected		0.98	1.00		1.00			1.00			0.99	
Satd. Flow (prot)		1838	1653		1896			2066			1813	
Flt Permitted		0.58	1.00		0.95			0.97			0.87	
Satd. Flow (perm)		1091	1653		1812			2001			1584	
Peak-hour factor, PHF	0.77	0.77	0.77	0.94	0.94	0.94	0.79	0.79	0.79	0.92	0.92	0.92
Adj. Flow (vph)	144	158	32	32	193	146	19	467	19	105	539	83
RTOR Reduction (vph)	0	0	21	0	36	0	0	2	0	0	7	0
Lane Group Flow (vph)	0	302	11	0	335	0	0	503	0	0	720	0
Heavy Vehicles (%)	3%	3%	3%	6%	6%	6%	3%	3%	3%	4%	4%	4%
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)		22.0	22.0		22.0			33.0			33.0	
Effective Green, g (s)		22.0	22.0		22.0			33.0			33.0	
Actuated g/C Ratio		0.34	0.34		0.34			0.51			0.51	
Clearance Time (s)		5.0	5.0		5.0			5.0			5.0	
Lane Grp Cap (vph)		369	559		613			1016			804	
v/s Ratio Prot												
v/s Ratio Perm		c0.28	0.01		0.19			0.25			c0.45	
v/c Ratio		0.82	0.02		0.55			0.50			0.90	
Uniform Delay, d1		19.7	14.3		17.5			10.5			14.4	
Progression Factor		1.00	1.00		1.00			1.00			1.00	
Incremental Delay, d2		18.0	0.1		3.5			1.7			14.6	
Delay (s)		37.7	14.4		20.9			12.2			29.1	
Level of Service		D	B		C			B			C	
Approach Delay (s)		35.5			20.9			12.2			29.1	
Approach LOS		D			C			B			C	

Intersection Summary			
HCM Average Control Delay	24.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	118.1%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

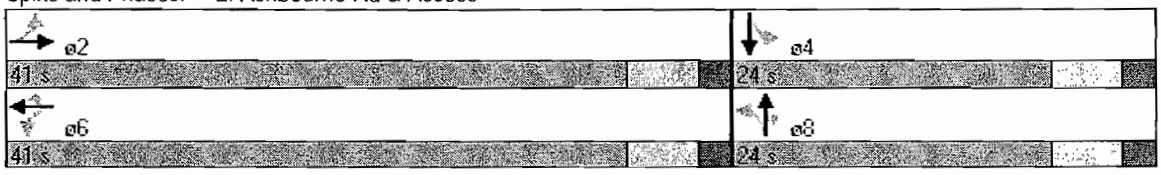
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	206	10	288	271	9	41	4	176	17	6	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	9	10	10	11	11	14	9	9	9
Grade (%)		1%			1%			-2%			1%	
Storage Length (ft)	140		0	150		75	0		45	0		0
Storage Lanes	1		0	1		1	0		1	0		0
Taper Length (ft)	25		25	25		25	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
Ped Bike Factor												
Frt		0.993				0.850			0.850		0.924	
Flt Protected	0.950			0.950				0.956			0.984	
Satd. Flow (prot)	1627	1701	0	1525	1665	1415	0	1627	1596	0	1547	0
Flt Permitted	0.585			0.597				0.695			0.877	
Satd. Flow (perm)	1002	1701	0	958	1665	1415	0	1183	1596	0	1379	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6				9			220		100	
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		2250			1365			500			300	
Travel Time (s)		38.4			23.3			9.7			5.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.82	0.82	0.82	0.95	0.95	0.95	0.80	0.80	0.80	0.25	0.25	0.25
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	3%	6%	6%	6%	9%	9%	9%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	20	251	12	303	285	9	51	5	220	68	24	120
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	263	0	303	285	9	0	56	220	0	212	0
Number of Detectors	1	1		1	1	1	1	1	1	1	1	
Detector Template												
Leading Detector (ft)	35	35		35	35	35	35	35	35	20	20	
Trailing Detector (ft)	-5	-5		-5	-5	-5	-5	-5	-5	-5	-5	
Turn Type	Perm			Perm		Perm	Perm		Perm	Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8		8	4		
Detector Phase						6	8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	33.0	33.0		33.0	33.0	33.0	20.0	20.0	20.0	20.0	20.0	
Minimum Split (s)	39.0	39.0		39.0	39.0	39.0	26.0	26.0	26.0	26.0	26.0	
Total Split (s)	41.0	41.0	0.0	41.0	41.0	41.0	24.0	24.0	24.0	24.0	24.0	0.0
Total Split (%)	63.1%	63.1%	0.0%	63.1%	63.1%	63.1%	36.9%	36.9%	36.9%	36.9%	36.9%	0.0%
Maximum Green (s)	35.0	35.0		35.0	35.0	35.0	18.0	18.0	18.0	18.0	18.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	4.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Recall Mode	Max	Max		Max	Max	Max	None	None	None	None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio	0.04	0.29		0.59	0.32	0.01		0.17	0.37		0.47	
Control Delay	7.4	9.0		16.0	9.6	4.3		19.6	5.1		14.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	
Total Delay	7.4	9.0		16.0	9.6	4.3		19.6	5.1		14.4	
Queue Length 50th (ft)	3	50		74	57	0		17	0		35	
Queue Length 95th (ft)	11	80		150	100	6		37	31		0	
Internal Link Dist (ft)		2170			1285			420			220	
Turn Bay Length (ft)	140			150		75			45			
Base Capacity (vph)	540	919		516	897	766		328	601		454	
Starvation Cap Reductn	0	0		0	0	0		0	0		0	
Spillback Cap Reductn	0	0		0	0	0		0	0		0	
Storage Cap Reductn	0	0		0	0	0		0	0		0	
Reduced v/c Ratio	0.04	0.29		0.59	0.32	0.01		0.17	0.37		0.47	

Intersection Summary

Area Type: Other
Cycle Length: 65
Actuated Cycle Length: 65
Natural Cycle: 65
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Ashbourne Rd & Access



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	206	10	288	271	9	41	4	176	17	6	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	9	10	10	11	11	14	9	9	9
Grade (%)		1%			1%			-2%			1%	
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0		6.0	6.0		6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	0.99		1.00	1.00	0.85		1.00	0.85		0.92	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.96	1.00		0.98	
Satd. Flow (prot)	1627	1701		1525	1665	1415		1628	1596		1547	
Flt Permitted	0.59	1.00		0.60	1.00	1.00		0.70	1.00		0.88	
Satd. Flow (perm)	1002	1701		958	1665	1415		1183	1596		1378	
Peak-hour factor, PHF	0.82	0.82	0.82	0.95	0.95	0.95	0.80	0.80	0.80	0.25	0.25	0.25
Adj. Flow (vph)	20	251	12	303	285	9	51	5	220	68	24	120
RTOR Reduction (vph)	0	3	0	0	0	4	0	0	159	0	72	0
Lane Group Flow (vph)	20	260	0	303	285	5	0	56	61	0	140	0
Heavy Vehicles (%)	3%	3%	3%	6%	6%	6%	9%	9%	9%	0%	0%	0%
Turn Type	Perm			Perm		Perm	Perm		Perm	Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8		8	4		
Actuated Green, G (s)	35.0	35.0		35.0	35.0	35.0		18.0	18.0		18.0	
Effective Green, g (s)	35.0	35.0		35.0	35.0	35.0		18.0	18.0		18.0	
Actuated g/C Ratio	0.54	0.54		0.54	0.54	0.54		0.28	0.28		0.28	
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0		6.0	6.0		6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	540	916		516	897	762		328	442		382	
v/s Ratio Prot		0.15			0.17							
v/s Ratio Perm	0.02			c0.32		0.00		0.05	0.04		c0.10	
v/c Ratio	0.04	0.28		0.59	0.32	0.01		0.17	0.14		0.37	
Uniform Delay, d1	7.1	8.2		10.1	8.4	6.9		17.8	17.7		18.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	0.1	0.8		4.8	0.9	0.0		0.2	0.1		0.6	
Delay (s)	7.2	9.0		15.0	9.3	7.0		18.1	17.8		19.5	
Level of Service	A	A		B	A	A		B	B		B	
Approach Delay (s)		8.8			12.1			17.9			19.5	
Approach LOS		A			B			B			B	

Intersection Summary			
HCM Average Control Delay	13.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	EBR2	WBL	WBT	WBR	NBL	NBT	NBR2	SBL2	SBL
Lane Configurations												
Volume (vph)	178	3	186	11	6	11	2	6	71	2	1	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	11	15	15	12	12	12	16	16	16	15	15
Grade (%)		0%				1%			1%			
Storage Length (ft)	0		0		0		0	0				0
Storage Lanes	0		0		0		0	0				0
Taper Length (ft)	25		25		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
Ped Bike Factor												
Frt		0.930				0.984			0.997			
Flt Protected		0.977				0.984			0.996			
Satd. Flow (prot)	0	1574	0	0	0	1743	0	0	2107	0	0	0
Flt Permitted		0.977				0.984			0.956			
Satd. Flow (perm)	0	1574	0	0	0	1743	0	0	2022	0	0	0
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)		2				3			1			
Link Speed (mph)		40				25			15			
Link Distance (ft)		1365				527			500			
Travel Time (s)		23.3				14.4			22.7			
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.77	0.77	0.77	0.77	0.79	0.79	0.79	0.80	0.80	0.80	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	6%	6%	6%	6%	5%	5%	5%	1%	1%	1%	7%	7%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%				0%			0%			
Adj. Flow (vph)	231	4	242	14	8	14	3	8	89	2	1	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	491	0	0	0	25	0	0	99	0	0	0
Number of Detectors	1	1			1	1		1	1		2	2
Detector Template												
Leading Detector (ft)	35	35			35	35		35	35		70	70
Trailing Detector (ft)	-5	-5			-5	-5		-5	-5		-5	-5
Turn Type	Split				Split			Perm			Perm	Perm
Protected Phases	2	2			6	6			8			
Permitted Phases		2						8			4	4
Detector Phase	2	2			6	6		8	8		4	4
Switch Phase												
Minimum Initial (s)	8.0	8.0			7.0	7.0		8.0	8.0		8.0	8.0
Minimum Split (s)	14.0	14.0			13.0	13.0		14.0	14.0		14.0	14.0
Total Split (s)	29.0	29.0	0.0	0.0	13.0	13.0	0.0	14.0	14.0	0.0	14.0	14.0
Total Split (%)	38.7%	38.7%	0.0%	0.0%	17.3%	17.3%	0.0%	18.7%	18.7%	0.0%	18.7%	18.7%
Maximum Green (s)	23.0	23.0			7.0	7.0		8.0	8.0		8.0	8.0
Yellow Time (s)	4.0	4.0			4.0	4.0		4.0	4.0		4.0	4.0
All-Red Time (s)	2.0	2.0			2.0	2.0		2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-2.0	0.0	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	0.0	-2.0	-2.0
Total Lost Time (s)	4.0	6.0	4.0	4.0	4.0	6.0	4.0	4.0	6.0	4.0	4.0	4.0

Lane Group	SBT	SBR	NWL2	NWL	NWR
Lane Configurations					
Volume (vph)	100	291	16	269	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	16	16	16
Grade (%)	0%			2%	
Storage Length (ft)		150		0	0
Storage Lanes		1		1	0
Taper Length (ft)		25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					
Frt		0.850		0.993	
Flt Protected	0.989			0.955	
Satd. Flow (prot)	1932	1660	0	1982	0
Flt Permitted	0.927			0.955	
Satd. Flow (perm)	1811	1660	0	1982	0
Right Turn on Red		Yes			
Satd. Flow (RTOR)		297			
Link Speed (mph)	35			25	
Link Distance (ft)	773			573	
Travel Time (s)	15.1			15.6	
Confl. Peds. (#/hr)					
Confl. Bikes (#/hr)					
Peak Hour Factor	0.98	0.98	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	7%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0
Parking (#/hr)					
Mid-Block Traffic (%)	0%			0%	
Adj. Flow (vph)	102	297	17	283	17
Shared Lane Traffic (%)					
Lane Group Flow (vph)	130	297	0	317	0
Number of Detectors	2	1	1	1	
Detector Template					
Leading Detector (ft)	70	35	35	35	
Trailing Detector (ft)	-5	-5	-5	-5	
Turn Type		pm+ov	Split		
Protected Phases	4	2	9	9	
Permitted Phases		4			
Detector Phase	4	2	9	9	
Switch Phase					
Minimum Initial (s)	8.0	8.0	8.0	8.0	
Minimum Split (s)	14.0	14.0	14.0	14.0	
Total Split (s)	14.0	29.0	19.0	19.0	0.0
Total Split (%)	18.7%	38.7%	25.3%	25.3%	0.0%
Maximum Green (s)	8.0	23.0	13.0	13.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	-2.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	4.0

Lane Group	EBL	EBT	EBR	EBR2	WBL	WBT	WBR	NBL	NBT	NBR2	SBL2	SBL
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0			5.0	5.0		5.0	5.0		5.0	5.0
Minimum Gap (s)	3.0	3.0			3.0	3.0		3.0	3.0		3.0	3.0
Time Before Reduce (s)	0.0	0.0			0.0	0.0		0.0	0.0		0.0	0.0
Time To Reduce (s)	0.0	0.0			0.0	0.0		0.0	0.0		0.0	0.0
Recall Mode	None	None			None	None		Max	Max		Max	Max
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.90				0.14			0.41			
Control Delay		46.1				29.4			34.5			
Queue Delay		0.0				0.0			0.0			
Total Delay		46.1				29.4			34.5			
Queue Length 50th (ft)		163				8			34			
Queue Length 95th (ft)		#328				28			78			
Internal Link Dist (ft)		1285				447			420			
Turn Bay Length (ft)												
Base Capacity (vph)		545				185			244			
Starvation Cap Reductn		0				0			0			
Spillback Cap Reductn		0				0			0			
Storage Cap Reductn		0				0			0			
Reduced v/c Ratio		0.90				0.14			0.41			

Intersection Summary

Area Type: Other

Cycle Length: 75

Actuated Cycle Length: 67.2

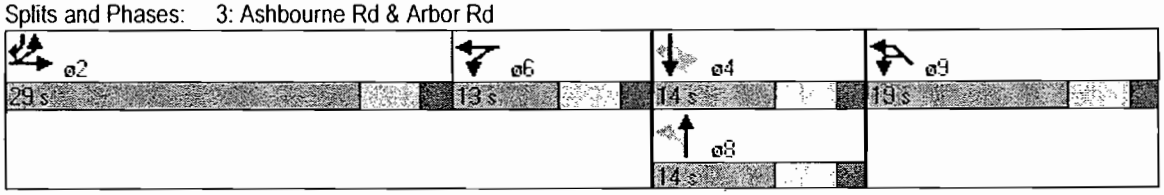
Natural Cycle: 80

Control Type: Semi Act-Uncoord

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Ashbourne Rd & Arbor Rd



Lane Group	SBT	SBR	NWL2	NWL	NWR
Lead/Lag					
Lead-Lag Optimize?					
Vehicle Extension (s)	5.0	5.0	5.0	5.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	
Recall Mode	Max	None	None	None	
Walk Time (s)					
Flash Dont Walk (s)					
Pedestrian Calls (#/hr)					
v/c Ratio	0.60	0.29		0.82	
Control Delay	43.3	1.8		47.5	
Queue Delay	0.0	0.0		0.0	
Total Delay	43.3	1.8		47.5	
Queue Length 50th (ft)	47	0		113	
Queue Length 95th (ft)	#136	21		#292	
Internal Link Dist (ft)	693			493	
Turn Bay Length (ft)		150			
Base Capacity (vph)	218	1010		387	
Starvation Cap Reductn	0	0		0	
Spillback Cap Reductn	0	0		0	
Storage Cap Reductn	0	0		0	
Reduced v/c Ratio	0.60	0.29		0.82	

Intersection Summary

Movement	EBL	EBT	EBR	EBR2	WBL	WBT	WBR	NBL	NBT	NBR2	SBL2	SBL
Lane Configurations												
Volume (vph)	178	3	186	11	6	11	2	6	71	2	1	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	15	11	15	15	12	12	12	16	16	16	15	15
Grade (%)		0%				1%			1%			
Total Lost time (s)		6.0				6.0			6.0			
Lane Util. Factor		1.00				1.00			1.00			
Frt		0.93				0.98			1.00			
Flt Protected		0.98				0.98			1.00			
Satd. Flow (prot)		1574				1743			2107			
Flt Permitted		0.98				0.98			0.96			
Satd. Flow (perm)		1574				1743			2023			
Peak-hour factor, PHF	0.77	0.77	0.77	0.77	0.79	0.79	0.79	0.80	0.80	0.80	0.98	0.98
Adj. Flow (vph)	231	4	242	14	8	14	3	8	89	2	1	27
RTOR Reduction (vph)	0	1	0	0	0	3	0	0	1	0	0	0
Lane Group Flow (vph)	0	490	0	0	0	22	0	0	98	0	0	0
Heavy Vehicles (%)	6%	6%	6%	6%	5%	5%	5%	1%	1%	1%	7%	7%
Turn Type	Split				Split			Perm			Perm	Perm
Protected Phases	2	2			6	6			8			
Permitted Phases		2						8			4	4
Actuated Green, G (s)		23.2				2.5			8.1			
Effective Green, g (s)		23.2				2.5			8.1			
Actuated g/C Ratio		0.33				0.04			0.11			
Clearance Time (s)		6.0				6.0			6.0			
Vehicle Extension (s)		5.0				5.0			5.0			
Lane Grp Cap (vph)		515				61			231			
v/s Ratio Prot		c0.31				c0.01						
v/s Ratio Perm									0.05			
v/c Ratio		0.95				0.36			0.42			
Uniform Delay, d1		23.3				33.4			29.2			
Progression Factor		1.00				1.00			1.00			
Incremental Delay, d2		28.2				7.5			5.6			
Delay (s)		51.5				40.9			34.9			
Level of Service		D				D			C			
Approach Delay (s)		51.5				40.9			34.9			
Approach LOS		D				D			C			

Intersection Summary			
HCM Average Control Delay	40.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	70.9	Sum of lost time (s)	24.0
Intersection Capacity Utilization	74.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR	NWL2	NWL	NWR
Lane Configurations					
Volume (vph)	100	291	16	269	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Lane Width	15	15	16	16	16
Grade (%)	0%			2%	
Total Lost time (s)	6.0	6.0		6.0	
Lane Util. Factor	1.00	1.00		1.00	
Frt	1.00	0.85		0.99	
Flt Protected	0.99	1.00		0.95	
Satd. Flow (prot)	1932	1660		1981	
Flt Permitted	0.93	1.00		0.95	
Satd. Flow (perm)	1810	1660		1981	
Peak-hour factor, PHF	0.98	0.98	0.95	0.95	0.95
Adj. Flow (vph)	102	297	17	283	17
RTOR Reduction (vph)	0	166	0	0	0
Lane Group Flow (vph)	130	131	0	317	0
Heavy Vehicles (%)	7%	7%	2%	2%	2%
Turn Type		pm+ov	Split		
Protected Phases	4	2	9	9	
Permitted Phases		4			
Actuated Green, G (s)	8.1	31.3		13.1	
Effective Green, g (s)	8.1	31.3		13.1	
Actuated g/C Ratio	0.11	0.44		0.18	
Clearance Time (s)	6.0	6.0		6.0	
Vehicle Extension (s)	5.0	5.0		5.0	
Lane Grp Cap (vph)	207	733		366	
v/s Ratio Prot		0.06		c0.16	
v/s Ratio Perm	c0.07	0.02			
v/c Ratio	0.63	0.18		0.87	
Uniform Delay, d1	30.0	12.0		28.0	
Progression Factor	1.00	1.00		1.00	
Incremental Delay, d2	13.6	0.2		20.3	
Delay (s)	43.5	12.3		48.3	
Level of Service	D	B		D	
Approach Delay (s)	21.8			48.3	
Approach LOS	C			D	

Intersection Summary

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	10	62	15	252	356	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			1%	0%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.884				0.999	
Flt Protected	0.993			0.997		
Satd. Flow (prot)	1635	0	0	1812	1774	0
Flt Permitted	0.993			0.997		
Satd. Flow (perm)	1635	0	0	1812	1774	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	394			773	367	
Travel Time (s)	7.7			15.1	7.1	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.79	0.79	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	4%	4%	7%	7%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	11	69	19	319	363	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	80	0	0	338	366	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	10	62	15	252	356	3
Sign Control	Stop			Free	Free	
Grade	0%			1%	0%	
Peak Hour Factor	0.90	0.90	0.79	0.79	0.98	0.98
Hourly flow rate (vph)	11	69	19	319	363	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				773		
pX, platoon unblocked						
vC, conflicting volume	722	365	366			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	722	365	366			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	90	98			
cM capacity (veh/h)	387	680	1181			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	80	338	366
Volume Left	11	19	0
Volume Right	69	0	3
cSH	616	1181	1700
Volume to Capacity	0.13	0.02	0.22
Queue Length 95th (ft)	11	1	0
Control Delay (s)	11.7	0.6	0.0
Lane LOS	B	A	
Approach Delay (s)	11.7	0.6	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	36.6%	ICU Level of Service	A
Analysis Period (min)	15		

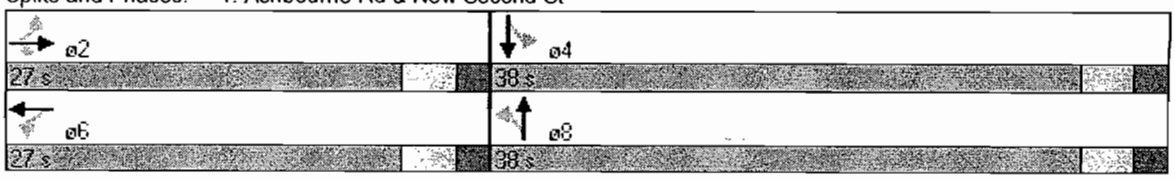
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	95	183	25	22	157	156	20	421	38	150	339	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	14	16	16	16	16	16	16	12	12	12
Grade (%)		-4%			2%			1%			-3%	
Storage Length (ft)	0		115	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25		25	25		25	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
Ped Bike Factor												
Frt			0.850		0.937			0.989			0.985	
Flt Protected		0.983			0.997			0.998			0.987	
Satd. Flow (prot)	0	1868	1723	0	1933	0	0	2094	0	0	1838	0
Flt Permitted		0.639			0.963			0.966			0.703	
Satd. Flow (perm)	0	1214	1723	0	1868	0	0	2027	0	0	1309	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			28		73			10			14	
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		500			2250			500			1140	
Travel Time (s)		8.5			38.4			9.7			22.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.89	0.89	0.89	0.79	0.79	0.79	0.90	0.90	0.90	0.86	0.86	0.86
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	1%	1%	1%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	107	206	28	28	199	197	22	468	42	174	394	72
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	313	28	0	424	0	0	532	0	0	640	0
Number of Detectors	1	0	0	1	0		1	0		1	0	
Detector Template												
Leading Detector (ft)	35	0	0	35	0		35	0		35	0	
Trailing Detector (ft)	-5	0	0	-5	0		-5	0		-5	0	
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase												
Switch Phase												
Minimum Initial (s)	22.0	22.0	22.0	22.0	22.0		33.0	33.0		33.0	33.0	
Minimum Split (s)	27.0	27.0	27.0	27.0	27.0		38.0	38.0		38.0	38.0	
Total Split (s)	27.0	27.0	27.0	27.0	27.0	0.0	38.0	38.0	0.0	38.0	38.0	0.0
Total Split (%)	41.5%	41.5%	41.5%	41.5%	41.5%	0.0%	58.5%	58.5%	0.0%	58.5%	58.5%	0.0%
Maximum Green (s)	22.0	22.0	22.0	22.0	22.0		33.0	33.0		33.0	33.0	
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)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	0.0	0.0	-1.0	0.0	0.0	-1.0	0.0	0.0	-1.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0	4.0	4.0	5.0	4.0	4.0	5.0	4.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Recall Mode	Max	Max	Max	Max	Max		Max	Max		Max	Max	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.76	0.05		0.62			0.51			0.95	
Control Delay		34.0	6.5		19.5			12.7			43.4	
Queue Delay		0.0	0.0		0.0			0.0			0.0	
Total Delay		34.0	6.5		19.5			12.7			43.4	
Queue Length 50th (ft)		108	0		113			127			221	
Queue Length 95th (ft)		#226	15		162			204			#409	
Internal Link Dist (ft)		420			2170			420			1060	
Turn Bay Length (ft)			115									
Base Capacity (vph)		411	602		681			1034			671	
Starvation Cap Reductn		0	0		0			0			0	
Spillback Cap Reductn		0	0		0			0			0	
Storage Cap Reductn		0	0		0			0			0	
Reduced v/c Ratio		0.76	0.05		0.62			0.51			0.95	

Intersection Summary

Area Type: Other
Cycle Length: 65
Actuated Cycle Length: 65
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow
Natural Cycle: 70
Control Type: Pretimed
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Ashbourne Rd & New Second St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	95	183	25	22	157	156	20	421	38	150	339	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	14	16	16	16	16	16	16	12	12	12
Grade (%)		-4%			2%			1%			-3%	
Total Lost time (s)		5.0	5.0		5.0			5.0			5.0	
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00	
Frt		1.00	0.85		0.94			0.99			0.98	
Flt Protected		0.98	1.00		1.00			1.00			0.99	
Satd. Flow (prot)		1868	1723		1934			2094			1837	
Flt Permitted		0.64	1.00		0.96			0.97			0.70	
Satd. Flow (perm)		1214	1723		1868			2028			1310	
Peak-hour factor, PHF	0.89	0.89	0.89	0.79	0.79	0.79	0.90	0.90	0.90	0.86	0.86	0.86
Adj. Flow (vph)	107	206	28	28	199	197	22	468	42	174	394	72
RTOR Reduction (vph)	0	0	19	0	48	0	0	5	0	0	7	0
Lane Group Flow (vph)	0	313	9	0	376	0	0	527	0	0	633	0
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	1%	1%	1%	2%	2%	2%
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)		22.0	22.0		22.0			33.0			33.0	
Effective Green, g (s)		22.0	22.0		22.0			33.0			33.0	
Actuated g/C Ratio		0.34	0.34		0.34			0.51			0.51	
Clearance Time (s)		5.0	5.0		5.0			5.0			5.0	
Lane Grp Cap (vph)		411	583		632			1030			665	
v/s Ratio Prot												
v/s Ratio Perm		c0.26	0.01		0.20			0.26			c0.48	
v/c Ratio		0.76	0.02		0.59			0.51			0.95	
Uniform Delay, d1		19.2	14.3		17.8			10.6			15.2	
Progression Factor		1.00	1.00		1.00			1.00			1.00	
Incremental Delay, d2		12.5	0.1		4.1			1.8			24.9	
Delay (s)		31.7	14.4		21.9			12.5			40.2	
Level of Service		C	B		C			B			D	
Approach Delay (s)		30.3			21.9			12.5			40.2	
Approach LOS		C			C			B			D	

Intersection Summary			
HCM Average Control Delay	26.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	111.4%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

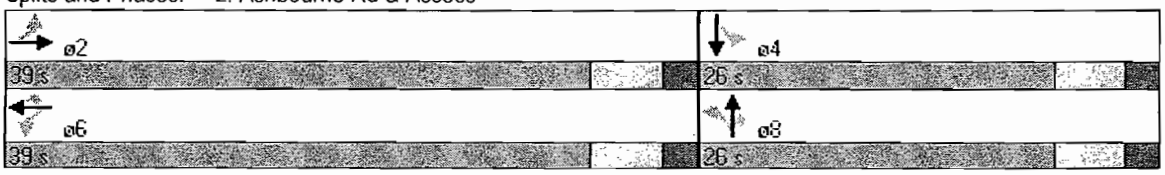
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	36	257	53	240	275	20	37	8	241	13	5	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	9	10	10	11	11	14	9	9	9
Grade (%)		1%			1%			-2%			1%	
Storage Length (ft)	140		0	150		75	0		45	0		0
Storage Lanes	1		0	1		1	0		1	0		0
Taper Length (ft)	25		25	25		25	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
Ped Bike Factor												
Frt		0.974				0.850			0.850		0.924	
Flt Protected	0.950			0.950				0.960			0.984	
Satd. Flow (prot)	1676	1719	0	1569	1713	1456	0	1712	1673	0	773	0
Flt Permitted	0.555			0.527				0.715			0.891	
Satd. Flow (perm)	979	1719	0	871	1713	1456	0	1275	1673	0	700	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23				23			284		92	
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		2250			1365			500			300	
Travel Time (s)		38.4			23.3			9.7			5.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.87	0.87	0.87	0.85	0.85	0.85	0.25	0.25	0.25
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	3%	3%	3%	4%	4%	4%	100%	100%	100%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	40	286	59	276	316	23	44	9	284	52	20	92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	40	345	0	276	316	23	0	53	284	0	164	0
Number of Detectors	1	1		1	1	1	1	1	1	1	1	
Detector Template												
Leading Detector (ft)	35	35		35	35	35	35	35	35	20	20	
Trailing Detector (ft)	-5	-5		-5	-5	-5	-5	-5	-5	-5	-5	
Turn Type	Perm			Perm		Perm	Perm		Perm	Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8		8	4		
Detector Phase						6	8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	33.0	33.0		33.0	33.0	33.0	20.0	20.0	20.0	20.0	20.0	
Minimum Split (s)	39.0	39.0		39.0	39.0	39.0	26.0	26.0	26.0	26.0	26.0	
Total Split (s)	39.0	39.0	0.0	39.0	39.0	39.0	26.0	26.0	26.0	26.0	26.0	0.0
Total Split (%)	60.0%	60.0%	0.0%	60.0%	60.0%	60.0%	40.0%	40.0%	40.0%	40.0%	40.0%	0.0%
Maximum Green (s)	33.0	33.0		33.0	33.0	33.0	20.0	20.0	20.0	20.0	20.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	4.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Recall Mode	Max	Max		Max	Max	Max	None	None	None	None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio	0.08	0.39		0.62	0.36	0.03		0.14	0.40		0.59	
Control Delay	8.8	10.7		19.3	11.2	3.9		17.4	4.4		19.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	
Total Delay	8.8	10.7		19.3	11.2	3.9		17.4	4.4		19.3	
Queue Length 50th (ft)	8	72		73	70	0		15	0		22	
Queue Length 95th (ft)	21	126		145	116	9		36	39		0	
Internal Link Dist (ft)		2170			1285			420			220	
Turn Bay Length (ft)	140			150		75			45			
Base Capacity (vph)	497	884		442	870	751		392	711		279	
Starvation Cap Reductn	0	0		0	0	0		0	0		0	
Spillback Cap Reductn	0	0		0	0	0		0	0		0	
Storage Cap Reductn	0	0		0	0	0		0	0		0	
Reduced v/c Ratio	0.08	0.39		0.62	0.36	0.03		0.14	0.40		0.59	

Intersection Summary

Area Type: Other
Cycle Length: 65
Actuated Cycle Length: 65
Natural Cycle: 65
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Ashbourne Rd & Access



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	36	257	53	240	275	20	37	8	241	13	5	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	9	10	10	11	11	14	9	9	9
Grade (%)		1%			1%			-2%			1%	
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0		6.0	6.0		6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	0.97		1.00	1.00	0.85		1.00	0.85		0.92	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.96	1.00		0.98	
Satd. Flow (prot)	1676	1719		1569	1713	1456		1713	1673		774	
Flt Permitted	0.55	1.00		0.53	1.00	1.00		0.71	1.00		0.89	
Satd. Flow (perm)	979	1719		871	1713	1456		1275	1673		701	
Peak-hour factor, PHF	0.90	0.90	0.90	0.87	0.87	0.87	0.85	0.85	0.85	0.25	0.25	0.25
Adj. Flow (vph)	40	286	59	276	316	23	44	9	284	52	20	92
RTOR Reduction (vph)	0	11	0	0	0	11	0	0	197	0	64	0
Lane Group Flow (vph)	40	334	0	276	316	12	0	53	87	0	100	0
Heavy Vehicles (%)	0%	0%	0%	3%	3%	3%	4%	4%	4%	100%	100%	100%
Turn Type	Perm			Perm		Perm	Perm		Perm	Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8		8	4		
Actuated Green, G (s)	33.0	33.0		33.0	33.0	33.0		20.0	20.0		20.0	
Effective Green, g (s)	33.0	33.0		33.0	33.0	33.0		20.0	20.0		20.0	
Actuated g/C Ratio	0.51	0.51		0.51	0.51	0.51		0.31	0.31		0.31	
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0		6.0	6.0		6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	497	873		442	870	739		392	515		216	
v/s Ratio Prot		0.19			0.18							
v/s Ratio Perm	0.04			c0.32		0.01		0.04	0.05		c0.14	
v/c Ratio	0.08	0.38		0.62	0.36	0.02		0.14	0.17		0.46	
Uniform Delay, d1	8.2	9.8		11.5	9.7	7.9		16.3	16.4		18.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	0.3	1.3		6.5	1.2	0.0		0.2	0.2		1.6	
Delay (s)	8.5	11.0		18.1	10.8	8.0		16.4	16.6		19.8	
Level of Service	A	B		B	B	A		B	B		B	
Approach Delay (s)		10.8			14.0			16.6			19.8	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	14.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	EBR2	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2	SBL
Lane Configurations												
Volume (vph)	290	11	209	24	0	4	13	102	4	16	3	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	11	15	15	12	12	16	16	16	16	15	15
Grade (%)		0%			1%			1%				
Storage Length (ft)	0		0			0	0		0			0
Storage Lanes	0		0			0	0		0			0
Taper Length (ft)	25		25			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
Ped Bike Factor												
Frt		0.941			0.865			0.980				
Flt Protected		0.974						0.995				
Satd. Flow (prot)	0	1650	0	0	1090	0	0	2048	0	0	0	0
Flt Permitted		0.974						0.949				
Satd. Flow (perm)	0	1650	0	0	1090	0	0	1954	0	0	0	0
Right Turn on Red				Yes		Yes				Yes		
Satd. Flow (RTOR)		3			479			6				
Link Speed (mph)		40			25			15				
Link Distance (ft)		1365			527			500				
Travel Time (s)		23.3			14.4			22.7				
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.88	0.88	0.88	0.88	0.33	0.33	0.73	0.73	0.73	0.73	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	50%	50%	2%	2%	2%	2%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%				
Adj. Flow (vph)	330	12	238	27	0	12	18	140	5	22	3	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	607	0	0	12	0	0	185	0	0	0	0
Number of Detectors	1	1			1		1	1			2	2
Detector Template												
Leading Detector (ft)	35	35			35		35	35			70	70
Trailing Detector (ft)	-5	-5			-5		-5	-5			-5	-5
Turn Type	Split						Perm				Perm	Perm
Protected Phases	2	2			6			8				
Permitted Phases		2					8				4	4
Detector Phase	2	2			6		8	8			4	4
Switch Phase												
Minimum Initial (s)	8.0	8.0			7.0		8.0	8.0			8.0	8.0
Minimum Split (s)	14.0	14.0			13.0		14.0	14.0			14.0	14.0
Total Split (s)	35.0	35.0	0.0	0.0	13.0	0.0	17.0	17.0	0.0	0.0	17.0	17.0
Total Split (%)	38.9%	38.9%	0.0%	0.0%	14.4%	0.0%	18.9%	18.9%	0.0%	0.0%	18.9%	18.9%
Maximum Green (s)	29.0	29.0			7.0		11.0	11.0			11.0	11.0
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0			4.0	4.0
All-Red Time (s)	2.0	2.0			2.0		2.0	2.0			2.0	2.0
Lost Time Adjust (s)	-2.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	0.0	0.0	-2.0	-2.0
Total Lost Time (s)	4.0	6.0	4.0	4.0	6.0	4.0	4.0	6.0	4.0	4.0	4.0	4.0

Lane Group	SBT	SBR	NWL2	NWL	NWR
Lane Configurations					
Volume (vph)	102	207	24	302	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	16	16	16
Grade (%)	0%			2%	
Storage Length (ft)		150		0	0
Storage Lanes		1		1	0
Taper Length (ft)		25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					
Frt		0.850		0.990	
Flt Protected	0.989			0.956	
Satd. Flow (prot)	1988	1708	0	1978	0
Flt Permitted	0.756			0.956	
Satd. Flow (perm)	1519	1708	0	1978	0
Right Turn on Red		Yes			
Satd. Flow (RTOR)		223			
Link Speed (mph)	35			25	
Link Distance (ft)	730			573	
Travel Time (s)	14.2			15.6	
Confl. Peds. (#/hr)					
Confl. Bikes (#/hr)					
Peak Hour Factor	0.93	0.93	0.86	0.86	0.86
Growth Factor	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0
Parking (#/hr)					
Mid-Block Traffic (%)	0%			0%	
Adj. Flow (vph)	110	223	28	351	31
Shared Lane Traffic (%)					
Lane Group Flow (vph)	140	223	0	410	0
Number of Detectors	2	1	1	1	
Detector Template					
Leading Detector (ft)	70	35	35	35	
Trailing Detector (ft)	-5	-5	-5	-5	
Turn Type		pm+ov	Split		
Protected Phases	4	2	9	9	
Permitted Phases		4			
Detector Phase	4	2	9	9	
Switch Phase					
Minimum Initial (s)	8.0	8.0	8.0	8.0	
Minimum Split (s)	14.0	14.0	14.0	14.0	
Total Split (s)	17.0	35.0	25.0	25.0	0.0
Total Split (%)	18.9%	38.9%	27.8%	27.8%	0.0%
Maximum Green (s)	11.0	29.0	19.0	19.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	-2.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	4.0

Lane Group	EBL	EBT	EBR	EBR2	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2	SBL
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0			5.0		5.0	5.0			5.0	5.0
Minimum Gap (s)	3.0	3.0			3.0		3.0	3.0			3.0	3.0
Time Before Reduce (s)	0.0	0.0			0.0		0.0	0.0			0.0	0.0
Time To Reduce (s)	0.0	0.0			0.0		0.0	0.0			0.0	0.0
Recall Mode	None	None			None		Max	Max			Max	Max
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		1.00			0.02			0.67				
Control Delay		65.3			0.0			46.1				
Queue Delay		0.0			0.0			0.0				
Total Delay		65.3			0.0			46.1				
Queue Length 50th (ft)		279			0			82				
Queue Length 95th (ft)		#593			0			134				
Internal Link Dist (ft)		1285			447			420				
Turn Bay Length (ft)												
Base Capacity (vph)		605			533			276				
Starvation Cap Reductn		0			0			0				
Spillback Cap Reductn		0			0			0				
Storage Cap Reductn		0			0			0				
Reduced v/c Ratio		1.00			0.02			0.67				

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 79.6

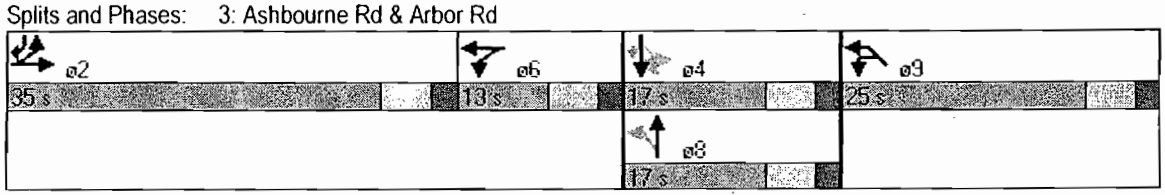
Natural Cycle: 90

Control Type: Semi Act-Uncoord

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Ashbourne Rd & Arbor Rd



Lane Group	SBT	SBR	NWL2	NWL	NWR
Lead/Lag					
Lead-Lag Optimize?					
Vehicle Extension (s)	5.0	5.0	5.0	5.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	
Recall Mode	Max	None	None	None	
Walk Time (s)					
Flash Dont Walk (s)					
Pedestrian Calls (#/hr)					
v/c Ratio	0.66	0.21		0.86	
Control Delay	50.8	1.6		50.1	
Queue Delay	0.0	0.0		0.0	
Total Delay	50.8	1.6		50.1	
Queue Length 50th (ft)	64	0		187	
Queue Length 95th (ft)	#172	22		#389	
Internal Link Dist (ft)	650			493	
Turn Bay Length (ft)		150			
Base Capacity (vph)	211	1065		474	
Starvation Cap Reductn	0	0		0	
Spillback Cap Reductn	0	0		0	
Storage Cap Reductn	0	0		0	
Reduced v/c Ratio	0.66	0.21		0.86	

Intersection Summary

Movement	EBL	EBT	EBR	EBR2	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2	SBL
Lane Configurations												
Volume (vph)	290	11	209	24	0	4	13	102	4	16	3	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	15	11	15	15	12	12	16	16	16	16	15	15
Grade (%)		0%			1%			1%				
Total Lost time (s)		6.0			6.0			6.0				
Lane Util. Factor		1.00			1.00			1.00				
Frt		0.94			0.86			0.98				
Flt Protected		0.97			1.00			1.00				
Satd. Flow (prot)		1650			1090			2049				
Flt Permitted		0.97			1.00			0.95				
Satd. Flow (perm)		1650			1090			1953				
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.33	0.33	0.73	0.73	0.73	0.73	0.93	0.93
Adj. Flow (vph)	330	12	238	27	0	12	18	140	5	22	3	27
RTOR Reduction (vph)	0	2	0	0	12	0	0	5	0	0	0	0
Lane Group Flow (vph)	0	605	0	0	0	0	0	180	0	0	0	0
Heavy Vehicles (%)	2%	2%	2%	2%	50%	50%	2%	2%	2%	2%	4%	4%
Turn Type	Split						Perm				Perm	Perm
Protected Phases	2	2			6			8				
Permitted Phases		2					8				4	4
Actuated Green, G (s)		29.1			1.2			11.0				
Effective Green, g (s)		29.1			1.2			11.0				
Actuated g/C Ratio		0.34			0.01			0.13				
Clearance Time (s)		6.0			6.0			6.0				
Vehicle Extension (s)		5.0			5.0			5.0				
Lane Grp Cap (vph)		569			15			255				
v/s Ratio Prot		c0.37			c0.00							
v/s Ratio Perm								0.09				
v/c Ratio		1.06			0.01			0.71				
Uniform Delay, d1		27.6			41.0			35.1				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		55.7			0.6			15.1				
Delay (s)		83.3			41.6			50.3				
Level of Service		F			D			D				
Approach Delay (s)		83.3			41.6			50.3				
Approach LOS		F			D			D				

Intersection Summary			
HCM Average Control Delay	59.5	HCM Level of Service	E
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	84.4	Sum of lost time (s)	24.0
Intersection Capacity Utilization	86.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR	NWL2	NWL	NWR
Lane Configurations					
Volume (vph)	102	207	24	302	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Lane Width	15	15	16	16	16
Grade (%)	0%			2%	
Total Lost time (s)	6.0	6.0		6.0	
Lane Util. Factor	1.00	1.00		1.00	
Frt	1.00	0.85		0.99	
Flt Protected	0.99	1.00		0.96	
Satd. Flow (prot)	1988	1708		1977	
Flt Permitted	0.76	1.00		0.96	
Satd. Flow (perm)	1518	1708		1977	
Peak-hour factor, PHF	0.93	0.93	0.86	0.86	0.86
Adj. Flow (vph)	110	223	28	351	31
RTOR Reduction (vph)	0	117	0	0	0
Lane Group Flow (vph)	140	106	0	410	0
Heavy Vehicles (%)	4%	4%	2%	2%	2%
Turn Type		pm+ov	Split		
Protected Phases	4	2	9	9	
Permitted Phases		4			
Actuated Green, G (s)	11.0	40.1		19.1	
Effective Green, g (s)	11.0	40.1		19.1	
Actuated g/C Ratio	0.13	0.48		0.23	
Clearance Time (s)	6.0	6.0		6.0	
Vehicle Extension (s)	5.0	5.0		5.0	
Lane Grp Cap (vph)	198	812		447	
v/s Ratio Prot		0.05		c0.21	
v/s Ratio Perm	c0.09	0.02			
v/c Ratio	0.71	0.13		0.92	
Uniform Delay, d1	35.2	12.4		31.9	
Progression Factor	1.00	1.00		1.00	
Incremental Delay, d2	19.2	0.2		24.5	
Delay (s)	54.3	12.5		56.4	
Level of Service	D	B		E	
Approach Delay (s)	28.7			56.4	
Approach LOS	C			E	

Intersection Summary

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	6	34	64	359	303	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			1%	0%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.886				0.996	
Flt Protected	0.992			0.993		
Satd. Flow (prot)	1637	0	0	1840	1820	0
Flt Permitted	0.992			0.993		
Satd. Flow (perm)	1637	0	0	1840	1820	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	419			730	410	
Travel Time (s)	8.2			14.2	8.0	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.84	0.84	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	7	38	76	427	326	11
Shared Lane Traffic (%)						
Lane Group Flow (vph)	45	0	0	503	337	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	6	34	64	359	303	10
Sign Control	Stop			Free	Free	
Grade	0%			1%	0%	
Peak Hour Factor	0.90	0.90	0.84	0.84	0.93	0.93
Hourly flow rate (vph)	7	38	76	427	326	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				730		
pX, platoon unblocked	0.98					
vC, conflicting volume	911	331	337			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	896	331	337			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	95	94			
cM capacity (veh/h)	284	710	1223			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	44	504	337
Volume Left	7	76	0
Volume Right	38	0	11
cSH	580	1223	1700
Volume to Capacity	0.08	0.06	0.20
Queue Length 95th (ft)	6	5	0
Control Delay (s)	11.7	1.8	0.0
Lane LOS	B	A	
Approach Delay (s)	11.7	1.8	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	52.3%	ICU Level of Service	A
Analysis Period (min)	15		

APPENDIX I

2016 Future with Development Capacity/Level-of-Service Analysis Worksheets

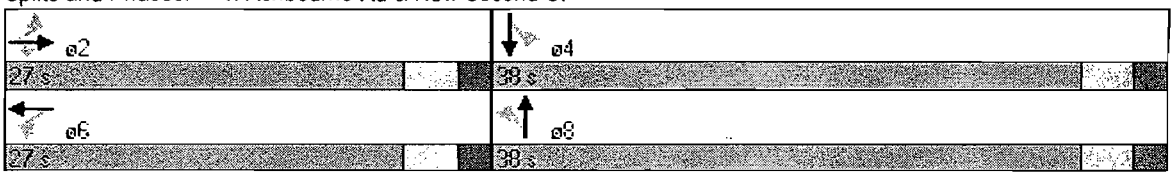
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	116	128	27	30	189	142	16	387	15	101	520	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	13	16	16	16	16	16	16	12	12	12
Grade (%)		-4%			2%			1%			-3%	
Storage Length (ft)	0		110	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25		25	25		25	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
Ped Bike Factor												
Frt			0.850		0.947			0.995			0.985	
Flt Protected		0.977			0.996			0.998			0.993	
Satd. Flow (prot)	0	1838	1653	0	1897	0	0	2066	0	0	1814	0
Flt Permitted		0.568			0.952			0.964			0.858	
Satd. Flow (perm)	0	1069	1653	0	1813	0	0	1995	0	0	1567	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			35		54			4			14	
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		500			2250			500			1140	
Travel Time (s)		8.5			38.4			9.7			22.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.77	0.77	0.77	0.94	0.94	0.94	0.79	0.79	0.79	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	3%	6%	6%	6%	3%	3%	3%	4%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	151	166	35	32	201	151	20	490	19	110	565	87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	317	35	0	384	0	0	529	0	0	762	0
Number of Detectors	1	0	0	1	0		1	0		1	0	
Detector Template												
Leading Detector (ft)	35	0	0	35	0		35	0		35	0	
Trailing Detector (ft)	-5	0	0	-5	0		-5	0		-5	0	
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase												
Switch Phase												
Minimum Initial (s)	22.0	22.0	22.0	22.0	22.0		33.0	33.0		33.0	33.0	
Minimum Split (s)	27.0	27.0	27.0	27.0	27.0		38.0	38.0		38.0	38.0	
Total Split (s)	27.0	27.0	27.0	27.0	27.0	0.0	38.0	38.0	0.0	38.0	38.0	0.0
Total Split (%)	41.5%	41.5%	41.5%	41.5%	41.5%	0.0%	58.5%	58.5%	0.0%	58.5%	58.5%	0.0%
Maximum Green (s)	22.0	22.0	22.0	22.0	22.0		33.0	33.0		33.0	33.0	
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)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	0.0	0.0	-1.0	0.0	0.0	-1.0	0.0	0.0	-1.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0	4.0	4.0	5.0	4.0	4.0	5.0	4.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Recall Mode	Max	Max	Max	Max	Max		Max	Max		Max	Max	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.88	0.06		0.59			0.52			0.95	
Control Delay		48.3	6.1		19.6			12.9			39.6	
Queue Delay		0.0	0.0		0.0			0.0			0.0	
Total Delay		48.3	6.1		19.6			12.9			39.6	
Queue Length 50th (ft)		116	0		105			129			262	
Queue Length 95th (ft)		#196	12		186			169			#501	
Internal Link Dist (ft)		420			2170			420			1060	
Turn Bay Length (ft)			110									
Base Capacity (vph)		362	583		649			1015			802	
Starvation Cap Reductn		0	0		0			0			0	
Spillback Cap Reductn		0	0		0			0			0	
Storage Cap Reductn		0	0		0			0			0	
Reduced v/c Ratio		0.88	0.06		0.59			0.52			0.95	

Intersection Summary

Area Type: Other
Cycle Length: 65
Actuated Cycle Length: 65
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow
Natural Cycle: 70
Control Type: Pretimed
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Ashbourne Rd & New Second St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	116	128	27	30	189	142	16	387	15	101	520	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	13	16	16	16	16	16	16	12	12	12
Grade (%)		-4%			2%			1%			-3%	
Total Lost time (s)		5.0	5.0		5.0			5.0			5.0	
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00	
Frt		1.00	0.85		0.95			1.00			0.98	
Flt Protected		0.98	1.00		1.00			1.00			0.99	
Satd. Flow (prot)		1838	1653		1896			2066			1813	
Flt Permitted		0.57	1.00		0.95			0.96			0.86	
Satd. Flow (perm)		1068	1653		1812			1996			1567	
Peak-hour factor, PHF	0.77	0.77	0.77	0.94	0.94	0.94	0.79	0.79	0.79	0.92	0.92	0.92
Adj. Flow (vph)	151	166	35	32	201	151	20	490	19	110	565	87
RTOR Reduction (vph)	0	0	23	0	36	0	0	2	0	0	7	0
Lane Group Flow (vph)	0	317	12	0	348	0	0	527	0	0	755	0
Heavy Vehicles (%)	3%	3%	3%	6%	6%	6%	3%	3%	3%	4%	4%	4%
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)		22.0	22.0		22.0			33.0			33.0	
Effective Green, g (s)		22.0	22.0		22.0			33.0			33.0	
Actuated g/C Ratio		0.34	0.34		0.34			0.51			0.51	
Clearance Time (s)		5.0	5.0		5.0			5.0			5.0	
Lane Grp Cap (vph)		361	559		613			1013			796	
v/s Ratio Prot												
v/s Ratio Perm		c0.30	0.01		0.19			0.26			c0.48	
v/c Ratio		0.88	0.02		0.57			0.52			0.95	
Uniform Delay, d1		20.2	14.3		17.6			10.7			15.2	
Progression Factor		1.00	1.00		1.00			1.00			1.00	
Incremental Delay, d2		24.8	0.1		3.8			1.9			21.6	
Delay (s)		45.0	14.4		21.4			12.6			36.8	
Level of Service		D	B		C			B			D	
Approach Delay (s)		41.9			21.4			12.6			36.8	
Approach LOS		D			C			B			D	

Intersection Summary			
HCM Average Control Delay	28.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	120.6%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	215	11	302	282	9	43	4	185	17	6	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	9	10	10	11	11	14	9	9	9
Grade (%)		1%			1%			-2%			1%	
Storage Length (ft)	140		0	150		75	0		45	0		0
Storage Lanes	1		0	1		1	0		1	0		0
Taper Length (ft)	25		25	25		25	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
Ped Bike Factor												
Frt		0.993				0.850			0.850		0.924	
Flt Protected	0.950			0.950				0.956			0.984	
Satd. Flow (prot)	1627	1701	0	1525	1665	1415	0	1627	1596	0	1547	0
Flt Permitted	0.579			0.590				0.644			0.870	
Satd. Flow (perm)	992	1701	0	947	1665	1415	0	1096	1596	0	1368	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6				9			231		96	
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		2250			1365			500			300	
Travel Time (s)		38.4			23.3			9.7			5.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.82	0.82	0.82	0.95	0.95	0.95	0.80	0.80	0.80	0.25	0.25	0.25
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	3%	6%	6%	6%	9%	9%	9%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	20	262	13	318	297	9	54	5	231	68	24	120
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	275	0	318	297	9	0	59	231	0	212	0
Number of Detectors	1	1		1	1	1	1	1	1	1	1	
Detector Template												
Leading Detector (ft)	35	35		35	35	35	35	35	35	20	20	
Trailing Detector (ft)	-5	-5		-5	-5	-5	-5	-5	-5	-5	-5	
Turn Type	Perm			Perm		Perm	Perm		Perm	Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8		8	4		
Detector Phase						6	8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	33.0	33.0		33.0	33.0	33.0	20.0	20.0	20.0	20.0	20.0	
Minimum Split (s)	39.0	39.0		39.0	39.0	39.0	26.0	26.0	26.0	26.0	26.0	
Total Split (s)	43.0	43.0	0.0	43.0	43.0	43.0	22.0	22.0	22.0	22.0	22.0	0.0
Total Split (%)	66.2%	66.2%	0.0%	66.2%	66.2%	66.2%	33.8%	33.8%	33.8%	33.8%	33.8%	0.0%
Maximum Green (s)	37.0	37.0		37.0	37.0	37.0	16.0	16.0	16.0	16.0	16.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	4.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Recall Mode	Max	Max		Max	Max	Max	None	None	None	None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio	0.04	0.28		0.59	0.31	0.01		0.22	0.41		0.52	
Control Delay	6.4	8.0		14.7	8.5	3.7		22.1	5.7		17.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	
Total Delay	6.4	8.0		14.7	8.5	3.7		22.1	5.7		17.0	
Queue Length 50th (ft)	3	49		73	55	0		19	0		38	
Queue Length 95th (ft)	10	76		150	96	5		41	33		1	
Internal Link Dist (ft)		2170			1285			420			220	
Turn Bay Length (ft)	140			150		75			45			
Base Capacity (vph)	565	971		539	948	809		270	567		409	
Starvation Cap Reductn	0	0		0	0	0		0	0		0	
Spillback Cap Reductn	0	0		0	0	0		0	0		0	
Storage Cap Reductn	0	0		0	0	0		0	0		0	
Reduced v/c Ratio	0.04	0.28		0.59	0.31	0.01		0.22	0.41		0.52	

Intersection Summary

Area Type: Other

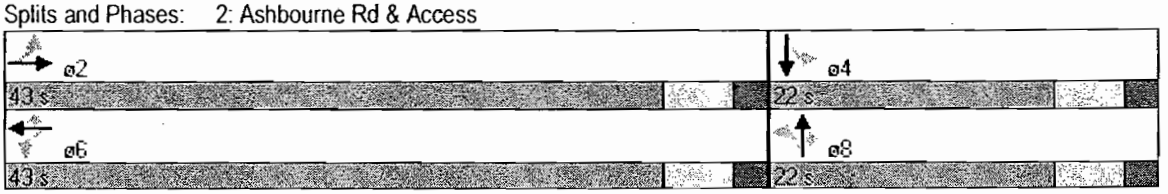
Cycle Length: 65

Actuated Cycle Length: 65

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Ashbourne Rd & Access



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	215	11	302	282	9	43	4	185	17	6	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	9	10	10	11	11	14	9	9	9
Grade (%)		1%			1%			-2%			1%	
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0		6.0	6.0		6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	0.99		1.00	1.00	0.85		1.00	0.85		0.92	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.96	1.00		0.98	
Satd. Flow (prot)	1627	1701		1525	1665	1415		1627	1596		1547	
Flt Permitted	0.58	1.00		0.59	1.00	1.00		0.64	1.00		0.87	
Satd. Flow (perm)	991	1701		948	1665	1415		1095	1596		1368	
Peak-hour factor, PHF	0.82	0.82	0.82	0.95	0.95	0.95	0.80	0.80	0.80	0.25	0.25	0.25
Adj. Flow (vph)	20	262	13	318	297	9	54	5	231	68	24	120
RTOR Reduction (vph)	0	3	0	0	0	4	0	0	174	0	72	0
Lane Group Flow (vph)	20	272	0	318	297	5	0	59	57	0	140	0
Heavy Vehicles (%)	3%	3%	3%	6%	6%	6%	9%	9%	9%	0%	0%	0%
Turn Type	Perm			Perm		Perm	Perm		Perm	Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8		8	4		
Actuated Green, G (s)	37.0	37.0		37.0	37.0	37.0		16.0	16.0		16.0	
Effective Green, g (s)	37.0	37.0		37.0	37.0	37.0		16.0	16.0		16.0	
Actuated g/C Ratio	0.57	0.57		0.57	0.57	0.57		0.25	0.25		0.25	
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0		6.0	6.0		6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	564	968		540	948	805		270	393		337	
v/s Ratio Prot		0.16			0.18							
v/s Ratio Perm	0.02			c0.34		0.00		0.05	0.04		c0.10	
v/c Ratio	0.04	0.28		0.59	0.31	0.01		0.22	0.14		0.41	
Uniform Delay, d1	6.2	7.2		9.1	7.3	6.1		19.5	19.2		20.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	0.1	0.7		4.7	0.9	0.0		0.4	0.2		0.8	
Delay (s)	6.3	7.9		13.7	8.2	6.1		19.9	19.3		21.4	
Level of Service	A	A		B	A	A		B	B		C	
Approach Delay (s)		7.8			11.0			19.4			21.4	
Approach LOS		A			B			B			C	

Intersection Summary			
HCM Average Control Delay	13.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	EBR2	WBL	WBT	WBR	NBL	NBT	NBR2	SBL2	SBL
Lane Configurations												
Volume (vph)	186	3	195	11	6	12	2	6	75	2	1	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	11	15	15	12	12	12	16	16	16	15	15
Grade (%)		0%				1%			1%			
Storage Length (ft)	0		0		0		0	0				0
Storage Lanes	0		0		0		0	0				0
Taper Length (ft)	25		25		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
Ped Bike Factor												
Frt		0.930				0.984			0.997			
Flt Protected		0.977				0.985			0.996			
Satd. Flow (prot)	0	1574	0	0	0	1745	0	0	2107	0	0	0
Flt Permitted		0.977				0.985			0.957			
Satd. Flow (perm)	0	1574	0	0	0	1745	0	0	2024	0	0	0
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)		2				3			1			
Link Speed (mph)		40				25			15			
Link Distance (ft)		1365				527			500			
Travel Time (s)		23.3				14.4			22.7			
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.77	0.77	0.77	0.77	0.79	0.79	0.79	0.80	0.80	0.80	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	6%	6%	6%	6%	5%	5%	5%	1%	1%	1%	7%	7%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%				0%			0%			
Adj. Flow (vph)	242	4	253	14	8	15	3	8	94	2	1	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	513	0	0	0	26	0	0	104	0	0	0
Number of Detectors	1	1			1	1		1	1		2	2
Detector Template												
Leading Detector (ft)	35	35			35	35		35	35		70	70
Trailing Detector (ft)	-5	-5			-5	-5		-5	-5		-5	-5
Turn Type	Split				Split			Perm			Perm	Perm
Protected Phases	2	2			6	6			8			
Permitted Phases		2						8			4	4
Detector Phase	2	2			6	6		8	8		4	4
Switch Phase												
Minimum Initial (s)	8.0	8.0			7.0	7.0		8.0	8.0		8.0	8.0
Minimum Split (s)	14.0	14.0			13.0	13.0		14.0	14.0		14.0	14.0
Total Split (s)	32.0	32.0	0.0	0.0	13.0	13.0	0.0	14.0	14.0	0.0	14.0	14.0
Total Split (%)	40.0%	40.0%	0.0%	0.0%	16.3%	16.3%	0.0%	17.5%	17.5%	0.0%	17.5%	17.5%
Maximum Green (s)	26.0	26.0			7.0	7.0		8.0	8.0		8.0	8.0
Yellow Time (s)	4.0	4.0			4.0	4.0		4.0	4.0		4.0	4.0
All-Red Time (s)	2.0	2.0			2.0	2.0		2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-2.0	0.0	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	0.0	-2.0	-2.0
Total Lost Time (s)	4.0	6.0	4.0	4.0	4.0	6.0	4.0	4.0	6.0	4.0	4.0	4.0

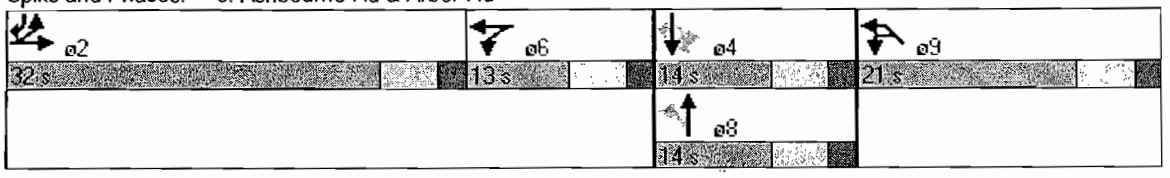
Lane Group	SBT	SBR	NWL2	NWL	NWR
Lane Configurations					
Volume (vph)	104	303	17	282	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	16	16	16
Grade (%)	0%			2%	
Storage Length (ft)		150		0	0
Storage Lanes		1		1	0
Taper Length (ft)		25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					
Frt		0.850		0.993	
Flt Protected	0.989			0.955	
Satd. Flow (prot)	1932	1660	0	1982	0
Flt Permitted	0.922			0.955	
Satd. Flow (perm)	1801	1660	0	1982	0
Right Turn on Red		Yes			
Satd. Flow (RTOR)		309			
Link Speed (mph)	35			25	
Link Distance (ft)	773			573	
Travel Time (s)	15.1			15.6	
Confl. Peds. (#/hr)					
Confl. Bikes (#/hr)					
Peak Hour Factor	0.98	0.98	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	7%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0
Parking (#/hr)					
Mid-Block Traffic (%)	0%			0%	
Adj. Flow (vph)	106	309	18	297	18
Shared Lane Traffic (%)					
Lane Group Flow (vph)	135	309	0	333	0
Number of Detectors	2	1	1	1	
Detector Template					
Leading Detector (ft)	70	35	35	35	
Trailing Detector (ft)	-5	-5	-5	-5	
Turn Type		pm+ov	Split		
Protected Phases	4	2	9	9	
Permitted Phases		4			
Detector Phase	4	2	9	9	
Switch Phase					
Minimum Initial (s)	8.0	8.0	8.0	8.0	
Minimum Split (s)	14.0	14.0	14.0	14.0	
Total Split (s)	14.0	32.0	21.0	21.0	0.0
Total Split (%)	17.5%	40.0%	26.3%	26.3%	0.0%
Maximum Green (s)	8.0	26.0	15.0	15.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	-2.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	4.0

Lane Group	EBL	EBT	EBR	EBR2	WBL	WBT	WBR	NBL	NBT	NBR2	SBL2	SBL
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0			5.0	5.0		5.0	5.0		5.0	5.0
Minimum Gap (s)	3.0	3.0			3.0	3.0		3.0	3.0		3.0	3.0
Time Before Reduce (s)	0.0	0.0			0.0	0.0		0.0	0.0		0.0	0.0
Time To Reduce (s)	0.0	0.0			0.0	0.0		0.0	0.0		0.0	0.0
Recall Mode	None	None			None	None		Max	Max		Max	Max
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.90				0.15			0.46			
Control Delay		45.0				32.1			38.7			
Queue Delay		0.0				0.0			0.0			
Total Delay		45.0				32.1			38.7			
Queue Length 50th (ft)		184				9			40			
Queue Length 95th (ft)		#352				30			87			
Internal Link Dist (ft)		1285				447			420			
Turn Bay Length (ft)												
Base Capacity (vph)		572				173			227			
Starvation Cap Reductn		0				0			0			
Spillback Cap Reductn		0				0			0			
Storage Cap Reductn		0				0			0			
Reduced v/c Ratio		0.90				0.15			0.46			

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 72.2
Natural Cycle: 90
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Ashbourne Rd & Arbor Rd



Lane Group	SBT	SBR	NWL2	NWL	NWR
Lead/Lag					
Lead-Lag Optimize?					
Vehicle Extension (s)	5.0	5.0	5.0	5.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	
Recall Mode	Max	None	None	None	
Walk Time (s)					
Flash Dont Walk (s)					
Pedestrian Calls (#/hr)					
v/c Ratio	0.67	0.30		0.80	
Control Delay	51.2	1.8		45.7	
Queue Delay	0.0	0.0		0.0	
Total Delay	51.2	1.8		45.7	
Queue Length 50th (ft)	54	0		128	
Queue Length 95th (ft)	#155	23		#312	
Internal Link Dist (ft)	693			493	
Turn Bay Length (ft)		150			
Base Capacity (vph)	201	1023		415	
Starvation Cap Reductn	0	0		0	
Spillback Cap Reductn	0	0		0	
Storage Cap Reductn	0	0		0	
Reduced v/c Ratio	0.67	0.30		0.80	

Intersection Summary

Movement	EBL	EBT	EBR	EBR2	WBL	WBT	WBR	NBL	NBT	NBR2	SBL2	SBL
Lane Configurations												
Volume (vph)	186	3	195	11	6	12	2	6	75	2	1	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	15	11	15	15	12	12	12	16	16	16	15	15
Grade (%)		0%				1%			1%			
Total Lost time (s)		6.0				6.0			6.0			
Lane Util. Factor		1.00				1.00			1.00			
Frt		0.93				0.98			1.00			
Flt Protected		0.98				0.98			1.00			
Satd. Flow (prot)		1574				1746			2108			
Flt Permitted		0.98				0.98			0.96			
Satd. Flow (perm)		1574				1746			2026			
Peak-hour factor, PHF	0.77	0.77	0.77	0.77	0.79	0.79	0.79	0.80	0.80	0.80	0.98	0.98
Adj. Flow (vph)	242	4	253	14	8	15	3	8	94	2	1	28
RTOR Reduction (vph)	0	1	0	0	0	3	0	0	1	0	0	0
Lane Group Flow (vph)	0	512	0	0	0	23	0	0	103	0	0	0
Heavy Vehicles (%)	6%	6%	6%	6%	5%	5%	5%	1%	1%	1%	7%	7%
Turn Type	Split				Split			Perm			Perm	Perm
Protected Phases	2	2			6	6			8			
Permitted Phases		2						8			4	4
Actuated Green, G (s)		26.2				2.5			8.1			
Effective Green, g (s)		26.2				2.5			8.1			
Actuated g/C Ratio		0.35				0.03			0.11			
Clearance Time (s)		6.0				6.0			6.0			
Vehicle Extension (s)		5.0				5.0			5.0			
Lane Grp Cap (vph)		543				58			216			
v/s Ratio Prot		c0.33				c0.01						
v/s Ratio Perm									0.05			
v/c Ratio		0.94				0.40			0.48			
Uniform Delay, d1		24.1				36.0			31.9			
Progression Factor		1.00				1.00			1.00			
Incremental Delay, d2		25.6				9.1			7.4			
Delay (s)		49.7				45.1			39.3			
Level of Service		D				D			D			
Approach Delay (s)		49.7				45.1			39.3			
Approach LOS		D				D			D			

Intersection Summary			
HCM Average Control Delay	40.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	75.9	Sum of lost time (s)	24.0
Intersection Capacity Utilization	76.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR	NWL2	NWL	NWR
Lane Configurations					
Volume (vph)	104	303	17	282	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Lane Width	15	15	16	16	16
Grade (%)	0%			2%	
Total Lost time (s)	6.0	6.0		6.0	
Lane Util. Factor	1.00	1.00		1.00	
Frt	1.00	0.85		0.99	
Flt Protected	0.99	1.00		0.95	
Satd. Flow (prot)	1933	1660		1981	
Flt Permitted	0.92	1.00		0.95	
Satd. Flow (perm)	1802	1660		1981	
Peak-hour factor, PHF	0.98	0.98	0.95	0.95	0.95
Adj. Flow (vph)	106	309	18	297	18
RTOR Reduction (vph)	0	169	0	0	0
Lane Group Flow (vph)	135	140	0	333	0
Heavy Vehicles (%)	7%	7%	2%	2%	2%
Turn Type		pm+ov	Split		
Protected Phases	4	2	9	9	
Permitted Phases		4			
Actuated Green, G (s)	8.1	34.3		15.1	
Effective Green, g (s)	8.1	34.3		15.1	
Actuated g/C Ratio	0.11	0.45		0.20	
Clearance Time (s)	6.0	6.0		6.0	
Vehicle Extension (s)	5.0	5.0		5.0	
Lane Grp Cap (vph)	192	750		394	
v/s Ratio Prot		0.06		c0.17	
v/s Ratio Perm	c0.07	0.02			
v/c Ratio	0.70	0.19		0.85	
Uniform Delay, d1	32.7	12.4		29.3	
Progression Factor	1.00	1.00		1.00	
Incremental Delay, d2	19.4	0.3		16.7	
Delay (s)	52.1	12.7		45.9	
Level of Service	D	B		D	
Approach Delay (s)	24.7			45.9	
Approach LOS	C			D	

Intersection Summary

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	10	62	15	265	373	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			1%	0%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.884				0.999	
Flt Protected	0.993			0.997		
Satd. Flow (prot)	1635	0	0	1812	1774	0
Flt Permitted	0.993			0.997		
Satd. Flow (perm)	1635	0	0	1812	1774	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	394			773	367	
Travel Time (s)	7.7			15.1	7.1	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.79	0.79	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	4%	4%	7%	7%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	11	69	19	335	381	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	80	0	0	354	384	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	10	62	15	265	373	3
Sign Control	Stop			Free	Free	
Grade	0%			1%	0%	
Peak Hour Factor	0.90	0.90	0.79	0.79	0.98	0.98
Hourly flow rate (vph)	11	69	19	335	381	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				773		
pX, platoon unblocked						
vC, conflicting volume	756	382	384			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	756	382	384			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	90	98			
cM capacity (veh/h)	370	665	1164			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	80	354	384
Volume Left	11	19	0
Volume Right	69	0	3
cSH	599	1164	1700
Volume to Capacity	0.13	0.02	0.23
Queue Length 95th (ft)	11	1	0
Control Delay (s)	11.9	0.6	0.0
Lane LOS	B	A	
Approach Delay (s)	11.9	0.6	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	37.3%	ICU Level of Service	A
Analysis Period (min)	15		

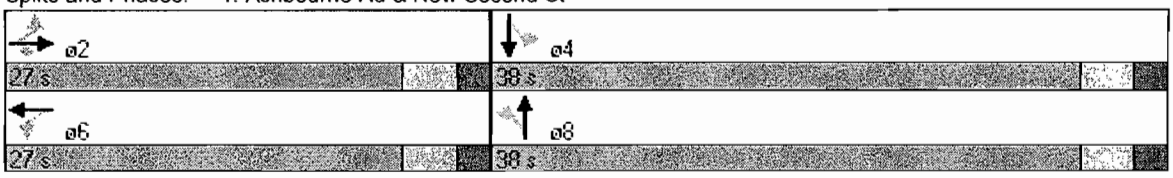
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	99	191	27	23	164	163	21	441	39	156	356	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	14	16	16	16	16	16	16	12	12	12
Grade (%)		-4%			2%			1%			-3%	
Storage Length (ft)	0		115	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25		25	25		25	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
Ped Bike Factor												
Frt			0.850		0.937			0.990			0.985	
Flt Protected		0.983			0.997			0.998			0.987	
Satd. Flow (prot)	0	1868	1723	0	1933	0	0	2096	0	0	1838	0
Flt Permitted		0.618			0.962			0.964			0.687	
Satd. Flow (perm)	0	1174	1723	0	1866	0	0	2025	0	0	1279	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			30		73			9			14	
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		500			2250			500			1140	
Travel Time (s)		8.5			38.4			9.7			22.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.89	0.89	0.89	0.79	0.79	0.79	0.90	0.90	0.90	0.86	0.86	0.86
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	1%	1%	1%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	111	215	30	29	208	206	23	490	43	181	414	76
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	326	30	0	443	0	0	556	0	0	671	0
Number of Detectors	1	0	0	1	0		1	0		1	0	
Detector Template												
Leading Detector (ft)	35	0	0	35	0		35	0		35	0	
Trailing Detector (ft)	-5	0	0	-5	0		-5	0		-5	0	
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase												
Switch Phase												
Minimum Initial (s)	22.0	22.0	22.0	22.0	22.0		33.0	33.0		33.0	33.0	
Minimum Split (s)	27.0	27.0	27.0	27.0	27.0		38.0	38.0		38.0	38.0	
Total Split (s)	27.0	27.0	27.0	27.0	27.0	0.0	38.0	38.0	0.0	38.0	38.0	0.0
Total Split (%)	41.5%	41.5%	41.5%	41.5%	41.5%	0.0%	58.5%	58.5%	0.0%	58.5%	58.5%	0.0%
Maximum Green (s)	22.0	22.0	22.0	22.0	22.0		33.0	33.0		33.0	33.0	
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)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	0.0	0.0	-1.0	0.0	0.0	-1.0	0.0	0.0	-1.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0	4.0	4.0	5.0	4.0	4.0	5.0	4.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Recall Mode	Max	Max	Max	Max	Max		Max	Max		Max	Max	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.82	0.05		0.65			0.54			1.02	
Control Delay		39.7	6.3		20.4			13.1			60.6	
Queue Delay		0.0	0.0		0.0			0.0			0.0	
Total Delay		39.7	6.3		20.4			13.1			60.6	
Queue Length 50th (ft)		116	0		121			136			~263	
Queue Length 95th (ft)		#245	15		172			217			#445	
Internal Link Dist (ft)		420			2170			420			1060	
Turn Bay Length (ft)			115									
Base Capacity (vph)		397	603		680			1033			656	
Starvation Cap Reductn		0	0		0			0			0	
Spillback Cap Reductn		0	0		0			0			0	
Storage Cap Reductn		0	0		0			0			0	
Reduced v/c Ratio		0.82	0.05		0.65			0.54			1.02	

Intersection Summary

Area Type: Other
Cycle Length: 65
Actuated Cycle Length: 65
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow
Natural Cycle: 70
Control Type: Pretimed
~ 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: Ashbourne Rd & New Second St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	99	191	27	23	164	163	21	441	39	156	356	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	14	16	16	16	16	16	16	12	12	12
Grade (%)		-4%			2%			1%			-3%	
Total Lost time (s)		5.0	5.0		5.0			5.0			5.0	
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00	
Frt		1.00	0.85		0.94			0.99			0.98	
Flt Protected		0.98	1.00		1.00			1.00			0.99	
Satd. Flow (prot)		1868	1723		1933			2095			1837	
Flt Permitted		0.62	1.00		0.96			0.96			0.69	
Satd. Flow (perm)		1173	1723		1866			2024			1280	
Peak-hour factor, PHF	0.89	0.89	0.89	0.79	0.79	0.79	0.90	0.90	0.90	0.86	0.86	0.86
Adj. Flow (vph)	111	215	30	29	208	206	23	490	43	181	414	76
RTOR Reduction (vph)	0	0	20	0	48	0	0	4	0	0	7	0
Lane Group Flow (vph)	0	326	10	0	395	0	0	552	0	0	664	0
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	1%	1%	1%	2%	2%	2%
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)		22.0	22.0		22.0			33.0			33.0	
Effective Green, g (s)		22.0	22.0		22.0			33.0			33.0	
Actuated g/C Ratio		0.34	0.34		0.34			0.51			0.51	
Clearance Time (s)		5.0	5.0		5.0			5.0			5.0	
Lane Grp Cap (vph)		397	583		632			1028			650	
v/s Ratio Prot												
v/s Ratio Perm		c0.28	0.01		0.21			0.27			c0.52	
v/c Ratio		0.82	0.02		0.62			0.54			1.02	
Uniform Delay, d1		19.7	14.3		18.0			10.8			16.0	
Progression Factor		1.00	1.00		1.00			1.00			1.00	
Incremental Delay, d2		17.2	0.1		4.6			2.0			40.9	
Delay (s)		36.9	14.4		22.6			12.8			56.9	
Level of Service		D	B		C			B			E	
Approach Delay (s)		35.0			22.6			12.8			56.9	
Approach LOS		C			C			B			E	

Intersection Summary			
HCM Average Control Delay	33.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	113.7%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

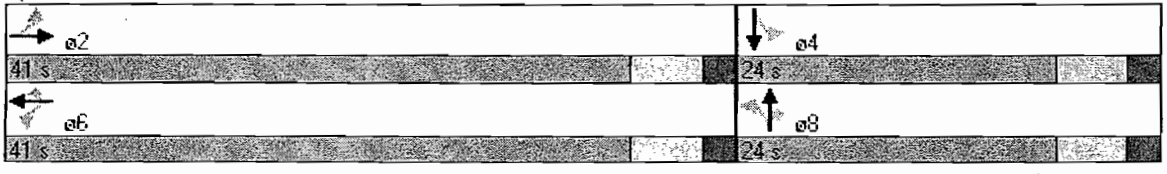
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	36	267	56	252	289	20	38	8	252	13	5	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	9	10	10	11	11	14	9	9	9
Grade (%)		1%			1%			-2%			1%	
Storage Length (ft)	140		0	150		75	0		45	0		0
Storage Lanes	1		0	1		1	0		1	0		0
Taper Length (ft)	25		25	25		25	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
Ped Bike Factor												
Frt		0.974				0.850			0.850		0.924	
Flt Protected	0.950			0.950				0.960			0.984	
Satd. Flow (prot)	1676	1719	0	1569	1713	1456	0	1712	1673	0	773	0
Flt Permitted	0.548			0.524				0.701			0.887	
Satd. Flow (perm)	967	1719	0	866	1713	1456	0	1250	1673	0	697	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		25				23			296		92	
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		2250			1365			500			300	
Travel Time (s)		38.4			23.3			9.7			5.8	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.87	0.87	0.87	0.85	0.85	0.85	0.25	0.25	0.25
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	3%	3%	3%	4%	4%	4%	100%	100%	100%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	40	297	62	290	332	23	45	9	296	52	20	92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	40	359	0	290	332	23	0	54	296	0	164	0
Number of Detectors	1	1		1	1	1	1	1	1	1	1	
Detector Template												
Leading Detector (ft)	35	35		35	35	35	35	35	35	20	20	
Trailing Detector (ft)	-5	-5		-5	-5	-5	-5	-5	-5	-5	-5	
Turn Type	Perm			Perm		Perm	Perm		Perm	Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8		8	4		
Detector Phase						6	8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	33.0	33.0		33.0	33.0	33.0	20.0	20.0	20.0	20.0	20.0	
Minimum Split (s)	39.0	39.0		39.0	39.0	39.0	26.0	26.0	26.0	26.0	26.0	
Total Split (s)	41.0	41.0	0.0	41.0	41.0	41.0	24.0	24.0	24.0	24.0	24.0	0.0
Total Split (%)	63.1%	63.1%	0.0%	63.1%	63.1%	63.1%	36.9%	36.9%	36.9%	36.9%	36.9%	0.0%
Maximum Green (s)	35.0	35.0		35.0	35.0	35.0	18.0	18.0	18.0	18.0	18.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	4.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Recall Mode	Max	Max		Max	Max	Max	None	None	None	None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio	0.08	0.38		0.62	0.36	0.03		0.16	0.44		0.63	
Control Delay	7.8	9.5		17.8	10.0	3.4		19.3	5.0		23.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	
Total Delay	7.8	9.5		17.8	10.0	3.4		19.3	5.0		23.1	
Queue Length 50th (ft)	7	69		73	69	0		16	0		23	
Queue Length 95th (ft)	20	121		145	112	8		39	42		0	
Internal Link Dist (ft)		2170			1285			420			220	
Turn Bay Length (ft)	140			150		75			45			
Base Capacity (vph)	521	937		466	922	795		346	677		260	
Starvation Cap Reductn	0	0		0	0	0		0	0		0	
Spillback Cap Reductn	0	0		0	0	0		0	0		0	
Storage Cap Reductn	0	0		0	0	0		0	0		0	
Reduced v/c Ratio	0.08	0.38		0.62	0.36	0.03		0.16	0.44		0.63	

Intersection Summary

Area Type: Other
Cycle Length: 65
Actuated Cycle Length: 65
Natural Cycle: 65
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Ashbourne Rd & Access



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	36	267	56	252	289	20	38	8	252	13	5	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	9	10	10	11	11	14	9	9	9
Grade (%)		1%			1%			-2%			1%	
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0		6.0	6.0		6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	0.97		1.00	1.00	0.85		1.00	0.85		0.92	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.96	1.00		0.98	
Satd. Flow (prot)	1676	1719		1569	1713	1456		1712	1673		774	
Flt Permitted	0.55	1.00		0.52	1.00	1.00		0.70	1.00		0.89	
Satd. Flow (perm)	967	1719		865	1713	1456		1250	1673		697	
Peak-hour factor, PHF	0.90	0.90	0.90	0.87	0.87	0.87	0.85	0.85	0.85	0.25	0.25	0.25
Adj. Flow (vph)	40	297	62	290	332	23	45	9	296	52	20	92
RTOR Reduction (vph)	0	12	0	0	0	11	0	0	214	0	67	0
Lane Group Flow (vph)	40	347	0	290	332	12	0	54	82	0	97	0
Heavy Vehicles (%)	0%	0%	0%	3%	3%	3%	4%	4%	4%	100%	100%	100%
Turn Type	Perm			Perm		Perm	Perm		Perm	Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8		8	4		
Actuated Green, G (s)	35.0	35.0		35.0	35.0	35.0		18.0	18.0		18.0	
Effective Green, g (s)	35.0	35.0		35.0	35.0	35.0		18.0	18.0		18.0	
Actuated g/C Ratio	0.54	0.54		0.54	0.54	0.54		0.28	0.28		0.28	
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0		6.0	6.0		6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	521	926		466	922	784		346	463		193	
v/s Ratio Prot		0.20			0.19							
v/s Ratio Perm	0.04			c0.34		0.01		0.04	0.05		c0.14	
v/c Ratio	0.08	0.38		0.62	0.36	0.02		0.16	0.18		0.51	
Uniform Delay, d1	7.2	8.7		10.4	8.6	7.0		17.8	17.9		19.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	0.3	1.2		6.1	1.1	0.0		0.2	0.2		2.1	
Delay (s)	7.5	9.8		16.6	9.7	7.0		18.0	18.1		21.8	
Level of Service	A	A		B	A	A		B	B		C	
Approach Delay (s)		9.6			12.7			18.0			21.8	
Approach LOS		A			B			B			C	

Intersection Summary			
HCM Average Control Delay	14.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	EBR2	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2	SBL
Lane Configurations												
Volume (vph)	302	12	218	25	0	4	14	108	4	17	3	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	11	15	15	12	12	16	16	16	16	15	15
Grade (%)		0%			1%			1%				
Storage Length (ft)	0		0			0	0		0			0
Storage Lanes	0		0			0	0		0			0
Taper Length (ft)	25		25			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
Ped Bike Factor												
Frt		0.941			0.865			0.981				
Flt Protected		0.974						0.995				
Satd. Flow (prot)	0	1650	0	0	1090	0	0	2050	0	0	0	0
Flt Permitted		0.974						0.950				
Satd. Flow (perm)	0	1650	0	0	1090	0	0	1958	0	0	0	0
Right Turn on Red				Yes		Yes				Yes		
Satd. Flow (RTOR)		3			464			6				
Link Speed (mph)		40			25			15				
Link Distance (ft)		1365			527			500				
Travel Time (s)		23.3			14.4			22.7				
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.88	0.88	0.88	0.88	0.33	0.33	0.73	0.73	0.73	0.73	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	50%	50%	2%	2%	2%	2%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%				
Adj. Flow (vph)	343	14	248	28	0	12	19	148	5	23	3	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	633	0	0	12	0	0	195	0	0	0	0
Number of Detectors	1	1			1		1	1			2	2
Detector Template												
Leading Detector (ft)	35	35			35		35	35			70	70
Trailing Detector (ft)	-5	-5			-5		-5	-5			-5	-5
Turn Type	Split						Perm				Perm	Perm
Protected Phases	2	2			6			8				
Permitted Phases		2					8				4	4
Detector Phase	2	2			6		8	8			4	4
Switch Phase												
Minimum Initial (s)	8.0	8.0			7.0		8.0	8.0			8.0	8.0
Minimum Split (s)	14.0	14.0			13.0		14.0	14.0			14.0	14.0
Total Split (s)	34.0	34.0	0.0	0.0	13.0	0.0	18.0	18.0	0.0	0.0	18.0	18.0
Total Split (%)	37.8%	37.8%	0.0%	0.0%	14.4%	0.0%	20.0%	20.0%	0.0%	0.0%	20.0%	20.0%
Maximum Green (s)	28.0	28.0			7.0		12.0	12.0			12.0	12.0
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0			4.0	4.0
All-Red Time (s)	2.0	2.0			2.0		2.0	2.0			2.0	2.0
Lost Time Adjust (s)	-2.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0	0.0	0.0	-2.0	-2.0
Total Lost Time (s)	4.0	6.0	4.0	4.0	6.0	4.0	4.0	6.0	4.0	4.0	4.0	4.0

Lane Group	SBT	SBR	NWL2	NWL	NWR
Lane Configurations					
Volume (vph)	107	215	26	317	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	16	16	16
Grade (%)	0%			2%	
Storage Length (ft)		150		0	0
Storage Lanes		1		1	0
Taper Length (ft)		25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					
Frt		0.850		0.990	
Flt Protected	0.989			0.956	
Satd. Flow (prot)	1988	1708	0	1978	0
Flt Permitted	0.753			0.956	
Satd. Flow (perm)	1513	1708	0	1978	0
Right Turn on Red		Yes			
Satd. Flow (RTOR)		231			
Link Speed (mph)	35			25	
Link Distance (ft)	730			573	
Travel Time (s)	14.2			15.6	
Confl. Peds. (#/hr)					
Confl. Bikes (#/hr)					
Peak Hour Factor	0.93	0.93	0.86	0.86	0.86
Growth Factor	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0
Parking (#/hr)					
Mid-Block Traffic (%)	0%			0%	
Adj. Flow (vph)	115	231	30	369	33
Shared Lane Traffic (%)					
Lane Group Flow (vph)	146	231	0	432	0
Number of Detectors	2	1	1	1	
Detector Template					
Leading Detector (ft)	70	35	35	35	
Trailing Detector (ft)	-5	-5	-5	-5	
Turn Type		pm+ov	Split		
Protected Phases	4	2	9	9	
Permitted Phases		4			
Detector Phase	4	2	9	9	
Switch Phase					
Minimum Initial (s)	8.0	8.0	8.0	8.0	
Minimum Split (s)	14.0	14.0	14.0	14.0	
Total Split (s)	18.0	34.0	25.0	25.0	0.0
Total Split (%)	20.0%	37.8%	27.8%	27.8%	0.0%
Maximum Green (s)	12.0	28.0	19.0	19.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	-2.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	4.0

Lane Group	EBL	EBT	EBR	EBR2	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2	SBL
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0			5.0		5.0	5.0			5.0	5.0
Minimum Gap (s)	3.0	3.0			3.0		3.0	3.0			3.0	3.0
Time Before Reduce (s)	0.0	0.0			0.0		0.0	0.0			0.0	0.0
Time To Reduce (s)	0.0	0.0			0.0		0.0	0.0			0.0	0.0
Recall Mode	None	None			None		Max	Max			Max	Max
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		1.08			0.02			0.65				
Control Delay		89.4			0.0			43.3				
Queue Delay		0.0			0.0			0.0				
Total Delay		89.4			0.0			43.3				
Queue Length 50th (ft)		~337			0			86				
Queue Length 95th (ft)		#640			0			138				
Internal Link Dist (ft)		1285			447			420				
Turn Bay Length (ft)												
Base Capacity (vph)		585			519			301				
Starvation Cap Reductn		0			0			0				
Spillback Cap Reductn		0			0			0				
Storage Cap Reductn		0			0			0				
Reduced v/c Ratio		1.08			0.02			0.65				

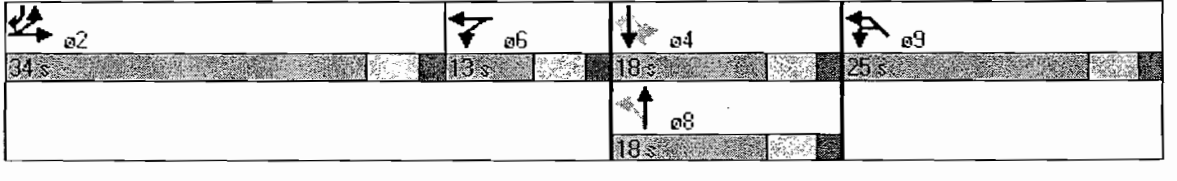
Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 79.6
Natural Cycle: 110
Control Type: Actuated-Uncoordinated

~ 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: 3: Ashbourne Rd & Arbor Rd



Lane Group	SBT	SBR	NWL2	NWL	NWR
Lead/Lag					
Lead-Lag Optimize?					
Vehicle Extension (s)	5.0	5.0	5.0	5.0	
Minimum Gap (s)	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	
Recall Mode	Max	None	None	None	
Walk Time (s)					
Flash Dont Walk (s)					
Pedestrian Calls (#/hr)					
v/c Ratio	0.64	0.22		0.91	
Control Delay	47.3	1.6		56.4	
Queue Delay	0.0	0.0		0.0	
Total Delay	47.3	1.6		56.4	
Queue Length 50th (ft)	66	0		200	
Queue Length 95th (ft)	#172	22		#416	
Internal Link Dist (ft)	650			493	
Turn Bay Length (ft)		150			
Base Capacity (vph)	229	1068		474	
Starvation Cap Reductn	0	0		0	
Spillback Cap Reductn	0	0		0	
Storage Cap Reductn	0	0		0	
Reduced v/c Ratio	0.64	0.22		0.91	

Intersection Summary

Movement	EBL	EBT	EBR	EBR2	WBT	WBR	NBL	NBT	NBR	NBR2	SBL2	SBL
Lane Configurations												
Volume (vph)	302	12	218	25	0	4	14	108	4	17	3	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	15	11	15	15	12	12	16	16	16	16	15	15
Grade (%)		0%			1%			1%				
Total Lost time (s)		6.0			6.0			6.0				
Lane Util. Factor		1.00			1.00			1.00				
Frt		0.94			0.86			0.98				
Flt Protected		0.97			1.00			1.00				
Satd. Flow (prot)		1650			1090			2050				
Flt Permitted		0.97			1.00			0.95				
Satd. Flow (perm)		1650			1090			1956				
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.33	0.33	0.73	0.73	0.73	0.73	0.93	0.93
Adj. Flow (vph)	343	14	248	28	0	12	19	148	5	23	3	28
RTOR Reduction (vph)	0	2	0	0	12	0	0	5	0	0	0	0
Lane Group Flow (vph)	0	631	0	0	0	0	0	190	0	0	0	0
Heavy Vehicles (%)	2%	2%	2%	2%	50%	50%	2%	2%	2%	2%	4%	4%
Turn Type	Split						Perm				Perm	Perm
Protected Phases	2	2			6			8				
Permitted Phases		2					8				4	4
Actuated Green, G (s)		28.1			1.2			12.0				
Effective Green, g (s)		28.1			1.2			12.0				
Actuated g/C Ratio		0.33			0.01			0.14				
Clearance Time (s)		6.0			6.0			6.0				
Vehicle Extension (s)		5.0			5.0			5.0				
Lane Grp Cap (vph)		549			15			278				
v/s Ratio Prot		c0.38			c0.00							
v/s Ratio Perm								c0.10				
v/c Ratio		1.15			0.01			0.68				
Uniform Delay, d1		28.2			41.0			34.4				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		86.8			0.6			12.8				
Delay (s)		114.9			41.6			47.2				
Level of Service		F			D			D				
Approach Delay (s)		114.9			41.6			47.2				
Approach LOS		F			D			D				

Intersection Summary			
HCM Average Control Delay	73.6	HCM Level of Service	E
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	84.4	Sum of lost time (s)	24.0
Intersection Capacity Utilization	89.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR	NWL2	NWL	NWR
Lane Configurations					
Volume (vph)	107	215	26	317	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Lane Width	15	15	16	16	16
Grade (%)	0%			2%	
Total Lost time (s)	6.0	6.0		6.0	
Lane Util. Factor	1.00	1.00		1.00	
Frt	1.00	0.85		0.99	
Flt Protected	0.99	1.00		0.96	
Satd. Flow (prot)	1989	1708		1977	
Flt Permitted	0.75	1.00		0.96	
Satd. Flow (perm)	1514	1708		1977	
Peak-hour factor, PHF	0.93	0.93	0.86	0.86	0.86
Adj. Flow (vph)	115	231	30	369	33
RTOR Reduction (vph)	0	121	0	0	0
Lane Group Flow (vph)	146	110	0	432	0
Heavy Vehicles (%)	4%	4%	2%	2%	2%
Turn Type		pm+ov	Split		
Protected Phases	4	2	9	9	
Permitted Phases		4			
Actuated Green, G (s)	12.0	40.1		19.1	
Effective Green, g (s)	12.0	40.1		19.1	
Actuated g/C Ratio	0.14	0.48		0.23	
Clearance Time (s)	6.0	6.0		6.0	
Vehicle Extension (s)	5.0	5.0		5.0	
Lane Grp Cap (vph)	215	812		447	
v/s Ratio Prot		0.05		c0.22	
v/s Ratio Perm	0.10	0.02			
v/c Ratio	0.68	0.14		0.97	
Uniform Delay, d1	34.4	12.4		32.3	
Progression Factor	1.00	1.00		1.00	
Incremental Delay, d2	16.0	0.2		34.1	
Delay (s)	50.3	12.6		66.5	
Level of Service	D	B		E	
Approach Delay (s)	27.2			66.5	
Approach LOS	C			E	

Intersection Summary

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	6	34	64	378	317	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%			1%	0%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.886				0.996	
Flt Protected	0.992			0.993		
Satd. Flow (prot)	1637	0	0	1840	1820	0
Flt Permitted	0.992			0.993		
Satd. Flow (perm)	1637	0	0	1840	1820	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	419			730	410	
Travel Time (s)	8.2			14.2	8.0	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.84	0.84	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	7	38	76	450	341	11
Shared Lane Traffic (%)						
Lane Group Flow (vph)	45	0	0	526	352	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	6	34	64	378	317	10
Sign Control	Stop			Free	Free	
Grade	0%			1%	0%	
Peak Hour Factor	0.90	0.90	0.84	0.84	0.93	0.93
Hourly flow rate (vph)	7	38	76	450	341	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				730		
pX, platoon unblocked	0.97					
vC, conflicting volume	949	346	352			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	931	346	352			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	95	94			
cM capacity (veh/h)	269	697	1207			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	44	526	352
Volume Left	7	76	0
Volume Right	38	0	11
cSH	563	1207	1700
Volume to Capacity	0.08	0.06	0.21
Queue Length 95th (ft)	6	5	0
Control Delay (s)	11.9	1.8	0.0
Lane LOS	B	A	
Approach Delay (s)	11.9	1.8	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	54.1%	ICU Level of Service	A
Analysis Period (min)	15		